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OFFICIAL GAZETTE UNITED STATES PATENT OFFICE

VOL. 60

JULY. - SEPT.

1892

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME LX.

JULY 5 TO SEPTEMBER 27, INCLUSIVE,

1892.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1893.

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ERRATA.

478,195, page 40, in heading, title, for "Trousers, &c., and Pattern Therefor," read *Trousers, &c., and Patterns Therefor.*

478,401, page 104, in heading, assignment, for "seven-ninths" read *five-sixths.*

478,424, page 110, in heading, name of assignee, for "Chartier Valley Gas Company" read *Chartiers Valley Gas Company.*

478,476, page 126, strike out all after number and insert WITHDRAWN.

478,484, page 128, in heading, assignment, for "five-sixths" read *one-half.*

478,663, page 196, sixth claim, line 5, after the word "bell-crank" strike out the comma, and after the word "frame," line 6, insert a comma; line 8, after the word "bell-crank" insert a comma; seventh claim, line 4, after the word "bell-crank" strike out comma; eighth claim, line 4, after "bell-crank" strike out comma, and tenth claim, line 11, for "connections" read *connection.*

478,967, page 287, in heading, name of assignee, for "Gender & Paeschke Manufacturing Company" read *Geuder & Paeschke Manufacturing Company.*

479,000, page 310, in heading, name of patentee, for "Oscar H. Hanenstein" read *Oscar H. Hanenstein.*

479,367, page 421, in claim 2, line 2, for "heating-reflecting" read *heat-reflecting.*

479,595, page 508, in drawing, for "d^{3}" read *d'*.

479,758, page 560, in heading, names of assignees, for "John A. Gunn, Abraham L. Maxim, Ivor L. Brind, and Daniel C. Dwinnell" read *John A. Gunn and Daniel C. Dwinnell.*

479,766, page 563, in claim, line 3, for "upon" read *up on;* line 6, strike out the dash after the word "part" and insert comma; line 7, strike out dash after word "frame," and same line insert comma after the word "thereon."

479,861, page 608, in heading, name of inventor, for "Casper M. Wagner" read *Caspar M. Wagner.*

479,865, page 609, strike out all after number and insert CANCELED.

479,866, page 609, strike out all after number and insert CANCELED.

480,114, page 689, in heading, foreign patent, for "No. 18,729" read *No.* 18,739.

480,326, page 772, in heading, title, for "Diazo Dye" read *Disazo Dye;* and in first claim, line 1, for "diazo" read *disazo.*

480,948, page 977, first claim, lines 3 and 4, strike out the words "and one end of each contact being in the form of a free spring" and insert same after the word "depressions," line 5; second claim, lines 4 and 5, strike out the words "and one end of each contact being in the form of a free spring" and insert same after the word "inclines," line 5, and same claim, line 5, for "inclines" read *incline.*

481,463, page 1155, in heading, name of inventor, for "Albert" read *Alfred.*

481,676, page 1235, in claim 1, line 4, for "non-conducting" read *non-contacting.*

481,788, page 1275, in claim, line 12, strike out the word "thing."

481,878, page 1302, seventh claim, line 3, for "current" after the word "said" read *circuit.*

481,902, page 1310, in heading, after residence insert *assignor to himself and Sheffield Smith, of same place.*

482,213, page 1429, in claim, line 3, for "temperature" read *temperatures.*

482,735, page 1623, in heading, strike out "assignor of part to Joseph L. Yost, same place, and Harry A. Lozier, Cleveland, Ohio.

482,863, page 1652, strike out all after the number and insert CANCELED.

482,886, page 1670, in heading, title, for "Combined Ruler-Gage and Circle-Scriber" read *Combined Ruler, Gage, and Circle-Scriber.*

483,066, page 1728, in heading, residence of inventor, for "St. Johns, Canada," read *St. Johns, Newfoundland.*

483,110, page 1741, in heading, name of inventor, for "Theodore Guilleaume" read *Theodor Guilleaume.*

483,114, page 1742, in heading, residence of assignee, for North Easton, Maine" read *North Easton, Massachusetts.*

21,675, Design, page 150, in heading, names of assignees, for "Isaac Schwarz" read *Isaac A. Schwarz.*

21,716, Trade-Mark, page 1475, in heading, name of registrant, for "Companhia Geral D'Agricultura Dos Vinhos Do Alto Douro" read *Companhia Geral D'Agricultura Das Vinhas Do Alto Douro.*

Commissioner's Decisions, page 160, first column, line 37, for "Richmore" read *Richmond;* second column, line 21, for "Richmore" read *Richmond.*

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JULY–SEPTEMBER, 1892.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 60—No. 1. TUESDAY, JULY 5, 1892. PRICE—$5 per year.

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Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

Powers of Attorney.

(ORDER No. 766.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 25, 1892.

The attention of Examiners and the Application Clerk is called to Rule 18. General powers of attorney cannot be considered. In each application the written authorization must be filed. A power of attorney purporting to have been given to a firm or co-partnership will not be recognized, either in favor of the firm or any of its members, unless all its members shall be named in such power of attorney.

The provisions of this rule must be strictly enforced as to all applications hereafter filed.

W. E. SIMONDS,
Commissioner.

File-Wrappers—Entries On.

(ORDER No. 767.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 25, 1892.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

W. E. SIMONDS,
Commissioner.

World's Columbian Exposition.

To the inventors and manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the developement of American invention.

W. E. SIMONDS,
Commissioner.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of July 5, 1892.

Patents	471—No. 478,075 to No. 478,545, inclusive.
Designs	24—No. 21,675 to No. 21,698, inclusive.
Trade-Marks	29—No. 21,399 to No. 21,427, inclusive.
Labels	None.
Reissues	None.
Total issue	524

TO CITIZENS OF THE UNITED STATES.

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Alabama	2		Nevada		
Arizona Territory			New Hampshire	4	
Arkansas	2		New Jersey	20	3
California	12	1	New Mexico Territ'y		
Colorado	2		New York	71	11
Connecticut	24	2	North Carolina	4	
Delaware			North Dakota	2	
District of Columbia	5		Ohio	40	2
Florida	2		Oregon	2	
Georgia	3		Pennsylvania	46	2
Idaho			Rhode Island	5	1
Illinois	38	1	South Carolina	2	
Indian Territory			South Dakota	1	
Indiana	15		Tennessee	3	
Iowa	7		Texas	6	
Kansas	5		Utah Territory	1	1
Kentucky			Vermont	1	
Louisiana		1	Virginia	4	
Maine	4		Washington	1	
Maryland	8		Wes. Virginia	4	
Massachusetts	36	1	Wisconsin	9	
Michigan	16		Wyoming		
Minnesota	7		U. S Army		
Mississippi			U. S. Navy		
Missouri	11	1			
Montana			Total to citizens of the United States	429	27
Nebraska	4				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic			Mexico		
Austria-Hungary	2		Netherlands		
Belgium	1		Newfoundland		
Bermuda			New South Wales	1	
Brazil			New Zealand	1	
Canada	9	1	Norway	3	
Cape Colony	1		Queensland		
Chile, Republic of			Russia	1	
Cuba			Scotland	2	1
Ecuador			South Australia		
England	19		Spain		
France	7		Sweden	1	
Germany	14		Switzerland	1	
Hawaii			Victoria	3	
Ireland					
Italy			Total to citizens of foreign countries	66	2
Japan					

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business June 28, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
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20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	May 2	June 4	218
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	Total number of applications awaiting action			9,387
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	Designs	June 20	June 22	48
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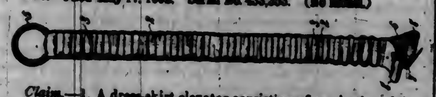
GRANTED JULY 5, 1892.

478,075. COFFEE-POT. JOHN W. ABBOTT, Rushville, N. Y. Filed May 27, 1891. Serial No. 394,282. (No model.)



Claim.—The combination of the reservoir or pan provided at its upper edge with a circumferential flange forming a seat, a lip arranged at one side of the reservoir or pan and enabling the same to be filled at the side, a coffee-pot arranged on the seat and having in its bottom a circular opening and a threaded flange around the opening, the removable tube having its lower end threaded and engaging the threaded flange, and its upper end closed and provided with perforations, and a cap for the spout of the pot, substantially as described.

478,076. SKIRT-ELEVATOR. JOSEPHUS ASTIN, Washington, D. C. Filed May 17, 1892. Serial No. 433,353. (No model.)



Claim.—1. A dress-skirt elevator consisting of an elastic web having at one end a finger-engaging ring and at the opposite end a skirt-engaging device and a tubular sheath formed with transverse ruffles or flutes and inclosing the elastic web continuously throughout its length between the finger-engaging ring and the skirt-engaging device, substantially as described.

2. A dress-skirt elevator consisting of an elastic web having at one end a finger-engaging ring and at the opposite end a skirt-engaging device and a fluted sheath inclosing the web and having at one end a pair of flaps arranged, respectively, at opposite sides of the skirt-engaging device, substantially as described.

478,077. PROSPECTING-DRILL. ALBERT BALL, Claremont, N. H., assignor, by mesne assignments, to the Sullivan Machinery Company, same place. Filed Dec. 21, 1891. Serial No. 415,822. (No model.)

Claim.—1. The combination of the base provided with stand B, having flanges o and with stand C, the stand extension B', connected to flange o of the stand B, the motor having a shaft F with one journal bearing in stand C and the other in stand extension B', pinion G, fast on said shaft and located between the stand and its extension, and the gear H, both gears being within the flanges o, shaft I, worm-wheel K, and shaft K, all substantially as set forth, whereby the shaft is suitably journaled in the stands and the gears are inclosed.

2. The combination of the driving-shaft F, the pinion G, the gear H on the worm-shaft I, the drum-shaft having the gear K, adapted to be driven by the gear H, through the medium of the worm-shaft, and the oil-chamber o, having cover x, said drum-shaft and worm-shaft being journaled in the walls of the oil-chamber and adapted, together with the worm and worm-wheel, to be lubricated by the contents of said chamber, and said cover being removable with the worm-shaft, substantially as set forth.

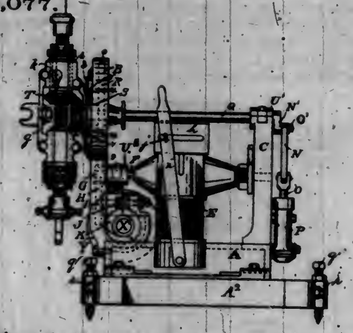
3. In a machine for drilling, the stand, the oil-receptacle having tubular extensions or boxes on opposite sides, adapted to receive tubular linings *f* and *f'*, said linings, shafts X and L fitting the same, the clutch W on shaft X fitting one of said bores, and the female clutch on shaft L, situated in the oil-chamber and having a diameter larger than the bore and fitting the oil-chamber in the direction of the length of the shafts, whereby the male clutch is made movable and the female clutch and worm-gear are held against lengthwise movement and all the parts are lubricated, substantially as set forth.

4. The drill-frame, the base, the stand B, supporting bevel-gear S, the bevel-wheel T, having a tubular shaft revolable in said drill-frame, the adjustable block m, embracing said tubular shaft, and a device for moving said block and shaft endwise to throw the bevel-wheels out of gear, substantially as set forth.

5. The drill-frame, the base, the stand B, supporting bevel-gear S, the bevel-wheel T, having a tubular shaft revolable in said drill-frame, the adjustable block m, embracing said tubular shaft, and a device for moving said block and shaft endwise to throw the bevel-wheels out of gear, consisting of the cranked shaft provided with the eccentric-pin adapted to agitably engage the block, substantially as set forth.

6. The drill-frame, the base, the stand B, supporting bevel-wheel S, the bevel-wheel T, having a tubular shaft revolable in said drill-frame, the adjustable block m, embracing said tubular shaft, and a device for moving said block and shaft endwise to throw the bevel-wheels out of gear, and the plate *l*, bearing laterally upon the said block and provided with fastening devices, substantially as set forth.

478,077.



478,078. HOISTING-PLATFORM. CHARLES F. BALL, Memphis, Tenn. Filed Feb. 11, 1892. Serial No. 421,167. (No model.)



Claim.—1. A hoisting apparatus comprising the supporting-frame provided with projecting ring-bolts in vertical alignment, a tripping-rod adapted to be inserted in two of said ring-bolts, a platform suspended in the frame, angle-bars on the platform, and a pivoted ledge adapted to be released by the tripping-rod, substantially as and for the purposes described.

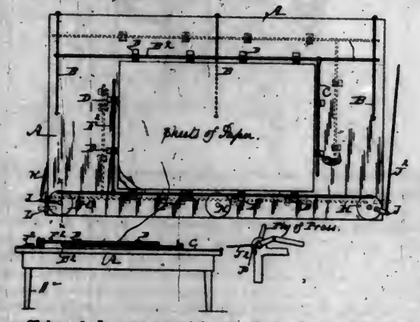
2. A hoisting apparatus comprising the frame provided with an adjustable tripping-rod, a roller-platform suspended therein, angle-bars projecting from said platform in the path of the tripping-rod, and a ledge adapted to swing over the angle-bars upon contact with the tripping-rod, substantially as and for the purposes described.

3. A hoisting apparatus comprising the supporting-frame provided with ring-bolts in vertical alignment, a tripping-rod in two of said ring-bolts, a roller-platform suspended in the supporting-frame, angle-bars on said platform, a ledge pivoted in said angle-bars, and tabs in the path of the tripping-rod adapted to be actuated and release the ledge, substantially as and for the purposes described.

4. A hoisting apparatus comprising the supporting-frame and its adjustable tripping-rod, a suspended platform in said frame, angle-bars extending from said platform, a ledge pivoted in said angle-bars, tabs provided with cam-faces mounted in the ends of the bars, and a cross-piece connecting said tabs and adapted to support the ledge in a vertical position, substantially as and for the purposes described.

478,079. PAPER-STRAIGHTENER FOR PRINTING-PRESSES.

ALFRED BERARD, Des Moines, Iowa. Filed Mar. 5, 1892. Serial No. 423,807. (No model.)



Claim.—1. In a paper-straightening device, the combination of a plurality of rods fixed to one side of the top surface of a table and extended inwardly in grooves formed in the top of the aforesaid table, a guide-bar adjustably connected with the said rods, an auxiliary guide-bar extended at right angles thereto and adjustably connected therewith, and a plurality of guides having smooth front surfaces adjustably fixed to the said guide-bars, and means for bringing sheets of paper in contact with said guides, substantially as and for the purposes stated.

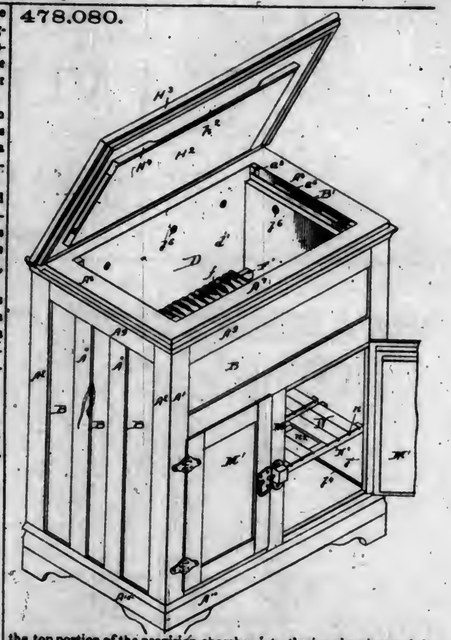
2. A paper-straightening device comprising a table arranged to receive the papers from the vibrating fly of a printing-press, a plurality of crank-wheels mounted in the top of the said table, a guide-bar pivoted to the front edges of the said crank-wheels, an auxiliary guide-bar adjustably attached to the said guide-bar, guides connected with the said guide-bars at suitable distances therefrom, means for engaging the opposite edges of the papers, and means for actuating the said crank-wheels, substantially as set forth.

3. A paper-straightening device comprising a table arranged to receive the papers from the vibrating fly of a printing-press, adjustable guides attached to one side and end of the table at right angles to each other, a plurality of crank-wheels mounted on the top of the said table, a guide-bar pivoted to the front edges of the said crank-wheels, an auxiliary guide-bar adjustably attached to the said guide-bar, guides connected with the said guide-bars at suitable distances thereupon, crank-arms secured to the outer crank-wheels and extended outwardly therefrom, means for connecting one of the said crank-arms with the shaft which actuates the vibrating fly of a printing-press, a spring attached to the outer end of the other crank-arm and fixed to the table to actuate the guide-bar on its return stroke, and means for limiting the forward movement of the said guide-bars, substantially as set forth.

478,080. REFRIGERATOR.

CHARLES A. REHN, Michigan City, Ind. Filed Mar. 21, 1892. Serial No. 426,053. (No model.)

Claim.—1. In a refrigerator, the combination, with a provision-chamber and an ice-chamber above said provision-chamber, of two independent systems of or passages for air-circulation, one leading from



the top portion of the provision-chamber into the ice-chamber and the other leading from the bottom portion of the provision-chamber into the ice-chamber, substantially as specified.

2. In a refrigerator, the combination, with a provision-chamber and an ice-chamber above said provision-chamber, of two independent systems of or passages for air-circulation, one leading from the top portion of the provision-chamber into the ice-chamber and the other leading from the bottom portion of the provision-chamber into the ice-chamber, said ice-chamber having a central air passage or opening through its bottom, substantially as specified.

3. In a refrigerator having first and second walls with a non-conducting filling or packing between and an inner third wall with an air space or passage between the same and said second wall, a provision-chamber, and an ice-chamber above said provision-chamber, having a fourth or additional wall at its ends with an air space or passage between the same and said third wall of the refrigerator, said first-mentioned air space or passage communicating with the provision-chamber at its bottom and leading into the ice-chamber and said second-mentioned air space or passage communicating with the provision-chamber at its top and leading into said ice-chamber, substantially as specified.

4. In a refrigerator having first and second walls with a non-conducting filling or packing between and an inner third wall with an air space or passage between the same and said second wall, a provision-chamber, and an ice-chamber above said provision-chamber and having a fourth or additional wall at its ends with an air space or passage between the same and said third wall of the refrigerator, said first-mentioned air space or passage communicating with the provision-chamber at its bottom and leading into the ice-chamber and said second-mentioned air space or passage communicating with the provision-chamber at its top and leading into said ice chamber, said third wall of the refrigerator having an opening or air passage b^4 at its lower edge between the same and the floor, substantially as specified.

5. In a refrigerator having first and second walls with a non-conducting filling or packing between and an inner third wall with an air space or passage between the same and said second wall, a provision-chamber, and an ice-chamber above said provision-chamber and having a fourth or additional wall at its ends with an air space or passage between the same and said third wall of the refrigerator, said first-mentioned air space or passage communicating with the provision-chamber at its bottom and leading into the ice-chamber and said second-mentioned air space or passage communicating with the provision-chamber at its top and leading into said ice-chamber, said third wall of the refrigerator having an opening or air-passage b^4 at its lower edge between the same and the floor and leading into the ice-chamber through openings b^5, extending through said third wall B^3, said fourth wall B^4, and an intermediate furring strip or block a^4, substantially as specified.

6. In a refrigerator having first and second walls with a non-conducting filling or packing between and an inner third wall with an air space or passage between the same and said second wall, a provision-chamber, and an ice-chamber above said provision-chamber and having a fourth or additional wall at its ends with an air space or passage between the same and said third wall of the refrigerator, said first-mentioned air space or passage communicating with the provision-chamber at its bottom and leading into the ice-chamber and said second-mentioned air space or passage communicating with the provision-chamber at its top and leading into said ice-chamber, said last-mentioned air-passage b^4 leading into the ice-chamber through an air space or passage b^7 in the cover, substantially as specified.

7. In a refrigerator having first and second walls with a non-conducting filling or packing between and an inner third wall with an air space or passage between the same and said second wall, a provision-chamber, and an ice-chamber above said provision-chamber and having a fourth or additional wall at its ends with an air space or passage between the same and said third wall of the refrigerator, said first-mentioned air space or passage communicating with the provision-chamber at its bottom and leading into the ice-chamber and said second-mentioned air space or passage communicating with the provision-chamber at its top and leading into said ice-chamber, said first-mentioned air space or passage b^3 leading into the ice-chamber at the ends and back side thereof through openings b^6 in the vertical walls of the ice-chamber, and said last-mentioned air space or passage b^4 leading into the ice-chamber at the top and front side thereof through an air space or passage in the cover, substantially as specified.

8. In a refrigerator, the combination, with a provision-chamber and an ice-chamber above said provision-chamber, of two independent systems of or passages for air-circulation, one leading from the top portion of the provision-chamber into the ice-chamber and the other leading from the bottom portion of the provision-chamber into the ice-chamber, said last-mentioned air-passage leading into the ice-chamber through openings in the vertical walls thereof at the ends and back side, substantially as specified.

9. In a refrigerator, the combination, with a provision-chamber and an ice-chamber above said provision-chamber, of two independent systems of or passages for air-circulation, one leading from the top portion of the provision-chamber into the ice-chamber and the other leading from the bottom portion of the provision-chamber into the ice-chamber, said first-mentioned air-passage leading into the ice-chamber at the front side thereof through an air space or passage in the cover of the refrigerator, substantially as specified.

10. In a refrigerator having an ice-chamber and an ice-rack in said chamber and a drip-pipe extending from said chamber, a water seal consisting of a depression, recess, or cup d^5 in the bottom of the ice-chamber, and an inverted cup d^6, attached to the ice-rack, substantially as specified.

11. In a refrigerator, the combination, with the provision-chamber, of an ice-chamber D above the same, having bottom D^2, furnished with sheet-metal lining d', and an air-passage opening d^3 through said bottom D^2, said lining d' having an upturned flange or rim d^8, surrounding said opening, and an ice tank or pan F, having corrugations f, extending parallel to said air-passage opening d^3, substantially as specified.

12. In a refrigerator, the combination, with the provision-chamber, of an ice-chamber D above the same, having bottom D^2, furnished with sheet-metal lining d', and an air-passage opening d^3 through said bottom D^2, said lining d' having an upturned flange or rim d^8, surrounding said opening, and an ice tank or pan F, having corrugations f, extending parallel to said air-passage opening d^3, and a drip-ridge f', extending underneath said ice-pan and over said air-passage opening d^3, substantially as specified.

13. In a refrigerator, the combination, with the provision-chamber, of an ice-chamber D above the same, having bottom D^2, furnished with sheet-metal lining d', and an air-passage opening d^3 through said bottom D^2, said lining d' having an upturned flange or rim d^8, surrounding said opening, and an ice tank or pan F, having corrugations f, extending parallel to said air-passage opening d^3, and a drip-ridge f', extending underneath said ice-pan and over said air-passage opening d^3, and a water seal, depression, or cup d^5, formed in the bottom of said ice-chamber at the end of said air-passage opening d^3, substantially as specified.

14. In a refrigerator, the combination, with the provision-chamber thereof, of provision racks or trays N, having rails N', furnished with cross-grooves n, and metal slats N^3, having flanges n', fitting in said cross-grooves, said racks having air-passage openings n^3 through the same, substantially as specified.

15. The provision rack or tray for refrigerators, consisting in a pair of wooden rails N', furnished with cross-grooves n in their upper faces, and metal slats N^3, having flanges or turned edges n', fitting in said cross-grooves n, substantially as specified.

16. In a refrigerator, the combination, with the walls B B', having non-conducting filling b between, of a third wall B^3, having an air-space b^3 between it and said wall B', an intermediate side frame-piece A^5, having openings b^3 through the same, and a provision-chamber and ice-chamber, both communicating with said air-passage b^3, substantially as specified.

478,081. SYRINGE-CASE.

ALBAN B. BOSWORD, Grand Rapids, Mich. Filed Mar. 23, 1892. Serial No. 426,161. (No model.)



Claim.—The combination of a central cylindrical vessel to contain the syringe, together with a liquid, parallel side vessels attached thereto to contain the needles and having removable caps, and a screw-cap on said central vessel having packing to seal the same and engaging said side caps, substantially as described.

478,082. SHIRT.

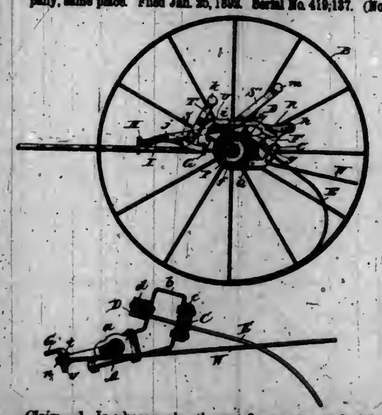
CALLUS H. BROWN, Nashville, Tenn. Filed Aug. 26, 1891. Serial No. 403,782. (No model.)



Claim.—The improved shirt having at the rear a wide tail-flap and at the front a tail-flap of full length, the edges of which are curved in concave lines from the hip downward.

478,083. HORSE HAY-RAKE.

ARTHUR F. BROWN and WILLIAM R. KNAUB, Dayton, Ohio, assignors to the Stoddard Manufacturing Company, same place. Filed Jan. 26, 1892. Serial No. 419,187. (No model.)



Claim.—1. In a horse-rake, the seat-frame composed of the metal angle draft-bar G, having journal-arms N secured thereto, the flat metal brace-bar H, secured to the front side of the bar G and set vertically, and the tubular metal thills J, secured at their rear ends to the bar G and connected to the bar H by clips c, substantially as described.

2. In a horse-rake, the combination, with the rake-teeth and axle A, of the rake-head composed of the flat metal strap-bars b, secured to journaled boxes, the slotted flanged metal bar C, secured to the rear side of the strap-bars, and the tooth-holding metal angle-bar D, secured to the front side of the strap-bars, substantially as described

3. In a horse-rake, the combination of the metal angle draft-bar G, the metal stripper-bars oval in cross-section, with their larger diameters vertical and having their butts secured to the bar G by means of the washers *t*, provided with fingers *v* and the nuts *u*, substantially as described.

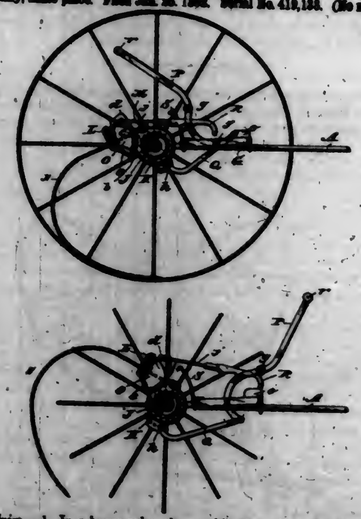
4. In a horse-rake, the combination of a lifting-wheel revolved by the traction of the machine, a tilting rake-head carrying a locking-dog for locking the rake-head to the lifting-wheel, an arm pivoted to the rake-head, a second arm pivoted to the seat-frame and to said first arm, and a pedal-arm for exerting pressure upon said last-named arms and carrying a latch-arm to engage the locking-dog with the lifting-wheel, whereby the driver by the action of his foot upon the pedal-arm can hold the rake down to work, can lock the rake-head to the lifting-wheel to effect the dump, and can regulate the return of the rake-head, substantially as described.

5. In a horse-rake, the combination of a lifting-wheel revolved by the traction of the machine, a tilting rake-head carrying a locking-dog for locking the rake-head to the lifting-wheel, an arm pivoted to the rake-head, a second arm pivoted to the seat-frame and to said first-named arm, a pedal-arm pivoted to said last-named arm and carrying a latch-arm to engage the locking-dog with the lifting-wheel, and a stop to disengage the dog from the lifting-wheel, substantially as described.

6. In a horse-rake, the combination of an axle revolved by the traction of the machine, a lifting-wheel fast on said axle, a tilting rake-head carrying a locking-dog for locking the rake-head to the lifting-wheel, an arm pivoted to the rake-head, a second arm pivoted to the seat-frame and to the said first-named arm, a pedal-arm for exerting pressure on said last-named arms and carrying a latch-arm to engage the locking-dog with the lifting-wheel, and a stop to disengage the dog from the lifting wheel, substantially as described.

7. In a horse-rake, the combination of the tilting rake-head, the lifting-wheel P, revolved by the traction of the machine, the locking-dog Q, carried by the rake-head, the arm R, pivoted to the rake-head, the arm S, pivoted to the seat-frame and to the arm R, the pedal-arm T, pivoted to the arm S and carrying a latch-arm U for engaging the dog with the lifting-wheel, and the stop V for disengaging the dog from the lifting-wheel, substantially as described.

478,084. HORSE HAY-RAKE. ARTHUR F. BROWN and WILLIAM B. KEAIS, Dayton, Ohio, assignors to the Stoddard Manufacturing Company, same place. Filed Jan. 26, 1892. Serial No. 419,188. (No model.)



Claim.—1. In a horse-rake, the combination of a pedal for holding the rake head and teeth down to work, a lifting-wheel revolved by the traction of the machine, a tilting rake-head carrying a locking-dog for locking the rake-head to the lifting-wheel, an automatic latch actuated by the partial tilting of the rake-head when pressure is removed from the pedal to cause the engagement of the dog and lifting-wheel, and a stop to cause the disengagement of the dog and lifting-wheel when the teeth have been sufficiently elevated, substantially as described.

2. In a horse-rake, the combination of a lifting-wheel revolved by the traction of the machine, a tilting rake-head carrying a locking-dog for locking the rake-head to the lifting-wheel, an arm pivoted to the rake-head, a second arm pivoted to the seat-frame and to said first-named arm, a pedal for exerting pressure upon said last-named arm, a latch connecting the pedal and locking-dog and operated by the resistance of the load to engage the locking-dog with the lifting-wheel when pressure on the pedal is relieved, and a stop to disengage the dog from the lifting-wheel, whereby the driver by the action of his foot upon the pedal can hold the rake down to work, can cause the automatic locking of the rake-head to the lifting-wheel to effect the dump, and can regulate the return of the rake-head, substantially as described.

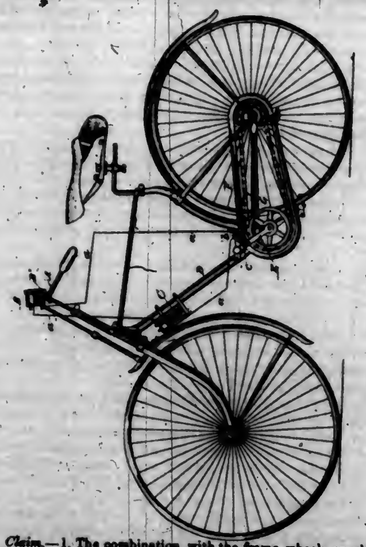
3. In a horse-rake, the combination of the revolving lifting-wheel K, the rake-head having pivoted thereto a dog *c*, the arm Q, pivoted to the rake-head beneath the axis of the same and to an arm P, pivoted to the seat-frame, the latch-arm R, engaging the arm P and connected to the dog-arm *d* by the rod *j*, the spring *n*, and the stops S *o*, substantially as described.

478,085. PRINTER'S RULE-BENDER. ELIJAH BOOK, Marshall, Mich. Filed Nov. 6, 1891. Serial No. 411,096. (No model.)



Claim.—The above-described tool, consisting of the notched blade A and cylinders *f* and *f'* of unequal diameters, having the groove *b* arranged longitudinally of the same, substantially as and for the purpose specified.

478,086. ELECTRIC CYCLOMETER FOR VELOCIPEDES. JOSEPH BUTCHER, Melrose, Mass. Filed June 20, 1891. Serial No. 397,795. (No model.)

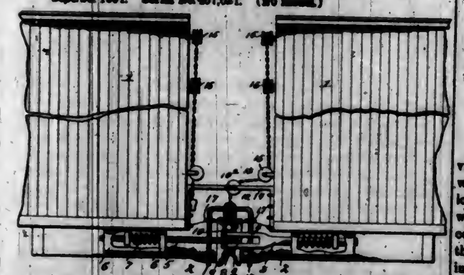


Claim.—1. The combination, with the frame, wheels, crank-shaft, cranks, sprocket-wheels, and driving-chain of a velocipede, of a registering mechanism adapted to operate intermittently, its electro-magnet, means whereby its armature-lever in its vibrations actuates said registering mechanism, a generator, a circuit of which said generator and the coils of the electro-magnet form a part, and a circuit-closer carried by one of the cranks of the velocipede and adapted to close a break in said circuit when the crank rotates, said registering mechanism, circuit, and generator being mounted on the frame of the velocipede, as set forth.

2. The combination, with the handle-bar A, the inclined bar D, and guard F of a velocipede, of the registering cyclometer B, mounted on said handle-bar, the generator C, mounted on the inclined bar D, an electric circuit of which the coils of the cyclometer magnet and the generator form a part, the terminals of the said circuit being fixed at *b* on the guard F adjacent to one of the cranks of the velocipede, the said crank, and a circuit-closer *c*, mounted thereon and adapted to close said circuit momentarily at each revolution of the crank, as set forth.

3. The combination, with a velocipede and a registering mechanism mounted thereon and adapted to operate intermittently, of the electro-magnet mounted adjacent to the registering mechanism and having pole-pieces m' and m^2, oppositely arranged, as set forth, the armature-lever pivotally mounted at its middle and having an armature at each end arranged adjacent to a pole-piece, a spring for retracting the armature, intermediate mechanism between said mechanism and the registering mechanism, whereby the vibrations of the armature-lever actuate the mechanism, a generator, an electric circuit of which the coils of said electro-magnet and said generator form a part, and a circuit-closer carried by the crank of the velocipede and adapted to close a break in said circuit when the crank is rotated, as set forth.

478,087. CAR-COUPLING. EDWIN M. BUTLER, Virden, Ill. Filed Sept. 28, 1891. Serial No. 407,021. (No model.)



Claim.—1. In a car-coupling, the combination, with the coupling-head having a bifurcated end with aligned holes and the coupling-link, of the vertical guides, the bumpers having pin-holding arms, the coupling-pin having lateral lugs or arms, and the operating cords or chains, substantially as described.

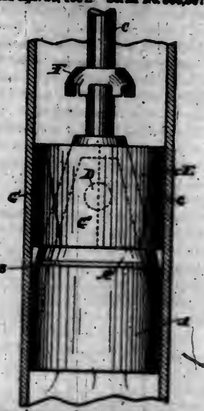
2. In a car-coupling, the combination, with the coupling head having bifurcated end with aligned holes, the coupling-link having rearwardly-projecting rod, the bearings for said rod, and the coiled spring encircling the same, of the vertical guides consisting of the metallic rods or bars bent over upon themselves and their ends secured to the coupling-head, the bumpers having the rods secured thereto with the ends bent upwardly and transversely and then horizontally outward, the coupling-pins having lateral headed lugs or arms, and the operating-cords, substantially as described.

478,088. MECHANICAL MOTOR. GEORGE COCHRAN, Houston, Tex. Filed Mar. 23, 1892. Serial No. 426,706. (No model.)



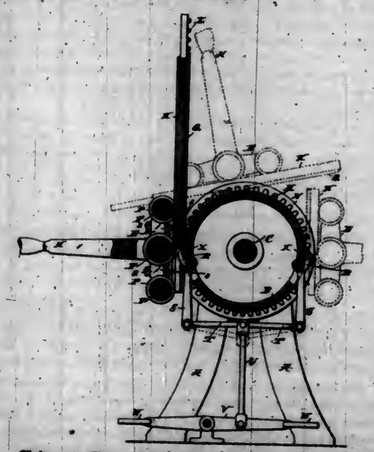
Claim.—The combination of a horizontal rock-shaft extending lengthwise of the machine, a horizontal connecting-piece running diagonally of and rigidly secured to said shaft, a seat for the operator, a pedal rigidly secured to said rock-shaft, said pedal serving as a single or double pedal and so arranged that the operator shall face the device to be operated, substantially as shown and described.

478,089. PUMP-PISTON AND VALVE. JOHN R. COLLIER, Rochester, Minn. Filed Apr. 30, 1891. Serial No. 390,867. (Model.)



Claim.—A pump-piston and valve comprising a hollow piston provided with a rod and having a tapering or conical upper surface through which there are apertures for the passage of water, a ring-valve in longitudinal parts loose in the containing cylinder about the piston-rod, which ring-valve has a tapering inner surface fitted and resting on the conical part of the piston and closing the apertures for water therethrough and forcing the valve against the walls of the cylinder, making the valve substantially water-tight in the cylinder, and a collar on the piston-rod at a distance from the piston to limit the travel of the several parts of the valve away from the piston, substantially as described.

478,090. MACHINE FOR BENDING METAL PLATES. LUTHER G. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Dec. 13, 1890. Serial No. 374,549. (No model.)



Claim.—1. The combination, with a stationary bending-cylinder to which the edge of the plate to be bent is secured, of a series of bending-rolls moving in an arc concentric with said cylinder and lying in a plane tangential thereto, substantially as described.

2. The combination, with a stationary bending-cylinder to which the edge of the plate to be bent is secured, of a table outside the plate, supported to travel about the cylinder while rigidly held in planes tangential thereto, and a bending-roll engaging the outer side of said table and moving in an arc concentric with said cylinder, substantially as described.

3. The combination, with a stationary bending-cylinder to which

the edge of the plate to be bent is secured and which is provided with gears at each end, of a table outside the plate, having racks at each side meshing with said gears, and a bending-roll engaging the outer side of said table and moving in an arc concentric with said cylinder, substantially as described.

4. The combination, with a stationary bending-cylinder to which the edge of the plate to be bent is secured and which is provided with gears at each end, of a table outside said plate, having racks at each side meshing with said gears, and a series of bending-rolls engaging simultaneously the outer side of said plate and moving in an arc concentric with said cylinder, substantially as described.

5. The combination, with a stationary bending-cylinder to which the edge of the plate to be bent is secured, of a table having a rack-and-gear connection with said cylinder and means for causing said table to travel about the cylinder, substantially as described.

6. The combination, with a stationary bending-cylinder to which the edge of the plate to be bent is secured and which is provided with gears at each end, of a table outside the plate, having racks at each side meshing with said gears, and means for causing said table to travel about said cylinder, substantially as described.

7. The combination of a stationary bending-cylinder, a grip at each side for clamping the edge of the plate to be bent to the cylinder, and means for bending plates about the cylinder in either direction, substantially as described.

8. The combination of a stationary bending-cylinder, a grip on each side of said cylinder for clamping the edge of the plate to be bent to said cylinder, a toggle-joint connected to and operating both grips, and means for bending plates about the cylinder in either direction, substantially as described.

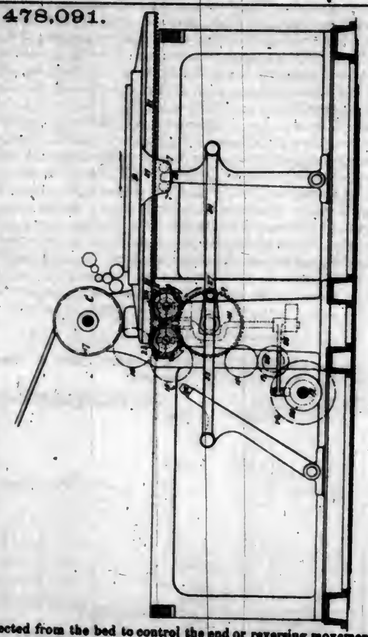
9. The combination of a stationary bending-cylinder to which the edge of the plate to be bent is secured, a table outside the plate, supported to travel about the table while rigidly held in planes tangential thereto, a stationary gear at each end of the cylinder, a rotatable bending-roll mounted outside the table to move in an arc concentric with said cylinder and in engagement with the table, and gears on said bending-roll meshing with the stationary gears, substantially as described.

10. The combination of stationary bending-cylinder B, provided with means for clamping the edges of plates to be bent, a stationary gear M at each end of the cylinder, table K outside said plates, supported by racks L at each side, meshing with gears M, arms D, swinging concentrically with said cylinder, and rotatable bending-roll F, mounted in said arms and having gears J, meshing with gears M outside the racks L, substantially as described.

11. The combination with a stationary bending-cylinder B, provided with means for clamping the edges of plates to be bent and with the gear M at each end, of table K outside the plate, supported by racks L at each side, meshing with gears M, one or more guides I on said table, and one or more bending-rolls engaging the outer side of the table and moving in arcs concentric with the bending-cylinder, said table and bending roll or rolls being provided with corresponding projections and depressions by which the table is held in position, substantially as described.

12. The combination, with a stationary bending-cylinder provided with grips at each side for clamping the edge of plates to be bent to the cylinder, of a bending abutment moving in an arc concentric with said cylinder and constructed to bend plates on its movement in either direction, substantially as described.

478,091. BED-MOTION FOR CYLINDER PRINTING-MACHINES. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Mar. 30, 1892. Serial No. 427,053. (No model.)



Claim.—1. The combination, with the type-bed, its single driving-rack, and two driving-pinions constantly geared therewith and mounted loosely upon shafts driven in opposite directions, of clutches for alternately coupling said pinions to the shafts, substantially as described.

2. The combination, with the type-bed, its single driving-rack, two driving-pinions constantly geared therewith and turning freely upon shafts driven in opposite directions, and clutches alternately coupling said pinions to the shaft for driving the bed during the major part of its run in both directions, of a reversing mechanism moving in harmony with said pinions and operating to slow down and stop the bed in one direction and start and accelerate it in a contrary direction at each end of its run, substantially as described.

3. The combination, with the type-bed, its single driving-rack, two loosely-running driving-pinions therefor, clutches for alternately coupling said pinions to their actuating-shafts and uncoupling them therefrom to produce the major portion of the reciprocation of the bed, and a reversing mechanism consisting of a crank revolved in harmony with the driving-shaft of said pinions and alternately connected and disconnected from the bed to control the end or reversing movements of the bed, substantially as described.

4. The combination, with the type-bed, its single driving-rack, two freely-moving pinions, their actuating-shafts turning in opposite directions, and clutches for coupling said pinions to their shafts, of crank-actuated controlling-arms alternately engaged with and disengaged from said bed, whereby the movement of the bed in each direction is begun by one of the controlling-arms, is continued throughout its major part by one of the pinions, and is completed to a state of rest by the other of the controlling-arms, substantially as described.

5. The combination, with the bed and its single driving-rack, of the freely-mounted pinions, their actuating-shafts driven in contrary directions from the crank shaft, clutches for connecting said pinions with their driving-shafts, rocking arms 28 30, connected with the crank 27, and a socket for said arms in the bed, substantially as described.

478,092. OIL-CAN HOLDER FOR BICYCLES. JOSEPH W. COHMAN, New York, N. Y. Filed Dec. 29, 1891. Serial No. 416,431. (No model.)

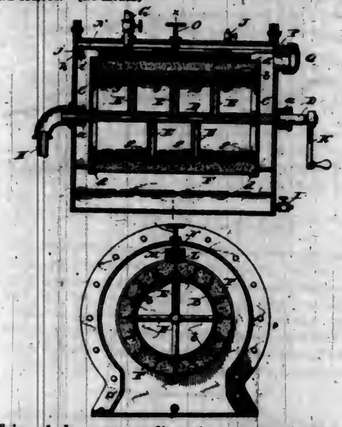


Claim.—1. An oiler-holder made of sheet metal, comprising the forwardly-projecting pieces *a* and *b*, flaring at *a'* and *b'*, as described, and the portions *d* between the portions *a* and *b*, bent backwardly and formed with straight flat portions *d'*, in combination with the independent curved plate *c* and securing devices which attach it to the parts *d'*.

2. An oiler-holder made of sheet metal, comprising the forwardly-projecting pieces *a* and *b*, flaring at *a'* and *b'*, as described, the portions *d* between the portions *a* and *b* bent backwardly and formed with straight flat portions *d'*, and a bottom piece *c*, inclined at *c'*, as described, in combination with the independent curved plate *c* and securing devices which attach it to the parts *d'*.

3. An oiler-holder made of sheet metal and having the portions *a b c* bent up to form a socket for the reception of the oiler, the intermediate portions *d*, bent in a reverse direction to form one part of the clamping-socket for the reception of the bar to which the holder is to be attached, the corrugated plate *c*, forming the other portion of said socket, and the clamping-bolts.

478,093. FILTER. SAMUEL G. DURHAM, Cincinnati, Ohio, assignor of one-half to Henry Verhage, same place. Filed Nov. 11, 1891. Serial No. 411,682. (No model.)

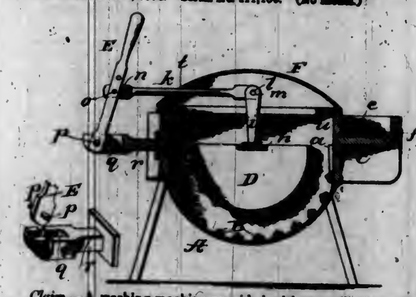


Claim.—1. In a pressure-filter, the combination of a filtering-chamber, the contained filtering-drum, the filtering medium therefor, composed of longitudinally-arranged sector-shaped abutting sections of stone secured together, a water-space behind said filtering medium, supporting-heads for said drum, a hollow shaft journaled through the chamber and extending through the drum, and radial pipes connecting said hollow shaft and water-space, whereby the filtered water will be collected and drawn off through the radial pipes and hollow shaft, substantially as described.

2. The combination, with the chamber A, of the filtering-drum journaled within the same and composed of the heads C, cylinder B, supported thereby, hollow shaft D, extending therethrough, stone sections F, constituting the filtering medium, surrounding the cylinder B, and radial pipes E, connecting the water-space and shaft D, substantially as described.

3. The combination, with the chamber A and filtering-drum revoluble therein, of the brush L, having the back M arranged to removably engage the bar N, and the bar N, carried by the screw O and held from turning by the pin *h*, substantially as described.

478,094. WASHING-MACHINE. MICHAEL DIEHDORF, Lebanon, Pa. Filed Nov. 7, 1891. Serial No. 411,159. (No model.)



Claim.—A washing-machine provided with an oscillating rubber, a connecting-rod loosely attached to said post, and a lever having a pin at its lower end, in combination with an arm secured to one end of the machine and having a slotted outer end provided with sides having vertical slots open at their upper ends.

478,095. PRESSER-FOOT FOR SEWING-MACHINES. JOHN DOUGLAS, Elizabeth, N. J., assignor to The Singer Manufacturing Company of New Jersey. Filed Mar. 11, 1892. Serial No. 424,567. (No model.)

Claim.—1. The combination, with a single presser-foot shank, of two presser-feet, both of which are yieldingly connected with said shank and which are both vertically movable independently thereof, so that either of them is adapted to rise to accommodate a thick portion of the work passing beneath it.

2. The combination, with a presser-foot shank, of two vertically-movable presser-feet and a pivoted lever or button connecting the same, so that as one is lifted the other will be correspondingly lowered.



3. The combination, with the presser-foot shank A, provided with the recesses *a* and having a front plate or portion *a'*, provided with vertical slots *a²*, of the presser-feet *d*, having shanks *c*, provided with pins *d'*, fitting in said slots, and the pivoted button or lever E, having slots which are also engaged by the said pins.

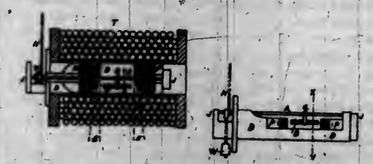
478,096. NUT-LOCK. SAMUEL DURBIN, Brushton, Pa. Filed Oct. 24, 1891. Serial No. 409,682. (No model.)



Claim.—1. The combination, with a longitudinally-grooved bolt, of a longitudinally-grooved nut having a slot at the extremity of said groove and a spring-forked key adapted to fit in the longitudinal grooves of said nut and bolt, with the free ends of the fork-arms situated inwardly and having at the end of one of said arms a locking projection adapted to enter the said slot, substantially as and for the purposes described.

2. The combination, with a longitudinally-grooved bolt, of a longitudinally-grooved nut having a slot at the extremity of said groove, and a spring-forked key adapted to fit in the longitudinal grooves of said nut and bolt, with the free ends of the fork-arms situated inwardly, and having at the end of one of said arms a locking projection adapted to enter the said slot, and a washer to close the rear of the nut, substantially as and for the purposes described.

478,097. ELECTRIC MEASURING-INSTRUMENT. SYDNEY EVERSHED, London, England. Filed Dec. 18, 1891. Serial No. 415,499. (No model.) Patented in England Feb. 2, 1887, No. 1,932.



Claim.—1. In an electric measuring-instrument, a coil and blocks of magnetic material arranged therein, in combination with an arbor placed longitudinally in the axis of the coil and carrying a piece of magnetic material adapted to move always with its length parallel to the lines of magnetic force between the said blocks and means for controlling the movement of the said piece.

2. In an electric measuring-instrument, a coil and poles arranged therein having their adjacent faces beveled, so that they must closely approximate, and thus form a greatest magnetic field to one side of the coil-axis, in combination with an arbor journaled within the coil parallel to its axis, a piece of magnetic material carried by the arbor and adapted to move around the coil-axis between the said faces, its length being always parallel to the lines of magnetic force, and means for controlling the movement of the said piece.

3. In an electric measuring-instrument, a coil and an iron core therein recessed to form two poles having their adjacent faces beveled or divergent, so that they closely approximate, and thus form a greatest magnetic field to one side of the coil-axis, in combination with an arbor journaled wholly in the said core and lying in the axis of the coil, a piece of magnetic material carried by the arbor in a position parallel always to the said arbor and to the lines of magnetic force, adapted to move parallel to the axis between the said faces, means for controlling movement of the said piece, a pointer on the arbor, and a dial.

4. In an electric measuring-instrument, a plug-piece carrying an indicating mechanism, in combination with a coil and dial, substantially as set forth.

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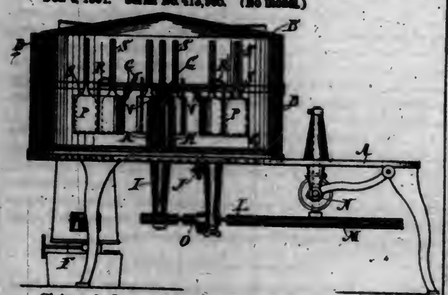
478,098. APPARATUS FOR THE MEASUREMENT OF ELECTRICAL RESISTANCES. SYDNEY EVERSHED, London, England. Filed Oct. 22, 1891. Serial No. 410,008. (No model.) Patented in England Feb. 18, 1890, No. 2,694.



Claim.—1. In an ohmmeter for the measurement of large resistances, a large current-coil wound with a large number of turns of fine wire, in series with the circuit to be tested and closely surrounding a pivoted magnetic needle and an idex-finger, in combination with a pressure coil or coils in shunt with the circuit to be tested and with its magnetic axis at right angles to and intersecting that of the current-coil, substantially as described.

2. An ohmmeter consisting of a current-coil surrounding a magnetic needle fixed on an axis supporting a second astatic needle, the said current-coil supported in a brass frame on which a pressure coil or coils is wound with its magnetic axis at right angles to that of the current-coil, substantially as described.

478,099. MILK-TESTER. FRANK B. FARGO, Lake Mills, Wis. Filed Dec. 4, 1891. Serial No. 413,965. (No model.)

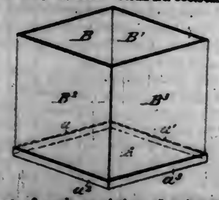


Claim.—1. In a milk-tester, the combination, with a case arranged to contain heated water, of a disk fixed on an arbor revolvable in the case, which disk is provided with peripheral recesses therein, and receptacles adapted to hold milk-test bottles, which receptacles are suspended upright on the disk in the recesses in the periphery thereof, substantially as described.

2. In an apparatus of the class described for testing milk, a revolvable disk provided with peripheral recesses and with apertures at a distance from its axis other than the peripheral recesses, which apertures are adapted to receive therein removable bottle-holding receptacles suspended on the disk; substantially as described.

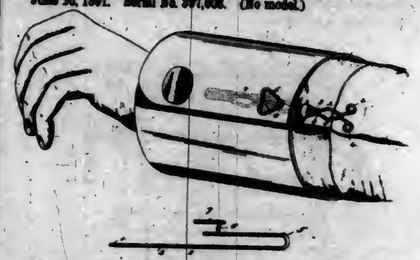
3. In an apparatus of the class described for testing milk, a revolvable disk provided with peripheral recesses and hook-receiving apertures, in combination with receptacles adapted to hold milk-test bottles formed to fit detachably in the peripheral recesses in the disks, arms projecting from the receptacles, having hooks adapted to engage the disks, and downwardly projecting lugs on the disk, arranged to receive the bearing of the receptacles and prevent their tilting, substantially as described.

478,100. GAME APPARATUS. PERCY S. FAULKNER, London, England. Filed May 19, 1891. Serial No. 393,302. (No model.)



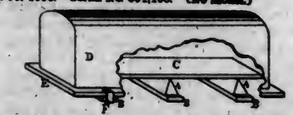
Claim.—A set of cards consisting of series distinguished from each other by indications to mark those of the different players, the cards of each series differing individually in weight and correspondingly marked with indications of different values for use in a game of card-playing by throwing or flicking, substantially as set forth.

478,101. CUFF-HOLDER. FRANK R. GARDNER, Lima, Ohio. Filed June 30, 1891. Serial No. 397,608. (No model.)



Claim.—As an improved article of manufacture, the cuff-holder made or bent from a single continuous piece of wire and consisting of the longitudinal serpentine arms having open free ends arranged side by side, the loop doubled or extended back over and above said arms, the upright stud having its lower portion extending alongside of the loop and then turned substantially at right angles thereto, and the button formed by the radial projections grouped around the stud, substantially as and for the purpose described.

478,102. GRAVE-VAULT. JOHN G. GRAY, Connersville, Ind. Filed Apr. 30, 1891. Serial No. 391,163. (No model.)

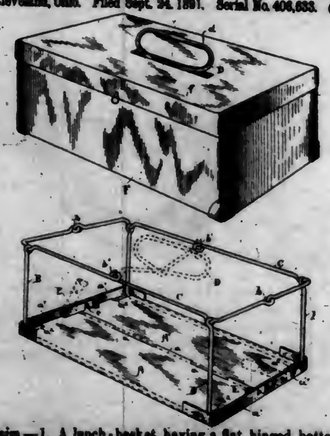


Claim.—1. The coffin or casket cover D, made air-tight, provided with flanges E, in combination with the platform C and the supports A A A, provided with projections B B B, as and for the purposes set forth and described.

2. The coffin or casket cover D, made air-tight, provided with flanges E, the supports A A A, provided with projections B B B, the platform C, the clamps F, all combined and operating in the manner and for the purpose herein set forth and described.

3. The coffin or casket cover D, made air-tight, in combination with the supports A A A, provided with projections B B B, in the manner and for the purpose shown and described.

478,103. LUNCH-BASKET. JOHN H. HAHN and JACOB P. HERMAN, Cleveland, Ohio. Filed Sept. 24, 1891. Serial No. 406,633. (No model.)



Claim.—1. A lunch-basket having a flat hinged bottom and a skeleton-jointed frame, said frame having corner-posts pivoted in the bottom and rods pivoted in the tops of the posts and at their ends on the longitudinal center of the basket, substantially as described.

2. In a lunch-basket, a sectional bottom hinged at its longitudinal center, corner-posts pivoted on the said bottom, and two top pieces forming the top of the frame pivoted on said posts and to each other midway across the end of the basket, and a spreader to keep the sides of the basket apart, substantially as described.

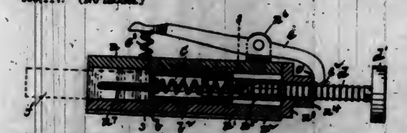
3. The basket-frame herein described, consisting of a bottom having plates hinged together, pivoted corner-posts, and top rods pivoted in said posts and at their ends in line with the hinges of the bottom of the basket, in combination with a spreader for the top of the basket and locks at the bottom across the hinge thereof, substantially as described.

4. The sectional bottom having right-angled flanges at its corners, in combination with corner-posts pivoted on said bottom and bearing against said flanges, a top sectional frame supported on said posts, and a spreader for said frame, substantially as described.

5. The bottom sections hinged together and locks across the meeting line of said sections, in combination with the corner-posts pivoted in said bottom sections, the sectional top frame pivoted in said posts, and the handle-piece secured in loops to said top frame, substantially as described.

6. A basket-frame consisting of a hinged bottom and corner-posts and side and end rods supported on said posts, all of said parts jointed together, and a cross-rod provided with a handle bracing the top of said frame, in combination with a flexible cover stretched upon said frame and having an opening for the handle, substantially as described.

478,104. BRUSH-HOLDER FOR DYNAMOS AND MOTORS. MERRILL H. HATHAWAY, Springfield, Mass. Filed Oct. 8, 1891. Serial No. 408,117. (No model.)



Claim.—1. The brush-holder for dynamos and motors herein described, comprising, in combination, a holder-body adapted to receive a carbon or other brush, a follower suitably guided within said body and adapted to bear against the rear end of said brush, a notched or toothed stem guided at the rear end of said body for longitudinal movement, a spring-actuated detent engaging the notches or teeth on said stem and adapted to hold the same against rearward movement, and a spring interposed between the front end of said stem and said follower, substantially as described.

2. The brush-holder herein described, comprising, in combination, a holder-body which is closed except at the front end thereof, a follower guided within said body in said manner as to be capable of movement toward and away from said front end of the latter, a notched or toothed stem passing freely through the rear end of said body, a spring-actuated detent-lever pivotally secured to said body and engaging the notches or teeth on said stem, and a spring or springs interposed between said stem and the follower, substantially as set forth.

3. The brush-holder herein described, comprising, in combination, a holder-body adapted to receive at its front end a carbon or other brush, a follower suitably guided within said body and adapted to bear against the rear end of the brush, said follower being provided with a rearwardly-extending wing at each end thereof and with a rearwardly-projecting hub between said ends, a notched or toothed stem passing freely through the rear end of said body, a spring-actuated detent engaging the notches or teeth on said stem, and a coil-spring located within the hub on said follower and engaging the end of said stem, substantially as set forth.

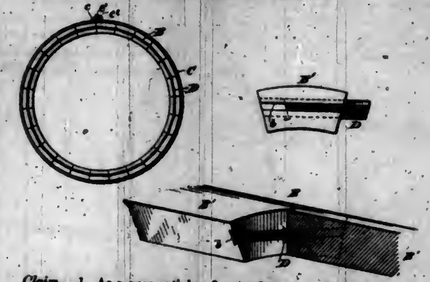
4. In a brush-holder, a holder-body provided with a removable bottom and having its rear end piece connected to or formed integral with said bottom, a follower guided within said body, a notched or toothed stem passing through said rear end piece for advancing the follower within the body, a detent engaging the notches or teeth on said stem for holding the same against rearward movement, and means for locking said removable bottom and rear end piece upon the body, combined and operating substantially as described.

5. In a brush-holder, the combination, with the holder-body having the removable bottom and rear end piece, the follower within said body, the notched or toothed stem passing through the rear end piece, and the interposed spring, of a detent-lever pivotally connected to said body and having its rear end adapted to engage both said rear end piece and the notches or teeth on said stem and a spring normally holding said lever in such engagement, substantially as described.

6. In a brush-holder, the combination, with the holder-body, the follower guided therein, the notched or toothed stem, interposed spring, and spring-actuated detent engaging said stem, of a stop or stops located at the front end of said body for preventing the escape of the follower therefrom, substantially as described.

7. In a brush-holder, the combination, with the body *a*, having the removable bottom *a'*, and rear end piece a^2, having a rigid connection with said bottom, said end piece having projecting therefrom the hub a^3, of the follower *b*, having the rearwardly-projecting hub b^2, stem *d*, provided with notches or teeth, as described, and with a suitable head, as d', said stem passing loosely through said hub a^3, spring *c*, secured at its rear end to said stem and having its front end entering the hub on said follower, and a spring-actuated detent on said body engaging the notches or teeth on said stem for preventing rearward movement of the latter, substantially as described.

478,105. WOODEN PIPE. ARCHIE McL. HAWES, Tacoma, Wash. Filed Nov. 14, 1891. Serial No. 411,946. (No model.)



Claim.—1. As a new article of manufacture, a pipe-tube or like article formed of staves, the latter having transverse dovetailed grooves in their ends, the opposing grooved ends being united by double dovetail blocks fitting said grooves and serving to maintain the ends of opposing staves in close contact, substantially as described.

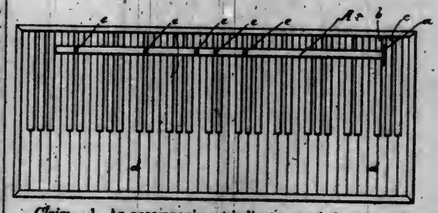
2. The herein-described impervious wooden pipe, the same being formed of staves having bands encircling the same, the bands being means for tightening them on the pipe, and the staves being united together at the ends by double dovetail blocks fitting correspondingly grooves in the opposed ends of the staves, substantially as described.

478,106. THERAPEUTICAL COATING. LUDWIG O. HEMMER, Hamburg, Germany, assignor to the Ichthyol-Gesellschaft Cordes, Hermanni & Company, same place. Filed Feb. 7, 1891. Serial No. 380,611. (No specimens.)

Claim.—1. The herein-described coating for therapeutic purposes, consisting of starch, water, and ichthyol in about the proportions set forth.

2. The herein-described coating for therapeutic purposes, consisting of starch, water, ichthyol, and carbolic acid in about the proportions set forth.

478,107. ACCOMPANIMENT-INDICATOR FOR MUSICAL INSTRUMENTS. GEORGES P. O. HIMOUX, Yamachiche, Canada. Filed Dec. 5, 1891. Serial No. 414,197. (No model.)

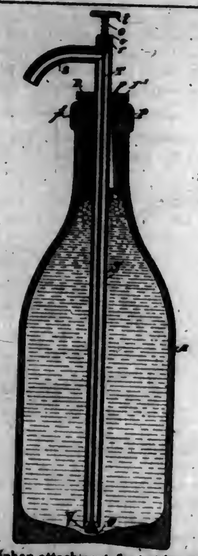


Claim.—1. An accompaniment-indicator consisting of a rod provided with a projection at one end adapted to be placed over the key-note between two of the keys of the instrument to prevent the longitudinal movement of the said rod and points marked upon the surface of the rod at certain distances from the said projection and arranged to come over certain of the keys which are in harmony with each other and with the said key-note, substantially as set forth.

2. An accompaniment-indicator consisting of a polyhedral rod provided with a disk at one end projecting around the rod and adapted to be placed over the key-note between two of the keys of the instrument to prevent the longitudinal movement of the rod and series of points marked upon the sides of the rod at certain distances from the said disk, each series being arranged to come over certain of the keys which are in harmony with each other and with the key-note, substantially as set forth.

478,108. SIPHON. JACOB HILBERTH, Christiania, Norway, assignor to the Norwegian Siphon Company, Limited, same place. Filed Mar. 17, 1892. Serial No. 425,260. (No model.)

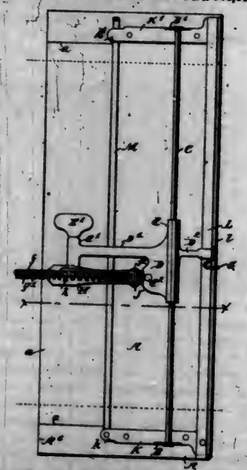
478,108.



Claim.—1. In a siphon attachment for bottles, the combination, with the siphon-pipe and valve-stem having a valve on its lower end to regulate the flow of liquid, of a conical opening in the top of said pipe, through which the valve-stem passes, an elastic packing seated in said opening, and the knob *t*, spring O, and bearing-plate *o* for simultaneously compressing the packing and operating the valve to allow the discharge of liquid, as set forth.

2. In a siphon attachment, a siphon-pipe having near its upper end an enlarged portion *u*, in combination with a discharge-pipe extending into said enlarged portion *u* of the siphon-pipe, said discharge-pipe having a flanged enlargement adapted to be secured in the neck of the bottle, and a valve-stem having at its lower end a valve adapted to seat in the corresponding end of the discharge-pipe, as set forth.

478,109. TYPE-WRITING MACHINE. ROBERT H. INGERSOLL, New York, N. Y. Filed Jan. 24, 1891. Serial No. 378,986. (No model.)



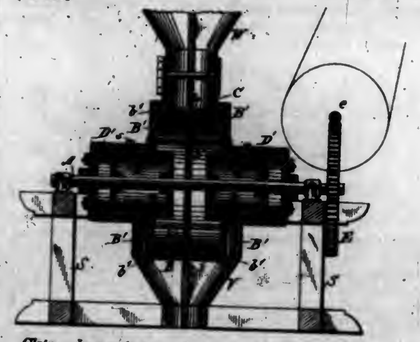
Claim.—1. In a type-writer, the combination, with a paper-holder consisting of two transverse plates, a rack-bar, and paper-guide, a spring-clip, and a guide-bar mounted thereon, of a centrally-pivoted carriage adapted to work on the guide-bar and provided with a forwardly-extending arm sustaining a type-wheel, and a rear heel-piece carrying a pawl, the arm and heel-piece being alternately depressed, substantially as described.

2. In a type-writer, the combination, with a paper-holder consisting of two transverse plates sustaining at their respective ends a paper-guide and a spring-clip, and a guide-bar mounted thereon, of a centrally-pivoted carriage adapted to work on the guide-bar and carrying a type-wheel, and a sustaining-spring secured thereto, substantially as described.

478,110. PROCESS OF REDUCING ZINC OR SPELTER FROM ORES. CHRISTOPHER JAMES, Swansea, England. Filed Aug. 18, 1891. Serial No. 402,063. (No specimens.)

Claim.—A process for the commercial treatment of zinc-sulphide ores, consisting in first calcining a part of the ore in a calcining-furnace to the form of an oxide, mixing the calcined ore with rather more than half its weight of crude ore, and smelting the same in the hearth of a neutral or slightly-reducing reverberatory furnace until reduced to zinc and SO_2, the zinc being volatilized and collected by condensation in a chamber distinct from the furnace, substantially as described.

478,111. GRAIN-MEASURING APPARATUS. KNUD G. JENSEN, Christiania, Norway. Filed Sept. 19, 1890. Serial No. 365,485. (No model.)



Claim.—In a grain-measuring apparatus, the combination, with a revolubie measuring-vessel having one or more peripheral openings for the reception and discharge of the grain, a stationary feed-hopper provided with bearing-flanges bearing on the outer periphery of the vessel and having air-vents adapted to register with said openings in the measuring-vessel, an axial piston D, adapted to be projected more or less into the vessel, adjusting-screws *d* for adjusting said piston relatively to the vessel, and a locking device *s* for locking the piston against displacement when adjusted, said parts being constructed and arranged for operation as described.

478,112. CHAIN-PUMP. DAVID K. KELLER, Montgomery, Ohio. Filed May 12, 1890. Serial No. 351,409. (No model.)

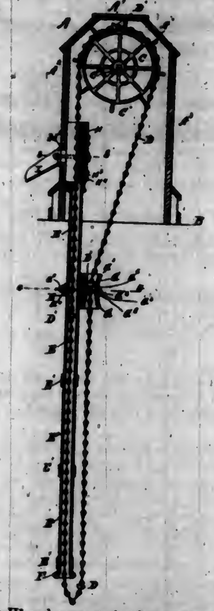
Claim.—1. In a chain-pump, the interiorly-double flared guide having groove G^2, the exterior of the guide being narrowed at its waist, and the stirrup G^3, and clamp G^4, and sleeve-coupling E', and adjacent pipe-sections E E, secured by said coupling, the coupling E' fitting into the recess formed on the exterior of the guide by the contraction of its waist, the said sleeve, pump-pipe, and flared guide being all inclosed by the stirrup and clamping-piece, substantially as and for the purposes specified.

2. In a chain-pump, the interiorly-double-flared guide having groove G^2, the exterior of the guide being narrowed at its waist and at rear provided with groove G^2, and the stirrup G^3, and clamp G^4, and sleeve-coupling E', and adjacent pipe-section E E, secured by said coupling, the coupling E' fitting into the recess formed on the exterior of the guide by the contraction of its waist, the back of the stirrup being located in said groove G^2, the said sleeve, pump-pipe, and flared guide being all inclosed by the stirrup and clamping-piece, substantially as and for the purposes specified.

3. In a chain-pump, the pump-pipe E and the interiorly-double-flared guide having peripheral depression, and stirrup G^3, and clamp G^4, and sleeve-coupling E', fitting into the recess formed on the exterior of the guide by the contraction of the waist, the said guide and pipe E being thereby secured, substantially as and for the purposes specified.

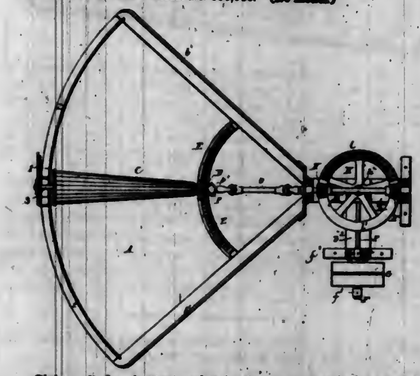
4. In a chain-pump, the pump-pipe E and the interiorly-double-flared guide having peripheral depression and stirrup G^3, and clamp G^4, and sleeve-coupling E', fitting into the recess formed on the exterior of the guide by the contraction of the waist, the said guide and pipe E being thereby secured, and the water-box provided at rear with

478,112.



two or more grooves H^2 and connected at bottom to pump-pipe E and applied to the inner side of wall A^2 of the pump-box, and the spout I, having lugs I' I' and at rear applied to the outer face of the water-box and stirrup K, whose rear portion is located in one of the grooves H^2 and whose respective limbs pass through the pump-box and through the respective adjacent lugs I' I' of the spout, and devices for retaining the stirrup in said position, substantially as and for the purposes specified.

478,113. BUTTER-WORKER. PERLEY I. KENDALL, Bellows Falls, Vt., assignor to the Vermont Farm Machine Company, same place. Filed May 6, 1890. Serial No. 350,963. (No model.)



Claim.—1. In a butter-worker having a segmental tray, a spindle, and a pressure-roller thereon, a shaft for operating the spindle connected near the smaller end of the tray by a universal joint, a power mechanism whose main shaft is driven continuously in one direction, and means, substantially as described, between said power mechanism and the roller-spindle whereby said spindle will be driven alternately in opposite directions, substantially as set forth.

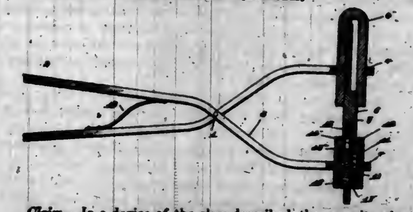
2. In combination with a butter-worker having a vibratory pressure-roller and a tray, a mechanism for operating the worker, adapted to be driven by power, and connected at the smaller end of the tray, and having a reversing-shaft connected by universal joints to the spindle of such roller, substantially as set forth.

3. A power-driven mechanism for butter-workers, having, in combination, a shaft adapted to be driven alternately in opposite directions, a vibratory pressure-roll, universal joints connecting said shaft by a link to the spindle of said roll, a toothed gear on such spindle, and a curved rack on the tray, engaging with such gear, all substantially as set forth.

4. In combination with a power mechanism and with the tray or table, the roller-shaft P, its supporting-sleeve, and the vibrating arm R, pivoted as described and carrying said sleeve, all substantially as set forth.

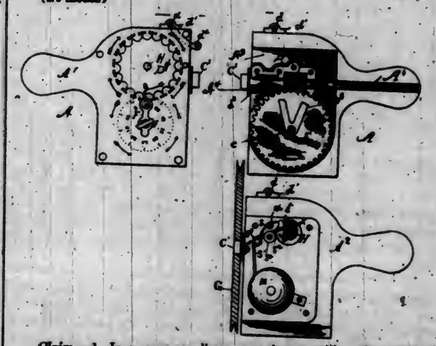
5. In combination with the roller-spindle and with means, substantially as described, for operating the same, the vibratory arm R, pivoted at its rear end, supporting the carriage I at its front end, and having a bracket p^3, connecting with the rear end of the spindle, substantially as and for the purposes set forth.

478,114. RIVETER. JOSEPH J. KROPASEK, Irving, Kans. Filed Nov. 14, 1891. Serial No. 411,907. (No model.)



Claim.—In a device of the class described, the opposite pivoted members terminating in rear of their pivot in handles and in front of the same in jaws having rings at their ends, in combination with a hollow hammer-head supported in the upper ring, an upsetting-plug mounted in the hammer-head, a set-screw for adjusting the same, a bored holder mounted in the lower ring and having an upper reduced bore, a tubular guide mounted for reciprocation in the reduced bore and provided at its lower end with an annular shoulder forming a stop, a plunger mounted in the tube and terminating at its lower end in a head, a spring coiled upon the plunger and interposed between the head of the same and the lower end of the tube, and a set-screw supporting the lower end of the plunger and threaded in the lower end of the holder, substantially as specified.

478,115. WARP OR LINE MEASURING MACHINE. WILLIAM H. KYNETT, Battle Creek, Mich. Filed June 8, 1891. Serial No. 395,542. (No model.)



Claim.—1. In a warp or line measuring machine, the combination of the shaft B, having a worm on its inner end and a wheel on its outer end, a pinion beneath said shaft engaging said worm, said pinion having a hollow internally-screw-threaded arbor, an index-finger, a thumb-screw engaging said hollow arbor and serving to adjustably secure said finger thereto, a dial-plate, a dial or registering wheel engaged and operated by said finger, an alarm-bell, and a bell-hammer operated from said dial-wheel.

2. In a warp or line measuring machine, the shaft B, having a worm at one end, a grooved wheel on the other end of said shaft, a yoke supporting said shaft, a pinion supported by said yoke beneath said shaft and engaging the worm thereof, a dial-plate, and a pointer adjustably connected to said pinion and operating therewith, as described, in combination with a casing to which said dial is secured, said casing having a chamber within which said shaft, pinion, and yoke are located.

3. In a warp or line measuring machine, the combination, with a main operating-shaft and a dial-plate, of a pointer operated through intermediate connection or gearing by said shaft, a shaft H above said main shaft, a dial or registering wheel on said shaft H, operated by said pointer, and a spring-washer for holding said dial-wheel in position on its shaft and parallel with the face of the dial-plate.

4. In a warp or line measuring machine, a shaft, a wheel mounted on the outer end of said shaft and designed to be engaged by the warp or line to be measured, and a pinion geared with the inner end of said shaft, said pinion having a screw-threaded arbor, in combination with a dial-plate, a dial or registering wheel, a pointer or index-finger engaged with and operating said dial-wheel, and a thumb-screw for adjustably securing said pointer to said arbor, substantially as described, and for the purpose specified.

5. In a warp or line measuring machine, a shaft, a wheel mounted on the outer end thereof and designed to be engaged by the warp or line to be measured, and a pinion geared with the inner end of said shaft, said pinion having a screw-threaded arbor, in combination with a dial-plate, a dial or registering wheel, an alarm mechanism operated from said dial or registering wheel, an index-finger or pointer engaged with and operating said dial-wheel, and a thumb-screw for adjustably securing said pointer to said arbor, substantially as described, and for the purpose specified.

6. In a warp or line measuring machine, the shaft B, having a worm on its inner end and a wheel on its outer end, a pinion beneath said shaft engaging the worm thereof, a dial-plate, and a dial or registering wheel, in combination with an alarm mechanism connected with said dial or registering wheel, a pointer engaging and operating said dial or registering wheel, and a means for adjustably securing said pointer to the arbor of said pinion, substantially as described, and for the purposes specified.

7. In a warp or line measuring machine, the combination, with a main operating-shaft, a dial-plate and a pointer operated through intermediate connection or gearing by said shaft, of a shaft H above said main shaft, a dial or registering wheel on one end of said shaft, operated by said pointer, a cam secured to and rotating with shaft H, a bell-hammer, one end of which is located in the path of the cam, a spring engaging said bell-hammer at one end, and a bell adjacent to the other end of said bell-hammer.

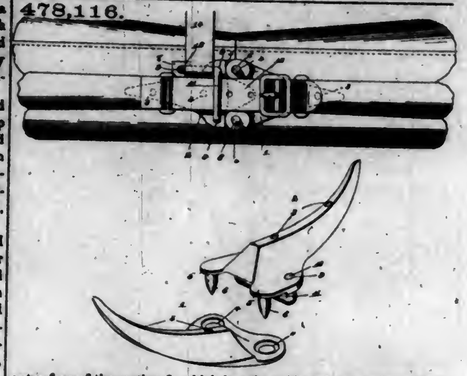
8. In a warp or line measuring machine, the two-part chambered casing, main operating-shaft thereon, yoke supporting said shaft and having depending converging arms formed with an opening at their lower joined ends, a pinion E, geared with said shaft and having a screw-threaded opening, a pointer F, a thumb-screw adjustably securing said pointer in place, a shaft H, and a dial-plate D^4 thereon, all arranged, combined, and operating substantially as shown and described.

9. In a warp or line measuring machine adapted to be supported by and reciprocated on a spindle or rod projecting from a spinning-wheel, the combination of the casing having a handled portion, a main cylindrical shaft within said casing, bearings for said shaft, registering mechanism operated from said shaft, and a fixed tube passing loosely through said shaft and adapted to engage said spindle or rod of the spinning-wheel, substantially as described, and for the purposes specified.

10. In a warp or line measuring machine of the character set forth, the combination of the casing having a handle portion by which it may be moved back and forth, as described, a main cylindrical shaft within said casing, bearings for said shaft, a line-wheel on the outermost extremity of said shaft, a guide secured to said casing and having eyes through which the warp or line passes on its way to said wheel, registering mechanism operated from said main shaft, and a fixed tube passing loosely through said main shaft and adapted to engage the rod or spindle upon which the device is supported and reciprocated, as set forth.

11. In a line or warp measuring machine, the casing provided with a handled portion, a main cylindrical shaft within said casing, a central hollow sleeve or tube within the cylinder of said shaft, one end of which sleeve or tube is fixed within and toward the handle portion of the casing, a line-wheel on the outermost extremity of and a worm located on an inner portion of said main shaft, and circumferential bearings fixed in said casing, a pinion engaging with the worm of the main shaft, and connected and engaging shafts, wheels, dials, and means, substantially as shown and described, for registering the linear length of the warp and for sounding a signal-bell when the predetermined revolutions of said line-wheel have been completed.

478,116. COLLAR-FASTENER. NICHOLAS LAGE, Rock Island, Ill., assignor of one-half to Isaac Lewis Sears, same place. Filed Dec. 3, 1891. Serial No. 413,898. (No model.)



Claim.—1. The herein-described collar-fastener, comprising two opposite sections 1 and 2, the former being provided at its inner end, at opposite sides, with perforations and the section 2 being provided at its inner end with stationary studs arranged at opposite sides for engaging the perforations, and a stationary keeper arranged on the outer face of the section 2, which has the said studs, and adapted for the reception of a hame-strap, whereby the studs will be prevented from becoming disengaged from the perforations, substantially as described.

2. The combination, with the collar-sections, the opposite hame-sections, and the strap connecting the same, of the opposite concaved V-shaped metal sections secured to the collar-sections, one of said V-shaped sections having perforations tapered and formed in its opposite inner corners, the remaining section having lateral lugs offset at their inner ends and provided with stationary tapered lugs or studs extending therefrom and adapted to fit in the perforations of the section first mentioned, a perforated lug located in rear of said lateral lugs, perforations formed in the rear portions of said latter lugs, and the stationary L-shaped bar having studs formed at its ends and angle and entering these perforations and forming a transverse and longitudinal keeper, the former receiving the hame-strap and the latter the choke-strap, substantially as specified.

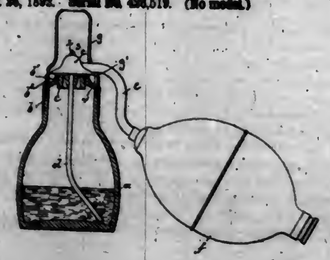
478,117. NATURAL-GAS BURNER. THOMAS A. LITTLE, Wheeling, W. Va. Filed Sept. 17, 1891. Serial No. 406,001. (No model.)



Claim.—1. A natural-gas burner consisting of the horizontal tube 6, having immovable chimney-tubes 5 projecting from its upper and lower sides, the elbow 7, attached to one extremity of the horizontal tube, the horizontal gas-conducting pipe 1, having jet-orifices 4 arranged directly under the chimney-tubes, and the elbow 3, connecting one end of the gas-conducting pipe with the elbow secured to the horizontal tube, substantially as described.

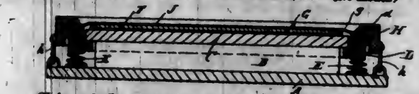
2. A natural-gas burner consisting of the horizontal tube 6, having the chimney-tubes 5 extending from its upper and lower sides and containing the foraminous shields 8 at their upper ends, the elbow 7, secured to one extremity of the horizontal tube, the gas-conducting pipe 1, having jet-orifices 4 arranged directly under the chimney-tubes, and the elbow 3, connecting one end of the gas-conducting pipe with the elbow secured to the horizontal tube, substantially as described.

478,118. ATOMIZER. RHODES LOCKWOOD, Boston, Mass. Filed Mar. 26, 1892. Serial No. 426,519. (No model.)



Claim.—In an atomizer, the combination of the following instrumentalities: the bottle *a*, the collar *b*, fixed upon its neck, having the vent 4, the cap or stopper *c*, inserted in said collar, atomizing-orifices 2 3, secured to said cap or stopper *c*, the liquid-tube *d*, extending down from said cap or stopper into the bottle, the air-tube *e*, projecting outwardly from said cap or stopper, and the air-forcing device *f*, connected thereto, the annular flange b^3, secured to the top of said collar *b* at its outer edge, and the nasal nozzle *g*, detachably placed within said annular flange b^3 and entirely inclosing the cap or stopper, and atomizing-orifices which are secured thereto, said nozzle being cut away or recessed at its lower edge, as at *g'*, to astride the air-tube when placed within said flange, all substantially as and for the purposes set forth.

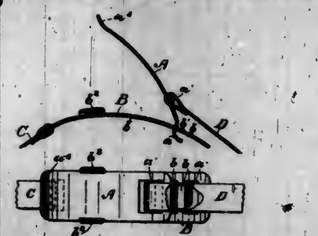
478,119. COPYING-MACHINE. CHARLES MAINE, Three Rivers, Canada. Filed Dec. 18, 1891. Serial No. 415,560. (No model.)



Claim.—1. In a copying-machine, the combination, with the board C, of the metallic plate secured to it, the sheet of absorbent material secured on the said plate, the gelatine-covered paper, and the frames for stretching the said paper and holding its under surface in contact with the said sheet, substantially as set forth.

2. In a copying-machine, the combination, with the back board A, provided with pieces B, of the board C, resting on the said pieces, the frames D and H, the gelatine-covered paper held by the said frames, a sheet of absorbent material under the said paper, the springs interposed between the board A and the frame D, and means for securing the frame H to the board A, substantially as set forth.

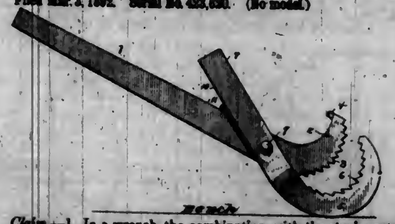
478,120. BUCKLE. ALBERT G. MEAD, Boston, Mass., assignor to William B. H. Dowse, trustee. Filed Sept. 28, 1891. Serial No. 406,963. (No model.)



Claim.—1. A buckle for shoes and other articles made in two members, consisting of a draw-plate B, provided with a series of slots *b* and intermediate bars *b'*, in combination with a lever A, provided at one end with a hook *a*, adapted to engage with either of said bars, one of said members having spring-ears struck up from the material thereof to engage with the other member, substantially as and for the purposes described.

2. A buckle for shoes and other articles, consisting of a draw-plate B, provided with a resilient stud b^3, in combination with a lever A, pivoted and held at one end to the draw-plate B and adapted to engage at its other end with said resilient stud b^3, substantially as described.

478,121. WRENCH. WILLIAM MILLER, Hillsdale, Mich., and WILLIAM S. DUVALL, Washington, D. C.; said Duvall assignor to said Miller. Filed Mar. 3, 1892. Serial No. 423,630. (No model.)



Claim.—1. In a wrench, the combination, with the stock rectangular in cross-section and having one of its corners squared to form a cutting-edge and its outer end curved to form a stationary jaw having an inner concaved and outer convexed face, the latter provided with teeth, said jaw at its outer extremity and concaved side being reduced to form a cylindrical lug adapted to engage the perforations in a gland-nut, of a curved jaw having its shank bifurcated and spread to embrace the stock, and pivoted thereto in rear of its bent end, one of said bifurcations being extended beyond the pivot some distance to form a wire-cutter and having one of its corners squared and adapted to coact with the squared cutting-corner of the stock, substantially as specified.

2. In a wrench, the combination, with a stock having its outer end curved to form a convexed toothed jaw and a concaved curved jaw adapted to embrace a gland-nut and terminating in a reduced cylindrical lug 4, of a curved jaw pivoted to the stock and having its inner face toothed and adapted to operate in connection with the teeth of the convexed jaw, substantially as specified.

478,122. SHOE-LACE FASTENER. JOHN S. MURPHEY, Greensburg, assignor of one-half to William J. Johnston, Pittsburg, Pa. Filed Feb. 9, 1892. Serial No. 420,965. (No model.)



Claim.—The herein-described shoe-lace fastener, the same consisting of a securing-plate provided with integral prongs and having at its edge an outwardly-disposed slightly-curved flange, a binding-disk having its outer face recessed to form a surrounding annular wall, and a thin bottom or back, the annular wall being convex to conform with the flange and exteriorly roughened throughout its circumference, and a rivet passing through the back wall of the disk and into the plate and eccentrically pivoting the disk upon the plate, substantially as specified.

478,123. CURLING-IRON HOLDER. GEORGE F. MCINTOSH, Gardiner, Me. Filed Aug. 5, 1891. Serial No. 401,736. (No model.)

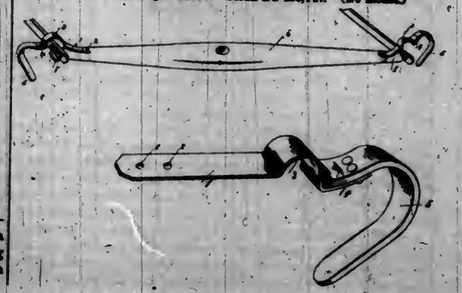


Claim.—1. The herein-described curling-iron holder, the same consisting of a frame formed of sheet metal and having a tongue struck therefrom near its lower end, said tongue and frame being adapted to embrace a lamp-chimney, and the frame provided near its upper end with an inclined iron-supporting tongue, substantially as specified.

2. The herein-described curling-iron holder, the same consisting of an oblong sheet-metal frame having an upper and a lower tongue struck therefrom at contrary sides of the frame, the lower tongue being compoundly curved and the upper tongue being inclined and transversely curved, substantially as specified.

3. The herein-described curling-iron holder, the same consisting of an oblong sheet-metal frame having an upper and a lower tongue struck therefrom at contrary sides of the frame, the lower tongue being compoundly curved and the upper tongue being inclined and transversely curved, said frame having a contracted opening above its upper tongue adapted to fit the iron, substantially as specified.

478,124. HARNESS ATTACHMENT. JAMES W. MCNEILL, Fayetteville, N. C. Filed Apr. 7, 1892. Serial No. 428,147. (No model.)



Claim.—1. The combination, with a singletree or whiffletree, of a metallic spring-strip secured at its inner end and having a loop at its outer end adapted to fit over the cockeye, and a flexible strap of leather secured to the outer end of said strip, said strap normally extending inward at an oblique angle and unattached at its free end, substantially as and for the purpose set forth.

2. As an improved article of manufacture, a locking device for trace ends, consisting of a spring-metallic strip secured at its inner end and having a loop at the outer end thereof, with a terminating portion extending in a plane substantially parallel with the main body of the strip, and a flexible strap of leather connected to said terminating portion, said strap normally extending inward at an oblique angle and unattached at its free end, substantially as described.

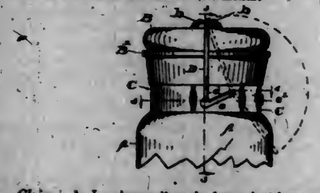
478,125. CAR-COUPLING. CHAPIN C. NEFF, Good Hope, Ill. Filed Feb. 20, 1892. Serial No. 422,186. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head, a coupling-hook mounted therein, and a hook-support pivotally mounted in the draw-head between the sides of the same and adapted to engage the coupling-hook to hold the latter elevated and to be carried out of engagement with the coupling-hook by a link to cause the hook to fall, substantially as described.

2. In a car-coupling, the combination of a draw-head, a coupling-hook pivoted therein and provided near its front end with a slot and having a shoulder, and a weighted hook-support pivotally mounted in the draw-head and provided with a tongue arranged in the slot of the hook and adapted to engage the shoulder thereof to support the hook, substantially as described.

478,126. JAR-SEALING DEVICE. IRENAEUS P. NELSON, Muncie, Ind., assignor of one-half to George F. McCulloch, same place. Filed Sept. 30, 1891. Serial No. 407,256. (No model.)



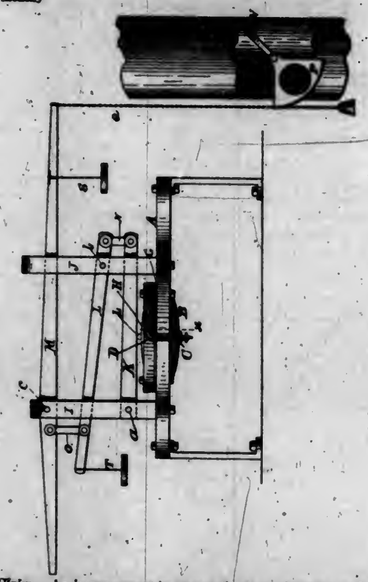
Claim.—1. In a jar-sealing device, a band surrounding the neck of the jar, offsets in said band provided with inclined slots extending in the same direction from substantially diametrically-opposite points, and a bail having lower inturned ends adapted to work in said slots and which extends up over the cover of the jar.

2. The combination, in a jar-sealing device, of a jar having a reduced neck, a band secured around the reduced portion of the neck and held thereby and having substantially parallel offsets, in which are inclined slots, a bail having lower inturned ends which enter the slots and which extends up over the cover of the jar, said bail being formed to constitute also a spring, all substantially as shown and described.

3. The combination, with a fruit-jar and its cover, of a sealing device for said cover, consisting of a band secured around the neck of the jar and having offsets extending toward one side from substantially diametrically-opposite points, in which are inclined slots extending in the same direction from said substantially diametrically-opposite points, notches in the upper sides of said slots at their lower ends, and a bail having lower inturned ends which enter said slots and which extends over and is adapted to hold said cover in position.

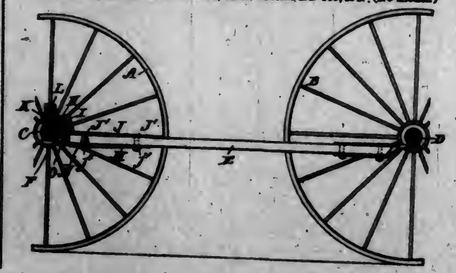
4. The combination of a jar, a band secured around the neck of said jar, having substantially parallel offsets extending in the same direction from substantially diametrically-opposite points, inclined slots therein extending in the same direction from said points, a bail resting at a central point in a seat on the cover, with its lower inturned ends extending into said slots and having bowed-out portions providing for an inherent spring force therein, and said cover, said bail being thus adapted to occupy a central and vertical position when the jar is sealed and exert its force evenly and uniformly on the cover.

478,127. AUTOMATIC STEAM-DAMPER REGULATOR. GEORGE NEWTON, Chicago, Ill. Filed Feb. 13, 1891. Serial No. 381,893. (No model.)



Claim.—An improvement in automatic steam-damper regulators, consisting of the bed-plate A, having therein a chamber, and an opening therefrom leading up through the plate, and a steam-pipe communicating with said chamber, in combination with a flexible disk placed over the opening to the chamber, a thin annular washer placed on the flexible disk and projecting inward over the margin of the opening in the top of plate A, and a ring which secures the flexible disk and washer to said plate, and a disk which lies within the ring and is operated vertically by the flexible disk, standards secured to and projecting up from the said plate and compound levers pivoted to the standards and acted on by a bearing on the said disk, a compensating weight supported by one lever, the damper V, and connections P Q, all constructed and operating substantially as described.

478,128. CARRIAGE-GEAR COUPLING. NELSON A. NEWTON, Kalamazoo, Mich. Filed Jan. 26, 1892. Serial No. 419,491. (No model.)



Claim.—1. The reach-iron J, provided with a downwardly-facing conoidal pivot-pin H, in combination with the upwardly-facing socket F, closed at the bottom and adapted to receive the said pivot-pin, the bar G, with which the said socket is formed, and the front axle, to which the said bar is attached, substantially as set forth.

2. A vehicle-gear coupling consisting of a conoidal oil-holding socket closed at the bottom, in combination with a conoidal pivot-piece fitting therein, a cup receiving the lower end of the said socket, the front running-gear of a vehicle, and the rear running-gear thereof, the said socket being fastened to one of the said parts of the running-gear and the said pivot-piece and cup being fastened to the other of said parts of the running-gear so as to hold the socket between them, substantially as set forth.

3. A vehicle-gear coupling consisting of a front running-gear of a vehicle, in combination with a conoidal oil-holding socket attached thereto, the rear running-gear, a conoidal pivot-piece attached to the latter and fitting in the said socket, and a cup or stop also attached to the rear running-gear and preventing the said pivot-piece from jumping out of the said socket, substantially as set forth.

478,129. WRITING AND DRAWING DEVICE. JOHN J. PAULA, Lyons, Iowa. Filed Feb. 9, 1892. Serial No. 420,900. (No model.)



Claim.—1. A device of the class described, comprising a body adapted to be secured to the hand, a tube depending from the body, a ball arranged within the tube and projecting from the lower end of the same, and a spiral spring arranged within the tube and interposed between the body and the ball and forming an elastic cushion, substantially as described.

2. A device of the class described, comprising a curved body having a concaved upper face, a centrally-depending tube having its upper end closed and provided at its lower end with a flange, balls arranged in the tube, one of the balls protruding through the lower end of the tube, a spring interposed between the balls and the upper end of the tube, and an elastic band extending across the upper face of the body, substantially as described.

478,130. CHAIR. ARTHUR M. RICHARDS, Bloomington, and JAMES A. GIESE, Chicago, Ill.; said Giese assignor to said Richards. Filed June 20, 1891. Serial No. 396,911. (No model.)



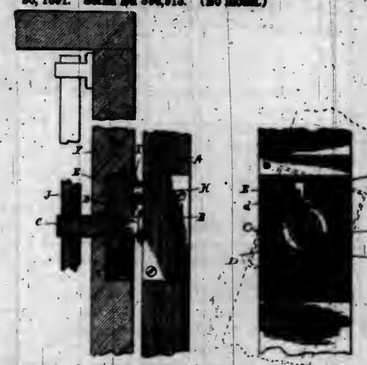
Claim.—1. The combination, with a chair and its back, of a pivot whereon the back may tilt, a tongue having a fixed relation to said pivot, a block having a fixed relation to said back, and spring-actuating jaws including said block and tongue between them, so as to bear simultaneously upon both said block and tongue, substantially as described.

2. The combination, with a chair and its back pivoted thereto, of a casing attached rigidly to one part and a stud attached to the other, a sleeve fitted to said stud and provided with journals for said case, a tongue on said sleeve, a block in said case, and spring-actuated jaws whose faces are adapted to make simultaneous contact with the faces of said block and the tongue of said sleeve, substantially as described.

3. In a yielding pivotal attachment for chair-backs, the combination of the back, a casing secured thereto, a back-support, a stud secured to said support, a sleeve fitted to the stud and forming a journal-bearing for the casing, a tongue *f* on the sleeve, a block G, secured to the casing, jaws H I, pivoted in the casing and encircling the sleeve, and C-spring K, encircling the jaws and bearing at its ends against the ends of the jaws, substantially as described.

4. In a yielding pivotal attachment for chair-backs, the combination of the back, a casing secured thereto, a back-support, a stud attached to said support, a sleeve fitted to the stud and forming a journal-bearing for the casing, a tongue *f* on the sleeve, a block G, secured to the casing, and spring-actuated jaws pivoted in the casing and adapted to bear simultaneously on the tongue *f* and block G, substantially as described.

478,131. CHAIR. ARTHUR M. RICHARDS, Bloomington, and IRWIN VEEDER, Chicago, Ill.; said Veeder assignor to said Richards. Filed June 20, 1891. Serial No. 396,913. (No model.)



Claim.—1. The combination, with a chair and its back pivoted thereto, of a casing attached rigidly to one part and a stud attached to the other, a sleeve fitted upon said stud and forming a journal for said casing, a lug upon said sleeve, and a lug in apposition thereto attached to the case, and a C-spring surrounding said sleeve and bearing at one end against the lug on the sleeve and at the other against the lug attached to the case, substantially as described.

2. The combination, with a chair-back and a support therefor, of a yielding pivotal attachment consisting of a casing attached to one of said parts and a stud C, attached to the other, a sleeve rigidly seated on the stud, a casing journaled on the sleeve, a lug *d* on the sleeve, a lug *e* on the casing in apposition to said lug on the sleeve, and a spring tending to maintain contact between said lugs, substantially as described.

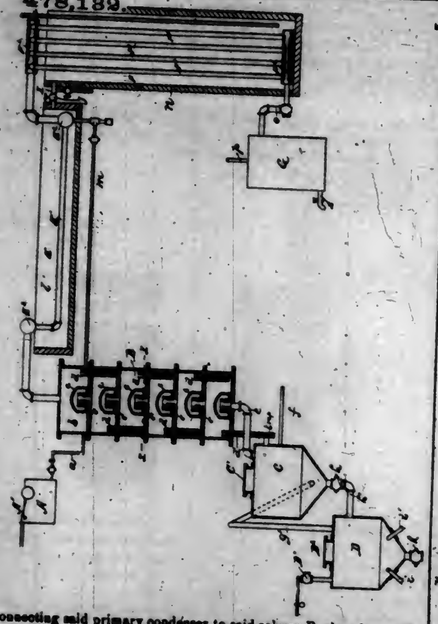
3. In means for pivotally attaching a chair-back to a support, the combination of the casing E, attached to one of said parts and provided with a lug *e*, a stud C, secured to the other of said parts, a sleeve D, seated on the stud and provided with a lug *d*, said casing journaled on said sleeve, a spring G within the casing C, tending to maintain contact between the lugs *d* and *e*, and a spring J, secured, respectively, at its opposite ends to the pivoted part and the support therefor.

478,132. AMMONIA-DISTILLING APPARATUS. WILLIAM L. ROWLAND, Philadelphia, Pa. Filed July 3, 1891. Serial No. 398,319. (No model.)

Claim.—1. In an apparatus for distilling ammonia, the combination, with the primary still D, provided with steam-pipes *i i*, blow-off *k*, and safety-valve D', of a secondary still C, connected to said still D, a lime-inlet pipe *f*, connected to said still C, a distilling-column B, connected to still C by pipes *e* and *d*, the latter being provided with a trap to catch any impurities, a tank provided with a float-controlled valve and discharging into the top of said column B, a horizontal primary condenser consisting of a tray containing a pair of drums connected by a series of pipes, a vertical secondary condenser formed like said primary condenser, pipes connecting the top of column B to the primary condenser and the latter to the secondary condenser, and the tank G, into which the secondary condenser discharges, and devices for supplying cold water to said condensers, all substantially as and for the purpose set forth.

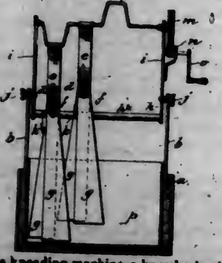
2. In an apparatus for distilling ammonia, the combination, with the primary still D, provided with a conical bottom, a blow-off *k*, steam-pipes *i i*, a safety-valve D', and manhole D², of the secondary still C, connected to said still D by pipes *g*, *g'*, and *h'*, the latter being provided with cock *h*, said still C being provided with a conical bottom, a lime-supply pipe *f*, and a manhole C', a distilling-column B, connected to still C by trapped pipe *d* and pipe *e*, a tank A, provided with float-valve A' and discharging into the top of column B, a horizontal primary condenser consisting of a pair of drums united by a series of pipes, a secondary condenser similarly constructed, but placed in a vertical position, tanks for containing water, surrounding said condensers, connections between the top of column B and said primary condenser and between the latter and the secondary condenser, an auxiliary pipe in,

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connecting said primary condenser to said column B, pipes for supplying water to said water-tanks, and a tank G, into which said secondary condenser discharges, all substantially as and for the purpose set forth.

478,133. KNEADING-MACHINE. JOHN M. RITTERSHOFF, Dixon, Ill. Filed Nov. 20, 1891. Serial No. 412,565. (No model.)



Claim.—1. In a kneading-machine, a kneader having a head and blades secured thereto, the said blades being made with one straight side and one inclined side and the inclined side of one blade arranged opposite the straight side of the adjacent blade of the same kneader, substantially as described.

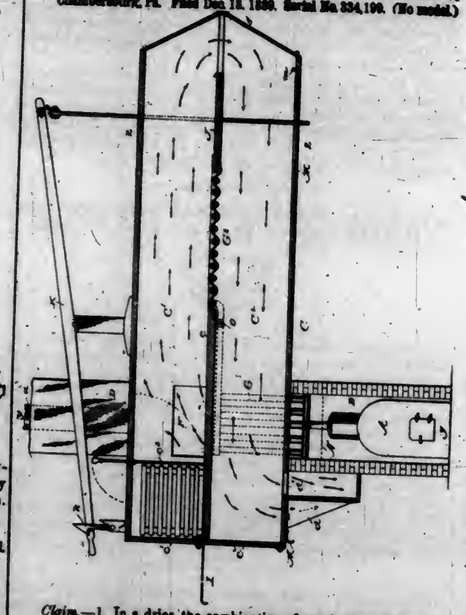
2. In a kneading-machine, a crank-shaft combined with a kneader having a head constructed with a shank by which it is connected with the crank-shaft and having arms branching from each shank and blades secured to each arms and having one straight side and one inclined side, the straight side of one blade being opposite the inclined side of its companion blade on the kneader, substantially as described.

3. In a kneading-machine, the combination of a trough, a crank-shaft supported therein, kneaders secured to such shaft and adapted to receive vertical reciprocation therefrom, and guide-rods jointed to the kneaders and to a fixed portion of the machine, and thereby adapted to vibrate the kneaders as they are reciprocated, substantially as described.

4. In a kneading-machine, the combination of a trough, a crank-shaft supported therein, kneaders secured to such shaft and adapted to receive vertical reciprocation therefrom, tilting uprights in which the shaft is secured, a frame rigid with and projecting from said uprights, and guide-rods jointed to the kneaders and to the said frame to cause the kneaders to vibrate as they are reciprocated, substantially as described.

5. In a kneading-machine, the combination of a number of kneaders, each having a head and blades and each of the said blades being made with one straight side and one inclined or beveled side, the inclined side of one blade being arranged opposite the straight side of the adjacent blade of the same kneader and the inclined side of one kneader overlapping upon the path of travel of the inclined side of a blade of the next kneader, substantially as described.

478,134. DRIER FOR TRAS AND FRUITS. BENJAMIN I. RYDER, Chambersburg, Pa. Filed Dec. 18, 1889. Serial No. 334,199. (No model.)



Claim.—1. In a drier, the combination of two horizontal drying-chambers, one overlying the other and communicating at the rear end, an air-heater delivering into the forward end of the upper chamber, and a discharge-flue leading from the forward end of the lower chamber, said upper chamber constructed to admit of the introduction of trays at its forward end and their transfer at its opposite end to the lower chamber, and the latter constructed to admit of their passage through and discharge at its forward end.

2. In a drier, two drying-chambers communicating at their rear ends, lying one over the other, and provided at the front ends with doors for inserting and removing trays, in combination with a heater and air-inlet at the forward end of the upper chamber, mechanism for transferring the trays from the upper to the lower chamber at the rear end, and an outlet for the moisture-laden air at the forward end of the lower flue.

3. In combination with the chambers C C', communicating constantly at their rear end, the heater communicating with the front of the chamber C, the vertically-movable platform arranged to transfer the trays from one chamber to the other without affecting the communication between them, and devices, substantially as shown, for operating said platform, whereby a constant current of heated air may be maintained within the chambers regardless of the action of the platform.

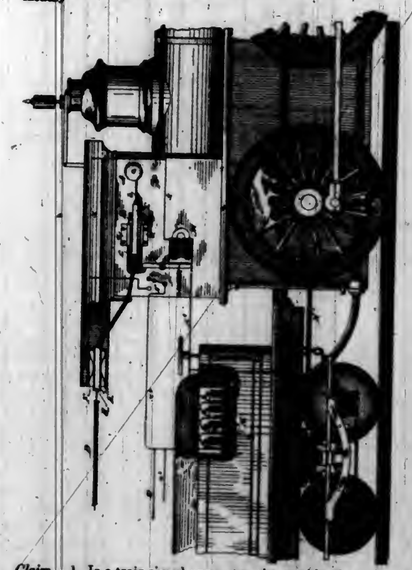
4. In a drying apparatus in which the trays are successively introduced into an upper chamber, transferred to a lower chamber, and finally discharged, the combination of two drying-chambers, one overlying the other, doors at the forward ends of said chambers, a yielding valve at the forward end of the upper chamber, a vertically-movable platform at the rear ends of the chambers, its operating-lever, a rod for advancing the trays in the lower chamber, and a heater communicating with the upper chamber beyond the yielding valve, substantially as described.

5. In combination, the boiler, the inclosing chamber, the flues leading therefrom, the radiators in said flues, the upper drying-chamber into which the flues open, the lower drying-chamber communicating with the upper at one end, the outlet-stack communicating with the lower chamber, and the smoke-pipe located within the stack, whereby the heat radiated by the smoke-pipe will induce a flow of the moisture-laden air from the drying-chamber.

6. The combination, with the upper and lower drying-chambers and the horizontal separating-floor adapted to sustain the trays in their passage through the upper chamber, of the series of radiating-pipes lying horizontally side by side in the same plane with the floor and forming a continuation of the latter, and the separating-sheet applied alternately to opposite sides of the pipes in such manner as to form, in conjunction with the pipes, a support for the moving trays and to expose a portion of the pipes in one chamber and the remainder in the other chamber without establishing communication between the chambers.

7. In combination with the upper and lower drying-chambers, the heater and its surrounding-chamber, the flue leading from the top thereof to the upper drying-chamber, the smoke-pipe leading from the heater, the stack surrounding the same and communicating with the lower drying-chamber, and the cold-air flue extending through the stack to the bottom of the heater, whereby the heat radiated from the smoke-pipe is applied to induce the discharge of moisture-laden air from the lower chamber and to heat the air entering through the flue in the stack.

478,135. RAILWAY-TRAIN SIGNAL APPARATUS. CHARLES SELDEN, St. Louis, Mo., assignor to The Combined Electric and Trip Bell Cord Company, of Illinois. Filed Apr. 2, 1883. Serial No. 90,415. (No model.)



Claim.—1. In a train-signal apparatus, the combination, with the bell mechanism operated by the ordinary bell-cord, of an electro-magnet for actuating said mechanism and means upon a car of the train for admitting an electrical current to said electro-magnet.

2. In a train-signal apparatus, the combination, with the bell mechanism and its pull-cord extending through the train, of an electro-magnet connected with and actuating said bell mechanism, an insulated conductor in said bell-cord, and a circuit closer or breaker for controlling the connection between said conductor and the return-conductor leading to the engine and magnet.

3. The combination, in a train-signal apparatus, of an insulated conductor in the bell-cord, a stud or projection on said cord electrically connected with said cord, and an eye or guide for the cord arranged in the path of the stud and electrically connected with a return-circuit leading to the apparatus on the engine.

4. The combination of the insulated conductor in the bell-cord, the conducting-stud, and the two conducting eyes or guides on either side of said stud.

5. In a train-signal apparatus, the combination of a mechanical signal apparatus, an operating cord or rope extending through the train, an insulated electric conductor carried by said cord, a circuit-controller controlling the circuit of said conductor and operated by a pull upon the cord, an electro-magnet responsive to the operation of the circuit-controller, and a bell or signal mechanism operated by said electro-magnet.

6. The combination, in a train-signal apparatus, of a bell mechanism on the locomotive, an electro-magnet for operating the same, a conductor extending through the train and in a car or cars of the train, and an electro-magnetic signal-bell which is normally disconnected from the conductor but is included in circuit when the connection is closed between said conductor and the return-conductor.

7. The combination, with a bracket electrically connected with the car-roof, of guides I^2 I^3, bell-cord D, and stud or button I^4, electrically connected with the conductor in said cord.

8. The combination of bracket I, guides I^2 I^3, bell-cord D, stud I^4, and bell B^4, the magnet of which is electrically connected with the bracket.

9. The combination, with the bell mechanism, the bell-cord connected to said mechanism, an electro-magnet M, and an armature-lever C, which engages with or is mechanically connected to said bell mechanism.

10. The combination of the bell-cord and the contained conductor forming a portion of the circuit of the electro-magnetically-operated bell, a yielding circuit-controller interposed in the bell-cord, additional conductors combined with said cord, and movable conducting-pieces connected with the additional conductors for completing a circuit between the same and fixed electro-magnets, as and for the purpose described.

11. The combination of the circuit-controller P, the movable pieces S^2 S^3, mounted thereon, and the bell-cord carrying the multiple insulated conductors.

12. The combination, with the bell-cord carrying a conductor which forms a portion of the bell-circuit, of supplemental conductors connected with electro magnets on the car, which control the operation of the car-brake, and means upon the locomotive or other portion of the train for controlling the circuits of said supplemental conductors.

13. The combination, with the circuit-controller P, interposed in the bell-cord, of the movable cylinder S^2 S^3, connected with a magnet R^3, and a supplemental conductor in the bell-cord connected with said cylinder.

14. The combination, with the bell mechanism, of the armature connected therewith, the magnets having each two like poles acting on opposite ends of said armature, and the polarizing-coil on said armature.

15. The combination of a bell-cord extending through the train, a mechanically-operated bell to the striking mechanism to which the bell-cord is attached, an electrical conductor carried by or forming a part of said bell-cord, and an electro-magnet on the engine electrically connected with said conductor through a sliding piece, whereby the bell may be operated mechanically by said cord without interfering with the electrical connection between the conductor and the electro-magnet.

16. In a train-signal apparatus, the combination, with an electric signal upon a locomotive, of a bell-cord on the car, a circuit-controller also on the car, connected with the bell-cord so that a pull on the latter will through the operation of the circuit-controller on the car cause a bell to ring electrically on the locomotive, and a spring for restoring the parts of the circuit-controller to their normal position when the cord is relieved of tension, whereby a repetition of the signal, as desired, may be given by alternately pulling and slackening the cord.

17. The combination, in a train-signal apparatus, of a normally-open circuit extending through the train, circuit-controlling devices on the cars of the train connected with a pull-cord on the cars and adapted to complete the connection to a return-conductor, also extending through the train through increase of tension on the cord, and a spring for restoring the circuit-controlling devices to normal condition when the cord is relieved of tension.

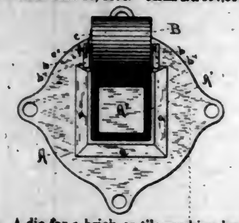
18. The combination, with a railway-train, of a signal-magnet upon the locomotive, an electric circuit extending through the train, and on one or more cars of the train a suitable electric-circuit controller controlling said circuit, a cord or rope extending through the car, as an ordinary bell-rope, for actuating said circuit-controller, and a spring for restoring the circuit-controller to normal position when the pull on the cord ceases.

19. The combination of the bell-cord and its electric conductor forming a portion of a circuit for controlling an electric bell, of a yielding circuit-controller connected into the bell-cord, as described, so as to be actuated mechanically by a pull on the cord to open or close the circuit, a spring acting on the parts of the circuit-controller in opposition to the pull, a return-conductor leading to the source of electric current, and a conducting-piece connected with said return-conductor for completing a circuit between the same and the first-named conductor when the parts of the circuit-controller are extended by a pull, as and for the purpose described.

20. The combination, with a pull-cord, of two or more normally-open yielding circuit-controllers placed at various points on the cord, springs tending to hold the same open and acting in opposition to a pull, and contact-surfaces with which connection is closed on an ex-

pansion or extension of the parts of a yielding circuit-controller produced through a pull on the cord.

478,136. BRICK OR TILE MACHINE DIE. GEORGE C. SKINNER, Troy, Ohio. Filed June 29, 1891. Serial No. 397,814. (No model.)



Claim.—1. A die for a brick or tile machine, having two or more stationary sides, and a roller or rollers forming one or more sides of said die, said roller or rollers being adapted to project between the adjacent stationary sides and fit snugly between the same, substantially as specified.

2. A die for a brick or tile machine, having projecting flanges adapted to form the sides thereof, a removable plate arranged at one side of said die and within the adjacent projecting flanges, and an adjustable roller the periphery of which is substantially in line with said removable plate and having a contour corresponding to the contour of said plate, substantially as specified.

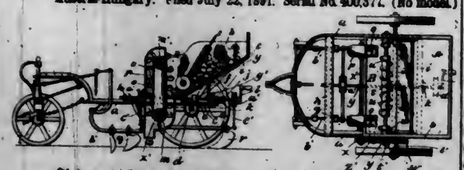
3. In a die for brick or tile machines, a roller or rollers forming one or more sides of said die, said roller or rollers being located between the adjacent stationary sides of said die, and means, substantially as described, for regulating the speed of said roller or rollers in relation to the outward movement of the brick or tile material through said die, substantially as specified.

4. The combination, with the projecting side flanges forming the walls of a die, as described, of a roller arranged in connection with said stationary walls and fitted between the same, and adjustable arms for supporting said roller, substantially as specified.

5. In a die for brick or tile machines, the combination, with the base or supporting plate, of the projecting stationary side flanges, and a removable plate arranged within said side flanges, and a roller in proximity to said removable plate, the periphery of which is of a contour corresponding to said removable plate, said roller being supported on adjustable arms, so that the operating-periphery is located between the stationary side flanges, and means, substantially as described, for regulating the speed of said roller in relation to the movement of the material passed through said die, substantially as specified.

6. In a die for brick or tile machines, a roller or rollers forming one or more sides of said die, said roller being supported on adjustable arms, and an adjustable friction device connected with said arms for varying the speed of said roller, substantially as specified.

478,137. POTATO-PLANTER. EDUARD SKORPIL, Nagy-Ugocs, Austria-Hungary. Filed July 22, 1891. Serial No. 400,377. (No model.)

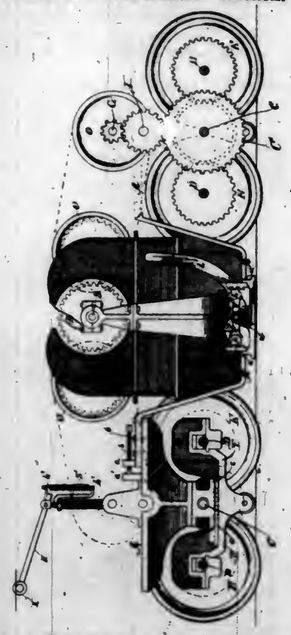


Claim.—1. In a potato-planter, the combination, with the horizontal frame *a*, a seed-box movably arranged thereon, and stays for supporting the rear part thereof on the side bars of the frame *a*, and a cupped elevator in said box, of a screw-threaded spindle *g*, mounted in cross-piece *i* and bearing *e*, and crank *l*, whereby the spindle is operated and the seed-box moved longitudinally, substantially as set forth.

2. In a potato-planter, the combination, with a movable seed-box divided by slide *s* into two parts A and B, an elevator-tube in the front portion thereof, rollers, endless bands mounted on rollers located in said tube, and scoops on said bands, of a horizontal worm in chamber A, running below the slide *s*, having separate screw-threads for feeding the potatoes into chamber B, substantially as set forth.

3. In a potato-planter, the combination, with a movable seed-box divided by slide *s* into two parts A and B, an elevator-tube in the front portion thereof, endless bands mounted on rollers located in said tube, and scoops on said bands, of a horizontal worm in chamber A, running below the slide *s*, having separate screw-threads for feeding the potatoes into chamber B, furrow-opening plowshares movably arranged in front of the elevator, and covering-plowshares movably arranged at the rear of the whole device, substantially as set forth.

478,138. ELECTRIC MINE-CAR. ELMER A. SPERRY, Chicago, Ill. Filed Feb. 16, 1891. Serial No. 381,551. (No model.)



Claim.—1. In a motor tram-car, the combination of the following elements: a motor and counter-shaft mounted on the car-frame, a power-transmitting device upon the counter-shaft, a truck supporting and tractionally connected to the car-frame through the counter-shaft, power-transmitting devices upon one or more axles of the truck, having surfaces which abut against similar surfaces on the device carried by the counter-shaft, whereby power is transmitted from the motor to the truck and draft is transmitted from the axles to the car-frame through the abutting-surfaces of the transmitting devices and the counter-shaft.

2. In a motor tram-car, pivotal trucks, axles mounted on the trucks, provided with traction-wheels, a shaft mounted upon the car, power-transmitting connections from the shaft to a motor, and a wheel mounted upon such shaft by a universal-joint connection in engaging contact with wheels mounted upon the axles of the truck, the arrangement being such that through the engagement of the wheels and connecting mechanism both power and draft may be transmitted between the truck and the car.

3. In a motor tram-car, the combination of the following elements: a motor and counter-shaft mounted on the car-frame and located between the axles of the truck, a power-transmitting device upon the counter-shaft, a truck supporting and tractionally connected to the car-frame through the counter-shaft, power-transmitting devices upon one or more axles of the truck, having surfaces which abut against similar surfaces on the device carried by the counter-shaft, whereby power is transmitted from the motor to the truck and draft is transmitted from the axles to the car-frame through the abutting surfaces of the transmitting devices and the counter-shaft.

4. In a motor tram-car, pivotal truck or trucks, axles mounted on the trucks, provided with traction-wheels, a shaft mounted upon the car, and a wheel mounted upon such shaft by a universal-joint connection in engaging contact with wheels mounted upon the axles of the truck, adapted by such engagement to control the plane of rotation of the universally-mounted wheel

5. In a motor tram-car, pivotal truck or trucks, axles mounted on the trucks, provided with traction-wheels, a shaft mounted upon the car, a wheel mounted upon such shaft by a universal-joint connection in engaging contact with wheels mounted upon the axles of the truck, and devices upon such wheels adapted to maintain the universally-mounted wheel in alignment with the wheels upon the axles of the truck.

6. In a motor tram-car, pivotal truck or trucks, axles mounted upon the truck, provided with traction-wheels, a shaft mounted upon the car, power-driving connections from the shaft to a motor, a gear-wheel mounted upon the shaft by a universal-joint connection in engagement with gear-wheels mounted upon the axles of the truck, and housings upon the lateral sides of the gear-wheels in rolling contact, adapted to transmit draft between the truck and the car and to maintain the alignment of the gear-wheel.

7. In a motor tram-car, in combination with an auxiliary rail, an auxiliary wheel mounted upon the truck on one side thereof between the planes passing vertically through the axles of the truck and adapted by its travel upon the auxiliary rail to slightly raise the traction-wheels upon the side of the truck with the auxiliary wheel from traction-contact with the rail.

8. In a motor tram-car, a truck having axles and wheels mounted thereon, an auxiliary wheel mounted on the truck at one side between the axles and adapted to travel on an auxiliary rail in proximity to the main rail and to co-operate with the wheels on the other side of the truck to support the truck on three points only, substantially as shown, and for the purposes described.

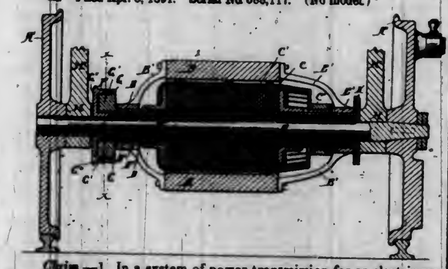
9. In a motor tram-car, gear-wheels having a centrally-located radial flange for the support of the gear, teeth-housings on the lateral sides of the teeth, and radial openings between the teeth at their bases and between the central flange and the housings, substantially as shown, and for the purposes described.

10. In a motor tram-car, a trolley-arm carrying a conductor adapted to establish electric connection between the fixed conductors and the motor carried by the tram-car with a fuse-strip on the trolley-arm in circuit with the conductor thereon with binding connections for its insertion and removal.

11. In a motor tram-car, a motor supported on the car-frame and power-driving connections from the motor to the axles of the wheels, in combination with mechanism connected with the support of the axles of the wheels with reference to the car-frame, whereby the position of the axles or truck may be adjusted from one position to another upon the frame for varying or tightening the said power-driving connections.

12. In a motor tram-car, a truck connected to the car, so as to swing about a pivot, a pivot for such truck, consisting of two elements, viz: a rotating shaft and a universally-mounted wheel in engagement with each other, one engaging with the car frame, the other with the truck, flanged wheels upon the truck, and a track co-operating therewith for the support and guidance of such truck.

478,139. ELECTRIC LOCOMOTIVE. ELMER A. SPERRY, Chicago, Ill. Filed Apr. 3, 1891. Serial No. 388,117. (No model.)



Claim.—1. In a system of power transmission for an electric machine, a crank and pitman, a revolving part of the electric machine, and an elastic power-transmitting portion between the crank and the revolving part.

2. In a system of power transmission for an electric machine, an axle, an armature provided with a hollow spindle mounted upon the axle, a bushing surrounding the axle, an elastic supporting medium between the bushing and the hollow spindle, and oil-guards at the ends of the spindle, as and for the purpose specified.

3. In a system of power transmission for an electric machine, an axle, an armature provided with a hollow spindle mounted loosely upon the axle, an elastic driving connection between the spindle and the axle, journal-bearings in proximity to said connection, and oil-guards at the ends of the journal-bearings, substantially as and for the purpose specified.

4. In combination with the revolving part of an electric machine, consisting in part of a hollow spindle, a car-axle which the spindle encircles, and an elastic supporting medium between the spindle and the axle, journal-boxes for the axle near the ends of the hollow spindle, and oil-guards mounted upon the axle between the journal-bearing and the elastic support, substantially as specified.

5. In a system of power transmission for an electric machine, an axle, a revolving part of such machine supplied with a hollow spindle encircling the axle, but separated from it by a space, a continuous bushing within the space fitting loosely upon the axle, and an elastic medium interposed between the spindle and the bushing, in combination with driving projections extending from both the axle and the spindle and engaging through an elastic medium interposed between them, substantially as and for the purpose specified.

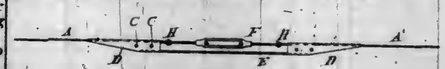
6. In a system of power transmission for an electric machine, a crank-shaft, a revolving portion of such machine supplied with a hollow spindle mounted upon said shaft, an elastic support between the crank-shaft and the hollow spindle, and an elastic driving medium between such shaft and the revolving part.

7. In combination with the revolving part of an electric machine, consisting in part of a hollow spindle, a car-axle which the spindle encircles, an interlocking driving connection between one end of the spindle and the axle, and a removable wheel on the other end of the axle.

8. In a system of power transmission for an electric machine, the combination of the following elements: a revolving part consisting of two detached but synchronously-revolving portions, one bearing the armature and the other bearing the reciprocating connection, a reciprocating power-transmitting device, and a cushion connection mounted within the revolving part between the detached portion and the armature.

9. In a system of power transmission for an electric machine, the combination of the following elements: a revolving part consisting of two detached but synchronously-revolving portions, one bearing the armature and the other bearing a crank-pin, a reciprocating power-transmitting device, and a cushion connection mounted within the revolving part between the crank-pin and the armature.

478,140. TROLLEY-WIRE SPLICE. ELMER A. SPERRY, Chicago, Ill. Filed Apr. 18, 1892. Serial No. 429,571. (No model.)



Claim.—1. The combination of a trolley-wire, splice on such trolley-wire, tapered clamps each side of said splice, and a metallic connection, as E, between such clamps.

2. The combination of two trolley-wires approaching each other, a coupling substantially larger than the trolley-wires for resisting the strain and coupling the wires, two tapered clamps located one each side of the coupling, and a metallic connection or bridge-piece connecting the clamps.

3. The combination of two trolley-wires approaching each other, an adjustable coupling substantially larger than the trolley-wires for resisting the strain and coupling the wires, two tapered clamps located one each side of the coupling, and a metallic connection or bridge-piece connecting the clamps.

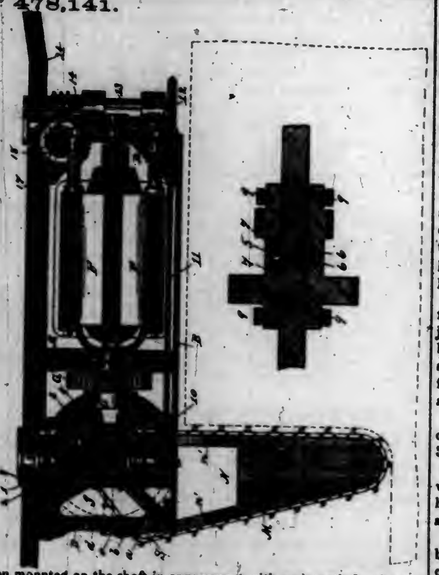
4. The combination of two trolley-wires approaching each other, an adjustable coupling substantially larger than the trolley-wires for resisting the strain and coupling the wires, one tapered clamp rigidly attached to the wire upon one side of the coupling, and another tapered clamp on the other side of the coupling, arranged to slide upon the wire.

478,141. MINING-MACHINE. ELMER A. SPERRY, Chicago, Ill., assignor to the Thomson-Houston Electric Company, Boston, Mass. Filed May 4, 1891. Serial No. 391,469. (No model.)

Claim.—1. The combination of a self-propelling mining-machine having a laterally-projecting cutting mechanism mounted upon a carriage and adapted to continuous travel, a rail extending lengthwise of the mining or face to be cut, made up of a series of sections separately joined together at their ends, so as to bend in a horizontal plane at these points to conform to the irregularities in the face to be cut, each section being provided with means for removably fixing it in position, teeth upon the rail sections, the pitch-line of which is in line of the articulations, and a pinion mounted upon the carriage to engage with the teeth upon the rail for the propulsion of the carriage, the work being performed by the side or edge of the laterally-projecting cutting device.

2. The combination of a mining-machine having a laterally-projecting cutting mechanism presenting a cutting-face along the side or edge thereof, mounted upon a traveling carriage, wheels mounted upon the carriage and bearing upon a rail on one side of the machine only for the support of the carriage, a tread upon the upper side of the rail upon which supporting-wheels bear, having a flange upon one side of the rail, vertically-disposed pintles constituting teeth and connecting the tread with a similar flat bar on the under side of the rail, a vertically disposed shaft forming a part of the machine, and a pin-

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ion mounted on the shaft in engagement with such teeth for the propulsion of the carriage.

3. In combination with a mining-machine such as described, a guiding and supporting rail consisting of a single line or series of rail-sections joined end to end, each section being formed of a top and bottom bar and perpendicular pintles connecting them at intervals, said sections pivotally and detachably joined together at their ends, jack-posts or extensible props located at one side of such line of rails at sufficient distance to allow the machine to pass, and connections between the rails and jack-posts.

4. A single line or series of rail-sections, each section provided with means for adjustably supporting it, said sections pivotally and detachably joined together at their ends, whereby a horizontal adjustment of the alignment of the several sections is permitted to conform to the irregularity of the mine-face along which the work is performed, in combination with a machine adapted to travel along such rail, and a pinion upon a vertical shaft forming a part of the machine, such pinion co-operating with the rail to feed the machine, substantially for the purpose specified.

5. The combination of a self-propelling mining-machine having a laterally-projecting cutting mechanism mounted upon a carriage and adapted to continuous travel, a rail extending lengthwise of the mining or face to be cut, made up of a series of sections separably joined together at their ends, so as to bend in a horizontal plane at these points to conform to the irregularities in the face to be cut, the sections being provided with means for removably fixing them in position at an elevation from the floor of the mine, leaving a free space under and between the rail and the floor, teeth upon the rail-sections the pitch-line of which is substantially in line of the articulations, and a pinion mounted upon the carriage to engage with the teeth upon the rail for the propulsion of the carriage, the work being performed by the side or edge of the laterally-projecting cutting device.

6. A series of rail-sections, each consisting of an upper and a lower bar and intermediate perpendicular connecting-pintles, said sections detachably and pivotally connected at each of their ends by one of the pins, forming with the other pintles members of a series of teeth, in combination with a mining-machine adapted to travel along such rail by a pinion on a vertical shaft which engages with such pintles.

7. A series of longitudinal rail-sections, each having an upper and a lower bar and intermediate connecting-pintles, said sections being separably and pivotally connected end to end by pins, forming with the pivot and also with the pintles members of a series of teeth for co-operation with a pinion on the machine, and a vertical shaft upon which the pinion is mounted.

8. In combination with a mining-machine mounted upon a traveling carriage and adapted to continuous travel along a rail, a jack-screw bearing against the floor and the roof of the mine, a bracket mounted upon the jack-screw and projecting laterally therefrom, and a rail supported on the bracket at a distance from the jack-screw, whereby the machine is permitted to travel continuously along the rail and past the jack-screw.

9. In combination with a mining-machine, substantially as described, a series of jack-screws bearing against the floor and the roof of the mine, a bracket extending laterally from each, adjustably secured to one of the members of the jack, and a series of rails upon the brackets for the support and guidance of the machine.

10. In combination with a mining-machine, substantially as described, a series of jack-screws bearing against the floor and roof of the mine, a bracket extending laterally therefrom, having an internally-threaded portion and an externally-threaded portion on one of the members of the jack, and a series of rails upon the brackets for the guidance and support of the machine.

11. A jack-post bearing against the floor and the roof of the mine, a laterally-projecting bracket supported upon the jack-screw and vertically adjustable thereon, and a rail supported upon the bracket at a distance from the jack-post sufficient to admit the passage of the machine past the same, in combination with a machine supported upon the rail provided with wheels having flanges upon both sides of the track.

12. A series of jack-posts or extensible props resting upon the floor and bearing against the roof of the mine, brackets vertically adjustable on the jack-posts, and rail-sections rigidly attached to said brackets at a distance from the jack-posts sufficient to admit the passage of the machine past the jack-screw, the various sections united forming a continuous rail and coupled by a pivot admitting of the alignment being varied.

13. As a means of securing the cutting-teeth in the chain, the combination of the chain, the cutting-teeth in pairs, the grooved plate 52, and the set-screw 53.

14. In a mining-machine, the combination of a projecting arm, a wheel-bearing for the cutting-chain and having a groove within the hub, and spherical balls within the groove and between the same and a centrally-located portion of the arm.

15. In a mining-machine such as described, a bearing for the outboard-wheel carrying the cutting-chain, consisting of the combination of the wheel, the balls *u*, the inner ring *p*, and the plug *r*, with the upper and lower plates *s''* of the arm.

16. The combination of the wheel having the groove within the hub and a groove on the arm, the groove on one of these elements being formed of two parts removably secured together, with balls in the grooves between the wheel and the arm.

17. The combination of the wheel having the groove within the hub, balls in the groove, a containing or supporting plate on each side of the wheel bearing two parts removably secured together and which form a groove opposing that in the hub of the wheel, and projecting flanges upon the parts which form the groove, whereby the plates are clamped together.

18. The combination of a self-propelling mining-machine having a laterally-projecting cutting mechanism mounted upon a carriage and adapted to continuous travel, a rail extending lengthwise of the mining or face to be cut, made up of a series of sections separably joined together at their ends, so as to bend in a horizontal plane at these points to conform to the irregularities in the face to be cut, the sections being provided with means for removably fixing them in position, teeth upon the rail-sections the pitch-line of which is substantially in line of the articulations, and a pinion mounted upon the carriage to engage with the teeth upon the rail for the propulsion of the carriage, the work being performed by the side or edge of the laterally-projecting cutting device, in combination with a bearing pressed upon the lateral edge or edges of the rail and located at the rear of the machine, whereby the thrust of the laterally-projecting arm is resisted.

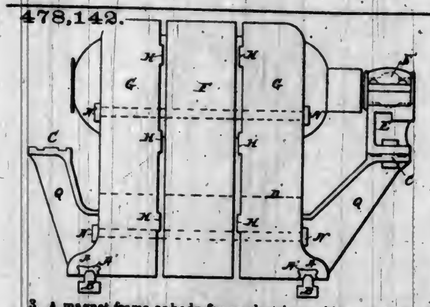
19. In a mining-machine, a chain having a series of cutter-bearing links which have cutters inserted therein in pairs in an opening located at one side of the longitudinal middle of the link, and a plate bearing against the shank of both teeth of a pair and secured therein by a set-screw passing through the thick side of the link.

478,142. DYNAMO-ELECTRIC MACHINE OR MOTOR. ELMER A. SPERRY, Chicago, Ill., assignor to the Thomson-Houston Electric Company, Boston, Mass. Filed Nov. 16, 1891. Serial No. 411,963. (No model.)

Claim.—1. A magnet frame or body for an electric machine, consisting of a U-shaped casting without joint in the magnetic path and without bed frame or bed-plate, way-grooves in the body for its support, and brackets integral therewith extending laterally and upwardly from the horizontal portion of the magnet-body for the support of the journals.

2. A magnet frame or body for an electric machine, consisting of a U-shaped casting without joint in the magnetic path and without bed-frame or bed-plate, way-grooves in the body for its support, ways co-operating with such way-grooves for the support of the machine, the two upright portions of the U-shaped body consisting of straight portions for the reception of the magnet-coils, and brackets integral therewith extending laterally and upwardly from the horizontal portion of the magnet-body for the support of the journals.

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3. A magnet frame or body for an electric machine, consisting of a U-shaped casting without joint in the magnetic path and without bed-frame or bed-plate, way-grooves in the body for its support, pole-pieces integral therewith, and coil-spools adapted to slip over the pole-pieces, the upright portions of the U of such shape and size as to fill the magnet-spools, substantially as and for the purpose specified.

4. In an electric machine the magnets of which are made up of casting or castings without joint in the magnetic path, without bed-frame or bed-plate, having way-grooves cast therein, and ways adapted to co-operate with the grooves for the support of the machine, the organization being such that the ways are smaller than said grooves, in combination with filling inserted within the grooves between their walls and the surfaces of the ways, substantially as and for the purpose specified.

5. In an electric machine the magnets of which are made up of massive casting or castings of U shape without joint in the magnetic path, an arm cast integral therewith, joining said massive magnet-frame at a point below the upper surface of the horizontal part, protruding outward and bending upward from this point, and a journal-bearing mounted upon the extremity of the arm, the two upright portions of the U being supplied with magnet-coils, substantially as shown and described.

6. In an electric machine, a magnet consisting of a U-shaped casting without joint in the magnetic path, two brackets cast integral with such frame, joining same at a point below the upper surface of the horizontal portion, protruding therefrom outwardly and upwardly, and presenting surfaces at opposite ends of the armature-gap, and journal-supporting cases with concave spherical surfaces resting on such surfaces, in combination with journals with corresponding convex spherical surfaces adapted to rest within the journal-supporting cases, substantially as and for the purposes specified.

7. In a dynamo or motor, an armature the core of which is formed of slotted disks, a slotted flange on each end of the core and insulated therefrom, means for securing the flanges to the shaft and forcing them against the core, and winding-casings in the slots and extending through the flanges, whereby the core is caused to rotate with the flanges.

8. In a dynamo or motor, an armature the core of which is formed of slotted disks, slotted flanges on each end of the core, and winding-cases in the slots extending through the flanges and lapped over the flanges toward the shaft, in combination with the armature-coils.

9. In a dynamo or motor, an armature the core of which is formed of slotted disks, and winding-cases in the slots, which after the coils are wound are driven down at their lateral sides and spread out so as to cover the peripheral area of the coil or a portion thereof.

10. In a dynamo or motor, an armature the core of which is formed of slotted disks, and winding casings in the slots, said casings formed of material substantially such as described, and which after the coils are wound are driven down at their lateral sides and spread out so as to cover at least a portion of the peripheral area of the coil, in combination with a casing or insulation S, which covers all the coil and is secured by band-wires O.

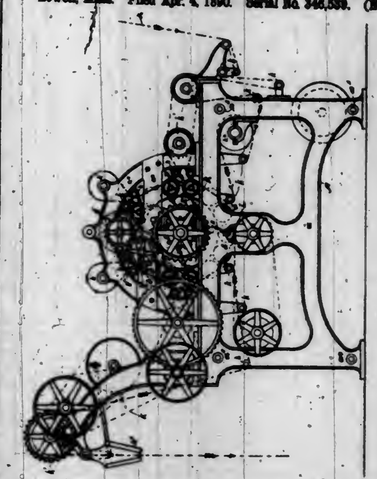
11. In a dynamo or motor, an armature the core of which is formed of slotted disks, and coils within the slots, in combination with insulation which covers all the coils and which is secured by bands of soft-iron wire, which wire is wound in narrow bands the convolutions of which are soldered together, such bands being separated from each other by spaces, insulating them thereby from Foucault currents.

12. In a dynamo or motor, an armature the core of which is formed of slotted disks, and winding-casings in the slots, said casings formed of vulcanized fiber, rawhide, parchment, or any fibrous, tough, hard insulating material, and which after the coils are wound are driven down at their lateral sides and spread out so as to extend over at least a portion of the peripheral area of the coils, in combination with a casing or insulation S, which covers all the coils and is secured by bands of soft-iron wire, which wire is wound in small bands the convolutions of which are soldered together, and the bands separated from each other by spaces insulating them from Foucault currents.

13. In a dynamo or motor, an armature having longitudinal grooves in the periphery of its core and coils of opposite potential wound in each groove, those in any groove being wound through the diametrically-opposite groove, the coils of the same potential in any groove being in groups of two, the size and proportion of the grooves being such that the groups of two coils of the same potential are in whole or part superposed or wound upon each other and come out in even layers, with the coils of the same potential connected to the same side of the commutator.

14. In a dynamo or motor, an armature having longitudinal grooves in the periphery of its core and coils of opposite potential wound in each groove, those in any groove being wound through the diametrically-opposite groove, the coils of the same potential being in groups of two, the size and proportion of the groups being such that the groups of two coils of the same potential are in whole or part superposed or wound upon each other and come out in even layers, with flat strips of insulation between the coils of different potential in the same groove and the coils of the same potential connected to the same side of the commutator.

478,148. CLOTH-NAPPING MACHINE. EDWARD W. THOMAS, Lowell, Mass. Filed Apr. 4, 1890. Serial No. 346,569. (No model.)



Claim.—1. The combination of the napping-cylinder consisting of heads or spiders and napping-rolls journaled therein, said napping-rolls having tapering fast pulleys, a tapering driving-pulley concentric with said napping-cylinder and having its face in contact with the faces of said first-named tapering pulleys, the axes of said napping-cylinder and of all said pulleys being parallel with each other, and means of adjusting said driving-pulley in the line of its axis to increase the frictional contact between its face and the faces of said pulleys, as and for the purpose specified.

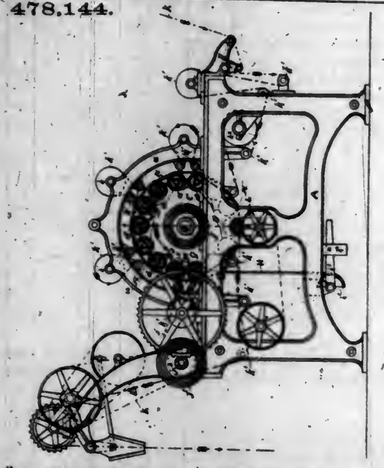
2. The combination of the napping-cylinder consisting of heads or spiders and napping-rolls journaled therein, said napping-rolls having tapering fast pulleys, a gear having an externally-screw-threaded hub and a tapering driving-pulley concentric with said napping-cylinder and having its face in contact with the faces of said first-named tapering pulleys and having an internally-screw-threaded hub to receive and engage the hub of said gear, as and for the purpose specified.

3. The combination of the napping-cylinder consisting of heads or spiders and napping-rolls journaled therein, said napping-rolls having tapering fast pulleys, a gear having a hub externally screw-threaded and provided with longitudinal slots, a tapering driving-pulley concentric with said napping-cylinder and having its face in contact with the faces of said first-named tapering pulleys and having an internally-screw-threaded hub to receive and engage the hub of said gear, and a screw turning in a hole with which said last-named hub is provided and entering one of said longitudinal slots in the hub of said gear, as and for the purpose specified.

478,144. MACHINE FOR NAPPING CLOTH. EDWARD W. THOMAS, Lowell, Mass. Filed Apr. 4, 1890. Serial No. 346,573. (No model.)

Claim.—1. The combination of the napping-cylinder consisting of heads or spiders and napping-rolls journaled in said heads, said napping-rolls being provided with fast pulleys, a belt extending around all said

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pulleys and in contact therewith and causing the same to be rotated by frictional contact therewith when said napping-cylinder is rotated, one end of said belt being fast, and a weight to draw the other end of said belt and to cause a uniform tension thereon, as and for the purpose specified.

2. The combination of the napping-cylinder consisting of heads or spiders and napping-rolls journaled in said heads, said napping-rolls being provided with fast pulleys, a belt extending around all said pulleys and in contact therewith and causing the same to be rotated by frictional contact therewith when said napping-cylinder is rotated, one end of said belt being fast, a lever connected to the other end of said belt, and a weight supported on said lever to cause a uniform tension on said belt, as and for the purpose specified.

3. The combination of the napping-cylinder consisting of heads or spiders and napping-rolls journaled in said heads, said napping-rolls being provided with fast pulleys, a belt extending around all said pulleys and in contact therewith and causing the same to be rotated by frictional contact therewith when said napping-cylinder is rotated, one end of said belt being fast, a lever connected to the other end of said belt, and a weight adjustable on said lever to vary the tension of said belt, as and for the purpose specified.

478,145. ELECTRIC-ARC LAMP. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Mar. 22, 1890. Serial No. 344,936. (No model.)

Claim.—1. The combination, with an arc-lamp carbon, of a constantly-running motor controlled by and responsive to the current or electro-motive force between the terminals of the arc or lamp and a speed-responsive device connecting the carbon with the motor, so as to cause the motor to operate the carbon on a variation from normal speed.

2. The combination, with an arc-light carbon, of an electric motor constantly in operation and a speed-responsive device connecting said carbon with the motor, so as to be actuated thereby upon a variation from the normal speed of the motor.

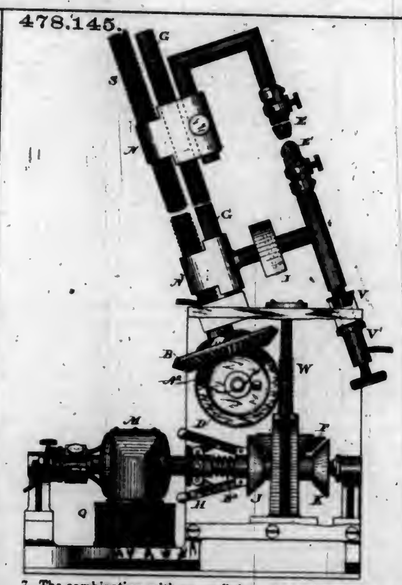
3. The combination, with an arc-light carbon, of an electric motor on the same circuit and depending upon the electrical conditions of the arc and a speed-responsive device actuated by the said motor and adapted to connect the carbon with the motor, so as to be actuated thereby upon a variation from the normal speed of the motor.

4. The combination, with an arc-light carbon, of operating mechanism therefor, an electric motor constantly in operation and depending upon the electrical condition of the arc, and a speed-responsive device driven by said motor and adapted to connect the said motor with the said mechanism upon a variation from the normal speed of the motor.

5. The combination, with two arc-light carbons, of a common actuating mechanism therefor, an electric motor actuated constantly and depending upon the condition of the arc, and a speed-responsive device adapted to connect the motor with the said mechanism on a variation from the normal speed of the motor.

6. The combination, with an arc-light carbon, of an electric motor constantly in operation, speed-reducing mechanism through which the motor may act upon said carbon, and a speed-responsive device for mechanically connecting the motor and the carbon through said mechanism upon a variation from the normal speed of the motor.

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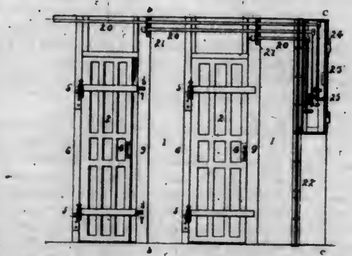
7. The combination, with an arc-light carbon, of actuating mechanism therefor having a friction-wheel for driving the same, an electric motor, two pinions driven by the motor, and a speed-responsive device adapted to bring one or the other of said pinions in contact with said friction-wheel upon a variation from the normal speed of the motor.

8. The combination, with two arc-light carbons, of a shaft having two screw-threads thereon of different pitch, a nut connecting each of the said carbons with the two screw-threads, respectively, an electric motor in continuous operation, and a speed-responsive device connecting the said motor with the said shaft upon a variation from its normal speed.

9. The combination, with a constant-potential circuit, of an arc lamp included therein, a constantly-running electric motor having driving connections with a carbon of said lamp and having its armature in circuit with the arc, and speed-responsive devices connected to such motor and changing or reversing its driving relation to said carbon.

10. The combination, with a constant-potential circuit, of an arc lamp included therein, an electric motor also included in said circuit, and a speed-responsive device connecting the said motor with the said carbons either to approach or to separate them upon a variation from the normal speed of the motor.

478,146. BOLT FOR PRISON-DOORS. FRANK O. WEARY and GEORGE W. KRAMER, Akron, Ohio. Filed Oct. 5, 1891. Serial No. 407,715. (No model.)

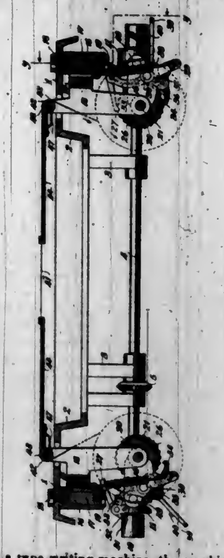


Claim.—1. In a prison-locking apparatus, the hinged cell-door having bolt-eyes and a hollow jamb-post having openings to receive said eyes, and vertically-moving bolts within said jamb-post, arranged to enter said eyes, combined with springs located in said jamb-post, arranged to be engaged and pressed inward by said eyes and provided with toes to rest under and sustain the bolts as the eyes are withdrawn, substantially as shown and described.

2. In a prison-locking apparatus, the hinged cell-door having bolt-eyes and a hollow jamb-post having openings to receive said eyes, and vertically-moving bolts within said jamb-post, arranged to enter said eyes, and springs located in said post, arranged to be engaged and pressed inward by said eyes, combined with an adjusting device, as a cam, by which the tension of the spring may be regulated.

3. The combination, with the rock-shaft arranged to operate the locking-bolts and the hand-lever arranged to rock said shaft, of the automatic latch attached to said hand-lever, and the notched segmental guide-bar arranged to be engaged by said latch, substantially as shown and described.

478,147. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to the Remington Standard Type Writer Manufacturing Company, same place. Filed Jan. 21, 1892. Serial No. 418,784. (No model.)



Claim.—1. In a type-writing machine, the combination, with an inking-ribbon, of a ribbon-spool shaft, a ribbon-spool, a ratchet-wheel, a spring-actuated lever carrying a driving-pawl and provided with a laterally-extending arm, and an actuating-cam arranged to turn in a plane at right angles to the plane of vibration of the pawl-carrying lever.

2. In a type-writing machine, the combination, with an inking-ribbon, of a ribbon-spool shaft, a ribbon-spool, a ratchet-wheel, a spring-actuated lever carrying a driving-pawl and provided with an arm, a constantly-rotating shaft, and a cam on said shaft acting in opposition to the spring on the lever to retract the driving-pawl and constructed to release said arm after retraction of said pawl to enable the said spring to vibrate said lever and cause its pawl to turn the ratchet-wheel and wind the ribbon.

3. In a type-writing machine, the combination, with an inking-ribbon, a ribbon-spool shaft, a ribbon-spool, a ratchet-wheel, a spring-actuated lever carrying a driving-pawl and provided with an arm, a cam for actuating said lever in one direction, a detent engaging said ratchet-wheel, and a projection on said lever adapted to move said detent when said lever is vibrated to throw its driving-pawl out of operative relation to its ratchet-wheel.

4. In a type-writing machine, the combination, with an inking-ribbon, a ribbon-spool shaft, a ribbon-spool, a ratchet-wheel, a lever carrying a driving-pawl, means connected to the carriage-driving power for vibrating said lever and retracting said driving-pawl, and a spring for vibrating said lever in the opposite direction and advancing said pawl.

5. In a type-writing machine, the combination, with an inking-ribbon, a ribbon-spool shaft, a ribbon-spool, a ratchet-wheel, a lever carrying a driving-pawl, means for vibrating said lever and retracting said pawl, and a spring for vibrating said lever in the opposite direction and advancing said pawl and arranged so as to act on either side of the center of motion or pivot of the said lever, whereby when desired the said spring may operate to hold the driving-pawl out of operative relation with its ratchet-wheel.

6. In a type-writing machine, the combination, with an inking-ribbon, a ribbon-spool shaft, a ribbon-spool, a ratchet-wheel, a lever provided with an arm, a constantly-rotating cam for vibrating said lever in one direction, a spring for vibrating said lever in the opposite direction, adapted to act on both sides of the center of motion or pivot of said lever, and a detent for said ratchet-wheel, adapted to be disengaged by said lever when the latter is vibrated to throw its driving-pawl out of operative relation with its ratchet-wheel.

7. In a type-writing machine, the combination of a ribbon-spool, a ratchet-wheel, a cranked lever carrying a driving-pawl and provided with a laterally-extending arm, a cam operating upon said arm to move said lever in one direction, and a spring connected at one end to said lever and at its other end to the frame-work for moving said lever in the opposite direction and causing said driving-pawl to turn said ratchet-wheel.

8. In a type-writing machine, the combination of a ribbon-spool having a cut-away or recess between its ends, a ribbon-spool shaft having an annular groove arranged between the ends of said spools and communicating with said cut-away or recess, and an arm on said ribbon-spool having a bent or hook-shaped end engaging with said annular intermediately-arranged groove.

9. In a type-writing-machine, the combination, with an inking-ribbon, of a vertically-pivoted vibratory frame provided with a ribbon-spool and a ribbon-carrier.

10. In a type-writing machine, the combination, with an inking-ribbon, of a vertically-pivoted vibratory frame provided with a ribbon-spool and a ribbon-carrier and a cam for rocking said frame.

11. In a type-writing machine, the combination, with an inking-ribbon, of a vertically-pivoted vibratory frame provided with a ribbon-spool and a ribbon-carrier, and a constantly-rotating shaft provided with a cam adapted to rock said frame first in one direction and then in the opposite direction to cause the ribbon-carrier to move the ribbon widthwise both forwardly and rearwardly.

12. In a type-writing machine, the combination, with an inking-ribbon, of a vertically-pivoted vibratory frame, a spool-shaft journaled in said frame, a ribbon-spool on said shaft, a ribbon-carrier mounted on said frame, and means for rocking said frame.

13. In a type-writing machine, the combination, with an inking-ribbon, of a vertically-pivoted vibratory frame, a spool-shaft journaled in said frame, a ribbon-spool mounted on said shaft, a ribbon-carrier mounted on said frame, and means for rotating said spool and rocking said frame.

14. In a type-writing machine, the combination, with an inking-ribbon, of a vertically-pivoted vibratory frame, a ribbon-spool shaft journaled in said frame, a ribbon-spool on said shaft, a horizontally-arranged bar mounted on said frame, a ribbon-carrier supported upon said bar, a pin projecting laterally from said frame, and a constantly-rotating cam to co-operate with said pin.

15. In a type-writing machine, the combination, with an inking-ribbon, of a vibratory frame consisting of the vertical member 13, a horizontal arm 14, and the plate-like portion 15, a ribbon-spool shaft journaled in said frame, a ribbon-spool mounted on said shaft, a horizontal bar mounted on said frame, a ribbon-carrier mounted on said bar, a pin projecting laterally from said frame, a cam for actuating said pin, and a vertical pivot for said frame.

16. In a type-writing machine, the combination, with an inking-ribbon, of a pair of horizontally hinged or pivoted ribbon-carriers extending inwardly toward each other and in the direction of travel of the paper-carriage, and adapted to be turned up in opposite directions to lift the ribbon, so that the operator may conveniently clean the type.

17. In a type-writing machine, the combination, with an inking-ribbon, of a horizontally-arranged supporting-bar disposed at substantially right angles to the length of said ribbon, a ribbon-carrier pivoted or hinged at one end upon said bar and extending in the direction of the length of said ribbon, so that it may be turned to an upright position, and means, substantially as described, for maintaining said carrier in such upright position.

18. In a type-writing machine, the combination, with an inking-ribbon, of a horizontally-arranged supporting-bar formed with notches or depressions and a ribbon-carrier hinged or pivoted upon said bar and provided with a spring plate or finger.

19. In a type-writing machine, the combination, with an inking-ribbon, of a pair of vertically-pivoted vibratory frames, a pair of ribbon-carriers connected to said frames, and means, substantially as described, for rocking both said frames and moving said carriers simultaneously in the same direction.

20. In a type-writing machine, the combination, with an inking-ribbon, of a pair of independent vertically-pivoted vibratory frames, a ribbon-carrier connected to each of said frames and projecting inwardly toward each other, and a pair of constantly-rotating cams adapted to simultaneously rock both of said vibratory frames and cause the ribbon-carriers to simultaneously move laterally in the same direction.

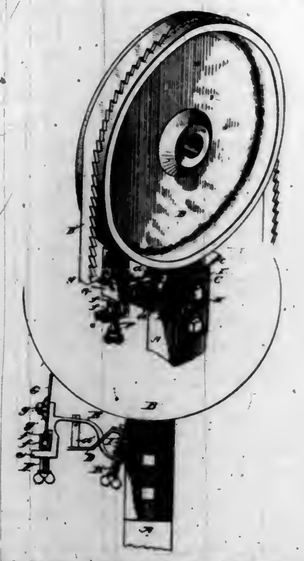
21. In a type-writing machine, the combination, with an inking-ribbon, of a pair of independent vertically-pivoted vibratory frames

provided with ribbon-spools and ribbon-carriers, means for turning one of said spools at a time, and a pair of cams for rocking said frames first in one direction and then in the other and constructed to delay or momentarily stop said rocking action at the time the means for turning the ribbon-spool are acting or are in operation.

22. In a type-writing machine, the combination, with an inking-ribbon, of a pair of independent vertically-pivoted vibratory frames provided each with a ribbon-spool and a ribbon-carrier, a ratchet-wheel connected to each said spool, a spring-actuated lever connected to each said vibratory frame and carrying a driving-pawl, a cam for rocking each said vibratory frame, and a cam for actuating each said pawl-carrying lever in one direction.

23. In a type-writing machine, the combination, with an inking-ribbon, of a vertically-pivoted vibratory frame provided with a ribbon-spool and a ribbon-carrier, a ratchet-wheel connected to said spool, a driving-pawl for turning said ratchet-wheel pivotally connected to a lever, a cam for rocking said vibratory frame, a cam for actuating said pawl-carrying lever in one direction, and a spring for actuating said lever in the opposite direction.

478,148. SCRAPER FOR BAND-SAW PULLEYS. JOSEPH H. WHITE, Baraga, Mich. Filed Mar. 8, 1892. Serial No. 424,203. (No model.)



Claim.—1. In a scraper for band-saw pulleys, the combination, with the pulley and its support, of a shelf mounted on the support, a rock-arm mounted on the shelf, a scraper-plate yieldingly secured to one end of the arm, and a spring exerting its force on the opposite end of the arm to normally hold the scraper-plate in contact with the pulley, substantially as and for the purposes described.

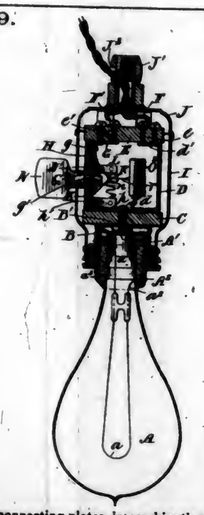
2. In a scraper for band-saw pulleys, the combination, with the pulley and its support, of a shelf attached to the support, a rock arm mounted on the shelf, a scraper-plate yieldingly secured to one end of the rock-arm, a roller mounted in the arm for holding the plate in even contact with the pulley, and a spring for normally holding the plate in contact with the pulley, substantially as and for the purposes described.

3. In a scraper for band-saw pulleys, the combination, with the pulley and its support, of a shelf attached to said support, pedestals on the shelf, a rock-arm mounted in the pedestals, a scraper-plate secured on one end of the arm, an adjustable roller normally contacting with the base of the scraper-plate, a spring for exerting force on the other arm, and means for regulating the tension of the spring, substantially as and for the purposes specified.

478,149. INCANDESCENT-ELECTRIC-LAMP SOCKET. HENRY R. WORTHINGTON, Lancaster, assignor, by direct and mesne assignments, to the Worthington Electrical Specialty Company, York, Pa. Filed Dec. 22, 1891. Serial No. 415,993. (No model.)

Claim.—1. A light-regulating device for electric lamps, consisting

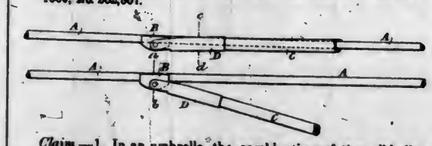
478,149.



of a switch and connecting-plates, in combination with a series of resistances which are connected together and severally connected to the said plates and a rigid supporting bar or brace H within the lamp-socket, through which the terminals of the said resistances pass, the said bar not forming part of any inclosure, but being a simple supporting and bracing device for the said resistances, substantially as set forth.

2. In an electric-lamp socket, a series of connected resistances composed of carbon filaments and connecting-springs, the latter serving to give stiffness, substantially as described.

478,150. FRAME FOR UMBRELLAS. JAMES WILLIS, Bournemouth, England. Filed Dec. 8, 1891. Serial No. 414,419. (No model.) Patented in England July 13, 1889, No. 11,295, and in France Dec. 26, 1889, No. 202,807.



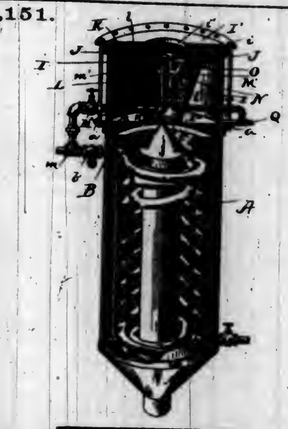
Claim.—1. In an umbrella, the combination of the solid ribs A, the solid goats B, made to embrace the ribs, of a width approximately equal to the width of the ribs and of a depth approximately equal to the depth of the stretchers, trough-stretchers C, having forked inner ends embracing the goats, and joint-pins passing through the stretcher-forks and through holes in the goats drilled close up to the ribs, whereby a lock-rib frame is produced in which solid ribs lie within trough-stretchers, and goat-pieces are provided sufficiently small not to project beyond the stretchers and yet strong enough to make a sound hinge-joint.

2. In an umbrella, the combination of the solid ribs, solid goats secured thereto of a width approximately equal to the width of the ribs and of a depth approximately equal to the depth of the stretchers, the trough-stretchers, the sheet-metal end pieces D, secured thereto, and having forked ends inclined, as described, and joint-pins securing the forked ends of the stretchers to the goats, substantially as described.

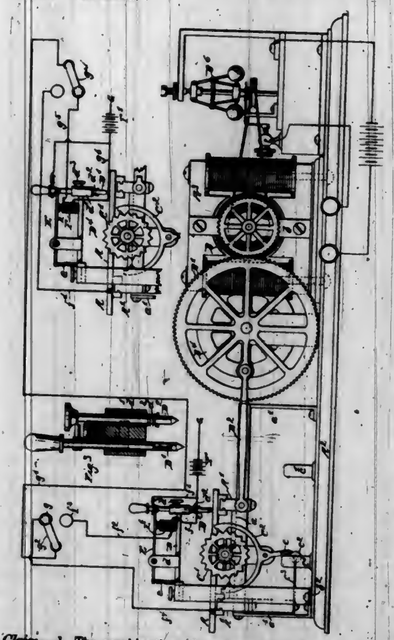
478,151. STEAMING ATTACHMENT FOR WHEAT-HEATERS. SAMUEL M. BRADEN, Ligonier, Ind. Filed Dec. 26, 1891. Serial No. 416,117. (No model.)

Claim.—In a steaming attachment for wheat-heaters, the combination, with outer and inner chambers separated by a perforated inverted-frusto-conical wall, the inner chamber being in open relation with the induction and eduction openings at the steaming attachment, of a steaming-head located within the inner chamber, said steaming-head having a conical top and having an annular series of slits or perforations below such conical top, a steam-pipe for supplying steam to the steaming-head, a hood for preventing the ejection of condensed steam from the annular series of slits or perforations in the steaming-head aforesaid, and drain-pipes for conducting off the water resulting from condensation of steam or otherwise, substantially as and for the purpose set forth.

478,151.



478,152. DEVICE FOR REPRODUCING CHARACTERS. HENRY C. BRIDGER, Wood Ridge, N. J., assignor to the United States Autograph Telegraph Company, New York, N. Y. Filed Aug. 10, 1891. Serial No. 402,218. (No model.)



Claim.—1. The combination of an electric circuit, a movable table upon which a message is supported, a message of metallic ink on an insulating material, and a transmitting-point coacting with the message to close the circuit, the said table having a continuous to-and-fro motion and a step-by-step lateral motion, substantially as specified.

2. The combination, with the table having a to-and-fro and a lateral movement and independent mechanism, substantially such as described, for causing each of said movements, of a pen-supporting arm adjustably mounted over said table, substantially as specified.

3. The combination, with an electric circuit, of a pen and table having a to-and-fro and a lateral movement beneath the pen and independent mechanism, substantially such as described, for causing each of said movements, substantially as specified.

4. The combination, with the pen, of a table, a motor for imparting a to-and-fro movement to said table, and a screw for imparting a lateral movement to said table, substantially as specified.

5. In a device of the character designated, the combination of the pen, the table, a carriage upon which the table is movable laterally, a way upon which the carriage is movable to carry the table to and fro, a motor for causing such movement, and a screw operated at the ends of the to-and-fro motion to impart a lateral movement to the table, substantially as specified.

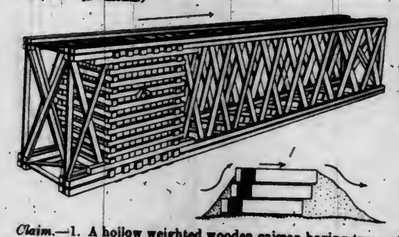
478,153. TOBACCO-HANGER. BENJAMIN R. BYRNSIDE, Clifty, W. Va. Filed Jan. 4, 1892. Serial No. 417,008. (No model.)



Claim.—1. A tobacco-hanger made of an integral piece and provided on its opposite edges with oblique slots, said slots being wider upon one face than upon the other and the slots from one edge terminating inwardly opposite the entrance of the slots in the opposite edge, substantially as described.

2. A tobacco-hanger formed of an integral piece and provided with oblique slots, said slots being wider upon one face than upon the other, substantially as described.

478,154. MOLE, DIKE, OR DAM FOR SILT-BEARING STREAMS. WILLIAM W. CARSON, Knoxville, Tenn. Filed July 24, 1891. Serial No. 400,655. (No model.)



Claim.—1. A hollow weighted wooden caisson having trusses for faces, as described, and for the purpose set forth.

2. A weighted wooden caisson built with one or more chambers to receive deposits of silt and with trusses for faces, as described, and for the purpose set forth.

3. A wooden caisson built with one or more chambers to contain material to sink it and with trusses for faces, as described, and for the purpose set forth.

4. A wooden caisson built with one or more chambers to contain material to sink it and one or more internal cavities to receive deposits of silt, as described, and for the purpose set forth.

5. A wooden caisson weighted at or near one end and of such shape that its smallest cross-section shall be approximately at right angles to the current when the weighted end of the caisson is placed upstream, as described, and for the purpose set forth.

6. A wooden caisson consisting of one or more chambers to contain material to sink it and one or more projecting cores for silt to gather around and about, as described, and for the purpose set forth.

7. An elongated hollow wooden caisson of sawed lumber, constructed so as to embody these three features: (*a*) some or all of the pieces of lumber which compose two adjacent longitudinal faces of the caisson to project the pieces of one face beyond the plane of the other face, thus defining the dihedral angles of the intersecting planes, (*b*) a chord composed of three (3) or more parallel stringers placed, respectively, in the different dihedral angles mentioned above and alongside of each other to lie along and about the line of intersection of the aforesaid faces; (*c*) a wooden pin to connect together two of the chord-stringers with the face-piece which passes between them, all substantially as described, and for the purpose set forth.

478,155. ELECTRIC ALARM-CLOCK. GEORGE C. DARBEE, Chicago, Ill. Filed June 1, 1891. Serial No. 394,636. (No model.)

Claim.—1. In an electric alarm-clock, the battery and alarm, in combination with the spring L, the contact-wheel H, carrying the insulated terminal f^3, the shaft G, carrying the pin g', and gearing adapted

478,155.

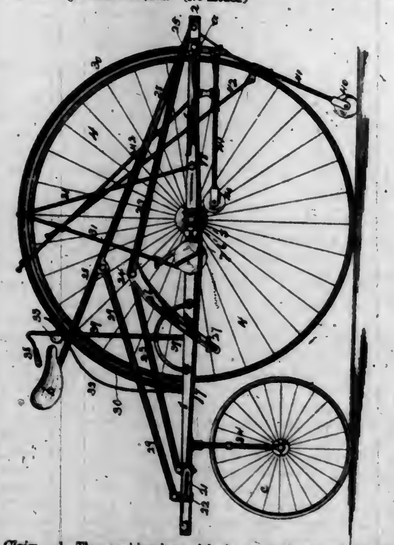


to rotate said contact-wheel synchronously with the hour-hand, substantially as described.

2. In an electric alarm clock, the shaft G, mounted loosely in its bearings and provided with a pin g' at one end, in combination with the contact-wheel H, mounted loosely on said shaft and carrying an insulated terminal j^3, adapted to make contact with said pin, which constitutes the other terminal of the circuit, gearing adapted to rotate said wheel synchronously with the hour-hand, and an indicator by which to adjust the shaft G to set the alarm, substantially as described.

3. In an electric alarm-clock, the shaft G, provided at one end with the pin g', forming one terminal of the circuit, in combination with a contact-wheel mounted loosely on the pin end of said shaft and consisting of a gear-wheel, the insulating-disks I and K and the metal disk J, provided with the other terminal j^3, and the spring L, arranged to bear upon the periphery of the disk J and connected at its other end with the circuit-wires, substantially as described.

478,156. BICYCLE. ANDREW W. DUNN, Pulaski, N. Y. Filed Sept. 14, 1891. Serial No. 405,661. (No model.)



Claim.—1. The combination, with the main frame and the propelling-wheel journaled therein, of the vertically-movable treadle-frame carrying the pedals and pivotally connected at one end to the frame and at the other to slides upon the side bars of the frame, and pitman-rods connecting said slides to the crank-pins of the wheel-propelling mechanism.

2. The combination, with the main frame, the propelling-wheel, and the saddle, of the vertically-movable treadle-frame carrying the pedals and pivotally connected at one end to the frame and at the other to slides upon the side bars of the frame, and pitman-rods connecting said slides to the driving-crank pins, and the saddle-frame comprising the saddle rails pivotally connected at one end to the main frame, the connecting-rods hinged at one end to the rails and at the other to slides upon the side bars, and the pitman-rod extensions connecting the latter slides to said crank-pins.

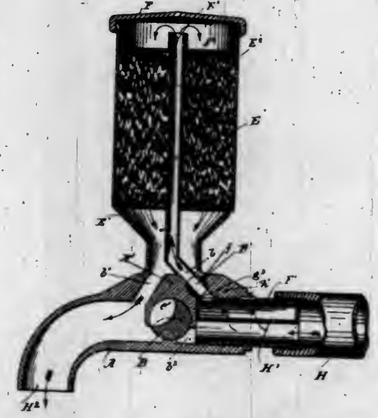
3. In a velocipede, a saddle mounted upon a vertically-movable frame, which is mounted upon the main frame, and a vertically-movable treadle-frame mounted upon the main frame, and pitman-rods connecting the treadle and saddle-frames to the drive-crank pin, in combination.

4. In a velocipede, a main frame, a caster-wheel journaled in a yoke, a pinion upon the top of said yoke, rack-bars in said frame engaging with the pinion, and crank-handle bars engaging with said rack-bars, in combination, as set forth.

5. In a velocipede, a drive-wheel provided with a groove across its face, a crank-pin mounted in said groove, a spring-bolt through the crank-pin engaging with the drive-wheel, and a crank-lever connected to the outer end of said bolt, in combination, as set forth.

6. In a velocipede, a main frame, a saddle-carrying frame mounted thereon, a treadle-frame also mounted upon the main frame, and a pitman-rod connecting the treadle-frame to the drive-crank pin and to the saddle-frame, whereby the free end of the saddle is moved vertically when said treadle-frame is operated, in combination, as set forth.

478,157. WATER-FILTER. OLAF EASTMAN, San Francisco, Cal. Filed Jan. 13, 1892. Serial No. 417,916. (No model.)



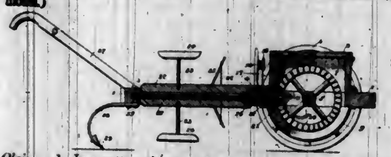
Claim.—1. The combination, with the faucet having one end forming an inlet and the other forming an outlet, the passage b, leading upward from the inlet, the passage b^3, leading directly from the inlet to the outlet, and the passage b', leading from the top of the faucet to the outlet, of valves mounted in the passages b b^3, and a filter secured on the faucet and communicating with the passages b b'.

2. The combination, with the supply-pipe, of a faucet having a plurality of water-passages, a filter secured on the faucet, a coupling connecting the faucet and the supply-pipe and provided with a longitudinal strainer, and valves mounted in the water-passages and adapted to force the water through the filter or directly through the faucet.

3. The combination of the faucet having passages b b' b^3, a supply-pipe, a coupling connecting the supply-pipe and the faucet and provided with a longitudinal strainer, valves mounted in the passages b b^3, and a filter secured on the faucet and having a central pipe forming a continuation of the passage b.

4. The combination, with the faucet provided with water-passages, filter secured thereto, removable cap secured to the filter, pipe passing through the filtering material and having its discharge in a chamber thereabove, said pipe forming a continuation of the filter-passage of the faucet, rotatable valves secured within the faucet and controlling the water-passages, said valves connected so that the opening of one closes the other, and a coupling forming connection between the faucet and supply-pipe and of the strainer located therein, as and for the purpose set forth.

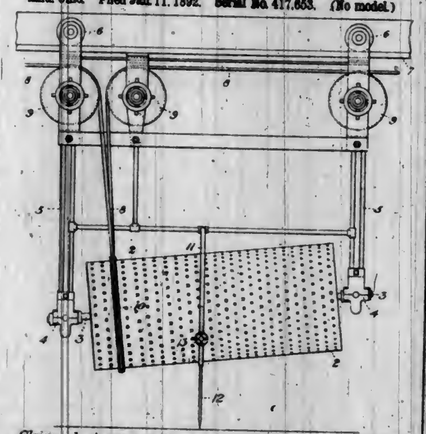
478,158. COTTON-CHOPPER. ELISHA A. ELLIS and WILLIAM C. S. WOOD, Grassy Pond, S. C. Filed Nov. 17, 1891. Serial No. 412,172. (No model.)



Claim.—1. In a cotton-chopper, the combination, with the frame, the transverse axle, the ground-wheels, and the master-gear upon the axle, of the cross-bar of the frame-work having a longitudinal slot 11, the bottom of which has an opening 12, a sliding guiding-block mounted in the slot, a lever loosely connected with the bearing-block and fulcrumed loosely upon the bar, a curved toothed locking-bar mounted upon the cross-bar in front of the lever, the L-shaped bracket secured to the lever and loosely embracing the locking-bar, a transverse locking-pin extending from the bracket and engaging the teeth of the locking-bar, the chopper-shaft having its front end journaled in the bearing-block and extending through and beyond the same, and the gear-wheel mounted on the chopper-shaft and adapted to be thrown into engagement with the master-gear, substantially as specified.

2. In a cotton-chopper, the combination, with the frame-work, the chopping-shaft, and means for operating the same, of a hub mounted upon the shaft, hoes mounted on the hub, spokes radiating from the hub in front of the choppers, and a wire connecting the ends of the spokes, substantially as specified.

478,159. SEPARATING APPARATUS. EUGENE L. HOWE, Cleveland, Ohio. Filed Jan. 11, 1892. Serial No. 417,663. (No model.)



Claim.—1. A rotatory drum, in combination with a supporting-frame suspended from an elevated track, on which it is movable to change the position of the drum, as and for the purposes described.

2. A rotatory drum mounted on a movable support, in combination with a traveling power connection connected with the drum and adapted to rotate the same, substantially as and for the purposes described.

3. A rotatory drum, in combination with a supporting-frame movably suspended from an elevated track and a traveling power connection connected with the drum and adapted to rotate the same, substantially as and for the purposes described.

4. A rotatory drum, in combination with a supporting-frame movably suspended from an elevated track, a traveling power connection connected with the drum and adapted to rotate the same, and adjustable supporting-legs connected with the frame, substantially as and for the purposes described.

478,160. SASH-BALANCE. SAMUEL JENKINSON, Rochester, assignor, by mesne assignments, to the Vanderbilt Sash Balance Company, Canandaigua, N. Y. Filed Nov. 2, 1891. Serial No. 410,574. (No model.)

Claim.—1. The combination, with the front plate and the casing thereon, of the drum located entirely within the casing, the tape connected thereto, the cover-plate connected to the casing, having the arms projecting inside the drum, and the spring connected to said

478,160.

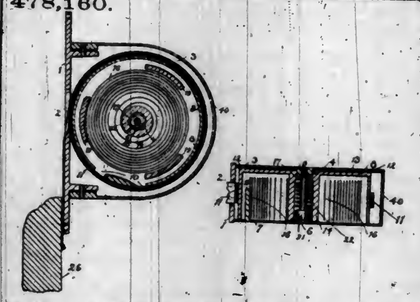


plate at its outer end and to the drum at its inner end, substantially as described.

2. The combination, with the front plate and the rearwardly-projecting plate thereon, a second plate extending parallel with the latter, and a screw-pin connecting them and having a shoulder of the drum journaled on the pin and arranged with one of its sides in contact with one of the plates, of a spring for rotating it and a spring arranged between the shoulder on the pin and the drum, substantially as described.

3. The combination, with the front plate and the rearwardly-projecting plate thereon having the central boss, a second plate extending parallel with the other, and a screw-pin connecting the plates, having a shoulder, of the drum journaled on the pin and boss and arranged between the plates, a spring located between the shoulder on the pin and the drum, and a spring connected to one of the plates and to the drum for rotating the latter, substantially as described.

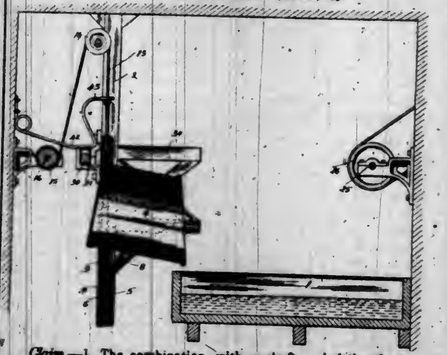
4. The combination, with the front plate, the rearwardly-projecting plate thereon having the central boss, and the screw-pin having the shoulder, of the drum journaled on said boss and pin, a spring arranged between the shoulder on the pin and the drum for pressing the side of the latter into engagement with the plate, and a spring for rotating the drum, substantially as described.

5. The combination, with the front plate, the rearwardly-projecting plate thereon, the screw-pin having the shoulder, the drum having the slotted sleeve or hub, and the collar in it, of the cover-plate having the arms, the spring connected thereto at one end and at the other to the drum, and the spring between the collar on the drum and the shoulder on the screw-pin, substantially as described.

6. The combination, with the front plate, the rearwardly-extending plate, and the drum having the peripheral flange and the central slotted hub, of the cover-plate having the arms projecting inside the drum, a spring connected to one of said arms at one end and to the hub of the drum at the other, and a tape adapted to be secured to the drum, substantially as described.

7. The combination, with the front plate, rearwardly-projecting plate, and cover-plate, of the drum arranged to engage one of the side plates, the spring for rotating it, and a spring arranged to press the drum into contact with the plate it engages, substantially as described.

478,161. MILK-ELEVATOR. CHRISTEN J. JEPPESEN, Hebron, Ind. Filed Feb. 18, 1892. Serial No. 422,157. (No model.)



Claim.—1. The combination, with a shaft, a hoisting-drum, a hoisting-rope, and a bucket, of fast and loose pulleys mounted upon said shaft, a belt for driving the fast pulley to rotate the shaft, and

mechanism thrown into action by a part of the bucket to shift the belt to the loose pulley when the bucket has been elevated, substantially as described.

2. The combination, with a shaft, a hoisting-drum, a hoisting-rope, and a bucket, of fast and loose pulleys mounted on the shaft, a belt for driving the fast pulleys to rotate said shaft, mechanism thrown into action by a part of the bucket to shift the belt to the loose pulley when the bucket has been elevated, and pawl-and-ratchet mechanism for controlling the descent of the bucket, substantially as described.

3. The combination, with a shaft, a hoisting-drum, a hoisting-rope, and a bucket, of fast and loose pulleys on the shaft, a belt for driving the fast pulley to rotate the shaft, a belt-shifting bar, a device located in the path of a part of the bucket for detaining said bar in position to hold the belt on the fast pulley, and means for automatically moving the belt-shifting bar when its detaining device is released by the action of a part of the bucket after the latter has been elevated, substantially as described.

4. The combination, with a shaft, a hoisting-drum, a hoisting-rope, and a bucket, of fast and loose pulleys on the shaft, a belt for driving the fast pulley to rotate the shaft, a spring-pressed belt-shifting bar, and a stop engaging the belt-shifting bar and released therefrom by the action of a part of the bucket when the latter has been elevated, substantially as described.

5. The combination, with a bucket, lateral guides therefor, and a shaft 16, of a hoisting-drum mounted upon said shaft, a hoisting-rope wound around said drum and connected to said bucket, loose pulleys 19 20 and fast pulley 21, mounted upon said shaft, means for locking said shaft to the pulley 19 when it rotates in one direction, belts 28 29, gearing said pulleys to suitable driving mechanism, and means for shifting the belt 29 to the loose pulley 20, substantially as and for the purpose specified.

6. The combination, with a bucket, lateral guides therefor, shaft 16, hoisting-drum mounted thereupon, and a hoisting-rope connected to said drum and to the bucket, of loose pulleys 19 and 20 and fast pulley 21, mounted upon said shaft, ratchet-wheel 22, rigidly connected to said shaft, pawl 23, mounted upon said pulley 19 and adapted to engage the teeth of said wheel 22, shaft 25, having pulley 27, belts 28 and 29, and means for shifting the belt 29 laterally, substantially as and for the purpose specified.

7. The combination, with a bucket, lateral guides therefor, shaft 16, hoisting-drum mounted thereupon, and a hoisting-rope connected to said drum and to the bucket, of loose pulleys 19 and 20 and fast pulley 21, mounted upon said shaft, ratchet-wheel 22, rigidly connected to said shaft, pawl 23, mounted upon said pulley 19 and adapted to engage the teeth of said wheel 22, shaft 25, having pulley 27, belts 28 and 29, and means for automatically shifting the belt 29 laterally when the bucket shall have reached its uppermost point, substantially as and for the purpose specified.

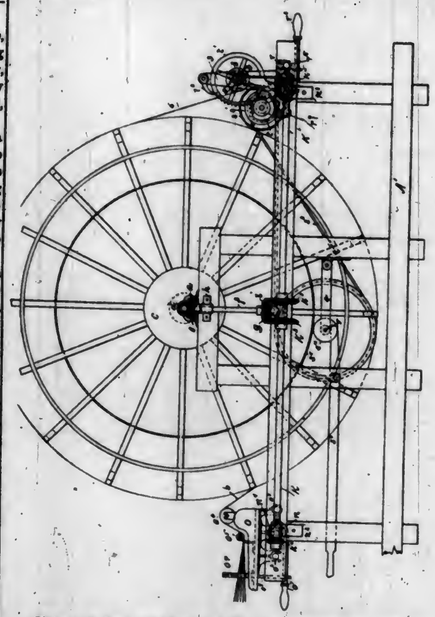
8. The combination, with a bucket, lateral guides therefor, shaft 16, a hoisting-drum mounted thereupon, and a hoisting-rope connected to said drum and to said bucket, of pulleys 19, 20, and 21, mounted upon said shaft, belts 28 and 29 for driving said pulleys, cross-bar 30, adapted to shift the belt 29 laterally, a stop adapted to hold said bar in a fixed position, and means for releasing said stop and causing said bar to move transversely to shift the belt 29, substantially as and for the purpose specified.

9. The combination, with a bucket, lateral guides therefor, shaft 16, drum mounted upon said shaft, hoisting-rope connected to said drum and to the bucket, and pulleys 19, 20, and 21, mounted upon said shaft, of belts 28 and 29, cross-bar 30, adapted when moved transversely to shift the belt 29, a spring adapted to move said bar transversely to hold the belt 29 upon the pulley 20, means for moving the cross-bar 30 transversely to shift the belt 29 to the pulley 21, a stop for holding said cross-bar in such position that the belt 29 will operate upon the pulley 21, and means for automatically releasing said bar to permit of its being operated by said spring when the bucket reaches its uppermost position, substantially as described.

10. The combination, with a bucket, lateral guides therefor, a bail carried by said bucket, shaft 16, hoisting-drum mounted thereupon, hoisting-rope connected to said drum and to the bail of the bucket, and pulleys 19, 20, and 21, mounted upon said shaft, of a wheel 22, pawl 23, belts 28 and 29, cross-bar 30, having a slot 41, spring-stop 42, having an upwardly-projecting end 43, spring 33, acting upon said cross-bar 30 to move it transversely, and means for moving said cross-bar in a direction opposite to that in which it is moved by the spring 33, the arrangement of the spring 42 and bucket-bail being such that when the bucket reaches its uppermost position the bail will move the spring 42 upward, substantially as and for the purpose specified.

11. The combination, with a bucket having pins 11 and 12 and bail 10, lateral guides 8 and 9 for said pins and bail, shaft 16, drum carried thereby, and a hoisting-rope connected to said drum and to the bail 10, of pulleys 19, 20, and 21, mounted upon said shaft, ratchet-wheel 22, mounted upon said shaft, pawl 23, mounted upon said pulley 19 and adapted to engage the teeth of said wheel 22, belts 28 and 29, cross-bar 30, adapted to be moved transversely to shift the belt 29 from the pulley 21 to the pulley 20, spring 33, operating upon said cross-bar to move it transversely, slot 41 in said bar, spring 42, adapted to fit into said slot, said spring 42 having an upwardly-projecting portion 43, said portion 43 being so placed that when the bucket reaches its uppermost position the bail 10 will engage said projecting portion and lift the spring 42 from the slot 41, levers 37 and 44, and rod 40 for moving the cross-bar transversely against the action of the spring 33, substantially as described.

478,162. **WARPING-MACHINE.** GEORGE F. KUNTZ and CHARLES SLINGLAND, Paterson, N. J. Filed Sept. 18, 1890. Serial No. 365,291. (No model.)



Claim.—1. In a warping-machine, the combination, with the frame A', of the reel *c*, journaled in the said frame A' and having the rim c^3, a gear *d* on the shaft of said reel, the vertical shaft *f*, having a gear *e* engaging gear *d* and a gear *i* on its lower end, the shaft *k*, having a gear k^2 engaging gear *i* and a gear k^4 on its outer end, the screw *n*, carrying a gear n^4, engaging gear k^2, rods o^2 o^3, frame *o*, sliding on said rods and carrying a lever o^7, designed to engage said screw *n*, and thus propel frame *o*, the arm 4, and a wheel c^4 on said arm, adapted to frictionally engage the rim c^3, the lever c^4, pivoted to frame A' and adapted to engage arm 4, and means to rotate wheel c^4, substantially as described.

2. In a warping-machine, the combination, with the frame A', of the reel *c*, journaled in the said frame A', a gear *d* on the shaft of said reel, the vertical shaft *f*, having a gear *e* engaging gear *d* and a gear *i* on its lower end, the shaft *k'*, having a gear k^2 engaging gear *i* and a gear k^3 on its outer end, the screw *n'*, carrying a gear n^5, engaging gear k^3, rods r^1 r^2, frames *r r'*, sliding on said rods and carrying levers r^3 r^4, respectively, designed to engage screw *n'*, and thus propel frames *r r'*, the mandrel r^5, having a feather r^6 and clutch r^7, the gear-wheel *f'*, rotating said clutch, safety-pawl r^8, and means for actuating said gear-wheel *f'*, substantially as described.

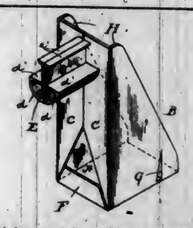
478,168. **WROUGHT-METAL HANGER FOR JOISTS.** ISRAEL J. LEHMAN, Cleveland, Ohio. Filed Aug. 23, 1891. Serial No. 403,460. (No model.)

Claim.—1. A hanger for joists, constructed of sheet metal and having a socket for receiving the joist and having a supporting-lug at the rear, the parts being integral, and the side walls of the socket being flanged inward to form ribs for engaging the joist laterally, substantially as set forth.

2. A hanger for joists, constructed of sheet metal, the same having a socket for receiving the joist and having a supporting-nail at the rear adapted to be driven into the wood, substantially as set forth.

3. A hanger for joists, constructed of sheet metal bent substantially as shown, with the parts integral, the hanger having a socket for receiving the joist and having a lug at the rear for attaching the hanger, and a hole in the walls of the lug for anchoring the hanger, substantially as set forth.

478,168.



478,164. **CASH REGISTER AND INDICATOR.** CHARLES S. LEWIS, Waterbury, Conn. Filed Jan. 31, 1890. Serial No. 338,722. (No model.)



Claim.—1. In a cash-indicator, the combination of a stationary disk having numbers thereon denoting different denominations of money, a pointer adapted to be moved over the face of said disk, a revoluble disk having numbers corresponding with the numbers on the stationary disk and ratchet-teeth on the periphery of the revoluble disk, a dog to engage said teeth, a spring-actuated lever to make contact with said dog to maintain it normally out of contact with the revoluble disk when the lid of the cash-box is closed, and a rod connected to said lever and adapted to make contact with the lid of the cash-box, whereby the revoluble disk will be engaged by the dog when the lid is raised, substantially as set forth.

2. In a cash-indicator, the combination, with a hinged spring-actuated cover, of a stationary disk having numbers thereon denoting different denominations of money, a pointer adapted to be moved over the face of said disk, a revoluble disk having numbers thereon corresponding with the numbers on the stationary disk, means for maintaining the revoluble disk at any desired position, a catch on the lid of the cash-box, a shaft carrying a hook to engage said catch, an arm on the shaft, and means to engage said arm and automatically release the hook from the catch when the device is operated, substantially as set forth.

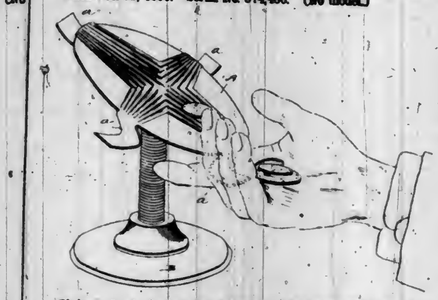
3. In a cash-indicator, the combination, with an upright carrying a disk having numbers thereon, of a shaft, an operating-lever secured to said shaft and carrying a pointer to be moved over the face of said disk, a disk loosely mounted on the shaft and having numbers thereon corresponding with the numbers on the first-mentioned disk, an arm secured to rotate with the loosely-mounted disk and having a projection thereon, an arm secured to the shaft and having a projection adapted to engage the projection on the first-mentioned arm to rotate it, and means for causing the loosely-mounted disk to be automatically released, substantially as set forth.

4. In a cash-indicator, the combination, with an upright carrying a stationary disk having numbers thereon, of a shaft, an operating-lever secured to said shaft and carrying a pointer to be moved over said disk, a disk loosely mounted on the shaft and having numbers thereon corresponding with the numbers on the first-mentioned disk, an arm secured to rotate with the loosely-mounted disk and having a projection thereon, an arm secured to the shaft and having a projection adapted to engage the projection on the first-mentioned arm to rotate it, a spring for rotating the loosely-mounted disk in one direction, and means for causing said loosely-mounted disk to be automatically released, substantially as set forth.

5. In a cash-indicator, the combination, with a cash-box and an alarm-bell, of a stationary disk having numbers thereon, a pointer adapted to be moved over the face of said disk, a revoluble disk having numbers thereon corresponding with the numbers on the stationary disk, an arm adapted to rotate with the revoluble disk, a shaft in the cash-box, an arm projecting therefrom adapted to be engaged by the arm which moves with the revoluble shaft, and an arm secured to the upwardly-extending arm carrying a hammer to strike the bell when the device is operated, substantially as set forth.

6. The combination, with a stationary disk having numbers thereon, a pointer adapted to be moved over the face of said disk, and a revoluble disk having numbers thereon corresponding with the numbers on the stationary disk, of a dial having two sets of numbers thereon, a short shaft carrying a pointer and gear-wheel, a sleeve carrying a ratchet-wheel and a pointer, a spring-dog carried by said gear-wheel and adapted to intermittingly engage the ratchet-wheel and move it one tooth at a time, a gear-wheel on the main shaft, and ratchet mechanism connecting the gear-wheels on the main shaft with the indicator-disk, substantially as set forth.

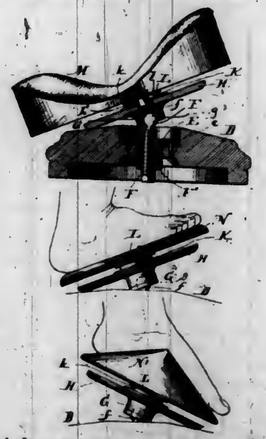
478,165. **COIN-TABLE.** FREDERICK C. LIDER, New York, N. Y. Filed Dec. 12, 1890. Serial No. 374,480. (No model.)



Claim.—1. A device for facilitating the handling of coin, consisting of a table, a base, and a spring directly connecting them, the said table and base being otherwise unconnected, substantially as described.

2. A device for facilitating the handling of coin, consisting of a table, a base, and a spring directly connecting them, the said table having hooks integral with and depending from the edge thereof, substantially as described.

478,166. **EXERCISING APPARATUS.** WILLIAM MADSEN, Chicago, Ill. Filed Feb. 10, 1892. Serial No. 420,938. (No model.)



Claim.—1. In an exercising apparatus, the combination, with a suitable rest, of a universal joint for supporting said rest and a bearing-base whereon said part may roll, substantially as described.

2. In an exercising apparatus, the combination, with a suitable rest, of a ball-and-socket support for said rest and a bearing-base

whereby said rest may be sustained as a rolling movement is given thereto, substantially as described.

3. In an exercising apparatus, the combination, with a suitable rest, of a bearing-base and a universal joint for supporting said rest and means for vertically adjusting said universal joint, substantially as described.

4. In an exercising apparatus, the combination, with a suitable rest, of a bearing-base whereby said rest is sustained as a rolling movement is imparted thereto, a screw-spindle F, provided with a ball, and a socket suitably connected with the rest for receiving said ball of the spindle, substantially as described.

5. In an exercising apparatus, the combination, with a rest, of a rolling plate to which said rest is loosely connected, a bearing-base whereon said rolling plate may travel, and a universal joint for sustaining said rolling plate, substantially as described.

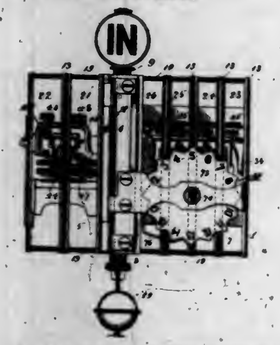
6. In an exercising apparatus, the combination, with a rest, of a rolling plate to which said rest is loosely connected, a bearing-base whereon said rolling plate may travel, and a universal joint for sustaining said rolling plate, and suitable devices adapted to be grasped by the user, substantially as described.

7. The combination, with a foot-plate having a tapering upper surface, of a universal joint for sustaining said foot-plate, substantially as described.

8. The combination of a foot-plate having a tapering upper surface, a bearing-base for supporting the foot-plate during the rolling movement, and a universal joint for sustaining said foot-plate, substantially as described.

9. In an exercising apparatus, the combination, with a pedestal A, of a rest, a universal joint for supporting said rest, and an adjustable spindle or support whereby said rest can be adjusted at any desired angle, substantially as described.

478,167. FARE-REGISTER. JOHN W. MEAKER, Chicago, Ill., assignor to the Meaker Manufacturing Company, same place. Filed July 23, 1891. Serial No. 400,522. (No model.)



Claim.—1. In a fare-register, a units-chain composed of a series of links elliptical in shape, each tenth link having a depression extended across its surface and each of the other links having a recess at one side of its under surface, in combination with other register chains and actuating mechanism, substantially as and for the purpose specified.

2. In a fare-register, the combination of register-chains for registering tens, hundreds, and thousands, each chain composed of a series of elliptical-shaped links, nine of said links being provided at one side of their under surface with a recess and the tenth link being provided with a recess extended entirely across its under surface, a central rod 29, extended lengthwise of each tenth link on its lower surface, and actuating mechanism for said chains, substantially as and for the purpose specified.

3. In a fare-register, a units-register chain composed of nine elliptical-shaped links, each provided with a depression 27 at one side of its under surface, and a tenth link having a recess 28, substantially as and for the purpose specified.

4. The combination, with a register-frame composed of sections having their inner portions cut out and interior flanges in said frame to form tracks to carry register-chains, of the register-chains adapted to move upon said tracks and lugs 20, secured in said frame and adapted to guide the chains around the corners of the register-frame, substantially as specified.

5. The combination, with a register-frame composed of sections, rods 19, uniting the several sections of the frame, and register-chains adapted to move around said frame, of pawls 16, mounted at and in the top of the frame and adapted to prevent backward motion of the chains, each of said pawls having an extension 18 projecting under the rods 19 and adapted to limit the upward motion of the pawls, substantially as specified.

6. In a fare-register, the combination, with a frame for supporting the chains of a trip-register and a frame for supporting the chains of a total-register, of a detachable plate interposed between said frames to unite the frames, substantially as specified.

7. The combination, with a detachable plate adapted to support a main pull-bar and a resetting pull-bar, of chain-carrying frames secured at opposite sides to said plate, pull-bars supported in said plate, and register-chains adapted to move in said frame, substantially as and for the purpose specified.

8. The combination, with a plate 6, having lateral flanges 10 and lugs 11, of pull-bars 8 and 9, adapted to be held by said plate, and chain-carrying frames 5 and 7, adapted to be secured at opposite sides of said plate, substantially as and for the purpose specified.

9. The combination of the plate 6, a pull bar 8, adapted to move upon said plate, the notched block 53, secured upon said pull-bar near its upper end, the dog 54, pivotally mounted upon said plate and adapted to engage the notches upon the block 53 when the pull-bar is operated, and the spring 56, having one end attached to said plate 6 and its other end directly engaged with and acting upon said dog between the pivot of the dog and the notched bar and adapted to hold the dog at right angles to the line of motion of the pull-bar, substantially as described, for the purpose specified.

10. The combination, with a hollow pull-bar 8, having a cap 50 resting upon its upper end and a spring 52, fitted in said pull-bar and secured at its lower end to the bottom of the pull-bar and at its upper end to said cap, of a plate 6, adapted to support said pull-bar and provided with recesses 51 to receive projections on the pull-bar cap for securing said cap in position upon the plate, substantially as and for the purpose specified.

11. The combination, with a hollow pull-bar 8, having a cap 50 at its upper end, said cap projecting from the sides of the pull-bar, and a spring 52, secured to the lower portion of the pull bar and to the cap 50, of a plate 6, adapted to support the pull-bar, said plate having a recess 51, adapted to receive the projecting portion of the cap 50, substantially as and for the purpose specified.

12. The combination, with a chain-carrying frame and register-chains carried thereby, of a pull-bar having a plate 32, and the bifurcated and webbed pawls 35 36 37, carried by said plate and actuated from the pull-bar for operating the register-chains, one of the arms of each of said pawls being provided at its outer end with an enlarged and rounded portion to bear on said chains, the said pawl 35 having at its rear end a lip 40 to engage the plate 32 and hold the pawls at the desired angle, and the pawls 36 and 37 being provided with lips 38 and 39 to engage adjoining pawls, substantially as and for the purpose specified.

13. The combination, with a chain-carrying frame and register-chains carried thereby, of a pull-bar 8, provided with a plate 32, and the pawls 34, 35, 36, and 37, mounted on said plate and actuated by the pull-bar to operate the register-chains, said pawl 35 having a downwardly-projecting lip 40 and the pawls 35, 36, and 37 being bifurcated and webbed and each having an enlarged rounded portion at the outer end of one arm, substantially as and for the purpose specified.

14. The combination, with a chain-carrying frame and register-chains mounted in said frame, of a pull-bar, pawls mounted upon said pull-bar for operating the chains of the register, and stops 46 upon the lower edge of the pull-bar, substantially as and for the purpose specified.

15. The combination, with a chain-carrying frame and register-chains mounted upon said frame, of a pull-bar, pawls mounted upon said pull-bar and adapted to operate the chains of the register, and stops 45 upon the upper edge of the pull-bar, substantially as and for the purpose specified.

16. The combination, with a chain-carrying frame, register-chains carried thereby, and devices for returning the chains to zero, of a bifurcated pawl for operating the register-chains, a plate for supporting the pawl, and spring-stops 48, secured to said plate and projecting beyond its upper edge, substantially as and for the purpose specified.

17. The combination, with a chain carrying frame 5 and register-chains carried thereby, of a pull-bar adapted to move in said frame, a bifurcated pawl mounted upon said pull-bar, a web 44 upon one arm of said pawl, and a stop 99 in said frame 5, adapted to be engaged by the web 44 when the pull-bar is at its lowermost position, substantially as and for the purpose specified.

18. The combination, with a chain-carrying frame and register-chains carried thereby, of a canceler mounted upon said frame and adapted to cancel the reading of said chains, and a spring-stop adapted to limit the motion of the canceler, substantially as and for the purpose specified.

19. The combination, with a chain-carrying frame and chains carried thereby, of cancelers 93, mounted upon said frame, springs 97, secured to said cancelers, the upper ends of the springs projecting beyond the ends of the cancelers, and a stop 98, adapted to engage the ends of the springs 97, substantially as and for the purpose specified.

20. The combination, with a chain-carrying frame and chains carried thereby, of cancelers mounted upon said frame and springs secured to said cancelers, said springs having downwardly-projecting ends adapted to strike the side of the frame when the cancelers are drawn to their lowermost point, substantially as and for the purpose specified.

21. The combination, with a chain-carrying frame, chains carried thereby, mechanism for operating said chains, and canceling devices mounted upon said frame, of a resetting pull-bar, a plate carried by said pull-bar, and pawls 81 and 82, carried by said plate and adapted to operate the register-chains and the canceling devices, substantially as and for the purpose specified.

22. The combination, with a chain-carrying frame, register-chains carried thereby, mechanism for operating said chains, and a stop 87 in said frame, of a resetting pull-bar, pawls carried by said pull-bar, and teeth upon said pawls adapted to engage the register-chains, said teeth being adapted to engage the stop 87 when the pull-bar reaches its uppermost point, substantially as and for the purpose specified.

23. The combination, with a chain-carrying frame, register-chains carried thereby, a cam 86 on one of the links of each of said chains, canceling devices mounted upon said frame, and levers 96, connected to said canceling devices, of a resetting pull-bar, pawls 81 and 82, carried by said pull-bar, said pawls having teeth 85, and pawls 91 and 92, said pawls 91 and 92 being adapted to operate the canceling devices, substantially as and for the purpose specified.

24. The combination, with a chain-carrying frame and register-chains carried thereby, each of said chains having a cam 86 upon one of its links, of a resetting pull-bar, pawls carried by said pull-bar, and canceling devices adapted to close the sight-openings of the register when the resetting pull-bar is operated, said pawls being operated by said cams to operate the canceling devices, substantially as described.

25. The combination, with a chain-carrying frame, register-chains carried thereby, and stops 91 upon one of the links of each of said chains, of springs 89 upon said frame and mechanism for operating said chains, substantially as and for the purpose specified.

26. In a fare-register, the combination, with a chain-carrying frame, of a units-chain consisting of ten elliptical-shaped links, each having a recess or notch upon one side of its under surface and one of said links having a deeper recess than the others, a tens-chain also consisting of ten elliptical-shaped links, each of said links having a recess or notch, the notches in the units and tens chains being adjacent to each other, and mechanism for operating said chains, substantially as and for the purpose specified.

27. In a fare-register, the combination, with a bell, a striker 62, mounted therein, said striker having a notch 66 at its outer end, devices for supporting said striker, and a spring adapted to cause the striker to strike the bell, of a lever pivotally mounted in said bell, a pin 69, carried by said lever and adapted to engage the notch 66, and devices for operating said lever by the operation of the register, substantially as and for the purpose specified.

28. The combination, with a bell 59, a bracket 61, secured at the inside of said bell, and a striker 62, carried by said bracket, said striker having a notch 66 at its outer end, of springs 63 and 65, mounted upon said striker, and a lever 67, pivotally mounted in said bell, said lever having a notch 71 and pins 69 and 70, substantially as and for the purpose specified.

29. In a register, the combination, with a bell and a striker 62, mounted therein, said striker being adapted to be operated to ring the bell at each operation of the register, of a lever having a pin 70 for holding the end of the striker normally in close proximity to the bell, substantially as and for the purpose specified.

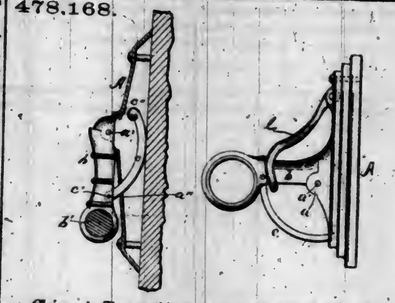
30. The combination, with a bell, a striker 62, mounted in said bell, and the spring 63, adapted to cause the striker to strike the bell, of a lever 67, pivotally mounted in said bell, said lever having a pin 70, adapted to engage the outer end of the striker, substantially as and for the purpose specified.

31. The combination, with a register-frame and a chain adapted to move around said frame, of tracks in said frame for supporting the chain and outer guides located at diagonally-opposite corners of the frame and adapted to direct the chain as it moves around the frame, substantially as and for the purpose specified.

32. The combination, with a chain-carrying frame and chains carried thereby, of a pull-bar, pawls mounted thereupon for operating the chains, and devices for locking the chains when the pull-bar is at rest, substantially as and for the purpose specified.

33. The combination, with a chain-carrying frame and register-chains carried thereby, of cancelers 93, mounted upon said frame, and a yielding stop upon each of said cancelers adapted to limit their upward motion, substantially as and for the purpose specified.

478,168. CASKET-HANDLE. JOHN MCCARTHY, Syracuse, N. Y. Filed Feb. 29, 1892. Serial No. 423,169. (No model.)

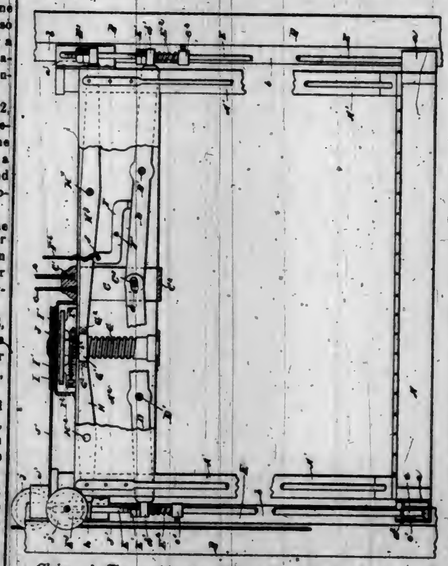


Claim.—1. The combination, with the handle, the arm carrying it, and the body-plate to which said arm is hinged, of a relief-bar connected to said arm and passing through a slot in said plate and provided on its inner end with a head.

2. The combination, with the handle, the arm carrying it, and the body-plate to which said arm is hinged, of a relief-bar pivotally connected to said arm and passing through a slot in said plate and provided on its inner end with a head.

3. The combination, with a handle, the arm carrying it, and the body-plate to which said arm is hinged, of a relief-bar connected to said arm on its lower side and passing through a slot in said plate, having a head on its inner end, and a relief bar loosely secured to the handle-bar and extending upward and engaging with the plate and adapted to travel therein, as set forth.

478,169. SAFETY ATTACHMENT FOR ELEVATORS. MARTIN J. O'DONNELL, WILLIAM C. SMITH, and HENRY BOURD, Cleveland, Ohio. Filed May 10, 1890. Renewed May 6, 1892. Serial No. 432,061. (No model.)

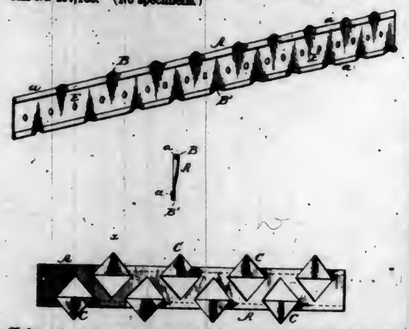


Claim.—1. The combination, with an elevator-car, ways between which the car travels, operating-rods, and dogs actuated by the operating-rods, of a screw, a nut thereon, levers engaging the nut and connected to the operating-rods, a pulley loose on the screw, dogs for locking the pulley to the screw when an abnormal speed of the car is attained, and means for rotating the pulley while the car is in motion, substantially as set forth.

2. The combination, with an elevator-car, ways, operating-rods, dogs, and two sets of levers fulcrumed on the car and connected with the rods, of an operating-lever adapted to engage one set of levers in case the hoisting-cable is broken to apply the dogs, a screw operatively connected with the other set of levers, a governor on said screw,

adapted to rotate the latter when an abnormal descent is attained, and a stationary cable or rope connected with the car and adapted to keep the governor in motion, substantially as set forth.

478,170. FENCE. RICHARD B. PERKINS, Hornellsville, assignor of one-half to Charles A. Ball, Wellsville, N. Y. Filed Sept. 29, 1891. Serial No. 407,183. (No specimens.)

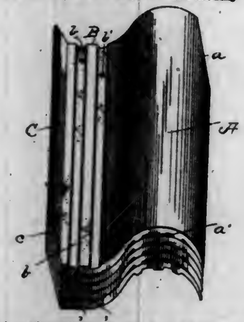


Claim.—1. As an article of manufacture, the metallic fence ribbon or strip having the longitudinal strengthening-ribs on one side and the smooth surface on the other side thereof and the barbs stamped from the body of the ribbon and bent at right angles to the length of the ribbon to lie against the flat smooth side thereof, substantially as described.

2. As an article of manufacture, the metallic fence ribbon or strip having the integral longitudinal ribs on one side, the integral barbs on its other side, and the crimps or indentations formed alternately on its edges and extending through the ribs and barbs on lines at right angles to the longitudinal axis of the ribbon, substantially as described.

3. As an article of manufacture, the metallic fence ribbon or strip provided with the longitudinal reinforcing-ribs and the alternate crimps on its edges, extending at right angles to the longitudinal axis of the ribbon, substantially as described.

478,171. ROOFING-TILE. JOSEPH RAFF, New Philadelphia, Ohio. Filed Oct. 23, 1891. Serial No. 409,607. (No model.)



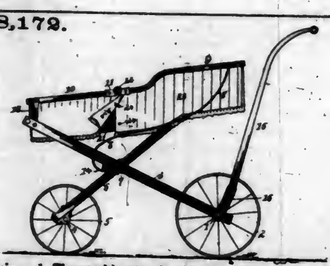
Claim.—1. A roofing-tile consisting of a rounded or curved section having longitudinal grooves on one of its faces, both surfaces of this section being of such relative contour that it will overlap and snugly fit a like tile, and a flat section integral with one edge of the curved section, the said flat section having holes for fastening devices, substantially as set forth.

2. A roofing-tile consisting of a rounded or curved section, the upper and under sides of said section being of such relative contour that it will overlap and snugly fit a like tile, the under side of said section having longitudinal grooves therein, and a flat section integral with one edge of the curved section, substantially as set forth.

3. A roofing-tile consisting of a rounded or curved section grooved on its under side, and a flat section integral with said rounded or curved section and grooved on its upper side and having a section C at an angle to the flat section, substantially as set forth.

478,172. BABY-CARRIAGE. ABBOTT M. REEVES, Decatur, Ill. Filed Mar. 14, 1892. Serial No. 424,905. (No model.)

478,172.



Claim.—1. The combination, in a baby-carriage composed of cross-frames pivotally connected and provided each with wheels, of a rigid rear-wheel frame, a front-wheel frame elastic at its upper end, and a bed connected at its front end with the rear-wheel frame and at its rear end with the front-wheel frame.

2. The combination, in a baby-carriage composed of cross-frames pivotally connected and provided each with wheels, of a rigid rear-wheel frame, a front-wheel frame elastic at its upper end, and a bed connected directly with one frame and connected with the other frame by means of approximately vertical links.

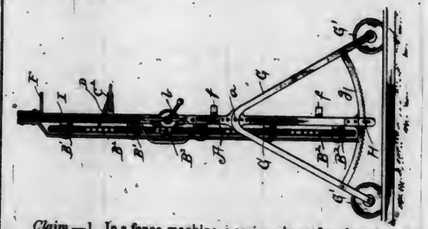
3. The combination, in a baby-carriage composed of cross-frames pivotally connected and provided each with wheels, of a rigid rear-wheel frame having links at its upper end, a front-wheel frame having springs at its upper end, and a bed supported at its forward end on the links and at its rear end on the springs.

4. In a folding baby-carriage, the combination of axle 1, bars 3, mounted on the axle, handles 15, handle-brackets 16, having arms 17, provided with slotted heads, bolts 20, adapted to extend through the bars and the slots of the heads, and the nuts 19, to hold the heads in rigid contact with the bars.

5. In a folding baby-carriage, the combination, with the frame and the rear axle thereof, of handles connected pivotally with the axle and having extensions detachably secured to the frame.

6. In folding baby-carriages, the combination, with a jointed frame and a flexible bed, of comparatively stiff hangings parted at the joints of the frame and detachably connected.

478,173. WIRE-AND-PICKET-FENCE MACHINE. AGUSTUS H. ROGERS, North Amherst, Ohio. Filed Sept. 18, 1891. Serial No. 406,074. (No model.)



Claim.—1. In a fence-machine, a spring-clamp for clamping pickets and a latch adapted to hold the clamp open, substantially as set forth.

2. In a fence-machine of the variety indicated, a spring-clamp comprising a movable spring-actuated jaw and a stationary jaw, a handle for opening the clamp, and a gravity-latch for locking the clamp in its open position, substantially as set forth.

3. In a fence-machine, the combination, with a spring-clamp, substantially as indicated, of an adjustable stop located above the clamp for engaging the top of the picket in placing the latter in the clamp, substantially as set forth.

4. In a fence-machine, the combination, with the body of the machine, of a pair of diverging legs pivotally connected with the body portion, said legs having rollers at their outer ends, a toothed sector connecting the legs, and a latch connected with the body and adapted to operate in connection with the sector, whereby to lock the body in different positions, substantially as set forth.

478,174. SEPARABLE BUTTON. CHARLES M. SHERER, Lawrence, Kans. Filed May 11, 1891. Serial No. 392,334. (No model.)

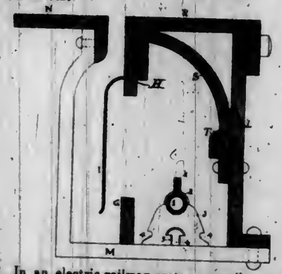
Claim.—In a separable button, the combination of a head part provided with a shank and cross-bar and a foot-piece made of one piece of metal, having the two ends bent inward and upward, so as to form from the same piece of metal the upper and under parts of the foot-

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piece, and a spring connection between the two, said lower portion of said foot-piece being formed with a holding-seat lying across the opening between the upturned ends, substantially as and for the purpose described.

478,175. ELECTRIC-RAILWAY CONDUIT. MILTON SHOEMAKER, Sioux City, Iowa, assignor of two-thirds to James W. Martin, same place, and Jason Passmore, Duncannon, Pa. Filed May 26, 1891. Serial No. 393,976. (No model.)



Claim.—1. In an electric-railway system, a trolley-rail made of metal tubing, suitably set in glass insulators, which are located at suitable distances from each other, said metal tubing being rigidly held in place on said insulators by means of a suitable wire passing around said tubing and downward diagonally through each of said insulators, said wire having its ends coiled to form a head on each side of the insulator, a conductor, and a suitable clip adapted to pass around said conductor and the metal tubing to hold said conductor in place thereon, all substantially as set forth, as and for the purpose specified.

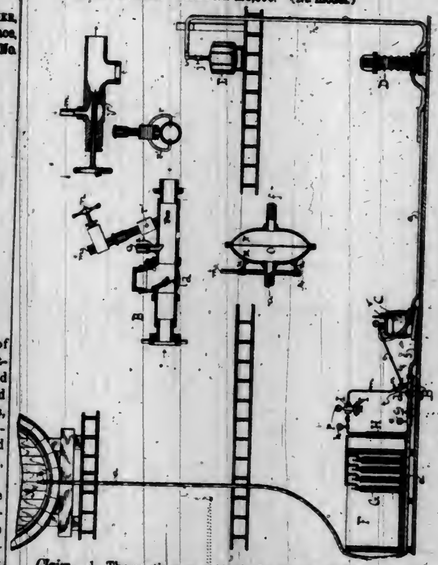
2. In an electric-railway system, in combination, a trolley-rail made of suitable metal tubing set on glass insulators which are placed at suitable distances apart for this purpose, said metal tubing being set in the groove provided on the upper surface of each insulator and there rigidly held in place by a suitable wire passing around said metal tubing and thence downward diagonally through each of said insulators, suitable openings being provided in the insulators for this purpose, the ends of said wire being coiled or turned up to form a head on each side of the insulators, each of said insulators being rigidly held in place by means of a broad-headed bolt, the head of which fits into an opening provided on the under side of each insulator to receive it, the screw end of said bolt being rigidly secured to an angle-bar of the metal case, a conductor, and a suitable clip adapted to pass around said conductor, and the metal tubing to hold said conductor in place thereon, grooves being provided on the under surface of said metal tubing to receive the ends of said clip and to hold it securely in place, all substantially as set forth.

3. In an electric railway system, the combination of the following parts, viz: the metal tube 1, provided with the grooves 8 8, the glass insulator 3, grooved at its upper surface to receive said metal tube, said insulator being provided with openings 4 4, running diagonally through the body of the insulator, and an opening 5, provided on its under surface, as shown, the wire 2, the conductor K, the clip 7, and a metal case provided with angle-bars M M, all arranged as set forth.

4. In an electric-railway system, the combination, with a slotted continuous underground metal case, of a metal tube, as 1, glass insulators, as 3, placed at suitable distances from each other in said underground case, said metal tube adapted to lie longitudinally in the grooves provided in the upper surface of each insulator for this purpose, said metal tube being rigidly held in place by a suitable wire passing around said tube and downward diagonally through each of said insulators, a head being formed on the ends of said wire at the points where they enter the sides of the glass insulator to keep said wire rigidly in place, each of said insulators being provided with suitable openings to receive said wire, and an opening to receive a broad-headed bolt, the bottom part of said bolt being firmly secured to an angle-bar, as M, similar angle-bars being placed at suitable distances from each other in the case, a conductor K, and a suitable clip, as 7, adapted to pass around said conductor, and the metal tube 1 to hold said conductor in place thereon, all as set forth.

5. In an electric-railway system, a trolley-rail consisting of a metal tube extending longitudinally inside of an underground metal case, said metal tube being set in glass insulators, and means for rigidly holding it in place therein, a suitable conductor, and suitable means for holding it in place on said metal tube, said metal tube being provided with glass connections at all points of connection between it and a service-pipe for forcing hot air from a hot-air furnace into and through said metal tube, all substantially as set forth, as and for the purpose specified.

478,176. METHOD OF AND APPARATUS FOR CARBONATING BEER. JOHN B. STORRUS and FREDERICK C. WACKENHUTH, Newark, N. J., assignors to the Universal Carbonating Company, same place. Filed Mar. 25, 1892. Serial No. 426,390. (No model.)



Claim.—1. The continuous method of preparing beer for the market, consisting in supplying ruh-beer from a vessel to a carbonic-acid charger under a substantially constant head, causing a current to flow from the vessel to the charger by allowing the beer to be discharged through a pipe against a fluid-resistance smaller than the pressure due to the constant head, injecting carbonic acid into the current thus produced in the charger, and passing the mixed beer and carbonic acid through a separator and through a filter and discharging the same, substantially as specified.

2. The continuous method of preparing beer for the market, consisting in supplying ruh-beer from a vessel to a carbonic-acid charger under a substantially constant head, causing a current to flow from the vessel to the charger by allowing the beer to be discharged through a pipe against a fluid-resistance smaller than the pressure due to the constant head, injecting into the current thus produced in the charger carbonic-acid gas under constant pressure so regulated as to prevent complete saturation under the conditions of pressure and temperature of the charger, and passing the mixed beer and carbonic acid on its way to the place of discharge through a separator, substantially as specified.

3. The continuous method of preparing beer for the market, consisting in supplying ruh-beer from a vessel to a carbonic-acid charger under a substantially constant head, causing a current to flow from the vessel to the charger by allowing the beer to be discharged through a pipe against a fluid-resistance smaller than the pressure due to the constant head, injecting into the current thus produced in the charger carbonic-acid gas under constant pressure so regulated as to prevent complete saturation under the conditions of pressure and temperature at the charger, and passing the mixed beer and carbonic acid through a pipe and discharging the same, substantially as specified.

4. The continuous method of preparing beer for the market, consisting in passing ruh-beer from a vessel through a pipe under substantially constant head, injecting carbonic-acid gas into the beer in the pipe, passing the mixed beer and carbonic acid through a pipe against a resistance less than the pressure of the mixed beer and carbonic acid, and discharging it, substantially as specified.

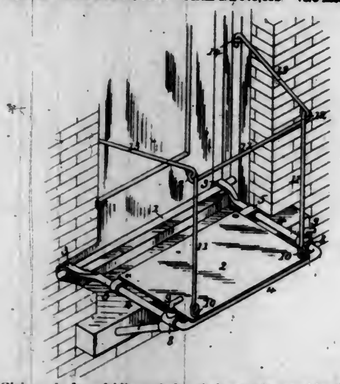
5. In an apparatus for impregnating beer with carbonic acid, a

vessel containing beer, a carbonic-acid charger, a pipe or hose connecting the vessel with the charger, means, substantially as described, for producing a substantially constant pressure at the charger, one or more nozzles for injecting carbonic acid into the current passing through the charger, a separator, a pipe or hose leading from the charger to the top of the separator, and an outlet at or near the bottom of the separator connected with a pipe or hose for carrying off the charged beer, substantially as shown and described.

6. In an apparatus for impregnating beer with carbonic acid, a vessel containing beer, a carbonic-acid charger, a pipe or hose connecting the vessel with the charger, means, substantially as described, for producing a substantially constant pressure at the charger, a check-valve at or near the charger, one or more nozzles for injecting carbonic acid into the current passing through the charger, a separating-vessel, a pipe or hose leading from the charger to the top of the separator, a pipe or hose leading from near the bottom of the separator to a filter, and a pipe or hose leading from the filter to the place of discharge, substantially as shown and described.

7. In an apparatus for impregnating beer with carbonic acid, a vessel containing beer, a carbonic-acid charger a pipe or hose connecting the vessel with the charger, means, substantially as described, for producing a substantially constant fluid-pressure at the charger, a check-valve at or near the charger, one or more nozzles for injecting carbonic acid into the current passing through the charger, a separating-vessel, a pipe or hose leading from the charger to the top of the separator, a pipe leading from the top of the separator back into the charger between the check-valve and the injecting-nozzles, and an outlet at or near the bottom of the separator for carrying off the charged beer, substantially as shown and described.

478,177. FOLDING WINDOW-BALCONY. CLAUDE THOMSON, Chicago, Ill. Filed Dec. 17, 1890. Serial No. 375,082. (No model.)



Claim.—1. In a folding window-balcony, the combination of the platform or rest 2 and its marginal bow 4, having hooks 3 formed on its inner ends to engage the window rod 1, with the obliquely-arranged brace-feet 7, slidable on the side members of the bow 4 and provided with clamping-screws 9, said feet projecting downwardly and inwardly to rest against the wall and support the outer portion of the platform in proper position, as set forth.

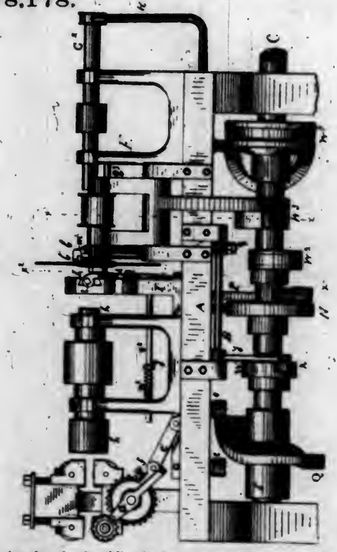
2. In a folding window-balcony, the combination, with the platform and means for attaching its inner edge to the window-frame, of the obliquely-arranged brace-feet 7, slidable on the side rods of the platform and provided with clamping-screws 9, the eyes 10, vertically-arranged bow 11, having corner eyes 12, hook-rods 13, and eyes 14 on the window frame, substantially as set forth.

3. In a folding window-balcony, the combination of the platform 2, metal bow 4, having hooked inner ends to engage a fixed rod on the window-frame, the eyes 10, vertically-arranged bow 11, having corner-eyes 12, hook-rods 13, and eyes 14 on the window-frame, substantially as set forth.

478,178. GAGE-LATHE. LOCIUS C. TRASK, Greenwood, Me., assignor to Eugene L. Tebbets, same place. Filed Feb 9, 1889. Serial No. 299,339. (No model.)

Claim.—1. In an automatic spool-lathe, gripping-jaws for the rough-turned stick, which are mounted upon a sliding plate, and a roller by which motion is transmitted to the sliding plate from the actuating-cam, in combination with a projection upon the back of the actuating-cam and a spring reacting against the projection when the said projection is placed at such a point upon the cam that it acts to

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move the plate back while the jaws are gripped upon the stick and after the saw has cut off the block, all as and for the purpose set forth.

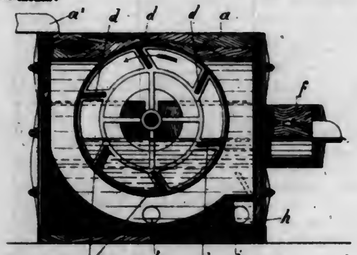
2. The combination of the sliding plate G, connecting-rod d', arm a, and feed-rolls actuated thereby, with a slotted connecting-piece mounted upon the back of arm a for the purpose of varying its working length.

3. The combination of a vertically-clamping jaw b, having a projecting part b', with a supporting-piece m, having a similar projection m', all as and for the purpose set forth.

4. The combination of the finger-motion arm P, cam N, intermediate arm S, and adjustable connection V, all as and for the purpose set forth.

5. In an automatic spool-lathe in which spool-blanks are severed from the end of a turned stick, a clamping-jaw which holds the severed blank in place while being bored, a rock-shaft, jointed connections between the jaw and the rock-shaft, and a cam upon the principal cam-shaft, which imparts motion to the rock-shaft, all in combination with each other and with a boring-tool which bores an axial hole in the block and a cutting-off saw which moves at right angles thereto, substantially as specified.

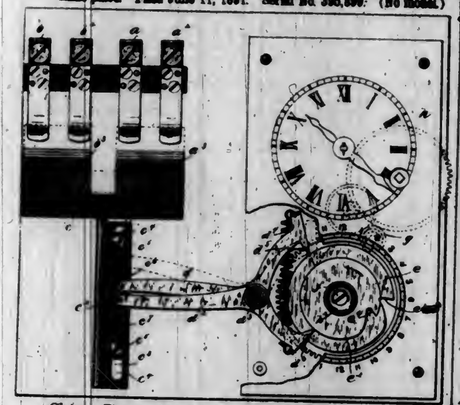
478,179. STRAINER FOR CHEMICAL WOOD PULP. CHRISTIAN WAENDEL, Reutlingen, Germany. Filed July 26, 1889. Serial No. 318,796. (No model.)



Claim.—1. In an apparatus for straining chemical wood pulp, the combination of the trough a, having mounted therein a rotary drum b, perforated with slots c and provided with interior wings d d, said drum having centrally-arranged outlets in its ends leading out of the trough a, stuffing-boxes and glands g g for preventing communication between the drum-outlets and the interior of the trough a, and suitable means for rotating the drum b, substantially as described.

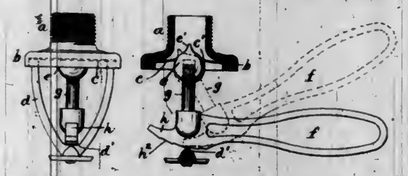
2. In an apparatus for straining chemical wood pulp, the combination of the trough a, having outlet-passages e e' f and having the gutter h and cover i, arranged as described, and clearing-hole k with a rotary drum b, having perforations c and interior wings d d and having its centrally-arranged end outlets x x communicating with the outlet-passages e e' of the said trough a, the stuffing-boxes and glands g g, and suitable means for rotating the said drum, substantially as described.

478,180. TIME-SWITCH FOR ELECTRIC CIRCUITS. BENJAMIN F. WATERS, Brockton, Mass., assignor to the Waters Electric Company, same place. Filed June 11, 1891. Serial No. 395,890. (No model.)



Claim.—The combination, with the stationary contacts, of the movable contact-maker and its supporting and guiding slide bar provided with engaging projections or shoulders, and pivoted spring-actuated levers each having one arm arranged to co-operate with one of said shoulders of the slide-bar, and a time-motor and cams operated thereby controlling the other arms of said actuating-levers, substantially as and for the purpose described.

478,181. DEVICE FOR PLUGGING SPRINKLER-HEADS. GEORGE E. WRIGHT, Newark, N. J., assignor of one-half to Dennis Houlihan, same place. Filed Apr. 22, 1892. Serial No. 430,197. (No model.)



Claim.—1. As a new article of manufacture, a device for plugging sprinkler-heads, consisting in a handle having a plug attached to one side of the same and an abutment attached to the opposite side of the handle, substantially as set forth.

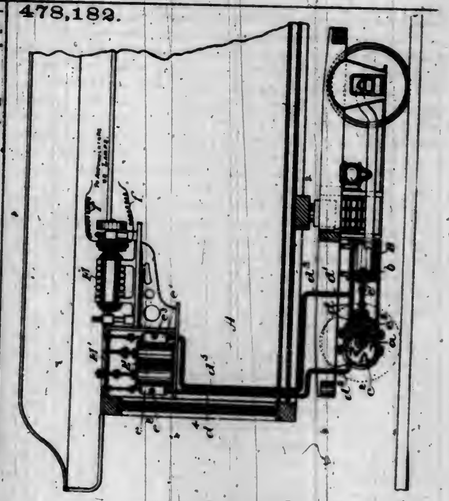
2. As a new article of manufacture, a device for plugging sprinkler-heads, consisting in a handle having a plug attached adjustably to one side of the same and an abutment attached to the opposite side of the handle, substantially as set forth.

3. The attachment for plugging sprinkler-heads, consisting in the handle f, the screw-shank g, the plug c, screwed thereon, and the eccentric abutment h, provided with the series of steps h^2, arranged substantially as herein set forth.

478,182. ELECTRICAL DISTRIBUTION FOR CARS. SAMUEL YOUNG, MORRIS MOSKOWITZ, LEON D. ADLER, and JOSEPH LOEWENBERG, Newark, N. J. Filed Oct. 15, 1891. Serial No. 408,767. (No model.)

Claim.—In a system for electrically lighting cars, in combination with the pivoted truck of a car, a pair of air-compressing cylinders arranged directly upon said truck, said cylinders being provided with valves on their opposite sides, eccentrics arranged on and moving with said car-wheel axle of the truck and said eccentrics being directly connected with the piston-rods in said cylinders, pipes d and d', leading from said cylinders, flexible tube connections d^3 and d^3, pipes d^5 and d^5, extending into the car-body, an air-engine provided with valve-chests with which said pipes d^5 and d^5 communicate, and a dynamo connected with said engine, all arranged substantially as and for the purposes set forth.

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478,183. ELECTRIC CAR-LIGHTING SYSTEM. SAMUEL YOUNG and MORRIS MOSKOWITZ, Newark, N. J., assignors of one-fourth to Leon D. Adler and Joseph Loewenberg, same place. Filed Jan. 13, 1892. Serial No. 417,932. (No model.)



Claim.—1. The herein-described system for electrically lighting cars, consisting, essentially, of the combination, with a pivoted truck, of an air-compressor on said truck, means for driving said air-compressor from the axle, consisting, essentially, of eccentrics rotating with and arranged on the axle and connected with the air-compressor, an air-engine and dynamo connected therewith, an air receiver or storage-tank intermediately arranged between said compressor and air-engine, and a pressure-regulator arranged in the piping between said compressor and air-receiver, acting automatically to shut off the air from the compressor into said air-tank and cause the compressor to exhaust outside of the tank, and a flexible tube connection in the piping between said air-compressor and the regulator, substantially as and for the purposes set forth.

2. The herein-described system for electrically lighting cars, consisting, essentially, of an air-compressor, means for driving said air-compressor from the car-axle, an air-engine and dynamo connected

therewith, an air receiver or storage tank intermediately arranged between said compressor and air-engine, and a pressure-regulator arranged in the piping between said compressor and air-receiver, acting automatically to shut off the air from the compressor into said air-tank and cause the compressor to exhaust outside of the tank, said regulator consisting, substantially, of a cylinder *f*, provided with a slide-valve having ducts f^2 and f^3, an air-chamber, a pipe connecting said chamber with the air or storage tank, and an exhaust-pipe leading from said cylinder *f*, substantially as and for the purposes set forth.

3. The herein-described system for electrically lighting cars, consisting, essentially, of air compressors or pumps arranged on the car-wheel truck, eccentrics on one of the axles of the truck for driving said compressors or pumps from the car-axle, pipes *c* and *c'*, extending from said compressors, pipes c^4 and c^5, and flexible connections between said pipes, air receiving or storage tanks C and C', a cock or valve c^{13} in each tank for filling the same when the car is not in motion, and an air-engine and dynamo connected with said tanks C and C', substantially as and for the purposes set forth.

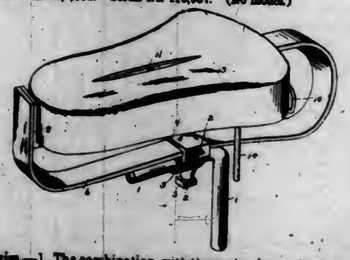
4. The herein-described system for electrically lighting cars, consisting, essentially, of air compressors or pumps arranged on the car-wheel truck, eccentrics on one of the axles of the truck for driving said compressors or pumps from the car-axle, pipes *c* and *c'*, extending from said compressors, pipes c^4 and c^5, and flexible connections between said pipes, air receiving or storage tanks C and C', a cock or valve c^{13} in each tank for filling the same when the car is not in motion, and an air-engine and dynamo connected with said tanks C and C', and a pressure-regulator in each of said pipes c^4 and c^5, acting to automatically shut off the air from the compressors into said receivers C and C', substantially as and for the purposes set forth.

5. In a system for electrically lighting cars, in combination, air-compressors arranged on the car-truck, means for driving the same from the car-axle, an air-engine and dynamo, air receivers or storage tanks C and C' beneath the car, and air receivers or storage tanks on the roof of the car, all communicating with each other, and regulating devices arranged in the connections between said air compressors and tanks C and C', adapted to automatically cut off the supply of air to said tanks, substantially as and for the purposes set forth.

6. In a system for electrically lighting cars, in combination, an air-compressor on the truck of the car, an eccentric for driving the same, an air-receiving tank, an air-engine and dynamo, pipes connecting the same, and an automatic regulating device to decrease the pressure of air in the receiving-tank, consisting, essentially, of a cylinder provided with a slide-valve having ducts f^2 and f^3, an air-chamber, a pipe connecting said chamber with the air or storage tank, and an exhaust-pipe leading from said cylinder *f*, substantially as and for the purposes set forth.

7. The herein-described system for electrically lighting cars, consisting of an air-compressor, eccentrics driving said air-compressor directly from the car-wheel axle, an air-engine and dynamo connected therewith, an air receiver or storage tank intermediately arranged between said compressor and air-engine, and a pressure-regulator arranged in the piping between said compressor and air-receiver, acting automatically to shut off the air from the compressor into said air-tank and cause the compressor to exhaust outside of the tank, said regulator consisting, substantially, of a cylinder *f*, provided with a slide-valve, an air-chamber connected with said cylinder, a pipe connecting said chamber with the air or storage tank, and an exhaust-pipe leading from said cylinder *f*, substantially as and for the purposes set forth.

478,184. BICYCLE-SADDLE. CYRUS W. ZIMMER, Logansport, Ind. Filed Jan. 22, 1892. Serial No. 418,937. (No model.)



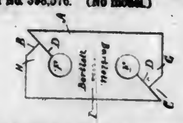
Claim.—1. The combination, with the suspension-spring and means for securing the same to the seat-standard, of a metal saddle secured between the opposite terminals of and supported by the spring, the air-cushion, and the leather covering for the same mounted upon said saddle, substantially as specified.

2. In a saddle, the combination, with the suspension-spring having the upturned ends, the L-shaped bracket secured to the ends of the spring, and the perforated saddle-plate secured to the brackets, of the air-cushion having the vent and the leather covering secured to the plate and brackets and having an opening in line with the vent of the cushion and opening of the saddle-plate, substantially as specified.

3. The combination, with the inverted-L-shaped standard, the sleeve or collar having the lower cylindrical bore receiving the standard and the upper rectangular bore, and the screws terminating in the bore, of the suspension-spring loosely fitting the rectangular bore and having its front end upturned and its rear end upturned or curved and terminating in a downwardly-disposed securing-plate, the front and rear L-shaped brackets, the metal saddle-plate riveted to the lower edges of the brackets, the saddle-shaped cushion, and the leather covering for the same, the latter being riveted to the saddle-plate, substantially as specified.

4. The combination, with the suspension-spring having front and rear upturned ends, of a metal saddle-plate secured at its ends to the ends of the spring and a saddle mounted on the plate, substantially as specified.

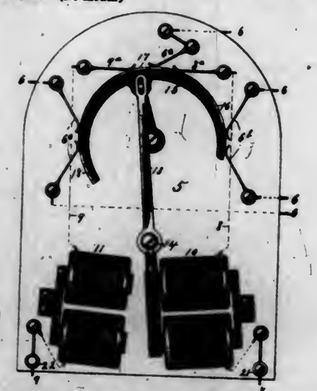
478,185. TAG. THOMAS C. BARNUM, Indianapolis, Ind. Filed July 6, 1891. Serial No. 398,576. (No model.)



Claim.—1. The above-described tag, consisting of an oblong strip of sheet material having near each end a perforation F, notches B and C, cut in the ends near diagonally-opposite corners, and slits D D, connecting said notches respectively with said perforations, said strip being folded upon itself and its opposed parts secured together, except between said notches, whereby a single structure is formed having a single central opening, and the free overlapping parts C and H, substantially as set forth.

2. In a tag, the combination, with the folded strip having a pair of registering perforations, notches B and C, slits D D, connecting said perforations and notches, respectively, and the transverse slot I at the fold, of the auxiliary strip J, projecting through the slot and secured in the fold of the strip, for the purpose set forth.

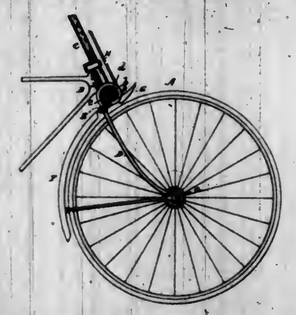
478,186. ELECTRIC-LIGHTING SYSTEM. EDWARD T. COOKE and WILLIAM H. MACKAY, St. Louis, Mo. Filed July 17, 1891. Serial No. 399,796. (No model.)



Claim.—1. A system of lighting and extinguishing electric lamps from one or more points, the same consisting of a circuit, a switch carrying two suitable contact-plates for making and breaking said circuit, two magnets governing said switch, one of which operates the said switch to make the circuit and light the lamps and the other of which operates said switch to break the circuit and extinguish the lamps, a circuit in which each of said magnets is arranged, a third contact-plate carried by said switch, adapted to break the circuit of the actuating-magnet and establish the circuit of the other magnet, the said third contact-plate being connected to one terminal of the circuit containing the lamps, and manually-operated devices controlling at will the circuits of said magnets to light and extinguish the lamps.

2. A system of lighting and extinguishing electric lamps from one or more points, the same consisting of a circuit, a rotary switch carrying suitable contact-plates for making and breaking said circuit, two oppositely-arranged magnets for governing said switch, one of which operates the switch to make the circuit and light the lamps and the other of which operates said switch to break the circuit and extinguish the lamps, a circuit in which each of said magnets is arranged, a contact-plate carried by said switch to break its own circuit and establish the circuit of the other magnet, the said contact being connected to one terminal of the circuit containing the lamps, and push-buttons controlling the circuits of said magnets to light and extinguish the lamps and adapted to be placed in electrical communication with the other terminal of the circuit containing the lamps.

478,187. BICYCLE. WHITNEY C. DAVIS, Waterloo, N. Y. Filed Aug. 28, 1891. Serial No. 403,906. (No model.)



Claim.—1. The combination, with the frame and wheels of a bicycle, of the separate or twin spring-rods D D, convoluted at one end and there secured to the frame adjustably on the axes of the said convolutions and also fastened at their other ends to one of the wheel-axles, substantially as and for the purposes specified.

2. The combination, in a bicycle, of the two separate independent or twin spring-rods D D, secured at their lower ends to the steering-wheel axle and having volute upper ends clamped adjustably on the axes of the said volutes to the steering-head, substantially as and for the purposes specified.

3. In a bicycle, the springs D D, having volute ends clamped adjustably to lateral extensions on the head, and said springs being also secured to the axle, substantially as and for the purposes specified.

4. The combination, in a bicycle, of a head having lateral extensions *b b*, the volute spring rods D D, having their volutes clamped adjustably to said extensions, the yoke E, connecting said rods near their upper ends, and the wheel-axle connecting the lower ends of the said rods, substantially as shown and described, and for the purposes specified.

5. The combination, in a bicycle, of a head having lateral extensions on its lower end, the volute springs attached to said head and to the axle, a yoke connecting said springs, the brake-rod or plunger, and the brake-shoe jointed or hinged to said rod and to the said yoke, substantially as and for the purposes specified.

478,188. PROCESS OF BREWING BEER. CHARLES H. PRIEST and BERTHA O. PRIEST, New York, N. Y., assignors to the Brewing Improvement Company, Maywood, N. J. Filed Oct. 28, 1891. Serial No. 410,112. (No specimens.)

Claim.—The method of hopping wort, which consists in subjecting the hops to a dry heat beyond drying until at least parched, extracting the hops thus treated with water at a temperature above 50° Fahrenheit, and adding the extract to the wort, substantially as and for the purpose specified.

478,189. METHOD OF HOPPING MALT LIQUORS. CHARLES H. PRIEST and BERTHA O. PRIEST, New York, N. Y., assignors to the Brewing Improvement Company, Maywood, N. J. Filed Mar. 3, 1892. Serial No. 423,655. (No specimens.)

Claim.—1. The herein-described method of preparing hops for brewing, which consists in subjecting the hops to the action of dry heat until heated beyond drying or at least parched, substantially as and for the purpose specified.

2. The within-described method of hopping beer, which consists in subjecting the hops to the action of a dry heat until heated beyond drying or at least parched and then adding the hops thus prepared to the wort, in the manner specified.

478,190. TROUSERS, &c., AND PATTERN THEREFOR. RICHARD HAMILTON and JOHN G. LEWIS, Jefferson City, Mo.; said Hamilton assignor to said Lewis. Filed Sept. 29, 1891. Serial No. 407,173. (No model.)



Claim.—1. A pattern for garments of the class described without inseam, having bottom and top lines and side lines adapted to determine the outseam of the leg and body and having an intermediate slit from the top line down to and below the center or lowest point of the crotch, substantially as specified.

2. A garment of the class described having legs without inseam, an integral fly-piece, and a continuous seam extending from points on both legs in the rear of the garment above the knee-line to the bottom of the fly, and a crotch-piece joined in part along said seams and on opposite edges of the seat portion of the garment, as set forth.

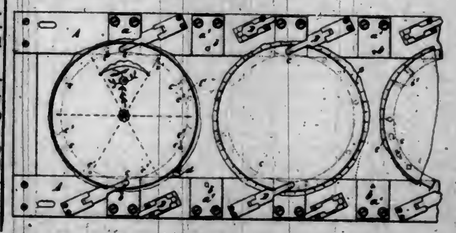
478,191. WHEEL FOR VELOCIPEDES. ARTHUR C. HIDE, London, England, assignor to the Disc Wheel Company, Limited, same place. Filed Dec. 7, 1891. Serial No. 414,244. (No model.) Patented in England May 15, 1891, No. 8,395.



Claim.—1. In a wheel, the combination, with a hub, of two dished plates inclosing the hub, the metal of each plate being of greater thickness around the hub and at the periphery than at the intermediate parts of the plate, and the two said plates having their thickened edges secured together and adapted to support an elastic tire, substantially as set forth.

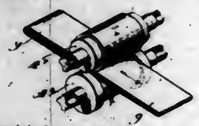
2. In a wheel, the combination, with a hub, of two dished plates inclosing the hub, the metal of each plate being of greater thickness around the hub and at the periphery than at the intermediate parts of the plate, and the said two plates being secured together and flared outwardly at their edges, and a ring secured to the thickened edges of the two said plates and adapted to support an elastic tire, substantially as set forth.

478,192. FABRIC-HOLDING FRAME FOR EMBROIDERING-MACHINES. FRIEDRICH HÜRSELER, St. Gall, Switzerland. Filed Feb. 1, 1892. Serial No. 419,868. (No model.)



Claim.—In combination with the frame proper of an embroidering-machine, a round removable fabric-holding frame provided with a series of holes placed at equal distances around its periphery, pins mounted on said frame proper to engage said holes, and clamps to preserve said engagement, substantially as set forth.

478,193. PROCESS OF ROLLING THIN SHEET STEEL OR IRON. BERNARD G. LAUTH, Philadelphia, Pa. Filed Apr. 6, 1891. Serial No. 387,728. (No specimens.)



Claim.—The hereinbefore-described process, which consists in rolling the metal into long strips, then reeling the strips into flat coils, and passing the coils thus formed through rolls.

478,194. BRAKE FOR BICYCLES. WILLIAM T. LEWIS, Peoria, Ill. Filed Sept. 16, 1891. Serial No. 405,823. (No model.)



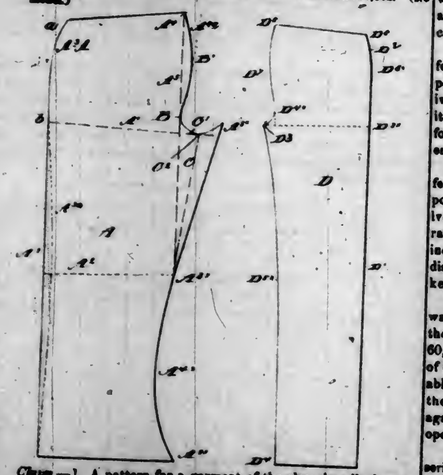
Claim.—1. In a brake for bicycles, the ball A, provided on its interior with a metal tube D, with washers E on either end thereof, and mounted on an axle C, in combination with the yoke B, projection J, screw I, and button H, as herein set forth and described.

2. In a brake for bicycles, the ball A, in combination with the yoke B, provided with the projection J, screw I, and button H, substantially as set forth and described.

3. In a brake for bicycles, the yoke B, with the projection J, through which passes the screw I, with its button H, in combination with the ball A, substantially as herein set forth and described.

4. In a brake for bicycles, one or more balls A, provided on their interiors with the metal tube or tubes D, with washers E, in combination with the yoke B, with its projection J, through which passes the screw I, with its button H, substantially as set forth.

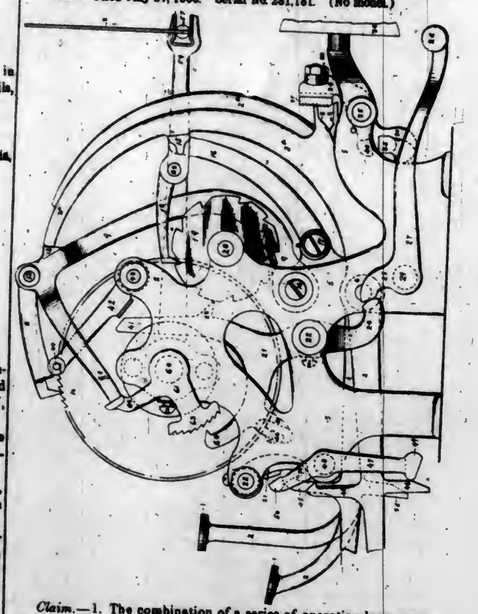
478,195. TROUSERS, &c., AND PATTERN THEREFOR. JOHN G. LEWIS and RICHARD HAMILTON, Jefferson City, Mo.; said Hamilton assignor to said Lewis. Filed Sept. 29, 1891. Serial No. 407,172. (No model.)



Claim.—1. A pattern for a garment of the class described, comprising front and back parts, each having curved inseams, each extending outwardly from a line perpendicular to the knee-line, said extensions projecting above the hip-line and terminating at the top in concave lines, the extension on the back being greater than that on the front, substantially as specified.

2. A garment having extensions in the back of each leg and seat portion, projected outside of a line perpendicular to the knee-line and having the lower half of the back of the body portion extended toward said perpendicular line, the extension on the back being greater than that on the front, as set forth.

478,196. CASH REGISTER AND INDICATOR. CHARLES E. LORD, Boston, Mass., assignor to the National Cash Register Company, Dayton, Ohio. Filed July 27, 1888. Serial No. 281,181. (No model.)



Claim.—1. The combination of a series of operating-keys representing different values, an indicator actuated thereby and moved to different positions by the operations of different keys to indicate their respective values, a latch for holding the indicator in the position to which it is moved by an operated key, and a trip for said latch operated at the beginning of the next operation of a key to release the indicator.

2. The combination of a series of operating-keys representing different values, an indicator actuated thereby and moved to different positions by the operations of different keys to indicate their respective values, a ratchet and pawl co-operating with the indicator to hold it in the position to which it is moved by an operated key, and a trip for disengaging the ratchet and pawl at the beginning of the next operation of a key to release the indicator.

3. The combination of a series of operating-keys representing different values, an indicator actuated thereby and moved to different positions by the operations of different keys to indicate their respective values, a ratchet movable with the indicator, a pawl engaging said ratchet at the completion of the stroke of an operated key to hold the indicator in the position to which it has been moved by such key and disengaged from the ratchet at the beginning of the next operation of a key to release the indicator.

4. The combination of the key-levers 2, having upwardly and forwardly curved extensions 2^a, the bar 12, co-operating with the latter, the indicator-shaft 60, a connection between the bar 12 and the shaft 60, by which the latter is moved different distances upon the operation of different keys, an indicator moved by said shaft, a ratchet 63, movable with the shaft, the revoluble notched cam-disk 19, actuated by the key-levers, and the lever 21, provided with a tooth 23, bearing against the periphery of the cam-disk, and with a pawl-tooth 66, co-operating with the ratchet 63, substantially as described.

5. In a registering and indicating machine, the combination of a series of operating-keys of different values, a revoluble notched cam-disk, as 19, actuated by the operating-keys and moved the same distance by each of them, and a movable part, as 21, provided with a tooth 23, spring-pressed against the periphery of the cam-disk and co-operating with the notches therein in the manner described to cause a quick movement of such part 21 at the completion of the stroke of an operated key.

6. The combination of the key-levers 2, movable bar 15, common to all of them and moved the same distance by each of them, pawl 18, revoluble notched cam-disk 19, and the lever 21, provided with a tooth 23, bearing against the periphery of the cam-disk 19 and co-operating with the notches therein, for the purpose described.

7. The combination of a series of operating-keys representing different values, a registering-wheel, a pawl actuated by the operating-keys to turn the registering-wheel different distances, according to the key which is operated, and a trip for disengaging the pawl from the registering-wheel at the completion of the stroke of an operated key.

8. The combination of the key-levers 2, having the upwardly and forwardly curved rear extensions 2^a, a registering-bar 12, the pawl 11, the registering-wheel 14, the trip-arm 42, revoluble cam-disk 19, actuated by the key-levers 2, and the movable part 41, co-operating with the trip-arm 42 and provided with a tooth 23, bearing upon the periphery of the cam-disk 19, substantially as described.

9. The combination of the key-levers 2, having upwardly and forwardly curved rear extensions 2^a, the bar 12, co-operating with the latter, the pawl 11, and registering-wheel 14, the arm 65, movable with the bar 12, the indicator shaft 60, the arms 61 and 64, fast on said shaft, the former engaged by the arm 65 and the latter supporting the ratchet 63, the cam-disk 19, actuated by the key-levers 2, and the movable part 21, provided with a tooth 23, bearing against the periphery of the cam-disk 19, and with a tooth 66, co-operating with the ratchet 63, substantially as described.

10. In a registering-machine, the combination of a registering-wheel provided with two ratchets having oppositely-facing teeth, a combined actuating and locking pawl, one of whose teeth engages one of said ratchets to actuate the wheel and the other of whose teeth engages the other of said ratchets to lock the wheel against excess of movement, and a trip for disengaging the pawl from the ratchets at the completion of the stroke of an operated key.

11. In a registering-machine, the combination of a series of operating-keys, a registering-bar, as 12, moved different distances by the operation of different keys, a registering-wheel 14, provided with two ratchets having oppositely-facing teeth, a pawl 11, carried by the bar 12 and provided with an actuating-tooth engaging one of the ratchets of the registering-wheel and with a locking-tooth 79, engaging the other ratchet of said wheel, and a trip for lifting the pawl at the completion of a stroke of an operated key.

12. In a registering-machine, the combination of a series of operating-keys representing different values, a registering-wheel provided with a ratchet and moved different distances by the operation of different keys, a revoluble cam-disk 19, actuated by the operating-keys, and a movable part 21, provided with a tooth 23, co operating with the notches in the cam-disk 19, and with a locking-tooth 68, which is thrown into engagement with the ratchet of the registering-wheel at the completion of the stroke of the operated key, for the purpose described.

13. The combination of the key-levers 2, provided with teeth 8 at their rear ends, the bar 37, spring-pressed toward said teeth, means for maintaining said bar out of engagement with said teeth when the key-levers 2 are all in their normal position of rest, the revoluble cam-disk 19, actuated by the keys-levers 2, and a movable part 21, provided with a tooth 23, co-operating with the cam-disk 19 to cause the part 21 to release the bar 37 upon the operation of any key and permit said bar to be moved by its spring into position to co-operate with the teeth of the keys.

14. The combination of the key-levers 2, provided with the teeth 8 at their rear ends, the ratchet-bar 37, pivotally supported on the shaft 35 and having rigid with it an arm 40, a spring applied to the ratchet-bar to press it forward, a lever 25 to 27, provided with an arm 33, arranged to engage the arm 40 and maintain the ratchet-bar 37 in its rearmost position when all of the key-levers are at rest, a spring applied to the lever 25 to 27 to normally hold the arm 33 in engagement with the arm 40, a revoluble notched cam-disk 19, actuated by the key-levers 2, and a lever 21, provided with a tooth 23, bearing against the periphery of the cam-disk 19 and having a pendent arm 24, co-operating with the arm 25 of the lever 25 to 27 to withdraw the arm 33 from engagement with the arm 40 upon the operation of any key-lever and permit the ratchet-bar 37 to be moved by its spring into engagement with the tooth 8 of such lever, substantially as described.

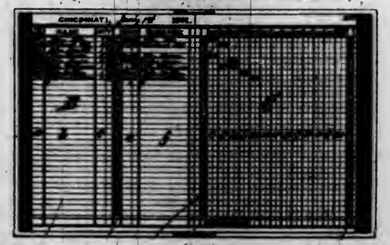
15. The combination of a series of operating-keys, each provided with an upwardly-projecting hook, a locking-bar normally tending to move beneath said hooks to lock the keys, and means for normally holding the locking-bar out of engagement with said hooks and for releasing said bar upon the operation of any key to permit it to move beneath said hooks and lock the unoperated keys.

16. The combination of the key-levers 2, each provided near its front end with an upwardly-projecting hook 45 and a downwardly-projecting lug 46, a locking-bar 54, normally tending to move beneath the hooks 45 to lock the keys, and a detaining-frame for normally holding the locking-bar 54 out of engagement with the hooks 45, and co-operating with the lugs 46 to release the locking-bar 54 when any key is operated and permit said bar to move beneath the hooks of the operated keys.

17. The combination of the key-levers 2, each provided with an upwardly-projecting hook 45 and with a downwardly-projecting lug 46, a locking-bar 54, pivotally supported at 52 and normally tending to swing under the hooks 45, a detaining-frame composed of the lever 47 and cross-bar 49, and a spring yieldingly holding the lever 47 in position to maintain the locking-bar 54 out of engagement with the hooks 45 and the cross-bar 49 in position to be engaged by the lug 46 of an operated key, substantially as described.

18. In a registering-machine, the combination of the independently-revoluble registering-wheels 4 and 14, mounted side by side upon a suitable support, the fixed collar 71 between them, the washers 73, bearing against their outer sides, and the spiral springs confined in housings in the frame-work and bearing against said washers, for the purpose described.

478,197. ACCOUNT-BOOK. WILLIAM LUBBY, Cincinnati, Ohio. Filed May 11, 1891. Serial No. 392,400. (No model.)



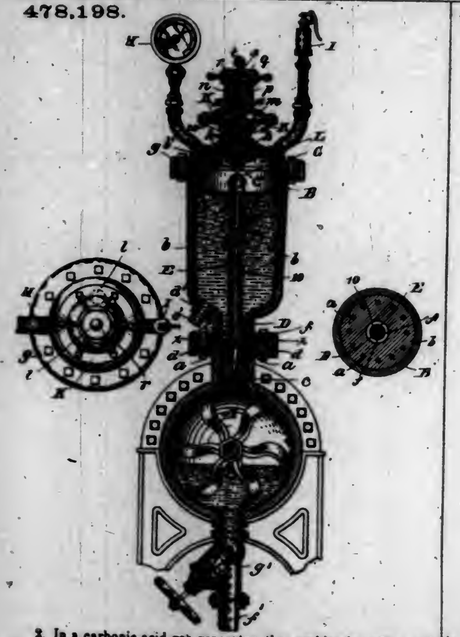
Claim.—1. A court witness-book having its pages divided into a debit and a credit side, each of which is provided with successively-arranged vertical columns and with parallel transverse lines, the columns on the debit side being provided with suitable captions and adapted to receive the numbers of the cases, the names of the witnesses entitled to fees in such cases, the amount due said witnesses, the numbers of the several transverse lines, the dates on which the witnesses are paid their fees, and the signatures of the witnesses, and the columns on the credit side being provided at their upper ends with the names of the calendar months of the year arranged consecutively, and each column being adapted to receive the amount of fees paid out during each month, and each of the columns being provided at its lower end with a space to receive the total amount of fees paid out during that entire month, substantially as set forth.

2. A set of books for court fees, consisting of two books, one of which has its pages divided into a debit and a credit side, each side of which is provided with vertical columns and transverse parallel lines, the columns on the debit side being provided with suitable captions and adapted to receive the number of the cases, the names of the witnesses, the amounts due said witnesses, the dates on which the witnesses are paid their fees, the signatures of the witnesses, and the number of the lines of the page, and the columns on the credit side being provided with captions for the calendar months of the year and adapted to receive the amounts for each of said months, and the lower end of each column being also provided with a space for the total amounts paid out during that entire month, and a cash-book having its pages provided with vertical columns and transverse lines, a portion of which columns being adapted to receive a record of the same transactions as appear in the witness-book, and another portion of said columns, as *w*, *y*, and *z*, being adapted to receive, respectively, the corresponding number of the page and the line thereof of the witness-book, the amount paid each witness, and suitable check-marks on both books to indicate that the proper posting has been done from time to time, substantially as described.

478,198. CARBONIC-ACID-GAS GENERATOR. PATRICK J. MAGUIRE, Salem, assignor to the American Soda Fountain Company, Boston, Mass. Filed Mar. 29, 1892. Serial No. 426,961. (No model.)

Claim.—1. In a carbonic-acid-gas generator, the combination, with the acid-chamber having within it a siphon communicating with the alkali-chamber and provided with a back-pressure or check valve, substantially as described, of a pressure-regulating governor connected with said check-valve and adapted to hold the latter open whenever the pressure in the acid-chamber rises to or above a point at which said governor has been set to act, substantially as set forth.

478,198.



2. In a carbonic-acid-gas generator, the combination of an acid-chamber, a siphon placed within said chamber and communicating with the alkali-chamber, said siphon being provided with a back-pressure or check valve, which when open will equalize the pressure in the acid and alkali chambers and prevent the flow of the acid, and an adjustable pressure-regulating governor having a spring and diaphragm, the latter connected with said check-valve in such manner as to permit the latter to operate independently of the governor, said governor being adapted to hold the check-valve open whenever the pressure in the acid-chamber is at or above the desired limit, substantially as set forth.

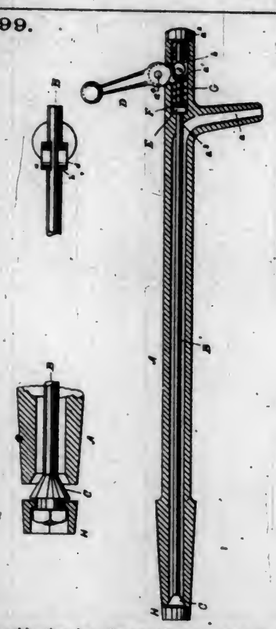
3. In a carbonic-acid-gas generator, the combination, with the acid-chamber, of a vertical pipe rising within said acid-chamber and communicating with the alkali-chamber, an outer casing or jacket surrounding said vertical pipe and provided at its bottom with an inlet for the passage of the acid to the space between said vertical pipe and its outer casing or jacket, a back-pressure or check valve applied to the upper end of the jacket above the end of the vertical pipe inclosed thereby and opening into the acid-chamber, and an adjustable pressure-regulating governor loosely connected with the check-valve and adapted to open the same and hold it open whenever the pressure in the acid-chamber rises to or above a point at which said governor has been set to act, substantially as set forth.

4. In a carbonic-acid-gas generator, the combination of the alkali-chamber A, the acid-chamber B, provided with a pressure-gage H, the vertical pipe D, rising within said acid-chamber and communicating with the alkali-chamber, the outer casing or jacket E, surrounding the pipe D and provided at its bottom with an inlet for the passage of the acid to the space between the pipe D and its jacket E, the back-pressure or check valve G at the upper end of the jacket E, said valve opening into the acid chamber, the adjustable pressure-regulating governor K, having the spring *q*, screw-cap *r*, and diaphragm *m*, the latter connected by means of the coupling L with the stem *b'* of the valve G in such manner as to permit said valve to operate independently of the governor, said governor being adapted to hold the valve G open whenever the pressure in the acid-chamber is at or above the desired limit, all operating substantially in the manner and for the purpose described.

478,199. SELF-CLOSING FAUCET. ANTON MAYER, Cincinnati, Ohio, assignor to Rudolph J. Mayer, same place. Filed Aug. 28, 1891. Serial No. 403,980. (No model.)

Claim.—1. The combination, in a faucet, of a valve-stem, a valve seated in the inner end of the faucet-casing, and a guard-cap for the valve-stem, carried by the stem and seating against the inner end of the faucet-casing, substantially as and for the purpose specified.

478,199.



2. The combination, in a faucet, of a valve-stem, a valve seated in the inner end of the faucet-casing, a spring adapted to press against the valve-stem outwardly, a lever adapted to actuate the valve-stem, and a guard-cap taking over the inner end of the valve-stem and carried thereby, substantially as and for the purpose specified.

3. The combination, in a faucet, of the valve-stem B, the valve C, the chamber *a'*, the spring G, the lever D, the screw-cap a^3, and the guard-cap H, taking over the inner end of the valve-stem and carried thereby, substantially as and for the purpose specified.

478,200. BREAD-RAISER AND CABINET. JOHN MILTONBERGER, Warsaw, Ind. Filed Sept. 26, 1891. Serial No. 406,895. (No model.)

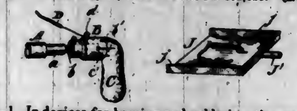


Claim.—1. In a bread raiser and cabinet, the combination of the casing or housing having the lower chamber and the chamber above the same, the lamp in the lower chamber, the hood or concentrator above the lamp, the pipes leading from the hood through the chamber above, the dampers for controlling the heat-supply, and the cold-air duct and dampers for controlling said cold-air supply, whereby the supply of hot and cold air may be directed to one or both sides of casing.

2. In a bread raiser and cabinet, the combination of the casing having the three compartments in the lower portion thereof, the lamp or heater in the lower compartment, the hood or concentrator above said heater, the pipes leading from each side of said concentrator through the compartment above and communicating with the outer air, dampers for controlling said pipes, and air-ducts having dampers for regulating the supply of cold air to the casing.

3. In a bread raiser and cabinet, the combination of the casing having the lower compartment, the compartment above said lower compartment, and the upper compartment receiving the dough-pan, the lamp or heater in the lower compartment, the hood or concentrator above the lamp, the pipes leading from each side of the hood through the compartment above to the open air, dampers for controlling the passage of heat through said pipes to cause the heat to be supplied to one or both sides of the compartment, and cold-air ducts having dampers for controlling the passage of cold air to one or both sides of the compartment, substantially as and for the purpose described.

478,201. ELECTRICAL BRAZING DEVICE. WILLIS MITCHELL, Malden, assignor to the Butterfield-Mitchell Electric Heating Company, Boston, Mass. Filed Aug. 17, 1891. Serial No. 402,836. (No model.)



Claim.—1. In devices for brazing and soldering, the combination of a holder for the article or articles to be soldered with a movable pencil or pointer which is adapted to be presented to different points of the said holder opposite the parts in need of soldering, the said holder being of carbon or equivalent material and thin enough to allow an arc to heat through it from the pencil to the article or articles, the pencil and holder constituting the electrodes of an electric circuit, substantially as set forth.

2. In combination with a carbon cup forming one electrode of an electric circuit and adapted to receive and support a ring or rings upon it, a movable carbon pencil forming the other electrode of the said circuit and adapted to be introduced into the cavity of the said cup, substantially as and for the purpose set forth.

3. In combination with a holder for articles to be brazed or soldered, a socket into which the said holder is fitted, an electric conductor attached to the said socket, making the said holder one of the electrodes of an electric circuit, and a handle attached to the said socket for moving the latter about at will, substantially as set forth.

4. In combination with a holder of infusible electrically-conducting material for supporting articles to be brazed or soldered and connections making it one of the electrodes of an electric circuit, a pencil constituting the other electrode thereof, electrical connections with said pencil completing the circuit, and a socket and handle for the said pencil, whereby it may be presented to any point of the said holder, as desired, substantially as set forth.

478,202. VAGINAL SYRINGE. JOHN H. MORRISON, Salida, Colo. Filed Jan. 20, 1892. Serial No. 418,695. (No model.)

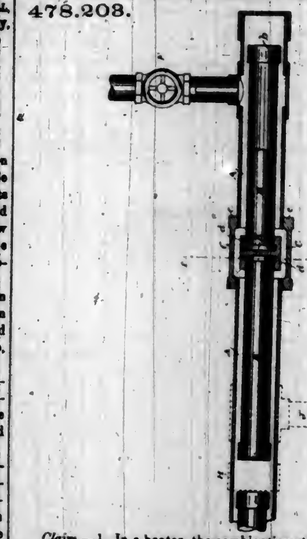


Claim.—1. In a vaginal syringe, a nozzle-tube provided with a rounded perforated nozzle-cap, a series of laterally elongated discharge-slots and an enlarged back receiving-reservoir at its lower end, an inclosing plug inclosing said back reservoir, a supply-pipe passing through said tube and connected with said nozzle-cap, a discharge-tube, and a vertically-adjustable shield-tampon working upon said tube over said reservoir, substantially as set forth.

2. In a vaginal syringe, the combination of a nozzle-tube provided with a series of laterally-elongated discharge-slots and terminating at its lower end in an enlarged back reservoir, an inclosing plug inclosing said back reservoir, a rounded perforated nozzle-cap fitted detachably in the upper end of said tube, a supply-pipe passing through said reservoir and tube and connected with said nozzle-cap, and a vertically-adjustable conical shield-tampon working upon said tube over said reservoir, substantially as set forth.

478,203. HEATING APPARATUS. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car Heating Company, same place. Filed Feb. 26, 1892. Serial No. 422,670. (No model.)

478,203.



Claim.—1. In a heater, the combination of two pipes differing in diameter, the smaller pipe placed within the larger, and a steam-space surrounding the smaller pipe, the smaller pipe charged with a heat-absorbing substance, one end of said smaller pipe secured in and supported by a suitable coupling, the larger pipe adapted to receive steam or other heating fluid, substantially as described, and for the purpose set forth.

2. In a heater, a coupling-head, two pipes differing in diameter attached to said coupling-head, the smaller pipe extending from the coupling-head within the larger pipe, the end of the smaller pipe farthest from the coupling-head provided with a cap, and a steam-space surrounding said smaller pipe, said smaller pipe charged with a heat-absorbing substance, said larger pipe adapted to receive steam or other heating fluid, substantially as described, and for the purpose set forth.

3. In a storage-heater, the combination of a composite coupling, two storage-cylinders rigidly attached to said coupling, an envelop-ing-pipe surrounding said storage-cylinders, said storage-cylinders containing a heat-retaining substance, and a means for maintaining a steam-and-water connection from one end of the heater to the other, substantially as described, and for the purpose set forth.

4. In a heater, a coupling-head provided on each end near the outer edge with a projecting flange, screw-threads cut on the interior surface of said flange, said coupling-head provided at each end with a projecting flange nearer the center thereof than the aforesaid flange and suitably threaded upon the interior surface, and spaces through the coupling-head, with a pipe provided with screw-threads on its exterior surface, meshing with threads on the outer flange of the coupling-head, with a smaller pipe having screw-threads on its exterior surface, meshing with threads on the inner flange of the coupling-head, the smaller pipe charged with a suitable heat-absorbing substance, the larger pipe adapted to receive steam or other heating-fluid, substantially as described, and for the purpose set forth.

478,204. ILLUMINATED ADVERTISING-SIGN. CHARLES R. MCGINLEY, New York, N. Y. Filed June 2, 1891. Serial No. 394,830. (No model.)



Claim.—1. An advertising-sign comprising an inclosing frame or case having an advertising device in one end, an electric lamp in the case and provided with a key, and a motor inclosed within the case or frame and connected with the key to make and break the circuit, substantially as set forth.

2. An advertising sign comprising the casing having an advertising device in one end, a reflector 16, closing the case in rear of the sign, an electric lamp 18, extending through the reflector, with its key 20 behind said reflector, and a motor also in the casing, concealed behind the reflector and having a link connection 23 with the lamp-key, substantially as set forth.

478,205. HARNESS-SADDLE. STEPHEN A. HOLEN, McCrory, Ark. Filed Apr. 19, 1892. Serial No. 429,722. (No model.)



Claim.—1. In a harness saddle, the combination of the jockey-plates, each having a metal plate D resting thereon, a plate C, resting on the plate D and having an upwardly-turned loop *c* and a horizontal slot, a terret having its ends passing through said slot and bent under the plate C, with a wire link B, having its front and rear portions arched upward, and a metal strap G, folded around said arched portions and having its ends in the form of a hook, substantially as described.

2. In a harness-saddle, the combination of the jockey-plates, each having superposed metal plates, the upper plate having a horizontal slot and the lower ends of a rigid terret passing through said slot and resting upon the lower plate, with a wire link B, uniting together the metal plates and the jockey-plates, said link having its front and rear portions arched upward, substantially as described.

478,206. BRAKE FOR BICYCLES. FREDERICK D. OWEN, Washington, D. C. Filed Nov. 30, 1891. Serial No. 413,931. (No model.)



Claim.—1. In a bicycle, each wheel, in combination with a brake-shoe attached to the frame of the wheel, respectively, and to operate on each wheel independently at the will of the rider by a governing brake-lever located on the handle-bar connecting one (compression) plunger or (tension) pull-brake connection with an adjustable attachment coupling the two brake connections, all as shown and described.

2. In a bicycle, the combination of two independent brakes, one brake located on the frame so as to engage the front wheel and one brake located on the frame so as to engage the rear wheel and governed separately or simultaneously, as desired, with one brake-lever attached to and pivoted on the handle-bar and engaging one (compression) plunger or (tension) pull-brake connection with an adjustable coupling device, substantially as shown and described.

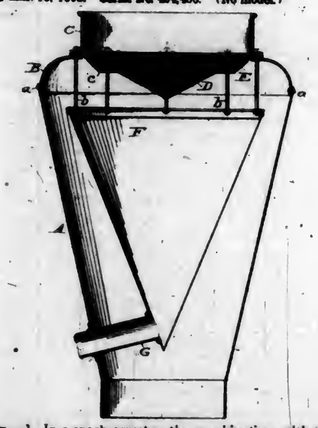
3. The combination, with the wheels of a bicycle, of brakes arranged to engage the wheels, a brake-lever located on the handle-bar with one (compression) plunger or (tension) pull connection between the hand-lever and brake-shoes, and connecting and adjusting devices, whereby either one only of the brakes may be made to operate or by which both brakes may be made to operate simultaneously.

4. The combination of the wheels of a bicycle with two brakes attached to the frame so as to engage the wheels, respectively, and operate with one hand brake-lever connecting with one adjustable plunger brake-rod or an adjustable pull-brake connection, applying the force at the will of the rider, whereby one brake will be engaged previous to and stronger than the other brake, substantially as herein shown and described.

5. In a bicycle or like vehicle having two brakes located on the frame of the cycle so that each brake will engage the wheels, respectively, the combination of one hand brake-lever located on the handle-bar and connecting one adjustable plunger brake-rod or an adjustable pull-brake member with an adjustable coupling device, all governed at the will of the rider, whereby either brake may be made to operate or both brakes may be made to operate, all as shown and described.

6. The combination of two brakes of a bicycle operating one on the frame of each wheel so as to engage the wheels, respectively, at the will of the rider with two separate hand-levers attached to and pivoted on the steering-frame of the bicycle, said hand-levers engaging one and the same brake-rod, substantially as described.

478,207. SPARK-ARRESTER. HENRY C. SMITH, Roanoke, Va. Filed Mar. 10, 1892. Serial No. 424,406. (No model.)

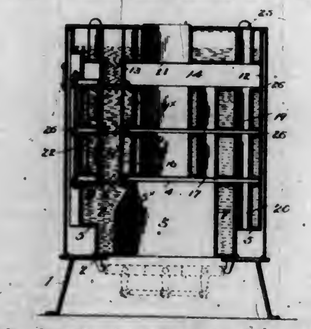


Claim.—1. In a spark-arrester, the combination, with the stack A, of a receptacle F, open at its upper end and located within the stack, a screen D, extending across the top of the stack immediately above the mouth of the receptacle, so as to direct the sparks thereinto, and a deflecting-screen E, surrounding that portion of the screen D above the annular space between the parts A and F, all substantially as shown and described.

2. In a spark-arrester, the combination, with a stack A, of a receptacle mounted therein, but set away from the sides thereof, so as to form an annular draft-space, a conical screen D, extending across the outlet of the stack and projecting down toward the mouth of the receptacle F, and a second screen E, made in the form of a ring or band and adapted to receive the initial impact of the draft, &c.

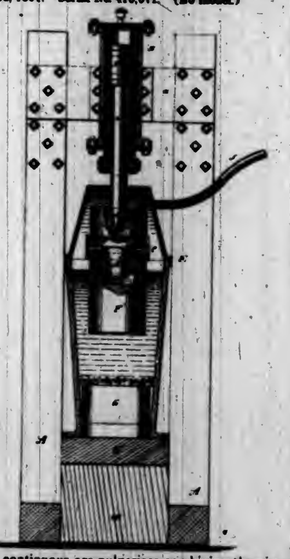
3. In combination with stack A, having curved upper wall or casting B, receptacle F, mounted therein and having its upper end of the same size as the opening in the top of the stack, the conical screen D, filling the opening in the stack-opening and extending down toward the mouth of the receptacle, and a second screen E, made in the form of a band and surrounding the screen D near its junction with the stack.

478,208. SECTIONAL STEAM-BOILER. GEORGE F. STEEL, Philadelphia, Pa. Filed Mar. 2, 1892. Serial No. 423,462. (No model.)



Claim.—In combination, the base-section formed with a seat, the combustion-chamber section fitting therein having an overhanging portion provided with flues and water-spaces, the interchangeable sections above the combustion-chamber sections, each having a portion extending inwardly and overhanging the inner wall of the lower section, said overhanging portion being formed with uptake-flues and having also a return-flue communicating with the flues through the overhanging part of the combustion-section, the sockets and nipples with the interposed gaskets held by the said sockets forming the connection between the sections, the said sockets in the combustion-chamber section being formed in enlargements thereon, the upper section having the long depending flange-nipple to form an upper combustion-space, the means for securing the sections together, and the flanges and sockets around the outer edge of the sections, and the outer shell supported on the base-section, substantially as described.

478,209. ORE-PULVERIZER. JOHN J. STUART, New York, N. Y. Filed Oct. 26, 1891. Serial No. 410,071. (No model.)



Claim.—A continuous ore-pulverizer combining therein a stamping mechanism consisting of the piston, piston-rod, and removable shoes adapted to be dislodged therefrom by wedges introduced into transverse openings, a closed receptacle adapted to be partially filled with water, an ore-introducing chute above the surface of the water, an induction water-pipe leading into the top of and continuously flowing into the closed receptacle, and an outlet-pipe arranged on a level with and adapted to receive the water, together with the particles carried thereby, all arranged and operated substantially as described.

478,210. BOILER-FURNACE. JOSEPH W. WILKINSON, Des Moines, Iowa. Filed Mar. 8, 1892. Serial No. 424,121. (No model.)



Claim.—1. In a boiler-furnace, the combination of hollow furnace-walls on either side of a fire-grate, a hollow bridge-wall, the cavity in which communicates with the cavities in the hollow side walls, and a superheating-pipe located in a hot-air chamber, one end of which pipe opens within the combustion-chamber below the fire-grate, the other end of said pipe discharging into the cavity in the bridge-wall, together with perforations in the side walls on either side of the combustion-chamber and above the grate, as set forth.

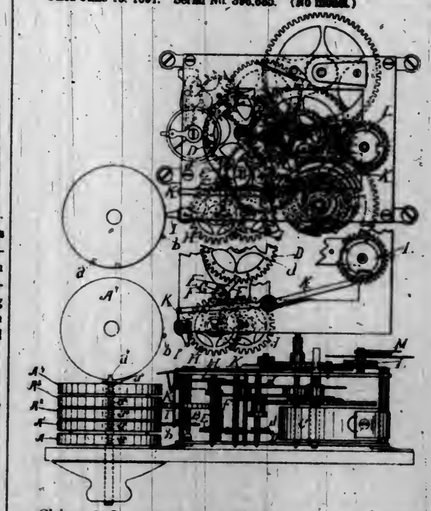
2. In a boiler-furnace, a bridge-wall having an air-chamber and perforations at its top to discharge air from said chamber, parallel side walls having air-chambers communicating with the air-chamber in the bridge-wall and provided with perforations to discharge air into the combustion-chamber in front of the bridge-wall, an open-ended air-conveying tube adapted to convey air into the air-chamber in the bridge-wall, and a perforated air superheater and distributer connected with said tube to discharge hot air above and in rear of the bridge-wall, arranged and combined to operate in the manner set forth, and for the purposes stated.

478,211. OVEN FOR OIL, GAS, OR GASOLINE STOVES. HENRY F. HASTLETT, Springfield, Mo., assignor of one-third to S. A. Hastletine, S. C. Hastletine, and John F. Carson, same place. Filed Apr. 28, 1887. Serial No. 236,502. (No model.)



Claim.—In an oven for oil-stoves, the combination, with the outer casing having an inlet-opening in its bottom, of a perforated plate above said opening and an interior casing provided with a solid bottom, perforated sides and top, and a door provided with perforations near its upper edge for the escape of the air, substantially as and for the purposes described.

478,212. TIME-LOCK. LYMAN H. BEDFORD, San Bernardino, Cal. Filed June 18, 1891. Serial No. 396,685. (No model.)



Claim.—1. In a lock, the combination, with one of the rotating tumblers, of an operating device arranged to intermittently engage such tumbler to displace it, substantially as described.

2. In a lock, the combination of the tumbler-operating device arranged to intermittently engage the rotating tumbler to displace it, and a stop device arranged to stop such operating device, substantially as described.

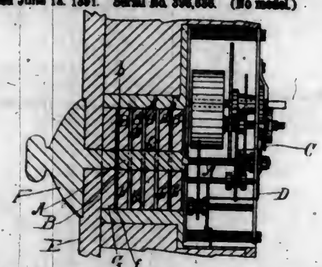
3. In a lock, the combination of the tumbler provided with the projection, the intermittently-operating spur arranged to engage such projection when the tumbler is in the unlocking position to partially rotate the tumbler and throw it out of such unlocking position, and means for operating the spur, substantially as described.

4. In a lock, the combination of the tumbler provided with the projection, the intermittently-operating spur arranged to engage such projection when the tumbler is in its unlocking position to partially rotate the tumbler and throw it out of such unlocking position, means for operating the spur, and a stop device arranged to stop such spur, substantially as described.

5. The combination of the tumbler, the tumbler-displacing spur arranged to intermittently displace the tumbler, the spur-driving train, the time mechanism, the stop and releasing wheel D, provided with

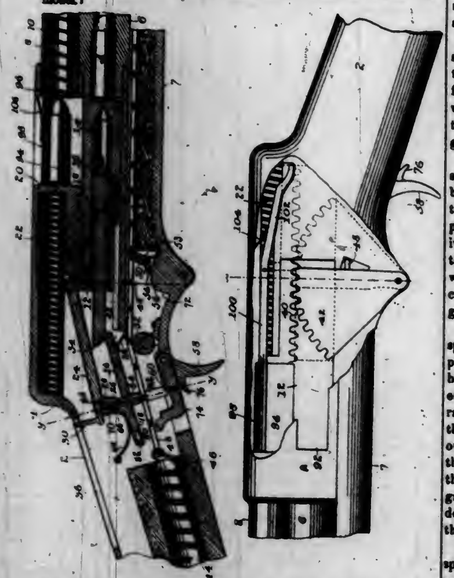
the pins and connected with such time mechanism, the stop-spar connected with the tumbler-displacing spar-operating mechanism, and a stop device connected with the time mechanism and arranged to periodically stop the tumbler-displacing spar-operating mechanism, substantially as described.

478,213. TIME-LOCK. LYMAN H. BEDFORD, San Bernardino, Cal. Filed June 18, 1891. Serial No. 396,636. (No model.)



Claim.—The combination of the rotating arbor, time mechanism arranged to rotate the arbor, and a series of tumblers journaled upon such arbor and adapted to rotate therewith and to be rotated thereupon, substantially as described.

478,214. RECOIL-OPERATED MAGAZINE-GUN. OLIVER H. BENNETT, Jamestown, N. D. Filed Apr. 1, 1891. Serial No. 387,233. (No model.)



Claim.—1. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to throw it forward to load the gun, and the retracting-spring to move the breech-block backward to withdraw an exploded shell, substantially as described.

2. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, and the intermediate mechanism connecting the retracting-spring and the breech-block, substantially as described.

3. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, and the gear-and-rack mechanism connected with the breech-block, and the retracting-spring to convey the energy of the latter to the former, substantially as described.

4. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, the chain connected with the said spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, and the means for successively connecting and disconnecting the chain with the segmental gear, substantially as described.

5. In an automatic magazine-gun, the combination of the breech-block, the spring actuating the breech-block to press it forward, the retracting-spring, the rack secured to the breech-block, the segmental gear engaging with the said rack, the chain connected with the retracting-spring, and the dog pivoted to the segmental gear, adapted to engage with the successive links of the free end of said chain, substantially as described.

6. In a magazine-gun, the combination of the casing, the spring-actuated breech-block carried therein, the retracting-spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, and the chain connecting the retracting-spring with the segmental gear, substantially as described.

7. In a magazine-gun, the combination of the breech-block, the spring operating to press the breech-block forward, the retracting-spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, the chain successively connecting and disconnecting the retracting-spring with the segmental gear, and the locking mechanism consisting of the stop secured within the casing, the dog pivoted to the breech-block and adapted to engage with the said stop, the plunger adapted to disengage the said dog, and the trigger for operating the plunger, substantially as described.

8. In a magazine-gun, the combination of the spring-actuated breech-block, the rack attached to the breech-block, the segmental gear engaging with the said rack, the retracting-spring, the mechanism for successively connecting and disconnecting the said spring with the segmental gear, consisting of the chain attached to the retracting-spring, the dog pivoted to the segmental gear, adapted to engage with the said chain and after moving with the said gear a short distance to release the chain, the stop adapted to engage with the chain as it is released by the dog, and the trigger for operating the said stop, substantially as described.

9. In a magazine-gun, the combination of the breech-block, the spring operating to press the breech-block forward, the dog adapted to hold the breech-block in its forward position, the spring-actuated firing-pin carried by the breech-block, the dog adapted to engage with the firing-pin, the plunger adapted to release the firing-pin and the breech-block successively from their respective dogs, and the trigger operating the plunger, substantially as described.

10. In a magazine-gun, the combination of the breech-block, the spring operating to press it forward, a dog adapted to hold the breech-block in its forward position, the spring-actuated firing-pin carried by the breech-block, the dog adapted to engage with the firing-pin, the plunger adapted to release the firing-pin and the breech-block successively from their respective dogs, the trigger operating the plunger, the rack attached to the breech block, the segmental gear engaging with the said rack, the retracting-spring, and the chain successively connecting and disconnecting the retracting-spring with the segmental gear, substantially as described.

11. In a magazine-gun, the combination of the breech-block, the spring operating to force the same forward, the spring-actuated firing-pin, the top fixed within the casing, the dog pivoted to the breech-block and adapted to engage with the said stop, the dog adapted to engage with the rear end of the firing-pin, the retracting-spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, the chain attached to the retracting-spring, the dog pivoted to the segmental gear and adapted to engage successively with the links of the said chain, the stop adapted to hold the chain against the action of the spring while the dog is releasing a preceding and engaging with a succeeding link, the plunger operating to disengage the dogs of the breech-block and firing-pin, and the trigger for operating the plunger and stop, substantially as described.

12. In a magazine-gun, the combination of the breech-block, the spring-actuated firing-pin carried by the breech-block, the spring operating to press the breech-block forward, the spring operating to withdraw the breech-block against the action of the first-mentioned spring, the rack attached to the breech-block, the segmental gear engaging with the said rack, the chain successively connecting and disconnecting the retracting-spring with the segmental gear, the stop secured within the casing, the dog pivoted to the breech-block and adapted to engage with the said stop, the dog adapted to engage with the firing-pin, a plunger adapted to successively release the said dogs from their engagements, and the trigger operating the said plunger, substantially as described.

13. In a magazine-gun, the combination, with the reciprocating breech-block, of a cartridge-carrier adapted to receive cartridges from the magazine and convey them to the breech-block, having an elastic operating-lever located to be actuated by the breech-block, substantially as described.

14. In a magazine-gun, the combination of the breech-block, the spring operating to press the same forward, the spring-extractor secured to the forward end of the breech-block, adapted with a shoulder

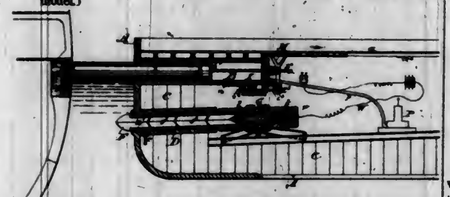
of the latter to grasp the shell of a cartridge, and the mechanism for withdrawing the exploded shell from the barrel by moving the breech-block backward against the action of the first-mentioned spring, consisting of the retracting-spring, the rack attached to the breech-block, the segmental gear engaging the said rack, and the chain connecting the retracting-spring with the segmental gear, substantially as described.

15. In a magazine-gun, the combination of the casing, the breech-block carried therein, the spring operating to press the breech-block forward, the magazine, the cartridge-carrier operated by the breech-block, and the spring-stop secured to the top of the carrier, substantially as described.

16. In a magazine-gun, the combination, with the breech-block, of a spring tending to throw the same forward to load the gun, a dog automatically locking the block in the forward position, mechanism operated by the trigger for tripping said dog, a rack upon said block, a segmental gear engaging said rack and adapted to throw said breech-block, a retracting-spring, means for applying tension thereto, means for connecting it to said segmental gear, whereby when the breech-block is released it expends its force to throw the same back, and means through which may be restored the tension of said retracting-spring, substantially as described.

17. In a magazine-gun, the combination, with its reciprocating breech-block, of an actuating-spring tending to throw it forward, mechanism for automatically locking it in its forward position, means for tripping said locking mechanism, a rack upon said block, a segmental gear engaging with said rack, means for applying stored energy to said gear to retract said block when the locking mechanism is released, and means through which may be restored said energy, substantially as described.

478,215. OPERATING SUBMARINE GUNS. HIRAM BERDAN, Washington, D. C. Filed Mar. 22, 1892. Serial No. 425,967. (No model.)



Claim.—1. As a means for firing projectiles under water and also for checking the momentum of a vessel, a gun located in said vessel at the bows and under the buffer and a chamber at or near the water-line, provided with a buffer sliding therein, said chamber being filled with oil or other suitable fluid at the rear of the buffer to absorb the momentum of the vessel when impacted against an external object, and suitable electric connections between the chamber and the breech of the gun, whereby while the buffer is being pushed in the gun is fired by means of said connections, substantially as and for the purpose described.

2. As a means for firing projectiles under water, a vessel provided with a gun located therein at its bows and under the buffer, in combination with an open chamber at or near the water-line and having therein and projecting therefrom a sliding buffer, and suitable electric connections between the said buffer and said gun, whereby while the buffer is being moved by external impact the gun is fired by means of said connections, substantially as and for the purpose set forth.

3. As a means for firing projectiles under water, a vessel provided with a submarine gun and a buffer-chamber located above the gun, said chamber being provided with a buffer sliding therein and oil or other suitable fluid, and a valve mechanism connected with the chamber and with suitable electrical connections between said mechanism and the gun, whereby while the buffer is being moved by external impact the oil or other fluid is compressed to operate the valve mechanism and electrical connections whereby the gun is fired, substantially as and for the purpose set forth.

4. As a means for firing projectiles under water, a vessel provided with a gun located therein at its bows and under the buffer and a chamber located above the gun and having extending therefrom and sliding therein a buffer provided with a suitable rear extension, in combination with electrical devices connected with the gun, whereby said buffer while being moved rearward is brought in contact with said devices to complete the circuit and fire the gun, substantially as described.

5. As a means for firing projectiles under water, a vessel provided with a gun located under the buffer at the bows of said vessel in a tube that is connected with the frame-work of the vessel, in combination with an open chamber at or near the water-line and having therein and projecting therefrom a sliding buffer and suitable electric connections between the said buffer and said gun, whereby while the buffer is being moved by external impact the gun is fired by means of said connections, substantially as and for the purpose set forth.

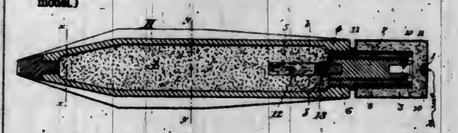
6. The combination, with a vessel, of a collision-buffer sliding in a suitable chamber, said chamber being provided with the valve I, which is operated by the movement of the piston *b*, operatively connected with the rack *n*, the pinion *o* on the shaft *o'*, the bevel-wheel i^2 thereon, the bevel-wheel i^3, meshing with i^2 and carrying the screw i^4 to operate the valve, substantially as and for the purpose herein set forth.

7. The combination, with a war-vessel, of a hydraulic collision-buffer provided with suitable pressure-regulating devices, said devices consisting of a sliding valve provided with a small projection s^3, operating against the spring *r* to adjust itself to the desired pressure, substantially as and for the purpose herein described.

8. As a means for firing a projectile under water, a vessel provided with a hydraulic cylinder having a piston moving therein, a sliding bracket connected with said piston, a rack attached to said bracket, a transverse shaft connected with the cylinder and carrying a pinion and a bevel-wheel, the former of which meshes with the rack and the latter with a bevel-wheel, operating a screw-threaded shaft to operate a valve, whereby the pressure of the fluid in the cylinder is equalized during the entire stroke of the piston, as set forth.

9. As a means for firing projectiles, a vessel provided with a hydraulic cylinder having an opening therein and a valve attached thereto, said valve having also an opening therein and a small ledge against which the fluid acts, a spring counteracting the pressure of the fluid against said ledge, all operatively connected and combined substantially as set forth.

478,216. AMMUNITION FOR SUBMARINE GUNS. HIRAM BERDAN, Washington, D. C. Filed Mar. 22, 1892. Serial No. 425,968. (No model.)



Claim.—1. The combination of a shell, substantially as described, with air-cylinders in front thereof, all in operative relation, substantially as and for the purpose herein set forth.

2. A shell, substantially as described, having a time-fuse attached to its rear end, a spindle around which the time-fuse is coiled, and a sleeve for protecting the fuse, substantially as and for the purpose herein set forth.

3. A shell, substantially as described, having a metal case attached to its rear part carrying the propelling charge and a time-fuse, all in operative relation, substantially as set forth.

4. A shell, substantially as described, having a fuse-spindle and sleeve, the fuse encircling said spindle, and a metal case for carrying the propelling charge surrounding said sleeve, said parts being attached to the rear of the shell, and all in operative relation therewith and with each other, as set forth.

5. A shell, substantially as described, having a fuse-spindle, the fuse encircling said spindle, and a metal case carrying the propelling charge surrounding the fuse, said parts being attached to the rear of the shell and separable therefrom and from each other, as set forth.

6. A shell, substantially as described, charged with wet gun-cotton and a case of dry gun-cotton, a tube of fulminate of mercury, and a time-fuse, substantially as described, all combined and in operative relation, as set forth.

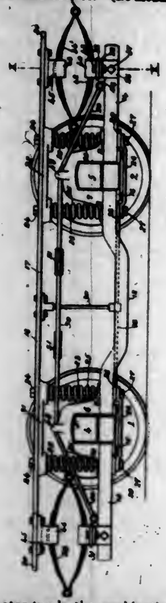
7. A shell constructed with longitudinal corrugations corresponding internally and externally thereof, whereby the gas freely passes the shell, as and for the purpose specified.

478,217. DENTAL FORCEPS. CHARLES E. BLAKE, Sr., San Francisco, Cal. Filed Oct. 22, 1891. Serial No. 409,539. (No model.)



Claim.—A dental forceps having one of its jaws made shorter than the other and formed into two or more points or prongs, while its opposite jaw is a tapering, curved, and pointed beak, substantially as described.

478,218. CAR-TRUCK. George M. Bell, Philadelphia, Pa. Filed June 26, 1891. Serial No. 397,068. (No model.)



Claim.—1. In a motor-truck, the combination, with a stationary frame supported upon the running-gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and elliptical springs located between the extended sections of the said rigid frame and the movable frame, substantially as described.

2. In a truck, a spring-supporting frame supported upon the running-gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, substantially as described.

3. In a truck, a stationary frame supported upon the running-gear of said truck having sections extending outwardly from the axles, a movable frame carried by said truck, springs located between the stationary and movable frames and between the extended sections of both frames, and a brace for said extended sections of the stationary frame, secured to said extended sections and supported upon the running-gear of the truck, substantially as described.

4. In a truck, a stationary frame supported on its running-gear by saddles and having sections extending outwardly from the axles, a movable frame with extending sections, springs located between the stationary and movable frames and between their extended sections, and a brace for said extended sections of the stationary frame, secured to such sections and supported upon the said saddles, substantially as described.

5. In a truck, a stationary frame having sections extending outwardly from the axles, saddles secured to stationary frame and supported on the axle-boxes, a movable frame having outwardly-extending sections, spiral springs located between the saddles and the movable frame, elliptical springs located between the movable frame and the extended sections of the stationary frame, and a brace for said extended sections, supported upon the saddles, the ends of which are secured to said extended sections, substantially as described.

6. A spring-supporting frame for a truck, comprising the saddles adapted to straddle the axle-boxes, longitudinally-extending beams extending between and secured to said saddles, additional beams secured to and extending outwardly from said saddles, and a brace supported upon said saddles and secured at its outer ends to the outwardly-extending beams, substantially as described.

7. A spring-supporting frame for a truck, comprising the saddles 6 and 7, having projections for supporting the truck-springs, outwardly-extending lugs 49 on the saddles, central sections 12 of the side beams, secured to the saddles, outwardly-extending sections 13 14 of the side beams, secured to the said saddles, cross bars 15 16, uniting the ends of the side-beam sections, lugs 48 on the sections 13 14 of the side beams, a brace 50, secured to said lugs 48 and extending over the lugs 49 on the saddles, and a turnbuckle 51 for tightening said brace, substantially as described.

8. In a truck, a spring-supporting frame supported upon the running-gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, and braces for the extended ends of the spring-supporting frame, secured thereto and resting on the saddles, substantially as described.

9. In a truck, the combination of two frames, one stationary and supported upon the running-gear, the other movable, and a plurality of springs located between the stationary and movable frames, some of said series being adapted to be compressed by the downward movement of said movable frame subsequent to the compression of other of the series, substantially as described

10. In a truck, the combination of two frames, one stationary and supported upon the running-gear of the truck, the other adapted to be moved toward said stationary frame, springs located between the ends of both frames, and springs otherwise disposed between the two frames, the end springs being adapted to be compressed subsequent to the compression of the other springs, substantially as described.

11. In a truck, a stationary spring-supporting frame having at its ends elliptical springs rigidly secured thereto, in combination with a movable frame supported by springs other than said elliptical springs, said movable frame being provided with devices for engaging said elliptical springs, the elliptical springs being adapted to be brought into action subsequent to the springs supporting the movable frame, substantially as described.

12. In a truck, a spring-supporting stationary frame mounted on the running-gear of said truck, said frame being composed of a plurality of bars contiguously disposed, a saddle secured to the outer sections of said bars, an elliptical spring the lower section of which rests upon said saddle, and a second saddle disposed over the first and the spring and secured to the first saddle, a movable frame, and a spring supported upon the stationary frame and having devices for guiding the upper section of the elliptical spring, substantially as described.

13. In a truck, the combination of two frames, the one stationary and supported upon the running-gear, the other movable, said stationary frame having the contiguously-disposed beams 14, a saddle 35, closed at the top and having legs 36 secured to the beams 14 and projections 38, a second saddle closed at the top and secured to the projections 38, an elliptical spring 34', held between the two saddles, and a cap 45, having downwardly-extending legs 46 secured to the movable frame, the ends of which engage the upper section of said elliptical spring, substantially as described.

14. A truck having running-gear and a frame, and spiral springs for supporting the car-body, supplemented by elliptical springs adapted to coact therewith, the spirals being adapted to be compressed prior to the ellipticals, substantially as described.

15. A truck having side beams disposed about the axle-boxes and a brace extending between the axle-boxes and secured to the side beams, substantially as described.

16. A truck having side beams disposed about the axle-boxes and a brace supported upon or above the axle-boxes and secured to the side beams, substantially as described.

17. The upper chord having the depending cap 45, with downwardly-extending legs 46, and elliptical springs held on the side beams, adapted to move in said cap, substantially as described.

18. The saddle 35, having the legs 36 secured to the side beams and projections 38, and the saddle 34, provided with projections 42, secured to like parts on the saddle 35, substantially as described.

19. The side beams on the axle-boxes, axle-box saddles 6 7, having the lugs or projections 49 above the axle-boxes, and a brace supported thereon and secured to the side beams, substantially as described.

20. A truck having side beams disposed about the axle-boxes, a brace supported upon or above the axle-boxes, extending between them and secured thereto, and means for tightening the said brace, substantially as described.

21. The side beams intermitted about the axle-boxes, saddles for supporting the side beams on the axle-boxes, and a brace supported on the saddles above the side beams and secured to the side beams, substantially as described.

22. The saddles 6 7, supported on the axle-boxes, lugs 49 on the saddles, side-beam sections 12 13 14, secured to the saddles, and a brace 50, supported on the lugs 49 and secured to the sections 13 14 of the side beams, substantially as described.

23. A frame for a truck, comprising the saddles 6 7, having projections for supporting the truck-springs, lugs 49 on the saddle, central side-beam sections 12, secured to the saddles, outwardly-extending side-beam sections 13 14, secured to the saddles, and a brace 50, secured to the sections 13 14 and supported on the lugs 49 of the saddles, substantially as described.

24. A frame for a truck, comprising the saddles 6 7, having projections for supporting the truck-springs, lugs 49 on the saddles, central side-beam sections 12, secured to the saddles, outwardly-extending side-beam sections 13 14, secured to the saddles, a brace 50, secured to the side-beam sections 13 14 and supported on the lugs 49, and a turnbuckle 51 for tightening said brace, substantially as described.

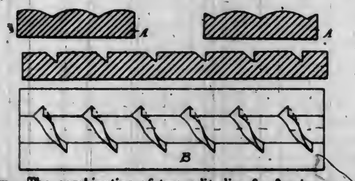
25. The saddles 6 7, straddling the axle-boxes and open below the same, lugs 49 on the saddles, side-beam sections 12 13 14, secured to the saddles, and a brace 50, secured to the side-beam sections 13 14 and supported on the lugs 49, substantially as described.

26. The saddle 35, secured to the side beams, the saddle 40, secured to the saddle 35, and an upwardly-extending elliptical spring held between the two saddles, substantially as described.

27. In a truck, a stationary spring-supporting frame mounted on the running-gear of said truck, having outwardly-extending sections and elliptical springs secured to the stationary frame, and a movable-frame spring supported upon the said stationary frame, having a device for guiding the upper portion of the elliptical springs, substantially as described.

28. Side beams supported upon the running-gear and extending past the same and a brace detachably supported upon the running-gear or a portion thereof and secured to the extended ends to the side beams, substantially as described.

478,219. DIE FOR SWAGING SCREWS. Henry P. Boyd, Southampton, England. Filed Mar. 7, 1889. Renewed Dec. 29, 1891. Serial No. 416,475. (No model.) Patented in England Apr. 23, 1885, No. 5,029.



Claim.—The combination of two split dies for forging a screw-thread, consisting of a primary split die internally threaded parallel throughout with a slightly indented and rounded primary leading-thread of a shorter pitch than that to be eventually forged on the screw and a parallel internally-threaded secondary split die with a fully-formed rectilinear thread of a longer pitch than that of the primary die to admit of elongation of the barrel of the screw during forging and corresponding to the thread finally to be forged upon the finished screw, substantially as specified.

478,220. MAGAZINE-FIREARM. Andrew Burgess, Owego, N. Y. Filed Oct. 21, 1886. Serial No. 216,874. (No model.)

Claim.—1. In a breech-loading gun, a frame provided with two abutments on different sides of the bolt-receiver, a bolt moving between said abutments, two locking-braces hung in said bolt to swing outward and lock against said abutments, and an operating-handle connected to said braces by which the braces and bolt may be moved, in combination, substantially as described.

2. In a breech loading gun, the frame having abutments at opposite sides of the bolt, a reciprocating bolt provided with a plurality of braces hung therein to swing outward against said abutments, one of said braces having a bearing against the other, and a handle connected to said braces, the parts in combination, substantially as described.

3. In the frame of a breech-loading firearm, a reciprocating bolt, a movable piece to serve as a fulcrum arranged in said bolt to be projected forward of its face against an abutment in the frame, in combination with an operating-handle therefor and a lever arranged in connection therewith, substantially as described, to start back the bolt.

4. In a breech-loading gun, the reciprocating bolt, an extractor therein, and a lever pivoted to and moving with the bolt and in position to engage said extractor, said lever bearing on parts of the gun to operate automatically to turn the extractor during the bolt movement, substantially as described.

5. In the frame of a magazine-firearm with an opening at its top, a reciprocating bolt and an ejector arranged at the bottom of the face of the bolt with movement upward from the bottom of the face of the bolt, in combination with a carrier which, rising from below the bolt by impulse of its spring or the breech mechanism, strikes the ejector to throw it violently upward against the flange of the cartridge to expel the shell sidewise upward through the opening in the top of the frame.

6. In a magazine-gun, a reciprocating bolt, a carrier-operating stud hung in the bolt in position to swing downward therefrom, a carrier hung below the bolt, having a shoulder projecting up into the path of movement of said stud when the stud is swung downward, and means for moving said stud into or out of engaging position, in combination, substantially as described.

7. In a breech-loading gun, a reciprocating bolt having an extractor therein, a cross-lever in said bolt, and a recoil-piece having engagement with said lever to press it against the extractor when the gun is fired, in combination, substantially as described.

8. In a magazine-firearm, a reciprocating bolt, a magazine, a carrier whose forward end moves upward from the mouth of the magazine, vertical side grooves situated in the frame, a cartridge-length to rearward of the magazine-mouth to receive, and their walls to guide the flange and control the cartridge when the carrier rises, all in combination, substantially as described.

9. In a firearm, a breech-piece locking in the frame to resist the discharge, a relatively-movable piece projecting forward from the face of said breech-piece to bear against the cartridge and press it home in the chamber, and a hammer having an abutment in the line of movement of this movable piece, whereby the backward movement of the cartridge on firing throws back the movable piece and hammer, but is itself stopped by the locked breech-piece, all in combination, substantially as described.

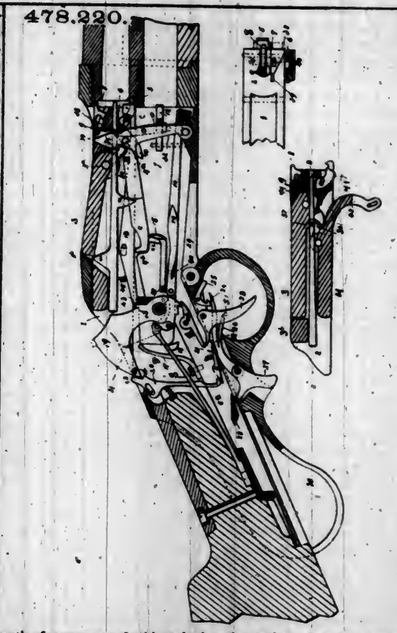
10. In a breech-loading firearm, a longitudinally-reciprocating breech-bolt and a sliding sleeve on the small of the stock connected to said bolt, said sleeve having a forward extension 31, which moves close to the bolt and closes the opening in the frame when the breech is closed, in combination, substantially as described.

11. In a magazine-firearm, a vibrating carrier which raises the cartridge-point higher than its rear, in combination with a lever pivoted at the rear of the carrier, so as to rise therewith, and a projection on the reciprocating breech mechanism to engage the said lever in the first part of the breech-closing movement, and thereby raise the rear of the cartridge above the floor of the carrier, substantially as specified.

12. In a breech-loading firearm, mechanism to open and close the breech, a sliding handle connected to said breech mechanism, and a locking-dog to lock the sliding handle on the gun in position to hold the breech closed, in combination with a finger-piece connecting with the locking-dog by which the handle may be unlocked, and a catch to be turned at will to confine the finger-piece, and thereby hold the locking-dog out of locking position, substantially as set forth.

13. In a breech-loading firearm, mechanism to open and close the breech, a sliding handle connected to said breech mechanism to operate it, a locking-dog to lock the sliding handle on the gun in position to hold the breech closed, and a spring connection between the locking-dog and trigger, in combination with a trigger which compresses said spring when pulled back to press the locking-dog and unlock the sliding handle.

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14. In a breech-loading gun, the reciprocating breech and shifting handle connected thereto, a dog engaging said handle, and a rod movable into position to engage and unlock said dog, in combination, substantially as described.

15. In a magazine-gun, the cartridge-stop at the mouth of the magazine, the movable breech-piece and a lever connected thereto in position to engage said cartridge-stop, and automatic means operated by the firing of the gun to trip said lever and stop, in combination, substantially as described.

16. In a magazine-gun, a frame having an opening at the bottom wide enough to receive a cartridge, a magazine under the barrel in front of the opening, a sliding handle, and a forward extension connected to the handle and to the breech-piece, said extension forming a cover to close the opening in the frame and magazine when the breech is closed, but which is retired in its movement of opening the breech to expose the orifice of the magazine, all in combination, substantially as described.

17. In a magazine-gun, a frame having an opening at the bottom wide enough to receive a cartridge, a magazine under the barrel in front of the opening and having a cartridge-stop, a sliding handle traversing the small of the stock, and a link pivoted to said handle and connected to the breech mechanism to operate the same, said link serving as a cover to close the opening in the frame when the breech is closed, all in combination, substantially as described.

18. In a magazine-firearm, a recoil-piece connected to the breech-piece, said piece having a limited recoil independent of the breech-piece, adjunctive locking devices, substantially as described, by which the breech-operating handle is held locked, and connections from the recoil-piece to said handle-lock by which the same is unlocked on the firing of the gun, in combination, substantially as described.

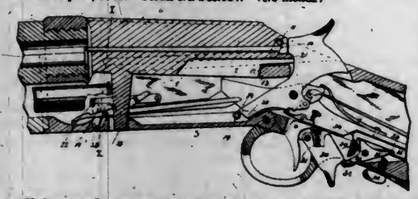
19. In a breech-loading gun, the reciprocating bolt and sliding handle connected thereto, the locking-dog engaging said handle, a rod movable to position to trip said dog, and the hammer operating on said rod when moved to cocked position, in combination, substantially as described.

20. In a breech-loading gun, the reciprocating breech-piece and sliding handle connected thereto, a locking-dog engaging the handle, and automatic mechanism operated by the recoil to unlock said handle, substantially as described.

21. In a breech-loading gun, a reciprocating bolt, an extractor carried thereby, a cross-lever in the bolt, and a firing-pin having a projection to engage said cross-lever and hold the extractor when the gun is fired, substantially as described.

22. In a magazine-firearm, a reciprocating bolt and a carrier-operating stud hung in the bolt to swing downward, in combination with a carrier hung below the bolt, with a shoulder below the line of movement of said stud when in its operative position, and a firing-pin arranged to strike said stud down into position to engage and raise the carrier.

478,221. MAGAZINE-FIREARM. ANDREW BURGESS, Owego, N. Y. Filed Sept. 6, 1887. Serial No. 248,987. (No model.)



Claim.—1. In a breech-loading firearm, a reciprocating breech having a locking-shoulder thereon, a lateral projection near the front end of said breech-piece, and a groove from its rear end forward, said groove being offset at its rear, substantially as described, in combination with a frame provided with a longitudinal groove to guide the front of the breech-piece, and a lateral projection extending into the groove in the breech-piece to guide the rear of said breech-piece, and an abutment in the frame against which the breech-piece locks.

2. In a breech-loading gun, the frame having the longitudinal groove 9, a breech-piece carrying the projection 8 to move in said groove and thereby guide the front end of the breech-piece, the projection 11 in the frame to guide the rear of the breech-piece by bearing in a longitudinal groove in said breech-piece, and an operating-handle connected to the breech-piece, all in combination.

3. In a breech-loading gun, a frame open at the top, in combination with a breech-piece having a substantially longitudinal movement in said frame and a swinging movement to lock the same, said breech-piece having side extensions at its upper part which overhang the frame.

4. In a breech-loading firearm, a frame open at the top, a breech-piece guided to move longitudinally therein, a locking-shoulder at the rear of the breech-piece, and an abutment for its engagement in the frame, a projection extending downward from the front of the breech-piece and below it, and a slide-piece which connects with the operating-handle and engages said projection, all in combination.

5. In a breech-loading firearm, a breech-piece whose rear end swings vertically in one direction to lock it and in the reverse direction to unlock, and a firing-pin housed in said breech-piece having a projection on its rear with an inclined front face, in combination with a fixed projection in the frame, arranged to engage the incline on the firing-pin through an opening in the breech-piece, substantially as described, to start back the firing-pin in the unlocking movement of the breech-piece.

6. In a magazine-gun, the combination of the magazine having a spring-stop at its mouth, a reciprocating breech-operating handle and slide, and a raised ear connected to the slide and engaging the magazine-stop to operate the same as the slide reciprocates, substantially as described.

7. In a firearm, the frame, a breech-piece moving therein and swinging to locked position, a vibrating hammer in position to engage the breech-piece and lock the same, a breech-operating lever, and slot and abutment connections from the lever to the breech-piece, whereby a lost motion is permitted, all combined substantially as described.

8. In a breech-loading firearm, a frame, a sliding handle, a catch to lock said handle in the frame in its breech-closing position, and a light spring engaging said catch to throw the catch out of its locking engagement, in combination with a stronger spring arranged to throw the catch into locking engagement by overpowering the light spring and outside connection with the stronger spring, by which it may be compressed to allow the light spring to release the catch.

9. A reciprocating rod connected at its rear with the movable butt-plate to operate it, a reciprocating handle operatively connected to the breech-piece, and a spring-catch to lock said handle into breech closing position, the rod engaging the catch to release it and engaging the operating-handle to start open the breech by movement of the butt-plate, the specified elements in combination in a breech-loading firearm, substantially as described.

10. In a breech-loading firearm, a movable butt-plate, a spring interposed between the butt plate and stock, a lever hung to the stock and having an arm in position to be actuated by the butt-plate, a rod engaging the other arm of said lever, and the breech-operating handle having operative engagement with said rod, the parts in combination, substantially as described.

11. In a breech-loading firearm, a butt-plate pressed back by a spring from the butt stock, a lever pivoted in the butt-stock, having one arm in contact with the butt-plate, a reciprocating rod engaged by the other end of said lever, a reciprocating operating-handle, and its locking-catch in position to be engaged by said rod, all combined, substantially as described, so that the recoil of the gun backward against the resistance of the butt-plate moves the rod rearward, and thereby unlocks the catch and handle and moves the handle to start open the breech.

12. In the butt of a gun, a socket-piece inclosing the rear of the stock and having the inner socket 37, the spring 33 to press back the butt-plate, a reversing-lever pivoted in the socket-piece, a telescoping butt-plate having the projection 38 to enter the socket 37 and guide the butt-plate, and rod 5, engaged by said lever, all in combination, substantially as described

13. In the butt of a gun, a socket-piece inclosing the rear of the stock and having the inner socket 37, the spring 33 to press back the butt-plate, a reversing-lever pivoted in the socket-piece, and a telescoping butt-plate having the projection 38 to enter the socket 37 and guide the butt plate, and a movable stop for said butt-plate, all in combination with the rod 5, for operation substantially as described.

478,222. MAGAZINE-FIREARM. ANDREW BURGESS, Owego, N. Y. Filed May 13, 1889. Serial No. 310,660. (No model.)

Claim.—1. In a double-barreled breech-loading gun, two breech-pieces, an operating-handle connected to one of said breech-pieces to operate it, and an abutment on said breech-piece to engage and lock the other breech-piece, in combination, substantially as described.

2. In a double-barreled breech-loading gun, two breech-pieces, an operating-handle connected to one of said breech-pieces to operate it, and an abutment on said breech-piece to engage and lock the other breech-piece, in combination with a movable dog to couple the two breech-pieces together.

3. In a double-barreled breech-loading gun, two breech pieces, an operating-handle connected to one of said breech-pieces to operate it, and an abutment on one breech-piece to engage and lock the other breech-piece, in combination with a coupling-dog having a projection by which it may be operated, substantially as set forth.

4. In a double-barreled breech-loading gun, two breech-pieces, an operating-handle connected to one of said breech-pieces to operate it, and an abutment on said breech-piece to engage and lock the other breech-piece, in combination with a coupling-dog having a projection by which it may be operated by a connection with the operating-handle and a hammer arranged to operate said coupling, substantially as described.

5. In a breech-loading firearm, two hammers in combination with a breech-piece, with connections to operate it back and forward, and two shoulders moved by said breech-piece to first cock one hammer and then the other by the continued movement of the breech-piece, substantially as specified.

6. In a magazine-firearm, a vibrating carrier hung in the frame, arranged to raise a cartridge to the axis of the barrel, and a lever hung at the side of the carrier, the forward part of said lever constituting a raised ear guided to swing laterally inward above the floor of the carrier and an arm of the lever rearward of its pivot, by which it is engaged by a connection of the breech-piece, all in combination, to turn the forward part of the lever to hold the rising cartridge and serve to eject the extracted shell, substantially as described.

7. In a breech-loading firearm, a sliding handle connected to the breech mechanism to operate it, a locking-dog forming engagement between the handle and the frame of the gun to lock the handle, and a foil-piece arranged in the frame of the gun and having a path of movement to the locking-dog, in combination with a hammer and a spring operated by the hammer to engage the foil-piece in the striking movement of the hammer and throw said foil-piece against the dog to unlock the sliding handle, substantially as set forth.

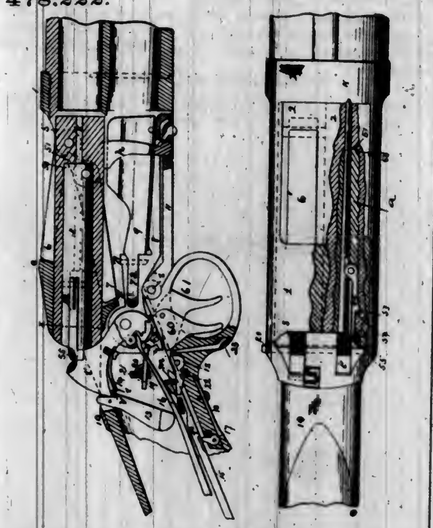
8. In a breech-loading firearm, a starting-rod having reciprocating movement in the butt-stock of the gun, and means for engaging said rod to the breech mechanism and means for engagement of said rod to the frame of the gun to lock it in operative position, and a foil-piece arranged in the frame and having a path of movement to the starting-rod, in combination with a spring operated by the hammer to engage the foil-piece in the striking movement of the hammer, and thereby release the starting rod from its inoperative engagement with the frame and to throw it into operative engagement with the breech mechanism, substantially as specified.

9. In a breech-loading firearm, a hammer and usual operating mechanism therefor, a foil or striker adjacent to the hammer, and a spring connected to the hammer in position to engage and actuate the foil, and thus communicate an impulse to adjunctive mechanism by the striker, the parts combined substantially as described.

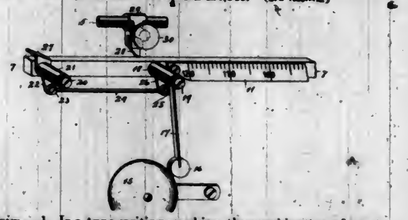
10. In a double gun, two hammers and usual operative connections, a foil-piece or striker in proximity to one hammer, a connecting-piece by which the hammer may be made to actuate the foil, and operative connections between the foil and the detent of the second hammer, all substantially as described.

11. In a double gun, two hammers and usual operative connections, a foil near one hammer and in position to be actuated thereby, and a pin movable by the gunner into position to be struck by the foil and when so struck to release the sear of the other hammer, all combined substantially as described.

478,222.



478,223. TYPE-WRITING MACHINE. HENRY D. CLEMONS, Hartford, Conn., assignor to the American Writing Machine Company, same place. Filed Apr. 1, 1892. Serial No. 427,315. (No model.)



Claim.—1. In a type-writing machine, the combination of a gong or bell, a pivoted bell-hammer arm, an actuating-plate pivoted to a stationary part of the machine and removed from the bell-hammer arm, a connecting-rod joining the said plate and the said bell-hammer arm, and a bell-trip upon the paper-carriage.

2. In a type-writing machine, the combination, with a gong or bell, of a bell-hammer arm attached to a pivoted sleeve having a crank or projection, an inclined plate attached to another pivoted sleeve, also having a crank or projection, a connecting-rod uniting said pivoted sleeves through said cranks or projections, and an adjustable bell-trip upon the paper-carriage.

478,224. OIL-CUP. FRANCIS J. COLE and GEORGE B. HAHLEHURST Baltimore, Md. Filed Mar. 5, 1892. Serial No. 423,945. (No model.)



Claim.—1. The combination of an oil-cup with an independent central stem passing through the oil-cup and whereby it is secured to the machine to be lubricated, having a hole through its center, within which is a vibrating valve for controlling the flow of oil to the bearing, an adjustable cap consisting of a cylindrical portion which is screwed upon the top of the central stem, and a yoke passing from one side to the other across the top of the valve-stem, whereby the throw of said stem is limited.

2. The combination of an oil-cup with an independent central stem passing through the oil-cup and whereby it is secured to the machine to be lubricated, having a hole through its center, within which is a vibrating valve for controlling the flow of oil to the bearing, an adjustable cap consisting of a cylindrical portion which is split at one point, so as to be tightened or expanded by pressure, and a yoke passing across the top from side to side, the under side of the interior of which is in proximity to the top of the valve-stem, whereby the throw of the valve-stem is limited.

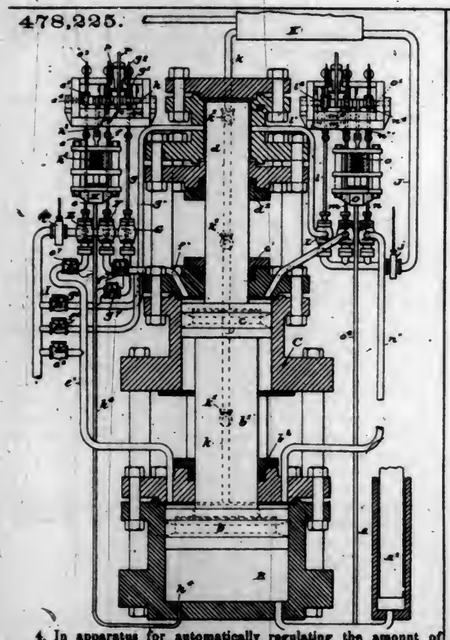
478,225. HYDRAULIC MACHINERY. GEORGE S. DUNCAN, Melbourne, Victoria. Filed Feb. 4, 1891. Serial No. 380,154. (No model.)

Claim.—1. The combination, with the main operating-cylinder of a hydraulic machine, of a plurality of governing-cylinders, such as B C, whose pistons are of different areas, connected one with said main cylinder and the rest with valves, such as E F G, and means for automatically opening and closing the same according to the pressure in said main operating-cylinder, substantially as and for the purposes herein described and explained, and as illustrated in my drawings.

2. In a hydraulic machine, the combination, with the main operating-cylinder, of a plurality of governing-cylinders having pistons of different areas, a corresponding number of valves connected with said governing-cylinders, and means for automatically operating the said valves, substantially as set forth.

3. The combination, with the main cylinder, a plurality of governing-cylinders provided with pistons of different areas, one of said cylinders being connected to said main cylinder and valves connected therewith, of a rock-shaft, pawls, or analogous devices fitted thereon, each adapted to open one of said valves, and a piston or plunger connected to said rock-shaft, substantially as and for the purpose set forth.

478,225.



4. In apparatus for automatically regulating the amount of power-water used in hydraulic machinery according to the weight to be raised or work done, the combination, with the main cylinder and a plurality of governing-cylinders fitted with pistons of different areas and connected each with a separate valve, one of said governing-cylinders being connected directly to the main cylinder, of a rock-shaft, such as A, and pawls or catches, such as c^4 f^4 g^4, fitted thereon and adapted to engage with trip-levers, such as c^3 f^3 g^3, connected with the spindles of said valves, said pawls, catches, or cams being arranged in different relative positions around said shaft, so as to operate upon the spindles of and so open said valves in rotation, and means for returning said shaft to its normal position, substantially as and for the purposes herein described.

5. In an apparatus for automatically regulating the amount of power-water used in hydraulic machinery according to the weight to be raised or work done, the combination, with the spindles, such as f g, of a pair of valves, such as F G, an arm or lever, such as P, mounted upon a rock-shaft, such as A, carrying pawls, catches, or cams, whereby said spindles may be raised to open said valves, together with a vertically-sliding frame, such as p', engaging with said spindles and fitted with a pair of pawls, such as p, wherewith said arm can engage, substantially as and for the purposes herein described and explained, and as illustrated in my drawings.

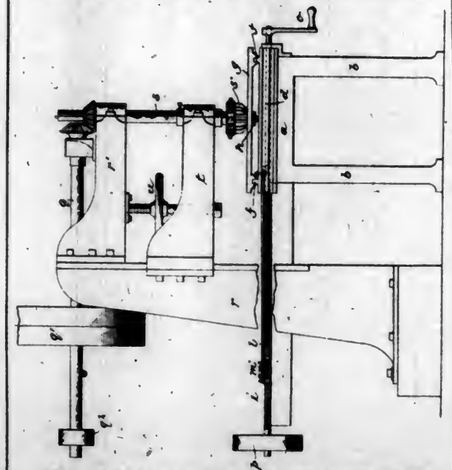
6. In apparatus for use in hydraulic machinery for automatically returning a certain proportion of water to the water-supply, the combination, with a plurality of cylinders containing pistons or rams of varying areas and connected to said water-supply by pipes fitted with back-pressure or retention valves, of a corresponding number of stop-valves, and means whereby one of said valves will be automatically closed according to the pressure in the main operating-cylinder, substantially as set forth.

7. In an apparatus for regulating the amount of water used in hydraulic machinery, the combination of a main operating-cylinder, a pressure-main, a cylinder communicating therewith and with the main operating-cylinder, a piston in said cylinder, a spring acting on said piston, a valve R, a spindle on said piston, a shaft connected thereto, and spring q^3 on said spindle adapted to actuate said shaft, and valves E F G, substantially as and for the purposes specified.

8. In apparatus of the class herein described, the combination, with a power-main, of a main cylinder and a series of governing cylinders, one of said cylinders connected to said main cylinder, and a series of valves serving to open communication between said power-main and governing-cylinders, and a piston controlled by water-pressure and connected by suitable means to the said valves, substantially as set forth and described.

9. In an apparatus for automatically regulating the amount of power-water used in hydraulic machinery according to the weight to be raised, the combination, with valves E F G, a rock-shaft, and devices thereon for the purpose specified, of an arm p', having pawls p, said arm engaging by means of a cross-head on spindles one or more of said valves, the arm P upon said rock-shaft adapted to engage said pawls upon said arm to open one or more of said valves, substantially as described.

478,226. STONE-MOLDING MACHINE. WILLIAM H EVANS, Baltimore, Md. Filed Jan. 16, 1892. Serial No. 418,301. (No model.)



Claim.—1. In a machine for molding stone, the combination of a cutter-head revolving in a fixed vertical plane with two work tables or carriages independent of and disconnected from the cutter-head, one mounted upon the other and moving with it and also having a motion of its own at right angles to the other, the motor mechanisms of the two carriages being synchronized at variable rates of motion, thereby to compound the rectilinear movements of the carriages into a resultant curvilinear motion, substantially as and for the purpose described.

2. The combination, with a longitudinally-movable carriage and a carriage mounted thereon and movable therewith and also independently movable transversely thereof, of synchronized reciprocators connected with said carriages, adjustable connections between such reciprocators and carriages, a common prime motor, and a rotary cutter-head mounted in bearings wholly independent of the two carriages, substantially as and for the purpose described.

478,227. MACHINE FOR MOLDING STONE SLABS. WILLIAM H. EVANS, Baltimore, Md. Filed Jan. 16, 1892. Serial No. 418,302. (No model.)

Claim.—1. In a machine for molding stone slabs, the combination, with the frame-work, its bed, and work-table, of a cutter-spindle and a skeleton carrier therefor, comprising a base, opposite uprights secured thereto, an annular worm-gear having a depending flange to which the uprights are fastened, a ring or bushing in the bed in which the flange is fitted to rotate, and a bearing for the spindle in said gear, substantially as described.

2. In a machine for molding stone slabs, the frame-work and tables having openings for the passage of the cutter-head, in combination with a cutter-spindle and cutter-head thereon and a carrier for such spindle, said carrier comprising a body portion, an annular worm-gear having a depending flange by which the body portion and worm-gear are connected, and a bushing in the frame-work in which said flange has a bearing, substantially as described.

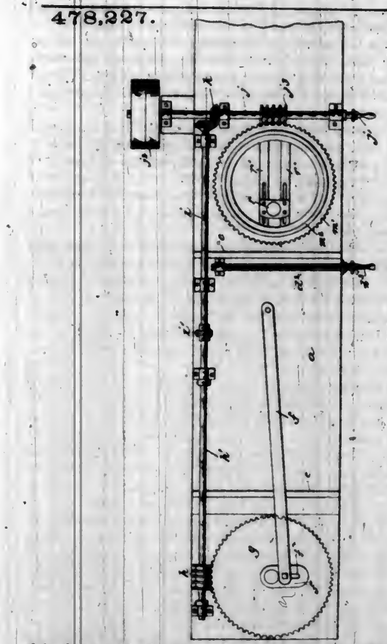
3. In a machine for molding stone slabs, the combination, with the frame-work and the work-table having openings for the passage of the cutter-head and escape of the dust, of a cutter-spindle and head thereon, a rotary carrier for such spindle, having its top made as an annular worm-gear, which is provided with the upper annular flange m^2, and a subjacent dust-deflector, substantially as described.

4. In a machine for molding stone slabs, the frame-work and work-tables having openings for the passage of the cutter-head and escape of the dust, combined with a cutter-spindle and head, a cutter-carrier having its top made as an annular gear-wheel supported in the opening in the frame-work and thereby permitting the escape of the dust through it, and a subjacent dust-deflector, substantially as described.

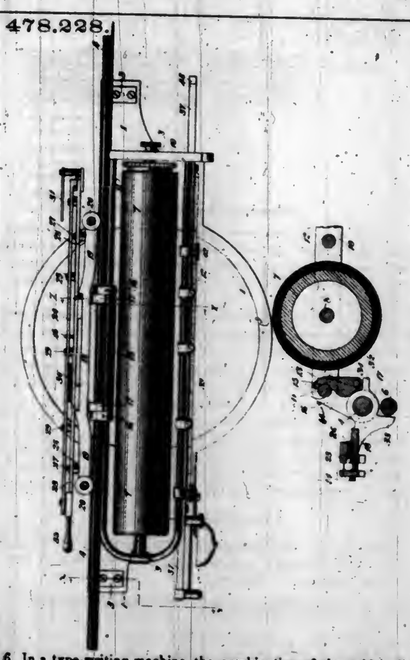
5. In a machine for molding stone slabs, the frame-work and work-tables having openings for the passage of the cutter-head and escape of the dust, combined with a cutter-carrier having its top made as an annular gear-wheel supported in the opening in the frame-work, and a dust-deflector supported by such carrier, substantially as described.

6. In a machine for molding stone slabs, the combination, with a frame-work, work-tables, a cutter-carrier, its worm-gear, and a driving-shaft for such worm-gear, of a reciprocator, a rod connecting it and the work-tables to move them longitudinally of the frame-work and in a right line, a worm-shaft synchronously connecting such reciprocator with the driving-shaft of the worm-gear of the carrier, and a separable or disconnecting coupling device in said shaft, whereby the reciprocator may be thrown into and out of operation to enable the machine to be used, respectively, for oval and for circular work, substantially as described.

478,227.



478,228.



478,228. TYPE-WRITING MACHINE. JOHN M. FAIRFIELD, Hartford, Conn., assignor to the American Writing Machine Company, same place. Filed Mar. 23, 1892. Serial No. 426,078. (No model.)

Claim.—1. In a type-writing machine, the combination, with the guide-rail and the paper-carriage, of a yoke-piece connected to said paper-carriage and arranged to slide on said guide-rail and a rack-bar frame having at each end an arm extending in the direction of travel of the paper-carriage and provided with a bearer for contact with the said guide-rail.

2. In a type-writing machine, the combination, with a guide-rail and a paper-carriage, of a yoke-piece secured to said carriage and hinged upon said rail and a rack-bar frame also hinged upon said rail and provided at each end with an arm having a bearer for contact with said rail.

3. In a type-writing machine, the combination of the top plate, the standards, the guide-rail secured to said standards and projecting beyond the same, the yoke-piece hinged to said guide-rail, the paper-carriage secured to said yoke-piece, the rack-bar frame hinged to said guide-rail, and the arms 19, extending on each side from said rack-bar frame and provided each with a bearer for contact with said guide-rail.

4. In a type-writing machine, the combination of the guide-rail, the stop-rod arranged beneath and parallel therewith, the yoke-piece hinged upon said guide-rail and provided with vertical contact pins or screws, and the rack-bar frame hinged upon the said guide-rail and provided with forwardly-extending projections adapted to be acted upon by said pins or screws to slightly elevate the said feed-racks when the carriage is down in working position.

5. In a type-writing machine, the combination of the guide-rail, the stop-rod arranged beneath and parallel therewith, the yoke-piece hinged upon said guide-rail, the paper-carriage rigidly connected to said yoke-piece, and the rack-bar frame provided with downward projections adapted to contact with said stop-rod when the carriage is turned up and back and rests upon the rack-bar frame.

6. In a type-writing machine, the combination of the guide-rail seated in grooves in the upper ends of standards and prolonged to extend beyond said standards, the yoke-piece hinged upon said guide-rail, the paper-carriage rigidly connected to said yoke-piece, the rack-bar frame connected to said guide-rail, and the arms 19, extending outwardly in opposite directions from said rack-bar frame and provided each with a bearer adapted to travel in contact with said guide-rail past the standard to or near the free unsupported end of the guide-rail.

7. In a type-writing machine, the combination of the guide-rail, the yoke-piece hinged thereto, the paper-carriage rigidly connected to the yoke-piece, the rack-bar frame connected to the guide-rail, and the arms 19, made integral with the rack-bar frame and provided each with grooved anti-friction rollers adapted to ride in contact with said guide-rail.

8. In a type-writing machine, the combination of the guide-rail, the yoke-piece, the platen, and the rack-bar frame provided with the arms 19, bearing each an anti-friction roller, and means for adjusting said roller to said guide-rail.

9. In a type-writing machine, the combination, with the guide-rail, the yoke-piece, the platen, the rack-bar frame, and the arms 19, of the anti-friction rollers, the adjusting-eccentrics, and the retaining-screws.

10. In a type-writing machine, the combination of a paper-carriage, a guide-rail, a yoke-piece connected to said paper-carriage and arranged to slide on said guide-rail, and a pair of longitudinally-disposed arms connected to the paper-carriage and provided each with a bearer for contact with the said guide-rail.

478,229. ADHESIVE. JEROME W. FRANK, New York, assignor of three-fifths to Louis S. Langville, Troy, N. Y. Filed Sept. 1, 1891. Serial No. 404,479. (No specimens.)

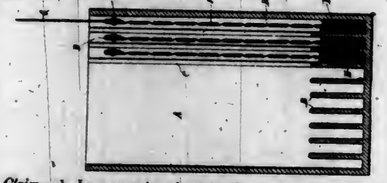
Claim.—1. The process of forming an adhesive composition, consisting in adding hydrate of ammonia to the liquor of bisulphite fiber or wood pulp and heating the same until an excess of ammonia is driven off, substantially as specified.

2. An adhesive composition consisting of the liquor of bisulphite fiber or wood pulp and an alkali, substantially as specified.

3. An adhesive composition consisting of the liquor of bisulphite fiber or wood pulp and hydrate of ammonia, substantially as specified.

478,230. SECONDARY BATTERY. JAMES H. GERRY, Brooklyn, and CHARLES B. LOOS, New York, N. Y., assignors to the Gerry-Long Manufacturing Company, Jersey City, N. J. Filed Aug. 1, 1891. Serial No. 401,367. (No model.)

478,230.



Claim.—1. In a secondary battery, the combination, with a cell containing shallow compartments or troughs formed by insulating-partitions and containing active material, of lead plates arranged in said cell with their lower edges extending down into the active material, as set forth.

2. In a secondary battery, the combination, with a cell formed or provided with narrow insulating-partitions across the bottom and up the sides, dividing said cell into a number of shallow troughs at the bottom and grooves up the sides, of active material contained in the troughs, and lead plates, the lower edges of which extend down into the active material in the said troughs, as herein set forth.

3. The combination, with a cell the bottom of which is divided by low insulating-partitions into a series of vertical troughs, an active material contained in said troughs, and positive and negative plates composed of woven strips or ribbons of metallic lead with their lower edges extending down into the active material in said troughs, as herein set forth.

478,231. MECHANISM FOR DELIVERING AND CUTTING ROLL PAPER. DARIUS L. GOFF, Pawtucket, R. I. Filed Sept. 25, 1890. Serial No. 366,075. (No model.)



Claim.—1. In a machine for delivering paper in lengths from a roll-package, the combination, substantially as hereinbefore described, of a support for the package, a roll which is revolved by the contact therewith of drawn-off paper, stopping mechanism operated and controlled by the measuring roll for restricting the said roll to one revolution, and a rotatively-mounted cutter for severing the drawn-off length of paper.

2. In a machine for delivering paper in lengths from a roll package, the combination, substantially as hereinbefore described, of a support for the roll-package, a roll which is revolved by the contact of drawn-off paper, stopping mechanism which is operated by the measuring-roll and restricts said roll to one revolution, a rotatively-mounted cutter for severing the drawn-off length of paper, and mechanism for releasing said roll from the stopping mechanism.

3. In a machine for delivering paper in lengths from a roll-package, the combination, substantially as hereinbefore described, of a support for the roll-package, a pair of operatively-connected rolls which are revolved by the contact therewith of drawn-off paper, stopping mechanism which restricts said rolls to one complete revolution, and a cutter for severing a drawn-off length of paper.

4. In a machine for delivering paper in lengths from paper in roll form, the combination, substantially as hereinbefore described, of two rolls rotative by the contact therewith of drawn-off paper, stopping mechanism for restricting said rolls to one revolution, a cutter for severing the lengths of drawn-off paper, means for releasing said rolls from the stopping mechanism, and means for automatically causing said rolls to partially rotate for projecting the free end of paper from said rolls.

5. In a machine for delivering paper in lengths from a roll-package, the combination, substantially as hereinbefore described, of a support for the roll-package, a pair of operatively-connected corrugated rolls, which are revolved by the contact of the drawn-off paper and serve as means for predetermining the lengths of paper to be drawn from said package, stopping mechanism which stops said rolls at the limit of each predetermined length of paper, and a cutter for severing said length from the roll-package.

6. In a machine for delivering paper in lengths from a roll-package, the combination, substantially as hereinbefore described, of a support for the roll-package, a roll which is revolved by the contact of drawn-off paper, stopping mechanism for restricting said roll to one revolution, a cutter for severing the drawn-off length of paper, and automatic releasing mechanism which permits said roll to again make one revolution.

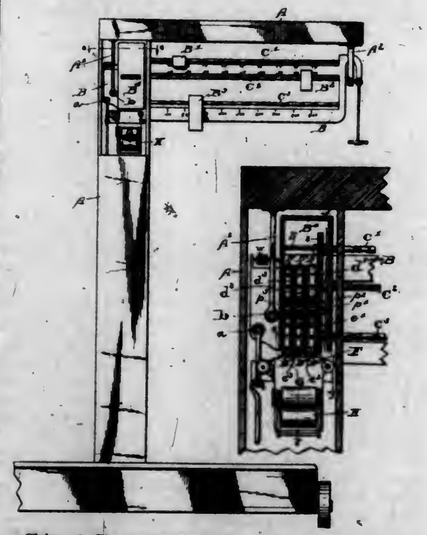
7. In a machine for delivering paper in lengths from packages of paper in roll form, the combination, substantially as hereinbefore described, of independent supports for two roll-packages of paper, two rolls rotative by the contact of paper drawn from said packages, stopping mechanism for restricting both rolls to one complete revolution, and mechanism operated by each roll for releasing the other from the stopping mechanism.

8. In a machine for delivering paper in lengths from a roll-package, the combination, substantially as hereinbefore described, of a support for the roll-package, a cutter for severing drawn-off lengths of paper, a roll which is revolved by the contact of drawn-off paper, stopping mechanism for restricting the said roll to complete revolutions, and means for controlling the stopping mechanism for enabling said roll to revolve any number of times until a required length of paper has been drawn off.

9. In a machine adapted to deliver paper from two roll-packages, the combination, substantially as hereinbefore described, of a pair of rolls for each package, and each pair rotative by contact with paper drawn from their appropriate package, a cutter for each pair of rolls, and stopping mechanism for restricting each pair of rolls to one complete revolution, the upper roll of each pair serving to release the rolls of the other pair form the stopping mechanism and also for imparting thereto a partial forward rotation after each stop.

10. In a machine for delivering paper in lengths from roll-packages, the combination, with a roll-package having an axial opening, of a detachable axial rod within said package and a frame provided with brackets having on their inner sides slotted and downwardly-curved bearings for the ends of said rod, and also having a hole in one of said plates for longitudinally applying said rod to the roll-package, and still further having gatings or openings at the upper side of the inner or lower ends of said slotted bearings, substantially as described, whereby the axial rod of a roll-package may be inserted endwise at the hole in the bracket, secured against displacement until after the paper has been exhausted, and then readily lifted sidewise and outwardly through the gatings.

478,232. INDICATING AND RECORDING BALANCE. JASON H. GREENSTREET, Indianapolis, Ind., assignor to Charles J. Greenstreet and Flora V. Greenstreet, both of same place. Filed Mar. 10, 1892. Serial No. 424,362. (No model.)



Claim.—1. The combination, in a scale, of several poises, corresponding disks bearing numbers, and connections between the several poises and the disks, whereby the numbers on said disks are made to display the sum represented by the several poises on the scale beam.

2. The combination, in a scale, of a scale-beam having several sliding poises representing, respectively, units, tens, hundreds, and so on, number-bearing disks corresponding thereto, and connections between said poises and said disks, whereby in weighing an article the figures caused to be displayed at the observation-point on the face of the disks will represent the combined weights as represented by the poises on the scale-beam.

3. The combination, in a scale, of a scale-beam having several poises, a corresponding number of disks, screw-threaded rods passing through the poises and geared to the disks, whereby as the poises are moved along the scale-beam the rods are revolved and through the gearing move the disks, substantially as and for the purposes set forth.

4. The combination, in a scale, of the scale-beam B, the screw-rods C', C², and C³, mounted thereon and parallel therewith, the poises B', B², and B³, mounted on said scale-beam and adapted to revolve said screw-rods as they are moved longitudinally thereof and the several gear-wheels and pinions driven thereby, and the number-bearing disks D', D², and D³ and E', E², and E³, said several parts being arranged and operating substantially as and for the purposes set forth.

5. The combination, in a scale, with the scale-beam, of disks carrying printing-numbers, a number of poises on the scale-beam corresponding to the number of disks, connections between the same, and a printing attachment adapted to be brought into contact with said printing numbers or type and print the number represented by the weights on the scale-beam on impression-receiving material carried thereby.

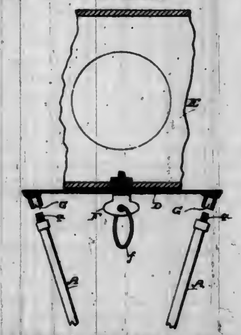
6. The combination, with a scale or weighing mechanism and a series of type-bearing disks connected therewith, of a printing device consisting of a ribbon running over spools adjacent to said disks, a roller mounted in a swinging frame and carrying paper, a friction-roll for holding and drawing said paper forward, a ratchet-wheel on the end of the printing-roll shaft, and a pawl pivoted to the frame-work near the terminal point of the movement of said roll on said swinging frame which is adapted to come in contact with said ratchet-wheel and impart a rotary motion to said printing-roll.

7. The combination, with a scale having type-bearing disks connected to and driven by the weighing mechanism, of a printing apparatus consisting of a type-ribbon mounted on spools at a point adjacent to said disks, a ratchet-wheel connected to said spool, a printing-roll mounted in a swinging frame, and a pawl pivoted to the frame-work near said ratchet-wheel and adapted to be raised by said roller when it is lifted and engage with said ratchet-wheel, thereby revolving the spool and pulling the ribbon, substantially as set forth.

8. The combination, in a scale, of a mechanism carried by the scale-beam consisting of two or more poises, a corresponding number of disks, and connections between said poises and said disks, respectively, whereby said disks are caused to display figures indicating the weight also represented by the sum of weights indicated by the poises.

9. The combination, in a scale, of several poises mounted on a single scale-beam and corresponding disks connected with each poise, respectively, said disks bearing figures indicating numbers corresponding with the positions of the poises and the whole being arranged upon and carried by said scale-beam, substantially as set forth.

478,233. TRIPOD. JAMES HEWITT, Berkeley, Cal. Filed Aug. 1, 1891. Serial No. 401,418. (No model.)



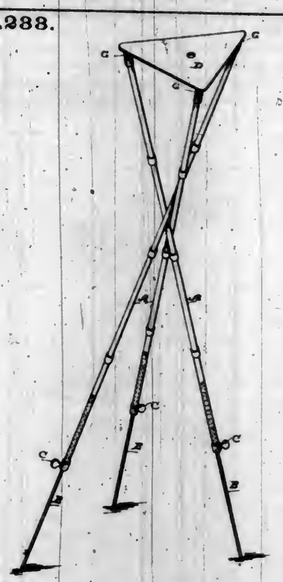
Claim.—1. A tripod having means for securing a camera and provided with legs of tubular springy metal, said legs crossing each other, but being unconnected and having extension feet or rods fitted telescopically to their lower ends, substantially as herein described.

2. A tripod comprising a head provided with means for securing a camera and tubular legs of springy metal removably fitted to the head and converging downwardly to the point of crossing and thence diverging to their lower ends, said legs being unconnected with each other at their points of crossing and removably fitted to the head, substantially as herein described.

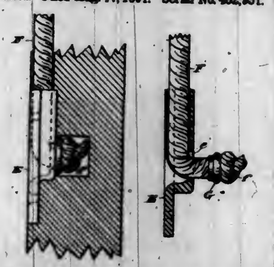
3. A tripod consisting of a head-plate having the inwardly-inclined threaded sockets and tubular metal legs adapted to be removably fitted to said sockets and crossing each other, but unconnected at the points of crossing, whereby the legs are readily removed, substantially as herein described.

4. A tripod consisting of a head-plate having means for securing the instrument and provided with inwardly-inclined threaded sockets, and tubular metal legs fitted to said sockets and crossing each other, but being unconnected at the point of crossing, whereby the legs are readily removed, said legs diverging from the point of crossing and having extension feet or rods fitted telescopically in the lower ends, substantially as herein described.

478,233.



478,234. SASH-CORD FASTENER. WILLIAM HUTCHINS, Melbourne, Victoria. Filed Aug. 17, 1891. Serial No. 402,951. (No model.)



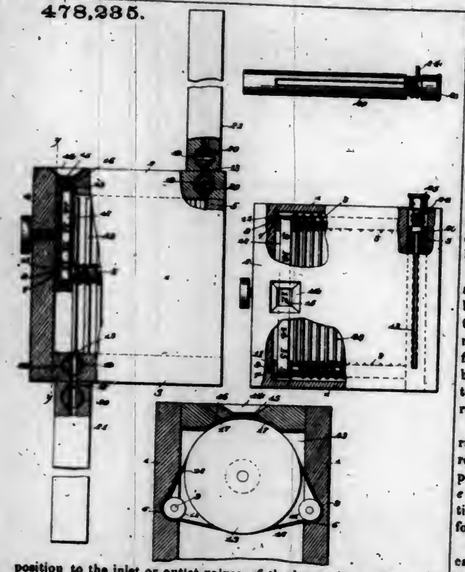
Claim.—1. The combination, with the sash and cord, of the plate E, having hole and groove for the cord, and the ring on said cord, substantially as and for the purposes set forth.

2. The combination, with the sash and cord, of the plate E, having hole and groove for the cord, and the ring on said cord and having a shoulder, substantially as and for the purpose set forth.

478,235. PHOTOGRAPHIC-PLATE CARRIER. CHARLES H. LONGMAN, Chicago, Ill. Filed Dec. 24, 1891. Serial No. 416,101. (No model.)

Claim.—1. In a magazine carrier for photographic plates, the combination of a box having an inlet and an outlet cylindrical valve kept normally closed and light-tight, a conveying-screw housed in each side of the box, means to rotate said screws and at the same time indicate the number of plates moved thereby, and an ordinary plate-holder having a light-tight cylindrical valve adapted to be alternately put in op-

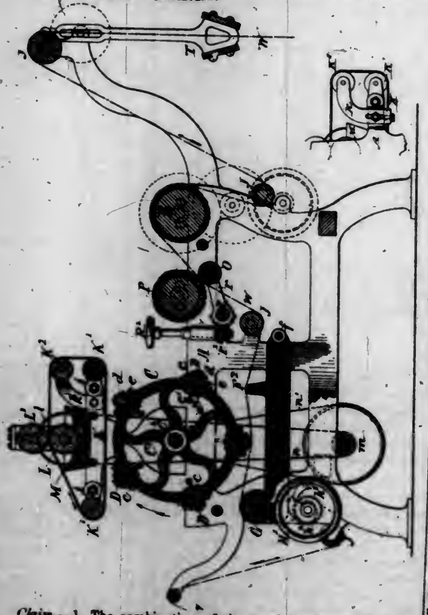
478,285.



position to the inlet or outlet valves of the box, substantially as and for the purpose set forth.

2. In a magazine-carrier for plates, screw conveyers adapted to separate, guide, and move the same from one end of the box to the other opposite the outlet-valve thereof, in combination with a belt adapted to drive the screws in one or the other direction and carrying figures arranged thereon, so as to indicate the number of plates brought opposite the outlet-valve, as set forth.

478,286. MACHINE FOR WAXING VELVETS, &c. EDWIN T. MARBLE and EDWIN H. MARBLE, Worcester, Mass. Filed Jan. 25, 1892. Serial No. 419,126. (No model.)



Claim.—1. The combination of the revoluble wax-carrier composed of a series of separate bars rigidly supported by wheels or spiders on a central rotatable axis and each adapted for holding a bar of wax and a fabric-supporter provided with two rolls or supports whereon the fabric is flexibly sustained by being drawn tightly across an unobstructed space between said two supports and there presented to the action of said revoluble wax-carrier, for the purpose set forth.

2. The combination, substantially as described, of the rigid cylindrically-revoluble wax-carrier having the recessed bars or peripheral pockets with facilities for holding bars of wax therein, an adjustable fabric-support having thereon the holdback-roll and a guide-roll respectively disposed at its front and rear with an intervening space and adapted for extending and presenting the fabric flexibly sustained across said space to the face of said wax-carrier, means, substantially as described, for adjusting said fabric-support toward or from the wax-carrier, and an adjustable brake for varying the tension of said holdback-roll, for the purpose set forth.

3. The combination of the revoluble carrier C, having rigidly-attached wax-supporting bars and means for securing and adjusting bars of wax supported thereon, the swinging fabric-carrier F, having the guide-roll F^3, and the holdback-roll G, mounted thereon, and guide-rolls J J at front and rear thereof, said rolls arranged for straining the fabric across the face of the carrier, and the shaft H, with cams h beneath the free end of said supporter, the hand-wheel H′ for moving the same to swing the supporter toward and from said carrier, and the ratchet h^3 and pawl h^3, for the purpose set forth.

4. In a fabric-waxing machine, the wax-carrier, bars or wax-boxes rigidly fixed to the periphery of spiders or end wheels, mounted on the rotatable shaft, said boxes having the radially-disposed longitudinal pockets or recesses therein provided with plates d and d', and screws e and e' for binding and radially adjusting the bars of wax, substantially as described, in combination with the fabric-supporter and means for advancing the fabric across the same, for the purpose set forth.

5. The combination, substantially as described, of the revoluble carrier having recessed bars or peripheral pockets with facilities for holding bars of wax therein, the adjustable fabric-supporter having thereon a holdback-roll and a guide-roll for extending and flexibly presenting the fabric to the action of said wax-carrier, the revolving endless cooling-apron, the apron-guiding rolls at front and rear of said wax-carrier, the dampening-rolls, and means for advancing the apron, for the purposes set forth.

6. The combination of the revoluble bar-wax carrier, the cooling-apron K, the guide-rolls K′, whereby said apron is extended and supported over the wax-carrier, and the roll-supporting bearings i, attached to and adjustable on the frame for raising and lowering said guide-rolls and apron in relation to the wax-carrier, substantially as and for the purpose set forth.

7. The combination, substantially as hereinbefore described, of the revoluble bar-wax carrier C, having the pulley m^3 on its shaft, the endless apron K, its guide-rolls K′, the dampening and drive roll L, having the pulley l fixed on its axle, intermediate pulleys or change-wheels m, and belts n and n' for transmitting relative motion from the carrier-axis to said apron, for the purpose set forth.

8. The tension-regulating roll K^3 and its adjustable bearing-supports k and the endless apron K, its adjustably-supported guiding-rolls K′, in combination with the revoluble bar-wax carrier C, fabric-supporter, and feeding mechanism, substantially as and for the purpose set forth.

9. The combination, substantially as described, of the revoluble bar-wax carrier C, the endless traveling apron K, its guide-rolls K′, and dampening-rolls L, the adjustable fabric-supporter F, with fabric-guide F^3 and holdback-roll G, the adjustable friction-brake for said holdback-roll, the rotatable brush P, its adjustable bed-roll O, the feed-roll B, and guide-rolls J, relatively disposed for operation in the manner shown, and for the purposes set forth.

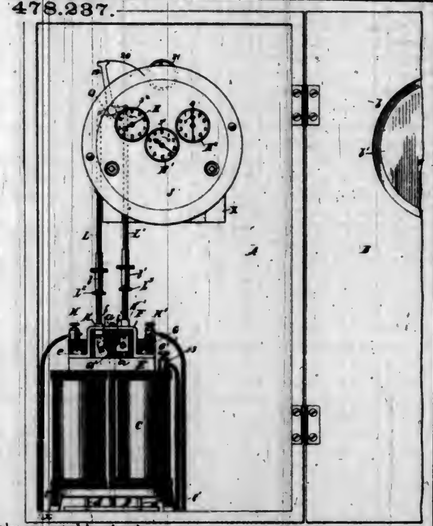
10. The revolving brush P, the fabric-supporting roll O, the adjustable arms r, having said roll mounted thereon, the rocker-shaft R, connecting said bearing-arms, the toothed segment and worm-screw r', and the operating hand-wheel R^2, in combination with a wax-carrier and fabric supporting and feeding mechanism, substantially as set forth.

478,287. TIME-REGISTERING APPARATUS FOR ELECTRICITY. HENRY H. PATTEE, Monmouth, Ill. Filed Dec. 11, 1891. Serial No. 414,760. (No model.)

Claim.—1. The combination, with a main circuit from a source of electricity, of one or more translating devices arranged therein, a switch to control said circuit, an electro-magnet arranged in a shunt-circuit from the main circuit, a switch to control the shunt-circuit adapted to be operated by the electro-magnet, and time-registering mechanism adapted to be stopped or started by said electro-magnet.

2. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, an electro-magnet, also arranged in said circuit, a switch to control the circuit, time-registering mechanism, and means operated by said electro-magnet to automatically stop or start said time-registering mechanism, and means,

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also operated by the electro-magnet, to automatically cut the electro-magnet out of circuit.

3. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, an electro-magnet also arranged in said circuit, a switch to control the circuit, and a separate switch adapted to be operated by the electro-magnet to cut the electro-magnet out of circuit.

4. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, an electro-magnet also arranged in said circuit, a switch to control the circuit, time-registering mechanism adapted to be started or stopped by said electro-magnet, and a separate switch adapted to be operated by the electro-magnet to cut the electro-magnet out of circuit.

5. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, an electro-magnet also arranged in said circuit, a switch to control the circuit, time-registering mechanism adapted to be stopped and started by said electro-magnet, and means operated by said electro-magnet to automatically cut said electro-magnet out of circuit.

6. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, an electro-magnet also arranged in said circuit, an armature adapted to be actuated by the electro-magnet, a switch to control the circuit, time-registering mechanism adapted to be stopped or started by the movement of said armature, and means operated by said armature to automatically cut the electro-magnet out of circuit.

7. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, a switch to control said circuit, an electro-magnet also arranged in said circuit, an armature adapted to be actuated by said electro-magnet, time-registering mechanism, and means adapted to be operated by said armature to start or stop said time-registering mechanism and at the same time cut the electro-magnet out of circuit.

8. The combination, with a main circuit from a source of electricity, of one or more translating devices arranged therein, a switch to control the main circuit, an electro-magnet arranged in a shunt-circuit from the main circuit, time-registering mechanism adapted to be started or stopped by said electro-magnet, and means also operated by said electro-magnet to automatically cut the electro-magnet out of circuit.

9. The combination, with a source of electricity, of one or more translated devices arranged in a circuit therefrom, a switch to control said circuit, an electro-magnet also arranged in said circuit, an armature adapted to be actuated by said electro-magnet, time-registering mechanism, means adapted to be operated by said armature to start or stop said time-registering mechanism, and a switch also adapted to be operated by the movement of said armature to automatically cut the electro-magnet out of circuit.

10. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, a switch to control said circuit, time-registering mechanism adapted to be started or stopped by said electro-magnet, an armature adapted to be actuated by said magnet, and a switch adapted to be operated by the movement of the armature to automatically cut the electro-magnet out of circuit.

11. The combination, with an electro-magnet and its armature, of the rod J, connected therewith, pawl a, connected with said rod, rods L L′ and heads K K′, connected with said rods, walking-beams Q, to which the rods L L′ are attached, and sleeve t, all arranged and adapted to be operated by the movement of said armature when the electro-magnet is energized, substantially as set forth.

12. The combination, with an electro-magnet and its armature, of the rod J, connected therewith, pawl a, connected with said rod, rods L L′, couplings l l', heads K K′, connected with said rods, walking-beam Q, and sleeve t, all arranged and adapted to be operated by the movement of said armature when the electro-magnet is energized, substantially as set forth.

13. The combination, with an electro-magnet and its armature, of the rod J, connected therewith, pawl a, rods L L′, connected with the walking-beam Q, sleeve t, heads K K′, connected with said rods, and pins m m', which pass through said heads K K′, lever M on the shaft n, and switch I, all arranged and adapted to be operated by the movement of said armature when said electro-magnet is energized, substantially as set forth.

14. The combination, with a source of electricity, of a switch to control the circuit leading therefrom, an electro-magnet in said circuit, an armature adapted to be operated by said electro-magnet, a rod J, connected with said armature, a pawl a, connected with said rod, rods L L′, connected to the walking-beam Q, which turns the sleeve t, heads K K′, connected with said rods L L′, pins m m', which pass through said heads K K′, a lever M adapted to be moved by said pins, a switch I on the same shaft with the lever M, an electrode P, with which said switch I makes contact, and electrodes g g', all arranged and adapted to be operated by the movement of said armature when the electro-magnet is energized, substantially as set forth.

15. The combination, with a time-registering mechanism, of means to start or stop said mechanism, consisting of the arm 19 on the sleeve t, a spring 20, connected with said arm, lever 17, having the spring 18 attached at one end and the trundle 16 pivoted to the other end, wheel 15 on said sleeve t, provided with recesses N N′ in its periphery, into which the trundle 16 is adapted to fall and to be held therein by the spring 18, and walking-beam Q on the sleeve t, said mechanism adapted to be actuated by an electro-magnet, substantially as set forth.

16. The combination, with a time registering mechanism having as its pulsative device a balance-wheel, of means to start or stop said mechanism, consisting of the arm 19 on the sleeve t, a spring 20, connected with said arm, lever 17, having the spring 18 connected at one end and the trundle 16 pivoted to the other end, wheel 15 on said sleeve t, provided with recesses N N′ in its periphery, into which the trundle 16 is adapted to fall and to be held therein by the spring 18, and walking-beam Q on the sleeve t, said mechanism being adapted to be started or stopped by an electro-magnet, substantially as set forth.

17. The combination, with a time-registering mechanism, of a graduated dial-plate, pointers in gear with said time-registering mechanism, an escapement device forming part of said time-registering mechanism, and means adapted to start or stop the said time-registering mechanism, consisting of an arm 19 on the sleeve t, spring 20, connected with said arm, adapted to engage with said escapement device, walking-beam Q, also connected with the sleeve t, and rods L L′, connected with the said walking-beam, said rods being adapted to be moved up or down to start or stop the time-registering mechanism by the action of an electro-magnet, substantially as set forth.

18. The combination, with a time-registering mechanism, of an escapement device forming part thereof and means adapted to start or stop said time-registering mechanism, consisting of an arm adapted to engage with said escapement device, a walking-beam connected with said arm, and means to move said walking-beam adapted to be operated by an electro magnet, substantially as and for the purpose set forth.

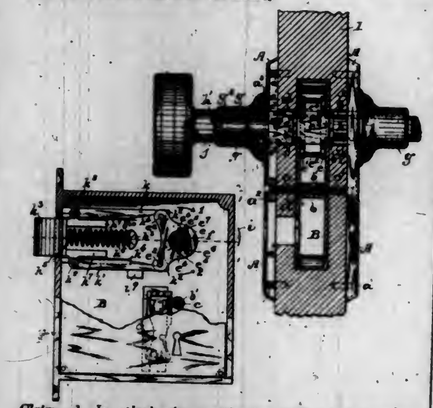
19. The combination, with a source of electricity, of one or more translating devices arranged in a circuit therefrom, an electro-magnet also arranged in said circuit, a switch to control the circuit, time-registering mechanism, and an escapement device forming part thereof, and means adapted to start or stop said time-registering mechanism, consisting of an arm adapted to engage with said escapement device, a walking-beam connected with said arm, and means to move said walking-beam adapted to be operated by said electro-magnet, substantially as and for the purpose set forth.

478,288. SOLDER FOR ALUMINIUM. JOSEPH W. RICHARDS, Philadelphia, Pa. Filed Oct. 5, 1891. Serial No. 407,789. (No specimens.)

Claim.—1. As a solder for aluminium, an alloy of aluminium and zinc, having incorporated therein a reducing reagent whose affinity for oxygen is greater than that of aluminium or zinc under the conditions of use and whose oxide is substantially non-film forming.

2. As a solder for aluminium, an alloy of aluminium, zinc, and phosphor-tin, substantially as set forth.

478,239. LOCK. CHARLES RICHTMANN, Newark, N. J. Filed Mar. 5, 1892. Serial No. 423,574. (No model.)



Claim.—1. In a lock, the combination, with a bolt-operating mechanism, of a cylindrical spindle having slots in its end and a flat plate in said slots arranged to prevent the withdrawal of the spindle from the lock-casing, and devices in the lock-casing with which said plate in the slotted end of the spindle is in engagement, substantially as and for the purposes set forth.

2. In a door-lock, the combination, with a cylindrical spindle provided with a slotted end and a plate secured therein, of a bolt-operating mechanism consisting, essentially, of plates *e* and *e'* and a flat plate e^3, arranged therebetween, and blocks *f*, all arranged substantially as and for the purposes set forth.

3. In a door-lock, the combination, with a cylindrical spindle provided with a slotted end and a plate secured therein, of a bolt-operating mechanism consisting, essentially, of plates *e* and *e'* and a flat plate e^3, arranged therebetween, blocks *f*, said plates *e* and *e'* being connected by pins e^5, hook-shaped links engaging with said pins, and a spring-actuated bolt to which said links are pivotally connected, all arranged substantially as and for the purposes set forth.

4. In a lock, the combination, with mechanism adapted to operate the bolt-operating mechanism, of a cylindrical spindle provided with a knob, a face-plate A, and a cup *g*, of sheet metal, provided with a bearing g^3 for said spindle and said free end of the cup being in close engagement with a sleeve or collar on the knob, and a flat plate in the opposite end of the spindle adapted to engage with the inner surface of said face-plate and also with the mechanism for operating the bolt-operating mechanism, consisting, essentially, of plates *e* and *e'* and a flat plate e^3, arranged therebetween, and blocks *f*, between which said flat plate on the spindle projects, all arranged substantially as and for the purposes set forth.

5. The combination of the face-plate A, a cylindrical spindle, a flat plate *i* on said spindle, a cup *g*, secured to said face-plate and arranged on said spindle between said plate and the knob on the spindle, a bolt-operating mechanism, and means connected with said bolt-operating mechanism and the plate on the spindle, all arranged substantially as and for the purposes set forth.

6. In a lock, the combination of a face-plate, a cup *g*, of sheet metal, on said plate, provided with a bearing g^3, and a cylindrical spindle arranged in said bearing g^3 and projecting into the face-plate, and means connected with said spindle for operating the bolt-operating mechanism of the lock, substantially as and for the purposes set forth.

7. In a lock, the herein-described plates *e* and *e'*, provided with a plate e^3, having tongues e^4 for arranging them in bearings or openings in the sides of the lock-case, pins e^5, connecting said plates *e* and *e'* for operating the bolt-operating mechanism, a spindle, and means for operating said plates *e* and *e'* and e^3 when the spindle is turned, substantially as and for the purposes set forth.

8. In a lock, the combination, with the lock case B, having openings or bearings b^3, of the plates *e* and *e'*, and a plate e^3, arranged between said plates *e* and *e'*, tongues e^4 on said plate e^3, projecting into said openings or bearings b^3, in which they rotate and hold the parts in position in the lock-case, blocks *f*, arranged on the sides of said plate e^3 and projecting from said hole b^3, thereby forming a space *f'* between them, and a spindle engaging with the ends of said blocks, substantially as and for the purposes set forth.

9. In a lock, the combination, with the lock-case B, having openings or bearings b^3, of the plates *e* and *e'*, and a plate e^3, arranged between said plates *e* and *e'*, tongues e^4 on said plate e^3, projecting into said openings or bearings b^3, in which they rotate and hold the parts in position in the lock-case, blocks *f*, arranged at the sides of said plate e^3 and projecting from said opening b^3, thereby forming a space *f'* between them, and a tubular spindle adapted to be passed over said projecting ends of the blocks *f* and having a plate *i*, adapted to be passed between said blocks into the space *f'* for operating said parts, substantially as and for the purposes set forth.

10. In a door-lock, the combination, with means for operating the bolt-operating mechanism, of blocks *f*, projecting from the lock-case, and a tubular spindle provided with a plate adapted to engage with said blocks, substantially as and for the purposes set forth.

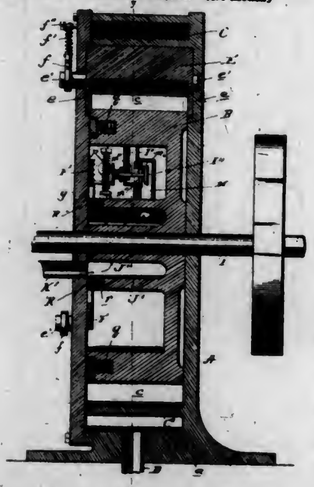
11. In a lock, the combination, with a cylindrical spindle, of a sleeve or collar arranged on the free end of said spindle and a knob secured to said collar, a face-plate A, having an opening into which said spindle projects, and a cap of sheet metal arranged on said spindle between the face-plate and the collar or sleeve of the knob, substantially as and for the purposes set forth.

12. In a lock, a face-plate A, of sheet metal, having a bead a^3 therein, a sheet-metal cup arranged in said bead and provided with an inwardly-turned edge g^3, a cylindrical spindle provided with a collar, said collar projecting against said turned-over edge on said cap, and the inwardly-turned portion thereof serving as a bearing to said spindle, substantially as and for the purposes set forth.

13. In a lock, the combination, with a bolt-operating mechanism consisting, essentially, of a spring-actuated bolt and links *k* and *k'*, pivotally connected with said bolt, provided with hook ends k^2, of a cylindrical spindle having slots in its end and a flat plate in said slots, arranged to prevent the withdrawal of the spindle from the lock-casing, and devices in the lock-casing with which said plate in the slotted end of the spindle and said hook ends k^2 are in engagement, substantially as and for the purposes set forth.

14. In a lock, the combination, with a bolt-operating mechanism consisting, essentially, of a spring-actuated bolt and links *k* and *k'*, pivotally connected with said bolt, provided with hook ends k^2, of a cylindrical spindle having slots in its end and a flat plate in said slots, arranged to prevent the withdrawal of the spindle from the lock-casing, and devices in the lock-casing consisting of plates *e* and *e'*, connecting-pins e^5, a plate e^3, and blocks *f*, with which said plate in the slotted end of the spindle and said hook ends k^2 are in engagement, substantially as and for the purposes set forth.

478,240. ROTARY STEAM-ENGINE. JOHN L. ROWAN, Joplin, Mo. Filed Oct. 7, 1891. Serial No. 408,018. (No model.)



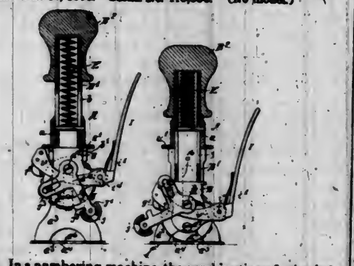
Claim.—1. In a rotary engine, the combination, with the exhaust-passages and the rocking abutments, of the piston having the offsets, the central steam-chamber, and the valved controlling-chambers, the face-plate having the series of ways of different lengths, and the weighted spring-controlled pins adapted to open the valves and to ride upon the ways, substantially as described.

2. In a rotary engine, the combination, with the exhaust-passages and the rocking abutments, of the set of concentric variable ways in juxtaposition to each abutment, the piston having the central steam-chamber and the valved controlling-chambers, and the centrifugal regulator carried by the piston and arranged to ride upon the ways and open the valve for a period of time in accordance to the rate of speed of the piston, substantially as described.

3. In a rotary engine, the combination, with the exhaust-passages and the rocking abutments, of the concentric variable ways arranged in series at each abutment, the piston having the central steam-chamber and the valved controlling-chambers connected thereto, the sliding cross-heads carried by the piston and each having a centrifugal ball or weight acting against tension-springs, and the movable pins in the cross-heads arranged to ride on the ways and open the valves in the controlling-chambers, substantially as described.

4. In a rotary engine, the casing having the exhaust-passages, combined with the pivoted abutments, each having a spring-controlled tappet, the rotary piston packed within the cylinder and having the offsets and the valved controlling-chambers situated between a central steam-supply and the discharge-port at the offsets, the variable concentric ways rigid with the cylinder at each abutment, the radial guide stems or rods, the springs, the sliding cross-heads having the centrifugal balls, and the movable valve-pins carried by the cross-heads, substantially as described.

478,241. NUMBERING-MACHINE. CHARLES H. SHAW, Brooklyn, N. Y. Filed Dec. 17, 1891. Serial No. 415,263. (No model.)

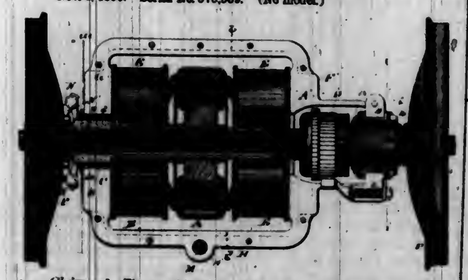


Claim.—1. In a numbering-machine, the combination of wheels for printing having printing-pieces of soft material applied to their peripheries, ratchet-wheels arranged intermediately of the wheels for printing and attached each to one wheel for printing, pawls extending from a support which is located beyond the peripheries of the wheels for printing and extending between the wheels for printing to the ratchet-wheels, and side supports for the printing-pieces, located at the sides of the said printing-pieces and preventing the latter from spreading out so as to lap over the ratchet-wheels or interfere with the pawls, substantially as specified.

2. In a numbering-machine, the combination of a main frame, a support for wheels for printing, wheels for printing, a pawl-lever, and an inking-lever provided with stops coacting with the pawl-lever for preventing the wheels for printing from operating before the ink-distributer carried by the inking-lever resumes its normal position, substantially as specified.

3. In a numbering-machine, the combination of a support for wheels for printing, pins or projections extending therefrom, an inking-lever fulcrumed to said pins or projections, and a pawl-lever which is arrested in its return movement by said pins or projections, substantially as specified.

478,242. ELECTRIC LOCOMOTIVE. SIDNEY H. SHORT, Cleveland, Ohio, assignor to the Short Electric Railway Company, same place. Filed Nov. 6, 1890. Serial No. 370,539. (No model.)



Claim.—1. The combination, with a car, of an electric propelling-motor comprising an axially-mounted armature and non-rotative field-magnets, and a self-adjusting coupling connecting the said armature directly with a driving-axle and comprising the arms, the forks, and the spring-pads, substantially as described.

2. The combination, with the driving-axle of an electric-motor car, of an armature mounted upon a driving-shaft encircling the axle, field-magnets journaled upon and supported by said hollow driving-shaft, a yielding support interposed between the driving-axle and the hollow driving-shaft, and an elastic self-adjustable driving connection interposed between the driving-shaft and driving-axle, whereby power is transmitted from the armature to the driving-axle, substantially as set forth.

3. The combination, with a car, of an electric propelling-motor comprising a spring-mounted armature placed axially with reference to the driving-axle and non-rotative field-magnets, and a coupling connecting the said armature directly with the driving-axle and comprising the arms, the forks, and the spring-pads, substantially as described.

4. The combination, with a car, of an electric propelling-motor comprising an armature with a hollow shaft, springs interposed between and turning with said shaft and a driving-axle, and a coupling connecting the said armature directly with the driving-axle and comprising the arms, the forks, and the spring-pads, substantially as described.

5. The combination, with a car, of an electric propelling-motor comprising an armature with a hollow shaft, and non-rotative field-magnets mounted by journal-bearings on said shaft, springs interposed between the said shaft and the driving-axle, and a coupling connecting the armature directly with the driving-axle and comprising the forks, the arms, and the spring-pads, substantially as described.

6. The hollow shaft provided with sockets or enlargements at the ends, and the springs in the said sockets or enlargements, in combination with the driving-axle in said shaft, and the armature thereon, substantially as described.

7. The combination, with an electric car, of a propelling-motor with an axially-mounted armature insulated from the wheel-base of the car by way of the mounting and provided, also, with a direct insulating driving connection between the armature and driving-axle, substantially as described.

8. The combination, with an armature having a hollow shaft and the field-magnets mounted thereon by means of journal-bearings, of an insulating-mounting for said shaft, an insulating connection adapted to prevent the rotation of the field-magnets, and an insulating direct driving connection between said armature and a driving-axle of the vehicle, substantially as described.

9. The combination, with a car, of an electric propelling-motor comprising an axially-mounted armature and non-rotative field-magnets, insulating spring-mountings for the armature and field-magnets, and an insulating self-adjusting coupling or driving connection between the armature and a driving-axle, substantially as described.

10. The combination, with a car, of an electric propelling-motor comprising an armature with hollow shaft and field-magnets mounted by means of journal-bearings on said shaft, insulating spring-bearings interposed between the armature and a driving-axle, an insulating self-adjusting coupling connecting the armature directly with a driving-axle, and an insulating spring connection adapted to hold the said field-magnets from rotation, substantially as described.

11. The combination, with a hollow shaft, an armature, and a driving-axle, of the coupling comprising the forks, the arms, and the insulating spring-pads, substantially as described.

12. The combination, with a driving-axle, a hollow shaft encircling the axle, an armature rigidly secured to said hollow shaft, and field-magnet yokes journaled upon and supported by the hollow shaft, of a yielding support interposed between the axle and hollow shaft, and a self-adjustable coupling for transmitting power from the hollow armature-shaft to the driving-axle, substantially as set forth.

13. The combination, with the driving-axle of an electric-motor car, of an armature mounted upon a driving-shaft, non-rotative field-magnets located on opposite sides of the armature and mounted upon the armature-shaft, and means for adjusting the field-magnets longitudinally on the armature-shaft and with reference to the armature, substantially as set forth.

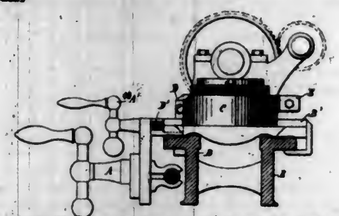
478,243. COOKING UTENSIL. THOMAS A. SIMONS, Columbus, Ohio. Filed Aug. 28, 1891. Serial No. 403,978. (No model.)



Claim.—In a cooking utensil, the combination, with the pan or

body *a* and the longitudinal supporting-ribs projecting from the bottom thereof and formed therewith, of the cover-sections *c*, hinged, as described, on opposite sides of said pan-body and adapted to be made to meet centrally above the latter, a rounded edge on one of said cover-sections and a projecting lip on the other, said lip adapted to form a seat for said rounded edge, and handles *g*, projecting, as described, from the closed ends of said cover-sections, substantially as and for the purpose specified.

478,244. MILLING ATTACHMENT FOR LATHES. FRANK D. SKEEL, New York, N. Y. Filed Nov. 25, 1891. Serial No. 413,069. (No model.)



Claim.—1. The combination, with the cross-slide and cross-feed mechanism of a lathe, of a base engaged by the feed mechanism and running on the slide and formed or provided with a split socket and means for contracting or tightening the same, a threaded ring engaging with the socket, a face-plate seated in or on said ring, and means for securing the face-plate to said ring, substantially as herein described.

2. In a milling attachment for lathes, the combination, with the socket-base engaged or adapted for engagement with the cross-feed mechanism, of the threaded ring within the socket, which socket is split and provided with a clamping-screw, a face-plate for which the ring forms a seat, a bridge-piece across the under side of the ring engaging a nut on a stem extending downward from the under side of the face-plate, and a screw for depressing the bridge-piece and clamping or binding the face-plate in its seat.

3. In a milling attachment for lathes, the combination of a base having a feed movement transverse to the line of centers, a socket-ring engaging with the base by screw-threads, whereby it may be adjusted angularly and vertically with respect thereto, a face-plate carried by said ring and capable of rotation therein, a detent for preventing the rotation of the face-plate with respect to the base, and means for binding or clamping together the face-plate and ring and the ring and base, as herein set forth.

4. In a milling attachment for lathes, the combination, with a base having a feed movement transverse to the line of centers, the threaded ring set therein, the face plate, and means for clamping or binding it to the ring, of the split or clamping ring surrounding the face-plate and a pin or stud thereon entering a vertical hole in the base, as and for the purpose set forth.

5. In a milling attachment for lathes, the combination, with a base having a feed movement transverse to the line of centers, of a threaded ring set therein, a face-plate seated on the ring and formed with a stem extending downward from its under side, a bridge across the under side of the ring through an opening in which the stem passes, a nut under the bridge and secured to the stem, and a screw passing down through the ring and adapted to depress one end of said bridge and clamp or bind the face plate and ring together, as set forth.

478,245. MAGNETIC LOCK. HENRY V. SMITH, South Yarra, near Melbourne, Victoria. Filed Dec. 14, 1891. Serial No. 415,480. (No model.)



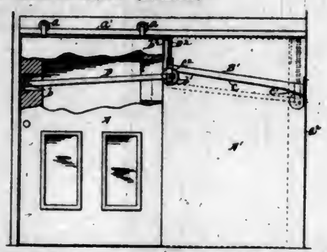
Claim.—1. In a magnetic lock, the combination, with the permanent magnet, of the pivoted latch and means on said latch whereby it may be actuated by a key, substantially as set forth.

2. In a magnetic lock, the combination of a permanent magnet, the pivoted latch adapted to be drawn into recess by action of said magnet, and means on said catch whereby the same may be disengaged from said magnet and recess, substantially as set forth.

3. In a magnetic lock, the combination of the latch and a notch in the upper end of said latch, adapted to prevent the insertion of a knife or analogous device between the latch and magnet to disengage the said latch from the magnet, substantially as set forth.

4. In a magnetic lock, the combination, with the permanent magnet, of the pivoted latch having a loop, means operating within said loop to move the pivoted latch away from the magnet, and a cam adapted to be operated by a key to secure the latch in a locked position, substantially as set forth.

478,246. AUTOMATIC DOOR-CLOSER. JOHN R. STOKER, New York, N. Y., assignor to Leonie Fordham, Long Branch, N. J. Filed Jan. 21, 1892. Serial No. 418,866. (No model.)



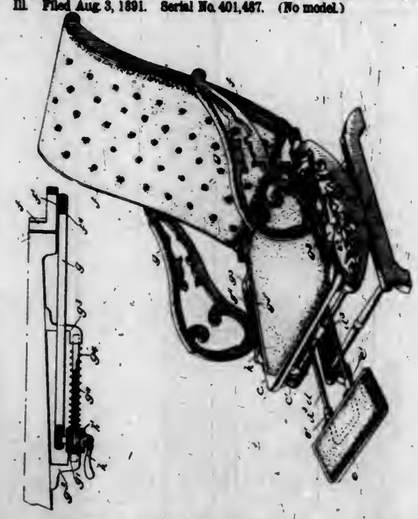
Claim.—1. The combination, with a sliding door, of an arm pivoted at one end to said door, a roller at the opposite end of the arm, a spring secured at one end to the door and at the other end to the pivoted arm, and a fixed cam-arm, against which the roller bears, substantially as specified.

2. The combination, with a sliding door, of a closer consisting of the pivoted arm having a roller and a spring carried by the door and the fixed arm having the inclined surface provided with an increased pitch at its rear end, substantially as specified.

3. The combination, with a sliding door, of a closer consisting of the pivoted arm having a roller at its free end and a spring carried by the door, and the fixed arm having the inclined or cam surface provided with an increased pitch at its forward end, substantially as specified.

4. The combination, with a sliding door, of a closer consisting of a pivoted arm having a roller at its free end and a spring carried by said door, and a fixed arm having an inclined or cam surface provided with an increased pitch at each end, substantially as specified.

478,247. RECLINING-CHAIR. GORDON B. VALENTINE, Chicago, Ill. Filed Aug. 3, 1891. Serial No. 401,487. (No model.)



Claim.—1. The combination of a chair, hangers *c' c'*, depending from the under side of the chair-bottom near its front edge, one at each side of the chair, a transverse rod *d*, connecting the lower ends of these hangers, a hanger c^3, depending from the bottom of the chair-seat at or near its rear edge, a central longitudinal rod *d'*, connecting the rear hanger to the front transverse rod, a loop sliding on the rod *d'* between the rear hanger and front rod, and a frame connected to said loop and carrying a foot-rest at its forward end, this frame resting on the front transverse rod *d*, whereby the foot-rest and frame may be slid in and out and adjusted laterally, substantially as described.

2. The combination of a chair, a longitudinal rod suspended under the seat thereof, a sliding frame d^3, connected thereto and consisting of a pair of parallel rods connected together, longitudinally-adjustable clamps on the rods provided with upwardly-projecting ears, and a foot-rest *e*, provided with eyes on its rear edge, said eyes being pivotally connected to the upwardly-projecting ears on the adjustable clamps, whereby the foot-rest may be adjusted longitudinally on the rods and folded over on the same when slid in under the chair, as and for the purposes described.

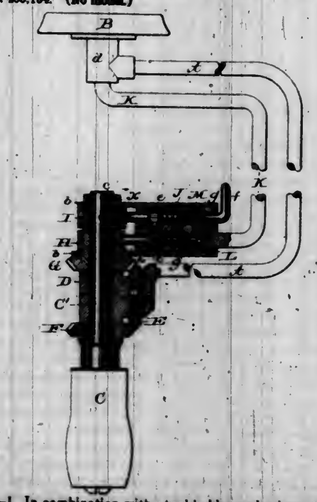
3. The combination of a chair, a transverse rod *d*, suspended under the front edge of the seat thereof, a longitudinal central rod *d'*, suspended under the seat and connected at its forward end to the rod *d*, a sliding laterally-elongated loop d^4 on said rod *d'*, a forwardly-extending frame d^3, connected at its rear end to said loop d^4, said frame consisting of a pair of parallel rods connected together at their ends, sliding clamps on the forward part of said frame d^3, and a foot-rest *e*, pivotally connected at its rear edge to said clamps, as and for the purpose described.

4. The combination of a chair provided with a hinged back, horizontal rectangular rods secured at the respective edges of the chair-seat, rigid supporting-brackets at the ends of these bars, rectangular boxes sliding on these bars and provided each with a lateral pivot, a spring surrounding each of the rods and normally pressing the boxes forward on the rods, a friction-shoe embracing each of the rods within the respective boxes, a pivoted cam working through a slot in each of the boxes and bearing on the shoes, and arms pivotally connecting the lateral pivots on the boxes to the chair-back, as and for the purpose described.

5. The combination of a chair provided with a hinged back, stationary horizontal rods *g''*, secured on the opposite edges of the chair-seat, boxes *g'*, embracing and sliding on the rods, a spring surrounding each of the rods and normally keeping the boxes pressed forward, a cam-lever *h*, pivoted in a longitudinal slot in the box, and shoes *h'*, embracing the rods within the boxes and adapted to receive the thrust of the cam, and arms pivotally connecting the sliding boxes to the hinged back, substantially as described.

6. The combination of a chair, rods *g''*, secured on the side edges of its seat, sliding boxes *g'* thereon, carrying laterally-extending grooved pins, means for actuating and securing said boxes on the rods, a hinged chair-back provided with oppositely-projecting grooved pins *f''* upon its side edges, chair-arms *g*, connecting the hinged back to the boxes *g'*, the ends of these arms being provided with recesses for the reception and retention of the pins *f''*, and the lateral pins carried by the boxes, and locking-pins secured in the arms and engaging the grooved pins, substantially as described.

478,248. BIT-STOCK. OLIVER R. ALDEN, Nicholson, assignor of one-half to Humphrey W. Lord, Lathrop, Pa. Filed Aug. 20, 1891. Serial No. 403,184. (No model.)



Claim.—1. In combination with a tool-holder and a bow, the reversible and reversely-acting pawls and intermediate connections, substantially such as shown, between the pawls and the tool-holder, whereby a continuous motion in either direction may be imparted to the holder by the oscillation of the bow.

2. In combination with the handle and with the bow of a bit-stock, a tool-holder adapted to turn therein and provided with fast and loose ratchets and gear-wheels, the idler, and the reversible pawls.

3. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears, the idler, and the pawls or dogs geared together.

4. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears upon the tool-holder, the idler, the pawl or dogs for engagement with the ratchets, and the stop-gears thereon.

5. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears and idler, the pawls or dogs provided with meshing gears, and the coiled springs.

6. In combination with the handle, bow, tool-holder, and fast and loose ratchets, the fast and loose gears and idler, the pawl L, provided with gear *e*, and the pawl M, provided with a similar gear *e* and with a tail or handle *f*.

478,249. FIRE-KINDLER. JOHN W. B. COOK, Camden, Ark. Filed Sept. 25, 1891. Serial No. 406,512. (No specimens.)



Claim.—A composition of matter adapted to be applied to paper for use as a fire-kindler, consisting of sodic nitrate, resin, turpentine, and sawdust.

478,250. UMBRELLA-RUNNER. LOUIS B. COOPER, Nyack, N. Y. Filed Apr. 18, 1891. Serial No. 389,473. (No model.)



Claim.—1. The umbrella-runner consisting of the single sleeve having exterior projections, the single exterior ring H, loosely confined on said sleeve by said projections, means to limit the turning of the sleeve independently of the ring, the curved pin-holding socket opening through the lower end of the sleeve having the pin-recess, and the pin-holding socket at the opposite end of the sleeve having a curved edge E on one side terminating at the lower end of straight edge G, and the hook D, projecting from the opposite side of the socket over the meeting-point between edges E and G, for the purpose as set forth.

2. The runner-sleeve, the ring H loosely confined thereon by exterior projections, so that the sleeve has a limited turning movement independent of the ring, the curved pin-receiving socket at one end of the sleeve with a pin-holding recess and the pin-receiving recess at the opposite end of the sleeve tapering inwardly and having the long curved edge E on one side terminating with the straight edge G, the hook D, having an inclined outer edge projecting over the junction between edges E and G, and the pin-holding recess F under said hook and above edge G, as set forth.

3. The runner-sleeve carrying a loose ring, and the pin-receiving sockets at the ends of the sleeve, having inclined curved edges and pin-holding recesses and covered by exterior hoods formed by pressing out the metal to form the sockets, as set forth and shown.

478,251. OIL-FILTER. JAMES B. CRANE, Newnan, Ga., assignor of one-half to J. L. Barrett, same place. Filed Dec. 24, 1891. Serial No. 416,070. (No model.)

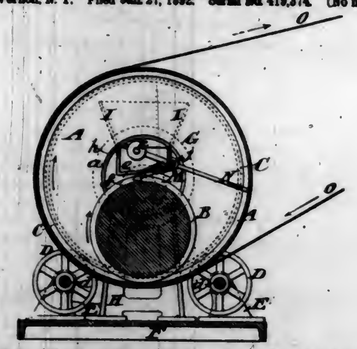


Claim.—1. In an oil-filter, the combination of a cylindrical body, a cover comprising a stationary and a hinged half, cocks in said body, a water-supply tube secured through said stationary half and leading nearly to the bottom of the body, its upper end being funnel-shaped, a cap for closing said end, a filter-box within the body below the wa-

ter-level, a tube leading from the bottom of the filter-box up through the cover of the body and having an enlarged cylindrical upper end, a rod having a handle at its upper end and an enlarged head at its lower end, perforated disks mounted on said rod and of a size to move within said cylindrical upper end, and filtering material between said disks and within said upper end, substantially as described.

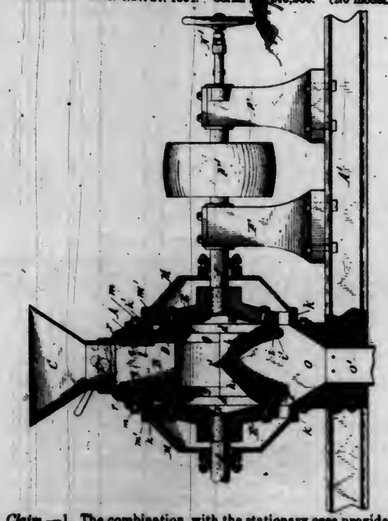
2. In an oil-filter, the combination, with the body and means for partially filling it with water, of a filter-box within the body below the water-level, a tube leading from the bottom of the filter-box up through the cover of the body and having an enlarged cylindrical upper end, a rod having a handle at its upper end and an enlarged head at its lower end, perforated disks mounted on said rod and of a size to move within said cylindrical upper end, and filtering material between said disks and within said upper end, as and for the purpose hereinbefore set forth.

478,252. GRINDING-MILL. GEORGE R. COLLINGWORTH, Mount Vernon, N. Y. Filed Jan. 27, 1892. Serial No. 419,374. (No model.)



Claim.—The combination, in a grinding-mill, of a rotary drum having on one side a stationary head, a crushing-roller in said drum, a scraper for the said drum, and a counter-balance for said scraper, a scraper for said roller, and a pivot attached to said stationary head and having both the said scrapers and the counter-balance mounted upon it, substantially as herein set forth.

478,253. PULVERIZING-MACHINE. URIAH CUMMINGS, New Haven, Conn. Filed Nov. 27, 1891. Serial No. 413,209. (No model.)



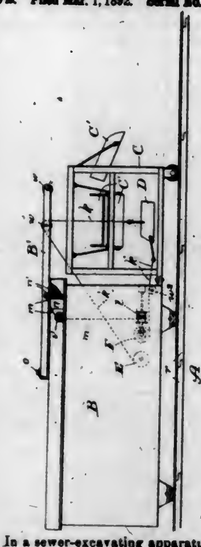
Claim.—1. The combination, with the stationary case provided in its upper portion with a vertical throat or passage and in its end with an opening communicating with said throat, of a stationary grinding disk or ring secured to the case around said opening, a rotary grinding-disk facing the stationary grinding-disk, a curb or casing inclosing said disks, and a removable wear-ring surrounding the disks and arranged on the inner side of the curb for receiving the impact of the pulverized material escaping at the peripheries of the disks, substantially as set forth.

2. The combination, with the case, of a removable grinding-disk applied to the end of the case, a curb removably secured to the end of the case and surrounding the grinding-disk, and a clamping-ring interposed between said grinding-disk and the curb, whereby the disk is removably held in place on the case, substantially as set forth.

3. The combination, with the case having a groove in its end, of a removable grinding-disk applied to the end of said case and provided on its rear side with a rib or tenon entering said groove and at its marginal edge with lugs, a curb inclosing said disk and secured to the case, and a clamping-ring interposed between said curb and the lugs of the grinding-disk, substantially as set forth.

4. The combination, with the casing constructed with circular openings in its sides, a central feed-throat communicating freely with said openings, a transverse saddle having its inclined sides exteading to the lower edges of said circular openings, stationary grinding-disks surrounding said openings, and a discharge-passage underneath said saddle, of separate shafts arranged on opposite sides of the case, rotary grinding-disks secured to the inner ends of said shafts, and curbs inclosing the grinding-disks, substantially as set forth.

478,254. SEWER-EXCAVATING APPARATUS. WILLIAM DAVY, Kenosha, Wis. Filed Mar. 1, 1892. Serial No. 423,352. (No model.)

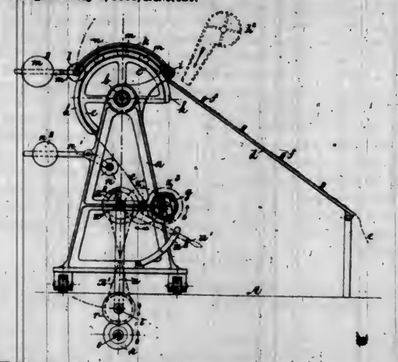


Claim.—1. In a sewer-excavating apparatus, the combination of a car-track to be laid along the line of excavation and formed in separable rail-sections braced at intervals with adjustable and removable tie-bars, a car carrying a boom extending from its rear end, and winding mechanism, a trailer car or frame behind the said car and over which the said boom extends, and a shovel suspended from the boom in the trailer-car by a cable connected with the winding mechanism, said shovel being also connected from its forward end by a cable with the said winding mechanism, the whole being constructed and arranged to operate substantially as described.

2. In a sewer-excavating apparatus, the combination of a car-track A to be laid along the line of excavation and formed in separable rail-sections *r*, braced at intervals with adjustable and removable tie-bars *p*, a car B, carrying winding mechanism and a boom extending from its rear end and supported to be swung laterally on the car, a trailer car or frame C behind the car B and over which the said boom extends, one or more chutes C' on the trailer-car, a shovel D, suspended from the boom in the trailer-car by a cable *k*, connected with the winding mechanism, and a cable *k'*, connecting the shovel from its forward end with the winding mechanism, the whole being constructed and arranged to operate substantially as described.

3. A sewer-excavating apparatus comprising, in combination, a car-track A to be laid along the line of excavation and formed in separable rail-sections *r*, braced at intervals with adjustable and removable tie-bars *p*, a car B, carrying winding mechanism and a rotary drum *l* and a boom extending from the rear end and supported to be swung laterally on the car, a cable *m*, connecting the boom with the drum *l*, a trailer-car C behind the car B and over which the said boom extends, one or more chutes C' for a side and the rear end of the trailer-car, a shovel D, suspended from the boom in the trailer-car by a cable *k*, connected with the winding mechanism, and a cable *k'*, connecting the shovel from its forward end with the winding mechanism, the whole being constructed and arranged to operate substantially as described.

478,255. MACHINE FOR STRAIGHTENING AND WINDING CLOTH, &c. ARCHER EDWARDS and RICHARD J. EDWARDS, London, England. Filed July 6, 1891. Serial No. 398,540. (No model.) Patented in England July 4, 1885, No. 8,129.



Claim.—1. In a machine of the class herein described, the combination of the drum *c*, having a curved upper surface, and the flanges *h h* upon the ends of the said drum, with the frame *k* hinged above the drum *c*, the roller *l*, mounted in the said frame *k* in position to bear upon the said drum *c*, and means for moving the fabric between the drum *c* and the roller *l*, substantially as described.

2. In a machine of the class herein described, the combination of the drum *c*, having a curved upper surface, and the flanges *h h* upon the ends of the said drum, with the frame *k*, hinged above the drum *c*, the roller *l*, mounted in the said frame in position to bear upon the surface of the drum *c*, the transverse bars *m* on the under side of the frame *k*, and means for moving the fabric between the drum *c* and the frame *k*, substantially as described.

3. In a machine of the class herein described, the combination of the frame *a*, the drum *c*, rigidly fixed in the said frame, the flanges *h h* upon the drum *c*, the frame *k*, hinged above the said drum, and the roller *l*, mounted in the said frame *k* with the winding-reel *g*, and means for moving the fabric between the drum *c* and the frame *k* and winding it upon the reel *g*, substantially as set forth.

4. In straightening and winding apparatus, the combination of the frame *a*, the drum *c*, rigidly fixed in the said frame, the flanges *h h* upon the drum *c*, the frame *k*, having the roller *l* hinged above the drum *c*, the board *d*, hinged to the frame *a*, the pins *f* upon the board *d*, and means for moving the fabric over the board *d* between the pins thereon and between the drum *c* and the frame *k*, substantially as described.

5. In a machine of the class herein described, the combination of a movable frame *a*, the drum *c*, rigidly fixed thereon, flanges *h h* upon the drum *c*, the frame *k*, having the roller *l* hinged above the drum *c*, and the winding-reel *g* with the shaft *w*, the pulley x^6, mounted upon the shaft *w* and geared to the winding-reel, the lever *u*, also mounted upon the shaft *w*, the pulley *x*, mounted upon the lever *u* and geared to the pulley x^6, the disks *r* and *s*, secured to the pulley *x*, the disk *p* upon a driving-shaft, and means for moving the disks *r* and *s* into contact with the disk *p*, substantially as described, for the purpose specified.

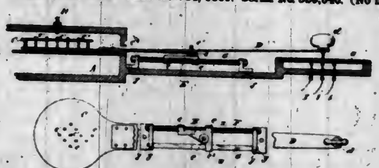
6. In a machine of the class herein described, the combination of a frame *a*, the drum *c*, rigidly mounted thereon, the frame *k*, hinged above the drum *c*, the winding-reel *g* and means for operating the same with the bearings for the winding-reel, consisting of the body of the bearing C, the slotted cover D, hinge E, hinged bolt F, and spring G, substantially as described.

478,256. TRAVELER FOR RING-SPINNING FRAMES. SAMUEL S. FOWLER, Elizabeth City, N. C. Filed Mar. 7, 1892. Serial No. 424,006. (No model.)

Claim.—As a new article of manufacture, a ring-traveler for spinning and twisting frames constructed substantially as described—that is, consisting of a flat strip of metal having its ends bent down and in to hold it on the ring and a recess made in one edge on its upper side to allow the thread to draw from near the middle of the top of the traveler, as herein set forth.



478,257. MATRIX-MAKING MACHINE. GEORGE A. GOODSON, Minneapolis, Minn. Filed Nov. 11, 1889. Serial No. 329,846. (No model.)



Claim.—1. The combination, with a die-carriage having a sliding and a swinging motion, of a lever independently connected to said carriage and adapted to move in a plane at right angles to the plane of the swinging motion thereof, said lever being provided with a key, substantially as and for the purpose specified.

2. The combination, with a die-carriage and a character-board, of a movable cross-head between the two, on which said carriage is pivoted, and a key-lever independently connected to said carriage between said cross-head and the dies, substantially as and for the purpose specified.

3. The combination, with a movable cross-head and a character-board, of a die-carriage provided with an extension pivoted on said cross-head, a swinging key-lever independently connected to said carriage between the cross-head and the dies, and a retaining device for holding said key-lever in line with the extension of the die-carriage.

4. The combination, with a cross-head, of a character-board, a die-carriage provided with an extension pivotally secured to the cross-head, and a key-lever attached to the carriage and perforated to fit upon the pivot of the cross-head, said key-lever having a reduced portion substantially as and for the purpose specified.

5. A cross-head guide consisting of two parallel bars, one of which is fixed and the other movable, substantially as and for the purpose specified.

6. A cross-head guide consisting of a fixed cylindrical bar and a rectangular bar having journals at its ends, substantially as set forth.

7. The combination, with the guide consisting of parallel rods, of a cross-head pivotally mounted on one rod and guided by the other, substantially as set forth.

8. The combination, with a guide consisting of parallel rods, one of which is fixed and the other adapted to rock in its bearings, of a cross-head mounted to have rectilinear movement on the fixed rod and limited in pivotal motion only by the other rod, substantially as and for the purpose set forth.

9. The combination of the die-carriage having a projecting arm perforated at its forward end and the key-lever connected to said carriage to permit of its movement in the arc of a circle, of a cross-head, guide-rods, one fixed and the other movable, upon which the cross-head may be reciprocated, and a device on the cross-head for keeping the key-lever in alignment with the die-carriage, substantially as and for the purpose specified.

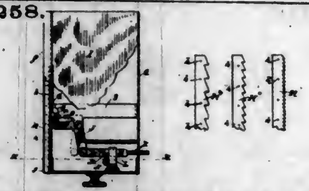
10. In a matrix-making machine, the combination, with the cross-head guides consisting of parallel rods, of the cross-head pivotally mounted on one of said rods and guided by the other, and a combined die-alignment bar and key-lever pivotally mounted on said cross-head, substantially as and for the purpose set forth.

478,258. MATRIX-MAKING MACHINE. GEORGE A. GOODSON, Minneapolis, Minn. Filed Nov. 25, 1889. Serial No. 331,445. (No model.)

Claim.—1. In a matrix-making or similar machine, the combination, with an impression-material carriage movable to effect the letter-feed, of a series of interchangeable racks applicable to said carriage and movable transversely to the travel of the same for holding the impression material and effecting the spacing between the lines.

2. In a matrix-making or similar machine, the combination, with an impression-material carriage movable to effect the letter-feed, of a series of interchangeable racks having differently-spaced teeth appli-

478,258.



cable to said carriage and movable transversely to the travel of the same for holding the impression material and effecting any desired spacing between the lines, substantially as described.

3. In a matrix-making or similar machine, the combination, with an impression-material carriage movable to effect the letter-feed, of a series of interchangeable racks for holding the impression material, having teeth differently spaced in accordance with the multiple-point system of type-bodies, any one of said racks being applicable to said carriage and movable transversely to the travel of the same to effect such spacing as may be required, as set forth.

4. In a matrix-making or similar machine, the combination, with an impression-material carriage movable to effect the letter-feed, of a removable rack mounted on said carriage and movable transversely to the travel of the same to effect the spacing between the lines, having a series of studs on its face in line with each other for locating and holding the impression material in a true line, substantially as described.

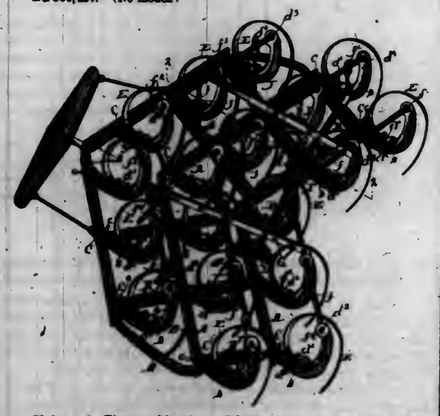
5. In a matrix-making or similar machine, the combination, with an impression-material carriage movable to effect the letter-feed, of a rack mounted on said carriage for holding the impression material and movable transversely to the travel of the carriage to effect the spacing between the lines and devices for giving an exact feed to said rack, consisting of a feed-pawl for driving the rack, a stop-surface for said pawl, and a locking-pawl for engaging and securing the rack at the end of each throw of the driving-pawl, the said stop-surface and the said locking-pawl being arranged in a true transverse line or common plane with each other for preventing either the backlashing or throwing by of the feed-rack.

6. The combination, with the impression-material carriage movable to effect the letter-feed, of the interchangeable racks applicable to the carriage for holding the impression material and affording any desired spacing between the lines, the feed-pawl for moving the rack, the stop surface, and the locking-pawl arranged in a common transverse plane for giving an exact feed regardless of the particular rack in use, substantially as described.

7. The carriage having a rack-seat, in combination with the rack, a pivoted lever having a pawl, a hand-lever, a stop on said lever, a slotted banking-post, and a movable piece secured to said post, substantially as and for the purpose set forth.

8. The carriage having a rack-seat and a rack movable in said seat, in combination with the pivoted lever, the feed-pawl carried by said lever, and the stop-pawl secured to the carriage in line with the feed-pawl, substantially as and for the purpose specified.

478,259. HARROW. WILLIAM W. GREEN, Chicago, Ill., assignor of one-half to Alice V. Terry, Brockport, N. Y. Filed Apr. 18, 1891. Serial No. 389,427. (No model.)



Claim.—1. The combination, with the frame of a harrow, of the blocks C, arms D, teeth E, rods F, bars G, handle H, and segment I, substantially as described.

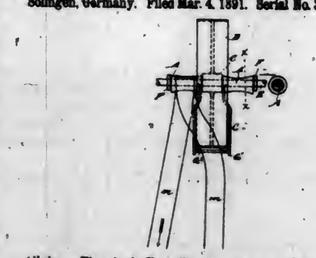
2. The combination, with the frame of a harrow, of blocks C, arms D, standards J, and rods F, having sleeves f and nuts f^3, by means of which the rods, the standards, and the arms may be tightly clamped together, substantially as described.

3. The combination, with the frame of a harrow containing the angle-iron pieces A, of blocks C, fitted into the angle of said iron and having ears, swinging arms D, pivoted to said blocks, teeth E, mounted upon said arms, connecting devices adapted to unite two or more of such teeth, and adjustable supports for the connecting devices, substantially as described.

4. The combination, with the frame of a harrow, of swinging arms D, pivoted thereto, spring-teeth E, secured to the arms, standards J, secured to the frame, rods F, passing through holes in the arms and slots in the standards, encircling tubes f, spacing the arms and standards apart, and nuts f^3, threaded to the ends of the rods, by means of which the tubes, arms, and standards may all be tightly clamped together, substantially as described.

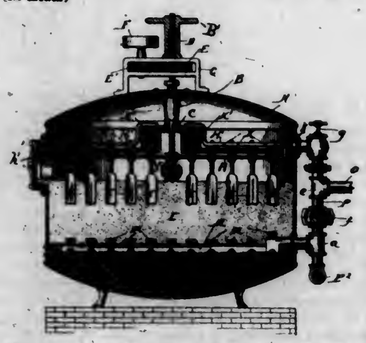
5. The combination of a suitable frame, a series of arms D, pivoted thereto, a series of teeth E, mounted upon the arms, a series of standards J, mounted upon the frame, connecting-rods F, passing through holes in the arms and slots in the standards, encircling tubes f and cup-shaped washers f' between the standards and the arms, and nuts f^3, threaded to the ends of the rods and adapted to clamp the arms, standards, tubes, and washers tightly together, substantially as described.

478,260. BELT-SUSPENDING DEVICE. ERNST HANNEWAHR, Solingen, Germany. Filed Mar. 4, 1891. Serial No. 383,674. (No model.)



Claim.—The shaft E, pulley D, and two loose sleeves concaved, as shown, in combination with each other and with two arms G, connected to the sleeves and across the outer face of the pulley and provided with two horns G', all arranged for operation relatively to each other and to a belt m, as herein specified.

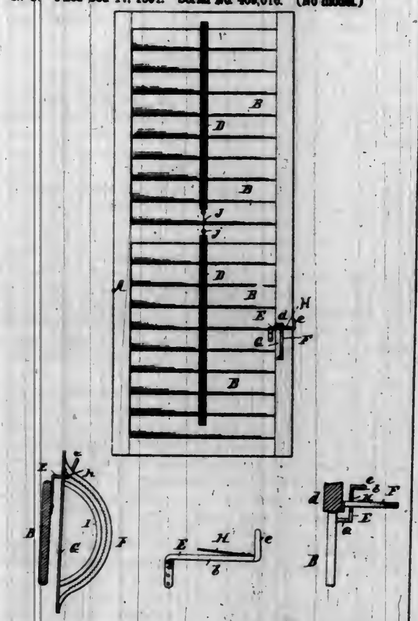
478,261. FILTER. OMAR H. JEWELL, WILLIAM M. JEWELL, and IRA H. JEWELL, Chicago, Ill. Filed Nov. 17, 1891. Serial No. 412,241. (No model.)



Claim.—1. The combination, with a filtering-tank A, of a pendent sleeve B, having a fixed gear-wheel C at its lower end, a frame G above the tank, a vertically-movable shaft D, extending through the sleeve and having a screw-threaded upper end, a horizontal cross-bar H, secured to the shaft below the sleeve and having gear-wheels K', which remain in mesh with the fixed gear-wheel as the shaft and cross-bar are raised and lowered, the agitator-arms I, journaled to the cross-bar and geared to the gear-wheels carried by the latter, means for rotating the shaft, and a hand-wheel B', engaging the screw-threaded portion of the shaft to raise and lower the same, substantially as described.

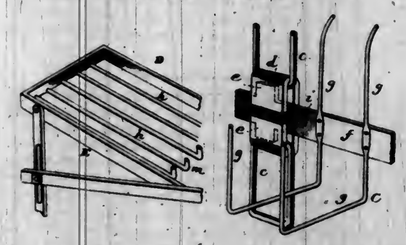
2. The combination, with a filtering-tank A, of a pendent sleeve B, suspended from the top wall of the tank and having a fixed gear-wheel C at its lower end, a frame G, arranged above the tank, a vertically-movable shaft D, extending through the sleeve and frame and having a screw-threaded upper end, a horizontal cross-bar H, secured to the shaft below the sleeve and having gear-wheels which remain in mesh with the fixed gear-wheel as the shaft and cross-bar are raised and lowered, the agitator-arms I, journaled in the cross-bar and geared to the gear-wheels carried by the latter, a gear-wheel E, mounted on the shaft within the frame above the tank and through which wheel the shaft is adapted to move lengthwise, a gear-wheel E', carried by the frame, a drive-pulley F, and a hand-wheel B', engaging the screw-threaded portion of the shaft above the frame, substantially as described.

478,262. BLIND-STOP. WILLIAM E. MACLACHLAN, New York N. Y. Filed Oct. 17, 1891. Serial No. 409,016. (No model.)



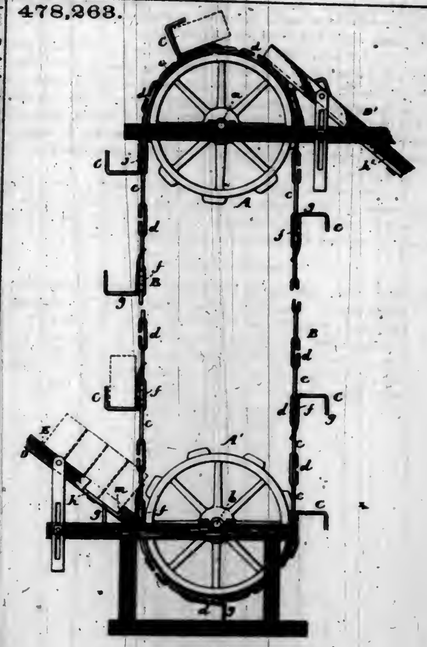
Claim.—The combination of a handle to be attached to a blind-slat, said handle having a horizontal arm carrying a spring-catch, with a segmental rack-bar adapted to be affixed to the blind-frame in the plane of rotation of the slat, having an internal segmental rack adapted to engage said spring-catch, substantially as described.

478,263. ELEVATOR. JOHN R. MOSS, Webster, Pa. Filed Nov. 4, 1891. Serial No. 410,890. (No model.)

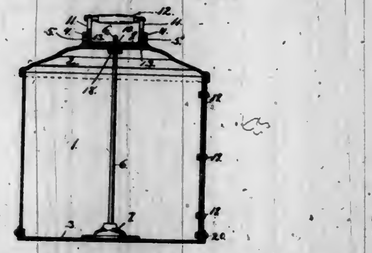


Claim.—An elevator having a double chain with connecting cross-bars f and oblong links at right angles to each other, the said cross-bars f being provided with hook-rods and end studs, substantially as shown, and for the purpose specified.

478,268.



478,264. BALLOT-BOX. FREDERIC K. PLUMELY, Buffalo, N. Y. Filed Apr. 28, 1892. Serial No. 430,970. (No model.)



Claim.—1. In a ballot-box, the combination, with its top or cover provided with a ballot-slot, of a locking-plate open or slotted on one side only, said plate being adapted to be turned or reversed in position to open or close the ballot-slot and to be locked in either of its positions at one or more points, as and for the purpose stated.

2. In a ballot-box, the combination, with its top or cover provided with a ballot-slot, of a locking-plate open or slotted on one side only, said plate being adapted to be turned or reversed in position to open or close the ballot-slot and to be secured in either of its positions at more than one point by separate and independent locks, as and for the purpose stated.

3. In a ballot-box, the combination, with its top or cover provided with a ballot-slot, of a locking-plate open or slotted on one side only, said plate being adapted to be turned or reversed in position to open or close the ballot-slot and to be secured in either of its positions at more than one point by separate and independent locks of different constructions, as and for the purpose stated.

4. In a ballot-box, the combination, with its top or cover provided with a ballot-slot and means for securing said cover to the box, of a locking-plate open or slotted on one side only, said plate being adapted to be turned or reversed in position to open or close the ballot-slot and to be secured in either of these positions at more than one point by separate and independent locks and to simultaneously secure the cover to the box, as and for the purpose stated.

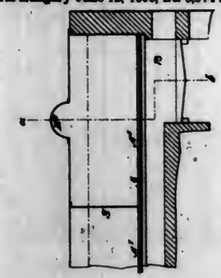
5. In a ballot-box, the combination, with the top or cover 2, provided with the ballot-slot 15 and posts 4 4, with apertures 5 5, of the plate 9, with open side 14 and having apertured posts 11 13 and han-

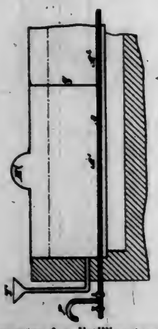
die 12, the whole adapted to be locked through the apertures in the posts, substantially as and for the purpose stated.

6. In a ballot-box, the combination, with the top or cover 2, provided with ballot-slot 15, central aperture 8, and posts 4 4, with apertures 5 5, and the securing-rod 6, screw-threaded at its upper end and secured to the bottom 3 at its lower end, of the plate 9, with open side 14 and centrally screw-threaded aperture 10 and having apertured posts 11 13 and handle 12, the box, its cover, and the plate, all adapted to be locked through the apertures in the posts, substantially as and for the purpose stated.

7. A knockdown ballot-box consisting of the body 1, of one piece of sheet metal, bolted together along the side, the bottom 3, bolted to the body 1, and the removable top or cover 2, secured in place by the screw-threaded rod 6 and any suitable locking mechanism.

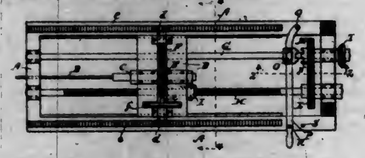
478,265. DISTILLING APPARATUS. HEINRICH PROPFE, Mannheim, Germany. Filed May 22, 1890. Serial No. 352,776. (No model.) Patented in Germany Jan. 30, 1890, No. 55,025; in France Feb. 19, 1890, No. 208,865; in Switzerland Feb. 19, 1890, No. 1,956; in England Feb. 24, 1890, No. 2,955; in Belgium Feb. 27, 1890, No. 89,650; in Italy Apr. 21, 1890, XXIV, 27,849, LIV, 88; in Spain May 24, 1890, No. 10,689, and in Austria-Hungary June 12, 1890, No. 8,574 and No. 22,624.

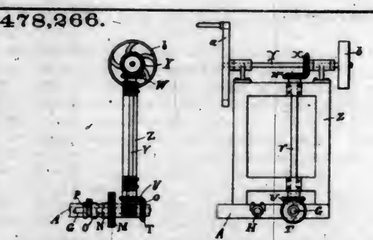




Claim.—In an apparatus for distilling tars and mineral oils, the combination, with a train of stills, the adjacent ones of which have intercommunication between their lower parts, of a furnace at one end of the train and a flue running therefrom to the other end of the train, a feed-pipe for feeding the still at the end of the train farthest from the furnace, and an exit-pipe communicating only with the still nearest the furnace and running through the several stills of the train, substantially as and for the purpose herein set forth.

478,266. BORING-MACHINE. JOHN H. STEDE, Chicago, Ill. Filed June 26, 1891. Serial No. 397,497. (No model.)





Claim.—1. In a boring-machine, the combination, with the frame, a power-shaft journaled therein, a screw-threaded shaft also journaled in said frame parallel with the power-shaft, and a gear connection between said shafts, of a carriage mounted upon and having a sliding connection with said frame, a rotary drill journaled in said carriage, a gear connection between said drill and the power-shaft, and a detachable screw-threaded connection between the carriage and the screw-threaded shaft, substantially as described.

2. In a boring-machine, the combination, with the frame, a power-shaft journaled therein, a screw-threaded shaft also journaled in said frame parallel with the power-shaft, a gear-wheel keyed upon said screw-threaded shaft, another gear-wheel meshing therewith and loosely mounted upon the power-shaft, and a clutch-coupling between said wheel and the power-shaft, of a carriage mounted upon and having a sliding connection with said frame, a screw-thread connection between said carriage and the screw-threaded shaft, a rotary drill journaled in said carriage, a gear-wheel for operating the same, and another gear-wheel meshing therewith and splined upon the power-shaft, substantially as described.

3. In a boring-machine, the combination, with the frame, a power-shaft journaled therein, a screw-threaded shaft also journaled in said frame parallel with the power-shaft, and a gear connection between said shafts, of a carriage mounted upon and having a sliding connection with said frame, a rotary drill journaled in said carriage, a gear connection between said drill and the power-shaft, a detachable connection between said carriage and the screw-threaded shaft, and a rack-and-pinion connection between said carriage and the frame, substantially as described.

4. In a boring-machine, the combination, with the frame, a power-shaft journaled therein, a screw-threaded shaft also journaled in said frame parallel with the power-shaft, a gear-wheel keyed upon said screw-threaded shaft, a second gear-wheel meshing with the first gear-wheel and being loosely mounted upon the power-shaft, and a clutch-coupling between said second gear-wheel and the power-shaft, of a carriage mounted upon and having a sliding connection with said frame, a detachable screw-thread connection between said carriage and the screw-threaded shaft, a rotary drill journaled in said carriage, a gear-wheel for operating said drill, and another gear-wheel meshing with the latter gear-wheel splined on the power-shaft, substantially as described.

5. In a boring-machine, the combination, with the frame, a power-shaft journaled therein, a screw-threaded shaft also journaled in said frame parallel with the power-shaft, and a gear connection between said shafts, of a carriage mounted upon and having a sliding connection with said frame, a rotary drill journaled in said carriage, a permanent sliding gear connection between said drill and the power-shaft, and a detachable connection between said carriage and the screw-threaded shaft, substantially as described.

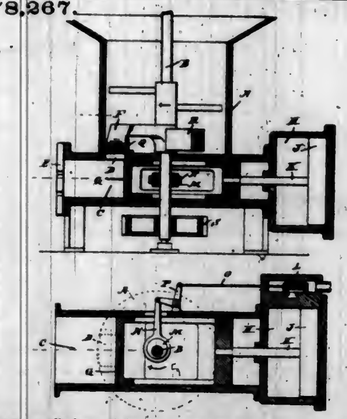
6. In a boring machine, the combination, with the main frame, of a carriage mounted to slide thereon, a rotary drill-chuck having a driving-gear E, journaled in and supported by said carriage, the driving-shaft, a gear F, meshing with the gear E and being splined on said driving-shaft and adapted to be slid along the driving-shaft by the movement of the carriage, and means for advancing and withdrawing said carriage, substantially as described.

478,267. BRICK OR TILE MACHINE. JOHN C. TITUS, New Bremen, Ohio, assignor of one-half to The New Bremen Machine Company, same place. Filed June 11, 1891. Serial No. 395,893. (No model.)

Claim.—1. In a brick or tile machine, the combination, substantially as set forth, of a pug-mill having a discharge-opening in its floor, a fence projecting upwardly from said floor near the inner margin of the discharge-opening, an upwardly and forwardly sloping feed-wing carried by the pug-shaft in a path over the discharge-opening, and a volute or eccentric arm carried by the pug-shaft at the level of the feed-wing.

2. In a brick or tile machine, the combination, substantially as set forth, of a plunger-chamber, a die, a plunger working in the plunger-chamber, a pressure-cylinder having a piston connected with said plunger, a valve for said cylinder, a pug-mill arranged to discharge into said pressure-cylinder and having a pug-shaft, and valve-gearing disconnected from said plunger and connecting said pug-shaft and valve, whereby the valve is positively moved in unison with the revolutions of the pug-shaft.

478,267.

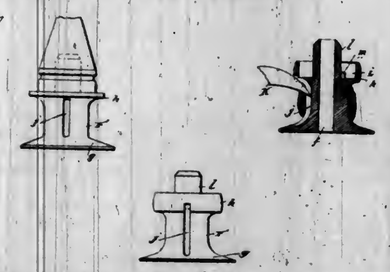


478,268. PROCESS OF MAKING LAMP-BLACK. SWAN P. WESTRAU and ERASTUS R. BLOOD, Ludlow, Pa., assignors to Martha P. Blood, same place. Filed Dec. 4, 1888. Serial No. 292,673. (No specimens.)



Claim.—The process of making lamp-black by depositing the particles of carbon from a flame, which consists in conducting away the gases contained in the inner dark cone of the flame and permitting the outer part of the flame, including the carbon-bearing or middle envelope thereof, to impinge against a depositing-surface.

478,269. FRICTION-COLLAR FOR SPINDLES ON LONG-CHAIN QUILLING-FRAMES. WILLIAM F. WEST, Slatersville, R. I. Filed Mar. 14, 1892. Serial No. 424,857. (No model.)

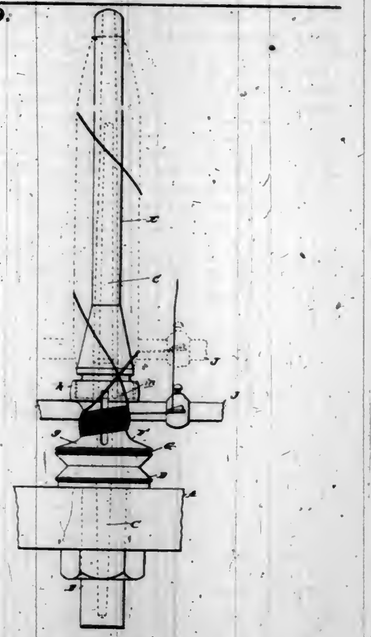


Claim.—1. A friction-collar for quilling-machines, provided with the longitudinal recess or groove in its exposed face, substantially as and for the purpose described.

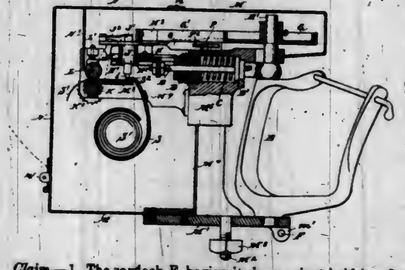
2. A friction-collar for quilling-machines, having the flared base and the enlarged flanged upper part forming the socket, and the longitudinal recess or groove in the outer face of said collar, which is extended into the flared and flanged ends of the collar, substantially as and for the purpose described.

3. The combination, with a spindle, the whirl thereof, and a bobbin, of the friction-collar having the enlarged upper end provided with a socket receiving the lower end of the bobbin and the pin or stud which connects said bobbin and the collar, and a yielding pad interposed between the collar and the whirl, substantially as and for the purpose described.

478,269.



478,270. OARSMAN'S RECORDER. JOHN BAKER, JOSEPH H. BAKER and WALTER B. PEET, New York, N. Y. Filed May 2, 1891. Serial No. 391,333. (No model.)



Claim.—1. The rowlock E, having its lower pivot held in a fixed bearing and its upper pivot free to move forward and backward, in combination with the slide B, housing M, spring C, and pencil-holder J, and with connected mechanism for indicating by the motion of the pencil the extent of each stroke, the position of each stroke—that is to say, whether the man sits too far forward or too far backward in the boat—and the force of the pull at each point in the stroke, all substantially as herein specified.

2. In an oarsman's recorder, the carriage H, having transverse guideways $H' H^4$ and adapted to move forward and backward by the conflicting forces of the pull of the oarsman, and a spring, as C, in combination with such spring, and means for communicating the force of the pull on the oar thereto, and the wheel G, pulleys H^3 H^4, and transversely-moving carriage J, and pencil *i*, carried therein, all arranged for joint operation relatively to each other and to provisions for moving a recording-surface, as herein specified.

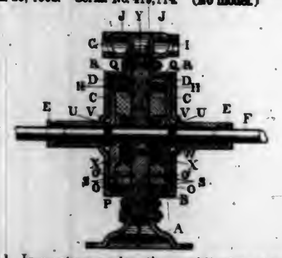
3. In an oarsman's recorder, the wheel G, two pulleys H^3 H^4, and a belt $G' G^2$, running around such pulleys, in combination with each other and with a slide B, spring C, rowlock E, carriage H, and transversely-moving carriage J, carrying a recording-pencil, all arranged to serve relatively to each other and to a suitable recording-surface, as herein specified.

4. In an oarsman's recorder, the rowlock E, capable of partially revolving, as usual, the lever F', links O Q, and carriage J, carrying transverse ways $H' H^4$, and the lever R, pawl R^2, ratchet-wheel K', and feed-rollers K and L, combined and arranged for joint operation substantially as herein specified.

5. In an oarsman's recorder having a rowlock E, capable of both rocking horizontally and moving forward and backward under the force of the pull, the slide B, actuated by such rowlock and carrying a transverse carriage H, the spring C, adapted to act longitudinally against the slide B, and the adjusting means D, arranged to allow the tension of the spring to be varied at will, as herein specified.

6. In an oarsman's recorder, the feed-rollers K L and means for operating them to carry forward a strip of paper and provisions for marking on such paper, and the approximately volute paper-guide S, having the bent upper edges S^2, in combination with each other and with the door M^{12} opposite the end of such volute guide, all arranged to serve substantially as herein specified.

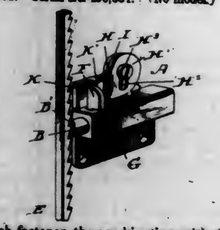
478,271. ROTARY ENGINE. ANDREW BEARD, Woodlawn, Ala. Filed Jan. 25, 1892. Serial No. 419,114. (No model.)



Claim.—1. In a rotary engine, the combination of the base with a central partition and heads on both sides, having casings on the outside recessed to inclose the heads and secured together by bolts passing through flanges on their outer edges and the central partition, said heads having pistons with cam-loops on their inner ends working over rollers on the ends of shafts or studs secured in the central partition to reciprocate the said pistons in grooves in the heads, substantially as described.

2. In a rotary engine, the combination of the base with a central partition and heads on both sides having casings on the outside recessed to inclose the heads and secured together by bolts passing through flanges on their outer edges and the central partition, and heads having pistons with cam-loops on their inner ends working over rollers on the ends of shafts or studs secured in the central partition to reciprocate the said pistons in grooves in the heads and having a steam-chest with reversing-lever and valves secured to the said central partition, with two steam-passages extending downwardly from the steam-chest through the central partition and opening on both sides and having abutments secured to both sides of the central partition between the ports, the said abutments filling the annular spaces in the piston-heads, substantially as described.

478,272. SASH-FASTENER. THOMAS B. BOMAR, Wolfe City, Tex. Filed Apr. 27, 1892. Serial No. 430,831. (No model.)

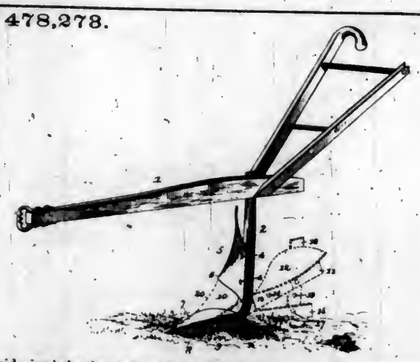


Claim.—In a sash-fastener, the combination, with the sliding latch provided with a handle, of a pivoted stop having a portion to engage said handle and a cam portion at its pivot end and an elongated hole in which the pivot works, substantially as shown and described.

478,273. PLOW. BENJAMIN F. CADENHEAD and MOSES E. BUTT, Blountville, Ala. Filed Feb. 26, 1892. Serial No. 422,894. (No model.)

Claim.—1. In a subsoil-plow, the combination, with the beam and the standard depending therefrom having its lower end forwardly bent to form a foot and above the same provided with an inclined face or beveled portion forming a front cutting-edge, of the point 7, having a convexed upper side and provided at its landside with a depending foot-embracing flange 8, a bolt passed through the flange and foot, and a main wing or mold-board bolted to the standard at its inclined face and having its outer lower corner forwardly curved,

478,278.



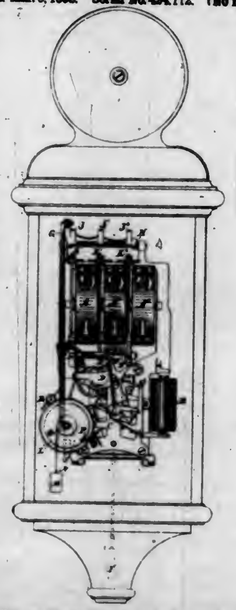
said wing being located some distance above the point and combining with the latter to form a passage or space for the subsoil as it leaves the point, substantially as specified.

2. The combination, with the beam, the standard, the mold-board, and point, of a pivoted landside secured to the point, a secondary mold-board thereon, and means for adjusting said landside, substantially as specified.

3. The combination, with the beam, the standard, the mold-board, and the point, said mold-board being above the point and combining therewith to form an intermediate space or passage, of a supplemental mold-board pivotally supported at the landside of the plow above the point and opposite the first-mentioned mold-board, and means for adjusting the same with relation to the main mold-board, substantially as specified.

4. The combination, with the beam, a depending standard, a point, and mold-board, of a rearwardly-extending stationary landside-bar, a standard rising vertically from the rear end of the bar and provided with perforations, and a landside-bar pivoted to the plow and having a rear perforated end, a bolt for adjusting the landside-bar being passed through the perforation thereof and any of those of the standard, and the secondary mold-board bolted to the pivoted landside-bar, substantially as specified.

478,274. ELECTRIC INDICATOR. WILLIAM R. DECROW, Boston, Mass. Filed Mar. 8, 1892. Serial No. 424,112. (No model.)



Claim.—1. The combination, with an indicator having a series of numbered parts, of electrically-controlled means for moving said parts so as to give a desired indication and a resetting device controlled by

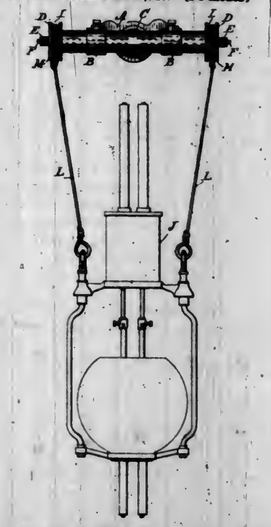
said means and timed to reset the indicator after a definite lapse of time.

2. The combination, with an indicator consisting of a number of wheels having figures on their peripheries and means for rotating the wheels such a distance, respectively, as will bring into visible position the figures corresponding to the number of breaks in an electric circuit, of a resetting device for such indicator, consisting of means for rotating the said wheels to their "0" position by means of a weight or other suitable motive force, a controlling device for the same dependent upon the operating of the indicator, and means for timing the said resetting device so as to operate after a definite lapse of time.

3. The combination, with an indicator consisting of a number of wheels adapted to be rotated a certain distance, respectively, to bring into visible position corresponding figures on their peripheries, of means for rotating these wheels in succession controlled by the breaks in an electric circuit and a resetting device for bringing the wheels to their "0" position and timed to actuate them at definite intervals after the registration has been completed.

4. The combination, with the numbered wheels A A' A^2, of an electro-magnet B, controlling the rotation of said wheels, a resetting device consisting of a rod G, adapted to actuate ratchet-rods K K' K^2, engaging with the said wheels, respectively, and means for automatically operating said rod G, consisting of the cam N, motive weight M, wheel L, a stop P for said wheel, controlled by the mechanism of the register, and a retarding-fan R, substantially as described.

478,275. SUSPENSION-BAR FOR ELECTRIC LAMPS. THOMAS DILLON, Indianapolis, Ind., assignor of one-half to John Caven, same place. Filed Apr. 28, 1892. Serial No. 430,949. (No model.)



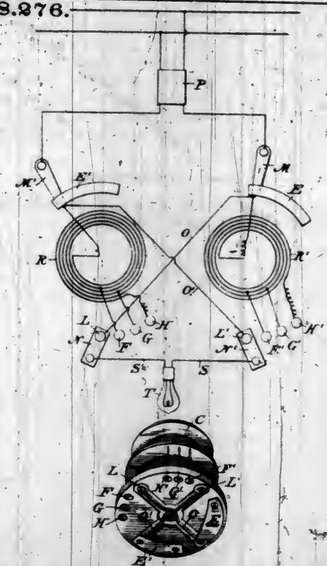
Claim.—1. The above-described suspension-bar for electric lamps, consisting of a bar of wood or other non-conducting material and a pair of metallic disks mounted upon the opposite ends of said bar, and each provided with a peripheral groove and a binding-post adapted to receive an electric conductor, substantially as set forth.

2. The combination of the wooden bar, the arm arranged to support said bar, the pair of peripherally-grooved disks secured to the opposite ends of the bar and each provided with a binding-post and forming a part of an electric circuit, the pair of suspending-rods, each having a loop embracing one of said disks, and the lamp suspended from said rods, so as to form an electric circuit therewith, all substantially as and for the purpose set forth.

478,276. RHEOSTAT. WINSLOW P. EATON, Nashua, N. H., assignor of one-half to Frank A. McKean, same place. Filed Aug. 3, 1891. Serial No. 401,454. (No model.)

Claim.—1. In a device for regulating electric lights, two resistances and contacts therefor, two sets thereof being connected, respectively, with said resistances, corresponding contacts in each set being connected, with their respective resistances at similar points, said resistances being respectively always in contact with the legs of a main circuit and said corresponding contacts being movable and adapted to

478,276.

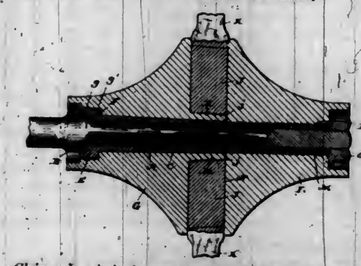


be brought in pairs successively in contact with the legs of a local circuit, substantially as shown and described.

2. In a device for regulating electric lights, the combination of a base carrying contact-pieces connected, respectively, with the legs of a main and a local circuit, a support movable upon said base, two resistances carried by said support, two sets of contact-points also carried by said support, each set being connected with one of said resistances, each contact-point therein with a different point in the resistance and corresponding points in each set with similar points in each resistance, and contact-strips upon said support adapted to keep said resistances respectively always in contact through contact-pieces on the base with the legs of one of said circuits, said contact-points being adapted to be brought by moving the support upon the base successively and in pairs respectively in contact through contact-pieces on the base with the legs of the other of said circuits, substantially as shown and described.

3. In a device for regulating electric lights, the combination of a base carrying contact-pieces connected, respectively, with the legs of a main and a local circuit, a turret rotatable upon said disk, two resistances carried by said turret, each set being connected with one of said resistances, each contact-point therein with a different point in the resistance and corresponding points in each set with similar points in each resistance, and contact-strips upon said turret adapted to keep said resistances respectively always in contact through contact-pieces on the base with the legs of one of said circuits, said contact-points being adapted to be brought by the rotation of said turret successively and in pairs respectively in contact through contact-pieces on the base with the legs of the other of said circuits, substantially as shown and described.

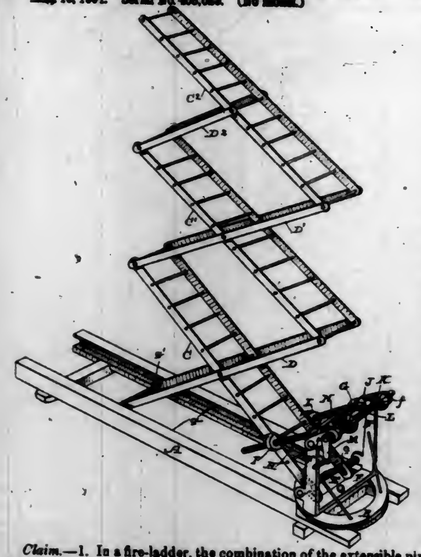
478,277. VEHICLE-HUB. FREDERICK W. FIEDLER, Scranton, Pa. Filed Feb. 29, 1892. Serial No. 423,179. (No model.)



Claim.—In a hub, the combination, with the axle, of the axle-box having its rear half exteriorly tapered and its outer half exteriorly screw-threaded, the rear hub-section having an exteriorly-tapered

bore fitting the rear half of said axle-box and provided with a projecting exteriorly tapered or inclined flange, and a radial series of mortises arranged over said flange, which forms the base for said mortises, the solid front hub-section having an exteriorly-threaded bore engaging the threaded half of said axle-box and a flat inner face working over the open edges of the mortises, and a securing-nut engaging the outer threaded end of the axle-spindle and bearing directly against the outer end of the axle-box and the outer face of the front hub-section, substantially as set forth.

478,278. FIRE-LADDER. LEWIS H. FOWLER, Vallejo, Cal. Filed Aug. 18, 1891. Serial No. 403,089. (No model.)



Claim.—1. In a fire-ladder, the combination of the extensible pivotally-connected sections constituting the ladder, the nuts on one of said sections, the screws operating in and through the nuts, and the rock-shaft carrying the screws, substantially as herein described.

2. In a fire-ladder, the combination of the extensible pivotally-connected sections constituting the ladder, the nuts on one of said sections, the screws operating in and through the nuts, and the rock-shaft carrying the screws and gearing between said shaft and screws, substantially as herein described.

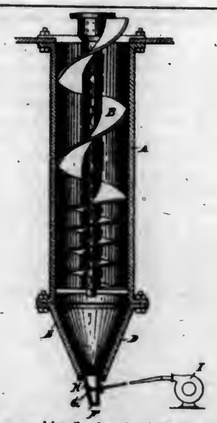
3. In a fire-ladder, the combination of the pivotally-connected ladder and link sections, the lowermost ladder-section having a pivotal connection and the lowermost link-section having a sliding connection, the nuts on the lowermost ladder-section, the rock-shaft, the screws seated in said rock-shaft and operating in and through the nuts, and the power-shaft and gears for operating the screws, substantially as herein described.

4. In a fire-ladder, the combination of the truck-frame having the side guides, the turn-table mounted upon said frame, the pivotally-connected ladder and link sections, the lower end of the lowermost link-section being adapted to travel in the side guides of the truck-frame to and upon the turn-table, a pivotal connection of the lower end of the lowermost ladder-section with the turn-table, the standards of the turn-table, the rock-shaft in said standards, the operating-screws carried by the rock-shaft, the nuts on the lowermost ladder-section in and through which the screws operate, and a power-shaft and gearing by which the screws are operated, substantially as herein described.

5. In a fire-ladder, the combination of the frame with side guides, the turn-table, the ladder and link sections, the lower link-section sliding in the side guides of the frame to and upon the turn table, the standards on the turn-table, the cross-shaft E of standards upon which the lower link-section is pivotally slotted, the rock-shaft in the standards, the screws carried by the rock-shaft, the swinging nuts on the lower ladder-section receiving the screws, the power-shaft supported from the rock-shaft, and gearing between said power-shaft and screws, substantially as herein described.

478,279. APPARATUS FOR THE MANUFACTURE OF TUBULAR ARTICLES OF CONFECTIONERY. CLEMENT R. GARDINER, Hempstead, N. Y. Filed Jan. 30, 1892. Serial No. 418,672. (No model.)

478,279.



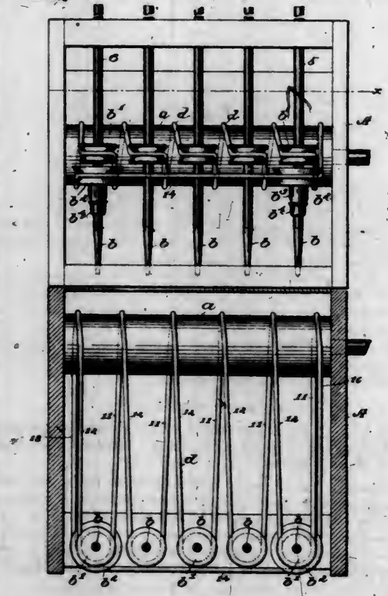
Claim.—1. In a machine for forming hollow articles from plastic materials, the combination of the cylinder or receptacle for the plastic mass, provided with a die-orifice and with means for forcing the material through said orifice, and an air-tube, one end of which occupies the center of the die-orifice and the other extends beyond the wall of the cylinder, substantially as described.

2. The combination of the cylinder having a contracted mouthpiece forming its lower end, a die-plate with an orifice or orifices on one side of said mouthpiece, and air-tubes, one extending from the center of each orifice through the opposite side of the mouthpiece, substantially as and for the purpose set forth.

3. The combination of the cylinder provided with a die-orifice, an air-tube having its end in the center of said die-orifice, and means, such as an air-pump, for supplying air under pressure through said tube, substantially as described.

4. A machine for forming hollow articles from plastic materials, said machine comprising, in combination, the cylinder or receptacle, the feed-screw, the tapering extension beneath the feed-screw, the diaphragm between the cylinder and extension, the mouthpiece having a die-plate, and the air-tubes extending through the mouthpiece and terminating one in each die-orifice, substantially as described.

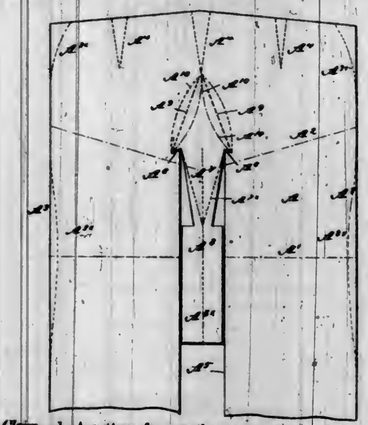
478,280. MEANS FOR DRIVING SPINDLES. HENRY GREENWOOD, Gilbertville, Mass. Filed Nov. 27, 1891. Serial No. 413,194. (No model.)



Brief.—Each end spindle is provided with an additional whirl, loose to revolve on the spindle, around which whirls the band passes in its return.

Claim.—A frame and a driving-cylinder journaled therein, combined with a series of spindles each provided with a driving-whirl, the end spindles of the series having in addition loose guide-whirls larger in diameter than the said driving-whirls, and the endless band *d*, extended around the driving-cylinder and each of said driving-whirls, and returned around the guide-whirls of the end spindles, substantially as described.

478,281. TROUSERS, &c., AND PATTERN THEREFOR. RICHARD HAMILTON and JOHN G. LEWIS, Jefferson City, Mo.; said Hamilton assignor to said Lewis. Filed Sept. 22, 1891. Serial No. 406,443. (No model.)

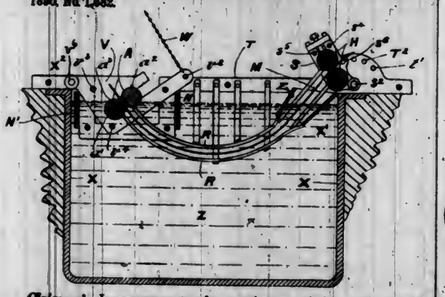


Claim.—1. A pattern for a nether garment, comprising a back and seat portion, a back for each leg and a central longitudinal fly-piece, and an intermediate crotch-piece integral with the back and seat portion and fly-piece, as set forth.

2. A pattern for a nether garment, comprising a back and seat portion, a back for each leg, a central longitudinal fly-piece, and an intermediate crotch-piece integral with the back and seat portion and separated from the same at its junction therewith by inclined slits.

3. A nether garment comprising seat, body, and leg back portions, a crotch-piece integral with the seat portion, and a fly-piece forming a continuation of the crotch-piece, said seat portion being folded and stitched to form a double-ply reinforce.

478,282. APPARATUS FOR COATING METAL SHEETS. RICHARD HEATHFIELD, Darlaston, England. Filed July 17, 1890. Serial No. 359,015. (No model.) Patented in England May 2, 1889, No. 7,311, and Jan. 31, 1890, No. 1,632.



Claim.—1. In an apparatus for coating metal sheets, the combination, with the pot X, adapted to contain molten coating metal, and the feed-rolls H, of the exit-rolls A, adjustably supported within the pot below the upper edge thereof, whereby the nip of said rolls may be brought close to the surface of the molten metal, but with the lower roll not completely submerged and the upper roll not wholly out of the metal, substantially as described.

2. In an apparatus for coating metal sheets, the combination of the pot X, adapted to contain molten coating metal, the feed-rolls H, a separate pivoted frame in which said feed-rolls are mounted, the exit-rolls A, located below the edge of the pot, and a separate pivoted frame in which said exit-rolls are supported, whereby the nip of the exit-rolls may be brought close to the surface of the coating metal, but with the lower exit-roll not completely submerged and the upper exit-roll not wholly out of the metal, substantially as described.

3. In an apparatus for coating metal sheets, the combination, with the pot X, adapted to contain molten metal, of the adjustable frame B, arranged on the outside of the pot and provided with the pivot a^3 and eye a^4, the feed-rolls H, supported in said frame, the quadrant T^2, having eyes t', and a pin for locking the roll-supporting frame at any required inclination, substantially as described.

4. In an apparatus for coating metal sheets, the combination, with the pot X, adapted to contain molten coating metal, of the feed-rolls H, a separated pivoted and adjustable frame in which said rolls are mounted on the outside of the pot, means for locking said frame in its adjusted position, the exit-rolls A, and an adjustable frame in which said rolls are mounted below the edge of the pot, substantially as described.

5. In an apparatus for coating metal sheets, the combination of the pot X, adapted to contain molten metal, the feed-rolls H, a pivoted and adjustable frame in which said feed-rolls are supported on the outside of the pot, the exit-rolls A, and a removable and adjustable frame in which said exit-rolls are supported below the edge of the pot, substantially as described.

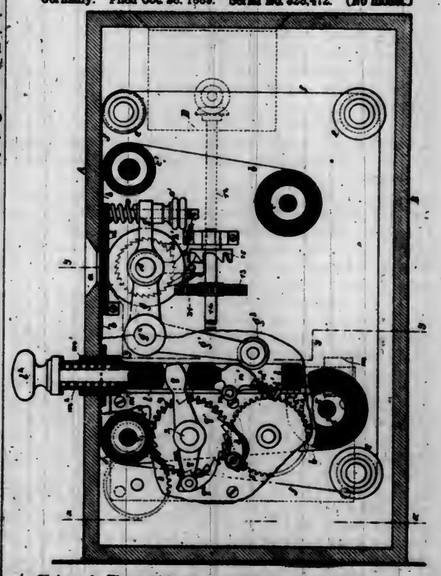
478,283. BALLOT-BOX. CHARLES F. HODGDON, New York, N. Y. Filed Jan. 18, 1892. Serial No. 418,366. (No model.)



Claim.—1. The combination, with a ballot-box having a slot therein, of a removable cap adapted to cover the slot and having a finger near one end to project down through the slot and hook beneath the cover and a spring-latch near the other end of the cover to pass down into the slot and hold the cover, substantially as set forth.

2. The combination, with a ballot-box having a slot therein, of a cover of a size to cover the slot in the ballot-box and provided with a rim fitting into the slot and preventing lateral motion of the cover and a spring locking device upon the cover to pass through the slot and engage the inner surface of the ballot-box, substantially as set forth.

478,284. WORKMAN'S TIME-RECORDER. JOHN C. KOCH, Berlin, Germany. Filed Oct. 28, 1889. Serial No. 328,472. (No model.)



Claim.—1. The combination, with the case having an opening and a table behind the opening, of rolls for supplying and guiding a web

of paper, a wind-up roll, a push-button which extends outside the case, a lever, pawl, and ratchet-wheel receiving motion from the push-button and gearing therewith connected for moving the wind-up roller, a range of character-wheels, and connection for a clock mechanism for rotating such character-wheels, a lever for supporting the character-wheels, and a cam on the inner portion of the push-button for moving the lever and type-wheels and impressing the characters on the same, substantially as specified.

2. The combination, with the containing-case having an opening therein and the supporting table and rollers for supplying, guiding, and winding up the paper, of a push-button and slide, a ratchet-wheel and pawl and the gearing moved thereby, and a frictional connection between the gearing and the winding-up roller, and a letter or character wheel, and a lever carrying the letter-wheel, and a connection from the same to the push-button for impressing the character on the paper, substantially as set forth.

3. The combination, with the containing-case and the roll e for supplying a web of paper, of the guide-rolls d c^3 and winding-up roll c^4, the gearing connecting the rolls c^3 c^4, the ratchet-wheel for giving motion to the gearing, a frictioo device between the roll c^3 and the gearing, a push-button, lever, and pawl for acting upon the gearing to move the paper, the type or character wheels, a lever for supporting and moving the same, and a cam acted upon by a slide for giving motion to the lever and character-wheels, substantially as set forth.

4. The combination, with a containing-case having an opening in the same and a table behind the opening, of a roll for supplying the web of paper, the guide-rolls d c^3, the wind-up roll and mechanism for actuating the same, substantially as specified, a ribbon containing coloring-matter adjacent to the web of paper near one edge, type or character wheels and a connection for moving the same by clock-work, and a lever and cam for supporting the character-wheels and a push-button and cam for impressing the character-wheels, substantially as set forth.

478,285. BUCKLE. FRANK H. LA PIERRE, East Orange, N. J. Filed Apr. 6, 1892. Serial No. 428,060. (No model.)



Claim.—1. The herein-described buckle, consisting of a frame A, having a central opening, with an offset bar or lip along one side of said opening, with a plate B, hinged to the frame at the opposite side of said opening and having a bar or slot at both its front and rear edges for attaching the belt or ribbon, substantially as shown and described.

2. As an improved article of manufacture, a buckle consisting of a frame A, having a central opening, with an offset along one side of said opening, and a plate B, hinged to the rear side of the frame at one side of the opening and provided at its edges with a slot or opening for the reception of the belt or ribbon, substantially as shown and described.

478,286. SHEEP-SHEARING MACHINE. ALFRED MELCHIOR, Sydney, New South Wales. Filed Dec. 3, 1891. Serial No. 413,958. (No model.)

Claim.—1. In a sheep-shearing machine, the combination, with the shaft C, of the lever D and cutters E, cylinder B, having inlet and outlet ports, said cylinder having a frusto-spherical inner periphery, and the annulus C^9 in said cylinder and having wings C^8 pivoted thereon, the holes or basins C^{10} in said annulus adapted to be engaged by and partly covered by wings C^8, substantially as set forth.

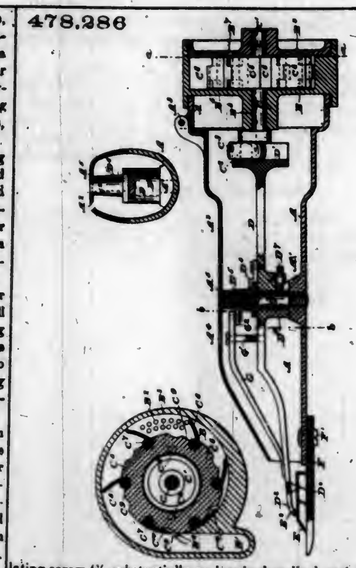
2. In a sheep-shearing machine, the combination, with the boss D^2 on lever D, of the pin D^4, engaging boss A′ and passing through said boss D^2, and screw-threaded flanged cap D^5, engaging said pin D^4 and engaged by arm D^6 on lever D, substantially as set forth.

3. In a sheep-shearing machine, the combination, with the boss D^2 on lever D, of the anti-friction roller D^7 on said boss and bearing on pin D^4, said pin passing through boss D^2, the partly cone-shaped interiorly-screw-threaded cap D^5, adapted to engage the upper screw-threaded end of pin D^4, the pin G′, engaging lever D and having thereon spring G, and rollers G^2 on the inner end of said spring, said rollers bearing on said cap D^5, substantially as set forth.

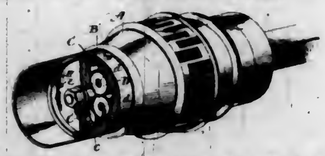
4. In sheep-shearing machines of the class set forth, the combination and arrangement, with a vibrating lever D, of a pivotal stud or pin D^4, a cap D^5, catch or connection D^6, and orifices A^4 and A^5, substantially as herein described and explained, and as illustrated in the drawings.

5. In sheep-shearing machines of the class set forth, the combination and arrangement, with a lever D, having pivotal screw or stud D^4, of a cap D^5 and a tension spring G, having end rollers G^2 and regulating-screw G′, substantially as herein described and explained, and as illustrated in the drawings.

478,286

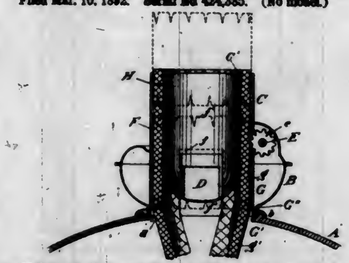


478,287. VEHICLE-HUB. ALFRED A. MINOR, Egg Harbor, Wis. Filed Nov. 16, 1891. Serial No. 412,078. (No model.)



Claim.—In a vehicle-hub, the combination, with the body of the hub provided on its interior with an annular chamber enlarged at the ends to form two shoulders f and h, of plates having projecting pins on their inner surfaces adapted to form bearings for rollers, rods connecting the said plates, longitudinal rollers pivoted on said projecting pins, the plates H H, bearing against the shoulders h h and the outer surface of the plates C, and rods connecting said outer plates, all substantially as shown and described.

478,288. WICK-ADJUSTING DEVICE. FRANK REHM, Meriden, Conn., assignor of one-half to the Edward Miller & Company, same place. Filed Mar. 10, 1892. Serial No. 424,385. (No model.)

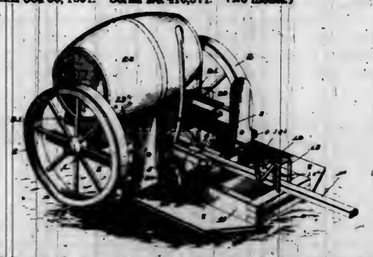


Claim.—1. In a wick-adjusting device, the combination of a wick-carrier, a rack on said carrier, and a supplemental rack hinged to said carrier and forming a continuation of said first-named rack, substantially as described.

2. In a wick-adjusting device, the combination of a wick-carrying sleeve, a rack on said sleeve, and a supplemental rack hinged to said sleeve and forming a continuation of first-named rack, substantially as described.

3. In a wick-adjusting device, the combination of a wick-carrying sleeve, means, as teeth, for attaching said sleeve to the wick, a rack in said sleeve, a supplemental rack below said first-named rack, and a hinge connecting said supplemental rack and said sleeve, substantially as described.

478,289. TOBACCO-PLANTER. ELMER A. ROLLMAN, Eaton, Ohio. Filed Oct. 30, 1891. Serial No. 410,371. (No model.)



Claim.—1. In a machine of the class described, the combination, with the opposite side bars 6, of the axle 1, mounted thereon, the wheels mounted on the axle, the transverse bars 4, connected to the front ends of the side bars, the standards 5, depending from the inner ends of the transverse bars, the axle journaled in the standards, the peripherally grooved and concaved covering-wheel mounted on the axle, the frame 10, secured to the front ends of the bars 6 and carrying the roller 12, the platforms 8, supported by the frame and transverse rods 4, the boot 16, depending from between the bars 6 and between the platforms, the shoe at the lower end of the same, the barrel supported upon the side bars, the discharge-pipe leading from the barrel and terminating in rear of the shoe, the spring-actuated cut-off mounted in the discharge-spout, the loosely-journaled trip-shaft bent at its ends and secured to the axle, the pins on the wheel for engaging the outer end of the trip-shaft, and the lever pivoted to the bar 6 and at its ends to the inner end of the trip-shaft, substantially as specified.

2. In a machine of the class described, the combination, with the frame-work, the axle, and the wheels, of the depending boot, the shoe located in the lower end of the same, the water-reservoir supported upon the frame-work, the discharge-pipe leading therefrom and terminating in rear of the shoe, the cut-off mounted in the discharge-pipe, a spring for normally closing the same, a trip-shaft journaled on the axle and having its outer end bent and extending parallel to the wheel, pins mounted on the wheel for tripping the shaft, and a lever pivoted to the frame-work at its lower end pivoted to the inner end of the trip-shaft and at its front lower end pivoted to the cut-off, and a foot-lever loosely connected to the inner end of the trip shaft and adapted to reciprocate the same into and out of the path of the pins, substantially as specified.

478,290. SUCTION APPARATUS FOR PAPER-MILLS. EPHRAIM SANDERSON and FRANK C. BASS, Cleveland, Ohio. Filed Dec. 19, 1891. Serial No. 415,579. (No model.)

Claim.—1. In a machine of the character described, a suction-regulator consisting of a rotating circular shell having radial openings through it for tube connections, and a stationary circular block within said shell and having a vertical opening in its upper side and adapted to close all the radial openings in the circular shell except those opposite said vertical opening, substantially as shown and described.

2. In a machine of the character described, the combination of a suction-regulator consisting of a rotating circular shell having radial openings through it for tube connections and a circular stationary block within said shell and having a vertical opening in its upper side, said stationary block being adapted to close all the radial openings of the shell except those opposite the vertical opening in the block, with a suction-pipe opening into the vertical opening in said stationary block, substantially as shown and described.

3. The combination, in a machine of the character described, of a suction-regulator consisting of a rotating circular shell having radial openings through it for tube connections and a circular stationary block within said shell, said block having a vertical opening in its upper side and being adapted to close all the radial openings of the shell except those opposite said vertical opening, a suction-pipe opening into the said vertical opening in said block, and an expansible device interposed between the under side of said suction-pipe and said stationary block, substantially as shown and described.

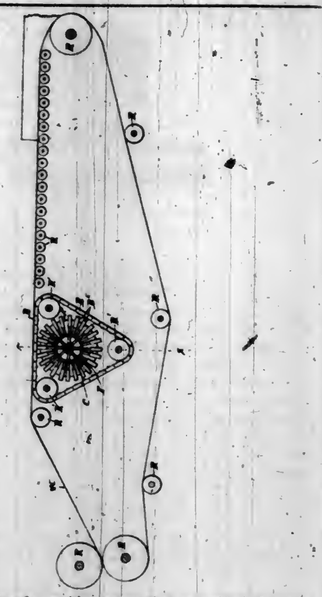
4. The combination, in a machine of the character described, of a suction-regulator with an endless series of suction-boxes, substantially as shown and described.

5. The combination, in a machine of the character described, of an endless series of traveling suction-boxes, a rotating shell having radial openings, means for making connection successively between the radial openings of the rotating shell and the traveling suction-boxes of the endless series, a suction-pipe to enter the rotating shell, and a block within the shell, said block being adapted to close connection between the suction-pipe and all the radial openings of the rotating shell except such as are in connection with the endless series of traveling suction-boxes, substantially as shown and described.

6. The combination, in a machine of the character described, of a suction-regulator, an endless series of suction-boxes, yielding pipes attached to the suction-regulator and adapted to make and break connection with the suction-boxes, a wire, a suction-pump, and pipe connection between said suction-regulator and pump, substantially as shown and described.

7. The combination, in a machine of the character described, of an endless series of suction-boxes having an opening in the bottoms, a suction-regulator consisting of a rotating circular shell having radial openings through it for tube connections, and a circular stationary block within said shell and having a vertical opening in its upper side, said stationary block being adapted to close all the radial openings of the shell except those opposite the vertical opening in the block, a suction-pipe opening into the vertical opening in the stationary block, and tubes attached over the openings in the rotating shell and adapted to make and break connection with the endless series of boxes, substantially as shown and described.

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478,291. HAT-GAGE. ISAAC SHRIER, Wilmington, N. C. Filed Oct. 23, 1891. Serial No. 409,600. (No model.)



Claim.—1. The herein-described gage for hats, consisting of a strip or web of material in the form of a ring of frusto-conical shape with the widest portion thereof at the base, the lowermost edge forming said base being beveled or reduced in thickness from opposite sides to prevent bulging of the sweat-band at the lower portion thereof, as set forth.

2. The herein-described gage for hats, consisting of a ring or circular band of material of frusto-conical shape having its lower edge or base beveled from opposite sides to reduce the same, and mucilage or other adhesive material applied thereto for the purpose of securing the gage in position behind the sweat-band, substantially as set forth.

478,292. LOOSE OR IDLE PULLEY. THOMAS W. SIBCOX, Fostoria, Ohio. Filed Nov. 2, 1891. Serial No. 410,662. (No model.)

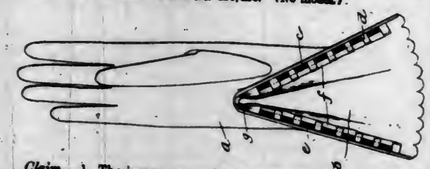
Claim.—In an idler-pulley, the combination, with a revolving

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shaft, of a double-cone sleeve or collar secured upon said shaft, a pulley provided with a conical half-hub adapted to fit upon one-half of said sleeve or collar and with a squared annular recess or groove formed in the inner face of said half-hub, a detachable half-hub corresponding to the shape of the cone-sleeve and adapted to fit upon the opposite half thereof, the same being provided with a series of radially-extending arms corresponding to the spokes of the wheel and with an inwardly-projecting annular flange adapted to project within said annular recess or groove, packing interposed between said arms and the spokes of the wheel, and means for adjustably clamping said arms to said spokes, substantially as set forth.

478,293. VOLTAIC GLOVE. FREDERICK SIMPSON, Boston, Mass. Filed Mar. 25, 1892. Serial No. 426,496. (No model.)

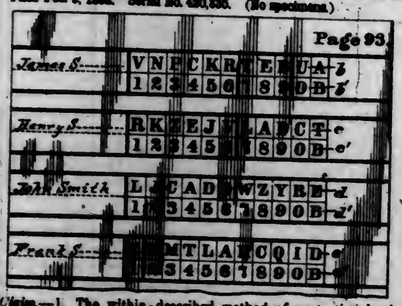


Claim.—1. The improvement in gloves or other hand-wear, consisting of two dissimilar metals, such as copper and zinc, secured to the inner surface of the wrist portion and a connection between the same, whereby when the glove or like article is upon the hand the metals will be in contact with the flesh of the wearer and electric action established, substantially as described.

2. In a glove or like article of hand-wear, wire-gauze strips or plates of copper and zinc secured therein near the edges of the slit or opening for the hand, a connection of some electric conducting material, a suitable binding for the said metals, and suitable openings in said binding to permit contact of the metals with the flesh, substantially as described.

3. The combination, in gloves or other hand-wear, of copper and zinc elements *c d* and connections *g* whereby the contact of the said elements with the flesh will produce currents of electricity, substantially as described.

478,294. METHOD OF PROTECTING BANK-CHECKS AND THE LIKE FROM BEING RAISED. THOMAS S. SEVEY, Cincinnati, Ohio. Filed Feb. 9, 1892. Serial No. 420,836. (No specimens.)

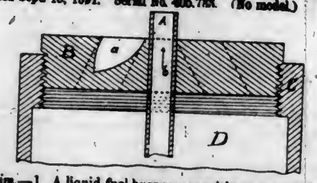


Claim.—1. The within-described method of protecting bank-checks and the like from being raised, which method comprises a secret detector inscribed with the names of the depositors and having for each depositor a series of consecutive numbers and a separate letter or symbol to indicate each number and a check or draft which is properly filled up and has applied to it a combination of letters or symbols which when compared with the letters or symbols associated on the secret detector with the name of the drawer of the check designates the exact amount to be paid in dollars, substantially as set forth.

2. A bank check or draft protector consisting of a sheet or book having spaces for the names of the depositors, a series of consecutive numerals for each name, and a separate character or symbol for each numeral, substantially as herein described.

3. A bank check or draft protector consisting of a sheet or book having spaces for the names of the depositors, a series of consecutive numerals for each name, a separate letter over each numeral, and a special initial to indicate "bearer," substantially as herein described.

478,295. LIQUID-FUEL BURNER. EDWIN SQUIER, Montclair, N. J., GEORGE H. COSS, Elmira, and FORREST M. TOWL, Brooklyn, N. Y. Filed Sept. 15, 1891. Serial No. 405,783. (No model.)



Claim.—1. A liquid-fuel burner comprising a central fuel-passage and a series of separate and distinct rectilinear air-passages arranged around it, each of which is inclined inwardly from its rear end toward the front and has its axis arranged tangentially to a circle drawn from the axis of the fuel-passage as a center and lying in a plane transverse to said axis.

2. A liquid-fuel burner having a central fuel-passage, around which are arranged separate and distinct passages for the discharge of the atomizing medium, the axis of discharge of each of said latter passages being inclined inwardly toward the axis of the fuel-passage and tangential to a circle of which the axis of the fuel-passage is the center and lying in a plane transverse to said axis, substantially as set forth.

478,296. SPARK AND CINDER ATTACHMENT FOR SMOKE-STACKS. BENJAMIN W. SWEET, Portsmouth, Ohio. Filed Oct. 30, 1891. Serial No. 410,354. (No model.)



Claim.—1. In a spark and cinder attachment, the combination, with curved, rearwardly-diverging, and oppositely-faced semi-open deflectors, of means for securing together their inner or intermediate surfaces, substantially as described.

2. In a spark and cinder attachment, the combination, with curved rearwardly-diverging semi-open deflectors, of an intermediate hood and means for securing said hood and deflectors together, substantially as described.

3. A spark and cinder attachment provided with curved rearwardly-diverging semi-open deflectors and an intermediate directing-valve, in combination with a smoke-stack and means for securing said attachment to the upper end of said smoke-stack, substantially as described.

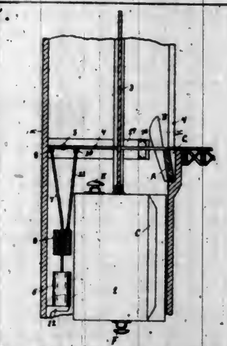
4. A spark and cinder attachment provided with spoon-shaped, upwardly-inclined, and rearwardly-diverging deflectors with a downwardly-projecting directing valve or damper and means for adjusting said valve or damper at any desired angle, substantially as described.

5. A spark and cinder attachment provided with two spoon-shaped, upwardly inclined, and rearwardly-diverging deflectors, with an intermediate hood, with a downwardly-projecting directing valve or damper, and means for adjusting said valve or damper at any desired angle, substantially as described.

6. A spark and cinder attachment provided with curved, rearwardly-diverging, and semi-open deflectors, substantially as described.

478,297. DEVICE FOR OPERATING HATCHWAY-DOORS. SETH G. TUPPS, Mainville, Ohio. Filed Aug. 20, 1891. Serial No. 402,221. (No model.)

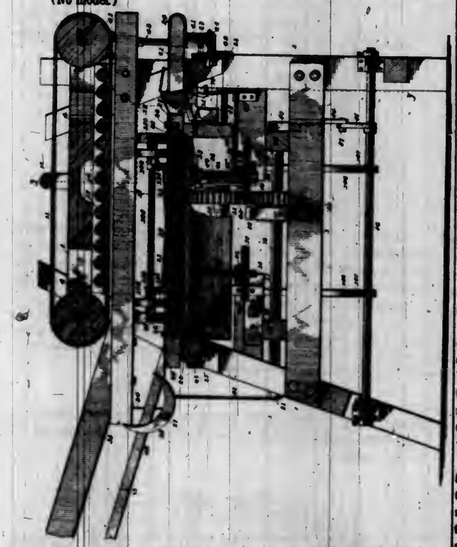
478,297.



Claim.—1. In combination with the door 4, hinged to the shaft 5 within the hatchway of an elevator-shaft, the weights 6 and 9, connected by cords 11 and 7 to the door on each side of its shaft, the cord on one weight passing through the other, and the rest 12 to sustain the weight when the door is in the horizontal position, substantially as described.

2. The combination, with an elevator-shaft and a cab, of a swinging door hinged by a shaft or rod in the elevator-shaft and having the slots *a b* and side notch 15, the slides 13 for covering the slots when the door is horizontal, the springs 14 for pressing the slides outwardly, and the inclines 16, secured in the elevator-shaft and adapted to enter the side notches of the door for moving the slides to close the slots when the door is horizontal, substantially as described.

478,298. MACHINE FOR APPLYING LABELS TO CANS. JOHN F. WILLIAMS, Roanoke, Va. Filed July 22, 1890. Serial No. 359,537. (No model.)



Claim.—1. In a machine of the class described, the combination, with the frame-work, the feedway, and a label-holding table, of a pair of rolls journaled above the table, an endless apron mounted on the rolls, and a series of loose rollers journaled between the rolls and bearing upon the lower portion of the apron, substantially as specified.

2. In a machine of the class described, the combination, with a way having a slot, of a rock-shaft journaled under the way, means for intermittingly operating the same, and a substantially crescent-shaped separator mounted on the shaft and adapted to have its opposite ends alternately projected above the surface of the way, substantially as specified.

3. In a machine of the class described, the combination, with the table or way, the movable follower supported therein, and a train of gearing for operating the machine, of a device, substantially as described, adapted to be operated by and located in the path of a can upon the table, and means, substantially as described, for operating the follower and adapted to be thrown into operative engagement with the train of gearing by the can-operated device, substantially as specified.

4. In a machine of the class described, the combination, with a table having an opening therein and a follower mounted for movement in the opening, of means, substantially as described, for raising the follower, a train of power-gearing for operating the machine, a trip yieldingly supported in a slot in the table in rear of the follower-opening and adapted to be depressed by a can moving thereover, and devices, substantially as described, connected with and actuated by the trip and adapted for throwing the follower-operating mechanism into operative engagement with the power-gearing of the machine, substantially as specified.

5. In a machine of the class described, the combination, with the table having an opening therein and a follower mounted for movement in the opening, of means, substantially as described, for raising the follower, a train of power-gearing for operating the machine, a trip yieldingly supported in a slot in the table in rear of the follower-opening and adapted to be depressed by a can moving thereover, and devices, substantially as described, connected with and actuated by the trip and adapted for throwing the follower-operating mechanism into operative engagement with the power-gearing of the machine, and a spring for returning the trip after each depression and disengaging the follower-operating mechanism from said power-gearing, substantially as specified.

6. In a machine of the class described, the combination, with the table, of a paste-applying disk having a curved lower portion, a pivotal support for the same, and means, substantially as described, for reciprocating the disk, said disk being adapted to partially rotate and drag from the center of its curved portion to one end of its curved portion when moved in one direction and to partially rotate and drag from its center to its opposite end when moved in an opposite direction, substantially as specified.

7. The combination, with the label-supporting table, of a reciprocating block, a pin 114 passing therethrough, a roller, and a paste-distributer mounted on the pin side by side, substantially as specified.

8. In a machine of the class described, the combination, with the label-supporting table, of a curved rock-arm, means, substantially as described, for rocking the same intermittingly, a block pivoted at the upper end of the rock-arm, a spring for normally depressing the same, a pin arranged in the opposite end of the block, a roller, and a paste-distributer mounted side by side upon the pin, substantially as specified.

9. In a machine of the class described, the combination, with a table having an opening, a depending box surrounding the opening, and a follower mounted in said box, of a pair of ratchet-wheels revolubly supported under the follower, threaded shafts passing through and engaging the hubs of the ratchets, reciprocating bars supported at the sides of the ratchets and terminating at their corresponding ends in depending beat portions, in which are journaled rollers, a pawl mounted on each shaft and engaging the teeth of the ratchet, a spring for moving the shafts in one direction and stops for limiting the movement of the rods in the opposite direction, and a shaft having cams for operating against the rollers, and means, substantially as described, for rotating said shaft, substantially as specified.

10. The combination, with the label-carrying table having the pair of laterally-disposed curved tracks, of the pair of rock-arms, means, substantially as described, for operating said rock-arms, spring-pressed blocks pivoted in the rock-arms, paste-receptacles mounted below the blocks and tracks, bearing-pins mounted in the free ends of the blocks, rollers mounted upon the tracks and upon the pins, and paste-distributers mounted upon the pins at the sides of the rollers and in contact with the paste-rollers, substantially as specified.

11. In a machine of the class described, the combination, with the feed-table having an opening, the follower mounted below the table, the threaded shaft depending from the lower side of the follower, the rotatable centrally perforated and threaded ratchet-disk for the reception of the shaft, the reciprocating bar located at one side of the disk and provided with a series of adjusting perforations, of a pin passed through the bar and adapted to limit the movement of the same, a spring for throwing the shaft in one direction, a roller mounted in the opposite bent end of the bar, a shaft having a cam for operating the roller, and means, substantially as described, for operating the shaft, substantially as specified.

12. In a machine of the class described, the combination, with a table having a pivoted trip, a crank-shaft terminating in a crank-arm connected with the trip and at its opposite end provided with a cross-arm, a longitudinal shaft having a yoke provided with lugs arranged at one side of said cross-arm, a gear loosely mounted on the shaft, a pivoted bell-crank latch-spring pressed upon the gear and normally engaged by the cross-arm and adapted to be disengaged by each depression of the latch, a rock-shaft located below the first-mentioned shaft and carrying-arms having paste-distributers, and connections.

substantially as described, between the rock-shaft and said loose gear, whereby the rock-arms are operated by the gear, substantially as specified.

13. In a machine of the class described, the combination, with the feed-table having a pivoted trip arranged at the rear end of the same, a pair of vertically-opposite longitudinal shafts having gears engaging with each other and that of the upper shaft being loose thereon, a follower and its mechanism connected to and adapted to be operated by the lower shaft, a yoke mounted on the upper shaft, and devices, substantially as described, between the trip and loose gear, whereby a depression of the former locks the yoke with the loose gear, substantially as specified.

14. In a machine of the class described, the combination, with a longitudinal shaft having a crank-arm, a rock-shaft having a rock-arm, a rod having a series of perforations connecting the two arms, of a table, and a rock-arm mounted on the rock-shaft and provided at its free end with a paster adapted to move over the table, substantially as specified.

15. In a machine of the class described, the combination, with a table adapted for lateral contraction and expansion, of a shaft mounted for rotation in bearings and terminating at one end in a crank-arm, means, substantially as described, for operating said shaft, a rock-shaft mounted below the same and having a rock-arm, and a connecting-rod adjustably connecting the rock-arm with the crank-arm, substantially as specified.

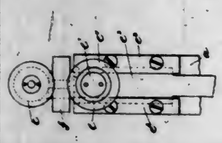
16. In a machine of the class described, the combination, with the frame-work, of an upper frame adjustably mounted therein, opposite shafts having rolls mounted in the upper frame, an endless belt connecting the two rolls, one end of one shaft being provided with a pinion and the opposite end with a pulley or master-gear, pasting mechanism located below the belt and comprising a shaft having a pinion arranged below the pinion of the shaft in the upper frame, and a telescopic vertical shaft terminating in pinions engaging the pinion of the upper frame and that of the lower mechanism, substantially as specified.

17. In a machine of the class described, the combination, with a frame-work, an inclined way leading thereto, a table having an opening, and a follower mounted in said opening, and in rear of said opening a trip, of a separator located in the way, pasting mechanism, substantially as described, located at one side of the table, and means, substantially as described, for operating the separator, then the trip, and then the pasting mechanism in the order named, substantially as specified.

18. In a machine of the class described, the combination, with the frame-work, a table, and an inclined way leading thereto, of a separator-shaft located under the way and having a crescent-shaped separator and a rock-arm, a crank-shaft arranged at a right angle thereto and terminating in crank-arms, mechanism, substantially as described, for operating said shaft in an intermittent manner, a rod connecting one of the crank-arms with the rock-arm of the separator-shaft, a rock-shaft journaled below the crank-shaft and provided with rock-arms, each of which carries pasters, and at one side of the same a smaller rock-arm, and an adjustable rod connecting the last-mentioned rock-arm with one of the arms of the crank-shaft, substantially as specified.

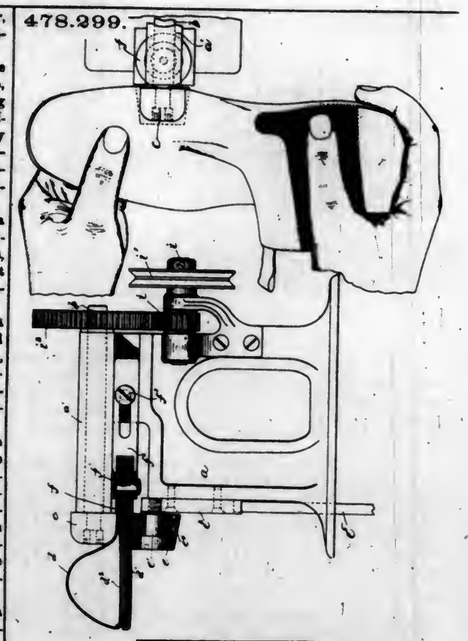
19. In a machine of the class described, the combination, with the frame-work and the superimposed can-feeding device, of the intermediate table yieldingly mounted on the frame-work and provided with an opening, and a label-supporting follower mounted therein, substantially as specified.

478,299. MACHINE FOR LAYING SOLE-EDGES. EDWARD C. WOODARD, Brockton, Mass. Filed Nov. 16, 1891. Serial No. 411,997. (No model.)



Claim.—1. The combination of a smooth-surfaced roll of rigid material, a yielding-surfaced pressure-roll movable toward and from the rigid roll and adapted to bear on the bottom of the outer sole of a boot or shoe interposed between the rolls, the axes of the said rolls being parallel, and a yielding-surfaced gage-roll adapted to bear on the edge of the outer sole, as set forth.

2. The combination of a smooth-surfaced roll of rigid material, a yielding-surfaced pressure-roll movable toward and from the rigid roll and having its axis parallel with that of the first-mentioned roll, a yielding-surfaced gage-roll adjustable toward and from the inner ends of said rolls, and means for securing the gage-roll at any position to which it may be adjusted, as set forth.



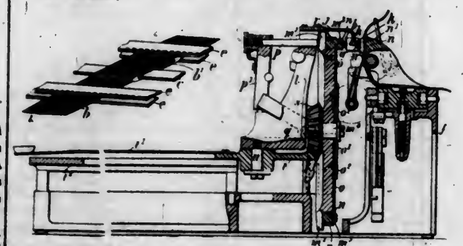
478,300. NUT-LOCK. LEVI H. YOUNG, St. John, Canada. Filed Dec. 2, 1890. Serial No. 373,342. (No model.) Patented in Canada July 12, 1890, No. 34,694.



Claim.—1. A nut-lock consisting of two nuts, each weighted at one edge, so that when seated one against the other the weighted portions of the nuts are on opposite sides of the bolt, the bolt being in a horizontal position, whereby they tend to turn toward each other and are adapted to lock a main nut in any required position.

2. In combination with a bolt and a main nut thereon and two lock-nuts seated on the bolt, one against the other, their edges weighted on one side and such weighted edges being oppositely arranged to cause the nuts to turn toward each other.

478,301. APPARATUS FOR MAKING STENCILS. EUGENIO DE ZUCCATO, London, England. Filed July 20, 1891. Serial No. 400,114. (No model.)



Claim.—1. In a device for making stencils, the combination of a box, frame, or holder, pointed wires or needles having elongated slots or eyes, and supporting-wires extending through such slots or eyes, each needle being capable of endwise movement on the supporting-wires independently of the other needles, substantially as and for the purpose above specified.

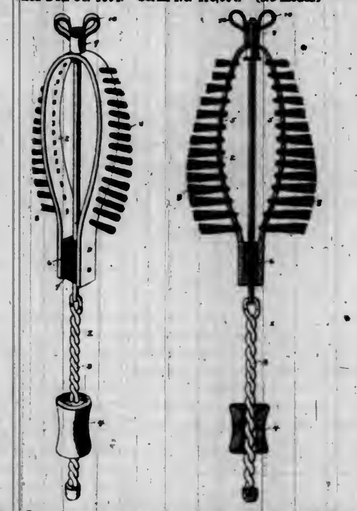
2. In a device for making stencils, the combination of a box, frame, or holder, pointed wires or needles having elongated slots or eyes, and supporting-wires extending through such slots or eyes, each needle being capable of endwise movement on the supporting-wires independently of the other needles, with wires or bands placed between the said wires or needles to maintain them in separate rows and to maintain the said rows parallel to each other, substantially as and for the purpose above specified.

3. In a machine for making stencils, the combination, with a typewriting machine, of a box, frame, or holder in which are held parallel to each other pointed wires or needles capable of endwise movement through a short distance independently of each other, said needles being arranged between the impression-surface and the type of the said type-writing machine, substantially as described.

4. In a machine for making stencils, the combination of a box, frame, or holder arranged between the impression-surface and the type, a spring whereby the said box, frame, or holder is normally held away from the said impression-surface, and pointed wires or needles which are held parallel to each other in the said box, frame, or holder and are capable of endwise movement through a short distance independently of each other, substantially as and for the purposes above specified.

5. In a machine for making stencils, the combination, with a bracket secured to the frame of the machine and provided with guides, of a box, frame, or holder in which are held parallel to each other pointed wires or needles capable of endwise movement through a short distance independently of each other and in the outer walls of which box, frame, or holder slots are formed to receive the said guides and to enable the said frame or holder to slide upon the said guides, and a spring whereby the said box, frame, or holder is normally held at one extreme of its travel, substantially as and for the purpose specified.

478,302. CHIMNEY-CLEANER. DAVID AIKEN, Winnsborough, S. C. Filed Dec. 31, 1891. Serial No. 416,697. (No model.)



Claim.—In a chimney-cleaner, the combination of a shaft, the two wires spirally twisted on each other and secured to and forming a continuation of the shaft, a sliding sleeve arranged on the wires and adapted to rotate the shaft, a brush composed of flexible sides having their outer ends rigidly connected to the shaft, and an adjustable sleeve mounted on the shaft and provided with a set-screw and having the other ends of the sides attached to it, and a swiveled handle arranged at the upper end of the shaft, substantially as described.

478,303. DRIPPER FOR BARRELS. CHARLES B. ALLCOOD, Petersburg, Va. Filed Mar. 24, 1892. Serial No. 426,280. (No model.)

Claim.—1. In a drainer for liquid-measures, the combination of a body having a door and a lower hopper-shaped extension with a funnel connected to the lower end thereof, a sieve or reticulated partition in the lower portion of said extension over the funnel, a basin surrounding said extension adjacent to the upper termination of said funnel, and a rack removably fitted in said body above the said sieve or reticulated partition, substantially as described.

2. In a drainer for liquid-measures, the combination of a body having a lower extension and a funnel connected thereto and a basin surrounding said extension adjacent to the upper termination of said funnel, substantially as described.

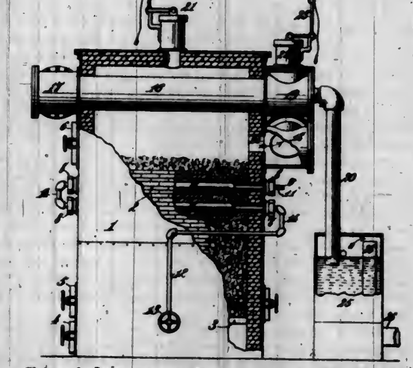
3. In a drainer for liquid-measures, the combination of a body and a rack removably supported therein and having cross-bars with rings between said cross-bars and connected to portions of the same and tubular side bars to which said cross-bars are secured, substantially as described.

478,304. COMMERCIAL COIN. IRVIN T. ALVORD, North Ogden, Utah. Filed Apr. 7, 1891. Serial No. 387,916. (No specimens.)



Claim.—The improved commercial coin or merchandise-check described, comprising a sheet or disk bearing the name of the party issuing said coin, together with its denomination or matter of similar import, and transparent disks protecting said inscribed disk and secured thereto by transparent adhesive substance, the respective disks being brought flush upon each other, so as to prevent breakage.

478,305. APPARATUS FOR THE MANUFACTURE OF WATER-GAS. JOSEPH ASKINS, Lima, Ohio. Filed Jan. 9, 1892. Serial No. 417,880. (No model.)

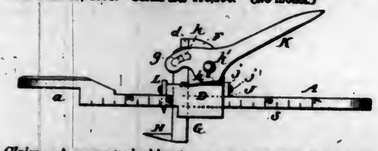


Claim.—1. In an apparatus for the manufacture of water-gas, the combination of a gas-generator having a purge-valve in its upper part, horizontal parallel gas-superheating retorts located in the generator and communicating with each other and with the interior of the generator above the bed of fuel, a purge-valve connected with one of said retorts, a gas-exit pipe leading from said gas-superheating retorts, and steam-pipes communicating with the lower part of the generator below its grate, substantially as described.

2. In an apparatus for the manufacture of water-gas, the combination of a generator having a purge-valve in its upper part and provided with a grate and with self-sealing doors located above and below the grate, horizontal parallel gas-superheating retorts located in the generator above the bed of fuel and communicating with each other

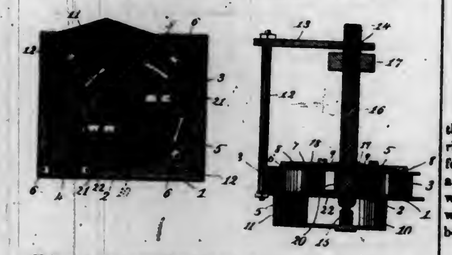
and with the interior of the generator, a purge-valve connected with one of said retorts, a gas-exit pipe leading from the retorts, and steam-pipes communicating with the lower part of the generator below its grate, substantially as described.

478,306. SHINGLE-GAGE. JOHN W. BACON, Enderley, Canada. Filed Dec. 28, 1891. Serial No. 416,296. (No model.)



Claim.—A carpenter's shingling-gage consisting of the slotted and rabbeted rule A, scaled on one side, the slide-block D, adjustable thereon, the vertical slide-bar G, having a pin *g* near the upper end and the dog H at the lower end, the lever K, having curved slot for the pin *g* and a downward projection k^2, the bridge-spring I, and the spike-pin L, substantially as shown and described.

478,307. CENTRIFUGAL PUMP. BENJAMIN F. BEE, Harwich, Mass. Filed Aug. 22, 1891. Serial No. 403,366. (No model.)



Claim.—1. In a centrifugal pump, the combination, with the case having the vertical inlet-opening eccentrically related with the wall of the case, of the shaft passing through the case and opening, a disk on the shaft, and blades depending from the disk over the opening and having laterally-bent flanges at their lower edges overlapping the edge of said vertical opening and traveling horizontally thereover, substantially as specified.

2. In a centrifugal pump, the combination, with the scroll or spiral case having the vertical inlet-opening eccentrically related with the wall of the case, of the shaft passing through the case and opening, a flat disk on the shaft above said opening, and straight blades depending from the disk over the opening and having laterally-bent flanges at their lower edges, said flanges overlapping and extending beyond the edge of the opening and traveling horizontally thereover and having those portions above the opening downwardly inclined or bent, substantially as specified.

3. In a centrifugal pump, the combination, with the casing comprising the base, having the circular inlet-opening, and the spiral vertical wall eccentrically disposed with relation to the opening and terminating at one side in a discharge-spout, and a cover for the case, having an opening, of vertical curved deflecting-plates secured to the base within the casing near to and concentric with the edges of the opening, a shaft passing through the case and opening, and a disk mounted on the shaft and provided with depending blades traveling within said plate and over the edges of said inlet-opening, substantially as specified.

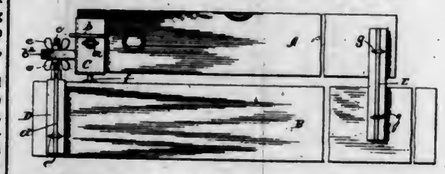
4. In a pump of the class described, the combination, with the casing comprising the base having the inlet-opening, the vertical spiral wall located adjacent to and eccentric with relation to the opening and having the discharge, the cover having the countersunk recess above the opening and provided with an opening, the receiving-box having the inlet located below the opening in the base, and the series of vertical transversely-curved deflecting-plates mounted on the base adjacent to and concentric with the opening and within the casing, of the opposite standards extending from the base, the transverse connecting-bar having a bearing vertically opposite the openings in the base and cover, and a bearing formed in the bottom of the discharge-box, the vertical shaft mounted in the bearings, the pulley on the shaft above the case, the disk upon the shaft within the base, and the depending L-shaped blades secured to the disk and having their horizontal wing portions traveling over and overlapping the edge of the opening in the base and having the said horizontal portions thereof immediately above the opening downwardly bent, substantially as specified.

478,308. DRESS-WAIST FORM. HAROLD A. BROWN, Lawrence, Kans. Filed Sept. 25, 1891. Serial No. 406,835. (No model.)



Claim.—The combination, with an upright standard, a collar C thereon, a set-screw Q through said collar, and rods R, pivoted to and rising from the collar and having hooked outer ends, of a hollow rigid form having an open lower end provided with perforations or eyes and a plate P within the form at the waist-line, having a hole through which the standard moves, the collar and its adjusting-rods being wholly below the lower end of the form, as and for the purpose hereinbefore set forth.

478,309. SPIRIT-LEVEL. THOMAS L. BURCHINAL, Morgantown, W. Va. Filed May 5, 1892. Serial No. 431,867. (No model.)



Claim.—1. The combination of a level, a clamp embracing its end, a straight-edge, a clamp secured thereto and connected to the clamp on the level, and a double clamp secured to the free ends of the level and straight-edge, substantially as described.

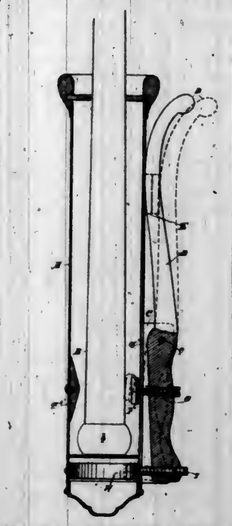
2. The combination of a level, a clamp secured to one end, a downward extension formed on the clamp, a straight-edge, a second clamp secured thereto and connected directly to the clamp on the level, a double clamp connecting the opposite ends of the level and straight-edge, and a cross-piece on the double clamp of a size similar to the extension on the level-clamp, substantially as described.

3. The combination of a level, a clamp secured to one end, an arm projecting out from the same, a straight-edge, a clamp secured thereto, a shank formed on the straight-edge clamp, means for connecting the arm and shank, and a double clamp secured to the opposite ends of the level and straight-edge, substantially as described.

4. The combination of a level, a clamp secured to one end, an arm projecting out from the clamp, an eye formed in the end of the arm, a straight-edge, a clamp secured thereto, a threaded shank formed on the straight-edge clamp and adapted to pass through the eye in the arm on the level-clamps, thumb-nuts for adjusting and holding the shank in place, and a double clamp secured to the opposite ends of the level and straight-edge, substantially as described.

5. The combination of a level, a clamp secured to its end, a downward extension formed on the same, an arm projecting out from the clamp, a straight-edge, a clamp secured thereto, a threaded shank formed on the straight-edge clamp, means for connecting the shank and arm, a double clamp connected to the straight-edge and level, and a cross-piece on the double clamp of a size similar to the extension on the level-clamp, substantially as described.

478,310. WHIP-SOCKET AND REIN-HOLDER. THEODORE F. BURKHARD, San Francisco, Cal. Filed Sept. 21, 1891. Serial No. 406,403. (No model.)



Claim.—1. The combined whip-socket and rein-holder consisting of the socket, the lever-arm pivoted to its side, the spring in the lower end of the socket under the supporting-base of the whip-butt operating on the lower end of the lever-arm, and the adjustable lock-plate on the lever-arm operating in the socket to confine and to relieve the whip-butt, substantially as herein described.

2. The combined whip-socket and rein-holder consisting of the socket, the spring-controlled lever-arm pivoted to its side, the lock-plate on the lever-arm operating within the socket to confine the whip-butt, and the fixed abutment-plate in the socket opposite the lock-plate, substantially as herein described.

3. The combined whip-socket and rein-holder consisting of the socket, the spring-controlled lever-arm, the lock-plate of said arm, and the adjusting-screw for regulating the position of the lock-plate, substantially as herein described.

4. The combined whip-socket and rein-holder consisting of the socket, the lever-arm pivoted thereto and having the lock-plate, the spring in the socket, and the adjusting-screw in the lever-arm bearing on the spring and adapted to regulate its tension, substantially as herein described.

5. The combined whip-socket and rein-holder consisting of the socket A, having the abutment-plate a^2 within it, the slot and the flanges, and the spring H in its lower portion, the lever-arm pivoted to said flanges and playing between them and through the slot, the adjustable lock-plate on the lever-arm operating within the socket, and the adjusting-screw in the lower end of the lever-arm bearing on the spring, substantially as herein described.

478,311. LAND-PLOWING MACHINE. GEORGE M. CLARK, Haddam, Conn., assignor to Clement S. Hubbard, same place. Filed Apr. 5, 1892. Serial No. 427,868. (No model.)

Claim.—1. The combination, substantially as hereinbefore described, of a rotary plowshare, a hinged mold-board having its blade at the rear of and extending laterally from the rear edge of the share, and a lever connected with said mold-board for vertically controlling its blade or working face.

2. The combination, substantially as hereinbefore described, of a gang of rotary plowshares, a corresponding number of connected hinged mold-boards, and a lever coupled therewith for vertically varying the position of all of the mold-boards.

3. The combination, substantially as hereinbefore described, of a rotary plowshare, a hinged mold-board, and a controlling-lever coupled to the mold-board by a link connection, which upon a release of the lever automatically locks the mold-board in its normal working position.

4. The combination of a rotary plowshare, a hinged mold-board, and a mold-board-controlling lever provided at its fulcrum with a variable bolt-and-slot connection, substantially as described, for enabling the adjustment of said lever in either rigidly confining the mold-board in its working position or permitting a limited upward and rearward movement of said board.

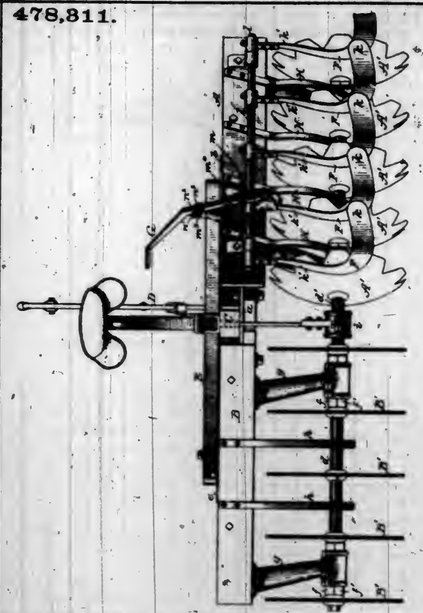
5. The combination, with a rotary plowshare, of a hinged or swinging mold-board held in its normal working position under yielding pressure, substantially as described.

6. The combination, with a gang of rotary plowshares, of a gang of rotary bladed or toothed landside-disks, and clearers located between the landside-disks and in contact with their axle, substantially as described, for freeing the landsides from roots and weeds and preventing them from being wound upon the axle.

7. The combination, in a plowing-machine, of a gang of rotary plowshares and a gang-frame, appropriate landside devices, and a landside-frame, a pole to which the inner ends of both of said frames are flexibly connected, draft links or bars, also coupling said frames to the pole, and a lateral spring-bar centrally bearing on the pole and pivoted at its ends to the two draft-bars, substantially as described.

8. The combination, in a disk-gang frame and with its axle, of wooden journal-boxes occupying the space between two adjacent disks, and hangers secured at their upper ends to the frame, and at the lower ends having box-clamps provided with integral spurs for puncturing the wooden boxes and securely locking the latter against endwise movement in the clamps, substantially as described.

478,311.



478,312. CLAMP FOR DENTAL FLASKS. MORGAN R. B. CRESSY, Ebensburg, Pa. Filed Dec. 5, 1891. Serial No. 414,133. (No model.)



Claim.—1. In a clamp for dental flasks, the combination, with the flask having the side posts provided with locking notches or shoulders, of a spring-metal clamping-plate pivoted upon the top of said flask and provided with upturned lips adapted to engage said locking shoulders or notches, substantially as set forth.

2. In a clamp for dental flasks, the combination, with the flask having the side posts provided with locking notches or shoulders and a top perforation or recess, of a movable spring-metal clamping-plate having a pivot stud or pin engaging said top perforation or recess, a series of upturned spring locking-lips adapted to engage said locking shoulders or notches, and operating-flanges, substantially as set forth.

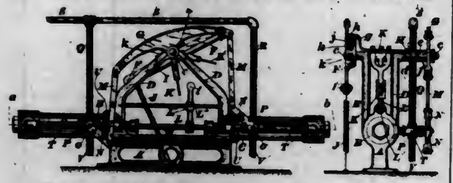
478,313. HOOK. EDWARD W. DAVIS, Indianapolis, Ind. Filed Mar. 19, 1892. Serial No. 425,553. (No model.)



Claim.—1. In a ceiling-hook, the combination of a hollow shank closed and screw-threaded at one end and having diametrical openings in opposite sides of its threaded portion, a hook provided with a stem adapted to fit the interior of said shank, a pair of arms pivoted at one end to said stem and arranged to project laterally therefrom through the openings in the shank, and means for fastening said stem and shank together, all arranged to co-operate substantially as and for the purpose set forth.

2. The above-described ceiling-hook, consisting of a hollow cylindrical shank threaded at one end and provided in its threaded portion with oppositely-arranged openings, the stem adapted to fit and to slide longitudinally within said shank, said stem being provided with a hook at one end and a pair of laterally-swinging arms at its opposite end, the elastic band arranged to draw said arms toward each other, and means, substantially as shown and described, for fastening said stem and shank together, all combined and arranged to co-operate substantially as set forth.

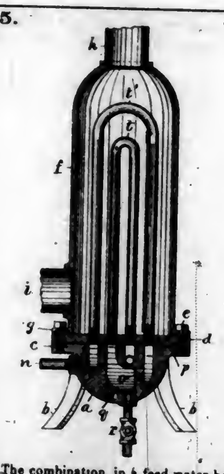
478,314. HYDRAULIC PUMPING-ENGINE. GEORGE W. DAWSON, Chicago, Ill. Filed Sept. 19, 1891. Serial No. 406,170. (No model.)



Claim.—1. A hydraulic pumping-engine consisting of two cylinders B and C, said cylinders connected longitudinally by means of a frame A, said cylinders having pistons W and W', said pistons directly connected by a rod L, said rod having an upwardly-projecting arm L', shaft c, mounted above and transversely of said rod, firmly secured to said shaft, two arms K and K', said arms having a position in which they can be moved by contact of the end *l* of arm L' when said arm is reciprocated, as described, by piston-rod L, lever F, firmly attached to shaft c, said lever provided with a rod I, suspended below and attached to said lever only at its ends, said rod having a ring I', which is capable of sliding the whole length of said rod between the points of attachment of said rod, said ring having attached thereto a spring J, said spring operating in the manner and for the purpose described, the whole operating in combination with lever G, loosely mounted on shaft c, said lever operated by contact of tongue *f* of collar H in notch *e* of the hub of lever G, said lever connected with the valve-levers N and N' by rods M and M' for the purpose of imparting a partial rotary motion to each valve at the time and in the manner substantially as shown and described.

2. In a hydraulic pumping-engine, means for operating the valves which control the water to and from the machine, consisting of a transverse shaft c, lever F, attached at one end of said shaft and provided with the described rod I, upon which reciprocates ring I' of spring J in the manner and for the purpose described, and collar H, firmly secured to said shaft and capable of operating lever G by the means, at the time and for the purpose, substantially as shown and described.

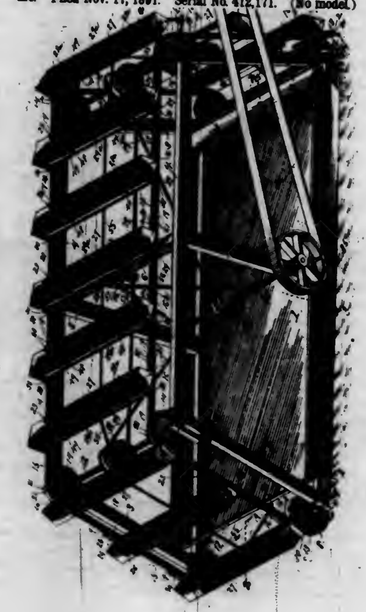
478,315. FEED-WATER HEATER. JOHN DE VRIES, Passaic, N. J. Filed Mar. 10, 1892. Serial No. 424,401. (No model.)



Claim.—1. The combination, in a feed-water heater, of the shell *f*, provided with steam-pipes *h* and *i*, the tube-plate *d*, having the U-shaped tubes secured therein, as described, and the base *a*, provided with supporting-feet and cast with the settling-chamber *q* and the slots therein, as set forth, one of the central slots *k* being connected with the water-inlet *m* and the adjoining slot *k'* being connected with the settling-chamber *q* and the slot *l* and one of the outer slots being connected with the water-outlet *n*, and the settling-chamber being provided with the blow-off cock *r*, the whole arranged and operated substantially as set forth.

2. The combination, in a feed-water heater, of the shell *f*, provided with steam pipes *h* and *i*, the tube-plate *d*, having the U-shaped tubes *l l'* secured therein as described, and the base *a*, provided with supporting-feet and cast with the settling-chamber *q* and the slots *k k'* and *l l'*, as set forth, the slot *k* being connected with the water-inlet *m*, the slot *k'* being connected with the settling-chamber *q* and by the passages *o* with the slot *l*, and the slot *l'* being connected with the water-outlet *n*, and the settling-chamber being provided with the blow-off cock *r*, the whole arranged and operated as herein set forth.

478,316. CURRENT-MOTOR. FRANK DIEWIDDIE, Kansas City, Mo. Filed Nov. 17, 1891. Serial No. 412,171. (No model.)

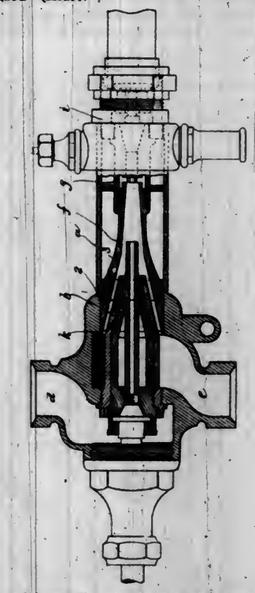


Claim.—1. A current-motor comprising a suitable supporting frame-work, a number of shafts journaled thereon, a number of sprocket-wheels carried by said shafts, a number of endless sprocket-chains running over said sprocket-wheels, a number of buckets carried by said chains and each provided with an automatically opening and closing abutment or gate hinged within the bucket, a number of rock-shafts carried by the buckets and having rock-arms to engage the margins of the open abutments, a link-bar connected to said arms, bell crank levers carried by each bucket and connected to the link bars, and an endless flexible connection connected to said bell-cranks, substantially as set forth.

2. A current-motor comprising a suitable frame-work, a number of shafts journaled thereon, a number of sprocket-wheels carried by said shafts, a number of endless sprocket-chains running over said wheels, a number of buckets carried by said sprocket-chains and each provided with an automatically opening and closing abutment, a number of rock-shafts carried by the buckets and having rock-arms to engage the margins of the open abutments, a number of link-bars connecting said rock-shafts, bell-crank levers carried by said buckets and engaging the link-bars, eye-bars carried by the bell-cranks, an endless flexible connection embraced by said eye-bars, and a pair of gripping-levers pivoted upon the frame-work and arranged to surround the flexible connection for engaging the eye-bars, substantially as set forth.

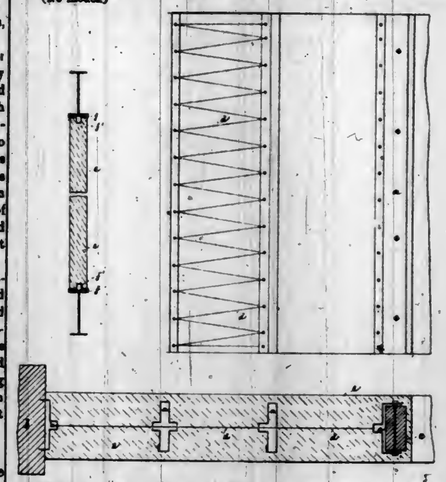
3. A current-motor comprising a suitable float, a suitable supporting frame-work mounted upon and extending longitudinally of said float, a number of endless sprocket-chains running over said shafts and beneath the float, a number of elongated buckets extending transversely of the frame-work and each connected to the sprocket-chains by two pairs of arms, one arm of each pair being pivotally connected at one end to the bucket and its opposite end to the corresponding end of the companion arm, and the opposite end of the companion arm being pivotally connected to the sprocket-chain, substantially as set forth.

478,317. INJECTOR. WALTER R. DODGE, Everett, assignor to the National Tube Works Company, Boston, Mass. Filed Mar. 9, 1891. Serial No. 384,214. (Model.)



Claim.—In an injector, the combination of the casing, the combining-cone, and a seat or stop in said casing adapted to prevent the movement of the combining cone toward the steam and water receiving end of the casing, said seat offering no resistance to the movement of said cone in the opposite direction, the said combining-cone being made in separable sections 2 3, the inner one 2 of which is formed to bear on the said seat in the casing, while the other 3 is adapted to be detachably connected to the delivery cone or tube, said section 2 being of such diameter that it may be introduced into the outer or delivering end of the casing and moved toward the receiving end until it is arrested by said stop, whereby all parts of the combining-cone may be inserted and removed at the delivering end of the casing, the outer portion of the said cone being adapted by the sectional construction of the cone to be removed independently of the seated inner portion, as set forth.

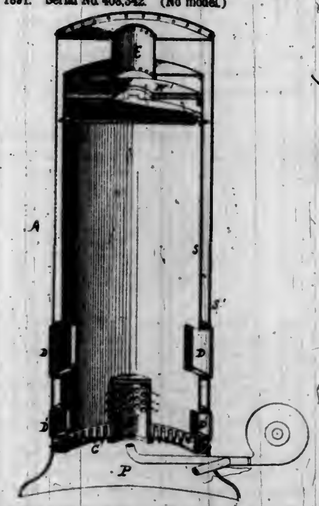
478,318. FIRE-PROOF PARTITION OR CEILING. CARL F. W. DOERING, New York, N. Y. Filed Jan. 16, 1891. Serial No. 377,972. (No model.)



Claim.—1. The combination of the bent sheet-metal uprights *a* with connecting-wires *d* and mortar filling *e*, substantially as and for the purpose specified.

2. The combination of bent sheet-metal uprights *a* with connecting-wires *d*, filling *e*, and with keys *f* for connecting the partition to the ceiling and floor, substantially as specified.

478,319. FURNACE. ELLIS P. EDGAR, Woodbridge, N. J. Filed Oct. 10, 1891. Serial No. 408,342. (No model.)

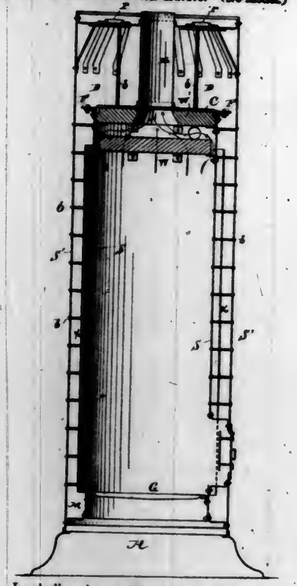


Claim.—1. An upright shell steam-boiler having an interior shell, an exterior shell, a draft-exit, a steam-space, and a crown-sheet, substantially as set forth, protected by a wall W', arranged as described, from the direct action of the flame, all substantially as set forth.

2. An upright shell steam-boiler having an interior shell, an exterior shell, a draft-exit, a steam-space, a crown-sheet, a wall located near the upper end of the fire box, with an aperture or apertures therethrough at or near its extremity about equal in cross area to the

cross area of the draft-exit, and a second wall beyond the first, provided with an aperture about equal to or a little less in area than the aperture in the first wall, but located out of line with the apertures in said first wall, one or both of which walls are arranged, substantially as set forth, to protect the crown-sheet of the boiler, all substantially as set forth.

478,320. STEAM-BOILER. ELLIS F. EDGAR, Woodbridge, N. J. Filed May 10, 1892. Serial No. 432,475. (No model.)



Claim.—In a boiler, the combination of a circulating-plate located between the inner and outer shells of the boiler and open at both ends, and a spatter-plate located so far or farther above the upper end of the circulating-plate as the width of the space between the circulating-plate and the interior shell and extending from the shell of the boiler to or beyond the line of the said circulating-plate and between the water (which is between said circulating-plate and the interior shell) and the steam-space of the boiler, all substantially as set forth.

478,321. SETTING MECHANISM FOR TIMEPIECES. EDWARD E. ELLIS, Washington, D. C., assignor of one-half to Benjamin L. Wheeler, same place. Filed Mar. 16, 1892. Serial No. 425,155. (No model.)



Claim.—1. In time-setting devices for watches and clocks, a movable or revolving crystal provided with means for engaging and disengaging the hand-post of a watch or clock, substantially as shown, and for the purpose described.

2. In time-setting devices for watches and clocks, a movable or revolving crystal having a central opening and provided with a slide for engaging the hand-post of a watch or clock, substantially as described.

3. In time-setting devices for watches and clocks, a movable or revolving crystal having a central opening, and a disk surrounding said opening and having parallel guides, and a slide moving in said guides having a notch for engaging or receiving the hand-post of a watch or clock, substantially as described.

4. In time-setting devices for watches and clocks, a movable or revolving crystal having a central opening surrounded by a disk formed with parallel guides, and a slide moving in said guides having its outer edge upturned slightly and formed with oppositely-arranged notches for engaging the hand-post of a watch or clock when said slide is moved toward the same in either direction, substantially as and for the purpose described.

5. In time-setting devices for watches and clocks, the combination of a movable crystal having a central opening, springs or elastic devices for pressing said crystal outwardly, a disk surrounding said central opening and having parallel guides, and a slide moving in said guides having a notch for receiving the hand-post of a watch or clock, substantially in the manner shown, and for the purpose described.

6. In time-setting devices for watches and clocks, a crystal having an opening therein and provided with a movable key or slide surrounding said opening for engaging and disengaging the hand-post of a watch or clock, substantially as described.

7. In time-setting devices for watches and clocks, the key for engaging and disengaging the hand-post of a watch or clock, the same consisting of a movable slide provided with a central opening intersected at opposite points by notches, substantially as described.

8. In time-setting devices for watches and clocks, the combination of a movable or revolving crystal having an opening therein, the hand-post extending through said opening, and a movable key or slide for engaging and disengaging said hand-post, substantially as described.

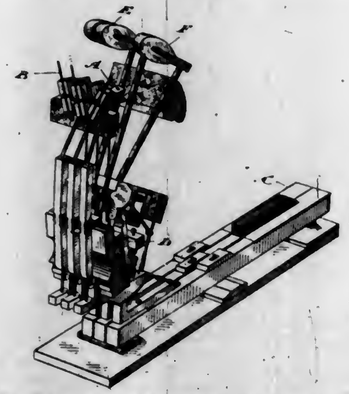
478,322. CARRIER ATTACHMENT FOR BUCKET-ELEVATORS. MICHAEL GARLAND, Bay City, Mich. Filed Apr. 25, 1892. Serial No. 430,485. (No model.)



Claim.—1. In an elevator of the type shown and described, the combination, with the twin cables and the buckets arranged between them, of combined sprocket like and attachment devices D, each of which is made in two parts and is provided with means for clamping said parts on a cable and each of which has one of its parts formed with a plate-like portion located intermediately of the two cables and adapted to be fastened to one end of one of the buckets of the elevator, substantially as set forth.

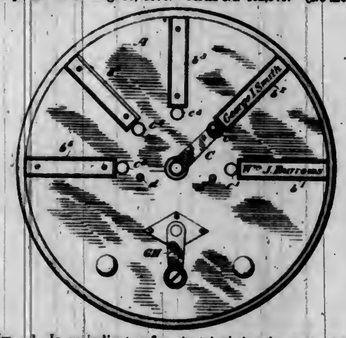
2. In an elevator of the type shown and described, the combined sprocket-like and attachment device composed of the two parts E and G, the first-named one of which has an integral plate-like portion *e* and which are provided with the bolts and nuts *h i*, as described, and which also has its said two parts properly shaped in cross-section in the direction shown to perfectly mesh or work in engagement with the teeth of the sprocket-wheel of the elevator, all as hereinbefore set forth.

478,323. TRANSPOSING PIANO-ACTION. CARL G. GEORGE, Toronto, Canada. Filed Feb. 2, 1892. Serial No. 420,127. (No model.) Patented in Canada Mar. 3, 1892. No. 33,441.



Claim.—In a piano-action for overstrung scales, having a transposing keyboard, the bass or treble hammers deflected at the space where the wires cross each other, in combination with straight keys and straight lifters, arranged substantially as and for the purpose specified.

478,324. INDICATOR FOR ELECTRICAL SIGNALING SYSTEMS. CHARLES F. GILLETTE, New York, N. Y., assignor to Joseph F. Bray, same place. Filed Aug. 13, 1891. Serial No. 402,579. (No model.)



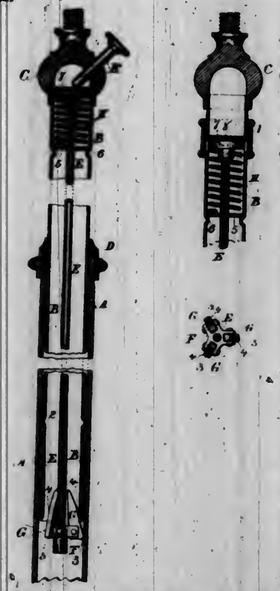
Claim.—1. In an indicator for electrical signal system, the combination of a plate, made of suitable material, a magneto-electric generator, contact-points for connection with different localities, subscribed plates or card-holders adjacent to the contact-points, and a contact-arm for completing the electrical connection between the magneto-generator and contact-points, the magneto-generator, contact-points, card-holders, and contact-arm all being mounted on the plate, substantially as described.

2. The card-holder, in combination with a magneto-electric generator, contact-points, and contact-arm, all being mounted on plate, substantially as set forth.

3. A magneto-electrical generator attached to back of plate and card-holders, contact-points, and contact-arm on front of plate and electrically connected with magneto-generator, as previously described.

4. In a magneto-electrical signal system, the combination of a magneto-electric generator, plate, connecting-arm, contact-points, and card-holders, all in combination, as hereinbefore set forth.

478,325. EXTENSION-TUBE FOR LAMPS. THEODORE H. HELLSTROM, New York, N. Y., assignor to the Plume & Atwood Manufacturing Company, Waterbury, Conn. Filed Jan. 2, 1892. Serial No. 416,750. (No model.)



Claim.—1. The combination, with the tubes A and B, sliding telescopically, and the rod E, of a crown-piece attached to the lower end of the rod, levers pivoted upon the crown-piece and having projecting ends or claws and inclined surfaces within the lower end of the inner tube, and mechanism for giving motion to the rod to relieve the inclines of the levers from contact with the inner tube and to release the clamping action or to bring such levers into contact with such tube and cause them to clamp and hold against the exterior tube, substantially as set forth.

2. The combination, with the tube A, of the tube B, sliding telescopically within the same, the cap C and collar upon the upper end of the tube A, the rod within the tube B, and a clamping device for engaging the inner surface of the exterior tube, a spring for moving the rod longitudinally to engage the clamping device, and a push-pin passing through the cap in an inclined position and acting at its lower end against the upper end or head of the rod, substantially as set forth.

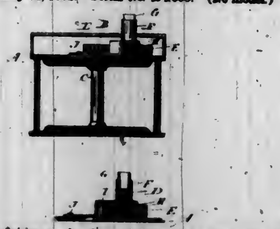
3. The combination, with the external tube A, of the tube B, sliding telescopically within the same, a collar at the upper end of the tube A, a cap at the upper end of the tube B, a longitudinal rod E within the tube B, a crown at the lower end of such rod, wedge-levers pivoted to the crown and passing within and acted upon by the lower end of the inner tube to clamp the inner surface of the outer tube, a washer supported by an inwardly-projecting rib upon the tube B, a spring acting between the washer and the head of the rod for raising such rod and actuating the clamping device, and means for moving the rod downwardly to liberate the clamping device, substantially as set forth.

478,326. FISHING-REEL. ANDREW B. HENDRYX, New Haven, Conn. Filed May 18, 1892. Serial No. 433,409. (No model.)



Claim.—In a click-reel, the two springs E F, formed in a single piece of wire and of substantially ring shape, divided, the two ends of the ring adapted to bear upon opposite sides of the click-finger, the wire having a bend I outward in the plane of the springs and secured to the head of the reel at each side of said bend, substantially as and for the purpose described.

478,327. FISHING-REEL. ANDREW B. HENDRYX, New Haven, Conn. Filed May 31, 1892. Serial No. 434,335. (No model.)



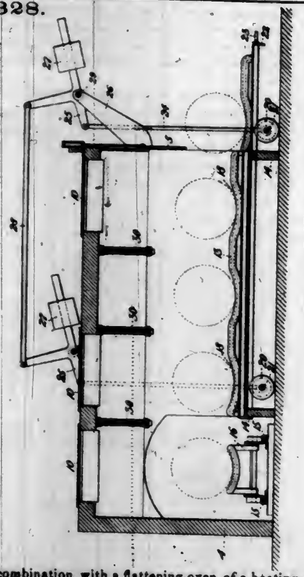
Claim.—In a fishing-reel, substantially such as described, the spindle D, fixed on the head at one side of the spool-shaft, the multiplying gear-wheel E, arranged on said spindle and adapted to engage with a corresponding pinion on the spool-shaft, the wheel E, constructed with a tubular hub F and constructed for the attachment of the crank upon its outer end, combined with the guard I, pivoted to the head and extending over the wheel, constructed with a notch in one side near its end to adapt that end to surround the hub outside the wheel, substantially as described, and whereby the wheel is supported longitudinally between the said guard and head of the reel.

478,328. GLASS-HEATING OVEN. ANDREW O. HURLEY, Jeannette, Pa. Filed Sept. 22, 1891. Serial No. 406,528. (No model.)

Claim.—1. A flattening-oven provided with a heating-oven leading thereto and a cooling-leer leading therefrom, and means located within the heating-oven for carrying the glass therethrough, and mechanism for transferring the glass therefrom into the flattening-oven and from the flattening-oven through the leer, substantially as and for the purposes described.

2. A flattening-oven provided with a heating-oven leading thereto and a cooling-leer leading therefrom, supports within the heating-oven, and means for carrying the cylinders forward on said supports successively nearer the flattening-oven, means for transferring them into said oven, and means for conveying the glass from the flattening-oven through the leer, substantially as and for the purposes described.

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3. The combination, with a flattening-oven, of a heating-oven and a cooling-leer connected therewith, a car arranged to travel from the heating-oven into the flattening-oven, and means for carrying the cylinders forward through the heating-oven to the car, substantially as and for the purposes described.

4. The combination, with a flattening-oven, of a heating-oven connected therewith and a cooling-leer leading therefrom, a car arranged to move from the heating-oven into the flattening-oven, supports within the heating-oven, and means for carrying the cylinders forward into successive positions on the supports and for transferring them from the supports to the car, substantially as and for the purposes described.

5. The combination, with a flattening-oven, of a heating-oven connected therewith and a cooling-leer leading therefrom, supports within the heating-oven, movable bars arranged to carry the glass cylinders forward on the supports, and means for transferring the glass cylinders from the supports to the flattening-oven, substantially as and for the purposes described.

6. The combination, with a flattening-oven, of a heating-oven connected therewith and a cooling-leer leading therefrom, a car arranged to travel from the heating-oven into the flattening-oven, supports within the heating-oven, and movable bars also within the heating-oven and arranged to carry the cylinders forward into positions on the supports successively nearer the heating-oven and to transfer the cylinders from the supports to the car, substantially as and for the purposes described.

7. The combination, with a flattening-oven, of a heating-oven and a cooling-leer connected thereto, valved openings in the roof of the heating-oven, depending mantles between the openings, and means for carrying glass cylinders forward through the heating-oven into the flattening-oven, substantially as and for the purposes described.

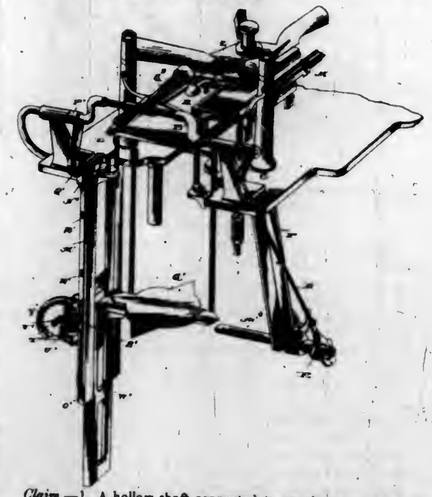
8. The combination, with a flattening-oven, of a heating-oven and a cooling-leer connected thereto, supports and movable bars within the heating-oven, and means for vertically reciprocating the movable bars, said movable bars being arranged to feed the glass cylinders forward through the heating oven, and means for transferring them therefrom into the flattening-oven, substantially as herein set forth.

9. The combination, with a flattening-oven, of a heating-oven connected thereto, a car having supports for cylinders thereon and arranged to travel from the heating-oven into the flattening-oven, and supports and movable bars within the heating-oven arranged to feed forward glass cylinders onto the car, said car-supports and bars being covered with asbestus, substantially as and for the purposes described.

10. The combination of a flattening-oven, a heating-oven connected therewith and a cooling-leer leading therefrom, a car arranged to travel from the heating-oven into the flattening-oven, stationary bars arranged within the heating-oven at substantially right angles with the track upon which the car moves, and movable bars between the stationary bars arranged to carry the cylinders forward to their successive positions upon the stationary bars and from the stationary bars onto the car, substantially as and for the purposes described.

11. The process of working glass, consisting in gradually feeding the cylinders through an oven having a gradually-increasing temperature, depositing them upon the flattening-table, and flattening them, substantially as set forth.

478,329. PAPER-FEEDING APPARATUS. JAMES W. HUTT and ARTHUR J. PHILLIPS, Toronto, Canada. Original application filed Jan. 2, 1891, Serial No. 376,506. Divided and this application filed Aug. 7, 1891. Serial No. 402,050. (No model.)

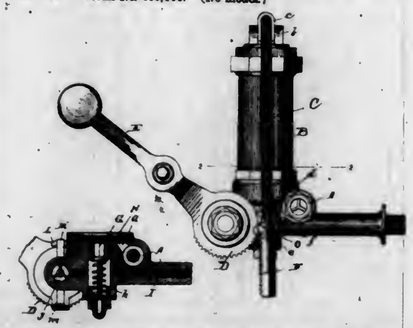


Claim.—1. A hollow shaft connected to an air-pump and deriving a rocking movement from the driving mechanism of the machine, in combination with a solid head and a hollow finger connected to said head and to the hollow shaft, the driving mechanism being so timed as to bring the hollow finger and solid head in contact with the top of a pile of blanks the moment that the pump is about to exhaust the air from the hollow finger, substantially as and for the purpose specified.

2. A table designed to support the pile of blanks and movably supported in a frame, a rack formed on the back of a table designed to engage with a pinion fixed to a spindle suitably journaled in the frame and having a ratchet-wheel fixed to the said spindle, and a spring-pawl pivoted on a vertically-movable bar and held in contact with the teeth of the ratchet-wheel, in combination with an arm fixed to the rock-shaft on which the hollow finger is attached, and a friction-roller formed on the end of the vertically-movable bar and designed to engage with the hook end of the arm, substantially as and for the purpose specified.

3. The fingers T, connected to the rock-shaft U, which is operated by a rod V, deriving motion from a cam W, in combination with carrier L and gravity-stops Y, pivoted in the guide M, substantially as and for the purpose specified.

478,330. SIRUP-GAGE. JOHN E. JACOBS, Chicago, Ill. Filed Oct. 29, 1891. Serial No. 410,166. (No model.)



Claim.—1. In a sirup-gage, the combination, with the graduating sirup-chamber and its plunger, of arms C for actuating said plunger, said arms being located at opposite sides of said chamber and parallel with the plane of the plunger-axis and carrying racks, and segments meshing with such racks and acting to impart simultaneous movement to said arms without destroying their parallelism with said axis, substantially as specified.

2. In a sirup-gage, the combination, with a water-passage, of a valve K, having a rear stem *m*, extending through the valve-case, a cam moved by the operating-lever, and a hinged arm M, actuated by the cam, substantially as set forth.

3. In a sirup-gage, the plunger of the sirup-chamber, the arms carrying power to said plunger, the racks and projections O upon said arms, and the water-valve having the projecting stem N, in combination with the segments, their operating-lever and cam L, the contact between the teeth of the segments and racks ceasing at the completion of the inward movement of the plunger and the continuing movement of the lever serving to open the water-valve, substantially as set forth.

4. The combination, in a sirup-gage, of a graduating-chamber and plunger, arms C for actuating said plunger, racks F upon the arms, the operating-lever, the segments rotated by the lever and meshing with the racks, the cam L upon one of the segments, the projections O above the racks, and the water-valve, substantially as specified.

5. The combination, in a sirup-gage, of the sirup-chamber and plunger, the arms and racks for giving motion to the plunger and the water-valve, with hand-lever and segments rotated by the lever and meshing with said racks, said segments and racks being in non-operative contact during the latter portion of the lever-stroke, and one of the segments having a cam adapted to actuate said valve during such latter portion of the lever-stroke, substantially as specified.

478,331. DOMESTIC COOKER OR BOILER. HENRY C. JORDEN, St. Louis, Mo. Filed Aug. 7, 1891. Serial No. 402,017. (No model.)

Claim.—The combination, with the stove 1, smoke-pipe 2, and the extension 5, secured to the rear end of the stove adjacent to the smoke-pipe, of the boiler 6, mounted upon the support 5 and provided near its upper and lower ends with perforations agreeing with corresponding perforations formed in the smoke-pipe, the vertical pipe 15, located in the smoke-pipe, the upper elbow 13 and the lower elbow 14, connected to the upper and lower ends, respectively, of the pipe 15 and at their outer ends terminating against the wall of the smoke-pipe and registering with the perforations formed therein and in the boiler, the nipple 10, exteriorly threaded, passed through the upper perforations of the smoke-pipe and boiler, and connected with the upper elbow 13, the elbow 19, located in the boiler and connected with the nipple 10, the depending pipe 20, connected to the elbow and extending below the water-line of the boiler, the nipple 9, connected to the lower elbow 14, exteriorly threaded, and passed through the lower pair of perforations formed in the smoke-pipe and boiler, and the pairs of clamping-nuts located upon the nipples 9 and 10 at opposite sides of the wall of the boiler, and the single clamping-nuts mounted on the nipples outside of the wall of the smoke-stack, substantially as specified.

478,332. RAILWAY AND TRUCK. JAMES G. JOHNSON, Chicago, Ill. Filed Aug. 29, 1891. Serial No. 404,097. (No model.)

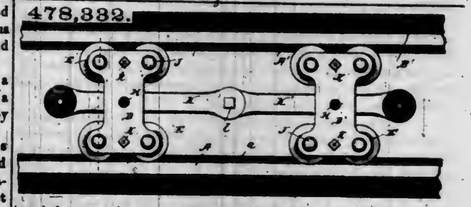
Claim.—1. In a railway, the combination of a truck having two or more horizontal wheels held in the frame thereof with ball-bearings, the peripheral faces of said wheels having beveled or angular faces, with a track of two rails, each provided on its inner side with a beveled or angular face corresponding to the faces of said wheels, all substantially as described.

2. In a railway, the combination of two trucks, each having two or more horizontally-rotating wheels held in the frames thereof and provided with ball-bearings, the peripheral faces of said wheels being beveled or angular, a coupling pivoted at the center and connecting said trucks, and a track constructed of two rails, each provided on its inner side with a beveled or angular face corresponding to the faces of said wheels, all substantially as shown.

3. In a truck for railways, the combination of a frame constructed of an upper and a lower plate with bolts to hold said plates in relative position, blocks E, held rigidly against the upper plate and their lower horizontal faces provided with an annular groove, horizontal wheels held in said frame by vertical axles, their upper horizontal faces provided with annular grooves and their peripheral faces beveled or angular, and a series of balls or spheres adjusted in size to operate in said grooves, all substantially as shown.

4. In a railway-car, the combination of two or more trucks, each provided with two or more horizontally-rotating wheels held by ball-bearings in the frames of said trucks, and the peripheral faces of said wheels being beveled or angular, with a coupling in two sections pivotally attached at their interior ends and uniting said trucks, all substantially as shown.

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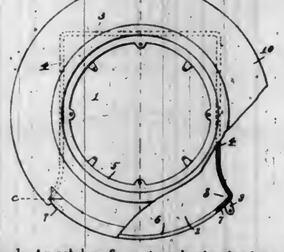


478,333. MATRIX MATERIAL. FRANK A. JOHNSON, Minneapolis, Minn., assignor to the Tachytype Manufacturing Company, same place. Filed Mar. 14, 1892. Serial No. 424,750. (No specimens.)

Claim.—1. A matrix material consisting of a body of soft metal having on its face a surfacing of metal of higher fusibility, substantially as and for the purpose set forth.

2. A matrix material consisting of a body of lead having on its face a surfacing of copper, substantially as and for the purpose set forth.

478,334. ASH-BOX FOR STOVES. LAZARD KAHN and REINHART CHRIST, Hamilton, Ohio, assignors to F. & L. Kahn & Bros., same place. Filed Apr. 15, 1892. Serial No. 429,261. (No model.)



Claim.—1. An ash-box for a stove having jamb portions formed integrally with the side walls of the box and having recesses to the rear of the jamb portions formed by sidewise deflection of the walls to join the outer edges of the jamb portions.

2. An ash-box for a stove having a door-opening corresponding substantially in width with the distance between the side walls of the box, the front portions of the side walls being extended outwardly to join with the outer edges of the jamb portions of the door-opening.

478,335. SUSPENDERS. JACOB KATZENBERG, New York, N. Y. Filed Apr. 26, 1892. Serial No. 430,763. (No model.)

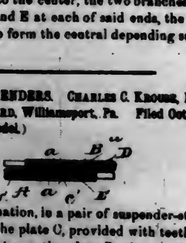


Claim.—1. Suspenders having the shoulder-straps adjustably connected to each other in the rear by two plates secured thereto, one of said plates carrying a stud or button and the other provided with an angular slot forming a bearing for the shank of the stud, so that the shoulder-straps will automatically adjust themselves to the movements of the wearer, substantially as set forth.

2. In suspenders, the combination, with the shoulder-straps, of plate A, carrying a stud or button, and plate B, having vertical and transverse intersecting slots, and means for securing said plates to the webbing, substantially as set forth.

3. The combination, in suspenders, of the shoulder-straps, the pronged stud-plate A, and the pronged angular slotted plate B, and the plate C to cover and conceal the attaching-prongs of the adjusting-plates, substantially as and for the purpose set forth.

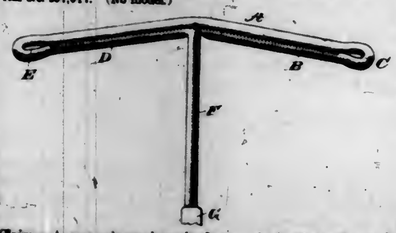
478,336. WRITING-DESK. OTTO KNELLER, Stuttgart, Germany. Filed Nov. 9, 1891. Serial No. 411,234. (No model.) Patented in Germany Jan. 13, 1890, No. 54,428.



Claim.—1. The combination, with slotted brackets and bars pivoted on said brackets and provided with racks, of braces mounted to swing on said brackets and having projections adapted to engage the teeth of racks on said bars, a cross-bar uniting the braces, elbow-levers pivoted to the bars and resting against the cross-bar uniting the braces, and a desk-top plate hinged to the front ends of said bars, the rear or upper end of said desk-top plate resting on the elbow-levers, substantially as set forth.

2. The combination, with wall-brackets having slots extending from top to bottom and a rod passed through said slots, of braces mounted to swing on said rod, a cross-bar uniting the braces, bars hinged to the tops of the brackets and provided with racks, projections on the braces, adapted to engage the teeth of said racks, elbow-levers pivoted to the bars and having rounded ends adjacent to the cross-bar uniting the braces, and a top plate hinged to the front ends of the bars, the rear or upper end of said desk-top plate resting on the elbow-levers, substantially as set forth.

478,337. SUSPENDER-END. CHARLES C. KROUSE, HARRY E. MYERS, and CHARLES L. GIRARD, Williamsport, Pa. Filed Oct. 6, 1891. Serial No. 407,917. (No model.)

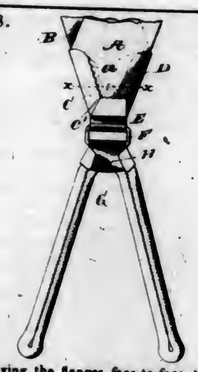


Claim.—A suspender-end made from a single piece of material doubled from each end to the center, the two branches sewed together to form buttonholes C and E at each of said ends, the piece continued from the center, so as to form the central depending supporter F, substantially as set forth.

478,338. SUSPENDERS. CHARLES C. KROUSE, HARRY E. MYERS, and CHARLES L. GIRARD, Williamsport, Pa. Filed Oct. 6, 1891. Serial No. 407,918. (No model.)

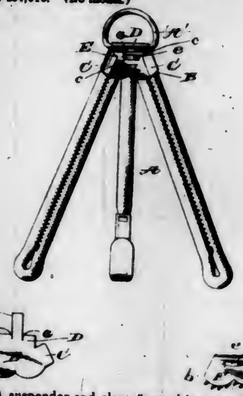
Claim.—The combination, in a pair of suspender-straps, of a back attachment comprising the plate C, provided with teeth which engage the front of one of the straps, the plate D, also provided with teeth which engage the back of the other strap, each plate having a lateral flange which covers the opposite side of the strape to that engaged by

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the said teeth, leaving the flanges face to face, the pivot *c'*, and the plate E, pivoted to and between the said flanges, substantially as set forth.

478,339. SUSPENDER-END CLASP. CHARLES C. KROUSE, HARRY E. MYERS, and CHARLES L. GIRARD, Williamsport, Pa. Filed Oct. 6, 1891. Serial No. 407,919. (No model.)



Claim.—A suspender-end clasp formed in two separate parts, one part comprising the front plate, having a projection or tongue, the top and side flanges, and the ring A', the other part comprising the back plate, having a straight top, a strap formed in the plate and running parallel with the said top, and teeth formed upon its lower edge, the said tongue being adapted to engage with said strap to unite said two parts at the ring side of the clasp, substantially as set forth.

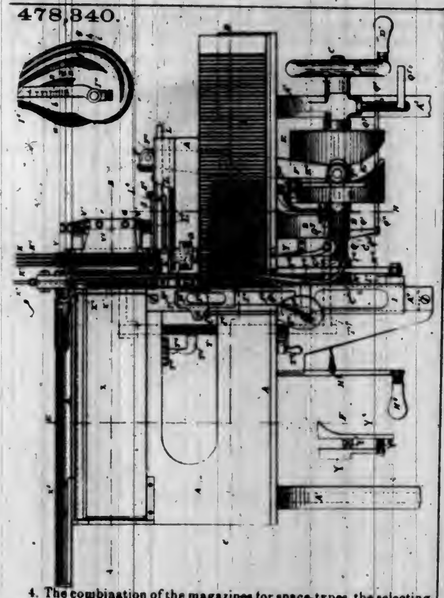
478,340. TYPE-JUSTIFYING APPARATUS. ALEXANDER LAGERMAN, Jönköping, Sweden. Filed Dec. 10, 1888. Serial No. 293,135. (No model.) Patented in England Feb. 10, 1888, No. 2,066; in France Aug. 11, 1888, No. 192,350; in Belgium Aug. 11, 1888, No. 82,873, and in Italy Oct. 11, 1888, XLVII, 219.

Claim.—1. Apparatus for justifying printing-forms, comprising, in combination with magazines for space-types, a selecting device, as specified, for selecting proper space-types from said magazines, actuating mechanism for inserting said selecting device into the line of type to be justified, and a discharging device, substantially as described.

2. In an apparatus for justifying printing-forms, the combination, with feeding mechanism for advancing the line, of magazines for space-types of different thicknesses, an adjustable selecting device, such as a reciprocating arm or slide, for selecting spaces of proper thicknesses and inserting them in said line, and mechanism for discharging the selected type or types from the selecting device into the composed line, substantially as described.

3. In a justifying apparatus, the combination of feeding devices for advancing the line to be justified, stop mechanism for arresting said line at the interspaces between words, magazines for spaces, a selecting device, such as a grooved arm or slide having a wedge-shaped point for pushing out the space to be removed, and a discharging device for introducing in the line the space-type carried by said selecting device, substantially as described.

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4. The combination of the magazines for space-types, the selecting-slide reciprocating beneath said magazines, adjusting devices for said slide, so that it will select the desired type or types from said magazines at each reciprocation, and the discharging device and its actuating mechanism, substantially as described.

5. The combination of the type-feeding slide, the stop mechanism, the magazines for space types, the selecting-slide reciprocating beneath said magazines and having a receiving-groove, the type-discharging device, and means for regulating the depth of the type-receiving groove as the said slide passes beneath each magazine, substantially as described.

6. The combination, with the magazines for space-types, of the selecting-slide reciprocating beneath the same and having a type-receiving groove, a discharging-arm pivoted to said slide and having a forked portion embracing the same alongside of said groove, and adjusting devices for regulating the position of said arm relative to the several magazines, substantially as described.

7. The combination, with the magazines for space-types, of the horizontally-reciprocating selecting-slide having a type-receiving groove, the discharging-arm pivoted to said slide and adjustable vertically to regulate the depth of said groove, vertical slides, one for each magazine, for adjusting the position of said arm, and a notched or stepped bar for setting said vertical slides, substantially as described.

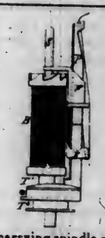
8. The combination, with the reciprocatory selecting device and its discharging-arm, of type-feeding devices comprising an upper and a lower stop, between which the line of type is advanced transversely to the movement of said selecting device, a graduated scale or dial, and an index-finger thereon connected with one of said stops and showing the length of the line in course of justification, substantially as described.

9. In apparatus for justifying printing-forms, the combination, with means for inserting space-types between the words of a line, of feeding devices comprising two stops, between which the line of type is held while being justified, a dial or scale divided into fields or spaces on each side of a zero-point, and an index-finger connected with one of said stops and graduated longitudinally, substantially as and for the purpose described.

10. The combination, with the feed-slide and its appliances for feeding a line of type along a channel to a receiving-galley, and with means, as specified, for justifying said line, of a magazine for leads, a plate for pushing leads from the magazine into the galley, actuating mechanism for operating said plate at each reciprocation of said feed-slide, and a pusher-plate and its actuating mechanism for pushing the justified line from said channel into said receiving-galley, substantially as described.

478,341. SPOOL-CARRIER FOR BRAIDING-MACHINES. JOHN E. LEE, Conshohocken, Pa. Filed Feb. 27, 1891. Serial No. 383,113. (No model.)

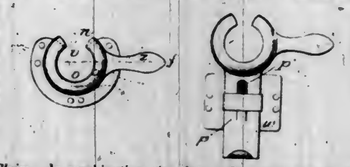
478,341.



Brief.—The spool-carrying spindle and tension device are detachably connected to the base-piece in order that they may be easily detached from each other.

Claim.—A thread or spool carrier for braiding-machines, consisting of a traveler part adapted to run in the grooved race-plate of the machine and an upper part consisting of a spindle for the thread-spool and a guide-post, such upper part being readily detachable from the said lower part, substantially as described.

478,342. CRAVAT-HOLDER. HERRMANN LEHMANN, Berlin, Germany. Filed Sept. 19, 1891. Serial No. 406,227. (No model.)



Claim.—In combination, the plate *w* for attachment to the neck-tie, the base-plate *y*, having a central opening and a notch at one side, a locking-ring having a central opening and a handle, the said base-plate having an extension with the attaching-plate *w*, and the spring *p'* for retaining the parts in any relative position desired, substantially as described.

478,343. DENTAL TOOL. CHARLES P. LENNOX, Toronto, Canada. Filed Dec. 11, 1891. Serial No. 414,651. (No model.)



Claim.—1. A tube shaped substantially as shown and designed to be connected by a flexible tube to a reservoir of nitrous oxide or other suitable anæsthetic, in combination with a spiral groove arranged to connect with the passage-way in the tube, the said spiral groove being incased, substantially as and for the purpose specified.

2. A tube shaped substantially as shown and designed to be connected by a flexible tube to a reservoir of nitrous oxide or other anæsthetic, a cavity G, formed in the tube around its passage-way, a plug H, to close the said cavity, in combination with a core E, having a spiral groove *a* made around it, and an outer casing fitted tightly to the core E and to inclose the spiral groove *a*, which connects with the passage-way in the tube, substantially as and for the purpose specified.

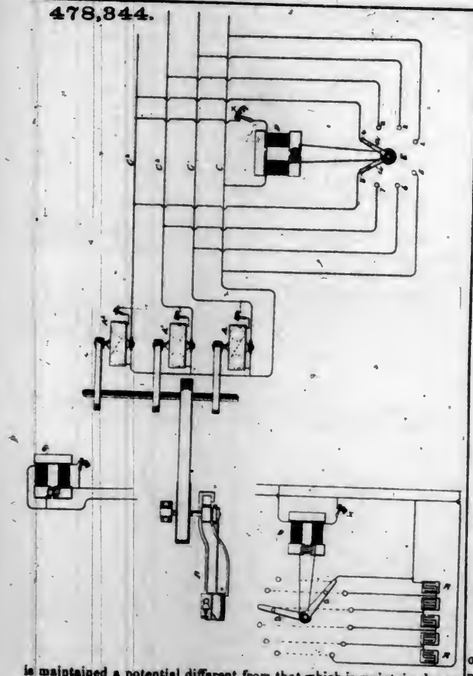
478,344. SYSTEM OF ELECTRICAL DISTRIBUTION. HARRY W. LEONARD, New York, N. Y. Filed Nov. 27, 1891. Serial No. 413,287. (No model.)

Claim.—1. The herein-described method of changing the speed of an electric motor, which consists in maintaining upon each one of three or more conductors a potential different from that which is maintained on any other one of the conductors and connecting the armature-terminals of the motor with different pairs of said conductors, substantially as set forth.

2. The herein-described method of varying the speed of an electric motor, which consists in maintaining its field-magnet at a constant strength and connecting its armature terminals with one or another of two or more constant potential sources, the potentials of which are different.

3. The combination of two or more conductors, on each of which

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is maintained a potential different from that which is maintained on a common return-conductor, an electric motor, and switching devices whereby the motor may be connected between different pairs of said conductors, substantially as set forth.

4. The combination of three or more conductors, between every two of which is maintained a difference of potential different from that which is maintained between every other two, an electric motor, and switching devices whereby the motor may be connected between different pairs of said conductors, substantially as set forth.

5. The combination of two or more generators of different electromotive forces, three or more conductors, said generators all having their like poles connected to one of said conductors and each having its other pole connected to one of the other conductors, an electric motor, and switching devices for connecting said motor between different pairs of said conductors, substantially as set forth.

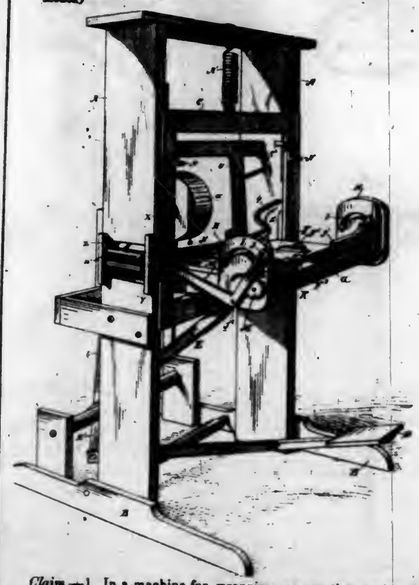
6. The combination of two or more generators of different electromotive forces, three or more conductors, said generators all having their like poles connected to one of said conductors and each having its other pole connected to one of the other conductors, an electric motor having a constant field-magnet, and switching devices for connecting the armature of said motor between different pairs of said conductors, substantially as set forth.

7. The combination of two or more generators of different electromotive forces, three or more conductors, said generators all having their like poles connected to one of said conductors and each having its other pole connected to one of the other conductors, an electric motor having its field-magnet connected between a pair of said conductors having a constant difference of potential, and switching devices for connecting the armature of said motor between different pairs of said conductors, substantially as set forth.

8. The combination, in a system of electrical distribution, of three or more conductors, each having a constant potential, and there being a different electro-motive force or difference of potential between each two conductors of the system, a translating device, requiring in its operation different electro-motive forces, and switching devices for connecting said translating device between different pairs of said conductors, substantially as set forth.

9. The combination, with three or more conductors, between every two of which is maintained a difference of potential or electromotive force different from that which is maintained between every other two, of an electric motor, and switching devices whereby the terminals of said motor may be connected between different pairs of said conductors and their connection with any pair may be reversed, substantially as set forth.

478,845. MACHINE FOR WRAPPING PAPERS. JOHN F. LINTHICUM, Sacramento, Cal. Filed Aug. 7, 1891. Serial No. 402,041. (No model.)



Claim.—1. In a machine for wrapping papers, the combination of a main stationary frame and a wrapper-supporting table having the paste-trough at one end, a distributing-roller dipping in said trough, a brush or carrier having the edges adapted to form contact with the roller, a vertically-sliding frame movable upon the main frame, the curved slotted guides for the journals or spindles of the brush, and the bell-crank levers having the rocker-arms for supporting said journals or spindles, whereby the vertical movements of the sliding frame are transmitted through the rocker-arms to the brush, so that the latter will deposit paste upon the edge of the wrapper on the table and return to the distributing-roller, substantially as herein described.

2. In a machine for wrapping papers, the combination of vertical stationary and sliding frames, the stationary table upon which the wrappers are supported, a paste-trough, a distributing-roller, a carrying-brush, the side plates having curved guide-slots in which the ends of the paste-brush spindle travel, and the bell-crank levers whose rocker-arms support said spindle, said levers having an arm in the path of the sliding frame whereby the brush is moved, and a pawl-and-ratchet mechanism actuated by the rocker-arm for partially rotating the paste-distributer at each movement of the sliding frame, substantially as herein described.

3. In a machine for wrapping papers, the stationary and vertically-sliding frames, treadle and connecting mechanism whereby the latter is reciprocated, the stationary table upon which the wrappers are supported, the paste-trough, distributing-roller, and carrying-brush, and intermediate mechanism whereby the latter is alternately moved from the trough to the wrappers by the reciprocation of the sliding frame, in combination with the slotted roller, within which the ends of the paper and wrapper are inserted and by which they are rolled together and the wrapper pasted, substantially as herein described.

4. In a machine for wrapping papers, the combination of the slotted roller, whereby the papers and wrappers are rolled and the latter pasted, the rollers P P, located beneath the wrapping-roller and between which and said rollers the paper and wrapper passes, the swinging lever having a forked end by which the papers are removed endwise from the wrapping-roll, and the rollers W at the end of the wrapping-roll, between which the papers are carried after their discharge from the wrapping-roll.

5. The combination of the slotted wrapping-roller O and the rollers P P, by which the paper and wrapper are pressed against the wrapping-roller, the crossed levers Q, in the upper ends of which the rollers P are journaled, the lever R, and the block T, carried by said lever, whereby the crossed levers Q are opened, and the vertically-sliding frame C, with the projection S, which engages the end of the lever R, whereby the latter is forced up and the rollers P are separated after the paper has been wrapped, substantially as herein described.

6. In a machine for wrapping papers, the combination of a slotted wrapping-roller upon which the paper and wrapper are rolled, the rollers P, by which the paper is kept in contact with the wrapping-roller until the wrapper has been pasted, mechanism by which said rollers are separated after the wrapping and pasting are completed, a swinging slotted lever by which the paper is forced from the wrapping-roller, and pressing-rollers between which the paper passes as it leaves the wrapping-roller, substantially as herein described.

7. In a machine for wrapping papers, the combination of a wrapping-roller around which the paper and wrapper are rolled and the wrapper is pasted, a type-carrying roller, a pawl-and-ratchet mechanism for rotating said roller, an arm or frame by which it is carried and alternately brought into contact with the paper upon the wrapping-roller and removed therefrom, and the vertically-sliding frame and intermediate mechanism connecting it with the type-carrying roller, whereby the latter is caused to print addresses successively upon the papers as they are rolled upon the wrapping-roller, substantially as herein described.

478,846. ELECTRIC RAILWAY. FRANK MANSFIELD, New York, N. Y. Filed Nov. 18, 1890. Serial No. 371,824. (No model.)

Claim.—1. In an electric railway, the combination, with a car provided with a contact device, of a conduit having a guide-slot extending along the roadway and movable contacts arranged along the way and adapted to be brought into engagement with the said contact device on the car, and a movable pick-up plow mounted upon the car and hinged upon a horizontal axis, so that it may be raised out of the guide-slot when not in use, for the purpose set forth.

2. In an electric railway, the combination, with a car provided with a contact device, of a conduit having a guide-slot extending along the roadway and movable contacts arranged along the way and adapted to be brought into engagement with the said contact device on the car, and a movable pick-up plow mounted upon the car and hinged so that it may be moved into and out of the guide-slot, and a lock for holding it elevated out of the slot, for the purpose set forth.

3. In an electric railway, the combination, with a car provided with a contact device, of a conduit having a guide-slot extending along the roadway and movable contacts arranged along the way and adapted to be brought into engagement with the said contact device on the car, and a movable pick-up plow mounted upon the car and hinged so that it may be moved into and out of the guide-slot, and a hand-lever connected to the plow for controlling its movement.

4. In an electric railway, the combination, with a car provided with a contact device, of a conduit having a guide-slot extending along the roadway and movable contacts arranged along the way and adapted to be brought into engagement with the said contact device on the car, and a movable pick-up plow mounted upon the car and hinged so that it may be moved into and out of the guide-slot, a hand-lever pivoted to the plow for raising and lowering it, and a lock for holding the plow in raised position, and connections extending from the lock along the hand-lever to the handle thereof, for the purpose set forth.

5. In an electric railway, the combination, with a car provided with a contact device, of a pivoted supporting-bar and a pick-up plow hinged thereto on an axis at right angles to the pivotal axis of the supporting-bar, whereby the plow may be moved laterally, as well as raised and lowered, for the purpose set forth.

6. In an electric railway, the combination, with a car provided with a contact device, of a horizontally-swinging supporting-bar, a horizontal guide engaging the supporting-bar intermediate its ends, so as to support the bar as it is swung on its joint, and a pick-up plow attached to said supporting-bar, for the purpose set forth.

7. In an electric railway, the combination, with a car provided with a contact device, of a horizontally-swinging supporting-bar, a movable pick-up plow hinged to the supporting-bar, so that it may be raised and lowered, and a hand-lever mounted upon the supporting-bar and pivoted to the plow for controlling the movements of the same, for the purpose set forth.

8. In an electric railway, the combination, with a car provided with a contact device, of movable devices arranged at intervals along the roadway for controlling the circuit, a pick-up plow mounted upon the car for engaging and raising the said movable devices into contact with the contact device upon the car, and a guard mounted adjacent to the pick-up plow for preventing the displacement of the said movable devices as the plow passes under them, for the purpose set forth.

9. In an electric railway, the combination, with a car provided with a contact device, of a conduit having a guide-slot extending along the roadway and movable contacts arranged along the way and adapted to be brought into engagement with the said contact device on the car, and a pick-up plow mounted upon the car and consisting in flexible plates secured together and capable of a slight movement on each other when the plow bends in taking a curve.

10. In an electric railway, the combination, with a car provided with a contact device, of a conduit having a guide-slot extending along the roadway and movable contacts arranged along the way and adapted to be brought into engagement with the said contact device on the car, a hinged pick-up plow mounted upon the car, and a hand-lever connected with the plow for raising and lowering it, and a stop for limiting the downward movement of the plow.

11. In an electric railway, the combination, with a car provided with a contact device, of a conduit having a guide-slot extending along the roadway and a pick-up plow hinged so as to swing vertically and extending into the guide-slot, the hinge-pin of the hinge of the said plow being mounted in elongated slots, so as to permit of a lateral movement of the end of the plow, for the purpose set forth.

12. In an electric railway, the combination, with a car, of a beam mounted upon the car and a contact-rod carried thereby, a swinging supporting-bar hinged to the said beam, and a pick-up plow mounted upon the supporting-bar, for the purpose set forth.

13. In an electric railway, the combination, with a car provided with a contact device and a pick-up plow, of a supporting-beam for the pick-up plow, mounted upon the car-axles and provided with a spring-seated bearing, for the purpose set forth.

14. In an electric railway, the combination, with a car provided with a contact device and a pick-up plow, of a supporting-beam for the pick-up plow, mounted upon the car-axles and provided with bearings for the axles, the bearings of one said axles being movable horizontally and provided with springs for opposing its movement, for the purpose set forth.

15. In an electric railway, the combination, with a car provided with a contact device and a pick-up plow, of a supporting-beam for the pick-up plow swung from the axles of the car, one of the axles being provided with a horizontally-movable bearing-block mounted on the supporting-beam so as to be movable on the same, and a spring at opposite sides of the block for opposing its horizontal movement relative to the beam, for the purpose set forth.

16. In an electric railway, the combination, with a car, of a beam mounted upon the running-gear and a contact-rod carried thereby, a supporting-bar mounted upon the beam, and a pick-up plow hinged to the supporting-bar, substantially as and for the purpose set forth.

17. In an electric railway, the combination, with a car provided with a contact device and a pick-up plow, of a conduit formed with a guide-slot for the pick-up plow and comprising two vertically-arranged plates or members disposed parallel with a space between them, forming the slot, a railway-track crossing the conduit, with the ends of the abutting rails slightly spaced on the vertical plane containing the guide-slot, and a spacing-plate interposed between the plates forming the conduit and passing between the ends of the said crossing-rail, substantially as and for the purpose set forth.

18. In an electric railway, the combination, with a car provided with a pick-up device and contact mechanism, of arms or levers pivoted parallel with the car-tracks for controlling the circuit and adapted to be

elevated by the pick-up device on the car, so as to make contact with mechanism on the car, for the purpose set forth.

19. In an electric railway, the combination, with a car provided with a pick-up device and contact mechanism, of a subterranean insulated main conductor provided at intervals along the way with normally-disconnected branch conductors adapted to be placed in circuit with circuit-completing mechanism on a passing car, and pivoted levers for the branch conductors arranged parallel with the tracks and provided upon their ends with contacts adapted to be placed in contact with the said mechanism on the car by means of the pick-up device, substantially as and for the purpose set forth.

20. In an electric railway, the combination, with a car provided with a pick-up device and circuit-completing or contact mechanism, of a subterranean branch conductor provided at intervals along the way with normally-disconnected insulated branch conductors, and pivoted levers, over which the branch conductors pass, located in the road-bed parallel with the track and provided at their ends with a laterally-projecting contact-arm adapted to be engaged by the said pick-up device and raised in contact with the said mechanism on the car, for the purpose set forth.

21. In an electric railway of the class described, the combination, with a casing placed in the road-bed, of a lever pivoted by one end in said casing and provided at its other end with a contact, the said lever adapted to move in and out of the casing and consisting in a broad plate or blade, which in all positions of its movement serves to close the opening of the casing through which the blade moves, whereby foreign matter may be prevented from falling into the casing, for the purpose set forth.

22. In an electric railway, the combination, with a casing placed in the road-bed, of a lever for the branch conductor, pivoted in the casing and adapted to move in and out thereof, the said lever consisting of a broad plate or blade which closes the opening of the casing through which it moves in all positions of its movement, the interior of the said casing being wider at the bottom than at the top, whereby foreign matter in the bottom of the casing may not prevent the lever from moving to its lowest position, for the purpose set forth.

23. In an electric railway, the combination, with a casing placed in the road-bed, of a switch having a switch-box removably mounted in one end of the casing and provided with a shaft for operating the switch, and a lever for the branch conductor, pivoted by one end in the casing and connected to and moving with the said shaft of the switch-box, the lever and switch-box together being removable from the casing, substantially as and for the purpose set forth.

24. In an electric railway, the combination, with a branch conductor and a pivoted lever over which the conductor passes, provided with a contact, of a switch located in the branch conductor and comprising a shaft turning with the said lever, a spring contact-arm extending from said shaft so as to be rotated therewith, and a fixed contact for the contact-arm to engage with, substantially as and for the purpose set forth.

25. In an electric railway, the combination, with a switch mounted in a water-tight switch-box consisting in a box having a fixed tubular shaft extending laterally therefrom, of a switch-shaft extending loosely through said tubular shaft and provided in the switch-box with a contact-arm, a lever for the branch conductor, mounted so as to swing upon the said fixed shaft, and a water-tight cap secured to said lever and to the end of the switch-shaft and covering the end of the said fixed shaft, substantially as and for the purpose set forth.

26. In an electric railway, the combination, with a pick-up plow and a contact device carried by the car, of a conduit 44, formed with a guide-slot 43 and extending along the roadway, the crossing-rails 88 88, extending at an angle to the conduit, with the abutting ends thereof suitably spaced at the crossing-point, and a spacing-plate 87, provided with a curved or bowed upper edge and placed within the conduit, substantially as and for the purpose set forth.

27. In an electric railway, the combination, with a car, of the supporting-beam 51, mounted upon the car-axles, the bearing of one of the axles on the said supporting-beam being movable horizontally thereon and provided with the springs 75 75 for opposing the movement thereof, substantially as and for the purpose set forth.

28. In an electric railway, the combination, with movable contacts arranged along the roadway and a car provided with a pick-up plow for engaging and elevating said contacts, of the supporting-beam 51, mounted upon the car-axles with yielding connection therebetween, and the contact-rod 18, suspended from the said beam and acting in conjunction with the said plow, substantially as and for the purpose set forth.

29. In an electric railway, the combination, with a car provided with a contact device, of the operating-levers pivoted in the roadway and a flexible pick-up plow comprising the plates 55 55, secured together, substantially as and for the purpose set forth.

30. In an electric railway, the combination, with a car provided with a contact device, of the operating-levers pivoted in the roadway, the plate 47, mounted on the car and hinged so as to swing vertically, the plow-arm 52, mounted thereon and insulated therefrom, a pivoted hand-lever 61, connected with the plow for raising and lowering it, and a lock for holding the plow in raised position, substantially as and for the purpose set forth.

31. In an electric railway, the combination, with a car provided with a contact device, of operating-levers pivoted in the roadway, a plow-arm 52, mounted upon the car, and a guard 56 57 therefor, substantially as and for the purpose set forth.

32. In an electric railway, the combination, with a car provided with a contact device and a hinged pick-up plow swinging vertically, of operating-levers pivoted in the roadway and a hand lever 61, pivoted thereto for raising and lowering the plow and provided with a lock for locking it in raised position, said lock connected with and controlled by the pivoted handle 68, substantially as and for the purpose set forth.

33. In an electric railway, the combination, with a car provided with the supporting-beam 51, formed with a bearing 59, of a pivoted horizontally-swinging supporting-bar 49, formed with a projection 60 and mounted upon said beam, and a pick up plow carried thereby, substantially as and for the purpose set forth.

34. In an electric railway, the combination, with a car, of a supporting-beam 51, mounted thereon, the swinging supporting-bar 49, hinged horizontally thereto, the said beam overlapping the bar and a sliding joint therebetween, and a pick-up plow mounted upon the supporting-bar 49, substantially as and for the purpose set forth.

35. In an electric railway, the combination, with a car, of the supporting-bar 49, hinged horizontally, and a pick-up plow mounted thereon, and a contact-rod 18, supported beneath the car and having its end pivoted to the said supporting-bar, substantially as and for the purpose set forth.

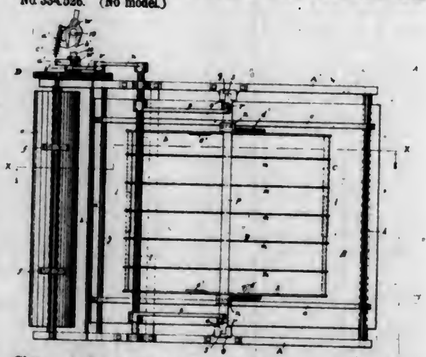
36. In an electric railway, the combination, with a casing 37, formed with a chamber 38, having an opening 39, of a pivoted operating-lever 21, provided with a contact upon its end, the switch-box 23, secured thereto, and a switch within the box, the said lever and switch-box mounted movably in the said casing, and a branch conductor 20, leading from the main through the switch and over the lever 21 to the contact carried thereby, substantially as and for the purpose set forth.

37. In an electric railway, the combination, with a casing 37, formed with a chamber 38, having an opening 39, of the swinging operating-lever 21, carrying a contact, and the branch conductor leading over the lever to the contact, said lever acting to fill the opening 39 at all times, substantially as and for the purpose set forth.

38. In an electric railway, the combination, with the casing 37, of the switch-box 23, mounted therein and provided with a tubular shaft 25, fixed thereto, the rotary switch-shaft 26, mounted in the said tubular shaft 25, the lever 21, turning with the switch-shaft, and a switch controlled thereby, substantially as and for the purpose set forth.

39. In an electric railway, the combination, with the casing 37, of the switch-box 23, mounted therein and provided with the fixed tubular shaft 25, the rotary shaft 26 for controlling a switch within the box, said rotary shaft mounted through the said hollow shaft 25, the lever 21, mounted upon the shaft 25, and the cap 30, connecting the lever with the said switch-shaft 26, and a switch controlled by said lever 21, substantially as and for the purpose set forth.

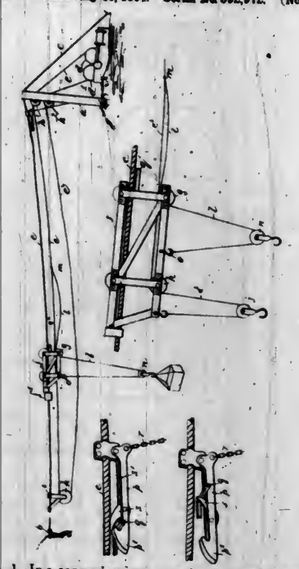
478,347. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. FRANCIS MEISEL, Boston, Mass. Filed Dec. 21, 1889. Serial No. 334,526. (No model.)



Claim.—1. In a sheet-delivery apparatus for printing-machines, the fly-frame C, composed of side bars *k* and end pieces or tubes *l*, adapted to slide within or past each other, and the adjustable bars *m*, adapted to slide upon the end pieces *l*, substantially as and for the purpose described.

2. In a sheet-delivery apparatus for printing-machines, the fly-frame C, pivoted to the vertical bars *n* and adapted to be normally held at an angle to the table B beneath by a spiral spring *d* against a stop, substantially as and for the purpose set forth.

478,348. CONVEYING APPARATUS. THOMAS S. MILLER, New York, N. Y. Filed May 16, 1891. Serial No. 392,972. (No model.)



Claim.—1. In a conveying apparatus having a cable or track way, a carriage to travel thereon, and a hoisting-rope, the combination, with said parts, of a sheave, a sag-support rope branching from said hoisting-rope at a point of said hoisting rope intermediate the carriage and hoisting-motor and extending around said sheave, and means connected with said sag-support rope beyond said sheave whereby the tension of said sag-support rope is maintained when the apparatus is unloaded, substantially as described.

2. In a conveying apparatus having a cable or track way, a carriage to travel thereon, and a hoisting-rope, the combination, with said parts, of a sheave and a sag-support rope branching from said hoisting-rope at a point of said hoisting-rope intermediate the carriage and hoisting-motor and extending around said sheave and back again to the hoisting-engine, substantially as described.

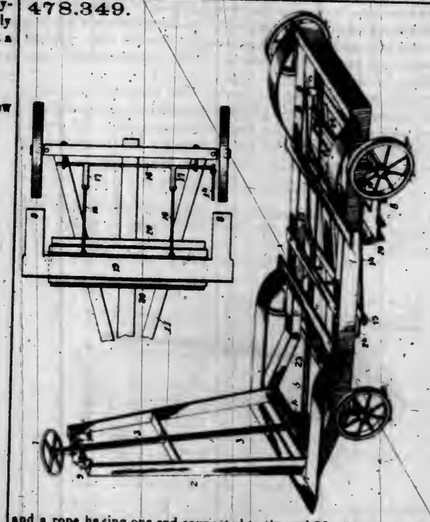
3. In a conveying apparatus, a cable or track, a carriage to travel thereon, a latch adapted to engage with a projection on the carriage, and a pivoted deflector *s*, the point of which in its forward position overlaps and extends above the point of the hook and in its backward position extends above the shank of the hook, substantially as described.

478,349. WAGON-BRAKE. JOHN MILLER, Velpen, Ind. Filed Dec. 26, 1891. Serial No. 416,250. (No model.)

Claim.—1. The combination of a running-gear, a brake-bar arranged on the running-gear and provided with brake-shoes, a rock-shaft connected with the brake-bar, a hay-rack mounted on the running-gear and provided at its front end with a hinged frame and provided at its rear end with a pulley, a shaft journaled in the frame and provided at its upper end with a wheel and having at its lower end a drum arranged below the point of hinging, a brake-lever fulcrumed intermediate its end and having one end connected with the rock-shaft, and a rope secured to the other end of the brake-lever and passing round the pulley and extending therefrom to the drum and wound around the same, substantially as described.

2. The combination of a running-gear, a brake-bar arranged on the running-gear and provided with brake-shoes, a rock-shaft connected with the brake-bar, a hay-rack mounted on the running-gear and provided at its front end with a hinged frame and having at its rear end a pulley, a brake-lever fulcrumed intermediate its ends and having its end 13 connected with the rock-shaft, a shaft journaled in the frame and having at its lower end a drum arranged below the point of hinging, a rope having one end secured to the other end 22 of the brake-lever and passing around the pulley and wound around the drum.

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and a rope having one end connected to the end 22 of the brake-lever and its other end attached to the drum, substantially as described.

478,350. OPERA-GLASS HOLDER. ANDREW B. NICHOLSON, New York, N. Y.; Ethel F. Nicholson administratrix of said Andrew B. Nicholson, deceased. Filed Feb. 21, 1891. Renewed May 27, 1892. Serial No. 434,684. (No model.)



Claim.—1. The combination, with a socket provided with a portion that is adapted to engage with and be thereby secured to a handle, cane, or other equivalent support, of a bow or shackle jointed to said socket, whereby to turn upon an axis longitudinally thereof, and means for locking such bow or shackle in one of its extremes of movement, substantially as described.

2. The combination, with a socket provided with a cylindrical orifice extending longitudinally of the same and a handle, of a bow or shackle arranged to turn in said socket and means for locking it in one of its extremes of movement, substantially as described.

3. The combination, with a socket provided with a cylindrical orifice and a handle, of a bow or shackle journaled in said orifice and a stop whereby to limit its movements, substantially as described.

4. The combination, with a handle and a socket provided with a cylindrical orifice arranged longitudinally therein and with a groove formed in its upper end, of a bow or shackle journaled in said orifice with its outer free end extending down in such groove, substantially as described.

5. The combination, with a handle and a socket provided with a cylindrical orifice arranged longitudinally therein and with a groove

formed in its upper end and provided with a recess in its side, of a bow or shackle journaled in said orifice with its outer free end extending down into such groove and engaging with the recess when the bow or shackle is in one of its extremes of movement, substantially as described.

6. The combination, with a handle B and a socket secured to its upper end and provided with a cylindrical orifice arranged longitudinally therein and with a groove formed in its upper end, of a bow or shackle journaled in said orifice with its outer free end extending down into such groove, substantially as described.

478,351. BALL-BEARING FOR RAILROAD-CARS. JOHN E. NORWOOD, Sykesville, Md. Filed Oct. 3, 1891. Serial No. 407,604. (No model.)



Claim.—1. A ball-bearing for railroad-cars, comprising boxes secured to the bolster-beam of the car and located over suitable bearing-plates on the truck, each box having an elongated open channel containing balls and having its side contracted to prevent said balls from dropping out, the balls to bear upon the plates on the truck and travel over the same and from one end of the channel to the other.

2. A ball-bearing for railroad-cars, comprising boxes secured to the bolster-beam of the car and located over suitable bearing-plates on the truck, each box having an elongated open channel containing balls and having its side contracted to prevent said balls from dropping out, and a removable end piece having an ear through which the fastening securing the box to the bolster extends.

3. A ball-bearing for railroad-cars, comprising boxes secured to the bolster-beam of the car and located over suitable bearing-plates on the truck, each box having an elongated open channel containing balls and having its sides contracted to prevent said balls from dropping out, and a removable end piece having an ear through which the fastening securing the box to the bolster extends, the box having a flange at the end, behind which the ear of the end piece fits, in the manner described.

4. A ball-bearing for railroad-cars, comprising boxes secured to the bolster-beam of the car and located over suitable bearing-plates on the truck, each box having an elongated open channel containing balls and having its sides contracted to prevent said balls from dropping out, the channel being so formed that the balls roll to the center when free, in the manner described.

5. A ball-bearing for railroad-cars, comprising boxes secured to the bolster-beam of the car and located over suitable bearing-plates on the truck, each box having an elongated open channel containing balls and having its sides contracted to prevent said balls from dropping out, the opening in the under side of the channel lessening in width from the middle toward each end, for the purpose described.

6. A ball-bearing for railroad-cars, comprising a center plate secured to the bolster-beam of the car and having an annular raised ring with a circular open channel containing balls and having its sides contracted to prevent said balls from dropping out, the plate being made in two parts and their meeting edges overlapping, for the purpose described, the balls to bear upon a center plate on the truck.

7. A ball-bearing for railroad-cars, comprising a center bearing-plate secured to the bolster-beam of the car and having a socket in the middle and an annular raised ring around the same, with a circular open channel containing balls and having its sides contracted to prevent said balls from dropping out, and a center plate on the truck, having a cup fitting in the socket of the upper plate, the balls bearing upon the surface of this lower plate.

478,352. SASH-BALANCE. JAMES J. O'CONNOR, Oakville, Canada, assignor of one-half to John Joseph McDermott, same place. Filed Mar. 31, 1892. Serial No. 427,232. (No model.) Patented in Canada Apr. 26, 1892, No. 38,706.



Claim.—The combination of a sash and its frame with a casting B, attached to said sash and having a fixed stud B, and the flat band A, wound spirally around said stud and having its opposite ends attached to the frame substantially as described.

478,358. PORTABLE CORN-POPPER. ANDREW R. OLSON, Kansas City, Mo. Filed Nov. 3, 1891. Serial No. 410,753. (No model.)



Claim.—1. A machine for popping corn, &c., comprising a drum or cylinder having double heads and a removable peripheral casing having its edges turned inward and inserted between the sections of each head, substantially as set forth.

2. A machine for popping corn, &c., comprising a drum or cylinder having double heads and a peripheral casing having its edges turned inward and inserted between the sections of the heads and having its outer end detachably connected to said heads, substantially as set forth.

3. A machine for popping corn, &c., comprising a drum or cylinder having double heads composed each of an outer member of circular marginal contour and an inner member of spiral marginal contour and a peripheral casing composed of an inner coarser meshing and an outer finer meshing and arranged spirally between said cylinder or drum heads, the outer meshing having its edges turned inward and interposed between the head members and having its outer end detachably connected to the heads, substantially as set forth.

4. A machine for popping corn, &c., comprising a drum or cylinder having double heads, central openings formed in said heads, a spiral conveyer extending longitudinally of said drum between the heads and in alignment with the axes of their openings, and a detachable peripheral casing extending spirally between the heads and having its edges turned inward and inserted between the head-sections, the outer end of the casing being detachably connected to the said heads, substantially as set forth.

5. A machine for popping corn, &c., comprising a drum or cylinder having double heads, central openings formed through said heads, a peripheral casing having its edges turned inward and inserted through said head-section, a spiral conveyer extending longitudinally between the heads and in axial alignment with the openings, and a cross-bar secured to the front head and extending across its opening and also provided with a U-shaped section, substantially as set forth.

6. An improved portable machine for popping corn, &c., comprising a vertical main casing and a closed warming-compartment located at the top of the main casing and having a closed and arched bottom and a false bottom of foraminous material composed of a number of arch-formed sections, substantially as set forth.

7. A portable machine for popping corn, comprising a vertical main casing, a vertical feed-pipe for liquid fuel located outside of the casing and having a tubular supporting-arm extending horizontally forward through the back of said casing, and a popping drum or cylinder located within the casing and having an axial rod working within the tubular arm, so as to permit the drum or cylinder to be moved outwardly and inwardly upon the arm, the said arm and tubular axial rod constituting the sole support for the drum or cylinder, substantially as set forth.

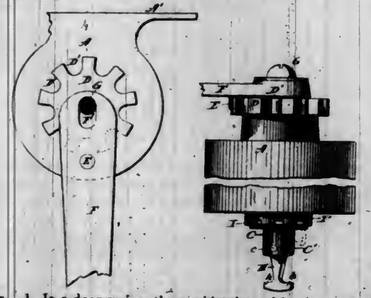
8. An improved machine for popping corn, &c., comprising a revoluble drum or cylinder having a discharge-opening in its outer head and a circular outwardly extending and flaring annular deflector surrounding said opening, substantially as set forth.

478,354. DOOR-SPRING. ALBERT A. PAGE, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Jan. 6, 1892. Serial No. 417,136. (No model.)



Claim.—In a door-spring, the combination, with a case, coiled spring, and spring-shaft, of a peripherally notched collar rigidly attached to a projecting end of the said spring-shaft, a lever loosely connected with the said end of the shaft, bearing upon the outer face of the collar, and constructed with a perforation in line with the notches of the collar, a clutch-pin located in such perforation and manually movable therein, a stop-pin radially arranged upon the adjacent face of the case, mounted in a lug formed thereupon, having its inner end adapted to be radially entered into the notches in the said collar, and its outer end constructed with a head, and a spring interposed between the said lug and head for holding the stop-pin in its normally-retired position, substantially as described.

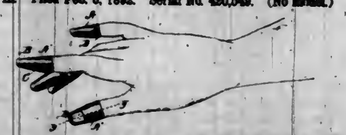
478,355. DOOR-SPRING. ALBERT A. PAGE, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Jan. 6, 1892. Serial No. 417,137. (No model.)



Claim.—1. In a door-spring, the combination, with a case, coiled spring, and spring-shaft, of a clutch-collar rigidly attached to a projecting end of the said shaft and having a series of peripheral retaining-notches formed in it, a lever bearing upon the upper face of the said collar and loosely connected with the said shaft through an elongated slot formed in its extreme inner end, a clutch-pin mounted in the lever in position to be entered into the said notches of the collar, and a stop for locking the shaft against rotation, substantially as described.

2. In a door-spring, the combination, with a case, coiled spring, and spring-shaft, of a clutch-collar rigidly attached to a projecting end of the said shaft and having a series of peripheral retaining-notches formed in it, a lever bearing upon the upper face of the said collar and loosely connected with the said shaft through an elongated slot formed in its extreme inner end, clutch-pin mounted in the lever in position to be entered into the said notches of the collar, a double stop pivotally mounted in the opposite end of the shaft, and a circular series of retaining-points located upon the adjacent face of the said case for engagement by the said double stop, substantially as described.

478,356. FINGER-TAPERING DEVICE. ELAM B. PAIGE, Chicago, Ill. Filed Feb. 6, 1892. Serial No. 420,549. (No model.)



Claim.—1. A finger-tapering device made of rigid material, constructed of an open sheath to be fitted upon the finger, the section thereof at the open end cylindrical and thence tapering toward the other end, the upper side or portion thereof being practically straight and the greatest tapering being on the under or lower side or portion thereof, all substantially as shown.

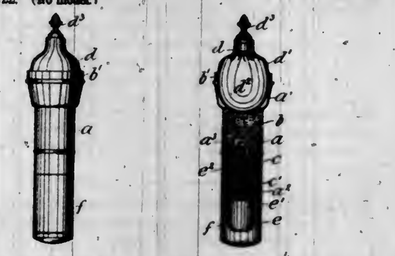
2. A finger-tapering device made of rigid material, constructed of an open sheath to be fitted upon the finger, the section thereof at the open end cylindrical and thence tapering toward the other end, the upper side or portion thereof being practically straight in longitudinal vertical section and having an opening in such upper side or portion near the end thereof and the greatest tapering being on the under or lower side or portion of said device, substantially as and for the purpose set forth.

478,357. HOOK AND EYE. BIRDSALL D. PAINE, Philadelphia, Pa. Filed Sept. 26, 1891. Serial No. 406,966. (No model.)



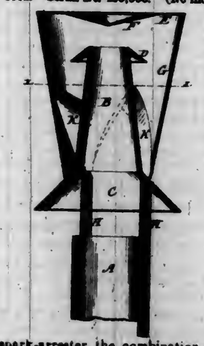
Claim.—In a hook, the combination of the main or shank portion provided at one extremity with attaching means and at its opposite extremity with a hook portion turning underneath the main or shank portion, said main or shank portion struck up nearest the hook portion, whereby the latter is on the same plane with the attaching means, and a resilient guard or tongue extending from said attaching means to and beyond the hook end and removably seated on the outer or free side thereof, substantially as described, and for the purposes set forth.

478,358. POCKET POWDER-PUFF AND INHALER DEVICE. WILLIAM H. PAYNE, Philadelphia, Pa., assignor, by mesne assignments, to Adeline E. Hoskins, same place. Filed Feb. 16, 1892. Serial No. 421,722. (No model.)



Claim.—A combined pocket powder-puff and smelling-tube or inhaler comprising a body portion expanded at one extremity and contracted at the other extremity and provided with a transversely-ranging partition intermediate of the respective extremities, a socket provided with a handle and a powder puff or pad and adapted for insertion into said expanded extremity, a nozzle adapted for insertion into said contracted extremity, and a detachable cap adapted to be fitted over said nozzle and onto said contracted extremity, substantially as and for the purposes set forth.

478,359. SPARK-ARRESTER. FREDERICK B. POPE, Augusta, Ga. Filed Apr. 12, 1892. Serial No. 428,880. (No model.)



Claim.—In a spark-arrester, the combination of a smoke-stack having an open top and unobstructed lateral openings therefrom, a tapering pipe B, having its lower end of equal diameter as the smoke-

stack, a wider conical funnel C at the lower end overhanging the smoke-stack, and an overhanging conical head D at the upper end, with an inclosing tapering pipe G, having a closed top E, and deflector F, secured to the under side of said top, pipe H, secured to the lower end of the tapering pipe G, and inclined ways K between the tapering pipes B and G, substantially as described.

478,360. **HOOK AND EYE.** LOUIS M. PORTER, Montclair, N. J. Filed Apr. 7, 1892. Serial No. 428,127. (No model.)



Claim.—1. The combination of a hook having its bend extending toward the shank of the hook to form a contracted opening, and an eye having two separated looped members located one above the other, adapted to pass through the contracted opening formed by the bend of the hook.

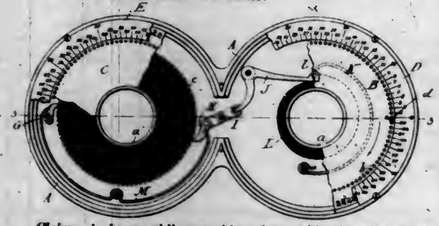
2. An eye of a hook-and-eye device having two looped members D and E, located one above the other and normally held slightly apart by the spring action of the metal.

3. An eye of a hook-and-eye device having two looped members D and E, located one above the other and normally held slightly apart by the spring action of the metal, either of said members being widened in cross-section at its looped end.

4. An eye of a hook-and-eye device having two looped members D and E, located one above the other and normally held slightly apart by the spring action of the metal, the looped end of one of said members extending slightly beyond the other.

5. A hook-and-eye device consisting of the hook having the shank A and bent-over end B, extended toward the body of the shank to form a contracted opening to the hook, and the eye C, having the two members D and E, located one above the other and normally separated slightly from one another by the spring action of the metal, but adapted to be pressed together when passed through the contracted opening of the hook, the looped end of one of said members having a width in one direction greater than the width of the contracted opening of the hook.

478,361. **ADDING-MACHINE.** SAMUEL A. POTTER, Cincinnati, Ohio, assignor of one-half to D. G. Monfort, same place. Filed Sept. 18, 1891. Serial No. 406,144. (No model.)



Claim.—1. In an adding-machine, the combination of the units-wheel provided with the graduations, perforations, and cam, the hundreds-wheel having the graduations, perforations, and teeth, the lever bearing on the cam, the second lever actuated thereby, the pawl carried by the latter, and the rings covering the marginal portions of the wheels.

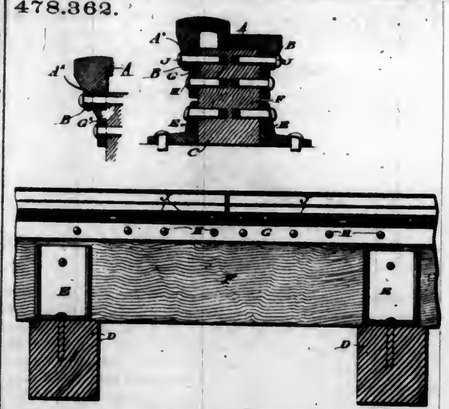
2. In an adding-machine, the combination of the frame having the fixed graduated rings, the independently-revolvable wheels graduated and perforated and provided one with the cam and the other with teeth, the lever upon which the cam acts, the second lever actuated thereby, the pawl carried by the second lever, the pawl to prevent retrograde motion, and the springs acting on the lever and pawl.

478,362. **SUPPORT FOR STREET RAILWAYS OR TRAMWAYS.** JAMES M. PRICE, Philadelphia, Pa. Filed Apr. 22, 1891. Serial No. 389,915. (No model.)

Claim.—1. A supporting-girder for a street-rail, having a main portion of wood with strengthening-plates of metal secured to the upper portion of its sides, said plates extending below the depending flanges of a rail resting on said girder, said parts being combined substantially as described.

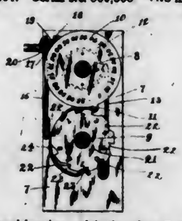
2. A street-rail having depending flanges, a wooden girder with metallic side plates adapted to contact with said flanges, and means, substantially as described, for securing said girder in place, said me-

478,362.



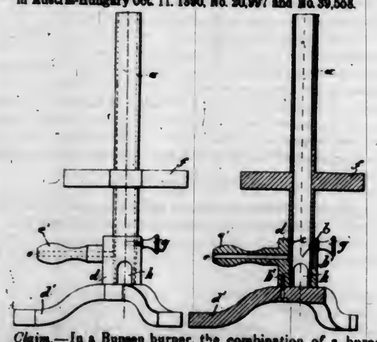
tallic side plates extending below said flanges, but not in contact with the chairs, securing said girders laterally, said parts being combined substantially as described.

478,363. **POCKET-REGISTER.** JEROME B. REED, Sanbury, Pa. Filed Apr. 21, 1891. Serial No. 389,800. (No model.)



Claim.—The combination, with the plate 7, the studs located near the upper and lower ends of the same, the disk 10, having the ratchet-wheel 12 and spur 11 located upon the upper stud, the disk 21, mounted upon the lower stud and having peripheral teeth engaged by the radiating spur of the upper disk, the retaining pawl 13, resting in the teeth of the ratchet 12, the retaining-pawl 24, resting in the notches or teeth of the lower disk, the flat spring 15, and the pin 16, located thereabove, of the reciprocating integrally-formed pawl consisting of the push end 18, the spring-pawl 17 engaging the ratchet-wheel of the upper disk and having a shoulder in rear thereof, against which the spring 15 takes and above said shoulder provided with the recess 19 for receiving the pin, substantially as specified.

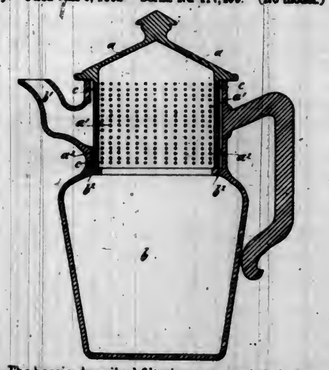
478,364. **BUNSEN BURNER.** GEORG REIMANN, Berlin, Germany. Filed Aug. 6, 1890. Serial No. 361,210. (No model.) Patented in England Dec. 24, 1889, No. 20,744; in Germany Dec. 27, 1889, No. 50,448, and in Austria-Hungary Oct. 11, 1890, No. 20,997 and No. 39,558.



Claim.—In a Bunsen burner, the combination of a burner-tube for conveying the inflammable fluid, said tube being adapted to rotate, and thus regulate the supply, the foot-piece for holding the burner-tube, having openings for the gas and air and adapted to register with

corresponding openings in the burner-tube when the latter is properly turned, substantially as described.

478,365. **FILTER-CAN.** FRANZ REBRICH, Buda-Pesth, Austria-Hungary. Filed Jan. 9, 1892. Serial No. 417,499. (No model.)

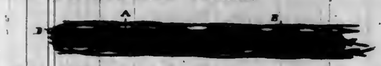


Claim.—The herein-described filtering-pot, consisting of the combination, with the lower body portion provided with an interiorly-projecting rib in its upper part, of a filtering-sieve above said lower body portion adapted to rest on said projecting rib, said filtering-sieve being provided with projections whereby an annular space is provided between the outer side of the sieve and the inner side of the pot, substantially as set forth.

478,366. **EXPLOSIVE COMPOUND.** SAMUEL ROGERS, San Francisco, Cal., assignor to the United States Smokeless Powder Company, same place. Filed Aug. 25, 1891. Serial No. 403,717. (No specimens.)

Claim.—A compound consisting of picrate of ammonia, nitrate of ammonia, and nitro-glycerine mixed in proportions substantially as herein described.

478,367. **ELECTRIC CABLE.** WILLIAM H. SAWYER, Providence, R. I., assignor to the American Electrical Works, same place. Filed Feb. 18, 1892. Serial No. 421,935. (No model.)



Claim.—1. The combination, in an electric cable, substantially as hereinbefore described, of a central solid foundation-core and a tubular multi-conductor braid formed thereon and supported thereby, the said tubular braid being composed of two pairs of insulated conductors braided or woven together in a uniform helical direction, the plane of the cross section of each of the said pairs being at a right angle to and bisecting that of the other.

2. In an electric cable, the combination of a solid central foundation-core and an open-work tube of independent insulating conductors braided or woven thereover, resting thereon and supported thereby, the said open work braid being composed of two groups of conductors, each group comprising two pairs of braided insulated conductors of uniform helical direction, the plane of the cross-section of each pair being at a right angle to and bisecting that of the other and the helical direction of the conductors of each group being reversed with respect to those of the other, substantially as described.

3. The combination, in an electric cable, of a stiff and solid central foundation-core consisting of twisted or braided insulated conductors, with four insulated conductors braided thereover into the form of an open-work tube compressing the said foundation-core and maintained in position thereby, the four said conductors being arranged in two pairs of uniform helical direction, the plane of the cross-section of each pair being perpendicular to the center of the plane of the other, substantially as described.

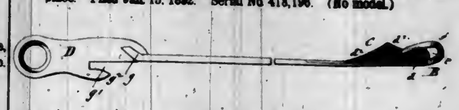
4. The combination, in an electric multi-conductor cable, of a stiff and solid central foundation-core formed of two or more pairs of insulated conductors twisted or braided together, and two groups of insulated conductors braided thereover into the form of an open-work tube compressing the said foundation-core and held in place thereby, each of the said groups comprising four conductors arranged in pairs, having a uniform helical direction, the plane of each pair taken at any cross-section of the cable being perpendicular to the center of the plane of the other, the helical direction of the conductors of one of the said groups being opposed to that of the other, substantially as described.

5. In an electric cable, a central foundation-core composed of two or more insulated conductors braided or woven together into a firm and solid strand, a series or layer of insulated conductors in two groups, respectively, of opposite helical direction braided tightly over said core into a tubular open-work, its two groups each comprising two pairs of conductors adapted, as described herein, to form portions of inductively-neutral metallic circuits, and one or more successive similar series of conductors braided each over the immediately-preceding interior series into successive concentric tubes, each compressing its inner neighbor, the conductors of each succeeding series being braided with a longer pitch or at an increased angle to those of each underlying series, substantially as described.

6. An electric cable comprising a tubular open-work series of insulated conductors braided over and upon a solid central foundation-core formed of a number of pairs of conductors twisted or braided, as indicated, the said series being composed of two groups, each comprising two pairs, the helical direction of the conductors of one group being opposed to that of the other and the two pairs of each group being each arranged so that at any point of cross-section the plane of each pair is at a right angle to the center of the plane of the other, other successive similar series braided over and resting upon the immediately-preceding similar series, the conductors of each being braided with a longer pitch than the immediately-underlying series, and an external protective sheath, such as a lead pipe, inclosing the whole, substantially as and for the purpose described.

7. An electric cable comprising a protecting envelope or sheath, such as a tube of lead or lead alloy, and a series of compound cores or sub-cables inclosed symmetrically therein, each of the said sub-cables consisting of a solid and semi-rigid central core and one or more concentric series braided over and upon said central core into the form of an open-work tube, each of the said series comprising two groups of two pairs of conductors each, the pairs of each group being each arranged in a plane vertical to the center of the other, and the four conductors of each group being all braided in a direction similar to those of the same group, but opposed to that of the other group, substantially as specified herein.

478,368. **PILE-WIRE FOR LOOMS.** GUSTAV SEESCHNEIDER, Yonkers, N. Y., assignor to the Waring Hat Manufacturing Company, same place. Filed Jan. 15, 1892. Serial No. 418,196. (No model.)



Claim.—1. The combination, with a pile-wire provided with a spring-hook at the end, of a detachable blade retained by said spring-hook, the outer end or heel of the spring-hook being bent at an angle of inclination to the longitudinal plane of the pile-wire, substantially as set forth.

2. The combination, with a pile-wire having a spring-hook at the end of the same, the end of the spring-hook and the shank of the pile-wire being provided with a groove at their inner edges, of a detachable pile-cutting blade provided with a blunt rear portion inserted into the spring-hook so as to form an opening or eye between the same and the rear end of the blade, substantially as set forth.

3. The combination of a pile-wire having an inclined outer end with a head the shank of which is provided with an inclined recess for the end of the pile-wire, said recess extending upwardly from the lower edge of the shank, so that the shank of the pile-wire is on a level with the lower edge of the shank of the head, substantially as set forth.

4. The combination, with a pile-wire having an upwardly-inclined end with a head the shank of which is provided with a corresponding recess for the pile-wire at its outer end, a gage below the shank, and a recess between the shank of the head and the gage, so that the pile-wire is on a level with the lower edge of the shank, substantially as set forth.

478,369. **PILE-WIRE FOR LOOMS.** GUSTAV SEESCHNEIDER, Yonkers, N. Y., assignor to the Waring Hat Manufacturing Company, same place. Filed Mar. 2, 1892. Serial No. 423,581. (No model.)

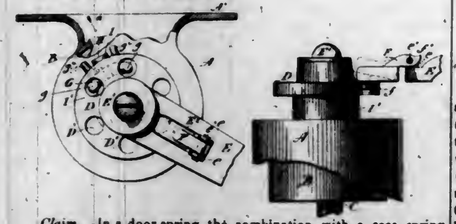


Claim.—1. A combined pile wire and cutter composed of a pile-

wire having a longitudinal groove in its outer end, a heel at the outer end of said groove, a spring secured in the inner end of the groove, and a detachable blade retained in position by the heel and spring, substantially as set forth.

2. A combined pile wire and cutter composed of a longitudinal groove in its outer end, an inclined heel attached to the outer end of the groove, a spring the shank of which is attached in the inner end of the groove, and a detachable blade having a sharpened inner edge and an inclined blunt outer edge, substantially as set forth.

478,370. **DOOR-SPRING.** JOHN H. SHAW, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Jan. 6, 1892. Serial No. 417,142. (No model.)



Claim.—In a door-spring, the combination, with a case, spring, and spring-shaft, of a collar rigidly attached to a projecting end of the said shaft and having a series of retaining-points formed in it, a lever loosely connected with the said projecting end of the shaft and bearing upon the outer end of the collar, a manual clutch mounted in the lever for engagement with the collar through the retaining-points therein, a rocking stop pivoted on the case under the said collar, and having two corresponding stop-lugs for engagement therewith and two corresponding outwardly-projecting operating-fingers, the said lugs and fingers being respectively located on opposite sides of its center, and a spring engaged with the said stop to hold it in its normally retired position in which it lies in the same plane with the clutch-collar, substantially as described.

478,371. **DOOR-CHECK.** JOHN H. SHAW, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Jan. 6, 1892. Serial No. 417,143. (No model.)



Claim.—1. The combination, with a cylinder, of a plunger, a stem therefor, a rocking carrier to which the inner end of the said stem is adjustably secured, a bracket in which the carrier is pivoted, and one or more springs interposed between the bracket and carrier and engaging with the latter on opposite sides of its pivot and yielding to permit the stem to conform to the angle on which the cylinder and plunger come together when the door carrying one of them is opened and closed, substantially as described, and whereby provision is made for permitting the stem to yield in either direction without interfering with its initial adjustment for the right presentation of the plunger to the cylinder.

2. In a pneumatic door-check, the combination, with a cylinder, of a plunger, a stem therefor, a holder into which the inner end of the stem is mounted, a rocking carrier to which the holder is adjustably secured, a bracket in which the said carrier is pivoted, and one or more springs interposed between the bracket and carrier and engaging with the latter on opposite sides of its pivot, substantially as described, and whereby provision is made for permitting the stem to yield in either direction without interfering with its initial adjustment for the right presentation of the plunger to the cylinder.

3. In a pneumatic door-check, the combination, with a cylinder, of a plunger, a stem therefor, a rocking carrier to which the inner end of the stem is adjustably secured to be set at any desired angle thereto, a bracket in which the said carrier is pivotally mounted, and two spiral springs respectively interposed between the bracket and the opposite ends of the carrier on the opposite sides of the pivot thereof, substantially as described, and whereby provision is made for permitting the stem to yield in either direction without interfering with its initial adjustment for the right presentation of the plunger to the cylinder.

4. In a pneumatic door-check, the combination, with a cylinder, of a plunger therefor and a bracket carrying the said plunger, the ends of the said bracket and the outer ends of the mouth of the cylinder having centering notches, substantially as set forth, whereby the said plunger and cylinder members of the device may be rightly attached to the door and door-jamb, substantially as described.

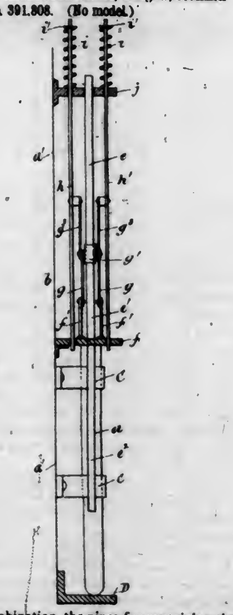
478,372. **DOOR-CHECK.** JOHN H. SHAW, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Apr. 4, 1892. Serial No. 427,677. (No model.)



Claim.—1. In a door-check consisting of a cylinder and a piston and in which the piston is withdrawn from the cylinder in the opening movement of the door, the combination therewith of a saddle, the piston-rod hung to said saddle upon a pivot the axis of which is parallel with the axis upon which the door is to swing, the saddle constructed with shoulders to the right and left of the said pivot, and the piston-rod constructed with corresponding shoulders, with a spring between the shoulders of the piston-rod and the shoulders of the saddle, and a bracket to which the said saddle is adjustably pivoted, the axis of the bracket-pivot being parallel with the axis of the pivot between the saddle and piston-rod, substantially as described.

2. In a door-check consisting of a cylinder and a piston and in which the piston is withdrawn from the cylinder in the opening movement of the door, the combination therewith of a saddle, the piston-rod hung to said saddle upon a pivot the axis of which is parallel with the axis upon which the door is to swing, the saddle constructed with shoulders to the right and left of said pivot, and the piston-rod constructed with corresponding shoulders, with a spiral spring around that portion of the piston-rod and saddle between said shoulders, one end of which bears upon the shoulders of the saddle and the other end upon the shoulders of the piston-rod, and a bracket to which the said saddle is adjustably pivoted, the axis of the pivot between the saddle and bracket being parallel with the axis of the pivot between the saddle and piston-rod, substantially as described.

478,373. **APPARATUS FOR AUTOMATICALLY REGULATING TEMPERATURE.** ALEXANDER SHIELS, Glasgow, Scotland. Filed May 6, 1891. Serial No. 391,808. (No model.)



Claim.—1. In combination, the pipes for containing the sensitive fluid, the vessel *a*, connected therewith and having a fluid therein, the piston within the vessel, the piston-rod, the valve for controlling the supply of the refrigerating or heating agent, the connections to the said valve, including the rods *h h'* and the toggle-arms, and the means for operating the said toggle-arms, consisting of the triangle on the piston-rod, substantially as described.

2. In combination, the pipes containing the sensitive fluid, the vessel *a*, having a piston and containing a fluid to act thereagainst, the valve *u* for regulating the supply of the refrigerating agent, the connections from the said valve to the piston, the connections *k k'* from the said vessel *a* to the sensitive pipes, the valve *l* in said pipes, the reservoir *n* for the sensitive fluid, the pipe *m* therefrom to the valve, and the means for controlling the position of the said valve *l*, connected with the sensitive-fluid pipe and actuated by the fluid therein, substantially as described.

3. In combination, the main supply-valve for the refrigerating fluid, the means for controlling the same, including the vessel *a*, having a piston, and the connections between the same and the supply-valve, the sensitive-fluid pipes connected to the said vessel, the three-way valve *l*, the reservoir *n*, connected therewith, the means for controlling the said valve, including the second vessel B, having a piston and piston-rod, the intermediate connections between the same, and the valve and the pipe *x* for the sensitive fluid connected to the said second vessel, substantially as described.

4. In combination, the main supply-valve for the refrigerating agent, the controlling means therefor, the sensitive-fluid pipes in connection with the said controlling means, the valve in said connection, the sensitive-fluid reservoir *n*, connected to said valve, the controlling means for said valve, including the second vessel B, with its piston and the piston-rod and the intermediate operating connections, the locking-slide T, connected with the valve *l*, and the locking-guides U U', movable with the piston, substantially as described.

5. In combination, the main supply-valve for the refrigerating agent, the controlling means therefor, the sensitive-fluid pipe in connection with said controlling means, the valve *l* in said connection, the reservoir *n*, connected to the valve, the regulating means for said valve, including the vessel B, with its sensitive-fluid pipe *x* and its piston and piston-rod, the magnet, the armature, the connections between the same and the valve, and the open circuit in which the magnet is arranged, and the contact on the piston-rod for closing said circuit to operate the valve, substantially as described.

6. In combination, the main supply-valve, the controlling means therefor, the sensitive-fluid pipes connected with said controlling means, the valve *l* in said connection, the reservoir *n*, connected with said valve, the regulating means for the said valve, including the vessel B, with its sensitive pipe and piston and piston-rod, the magnets O P, the interposed armature, the connections therefrom to the valve, the independent open circuits, including the said magnets, and the contacts I I' J J', arranged in different planes and adapted to be engaged by contacts on the piston at different points in the movement thereof, substantially as described.

7. In combination, the main supply-valve, the controlling device therefor, including the U-shaped tube, the sensitive-fluid pipes, the connection between the same and the U-shaped tube, the piston in said tube, the piston-rod, and the connections from said rod to the main supply-valve, substantially as described.

8. In combination, the main supply-valve, the tube *a*, the piston therein connected with the said valve, the sensitive-fluid pipes, the reservoir *n*, connected therewith, and the three-way valve *l*, whereby the sensitive fluid may be directed to the tube *a* or to the reservoir *n*, substantially as described.

478,374. **SLATE-PENCIL SHARPENER.** WILLIAM SHRIVER, Philadelphia, Pa. Filed Oct. 31, 1891. Serial No. 410,433. (No model.)

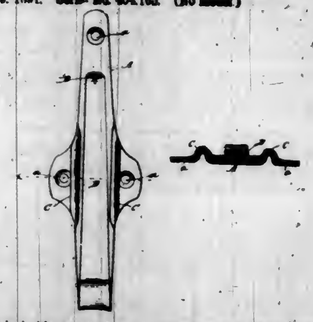


Claim.—1. A slate-pencil sharpener formed in sections with sharpening-surfaces on the inner faces thereof, a pin connecting the sections at one end thereof, and a tongue on one of the sections, the opposite section having a groove to receive said tongue, said parts being combined substantially as described.

2. The concave sections having sharpening-surfaces, a tongue and a groove, and a connecting-pin, the tongue projecting from one section and entering the groove in the other section, thus locking the sections, substantially as described.

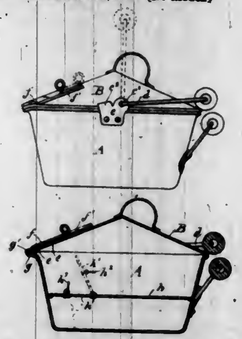
3. A slate-pencil sharpener formed in sections with a tongue and groove on the inner faces thereof, the groove receiving said tongue, and a pin which is passed through the sections, whereby the latter are connected and prevented from rotating on each other, substantially as described.

478,375. **REIN-HOLDER.** JAMES D. SHUMAN, Paint Rock, Tex. Filed Aug. 29, 1891. Serial No. 404,165. (No model.)



Claim.—A rein-holder made from a piece of spring sheet metal, having a base-plate provided with means for attachment to a flat surface and having projections struck up at each side of the tongue and extending lengthwise the base, and a spring-tongue bent upward from the lower end of the plate and normally lying between the line of the projections to hold a rein, substantially as described.

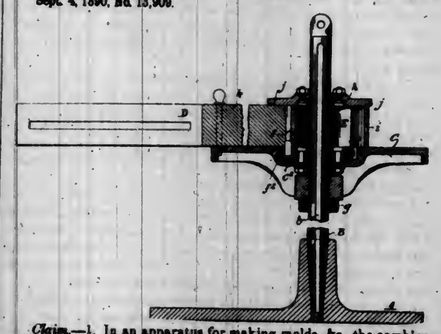
478,376. **COOKING UTENSIL.** SARAH SMITH, Toledo, Ohio. Filed June 6, 1891. Serial No. 395,364. (No model.)



Claim.—1. In a cooking utensil of the class described, the bifurcated bail-ears, one branch thereof engaging the bail, the other branch being bent inwardly and adapted to hold the lid in place, substantially as shown and described, for the purpose specified.

2. In a cooking utensil of the class described, a perforated removable horizontal partition or false bottom provided at one side with a hinged door, substantially as shown and described, for the purpose specified.

478,377. **MOLDING-MACHINE.** SAMUEL SMITH, Bury, England, assignor to John Broad Jackson and George Bentley, same place. Filed Sept. 22, 1891. Serial No. 406,457. (No model.) Patented in England Sept. 4, 1890, No. 13,909.

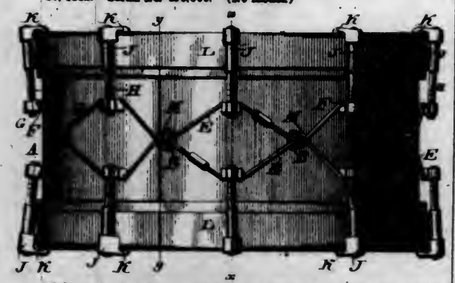


Claim.—1. In an apparatus for making molds, &c., the combination of a base carrying a spindle and provided with a disk having a

cam-groove, a tool-carrying arm adapted to rotate about the spindle, and a projection from the arm, adapted to work in the cam-groove, substantially as set forth.

2. In an apparatus for making molds, &c., the combination of a base carrying a spindle, a disk vertically adjustable upon the spindle and provided with a cam groove, and a tool-carrying arm having one end forked to embrace the spindle, and a projection from the arm, adapted to work in the cam-groove, substantially as set forth.

478,378. DRUM. ADOLPH G. SOUTHMANN and JAMES W. PEPPER, Philadelphia, Pa.; said Southmann assignor to said Pepper. Filed Apr. 27, 1892. Serial No. 430,869. (No model.)



Claim.—1. A drum provided with heads B, which are grooved to receive the wires or cords E, formed with openings for the fastening-screws C, and caps M, which cover the portion of the cords within said heads and are connected with the heads by means of said screws, substantially as described.

2. A drum provided with sockets J, having feet K, screws H, passed through said sockets, nuts G, fitted to said screws, hooks F on said nuts, heads B, connected with the side of the drum, and wires or cords E, passing from the said hooks to said heads and connected therewith, substantially as described.

3. A drum having tightening wires or cords E, connected alternately with hooks F and heads B on the side of the body, said heads receiving portions of said wires or cords and provided with caps M to retain the wires in place, said hooks being attached to nuts G, which are engaged by screws H, the latter being swiveled in sockets J, attached by feet K to the upper and lower bands of the drum, substantially as described.

478,379. DUMP WAGON-BOX. FRANK B. SOUTHWICK, Grand Rapids, Mich. Filed May 26, 1891. Serial No. 394,186. (No model.)



Claim.—1. In a wagon-box, the combination of two pairs of hinged sections, a strip between the inner section of each pair, straps G″ and G′, pivotally connecting said inner sections to said strip, said straps G′ being curved, straight straps G, secured to the sides of the box, laterally-curved straps G′, each pivotally secured at one end to the lower end of a strap G and secured to one of the outer sections near an end thereof and projecting from beneath said end, levers secured to the sides of the box, a cable connecting each of said levers with the adjacent ends of the pairs of curved straps G′, and pulleys over which said cables pass.

2. A wagon-box having transverse partitions located in pairs near each end and forming two chambers located one at each end of the part for the load, a longitudinal strip located between said chambers at the center of the load portion of the box, two pairs of hinged sections located on opposite sides of said longitudinal strip and forming, together with said strip, the bottom of the load portion of the wagon-box, the inner section of each pair being hinged to said strip and the outer section of each pair being hinged to the sides of the box, vertical pulleys located within said chambers, horizontal pulleys also located within said chambers and journaled in the side-boards of the box, levers pivoted to said side-boards, and cables or chains attached to said levers, extending over said pulleys and attached to said bottom section, all combined and operating substantially as set forth.

3. In a wagon-box, the bottom thereof, consisting of two pairs of hinged sections and a longitudinal strip located between the pairs of sections, in combination with straight straps G G″, secured, respectively, to the sides of the box and the under side of said strip, and laterally-curved straps pivotally secured to opposite sides and the lower ends of said straight straps, as shown, each of said curved straps being also secured to one of the sections of the bottom near an end thereof and projecting from beneath said end, chambers at opposite ends of said sections, horizontal and vertical pulleys in said chambers, a lever secured to each side of the box, and a cable connecting each of said levers with the adjacent outer ends of the curved straps and engaging said pulleys, substantially as described, whereby none of the operating mechanism will be located in the load portion of the box, as specified.

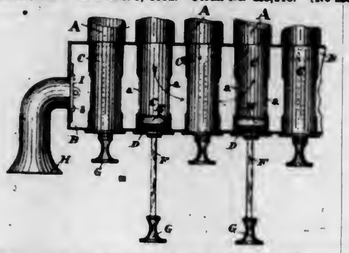
4. The combination of a wagon-box having a bottom consisting of hinged sections, cables or chains extending from opposite ends of said sections to a lever and attached to the same at opposite sides and at a distance from each other, said lever having a slotted opening midway between said points of attachment, and a pivot stud or bolt passing through said slotted opening, substantially as described.

5. In a wagon-box, a bottom consisting of longitudinal sections having hinges, consisting of straight straps attached to the box and curved straps attached to said sections and projecting from the end thereof, and cables or chains extending over pulleys and connected to levers for operating said sections, substantially as described.

6. In a wagon-box, the combination, with hinged sections forming the bottom thereof, straight straps secured to the sides of the box, and curved straps, each pivotally secured at its outer end to the lower end of one of said straight straps, said curved straps being also secured to said sections near the end thereof and extending beyond said ends, of chambers at opposite ends of said sections, pulleys in said chambers, cables secured to the ends of the curved straps and extending thence over said pulleys, and means for operating said cables to raise and lower said sections.

7. In combination, a wagon-box having parallel transverse partitions, as E E, and a seat having attached a strip, as C, adapted to be inserted between said partitions, substantially as described.

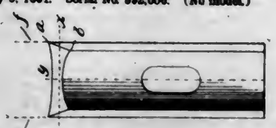
478,380. SPEAKING-TUBE EXCHANGE. LEOPOLD STROUSE, Baltimore, Md. Filed Mar. 5, 1892. Serial No. 423,813. (No model.)



Claim.—1. In a speaking-tube exchange, the combination of an assembly-case of suitable form, a number of speaking-tubes having end portions extending through said assembly-case and inclosed thereby, each tube having communication with the interior of the assembly-case through openings *a* in two opposite sides of its end portion, which is within the said case, and a piston-valve for each tube, having a stem and a knob thereon outside the assembly-case and arranged to slide in the tube and open and close communication between the said tube and the interior of the assembly-case through the side openings in the tube.

2. In a speaking-tube exchange, the combination of an assembly-case of suitable form, having a mouth and ear piece opening out of it at one part, a cut-off slide-piece fitting in vertical guideways inside the case and closing the inner end of said mouth and ear piece and provided with a suitable handle by which to slide it upward and open the mouth and ear piece, a number of speaking-tubes having end portions extending through the assembly-case and communicating therewith through side openings in the tubes, and piston slide-valves in the tubes controlling communication between them and the assembly-case and having suitable stems and knobs thereon outside the said case.

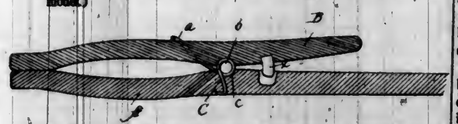
478,381. CUTTING-KNIFE. WILLIAM E. TAFT, Dunmore, Pa. Filed May 5, 1891. Serial No. 392,056. (No model.)



Claim.—1. A knife for the cutting-heads of turning-lathes, having an edge of curved or angular form, with the edge bevel on one side of the blade at the center and on the other side of the blade at the margin, as and for the purpose set forth.

2. A knife for the cutter-heads of turning-lathes, having an edge of curved or angular form, with bevels on each side, the bevels at the margin being full and the surface of the knife on the sides opposite said full bevels being plain.

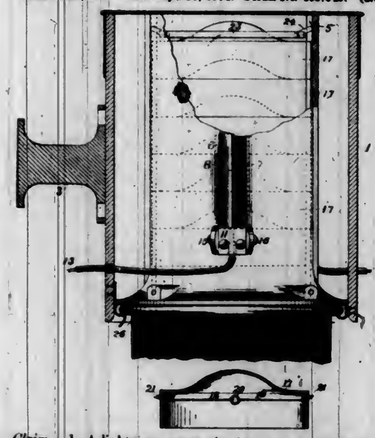
478,382. CLOTHES-TONGS. HORACE UPTON and WILLIAM KENNARD, Bar Harbor, Me. Filed Jan. 29, 1891. Serial No. 379,495. (No model.)



Claim.—1. In combination, the two members A B, means for holding them together pivotally, consisting of a loop the two strands of which extend down the sides of the member B and are continued inwardly toward each other and transversely between the two members, forming two sections of a coil, the said sections being held in place by a fastening embedded and protected in the body of the long member, said fastening consisting of the two strands of the wire at the inner ends of the sections, which are continued from the inner to the outer side and clinched to make a flush surface.

2. In combination, the two members A B, the loop-spring connection between them, said spring forming the pivot of the members, and means for preventing lateral displacement, consisting of a tongue on one member entering a slit in the other member, substantially as described.

478,383. LIGHTNING-ARRESTER. CHARLES S. VAN HUIS, New Brunswick, N. J. Filed Sept. 16, 1891. Serial No. 405,845. (No model.)



Claim.—1. A lightning-arrester having sections of fusible wire in line with each other end to end, the meeting ends of which are separated by a short space and the outer ends of which are adapted to be connected to line and to earth, the wires being of such size and material that when an arc is formed they will be quickly fused, thereby opening the circuit, substantially as described.

2. A lightning-arrester consisting of an insulating-bead or similar connecting device and wires connected thereto on different sides in substantially the manner described, whereby the wires are mechanically connected end to end, but are electrically disconnected, substantially as described.

3. A lightning arrester consisting of an insulating-bead or similar connecting device and fusible wires connected thereto on different sides by being wound around the same, the outer ends of said wires being held by a suitable support, substantially as described.

4. A lightning-arrester consisting of an insulating-bead or similar connecting device and fusible wires connected thereto on different sides by being wound around the same, the outer ends of said wires being held by the rim of a cup-shaped support, substantially as described.

5. A lightning-arrester consisting of an insulating bead or similar connecting device and fusible wires connected thereto on different sides by being wound around the same, the outer ends of said wires being held by a suitable support, in combination with circuit-terminals in co-operative relation thereto, substantially as described.

6. The combination of a supporting-body, a fusible conductor supported thereon, said conductor being knotted or twisted at the end and having a projecting end, and a terminal or stop against which said end is adapted to impinge, substantially as described.

7. The combination, in a lightning-arrester or cut-out, of one or more circuit-terminal and several fusible conductors movable successively into contact with the terminals and arranged alternately in different places, said terminal or terminals being so arranged that the alternate conductors make contact therewith at different points, whereby the fuse which is thrown forward is not destroyed by the heat of the terminal due to the burning of the preceding fuse, substantially as described.

8. The combination of an inclosing case, line-terminals near the bottom thereof, and several separate supports and fusible conductors carried thereby in the case, one above another, said conductors having contacts adapted to come to rest successively on the terminals, substantially as described.

9. The combination of an inclosing case having grooves in its inner surface, line-terminals having contact-surfaces projecting into said grooves, and fusible conductors, the ends of which move in said grooves and make contact with the terminals, substantially as described.

10. The combination of an inclosing case having grooves in its inner surface, line-terminals having contact-surfaces projecting into said grooves, fusible conductors, the ends of which move in said grooves and make contact with the terminals, and means for conducting hot gases or fumes from said terminals, substantially as described.

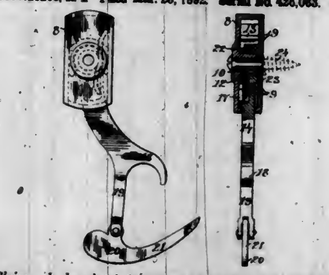
11. The combination of an inclosing case and several lightning-arresters, one above another, therein and movable forward in a straight line when released, said arresters being supported by the bottom one of the series while it is whole, but which are released when the same is burned, whereby when the arrester is burned the reserve arresters fall by gravity, bringing the following arrester into operative position, substantially as described.

12. The combination of line-terminals, several lightning-arresters movable forward in a straight line when released and in position to fall by gravity to bring them successively into operative connection with said terminals, and means operated by burning of the arrester in operative position to release the reserve arresters, substantially as described.

13. The combination, in a lightning-arrester, of line-terminals and a fusible conductor connected to each terminal, said conductors being electrically disconnected centrally between said terminals, said fusible conductors being of such character as to be fused, so as to be broken down or destroyed by the formation of an arc, whereby when an arc is formed between the adjacent ends of the fusible conductor the line-terminals will be at a distance from the point of greatest heat, and whereby the circuit will be opened, substantially as described.

14. The combination, in a lightning-arrester apparatus, of a reservoir having a groove on its inner surface, lightning-arrester conductors and supports therefor in the reservoir, and terminal-contacts, said supports having projections extending into said groove, whereby the conductors are held in line with the contacts, substantially as described.

478,384. LATCH FOR EXTENSION-LADDERS. JOHN A. WESTON, Providence, R. I. Filed Mar. 23, 1892. Serial No. 426,063. (No model.)

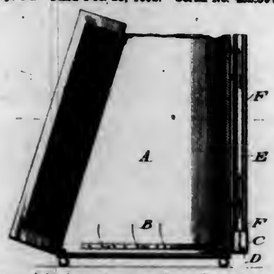


Claim.—1. In a latch for extension-ladders, the combination, with the spring-operated latch-bar 14, having the jaw 18 and downwardly-extending arm 19, and the counterweighted pawl 20, having the finger 21, pivoted to the end of said arm, of means for securing the pivoted end of the latch-bar 14 on the case containing the same to a ladder, as described.

2. In a latch for extension-ladders, the combination, with the case 8, having the spurs 9 9, the tubular bearing-post 10, the bearing-rib 12, and the plate 23 for closing said case, of the latch-bar 14, having the recess 15, lip 17, and perforation 16, adapted to receive said bear-

ing-post, a jaw 18, formed in part with said latch, an arm 19, depending therefrom, and a counterweighted pawl pivoted to the end of said arm, as and for the purpose described.

478,385. SOLAR OR OTHER BATH. WILLIAM H. WHITELEY, Darby, Pa. Filed Feb. 23, 1892. Serial No. 422,397. (No model.)



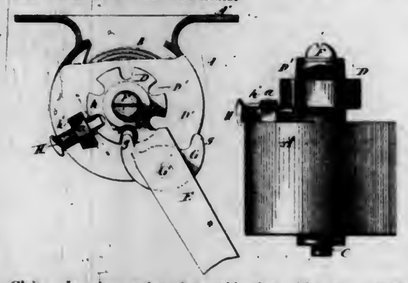
Claim.—A bath having a perforated pipe in the lower portion thereof, a heating-chamber outside of said bath, in communication with said pipe, and a combustion discharge-pipe for said chamber, substantially as described.

478,386. CLOAK-RACK. FRANK WOLF, New York, N. Y. Filed Mar. 14, 1891. Serial No. 385,037. (No model.)



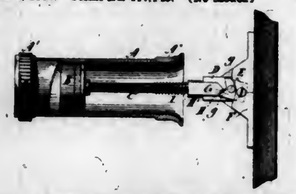
Claim.—The combination, with an upright standard having a socket at its upper end, of a ring-shaped supporting-rail provided with a groove in its top part, radial arms attached to the inner circumference of the ring-shaped rail, a central connecting-piece for said arms, provided with a fixed pivot-pin at its lower end, said pivot-pin being adapted to be inserted into the socket of the standard, and a cloak-hanger having an anti-friction roller at its upper end guided in the groove of the rail, substantially as set forth.

478,387. DOOR-SPRING. GRANVILLE W. WRIGHT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Jan. 6 1892. Serial No. 417,144. (No model.)



Claim.—In a door-spring, the combination, with a case, a coiled spring, and a spring-shaft, of a clutch-collar rigidly attached to one end of the shaft and provided with a circular series of peripheral notches, a lever loosely connected with the shaft and bearing upon the outer face of the said collar, a clutch carried by the lever for engagement with the notches of the said collar, and a stop-key mounted for limited axial rotation upon the adjacent face of the case and having its inner end extended radially under the collar and flattened and its outer end constructed for manual engagement, substantially as set forth, and whereby when the key is turned in either direction one of the edges of its inner end will be lifted into the path in which the collar rotates.

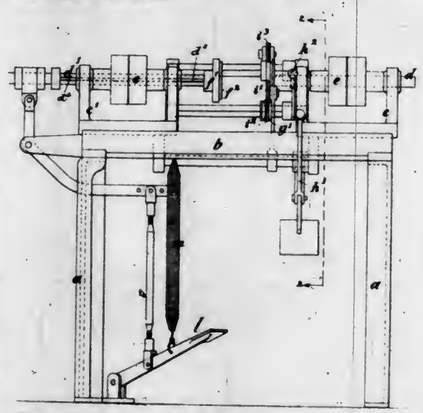
478,388. PNEUMATIC DOOR-CHECK. GRANVILLE W. WRIGHT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Jan. 6, 1892. Serial No. 417,145. (No model.)



Claim.—1. In a pneumatic door-check, the combination, with a cylinder, of a plunger therefor, a stem for the plunger, a bracket with which the inner end of the said stem is pivotally connected, a sliding spring-actuated cam mounted on the inner end of the stem, and an adjustable cam mounted on the bracket for co-operation with the said sliding cam, substantially as set forth.

2. In a pneumatic door-check, the combination, with a cylinder, of a plunger therefor, a stem for the plunger, a holder or block having the inner end of the stem mounted in it, a bracket in which the said holder or block is pivotally mounted, an adjustable cam swiveled in the said bracket and having its outer end provided with oppositely-inclined cam-faces forming an open notch, means for securing this cam in any desired position of adjustment on its swivel, a sliding cam mounted on the inner end of the stem and having a beveled inner end corresponding to the cam-faces of the adjustable cam, and a spring mounted on the stem and exerting a constant tendency to force the sliding cam into engagement with the adjustable cam, substantially as described.

478,389. MACHINE FOR MAKING METAL CANISTERS. ALBERT E. BENTLEY, Manchester, England. Filed Jan. 13, 1892. Serial No. 417,907. (No model.)



Claim.—1. In a seaming-machine, the combination of a working head adapted to fit into the open end of the cylindrical body of the canister, the said head being provided with a loose cap or ring capable of an eccentric motion, with a tool i', as and for the purpose set forth.

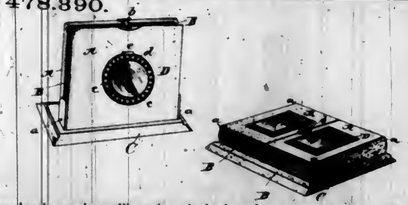
2. In a seaming-machine, the combination of a working head adapted to fit into the open end of the cylindrical body of the canister, the said head provided with a loose cap or ring capable of an eccentric motion, with a plain tool i', a paning-tool i^2, and a double-seaming tool i^3, as and for the purposes set forth.

3. In a seaming-machine, the combination of two rotary spindles, each carrying at one end a head adapted to fit into the open ends of the cylindrical body of the canister, with tools i', i^2, and i^3, set around the head, and pivoted levers g', g^2, and g^3, carrying the said tools, respectively, all substantially as and for the purposes set forth.

478,390. ALBUM-CASE. WILLIAM BERGNER, Baltimore, Md., assignor to F. Bergner & Co., same place. Filed Apr. 8, 1892. Serial No. 428,276. (No model.)

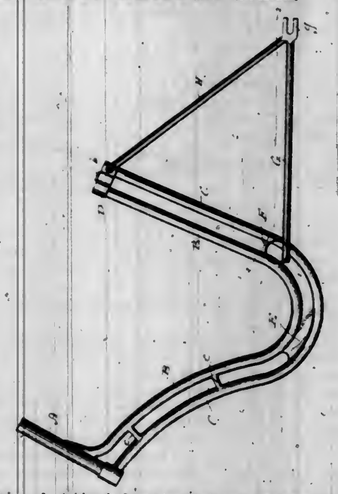
Claim.—An album-case composed of two or more pieces of suitable material hinged together and provided on its outer face with one or more open-center frames superimposed thereon and secured thereto and adapted to receive within said frames ornamental articles which

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may be changed at will to alter the look and appearance of said album case, substantially as described, and for the purposes specified.

478,391. BICYCLE-FRAME. FRANK H. BOLTE, Milwaukee, Wis., assignor to the Seroombe-Bolte Manufacturing Company, same place. Filed Feb. 13, 1892. Serial No. 421,375. (No model.)



Claim.—1. A bicycle-frame in which two continuous reach rods or tubes are arranged one above the other parallel throughout their length extended downward from the front, then curved, continued upward, and joined at their rear upper ends, and a brace-plate that stands on edge between the lower curved portions of the rods or tubes, conforms to the curve, and extends approximately the whole length of the same, substantially as set forth.

2. A bicycle-frame in which parallel rods or tubes joined to a vertically-disposed steering-head extend down and toward the rear, then turn on curves, and continue upward, and a crank-hanger in the form of a sleeve having seats engaging said parallel rods or tubes, substantially as set forth.

3. A bicycle-frame comprising a vertically-disposed steering-head, parallel rods or tubes that join the front one, extend down and toward the rear, then turn on curves, and continue upward, and a socket cap that joins the upper rear ends of the parallel tubes and is provided with an aperture for engagement with a saddle-post, substantially as set forth.

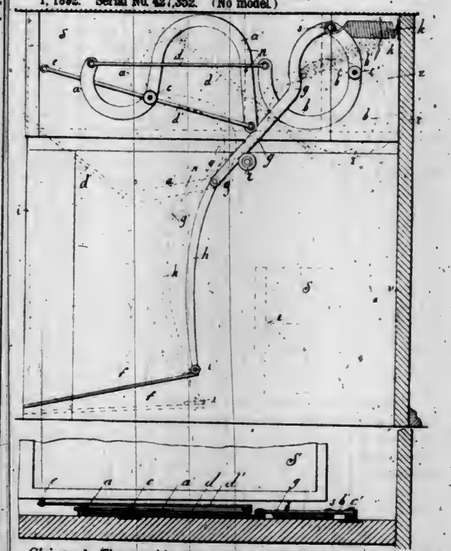
4. A bicycle-frame comprising a vertically-disposed steering-head, parallel rods or tubes that join the front one, extend down and toward the rear, then turn on curves, and continue upward, a socket-cap that joins the upper rear ends of the parallel rods or tubes and is provided with an aperture for engagement with a saddle-post, and a brace-plate set on edge between the lower curved portions of said parallel rods or tubes, substantially as set forth.

5. A bicycle frame comprising a vertically-disposed steering-head, parallel rods or tubes that join the front one, extend down and toward the rear, then turn on curves, and continue upward, a socket-cap that joins the upper rear ends of the parallel rods or tubes and is provided with an aperture for engagement with a saddle-post, and a crank-hanger in the form of a sleeve having seats engaging said parallel rods or tubes, substantially as set forth.

6. A bicycle-frame comprising a vertically-disposed steering-head, parallel rods or tubes that join the front one, extend down and toward the rear, then turn on curves, and continue upward, a socket-cap that joins the upper rear ends of the parallel rods or tubes and is provided with an aperture for engagement with a saddle-post, a brace in the form of a plate set on edge between the lower curved portions of said parallel rods or tubes, a crank-hanger in the form of a sleeve positioned in rear of the brace-plate and provided with seats that engage the aforesaid parallel rods or tubes, rearwardly-extended rods or tubes having their front ends seated in the crank-hanger, other rods or tubes that have their upper ends joined to the socket-cap, and axle-supports joining the lower ends of the latter rods or tubes with the rear ends of those that extend horizontally from said crank-hanger, substantially as set forth.

7. A bicycle-frame provided with a crank-hanger in the form of a section of tubing cut out to form seats that engage the adjacent frame rods or tubes, substantially as set forth.

478,392. TILL-LOCK. HUGO BRAV, Berlin, Germany. Filed Apr. 1, 1892. Serial No. 427,352. (No model.)



Claim.—1. The combination, with a drawer, of spring-actuated levers connected therewith and normally tending to maintain the drawer closed and means for throwing the levers against the tension of the spring for opening said drawer, substantially as described.

2. The combination, with a drawer, of two connected levers, one of which is connected with the drawer and the other of which is connected with a spring and provided with means for throwing it to open the drawer through the medium of the first-named lever, substantially as described.

3. The combination, with a drawer, of an oscillating lever in the shape of a compound curve, disposed vertically, a rod connecting the rear downwardly-curved end of said lever with the drawer, a second oscillating lever fulcrumed intermediate its ends, and a rod connecting one end of said lever with the upwardly-curved front end of the first-named lever, the opposite end of said second lever having means for throwing it and provided with a retractile spring, substantially as described.

478,393. STEAM-STAMP. EDWARD S. BRETT, Coventry, England. Filed Feb. 26, 1892. Serial No. 422,950. (No model.) Patented in England Feb 24, 1890, No. 2,924, and Apr. 29, 1891, No. 7,354.

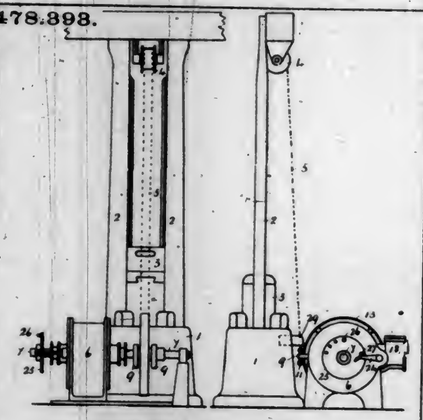
Claim.—1. The combination, in steam-stamps, with the block 1, pillar-guides 2 2, hammer 3, and band 5, of a cylinder having a part-rotating piston 8, shaft 7, and levers 9 9, and the operating-valves, all substantially as set forth.

2. The combination, in steam-stamps, with the cylinder 6, piston 8, valves 14 and 18, and shaft 7, of the lifting-levers 9 9 and loose pulley 13, substantially as described and shown.

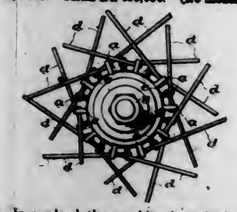
3. The combination, in steam-stamps, with the lifting-levers 9 9 the valve 14, piston 8, shaft 7, and the projections 29, of the buffer-pins 11 11, substantially as set forth, and for the purposes specified.

4. In steam-stamps, the combination, with the cylinder 6, piston 8, and shaft 7, having thereon the plate 25, with striking-pieces 26 and 27, of the lever 24, carried upon the spindle 23 of the valve 14, substantially as set forth, and for the purpose specified.

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478,394. BICYCLE-WHEEL. JACOB S. BENTZ, Philadelphia, Pa. Filed Oct. 14, 1891. Serial No. 408,636. (No model.)



Claim.—1. In a wheel, the combination of a hub having a series of integral independent spurs *a* radiating therefrom, each of the said spurs being provided with smooth-bored orifices *c*, and spokes *d*, inserted through said orifices, tangentially disposed to the hub, said spokes provided at their inner ends with heads *e*, which impinge against the side of the spurs, the outer ends of the spokes being secured to the rim of the wheel, substantially as described.

2. In a wheel, a metallic hub consisting of the central section B and end flanges A, two series of integral independent spurs *a*, provided circumferentially upon each flange A, radiating therefrom, each spur of a series alternately disposed at one side of the circumferential line of the adjoining series of spurs, each of the spurs provided with a smooth-bored orifice *c*, and spokes tangentially disposed inserted through said orifices and provided at or near their inner ends with heads which impinge against the sides of the spurs, substantially as described.

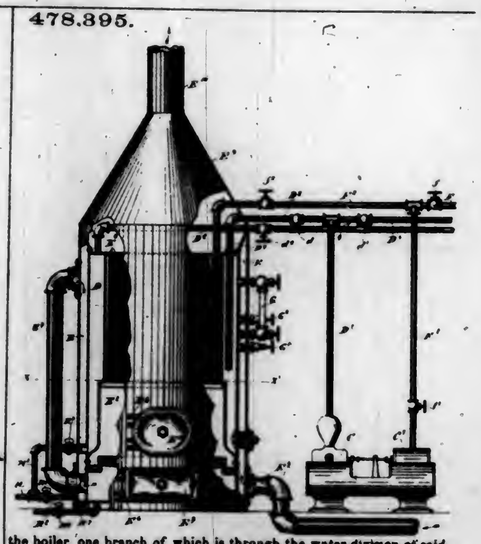
478,395. COMBINATION FEED-WATER HEATER AND BOILER. ANDREW T. BREWER, Minneapolis, Minn., assignor of one-half to James M. Boyd, Jr., same place. Filed Mar. 19, 1892. Serial No. 425,993. (No model.)

Claim.—1. In a steam plant, an apparatus interchangeably usable as a feed-water heater or as a temporary boiler, comprising a receptacle divided into water and heat medium compartments or divisions, valved inflow and outflow circulating-pipes to and from the water-division for the feed-water, a fire-pot constituting one element or compartment of the heat-medium division, suitable inlet and outlet openings for the heat medium, and an outflow live-steam pipe from the water-division to the feed-water pump, substantially as and for the purpose set forth.

2. In a steam plant, an apparatus interchangeably usable as an exhaust-steam feed-water heater or as a temporary boiler, comprising a receptacle divided into water and heat-medium divisions, valved inflow and outflow circulating-pipes for the feed-water, a fire-pot forming one compartment of the heat-medium division, an inlet-pipe for exhaust-steam to said heat-medium division, an outlet for the heat medium, an outflow live-steam pipe from the water-division to the feed-water pump, and means for closing the fire-pot flue and draft-openings steam-tight when employing the apparatus as a feed-water heater, substantially as described.

3. In a steam plant, the combination, with the primary or main boiler for supplying live steam to an engine or system of radiators, of a steam-pump, a receptacle having water and heat-medium divisions, direct and indirect valved feed-water connections from the pump to

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the boiler, one branch of which is through the water-division of said receptacle, valved live-steam connections to the pump-engine, one branch of which is from the top of the water-division of the said receptacle, an exhaust-steam pipe delivering to the heat-medium division of said receptacle, and a fire-pot constituting one compartment of the said heat-medium division and provided with removable plugs for closing its fuel and draft register openings steam-tight, substantially as and for the purpose set forth.

4. The combination, with the receptacle composed of closed concentric drums, of a box or dome within the inner drum near the bottom of the same, flues from the said box passing through the inner drum, feed-water-circulating connections to and from the inner drum, an inlet exhaust-steam pipe delivering into the outer drum near its bottom, a circulating exhaust-steam pipe receiving from the top of the outer drum at a point opposite the inlet-pipe and delivering into the said box or dome at the bottom of the inner drum, and an outlet-hood and discharge-pipe for the exhaust steam or other heat medium extended from the top of the drum, substantially as described.

478,396. WRAPPING-MACHINE. MARTIN E. BRIGHAM, Philadelphia, Pa. Filed June 3, 1890. Serial No. 354,114. (No model.)

Claim.—1. In a machine for wrapping packages, the combination, with the folders, of a reciprocating feeding-plunger provided upon two sides only with holding-nippers and a reciprocating pusher located in a line with the nippers of the plunger when the same is in a raised position and adapted to push the article to be wrapped directly between said nippers.

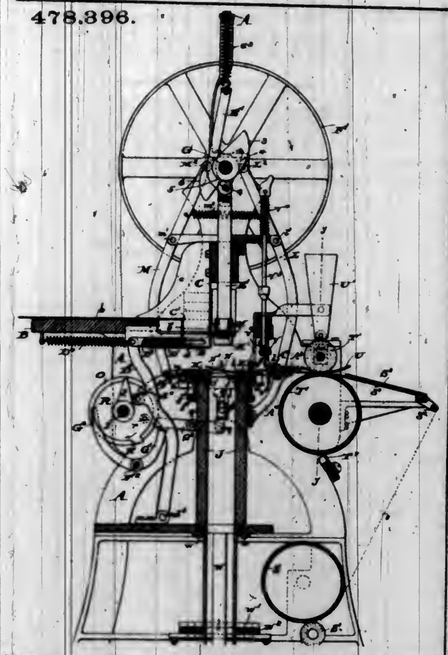
2. In a wrapping-machine, the combination of a support for the article to be wrapped and its wrapper, feeding devices for feeding the wrappers successively over said support, a feeding-plunger for feeding the articles to be wrapped one at a time to said support, provided with nippers for holding the article, a reciprocating pusher to push the articles laterally between the nippers of the plunger, and folders for folding the edges of the wrapper about the article.

3. In a wrapping-machine, the combination of a feeding-chute for the articles to be wrapped, terminating in a support, supporting-jaws for supporting the articles and their wrappers, folding devices for folding the wrappers about the article while held in said supporting-jaws, a feeding-plunger for feeding the articles one at a time to said supporting-jaws, provided with nippers for holding the article, and a pusher to push the articles successively from the support of the feeding-chute to the feeding-plunger.

4. In a wrapping-machine, the combination, with supporting-jaws for the articles to be wrapped and their wrappers, of folding devices for folding the wrapper about the article, the feeding-plunger E, provided with nippers H' H' for feeding the articles to the supporting-jaws, the cam 3 for operating the plunger, the pusher D' for pushing the articles successively to the nippers of the plunger, the lever D^2 for operating the pusher, the cam 2 for operating the lever, and the spring D^4 for withdrawing the pusher after it has been projected by the lever D^2.

5. In a wrapping-machine, the combination, with jaws for supporting the articles to be wrapped, together with their wrappers, of

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folding devices for successively folding the edges of the wrapper upon the article, feeding devices for feeding the wrappers successively over the supporting-jaws, supports for supporting the wrappers above said jaws, cam mechanism for operating said supports for the wrapper to release the wrapper, and a feeding-plunger for feeding the articles one at a time upon the wrapper and between the supporting-jaws.

6. The combination, in a wrapping-machine, of supporting-jaws to support the article and its wrapper, folding devices to fold the wrapper about the article when so supported, a feeding-plunger to feed the articles one at a time to the supporting-jaws, feeding devices for feeding the wrapper between the plunger and supporting-jaws, supports for holding the wrapper above the jaws, cam mechanism to move said supports from under the wrapper and release it, cam mechanism to reciprocate the plunger, and connections between the cam mechanisms to operate them synchronously.

7. The combination, in a wrapping-machine, of supporting-jaws to support the article and its wrapper, folders to fold the wrapper about the article when so supported, a feeding-plunger to feed the articles one at a time to the supporting-jaws, feeding devices to feed the wrappers over the supporting-jaws and under the plunger, supporting-wings N for the paper carried by the pivoted levers N', and wheels O, having cam-grooves *o* for the free ends N^2 of the levers, whereby the wings N are operated to release the wrapper.

8. The combination, in a wrapping-machine, of supporting-jaws to support the article and its wrapper, folders to fold the wrapper about the article when so supported, a feeding-plunger to feed the articles one at a time to the supporting-jaws, feeding devices to feed the wrappers over the supporting-jaws and under the plunger, paste-supplying rollers to supply paste to the edges of said wrappers, and a stripper to prevent the pasted wrapper adhering to the feeding devices.

9. The combination, in a wrapping-machine, of supporting-jaws to support the article and its wrapper, folders to fold the wrapper about the article when so supported, a feeding-plunger to feed the articles one at a time to the supporting-jaws, feeding-rollers for feeding the wrapper over the supporting-jaws and under the plunger, means to supply paste to one of said rollers, and stripping fingers or wires extending between said rollers to prevent the wrapper adhering to the paste-applying roller.

10. In a wrapping-machine, the combination of supporting-jaws having a yielding supporting-surface to hold the article to be wrapped, together with its wrapper, a delivery-chute extending below said supporting-jaws, folding devices to fold the wrapper about the article while held by the supporting-jaws, and a feeding-plunger provided with nippers for holding and feeding the articles one at a time to the supporting-jaws and adapted to push the article, when wrapped from the supporting-jaws to the delivery-chute.

11. The combination, in a wrapping-machine, of two laterally-reciprocating folders for folding over the upper portions of the wrapper, each provided with lateral projections, arranged immediately adjacent to and below the upper portions of said folders, for folding in the sides of the ends of the wrapper, whereby the folding of each upper flap and the corresponding sides of the ends of the wrapper are accomplished simultaneously.

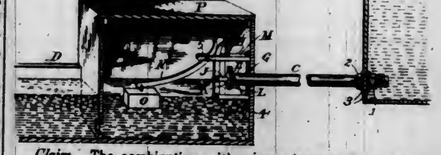
12. The combination, in a wrapping-machine, of the supporting-jaws J' J' for supporting the article to be wrapped and its wrapper, the laterally-reciprocating folders K K, movable over said jaws J' J' and provided with the folding-blocks K^2 K^3, arranged immediately adjacent to and below the upper portions of the folders K K for folding in the sides of the ends of the wrapper, the vertically-movable folders P P for folding down the upper projecting ends of the wrapper, and the vertically-movable folders Q Q for folding up the lower projecting ends of the wrappers, said folders operating successively and entirely folding the package while supported by the jaws J' J', substantially in the manner described.

13. In a machine for wrapping articles, the combination, with folders for folding the wrapper about the article, of a feeding-table to support the articles, terminating in a feeding-chute, side and end guides upon said table to guide the articles to the feeding-chute, and a pusher to push the articles from the chute into a position above the folders.

14. In a wrapping-machine, the combination of supporting-jaws for the articles to be wrapped, a feeding-plunger for feeding the articles thereto one at a time, laterally-movable folders located above the supporting-jaws, means to feed the wrapper between the feeding-plunger and supporting-jaws, the vertically-movable folder P P for folding down the upper projecting end of the wrapper, vertically-movable folders Q Q for folding up the lower projecting ends of the wrapper, and cam mechanism for operating said folders P P and Q Q successively.

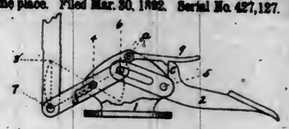
15. In a wrapping-machine, the combination of supporting-jaws for the article to be wrapped, a feeding-plunger for feeding the articles thereto one at a time, laterally-movable folders located above the supporting-jaws, means to feed the wrapper between the feeding-plunger and supporting-jaws, the vertically-movable folders P P for folding down the upper projecting end of the wrapper, vertically-movable folders Q Q for folding up the lower projecting ends of the wrapper, lever Q^3, connected to the folders Q, supporting-levers G', cams R' for operating the levers Q^3, and pins *r* for operating the supporting-levers G'.

478,397. AUTOMATIC WATERING-TROUGH. JAMES A BROWN, Sublette, Ill. Filed Sept. 21, 1891. Serial No. 406,326. (No model.)



Claim.—The combination, with a watering-trough, of a box at one end thereof provided with openings communicating with the trough, a supply-pipe projecting into the box, a plate upon the inside of the box surrounding the end of the supply-pipe, two standards in the plate, one above and one below the pipe, the inner end of the upper standard being slotted longitudinally, an oblique lever pivotally secured in the outer portion of the slotted end of the upper standard, the upper end of which lever is cam-shaped and projects above said standard and the opposite end is provided with a float, a vertical lever pivotally secured at its lower end to the lower standard and having its upper end cam-shaped and passed through the slot in the upper standard to the rear of the other lever and adapted be engaged and operated thereby, and a valve pivotally secured to the intermediate portion of said vertical lever and engaging with the end of the supply-pipe, whereby the supply of water to be admitted to the trough may be regulated, substantially as set forth.

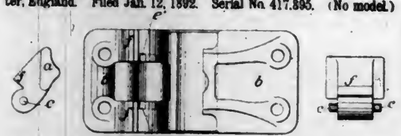
478,398. CLUTCH-TREADLE. ANDREW C. CAMPBELL, Waterbury, Conn., assignor to the Waterbury Farrel Foundry and Machine Company, same place. Filed Mar. 30, 1892. Serial No. 427,127. (No model.)



Claim.—1. In a clutch-treadle, the combination of a frame or holder 1, a lever 3, supported by the holder, a pin 4, said lever 3 being provided with a series of holes adapted to receive the pin 4, whereby the fulcrum may be located so as to preserve a constant ratio between the two arms of the lever 3, and a pin 6, extending through one end of the lever 3, a lever 2, fulcrumed upon a pin 5, supported by the frame 1, shaped at one end to receive a person's foot and slotted at the other end to receive the pin 6 in the end of the lever 3, whereby motion is imparted from one lever to the other, substantially as described, for the purpose specified.

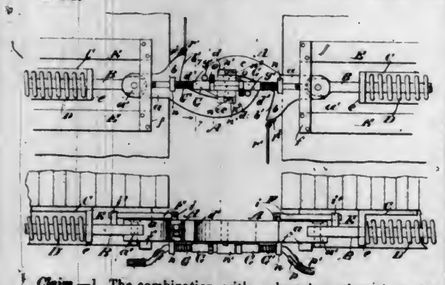
2. In a clutch-treadle, the combination of a frame or holder 1, a compound lever 2 and 3, fulcrumed upon pins supported by the frame 1, said lever 2, provided with a projecting tooth *c*, and a pawl 9, swinging upon a pin *a*, supported by the holder 1 and adapted to catch under said tooth *c*, whereby the lever 2 is held down, said pawl 9 being provided with a horn extending from one end, whereby said pawl may be raised to release the lever 2, all substantially as described.

478,399. RAIL-CHAIR AND COUPLING FOR PERMANENT WAYS. ROBERT CARDWELL, Liverpool, and SAMUEL WATSON, Manchester, England. Filed Jan. 12, 1892. Serial No. 417,895. (No model.)



Claim.—In single and joint rail-chairs secured to or formed with a sleeper, the movable jaw *a*, having pivots *c*, in combination with eyes *d*, formed on the base *b*, the inner faces of which are formed with slotted sockets *c c'*, adapted to receive the pivots *c* and serve as a fulcrum for the movable jaw *a*, substantially as and for the purpose set forth.

478,400. COMBINED CAR AND HOSE COUPLING. JOHN H. CARROLL, De Smet, S. D. Filed Aug. 24, 1891. Serial No. 403,540. (No model.)



Claim.—1. The combination, with a draw-bar adapted to slide longitudinally on a car-frame and a buffer-spring thereon cushioning the draw-bar in two directions of travel, of a side-latching coupling-head pivoted on the front end of the draw-bar and a plate-spring fastened at one end to the coupling-head and loosely connected with the draw-bar, substantially as described.

2. The combination, with a support for a draw-bar, adanted to retain it on a car-frame free to slide longitudinally, an elongated cylindrical draw-bar, and a buffer spring thereon adapted to cushion the bar against draft force or end-thrust, a coupling-head jointed to swing laterally on the draw-bar front end and provided with a lateral latch-hook, and an abutment-shoulder rearward of said latch-hook, of a flat spring held by one end edgewise on the coupling-head and loosely connected with the draw-bar, substantially as described.

3. The combination, with a bracket-plate on a car-frame, a cylindrical draw-bar held to slide in lugs of the bracket-plate, a buffer-spring thereon, a side-latching coupling-head jointed to swing laterally on the front end of the draw-bar, and a plate-spring affixed by one end on the coupling-head edgewise and loosely connected at the other end upon the draw-bar, of a supporting-plate transversely secured on the car-frame timbers below the coupling-head, a bell-crank lever pivoted on the car-frame in front, a link pivoted to a short limb of the bell-crank lever and by its other end to an ear on the coupling-head, a treadle above on the car, and a connecting-rod between the treadle-lever and bell-crank lever, substantially as described.

4. The combination, with a car coupling head pivoted to swing laterally and connect with a mating coupling-head, of a hose-coupling half-section positively held upon the car-coupling head and movable into position to couple in response to a corresponding movement of the car-coupling head and adapted to couple with a mating hose-coupling section when the car-coupling heads are joined, substantially as described.

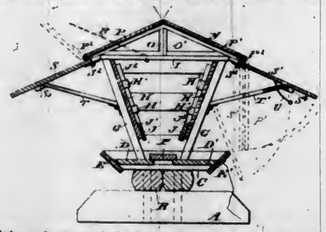
478,401. SMOKE-CONSUMING FURNACE. EDWARD CARTWRIGHT, Wilber, Nebr., assignor of seven-ninths to William H. Mann, John W. Wehn, Jr., Alfred Bigelow, and Frank Jelenik, Jr., same place, James A. Paddock, Deadwood, S. D., Ervin W. Clancy and Emeric Longtin, Beatrice, and Tobias Castor, Lincoln, Nebr. Filed Apr. 28, 1891. Serial No. 390,851. (No model.)



Claim.—1. A furnace having an outlet-flue curved from the side walls of the fire-box through a horizontal arc of ninety degrees and having greater vertical depth along the outer or longer arc than it has along the inner or shorter arc, substantially as shown and described.

2. A furnace having a tapered or contracting outlet-flue curved from the side walls of the fire-box through a horizontal arc of ninety degrees and dipping down at a point between the ends of the flue and also having a greater vertical depth upon the outer or large arc of the curve than it has upon the inner or smaller arc, substantially as shown and described.

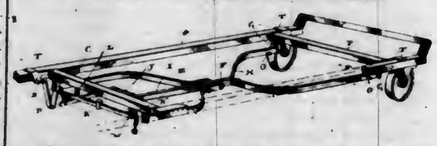
478,402. STOCK-FEEDING RACK. HENRY G. CHAMBERLAIN, Ridgeway, Wis. Filed June 23, 1891. Serial No. 397,178. (No model.)



Claim.—1. A stock-feeding rack comprising side troughs, posts projecting upward and outward from the said troughs, side boards held on the said posts, gates permitted to slide on the lower ends of the said side boards to increase or diminish the opening between the said side boards and provided with toothed arms, spring-pawls engaging the said toothed arms, a roof held on the said posts, the said roof comprising peaked sections supported on cross-bars attached to the said posts, roof-doors hinged to the lower or outer ends of the said sections to swing down into a vertical position, and extension-roof doors hinged to the peaked sections and supported on braces hinged to the said posts, substantially as shown and described.

2. A stock-feeding rack comprising side troughs, posts projecting upward and outward from the said troughs, side boards held on the said posts, gates permitted to slide on the lower ends of the said side boards to increase or diminish the opening between the said side boards, and a dividing-board between the troughs, a roof held on the said posts, the said roof comprising peaked sections supported on cross-bars attached to the said posts, roof-doors hinged to the lower or outer ends of the said sections, and a cord or rope having one end attached to one of the said roof-doors and the other end to one of the cross-bars to limit the outward swinging motion of the said roof portion, substantially as shown and described.

478,403. WEIGHING-TRUCK. ELMER E. CHANDLER, Royal Oak, Mich. Filed Mar. 14, 1892. Serial No. 424,849. (No model.)



Claim.—1. In a weighing-truck, the combination, with a frame and a weighing mechanism and platform therein, of movable bars which are supported over the platform, substantially as shown and described.

2. In a weighing-truck, the combination, with a frame and a weighing mechanism and platform therein, of brackets pivoted at their inner ends to the frame and upon opposite sides thereof and bars which connect the free ends of the said brackets, substantially as shown and described.

3. In a weighing-truck, the combination, with a frame and a weighing-platform therein, of brackets pivoted upon opposite sides of the frame near the ends of the platform, outwardly-projecting lips on the free ends of the brackets, and bars which connect the free ends of the said oppositely-arranged brackets, substantially as shown and described.

478,404. REGISTERING TOY BANK. WILLIAM R. CHRISTIE, New York, N. Y., assignor of one-half to Jungermann Brothers, same place. Filed Apr. 17, 1891. Serial No. 389,330. (No model.)



Claim.—1. In a registering-bank, the combination, with the registering mechanism and an actuating or trip lever engaging with said mechanism, of a shaft mounted to turn and provided with a coin-slot extending through from side to side, the slotted portion of the shaft being opposite one end of the trip or actuating lever, a spring independent of the shaft and located in front of the shaft slot or opening, adapted to force a coin carried by the shaft through its opening, and a compartment for coin located at one side of the shaft and provided with an opening to receive the coin when it is forced from the shaft by said spring, substantially as shown and described.

2. In a registering-bank, the combination, with a casing, a pocket formed within the casing, semicircular in general contour and provided with an opening therein, an alarm device located opposite the convex surface of the pocket, a registering mechanism, and a trip-lever engaging with the mechanism and facing the concaved surface of the pocket, of a coin-receiver consisting of a shaft held to revolve in the pocket and provided with a coin slot or opening, the said slot or opening being adapted at a point in the revolution of the shaft to face the trip-lever and the opening in the pocket, and a propelling mechanism adapted to act upon a coin while carried by the shaft when the coin-opening in the shaft is opposite the opening in the pocket, substantially as and for the purpose specified.

3. In a registering-bank, the combination, with a casing, a pocket formed within the casing and provided with an opening therein, a registering mechanism, and a trip lever engaging with the mechanism and facing one side of the pocket, of a coin-receiver consisting of a shaft held to revolve in the pocket and provided with a coin slot or opening, said slot or opening being adapted at a point in the revolution of the shaft to face the trip-lever and the opening in the pocket, as and for the purpose specified.

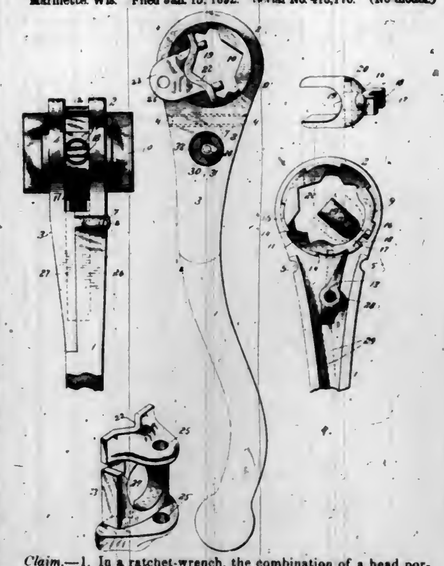
4. In a registering-bank, the combination, with a casing, a pocket formed within the casing and provided with an opening therein, a registering mechanism, and a trip-lever engaging with the mechanism and facing one side of the pocket, of a coin-receiver consisting of a shaft held to revolve in the pocket and provided with a coin-opening, the said coin-opening being adapted at a point in the revolution of the shaft to face the trip-lever and the opening in the pocket, an alarm device located at one side of the pocket in front of the opening therein, and a spring located at one side of the shaft and adapted for engagement with the coin when located in the slot of the shaft, as and for the purpose set forth.

5. In a registering-bank, the combination, with a registering mechanism, of a cover or lock-plate located beneath the mechanism, a lock-lever fulcrumed above the plate and provided with spurs adapted to enter an opening in said plate, the upper end of the lock-lever being actuated by the registering mechanism, and a removable key engaging with the lock-lever, whereby the lock-lever and lock-plate may be disengaged, substantially as described.

6. In a registering-bank, the combination, with a casing divided into compartments and provided with an opening in one face leading into one compartment and a plate closing said opening and provided with an inwardly-extending section, of a registering mechanism, a lock-lever provided with a spur adapted to enter the inwardly-extending portion of the plate, and a key entered into an opening above the plate, the said key being spring-pressed and provided with an opening to receive a spur located upon the lock-lever, the key being removable from the casing, substantially as and for the purpose specified.

7. In a registering-bank, the combination, with a casing and a partition dividing the casing into compartments, the said casing being provided with an opening leading into one of the compartments, and a plate closing said opening and extending within the inwardly-extending section, of a key extending within the casing over the plate, a lock-lever fulcrumed over the plate and provided with spurs entering the openings in the plate and in the key, a registering mechanism, and a trip connection between the registering mechanism and the lock-lever, as and for the purpose set forth.

478,405. WRENCH. HANS P. CHRISTENSEN and HANS NELSON, Marinette, Wis. Filed Jan. 15, 1892. Serial No. 418,176. (No model.)



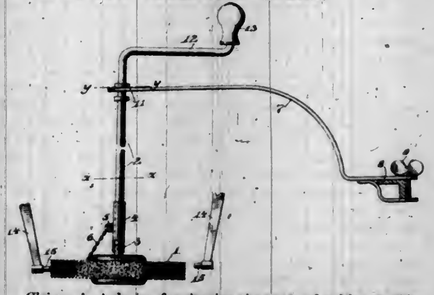
Claim.—1. In a ratchet-wrench, the combination of a head portion and removable cap, both provided with registering-openings, a revoluble nut-socket fitting in said openings, a turn-pin provided with a slotted head, and a pawl adapted to enter said slot, substantially as described.

2. In a wrench of the class described, the combination of a removable socket provided with exterior ratchet-teeth, a pawl, and slotted turn-pin, as specified.

3. The herein-described wrench, provided with a revoluble nut-socket having a ratchet and slotted turn-pin, in combination with a spring-actuated reversible pawl located in a chamber in the head portion of the wrench, substantially as and for the purpose set forth.

4. In a ratchet-wrench, a nut-socket having teeth and a turn-pin, in combination with a reversing-pawl, substantially as described.

478,406. CLEANING DEVICE FOR TYPE-WRITING MACHINES. OSCAR COHN, Bridgeport, Conn., assignor to MAX W. HENIUS, same place. Filed July 8, 1891. Serial No. 398,741. (No model.)

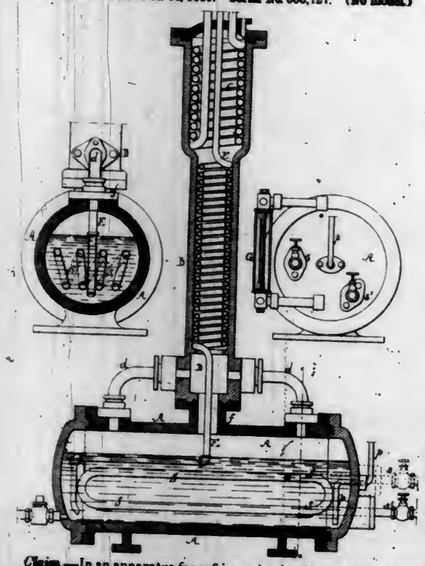


Claim.—1. A device for cleaning the types of writing-machines when arranged in circular or oval form, consisting, essentially, of a suitable attaching-arm, a circular horizontally-acting brush of less diameter than the distance between the nearest types, a shank by which

the brush is carried and which is loosely journaled in the attaching-arm, and means, as a crank, for turning the loosely-journaled shank so that in addition to its rotary movement an oscillatory movement is imparted to the brush, whereby the brush is brought successively in contact with every type in the series but does not remain in contact with any special type while in use.

2. A device of the class described, consisting of a circular brush, a shank by which it is carried, a joint between the shank and brush, a sleeve covering the joint and connected to the brush so as to tilt it when the sleeve is raised, and an attaching-arm in which the shank is loosely held, as and for the purpose set forth.

478,407. AMMONIA-STILL. NATHAN W. CONDICT, Jr., Jersey City, N. J. Filed Dec. 14, 1889. Serial No. 333,727. (No model.)



Claim.—In an apparatus for refrigerating by the ammonia-absorption process, the combination of a still with heating-coils therein, having an active heating-surface of from two to three square feet to about one cubic foot of the normal liquor-space in the still, substantially as described.

478,408. DITCHING-MACHINE. JOHN CORNELIUS, Oakland, Md. Filed Apr. 5, 1892. Serial No. 427,958. (No model.)

Claim.—1. In a ditching-machine, the combination, with the sole and the ditching-cutters, including a base-cutter, of a rear cutter-plate secured to the sole near the rear end thereof and extended laterally beyond the base-cutter, whereby to cut into the walls of the ditch, substantially as described, and for the purposes set forth.

2. In a ditching-machine, the combination, with the beam, the gage-wheel, and the ditching-cutters, of the track-clearer composed of a base plate or cutter, the side plates converging at their front ends, forming a cutting-edge, the supporting-shafts arranged one in rear of the other, threaded through the beam and having heads at their lower ends, and the cover-plate fitted on the said base-cutter and securing the heads of the shafts thereto, all substantially as set forth.

3. The improved ditching-machine herein described, consisting of the sole-piece, the beam, the adjustable gage-wheel, the adjustable track-clearer arranged in front of the gage-wheel, the base-cutter, the central cutter, the side cutters, the adjustable support for the said cutters, the partition in rear of the central cutter, and the turning-wings, all substantially as and for the purposes set forth.

4. An improved ditching-machine comprising the base beam or sole A, provided with the base-cutter, the top bar or beam D, the central cutter C, held between the beams A and D, the side cutters J, secured at their lower ends to the base-cutter, supports for the upper ends of the side cutters, said supports being fixed to the top beams, the partition-plate G, arranged in rear of and in alignment with the cutter C and held between the beams A and D, and the turning-wings connecting with the partition and base-cutter, all substantially as and for the purposes set forth.

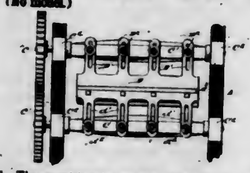
5. In a ditching-machine, substantially as described, the combination of the central cutter, the base-cutter, the side cutters, and the elevating and turning wings located considerably in rear of the central cutter, of the partition-plate arranged in rear of and in alignment with said central cutter, the said partition being arranged at its front edge close to the rear edge of the central cutter and extending rearwardly therefrom to the turning-wings, all substantially as described, whereby well defined slices may be formed and held separated before they are subjected to the action of the elevating and turning wings, substantially as set forth.

6. In a ditching-machine, the combination, with the base, central and side cutters and the beam, of the track-clearer, two independent vertically-adjustable supports arranged one in rear of the other and connecting the track-clearer with the beam, whereby said clearer may be adjusted vertically and to any desired angle to the horizontal, and the gage-wheel adjustably supported and arranged in rear of the track-clearer, substantially as and for the purpose set forth.

7. In a ditching-plow, the combination, substantially as described, of the sole-piece or base, the ditching-cutters, including a base-cutter, the elevating and turning wings, and a cutter L, secured to the sole-piece in rear of the base-cutter, substantially as and for the purposes set forth.



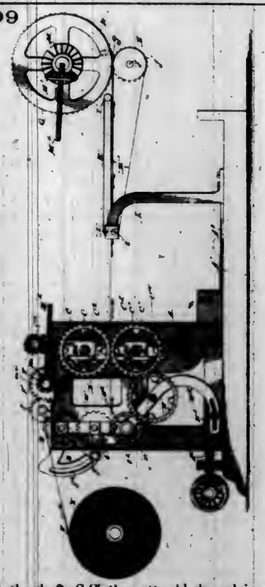
478,409. APPARATUS FOR SEVERING SHEETS FROM WEBS OF PAPER. JOSEPH L. COX, Battle Creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed Nov. 1, 1889. Serial No. 328,949. (No model.)



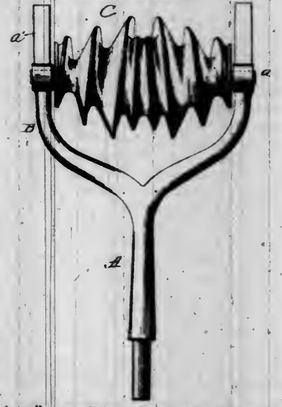
Claim.—1. The combination of the shafts C C', the bars D d, adjustably secured to said shafts by slotted hangers and bolts, substantially as described, the impact-strip in bar D, the perforating-blade secured to bar d, and the interchangeable gears on said shafts, with the paper-feed rolls, the gears thereon, and the movable gear mounted in an adjustable bracket and adapted to transmit motion from the roll-shafts to the shafts C C', substantially as described.

2. The combination of the paper-rolls intergeared, as described, the horizontal shafts F, driven by gearing from a press-cylinder shaft, the interchangeable gear on shaft F, and the gear mounted on an adjustable bracket for transmitting motion from the gear on shaft F to the roll-shafts, with the shafts C C', the cutter-blade and impact-bars adjustably mounted on said shafts, and the interchangeable gears thereon, and the gear mounted in an adjustable bracket for transmitting motion from the roll-shafts to the shafts C C', substantially as described.

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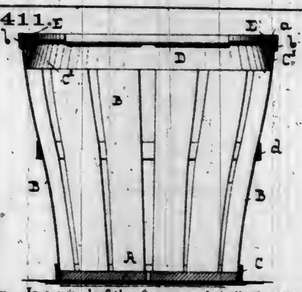
478,410. TROLLEY. JOHN W. DAVIS, Lynn, Mass. Filed Oct. 22, 1891. Serial No. 409,534. (No model.)



Claim.—A trolley consisting of an elongated body having tapering ends, with a central groove and spiral grooves about the tapered portions, communicating therewith, the said grooves extending into the body of the material and the flanges bounding said grooves being integral with the body portion, substantially as described.

478,411. BASKET. FRANK H. DUANE, Baltimore, Md., assignor of one-half to C. P. Tatem & Co., same place. Filed Mar. 19, 1892. Serial No. 425,622. (No model.)





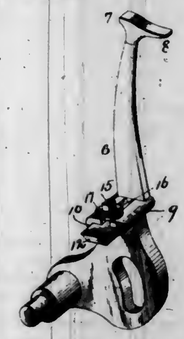
Claim.—In a vessel of the character described, the body thereof, provided with a resting-piece for the lid, combined with a lid formed of crossed strips of different lengths and locking-segments attached to the body, under which the longer strips of the lid may be slid, substantially as specified.

478,412. WATCH-CASE. OSCAR R. DECKER, Rochester, Ind. Filed Oct. 2, 1891. Serial No. 407,540. (No model.)



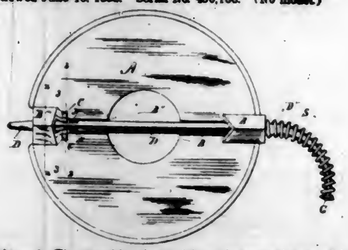
Claim.—In a watch-case, substantially as described, the combination, with the inner annular or center part 1, having the projecting side flanges, the notches 2^a 3^a, formed in said flanges, and the inwardly-inclined locking-grooves formed in the outer edges of the side flanges and extending from the notches 2^a 3^a and having their outer side walls milled or corrugated, of the front and back sections having the inwardly-extending locking-lugs milled or corrugated on their inner sides to engage the milled or corrugated outer walls of the inclined grooves of the center part 1, substantially as specified.

478,413. WEFT-HAMMER FOR LOOMS. RALPH DERBYSHIRE and CHARLES H. MULLEN, Fall River, Mass. Filed May 11, 1891. Serial No. 392,386. (No model.)



Claim.—In a loom, the combination, with the weft stop-lever having a beveled laterally-extending arm and an upwardly-projecting set-screw, of the laterally-adjustable weft-hammer having a foot at its lower end provided with a dovetailed groove or slot and a washer, substantially as described.

478,414. STOVEPIPE-DAMPER. LEVI M. DEVORE, Freeport, Ill., assignor of one-half to M. H. Wilcoxon, same place. Filed Aug. 12, 1890. Renewed June 10, 1892. Serial No. 436,188. (No model.)



Claim.—1. The combination, with a damper-plate and handle-shank provided, respectively, with devices to mutually engage and prevent longitudinal withdrawal of the shank, of bridges formed upon opposite faces of the plate and spanning the path of the shank, one of said bridges being high enough to permit lateral motion of the shank away from the plane of the plate, whereby the engaging devices may pass while the shank is beneath all the bridges, substantially as set forth.

2. The combination, with the non-cylindrical shank having the notches N and the spring upon its handle end, of the plate provided with the bridges B B' B'' and higher bridge B''' and with the undercut lugs C, arranged to register with said notches when the shank is pressed inward, overcoming the force of said spring, substantially as and for the purpose set forth.

478,415. BICYCLE. WILLIAM H. DE WITT, Wilkes-Barré, Pa. Filed Oct. 31, 1891. Serial No. 410,414. (No model.)

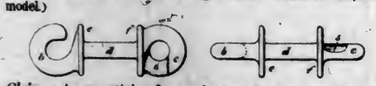


Claim.—1. In a bicycle, the combination, with the axle and wheel, the latter having ribbed hub, of a sprocket-wheel having a hub with grooves and means for moving the sprocket-wheel on its axle, as set forth.

2. The combination, with the axle and the wheel having ribbed hub, of the sprocket-wheel having grooved hub and annular chamber, the bell-crank lever, the arm connected therewith and working in said chamber, and means for actuating the bell-crank lever, as and for the purpose specified.

3. In a bicycle, the combination, with the ribbed hub and wheel and axle, of the sprocket-wheel having grooved hub, the bell-crank lever, the hooked arm adjustably connected therewith, the hand-lever, and pivotal connections between the hand and bell-crank levers, substantially as specified.

478,416. DRIVE-CHAIN. WEST DODD, Sac City, and ARTHUR T. MARTIN, Clinton, Iowa. Filed Aug. 7, 1891. Serial No. 401,939. (No model.)



Claim.—As an article of manufacture, the improved drive-chain link constructed integrally with a hook at one end and an eye at the other and radial flanges located at the respective ends of its shank and contiguous to said hook and eye, as shown and described.

478,417. SWING-JOINT FOR ELECTRIC-LIGHT BRACKETS. HENRY P. DREW, New York, N. Y. Filed Mar. 15, 1892. Serial No. 425,051. (No model.)

Claim.—1. In a swing-joint, two cupped joint-sections, branches thereon, perforated and threaded to receive pipes and further perforated to connect the threaded perforations with the cupped cavities of the joint-sections, a headed coupling-bolt loosely engaging one joint-

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section and locked to the other joint-section, a washer between the joint-sections, a washer under the coupling-bolt head, a clamping screw-bolt engaging a tapped axial hole in the other end of the coupling-bolt, and a washer between the locked joint-section and the head of the clamping screw-bolt, substantially as described.

2. In a swing-joint, two cupped joint-sections apertured and threaded internally in integral branches, a headed coupling-bolt loose in one joint-section and fast in the other joint-section, an insulating joint-washer between the coupling-bolt head and the loose joint-section, a joint-washer of non-conducting material between the adjacent edges of the two joint-sections, a clamping screw-bolt penetrating the other end of the coupling-bolt, an insulating joint-washer between the clamping screw-bolt head and the end of the fastened joint-section, and an insulating sleeve on the bolt-body engaging the loose joint-section and its washer, substantially as shown and described.

478,418. PROCESS OF FERMENTING. JEAN EFFRONT, Brussels, Belgium, assignor to the Société Générale de Maltose, same place. Filed May 18, 1891. Serial No. 393,204. (No specimens.) Patented in Austria-Hungary Dec. 18, 1888, No. 18,113; in France Dec. 20, 1888, No. 194,904; in England Apr. 1, 1889, No. 5,564; in Germany Sept. 14, 1889, No. 49,141, and in Belgium Nov. 28, 1889, No. 84,509.

Claim.—1. The process of preventing the development of injurious and destructive ferments in the manufacture of sirups, sugar, alcohol, beer, pressed yeast, &c., which consists in subjecting the amylaceous substances entering into the said manufacture to the action of fluorine compounds in about the proportions specified, substantially as set forth.

2. The process of preventing the development of injurious and destructive ferments in the manufacture of sirups, sugar, alcohol, beer, pressed yeast, &c., which consists in subjecting the amylaceous substances employed in the said manufacture to the action of diastase which has been previously mixed with fluorine compounds in about the proportions and manner indicated, substantially as and for the purpose set forth.

3. The process of preventing the development of injurious and destructive ferments in the manufacture of sirups, sugar, alcohol, beer, pressed yeast, &c., which consists in subjecting the amylaceous substances to the action of diastase and fluorine compounds and then adding yeast which has been treated with fluorine compounds, substantially as and for the purpose set forth.

4. In the manufacture of diastase, the process for preventing the development of injurious and destructive ferments, which consists in making an infusion of malt, adding thereto a compound of fluorine in the proportion indicated, and finally separating the residues from the diastase solution, substantially as set forth.

5. The process of saccharification, which consists in subjecting the amylaceous substances at a low temperature from 20° to 30° centigrade to the action of an infusion of malt treated with a compound of fluorine, substantially in the manner hereinbefore described.

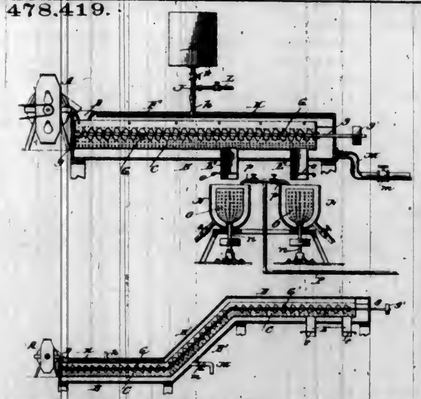
6. The process of preventing the development of injurious and destructive ferments in the manufacture of sirups, sugar, alcohol, beer, pressed yeast, &c., which consists in subjecting the amylaceous substances employed in the said manufacture to the action of hydrofluoric acid in about the proportions and in the manner specified.

478,419. WOOL-WASHING MACHINE. WALTER T. FORBES, Atlanta, Ga., assignor of one-half to James F. Lester, same place. Filed Nov. 19, 1891. Serial No. 412,448. (No model.)

Claim.—1. A wool-cleaning apparatus comprising a box-like receptacle formed with a feed-opening at one end and discharge-openings in the bottom of its opposite end, a foraminated trough suspended in such box formed with discharge portions projected through the discharge-openings in the box, a conveyer journaled in said trough, adapted to convey the wool from the feed end to the discharge end of the box, a scour-holding tank, a spray-pipe located longitudinally over the trough, and a valved pipe connection between said tank and the spray-pipe, all substantially as described, and for the purpose described.

2. An apparatus for cleaning wool, comprising a box like receptacle adapted to hold the scour, a foraminated trough suspended in such tank, adapted to hold the wool, said trough having outlets E, provided with a gate *e*, and means for feeding the wool to such outlet, substantially as shown, of washers disposed to receive the wool from

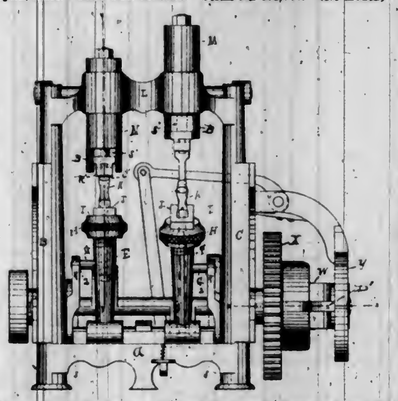
478,419.



the outlet E, consisting of the chambers N, having each a foraminated trough O, mounted to rotate within the chamber N, the supply-pipe P, having a valved lateral projection into the chamber N, and means for operating the trough O, all as set forth, and for the purpose described.

3. In a wool-cleaning apparatus, in combination, a box-like receptacle comprising a lower section adapted to hold the scouring solution and provided with a feed-opening, an upper parallel section having discharge-openings, an inclined section connecting the upper and lower sections, conveyers mounted in the several box-sections, adapted to carry the wool through the scouring solution to the discharge-openings, and means for operating the conveyers, all substantially as and for the purpose described.

478,420. SOLE-PRESSING MACHINE. WILLIAM E. FORSTER, Lynn, Mass. Filed Feb. 16, 1892. Serial No. 421,777. (No model.)



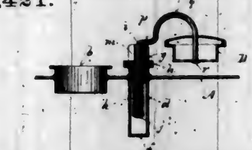
Claim.—1. In a beating-out machine, a pair of pivoted last-supporting arms, means for alternately swinging said arms to and from a vertical position, a pair of plungers for applying pressure to the lasts, and means for alternately reciprocating the plungers, consisting of the pivoted levers carrying segment-gears upon their forward ends, which engage with racks upon the plungers, and connections between the levers and the driving-shaft for rocking said levers, substantially as described.

2. In combination with the alternately-reciprocating plungers and molds and the last-supporting arms pivoted in fixed bearings beneath the plungers, means for alternately swinging said arms to and from a vertical position, consisting of the bell-crank levers having their forward ends pivotally connected to the last-supporting arms, their angle portions pivoted upon a fixed bearing, and their rear ends loosely embracing the crank-shaft and adapted to be operated by eccentrics carried thereby, substantially as described.

478,421. FILLER-CAP FOR OIL-RECEPTACLES. WILLIAM FROSCH, Ballard Vale, Mass. Filed Mar. 24, 1892. Serial No. 426,224. (No model.)

Claim.—1. The combination of a liquid-receptacle provided with

478,421.

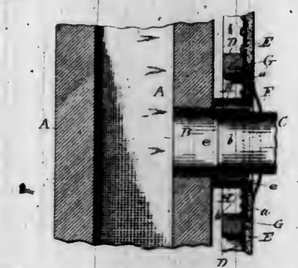


a filler-nipple, a slotted plug in a wall of said receptacle adjacent said nipple, a spring-tensioned spindle fitted to slide and rotate in said plug, and a cap for closing said nipple secured on said spindle, substantially as described.

2. The combination of a liquid-receptacle provided with a nipple, as *b*, a plug *g* in a wall of said receptacle and provided with a slot *m* adjacent said nipple, the spring-tensioned spindle *i*, fitted to slide and rotate in said plug and having a shoulder for entering said slot, and the cap D, secured to the outer end of said spindle, substantially as described.

3. The combination, with the receptacle A, having the nipple *b*, of a closed chamber *d* in a wall of said receptacle, the plug *g* in the mouth of said chamber, provided with the slot *m*, the spring-tensioned spindle *i*, fitted to slide and rotate in said plug and having a shoulder for entering said slot, and the cap D on the free end of said spindle, all being arranged to operate substantially as described.

478,422. GUARD FOR CHIMNEY-THIMBLES. JOSEPH T. GERDON, Worcester, Mass. Filed Jan. 22, 1892. Serial No. 418,959. (No model.)



Claim.—1. A guard for chimney-thimbles, consisting of the face-piece G, adapted to be fastened to the woodwork around the usual thimble-opening and to hold the plaster spread thereon, and the cylinder or thimble H, of larger diameter than said usual thimble and fastened transversely in a central opening in said face-piece, substantially as and for the purpose set forth.

2. A guard for chimney-thimbles, consisting of the sheet-metal plate G, adapted to be fastened to the woodwork around the thimble-opening and having holes punched therethrough at various points over its surface, with the metal thus forced through projecting from its face in the form of flaring spurs to produce, in connection with said holes, clinchers for holding the plaster to said face, and the cylinder or thimble H, made of greater diameter than the thimble and fastened transversely in a suitable central opening in said perforated plates, substantially as and for the purpose set forth.

3. The chimney, its usual thimble, the woodwork around said thimble, and the lath and plaster, in combination with a sheet-metal guard adapted to be fastened to the woodwork around said thimble and consisting of the plate G, punched through at various points over its surface to produce openings therethrough as well as flaring spurs upon its face to hold the plaster, and the cylinder H, made of greater diameter than the thimble and fastened transversely in a suitable central opening in said perforated plate, substantially as and for the purpose set forth.

4. The combination of the chimney, its usual thimble, the woodwork around said thimble, the lath and plaster, the stove-funnel and its cap, with a sheet-metal guard adapted to be fastened to the woodwork around said thimble and consisting of the plate G, punched through at various points over its surface to produce openings therethrough as well as flaring spurs upon its face to hold the plaster, and the cylinder H, made of greater diameter than the thimble and fastened transversely in a suitable central opening in said perforated plate, substantially as and for the purpose set forth.

478,423. TOY. WILLIAM H. GREGG, New York, N. Y. Filed Mar. 11, 1892. Serial No. 424,526. (No model.)

478,423.



Claim.—1. A toy comprising series of figures supported on transverse base-strips secured pivotally at both ends on parallel bars, and thus adapted for changing the position of the figures by ranks, substantially as described.

2. A toy comprising series of L-shaped base-strips pivoted by their ends on parallel bars at intervals, each base-strip sustaining a rank of figures, substantially as described.

3. A toy comprising two parallel bars held spaced apart by L-shaped base-strips pivoted at even intervals on the parallel bars, the short limbs of the strips having engagement with the same bar, a rank of soldiers on each base-strip, a holder-lug on one parallel bar, and one or more grip-pieces on the base-strips, substantially as described.

4. The combination of a base-board, two parallel bars, one fast and the other loose, on the base-board, a series of L-shaped base-strips pivoted on the bars by their ends, a rank of soldiers on each base-strip, and a grip-piece on one base-strip, substantially as described.

478,424. MEANS FOR DETECTING THE ESCAPE OF GAS FROM GAS-MAINS. ALPHONSE GUIGUEN, Paris, France, assignor, by mesne assignments, to the Chartier Valley Gas Company, Pittsburg, Pa. Filed Apr. 29, 1886. Serial No. 200,597. (No model.)





Claim.—1. The combination, with an underground gas-conduit, of a layer or a body of stones or similar loose solid material resting on said conduit and extending over a portion thereof and so covered and surrounded by earth as to form a separated and isolated chamber or gallery, and a vent-pipe leading from said chamber to the surface of the ground, through which the gas can escape to the atmosphere, and by which a leakage may be detected and located in any particular part of the conduit, substantially as described.

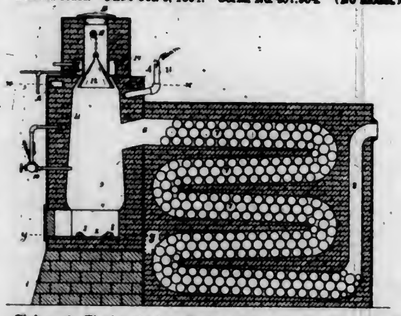
2. The combination, with an underground gas-conduit, of layers or bodies of stones or similar loose solid material resting on said conduit and extending continuously over portions thereof and covered and surrounded by the earth, such bodies being so separated as to form a series of isolated sections or galleries, and a vent-detector pipe leading from each such section to the surface of the ground and by which leakage from any particular section may be detected and located, substantially as set forth.

3. The combination, with an underground gas-conduit, of a layer or body of stones or similar loose material extending over any desired portion of the conduit, a tarred cloth or similar cover extending over the stones and covered and surrounded by earth, and a vent or detector pipe leading from the chamber so formed to the surface of the ground, substantially as set forth.

4. The combination, with an underground gas-conduit, of a cover of tarred cloth or similar material extending over and on each side of the gas-conduit, and a vent-pipe communicating with the space between the cover and the conduit, substantially as set forth.

5. The combination, with an underground gas-conduit, of a vent-pipe communicating with an enlarged chamber resting on the conduit, and a cover of tarred cloth or similar material extending over said chamber and down the sides of said conduit, substantially as and for the purposes set forth.

478,425. PROCESS OF GENERATING GAS. WILLIAM H. HARRIS, Boston, Mass. Filed Oct. 6, 1891. Serial No. 407,934. (No model.)



Claim.—1. The herein-described continuous process of making gas in a single generator and regenerator, which consists in introducing at an angle into the heated and ascending currents of the volatile products of combustion from an incandescent body of carbonaceous fuel a continuous current of steam that is decomposed and thoroughly mingled with the volatile products of combustion within a highly-heated generating-chamber between the body of fuel and the gas-uptake and passing the resulting gas directly and continuously into a regenerator, substantially as described.

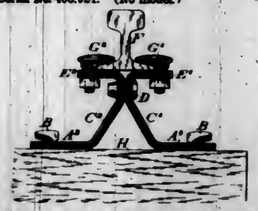
2. A continuous process of making gas in a single generator and regenerator, which consists in burning coal at the base of a generator-chamber, maintaining the combustion at a degree of heat high enough to decompose steam, the combustion being supported by air, introducing steam into the mixing-chamber between the body of fuel and the gas-uptake at an angle to the ascending currents of the volatile products of combustion, whereby the steam is decomposed and thoroughly mixed with the products of combustion in said mixing-chamber within the generator-shaft, and passing this product directly into the regenerator or fixing-chamber, substantially as described.

3. A continuous process of making gas in a single generator and regenerator, which consists in burning coal at the base of the generating-chamber, maintaining the combustion at a degree of heat high enough to decompose steam, the combustion being maintained by hot-air currents introduced into the primary combustion-chamber, introducing steam into the mixing-chamber between the body of fuel and the gas-uptake at an angle to the ascending currents of the volatile products of combustion, whereby the steam is decomposed and thoroughly intermixed with the products of combustion in said mixing-chamber within the generator-shaft, and passing this product directly into the regenerator or fixing-chamber, substantially as specified.

4. The continuous process of making gas in a single generator and regenerator or fixing-chamber, through which generator and regenerator the volatile products of combustion pass continuously in one direction, which consists in burning coal at the base of the generator, the combustion being supported by air forced into the same, admitting steam at an angle to the ascending currents of the products of combustion in a highly-heated generating and mixing chamber between the body of fuel and the gas-uptake, introducing a hydrocarbon liquid into the upper part of the generator, and passing the mingled gases through the regenerator to form a fixed gas, substantially as described.

5. The continuous process of making gas in a single generator and regenerator or fixing-chamber, which consists in burning soft coal at the base of the generator-chamber, injecting steam and heated air into said fuel to support combustion, introducing steam above the fuel at an angle to the ascending currents of the volatile products of combustion between the body of fuel and the gas-uptake, thoroughly mingling the steam and heated products of combustion within the generator-shaft, and passing the gas directly and continuously into a regenerator or fixing-chamber, substantially as described.

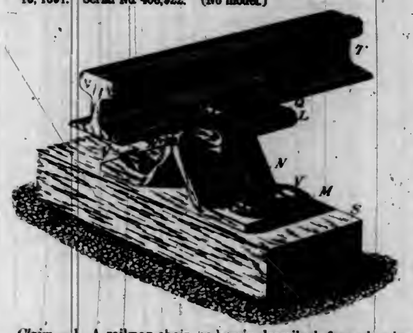
478,426. RAILWAY-CHAIR. SILAS HARRIS, San Francisco, Cal., assignor to the Pacific Rolling Mills Company, same place. Filed Oct. 16, 1891. Serial No. 408,921. (No model.)



Claim.—1. In a railway-chair, the combination of the two duplicate members having parallel top and bottom horizontal flanges and diagonal webs between said flanges, said webs being in contact with each other at a point near the upper flanges and being considerably distant from each other at the point where the bottom flanges rest upon the tie, the rivets D for securing the webs together, as shown, and the clamping-bolts G' and G², which nip the bottom flanges of the rail and hold it firmly against strains, substantially as described.

2. In a railway-chair, the combination of the two duplicate members, one of which has the base-flange A', fitting upon the sleeper, the upper parallel flange E', on which the rail rests, and the intermediate inclined web C', and the other of which has the bottom horizontal flange A², resting on the sleeper, the upper parallel flange E², which supports the rail, and the intermediate inclined web C² between the upper and lower flanges, the rivets D for fastening the two webs securely together at the top, the clamping-bolts G' and G², held in the flanges E' and E² and nipping the bottom flanges of the rail, and the spikes B, which secure the flanges A' and A² to the sleeper or tie, substantially as described.

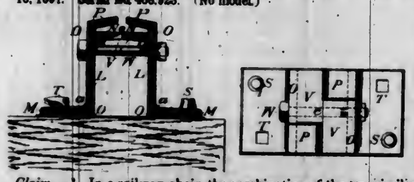
478,427. RAILWAY-CHAIR. SILAS HARRIS, San Francisco, Cal., assignor to the Pacific Rolling Mills Company, same place. Filed Oct. 16, 1891. Serial No. 408,922. (No model.)



Claim.—1. A railway-chair, as herein described, formed, primarily, of a bar having a uniform section, with top flanges L L folded and welded together so as to tie and support the vertical webs N and reinforce the top flanges for clamping-screws P P, substantially in the manner and for the objects described.

2. In a railway-chair, as herein described, the diagonal web-plates N, abutting together below the top flanges L L, the latter folded and welded to increase the thickness when the clamping-bolts P P pass through, in the manner described, substantially as and for the purposes specified.

478,428. RAILWAY-CHAIR. SILAS HARRIS, San Francisco, Cal., assignor to the Pacific Rolling Mills Company, same place. Filed Oct. 16, 1891. Serial No. 408,923. (No model.)

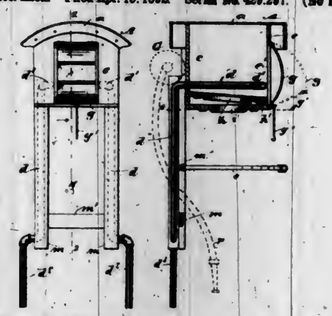


Claim.—1. In a railway-chair, the combination of the two similar sections cut transversely from Z-bars, said sections having the top flanges N, which are slitted to permit the turning up of clips P, which fit closely over the base-flange of the rail, and the securing-bolt W, substantially as described.

2. A railway-chair, as described, consisting of two duplicate members joined by a bolt W and provided with one or more cylindrical holes in the bottom flanges, so the chair can as a whole be swung to a diagonal position and the rail thus inserted or removed, substantially as described, and for the purposes specified.

3. In a railway-chair, the combination of the two similar sections cut transversely from Z-bars, said sections having the vertical part L, bottom flange M, and top flange N, and with the corners at O made acute and the inner corners filleted and rounded at *a* for the purpose of reinforcing the section, said top flanges N being slitted to provide the clips P, which are made to fit closely over the base-flange of the rail, the inner edges of said flanges N being in contact with each other, and the through-bolt W, which joins the two sections together, and with the holding-spikes S and teeth arranged substantially as described.

478,429. SMOKE EXCLUDING HOOD. CHRISTIAN HERLICH, Marquette, Mich. Filed Apr. 15, 1892. Serial No. 429,297. (No model.)



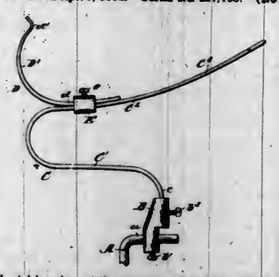
Claim.—1. A smoke-excluding device comprising a forwardly-apertured hood having a glazed door in front, adjustable doors below adapted to inclose the wearer's neck, and means to secure the hood in place, substantially as described.

2. A smoke-excluding device comprising an inclosing hood for the head, having a pendent glazed door in front, an apertured bottom piece, hinged drop-doors scalloped on meeting edges and located below the bottom piece, and means to hold the hood in place, substantially as described.

3. The combination, with an inclosing hood having parallel frame-bars and air-supply pipes supported by the bars and entering the hood, of a pendent glazed door in front on the hood, closing an aperture therein, an apertured bottom board, two hinged doors below the bottom board, scalloped on meeting edges, and a securing-strap, substantially as described.

4. The combination, with an inclosing hood having parallel frame-bars pendent from its rear and air-supply pipes entering the rear of the hood, extending forwardly therein, and also depending below, of a bulged glazed door in front on the hood, covering an aperture in it, a prop-hook therefor, an apertured bottom piece in the hood, two hinged drop-doors below the bottom piece on the hood, scalloped on meeting edges, and a securing-strap, substantially as described.

478,430. BICYCLE-SADDLE SPRING. CHARLES H. HOLDSWORTH, Elyria, Ohio. Filed Apr. 5, 1892. Serial No. 427,785. (No model.)

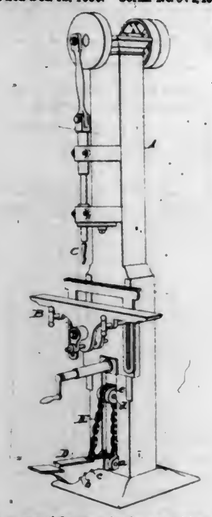


Claim.—1. A bicycle-saddle spring consisting of a main spring having a vertical securing end, from whence it is curved forwardly, upwardly, and finally rearwardly, and an auxiliary front spring mounted

on said main spring and projecting forwardly and upwardly, substantially as and for the purpose set forth.

2. As an improvement in bicycle-saddles, the combination of a main spring curved forwardly from its securing end, thence upwardly, and finally rearwardly, an auxiliary front spring adjustably connected at its securing end with said rearward extension of the main spring, and a clip for attaching the saddle to the support or standard and provided with a vertical socket for receiving the securing end of the main spring, a horizontal socket for the support or standard, and with set-screws adapted to engage said socket, substantially as and for the purpose set forth.

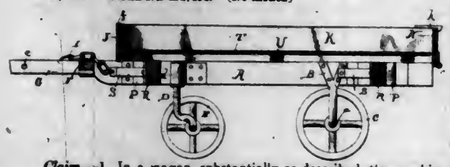
478,431. MORTISING-MACHINE. LEVI HOUSTON, Montgomery Station, Pa. Filed Dec. 12, 1890. Serial No. 374,490. (No model.)



Claim.—1. In a mortising or similar machine, the combination, with a main frame, of a reciprocating tool, a bed or work-table movable toward and from the tool, a treadle, and a flexible band or cable connecting the treadle and the bed or table and passing over an intermediate support, all substantially as shown and described.

2. In a mortising or similar machine, the combination, with a main frame, of a reciprocating tool, a bed or table movable toward and from the tool, a treadle pivoted in the main frame, a wheel or pulley also journaled in the main frame, but above the treadle, and a flexible connection passing over the wheel or pulley and secured at its ends to the treadle and work-table, all substantially as shown and described.

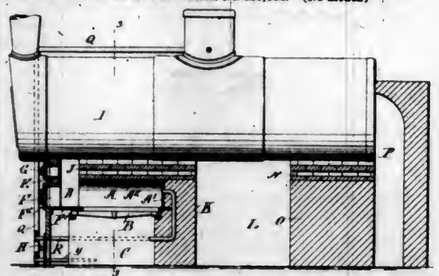
478,432. FARM-WAGON. SAMUEL HOWE, Chicago, Ill. Filed Feb. 23, 1892. Serial No. 422,458. (No model.)



Claim.—1. In a wagon, substantially as described, the combination, with the longitudinal side bars, the rear wheels carried by hangers fixedly connected to said side bars, the front wheel carried by hangers pivotally connected to said side bars, and the castings connected to the side bars and having the vertically-disposed slots of dovetail form in cross-section, of the transverse connecting-bars having angular branches at their ends to take into the vertical slots of the castings, substantially as and for the purpose set forth.

2. In a wagon, substantially as and for the purpose described, the combination, with the longitudinal side bars, of the longitudinal side boards hinged to the said bars, the standards pivotally connected to the bars and having ratchet-wheels at their pivot-points, and pawls connected to the side bars and adapted to engage the ratchet-wheels of the pivoted standards, substantially as and for the purpose set forth.

478,433. BOILER-FURNACE. WALTER HURDLEY, Youngstown, Ohio. Filed Mar. 3, 1892. Serial No. 423,602. (No model.)



Claim.—1. The combination, with the horizontal boiler having its smoke-stack at its forward end, of the furnace having a fire-box beneath the front end of the boiler and closed at its rear end, an upward-extending passage D from the front end of the fire-box to the lower side of the boiler, and a series of flues extending from the passage D along the under side of the boiler to an intermediate chamber L, thence to the rear chamber P, the latter communicating with the rear ends of the boiler-flues, substantially as set forth.

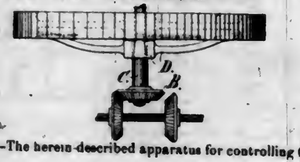
2. In a boiler-furnace, the combination, with a fire-box having an open front, a closed rear, and a curved top, and a grate arranged in the bottom of the said fire-box and leading to an ash-pit, of a wall extending in the front of the said fire-box and forming a space with the latter at its open end, a firing-opening arranged in the said wall and having a door and a bottom extending from said front wall inwardly across said space and over the front end of the said grate, a checker brick-work arranged above the said fire-box and extending under the boiler and rearwardly, and damper-doors and openings arranged in the said wall above the said charging-opening, substantially as shown and described.

3. In a boiler-furnace, the combination, with a fire-box having an open front, a closed rear, and a curved top, and a grate arranged in the bottom of the said fire-box and leading to an ash-pit, of a wall extending in the front of the said fire-box and forming a space with the latter at its open end, a firing-opening arranged in the said wall and having a door and a bottom extending over the front end of the said grate, a checker brick-work arranged above the said fire-box and extending under the boiler and rearwardly, and a steam-pipe extending through the closed end into the rear end of the fire-box, substantially as shown and described.

4. In a boiler-furnace, the combination, with a fire-box having an open front, a closed rear, and a curved top, and a grate arranged in the bottom of the said fire-box and leading to an ash-pit, of a wall extending in the front of the said fire-box and forming a space with the latter at its open end, a firing-opening arranged in the said wall and having a door and a bottom extending over the front end of the said grate, a checker brick-work arranged above the said fire-box and extending under the boiler and rearwardly, a steam-pipe extending through the closed end into the rear end of the fire-box, and a second steam-pipe discharging into the said fire-box below the said grate, substantially as shown and described.

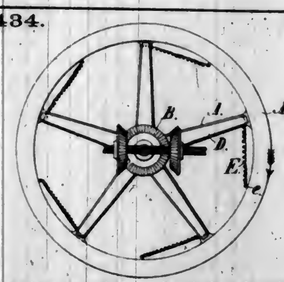
5. In a boiler-furnace, the combination, with a fire-box having an open front, a closed rear, and a curved top, and a grate arranged in the bottom of the said fire-box and leading to an ash-pit, of a wall extending in the front of the said fire-box and forming a space with the latter at its open end, a firing-opening arranged in the said wall and having a door and a bottom extending over the front end of the said grate, a checker brick-work arranged above the said fire-box and extending under the boiler and rearwardly, a steam-pipe extending through the closed end into the rear end of the fire-box, and a transverse wall arranged at the rear end of the said fire-box and ash-pit to support the rear end of the said checker brick-work, substantially as shown and described.

478,434. SHOCK-CONTROLLING DEVICE. PAUL H. INGERS, Christiania, Norway. Filed Feb. 20, 1892. Serial No. 422,271. (No model.) Patented in Norway Nov. 11, 1891, No. 2,321.



Claim.—The herein-described apparatus for controlling the shock

478,434.



caused by the sudden reversal of propeller-shafts and carriage and other wheels, consisting of a shaft, a fly-wheel mounted thereon, a sleeve rotatable on said shaft, a driving-wheel at one end of said sleeve, a rotating frame secured to the other end of said sleeve, and springs connecting said frame with the fly-wheel, substantially as described.

478,435. HORSESHOE. JOHN E. JARVIS, London, England. Filed Jan. 27, 1892. Serial No. 419,425. (No model.)



Claim.—1. A composite horseshoe formed of a leather sole-piece or backing, a rubber horseshoe-shaped cushion on the lower face thereof and having its lower outer edge cut away or rabbeted in front of its heel portion b^3, thus forming the outwardly-projecting flange d', and the metal portion a, fitting snugly within said rabbet or groove and having its heels a' resting against the rear end walls thereof and its upper face engaging said flange, substantially as described.

2. In a horseshoe, the sole-piece or backing d, having a horseshoe-shaped rubber cushion b on its lower side formed with heel portions and rabbeted around its lower outer edge in front of said heel and forming the outward-projecting flange d', substantially as described.

3. A composite horseshoe consisting of the sole-piece or backing d, the horseshoe-shaped rubber cushion b on the lower face thereof, having heel portions b^3 and rabbeted or cut away on its lower outer edge in front thereof, thus forming an outwardly-projecting flange d', and the metal portion resting on the flange d' in said rabbet with its rear ends a' resting against the forward end of the heel portion b^3, the depth of the rabbet being greater than the thickness of the metal portion a, causing the working face of the cushion to lie in a lower plane than that of the metal portion a, substantially as described.

478,436. CUTTER FOR BRICK AND TILE MACHINES. OLIVER W. JOHNSON, Bucyrus, Ohio, assignor to The Frey-Sheckler Company, same place. Filed Apr. 7, 1890. Serial No. 347,003. (No model.)

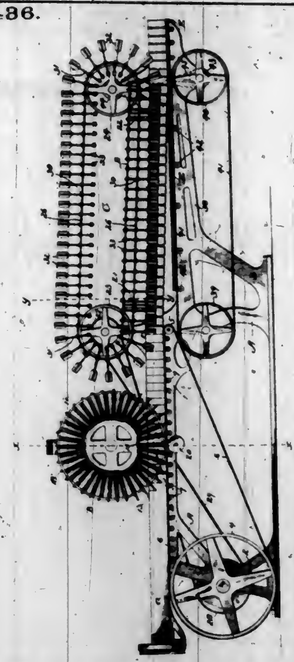
Claim.—1. In a cut-off for brick and tile machines, the combination, with the carrying-belt for the clay and the column of clay, of a cut-off wheel formed with radially-arranged slots, cutting-wire frames arranged in the slots of the wheel, and cams to engage the cutting-wire frames and push them through the column of clay, substantially as described.

2. In a cut-off table for brick and tile machines, the combination, with the carrying-belt having sprocket-holes in its edges and the column of clay, of a cutting-wheel journaled over the table and formed with radial slots and provided with sprockets on its rim edges, wire frames arranged to slide in the radial slots of the wheel, having lugs on the ends, and cam-frames fixed at the sides of the wheels, whereby the cutting-wire frames are pushed outward and through the clay, substantially as described.

3. In a cut off table for brick and tile machines, the combination, with a carrying-belt adapted to be moved by the advancing body of clay, of a cut-off wheel formed with radial slots, cutting-wire frames in the slots to slide therein, and springs connecting said frames to the shaft of the wheel to hold the cutting-wire frames from sliding free from the slots and to return them to normal position when moved from the center of the wheel, substantially as described.

4. In a cut-off table for brick and tile machines, the combination, with a carrying-belt adapted to be moved by the advancing body of clay, of a cut-off wheel moved by the carrying-belt and formed with

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radial slots, cams fixed at the sides of the cut-off wheel, cutting-wire frames arranged to slide in the radial slots and be engaged and moved outward by the cams, and springs to hold the cutting-wire frames inward and in engagement with the cams, substantially as described.

5. In a brick and tile cut-off machine, a rotative cut off wheel formed with radial slots, cutting-wire frames in the slots, cams to engage and push the cutting-wire frames outward, and means to rotate the wheel synchronously with the moving body of clay, substantially as described.

6. In a brick and tile cut-off and delivery table, a rotative traveling belt adjacent to the severed forms of clay, oppositely-fulcrumed arms on the belt provided with rollers on their inner ends, and a track-frame arranged in the path of the rollers to spread the arms and cause the opposite ends of the arms to grasp and hold a severed portion of the clay, substantially as described.

7. In a brick and tile cut-off and delivery table, a board delivery carrying-belt, a delivery-board on the belt, a traveling belt mounted above the board-delivering belt, clamping-arms on the upper traveling belt, and a frame to engage and spread the upper portions of the clamping-arms, substantially as and for the purpose specified.

8. The carrier for carrying the several bricks from the cut-off table, consisting of drums, a belt arranged on the drums, clamping-arms fulcrumed to the edges of the belt, rollers on the inner ends of the arms, and a stationary frame in the path of the rollers to move the arms to grasp a brick with their opposite ends, whereby the brick may be carried along by the belt, and mechanism to rotate the drums, as specified.

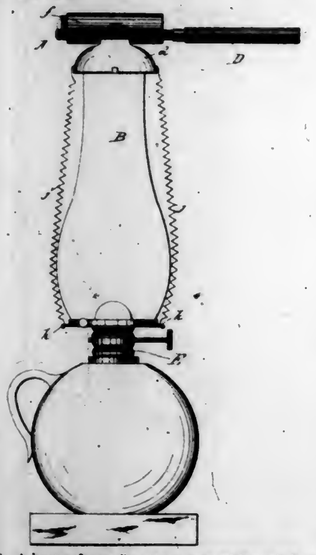
9. The combination, with a cut off wheel and a moving column of clay cut into forms thereby, of a carrier consisting of a traveling belt having clamping-arms to grasp the forms, means to operate the arms, and delivery-boards to receive the forms, substantially as described.

10. The carrying and delivering mechanism herein described, consisting of drums journaled on the table, a belt on the drums, arms fulcrumed to the belt, a frame D to spread the arms, and means to rotate the drums, substantially as described.

11. The combination, with the cut-off wheel and the moving column of clay, of the carrying mechanism C, consisting of a belt traveling faster than the column of clay and provided with clamps hinged thereto arranged to hold a form above the table at one end and deliver it at the other end, substantially as described.

12. The combination of the board-delivery table, composed of the frame 38, drums 39 40, and belt 41, arranged with its upper strand at an incline, and the carrying mechanism C, composed of a belt, arms fulcrumed to the belt, and a frame to spread the arms, substantially as set forth.

478,437. CURLING-TONGS HEATER. ALEXANDER W. KENT, Boston, Mass. Filed Apr. 21, 1891. Renewed June 6, 1892. Serial No. 435,654. (No model.)



Claim.—1. A heater for curling-tongs, comprising a bell, a horizontally-arranged tube secured to and opening centrally into said bell, and mechanism for supporting said bell over a lamp or gas burner, substantially as described.

2. The heater A, comprising the bell *d* and tube *f*, secured thereto, the opening *g*, leading from said bell to said tube, the supporting-bars *i*, secured in the mouth of said bell, and means for securing the bell in position on a lamp-chimney, substantially as described.

3. A heater for curling-tongs, comprising a bell, a horizontally-arranged tube secured in the apex thereof and opening centrally in said bell, and corrugated supporting-bars disposed across the mouth of said bell, substantially as and for the purpose set forth.

4. The tube *f*, provided with the flange *h* and slot *v*, in combination with the bell *d*, secured to said tube and opening therein at *g*, and the supporting-bars *i*, secured to said bell, all being arranged to operate substantially as described.

478,438. BRIDGE. THOMAS H. KOBURE, Farmersville, Tex. Filed May 26, 1891. Serial No. 394,202. (No model.)



Claim.—1. A bridge consisting, essentially, of wire cables connected by turnbuckles, the twist of the cables being of the same direction of inclination as to pitch as that of the screw-threads of their respective eyebolts and the said wire cables being composed of wires first strung plainly or in parallel position and then twisted together between the turnbuckles to simultaneously form the cable and tighten the same, substantially as shown and described.

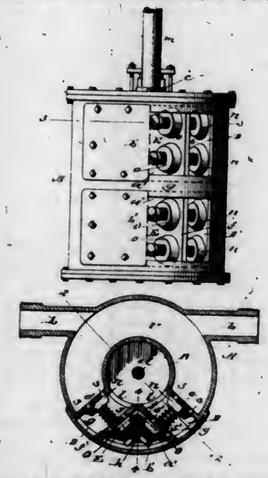
2. The combination of the main cables A B A', made in sections and connected by turnbuckles C, the abutments D, transverse sills E, having bearing-plates *b*, the short columns F, long columns G, having caps *c* at their upper ends, the suspension-cables H H', anchored at one end in the earth and passing over the bearing-plates of the tall columns and connected at the other end to the main cables, and the crossed stay-cables I, substantially as shown and described.

3. The combination, with the main-cable section B, the stay-cable I, and the suspension-cable H, of a single coupling for these three members composed of a shoe for the main cable, an eyebolt for the stay-cable, and a turnbuckle-section for the suspension-cable, substantially as shown and described.

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478,439. FIRE-ENGINE PUMP. TRUCKSON S. LA FRANCE, Elmira, N. Y. Filed July 15, 1890. Serial No. 358,780. (No model.)



Claim.—1. In a fire-engine pump, the combination, with a casing, of a pump-barrel arranged therein to form a water-chamber at the back and sides of the said barrel and an outlet-chamber between the pump-barrel and the front of the casing and discharging at the top, an upper and lower inlet-chamber on each side of the outlet-chamber and each communicating with the pump-barrel, and valves controlling the admission of water from said water-chamber to the inlet-chambers and from the inlet-chambers to the outlet-chamber, substantially as described.

2. In a fire-engine pump, the combination, with a casing, of a pump-barrel arranged approximately concentrically in the casing and extending from top to bottom thereof, thereby forming a water-chamber at the back and sides of the pump-barrel, said chamber extending from the top to the bottom of the casing, an outlet-chamber between the pump-barrel and the front of the casing, an outlet-pipe leading from the top of the outlet-chamber, an upper and lower inlet-chamber on each side of the outlet-chamber and each communicating with the pump-barrel, valves controlling the admission of water from the said water-chamber to the inlet-chambers, and valves controlling the admission of water from the inlet-chambers to the outlet-chamber, substantially as described.

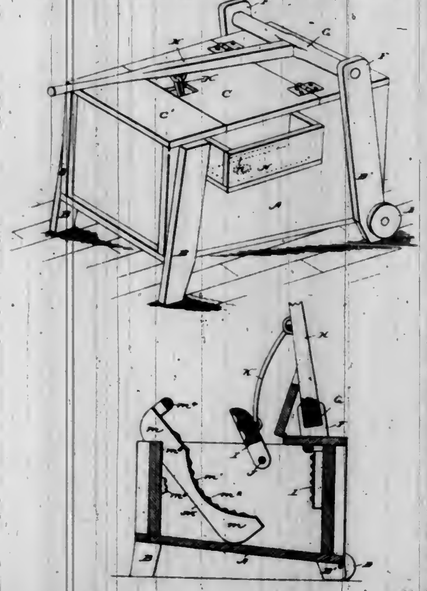
3. In a fire-engine pump, the combination, with a casing, of a pump-barrel arranged approximately concentrically in the casing and extending from top to bottom thereof, four vertical partitions arranged between the pump-barrel and the front of the casing, a horizontal partition extending from the pump-barrel to the front of the casing at about the middle of the height of the said casing, the said horizontal partition being apertured between the two innermost partitions, whereby an outlet-chamber and two upper and two lower inlet-chambers will be formed in the front of the casing, and a water-chamber in the rear thereof, said water-chamber surrounding the back and sides of the pump-barrel and extending from the top to the bottom of the casing, substantially as herein shown and described.

4. In a fire-engine pump, the combination, with a casing having an opening in its front, of a pump-barrel in the casing and extending from the top to the bottom thereof, a water-chamber in the rear of the casing and extending from top to bottom thereof, an outlet-chamber between the pump-barrel and the front of the casing, an outlet-pipe leading from the top of the outlet-chamber, an upper and lower inlet-chamber on each side of the outlet-chamber and communicating with the pump-barrel, valves controlling the admission of water from the water-chamber to the inlet-chambers and from the inlet-chambers to the outlet-chamber, and a lid or lids closing the opening in the front of the casing, substantially as herein shown and described.

5. The combination of the outer pump-casing A, having openings *a' a'* in its front side, lids *b' b'*, closing said openings, the inner pump-barrel B, having upper and lower openings *l l'*, the upright partitions *e e'* and *f f'* between the front side of the barrel and open front side of the outer casing, and the horizontal partition *g*, forming double sets of upper and lower inlet-valve chambers D D D' D' and a double outlet-chamber E, the suction-valves *n*, controlling admission of water from the outer casing into said inlet-chambers, and the delivery-valves *o*, controlling the discharge into the outlet-chamber E, essentially as shown and described.

6. In a double-acting fire-engine pump, a plunger formed of upper and lower solid heads, each having a reduced end, the said heads being mounted on the plunger-rod with their reduced ends adjacent to each other, and flexible cup shaped packings fitting on and arranged between the reduced ends of the said heads, substantially as and for the purpose set forth.

478,440. WASHING-MACHINE. STEPHEN LA POINT, Derrick City, Pa. Filed June 9, 1891. Serial No. 395,724. (No model.)



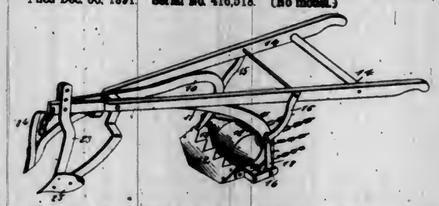
Claim.—In a washing-machine, the combination of a box or tub formed with the end rubbing board, the convertible false bottom and hand rubbing-board forming a continuation of said end rubbing-board and provided with a concave upper surface and notched lower edges for the purpose explained, and a perforated concave dasher suspended in the tub and having means for actuating it, said convertible false bottom and hand rubbing-board being formed of a series of wooden strips having concave recesses in their upper edges, and a perforated corrugated metal sheet secured to said strips in said concave recesses, substantially as set forth.

478,441. COTTON AND CORN PLANTER. JOSEPH W. LEHR, Fremont, Ohio, assignor to the Lehr Agricultural Company, same place. Filed Jan. 21, 1892. Serial No. 418,534. (No model.)



Claim.—The combination of the hopper-bottom plate having a circular opening therethrough and a depressed plate-like projection *k'*, a slotted slide *k*, arranged in the latter and adapted to receive a guide-lug *k''* on said projection, a bolt and nut k^3 k^4 to regulate the adjustment of said slide, a serially-perforated disk having pendent teeth or cogs, the fixed peripherally-notched disk B', the spring-pressed pawl-like arm pivoted in said bottom plate, the housing having an extension for inclosing said pawl-like arm and its spring, the pronged wheel, the driving-shaft, and the disk G, geared to said shaft, substantially as specified.

478,442. POTATO-DIGGER. DAVID LIVINGSTON, Thornville, Ohio. Filed Dec. 30, 1891. Serial No. 416,518. (No model.)



Claim.—1. In a potato-digger, the combination, with a shovel, of a roller located directly at the rear of the shovel and parallel therewith, the said roller being provided with a circular central surface and tapering ends, substantially as shown and described.

2. In a potato-digger, the combination, with a shovel and supports maintaining said shovel at an angle of about forty-five degrees to the ground, of a roller held to revolve directly at the rear of the shovel and parallel therewith, the central portion of which is circular and the end portions tapering or conical in cross-section, as and for the purpose specified.

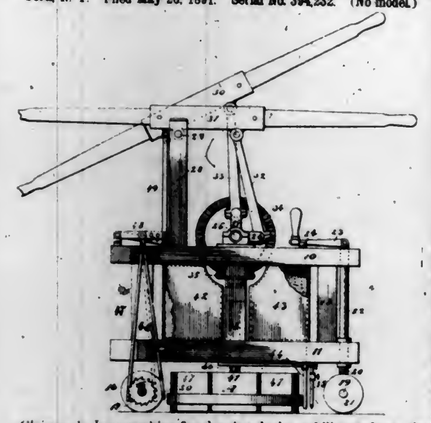
3. In a potato-digger, the combination, with a shovel provided with a central point at its lower or cutting surface, the said surface at each side of the point being beveled in opposite directions, and supports maintaining the shovel at an angle of about forty-five degrees to the ground, of a roller located directly at the rear of the shovel and

parallel therewith, the roller being cylindrical at its central portion and tapering at its extremities, substantially as shown and described.

4. In a potato-digger, the combination, with a shovel the cutting-edge whereof tapers from the center in opposite directions, the face of the shovel being concaved and its upper edge provided with teeth, and a support maintaining the shovel at an angle to the ground over which it is to pass, of a roller held to revolve at the rear of the shovel, said roller being cylindrical at its central portion and tapering at its extremities, a guard surrounding the rear portion of the roller, arms projected from the guard, and drag chains carried by sundry of the arms, substantially as and for the purpose specified.

5. In a potato-digger, the combination, with a shovel the cutting-edge of which is beveled in opposite directions from its center, the said shovel being provided with a transversely-concaved forward face and teeth produced at its outer edge, and a support maintaining the shovel at an angle of about forty-five degrees to the ground, of plow-shanks attached to the support projected outward and downward in opposite directions and having shares attached thereto, the said plow-shanks being located in front of the shovel, a roller held to revolve at the rear of the shovel, the central surface of which is cylindric and its extremities tapering, a guard located adjacent to the rear surface of the roller, arms horizontally projected from the guard, and drag-chains attached to sundry of the arms, as and for the purpose specified.

478,443. DECK-CLEANING MACHINE. SAMUEL LOWBERG, New York, N. Y. Filed May 26, 1891. Serial No. 394,232. (No model.)



Claim.—1. In a machine for cleaning decks and like surfaces, the combination, with a wheeled frame and a stone carrier located beneath the frame, of a drive-shaft provided with crank-arms having a gear connection with the stone-carrier, walking-beams having a pitman connection with the crank-arms of the drive shaft, and means for propelling the frame from the walking-beams, as and for the purpose specified.

2. In a machine for cleaning the decks of vessels and similar surfaces, the combination, with a frame supported by wheels, a carrying-frame provided with pockets adapted to receive polishing or cleaning stones, and a shaft attached to said carrying-frame, of a drive-shaft provided with crank-arms, a gear connection between the drive-shaft and the shaft of the carrying-frame, levers fulcrumed upon the frame, and link connections between the levers and the crank-arms of the drive shaft, as and for the purpose specified.

3. In a machine for cleaning decks of vessels and similar surfaces, the combination of a carrier consisting of a central hub, spider-like arms radiating from the hub, and a band secured to the outer ends of the arms and forming pockets open at top and bottom, and polishing-stones in said pockets and extending above and below the carrier, substantially as described.

4. In a machine for cleaning the decks of vessels and similar surfaces, the combination, with a wheel-supported frame, ratchet-wheels secured to the rear axle, and a carrier adapted to receive blocks of polishing or cleaning material, of a drive-shaft provided with crank-arms, a gear connection between the drive-shaft and the block-carrying frame, walking-beams fulcrumed upon the main frame, link connections between the walking-beams and the crank-arms of the drive-shaft, levers fulcrumed upon the frame and pivotally connected with the walking-beams, and dogs adjustably attached to the said levers, the said dogs being in engagement with the ratchet-wheels, as and for the purpose set forth.

5. In a machine for polishing or cleaning the decks of vessels and similar surfaces, the combination, with a wheel-supported frame, the axle of the forward wheel being swiveled in the frame, a guide-shaft attached to the swiveled axle, ratchet-wheels secured upon the rear axle, and a carrier-frame located beneath the main frame and adapted to receive blocks of polishing or cleaning material, of a drive-shaft, a gear connection between the drive-shaft and the block-carrying frame, walking-beams pivoted upon the main frame, link connections between the walking-beams forward of their fulcrums and the drive-shaft, levers pivoted upon the rear of the frame and having link connections with the walking-beams at the rear of their fulcrums, and dogs adjustably attached to the said levers, the said dogs being adapted for engagement with the ratchet-wheels of the rear axle, as and for the purpose set forth.

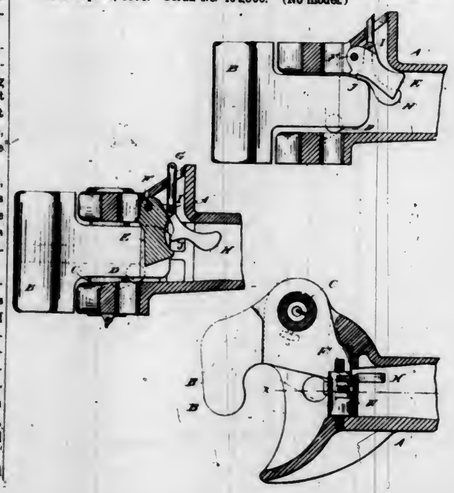
478,444. DEVICE FOR OPENING AND CLOSING COCKS, &c. OSCAR LOEWE, Berlin, Germany. Filed Nov. 20, 1891. Serial No. 412,511. (No model.)



Claim.—1. A key-turner consisting in the tubular body having an arm or bracket projecting from its upper end, a rod extending through the body and provided at its lower end with a handle, an inclined shaft journaled in said arm or bracket, bevel-gears connecting said shaft and rod, and a key-engaging clip on said shaft, substantially as set forth.

2. A key-turner and gas-lighter consisting in the tubular body *a*, having the lighting-tube *g* and the arm or bracket *b* projecting from its upper end, the shaft *c*, journaled in the inclined bearing *b'* on said arm and having a clip c^3 at both ends and a bevel-gear f^2 between its ends, and the rod *e*, extending through the body and provided with a handle *d* at its lower end and a bevel-gear *f'* at its upper end, meshing into gear f^2, substantially as set forth.

478,445. CAR-COUPLING. RODNEY F. LUDLOW, Springfield, Ohio. Filed Sept. 2, 1891. Serial No. 404,506. (No model.)



Claim.—1. The combination, with a draw-head and a knuckle, of a locking-pawl for said knuckle pivotally mounted in said head and a pivoted auxiliary pawl adjacent to said locking-pawl and adapted to support the same in its inoperative position.

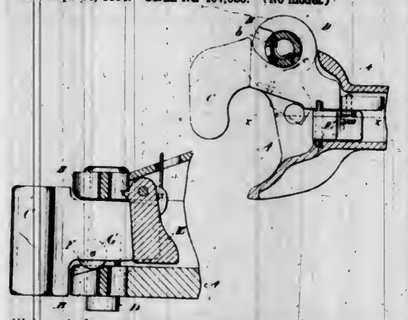
2. In a car-coupler, the combination, with a draw-head, a knuckle pivoted therein, and a movable piece constituting the locking member for said knuckle, of a pawl pivoted to the said locking member and adapted to engage with said knuckle to support said locking member when the latter is raised to its inoperative position till the knuckle swings outward, whereby the locking member may be set to uncouple the interlocked knuckles and be retained in said position till the opening of said knuckles.

3. In a car-coupler, the combination, with a draw-head and a knuckle pivoted therein, of a locking-pawl adapted to lock said knuckle and an auxiliary pawl carried by the locking pawl and pivoted thereto eccentric to the pivot of the locking-pawl and adapted to gravitate into engagement with the rear end of the knuckle when the locking-pawl is raised to its inoperative position, the eccentricity of mounting of said auxiliary pawl on the locking-pawl effecting a support for the latter as long as the auxiliary pawl rests on said knuckle.

4. In a car-coupler, the combination, with a draw-head and a pivoted knuckle, of a locking-pawl pivoted in said head and having an irregular opening therein, and a pivot-pin having a projection thereon and mounted in said opening, whereby the irregularity of said pin-and-pawl opening will retard the movement of said pawl from its locking position.

5. In a car-coupler, the combination, with a draw-head and a knuckle pivoted therein, of a pawl adapted to lock said knuckle and having an inclined surface engaged by the end of the knuckle in swinging inward, and a pivot axle-pin for said pawl having an offset adapted to engage a matching offset in said pawl, the said pin being loosely mounted in said pawl, substantially as shown and described, whereby the knuckle will first raise the pawl and then swing it backward in the act of returning to its coupling position.

478,446. CAR-COUPLING. RODNEY F. LUDLOW, Springfield, Ohio. Filed Sept. 28, 1891. Serial No. 407,023. (No model.)



Claim.—1. In a car-coupler, the combination, with a draw-head and a knuckle pivoted therein, of a wheel and its axle mounted in said knuckle, and thus adapted to rotate at the same fixed point relatively to the knuckle, the draw-head being provided with an inclined ledge or surface concentric with the knuckle-pivot to serve as a path of travel for said wheel, whereby the outward swing of the knuckle is effected automatically.

2. In a car-coupler, the combination, with a draw-head and a knuckle pivoted therein, one member having an inclined ledge or plane surface concentric with the axis of the knuckle-pivot, of a wheel rotatably mounted in fixed bearings in the other member, so as to preserve its constant relative position in said latter member and to rotate in contact with said ledge or surface on the other member.

3. In a car-coupler, the combination, with a draw-head and a pivoted knuckle therefor, of a wheel mounted on an axle in said knuckle and adapted to travel on an inclined ledge or surface on the draw-head concentric with the axis and open at the ends and outside to discharge clogging particles therefrom and means to check the rotation of said knuckle at predetermined points of its swing.

4. In a car-coupler, the combination, with a draw-head and a pivoted knuckle therein adapted to swing outward automatically, of a movable pivot for said knuckle having an interlocking and sliding engagement with both the knuckle and the draw-head by interconnecting projections and grooves between the respective members.

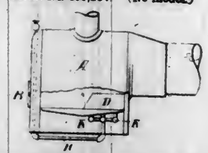
5. In a car-coupler, the combination, with a draw-head and a knuckle pivoted therein, of a pivot for said knuckle having grooves or recesses formed lengthwise and around the same, the knuckle and draw-head being provided with projections matching said grooves, whereby the said pivot may be rotated and moved vertically and an interlocking engagement of all the members effected.

6. The combination of a draw-head, a knuckle, and a rotatable and slidable pivot therefor, the latter having a circular groove and also a vertical groove or recess at each end of said groove and the knuckle and draw-head having projections respectively entering said groove or recesses to allow a slight opening of the knuckle and adapted to allow a further opening when one of said projections is operated in said circular groove.

7. In a car-coupler, a pivot adapted to slide and to rotate in its bearings and having circular and longitudinal grooves or shoulders formed thereon adapted to match corresponding parts of its bearings to effect an interlocking engagement of the pivot therewith.

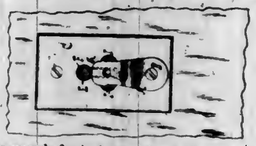
8. In a car-coupler, a pivot having a recess at one side of its axis, a vertical groove or recess at substantially the opposite side, and a circular groove connecting said oppositely-located grooves or recesses, substantially as and for the purpose described.

478,447. SMOKE-BURNER. THEODOR LUSTIG, Chicago, Ill. Filed Oct. 19, 1891. Serial No. 409,237. (No model.)



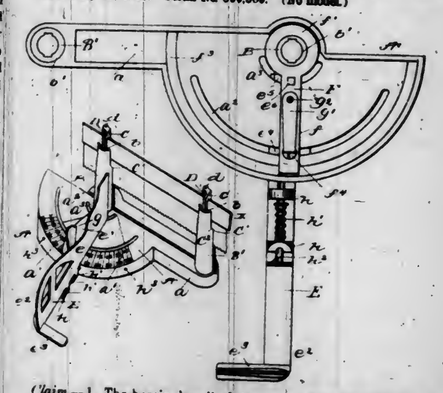
Claim.—In a smoke-consuming device for furnaces, the combination, with a case D, of a perforated cover E therefor, having the ribs E^2 on its under side and also the lugs E^3, the latter being shorter and of greater depth than the ribe E^2, substantially as set forth.

478,448. KEY-FASTENER. ADDISON J. LYON, Mount Vernon, N. Y. Filed Oct. 29, 1891. Serial No. 410,237. (No model.)



Claim.—In guards for locks and keys, the elastic guard A, provided with a nipple H and ear-pieces I and pivoted to a door or lock below the keyhole, the free end of the guard being adapted to swing over the keyhole below the barrel of the key, the nipple H being adapted to fall into the keyhole and interlock the guard therewith substantially as shown and described.

478,449. MITER-MACHINE. ABRAHAM L. MAXIM, Omaha, Nebr. Filed July 13, 1891. Serial No. 399,309. (No model.)



Claim.—1. The herein-described improved miter-machine comprising the base, having the inner and outer saw-supporting posts at one side thereof, the slide movable thereover in circular relation to said inner post, the clamp beneath said base provided with an inner circular end surrounding said inner post and having engagement with

said slide, and means for binding said clamp to said slide, substantially as set forth.

2. The herein-described improved miter-machine comprising the base, having the saw-supporting posts at one side thereof and provided with curved slots, the slide having lugs projected through said slots, the clamp pivoted on the under side of said base and engaging said lugs, the threaded rod or screw connecting said clamp with said slide, and the binding nut or arm on said rod or screw, substantially as set forth.

3. The herein-described improved miter-machine comprising the base having the saw-supporting posts at one side thereof and provided with curved slots, the slide having lugs extending through said slots, the clamp having a circular portion encircling one of said posts, the rod or screw connecting said clamp with said slide and having a slot in its lower head, the plate-spring secured to said clamp at one end and having its free end in said slot, and the nut or arm in the upper end of said rod or screw having a vertical flange or projection, substantially as set forth.

4. The herein-described improved miter-machine comprising the circular base having an arm or elongated portion provided with threaded openings, the slotted posts having reduced threaded ends fitting said openings and provided with projecting pins or studs, the saw-holders or guides movable in grooves in said slotted posts and having upper overhanging portions, the adjustable screws working in holes in said overhanging portions, and the lugs projecting from said saw-holders or guides and designed to limit the upward movement of the latter by contact with said pins or studs, substantially as set forth.

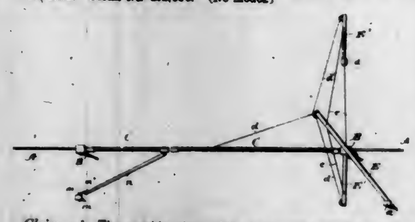
478,450. CRADLE. JAMES H. MEEK and GEORGE W. MEEK, Denison, Tex. Filed Jan. 2, 1892. Serial No. 416,889. (No model.)



Claim.—1. A swinging cradle comprising the folding end bars A, the cross-bar B, having a depressed portion *b*, and end projections b^3, forming the pivotal axes for the bars A, the catches L, pivoted to the end bars and adapted to engage the depressed part *b* of the bar B, the cradle G, and the spring-suspensions F, connecting the cradle with the upper ends of the arms, all arranged substantially as shown, and for the purpose described.

2. The combination, with the crossed bars A A, the rod B, having a depressed portion *b*, and projections b^3, forming the axial bearing for the bars A A, and with a lateral extension b^4, the cradle G, and the spring connections F, of the sheaves I, swiveled on the extension b^4 of the bars B, the guard or shield J, and the cord H, secured to the bottom of the cradle and passed under the sheave, substantially as shown and for the purpose described.

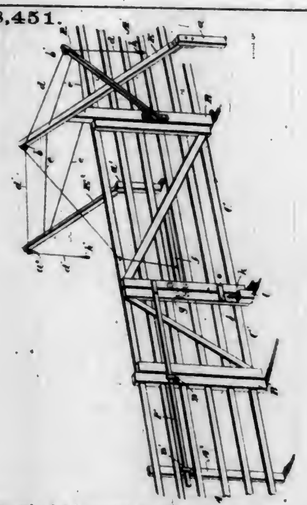
478,451. GATE. JOSEPH N. MORGAN, Wallace, Ind. Filed Feb 18, 1892. Serial No. 422,060. (No model.)



Claim.—1. The combination, with a large and a small gate hinged at their outer edges and a latch carried by the larger gate, of a keeper on the smaller gate for the reception of said latch, and a pivoted bar for locking said smaller gate independent of the larger gate, substantially as set forth.

2. The combination, with a large and a small gate hinged at their

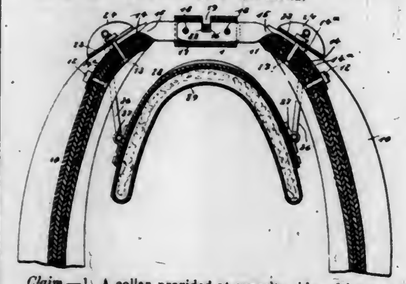
478,451.



outer edges and a latch carried by the larger gate, of a keeper on the smaller gate for the reception of said latch, and a pivoted bar for independently locking said smaller gate, said bar constituting an abutment for the larger gate, substantially as set forth.

3. The combination, with a fence and two gates hinged thereto, of a locking-bar connected with one gate and with the fence and forming an abutment for the other gate, substantially as set forth.

478,452. HORSE-COLLAR. JOHN B. MUELLER, Streator, Ill. Filed Jan. 26, 1892. Serial No. 419,274. (No model.)



Claim.—1. A collar provided at opposite sides of its upper end with two depending bails or links swinging toward and from the inner sides of the collar and a pad pivotally connected at its sides with the lower ends of the bails or links, substantially as set forth.

2. The combination, with the collar, of bearing-pieces secured to the collar at opposite sides of its upper end, bails suspended from said bearings to swing at their lower ends laterally between the two sides of the collar, and a pad pivotally connected at opposite sides with the lower ends of the bails, substantially as shown and described.

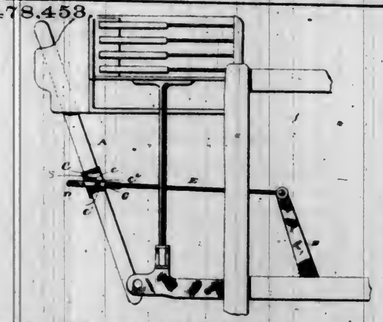
3. The combination, with the open-ended collar having bearing-pieces on each side of its opening, which bearing-pieces have flanged ends, of a pad suspended within the collar to freely swing laterally between the two sides thereof, and bails pivoted on the pad-back and pivoted in the flanges of the bearing-pieces, substantially as described.

4. The collar-pad having attaching-plates 23 23 for attachment to the collar at the sides of its top openings and bails pivoted to the said plates and through which bails the ends of the collar project, the lower ends of the bails being pivotally connected with the said pad, thus permitting it to swing freely toward and from the sides of the collar, substantially as described.

478,453. MEANS FOR OPERATING THE PICKER-STAFFS OF LOOMS. ALFRED MUSCH, West Fitchburg, Mass. Filed Dec. 3, 1891. Serial No. 413,906. (No model.)

Claim.—1. As an improvement in looms, the combination, with a picker-staff, of a sleeve mounted thereon and provided at opposite sides with two outwardly-projecting trunnions, a yoke embracing said

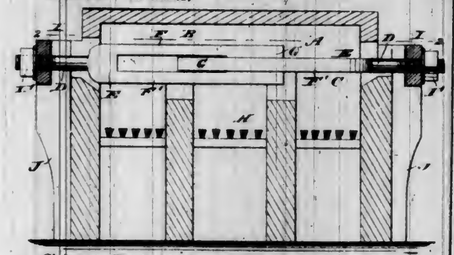
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sleeve between the trunnions, transversely disposed pins or bolts connecting the members of the yoke in front and in rear of the sleeve, said pins or bolts being adjustable longitudinally with relation to the yoke, and means for reciprocating said yoke, substantially as and for the purpose set forth.

2. As an improvement in looms, the herein-described means for operating picker-staffs, consisting of a sleeve adapted to be disposed upon a picker-shaft and provided at opposite sides with two outwardly-projecting trunnions, a yoke for embracing said sleeve between the trunnions, transverse pins or bolts disposed at opposite ends of the yoke and longitudinally adjustable with relation thereto, and an operating-rod projecting from the yoke and adapted to be connected with a power-shaft, substantially as and for the purpose set forth.

478,454. METHOD OF AND APPARATUS FOR EQUALIZING LINKS. THOMAS MURPHY, Sewickley, Pa. Filed Nov. 23, 1891. Serial No. 412,732. (No model.)



Claim.—1. The herein-described method of equalizing the lengths of the two sides of a link, which consists in subjecting it to the action of heat and at the same time to a gradual strain until its sides or members are of equal lengths, substantially as set forth.

2. The herein-described method of equalizing the lengths of two sides of a link, which consists in subjecting two connected links to the action of heat and at the same time straining the said links apart until the two sides or members are of equal lengths and then permitting the links to cool while under strain, substantially as set forth.

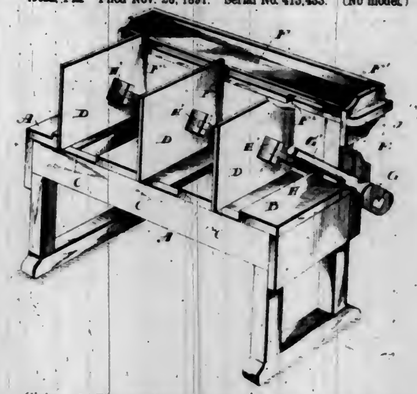
478,455. NAILLESS HORSESHOE. JAMES MCCAFFREY, Philadelphia, Pa. Filed Sept. 22, 1891. Serial No. 406,512. (No model.)



Claim.—1 A horseshoe-clip having arms extending rearwardly and concaved or corrugated in-cross-section, in combination with an elongated nut fitting in said concavity and a screw or bolt for fastening the arms together by said nut, substantially as shown and described.

2. A horseshoe consisting of the combination of two clip-plates A A, the spring splice-plate B, riveted to and connecting the front end of said clip-plates, the clamping-arms C C, riveted to the rear ends of the clip-plates and having a screw and nut for connecting them, and the detachable wearing-plates D D, substantially as shown and described.

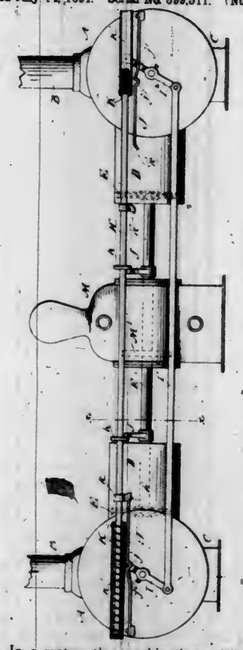
478,456. BOX-MAKING MACHINE. JOSEPH C. MCEWEN, Lochloosa, Fla. Filed Nov. 28, 1891. Serial No. 413,433. (No model.)



Claim.—1. The combination of the main frame having recesses to receive the bottom and rear edges of the box-heads, a rock-shaft journaled to the rear of the frame, the arms H attached to the shaft and carrying presser-heads, as described, and the operating handle or lever for actuating the shaft, substantially as and for the purpose described.

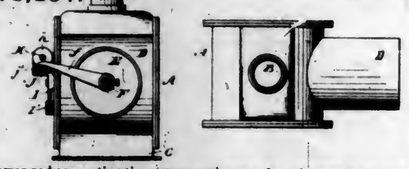
2. The herein described machine for use in the manufacture of boxes or crates, the same comprising the main frame having recesses to receive the lower edges of the box-heads, the shelf to the rear of the frame and supported upon uprights rising from the frame, the rock-shaft journaled to the rear portion of the frame and longitudinally movable within its bearings, the arms attached to the shaft, the presser blocks carried by the arms, the lug I upon the shaft and engaging an inclined surface upon the frame, and the lever for actuating the shaft, substantially as and for the purpose described.

478,457. WATER-MOTOR. BENJAMIN S. PARTRIDGE, Jacksonville, Fla. Filed July 14, 1891. Serial No. 399,511. (No model.)



Claim.—1. In a motor, the combination, with oppositely arranged and spaced valve-chests and opposing cylinders at one side of the valve-chests, of spring-actuated valves in the valve-chests, means for alternately locking the valves stationary, pistons in the cylinders,

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a power-rod connecting the pistons, and means for releasing the valves, substantially as described.

2. In a motor, the combination, with oppositely arranged and spaced valve-chests and opposing cylinders at one side of the valve-chests, of spring-actuated oscillating valves in the said chests, means for alternately locking the valves stationary, a connection between the valves, pistons in the cylinders, a power-rod connecting the pistons, and means for releasing the valves from the power-rod, substantially as described.

3. In a water-motor, the combination, with oppositely arranged and spaced valve chests, opposing cylinders at one side of the said chests, pistons in the cylinders, and a power-rod connecting the pistons, of oscillating valves in the chests, a spring-pressed and longitudinally-movable rod connected with the said valves, means for alternately locking the valves stationary, and mechanism between the said longitudinally-movable rod and the power-rod for operating the said longitudinally-movable rod to release the valves, substantially as described.

4. In a water-motor, the combination, with oppositely arranged and spaced valve-chests, opposing cylinders at one side of the chests, pistons in the cylinders, and a power-rod connecting the pistons, of oscillating valves in the chests, a spring-pressed and longitudinally-movable rod connected with the said valves and operated from the power-rod, spring-catches for temporarily locking the valves, and means for operating the said catches from the spring-pressed rod, substantially as described.

5. In a motor, the combination, with oppositely arranged and spaced valve-chests and opposing cylinders at one side of the valve-chests, of pistons in the cylinders, a power-rod connecting the pistons, oscillating valves in the chests, crank-levers connected with the valves, a spring-pressed rod connected with the upper ends of the crank-levers, a rod connecting the lower ends of the said crank-levers together, catches for engaging the crank-levers, and means for operating the catches from the spring-pressed rod, substantially as described.

6. In a water motor or engine, the combination, with two opposing valve-chests having aligning inlet and outlet ports, of oscillating valves in the valve chests, having curved opposing wings, crank-levers on the shafts of the valves, connected with each other at their lower ends, spring-catches for the crank-levers, casings pivoted to the upper ends of the crank-levers, and a rod entering the casings and provided therein with springs and carrying trips adapted to engage the catches for the crank-levers, substantially as shown and described.

7. In a water motor or engine, the combination, with two opposing valve-chests having aligning inlet and outlet ports and opposing horizontal power-cylinders at one side of the valve-chests, reciprocating rotary valves in the chests, having curved opposing wings, pistons in the power-cylinders, and a rod connecting the pistons and carrying arms near its ends, of crank-levers on the shafts of the valves and connected with each other at their lower ends, spring-catches for the crank-levers, casings pivoted to the upper ends of the crank-levers, and a rod entering the casings and provided therein with springs and carrying trips adapted to engage the catches for the crank-levers, and collars adapted to be engaged by the arms on the piston-rod, substantially as shown and described.

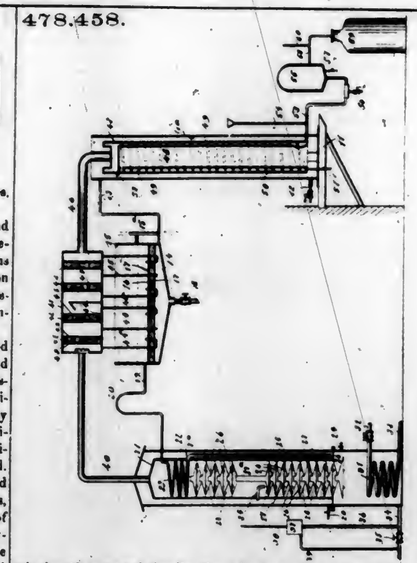
478,458. WATER-STILL. JOHANNES PETTERSON and LOUIS H. LIEBECK, New York, N. Y. Filed Mar. 11, 1892. Serial No. 424,553. (No model.)

Claim.—1. An apparatus of the character described, comprising a water-tank connected with a source of water-supply, a filter connected with the tank, a boiler having a steam-dome therein and having a pipe connection with the filter, a steam-filter connected with the steam-dome, and a cooling-cylinder held within the tank, the cylinder having its upper end connected with the steam-filter and its lower end provided with a discharge-pipe, substantially as described.

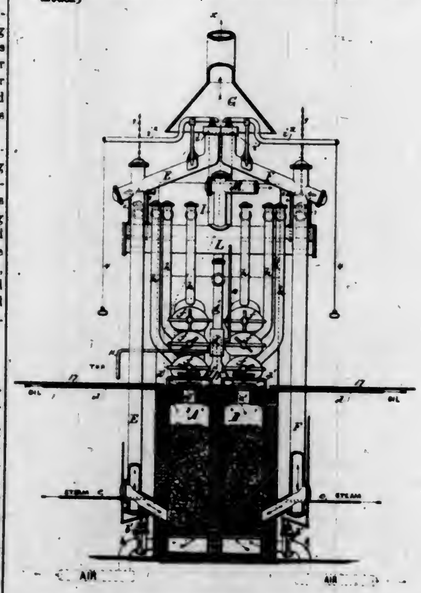
2. An apparatus of the character described, comprising a water-tank having a suitable inlet, a water-filter connected with the tank, a steam-boiler having a steam-dome therein, a pipe leading from the filter through and into the steam-dome, the pipe being formed into a coil within the dome, a steam-filter connected with the steam-dome, a water-cooling cylinder held within the tank and connected with the steam-filter, and a discharge-pipe opening from the cooling-cylinder, substantially as described.

3. The combination, with the water-receptacle 10, of the cooling-cylinder 47 arranged therein, the cylinder having a central bore open at one end and closed at the other, an inlet-pipe opening into one end of the cylinder, an outlet-pipe opening from the opposite end of the cylinder, and a cooling-coil held within the chamber which surrounds the bore of the cylinder, the coil having a suitable inlet and outlet, substantially as described.

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478,459. METHOD OF MANUFACTURING GAS. HENRY M. PIERSON, Brooklyn, N. Y. Filed Dec. 30, 1891. Serial No. 416,552. (No model.)



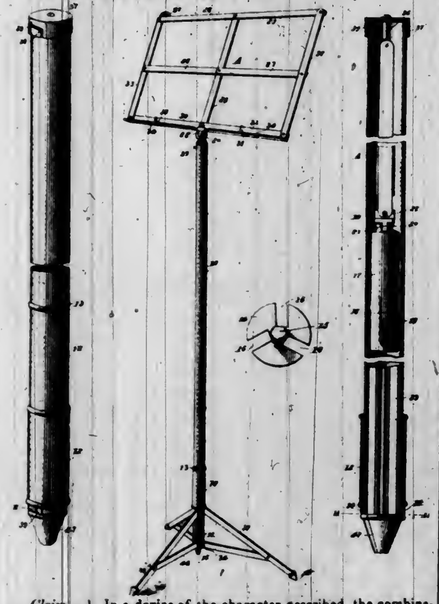
Claim.—1. The process of making a permanent compound gas, which consists in forming water-gas by passing steam through a bed of incandescent fuel, forming coal-gas by distilling bituminous coal, enriching the water-gas first formed by passing it through the hot retorts used in distilling the coal during the process of distillation,

making oil-gas by delivering liquid hydrocarbons upon a bed of fuel at a dull-red heat, and passing the products downward through the same and conducting the gases to a common holder, where they are mixed and whereby a compound gas is formed without the use of the usual refractory-material fixing-chamber, substantially as described.

2. The process of making a permanent compound gas, which consists in blowing up companion beds of fuel alternately, the one to incandescence and the other to a dull-red heat, forming water-gas by passing steam through the said bed of incandescent fuel, forming coal-gas and coke by distilling bituminous coal, enriching the water-gas first formed with the surplus light tarry matters of the coal-gas retorts during the process of distillation by passing said water-gas through the hot coal-gas retorts and fixing the said enriched water-gas therein, making oil-gas by delivering liquid hydrocarbons upon the said bed of dull-red-hot fuel and passing the resulting hydrocarbon vapors down through the said bed of fuel, wherein they are converted into a fixed gas, and conveying all the gases to a common holder, where they are mixed inseparably, forming a permanent compound gas without the use of the usual refractory-material fixing-chamber, substantially as described.

3. The process of making a permanent compound gas, which consists in blowing up companion beds of fuel alternately, the one to incandescence and the other to a dull red heat, forming a water-gas by passing steam through said bed of incandescent fuel, heating the feeding part of coal-gas retorts by relatively low heat and the delivery part by a high intermittent heat, and forming coal-gas and coke by distilling bituminous coal, enriching the water-gas first formed with the surplus light tarry matters of the coal-gas retorts during the process of distillation by passing said water-gas through the hot coal-gas retorts and fixing the said enriched water-gas therein, making oil-gas by delivering liquid hydrocarbons upon the said bed of dull-red-hot fuel, and passing the resulting hydrocarbon vapors down through said bed of fuel, wherein they are converted into a fixed gas and conducting all the gases to a common holder, where they are mixed inseparably, forming a permanent compound gas without the use of the usual refractory-material fixing-chamber and replenishing said beds of fuel with red-hot coke from the coal-gas retorts as fuel for repeating the operations, substantially as described.

478,460. FOLDING MUSIC-RACK AND TELESCOPIC STAND THEREFOR. HENRY W. POTTER, Wellington, New Zealand, assignor of one-half to John Edward Hayes, same place. Filed Aug. 19, 1890. Renewed Nov. 5, 1891. Serial No. 410,906. (No model.) Patented in New Zealand Jan. 18, 1890, No. 4,132.



Claim.—1. In a device of the character described, the combination, with a shell and an adjusting-tube held to slide in the upper portion thereof, provided with pressure-springs engaging with the shell, of a folding table hinged to the upper end of the tube and a cap hinged to the table, adapted to cover the shell when the table is folded therein, as and for the purpose set forth.

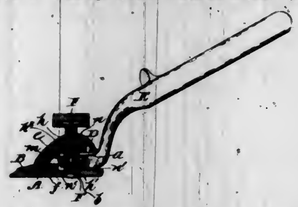
2. In a device of the character described, the combination, with a shell, an adjusting-tube held to slide in the upper part thereof, provided with pressure-springs, and spring-pressed legs capable of folding and sliding in the shell and of radial extension therefrom, of a folding table hinged to the upper portion of the adjusting-tube, an arm hinged to the table, a cap swiveled upon the arm, and means for locking the cap upon the shell, substantially as specified.

3. In a device of the character described, the combination, with a shell open at its upper and lower ends and provided with longitudinal slots in its lower extremity, a sleeve held to slide upon the shell and over the slotted portion thereof, an adjusting-tube capable of sliding within the shell and provided with pressure-springs, and a table hinged to the upper end of the said tube, of spring-pressed legs capable of folding and sliding in the shell and extending radially from the shell through the slots in the lower end thereof, as and for the purpose specified.

4. In a device of the character described, the combination, with a shell open at its upper and lower ends and provided with longitudinal slots at its lower extremity, a sleeve held to slide upon the exterior of the shell and over the slotted portion thereof, an adjusting-tube held to slide in the interior of the shell, having pressure-springs secured thereto, and a table hinged at the upper end of the tube, of a disk held to slide in the lower end of the shell, provided with a series of peripheral slots and a downwardly-extending post, a similarly-constructed disk held to slide upon the post, a spring bearing against the opposed faces of the disks, a leg pivoted in each of the slots of the upper disk, and a brace pivoted in each of the slots in the lower disk and to the said legs, the number of legs and their location corresponding with the number and location of the slots in the shell, substantially as shown and described, and for the purpose specified.

5. In a device of the character described, the combination, with a shell open at its upper and lower ends and provided with longitudinal slots at its lower extremity, a sleeve held to slide upon the exterior of the shell and over the slotted portion thereof, an adjusting-tube held to slide in the interior of the shell and having pressure-springs secured thereto, and a table hinged at the upper end of the tube, of a disk provided with peripheral slots and held to slide in the lower end of the shell, a post projected downward from the under face of the disk, a second correspondingly-slotted disk held to slide upon the post, a spring coiled around the post and having a bearing against the opposed faces of the disk, legs having their upper ends pivoted in the slots of the upper disk, brace-bars pivoted in the slots of the lower disk and to the said legs, and feet secured to the lower extremities of the legs and extending downward at an angle to the said extremities, the number of legs and their location corresponding with the number and location of the slots in the shell, substantially as and for the purpose specified.

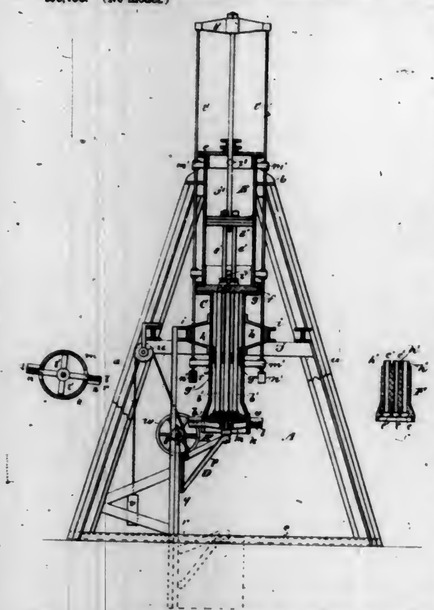
478,461. HAIR CLIPPER AND SHEARS. JOSEPH K. PRIEST, Nashua, N. H. Filed Apr. 2, 1892. Serial No. 427,508. (No model.)



Claim.—1. In a clipper of the type described, a movable cutter and operating-handle, in combination with a stationary handle and comb-plate spring connected to said handles and the axial portion of the clipper, said operating-handle and the other parts named being constructed to allow of the spring being arranged on the said axial portion and below the highest portion of the movable handle in a space between said highest portion of the handle and the comb-plate, whereby compactness is secured and the spring can be removed downwardly when the comb-plate is removed, substantially as described.

2. In a clipper, the combination of the cutter-operating handle formed with an arched or bowed portion and with a pendent hollow cylindrical bearing, the stationary handle having a housing portion and a hollow shouldered cylindrical bearing projecting from said housing portion and passed through the cylindrical bearing of the movable handle, the coupling and spring-tension key-bolt, the comb-plate, the cutter-plate, and a spring arranged in a space between the arched portion of the movable handle and the upper surface of the comb-plate and made removable in a downward direction when the comb-plate is removed, substantially as described.

478,462. CLAY-CONDUIT MACHINE. JAMES J. POWERS and ROBERT VAN BUREN, Brooklyn, N. Y. Filed Oct. 15, 1891. Serial No. 408,758. (No model.)

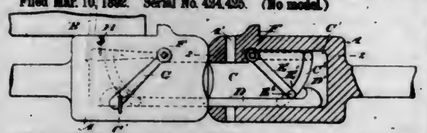


Claim.—1. In a machine for making clay conduits, the combination, with a power-cylinder, a molding-cylinder below the same, pistons in the said cylinders and connected together, a spider locked to the lower end of the cylinder by a bayonet-joint, and means for releasing the spider by the descent of the said pistons, of an elevator connected to the spider and sliding on the frame, a drum, and ropes or chains connected to the elevator, wound on the drum, passed over guide-pulleys, and having weights at their ends, substantially as herein shown and described.

2. In a machine for making clay conduits, the combination, with a supporting-frame, a power-cylinder mounted in the upper part of the frame, a molding-cylinder below the power-cylinder and having a flaring lower end, pistons in the said cylinders and connected together, a spider locked to the flaring end of the said cylinder by a bayonet-joint, and means for releasing the spider by the descent of the said pistons, of the elevator D, sliding on vertical guides *r* on the frame, the windlass E, mounted on the said guides and provided with the handle *a'*, guide-pulleys *u* on the frame, and ropes *t*, secured to the elevator, wound around the windlass, passed over the guide-pulleys, and provided with the weights *v*, substantially as herein shown and described.

3. In a machine for making clay conduits, the combination, with a vertical molding-cylinder, of an inclined filling-cylinder communicating with the molding-cylinder near the top and provided with a hopper, a follower in the filling-cylinder, a hydraulic cylinder connected with the filling cylinder, and a piston in the hydraulic cylinder and connected by rods with the follower in the filling-cylinder, substantially as herein shown and described.

478,463. CAR-COUPLING. REUBEN QUATERMASS, Moline, Kans. Filed Mar. 10, 1892. Serial No. 424,425. (No model.)



Claim.—1. A car-coupling comprising a shaft mounted to turn, a plate held thereon, and a coupling-link provided with a head and adapted to engage the free end of the said plate, a handle for turning the said shaft to swing the said plate up or down and provided with a link or projection, and a suitable catch adapted to be secured on the side of the car to engage said link or projection and hold the handle raised, substantially as set forth.

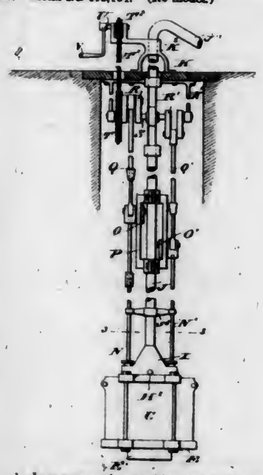
2. In a car-coupling, the combination, with a draw-head, of a shaft mounted to turn in the sides of the said draw-head, a plate secured to the said shaft and extending in a recess in the said draw-head, and pins projecting from the free ends of the said plate and engaging segmental slots or grooves arranged in the sides of the said draw-head, substantially as shown and described.

3. In a car-coupling, the combination, with a draw-head, of a shaft mounted to turn in the sides of the said draw-head, a plate secured to the said shaft and extending in a recess in the said draw-head, pins projecting from the free ends of the said plate and engaging segmental slots or grooves arranged in the sides of the said draw-head, and handles held on the outer ends of the said shaft to turn the latter to swing the said plate up and down, substantially as shown and described.

4. In a car-coupling, the combination, with a draw-head, of a shaft mounted to turn in the sides of the said draw-head, a plate secured to the said shaft and extending in a recess in the said draw-head, pins projecting from the free ends of the said plate and engaging segmental slots or grooves arranged in the sides of the said draw-head, handles held on the outer ends of the said shaft to turn the latter to swing the said plate up and down, and a spring-catch held on the side of the car and adapted to be engaged by a link on one of the said handles, as set forth.

5. In a car-coupling, the combination, with a draw-head, of a shaft mounted to turn in the sides of the said draw-head, a plate secured to the said shaft and extending in a recess in the said draw-head, pins projecting from the free ends of the said plate and engaging segmental slots or grooves arranged in the sides of the said draw-head, handles held on the outer ends of the said shaft to turn the latter to swing the said plate up and down, a spring-catch held on the side of the car and adapted to be engaged by a link on one of the said handles, and means, substantially as described, for operating the said handles from the top of the car, as set forth.

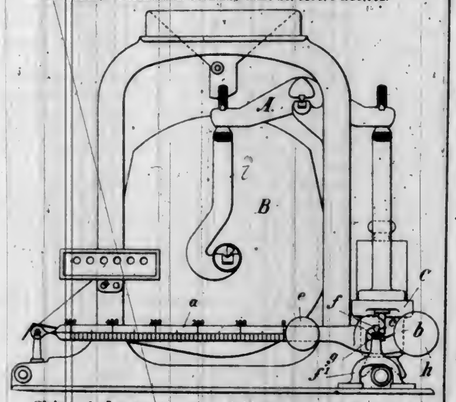
478,464. PUMP. ROBERT H RAPRAGER, Lakota, N. D. Filed Jan. 15, 1892. Serial No. 418,191. (No model.)



Claim.—1. In a pump, the combination, with two plunger-barrels connected with each other at their bottoms, of inlet-valves and outlet-valves arranged in the upper ends of the said barrels, an outlet-pipe formed with a casing, into which discharge the said outlet-valves, plungers fitted to slide in opposite directions in the said barrels, plunger-rods carrying the said plungers, cross-heads rigidly connected with the said plunger-rods, a slide secured on the said outlet-pipe and on which travel the said cross-heads, pitmen connected with the said cross-heads, crank-arms arranged diametrically opposite each other and connected with the said pitmen, and a shaft mounted to turn and carrying the said crank-arms, substantially as shown and described.

2. In a pump, the combination, with two plunger-barrels connected with each other at their bottoms, of inlet-valves and outlet-valves arranged in the upper ends of the said barrels, an outlet-pipe formed with a casing, into which discharge the said outlet-valves, plungers fitted to slide in opposite directions in the said barrels, plunger-rods carrying the said plunger, cross-heads rigidly connected with the said plunger-rods, a slide secured on the said outlet-pipe and on which travel the said cross-heads, pitmen connected with the said cross-heads, crank-arms arranged diametrically opposite each other and connected with the said pitmen, and a shaft mounted to turn and carrying the said crank-arms, a sprocket-wheel secured on the said shaft, a sprocket-chain passing over the said sprocket-wheel, a second sprocket-wheel over which passes the said chain, and a second shaft provided with a crank-arm and carrying the said second sprocket-wheel, substantially as shown and described.

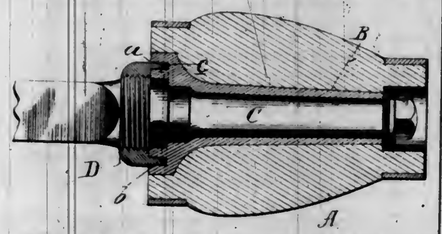
478,465. GRAIN-WEIGHING APPARATUS. CARL REUTHER, Hennef-on-the-Sieg, Germany. Filed Dec. 17, 1891. Serial No. 415,440. (No model.) Patented in Germany June 26, 1891, No. 59,962.



Claim.—1. In an automatic weighing apparatus of the class described, means for determining the weight of a fraction of a load in the receiving-vessel without varying the load on the scale-beam, which consist in the combination, with the main scale-beam A and vessel B, of an auxiliary scale-beam *a* and a weight or weights adapted to be connected therewith, said auxiliary scale-beam operating to counterbalance both the load on the main scale-beam and the load in vessel B, as set forth.

2. In an automatic weighing apparatus of the class described, means for determining the weight of a fraction of a load in the receiving-vessel without varying the load on the scale-beam, which consist in the combination, with the main scale-beam A and vessel B, of an auxiliary scale-beam *a*, adapted to be influenced by the load in said vessel and to influence the load on the main scale-beam by acting directly upon such load, and a weight or weights for connection with the auxiliary scale-beam to counterbalance both the load on the main scale-beam and the load in the receiving-vessel, as set forth.

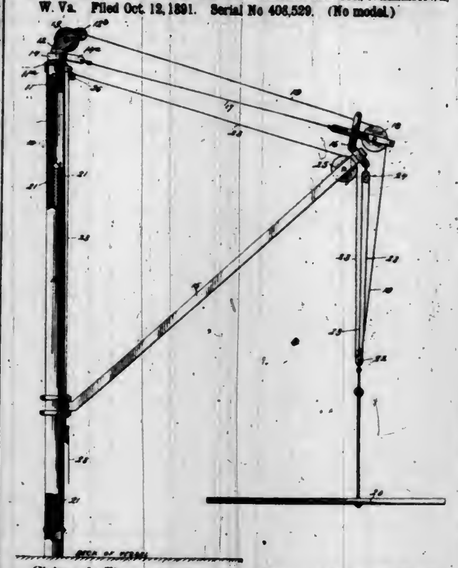
478,466. DUST-GUARD FOR HUBS. JOHN T. RICHARDS, Gardiner, Me. Filed Feb. 24, 1892. Serial No. 423,663. (No model.)



Claim.—1. The combination, with an axle, of a dust-guard located on the axle, said dust-guard provided with an annular outwardly-projecting flange, and an axle-box having an enlarged inner end, in which an annular groove is formed adapted to receive the annular flange on the dust-guard, said groove of greater depth than the length of the flange, whereby a recess is formed for a washer, and the portion of the dust-guard adjacent to the flange forming a shoulder or abutment for the inner end of the axle-box, substantially as set forth.

2. The combination, with an axle having a screw-thread thereon and a dust-guard screwed on these threads of the axle, said guard provided with an annular flange at its outer edge and a shoulder within this flange, of an axle-box provided with an annular groove in its inner end, adapted to receive the flange, this inner end constructed to abut against the shoulder within the annular flange, substantially as set forth.

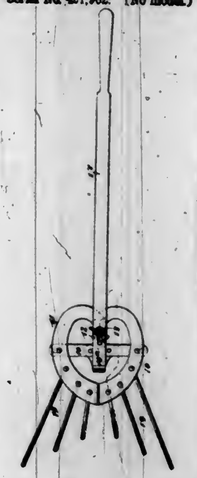
478,467. BALANCED STAGE. MAURICE RICHTER, Williamstown, W. Va. Filed Oct. 12, 1891. Serial No. 408,529. (No model.)



Claim.—1. The combination, with a tubular post or standard, of a counterbalancing-spring arranged within the post or standard, the lower end of said spring being secured therein, a sleeve inserted in the upper end of the post, a bracket having a tubular shank inserted in said sleeve, a pulley carried by said bracket, a boom attached to the post or standard, a bracket secured upon the upper end of said boom and projecting beyond the same, a pulley carried by said bracket, a stage or gang-plank, a rope connected with said stage and with the upper end of the spring, passing over the pulley carried by the bracket, the guy-rope, and lifting-ropes, all arranged as described.

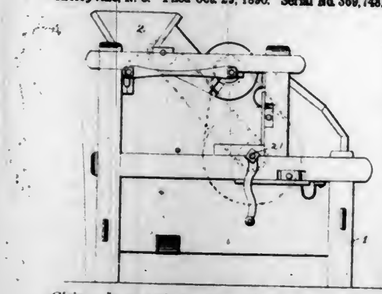
2. The combination, with the tubular post or standard, of the balance-spring arranged therein, the metallic bushing or sleeve, the bracket consisting of the tubular shank and curved arms, the pulley journaled between the arms, the collar provided with a projection, the boom, the bracket rigidly attached to the end of same and carrying a pulley, the guy-rope connecting the said bracket and projection on the collar, the stage, the rope connecting the stage and balance spring, and the rope and pulleys for raising and lowering said stage, substantially as shown and described.

478,468. HAND-CULTIVATOR. TYREE T. RODES, Paris, Mo. Filed Feb. 18, 1892. Serial No. 421,902. (No model.)



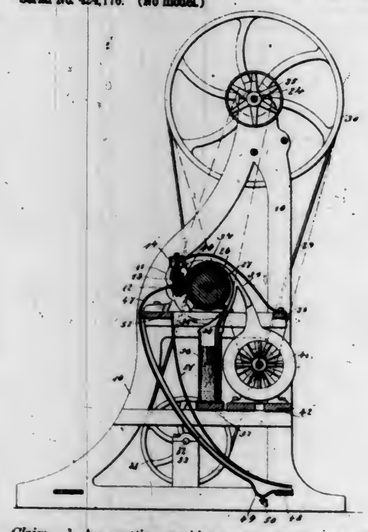
Claim.—A hand-cultivator, comprising the handle 17, having a longitudinal slot 18, and provided with a transverse cross-bar 16 in front of said slot, the curved tooth-carrying jaws 10 11, pivoted between their ends to the ends of the cross-bar 16 and extending at their rear overlapped ends to the slot 18, and a set-screw passing through the said overlapped ends and the slot 18, substantially as set forth.

478,469. MACHINE FOR CLEANING WHEAT. JACOB RUDASILL, Cherryville, N. C. Filed Oct. 29, 1890. Serial No. 369,748. (No model.)



Claim.—In a grain-separator, the combination of a hopper, a cockle-separator consisting of metal and elastic faced rollers and scrapers to remove the cockle from the said elastic-faced rollers, and a series of sieves and a fan intermediate the hopper and cockle-separator to remove the light trash, sand, dust, and material specifically heavier and smaller than wheat from the latter before it passes to the said cockle-separator, substantially as and for the purpose described.

478,470. MACHINE FOR CARROTTING FUR. JOHN H. SANDERS, New York, and JAMES E. CARLIN, Brooklyn, N. Y. Filed Mar. 8, 1892. Serial No. 424,176. (No model.)



Claim.—1. A carrotting-machine comprising a pair of feed-rollers, a revoluble brush arranged behind the rollers and parallel therewith, and an atomizer adapted to deliver between the brush and the lower feed-roller, substantially as described.

2. A carrotting-machine comprising a pair of feed-rollers, a revoluble brush arranged adjacent to the feed-rollers and parallel therewith, an atomizer adapted to deliver between the brush and rollers, and a blower connected operatively with the atomizer, substantially as described.

3. The combination, with the feed-rollers and the brush arranged adjacent thereto, of the atomizer comprising a tank, a curved outlet-pipe extending upward from the tank, a blower arranged adjacent to the tank, and a pipe leading from the blower and extending over the top of the brush, said blower-pipe being connected with the outlet-pipe of the tank, substantially as described.

4. The combination, with the feed-rollers and brush, of an atomizer comprising a tank having a suitable outlet-pipe and a blower having a pipe extending over the top of the brush and delivering between the brush and rollers, the said blower-pipe being connected with the tank-outlet and having its free end widened, substantially as described.

5. In a carrotting-machine, the combination of the feed-rollers, the brush arranged near them, the atomizer adapted to deliver between the rollers and brush, and a hood held to cover the brush and rollers, substantially as described.

6. The combination of the feed-rollers, the revoluble brush, and a liquid-supply apparatus arranged to deliver between the brush and rollers, a curved guard-plate extending at an inclination below the brush and rollers, and a receiving-tank connected with the guard-plate substantially as described.

7. The combination of the feed-rollers, the revoluble brush arranged near them and parallel therewith, a liquid-supply apparatus to deliver between the brush and rollers, and the curved guard-plate having its upper end extending between the rollers and its lower portion extending downward and terminating in a receiving-tank, substantially as described.

8. The combination of the feed-rollers, the revoluble brush, the liquid-supply apparatus to deliver between the brush and rollers, the guard-plate arranged below the brush and rollers, and the curved and slotted guide-plate supported above the guard-plate and between it and the brush and rollers, substantially as described.

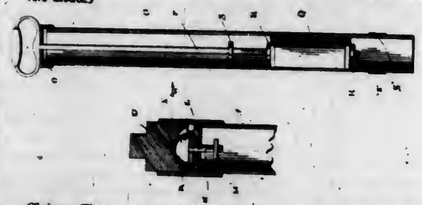
478,471. SASH-PULL. RENSEN SCHENCK, New York, N. Y. Filed July 8, 1891. Serial No. 398,765. (No model.)



Claim.—1. A window sash attachmont consisting in a plate adapted to be secured to the stile of a window-sash, in combination with an angle-bar having a part, as *d*, arranged parallel to the plate, substantially as set forth.

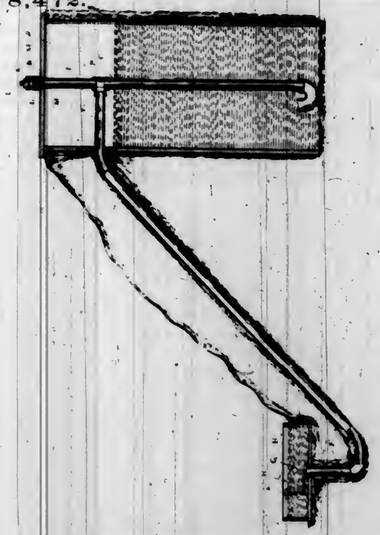
2. A window-sash attachment consisting in a plate adapted to be secured to the inner face of the stile and provided with a T-headed projection having arms, as *d*, extending to both sides thereof and arranged parallel to the plate, substantially as set forth.

478,472. AUTOMATIC WATERING DEVICE. GOTTLIEB W. SCHROEDER, Huntington, Ind. Filed Mar. 10, 1892. Serial No. 424,413. (No model.)

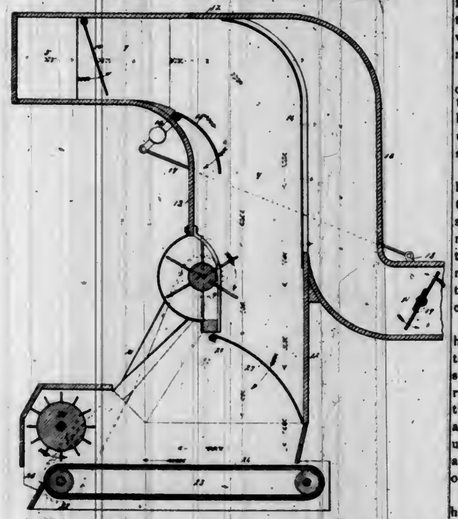


Claim.—The combination, with a tank or cistern, a discharge-pipe therefor, and a pipe-section connected to said discharge-pipe, of a perforated plug adapted to fit within said pipe-section, a valve for said perforated plug, having a rounded upper end, and a stopper which is adapted to close the top of said pipe-section and which is formed with a concave lower end which fits over said valve, for the purpose substantially as shown and described.

478,472.



478,473. SEED-COTTON RECEIVER. ANDREW SCHULER, Temple, Tex. Filed Jan. 16, 1890. Serial No. 337,095. (No model.)



Claim.—1. The combination, with a cotton-conveyer, of an apparatus for delivering cotton to a gin or feeder, and mechanism governing the delivery of cotton to said gin or feeder, said mechanism consisting of means for arresting the flow of cotton, and a movable member controlled by the cotton connected with said means.

2. The combination, with a cotton-conveyer, of a plurality of apparatus connected therewith in multiple arc for delivering cotton to gins or feeders, and mechanism governing the delivery of cotton to each gin or feeder, said mechanism consisting of means for arresting the flow of cotton, and a movable member controlled by the cotton connected with each means.

3. An apparatus for delivering seed-cotton to gins or feeders, having air-passages, a plurality of receivers connected therewith, means for causing a circulation of air in said passages and receivers to carry the cotton to said gins or feeders, and valves for automatically controlling the quantity of cotton delivered to each of said receivers.

4. An apparatus for delivering seed-cotton to gins or feeders, having air-passages and a plurality of receivers connected therewith in parallel or multiple arc, means for causing a circulation of air in said passages and receivers to carry the cotton to said gins or feeders, and valves for automatically controlling the quantity of cotton delivered to each of said receivers.

5. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a valve controlling the passage of air through said receiver, and a movable member controlling said valve, automatically operated by the pressure of the cotton.

6. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, and a hinged flap arranged within the path of the cotton, having suitable connections with said valve for governing the same.

7. An automatic seed-cotton-delivery apparatus having receivers or chambers connected with gins or feeders, a cotton-conveying pneumatic tube connected in multiple arc with said apparatus, and valve mechanism interposed between the pneumatic tube and each receiver for preventing back-pressure of air from the receiver to the pneumatic tube, but allowing the passage of air and cotton from the pneumatic tube to the receiver.

8. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, regulating means for said shut-off valve, automatically operated by the pressure of the cotton, and a check-valve controlled by the passage of air through said air-passages and receiver for preventing back-pressure therethrough.

9. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, a hinged flap arranged within the path of the cotton, having suitable connections with said shut-off valve for governing the same, and a check-valve controlled by the passage of air through said air-passages and receiver for preventing back-pressure therethrough.

10. An automatic seed-cotton-delivery apparatus having a cotton-conveying pneumatic tube, a receiver or chamber suitably connected therewith and with a gin or feeder, and valve mechanism interposed between the receiver and the gin or feeder for preventing back-pressure of air from the gin or feeder to the receiver, but allowing the passage of cotton from the receiver to the gin or feeder.

11. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, regulating means for said shut-off valve, automatically operated by the pressure of the cotton, and a cut-off valve arranged between the receiver and gin or feeder within the path of the cotton and adapted to cut off air communication between said gin or feeder and said receiver, for the purpose described.

12. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, regulating means for said shut-off valve, automatically operated by the pressure of the cotton, a check-valve controlled by the passage of air through said air-passages and receiver for preventing back-pressure therethrough, and a cut-off valve arranged between said receiver and the gin or feeder to cut off air communication between said gin or feeder and said receiver.

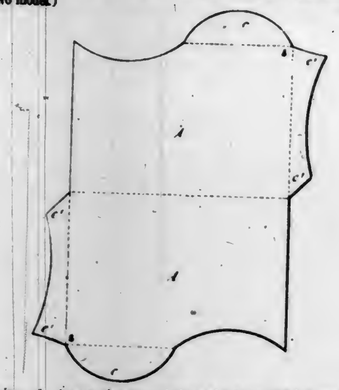
13. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, a hinged flap arranged within the path of the cotton, having suitable connections with said shut-off valve for governing the same, a check-valve controlled by the passage of air through said air-passages and receiver for preventing back-pressure therethrough, and a cut-off valve arranged between said receiver and the gin or feeder to cut off air communication between said gin or feeder and said receiver.

14. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circulation of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, regulating means for said shut-off valve, automatically operated by the pressure of the cotton, and a screen interposed between said shut-off valve and the receiver for permitting the passage therethrough of air, but preventing the passage of cotton through the same.

15. An apparatus for delivering seed-cotton to a gin or feeder, having air-passages and a receiver with means for causing a circula-

tion of air therethrough to carry the cotton to said gin or feeder, a shut-off valve controlling the passage of air through said receiver, a hinged flap arranged within the path of the cotton, having suitable connections with said shut-off valve for governing the same, a check-valve controlled by the passage of air through said air-passages and receiver for preventing back-pressure therethrough, a screen interposed between the said shut-off valve and the receiver for permitting the passage therethrough of air, but preventing the passage of cotton through the same, a cut-off valve arranged between said receiver and the gin or feeder to cut off air communication between said gin or feeder and said receiver, and a spiked wheel arranged in said receiver for preventing the choking of the cotton therein.

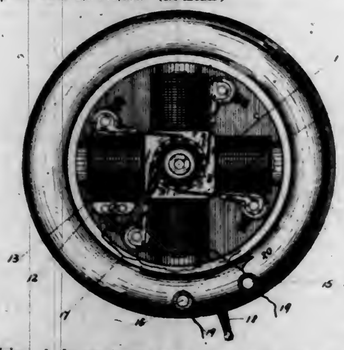
478,474. MANUFACTURE OF ENVELOPES. ANDREAS SCHWANENBERGER, Düren, Germany. Filed Dec. 30, 1891. Serial No. 416,581. (No model.)



Claim.—1. An envelope consisting of a front and a back suitably joined at the bottom and side edges and the closing-flap consisting of the two parts *c c*, one forming an extension of the front of the envelope over the right-hand half thereof and the other an extension of the back of the envelope over the left-hand portion, substantially as described.

2. An envelope or wrapper having the two halves A A of which it is formed of equal and reverse formation, comprising double closing flaps or parts *c c* and double parts or overlaps *c' c'*, by which the opposite sides or ends are closed and secured, substantially as described.

478,475. ELECTRIC MOTOR. JEROME B. SECOR, Bridgeport, Conn., assignor of one-half to Mark Anthony, Berkeley, Cal. Filed Jan. 30, 1891. Serial No. 379,668. (No model.)



Claim.—1. In an electric motor, the combination of a base of magnetic material, a series of radial field-magnets whose cores are magnetically connected with said base, a commutator and electrical connections adapted to energize said magnets successively, and a concentric non-wound and non-magnetized armature of magnetic material provided with inwardly-projecting teeth which approach the poles of the respective magnets successively and having its lower portion revolving in close proximity to the base upon which the field-magnets are mounted, all substantially as set forth.

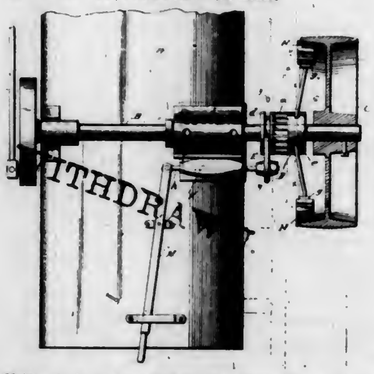
2. In an electric motor, the combination of the circular base-plate of magnetic material, the field-magnets mounted radially upon said base-plate and having the inner ends of their respective poles magnetically connected with said plate, a commutator and electrical connections for energizing the magnets successively, and the armature surrounding said base-plate and field-magnets and consisting of the web by which it is supported, the annular flange extending downward from said web and the inwardly-projecting teeth forming a series of points of increased bulk, the edge of said armature being made to rotate in close proximity to the outer periphery of the base-plate of the field, as and for the purpose explained.

3. In an electric motor, the combination of the base-plate of magnetic material, the post projecting centrally from the magnetic base and adapted to receive the spindle, the radially-arranged field-magnets having the inner ends of their respective cores magnetically connected with the base-plate, the non-wound and non-magnetized shell-armature surrounding the base and field-magnets and consisting of the web carrying the concentric commutator and the spindle adapted to enter the central post, and the annular flange projecting from said web, with its edge rotating in close proximity to the base-plate and having the inwardly-extending enlargements intermediately of the edge and the web, all substantially as and for the purpose set forth.

4. In an electric motor, the combination of the magnetic base or support, the series of radially-extending magnets on said base or support, the non-wound and non-magnetized armature surrounding said magnets and in close proximity to the base, the commutator consisting of a solid ring having an intermittent conducting-surface, a binding-post having electrical connection with one pole of each magnet, a second binding-post having electrical connection with the ring through a brush bearing constantly thereon, and a series of independent brushes constantly bearing upon the intermittent conducting-surface of the commutator and connected with the other poles of the respective magnets, substantially for the purpose explained.

5. The combination of the shaft carrying the shell-like armature, an electric circuit comprising terminals 21 22, connected together by the resistance 23, the commutator also carried by said shaft and having the interspaced segments 8 9 and the continuous commutator-ring 10, the radial magnets, the switch 24, having engagement with said terminals, the brush 11, engaging said ring, the governor 25 26, having connection with said shaft, and the right-angled lever actuated by said governor and connected to said switch, substantially as set forth.

478,476. CLUTCH. REUBEN SHETTLER, Port Huron, Mich. Filed Oct. 13, 1890. Serial No. 367,980. (No model.)


WITHDRAWN

Claim.—1. In a friction-clutch, the combination of a clutched wheel flared or coned interiorly, a hub sliding on the same shaft therewith, sectional brake-shoes, and elastic spokes connecting said hub to said sectional shoe, said spokes being connected to the hub at an angle oblique to the axis of the shaft, whereby the perimeter of the sectional brake-shoe is increased as the angle between the spoke and the hub approaches a right angle.

2. In a friction-clutch, the combination, with a sliding pinion and a fly-wheel, of rods fixed to the pinion and curved outwardly therefrom and carrying on their outer ends friction-shoes adapted to engage the fly-wheel, whereby when said pinion has been moved toward the fly-wheel the rods carrying the friction shoes will be somewhat straightened, so as to increase the frictional contact between the shoes and their connection with the fly-wheel.

3. In a friction-clutch, the combination, with a sliding sleeve, of a rod or rods secured about midway of their length thereto and curved therefrom and carrying friction-shoes at their ends, substantially as specified.

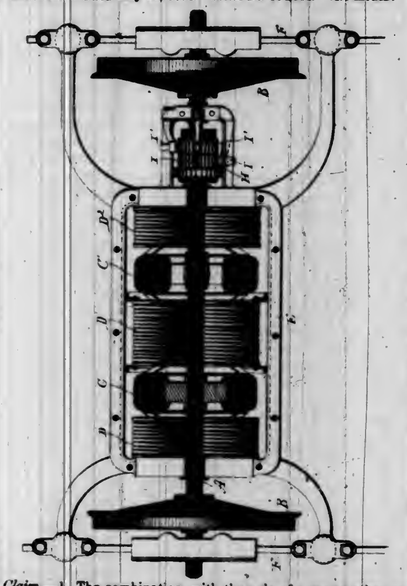
4. In a friction-clutch, the combination, with a sliding sleeve, of rods secured thereto about midway of their length and curved therefrom and also having their ends threaded, the shoe-irons perforated to receive the threaded ends of the rods, and jam-nuts for adjustably securing the irons to the rod, substantially as specified.

5. The sliding sleeve having the pinion-teeth formed therein and a wall or flange at the opposite end of said teeth, said sleeve also having an annular groove to receive the arm of the shifting-lever, and the rods carrying the shoes, which rods are curved or inclined outwardly, so that when their outer ends are met with resistance and their inner portions moved outwardly they will be somewhat straightened out, substantially as specified.

6. A friction-clutch having a sliding toothed sleeve adapted to mesh with a gear-wheel, in combination with yielding rods or bars carrying friction-shoes and having their ends bent outwardly and their inner portions fixed to the sleeve, substantially as specified.

7. The combination, with a power-shaft and fly-wheel thereon, of a sliding sleeve having a pinion and an annular groove formed therein, rods secured to said sleeve and curved therefrom, friction-shoes adjustably secured to said rods, the transversely-movable rod, the forked arm secured to one end of said shaft, and the hand-lever secured to the opposite end of the shaft, substantially as specified.

478,477. ELECTRIC LOCOMOTIVE. SIDNEY H. SHORT, Cleveland, Ohio. Filed May 26, 1891. Serial No. 394,161. (No model.)



Claim.—1. The combination, with the axle of a car or other vehicle, of field-magnets and two or more armatures arranged axially with reference to the axle, the bobbins on said armatures being relatively arranged so as to intersect or alternate one with the other, substantially as set forth.

2. The combination, with an electric motor encircling the axle of a car or other vehicle, of a series of guard-bars extending beneath the motor and serving to protect the same from injury, substantially as set forth.

478,478. PICTURE-HOLDER. ARTHUR D. STEWART, Ithaca, N. Y. Filed Apr. 4, 1892. Serial No. 427,739. (No model.)



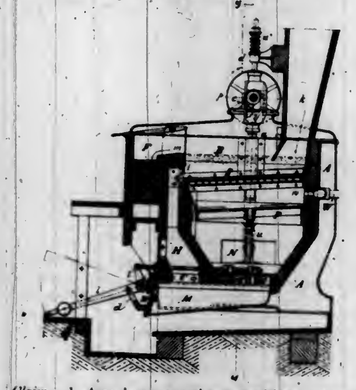
Claim.—1. A card or picture holder consisting of a bar slotted inward and downward from one edge, and a spring secured to the bar lying within the slot and pressing against the wall thereof by its elastic force.

2. A bar slotted obliquely inward from one edge, combined with a spring secured to the bar lying in the slot and exerting a yielding pressure against the wall thereof.

3. The bar slotted obliquely inward from one edge at a plurality of points and an equal number of spring-loops lying in the slots, respectively, and each secured to the bar above the slot in which it lies, substantially as set forth.

4. The combination, with the bar provided with the slots in one edge, of the spring-loops wider than the bar lying in the slots, respectively, and each having its projecting end bent and fixed against the edge of the bar above the slot in which it lies, substantially as and for the purpose set forth.

478,479. COAL-WASHER. SEBASTIAN STUTZ, Pittsburg, Pa. Filed Mar. 3, 1892. Serial No. 423,581. (No model.)



Claim.—1. A coal or ore washer comprising a separating-chamber, a sieve or screen arranged in the chamber, a slate-chamber adjacent to the separating-chamber, and an auxiliary receiver arranged below the washer and communicating with both the separating-chamber, and the slate chamber, substantially as described.

2. A coal-washer comprising a separating-chamber, a sieve or screen fitted in the chamber, a piston working underneath the sieve or screen, a slate-chamber adjacent to the separating-chamber, and an auxiliary receiver secured below the bottom of the washer and communicating with both the separating-chamber and slate-chamber, substantially as described.

3. A coal or ore washer comprising a separating-chamber, a slate-chamber adjacent to the separating-chamber, and an auxiliary receiver arranged below the separating-chamber and communicating with both the separating-chamber and the slate-chamber, substantially as described.

4. A coal or ore washer comprising a separating-chamber, a sieve or screen fitted in the chamber, a piston or plunger arranged beneath the sieve or screen, designed to reciprocate vertically, cams connected with the piston or plunger, a spring arranged beneath the piston or plunger to impart a differential movement thereto, a slate-chamber adjacent to the separating-chamber, and an auxiliary receiver arranged below the separating-chamber and communicating with both the separating-chamber and the slate-chamber, substantially as described.

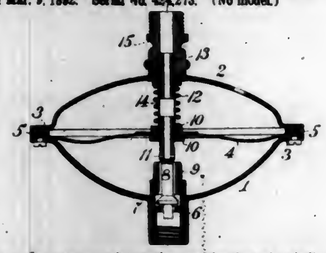
5. A coal or ore washer comprising a separating-chamber, an auxiliary receiver arranged below the separating-chamber and communicating therewith by means of openings, valves for controlling said openings, a slate-chamber adjacent to the separating-chamber and communicating therewith through an opening, and a gate for governing said opening, substantially as described.

6. A coal or ore washer comprising a separating-chamber, a slate-chamber adjacent thereto and communicating therewith, an auxiliary chamber arranged below the separating-chamber and communicating with the separating-chamber and slate-chamber, valves for controlling the openings between the separating-chamber and the auxiliary chamber, a gate for governing the outlet-opening from the auxiliary chamber, and a lever connected to the gate, and valves for opening and closing the same, substantially as described.

7. A coal or ore washer comprising a separating-chamber, a screen or sieve arranged in said chamber, a piston working underneath the sieve or screen, cams connected with the piston or plunger, a spring arranged beneath said piston or plunger, an auxiliary receiver secured below the separating-chamber and connected therewith by means of openings, valves for controlling said openings, a gate governing an outlet from the auxiliary receiver, a lever connected to said valves and gate for opening and closing the same, a slate-chamber adjacent to and communicating with the separating-chamber and auxiliary receiver,

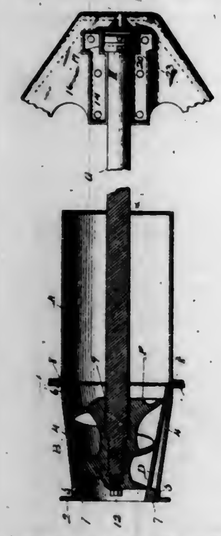
and a gate for governing the opening between the separating-chamber and slate-chamber, substantially as described.

478,480. GAS-REGULATOR. JAMES M. SWEENY, Pittsburg, Pa. Filed Mar. 9, 1892. Serial No. 424,273. (No model.)



Claim.—In a gas-regulator, the combination of a shell, a flexible diaphragm interposed between the inlet and outlet of the shell, a valve controlling the flow of gas into the portion of the shell below the diaphragm, a stem, hollow for a portion of its length, connecting the valve with the diaphragm and provided with inlets, and a flexible tube connecting the stem with the outlet-nipple, substantially as set forth.

478,481. BRICK AND TILE MACHINE. JOHN THOMPSON, Bucyrus, Ohio, assignor to the Frey-Sheckler Company, same place. Filed Mar. 14, 1891. Renewed Mar. 22, 1892. Serial No. 426,001. (No model.)



Claim.—1. In a mud-box for a brick and tile machine, the combination of an outer tapering shell having its ends formed as true cylinders of different diameters, an interior tapering shell formed with exterior lugs having their outer surfaces in alignment with the planes of the cylindrical faces of the outer shell, and adjusting-screws to engage the ends of the lugs on the inner shell, substantially as and for the purpose specified.

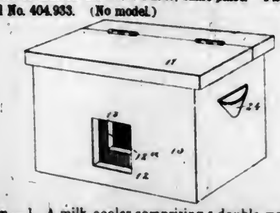
2. In a mud-box for a brick and tile machine, the combination of an outer tapering shell formed with cylindrical end portions of different diameters, an interior-tapering shell formed with exterior lugs having faces parallel with the planes of the cylinders of the outer shell, set-screws to adjust the inner shell in longitudinal direction, and a tapering clay-screw fitted to the inner shell, substantially as and for the purpose specified.

3. In a brick and tile machine, the combination of the shaft G, having a pin-hole transversely through its outer end, a cap-bearing on the end of the shaft, having seats in it to take the ends of a pin in the pin-hole of the shaft, and a coupling-pin in the shaft and cap-bearing, substantially as described.

4. In a brick and tile machine, the combination of the shaft G, having a pin-hole transversely through its outer end, a coupling-pin in the pin-hole with its ends projecting beyond the shaft, a cap-bearing fitted over the end of the shaft and formed with seats to take the ends of the coupling-pin, and an abutment-plate against the outer face of the cap-bearing, substantially as described.

5. In a brick and tile machine, the combination of the shaft G, having a pin-hole through its end, a cap-bearing fitted over the end of the shaft, formed with oil-ducts in its outer face, a coupling-pin to lock the shaft and cap-bearing together, and an abutment-plate against the outer face of the cap-bearing, formed with an oil-duct leading to the oil-ducts of the cap-bearing, substantially as described.

478,482. MILK-COOLER. SAMUEL W. TOBEY, Fairfield, Nebr., assignor to himself and C. J. Furer, same place. Filed Sept. 7, 1891. Serial No. 404,933. (No model.)



Claim.—1. A milk-cooler comprising a double-walled box having suitable covers, a tank arranged centrally within the box, an inlet-pipe having its inner end arranged transversely in the tank-bottom and provided with a series of holes and its outer end provided with a funnel, an outlet-pipe adjacent to the tank-bottom, and an overflow-pipe adjacent to the tank-top, substantially as described.

2. A milk-cooler consisting of an inner and outer box having an air-space between them and each provided with a registering opening in one side and with covers, an inlet-pipe having a T-shaped and apertured portion on the inside of the tank at the bottom thereof, and discharge and overflow pipes leading from the tank out through the boxes, substantially as herein shown and described.

478,483. BOTTLE-STOPPER. ISIDOR TRAUBE and AUGUST KATTENTIDT, Hanover, Germany. Filed June 5, 1890. Serial No. 354,338. (No model.) Patented in England Sept. 9, 1889, No. 14,167, and in France Sept. 30, 1889, No. 201,038.



Claim.—In a device of the character herein described, the combination, with the nose-like projection *g*, having the circular end drop-surface *h*, the normally-disconnected grooves *a b* on one side of the stopper, groove *c* on the opposite side, said stopper adapted to be moved so as to connect grooves *c* and *e* for the passage of air, and groove *d* in neck of bottle for connecting at the same time grooves *a* and *b* to allow the passage of fluid from the bottle, substantially as set forth.

478,484. CENTRIFUGAL MACHINE. BYRON VAN WIE, Troy, N. Y., assignor of five-sixths to William F. Greene, same place, and W. Everett Johnson, New York, N. Y. Filed Aug. 22, 1891. Serial No. 403,425. (No model.)

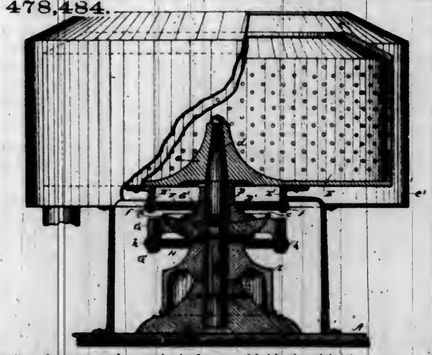
Claim.—1. In a centrifugal extractor, the combination of the extractor and a support therefor with gimbal-rings connected to the extractor and means for revolving the rings, and thereby driving the extractor, substantially as described.

2. In a centrifugal extractor, the combination of the extractor, a support therefor, a drive mechanism, and universal-joint connections between the same for revolving the latter and extractor independently of the support, substantially as described.

3. The combination of the concave-surfaced support with the convex-faced block resting thereon, and the stub-shaft fixed to said block and engaging a socket in the bottom of the extractor, substantially as specified.

4. The combination of the concave support, the convex-faced block

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resting thereon, and a stub-shaft on said block with the extractor mounted on said stub-shaft and mechanism for revolving said extractor, substantially as described.

5. The combination of the concave support, the convex-faced block resting thereon, and a stub-shaft fixed to said block, and the extractor mounted on said stub-shaft with the gimbals connected to said extractor and means for driving the same, substantially as specified.

6. The combination of the revoluble extractor loosely mounted on a fixed shaft, but independent thereof, and the pulley loosely journaled on shaft below the extractor with the universal connections between said pulley and extractor for driving the latter and retaining it on the shaft, substantially as described.

7. The combination of the revoluble extractor loosely supported on the top of a fixed shaft, the pulley loosely journaled on said shaft below the extractor, and the gimbals pivotally connecting said pulley with the extractor, constructed and arranged substantially as and for the purpose described.

8. The combination of the dish fixed to the upper end of a vertical shaft, the convex-faced block fitting in said dish, the extractor mounted on said block, and the gimbals connected to the extractor and to a drive-pulley loosely journaled on said shaft, all substantially as and for the purpose described.

9. The combination of the concave dish, the convex-faced block resting therein, the stub-shaft fitting in a socket in said block, and the extractor mounted on said block and centered by said stub-shaft, and means for revolving said extractor, substantially as specified.

10. The combination of the concave dish mounted on a fixed support, the convex-faced block resting therein, the stub-shaft fitting in a socket in said block, and the extractor fitted on said stub-shaft with the series of gimbal-rings below the extractor, the uppermost being pivotally connected to the extractor and the lowermost to the revolving hub, all constructed and arranged substantially as and for the purpose set forth.

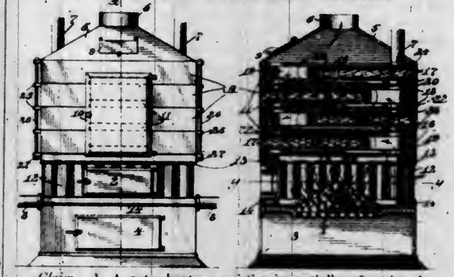
478,485. ELECTRIC BATTERY. CHARLES F. WALDRON, Boston, Mass. Filed Aug. 22, 1891. Serial No. 403,429. (No model.)



Claim.—1. A battery element consisting of a wooden base or blanket of a practically rigid character and a metallic plate presenting a surface of active material in immediate contact with said base or blanket, said parts together constituting a horizontal tray and remaining in permanent contact without intermediate spacing, substantially as set forth.

2. In an electrical battery, the receptacle A, the series of trays B D C D, each of substantially the same area as the interior of the receptacle and having openings G for the passage of the terminals E F, such terminals being formed in sections amalgamated together, combined with said plates and secured alternately thereto, substantially as set forth.

478,486. WATER-HEATER. GEORGE W. WASHBURN, Danbury, Conn. Filed Sept. 9, 1891. Serial No. 405,183. (No model.)



Claim.—1. A water-heater consisting, essentially, of sections having water-spaces with openings through them near one end for the products of combustion and at each end on one side solid hubs 20 and on the opposite side in line therewith hubs 21, having openings through which the water circulation is established, and flanges 18, surrounding said sections, by which heating-chambers are formed between them, said sections being so assembled that openings 19 are alternately at opposite sides of the heater, the solid hubs register, and the hubs having openings register, whereby the products of combustion are compelled to pass across each heating-chamber before passing to the next heating-chamber, the water in each water-space likewise having to pass from side to side before passing into the next section.

2. A water-heater consisting of a fire-box having its walls formed of water-pipes, sections above the fire-box, having water-spaces with openings through them near one end for the products of combustion and at each end on one side solid hubs 20 and on the opposite side in line therewith hubs 21, having openings through which the water circulation is established, and flanges 18, surrounding said sections, by which heating-chambers are formed between them, said sections being so assembled that openings 19 are alternately at opposite sides of the heater, the solid hubs register, and the hubs having openings register, whereby the products of combustion are compelled to pass across each heating-chamber before passing to the next heating-chamber, the water in each water-space likewise having to pass from side to side before passing into the next section.

3. A water-heater consisting of a fire-box having its walls formed of water-pipes, sections above the fire-box, having water-spaces with openings through them near one end for the products of combustion and at each end on one side solid hubs 20 and on the opposite side in line therewith hubs 21, having openings through which the water circulation is established, flanges 18, surrounding said sections, by which heating-chambers are formed between them, and a dome above the upper section, through which the products of combustion pass and which is provided with a check-door to regulate the draft, ears 25 upon the fire-box, sections, and dome, and bolts engaging the ears by which said parts are secured together.

478,487. MINER'S LAMP. JULIUS R. WATTS, Springfield, Ill., assignor of one-half to Edward W. McCullough, same place. Filed June 23, 1891. Serial No. 397,197. (No model.)

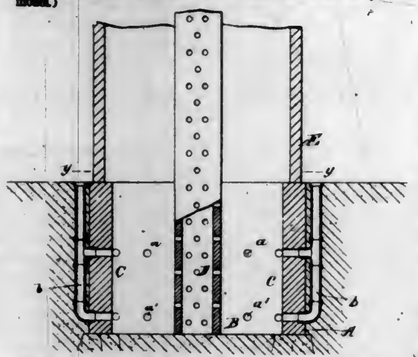


Claim.—1. The combination, with the lamp having a spout provided with a wick-raiser, of a guide between the spout and the body of the lamp, and a wick-retaining device having an opening at its lower end freely embracing the spout and the base thereof and extending upward and outward therefrom through the guide to the upper edge of the spout, substantially as set forth.

2. In a miner's lamp, the combination, with the spout thereof, a sleeve held to slide in the spout and adapted to receive the wick of

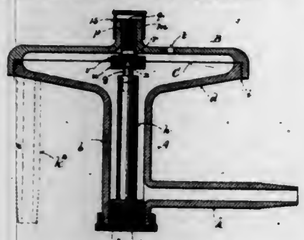
the lamp, and a rod located at the outer side of the spout and connected with the sleeve, of a wick-retaining device capable of vertical movement around the spout, the upper end of which retaining device is curved in the direction of the spout and is provided with prongs projecting adjacent to the upper end of the spout and adapted to cross the same and enter the wick, and a forked guide through which the upper part of the curved retaining device passes, as and for the purpose specified.

478,488. WHITE-LEAD CORRODING-PIT. WILLIAM H. WETHERILL, Philadelphia, Pa. Filed Mar. 1, 1892. Serial No. 423,386. (No model.)



Claim.—The combination, with the pit-walls C, having the ventilating-holes *a a'*, of a series of pipes *b*, open at the top, embedded in the surrounding earth arranged around the walls exteriorly, and leading upward from said holes, as shown and described, for the purpose specified.

478,489. COMBINED AUTOMATIC RELIEF AND VACUUM AIR-VALVE FOR RADIATORS. WILLARD O. WHITMAN, Boston, Mass. Filed Feb. 29, 1892. Serial No. 423,198. (No model.)



Claim.—1. In a relief-valve mechanism for radiators, the combination, with a casing, of a heat-actuated valve disposed therein and a flexible diaphragm within the casing, carrying a valve-seat in position to be engaged by said valve, the outer side of said diaphragm being exposed to the atmosphere, substantially as described.

2. A combination relief-valve and vacuum-maintaining valve for radiators, comprising a casing opening into the radiator, a flexible diaphragm in said casing, provided centrally with a valve-seat, an air-vent in the casing at one side of said diaphragm, and a valve of heat-expansible material disposed at the opposite side of said diaphragm in position to engage said seat, substantially as described.

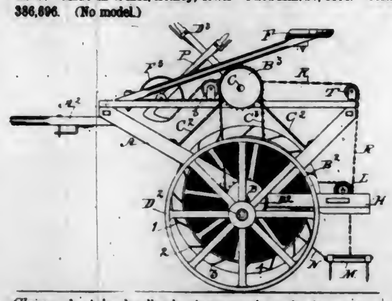
3. In a device of the character described, a casing, a flexible diaphragm in said casing, a valve-seat in said diaphragm, having a port opening therethrough, a valve of heat-expansible material at one side of said diaphragm and adapted to engage said seat, an air-vent in the casing at the opposite side of said diaphragm, and an adjustable stop for said seat, substantially as described.

4. A valve mechanism for radiators, comprising a casing, a nipple for connecting said casing to the radiator, a flexible diaphragm extending across said casing, a valve-seat in said diaphragm, a valve of heat-expansible material on the steam side of said diaphragm in position to close said seat, a stop on the opposite side of said diaphragm in position to engage said seat and having an air-port registering with the seat-port, and a vent in said casing, substantially as described.

5. The combination, with the casing having an air-vent and radiator connection, of the flexible diaphragm secured across said casing and provided with a valve-seat, as *w*, opening therethrough, a heat-actuated valve for engaging said seat, and an adjustable stop for engaging said seat and limiting its movement away from said valve.

6. The combination of the casing comprising members A B with the diaphragm C, secured between said members, the valve-seat *w* in said diaphragm having a port *s*, the heat-actuated valve *g* for engaging said seat, the adjustable stop *p*, having a port *r*, registering with the seat-port, and a vent in said member B, substantially as described.

478,490. COMBINED LAND-ROLLER, PULVERIZER, AND HARROW. JESSE H. WILTS, Ackley, Iowa. Filed Mar. 27, 1891. Serial No. 386,696. (No model.)



Claim.—1. A land-roller having sprocket-wheels on the ends of its axle stub-axles on the sprocket-wheels, traction-wheels on the stub-axles, a rock-shaft having sprocket-wheels on its ends and connected with the sprocket-wheels on the axle of the roller by means of chains, and means for operating the rock-shaft, arranged and combined with a carriage for raising and lowering the roller, for the purposes stated.

2. The combination of an endless chain having scrapers projecting outward and adapted in shape and size to enter spaces between spiral cutters on the surface of the land-roller, and mechanism for actuating the chain and scrapers in concert with the land-roller, in combination with a land-roller and a carriage, to operate in the manner set forth, for the purposes stated.

3. A machine for rolling, pulverizing, and harrowing land, comprising a roller mounted on the axle of a carriage frame and provided with spiral cutters on its periphery, sprocket-wheels journaled to the carriage-frame in line with the axis of the roller and provided with stub-axles, traction-wheels on the stub-axles, a rock-shaft in bearings fixed to the carriage-frame, sprocket-wheels on the ends of the rock-shaft, connected with the sprocket-wheels that carry the stub-axles by means of chains, means for actuating and locking the rock-shaft to the carriage-frame, an endless chain carrying scrapers for cleaning the spiral cutters on the roller, means for automatically actuating the chain and scrapers, a harrow, and means for raising and lowering it in rear of the roller, arranged and combined to operate in the manner set forth.

478,491. DEVICE FOR ASCERTAINING GRADES, &c. DAVID C. WOLFE, Lyons, Kans. Filed May 27, 1891. Serial No. 394,248. (No model.)



Claim.—1. In a device for ascertaining grades, the combination of the hollow case A, with projecting angle-irons *r* at the corners and spring-clasps *g*, and a reversible base-board B, bearing upon one side a set of graduated plates and scales and having pins *u* projecting in central position from the ends, substantially as shown and described.

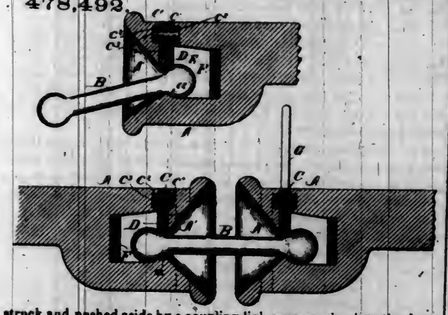
2. The combination of the plate *a*, provided with slot *b*, the side plates *w w*, graduated as described, the adjustable carrier C, having sector *c*, and the gradnated lever or rule J, hung to the carrier and provided with limb *k*, substantially as shown and described.

478,492. CAR-COUPLING. ALBERT R. WOOLF, New York, N. Y., assignor to Rosamond Woolf and Thomas J. Montgomery, same place. Filed Mar. 11, 1892. Serial No. 424,572. (No model.)

Claim.—1. In a car-coupling, the combination, with a bell-mouthed draw-head, of a slide loosely connected with the draw-head and a drop hinged to the draw-head and located in position to be pushed aside by the coupling-link and constructed to drop back automatically into position to retain the link in the draw-head, substantially as described

2. In a car-coupling, the combination, with a draw-head, of a slide, a drop hinged to the slide and located in position normally to be struck and pushed aside by a coupling-link upon passing into the draw-head, and a bar or bars having a loose sliding connection with the slide, whereby the latter is moved by an endwise movement of the bar or bars, substantially as described.

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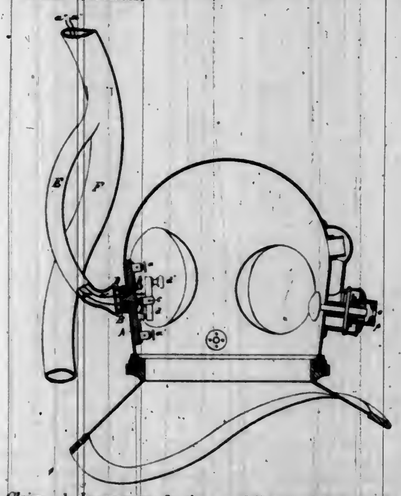
3. The combination, with a bell-mouthed draw-head having an enlarged cavity formed therein and a lip at the junction between the mouth and cavity, said lip rounded or concaved, the draw-head provided with a recess leading into the cavity approximately over the lip, the forward edge of this recess forming a stop, of a slide located in the recess, and a drop hinged to the slide in position to extend across the throat of the draw-head and be struck and pushed aside by an entering link until the latter has passed into the cavity, after which the drop falls into place and locks the link in position, substantially as described.

4. The combination, with a draw-head, of a slide, a drop hinged thereto and adapted to automatically lock a link upon the latter passing into the draw-head, the slide provided with a diagonal guide or slot, a bar or bars having a pin which enters the slot, and a hand-lever or equivalent device connected with the bar or bars, whereby they are moved endwise, substantially as described.

5. The combination, with a draw-head and link constructed substantially as described, of a gravity-drop and a movable support from which the drop depends, as specified.

6. The combination, with a bell-mouthed draw-head having a cavity formed therein, the latter having a cushioned inner wall, of a slide, means for operating the latter, and a drop hinged to the slide and adapted to co-operate with the lip to hold a link, substantially as described.

478,493. MICROTELEPHONIC APPARATUS FOR DIVERS. ROBERT WREDEN, St. Petersburg, Russia. Filed Mar. 28, 1890. Serial No. 345,663. (No model.)



Claim.—1. In apparatus for the use of divers, an elastic bandage adapted to be placed on the diver's head and provided on its inner surface with a receiver to be placed near the ear and on its outer surface provided with a microphone, all substantially as set forth.

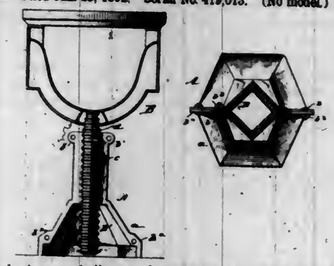
2. In apparatus for the use of divers, the combination of the helmet provided with binding posts in electrical communication with conducting-wires with a bandage adapted to be placed on the diver's head and provided with a receiver and a microphone, and conducting-wires leading to the said binding-posts, all substantially as set forth.

3. In apparatus for the use of divers, the combination of an electric circuit, a transmitter, a receiver, and an electric bell in the said circuit with a diver's helmet provided with a commutator placed in the interior thereof and adapted to be moved by the diver's head, substantially as described.

4. In apparatus for the use of divers, the combination of two sets of telephone receiving and transmitting instruments, one for the diver and one for the above-water station, an electric bell, a battery, and a switch adapted to place the bell in the electric circuit while cutting out the above-water-station telephone-instruments, and vice versa, and a commutator in the helmet and adapted to normally retain the diver's telephone-instruments in the circuit, but to cut these instruments out of the circuit at the will of the diver, substantially as and for the purposes set forth.

5. In a diver's helmet, an exhaust-air valve provided with one large opening and covered internally with lead or other poor conductor of sound, substantially as and for the purpose set forth.

478,494. STAND FOR RANGE-BOILERS. JAMES M. YOUNG, Pittsburg, Pa. Filed Jan. 23, 1892. Serial No. 419,013. (No model.)



Claim.—1. A range-boiler stand consisting of a cast base and an adjustable upper part fitting inside the same and interlocking therewith, the base part being made in two vertical and separable halves secured together by removable bolts and nuts, substantially as described.

2. A range-boiler stand consisting of a base part made in two vertical separable cast-metal halves or sections transversely channeled or grooved on their inner surfaces and connected together by removable bolts and nuts and an adjustable section having a transversely-serrated stem, the interior of the upright tubular portion of the base and the stem of the adjustable part being angular in cross-section, substantially as described.

3. In a range-boiler stand, the combination, with the adjustable section B B, having the horizontally-serrated stem B' of angular form in cross-section, of the base or pedestal A, consisting of two twin castings secured together at their abutting edges by detachable fastenings and formed with interior horizontal serrations, the space inclosed by the twin castings being of angular form in cross-section, to correspond with the form of the stem B', substantially as described.

478,495. ANTISEPTIC QUINOLINE. JOSEF ZIEGLER, Biebrich, Germany. Filed Nov. 14, 1891. Serial No. 411,901. (No specimens.)

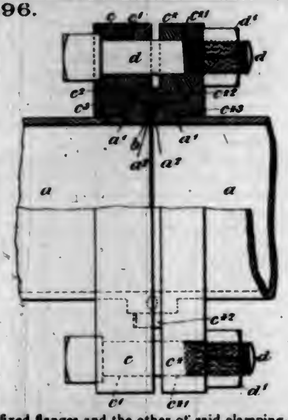
Claim.—1. A soluble antiseptic consisting of quinoline, combined with a saponaceous solution, prepared substantially as described.

2. The hereinbefore-described process for the manufacture of soluble quinoline antiseptics, which consists in saponifying oils or fats in the presence of quinoline, boiling until the solution is complete, and thereafter adding water to the solution, substantially as described.

478,496. JOINT OR COUPLING FOR METALLIC PIPES OR TUBES. JOSEPH AIRD, Tipton, England. Filed Mar. 11, 1891. Serial No. 384,563. (No model.) Patented in England Oct. 23, 1890, No. 16,896; in France Feb. 25, 1891, No. 211,708; in Belgium Feb. 25, 1891, No. 93,924, and in Germany Feb. 25, 1891, No. 58,452.

Claim.—A joint or coupling for metallic pipes or tubes, consisting of a fixed flange or collar upon each of the lengths of pipe to be connected, an annular groove formed in one or both of such flanges, a ring of packing material located in the groove, two loose clamping-collars abutting against the flanges of the tubes, one being provided with an annular flange c^{23}, arranged around the exterior of the said fixed flanges and projecting beyond the packing and the opening be-

478,496.



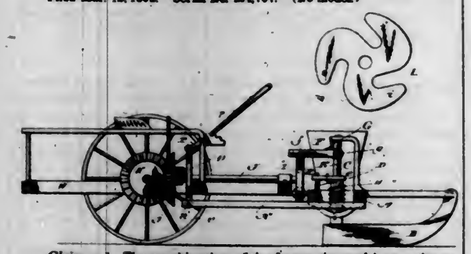
tween said fixed flanges and the other of said clamping-collars being formed with annular recesses c^3 c^3, the latter being deeper than the former and its outer wall being extended around and overlapping the outer edge of one of the fixed flanges a', so as to form, substantially, a continuation of the flange c^{32}, and the outer wall of the recess c^3 being extended around and overlapping the outer edge of the flange c^{32}, and means for forcing such clamping-collars together, substantially as herein shown and described.

478,497. PUZZLE. ANTENOR ASBORATI and ARTURO CUYÁS, New York, N. Y., assignors, by direct and mesne assignments, to the Columbus Egg Company, same place. Filed June 30, 1891. Serial No. 397,955. (No model.)



Claim.—In a puzzle, the combination, with an egg-like shell, of a casing shaped substantially as a truncated cone, fixedly located within one end of the shell, a track attached to said casing and extending to the opposite end of the shell, the said track being essentially U-shaped and its members made to diverge at their connection with the casing, and a movable weight adapted to travel upon the track and enter the casing, as set forth.

478,498. CORN-PLANTER. FRANK BAYLESS, Wilberforce, Ohio. Filed Mar. 12, 1892. Serial No. 424,707. (No model.)



Claim.—1. The combination of the frame, the seed-boxes, the reciprocating dropper-actuating bar, the vertical rock-shaft operating said bar, the horizontally-projecting vertically-yielding lever connected to said rock-shaft, and a revolving cam-disk for operating said lever, substantially as described.

2. The combination of the reciprocating bar, the vertical rock-shaft having a horizontal arm connected to said bar, the horizontal swinging lever connected to said bar, and the rotatable cam-disk operating said lever, and springs for throwing said parts back to normal position, substantially as described.

3. The combination of the dropper-actuating bar, a rock-shaft, an arm connecting said shaft and bar, a vertically-swinging spring-controlled lever connected to said shaft, a friction-sleeve on the end thereof, and a revoluble cam-disk upon which the free end of said lever bears, substantially as and for the purpose specified.

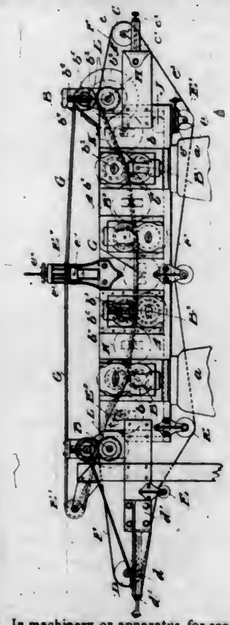
4. The combination of the reciprocating dropper-actuating bar, the spring-controlled rock-shaft for shifting said bar, and the lever connected to said rock-shaft, with the frame mounted on a rotatable wheeled shaft, the longitudinal shaft geared to said wheeled shaft, and the cam-disk on the end of the longitudinal shaft engaging said lever, substantially as described.

5. The combination of the furrow-opening frame, the wheeled frame shackled thereto, the longitudinal shaft journaled in the wheeled frame, a cammed disk mounted on the front end of said shaft, and mechanism for operating said longitudinal shaft from the main wheels, with the dropper-actuating bar on the furrow-opening frame, the vertical rock-shaft for operating said bar, and the lever connected to said rock-shaft and bearing against the cams of said disk and operated thereby, substantially as described.

6. The combination of the seed-boxes, dropping mechanism therein, and the reciprocating actuating-bar therefor, with the spring-controlled rock-shaft, its arm connected to said bar, and the spring-controlled swinging lever connected to said shaft, and a revoluble cam-disk engaging the free end of the lever, substantially as described.

7. The combination of the furrow opening frame, its seed-boxes, and reciprocating dropper-actuating bar, the rear frame, its wheeled axle, the yoke connected to the front frame, and the adjusting-link connections between said yoke and rear frame, the transverse shaft in the rear frame, the gearing for operating said shaft, the cam-disk on the front end thereof, the rock-shaft on the front frame, the lever connected thereto and engaging said disk, and the springs for throwing said shaft, lever, and reciprocating bar back to normal position, all substantially as and for the purpose set forth.

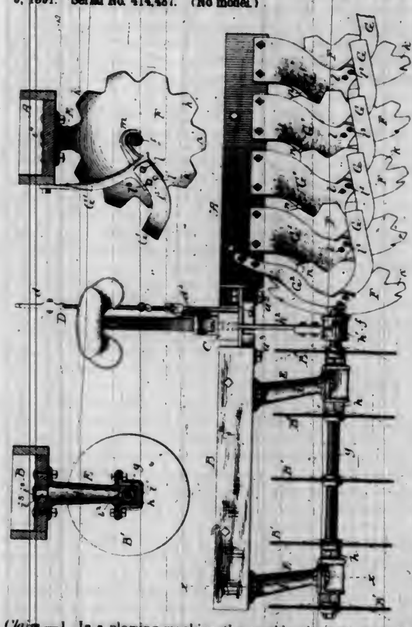
478,499. APPARATUS FOR SCOURING AND WASHING SKINS, &c. THOMAS BURNS, Edinburgh, Scotland. Filed Sept. 13, 1889. Serial No. 323,886. (No model.) Patented in England Feb. 9, 1889, No. 2,311, and July 10, 1889, No. 11,133; in Victoria Aug. 20, 1889, No. 7,013; in South Australia Aug. 20, 1889, No. 1,397; in New South Wales Aug. 21, 1889, No. 1,639; in Queensland Aug. 22, 1889, No. 826; in New Zealand Aug. 29, 1889, No. 3,918, and in Canada Oct. 27, 1891, No. 37,692.



Claim.—1. In machinery or apparatus for scouring and washing skins, wool, &c., the combination of the tank A, carrying a series of squeezing-rolls and grooved guide-rollers E, E', and E^2, an endless band F, passing about said guide-rollers and between the squeezing-rolls, adjustable pulleys C and D for regulating the tension of the endless band, endless ropes G, passing around grooved guide-rollers E^2 E^4 and between the squeezing-rolls, and gearing for connecting together and simultaneously driving the squeezing-rolls, substantially as described.

2. In a machine or apparatus for scouring and washing skins, wool, &c., the combination of a tank of ordinary or suitable construction carrying a series of squeezing-rolls, a steeping trough N, carrying a series of entering-rollers mounted upon the end of said trough, a spur-gear P, and means for connecting together and driving the gearing of the tank and trough simultaneously, substantially as hereinbefore set forth.

478,500. LAND-PLOWING MACHINE. GEORGE M. CLARK, Haddam, Conn., assignor to Clement S. Hubbard, same place. Filed Dec. 9, 1891. Serial No. 414,487. (No model.)



Claim.—1. In a plowing-machine, the combination, substantially as hereinbefore described, of a gang of rotary plowshares, each having a stationary mold-board and the whole arranged angular to the pole or line of draft, and a gang of land-side-disks at the other side of the pole or line of draft for resisting the lateral thrust of the plowshares and mold-boards.

2. In a plowing machine, the combination, substantially as hereinbefore described, of a gang of rotary plowshares and stationary mold-boards, all angularly adjustable with relation to the pole or line of draft and located wholly at one side thereof, and a gang of landside-disks at the other side of the pole or line of draft.

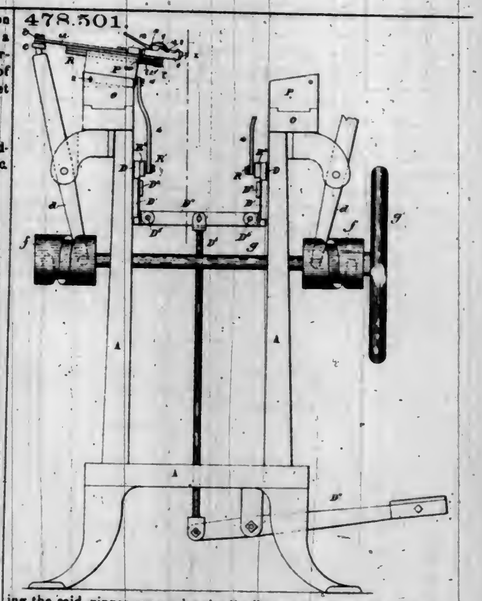
3. In a plowing-machine, the combination, substantially as hereinbefore described, of a gang of rotary plowshares angular to the pole or line of draft and at one side of said line, and a gang of landside-disks at the opposite side of said line and at right angles thereto.

4. In a plowing-machine, the combination, substantially as hereinbefore described, of a gang of rotary plowshares, each having a stationary mold-board, said gang being at one side of the line of draft, and a gang of landside-disks at the other side of said line, both of said gangs being angularly adjustable to said line of draft.

5. The combination, with a gang of rotary plowshares and mold-boards, of pendent hangers between each two shares, each hanger serving as a support for a mold-board and having one edge conforming to the concave side of one share and the other edge conforming to the convex side of the adjacent share, substantially as described.

6. The combination, with the gang-frames and gang-axles, of closed journal-boxes coupled to the gang-frames by tubular hangers or standards, which are internally accessible by way of holes in the gang-frames for the introduction of lubricants to the closed boxes, substantially as described.

478,501. LASTING-MACHINE. FRANK CHASE, Malden, Mass., assignor to the Chase Lasting Machine Company, Portland, Me. Filed Jan. 20, 1890. Serial No. 337,447. (No model.)



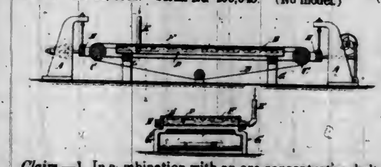
Claim.—1. A lasting-machine comprising the following instrumentalities, viz: two series of vertically-moving nipper-wipers or pinchers, one at each side of the last, means, substantially as described, for moving the said nipper-wipers longitudinally toward the last, and independent actuating mechanism for each series of nipper-wipers, said actuating mechanism containing equalizers and unyielding connections actuated by them and in operative connection with the nipper-wipers to lift the same vertically, combined with an equalizer G^4, connecting the two sets of actuating mechanisms for imparting vertical movement to the two series of nipper-wipers or pinchers, substantially as set forth.

2. A lasting-machine containing the following instrumentalities, viz: two series of nipper-wipers or pinchers, one at each side of the last, wiper-slides, equalizers connected to the said slides, means to reciprocate the said wiper-slides transversely of the shoe, guides in which the said slides reciprocate, equalizers $R' R^3$ at opposite sides of the last, connecting-rods 16 between the said equalizers R and the said blocks, and the carriers D and equalizer D^4, connecting the said carriers at opposite sides of the last, substantially as described.

3. In a lasting-machine, a nipper-wiper composed of a jaw 6, a movable jaw 7, sliding thereon, a lever 12, and an independent spring pivotally attached to and connecting the jaw 7 and the said lever 12, to operate substantially as described.

4. A lasting-machine comprising the following instrumentalities, viz: two series of vertically-moving nipper-wipers or pinchers, one at each side of the last, means, substantially as described, for moving the said nipper-wipers longitudinally toward the last, and independent actuating mechanism for each series of nipper-wipers, said actuating mechanism containing equalizers and unyielding connections actuated by them and in operative connection with the nipper-wipers to lift the same vertically, combined with a centrally-pivoted equalizer-bar D^4, connecting the two sets of actuating mechanisms, the pivot of said equalizer-bar being arranged approximately under the longitudinal center of the last, and devices to raise and lower the said equalizer-bar to effect the arrest of the vertical movement of nipper-wipers at one side of the last before the termination of the vertical movement of the nipper-wipers at the other side of the last, substantially as set forth.

478,502. FLUID-SUPPORT FOR ORE-CONCENTRATING BELTS. FREDERICK G. CORNING, New York, N. Y. Filed Aug. 25, 1891. Renewed June 14, 1892. Serial No. 436,645. (No model.)



Claim.—1. In combination with an ore-concentrating belt, a fluid-pressure reservoir beneath it, having outlets directed toward the under surface of the belt, for the purposes described.

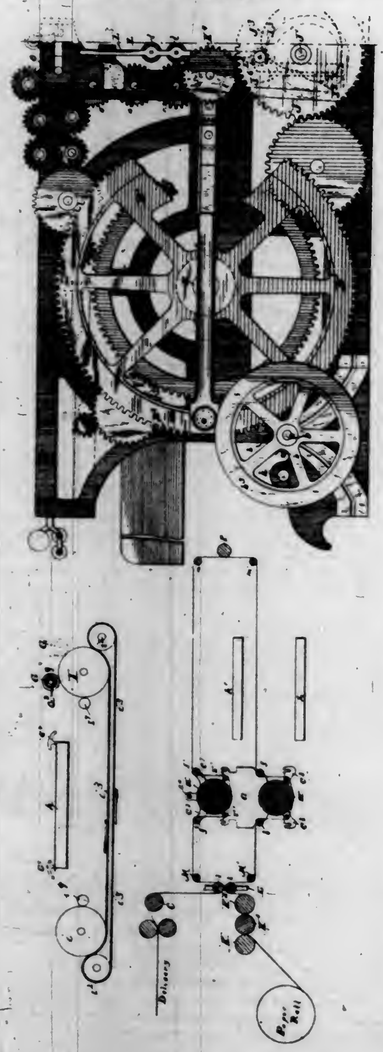
2. In an ore-concentrator, the combination of a flexible apron or belt and a fluid-distributer for maintaining the same, formed of a perforated plane surface underlying the said apron, and means for introducing through said perforations a fluid under pressure, for the purposes described.

3. In an ore-concentrator, the combination of an endless apron or belt, rollers whereon the belt is revolved and intermediate to said rollers, a fluid-distributing box having a plane perforated surface adjacent the belt, and means for supplying said distributer with fluid under pressure.

4. In an ore-concentrator, the combination of a flexible apron or belt, a plane table beneath the belt, and perforations through the surface of the table for supplying a film of fluid beneath the same and the belt.

5. The combination, with a flexible apron or belt for washing and separating ore pulp, of a perforated fluid-distributer beneath the belt, provided with interior subdivisions and independently-controlled supply-pipes for each said subdivision, substantially as and for the purposes set forth.

478,503. PRINTING-PRESS. JOSEPH L. COX, Battle Creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed July 22, 1890. Serial No. 359,563. (No model.)



Claim.—1. The combination, in a printing-press, of a pair of parallel opposite type-beds each arranged face uppermost, with an impression-cylinder for each bed, and means, substantially as described, for reciprocating said cylinders, substantially as and for the purpose set forth.

2. The combination, in a printing-press, of a pair of type-beds with a pair of reciprocating impression-cylinders coacting with said beds, only one of which cylinders moves between the beds, substantially as specified.

3. The combination of the pair of parallel type-beds arranged one above the other and having their type-bearing surfaces facing in the same direction, the pair of revolving impression-cylinders, and mechanism, substantially as described, for simultaneously reciprocating the said cylinders over the respective beds, with mechanism for feeding a continuous web of paper between one cylinder and bed and, after the first impression produced thereby, feeding it between the second cylinder and bed to produce a perfected sheet, substantially as and for the purpose set forth.

4. The combination of a type-bed and ink-rolls at the opposite ends thereof, with an ink distributing or carrying belt adapted to deliver ink from one roll to the other, substantially as described.

5. In a printing-press, the combination of the type-bed, the ink-distributing rolls at opposite ends thereof, and the inking-fountain for supplying ink to one of said rolls, with an endless belt and its supporting-rollers for transmitting ink from one of said rolls to the other, substantially as and for the purpose specified.

6. The combination of the type-bed, the impression-cylinder mounted in movable carriers and adapted to be reciprocated over the type-bed, and the guide-rollers for directing a web of paper between the impression-cylinder and type-bed, substantially as set forth, with movable looping-rollers over which the web is looped in opposite directions before and after it passes between the impression-cylinder and bed, substantially as described.

7. The combination, with the pair of type-beds arranged parallel and both facing upwardly, of a pair of reciprocating carriers moving in guides between the type-beds and the impression-cylinders supported by said carriers and arranged to contact, respectively, with the said beds when the carriers are reciprocated, substantially as set forth.

8. The combination of the type-beds, the carriers moving in guides between said beds, and the impression-cylinders carried thereby adapted to respectively contact with the forms on said beds, with the paper-guiding rollers, whereby a web of paper can be directed between one impression-cylinder and type-bed and thence between the other cylinder and bed, for the purpose and substantially as described.

9. In a printing-press, the combination of type-beds arranged one above the other, a pair of impression-cylinders adapted to be respectively reciprocated over said beds, and inking devices for the forms on the beds, with guide-rollers arranged to direct a web of paper between the lower bed and cylinder and thence between the upper bed and cylinder, and mechanism, whereby said web is looped before it enters between the first bed and cylinder and again looped after it passes the second bed and cylinder, whereby the web can be fed into and delivered from the press continuously and yet have portions thereof stopped during the taking of an impression thereon, substantially as specified.

10. The combination, with a type-bed, of a pair of reciprocating carriers mounted in guides on the frame, an impression-cylinder journaled in said carriers, and the web-guide rollers and form-rollers mounted on the carriers at opposite sides of the impression-cylinder, substantially as described.

11. The combination of the type-bed, the revolving impression-cylinder mounted in reciprocating carriers above said bed and adapted to be reciprocated thereover, and inking and paper-web guide rollers at each side of the cylinder carried by and movable with said carriers and cylinder, with stationary web-guide rollers and ink-supply rolls at each end of the bed, substantially as specified.

12. The combination of the main frame, the type-bed, the carriers reciprocating above said bed, and the main shaft and pitmen connected directly to and operating said carriers from said main shaft, with the impression-cylinder journaled in said carriers and operating with the type on said bed, substantially as set forth.

13. The combination of the type-beds, the carriers, the crank-wheels, shaft, and pitmen for reciprocating said carriers, and the impression-cylinders journaled in and movable with said carriers, with the looping-frame L, having looping-rollers *l l*, the shaft carrying cams for operating said frame, and the paper-guide rollers, all substantially as described.

14. The combination of the type-beds, the carriers, the pitmen and crank-wheel and shaft for reciprocating the same, the impression-cylinders, form-rollers, and paper-guide rollers carried by said carriers and movable therewith, the paper-looping frame carrying looping-rollers, the shaft and cams for operating said frame, and the paper-web-guide rollers, all substantially as set forth.

15. In a web-printing press, the combination of a stationary type-bed, the impression-cylinder, mechanism for reciprocating the same over the bed, and paper-web feed and delivery mechanism, with a pair of connected looping devices, over one of which the web is looped between the feed mechanism and cylinder and over the other of which the web is looped between the cylinder and delivery mechanism, whereby one loop is formed simultaneously with the paying out of the other, as and for the purpose set forth.

16. The combination of a type-bed, an impression-cylinder adapted to be reciprocated thereover, and mechanism, substantially as described, whereby the web is continuously fed into and from the press, with a mechanism, substantially as described, whereby the web is positively looped between the feeding devices and cylinder during the taking of an impression and positively looped between the cylinder and delivery mechanism after the impression, the looping devices being connected and synchronous in operation, so that one loop is formed while the other is being paid out during the taking of an impression, substantially as set forth.

17. The combination of the type-bed, ink supplies at each end thereof, a revoluble impression-cylinder, form-inking rollers at each side thereof, and mechanism, substantially as described, whereby the cylinder and form-rolls are simultaneously reciprocated over the type-bed and the type inked at each movement of the cylinder, with a pair of connected looping-rollers, over one of which the paper-web is looped previous to passing under the cylinder and over the other of which the web is looped after passing from the cylinder, whereby the feed and delivery of web is rendered continuous and one loop formed simultaneously with the paying out of the other all substantially as specified.

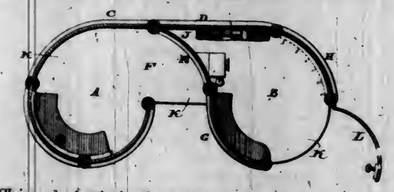
478,504. FOOT-GUARD FOR RAILWAY-FROGS. WILLIAM DRISCOLL, Brockville, Canada, assignor of one-half to James Hall, same place. Filed May 8, 1891. Serial No. 392,116. (No model.)



Claim.—1. A foot-guard for railways, consisting of a spring-steel bar having one end bent downward and extended at an angle with an opening therethrough to receive a fastening-spike, and the opposite end bent down and under in a curved line and of bifidate form to provide a double-spring action at the free end of the bar, the said front end of the bar being reduced in width, substantially as and for the purposes set forth.

2. A foot-guard for railways, consisting of an elongated spring-steel bar having both ends bent downward, one of said ends being secured and the other free, the free end being bent under or backward in a curved line and of bifidate form, and a leaf pivoted on the top surface of the bar to modify the resiliency thereof, substantially as described.

478,505. URINAL AND PATROL-BOX. WILLIAM BELIN, Philadelphia, Pa., assignor of one-half to John L. Hill, same place. Filed Dec. 19, 1891. Serial No. 415,569. (No model.)



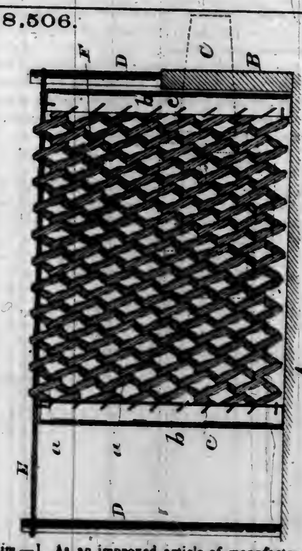
Claim.—1. A urinal and patrol-box having the rear walls thereof continuous of each other and a side wall common to both the urinal and box, substantially as described.

2. A patrol-box and a urinal, the former having its side wall forming a guide and guard for the entrance-passage of the urinal, substantially as described.

3. In a combined urinal and patrol-box, the rear walls of the frames of said parts being continuous of each other, in combination with the side wall of the patrol-box, diverging from the rear wall thereof, forming a guide and guard for the entrance-passage of the urinal and producing with the rear wall of the patrol-box a storage-chamber, substantially as described.

4. The wall C, forming an inclosure A, with the entrance F, and the walls D, H, E, and G, forming an inclosure B, the wall E being opposite the said entrance F, and the said inclosure B having a door or inlet, substantially as described.

478,506. SHIELD FOR GUNNERS. JAMES E. EMERSON and THOMAS MIDDLEY, Beaver Falls, Pa., assignors of one-third to John Lynch, Washington, D. C. Filed Feb. 3, 1892. Serial No. 420,151. (No model.)

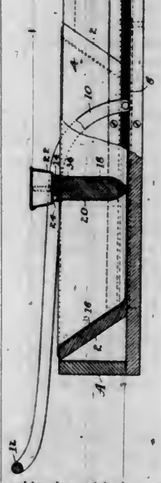


Claim.—1. As an improved article of manufacture, a shield for gunners, consisting of a sheet of intertwined coiled-wire helices having their ends incased.

2. As an improved article of manufacture, a shield for gunners, consisting of a sheet of intertwined coiled-wire helices having their ends incased in flexible material.

3. As an improved article of manufacture, a shield for gunners, consisting of a sheet of intertwined coiled-wire helices composed of a plurality of twisted strands of wire having their ends incased.

478,507. DOUGH-KNEADER. FRANK ERREN and OTTO LOEBER, St. Paul, Minn. Filed Mar. 7, 1892. Serial No. 423,963. (No model.)



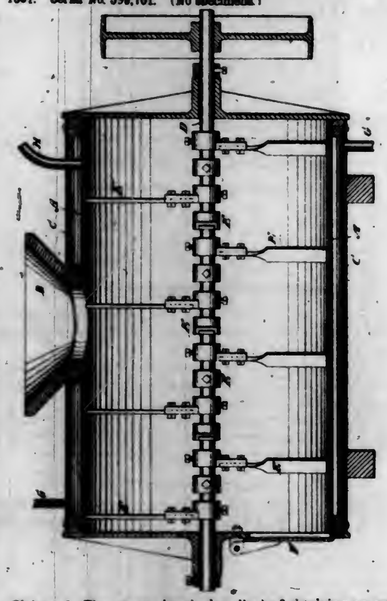
Claim.—1. The combination, with the rectangular box provided with longitudinal guides, of the arms engaging said guides and provided with a suitable handle, the removable sheet-metal tray fitted to said box, the block carried by said arms and fitted transversely in said tray, and the flour-receptacle arranged on the top of said box, substantially as described.

2. The combination, with the rectangular box provided with longitudinal guides, of the arms pivotally and slidably connected to said guides and provided with a suitable handle, the convex sheet-metal block carried by said arms and standing transversely in said box, the

perforated flour-receptacle carried by said arms, the removable sheet-metal tray arranged in said box, and the removable flanged cover for said tray, substantially as described.

3. The combination, with a rectangular box provided with longitudinal guides, of the handle pivotally and slidably connected to said guides, the convex metallic block fixed to said handle and fitting transversely in said box, and the perforated flour-receptacle carried by said handle above said box, substantially as described.

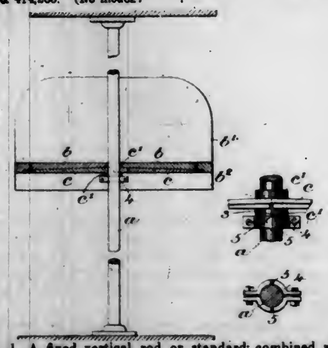
478,508. PROCESS OF OBTAINING EXTRACTS FROM HOPS. CHARLES H. PRINCE and BERTHA O. PRINCE, New York, N. Y., assignors to the Brewing Improvement Company, Maywood, N. J. Filed July 16, 1891. Serial No. 399,701. (No specimens.)



Claim.—1. The process herein described of obtaining an extract from hops, which consists in subjecting them to the action of dry heat at a temperature of about 212° Fahrenheit and then treating the same with cold water.

2. The process herein described of obtaining an extract from hops, which consists in comminuting them, then subjecting them to the action of dry heat at a temperature of about 212° Fahrenheit, and when the required state of torrefaction has been obtained allowing the hops to cool, and then treating the same with cold water.

478,509. ADJUSTABLE SHELVING. CHARLES R. GODFREY, Milford, assignor to the Library Bureau, Boston, Mass. Filed Dec. 7, 1891. Serial No. 414,285. (No model.)



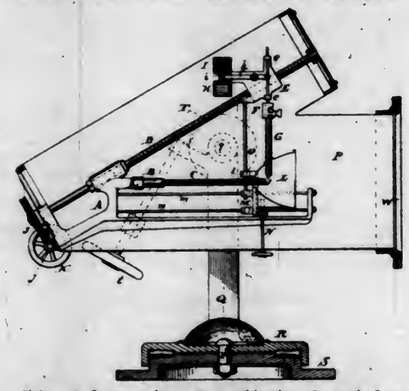
Claim.—1. A fixed vertical rod or standard; combined with a vertically-adjustable shelf having attached to it a bracket provided with an eye or hub to embrace the rod or standard and notched on its under side, and a clamping-ring adjustable longitudinally on said rod or standard, and projections on said ring to co-operate with the notched hub to prevent rotation of and positively fix the bracket and shelf in any desired adjusted position upon the rod or standard, substantially as described.

2. A vertically-adjustable shelf grooved at its under side, a bracket having several arms secured to the under side of said shelf at one side and midway its length, the arms entering the grooves, a ring on said bracket encircling a fixed rod or standard, a clamping ring on which the bracket-ring rests for maintaining the shelf at any desired point, and a projection on one ring to enter a recess in the other to prevent rotation of said shelf, substantially as described.

3. A shelf having a ring at one side thereof midway its length and cut away upon its under side to form a shoulder extended diametrically across the ring, combined with a second shelf having a ring at one side thereof midway its length and cut away upon its upper side to leave a shoulder extended diametrically across the same, and a clamping device to contact with one of said rings, the shoulders of said rings abutting one against the other to prevent independent rotation of the two shelves, substantially as described

4. A fixed vertical rod or standard, combined with a series of independent rotatable and vertically-adjustable shelves, each shelf having a support attached to its end and extended above and below it to co-operate with books on the said shelf and with the tops of books on the next lower shelf, a bracket attached to each shelf and provided with an eye or hub to embrace the rod or standard and notched on its under side, a clamping-ring for each shelf adjustable longitudinally on said rod or standard, and projections on the ring to co-operate with the notched hub to prevent rotation of and positively fix the bracket and shelf in adjusted position upon the rod or standard, substantially as described.

478,510. ELECTRIC-ARC LAMP. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Nov. 12, 1891. Serial No. 411,671. (No model.)



Claim.—1. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame and having a relatively fixed position, a carriage or movable part mounted to move at an oblique angle to said relatively fixed carbon, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, and a feeding device for feeding the carriage at an oblique angle to the first-mentioned carbon and its holder.

2. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices consisting of a screw for feeding the carriage at an angle to the first-mentioned carbon and its holder, and hand-operated devices for rotating the said screw.

3. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part movable at an oblique angle to both of the carbons, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices for feeding the carriage at an oblique angle to the first-mentioned carbon and its holder, and an electric regulator for moving the carbon-holder carried by the carriage or movable part for the purpose of moving the carbon thereof to or from the other carbon to regulate the arc.

4. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices for feeding the carriage at an angle to the first-mentioned carbon and its holder, and an electric regulator for moving the carbon-holder carried by the carriage or movable part for the purpose of moving the carbon thereof to or from the other carbon to regulate the arc carried by and moving with the said carriage or movable part.

5. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices consisting of a screw for feeding the carriage at an angle to the first-mentioned carbon and its holder, hand devices for rotating the said screw, and an electric regulator for moving the carbon-holder carried by the carriage or movable part for the purpose of moving the carbon thereof to or from the other carbon to regulate the arc carried by and moving with the said carriage or movable part.

6. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices for feeding the carriage at an angle to the first-mentioned carbon and its holder, a reflector, guides for the reflector, whereby it is moved parallel to the first-mentioned carbon, and means to move it so as to maintain the focal point coincident with the arc.

7. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices for feeding the carriage at an angle to the first-mentioned carbon and its holder, a reflector, guides for the reflector, whereby it is moved parallel to the first-mentioned carbon, and means to move it so as to maintain the focal point coincident with the arc, consisting of a connection between the carriage or movable part and said reflector, whereby the latter is moved at a speed commensurate with that of the carriage or movable part.

8. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices for feeding the carriage at an angle to the first-mentioned carbon and its holder, a reflector, guides for the reflector, whereby it is moved parallel to the first-mentioned carbon, means to move it so as to maintain the focal point coincident with the arc, and means to adjust the reflector transversely to the direction of its movement, so as to permit the adjustment of the focal point with respect to the arc.

9. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices consisting of a screw for feeding the carriage at an angle to the first-mentioned carbon and its holder, hand devices for rotating the said screw, and an electric regulator carried by and moving with the said carriage or movable part for moving the carbon-holder carried by the carriage or movable part for the purpose of moving the carbon thereof to or from the other carbon to regulate the arc.

10. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices consisting of a screw for feeding the carriage at an angle to the first-mentioned carbon and its holder, hand devices for rotating the said screw, a reflector, guides for the reflector, whereby it is moved parallel to the first-mentioned carbon, and means to move it so as to maintain the focal point coincident with the arc, consisting of a connection between the carriage or movable part and said reflector, whereby the latter is moved at a speed commensurate with that of the carriage or movable part.

11. In an arc lamp, the combination of two carbons arranged at an angle to each other, a substantially stationary support for one of the carbons, a movable support for the other of said carbons movable at an angle to the stationary carbon, guides for guiding said movable support at an angle to the stationary carbon, and feed mechanism to feed the obliquely-movable carbon-support obliquely with respect to the length of the other carbon to compensate for the combined consumption of both carbons.

12. In an arc lamp, the combination of two carbons arranged at an angle to each other, a substantially stationary support for one of the carbons, a movable support for the other of said carbons movable at an angle to the stationary carbon, guides for guiding said movable support at an angle to the stationary carbon, feeding mechanism to feed the movable carbon-support obliquely with respect to the length of the other carbon to compensate for the combined consumption of both carbons, and an automatic regulating device independent of the feeding device for regulating the size of the arc maintained between the two carbons.

13. In an arc lamp, the combination of two carbons arranged at an angle to each other, feeding mechanism to feed one of the carbons obliquely with respect to the length of the other to compensate for the combined consumption of both carbons, and a reflector guided along one carbon with a speed commensurate with the horizontal travel of the other carbon, whereby the focal point of the reflector is maintained at the arc during the consumption of the carbon.

14. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices for feeding the carriage at an angle to the first-mentioned carbon and its holder, a reflector, guides for the reflector, whereby it is moved parallel to the first-mentioned carbon, means to move it so as to maintain the focal point coincident with the arc, a support for the lamp, having horizontal trunnions, and a base sustaining the said support and upon which it is movable about a vertical axis, whereby the beam of light from the lamp may be projected in all directions.

15. In an arc lamp, the combination of a main frame, a holder for one of the carbons, carried by said main frame, a carriage or movable part, a holder for the other carbon, carried by the carriage or movable part and adapted to hold the last-mentioned carbon at an angle to the first-mentioned carbon, feeding devices consisting of a screw for feeding the carriage at an angle to the first-mentioned carbon and its holder, hand devices for rotating said screw, a reflector to reflect the arc, and means to support the lamp upon a base with the provision for vertical and lateral motion.

16. In an arc lamp, the combination of a carbon, a holder for said carbon, a second carbon arranged at an angle to the first-mentioned carbon and adapted to maintain an arc between the extreme ends of the carbon, and means to move the last-mentioned carbon bodily in the direction of the length of the first-mentioned carbon with a speed commensurate with the speed of the consumption of said carbons.

17. In an arc lamp, the combination of a carbon, a holder for said carbon, a second carbon arranged at an angle to the first-mentioned carbon and adapted to maintain an arc between the extreme ends of the carbons, and means to move the last-mentioned carbon bodily in the direction of the length of the first-mentioned carbon and also feed it transversely to the length of said first-mentioned carbon.

18. In an arc lamp, the combination of a carbon, a holder for said carbon, a second carbon arranged at an angle to the first-mentioned carbon and adapted to maintain an arc between the extreme ends of the carbons, means to move the last-mentioned carbon bodily in the direction of the length of the first-mentioned carbon, and an electric regulator operating upon the carbon independently of its movement parallel to the first-mentioned carbon for the purpose of moving the carbons to or from each other to regulate the extent of the arc.

19. In an electric lamp, the combination of two carbons arranged at an angle to each other so as to maintain an arc between their extreme ends, a holder for each of the carbons, feeding means to move one of the holders in the direction of the length of the carbon of the other holder with a speed commensurate with the consumption of the said carbon while maintaining the arc.

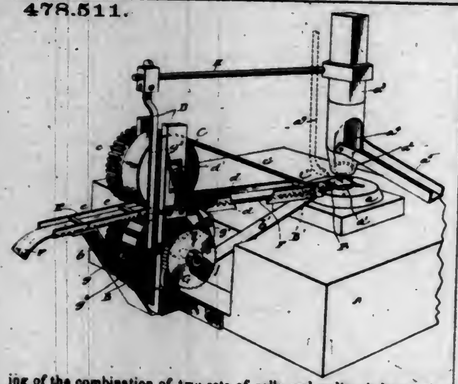
20. In an electric lamp, the combination of two carbons arranged at an angle to each other so as to maintain an arc between their extreme ends, a holder for each of the carbons, feeding means to move one of the holders in the direction of the length of the carbon of the other holder with a speed commensurate with the consumption of the said carbon while maintaining the arc, and an electric regulator to cause said carbons to have a relative movement independent of the feeding movement to regulate the extent of the arc automatically.

478,511. FEED MECHANISM. HENRY JANSEN, Brooklyn, assignor to Schloss & Sons, New York, N. Y. Filed Oct. 9, 1891. Serial No. 408,277. (No model.)

Claim.—1. A feeding mechanism consisting of the combination of two sets of rolls and endless belts running around each set, the rolls in each set standing opposite each other in pairs and the belts running parallel and in contact with each other throughout the entire distance from one pair of rolls to the other, whereby a grip upon the article being fed is established and maintained throughout the distance between the pairs of rolls, and guides located each side of the portions of the belts that are in contact, substantially as described.

2. The combination, with a die, of a feeding mechanism consist-

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ing of the combination of two sets of rolls and endless belts running around each set, the rolls in each set standing opposite each other in pairs and the belts running parallel and in contact with each other throughout the entire distance from one pair of rolls to the other, whereby a grip upon the article being fed is established and maintained throughout the distance between the pairs of rolls, and guides located each side of the portions of the belts that are in contact, substantially as described.

3. The combination of the pair of large and small rolls B B', respectively, with the pair of large and small rolls C C', respectively, an endless belt carried by each pair, gearing connecting the rolls B and C, a ratchet-wheel connected with one of the large rolls, a pawl engaging the ratchet-wheel, a punch, and connections between the punch and the pawl, whereby motion of the punch causes the pawl to intermittently move the ratchet and belts, substantially as described.

4. The combination of the pair of large and small rolls B B', respectively, with the pair of large and small rolls C C', respectively, an endless belt carried by each pair, gearing connecting the rolls B and C, a ratchet-wheel connected with one of the large rolls, a slotted lever having a pawl engaging the ratchet-wheel, a movable punch, a rigid projection from the punch, and a rod or bar connected at one end to the said projection and having at its other end a screw adapted to enter the slot of the lever and secure it adjustably thereto, substantially as described.

478,512. CAR WHEEL AND AXLE. ABNER JOHNSTON and WILLIAM A. JOHNSTON, Jersey City, N. J., assignors of one-half to Richard Parker, New York, N. Y. Filed Oct. 6, 1891. Serial No. 407,924. (No model.)



Claim.—1. The combination, with an axle, of a wheel thereon provided with a passage-way therethrough and a collar having a coincident passage-way, said passage-ways being for the lubricant, as and for the purpose specified.

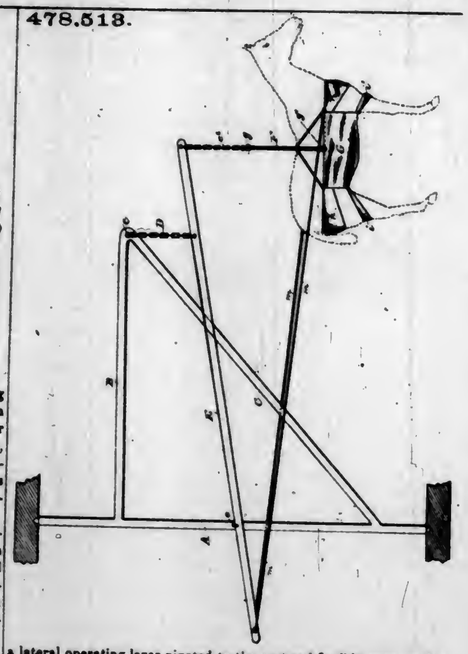
2. The combination, with an axle, of a wheel loose upon the axle and provided near its bore with a groove extending through the wheel and a collar outside the wheel and provided with a similar groove, substantially as and for the purpose specified.

3. The combination, with the axle having a convex shoulder, of a wheel having oil-passages and a circumferential concavity to form a chamber, substantially as and for the purpose specified.

478,513. APPARATUS FOR TRAINING ANIMALS. CHRISTOPHER C. KELLY, New York, N. Y., assignor to John C. Kelly, Denver, Colo. Filed July 9, 1890. Serial No. 358,131. (No model.)

Claim.—1. An apparatus for training animals, comprising a pivoted vertical post or support having a lateral arm extending therefrom,

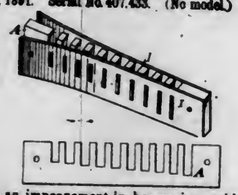
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a lateral operating-lever pivoted to the post and flexibly connected to the end of the lateral arm, said operating-lever having at its front end a flexible swiveled chain or rope carrying a sling for supporting the animal, and ropes or chains connected with the sling and extending to the rear end of the operating-arm, substantially as described.

2. An apparatus for training animals, comprising a pivoted vertical post or support having a lateral arm extending therefrom consisting of a horizontal member and a diagonal brace, a lateral operating-lever pivoted to the post and flexibly connected to the end of the lateral arm, said operating-lever having at its front end a flexible swiveled chain or rope carrying a sling for supporting the animal, ropes or chains connected with the sling and extending to the rear end of the operating-arm, and bands secured to the sling and adapted to support the animal, whereby the animal may be suspended and moved and turned in different directions, substantially as described.

478,514. HARMONICA. LESTER G. LAWRENCE, Chicago, Ill., assignor of two-thirds to A. O. Cooper and Ed. L. Bradbury, same place. Filed Oct. 1, 1891. Serial No. 407,433. (No model.)



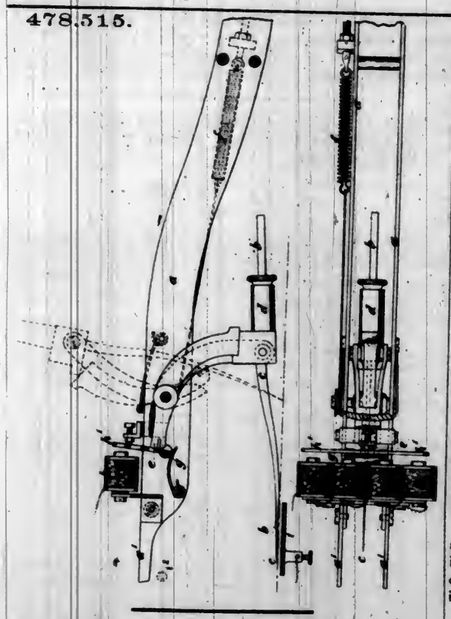
Claim.—As an improvement in harmonicas, which are provided with metal frame-plates, the combination, with such metal frame-plates, of reed-plates, which are bent longitudinally to give the faces which are to lie on the frame-plate convex contours, the convex faces being sprung flat on the opposite sides of the frame-plate and secured to the ends of said plate by screws or bolts, as and for the purpose specified.

478,515. APPARATUS FOR CUTTING PILE FABRICS. JOHN J. MANN, Salford, England. Filed Apr. 9, 1892. Serial No. 428,470. (No model.)

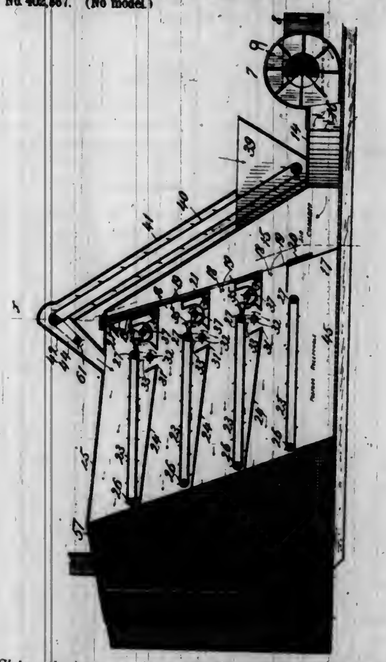
Brief.—If the knife cuts the fabric, an electric circuit is closed and causes the movement of the knife to free itself from the cloth.

Claim.—A pile-cutting knife having a handle and movable cutter and a trigger to normally hold the cutter in position, with electro-magnetic devices to release the trigger and free the knife when the latter passes through the cloth, substantially as described.

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478,516. PNEUMATIC GRADING AND SORTING MACHINE. HERMAN O. MOONEY, Farmington, N. H., assignor to the United States Down Extractor Company, same place. Filed Aug. 17, 1891. Serial No. 402,867. (No model.)



Claim.—1. Apparatus for pneumatic grading and sorting, comprising an air-blower, an air-distributing chamber into which said blower discharges, a series of conveyers arranged one above the other and separated by intervening air-passages leading from the air-distributing chamber, a depositing-chamber into which said passages discharge, and a feeding device for supplying the material to the upper conveyer, substantially as described.

2. Apparatus for pneumatic grading and sorting, comprising an air-blower, an air-distributing chamber into which said blower discharges, a series of conveyers arranged one above the other and separated by intervening air-passages leading from the air-distributing chamber, a depositing-chamber into which said passages discharge, and a feeding device for supplying the material treated to the upper conveyer, and an exhaust-fan from the depositing-chamber, the exhaust-fan inlet being screened, substantially as described.

3. Apparatus for pneumatic grading and sorting, comprising an air-blower, an air-distributing chamber into which said blower discharges, a series of conveyers arranged one above the other and separated by intervening air-passages leading from the air-distributing chamber, and adjustable gates for varying the inlets of said passages, and a feeding device for supplying the upper conveyer with the material to be treated, substantially as described.

4. Apparatus for pneumatic grading and sorting, comprising an air-blower, an air-distributing chamber into which said blower discharges, a series of conveyers arranged one above the other and separated by intervening air-passages leading from the air-distributing chamber, and beater-shafts located in the path of discharge from one conveyer to the next in the series, and a feeding device for supplying the material to be treated to the upper conveyer, substantially as described.

5. Apparatus for pneumatic grading and sorting, comprising an air-blower, an air-distributing chamber into which said blower discharges, a series of conveyers arranged one above the other and separated by outwardly-flaring air-passages leading from the air-distributing chamber, and a feeding device for supplying the upper conveyer with the material to be treated, substantially as described.

6. Apparatus for pneumatic grading and sorting, comprising an air-blower having a regulating-damper, an air-distributing chamber into which said blower discharges, and a series of conveyers arranged one above the other and separated by intervening air-passages leading from the distributing-chamber, substantially as described.

7. In apparatus for pneumatic grading and sorting, the combination, with a conveyer, of an air-blower furnishing an air-current above the upper surface of the conveyer at the discharge end thereof and a winged shaft at the discharge end of the conveyer for throwing the material up into the air-current, substantially as described.

8. In apparatus for pneumatic grading and sorting, the combination, with a conveyer, of an air-blower furnishing an air-current above the upper surface of the conveyer at the discharge end thereof, and a winged shaft at the discharge end of the conveyer for throwing the material up into the air-current, and a trough in which said winged shaft is located, said trough having an adjustable side, so as to either receive the material from the conveyer or not, according to its position of adjustment, substantially as described.

9. In apparatus for pneumatic grading and sorting, the combination, with a conveyer, of an outwardly-flaring air-passage above the upper surface of the conveyer, an air-blower communicating with the air-passage at the discharge end of the conveyer, and a feeding device for supplying to the conveyer the material to be treated, substantially as described.

10. In an apparatus for pneumatic grading and sorting, the combination, with the depositing-room and its exhaust-fan, of a two-part screen interposed between the exhaust fan and the main-room space and means for cutting off communication between the fan and either screen, substantially as described.

11. In apparatus for pneumatic grading and sorting, the combination, with the depositing-room and its exhaust-fan, of a damper-box communicating with the fan and having two openings provided with separate dampers and separated by an intervening partition extending from top to bottom of the room and removable screens, one on each side of the partition, substantially as described.

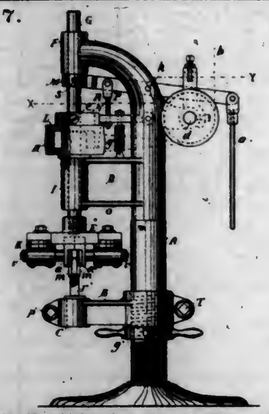
12. In apparatus for pneumatic grading and sorting, the combination, with the depositing-room, its exhaust-fan, and screens, of a door or window adapted to be opened to supply additional air to dilute the dust-laden air of the depositing-room, and thereby facilitate its passage through the screens, substantially as described.

13. In apparatus for pneumatic grading and sorting, the combination, with an air-blower provided with a regulating-damper, a conveyer having an air-passage above its upper surfaces, communicating with the air-blower, a feeding device for admitting the material to be treated into the air-current above the conveyer, a depositing-room beyond the conveyer, and an exhaust-fan leading from the depositing-room and provided with a damper, substantially as described.

478,517. MACHINE FOR CLOSING THE EDGES OF STUDS, &c. FRANK MOSSBERG, Attleborough, Mass., assignor, by direct and mesne assignments, to the Mossberg Manufacturing Company, same place. Filed Apr. 27, 1891. Serial No. 390,565. (No model.)

Claim.—1. The combination of the standard A, supporting the operating parts, an arbor G, held in bearings on arms attached to said

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standard, a pulley H, held loosely on the arbor G, a collar L, sliding with spline on the arbor G, a collar M, held loosely in a recess in the arbor G, a lever P, pivoted to the standard A and connected with the collar M, a lever N, pivoted to standard A and connected with the lever P by a rod R, the rod R, and a chuck-plate E, fast on the arbor G and carrying the devices for closing the edges of the studs, substantially as described.

2. In a machine for closing the edges of studs and like articles, the combination of the arbor G, plate E, fast thereon and having the blocks K adjustably secured thereto, pistons *n*, sliding in said blocks, and pins *m*, carried by said pistons and having rolls *d'* attached to them, substantially as and for the purpose specified.

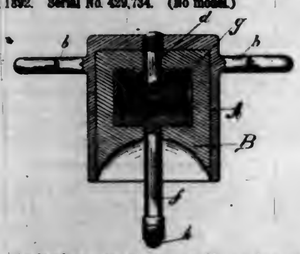
3. A chuck for rolling over the edges of studs and like articles, consisting of a plate E, having blocks K adjustably secured thereto and capable of being set at an angle to the radius of said chuck, and pistons sliding radially in said blocks, with springs to press the pistons in toward the center, and pins *m*, having a limited rotary motion, held in said block, with small turning-rolls pivoted on the sides of said pins, and devices, substantially as described, to limit the motion of said pistons, substantially as herein set forth.

4. A chuck for rolling over the edges of studs and like articles, consisting of a plate having blocks adjustably secured thereto and pistons sliding in said blocks, carrying rolls having a short lateral motion, substantially as herein set forth.

5. In a machine for closing the edges of studs and like articles, a mandrel to hold the stud, having a head with the same contour as the shape of the head of the stud to be closed and recessed in its end to hold a stud or like article, said mandrel being held stationary in an arm on standard A, in combination with rolls having an axial motion to and from the mandrel and a short freedom of motion laterally, substantially as and for the purpose set forth.

6. In a machine for closing the edges of studs and like articles by means of rolls, a mandrel to hold the stud, having a head with the same contour at its periphery as the head of the stud to be closed, said mandrel being held stationary in an arm on the standard A, in combination with rolls for closing the edges, held on studs in carriages sliding to and from the mandrel in supports adjustably secured to the chuck E, said studs having a bearing against the guiding-head of the mandrel to control the radial movements of the carriages, according to the shape of the head of the stud-button operated on, substantially as set forth.

478,518. INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed Apr. 19, 1892. Serial No. 429,734. (No model.)



Claim.—An insulator comprising metallic portions separated by an interposed series of sheets of mica compressed together, securing devices by which said metallic portions and said mica are secured together, a mass of insulating material in which said metallic portions and said sheets of mica and their securing devices are embedded, and an outer metallic covering or case, substantially as shown and described.

478,519. LACING FOR SHOES OR OTHER ARTICLES. FRANKLIN S. MCKENNEY, Detroit, Mich. Filed Sept. 22, 1890. Serial No. 365,709. (No model.)



Claim.—1. A loop-fastener blank consisting of a base having an aperture *b* and attaching-prongs thereto, and a tongue *b'*, having a rounded terminal recess b^3 in its edge, the terminal end being adapted to be bent over and secured by an eyelet passed through the said aperture, substantially as set forth.

2. The loop-fastening herein described, consisting of an eyelet and a loop-shank constructed with an orifice to receive the eyelet, a tongue provided with a rounded terminal recess, and integral points, said tongue bent over toward said orifice to form a loop, substantially as set forth.

478,520. HOOK AND FASTENING FOR GLOVES, SHOES, &c. FRANKLIN S. MCKENNEY, Detroit, Mich. Filed Jan. 15, 1891. Serial No. 377,823. (No model.)



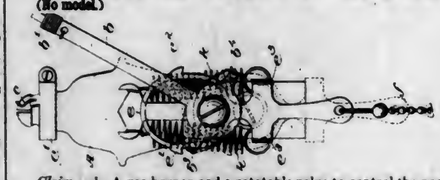
Claim.—A fastening consisting of a head and a body portion A^2, curved under the head and provided with curved inwardly-projecting arms *a a'* and with a downwardly-projecting extension A^4, which is bent back beneath the body portion A^2 to form a pocket B and thence into a convolute form.

478,521. LACING-STUD. FRANKLIN S. MCKENNEY, Detroit, Mich. Filed Feb. 27, 1891. Serial No. 383,031. (No model.)



Claim.—A lacing-hook for gloves, shoes, and other articles of wearing-apparel, of wire, consisting of a head, an inverted-cup-shaped shoulder *a*, formed from the wire, a stem a^2, projecting downward from said shoulder, and a flat spiral A^2, projecting laterally from said stem.

478,522. GAS-LIGHTING DEVICE. DAVID J. QUINN, Brookline, and PAUL W. HOFFMANN, Boston, Mass., assignors to the Iona Manufacturing Company, of Maine. Filed Nov. 27, 1891. Serial No. 413,290. (No model.)



Claim.—1. A gas-burner and a rotatable valve to control the passage of gas thereto, a spark-arm fast on and movable with said valve, and a co-operating fixed contact, combined with a reciprocating actuating device for said valve and spark-arm, substantially as described.

2. A gas-burner and a rotatable valve therefor, a pivoted spark-arm provided with ears, and a co-operating fixed contact, combined with a frame having projections to engage the said ears, respectively, on alternate downward movements of said frame to oscillate said valve and arm, substantially as described.

3. A gas-burner, a rotatable valve therefor, a pivoted spark-arm provided with diametrically-opposite ears, and a co-operating fixed contact therefor, combined with a frame spanning said valve and having projections upon its opposite sides to engage the said ears to oscillate the said valve and arm when the frame is drawn down, and a spring to return said frame to its normal position, substantially as described.

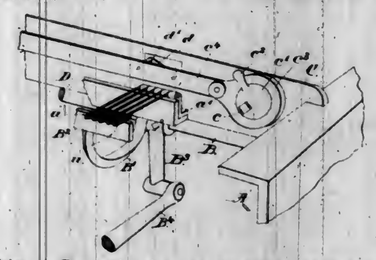
4. A gas-burner, a rotatable valve therefor, a pivoted spark-arm provided with ears, and a co-operating fixed contact therefor, combined with a frame *c*, having projections to engage said ears and having the guide-arms c^2, substantially as described.

5. A gas-burner, a rotatable valve therefor, an arm fast on said valve and provided with inturned ears, the plate b^2, and a fixed contact to co-operate with said arm, combined with the frame *c*, arranged between said arm and plate and having projections to co-operate with said ears and the springs *h*, substantially as described.

6. A gas-burner, a rotatable valve therefor, an arm fast on said valve and provided with inturned ears, the plate b^2, and a fixed contact to co-operate with said arm, combined with the frame *c*, arranged between said arm and plate and having projections to co-operate with said ears, the bracket *m*, and the springs *h*, substantially as described.

478,523. WARPING-MACHINE. ALONZO E. ROGERS, Hopedale, Mass., assignor to the Hopedale Machine Company, same place. Filed Mar. 11, 1892. Serial No. 424,502. (No model.)

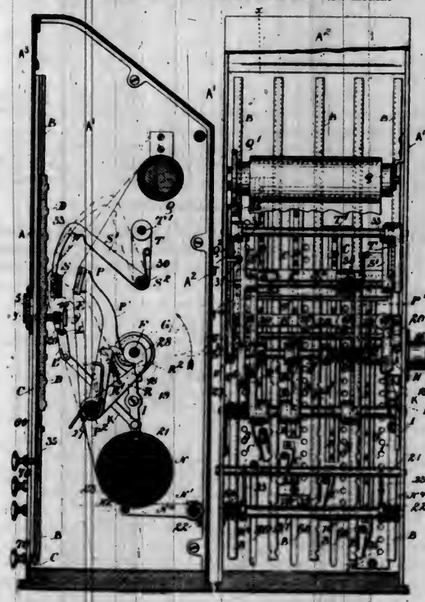
Brief.—Each drop-wire is attached to a separate foot, which feet are placed on an L-shaped holder and clamped in place by a bar pivoted on swinging links. The bar is actuated by suitable means, such as an eccentric.



Claim.—1. The combination, with the holder, a series of drop-wires, and a series of separate blocks or feet to which the said drop-wires are jointed, of a pivotally-supported locking-bar movable toward and from said blocks, thereby to co-operate with and keep the blocks or feet on the said holder, substantially as described.

2. The combination, with the holder, a series of drop-wires, and a series of blocks or feet to which the said drop wires are jointed, of a pivotally-supported locking-bar to co-operate with and keep the blocks or feet on the said holder, and devices to actuate said locking-bar on its pivotal supports to raise and lower it with relation to the said blocks, substantially as described.

478,524. COLUMN-PRINTING DEVICE. WILLIAM W. ROSENFIELD, New York, N. Y., assignor to the Empire Cash Register Company. Filed Apr. 15, 1891. Serial No. 389,003. (No model.)



Claim.—1. The combination, in a registering apparatus, of slides having visible characters, corresponding types connected to and moving with the character-slides, automatic locking mechanism for holding the types and characters firmly when the instrument is not in use, and a handle and mechanism therewith connected for first effecting the printing and afterward withdrawing the locking mechanism, the automatic locking mechanism coming into action for holding the slides upon the handle being released, substantially as set forth.

2. The combination, in a registering apparatus, of visible characters and their movable holders, types corresponding to the characters and connections for moving the two simultaneously, an automatic locking mechanism for holding the types and characters rigidly in their normal condition when the machine is not in use, an inking mechanism and a printing mechanism, and a handle and the connections therefrom to the inking, printing, and locking mechanism, substantially as specified, whereby the handle when moved first brings into action the inking mechanism, then the printing mechanism, and then the unlocking mechanism, and the visible characters cannot be moved until an impression has been taken and the locking mechanism comes into action automatically upon releasing the handle, substantially as set forth.

3. The combination, in a registering apparatus, of a case with an opening, slides within the case having characters visible through the opening and corresponding types upon the slides, a printing mechanism, an automatic locking mechanism, a handle, and means for returning the same to its normal position when unacted on, a connection from the handle to the printing mechanism for effecting an impression, and a connection from the handle to the unlocking mechanism for releasing the slides after the printing has been effected, substantially as set forth.

4. The combination, in a registering apparatus, of a case with an opening, slides within the case having characters visible through the opening and types upon the backs of the slides, a printing mechanism, a handle and connections from the same to the printing mechanism, and an automatic locking mechanism for holding the slides in their normal position when the handle is released, substantially as set forth.

5. The combination, in a registering apparatus, of a case with an opening, movable slides behind the opening having visual characters and corresponding printing-types, an inking-pad and its bolding-arms and rock-shaft, a printing-pad and its actuating-cam, locking-pins and lever connections for withdrawing the same, an actuating-shaft carrying the operative cams, a crank-handle and clutch connection for giving motion to the actuating-shaft, and a spring for returning the handle to its normal position without turning back the actuating-shaft, substantially as set for forth.

6. The combination, in a register, of an inclosing case with an opening, an actuating-shaft, handle and clutch for rotating such shaft progressively, cams upon such shaft, slides with visible characters and corresponding printing-types, adtomatic holding devices for retaining the slides when in position, mechanism for supporting a roll of paper and moving the same progressively, a printing-pad, and lever connections for actuating the same, substantially as set forth.

7. The combination, in a registering apparatus, of a case with an opening, slideways and slides within the case, having characters visible through the opening, type upon the backs of the slides, automatic locking mechanism for holding the slides in position, a printing mechanism, a shaft, a handle upon the same, and clutch mechanism for rotating the shaft progressively by the action of the handle, cams and connections from the shaft for first actuating the printing mechanism and then withdrawing the automatic locking mechanism to allow the slides to be moved, a paper-feeding mechanism, and a spring to return the handle when liberated to its normal position, substantially as set forth.

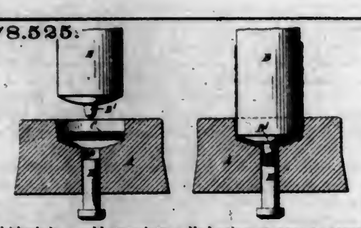
8. The combination, in a registering mechanism, with the types and the corresponding visual characters and the devices for carrying the same, of an impression mechanism, a shaft and connection from the same to the impression mechanism, a handle capable of being turned first in one direction and then the other, and a clutch mechanism between the handle and the shaft acting in one direction, whereby the shaft receives from the handle a rotary movement in one direction only and cannot be moved backwardly by the handle, substantially as set forth.

9. The combination, with the inking-pad, of arms carrying such pad, a rock-shaft and levers to which the arms are pivoted, a cam for acting upon the arms to swing them and the inking-pad into or out of position for use, and a cam to press the pad to the types and allow it to be drawn back therefrom, substantially as specified.

478,525. PROCESS OF MANUFACTURING COLLAPSIBLE TUBES. HENRY C. SANDERS, London, England. Filed May 26, 1891. Serial No. 394,230. (No model.) Patented in England Jan. 3, 1890, No. 3,243.

Claim.—1. The herein-described method of making an ornamental collapsible tube or soft-metal tubular case, consisting in placing a soft-

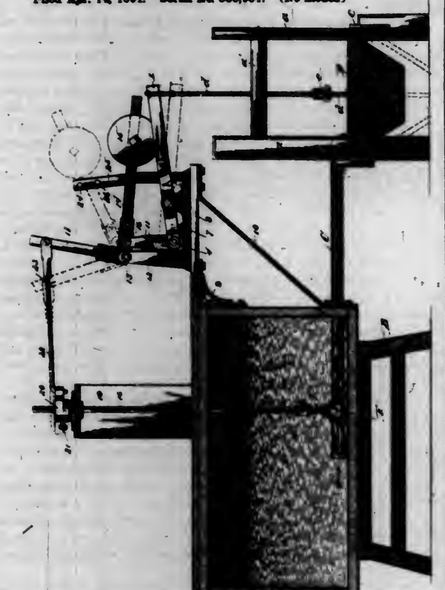
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metal blank in a cold state into a die having grooves or corrugations around its operative wall or edge and then forcing a punch into the metal in the die, so as to squeeze the said metal out through the annular space between said punch and the grooved wall or edge of the die, substantially as described.

2. The herein-described method of making an ornamental tube, consisting in placing a soft-metal blank in a cold state into a die having grooves or corrugations around its operative edge and then forcing a punch into the metal in the die, so as to squeeze the said metal out through the annular space between the said punch and the grooved wall or edge of the die, leaving sufficient metal in the die to form a closed end to the tube, which, if desired, can be afterward partially removed to form an internal flange, substantially as described.

478,526. WATER-SUPPLY REGULATOR. FREDERICK G. SCHUERMAN, Twin Bluffs, Wis., assignor to Schuerman Brothers, same place. Filed Apr. 14, 1891. Serial No. 388,951. (No model.)



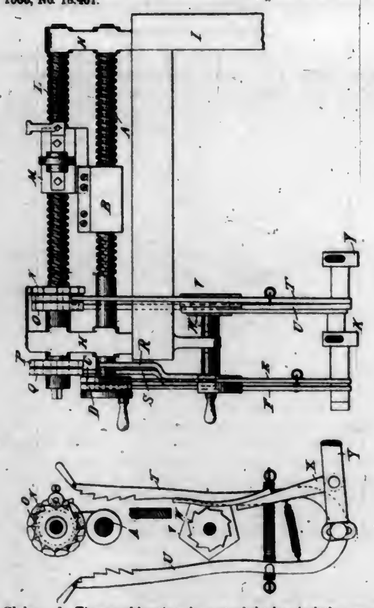
Claim.—1. The combination, in a water-supply regulator, of two bell-crank levers, separate pivots therefor, a pivot between an arm of one of said levers with the arm of the other lever, a trough suspended from one of said bell-cranks, a weight upon one arm of the other bell crank, a valve, a valve-stem, a crank-arm upon said valve-stem, and a rod connecting said bell-crank with the remaining arm of the bell-crank lever, substantially as described.

2. In a water-supply regulator, the combination of two bell-crank levers pivoted together upon different axes, a trough suspended from one of said levers, an adjustable weight upon the arm of the other lever, a valve, and an adjustable connection between an arm of said latter lever and valve, substantially as described.

3. In a water-supply-regulating device, the trough D, the suspending-arms therefor, and the guard-frame therefor, comprising the posts A, bar *a'*, and board C at the front thereof opposing the trough, substantially as described.

4. The combination, in a water-supply regulator, of two bell-crank levers, each having a short and a long arm, a standard in which one of said levers is pivoted, an adjustable weight on the long arm of said pivoted lever, and said long arm being pivoted to the short arm of the other lever between said weight and standard, a stock-watering trough suspended from the long arm of said other lever, and a valve connected to the short arm of the weighted lever, both of said long arms being arranged on the side next to the trough, substantially as set forth.

478,527. FASHIONING APPARATUS FOR STRAIGHT-KNITTING MACHINES. GEORGE SAWYER, Nottingham, England. Filed Oct. 22, 1889. Serial No. 327,868. (No model.) Patented in England Dec. 18, 1888, No. 18,461.



Claim.—1. The combination, in a straight-bar knitting-machine, of the lengthened brackets H, screws A and L, respectively carrying selvage-stops B and fastening-box M, and pawls and ratchet-wheels for operating said screws, substantially as described.

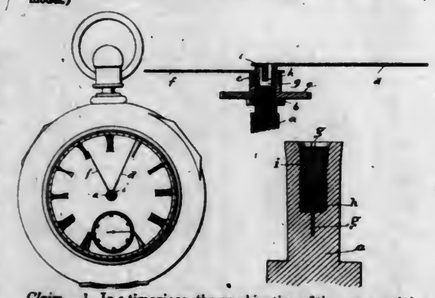
2. The combination of the screws and their ratchet-wheels with the clawkers E and F, having attached thereto the clawkers R and S to move the screws at the same time, substantially as described.

3. The combination of the clawkers U and T with the cam V, ratchet-wheel W, and pawl X to control said clawkers, substantially as described.

4. The combination of shaft E and wide sets of points c, hinged thereto, with selvage-points *b* and screws *d* to connect said wide points and selvage-points, substantially as described.

5. The combination of screw A and selvage-stop B with screw L, box M, ratchet-wheels N and O, and clawkers U and T to revolve said screw L independently of said screw A, substantially as described.

478,528. CENTER ARBOR FOR WATCHES. NATHANIEL A. TERRELL, Charlottesville, Va., assignor to himself, T. S. Keller, and John Arundale, same place. Filed Sept. 10, 1890. Serial No. 364,560. (No model.)

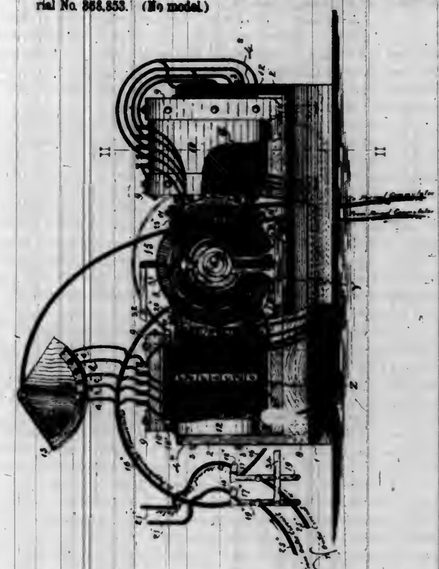


Claim.—1. In a timepiece, the combination of the cannon-pinion,

the center arbor having its outer end split, tapped longitudinally, and countersunk, forming the threaded opening, and the tapered headless continuously-threaded screw fitted in said opening and so proportioned in relation to said opening as to expand the arbor when the screw is forced in.

2. The combination, in a cannon-pinion tension for watches, of the central arbor having the internally-screw-threaded bore and longitudinally split to a point below said bore and countersunk, and a tapered screw so proportioned to fit the bore of the arbor when expanded, substantially as described.

478,529. DYNAMO-ELECTRIC MACHINE. CHARLES W. THOMAS, Jersey City, N. J., assignor of part to Philip Van Volkenburgh, New York, and John H. Pendleton, Brooklyn, N. Y. Filed Oct. 21, 1890. Serial No. 368,853. (No model.)



Claim.—1. A duplex commutator of electric currents, which consists of a series of long insulated segments alternated with pairs of short segments in two different planes and having diametric connection, in combination with two pairs of brushes for conversion of a continuous into an alternating current, and vice versa, substantially as set forth.

2. In a dynamo-electric machine, the combination, with a continuous-current commutator, of the optionally-included supplemental commutator Y, having two pairs of brushes, of which one pair connects with the armature through the normal commutator and the other pair connects with the outer circuit, said supplemental commutator having long segments which communicate direct from a brush of the interior pair to one of the exterior pair, so as to transmit direct current, and interposed short segments which communicate in reverse diametrically through the commutator and transmit reverse currents.

3. An attachment for a dynamo-electric machine of shunt-type, consisting of a supplemental commutator in which for each long segment there are two interposed short segments in two separate planes of rotation, all of said segments revolving with and being insulated from the armature-winding and (except as to the diametrically-paired short segments) from each other.

4. In a dynamo-electric machine having the field-magnet and armature in shunt of one another, the combination, with a normal commutator thereof, of a supplemental commutator whose segments connect with the armature-winding only through said normal commutator, the segments of said supplemental commutator consisting of long and intervening pairs of short segments arranged in two separate planes of rotation, all of said segments (except the diametrically-paired short ones) being insulated from one another.

5. The means whereby a continuous-current dynamo-electric machine can be converted at will into an alternate-current machine, and vice versa, said means consisting of the combination of the supplemental commutator whose electrical connection with the armature is wholly through the normal commutator, said supplemental commutator having arranged alternately upon it long segments and interposed couples of short diametrically-connected segments, two pairs of brushes in two separate planes, of which one pair connects with the line and the other pair is capable of connection with the brushes of the normal commutator, and means for cutting said alternate-current devices out of circuit and for simultaneous direct connection of the line-wires with the normal brushes, and vice versa, substantially as set forth.

6. The means for discretionary change of a normally-continuous dynamo circuit to one transmitting alternate current, which consists of the combination, with the alternate or supplementary commutator composed of long segments 28 and of interposed diametrically-united short segments 29 29′ in two planes, of the respectively interiorly and exteriorly communicating pairs of pivoted brushes 20^+ 20^- 23^+ 23^-, a shifting ring 31, having link connection 33 with said brushes and with switches 19^+ 19^-, that connect with the brushes of the normal commutator, contact-plates 17^+ 17^-, that connect with the interiorly-communicating brushes 20^+ 20^- of the said supplementary commutator, and contact-plates 18^+ 18^-, which connect the normal commutator direct with the dynamo-circuit, the whole being arranged and operating substantially as set forth.

7. The combination of the metallic outer and motor circuits, the interposed duplex commutator or alternator, and a duplex switch by which such alternator is cut in or out of the said motor-circuit at will.

8. A polar limb or element Z of a dynamo-field, which consists of a grid-formed core, each of whose bars has a separate bobbin or winding, in the described combination with a general or enveloping winding.

9. In a dynamo-electric machine, a field-magnet having a series of cored bobbins, in combination with interposed oppositely-wound coreless bobbins, for the purpose set forth.

10. In a dynamo-electric machine, a field-magnet having a series of bobbins on iron cores parallel to the plane of the magnetic axis and the axis of armature rotation and in magnetic connection with pole plates and heads, in combination with interposed coreless and oppositely-wound bobbins, substantially as and for the purpose set forth.

11. In the field-magnet of a dynamo-electric machine, the combination, with a series of cored bobbins and interposed oppositely-wound coreless bobbins, of means for coupling such cored and coreless bobbins either in series or multiple, as set forth.

12. In a field-magnet of a dynamo-electric machine, the combination of two series of interior bobbins whose geometrical axes are all parallel to the magnetic axis—to wit, a series of cored and a series of interposed oppositely-wound coreless bobbins—a pole-plate and a head-plate in magnetic continuity with the bobbin-cores, an exterior bobbin or winding permanently in circuit, and means for cutting one or more pairs of said interior bobbins in or out of circuit.

13. In a field-magnet of a dynamo-electric machine, the combination of two series of interior bobbins arranged in pairs—namely, a series of cored bobbins and a series of oppositely-wound coreless bobbins—an encircling exterior bobbin permanently in circuit, and means for placing one or more pairs of said interior bobbins in circuit and in serial or multiple connection with such exterior bobbin.

14. A grid-formed field-magnet core which consists of parallel and detachable I-formed component plates or layers in planes parallel to the magnetic axis and to the axis of armature rotation.

15. A grid-formed field-magnet which consists of a bundle of separate I-formed plates constituting the cores proper and contiguous portions of the pole-plates, said I-formed plates being in planes parallel to the magnetic axis and to the axis of armature rotation and carrying the bobbins proper, in combination with interposed oppositely-wound coreless bobbins, the whole being inclosed by an exterior winding, substantially as set forth.

16. A multiple field-magnet having an external and an interior winding, the external winding being of coarser wire than the interior winding.

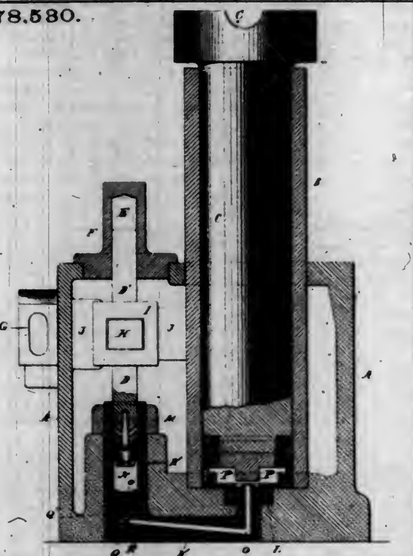
17. A multiplex field-magnet having cored bobbins and having interposed coreless bobbins differentially wound with wire of a coarser grade.

18. A faradic shocker in which, combined with an internal closed circuit 59 and an external normally-open circuit 57, having handles 58, both circuits having suitable collectors 20^+ 20^- 23^+ 23^-, is the manually-rotatable duplex alternator Y, having long segments 28 and interposed diametrically-connected short segments 29 29′ in different planes of rotation, substantially as set forth.

478,530. HORIZONTAL HYDRAULIC JACK. JOHN WEEKS, New York, N. Y., assignor to Richard H. Dudgeon, same place. Filed Jan. 12, 1892. Serial No. 417,793. (No model.)

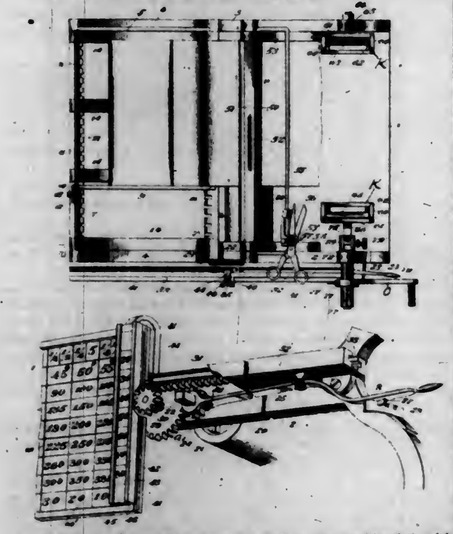
Claim.—1. In a horizontal jack or like apparatus, the combination of a base for the apparatus, made of a single casting and having a recess therein which connects with the force-chamber at one part and with the reservoir at another part, a pump block within the said recess and confined therein, said pump-block having a pump-cavity, a passage connecting the pump-cavity with the force-chamber of the ram, and a backflow-passage connecting with said passage in the block and with the reservoir and a valve for said backflow-passage, substantially as set forth.

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2. In a horizontal jack or like apparatus, the combination of a base for the apparatus, made of a single casting and having a recess therein which connects with the force-chamber at one part and with the reservoir at another part, a pump-block within the said recess and confined therein, said pump-block having a pump cavity, a passage connecting the pump-cavity with the force chamber of the ram, and a backflow-passage connecting with the said passage in the block and with the reservoir and a valve for said backflow-passage, and a rod connected with said valve and projecting to the outside of the jack, whereby said valve is controlled, substantially as set forth.

478,531. CLOTH-MEASURING MACHINE. GEORGE L. WILCOX, HENRY F. HALLENBECK, and TIMOTHY WANDELL, Albany, Oreg. Filed July 23, 1891. Serial No. 400,510. (No model.)



Claim.—1. In a cloth-measuring machine, the combination, with a measuring-roller and drawing devices, of a basket comprising cross-bars supported by the frame and connected by curved straps, said bars having notches, an end piece at one end of said bars, and a partition within the basket, its ends engaging said notches and adjustable in the length of the bars, substantially as described.

2. In a cloth-measuring machine, the combination, with a roller and measuring devices driven thereby, of a basket comprising end pieces, notched cross-bars connecting them, a rod also connecting them above one bar, a block movable on said rod and adjustable by a set-screw, curved straps connecting said bars, an end piece at one end of the basket, and a partition having tongues at its ends, one of which engages a notched bar and the other of which slides on said rod, substantially as described.

3. In a cloth-measuring machine, the combination, with a base having end frames and a basket on the base, of a cloth-roller whose shafts are journaled in said frames, one of said shafts being squared, a gear-wheel loosely mounted on said shaft, shifting mechanism for said gear-wheel, and measuring devices connected with this wheel by an idle-gear engaging the wheel when the latter is in one of its adjusted positions, substantially as described.

4. In a cloth-measuring machine, the combination, with a cloth-roller, one of whose shafts is squared, a gear-wheel loosely mounted thereon, and shifting mechanism for said gear-wheel, of a large idle-gear having a small pinion on its shaft, a rack-bar engaging said pinion and sliding in the casing, a table, and an arm on said rack-bar moving over the table, substantially as described.

5. In a cloth-measuring machine, the combination, with a cloth-roller having a gear-wheel on its shaft, a large idle-gear meshing therewith, and a small pinion on the shaft of this idle-gear, of a longitudinally-slotted casing, a rack-bar moving therein and in mesh with said pinion, a table, and an arm projecting from said rack-bar through the slot in the casing and moving over the table, substantially as described.

6. In a cloth-measuring machine, the combination, with the cloth-roller, a pinion connected to its shaft, and a rack-bar moved longitudinally by said pinion, of an arm projecting from said rack-bar and marked with various prices per yard, and a table beneath said arm marked opposite each price with the prices of several yards and fractions thereof, substantially as described.

7. In a cloth-measuring machine, the combination, with a cloth-roller, an arm driven thereby, and a strip removably secured to said arm and marked with various prices per yard, of a plate beneath the arm and a card removably attached to the plate and marked with a table giving opposite each price-mark on said strip the prices of several yards and fractions thereof, substantially as described.

8. In a cloth-measuring machine, the combination, with the cloth-roller, a pinion connected to its shaft, and a rack-bar moved longitudinally by said pinion, of an arm projecting from said rack-bar and having turned-over edges, a strip removably secured beneath said edges and marked with various prices per yard, a plate beneath the arm, having turned-over edges, and a card removably inserted beneath said edges and marked with a table giving opposite each price-mark on said strip the prices of several yards and fractions thereof, substantially as described.

9. In a cloth-measuring machine, the combination, with the cloth-roller, a ratchet connected therewith, and a pawl engaging said ratchet, of a pinion engaging a rack-bar, an arm connected to said rack-bar, a table over which said arm moves, connections between said roller and pinion, and a shifting device for throwing said connections out of gear, as and for the purpose set forth.

10. In a cloth-measuring machine, the combination, with the cloth-roller and measuring devices driven thereby, of a swinging frame pivoted to the frame of the machine, a presser-roller in said swinging frame resting normally upon the cloth-roller, a guide connecting the sides of this frame in rear of and parallel with the rollers, and a scissors-clamp sliding on said guide, substantially as described.

11. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of a crank-shaft journaled in the frame of the machine, a clamp detachably connected to said shaft, and a clamp journaled in a frame opposite said crank-shaft, each clamp comprising U-shaped ends connected by a rear cross-web, curved arms centrally pivoted inside the lower ends, and cross-bars connecting the ends of said arms, as and for the purpose set forth.

12. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of a clamp journaled in the end frame of the machine, a crank-shaft also journaled in the end frame opposite said clamp and having a hollow body, and another clamp having a squared shaft detachably engaging said body, the clamps being adapted for the reception of a winding-reel, substantially as described.

13. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of a clamp journaled in the end frame of the machine, a crank-shaft also journaled in the end frame opposite said clamp and having a head at its inner end provided with a hole opening through one side, a slide closing said open side, a winding-reel detachably secured in said clamp, and a square shaft connected with said reel and detachably mounted in said hole, as set forth.

14. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of a clamp journaled in the end frame of the machine, a crank-shaft also journaled in the end frame opposite said clamp and having a square hole through its body and a head at its inner end through one side of which said hole opens, a slide having tongues engaging grooves within the open side in said head, a handle connected to said slide and extending throughout the length of the crank-shaft beyond the crank, a winding-reel detachably secured in said clamp, and a square shaft connected with said reel and removably mounted in said hole, substantially as described.

15. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of a crank-shaft journaled in the frame and having a square hole through its body, a winding-reel, and a square shaft connected therewith and detachably mounted in said hole, as and for the purpose set forth.

16. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of eyes in the end frames of the machine opposite each other, a clamp having a stub-shaft journaled in one eye, a shaft journaled in the other eye and having a hole in its body, a set-screw through the inner end of said shaft into said hole, a crank on the outer end of said shaft, a set-screw holding it adjustably thereon, a winding-reel, and a square shaft connected therewith and extending into the inner end of the hole in said shaft substantially as described.

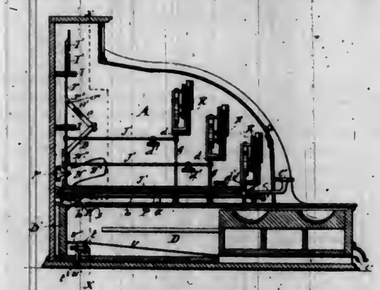
17. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of reel comprising end pieces connected at one end by a cross-piece and having longitudinal slots in their other end, clamping-bars whose extremities move in said slots, eccentric cams pivoted in said slots and one of them having a handle, a rod connecting the cams, so as to cause them to move in unison, and means for revolving said reel, as set forth.

18. In a cloth-measuring machine, the combination, with the cloth-roller and the measuring devices driven thereby, of a reel, clamping-bars therein at one side thereof, cams for operating said bars, a square shaft connected with and projecting from said reel, and a crank-shaft journaled in the frame and having a square hole through its body in which said shaft is removably seated, substantially as described.

19. In a cloth-measuring machine, the combination, with the cloth-roller and measuring devices driven thereby, of a clamp journaled in the end frame of the machine, a crank-shaft journaled in the other end frame opposite said clamp, another clamp having a shaft detachably connected with said crank-shaft, a reel detachably engaged by said clamps and having clamping-bars at one side thereof, and cams for operating them, substantially as described.

20. In a cloth-measuring machine, the combination, with the cloth-roller, a gear-wheel on the shaft thereof, a swinging frame, and a cutter-guide carried by the frame adjacent said roller, of a table, an arm moving over the same, a gear to which said arm is connected, connections between said gear and gear-wheel, and a shifting mechanism for throwing said connections into and out of operative position, substantially as hereinbefore set forth.

478,532. CASH-REGISTER. NAPOLEON B WRIGHT, Syracuse, N. Y., assignor of nine-twentieths to Charles H. Knapp and William J. Walters, same place. Filed Nov. 24, 1891. Serial No. 412,986. (No model.)



Claim.—1. A cash-register comprising a plurality of key-levers, separate registers connected to the respective key-levers to receive positive action thereby, supplemental levers acting independently of each other by the respective key-levers and having lost motion in their constructions, and indicating-slides each of which is actuated by one of the supplemental levers, as set forth.

2. In combination with key-levers *c c c*, pivoted at their rear ends, registers R R R, one for each of said levers, the plungers *g g g*, connecting the registers with the key-levers in front of their fulcrums, levers J' J' J', pivoted intermediate their lengths and actuated at their front ends by said plungers and connected at their rear ends to vertically-movable slides *r*, carrying indicator-disks I, and means for holding said slides when raised, substantially as shown and described.

3. In combination with the inclosing case, key-levers *c c c*, pivoted at their rear ends to the case, levers *b b*, extending from the rear to the front of the interior of the case and pivoted intermediate of their lengths, a cross-bar attached to the front end of the levers *b b* and extending across the entire series of key-levers to receive the pressure thereof, the levers J' J' J', fulcrumed intermediate of their lengths and connected at their front ends to the key-levers with a vertical lost motion between them, the indicating slides *r r*, connected, respectively, to the rear ends of the levers J' J' J', a bar extending across said slides and adapted to engage and release the same, and levers transmitting motion from the levers *b b* to the said bar, as set forth.

4. In combination with the key-levers *c c c*, pivoted at their rear ends, the levers J' J' J', actuated at the front ends by the respective key-levers, the indicating-slides *r r r*, connected to the rear ends of the levers J' J' J' and provided with the shoulders *r' r' r'*, the levers *b b*, pivoted intermediately of their lengths, the cross-bar *b''*, attached to the front end of the said levers and extending across the under side of the series of key-levers, the cross-bar *b'*, uniting the rear ends of the levers *b b*, the cross-bar *o''*, extending across the series of indicating slides and adapted to engage the shoulders thereof, and tripping-levers connected to said cross-bar and actuated by the rear cross-bar *b'*, substantially as set forth.

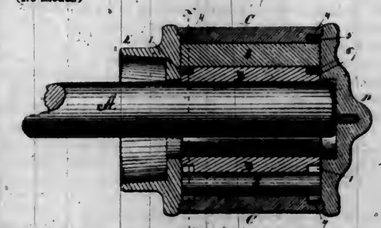
5. In combination with the case and the key-levers *c c c*, pivoted to the rear portion of said case, the levers J' J' J', actuated at their front ends by the key-levers, the indicating-slides *r r r*, connected to the rear ends of the levers J' J' J' and provided with the shoulders *r' r' r'*, the levers *b b*, pivoted intermediate of their lengths, the cross-bar *b''*, attached to the front ends of the latter levers and extending across the under side of the series of key levers, the cross-bar *b'*, attached to the rear ends of the levers *b b*, the lug *p*, fixed to the case, the arms N, riding on the cross-bar *b'* and provided with the cam N'', engaging the aforesaid lug, the bar *o''*, lying across the indicating-slides beneath the shoulders *r'* thereof, and levers connecting said bar to the arms N, substantially as described and shown.

6. In combination with the case A, drawer D, key-levers *c c*, and indicating-slides *r r r*, actuated by the said key-levers, the levers *b b*, cross-bars *b' b''*, attached to opposite ends of the latter levers and actuated by the key-levers, the cross-bar *o''*, adapted to engage and release the indicating-slides, levers transmitting motion from the cross-bar *b'* to the cross-bar *o''*, and the gravitating arm H, pivoted to the case and having its rear end adapted to support the rear cross-bar *b'* and its front end curved downward and upward and in the path of the rear wall of the drawer to be lifted by the closing of the drawer and thereby release the cross-bar *b'*, substantially as described and shown.

7. In combination with the indicating-slides *r*, provided with shoulders *r'*, and the key-levers *c c*, actuating said slides, the levers *b b*, actuated by said key-levers, the arms N, formed with the weighted supplemental arm N' and with the cam N'', the stationary lug *p*, engaging said cam, the levers *o*, pivoted to the case and movable longitudinally, the links B, connecting the lower ends of said levers to the arms N, and the cross-bar *o''*, connected to the upper ends of said levers and adapted to engage and release the shoulders *r'* of the indicating-slides, substantially as described and shown.

8. A cash-register comprising a series of key-levers, a separate register connected to each key-lever, a dial for each register, a plate for each dial, said plate being provided with an opening for exposing to view the figures on the dial, a supplemental lever for each key-lever, and an indicating-slide for each of said key-levers, each supplemental lever actuated by a key-lever and each slide by a supplemental lever, substantially as specified.

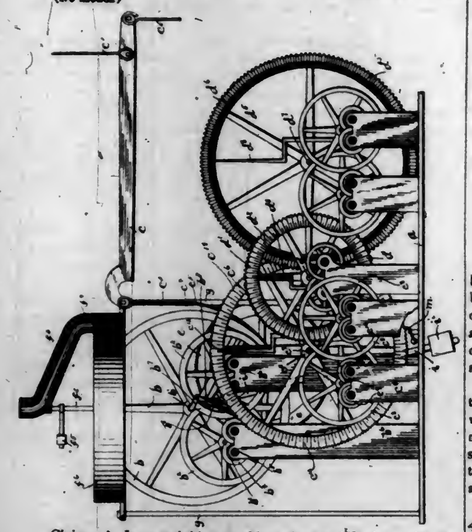
478,533. JOURNAL-BEARING. JAMES M. ANDREWS and MARION A. ANDREWS, Syracuse, N. Y. Filed June 19, 1891. Serial No. 396,841. (No model.)



Claim.—In a journal-bearing, the combination, with the axle, of a sleeve encircling it and provided with a central opening of much greater diameter than the axle, recesses exteriorly in the ends of said sleeve, an outer casing having interior recesses, anti-friction rollers interposed

between and bearing against said sleeve and the inner wall of the casing, loose rings upon the alternate rollers bearing against the adjacent rollers and lying in the recesses in the sleeve and fitting loosely in the recesses in the casing out of contact with said interior recesses, and caps, one closing the outer end of the casing and the other fitting loosely over the axle and closing the inner end thereof.

478,534. REGISTERING PENDULUM-SCALE. JAMES P. ARMSTRONG, Nelsonville, Ohio, assignor to Isaac F. Primrose, J. M. Hyde, and William G. Crook, same place. Filed Jan. 11, 1892. Serial No. 417,662. (No model.)



Claim.—1. In a weighing-machine, the combination, with the frame-work, a suspended scale-beam, a journaled power-wheel *b*, a crank on the shaft of said power-wheel, one or more pawls carried by said crank, a weight carried by said shaft, and a strap connection between the rear end of said scale-beam and said wheel *b*, of a register and ratchet wheel c^4, with the teeth of which said pawls are adapted to engage, as described, a graduated scale on said wheel-rim, and a stationary indicating-hand rising in front of said rim, substantially as and for the purpose specified.

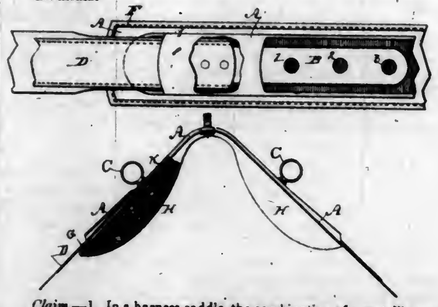
2. In a weighing-machine, the combination, with the frame-work, a suspended scale-beam, a journaled power-wheel *b*, a crank on the shaft of said power-wheel, one or more pawls carried by said crank, a weight carried by said shaft, and a strap connection between the rear end of said scale-beam and said wheel *b*, of a register and ratchet wheel c^4, with the teeth of which said pawls are adapted to engage, as described, a graduated scale on said wheel-rim, a stationary indicating-hand rising in front of said rim, a pinion on the shaft of said wheel c^4, a combination register and gear wheel d^4 engaging therewith, and a stationary indicating-hand d^5 opposite the scale-marks of said wheel d^4, substantially as and for the purpose specified.

3. In a weighing mechanism, the combination of the frame-work, a suspended beam, a journaled power-wheel *b*, a strap connection between said scale-beam and power-wheel, a crank b^{15} on the shaft of said power-wheel, pawls c^3, carried by said shaft, a weight i^3, depending from said shaft, and a register and ratchet wheel *e*, journaled adjacent to said pawls c^3, the latter adapted to engage with the teeth of said register and ratchet wheel *e*, substantially as and for the purpose set forth.

4. In a weighing-machine, the combination of the frame-work, a suspended scale-beam, a journaled power-wheel *b*, cranks b^7 b^{15} on the shaft of said power-wheel on the opposite side of the latter, one or more pawls carried by each of said cranks, a weight carried by said shaft, a strap connection between the rear end of said scale-beam and said wheel *b*, a register and ratchet wheel c^4, with which said pawls b^8 are adapted to engage, as described, and a register and ratchet wheel *e*, with which the pawls g^3 are adapted to engage, and stationary indicating-hands, as described, for each of said ratchet and register wheels, substantially as and for the purpose specified.

5. In a weighing-machine, the combination, with the frame-work, a suspended scale-beam, a journaled power-wheel *b*, a weight depending from the shaft thereof, and a strap connection between the scale-beam and wheel *b*, of an annular check-box f^6, having compartment f^7, a pivoted spindle or standard f^3, a check-tube f^2, supported thereby and adapted to be rotated therewith, a pinion-wheel on said spindle, and a check-segment with which said spindle is adapted to engage, substantially as and for the purpose specified.

478,535. HARNESS-SADDLE. ALONZO B. ARNOLD, Marshalltown, Iowa. Filed Mar. 10, 1890. Renewed Jan. 16, 1892. Serial No. 418,222. (No model.)



Claim.—1. In a harness-saddle, the combination of a metallic tree having suitable terret holes therein and an offset portion below said holes adapted to receive the upper end of the girth-strap and form a covering for the same, and a girth-strap having a metallic end piece attached thereto, the said end piece having holes therein adapted to coincide with those in the tree, whereby the girth is connected with and adjusted on the tree by the terret, substantially as described.

2. In a harness-saddle, the combination of a tree having suitable terret-holes therein, perforated cross-bars at the lower ends, a pad with holes in its housing coinciding with those in the tree and fixed nuts thereunder, suitable terrets and connecting-screws, and girth-straps having metallic end pieces provided with holes to receive the terrets, whereby pad and girths are made detachable and adjustable, as set forth.

478,536. TRANSFORMATION-BOX. CURTIS DUNHAM, New York, N. Y., assignor, by direct and mesne assignments, to John J. Wohltman and Albert L. Gibbs, same place. Filed Mar. 15, 1892. Serial No. 424,952. (No model.)



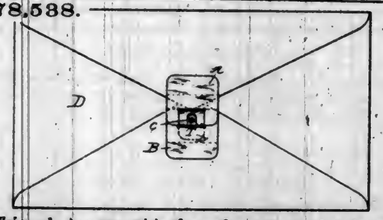
Claim.—In combination, a box having a fragmentary picture, the cover thereof, a reciprocating member adapted to hold said cover closed in one position and to permit said cover to open in another position, and a slide connected with said member and having a fragmentary picture adapted to combine with the fragmentary picture on the box, substantially as decribed.

478,537. PENCIL-HOLDER. OSCAR A. ELLIOTT, York, Nebr., assignor of one-half to Charles Fishbaugh, same place. Filed May 7, 1891. Serial No. 391,943. (Model.)



Claim.—A pencil-holder comprising an open-ended casing adapted to receive one or more pencils endwise and a series of springs extending across said casing and adapted to embrace the pencils or other articles inserted in the casing, substantially as set forth.

478,538. ENVELOPE-FASTENER. JOHN W. GIBBONEY, Lynn, Mass. Filed Feb. 4, 1892. Serial No. 420,295. (No model.)

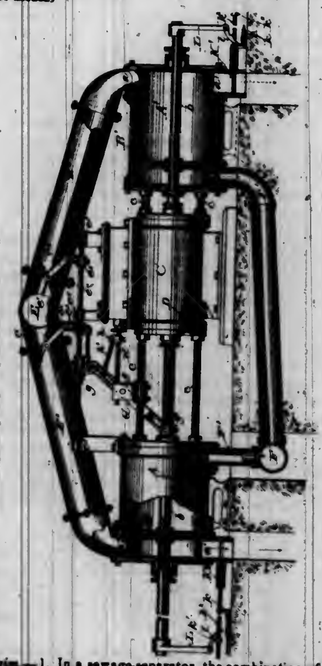


Claim.—1. As a new article of manufacture, an envelope-fastener consisting of two separable parts A and B, each made of a fibrous flexible material, such as paper or a cloth-backed paper, a slot S in the part A, a tongue T, extending from the part B and adapted to pass through the slot in the part A, a slot S′ in the part B, through which the free end of the tongue T may be passed under the part B and be pressed flat, and an adhesive gum on the surfaces of the parts A and B, whereby they may be attached to a wrapper or envelope in their engaged relation, substantially as shown and described.

2. An envelope-fastener consisting of two parts, each made of a flexible material, such as paper, a tongue formed integral with one part adapted to pass through a slot in the other part, and a slot in the tongued part, through which the free end of the tongue may be tucked under the body portion of such part and lie flat, as set forth.

3. The combination, in a separable envelope-fastener, of two parts, each made of a flexible fibrous material, such as paper, a tongue extending from one part and adapted to pass through a slot in the other part, a slot in the tongued part, through which the free end of the tongue may be tucked under the body of such part and be pressed flat, and an adhesive substance for securing said two parts to the envelope or wrapper.

478,539. SEWAGE SEPARATING AND PURIFYING APPARATUS. WILLIAM F. GOODRUE, Milwaukee, Wis., assignor of one-half to Christopher Paulus, same place. Filed Oct. 3, 1891. Serial No. 408,092. (No model.)



Claim.—1. In a sewage-separator, the combination of a cylinder or chamber connected at one end with a sewage-supply and having a sludge-discharge port at the same end and a liquid-discharge port at the opposite end, and a reciprocating screen-piston adapted to said cylinder or chamber, substantially as and for the purposes set forth.

2. In a sewage-separator, the combination of two cylinders or chambers connected at one end with the sewage-supply and having discharge-ports for the sludge and liquid at opposite ends thereof, reciprocating screens adapted to work within said cylinders or chambers, and valves adapted to admit the sewage alternately to said cylinders or chambers, substantially as and for the purposes set forth.

3. In a sewage-separator, the combination of two cylinders placed in line with each other and provided with reciprocating screens adapted to work within the same, a steam-cylinder provided with a piston connected with the rod upon which said screens are mounted and arranged to actuate the same, a sewage supply pipe or conduit connected with said separator cylinders, valves arranged to admit the sewage alternately thereto, liquid and sludge ports and connections at opposite ends of the cylinders, and sludge-valves arranged to be opened at the proper time to discharge the sludge from said cylinders, substantially as and for the purposes set forth.

4. In a sewage-separator, the combination of a separating chamber or cylinder provided with a reciprocating screen adapted to work therein and having sewage-supply and sludge-discharge ports at one end and a liquid-discharge port at the opposite end, a supply-valve, and a sludge-valve with mechanism arranged to open and close the same alternately, substantially as and for the purposes set forth.

5. In a sewage-separator, the combination of a separating-cylinder, a steam-cylinder placed in line therewith, a piston-rod common to said cylinders, a piston mounted upon said rod in the steam-cylinder, and a screen mounted thereon in the separator-cylinder, a sewage supply connection with one end of the separator-cylinder, a liquid-discharge connection with the opposite end of said cylinder, and a sludge-discharge valve communicating with the feed end of said separator-cylinder, substantially as and for the purposes set forth.

6. In a sewage-separator, the combination of a pair of separator-cylinders and an interposed steam-cylinder placed in line with each other and provided with a common piston rod, a piston mounted upon said rod in the steam cylinder, and screens mounted thereon in the separator-cylinders, a sewage-supply pipe connected by branches with said separator-cylinders, a liquid-discharge pipe or conduit connected by branches with the opposite ends of said cylinders, feed-valves placed in the branches of the supply pipe or conduit, and connections between said valves and the piston-rod, whereby they are alternately opened and closed and sewage is admitted first into one and then the other separator-cylinder, substantially as and for the purposes set forth.

7. In a sewage-separator, the combination of a separator-cylinder and a steam-cylinder located in line with each other and provided with a common piston-rod, a piston mounted upon said rod in the steam-cylinder, and a screen mounted thereon in the separator-cylinder, a supply-pipe connected with one end of the separator-cylinder and provided with a feed-valve, a liquid-discharge pipe or conduit leading out of the opposite end of said cylinder, and connections between said feed-valve and piston-rod, whereby the sewage is intermittingly admitted into said separator-cylinder, substantially as and for the purposes set forth.

8. In a sewage-separator, the combination of a cylinder provided with a reciprocating piston-rod and a screen mounted thereon within said cylinder, a sewage-supply connection provided with a feed-valve communicating with one end of said cylinder, a sludge-discharge port leading out of the same end of the cylinder and provided with a valve, and connections between the piston-rod and feed and discharge valves, whereby the latter are alternately opened, substantially as and for the purposes set forth.

9. In a sewage-separator, the combination of a separating cylinder or chamber provided with a reciprocating rod, a screen mounted upon said rod within said cylinder, a supply connection with one end of said cylinder, provided with a feed-valve, a sludge-discharge port opening out of the same end of the cylinder and provided with a valve, a spring normally closing said valve, and a hook pivoted to the piston-rod and arranged to engage with a projection on the sludge-valve stem so as to open said valve at the proper time, substantially as and for the purposes set forth.

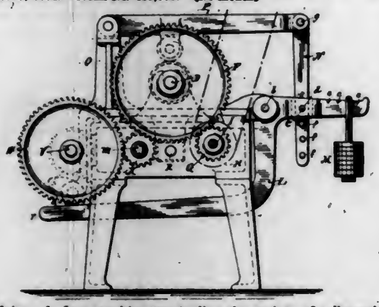
10. In a sewage-separator, the combination of a separating cylinder or chamber provided with a reciprocating piston-rod, a screen mounted upon said rod within said cylinder, a sludge-discharge port opening out of said cylinder and provided with a slide-valve, a spring normally closing said valve, a hook pivotally connected with said piston-rod and arranged to engage with a projection on said valve-stem and to open said valve, and a relatively fixed projection by which said hook is tripped and released from the projection on the valve-stem at the proper point, substantially as and for the purposes set forth.

11. In a sewage-separator, the combination of separator-cylinders, an interposed steam-cylinder in line therewith, a piston-rod upon which the steam-piston is mounted, screens mounted upon said piston-rod within the separator-cylinders, sewage-supply connections communicating with said cylinders and provided with feed-valves, a sliding rod connected with crank-arms on the feed-valve stems, and a lever pivotally connected at one end with the piston-rod and at the opposite end with said sliding valve-rod, substantially as and for the purposes set forth.

12. In a sewage-separator, the combination, with a steam-cylinder provided with a piston and piston-rod, of a separator-cylinder in line therewith, a screen mounted upon said piston-rod within the separator-cylinder, a sewage-supply pipe provided with a feed-valve, connected with one end of the separator-cylinder, a reciprocating rod parallel with said piston-rod and connected with a crank-arm on the feed-valve stem, a lever fulcrumed to a suitable support and pivotally connected with the piston-rod on the one hand and said sliding valve-rod on the other hand, and a rod connecting said lever with the stem of the steam-valve, substantially as and for the purposes set forth.

13. In a sewage-separator, the combination of a cylinder provided with an actuating-piston and piston-rod, a separator-cylinder, a screen mounted upon said piston-rod within said separator-cylinder, a sewage-supply connection with one end of the separator-cylinder, provided with a feed-valve, a reciprocating rod parallel with the piston-rod, adjustably connected with a crank-arm on the feed-valve stem, and a lever fulcrumed to an adjustable support and adjustably pivoted on opposite sides thereof to said piston-rod and reciprocating valve-rod, substantially as and for the purposes set forth.

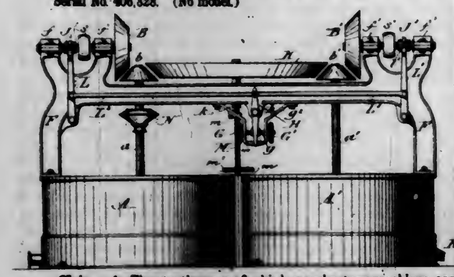
478,540. MACHINE FOR SHADING THE SURFACES OF CALICO-PRINTING ROLLS. GEORGE HANCOCK, Providence, R. I. Filed Dec. 3, 1891. Serial No. 413,899. (No model.)



Claim.—1. In a machine for shading the surface of calico-printing rolls, the combination, with means for rotating the printing-roll, of the sliding carriage, the shading-mill supported upon the sliding carriage and adapted to press against the surface of the roll, means for causing the traversing movement of the carriage, and the cam for raising and lowering the mill to produce the shading effect, substantially as described.

2. In a machine for shading the surface of calico-printing rolls, the combination, with the roll-supporting mandrel D and means for rotating the same, of the sliding carriage K, the screw R and nut S for causing the traverse of the carriage, the shading mill Q, the lever P, carrying the shading-mill, the weighted lever L, connected with the lever P, the pattern-cam B', adapted to actuate the lever P, and the connecting-gears for operating the cam, substantially as described.

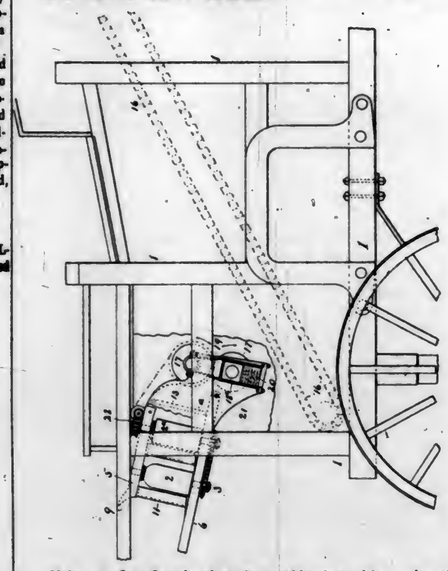
478,541. STARTING-GEAR FOR HIGH-SPEED ROTARY MACHINES. JOHN HEAD, King William's Town, Cape Colony, assignor of one-half to Henry O'Kelly Webber, same place. Filed Sept. 25, 1891. Serial No. 406,328. (No model.)



Claim.—1. The starting-gear for high-speed rotary machines, consisting in the combination, with the bevel-gear for driving alternately a plurality of such machines, of an independent bevel-wheel K, adapted to gear simultaneously with a plurality of driving-spindle cones, and disconnecting mechanism, substantially as set forth.

2. The combination, with the coned driving-spindles, driving-wheels B B', sliding shafts S S', levers H L L' L', and hand-gear G G' for operating same, of starting-wheel R, provided with operating-gear, all substantially as and for the purposes set forth.

478,542. FLAX-THRASHER. JOHN M. SMITH, Minneapolis, Minn., assignor of one-half to Patrick H. Gunckel, same place. Filed Aug. 31, 1891. Serial No. 404,175. (No model.)



Claim.—1. In a flax-thrasher, the combination, with a series of relatively vertical rollers co-operating in pairs, of the angular guards intervening the pairs of rollers at the front and the inclined tapering guides at the top for directing flax to the co-operating rollers, substantially as set forth.

2. In a flax-thrasher, a series of rollers having tapering ends arranged in relatively vertical position with their tapering ends uppermost, devices for rotating them in opposite directions and causing them to co-operate in pairs as thrashers, and devices for directing the flax to the upper ends of the rollers at an inclination to their axes, whereby the flax is moved axially along the rollers as it is being carried onward, substantially as set forth.

3. In a flax-thrasher, a series of rollers in relatively vertical position for thrashing the flax and conducting the straw inward in vertical planes, and co-operating horizontal rollers for spreading it on a lateral plane, substantially as set forth.

4. A flax-thrashing mechanism comprising co-operating pairs of rollers in relatively vertical position, devices for feeding the grain to the upper ends of the rollers, and upper and lower plates providing the bearings for the rollers, the said mechanism being adapted to be inserted in the space usually occupied by the concave and cylinder of an ordinary thrashing-machine, substantially as set forth.

5. In a flax-thrasher, a primary thrashing mechanism consisting of a series of relatively vertical rollers co-operating in pairs, guiding devices for feeding flax to their upper ends at an inclination to their axes, and a secondary thrashing and carrying mechanism consisting of a corresponding series of rollers co-operating in pairs and arranged to take the straw from the rollers of the first series and carry it onward in vertical planes, substantially as set forth.

6. In a flax-thrasher, a series of rollers having their upper ends tapering and arranged in relatively vertical position, means for rotating them in opposite directions, whereby they co-operate in pairs as thrashers, and slotted guides for directing the flax in downward direction to the space between the upper ends of the rollers of each pair and causing it to be caught by the rollers at an inclination to their axes, substantially as set forth.

7. In a flax-thrasher, a plurality of series of co-operating rollers arranged in corresponding vertical planes, whereby the straw is carried onward from one pair of rollers to the next in horizontal direction, but in vertical layers, substantially as set forth.

8. In a flax-thrasher, a series of relatively vertical rollers co-operating in pairs, and upper and lower plates providing bearings for the rollers, and the former also providing the guides for directing the flax to the rollers, substantially as set forth.

9. The combination, with the series of rollers co-operating in pairs as thrashers, of the cap-plate providing the guides and slots for directing the flax to the heads of the rollers, substantially as set forth.

10. In a flax-thrasher, a suitable frame-work, series of rollers in relatively vertical position, devices for directing the flax to the rollers, means in rear of the rollers for agitating the straw laterally, and means for spreading it, in combination with screening and conveying devices, substantially as set forth.

11. In a flax-thrasher, a series of rollers in nearly vertical position and co-operating in pairs, and devices for feeding flax stalks in substantially horizontal position to them, substantially as set forth.

12. In a flax-thrasher, a series of rollers in nearly vertical position and co-operating in pairs, devices for directing flax-stalks in substantially horizontal position to them, and a second series of co-operating rollers parallel to the first and arranged to engage and advance the flax delivered by the rollers of the first series, substantially as set forth.

13. In a flax-thrasher, a series of rollers in nearly vertical position and co-operating in pairs as thrashers, and guides intermediate the pairs of rollers, substantially as set forth.

14. The combination, with a series of oppositely-rotating co-operating rollers in relatively vertical position and having their upper ends tapering, of a series of guides projecting above and to the front thereof for directing the flax in substantially horizontal position to the upper ends of the pairs of rollers, substantially as set forth.

15. In a flax-thrasher, a plurality of series of rollers, those of each series co-operating in pairs, arranged to carry the straw onward in vertical planes, means for agitating the straw as it passes from the last of said rollers, and means for spreading the straw laterally after it has passed the agitating device, substantially as set forth.

16. In a flax thrasher, a plurality of series of co-operating substantially vertical rollers arranged in corresponding vertical planes, and guiding devices at the sides and top and bottom of the pairs of rollers for directing the straw, substantially as set forth.

478,543. MANUFACTURE OF COMPOUNDS OF PYROXYLINE. JOHN H. STEVENS, Newark, N. J., assignor, by mesne assignments, to the Celluloid Company, of New Jersey. Filed Mar. 24, 1888. Serial No. 268,387. (No specimens.)

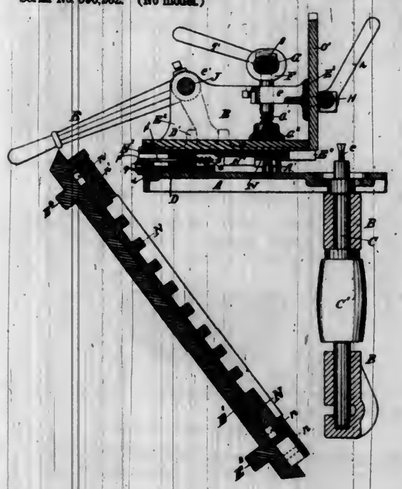
Claim.—1. A solution of pyroxyline in a menstruum composed of wood-alcohol, benzine, and a volatile liquid soluble in alcohol but not in water, substantially as described.

2. A solvent for pyroxyline, consisting of a mixture of wood-alcohol, benzine, and a volatile liquid soluble in alcohol but not in water, substantially as described.

3. A solvent for or solution of pyroxyline, consisting of a mixture of wood-alcohol, benzine, camphor, and a volatile liquid soluble in alcohol but not in water, substantially as described.

4. A solvent for pyroxyline, consisting of a mixture of benzine, wood-alcohol, and acetate of methyl, substantially as described.

478,544. DOVETAILING-MACHINE. HENRY J. CORDEMAN, Cincinnati, Ohio, and EDWARD CREMMER, Covington, Ky., assignors to the Cordeman Machine Company, Cincinnati, Ohio. Filed Apr. 23, 1891. Serial No. 390,202. (No model.)

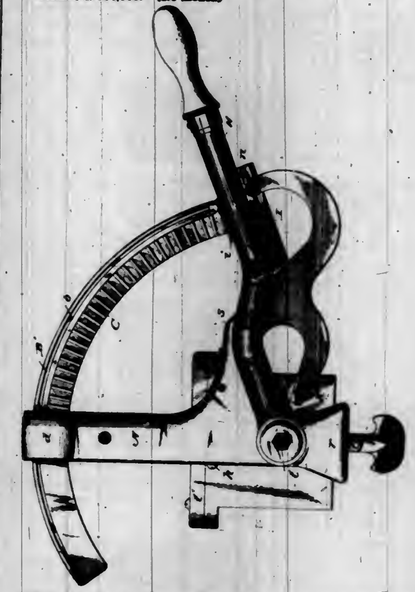


Claim.—1. In a dovetailing-machine, a laterally-sliding bed-plate resting upon the machine-table, a reciprocating chuck thereon and means for reciprocating the same, a rack N, rigidly secured to said chuck, and a reciprocating rack N', with means for engaging the successive teeth of said rack with a stud or projection upon the machine-table by the reciprocating motion of the chuck, substantially as specified.

2. In a dovetailing-machine, the combination of table A, provided with boss A', a laterally-sliding bed-plate mounted on said table, the reciprocating chuck E and means for reciprocating the same, the sectional rack N N', secured to said chuck, and means for reciprocating one of the sections of said rack with the reciprocating movement of the chuck to successively engage the several teeth of said rack with the boss A', substantially as and for the purpose specified.

3. The combination, substantially, of table A, provided with ways or guides in which are mounted the laterally-sliding bed-plate D, the chuck E, reciprocating thereon and carrying racks N N' and lever M, and dogging devices p² P', secured to the bed-plate, whereby the rack N' is reciprocated with each reciprocation of the chuck to engage the successive teeth thereof, with a boss or projection upon the table A, substantially as specified.

478,545. CORK-EXTRACTOR. RAYMOND B. GILCHRIST, Chicago, Ill., assignor to Rupert Whitehead, same place. Filed Mar. 25, 1891. Serial No. 386,300. (No model.)



Claim.—1. In a cork-extractor, the combination, with the corkscrew and a device for lifting the same, of an internally-bored and externally-screw-threaded extension to the corkscrew, and a rod entering and splined in the extension, and mechanism to revolve the rod, substantially as described.

2. In a cork-extractor, the combination, with the corkscrew and its revolving mechanism, of a sliding sleeve prevented from rotating, a lifting-arm to engage the sliding sleeve, and a catch engaging the sliding sleeve to prevent its elevation and engaged by the lifting-arm to release the sleeve, substantially as described.

3. In a cork-extractor, the combination, with the corkscrew having the internally-bored and externally-screw-threaded extension, of a depending rod entering and splined in the extension, a pinion revolving said rod, and a lever revolving the pinion, substantially as described.

4. In a cork-extractor, the combination, with the corkscrew and a device for revolving the same, of a sliding sleeve surrounding and engaging the corkscrew, a catch to prevent the elevation of the sleeve, a lifting crank-arm engaging the sleeve to lift the same and having a cam projection engaging and releasing the catch, and a lever operating the lifting-arm, substantially as described.

5. In a cork-extractor, in combination with the corkscrew and mechanism for lifting the same, the pinion connected with and driving the corkscrew and the rack-bar operated by a lever and engaging and

driving the pinion and having the blank surface, substantially as described.

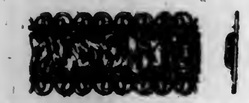
6. In a cork-extractor, in combination with the corkscrew and mechanism for lifting the same, the pinion connected with and driving the corkscrew, the blank-surfaced washer on and moving with the pinion, and the rack-bar operated by a lever and engaging the pinion and having the longitudinal recess and blank surface, substantially as described.

7. In a cork-extractor, in combination with the corkscrew and mechanism for lifting the same, the pinion connected with and driving the corkscrew, the blank-surfaced washer on and moving with the pinion, the guide-washer, and the rack-bar operated by a lever and engaging the pinion and having the longitudinal recesses for the blank and guide washers and the terminal blank surface, substantially as described.

8. In a cork-extractor, in combination with the corkscrew provided with a laterally-projecting ear for lifting it, the hollow slotted standard, the lifting-arm pivoted to enter the slot and engaging the ear, and the lever pivoted on one side of the standard and having a sliding connection with the lifting-arm, substantially as described.

DESIGNS.

21,675. DRESS-TRIMMING. BENJAMIN LIPPER, Philadelphia, Pa., assignor to himself, Augustus A. Lazarus, and Isaac Schwarz, all of same place. Filed June 8, 1892. Serial No. 435,988. Term of patent 3½ years.



Claim.—The design for a dress-trimming, substantially as described, and as shown in the accompanying drawings.

21,676. DRESS-TRIMMING. BENJAMIN LIPPER, Philadelphia, Pa., assignor to himself, Augustus A. Lazarus, and Isaac A. Schwarz, same place. Filed June 8, 1892. Serial No. 435,989. Term of patent 3½ years.



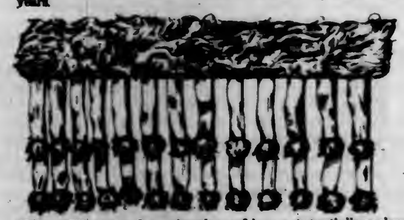
Claim.—The design for a dress-trimming, substantially as described, and as shown in the accompaning drawing.

21,677. DRESS-TRIMMING. BENJAMIN LIPPER and ALFRED A. COHEN, Philadelphia, Pa., assignors to Augustus A. Lazarus, Isaac A. Schwarz, and Benjamin Lipper, same place. Filed June 8, 1892. Serial No. 435,997. Term of patent 3½ years.



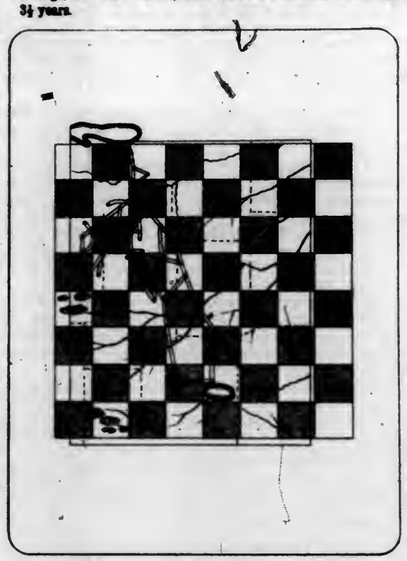
Claim.—The design for a dress-trimming, substantially as described and as shown in the accompanying drawing.

21,678. TRIMMING OR FRINGE. ALBERT A FRANKL, New York, N. Y. Filed May 27, 1892. Serial No. 434,675. Term of patent 3½ years.



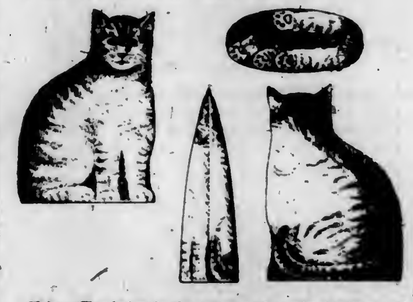
Claim.—The design for a trimming or fringe, substantially as shown and described.

21,679. ADVERTISING GAME-BOARD. ROGER G. MARTINDALE, Chicago, Ill. Filed Feb. 11, 1892. Serial No. 421,194. Term of patent 3½ years.



Claim.—The design for an advertising game-board herein described, the same comprising the board A, with its beaded or ornamental edge, provided with the ornamental central portions consisting of the outlines B, the checkered diagram composed of the squares C and C', and a map of a section of country provided with lakes, rivers, mountains, cities, towns, and intersecting railways on the surface of the checks, substantially as shown.

21,680. STATUETTE. CELIA M. SMITH, Ithaca, N. Y. Filed June 2, 1892. Serial No. 435,516. Term of patent 14 years.



Claim.—The design for the statuette of an animal, substantially as set forth.

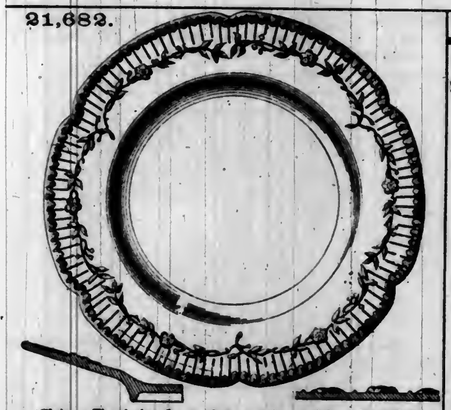
21,681. BOWL. JAMES D. BERGEN, Meriden, Conn., assignor to the J. D. Bergen Company, same place. Filed Feb. 23, 1892. Serial No. 422,568. Term of patent 3½ years.



Claim.—The herein-described design for a bowl, as shown in the accompanying illustration.

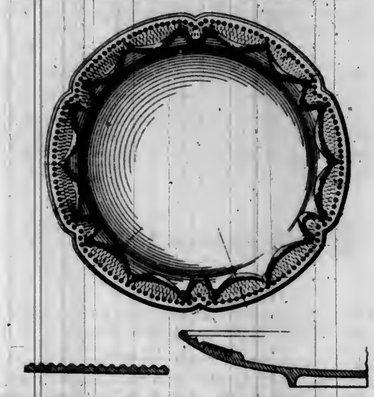
21,682. PLATE. CHARLES E. HAVILAND, Limoges, France. Filed June 7, 1892. Serial No 435,893. Term of patent 14 years.

21,682.



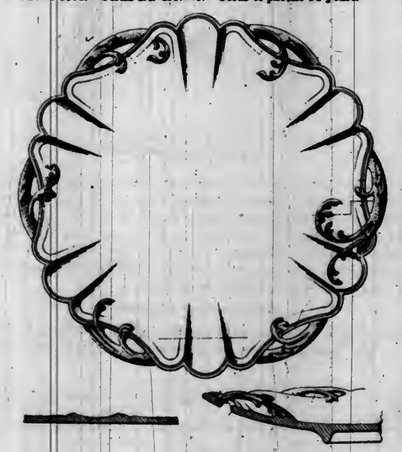
Claim.—The design for a plate or other article, substantially as shown and described.

21,683. PLATE. CHARLES E. HAVILAND, Limoges, France. Filed June 7, 1892. Serial No. 435,894. Term of patent 14 years.



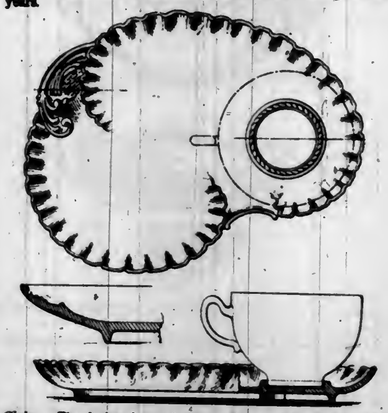
Claim.—The design for a plate or other article, substantially as shown and described.

21,684. PLATE. CHARLES E. HAVILAND, Limoges, France. Filed June 7, 1892. Serial No. 435,895. Term of patent 14 years.



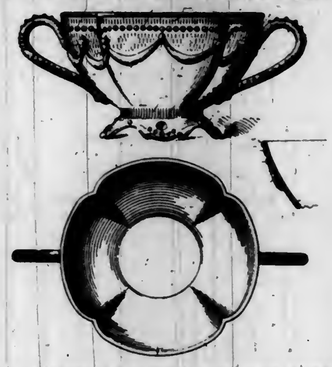
Claim.—The design for a plate or other article, substantially as shown and described.

21,685. SANDWICH-PLATE. CHARLES E. HAVILAND, Limoges, France. Filed June 7, 1892. Serial No. 435,896. Term of patent 14 years.



Claim.—The design for a plate or other article, substantially as shown and described.

21,686. CUP. CHARLES E. HAVILAND, Limoges, France. Filed June 7, 1892. Serial No. 435,897. Term of patent 14 years.



Claim.—The design for a cup or other article, substantially as shown and described.

21,687. COVER-DISH. CHARLES E. HAVILAND, Limoges, France. Filed June 7, 1892. Serial No. 435,898. Term of patent 14 years.



21,687.



Claim.—1. The design for a cover-dish and other articles, substantially as shown and described.

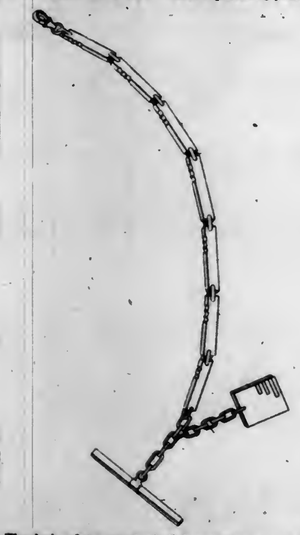
2. In the design for the cover of the dish, the handle, substantially as shown and described.

21,688. BADGE. JOSEPH K. DAVISON, Philadelphia, Pa. Filed May 5, 1892. Serial No. 431,954. Term of patent 14 years.



Claim.—The design for a badge, substantially as shown and described.

21,689. WATCH-CHAIN. DAVID L. FRY, Lebanon, Oreg. Filed June 11, 1892. Serial No. 436,388. Term of patent 3½ years.



Claim.—The design for a watch-chain herein shown and described, the same comprising the type-shaped link-bars and the quad-shaped charm, as set forth.

21,690. FLORAL LAPEL ORNAMENT. HENRY F. G. FOCHS, Jersey City, N. J. Filed Mar. 31, 1892. Serial No. 427,282. Term of patent 3½ years.



Claim.—The design for the floral lapel ornament, substantially as herein shown and described.

21,691. FINGER-RING. JAMES A. DAWLEY, Denver, Colo. Filed Sept. 19, 1891. Serial No. 406,263. Term of patent 3½ years.



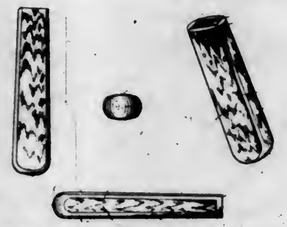
Claim.—The design for finger-rings, herein shown and described

21,692. SPOON OR FORK HANDLE. HARRY I. CULLEN, Wallingford, Conn., assignor to R. Wallace & Sons Manufacturing Company, same place. Filed May 23, 1892. Serial No. 434,112. Term of patent 3½ years.



Claim.—The design for the handles of spoons and forks, as herein described, and shown in the accompanying illustration.

21,693. KNIFE-HANDLE. FREDERICK J. KALDENBERG, New York, N. Y. Filed Oct. 5, 1891. Serial No. 407,791. Term of patent 14 years.



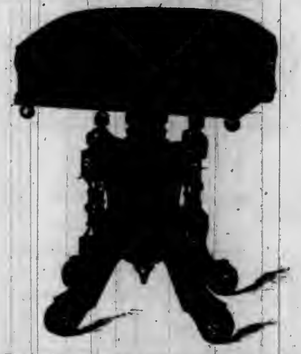
Claim.—The design for a knife-handle herein shown and described, the same consisting of the body *a*, having two rounded sides, two rounded edges, four rounded corners, and a convex butt and having panels *b* in the sides and panels *c* in the edges, the said panels being separated by bands of material contrasting in appearance with the panels and the latter having a rounded contour at one extremity and a square contour at the opposite extremity, as set forth.

21,694. SHOE-SHAPER PLATE. JOSEPH W. SKINNER, La Crosse, Wis. Filed May 5, 1891. Serial No. 391,693. Term of patent 7 years.



Claim.—The design for a shoe-shaper plate, as shown and described.

21,695. PIANO-STOOL. MAX TOSK, Chicago, Ill. Filed Mar. 26, 1892. Serial No. 426,606. Term of patent 3½ years.



Claim.—The design for piano-stools herein shown and described.

21,696. ORNAMENTATION OF SHEET METAL. LEOPOLD KAHN, New York, N. Y. Filed June 2, 1892. Serial No. 435,317. Term of patent 3½ years.



Claim.—The design for the ornamentation of metal herein shown and described.

21,697. METAL BORDER. LOUIS C. HILLER, Meriden, Conn., assignor to the Meriden Silver Plate Company, same place. Filed May 31, 1892. Serial No. 435,082. Term of patent 3½ years.



Claim.—The design for a metal border, as herein described, and shown in the accompanying illustration.

21,698. METAL BORDER. LOUIS C. HILLER, Meriden, Conn., assignor to the Meriden Silver Plate Company, same place. Filed May 31, 1892. Serial No. 435,083. Term of patent 3½ years.



Claim.—The design for a metal border, as herein described, and shown in the accompanying illustration.

TRADE-MARKS

REGISTERED JULY 5, 1892.

21,399. ANTIPYRETICS AND SEDATIVES. CHARLES TRUAX, GREENE & COMPANY, Chicago, Ill. Filed June 4, 1892.

CAFBROMALID

Essential feature.—The word "CAFBROMALID." Used since February 15, 1892.

21,400. LINIMENT. ALBERT HORN, Buffalo, N. Y. Filed May 16, 1892.



Essential feature.—The representation of a cow's horn. Used since May, 1885.

21,401. DIPHTHERIA SPECIFIC. HUNT & Co., Salt Lake City, Utah Territory. Filed June 7, 1892.



Essential feature.—The representation of two heads, those of a boy and a girl. Used since January 1, 1892.

21,402. WRITING-PAPER AND ENVELOPES. GEO. B. HURD & Co., New York, N. Y. Filed May 31, 1892.

Prince of Wales

Essential feature.—The words "PRINCE OF WALES." Used since March 1, 1892.

21,403. FINE WRITING-PAPER AND ENVELOPES. GEO. B. HURD & Co., New York, N. Y. Filed May 31, 1892.



Essential feature.—The representation of three plumes arising from within a crown. Used since March 1, 1892.

21,404. TOILET, LAUNDRY, AND SCOURING SOAPS, WASHING FLUIDS AND POWDERS. KENDALL MANUFACTURING COMPANY, Providence, R. I. Filed May 20, 1892.



Essential feature.—The representation of a frog. Used since August, 1854.

21,405. MEN'S SHIRTS, COLLARS, AND CUFFS. MILLER, HALL & HARTWELL, Troy, N. Y. Filed May 9, 1892.



Essential feature.—The representation of an antelope's head with the word "ANTELOPE" beneath. Used since February, 1887.

21,406. CERTAIN NAMED MEDICINAL REMEDIES. F. & D. RACICOT, Sherbrooke, Canada. Filed Jan. 23, 1892.



Essential feature.—The representation of a shield, an Indian standing and holding a bottle in one hand and herbs in the other, and the words "F. & D. RACICOT'S INDIAN REMEDIES." Used since 1875.

21,407. COLOGNES. RICH & MANHEIMER, New York, N. Y. Filed Aug. 7, 1891.



Essential feature.—The representation of a globe surmounting a quiver filled with arrows. Used since July 1, 1891.

21,408. THIMBLES. STERN BROS. & Co., New York, N. Y. Filed May 11, 1892.



Essential feature.—A representation of the Fishery building in the Columbian World Exposition at Chicago. Used since April 13, 1892.

21,409. PHOTOGRAPHIC PAPER. ARTHUR SEWARD, New York, N. Y. Filed June 8, 1892.

A.S.P.

Essential feature.—The letters "A. S. P." Used since September 1, 1891.

21,410. REMEDIES FOR THE RELIEF OF DISEASES AFFECTING THE MUCOUS MEMBRANE OF THE THROAT, HEAD, AND LUNGS. EMMA J. ST. HILAIRE, Hartford, Conn. Filed May 26, 1892.

HYTHOR

Essential feature.—The word "HYTHOR." Used since July 30, 1891.

21,411. THREAD OF COTTON, SILK, FLAX, AND OTHER FIBROUS MATERIALS FOR MACHINE AND HAND SEWING. THE KERR THREAD COMPANY, East Newark, N. J. Filed May 24, 1892.



Essential feature.—The combined figures of a triangle and a concentrically-circumscribing circle with the word "TRIANGLE" arranged within the circle outside of the triangle. Used since December 1, 1891.

21,412. THREAD OF COTTON, SILK, FLAX, AND OTHER FIBROUS MATERIALS FOR MACHINE AND HAND SEWING. THE KERR THREAD COMPANY, East Newark, N. J. Filed May 25, 1892.



Essential feature.—The word "PYRAMID." Used since May 18, 1892.

21,413. BOOTS AND SHOES MADE OF LEATHER. THE GIESECKE BOOT AND SHOE MANUFACTURING COMPANY, Jefferson City, Mo. Filed May 23, 1892.

SHAMROCK

Essential feature.—The word "SHAMROCK." Used since January, 1889.

21,414. PEARL BUTTONS. URBIE J. CLERET, Beauvais, France, and Philadelphia, Pa. Filed June 8, 1892.



Essential feature.—The representation of a hen and rooster. Used since April 1, 1892.

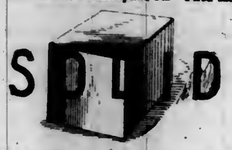
21,415. BROAD SILKS, RIBBONS, AND SILK THREADS. W. G. HITCHCOCK & Co., New York, N. Y. Filed May 23, 1892.



Capitol

Essential feature.—The representation of the Capitol at Washington and the word "CAPITOL." Used since May 1, 1892.

21,416. MEDICINE IN TABLET, LOZENGE, OR OTHER SOLID FORM. LOUIS A. MAYO, Philadelphia, Pa. Filed May 23, 1892.



Essential feature.—The representation of a block in connection with the word "SOLID." Used since May 24, 1892.

21,417. DRESS-SHIELDS. LEVI BROS. & BLUM, New York, N. Y. Filed June 11, 1892.

CHARM

Essential feature.—The word "CHARM." Used since January 1, 1891.

21,418. RYE AND BOURBON WHISKY. ISAAC MAISMAN, New Orleans, La., and Philadelphia, Pa. Filed July 29, 1891.

PAROLE

Essential feature.—The word "PAROLE." Used since April, 1879.

21,419. BAKING-POWDER AND YEAST. JOSEPH E. BLACKBURN, Bellaire, Ohio. Filed June 8, 1892.

IDEAL

Essential feature.—The word "IDEAL." Used since May 1, 1892.

21,420. LINEN THREAD. FINLAYSON, BOUSFIELD & Co., Johnstone, Scotland, and Grafton, Mass. Filed May 17, 1892.



Essential feature.—The representation of a globe surmounted by an eagle. Used since January, 1875.

21,421. WHISKY. W. H. JOHNS & Co., Boston, Mass. Filed Mar. 9, 1892.

BLACKSTONE

Essential feature.—The word "BLACKSTONE." Used since February 15, 1892.

21,422. SPECIFIC FOR DIPHTHERIA AND OTHER THROAT TROUBLES. DOMINGO PERAZA, New York, N. Y. Filed May 11, 1892.

Essential feature.—The representation of a sheep standing upon an eminence surrounded by water and carrying a flag. Used since January 9, 1891.

21,423. SOLID TABLE AND OTHER SILVERWARE. LUDWIG, REDLICH & CO., New York, N. Y. Filed May 16, 1892.



Essential feature.—The representation of an animal consisting of the head of a lion and tail of a fish. Used since April 17, 1892.

21,424. REMEDY FOR THE CURE OF RHEUMATISM. THE SWISS MEDICINE CO., San Francisco, Cal. Filed May 16, 1892.



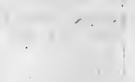
Essential feature.—The representation of a forest scene, including an illustration of pine-like trees, a ravine, and a bridge-like structure thrown across the same, and the words "SWISS CURE FOR RHEUMATISM" below said representation. Used since June 20, 1891.

21,425. SOAP AND OTHER CLEANING AND DETERGENT PREPARATIONS. THE J. T. ROBERTSON SOAP COMPANY, Manchester Conn. Filed May 28, 1892.

BON AMI

Essential feature.—The words "BON AMI." Used since March 1, 1891.

21,426. COSMETIC. JULIUS GREYER, Cincinnati, Ohio. Filed June 3, 1892.



Essential feature.—The words "OPERA CREAM." Used since September, 1872.

21,427. COOKERS, BAKING-DISHES, AND COFFEE-MAKERS. THE BURTIS MANUFACTURING COMPANY, Jersey City, N. J., and New York, N. Y. Filed May 23, 1892.

PURITAN

Essential feature.—The word "PURITAN." Used since February, 1889.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE FINCK.

Decided May 12, 1892.

DESIGN PATENTS—RANGE OR SCOPE OF CLAIM DETERMINED BY THE COURTS.

The range or scope of a Design patent is to be determined by the courts and not by the Patent Office. It is therefore not proper for the Office to issue a Design patent which on its face purports to cover an indefinite variety of modifications which may or may not be within the proper scope of the claim, as that matter shall be determined by the courts.

ON petition.

DESIGN FOR A SOCIETY BADGE.

Application of William C. Finck filed January 26, 1892, No. 419,355.

Messrs. Crane & Miller for the applicant.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Primary Examiner requiring the letters "J. L." to be erased from the face of the badge shown and described in the illustration and specification before the same can be allowed and passed to issue. This feature is referred to in the specification as follows:

> Each arm of the cross presents a smooth unbroken surface in contrast with a pattern which occupies the body *b* of the cross, and which is shown in the drawing formed of the roughened characters "J. L." formed upon the surface of the badge.

The claim is:

> The Design for a society badge, herein shown and described.

In the written argument submitted by petitioner he says:

> By reference to my specification it will be observed that I have not claimed the particular characters shown in the drawing as composing the central pattern applied to the face of the badge, but only a "pattern" upon the body portion of the cross to contrast such portion with the smooth unbroken surfaces of the arms. The same effect in appearance would result in the substitution of a motto or even a single figure to occupy the central portion, and without affecting the symmetry of the badge as a whole.

From these quotations it is apparent that the petitioner purposes to vary this "central portion" indefinitely and still have the Design covered in all these various modifications by the claim already quoted. It is not necessary in this case to decide whether the letters of the alphabet can properly form component parts of a Design, for applicant presents no such question. The letters he illustrates form only one variety of a great number of patterns which he desires to use and practically to claim. The claim in a Design patent covers the specific thing which applicant illustrates and describes, and it covers, also, all other things so near like that specific thing as to be liable to be mistaken the one for the other by the casual observer. What range or scope a claim in a Design patent has under this principle of law is a question to be determined by the courts and not by the Patent Office; and in view of this it is thought not to be proper for the Office to permit the issue of a Design patent which on its face purports to cover an indefinite variety of modifications which may or may not be within the proper scope of the claim, as that matter shall be determined by the courts.

The decision of the Primary Examiner is affirmed.

VANNESS *v.* SHETTLER.

Decided June 11, 1892.

INTERFERENCE—PRIORITY OF INVENTION.

Where it is found that the senior party conceived of the invention in the latter part of 1888, then made a model exhibiting the substance of it, and then disclosed the improvement to others, and that he used reasonable diligence in reducing to practice, *Held* that he is entitled to prevail over the junior party, who relies upon a conception and a reduction to practice in August or September, 1889.

APPEAL from Examiners-in-Chief.

FRICTION-CLUTCH.

Application of Elmer D. Vanness filed November 7, 1890, No. 370,674. Application of Reuben Shettler filed October 13, 1890, No. 367,980.

Messrs. Parker & Burton for Vanness.
Mr. James J. Sheehy for Shettler.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Shettler. Shettler and Vanness were both in the employ of the Upton Manufacturing Company, of Port Huron, Mich., the former as a traveling salesman and the latter in the home factory.

Shettler claims to have made the invention in controversy—an improvement in clutches—in October, 1888; to have then made a model embodying the substance thereof, and also to have disclosed the invention to others. A reduction of the invention to practice was made at the factory under Vanness's immediate hand in August or September, 1889, and Vanness claims this as the date of his invention and his reduction to practice. Another reduction to practice, embodying the feature of wrought-iron arms for the clutch, was made in January, 1890. Vanness admits that this was done at the suggestion of Shettler. Shettler's application for patent, executed October 10, 1890, and filed in the Patent Office October 13, 1890, was prepared with the knowledge and, so far as appears, with the assent of the officers of the company.

On the 13th day of October, 1890, Vanness signed this paper:

OCTOBER 13, 1890.

I hereby state that to the best of my knowledge Reuben Shettler is the sole inventor of the friction-clutch now used on the Upton Mfg. Co. traction-engine.

E. D. VANNESS.

Vanness says that this concession refers only to the clutch with wrought-iron arms.

Soon after the filing of Shettler's application for patent he left the employ of the company because they would not, as he desired they should, raise his salary, his resignation being made October 28, 1890.

Vanness's application for patent was then prepared. It was filed in this Office November 7, 1890, assigned to the company.

It is found as a fact in this case that Shettler conceived of the invention in controversy the latter part of 1888, then made a model exhibiting the substance of it, and then disclosed the improvement to others.

It is also found, upon the facts stated, that he used reasonable diligence in reducing to practice. He is therefore held to be the prior inventor, and the decision of the Examiners-in-Chief is affirmed.

EX PARTE SHETTLER.

Decided June 14, 1892.

PUBLIC USE OR SALE—PROPER SHOWING BY AFFIDAVITS.

Affidavits alleging public use or sale of an invention should by machine, model, or drawing clearly show what the thing alleged to be in public use or on sale was, and the allegations should be as to specific acts, leaving the Office to determine the question whether they establish a public use or sale under the statute.

FRICTION CLUTCH.

Application of Reuben Shettler filed October 13, 1890, No. 367,980.

Mr. James J. Sheehy for the applicant.

SIMONDS, *Commissioner:*

June 11, 1892, the Commissioner awarded priority of invention to this applicant in an interference proceeding entitled *Vanness* v. *Shettler*. On this day Mr. L. S. Bacon, representing Vanness, and his act must be taken to be the act of Vanness, presents to the Office certain affidavits, which were duly executed on the 17th of November, 1891. The delay in presenting them induces and warrants the strictest criticism of the affidavits.

The two years of public use or sale which will bar an application for a patent is expressed in section 4886 of the Revised Statutes, thus:

not in public use or on sale for more than two years prior to his application, * * *

and thus expressed as a defense in section 4920 of the Revised Statutes:

that it has been in public use or on sale in this country for more than two years before his application for a patent.

The affidavits make no allegations of any sale whatever or of any offer of sale. They also fail to show that the use in question was a public use. Moreover, in order to be satisfactory, such affidavits should not simply define the improvement by the use of a formula which may embody propositions of law as well as statements of fact, but should by machine, model, or drawing clearly show what the thing alleged to be in public use was, and the allegations should be as to specific acts, leaving the Office to determine the question whether they establish a public use or sale under the statute.

For these reasons the affidavits are held to be insufficient to bar the issue of a patent to this applicant.

EDISON *v.* SWAN.

Decided June 22, 1892.

INTERFERENCE—RULE AS BETWEEN CONTESTANTS WHEN ONE IS A PATENTEE AND THE OTHER AN APPLICANT.

When one of the contestants for priority has a patent for the invention in dispute and the other is an applicant for a patent, the latter, in order to prevail, must present a case both as to conception and as to reasonable diligence which does not admit of a reasonable doubt.

APPEAL from Examiners-in-Chief.

ELECTRIC LAMP.

Application of Thomas A. Edison filed May 27, 1881, No. 34,395. Patent granted Joseph W. Swan October 19, 1880, No. 233,445.

Mr. R. N. Dyer for Edison.

Messrs. Witter & Kenyon for Swan.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Edison upon both of the following interference issues:

1. A carbon formed from a straight strip of card-board, paper, or parchment-paper, and bent to the form of an arch, hoop, or loop, and carbonized by heat while in a bent condition, substantially as set forth.
2. A carbon for an electric lamp made of the carbonized parchment-paper.

The Examiner of Interferences awards priority of invention to Swan upon both issues. The three members of the Board of Examiners-in-Chief concur in making a finding for Edison upon the first issue; but one of them decides in favor of Swan upon the second issue.

It is conceded that Swan's date of his invention is practically March 1, 1880, that being the time at which a letter was received in this country, which was written by him abroad, disclosing the invention in controversy. He filed his application for patent April 12, 1880, and his patent issued October 19, 1880.

Edison's claim, according to his preliminary statement, is as follows:

That he conceived the inventions set out in both issues of this interference as early as August, 1879, and at that time disclosed them to others; that he put into actual use the invention set out in the first issue in August, 1879, and has used it continuously since; that he put into actual use the invention set out in the second issue in August, 1877, and has used it sufficiently since to determine its value; that said last-mentioned invention is also described in his caveat No. 93, filed in the Patent Office December 22, 1879.

In the testimony his claim is that he made the inventions in controversy in October and November, 1879. He filed his application for patent May 27, 1881. Edison's delay between the making of the invention and the application for patent, if October, 1879, be taken as the date of making the invention, is a year and seven months, and his delay in making such application after the issue of Swan's patent is seven months.

When one of the contestants for priority has a patent for the invention in dispute and the other is an applicant for a patent, the latter, in order to prevail, must present a case both as to conception and as to reasonable diligence which does not admit of a reasonable doubt. (*Parkhurst* v. *Kinsman*, 1 Blatchf., 488; *Ellithorpe* v. *Robertson*, 4 Blatchf., 307; *Coxe* v. *Griggs*, 1 Biss., 362; *Brodie* v. *Ophir Silver Mining Co.*, 5 Saw., 608; *Draper* v. *Potoska Mills Corporation*, 3 Ban. and Ard., 214; *U. S. Stamping Co.* v. *Jewett*, 18 Blatchf., 469; *Signal Co.* v. *Signal Co.*, 6 Fed. Rep., 603; *Cartridge Co.* v. *Cartridge Co.*, 7 Fed. Rep., 344; *Duffy* v. *Reynolds*, 24 Fed. Rep., 855, &c.)

The force of the foregoing proposition is intensified in this case by the existence of certain facts, to wit: Edison had the amplest financial means for developing and patenting his inventions. He was under an agreement to patent them promptly. He knew of the importance of keeping accurate records of his inventions and experiments and did keep them. During the nineteen months that he waited in this case he made more than a hundred applications for other patents.

The evidence offered by Edison in support of his contention that he made this invention in October and November, 1879, consists of the oral testimony of certain witnesses and of sketches and entries in books kept expressly for the purpose of making a record of his inventions and experiments. It is a fact to be considered in determining the weight of this testimony offered in Edison's behalf that by application for patent filed November 4, 1879, (eventuating in his well-known patent of January 27, 1880, No. 223,398,) by a publication occupying more than a page of the *New York Sunday Herald* of December 21, 1879, by a somewhat similar publication a few days later in the *London Times*, and by a fourteen-page article prepared by Edison's mathematician and contained in *Scribner's Monthly* for February, 1880, a great deal of disclosure was made as to what Edison had done in the invention and development of what is popularly known as the "incandescent light," no part of which disclosures makes any allusion to the features of improvement now in controversy.

Upon such a state of facts it is clear that Edison in order to prevail must present proof that is perfectly convincing. Speaking as to the first issue, an inspection of the sketches and entries offered in evidence taken by itself falls short of producing conviction that Edison in October and November, 1879, made use of or had a knowledge of the specific improvement recited in the first of the interference issues. If one is inclined to find this specific improvement disclosed in the sketches, he can do it. If he looks at them with the eye of keen criticism, he finds himself in doubt.

In addition to the sketches and entries, Edison offers the oral testimony of a number of witnesses, all of which is open to the suspicion that the witnesses' memories may be based upon and strengthened by a favorable construction of the sketches and entries in question.

Swan produces eight or nine witnesses for the purpose of rebutting the affirmative evidence offered by Edison, and their testimony is entitled to some, though not great, weight in the premises.

The practical conclusion is this: Edison *may* have made the invention in October and November, 1879; but strong probabilities are against him. His sketches and entries do not carry conviction. His case rests at last upon oral testimony open to the suspicion just stated and contradicted in some degree by the oral testimony offered by Swan. Edison's case as a whole fails of affording that high degree of proof which the law and the surrounding facts call for.

The second issue requires the use of "parchment-paper." Parchment-paper as generally known at the time in question was paper, preferably unsized, which had been immersed in a bath of dilute sulphuric acid and the acid afterward washed out. For the purposes of this case it was that kind of paper or some other kind of paper having equivalent qualities. Edison never used paper which had been dipped in dilute sulphuric acid and the acid afterward washed out. He did use Crane's parchment-paper and vulcanized fiber. The burden of proof is upon Edison, therefore, to show that Crane's parchment-paper or the vulcanized fiber had the equivalent qualities of what was known as "parchment-paper." Not only does he fail to show that the things he used had the equivalent qualities, but the preponderance of evidence is to the effect that they did not have equivalent qualities. Therefore Edison cannot prevail upon the second issue.

As regards the question whether Edison has produced that degree of proof which the law and the surrounding facts call for in order to enable him to prevail, it is a fact not without significance that the Examiner of Interferences has found one way and the Examiners-in-Chief the other.

The decision of the Examiners-in-Chief is reversed and priority of invention is awarded to Swan.

EX PARTE NASH.

Decided June 6, 1892.

WITHDRAWAL OF APPLICATIONS FROM ISSUE—MORE THAN TWO YEARS' DISCLOSURE IN A PRIOR PATENT TO SAME INVENTOR—NEW APPLICATION FOR SAME INVENTION.

An application will not be withdrawn from issue for the purpose of adding claims to a feature described and reserved but not claimed in a prior patent to the same inventor, because of the fact that more than two years have elapsed since said prior patent was issued, when it appears that a new application can be filed in such a manner that the two applications may be considered continuous.

ON petition.

WATER-METER.

Application of Lewis Hallock Nash filed February 10, 1890, No. 339,811.

Messrs. Johnson & Johnson for the applicant.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition requesting that the above-entitled application be withdrawn from the issue for the purpose of adding a new claim.

It is alleged, among other things, in the petition that on March 20, 1888, a patent was granted to applicant for certain improvements in water-meters, No. 379,805; that Figures 8 to 14 of the drawings of said patent show a water-meter having a cone-shaped piston; that it is related in the specification of said patent as follows:

I do not herein claim the specific construction shown in Figs. 8 to 14, as such matter will form the subject of a separate application for a patent;

that on February 10, 1890, pursuant to the intention intimated in said reservation clause, applicant filed the present application, in which is shown and described a structure having the characteristic features illus-

trated by Figs. 8 to 14 of the drawings of said patent; that this application was intended to cover, among other things, the features described but not claimed in said patent and referred to in said reservation clause, and that applicant had instructed his attorneys to embody in it claims to such features, but that, after the application had been passed to issue, he discovered that his attorneys had omitted to claim such features.

Applicant therefore requests that the application be withdrawn from the issue for the purpose of adding a claim for such features.

It is contended on behalf of the applicant that—

to file an application now for the feature described and reserved but not claimed in said prior patent would be attended with grave risks in view of the fact that more than two years have elapsed since said prior patent was issued.

It is apparent that applicant considers the subject-matter covered by the proposed new claim the same as that which is the subject-matter of the present application. Otherwise it would be for new matter, and therefore could not properly be claimed in the present application.

Assuming, therefore, that the subject-matter of the new claim is the same as that of the present application, I see no good reason why applicant may not file a new application, containing the claims allowed as well as the proposed new claim, in such a manner that the two applications may be considered continuous.

The second application would merely take the place of the present application, which latter was filed within two years after the granting of the patent.

The case is not different in principle from the following cases: *Godfrey* v. *Eames*, (1 Wall., 317;) *Smith* v. *Goodyear Dental Vulcanite Co. et al.*, (93 U. S., 486, 500;) *Graham* v. *Geneva Lake Crawford Mfg. Co.*, (11 Fed. Rep., 138;) *International Tooth Crown Co.* v. *Richmore et al.*, (30 Fed. Rep., 775.)

It is not, however, herein intended to hold that the subject-matter of the proposed claim is for the same invention as that set forth in the present application.

The petition is denied.

EX PARTE SCHILLING.

Decided June 6, 1892.

WITHDRAWAL OF APPLICATIONS FROM ISSUE—MORE THAN TWO YEARS' PUBLIC USE—NEW APPLICATION FOR SAME INVENTION.

An application will not be withdrawn from issue because of more than two years' public use of the invention when it appears that a second application for the same invention may be filed as a continuation of the first application, such first application having been filed before the expiration of the two years.

ON petition.

WRAPPING-MACHINE.

Application of Charles R. Schilling filed March 1, 1890, No. 342,287.

Messrs. Higdon & Higdon for the applicant.

FROTHINGHAM, *Acting Commissioner:*

This is a petition in the nature of a renewal of a former petition for the purpose of withdrawing the above-entitled application from the issue for the purpose of adding a new claim.

The application was filed March 1, 1890, and passed to issue February 6, 1892.

The present petition is accompanied by an affidavit, made by the inventor, setting forth in substance that the invention described and claimed in said application has been in public use for more than two years prior to April 30, 1892. It is contended under this state of facts that applicant is debarred from filing a second application for the same invention, and that, therefore, irreparable injury will result unless the application be withdrawn from issue for the purpose above stated.

It is well settled that the same applicant may file a second application for the same invention and the two will be considered continuous when there is nothing to indicate an abandonment of the first application, and the period of two years within which the invention could be publicly used without invalidating a patent granted upon the second application is the period immediately preceding the date of the first application. (*Godfrey* v. *Eames*, 1 Wall., 317; *Smith* v. *Goodyear Dental Vulcanite Co. et al.*, 93 U. S., 486, 500; *Graham* v. *Geneva Lake Crawford Mfg. Co.*, 11 Fed. Rep., 138; *International Tooth Crown Co.* v. *Richmore et al.*, 30 Fed. Rep., 775.)

Upon examination of the record in the present case nothing is found to indicate an abandonment of the application. I am of the opinion, therefore, that applicant may properly file a new application for the same invention as that contained in the present, in such a manner that the two will be considered continuous, and that the period of two years within which the invention could be publicly used without invalidating a patent granted upon the new application is the period immediately preceding the date of the first application.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Iowa, Eastern Division.

BOYD *v.* CHERRY.

Decided January, 1883.

1. ANTICIPATION—PRIOR USE—MILK-CANS.

The Cooley patent of September, 1879, covers "a new process of raising cream from milk," and, as stated by the specification, "consists, mainly, in water-sealing the milk within the vessel containing it, and also in submerging such vessel in water, and in apparatus hereinafter described," the object being not only to exclude dust and dirt, but also to prevent the absorption of deleterious gases or odors from the air and the exposure to sudden changes—electric, thermal, and otherwise—of the atmosphere. *Held* that the patent is valid, although other persons had been in the habit of occasionally submerging vessels containing milk, as they never proceeded so far as to discover the importance of the method or the valuable results achieved by the patentee.

2. SAME—INFRINGEMENT.

The patent is infringed by a milk-can manufactured under the Cherry patent, which describes a substantially similar apparatus and purports to accomplish the same ends in substantially the same way, and infringement cannot be avoided on the theory that the Cherry patent is for a device while the Cooley patent is for a process, especially when it appears that the Cherry apparatus was sold with directions for using it according to the Cooley process.

3. SAME—PATENTABLE PROCESS.

By "process" is meant the application or operation of some element or power of nature, or of one subject to another—as, for example, the art of tanning, dyeing, smelting ores, and the like. In such cases the invention consists in the application of old and well-known principles to new and useful purposes.

STATEMENT OF THE CASE.

The complainant by his bill charges respondent with the infringement of a patent granted to William Cooley and duly assigned to him. The said patent bears date February 20, 1877, and is for an improvement in obtaining cream from milk. It is described in the opinion. The defense is twofold: (1) That Cooley was not the original and first discoverer of the process described in his patent, or, in other words, prior use by other persons; (2) that even if complainant's patent is valid defendant has not infringed. Proofs have been taken and the case has been twice argued. Upon the first hearing the court found that the defense of prior use was sustained, but granted a rehearing.

Messrs. Munday, Evarts & Adcock, Messrs. Wishard & Read, and *Messrs. Phillips, Goode & Phillips* for the complainant.

Messrs. Stoneman, Rickel & Eastman for the defendant.

MCCRARY, *J.:*

As it is admitted that the respondent has manufactured and sold a milk-can constructed according to the patent issued to him on the 23d of September, 1879, known as the "Hawkeye patent," our first inquiry will be as to whether this is an infringement of the earlier patent under which the complainant claims. An examination of the two patents will clearly show that they are substantially for the same invention. For convenience I will designate the older patent as the "Cooley patent" and the later one as the "Cherry patent." The Cooley patent is described as "a new process of raising cream from milk," and the specification declares that—

it consists, mainly, in water-sealing the milk within the vessel containing it, and also in submerging such vessel in water, and in apparatus hereinafter described.

The Cherry patent is described as—

an improved means of raising cream from milk and for driving off the animal heat or vapor contained in the same in the shortest and best possible manner;

and the specification further declares that—

the invention consists, essentially, in water-sealing the milk within the vessel containing it by means of a cover of novel construction and submerging such vessel and cover in a tank of water.

In both patents one main purpose is declared to be the excluding of the milk from the outer atmosphere during the process of raising the cream. Thus the specification in the Cooley patent declares:

By my present invention I water-seal the can or other vessel containing the milk to be treated, whereby all possibility of the entrance into it of foreign matter, gases, or odors is prevented, etc.;

and the specification in the Cherry patent declares that—

the vessel containing the milk is submerged in a tank of water and the milk not only excluded from the outer atmosphere, but an equality in the temperature is established and maintained throughout the entire vessel and the animal heat or vapor driven out into the surrounding water.

In both patents the utility of the invention is declared to consist in substantially the same thing. Thus the specification in the Cooley patent says:

The ordinary mode of raising cream is with open cans, either shallow or deep, and then by hand-labor skimming the cream from the surface after the milk has stood from, say, thirty-six to forty-eight hours. This mode is open to several serious objections, among which may be named the exposure of the milk to the atmosphere, from which it attracts insects and absorbs gases and odors, often very deleterious, and from which it collects and retains dust and dirt floating in the air; the agitation of its surface from winds and other causes; the great length of time required to raise the cream; the unavoidable lack of uniformity in the quality of the cream, and consequently in the butter made from it, because of the various subtile and invisible atmospheric causes which tend to taint, acidify, or otherwise vitiate it; the positive and direct exposure to all the sudden changes—electrical, thermal, and otherwise—of the atmosphere; and the necessity of having pans enough to hold the milk of two or more days' milking.

On the same subject the specification in the Cherry patent states:

It will be observed that by the old method of raising cream in open shallow pans the milk absorbs deleterious odors and gases and collects dust and dirt floating in the air, and is also subject to various changes of atmosphere, and rendering a lack of uniformity in the quality and quantity of the cream produced, and consequently lessening the value of the butter made from it. By means of the present improvement these objections are entirely obviated, inasmuch as the vessel containing the milk is submerged in a tank of water and the milk not only excluded from the outer atmosphere, but an equality in the temperature is established and maintained throughout the entire vessel and the animal heat or vapor driven out into the surrounding water.

The similarity in the two patents becomes still more apparent when we come to compare the description of the invention and the milk-cans actually constructed under them, some of which are in evidence before us. In both there is a cylindrical receptacle or pan for holding the milk. In both there is a tank or vessel for holding water, into which the milk-can is placed. In both there is a movable cover for the can, shaped somewhat like an ordinary tin pan and placed upside down on the top of the can, the overlapping or flaring sides of the cover leaving an annular space between such sides and the can. Both are rendered air-tight by water-sealing—that is, by being submerged in water, or so nearly submerged that the air is excluded from the can. In both the process contemplates that the can shall stand in the water until the cream is gathered at the top, and in both an outlet is provided at the bottom by which to draw off the milk, leaving the cream only in the can. True, there are some differences; but they are immaterial, and my conclusion is that the two patents are substantially identical.

But the counsel for the respondent insists that he has not infringed the Cooley patent, and their argument is that said patent is for a process and not for a mechanical device, while respondent's invention is for the latter and not for the former. It is impossible to maintain this distinction between the two patents. What one is in this respect the other is. They are alike. In my judgment both patents cover a process to be accomplished by a combination of mechanical devices. A process is patentable provided that it is new and useful. By "process" is meant the application or operation of some element or power of nature or of one subject to another. As examples of patentable processes, the art of tanning, dyeing, smelting ores, and the like may be mentioned. In these and in other similar cases the merit of the invention consists not in the discovery of any new law of nature or principle of science or natural philosophy, but in the application of old and well-known principles to new and useful purposes. There can be no patent upon an abstract philosophical principle. The laws of nature and properties of matter are presumed to be known to and subject to be utilized by all alike; but the application of any one or more of these laws or principles to a practical object and so as to secure a useful result not previously attained is patentable. (*Neilson* v. *Harford*, 1 Webst. Pat. Cas., 295; *Corning* v. *Burden*, 15 How., 267; *Cochrane* v. *Deener*, 11 O. G., 687; 94 U. S., 780; *Rubber Co.* v. *Goodyear*, 9 Wall., 788.)

I doubt very much whether the mechanical appli-

ances described in each of the patents is patentable aside from the process. Considered merely as cans or milk-vessels there would seem to be little, if any, novelty in them; but however this may be, it appears from an inspection of the Cherry patent itself that it is intended to cover the process and that the cans are to be used only for the purpose of raising cream in the manner described. Besides, the evidence discloses the fact beyond question that the respondent manufactures the "Hawkeye pan" and sells it to customers to be used by them in raising cream from milk according to the process described in the Cooley patent. He advertises and sells the can for this very purpose. They are especially adapted to it and to no other, and the inference arising from their sale that they are to be used would be very strong. When it is added that they are generally, if not always, accompanied by directions to purchasers as to the mode of using them, which directions require the adoption and use of the Cooley process, it becomes very clear that the fact of infringement is established. (*Bowker* v. *Dows*, 15 O. G., 510; 3 Ban. & A., 518; *Rumford Chemical Works* v. *Hecker*, 10 O. G., 259; 2 Ban. & A., 351; *Wallace* v. *Holmes*, 1 O. G.; 117, 9 Blatchf., 65.)

It only remains to consider the defense of prior use. The proof undoubtedly shows that before the date of Cooley's invention several other persons had been in the habit of occasionally submerging vessels containing milk during the process of raising cream therefrom, and in some instances, at least, such use was public; but it also clearly appears that none of these persons proceeded so far as to discover the utility of the process or were aware of the fact that by it the important and valuable results since achieved by Cooley could be secured. It is beyond doubt that Cooley was the first to discover and to make known to the public the fact that by this process the cream could be raised in a much shorter period of time than by any other known means, and that by it a better quality of butter was to be secured at a reduced cost. The others doubtless came very near to this discovery; but they overlooked it, as is apparent from the fact that no other one of them thought enough of the process to permanently adopt it or to apply for a patent upon it until after the Cooley patent had come into use and its great utility had been demonstrated. It follows that the controlling question upon this branch of the case is whether it is necessary for the defendant, in order to sustain the defense of prior use, to show not only that the process was publicly used before Cooley's discovery, but that it was so used by some person or persons who perceived the fact of its utility and who knew what could be accomplished by it and who communicated this information to the public.

But, upon authority and upon principle, I am constrained to answer this question in the affirmative. In *Tilghman* v. *Proctor* (19 O. G., 859; 102 U. S., 711) the Supreme Court, through Mr. Justice Bradley, held an alleged prior use not sufficiently proved, for the reason, among others, that the result had been accidentally and unwittingly produced, while the operators were in pursuit of other and different results, without exciting attention and without its even being known what was done or how it had been done. In *Pelton* v. *Waters* (7 O. G., 425) the rule is distinctly recognized that the prior discoverer or inventor must have had such a conception of the invention as would enable him to give it to the public. Said Emmons, speaking of the alleged prior inventor in that case—

> he not only did not give and could not give it [the invention] to the public, but he did not possess it himself.

The same rule is recognized in *Andrews* v. *Carman*, (9 O. G., 1011,) where it is declared in effect that the person—

> who first discovers the principle and by putting it into practical and intelligent use first makes it available to man—

is the first inventor.

If the alleged prior use of the process was under such circumstances that the public obtained no knowledge of the mode of its operation or of the results to be attained by it, there is no prior use within the meaning of the patent law.

> In other words, if the parties who made the combination, although seeing with the eye perceived not, and hearing with the ear understood not, * * * they added nothing to their own stock of knowledge; and the fact, if observed by other men, (if they understood it not,) added nothing to the science on that subject. Therefore the invention was not made until the parties contriving, or others observing, the existing combination saw that it could be made available for the purpose of producing a result similar to the one which the plaintiffs have mentioned in their specification. (*Ransom* v. *Mayor*, 1 Fish. Pat. Cas., 267.)

These adjudications are based upon a sound principle. The rights of a patentee are granted to him upon the consideration of the giving by him to the public of a new and useful discovery. If some one before him had already given the same invention or discovery to the public, this consideration falls and he has no basis for his claim of exclusive right. Hence it is that the alleged prior invention must have been made public. If kept secret by the first inventor until the second has discovered it and given it to the public, the latter will be protected, for it is to him that the public is indebted. It is from him that the public has received value; and as no one can impart that which he does not possess it must appear that the alleged prior inventor was aware not only of his discovery, but also of its utility. These considerations lead to the conclusion that complainant is entitled to a decree in accordance with the prayer of the bill for an injunction and accounting.

Let a decree be entered accordingly.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 60—No. 2. TUESDAY, JULY 12, 1892. PRICE—$5 per year.

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World's Columbian Exposition.

To the inventors and manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the developement of American invention.

W. E. SIMONDS,
Commissioner.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

This order does not include the written statements of the grounds of decisions made by Examiners, to the appellate tribunal in *ex parte* cases.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

INDEX TO FRENCH PATENTS, 1791 to 1879, inclusive, (subject-matter,) one volume, 935 pages, bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pages—

Bound half-turkey	2 50
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Paper covers	1 00

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Issue of July 12, 1892.

Patents	430—No. 478,546 to No. 478,975, inclusive.
Designs	15—No. 21,699 to No. 21,713, inclusive.
Trade-Marks	27—No. 21,428 to No. 21,454, inclusive.
Labels	None.
Reissue	1—No. 11,253.
Total issue	473

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	3	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	2	.....
Arkansas	2	.....	New Jersey	21	5
California	13	.....	New Mexico Territ'y	.....	.....
Colorado	7	.....	New York	65	6
Connecticut	19	.....	North Carolina	.....	.....
Delaware	.....	.....	North Dakota	1	.....
District of Columbia	3	.....	Ohio	27	.....
Florida	2	2	Oregon	2	.....
Georgia	.....	.....	Pennsylvania	44	2
Idaho	.....	.....	Rhode Island	5	3
Illinois	47	1	South Carolina	2	.....
Indian Territory	.....	.....	South Dakota	1	.....
Indiana	13	1	Tennessee	7	.....
Iowa	6	1	Texas	7	.....
Kansas	3	.....	Utah Territory	.....	.....
Kentucky	1	.....	Vermont	3	.....
Louisiana	2	.....	Virginia	5	.....
Maine	2	.....	Washington	1	.....
Maryland	4	1	West Virginia	3	.....
Massachusetts	31	1	Wisconsin	11	.....
Michigan	14	.....	Wyoming	.....	.....
Minnesota	4	.....	U. S. Army	.....	.....
Mississippi	2	.....	U. S. Navy	.....	.....
Missouri	21	.....			
Montana	.....	.....	Total to citizens of the United States	409	23
Nebraska	3	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Austria-Hungary	1	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	1	.....	New South Wales	.....	.....
Bermuda	.....	.....	New Zealand	.....	.....
Brazil	.....	.....	Norway	.....	.....
Canada	5	.....	Porto Rico	1	.....
Chile, Republic of	.....	.....	Queensland	.....	.....
Cuba	.....	.....	Russia	.....	.....
Denmark	.....	.....	Scotland	1	.....
Egypt	.....	.....	South Australia	.....	.....
Ecuador	.....	.....	Spain	.....	.....
England	12	3	Sweden	1	.....
France	6	.....	Switzerland	1	.....
Germany	5	1	Victoria	1	.....
Guatemala	.....	.....	West Australia	.....	.....
Italy	.....	.....			
Ireland	.....	.....	Total to citizens of foreign countries	36	4
Luxemburg	1	.....			

APPLICATIONS UNDER EXAMINATION.

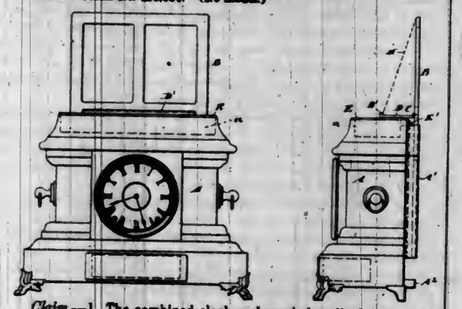
Condition at Close of Business July 5, 1892.

Division No.	Subjects of invention.	Oldest new application awaiting office action: New.	Oldest new application awaiting office action: Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	May 19	July 1	225
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	May 24	June 29	120
7	Harvesters, Games and Toys	May 6	June 21	270
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	May 7	June 20	204
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	May 12	June 11	208
5	Fine Arts, Stationery, Book-Binding, Music, etc.	May 10	June 6	211
	Between two and three months in arrears.			
24	Sewing-Machines and Apparel	Apr. 16	July 1	93
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Apr. 29	June 30	114
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 2	June 27	197
21	Textiles, etc	Apr. 20	June 21	182
23	Instruments of Precision, Acoustics, Optics, etc.	Apr. 14	June 17	277
2	Farm Stock, Products, etc	Apr. 12	June 17	288
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Apr. 12	June 15	217
12	Mechanical Engineering, Stores-Service, etc.	Apr. 29	June 13	196
17	Paper-Manufactures and Printing.	Apr. 25	June 13	180
8	Furniture, Toilet, Umbrellas and Canes, etc.	Apr. 25	June 13	410
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Apr. 16	June 13	204
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Apr. 9	June 13	290
1	Tillage and Fences	Apr. 19	Apr. 19	328
	Between three and four months in arrears.			
18	Steam-Engineering, etc	Mar. 22	June 17	289
22	Fire-Arms, Navigation, Signals, etc.	Apr. 4	June 10	232
9	Hydraulics, Fire-Extinguishers, etc.	Apr. 4	June 2	403
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Mar. 26	June 2	347
10	Carriages and Wagons and Railway-Cars.	Mar. 30	June 1	718
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Mar. 28	May 24	344
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 1	May 16	357
4	Civil Engineering, etc	Mar. 29	May 14	459
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 20	June 4	487
13	Metal-Working, Arms and Projectiles, etc.	Mar. 1	May 16	380
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Feb. 27	Apr. 25	445
19	Stoves and Furnaces	Feb. 19	Mar. 22	433
	Between five and six months in arrears.			
26	Electricity, Generation, Distribution, etc.	Jan. 26	June 14	356
	Total number of applications awaiting action			9,464
	Under one month in arrears.			
	Designs	June 25	June 25	54
	Trade-Marks	June 30	June 30	13

PATENTS

GRANTED JULY 12, 1892.

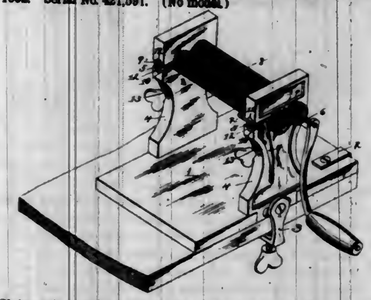
478,546. CLOCK-CASE. WILLIAM T. AMES, New York, N. Y., assignor to the Seth Thomas Clock Company, same place. Filed Mar. 28, 1892. Serial No. 426,639. (No model.)



Claim.—1. The combined clock and easel described, having the frame B, adapted to slide in grooves in the back of the clock-case A and provided with the hinged flap D, connected by hinges C, all combined and arranged to serve substantially as herein specified.

2. The clock-case A, having a till *a* and cover E therefor, and guiding means A', grooved to receive the frame B, in combination with such frame and with the flap D and ledge D', all arranged for joint operation, as herein specified.

478,547. MEAT-TENDERER. OSCAR M. ARNOLD, Searcy, Ark., assignor of one-third to Albert T. Sherrod, same place. Filed Feb. 16, 1892. Serial No. 421,591. (No model.)



Claim.—In a meat-tenderer, the combination of a base, standards rising from opposite sides of the base and provided at their upper ends with horizontal grooved bearing-slots, shafts geared together and journaled in the slots, the corrugated rolls mounted on the shafts, the bearing-blocks arranged in the bearing-slots and provided on their upper and lower faces with lugs fitting in the grooves thereof and having lateral extensions projecting outward beyond the standards, the springs arranged on the outer faces of the standards and engaging the lateral extensions of the bearing-blocks, and the adjusting-screws engaging the springs, substantially as described.

478,548. TEA OR COFFEE FILTER. ERNEST R. AUSTIN, Norwalk, Conn. Filed Mar. 5, 1892. Serial No. 423,818. (No model.)

Claim.—1. A filter for the purpose described, consisting of a bag

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having at its upper end a ring provided with inwardly-turned lugs, and a holding device consisting of a loop adapted to engage the top of the pot, a loop extending downward within the bag to hold it in position in use, and a ring adapted to fit within the ring upon the bag and having an inward curvature permitting it to pass one of the lugs, the holding device being locked within the bag by turning one of the rings slightly.

2. A tea or coffee filter consisting of a bag having a ring and lugs at the top, and a holding device consisting of a ring engaging within the ring in the bag, a loop extending downward within the bag, and a loop adapted to engage the top of the pot.

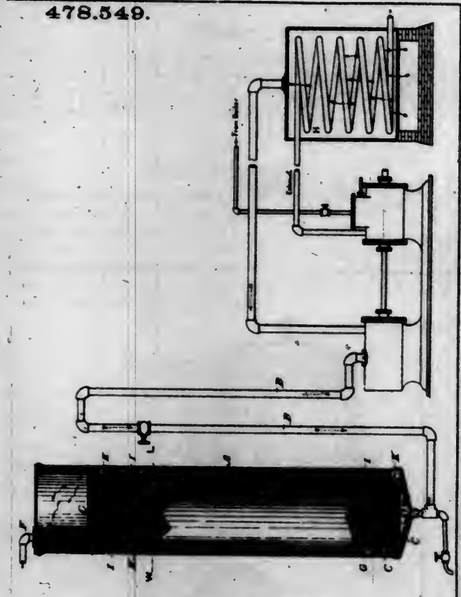
3. A tea or coffee filter consisting of a bag having a ring and lugs at the top, and a holding device consisting of a ring engaging within the ring in the bag, a loop extending downward within the bag, and a sheet metal loop secured to said ring and downwardly-extending loop and adapted to engage the top of a pot, said sheet-metal loop having a band-piece 5 and being cut away at the top, so as not to interfere with the lid of the pot.

478,549. FUEL-GAS APPARATUS. JOHN M. BAILEY, Bristol, Va. Filed Feb. 14, 1891. Serial No. 381,457. (No model.)

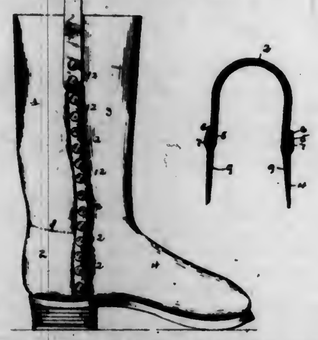
Claim.—1. A fuel-gas apparatus consisting of a cylinder or vessel filled nearly to the top with loose broken stone or analogous granular non-absorbent material and crude oil, the oil submerging the non-absorbent material, an air-inlet pipe at or near the bottom of said cylinder, and carbureted-air-exit pipe at or near the top of said vessel, all substantially as described.

2. In a fuel-gas apparatus, the combination, with a cylinder or vessel filled nearly to the top with loose broken stone or other analogous non-absorbent material and crude oil, the oil submerging the non-absorbent material, of a series of loose diaphragms horizontally disposed one above the other and separated a few inches from each other, forming a series of chambers for said non-absorbent material, each of said diaphragms having an aperture on one side and arranged in said cylinder or vessel, whereby the aperture of each alternating diaphragm shall be on the opposite side of the cylinder or vessel from that of the preceding one, an air-inlet pipe at or near the bottom of the cylinder or vessel, and a carbureted-air-exit pipe at or near the top of said cylinder or vessel, all substantially as described.

478,549.



478,550. BOOT-UPPER. OSCAR BAKER, Weatherford, Tex. Filed Mar. 30, 1891. Serial No. 387,755. (No model.)



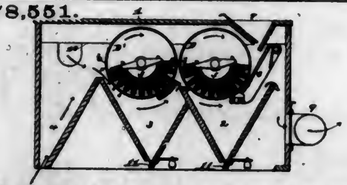
Claim.—The herein-described improved boot-upper, consisting of a front and rear section, each of said sections being made in one piece and the edges of the rear section doubled over upon themselves and having their edges secured to the edges of the front section by edge stitches passing through said edges of the front section and said edges of the doubled edges of the rear section, said doubled edges of the rear section and edges of the front section being arranged relatively to each other and the edges of the front section extended over the beads of said doubled edges of the rear section to form a broad connecting-seam, and rivets inserted through and through the center of all the thicknesses of said broad connecting-seam to form a water-tight and strong seam, the straps and counter being also adapted to be held by said rivets, as set forth.

478,551. MAGNETIC SEPARATOR. CLINTON M. BALL, Troy, N. Y., and SHELDON HORTON, Hokendauqua, Pa. Filed Oct. 12, 1891. Serial No. 408,594. (No model.)

Claim.—1. An ore-separator comprising a plurality of separating-surfaces and a magnetic field or fields in operative relation thereto, respectively, said field extending between adjacent separating-surfaces and assisting magnetically in the transfer of partially-separated ore from one surface to the other.

2. An ore-separator comprising two or more magnetic surfaces for withdrawing the iron from the gangue and means for effecting a

478,551.



transfer of the iron from one surface to the other, the magnetic polarities near the point of transfer being dissimilar.

3. An ore-separator comprising two or more traveling surfaces upon which the ore is held magnetically, said surfaces approaching each other and provided with co-operating magnetic poles of unlike sign, whereby the transfer of ore from one surface to the other is facilitated and a continuous operation with two or more separating devices may be conducted.

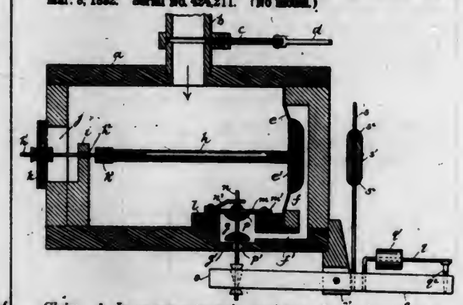
4. An ore-separator comprising two or more rotating surfaces arranged in series and magnetic fields for causing the adherence of ore to said surfaces while the gangue is expelled, the magnetic poles at adjoining points being of unlike sign to facilitate transfer of the ore.

5. An ore-separator comprising two or more magnetic fields and two or more non-magnetic screens moving in said fields, one screen adjoining another, so as to transfer ore thereto, the poles of the fields at the point of transfer being of unlike sign.

6. An ore-separator comprising two or more magnetic fields and two or more non-magnetic screens moving in said fields, one screen adjoining another, so as to transfer ore thereto, the poles of the fields at the point of transfer being of unlike sign and the receiving-pole being in advance of the delivery-pole.

7. An ore-separator comprising two or more groups of magnets arranged in succession, means for forcibly conveying the ore past the magnets and permitting the gangue to fall away, and means for effecting the transfer of ore from one group of magnets to the next, the groups of magnets being co-operatively placed to assist magnetically in the transfer of the partially-separated ore.

478,552. ORGAN-TREMOLO. IRA BARRETT, Chicago, Ill. Filed Mar. 8, 1892. Serial No. 424,211. (No model.)



Claim.—1. In an organ-tremolo consisting of a box having its interior divided into two chambers by means of a flexible diaphragm, means for connecting the main chamber of said box with the wind-chest of the organ, means for controlling the admission of air from said wind-chest to the main chamber of said box, an opening between the main chamber of said box and the outer atmosphere, a valve of less area than said diaphragm and in operative connection therewith for normally closing said opening, a channel and openings between said secondary chamber and said main chamber and between said secondary chamber and the outer atmosphere, a valve for normally closing the opening to said main chamber, a secondary valve mounted upon the same stem for closing the opening to said outer atmosphere when said primary valve is open, and a weighted vibratory lever in operative connection with said valve-stem, substantially as shown and described.

2. The combination, with an organ, of the box *a*, means for communication between the same and the main wind-chest, a slide for controlling said communication, diaphragm *e*, valve *k*, said diaphragm being of larger area than said valve *k* and connected therewith, opening *j*, chamber *f*, channel *f'*, communicating with the interior of the box and with the outer atmosphere, respectively, valves for alternately closing one and opening the other of the openings communicating with said channel, and a weighted pivoted lever in operative connection with said valves, substantially as shown and described.

3. The combination, with an organ wind chest, of a box in operative communication therewith, a movable diaphragm within said

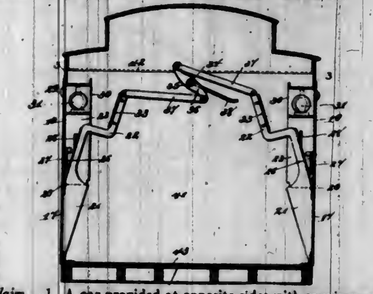
box and positively connected with a valve arranged to close an opening to the outer atmosphere, chamber *f*, channel *f'*, valves *p p'*, the former having a yielding seat, and weighted lever *o*, the preponderance of weight being so adjusted as to cause it to normally close the valve *p*, substantially as shown and described.

4. The combination, with an organ wind-chest, of the box *a*, having valve-openings therein, diaphragm *e*, valves *k* and *p p'*, chamber *f*, in operative connection with the openings of said valves *p p'*, and pivoted lever *o*, having one or more adjustable weights attached thereto, substantially as shown and described.

478,553. COMPOUND FOR FILLING COB PIPES. ALBERT C. RAUSCHER, Lanark, Ill., assignor of one-half to Harry Hepler, same place. Filed Dec. 24, 1891. Serial No. 416,067. (No specimens.)

Claim.—A pipe-filler compound or paste composed of syrup, soap, oil, and whiting, combined in substantially the proportions specified.

478,554. BURGLAR-PROOF CAR. JOHN BEERMAKER, Wahoo, Nebr. Filed Feb. 19, 1892. Serial No. 422,115. (No model.)



Claim.—1. A car provided at opposite sides with openings, combined with swells hinged at their lower edges to the openings and provided at their upper corners with light-openings and lamp-supports, of means for opening and closing the swells, a reflecting-plate located at the inner side of each light-lamp support, and means for throwing the same toward or away from the light-supports, substantially as specified.

2. The combination, with the car, the opposite walls of which are provided with openings, of opposite swells hinged at their lower edges to the openings, an intermediate rock-shaft provided with rock-arms, and links connecting the rock-arms with the swells, substantially as specified.

3. The combination, with the car having the opposite openings, the hinged swell-sections having the side strips bent to engage the edges of the openings and terminating at their upper ends in arms, the upper sections hinged to the lower sections and provided at their inner edges with the U-shaped frames, having their inner edges bent to engage the opening in the car, of the intermediate rock-shaft, the rock-arms on the same, and the links connecting the rock-arms with the side strips of the lower swell-sections, substantially as specified.

4. The combination, with the car having the opposite openings in its side walls, of the lower swell-sections hinged at their lower edges to the openings and provided with the side strips, terminating at their upper ends in inwardly-disposed L-shaped arms, the upper swell-sections having the U-shaped frames at their inner faces, embracing the side strips, the light supports and openings at the upper corners of the frames, the transverse reflecting-plates mounted on the L-shaped arms, the intermediate rock-shaft, the lever for operating the same, the rock-arms extending from the shaft, and the pivoted links connecting the outer ends of the rock-arms with the upper ends of the L-shaped arms of the side strips, substantially as specified.

5. The car having the opening in its side wall, combined with the lower swell-section hinged to the bottom of the opening, the upper swell-section hinged to the lower section, the side pieces for the two sections terminating at their inner edges in stops, and means for opening and closing the section, substantially as specified.

6. A car one end of which is provided with port-holes and in front of the same with a transverse partition-frame, the door-sections adapted to fold and hinged to the frame, the reversely-disposed keepers, and the intermediate locking-bar pivoted to one of the sections substantially as specified.

478,555. GARMENT HOOK AND EYE. FRANCIS E. BENNETT, Philadelphia, Pa. Filed June 16, 1891. Serial No. 396,660. (No model.)

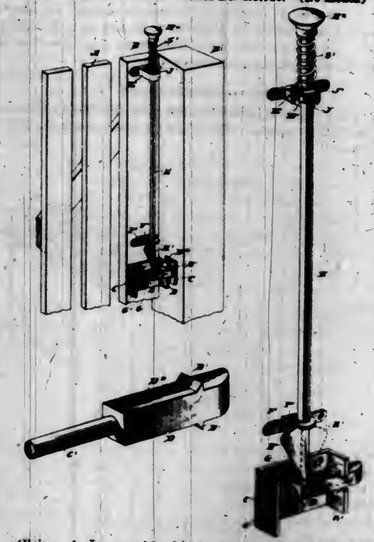
Claim.—A fastening device consisting of an eye formed of a single piece of wire with attaching-loops at its rear end and provided with an elastic shank, and a coiled spring between said shank, and a hook

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having a laterally-extended head wider than the shank of the eye, and a neck connected with the said head and the shank of the hook at an angle to the same, said parts being combined substantially as described.

478,556. GATE-LATCH. CHARLES F. BOTTMANN, Jr., New Albany, Ind. Filed Mar. 5, 1892. Serial No. 423,925. (No model.)

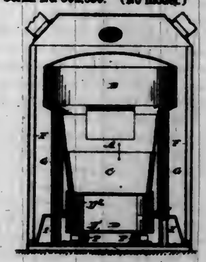


Claim.—1. In a combined lock, the combination of a spring-actuated bolt or latch having a slot extending therethrough, a rod or bar with a head thereon movably engaging said bolt or latch and passing through said slot therein and operating the same, and a sleeve on said rod or bar for locking the latter in either one of its adjusted positions against rotatable movement, substantially as described.

2. In a combined latch and lock, the combination of a bolt or latch having a slot extending therethrough, a square rod or bar arranged at right angles to said bolt or latch and having a head engaging said bolt or latch, and a square sleeve having a square opening therein through which said rod or bar extends and adjustably fitted to a square seat, the said sleeve being adjustably mounted in a temporary fixed position, substantially as described.

3. In a combined latch and lock, the combination of a sliding bolt or latch having a slot therein and extending therethrough, an operating rod or bar arranged at right angles thereto and of square form, the said bar being provided with a cam-head with a vertical wall, a square sleeve movably surrounding said bar or rod and having a square opening therein and a flanged head, and a bracket with a square opening therein to receive said square sleeve, said bolt or latch and operating rod or bar having springs in connection therewith, substantially as described.

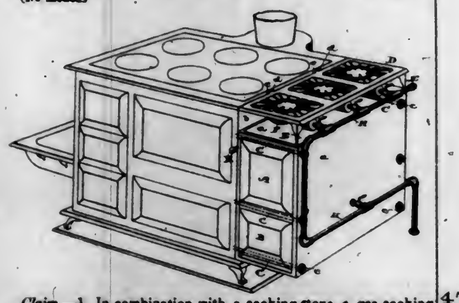
478,557. HEATER. RICHARD BIGLEY, Toronto, Canada. Filed May 8, 1891. Serial No. 392,059. (No model.)



Claim.—1. In combination, the fire-chamber and ash-pit, the projecting dome and base-chamber, the said ash-pit being formed by a depression in the upper wall of the base-chamber, which thus extends under the same and about its sides, the pipes G, leading from the dome to the base-chamber, the inclosing casing, and the pipes I, leading from the space beneath the heater through the base-chamber alongside the depending ash-pit and into the space inclosed by the outer casing, substantially as described.

2. In combination, the combustion-chamber having the enlarged dome, the base-chamber, pipes connecting said dome and base chamber, the casing surrounding the whole and forming a hot-air chamber between the dome and base-chamber, pipes connecting the hot-air chamber with the space beneath the base-chamber, and the smoke-flue having a valved connection with the dome and with the ash-pit, the said flue being continued below the ash-pit and valve into the base-chamber, substantially as described.

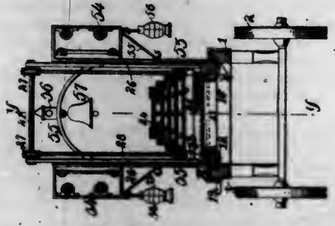
478,558. GAS ATTACHMENT FOR COOKING-STOVES. RICHARD BIGLEY, Toronto, Canada. Filed June 26, 1891. Serial No. 397,576. (No model.)



Claim.—1. In combination with a cooking-stove, a gas cooking attachment consisting of ovens and gas cooking-table connected directly to the side of the stove next the oven, the supplemental oven being held close to the stove-oven and provided with a damper at one side connecting with the smoke flue or pipe of the cooking-stove, as and for the purpose specified.

2. In combination with a cooking-stove, the supplemental ovens A and B, connected by bolts C directly to the side *b* of the stove next the oven, the table D, supported by lugs *d* in the slots *e*, and legs E on the top of the oven A, as specified.

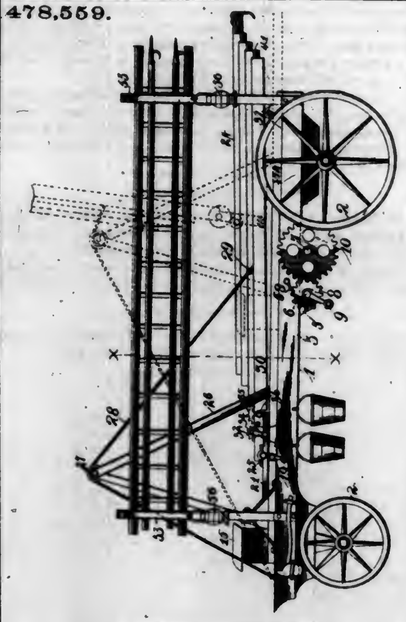
478,559. FIRE-ESCAPE LADDER. AUGUST J. BODEN, Litchfield, Ill. Filed Jan. 16, 1892. Serial No. 418,343. (No model.)



Claim.—1. In a fire-escape ladder, the combination, with a truck, of a carriage movable thereon, a series of extensible ladders, the lower one of which being pivotally and revolubly mounted on said carriage, a support mounted on the carriage in advance of the ladders, and a rope passing over said support and attached at its respective ends to the truck and ladders, substantially as and for the purpose set forth.

2. A fire-escape ladder consisting of a truck-frame, a carriage movable upon the same and provided with rack-bars, a shaft, such as 7, provided with gear-wheels 11, which are adapted to mesh with the said rack-bars for moving said carriage, a revolving plate, such as 21, mounted upon said carriage and provided with gear-teeth, pinions adapted to mesh with said teeth for revolving said plate, a series of ladders, one of which is movably mounted upon said plate, a cord or rope, such as 28, one end of which is secured to the said ladders and the opposite end to the truck-frame, supports, such as 26, carried by the said carriage and supporting suitable rollers 27, over which the said ropes are adapted to run, and means whereby the said ladders are moved upon one another and simultaneously, substantially as described.

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478,560. GAGE FOR DETERMINING THE AGE OF HORSES. ANDREW BOLINGER, Speedwell, Tenn. Filed Jan. 28, 1892. Serial No. 419,584. (No model.)



Claim.—1. In a device for ascertaining the approximate age of a horse, a gage A, having a tapered body portion, one of the longitudinal edges thereof having longitudinal parallel lines adjacent thereto, transverse lines or marks, and figures adapted to be used in connection with the gage-lines, substantially as and for the purpose set forth.

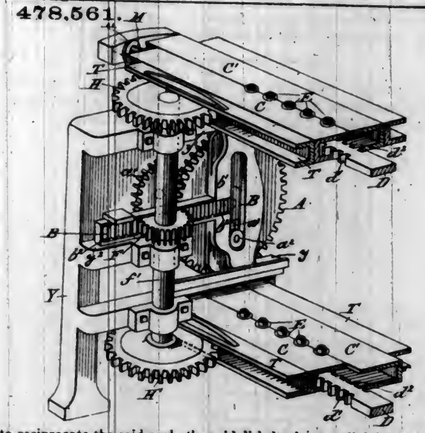
2. A gage or device for ascertaining the approximate age of a horse, consisting of a plate A, of gradually-decreasing width, spaced progressively from end to end by transverse gage-lines, and indicating-figures adjacent to the transverse lines, the plate adjacent to one of its longitudinal edges having lines parallel with said edge, substantially as shown, and for the purpose set forth.

478,561. WIRE-NETTING MACHINE. EDWARD S. BOND, Birmingham, England. Filed July 10, 1891. Serial No. 399,027. (No model.) Patented in England Oct. 8, 1890, No. 15,943.

Claim.—1. In machinery for manufacturing wire-netting, the pinions E for twisting the wire, in combination with the main racks D, engaging the said pinions, the gear-wheels H H', which engage and drive the said racks, a pinion on the shaft of said pair of gear-wheels, a rack b^3, engaging the said pinion and provided with a slotted part, a disk provided with an eccentric stud which engages the said slot, and plates C C', containing the main racks and wire-twisting pinions, substantially as set forth.

2. In machinery for manufacturing wire-netting, the pinions E for twisting the wire, in combination with the main racks D, engaging the said pinions, the gear-wheels H H', which engage and drive the said racks, a pinion on the shaft of each pair of gear-wheels, a rack b^3, engaging the said pinion and provided with a slotted part, a rotary disk provided with a stud or roller which works in the slot of said part

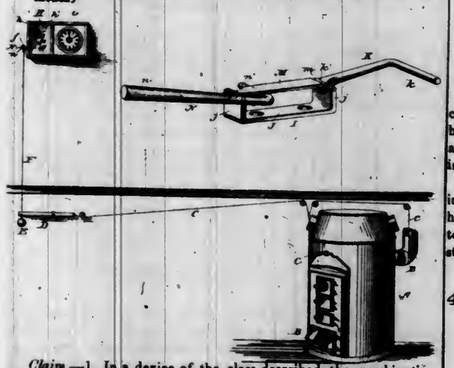
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to reciprocate the said rack, the said disk having a radial slot formed in it and the said stud being adjustable therein, and the plates C C', containing the main racks and wire-twisting pinions, substantially as set forth.

3. In machinery for manufacturing wire-netting, reciprocating plates C and C', in combination with buffers arranged between their opposing parts, and consisting of plungers M, attached to one set of plates and cylinders K, attached to the other set thereof, the wire-twisting pinions and racks engaging said pinions within the said plates, and mechanism for reciprocating the said racks, for the purpose set forth.

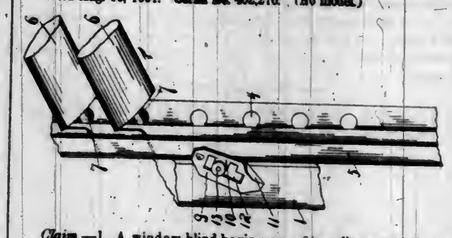
478,562. TIME-DAMPER-OPERATING MECHANISM. OTIS BRIGGS, Jr., Nevada, Iowa. Filed Apr. 5, 1892. Serial No. 427,858. (No model.)



Claim.—1. In a device of the class described, the combination, with a weight-controlled draft-regulating lever, of the clock-casing having an extended portion, the alarm-striking mechanism mounted in said casing and carrying a vibrating lever, and a releasing attachment mounted in said extended portion of the casing and comprising a base-plate, a drop-lever pivoted at one end of said base-plate and lying in the path of said alarm-lever, a releasing-plate pivoted to the other end of said base-plate and normally engaging the pivotal end of said drop-lever, and a releasing-lever pivoted within the casing, normally bearing under said releasing-plate and connected with said weighted lever, substantially as set forth.

2. In a device of the class described, the combination, with a weight-controlled regulating-draft lever, and an alarm-striking mechanism carrying a lever, of a releasing attachment located adjacent to said striking mechanism and comprising a base-plate having opposite upwardly-extending arms, a drop-lever pivoted to one of said arms and provided at one end with an offstanding arm lying in the path of said alarm-lever and a notch at its opposite end, a releasing-plate pivoted to the other base-plate arm and normally engaging the notch of said drop-lever, and a releasing-lever pivoted adjacent to the base-plate and provided with a bearing-arm normally bearing under said releasing-plate, and a supporting-chain connected with said weight-controlled lever and loosely to the other end of said releasing lever, substantially as set forth.

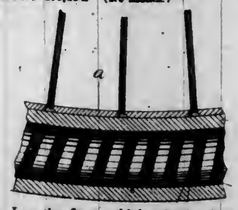
478,563. WINDOW-BLIND. WILLIAM Z. BROWN, Hannibal, Mo. Filed Aug. 10, 1891. Serial No. 402,270. (No model.)



Claim.—1. A window-blind having one of its stiles provided with a right-angular recess and bearings for the tenons of the slats, opening into the recess, and a slat-worker 5, located and movable in said recess, the same answering as a device for operating the slats and also as a means for holding the tenons of the slats in their bearings, substantially as set forth.

2. A window-blind having one of its stiles provided with a right-angular recess and bearings for the tenons of the slats, opening into the recess, a slat-worker 5, located and movable in said recess, the same answering as a device for operating the slats and also as a means for holding the tenons of the slats in their appropriate bearings, and a connecting-link 14 for connecting the slats to the slat-worker, substantially as set forth.

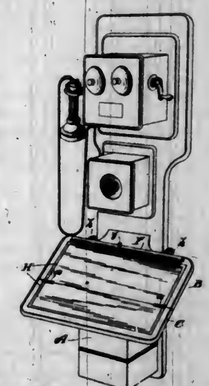
478,564. ELASTIC TIRE FOR VEHICLE-WHEELS. FREDERICK H. BULLARD and FRANK HARRINGTON, Chicopee, Mass. Filed Sept. 9, 1891. Serial No. 405,154. (No model.)



Claim.—1. In a tire for a vehicle-wheel, a hollow ring of elastic compressible material, substantially as set forth, and a spiral spring having the convolutions thereof separated and inclosed and extending around within the tire-ring and the said convolutions having a winding of suitable fabric, substantially as described.

2. In a tire for a vehicle-wheel, in combination, the ring of elastic india-rubber, the spring formed of separated convolutions of metal having the wrapping, and the annular inclosure composed of textile material for the coils which also constitutes lining for the tire-ring, substantially as described.

478,565. DESK ATTACHMENT FOR TELEPHONES. LEWIS C. BUTLER, West Bay City, Mich. Filed Feb. 9, 1891. Serial No. 380,807. (No model.)

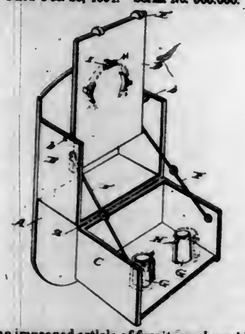


Claim.—1. In combination with the battery-box of a telephone, the desk attachment comprising the body having the extension-leaf hinged thereto, the brackets and lugs attached to the under face of

the body, the bail slidingly mounted on said brackets and lugs, and screws passing through said brackets.

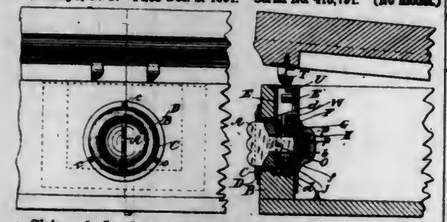
2. In combination with the body having the hinged extension, the brackets and lugs on the under face of the body, the bail slidingly mounted on said brackets and lugs, and the thumb-screws in said brackets.

478,566. COLLAR AND CUFF CABINET. HENRY CASPAR, New Orleans, La. Filed Feb. 26, 1891. Serial No. 383,000. (No model.)



Claim.—As an improved article of furniture, the cabinet described, comprising the vertically-disposed stationary section adapted to receive a hat or the like, the movable section carrying means for holding a collar and cuffs, the top adapted to close both the stationary and movable section on the upper side and swing into a vertical position within the cabinet when the latter has been opened, said top being pivoted in the opposite side walls of the stationary section and arranged to engage and hold the movable section in front of the stationary section in a closed position, and links or levers pivotally connected together and the outer end of one link connected to the inner end of the pivoted top and the outer end of the other link connected to the hinged or movable section, substantially as specified.

478,567. PERMUTATION-LOCK. WINFIELD S. CHEDISTER, Newark, N. J., assignor, by mesne assignments, to William Schloussner, Brooklyn, N. Y. Filed Dec. 2, 1891. Serial No. 413,791. (No model.)



Claim.—1. In a permutation-lock, a permanently-attached key and a click-wheel operated thereby, in combination with a series of permutation-rings and a tumbler controlled by the said rings, the said rings being held within a suitable box and being operatively connected with a click-wheel, as and for the purpose set forth.

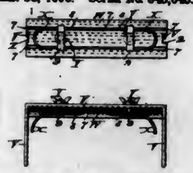
2. In a permutation-lock, a click-wheel and an operating-key, one or more permutation-rings operatively connected with the click-wheel, a disk connected with the last ring of the series and pressed outward against the key by a suitable spring, a catch on the said disk, and a detent normally out of the path of movement of the said catch but within its path when the disk is pressed inward by the key, as and for the purpose set forth.

3. In a permutation-lock, an operating-key joined by suitable intermediate apparatus, with a device, as O, carrying a catch, as *o'*, which engages with a detent, as *r'*, when the parts are operated under pressure, the said detent being held in an adjustable cap, whereby the movement of the key is susceptible of adjustable limitation, as and for the purpose set forth.

4. In a permutation lock, a cap attached to the inner case thereof on the outside, the said cap carrying a detent for fixing the starting-point for the combination and being capable of adjustment, in combination with a scale or dial on said inner case, as and for the purpose set forth.

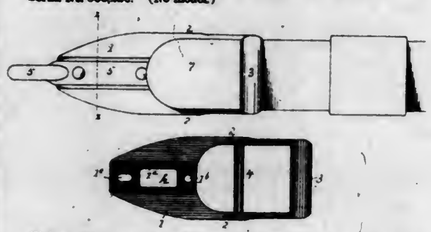
5. In a permutation-lock, a series of co-operating rings held within a box by suitable springs, in combination with a click-wheel carrying a ring capable of entering the said box and connected with the operating lock key, and a disk carrying engaging devices, the said disk being normally held out against the key by a spring and the said key having a reciprocating play, as and for the purpose set forth.

478,568. FOOT-REST FOR EMBALMING-TABLES. WILLIAM CLOUSER, Greenfield, Ohio, assignor of one-half to James A. Porter, same place. Filed Mar. 28, 1890. Serial No. 345,645. (No model.)



Claim.—The combination, in an embalming-table, of a foot-rest body part having a flat foot-bearing surface and grooves in the surfaces, a continuous wire support held in a groove in the rear of the body part, side foot-guards held in grooves in the front of the body part, and bolts securing both sets of wires to the body part by means of projecting head and nut parts, substantially as set forth.

478,569. HAME-CLIP SECTION. EDWARD D. COLE, Macon, assignor of one-half to William H. Starr, Decatur, Ill. Filed Feb. 4, 1891. Serial No. 380,228. (No model.)



Claim.—The combination, with a hame-clip, of a section-plate having a recessed central portion 1^a in two of its sides, an opening *k* in the recesses, and a rivet-hole at each end of said opening with rivets to secure the clip in the two recesses of the plate, a loop at one end of the section-plate, and a removable bolt for the hame tug, as set forth.

478,570. CHROMATIC PITCH-PIPE. CHARLES H. CONGDON, St. Paul, Minn. Filed Nov. 12, 1891. Serial No. 411,655. (No model.)



Claim.—1. In a device of the class described, the combination of the base having a series of parallel transverse grooves, the adjacent grooves opening to different sides of the base, series of reeds arranged above said grooves, and an inclosing cap above said reeds provided with a suitable vent, substantially as described.

2. In a device of the class described, the combination of the base having a series of recesses, series of reeds arranged, respectively, above said recesses, a cover above said reeds, and notches or outlets respectively connecting said recesses with the different sides of the base in such manner that the outlets of adjacent recesses are upon different sides of the instrument, substantially as described.

3. In a device of the class described, the combination of the recessed base, a reed-plate arranged thereon having a bottom and a top series of reeds, one of each series standing above each of the recesses in the base, a cover fitted upon said plate above said reeds and provided with a suitable vent, and notches or outlets in the sides of the base communicating severally with said recesses and serving as ports for said reeds, so that the outlets of adjacent recesses are upon different sides of the instrument, substantially as described.

478,571. APPARATUS FOR THE MANUFACTURE OF GAS. ANDRÉ COZE, Rheims, and ALEXANDRE LENGLACHEZ, Paris, France, assignors, by direct and mesne assignments, to Socrates Newman and James Green, St. Louis, Mo. Filed Mar. 28, 1890. Serial No. 345,384. (No model.) Patented in France Aug. 30, 1889, No. 200,501.

Claim.—1. A gas-retort bench having a centrally-disposed furnace provided with an inclined vault or arch and two sets of inclined retorts on opposite sides of said furnace in passages between the side walls of the furnace and the adjacent side walls of the bench, substantially as described.

2. A gas-retort bench having a vaulted furnace, retorts located at the side of the furnace, an uptake at the rear end of the vaulted furnace, a distributing-chamber located above the furnace-vault and connected with the uptake and having discharge-openings above the retorts, and air-supply flues also opening above the retorts, substantially as described.

3. A gas-retort bench having inclined retorts whose charging-mouths are arranged at substantially the same level above the bench and having the furnace thereof provided with a charging-chute whose mouth is at substantially the same level with the charging-mouths of the retorts, whereby the furnace can be charged at the same level as the retorts, substantially as described.

4. A gas-retort bench having a centrally-disposed furnace, inclined retorts at each side thereof, and a regenerator in the rear of each of the substantially triangular spaces comprised between the lower retorts and the back wall and base of the bench, substantially as described.

5. A gas-retort bench having a centrally-disposed furnace provided with an inclined vault or arch, inclined retorts at each side thereof, and a regenerator in the rear of each of the substantially triangular spaces comprised between the lower retorts and the back wall and base of the bench, substantially as described.

478,572. GRAIN-BINDER. HENRY P. CRANDALL, Milwaukee, Wis., assignor to the Milwaukee Harvester Company, same place. Filed Dec. 29, 1890. Serial No. 376,136. (No model.)

Claim.—1. In a grain-binder, the combination of a continuously-rotating driving-shaft, a knotter-shaft provided with a crank-arm, a wheel loosely mounted upon the knotter-shaft and provided with a stop adapted to engage with said crank-arm, and through it drive the knotter-shaft, a pinion loosely mounted upon the continuously-rotating shaft, an intermediate gear connecting the pinion with said wheel, a clutch for connecting the driving mechanism with said pinion, a trip-arm connected with the knotter-shaft crank and controlling said clutch, and a yielding part exposed to the pressure of the grain in the binder and arranged to turn the knotter-shaft and through it operate said trip, substantially as and for the purpose set forth.

2. In a grain-binder, the combination of the knotter-shaft provided with a crank-arm, a continuously-rotating driver, a wheel loosely mounted on the knotter-shaft and provided on opposite sides of its crank-arm with stops, permitting a limited independent movement of the knotter-shaft, one stop serving to drive the knotter-shaft and the other to limit its independent advance movement, a clutch for connecting said wheel with the driver, a trip connected with the knotter-shaft and controlling said clutch, and a yielding part exposed to the pressure of grain accumulating in the binder and arranged to turn the knotter-shaft and through it operate said trip, substantially as and for the purposes set forth.

3. In a grain-binder, the combination, with the binding mechanism, of a yielding breast-plate, a driving-pinion mounted upon a driving-shaft and held out of engagement with its motor by means of a trip-arm, a knotter-shaft having a crank-and-pitman connection with said trip-arm, and an arm projecting from the knotter-shaft and overhanging the breast-plate, whereby the pressure of the grain against the breast-plate imparts a partial rotation to the knotter-shaft and trips the machine into action, substantially as and for the purposes set forth.

4. In a grain-binder, the combination of a breast-plate arranged to yield by the pressure of the grain in the binder and thereby actuate the knotter-shaft by means of an arm projecting therefrom, the knotter-shaft provided with a crank having a pitman connection with the needle-crank and trip-arm, a gear-wheel loosely mounted upon the knotter-shaft and provided with a stop engaging the crank and operating said knotter-shaft, a spring for holding the crank in engagement with said stop, whereby the knotter-shaft crank is permitted to move a limited distance in advance of the gear-wheel when actuated by the yielding of the breast-plate, and a stop for limiting the independent advance movement of said crank, substantially as and for the purposes set forth.

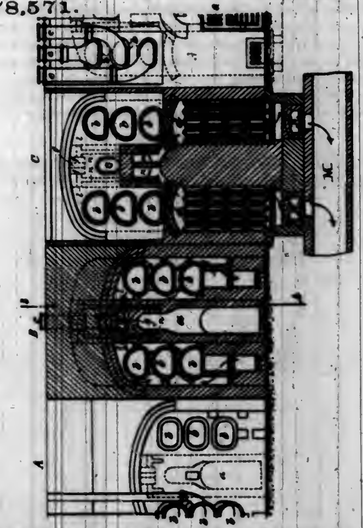
5. In a grain-binder, the combination of the knotter and needle shafts provided with cranks, a pitman connecting said cranks, a continuously-rotating driver, a wheel loosely mounted on the knotter-shaft and provided with stops on opposite sides of the knotter-shaft crank, one stop serving to drive the knotter-shaft and the other to limit its independent advance movement, a spring holding said crank normally in engagement with the driving-stop, a projection on the pitman-head arranged to engage with the limiting-stop and hold the crank during the operation of compressing and binding the bundle in engagement with the driving stop and prevent the backward yielding of the needle, a clutch for connecting the driver with the binding mechanism, a trip connected with the knotter-shaft and controlling said clutch, and a yielding part exposed to the pressure of grain in the binder and arranged to turn the knotter-shaft and through it to operate the clutch-trip, substantially as and for the purposes set forth.

6. In a grain-binder, the combination of the knotter-shaft, provided with an arm, a continuously-rotating driver, a clutch for connecting the driver with the binding mechanism, a trip connected with the knotter-shaft and controlling said clutch, and a yielding breast-plate provided with a projection in the path of the arm on the knotter-shaft, whereby the movement of said breast-plate produced by the pressure of grain in the binder is imparted to the arm on the knotter-shaft, which operates the clutch-trip, substantially as and for the purposes set forth.

7. In a grain-binder, the combination of the knotter-shaft having an arm provided with a friction-roller, a continuously-rotating driver, a clutch for connecting the driver with the binding mechanism, a trip connected with the knotter-shaft and controlling said clutch, and a yielding breast-plate provided in the path of said friction-roller with an incline or camway by which the breast-plate is returned to its normal position by the revolution of the knotter-shaft in discharging a bundle, substantially as and for the purposes set forth.

8. In a grain-binder, the combination of a yielding breast-plate pivoted to the frame of the machine and having an adjustable connection with the knotter-frame, a discharge-arm secured to the knotter-shaft and provided with a roller which normally overhangs the breast-plate, whereby the upward movement of the breast-plate raises the

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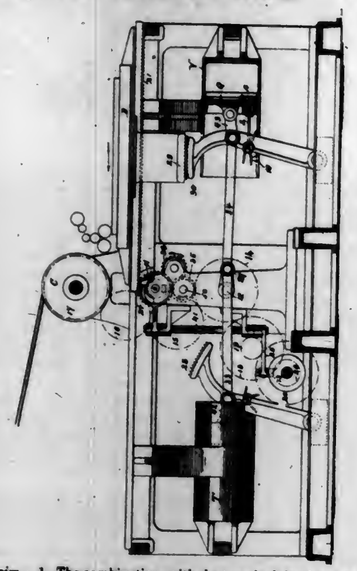
478,572.



discharge-arm, which actuates the knotter-shaft to trip the binder-driving mechanism into action, and whereby the revolution of the discharge-arm returns the breast-plate to its normal position, substantially as and for the purposes set forth.

9. In a grain-binder, the combination, with the needle, of a compressor hinged to a suitable support, so as to be swung into and out of the path of the grain in the binder, a locking pawl or arm adapted to engage with and hold said compressor in working position, and a tripping-pawl pivoted to and moving with the needle and arranged when the needle descends to engage with said locking pawl or arm and throw the same out of engagement with the compressor, substantially as and for the purposes set forth.

478,578. BED-MOTION FOR CYLINDER PRINTING-MACHINES. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Apr. 1, 1892. Serial No. 427,317. (No model.)



Claim.—1. The combination, with the type-bed, its single driving-rack, and single driving-pinion constantly geared therewith and mounted loosely upon its shaft, of two clutches running in opposite directions and operated to be alternately coupled to said pinion to actuate the same, substantially as described.

2. The combination, with the type-bed, its single driving-rack and single co-operating driving-pinion constantly geared therewith and turning freely upon a shaft, two actuating-pinions driven in opposite directions, and clutches alternately coupling said actuating-pinions to the driving-pinion for moving the bed during the major part of its run in both directions, of a reversing mechanism moving in harmony with said actuating-pinions and operating to slow down and stop the bed in one direction and start and accelerate the bed in a contrary direction at each end of its run, substantially as described.

3. The combination, with the type-bed, its single driving-rack, a loosely-running single driving-pinion therefor, two oppositely-rotating actuating-pinions, clutches for alternately coupling said actuating-pinions to the single driving-pinion and uncoupling them therefrom to produce the major portion of the reciprocation of the bed, and a reversing mechanism consisting of a crank revolved in harmony with and disconnected from the bed to control the end or reversing movements of the bed, substantially as described.

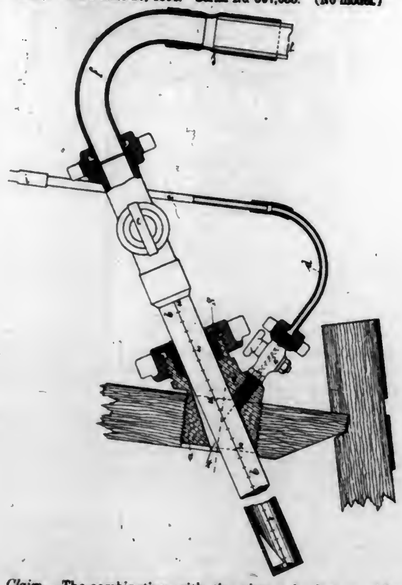
4. The combination, with the type-bed, its single driving-rack, single freely-moving driving-pinion, two actuating-pinions turning in opposite directions, and clutches for coupling said pinions, of crank-actuated controlling-arms alternately engaged with and disengaged from said bed, whereby the movement of the bed in each direction is begun by one of the controlling-arms, is continued throughout its major part by the single driving-pinion, and completed to a state of rest by the other of the controlling-arms, substantially as described.

5. The combination of the bed, its single driving-rack, and single freely-moving driving-pinion, two actuating-pinions driven in contrary directions from the crank-shaft, clutches for connecting said actuating and driving pinions, rocking arms 28 30, connected with the crank 27, and a socket for said arms in the bed, substantially as described.

6. The combination, with the bed, its controlling-arms, and air-cushions, of the valve 4, its operating-stem 3, and the rotating cam 7, substantially as described.

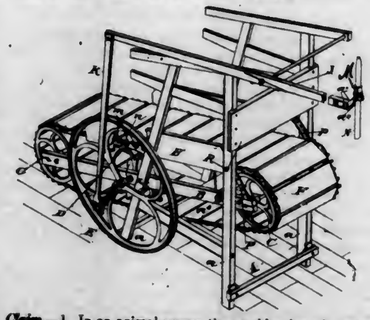
7. The combination, with the bed and its rack or lug 29, of controlling-arms 28 30, having segment-heads, substantially as described.

478,574. COCK FOR CASKS. EDUARD CREMER, Münster, Germany. Filed June 26, 1891. Serial No. 397,635. (No model.)



Claim.—The combination, with the plug *a*, having an oblique conical bore *k*, of the stop-cock *c*, having a long tube *b*, adapted to slide in said plug *a* in a straight line and to move upward and downward as well as to the sides of the stuffing-box *s*, the bend *f*, connecting the stop-cock *c* to the main piping *l*, the gage-glass *g*, the cock *c'*, secured to the plug *a* and having a passage inclined downward, the bend *d*, the gage-glass *e*, the secondary pipe *i*, and the wind-cock *h*, substantially and for the purpose as described.

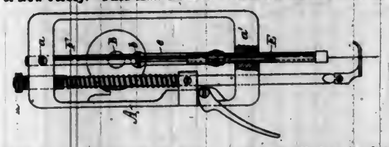
478,575. ANIMAL-POWER. JOSEPH DICK, Canton, Ohio. Filed June 29, 1891. Serial No. 397,804. (No model.)



Claim.—1. In an animal-power, the combination of a supporting-frame having a girder on each side near the lower edge thereof, which girders also serve as tracks, a platform carrying frame suspended in said supporting-frame and provided with devices at one end thereof to engage the girder, whereby the platform may be tilted from an inclined or horizontal to a vertical position and the devices caused to travel on the girders, a pair of wheels at each end of the platform-carrying frame, and an endless platform having sprocket-chains carried by said wheels, and a sprocket-wheel journaled centrally to said platform-carrying frame and in engagement with one of said sprocket-chains.

2. In an animal-power, the combination of a supporting-frame, a platform-frame provided at its end with wheels, and an endless platform consisting of slats, plates secured to each end thereof, and each plate provided with lugs *j' j' j'*, projecting inwardly therefrom, studs *m*, pins *k*, and links H, substantially as set forth.

478,576. NEEDLE-BAR FOR SEWING-MACHINES. PHILIP DIEHL, Elizabeth, N. J., assignor to The Singer Manufacturing Company of New Jersey. Filed Mar. 16, 1892. Serial No. 425,065. (No model.)



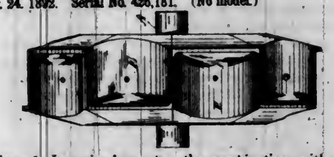
Claim.—1. In a sewing-machine, a hollow needle-bar having internal and external longitudinal bearings, substantially as and for the purposes set forth.

2. In a sewing-machine, the combination, with a hollow needle-bar and a rod forming an internal longitudinal bearing for said bar, of an external longitudinal bearing for said hollow needle-bar.

3. In a sewing-machine, the combination, with a hollow needle-bar and a rod forming an internal longitudinal bearing for the same, of an external longitudinal bearing for the said hollow needle-bar, which coincides with or overlaps a portion of the said rod forming the internal bearing.

4. In a sewing-machine, the combination, with a hollow needle-bar and a rod forming an internal longitudinal bearing for the same, said rod being provided with a longitudinal groove for the passage of air, of an external longitudinal bearing for said hollow needle-bar.

478,577. WHEEL. ROBERT W. DIXON, Springfield, Ohio. Filed Mar. 24, 1892. Serial No. 426,181. (No model.)



Claim.—1. In a rice-harvester, the combination, with a wheel-center, of a rim mounted thereon, consisting of cup-shaped indentations, open at alternate sides and representing a continuous circular contour by the remaining side walls of said cups.

2. In a wheel, the combination, with a wheel-center, of a rim therefor, having cup-shaped indentations open at alternate sides and alternately arranged, the other side of each cup constituting a circular contour for rolling on hard ground.

3. In a wheel, the combination, with a wheel-center, of a wheel-rim having cup-shaped indentations or recesses open at alternate sides and alternately arranged on said rim, the other side of each recess forming a circular contour for the wheel and connected by the edges of said cup-shaped indentations or recesses to constitute a zigzag tread.

4. In a wheel, the combination, with a wheel-center, of a rim therefor having cup-shaped indentations open at the sides, the opposing side being flared outward toward the center to give clearance to the rim.

5. In a wheel, the combination, with a wheel-center, of a rim therefor having indentations or recesses open at alternate sides and closed by a wall at the other side and regularly disposed on said wheel, the said walls of the wheel-rim having an incline or flare outwardly as they approach the center, whereby a draw or clearance is given to said rim.

6. In a wheel, a rim having an outward flare on the sides thereof as it approaches the center to give a clearance or draw thereto, for the purpose described.

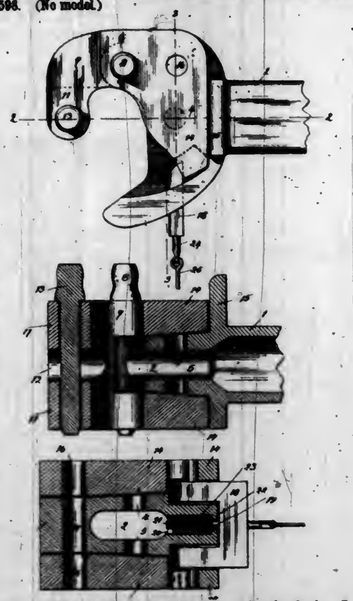
7. In a wheel, a rim having cup-shaped recesses open at alternate sides and closed at the other to facilitate the withdrawal of mud forced therein as the wheel travels along the soft ground.

8. In a wheel, a rim formed in segments, each segment provided with one or more cup-shaped recesses open at one side and closed at the other, substantially as shown and described.

9. In a wheel, a rim formed in segments, each segment having one or more cup-shaped recesses open at one side and provided with inclined side walls constituting the rim proper to afford clearance to the wheel.

10. In a wheel, a rim formed in segments, each segment being provided with a recess open at one side and closed by the said wall of the rim at the other side and adapted to be secured to adjacent segments to constitute an alternate or uniform arrangement of recesses, respectively.

478,578. CAR-COUPLING. WILLIAM DONCHUE, Chicago, Ill., assignor to Anderson Fowler, same place. Filed Mar. 11, 1892. Serial No. 424,598. (No model.)



Claim.—1. The combination, with a draw-head, of a jaw 7, a pin 8, pivotally connecting said jaw to the draw-head, projections 11 and 14 on said jaw, and a dog 18, adapted to engage said projection 14, substantially as and for the purpose specified.

2. The combination, with the draw-head, of a jaw 7, having the projections 14, a pin 8, pivotally connecting the jaw to the draw-head, a bifurcated dog 18, mounted transversely in the draw-head and adapted to slide therein, and a spring 23, acting to press the dog inward, so that its bifurcations engage the projections on the pivoted jaw, substantially as described.

3. The combination, with a draw-head having a recess 20, of a jaw 7, having the outer and inner projections 11 and 14, a pin 8, pivotally connecting the jaw to the draw-head, a bifurcated dog 18, having a pin 19, extending into the recess of the draw-head, and a spring 23, located on the said pin and acting to press the dog inward, so that its bifurcations engage the inner projections on the pivoted jaw, substantially as described.

478,579. FISHING APPARATUS. IRA DURHAM, Detroit, Mich. Filed Apr. 9, 1892. Serial No. 428,434. (No model.)

Claim.—1. In a fishing apparatus, the combination of a vessel, a net secured near the bow and extending toward the stern of said vessel, and one or more receptacles for fish located at the rear end of said net and accessible from said vessel, substantially as shown and described.

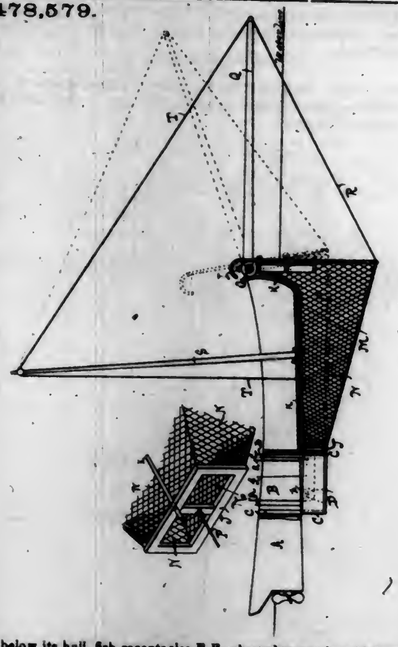
2. In a fishing apparatus, the combination of the vessel A, a net N, secured at the bow of said vessel to a frame-work G H and extending toward the stern of said vessel, said frame-work being pivoted to said vessel, and means for turning said frame-work and holding it in its various positions, substantially as shown and described.

3. In a fishing apparatus, the combination of the vessel A, provided with a well B through its hull, a net N, secured at one end at the bow of said vessel and extending to said well, and one or more receptacles for fish located at the lower end of said well, substantially as shown and described.

4. In a fishing apparatus, the combination of the vessel A, a net N, secured at the bow of said vessel to a frame-work G H and extending toward the stern of said vessel, said frame-work being pivoted to said vessel and being adapted to be contracted and expanded, and means for rotating said frame and holding it in its various positions, substantially as shown and described.

5. The combination of the vessel A, provided with a frame-work

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C D below its hull, fish-receptacles E E, adapted to rest in said frame-work, a frame-work G H, pivoted toward the bow of said vessel, a net secured to the frame-work G H at one end and adapted to extend to the frame-work C D at the other end, a rope P, secured to the last-mentioned end of said net and extending through said frame-work C D, a spar Q, secured to the frame-work G H, and means for raising and lowering said spar, substantially as shown and described.

478,580. MACHINE FOR SEAMING CANS. CHARLES W. ELLSWORTH, Chicago, Ill., assignor to the Chicago Stamping Company, same place. Filed Dec. 28, 1891. Serial No. 416,331. (No model.)

Claim.—1. The combination, with a rotary head and a tool carried thereby, of the chuck J, movable toward and from said head, a stem by which said chuck is carried, and means for rigidly holding said stem against rotation, substantially as set forth.

2. The combination, with a rotary head and a tool carried thereby, of the chuck J, movable toward and from said head, an adjustable stop for limiting their approach, a stem supporting the chuck, and means rigidly holding said stem against rotation, substantially as set forth.

3. The combination, with a rotary head and a tool carried thereby, of the stem H, having the bore *h'*, means rigidly holding said stem against rotation, the chuck J, having stem *j* fitting in said bore, and means for limiting the downward movement of the stem *j*, substantially as set forth.

4. The combination, with a rotary head and a tool carried thereby, of the stem H, having the bore *h'*, and means rigidly holding said stem against rotation, the chuck J, having stem *j* fitting in said bore, and means for limiting the movement of the stem *j* either upward or downward, substantially as set forth.

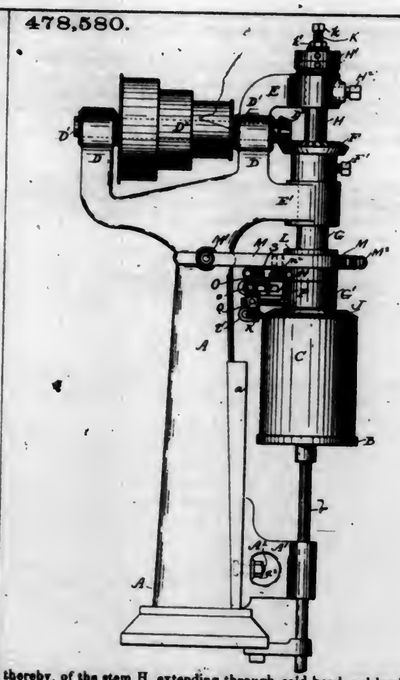
5. The combination, with a rotary head and a tool carried thereby, of the stem H, having the bore *h'*, the chuck J, having stem *j* fitting in said bore, means for limiting the downward movement of the stem *j*, and the adjustable rod K for limiting its upward movement, substantially as set forth.

6. The combination, with a rotary head and a tool carried thereby, of the stem H, having the bore *h'*, the chuck J, having stem *j* fitting in said bore, the spring I, situated in said bore and bearing against the stem *j*, and means for limiting the downward movement of said stem, substantially as set forth.

7. The combination, with the frame having arms E and E', of the hollow shaft G, journaled in the arm E', the tool carried by said shaft, the stem H, supported by the arm E and extending downward through said shaft G, and the chuck supported by said stem, substantially as set forth.

8. The combination, with a hollow rotary head and a tool carried

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thereby, of the stem H, extending through said head and having the flange *h* bearing against its under side, and a chuck supported by said stem, substantially as set forth.

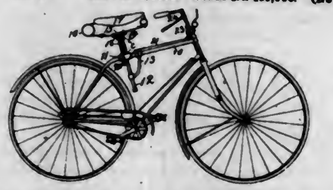
9. The combination, with the frame having the arms E and E', of the hollow shaft G, journaled in the arm E', the gear-wheel F, fixed with relation to said shaft and resting upon the arm E', a tool carried by the shaft, the stem H, fixed to the arm E and extending downward through said shaft, and a chuck supported by said stem, substantially as set forth.

10. The combination, with a rotary head, of a stud projecting therefrom, a lever located in a plane parallel with the axis of said head, fulcrumed to said stud, a tool controlled by the lever, and means for operating the lever, substantially as set forth.

11. The combination, with a rotary head, of the studs N and P, projecting therefrom, the block O, mounted to slide on stud P, the tool carried by said block, the lever O, fulcrumed to stud N and engaging block Q, and means for operating said lever, substantially as set forth.

12. The combination, with a rotary head, of the stud N, projecting therefrom, a lever fulcrumed thereto and adjustable on said stud toward or from the head, a tool controlled by the lever, and means for controlling the lever, substantially as set forth.

478,581. SEAT-SUPPORT FOR BICYCLES. WILLIAM A. ELMORE, New York, N. Y. Filed Feb. 1, 1892. Serial No. 419,900. (No model.)



Claim.—1. The combination, with the seat-standard, of a spring and a rotative pin, which is adapted to bind the standard in one position and free it in another position, as described.

2. The combination, with a seat-standard formed with a notch, of a rotative locking-pin formed with a surface adapted to enter said notch and bind said standard and also with another surface adapted to withdraw from said notch and free said standard, as described.

3. The combination, with a seat-standard formed with a notch, of a rotative locking-pin formed with a surface adapted to enter said notch and bind said standard and with another surface adapted to withdraw from said notch and free said standard, a lever on said locking-pin, and means for reciprocating said lever, substantially as described.

4. The combination, with a seat supporting standard formed with a notch, of a spring coiled around said standard and adapted to actuate the same, a guide-block on the frame of the machine for said standard, a rotative pin housed in said guide-block and having a surface adapted to enter the notch in said standard and also having another surface adapted to withdraw from said notch, and devices for rotating said pin, as described.

5. The combination, with a seat and its supporting-standard formed with a notch, of a guide-block for said standard, a rotative pin housed in said guide-block and having a surface adapted to enter said notch and also another surface adapted to withdraw from said notch, a lever on said pin, a cord adapted to operate said lever, and retaining-hooks for said cord, substantially as described.

6. The combination, with the seat-supporting standard, of a main spring, an auxiliary spring that is coiled about the standard, a plate formed with tongues that engage the coils of the auxiliary spring, the standard passing through the plate, and a standard-locking attachment, substantially as described.

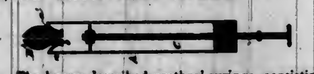
478,582. LARYNX-TUBE. GEORGE ERNOLD, New York, N. Y. Filed May 16, 1891. Renewed Dec. 10, 1891. Serial No. 414,650. (No model.)



Claim.—1. The process herein described of making intubation-tubes, which consists in placing a tube or core of sheet metal of greater length than the intubation-tube to be produced into a mold; secondly, casting the metal body of the intubation-tube around the interior tube or core; thirdly, cutting off the projecting ends of the tube or core, and, lastly, finishing the tube, substantially as set forth.

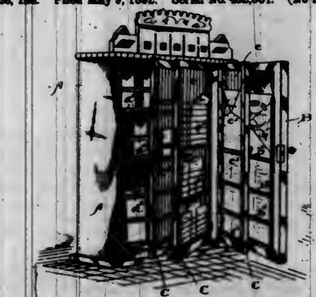
2. An intubation-tube for the larynx, consisting of an interior tube or core of sheet metal having an obtusely-bent upper end and an exterior body of cast metal around said core, substantially as set forth.

478,583. SYRINGE. JACOB A. FLEXNER, Louisville, Ky. Filed Sept. 25, 1891. Serial No. 406,962. (No model.)



Claim.—The herein-described urethral syringe, consisting of the cylindrical barrel having an opening in its forward end adapted to admit medicinal tablets or powders into the barrel, an elastic tip having a conical forward end and a longitudinal passage through it, said tip being removable from said barrel to permit of the insertion of the tablets or powders and held therein by its inherent elasticity, and a piston operating within said barrel, all substantially as described.

478,584. FILING AND SUPPLY CASE. PERRY FRAZIER, New Castle, Ind. Filed May 9, 1892. Serial No. 432,901. (No model.)



Claim.—1. The combination, in a filing-case, of the outer structure or casing A, the door B, and the several swinging racks C, having wires, strips, or netting extending over their sides, and thereby forming receptacles for blanks, stationery, &c., substantially as shown and described.

2. The combination, in a filing-case, of the outer structure or casing A, having the stepped strip or strips A', and the racks C, hinged thereto, as shown, whereby said racks are enabled to be swung out to a position at right angles with the body of the case without interfering with each other, substantially as shown and described.

3. In a filing-case, the hinged rack C, consisting of a frame, wires or strips extending down through the center thereof vertically, thus dividing said rack into two parts, and wires or strips extending over the outside also, whereby the contents are held in upright position, where they may be easily observed, substantially as shown and described.

4. The combination, with the casing of a filing-case, of racks hinged within said casing and provided with transverse divisions and retaining wires or strips covering the sides, substantially as and for the purpose set forth.

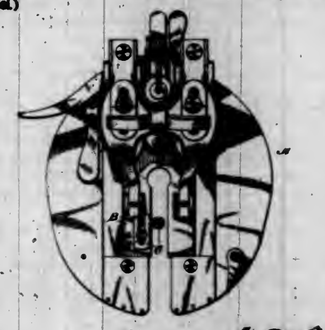
478,585. FENDER FOR VEHICLES. CLAUS FREESE, St. Louis, Mo., assignor of one-half to Henry Gissenbier, same place. Filed Feb. 1, 1892. Serial No. 419,961. (No model.)



Claim.—1. As an improvement in adjustable fenders of the class described, the combination, with a standard provided in its upper portion with a slot extending from side to side thereof and forming two parallel extensions 11, formed with bolt-apertures 12 near their upper and lower ends, of a flat plate 13, fitting within said slot and provided with two longitudinal slots 19, registering with the apertures 12, said plate carrying the fender, and bolts 20, passing through said apertures and slots 19 and provided upon one end with thumb-nuts 21, substantially as and for the purpose set forth.

2. A fender of the class described, consisting of a standard adapted to be attached to the vehicle-axle and provided at its upper end with two parallel extensions, a plate fitting between said extensions and provided with longitudinal slots registering with bolt-apertures in the extensions, a fender provided with a flange forming a guard-plate and connected with the adjustable plate, and bolts passing through said apertures and slots and provided at one end with thumb-nuts, all arranged and adapted to operate substantially as and for the purpose set forth.

478,586. CLAMP FOR BUTTONHOLE SEWING-MACHINES. CHAS. A. FREDON, Boston, Mass., assignor to The Singer Manufacturing Company of New Jersey. Filed Jan. 29, 1892. Serial No. 419,669. (No model.)

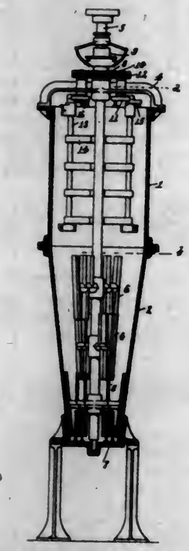


Claim.—1. The combination, with a clamping-jaw of a buttonhole-clamp, of a presser pad or finger attached thereto and thus movable therewith and arranged to press upon the material at the end of the buttonhole-slit between the jaws of the clamp.

2. The combination, with a clamping-jaw of a buttonhole-clamp, of a presser pad or finger attached thereto and provided with a slotted shank by which it is adapted to be adjusted lengthwise of said jaw.

3. A buttonhole-clamp provided with a presser pad or finger arranged between the open or separated jaws of the clamp in such position as to press on the material at or near the end of the buttonhole-slit, said pad or finger being attached to and thus movable with one of the jaws of the clamp.

478,587. MIXING OR SEPARATING MACHINE. HENRY M. GARIS, Avondale, Ohio. Filed Mar. 21, 1892. Serial No. 425,704. (No model.)



Claim.—1. The combination, substantially as set forth, of a fixed shell, a circumferential series of shafts therein at the inner surface of the shell, agitator-arms secured upon the shafts and reaching to near the center of the shell and adapted for vibration to and from the shell, and mechanism, substantially as described, for giving to said shafts in unison motions of partial rotation, whereby said agitator-arm may be continuously oscillated.

2. The combination, substantially as set forth, of a fixed shell, a circumferential series of shafts therein at the inner surface of the shell, agitator-arms secured upon said shafts and reaching to near the center of the shell and adapted for vibration to and from the shell, crank-arms on said shafts, a central shaft, a gear thereon, crank-shafts provided with cranks and with gears engaging said central gear, and links connecting the cranks and crank-arms.

3. The combination, substantially as set forth, of a shell, a central shaft therein, rakes secured to a portion of said shaft in the lower portion of the shell, a circumferential series of agitator-shafts mounted in fixed bearings in the upper portion of the shell and provided with agitator-arms adapted to vibrate to and from the shell, and mechanism, substantially as described, for rotating the central shaft and oscillating the agitator-arms.

4. The combination, substantially as set forth, of a vertical shell cylindrical in its upper portion and tapering in its lower portion to form a contracted base, a circumferential series of agitators in the cylindrical portion of the shell, and a rake-shaft and rake concentrically disposed in the tapering portion of the shell, whereby the agitators act on a large body of material and the rake acts on a smaller but denser body of the material.

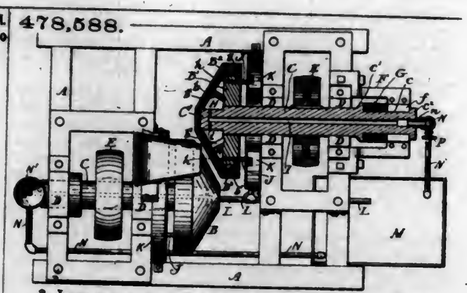
5. The combination, substantially as set forth, of a shell, a central shaft therein, a horizontal diametrically-disposed rake-arm secured to the shaft and provided with vertical teeth, and a similar rake-arm secured to the shaft over the first one and set at an angular advance thereto and provided with teeth projecting below the upper ends of the teeth of the lower rake.

478,588. ORE-CRUSHER. EDWARD R. GALE, Chicago, Ill. Filed Dec. 12, 1891. Serial No. 414,786. (No model.)

Claim.—1. In an ore-crusher, the combination, with a hollow horizontal roll having a water-outlet, of a horizontal shaft having an internal conduit communicating with the interior of the roll, a water-supply pipe, and an air-tight slip-joint between said pipe and shaft, permitting the latter to revolve, substantially as set forth.

2. In an ore-crusher, the combination, with a hollow roll having a water-outlet located some distance from its center and a water-tank, of an air-tight conduit connecting the tank with the center of the roll, whereby the centrifugal impulse imparted by the rotation of the roll draws the water from the tank into the roll and discharges it again, substantially as set forth.

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3. In an ore-crusher, the combination of a hollow roll having a water-outlet located some distance from its center, a tank located below the level of the roll, and an air-tight conduit connecting the tank with the interior of the roll, substantially as set forth.

4. In an ore-crusher, the combination, with the roll and a hollow shaft opening inside thereof, of the tank M, the pipe N, having branch *n*, communicating with the bore of the shaft, and the valves O and P, located in said pipe above and below the branch *n*, substantially as set forth.

5. In an ore-crusher, the combination of a hollow roll, a hollow shaft, said shaft and roll having internal communication, a tank situated at a lower level than said roll, a pipe communicating therewith and with the bore of the shaft, an air-tight joint between said shaft and pipe, an outlet for water situated some distance from the center of the roll, an annular shield for catching water discharged from said outlet, and a pipe for conveying the water from said shield back to the tank, substantially as set forth.

478,589. DENTAL CHAIR. WILLIAM H. GILBERT, Philadelphia, Pa., assignor to the S. S. White Dental Manufacturing Company, same place. Filed Mar. 24, 1890. Serial No. 345,094. (No model.)

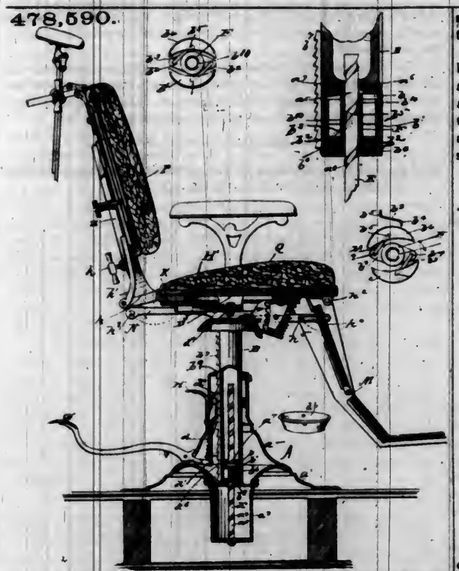


Claim.—The combination of the chair-back frame provided with the detent-rack extending lengthwise thereof, the vertically-adjustable back-pad carrier having guideway connection with the back-frame, and the combined pivoted adjusting-handle and pawl-carrier of the back-pad carrier, the pawl of which engages with the detent-rack, substantially as and for the purpose set forth.

478,590. DENTAL CHAIR. AARON P. GOULD, Canton, Ohio. Filed June 5, 1890. Serial No. 354,400. (No model.)

Claim.—1. The combination, in a chair with a base and a body and means for raising said body, of an intermediate portion secured to the

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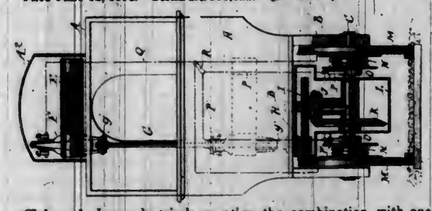
body and adapted for vertical adjustment in the base, said intermediate portion having within its limits a traveling rotary nut, having brake-shoes attached thereto to engage said intermediate portion, and a screw secured to the base portion to rotate said nut, substantially as set forth.

2. The combination, in a chair, with a base and a body and means for raising said body, of a supporting-stem having therein a cylinder portion *b*, a traveling rotary nut F, having brake-shoes attached thereto to rotate therewith and to engage the wall of the cylindrical portion *b*, the cap b^5, and a non-rotative screw E, secured to said base and engaging said nut, substantially as set forth.

3. The combination, in a chair, of a base and a body and means for raising said body of the extension a^3 of the chamber portion of said base to a point below the floor or base support, a non-rotative screw E, secured to said extension, a vertically-adjustable stem B, having therein a rotary nut adapted to rotate about and travel up and down said screw from point to point above and below said floor or base support, and brake-shoes carried by said nut, substantially as set forth.

4. The combination, with a base-support, of a seat mounted thereon, a leg-rest section and a back-section pivoted to said seat, a pin projecting from one of these sections and a link having one end pivoted to one of these sections, and its opposite end provided with an elongated aperture through which the said pin projects, substantially as set forth.

478,591. ELECTRIC LOCOMOTIVE. JOSHUA GRAY, Medford, Mass. Filed June 12, 1891. Serial No. 396,022. (No model.)

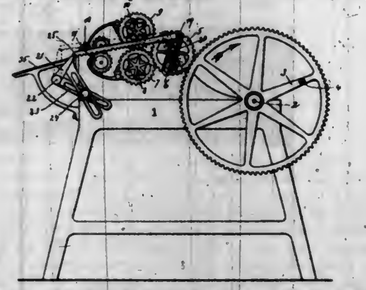


Claim.—1. In an electric locomotive, the combination, with one of the axles of the car located near the end thereof, of a bevel-gear mounted on the car-axle, a vertical bearing extending from the axle, a bevel-gear mounted thereon and engaging the bevel-gear on the car-axle, a spur-gear also mounted on the vertical bearing, a pinion engaging the spur-wheel, and a vertical shaft extending to the top of the car, and a motor mounted on the front end of the car and connected to said vertical shaft, substantially as described.

2. The combination, with an axle of a car, of a bolt or bearing extending vertically from the axle, a bevel-gear mounted on the axle, a bevel-pinion mounted on the bolt, a gear-wheel also mounted on the bolt, an electric motor mounted on the top portion of the car, and a vertical shaft connecting the armature of the motor with the gear-wheel on the bolt, substantially as described.

3. The combination, with the forward axle of a car, of a vertical bolt mounted on the axle and having a bearing on the floor of the car, a bevel-gear connected to the axle, a bevel-pinion on the bolt, a gear also mounted on the bolt, an electric motor mounted on the car above the forward axle, and a vertical shaft connected to the armature by a flexible joint and having a broad pinion on its lower end engaging said gear-wheel, substantially as described.

478,592. HOP-PICKING MACHINE. CHARLES C. GREEN, Utica, N. Y., assignor to Martha Elizabeth Green, same place. Filed Sept. 9, 1891. Serial No. 405,238. (No model.)



Claim.—1. In a hop-picking machine, the combination of a pair of feed-rollers, mechanism for giving the rollers an alternate backward and forward movement, a pair of picker-bars located at the entrance to the feed-rollers, and mechanism for opening and closing the picker-bars on the vines fed into the rollers, substantially as set forth.

2. The combination, in a hop picking machine, of a pair of feeding-rollers, a hop-engaging device located at the entrance to the feed-rollers, and mechanism for giving the rollers a forward and backward movement, substantially as set forth.

3. The combination, in a hop-picking machine, of feed-rollers, a hop-engaging device located at the entrance to the feed-rollers, a pinion on the feed-roller shafts, a rack, a crank on which the rack is mounted, and a dog for throwing the rack out of engagement with the pinion, substantially as set forth.

4. The combination, in a hop-picking machine, of a pair of feed-rollers, a hop-engaging device located at the entrance of the feed-rollers, a pinion attached to the feed-rollers, a rack adapted to engage the pinion, an adjustable crank on which the rack is mounted, and an adjustable dog for engaging the rack and throwing it out of engagement with the pinion, substantially as set forth.

5. In a hop-picking machine, the combination of a pair of feed-rollers, mechanism for operating the rollers, a pair of picker-bars mounted at the entrance of the rollers, pivoted lever-arms carrying the picker-bars and pivoted back of the feed-rollers, and mechanism for vibrating the arm, substantially as set forth.

6. The combination, in a hop-picking machine, of a pair of feed-rollers, concave picker-bars located at the entrance to the rollers, pivoted levers on which the picker-bars are mounted, and tripping devices for actuating the said levers and closing and separating the picker-bars, substantially as set forth.

7. The combination, in a hop-picking machine, of a pair of feed-rollers, and a pair of concave picker-bars located at the entrance to the rollers, pivoted levers carrying the picker-bars and pivoted to the rear of the rollers and above and below the horizontal line through the rollers, tripper-disks for closing the picker-bars together, and springs for holding the picker-arms to the pickers, substantially as set forth.

8. The combination, in a hop-picking machine, of the feed-rollers, the concave picker-bars located at the entrance to the feed-rollers, the pivoted levers carrying the picker-bars and pivoted to the rear of the feed-rollers, the rotating tripper-disks, and projection on the lever-arms for engaging the tripper-disks, and the spring for separating the picker-bars, substantially as set forth.

9. The combination, in a hop-picking machine, of feed-rollers, mechanism for intermittingly rotating the rollers, picker-bars located at the entrance to the rollers, and mechanism for vibrating the picker-bars, substantially as set forth.

10. The combination, in a hop-picking machine, of the feed-rollers 11 and 12, the pinion 17, the rack 18, mounted on an adjustable crank, and the dog 21, adapted to engage the rack, substantially as set forth.

11. The combination, in a hop-picking machine, of the feed-rollers 11 and 12, pinion 17, rack 18, mounted on an adjustable crank, spring-actuated dog 21, mounted on an adjustable hanger, and an adjustable stop for the dog, substantially as set forth.

12. The combination, in a hop-picking machine, of a pair of feed-rollers, mechanism for rocking the rollers in feeding, and mechanism for rocking the rollers out a less distance than the distance they fed in, and a hop-engaging device at the entrance to the feed-rollers, substantially as set forth.

13. The combination, in a hop-picking machine, of a pair of feed-rollers, mechanism for rotating the rollers ahead in feeding and rotating the rollers in a reverse direction a less distance in discharging the hops, and a hop engaging and picking device at the entrance to the rollers, substantially as set forth.

478,593. WINDOW-FRAME. WILLIAM T. GREGG, Lakeport, Cal. Filed July 18, 1891. Serial No. 399,933. (No model.)



Claim.—The combination of a window-frame having the usual sash, a stop-molding forming the inner bead for the upper sash, secured to the window-frame and having grooves formed therein, a like molding on the opposite side of the window-frame, having stationary strips or beads projecting therefrom, removable strips adapted to be mounted in the grooved molding and cut on oblique lines into halves and fitting said grooves, and a series of removable sash, each half the height of said molding and having a groove at one side adapted to receive said movable strip and a groove on the opposite side to engage the strips or beads of the opposite molding, substantially as described.

478,594. DESK. MAGNUS J. HAFGAR, Chicago, Ill. Filed Apr. 24, 1891. Serial No. 390,233. (No model.)



Claim.—1. In a desk, the combination, with a horizontally-swinging cabinet, of top and bottom sliding hinge-plates for carrying the wing, substantially as described, and for the purposes set forth.

2. The combination, with a desk, of a swinging and sliding cabinet, sliding hinge-plates, as H and H′, above and below the cabinet, segmental and diagonal slots, as *d* and *e*, in each of said plates, and pintles, as *f* and *g*, fixed in the top and bottom of the cabinet and adapted to engage in said slots, substantially as described, and for the purposes set forth.

3. The combination, with a desk, of a swinging cabinet, sliding hinge-plates, as H and H′, above and below the cabinet, segmental and diagonal slots, as *d* and *e*, in each of said plates, and pintles, as *f* and *g*, fixed in the top and bottom of the cabinet and adapted to engage in said slots, substantially as described, and for the purposes set forth.

4. In a desk, the combination, with a swinging cabinet and with sliding hinge-plates for carrying said cabinet, of a weighted latch or pawl pivoted upon said plate and a recess in the desk-frame for engaging said pawl, the cabinet being adapted when closed to disengage the pawl from the recess, substantially as described, and for the purposes set forth.

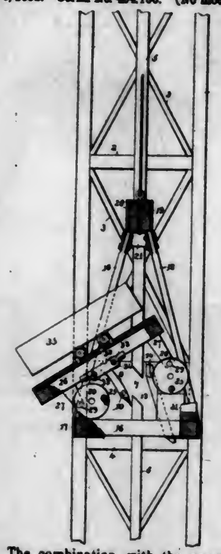
5. In a desk, the combination, with a swinging cabinet and with sliding hinge-plates for carrying the cabinet, of a spring-actuated bolt carried by the hinge-plate, a lateral lug upon the bolt and having its forward side oblique to the bolt, a pin fixed in the cabinet and adapted to bear against the oblique side of the lug as the cabinet is closed, and a recess in the desk-frame for receiving the bolt, substantially as described, and for the purposes set forth.

6. In a desk, the combination, with a swinging cabinet, of sliding hinge-plates having guideways or channels for the hinge-pins of the cabinet, latches for automatically locking the hinge-plates when the cabinet is swung open, and striker bosses or studs carried by the cabinet for disengaging the latches when the cabinet is swung into position for closing, substantially as described.

7. In a desk having a swinging cabinet, the combination, with sliding hinge-plates and with a supporting-caster, of guide-flanges, as *j* and *l*, along the path of the caster, substantially as described, and for the purposes set forth.

8. In a desk, the combination, with a sliding and swinging cabinet, of a forwardly-projecting hook *r* upon the standard of the desk and a socket R for engaging said hook upon the front of the cabinet, substantially as described, and for the purposes set forth.

478,595. MINE-ELEVATOR. STEWART HAMILTON, Weir, Kans. Filed Mar. 3, 1892. Serial No. 424,186. (No model.)



Claim.—1. The combination, with the opposite vertical guide-ribs 5 and 6, having the spaces 7 between their adjacent ends, the frame-work for supporting the ribs, and the front and rear deflecting-ribs 8 and 13, respectively, the former leading from the upper ends of the lower ribs 6 and extending forward from the same away from the general line of the ribs and the latter extending from a point near the lower ends of the upper ribs 5, disposed rearward therefrom and declining away from the general line of the ribs, of the cage having U-shaped shoes for embracing the ribs 5 and 6, the rocking frame mounted upon the cage and adapted to support a car, and the pairs of opposite rollers projecting from the sides of the rocking frame, adapted to embrace the ribs 5 and 6 and be deflected by the deflecting-ribs, and means for swinging the locking-ribs into and out of their described operative position, substantially as specified.

2. The combination, with the vertical guides and the frame-work for supporting the same, of the main frame of the cage mounted for vertical movement therein, the superimposed rocking frame, intermediate eccentrics or disks pivoted to the main frame and eccentrically and differentially to the superimposed rocking frame, and means for rocking said frame upon the disks, substantially as specified.

3. The combination, with the opposite guides 5 and 6, spaced apart, as at 7, of the frame for supporting the guides, the inclined guides 8, leading from the upper ends of the guides 6, pivot-bolts passed through the upper ends of the inclined guide-sections, means for locking their lower ends out of position with relation to the guides 6, the rear guide-sections 13, pivoted at their lower ends to the frame-work and inclining from the lower ends of the guides 5, means for locking them adjacent to or away from the guides 5 of the main frame of the cage, the rocking frame located thereon, shoes extending from the cage and adapted to pass between the guides 5 and 6 and the inclined sections, a pair of shafts located upon and extending from the rocking frame, and loose rollers mounted on the shafts, embracing the guides 6 and adapted to embrace the guide-sections 8, substantially as specified.

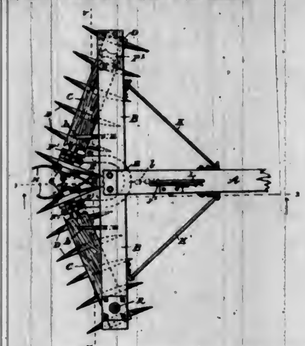
4. The combination, with the vertically-opposite guides 5 and 6, having their adjacent ends forming the intervening spaces 7 and beveled at opposite corners, of the curved guide-sections 8, pivoted at their upper ends to the frame-work, bolts passed through their lower ends in a removable manner and adapted to engage holes adjacent to or removed from the guides 6, the guide-sections 13, located in rear of the recesses 7, bolts passed through their lower ends and removably through their upper ends, the latter bolts being removable and adapted to engage openings adjacent to or remote from the lower ends of the

sections 5 of the main frame of the cage, the rocking frame located thereon, shoes extending from the cage and adapted to pass between the guides 5 and 6 and the inclined sections, a pair of shafts located upon and extending from the rocking frame, and loose rollers mounted on the shafts, embracing the guides 6 and adapted to embrace the guide-sections 8, substantially as specified.

5. The combination, with the opposite guides, the upper ends of which are inclined, as at 8, the superimposed guides 5, and the inclining guides 13, of the main frame provided with shoes engaging the lower guides, the transverse beam terminating in shoes, also engaging the guides, the hangers depending from the beam and connected to the main frame, front and rear standards, the latter being elevated above the former, mounted on the main frame, transverse rock-shafts mounted in the standards, disks eccentrically pivoted to the rock-shafts, a superimposed frame, hangers depending therefrom and likewise eccentrically pivoted to the disks, the opposite transverse shafts secured to the superimposed frame and extending beyond the sides thereof, and the opposite pairs of rollers embracing the guides and mounted on the shafts, substantially as specified.

6. The combination, with the vertical guides 5 and 6, spaced apart, and the front and rear inclined guide-sections 8 and 13, of the main frame of the cage, the superimposed frame, intermediate eccentrics or disks pivoted to the main frame and to the superimposed frame, said superimposed frame being differentially pivoted to the disks with relation to its front and rear ends, means for raising and lowering the cage, and opposite loose guide-rollers extending from the superimposed frame and embracing the opposite vertical sides of the guides 6, substantially as specified.

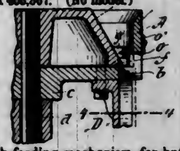
478,596. DISK HARROW. ROBERT W. HARDIE, Albany, N. Y. Filed Sept. 2, 1891. Serial No. 404,560. (No model.)



Claim.—1. In a disk harrow, the combination, with a main frame, of disk gangs pivotally connected to said frame and spring mechanism secured between the inner ends of the gangs, substantially as shown and described.

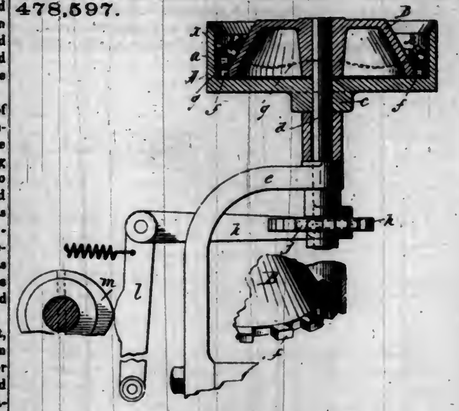
2. In a disk harrow, the combination, with a main frame, of disk gangs pivoted to said frame and resilient bars secured to the inner end of each disk gang, arranged alternately with those of the opposing gang and adapted to bear against the inner disk of said opposing gang when arranged obliquely to the line of draft, substantially as shown and described.

478,597. BLANK-FEEDING MECHANISM. FREDERICK H. HARDMAN, Beverly, assignor to Walter E. Bennett, Boston, Mass. Filed Aug. 21, 1891. Serial No. 403,367. (No model.)

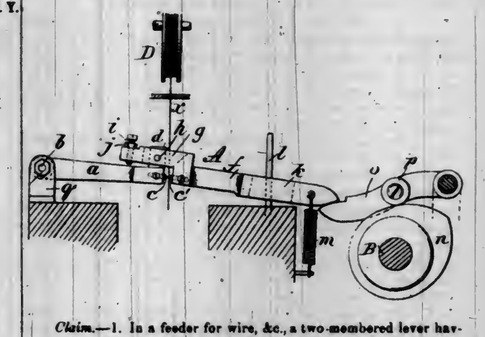


Claim.—In a blank-feeding mechanism for button-machines, the combination, with a cylindrical hopper provided through its bottom with the discharge-opening and having at the lower portion of its internal circular wall the ledge *g*, with its upper surface undulating, of an upwardly-tapering conical body rotatable within said hopper and provided at its base, which is in a plane below the undulating upper surface of said ledge, with the series of teeth having intermediate pockets to be brought successively over said discharge-opening, and means for rotating the said conical body, substantially as described and shown, for the purpose set forth.

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478,598. WIRE-FEEDING MECHANISM. FREDERICK H. HARDMAN, Beverly, assignor to Walter E. Bennett, Boston, Mass. Filed Aug. 21, 1891. Serial No. 403,368. (No model.)



Claim.—1. In a feeder for wire, &c., a two-membered lever having one member thereof pivotally mounted, whereby the said lever may have a swinging movement, and the second member thereof pivoted upon the other and adapted to have relative thereto a limited swing, said members at proximate portions thereof being provided with nipping-jaws, and a cam for imparting a backward and forward swinging movement to said lever, substantially as described.

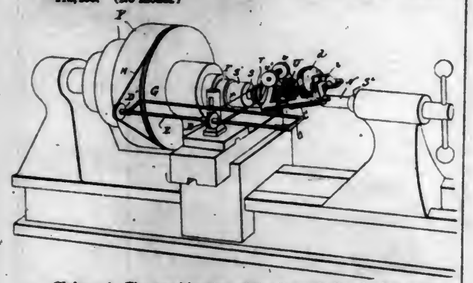
2. In a feeder for wire, &c., a two-membered lever mounted for a swinging movement and the one member thereof pivoted upon the other and one provided with an adjustable stop device whereby its swinging movement with relation to the other member may be adjustably limited, and said members at proximate portions thereof provided with nipping-jaws, and devices for imparting swinging movements to said two-membered lever, for operation in the manner set forth.

3. In a feeder of the character indicated, a lever consisting of two members, the one pivotally mounted on a suitable support and having tension or friction devices for the purpose set forth and the other member pivotally hung on the first one, and said members at proximate portions thereof provided with nipping-jaws, and means for swinging the said two-membered lever, substantially as described.

4. A feed device for wire, &c., consisting of a lever composed of two members *a* and *f*, the one *a* being pivotally mounted and provided with a lug *d* and the other *f* provided with an offset-arm pivotally mounted on said lug and having a stop, said members having the nipping-jaws, and means for swinging the parts, substantially as described.

5. In a feed device for wire, &c., in combination, the member *a*, pivotally mounted, and said member having the lug *d* and jaws *c*, and the friction-washers and confining devices at the pivotal support for said member, the member *f*, provided with the offset yoke-shaped arm *g*, pivotally hung on said lug, and the stop-screw *i*, and the jaw *c'*, the spring *m*, applied for downwardly swinging said member *f*, the cam-lever *o*, pivoted adjacent to and having an engagement with the member *f*, and the cam *n*, mounted to actuate the said lever *o*, substantially as described.

478,599. MACHINE FOR GRINDING OR TRUING LATHE-CENTERS. HERBERT R. HAWES, Brooklyn, N. Y., assignor of one-half to Charles H. Edgar, trustee, same place. Filed Nov. 20, 1891. Serial No. 412,483. (No model.)



Claim.—1. The combination of the live-spindle of a lathe with a grinding-wheel revolving in an orbit concentric with the axes of rotation of said live-spindle, substantially as and for the purpose described.

2. The combination of the live-spindle of a lathe with a rotating grinding-wheel revolving in an orbit concentric with the axes of rotation of said live-spindle, substantially as and for the purpose described.

3. The combination of the live-spindle of a lathe with a rotating and simultaneously reciprocating grinding-wheel revolving simultaneously in an orbit concentric with the axes of rotation of said live-spindle, substantially as and for the purpose described.

4. The combination, with the live-spindle, of revolving and rotating grinding-wheel thereby revolved in orbit concentric with said spindle's axis of rotation, substantially as and for the purpose described.

5. The combination of live lathe-spindle and actuating-pulley T, both having same axis of rotation, and rotating and revolving grinding-wheel revolving in orbit concentric with said axis, substantially as and for the purpose described.

6. The combination of live lathe-spindle and actuating-pulley T, both having same axis of rotation, and rotating, revolving, and reciprocating grinding-wheel revolving in orbit concentric with said axis, substantially as and for the purpose described.

7. The combination of plug S, pulley T, frame *b*, shaft *e*, wheel *d*, pulleys *v v'*, and pulley U, all connected together substantially as and for the purpose described.

8. The combination of plug S, pulley T, frame *b*, shaft *e*, wheel *d*, pulleys *v v'*, pulley U, and arbor R, all connected together substantially as and for the purpose described.

9. The combination of plug S, pulley T, frame *b*, shaft *e*, wheel *d*, pulleys *v v'*, pulley U, arbor R, bearings 1 1', worm *k*, worm-wheel *f*, connecting-rod *g*, sliding frame C, spline *m*, and feather *l*, all connected together substantially as and for the purpose described.

10. The combination of plug S, pulley T, frame *b*, shaft *e*, wheel *d*, pulleys *v v'*, pulley U, arbor R, bearings 1 1', worm *k*, worm-wheel *f*, and guide-rods *n o*, all connected together substantially as and for the purpose described.

11. The combination of plug S, pulley T, frame *b*, shaft *e*, worm *k*, worm-wheel *f*, connecting-rod *g*, sliding frame C, and wheel *d*, and pulleys *v*, *v'*, and U, substantially as and for the purpose described.

12. The combination of plug S, pulley T, frame *b*, base-plate *a*, shaft *e*, pulleys *v v'* U, and wheel *d*, substantially as and for the purpose described.

13. The combination of lathe cone-pulley Y, counter-shaft E, pulleys D D', live-spindle S', plug S, pulley T, frame *b*, shaft *e*, and wheel *d*, all connected together substantially as and for the purpose described.

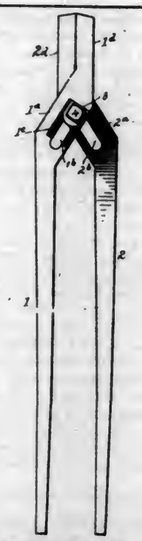
14. The combination of lathe cone-pulley Y, counter-shaft E, pulleys D D', live-spindle S', plug S, pulley T, frame *b*, shaft *e*, wheel *d*, worm *k*, worm-wheel *f*, connecting-rod *g*, sliding frame C, and guides *n o*, all connected together substantially as and for the purpose described.

478,600. BLACKSMITH'S TONGS. WILLIAM M. HAWORTH, Decatur, Ill. Filed Apr. 14, 1892. Serial No. 429,177. (No model.)

Claim.—1. In tongs or similar tools, the combination of the bars having oblique slots and corrugations contiguous to the slots, the pivot-blocks having ribs adapted to the corrugations, and a bolt extending through the slots and the blocks and adapted to hold the blocks in close contact with the corrugated surfaces, as set forth.

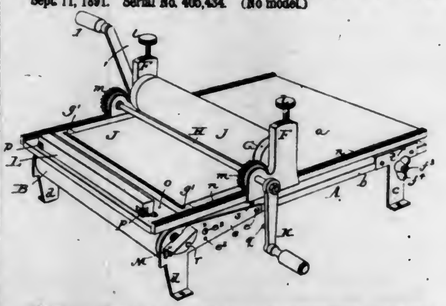
2. In tongs or similar tools, the combination of the bars having each a deflected and slotted portion intermediate its ends, with corrugations contiguous to the slots, the pivot-blocks having ribs adapted to the corrugations, the pivot-bolt adapted to the slots and to the blocks and having a shoulder distant from the head something more than the combined thickness of the bars and block, and also having a

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threaded end beyond the shoulder, and the nut adapted to the threaded end of the bolt, as set forth.

478,601. COPYING-PRESS. DORUS HEALY, Dansville, N. Y. Filed Sept. 11, 1891. Serial No. 405,434. (No model.)



Claim.—1. In a letter-copying press, the combination, with a bed, table, or other device, of a pressure-roller, a copying-apron adapted to wind upon and unwind from the roller as the roller moves back and forth over the table, and means, substantially such as shown and described, for thus moving the roller back and forth over the bed or table.

2. In a copying-press, the combination, with a bed, table, or other device, of a pressure-roller and means for moving it over the table, a water-trough, a spring-roller mounted therein, and an apron secured at one end to the spring-roller and at the other end to the pressure-roller, substantially as shown and described.

3. In a copying-press, the combination, with a bed or table having a depression *o*, of a pressure-roller and means for moving it over the table, a water-trough, a spring-roller, and an apron secured at one end to the spring-roller.

4. In a copying-press, a bed comprising fixed leaf *b* and hinged leaf *a*, in combination with the pressure-roller and apron.

5. In a copying-press, a bed or table comprising the fixed leaf *b*, the hinged leaf *a*, having the toothed bars, in combination with the shaft having the pawls, substantially as shown and described.

6. In combination with the leaves *a* and *b* and the legs *c*, the legs *d*, provided each with an arm *e* and with a pin or screw adapted to enter one of a series of holes in the arm.

7. In combination with leaf *b*, hinged leaf *a*, having a slot, a water-trough secured under the mouth of the latter, the spring-roller, the pressure-roller, and the apron, substantially as shown and described.

8. In combination with a bed or table having rack-bars *n*, the carriage having a shaft H, pinions *m m*, and handle or crank K, a pressure-roller, and an apron secured to the roller.

9. In combination with a bed or table and a carriage, the crank K, provided with a pin *q*, and the locking-catch having a notch *r*.

10. In combination with a bed or table, the carriage provided with a pressure-roller, an apron, a spring-roller, and a brake block or bar, substantially as shown and described.

11. In a letter-copying press, the combination, with a bed or table, of a pressure-roller mounted thereon, and means for moving the roller over the table, and an impermeable copying-apron secured to the roller and adapted to wind upon and to unwind therefrom as the roller moves back and forth over the table, substantially as shown and described.

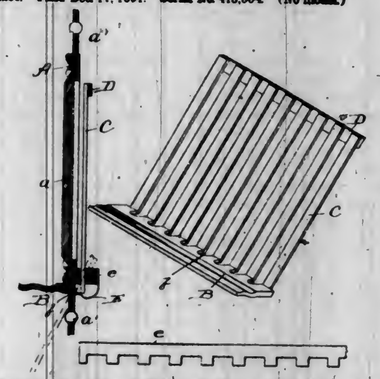
12. In a copying-press, the combination, with a bed or table, of a roller and means for turning the same and moving it back and forth over the table, a copying-apron adapted to wind upon and unwind from said roller, and thereby effect the copying, substantially as shown and described.

13. In a copying-press, the combination, with a water-trough and a spring-roller therein, of a copying-apron secured at one end to such roller and winding upon and unwinding therefrom, and a pressure-roller to which the apron is also secured, all substantially as shown and described.

14. In a copying-press, the combination of a bed or table, a pressure-roller, a copying-pad made in the form of an apron and adapted to wind upon and to unwind from a suitable pressure-roller, and means for turning the roller, whereby the moistening and copying are effected simultaneously by the turning of the roller and the winding or unwinding of the apron-pad.

15. In a portable copying-press, the combination, with a bed or table having a water-trough, of a pressure-roller and the set-screws adapted to force the said pressure-roller firmly upon the mouth or throat of the water-trough to prevent the water from escaping therefrom.

478,602. RACK FOR MUSICAL INSTRUMENTS. FREDERICK W. HEDGELAND, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed Dec. 17, 1891. Serial No. 415,334. (No model.)

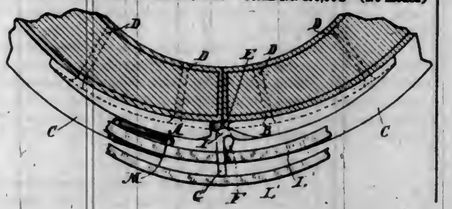


Claim.—1. The combination, with the musical-instrument case having spindles *a'* forming part of the front thereof, of a music-rack the body whereof is formed of vertical slats positioned and adapted to slide between said spindles, substantially as set forth.

2. The combination, with a musical-instrument case having spindles *a'* forming part of the front thereof, of a music-rack consisting of vertical slats C, a cross-bar uniting the slats at the top, and a bottom connection B, recessed to give room to the spindles, substantially as specified.

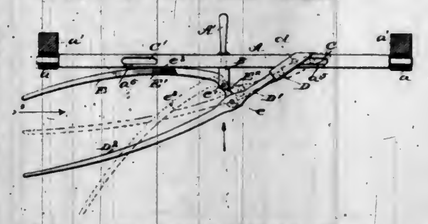
3. The music-rack, the body whereof is formed of vertical slats C, in combination with an organ-case having a series of openings through which the slats may move when the rack is pushed into or drawn out of the case, substantially as set forth.

478,603. HORSE-COLLAR FASTENER. JOHN HIMMELSTEIN, Milwaukee, Wis. Filed Sept. 21, 1891. Serial No. 406,364. (No model.)



Claim.—The collar-fastener, substantially as hereinbefore described, consisting of two body parts secured severally permanently to abutting sections of a collar, one part of the fastener including a projecting outwardly-curved and elongated neck and a cross-head at the extremity thereof and the other part of the fastener including forwardly-projecting and outwardly-turned hooks, the hooks having a space or longitudinal slot between them to receive the neck of the other part of the fastener, which slot extends rearwardly back of their outward curve into the body of the fastener to permit of a hinge movement of the neck of the other part therein, the hooks having also transverse or laterally-extending opposite slots or recesses in their inner edges outside of the cross-head of the other part when seated in the curve of the hooks to receive a hame-strap therein to secure the parts movably together.

478,604. MAIL-BAG CATCHER. JAMES W. HORTON, Madison, Ind. Filed Aug. 31, 1891. Serial No. 404,292. (No model.)



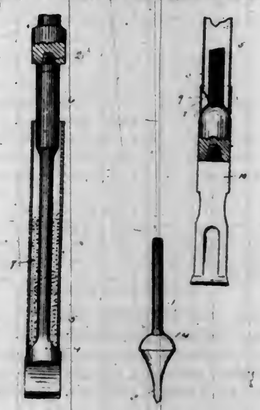
Claim.—1. A mail-bag catcher consisting of a main bar A, a rigid catcher member D', having its inner end D adapted for longitudinal movement on said bar A, such end being connected to such bar and arranged when extended to become detached therefrom, the block B, swirelly connected with the bar A, and the catcher-arm E, pivoted at its inner end to the member D' and to the swivel-block B at a point in advance of its pivotal connection with the bar A, substantially as and for the purpose described.

2. The combination, with the bar A, formed with a lateral bearing B, and the rigid hook or catch member D', having a sliding connection D with the said bar A, of the arm E, pivoted at its inner end to the rigid member D' and at a point in advance of such end to the bearing B, substantially as shown and described.

3. The combination of the main bar A, formed with elongated slots C C' in its ends, the swivel-bearing B, the sliding head D, having studs *d d*, fitting either of the slots C C' and the rigid catch member D', and the forked catcher-arm E, pivoted near its end into the swivel-bearing and at its end to the rigid arm D', as and for the purpose described.

4. In a mail-bag catcher, the combination, with the main frame having the opposite elongated slots C C', formed with notches a^6 a^6 in their outer ends, and the swivel-bearing B, of the rigid catcher-arm D', having a head portion D, formed with lateral studs *d d*, arranged to fit in either of the slots C C', and the catcher-arm E, pivoted near its end in the bearing B and at its end to the arm D', all arranged substantially as and for the purpose described.

478,605. COMBINED DRILLING-TOOL AND SAND-BAILER. LEWIS N. IRELAND, Pittsburg, Pa. Filed Sept. 28, 1891. Serial No. 407,059. (No model.)



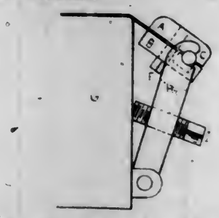
Claim.—The herein-described combined drilling-tool and sand-bailer, comprising the rod or stem 1, having near its top the enlargement 6 and at its bottom a drilling-bit, said drilling-bit having an enlarged head, a tube 5, encircling said rod or stem and movable automatically, as described, said tube being of less diameter than said bit-head and adapted to seat itself thereon when the same is raised, guided by said enlargement 6 and formed near its bottom with an opening 8, and means for closing said opening.

478,606. DINNER-BUCKET. WILLIAM F. JANEWAY, Columbus, Ohio. Filed Aug. 28, 1891. Serial No. 403,970. (No model.)



Claim.—In a dinner-bucket, the combination, with the bucket-body and a lid therefor, a staple projection g' and keeper f', an external conduit or way formed of a tubular segment, as described, the edges of the latter united with the body of the bucket, an opening d^3 in the lower portion of said bucket-body through which said conduit or way communicates with the interior of the bucket, and a suitable mouth-piece projecting from the upper end of said conduit, of a locking bail or yoke f, embracing said lid and the upper portion of said bucket, as described, one arm of said bail being provided with a hook which engages said keeper f' and the remaining arm thereof being provided with a slotted opening adapted to receive the outer edge of the staple projection g', substantially as and for the purpose specified.

478,607. DEVICE FOR STRAINING ZINC PLATES TO THEIR BEDS. EDWARD S. JONES, Providence, R. I. Filed Nov. 17, 1891. Serial No. 412,214. (No model.)



Claim.—1. In a straining device for lithographic plates, the combination of a lever H, having a hook J at its upper end, a clamp detachably secured in said hook, the screw I, and the bed G, the whole constructed and operating together in a manner and for the purposes described.

2. The combination of a clamp composed of two parts, one of which parts is provided with a trunnion at each end, a straining-lever having hooks at its upper end adapted to receive the trunnions of the clamp, and means for operating the lever, the whole constructed and arranged to permit of the detachment of the plate from its bed without removing the clamps, as and for the purposes specified.

3. In combination, a bed-plate having a straining-lever permanently secured thereto and a clamp detachably secured to the lever, means for operating the clamp independently of the connection between the clamp and the lever, whereby the clamp may be detached from the lever without releasing its hold upon the plate and without detaching the lever from the bed-plate, and means for operating the lever, substantially as and for the purpose set forth.

4. The clamps A B, constructed with trunnions C C, in combination with the hooked lever H and screw I, the whole constructed and arranged to operate and permit the detachment of the plate from its bed, as described.

478,608. TOOL-SHARPENING DEVICE. GEORGE A. KENT, Auburn, Me. Filed Feb. 10, 1892. Serial No. 421,011. (No model.)

Claim.—1. In a tool-sharpener, the combination, with suitable supports, of a strap of leather embracing the edges of stones and means, substantially such as described, for tightening the leather upon the

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stones, thereby holding them in place, substantially as and for the purpose set forth.

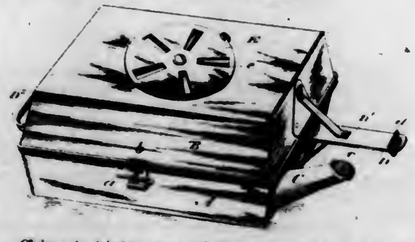
2. In a tool-sharpener, the combination, with a base, of standards secured thereto, a shaft or axis journaled between the standards, a rest placed upon said shaft, a band of leather surrounding said rest, stones adapted to fit within the edges of the leather and upon the rest, and means, substantially such as described, for holding the leather and the stones in place, all substantially as and for the purpose set forth.

3. In a tool-sharpening device, the combination, with the standards B B', the standard B having the spring-pressed pin b^3, of the shaft or axis c, mounted between these standards, a support c^3, arranged upon the axis c, a band of leather c^4, surrounding the said support, a plate c^5, secured to the axis c near one end thereof, the said plate having depressions to receive the inner end of the pin b^3, stones adapted to fit within the edges of the leather band, a plate or washer c^7, loose upon the axis c, and a screw for holding the leather to the stones, all substantially as set forth.

4. In a tool-sharpening device, the combination, with the holder C, having an axis c and a plate c^8 fast thereon, the said plate being provided with openings or recesses in the face of the plate, arranged in a circle about the axis c, of a pin b^3, mounted longitudinally in one of the supports for the holder, the said pin being normally pressed forward by a spring b^3, attached to the said support and engaging one of the recesses of the plate c^8, all substantially as and for the purpose set forth.

5. In a tool-sharpening device, the combination, with the platform A and the standards B B', the standard B having a tubular projection b' at its upper end and having a spring-pressed pin b^3, adapted to move longitudinally within said tubular projection, of a shaft or axis c, having one of its ends screw-threaded and having upon its other end fast thereto the plate c^8, provided with holes c^9, a support or rest c^3, arranged longitudinally upon the axis c, a band of leather c^4, surrounding the edges of the said support, stones c^5, fitting within the outer edges of the leather and resting upon the support c^3, a plate c^7, loose upon the axis c, and a thumb-screw c', journaled in the standard B' and engaging the threads upon the axis c, the inner end of the thumb-screw pressing upon the plate c^7, all substantially as and for the purpose set forth.

478,609. BAKING-PAN. SOPHIA L. KELLY, Clarksdale, Mo. Filed Dec. 10, 1891. Serial No. 414,620. (No model.)

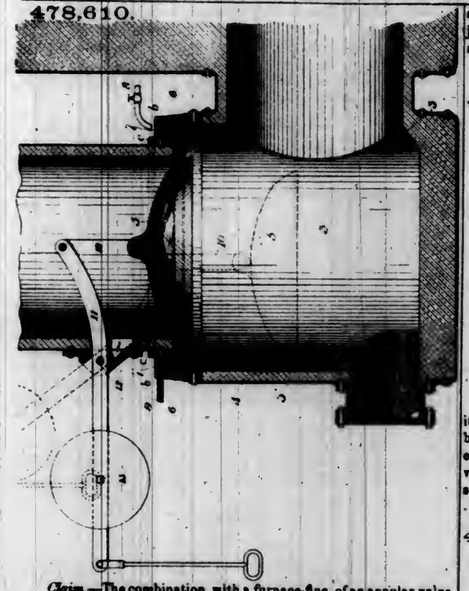


Claim.—1. A baking or roasting pan comprising a lower section A, having an upwardly-inclined spout secured adjacent to one corner thereof, said section having a looped handle at one end and a handle D at the opposite end, which projects beyond the spout, a section B, connected to the lower section and provided with similarly-constructed registering handles, the handles D D', having a loop for holding them in engagement with each other, and brace-bars which are connected to the handles and to the sides of the pan, substantially as shown, and for the purpose set forth.

2. A tray for baking-pans, consisting of side pieces bent substantially as shown and adapted to serve as a support and hold in engagement therewith cross-strips g, having upwardly-bent ends, said cross-strips being bent at their central portions longitudinally to form central troughs and flat outer ends, which form with the side pieces a channel when the tray is inclined, substantially as set forth.

478,610. VALVE FOR HOT-BLAST STOVES. JULIAN KENNEDY, Latrobe, Pa. Filed Dec. 17, 1891. Serial No. 415,366. (No model.)

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Claim.—The combination, with a furnace-flue, of an annular valve-seat casting having flanges affording an outer water-gutter fixed to the sections of the flue, substantially as and for the purposes described.

2. The combination, with a furnace-flue, of an annular valve-seat casting fixed to one of the flue-sections and having upright flanges b c, forming an outer water-gutter, the flange c encircling and fixed to a second narrower section of the flue, substantially as and for the purposes described.

478,611. DRUM. JOHN KNITTEL, St. Louis, Mo., assignor of one-half to George T. Kollas, same place. Filed Dec. 8, 1891. Serial No. 414,354. (No model.)



Claim.—1. A drum or drum-head for musical instruments having external screw-threads formed on the body of the instrument and a rim having internal screw-threads formed upon the same for receiving the said external threads, substantially as set forth.

2. A drum or drum-head for musical instruments, consisting of a body, external screw-threads formed on the same, a rim provided with internal screw-threads for receiving the screw-threads formed upon the said body, and a head adapted to be clamped between said rim and body, substantially as set forth.

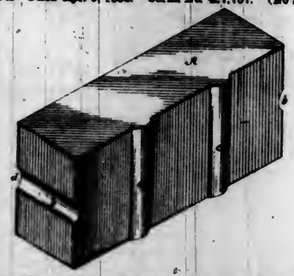
3. A drum or drum-head for musical instruments, consisting of a body, external screw-threads formed upon the same, a rim having internal screw-threads adapted to receive the said external screw-threads, a head adapted to be clamped by said rim, and means for tuning said rim, substantially as set forth.

4. A drum or drum-head for musical instruments, consisting of a body 1, having an annular flange formed thereon, external screw-threads formed on the said flange, a rim, such as 4, provided with internal screw-threads adapted to receive the said external threads, an annular flange internally arranged upon said rim, a groove formed in the said flange for receiving a ring, a head, such as 10, adapted to be stretched over a ring 9, and the same interposed between the first-named ring and the upper edge of the body 1, substantially as set forth.

5. A drum or drum-head for musical instruments, consisting of a body, external screw-threads formed upon the same, a rim having internal screw-threads adapted to receive said external threads, holes formed in the said rim, within which a suitable tool is adapted to be inserted, and a head adapted to be interposed between said rim and body, substantially as set forth.

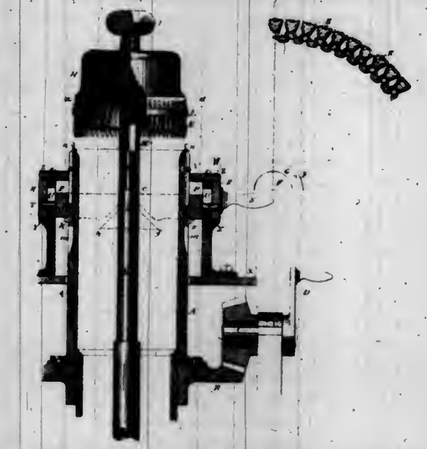
6. A snare for drums, consisting of a series of spring-wires rigidly secured at one end within the drum, a plate overlying said wires, an adjustable screw carried by the drum, a washer loosely mounted thereon, and wires connecting said plate and washer, substantially as set forth.

478,612. PAVING-BRICK. DE HAVEN LARGE, New Cumberland, W. Va. Filed Apr. 5, 1892. Serial No. 427,787. (No model.)



Claim.—The within-described paving-brick, having upon one of its vertical sides a rib or ribs extending from top to bottom of the brick and in its other vertical side a longitudinal groove or channel extending from end to end of the brick and communicating with transverse grooves or channels formed in the opposite ends of the brick, substantially as specified.

478,613. DEVICE FOR TRANSFERRING STOCKING-RIBS. FRANK LASHER, Bennington, Vt., assignor to the Lasher Stocking Company, same place. Filed Apr. 8, 1889. Renewed Dec. 30, 1891. Serial No. 416,566. (No model.)



Claim.—1. The combination of the needle-cylinder provided with needles and with an axial supporting-stud, as shown, with the cylindrical transferring device provided with transfer-quills corresponding in number with the needles of the cylinder arranged concentrically around a central socket, which is adapted to slip onto said axial stud, substantially as described, and for the purposes set forth.

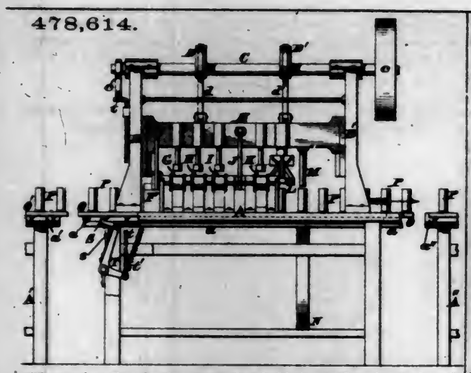
2. The combination, with the needle-cylinder provided with needles and an axial stud and the cylindrical transfer device provided with quills and central socket, substantially as shown, of the draw-down ring and means, substantially as shown, for imparting to it a vertical movement, substantially as described, and for the purposes set forth.

3. The combination, with the needle-cylinder and needles, of the draw-down ring provided with guide-pins, the concentric stationary stand with vertical slots in which said pins move, and the surrounding ring having cam-slots which coact with said pins and having a limited rotary movement, substantially as described, and for the purposes set forth.

478,614. CARTRIDGE-LOADING MACHINE. JAMES H. LAYMAN, Cincinnati, Ohio. Filed Jan. 28, 1892. Serial No. 419,507. (No model.)

Claim.—1. In a cartridge-loading machine, the combination, with shell-charging devices, of a bodily-removable bar or plate provided

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with a series of projecting tubes that hold the shells and a feed appliance for advancing said bar, substantially as herein described.

2. In a cartridge-loading machine, the combination, with shell-charging devices, of a bodily-removable bar or plate provided with a series of projecting integral tubes that hold the shells and a feed appliance for advancing said bar, substantially as herein described.

3. In a cartridge-loading machine, the combination, with shell-charging devices, of a bodily-removable bar or plate provided with a series of projecting shell-holders and having on its under side teeth adapted to be caught by the pawl of a reciprocating feed appliance, substantially as herein described.

4. The combination, in a cartridge-loading machine, of the table A, having a longitudinal groove *a* and eccentric clamps U U', and the bodily-removable bar O, provided with projecting shell-holders P, said bar being inserted within said groove and having said eccentrics in contact with its edges, for the purpose described.

5. In a cartridge-loading machine, the bodily-removable bar O, provided with projecting shell-holders P, each of said holders being furnished with an internal spring-ring R near its lower end, for the purpose described.

478,615. WATCHMAKER'S TOOL. FRANK E. LINDAHL, Chicago, Ill. Filed Aug. 14, 1891. Serial No. 402,690. (No model.)



Claim.—As a new article of manufacture, the within-described improved watchmaker's tool, consisting of the handle B, carrying the steel plate A, provided with the wedge-shaped edges *c* and *d*, substantially as and for the purpose set forth.

478,616. EYEGLASSES. JOHN LIMING, Mount Alverno, Pa. Filed Mar. 28, 1892. Serial No. 426,722. (No model.)



Claim.—1. The combination of the lens of a pair of spectacles or eyeglasses with a mirror mounted so as to reflect objects in the rear of the wearer of the glasses, but offering no obstacle to direct forward vision through the lens, substantially as specified.

2. The combination of each of the lenses of a pair of spectacles or eyeglasses with a mirror mounted so as to reflect objects in the rear of the wearer of the glasses, but offering no obstacle to direct forward vision through the lenses, substantially as specified.

3. A pair of spectacles or eyeglasses having a mirror mounted beyond the periphery of either lens and facing rearward or toward the wearer of the glasses, substantially as specified.

4. The combination of a pair of spectacles or eyeglasses having a lens pivoted to the nose-piece so as to be reversed thereon with a mirror movable with said lens in its reversal, substantially as specified.

5. The combination of a pair of spectacles or eyeglasses having a lens pivoted to the nose-piece so as to be reversed thereon with a double-faced mirror movable with said lens in its reversal and showing a rearward-reflecting face in either of its positions, substantially as specified.

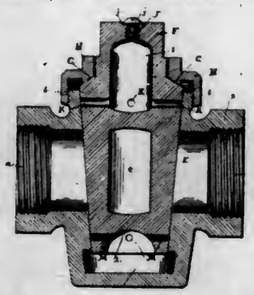
6. The combination of a pair of spectacles or eyeglasses having a lens pivoted to the nose-piece with a mirror upon the said lens and a retaining-finger for engagement with the lens to hold it in either of its positions, substantially as specified.

478,617. INDEX AND MAIL-ASSORTER. WILLIAM H. LODWICK, Cincinnati, Ohio. Filed June 8, 1891. Serial No. 395,545. (No model.)



Claim.—An assorting-book provided with a series of leaves, each leaf having an exposed index on the outer end and provided at the opposite end with an integral inturned double stub, and having a cover one of the leaves of which is shorter than the other, as shown and described.

478,618. STOP-COCK. CYRUS F. LOGAN, Lock Haven, Pa. Filed Nov. 24, 1891. Serial No. 412,910. (No model.)



Claim.—1. In a stop-cock, the combination of the casing having a conical seat and bearing, a series of open V-shaped vertical oil-grooves arranged in a series around in the face of said bearing, and a rotating plug provided with an upper and lower inclosed oil-reservoir, and a series of distributing-passages communicating with said reservoirs and extending through the body of the plug, substantially as set forth.

2. In a stop-cock, the combination of the casing having a conical seat and bearing and an oil-chamber located beneath said bearing, a series of vertical V-shaped oil-grooves formed in the face of said bearing, and a rotating plug provided with an inclosed reservoir at its upper end, a series of distributing-passages communicating with said reservoir and extending through the body of the plug, and a series of supplemental distributing-passages in the bottom end of said plug and communicating radially with the oil-chamber located beneath said plug and bearing, substantially as set forth.

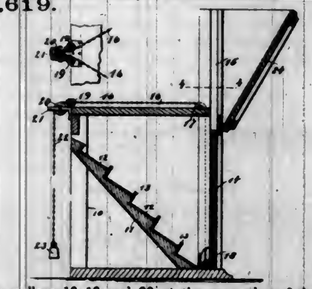
3. In a stop-cock, the combination of the casing having a conical seat and bearing and an oil-chamber located beneath said bearing, a series of vertical oil-grooves formed in the face of said bearing, a rotating plug mounted within said seat and provided with a lower concaved end inclosing said casing oil-chamber, an inclosed reservoir within the top end of said plug, a series of radially-extending distributing-passages communicating with said reservoir and extending through the body of the plug, and a supplemental series of radially-extending distributing-passages in the bottom end of said plug and communicating with the space inclosed by the concaved bottom thereof, substantially as set forth.

4. In a stop-cock, the casing having the bottom reservoir C, combined with the rotating plug E, provided with the concaved bottom F, which when the plug is seated within the casing incloses the bottom reservoir, and the series of oil-passages communicating with the concaved bottom, substantially as set forth.

478,619. SHOW-CASE. JAMES C. LOUGHRY, Greensburg, Pa. Filed Sept. 24, 1891. Serial No. 406,642. (No model.)

Claim.—1. A show-case having a vertically-sliding glazed front, ways or guides therefor, guide-pulleys 17 at the front edge of the top

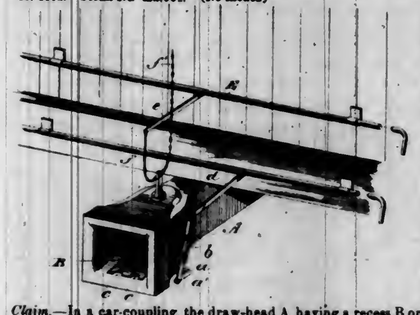
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of the case, pulleys 19 19 and 20 at the rear edge of the case-top, cords or chains extending from the lower part of the sliding front upward and rearward over pulleys 17, thence rearwardly across the top of the case between pulleys 19, and there merged into a single cord or chain extending downward over pulley 20 behind the case for operation by the salesman and provided with a weight, substantially as set forth.

2. A show-case having a vertically-sliding glazed front, ways or guides 15 therefor projecting above the top of the case, operating chains or cords connected to said front and extended over guide-pulleys to the rear of the case and there weighted for operation by the salesman, and shield or mirror in front of the upper projecting ends of the ways 15 to conceal the same, substantially as set forth.

478,620. CAR-COUPLING. ARGUS R. LUTHER, Tennessee City, Tenn., assignor of one-half to James C. Foster, same place. Filed Feb. 18, 1892. Serial No. 422,001. (No model.)



Claim.—In a car-coupling, the draw-head A, having a recess B on the inner side of its base, a plate C, having recesses *c c* in its front end, a shaft *a*, to which said plate is rigidly secured, said shaft having a forwardly-projecting arm *a'*, and a link *b*, pivoted to said arm and to a forwardly-projecting arm *d*, carried by a rock-shaft D, attached to the car-body, substantially as shown and for the purpose set forth.

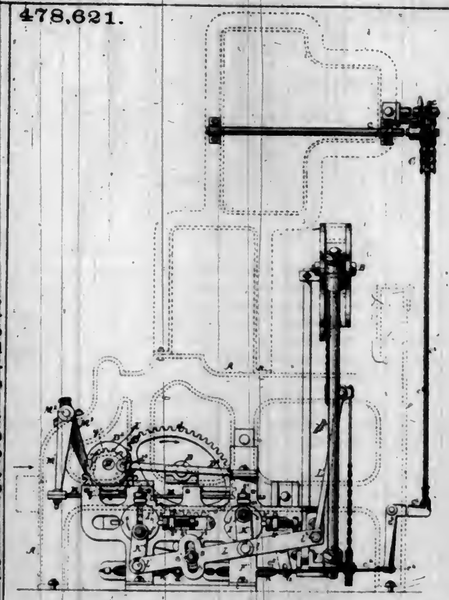
478,621. DROP-BOX MECHANISM FOR LOOMS. HARVEY P. MALLISON, Philadelphia, Pa. Filed July 15, 1891. Serial No. 399,592. (No model.)

Claim.—1. The combination, in drop-box mechanism for looms, of the drop-box bar, shafts, cranked pins on said shafts, connections between said cranked pins and the bar, pinions on the shafts, a slide, mechanism for reciprocating the same, a rack-frame engaging with the pinion on each shaft, said rack-frames being pivoted to the slide, and mechanism for throwing said rack-frames into engagement with the pinions, substantially as described.

2. The combination, in drop-box mechanism for looms, of the drop-box bar, cranked shafts, connections between the cranked shafts and the bar, pinions on said shafts, a slide, mechanism for reciprocating the same, rack-frames on said slide adapted to engage with the pinions, mechanism for raising and lowering said rack-frames, and the bar for holding the rack-frames in either the raised or lowered positions, substantially as described.

3. The combination, in drop-box mechanism for looms, of the slide, mechanism for reciprocating said slide, rack-frames on the slide, having upper and lower sets of teeth, shafts, pinions on said shafts, with which the teeth of the said rack-frames engage, with mechanism for raising and lowering said rack-frames, and connections between said shafts and the drop-boxes, whereby when the shafts are revolved they will raise or lower the drop-boxes, substantially as described.

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4. The combination, in drop-boxes, of a bar connected thereto, shafts having cranked pins, links connecting the said pins to the bar, pinions on said shafts, a slide, mechanism for reciprocating the same, rack-frames pivoted to said slide and having teeth which engage with the pinions, a lever adapted to be operated by the pattern-chains, bell-crank levers which act upon the said rack-frames at the dictation of the pattern-chain, and connections between the two sets of levers, substantially as described.

5. The combination of the drop-boxes, the bar connected thereto, cranked shafts, connections between the cranked shafts and the bar, pinions on said shafts, a slide, mechanism for reciprocating the same, rack-frames pivoted to said slide and having upper and lower teeth which engage with the pinions, a locking-bar, mechanism for reciprocating the same, and pins on the rack-frames bearing upon said bar, substantially as described.

6. The combination of the drop-boxes, the bar connected thereto, cranked shafts, connections between the cranked shafts and the bar, pinions on said shafts, a slide, mechanism for reciprocating the same, rack-frames pivoted to said slide, mechanism for raising and lowering said pivoted rack-frames, pins on the rack-frames, and a locking-bar having openings for the passage of the pins with mechanism for reciprocating said bar, substantially as described.

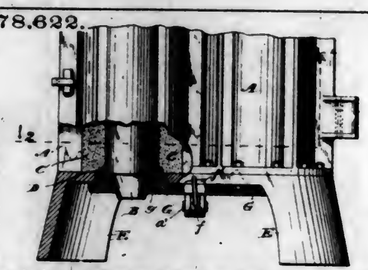
7. The combination of the drop-boxes, the bar connected thereto, cranked shafts, connections between the cranked shafts and the bar pinions on said shafts, a slide, pivoted rack-frames on said slide, having upper and lower sets of teeth engaging with the pinions, mechanism for raising and lowering the rack-frames, a driving-shaft, a crank thereon, a connecting-rod connecting the crank to the slide, a locking-bar for locking the rack-frames in either the raised or lowered positions, a rock-shaft having an arm engaging with the locking-bar and having a second arm, and a driving-cam engaging with said arm, substantially as and for the purpose set forth.

8. The combination, in drop-boxes, of a bar connected thereto, shafts having cranked portions and pinions, links connecting the cranked portions to the bar, a slide, mechanism for reciprocating the same, rack-bars on said slide, having upper and lower sets of teeth engaging with the pinions, bell-crank levers, springs connected to said levers and tending to raise the rack-bars, pattern-chain, and levers connected to said bell-crank levers and adapted to be operated by the pattern-chain, substantially as described.

478,622. CHILL-PLATE FOR FLASKS. FRANK MASKY, Anniston, Ala., assignor of two-thirds to Lewis E. Morrell, Columbus, Ohio, and Jacob K. Dimmick, Newport, Ky. Filed June 6, 1891. Serial No. 395,361. (No model.)

Claim.—1. In combination with a pipe-flask A A', the base-plate E, provided with openings to receive the core-seats, the pivoted bar F, and the plate G, carried by the bar F and provided with the cors-

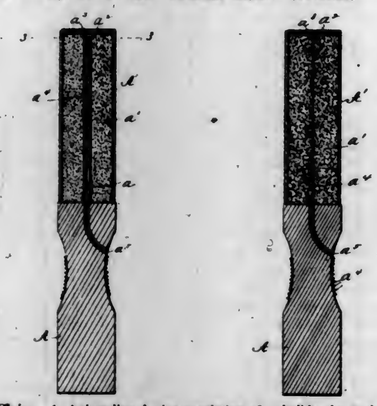
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seats *g*, the internal diameter of the flasks being greater than that of the openings in the base-plate, whereby a fixed ledge or support is provided for the sand, all substantially as shown and described.

2. In combination with a pipe-flask, a base-plate attached thereto and provided with openings, a bar F, and means for locking it in position, and a plate G, pivotally mounted upon the bar and provided with core-seats, substantially as and for the purpose specified.

478,623. SIGNAL-TORCH. FRANK DU PONT MARSTON, Toms River, N. J. Filed Mar. 24, 1892. Serial No. 426,265. (No model.)



Claim.—1. A signaling device consisting of a shell having a charge of signaling material and an explosive friction-primer, a wad covering the contents of said shell, and a wire passing through said friction-primer and said shell, for the purpose set forth.

2. A signaling device consisting of a handle, a shell having an explosive friction-primer above the signaling material and closed at the top by a wad, and a wire passing through said friction-primer and down through the shell and handle to the outside of the handle.

3. A signaling device consisting of a shell having a tube extending from its bottom, signaling material around said tube, a friction-primer upon said tube, a wad for closing the top of the shell, and a wire passing through said friction-primer and extending through said tube to a point outside the shell.

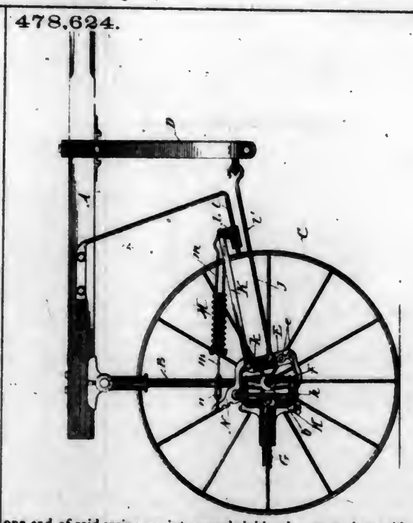
478,624. CULTIVATOR. GILPIN MOORE, Moline, Ill., assignor to the Deere & Company, same place. Filed Nov. 11, 1890. Serial No. 371,106. (No model.)

Claim.—1. In a cultivator, the combination, with a vertically-swinging beam and a swinging or oscillating coupling, of a spring connected at one end to the coupling, a guide connected to the other end of said spring, and an interposed rod pivoted at one end to said guide and at the other end pivoted to the coupling at a different distance from the center of oscillation or swinging than the point of attachment of the spring thereto, substantially as and for the purpose specified.

2. In a cultivator, the combination, with a vertically-swinging beam and a lever or hook connected with the swinging beam, of a lifting-spring connected at one end to said lever, a guide connected to the other end of said spring, and a rigid rod connected to said guide and at the other end pivotally connected to the swinging beam, whereby the variations in the tension of the spring and in the leverage compensate each other, substantially as described.

3. In a cultivator, the combination, with a vertically-swinging beam and coupling, of a lifting-spring therefor, a guide connected to

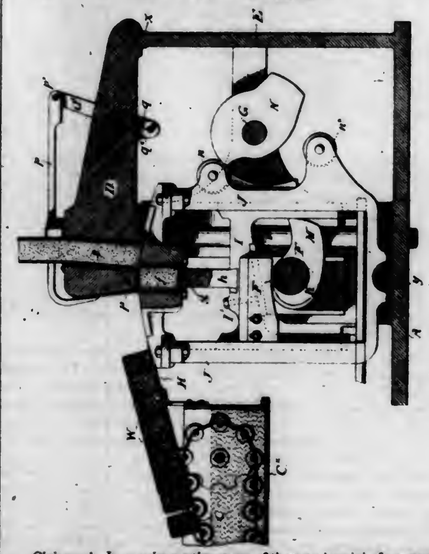
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one end of said spring, an interposed rigid rod connected to said guide and to the coupling, and means for adjusting the leverage and tension of the spring, substantially as specified.

4. In a cultivator, the combination, with a vertically-swinging beam and coupling E, having a lever N, of a spring M, sleeve L, connected to the rear end of the spring M, guide *l*, and rod K, connected to the sleeve L and to the coupling E at a different distance from the center of oscillation than the point of attachment of the spring M to the lever N, substantially as and for the purpose specified.

478,625. BRICK-PRESS. SAMUEL MCCARTER, Norristown, Pa., assignor to the International Pavement Company, Hartford, Conn. Filed Mar. 27, 1890. Serial No. 345,471. (No model.)



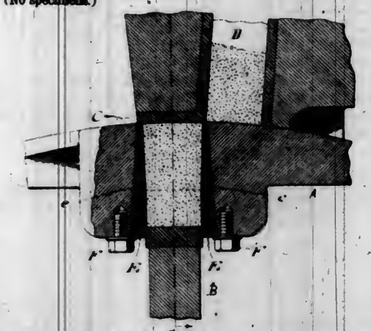
Claim.—1. In a reciprocating press of the type hereinbefore specified, in combination with the top of the fixed frame, with the upper portion of the reciprocating mold-frame and with the chute, the push-plate P, and mechanism for operating said push-plate relatively to the aforesaid elements, substantially in the manner and for the purpose specified.

2. In combination, a fixed frame, a charging-opening and a press-block formed in said frame, a mold-frame having a mold and adapted to be reciprocated with respect to said fixed frame, a plunger carried

by the mold-frame, means for operating said plunger with respect to the mold, means for reciprocating the mold-frame, a chute leading from the mold-frame, a push-plate, and operative mechanism for moving said push-plate toward and from the mold and toward and from the chute, substantially as set forth.

3. In combination with the fixed frame, the mold-frame, the plunger and its operative devices, the devices for reciprocating the mold-frame, the chute, the push-plate having the rearwardly-extended arms, the rock-arms, the downwardly-extending lever, the stud-provided wheel, and the spring, substantially as set forth.

478,626. METHOD OF FORMING ASPHALT BLOCKS. SAMUEL MCCARTER, Norristown, Pa., assignor to the International Pavement Company, Hartford, Conn. Filed Mar. 27, 1890. Serial No. 345,472. (No specimens.)



Claim.—1. The method of forming plastic material into blocks of a given form, which consists in molding or compressing such material to a form the diametric measurements of the base of which are as much less or narrower than the reqeired ultimate measurements as will be compensated for by the subsequent spreading of the material in the settling and setting of the block after removal from the mold, substantially as set forth.

2. The method of forming plastic material into quadrangular blocks, which consists in, first, molding or compressing such material in a mold the interior faces of which are flared or inclined outwardly away from each each other, in then expelling the material so molded or compressed from the mold, and in then permitting the molded block to settle and set into quadrangular form by causing it during such action to rest upon its base or that end which within the mold possessed the lesser diametric dimensions, substantially as set forth.

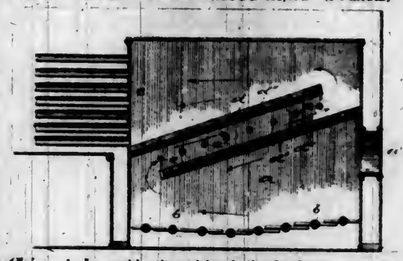
478,627. COMBINED SULKY PLOW AND HARROW. MICHAEL A. MCCLELLAN, Chicago, Ill. Filed Jan. 13, 1891. Serial No. 377,592. (No model.)



Claim.—1. In combination with a sulky-plow or similar implement, the harrow provided with the forward and rear side extending arms attached thereto, the clip provided with the side eye-lug for hinging the forward harrow-arm to the plow-frame, the hinge connection for connecting the rear harrow-arm to the plow-spindle, and the lever, pulley, and rope mechanism for raising and lowering the harrow, substantially as set forth.

2. In combination with a sulky-plow, the harrow attachment provided with a forward and a rear side extending arm, said arms being respectively hinged to the plow-frame and spindle, the lever and pulleys attached to the plow-frame, and the rope arranged about said pulleys and connecting said harrow and lever, substantially as and for the purpose set forth.

478,628. FIRE-BOX FOR BOILERS. WILLIAM MCCOMBIE, Chicago, Ill. Filed Nov. 12, 1891. Serial No. 411,704. (No model.)

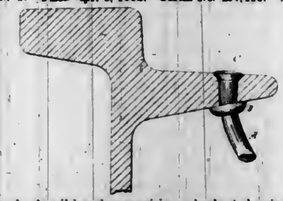


Claim.—1. In combination with a boiler fire-box, transverse portions therein forming a flue through which the products of combustion must pass on their way to the fire-flues, and gas-pipes entering the flue from the side thereof, as and for the purpose described.

2. The combination of a fire-box, a refractory wall *d'* therein extending forwardly from the rear wall and terminating near the front wall, another wall *d* above the wall *d'* and projecting rearwardly from the forward wall to near the rear wall of the fire-box, and gas-pipes leading into the flue formed by the two walls, as and for the purpose described.

3. The combination of a fire-box, a downwardly and forwardly projecting transverse refractory wall therein, this wall terminating near the front wall of the fire-box and composed of removable bricks, another wall above said wall, this latter wall being constructed of removable refractory bricks, and extending rearwardly from the front wall to near the rear wall of fire-box, and a series of gas-nozzles entering the flue formed by the walls above mentioned, as and for the purpose described.

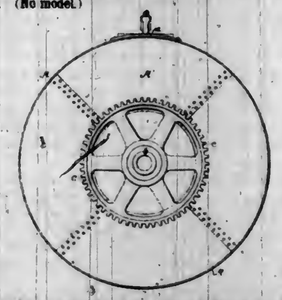
478,629. ELECTRIC RAIL-BOND. THOMAS J. MCTIGHE, New York, N. Y. Filed Apr. 1, 1892. Serial No. 427,410. (No model.)



Claim.—1. A rail-bond comprising a body A, having curved ends, with shoulders B B and pins or rivets C C, all in one integral piece.

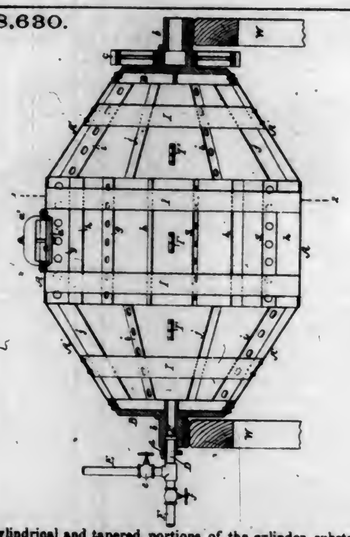
2. The combination, with a girder-rail joint, of a rail bond having its ends inserted upwardly through holes in the trams of the adjoining rails and within the lengths of the fish-plates and riveted on top.

478,630. BLACK-ASH DISSOLVER. GEORGE M. NEWHALL and CHARLES L. HAMILTON, Philadelphia, Pa. Filed Jan. 21, 1890. Serial No. 337,641. (No model.)



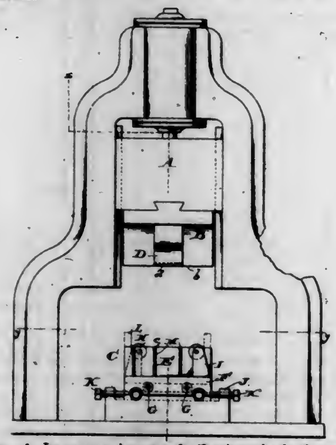
Claim.—The combination, in a black-ash dissolver, of the cylinder, comprising the central cylindrical portion A, the tapered end portions A', heads B B, secured thereto, supporting-trunnions on said heads, a pipe D, adapted to one of said trunnions, a manhole in the central cylindrical portion through which the material is fed into the dissolver, cutting and mixing blades extending transversely across the cylinder and having their opposite ends secured thereto, and alternate plain and perforated lifting-blades secured longitudinally to the inner periphery

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of the cylindrical and tapered portions of the cylinder, substantially as specified.

478,631. HAMMER FOR FORGING CAR-WHEELS. JOHN PARKINSON, Philadelphia, Pa. Filed June 20, 1891. Serial No. 396,897. (No model.)



Claim.—1. In a power-hammer for forging wheels, the combination of a hammer-die having a projection upon one side, and an anvil-die consisting of sections, one of which sections has a supporting-face for the wheel-blank located under the projection of the hammer-die and at a lower level than the die-face of the adjacent section, whereby one of said sections may be removed and replaced by another of different size for a different diameter of wheel.

2. In a power-hammer for forging wheels, the combination of an anvil-die consisting of sections movable with reference to one another, whereby one section may be adjusted with reference to the adjacent section, one of said sections having a supporting-face for the wheel-blank at a lower level than the level of the die-face of the adjacent section, and a hammer-die having a projection over the section of the anvil-die of less altitude.

3. In a power-hammer for forging wheels, an anvil-die formed in sections of different altitudes, whereby the wheel-blank may be supported in the direction of the movement of the hammer upon the section of less altitude against the adjacent face of the section of greater altitude, said sections being provided with a guideway between their adjacent surfaces, whereby they may be moved relatively to one another or removed, and a hammer-die having a projection arranged in line with the section of the anvil-die of less altitude.

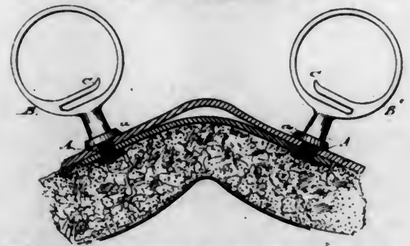
4. In a power-hammer for forging steel wheels, the combination of an anvil-die, consisting of the section E and the section F, having the surface *f* at a lower level than the face of the section E and provided with a groove *g* adjacent to its inner edge, said section F being removable from the section E, and the hammer-die A, having the grooved projection D.

5. In a power-hammer for forging steel wheels, the combination of a hammer-die having a lateral projection, an anvil-die having a lateral support for the tread of the wheel-blank to support it in an upright position against the side of the anvil-die and under the projection of the hammer-die, and an anti-friction-roller above said lateral support of the anvil-die to assist the turning of the wheel-blank.

6. In a power-hammer, the combination of an anvil-die having a lateral supporting-surface *f* for the tread of the wheel extending from the side of the anvil-die and at a lower altitude than the upper face thereof, said lateral supporting-surface *f* being provided with the upright I and the roller H, adapted to bear against the tread of the wheel-blank carried by said upright I adjacent to the upper face of the anvil-die, and a hammer-die having a projection in line with the lateral supporting-surface *f* of the anvil-die.

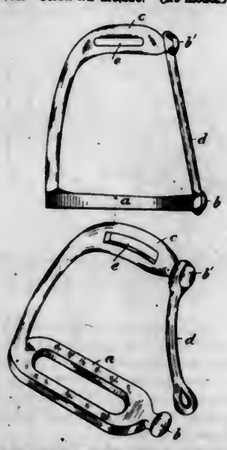
7. In a power-hammer, the combination of a hammer-die, a frame J, an anvil-die made in sections movable with reference one to another and arranged within the frame J, and adjusting and clamping screws K, carried by frame J and bearing upon the sections of the anvil-die.

478,632. HARNESS-TERRET. FRANCIS PARK, Montague City, assignor of one-half to Warren M. King, Orange, Mass. Filed Apr. 12, 1892. Serial No. 428,904. (No model.)



Claim.—A terret to combine the functions of a guide and check for the reins, which consists of a ring or loop, a lip curving within the same to form between the latter and the base of said loop a slot to receive and hold the reins, and a holding means by which the terret may be attached to the saddle, as set forth.

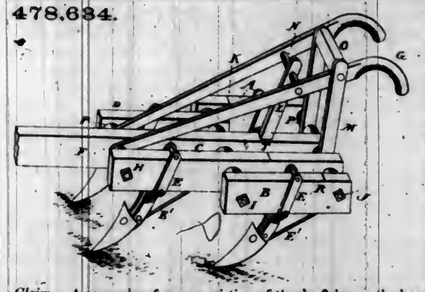
748,633. STIRRUP. ERNEST A. PEACOCK, London, England. Filed Mar. 24, 1892. Serial No. 426,236. (No model.)



Claim.—A stirrup having the tread, arch, and one side of metal and the remaining side formed of an elastic band *d*, looped at each end and passing over studs *b b'* at the ends of the tread and arch.

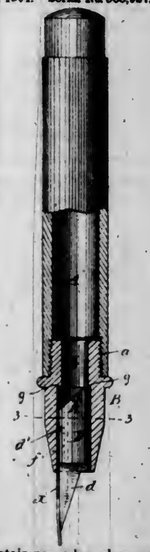
478,634. GANG-PLOW. RICHARD L. PEEK, Basham's Gap, Ala. Filed Mar. 7, 1892. Serial No. 424,025. (No model.)

478,634.



Claim.—A gang-plow frame consisting of the draft-beam, the long plow-beam C, and the short plow-beams A B D, said beams being connected by bolts with spacers thereon, and said plow-beams carrying adjustable plow-standards and having the beams A B C, marked, respectively, at K R T, as shown and described, whereby said frame may carry a single gang of four turn-plows or two similar gangs of shovel-plows, as shown and described.

478,635. FOUNTAIN-PEN. DUANE T. PERKINS, Springfield, Mass., assignor to himself, Frederick Zuchtmann, and Paul A. Knappe, same place. Filed Mar. 21, 1891. Serial No. 385,927. (No model.)

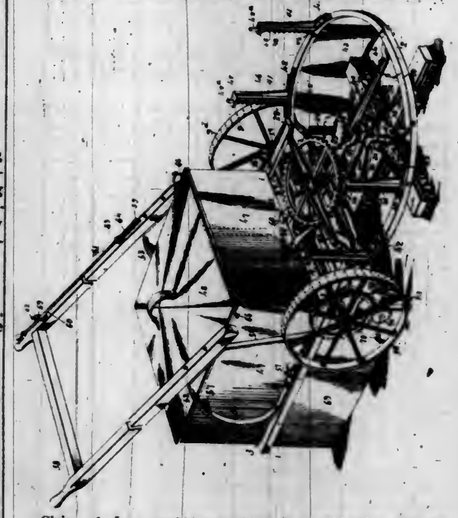


Claim.—1. In a fountain-pen, a barrel or reservoir, a closing-stopper portion or plug in the forward section of said barrel and at one side and adjacent to the inner wall of said section reduced so as to receive between it and said inner wall the pen-shank, and a feed-bar in forward extension of said plug and adapted to lie along the under side of the pen, in combination with two ducts lengthwise of and at said reduced side of said plug and at one end open to the barrel and at the other end to the under side of the pen back of the forward end of said feed-bar, substantially as and for the purposes described.

2. In a fountain-pen, the combination, with the barrel and a forward tubular section of it which interiorly is of different diameter, making an intermediate seat *g*, of a solid plug or stopper D to close said section, adapted at its inner or rear end to rest on said seat *g* and having between it and the inner wall of said section an open space suitable to receive the shank of a pen, and also two ducts, each extending from end to end of it and both open to said pen-receiving space and at one end to the barrel and at the other end to the under side of the pen, substantially as described, for the purposes specified.

3. In a fountain-pen, the combination, with the barrel and a forward tubular section of it which interiorly is of different diameter, making an intermediate seat *g*, of a solid plug or stopper D to close said section and at its inner or rear end beveled on one side and adapted to rest on said seat *g* and having between it and the inner wall of said section an open space suitable to receive the shank of a pen, and also two ducts, each extending from end to end of it and both open to said pen-receiving space and at one end and the beveled side of the plug open to the barrel and at the other end to the other side of the pen, substantially as described, for the purposes specified.

478,686. SCRUBBING-MACHINE. HECTOR PRUD'HOMME, Marinette, Wis. Filed Sept. 18, 1891. Serial No. 406,145. (No model.)



Claim.—1. In a scrubbing-machine, the combination, with the frame, of a V-shaped bearing-bracket depending from said frame, a vertical brush-shaft journaled in said bracket and frame and provided with an adjusting-collar secured thereon above the bearing in the frame and with radially-extending lugs having under squared recesses, brush-arms pivotally secured at one end within said recesses, springs secured to said lugs above the recesses therein and normally bearing upon the outer ends of said arms, clamping-plates pivotally secured at their centers to the outer ends of said arms and having opposite depending flanges adapted to removably engage the backs and edges of the brushes, and means for rotating the shaft, substantially as set forth.

2. In a scrubbing-machine, the combination, with the frame and the axle having the beveled gear, of a single double-T-headed casting secured to the top of said frame, a brush-shaft journaled vertically in the tail of said casting and provided with a pinion secured to the upper end of the same, a short stub-shaft carrying bevel-gear at each end, journaled in the outer head of said casting, and an intermediate parallel bearing between the same and the inner head, a horizontal gear-wheel and small bevel-gear carried therebeneath, located above the inner T-head, and provided with opposite conical recesses, a transverse brace secured to the frame parallel with said inner T-head and directly over said gear-wheel and beveled gear, and pointed bearing-screws passing from beneath said inner T-head and through said transverse bar and engaging said conical bearings, substantially as set forth.

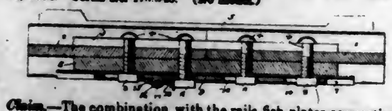
3. In a scrubbing-machine, the combination, with the frame, a brush-shaft journaled in the front end of the same, and a water-supply tank located at the rear end of the machine, of handle-adjusting springs located on opposite sides of said tank and secured to said frame, said springs comprising a vertical portion and semicircular overlapping sections having elongated slots, bolts engaging said slots and adjustably connecting said sections together, and the operating-handles secured to the top of one of said adjustable spring-sections, substantially as set forth.

4. In a scrubbing-machine, the combination, with the frame and a vertical brush-shaft in the front end of the same, of a pair of handles adjustably located at the rear end of the machine, a water-supply tank mounted between the handles and provided with discharge-openings, a transverse shaft journaled in said tank and provided with a crank-arm and a valve having the projecting plugs or teats adapted to fit said discharge-openings, and a spring-actuated operating-rod slidingly mounted upon one of the handles and provided at one end with a series of engaging-notches and loosely connected at the other end with the upper end of said crank-arm, substantially as set forth.

5. The combination, with the revolving axle having ratchet-teeth upon one end, of a sleeve or collar suitably secured over the notched end of said axle and provided with a transverse perforation therein,

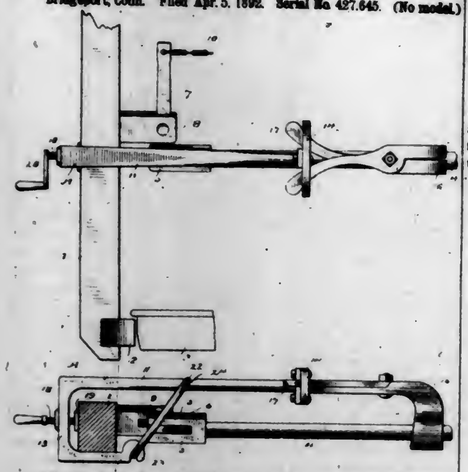
an inverted-U-shaped leaf-spring rigidly secured at one end to said collar, and a beveled pawl pin or stop secured to the free end of said spring, projecting through the perforation in said collar and adapted to engage the ratchet-teeth in said axle, substantially as set forth.

478,637. NUT-LOCK. JOHN PUTNAM, Cerro Gordo, Ill. Filed Nov. 30, 1891. Serial No. 413,548. (No model.)



Claim.—The combination, with the rails, fish-plates connecting the rails, bolts securing the fish-plates to the rails, and nuts arranged on the bolts, of the locking-plate provided with a bolt-opening, a slot communicating with the opening, and an integral perforated lug, said locking-plate having a series of nut-openings, a supplemental plate having a shoulder and provided with a lug adapted to enter said slot, said supplemental plate being bifurcated to receive the perforated lug and provided with recesses, and a key arranged in the perforation of the lug and in the recesses of the supplemental plate, substantially as described.

478,638. DEVICE FOR ADJUSTING BRAKES. ANDREW RAUB, Bridgeport, Conn. Filed Apr. 5, 1892. Serial No. 427,645. (No model.)



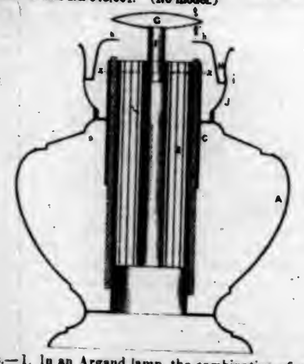
Claim.—1. A device for adjusting brakes, consisting, essentially, of a yoke, a screw in said yoke adapted to bear against a brake-beam, a swiveled head upon the arm of the yoke, having openings through it, and clamping-jaws adapted to engage a brake-rod and having curved shanks which pass through said openings, so that when the screw is turned the clamping-arms are caused to engage the brake-rod and the brake-beam is moved forward, as and for the purpose set forth.

2. A device for adjusting brakes, consisting of a yoke adapted to partially inclose a brake-beam, a screw in said yoke having a swiveled head adapted to bear against the brake-beam, a swiveled head upon one arm of the yoke, having openings through it, and clamping-jaws adapted to engage the brake-rod and having curved shanks which pass through the openings in the head upon the arm of the yoke, so that when the screw is turned in the brake-rod is clamped firmly and the brake-beam moved forward.

3. A device for adjusting brakes, consisting of a yoke, a screw in said yoke adapted to bear on the brake-beam, a head on one arm of the yoke, having openings 15 through it, and clamping-jaws suitably curved to engage the brake-rod and having serrated engaging-surfaces and curved shanks which extend through the openings in the head.

4. A device for adjusting brakes, consisting of a yoke, said yoke consisting of arms 11 and 12 and an end piece 13, said arm 11 having a depression 24 and said arm 12 having a hook 23, a link engaging said depression and hook for the purpose set forth, a screw in said end piece adapted to bear against a brake-beam, a swiveled head on arm 11, having openings 15 through it, and clamping-jaws adapted to engage a brake-rod and having curved shanks passing through the openings in said head.

478,639. ARGAND LAMP. FRANK REIND, Meriden, Conn., assignor of one-half to the Edward Miller & Company, same place. Filed Nov. 20, 1890. Serial No. 373,061. (No model.)

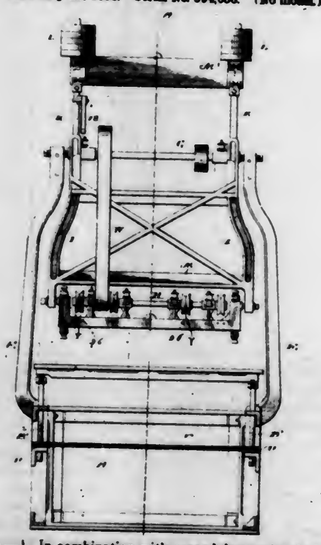


Claim.—1. In an Argand lamp, the combination of an inner air-supply tube and a vertically-convolute partition within said tube, the spiral space between the convolutions of said partition being clear and unobstructed, substantially as described.

2. In an Argand lamp, the combination of an inner air-supply tube and a vertically-convolute foraminous partition within said tube, the spiral space between the convolutions of said partition being clear and unobstructed, substantially as described.

3. An inner air-deflector of an Argand lamp, consisting of two foraminous disks connected at their outer edges, so that a portion of the air which strikes against the lower side of said deflector may be deflected outwardly and another portion permitted to pass upward through said deflector, substantially as described.

478,640. CARVING-MACHINE. JOSEPH ROHLMANN, St. Joseph, Mo. Filed May 25, 1891. Serial No. 394,058. (No model.)



Claim.—1. In combination with a pendulous swing-frame carrying at its lower end bracket-arms and a set or system of carving-tools, the rearward-projecting arms O and 3, and their adjustable weights N and 4, the combination being and operating as set forth.

2. In combination with the swing-frame and with the spindle-carrying frame, the slotted cross-bar 5 on the latter, provided with the sliding pulleys and spiral springs, substantially as and for the purpose set forth.

3. In combination with the tracing-tool, an adjustable stop-gage composed of two parts, each adapted to be laterally slid and secured and bearing on opposite sides of the stock of the tracing-spindle to hold it firmly in its supports to any position to which it may be set laterally.

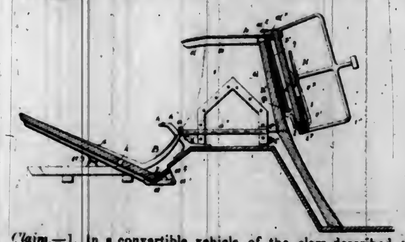
4. In combination with the pendulous frame and with the bracket-arms supported on its lower end, adjustable sliding and slotted gages 14, applied as set forth and serving to adjust the tool-stock at any desired forward or backward inclination.

5. In combination with the standards E E, the open or oval-shaped cross-piece on frame F, connecting the tops of these standards, the swing-frame I, uprights K, and the piece 18, secured thereon and serving to limit the swinging movement of the swing-frame by coming into contact with frame F.

6. In combination with arms E and with swing-frame I and uprights K thereon, the arched piece 18, serving to limit the swing of said frame, and the sets of removable adjusting-weights on said uprights, all substantially as shown and described.

7. In combination with the tool-spindle and its stock, the sleeve *x*, beyond which the stock projects, the removable oil-cup 21, fitted upon and secured to such projecting part of the stock and abutting at its upper end closely against the lower end of such sleeve and having the described upward-extending central tube, and the tool-chuck holder fitting closely within such tube, all as set forth.

478,641. CONVERTIBLE VICTORIA. ALFRED C. SAGE, Clifton Hill, near Melbourne, assignor of one-half to Daniel White, Parkville, near Melbourne, Victoria. Filed Mar. 10, 1892. Serial No. 424,405. (No model.)



Claim.—1. In a convertible vehicle of the class described, the combination, with the foot-board, of movable boot-sides operated and controlled by said foot-board, substantially as and for the purpose set forth.

2. In a convertible vehicle of the class described, the combination, with two hinged boot-sides, each provided with a looped guide-rail, of a hinged foot-board provided with a projecting arm on either side thereof, the ends of which engage with said looped guide-rails to operate and control said boot-sides, substantially as described.

3. In a convertible vehicle of the class described, the combination, with the front seat, and a hinged foot-board having a slot formed therein, of the bracket *k*, adapted to project through said slot, a locking-rod on the foot-board, adapted to engage the bracket, and a rein-rail l^3, pivoted to the bolt and adapted to impart motion thereto, whereby said rein-rail can be turned under the foot-board when the latter is used as such, substantially as and for the purpose specified.

4. In a convertible vehicle of the class described, the combination, with two hinged boot-sides having on their upper edges an inwardly-projecting guide-bar provided with a downwardly-inclined portion in front, of a seat having a hook on each side adapted to engage with said guide-bars, substantially as and for the purpose described.

5. In a convertible vehicle of the class described, the combination, with the seat F, having a slotted guide-rail G on either side thereof, and a downwardly-projecting pin H, of the boot-sides provided with a recess in the upper end adapted to be engaged by the pin H, and outwardly-projecting pins g^3 on the back of the boot extending into the slot of said guide-rails, substantially as and for the purpose set forth.

6. In a convertible vehicle of the class described, the combination, with the movable seat F, of a bolt I, sliding in bearings on said seat, the rear frame E, having a loop which projects through the bottom thereof and engaged by said bolt, and a pivoted back-rail for said seat, having a projecting lug to engage with and operate said sliding bolt, substantially as described.

7. In a convertible vehicle of the class described, the combination, with the seat F and slotted guide-rails G, secured to the under side thereof, of the back panel of the boot, having outwardly-projecting pins g^3, on which said guide-rails slide, whereby said seat may be hung down against said rear panel of the boot, substantially as and for the purpose set forth.

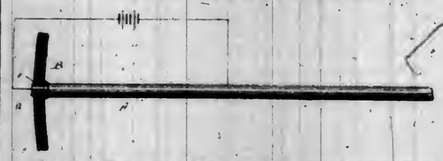
478,642. ROOFING-TOOL. LOWLEY L. SACHSDORFF, Philadelphia, Pa., assignor of one-half to Charles N. Harder, Philmont, N. Y. Filed Apr. 2, 1892. Serial No. 427,446. (No model.)

Claim.—A roofing-tool consisting of jaws A, B, and C, suitably pivoted and connected together, the jaws B and C having the contiguous concave and convex portions 2 and 3, respectively, with grooves 4 and 5 formed along the inner top of the contiguous faces of jaws A and B, respectively, substantially as and for the purpose specified.

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478,643. METHOD OF WELDING METAL WHEELS. ERNST H. SCOTT, La Porte, Ind., assignor to the Niles & Scott Company, same place. Filed Jan. 23, 1889. Serial No. 297,781. (No model.)



Claim.—1. The process of securing metal spokes in the rims of metal wheels, consisting in, first, inserting the spokes in place in the rim, and, secondly, heating the end of a spoke by an electric current, and, finally, riveting or upsetting the end of the spoke and securing it to the tire, substantially as specified.

2. The process of securing metal spokes in the rims of metal wheels consisting in first putting the spoke in place within the rim, then heating the end of the spoke in contact with the rim to a welding heat and holding the rim and the spoke together under pressure, and thus welding them together, substantially as specified.

3. The process of securing metal spokes in the rims of metal wheels, consisting in, first, inserting the spokes in place in the rim; secondly, heating the ends of the spokes and the contiguous portion of the metal rim, and, finally, subjecting the same to force or pressure and welding or uniting the spokes and rim together, substantially as specified.

4. The improvement in the art of attaching metal spokes to metal wheel-tires, consisting in introducing the end of the spoke into the other member, heating the contiguous portion of the two members to a welding temperature by directing an electric current therethrough, and finally upsetting the spokes to complete the welding operation.

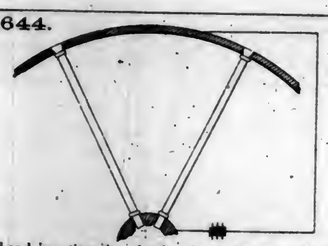
5. The improvement in the art of manufacturing metal wheels, which consists in passing the end of the spoke through a hole in the tire, directing an electric current through the contiguous portions of said parts, and thereby raising their temperature to a welding heat, and finally upsetting the end of the spoke, and thereby welding the parts together.

478,644. METHOD OF MAKING METAL WHEELS. ERNST H. SCOTT, La Porte, Ind., assignor to the Niles & Scott Company, same place. Filed Jan. 23, 1889. Serial No. 297,782. (No specimens.)

Claim.—1. The improvement in the art or process of making metallic wheels, consisting in first securing the spokes rigidly in the metal rim of the wheel and inserting them in place in the hub, then forcing or clamping the rim of the wheel to a true circle about the axis of the hub, then heating the hub end of the spokes by an electric current, and, finally, while the spokes are so heated riveting, bending, upsetting, or otherwise manipulating the ends of the spokes and securing them rigidly in or to the hub, substantially as specified.

2. The improvement in the art or process of making metallic wheels, consisting in first securing the spokes rigidly in the metal rim

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of the wheel and inserting them in place in the hub, then forcing or clamping the rim of the wheel to a true circle about the axis of the hub, then heating the ends of the spokes by an electric current to the fusing or welding point, and, finally, subjecting the ends of the spokes to force or pressure while so heated to unite them with the hub, substantially as specified.

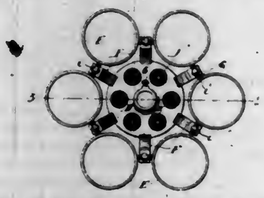
3. The improvement in the art or process of manufacturing metal wheels, consisting in heating the ends of the spokes after they are inserted in the hub by an electric current and then subjecting the same to force or pressure to bend, rivet, or unite the same while so heated to the hub, substantially as specified.

4. The improvement in the art or process of making metallic wheels, consisting in first securing the spokes rigidly in the metal rim of the wheel and inserting them in place in the hub, then forcing or clamping the rim of the wheel to a true circle about the axis of the hub, then heating the hub ends of the spokes, and, finally, while the spokes are so heated riveting, bending, upsetting, or otherwise manipulating the ends of the spokes and securing them in or to the hub, substantially as specified.

5. The improvement in the art of attaching metal spokes to metal wheel-hubs, consisting in introducing the end of the spoke into the other member, heating the contiguous portions of the two members to a welding temperature by directing an electric current therethrough, and, finally, upsetting the spoke to complete the welding operation.

6. The improvement in the art of manufacturing metal wheels, consisting in introducing the ends of the spokes into mortises in the hub, heating the contiguous parts to a welding temperature by directing an electric current therethrough, and, finally, forcing the parts into contact while thus heated to effect a welded union between them.

478,645. UMBRELLA-STAND. SAMUEL S. SENCENBAUGH and ALBERT J. IVES, Aurora, Ill. Filed Aug. 8, 1891. Serial No. 402,173. (No model.)



Claim.—1. An umbrella-stand consisting of an upright rod and horizontal bracket secured thereupon and each composed of a central disk D, and a series of swinging rings E, pivotally mounted on the disk and supported in an approximately horizontal position to receive the umbrellas or canes, substantially as described.

2. An umbrella-stand consisting of an upright rod and horizontal brackets secured thereupon and each composed of a central disk having a series of sockets, and a series of rings pivotally mounted on the disk and supported in an approximately horizontal position to receive the umbrellas or canes, said rings of an upper bracket holding the umbrellas or canes, while the sockets in the disk of a lower bracket receive and retain the ferruled ends of the umbrellas or canes, substantially as described.

3. In an umbrella-stand, the combination, with a rod and a disk adapted to be secured upon said rod, said disk having radial arms F, having sockets near their outer ends, of rings E, having trunnions G, adapted to fit into the sockets in the arms F, substantially as and for the purpose specified.

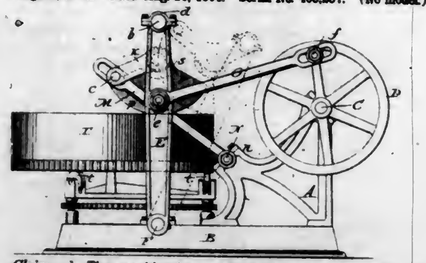
4. In an umbrella-stand, the combination, with a rod B, disk D, adapted to be secured upon said rod, radial arms F, said arms having sockets near their outer ends, and holes H in said arms, of rings E, having trunnions G, adapted to fit into the sockets in the arms F, and pins I, having caps *i*, said pins being adapted to be inserted into the holes H in such position that the caps *i* will overlap the trunnions G, substantially as and for the purpose specified.

478,646. UMBRELLA-STAND. SAMUEL S. SENCENBAUGH and ALBERT J. IVES, Aurora, Ill. Filed Aug. 13, 1891. Serial No. 402,591. (No model.)



Claim.—The combination, with a base A and an upright supporting-rod B, of a series of brackets C, arranged on the rod one above the other and each composed of a disk D, formed with sockets I, and a central tubular portion G, through which the supporting-rod extends, and a series of rings E, connected with and arranged round the socketed disk, said sockets of one disk serving to receive and retain the ends of umbrellas or canes held by the rings of an upper bracket, substantially as described.

478,647. MEAT-CHOPPING MACHINE. JOHN SHEARBURN, Burlington, Iowa. Filed Aug. 20, 1891. Serial No. 403,257. (No model.)

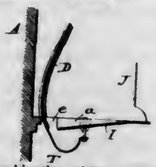


Claim.—1. The combination, substantially as hereinbefore set forth, of a chopping-block, a bed-plate or frame, radius-bars pivoted at their lower ends to the bed-plate and rocking in parallel vertical planes, a knife-carrying sleeve, a rod extending through the sleeve, connections between said rod and the upper ends of the radius-bars, a crank-wheel, pitmen connected to the crank-wheel and connected to the radius-bars between their pivotal connections with the main frame and their connection with the knife-carrying sleeve, and connections between the knife-carrying sleeve and a stationary part of the main frame.

2. The combination, substantially as hereinbefore set forth, of a rotary chopping-block, a bed-plate or frame, radius-bars pivoted to the bed-plate at their lower ends and rocking in parallel vertical planes, a knife-carrying sleeve, a rod extending through the sleeve, elbow-levers secured to the rod and pivotally connected with the radius-bars at their upper ends, links pivotally connected with the rearwardly-extending arms of the elbow-levers and pivotally connected with a stationary part of the frame, a crank-wheel, and pitmen connecting the crank-wheel with the rocking radius-bars between their upper and their lower ends.

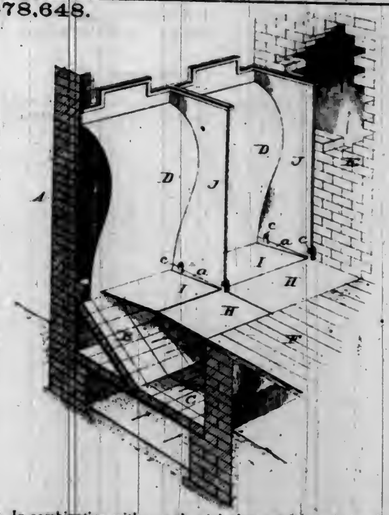
3. The meat-chopping machine hereinbefore described, consisting of the combination of a bed-plate, a standard or supporting-frame, a crank-shaft mounted therein, crank-wheels fixed on opposite ends thereof, radius-bars vibrating in parallel planes on pivots on the main frame, pitmen connecting the crank-wheels and radius-bars, elbow-levers connected with the latter at one end, links connecting the frame and elbow-levers, a rod connecting these levers with each other, a knife-carrying sleeve mounted on the rod, knives carried thereby, a chopping-block traversed by the knives, and mechanism for rotating the chopping-block, the combination being and operating substantially as hereinbefore set forth.

478,648. URINAL. ISAAC D. SMEAD, Toledo, Ohio. Filed Dec. 5, 1891. Serial No. 414,160. (No model.)



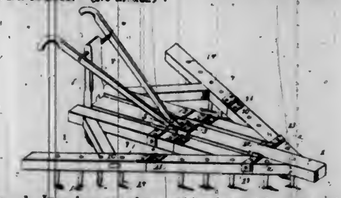
Claim.—1. In combination with a vault having a current of air passing through it, a urinal consisting of an inclined or curved back plate extending downward to the floor and the inclined floor-plate I, with a narrow space or slot between said floor and back plates opening direct into the vault below, substantially as shown and described.

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2. In combination with a vault or air-duct, an inclined absorbent partition or wall B, and a urinal constructed substantially as described and having an opening for the passage of the fluid arranged to deliver the same at or near the upper edge of said incline, substantially as shown and described.

478,649. HARROW. GORDON T. SONGER, Elizabethton, Tenn., assignor of one-half to William E. Carter, same place. Filed May 25, 1891. Serial No. 394,363. (No model.)

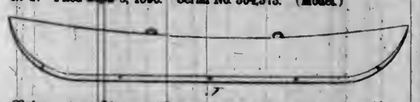


Claim.—1. In a harrow, the combination, with a central beam formed in sections terminating at its rear end in a plow-standard, of a pair of harrows consisting of a pair of converging side beams connected at their rear ends and formed in sections, hinges connecting the beam-sections, and hinges connecting the harrow-sections with the main beam, substantially as specified.

2. The combination, with the main beam formed in sections and terminating at its rear end in a cultivator-standard, said sections being hinged together and the front sections provided with triangular wings secured at opposite sides thereof, of a pair of triangular harrow-sections, the bars of which are formed in sections loosely and removably connected, hinge-straps mounted upon the inner bars of the harrow-sections, and inclined L-shaped pintles extending from the corners of the cultivator-beam for engaging the straps, substantially as specified.

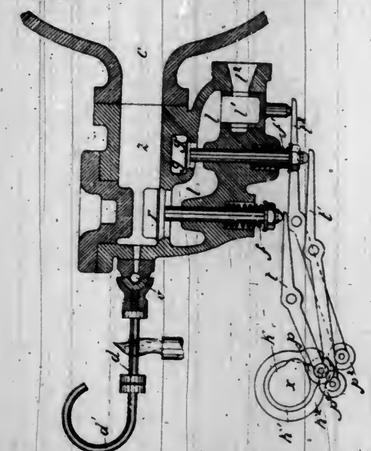
3. In a harrow, the combination, with the two opposite harrow-sections, of a central beam consisting of two flexibly-connected sections, the rear one of which terminates at its rear end in a shovel-carrying standard, and hinge connections between the front sections of the beam and the opposite harrow-sections, substantially as specified.

478,650. SAFETY SURF-BOAT. WELLING C. SOULE, Savannah, N. Y. Filed Sept. 3, 1890. Serial No. 364,373. (Model.)



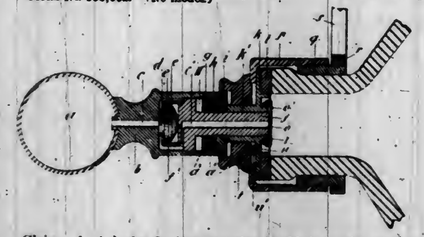
Claim.—A surf-boat with deck, sides, bottom, stern, and keel all made from one piece of sheet metal, so constructed as to have but one seam and that running down the ends and along the bottom, substantially as shown and described.

478,651. GAS AND PETROLEUM MOTOR. BERNHARD STEIB, Berlin, Germany, assignor to the Berliner Maschinenbau Actien-Gesellschaft, vormals L. Schwartzkopff, same place. Filed Dec. 24, 1890. Serial No. 375,760. (No model.) Patented in England Nov. 25, 1890, No. 19,171.



Claim.—The combination of sleeve *z*, inserted between cylinder *c* and ignition-tube *d*, and valve *r*, closing or establishing communication between sleeve *z* and air-channel *l*, with valve *g'*, closing or establishing communication between gas-channel *g* and air-channel *l*, and with valve *f'*, lessening or enlarging communication between air-channel *l* and the open air, and operating means constructed, as described, so that said valves *r* and *g'* are opened at the beginning of the suction period and passage of valve *f* is reduced at or near the close of that period, for the purposes described.

478,652. APPARATUS FOR IMPREGNATING LIQUORS IN BOTTLES. EMIL STERN, Vienna, Austria-Hungary. Filed Dec. 12, 1889. Serial No. 333,682. (No model.)



Claim.—1. A device for impregnating liquids in bottles with gas, consisting of a receptacle for containing gas, detachably secured to the bottle-neck, and a passage controlled by a valve leading from said receptacle to the bottle, said valve being opened and closed by the upward and downward movement of the receptacle, as and for the purpose set forth.

2. A device for impregnating liquids in bottles with gas, consisting of a receptacle for containing gas, detachably secured to the bottle-neck, a passage controlled by a valve leading from said receptacle to the bottle, said valve being opened and closed by the upward and downward movement of the receptacle, and a port in an annulus, communicating with the interior of the bottle and controlled by a valve and a ring for the purpose of allowing the atmospheric air and superfluous gas to escape, substantially as described.

478,653. FOUNTAIN-PEN. WILLIAM W. STEWART, Brooklyn, N. Y. Filed Dec. 15, 1890. Serial No. 374,678. (No model.)



Claim.—1. In a fountain-pen, the combination, with a reservoir-holder having a throat or passage communicating with the pen, of a valve for controlling communication through said throat, and a stem

for operating said valve, passing through the throat, with its exterior surface in capillary proximity to the interior surface of the throat, whereby a capillary duct is formed for the flow of ink and the valve may be adjusted from the exterior of the holder.

2. In a fountain-pen, the combination, with a reservoir-holder having a throat or passage communicating with the pen, of a valve for controlling communication through said throat, having a tapering stem passing through the throat and emerging from the lower end of the holder, where it is accessible for operating the valve and with the exterior surface of said stem in capillary proximity to the interior surface of the throat to form a capillary duct, and the valve constructed to open by an upward movement, whereby as the valve is opened the movement of the tapering stem increases the capacity of said capillary duct.

3. In a fountain-pen, the combination, with a reservoir-holder having a throat or passage communicating with the pen, of a valve for controlling communication through said throat, and a stem for operating said valve, extending through the throat and terminating in an operating-handle at the lower end of the pen-holder, and the nozzle of the holder formed with provisions adapted to engage said handle and hold it in different positions.

4. In a fountain-pen, the combination, with a reservoir-holder having a throat or passage communicating with the pen, of a valve for controlling communication through said throat, a stem for operating it passing through the throat and having its lower end bent upwardly and adapted to pass outside of the nozzle, and the nozzle formed with provisions to engage said upturned end to hold the stems in different positions.

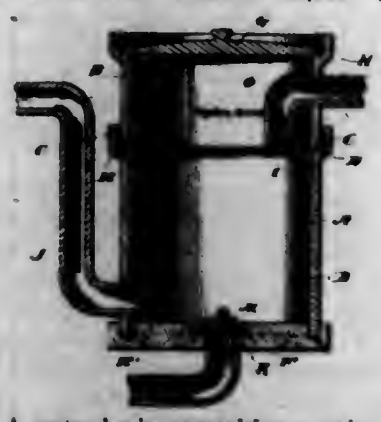
5. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, and a stem for operating said valve, passing through the throat and having its lower end bent laterally and upwardly and adapted to pass outside of the nozzle, whereby the downward and upward branches of said stem pass on opposite sides of one edge or rim of the pen-nib.

6. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, an operating-stem movable relatively to said valve, extending through the throat and terminating in an operating-handle formed with a stop adapted, when pushed upwardly, to encounter and unseat the valve, and a spring pressing downwardly against the valve, adapted to press the valve to its seat when the stem is lowered.

7. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, and a stem for operating said valve, passing through the throat and having its lower end turned upwardly to form an operating-handle and said stem constructed to admit of its handle being entered within the lower end of the nozzle when drawn down to close said valve and moved exterior to said nozzle when elevated to open the valve.

8. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, having a tubular stem passing through the throat, with its exterior surface in capillary proximity to the interior surface of the throat, and an operating-stem passing through said tubular stem and having an operating-handle at the lower end of the pen-holder.

478,654. CATCH-BASIN. ELMER F. ST. JOHN, Colorado Springs, Colo. Filed Feb. 12, 1892. Serial No. 421,329. (No model.)



Claim.—1. A water-basin comprising a series of cylindrical sections adjusted together, an inlet-pipe extending through the uppermost section and provided with a bent projection projecting belo the water-line, and a gas-vent in said bend above the water-line, and an outlet-pipe connected with the lowermost section near the bottom, substantially as set forth.

2. A catch-basin comprising a series of cylindrical sections having upper off-standing flanges and inner shoulders, the lower ends of the upper sections resting upon the shoulders therebeneath, a filling-joint between said flanges and the lower ends of the upper sections, a cemented bottom inclosing the lowermost section, a vented inlet-pipe extending into the uppermost section and projecting below the water-line, an outlet-pipe near the bottom of the basin, a plugged drain-pipe connected with said cemented bottom, and a cap or cover inclosing said basin, substantially as set forth.

478,655. BOX-LID SUPPORT. CHARLES B. STRUBLE, Minneapolis, Minn. Filed Dec. 1, 1891. Serial No. 413,715. (No specimens.)



Claim.—1. An article of manufacture consisting of a bracket having a clasp portion to engage the lid and a prong or lug 6, arranged at an angle thereto and adapted to engage the back of the box.

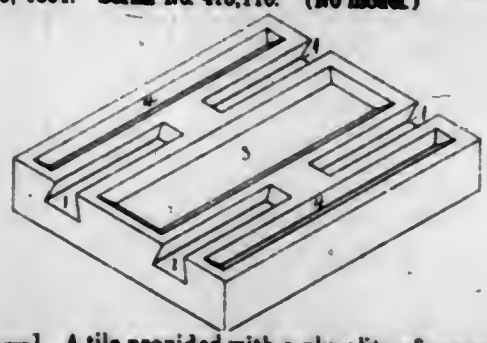
2. An article of manufacture consisting in the bracket-clasp having prongs to engage the forward and rear sides of a box-lid and a prong 6, arranged at an angle thereto and strengthened by a rib 10, as described.

3. An article of manufacture made up of the prongs 2, 3, 4, 5, and 6 and the bridge portion 7, all arranged in the relations described, and for the purpose specified.

4. An article of manufacture consisting in the bridge 7, strengthened by the rib 8 and having the prongs 2 3 and 4 5, one set of prongs extending beyond the other, a lug or prong 6, and a lip arranged on the prong 4 to engage the box-lid, substantially as described.

5. As an article of manufacture, the bracket-clasp made up of the prongs 2, 3, 4, 5, and 6, the bridge 7, the strengthening-rib 8, and the toothed lip provided on one of said prongs, and said parts arranged in the relations described, as and for the purpose specified.

478,656. TILE. ANDERS M. STRUKSOLM, Woodbridge, N. J. Filed Dec. 15, 1891. Serial No. 415,110. (No model.)



Claim.—1. A tile provided with a plurality of grooves in its under surface, said grooves commencing at opposite edges thereof and terminating at such a distance therefrom as to leave a web between their approximate ends, the said grooves having beveled sides, substantially as set f· th.

2. A tile provided with a plurality of grooves in its under surface, said grooves commencing at opposite edges thereof and terminating at such a distance therefrom as to leave a web between their approximate ends, the said grooves having beveled side and recessed portions entirely within the edges of the tile and extending parallel with the said grooves, as set forth.

478,657. MOP-HOLDER. LIDA A. TARRING, Baltimore, Md. Filed July 24, 1890. Serial No. 359,735. (No model.)



for operating said valve, passing through the throat, with its exterior surface in capillary proximity to the interior surface of the throat, whereby a capillary duct is formed for the flow of ink and the valve may be adjusted from the exterior of the holder.

2. In a fountain-pen, the combination, with a reservoir-holder having a throat or passage communicating with the pen, of a valve for controlling communication through said throat, having a tapering stem passing through the throat and emerging from the lower end of the holder, where it is accessible for operating the valve and with the exterior surface of said stem in capillary proximity to the interior surface of the throat to form a capillary duct, and the valve constructed to open by an upward movement, whereby as the valve is opened the movement of the tapering stem increases the capacity of said capillary duct.

3. In a fountain-pen, the combination, with a reservoir-holder having a throat or passage communicating with the pen, of a valve for controlling communication through said throat, and a stem for operating said valve, extending through the throat and terminating in an operating-handle at the lower end of the pen-holder, and the nozzle of the holder formed with provisions adapted to engage said handle and hold it in different positions.

4. In a fountain-pen, the combination, with a reservoir-holder having a throat or passage communicating with the pen, of a valve for controlling communication through said throat, a stem for operating it passing through the throat and having its lower end bent upwardly and adapted to pass outside of the nozzle, and the nozzle formed with provisions to engage said upturned end to hold the stems in different positions.

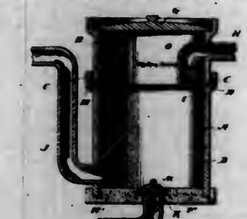
5. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, and a stem for operating said valve, passing through the throat and having its lower end bent laterally and upwardly and adapted to pass outside of the nozzle, whereby the downward and upward branches of said stem pass on opposite sides of one edge or rim of the pen-nib.

6. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, an operating-stem movable relatively to said valve, extending through the throat and terminating in an operating-handle formed with a stop adapted, when pushed upwardly, to encounter and unseat the valve, and a spring pressing downwardly against the valve, adapted to press the valve to its seat when the stem is lowered.

7. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, and a stem for operating said valve, passing through the throat and having its lower end turned upwardly to form an operating-handle and said stem constructed to admit of its handle being entered within the lower end of the nozzle when drawn down to close said valve and moved exterior to said nozzle when elevated to open the valve.

8. In a fountain-pen, the combination, with a reservoir-holder having a throat, of a valve for controlling communication therewith, having a tubular stem passing through the throat, with its exterior surface in capillary proximity to the interior surface of the throat, and an operating-stem passing through said tubular stem and having an operating-handle at the lower end of the pen-holder.

478,654. CATCH-BASIN. ELMER F. ST. JOHN, Colorado Springs, Colo. Filed Feb. 12, 1892. Serial No. 421,329. (No model.)



Claim.—1. A water-basin comprising a series of cylindrical sections adjusted together, an inlet-pipe extending through the uppermost section and provided with a bent projection projecting below the water-line, and a gas-vent in said bend above the water-line, and an outlet-pipe connected with the lowermost section near the bottom, substantially as set forth.

2. A catch-basin comprising a series of cylindrical sections having upper off-standing flanges and inner shoulders, the lower ends of the upper sections resting upon the shoulders therebeneath, a filling-joint between said flanges and the lower ends of the upper sections, a cemented bottom inclosing the lowermost section, a vented inlet-pipe extending into the uppermost section and projecting below the water-line, an outlet-pipe near the bottom of the basin, a plugged drain-pipe connected with said cemented bottom, and a cap or cover inclosing said basin, substantially as set forth.

478,655. BOX-LID SUPPORT. CHARLES B. STRUBLE, Minneapolis, Minn. Filed Dec. 1, 1891. Serial No. 413,715. (No specimens.)



Claim.—1. An article of manufacture consisting of a bracket having a clasp portion to engage the lid and a prong or lug 6, arranged at an angle thereto and adapted to engage the back of the box.

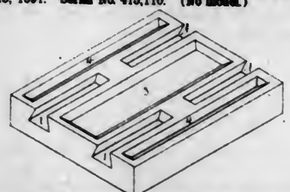
2. An article of manufacture consisting in the bracket-clasp having prongs to engage the forward and rear sides of a box-lid and a prong 6, arranged at an angle thereto and strengthened by a rib 10, as described.

3. An article of manufacture made up of the prongs 2, 3, 4, 5, and 6 and the bridge portion 7, all arranged in the relations described, and for the purpose specified.

4. An article of manufacture consisting in the bridge 7, strengthened by the rib 8 and having the prongs 2 3 and 4 5, one set of prongs extending beyond the other, a lug or prong 6, and a lip arranged on the prong 4 to engage the box-lid, substantially as described.

5. As an article of manufacture, the bracket-clasp made up of the prongs 2, 3, 4, 5, and 6, the bridge 7, the strengthening-rib 8, and the toothed lip provided on one of said prongs, and said parts arranged in the relations described, as and for the purpose specified.

478,656. TILE. ANDERS M. STRUNSOLM, Woodbridge, N. J. Filed Dec. 15, 1891. Serial No. 415,110. (No model.)



Claim.—1. A tile provided with a plurality of grooves in its under surface, said grooves commencing at opposite edges thereof and terminating at such a distance therefrom as to leave a web between their approximate ends, the said grooves having beveled sides, substantially as set forth.

2. A tile provided with a plurality of grooves in its under surface, said grooves commencing at opposite edges thereof and terminating at such a distance therefrom as to leave a web between their approximate ends, the said grooves having beveled side and recessed portions entirely within the edges of the tile and extending parallel with the said grooves, as set forth.

478,657. MOP-HOLDER. LIDA A. TARRING, Baltimore, Md. Filed July 24, 1890. Serial No. 359,735. (No model.)



Claim.—As an improved article of manufacture, the mop-holder described, which consists of a handle composed of three strands of wire twisted together and spreading at one end to form two straight and one hook-shaped prongs clamped by means of an adjustable ring, said strands of wire branching at their opposite ends, where they are united by a thin plate of metal, as set forth.

478,658. COMBINATION-LOCK. WILLIAM H. THOMPSON, Winnipeg, Canada. Filed June 23, 1891. Serial No. 397,243. (Model.)



Claim.—1. The combination, in a lock, of a rotary pull-shaft having one or more circumferential grooves, a series of notched slides playing therein transversely to the shaft, and means for adjusting them to the opening-combination, substantially as shown and described.

2. The combination, in a lock, of a rotary bolt having a locking-notch, a spring-bar having a tumbler on its end resting in said notch, a grooved pull-shaft arranged at right angles to the spring-bar and arranged to operate thereon, and one or more slides playing in the grooves of said shaft, and means for adjusting the same, substantially as shown and described.

3. The combination, in a lock, of the spring-bar having a tumbler at its end, a grooved pull-shaft operating thereon at right angles, one or more slides arranged in the grooves of said shaft, means for operating said slides, teeth arranged upon the slides, and a detent operated upon by the pull-shaft to be thrown into engagement with the teeth of the slides, substantially as shown and described.

4. The combination of the outer case having longitudinal slits *f g h*, with graduations and figures, a series of slides arranged inside the case and provided with exteriorly-projecting thumb-pieces, and a pull-shaft arranged at right angles to the slides and having one or more grooves to receive said slides, substantially as shown and described.

5. The combination of the rotary bolt C, having notch *c*, the spring-bar D, having tumblers *d*, the housing E, having a slot *e*, and the pull-shaft F, passing through the housing and having a projecting toe upon the outside, substantially as shown and described.
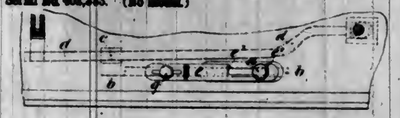
6. The lock consisting of the case A, with slits *f g h*, partition H, removable slide B, bearing spring-bar D, tumbler *d*, and housing E, the rotary bolt C, with notch *c*, the grooved pull-shaft F, and the notched and toothed slides G G', I, and J, substantially as shown and described.

478,659. FRUIT-JAR. CASSIUS D. THOMAS, Moberly, Mo. Filed Nov. 14, 1891. Serial No. 411,937. (No model.)



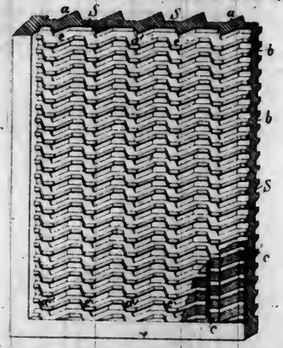
Claim.—As an improvement in fruit-jars of the class described, the combination, with the jar proper, provided at its mouth with two oppositely-located inclined ways 3, the opposing ends of which intersect each other, thereby forming shoulders 9, having reversely-beveled surfaces, of a cover 6 for said jar and a spring wire bail 10, turning centrally upon the cover and having its ends arranged to engage the beveled shoulders to automatically release the bail from engagement with the jar, substantially as and for the purpose set forth.

478,660. FEED-REGULATING ATTACHMENT FOR SEWING-MACHINES. RICHARD TODD, Manchester, England. Filed Aug. 11, 1891. Serial No. 402,343. (No model.)



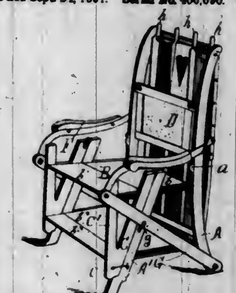
Claim.—An improved feed-regulator, consisting of a removable plate *e*, having a recess *e'*, with a flange e^2 and e^3 at each side of said recess, and an adjusting-slot e^4, with the securing-screw *g*, in combination with the screw *a*, shifting-bar *b*, fulcrum *c*, and feeding-bar *d* of a sewing-machine, substantially as described and shown.

478,661. ELECTRODE FOR STORAGE-BATTERIES. HENRI TUDOR, Rosport, Luxemburg. Filed Jan. 8, 1892. Serial No. 417,602. (No model.) Patented in Belgium May 30, 1891, No. 94,869.



Claim.—An electrode for electric storage-batteries, consisting of a core composed of one or more bodies of metal having main ribs *a*, which are provided with secondary ribs *c*, forming between them grooves *b*, and operative substance embedded in the said grooves, substantially as described.

478,662. COMBINATION-CHAIR. WILLIAM H. TUTTLE, Detroit, Mich. Filed Sept. 24, 1891. Serial No. 406,690. (No model.)



Claim.—1. In a combination-chair, a frame having its front legs extending above the plane of the seat and supporting the inner half of the seat, and auxiliary frames hinged at the top of said legs and supporting the forward portion of the seat and adapted to swing said portion above the seat, substantially as and for the purposes described.

2. In a combination-chair, a frame having its front legs extending above the plane of the seat and supporting the inner half of the seat, and auxiliary frames hinged at the top to the top of said legs and supporting the forward portion of the seat and adapted to swing up and form a step-ladder, and brackets adapted to receive the thrust of the upper portion of the ladder, substantially as described.

3. The combination, with a chair-frame, of a table hinged at one end to the top of the frame of said chair, a link hinged to said chair-frame near the bottom, a chair-arm connected by short links to said table and to the said first-mentioned link, the said table being adapted to hang in a vertical position behind the chair-frame and to swing from such vertical position to a horizontal position over the chair-seat and the said arm being adapted to swing with said table from a horizontal to an upright position and to form in its upright position a support for the table, substantially as and for the purpose specified.

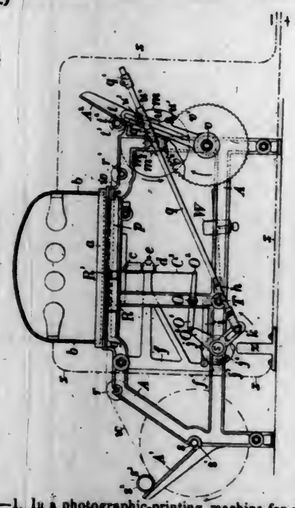
4. In combination with a chair, a table pivoted at one end to the top of the back of the frame of said chair, arms pivoted to said table at one end and to swinging bars at the opposite end and adapted to form vertical supports for said table when swung in a horizontal position, substantially as described.

5. In combination with a chair, a table pivoted at one end to the top of the frame of said chair, hanging normally back of said chair and adapted to be swung into a horizontal position above said chair,

fingers pivoted to said chair-frame and provided with extensions A, said fingers hanging normally parallel with said table, said extensions extending above the pivot of said table, whereby the said table is adapted when swung into its horizontal position above said chair to carry the said extensions into a horizontal position and to support said fingers in a horizontal position, substantially as described.

6. The combination, with a chair-frame, of a table hinged to said chair-frame, fingers pivoted to said chair-frame and adapted to hang normally in a vertical position between the chair-frame and the table, the said fingers being provided with upward-extending portions A, adapted to be brought under the table when the table assumes a horizontal position and to coact with the supporting-pivot and the table in forming a secure support for the said fingers, substantially as and for the purpose specified.

478,663. PHOTOGRAPHIC-PRINTING MACHINE. JOHN URIE, Jr., Jersey City, N. J. Filed July 17, 1891. Serial No. 399,819. (No model.)



Claim.—1. In a photographic-printing machine for making successive prints from a single negative upon a continuous web of sensitized paper, the combination, with the supply-roll, the printing-frame, and the power-shaft, of a measuring-roll, and means for rotating the same intermittingly through a given arc, ways extending upwardly from the said measuring-roll, and a take-up roll supported by the said measuring-roll in conjunction with the said ways, as and for the purpose set forth.

2. In a photographic-printing machine for making successive prints from a single negative upon a continuous web of sensitized paper, the combination, with the supply-roll, the printing-frame, and the power shaft, of a measuring roll, and means for rotating the same intermittingly through a given arc, upwardly-inclined ways extending radially from the said measuring-roll, and a take-up roll supported by the said measuring-roll in conjunction with the said inclined ways, as and for the purpose set forth.

3. In a photographic-printing machine for making successive prints from a single negative upon a continuous web of sensitized paper, the combination, with the supply-roll, the printing-frame, and the power-shaft, of a measuring-roll, and means for rotating the same intermittingly through a given arc, upwardly-inclined ways extending radially from the said measuring-roll, and a take-up roll consisting of the straight cylinder f, sustained upon the said measuring-roll, and the hubs f^2 at each end thereof, bearing against the said inclined ways, substantially as and for the purpose set forth.

4. In a photographic-printing machine for making successive prints from a single negative upon a continuous web of sensitized paper, the combination, with the main frame, the printing-frame mounted thereon and provided with the negative, and the power-shaft, of a cushion-platen secured by means of a flexible joint upon one arm of a bell-crank pivoted upon the main frame, means applied to the bell-crank for pressing the platen normally upward, and means connected with the other arm of the bell-crank and with the power-shaft for reciprocating the bell-crank at intervals to retract the cushion-platen, substantially as herein shown and described.

5. In a photographic-printing machine for making successive prints from a single negative upon a continuous web of sensitized paper, the combination, with the main frame, the printing-frame mounted thereon and provided with the negative, and the power-shaft, of a cushion-platen supported upon the lateral arm of a bell-crank pivoted upon the main frame, and a divided cam upon the power-shaft adjacent to the depending arm of the bell-crank, the said cam consisting of two similar flat plates having projecting hubs thereon and secured together by a clamp-bolt and adapted for circular adjustment upon each other, the whole arranged and operated as and for the purpose set forth.

6. In a photographic-printing machine for making successive prints from a single negative upon a continuous web of sensitized paper, the combination, with the main frame, the printing-frame mounted thereon and provided with the negative, and the power-shaft, of a cushion-platen supported upon the lateral arm of a bell-crank, pivoted upon the main frame and a divided cam constructed as described, fixed upon the power-shaft adjacent to the depending arm of the said bell-crank of an anti-friction roller applied to the said depending arm and adapted to engage the said cam, as and for the purpose set forth.

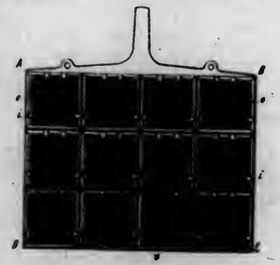
7. In a photographic-printing machine, the combination, with the main frame, the printing-frame mounted thereon and provided with the negative, and the power-shaft, of a cushion-platen supported upon the lateral arm of a bell-crank, pivoted upon the main frame, an adjustable cam fixed upon the power-shaft adjacent to the depending arm of the bell-crank for moving the said arm in one direction, and means for applying a yielding pressure to the said arm in opposition to the cam, as and for the purpose set forth.

8. In a photographic-printing machine, the combination, with the main frame, the printing-frame mounted thereon and provided with the negative, and the power-shaft, of a cushion-platen supported upon the lateral arm of a bell-crank, pivoted upon the main frame, an adjustable cam, constructed as described, fixed upon the power-shaft adjacent to the depending arm of the said bell-crank, a second bell-crank having a laterally-projecting arm provided with a counterbalance-weight W, and a link connecting the upwardly-projecting arm of latter to the depending arm of the bell-crank sustaining the platen, the whole arranged and operated substantially as herein set forth.

9. In a photographic-printing machine, the combination, with the printing-frame provided with the negative, a box applied thereto containing incandescent electric lamps and open on the side adjacent to the printing-frame, and the power-shaft of the machine, of two adjacent spring-contacts having flat faces opposed to each other located in the electric circuit supplying the said incandescent lamps, and a segmental plate mounted upon the power-shaft adjacent to the said opposed spring-contacts and rotated between the same to establish electrical connection intermittingly between the same, thereby alternately making and breaking the circuit through the said electric lamps, substantially as and for the purpose set forth.

10. In a photographic-printing machine, the combination, with the printing-frame provided with the negative, a box applied thereto containing incandescent electric lamps and open on the side adjacent to the printing-frame, and the power-shaft of the machine, of the adjacent spring-contacts having flat faces opposed to each other located in the electric circuit supplying the said incandescent lamps, and a segmental plate divided into two flat sections adjustable upon each other and provided with a clamp-screw for securing them together, as described, the said plate being mounted upon the power-shaft adjacent to the said opposed spring-contacts and rotated between the same to establish electrical connections intermittingly between the same and thereby alternately making and breaking the circuit through the said electric lamps, the whole arranged and operated as and for the purpose set forth.

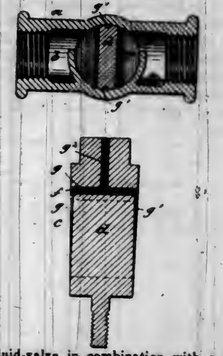
478,664. ELECTRODE. ARMAND VANDEN-KERCKHOVE, Brussels, Belgium. Filed Feb. 12, 1892. Serial No. 421,351. (No model.) Patented in Belgium Dec. 9, 1891, No. 73,568; in France Dec. 10, 1891, No. 204,802; in England Dec. 11, 1891, No. 21,702, and in Italy Jan. 5, 1892, No. 470.



Claim.—The herein-described electrode-plate, consisting of a grating and electrodes each secured to said grating by soldering on one

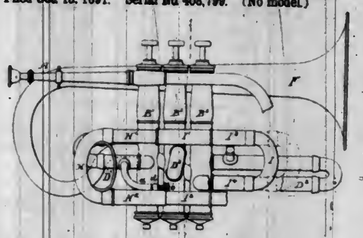
of its sides and by lugs or projections on its other sides, thereby allowing a space on three of its sides for the expansion and contraction thereof, substantially as set forth.

478,665. VALVE. GEORGE VINING, Hartford, Conn. Filed Aug. 18, 1890. Serial No. 362,353. (No model.)



Claim.—In a fluid-valve, in combination with a valve-body, a tapered rotary plug having a thin central portion, a transverse chamber extending through the plug, the grooves located in the edges of the thin central portion of the plug and extending downward from the transverse chamber, an opening from the transverse chamber to the top of the plug, and a fibrous packing located in the transverse chamber, all substantially as described.

478,666. CONVERTIBLE CORNET. JEAN VIVIEN, Philadelphia, Pa. Filed Oct. 15, 1891. Serial No. 408,799. (No model.)



Claim.—1. A cornet having the ordinary tuning-slide combined with a stop for limiting its outward movement, whereby it serves as a key-slide, substantially as specified.

2. A cornet having the ordinary tuning-slide combined with a stop for limiting its outward movement and having the third bend or elbow of the pipe-coil adjacent to the third valve-casing adjustable for the purpose of a tuning-slide, substantially as specified.

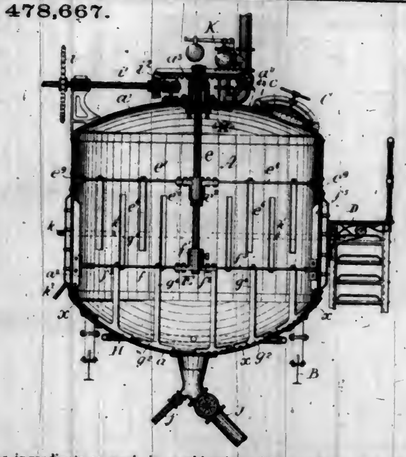
3. The combination of the adjustable key-slide of a cornet with a stop for limiting the outward movement of said key-slide, said stop consisting of a fixed projecting arm and a swinging arm carrying a set-screw for engagement with said fixed arm, one of said arms being carried by the slide and the other by a fixed portion of the instrument, and the swinging arm being adjustable out of line with the fixed arm, so as to permit of the removal of the slide, substantially as specified.

478,667. MASHING APPARATUS. ADAM C. WAGNER, Philadelphia, Pa. Filed Apr. 12, 1892. Serial No. 428,755. (No model.)

Claim.—1. In a mashing apparatus, a vessel having a concave bottom, in combination with an agitator comprising a driving-shaft journaled near one of its ends in a stationary cross-bar having arms and the other end of said shaft journaled outside said vessel, a revolving bar attached to said shaft and carrying at its respective extremities scrapers, and arms fastened on opposite sides to said revolving bar, certain of said arms carrying scrapers disposed adjacent to said concave bottom and having chains attached thereto, substantially as and for the purposes set forth.

2. In a mashing apparatus, a cylindrical vessel having concave bottom and cover, a steam-jacket around said vessel and located above said bottom, steam inlets and outlets provided on said vessel and jacket, and inlets and outlets provided in the concave bottom and cover for

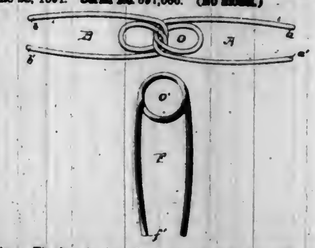
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the ingredients or mash, in combination with an agitator comprising a driving-shaft extending half-way into said vessel and having one of its ends journaled in a bearing located outside the vessel and the other journaled in a bearing formed in a cross-bar within said vessel, said cross-bar carrying arms, a revolving cross-bar adjustably attached to said shaft and having at its respective ends scrapers located adjacent to the side walls of the vessel, and arms attached to opposite faces of said revolving bar, the arms above said bar disposed between the arms of the said arms on the said stationary cross-bar, and the arms below said revolving bar provided with scrapers disposed adjacent to the concave bottom and having chains attached thereto, substantially as and for the purposes set forth.

3. In a mashing apparatus, a cylindrical vessel having a depressed bottom and cover, an adjustable stay-bar for said vessel provided with adjustable stationary arms disposed at an angle to their support, an agitator comprising a driving-shaft journaled in said bar and in a bearing located outside said vessel and carrying a revolving bar provided at its ends with scrapers located in close proximity to the walls of said vessel, and arms attached to said revolving arm and having at their lower extremities scrapers adjacent to the bottom of said vessel, said arms and scrapers disposed at angles with respect to their supports, substantially as and for the purposes set forth.

478,668. PUZZLE. WILLIAM T. WALKER, Clarksville, Tex. Filed June 22, 1891. Serial No. 397,066. (No model.)



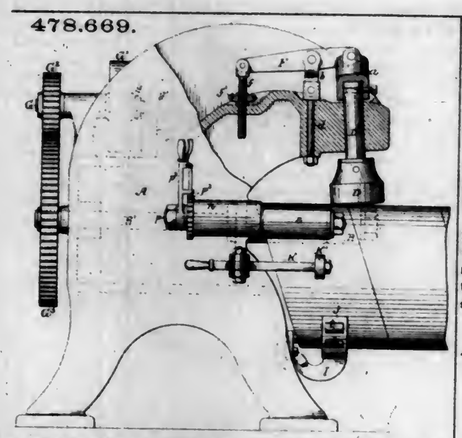
Claim.—The herein-described trick puzzle, the same consisting of one false and three true members, each of a stiff wire bent at its center into a loop or ring, with its ends extending therefrom and standing approximately parallel, the bends of the true members being in one direction and of the false member in the opposite direction, as herein-before set forth.

478,669. PIPE-WELDING MACHINE. ROBERT K. WELOR, Philadelphia, Pa., assignor of one-half to George E. Schlegelmilch, same place. Filed Aug. 5, 1891. Serial No. 401,737. (No model.)

Claim.—1. The combination, in a spiral-weld-pipe machine, of the inner roll, the periphery of which supports the pipe, with the outer pressing-roll turning on an upright axis and having a lower conical face pressing upon the pipe, so as to exert a wiping action upon the joint, substantially as specified.

2. The combination, in a pipe-welding machine, of the inner supporting-roll with the outer pressing-roll having a lower conical face and

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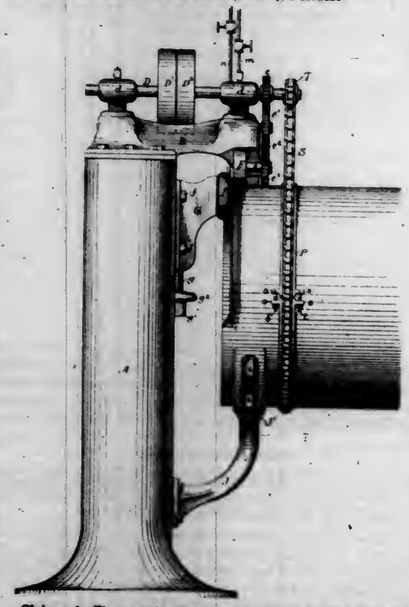
an upright shaft, and pressure devices to which said shaft is swiveled, substantially as specified.

3. The combination of the inner supporting-roll, the outer flat-faced and swiveled pressure-roll, a pressure-lever having a block carrying said swiveled roll, a threaded rod connected to said lever, a nut engaging with said rod, and gearing for turning said nut, substantially as specified.

4. The combination, in a pipe-welding machine, of the welding-rolls with a bearing-roll in advance of said welding-rolls and an eccentric carrier for said bearing-roll, whereby it can be adjusted nearer to or farther from the welding-rolls, substantially as specified.

5. The combination, in a pipe-welding machine, of the welding-rolls with two slotted heating-boxes, one facing in one direction and receiving the edge of the pipe and the other facing in the opposite direction and receiving the edge of the incoming strip, whereby said edges are heated before they reach the welding-rolls, substantially as specified.

478,670. PIPE-FLANGING MACHINE. ROBERT K. WELCH, Philadelphia, Pa., assignor of one-half to George E. Schlegelmilch, same place. Filed June 24, 1891. Serial No. 397,279. (No model.)



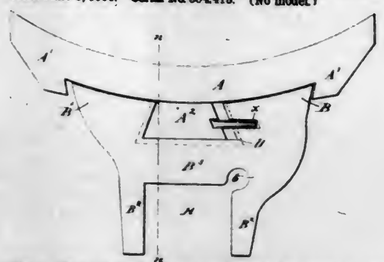
Claim.—1. The combination, in a pipe-flanging machine, of the external bearing-roll and the right-angled flanging-roll with a heating-box through which the end of the pipe passes before reaching the rolls, said box being located in advance of the rolls and in close proximity thereto, substantially as specified.

2. The combination of the external bearing-roll, the right-angled flanging-roll, a support for the bottom of the pipe, and bearings for the upper portion of the pipe on each side of the external bearing-roll, said bearings being adjustable from and toward the pipe, substantially as specified.

3. The combination of the external bearing-roll and the flanging-roll with the heating-box in advance of the same, said box having a curved slot for the reception of a portion of the end of pipe, and valved air and gas supply pipes for said box, substantially as specified.

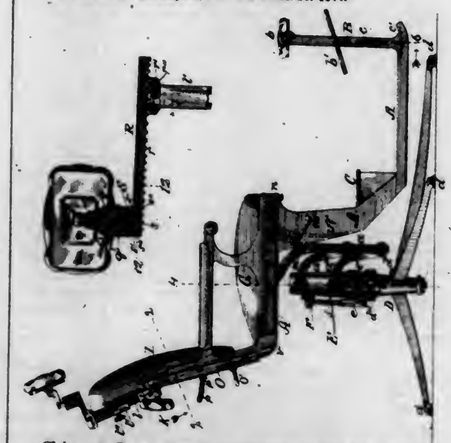
4. The combination of the external bearing-roll, the right-angled flanging-roll, the support for the pipe, and the detachable sprocket-wheel clamp for said pipe with a sprocket-chain engaging said clamp and serving to aid in supporting the pipe and to rotate the pipe so as to bring successive portions of the same under the action of the rolls, substantially as specified.

478,671. BRAKE-SHOE. JOSEPH G. WHARTON, Harrisburg, Pa. Filed June 3, 1890. Serial No. 354,418. (No model.)



Claim.—The sole A, having upon its ends the hooks A', situated upon the same side as the dovetail tenon A^2 thereon and equidistant therefrom, in combination with the shoe B B', adapted at its front as a bearing for the sole above to clutch either of said hooks, having centrally thereon the recess D, of a shape to correspond with the cross-section of said tenon, and having also the additional recess between the flanges B^5 B^6, and the locking-key X, substantially as set forth.

478,672. DENTAL CHAIR. BASIL M. WILKERSON, Baltimore, Md., assignor, by mesne assignments, to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Dec. 21, 1877.



Claim.—1. The combination, substantially as set forth, of the main support, the chair-frame, its supporting-bar, the arms pivoted at their inner and outer ends at corresponding distances apart to the main support and supporting-bar, respectively, and means for operating the arms, whereby the chair-frame may be raised or lowered by rocking said arms about their pivotal connections with the main support.

2. The combination, substantially as set forth, of the main support, the chair-frame, its supporting-bar, the arms pivoted at their inner and outer ends at corresponding distances apart to the main support and supporting-bar, respectively, one of said arms being provided with gear-teeth at its inner end, the worm engaging said teeth, and the worm-

shaft mounted in bearings of the main support and projecting at one end therefrom to adapt it to be acted upon for turning the worm in either direction to raise or lower the chair-frame.

3. The combination, in a dental chair, of the main support, the worm, its shaft mounted in bearings of the main support, the reversely-toothed double ratchet on the worm-shaft, the lever fulcrumed on the main support eccentrically to said ratchet, and the reversible double pawl carried by the lever for actuating the ratchet to rotate it in either direction by downward movement of the lever, substantially as and for the purpose set forth.

4. The combination of the worm, its shaft, the support, in bearings of which the shaft is mounted, the two-part ratchet of said shaft, the reversible pawl having the point at top, the lever pivoted to said support eccentrically to the ratchet and to which the pawl is pivoted, the adjustable arm of the lever acting on the pawl-point, and a spring for elevating the lever, substantially as and for the purpose set forth.

5. The combination of the tilting chair-frame, the vertically-adjustable supporting-bar to which it is pivoted and by way of which it is entirely supported, the separable gearing connecting the chair-frame, and supporting-bar for tilting said chair-frame about its pivotal connection with the supporting-bar, and means for disconnecting said gearing, whereby the chair-frame may be tilted gradually by the gearing when in mesh or rapidly by direct application of force when the gearing is disconnected, substantially as set forth.

6. The combination of the chair-frame platform provided at its extremities on either side with racks and above said racks with slotted bearings and the foot-rest standards engaging at their lower ends with said racks and having pivots adapted to rock in and move lengthwise of said slotted bearings, substantially as and for the purpose set forth.

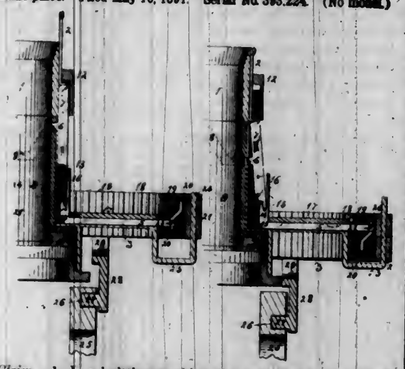
7. The combination, in a dental chair, of the chair-seat frame, the upholstered seat, and the plate pivoted to the lower front portion of the seat-frame, shaped to correspond with the front and upper surfaces of the upholstered seat, and adapted to fold over upon said seat, substantially as and for the purpose set forth.

8. The combination of the head-rest supporting-bar having the disk-like head at top provided upon its upper surface with the circularly-arranged perforations, the guide-piece turning about the supporting-bar, and the two-part sliding and turning link, one member of which is movable vertically relatively to the other and is provided with teeth for engaging the holes in the head of the supporting-bar, substantially as and for the purpose set forth.

9. The combination of the vertically-movable head-rest column provided with teeth on its under side, and the link in which the column is fitted to turn, provided upon the upper surface of its outer end with the circular row of holes for engagement with the teeth on the under side of the column, substantially as and for the purpose set forth.

10. The combination of the head-rest, the arm at one end of which it is mounted, the curved toothed lug at the opposite end of said arm, the column having the lug-seat curved at bottom and provided with a tooth, and the pivotal connection between said lug and column permitting of vertical and rocking movement of the lug in its seat in the column, substantially as and for the purpose set forth.

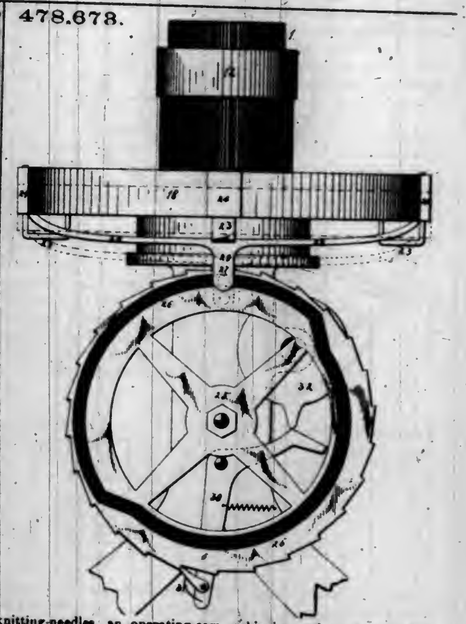
478,673. KNITTING-MACHINE. NICHOLAS J. WIBLUND, Rockford, Ill., assignor of two-thirds to Edward McSherry and Henry W. Price, same place. Filed May 16, 1891. Serial No. 393,224. (No model.)



Claim.—1. In a knitting-machine, the combination of a needle-cylinder, knitting-needles, jacks, subjacks, and an operating-cam, the subjacks being provided with an extension which forms a guide for the jacks and holds them in engagement with the cam during the process of knitting.

2. In a knitting-machine, the combination of a needle-cylinder,

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knitting-needles, an operating-cam, subjacks, and a pattern-wheel located outside of the needle-cylinder and capable of a vertical movement and operating upon the subjacks to hold the needles in or out of engagement with the cam.

3. In a knitting-machine, the combination of a needle-cylinder, a series of knitting-needles, a series of subjacks, and a pattern-wheel located outside of the needle-cylinder and capable of a vertical movement, and means for moving the pattern-wheel, each of the subjacks having an independent connection with the pattern-wheel.

4. In a knitting-machine, the combination of a needle-cylinder, needles located therein, an annular base extending from the cylinder, said base being provided with radial grooves, subjacks located in said grooves, and a top plate holding the subjacks in position.

478,674. VELOCIPEDE. JOHN R. WRIGHT, Morocco, Ind. Filed Dec. 26, 1891. Serial No. 416,224. (No model.)

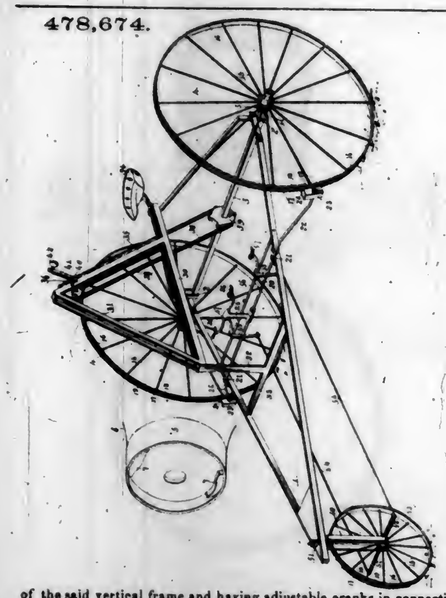
Claim.—1. In a tricycle, the combination, with an A-shaped frame-work, a main axle across its face, driving-wheels thereon, and means for rotating the axle, of a fork pivoted in the apex of the frame-work, a shaft through the fork, a steering-wheel journaled thereon, a cross-rod in the frame, bell-crank levers pivoted at their angles on said rod, and a rod connecting one arm of each lever with one end of said shaft, as set forth.

2. In a velocipede, the combination of an A-shaped frame-work, a main axle extending across the rear portion thereof, a vertical frame supported at the rear of and above the central portion of said A-shaped frame and having a sprocket-wheel and cranks for operating the same, a sprocket-wheel on the said axle, a chain belt connecting said sprocket-wheels, said vertical frame being slotted for the passage of the chain belt therethrough, and steering and brake mechanism, substantially as described.

3. In a velocipede, the combination of a frame located horizontally, a vertically-disposed frame on the rear portion of the aforesaid frame and supported in elevated position, a seat secured to said vertically-disposed frame, brake and steering mechanism, an axle connected to the rear portion of the said horizontal frame and having the ends thereof enlarged in the form of heads with two diametrically-opposed pawls on the outer faces of each of the same, and two diametrically-disposed teeth secured to the hubs of the wheels and located in the sand-bands thereof and adapted to be engaged by said pawls, said axle being operated by sprocket-wheels and a connecting chain belt, substantially as described.

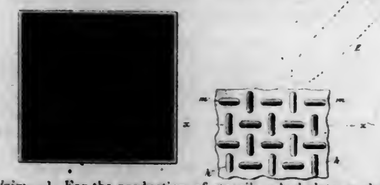
4. In a velocipede, a horizontally-disposed A-shaped frame having a steering-wheel at the front end thereof and an axle at the rear of the same, brake and steering mechanism, a vertically-disposed frame supported by and above the rear portion of the aforesaid horizontally-disposed frame and composed of slotted bars, to the rearmost of one of which is secured a seat, a sprocket-wheel mounted in the upper portion

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of the said vertical frame and having adjustable cranks in connection therewith, composed of two sections sliding upon each other and controlled by a set-screw and nut, a sprocket-wheel on the axle, a chain belt connecting said sprocket-wheels, and clutch mechanisms on the ends of the axle and within the sand-boxes of the hubs of the wheel and consisting of two diametrically-opposed pawls engaging similarly-situated teeth in order to prevent backward movement of the rear wheels and of the machine entire, substantially as described.

478,675. METHOD OF AND APPARATUS FOR PRODUCING STENCILS. JOSIAH L. YOUNG, Buffalo, N. Y., assignor of one-half to Charles H. Edgar, trustee. Filed Mar. 18, 1892. Serial No. 425,446. (No model.)



Claim.—1. For the production of stencils, a bed-plate or platen having projections of greater length than width and arranged so that each projection extends longitudinally in a direction substantially at right angles to the longitudinal direction of the surrounding projections which are nearest, substantially as and for the purpose described.

2. For the production of stencils, a bed-plate or platen having projections extending longitudinally in directions opposite to each other and presenting curved surfaces to contact with a stylus, substantially as and for the purpose described.

3. For the production of stencils, a bed-plate or platen having longitudinal projections, all the surfaces of which are curved and the longitudinal axes of which projections are alternately substantially at right angles to each other, substantially as and for the purpose described.

4. For the production of stencils, the combination of a sheet or fabric of interwoven wires of threads with a backing B, substantially as and for the purpose described.

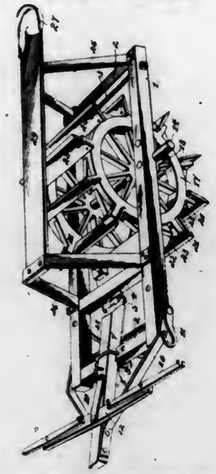
5. For the production of stencils, the combination of a sheet or fabric of interwoven wires or threads with a backing B and interstitial filling D, substantially as and for the purpose described.

6. The aforesaid method of producing a platen or bed-plate for the production of stencils, consisting in first interweaving strands or wires into a woven cloth or fabric, next stretching same into a single flat plane or surface, next combining same with a backing or interstitial filling, next taking an electrotype thereof, and next providing the said electrotype with a backing, all substantially as and for the purpose described.

7. The aforesaid method of producing a platen or bed-plate for the production of stencils, consisting in first interweaving threads into a woven cloth or fabric, next stretching and retaining same in a flat plane or surface, next combining same with a backing or interstitial filling, next covering with plumbago the surface composed of said backing or interstitial filling and portions of woven fabric therefrom projecting, next exposing same to an electrotype-bath and making an electrotype upon said plumbagoed surface, and next removing and permanently backing the said electrotype, substantially as and for the purpose described.

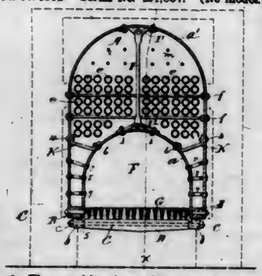
8. The aforesaid method of producing a platen or bed-plate for the production of stencils, consisting in first interweaving wires into a woven cloth or fabric, next stretching and retaining same in a flat plane or surface, next combining same with a backing or interstitial filling, next impressing upon a WAX or other plastic surface the said surface composed of said backing or interstitial filling and the portions of said wire fabric therefrom projecting, next taking an electrotype from said impression, and next providing said electrotype with a permanent backing, substantially as and for the purpose described.

478,676. STALK-CUTTER. HEROD W. ALLEN, Latta, S. C. Filed Aug. 18, 1891. Serial No. 403,041. (No model.)



Claim.—In a machine of the class described, the combination, with the oblong framework comprising the opposite side and the front and intermediate transverse bars, of a staple located at the center of the intermediate bar, a draft-beam terminating at its rear end in a hook detachably engaging the staple and at its front end loosely fitting a notch formed in the front bar, a staple mounted on the front bar and bridging the beam, opposite hounds bolted to the beam in advance of the framework and having their rear ends bent to loosely embrace the outer corners of the framework, and a tie-bolt passed through the opposite side bars and the hounds to pivot and secure the same to such frame and provided with a clamping-nut, substantially as specified.

478,677. STEAM-BOILER. GEORGE I. ALLEN, Worcester, Mass. Filed Feb. 17, 1892. Serial No. 421,887. (No model.)

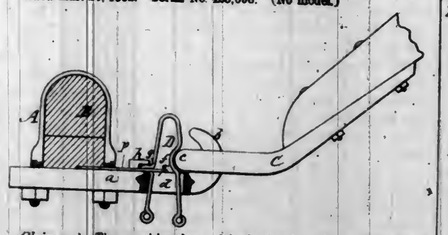


Claim.—1. The combination, with the boiler having its shell composed of the upwardly-arched sheets *a* and *a'*, with downwardly-extending sides joined along their lower horizontal edges with the joint-bars B, constructed as shown, of the transversely-disposed tie-rods C, connecting the opposite sides of the boiler across the space beneath the fire-chamber, substantially as and for the purpose set forth.

2. The combination, with the boiler having its shell composed of the two upwardly-arched sheets *a* and *a'*, with downwardly-extending sides joined at their lower horizontal edges, of the joint-plates B, provided with perforated ears *b*, having inwardly offset ledges *b*, the transverse stay-rods C, arranged through said ears and connecting the two opposite sides of the boiler, and the under channeled transom-bars D, overlying said rods and supported in conjunction with said offset ledges for sustaining the grate-bars, all substantially as set forth.

3. A boiler constructed substantially as herein shown and described, comprising the upwardly-arched sheets *a* and *a'*, the series of longitudinal tubes *e* above the lower arched sheet, the transverse stays *f*, fixed in the sheet *a'* below its arch and passing horizontally between groups of tubes, the crown-connectors I, passing vertically between the tubes, the haunch-supporters K, the side stays, and the transverse rods C, connecting the opposite sides of the boiler at their lower edges, all of said parts being combined in the manner and for the purpose set forth.

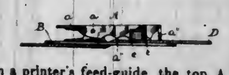
478,678. THILL-COUPLING. GEORGE H. ALLEN, Brookport, N. Y. Filed Mar. 21, 1892. Serial No. 425,693. (No model.)



Claim.—1. The combination, with the hook-and-eye coupling, of the U-shaped spring-wire provided in front with a concave or bend which fits the eye and in the rear with a nib or shoulder that rests under a lug of the cross-bar, said spring-wire resting removably in a slot of the cross-bar, as shown and described, and for the purpose specified.

2. The combination, with the hook-and-eye coupling, of the U-shaped spring provided with a bend in front that fits the eye and a nib in the rear that rests under a lug of the cross-bar, said spring resting in a slot of the cross bar, and a safety device attached to the clip and crossing the slot under the closed end of the spring, as and for the purpose specified.

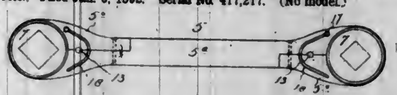
478,679. PRINTER'S PRESS-GUIDE. JOSEPH A. BOEHRINGER and FRANK X. MÜLLER, Buffalo, N. Y. Filed Mar. 10, 1892. Serial No. 424,369. (No model.)



Claim.—1. In a printer's feed-guide, the top A and bottom B, hinged together, the spring-rod *a a'*, the top part A being provided with teeth *a''* *a''* *a''*, formed from the downwardly-projecting sides and front, and the part B being provided with prongs at one end, and the adjusting-screw C, having the flat guide *c*, provided with the lug *d* and bottom teeth *e e*, all substantially as and for the purpose specified.

2. In a printer's feed-guide, the combination of the spring-actuated top and bottom pieces, the top piece being formed with teeth and the bottom piece being provided with prongs, and a short screw through the top piece at right angles to the length thereof, one end of which screw is provided with a stop or head, substantially as set forth.

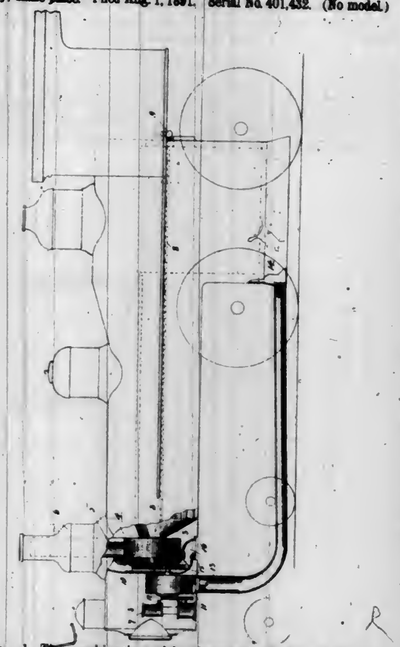
478,680. RATCHET-WRENCH. JOSEPH F. BRENDLINGER, Denver, Colo. Filed Jan. 6, 1892. Serial No. 417,217. (No model.)



Claim.—1. The combination in a wrench, of an integral head provided with a suitable socket, two circumferential grooves, and a ratchet-zone between these grooves, a sectional recessed handle adapted to fit the head, a pivoted locking-arm located in the recess of the handle and having its extremities fastened to engage the teeth of the ratchet-zone and provided with shoulders or stops, one on each side of the pivot, a pawl or dog also located within the recess of the handle and provided with a shouldered head, and a coil-spring surrounding the stem of the pawl and engaging the shouldered head at one extremity, a socket formed in the handle at the bottom of the recess and adapted to receive the opposite extremity of the spring, and suitable means for adjusting the pawl or dog, whereby it is made to engage either shoulder of the locking-arm at will, substantially as described.

2. The combination, in a wrench, of an integral head provided with a suitable socket, two circumferential grooves, and a ratchet-zone between these grooves, a sectional recessed handle adapted to fit the head, a pivoted locking-arm located in the recess of the handle and having its extremities fashioned to engage the teeth of the ratchet-zone and provided with shoulders or stops, one on each side of the pivot, a pawl or dog also located within the recess of the handle and provided with a shouldered head, and a coil-spring surrounding the stem of the pawl and engaging the shouldered head at one extremity, a socket formed in the handle at the bottom of the recess and adapted to receive the opposite extremity of the spring, and suitable means for adjusting the dog, consisting of a pin made fast to the head of the pawl, and a slot formed in the handle and forming a way for the pin, whereby the pawl is made to engage either shoulder of the locking-arm at will, substantially as described.

478,681. LOCOMOTIVE-ENGINE. ALEXANDER R. CAVNER, Chicago, Ill.; Edward E. Holman, administrator of said Alexander R. Cavner, deceased, assignor to the Cavner Locomotive Improvement Company, same place. Filed Aug. 1, 1891. Serial No. 401,432. (No model.)



Claim.—1. The combination, with a locomotive-boiler, of a compartment arranged at the forward end of the boiler, a hood arranged in said compartment and which cuts off communication between all of the boiler-flues and the compartment, but permits the passage of the products of combustion to the smoke-stack, and devices located in the compartment and acting to force fresh air therefrom through a pipe directly into the furnace, substantially as described.

2. The combination, with a locomotive-boiler having an air-compartment arranged at its front end and closed against communication with all the boiler-flues, of a pipe leading from said compartment to the furnace for conducting fresh air into the latter from the compartment and air-suction mechanism located in the said compartment and acting to draw fresh air thereinto and force the same through the said pipe to the locomotive-furnace, substantially as described.

3. The combination, with a locomotive-boiler, of an air-compartment arranged at the forward end thereof, a hood which cuts off communication between all the boiler-flues and the air-compartment, but permits the passage of the products of combustion into the smoke-stack, and mechanism located in the said compartment and having a

pipe connected with the ash-box of the furnace for supplying fresh air thereinto from the air-compartment, substantially as described.

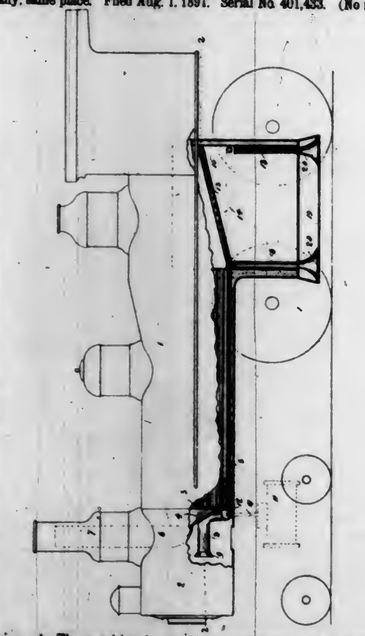
4. In a locomotive, the combination, with a boiler having a compartment at its forward end, said compartment having no communication with the flues of the boiler, of a blower located in said compartment, tube 13, adapted to conduct air from the blower to the ash-box of the furnace, and mechanism for operating said blower, said mechanism being adapted to be controlled from the cab of the locomotive, substantially as described.

5. In a locomotive, the combination, with a boiler having a compartment 2 at its forward end, an exhaust-fan located in said compartment, and a hood connecting said exhaust-fan with the flues of the boiler and preventing communication between said compartment and the flues of the boiler, of a tube 5 for conducting the gases from the boiler to the upper part of the smoke-stack of the engine, and mechanism for operating said exhaust-fan, substantially as described.

6. In a locomotive, the combiuation, with a boiler having a compartment 2 at its forward end, of fans located in said compartment, one of said fans being adapted to draw the gases from the flues of the boiler and to discharge them into the smoke-stack of the locomotive and the other fan being adapted to feed the furnace of the boiler with a supply of fresh air, and mechanism for operating said fans, substantially as described.

7. In a locomotive, the combination, with a boiler having a compartment 2 at its forward end, of fans located in said compartment, one of said fans being adapted to draw the gases from the flues of the boiler and to discharge them into the smoke-stack of the locomotive and the other fan being adapted to feed the furnace of the boiler with a supply of fresh air, said two fans being geared together, and mechanism for operating said fans, substantially as described.

478,682. LOCOMOTIVE-ENGINE. ALEXANDER R. CAVNER, Chicago, Ill.; Edward E. Holman, administrator of said Alexander R. Cavner, deceased, assignor to the Cavner Locomotive Improvement Company, same place. Filed Aug. 1, 1891. Serial No. 401,433. (No model.)



Claim.—1. The combination, with a locomotive, of a boiler, a hood connecting some of the flues of said boiler with the smoke-stack, and devices for causing a current of fresh air to pass through the remaining flues of the boiler into the furnace, substantially as and for the purpose specified.

2. The combination, with a locomotive having a compartment at its front end, of a boiler having a hood which cuts off some of its flues from communication with said compartment and leaves other flues in communication therewith, tubes connected with the locomotive-cylinder for conducting exhaust-steam therefrom into those boiler flues which communicate with the front compartment for the purpose of causing a current of air to flow through such flues into the locomotive-furnace, and means for supplying fresh air to the front compartment, substantially as described.

3. In a locomotive, the combination, with a boiler and a hood 4, adapted to deliver gases from the boiler into the smoke-stack, of a compartment 2 in front of the boiler, a tube 8, opening into said compartment and being connected to the lowermost flues of the boiler, and devices for causing a current of air to flow through said lowermost flues of the boiler into the furnace of the locomotive, substantially as and for the purpose specified.

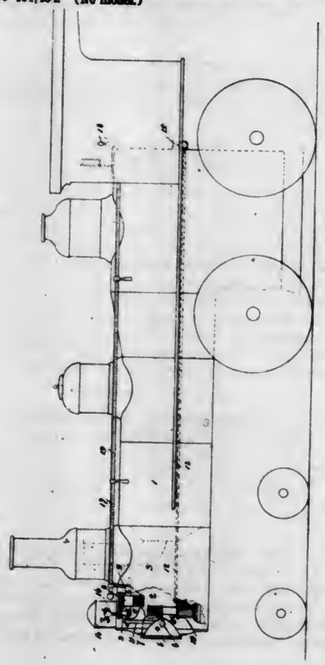
4. The combination, with a locomotive-boiler, of an air-compartment arranged at the front end of the boiler in advance of the boiler-flues, a hood which places some of the flues in communication with the smoke-stack and cuts them off from communication with the air-compartment, the remaining flues communicating with said compartment, and means whereby fresh air is conveyed to the furnace from the compartment through the flues which communicate therewith, substantially as described.

5. In a locomotive, the combination, with a boiler and a hood 4, adapted to deliver gases from the boiler into the smoke-stack, of a compartment 2 in front of the boiler, a tube 8, opening into said compartment and being connected to the lowermost flues of the boiler, and a tube leading from the cylinder of the locomotive, said tube having jets 12, substantially as and for the purpose specified.

6. The combination, with a locomotive boiler, of an air compartment arranged at the front end of the compartment in advance of the boiler-flues, a hood which places some of the flues in communication with the smoke-stack and cuts them off from communication with the air compartment, the remaining flues communicating with said compartment, a tube arranged in the air-compartment to conduct air therefrom into some of the boiler-flues, and a steam-pipe for conducting exhaust-steam from one of the locomotive-cylinders into the tube in the air-compartment for causing a current of air to flow into the locomotive-furnace, substantially as described.

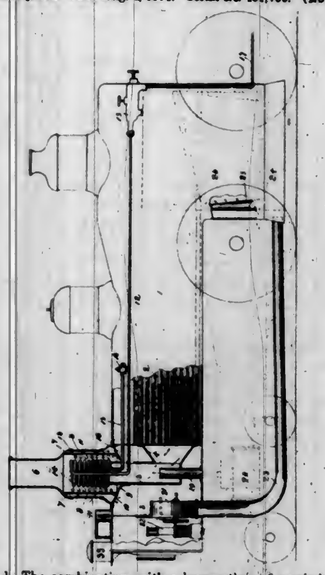
7. The combination, with a locomotive, of a boiler having an air-compartment at its front ends, tubes arranged to convey fresh air from said compartment to the locomotive-furnace, the inclined tubes 13, having a transverse perforated portion, the tube 14, having a transverse perforated portion, and upright tubes 18, arranged in the fire-box and having their lower ends in direct communication with the external atmosphere, substantially as described.

478,683. APPARATUS FOR LIGHTING LOCOMOTIVE-ENGINES. ALEXANDER R. CAVNER, Chicago, Ill.; Edward E. Holman, administrator of said Alexander R. Cavner, deceased, assignor to the Cavner Locomotive Improvement Company, same place. Filed Aug. 1, 1891. Serial No. 401,434. (No model.)



Claim.—1. The combination, with a locomotive-engine, the combination, with a boiler having a compartment at its forward end, of a reflector secured in the front of said compartment, an electric lamp mounted in said reflector, and mechanism adapted to furnish a current of electricity to said lamp, substantially as and for the purpose specified.

478,684. LOCOMOTIVE-ENGINE. ALEXANDER R. CAVNER, Chicago, Ill.; Edward E. Holman, administrator of said Alexander R. Cavner, deceased, assignor to the Cavner Locomotive Improvement Company, same place. Filed Aug. 4, 1891. Serial No. 401,709. (No model.)



Claim.—1. The combination, with a locomotive, of an air-heater arranged in the forward portion thereof, an air-heating compartment arranged in juxtaposition to the heater and wherein the air is heated by such heater, a compartment arranged at the forward portion of the locomotive and having communication with the air-heating compartment, a hood located in said compartment and connecting the boiler-flues with the smoke-stack, and mechanism which operates to draw external atmosphere into the air-heating compartment and force the same to the locomotive-furnace, substantially as described.

2. The combination, with a locomotive, of an air-heater at the forward portion thereof, an air-compartment separated from the air-heater by a perforated partition and in communication with the external atmosphere, a compartment having communication with the air-heating compartment through the said perforated partition, a hood located in said compartment and connecting the boiler-flues with the smoke-stack, and mechanism which operates to draw air into the air-compartment and force the same to the locomotive-furnace, substantially as described.

3. The combination, with a locomotive, of an air-heater arranged in the forward portion thereof, an air-heating compartment arranged in juxtaposition to the heater and wherein the air is heated by such heater, a compartment arranged at the forward portion of the locomotive and having communication with the air-heating compartment, a hood arranged in said compartment and connecting the boiler flues with a smoke-stack, and an exhaust-fan having a pipe connection with the locomotive-furnace and operating to draw external atmosphere into the air-heating compartment and force the same to the locomotive-furnace through said pipe, substantially as described.

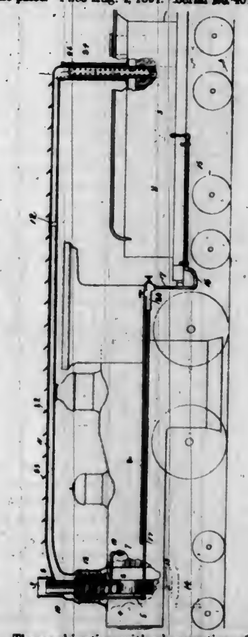
4. The combination, with a locomotive, of a feed-water and air heater arranged in the forward portion thereof, an air-heating compartment arranged in juxtaposition to the water and air heater and wherein the air is heated by such water, a pipe for conducting water to the heater, a pipe for conducting water from the heater to the locomotive-boiler, a compartment arranged at the forward portion of the locomotive and having communication with the air-heating compartment, and mechanism which operates to draw external atmosphere into the air-heating compartment and force the same to the locomotive, substantially as described.

5. The combination, with a locomotive having a boiler 2 and forward compartment 3, having no communication with the boiler, of a smoke-stack 6, having partition 7, exterior compartment 8, said exterior compartment 8 having apertures 11, plate 9, separating the compartment 3 from the interior of the smoke-stack, apertures 10 in said plate 9, pipe 23, adapted to conduct air from the compartment 3 to the ash-box of the locomotive, and apparatus located in said compartment 3, adapted to exhaust the air from said compartment and deliver it into the pipe 23, substantially as described.

6. The combination, with a locomotive having a forward compartment, said compartment having no communication with the flues of the locomotive-boiler, and a smoke-stack having an interior compartment in communication with the flues of the boiler and an exterior compartment having apertures adapted to permit of the access of air into said compartment, said exterior compartment being in communication with the forward compartment of the locomotive, of a coil 18 in the interior of the smoke-stack and apparatus for causing a current of air to flow through the compartment 8 into the forward compartment of the locomotive, substantially as and for the purpose specified.

7. The combination, with a locomotive having a boiler 2 and a forward compartment 3, having no communication with the boiler, of a smoke-stack 6, having an exterior compartment 8, the exterior compartment being in communication with the forward compartment of the locomotive and with the open air and the interior of the smoke-stack being in communication with the flues of the boiler, a coil 14, located in said smoke-stack, pipes for conducting water into said coil and for delivering it into the boiler of the locomotive, coil 18 around said coil 14, tube 19 for delivering exhaust-steam into the smoke-stack, exhaust-fan 21, tube 23 for conveying air from the compartment 3 to the ash-box of the locomotive, and pipes 25, adapted to deliver air from the ash-box into the fire-box of the locomotive, substantially as described.

478,685. LOCOMOTIVE-ENGINE. ALEXANDER R. CAVNER, Chicago, Ill.; Edward E. Holman, administrator of said Alexander R. Cavner, deceased, assignor to the Cavner Locomotive Improvement Company, same place. Filed Aug. 4, 1891. Serial No. 401,710. (No model.)



Claim.—1. The combination, with a locomotive, of a compartment in front of the boiler-flues, an exhaust-fan arranged in the compartment, connected with the boiler-flues, and having a delivery-tube communicating with the smoke-stack, and a feed-water pipe coiled round the tube of the exhaust-fan and connected with the boiler, substantially as described.

2. The combination, with a locomotive having a compartment at its forward end, apparatus located in said forward compartment adapted to conduct the hot gases from the furnace to the upper part of the smoke-stack of the locomotive, and a pipe adapted to conduct exhaust-steam from the cylinder to said compartment, of a pipe adapted to supply water to the boiler of the locomotive, said pipe

being so arranged as to expose the water to the heat of the exhaust-steam and the hot gases from the boiler, substantially as and for the purpose specified.

3. The combination, with a locomotive and a tender carrying a water-tank, of a tube arranged to conduct exhaust-steam from the locomotive-cylinder to the water-tank and means by which cool air is admitted into such tube for condensing the exhaust-steam as it passes through said tube in transit to the water-tank, substantially as described.

4. The combination, with a locomotive and a tender carrying a water-tank, of a tube for conveying exhaust-steam from the cylinders of the locomotive to said water-tank, said tube having apertures adapted to admit air into said tube, substantially as and for the purpose specified.

5. The combination, with a locomotive and a tender carrying a water-tank, of a tube for conveying exhaust-steam from the cylinders of the locomotive to the water-tank, apertures in said tube for the admission of air, and deflectors, substantially as and for the purpose specified.

6. The combination, with a locomotive having a compartment at its forward end, said compartment having no communication with the flues of the boiler, and a tender carrying a water-tank, of tubes for conducting exhaust-steam from the cylinders of the locomotive into said compartment and a tube opening into said compartment adapted to convey steam from said compartment to the water-tank, substantially as and for the purpose specified.

7. The combination, with a locomotive having a compartment at its forward end, said compartment having no communication with the flues of the boiler, a tender, and a water-tank carried thereby, of tubes adapted to convey exhaust-steam from the cylinders of the locomotive to said forward compartment and a tube opening into said compartment and adapted to convey said steam into the water-tank, said tube having apertures for the admission of air, substantially as and for the purpose specified.

8. The combination, with a locomotive having a compartment at its forward end, said compartment having no communication with the flues of the boiler, a tender, and a water-tank carried thereby, of tubes adapted to conduct exhaust-steam from the cylinders of the locomotive into said forward compartment and a tube 11, opening into said compartment and adapted to conduct the steam from said compartment to the water-tank, said tube having apertures 22, deflectors 23, and apertures 25, substantially as and for the purpose specified.

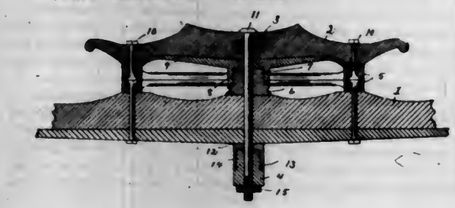
9. The combination, with a locomotive having a compartment at its forward end, an exhaust-fan in said compartment connected with the flues of the boiler and adapted to draw the gases from the boiler, and a tube 8, adapted to conduct said gases and deliver them into the upper end of the smoke-stack of the locomotive, of tubes adapted to conduct exhaust steam from the cylinders of the locomotive into said forward compartment, a tube adapted to conduct said exhaust-steam to the water-tank, and pipes for conducting the water from the water-tank around the tube 8 and to empty it into the boiler, substantially as described.

478,686. RAILROAD-TRACK NUT-LOCK. JOHN D. CAY, Tallahassee, Fla. Filed Nov. 21, 1891. Serial No. 412,692. (No model.)



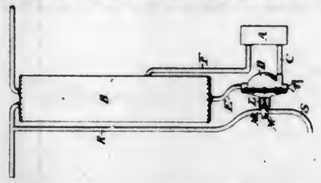
Claim.—A nut-lock made of a single resilient rod A, passed around two bolts, forming a washer for the nuts thereon and crossing itself midway between the bolts, its ends pressing against the sides of the nuts and being backed up by the rod itself passing along beside and behind them and providing a continuous resilient pressure, by which the nuts are held firmly against unscrewing, substantially as disclosed.

478,687. CARRIAGE-COUPLING. NORTON D. CHAPMAN, Toledo, Ohio, assignor of one-half to Alpheus Chapman, same place. Filed Apr. 6, 1891. Serial No. 387,794. (No model.)



Claim.—In a carriage-coupling, a head-block plate formed with an annular recess, a clip having a recessed circular boss engaging the said recess, a clip-plate secured to the clip and having an annular recess, a brace having a recessed boss engaging the latter recess, and bushings located in the recesses of the two bosses, in combination with a king-bolt for assembling the several parts of the coupling.

478,688. RANGE-BOILER ATTACHMENT. WILLIAM S. CLARK, Philadelphia, Pa. Filed Apr. 18, 1890. Serial No. 348,476. (No model.)



Claim.—The combination, with the boiler B and its connecting-tubes E, F, and R, of the water-back A, the vessel D, the bowl G, the diaphragm H, the plunger N, and the connected valve P, all arranged substantially as shown and described, and for the purpose set forth.

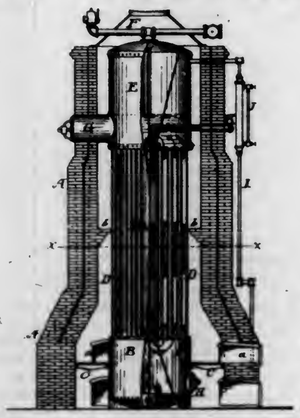
478,689. CUT-OUT SWITCH. WILLIAM R. CLEVELAND, Geneva, Ohio. Filed Sept. 21, 1891. Serial No. 406,413. (No model.)



Claim.—1. The combination of stationary contacts, a switch-lever, contacts upon the same and insulated from each other, a fuse connected to said contacts, and a prop supporting said fuse away from the lever, substantially as set forth.

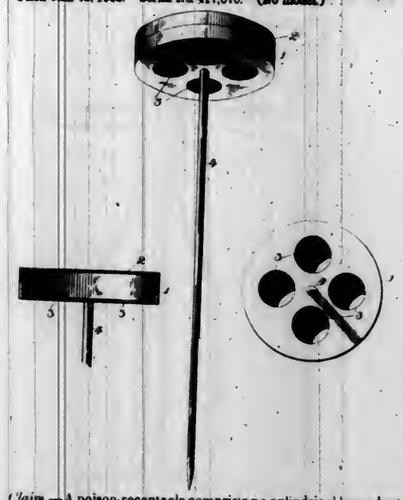
2. The combination of stationary contacts, a pivot projecting from one of said contacts, a lever provided with registering contacts and having an eye projecting from the end of one of said contacts and detachably pivoted upon said pivot, and a fuse connected to the lever-contacts, substantially as set forth.

478,690. STEAM-BOILER. HERBERT F. COOK, Cleveland, Ohio, assignor to L. W. Bingham, Chas. L. Douglass, and C. B. Squire, all of same place. Filed Dec. 28, 1891. Serial No. 416,382. (No model.)



Claim.—In a tubular steam-boiler, the combination of a boiler consisting of a chamber B, located partly below the fire grates of a furnace, an upper chamber E, the upper tube sheet of chamber B and the lower tube-sheet of chamber E, connected by a central large flue D^2 and by surrounding vertical water-tubes D D, and a circular inclosing casing A, having the walls reduced in diameter above the fire-grates, and a deflecting rim or ridge *b* on its inner surface midway in the space between the two chambers B and E of the boiler, and covered with a suitable crown leading into a smoke-stack, constructed to operate substantially as specified.

478,691. POISON-RECEPTACLE. ALLEN L. DE SHON, Steele, N. D. Filed Jan. 12, 1892. Serial No. 417,870. (No model.)



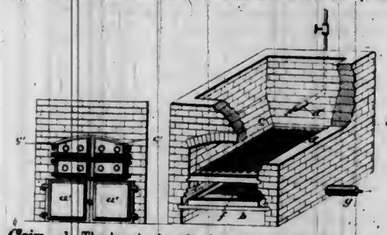
Claim.—A poison-receptacle comprising a cylindrical box adapted to contain a cake of poison and provided in its bottom with openings through which the poison may be eaten, but which prevents the entire cake being taken from the receptacle at once, and a depending pointed stem or spindle having its upper end secured to the bottom of the box and having its lower end adapted to be inserted in the ground to support the box a short distance above the same, substantially as described.

478,692. TELEPHONE. PAUL H. D'UNGER, Chicago, Ill., assignor to the D'Unger Long Distance Telephone Company, same place. Filed Mar. 29, 1892. Serial No. 426,931. (No model.)



Claim.—The combination, substantially as set forth, in a telephone, of the diaphragm, an arm projecting over the diaphragm, a screw in said arm, and a buffer actuated by said screw and adapted to bear against the diaphragm.

478,693. PROCESS FOR TOTAL COMBUSTION. EMIL A. ERB, Appleton, Wis. Filed Feb. 12, 1891. Serial No. 381,233. (No specimens.)



Claim.—1. The herein-described improvement in the combustion of carbonaceous fuel, the same consisting in mixing the fuel with perforated iron cubes or other forms of perforated iron, so as to facilitate the running off of the generated carbonic-acid gas by its own gravity, substantially as described.

2. The improvement herein described in the combustion of carbonaceous fuel, the same consisting in running off the generated carbonic-acid gas by its own gravity assisted by an exhaust-fan or other exhaust-pump devices, and further assisted by feeding fuel mixed with perforated iron cubes or other forms of perforated iron, substantially as specified.

3. The improvement herein described in the combustion of carbonaceous fuel, the same consisting in running off the generated carbonic-acid gas by its own gravity assisted by an exhaust-fan or other exhaust-pump devices, and further assisted by feeding the fuel mixed with perforated iron cubes or other forms of perforated iron, and further assisted by injecting steam in the fuel-chamber, substantially as specified

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478,694. GAME-MARKER. ROBERT F. FOSTER, New York, N. Y., assignor to Charles Goodall & Son, London, England. Filed Apr. 8, 1892. Serial No. 428,335. (No model.)



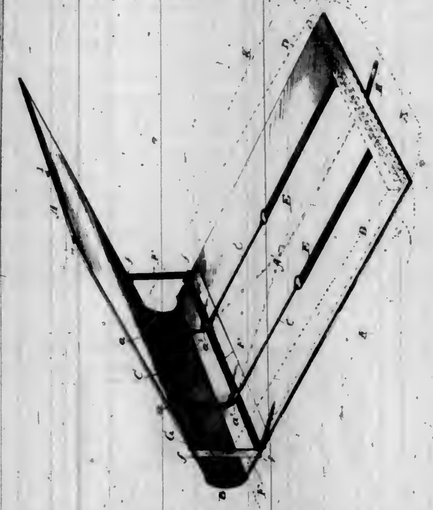
Claim.—1. In a card-game marker, the combination, with a base-piece, of revoluble marking-pieces, each having two indicating-faces, which when indicating are level with the top of the base-piece, substantially as described.

2. In a card game marker, the combination, with a base-piece, of revoluble marking-pieces, each having two indicating-faces, which when indicating are level with the face of the base-piece, and springs for retaining each said marking-piece in one or other of its two positions, substantially as described.

3. A card-game marker comprising, in combination with each other, the base A, furnished with recesses A', the revoluble blocks B, pivoted in the said recesses, each block having two indicating-faces, one of which is distinguished from the other, and the springs D, adapted to keep the said blocks in one or other of two positions, in both of which the faces of the said blocks are level with the top face of the base, substantially as and for the purpose specified.

4. In a card-game marker, the combination of the base A, revoluble blocks B, pivoted in recesses in the same, and the springs D, adapted to keep the said blocks in one or other of two positions, in both of which the faces of the said blocks are level with the top face of the base, substantially as set forth.

478,695. FILE FOR LETTERS AND PAPERS. GEORGE HARVEY and WILLIAM R. GRUNDY, Winnipeg, Canada. Filed Nov. 25, 1891. Serial No. 413,046. (No model.)



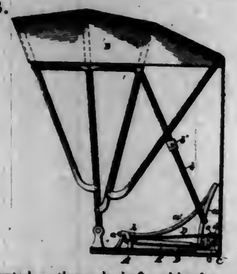
Claim.—In combination, the two backs or covers, a cord secured to one and passed through guiding-eyes in the other, an elastic device connected to the last-named cover and to each end of said cord, the supplementary elastic band, and the loops on the covers for securing it thereto, one of said covers being hinged in advance of said supplementary band, substantially as and for the purpose described.

478,696. TOP-JOINT FOR VEHICLES. AMOS M. HESS, Martinsville, Pa. Filed Feb. 20, 1892. Serial No. 422,187. (No model.)

Claim.—1. The combination, with the rock-shaft and braces, of a lever-head loosely mounted on the rock-shaft and having a shoulder formed on the face thereof, a detent passing through an opening in the shaft and adapted to engage said shoulder, and a lever-arm connected with the head, substantially as and for the purpose specified.

2. The combination, with the rock-shaft and braces, of a lever-

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head loosely mounted on the rock-shaft and having a shoulder formed on the face thereof, a screw passing through the rock-shaft back of said shoulder, and a lever-arm connected with the head, substantially as and for the purpose specified.

3. The combination, with the rock-shaft and braces, of a lever-head loosely mounted on the rock-shaft and having a shoulder formed on the face thereof, a detent passing through the rock-shaft back of said shoulder, and a lever-arm detachably connected with the head, substantially as and for the purpose specified.

4. The combination, with the rock-shaft and a lever for operating the same, of a spring-actuated plunger having a pivotal connection at one end with the frame of the vehicle and pivoted at the other end to an arm on the rock-shaft, substantially as and for the purpose specified.

5. The combination, with the rock-shaft and a lever for operating the same, of a cylinder pivoted to the front of the seat, and a spring-actuated plunger located in the cylinder and having the outer end pivoted to an arm on the rock-shaft, substantially as and for the purpose specified.

6. The combination, with the rock-shaft and braces, of a lever-head loosely mounted on the rock-shaft and having a shoulder formed on the face thereof, a detent passing through the rock-shaft back of said shoulder, a lever-arm connected with the head, and a spring-actuated plunger having a pivotal connection at one end with the frame of the vehicle and pivoted at the other end to an arm on the rock-shaft, substantially as and for the purpose specified.

7. The combination, with the rock-shaft and braces, of a lever-head loosely mounted on the rock-shaft and having a shoulder formed on the face thereof, a detent passing through the rock-shaft back of said shoulder, a lever-arm detachably connected with the head, a cylinder pivoted to the front of the seat, and a spring-actuated plunger located in the cylinder and having the outer end pivoted to an arm on the rock-shaft, substantially as and for the purpose specified.

8. The combination, with the rock-shaft and braces, of means for operating said shaft and a spring connection between the ends of the shaft, substantially as and for the purpose specified.

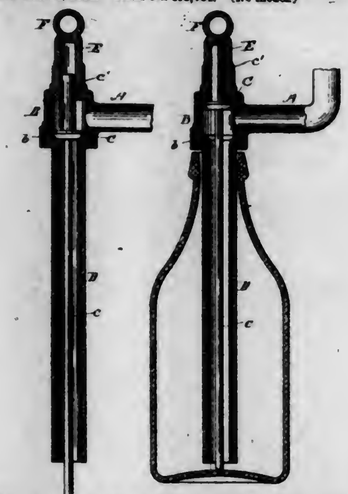
9. The combination, with the braces, of a rock-shaft having a reduced portion between its ends, said reduced portion being tempered to form a spring, and a lever secured to the shaft, substantially as and for the purpose specified.

478,697. DISINFECTING APPARATUS. CHARLES B. HYSLIP, Bradford, Pa. Filed Mar. 22, 1892. Serial No. 425,891. (No model.)



Claim.—A disinfecting device consisting of a lower receptacle, a casing supported above the same leaving air-openings between the two, a supply-tank inclosed and supported by the receptacle and provided on its lower side with a tapering discharge-tube, an absorbent pad located in the lower receptacle provided with two absorbent vertical wings I I, rising from the said pad at a short distance from both tube and casing and permitting access of air to both sides of said wings, as set forth.

478,698. AUTOMATIC NOZZLE. CHARLES A. KING, Boston, Mass. Filed Dec. 21, 1891. Serial No. 415,701. (No model.)

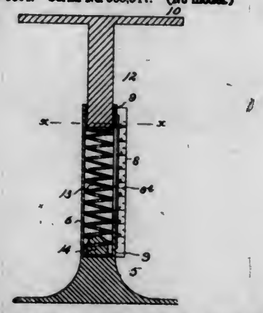


Claim.—1. The nozzle above described, containing a valve-chamber provided with an inlet-pipe and a delivery-tube and having a valve-seat at the entrance of said delivery-tube, in combination with a valve provided on its under side with a spindle of a greater length than said delivery tube, said valve being adapted to fit said valve-seat and also to be lifted clear of the entrance to the delivery-tube and leave an uninterrupted passage therein for the escape of the liquid, all as set forth.

2. In a bottle-filling nozzle containing a valve-chamber having a cover provided with a socket, said valve-chamber being also provided with a valve-seat and delivery-tube, a valve adapted to fit said valve-seat and provided with guide-rod extending from its upper side into the socket in the cover to said chamber and having a spindle projecting from its lower surface down through and beyond the farther end of said delivery-tube, as set forth.

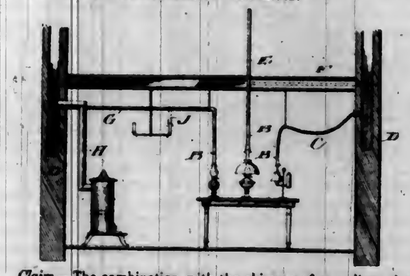
3. In a nozzle of the kind described, a valve-chamber provided with a delivery-tube having a valve-seat at its entrance, an automatically-closing valve, and means, substantially as described, whereby it may be automatically opened, in combination with an inlet-pipe connected with said valve chamber above the valve-seat and located to discharge its contents on the under side of the valve when the valve is opened, whereby when said valve is opened an unobstructed passage will be provided for the liquid from the inlet to the delivery tube through the valve chamber, all as set forth.

478,699. SPRING-SCALE. LOUISA E. A. KOVSKY, Denver, Colo. Filed Feb. 26, 1891. Serial No. 383,317. (No model.)



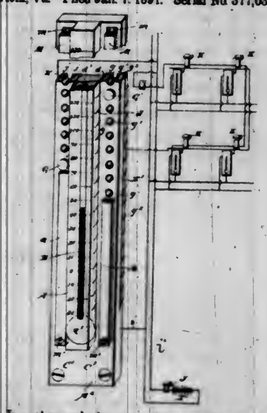
Claim.—The weighing-scales consisting of a base having the upwardly-projecting vertically-slotted sleeve or tube provided with the plate located in front of the slot attached to the tube at points above and below the slot and having two graduated faces, a coil-spring located within the tube or sleeve, a top plate provided with a depending arm adapted to telescope within the tube of the base, its lower extremity engaging the spring, said arm being provided with a double pointer, the shank of which is adapted to travel within the slot of the tube while one of the pointer-arms moves over each graduated face of the adjacent plate, substantially as described.

478,700. LAMP-PIPE. ALEXANDER T. LOYD, Chicago, Ill. Filed Feb. 19, 1891. Serial No. 382,026. (No model.)



Claim.—The combination, with the chimney of an ordinary lamp, of a flexible uptake terminating a telescoping section A, having a damper B, the lower section terminating in the cone *a*, and a non-conducting cone-shaped packing adapted to fit the chimney of the lamp, substantially as specified.

478,701. THERMAL ALARM. HOSEA F. MAXIM and JESSE M. PRICE, Norfolk, Va. Filed Jan. 7, 1891. Serial No. 377,030. (No model.)



Claim.—1. In a thermal-alarm mechanism, the combination, with a mercury-tube having a contact or conductor permanently connected with the mercury and a series of contacts normally above the mercury and extending from the mercury-chamber to the outside surface, and a non-conducting back or support A^3, of a series of pairs of terminals carried by said back or support extending along the tube, the terminals of each pair being insulated from each other and one being connected to a tube-contact and the other to a battery-wire, and a removable pin, as at G, adapted to be clamped between the terminals of one of said pairs, substantially as set forth.

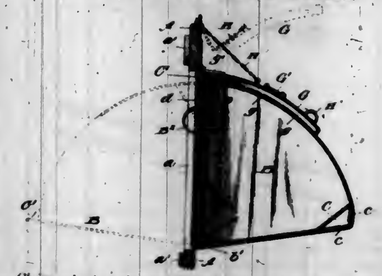
2. In a thermal-alarm mechanism, the combination of a mercury-tube having a conductor permanently connected with the mercury and a series of contacts normally above the mercury but adapted to touch it when it rises, a series of pairs of terminals insulated from each other and having one of each pair connected to one of said tube contacts and the other connected to a battery-wire, and two adjustable contacts, each adapted to be connected to one of the said pairs of terminals, substantially as set forth.

3. The combination of the mercury-tube A, having contacts D D', the non-conducting back A^3, having sockets extending from the front to the rear, the insulated terminals in said sockets, the conductors *g*, *g'*, and E, and the contact-pin G, substantially as set forth.

4. The combination of the mercury-tube having the contacts D D', the terminals *g g'*, the contact G, and the guard for said contact, substantially as set forth.

5. In a thermal-alarm mechanism, the combination of the mercury-tube, the insulating back or support A^3, the two independent series of pairs of terminals supported on said backs, the series of contacts or conductors extending from the mercury-chamber out through the tube and respectively connected to one of the terminals in each of said pairs, the other terminal of each pair being connected to a battery, and the two independently-adjustable contacts, each adapted to be connected with the terminals of one of said pairs, substantially as and for the purposes set forth.

478,702. GARBAGE-RECEPTACLE. EDWARD B. MERRITT, Chicago, Ill. Filed Mar. 3, 1892. Serial No. 423,622. (No model.)



Claim.—1. A garbage-receptacle provided with a co-operating disinfectant-chamber at a distance from its pivot and constructed, located, and arranged to receive from the ordinary movements in the use of the receptacle a disinfectant-ejecting force, as set forth.

2. A pivotally-mounted garbage-receptacle having a hinged cover provided with a disinfectant-chamber, as set forth.

3. A pivotally-mounted garbage-receptacle having a disinfectant-chamber located with relation to the pivot of the receptacle to scatter the disinfectant over the area covered by the receptacle in its movements, substantially as specified.

4. A pivotally-mounted garbage-receptacle having disinfectant compartment, combined with a cover having disinfectant-chamber, as set forth.

5. A pivotally-mounted garbage-receptacle and an independently-mounted cover having disinfectant-chamber, combined and operating as set forth.

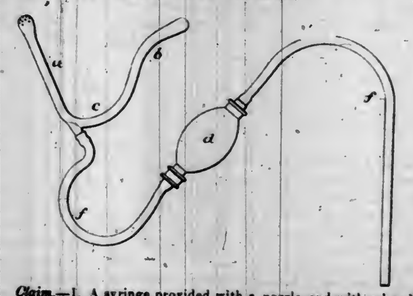
6. The combination, with a pivotally-mounted garbage-receptacle, of a pivotally-mounted cover having chamber for disinfectant, said receptacle being movable independent of the cover, substantially as specified.

7. A pivoted garbage-receptacle provided with a disinfectant-chamber located at a distance from the support of the receptacle, substantially as specified.

8. A pivoted garbage-receptacle provided with a cover having a disinfectant-chamber, said chamber being mounted with relation to the receptacle so as to be shocked or jarred by the contact of one with the other, substantially as specified.

9. A pivoted garbage-receptacle, combined with a hinged cover having disinfectant-chamber, said chamber being mounted to distribute its contents both into and outside of the receptacle and arranged to be actuated by the contact of one with the other, as set forth.

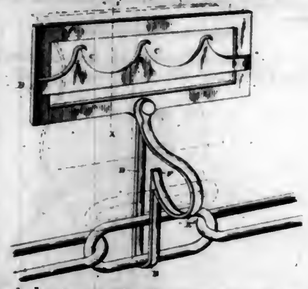
478,703. SYRINGE. GEORGIANA F. MILES, New York, N. Y. Filed Jan. 27, 1892. Serial No. 419,466. (No model.)



Claim.—1. A syringe provided with a nozzle and with a handle attached to the nozzle by an intermediate connection *c*, supporting the handle at a distance from the nozzle, said handle extending upward from its junction with the connection *c*, approximately parallel to the nozzle, substantially as described.

2. The combination, with the nozzle of a syringe, of a projecting handle clamped to the nozzle, substantially as set forth.

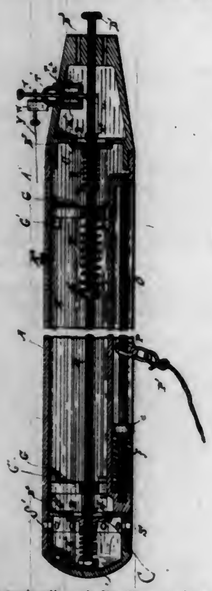
478,704. TRACE-CARRIER. AMANUEL M. MILLER, Fairfield, Tex. Filed Mar. 11, 1892. Serial No. 424,568. (No model.)



Claim.—1. In a trace-carrier, the combination, with an attaching-frame, of a carrier proper depending therefrom and consisting of an elongated loop with closely-arranged parallel sides and an upper eye overhanging and depending below the upper portion of said loop, the juncture of the upper portion of said loop and eye being extended in the form of a projection, which narrows the opening between said loop and eye, said eye and loop being integral and rigid, substantially as described.

2. The combination of a frame having a bar extending thereacross with integral arms at right angles thereto, having outwardly-turned sharpened ends to form a means of attachment, and a carrier proper depending from said frame and consisting of an elongated loop and an upper eye having the juncture of the two extended inward to form a projection to narrow the opening between said loop and eye, the parts of said carrier proper being of integral rigid structure, substantially as described.

478,705. OIL-PROJECTILE. EVERETT D. MOORE, Baltimore, Md., assignor, by direct and mesne assignments, to the American Oil Projectile Company, same place. Filed June 11, 1891. Serial No. 395,847. (No model.)



Claim.—1. An oil projectile and distributer having an oil-chamber provided with water-inlet and oil-outlet ports, valves mounted on the valve-rod and closing said ports against pressure, a rod passing through said valve-rod for holding the valves closed and adapted to release the valve-rod as the projectile is fired, and a rope secured to said projectile and distributer for drawing it through the water after the projection, for the purpose set forth.

2. An oil projectile and distributer having an oil-chamber provided with water-inlet and oil-outlet ports, valves mounted on the valve-rod and closing said ports against pressure, means for holding said valves closed and adapted to release the valve-rod as the projectile is fired, and a rope secured to said projectile and distributer for drawing it through the water after the projection, for the purpose set forth.

3. An oil projectile and distributer having an oil-chamber provided with water-inlet and oil-outlet ports, valves mounted on the valve-rod and closing said ports against pressure, means for holding the valves closed and adapted to release the valve-rod as the projectile is fired, a perforated cap at the water-inlet port, and a rope secured to said projectile and distributer for drawing it through the water after the projection, for the purpose set forth.

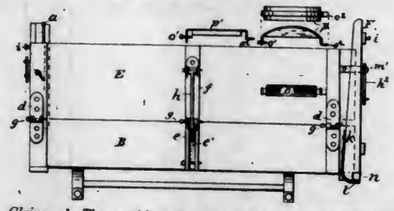
4. An oil projectile and distributer having an oil-chamber provided with water-inlet and oil-outlet ports, valves mounted on the valve-rod and closing said ports against pressure, a rod passing through said valve-rod for holding the valves closed and adapted to release the valve-rod as the projectile is fired, a rope secured to said projectile and distributer, and means for taking up the tension of the rope as the projectile is thrown through the air, for the purpose set forth.

5. An oil projectile and distributer having an oil-chamber provided with water-inlet an oil-outlet ports, valves mounted on the valve-rod and closing said ports against pressure, a rod passing through said valve-rod for holding the valves closed and adapted to release the valve-rod as the projectile is fired, a rod secured to said projectile, a spring on said rod, and a rope secured to said projectile and distributer for drawing it through the water after the projection, the tension of said rope being taken up by said spring as the projectile is thrown through the air, for the purpose set forth.

6. A projectile having a recess in its side, a rod secured to said projectile and located in said recess, a rope traveling on said rod, and a cushion on said rod for taking up the tension of the rope as the projectile is thrown through the air, for the purpose set forth.

7. A projectile having a recess in its side, a rod secured to said projectile and located in said recess, a rope, rings to which said rope is secured traveling on said rod, and a spring-cushion on said rod for taking up the tension of the rope as the projectile is thrown through the air, for the purpose set forth.

478,706. WAGON-BOX. CHARLES NELSON, Axtell, Nebr. Filed Apr. 25, 1891. Serial No. 390,480. (No model.)



Claim.—1. The combination, with the fixed front and side pieces and end-gate of a wagon-box, of two side-boards hinged to said said pieces and hook-rods provided with perforations *m*, two of which rods are connected with the front and two with the rear ends of said side-boards, said hook-rods being constructed to secure said side-boards in their vertical or closed positions and also to adjust said side-boards in their inclined and level positions by connection with fixed pins *i* on the ends of the box, substantially as set forth and described.

2. The combination, with the front end piece of a wagon-box, of a standard made in two parts which are coupled together and provided with a hook for securing said standard in an upright position, substantially as set forth and described.

3. The combination, with the sides and floor of a wagon box provided with eyebolts *m'* and a cross-piece *n*, of a removable end-gate F, perforated to receive said eyebolts and provided with notched cleats and hooks for connection with said cross-piece, and hook-rods h^3, whereby said end-gate may be secured either in a vertical or a horizontal position, substantially as set forth and described.

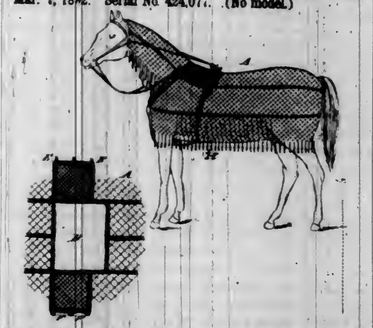
4. The combination, with the fixed front and side pieces of a wagon-box, of the hinged side-boards E, tapering end-boards H and H', the latter being provided with a downward extension to fit in the rear end of said box, the side-boards K and K', corresponding, respectively, in width with the wide and narrow ends of the boards H H', hook-rods h' and h^3, and devices, substantially as described, for securing the parts in place, as herein specified.

478,707. WASHING-MACHINE. HARRISON OSBORN, Richmond, assignor of one-half to William J. Shinn, Indianapolis, Ind. Filed Oct. 12, 1891. Serial No. 408,527. (No model.)

Claim.—1. In a washing-machine, a tub centrally journaled upon a framework and adapted to be rotated thereon and provided with corrugated rubbing-bars on its sides and bottom, a corrugated rubber suspended within such tub by a spindle connected to a cross-bar detachably locked to the framework, such spindle having an adjustable spring for regulating the tension of the rubber upon the clothes, a crank connected to the top of such spindle and the upper end of the operating lever for rotating the rubber, and a link connected from the lower end of such lever to a projection at one side of the center of the bottom of the tub, whereby the tub may be simultaneously rotated in an opposite direction, in combination with a cover and means for supporting the cover in a vertical position, all combined substantially as shown and described.

2. In a washing-machine, a tub centrally journaled upon a framework and adapted to be rotated thereon, provided with corrugated rubbing-bars on its sides and bottom, a corrugated rubber suspended within such tub by a spindle connected to a cross bar detachably locked to the framework, a crank connected to the top of such spindle and the upper end of the operating-lever for rotating the rubbers, and a link connected from the lower end of such lever to a projection at one side of the center of the bottom of the tub, whereby the tub may be simultaneously rotated in an opposite direction, in combination with a stop of elastic material attached to the under side of the tub and adapted to come in contact with the framework at each half-rotation of the tub, all combined substantially as shown and described.

478,708. FLY-NET. WILLIAM H. OSHER, St. Louis, Mo. Filed Mar. 7, 1892. Serial No. 424,077. (No model.)



Claim.—1. A fly-net or like covering for horses, provided with an opening between the collar and gig-saddle and with flaps for closing said opening when in use, all substantially as set forth and described.

2. A fly-net or like covering for horses, provided with an opening between the collar and gig-saddle and with flaps for closing said opening, one edge of said flap having buckles or fastenings consisting of a fixed portion, and a tongue pivoted to said fixed portion and so arranged as to pass through a hole or slot in the opposite edge of said opening and fold back upon the fixed part, thus securing the edges of the opening together while the net is in use, all substantially as described.

3. The combination, with a fly-net for horses having an opening between the collar and gig-saddle, of a lower or under section of net arranged for connection with the top net by adjustably connecting its opposite edges to each side of the top net, the said edges being provided with suitable means for securing the parts together while in use, all substantially as set forth and described.

478,709. COIN-CONTROLLED DEVICE FOR PHONOGRAPHS. JOHN F. OTT, Orange, assignor to Thomas A. Edison, Llewellyn Park, N. J. Filed Apr. 24, 1891. Serial No. 390,287. (No model.)

Claim.—1. The combination of a tube forming a coin-passage and communicating with a coin-receiving slot, a movable door in one side of the tube and normally closing said side and being free to open, and an arm for locking the door, extending into the tube and adjusted to be moved by a predetermined weight, substantially as described.

2. The combination of a tube forming a coin-passage, a movable door in one side of the tube and normally closing said side, and a pivoted arm with an end extending into the tube above the bottom of the door for locking the door and adjusted to be moved by a predetermined weight, substantially as described.

3. The combination of a tube forming a coin passage, a movable door in one side of the tube and normally closing said side, an arm carried by the door, and an arm for locking the door, extending into the tube and adjusted to be moved by a predetermined weight, the latter arm when moved coming into the path of movement of the first arm, substantially as described.

4. The combination of a tube forming a coin-passage and communicating with a coin-receiving slot, a movable door in one side of the tube and normally closing said side, an arm for locking the door, adjusted to be moved by a predetermined weight, and means for opening the door and throwing out light checks, substantially as described.

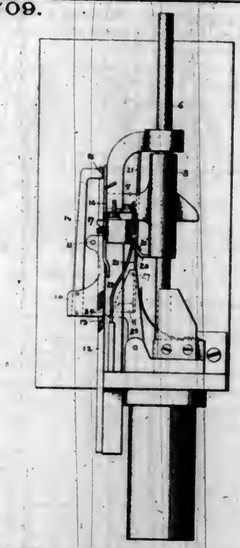
5. The combination of a tube forming a coin-passage and communicating with a coin-receiving slot, a movable door in one side of the tube and normally closing said side, an arm for locking the door, adjusted to be moved by a predetermined weight, a handle having an arm extending into the coin-passage, a spring tending to move toward the door, and a detent device carried by the handle normally restraining said spring, but allowing it to move toward the door when the handle is moved for throwing out light checks, substantially as described.

6. The combination of a tube forming a coin-passage, an arm having a beveled end extending into said passage and adapted to be moved back by a coin, causing it to act as a wedge to move said arm, a handle for pressing on the coin, a pin or stop moved by the handle, and a co-operating pin or stop on said arm and in position to arrest the handle before a smaller coin than that required will be pushed forward, substantially as described.

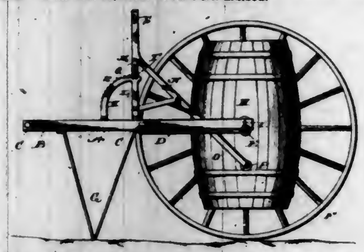
7. The combination of a coin tube or passage having a slot in a side thereof, a stop for the coin or check when deposited, a handle having a lug or arm passing through the slot into the coin-passage for pressing on the coin to force it by the stop, and a detent which arrests the handle if the check deposited is of too small diameter, said detent having one part on the movable handle and another part on a movable arm in position to be operated by or through the coin, said two parts of the detent being normally in line, whereby they will tend to engage with each other when the handle is moved, substantially as described.

8. The combination of a coin tube or passage and a pivoted stop for a deposited coin or check, one edge of said stop extending into the coin-tube, but terminating at a sufficient distance from the side of the passage to allow thin coins or checks to pass directly through to the coin-receptacle, but to arrest coins of proper thickness, substantially as described.

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478,710. BARREL-TRUCK. MARSHALL R. PARHAM, Butt Oak, Mich. Filed Feb. 20, 1892. Serial No. 422,262.



Claim.—1. The combination of a wheeled frame, a barrel pivotally supported on said frame, a lever mounted on the said frame, means for locking said lever, and a link having its upper end pivoted to the lever and its lower end pivoted to the barrel below the center thereof.

2. The combination of a frame having sockets in its ends, a barrel provided with trunnions engaging said sockets, means for tilting the barrel on the trunnions, a U-shaped bar secured to the under side of the frame and having its ends turned outward, and supporting-wheels loosely mounted on the said outturned ends.

3. The combination, with the frame and a barrel pivotally mounted thereon, of a rack-bar erected on the frame, a lever fulcrumed on the said rack-bar, connections between the lever and the barrel, a guide carried by the lever and fitting over the rack-bar, and a spring-locking rod carried by the lever and playing in the said guide to engage the rack-bar.

478,711. MACHINE FOR TAPPING MAINS. WALTER S. PAYNE, Fostoria, Ohio. Filed Aug. 28, 1891. Serial No. 403,998. (No model.)



Claim.—1. In a machine for tapping mains, the combination, with a casing and the tapping mechanism working therein, of a swinging threaded ring-crane adapted to be independently oscillated horizontally within said casing and carrying the cock, and means for removing said cock from the ring-crane by the tapping mechanism, substantially as set forth.

2. In a machine for tapping mains, a casing having an eccentrically-located bottom opening, an offstanding chamber and an upwardly-extending neck directly over said opening, the tapping mechanism working in said neck and carrying the threaded tap, an independent swinging ring-crane mounted in said offstanding chamber and adapted to work independently of the tapping mechanism below and away from said neck, and a cock-mandrel removably engaging and carried by said crane, said mandrel accommodating the cock and receiving the threaded tap, substantially as set forth.

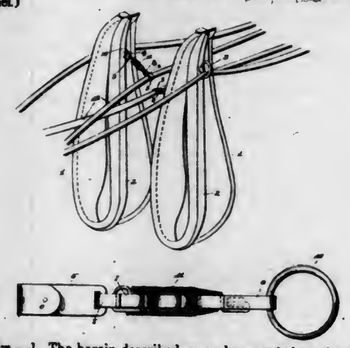
3. In a machine for tapping mains, the combination, with the casing and the tapping mechanism carrying a threaded tap, of an oscillating stem or shaft secured within said casing and rotated entirely independent of the tapping mechanism, a threaded ring-crane connected with and swung within the casing by said shaft, and an interiorly and exteriorly threaded cock-mandrel removably engaging and carried by said crane, said mandrel accommodating the cock and receiving the threaded tap, substantially as set forth.

4. In a machine for tapping mains, a casing having a semicircular enlargement upon one side thereof, an oscillating shaft supported and journaled within said enlargement, a hinged handle or lever secured to the upper and outer end of said shaft, an interiorly-threaded ring-crane having an enlarged perforated lug adapted to engage said shaft within said enlargement, and an externally and interiorly threaded cock-carrying mandrel removably engaging said ring-crane and itself engaged by the tapping mechanism which removes the same from the crane and screws the cock into the main, substantially as set forth.

5. In a machine for tapping mains, a casing having an eccentrically-located bottom opening and an upwardly-extending neck directly over said opening, a clamp secured upon said neck and having opposite ribs and engaging-lugs, clevises pivoted to said ribs, chain harps adjustably connected with said pivoted clevises, a feeder-yoke having an upper curved threaded end adapted to receive the feeder-screw and an enlarged opening at its lower end adapted to removably engage said engaging-lugs, and a swinging threaded cock-carrying ring-crane located within said casing and adapted to work horizontally therein and be relieved of the cock by the tapping mechanism, substantially as set forth.

6. In a machine for tapping mains, the combination, with a casing and the tapping and drilling mechanism working therein, of the screw-threaded clevises pivotally secured to opposite sides of said casing, harp-shaped chain clamps having threaded perforations, and right-and-left screw-threaded adjusting-bolts adjustably engaging the threaded perforations of said clevises and harps, substantially as set forth.

478,712. SPREADER FOR REINS. JAMES H. PEW and FREDERICK S. PEW, Andover, S. D. Filed Jan. 2, 1892. Serial No. 416,851. (No model.)



Claim.—1. The herein-described spreader, consisting of a limiting-strap, a coiled spring connected at its ends with the strap, a rein-receiving clip at the outer end of the strap, and means for connecting the inner end of the strap to the hame or other suitable portion of the harness, substantially as specified.

2. The herein-described spreader, consisting of a coiled spring, a flexible strap longer than the spring located therein and terminating at its opposite ends in loops to which the terminals of the spring are connected, a ring loosely connected to the inner loop, and a metal clip perforated to engage with the outer loop and adapted for connection with the inner branch of the rein, substantially as specified.

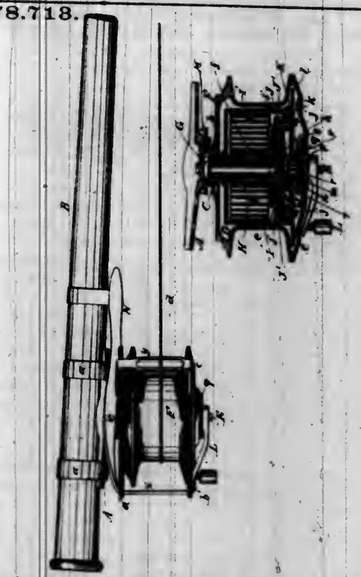
478,713. FISHING-REEL. ELBERT B. PORTER, Penn Yan, N. Y. Filed Aug. 22, 1888. Serial No. 283,432. (No model.)

Claim.—1. In a reel of the character described, a device for disconnecting the winding and driving mechanism, consisting of the following elements, in combination: a reel-head provided with projections on its inner face, a sleeve journaled loosely on the winding-arbor and provided with the cam *r*, a disk carried by the reel-driving pinion and provided with a cam *p* and with radial arms or projections adapted to engage with the projections on the reel-head, a spring arranged to normally hold said arms in engagement with said projections, and a detent secured to the winding mechanism for engaging with and locking the driving-pinion when the projections on the disk are carried out of engagement with the projections on the reel-head, substantially as shown and described.

2. In a fishing-reel, the combination of the reel-driving pinion, a reel-head having a notched ring secured to its inner face, a disk carried by said pinion and provided with radial arms and inclined teeth, a sleeve having a notched end adapted to engage the inclined teeth of said disk, a spring arranged to press said disk outwardly so as to normally hold said radial arms in engagement with the notches in the ring on the inner face of the reel-head, and a rack carried by the driving mechanism of the reel and adapted to engage with and lock said pinion when the driving mechanism is disconnected from the reel-head, substantially as shown and described.

3. In a fishing-reel, the combination of the reel F, the stud C, the drum D, the spring-actuated sleeve H, mounted on the stud, the disk *s*, carried by said sleeve, the rack *t*, carried by the disk *s*, the spring *v*, the spur wheel or pinion *m* within the reel-head and pressed outwardly by said spring, the disk *n*, carried by the spur wheel or pinion *m* and provided with radial arms or notches and with the cam *p*, the notched ring *o*, secured to the inner face of the reel-head, and the sleeve *q*, extending above the reel-head and provided with the cam *r*, substantially as described.

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4. In a fishing-reel, the combination, with the reel F, the stud C, the drum D, the spring-actuated sleeve H, mounted on the stud, an internally-toothed ring secured to the drum, pinions meshing with said ring and spur-wheels carried by said pinions, of disk *s*, carried by said sleeve and provided with the rack *t*, the shaft E, journaled in the end of the stud and projecting through the reel-head, the pinion *m*, loosely mounted on the shaft, the disk *n*, carried by said pinion and provided with radial projections or notches and with the cam *p*, the spring *v* between the disk *s* and pinion *m*, the sleeve *q*, journaled loosely on the shaft E, extending above the reel-head and provided with cam *r*, substantially as shown and described.

5. In a fishing-reel, the combination of the reel F, the stud C, the drum D, the spring-actuated flanged sleeve H, mounted on the stud, said sleeve being provided with the disk *s*, the rack *t*, carried by the disk *s*, said disk being mounted on the flange J of the sleeve by means of the studs *u*, inserted in said flange, the four-armed spring *v*, the spur-wheel *m* within the reel-head and pressed outward by said spring, the notched disk *n*, carried by the spur-wheel and provided with the cam *p*, the notched ring *o*, secured to the inner face of the reel-head, and the notched disk *q* outside of the reel-head and provided with the cam *r*, substantially as described.

6. In a fishing-reel, the combination, with the reel F, the stud C, the drum D, the spring-actuated sleeve H, mounted on the stud, an internally-toothed ring secured to the drum, pinions meshing with the internally-toothed ring, and spur-wheels carried by said pinions, of disk *s*, carried by the said sleeve and provided with the rack *t*, the shaft E, journaled in the end of the stud and projecting through the reel-head, the spur-wheel *m*, loosely mounted on the shaft, the notched disk *n*, carried by the spur-wheel and provided with the cam *p*, the four-armed spring *v* between the disk *s* and the wheel *m*, the notched ring *o*, secured to the inner face of the reel-head, and the notched disk *q* on the shaft E outside of the reel-head and provided with the cam *r*, substantially as herein shown and described.

7. In a fishing-reel, the combination of a swinging lever N, mounted eccentrically with the center of the reel and having one end extended beyond the reel-body, a brake secured to said lever and adapted to be swung into and out of engagement with the reel-body by the movement of said lever on its axis, and a spring secured to said lever and adapted to normally hold the brake in contact with the reel-body, whereby the brake may be released from engagement with the reel-body by pressure on the extended end of the lever, substantially as shown and described.

8. The combination, with the reel F and stud C, of the eccentric G, secured to the upper part of the reel seat or plate and forming a portion of the same, the ring M, placed on the eccentric G, the ring or washer to hold the eccentric in place, and the brake-lever N, provided with the arms *x y*, substantially as specified.

9. The combination, with the reel F and stud C, of the eccentric G, secured to the reel-plate and encircling the stud C, the ring M, placed on the eccentric G, the brake-lever N, provided with arms *x y*, and the guard-ring *a'* and curved wire *b'*, substantially as specified.

10. In a fishing-reel, the combination of the curved plate A, the stud C, the eccentric G, the ring M, the brake-lever N, the flanged sleeve H, carrying the toothed driving and friction rings J' K, the spring I, the friction-spring I', pressing against the inner side of a fixed spring-barrel, the pinions *k*, the spur-wheel *l*, spur-wheel *m*, and the shifting mechanism for moving the spur wheel *m*, and the disk *s*, with curved rack *t* attached thereto for locking spur-wheel *m*, substantially as specified.

478,714. VENDING APPARATUS. JOHN H. REFORD, Philadelphia, Pa. Filed Sept. 7, 1891. Serial No. 404,960. (No model.)



Claim.—1. In a vending apparatus, the combination of the supply-receptacle, the delivery-slide, the locking-bolt therefor, the vertically-sliding bolt-carrier, the casing having a coin-slot, said bolt-carrier being adapted to engage with the coin, and a pivoted operating-lever for forcing the coin past the bolt-carrier and at the same time moving said bolt-carrier and effecting the release of the delivery-slide, substantially as specified.

2. In a vending apparatus, the combination of the supply-receptacle, the delivery-slide, the locking-bolt therefor, the vertically-sliding bolt-carrier, the casing having a coin-slot, spring retaining-arms carried by the bolt-carrier and projecting into the path of the coin, and a pivoted lever L, adapted to be brought into contact with and force the bolt-carrier downward, substantially as specified.

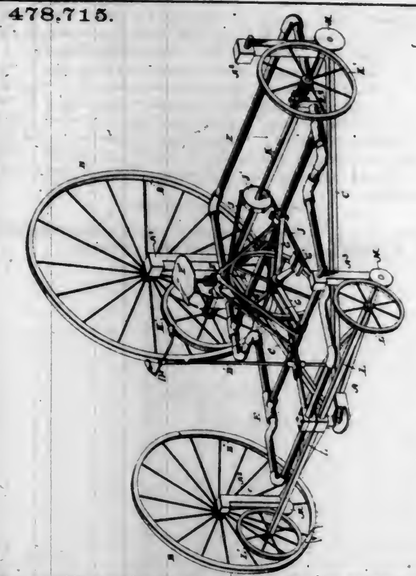
3. In a vending apparatus, the combination of the supply-receptacle, the delivery-slide, the locking-bolt therefor, the vertically-sliding bolt-carrier, the casing having a coin-slot, said bolt-carrier being adapted to engage with the coin, and a pivoted lever for forcing the coin past the bolt-carrier, said lever being adapted to block the coin-slot and prevent the entrance of an additional coin to the bolt-operating mechanism during the operation of the apparatus, substantially as specified.

478,715. ROAD-VEHICLE. ELMER V. SAWTER, Easton, Pa. Filed Mar. 16, 1892. Serial No. 425,142. (No model.)

Claim.—1. In a road-vehicle, the combination of road-wheels having track-flanges on the inner peripheries thereof, grooved friction-wheels engaging said track-flanges, mechanism for operating said friction-wheels, and idlers engaging said friction-wheels to sustain them in position, all of which is supported on a suitable frame, substantially as described.

2. In a road-vehicle, the combination of a frame, road-wheels journaled on uprights rising from said frame, having track-flanges on the inner peripheries thereof, grooved friction-wheels engaging said track-flanges in advance of the central vertical plane of said road-wheels,

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idlers rotatably secured to the lower portions of the aforesaid uprights and engaging the lower rear portions of the said friction-wheels, and crank-driven sprocket-wheels and a chain belt for operating the rearmost of said sprocket-wheels and said friction-wheels, substantially as described.

3. In a road-vehicle, the combination of a frame, road-wheels journaled thereon having track-flanges on their inner peripheries and spokes connected to their outer faces, grooved frictional wheels engaging said track-flanges in advance of the central vertical planes of said road-wheels, and idlers engaging said frictional wheels below the central horizontal planes thereof, substantially as described.

4. In a road-vehicle, the combination of the frame comprising upper and lower parts, road-wheels supported by the lower part of said frame and having track-flanges on the inner peripheries thereof, and friction-wheels carried by the upper part of said frame and engaging the track-flanges of said road-wheels, substantially as described.

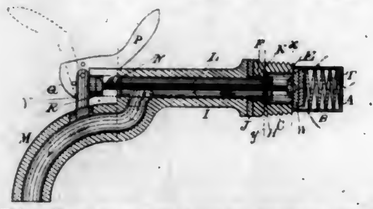
5. In a road-vehicle, the combination of a frame comprising upper and lower parts, road-wheels supported by the lower part of said frame and having track-flanges on the inner peripheries thereof, frictional wheels carried by the upper part of said frame engaging said track-flanges, and idlers carried by the lower part of said frame and bearing against said frictional wheels, said parts being operated substantially as described.

6. In a road-vehicle, the combination of the frame comprising upper and lower parts, road-wheels journaled to the lower part of said frame and having track-flanges on the inner peripheries thereof, frictional wheels carried by the upper part of said frame, the forward pair of said frictional wheels being pivotally attached, idlers connected to the lower part of said frame and engaging said frictional wheels to hold them in position, and a chain-and-sprocket mechanism for operating the rear pair of said frictional wheels, substantially as described.

7. In a road-vehicle, the combination of the frame comprising an upper and a lower part, uprights or standards connected to the lower part of said frame, road-wheels journed to said uprights or standards and having flanges on their inner peripheries, frictional wheels carried by the upper part of said frame and engaging said flanges of said road-wheels, idlers carried by the lower part of said frame and engaging said frictional wheels, an upright bar or rod having sprocket-wheel and chain connection with the front pair of road-wheels, and a handle-bar for turning said road-wheels, a seat or saddle in rear of said handle-bar, a chain-wheel under said seat or saddle having driving-pedals, and a chain-wheel on the shaft of the rear pair of frictional wheels, connected with the aforesaid chain-wheel having the pedals, whereby the vehicle may be driven or propelled, substantially as described.

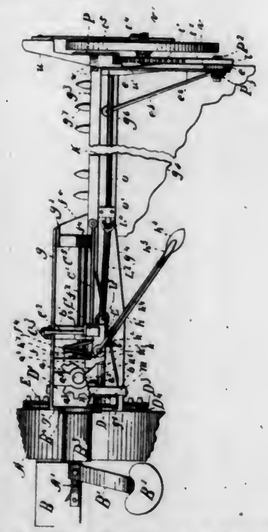
8. The combination of a suitable frame, wheels supported thereon having inner peripheral track-flanges or projections, and grooved wheels engaging said track-flanges or projections of the said wheels, the said wheels being also arranged in connected pairs and the rear-most pair thereof being driven by a suitable chain-belt and sprocket-wheel mechanism, substantially as described.

478,716. FAUCET AND CONNECTION. SIMON SCHLANGEN, Chicago, Ill. Filed Dec. 14, 1891. Serial No. 415,027. (No model.)



Claim.—In an improvement in two-part detachable faucets, the straight hollow portion I, with the curved discharge portion and neck portion as a part thereof, in combination with a fixed portion, a valve therein, a cylinder attached to the inner end of the fixed portion, and a spring therein operating against the valve, a notched internal flange on the fixed portion, and pins on said neck portion connecting the parts, a plunger-rod extending through the straight portion, with a bearing within the fixed portion and in a head at the outer end of said straight portion, and a cam-lever exterior to the faucet, operating against the said plunger-rod, as and for the purpose specified.

478,717. RAISING AND LOWERING MECHANISM FOR HARVESTERS. GEORGE SCHUBERT, Walnut, Tex. Filed Apr. 11, 1891. Serial No. 388,613. (No model.)



Claim.—1. In a raising and lowering device for binders and harvesters, the combination of a pinion *i* on the shaft *n* in position to be engaged or disengaged with the cogs *f*, in connection with a pinion *m* on the shaft *n*, a rack *d*, and a shaft O, connected to shaft *n* by a shaft L^3 and universal joints L^3 and L^4, the shaft O provided with a pinion o^3, in connection with a segment *t*, as shown, and for the purpose described.

2. In a raising and lowering device for harvesters, the combination of a shaft *n*, provided with a key-seat n^3, a pinion *i*, provided with a key to engage said key-seat n^3 and in position to engage or disengage with the cogs *f*, a rod *h*, provided with a lever *h'* at its upper end and a bell crank *j'* at its lower end, provided with the studs j^3 and j^3, as shown, and for the purpose described, in connection with a dog J^3, as shown, a pinion *m* on the shaft *n*, a rack *d*, and a shaft O, connected to shaft *n* by the shaft L^3 and universal joints L^3 and L^4, the shaft O provided with a pinion o^3 in connection with a segment *t*, as shown, and for the purpose described.

3. In a raising and lowering device for harvesters, a bracket C^3, secured to the post C and provided with a forward projection C^3 to receive the dog J^3, with its horizontal arms J^4 J^4 projecting forward, with its other arms J' and J^3 projecting downward and connected by the bar J^3, for the purpose described, in connection with a pinion *i* on the shaft *n*, a pinion *m* on the shaft *n*, a rack *d*, a shaft O, connected

to the shaft *n* by a shaft L^3 and universal joints L^3 and L^4, a pinion o^3 on said shaft O, and a segment *t*, as shown and described.

4. In a raising and lowering device for harvesters, a bracket C^3, secured to the post C, and a locking-dog J^3, pivoted to said bracket, a rod A^7, secured to the free end of the arms J^4 J^4 and connected to the arm A^3 of the bell-crank, in connection with a rod A, provided with a lever *h'*, and a bell-crank *j'*, provided with the stud j^3, in connection with a pinion *i* on a shaft *n*, a pinion *m* on the shaft *n*, a rack *d*, a shaft O, connected to the shaft *n* by a shaft L^3 and universal joints L^3 and L^4, a pinion o^3 on said shaft O, and a segment *t*, as shown and described.

5. In a raising and lowering device for harvesters, the combination of a finger-bar K, having its vertical web projecting beyond the horizontal flanges and turned forward at P', and a bracket *w*, secured to the horizontal flange g^4, and a plate P, secured to said forward projection P' and the bracket *w* and projecting toward the rear and providing a support for the outer end of shaft O and a guide for the outer side of the segment *t*, as shown.

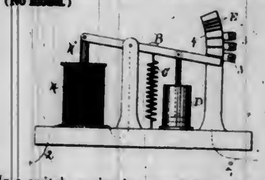
6. In a raising and lowering device for harvesters, the combination of a finger-bar K, provided with a bracket *w*, a plate P, secured to the bracket *w*, and projecting rearward and providing a support for the outer end of shaft O and formiug a guide for the outer side of the segment *t*, a grain-board *u*, secured to said bracket *w*, and the plate P, with its inner edge *u'* projecting rearward and projecting past the edge of the segment *t*, as shown, and for the purpose described.

7. In a raising and lowering device for harvesters, the combination of a bar *c*, secured to the flange g^4 of the finger-bar K and extending to the rear and secured by the braces c^3 and c^3, and a segment *t*, pivoted to the rear end of the bar *c* and projecting forward, in connection with a plate P, secured to the bracket *w* and projecting rearward and past the outer edge of said segment *t*, with the grain-board *u*, provided with a rearward-projecting flange *u'*, projecting past the inner edge of said segment *t*, as and for the purpose described.

8. In a raising and lowering device for harvesters, the combination of the bar g^4, extending to the vertical plate D and turned forward at g^6, and the bar g_1 extending from the shoe f^3 to the plate D and turned rearward at g', and a cross-bar *b* on the bars *g* and g^4 near the upright plate D, for the purpose described.

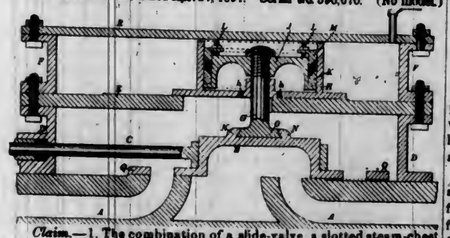
9. In a raising and lowering device for harvesters, the combination of a vertical plate D, secured to the axle A of the master-wheel and provided with a rack *d* and a bar D^3, the upper end of said plate D being turned grainward, forming the projection D', a post C, secured in an upright position, as shown, and a bracket a^3, secured to the projection D' and forming a guide on the post C, as shown, and for the purpose described.

478,718. ARC-EXTINGUISHER FOR ELECTRIC SWITCHES. SIDNEY H. SHORT, Cleveland, Ohio. Filed Mar. 10, 1891. Serial No. 384,446. (No model.)



Claim.—In a switch or circuit controller, the combination, with a switch lever and a series of contacts and resistances, of an arc-extinguisher consisting of a series of supplemental contacts, each being a good conductor of heat and electricity and arranged in the path of the switch-lever, substantially as set forth.

478,719. BALANCED SLIDE-VALVE. EDWIN R. SHEPHERD, Rochester, N. Y. Filed Apr. 27, 1891. Serial No. 390,670. (No model.)



Claim.—1. The combination of a slide-valve, a slotted steam-chest cover, a vertical cylinder sliding on said cover, a piston movable in said cylinder, and a stud passing through the slotted cover and connecting said piston to said slide-valve.

2. The combination of a slide-valve, a slotted steam-chest cover, a vertical cylinder sliding on said cover, a piston movable in said cylinder, a stud passing through the slotted cover and connecting said piston to said slide-valve, and the outer casing connected with a condenser or with other means of producing a diminished pressure.

3. The combination of a steam-chest, a slide-valve, a slotted steam-chest cover, a vertical-headed cylinder sliding on said cover, having perforations for admission of steam thereinto from the steam-chest and having a perforation through the head, a piston movable in said cylinder, and a stud passing through the slotted cover and through the perforation in the head and connecting said piston to said cylinder.

4. The combination of a steam-chest, a slide-valve, a slotted steam-chest cover, a vertical-headed cylinder sliding on said cover, having perforations for admission thereinto of steam from the steam-chest and having a perforation through the head, a piston movable in said cylinder, a stud passing through the slotted cover and through the perforation in the head and connecting said piston to said cylinder, and an outer casing connected with a condenser or with other means of producing a diminished pressure.

5. The combination of a slide-valve and a balancing device adapted to lift the slide-valve connected thereto by a stud removably dovetailed into the top of the slide-valve, arranged and operating as shown and described.

6. In a sliding balancing device for slide-valves, a series of longitudinal grooves in the face of the seat of said device from which the motive gas or vapor is excluded.

7. In a sliding balancing device for slide-valves, pairs of longitudinal grooves in the face of the seat of said device from which the motive gas or vapor is excluded.

8. In a sliding balancing device for slide-valves, pairs of longitudinal grooves in the face of the seat of said device from which the motive gas or vapor is excluded, each groove being longer than the balancing device.

9. In a sliding balancing device for slide-valves, a series of pairs of longitudinal grooves of increasing length in the face of the seat of said device from which the motive gas or vapor is excluded, each groove being longer than the balancing device.

10. In a balanced slide-valve having a balancing device sliding upon the top of the steam-chest cover, a series of longitudinal grooves in the face of the steam-chest cover, each groove being longer than the balancing device and of such length that when the grooves are uncovered at one end the balancing device covers them at the other end, and means for excluding the motive gas or vapor from said grooves.

11. The combination of a slide-valve, a slotted steam-chest cover, a vertical cylinder sliding on said cover, a piston movable in said cylinder, a stud passing through the slotted cover and connecting said piston to said slide-valve, and an extension on each end of said slide-valve, having a port therethrough, substantially as shown and described.

12. The combination of a slide-valve, a slotted steam-chest cover, a vertical cylinder sliding on said cover, a piston movable in said cylinder, a stud passing through the slotted cover and connecting said piston to said slide-valve, and an extension on each end of said slide-valve, having a port therethrough, together with a seat for said slide-valve smaller than the face thereof, substantially as shown and described.

478,720. DEVICE FOR COOLING MILK, MEAT, VEGETABLES, &c. JOHN W. SMART and THOMAS C. CHEATHAM, Burnet, Tex. Filed Apr. 27, 1892. Serial No. 430,839. (No model.)



Claim.—1. A cooling device comprising a plate or base provided upon its under side with air-inlet grooves and upon its upper surface with a receptacle for the reception of a cooling medium and an outlet-flue projecting upwardly from said plate or base, substantially as and for the purpose set forth.

2. In a cooling device of the class described, the combination, with a plate or base provided with air-inlet openings and with a receptacle for the reception of a cooling medium, of an outlet-flue and a cap therefor and adjustable thereon, substantially as and for the purpose set forth.

3. A cooling device of the class described, comprising a plate or base provided with grooves or corrugations upon its under side for the passage of air, an annular flange projecting upwardly from said

plate or base and forming a receptacle, an outlet-flue projecting upwardly from the center of said receptacle and opening through the plate or base, and a cap for said flue consisting of the cap proper, arms depending therefrom, and a ring connecting the lower ends of said arms and encircling the flue, substantially as and for the purpose set forth.

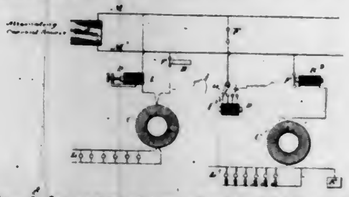
4. The combination, with a vessel, of a cooling device consisting of a plate or base forming the cover for said vessel and provided with air-inlet openings, a receptacle upon the top of the plate or base and provided with inwardly-projecting pins, an outlet-flue, and a cloth adapted to inclose the vessel and receptacle and be secured at its edges to said pins, substantially as and for the purpose set forth.

478,721. PEANUT-HEATER. EDWARD TAUHAY, New York, N. Y. Filed Apr. 1, 1892. Serial No. 427,322. (No model.)



Claim.—In a peanut-heater, the combination, with a heating-compartment, of a petroleum heating-stove in said compartment, a water bath supported on said compartment, a peanut-roasting vessel in said water bath, the bottom of the heating-compartment being provided with an opening for supporting the fount of the heating-stove and with air-supply openings alongside of said fount, and an upwardly-extending flue attached at the upper end of one of the side walls of the heating-compartment and extending alongside of the water bath, substantially as set forth.

478,722. DISTRIBUTION OF ELECTRIC CURRENTS. ELIHU THOMSON, Swampscott, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Original application filed Dec. 6, 1886. Serial No. 220,850. Divided and this application filed July 26, 1890. Serial No. 360,012. (No model.)



Claim.—1. In a system of electric distribution wherein the translating devices are fed from main distributing-circuits through transformers or converting appliances, the combination, with such transformers, of automatic cut-out apparatus in the branches leading from the distributing-mains to said converters.

2. The combination of a main or principal circuit, a local or independent circuit, an induction apparatus between the two, and fusible plug in the connection from the main to the induction apparatus, as and for the purpose described.

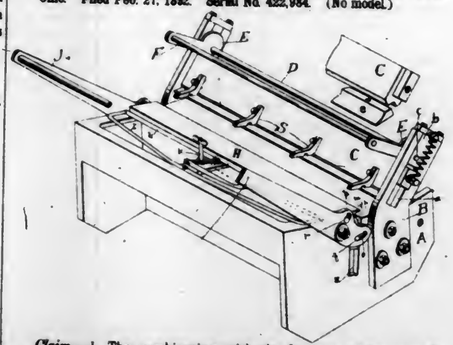
3. The combination, substantially as described, of a main or principal circuit, two or more local independent circuits, induction apparatus between said local circuits and the main circuit and supplied in multiple arc from the latter, and fusible plugs in the multiple arc connections, as and for the purpose described.

4. The combination of a main or principal circuit carrying rapidly varying electric currents, induction apparatus fed in multiple arc from the same, local circuits fed by the induced currents set up by such induction apparatus, and fusible plugs in the connections from the main, as and for the purpose described.

5. The combination of a main or principal circuit supplied with current from a suitable source, local independent circuits containing incandescent lamps or other translating devices and supplied with current produced through the operation of the current flowing in the main or principal circuit independently of the local circuit, and fusible plugs in the main-circuit connections, as and for the purpose described.

6. In an alternating-current system as described, a safety wire or strip to cut off a primary branch when a great excess of current flows and a reactive coil or section of primary conductor whose parts are adjustable, as described, to compensate for moderate increase of potential between the two feeding-mains.

478,723. DOUBLE-SEAM FOLDER. HOMER L. TOTTEN, Canton, Ohio. Filed Feb. 27, 1892. Serial No. 422,984. (No model.)



Claim.—1. The combination, with the frame A, of the arms B, sheet-holder C, eccentrics E to force said holder down on the sheet *d*, the gage and folder G, having offset shoulders *h* and *j*, crimper H, and an actuating-lever J, by which the gage and crimper are alternately moved to bend and fold the edge of the sheet *d*, substantially as shown and described, and for the purpose set forth.

2. The combination of the main frame and the supporting-arms B secured thereto, a clamping-bar C, having a sliding engagement with said arms and provided at its lower edge with a toe *e*, the eccentric E for depressing the clamping-bar C, a folding-gage G, having a movement at an angle to that of the clamping-bar C, a crimper, a lever for advancing the same, a spring, tapering slides located between the edge of the crimper and the spring, and a key for reciprocating said slides.

3. In a double-seam folder, the combination, with a main frame, of a holder, a folder, a crimper, and mechanism for arresting the movement of the crimper, comprising a loop-spring, tapering slides located between the ends thereof and the edge of the slide, and means for reciprocating said slides.

478,724. BICYCLE. JOHN H. TUTTLE and FRANK D. CABLE, Toledo, Ohio. Filed Nov. 9, 1891. Serial No. 411,353. (No model.)



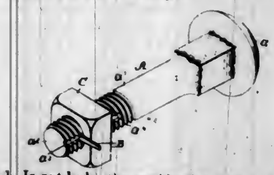
Claim.—1. In a bicycle, the forward fork and head thereof, connected by a hinged yoke and by springs having two terminal arms, one of which is attached pivotally and the other rigidly, substantially as shown and described, for the purpose specified.

2. In a bicycle, the head and forward fork thereof, in combination with a hinged yoke joining said head and fork, and springs having straight parallel terminal arms adjustably connected with said head and fork, substantially as shown and described, for the purpose specified.

3. In a bicycle, the head and forward fork thereof, in combination with springs rigidly connected to said fork and pivotally connected to said head and adjustably connected with both said head and said fork, substantially as and for the purpose specified.

4. In a bicycle, the head and forward fork thereof, in combination with a hinged yoke uniting said head and fork, springs connecting said head and fork, and a set-screw interposed between said head and fork, limiting the vertical play of said head, substantially as and for the purpose specified.

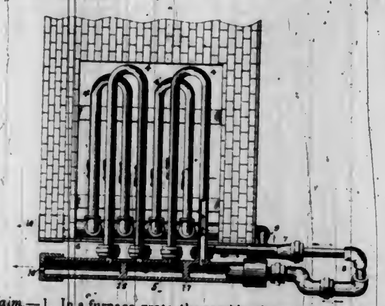
478,725. NUT-LOCK. LEWIS F. WARREY, Kansas City, Mo., assignor of one-half to James W. Fairman, same place. Filed Apr. 5, 1890. Serial No. 346,742. (No model.)



Claim.—1. In nut-locks, the combination, with a bolt having a suitable head and nut and a shank provided with a longitudinal recess and having the sides of said recess deflected at an angle to each other in the direction of the inner end of said recess and the bolt-head, of a tongue or key fitted within said recess, having its sides deflected at an angle to each other in the direction of the inner end of said recess and of the said bolt-head and adapted to resist compression upon the nut in degrees, substantially as described.

2. In nut locks, a bolt having a suitable head and a shank provided with a threaded end portion and a longitudinal recess, and the sides of said recess deflected at an angle to each other in the direction of the inner end of said recess and the head of the bolt, a nut on said shank, and a separable tongue having its sides deflected at an angle to each other in the direction of the inner end of said recess in said shank and also having a flexible outer end, substantially as and for the purpose described.

478,726. COMBINED GRATE-BAR AND FEED-WATER HEATER. HENRY D. WENDT, Hoboken, N. J. Filed Mar. 30, 1891. Serial No. 386,936. (No model.)



Claim.—1. In a furnace-grate, the combination of a series of tubular grate-bars, water inlet and outlet pipes connected to said bars by a yielding connection, and means for shifting said grate-bars back and forth, substantially as set forth.

2. In a furnace-grate, the combination of a series of tubular grate-bars, water inlet and outlet pipes connected to said series of bars by a yielding connection, cross-bars supporting said tubular grate-bars, and means for shifting said grate bars back and forth upon said cross-bars, substantially as set forth.

3. In a furnace-grate, the combination of a series of tubular grate-bars, a cross-head or connecting tube connecting said grate-bars, water inlet and outlet pipes connected to said cross-head by a yielding connection, cross-bars supporting said grate-bars, and means for shifting said grate-bars back and forth upon said cross-bars, substantially as set forth.

4. In a furnace-grate, the combination of a series of tubular grate-bars, a cross-head or connecting-tube connecting said grate-bars, water inlet and outlet pipes connected to said cross-head, chambers arranged in said cross-head, whereby the water is caused to flow through said grate-bars successively, said inlet and outlet pipes being connected to said cross-head by a yielding connection, cross-bars supporting said grate-bars, and means for shifting said grate-bars back and forth upon said cross-bars, substantially as set forth.

5. In a furnace-grate, the combination of a series of tubular grate-bars arranged in two or more sections, a cross-head or connecting-tube connecting the bars of each section, water inlet and outlet pipes connected to said cross-heads by yielding connections, cross-bars supporting said grate-bars, and means for shifting said grate bars back and forth upon said cross-bars, substantially as set forth.

6. In a furnace-grate, the combination of a series of tubular grate-bars supported upon cross bars and arranged in one or more stationary sections and one or more movable sections, a cross head or connecting-tube connecting the bars of each section, water inlet and outlet pipes connected to the cross-heads of the stationary sections, water inlet and outlet pipes connected to the cross-heads of the movable sections by a yielding connection, and means for shifting said movable sections back and forth upon said cross-bars, substantially as set forth.

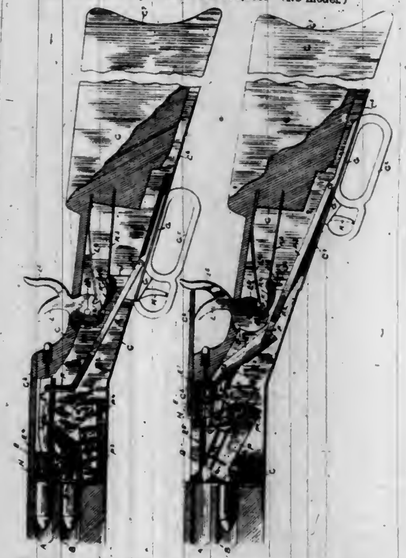
7. In a furnace grate, the combination of a series of tubular grate-bars supported upon cross-bars and arranged in one or more stationary sections and one or more movable sections, a cross-head or connecting-tube connecting the bars of each section, water inlet and outlet pipes connected to the cross-heads of the stationary sections, water inlet and outlet pipes connected to the cross-heads of the movable sections by a yielding connection, chambers arranged in said cross-heads, whereby the water is caused to flow through said grate-bars successively, and means for shifting said movable sections back and forth upon said cross-bars, substantially as set forth.

8. In a furnace-grate, the combination of the double tubes 4 and 4', constituting the grate-bars, cross-heads 5 and 6, connecting together the tubes 4 and 4', respectively, water-supply pipe 7, a yielding connection from said pipe 7 to the cross-head 5, a rigid connection from said pipe 7 to the cross-head 6, cross-bars 3, supporting the grate-bars, and means for shifting the grate-bars back and forth upon said cross-bars, substantially as set forth.

9. In a furnace grate, the combination of the double tubes 4 and 4', constituting the grate-bars, cross-heads 5 and 6, connecting together the tubes 4 and 4', respectively, chambers arranged in said cross-heads, water-supply pipe 7, a yielding connection from said pipe 7 to the cross-head 5, a rigid connection from said pipe 7 to the cross-head 6, cross-bars 3, supporting the grate-bars, and means for shifting the grate-bars back and forth upon said cross-bars, substantially as set forth.

10. The combination, with a steam-boiler, of a furnace-grate composed of the double tubes 4 and 4', cross-heads 5 and 6, having chambers formed therein, water-supply pipe 7, a swivel-jointed section 8, connecting the said pipe 7 with the cross-head 5, a rigid connection 9, connecting said pipe 7 with the cross-head 6, outlets 10 and 10', connecting said tubes 4 and 4' with the condenser or feed-water supply, and the lever 14, pivoted on the arm 13 and connected with the cross-head 5, whereby the tubes 4 are shifted back and forth upon the cross-bars 3, substantially as and for the purpose set forth.

478,727. BREECH-LOADING FIREARM. DERRICK S. WEST, Boston, Mass., assignor, by direct and mesne assignments, of three-fourths to John W. Drew, same place, and Charles H. Fish, Manchester, N. H. Filed June 20, 1891. Serial No. 396,965. (No model.)



Claim.—1. In a breech-loading firearm having a receiver in upper and lower communicating portions, and the upper in direct rearward extension from the breech of the barrel and terminating at a fixed wall of the receiver and the lower below and extending rearward of said upper portion, the combination of a breech-block located in and of the same length as said upper portion of said receiver and divided transversely into sections hinged and adapted to be butted end to end and placed at an angle to each other and butted to fill and at

an angle to open said upper portion of the receiver and in both positions to lie wholly within the receiver, and means connected to said breech-block and arranged and contained within and adapted to be operated at the outside of the receiver and to move said breech-block into and out of its said positions, substantially as described, for the purposes specified.

2. In a breech-loading firearm having a receiver in upper and lower communicating portions, and the upper in direct rearward extension from the breech of the barrel and terminating at a fixed wall of the receiver and the lower below and extending rearward of said upper portion, the combination of a breech-block located in and of the same length as said upper portion of said receiver and divided transversely into sections hinged and adapted to be butted end to end and to be placed at an angle to each other and butted to fill and at an angle to open said upper portion of the receiver and in both positions to lie wholly within the receiver, means connected to said breech-block and arranged and contained within and adapted to be operated at the outside of the receiver and to move said breech-block into and out of its said positions, and a slide located and adapted to be moved forward and backward on the outer and under sides of the receiver and connected to said operating means for the breech-block, substantially as described, for the purposes specified.

3. In a breech loading firearm, a breech-block located in its receiver and adapted to open and close the breech of the barrel, means adapted to operate, as stated, said breech-block, and a magazine-barrel under and lengthwise of the gun-barrel and adapted at its open breech to discharge cartridges from it into the receiver one after another, the combination of a cartridge-carrier below and in line with the breech-block and at its rear end fulcrumed on the receiver to be swung to place it either in line with or across the magazine-barrel, a vertical abutment-face at the rear end portion and above the fulcrum of said cartridge-carrier, and a dependent lug held on and moving with the said breech-block and adapted, normally, to stand across the breech of the magazine-barrel and on the backward movement of the breech-block to contact with said abutment-face of and thereby to swing the cartridge-carrier upward, substantially as described, for the purposes specified.

4. In a breech-loading firearm, a breech-block located in its receiver and adapted to open and close the breech of the barrel, means adapted to operate said breech-block, as stated, and a magazine-barrel under and lengthwise of the gun-barrel and adapted at its open breech to discharge cartridges from it into the receiver one after another, the combination of a cartridge-carrier below and in line with the breech-block and at its rear end fulcrumed on the receiver to be swung to place it either in line with or across the magazine-barrel, a vertical abutment-face at the rear end portion and above the fulcrum of said cartridge-carrier, a dependent lug held on and moving with the said breech-block and adapted, normally, to stand across the breech of the magazine-barrel and on the backward movement of the breech-block to contact with said abutment-face of and thereby to swing the cartridge-carrier upward, and a cartridge-ejector held and adapted for a limited swing in a vertical plane on said lug and adapted at its forward edge to contact with rim of cartridge shell and at its rearward edge to contact with said abutment-face of the cartridge-carrier, substantially as described, for the purposes specified.

5. In a breech-loading firearm having a receiver in upper and lower communicating portions, and the upper in direct rearward extension from the breech of the barrel and terminating at a fixed wall of the receiver and the lower below and extending rearward of said upper portion, the combination of a breech block located in and of the same length as said upper portion of said receiver and divided transversely into sections hinged and adapted to be butted end to end and placed at an angle to each other and butted to fill and at an angle to open said upper portion of the receiver and in both positions to lie wholly within the receiver, means consisting of links jointed end to end and one to said breech-block, a slide located and adapted to be moved forward and backward on the outer and under sides of the receiver and having one of said links jointed to it, and means held on said receiver and said links and adapted, relatively, to serve as guides to the movement of said links by the movement of said slide, substantially as described, for the purposes specified.

6. In a breech-loading firearm having a receiver in upper and lower communicating portions, and the upper in direct rearward extension from the breech of the barrel and terminating at a fixed wall of the receiver and the lower below and extending rearward of said upper portion, the combination of a breech-block located in and of the same length as said upper portion of said receiver and divided transversely into sections hinged and adapted to be butted end to end and placed at an angle to each other and butted to fill and at an angle to open said upper portion of the receiver and in both positions to lie wholly within the receiver, means consisting of links jointed end to end and one to said breech-block, a slide located and adapted to be moved forward and backward on the outer and under sides of the receiver and having one of said links jointed to it, and means held on said receiver and said links and adapted, relatively, to serve as guides to the movement of said links by the movement of said slide and as a rest or support for the links connected to the breech-block, substantially as described, for the purposes specified.

7. In a firearm, in combination, a hammer L, a fulcrumed sear K, adapted to hold and release the hammer, a fulcrumed angular trigger H H^3, and a vertical limited sliding arm J, having said sear pivoted on it and adapted to be acted on by the arm H^3 of said trigger, substantially as described, for the purpose specified.

8. In a breech loading firearm, a barrel, a receiver and stock, an abutment in the receiver to the rear of and in line with the barrel, and a breech-block resting, when in closed position, with one end against the abutment in the receiver and the other closing the breech of the barrel, said breech-block being divided transversely into fore and rear sections hinged together, and means for withdrawing both sections of the breech-block rearwardly within the receiver, substantially as described.

9. In a breech-loading firearm, a barrel, a receiver and stock, an abutment in the receiver to the rear of and in line with the barrel, and a breech-block resting, when in closed position, with one end against the abutment in the receiver and the other closing the breech of the barrel, said breech-block being divided transversely into fore and rear sections hinged together, a firing-pin extending through and divided into sections corresponding to the breech-block, a pin through said abutment in the receiver in alignment with said firing-pin, and a hammer pivoted in the rear thereof, substantially as described.

10. In a breech-loading firearm, a barrel, receiver and stock, an abutment in the receiver in line with and to the rear of the barrel, a breech block normally resting with one end closing the breech of the barrel and the other against said abutment, said breech-block being transversely divided into front and rear sections hinged to each other, a sliding handle on the under side of the receiver, and a link connecting said handle to the rear of the breech-block, substantially as described.

11. In a breech-loading firearm, a barrel and stock, a receiver having grooves in its inner faces, extending horizontally from the breech of the barrel to a point near an abutment in the receiver, then vertically downward for a short distance, and again obliquely downward and rearward, a breech-block normally resting with one end closing the breech of the barrel and the other against said abutment, said breech-block being divided into fore and rear sections hinged to each other, pins on each section of the breech-block, resting in the grooves in the receiver, and means for withdrawing the breech-block rearwardly within the receiver, all substantially as shown and described.

12. In a breech-loading firearm, a barrel and stock, a receiver having grooves in its inner faces, extending horizontally from the breech of the barrel to a point near an abutment in the receiver, then vertically downward for a short distance, and again obliquely downward and rearward, a breech-block normally resting with one end closing the breech of the barrel and the other against said abutment, said breech-block being divided into fore and rear sections hinged to each other, pins on each section of the breech block, resting in the grooves in the receiver, a link pivotally connected to the rear section of the breech-block, a rod pivoted to said link by a pin whose protruding ends rest, when the breech is closed, upon a shoulder at the base of the vertical part of the grooves in the receiver, and a sliding handle on the under side of the receiver, pivoted to said rod, all as shown and described.

478,728. MAGAZINE BREECH-LOADING GUN. DERRICK S. WEST, Boston, Mass., assignor, by direct and mesne assignments, of three-fourths to John W. Drew, same place, and Charles H. Fish, Manchester, N. H. Filed Sept. 11, 1891. Serial No. 405,425. (No model.)

Claim.—1. In a breech-loading firearm, in combination, a receiver having a guideway G^4 along its under side and said way having a side notch or notches G^7 G^7, a slide G, held on and adapted to move lengthwise of said way and suitably connected to the breech-block to move said block to open and close the breech of the gun, a chamber D^2 of and within the receiver and lengthwise of the rearward part of said guideway G^4, and a trigger H H^3 and a lever catch S S^3, both independently fulcrumed on the slide, the trigger in advance of the catch and with the slide closed, so as to have the trigger in position to release the hammer and the arm S^2 of said catch by side projections S^3, adapted to engage with and disengage from said notches and to lap over and travel on the receiver at the sides of said way, and also adapted to close said chamber D^2 and said way as the slide is moved forward and backward along said way, substantially as described, for the purposes specified.

2. In a breech-loading firearm, in combination, a breech-block in sections transversely of its length and said sections hinged and butted end to end and adapted placed end to end to close and placed at an angle with each other to open the breech of the gun, a link F, pivoted to the rear section of the breech-block and having an abutment F^2 and otherwise suitably connected to move said breech-block to place its

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sections as aforesaid, a hammer L, held on and adapted to slide in a suitable guideway to be cocked and to discharge the gun, and an abutment L^{13}, held on and moving with said link and the rear section of said breech block relatively adapted to contact in the movement of said breech-block to open the breech of the gun, substantially as described, for the purposes specified.

3. In a breech-loading firearm, in combination, a breech-block in sections transversely of its length and said sections hinged and abutted end to end and adapted placed end to end to close and placed at an angle with each other to open the breech of the gun, means adapted to move said breech-block to place its sections as stated, and a hammer, having its striking end and the rear end of the breech-block struck by it in the discharge of the arm relatively adapted to interlock or engage with each other, substantially as described, for the purpose specified.

4. In a breech-loading firearm, in combination, a breech-block in sections transversely of its length and said sections hinged and butted end to end and adapted placed end to end to close and placed at an angle with each other to open the breech of the gun, means adapted to move said breech-block to place its sections as stated, a firing-pin in sections, one to each section of and with the breech-block butted end to end in line with each other and the forward section having a lengthwise slot M^2, and an angular arm extension E^{11}, held on the section of the breech-block next to and pivoted on the forward breech-block section and entered into said slot of said section of the firing-pin, substantially as described, for the purpose specified.

5. In a breech-loading firearm, in combination, a breech-block in sections transversely of its length and said sections hinged and butted end to end and adapted placed end to end to close and placed at an angle with each other to open the breech of the gun, means adapted to move said breech-block to place its sections as stated, a cartridge-extractor and a cartridge-ejector both held on and moving with the forward section of said breech-block and the latter consisting, essentially, of a vertical plate at its lower end fulcrumed and at its upper end having a notch to contact with the cartridge-rim, and a spring held on the section next to the forward section of the breech-block and adapted to bear on the rear edge of said plate, substantially as described, for the purpose specified.

6. In a magazine breech-loading firearm having a magazine-barrel below the gun-barrel and open at its breech end, in combination, a breech-block adapted to open and close the breech of the gun-barrel, a dependent lug O, held on and moving with said breech-block and at its lower end portion having a side projecting pin or pins O^2, and a cartridge-carrier P, located below and in line with the breech-block and at its rear end fulcrumed to swing vertically and having a longitudinal slot P^2, with downward and rearwardly-inclined and cam edges P^7 P^8 for the travel of said lug O and its abutment on said cams, substantially as described, for the purpose specified.

7. In a breech-loading firearm, a barrel, a stock, and a receiver, an abutment in the receiver to the rear of and in line with the barrel, a breech-block resting when in position with one end against the abutment in the receiver and the other closing the breech of the barrel, said breech-block being divided transversely into front and rear sections hinged to each other, an undercut recess in the rear end of the rear section of the breech-bolt, and a spring-actuated bolt passing through the abutment in the receiver and entering said undercut recess, whereby the breech-bolt is locked in firing position, all substantially as described.

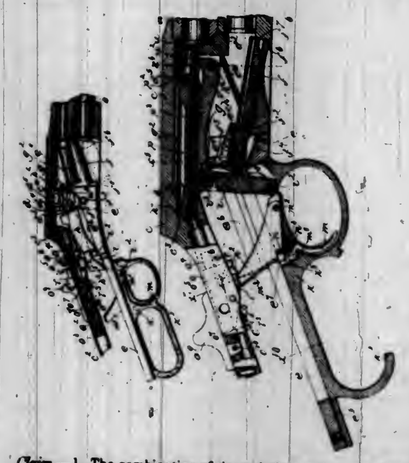
8. In a breech-loading gun, a barrel, a stock, and a receiver, an abutment in the receiver to the rear of and in line with the barrel, a breech-block resting when in closed position with one end against the abutment in the receiver and the other closing the breech of the barrel, said breech-block being divided transversely into front and rear sections hinged to each other, an undercut recess in the rear end of the rear section of the breech-bolt, a sectional firing-pin passing through the sections of said bolt and terminating in said recess, and a spring-actuated firing bolt passing through the abutment in the receiver and entering said undercut recess, whereby the breech-bolt is locked in firing position, all substantially as described.

9. In a breech-loading firearm, a breech-block moving horizontally rearward to open the breech, a lug depending from the front end of the breech-block across the mouth of the magazine, a cartridge-carrier hinged at its rear end in the receiver beneath the breech-block, a slot in said carrier, through which said depending lug passes on the opening of the breech-block, grooves in the side walls of said slot, terminating in a downwardly and rearwardly inclined cam-surface, and laterally-projecting pins on said lug traveling in said grooves and engaging said cam-surface, all substantially as described.

10. In a breech-loading firearm, a transversely-divided breech-block having its sections hinged together, the front section moving in guideways horizontally rearward and the rear section obliquely downward and rearward to open the breech, an ejector-lever pivoted in a slot in a lower depending portion of the front section of the breech-block, a spring attached to the rear section thereof and bearing against the rear face of the ejector, and an abutment in the receiver near the limit of the rearward throw of the breech-block and in the path of said ejector-lever, all substantially as described.

11. In a breech-loading firearm, a magazine, a barrel, a stock, and a receiver, a cartridge-carrier located in the receiver, means for moving it up and down in a vertical plane, curved levers pivoted to and projecting from the opposite sides of said carrier, the pivots being intermediate the ends of said levers, and grooves in the opposite sides of the receiver, within which said levers travel on the upward and downward movement of the carrier, said grooves terminating both at the top and bottom in inwardly-inclined cam surfaces, whereby the levers are opened by the lowering of the carrier and closed by the elevation thereof, all substantially as described.

478,729. MAGAZINE-FIREARM. DERRICK S. WEST, Boston, Mass., assignor of three-fourths to Charles H. Fish, Manchester, N. H., and John W. Drew, Boston, Mass. Filed May 20, 1892. Serial No. 433,670. (No model.)



Claim.—1. The combination of the main frame-piece constituting a receiver connected with the breech of the barrel and provided with an abutment at its rear end with the under frame piece and two-part jointed breech-block, and means for operating the same, connected

with said under frame-piece, as described, whereby said under frame-piece and the breech-block and its operating mechanism may be removed without separation from the main breech frame-piece, substantially as described.

2. The combination of the main breech frame-piece constituting a receiver communicating with the barrel and magazine and provided with an abutment at the rear of said receiver in line with the barrel with the under frame-piece and carrier pivotally connected therewith and the breech-block and its actuating mechanism connected with the said under frame-piece for removal without separation of its parts from said main breech frame-piece, substantially as and for the purpose described.

3. In a breech-loading firearm, the barrel and receiver connected therewith, having an abutment at its rear end in line with the barrel, and a two-part breech-block having its front and rear sections hinged together and adapted to be interposed in line with one another between the breech of the barrel and said abutment, combined with operating means for withdrawing the said breech-block from the breech of the gun and for moving it into position between the breech and the abutment, a lock for holding the said operating means, with the breech-block, in closed position, a firing-hammer, and releasing device for said lock, operated by said hammer, substantially as described.

4. The combination of the main breech frame-piece connected with the breech of the barrel and provided with an abutment at the rear thereof with the two-part jointed breech-block and sliding handpiece connected therewith, the trigger pivoted in said sliding handpiece, and a lock co-operating with the said trigger and handpiece, as described, to lock the trigger, except when the breech is closed, and to lock the handpiece and release the trigger when the breech is closed, substantially as described.

5. The combination of the main breech frame-piece connected with the breech of the barrel and provided with an abutment at the rear thereof, the breech-block and actuating handpiece connected therewith, the trigger connected with the said handpiece, and lock co-operating with said handpiece, as described, to lock the breech-block in closed position, and the releasing device for said lock operated by the hammer, substantially as described.

6. The combination of the hammer with the sear having a forked trigger-engaging end, the breech-block and mechanism for operating the same, the trigger and lock connected with the said breech-block-operating mechanism, said trigger having a forked sear-engaging end, and the releasing device for said lock, working in the forked engaging end of the sear and operated by the hammer, substantially as described.

7. The combination of the breech-block with the extractor, consisting of a forked spring having one branch of the fork in a longitudinal bore in the breech-block and the other branch of the fork extending along the side of the breech-block and projecting beyond the forward end thereof and provided with a shoulder and inclined at its forward end to engage with the rim of the cartridge-shell, substantially as described.

8. The combination of the breech-block *d* with the extractor for engaging the rim of the shell and the spring-pressed ejector-bolt in the forward end of said breech-block, provided with a central passage for the firing-pin, substantially as described.

9. The combination of the magazine and barrel and breech frame-piece constituting a receiver in which the cartridges are transferred from the magazine to the barrel, with the carrier *f*, pivoted at its rear end in said receiver, and the spring-retainer f^8, fastened at its rear end to the said carrier and having its forward spring end projecting below the forward end of the carrier to act as a stop to prevent escape of cartridges from the magazine when the carrier is in position to guide the cartridge above it into the gun-barrel, said projecting end being adapted to yield to permit cartridges to be introduced into the magazine below said carrier, substantially as described.

10. The breech frame-piece constituting a receiver and the barrel and magazine communicating therewith, said frame-piece being open at its under side, combined with the pivoted carrier *f*, having laterally-projecting ribs f^9 along the lower edges of its side, the said receiver having its lower portion widened to receive said ribs and being provided with shoulders c^9 to engage said ribs and limit the pivotal upward movement of the carrier, substantially as described.

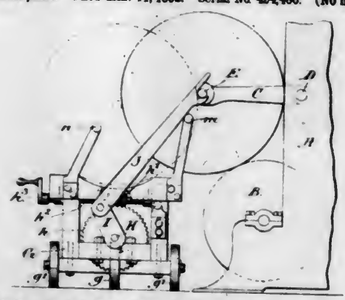
11. The breech frame-piece constituting a receiver closed at the top and provided with an abutment at its rear end and having one of its side walls provided with an opening, combined with a sliding cover for said opening and a breech-block longitudinally movable in said receiver and engaged with said sliding cover, the top side and rear walls of said receiver being otherwise closed and continuous, substantially as described.

478,730. REVERSIBLE PLOW-POINT. CHARLES J. ABBOTT, Greenville, Mich., assignor to himself, Fairchild H. Wright, Cass T. Wright, Maryette Wright, Howell J. Moore, and Henry Watson, same place. Filed Mar. 21, 1892. Serial No. 425,665. (No model.)



Claim.—The combination, with the plowshare abruptly reduced in vertical section at its forward end and upon its upper and lower sides, said reduction extending but partially the width of said share, thereby forming shoulders J, a flange G, and a projection C, said flange extending beyond the forward end of said projection and said projection being wedge-shaped and formed with transverse tongues E, of the point having a wedge-shaped opening fitted to the projection C and recesses for engaging the tongues of said projection, all substantially as shown and described.

478,731. BEAM-TRUCK. JOSEPH B. BANCROFT and ALONZO E. REGADEN, Hopedale, Mass., assignors to The Hopedale Machine Company, same place. Filed Mar. 11, 1892. Serial No. 424,486. (No model.)



Claim.—1. In a beam-truck, lifting-arms adapted to engage the journals of the beam to be lifted, combined with actuating devices for said lifting-arms, substantially as described.

2. The truck, its crank-shaft, and connected lifting-arms, combined with devices to rotate the crank-shaft, substantially as described.

3. The truck, its crank-shaft, and connected lifting-arms, combined with devices to rotate the crank-shaft and with the fulcra over which the lifting-arms slide, substantially as described.

4. The truck, its crank-shaft, and connected lifting-arms, combined with devices to rotate the crank-shaft and with the fulcra over which the lifting-arms slide, and a back-stop for the arms, substantially as described.

478,732. WIRE-PEGGING MACHINE. THOMAS BARRETT, Boston, Mass., assignor to Barrett Brothers, same place. Filed May 26, 1891. Serial No. 394,107. (No model.)

Claim.—1. In a nailing-machine, the combination, with a wire-feeding and nail-driving mechanism, of a pair of dies having flat beveled coacting faces arranged to act on the wire and form indentations in its opposite sides and having guide-faces at a substantial right angle to the indenting-faces, a reciprocating carrier arranged when at one end of its movement to receive the end of the wire below said dies, and means for reciprocating said carrier, whereby it is caused to sever said end from the body of the wire at the point of indentation by said dies, the severed end constituting a nail, and to carry said nail into position to be driven, as set forth.

2. In a nailing-machine, the combination, with wire-feeding and nail-driving mechanism, of a pair of dies having flat beveled coacting faces arranged to act on the wire and form indentations in its opposite sides and having guide-faces at a substantial right angle to the indenting-faces, mechanism for reciprocating said dies simultaneously in opposite directions, and thus cause the dies to alternately grasp and release the wire, and a reciprocating carrier which receives the end of the wire below said dies and by one of its movements severs said end from the wire as a completed nail and moves said nail laterally into position to be driven, as set forth.

3. In a nailing-machine, the combination, with wire-feeding and nail driving mechanism, of the two slides *h' i'*, arranged side by side in a guide or way in the supporting-frame, said slides having flat-faced indenting-dies arranged to act simultaneously on opposite sides of a wire between said slides and having, also, guide faces at a substantial right angle to the indenting-faces, a rock-shaft journaled in a fixed bearing and provided with two eccentrics, one of which is engaged with the slide *h'* and the other with the slide *i'*, said eccentrics being oppositely arranged, so that each movement of the rock-shaft causes the eccentrics to move the slides simultaneously in opposite directions, and means for rocking or oscillating said shaft, whereby the dies carried by said slides are caused to alternately approach and recede from each other, as set forth.

4. In a nailing-machine, the combination, with wire-feeding and nail driving mechanism, of the slides *h' i'*, having dies provided with flat indenting-faces and side faces for guiding the wire and relatively arranged as described, the rock-shaft journaled in a fixed bearing and provided with two oppositely-arranged eccentrics, one engaged with the slide *h'* and the other with the slide *i'*, an arm affixed to said rock-shaft, and means, substantially as described, for oscillating said arm, and thereby causing the rock-shaft and its eccentrics to reciprocate the slides and their dies simultaneously in opposite directions, as set forth.

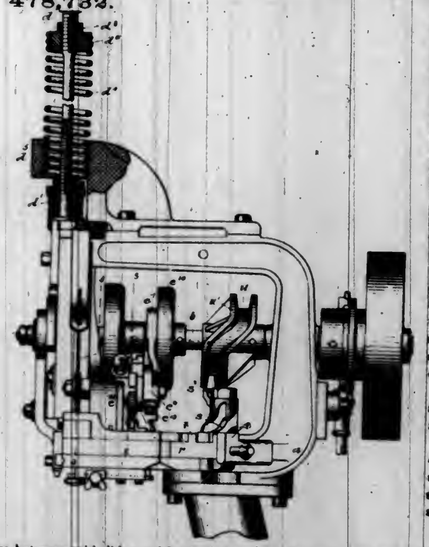
5. In a nailing-machine, the combination, with wire-feeding and nail-driving mechanism, of the point-forming flat-faced indenting-dies adapted to simultaneously indent opposite sides of the wire and having lateral guides for the wire, the carrier *r*, movable in a guide or way in the supporting-frame and having a pocket formed to receive the end of the wire projecting below said dies, a lever pivoted to the frame of the machine and engaged at one end with shoulders or projections on said carrier, and a cam on the driving-shaft of the machine engaged with the other end of said lever, as set forth.

6. In a nailing-machine, the combination of the driver-bar, the supporting-frame having an internally-screw-threaded or helically-grooved orifice surrounding the driver bar, the normally-closed helical spring having the convolutions of its lower portion engaged with the thread or helical groove in said orifice, and connections between the free upper portion of said spring and the driver-bar, as set forth.

7. In a nailing-machine, the combination of the driver-bar, the supporting-frame having an internally-screw-threaded or helically-grooved orifice surrounding the driver-bar, the normally-closed helical spring having the convolutions of its lower portion engaged with the thread or helical groove in said orifice, a nut or plug affixed to the free upper end of said spring, and a screw adjustably engaged with said nut or plug and bearing on the driver-bar, as set forth.

8. In a nailing-machine, the combination, with a feed-roll, its shaft, and a ratchet on said shaft, of an arm loosely mounted on said shaft and provided with a pawl engaged with said ratchet, another arm loosely mounted on said shaft and positively oscillated by the power of the machine, a yielding connection between the pawl-carrying arm and the positively-oscillated arm, whereby the latter is enabled to move independently of the former, and a movable stop arranged to abut against a shoulder on the pawl-carrying arm during the backward movement of the latter, and thereby arrest said movement, so that the backward movement of the pawl may be arrested at any desired point, the pawl remaining in engagement with the ratchet, as set forth.

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9. In a nailing-machine, the combination, with a feed-roll, its shaft, and a ratchet on said shaft, of an arm loosely mounted on said shaft and provided with a pawl engaged with said ratchet, another arm loosely mounted on said shaft and positively oscillated by the power of the machine, a yielding connection between the pawl-carrying arm and the positively-oscillated arm, whereby the latter is enabled to move independently of the former, a movable stop arranged to abut against a shoulder on the pawl-carrying arm during the backward movement of the latter, a swinging arm carrying said stop, and means for locking said arm and stop in any position to which they may be adjusted, as set forth.

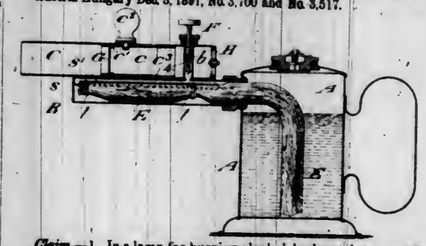
10. The combination, with the loosely-mounted pawl-carrying arm c^4, having the shoulder c^{17}, of the stop c^{13}, the swinging arm c^{16}, carrying said stop, the fixed segmental flange c^{21}, the movable gib c^{19} on the arm c^{16}, and the screw c^{20}, adapted to adjust said gib, as set forth.

11. The combination of the loosely-mounted pawl-carrying arm c^4, having the shoulders c^{17} and c^{18}, the positively-oscillated arm c^6, arranged to bear on the shoulder c^{18} during its forward movement, and thereby carry the pawl-carrying arm forward to a given position, the spring c^{15}, connecting the arms c^4 and c^6, and the adjustable stop c^{14}, arranged to strike the shoulder c^{17} and arrest the backward movement of the pawl carrying arm, as set forth.

12. In a nailing machine, the pointing-dies *h i*, having the acting shoulders h^2 i^2, and inclined faces 2 3, combined with means for closing and opening said dies, as set forth.

13. In a nailing-machine, the combination of the dies *h i*, the slides *h' i'*, holding said dies, the rock-shaft having the oppositely-arranged eccentrics engaged with said slides, and means, substantially as described, for adjusting said shaft to vary the thickness of the nail-point, as set forth.

478,733. LAMP FOR BURNING HYDROCARBONS. GUSTAV BARTHEL, Dresden, Germany. Filed Oct. 27, 1891. Serial No. 409,965. (No model.) Patented in Switzerland May 15, 1891, No. 3,541; in France June 15, 1891, No. 214,145; in Italy June 30, 1891, LVIII, 294, and in Austria-Hungary Dec. 3, 1891, No. 3,700 and No. 3,517.



Claim.—1. In a lamp for burning alcohol, hydrocarbons, and their derivatives, the combination, with a reservoir, of a wick-tube constituting an evaporator and a burner-tube open to the atmosphere at both ends, the said tubes being arranged side by side in close proximity to each other, and a nozzle projecting laterally from the said wick-tube directly across and in communication with the burner-tube, substantially as and for the purpose herein set forth.

2. In a lamp having a wick-tube B and a burner-tube C, both tubes being arranged parallel and in close proximity to each other outside the fuel-reservoir A, and a wick arranged in the tube B and extending into the reservoir A, the wick within the tube B being partly bound to form an evaporating-chamber in the tube B and partly forming a packing to prevent the vapors created in the tube B from escaping into the reservoir A, substantially as herein set forth.

3. The combination, with the lamp-burner tube open at its outer end and having at its inner end inlet-openings for air and vapor, of a foraminous diaphragm G, adjustable longitudinally within said tube to vary its distance from said inlet-openings and from said open outer end, respectively, substantially as and for the purpose herein set forth.

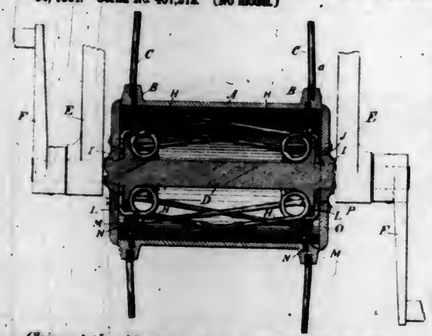
478,734. WATCH-CASE. FRANCOIS BORGEL, Geneva, Switzerland. Filed Nov. 18, 1891. Serial No. 412,255. (No model.)



Claim.—The watch-case A, having the back rim and inturned flange *a* in one piece of metal and the surface of the inturned flange screw-threaded, in combination with the ring B, having a screw-threaded exterior to screw into the flange *a*, the inner edge of the ring B being adapted to set against the inner surface of the case at

the back, and a bezel for the glass having a flange that passes in between the case and outer edge of the screw-ring, substantially as set forth.

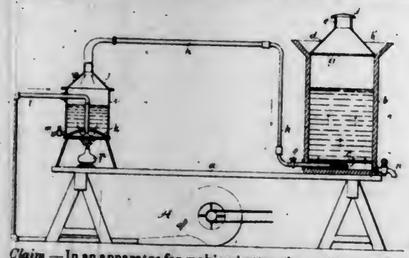
478,785. BICYCLE-WHEEL. George G. F. Boswell, Indianapolis, Ind., assignor of one-fifth to Joseph R. Boswell, same place. Filed Sept. 30, 1891. Serial No. 407,212. (No model.)



Claim.—1. In a bicycle-wheel, the combination of the hollow cylindrical hub, the driving-shaft extending axially through said hub, the two series of springs arranged at opposite ends of said shaft, one end of each of said springs being rigidly secured to the shaft and having its opposite end attached to the interior surface of the hub, whereby a yielding connection is formed between the driving-shaft and the wheel-hub, substantially as set forth.

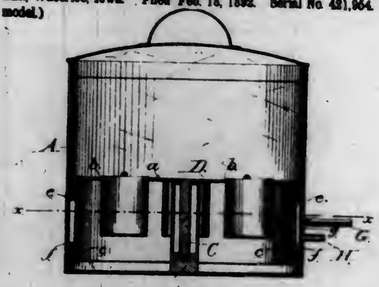
2. In a bicycle-wheel, the combination of the hollow cylindrical hub, the shaft having collars L L, springs H, and clamping-plates I I, all arranged to co-operate in the manner and for the purpose set forth.

478,786. MANUFACTURE OF BUTTER. Walter Cole, London, England. Filed Sept. 3, 1889. Serial No. 322,872. (No model.) Patented in England Aug. 21, 1889, No. 13,197, and in Germany Sept. 1, 1889, No. 53,215.



Claim.—In an apparatus for making butter, the combination, with the cream-receptacle, provided with a perforated diaphragm, the air filtering and tempering device, having a perforated diaphragm, and a connection from said air filtering and tempering device discharging into the cream-receptacle beneath its said diaphragm, of a continuous blast apparatus connected with the air filtering and tempering device and discharging beneath the diaphragm of the same, substantially as described.

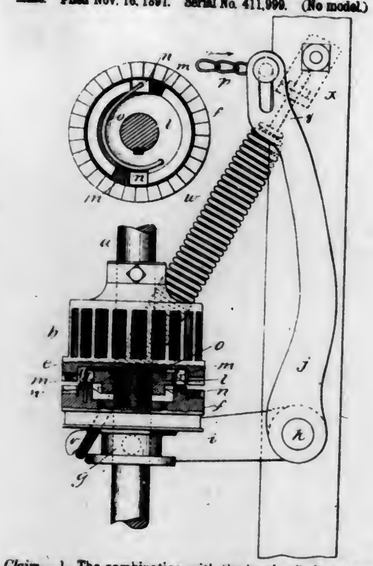
478,787. APPARATUS FOR TESTING MILK. Modestus J. Cushman, Waterloo, Iowa. Filed Feb. 18, 1892. Serial No. 421,964. (No model.)



Claim.—1. In milk-testing apparatus, the inclosing case or exterior vessel having the steam and exhaust pipes, in combination with an inner vessel adapted to support the milk-receptacles and to rotate within the outer vessel, said inner vessel having a vertical surrounding flange provided with upper and lower horizontal flanges and connecting curved blades or buckets forming a turbine wheel, into which the steam-pipe discharges to rotate the inner vessel and raise the temperature of the milk, substantially as herein described.

2. In milk-testing apparatus, the outer vessel or case having the steam and exhaust pipes and the vertically-disposed post, an inner vessel having a shaft mounted in said post and having swinging milk-receptacles supported in openings in its top, said inner vessel having a deep surrounding vertical flange, the upper and lower flanges *e* and *f*, extending horizontally from the vertical flange and forming with the same and the inner wall of the outer vessel an inclosed chamber, and the curved vertical blades or buckets between the flanges *e* and *f* and adapted to receive the discharge of the steam-pipe, whereby the inner vessel is rotated and the temperature of the milk raised, substantially as herein described.

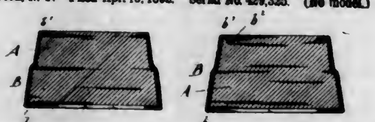
478,788. COTTON-SPINNING MULE. Charles A. Dan, Lowell, Mass. Filed Nov. 16, 1891. Serial No. 411,999. (No model.)



Claim.—1. The combination, with the band-cylinder, the gear *b*, and clutch part *c*, of the sliding clutch part, means to move it, the collar or disk intermediate the two clutch parts, dogs on the sliding clutch part engaged by the collar to cause it to rotate therewith and yet have a limited circumferential motion upon the shaft independent of the collar, and a spring engaged with the sliding clutch part and collar and operating to hold the former in a given position with respect to the latter, as set forth.

2. The combination, with the follower-leg, the band-cylinder, the gear *b*, and clutch part *c*, of the sliding clutch part *f*, the lever engaging the latter, the spring engaged at one end with said lever and at the other end with the square of the carriage and operating upon arm of said lever to move the sliding clutch part into engagement with the clutch part *e* and the chain connected with the opposite arm of said lever, and connections between the chain and follower-leg to move the lever and sliding clutch part in the opposite direction, as set forth.

478,789. ILLUMINATING-LENS. Louis K. Davenport, New York, N. Y. Filed Apr. 15, 1892. Serial No. 429,325. (No model.)

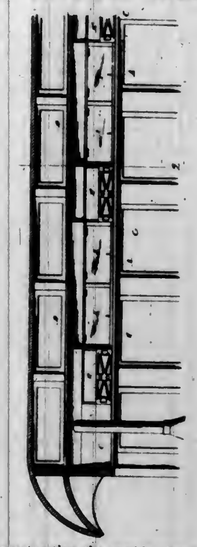


Claim.—1. An illuminating-lens composed of a glass body provided in its top with a rabbet along the edge and a sheet-metal band

or thimble that is applied to the body of the lens and provided with inwardly-bent top and bottom flanges, the top flange resting in the rabbet and having its top surface flush with the top of the lens, substantially as set forth.

2. The combination, with an illuminating-lens provided in its top with a rabbet along the edge and with a vertical groove in the top along the inner edge of the rabbet, of a band or thimble surrounding the lens and provided with top and bottom flanges, the upper flange resting in the rabbet and the edge of said upper flange being inserted into the groove at the inner edge of the rabbet, substantially as set forth.

478,740. LOCKER FOR CARS. James E. Dempsey, Chicago, Ill. Filed Mar. 5, 1891. Serial No. 383,936. (No model.)



Claim.—In car construction, the combination, with the compartments or lockers formed in the sides of the structure, of a drop-partition dividing said compartments into two chambers, the catch or lock for retaining said partition in its upper position, and the door hinged to the front side and opening into the lower chamber below said partition, substantially as set forth.

478,741. INJECTOR. Walter R. Dodge, Everett, Mass. Filed Apr. 1, 1892. Serial No. 427,318. (Model.)

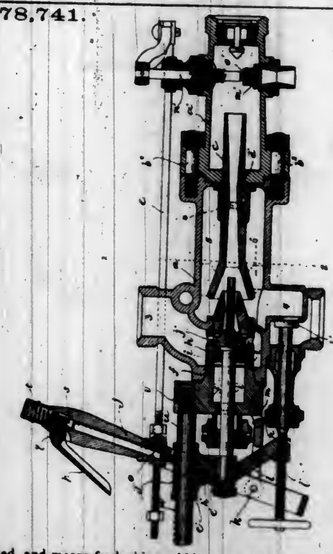
Claim.—1. In an injector for feeding boilers, the combination, with the casing and guide-rod, of a sleeve adapted to slide upon said guide-rod and an arm or extension formed upon said sleeve, provided with means for connecting the steam and water valves to said arm for the simultaneous operation of said valves, as set forth.

2. In an injector, the combination, with the notched guide-rod *u*, the sleeve *d'*, adapted to slide thereon, and the downwardly-projecting arm *e'*, formed upon said sleeve, as described, of the yoke-shaped lever adapted to operate said arm and sleeve and containing a holding-pawl in its interior, as set forth.

3. The combination, with the water-inlet of the casing and with the water-supply valve, of the threaded stem *f*, connected with the lower portion of the arm *e'*, whereby said valve may be regulated to open and close the water-supply opening, and the sliding sleeve supporting said arm, as set forth.

4. In a boiler-feeding injector, the combination, with the necessary operative parts, including the casing, the steam-valve, and the water-valve, of stems for said valves, located side by side and parallel with each other, an arm or yoke connecting the said stems, means for moving said arm or yoke to simultaneously adjust said valves, and means for locking the arm or yoke to hold the valves in any position to which they may be adjusted, as set forth.

5. In a boiler feeding injector, the combination, with the necessary operative parts, including the casing, the steam-valve, and the water-valve, of stems for said valves, located side by side and parallel with each other, an operating-lever, a connection between said lever and the stems of said valves, whereby the valves may be simultaneously



operated, and means for locking said lever to hold the valves in different positions, as set forth.

6. In a boiler-feeding injector, the combination, with the necessary operative parts, the casing having the steam-valve and the water-valve, of stems for said valves, located side by side and parallel with each other, the stem of the water-valve being screw-threaded at the exterior of the casing, an arm or yoke connecting the stems of said valves, said yoke having an internally-threaded socket engaged with said threaded stem, whereby the water-valve may be adjusted independently, means for moving said arm or yoke to simultaneously adjust the two valves, and means for locking the arm or yoke to hold the valves in any position to which they may be adjusted, as set forth.

478,742. LOCK-NUT. Victor R. Doremus, New York, N. Y., assignor of one-half to Paul P. Todd, same place. Filed Apr. 18, 1892. Serial No. 429,521. (No model.)



Claim.—The combination, with a screw-bolt having longitudinal channels across the screw-threads, of a nut having a recess and a spring secured within the recess, the spring standing nearly radially when the point is within either of the channels and the point of the spring can ride over the screw-threads as the nut is rotated in either direction, substantially as set forth.

478,748. TELEPHONE-REPEATER. Thomas A. Edison, Menlo Park, N. J. Filed Oct. 14, 1885. Renewed Mar. 1, 1892. Serial No. 423,411. (No model.)

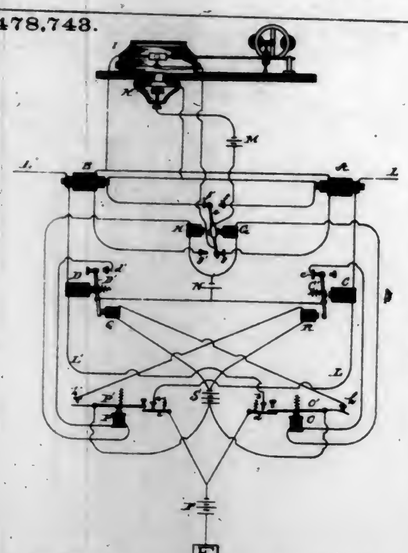
Claim.—1. The combination, with a telephone-line, of two or more reciprocal telephone-repeaters connected therewith, each repeater comprising a receiving and a transmitting telephone, substantially as set forth.

2. The combination, with a telephone line, of two or more reciprocal telephone-repeaters connected therewith and switches at the telephone repeater controlling the direction of transmission and operated successively from either end of the line, and each repeater containing a switching-circuit controller in each line-section, substantially as set forth.

3. The combination, with a reciprocal telephone-repeater, of a switch controlling the direction of transmission and circuits for carrying the switching impulses around the telephone repeating-instruments, substantially as set forth.

4. The combination, with a telephone-line, of two or more reciprocal telephone-repeaters connected therewith and provided with switches controlling the direction of transmission and reciprocal repeaters for the switches, substantially as set forth.

478,743.



5. The combination, with a telephone-repeater, of signaling devices and circuits carrying the signaling impulses around the telephone repeating-instruments, substantially as set forth.

6. The combination, with a telephone-repeater, of signaling devices in the telephone-line and a repeater for the signaling impulses, substantially as set forth.

7. The combination, with a reciprocal telephone-repeater, of signaling devices in the telephone line and a reciprocal repeater for the signaling impulse, substantially as set forth.

8. The combination, with a telephone-line, of two or more reciprocal telephone-repeaters, signaling devices, and reciprocal signaling-repeaters, substantially as set forth.

9. In a telephone-repeater, the combination, with line connections and repeating telephone-instruments, of a switch controlling the direction of transmission and operated from the line on either side of the telephone-repeater by an electrical impulse and an electrically-operated circuit-controller for continuing the impulse to the other side of the repeater, substantially as set forth.

10. In a telephone-repeater, the combination, with line connections and repeating telephone-instruments, of a switch controlling the direction of transmission and operated from the line on either side of the repeater by an electrical impulse, electrically-operated circuit-controllers continuing the impulse to the line on the other side of the repeater, and locking-magnets preventing the reversal of the switch, substantially as set forth.

11. The combination, with telephone repeating-instruments and connected lines grounded thereat, of a centrally-located switching or signaling battery connected with both of said lines and a switching or signaling repeater transferring the impulse of said battery from one grounded line to the other, substantially as set forth.

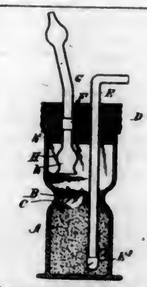
12. The combination, with telephone repeating-instruments and connected lines grounded thereat, of a switch controlling the direction of transmission, a centrally-located switching-battery connected with both of said lines, and a switching-repeater, substantially as set forth.

13. The combination, with a reciprocal telephone-repeater and grounded lines grounded thereat, of a switch controlling the direction of transmission, switching-magnets in the lines controlling the switch for operation in opposite directions, repeating-line circuit-controlling magnets also worked by said line switching-magnets, and locking-magnets controlled by the repeating-line magnets, whereby the telephone-repeater switch can be worked from either line and the switching impulse continued to the other line for switching or signaling or both, substantially as set forth.

478,744. POWDER-BLOWER. WILLIAM J. EVANS, New York, N. Y., assignor to McKesson & Robbins, same place. Filed Mar. 11, 1892. Serial No. 424,559. (No model.)

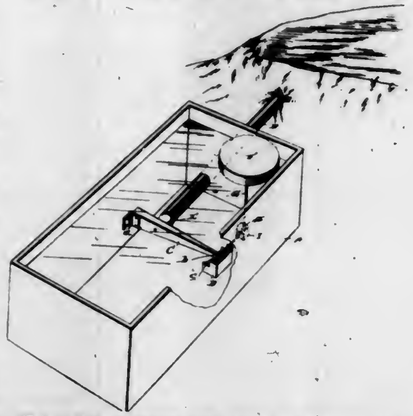
Claim.—1. In a powder-blower, the combination, with a holder and its cap, of means for supplying air to the holder, a discharge-tube fitted to the cap, and an independently-removable sieve-piece in the cap, communicating with and detachable from the discharge-tube, substantially as described.

478,744.



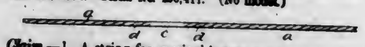
2. In a powder-blower, the combination, with a holder and its cap, of an air-supply, a discharge-tube, and a removable sieve-piece formed with an enlarged lower end having a reticulated diaphragm thereon and a reduced upper end fitted to the cap below the discharge, substantially as described.

478,745. DEVICE FOR WATERING STOCK. GEORGE W. FUNK, Sedalia, Mo. Filed Apr. 30, 1892. Serial No. 431,230. (No model.)



Claim.—The combination, with a pond or other water-supply, of the tank or trough and the pipe connecting the tank with said supply, the lever C, hinged at one end to one of the side walls of the tank a short distance above the bottom, so as to move horizontally, the recessed guide arranged in the floor of the trough and receiving the free end of said lever, so as to truly guide the same, the rubber ball-valve secured to the lever and adapted to enter and close the discharge end of the supply-pipe, the guide-pulley secured to the floor of the trough, the float F, and the rope G, secured at one end to the float and passing under the guide-pulley and secured at its opposite end to the free end of the lever, all adapted to operate substantially as and for the purposes specified.

478,746. PIANO-STRING. THOMAS GILL, Waltham, Mass. Filed Mar. 25, 1892. Serial No. 426,411. (No model.)



Claim.—1. A string for musical instruments, provided with a flat face at the point where the hammer acts thereagainst and having the portions thereboyond twisted, as described.

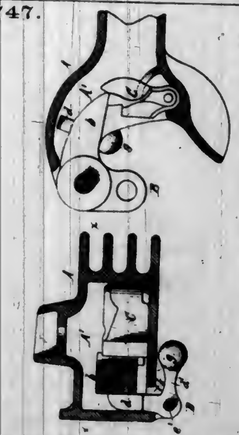
2. A string for musical instruments of angular form in cross-section, provided with a flat face at the point where the hammer acts thereagainst and having the portions thereboyond twisted, as described.

478,747. CAR-COUPLING. CHARLES A. GOULD, Buffalo, N. Y. Filed Dec. 23, 1891. Serial No. 415,963. (No model.)

Claim.—1. The combination, with the draw-head of the swinging coupling-hook and its locking device, of an independent gravity shifting device operating against the hook whereby the latter is automatically moved into its open position when unlocked, substantially as set forth.

2. The combination, with the head, the swinging coupling-hook and its locking device, of an overhanging arm or lever operating against

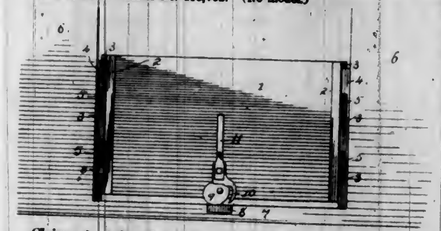
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the coupling-hook and whereby the same is automatically moved into its open position when unlocked, substantially as set forth.

3. The combination, with the head, the swinging coupling-hook and its locking device, of a bell-crank lever bearing with one of its arms against the arm of the coupling-hook and having its other arm weighted and arranged in an overhanging position, substantially as set forth.

478,748. GRAIN-CAR DOOR. SILAS W. GROSS, Decatur, Ill. Filed Nov. 3, 1891. Serial No. 410,762. (No model.)

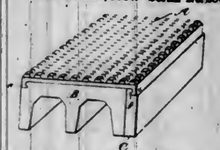


Claim.—1. A door for grain-cars, having a set of wedge-like projections, grooved ways connected with the sides of the door-opening and having recesses adapted to receive the projections of the door, and a lever pivoted on the door at the lower edge thereof and having an eccentric bearing adapted to the sill, as set forth.

2. A door for grain-cars, having a set of wedge-like projections, grooved ways connected with the sides of the door and having recesses adapted to receive the projections of the door, and a lever connected pivotally with the door at the lower edge thereof and having an opening eccentric cam and a closing eccentric finger, as set forth.

3. The combination of a door-opening, a door adapted to be moved vertically therein, a recess in the door-sill at or near the center thereof, such recess having a transverse pin or bearing, a raising-cam on the lower edge of the door, a cam-finger adapted to enter the recess and engage the pin, and a lever to operate the cams, whereby the throw of the lever in one direction will tend to open the door and the opposite throw will cause the finger to enter the recess and engage the pin, thereby locking the door closed and securing it against the bulging tendency of the contents of the car.

478,749. PRINTING PLATE AND BLOCK. STEPHEN H. HORGAN, Jersey City, N. J. Filed Nov. 28, 1887. Serial No. 256,288. (No model.)



Claim.—1. The combination of a plate or shell having depending side flanges and a base therefor made in two unequal portions, each of said portions having a groove at its upper outer edge, substantially as specified.

2. As a new article of manufacture, a printing plate or shell made separate from and independent of the base to which it is intended to be applied, said plate or shell having its parts of greatest thickness at its extreme sides, said parts of greatest thickness projecting down from the under surface of the plate or shell and having recesses in the inner sides of said side projections, said plate or shell having other projections on its under surface adapted to fit into recesses in the base to which it is intended to be applied, substantially as specified.

3. The combination of a plate or shell having depending side flanges and projections on its under surface with a base therefor made in more than one piece, said base having grooves at its outer sides, into which the depending side flanges of the plate or shell will fit, and said base having other grooves in its upper surface, into which the projections on the under surface of the plate or shell will fit, substantially as specified.

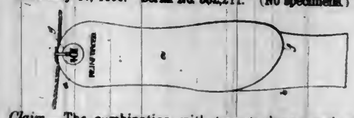
478,750. PRINTING-BLOCK. STEPHEN H. HORGAN, Jersey City, N. J. Filed Oct. 2, 1889. Renewed Jan. 11, 1892. Serial No. 417,634. (No model.)



Claim.—1. In a printing-block, a base provided with means at its outer sides for holding a plate or shell, said base being made in more than one portion, one of said portions at or near the upper end of the side next the adjacent portion receding away from said adjacent portion, substantially as specified.

2. In a printing-block, a base made in more than one portion, two of said portions being hinged together at sides adjacent to each other, so that lateral pressure upon the base will cause the lower sides of the portions of the base adjacent to each other to rest against each other, substantially as specified.

478,751. ASSORTMENT OF STOCKINGS. WILLIAM H. HOWARD, Lowell, Mass., assignor to the Waukenhose Company, Portland, Me. Filed May 17, 1890. Serial No. 352,211. (No specimens.)



Claim.—The combination, with two stockings, each of which is creased along the sides of the leg, around the point of the heel, along the sides of the foot, and around the toe, and each of which is folded with the top or instep portion of the foot against the forward part of the leg, and a tag, of means for fastening the tag and the heel points of the two stockings together, the said two stockings being so secured with the soles of the foot portions outward, substantially as described.

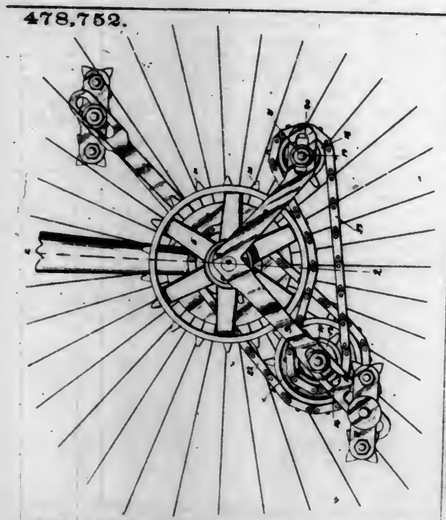
478,752. BICYCLE. LOUIS C. JAQUIER, Chicago, Ill. Filed Mar. 24, 1892. Serial No. 426,316. (No model.)

Claim.—1. The combination, with a hub, a wheel rigidly attached thereto, a crank-axle journaled in said hub, and a bell-crank lever connected to said crank-axle, of mechanism operated from said lever to rotate said wheel and to give said wheel a rotary movement in addition to that caused by the rotation of the said lever, substantially as described.

2. The combination, with a hollow hub, a sprocket-wheel rigidly attached thereto, a crank-axle journaled in said hub, a bell-crank lever connected to said crank-axle, and a sprocket-wheel carried upon each arm of said lever, of mechanism operated from said lever and sprocket-wheels to rotate said sprocket-wheel attached to said hub with a rotation of said bell-crank lever and to give to said sprocket-wheel attached to said hub a rotary motion in addition to the rotation caused by the rotation of said bell-crank lever, substantially as described.

3. The combination, with a hollow hub 1, a wheel 5, rigidly secured thereto, and a crank-axle 6, journaled in said hub, of a bell-crank lever 8, secured to said crank axle and having two arms 9 and 10, wheels 12 and 13, rigidly attached to one another upon a common axis and rotatably secured to the arm 9 of the bell-crank lever 8, and mechanism adapted to rotate said wheel 5 as the wheels 12 and 13 are revolved with said bell-crank lever about the center of revolution and to give a rotary movement to said wheel 5 in addition to the rotation caused by the rotation of said bell-crank lever, substantially as described.

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4. The combination, with a hollow hub 1, a wheel 5, rigidly secured thereto, and a crank-axle 6, journaled in said hub, of a bell crank lever 8, secured to said crank-axle and having two arms 9 and 10, a pedal 11, carried by said arm 9 of said lever 8, wheels 12 and 13, rigidly attached to one another upon a common axis and rotatably secured to said arm 9 of the bell-crank lever 8, and mechanism adapted to rotate said wheel 5 as the wheels 12 and 13 are revolved with said bell-crank lever about the center of revolution and to give a rotary movement to said wheel 5 in addition to the rotation caused by the rotation of said bell-crank lever, substantially as described.

5. The combination, with a fork of a bicycle 2, a sprocket-wheel 4, rigidly secured to the lower end of said fork 2, a hollow hub 1, and a sprocket-wheel 5, rigidly secured to said hollow hub, of a crank-axle 6, journaled in said hub, a bell-crank lever 8, secured to said crank-axle 6 and having two arms 9 and 10, sprocket-wheels 12 and 13, rigidly connected with one another upon the same axis and rotatably secured to the arm 9 of the bell-crank lever 8, a sprocket-wheel 18, rotatably secured to the arm 10 of the bell-crank lever 8, sprocket-chain 22, passing around the sprocket-wheels 12 and 4, and a sprocket-chain 23, passing around the sprocket-wheels 13 and 18 and adapted to engage with the sprocket-wheel 5, substantially as and for the purpose specified.

6. The combination, with a fork of a bicycle 2, a sprocket-wheel 4, rigidly secured to the lower end of said fork 2, a hollow hub 1, and a sprocket-wheel 5, rigidly secured to said hollow hub, of a crank-axle 6, journaled in said hub, a bell-crank lever 8, secured to said crank-axle 6 and having two arms 9 and 10, sprocket-wheels 12 and 13, rigidly connected with one another upon the same axis and rotatably secured to the arm 9 of the bell-crank lever 8, a sprocket-wheel 18, rotatably secured to the arm 10 of the bell crank lever 8, mechanism for adjusting said wheel 18 in position upon said arm 10, sprocket-chain 22, passing around the sprocket-wheels 12 and 4, and a sprocket-chain 23, passing around the sprocket wheels 13 and 18 and adapted to engage with the sprocket-wheel 5, substantially as and for the purpose specified.

7. The combination, with a fork of a bicycle 2, a sprocket-wheel 4, rigidly secured to the lower end of said fork 2, a hollow hub 1, and a sprocket-wheel 5, rigidly secured to said hollow hub, of a crank-axle 6, journaled in said hub, a bell-crank lever 8, secured to said crank-axle 6 and having two arms 9 and 10, a pedal carried upon said arm 9 of said lever 8, sprocket-wheels 12 and 13, rigidly connected with one another upon the same axis and rotatably secured to the arm 9 of the bell-crank lever 8, a sprocket-wheel 18, rotatably secured to the arm 10 of the bell-crank lever 8, mechanism for adjusting said wheel 18 in position upon said arm 10, sprocket-chain 22, passing around the sprocket-wheels 12 and 4, and a sprocket-chain 23, passing around the sprocket-wheels 13 and 18 and adapted to engage with the sprocket-wheel 5, substantially as and for the purpose specified.

478,758. LAMP-HEATER. HARRIET S. LOURY, Harrisonburg, Va., assignor of one-half to Katharine M. Wilson, same place. Filed Nov 19, 1891. Serial No. 412,447. (No model.)

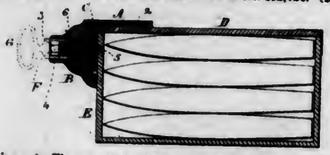
Claim.—The heating attachment for lamp-chimneys, consisting of the winged plates adapted to be connected together at right angles

478,753.



and having their upper edges folded back and standing at right angles to their vertical portions and the lower edges of their wings corrugated, the folded-back and right-angled upper edge portions of said plates intersecting each other at right angles in the same horizontal plane, causing them to stand flush with each other, substantially as shown and described.

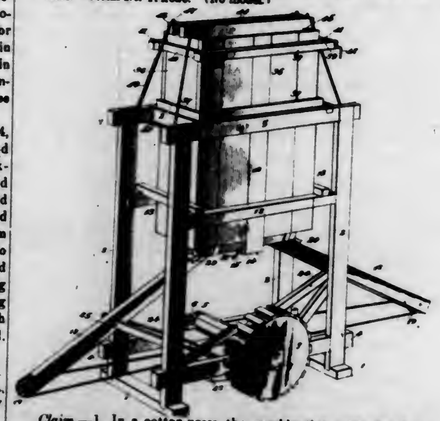
478,754. LOCK. FRANCIS F. MARSHALL and LOUISA F. MARSHALL, New York, N. Y. Filed Nov. 23, 1891. Serial No. 412,726. (No model.)



Claim.—1. The top A, having penetrating-pins 2, in combination with the front B, to which it is connected by the hinge, and the locking-screw F, passing through the front and having a penetrating-point at one end and a head adapted to receive a key at the other end, substantially as set forth.

2. The lock for wooden boxes, composed of the parts A and B at right angles, the penetrating-pins 2, and the locking-screw F, passing through the front portion of the lock and having a penetrating screw-threaded point, and a head adapted to receive a key, the front of the lock having a socket into which the head passes when the locking-screw is screwed into the box, substantially as set forth.

478,755. COTTON-PRESS. PICKENS B. MABEN, Graniteville, S. C., assignor of one-half to William O. Tatum, same place. Filed Dec. 4, 1891. Serial No. 414,090. (No model.)



Claim.—1. In a cotton-press, the combination, with the frame-work, the packing-box, the follower, and means for operating the same, of the baling-chamber seated in the upper end of the packing-box and

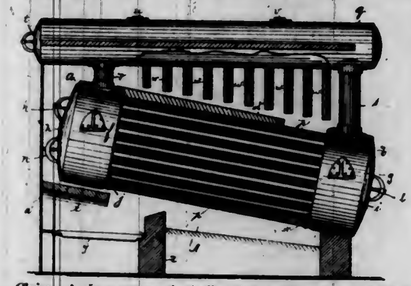
comprising opposite independent and separable side and end walls, longitudinal cleats secured to the side walls and extending beyond the ends of the same and provided at their inner sides with notches, transverse cleats secured to the end walls, projecting beyond the same and at their ends adapted to engage with the notches, and means for locking the side walls against separation, substantially as specified.

2. In a cotton-press, the combination, with the framework, the packing-box, the follower, and means for operating the same, of the baling-chamber seated in the upper end of the packing-box and comprising opposite independent and separable side and end walls, longitudinal cleats secured to the side walls and extending beyond the ends of the same and provided at their inner sides with notches, transverse cleats secured to the end walls, projecting beyond the same and at their ends adapted to engage with the notches, and inverted-U shaped clamps sprung over and connecting the ends of the longitudinal cleats, substantially as specified.

3. In a cotton-press, the combination, with the framework, the packing-box having its central planks of its opposite sides depending from its lower edge, and a rest-strip connecting the lower ends of the planks, of a follower mounted for reciprocation in the box, levers pivoted to and adapted to operate the plunger and located at opposite sides of the rest, and means for operating the levers, substantially as specified.

4. In a cotton-press, the combination, with the framework, the packing-box having the depending central planks, and the rest-bar connecting the same, of the follower located in the packing-box, the diverging guides depending from the follower and adapted to embrace the rest-bar, the inclined guide-blocks located at the ends of the rest-bar, the levers for raising and lowering the follower, and means for operating the levers, substantially as specified.

478,756. WATER-TUBE BOILER. ROBERT MUNROE and ROBERT MUNROE, Jr., Allegheny, Pa. Filed Mar. 21, 1892. Serial No. 425,659. (No model.)



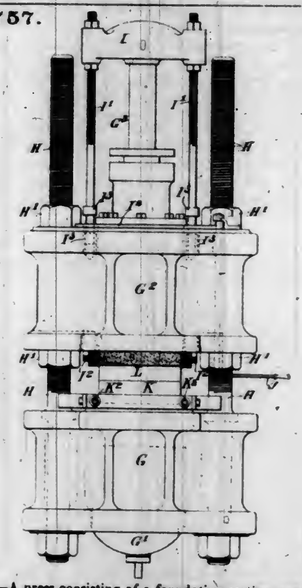
Claim.—1. In a water-tube boiler, the combination of the front and rear tube-cylinders, the former having four or more and the latter one manhole located therein and adapted to be closed in any suitable manner, tube-sheets forming the rear walls of said cylinders and provided with series of orifices parallel in every direction, except vertically, and a series of tubes suitably secured in said orifices and connecting said tube-cylinders, and a steam-drum connected with said water-chambers and having a series of downwardly-projecting tubes, substantially as and for the purpose herein set forth.

2. In a water-tube boiler, the combination of the front and rear tube-cylinders, the former having four or more and the latter one manhole located therein and adapted to be closed in any suitable manner, tube-sheets forming the rear walls of said cylinder and provided with series of orifices parallel in every direction, except vertically, and a series of tubes suitably secured in said orifices and connecting said heads, the upper, lower, and extreme side tubes being of greater diameter than the rest and projecting into said heads and suitably secured therein, and a steam-drum connected with said water-chambers and having a series of downwardly-projecting tubes, substantially as and for the purpose herein set forth.

3. A boiler-setting consisting of the furnace A, provided with an arch x, extending from side to side, the frame above the grate-bars, a bridge-wall z, an arch d' above said tubes, terminating a slight distance from the rear ends thereof, and a tile extending from side to side of said furnace its entire length, in combination with the air-admission pipes d' and d'', substantially as and for the purpose herein described.

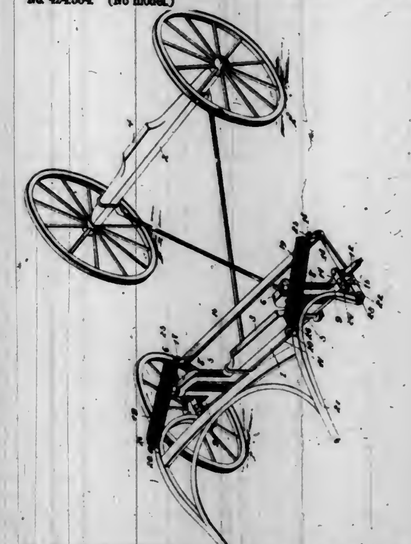
478,757. APPARATUS FOR MAKING SLABS, &c. ALEXANDER McLEAN, West Kensington, assignor of one-half to Christopher W. Wilson, London, England. Filed Jan. 9, 1892. Serial No. 417,491. (No model.)

478,757.



Claim.—A press consisting of a foundation-casting containing a hydraulic ram, an adjustable head containing a second ram, arranged to work in both directions, a cross-head connected to this ram, adjustable pendent rods carrying supporting-pieces, molds for containing the material to be compressed, provided externally with grooves to receive the supporting-pieces, and means for insuring the exit from the mold of the liquid and for retaining the solid matter in the mold, all substantially as herein shown and described.

478,758. RUNNING-GEAR FOR VEHICLES. BENJAMIN H. PAUGH and GEORGE W. FRIDLEY, Philippi, W. Va. Filed Mar. 11, 1892. Serial No. 424,554. (No model.)

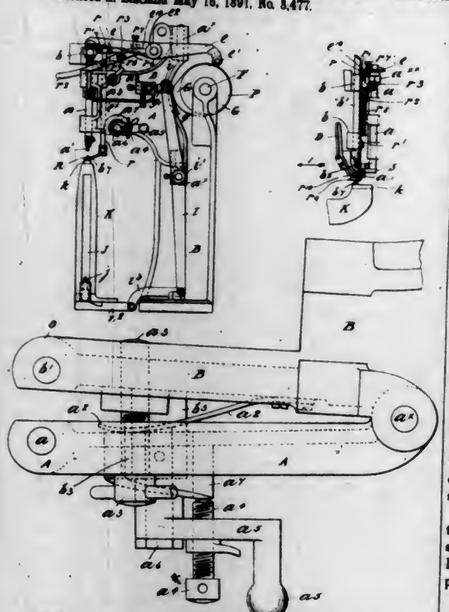


Claim.—1. In a running-gear, the combination of an axle provided with L-shaped extensions, the bar secured to the lower face of the axle and projecting therefrom, the arms 9 of the axle, having vertical pivots journaled in the extensions of the axle and in the ends of the bar, the clip-bars secured to the lower faces of the axle-arms and projecting rearwardly therefrom, the clip-plates secured to the upper

face of the axle-arm, the clip-bolts connecting the clip plates and the clip-bars, the connecting-bar secured to the rear ends of the clip-bars, the hooks 18, having shanks pivoting the connecting-bar to the clip-bars, the shafts coupled between the front ends of the clip plates and bars and provided with hooks, and spiral springs provided at their ends with loops engaging the hooks, substantially as described.

2. In a running-gear, the combination of the front axle, the axle-arms having vertical pivots journaled at the ends of the axle, the clip-bars extending forward and rearward from the axle-arms and extending from them, the clip-bolts securing the clip-plates and the clip-bars to the axle-arms, and the coupling-blocks pivoted between the front ends of the clip-plates and the clip-bars, substantially as described.

478,759. EYELETING-MACHINE. MARSHALL H. PEARSON, Leicester, England. Filed Jan. 20, 1892. Serial No. 418,694. (No model.) Patented in England May 16, 1891, No. 8,477.



Claim.—1. In a punching and eyeleting machine, the combination, with the framework, of a hinged cheek, a punching-spindle mounted therein, a reciprocating eyeleting-spindle mounted in the framework, a spring for holding the cheek away from the framework, and adjusting devices comprising a cam for holding the cheek in the desired position relatively to the frame to vary the distance between the punching and eyeleting spindles.

2. In a punching and eyeleting machine, a cheek A, hinged to framework B, having a spring a^3 interposed between the said cheek and framework, and a distance-regulating screw a^4, in combination with punching and eyeleting spindles mounted in the cheek and the framework, all substantially as set forth.

3. In a punching and eyeleting machine, a cheek A, hinged to framework B and spring a^4, with a screw a^4, mounted in a lever a^5, (armed with a pin a^6,) turning on a spindle a^9, attached to said framework, and a cam a^7, in combination with the punching and eyeleting spindles mounted in the cheek and framework, all substantially as set forth.

4. In a punching and eyeleting machine, the combination of punching and eyeleting devices, their power driving and feeding mechanisms, consisting of cams E, G, H, and L, mounted on driving-shaft F, disk P, drivers N N', pulleys O O', wedges Q Q', levers e, l, I, and i^3, lower die-supporting piece J, and cam-piece i^3, all substantially as specified.

5. The combination, in a punching and eyeleting machine, of a reciprocating punching-spindle mounted in a hinged cheek, with a double-ended lever fulcrumed to the framework, a cam for operating said lever, a disk mounted on the driving-shaft and armed with a pin, a driver mounted on the hub of said disk, and a curved wedge hinged to the framework, all as set forth.

6. The combination, in a punching and eyeleting machine, of eyeleting devices, cams E, G, and H, disk P, pin p', spring p^3, driver N, curved wedge Q, driving-shaft F, pulleys O O', levers e, spring e^5, spindle a, cheek A, runner g, carrier g', and bracket a^8, as and for the purpose set forth.

7. In a punching and eyeleting machine, the combination of a spindle b', mounted in bearings on the main framing B, with lever l', cam L, driving-shaft F, pulleys O O', disk P, pin p', spring p^4, driver N', and curved wedge Q', all substantially as and for the purposes set forth.

8. The combination, in a punching and eyeleting machine, of cams E, G, H, and L, driving-shaft F, disk P, pin p', drivers N N', set-screws M M p and p^2, and springs p^3 and p^4, substantially as shown, for the purposes specified.

9. In a punching and eyeleting machine, the combination, with punching and eyeleting devices, of the disk P, armed with a pin p' and having drivers N N' mounted on its hub, and connections between the drivers and the eyelet setting and punching devices, substantially as shown, and for the purposes specified.

10. The combination, with punching and eyeleting devices, of a power-driven shaft, cams thereon, connections between the cams and the punching and eyeleting devices, the drivers, connections between the drivers and the cams, the curved wedges Q Q', having projections q^4 q^4 formed on their sides, and means for operating the wedges, substantially as and for the purpose specified.

11. The combination, in a punching and eyeleting machine, of a driving-shaft, cams loosely mounted thereon, a disk P, secured to the shaft, a driver N', a pin p' for connecting the driver with the disk, a wedge Q' for moving the driver, the support for the lower clinching-die, the spindle of the upper clinching-die, the lever l', connecting the spindle with its operating cam, and connections between the support of the lower clinching-die and its operating-cam.

12. The combination, in a punching and eyeleting machine, of framework B, reciprocating spindle b', die b^2, lever l, cam L, driving-shaft F, wedge Q', driver N', disk P, pin p', with horn K, and lower die b^1, all substantially as specified.

13. In a punching and eyeleting machine, the combination of a vertically-reciprocating punching-spindle a, means for moving it laterally to feed the material, a presser-foot R, the vertically-moving rod on which it is mounted, the lever r^6, connected to the vertical rod of the presser-foot, power-driven devices operating upon said lever for actuating the presser-foot, an eyelet-feeding chute, and eyelet-setting devices.

14. In a punching and eyeleting machine, the combination of vertically-reciprocating punching-spindle, eyeleting devices, means for actuating the punching-spindle and the eyeleting devices, an eyelet-feeding chute D, a vertically-reciprocating presser-foot, and devices carried by the presser-foot for moving the eyelet-chute laterally, substantially as and for the purpose set forth.

15. The combination, in a punching and eyeleting machine, of the hinged cheek A, connected with the framework B, reciprocating spindle a, reciprocating spindle b', levers e and l', eyelet box C, chute D, presser-foot R, bar r, lifting-lever r^6, set-screw r^7, spring r^8, cam-piece r^9, and pin r^{10}, all substantially as set forth.

16. The combination, in a punching and eyeleting machine, of a cheek A, hinged to framework B, reciprocating spindles a and b', stops a^2 a^4, lever a^5, spindle a^6, cam a^7, cams E, G, H, and L, driving-shaft F, pulleys O O', levers e, I, and l', carrier g', cam-piece i^3, link i^2, supporting-piece J, horn K, drivers N N', treadle-rod O^2, disk P, pin p', springs p^3 p^4, wedges Q Q', presser foot R, bar r, lifting-lever r^6, adjusting-screw r^7, spring r^8, cam r^9, and pin r^{10}, all substantially as herein set forth.

478,760. PRINTING-PRESS. ENOCH PROUTY, Chicago, Ill., assignor to himself, Robert Tarrant, and Olive S. Prouty, same place. Filed Sept. 2, 1891. Serial No. 404,502. (No model.)

Claim.—1. In a printing-press, the combination, with a reciprocating type-bed carriage, of an actuating-lever D, pivotally joined to the bed at one end and pivotally joined to a sliding block E at the other end away from said sliding block, and means for giving motion to said lever, substantially as specified.

2. The combination, with the reciprocating type-bed, of the lever D, sliding block E, slideway F, pitman G, and means for actuating said pitman, substantially as specified.

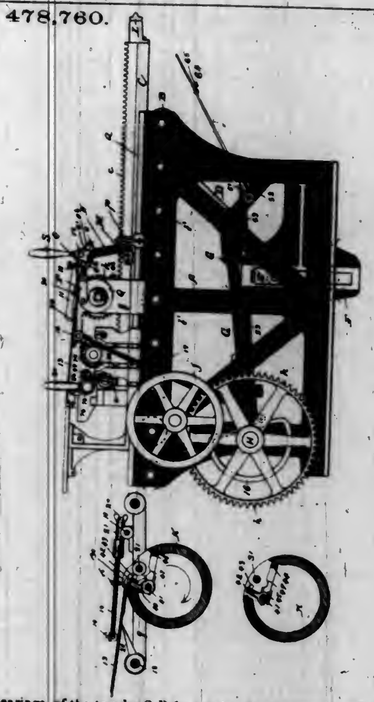
3. The combination, in a printing-press, of a reciprocating type-bed, an oscillating impression-cylinder, eccentric-bearings for said cylinder, toggles O P, shaft n, lever N, and the dogs upon the type-bed for moving said lever, substantially as specified.

4. The combination, in a printing-press, of a reciprocating type-bed, an oscillating impression-cylinder, eccentric-bearings for said cylinder, toggles O P, shaft n, lever N, and the dogs upon the type-bed for moving said lever, said lever being provided with a friction-creating device, substantially as specified.

5. The combination, with the cylinder and eccentric-bearings, of toggles O P for shifting the eccentrics and means for closing and spreading said toggles, substantially as specified.

6. The combination, with the impression-cylinder and its eccentric-bearings, of the toggles O P for turning the eccentrics, one member of each of said toggles being adjustable as to length, substantially as specified.

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7. The combination, with the impression-cylinder and its eccentric-bearings, of the toggles O P for turning the eccentrics, one member of each of said toggles being composed of an adjustable bolt, and a box for said bolt, substantially as specified.

8. The combination of reciprocating type-bed, an oscillating impression-cylinder, means for raising and lowering said cylinder, embracing a lever, such as N, dogs upon a type-bed for actuating said lever, and a stop p for limiting the motion of the lever when actuated to lower the cylinder, substantially as and for the purpose set forth.

9. The combination, with the eccentrically-mounted cylinder, the lever N, and the connections between the eccentrics and the lever, of friction-creating devices consisting of spring R and follower r and a stationary surface upon which said follower bears, substantially as specified.

10. The combination, with the cylinder and its eccentric bearings, of the toggles for shifting the bearings and a hand lever 8 for closing the toggles to throw off the cylinder, substantially as specified.

11. The combination, with the rising-and-falling table and the gripping-cylinder, of one or more gages loosely supported upon a shaft 10 and resting by gravity upon the table at their free ends, said gages being also provided with buttons, collars, or enlargements 15, substantially as specified.

12. The combination, with rising-and-falling table and a gripping-cylinder, of a gage loosely pivoted at one end upon a support located in front of the table and resting at its free end upon the table, whereby the acting end of the gage is lifted above and lowered onto the table by the movement of the table, substantially as specified.

13. The combination, with the rising-and-falling feed-table of a printing-press, of a gage loosely supported at one end in front of the table and intermittently resting by gravity at its free end upon the table, whereby the gage is adapted to hold the paper after it is positioned, substantially as set forth.

14. The combination, with the feed-table, of the series of gages 12, loosely hinged at one end and resting at their free ends upon the table, and the support to which the gages are thus hinged, substantially as specified.

15. The combination, with the cylinder K and the type-bed carriage having a stop 39, of grippers mounted in the cylinder, a spring for closing the grippers, a lever 33 upon the gripper-shaft encountering said stop, and means for receiving the sheet from the cylinder, substantially as specified.

16. The combination, with the cylinder and grippers, the shaft of the latter having a lever 33, provided with pin 34, of the cams 37 and 38, mounted upon a pivoted support, substantially as specified.

17. The combination, with the fly and its operating-crank 52, of pitman 53, having spring 54 and follower 55, bearing upon shaft H, elongated slot 58, and roller 59, cam 60, and shaft H, passing through said slot and carrying said cam, substantially as specified.

18. The combination, with the fly and the pitman for operating the fly, of a spring inserted in the hollow bore of the pitman and supplying the power to actuate the fly in discharging the paper, substantially as specified.

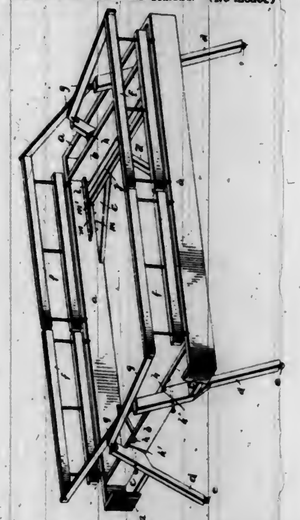
19. The combination, with the cylinder K, of the devices for securing the tympan-sheet thereon, consisting of a rocking shaft and fingers 40 thereof, means for locking said shaft, the frame 44, and means for holding said frame, substantially as specified

20. The combination, with the cylinder K, of rocking shaft 41, fingers 40, locking-arm 42, and stop-pin 43, substantially as specified.

21. The combination, with cylinder K, of frame 44, a bearing against which said frame may rest, and the gripper shaft acting as a stop to the frame, substantially as specified.

22. In a printing-press, a fly having bars 61 and 62, spring 63, and guard 64 65, whereby it is adapted to grip the sheet and draw it from the cylinder, substantially as set forth.

478,761. FOLDING BED. GEORGE W. RODECAP, Middletown, Ind. Filed Aug. 7, 1891. Serial No. 402,036. (No model.)



Claim.—1. In a bed, the combination of the rectangular frame, the swinging longitudinal sides formed in independent sections, the independently-mounted transversely-swinging legs, and the links at their outer ends directly pivoted to their respective side sections and at their opposite ends directly hinged to their respective legs at points permanently above the pivotal points thereof, combined and arranged, substantially as set forth, so that the side sections and their links and legs can be folded independently of each other.

2. In a bed, the combination of the rectangular frame, the legs separately pivoted at the ends thereof, and having inclined shoulders above their pivotal points, the swinging sides, the links pivotally connecting the upper portion of each leg and its respective side, and the swinging catches pivoted to the ends of the frame and having the hooked outer ends arranged so as to engage said shoulders of the legs when the legs are spread at their lower ends and thereby lock the legs, as and for the purposes set forth.

3. In a bed, the combination of the frame, the transversely-swinging legs pivoted on opposite sides of the center of the frame ends, each provided with a lateral beveled offset at its side edge above the pivotal point, and the swinging catches for the legs pivoted to the frame ends and having the hooked free ends arranged to be engaged and lifted by said offsets as the legs are spread and to drop over and automatically lock the legs, as set forth.

4. In a bed, the combination of the frame, the transversely-swinging legs pivoted below their upper ends on opposite sides of the ends of the frame, the swinging side frames, the links pivoted to their re-

spective side frames and pivoted to the upper ends of their respective legs permanently above the pivotal points thereof, the catches pivoted to the frame ends to engage said legs and hold them spread, and the corner cleats or braces of the frame located outside of the legs below their pivotal points, and against which the outer edges of the legs bear when spread, thereby relieving strain from the pivots and links, substantially as described.

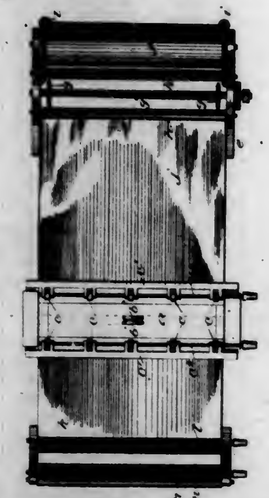
5. In a bed, the combination of the frame, the transversely-swinging legs pivoted below their upper ends on opposite sides of the center of each frame end, the swinging divided side frames, the links at their outer ends pivoted to their respective side frames and at their inner ends pivoted to the upper ends of their respective legs, so that the legs at one end of the bed can be folded independently of those at the other end, substantially as set forth, and the swinging catches, one for each leg, pivoted to the frame ends arranged to engage their respective legs and hold them spread.

6. In a bed, the combination of the frame having the corner cleats to brace the frame on opposite sides of each end, the transversely-swinging legs pivoted below their upper ends on opposite sides of each end between said cleats, so that their outer edges will bear against said cleats when spread to remove strain from the pivots and links, the hinged side frames, and the links at their outer ends pivoted to their respective side frames and at their opposite ends pivoted to their respective legs permanently above the pivotal points thereof, as set forth.

7. In combination, the frame, the corner cleats bracing the frame, a bed-bottom supported on said corner cleats, the swinging side frames, the transversely-swinging legs, pivoted on opposite sides of the frame ends between and above the planes of said cleats, so that the legs rest against the cleats when spread, the links pivotally connecting the legs and side frames, and catches to engage and hold the legs, substantially as described.

8. In a bed, the combination of the frame having the corner cleats, the transversely-swinging legs provided with shoulders and pivoted to the ends of the frame on opposite sides of the center thereof and between said cleats and below their upper ends, so that when the legs are spread they will bear against the inner edges of the cleats, as and for the purposes set forth, the swinging sides, the links pivoted to the sides and to the legs above their pivotal points, as set forth, and swinging catches pivoted to the frame to engage said leg-shoulders and hold the legs spread.

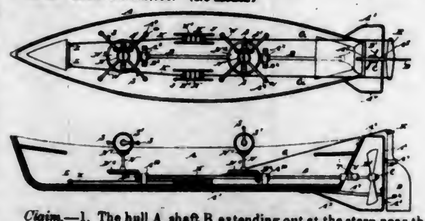
478,762. MACHINE FOR POLISHING PAPER. HENRY E. ROGERS, South Manchester, Conn. Filed May 16, 1891. Serial No. 393,006. (No model.)



Claim.—1. In a machine for glassing or polishing paper, the combination, with a bed, of a glassing-jack and means for drawing strips of paper past the glassing-jack alternately.

2. In a machine for glassing or polishing paper, the combination, with a bed, of a glassing-jack, means for dividing the paper longitudinally into strips, and means for drawing the strips of paper past the glassing-jack alternately.

478,763. BOAT. JAMES SAVAGE, Canarsie, N. Y. Filed July 7 1891. Serial No. 398,856. (No model.)



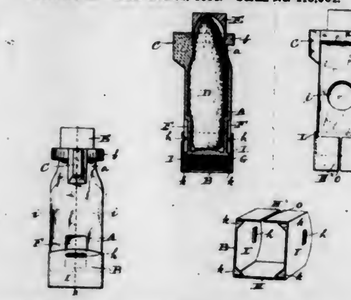
Claim.—1. The hull A, shaft B, extending out at the stern near the bottom, gears S', carried on horizontal shafts, and vertical shafts N and gears N' thereon, and gears connecting such shafts with the propeller-shaft, in combination with each other and with the two-bladed screw B', arranged to sweep below the keel proper and operated by a shaft B, having a hinge-joint T, adapted to allow the screw to be raised and lowered, and the sleeve U, sliding on the shaft for stiffening such joint when required, arranged for joint operation as herein specified.

2. A detachable frame W, with provisions for securing and detaching it at will in the interior of the hull A, transverse shaft *s*, carried therein, with gear S', hand-cranks S, and an upright shaft N and gears N' N² thereon, in combination with the longitudinal shaft B, supported in bearings near the bottom of the boat and having a screw-propeller and a hinge-joint outside with means for stiffening the joint, and a gear-wheel B², engaged with the gear N², arranged for joint operation as herein specified.

3. In apparatus for the propulsion of boats, the two-bladed screw B', arranged to sweep below the keel proper and operated by a shaft N, having a hinge-joint T to allow the screw to be raised and lowered, and means for stiffening such joint when required, in combination with each other and with the series of longitudinal guards A² A³ A⁴, extending below the keel, all arranged for joint operation as herein specified.

4. In apparatus for the propulsion of boats, the two-bladed screw B', arranged to sweep below the keel proper and operated by a shaft N, having a hinge-joint T to allow the screw to be raised and lowered, and the sleeve U for stiffening such joint when required, in combination with each other and with the series of longitudinal guards A² A³ A⁴, extending below the keel, and an upright portion A², carrying hinge-joints A' A², connecting a rudder D in rear of the whole, all arranged for joint operation as herein specified.

478,764. STAMP OR LABEL AFFIXER. WILLIAM B. SHAFER, Somerset, Pa. Filed Dec. 22, 1891. Serial No. 415,901. (No model.)



Claim.—A stamp-holder composed of spring material, provided with lips to hold the stamps and lugs in the sides of the holder, in combination with a body provided with depressions to receive said lugs, substantially as described.

478,765. TRANSLUCENT SCULPTURE. FREDERICK A. SHAW, Boston, Mass. Filed Feb. 4, 1892. Serial No. 420,301. (No model.)

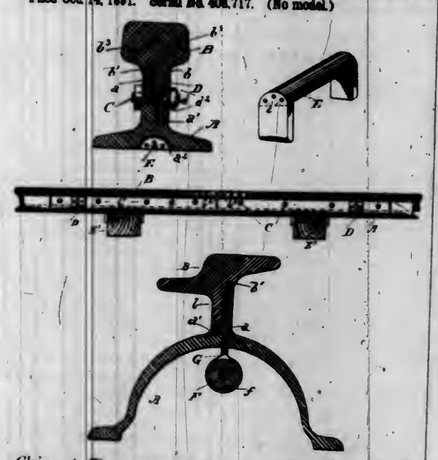
Claim.—1. As an improved article of manufacture, a natural translucent stone having a design sculptured thereon, the variations or gradations of light and shade being secured by differing thicknesses of the stone at predetermined points and the whole design adapted to be developed by transmitted light, substantially as described.

2. The herein-described method of sculpturing translucent natural stone, which consists in cutting the design in the stone in varying degrees of depth, whereby the variations or gradations of light and shade are secured and developed by transmitted light, substantially as described.

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478,766. RAILWAY-RAIL. JOHN T. SMITH, San Francisco, Cal. Filed Oct. 14, 1891. Serial No. 408,717. (No model.)



Claim.—1. The combination of a rail hollowed at the base, ties thereunder, and segmental bars in said base to clamp said ties, substantially as set forth.

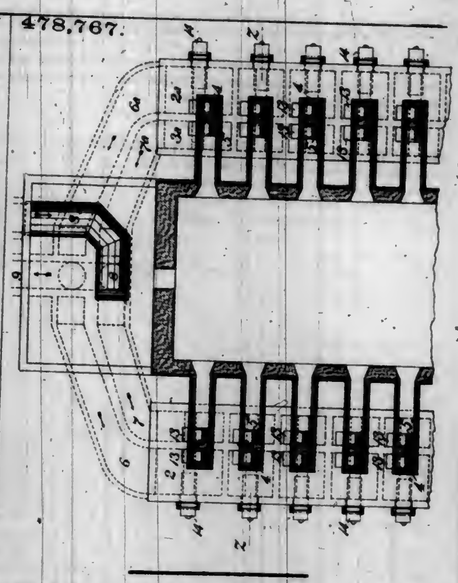
2. The combination of a rail hollowed at the base, and segmental bars adapted to support and guide electric wires therein, substantially as set forth.

3. The combination, in a rail, of a scarfed upper section, a correspondingly scarfed lower section having a semi-cylindrical base, an electric wire, and means to support said wire within said base, substantially as set forth.

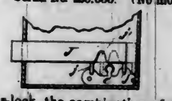
478,767. FURNACE. SAMUEL R. SMITH, Pittsburg, Pa. Filed Mar. 31, 1892. Serial No. 427,226. (No model.)

Claim.—In a tank-furnace for melting glass, the combination of a series of four or more regenerating-chambers for gas and air on each side of the furnace, each regenerating-chamber having an independent flue connection to the hearth of the furnace, flues connecting the gas-conduit with each of the gas-regenerators and the air-conduit with the air-regenerators, valves for cutting off the supply of gas and air from each of the regenerators, and valves for closing the flues from the regenerators to the hearth, substantially as set forth.

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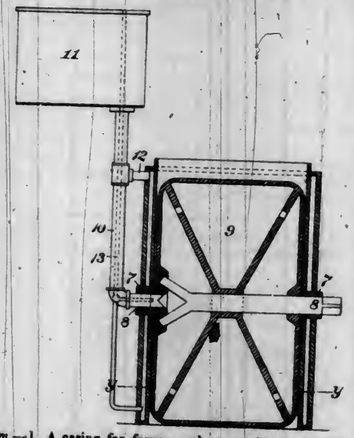


478,768. KEYHOLE-GUARD. OSCAR STODDARD, Detroit, Mich. Filed Mar. 3, 1892. Serial No. 423,635. (No model.)



Claim.—In a door-lock, the combination of the casing having the sector-flanges, the key having the guiding-recesses, the guard-plate having the raised ends, and the locking-bolt having the depending legs or stops.

478,769. CASING FOR FURNACE-VALVES. JAMES D. SWINDELL, Allegheny, Pa., assignor of one-half to Edward H. Swindell, same place. Filed Dec. 30, 1890. Serial No. 376,248. (No model.)



Claim.—1. A casing for furnace-valves, consisting of a series of independently-removable sections, said sections having double walls and their meeting faces provided with the registering openings, in combination with fluid supply and outlet pipes, substantially as set forth.

2. The combination of a valve provided with a water-chamber, an elevated tank for the reception of the water normally escaping from the valve, an outlet-pipe connecting the water-chamber and the tank, and a supply-pipe connecting the water-chamber of the valve with a suitable source of supply, substantially as set forth.

3. The combination of a furnace-valve casing provided with water-chambers, an elevated tank for the reception of the water normally escaping from the casing, an outlet-pipe connecting the casing and tank, and a supply-pipe connecting the casing and a suitable source of water-supply, substantially as set forth.

478,770. BICYCLE. HENRY H. THORP, Cleveland, Ohio. Filed Aug. 25, 1891. Serial No. 403,643. (No model.)



Claim.—1. In a bicycle, the handle-bar pivotally supported on its standard, a laterally-swinging safety-arm, and operating mechanism connecting the handle-bar with said arm, substantially as described.

2. A bicycle provided with a pivoted arm arranged to swing laterally into safety position and mechanism connecting said arm with the handle-bar to turn said arm to either side, substantially as described.

3. A bicycle having a rod bent substantially at right angles and supported in bearings at an angle to a vertical plane, the lower portion of said rod serving as a safety-arm, in combination with a pivoted handle-bar and operating mechanism connecting said handle-bar and rod, substantially as described.

4. In a bicycle, a safety-arm having a standard portion supported in bearings on the bicycle-frame and arranged to swing at right angles to the line of movement, in combination with a pivoted handle bar and mechanism connected with said bar, constructed to turn the said safety-arm to one side or the other, substantially as described.

5. The bicycle-frame, a safety attachment pivoted in bearings on said frame and having a forwardly-projecting arm, with a wheel on its extremity, in combination with a pivoted handle-bar and mechanism proceeding from said bar to turn said arm to one side or the other of the bicycle, substantially as described.

6. In a bicycle, a safety-arm supported in fixed bearings on the main frame and having a wheel at its front end, in combination with a pivoted handle-bar, a rack-bar operated thereby, and a pinion connected with said safety-arm, operated by said rack-bar, whereby said arm is turned laterally, substantially as described.

7. In a bicycle, a handle-bar pivotally supported on its standard and temporary locking mechanism connected with said bar, whereby the bar is held normally in horizontal position, and a safety device having connections extending to said handle-bar and operated thereby, substantially as described.

8. In a bicycle, a pivoted handle-bar having an attachment fixed thereon, constructed to lock the said bar temporarily in its normal position, in combination with a safety device supported on the bicycle-frame and mechanism constructed to throw said safety device into working position when the handle-bar is disengaged from its temporary lock, substantially as described.

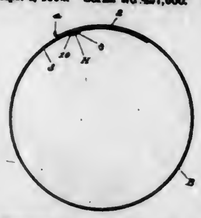
478,771. CLAMP FOR FRUIT-JAR CAPS, &c. CHARLES E. THOMAS, Williamstown, N. J. Filed Feb. 23, 1892. Serial No. 422,821. (No model.)



Claim.—1. A cover-fastener for fruit and other jars, consisting of the body portion F, having radial hooked arms F' and extension F², and the hooked arm G, pivoted at its inner end to the extension F² and its outer hooked end adapted to engage the lower edge of the collar upon the jar, substantially as described, and for the purpose specified.

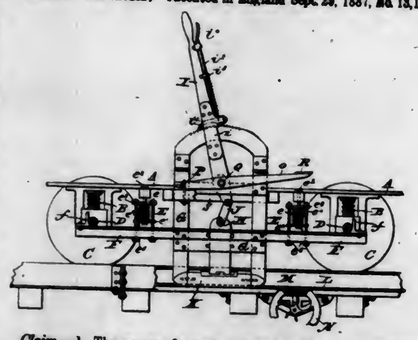
2. In combination with a fruit or other jar having an annular collar at its mouth, the cap or cover and the clamping device consisting of a body portion having two hooked arms and a third hooked arm pivotally connected with the body portion, said clamp being adapted to fit over the top of the cap or cover and the ends of the arms to engage the lower edge of the collar upon the jar, substantially as described, and for the purpose specified.

478,772. TROUSERS-GUARD. JUSTUS A. TRAUT, New Britain, Conn. Filed Apr. 4, 1892. Serial No. 427,600. (No model.)



Claim.—The improved clasp herein described, consisting of a band of metal having in one end thereof one or more hook-engaging slots, substantially as described, and having at its other end a hook consisting of a strip extending longitudinally of and cut and struck down from the band and connected at each end thereof with the body of the band and having on the middle portion thereof one or more lateral projections adapted to engage in said slots, substantially as described.

478,778. CABLE-RAILWAY GRIP. CHARLES VOGEL, San Francisco, Cal. Filed May 27, 1887. Renewed Feb. 18, 1891. Serial No. 381,811. (No model.) Patented in England Sept. 29, 1887, No. 13,194.



Claim.—1. The means of securing the grip to the car of an underground cable railway, consisting, essentially, of the equalizing-frame F, extending under and bearing upward against the axles D D and to which the grip-frame is secured, and the elastic hangers E E, from which the equalizing-frame is suspended from any convenient timbers of the car above, substantially as and for the purpose described.

2. The means of lowering the grip of an underground railway below its normal height when necessary, consisting, essentially, of a suitable elastic connection between the grip-frame and the car to which it is secured and a lever O, having a fixed fulcrum upon the car-frame at one end and engaging with the grip-frame by being pivoted thereto or otherwise at about the middle of said frame, substantially as and for the purpose herein described.

3. In combination, the cable, the jaws having their ends normally above the lower face of the cable when grasping the same and adapted to be lifted by the cable into position to pass over the pulleys, the vertically-movable supporting frame, and the tapering pieces at the ends of the jaws, substantially as described.

4. In combination, the grip-jaws and the vertically-movable frame containing horizontally-tapered extremities which bound the jaws at each end and lie normally above the lower face of the cable, by the inclined action of which the jaws and frame may be raised over obstructions, substantially as described.

5. In combination, the jaws having their ends normally above the lower face of the cable when grasping the same and adapted to be lifted by the cable into position to pass over the pulleys and mechanism whereby they may be shoved downward into position to grip a sagging cable between the pulleys, substantially as described.

6. In combination, the cable, the jaws having their ends normally above the lower face of the cable when grasping the same and adapted to be lifted by the cable into position to pass over the pulleys, and mechanism whereby they may be shoved downward into position to grip a sagging cable between pulleys, said last-named mechanism being adapted to automatically yield to the upward pressure of the cable, substantially as described.

7. In combination, the cable, the jaws having their ends normally above the lower face of the cable when grasping the same and adapted to be lifted by the cable into position to pass over the pulleys, mechanism whereby they may be shoved downward into position to grip a sagging cable, a stop limiting their upward movement, and a spring-support holding them up against the stop, substantially as described.

8. In combination, the cable, the vertically-moving jaws lying in their normal position substantially above the level of the lower face of the cable, which will permit them to grasp the cable as it rests upon its supporting-pulleys, a stop whereby said normal position is fixed, and mechanism whereby the jaws may be thrust downward to grasp a sagging cable, substantially as described.

9. A traction-cable-railway car having a grip in which the jaws, when open, are normally in or near the position to grasp the cable as it rests in the supporting-pulleys and provided with mechanism for opening and closing the same and mechanism whereby said jaws may be thrust downward in position to grasp a sagging cable, substantially as described.

10. In combination, the cable, the cable-supports, the vertically-movable gripping-jaws lying normally at or nearly at a level which will permit them to grasp the cable as it rests upon its support, a spring-support for said jaws, in antagonism to which the jaws may be thrust below the level for grasping the cable as it rests on the pulley-supports, and a stop whereby the upward movement of said jaws is stayed at or near said level, substantially as described.

11. In a railway-car, in combination, the grip-supporting frame, a lever fulcrumed on the car, and a grip-operating lever fulcrumed to said first-named lever, substantially as described.

12. In combination, the grip-jaws, the vertically-movable frame containing side uprights, between the lower extremities of which the jaws are supported, and an upper cross-piece, an upright lever pivoted intermediate the cross-piece and the jaws, and jaw-closing mechanism interposed between said lever and the jaws, substantially as described.

13. In combination, the grip-jaws, the vertically-movable frame containing side uprights, between the lower extremities of which the jaws are supported, and an upper quadrant-shaped member, an upright lever pivoted intermediate the quadrant and the jaws, a pawl mounted on the lever and engaging the quadrant, and jaw-closing mechanism interposed between said lever and jaws, substantially as described.

14. In combination, the grip-jaws, the vertically-movable frame containing side uprights, between the lower extremities of which the jaws are supported, and an upper cross-piece, an upright lever embracing said cross-piece and restrained in its movements thereby and pivoted intermediate the same and the jaws, and jaw-closing mechanism interposed between said lever and the jaws, substantially as described.

15. In combination, the grip-jaws, the vertically-movable frame containing side uprights, between the lower extremities of which the jaws are supported, and an upper cross-piece, and jaw-closing mechanism having a bearing on said cross-piece above the space between said uprights, substantially as described.

16. In combination, the grip-jaws and the vertically-movable portion carrying the same, said portion being secured to a member bearing against the running-gear and extending upward through an opening in the car-body and consisting of side uprights, a top cross-piece, and another cross-piece a short distance above the cable-conduit, substantially as described.

17. In combination, the grip-jaws, the vertically-movable portion carrying the same, said portion being secured to a member bearing against the running-gear and extending upward through an opening in the car-body, a vertically-reciprocating grip-shank, and guideways for said grip-shank, substantially as described.

18. In a railway-car, in combination, the gripping-jaws, the grip-shank vertically movable independently of its supporting-frame, mechanism for actuating said shank, and a vertically-movable frame supporting said jaws and said shank, and actuating mechanism whereby said frame can be moved vertically without changing the relative position of the parts for moving said shank, substantially as described.

19. In a railway-car, in combination, jaws moving about a pivot, a vertically-moving grip-shank, toggle-links whereby said shank is moved, and a vertically-movable frame which carries both the pivot of said toggle-links and the pivot of said jaws, substantially as described.

20. In a railway-car, in combination, the jaws, a hand device for operating the same as a portion of said device is depressed, a vertically-movable frame wherein said jaws are mounted, and a foot device whereby said frame may be thrust downward, substantially as described.

21. In a railway-car, in combination, the gripping-jaws, mechanism whereby said jaws are actuated to grip as a portion of said mechanism is depressed, a vertically-moving frame supporting said mechanism and said jaws, a spring supporting said frame, and mechanism connected with the car whereby said frame may be moved in antagonism to said spring, substantially as described.

22. In a railway-car, in combination, gripping-jaws, a vertically-moving grip-shank actuating said jaws, mechanism for actuating the grip-shank, a vertically-movable frame connecting said actuating mechanism with said jaws, and a spring whereon said vertically-movable frame is supported, substantially as described.

23. In combination, the grip-jaws, the vertically-movable frame containing side uprights, between the lower extremities of which the jaws are mounted, a stop whereby the normal position of the frame is determined, and a spring-support whereby the frame is held in contact with the stop, substantially as described.

24. In combination, the grip-jaws, the vertically-movable frame containing side uprights, between the lower extremities of which the jaws are mounted, a stop whereby the normal position of the frame is determined, a spring-support whereby the frame is held in contact with the stop, and mechanism whereby the frame may be shoved downward, substantially as described.

25. In a railway-car, in combination, the grip-supporting frame, a spring whereby the same is supported, and a stop connected with the running-gear of the car, whereby the highest position of the grip is determined independently of the car-body, substantially as described.

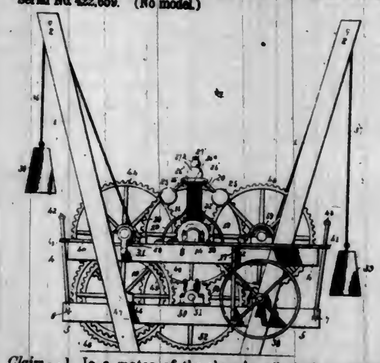
26. In a traction-cable-railway car, in combination, the jaws, mechanism whereby said jaws are operated, a frame wherein said mechanism and said jaws are mounted, a spring whereby said frame is supported, and means whereby the tension of said spring may be regulated, substantially as described.

27. In a traction-cable-railway car, in combination, the jaws, the frame supporting said jaws, a spring supporting each side of said frame, and mechanism adapted to exert a downward pressure in a line substantially equidistant between said springs, whereby said jaws may be thrust vertically downward, substantially as described.

28. In a railway-car, in combination, the horizontal piece F, bearing against the running-gear, provided with an opening for the passage of the grip-shank and also provided on either side of said opening with a bearing adapted to receive a spring, substantially as described.

29. In a traction-cable-railway car, in combination with the running-gear, a horizontal piece F, provided with a passage-way for the grip-shank and on either side thereof with a passage-way for the vertically-moving jaw-supporting frame, substantially as described.

478,774. MOTOR. EDMOND C. WHEAT, Comanche, Tex., assignor of three-eighths to Julius A. Best, same place. Filed Feb. 24, 1892. Serial No. 422,659. (No model.)



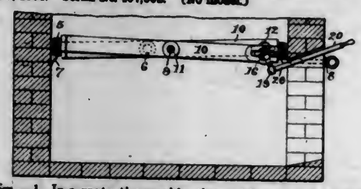
Claim.—1. In a motor of the class described, the combination, with the framework, a main shaft journaled therein, a main gear and two pinions mounted on the shaft, and means for transmitting motion from the gear, of transverse shafts located at opposite sides of the main shaft, drums mounted thereon, cranks for the shafts, weights, guides, and cables passed over the guides and connected with the weights and drums, and gears mounted on the shafts and adapted to engage with the pinions of the main shafts, substantially as specified.

2. In a motor of the class described, the combination, with the framework, a counter-shaft, a main shaft, a gear thereon, means for communicating motion from the gear to the counter-shaft, and pinions mounted on the main shaft, of opposite weight-operated shafts, movable boxes for the same, means for operating the boxes, and gears mounted on the weight-operating shafts and engaging the pinions of the main shaft, substantially as specified.

3. In a motor of the class described, the combination, with the framework, the central main shaft, the large gear thereon, the small pinions on the main shaft, the counter-shaft, and means for communicating motion from the large gear of the main shaft to the counter-shaft, of the opposite pairs of boxes mounted for sliding on the frame, U-shaped bails connecting at their terminals to the boxes, levers fulcrumed on the framework and connected to the bails, shafts located in each side of the main shaft and journaled in the boxes, said shafts terminating in cranks, gears loosely mounted in the shafts and adapted to engage the pinions of the main shaft, ratchet-wheels mounted on the shafts rigidly, pawls pivoted to the gears and engaging the ratchet-wheels, opposite guides, cables passed in reverse directions around the slidable shafts, and weights connected to the outer ends of the cables, substantially as specified.

4. In a motor of the class described, the combination, with the framework, the shaft 9, the gears 10, 11, and 12, mounted thereon, the counter-shaft 55, and an intermediate train of gearing from the gear 10 to the gear on the counter-shaft, of the boxes 29, mounted in ways upon plates 28 at opposite sides of the shafts 9, the winding-shafts 30 and 32, mounted in the boxes, the gears 44 and 45, loosely mounted on the shafts 30 and 32, the ratchet-wheels 62, rigid on the shafts 30 and 32, the pawls 63, pivoted to the gears 44 and 45 and engaging the ratchet-wheels, the ratchet-wheels 61, mounted upon the shafts 30 and 32 at the inner sides of two of the boxes 29, the pawls 59, pivoted to the boxes for engaging the ratchet-wheels and having inclined shoulders 60 at their front ends, the cam-blocks 62, located in the paths of the shoulders, and means for moving the shafts 30 and 32 and their boxes, so as to throw the gears 44 and 45 into and out of engagement with the pinions 11 and 12 of the shaft 9, substantially as specified.

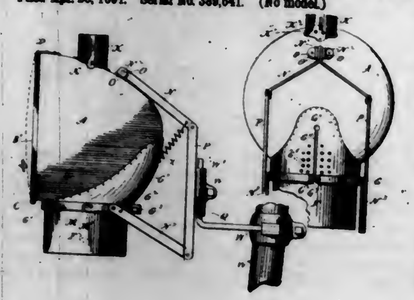
478,775. GRATE. WILLIAM WHITWORTH, Worcester, Mass. Filed Oct. 6, 1891. Serial No. 407,892. (No model.)



Claim.—1. In a grate, the combination, with a suitable frame and a series of grate-bars pivoted on a shaft secured in said frame and having cam-slots formed in the front portions thereof, of a pivoted shaft extending through perforations in the bars and having cams adapted to co-operate with the slots of the alternate bars and means for operating said shaft, as described.

2. The combination, with a grate-frame and the bars 10, pivoted on the shaft 9, secured therein, and having the circular perforations 12 and cam-slots 13 and 14, of a shaft journaled in said frame, extending through said perforations 12, and having cams 17 and 18, a depending arm 19, secured to said shaft, and a shake-handle 20, extending therefrom, adapted to rock said shaft 9, as and for the purpose described.

478,776. CYCLE-LAMP. CHARLES R. W. WOODWARD, Chicopee Falls, Mass., assignor to the Overman Wheel Company, Hartford, Conn. Filed Apr. 20, 1891. Serial No. 389,641. (No model.)



Claim.—1. In a cycle-lamp, the combination, with a parabolic cone arranged horizontally and constructed with fount and air openings in its lower face, of a perforated hood applied to said face of the cone, inclosing the said fount and air openings, forming a draft-chamber vertically split at its rear end and provided at its lower edge with a split ring to embrace and hold the fount, substantially as described.

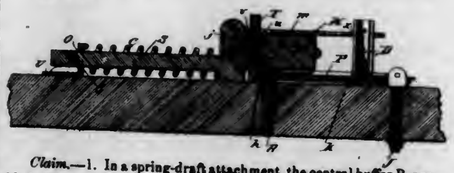
2. In a cycle-lamp, the combination, with a parabolic cone arranged horizontally and constructed with turret and fount openings, respectively formed in its upper and lower faces, of a perforated cap or turret applied over the said turret-opening, a perforated draft-flue extending into said turret, made enough smaller than the same to form a small air-space between them, and provided at its lower end, which projects into the cone, with an offsetting flange to receive and hold the upper end of the chimney, and a spring located in the cap to press the flue downward upon the chimney, substantially as described.

3. In a cycle-lamp, the combination, with a parabolic cone arranged horizontally and constructed with turret and fount openings, respectively formed in its upper and lower faces, of a cap or turret applied over the said turret-opening, a vertically-movable perforated draft-flue extending at its upper end into the turret and having its lower end, which projects into the cone, furnished with an offsetting flange to adapt it to receive and support the upper end of the chimney, a spring located within the turret for depressing the said flue, a depending fount-support applied over the said fount-opening and forming a draft-chamber, and a glass closing the open end of the cone, substantially as described.

4. In a cycle-lamp, the combination, with a parabolic-cone arranged horizontally and constructed with turret and fount openings, respectively formed in its upper and lower faces, of a turret applied over the said turret-opening, a fount-support consisting of a perforated hood inclosing the said fount and air openings, forming a draft-chamber and having a split collar attached to its lower edge for clasping upon the fount, and a glass closing the front of the cone, substantially as described.

5. The combination, with the body of a cycle-lamp, of a pair of diverging arms pivoted at their meeting points to the upper portion of the said body, a pair of parallel upright arms pivoted to the outer ends of the said diverging arms, a pair of parallel arms having their outer ends pivoted to the lower ends of said upright arms and their inner ends pivotally connected with the lower portion of the said body at a point thereon above the lower ends of the said upright arms, a clip attached to the said upright arms, and springs for controlling the action of the said arms, substantially as described.

478,777. SPRING-DRAFT ATTACHMENT FOR VEHICLES. HIRAM BARBER, Chicago, Ill. Filed July 31, 1889. Serial No. 319,261. (No model.)



Claim.—1. In a spring-draft attachment, the central buffer B, provided with the shank S and the slotted shoe Y, in combination with the forward buffer U, rigidly attached to the tongue of the wagon, the coil-spring C, the upright bolt T, and standard D, united by the slotted strap P, the slotted hammer-strap H, the bolts R and J, the evener E, and the plate M, provided with the sleeve V, all arranged substantially as and for the purpose herein set forth.

2. In a spring-draft attachment, the central buffer B, provided with the shank S and the slotted shoe Y, in combination with the forward buffer U, rigidly attached to the pole of the wagon, the coil-spring C, the hammer-strap H, the bolts R and J, and the evener E, all arranged as and for the purposes herein set forth.

3. In a spring-draft attachment, the central buffer B, provided with the shank S and the slotted shoe Y, in combination with the forward buffer U, rigidly attached to the pole of the wagon, the coil-spring C, the upright bolt T, the hammer-strap H, the bolts R and J, and the evener E, all arranged as and for the purposes herein set forth.

4. In a spring-draft attachment, the central buffer B, provided with a shank S and the slotted shoe Y, in combination with the forward buffer U, rigidly attached to the pole of the wagon, the coiled spring C, the bolts T and R, and the slotted strap P, all arranged as and for the purposes set forth.

5. In a spring-draft attachment, the central buffer B, provided with the shank S and the slotted shoe Y, in combination with the forward buffer U, rigidly attached to the pole of the wagon, the coil-spring C, the bolts T and R, the evener E, and the plate M, provided with the sleeve v, all arranged as and for the purposes herein set forth.

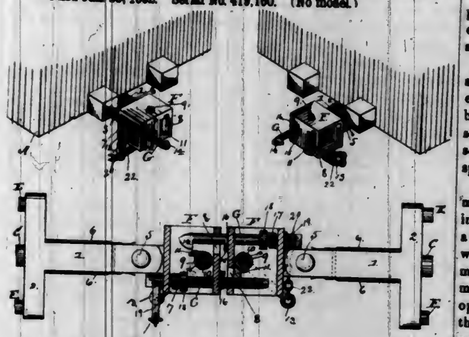
6. In a spring-draft attachment, the central buffer B, provided with the shank S and the slotted shoe Y, in combination with the forward buffer U, rigidly attached to the pole of the wagon, the coil-spring C, the bolt T, and standard D, united by the slotted strap P, the bolt R, the evener E, and the plate M, provided with the sleeve v, all arranged substantially as and for the purpose herein set forth.

7. In a spring-draft attachment, the central buffer B, provided with the shank S and the slotted shoe Y, in combination with the forward buffer U, rigidly attached to the pole of the wagon, the coil-spring C, the bolt T, and standard D, united by the slotted strap P, the slotted hammer-strap H, attached to the pole of the wagon and held rigidly in position by means of the bolts R and J, the evener E, the plate M, provided with the sleeve v, and the upper hammer-strap K, all arranged as and for the purposes herein described.

8. In a spring-draft attachment, the combination, with the central buffer B, shank S, spring C, slotted shoe Y, having downwardly-projecting ribs i i at its sides, of the slotted strap P, located and held between said ribs and provided with the bolt T and standard D, substantially as and for the purpose described.

9. In a spring-draft attachment, the combination, with the spring C and hammer-strap H, having apertures a and n, of the slotted strap P, provided with a bolt T and standard D, and the confining-bolt J, whereby the device is secured to the tongue of the vehicle, substantially as and for the purpose described.

478,778. CAR-COUPLING. DAVID BELLOR, McKownville, N. Y. Filed Jan. 25, 1892. Serial No. 419,160. (No model.)



Claim.—1. In a car-coupler, the combination of a draw-bar having a spring-controlled longitudinal movement, a draw-head jointed to the outer end of said draw-bar and having in its outer face an opening which is partially closed by a flange which is hinged to said draw-head, and a horizontal coupling-hook journaled in said draw-head and having a partial rotative movement therein, said coupling-hook being adapted to enter the draw-head of a coupler of like construction and to engage with the hinged flange of the latter, as and for the purpose herein specified.

2. In a car-coupler, a draw-head provided in its outer face with an opening which is partially covered by a hinged flange or shutter, a coupling-hook journaled in said draw-head to receive a partial rotative movement, arms secured to said shutter and coupling-hook and connected together, so as to effect a simultaneous movement of the shutter and coupling-hook, as and for the purpose herein specified.

478,779. FEEDING DEVICE FOR ENVELOPE-MACHINES. CHAS. BEYER, Brooklyn, N. Y., and DANIEL M. LESTER, Norwich, Conn., assignors to Lester & Wasley, Norwich, Conn. Filed Sept. 28, 1891. Serial No. 407,013. (No model.)

Claim.—1. In an envelope-machine, the combination, with a vertically-movable table for holding the blanks, of mechanism for elevating the table, a lever one end of which is adapted to engage with said mechanism, a plunger-rod provided with a plunger for operating upon the blanks and also formed or provided with means for engaging with the opposite end of said lever, and means for moving said opposite end of the lever into the path of the plunger when the table reaches its upward limit, whereby the lever is rocked upon its fulcrum and one end of it is caused to engage with and to release the lifting mechanism and permit the table to assume its original position, substantially as set forth.

2. In an envelope-machine, in combination with the plunger-rod and a vertically-movable elevator held by a pawl, as set forth, mechanism for moving the elevator upward, a jointed lever of the form described, one of whose ends is immediately over the free end of said pawl, and mechanism, as specified, for moving the opposite (hinged) end of said lever into the path of the plunger-rod, for the purpose stated.

3. In combination with the plunger-rod of an envelope-machine, an elevator held by a pawl *h*, as set forth, mechanism for moving the elevator upward, said elevator having a projecting plate o^3, an angle-bar *o*, having one arm in the path of said plate, a jointed lever *n*, as set forth, and a rod *o'*, connecting said angle-bar with the hinged section of said lever, all being substantially as and for the purpose specified.

4. In an envelope-machine, the combination, with a vertically-movable table, of a ratchet-wheel connected therewith, a plunger-rod in the machine, provided with a plunger for operating upon the blanks, a lever pivotally secured to the frame of the machine, one end of which is movable laterally, said plunger being formed or provided with means for engaging with said movable end of the lever, means for moving said end of the lever, and two pawls for engaging with and operating the ratchet-wheel, one of said pawls having its head between the periphery of the wheel and the other pawl and having its opposite end extended beyond its fulcrum-point into the path of the lever, substantially as set forth.

478,780. PHOTOGRAPHIC CAMERA. WILLIAM H. REDFOOT, Hoboken, N. J. Filed Jan. 27, 1892. Serial No. 419,407. (No model.)



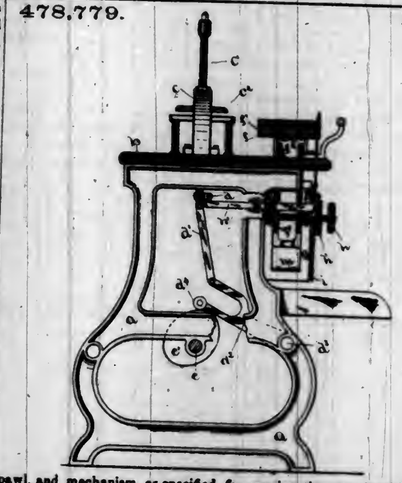
Claim.—1. In a three-compartment camera, a storage-compartment for the exposed plates, provided with an inclined surface for lifting the plates and sustaining the outer side of the stack, and a carrier provided at one end with a hook for transferring the plates in the receiving-compartment one by one to the exposing-compartment and at its opposite end with a projection for supporting the inner side of the stack in the storage-compartment, substantially as and for the purpose set forth.

2. In a magazine-camera, a storage-compartment provided with an elevated inclined surface causing the stack in the said compartment to tilt and bring the inner end of the rear plate into the plane of the plate in the exposing-compartment, and a sliding carrier provided with a projection adapted to lift and support the inner side of the stack in the storage-compartment to permit the passage of the plate from the exposing-compartment to the storage-compartment, substantially as described.

3. In a three-compartment camera, guide-rails extending across the back of the camera, provided with channel-shaped portions in the exposing-compartment for supporting the plate in the same, said rails

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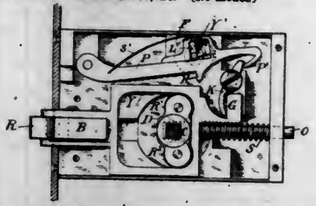


terminating in elevated inclined surfaces in the storage-chamber, substantially as described, and a carrier provided with a hook for transferring the plates and with a projection for supporting one side of the stack in the storage-compartment, substantially as described.

4. In a magazine-camera, the combination of a sliding carrier F, formed of two approximately-parallel parts and provided with means for transferring the plates, a slotted closing-plate *l*, a threaded stud *j*, secured to the carrier and projecting through the slot in the closing-plate, a nut screwed upon the stud and adapted to lock the carrier by contact with the plate, and a light-guard *g*, located between the two parts of the carrier, substantially as described.

5. In a three-compartment camera, a sliding carrier provided with a hook at one end for transferring the plates and an opposite yoke-shaped or bifurcated end provided with projections adapted to lift and support the stack of plates in the storage-compartment, substantially as described.

478,781. LOCK. CHARLES E. CANDEE, New York, N. Y. Filed Sept. 22, 1890. Serial No. 365,723. (No model.)



Claim.—1. In locks, an automatic locking-lever, in combination with the positive locking and positive unlocking and freeing cam L, a bolt B, and a tumbler K, one arm of which engages the locking-lever to disengage the same, and the other arm of which engages the bolt B to retreat the same after it is unlocked, substantially as shown and described.

2. In locks, an automatic locking pawl or lever, in combination with a positive locking and positive unlocking and freeing cam L, a bolt B, an unremovable tumbler K, engaging the locking pawl or lever to disengage the same and also the bolt B to retreat the same independently of the knob and spindle, and an eccentric spindle-socket stop stopping the bolt in either of two positions at will, one of which is a locking position in relation to the locking pawl or lever.

3. In locks, an automatic locking pawl or lever, in combination with a positive locking and positive unlocking and freeing cam L, a bolt B, an unremovable tumbler K, engaging the locking pawl or lever to disengage the same, and also the bolt B to retreat the same independently of the knob and spindle, and an eccentric spindle-socket stop stopping the bolt in either one of two positions at will, one of which is a locking position in relation to the locking pawl or lever, the spindle-socket being provided with the rollers R' R³ for retreating the bolt independently of the tumbler.

4. The locking pawl or lever P, fulcrumed at one end and provided with the stop P', in combination with the tumbler K, one arm of which bears upon the other end of the locking pawl or lever P for the purpose of lifting and disengaging the same, and also with the stop P', and also in combination with the cam L, arranged to lift, lock, or free the locking pawl or lever at will.

5. The locking pawl or lever P, fulcrumed at one end and provided with the stop P' and with the springs S' S³, in combination with a tumbler K, one arm of which bears upon the locking pawl or lever P for the purpose of lifting and disengaging the same, and also with the stop P', and also in combination with the cam L, arranged to lift, lock, or free the locking pawl or lever at will.

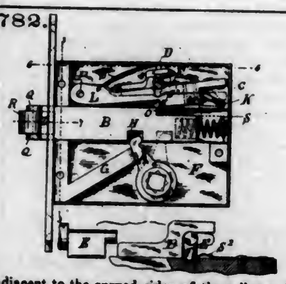
6. The locking pawl or lever P, fulcrumed at one end and provided with the stop P' and the springs S' S³, in combination with a tumbler K, one arm of which bears upon the locking pawl or lever P for the purpose of lifting and disengaging the same, and also in combination with the cam L, arranged to lift, lock, or free the locking pawl or lever at will, and with a lock-bolt.

478,782. LOCK. CHARLES E. CANDEE, New York, N. Y. Filed Feb. 4, 1891. Serial No. 380,142. (No model.)

Claim.—1. A spring catch-bolt, in combination with an automatic locking-lever engaging therewith in the manner shown and described and with an independently positive lifting, independently positive locking, and freeing cam E.

2. In locks, a positive-locking spring-bolt provided on its outer end with a concave recess, in combination with a roller secured in the front end of the bolt and seated in the concave recess, substantially as shown and described, the most forward part of the bolt which forms

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the recess adjacent to the curved sides of the roller making contact with the jamb-escutcheon, so as to hold the door when in its closed position, and thereby relieve the roller of that function, substantially as set forth.

3. In locks, the locking-lever L, pivoted at one end, provided with the springs S' S³, the cam-seat D, and the stop or shoulder N, in combination with the lifting, locking, and freeing cam E.

4. In locks and in combination, the locking-lever L, pivoted at one end, provided with springs S' S³, cam-seat D, stop or shoulder N, and the key-seat C, the cam E, the key K, the bolt B, provided with the shoulder O and notch H, the spring S, and the spindle-arm A.

5. In locks and in combination, the locking-lever L, pivoted at one end, provided with springs S' S³, cam-seat D, stop or shoulder N, key-seat C, the cam E, the key K, and the bolt B, provided with the shoulder O.

6. In locks and in combination, the locking-lever L, pivoted at one end, provided with springs S' S³, cam-seat D, stop or shoulder N, key-seat C, the cam E, and the key K.

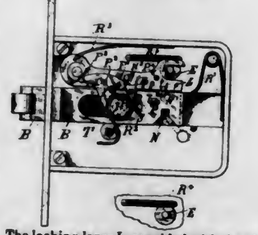
7. In locks and in combination, the locking-lever L, pivoted at one end, provided with springs S' S³, cam-seat D, stop or shoulder N, the key-seat C, and the cam E.

8. In locks and in combination, the locking-lever L, pivoted at one end, provided with springs S' S³, cam-seat D, stop or shoulder N, and key-seat C.

9. In locks and in combination, the bolt B, provided with the notch H and the shoulder O, the spring S, the spindle-arm A, the locking-lever L, pivoted at one end, provided with springs S' S³, cam-seat D, stop or shoulder N, and key-seat C, the cam E, and the stop G.

10. In locks, the locking-lever L, lifting, locking, and freeing cam E, cam-seat D, and spring S³, in combination.

478,783. LOCK. CHARLES E. CANDEE, New York, N. Y. Filed July 13, 1891. Serial No. 399,393. (No model.)



Claim.—1. The locking-lever L, provided with the pin P', shoulder O, and spring R⁴, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, provided with the stud S, notch N', and spring R', and the spindle-socket H, provided with the cams C and C' and spring R³ for the purpose of unlocking, retreating, and holding in retreat the bolt B.

2. The locking-lever L, provided with the pin P', the shoulder O, and spring R⁴, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, provided with the stud S, notch N', and spring R', and the spindle-socket H, provided with the cam C, having the notch N³, the spring R³, and the cam C' for the purpose of unlocking, retreating, and holding in intermediate retreat and tripping the bolt B.

3. The locking-lever L, provided with the shoulder O, the pin P', and the spring R⁴, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, provided with the stud S, pin P, notch N', and spring R', the spindle-socket H, provided with the cam C, having the pin P³, the cam C', and the spring R³, and one or more tumblers W' W³ W⁴, provided with notch N³ and slot S³, and springs R⁵, respectively, all in combination for the purpose of unlocking,

retreating, and holding in retreat the bolt B and relocking the same automatically.

4. The locking-lever L, provided with the shoulder O, the pin P', and the spring R⁴, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, provided with the stud S, pin P, notch N', and spring R', the spindle-socket H, provided with the cam C, having the notch N³, the pin P³, the cam C', and spring R³, and one or more tumblers W' W³ W⁴, provided with the notch N³ and slot S³ and springs R⁵, respectively, all in combination for the purpose of unlocking, retreating, and holding in intermediate retreat the bolt B and relocking the same automatically.

5. The locking-lever L, provided with the pin P⁴, shoulder O, and spring R⁴, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, provided with the pin P, notches N and N', and spring R', the tumblers W' W³ W⁴, one or more, provided with the slot S³, notch N³, and springs R⁵, in combination with the corresponding key K for the purpose of unlocking and retreating the bolt B.

6. A tumbler provided with the notch N³, slot S³, and spring R⁵, in combination with the locking-lever L, provided with the pin P⁴ and the spring R⁴, the positive locking, positive unlocking, and releasing cam E, and the key K.

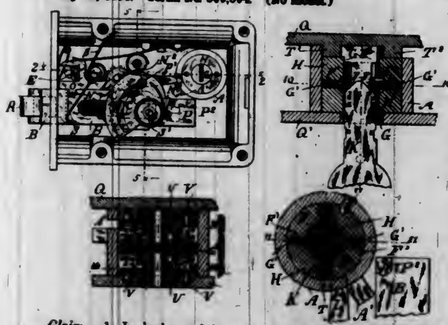
7. The combination of the cam E, lever L, and tumblers W' W³, and W⁴, one or more, for the purpose of positively locking, positively unlocking, and releasing the bolt B.

8. In locks, the double system of devices shown and described, consisting of the bolt B, lever L, and tumblers W' W³ W⁴, in combination with a suitable key K and a spindle-socket H, provided with cams C and C', whereby the bolt may be operated at will either by the key or by the spindle.

9. In locks, the bolt B, provided with the roller R, in combination with a cam provided with means for engaging and retreating, holding, and automatically tripping the bolt, substantially as shown and described.

10. In locks, the bolt B, provided with a roller R, in combination with a cam which is capable of retreating, holding, and also tripping the bolt, with a locking and unlocking lever and with a cam for locking and unlocking the same, substantially as shown and described.

478,784. LOCK. CHARLES E. CANDEE, New York, N. Y. Filed July 13, 1891. Serial No. 399,394. (No model.)



Claim.—1. In locks and in combination, the bolt B, provided with the pin P', the lever L, provided with the pin P', and the double cam C C', provided with the notches N' N³, and spring S', substantially as shown and described.

2. In locks, a pin-tumbler, a revolving tumbler-barrel, and a key for unlocking and revolving the same, in combination, the pin-tumbler projecting beyond the end of the barrel for the purpose of engagement when in its locking position and actuated by the key, in unlocking and revolving the tumbler-barrel, so as to be drawn inwardly for the purpose of unlocking the same, substantially as shown and described.

3. In locks, a compressible and opposite-moving pair of pin-tumblers, in combination with a spring located between them, substantially as shown and described.

4. In locks, a compressible and opposite-moving pair of twin tumblers with a spring located between them, in combination with an opposite like pair of twin tumblers and spring and with a key adapted to operate both pairs of tumblers in unlocking, substantially as shown and described.

5. In locks, the compressible and opposite-moving twin pin-tumblers T T, provided with engaging tongues, in combination with the spring G³ and with the key K, provided with inclined engaging grooves on its opposite edges, substantially as shown and described.

6. In locks, the compressible and opposite-moving twin pin-tumblers T T, provided with engaging tongues, in combination with the spring G³, and also in combination with a like opposite set of compressible and opposite-moving twin pin-tumblers T T, in combination with their spring G³ and with the key K, provided with opposite inclined engaging grooves on its opposite edges, substantially as shown and described.

7. In locks, the compressible and opposite-moving twin pin-tumblers T T, in combination with the spring G³ and also with the pins F and F' and the spring G', substantially as shown and described.

8. In a pin-tumbler barrel or case, the pin-tumbler carriers H H, the compressible and opposite-moving twin pin-tumblers T T and spring G³, the pin F' and spring G', the key-seat cylinder G, and the pin F, substantially as shown and described.

9. In locks and within the pin-tumbler barrel or case and in pairs, the pin-tumbler carriers H H, the pin-tumblers T T, provided with the spring G³, and the pins F F', provided with the springs G' and moving to and fro in planes at right angles to the plane of the motion of the pin-tumblers T T, in combination with the key-seat cylinder G and key K, the corresponding surfaces of the key and of the pin-tumblers being tongued and grooved for the purposes of co-operative action, substantially as shown and described.

10. In locks, a pair of pin-tumblers T T, one or more, in combination with the spring G³ and located between two lock-plates, which are recessed to receive the ends of the tumblers, and thereby hold the tumbler-carrier mechanism in a fixed position until released by the aid of a key, substantially as shown and described.

11. In combination, the key-seat cylinder G, pins F and F', spring G', pin tumblers T, provided on their concave surfaces with the tongues U U, and the key provided with reverse grooves U' U' on opposite edges, substantially as shown and described.

12. In locks, a reciprocating bolt, a pin-tumbler, a revolving tumbler-barrel located between the two plates of the lock, and a key for unlocking and revolving the same, in combination with the pin-tumbler, one or more, projecting beyond the end of the barrel for the purpose of engagement with the adjacent lock-plate when in its locking position and actuated by the key, so as to be drawn inwardly for the purpose of permitting the unlocking and revolving of the tumbler-barrel and also for the purpose of permitting the unlocking and retreating of the reciprocating bolt by the tumbler-barrel, substantially as shown and described.

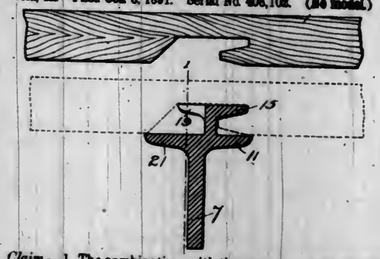
478,785. FIRE-PROOF PAINT. WILLIAM CHURCH, St. Paul, Minn. Filed Feb. 10, 1891. Serial No. 380,946. (No specimens.)

Claim.—1. As an improved article of manufacture, the foregoing-described composition of matter, composed of linseed-oil, lime-water, alum-water, borax, a mineral paint, and a suitable drier, in substantially the manner and proportions specified.

2. The foregoing-described composition of matter, composed of linseed-oil, lime-water, alum-water, borax, a mineral paint, glue sizing, and a suitable drier, substantially as and in the proportions specified.

3. The foregoing-described composition of matter, consisting of linseed-oil, lime-water, borax, glue sizing, a mineral paint, and a drier, substantially as and in the proportions specified.

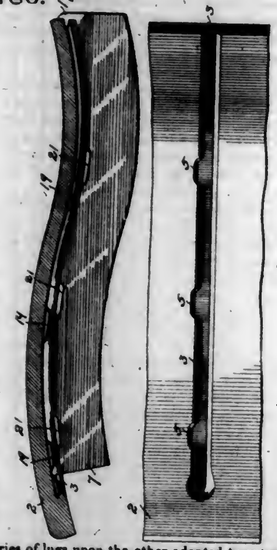
478,786. SCHOOL FURNITURE. WILLIAM R. COOGER, Springfield, Ill. Filed Oct. 3, 1891. Serial No. 408,102. (No model.)



Claim.—1. The combination, with the seat or wooden portion provided with an undercut groove having upon one side a series of notches with walls inclined from the top to the bottom and toward the center of said groove, of a supporting-iron provided with a rib having a continuous flange at one side of said rib and a series of lugs at the other adapted to engage said notches and force said flange under the wall of said groove as the rib is inserted in said groove, substantially as described.

2. The combination, with the wooden or seat portion with the dovetailed or undercut groove having a continuous wall upon one side and having upon the other side a series of notches with walls inclined from the top to the bottom and toward the center of the groove, of a supporting-iron provided with a rib having a continuous flange upon one

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side and a series of lugs upon the other adapted to enter the notches in said groove and to force the flange under the wall of the groove as the rib is inserted in said groove, whereby the wooden portion may be locked upon the supporting-iron and be held and supported for the full length of the iron.

3. The combination, with the wooden or seat portion provided with the undercut groove having a series of inclined notches 5 in one side, said notches being inclined toward the center of the groove, of the supporting-iron provided with a rib 9, the flange 15 upon one side of said rib and the lugs 19 upon the other, and with the flanges 11 and 13 and lugs 21, projecting from opposite sides of the base of the rib, said lugs 19 being adapted to engage said notches and force said flange 15 under the wall of the groove as the rib is inserted in the groove, substantially as described.

478,787. HAND-SUPPORT FOR PENHOLDERS AND LEAD-PENCILS. WILEY G. CROOM, Vicksburg, Miss., assignor of one-half to John A. Brennan, same place. Filed Sept. 11, 1890. Serial No. 364,668. (No model.)



Claim.—1. A penholder-rest consisting of an arm connected with the penholder and extending downward therefrom and provided with a ball-bearing foot, substantially as specified.

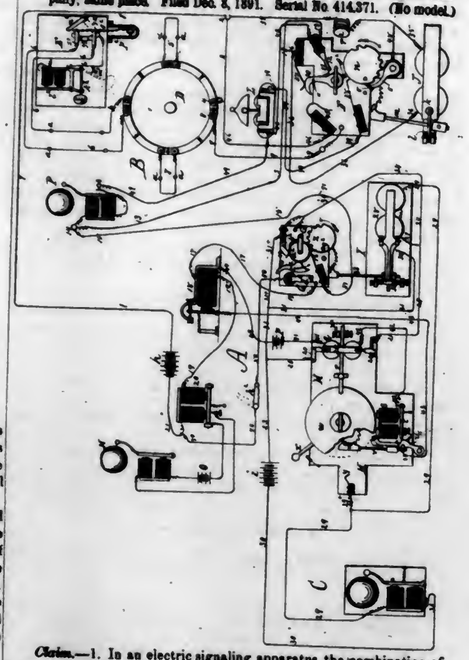
2. A penholder-rest consisting of a spring or yielding arm connected with the penholder and extending downward therefrom and provided with a ball-bearing foot, substantially as specified.

478,788. ELECTRICAL THERMOSTAT. WILLIAM L. DENIO, Rochester, N. Y., assignor to the Standard Electric Signal Company, same place. Filed Dec. 8, 1891. Serial No. 414,370. (No model.)



Claim.—The thermostat herein described, consisting of the insulator *a*, the electrodes *b b*, the thimbles *c c'*, attached to one of the electrodes and secured together by solder fusible at a given temperature, the spring *d* between the thimbles, which tends to throw the outer thimble off; the shoulder *g* on the outer thimble, and the spring *f*, attached to an electrode and bearing against the outer thimble, as shown and described, and for the purpose specified.

478,789. ELECTRIC SIGNALING APPARATUS. WILLIAM L. DENIO, Rochester, N. Y., assignor to the Standard Electric Signal Company, same place. Filed Dec. 8, 1891. Serial No. 414,371. (No model.)



Claim.—1. In an electric signaling apparatus, the combination of a circuit extending from the central station to the sub station, a thermostat interposed in the circuit at the sub-station, said thermostat acting to automatically open and then close the circuit, another circuit extending from the central station to the fire department, a signaling mechanism connected with the circuit leading to the sub-station, released and set in motion by the opening and closing of the circuit by the thermostat, a registering mechanism for recording the signal at the central station, a return-signaling mechanism for indicating at the sub-station that the alarm has been sent in to the fire department, and suitable sub-circuits and shunts, whereby the alarm is first sent to the central station, there recorded, then sent to the fire department, and then repeated at the sub-station, as herein shown and described.

2. In an electric signaling apparatus, the combination of a circuit extending from the central station to the sub-station, a signaling mechanism, a shunt connected with the circuit, an electro-magnet for releasing and setting in motion the signaling mechanism, said magnet being connected with the shunt connections of the circuit, whereby the signal mechanism can act upon the main line, a registering mechanism at the central station, an electro-magnet for releasing said registering mechanism, another electro-magnet connected with the main line for operating a local circuit, and a local circuit connecting the last-named two magnets, the whole so arranged, as herein described, that the parting or other disarrangement of the wires at the sub-station, whereby the circuit is broken, will be indicated at the central station without sounding an alarm of fire, as herein shown and described.

3. The signaling mechanism herein described, consisting of the break-wheel *n*, the spring 38, connecting therewith, the springs 11 and 12, connecting with the main line, the swinging arm 10, the springs 37 and 46, with which said swinging arm comes in contact, and the stop-spring *o*, as shown and described, and for the purpose specified.

4. The return-signal mechanism consisting of the break-wheel *s*, the spring 16, resting in contact therewith, the circuit-closing wheel s^2, the springs 46 and 47, the swinging tongue s^3, and contact-spring s^4, arranged to operate in the manner and for the purpose specified.

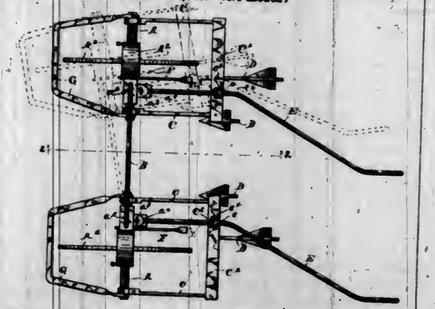
5. The combination, with the registering-wheel *w*, driven by clock-work, and the escapement-arm *v* for controlling the same, of the perforating-arm *r*, the magnet *z*, armature *t*, and swinging detent *u*, the detent swinging inward, locking the armature and holding the same

when drawn up to the magnet and releasing the escapement-arm, as specified.

6. The manual signal E, consisting of an electro-magnet and armature, the swinging arm A^2, the bar 53, the cross-springs 51 and 52, and the circuit-breaking arm n^2, as shown and described, and for the purpose specified.

7. The combination, with the circuit-breaking arm n^2 and cross-springs 51 and 52, of the chain c^3, attached to the circuit-breaking arm, and the glass tube p^3, attached to the bottom of the manual-signal box and inclosing the chain, as shown and described, and for the purpose specified.

478,790. CULTIVATOR. AUGUSTIN ELLIS, Bedford, Ind. Filed Oct. 30, 1891. Serial No. 409,339. (No model.)



Claim.—1. The combination, in a cultivator, of stationary axles, arch-like housings extending from said axles up over the wheels, wings on said housings, and an arch the ends whereof are substantially at right angles with its center, which ends extend down through bearings in said wings and thus unite the two halves of the cultivator, which are otherwise independent, substantially as set forth.

2. The combination, in a cultivator, of two short stationary axles, an arched axle united to said stationary axles by pivotal connections, plow-beams connected to the ends of said stationary axles, hinge-joints in said plow-beams near where they are so connected, cross-beams, connecting the rear ends of said plow-beams, hinge-joints at or near the points of said connection, and plows connected to said cross-beams, whereby provision is made for a greater or less number of plows, all of which may be moved from side to side and maintain their uniform direction toward the front.

3. The combination, in a cultivator, of the axles, housings thereon, plow-beams, handles connected to said housings and extending back through bearings on said plow-beams, and adjusting-collars on said handles alongside said bearings, substantially as and for the purpose set forth.

4. The combination, in a cultivator, of the axles, the plow-beams, housings on the axles, shoes pivoted to said housings above the axles and extending around in front of and below said axles, and collars on said axles adapted to be moved longitudinally thereof to under or alongside said shoes, substantially as and for the purpose described.

5. The combination, in a cultivator, of the axles, housings thereon, plow-beams secured to said axles, handles secured to said housings and to said plow-beams, shoes also secured to said housings and passing under said axles, and adjusting-collars on said handles and on said axles, substantially as set forth.

478,791. APPARATUS FOR BORING WELLS. FULTON GARDNER, Chicago, Ill., assignor of one-half to Samuel T. White, same place. Filed Oct. 16, 1891. Serial No. 408,867. (No model.)

Claim.—1. The combination, with a boring-tool, of a holding device adapted to be set into operation only as the boring-tool is worked upward, substantially as described.

2. The combination, with a boring-tool, of a storage-battery of a diameter adapted to enter the bore of the well and follow up the boring-tool and electrical conductors from said storage-battery to an electrical motor, substantially as described.

3. The combination, with a boring-tool, of a pump mounted on the tool, the pump being of a size to enter the bore of the well and follow the tool in its descent, whereby it may operate from below the surface and while under water, substantially as described.

4. The combination, with a boring-tool, of a pump mounted on the tool and an electric motor between the cutting portion of the tool and the pump, imparting rotary motion to both, the pump being of a size to enter the bore of the well and follow the tool in its descent, whereby it may operate from below the surface and while under water, substantially as described.

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5. In combination with a boring-tool, an electric signaling device adapted to follow the tool down the hole and to be set in operation by a weight thereon and an electrical conductor running from such signaling device to the room of the operator to sound an alarm, substantially as described.

6. In combination with a boring tool, an electric signaling device carried down the hole with the boring-tool and set in operation by diminution of water in the hole and an electrical conductor running to the room of the operator to sound an alarm, substantially as described.

7. In combination with a boring-tool, a telephonic transmitting device carried down the hole with the tool, an electrical conductor running to the room of the operator, and a telephonic receiving device whereby the operator may at all times be apprised by listening of the condition of things at the bottom of the hole, substantially as described

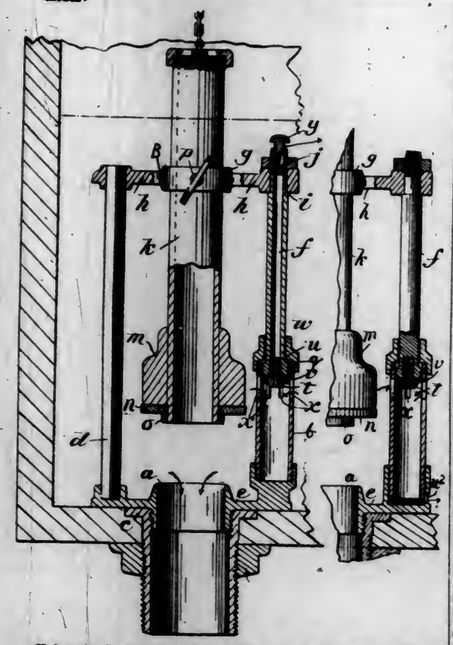
478,792. MOLD FOR GLASS BATTERY-JARS. JOHN GAYNER, Salem, N. J. Filed Nov. 9, 1891. Serial No. 411,948. (No model.)



Claim.—A mold for glass battery-jars, consisting of a hollow block with a base portion extending beyond the vertical main portion

of the sides of the body thereof and a flaring mouth having plane sides at the top of the body portion, said parts being combined substantially as described.

478,793. SLOW-CLOSING VALVE FOR TANKS. JOHN V. SLOVER, Springfield, Mass. Filed Oct. 14, 1891. Serial No. 408,641. (No model.)



Claim.—1. In a slow-closing valve, the combination, with the tank-section formed to constitute the valve-seat and having an unobstructed opening therethrough and an outwardly-extended member, with a vertical tube or cylinder supported on said member, having one or more ports through an upper portion of its wall, of the valve vertically movable to open from and close upon the said tank-section and provided with an upwardly-extended portion which has an outwardly-extended member and which supports a pending spindle and piston that plays in said tube and a passage leading from the chamber of said tube for the relief thereof, substantially as and for the purposes described.

2. In a slow-closing tank-valve, the combination, with the tank-section having outwardly-projected arms at opposite sides thereof, the one supporting a vertical post and the other a vertical tube, with one or more ports through an upper portion of its wall, of the valve having an upwardly-extended member, with rigid arms outwardly extended therefrom and having a guiding engagement with said post and the other supporting a pending spindle which has at its lower portion a piston that plays in said tube and a passage leading from the chamber in said tube for the relief of the chamber, and means for regulating the degree of freedom of the water-passage from the cushion-chamber through said relief-passage.

3. The combination, with the tank-section and a vertical water-cushion tube supported thereby, of the valve guided vertically to move from and close upon the tank-section, a spindle or plunger and means for securing same adjustably as to height upon the valve and having a piston which plays in said tube, and a passage in communication with the chamber in said tube for the relief thereof, substantially as described.

4. The combination, with the tank-section having an outwardly-extended part and a tube vertically supported thereby, provided at an upper portion thereof with one or more ports, the valve movably guided and having the upwardly-extended spindle-like part and an arm outwardly extended therefrom, a vertical spindle supported by said arm and having its lower end portion exteriorly shouldered and internally screw-threaded, the plug *t*, having the screw-threaded shank and the enlargement at its lower end, a packing applied at the lower end of the spindle and clamped thereon by the union therewith of said plug, the thimble *w*, applied at the upper end of said tube, and the passage communicating with and leading from the water-cushion chamber in the said tube, substantially as and for the purposes set forth.

5. The combination, with the tank-section having an outwardly-extended member *c* and supporting a vertical tube or cylinder having one or more ports at an outer portion thereof, of a valve guided vertically to move from and close upon the tank-section and having the upwardly-extended tube *k*, a spindle or plunger having a piston which plays in said tube and the collar and set-screw for confining the collar on the valve-tube, and said collar provided with an outwardly-extended part which supports the piston-spindle, and a passage in communication with the chamber within said tube, which leads outwardly therefrom for the relief thereof, substantially as described.

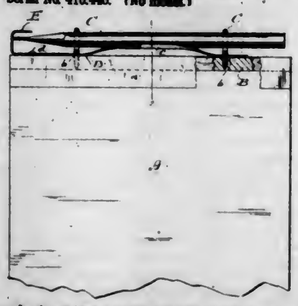
6. In a slow-closing valve, the combination, with a tank-section and a vertical water-cushion tube supported thereby, of the valve guided to move from and close upon the tank-section, a spindle or plunger and means for securing the same adjustably as to height upon the valve and having a piston which plays in said tube, a stop or abutment for limiting the upward movement of the valve and its piston-spindle, and a passage in communication with the cushion-chamber for the relief thereof, and means for regulating the degree of freedom of the water-passage from said chamber, all whereby the play of the valve may be adjusted as to its extent of movement and its rate of movement may be regulated, substantially as described.

7. The combination, with the tank-section having the horizontal arms *c c*, each with an upwardly-extended boss, the one supporting the vertical post *d* and the other the vertical tube *b*, with one or more ports *x*, the valve *m*, with the tube *k*, the collar *g*, having the arms *h h*, one being vertically apertured to have a sliding engagement with the post *d* and the other having rigidly connected thereto the vertical spindle, provided at its lower end with the piston which plays in the tube, the passage leading upwardly through the piston and said spindle, and a regulating device for said passage, substantially as and for the purposes described.

8. In a slow-closing valve, the combination, with the tank-section having outwardly-projected arms at opposite sides thereof, the one supporting a vertical post and the other a vertical tube, with one or more ports through an upper portion of its wall, of the valve having the upwardly-extended tube, with a rigid arm outwardly extended therefrom and being vertically apertured to fit and be guided by said post, and another outwardly-extended arm, also vertically apertured, a spindle having at its lower portion a piston which plays in the said tube and which has its upper portion externally screw-threaded with the shoulder *i* and which threaded portion is upwardly passed through said second-named arm and the confining-nut *j*, and a relief-passage leading from the chamber in said tube, substantially as and for the purposes set forth.

9. In a slow-closing valve, the combination, with the tank-section having an outwardly-extended member and a vertical tube supported thereon, which is provided with one or more ports through an upper portion of its wall, of the valve having the upwardly-extended spindle-like part provided with a rigid outwardly-extended arm, a tubular spindle vertically supported by said arm and having at its lower portion a piston which fits in said tube, a passage leading through the said piston and in communication with the passage through the spindle, and the tapered plug *y*, applied at the upper end of said spindle, substantially as and for the purposes described.

478,794. IMPLEMENT-HOLDER FOR TABLETS, &c. OLE T. HOGEN and GEORGE W. PAULUS, Grand Rapids, Wis. Filed Oct. 31, 1891. Serial No. 410,440. (No model.)



Claim.—1. As an improved article of manufacture, an implement-holder for attachment to tablets and analogous devices, this holder consisting of supports for an implement and a spring-plate having perforations for passage therethrough of the shanks or stems of said supports, one or both of said perforations being elongated, and a portion of said plate forming a spring-guide intermediate of the supports to exert pressure on said implement when in position in the supports, substantially as set forth.

2. A tablet or analogous device provided with an implement-holder consisting of supports for the implement, and a spring-guide intermediate of the supports to exert pressure on said implement, substantially as set forth.

3. A tablet or analogous device provided with an implement-holder consisting of supports for an implement and a spring-plate having a portion thereof intermediate of the supports and a returned end, substantially as set forth.

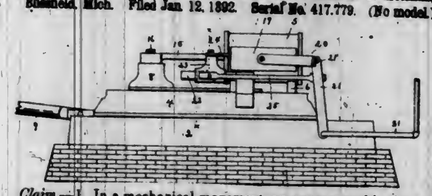
4. A tablet or analogous device provided with an implement-holder consisting of supports for an implement and a longitudinally-slotted spring-plate having a portion thereof bowed up and arranged intermediate of the supports to exert pressure on said implement, substantially as set forth.

5. A tablet or analogous device provided with an implement-holder consisting of supports for an implement and a spring-plate having a bowed portion arranged intermediate of the supports and turned up at the edges thereof to form a guide, substantially as set forth.

6. A tablet or analogous device provided with a continuous independent base having implement-supports thereon and an independent spring-plate having a bowed portion arranged intermediate of the supports, substantially as set forth.

7. A tablet having a strip of wood or other analogous material secured to an edge thereof, implement-supports on the strip, and a spring-guide connected to said strip intermediate of the supports, substantially as set forth.

478,795. MECHANICAL MOVEMENT. FRANKLIN P. HUNNEL, Bloomfield, Mich. Filed Jan. 12, 1892. Serial No. 417,779. (No model.)



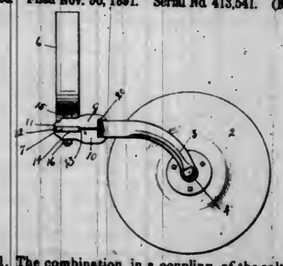
Claim.—1. In a mechanical movement, an upper movable piston-slide provided with a rack-bar, a lower stationary rack-bar, and a cylinder-bed movable between the two, and a pinion carried thereby engaging the rack-bars.

2. In a mechanical movement, an upper piston-slide provided with a rack-bar, a lower stationary rack-bar, and a bed intermediate the two, a pinion carried thereby and engaging the rack-bars, a power device upon the bed, and a piston-rod connecting the same and the piston-slide.

3. In a mechanical movement, a power device, a piston, and rod, a piston-slide attached thereto and provided with a rack-bar, a lower stationary rack-bar, a cylinder-bed intermediate the two, and a pinion meshing with the two rack-bars, said intermediate cylinder-bed being connected to the device to be operated.

4. In a mechanical movement, an upper piston-slide, a rack-bar secured thereon, a lower stationary rack-bar, an intermediate cylinder-bed, a power device secured thereon, and means for applying the power to the upper piston-slide, a pinion meshing with the two rack-bars, and means for connecting the intermediate cylinder-bed with the device to be operated.

478,796. SEPARABLE COUPLING FOR COULTER-YOKES. NILS J. JOHNSON, Minneapolis, Minn., assignor to the Minneapolis Plow Works, same place. Filed Nov. 30, 1891. Serial No. 413,541. (No model.)

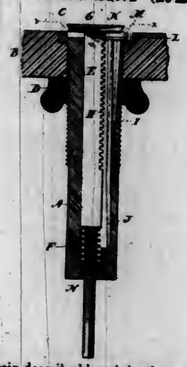


Claim.—1. The combination, in a coupling, of the colter and the yoke thereof with the shank, said yoke provided with a sleeve, and the two grooved parts 9 and 10, arranged to engage said sleeve and to be bolted upon said shank.

2. The combination, with the colter-yoke, of the shank, the longitudinally-divided coupling consisting of the parts 9 and 10, said parts having lugs and shoulders to engage the edges of the shank-foot, said foot provided with a slot, the bolt passing through the same and securing said parts on said foot, and means for pivotally securing said yoke between said parts, substantially as described.

3. The combination, with the colter and the yoke wherein the same is secured, of the shank, said yoke provided with the eye or sleeve 5, the foot of said shank being slotted, the longitudinally-divided coupling having lugs and shoulders to engage the edges of said foot, openings in the same, and a bolt passing therethrough and through the slot in said foot for securing said part thereon, said parts provided with the groove 17 and the annular lugs 18 for receiving and engaging the sleeve of said yoke, substantially as described.

478,797. BENCH-HOOK. CHARLES J. KEMPT, Seymour, Conn. Filed Dec. 14, 1891. Serial No. 414,974. (No model.)



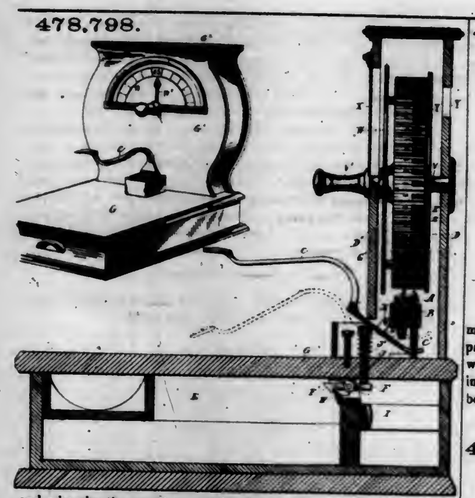
Claim.—The herein-described bench-hook, consisting of the tubular socket A, constructed with a flange C at its upper end adapted to rest upon the top of the bench, combined with a spindle E, movable up and down within the socket, and constructed with a head G at its upper end, the flange C constructed with a recess corresponding to and so as to receive said head in its depressed position and also constructed with a recess L at one side of said recess, the spindle constructed with a toothed rack upon that side corresponding to the said recess L with a vertical spring-dog arranged in the side of the socket in which the said recess L is formed and rigidly secured by its lower end in the socket, the dog extending upward terminating at its upper end with a thumb-piece M in the said recess L, and the dog provided with a nose K, adapted to normally stand in engagement with the teeth of the said rack on the spindle, but by its own elasticity adapted to yield to be withdrawn from such engagement by means of the thumb-piece M, all substantially as and for the purpose described.

478,798. CASH INDICATOR AND RECORDER. MATTHEW LEARY, New Haven, Conn., assignor to Edmund O'Connor and Charles Woodruff, Binghamton, N. Y. Filed Nov. 2, 1891. Serial No. 410,615. (No model.)

Claim.—1. A cash indicator and recorder having a case, a money-drawer located therein, a type-wheel, means for operating the same, locking mechanism for the money-drawer, a printing mechanism co-operating with the type on the wheel, and an operating-lever combined with the said locking and printing mechanisms for their actuation, in combination with a guard connected with and actuated by said operating-lever and located in line with the periphery of the said wheel, toward which it is moved by the same, substantially as described, and whereby the guard by striking the periphery of the wheel checks the depression of the operating-lever and prevents the unlocking of the money-drawer except when the wheel and the printing mechanism are in right relations for recording the opening of the drawer.

2. A cash indicator and recorder having a case, a money-drawer located therein, a wheel provided with type and constructed with guard-openings arranged so that one is located in line with each type member, means for operating the said wheel, printing mechanism co-operating with the type on the wheel, locking mechanism for the money-drawer, and an operating-lever combined with said printing and locking mechanisms for simultaneously operating them, in combination with a guard connected with and actuated by the said operating-lever and located in line with the guard-openings in the wheel toward which it is moved by the said lever, substantially as described.

478,798.



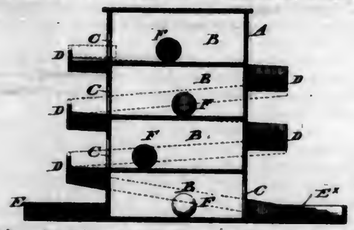
and whereby the guard by striking the periphery of the wheel checks the depression of the operating-lever and prevents the unlocking of the money-drawer except when the wheel and the printing mechanism are in right relation for recording the opening of the drawer.

3. A cash indicator and recorder having a case, a money-drawer located therein, a wheel provided with type and constructed with guard-openings arranged so that one is located in line with each type member, means for operating the wheel, printing mechanism co-operating with the type on the wheel and including a tape, a presser-block for lifting the same against the type, and means for feeding the tape, locking mechanism for the money-drawer, and an operating-lever combined with the said printing and drawer-locking mechanisms for simultaneously operating the same, in combination with a guard connected with and actuated by the operating-lever and located in line with the wheel toward which it is moved thereby, substantially as described, and whereby the guard by striking the periphery of the wheel checks the depression of the operating-lever and prevents the unlocking of the money-drawer except when the wheel and the printing mechanism are in right relations for recording the opening of the drawer.

4. In a cash indicator and recorder having a case, a money-drawer located therein, a wheel provided with type and constructed with guard-openings arranged so that one is located in line with each type member, printing mechanism including a tape, a presser-block for lifting the same against the type, and means for feeding the tape, locking mechanism for the money-drawer, and an operating-lever having its inner end horizontally slotted and combined with the said locking and printing mechanism for simultaneously operating the same, in combination with a guard having its lower end connected with the operating-lever through the said slot in which it plays and located in line with the guard-openings in the periphery of the wheel, substantially as described, and whereby the guard by striking the periphery of the wheel checks the depression of the operating-lever and prevents the unlocking of the money-drawer except when the wheel and the printing mechanism are in right relations for recording the opening of the drawer.

5. In a cash indicator and recorder having a case comprising a horizontal body and an upright top, a money-drawer located in the said body, a wheel mounted on a horizontal axis in the said top and provided upon its periphery with type and upon one or both of its faces with numbers corresponding thereto and exposed through openings in the said top and constructed with a series of peripheral guard-openings arranged so that one is located in line with each type member, printing mechanism, including a tape, a presser-block for pressing the same against the type, and means for feeding the tape, a drawer-locking mechanism, and a pivotal operating-lever combined with the presser-block of the drawer-locking mechanism and the feeding device of the printing mechanism and operating the said block and mechanism simultaneously, in combination with a guard consisting of a pin connected at its lower end with the inner end of the said operating-lever and located in line with the guard-openings in the periphery of the wheel, substantially as described, and whereby the guard by striking the periphery of the wheel checks the depression of the operating-lever and prevents the unlocking of the money-drawer except when the wheel and printing mechanism are in right relations for recording the opening of the drawer.

478,799. PUZZLE. MARK W. MARSDEN, Philadelphia, Pa., assignor of one-half to Robert A. Rockhill, same place, and Elbert A. Corbin, Rosemont, Pa. Filed July 9, 1891. Serial No. 398,915. (No model.)



Claim.—A puzzle consisting of a series of angular box-compartments superimposed on each other, forming a tower, each of said compartments being provided with an opening in one of its sides of less width than the compartment, and an inclined plane or chute surrounding said tower and terminating in an inclosed lower field, said parts being combined substantially as described.

478,800. REIN-GUARD. ARTHUR C. MASSEY, Woodville, assignor of one-half to LUMAN N. SPENCER, Grand Rapids, Mich. Filed Feb. 6, 1892. Serial No. 420,521. (No model.)



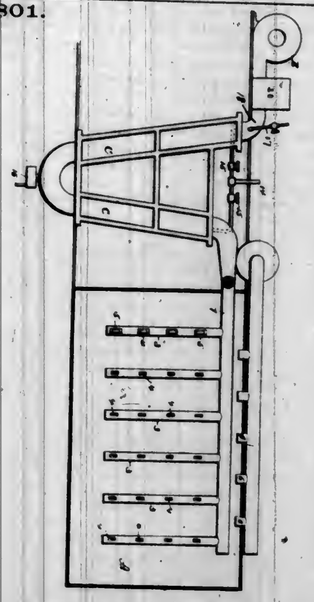
Claim.—The combination, with singletrees spaced apart and arranged in longitudinal alignment, of an upwardly-curved or arched spring having its ends overlapping the inner ends of the singletrees and permanently pivoted beyond the inner ends and to the upper sides of the same, whereby the singletrees are connected, substantially as described.

478,801. APPARATUS FOR ORDERING TOBACCO. SAMUEL P. MAYO, Richmond, and GUSTAVUS A. PEPLE, Manchester, assignors to the Mayo Tobacco Drying and Ordering Company, Richmond, Va. Filed Aug. 28, 1890. Serial No. 363,317. (No model.)

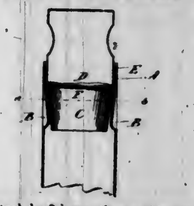
Claim.—1. The combination, with a fan and moistening-channels, of an ordering-room, an air-supply pipe leading from the moistening-channels, pipes leading from this air-supply pipe and located in the room, said pipes having discharge-openings therein, means for regulating the amount of discharge, and pipe or pipes for withdrawing the air from the ordering-room, substantially as set forth.

2. The combination, with a fan and ordering-room, of successive channels with endless cloths of any material in said channels, sprinkling-pipes leading inside of the cloths and having valves to regulate the discharge, and a heater for discharging heat into the channels, substantially as set forth.

478,801.



478,802. CENTRAL-DRAFT LAMP. JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed Jan. 6, 1892. Serial No. 417,136. (No model.)



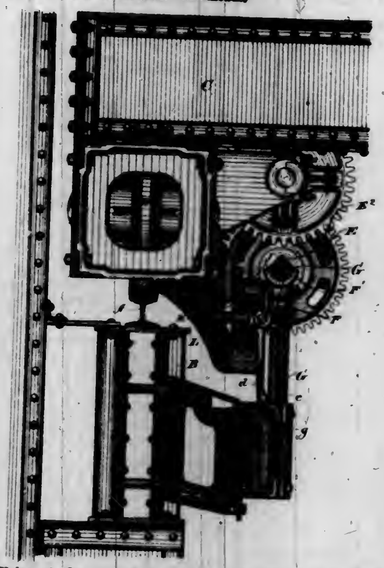
Claim.—1. In a central-draft lamp, the combination, with a draft-tube provided at its upper end with longitudinal inwardly-inclined seats or ribs which gradually increase in their inward projection from their upper to their lower ends, of an air-distributer having its lower end tapered in accordance with the inclination of the said seats or ribs on which it is supported and its upper end closed and perforated, substantially as set forth, and whereby the said ribs form friction-seats for the distributer and divide the space between the distributer and tube into compartments or flues broadest at their lower ends, which lead into the draft-tube.

2. In a central-draft lamp, the combination, with a draft-tube provided at its upper end with longitudinal inwardly-projecting inclined seats or ribs which gradually increase in their inward projection from their upper to their lower ends, of an air distributer having its lower end tapered in accordance with the inclination of the said seats on which it is supported and its upper end closed and perforated and made smaller than the diameter of the tube above said tapered portion, substantially as described, whereby the said ribs form friction-seats for the distributer and the space between the distributer and tube is divided into an annular chamber, and a circular series of vertical flues located below the same and having their narrow upper ends opening into the said chamber, while their broader lower ends lead into the draft-tube.

3. In a central-draft lamp, the combination, with a draft-tube having its upper end struck inwardly to form longitudinal inwardly-projecting seats or ribs gradually increasing both in inward projection and in width from their upper to their lower ends, of an air-distributer having its lower end tapered in accordance with the inclination of the said ribs or seats on which it is supported, substantially as set forth, and whereby the said ribs form friction-seats for the distributer and divide the space between the same and the tube into a circular series of compartments or flues, which are broader at their lower than at their upper ends.

4. In a central-draft lamp, the combination, with a draft-tube having its upper end constructed with longitudinal inwardly-projecting inclined seats or ribs which gradually increase in their inward projection from their upper to their lower ends, of an air-distributer having its lower end tapered in accordance with the inclination of the said ribs and shouldered at the upper end of its said tapered portion, substantially as described, and whereby the said ribs form friction-seats for the distributer and divide the space between the same and the tube into a circular series of compartments or flues which are broader at their lower than at their upper ends.

478,803. OVERHEAD TRAVELING CRANE. JOHN R. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and William H. Morgan, same place. Filed July 6, 1891. Serial No. 398,631. (No model.)



Claim.—1. In a traveling crane, the combination, with a bridge and a revolving shaft for imparting movement to parts on the bridge, of bearings arranged at intervals for supporting the shaft, a bearing-sustaining device for holding the bearing in an elevated position, a double-inclined guideway for lowering and elevating the bearing, and independent devices located near the ends of said guideway for positively releasing and locking said bearing-sustaining device.

2. In a traveling crane, the combination, with a revolving shaft for imparting movement to parts on the bridge, of a series of movable bearings supporting said shaft, means for elevating and lowering the bearings, a bell-crank lever for each bearing, each lever adapted to hold its bearing in an elevated position, and means for actuating said levers, the means for actuating the levers being independent of the means for lowering and elevating the bearings, substantially as set forth.

3. In a traveling crane, the combination, with a revolving shaft, a series of movable bearings supporting said shaft at intervals, and bell-crank levers for locking the bearings in their elevated positions, of a traveling bridge adapted to move in the direction of length of the shaft, a double-inclined guideway carried by the bridge and arranged to receive a projection on the bearing, whereby the bearing is moved first downwardly and then restored to its normal position, and the short guideways located near the ends of the double-inclined guideway for releasing and locking the bell-crank lever.

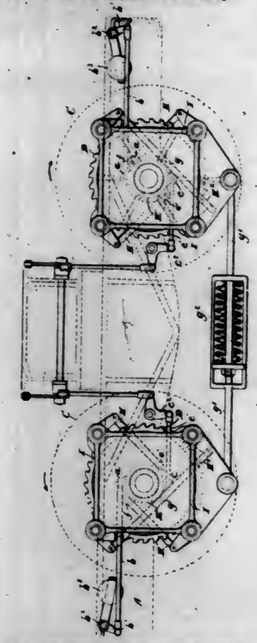
4. The combination, with a shaft and pillar or support loosely mounted in a bracket and carrying a bearing, of a weighted pivoted lever carried by the pillar and adapted to normally rest on the top of the bracket for holding the pillar and bearing thereon elevated, substantially as set forth.

5. The combination, with a shaft, vertically-movable pillars, half-bearings on the pillars, and brackets in which the pillars move, of a bell-crank lever for each movable pillar, each bell-crank lever adapted to rest with the free end of its vertical arm on a seat at the top of the bracket, the shorter arm acting as a weight to hold said long arm on its seat, substantially as set forth.

6. The combination, with a shaft, a pillar angular in cross-section,

a bearing on said pillar, a bracket adapted to receive the angular pillar and permit the latter to slide freely therein, and a bell-crank lever carried by said pillar, the longer arm of said lever adapted to rest on a seat at the top of the bracket and hold the bearing in an elevated position, of a movable bridge and devices carried thereby for moving the pillar and bearing vertically and for rocking the bell-crank lever, substantially as set forth.

478,804. OVERHEAD TRAVELING CRANE. JOHN R. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and William H. Morgan, same place. Filed Aug. 10, 1891. Serial No. 402,302. (No model.)



Claim.—1. The combination, with a winding-drum and a ratchet-wheel connected with the drum so as to move therewith, of a pawl mounted on a yielding support for engaging said wheel, means connected with said pawl for yieldingly holding it in contact with the wheel, and means for moving said pawl out of contact with the wheel, substantially as set forth.

2. The combination, with a winding-drum and a ratchet-wheel connected with the drum so as to move therewith, of a bracket, a yielding device for preventing said bracket from rotating, a pawl carried by said bracket and adapted to engage the ratchet-wheel, means connected with said pawl for yieldingly holding it in contact with the wheel, and means for moving said pawl out of contact with the wheel, substantially as set forth.

3. The combination, with a drum and ratchet-wheel connected thereto, so as to move therewith, of a yielding bracket, a series of pawls carried by said bracket and normally engaging the teeth of the ratchet-wheel, and means for moving said pawls out of contact with the teeth.

4. The combination, with a drum and a ratchet-wheel rigidly secured thereto, of a yielding bracket carrying a series of pawls, means for holding the pawls in engagement with the teeth of the ratchet-wheel, and means for simultaneously disengaging said pawls and teeth, substantially as set forth.

5. The combination, with a drum and a ratchet-wheel rigidly secured thereto, of a bracket carrying a series of pawls adapted to normally rest in contact with the teeth of the ratchet-wheel, a coupling-disk, rods connecting the coupling-disk with the several pawls, means for moving the coupling-disk in one direction, and a weight and connecting devices for moving said disk in the opposite direction, substantially as set forth.

6. The combination, with a drum and a ratchet-wheel, of a movable coupling-disk, a yielding bracket, pawls mounted on the bracket and engaging the ratchet-wheel, and rods connecting the pawls and coupling-disk, substantially as set forth.

7. The combination, with a drum and a ratchet-wheel rigidly secured thereto, of a movable coupling-disk, a yielding bracket, pawls mounted on the bracket and engaging the ratchet-wheel, rods connecting the coupling-disk and pawls, a weight, and devices connecting the weight and coupling-disk, substantially as set forth.

8. The combination, with a drum and a ratchet-wheel rigidly secured thereto, of a movable coupling-disk, a movable bracket, spring devices connected with the bracket for permitting the latter to yield or partly turn on its axis, pawls carried by the bracket, rods connecting the coupling-disk and pawls, and means for moving the disk, substantially as set forth.

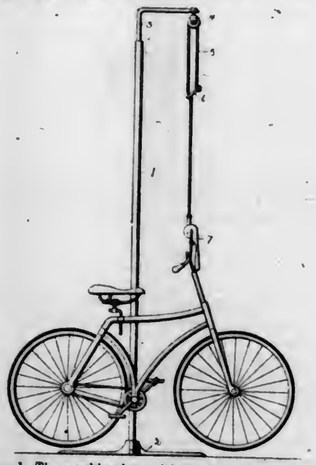
9. The combination, with a drum and a ratchet-wheel connected to the drum so as to turn therewith, of a coupling-disk and a bracket, both mounted on bearings concentric with the axis of the ratchet-wheel, a spring-coupling for limiting the movement of the bracket, pawls carried by the bracket, rods connecting the coupling-disk and pawls, a weight and devices connecting the same with the coupling-disk, and means for moving the coupling-disk against the action of the weight.

10. The combination, with two drums and a ratchet-wheel on each, of movable brackets, a spring-coupling connecting the brackets for limiting their movements, pawls carried by each bracket, means for yieldingly holding said pawls in contact with their respective ratchet-wheels, and means for disengaging the pawls from the ratchet-wheels, substantially as set forth.

11. The combination, with a drum and a ratchet-wheel, of a series of pawls for engaging the teeth of said wheel, a coupling-disk, rods connecting the disk and pawls, and a weight and devices connecting same with the coupling-disk for yieldingly holding the pawls in contact with the ratchet-wheel, substantially as set forth.

12. The combination, with a drum and a ratchet-wheel, of a yielding device carrying a series of pawls for engaging the ratchet-wheel, the coupling-disk, rods connecting the several pawls with the coupling-disk, a weight, a rod connecting the weight with the coupling-disk, and rods and levers connected to said coupling-disk for moving the same in opposition to the weight, substantially as set forth.

478,805. BICYCLE-EXHIBITING DEVICE. CORYDON W. MUMMON, Toledo, Ohio. Filed Sept. 15, 1890. Renewed Apr. 15, 1892. Serial No. 429,272. (No model.)



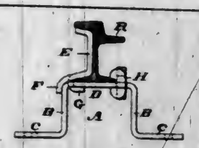
Claim.—1. The combination, with a suitable standard, of a rope, the lock-block carried thereby and adjustable thereon, the link attached to the lower end of the rope, a lever pivoted upon the link, and a bifurcated hook pivotally secured to one end of the said lever.

2. In an apparatus for exhibiting bicycles, the combination of a standard, an angle-arm swiveled in the upper end thereof, a lever carrying a hook and a link, a rope connecting the link and the said arm, and a locking-block carried by the rope.

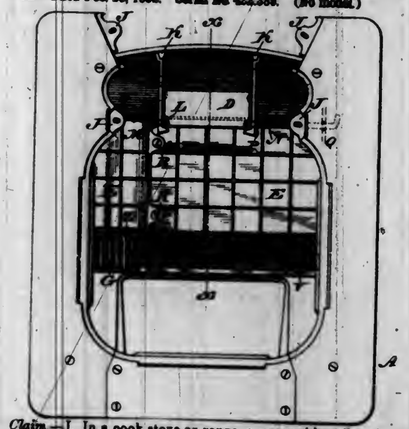
478,806. BRACE-CHAIR FOR RAILROAD-RAILS. GEORGE MURRAY, Johnstown, Pa., assignor to the Johnson Company, same place. Filed May 5, 1890. Serial No. 350,625. (No model.)

Claim.—A rail chair having a rail-brace on one side provided with a tongue passing through a slot in the rail-seat and with an exterior tongue for lapping over one side of the chair.

478,806.



478,807. COOK-STOVE. WILLIAM L. MCDOWELL, Lower Merion, Pa. Filed Feb. 23, 1892. Serial No. 422,389. (No model.)



Claim.—1. In a cook stove or range, a removable collar-plate, in combination with removable flue-strips and damper, a removable fire-plate, and removable top and front oven-plates, substantially as described.

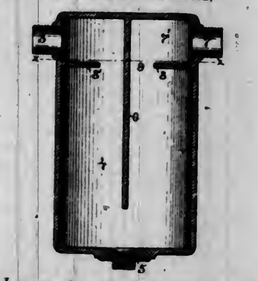
2. In a cook-stove, a stove body with legs on its inner side, a sectional top oven-plate resting on said legs and having grooves at its rear end receiving the top of the rear oven-plate, said parts being combined substantially as described.

3. In a cook-stove, an oven having a bottom plate with flanges, a sectional top plate with a groove on one end, a rear plate with top fitting in said groove, and a plate resting on the bottom wall of the stove and having a shoulder on its upper end supporting one end of the top plate, said parts being combined substantially as described.

4. In a stove, a fire-plate resting on a wall of an oven-plate and having a flange at its upper end embracing an end of the top wall of the oven, said fire-plate having its lower end on the bottom wall of the stove, said bottom wall having a flange bearing against the lower edge of said fire-plate, said parts being combined substantially as described

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478,808. SEWER-TRAP. ROBERT NEWTON, Providence, R. I. Filed May 23, 1891. Serial No. 393,906. (No model.)



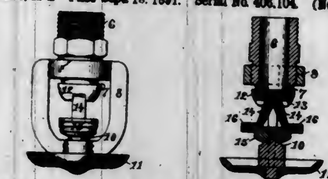
Claim.—1. In a trap, the combination, with a chamber divided by a vertical partition extending from the upper end of the chamber downward to near the bottom and having inlet and outlet openings near the upper end, of a horizontal partition extending from the side of the chamber below the outlet toward the central vertical partition, as described.

2. A sewer-trap having a chamber divided by a vertical partition into a downward and upward duct or chamber provided at their upper ends with lateral inlet and outlet openings, and a horizontal partition extending from the side of the chamber below the lateral outlet-opening toward the vertical partition, so as to form a long and narrow opening between the vertical and the horizontal partitions, as described.

3. In a sewer-trap, the combination, with the chamber 4, divided by the partition 6 into inlet and outlet chambers, the inlet 3, and outlet 7, of the partitions 8 and 8', dividing the inlet and outlet from the chamber 4, adapted to contract the inlet and outlet and permit the reversal of the trap, as described.

4. A trap consisting of a cylindrical chamber having inlet and outlet openings on opposite sides near one end, divided part of its length by a central partition extending from the top to near the bottom of the chamber, and at one end provided with a plug and having two partitions extending horizontally from the sides below the inlet and outlet chambers, and openings toward the central partition, so as to form on each side of the partition long narrow openings connecting the inlet and outlet with the body of the trap-chamber, as described.

478,809. AUTOMATIC SPRINKLER. ROBERT W. NEWTON, Providence, R. I. Filed Sept. 18, 1891. Serial No. 406,104. (No model.)



Claim.—1. In an automatic fire-extinguisher, the combination, with the outlet, a valve for closing the outlet, and a frame supporting a thrust-pin, of a device intermediate the thrust-pin and the valve consisting of two oppositely-inclined arms, a thrust-block, and plates secured by solder, adapted to hold the valve in place until one or both of the holding-plates are released by heat, as described.

2. In an automatic fire-extinguisher, the combination, with the outlet and the valve for closing the outlet, of a yoke or frame having at its lower end a deflector and a thrust-pin adjustable toward and from the outlet, a thrust-block, two oppositely-inclined arms interposed between the thrust-block and the valve, and plates secured to the thrust-block by solder, as described.

3. A device for holding the valve of an automatic fire-extinguisher or sprinkler against the outlet-opening, consisting of a block, to one surface of which the ends of two oppositely-inclined arms and two thrust-plates are secured by solder fusible at a low temperature, as described.

4. The combination, with the nipple 6 and valve-seat 7, of the yoke 8, the thrust-pin 10, and deflector 11, of the thrust-block 15, the plates 16, secured by solder to the upper surface of the same, the oppositely-inclined arms 14, and the valve 12, adapted to hold the valve to its seat until released by heat, as described.

5. In an automatic fire-extinguisher or sprinkler, the combination, with the nipple 6 and the valve-seat 7, of the valve 12, provided with the slot 13, the arms 14, having their upper ends resting in the slot 13, the thrust-block 15, the plates 16, secured to the thrust-block by solder, the yoke 8, the deflector 11, and the thrust-pin 10, adapted to force the valve to its seat, as described.

6. In an automatic fire-extinguisher or sprinkler, the combination, with the nipple 6 and the outlet surrounded by the valve-seat 7, of the yoke 8, the deflector 11, and the thrust-pin 10, provided with the rounded end supported by the yoke, the thrust-block 15, having a cavity on its lower part adapted to receive the rounded end of the thrust-pin, the plates 16, secured to the thrust-block by solder, the oppositely-inclined arms 14, bearing on the thrust-block at the spread ends and in the groove 13 of the valve 12 at the ends placed close together, and the valve 12, the whole adapted to force the valve to its seat or release the same and to be released automatically by heat, as described.

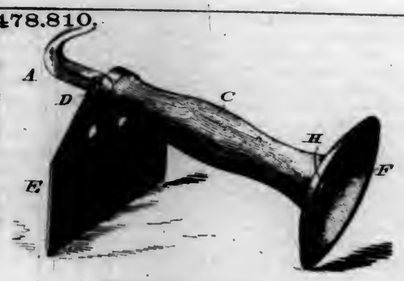
478,810. HOG-SCRAPER AND CLAW-HOOK. AUGUST NITTINGER, Sr., Philadelphia, Pa. Filed Feb. 23, 1892. Serial No. 422,387. (No model.)

Claim.—1. A hog-scraper consisting of a claw with a tang having an ear thereon, a handle on said tang, and a blade secured to said ear, substantially as described.

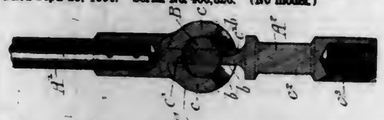
2. A hog-scraper consisting of a claw with a tang having an inclined ear thereon, a handle on said tang, and a blade secured to said ear and having its inner end between said ear and the end of the handle, substantially as described.

3. A hog-scraper consisting of a claw with a tang having an ear thereon, a handle on said ear, a blade secured to said ear and a bell-scraper on a reduced threaded end of said tang, said parts being combined substantially as described.

478,810.



478,811. UNIVERSAL JOINT. AUGUST J. OEHRING, Chicago, Ill. Filed Sept. 25, 1891. Serial No. 406,326. (No model.)



Claim.—1. A universal joint comprising an integral ball or sphere provided with two circumferential annular grooves of equal depth throughout their extent, concentric with the sphere and arranged at right angles to each other, and two forks arranged in planes at right angles to each other and constructed and arranged to fit said grooves and embrace and hold said ball, substantially as described.

2. A universal joint comprising an integral ball or sphere provided with two annular grooves rectangular in cross-section, of equal depth throughout their extent, concentric with the sphere, and arranged at right angles to each other, and two forks also rectangular in cross-section and arranged at right angles to each other, said forks being constructed and arranged to fit said grooves throughout their entire extent, so as to embrace and hold said ball, substantially as described.

478,812. POCKET-KNIFE. WILLIAM O'HARA, Middletown, Conn. Filed May 31, 1892. Serial No. 434,855. (No model.)



Claim.—The herein-described improvement in pocket-knives, consisting in the blade constructed with a bearing-point upon the spring below the pivot and a second bearing-point forward of the pivot and so as to leave a space between the blade and the spring forward of the pivot, the handle constructed with an opening through its side in line with said space, combined with a key adapted to be introduced through said opening, the bit of the key corresponding in thickness substantially to the depth of the said space between the blade and spring, but the bit of a greater width than the depth of such space, substantially as described, and whereby by the introduction and turning of the said key the bit will operate as a cam between the spring and the blade to start the blade in its opening movement.

478,813. DEPTH-REGULATING MECHANISM FOR MARINE TORPEDOES AND OTHER VESSELS. FREDERICK H. PAINE, Paris, France, assignor to the Hotchkiss Ordnance Company, Limited, London, England. Filed Mar. 26, 1892. Serial No. 426,594. (No model.)

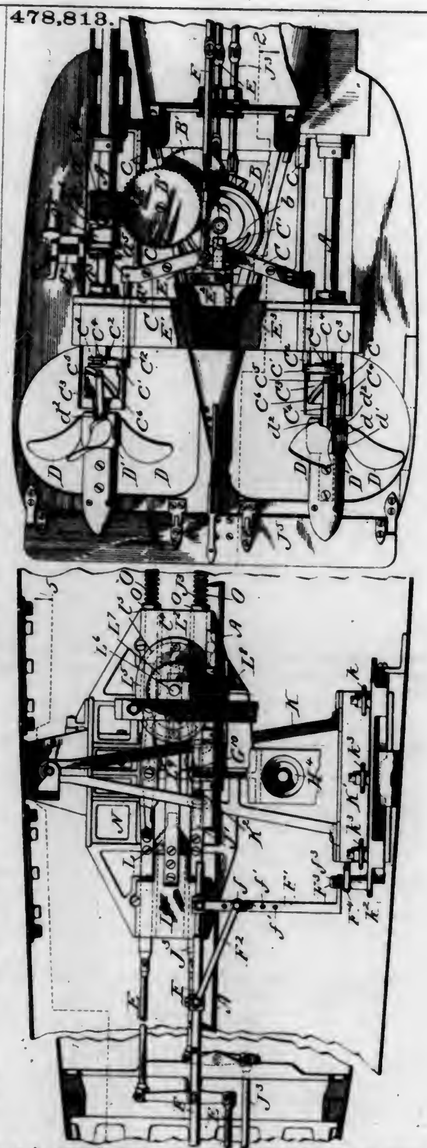
Claim.—1. In a marine torpedo, the combination, with a rudder tiller-rod, of a pallet pivoted thereon, a stepped rack adapted to engage with the pallet to graduate the impulse given the tiller-rod according to the angle given the pallet, gear for reciprocating the rack, a hydrostatic piston, and suitable transmitting connections between the piston and the pallet, whereby the piston movement varies the angle of the pallet, substantially as described.

2. In a marine-torpedo-immersion-regulating device, the combination of a hydrostatic piston, a longitudinally-moving rod actuated by the piston, a cam-collar mounted on the rod and having a transverse cam-slot engaging with a pin on the rod, a pivoted angle-guide having yielding spring-guides, as described, and a suitable connection between the cam-collar and angle-guide, whereby the movement of the piston varies the throw of the angle-guide, substantially as described.

3. In a marine torpedo, the combination, with a rudder tiller-rod, of a hydrostatic piston, a longitudinally-moving rod actuated by the piston, a cam-collar mounted on the rod and having a transverse cam-slot engaging with a pin on the rod, a pivoted angle-guide having yielding spring-guides, as described, a suitable transmitting connection between the cam-collar and angle-guide, a pallet pivoted to the rudder tiller-rod and having a pin engaging between the yielding spring-guides of the angle-guides, a stepped rack adapted to engage with the pallet, and gearing for reciprocating the rack, substantially as described, for the purpose set forth.

4. The combination, with a rod having a longitudinal motion, of a device for communicating such motion to the rod, a cam-collar mounted on the rod and having a transverse cam-slot engaging with a pin on the rod, a pivoted guide-lever having guide-spring strips fastened opposite each other to one end of the lever and forming a yielding guide extending along the face of the same, a suitable connection between the cam-collar and the angle-guide, a pallet pivoted to a rudder tiller-rod and having a pin engaging between the yielding spring-guides and an impulse-rack to engage with the pallet, and gear for driving the rack, whereby when the rod is moved longitudinally the pallet is thrown into engagement with the impulse-rack and the impulse is communicated to the tiller-rod, substantially as described.

5. In a marine torpedo, the combination, with a rudder tiller-rod,



of a duplex pallet pivoted thereon, impulse mechanism consisting of two stepped reciprocating racks, the risers of which stand at relatively different levels facing each other, mechanism for alternately causing the racks to approach and recede from each other, a hydrostatic piston, and suitable transmitting connections between the piston and the duplex pallet, substantially as and for the purpose set forth.

6. In a marine torpedo, the combination, with a rudder tiller-rod, of a pallet pivoted thereon, a stepped rack adapted to engage with the pallet, as described, mechanism for reciprocating the rack, a pendulum, and suitable transmitting connections between the pendulum and the pallet, whereby the movement of the torpedo-body relatively to the pendulum varies the impulse imparted to the tiller-rod, substantially as described.

7. In a marine torpedo, the combination, with a rudder tiller-rod, of a duplex pallet pivoted thereon, impulse mechanism consisting of two stepped reciprocating racks, as described, mechanism for alternately causing the racks to approach and recede from each other, a pendulum, and suitable transmitting connections between the pendulum and the pallet, substantially as described.

8. In a marine torpedo, the combination, with a rudder tiller-rod, of a pallet pivoted thereon, a stepped rack adapted to engage with the pallet at different angles assumed by the latter, a pivoted angle-guide having yielding spring-guides engaging with a pin on the pallet, a longitudinally moving and rotating rod, a cam-collar mounted on the rod and having a transverse slot engaging with a pin on the rod, a suitable connection between the collar and the angle-guide, a hydrostatic piston, and transmitting connections between the piston and the rod to impart a longitudinal movement to the latter, a pendulum, and suitable transmitting connections between the pendulum and the longitudinally-moving rod, substantially as and for the purpose described.

9. In a marine torpedo, the combination, with a rudder tiller-rod, of a pallet pivoted thereon, a stepped rack adapted to engage with the pallet at the different angles assumed by the latter, and suitable gear driven by a worm on the propeller-shaft to reciprocate the rack, substantially as described.

10. The combination of the piston G, located in the side of the torpedo, the piston-rod G^2, secured by a ball-and-socket joint to the piston and having the pin g^2, the cam-collar I, mounted on the piston-rod and having the transverse cam-slot *i*, engaging with the piston-rod pin, the pivoted angle-guide I^2, having the guide-springs I^4 I^5, as described, a suitable connection between the cam-collar and the angle-guide, the pallet J', pivoted to the rudder tiller-rod J^3 and having the pin J, engaging with the guide-springs of the angle-guide, the stepped reciprocating racks L L', mounted as described, the oval cam-wheel L^3, keyed to the shaft L^4 and having the cam-groove l^3, engaging at opposite points with the racks, rollers l^2 l^2, the worm-gear L^7, mounted on the shaft L^4, and the worm L^6, meshing therewith and keyed to the propeller-shaft A, substantially as described.

11. The combination, with the impulse mechanism consisting of the stepped reciprocating rack L, its plate L^2, and longitudinal connecting-bar L^3, having the lug l^2, the stepped reciprocating rack L, having the longitudinal slot l^3 for the lug l^2 and its plate L^4, the rack-rollers l^2 l^2, the oval cam-wheel L^3, keyed to the shaft L^4 and having the cam-groove l^3, engaging at opposite points with the rack-rollers l^2 l^2, the worm-gear L^7, mounted on the shaft L^4, and worm L^6, meshing with and keyed to the propeller-shaft A, substantially as described.

12. The combination, with a hydrostatic piston located in the side of a marine torpedo, of a spiral spring extending across the torpedo, a pivoted lever having one arm bearing on the piston and the other arm secured to one end of the spring, and a tension-adjusting device attached to the other end of the spring and extending into a chamber accessible from the torpedo side, substantially as described.

13. The combination of the piston G, the pivoted lever H', having a forked arm *h'* resting on the piston, the tension-spring H, having one end secured to the lever-arm *h* and the other end to the adjusting-nut H^3, the screw-threaded adjusting-rod H^4, passing through said nut and extending into the chamber H^5, the notch h^5 on the nut H^3, in engagement with the guide h^3, and cap H^6 over the rod-head, substantially as described.

14. The combination, with a hydrostatic piston tension-spring extending across the torpedo, its adjusting-nut H^3, and screw-threaded adjusting-rod H^4, extending into a chamber H^5, located in the torpedo side and having an aperture h^6 in its wall, of the tension-gage H^8, substantially as and for the purpose set forth.

15. In a marine torpedo, the combination, with a pendulum suspended therein, of a pendulum-immobilizing attachment consisting of a pivoted cam-buffer, a sliding frame, suitable transmitting connection between said cam-buffer and sliding frame, the propeller-shaft, and suitable connection between the shaft and the frame to move the latter, substantially as described.

16. The combination, with the pendulum K, of the pivoted cam-buffer F^4, its longitudinally-slotted lever-arm F^5, the pivoted throw-lever F', engaging therewith, the link F^6, pivoted to the pitch-frame rod F and adjustably connected with the throw-lever, the longitudinally sliding pitch-frame C, and gear, as described, for moving the pitch-frame, substantially as and for the purpose set forth.

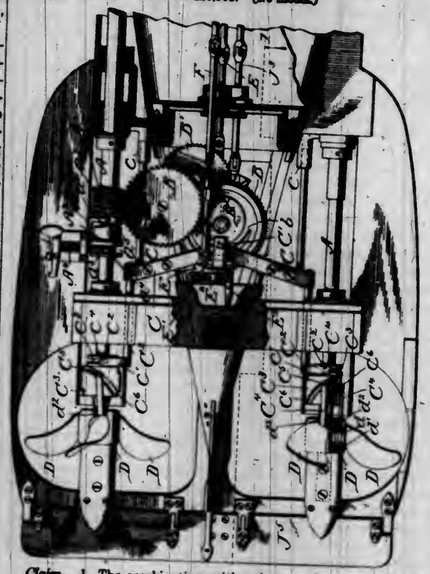
17. The combination, with a rudder tiller-rod, of a cylinder-case having adjustable head-bearings and a central longitudinally-grooved body, the rod passing through said bearings and having feathers sliding in said grooves, and spiral tension-springs contained within said cylinder and located around said rod and between said head-bearings and the heads of the feathers on the rod, substantially as described.

18. In a marine torpedo, the combination, with an automatic speed-regulating device and an automatic immersion-determining device actuated by a pendulum, of a pendulum-immobilizing device, and transmitting connections between it and the speed-regulating device, substantially as described.

19. In a marine torpedo, the combination, with a propeller-shaft having blades pivotally mounted in the propeller-hub, of a pitch-regulating device for rotating the blades about a pitch-varying axis, a pendulum suspended in said torpedo, a pendulum-immobilizing device, a transmitting connection between said pitch-regulating and immobilizing devices, and mechanism driven by the propeller-shaft to control the pitch-regulating device, substantially as described.

20. In a marine torpedo, the combination, with a propeller-shaft having blades pivotally mounted in the propeller-hub, of a sliding frame, transmitting connections between said frame and the propeller-blades, a pendulum, a pendulum-immobilizing device, transmitting connections between said frame and immobilizer, a cam device engaging with the sliding frame, and mechanism driven by the propeller-shaft to actuate said cam device, substantially as described.

478,814. SPEED-REGULATING MECHANISM FOR TORPEDOES AND OTHER VESSELS. FREDERICK H. PAINE, Paris, France, assignor to the Hotchkiss Ordnance Company, Limited, London, England. Filed Mar. 26, 1892. Serial No. 426,595. (No model.)



Claim.—1. The combination, with twin propellers having blades pivotally mounted in the propeller-hub, of a pitch-regulating device for rotating the blades about a pitch-varying axis, suitable lever connections between it and the blades of each propeller, and driving mechanism between the pitch-regulating device and the shaft of one of the propellers, whereby the pitch of the blades of each propeller is automatically and simultaneously controlled, substantially as described.

2. The combination, with a propeller-shaft and a propeller having blades pivotally mounted in the propeller-hub, of a pitch-regulating device for rotating the blades about a pitch-varying axis and mechanism driven by the propeller-shaft automatically controlling the pitch-regulating device, substantially as described.

3. The combination, with a propeller-shaft and a propeller having blades pivotally mounted in the propeller-hub, of a pitch-regulating device for rotating the blades about a pitch-varying axis, mechanism driven by the propeller-shaft to control the pitch-regulating device, and a device for connecting and disconnecting the driving mechanism and the propeller-shaft, substantially as described.

4. The combination, with a propeller-shaft and a propeller having blades pivotally mounted in the propeller hub, of a pitch-regulating device for rotating the blades about a pitch-varying axis, mechanism driven by the propeller-shaft to control the pitch-regulating device, and a device automatically operated by the impact of the water for throwing the driving mechanism into and out of gear with the shaft, substantially as described.

5. The combination, with a propeller-shaft and a propeller having blades pivotally mounted in the propeller hub, of a collar revolving with and sliding longitudinally on the propeller-shaft, lever connections between the collar and the blades, and automatic mechanism between the collar and the propeller-shaft to slide the collar along the shaft, whereby the blades are rotated about a pitch-varying axis, substantially as described.

6. The combination, with a propeller-shaft and a propeller having blades pivotally mounted in the propeller-hub, of a collar revolving with and sliding longitudinally on the propeller-shaft, lever connections between the collar and the blades, a sliding pitch-frame, transmitting connections between the pitch-frame and the collar, a cam device engaging with the sliding pitch-frame to govern its rate of motion, and driving mechanism between the propeller-shaft and cam device, whereby the pitch of the propeller-blades is automatically varied, substantially as described.

7. The combination, with a propeller-shaft and a propeller having blades pivotally mounted in the propeller-hub, of a sliding pitch-frame, suitable transmitting connections between the pitch-frame and the propeller-blades, a cam device engaging with the pitch-frame to govern its rate of motion, and driving mechanism between the propeller-shaft and the cam device, whereby the pitch of the blades is automatically varied, substantially as described.

8. The combination, with a propeller-shaft and a propeller having blades pivotally mounted in the propeller-hub, of a sliding pitch-frame, suitable transmitting connections between the pitch-frame and the propeller-blades, a cam device engaging with the pitch-frame to govern its rate of motion, driving mechanism between the propeller-shaft and the cam device, and an automatic device released by the pressure of the water to throw the shaft and driving mechanism into and out of gear, substantially as described.

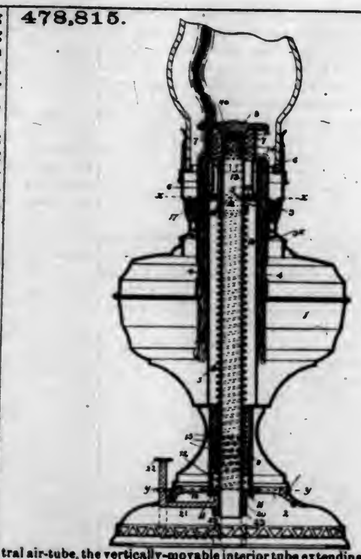
9. The combination, with a propeller-shaft, of a sliding frame, a cam device engaging with the sliding frame, and driving mechanism between the propeller-shaft and the cam device, whereby the cam device automatically controls the rate of motion of the frame, substantially as set forth.

10. The combination of the propeller-hub D′, having the screw-threaded recesses d', the blades D, having the threaded bases d, the propeller shaft A, the cam-collar C^3, having flat sides opposite each blade and sliding longitudinally on the feather c^4 of the shaft A, and the lever-arms C^4, secured at one end to the base of the blades and having at the other end the posts c^5, engaging in grooves c^6 in the cam-collar sides, substantially as set forth.

11. The combination of the propeller-hub D′, having the screw-threaded recesses d', the blades D, having the threaded bases d, the propeller-shaft A, having the feather c^4, the cam-collar C^3, sliding longitudinally thereon and having flat sides grooved at c^6, the lever-arms C^4, secured to the blades and having the posts c^5 traveling in the cam-collar grooves, the longitudinally-sliding pitch-frame C, the arms C^5, connected to the pitch-frame and having the pitchforks c' seated in the groove c^3 of the cam-collars C^3, the cam-gear B, having the sinuous cam-groove b, engaging with the stud C′ on the pitch frame, the driving-gear B′ B′, meshing with the cam-gear, the worm A′, loosely mounted on the propeller-shaft and meshing with the driving-gear, the clutch-collar A^3, mounted on shaft A and sliding longitudinally on the feather a^2, and the trigger A^2, having an enlarged head and eccentric-shank a^3, engaging in the groove a^4 of the clutch-collar, and an arm a^6 with post a^7, engaging with the worm and spring A^4, substantially as described.

12. The combination, with the propeller-shaft A, of the worm A′, loosely mounted thereon, the clutch-collar A^3, sliding on the feather a^2 on the shaft A, the trigger a^2, having an enlarged head, an eccentric-shank a^3, engaging in the groove a^4 of the clutch-collar, an arm a^6 with a post a^7 engaging the worm and spring A^4, whereby the clutch-collar is thrown into and out of engagement with the worm by the impact of the water on the trigger-head, as described.

478,815. LAMP. JOHN M. PFAUDLER, Rochester, N. Y. Filed Feb. 18, 1892. Serial No. 422,083. (No model.)



Claim.—1. In a lamp of the kind described, the combination, with the central air-tube open at the bottom, of the interior tube extending from the bottom of the lamp, open at the lower end, and having the perforations at the top, and the plate arranged at the burner, having the depending foraminous ring, through which the air from the central tube and interior tube is discharged, substantially as described.

2. In a lamp of the kind described, the combination, with the central air-tube, the vertically-movable interior tube extending to the lower portion of the lamp, open at the bottom, and having the perforations at the upper end, the deflecting plate on said tube extending over the wick, and the depending foraminous ring, of the spring for supporting the interior tube and operating means for moving it downward, substantially as described.

3. In a lamp of the kind described, the combination, with the central air-tube and the interior air-tube movable therein, extending to the lower portion of the lamp, open at its lower end, and having the perforations near its upper end, of the deflecting-plate on said interior tube arranged over the wick and adapted to serve as an extinguisher when depressed, a spring for supporting said tube, and an operating device for depressing it, substantially as described.

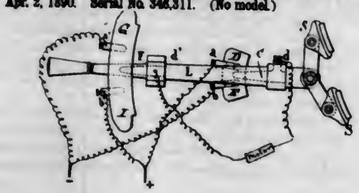
4. In a lamp of the kind described, the combination, with the central air-tube and the interior tube extending to the lower portion of the lamp, having the threaded upper end and the apertures therein, of the deflecting-plate screwing on said tube and extending over the wick, the foraminous ring secured thereto, and devices for operating the interior tube vertically to extinguish the lamp substantially as described.

5. In a lamp of the kind described, the combination, with the circular wick, of the deflecting-plate extending over the wick, having the foraminous ring secured thereto for securing an even supply of air, and a movable support for said plate, whereby it may be depressed to serve as an extinguisher when desired, substantially as described.

6. In a lamp of the kind described, the combination, with the central tube, the interior tube, and the deflecting-plate at its upper end and a projection below it, of the spring encircling said tube, the spider at the lower end of the lamp, and the removable thimble therein, between which and the projection on the tube the spring is confined, substantially as described.

7. In a lamp of the kind described, the combination, with the central tube, the interior tube, and the deflecting-plate at its upper end and a projection below it, of the spring encircling the tube, the spider at the lower end of the lamp, the removable thimble therein, between which and the projection on the tube the spring is confined, and the arm on the tube for actuating it against the spring and serving as a stop for limiting its upward movement, substantially as described.

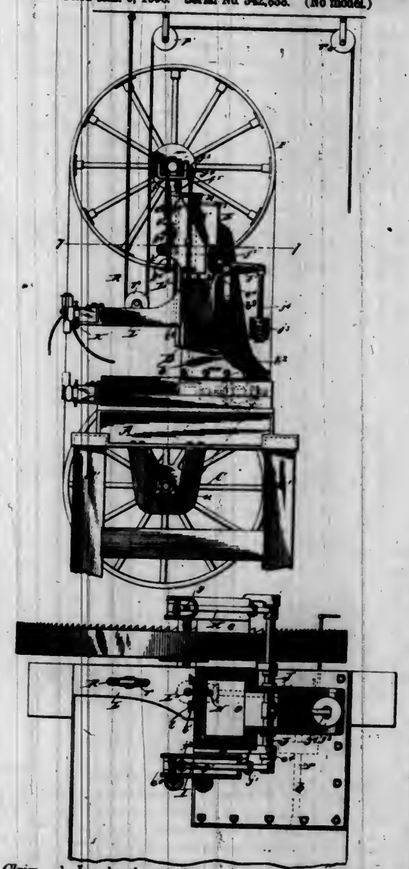
478,816. ELECTRO-MECHANICAL APPARATUS FOR STARTING OR REVERSING MACHINERY. ALBERT PIAT, Paris, France. Filed Apr. 2, 1890. Serial No. 346,311. (No model.)



Claim.—1. In machines actuated by an electric motor, the combination, with the motor, of a lever for controlling the current to the motor, contacts C F on the lever, electrical connections between said contacts and the motor, fixed contacts D G, arranged at one side of the lever in the path of the movable contacts, fixed contacts arranged at the other side of the lever in the path of the movable contacts, electrical connections between the contacts D I and the positive pole of the generator and between the contacts E G and the negative pole of the generator, hinged levers H, and springs m, the combination being and operating substantially as and for the purpose set forth.

2. In machines actuated by an electric motor, the combination, with the lever L for controlling the current and the motor, contact F, arranged on the under side of said lever, fixed contacts G I, arranged on each side of the lever and in the path of the contact F, hinged levers H, and springs m, whereby a movement of the lever will cause the contact F to move under and raise one of said hinges until the same shall have been passed and a reverse movement of the lever will cause the same to travel above the contact, for the purpose set forth.

478,817. BAND-SAW MILL. DE WITT C. PRESCOTT, Marinette, Wis. Filed Mar. 6, 1890. Serial No. 342,838. (No model.)



Claim.—1. In a band-saw mill, an upright supporting-column B, in combination with a separate supporting-frame E, sleeved and adjustable vertically thereon and constructed with a portion of the frame-body itself overhanging or jutting beyond the said column, at one side thereof, and the upper-band wheel shaft mounted on the said overhanging portion of the supporting-frame, substantially as described.

2. In a band-saw mill, the upright column B, in combination with the separate supporting-frame E, sleeved and adjustable vertically thereon and provided with wings e, projecting from the frame at both front and rear of the column and in a plane therewith and then bent inward beyond the column and upward in a plane inside the latter, and the upper-band-wheel shaft mounted upon the said extensions of said wings, substantially as described.

3. In a band-saw mill, the upright column B, in combination with the independent supporting-frame E, sleeved and adjustable vertically thereon and provided with wings e, projecting at front and rear thereof and extending inward beyond the column, the levers H and I, arranged parallel to each other at front and rear of the column, pivoted to the inward extensions of said wings inside of the column, and extending outward therefrom, the horizontal rock-shaft J, mounted in the outer or back portion of the column and provided with arms linked to said levers, the standards G G′, supported, respectively, on said levers inside the plane of the column, the upper-band-wheel shaft F, mounted on said standards, and a counterpoise on the said rock-shaft, substantially as described.

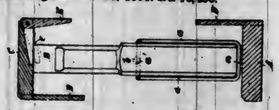
4. In a band-saw mill, the upright column B, having an outside projecting web b^3, with slot b^3, in combination with the rock-shaft J, passing through said slot, the upper-band-wheel support E, sleeved on the column and adjustable vertically, the wings e at front and rear of said support, provided with slots e^4, and the supporting-levers H and I for the upper-band-wheel shaft, pivoted to said support and extending outward through the slots in the wings and linked to the rock-shaft, substantially as and for the purposes specified.

5. The upper guide-arm L, secured to and adjustable vertically on the support E, in combination with the screw-shaft L′, the stationary nut l^3, provided with a gear-pinion l^3, the shaft N, provided with pinion n, meshing with the pinion l^3, the shaft O, arranged to drive the shaft N, provided with sliding wheels o' o^3, and the driven shaft P, provided with a pinion p', adapted to engage with either of the wheels o' o^3, substantially as and for the purposes specified.

6. The adjustable band-wheel support E, in combination with the bracket M, provided with the two bearings m m', the screw-shaft L′, the nut l^3, mounted in a fixed position in said bracket, the shaft N, the gear-pinion n, provided with hub n', also mounted in a fixed position in said bracket and connected to the shaft N by spline and groove, and the gear-pinion l^3 on the nut, substantially as and for the purposes specified.

7. The guide-lubricator K′, consisting of an upper grated compartment k' and conduit k^4 in the base, having small passages k^5 passing through therefrom to the saw, in combination with the water-pipes Q, connected to said base-conduit, substantially as and for the purposes specified.

478,818. STAND FOR POISON-BOTTLES. GEORGE L. RANDS, London, England. Filed Mar. 2, 1892. Serial No. 423,553. (No model.) Patented in England Oct. 26, 1891. No. 18,406.



Claim.—1. A stand for bottles, consisting of a base A, having a recess therein, vertical side posts having elongated bearing-slots, a swinging frame having its journals in said slots and supporting the bottle, the fixed stops limiting movement of the frame in one direction, and a pivoted stop E, having movement in one direction only, substantially as described.

2. In combination with a swinging frame, a supporting structure having a base and side posts, and a top with a fixed stop on one of the open sides and a pivoted stop on the opposite side, substantially as described.

3. In a stand for bottles, the combination, with the base, of the vertical side posts having apertures therein, the cradle having trunnions engaging in the apertures, the top opened at the front and back, the hinged stop E, suspended from the top of the frame, and the fixed stops on top and base of stand, substantially as set forth.

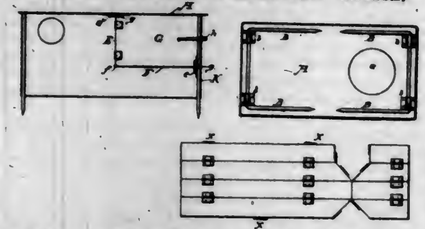
478,819. EXPLOSIVE COMPOUND. ADDISON C. RAND, New York, N. Y. Filed Apr. 1, 1891. Serial No. 427,388. (No specimens.) Patented in Canada Apr. 21, 1892, No. 38,779.

Claim.—1. An explosive compound composed of an oxidant, as chlorate of potash, in a powdered state, and a hard dense non-porous mineral substance in the form of coarse grains, said mineral grains being distributed in about the proportions named throughout the mass of the powdered oxidant, and a fluid hydrocarbon, as nitro-benzol, incorporated in about the proportions named in the mixture of said powdered oxidant and said mineral grains, substantially as and for the purpose specified.

2. An explosive compound composed of an oxidant, as chlorate of potash, in a powdered state, and manganese peroxide in the form of coarse grains in about the proportions named, said grains being distributed throughout the mass of the powdered oxidant, and a fluid

hydrocarbon, as nitro-benzol, in about the proportions named, incorporated in the mixture of said powdered oxidant and said grains, substantially as and for the purpose specified.

478,820. PORTABLE STOVE. FERDINAND T. SCHNEIDER, Washington, D. C. Filed Feb. 6, 1892. Serial No. 420,507. (No model.)



Claim.—1. A stove comprising a top, legs hinged thereto, and sides detachably secured to said legs, substantially as described.

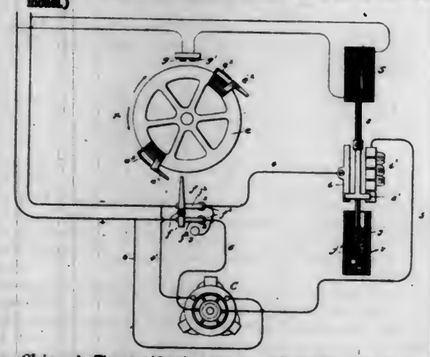
2. A stove comprising a top, legs hinged thereto, and sides provided with eye-brackets fitting upon the legs, substantially as described.

3. In a stove, and in combination, a top provided with eye-brackets arranged in sets and rods passing through the eye-brackets, said rods being bent to form legs for the stove, substantially as described.

4. In a stove, and in combination, a top provided upon its under side with eye-brackets arranged in sets, rods passing through said sets of eye-brackets and bent to form legs for the stove, and detachable sides, also provided with eye-brackets adapted to fit upon the legs, substantially as described.

5. In combination with a stove, a detachable stovepipe consisting of an upper and a lower part, each of which is formed of plates of varying lengths, the plates of each part being hinged together, the longest plate of each part being hinged together end to end, substantially as described.

478,821. ELECTRIC ELEVATOR. ALONZO B. SEE and WALTER L. TYLER, Brooklyn, N. Y. Filed Mar. 14, 1892. Serial No. 424,764. (No model.)



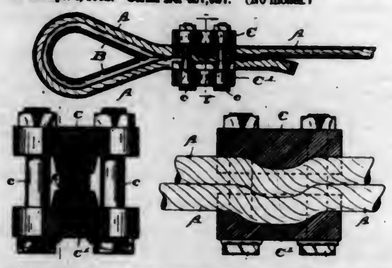
Claim.—1. The combination, with an elevator-car and electric motor therefor, of an electric-circuit-supplying current to the motor, an electro-responsive apparatus in a separate circuit and controlling the motor, a switch controlling the electro-responsive apparatus, a wheel carrying a device arranged to throw the switch, and connections from the car to the wheel, whereby the latter may be turned to move the switch, substantially as described.

2. The combination of an elevator-car, a motor therefor, a switch and rheostat in the motor-circuit, a solenoid in a separate circuit, said solenoid moving the switch and rheostat, a retarding device for the solenoid, a switch in the circuit with the solenoid, and mechanical connections from the car to the switch in the solenoid-circuit, whereby the solenoid may be controlled.

3. The combination, with an elevator-car and electric motor therefor, of a pole-changer in the motor-circuit, an electro-responsive apparatus in a separate circuit and controlling the motor-circuit, a switch controlling the electro-responsive apparatus, and a wheel carrying two pairs of devices, one device of each pair arranged to throw the pole-changer and the other device of each pair arranged to throw the switch, for the purpose set forth.

4. The combination of an elevator-car, a motor therefor, a rheostat in the motor-circuit, a solenoid in a separate circuit and operating said rheostat, a retarding device for the solenoid, a switch in the solenoid-circuit, a pole-changer in the motor-circuit, the wheel *e*, and rope *d'*, said wheel being provided with devices for operating said switch and pole-changer, substantially as described.

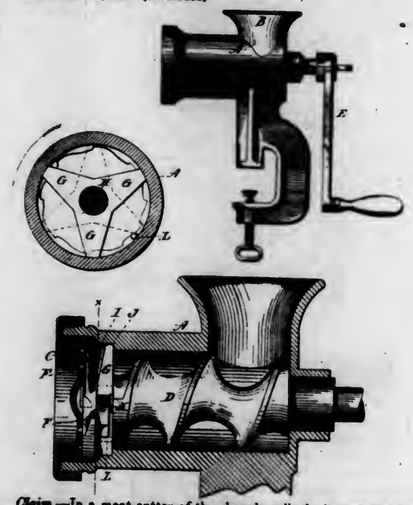
478,822. CLAMP. WILLIAMSON B. SEWARD, Bloomington, Ind. Filed Apr. 4, 1892. Serial No. 427,627. (No model.)



Claim.—1. A clamp for uniting wires, ropes, &c., consisting of two clamp parts adapted to fit on opposite sides of the two portions to be secured together, one of said clamp parts being concaved and the other correspondingly convexed, substantially as shown and described.

2. The combination, with two wires, ropes, or portions of the same, of a clamp consisting of two parts, one of which has a concave formation longitudinally and the other a correspondingly-convex formation, said clamp being thus adapted to form offsets or compound bends in the wire or rope to which it is applied.

478,823. MEAT-CUTTER. JOHN H. SHAW, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Oct. 19, 1891. Serial No. 409,168. (No model.)

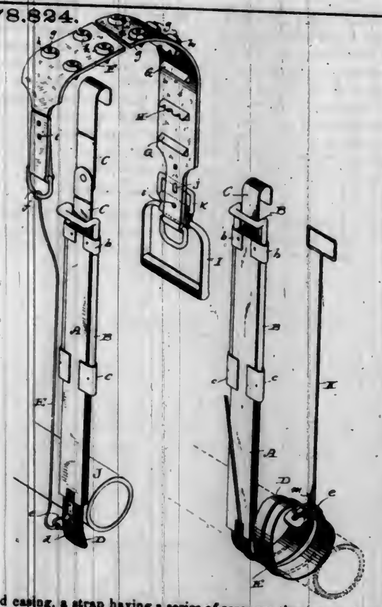


Claim.—In a meat-cutter of the class described, the combination of the feed-screw and the normally stationary or preliminary cutters, the said normally stationary or preliminary cutters being arranged in the case so as to permit a limited rotation thereof, and a stop in the case, against which the said cutters are brought to arrest their rotation and hold them in their normal working condition or permit their partial rotation by a reverse action of the screw, substantially as described.

478,824. CLEANING BOILER-FLUES. JOSEPH SHOSTAK, Milwaukee, assignor of one-half to Jacob Rubin, Whitewater, Wis. Filed Feb. 9, 1892. Serial No. 420,846. (No model.)

Claim.—An apparatus for cleaning the outside of boiler-flues, that consists of a suitable casing provided with guides, a skeleton handpiece loose in the guides and having clips that loosely engage the casing, a jointed bar loose in said casing, a spirally-twisted strip of spring material connected to one end of the bar and retractible within the aforesaid casing, a strap having a series of scrapers thereon, and suitable means for detachably connecting the spring-strip and strap substantially as set forth.

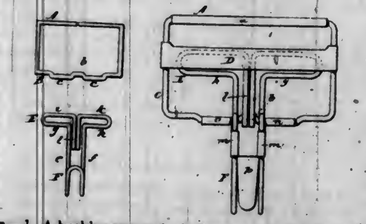
478,824.



478,825. ENVELOPE-CARD. REMY SIMS, Paris, France. Filed Mar. 26, 1891. Serial No. 386,542. (No model.) Patented in France Dec. 31, 1890, No. 210,547.

Claim.—A display card or tablet consisting of a main portion having an opening through it indicating the outline of a garment, and integral strips of the card or tablet material extending inward from edges of the opening, said strips serving to delineate portions of a garment and also serving to brace the card or tablet material, substantially as specified.

478,826. BUCKLE. DWIGHT L. SMITH, Waterbury, Conn., assignor of one-half to Earl A. Smith, same place. Filed Mar. 28, 1892. Serial No. 426,768. (No model.)

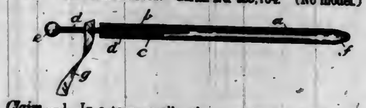


Claim.—1. A buckle composed of a frame having a longitudinal presser-bar, combined with a jaw hinged to a part of the frame parallel with the said presser-bar and so as to swing toward and from the presser-bar, the jaw constructed with a spring extending toward the hinging-point of the lever at substantially right angles to the line of the jaw, and a cam on the bar or side of the frame to which the jaw is hung, the cam being in substantially the plane of the frame, but out of line with the axis of the hinge on which the jaw swings, substantially as described.

2. A buckle composed of a frame having a longitudinal presser-bar, a side or bar of the frame parallel with the presser-bar, bent to form a cam in substantially the plane of the frame, but out of line with the bar of which it forms a part, a jaw made from wire bent to form the longitudinal jaw to bear upon the said presser-bar, with a central projection therefrom toward the said side or bar of the frame carrying the said cam, and the jaw hinged by the said projection to the said cam-bar of the buckle, the axis of the said hinge being out of line with said cam, and the jaw constructed with a spring adapted to bear upon said cam, substantially as and for the purpose described.

3. A buckle composed of a frame made of wire and consisting of two sides A B, ends C C, a presser-bar D, longitudinally across the frame and secured to the two ends thereof, combined with a jaw made from wire, the wire doubled and bent to form the depending hook F, the two branches of the wire extending upward and turned to the right and left and returned inward to form the jaw, the ends of the wire at the center turned downward to form a spring *l* between the two branches, the jaw hinged to the lower side of the frame, and the lower side of the frame constructed with a cam *b*, against which the said spring *l* is adapted to bear, substantially as and for the purpose described.

478,827. TAPE-NEEDLE. ELISABETH STOTT, Huddersfield, England. Filed Mar. 21, 1892. Serial No. 425,784. (No model.)

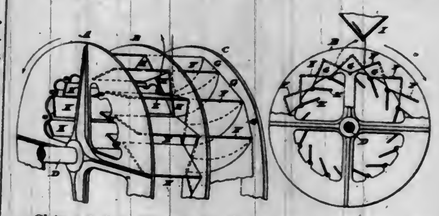


Claim.—1. In a tape-needle, the combination, with a tube, of a rounded head provided with a shank adapted to engage with the tape and with one end of the said tube and to secure the tape crosswise of the end of the tube at the entering end of the needle, substantially as set forth.

2. In a tape-needle, the combination, with a tube, of an inner tube secured in one end of the said tube and a head provided with a pointed shank adapted to be thrust within the said inner tube and to secure the tape crosswise of the said tube at the entering end of the needle.

3. In a tape-needle, the combination, with a tube, of an inner tube secured in one end of the said tube, a perforated plate *n* for spreading the tape, and a head provided with a pointed shank passing through the said plate and engaging with the said inner tube, substantially as and for the purpose set forth.

478,828. WINNOWING-WHEEL FOR SEPARATING GRANULAR SUBSTANCES. OLOF SUNDGREN, Östersund, Sweden. Filed Feb. 20, 1892. Serial No. 422,350. (No model.) Patented in Sweden May 28, 1891, No. 3,251.



Claim.—1. In a separator, the combination, with the rings A B C, of a series of buckets disposed between rings A B and B C, a series of shovels, and communicating means between the buckets and shovels, substantially as set forth.

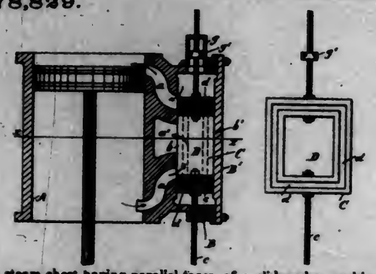
2. In a separator, the combination, with shaft D, rings A B C, of a series of buckets disposed between said rings, the buckets G, having curved guide-walls, shovels disposed at an inclination to the radius and parallel with shaft D, and openings H in ring B, whereby the material may pass from said buckets to said shovels, substantially as set forth.

3. In a separator, the combination, with the shaft D, of rings A B C, buckets having curved guide-walls, shovels E, openings H between said buckets and shovels E, and pivoted lids K, adjacent to said shovels E, substantially as set forth.

478,829. SLIDE-VALVE. CARL G. WALLS, Brooklyn, N. Y. Filed Apr. 8, 1892. Serial No. 428,359. (No model.)

Claim.—1. The combination, with a cylinder provided with ports

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and a steam-chest having parallel faces, of a slide-valve working between the said faces and having its opposite sides of equal area, and spring-pressed packing-frames let into the working faces of the said valve, substantially as set forth.

2. The combination, with a cylinder provided with ports and a steam-chest having parallel faces, of a slide-valve working between the said faces and having an exhaust-passage extending through it, and spring-pressed packing-frames let into grooves in the working faces of the valve around the said exhaust-passage, substantially as set forth.

3. The combination, with a cylinder provided with ports and a steam-chest having parallel faces, of a slide-valve working between the said faces and provided with a compensating device whereby the weight of the valve is balanced by the pressure of the steam in the steam-chest, and spring-pressed packing-frames let into the working faces of the said valve, substantially as set forth.

478,830. MEDICAL AND SURGICAL CABINET. JOSEPH R. WEBBAR, East Liverpool, Ohio. Filed Dec. 15, 1891. Serial No. 415,179. (No model.)



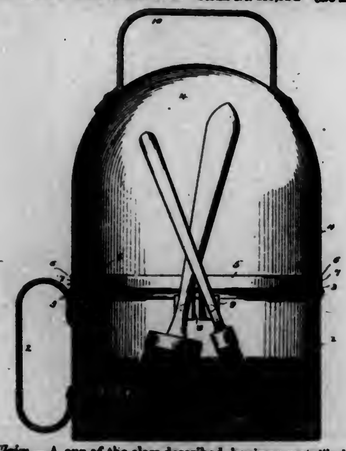
Claim.—1. The combination of a foundation, a casing supported above the same to form a hot-air chamber and having a niche in one side provided with sockets for the reception of atomizers, an air-pump connected to the hot air chamber, and a lamp upon the foundation projecting up into the hot-air chamber, substantially as set forth.

2. The combination of a foundation, a casing supported above the same to form a hot-air chamber and having a niche in one side provided with sockets, atomizers in said sockets, an air-pump connected to the hot-air chamber and having its discharge adapted to fit the atomizers, and a lamp upon the foundation projecting into the hot-air chamber and provided with a light-concentrating device, substantially as set forth.

3. The combination of a foundation, a casing supported above the same to form a hot-air chamber, a pocket or fountain upon the front of said chamber and provided with a faucet and a nozzled douche-tube, and means for heating the hot-air chamber, substantially as set forth.

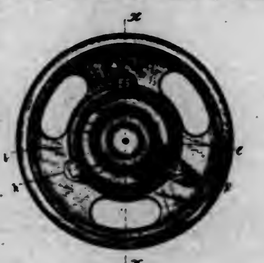
4. The combination of a foundation-casing formed with a basin in its top, having a waste-pipe, and with a cupboard, a casing supported above said foundation-casing and formed with a hot-air chamber and with a niche in its side having sockets, a lamp upon the foundation and projecting into the hot-air chamber and provided with a light-concentrating device, a waste-receptacle in the cupboard and beneath the waste of the casing, a cold-water tank upon the back of the upper casing and having pipe connection and a faucet at the basin, a downwardly-contracted hot-water tank in the upper casing above the lamp and provided with a pipe and a faucet upon the front of the casing, an air-pump connected to the hot-air chamber, and a pocket or fountain upon the front of the upper casing and provided with a faucet and a nozzled douche-tube, substantially as set forth.

478,831. PAINT AND VARNISH CUP. SAMUEL R. WILMOT, Bridgeport, Conn., assignor to the Wilmot & Hobbs Manufacturing Company, same place. Filed Dec. 30, 1891. Serial No. 416,534. (No model.)



Claim.—A cup of the class described, having a metallic body provided at its upper edge with an outward and inward curve forming a shoulder and a groove, a hollow packing-ring 6, seated in said groove and having a wire or cord 7 within it, and a dome-shaped cover fitting over said ring, substantially as described.

478,832. AXLE-LUBRICATOR. JOHN W. WOODHOUSE, Rich Hill, Mo. Filed Sept. 29, 1891. Serial No. 407,184. (No model.)



Claim.—A car-wheel having an orifice, a pair of semi-spherical caps bolted on opposite sides of the wheel over the orifice in such a manner as to form an oil-chamber, an opening formed in one of the caps and extending entirely through the same, an axle fitting in the opening and projecting across the oil-chamber to the remaining cap, a recess formed in the inner side of the said cap, in which recess the free end of the axle is journaled, and means for holding the axle in place, substantially as described.

478,833. GYMNASTIC APPARATUS. ROBERT WRIGHT, Detroit, Mich. Filed Sept. 17, 1891. Serial No. 406,004. (No model.)

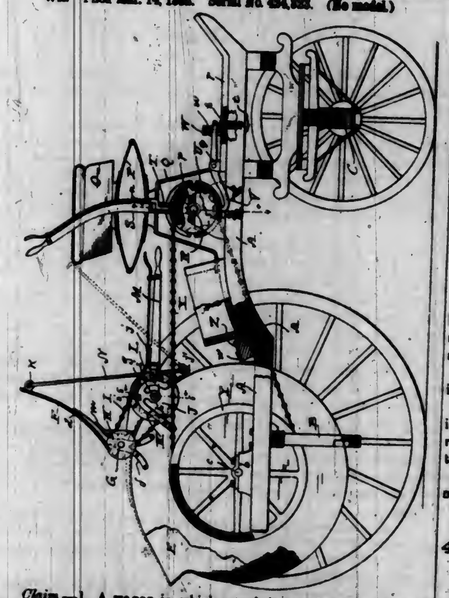
Claim.—In an apparatus of the character described, the combination, with the bracket comprising a base adapted to be attached to a wall or support, a forwardly-projecting arm, and a horizontal transverse arm, of two pulley-supports swiveled in the ends of said transverse arm, each carrying two pulleys, two independent weights and vertical guides therefor, two cords attached to each weight and passing over the pulleys and connected in front of the latter to cross-bars,

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and hand ropes or cords attached to said cross-bars, substantially as shown and described.

478,834. DUMPING-WAGON. CHARLES ARESEN, Milwaukee, Wis. Filed Mar. 14, 1892. Serial No. 424,923. (No model.)



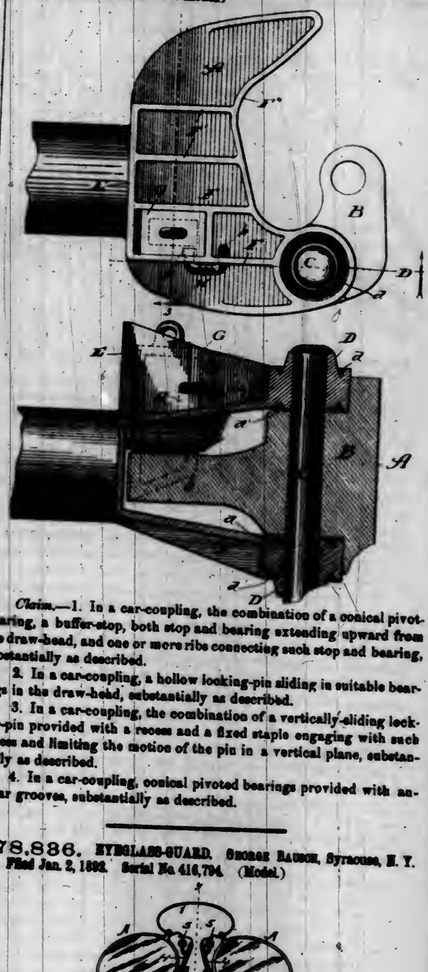
Claim.—1. A wagon in which a tank is trunnioned to a pair of sills, a sprocket-wheel fast to one of the tank-trunnions and connected by a link belt with another sprocket-wheel loose on a lever-controlled shaft, a latch-rod on the shaft-lever arranged to engage a circular rack rigid with the latter sprocket-wheel, and a detent that is also arranged to engage the rack, substantially as set forth.

2. A wagon in which a tank is trunnioned to a pair of sills, a sprocket-wheel fast on one of the tank-trunnions and connected by a link belt with another sprocket-wheel loose on a lever-controlled shaft, a latch-rod on the shaft-lever arranged to engage a circular rack rigid with the latter sprocket-wheel, and a spring-and-lever controlled detent that is also arranged to engage the rack, substantially as set forth.

3. A wagon in which a dumping-tank is provided with bearings for a shaft, a closure for the tank made fast to the shaft, a sprocket-wheel fast on said shaft and connected by a link belt with a similar wheel loose on a stud that extends laterally from said tank, a lever rigid with the latter sprocket-wheel, a latch-rod on the lever, and a notched bracket arranged to engage the latch-rod, substantially as set forth.

4. A wagon in which a dumping-tank is provided with bearings for a shaft, a closure for the tank made fast to the shaft, a sprocket-wheel also fast on said shaft and connected by a link belt with a similar wheel loose on a stud laterally extended from said tank, a lever rigid with the latter sprocket-wheel, a latch-rod on the lever, a notched bracket for engagement with the latch-rod, and a stay-rod arranged to detachably connect the aforesaid tank and closure when the latter is in its raised position, substantially as set forth.

478,835. CAR-COUPLING. DAVID L. HARRIS, Chicago, Ill., assignor to the Congdon Brake Shoe Company, same place. Filed Feb. 1, 1892. Serial No. 419,869. (No model.)



Claim.—1. In a car-coupling, the combination of a conical pivot-bearing, a buffer-stop, both stop and bearing extending upward from the draw-head, and one or more ribs connecting such stop and bearing, substantially as described.

2. In a car-coupling, a hollow locking-pin sliding in suitable bearings in the draw-head, substantially as described.

3. In a car-coupling, the combination of a vertically-sliding locking-pin provided with a recess and a fixed staple engaging with such recess and limiting the motion of the pin in a vertical plane, substantially as described.

4. In a car-coupling, conical pivoted bearings provided with annular grooves, substantially as described.

478,836. EYEGLASS-GUARD. GEORGE RAUSH, Syracuse, N. Y. Filed Jan. 2, 1892. Serial No. 416,794. (Model.)



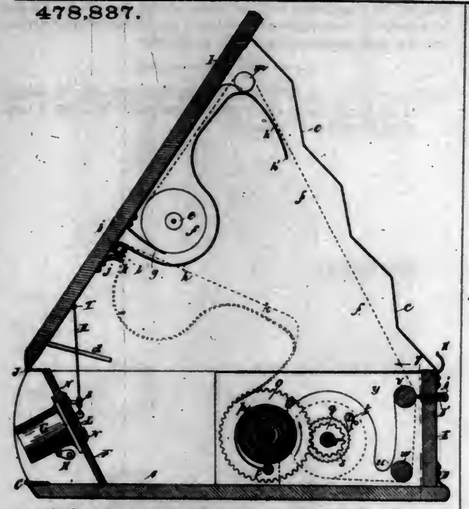
Claim.—The combination, with the lens-holders and the nose-guards secured thereto, of auxiliary guards detachably connected thereto and consisting of arms provided with pads upon their free ends and adapted to grip the nose between the eyes.

478,837. PHOTOGRAPHIC CAMERA. HIRAM A. REMINGTON, New York, N. Y. Filed Dec. 1, 1891. Serial No. 413,656. (No model.)

Claim.—1. In a photographic camera, the combination of a case, one side whereof is adapted to be opened, means for excluding the light attached to the movable side and also to the body of the case, a roll of sensitized material supported upon said movable side, and take-up mechanism for the slack of the film operated when the movable side is closed, substantially as set forth.

2. In a photographic camera, the combination of a case, one side whereof is adapted to be opened, means for excluding the light attached to the movable side and also to the body of the case, a roll of

478,887.



sensitized material supported upon said movable side, and take-up mechanism for the slack of the film, operated when the movable side is closed, and shutter mechanism operated by the opening of the said movable side, substantially as set forth.

3. In a photographic camera, the combination of a case, one side whereof is adapted to be opened, means for excluding the light attached to the movable side and also to the body of the case, a roll of sensitized material supported upon said movable side, take-up mechanism for the slack of the film, operated when the movable side is closed, and shutter mechanism operated by the opening of the said movable side, and a shield to protect the roll of sensitized material fastened upon the movable side, substantially as set forth.

4. In a photographic camera, the combination of a case, one side whereof is adapted to be opened, means for excluding the light attached to the movable side and also to the body of the case, a roll of sensitized material supported upon said movable side, take-up mechanism for the slack of the film, operated when the movable side is closed, shutter mechanism operated by the opening of the said movable side, and a shield attached to the movable side, arranged to close down over the lens-opening when the said side is closed, substantially as set forth.

5. A camera comprising the combination of a case, one side whereof is hinged, means for excluding the light attached to the movable side and also to the body of the case, means attached to the hinged side and to the case for the support of a film across the larger end when the device is opened, a lens arranged focally at right angles to the film, and a shutter for the lens, substantially as set forth.

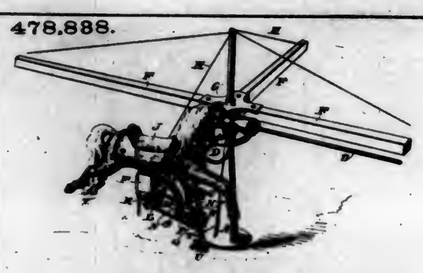
6. A camera comprising the combination of a case, one side whereof is hinged, means for excluding the light attached to the movable side and also to the body of the case, means attached to the hinged side and to the case for the support of a film across the larger end when the device is opened, a lens arranged focally at right angles to the film, a shutter for the lens, and means to take up the slack of the film upon the closing of the said hinged side, substantially as set forth.

7. The combination, in a camera, of a case, a hinged part, means for excluding the light, attached to the hinged part and also to the body of the case, a roll of sensitized material supported upon the hinged part, means to take up the slack of the sensitive material supported upon the case, a lens arranged at right angles to the film when distended, and a shutter connected with and operated by the hinged part, and means to reset the shutter upon closing the same, substantially as set forth.

478,888. MERRY-GO-ROUND. WILLIAM D. BRENAGE, Philadelphia, Pa. Filed July 30, 1891. Serial No. 401,152. (No model.)

Claim.—A merry-go-round consisting of a standard with a circular rack thereon, a beam rotatable on said standard and having a seat thereon, a shaft journaled in hangers on said beam and having a pinion thereon meshing with said rack, two parallel hangers rigidly secured to said beam and having segmental slots, arms having their ends adjustably secured in said slots, a sprocket-wheel journaled in the other end of said arms and having pedals thereon, and a sprocket-chain on said wheel and on a sprocket-wheel mounted on the said shaft, said parts being combined substantially as described.

478,888.



478,889. ROPE-CLUTCH. HARWELL L. BENNETT and RUSSELL R. ADAMS, Westerville, Ohio. Filed Apr. 2, 1892. Serial No. 427,454. (No model.)



Claim.—1. In a rope-clutch, the combination, with the arm *a*, fixed and pivoted jaws carried thereby, and hook-arm *d*, jointedly connected therewith, of connections between said pivoted jaw and arm *d*, substantially as and for the purpose specified.

2. In a rope-clutch, the combination, with the arm *a*, the fixed and pivoted jaws arranged as described thereon, said jaws having curved edges, as described, an arm *d*, jointedly connected with the arm *a*, and connections between the arm *d* and pivoted jaw, substantially as specified.

3. In a rope-clutch, the combination, with the arm *a*, fixed and pivoted jaws a' a^2, arranged thereon, as described, said jaws having grooved edges shaped to form conjointly a substantially compound curve, substantially as specified.

4. In a rope-clutch, the combination of the arm *a*, a pivoted and a fixed jaw thereon, as described, an arm *b*, carried by said pivoted jaw at an angle therefrom, an arm *d*, jointedly connected with said arm *a*, and a link d^3, fulcrumed to said arm *d* and adapted to engage with said arm *b*, substantially as specified.

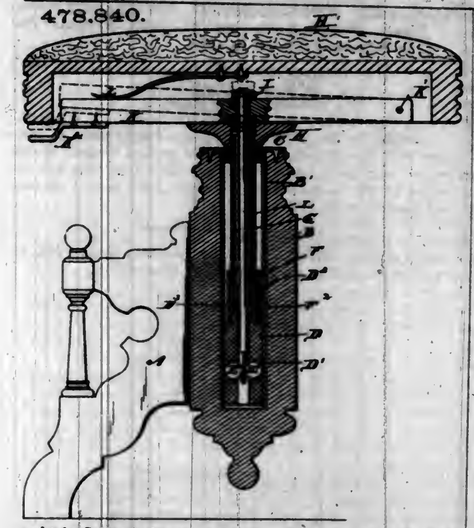
5. In a rope-clutch of the character described, a releasing device consisting of a lever-arm *g*, a notched end portion g^2, and jointed link and rod g^3 g^4, said link fulcrumed to said lever-arm, substantially as and for the purpose specified.

478,840. ADJUSTABLE SEAT. CHARLES H. BIGG and FRANK H. FAIRCHILD, Detroit, Mich. Filed Feb. 8, 1892. Serial No. 420,693. (No model.)

Claim.—1. In combination with the hollow standard and adjustable seat, the lever placed under the seat and extending to or nearly to its periphery, the pointed rod attached to the lever, and wheels carried in a vertically-adjustable cage placed within the standard to form a friction-clutch by the outward pressure of the inclined faces of the rod, forcing the wheels against the interior face of the hollow standard to support the seat at any point within the range of its adjustment, substantially as set forth.

2. In combination with the hollow standard and swiveling seat, the wheel-carrying cage D, means for locking the cage in the standard, and collar F, attached to but free to turn on the cage, the cap C,

478,840.

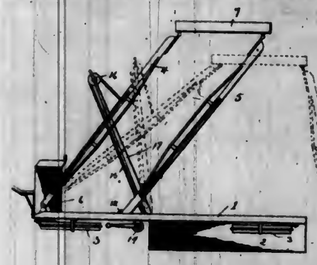


and tube G, attached at one end to the collar and at the other to the seat and intermediately supported by the cap, substantially as set forth.

3. In combination with the hollow standard and adjustable and swiveling seat, the vertically-adjustable cage D, the seat-carrying tube G, resting and free to turn thereon, the lever K, pivoted to the seat, and pointed rod L, attached thereto, and wheels E, placed within a chamber in the cage and capable of being forced outward against the interior wall of the standard by the inclined portion of the pointed rod, substantially as set forth.

4. In combination with the hollow standard and adjustable and swiveling seat, the cage D, constructed with an extension D' and groove D^2, the wheels E, chambered in the cage, collar F, set-screw F', which engages the groove D^2 and permits rotary motion only to the collar in its relation to the cage, tube G, to which the seat is attached and which rests on the collar, the pointed rod I I', the inclined faces of which force the wheels outwardly against the wall of the hollow standard, and spring pressed lever K, pivoted to the seat, substantially as set forth.

478,841. VERTICALLY-EXTENSIBLE PLATFORM FOR WAGONS. GEORGE H. BODWITH, Toledo, Ohio, assignor to Frederick H. Lincoln, same place. Filed Oct. 22, 1891. Serial No. 409,482. (No model.)



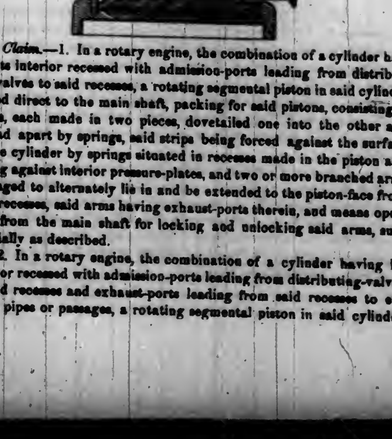
Claim.—1. A wagon-bed having front braces pivotally connected therewith, a platform pivotally connected with the upper end thereof, rear braces pivotally connected with the platform, the lower end of the same being adjustable with relation to the lower end of the front braces, and means for raising and lowering the platform.

2. A wagon-bed having front braces pivotally connected therewith, a platform pivotally connected with the upper end thereof, rear braces pivotally connected with the platform, and stops in different positions upon the wagon-bed, against which the lower ends of the rear braces are held to vary the height of the platform.

3. A wagon-bed having multiple braces sustained thereon at their lower ends, the upper ends being pivotally connected with a platform, a mast pivotally supported upon the bed, having a sheave, a windlass journaled upon the bed, and a rope connected with the windlass, passing over the sheave, and connected with the braces to raise the same.

4. A wagon-bed, front braces pivotally connected with the bed and with a platform, rear braces connected with a platform and adjustably supported upon the bed, a mast pivotally connected with the bed and passing between the front braces, which latter bear upon and are supported by the mast, a sheave journaled in the mast, a rope passing over the same and connected with the front braces at one end, and a windlass journaled on the bed, to which the opposite end of the rope is attached.

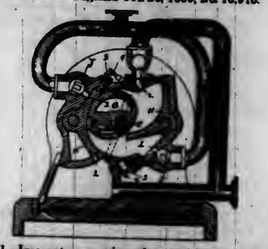
478,842. AWNING. BARTHOLOMEW BROOKS, Philadelphia, Pa., assignor of one-half to Joseph R. G. McAllister, same place. Filed Sept. 30, 1891. Serial No. 407,258. (No model.)



Claim.—1 In an awning, the combination of a pivoted awning-frame, a pivoted support therefor having an end thereof engaging a side of said frame, a weighted locking-dog carried by said support to engage said frame, and a retractile spring connected with the side bar of the frame, substantially as described.

2. In an awning, a pivoted awning-frame, a pivoted supporting-rod having a looped end adapted to embrace a side of the frame, a weighted dog pivoted to said rod and having a serrated upper end bearing against said side of the frame, and a cord for operating said dog, said parts being combined substantially as described.

478,843. ROTARY ENGINE. ALEXANDER F. G. BROWN, Swindridge Muir, Dairy, Scotland. Filed Apr. 15, 1891. Serial No. 389,056. (No model.) Patented in England Oct. 26, 1889, No. 16,913.



Claim.—1. In a rotary engine, the combination of a cylinder having its interior recessed with admission-ports leading from distributing-valves to said recesses, a rotating segmental piston in said cylinder keyed direct to the main shaft, packing for said pistons, consisting of strips, each made in two pieces, dovetailed one into the other and spread apart by springs, said strips being forced against the surface of the cylinder by springs situated in recesses made in the piston and acting against interior pressure-plates, and two or more branched arms arranged to alternately lie in and be extended to the piston-face from said recesses, said arms having exhaust-ports therein, and means operated from the main shaft for locking and unlocking said arms, substantially as described.

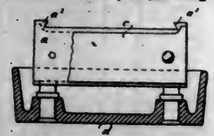
2. In a rotary engine, the combination of a cylinder having its interior recessed with admission-ports leading from distributing-valves to said recesses and exhaust-ports leading from said recesses to exhaust pipes or passages, a rotating segmental piston in said cylinder

keyed direct to the main shaft, and two arms arranged to alternately lie in and be extended to the piston-face from said recesses, each arm having two branches extending in opposite directions from its boss and one of which when the arm lies in the recess covers or closes the exhaust-passage, and means for locking and unlocking said arms, consisting of bolts, said bolts being connected to a rocking lever worked by a crank or eccentric from the main shaft, substantially as described.

478,844. NITRO-GLYCERINE BLASTING-POWDER. LEWIS BROWN, Landing, N. J., assignor to the American Forcite Powder Manufacturing Company, New York, N. Y. Filed Sept. 5, 1891. Serial No. 404,886. (No specimens.)

Claim.—The grading and coating mixture comprising nitrate of soda, wood pulp, sulphur, rosin, and paraffine, combined in the proportions substantially as set forth.

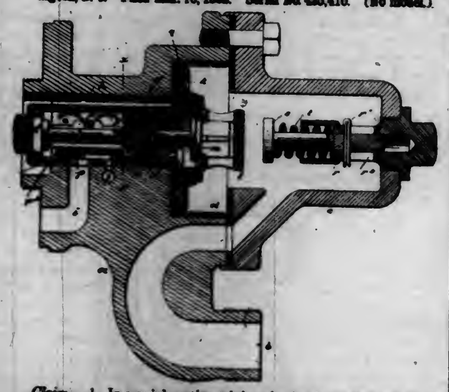
478,845. SCRAPER OR CLEANER FOR BOOTS OR SHOES. FRIEDRICH A. CARR, Hanover, Germany. Filed Dec. 26, 1891. Serial No. 416,179. (No model.) Patented in Belgium Aug. 27, 1891, No. 96,186.



Claim.—1. The herein-described boot-cleaner, consisting of a plurality of alternate plates of metal and rubber, the latter extending above the former and provided with undercut shoulders, and a trough-like base in which are fitted posts supporting the cleaning portion, substantially as set forth.

2. The herein-described boot-cleaner, consisting of a plurality of alternate plates of metal and rubber set edgewise and clamped together by suitable means, the edges of the rubber plates projecting above the metal plates and provided near their ends with undercut shoulders, and a central metallic plate provided with posts fitted in trough-like base *d*, as set forth.

478,846. VALVE FOR AIR-BRAKES. JESSE F. CARPENTER, Washington, D. C. Filed Mar. 18, 1892. Serial No. 425,410. (No model.)



Claim.—1. In a quick-acting triple valve having a direct through-passage from the train-pipe to the brake-cylinder and a check-valve normally closing the same, the combination, with a contracted passage from the reservoir to the brake-cylinder and a large passage from the train-pipe to the brake-cylinder through the same chamber, of a strong spring and stop to mechanically effect the partial return of the slide-valve of the triple valve, thereby nearly closing the said large passage from the train-pipe to the brake-cylinder, substantially as described.

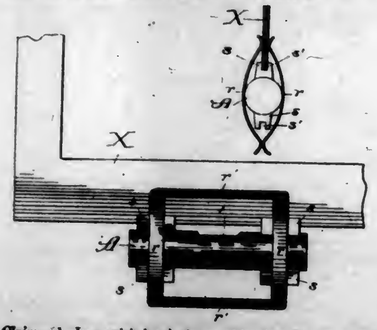
2. In a quick-acting triple valve for air-brakes, the combination, with its piston, its slide-valve, and a slide-valve chamber having a contracted passage from the reservoir to the brake-cylinder, of a check-valve controlling a port between the train-pipe and the slide-valve chamber and preferably located in the piston itself, a spring buffer or stop arranged in the line of movement of said piston, and the piston-trunk, substantially as described.

478,847. WOOD-BLOCK FLOORING. THOMAS CRAWFORD, London, England. Filed Nov. 11, 1891. Serial No. 411,641. (No model.) Patented in England Aug. 9, 1889, No. 12,630.



Claim.—The herein-described flooring-block, provided on both sides with dovetail rabbets *a*, continued to form tongues B, said tongues being made narrower than the width of the block and extending beyond the ends of same and provided with bevels *b* and fastened together, as set forth.

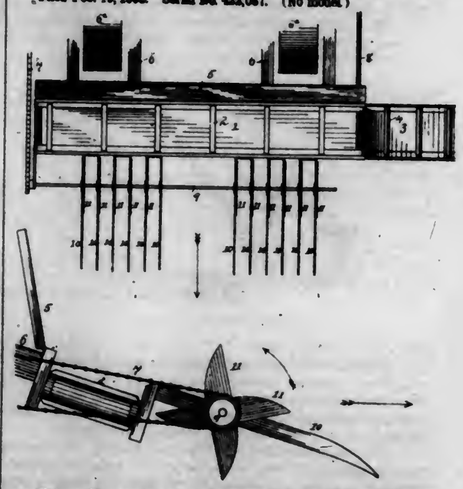
478,848. SPIRIT-LEVEL. JOHN DOEHLER, Chicago Lawn, Ill. Filed Mar. 12, 1892. Serial No. 424,618. (No model.)



Claim.—1. In a spirit-level, the combination of a casing A, provided with an inspection-opening, gages *s'* at opposite end portions and at diametrically-opposite sides of the casing, and clamps at diametrically-opposite sides of the casing, the gages and clamps extending in the plane of a line drawn from the longitudinal center of the casing through the inspection-opening, substantially as described.

2. In a spirit-level, the combination of a casing A, provided with an inspection-opening, gages *s'* at opposite end portions of the casing, and a clamp on the casing, comprising two spring-frames *r*, provided with straight edges *r'* parallel to the plane of the gages, the gages and clamp extending in the plane of a line drawn from the longitudinal center of the casing through the inspection-opening, substantially as described.

478,849. CORN-HARVESTER. RICHARD W. ERMELING, Bath, Ill. Filed Feb. 19, 1892. Serial No. 422,067. (No model.)



Claim.—The combination of a transverse conveyer and elevator, fingers projecting forwardly from the conveyer, a transverse shaft carried by the fingers, cutters fixed on the shaft adjacent to the fingers, and a lid for the conveyer adapted to act as a feeder for the corn when raised, as set forth.

478,850. PADLOCK. EDWARD T. FRAIM, Lancaster, Pa. Filed Feb. 20, 1892. Serial No. 422,194. (No model.)



Claim.—1. In a padlock, the combination, with a shackle having one limb pivoted in the case, of a flat spring extending across the case contiguous to the top plate thereof and constructed to engage the swinging limb of the shackle and secure it in the case, a rib to hold said spring up against the top plate, and a spring-actuated plunger adapted to force the swinging limb from the case and hold said flat spring in position to again engage the swinging limb, substantially as and for the purpose specified.

2. In a padlock, the combination, with a shackle, of one limb thereof pivoted in the case and having a rounded extension, a lug formed on the back plate beneath the pivoted limb, a V-shaped spring extending across the case contiguous to the top plate and having its leaves constructed to engage recesses in the swinging limb of the shackle, ribs on the back and closing plates, registering with each other to hold said spring up against the top plate and having winged recesses in their contacting edges, and a spring-actuated plunger adapted to force the swinging limb from the case and hold the leaves of the V-shaped spring open in position to again engage the recesses in the swinging limb, substantially as and for the purpose specified.

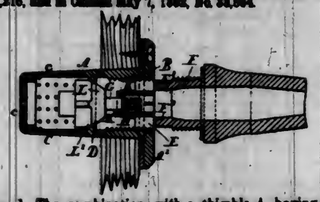
3. In a padlock, the combination, with a shackle and a case having a recess a^2 in the top plate thereof, of one limb of the shackle pivoted in the case and having a rounded extension, a V-shaped spring extending across the case contiguous to the top plate and having its leaves constructed to engage recesses in the swinging limb of the shackle, ribs on the back and closing plates, registering with each other to hold said spring up against the top plate and having winged recesses in their contacting edges, a plunger having a head adapted to engage the end of the swinging limb and a heel with a tenon formed thereon, a spring coiled about the tenon, a rib and post to support and guide the stem of the plunger, and a stud registering with the head of the plunger when in its retracted position, substantially as and for the purpose specified.

478,851. TOILET OR OTHER ARTICLE OF PLASTIC MATERIAL. JOSEPH R. FRANK, New York, N. Y. Filed Mar. 7, 1892. Serial No. 424,063. (No specimens.)



Claim.—As a new article of manufacture, an article of plastic material composed of a composition base having on one or more sides or parts a veneer sheet or coating of pyralin or the like and a strip of the same material round the edge of the composition base at or near the miter, substantially as described.

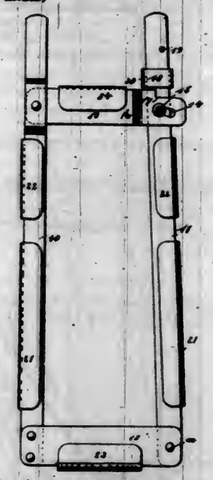
478,852. BROACHING DEVICE FOR CASKS. GEORGE GARR, London, England. Filed Feb. 1, 1892. Serial No. 419,955. (No model.) Patented in France Jan. 20, 1892, No. 212,007; in Belgium Feb. 4, 1892, No. 96,216, and in Canada May 7, 1892, No. 34,894.



Claim.—1. The combination, with a thimble A, having a valve-seat D, a perforated part in rear of the valve-seat and a screw-threaded part in front of the latter, of a valve I, having a stem G, a disk E, screwed into the thimble, having slots *f* and a sleeve K and loosely engaging the valve-stem, so that when the disk is screwed outward the valve-stem and valve are drawn forward to seat the valve, and a tap having a screw-threaded portion F and provided with projections F' to enter the slots in the disk for screwing the latter inward and outward, substantially as described.

2. The combination, with a thimble A, having a valve-seat D, a perforated part in rear of the valve-seat and a screw-thread in front of the latter, of a valve I, having a stem G, a disk E, screwed into the thimble and having a sleeve K, and a cap H, arranged in the sleeve, adapted to bear against a portion thereof and secured to the valve-stem, so that when the disk is screwed outward the valve-stem and valve are drawn forward to seat the valve, substantially as described.

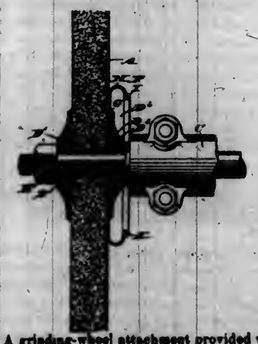
478,853. FABRIC-HOLDING FRAME FOR EMBROIDERING-MACHINES. HERMANN GRÖNEICH, New York, N. Y., assignor to Edmund T. Mason & Co., same place. Filed Feb. 20, 1892. Serial No. 422,907. (No model.)



Claim.—1. In a fabric-holding frame for embroidering-machines, the combination, with an upper and a lower cross-bar and a side bar rigidly secured to both the upper and lower cross-bars, of a second side bar having a pivotal connection with the lower cross-bar and a sliding connection with the upper cross-bar, a gravity locking device having movement upon the movable side bar and adapted for locking engagement with the upper cross-bar, and clamps carried by the side and by the cross bars, as and for the purpose specified.

2. In a fabric-holding frame for embroidering-machines, the combination, with a lower cross-bar, an upper cross-bar provided with a slot at one end and a recess in its slotted end forming a shoulder, and a side bar rigidly secured to both the upper and the lower cross-bar, of a second side bar pivotally attached to the lower cross-bar, a pin carried by the pivoted side bar and capable of movement in the slot of the upper cross-bar, and a gravity locking device having sliding movement upon the pivoted side bar above the upper cross-bar, the said gravity locking device being adapted for locking engagement with the shoulder of the upper cross-bar when the pivoted side bar is in its outermost position, substantially as described.

478,854. GRINDING-WHEEL ATTACHMENT. JOHN H. GÜNTHER, San Francisco, Cal. Filed Feb. 27, 1892. Serial No. 423,073. (No model.)

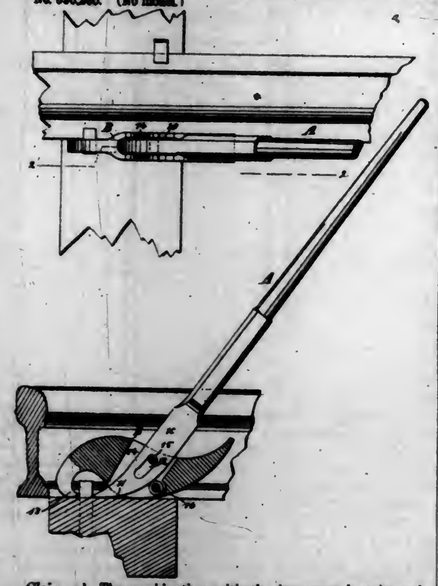


Claim.—1. A grinding-wheel attachment provided with a casing formed with an annular flange for retaining the oil, substantially as shown and described.

2. A grinding-wheel attachment comprising a casing formed with an inner wall and a semicircular annular flange extending from the outer edge of the said wall, and a washer engaging the said wall and extending in the casing, substantially as shown and described.

3. A grinding-wheel attachment comprising a casing formed with an inner wall and a semicircular annular flange extending from the outer edge of the said wall, and a washer engaging the said wall and extending in the casing, the said washer being formed with a curved face to lead the lubricant to the inside of the casing, substantially as shown and described.

478,855. CLAW-BAR. JAMES W. GRAY, Brooklyn, N. Y., assignor of one-half to John P. Heindell, same place. Filed Apr. 24, 1891. Serial No. 390,265. (No model.)



Claim.—1. The combination, with the jaw curved on its under side to rock and having its forward end curved downward and inward to form a beak and a vertical longitudinal slot extending through the jaw in rear of its beak, of the bar extending downward through the slot, having a sliding and pivotal movement therein and having its lower end curved forward toward the opposed beak 13, substantially as shown and described.

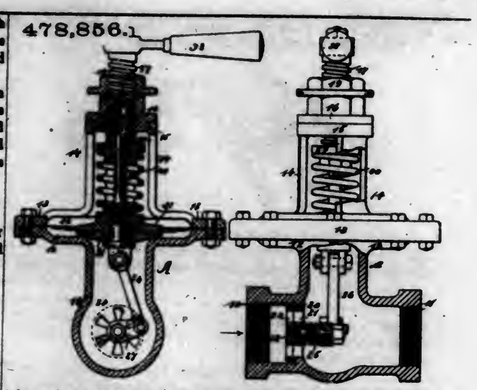
2. A claw-bar consisting of a body-bar having its lower end forwardly curved, a jaw loosely and adjustably pivoted upon the lower end of the bar and having its ends curved in opposite directions, the rear end upward and the forward end downward and rearward and forming a beak opposite the lower extremity of the body-bar, and a friction-roller journaled in the jaw and engaging the rear edge of the body-bar, as and for the purpose specified.

3. The combination, with a body-bar having its lower extremity forwardly curved, of a clamping-jaw curved at its extremities in opposite directions, the rear end upward and the forward end downward and inward, forming a beak, the said jaw being also provided with a central opening extending through from top to bottom, a pivot-pin passed through the jaw and an opening in the body-bar, and a friction-roller journaled in the clamping-jaw and engaging with the lower rear edge of the body-bar, as and for the purpose specified.

478,856. PRESSURE-REGULATING VALVE. WALFRID GUSTAFSON, Brooklyn, N. Y. Filed Dec. 16, 1891. Serial No. 415,483. (No model.)

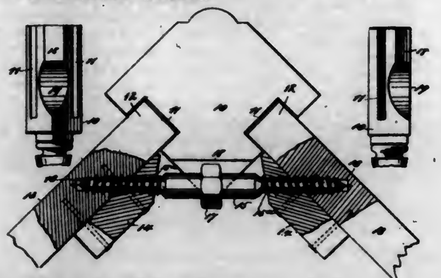
Claim.—A pressure-regulating valve comprising a body having a flaring top and provided with a perforated partition in its inlet, a ring secured to the flaring top and provided with standards projecting from it, a diaphragm secured between the ring and flaring top, disks between which the diaphragm is clamped, a rod secured to the disks, a screw mounted in the upper end of the standards and having its lower end chambered and into which the said rod projects, a collar on the rod and upon which the screw rests, a spring surrounding the rod between the collar and disk, a valve held against the partition of the

478,856.



inlet and provided with openings and with a crank on its stem, and a link pivoted to the lower end of the said rod and to the crank of the valve-stem, substantially as described.

478,857. CONSTRUCTION OF LEGGED ARTICLES. FRANK M. HARMAN and ANDREW L. EATON, Ottumwa, Iowa. Filed Sept. 16, 1891. Serial No. 405,884. (No model.)

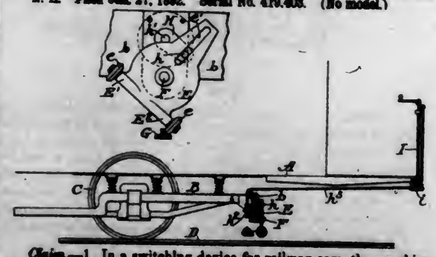


Claim.—1. In an article of furniture, the combination, with the rails spaced apart at their adjacent ends, of a diagonal bolt or screw connecting said ends, and a leg clamped between said rail ends beyond the bolt or screw by the action thereof, the bolt or screw serving to connect and brace the said ends of the rails when the leg is removed for shipment, substantially as described.

2. In an article of furniture, the combination, with rails spaced apart at their adjacent ends and the diagonal right-and-left screw connecting the rails in rear of their spaced ends, of the leg clamped between the rail ends beyond the screw, the said screw serving to connect and brace the rails when the leg is removed, substantially as described.

3. In an article of furniture, the combination, with rails spaced apart at their ends and provided on their inner faces with cleats 14 and diagonal apertures 16, of the diagonal right-and-left screw having a nut between its ends entering the diagonal rail and cleat apertures, and the leg held between the rail ends beyond the screw, substantially as described.

478,858. STREET-RAILWAY SWITCH. IRA F. HARRIS, Nashua, N. H. Filed Jan. 27, 1892. Serial No. 419,403. (No model.)



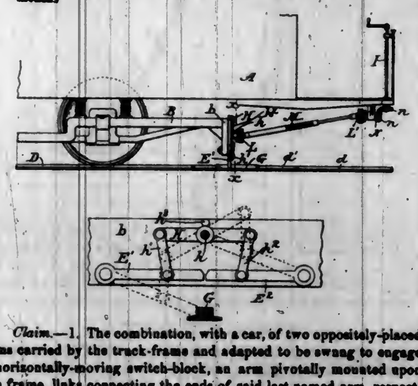
Claim.—1. In a switching device for railway-cars, the combination of two opposing arms pivotally supported upon a cross-bar of the truck-frame to swing in a plane transverse to the line of the track,

means to maintain said arms normally in an elevated position, a shaft supported by the truck-frame, an arm carried by said shaft and adapted to depress one or the other of said first-named arms to cause it to engage with a switch-rail, an operating device mounted on the platform of the car, and yielding transmitting means between said operating device and said shaft, substantially as shown and described.

2. In a switching device for railway-cars, the combination of two opposing arms supported upon the truck-frame to swing in a plane transverse to the line of the track, means to maintain said arms normally in elevated position, a shaft, an arm carried by said shaft and adapted to depress one or the other of said first-named arms to cause it to engage with a switch-rail or guide-rail, a drum on said shaft, a hand-shaft, and a flexible connection between said drum and hand-shaft, substantially as shown and described.

3. In a switching device for railway-cars, the combination of a plate pivoted upon the truck-frame, opposing arms carried by said plate, a shaft, an arm carried by said shaft and having a pin to engage a slot in said plate, and means to rotate said shaft, substantially as shown and described.

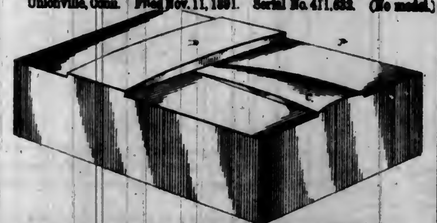
478,859. STREET-RAILWAY SWITCHING DEVICE. IRA F. HARRIS, Nashua, N. H. Filed Jan. 27, 1892. Serial No. 419,404. (No model.)



Claim.—1. The combination, with a car, of two oppositely-placed arms carried by the truck-frame and adapted to be swung to engage a horizontally-moving switch-block, an arm pivotally mounted upon the frame, links connecting the ends of said last-named arm, respectively, with the first-named arms, and means to swing said first-named arms, substantially as shown and described.

2. The combination, with a car, of two oppositely-placed arms carried by the truck-frame and adapted to be swung to engage a horizontally-moving switch-block, an arm pivotally mounted upon the frame and adapted to depress one or the other of said first-named arms, a hand-shaft supported upon the car-body, and connections between said shaft and said arms, comprising an extensible shaft and universal joint, substantially as shown and described.

478,860. DIE FOR SWAGING SPOON-BLANKS. HUBERT C. HART, Unionville, Conn. Filed Nov. 11, 1891. Serial No. 411,632. (No model.)



Claim.—1. A fork or spoon blank swaging and shaping die, comprising a male member having a longitudinal projection which tapers toward its inner end and a transverse projection at the tapered end of the said longitudinal projection and a female die having a longitudinal groove which tapers toward its inner end to receive the longitudinal projection of the male member and a transverse groove at and communicating with the tapered end of the longitudinal groove, whereby a blank is shaped and swaged at the same time, substantially as set forth.

2. A die for shaping and swaging spoon and fork blanks, comprising a male member having a longitudinal projection and a transverse projection at the inner end of the longitudinal projection and a female die having a longitudinal groove and a transverse groove to receive the projections of the male member, the longitudinal groove and projection being reduced in depth at their inner ends to leave the blank thickest at that point, substantially as and for the purpose described.

3. A die for swaging and widening spoon and fork blanks, comprising a female member having a longitudinal and a transverse groove communicating with the inner end of the longitudinal groove and a male member having a longitudinal and a transverse projection at the inner end of the longitudinal groove, one of the members having the longitudinal groove or projection made rounding in cross-section and the transverse groove made rounding in longitudinal section, whereby the blank is correspondingly rounded, for the purpose specified.

4. A die for swaging blanks, comprising a male and a female member, each having, respectively, substantially a T-shaped groove and projection, the ends of the cross-grove and projection thereof extending to the edges of the said members and the outer and inner ends of the longitudinal groove and projection extending, respectively, into the cross-groove and to the edge of the said cross projection, substantially as shown.

5. A fork or spoon blank swaging and shaping die, comprising a male member having a longitudinal projection which tapers at and toward its inner end and made rounding in cross-section and a transverse projection at the inner tapered end of the longitudinal projection, which transverse projection is rounding in longitudinal section, and a female member having a longitudinal and a transverse groove to receive the projections of the male member, substantially as specified.

478,861. DRINKING ATTACHMENT FOR CUPS, MUGS, &c. JAMES S. HOWARD, New Bedford, Mass. Filed Apr. 13, 1891. Serial No. 388,746. (No model.)

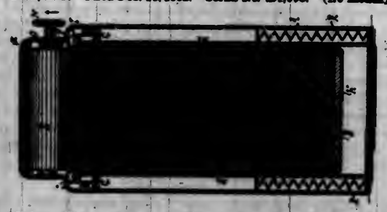


Claim.—As an article of manufacture, a drinking attachment for use with drinking-vessels, consisting of a curved tube to project down into the vessel and engage its inner face, and a spring-clip attached to the tube, extending outward and then downward therefrom and having on opposite sides of its lower outward portion the two inwardly-turned lips projecting in beyond the body of the clip so as to engage the exterior of the drinking-vessel at two points on opposite sides of a longitudinal plane through the tube and below the edge of the vessel, substantially as described.

478,862. GRAVEL ROAD. FRED J. HOYT, Chicago, Ill., assignor to The Hoyt Macadam Gravel Road Company, of Illinois. Filed Sept. 9, 1891. Serial No. 405,205. (No specimens.)

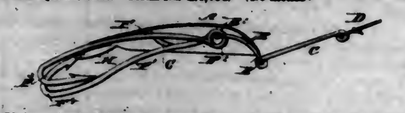
Claim.—A gravel road or pavement consisting of a first or bottom layer of hard-rolled clean coarse gravel covered with a slight dressing of washed sand, a second layer of hard-rolled clean gravel of a finer grade, and a top layer of still finer grade of hard-rolled clean gravel, said top layer mixed with cement, substantially as described.

478,863. CABINET FOR TOILET-PAPER. JAMES T. HOYT, New York, N. Y. Filed Feb. 18, 1892. Serial No. 421,963. (No model.)



Claim.—The combination, with a cabinet or case having a discharge-opening, of a discharge-roller located near the opening, an ascending feeder or supporting board, descending actuating-weights C for the feeder, a cord or chain connected to the actuating-weights and supporting the feeder, and relieving-springs R, located at the lower part of the travel of the actuating-weights C and against which the latter bear as they descend, substantially as described.

478,864. FISH-HOOK. WILLIAM H. HUNTER, Farnhamville, Iowa. Filed Apr. 12, 1892. Serial No. 428,791. (No model.)

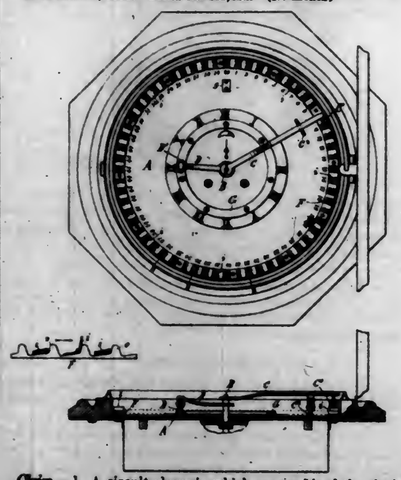


Claim.—1. A fish-hook comprising a bowl and two hooks, of which the shank of one hook is fixed in the said bowl and the shank of the other hook is adapted to engage a pin or lug on the said bowl to hold the two hooks in a closed position, substantially as shown and described.

2. A fish-hook comprising a bowl formed at its outer end with a lug or projection, two hooks, of which one has its shank fixed in the said bowl and the other hook has its inner end supported in the bowl, and a pin projecting from the said bowl and adapted to be engaged by the shank of the free hook, substantially as shown and described.

3. In a fish-hook, the combination, with a bowl provided with a fastening having two eyes, of which the outer is connected with the fish-line, of two hooks, of which the shank of one is held rigidly in the said bowl and the end of the shank of the other engages the inner eye of the said fastening, and a pin projecting from the said bowl and adapted to be engaged by the shank of the free hook, substantially as shown and described.

478,865. ELECTRIC TIME-ALARM. JOHN JACOBS, Brooklyn, N. Y. Filed Nov. 17, 1891. Serial No. 412,122. (No model.)



Claim.—1. A circuit-closer in which are combined the clock, radially-hinged metallic flaps at fixed intervals around the center staff of the clock, a stop to each of said flaps for retaining it in raised or operative position, a clock-hand having the spring contact to engage those of the series of flaps which are in operative position, and a means for connecting the flaps and clock-hand, respectively, with either pole of a battery, substantially as and for the purpose herein described.

2. A circuit-closer in which are combined a clock, radially-hinged metallic flaps at fixed intervals around the center staff of the clock, a metallic rail on the clock-face supporting said flaps to connect the series thereof with one pole of a battery, a stop to each of the flaps for retaining it in raised or operative position, a clock-hand having the spring-contact to engage those of the flaps which are in operative position, and a means for connecting said clock-hand with the other pole of the battery, substantially as and for the purpose herein described.

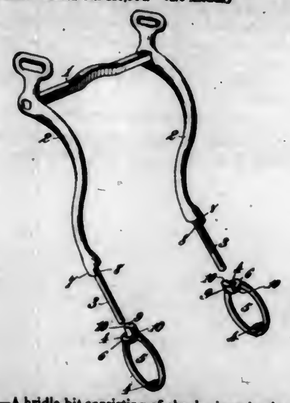
478,866. BRIDLE-BIT. JACK W. JAMES, Memphis, Tenn. Filed Sept. 29, 1891. Serial No. 407,160. (No model.)



Claim.—1. A bridle-bit consisting of cheek-pieces connected by a bit-bar and having their lower extremities formed into pendent cylindrical journals and rein-rings formed with vertical sockets loosely mounted on the cylindrical journals at the lower ends of the cheek-pieces to swing in a horizontal plane, for the purposes specified.

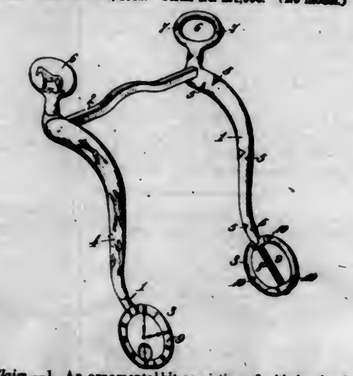
2. A bridle-bit consisting of rein-rings each provided with two sockets or orifices arranged diametrically opposite each other and cheek-pieces having shank extensions at their lower end portions which extend through the sockets or orifices in the rings, substantially as described.

478,867. BRIDLE-BIT. JACK W. JAMES, Memphis, Tenn. Filed Jan. 26, 1892. Serial No. 419,364. (No model.)



Claim.—A bridle-bit consisting of cheek-pieces having their lower ends terminating in cylindrical journals provided with lateral stop-lugs and rein-rings loosely mounted on the cylindrical journals to rotate in an approximately-horizontal plane and provided with offsets to abut the stop-lugs, substantially as and for the purposes described.

478,868. ORNAMENTAL CURB-BIT. JACK W. JAMES, Memphis, Tenn. Filed Feb 18, 1892. Serial No. 421,996. (No model.)

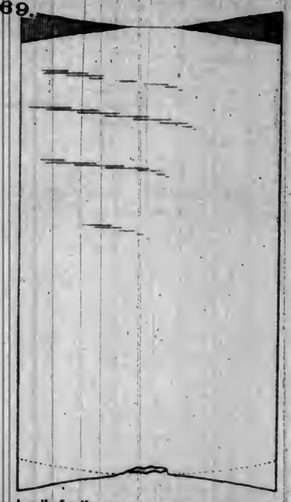


Claim.—1. An ornamental bit consisting of a bit-bar having rein-rings covered at their outer sides by ornamental disks, the edge portions of which extend round and are secured to the rings, substantially as described.

2. An ornamental curb bit consisting of a bit-bar having tapering cheek-pieces covered at their outer sides by tapering ornamented plates extending along the length of the tapering cheek-pieces and formed at the edges with tongue-pieces, which are clasped round the inner sides of the cheek-pieces, substantially as described.

3. An ornamental curb-bit consisting of a bit-bar and tapering cheek-pieces having rein-rings, said tapering cheek-pieces and rein-rings being covered at their outer sides by ornamented plates formed at the edges with tongue-pieces, which are clasped round the cheek-pieces and the rein-rings, substantially as described.

478,869. TOILET-PAPER. EDGAR JEROME, Norwalk, Conn. Filed Mar. 3, 1892. Serial No. 423,562. (No model.)



Claim.—1. A roll of toilet-paper consisting of a web having transverse cuts from the margins inward, determining the units for use and leaving bonds whose margins substantially coincide with the lines of strain between the bonds under stress and the point of application of the thumb and finger.

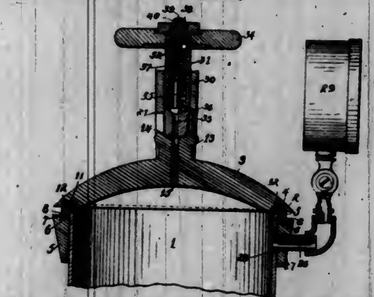
2. A web of toilet-paper having a narrow bond between the sheets and cuts from the margins toward the center at an inclination to the margins, said cuts leaving a re-entrant angle on one sheet and a salient angle on the other, all substantially as described.

3. A roll of toilet-paper formed of sheets connected by bonds and having the contiguous ends of the sheets formed of reversed contour, substantially as and for the purpose set forth.

478,870. DETERGENT PASTE. JOSEPH JUDGE, Pittston, Pa. Filed Mar. 30, 1892. Serial No. 427,015. (No specimens.)

Claim.—The herein-described detergent paste to be used for scouring and polishing purposes, consisting of linseed-oil, coal-oil, mir-bane-oil, adamantine, ammonia, and tripoli, all combined in about the proportions specified.

478,871. DENTAL VULCANIZER. JOHN JOHNSON, St. Louis, Mo., assignor, by direct and mesne assignments, of five-sixths to Albert Barois, Alphinie Martini, and Anna Martini, same place. Filed Apr. 27, 1892. Serial No. 430,856. (No model.)

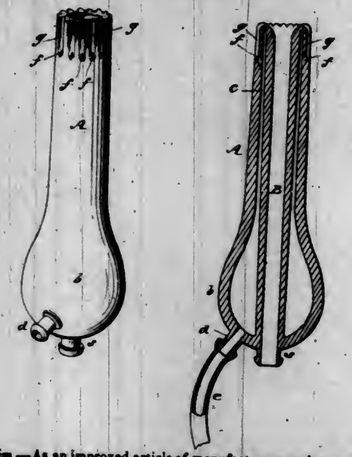


Claim.—1. A vulcanizer comprising a retort, a rim 2, formed integrally with the same, a flange 3, depending therefrom, a recess 4, formed between said retort and depending flange, a collar 5, approximately V-shaped in cross-section and provided with a flange 7, adapted to fit in recess 4, and with an annular depression 6, in which the depending flange 3 is adapted to fit, internally-screw-threaded projections 16, formed on said collar, screw-threaded bolts mounted in said projections, a yoke mounted on said screw threaded bolts, an adjustable internally-bored and screw-threaded pin 31, mounted in said yoke, a safety-valve located in said pin, coinciding passages formed in said pin and the lid, a spring mounted on said valve, and means for adjusting the tension of said spring, substantially as set forth.

2. A vulcanizer having a retort, a recess and flange formed on the top of the same, a collar provided with a flange and recess, interlocked in said flange and recess of the retort, a detachable lid provided with a hollowed-out projection on its top face and having a passage formed therein, an annular recess formed in said lid lined throughout with rubber, a yoke mounted on said collar, adjustable clamping mechanism carried by said yoke for securing and releasing said lid, a safety-valve mounted in said mechanism, a passage formed in said mechanism coinciding with the passage formed in said lid, and means for holding said valve over said passage, substantially as set forth.

3. A vulcanizer comprising a retort, a steam-gage in communication with the same, a collar secured to said retort, a yoke secured to said collar, a detachable lid, a projection formed on the same, a passage formed in said lid, an adjustable externally-screw-threaded pin provided with an internally-screw-threaded bore mounted in said yoke, a passage formed in said pin coinciding with the passage formed in said lid, a stem 35, provided with the valve 36, located in said internally-screw-threaded bore, a spiral spring mounted on said stem, and an externally-screw-threaded plug provided with a passage mounted in said pin for regulating the tension of said spring, substantially as set forth.

478,872. VAGINAL SYRINGE. JOHN D. KIRKWOOD, Pullman, Wash., assignor to Edwin Bartsch, San Francisco, Cal., and Jay William Kirkwood, Ham's Fork, Wyo. Filed Nov. 14, 1891. Serial No. 411,967. (No model.)



Claim.—As an improved article of manufacture, a syringe consisting in the outer tubular portion A, having its lower end formed into a bulb *b*, having an inlet-nipple *d*, the inner open-ended tube B, between which and the outer portion A is formed an annular chamber, the nipple *e* at the lower end of part B, the upward-inclined discharge-apertures leading from the said annular chamber through part A near its upper end, and a series of grooves or flutes extending from said apertures to the upper end of the part A, the whole being formed in one integral piece without seam or joint, substantially as shown and described.

478,873. COMBUSTIBLE POCKET-SPITTOON. JEAN KOEHLER, Freiburg, Germany. Filed Feb 13, 1892. Serial No. 421,451. (No model.)

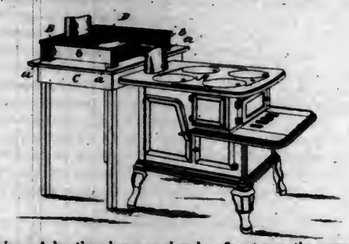


Claim.—1. A pocket-spittoon consisting of combustible and elastic sections fitting one within the other and the inner section having a funnel-shaped spittoon-pocket provided with a bottom slot, the edges of which are normally in contact and are separated laterally by compressing the sides of the spittoon-pocket, substantially as described.

2. A pocket-spittoon composed of combustible and elastic mate-

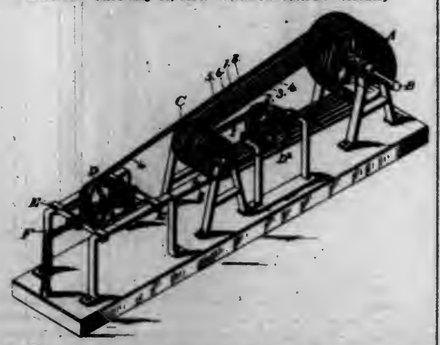
rial and having a funnel-shaped spittoon-pocket provided with a bottom slot, the edges of which are normally in contact and are separated laterally by compressing the sides of the funnel-shaped spittoon-pocket, substantially as described.

478,874. DETACHABLE HEATING-DRUM FOR STOVES. WILLIAM J. LOTH, Waynesborough, Va. Filed Apr. 12, 1892. Serial No. 428,813. (No model.)



Claim.—A heating drum or chamber for stoves, the same being formed with an upper projecting ledge having therein a boiler or kettle opening and an opening for communication with a stovepipe, and a deflector-plate located intermediate of said openings and uniting the ledge with the bottom of the drum or chamber, the said deflector-plate conforming in shape to the edge of the kettle-opening and terminating short of the sides of the drum, so as to leave spaces for the passage of products of combustion, substantially as shown, and for the purpose described.

478,875. ROPE-DRIVING APPARATUS. THEODORE H. MACDONALD, ORLANDO B. WILLIAMS, and LORENZO D. HITTENOUN, San Francisco, Cal. Filed July 10, 1890. Serial No. 358,347. (Model.)



Claim.—1. In a rope-driving apparatus, the driving and driven drums, each formed with grooves, and the rope wound in an uneven number of non-crossing wraps, substantially as described.

2. In a rope-driving apparatus, the combination of driving and driven drums, each having grooves, a tension-pulley, an idle-pulley, and a rope wound in an uneven number of wraps upon the drums and passing around the tension and idle pulleys, substantially as described.

478,876. STRAP-ATTACHING DEVICE FOR HARNESS. THOMAS J. MASSENDER, Marion, Ohio. Filed Feb 2, 1892. Serial No. 420,073. (No model.)



Claim.—The herein-described strap-attaching device, consisting of side bars, the extremities of which are curved upwardly, so that they will be above the surface to which the device is attached, and provided with disks having tongues projecting eccentrically from the inner faces thereof, said tongues being approximately flush with the upper surface of the side bars, and a bridge-bar connecting the side bars and provided with a central aperture and on its under surface with a stud on each side of the aperture, as specified.

478,877. METHOD OF SUPPRESSING HORNS IN CATTLE. JOHN MARCH, White Oak Springs, Wis., assignor to the John March Company, of Wisconsin. Filed Dec. 8, 1888. Serial No. 293,083. (No specimens.)

Claim.—1. The improvement in the art of suppressing horns in cattle, consisting in applying to the incipient horn a substance, substantially as described, to check its growth.

2. The improvement in the art of suppressing or eliminating horns in cattle, consisting in treating the incipient horn with potash, substantially as herein described.

478,878. BICYCLE-SUPPORT. THOMAS B. MARSHALL, Sidney, Ohio. Filed Sept. 16, 1891. Serial No. 405,900. (No model.)

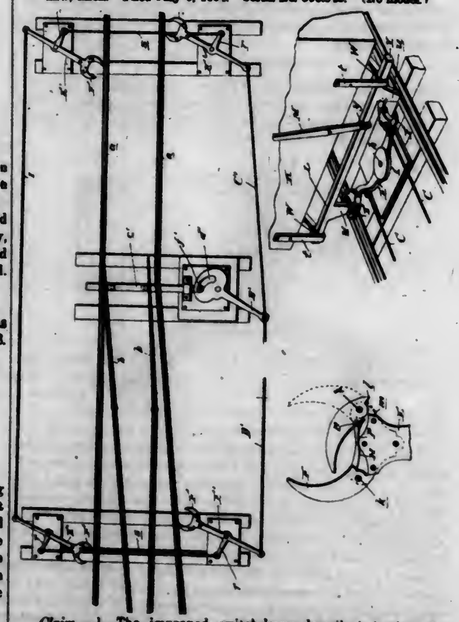


Claim.—1. The combination, with the pilot-wheel and the mud-guard of a bicycle, of a support composed of a pair of arms 9, having lateral journals 10, formed with the crank-bend 11, extending at opposite sides of the tire and engaging the periphery thereof when the pair of arms is swung rearward to rest upon the ground, substantially as described.

2. The combination, with the pilot-wheel and the mud-guard of a bicycle, of the braces 6, connecting the pilot-wheel axle with the mud-guard and provided with the plates 8, and a support composed of a pair of arms 9, having lateral journals 10 arranged in the plates on the braces and formed with the crank-bend 11, which extends at opposite sides of the tire and engages the periphery thereof when the pair of arms is swung rearward, substantially as described.

3. The combination, with the pilot-wheel 1, the fork 2, the mud-guard 7, secured to the fork and provided with a lug 15, and the backbone 3, of the locking device 13, carried by the backbone and provided with a pivoted hook 14, adapted to be swung outward for engagement with the lug on the mud-guard, substantially as and for the purposes described.

478,879. RAILWAY-SWITCH. JAMES D. MATTISON, East Saginaw, Mich. Filed July 6, 1891. Serial No. 398,549. (No model.)



Claim.—1. The improved switch-lever described, having the curved branches F, provided with the shoulders *l* and the notches or

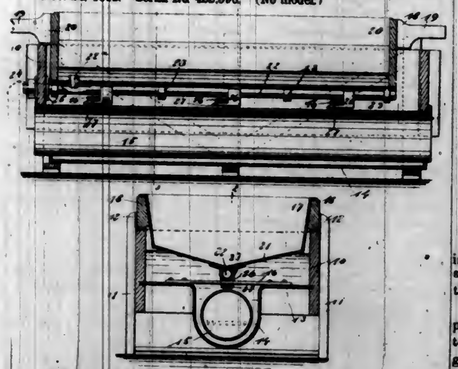
shoulders *n* and pivoted to the opposite ends of said lever, and the springs H, bearing at opposite ends against the inner ends of said arms and at the inner side of the pivot thereof, substantially as specified.

2. A railway-switch having, in combination with the main rails and switch-rails, a bar connecting the free ends of the switch-rails, a lever connected with the bar by a cam or eccentric, and an interposed roller, a rod leading in opposite directions from the eccentric, switch-levers connected together and also connected with the eccentric, said switch-levers having spring-backed and curved pivoted arms, so arranged that while both may be struck by a switch-operating mechanism carried by a moving car but one of said arms will resist the engagement, so as to move its lever in the desired direction, substantially as specified.

3. The combination, with a switch constructed as described and having the switch-levers provided with the curved and pivoted arms, of a car or engine carrying guide-supports, a laterally-movable slide-bar arranged thereon, and depending lugs near opposite ends adapted to contact with the pivoted arms of the switch-levers, and the laterally-movable pivoted hand-lever on the car, adapted to manipulate the slide-bar, substantially as specified.

4. The combination, with the track-rails and switch-rails, of the bar connecting the free ends of the switch-rails and carrying a stud bearing a roller at one end, the slotted cam-lever receiving said stud and roller, the switch-levers connected in pairs at their outer ends by a rod and also connected with the slotted cam-lever, said levers also having angular branches connected by transverse rods, and the curved and spring-backed arms pivoted to the switch-levers, substantially as specified.

478,880. CHEESE-VAT. LEOPOLD MEYER, Ahnapee, Wis. Filed Feb. 24, 1892. Serial No. 423,598. (No model.)



Claim.—1. In a cheese-vat, the combination, with a water-tank, of a milk-vat fitted to slide on the tank and provided with a discharge-pipe on the under side of its bottom, said pipe projecting beyond the end of the vat and entering an aperture in one end of the water-tank, substantially as described.

2. In a cheese-vat, the combination, with a water-tank, of a milk-vat having a sliding and detachable connection with the tank and provided with a discharge-pipe extending longitudinally along the under side of its bottom and having its end projecting beyond the end of the vat, said projecting end entering an aperture in one end of the tank when the vat is secured to the tank, substantially as described.

3. The combination, with the water-tank having a hole in one end, of the milk-vat slidably mounted upon the tank and a longitudinal discharge-pipe secured to the under side of the milk-vat and adapted to project through a hole in the water-tank, said pipe having a collar thereon to abut with the wall of the tank, substantially as described.

4. In a cheese vat, the combination, with a water-tank provided with cross-bars in its bottom, of a milk-vat fitted to slide on the sides of the tank and provided on its bottom with downwardly-projecting hooks for engaging the cross-bars of the tank, substantially as described.

5. The combination, with the water-tank having a heating-pocket in the bottom and cross-bars extending across said pocket, of the detachable vat mounted upon the tank and hooks secured to the vat-bottom and adapted to engage the cross-bars, substantially as described.

478,881. DENTAL TOOL. EDWARD C. MOORE, Detroit, Mich. Filed Jan. 20, 1892. Serial No. 419,631. (No model.)

Claim.—1. In a dental-disk holder, the combination, with an apertured disk, of a mandrel having two or more spring-arms formed

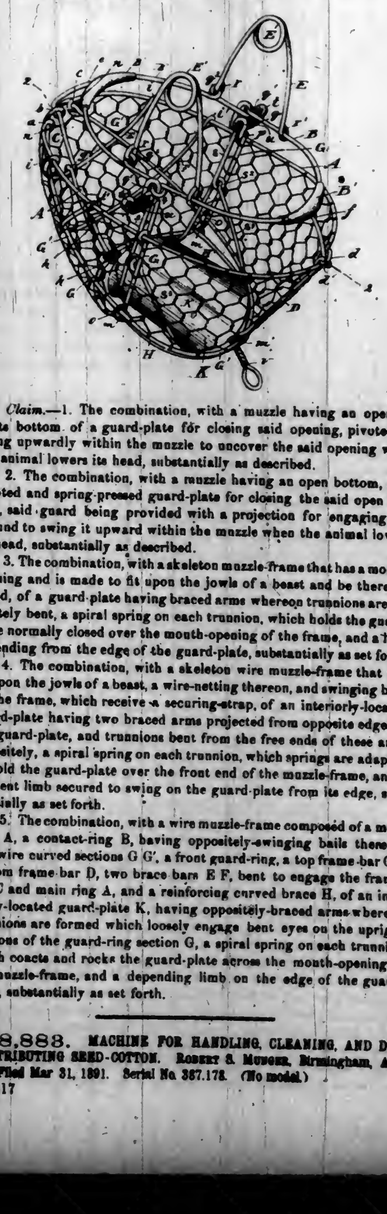


with seats on their outer faces arranged to correspond with the shape of the aperture in the disk, substantially as described.

2. The combination, with a dental disk having a rigid hub, of a mandrel terminating in a spring-chuck adapted to engage said hub to detachably secure the disk upon the mandrel, substantially as described.

3. The combination, with a dental disk having a rigid apertured hub, of a mandrel terminating in an expanding spring-chuck, the shoulder F, beveled upon both sides, and the shoulder G, forming a stop for the hub, substantially as described.

478,882. MUZZLE. MARCUS S. MORRMEN, Switzerland, Fla. Filed May 6, 1891. Serial No. 391,741. (Model.)



Claim.—1. The combination, with a muzzle having an opening in its bottom of a guard-plate for closing said opening, pivoted to swing upwardly within the muzzle to uncover the said opening when the animal lowers its head, substantially as described.

2. The combination, with a muzzle having an open bottom, of a pivoted and spring-pressed guard-plate for closing the said open bottom, said guard being provided with a projection for engaging the ground to swing it upward within the muzzle when the animal lowers its head, substantially as described.

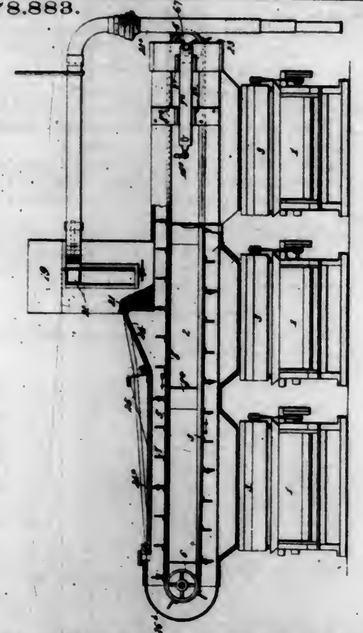
3. The combination, with a skeleton muzzle-frame that has a mouth-opening and is made to fit upon the jowls of a beast and be there secured, of a guard-plate having braced arms whereon trunnions are oppositely bent, a spiral spring on each trunnion, which holds the guard-plate normally closed over the mouth-opening of the frame, and a limb depending from the edge of the guard-plate, substantially as set forth.

4. The combination, with a skeleton wire muzzle-frame that will fit upon the jowls of a beast, a wire-netting thereon, and swinging bails on the frame, which receive a securing-strap, of an interiorly-located guard-plate having two braced arms projected from opposite edges of the guard-plate, and trunnions bent from the free ends of these arms oppositely, a spiral spring on each trunnion, which springs are adapted to hold the guard-plate over the front end of the muzzle-frame, and a pendent limb secured to swing on the guard-plate from its edge, substantially as set forth.

5. The combination, with a wire muzzle-frame composed of a main ring A, a contact-ring B, having oppositely-swinging bails thereon, two wire curved sections G G', a front guard-ring, a top frame-bar C, a bottom frame-bar D, two brace-bars E F, bent to engage the frame-bar C and main ring A, and a reinforcing curved brace H, of an interiorly-located guard-plate K, having oppositely-braced arms whereon trunnions are formed which loosely engage bent eyes on the upright portions of the guard-ring section G, a spiral spring on each trunnion which coacts and rocks the guard-plate across the mouth-opening of the muzzle-frame, and a depending limb on the edge of the guard-plate, substantially as set forth.

478,883. MACHINE FOR HANDLING, CLEANING, AND DISTRIBUTING SEED-COTTON. ROBERT S. MUSGER, Birmingham, Ala. Filed Mar 31, 1891. Serial No. 387,178. (No model.)

478,883.



Claim.—1. In an apparatus for conveying, cleaning, and distributing seed-cotton to a gin or a series of gins, the combination, with a distributer-casing, of an endless spiked belt provided with transverse valve-strips closely fitting said casing, pulleys arranged in the ends of said casing to carry the belt, and a vacuum-box having its lower open end seated upon or discharging into the distributer-casing, substantially as described.

2. In a distributer for feeding seed-cotton to one or more gins, the combination, with a casing mounted upon and communicating with each gin-feeder, of an endless spiked belt provided with a series of transverse valve-strips arranged at suitable intervals and substantially fitting the casing, and a vacuum-box discharging its contents upon the distributer-belt, substantially as described.

3. In a distributer for feeding one or more cotton-gins, the combination, with a casing, of an endless spiked belt, a vacuum-box seated upon or communicating with said casing, and valve strips or plates within the distributer-casing to maintain the suction, substantially as described.

4. In a distributer for feeding one or more cotton-gins, the combination, with a casing having communication with each gin-feeder, of an endless spiked belt traveling in said casing and a vacuum-box seated upon or communicating with the distributer-casing, the distributer-belt being provided with flexible or elastic valve strips or plates arranged at suitable intervals, substantially as described.

5. In an apparatus for ginning cotton, the combination, with a distributer arranged above and communicating with one or a series of gins, of an endless spiked belt moving in said casing, a vacuum-box seated upon or discharging into the distributer, and flexible or elastic valve strips or plates carried by the spiked belt and having support upon or against the spikes at suitable intervals, substantially as described.

6. In an apparatus for conveying, cleansing, and distributing seed-cotton to one or a series of gins, the combination, with a conveyer and with a vacuum-box having a wall formed wholly or in part of foraminous material, of one or more beaters arranged within the vacuum-box and having a constant rotation, a distributer having a casing resting upon and communicating with each gin, an endless spiked belt traveling in said casing and receiving the cotton from said beater or beaters, and flexible or elastic valve-strips carried by said belt and cutting off the inward air-current on both sides of the opening communicating with the distributer, substantially as described.

7. In an apparatus for ginning cotton, the combination, with one or more gins, of a distributer-casing having a spiked belt running therein and provided with flexible or elastic valve-strips and a vacuum-box having direct communication with the distributer-casing, the cover thereof on one side of the vacuum-box being formed in two parts hinged together, one of said parts being short and inclined with its end resting against the vacuum-box or other support and the other part being substantially horizontal and extended toward the end of the distributer-casing and loosely connected thereto, substantially as described.

8. In an apparatus for ginning cotton, the combination, with one or more gins, of a distributer-casing having an endless spiked belt traveling therein, said casing having one end formed of a curved foraminous or netted material, and a vacuum-box communicating with and delivering the cotton to said distributer-belt, substantially as described.

9. In an apparatus for conveying, cleansing, and feeding seed-cotton to one or more gins, the combination, with a pneumatic conveyer and with a vacuum-box having a foraminous screen, of a closed casing having communication with the vacuum-box, a spiked distributer-belt arranged in the closed casing and having a series of flexible elastic valve-strips mounted on the belt, and a fan maintaining a suction in the vacuum-box, the said closed casing having a section of its cover hinged to a movable portion of said cover to yield either separately or in conjunction with the movable portion to unusual accumulations of cotton upon the distributer-belt, substantially as described.

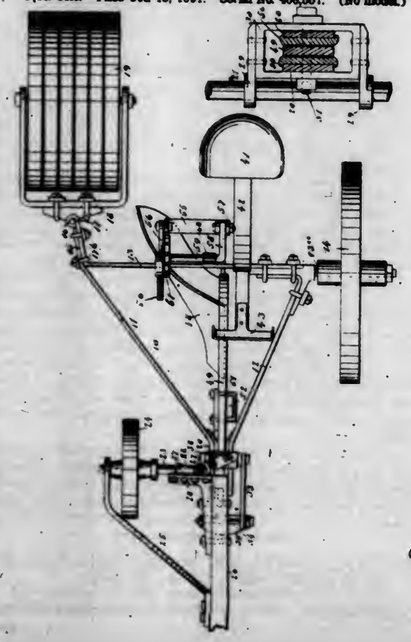
10. In an apparatus for distributing and feeding cotton to one or more gins, the combination, with a spiked distributer-belt, of an inclosing casing having a portion of its cover longitudinally movable and provided with an inclined section hinged at one end to the main portion and resting at its other end against the device feeding the cotton to the distributer, the sides of the casing being provided with angular blocks upon which the hinged connection between the two-part cover rises and falls, substantially as described.

11. In an apparatus for cleaning and conveying seed-cotton, a distributer-casing having a continuously-traveling spiked belt, one end of said casing being constructed of foraminous material, and a belt-carrying pulley concentric with the end of the distributer, substantially as described.

12. In an apparatus for cleansing, conveying, and feeding seed-cotton to a gin or a series of gins, the combination, with a vacuum-box provided with duplex foraminous diaphragms, of a distributer with which said vacuum-box has direct communication and duplex spiked beaters revolving in opposite directions in the foraminous diaphragms in said vacuum-box and acting upon the cotton successively to loosen up the same and deliver it to the distributer, substantially as described.

13. In an apparatus for cleansing, conveying, and distributing seed-cotton to one or more gins, the combination, with the conveyer-pipe, of the flexible or elastic joint to enable one part of said tube to be moved to gather up the cotton, said joint having substantially the form of a frustum of a cone, substantially as described.

478,884. COMBINATION-PLOW. HENRY M. MCCAFFERTY, Montrose, Colo. Filed Oct. 13, 1891. Serial No. 408,557. (No model.)



Claim.—1. The combination, with the plow and its frame, of a wheel supporting the frame at the landside and a land-roller hinged centrally between its ends at its forward side to the opposite side of the frame to support it and adapted to have a free lateral swinging movement, substantially as set forth.

2. The combination, with the plow and its frame, having a rearward extension at its furrow side, of a wheel supporting the landside of the frame and a land-roller having a yoke hinged centrally in front of and between the ends of the roller by a vertical pivot to said rearward extension and traveling outside and in rear of the plow, substantially as set forth.

3. The combination, with the wheeled plow-frame formed of side bars 11 12 and a rear transverse bar 13, the forward ends of the side bars converging and then projecting forward in parallel planes, as at 20, and bolted together, of wear-plates 50 50 on the inner faces of the parts 20, and the plow-beam pivoted between said wear-plates, and a vertical-wheeled bar on which the front end of the frame is adjustably supported, substantially as set forth.

4. The combination, with the plow-frame, of a vertical ∩-shaped bar having a stud-axle secured to its lower ends and carrying a wheel, the inner member of the bar having a sliding connection with the front end of the frame, a sleeve on said member and provided with a rack, a lever pivoted to the sleeve and having a latch engaging the rack, and a link connecting it with the plow-frame, substantially as set forth.

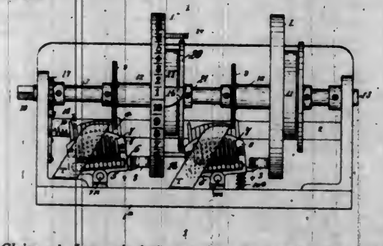
5. The combination, with the plow-frame, of the vertical ∩ shaped frame, one member of which has a sliding connection with the front end of the frame, a stud-axle secured to the lower ends of the arm, a tongue secured to the upper end of the arm at its bend, a brace extending from the tongue to the outer end of the stud-axle, a sleeve on the inner member of said vertical arm and having an attached rack, a lever pivoted to said sleeve and having a latch engaging the rack, and a link connecting the lever with the forward extremity of the plow-frame, substantially as set forth.

6. The combination, with the wheeled plow-frame and the plow having its beam pivoted in the frame, of a crank-shaft 59 above the rear end of the plow, a bell-crank lever connected at its angle with said shaft and having an adjusting latch and rack, links 57 connecting the landside of the plow with the crank 58 of said crank-shaft, and the inclined brace-link 55, extending from the same point outward and upward and pivoted to the short arm of said bell-crank lever, substantially as set forth.

7. The combination, with the frame having its side bar 11 and rear cross-bar 13 extended rearward face to face and clipped together, as shown at 17^b, the rear extremity of the cross-bar extension terminating in a vertical knuckle 16, of the land-roller having a yoke 18 coupled to said knuckle by a vertical pin 17, and a brace connecting the clip 17^b with the lower end of the bolt by means of the collar 17^c, substantially as set forth.

8. The combination, with the nearly vertical front support mounted on a supporting wheel and connected with the pole of the machine, of the main frame having its rear portion mounted, as described, and having an elongated front end, the plow suspended upon the main frame and having its beam pivoted in the elongated end of the main frame, a coupling-frame secured to the plow-beam and the main frame and held to slide on the support, and a lever mechanism for moving the coupling-frame, substantially as described.

478,885. CALCULATING-MACHINE. WILLIAM M. MCCAFFERTY, Mount Sterling, Ohio. Filed Dec. 22, 1891. Serial No. 415,883. (No model.)



Claim.—1. In a calculating machine, the combination, with the spring-impelled ratchet-wheel 9, of the oscillatory pawl-box 5, containing a series of pawls for successively engaging the ratchet-wheel, and lever mechanism for operating the pawl-box, substantially as described.

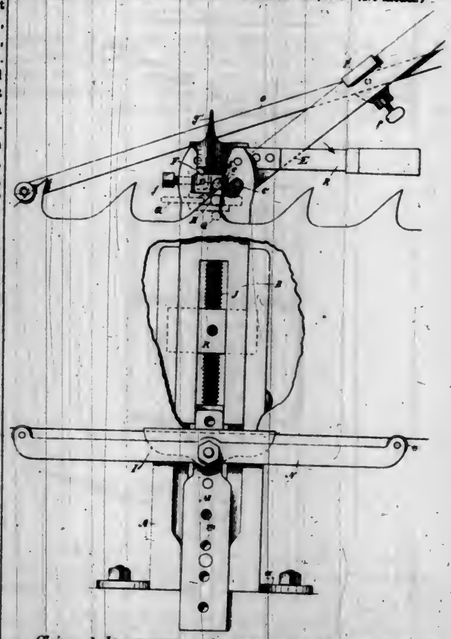
2. In a calculating-machine, the combination, with the spring-impelled ratchet-wheel 9, of the oscillatory pawl-box 5, provided with a series of spring-pressed pawls for successively engaging the ratchet-wheel, and a lever mechanism for operating the pawl-box, substantially as described.

3. In a calculating-machine, the combination, with the spring-impelled ratchet-wheel 9, of the oscillatory pawl-box 5, provided with a series of spring-pressed pawls for successively engaging the ratchet-wheel, the cam T for holding the pawls in their forward position, and a lever mechanism for operating the pawl-box, substantially as described.

4. In a calculating-machine, the combination, with the spring-impelled ratchet-wheel 9, of the oscillatory pawl-box 5, provided with a series of pawls for successively engaging the ratchet-wheel, the cam T, the wheel L, provided with a projection 14, the pivoted lever 3 for engaging a part of the pawl-box, and means for operating the lever, substantially as described.

5. In a calculating-machine, the combination, with a spring-impelled ratchet-wheel 9, of an oscillatory pawl-box 5, provided with a series of pivoted spring-pressed pawls for successively engaging the ratchet-wheel, a pivoted lever 3 for engaging a part of the pawl-box, and a series of keys for depressing the lever, substantially as described.

478,886. SAW-SWAGING DEVICE. ANTONIO L. MAYOUR, Calistoga, Cal. Filed Nov. 11, 1891. Serial No. 411,627. (No model.)



Claim.—1. In a saw-swage, the combination of the rocking swage-cam, the swinging opposing anvil adapted by its movement to conform to the inclinations of the backs of different teeth, and the sliding bearing carrying said anvil, whereby it can be adjusted properly with relation to the cam independently of its individual adjustment, substantially as herein described.

2. In a saw-swage, the combination of the rocking swage-cam having the straight face terminating below in the rounded contact-point, the swinging opposing anvil having the straight face terminating above in the contact edge, and the sliding bearing carrying the anvil and adapted to adjust the latter to the cam without regard to its inclination on the saw-tooth back, substantially as herein described.

3. In a saw-swage, the combination of a frame, the rocking swage-cam carried by the frame and having a straight face terminating below in the rounded contact-point, the opposing anvil carried by the frame and having a straight face terminating above in the contact edge, and the eccentric-headed lever pivoted to the frame and adapted to clamp the saw between it and said frame, substantially as herein described.

4. In a saw-swage, the combination of a frame, the rocking swage-cam carried by the frame and having a straight face terminating below in the rounded contact-point, the opposing anvil carried by the frame and having a straight face terminating above in the contact edge, and the eccentric-headed clamping-lever and the opposing abutment-stud both carried by the frame and between which the saw is clamped, substantially as herein described.

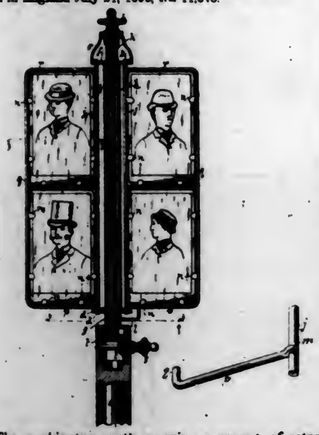
5. In a saw-swage, the combination of a frame, the rocking swage-

cam carried by the frame and having a straight face terminating below in the rounded contact-point, the opposing anvil carried by the frame and having a straight face terminating above in the contact edge, the eccentric-headed clamping-lever and the opposing abutment-stud both carried by the frame and between which the saw is clamped, and the spring-actuated push-plunger carried by the frame for throwing the saw out from between the cam and anvil when relieved by the clamping-lever, substantially as herein described.

6. In a saw-swage, the combination of the stock A, having the fixed plate M, with series of holes, the saw-support adapted to be secured in any of said holes, the frame B, mounted in the stock, the cam, the anvil, and clamping-lever carried by the frame, and the means for vertically moving said frame, consisting of the fixed nut, the screw seated in the nut and connected with the frame, and the connections for operating the screw, substantially as herein described.

7. In a saw-swage and in combination with the operating-lever thereof, the pawl-bar engaging the saw-teeth and the connection between said bar and lever, consisting of the clip P, sliding on the lever and set by a screw, and the sleeve p', pivoted to the clip and sliding on the pawl-bar with a screw to set it, substantially as herein described.

478,887. STAND FOR EXHIBITING PICTURES, &c. VICTORIEN L. M. RENARD, Paris, France, assignor to Charles Ferdinand Velt, London, England. Filed Sept. 3, 1891. Serial No. 404,649. (No model.) Patented in France Oct. 23, 1889, No. 201,512; in Belgium July 20, 1890, No. 91,323, and in England July 21, 1890, No. 11,375.



Claim.—1. The combination, with an axis or support, of rotary frames secured to said support and a check-piece or stop having inclined faces, over which the frames glide in their rotation, substantially as described.

2. The combination, with an axis or support, of rotary frames secured to said support, a check-piece or stop having inclined faces, over which the frames glide in their rotation, a laterally-projecting finger-piece for each frame, and a disk having an inclined edge and engaged by said finger-piece, substantially as described.

478,888. CALENDAR FOR WATCH-CHARMS. FAYETTE W. ROE, Omaha, Nebr. Filed May 17, 1892. Serial No. 433,333. (No model.)



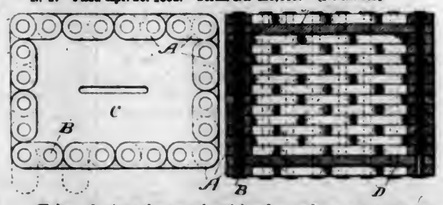
Claim.—A combined watch-charm and perpetual calendar formed of two parts, the one adapted to move relative to the other, the upper part provided with seven symbols corresponding to the days of the week and having a tongue or projection on the under side thereof adapted to engage the lower part and the said lower part provided with seven equidistant groups of figures corresponding to the days of the month in the order of weeks, with an indentation adapted to receive the said tongue or projection on the said upper part, substantially as and for the purposes described.

478,889. ENVELOPE-OPENER. WILLIAM D. ROGERS, Alameda, and JAY D. VAN BUREN, San Francisco, Cal. Filed Dec. 11, 1891. Serial No. 414,742. (No model.)



Claim.—A device for opening envelopes, consisting of a card made narrower at one end than the other and placed within the envelope with the broadest end in contact with the end of the envelope and a tape or thread attached to the upper acute angle of the card, projecting through the corresponding corner of the envelope, whereby the edge of the card acts as a paper-knife to cut open the end of the envelope when the thread is pulled, substantially as herein described.

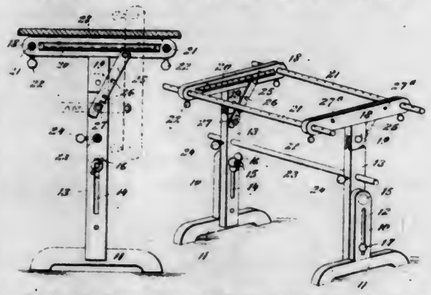
478,890. TOY MONEY-SAFE. GEORGE R. ROWLAND, Brooklyn, N. Y. Filed Apr. 20, 1892. Serial No. 429,835. (No model.)



Claim.—1. As an improved article of manufacture, a toy money-safe having its sides formed of a series of links pinned together and its top and bottom united to the sides by the same pins that secure the links, substantially as described.

2. A box having its sides formed of a series of links united by pins and provided with a divided pin for opening a portion of the links, substantially as described.

478,891. TABLE AND EMBROIDERY-FRAME. MAURICE SCHNIRR, Fayette, Mo. Filed Mar. 6, 1890. Serial No. 342,881. (No model.)



Claim.—1. An embroidery-frame comprising two standards adjustable toward and from each other and having aligned transverse apertures intersected by set-screws 24, a rigid rod 23, extending through said apertures and clamped by said screws, a vertically-rocking frame composed of end bars pivotally connected between their ends with the upper ends of the standards and provided with aligned end apertures intersected by set-screws 22, parallel rods 21 21, passed through the apertures in the said end bars and clamped by the screws 22, and means for adjusting the frame at any desired angle, substantially as set forth.

2. A combined quilting-frame and table consisting in the standards adjustable toward and from each other, parallel end bars on the upper ends of the standards and having transversely-apertured ends, parallel rods 21, extending through the apertures in the two end bars, set-screws 22, clamping the rods in place, apertures 27^a, also in the said end bars, the said end bars and rods constituting an embroidery-frame, and the table-top having transverse battens or cleats on its lower side provided on their faces next to the end bars with transverse pins 30 to enter the apertures 27^a when the said end bars are moved toward the cleats or battens, substantially as set forth.

478,892. TRANSFER-PAPER AND COMPOSITION FOR COATING THE SAME. WILLIAM SCHWARTZ, New York, N. Y., assignor to himself, Hugo Guttmann, and Ernest G. Rost, same place. Filed Oct. 8, 1891. Serial No. 408,127. (No specimens.)

Claim.—1. As an improved article of manufacture, a surface adapted to receive an impression and transfer the same, provided with a coating, the component parts of which are glycerine, carpenters' glue, agar-agar, Russian glue, and sirup, prepared and in the proportions stated, substantially as specified.

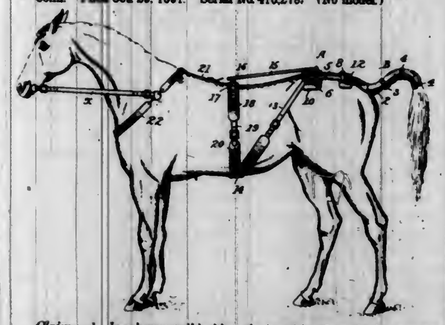
2. An absorbent coating for paper and like material, for the purpose specified, comprising glycerine, carpenters' glue, Russian glue, agar-agar, and sirup, in the proportions set forth.

478,893. MEANS FOR SECURING COVERINGS OF NETTING TO BASKETS. ADELINE E. STORY, Clay Centre, Kans. Filed Feb. 5, 1892. Serial No. 420,426. (No model.)



Claim.—The combination, with a basket, of the bails pivoted thereto, provided with a series of metallic hooked plates, and the plate at the center of the bail, adapted to pass between the splints and rim and then bent outwardly to secure the bail in place, substantially as and for the purpose set forth.

478,894. HORSE-TAIL HOLDER. JOHN C. TALLMAN, Bridgeport, Conn. Filed Oct. 29, 1891. Serial No. 410,278. (No model.)



Claim.—1. In a horse-tail holder, the combination of a frame, such as A, and means for holding it in a fixed position upon the back of a horse, with a substantially-inflexible supporting-frame, such as B, rigidly connected to and extending rearwardly from the frame A, and devices for securely holding the tail in the frame B, substantially as described.

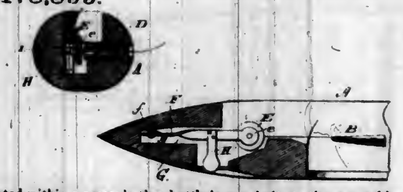
2. The combination of a frame, such as A, and means for holding it in a fixed position upon the back of a horse, with a tail-support consisting of curved side strips rigidly connected to the frame and extending rearwardly upon opposite sides of the tail, and cross pieces and straps upon the curved strips for securely holding the tail, substantially as described.

3. In a tail support for a horse, the combination of a frame A, the belly-band, the side straps 13 13, connecting the frame with the belly-band, whereby the frame is held from turning upon the horse's back, and the tail-support carried by the frame, substantially as set forth.

4. The combination, in a tail-support for horses, of the frame A, provided with a rod 15, support B, belly-bands, and straps connecting the belly-bands and the frame A, substantially as set forth.

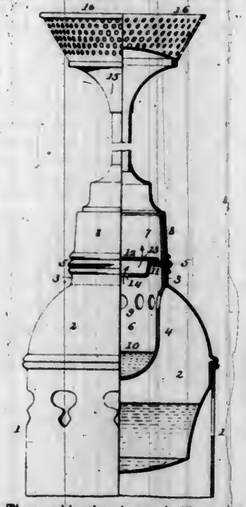
478,895. TENSION DEVICE FOR LOOM-SHUTTLES. JOHN P. THOMPSON, Olneyville, R. I. Filed Jan. 15, 1892. Serial No. 418,147. (No model.)

Claim.—1. In a shuttle, the combination of the eye, a spring located within a recess in the shuttle in proximity to the eye and having a presser-disk at its free end bearing against the inner end of the eye, and a screw bearing with its inner end against the spring, substantially as set forth.



2. The combination of the shuttle-body provided with the eye D and recess G, spring F, provided with the revoluble disk E, and finger-piece H, and adjusting-screw I, all constructed and combined to operate substantially in the manner and for the purpose herein shown and set forth.

478,896. VOLATILIZER. GEORGE B. UNDERWOOD, Chicago, Ill. Filed Dec. 17, 1891. Serial No. 415,439. (No model.)



Claim.—1. The combination, in a volatilizer, of the water-boiler 2, the holder 4, and an eduction-tube provided with an enlarged head 15 and a marginal perforate guard or hood 16, extending beyond the head 15 and adapted to surround and inclose its outlet-orifice, substantially as set forth.

2. The combination, in a volatilizer, of the water-boiler 2, the holder 4, and an eduction-tube provided with an enlarged head 15 and a marginal perforate guard or hood 16, of perforate sheet metal, extending beyond the head 15 and adapted to surround and inclose its outlet-orifice, substantially as set forth.

3. The combination, in a volatilizer, of the water-boiler 2 and the cup-shaped holder 4, having a marginal outer rim 5, a pendent portion 6, and an upwardly-projecting portion or neck 7 to receive an inhaler-tube or other attachment, the walls of the pendent portion being perforated for the passage of vapor, substantially as set forth.

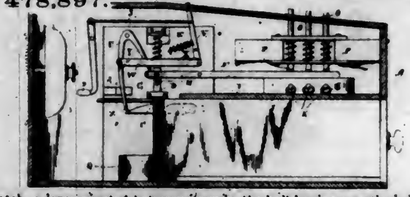
4. The combination, in a volatilizer, of the water-boiler 2 and the cup-shaped holder 4, having an inturned annular ledge 11, and the duplex partition 12, formed of two perforated disks, the perforations of which are out of line with each other, substantially as described.

478,897. TILL-LOCK. WARREN R. VAN VLIET, East Stroudsburg, Pa. Filed May 6, 1891. Serial No. 391,802. (No model.)

Claim.—1. A cash-drawer having a catch, a locking-bolt, a lever pivoted between its ends and having one end connected with the bolt, spring-actuated sliding bars placed under the opposite end of the lever for preventing it from being depressed, and keys which operate the lever and move the bars from under it, the parts combined to operate substantially as described.

2. A cash-drawer having a catch, a locking-bolt for engaging the

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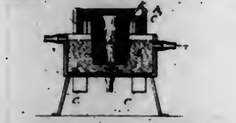
catch, a lever pivoted between its ends, the bolt having a vertical slot, and a projection at one end of the lever which enters the said slot, spring-actuated sliding bars placed under the opposite end of the lever for preventing it from being depressed, and keys which move the bars from under the lever and at the same time depress it, the parts combined substantially as specified.

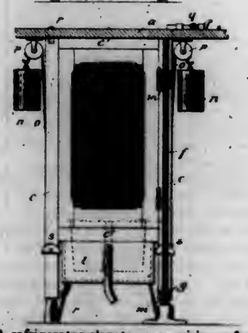
3. A cash-drawer having a catch, a locking-bolt which engages the catch, a lever pivoted between its ends and having one end connected with the bolt, spring-actuated sliding bars placed under the opposite end of the lever, the inner ends of the bars being inclined, and keys which engage the inclines of the bars for moving them from under the lever and at the same time engaging the lever for depressing it, the parts combined substantially as shown and described.

4. A cash-drawer having a catch, a spring-actuated locking-bolt, a lever pivoted between its ends and having one end connected with the bolt, spring-actuated sliding bars placed under the opposite end of the lever, keys for operating the bars and the lever, a finger at the opposite end of the lever, which engages the adjacent end of the lever and prevents it from being raised, and a handle for operating the finger, the parts combined to operate substantially as set forth.

5. A cash-drawer carrying a catch, a locking-bolt, a lever pivoted between its ends and having one end connected with the bolt, spring-actuated sliding bars placed under the opposite end of the lever, keys for operating them and the lever, a finger at the opposite end of the lever pivoted between its ends and having two depending arms, one arm normally resting over the adjacent end of the said lever, a catch for holding the other arm of the finger, and an arm upon the drawer for releasing the finger from the catch, and a handle for operating the finger, the parts combined substantially as specified.

478,898. REFRIGERATOR AND ELEVATING CUPBOARD. JOHN T. WHITWOOD, Wheeling, W. Va., assignor to the Wheeling Novelty Manufacturing Company, same place. Filed Apr. 4, 1892. Serial No. 427,591. (No model.)

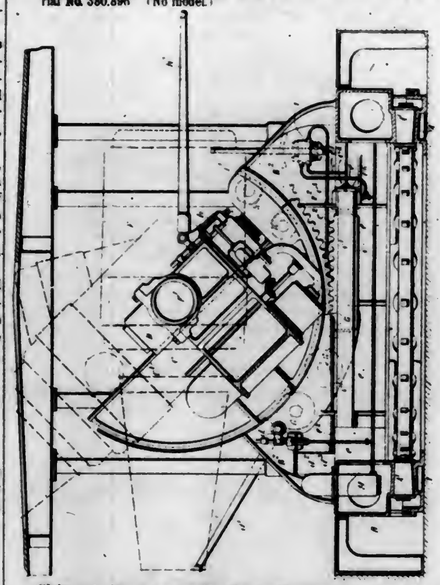




Claim.—1. A refrigerator-elevator comprising a fixed floor provided with the well or guideway, an elevating cupboard having a closed top, a removable open-bottom frame for holding depending receptacles, and a guide-arm, the guide-rod provided with the upper and lower springs, the lower fixed stop, the elevating ropes and weights, and the fixed tank containing a cooling liquid and adapted to receive the depending receptacles when the cupboard is lowered, at which time the closed top is flush with and forms a continuation of the fixed floor, substantially as described.

2. In a refrigerator-elevator wherein a cupboard has a closed top which when in its normal position is flush with and forms a continuation of a fixed floor having a well or guideway, the removable open-bottom frame seated in the open bottom of said cupboard for holding depending receptacles, the guide-arm and the cushions on the walls of the lower part of the cupboard, the guide-rod for said arm having the upper and the lower springs, the elevating ropes and weights, the fixed tank for containing a cooling liquid, and the fixed stop below said floor, the said top and bottom rod springs being arranged in relation to the cupboard-wall cushions so as to act upon the said rod guide-arm in advance of the cushions on the ascent of the refrigerator and in advance of the contact of the latter with the bottom stop on the descent of the refrigerator to immerse the depending receptacles in said cooling-tank, substantially as described.

478,899. GUN CARRIAGE OR MOUNTING. JOHN H. R. WHINFIELD and JAMES HORNE, London, England. Filed Feb. 10, 1891. Serial No. 380,896. (No model.)



Claim.—1. In a gun-mounting, the combination, with a base plate, a turn-table mounted thereon and having arc-shaped guide-cheeks projecting therefrom, and a segmental upper carriage provided with slides, of a gun-cradle mounted on said slides, a gun trunnioned in said cradle, mechanism for elevating said gun independent of said segmental upper carriage to a degree limited by the gun-cradle, and mechanism for oscillating said upper carriage and gun in unison to a further degree of elevation, substantially as described.

2. In a gun-mounting, the combination, with a base-plate, a turn-table mounted thereon and having arc-shaped guide-cheeks projecting therefrom, and a segmental upper carriage provided with slides, of a gun-cradle mounted on said slides and provided with recoil-brakes and recuperator apparatus, rack-and-gear mechanism for elevating said gun to a degree limited by the gun cradle, and mechanism for oscillating said upper carriage and gun in unison to a further degree of elevation, substantially as described.

3. A gun mounting for high-angled fire, comprising, in combination with each other, a base-plate or roller path A, a turn-table B, mounted thereon and having arc shaped guide-cheeks B^3 projecting therefrom, an upper carriage C, mounted within the guide-cheeks B^3 and having slides C', a cradle comprising the brake-cylinders D and transom E, mounted on the slides C and having bearings for the trunnions of the gun, the said cradle being so constructed as to prevent the gun being turned or elevated to a higher angle than that of the slide C', and a hydraulic cylinder c, provided with a rack c^2, gearing with a toothed segment c^3, fixed on the upper carriage C, and a pump *d*, connected to the said inlet-pipes, whereby the said carriage may be actuated and caused to oscillate between the lowest and highest angles of fire, substantially as described.

4. A gun-mounting for high-angled fire, comprising, in combination with each other, a base-plate or roller path A, a turn-table B, mounted thereon and having arc-shaped guide-cheeks B^3 projecting therefrom, an upper carriage C, mounted within the guide-cheeks B^3 and having slides C', a cradle comprising the brake-cylinders D and transom E, mounted on the slides C and having bearings for the trunnions of the gun, the said cradle being so constructed as to prevent the gun being turned or elevated to a higher angle than that of the slide C', and a hydraulic cylinder c, provided with a rack c^2, gearing with a toothed segment c^3, fixed on the upper carriage C, and a pump *d*, connected to the said inlet-pipes, a pump *d*, connected to the said inlet-pipes, and an accumulator *g* and distributing-valve *f*, substantially as described, and for the purpose specified.

5. A gun-mounting for high angled fire, comprising, in combination with each other, a base-plate or roller path A, a turn-table B, mounted thereon and having arc-shaped guide-cheeks B^3 projecting therefrom, an upper carriage C, mounted within the guide-cheeks B^3 and having slides C', a cradle comprising the brake-cylinders D and transom E, mounted on the slides C and having bearings for the trunnions of the gun, the said cradle being so constructed as to prevent the gun being turned or elevated to a higher angle than that of the slides C', and a hydraulic cylinder c, provided with a rack c^2, gearing with a toothed segment c^3, fixed on the upper carriage C, and with suitable inlet and outlet pipes, the former connecting the said cylinder to an external source of hydraulic power or liquid supply through the center pivot-pipe I of the gun-mounting, and a distributing-valve *f*, substantially as and for the purpose above described.

6. The combination, with the gun, its cradle, and upper carriage, of a stop *i*, fixed on the said upper carriage, a lever *j*, pivoted to the gun-cradle, a spring j^3, connected to the lever *j* and to the cradle, and an arc or projection *a*, secured to the gun, substantially as described, and shown in the drawings, and for the purpose specified.

7. The combination, with the gun, the cradle, and the upper carriage, of a bolt or stop *k*, fixed to the gun, and a recess *k'*, formed in one of the slides C', substantially as described, and shown in the drawings, and for the purpose specified.

8. The combination, with the gun-cradle, the upper carriage, and the arc-shaped bearings B^3, of rollers H, mounted in the said upper carriage directly in rear of the recoil-brake apparatus and provided with elastic bearings, substantially as and for the purpose specified.

9. For actuating the elevating-cylinders by energy derived from the recoil, the apparatus comprising the auxiliary cylinders *l*, mounted on the upper carriage, rams *l'*, working therein and secured to the gun-cradle, the valve-box *p'*, connected to the cylinders *l*, the reservoir *q* and accumulator *p*, connected to the said valve-box, and suitable inlet and outlet pipes forming communications between the said accumulator and the elevating-cylinders, substantially as above described, and shown in the drawings.

10. For actuating the elevating-cylinders by energy derived from the recoil, the apparatus comprising the auxiliary cylinders *l*, mounted on the upper carriage, rams *l'*, working therein and secured to the gun-cradle, the valve-box *p'*, connected to the cylinders *l* by means of pipes *m n*, having a swivel-joint at *o*, reservoir *q* and accumulator *p*, connected to the said valve-box, distributing valve *f*, and suitable inlet and outlet pipes forming communications between the said accumulator and the elevating-cylinders, substantially as above described, and shown in the drawings.

478,900. PICKET FENCE. CHARLES E. WINTRODE, Huntington, Ind. Filed Jan. 13, 1892. Serial No. 418,000. (No model.)

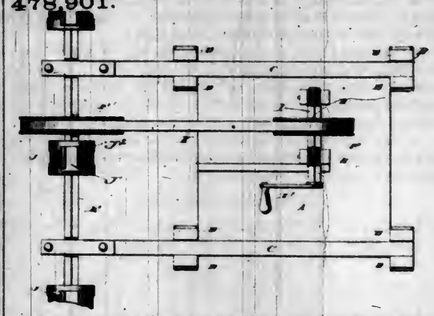


Claim.—The combination, with a panel of a picket fence and a downwardly-bent truss secured at its ends to the opposite upper ends of the panel, of an upwardly-bent brace secured at its ends to the lower portion of the panel at opposite sides of the center, the ends of the brace and truss being twisted together, substantially as shown and described.

478,901. POWDER-DUSTER. JOHN P. WRIGHT, Thomaston, Tex. Filed Dec. 14, 1891. Serial No. 415,070. (Model.)

Claim.—1. An improved poison-distributer comprising a bed or platform provided at its opposite sides with keepers, the side beams fitted in said keepers, devices whereby said beams may be secured at different heights in the said keepers, the distributer-shaft journaled at the rear ends of the said side beams and provided with the poison-distributers, the hand-shaft geared with the distributer-shaft, and the supports for the hand-shaft, said supports being mounted on the bed or platform, substantially as set forth.

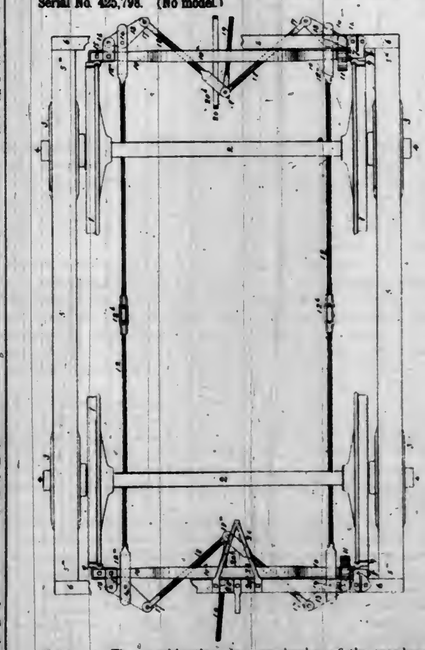
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2. In a poison-distributer, a distributer proper consisting of a cylinder having ends and a perforated side and provided with bands adjustable along the perforated sides, said bands being independent of the distributer ends, whereby the discharging-surface of the distributer may be varied without affecting the holding capacity of said distributer substantially as set forth.

3. The improved poison distributer, substantially as herein described and shown, consisting of the bed or platform adapted to be secured upon a cart or wagon and provided at its sides with uprights forming keepers, the uprights H, mounted on said bed, the hand-shaft journaled in the said uprights and provided with a pulley and a handle, the side beams fitted in the keepers, devices for securing the side beams at different heights in the keepers, the distributer-shaft journaled to the side beams and provided with a pulley, a belt connecting said pulley with that of the hand-shaft, and the perforated distributing-cylinders having central tubular portions fitting on the distributer-shaft and provided with adjustable bands whereby to regulate the discharge of material, substantially as set forth.

478,902. CAR-BRAKE. FREDERICK A. BAIER, St. Louis, Mo., assignor to the Brownell Car Company, same place. Filed Mar. 21, 1892. Serial No. 425,798. (No model.)



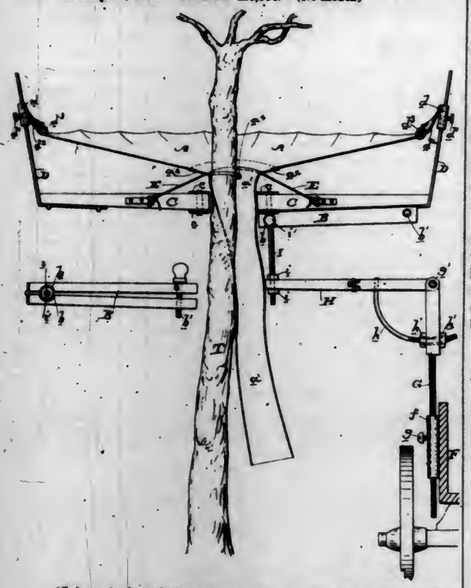
Claim.—1. The combination, in a car-brake, of the toggle-rods 18, hinged together and to the pull-rod 19, brake-bars 10, the connecting-rods 12, extending from one brake-bar to the other, and levers 13, fulcrumed to the rods 12 and connected at the ends with the toggle-rods 18 and the brake-bar, substantially as set forth.

2. The combination, in a car-brake, of the toggle-rods 18, levers 13, and brake-bar 10 of the spider 20, adapted to support and guide the ends of the toggle-bars, substantially as set forth.

3. The combination, in a car-brake, of the rods 12, slotted at the ends 12ª, the brake-bars 10, working in the slots, levers 11, also working in said slots and pivoted to the rods and the brake-bars, toggle-rods 18, connected together and to the levers 13, and a draw-rod connected to the toggle-rods at their points of connection with each other.

4. The combination, in a car-brake, of the toggle 18, the levers 13, rods 12, and a brake-bar arched at its middle over the toggle, substantially as and for the purpose set forth.

478,908. FRUIT-GATHERER. SAMUEL R. BALL, Winters, Cal. Filed Apr. 8, 1892. Serial No. 428,256. (No model.)



Claim.—1. In a fruit-gatherer, the combination of the expansible and collapsible receiver having a side opening to fit it about a tree-trunk, the discharge-spout from said receiver adapted to pass down beside the trunk, the sectional separable hub adapted to open from and close about the trunk, said hub encircling the discharge-spout, and the swinging radial arms of said hub supporting the receiver, substantially as herein described.

2. In a fruit-gatherer, the combination of the expansible and collapsible receiver having a side opening to fit it about a tree-trunk, the discharge-spout from said receiver adapted to pass down beside the trunk, the sectional separable hub adapted to open from and close about the trunk, said hub encircling the discharge-spout, the swinging radial arms of said hub, and the standards connected with said arms and with the rim of the receiver, whereby the latter is held above the arms and hub, substantially as herein described.

3. In a fruit-gatherer, the combination of the expansible and collapsible funnel-shaped receiver with its side opening and discharge-spout, the separable sectional hub encircling said spout, the swinging radial arms of the hub, the standards of the arms, and adjustable connections between said standards and the rim of the receiver, whereby the concavity of the latter may be varied, substantially as herein described.

4. In a fruit-gatherer, the combination of the expansible and collapsible receiver having an open center and a radial side opening to fit it about a tree-trunk, the tubular discharge-spout adapted to pass down beside the trunk and secured at its upper end to the open center of the receiver, except at one portion opposite the side opening thereof, which said portion is elastic, and the pivoted curved arms secured to the spout-top and having their free ends at the elastic portion thereof, whereby they clamp said portion about the tree trunk, substantially as herein described.

5. In a fruit-gatherer, the expansible and collapsible receiver having the side opening and discharge-spout, and the supporting-frame therefor, consisting of the separable sectional hub, radial swinging arms, and standards, in combination with an adjustable bracket by which said frame is carried and may be adjusted to different positions, substantially as herein described.

6. In a fruit-gatherer, the expansible and collapsible receiver having the side opening and discharge-spout, and the supporting-frame therefor, consisting of the separable sectional hub, radial swinging arms, and standards, in combination with a bracket carrying said frame, said bracket being hinged horizontally, whereby it may move in a vertical arc to lower the receiver, and means to set said bracket in the position to which it is adjusted, substantially as herein described.

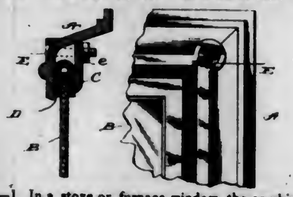
7. In a fruit gatherer, the expansible and collapsible receiver having the side opening and discharge-spout, and the supporting-frame therefor, consisting of the separable sectional hub, radial swinging arms, and standards, in combination with a bracket supporting said frame and a vertically adjustable standard carrying the bracket, substantially as herein described.

8. In a fruit-gatherer, the expansible and collapsible receiver having the side opening and discharge-spout, and the supporting-frame therefor, consisting of the separable sectional hub, radial swinging arms, and standards, in combination with the jointed bracket carrying said frame, substantially as herein described.

9. In a fruit-gatherer, the expansible and collapsible receiver having the side opening and discharge-spout, and the supporting-frame therefor, consisting of the separable sectional hub, radial swinging arms, and standards, in combination with a bracket supporting said frame, and a controllable ball-and-socket connection between said bracket and frame to keep the receiver level independent of the position of the bracket, substantially as herein described.

10. A fruit-gatherer consisting of the expansible and collapsible funnel-shaped receiver having the side opening and discharge-spout, the separable sectional hub, swinging radial arms and standards forming a frame for supporting the receiver, the vertically-adjustable standard, the pivoted jointed bracket, and the rod I of the bracket connected with the supporting-frame of the receiver by a controllable ball-and-socket joint, substantially as herein described.

478,904. MEANS FOR SECURING GLASS PLATES IN WINDOWS OF STOVES AND FURNACES. LAURA C. BALLENTINE, Port Huron, Mich. Filed Sept. 23, 1889. Serial No. 324,862. (No model.)



Claim.—1. In a stove or furnace window, the combination of a metal frame, a glass plate secured therein, and a packing of asbestus surrounding the edges of the glass plate and interposed between said plate and the metal frame, substantially as shown and described, as and for the purpose set forth.

2. In a stove or furnace window, the combination of the metal frame *a*, the retaining-frame C, provided with retaining-bolts E, the glass plate B, having its edges secured between the said frames, and the asbestus packing D, surrounding the edges of the glass plate and interposed between the same and the frames, substantially as shown and described, as and for the purpose set forth.

478,905. AIR-SHIP. DURR F. BARNES, Circleville, Ohio. Filed Dec. 5, 1891. Serial No. 414,086. (No model.)

Claim.—1. In combination with the buoyant device, the two sets of propelling-wings arranged in pairs and operating alternately, substantially as shown and described.

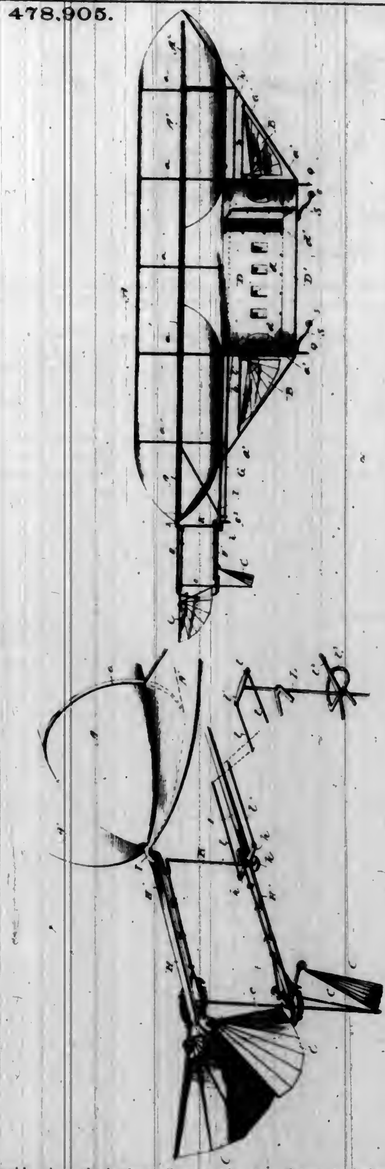
2. In combination with the buoyant device, the two sets of propelling-wings arranged in pairs and vibrating on the same vertical axis, the crank-shaft connected with said wings, and suitable means to operate said shaft, substantially as described.

3. In combination with the buoyant device, the swinging frame journaled at the front end thereof, the two pairs of wings arranged one above the other and vibrating on the same vertical axis, the crank-shaft connected to said wings, a motor to drive said shaft, and means to move the swinging frame, substantially as shown and described.

4. In combination, the balloon, the cab supported thereby, the compartment beneath the cab, the battery and the motor in the latter, the main shaft, the vertically-vibrating wings geared to the latter, and the horizontally-vibratory wings likewise geared thereto, substantially as shown.

5. In combination, the balloon, the cab supported thereby, the motor in the cab, the main shaft driven from the motor, the vertically-

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movable wings, the horizontally-movable wings driven both but dissimultaneously by said shaft, the swinging frame carrying the latter wings, and means for moving said frame from within the cab, substantially as shown and described.

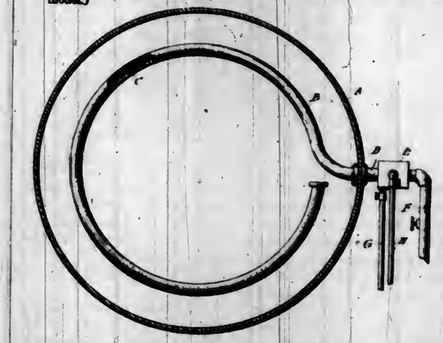
6. In combination, the cab, the pair of lifting and lowering wings, the driving-shaft, the wheel thereon, the wheel on the crank-shaft of each wing, and the chain or band passing from the wheel on the driving-shaft to and around one of the wheels on the wing crank-shaft, over the wheel of the other, and then to the driving-wheel shaft, substantially as shown and described.

7. In combination, the propelling-wings, the lifting and lowering wings, the main driving-shaft, and gearing between the latter and said wings, the shaft being longitudinally movable, so as to connect with one or the other set of wings, substantially as shown and described.

8. In combination, the buoyant device, the bars thereon with inturned ends, the swinging frame journaled on said ends, the crank-shaft journaled in the latter, the wings on said frame, and the steering device connected to said arms, substantially as shown and described.

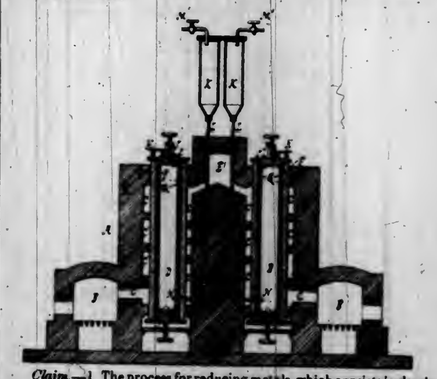
9. In combination with a buoyant device having means for its propulsion, consisting in part in a shaft, the anchoring device adapted to be operated by said shaft, consisting of a screw or auger and the rotary shaft connected thereto by a pin and slot, substantially as shown and described.

478,906. FEED-PIPE FOR VACUUM-PANS. HENRY BASANTA, Ponce, Porto Rico. Filed Sept. 25, 1890. Serial No. 366,063. (No model.)



Claim.—The combination, with the vacuum-pan and its perforated feed-pipe, of the chamber E, having a pipe D connecting it with the feed-pipe, a sirup-supply pipe F, entering the chamber, and valved steam and chemical supply pipes G H, also entering the said chamber E, substantially as set forth.

478,907. PROCESS OF REDUCING METALS. HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed June 18, 1891. Serial No. 396,731. (No specimens.)



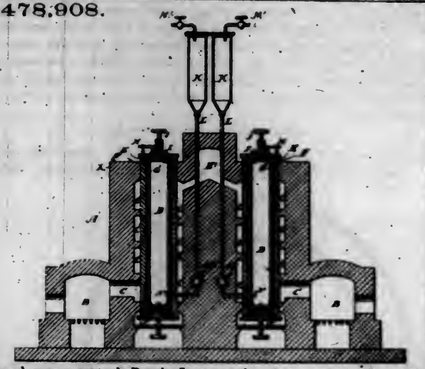
Claim.—1. The process for reducing metals, which consists in slowly introducing suitable reducing agents in a molten state into the molten material to be reduced, both the reducing agents and the material to be reduced being under pressure, by means of gravity and expansion of neutral gas, substantially as described.

2. The process for reducing metals, which consists in slowly introducing reducing agents in a liquid state into a molten metallic salt or combination by gravity and expansion of neutral gas, both materials being under super-atmospheric pressure, substantially as described.

478,908. FURNACE FOR REDUCING METALS. HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed June 18, 1891. Serial No. 396,732. (No model.)

Claim.—1. In a furnace for the reduction of metals, the combination of a fire box B, a suitable heating-flue C about chamber or receptacle D for the purpose of melting or fusing the material to be reduced, the receptacle D, the receptacle K for containing the reducing agent in a fused or melted state and situated within or above the furnace, so as to be heated by it or its flue C and so that said reducing agent therein shall always be above the level of the fused material in

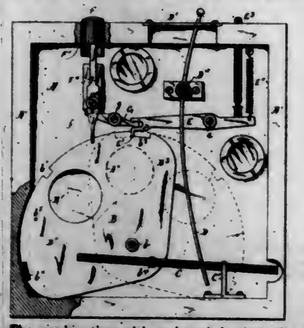
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chamber or receptacle D, tube L, connecting the receptacles D and K, valve M in the tube L for controlling the flow of the reducing agent from receptacle K into receptacle D, receptacle D being provided with a pressure-valve H for keeping the fused materials therein under pressure, and a vacuum-valve I for admitting air to take the place of the metal or slag when drawn from the receptacle D through the tap-hole O, substantially as shown and described.

2. In a furnace for the reduction of metals, the combination, with a fire-box and a heating-flue C, of a retort or chamber D for containing the material to be reduced in a fused or molten state, the retort or receptacle K, in which the fused or molten reducing agent is contained, it being situated so that said reducing agent therein shall always be above the level of the fused material in chamber or receptacle D, the pressure and vacuum valves H I in the reducing-chamber, and the valve M for controlling the discharge of the reducing agent into the reducing-chamber D, substantially as described.

478,909. CAMERA-SHUTTER. THOMAS H. BLAIR and FRED H. KELLEY, Boston, Mass., assignors to the Blair Camera Company, same place. Filed Nov. 4, 1891. Serial No. 410,872. (No model.)

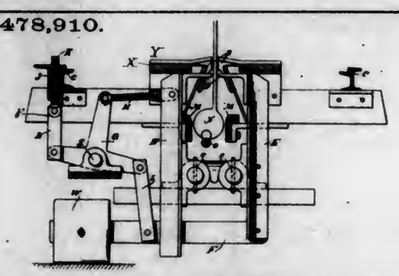


Claim.—The combination, with a plate A, having a lens-opening, and an oscillatory shutter B, having an exposure-orifice B' and notches at one edge, of a lengthwise-sliding rod C, pivotally connected with the shutter in proximity to the pivot on which the latter oscillates, a spring D, having a fulcrum D' and connected at its inner extremity with the lengthwise-sliding rod, a lever E, pivoted intermediate its ends and provided at one extremity with a tooth E', adapted to engage the notches at the edge of the oscillatory shutter, a push-button E², acting against the other end of the lever to move its tooth from engagement with the shutter-notches, a spring E³, acting on the lever to force its tooth into the shutter-notches, a lever G, loosely engaged with the toothed lever, a push-button F, and a rod or spindle F', operated by the push-button, provided with a pin *f*, and having its extremity adapted to move into the path of a projection on the shutter, substantially as described.

478,910. AUTOMATIC TRAP FOR CABLE-CONDUITS. IRA BISHOP and ARTHUR F. L. BELL, San Francisco, Cal. Filed Jan. 29, 1892. Serial No. 419,709. (No model.)

Claim.—1. In a cable railway having a tube or tunnel provided with an opening for the removal and insertion of the grip from and into said tube or tunnel, a door or cover controlling said opening, and

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connections with said door or cover actuated by the car to operate it and cause it to expose and cover said opening, substantially as herein described.

2. In a cable railway having a tube or tunnel provided with an opening in its top for the removal and insertion of the grip-frame from and into said tube or tunnel, a swinging door or cover controlling said opening, and connections with said door or cover actuated by the car to swing the door or cover open and closed, substantially as herein described.

3. In a cable railway having a tube or tunnel provided with an opening in its top for the removal and insertion of the grip-frame from and into said tube or tunnel, a door or cover controlling said opening, a lever in the roadway actuated by the car, and connections between said lever and the door or cover, whereby the latter is operated to expose and cover the opening, substantially as herein described.

4. In a cable railway having a tube or tunnel provided with an opening in its top, the opposing plates D, separated to form the slot and constituting the door or cover of the opening, and connections actuated by the car to throw said plates from and toward each other to expose and cover the opening, substantially as herein described.

5. In a cable railway having a tube or tunnel provided with an opening in its top, the opposing plates D, separated to form the slot and constituting the door or cover of said opening, a lever in the roadway above actuated by the car, and connections between said lever and the plates D to throw them from and toward each other to expose and cover the opening, substantially as herein described.

6. In a cable railway having a tube or tunnel provided with an opening in its top, the combination of the opposing separated plates D, controlling said opening, the pivoted levers E, upon which said plates are carried, connections with said levers actuated by the car for moving them from each other to cause their plates D to expose the opening, and a weight to return them to cover the opening, substantially as herein described.

7. In a cable railway having a tube or tunnel provided with an opening in its top, the combination of the opposing separated plates D, controlling said opening, the pivoted levers E, by which said plates are carried, a lever above actuated by the car, and connections between said lever and the levers E, whereby the latter are separated to cause their plates to expose the opening, and a weight to return them to close the opening, substantially as herein described.

8. In a cable railway having a tube or tunnel provided with an opening in its top, the combination of the opposing separated plates D, controlling said opening, the pivoted levers E, by which said plates are carried, the weighted arm F, connected with one of said levers, the bell-crank lever connected with said weighted arm and with the other of said levers, and connections with said bell-crank lever actuated by the car above to operate it, substantially as herein described.

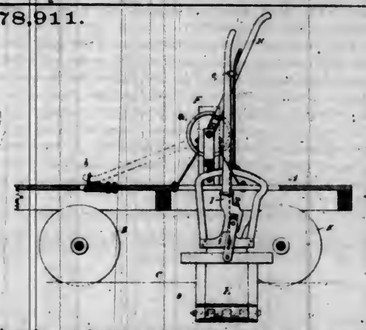
9. In a cable railway having a tube or tunnel provided with an opening in its top, the combination of the opposing plates D, controlling said opening, the pivoted levers E, by which said plates are carried, the weighted arm F, connected with one of said levers, the bell-crank lever connected with said weighted arm and with the other of said levers, the pivoted presser-lever in the roadway above, adapted to be actuated by the car-wheels, and the link connecting said presser-lever with the bell-crank lever, substantially as herein described.

10. In a cable railway having a tube or tunnel provided with an opening in its top to permit the removal and insertion of the grip, the fixed separated guide-bars in said tube or tunnel for directing the descending grip to position to take the cable, substantially as herein described.

478,911. LIFTING MECHANISM FOR CABLE-GRIPS. IRA BISHOP and ARTHUR F. L. BELL, San Francisco, Cal. Filed Jan. 29, 1892. Serial No. 419,710. (No model.)

Claim.—1. In combination with a vertically-movable grip of a cable-railway car, the means for raising said grip out of and lowering it into the tube or tunnel, consisting of a rotary sheave mounted upon the car and the chain or rope secured to the grip and to said sheave

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and adapted to wind upon and unwind from said sheave, substantially as herein described.

2. In combination with the vertically-movable grip of a cable-railway car, the means for raising and lowering said grip out of and into the tube or tunnel, consisting of the rotary sheave, the operating-lever attached to it, whereby it is rotated, and the chain or rope connecting said sheave with the grip, substantially as herein described.

3. In combination with the vertically-movable grip of a cable-railway car, a locking device for holding it in place on its suspending devices and releasing it and a mechanism carried by the car and connected with the grip for raising and lowering it when released out of and into the tube or tunnel, substantially as herein described.

4. In combination with the vertically-movable grip of a cable-railway car, a locking device for holding it in place on its suspending devices and releasing it and the means for lifting and lowering the grip when released out of and into the tube or tunnel, consisting of the rotary sheave with its lever and the chain or rope connecting the sheave and grip, substantially as herein described.

5. In combination with the vertically-movable grip of a cable-railway car, a mechanism for lifting the grip out of the tube or tunnel and lowering it therein and the pins J, having extensions *j'*, over which said grip is fitted and on which it moves up and down and is guided in said movement, substantially as herein described.

6. In combination with the vertically-movable grip of a cable-railway car, the fixed pins with their extensions, upon which said grip is fitted and guided in its movement, locking devices carried by the grip for engaging and disengaging said pins to hold the grip in place and to relieve it, and means for operating said locking devices, substantially as herein described.

7. In combination with the vertically-movable grip of a cable-railway car, the fixed guide-pins over which said grip is fitted, said pins having notches or grooves, the pivoted hooks carried by the grip and adapted to be thrown into and out of engagement with said notches or grooves, and a lever and connecting devices for operating said hooks, substantially as herein described.

8. In a cable-railway car, the combination of the grip, the fixed guide pins over which it is fitted, said pins having notches or grooves, the pivoted hooks carried by the grip for engaging said notches or grooves, a lever and connections for operating the hooks to throw them into and out of engagement, and a means for raising and lowering the grip when released by its hooks, substantially as herein described.

9. In a cable-railway car, the combination of the grip, the fixed guide-pins over which it is fitted, said pins having notches or grooves, the pivoted hooks carried by the grip for engaging said notches or grooves, a lever and connections for operating the hooks to throw them into and out of engagement, and a means for raising and lowering the grip when released from the pins, consisting of the sheave, the lever for operating the sheave, and the chain or rope connecting the sheave with the grip, substantially as herein described.

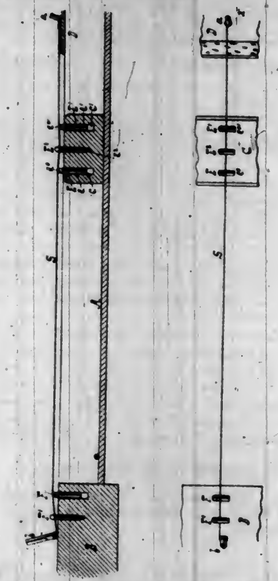
10. In combination with the vertically-movable grip of a cable-railway car, the rotary sheave carried by the car, the lever connected with the sheave, and the chain or rope connecting the sheave with the grip, whereby said grip is raised and lowered, and a friction attachment operating upon the sheave to control its return movement when lowering the grip, substantially as herein described.

11. In combination with the grip of a cable-railway car, the means for raising and lowering the grip, consisting of the rotary sheave G and the chain or rope I, connecting said sheave with the grip, and the means for controlling the return movement of the sheave when the grip is being lowered, consisting of the friction-disk N, having the pawls *n*, and the series of ratchet-teeth *g'* of the sheave, with which the pawls engage in one direction, substantially as herein described.

12. In combination with the grip of a cable-railway car, the means for raising and lowering the grip, consisting of the rotary sheave G and the chain or rope I, connecting said sheave with the grip, and the means for controlling the return movement of the sheave when the grip is being lowered, consisting of the friction-disk N, having the pawls *n*, the series of ratchet-teeth *g'* of the sheave, with which the pawls engage in one direction, and the fixed friction-plate against which the friction-disk bears, substantially as herein described.

13. In combination with the grip of a cable-railway car, the means for raising and lowering the grip, consisting of the rotary sheave G and the chain or rope I, connecting said sheave with the grip, and the means for controlling the return movement of the sheave when the grip is being lowered, consisting of the friction-disk N, having the pawls *n*, the series of ratchet-teeth *g'* of the sheave, with which the pawls engage in one direction, the fixed friction plate against which the friction-disk bears, and the pivot pin or axle and nuts for regulating the degree of said friction, substantially as herein described.

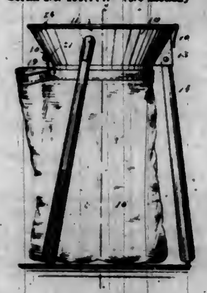
478,912. STRINGING PIANO-FORTES. DOMINIK L. BOLLERMANN, New York, N. Y., assignor to Arthur Bollermann, same place. Filed Apr. 14, 1892. Serial No. 429,150. (No model.)



Claim.—1. In a piano-forte, the combination, with a string, of right-angled supporting-pins located at the ends of the sounding portions of the string and having their lateral heads provided with convex surfaces, and means for depressing the string upon the lateral heads of the right-angled supporting-pins, substantially as described.

2. In a piano-forte, the combination, with a string, of right-angled supporting-pins located at the ends of the sounding portions of the string and having their lateral heads provided with convex surfaces, and screw-threaded depressors screwed into the bridge and wrest-plank and having lateral heads which rest on the string, substantially as described.

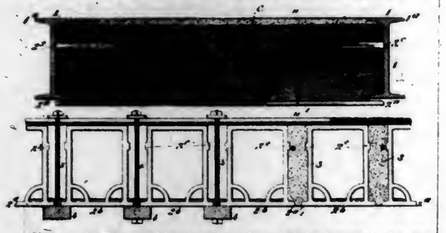
478,918. SACK-HOLDER. JAMES C. BRATNEY, Sparta, Ill. Filed Sept. 25, 1891. Serial No. 406,777. (No model.)



Claim.—1. The combination, with a funnel having suitable supports, of hooks pivoted on the funnel and adapted to engage a sack, said hooks having their wires extending through the wall of the funnel and formed into a loop within the funnel, and a hook or catch to engage the loop when swung up, substantially as shown and described.

2. The combination, with a funnel having suitable supports and provided on the outer side of its neck with projections or teeth and with apertures, of hooks pivoted on the wall of the funnel and adapted to engage the sack at said apertures, said hooks having their wires extending through the funnel-wall and formed into a loop within the funnel, and a catch secured to the inner funnel-wall and adapted to engage the loop, substantially as shown and described.

478,914. FIRE-PROOF FLOOR-ARCH. PRESTON M. BRUNER, St. Louis, Mo. Filed Mar. 2, 1892. Serial No. 423,543. (No model.)



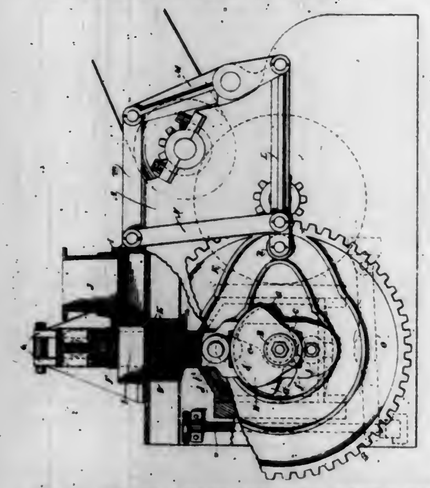
Claim.—1. The combination, in a floor, of the beams 1, the bars or rods C, the blocks arranged in rows, extending from beam to beam, and the filling 3, said rows of blocks having spaces between them and said bars or rods and said filling fitting in said spaces, substantially as set forth.

2. The combination, in a floor, of the beams 1, and the rows of blocks 2, extending from beam to beam, the said blocks having ribs 2^a upon their sides, with the concrete filling 3 between the blocks, substantially as set forth.

3. The combination, in a floor, of the beams 1, the rows of blocks 2, extending from beam to beam, and the concrete filling between the same, said filling composed of an upper layer 3^a and a lower layer 3^b, with hollow space between them, substantially as set forth.

4. The combination, in a floor, of the beams 1, the rows of hollow blocks 2, extending from beam to beam, the concrete filling 3 between the blocks, and the plates 7 at the lower part of the filling, substantially as set forth.

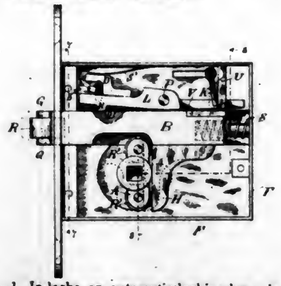
478,915. BRICK-MACHINE. WALFRID BURKMAN, San Francisco, Cal. Filed May 15, 1891. Serial No. 392,893. (No model.)



Claim.—1. The mode of pressing plastic material in molds by means of plungers, which consists in first partially compressing the material from one side and holding the plunger stationary to said compression, second, compressing the material from the other side to a line beyond its central plane and holding the plunger stationary to said compression, and, finally, compressing the material fully from the first side, substantially as herein described.

2. In a brick-machine, the combination of the mold, the upper plunger, the lower plunger having the hollow base, the main shaft passing through said base, the cam C on said shaft within the hollow base and adapted to raise and lower the lower plunger, an adjustable stop-bar below for limiting the movement of said lower plunger, the cams G on the main shaft, operating on the side arms of the upper plunger to draw said plunger down and other cams H on said main shaft operating on said arms to raise the upper plunger and to control its downward movement under the action of the cams G, substantially as herein described.

478,916. LOCK. CHARLES E. CANDEE, New York, N. Y. Filed Feb. 4, 1891. Serial No. 380,143. (No model.)



Claim.—1. In locks, an automatic locking-lever, in combination with a positive locking, positive unlocking, and freeing cam E, a bolt B, and a removable key K, engaging the locking-lever to disengage the same and also the bolt B to retreat the same, substantially as shown and described.

2. In locks, the locking-lever L, fulcrumed centrally, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, and the removable key K, engaging, first, the locking-lever L to unlock the same, and, second, the bolt B to retreat the same, substantially as shown and described.

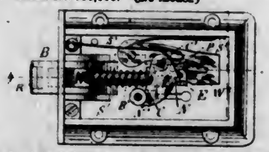
3. In locks, an automatic locking-lever, in combination with the positive locking, positive unlocking, and freeing cam E, a bolt B, a removable key K, engaging the locking-lever to disengage the same and also the bolt B to retreat the same independently of the knob and spindle, and an eccentric spindle-socket stopping the bolt in either one of two positions at will, one of which is a locking position in relation to the locking-lever.

4. In locks, the locking-lever L, fulcrumed centrally, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, the removable key K, engaging, first, the locking-lever L to unlock the same, and, second, the bolt B to retreat the same, and an eccentric spindle-socket stopping the bolt B into two positions at will, substantially as shown and described.

5. In locks, an automatic locking-lever, in combination with the positive locking, positive unlocking, and freeing cam E, a bolt B, a removable key K, engaging the locking-lever to disengage the same and also the bolt B to retreat the same independently of the knob and spindle, and an eccentric spindle-socket stopping the bolt in either one of two positions at will, one of which is a locking position in relation to the locking-lever, the spindle-socket being provided with the rollers R' for retreating the bolt independently of the key.

6. In locks, the locking-lever L, fulcrumed centrally, in combination with the positive locking, positive unlocking, and freeing cam E, the bolt B, the removable key K, engaging, first, the locking-lever L to unlock the same, and, second, the bolt B to retreat the same, and an eccentric spindle-socket stopping the bolt B in two positions at will and provided with the rollers R' for retreating the bolt B independently of the key K.

478,917. LOCK. CHARLES E. CANDEE, New York, N. Y. Filed July 13, 1891. Serial No. 399,395. (No model.)



Claim.—1. A lock-bolt provided with an anti-friction roller for contact with the jamb or striking plate, hinged in the lock-frame, normally projecting from the lock-frame in the path of the jamb or striking plate, and also hinged to a reciprocating stem or false bolt, the false bolt having an outward-thrusting spring in charge of both bolts, in combination with a retreating, holding, and tripping cam acting directly on the reciprocating false bolt for those purposes.

2. A lock-bolt provided with an anti-friction roller for contact with the jamb or striking plate, hinged in the lock-frame, normally projecting from the lock-frame in the path of the jamb or striking plate, and also hinged to a reciprocating stem or false bolt, the false bolt having an outward-thrusting spring in charge of both bolts, in combination with a retreating, holding, and tripping cam acting directly on the reciprocating false bolt for those purposes, and also with a disengaging cam and an engaging tumbler, (one or more,) which may be disengaged thereby, so as to permit the retreat of both bolts by one and the same movement.

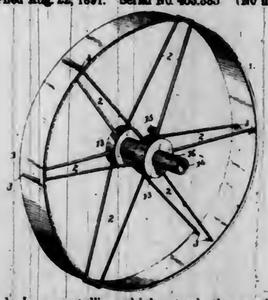
3. A lock-bolt provided with an anti-friction roller for contact with the jamb or striking plate, hinged in the lock-frame, normally projecting from the lock-frame in the path of the jamb or striking plate, and also hinged to a reciprocating stem or false bolt, the false bolt having an outward-thrusting spring in charge of both bolts, in combination with a retreating, holding, and tripping cam acting directly on the reciprocating false bolt for those purposes, and with a jamb-escutcheon or strike-plate provided with an incline for retreating the hinged bolt within its frame, and an engaging seat behind the incline to receive the released hinged bolt end secure the door in position.

4. A lock-bolt provided with an anti-friction roller for contact with the jamb or striking plate, hinged in the lock-frame, normally projecting from the lock-frame in the path of the jamb or striking plate, and also hinged to a reciprocating stem or false bolt, the false bolt having an outward-thrusting spring in charge of both bolts, in combination with a retreating, holding, and tripping cam acting directly on the reciprocating false bolt for those purposes, with a removable key, which may disengage the tumbler (one or more) and retreat the bolt independently of the cam or cams, and with a jamb-escutcheon or strike-plate provided with an incline for retreating the hinged bolt within its frame, and an engaging seat behind the incline to receive the released hinged bolt and secure the door in position.

5. The false bolt or stem B', provided with the pins P P' and the head E and the cams C C', in combination with the key K and tumbler W, (one or more,) provided with the slot L and notch N^2.

6. The false bolt or stem B', provided with the pins P P' and the head E and the cams C C', in combination with the tumbler W, (one or more,) provided with the slot L and notch N^2.

478,918. VEHICLE-WHEEL. CLINTON D. CANNON, Battle Creek, Mich. Filed Aug. 22, 1891. Serial No. 403,385. (No model.)



Claim.—1. In a metallic vehicle-wheel, the combination, with the metal rim, of the opposite spaced anchorihg-ring, the double spokes having their opposite ends secured to said rim and anchoring-ring, the soft-metal hub-jacket inclosing said ring and the hub ends of said spokes, and a supplemental axle-box detachably secured within said hub-jacket, substantially as set forth.

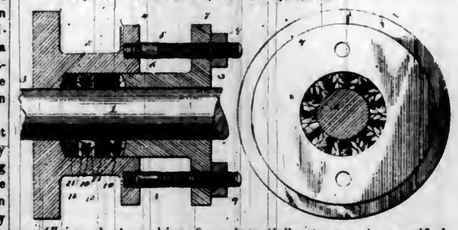
2. In a metallic vehicle-wheel, the combination, with the rim, of the anchoring-rings provided with a series of perforations, the U-shaped double spokes passing through said rim and engaging the perforations in said rings, and of the soft-metal integral hub inclosing said rings and the hub ends of said spokes, substantially as set forth.

3. In a metallic vehicle-wheel, the combination, with the rim, of the spaced anchoring-rings provided with a series of perforations, the U-shaped double spokes passing through said rim and provided with hooked ends adapted to engage the perforations in said spaced anchoring-ring, and of the soft-metal integral hub inclosing said rings and the hub ends of said spokes, substantially as set forth.

4. In a metallic vehicle-wheel, the combination, with the rim, of a central anchoring-ring provided with an outwardly-projecting lug having a screw-threaded perforation, spokes secured to said rim and said anchoring-ring, a soft-metal hub inclosing said ring and the hub ends of said spokes, an axle-box located within said hub, and a set-screw adapted to pass through the hub and said perforated lug and ring and secure said box within the hub, substantially as set forth.

5. In a metallic vehicle-wheel, the combination, with the rim, of spaced anchoring-rings provided with a series of perforations, a screw-threaded lug projecting outwardly from one of said anchoring-rings, the U-shaped double spoke passing through perforations in said rim and terminating in hooked ends, adapted to engage the perforations in said spaced anchoring-rings, a soft-metal integral hub inclosing said rings and the hub end of said spokes, an axle-box registering with the interior bore of said hub, and a set-screw adapted to pass through the hub and said perforated lug and ring and secure said box within the hub, substantially as set forth.

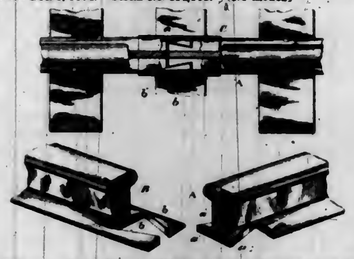
478,919. ROD-PACKING. ROSS CARLIN, New Orleans, La. Filed Jan. 26, 1892. Serial No. 419,326. (No specimens.)



Claim.—1. A packing for substantially the purpose specified, formed of segments of fibrous fabric or material arranged with the cut ends for contact with the surface to be packed, as explained.

2. The packing for substantially the purpose specified, formed of segments of woven or analogous fibrous material arranged with the cut ends in contact with the surface to be packed and having interspaced continuous rings, substantially as and for the purpose specified.

478,920. RAILROAD-RAIL JOINT. WARREN H. CARR, Bath, Me. Filed Dec. 8, 1891. Serial No. 414,363. (No model.)



Claim.—1. In a railroad-rail joint, the combination, with the end of a rail having its base only extended and said extension provided with a dovetail recess, of the opposing end of a meeting rail having its base recessed at opposite sides to form a dovetail portion fitting within said dovetail recess, but of less length than the latter, substantially as and for the purpose set forth.

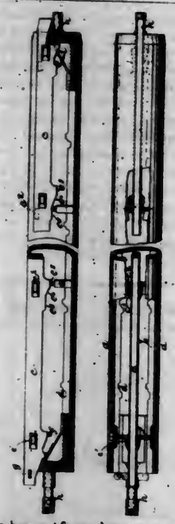
2. In a railroad-rail joint, the combination, with a rail having an extension at one end provided at opposite sides with outwardly-flaring lugs, the latter forming, conjunctively, a dovetailed portion, of the opposing end of a meeting rail having its base extended to provide two ears diverging outwardly at their inner faces and forming an intermediate dovetailed recess adapted to receive said dovetail portion, and means for locking the latter in the recess therefor, substantially as and for the purpose set forth.

3. The herein-described railroad-rail, having its base only extended at one end and provided with a dovetail recess extending from top to bottom of said extension, said rail being formed at its opposite end with a dovetail portion of less length than the dovetail recess, substantially as and for the purpose set forth.

478,921. COLLAPSIBLE CORE-BARREL. FREDERICK CHAMBERS, Derby, England. Filed Sept. 14, 1891. Serial No. 405,728. (No model.)

Claim.—1. The combination, with a core-bar composed of hinged segments *a a b*, said core-bar formed with journals and the segments *a a* provided at their upper edges with wedges, of a longitudinal key-

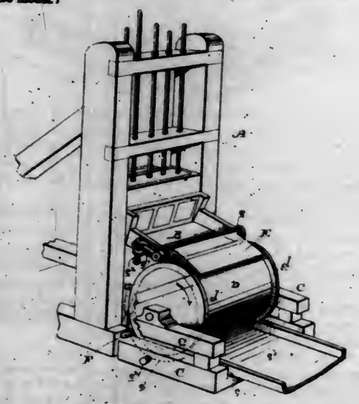
478,921.



bar located in said core-bar and formed at its upper portion with wedges to engage the wedges of the core-bar and having projections c^3 c^4 and incline c^5 formed on its under portion, and stay-bars *f*, engaging the segments *a a* and adapted in connection with said projections and incline to throw said key-bar into engagement with the core-bar to expand the latter.

2. The combination, with a core-bar composed of hinged segments *a a b*, said core-bar formed with journals and the segments *a a* provided at their upper edges with wedges, of a key-bar located and longitudinally movable in said core-bar, provided at its upper portion with wedges to engage the wedges of the core-bar and having projections c^3 c^4 and incline c^5 formed on its under portion, stay-bars *f*, engaging the segments *a a* at intervals, stay-pieces *v*, projecting interiorly from the core-bar, the cotter *g*, engaging a slot in the key-bar for locking the core-bar in its expanded position, and the hook *i*, formed on the key-bar to retain the same in its retracted position after the core-bar is collapsed, substantially as described.

478,922. AMALGAMATOR. WILLIAM J. CONNORS and WILLIAM W. EDDY, Grass Valley, Cal. Filed Jan. 15, 1892. Serial No. 418,206. (No model.)



Claim.—1. In an amalgamator, a rotating cylinder having an amalgamating outer surface or periphery upon which the material is fed, in combination with a feed-regulating plate having an amalgamated under surface to catch the free fine gold, substantially as herein described.

2. In an amalgamator, a rotating cylinder having an amalgamating outer surface or periphery, in combination with a feed-regulating plate contiguous to said cylinder, having a crank-arm and screw for adjusting the plate and regulating the feed, substantially as herein described.

3. In an amalgamator, the combination of a rotating cylinder having an amalgamating outer surface or periphery, an apron to feed the material to the cylinder-surface, and a regulating-plate in the apron and extending over the cylinder, substantially as described.

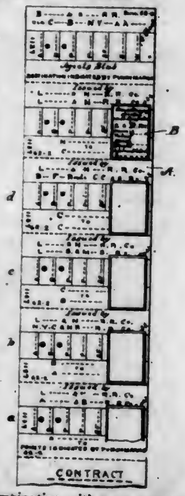
4. In an amalgamator, the combination of a rotating cylinder having an amalgamating outer surface or periphery, an apron to feed the material to the cylinder-surface, and the swinging adjustable regulating-plate in the apron and extending over the cylinder, substantially as described.

5. In an amalgamator, the combination of the rotating cylinder having an amalgamating outer surface or periphery, the supply-apron over said cylinder, the adjustable regulating plate in said apron and extending over the cylinder, and means for cleaning the surface of the cylinder as it rises, substantially as described.

6. In an amalgamator, the combination of the rotating cylinder having an amalgamating outer surface or periphery, the supply-apron over said cylinder, the adjustable regulating-plate in said apron and extending over the cylinder, the underlying bed with its receiving-chamber and discharge-chute, and means for cleaning the surface of the cylinder as it rises, substantially as described.

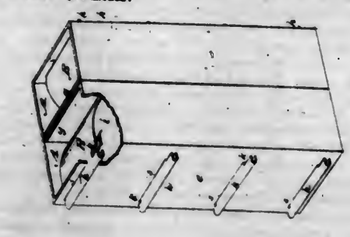
7. In an amalgamator, the combination of the rotating cylinder having an amalgamating outer surface or periphery, the supply-apron over said cylinder, the adjustable regulating-plate in said apron and extending over the cylinder, the underlying bed with its receiving-chamber and discharge-chute, and means for cleaning the surface of the cylinder as it rises, consisting of the water-sprinkler and the scraper, substantially as described.

478,928. EXCESS-BAGGAGE STAMP OR CHECK FOR RAILROAD-TICKETS. THOMAS M. CUNNINGHAM, Nashville, Tenn. Filed Dec. 14, 1891. Serial No. 414,961. (No model.)



Claim.—The combination, with a passenger's coupon-ticket, of an excess-baggage stamp or check adapted to be permanently secured to a coupon of the ticket, substantially as and for the purpose set forth.

478,924. EGG-CARRYING PACKAGE. ROBERT G. DALE and WALTER S. WEIGHTMAN, Durango, Colo. Filed Apr. 14, 1892. Serial No. 429,129. (No model.)

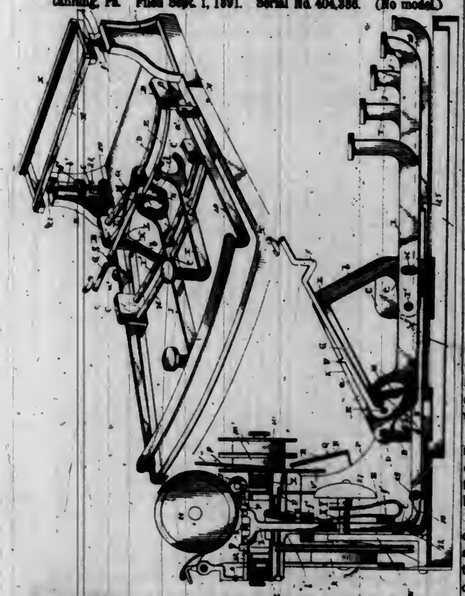


Claim.—1. An egg-carrying package or case composed of an outer body part made of pasteboard or thick paper bent or folded to form two tubular sections lying side by side with their inner walls dividing them but left free to open, and of inner thin paper or flexible strips looped to form a series of separate egg chambers in each tubular section of the case, substantially as specified.

2. In a divided or sectional egg-carrying package or case of the character described, the two folded tubular sections of the opening and closing case provided with a series of slots in two of their opposite outer walls, in combination with thin paper or flexible strips folded over upon themselves and looped to form a series of separate egg-chambers within the tubular sections and constructed at their folding portions with incisions in their edges forming locking-tongues, which engage with the slotted portions of the tubular sections, essentially as shown and described.

3. The blank for a sectional egg carrying package or case of the character described, composed of a strip of pasteboard or stiff paper creased or marked, as at *b b*, *c c*, and *d d*, to fold over from reverse ends and having a series of slots *a* in the portions *e e* between the folding lines or creases *b c* and *b c*, substantially as described.

478,925. TYPE-WRITING MACHINE. JAMES D. DAUGHERTY, Kittanning, Pa. Filed Sept. 1, 1891. Serial No. 404,386. (No model.)



Claim.—1. In a type-writing machine, a platen, a series of pivoted type-bars, a series of pivoted key-levers which vary in length, and two pivotal points for the key-levers, one of said pivotal points of the key-levers being nearer the pivotal point of the type-bars than the others, the short and long levers being respectively pivoted at one of said pivotal points and extending around the other pivotal point to allow them to vibrate, substantially as specified.

2. In a type-writing machine, a series of type-bars and key-levers, the type-bars having each two characters, a base having vertical supports at each side of its inner end, which are provided with vertical guideways at their inner sides, a guide-rail, vertical bars connected to the guide-rail and moving vertically in the guideways, and a U-shaped frame pivoted between its ends and having its inner ends connected with the lower ends of the said vertical bars for moving them vertically, the type-bars and key-levers being entirely within the U-shaped frame, the transverse portion of the frame being thereby outside of the outer ends of the key-levers to be depressed, all combined substantially as described.

3. A pivoted type-bar for a type-writing machine, having a projection at its pivoted end which is convex upon its outer edge and provided with a projection upon its inner edge, combined with a key-lever having a projection which engages the convex surface of its outer edge and a second projection which engages the said projection upon the inner edge of the type-bar projection, the parts operating substantially as specified.

4. In a type-writing machine, a platen, a series of pivoted type-bars, a series of key-levers which vary in length, two pivotal bars for the key-levers, one of said bars being nearer the pivotal point of the type-bars than the other, the levers having an opening to receive one of said pivotal bars, and a slot through which the other pivotal bar passes, all combined as specified.

5. In a type-writer, a carriage having two parallel racks, one of said racks being pivoted, a spacing-lever carrying a dog which has two ends that alternately engage the two racks, and key-levers and type-bars, all combined to operate substantially as specified.

6. In a type-writing machine, a carriage carrying a rack, a feed-lever having a vertical portion carrying a dog which engages the said rack, a spring-pulley, a shaft therefor, which has one end extending inside of the vertical portion of the feed-lever, an adjustable stop upon the inner end of the said shaft, and a spring engaging the said stop and the vertical portion of the feed-lever, all combined substantially as specified.

7. In a type-writing machine, a carriage carrying a rack, a feed-lever having a vertical portion carrying a dog which engages the said rack, a spring-pulley, a shaft therefor, which has one end extending inside of the said vertical portion of the feed-lever and screw-threaded, a screw-threaded socket upon the said shaft, carrying a bell, and a spring between the said socket and the vertical portion of the feed-lever, the parts combined substantially as described.

8. In a type-writing machine, a vibrating feed-lever having a vertical portion, and a vibrating ribbon guide or carrier, which is engaged and tilted by the said vertical portion of the feed-lever, the parts combined substantially as specified.

9. In a type-writing machine, a vibrating feed-lever having a vertical portion, and a vibrating ribbon-guide pivoted in front of the said vertical portion of the feed-lever, having a depending portion which is engaged by the vertical portion of the feed-lever, the parts combined substantially as set forth.

10. In a type-writing machine, a vibrating feed-lever having a vertical portion, and a vibrating ribbon-guide pivotally supported in front of the feed-lever and having a depending portion which is pivotally connected with the said vertical portion of the feed-lever, all combined substantially as shown.

11. In a type-writing machine, a vertically-shifting platen-frame carrying a platen, ribbon-spools, and a ribbon-feed mechanism, combined with type-bars carrying each two characters, and key-levers, all combined as set forth.

12. A ribbon-feed mechanism for type-writing machines, comprising a ribbon-spool carrying an operating-wheel, a vibrating frame upon one side of the spool, a lever pivoted at the opposite side of the spool from the frame, having its free end adapted to engage therewith, and a dog upon the lever between its free end and pivotal point for engaging the said operating-wheel, substantially as described.

13. The combination, in a type-writing machine, with a printing mechanism and a vibratory ribbon-frame for the purpose described, of a ribbon-spool upon each side thereof, pivoted levers having their free ends engage the said frame, and dogs upon the levers for operating the said spools, substantially as described.

14. In a type-writer, the combination, with a printing mechanism, of a vibratory ribbon-frame for the purpose described, a ribbon-spool at each side thereof, levers pivoted at opposite sides of the spools from the said frame, having their free ends engaging the said frame, and dogs upon the levers between their free ends and pivotal points which engage the said spools, substantially as set forth.

15. A ribbon-feed mechanism for type-writing machines, comprising ribbon-spools, a vibrating frame between the said spools, a bar sliding transverse the said spools, carrying pivoted levers having their free ends alternately engage the vibrating frame when the sliding bar is moved, and dogs upon the levers for operating the spools, substantially as described.

16. A ribbon-feed mechanism for type-writing machines, comprising ribbon-spools carrying ratchet-wheels, a vibrating frame between the said spools, a bar sliding transverse to the vibrating frame, levers pivoted at their outer ends to the said sliding bar and their inner ends having slots which engage the said vibrating frame alternately when the sliding bar is moved, and pawls upon the levers for engaging the ratchet-wheels, whereby the ribbon is made to travel in the reverse direction, substantially as specified.

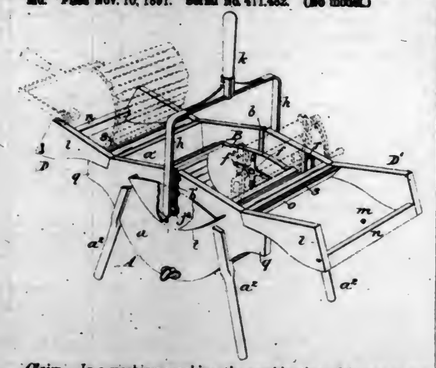
17. A ribbon-feed mechanism for type-writing machines, ribbon-spools carrying ratchet-wheels, a vibrating frame between the spools, a bar sliding transverse the vibrating frame, carrying pivoted levers having their free ends adapted to alternately engage the vibrating frame when the sliding bar is moved, actuating-pawls upon the levers for engaging the said ratchet-wheels, and holding-pawls upon the sliding bar for engaging the ratchet-wheels, whereby the levers and pawls are moved together, substantially as set forth.

18. In a type-writing machine, a vertically-shifting carriage having a rack-bar, a vibrating feed-lever carrying a pawl which engages the said rack and which is wider than the distance of the vertical

movement of the carriage, whereby it remains in engagement with the rack when the carriage is moved vertically, type-bars having each two characters, and key-levers, all combined substantially as specified.

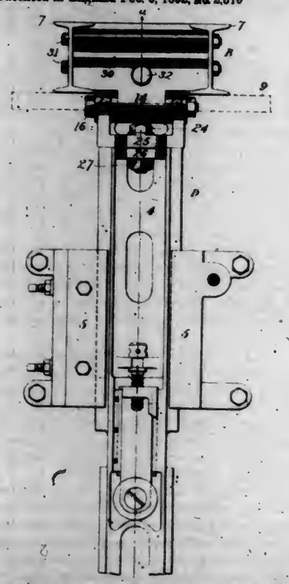
19. In a type-writing machine, a platen, type-bars pivoted at their inner ends between the said platen, having each a tapered projection on its inner face between its free ends, and a plate between the pivotal points of the type-bars and the platen, having a series of perforations to receive the said projections, substantially as specified.

478,926. WASHING-MACHINE. EDGAR A. BOHLETON, Easton, Md. Filed Nov. 10, 1891. Serial No. 411,482. (No model.)



Claim.—In a washing-machine, the combination of the tub A, provided with slots *b b* and castings *b' b'*, a rubber B, provided with handle-arms *h h*, extending outside of the tub and having ends *g* rigidly secured to the sides of the rubber, and adjustable collars *j j*, mounted upon the ends *g g* and adapted to be brought into contact with the castings *b' b'* to prevent side play of the rubber.

478,927. MACHINE FOR PRINTING OIL-CLOTH. GEORGE F. EISENHARDT, Philadelphia, Pa., assignor to Dienelt & Eisenhardt, same place. Original application filed June 1, 1891, Serial No. 394,736. Divided and this application filed May 19, 1892. Serial No. 433,575. (No model.) Patented in England Feb. 6, 1892, No. 2,316.



Claim.—1. The combination of the frame of a block-printing machine having guides, a cross-head for supporting the printing-blocks, vertical end pieces on the cross-head movable in said guides, and horizontal joints connecting the cross-head and end pieces, substantially as set forth.

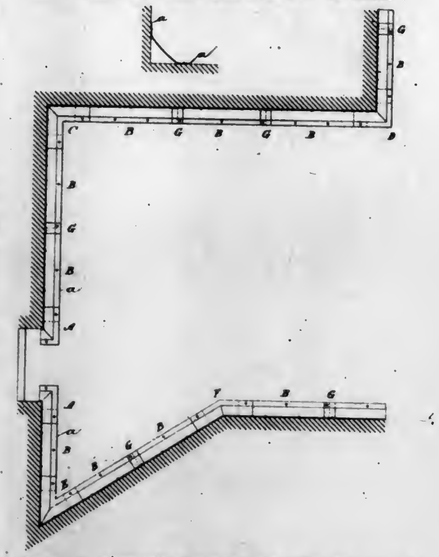
2. The combination of the frame of a block-printing machine having guides, a cross-head for supporting the printing-blocks, vertical end pieces on the cross-head movable in said guides, and vertical joints connecting the end pieces and cross-head, substantially as set forth.

3. The combination of the frame of a block-printing machine, a cross-head for supporting the printing-blocks, vertical end pieces on said cross-head movable in guides of the frame, and vertical and horizontal joints connecting the cross-head and the end pieces, substantially as and for the purpose set forth.

4. In a block-printing machine, the combination of the cross-head for the printing-blocks, and end pieces to which the cross-head is detachably connected, and trunnions projecting from the cross-head and arranged below the center of gravity thereof, substantially as and for the purpose set forth.

5. In a block-printing machine, the combination, with the cross-head for the printing-blocks, consisting of connected parallel I-beams and intermediate web-pieces provided with projecting lugs, of end pieces having ears and bolts passing through the lugs and ears, and guides for the end pieces, substantially as described.

478,928. ANGLE-FINISH FOR ROOMS. AARON D. ELLIS, Rutland, Vt. Filed July 14, 1890. Serial No. 358,679. (No model.)



Claim.—1. An angle-finish consisting of straight strips having integral marginal portions formed at obtuse angles with the strips and at right angles with each other, and the angular strips adapted for recess-terminals and angles, each formed of a single piece of material shaped to form two body portions and provided with a continuous horizontal margin which is integral with the strip from end to end, substantially as described.

2. An angle-finish for rooms, consisting of a narrow inclined strip formed in angular sections shaped to form two body portions, having their ends lapped with the ends of the straight sections adjacent, each body portion having a narrow margin integral therewith and continuous from end to end of the angular section, a parallel margin being formed on each body portion to rest against the vertical wall, substantially as described.

478,929. SAD-IRON. CHARLES G. ETTE and BARNEY H. SANDERS, St. Louis, Mo., assignors to said Ette. Filed Oct. 29, 1891. Serial No. 410,203. (No model.)

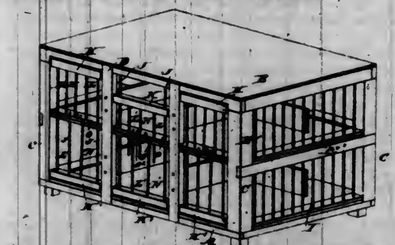


Claim.—1. In a sad-iron, the combination of the main recessed body, the intermediate plate rivated thereto, as described, so as to leave an air-space between the plate and the body, said plate having a longitudinal slot, the handle-provided shield-plate located upon the intermediate plate with an intermediate air-space, said shield-plate having an enlargement that enters the slot in the intermediate plate, and the locking device consisting of a rotary pin carrying at its top suitable knobs and at its bottom a locking-bar which operates in conjunction with the under face of the intermediate plate, substantially as described.

2. In a sad-iron, the combination of the recessed body A, having ribs *g*, the intermediate plate H, having a central slot I, reverse inclines J J on its under side, provided with stops *j* and lugs or projections *k* on its upper face, said plate H being riveted to body A, the handle-provided shield-plate C, having on its under side the longitudinal enlargement C', and the locking device consisting of the pin D, locking-bar E, rigid on the lower end of pin D, yoke F, rigidly connected to the upper end of pin D, and knob *f'*, carried by said yoke, substantially as described.

3. In a sad-iron, the combination of the main body A, having recess A' and ribs *g*, the intermediate plate H, riveted to body A and having longitudinal slot I, lugs *k* on its upper face, and the shield-plate C having enlargement C' on its under side adapted to enter the slot I, together with the locking-bar E, substantially as described.

478,930. FOWL-CRATE. FRIEDRICH W. EWERT, Wood Lawn, Ill. Filed Apr. 15, 1892. Serial No. 429,370. (No model.)

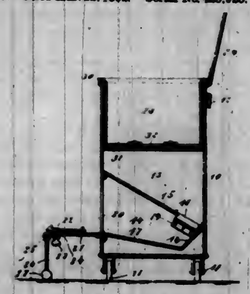


Claim.—1. A fowl-crate comprising single compartments, one for each fowl, and a door arranged on the front end of each compartment and formed of a bar fitted to slide on vertical rods, guide-rods held on the said bar and fitted to slide in bearings on the crate, and a locking-rod also secured on the said bar and adapted to engage an enlarged recess in its guiding-opening, substantially as shown and described.

2. A fowl-crate comprising a bottom, a top, posts for connecting the top and bottom, a transverse partition dividing the crate into upper and lower compartments, and transverse and longitudinal bars arranged in each upper and lower compartment for dividing the latter into single compartments, one for each fowl, substantially as shown and described.

3. A fowl-crate comprising a bottom, a top, post for connecting the top and bottom, a transverse partition dividing the crate into upper and lower compartments, transverse and longitudinal bars arranged in each upper and lower compartment for dividing the latter into single compartments, one for each fowl, and a door arranged in the front of each single compartment and comprising a bar fitted to slide vertically, guide-rods for the said bar, and a locking-rod held on the said bar and adapted to engage an enlarged recess in its guide opening, substantially as shown and described.

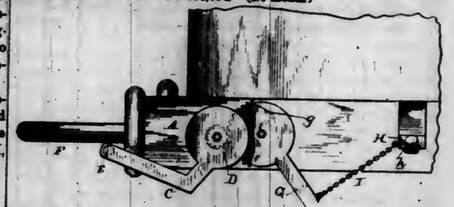
478,931. WOOD AND COAL BOX. RUDOLPH FREDERROLL, New York, N. Y. Filed Mar. 22, 1892. Serial No. 426,925. (No model.)



Claim.—1. A wood and coal box comprising a main open-topped case having an inclined partition therein, with an opening through the same, and having a swinging door in its lower portion, and a wood-box held to slide freely in the upper portion of the case, substantially as described.

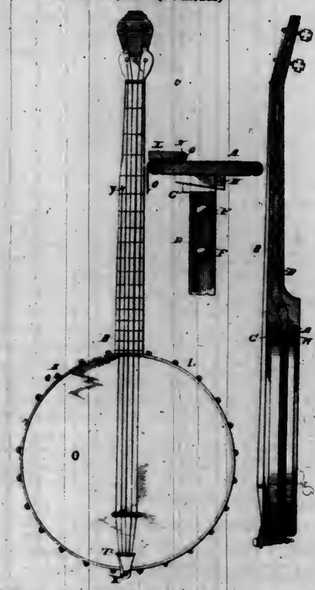
2. The combination, with the main case having an upper and a lower compartment therein and an opening into the lower compartment through one wall, of a wood-box held to slide in the upper portion of the main case, said wood-box having a removable bottom grate, substantially as described.

478,932. LINK-LIFTER. JOHN FINNEY, Portland, Oreg. Filed Nov. 6, 1891. Serial No. 411,094. (No model.)



Claim.—The combination, with a draw-bar, of the arms C, carrying cross-bar E, a cog-wheel D, connected to the arms, a lever G, having toothed segment *g* meshing with the wheel D, a lever H, and a chain I, connecting the levers G and H, all substantially as described.

748,933. MUSICAL INSTRUMENT. JOHN R. HENNIVE, Kansas City, Mo., assignor, by mesne assignments, of one-half to W. S. Harvell and H. F. Carson, Chicago, Ill. Filed Apr. 29, 1890. Renewed June 9, 1892. Serial No. 436,119. (No model.)



Claim.—1. In a musical stringed instrument, the combination, with the body of the instrument and its neck, of a metallic brace extending through the neck and across the body, and means for securing the brace to the body, substantially as set forth.

2. In a musical stringed instrument, the combination, with the body and the neck of the instrument, and a metallic brace extending through the neck and across the body, of a screw-threaded end upon the brace, adapted to pass through the side of the rim and be secured thereto by a nut, clamps upon the brace within the body of the instrument, and wedging devices for tightening the body against the clamps, substantially as set forth.

3. In a musical stringed instrument, the combination, with the tail-piece, of a boot pin secured thereto, and an adjustable connection between the pin and the rim, whereby the tail-piece may be fastened

to the instrument and draws against the tension of the strings, substantially as set forth.

4. In a banjo, the combination, with a smooth-sided neck and the body of the instrument, of a peg Y in the side of the neck, a tail-piece adapted to be secured to the body, and a key upon the tail-piece, adapted to stretch a string from the peg Y, substantially as set forth.

5. In a musical instrument, the combination, with the body and a tail-piece adapted to be secured thereto, of a pin secured to the body and the tail-piece and adapted to hold the parts together, a socket in the top of the pin, and a key X, adapted to fit into the socket and carry a string, substantially as set forth.

478,934. RAZOR-STROP. WILLIAM C. HOWARD, Brooklyn, N. Y., assignor to the Howard Manufacturing Company, Boston, Mass. Filed Mar. 7, 1892. Serial No. 423,964. (No model.)



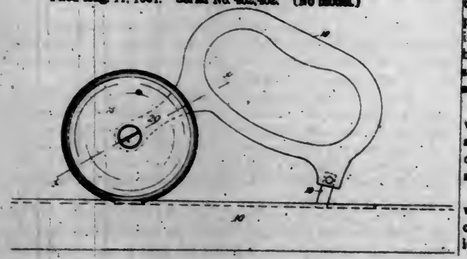
Claim.—1. The combination, with block *a*, of cushions *b* on opposite sides of the block and a holding-strip extending into the cushions and around the ends of the block, substantially as described.

2. The combination, with a block *a*, of cushions *b* on opposite sides of the block, a holding-strip extending into the cushions and around the ends of the block, and a handle having a shank passing through said strip and into the end of the block, substantially as described.

3. The combination, with block *a*, of cushions *b* on opposite sides of the block, having covers *c*, provided with flaps extending over and secured at the ends of the block, a holding-strip extending into the cushions and around the ends of the block, and a handle having a shank passing through said strip and into the end of the block, substantially as described.

4. The combination, with block *a*, of cushions *b* on opposite sides of the block and strip *d*, consisting of two separate pieces extending about the opposite ends of the block and having their ends passed into the cushions, substantially as described.

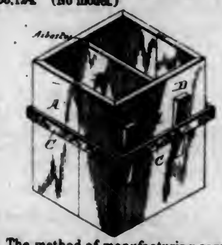
478,935. PAPER-CUTTER. ALBERT L. KARSHNER, Denver, Colo. Filed Aug. 11, 1891. Serial No. 402,402. (No model.)



Claim.—1. In a paper-cutter, a rotating disk suitably mounted, in combination with a guideway or track having a metal bottom and side plate, substantially as and for the purpose set forth.

2. In a paper-cutter, the combination, with a rotating disk, of a strip of suitable material having a guide-track for the disk and retaining mechanism consisting of a plural number of spring-actuated needles and a series of controlling-levers suitably connected and simultaneously manipulated for the purpose of releasing or depressing the needles, substantially as described.

478,936. MANUFACTURE OF STEEL INGOTS. CHARLES W. KENNEDY and JOHN W. GRANTLAND, Philadelphia, Pa.; said Grantland assignor to said Kennedy. Filed May 30, 1891. Renewed May 16, 1892. Serial No. 433,124. (No model.)



Claim.—1. The method of manufacturing compound ingots composed of inseparably united strata of metal, which consists in casting two malleable metals or two qualities or grades of the same malleable metal simultaneously in a mold on opposite sides of a diaphragm made of a material of less specific gravity than said metals and capable of being disintegrated and reduced to impalpable powder by the heat of the poured metals, substantially as and for the purpose set forth.

2. The combination, with a mold for metals, of one or more interiorly-arranged diaphragms or partitions of asbestus-board or its equivalent capable of being disintegrated and reduced to impalpable powder by the heat of the poured metals, substantially as and for the purpose set forth.

478,937. SPRING-VEHICLE. THOMAS D. LINES, Syracuse, N. Y., assignor to Charles A. Denison, same place. Filed Mar. 31, 1891. Serial No. 387,140. (No model.)



Claim.—1. The combination, with the axle, of saddles mounted rigidly on the end portions of the axle and terminating with posts formed integral with the saddles, and a bar connected at opposite ends to said posts and shouldered thereon to resist inward strain of said posts, and thereby brace the axle and side springs hung on said bar, as set forth.

2. The improved trussed running-gear consisting of the axle formed with a depressed central portion, saddles mounted rigidly on the end portions of said axle, rigid posts rising from said saddles, and a bar over the axle and in a vertical plane therewith and secured at opposite ends to the aforesaid posts and shouldered thereon to resist inward strain of the posts, as set forth.

3. The combination of the axle formed with a depressed central or main portion, posts rising from said portion and provided with journal-bearings approximately in line with the end portions of the axle, an equalizing and strut bar mounted in said journal-bearings, and side springs hung on said bar, as set forth.

4. The combination of the axle formed with a depressed central portion, saddles mounted rigidly on the end portions of said axle and terminating with posts near the junction of the depressed and end portions of the axle and integral with the saddles, journal-bearings on the posts approximately in line with the end portions of the axle, an equalizing and strut bar over the axle, mounted on the aforesaid journal-bearings, and having fixed shackle-ears at the inner sides of the aforesaid posts, and side springs hung on said equalizing-bar, substantially as described and shown.

5. The combination, with the axle B, reach C, saddle H, formed with the post H', journal-bearing *f*, and removable cap on said post, and the equalizing and strut bar D, mounted in said bearing, of the clip *g*, embracing and firmly tying said axle, reach, saddle, bearing, and cap together, substantially as described and shown.

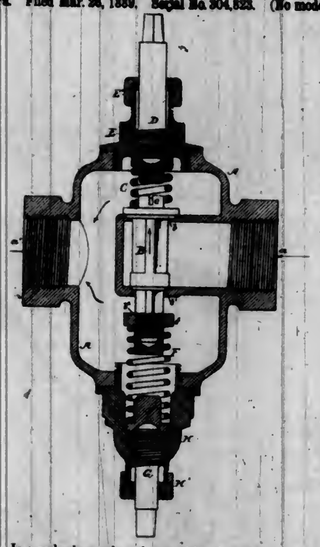
6. The combination, with the front bolster and a side spring provided with an eye, of a ferrule having a socket fitting over the end of the bolster, and an extension formed on said socket and provided in its under side with a recess or cavity, in which the eye of the spring is arranged, and a bolt passing through the eye of the spring and the ferrule, substantially as set forth.

478,938. TAG FOR CLOTH-BOARDS. JOHN V. MOORE, Hiawatha, Kans. Filed Aug. 26, 1891. Serial No. 403,796. (No model.)



Claim.—In a device for marking goods, substantially as described, a plate adapted to be attached to the bolt-board of the goods, said plate having an extended central portion to form guides for the goods, as well as to receive marks designating the price and quantity of goods in the roll, and perforated arms projecting from the central portion, the width and projection of the arms corresponding with the thickness and width of the board, and pins for securing the plate to the board, substantially as set forth.

478,939. REGULATING-VALVE. JOHN S. MCDANIEL, Philadelphia, Pa. Filed Mar. 26, 1889. Serial No. 304,823. (No model.)



Claim.—In a reducing-valve, the combination of the valve-casing, the inlet-chamber, valve-seats thereon, a valve-stem, two flanges or disks thereon, forming valves adapted to said seats, the two adjustable caps *c'* and *f'*, and springs interposed between the valve-stem and the caps *c'* and *f'*, with mechanism for adjusting said springs, substantially as specified.

478,940. ATOMIZER. THOMAS E. OGRAM, Washington, D. C. Filed Sept. 16, 1891. Serial No. 405,572. (No model.)



Claim.—1. In an atomizer comprising a fluid-receptacle, a storage-bulb, and a compressible bulb, and a valve-chamber and valve located intermediately between the expansion-bulb and the compressible bulb, the valve serving, normally, to close the air-passage to the fluid-receptacle, for the purposes specified.

2. In an atomizer comprising a fluid-receptacle, compressible bulb, and storage-bulb, a stopper closing the mouth of the fluid-receptacle, having a recess therein that connects with the storage-bulb and with the interior of the fluid-receptacle, and a valve serving, normally, to close the air-passage to the fluid-receptacle.

3. In an atomizer comprising a fluid-receptacle, compressible bulb, and storage-bulb, and a valve serving, normally, to close the passage to the fluid-receptacle, having a push-rod operated from the outside.

4. In an atomizer comprising a fluid-receptacle, a compressible bulb, and a storage-bulb, the stopper closing the mouth of the fluid-receptacle, having a recess with separate openings that communicate with the compressible bulb and with the storage-bulb and with the interior of the vessel, and a valve arranged in said recess and serving, normally, to close the passage to the fluid-receptacle.
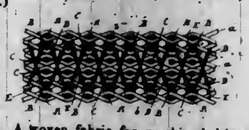
5. In an atomizer comprising a fluid-receptacle, a compressible bulb, and a storage-bulb, the stopper closing the mouth of the fluid-receptacle, having a recess and a valve arranged in said recess, a valve-rod having a spiral spring, and a thumb-button for operating the same.

6. The combination, in an atomizer, of a fluid-receptacle, a stopper closing the mouth of the fluid-receptacle, a compressible bulb arranged at the side of the stopper, a storage-bulb arranged upon the top of the stopper, and a valve located in the stopper and serving, normally, to close the passage to the fluid-receptacle.

7. In an atomizer, the combination, with the receptacle for the fluid, of a stopper closing the mouth of the fluid-receptacle, having a recess communicating with the interior of the vessel, the sleeve fitting therein, the discharge-tube having a shouldered end fitting and turning in said sleeve, and the packing surrounding the tube and located between the shoulder of said tube and the end of the sleeve, for the purposes specified.

8. The combination, in an atomizer, with the valve and valve-rod, said rod projecting exteriorly and by which the valve is operated, of a sleeve inclosing said rod, for the purposes specified.

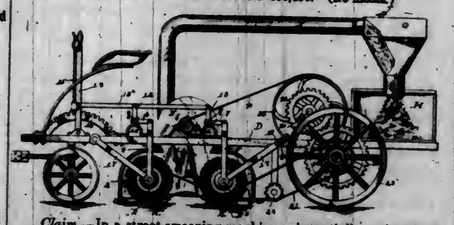
478,941. WOVEN FABRIC FOR MACHINE-BELTING. JOHN OLDFIELD, Medford, Mass. Filed Oct. 18, 1890. Serial No. 368,573. (Specimens.)



Claim.—1. A woven fabric for machine-belting and other like purposes, consisting of a series of plies, the warps of all of which are of fibrous material, and the wefts of two of the inner ones are metallic, and a series of metallic binder-warps passing alternately from the metallic weft of one of the inner plies to the metallic weft of the other inner ply, thereby binding the inner plies together, and the exterior plies being bound to the inner plies by means of fibrous binding-warps passing from one face of the belt to the other, substantially as described.

2. A woven fabric for machine-belting and other like purposes, consisting of facing-plies, interior plies, and intermediate plies, the warps of all of which are of fibrous material and the wefts of the intermediate plies are of metal, and a series of metallic binder-warps passing alternately from the metallic weft of one of the intermediate plies to the metallic weft of the other intermediate ply, thereby binding them together, and the facing-plies being bound to the inner plies by means of fibrous binding-warps passing from one face of the belt to the other, substantially as described.

478,942. SWEEPING-MACHINE. EDWIN O. PEASE, Jersey City, N. J. Filed Sept. 18, 1891. Serial No. 406,139. (No model.)



Claim.—In a street-sweeping machine, substantially as described, the combination, with the platform mounted on supporting and guide wheels, the brush-carrying shafts, and a suitable means for rotating

said shafts, of the bell-crank levers mounted on bearings upon the platform above the brush-carrying shafts, the hanger-rods connected at one end to the brush-carrying shafts and at their opposite ends to one branch of the bell-crank levers, the link-rods 17 18, pivotally connected at their upper ends to the platform and at their lower ends to the brush-carrying shafts, the pitmen connected to the vertically-disposed branches of the bell-crank levers, the transverse bar connecting the forward ends of said pitmen and having a forwardly-extending branch, a hand-lever connected to the forwardly-extending branch of the transverse bar, and a suitable means for adjustably fixing said lever, substantially as and for the purpose set forth.

478,948. TOOL-HOLDER. GEORGE RENFORS, MARTIN O. RENFORS, and JOHN G. RENFORS, Philadelphia, Pa., assignors to Henry D. Justi, same place. Filed Sept. 22, 1890. Serial No. 365,846. (Model.)



Claim.—1. A tool-holder having a casing with a tapering or conical end, a head movable in said casing and having secured thereto a sleeve with tapering ends, a toggle-lever having one end pivoted to the casing and the other to the head, and mechanism, substantially as described, for operating said toggle-lever, said parts being combined substantially as described.

2. A tool-holder having a casing with a tapering end having an opening therein, a head movable in said casing and having a compressible sleeve secured thereto, a toggle-lever pivoted to the casing and head, and a spindle with mechanism attached thereto, substantially as described, for opening and closing said toggle-lever, said parts being combined substantially as described.

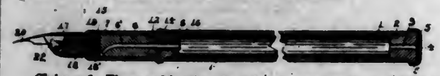
3. A tool-holder having a casing with a tapering end having an opening therein, a head movable in said casing, a compressible sleeve connected with said head, a toggle-lever pivoted to said head and casing, a spindle with a cross-piece adapted to contact with the said lever, so as to open the same, and means, substantially as described, connected with the spindle for closing said lever, said parts being combined substantially as described.

4. A tool-holder having a casing, a compressible sleeve within said casing consisting of sections, a head connected to each of said sections by pins passing through enlarged openings in said sections, and mechanism pivotally connected with said head and casing for closing said sleeve, said parts being combined substantially as described.

5. A tool-holder having a casing, a compressible sleeve within said casing formed of longitudinal sections, a head connected with said sections, a toggle-lever pivoted to said head and casing, a head with a spindle, and a strip or neck secured to said last-mentioned head and having an inclined front portion adapted to contact with one side of a member of the said toggle-lever, said parts being combined substantially as described.

6. A tool-holder having a casing, a spindle therein provided with a sleeve having an enlarged portion with an annular groove therein, a collar on said spindle within said groove, and screws securing the collar to said spindle, said sleeve having openings in its sides for the passage of said screws, said parts being combined substantially as described.

478,944. FOUNTAIN-PEN. ALBA H. ROBINSON, Meeker, Colo. Filed Jan. 27, 1892. Serial No. 419,435. (No model.)



Claim.—1. The combination, in a fountain-penholder, of the ink well or tube 1, the tube 6, having an eccentric bore communicating with the interior of said tube 1, the tube 7, rotatable in a constant plane about tube 6, and a perforated disk fixed to and rotatable with tube 7, whereby the bore of tube 6 and the perforations in the disk can be made to register without moving said disk lengthwise of the pen and without compressing the same, substantially as set forth.

2. In a fountain-penholder, the combination of an ink-well, the tube 7, filled with the brush, the tube 18, fitting said tube 7, the pen adapted to be held on tube 18, and devices for regulating the flow of ink to the brush, substantially as set forth, whereby ink is automatically supplied to the brush whether the pen be in place or be removed.

3. In a fountain-pen, the combination of an ink-well, the tube 7, filled with the brush, the tube 18, fitting said tube 7, the removable pen and ink-guide, and devices for regulating the flow of ink to the brush, substantially as set forth, whereby ink is automatically supplied to the brush whether the pen be in place or be removed.

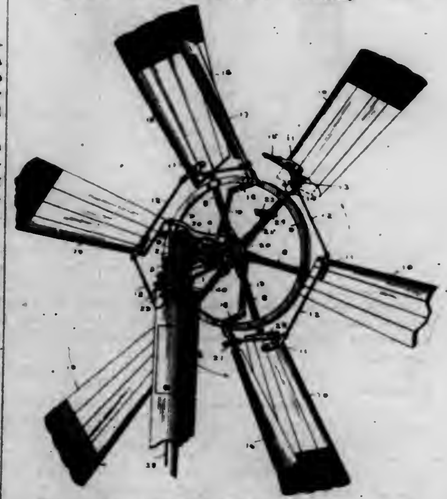
4. In a fountain-penholder, the combination of the ink-well, the tube 7, the removable perforated disk 15, the removable brush, and brush-tube 18, substantially as set forth.

5. In a fountain-penholder, the combination of the ink-well, the detachable tube 7, the removable perforated disk 15, the removable brush, brush-tube 18, and a pen, substantially as set forth.

6. In a fountain-penholder, the combination of the ink-well, the detachable tube 7, the removable perforated disk 15, the removable brush, the brush-tube 18, a pen, and devices 23, consisting of a tubular part and an ink-guiding needle, substantially as set forth.

7. In a fountain-penholder, the combination of the ink-well, the tubes 6 and 7, connected to said well and having a recess between them, the bearings 10, fixed to one of said tubes in the recess, the projections 12, fixed on the other, the elastic packings, plates interposed between said bearings and projections, an eccentric ink-passage in tube 6, and a perforated disk bearing against the foot of said latter tube, substantially as set forth.

478,945. WIND-ENGINE. SETHOUR A. ROUSE, Indianapolis, Ind. Filed Apr. 22, 1891. Serial No. 389,970. (No model.)



Claim.—1. In a windmill, a wind-wheel, its spokes extended beyond the wheel-frame, sails pivoted to such spokes, an equal number of sails on one side the wheel, connected together by links to insure simultaneous action, a spring mounted on one of the spokes of each series and its extended end also connected to and through the several links, whereby its force is normally exerted to hold such series of sails in position to catch the force of the wind, a brake-wheel loosely mounted on the wheel-hub, a governing-vane pivoted to the wheel-frame and also connected to such series of sails and to the brake-wheel, and a spring mounted on one of the wheel-spokes within the wheel-frame, its inner extended end pivoted to the brake-wheel, the tension

of each spring normally acting to control the governing-vane and in opposition to the force of the spring that controls the angle of the sails, all combined substantially as shown and described.

2. In a wind-engine, a main casting suitably supported, a wheel-frame mounted on a shaft revolving in bearings therein, sails pivoted to the spokes outside the wheel-frame and connected in an equal series on each side the wheel, a spring mounted on one of the spokes outside the wheel-frame, controlling each series of sails and holding them in position to catch the force of the wind, a brake-wheel loosely mounted on the hub of the wind-wheel, a governing-vane pivoted to the wheel-frame, connected to one of the sails of each series outside the wheel-frame, its inner end connected by a link to the brake-wheel in combination with a spring mounted on one of the spokes of the wind-wheel, its inner end connected to the brake-wheel, the tension of such latter spring operating to draw the vane away from the sail in front of it and to hold the link connections of the governing mechanism taut, thereby preventing all noise and wear of parts, substantially as shown and described.

3. In a wind-engine, a wind-wheel revolving on a shaft having bearings in a main casting suitably supported, sails pivoted to the spokes of the wheel, an equal number thereof connected to each other, and a spring secured to one of the spokes, whose tension normally holds the sails of its series to the wind, a brake-wheel loosely mounted on the inside of the hub of the wind-wheel, notched to engage with a stop formed upon the spider, in combination with a governing-vane set between each series of sails, pivoted to the wheel-frame and to the brake-wheel, and a spring connected to the brake-wheel and to each vane, whose tension normally operates against the tension of the spring that controls the sails, substantially as shown and described.

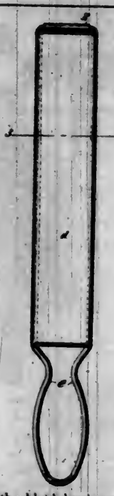
4. In a wind-engine, a revolving wheel suitably mounted on the framework, sails hinged thereto and connected in two equal divisions, springs holding such sails to the wind, a governing-vane between each series of sails, a spring connected to the wheel, whose tension normally operates to draw the vane away from the sail in front of it, in combination with a brake-wheel loosely mounted on the inside of the hub of the main wheel, provided with notches for engaging a stop upon such wheel, and a brake-lever adapted to contact frictionally with the inner periphery of such brake-wheel, the vanes and sails of both series connected together through such brake-wheel, whereby the increase of the force of the wind operates against and is resisted by the combined tension of both sets of springs, substantially as shown and described.

5. In a wind-engine, a wind-wheel revolving on a shaft having bearings in a main casting, sails hinged outside the wheel-frame to the spokes, the sails connected together on opposite sides of the wheel in two separate and equal divisions, a pair of governing-vanes set opposite each other across the diameter of the wheel between the sails and pivoted to the wheel-frame, a brake-wheel loosely mounted inside and upon the hub of the wind-wheel, such governing-vanes pivotally connected to the brake-wheel, the latter notched to engage with a stop formed on the spider, a spring mounted on one of the spokes near the lower end of its sail and pivotally connected to the links that connect each series of sails, by whose tension such sails are held to the wind, and a spring connected to one of the spokes within the wheel-frame and to the brake-wheel, its tension normally operating to take up the slack of the links connecting the vane and sail mechanism, preventing noise and wear of the parts, substantially as shown and described.

6. In a wind-wheel, a main casting suitably supported, a wind-wheel whose shaft is revolved on bearings in such main casting, projections formed on the shaft of the main casting, cored out to form oil-cups, a brake-wheel mounted on the hub of the wind-wheel, and a brake-lever pivoted to the main casting, forming a cover for the oil-receptacles and operated by a suitable rod or cord below, whereby the inner end of the brake-lever is brought into frictional contact with the inner periphery of the brake-wheel, substantially as shown and described.

7. In a wind-engine, a wind-wheel mounted on a shaft revolving in bearings in the main casting, such main casting suitably supported upon the mast-post, in combination with a pair of friction-wheels carried in bearings on the mast and contacting with the outer periphery of the post-cap, such wheels located on either side of a line drawn through the center of the shaft of the wind-wheel and bearing radially against the post-cap on either side of such line, whereby lateral displacement is prevented and the weight of the main wheel thrown upon such friction-wheels, substantially as shown and described.

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2. The combination, with a block having edge grooves, of cushions *b* on said block, cover *d*, wrapped about said block and cushions and having its edges overlapped within one of the grooves, and wire holder *c* in said grooves, securing the overlapping edges of the cover and forming a handle for the strop at one end, substantially as described.

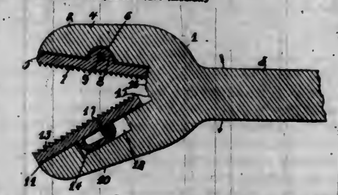
478,947. BOX. AZEL AMES, Jr., Chelsea, assignor to S. K. Hamilton, Wakefield, Mass. Filed Apr. 13, 1892. Serial No. 429,018. (No model.)



Claim.—1. The combination, with a box formed of two parts, one of which has a weakened or frangible integral portion, of an adhesive band or label secured to the box outside said weakened portion.

2. The combination, with a box composed of the parts A and B, the latter having a lip *b*, provided with annular groove *b'*, and entering the part A, of an adhesive band or label C, secured to both of said parts A and B, substantially as described.

478,948. PIPE-WRENCH. ALBERT BARRIS, St. Louis, Mo., assignor, by direct and mesne assignments, of five-sixths to John Johnson, Alphinie Martini, and Anna Martini, same place. Filed Apr. 6, 1892. Serial No. 428,007. (No model.)

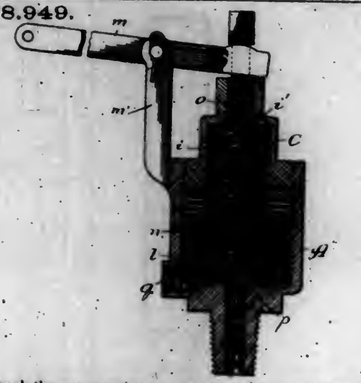


Claim.—A pipe-wrench consisting of a handle 3, a jaw 2, composed of extensions 4 and 10, a semicircular depression 6, formed in the said extension 4, a ratchet-tooth plate 7, provided with a rounded projection 8, adapted to be received by the said depression, a rivet or bolt 9, passed through said extension 4 and projection 8, a movable ratchet-tooth plate 13, provided with a staple-shaped extension 14, an elongated depression 12, formed in the said extension 10, and a rivet or bolt 17, passed through the said extension and the staple-shaped extension 14 for limiting the movement of the said jaw 13 in one direction, substantially as described.

478,949. SAFETY-VALVE. SAMUEL M. BERRY, Chicago, Ill., assignor to the Berry Valve Company, same place. Filed Apr. 5, 1892. Serial No. 427,880. (No model.)

Claim.—1. In a valve device, the combination, with the valve-chamber having an inlet and an outlet, of a cap for the open end of the chamber, a valve seated over the inlet and having its stem extend-

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ing through the cap, a spring on the stem, and a shield formed in telescoping sections surrounding the spring and stem in the chamber and confined between the valve and cap, the section which extends from the cap encircling and closely fitting toward its inner end the exterior of the adjacent end of the companion section, and the spring operating to distend the shield and seat the valve, substantially as described.

2. In a valve device, the combination, with the valve-chamber having an inlet and an outlet, of a cap for the open end of the chamber having a valve-seat in its under side, a valve seated over the inlet and having its stem extending through the cap and valve-seat thereon, a spring on the stem, and a shield formed in telescoping sections surrounding the spring and stem in the chamber, one section extending from the said valve and the other having a head surrounding the stem to engage the said seat in the cap, the spring operating to distend the shield and seat the valve and head at its opposite ends, substantially as described.

3. In a valve device, the combination, with the valve-chamber having an inlet and an outlet, of an adjustable cap for the open end of the chamber, a valve seated over the inlet and having its stem extending through the cap, a spring on the stem, and a shield formed in telescoping sections surrounding the spring and stem in the chamber and confined between the valve and cap, the upper section being beveled to form a knife-edge at its lower end, and the spring tending to distend the shield and seat the valve, substantially as described.

4. In a valve device, the combination, with the valve-chamber having an inlet and an outlet, of an adjustable hollow cap C for the open end of the chamber, having a seat in its outer side, a valve *p*, seated over the inlet and having its stem extending through the cap and seat therein, a spring *n*, surrounding the stem in the chamber, and a shield B, formed in telescoping sections *l* and *i*, surrounding the spring and stem in the chamber, the section *l* extending from the valve *p*, and the section *i* being confined in the hollow cap and having a head *i'* surrounding the stem to engage the seat in the cap, the spring operating to distend the telescoping sections of the shield and seat the valve and head at its opposite ends, substantially as described.

5. A valve device comprising, in combination, a valve-chamber A, having an inlet *r* and an outlet *q*, an adjustable hollow cap C for the open end of the chamber, having a seat in its under side, a valve *p*, seated over the inlet and having its stem *o* extending through the cap and seat therein, a spring *n*, surrounding the stem in the chamber, a shield B, formed in telescoping sections *l* and *i*, surrounding the spring and stem in the chamber, the section *l* extending from the valve *p*, and the section *i* being confined in the hollow cap and having a bevel *x* on its lower edge and at its upper end a head *i'* surrounding the stem to engage the seat in the cap, the spring operating to distend the telescoping sections of the shield and seat the valve and head at its opposite ends, and a lever *m*, fulcrumed on the chamber A and engaging at one end the projecting end of the stem, the whole being constructed and arranged to operate substantially as described.

478,950. ALARM-CLOCK. CHARLES D. BROWN, Ames, Iowa, assignor of two-thirds to H. L. Munn and J. L. Stevens, same place. Filed Oct. 24, 1891. Serial No. 409,732. (Model.)

Claim.—1. An alarm attachment for clocks, comprising an alarm-dial carrying a cam constructed with two tracks, one of which is cam-shaped for the purpose of releasing the drop-lever and the other approximately circular in form and provided with a passway whereby to permit the said lever to pass from the cam portion to the circular track.

2. An alarm attachment for clocks, comprising an alarm-dial carrying a cam constructed with two tracks, one of which is cam-shaped and the other circular in form and provided with a passway to permit the drop-lever to pass from the cam portion to the circular portion, the latter portion being arranged in a plane approximately diagonal to that occupied by the cam portion.

3. An alarm mechanism for clocks, consisting of an alarm-dial carrying a wire bent to form two tracks, one of which is circular and the other cam-shaped and separated at their ends by a passway.

4. An alarm mechanism for clocks, consisting of an alarm-dial carrying a wire bent to form two tracks, one of which is circular and the other cam-shaped and separated at their ends by a passway, in combination with a drop-lever having a lateral arm provided with a toe designed to engage the said tracks.

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478,951. PLASTER. CHARLES CASTNER, St. Louis, Mo., assignor to the Cincinnati Mortar Manufacturing and Builders' Supply Company, Cincinnati, Ohio. Filed Oct. 12, 1891. Serial No. 408,505. (No specimens.)

Claim.—1. A composition consisting of water, lime, gypsum, and coke, substantially as described.

2. A composition consisting of water, lime, gypsum, and coke, and a mixture of lime, alum, and sugar, in the proportions specified.

3. A composition consisting of water, lime, gypsum, and coke, and a filling material, as and in the proportions specified.

4. A composition consisting of water, lime, gypsum, and coke, a mixture of sugar, alum, and lime, and a filling material, as and in the proportions specified.

5. A composition consisting of water, lime, gypsum, coke, and brick-dust, in the proportions specified.

478,952. HAT. SAMUEL COHEN, New York, N. Y. Filed Apr. 23, 1892. Serial No. 430,347. (No model.)



Claim.—A hat provided with a brim made in sections adapted to fold one upon the other and comprising a covering material, a lining, stiffening-plates filling the spaces between the said covering and lining, and joints formed by the covering material and lining at the ends of adjacent plates, substantially as shown and described.

478,953. GAS OR LAMP LIGHTER. ROBERT J. G. CORNER, Chicago, Ill., assignor of one-half to Carroll Bouse Vastine, same place. Filed Jan. 28, 1892. Serial No. 419,511. (No model.)



Claim.—1. The combination of the casing having an orifice for the discharge of the flame or flash and a discharge-aperture for the tape, a scratcher adjacent to said flame-orifice, and means for drawing the tape past said scratcher and ejecting it through said tape-aperture, said means being adapted to grip the tape between the scratcher and the said tape-discharge opening after it passes the scratcher, substantially as set forth.

2. The combination of the casing having an orifice for the discharge of the flame or flash and a discharge-aperture for the tape, a scratcher adjacent to said flame-orifice, a rotary drum and pressure-wheel, between which the tape passes, and which drum and pressure-wheel are arranged to grip the tape after it passes said scratcher, and means for actuating said drum, substantially as set forth.

3. The combination of the casing having an orifice for the discharge of the flame or flash and a discharge-aperture for the tape, a scratcher adjacent to said flame-orifice, a drum over which the tape passes to said tape-discharge aperture, a lever having a pawl, a ratchet-wheel with which said pawl engages, connected to said drum, the shaft E, upon which said drum, lever, and ratchet-wheel are journaled, a pressure-wheel arranged to bear upon said drum, and means for actuating said lever, substantially as set forth.

4. The combination of the casing having a flame-orifice and a tape-discharge aperture, a scratcher arranged adjacent to said flame orifice, means for feeding the tape past said scratcher and toward said tape-discharge orifice, arranged between the scratcher and said discharge-orifice, and guides for directing the waste tape from said feeding mechanism into said discharge-aperture, substantially as set forth.

5. The combination, with the casing having a flame-orifice, of the drum journaled in said casing, means for actuating said drum, a rubber or elastic roller journaled in said casing, with its periphery bearing upon said drum, and a scratcher impinging the periphery of said drum adjacent to said flame-orifice, substantially as set forth.

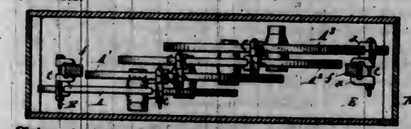
6. The combination, with the casing having a flame-orifice, of the drum journaled in said casing, means for actuating said drum, a rubber or elastic roller journaled in said casing with its periphery bearing upon said drum, and a scratcher impinging the periphery of said drum adjacent to said flame-orifice and being arranged and adapted to impinge the tape before the tape reaches the said roller, substantially as set forth.

7. The combination, with the casing having the flame-orifice, of the drum journaled in said casing, a ratchet-wheel for actuating said drum, a bell crank having a pawl engaging said ratchet-wheel, a spring bearing upon one arm of said bell-crank, the hollow handle communicating with said casing and having a pull or trigger, a wire or cord connecting said trigger with one arm of said bell-crank, a pressure-roller bearing upon the periphery of said drum, and a scratcher impinging the periphery of said drum adjacent to said flame-orifice, substantially as set forth.

8. The combination, with the casing having a flame-orifice in one side and a tape-discharge aperture in its other side, of a drum journaled between said orifice and aperture in the upper part of said casing, a tape-reel journaled in said casing directly below said drum, a pressure-roller journaled in the casing and arranged to bear upon the drum at a point between the said flame-orifice and tape-discharge orifice, a scratcher arranged to impinge the drum adjacent to said flame-orifice, a handle secured to said casing under said tape-reel, and means for actuating the drum, substantially as set forth.

9. The combination of an upright casing having a flame-orifice in its side edge, a drum journaled in the upper portion of said casing, a tape-reel journaled in said casing immediately below said drum, a hollow handle secured to the lower side of said casing immediately below said tape-reel, a scratcher arranged to impinge the periphery of the drum adjacent to said flame-orifice, a pressure-wheel journaled in the casing and arranged to impinge the periphery of the drum on its upper side, and a wire for actuating said drum, passing downward through said handle, substantially as set forth.

478,954. DEVICE FOR PACKING VEHICLE-WHEELS. FRANCIS G. DAVIS, Watertown, N. Y. Filed Jan. 11, 1892. Serial No. 417,626. (No model.)



Claim.—1. A clamping device for packing wheels, consisting of a series of connected movable jaws bearing against opposite sides of each wheel and capable of movement toward and from each other, thereby firmly grasping each wheel and also forming space-blocks between the wheels, whereby the wheels are held out of contact with each other, substantially as set forth.

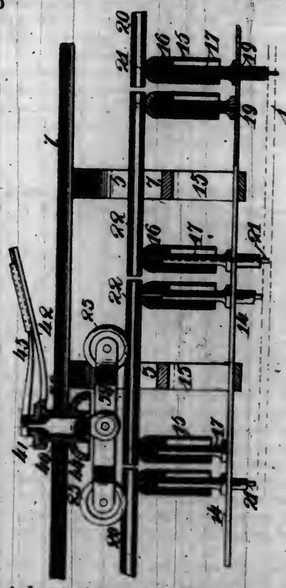
2. A device for packing wheels, comprising several clamps, each of which consists of two jaws capable of movement toward and from each other and bearing against opposite sides of the same wheel, and a tightening device whereby the clamps are attached together and tightened upon the wheels, substantially as set forth.

3. The combination, with two clamps, each of which consists of two jaws adapted to embrace the rim of a wheel, and a tie-bolt passing through the jaws of both clamps and operating to tighten each pair of jaws upon the wheel-rim which is grasped by them and also attaching the two clamps together, substantially as set forth.

478,955. COMPOUND OF SULPHURETED OILS. WALTER D. FIELD, Millburn, N. J. Filed Dec. 16, 1891. Serial No. 415,290. (No specimens.)

Claim.—A composition of matter consisting of glycyl or glyceryl others, combined with sulphuric acid to form sulpho fatty acid compounds and pyroxyline or nitro-cellulose, substantially as described.

478,956. CONDUIT SYSTEM FOR ELECTRIC RAILWAYS. WILLIAM H. FORD, St. Louis, Mo., assignor of one-half to William A. Stickney, same place. Filed July 6, 1891. Serial No. 398,516. (No model.)



Claim.—1. In a conduit electric railway, the combination of a main insulated conductor located in or adjacent to a conduit, sections and sub-sections of bare conductor also located in a conduit a current-collector, such as a wheeled trolley, adapted to travel on the sections of bare conductor, a hydraulic cut-out having a float arranged to rise and fall when a body of water collects in said conduit, a switch arranged to be actuated by said float and to cut out said sub-sections when said float rises, a water and moisture proof switch-box, and electro-mechanical devices located in said switch-box in the line between said switch and said sub-sections and adapted to throw in and cut out said sections and sub-sections of bare conductor upon passage of the current-collector thereover, substantially as specified.

2. In a conduit electric railway, a pneumatic chamber consisting of a shell having an upper portion impermeable to water or air and a lower end open to the atmosphere, a body of insulating material located in the upper portion of said chamber at a distance from the open end thereof, and a vertical supporting-pin upon which the body of insulating material is mounted, in combination with a main insulated conductor and a bare conductor, between which said pneumatic chamber is located, and a conducting-wire passing from the main conductor up through the pneumatic chamber to the bare conductor, substantially as specified.

3. In a conduit electric railway, a main conductor, a series of pneumatic chambers containing bodies of insulating material within their upper ends, sections and sub-sections of bare conductor in circuit with said main conductor at times, said sub-sections and sections being mounted upon the exterior of said pneumatic chambers, and a series of pins or tubes upon the upper ends of which the several bodies of insulating material within said pneumatic chambers are mounted, and a conducting-wire passing from the main conductor up through the pneumatic chamber to the bare conductor, substantially as specified.

4. In a conduit electric railway, a pneumatic chamber comprising

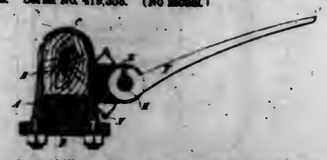
a suitable shell closed at the top and open at the bottom, a body of insulating material in the upper portion of said chamber, a suitable base, as 14, a vertical pin, a tube supported on said base and carrying upon its upper end the body of insulating material, a main conductor below said chamber, and a sectional conductor supported on the top thereof, and a conducting-wire, as 21, passing from the main conductor up through said tube and pneumatic chamber and connecting with the bare conductor, substantially as described.

5. In an electric-railway system comprising a main insulated conductor and sectional bare conductors, a conduit composed of upper and lower chambers for the respective conductors, the lower chamber having cross-walls 90, with drain-pipes leading therefrom, and pneumatic chambers supported in the lower chamber and passing up into the upper chamber and supporting the bare conductors upon their upper ends, substantially as described.

6. In an electric railway, a main insulated conductor, a bare conductor supported above the same and in electrical connection therewith, a lower conduit for the main conductor, an upper conduit for the bare conductor, and pneumatic insulating-chambers interposed between the main and bare conductors supported in the lower conduit, but extending into the upper conduit and supporting from its upper end the bare conductor, substantially as described.

7. In an electric-railway system, a main insulated conductor, a sectional bare conductor composed of one long and two short sections alternately, suitable connections between the main and sectional conductors, and switches between the same under the control of the moving vehicle, substantially as described.

478,957. THILL-COUPLING. AMADEUS A. FROEHLICH, Brooklyn, assignor of one-half to William Hodgson, New York, N. Y. Filed Jan 26, 1892. Serial No. 419,358. (No model.)



Claim.—1. A thill-coupling spring consisting of strips of leaf or plate metal arranged edge to edge and joined together at their ends, the strips being bent flatwise apart and one of them being shaped to adapt it to engage one of the parts of a thill-coupling when inserted in the same, substantially as described.

2. A thill-coupling spring consisting of a metal plate or leaf cut into strips which are integral with one another at their adjacent ends and bent apart, one or more of the strips being shaped to engage a part of a thill-coupling when inserted in the same, substantially as described.

3. A thill-coupling spring composed of a plate of metal I, cut into strips K L M, which strips are integral with the plate at their ends and one of which is bent away from the others and formed to engage a thill-iron head, substantially as described.

478,958. SUSPENDERS. JAMES P. GALVIN, Bridgeport, Conn. Filed Dec. 9, 1890. Serial No. 374,053. (No model.)

Claim.—1. The combination, with the shoulder-straps having lacing-eyelets in their extremities, of a base-piece provided with eyelets along its edges, and a lacing-cord whereby the straps are held in abutment with the edges of the base-piece, substantially as described.

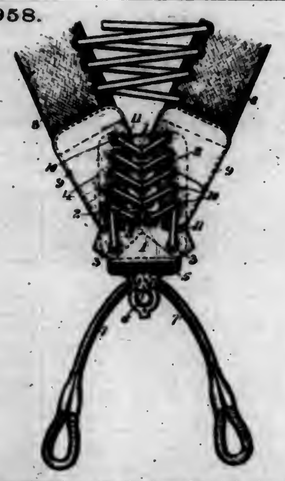
2. The combination, in a suspender, with a perforated base-piece common to all the straps and provided with lacing-eyelets, of the shoulder-straps whose ends are provided with eyelets and are adapted to said base-piece, and an elastic lacing connection passing through the eyelets on the base-piece, and the eyelets carried by the straps, substantially as described.

3. In a suspender, the combination, with a base-piece common to all the straps, of the shoulder-straps whose ends are eyeleted and fit closely against the edges of the base-piece, an elastic lacing-cord whereby said straps are connected to the base-piece, and a guard or shield arranged behind the base-piece, whereby the clothing of the wearer is protected from abrasion.

4. In a suspender, the combination, with a base-piece common to the shoulder-straps and the straps independently secured to said base-piece by elastic lacing-cords, of a supplemental lacing-cord extended across between the straps above the base-piece, substantially as described.

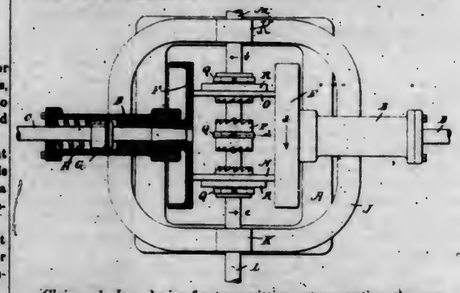
5. The combination, with the base-piece 1, having eyelets 2, of the straps 8, provided with eyelets 10, and having their ends conformed to the outline of the base-piece and the lacing-cord 11, all arranged substantially as described.

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6. The combination, with the base-piece 1, having eyelets 2, of the straps 8, provided with eyelets 10, the lacing-cord 11, and the guard or shield 4, arranged behind the base-piece, substantially as and for the purpose set forth.

478,959. DEVICE FOR TRANSMITTING ROTARY MOTION. FREDERICK W. GORDON, Philadelphia, Pa., assignor to the Philadelphia Engineering Works, Limited, same place. Filed Aug. 13, 1891. Serial No. 402,510. (No model.)



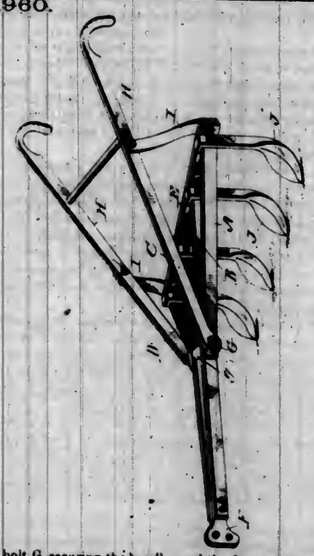
Claim.—1. In a device for transmitting rotary motion, the combination, substantially as set forth, of a shaft, two brush-wheels of equal diameter thereon and provided with means for transmitting rotary motion to or from them, two flat-faced disks arranged in a common axial line and engaging opposite sides of both said brush-wheels and adapted for motion lengthwise of their axes, thrust-bearings with yielding pressure, means adapted to press the disks to the brush-wheels, and mechanism for adjusting independently the points of engagement between the two brush-wheels and disks.

2. In a device for transmitting rotary motion, the combination, substantially as set forth, of a frame, two flat-faced disks journaled therein in a common axial line, thrust-bearings and pressure means for urging the disks toward each other, a second frame adapted for independent self-adjusting motion with reference to the first frame, a shaft journaled in said second frame at right angles to the axial line of said disks, two brush-wheels on said shaft, and means for transmitting rotary motion to and from said brush-wheels.

478,960. HARROW. ROBERT B. GRAVES and DANIEL F. MERRITT, Millville Depot, Miss. Filed Sept. 17, 1891. Serial No. 406,003. (No model.)

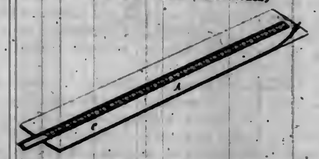
Claim.—The hereinbefore shown and described harrow, composed of the frame-bars A, B, C, and D, diverging from front to rear, the bars B and C being extended forward to form a beam and having the clevis secured between their front ends, the rear ends of the said bars being bent, the oblique bar E, bolted to the bent ends of the said bars, the teeth having their upper ends bent to overlap the edge of the frame-bars to which they are bolted, the rear edges of the said teeth touching the bolts which secure the frame-bars and the bar E together, the

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handles, the bolt G, securing the handles and the frame-bars together, substantially in the manner shown, and the braces I, between the handles and the frame and secured to the bar E by the same bolts which secure the frame-bars A and D thereto, substantially as set forth.

478,961. GARMENT-STAY. DAVID GROTTA, New Haven, Conn. Filed Jan. 11, 1892. Serial No. 417,624. (No model.)



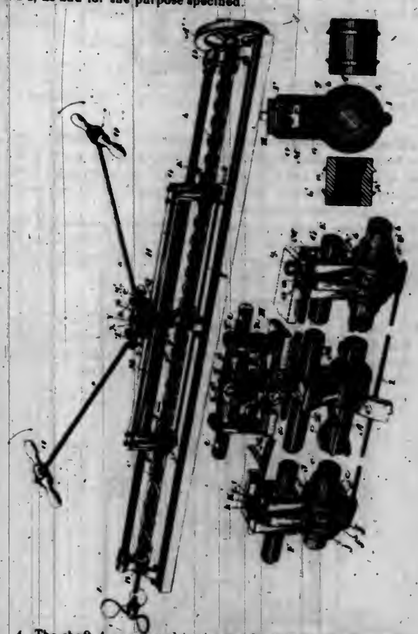
Claim.—As an improved article of manufacture, a garment-stay consisting of a fabric strip having a strip of resilient material secured upon one or more of its faces in direct contact with the surface of said fabric strip by means of a series of thread or cord loops bearing directly upon the resilient strip to permit of a slight backward and forward movement of the parts upon one another when the stay is bent, substantially as and for the purposes hereinbefore set forth.

478,962. PROPELLING-POWER. JAMES B. HALL, Toronto, Canada, assignor of one-fourth to Maurice Major Vardon, same place. Filed Apr. 8, 1892. Serial No. 428,345. (No model.)

Claim.—1. As a propelling-power, the shaft supported in suitable standards and having a propelling-wheel secured on its end, a right-hand spiral formed on the shaft from the center to one end, and a left-hand spiral formed on the shaft from the center to the opposite end, in combination with a sleeve correspondingly internally threaded and designed to act on the right-hand spiral, and a sleeve correspondingly internally threaded and designed to act on the left-hand spiral, and means for holding one sleeve solid, so as to rotate the shaft by means of one spiral, and further means in holding the other sleeve loose so that it may rotate with the shaft while the other sleeve is being pulled along the shaft in order to rotate it, substantially as and for the purpose specified.

2. The shaft A, supported in the standards B, C, and D and having the right-hand spiral *b* formed from the center to the one end of the shaft and a left-hand spiral formed from the center to the other end of the shaft, and a propelling-wheel Z, secured on one end of the shaft, in combination with the sleeve N, located on the right-hand spiral portion of the shaft correspondingly internally threaded to the right-hand spiral supported in the retaining block G and designed to be held solid with the same by the friction-clutch *g*, and the sleeve J, located on the left-hand spiral portion of the shaft correspondingly internally threaded to the left-hand spiral supported in the retaining-block F and designed to be held solid with the same by the friction-clutch *f*, and means whereby each sleeve may be held alternately in its retaining-block, so as to rotate the shaft or to revolve loosely with it, as and for the purpose specified.

3. The shaft A, supported in the standards B, C, and D and having the right-hand spiral *b* formed from the center to the one end of the shaft and a left-hand spiral formed from the center to the other end of the shaft, and a propelling-wheel Z, secured on one end of the shaft, in combination with the sleeve N, held in the retaining-block G upon the right-hand spiral portion of the shaft, and the sleeve J, held in the retaining-block F upon the left-hand spiral portion of the shaft, the said retaining-blocks being connected together by the bar H and rod I, as and for the purpose specified.



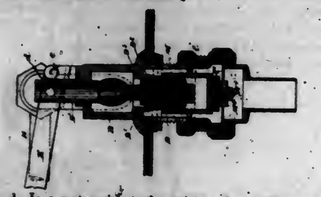
4. The shaft A, supported in the standards B, C, and D and having the right-hand spiral *b* formed from the center to the one end of the shaft and a left-hand spiral formed from the center to the other end of the shaft, and a propelling-wheel Z, secured on one end of the shaft, in combination with the retaining-blocks F and G, connected together by the bar H and rod I, the sleeves N and J, having bearings in the retaining-blocks F and G, respectively, and the friction-clutches *f* and *g*, hinged on the rod I at the lower portion of the retaining-blocks F and G, connected at the top portion by the bell-cranks O and K, respectively, to the rod M, which is operated as and for the purpose specified.

5. The shaft A, supported in the standards B, C, and D and having the right-hand spiral *b* formed from the center to the one end of the shaft and a left-hand spiral formed from the center to the other end of the shaft, and a propelling-wheel Z, secured on one end of the shaft, in combination with the retaining-blocks F and G, connected together by the bar H and rod I, the sleeves N and J, having bearings in the retaining-blocks F and G, respectively, and the friction-clutches *f* and *g*, hinged on the rod I at the lower portion of the retaining-blocks F and G, connected at the top portion by the bell-cranks O and K, respectively, to the rod M, upon which is secured the standard Q, having jaws *g*, between which is inserted the block V, secured to the sleeve S on the spindle T, which is supported in the bracket A and is slightly adjustable by the handles U, connected to the outer ends by the rod S, as and for the purpose specified.

6. The shaft A, supported in the standards B, C, and D and having the right-hand spiral *b* formed from the center to the one end of the shaft and a left-hand spiral formed from the center to the other end of the shaft, and a propelling-wheel Z, secured on one end of the shaft, in combination with the retaining-blocks F and G, connected together by the bar H and rod I, the sleeves N and J, having bearings in the retaining-blocks F and G, respectively, and the friction-clutches *f* and *g*, hinged on the rod I at the lower portion of the retaining-blocks F and G and connected at the top portion by the bell-cranks O and K, respectively, to the rod M, upon which is secured the standard Q, the lever X, pivoted at *x*, connected to the standard Q at *y*, and the block

V, designed to be brought to fit within the narrow upper portion y of the slot Y by turning the handles U to the perpendicular, as and for the purpose specified.

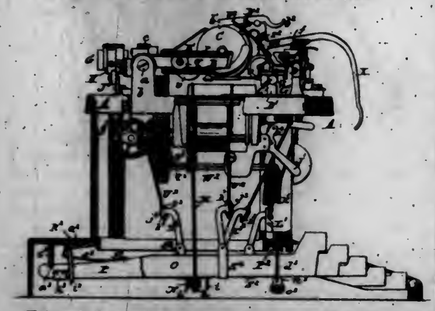
478,968. VALVE FOR WATER-CLOSETS. JULIUS HANKENSON, New York, N. Y., assignor to Frank Cook, same place. Filed May 11, 1891. Serial No. 392,276. (No model.)



Claim.—1. In a water-closet, the combination, with a valve having its body B extended in the direction from which the water is received, of a casing M and a loose connection of the latter to the fixed portions of the mechanism, adapted to allow slight lateral movement of the casing, as herein specified.

2. In a water-closet, the extension C, cross-bar C', and loosely but strongly connected casing M, in combination with the valve-casing B, valve D, lever E, and operating-float E', adapted to be readily applied together and separated, as herein specified.

478,964. TYPE-WRITING MACHINE. WILLIAM MCK. JENNE, Ilion, N. Y. Original application filed Jan. 30, 1888, Serial No. 261,408. Divided and this application filed May 26, 1892. Serial No. 434,776. (No model.) Patented in England May 16, 1888, No. 7,269.



Claim.—1. In combination with a carriage provided with a rigid and a yielding dog, a rock-shaft, a rack-bar carried by said shaft, a collar loosely encircling the rock-shaft, a screw swiveled in the collar and meshing with worm-teeth in the rock-shaft, and a spring having one end bearing against a fixed part of the machine and the other end attached to the collar, substantially as shown.

2. In combination with the key-levers of a type-writing machine, a series of springs, one for each lever, said springs being connected at their forward end with the key-levers and serving to hold them up against a fixed stop and having their rear ends bent upward and forward, and a clamping-bar bearing upon the rear ends of the springs and serving to hold them firmly against the frame of the machine.

3. In a type-writing machine, the combination, with key-levers, of elevating-springs located above said levers and clamped at one end between the base of the main frame and an adjustable clamping-bar, substantially as described.

4. In combination with a frame A, having recess R^2, key-levers O, elevating-springs c^2, clamping-plate Q^2, and screws or bolts g^2 for drawing said plate with greater or less force against the rear ends of the springs.

5. In a type-writing machine, the combination, with a series of key-levers having headed pins in their upper sides or edges and with a fulcrum bar or rib above said levers, of a series of springs having forked ends straddling said pins beneath their heads and serving to hold the levers up to the fulcrum bar or rib.

6. In combination with key-bars O and springs c^2, plate Q^2, provided with rods j^2 and arranged to bear upon the rear ends of the springs, and fastening bolts or screws serving to draw the plate Q^2 against the springs with greater or less force, whereby the plate is held in position and the tension of the springs is determined.

7. In combination with a type-bar and its actuating-lever, an intermediate connecting-rod consisting of two pieces of wire, one drilled longitudinally and the other inserted and secured in the cavity thus drilled.

8. The connecting-rod U^3, provided with hooks m^3, formed of a separate piece of metal and inserted into a hole drilled in rod U^3.

9. The connecting-rod consisting of a body U^3, longitudinally drilled at one end, and hook m^3, having its shank inserted in the socket thus formed, the metal of the outer body being crimped or compressed upon the shank of the hook and embedded into the same, whereby the two are firmly united.

10. In combination with a type-bar and a key-lever of a type-writing machine, an intermediate connection consisting of a draw-piece I^2, provided with tubular boss, and rod U^3, threaded at one end, passing through said boss and provided above and below the same with nuts k^3, substantially as and for the purpose specified.

11. In combination with a key-lever and a type-bar, an outwardly-curved draw-piece connected with the key-lever and a rod extending through the tubular boss of said draw-piece and secured thereto, substantially as set forth.

12. In a type-writing machine, the combination of a roll provided with a ratchet-wheel, a supporting-frame therefor, a hand-lever pivoted in said frame and having a forwardly-extending nose or end to bear upon the periphery of the wheel to limit the motion of the lever, and a pivoted dog carried by said lever and adapted to engage with the teeth of the ratchet-wheel to rotate the same.

13. In combination with the frame B' and roll C, mounted therein and provided with a ratchet-wheel, pulleys v in front and rear of said roll, studs x, attached at one end to frame B' and serving to carry the front pulleys v, and a hand-lever X, mounted upon one of said studs and provided with a dog or pawl to act upon the teeth of the ratchet-wheel.

14. In a type-writing machine, the combination, with the platen-roll and its actuating-lever, of an elastic plate Z, provided with shoulders, as c', d', and e', and with notches or cavities, as l', m', and n', corresponding therewith, and a fixed stud or pin secured to the platen-frame in the path of the cavities and adapted to enter one or another thereof as the plate is moved to different positions.

15. In combination with a platen-roll and its carrying-frame, an envelope or card holder provided with a clamp having a series of notches or grooves whereby it may be set and secured at different angles upon the frame.

16. In combination with a platen-roll and its frame, a card or envelope holder secured to said frame and an adjusting-screw bearing upon the spring-arm of said holder and serving to force the same toward the platen.

17. In combination with roll C and its frame, the herein-described card or envelope holder, consisting of a rigid supporting-arm provided with a groove in one face, a clip pivoted thereto and provided with a series of grooves, a set-screw for forcing the clip and supporting-arm against opposite edges of the platen-roller frame, an elastic arm secured to the supporting-arm and provided at its free end with a roller, and a set-screw passing through the supporting-arm and bearing against the elastic arm to vary the position or pressure of the roller.

18. In a type-writing machine, a paper guide and holder having grooved arms to fit upon the framing and provided with a screw for drawing said arms against the framing.

19. In combination with lever P, provided with a laterally-projecting clip or support h^3, a key-lever, as H' or I', resting upon the clip and supported thereby.

478,965. STOVEPIPE-FASTENING. JOHN H. JOHNSTON, Little Rock, Ark., assignor of one-half to George Purves, same place. Filed Feb. 2, 1892. Serial No. 420,064. (No model.)

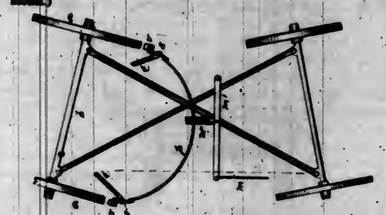


Claim.—1. The combination, with two adjacent pipe-sections, of metal loops riveted to the said pipe-sections inside of the same near their ends, and a separate connecting strap or tie bent around the loops and connecting the opposite pipe-sections, substantially as shown and described.

2. The combination, with two adjacent pipe-sections, of metal loops B, formed of a strip of sheet metal bent in triangular shape, with their ends brought together and riveted to the pipe-sections and their middle parts b^3 offsetting, as described, and a connecting strap or tie

bent around the loops, as described, and connecting the pipe-sections, substantially as shown and described.

478,966. VEHICLE-BRAKE MECHANISM. ROYAL L. MUNGER and THOMAS R. CAPWELL, Dunkirk, N. Y., assignors to the Dunkirk Wagon Company, same place. Filed Oct. 12, 1891. Serial No. 408,405. (No model.)



Claim.—1. The combination, with the wheels of a swinging truck, of brake-shoes connected to a brake-beam, a brake-beam supported by and swinging concentric with the truck, a guide through which said beam passes, and a lever system for operating said beam and shoes.

2. The combination, with the wheels of a swinging truck, of brake-shoes connected to the brake-beam, a brake-beam supported by and swinging concentric with the truck, a guide provided with anti-friction rollers, between which said beam passes, and a lever system for operating said beam and shoes.

478,967. COVER-HOLDER FOR TEA-KETTLES, &c. JOSEPH MUSGROVE, Milwaukee, Wis., assignor to the Gender & Passchke Manufacturing Company, same place. Filed Apr. 11, 1892. Serial No. 428,720. (No model.)



Claim.—1. The combination, with a kettle, pail, or other utensil provided with a removable cover, of a yielding holder attached to the top of the kettle inside and projecting slightly into the cover-opening, substantially as and for the purposes set forth.

2. The combination, with a kettle, pail, or other utensil having a contracted opening in the top and a removable cover for closing said opening provided with a rim adapted to be inserted therein, of a yielding holder secured to the inside of the top at a distance from the cover-opening and projecting slightly into said opening, so as to bear with a yielding pressure against the rim of the cover when it is inserted in said opening and thereby hold the cover in place, substantially as and for the purposes set forth.

3. The combination, with a kettle, pail, or other utensil having a contracted opening in the top and a removable cover for said opening, provided with a rim adapted to be inserted therein, a semi-elastic holder attached to the inside of the kettle or the like a short distance from said opening and projecting slightly into the same, so as to bear against the rim of the cover and hold the same in place, said holder being capable of being bent so as to project more or less into said opening, substantially as and for the purposes set forth.

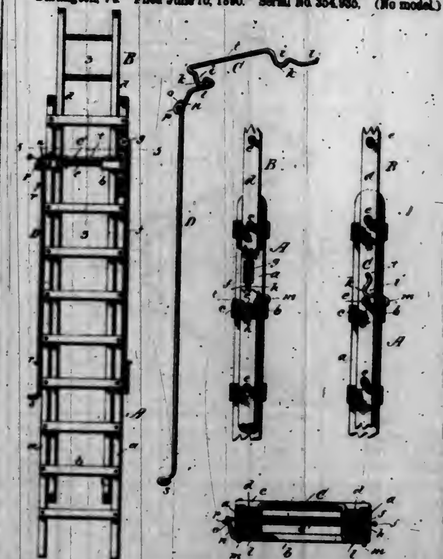
478,968. ELECTRIC MOTOR. HARLOW F. OSE, Newberg, Oreg. Filed Apr. 4, 1891. Serial No. 387,583. (No model.)



Claim.—1. In an electric motor, a series of armature-sections connected in parallel, a communicator connected electrically with the armature-sections formed of two rings, each divided at diametrically-opposite points, with the divisions of one-half arranged ninety degrees distant from those of the other part, and a pair of commutator-brushes held in contact with both of the commutator-rings, substantially as specified.

2. In an electric motor, the combination of an armature formed of a number of sections and provided with a commutator, a field-magnet formed of a number of sections corresponding with those of the armature, and a multiple switch for sending the current through one or more of the field-magnet sections in either direction, substantially as specified.

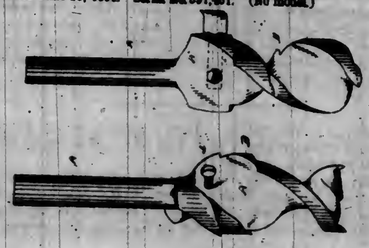
478,969. EXTENSION-LADDER. WILLIAM J. ROBERTSON and JOHN R. GIBLIN, St. Albans, assignors to themselves and Edwin L. Ripley, Burlington, Vt. Filed June 10, 1890. Serial No. 354,935. (No model.)



Claim.—1. In an extension-ladder, a ladder-section having rungs arranged in pairs connected to the section upon opposite sides thereof and an extensible ladder-section located between the rungs forming the pairs, in combination with a pivoted support consisting of a transverse horizontal connecting-bar having at each end a U-shaped seat to sustain the rung of the extensible ladder-section at both its ends and on the same plane with the rungs of the respective pairs, substantially as and for the purpose described.

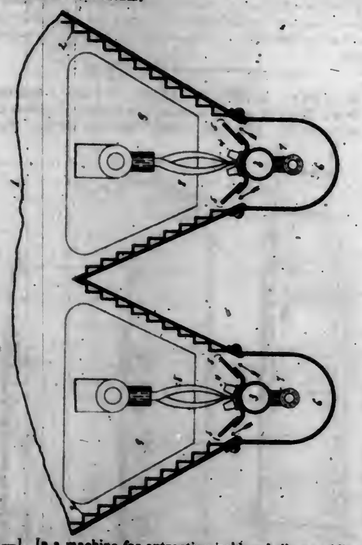
2. In an extension-ladder, a ladder-section having rungs arranged in pairs and connected thereto upon opposite sides and an extensible ladder-section located between the rungs forming the pairs, in combination with a pivoted wire support consisting of a transverse connecting-bar having a U shaped seat at each end and operating-rod connected to the support and a rope and pulley for raising the extensible ladder-section, substantially as and for the purpose specified.

478,970. AUGER. GRANVILLE L. SAVAGE, New York, N. Y., assignor to the Golden Gate Safety Faucet Company, San Francisco, Cal. Filed June 25, 1891. Serial No. 397,461. (No model.)



Claim.—The combination, with a spiral blade of an upwardly-increasing diameter provided with outwardly-projecting spurs, each one of which projects beyond the next spur below, of a lateral shaving-knife removably secured to the blade above the spurs.

478,971. MACHINE FOR EXTRACTING GOLD FROM PULVERIZED ORES, &c. THOMAS C. SIMCOTON, Paterson, N. J., assignor of one-half to Thomas C. Simcoton, Jr., same place. Filed May 16, 1891. Serial No. 392,970. (No model.)



Claim.—1. In a machine for extracting gold and silver and lined with amalgamated plates, the combination of a supply pipe or pipes having a series of jet-nozzles on the upper side of the pipe attached thereto, and such pipe or pipes running through the tank longitudinally at or near the bottom thereof, with a mercury receptacle or receptacles partly separated from the main tank and supplied with a pipe or pipes through which water may be forced, for the purposes above set forth.

2. The combination of tank 1, lined with amalgamated plates 2 and having supply-pipes 3 running longitudinally along the valley or valleys of the tank and having jet-nozzles 4 on the upper surface and agitators 8 between the jet-nozzles 4 with the mercury-receptacles 6, provided with T-nozzles 7 and connected with tank 1 through spaces 5, substantially as and for the purposes above set forth.

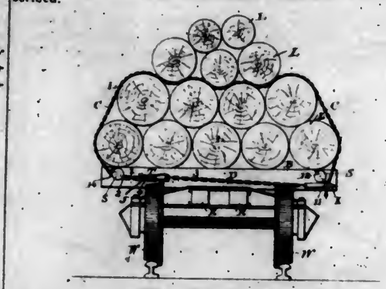
3. In a machine for extracting gold from auriferous ores, a tank lined with amalgamated plates and having a longitudinal angular bottom or bottoms and having a supply-pipe in each bottom, upon the upper surface of each of which is a row of diagonal jet-nozzles, between which latter are agitators, in combination with a mercury-receptacle in the bottom of the tank, connected therewith by slight openings and having a pipe or pipes connected with the said mercury-receptacle for the supplying of water therein under pressure, substantially for the purposes above set forth.

4. In a machine for extracting gold and lined with amalgamated plates, the combination of a mercury-receptacle having connected therewith a pipe or pipes through which water may be introduced therein with a tank lined with amalgamated plates and said tank connected with the mercury-receptacle through spaces or openings, substantially for the purposes hereinabove set forth.

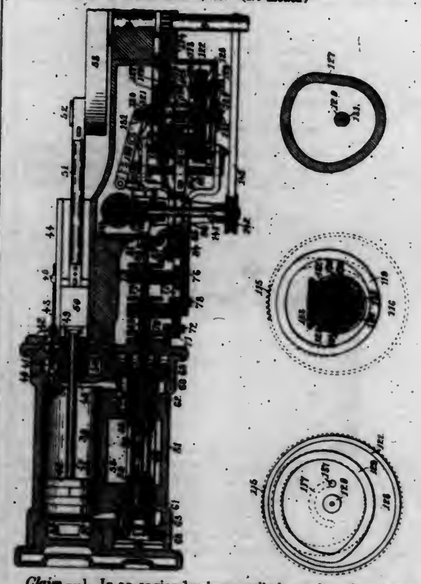
5. In an amalgamating-machine the tank of which is lined with amalgamated plates, the combination of a supply pipe or pipes having upon its or their upper surfaces a row of diagonal jet-nozzles and upon its or their under surface a series of jet-nozzles with a mercury-receptacle connected with the main tank by small openings, substantially for the purposes above set forth.

478,972. LOG-BINDER. ROBERT J. THOMPSON, Grandin, Mo., assignor of one-half to John R. White, same place. Filed Dec. 31, 1891. Serial No. 416,716. (No model.)

Claim.—In a log-binder, the combination of a carriage having sway-bars, a forked catch connected to one of said sway-bars by an eyebolt, a chain connected to the free end of said catch, an adjusting-link on the opposite end thereof and having a reduced extension, a chain connected to the other sway-bar and a trip-lever carried by a link at the end of the same, and a ring on the said latter chain adapted to be adjusted over and hold the said trip-lever, substantially as described.



478,973. VALVE-GEAR FOR ENGINES. FRANK J. WATERS, Providence, R. I., assignor of one-half to George Howe, same place. Filed Dec. 22, 1891. Serial No. 415,865. (No model.)



Claim.—1. In an engine having a cylinder and a valve-chamber, the combination, with a slide-valve longitudinally movable in said chamber and provided with a tubular valve-stem and inlet and outlet ports, of a forward cut-off valve contained within said slide-valve and provided with a tubular valve-stem extending through the stem of the slide-valve, a rear cut-off valve also contained within said slide-valve and provided with a valve-stem extending through the stem of the forward cut-off valve, and means for operating said valves, as described.

2. The combination, with the drive-shaft of an engine and a gear carried thereby, of one or more rotatable plates provided with cams, one of said plates having a circumferential gear intermeshing with the gear of the drive-shaft, a connecting-rod having roller-bearings traveling on said cams and connecting with a valve-stem, and a slide-valve contained within a suitable case and adapted to be reciprocated, as described.

3. The combination, with the cut-off valves of an engine, provided with valve-stems, and connecting-rods secured to said stem and provided with roller-bearings, of rotatable plates having cams adapted to engage said roller-bearings and means for rotating said plates independently to operate said valves simultaneously, for the purpose described.

4. In an engine having valves, as described, the combination, with the rotating plates 116 and 122, supported on a shaft journaled in bearings and provided with the cams 119 and 124, one of said plates provided with a circumferential gear, and a connecting-rod having roller-bearings working on said cams and adapted to operate the slide-valve,

of the cam-plates 126 and 128, journaled on said shaft and having cams 127 and 129, roller-bearings moving on said cams and pivoted to the connecting-rods of the cut-off valves, and means for operating said valves, as described.

5. The combination, with the rotatable plates 115 and 122, supported on the shaft 120, journaled in suitable bearings, provided with the cams 119 and 124, the cam-plates 126 and 128, having cams 127 and 129, independently rotatable on said shaft in depressions in the outer faces of said first-mentioned plates, a transverse slot formed in the central enlarged portion of said shaft and a rack movable therein and operated by a rod extending through a longitudinal perforation in said shaft, and a vertical shaft journaled in said longitudinal shaft and carrying an interior gear 134, adapted to be operated by said rack, of a sleeve surrounding the central portion of the longitudinal shaft and having a central semi-circumferential slot and enlarged ends, one of which has gear-teeth, a beveled gear carried by the outer end of the vertical shaft and intermeshing with the gear of said sleeve, and pins secured in said enlarged ends of the sleeve and extending through radial slots in the cam-plates 116 and 118, the other ends being fastened in the plates 126 and 128 and adapted to operate the same, as described.

6. The combination, with the rack 130, contained within a central transverse slot in the shaft 120, the rod 131, extending through a central longitudinal perforation in said shaft and secured to said rack, the pinion-gear 134, also contained within said slot and adapted to be rotated by said rack, a vertical shaft 132, journaled in said horizontal shaft and operated by said pinion, and a beveled gear 113, secured to the outer end of said shaft, of a sleeve 135, surrounding said shaft 120 and having a semi-circumferential slot through which the vertical shaft is free to move, enlargements on the ends of said sleeve, one of which forms a gear intermeshing with the gear 113, and rotatable cam-plates secured to said enlarged ends of the sleeve and adapted to operate the cut-off valves through suitable connections, as described.

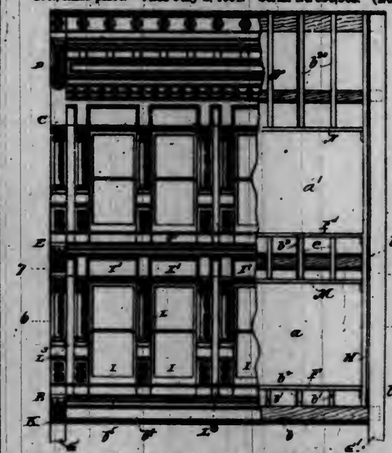
7. The combination, with the slide-valve and cut-off valves of a steam-engine, a system of cams adapted to operate said slide-valve through a connecting-rod, an independent system of cams for operating said cut-off valves, and mechanism for shifting the same, of a regulating device consisting of two gears rotating in parallel planes in directions opposite to one another and driven by a third gear, a clutching device supported between said gears, adapted to be drawn into contact with the lower gear when the speed of the engine is above the normal and into the upper gear when said speed decreases below said point, the lower portion of said clutch having depending fingers, a sleeve supported in bearings and having a cross-bar at its upper end adapted to be rotated by said clutching device, a screw-thread formed around said sleeve and a nut working thereon and pivoted in a suitable frame secured to a rock-shaft, and mechanism intermediate said shaft and the shifting mechanism of the cut-off-valve motion to operate the same, as described.

8. In an engine, the combination, with a hollow shaft carrying independently-rotatable cam-plates and having a transverse slot, a rack contained within said slot and means by which the motion of the rack is conveyed to said cam-plates, a rod secured to said rack and extending through the hollow end of said shaft, a tube having a square outer surface working in a square bearing, a flange at one end bearing against said rod and provided with a screw-threaded portion, and a sleeve screw-threaded on a portion of its interior surface and journaled at one end in a suitable bearing, of a friction-clutch surrounding the free end of said sleeve and keyed thereto to allow of independent longitudinal movement and to prevent independent rotatory motion, a beveled gear secured to the end of said tubular shaft and having a friction-cavity in the face thereof in which one end of the friction-clutch moves, a similar gear working in an independent bearing parallel to said first-mentioned gear and also having a friction-cavity in its face, in which the opposite end of the friction-clutch moves, a third gear intermeshing with said gears and working on a shaft and adapted to transfer the motion of one to the other in the opposite direction, and mechanism operated by the movement of the engine to shift the friction-clutch from the cavity of one gear to the cavity of the other, substantially as described.

9. The combination, with the connecting-rod 84, having a slot 90 and having its end transversely split and a transverse perforation in said end, a split sleeve 86, clamped within said perforated end, the shafts 87 87, having enlarged ends journaled within said sleeve, and the rolls 88 88, carried on the outer ends of said shafts, of a block formed of two halves 91, adapted to fit the slot 90 and having lips extending beyond the edges of said slot, the shafts 92, having enlarged ends journaled in bearings in the halves of this block and carrying the rolls 93 93 on their outer ends, and the key-pin 94, working in a vertical slot in said connecting-rod and bearing against said blocks, as and for the purpose described.

10. The combination, with the connecting-rod 76, having the stud 96, a perforation extending through said rod and stud and a tubular shaft journaled therein and carrying the cross-plate 98, having lips 99, formed on the edges at one end, and a block 100, carrying the shaft 101, and a roll 109, secured to the outer end of said shaft, of a cross-plate 103, having a block 104, carrying a shaft 105, and a roll 110, secured to the outer end of said shaft and adapted to move between the lips 99 of the plate 98 and having lips 106, engaging the edges of said block 100, a slot in said lipped end, in which the shaft 101 may move and hold in place by the bolt 102, having a square head engaging a slotted recess in said plate 103, and a key 108, bearing against the square edges of said lips 106 and against a transverse rib on the plate 98 to force these plates one over the other and to draw the rolls together, as and for the purpose set forth.

478,974. BUILDING-FRONT. AUGUST BRUEKBORST, ARTHUR WIEBE, and CHARLES T. RICHARDS, St. Louis, Mo., assignors to Meeker & Bro., same place. Filed July 2, 1891. Serial No. 398,302. (No model.)



Claim.—1. The combination of the lintel *b*, the stud *b'*, the plate F, extending horizontally across the building-front, and the lookout b^3, substantially as described.

2. The combination of the stud *b'*, the lookouts b^3, the plate F, extending horizontally across the building-front, and the sheet-metal facing b^4, substantially as described.

3. The combination of the lintel *b*, the studs *b'*, the lookouts b^3, the plate F, extending horizontally across the building-front, and the sheet-metal facing b^4, substantially as described.

4. The building-front having the windows I' and the plate F, said plate extending horizontally across the building-front and also constituting the sills of said windows, substantially as described.

5. The combination of the lintel *b*, the studs *b'*, the plate F, and the windows I', said plate extending horizontally across the building-front and also constituting the sills of said windows, substantially as described.

6. The combination of the box-frames and the plate F, the pulley-stiles of said box-frames resting mediately, as described, upon said plate and the inside finish-board of said box-frames extending downward and being fastened to said plate at the inner side thereof, substantially as described.

7. The building-front having the windows and the lintel M, said lintel extending horizontally across the building-front and also constituting the heads of said windows, substantially as described.

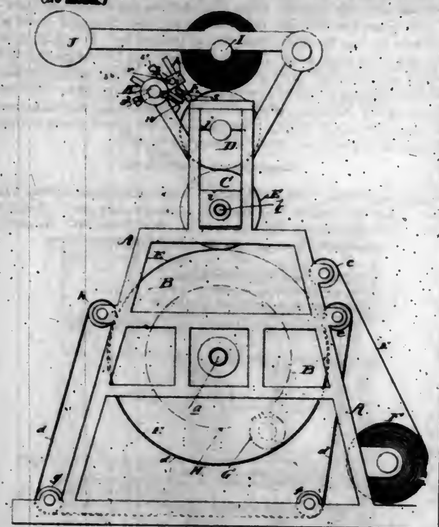
8. The building-front having the windows, the plate F, and the lintel M, said plate and lintel extending horizontally across the building-front and also respectively constituting the sills and the heads of said windows, substantially as described.

9. The building-front having the window-frames, the end studs H, extending from the upper part of the first story to the upper part of the front, and the plate F, and the lintel M, said plate and lintel extending horizontally across said front from stud to stud and respectively constituting the sills and the heads of said window-frames, substantially as described.

10. The building-front having the plate F, and the lintel M, and the box-frames and columns, as described, the inside finish-board of said box-frames being extended vertically and attached to the inner side of said plate and lintel, substantially as described.

11. The building-front having the box-frames, and the metallic columns, and the plate F, and lintel M, extending horizontally across the front and having connected thereto said box-frames and columns, substantially as set forth.

478,975. PAPER DRYING AND CUTTING APPARATUS. GOTTLOB T. LEONHARD, Paterson, N. J. Filed Oct. 31, 1891. Serial No. 410,490. (No model.)



Claim.—1. In a paper drying and cutting apparatus, a drying and calendering cylinder, a cutting-cylinder, the spooling-rolls, and knives acting on the cutting-cylinder to sever the web longitudinally, said cylinders and rolls having contact with one another in the successive order named at the transferring-points of the paper between them, for the purpose described.

2. In a paper drying and cutting apparatus, a drying and calendering cylinder, a cutting-cylinder resting by gravity on the drying-cylinder, spooling-rolls for receiving the paper, resting by gravity on the cutting-cylinder, knives acting on the cutting-cylinder to sever the web longitudinally, and vertically-movable weighted bearings for the journals of the said spooling-rolls, adapted to compress the same and the said cylinders together.

3. In a paper drying and cutting machine, the drying or calendering cylinder and a cutting-cylinder bearing thereon to receive the paper, as described, and knives acting on the paper while it is upon the said cutting-cylinder.

REISSUES.

11,253. CUFF-HOLDER. HENRY E. SHOW, Albany, N. Y., assignor of one-half to Carl F. Mende, same place. Filed Apr. 19, 1892. Serial No. 429,821. Original No. 466,311, dated Dec. 29, 1891.



Claim.—1. The herein-described improved cuff-holder, comprising a wire loop or shank, the opposite sides of which are bent into sinuous form, providing intermediate eyes, at one end having an enlarged eye adapted to take over the head of a cuff-button and at the other end having its terminals oppositely curved to form spring-arms, a transverse plate secured to the extremities of the curved ends, and studs located at opposite sides of the shank and projecting from the transverse plate and adapted to engage with the opposite holes of a cuff, substantially as specified.

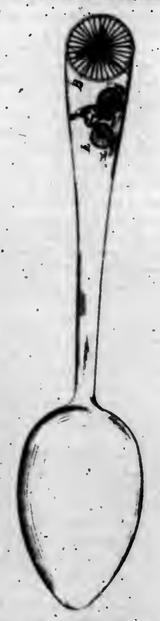
2. The herein-described improved cuff-holder, the same consisting of the loop-shaped wire shank, the opposite sides of which are bent into sinuous form to form eyes adapted to be connected with a shirt-sleeve button, and the U-shaped plate connected to the shank, the terminals of the plate being provided upon their outer faces and at opposite sides of the shank with buttonhole-engaging studs, substantially as specified.

3. The herein-described improved cuff-holder, the same consisting of the spring-wire shank having the triangular loop located at one end and slightly bent, the spring-terminals of which are bent in a sinuous form to provide a series of eyes and at their extremities are deflected and curved to form spring-arms, and the U-shaped securing-plate, through the arms of which the wire terminals of the shank are passed and headed, and the headed studs mounted upon the arms of said plate and adapted to engage the buttonholes of a cuff, substantially as specified.

4. A cuff-holder consisting of a shank having a loop or opening at one end and eyeholes in the body of the shank to engage with the shirt-sleeve button or fastener and having a bar or prolongation laterally projecting from each side of the other end of the shank, the terminals of said bar or prolongation being arranged to engage with the oppositely-located buttonholes of the cuffs, substantially as described.

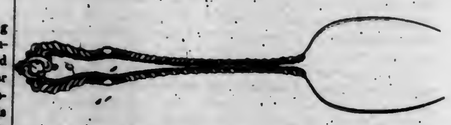
DESIGNS.

21,699. SPOON. WILLIAM W. BERRY, Scranton, Pa. Filed June 2, 1892. Serial No. 435,312. Term of patent 7 years.



Claim.—The design for a spoon, as herein shown and described.

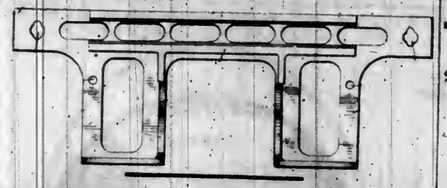
21,700. SPOON, &c. GILBERT L. CROWELL, Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Filed June 2, 1892. Serial No. 435,318. Term of patent 14 years.



Claim.—The design for handles of spoons and similar articles, substantially as herein shown and described.

21,701. ELECTRIC-LAMP FRAME. JAMES R. GASTON, Sparta, Ill., assignor to the Gaston Electrical Manufacturing Company, same place. Filed June 4, 1892. Serial No. 435,567. Term of patent 14 years.

Claim.—The design for an electric-lamp frame, as herein shown and described.



21,702. LAMP-SHADE. HUGO HOHENSTEIN, New York, N. Y. Filed May 27, 1892. Serial No. 434,674. Term of patent 3½ years.



Claim.—The design for a lamp-shade, substantially as herein shown and described.

21,703. MEDAL. ALBERT O. QUIMBY and THOMAS H. BATES, Fresno, Cal. Filed June 4, 1892. Serial No. 435,566. Term of patent 3½ years.



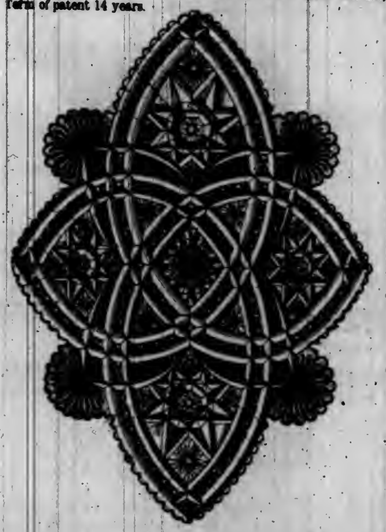
Claim.—The design for a medal herein shown and described.

21,704. BADGE. JAMES F. ROCHE, Boston, Mass., assignor to the Regular Army and Navy Union of Ohio. Filed Apr. 21, 1892. Serial No. 430,129. Term of patent 3½ years.



Claim.—The design for a badge, substantially as herein shown and described.

21,705. ORNAMENTATION OF GLASS VESSELS. THOMAS G. HAWKES, Corning, N. Y. Filed June 16, 1892. Serial No. 436,989. Term of patent 14 years.



Claim.—The design for the ornamentation of glass and other vessels, substantially as herein shown and described.

21,706. KNOB AND LOCK ESCUTCHEON. RUDOLPH W. E. CHRISTMANN, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed May 31, 1892. Serial No. 435,079. Term of patent 14 years.



Claim.—The design for a knob and lock escutcheon, as herein shown and described.

21,707. RUBBER MAT. JOHN J. VOORHEES, Jersey City, N. J., assignor to the New Jersey Car Spring and Rubber Company, of New Jersey. Filed Apr. 15, 1892. Serial No. 429,363. Term of patent 14 years.



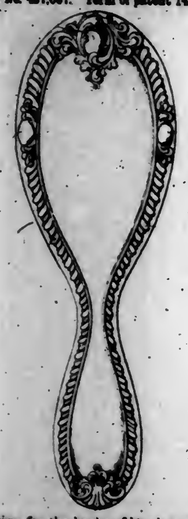
Claim.—A design for a rubber mat, substantially as shown and described.

21,708. BROOM-RACK. PETER E. WHITSON and ORREN G. NORRIS, Sheldon, Ill. Filed June 13, 1892. Serial No. 436,567. Term of patent 14 years.



Claim.—The design for a show-rack, substantially as herein shown and described.

21,709. BACKS FOR BRUSHES, &c. GILBERT L. CROWELL, Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Filed June 17, 1892. Serial No. 437,067. Term of patent 14 years.



Claim.—The design for the backs of brushes and similar articles, substantially as herein shown and described.

21,710. BREAD-PAN. THOMAS H. MURPHY and PHILIP M. ZOBGELE, New Bedford, Mass. Filed June 2, 1892. Serial No. 435,313. Term of patent 7 years.



Claim.—The design for an inclosed bread-pan herein shown and described.

21,711. BOTTLE. BENJAMIN I. MOTT, Brooklyn, N. Y. Filed May 14, 1892. Serial No. 433,051. Term of patent 14 years.



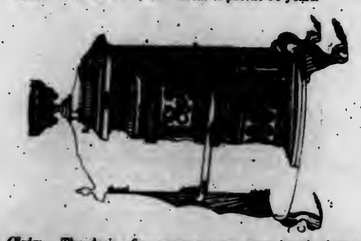
Claim.—The design for a bottle, as herein shown and described.

21,712. CAP. MOSES S. BRUNDAGE, McConnell, Ill. Filed Nov. 9, 1891. Serial No. 411,395. Term of patent 3½ years.



Claim.—The design for a cap, substantially as shown and described.

21,718. STOVE. FRANK A. MAGEE, Boston, Mass. Filed June 10, 1892. Serial No. 436,283. Term of patent 14 years.

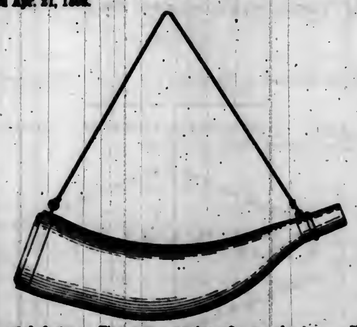


Claim.—The design for an open-grate stove herein shown and described, the same comprising the fluted hood A, the semi-oval hearth B, fluted legs C, having claws inclosing a ball, the draft-door D, fire-pot front P, bead-moldings F and T, sliding doors G, scroll-panel H, the fluted pillars K, the top L, having a wide fluted molding R, and wing-pieces M, as set forth.

TRADE-MARKS

REGISTERED JULY 12, 1892.

21,428. TOOTH-POWDER. WILLIAM R. BURROWS, Providence, R. I. Filed Apr. 21, 1892.



Essential feature.—The representation of a powder-horn. Used since April 11, 1891.

21,429. SALT FROM GREAT SALT LAKE FOR BATHING PURPOSES. MARIA W. HOPKINS, Brooklyn, N. Y. Filed May 21, 1892.

Essential feature.—The word "SALTONIC." Used since March 15, 1892.

21,430. PHOTOGRAPHIC PAPER. EDUARD LIESEGANG, Dusseldorf, Germany. Filed Apr. 2, 1892.



Essential feature.—The representation of a frame inclosing lines representing rays radiating from a central light. Used since 1890.

21,431. BLENDED TEA. L. H. PARKE & Co., Philadelphia, Pa. Filed Nov. 16, 1891.

HUN KEE

Essential feature.—The words "HUN KEE." Used since March, 1885.

21,432. TEA. L. H. PARKE & Co., Philadelphia, Pa. Filed Nov. 16, 1891.

WING KEE

Essential feature.—The words "WING KEE." Used since March, 1885.

21,433. REMEDY FOR DISEASES OF THE BLOOD AND KIDNEYS. HORACE C. SOUTHWORTH, Londonville, N. Y. Filed June 9, 1892.

H. C. Southworth

Essential feature.—The fac-simile signature "H. C. SOUTHWORTH." Used since February 8, 1892.

21,434. GELATINE CAPSULES. JAMES W. GERDEY, New York N. Y. Filed May 4, 1892.

KEYSTONE

Essential feature.—The word "KEYSTONE." Used since March, 1885.

21,435. GLUE. A. & G. W. HOLBROOK, Providence, R. I. Filed June 6, 1892.

OXIDENTAL

Essential feature.—The word "OXIDENTAL." Used since May 24, 1892.

21,436. CASTOR-OIL. INDIANAPOLIS DRUG Co., Indianapolis, Ind. Filed June 6, 1892.

MELOL

Essential feature.—The word "MELOL." Used since April 15, 1892.

21,437. PERFUMES, POWDERS, SOAPS, AND TOILET ARTICLES GENERALLY. LADD & COFFIN, New York, N. Y. Filed May 14, 1892.

NADA

Essential feature.—The word "NADA." Used since May 5, 1892.

21,438. LARD AND ITS SUBSTITUTES. THE W. J. WILCOX LARD AND REFINING COMPANY, Guttenberg, N. J., and New York, N. Y. Filed May 31, 1892.

CANARIO



Essential feature.—The representation of a canary and the word "CANARIO." Used since March 20, 1892.

21,439. LARD AND ITS SUBSTITUTES. THE W. J. WILCOX LARD AND REFINING COMPANY, Guttenberg, N. J., and New York, N. Y. Filed May 31, 1892.



COLIBRI

Essential feature.—The representation of a humming-bird and the word "COLIBRI." Used since March 20, 1892.

21,440. LARD AND ITS SUBSTITUTES. THE W. J. WILCOX LARD AND REFINING COMPANY, Guttenberg, N. J., and New York, N. Y. Filed May 31, 1892.

LA INMEJORABLE

Essential feature.—The words "LA INMEJORABLE." Used since November 6, 1891.

21,441. LARD AND ITS SUBSTITUTES. THE W. J. WILCOX LARD AND REFINING COMPANY, Guttenberg, N. J., and New York, N. Y. Filed May 31, 1892.

ROSALINDA

Essential feature.—The representation of two moss-roses and a twig and the word "ROSALINDA." Used since February 1, 1892.

21,442. HAIR-RESTORATIVE AND DANDRUFF-CURE. H. D. WASHER & Co., Grinnell, Iowa. Filed June 7, 1892.

GLOBE

Essential feature.—The word "GLOBE." Used since May 25, 1892.

21,443. DISINFECTANT. EMMA B. FARRER, Paterson, N. J. Filed June 10, 1892.

A NEW IDEA

Essential feature.—The words "A NEW IDEA." Used since April 1, 1892.

21,444. BREAD. JOHN D. HEINBRST, New York, N. Y. Filed June 16, 1892.

DORE

Essential feature.—The word "DORE." Used since June 1, 1892.

21,445. LEATHER, INCLUDING BELTING. A. & C. W. HOLBROOK, Providence, R. I. Filed June 6, 1892.



Essential feature.—The representation of two elephants' heads facing in opposite directions and the word "ALBINO." Used since September, 1891.

21,446. PINEAPPLES. INDIAN RIVER AND LAKE WORTH PINEAPPLE GROWERS ASSOCIATION, Eden, Fla. Filed June 6, 1892.



Essential feature.—The representation of a pineapple and the figure of an Indian at each side. Used since May, 1, 1892.

21,447. LABELS OR CLIPS FOR INDICATING THE PRICES OF CIGARS. IMPERIAL METAL CARD COMPANY, Boston, Mass. Filed June 6, 1892.

IMPERIAL.

Essential feature.—The word "IMPERIAL." Used since November 1, 1891.

21,448. SAWED TIMBER. WILLIAM S. KEYSER, Pensacola, Fla. Filed May 14, 1892.

CCC

Essential feature.—The three letters "CCC." Used since January, 1887.

21,449. STEEL INGOTS, SLABS, BLOOMS, BILLETS, BARS, RODS, &c. ALBERT C. ISAACS, Baltimore, Md. Filed May 11, 1892.

CORONET

Essential feature.—The word "CORONET." Used since 1885.

21,450. ILLUMINATING OR BURNING OIL. CHARLES KIMBER, London, England. Filed Apr. 23, 1892.

GLENSHALE

Essential feature.—The word "GLENSHALE" and a diamond-shaped figure inclosing said word. Used since March 29, 1892.

21,451. VETERINARY MEDICINES AND PREPARATIONS. STEPHEN PITTIFER & SON, Creedwell, near Malmesbury, England. Filed May 23, 1892.

HERBAL TONIC OR
FLOCKMASTER'S FRIEND.

Essential feature.—The words "HERBAL TONIC OR FLOCKMASTER'S FRIEND." Used since 1869.

21,452. ANTISEPTICS. SANFORD G. PLUMB, New York, N. Y. Filed June 9, 1892.

Essential feature.—The words "ODORLESS DEODORIZER," the first "O" and first "D" of the words being enlarged and inclosing the remaining letters of the words, respectively. Used since October 1, 1890.

21,453. SILK PLUSH. SIR TITUS SALT, BART., SONS & COMPANY; Limited, Saltaire, England, and Bridgeport, Conn. Filed May 30, 1892.

SALTS SILK SEALS

Essential feature.—A round disk in solid color and the words "SALT'S SILK SEALS" printed thereon. Used since April 15, 1892.

21,454. PAPER BAGS. UNION BAG AND PAPER COMPANY, Chicago, Ill. Filed June 6, 1892.

AUTOMATIC

Essential feature.—The word "AUTOMATIC." Used since May 16, 1892.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE REQUA.

Decided May 12, 1892.

DESIGN PATENTS—ILLUSTRATION OF NON-ESSENTIAL FEATURES.

Where it appeared from the specification that certain words and figures shown on the face of the Design in the drawing did not constitute an essential feature of the Design, *Held* that the patent should not be permitted to seem to make them so, and that they should be erased.

ON petition.

DESIGN FOR A BADGE.

Application of Emma M. Requa filed April 8, 1892, No. 428,892.

Messrs. Baldwin, Davidson & Wight for the applicant.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Primary Examiner requiring the words and figures "World's Columbian Exposition 1893" to be removed from the face of the Design for a badge shown in the illustration forming a part of the application.

The specification says upon this point:

The Design, as shown in the accompanying drawing, consists of a representation in relief of the head of Christopher Columbus, from which is suspended an annulus having a space upon which may be placed any suitable inscription and within which is hung a representation of the Western Hemisphere.

The only reference to the words objected to in the specification is in the language "any suitable inscription," showing clearly that they are not an essential feature of the Design, and of course the patent should not be permitted to seem to make them so.

The decision of the Primary Examiner is affirmed.

EX PARTE HUNTER.

Decided June 2, 1892.

DIVISIONAL APPLICATIONS—SUBJECT-MATTER OF.

Where an alleged divisional application describes and claims something different from what was disclosed in the original application, it is not properly a division of such original application.

ON petition.

ELECTRIC RAILWAY.

Application of Rudolph M. Hunter filed October 1, 1891, No. 407,387.

Mr. R. M. Hunter pro se.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Primary Examiner expressed as follows:

The matter embraced in the first two pages of the specification and in page 3 down to the last paragraph thereon is objected to as being argumentative instead of descriptive of the alleged invention, and for this reason it is wholly out of place in a specification.

This is a petition asking that the Examiner be instructed that the above application is properly a division of a former application, filed July 14, 1885, No. 171,625, the Examiner having refused to so consider it.

The Examiner makes the objection that the invention now described and claimed is not identical with that disclosed in the original application. An inspection of the original application shows that applicant regarded the subject-matter which he eliminated, as above stated, as merely an electric brake, there being no intimation of anything else either in the original specification or claims. He now seeks in both his specification and claims to patent a device for magnetizing the car axle and wheels in order that the wheels may be prevented from sliding upon the rails when the brake is applied. He describes and claims such a structure having such a function not only in connection with his brake, but says, further, that the core of the solenoid may be omitted altogether, which would obviously be the omission of a feature necessary to make the device a brake. For this reason the present application is not properly a division of the original application.

The petition is denied.

EX PARTE JOHNSTON.

Decided June 23, 1892.

ARGUMENTATIVE SPECIFICATION.

An applicant is entitled to state as specifically and categorically as he chooses the difficulties and troubles which are cured or ameliorated by his improvement, but he is not entitled to state such matters in a way that amounts to a recital of the history of the art as he understands it, combined with an argument as to the importance of the improvement.

ON petition.

ART OF GRINDING CUTLERY AND OTHER TEMPERED-STEEL ARTICLES.

Application of Allen Johnston filed June 18, 1888, No. 276,947.

Messrs. Pollok & Mauro for the applicant.

SIMONDS, *Commissioner:*

The Examiner's objection is well taken. The applicant is entitled to state as specifically and categorically as he chooses the difficulties and troubles which are cured or ameliorated by his improvement. Such a recital can include all matters of substance in the language which the Examiner objects to; but applicant is not entitled to put such matters into his specification in a way which amounts to a recital of the history of the art as he understands it, combined with an argument as to the importance of the improvement. It is a question upon which no hard and fast line can be drawn; but it is thought that the applicant has exceeded the bounds of reasonable statement of the difficulties which his improvement is designed to obviate.

The petition is denied.

CHALLONER *v.* PERKINS.

Decided June 30, 1892.

1. INTERFERENCE—PRIORITY OF INVENTION—CLAIMS IN ISSUE—WHEN MADE AND BASIS THEREFOR.

P.'s date of filing being earlier than the date of conception proved by C., *Held* that P. is the prior inventor, though the claims of the issue were not made by him until after the patent to C. issued. *Held*, further, that P.'s application as originally filed contained sufficient basis for the claims in issue.

2. SAME—CAPABILITY OF USE OF INVENTION—KNOWLEDGE OF CAPABILITY.

The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not. (*Roberts* v. *Ryer*, 91 U. S., 150.)

APPEAL from Examiners-in-Chief.

SHINGLE SAWING MACHINE.

Patent granted Frank Challoner December 9, 1890, No. 442,171; application filed July 21, 1890. Application of Willis J. Perkins filed August 2, 1889, No. 319,528.

Messrs. Winkler, Flanders, Smith, Bottum & Vilas for Challoner.

Mr. Wallace A. Bartlett for Perkins.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Challoner as to the following issues:

1. The combination, with the carriage provided with a movable dog, mechanism arranged to shift the dog at a proper position to drop the spalt, and a trip which is movable into abnormal position to actuate the dog-shifting mechanism so as to drop the spalt.

2. In a shingle-sawing machine, the combination of a rotary carriage having a number of bolt-receptacles, each provided with a movable dog, mechanism arranged to shift said dogs at the proper point in the rotation of the carriage for dropping the spalts, a movable part arranged to set said mechanism in operation, and a trip for each bolt-receptacle of the carriage, the trip being movable into abnormal position, so as to actuate said movable part and put the dog-shifting mechanism into operation to drop the spalt.

3. In a shingle-sawing machine, the combination of a rotary carriage having a number of bolt-receptacles, each provided with a movable dog and having a trip for each receptacle movable into abnormal position, dog-shifting mechanism, a movable part connected with the dog-shifting mechanism and arranged to be engaged by said trips when the latter are in abnormal position, and a device to automatically return said trips to their normal position when they have acted on said movable part.

4. In a shingle-sawing machine, the combination, with the carriage having shingle-bolt receptacles provided with movable dogs, of mechanism arranged for opening said dogs automatically for dropping the spalts, and means under control of the operator for setting said mechanism in motion.

5. In a shingle-sawing machine, the combination, with the carriage having shingle-bolt receptacles provided with movable dogs, of mechanism arranged to open said dogs at the proper position for discharging spalts, and trips on the carriage by which the dog-shifting mechanism is set in operation at the will of the operator to discharge any spalt.

Perkins's application was filed August 2, 1889. Challoner's application was filed July 21, 1890. A patent has issued thereon; but as both applications were pending at the same time the status of both contestants for the purpose of deciding the question of priority of invention is that of applicants.

Challoner proves no conception of the invention in controversy prior to August 2, 1889, the date when Perkins filed his application. On this state of facts it would seem that the case should be decided in favor of Perkins at this point without further discussion; but Perkins did not make his claims which are now in interference until after Challoner's patent issued, whereupon Challoner claims that Perkins has no right to make these claims in his present application, and that Perkins, as a matter of fact, did not conceive of the invention in controversy until after Challoner had that conception. This contention of Challoner's may be said to have two phases or branches—one to the effect that while Perkins's machine was capable of use in accordance with the claims in interference Perkins had no knowledge of that capability until after Challoner had made his conception, and, second, that Perkins's application now in interference as it existed up to the time that Challoner's patent issued was not properly susceptible of having in it the claims now in issue. The first phase or branch of this contention is disposed of by the following language used by the Supreme Court:

> It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not. (*Roberts* v. *Ryer*, 10 O. G. 204, 91 U. S., 150.)

Now as to the second branch of Challoner's contention. In his original specification Perkins said:

> The object of the present invention is to improve the construction of the block clamping and supporting devices; also, to place the operating parts of the machine well under the control of the operator, who by the adjustment of suitable stops or catches with reference to any of the bolt carriages or carriers can then depend on the machine to automatically complete the function for which said catch or stop was intended, as to throw out the spalt, feed in new block or bolt, or perform other operations generally performed by hand.
>
> In general the object of the invention is to produce a machine which shall be nearly self-operating or automatic when driven by a suitable motor. * * * It will thus be seen that the bolt is never supported on a fixed way or track beneath the bolt-compartment at that point in the rotation of the carriage where it is desired to expel it from the machine, but that at certain times the inner end of the bolt may be supported by the movable shelf 30 I have described, and this will occur whenever the bolt slips or tips in the binding-dogs and at no other time. The shelf is held back by the hook 32 for the purpose of dropping the spalt, as now described. * * *
>
> From the foregoing it will be seen that I provide absolutely automatic or self-operating devices for feeding the bolts into the machine and dropping the spalts from the same when the shingles have been cut away so as to leave only the spalt, and at the same time I have provided mechanism by which the spalts or blocks may be readily dropped when the operator sets a proper trip for the purpose.

These statements are consistent with the making of the claims in issue by Perkins. The Examiners-in-Chief say as much in using this language:

> The point made for Challoner that the amendments of January 8, 1891, were entire new matter and should have been excluded from the application for that reason will hardly hold, since there is just enough of specification-writer's suggestion touching possible uses for parts of the combinations originally contemplated and actually shown to give him a basis for an amendment without violation of rule.

As both branches of Challoner's contention fail, Perkins must be given the date of invention cotemporary with the filing of his application, which precedes Challoner's conception thereof.

The decision of the Examiners-in-Chief is reversed, and priority of invention is awarded to Perkins.

EX PARTE LEESON & COMPANY.

Decided June 6, 1892.

FEES PAID BY MISTAKE—PAYMENT UNDER EXISTING LAW AND RULES NOT A MISTAKE.

A filing fee of ten dollars having been paid on an application for registration of a Trade-Mark in 1879, under the law and rules in force at that time, *Held* that it was not paid under a mistake and that it could not properly be refunded.

ON petition.

TRADE-MARK REGISTRATION.

Application of J. R. Leeson & Company filed September 29, 1879, No. 11,309.

Messrs. Foster & Freeman for the applicants.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition requesting that the Government fee of ten dollars paid September 29, 1879, on the filing of the above-entitled application for registration of a Trade-Mark be refunded on the ground that it was paid under a mistake.

It is stated in the petition as follows:

> At that time (September 29, 1879) there was no valid law under which Trade-Marks could be registered in the United States Patent Office, and there is no law authorizing the Commissioner of Patents to receive a fee of ten dollars, and which seems evident that the fee was unlawfully received and held by the Patent Office.

It appears that the said application was filed under the law of 1870, then in force, and that at that time (September, 1879) the rules contained a provision for the division of fees in applications for the registration of a Trade-Mark—that is to say, on the filing of each petition for the registration of a Trade-Mark a fee of ten dollars was required, and on registering each Trade-Mark fifteen dollars additional was required.

Applicants paid their fee of ten dollars under this provision of the rules, which had the force of law.

The act of 1870, above referred to, was declared unconstitutional by the Supreme Court of the United States (*Trade-Mark Cases*, 100 U. S., 82) subsequently to the filing of this application, and applicants were notified that the application would not be further considered unless, with full knowledge of said decision, they should request registration. They were also informed that the fee could not be refunded without legislation by Congress. Since the date of this notice the case has never been called up, and no action was afterward taken on the part of the Office until the present petition was filed.

On March 3, 1881, the present law relating to the registration of Trade-Marks was enacted. This law provided for further registration and fixed the status of cases registered and applied for under the law of 1870. It made no provision for the return of fees paid on such applications, but merely provided that applicants should be credited in future applications "for any fee or *part* of a fee" heretofore paid with intent to secure protection on the same marks. Here, it is to be observed, was an indirect sanction of the practice relating to the division of fees, above referred to.

Under the state of facts presented in this case I am of the opinion that the payment of the fee of ten dollars in the filing of said application was not a payment made under a mistake; that the law of 1881 determined what disposition was to be made of the fees paid under the law of 1870, and that the said fee was not unlawfully received and held by the Patent Office.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

ELECTRICAL ACCUMULATOR COMPANY *v.* NEW YORK & HARLEM RAILROAD COMPANY.

Decided April 9, 1892.

1. PATENTS FOR INVENTIONS—INVENTION—ELECTRIC ACCUMULATORS.

Reissued Letters Patent No. 11,047, granted to the Electrical Accumulator Company, as assignee of Joseph Wilson Swan, December 17, 1889, claiming a perforated plate for secondary batteries, having the perforations extending through the plate and the active material packed in the perforations only, cover a patentable invention.

2. SAME—UTILITY.

The fact that before the date of this invention Professor Eaton had packed active material in perforations extending through the plate, at the same time covering the surfaces thereof, and that Mr. Brush had packed it into grooves in the plate without covering the surfaces, does not show a want of invention in the idea of confining it entirely to perforations extending through the plate, since this apparently slight change avoided the difficulties before encountered and produced an electrode which has to a great extent superseded all others and has become the electrode of commerce.

SUIT by the Electrical Accumulator Company against the New York & Harlem Railroad Company for infringement of a patent. Decree for complainant.

Mr. Frederic H. Betts for the complainant.

Mr. Thomas W. Osborn for the defendant.

COXE, *J.:*

This is an action for infringement of Reissued Letters Patent No. 11,047, granted to the Electrical Accumulator Company of New York, as assignee of Joseph Wilson Swan on the 17th of December, 1889, for an improvement in secondary batteries. The invention of the reissue is intended to facilitate the construction of secondary-battery plates by preparing them with perforations, cells, or holes extending through the plate, in which holes the active material is packed. The original patent, No. 312,599, dated February 17, 1885, was considered by this court in the case of *Electrical Accumulator Co.* v. *Julien Co.*, (38 Fed. Rep., 117.) The original was held invalid (pp. 140–142) for the reason that it described and claimed a plate the outer surface of which might be covered by the active material. This construction, in view of the work done by Professor Eaton, was held to be anticipated. The theory of the reissue is that the valuable feature contributed by Swan consists in confining the active material to the holes without permitting it to extend beyond them to the surface of the plate. That portion of the original which refers to the coating of the outer surface of the plate has been omitted in the reissue. In other respects the description is unchanged.

The claim is as follows:

> A perforated or cellular plate for secondary batteries, having the perforations or cells extending through the plate and the active material or material to become active packed in the said perforations or cells only, substantially as described.

This is the claim of the original, except that the word "only" has been added. The patent cannot be criticised as a reissue. The claim, instead of being broadened, is greatly restricted. The application was filed within a reasonable time after the inventor was informed of the facts which made a narrower claim

necessary. The facts bring the case within the provisions of section 4916 of the Revised Statutes.

The field of invention is concededly a narrow one. The counsel for the defendant correctly states that Swan's improvement consists—

wholly in the idea of putting on the surface of a perforated plate for secondary batteries no active material beyond the contents of the perforations. Everything except this is conceded to be old.

The date *de jure* of Swan's invention is January 18, 1882. Prior to that time Professor Eaton had filled the perforations; but he had covered both sides of his plate as well. Mr. Brush had rammed or pressed absorptive substance in the form of dry powder into grooves or receptacles without covering the surface of the plate. No one had packed active material into holes extending through the plate, confining it entirely to these holes. This combination was original with Swan. Did it involve invention? In approaching this subject it is well to remember, as the Court has frequently had occasion to remark before, that we are dealing with a comparatively new and abstruse art, where the most important results are said to follow from changes apparently of the most unimportant character. Complete success has not been attained; but if we may credit the statements of those who are entitled to speak *ex cathedrâ* on the subject the rapid strides in that direction during the last decade are due to changes of form and material which in many other arts would be insufficient to support invention. The substitution of one material for another in a door-knob is the work of the mechanic. The substitution of one material for another in secondary-battery electrodes may solve a problem which will revolutionize the motive power of the world.

In holding that there is sufficient invention disclosed to support the reissue the Court is influenced by the following considerations: The Swan electrode is to-day the electrode of commerce. It has largely taken the place of other structures and is almost universally used. The advantage of having the active material composed of small disconnected masses packed in holes extending through the plate is unquestioned. The electrolyte is thus permitted to reach and operate upon both sides of these small masses instead of on one side, where the active materiat is packed in cells or pockets. The expansion and contraction of the electrode when the battery is in use cause the active material, if packed in cells or grooves or spread upon the surface of the plate, to crack and portions of it to be pushed out of place and to fall away. These defects, which produce "buckling," "short-circuiting," and other disastrous results, are entirely remedied by the Swan construction. If one of the small masses in his plate becomes injured or falls out, it does not affect injuriously the other parts of the electrode. As Sir William Thomson puts it:

The perforated plates have also the great advantage of extending the area of electric communication between the continuous metallic conductor and the porous or spongy material and so minimizing the electric resistance. The application of the oxide in the form or numerous mutually-detached parts separately held by the perforations has also a great advantage in almost annulling the warping or fracturing effects of the expansion and contraction produced by the changes of oxidation to which the active material is exposed in the charging and discharging of the battery.

It is true that the step from the structures of Eaton and Brush to the electrode of Swan seems to be very short when looking back upon the work of these men; but, standing where Brush and Eaton did and looking forward to the ideal electrode, which should avoid the then existing difficulties and possess the excellencies of the present Swan structure, the steps undoubtedly seemed many and long. If it had occurred to Eaton to scrape off the active material from his plate, leaving the holes full, he would have hit upon the invention; but it never did. If Brush had thought of punching out the bottom of his receptacles and had then rammed them full of active material without covering the external plate, he would be entitled to the credit of having made the successful structure; but he did not think of it. The experiments at that time seemed to be proceeding along different lines, the object being to keep as much material as possible upon the surface of the plate. The conviction cannot be avoided that the idea which has made these plates a commercial success was first given to the world in a practical embodiment by Mr. Swan.

Confirmation of these views is found in two recent decisions of the Supreme Court. In *Washburn & Moen Manufg. Co.* v. *Beat 'Em All Barbed-Wire Co.* (58 O. G., 1555; 12 Sup. Ct. Rep., 443) the Court says:

The difference between the Kelly fence and the Glidden fence is not a radical one; but, slight as it may seem to be, it was apparently this which made the barbed-wire fence a practical and commercial success. The inventions of Hunt and Smith appear to be scarcely more than tentative, and never to have gone into general use. The sales of the Kelly patent never seem to have exceeded three thousand tons per annum, while plaintiff's manufacture and sale of the Glidden device (substituting a sharp barb for a blunt one) rose rapidly from fifty tons in 1874 to 44,000 tons in 1886, while those of its licensees in 1887 reached the enormous amount of 173,000 tons. * * *. Under such circumstances courts have not been reluctant to sustain a patent to the man who has taken the final step which has turned a failure into a success. In the law of patents it is the last step that wins. It may be strange that, considering the important results obtained by Kelly in his patent, it did not occur to him to substitute a coiled wire in place of the diamond-shaped prong; but evidently it did not, and to the man to whom it did ought not to be denied the quality of an inventor.

In *Magowan* v. *Belting, etc., Co.* (57 O. G., 845; 141 U. S., 332; 12 Sup. Ct. Rep., 71) it was held that the fact that the patented improvement—

went at once into such an extensive public use as almost to supersede all packings made under other methods * * * was pregnant evidence of its novelty, value, and usefulness.

These quotations seem peculiarly applicable to the present controversy. The principles which are there so clearly and pointedly reaffirmed require a decision sustaining the validity of the complainant's patent. As to defendant's infringement there can be no doubt. The question arising upon the expiration of the Danish patent has not been argued. The casual examination which the Court, in the absence of explanation, has been able to give to this patent leads to the conclusion that it is not for the same invention as the Swan reissue.

There should be a decree for the complainant.

U. S. Circuit Court—Southern District of Ohio, Eastern Division.

RIPLEY *v.* ELSON GLASS COMPANY.

Decided March 12, 1892.

1. DESIGN PATENTS—ANTICIPATION—GLASS BOTTLES AND JARS.

Design Patent No. 17,243, issued April 5, 1887, to Daniel C. Ripley, for footed bottles and jars consisting of a spherical body, a figured ring-neck covering a zone of the body and having a raised pattern on its entire surface, was not anticipated by certain Designs having a general resemblance thereto in shape, but lacking the raised ornamentation of the neck.

2. SAME—EVIDENCE—METHOD OF PRODUCING.

Although the suit does not involve the method of producing the result, yet in considering the question of anticipation the court may properly take into consideration the fact that the patentee invented the method of making articles of glassware having a "blown" body and a "pressed" neck, thereby rendering possible the raised ornamentation of the neck in the patent.

3. SAME—CONSTRUCTION—INTERPRETATION OF WORDS.

The words of the claim and specification which refer to the body of the vessel as "globe-shaped" or "spherical" must be taken in their ordinary rather than their mathematical signification, and infringement cannot be avoided by merely elongating the body so as to render it an ovoid, rather than a sphere or globe.

4. SAME—TEST OF INFRINGEMENT—GENERAL RESEMBLANCE.

In determining whether a Design patent is infringed the test is whether there is a substantial similarity in appearance not to the eye of the expert, but to that of the ordinary observer giving such attention as would ordinarily be given by a purchaser of the article bearing the Design.

5. SAME—PENALTY.

Where the infringement of a Design patent is deliberate and intentional, the court will impose upon the defendant the penalty of $250 provided for by act of February 4, 1887.

SUIT by Daniel C. Ripley against the Elson Glass Company for infringement of patent. Decree for complainant.

Messrs. W. Bakewell & Sons and *Mr. T. B. Kerr* for the complainant.

Mr. F. L. Dyer and *Mr. J. D. Elson* for the defendant.

JACKSON, *J.*:

This suit is brought for the alleged infringement of Design Patent No. 17,243, issued April 5, 1887, to Daniel C. Ripley, the complainant, for a new and original Design for glass bottles and jars. After referring to Figures 1 and 2 of the accompanying drawings, the specification states that—

The characteristic feature of my Design consists of the globe-shaped body *b* and figured ring or neck portion *a*, surmounted on a zone of the spherical body *b*. The figured portion consists of a raised pattern covering the whole surface of the ring *a*; but the heads *d* may be omitted, as shown in Fig. 2. The body *b* has a foot, *c*. A suitable stopper, *e*, is used with some articles, and with others it is not. It therefore is not to be considered necessary to my Design, which is applicable to bottles, jars, pitchers, and similar footed articles.

The first claim based thereon is as follows:

The Design for footed bottles and jars, consisting of the spherical body *b*, the figured ring-neck *a*, covering a zone of the body *d*, the ring having a raised pattern on its entire surface, as shown and described.

Infringement is charged only as to this first claim of the patent. The defenses set up by respondent in its answer are, first, invalidity of the patent, because anticipated by certain prior Designs, and, secondly, non-infringement.

After a careful examination and consideration of the evidence introduced on both sides, which it is not deemed necessary to review or set out in detail, the conclusions reached by the court upon the whole case are the following, viz:

1. That the defense of invalidity and lack of invention in the patent sued on is not sustained. The sugar-caster shown on Plate 9 in defendant's exhibit, "Albert Jacquemort's Publication," and the glass pitcher shown on page 291 of defendant's exhibit, "Hamm's Catalogue," chiefly relied on to establish this defense, while resembling to some extent the jar embodying complainant's Design, cannot properly be said to anticipate the latter's patent. Defendant's expert witnesses find some general resemblance between said articles and the patent aside from or without considering the ornamentation of the latter. But it would be giving to complainant's Design too narrow a construction to limit and confine it to the exact conformation of jar shown in the drawings accompanying the specification of the patent and to ignore the ornamentation of the pressed neck surmounting the zone of the globe or spherical-shaped plain body. The Design does not consist in the precise shape of the body of the jar, nor in the body with the neck attached independent of the ornamentation upon the latter, but is found in the artistic association of all three features, which prevent agreeable contrasts and render the article of manufacture attractive to the eye. Thus considered, it would violate all sound principle to disregard the pressed neck ornamention, intended to promote, and by its contrast with the plain body of the article actually promoting, æsthetic effect, so as thereby to open the way to destroy the Design by showing that other features were previously in use. It is well settled that the patent is *prima facie* evidence of novelty and validity, which presumption is only to be overcome by clear, positive, and unequivocal proof. (*Miller* v. *Smith*, 18 O. G., 1047; 5 Fed. Rep., 359; *Thayer* v. *Hart*, 28 O. G., 542; 20 Fed. Rep., 693; *Lehnbeuter* v. *Holthaus*, 21 O. G., 1783; 105 U. S., 96.) Applying this rule to defendant's exhibits in connection with the other testimony in the case, the court is clearly of the opinion that complainant's patent was not anticipated thereby. On the contrary, the *prima facie* evidence of the novelty of the patent, instead of being overcome, is supported and established beyond any reasonable doubt by the evidence introduced on behalf of complainant. It is distinctly shown that complainant was the first to produce a footed globula or spherical-bodied glass jar having a neck covered with a raised pattern. Prior to the date of his Design no practicable method of making articles of glassware having a "blown" body and "pressed" neck was known. Complainant is shown to have invented the method by which the body of the glass jar or other article of glass could be blown so as to be of a rounded, globular, or spherical shape and the neck be pressed, thereby exhibiting the ornamentation of raised figures upon the latter, while the two parts—neck and body—united in one integral article. While this suit does not involve the method of producing or accomplishing this result, it is very properly urged by counsel for complainant that the Design should be considered as having originated with the invention of the method for giving it embodiment. But, without going further into details, the entire proof in the case fails to establish the defense of invalidity in the patent sued on.

2. That, the patent being valid, the first claim thereof is clearly infringed by the defendant. This, as a question of fact, is fully established not only by the testimony in the case, but also by the comparison of the exhibits made by the Court. It is shown both by inspection and by the proof that defendant's article of manufacture is substantially the same as that of the complainant. Minor differences are pointed out by the ingenuity of experts, but, notwithstanding such differences, there still remains that substantial iden-

2. SAME—EVIDENCE—METHOD OF PRODUCING.

Although the suit does not involve the method of producing the result, yet in considering the question of anticipation the court may properly take into consideration the fact that the patentee invented the method of making articles of glassware having a "blown" body and a "pressed" neck, thereby rendering possible the raised ornamentation of the neck in the patent.

3. SAME—CONSTRUCTION—INTERPRETATION OF WORDS.

The words of the claim and specification which refer to the body of the vessel as "globe-shaped" or "spherical" must be taken in their ordinary rather than their mathematical signification, and infringement cannot be avoided by merely elongating the body so as to render it an ovoid, rather than a sphere or globe.

4. SAME—TEST OF INFRINGEMENT—GENERAL RESEMBLANCE.

In determining whether a Design patent is infringed the test is whether there is a substantial similarity in appearance not to the eye of the expert, but to that of the ordinary observer giving such attention as would ordinarily be given by a purchaser of the article bearing the Design.

5. SAME—PENALTY.

Where the infringement of a Design patent is deliberate and intentional, the court will impose upon the defendant the penalty of $250 provided for by act of February 4, 1887.

SUIT by Daniel C. Ripley against the Elson Glass Company for infringement of patent. Decree for complainant.

Messrs. W. Bakewell & Sons and *Mr. T. B. Kerr* for the complainant.

Mr. F. L. Dyer and *Mr. J. D. Elson* for the defendant.

JACKSON, *J.*:

This suit is brought for the alleged infringement of Design Patent No. 17,243, issued April 5, 1887, to Daniel C. Ripley, the complainant, for a new and original Design for glass bottles and jars. After referring to Figures 1 and 2 of the accompanying drawings, the specification states that—

> The characteristic feature of my Design consists of the globe-shaped body *b* and figured ring or neck portion *a*, surmounted on a zone of the spherical body *b*. The figured portion consists of a raised pattern covering the whole surface of the ring *a*; but the heads *d* may be omitted, as shown in Fig. 2. The body *b* has a foot, *c*. A suitable stopper, *e*, is used with some articles, and with others it is not. It therefore is not to be considered necessary to my Design, which is applicable to bottles, jars, pitchers, and similar footed articles.

The first claim based thereon is as follows:

> The Design for footed bottles and jars, consisting of the spherical body *b*, the figured ring-neck *a*, covering a zone of the body *d*, the ring having a raised pattern on its entire surface, as shown and described.

Infringement is charged only as to this first claim of the patent. The defenses set up by respondent in its answer are, first, invalidity of the patent, because anticipated by certain prior Designs, and, secondly, non-infringement.

After a careful examination and consideration of the evidence introduced on both sides, which it is not deemed necessary to review or set out in detail, the conclusions reached by the court upon the whole case are the following, viz:

1. That the defense of invalidity and lack of invention in the patent sued on is not sustained. The sugar-caster shown on Plate 9 in defendant's exhibit, "Albert Jacquemort's Publication," and the glass pitcher shown on page 291 of defendant's exhibit, "Hamm's Catalogue," chiefly relied on to establish this defense, while resembling to some extent the jar embodying complainant's Design, cannot properly be said to anticipate the latter's patent. Defendant's expert witnesses find some general resemblance between said articles and the patent aside from or without considering the ornamentation of the latter. But it would be giving to complainant's Design too narrow a construction to limit and confine it to the exact conformation of jar shown in the drawings accompanying the specification of the patent and to ignore the ornamentation of the pressed neck surmounting the zone of the globe or spherical-shaped plain body. The Design does not consist in the precise shape of the body of the jar, nor in the body with the neck attached independent of the ornamentation upon the latter, but is found in the artistic association of all three features, which prevent agreeable contrasts and render the article of manufacture attractive to the eye. Thus considered, it would violate all sound principle to disregard the pressed neck ornamention, intended to promote, and by its contrast with the plain body of the article actually promoting, æsthetic effect, so as thereby to open the way to destroy the Design by showing that other features were previously in use. It is well settled that the patent is *prima facie* evidence of novelty and validity, which presumption is only to be overcome by clear, positive, and unequivocal proof. (*Miller* v. *Smith*, 18 O. G., 1047; 5 Fed. Rep., 359; *Thayer* v. *Hart*, 28 O. G., 542; 20 Fed. Rep., 693; *Lehnbeuter* v. *Holthaus*, 21 O. G., 1783; 105 U. S., 96.) Applying this rule to defendant's exhibits in connection with the other testimony in the case, the court is clearly of the opinion that complainant's patent was not anticipated thereby. On the contrary, the *prima facie* evidence of the novelty of the patent, instead of being overcome, is supported and established beyond any reasonable doubt by the evidence introduced on behalf of complainant. It is distinctly shown that complainant was the first to produce a footed globula or spherical-bodied glass jar having a neck covered with a raised pattern. Prior to the date of his Design no practicable method of making articles of glassware having a "blown" body and "pressed" neck was known. Complainant is shown to have invented the method by which the body of the glass jar or other article of glass could be blown so as to be of a rounded, globular, or spherical shape and the neck be pressed, thereby exhibiting the ornamentation of raised figures upon the latter, while the two parts—neck and body—united in one integral article. While this suit does not involve the method of producing or accomplishing this result, it is very properly urged by counsel for complainant that the Design should be considered as having originated with the invention of the method for giving it embodiment. But, without going further into details, the entire proof in the case fails to establish the defense of invalidity in the patent sued on.

2. That, the patent being valid, the first claim thereof is clearly infringed by the defendant. This, as a question of fact, is fully established not only by the testimony in the case, but also by the comparison of the exhibits made by the Court. It is shown both by inspection and by the proof that defendant's article of manufacture is substantially the same as that of the complainant. Minor differences are pointed out by the ingenuity of experts, but, notwithstanding such differences, there still remains that substantial iden-

tity of appearance in the two Designs which under well-settled rules for testing the question renders defendant an infringer. It is not and cannot be questioned that the first jar manufactured by defendant, like the small jar exhibited, was almost an exact imitation of complainant's design. When defendant ceased, upon notice, to manufacture that article, it sought to accomplish the same result and avoid the admitted infringement by merely elongating the body of its jar, so as to make it more of oval than globular or spherical in shape. But it is too plain for discussion that complainant's design is not to be limited or restricted to an exact globe or sphere in the body of the jar, but must be extended to any body that is globular or spherical—pertaining to a globe or sphere. The defendant's large jar is unquestionably spherical in shape, and it is a mere play upon words—making a distinction without any real difference—to call it an "oval" or "ovoid," and thereby escape the charge of infringement. When complainant's specification and claim refer to the body of the jar being "globe-shaped" or "spherical," these terms are to be understood, according to their natural and ordinary meaning and signification, as indicating and covering a body not mathematically exact in dimension, but comparatively so. The terms are relative, and as thus employed embrace any-shaped body that is globular or spherical in character, such as an egg or acorn. To test the two Designs by the technical mathematical distinction between an oval or ovoid and a globe or sphere would be not only to place an improper construction upon the language of the patent, but would involve a total disregard of the well-settled principles laid down by the authorities for determining the question of infringement in such cases. Since the case of *Root* v. *Ball*, (4 McLean, 177,) decided in 1846, the rule applied in such cases is that—

it is not necessary in order to constitute infringement that the thing patented should be adopted in every particular; but if the Design and figures were substantially adopted by the defendants, they have infringed the plaintiff's right. It is an infringement to adopt the Design so as to produce substantially the same appearance.

And upon the question of substantial identity or similarity in Design patents the test to be employed or applied is not the eye of the expert, but that of the ordinary observer giving such attention as would ordinarily be given by a purchaser of the article bearing the Design. In *Gorham Co.* v. *White* (14 Wall., 528) the rule is stated thus:

We hold, therefore, that if in the eye of an ordinary observer giving such attention as a purchaser usually gives, two Designs are substantially the same, if the resemblance is such as to deceive such an observer, inducing him to purchase one supposing it to be the other, the first one patented is infringed by the other.

The test of infringement in Design patents is more analogous to that applied in trade-mark cases than to that adopted in respect to patents on mechanism. Testimony of experts is admissible in determining whether two mechanisms are substantially identical; while in Design patents, resting almost wholly upon "appearances," the test of sameness is determined by the eye of the ordinary observer giving such attention as a purchaser usually gives, which is substantially the same principle applied in trade-mark cases. Applying this rule to the present case, the Court has, without hesitation or doubt, reached the conclusion that defendant's large jar as now made is an infringement of complainant's patent. The decisions which in the opinion of the Court fully sustain this conclusion, both on the testimony and inspection of the articles and Designs, are the following: *Root* v *Ball*, (4 McLean, 177;) *Perry* v. *Starrett*, (3 Ban. & A., 485;) *Gorham Co.* v. *White*, (14 Wall., 511;) *Miller* v. *Smith*, (18 O. G., 1047; 5 Fed. Rep., 359;) *Jennings* v. *Kibbe*, (32 O. G., 653; 10 Fed. Rep., 669;) *Wood* v. *Dolby*, (20 O. G., 523; 7 Fed. Rep., 475;) *Dryfoos* v. *Friedman*, (18 Fed. Rep., 825;) *Tomkinson* v. *Manufacturing Co.*, (32 O. G., 382; 23 Fed. Rep., 895;) *New York Belting & Packing Co.* v. *New Jersey Car Spring Co.*, (57 O. G., 1888; 48 Fed. Rep., 556.)

3. That defendant's infringement of the first claim of the patent was so deliberate and intentional as to warrant the court, under the act of February 4, 1887, in imposing upon it the payment of the two hundred and fifty dollars, as prayed for in the bill. It follows from the foregoing conclusion that complainant is entitled to the relief sought by his bill, and a decree in his favor is rendered accordingly. The defendant will be enjoined from further infringement, will be charged with the sum of $250, will be taxed with the costs of the suit, and the usual reference for an account to ascertain profits made by defendant or damages sustained by complainant will be directed.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 60—No. 3. TUESDAY, JULY 19, 1892. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., July 11, 1892.

SIR: The Secretary of the Interior has ordered that James F. Morgan, of Bloomington, Ind., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully, E. M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

International Protection of Industrial Property.

Supplemental convention between the United States, Belgium, Brazil, France, Great Britain, Guatemala, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and Tunis, amendatory of the convention of March 20, 1883, for the protection of industrial property.

Concluded at Madrid April 15, 1891; ratification advised by the Senate March 2, 1892; ratified by the President March 30, 1892; ratifications exchanged June 15, 1892; proclaimed June 22, 1892.

By the President of the United States of America:

A PROCLAMATION.

Whereas, Protocol 3, amendatory of the convention of March 20, 1883, for the protection of industrial property was signed at Madrid on the fifteenth day of April, one thousand eight hundred and ninety-one, by the plenipotentiaries of the United States and other powers, a certified copy of which Protocol 3, in the French language, is word for word as follows:

[*Translation.*]

THIRD PROTOCOL.

Protocol concerning the dotation of the International Bureau of the Union for the Protection of Industrial Property between Belgium, Brazil, Spain, the United States of America, France, Great Britain, Guatemala, Italy, Norway, The Netherlands, Portugal, Sweden, Switzerland, and Tunis.

The undersigned plenipotentiaries of the governments above named, in view of the declaration adopted March 12, 1883, by the International Conference for the Protection of Industrial Property convened at Paris, have, with one accord and subject to ratification, concluded the following Protocol:

ARTICLE 1. The first paragraph of No. 6 of the final Protocol annexed to the International Convention of March 20, 1883, for the Protection of Industrial Property is annulled and replaced by the following provision:

"The expenses of the International Bureau instituted by Article 13 shall be supported by the contracting States in common. They cannot in any event exceed the sum of sixty thousand francs per annum."

ART. 2. The present Protocol shall be ratified, and the ratifications thereof shall be exchanged at Madrid within a period of six months at the latest.

It shall take effect one month after the exchange of ratifications, and shall have the same force and duration as the Convention of March 20, 1883, of which it shall be considered as forming an integral part.

In testimony whereof the plenipotentiaries of the States above named have signed the present Protocol at Madrid, the fifteenth day of April, one thousand eight hundred and ninety-one.

For Belgium: TH. DE BOUNDER DE MELSBROECK.
For Brazil: LUIS F. D'ABREU.
For Spain: S. MORET, MARQUIS DE AGUILAR, ENRIQUE CALLEJA, LUIS MARIANO DE LARRA.
For the United States of America: E. BURD GRUBB.
For France and Tunis: P. CAMBON.
For Great Britain: FRANCIS CLARE FORD.
For Guatemala: J. CARRERA.
For Italy: MAFFEI.
For Norway: ARILD HUITFELDT.
For The Netherlands: GERICKE.
For Portugal: COUNT DE CASAL RIBEIRO.
For Sweden: ARILD HUITFELDT.
For Switzerland: CH. E. LARDET.
For Switzerland: MOREL.

And whereas the said Protocol 3 has been duly ratified by the signatory powers, and the ratifications thereof were exchanged at the city of Madrid, on the fifteenth day of June, one thousand eight hundred and ninety-two;

Now, therefore, be it known that I, BENJAMIN HARRISON, President of the United States of America, have caused the said Protocol 3 to be made public, to the end that the same and every article and clause thereof may be observed and fulfilled with good faith by the United States and the citizens thereof.

In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this twenty-second day of June, in the year of our Lord one thousand eight hundred and ninety-two and of the Independence of the United States the one hundred and sixteenth.

[SEAL] BENJ. HARRISON.

By the President:
WILLIAM F. WHARTON,
Acting Secretary of State.

NOTE.—Ratifications of Protocol 4 were not exchanged. The Protocol was referred to the next Conference to be held at Brussels. See telegram from United States Chargé at Madrid, June 15, 1892.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

This order does not include the written statements of the grounds of decisions made by Examiners to the appellate tribunal in *ex parte* cases.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of July 19, 1892.

Patents	415—No. 478,976 to No. 479,390, inclusive.
Designs	18—No. 21,714 to No. 21,731, inclusive.
Trade-Marks	56—No. 21,455 to No. 21,510, inclusive.
Labels	None.
Reissue	1—No. 11,254.
Total issue	490

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Nevada	1	.....
Arizona Territory	1	.....	New Hampshire	2	.....
Arkansas	5	.....	New Jersey	19	1
California	13	1	New Mexico Territ'y	.....	.....
Colorado	4	.....	New York	66	14
Connecticut	21	2	North Carolina	.....	.....
Delaware	3	.....	North Dakota	.....	.....
District of Columbia	4	.....	Ohio	33	3
Florida	1	.....	Oregon	.....	1
Georgia	2	.....	Pennsylvania	34	3
Idaho	.....	.....	Rhode Island	5	1
Illinois	36	8	South Carolina	.....	.....
Indian Territory	.....	.....	South Dakota	3	.....
Indiana	10	.....	Tennessee	3	.....
Iowa	11	.....	Texas	6	1
Kansas	.....	.....	Utah Territory	2	.....
Kentucky	6	1	Vermont	.....	.....
Louisiana	4	1	Virginia	2	2
Maine	2	1	Washington	5	.....
Maryland	6	3	West Virginia	2	.....
Massachusetts	36	5	Wisconsin	10	1
Michigan	12	.....	Wyoming	.....	.....
Minnesota	3	2	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	.....	.....
Missouri	19	2	Total to citizens of the United States	399	53
Montana	1	.....			
Nebraska	3	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Mexico	1	.....
Austria-Hungary	1	.....	Netherlands	.....	.....
Belgium	.....	.....	Newfoundland	.....	.....
Bermuda	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	3	.....	Norway	.....	2
Cape Colony	.....	.....	Queensland	.....	.....
Chile, Republic of	.....	.....	Russia	.....	.....
Cuba	.....	.....	Scotland	.....	.....
Ecuador	.....	.....	South Australia	.....	.....
England	18	1	Spain	.....	.....
France	3	.....	Sweden	.....	.....
Germany	7	.....	Switzerland	.....	.....
Hawaii	.....	.....	Victoria	.....	.....
Ireland	1	.....	Total to citizens of foreign countries	34	3
Italy	.....	.....			
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

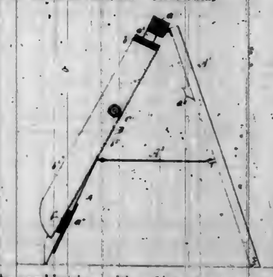
Condition at Close of Business July 12, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	May 23	July 9	235
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	May 20	July 8	101
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	May 27	July 5	111
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	May 14	June 28	203
7	Harvesters, Games and Toys	May 20	June 25	268
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	May 14	June 18	258
5	Fine Arts, Stationery, Book-Binding, Music, etc.	May 12	June 8	238
	Between two and three months in arrears.			
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 2	July 9	197
24	Sewing-Machines and Apparel	Apr. 16	July 6	122
21	Textiles, etc.	Apr. 26	July 2	186
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Apr. 21	July 2	314
17	Paper-Manufactures and Printing.	Apr. 25	June 28	175
22	Fire-Arms, Navigation, Signals, etc.	Apr. 27	June 23	198
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Apr. 19	June 23	189
2	Farm Stock, Products, etc	Apr. 18	June 23	299
23	Instruments of Precision, Acoustics, Optics, etc.	Apr. 20	June 21	276
8	Furniture, Toilet, Umbrellas and Canes, etc.	Apr. 25	June 17	391
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Apr. 14	June 15	205
12	Mechanical Engineering, Stores-Service, etc.	Apr. 29	June 13	199
9	Hydraulics, Fire-Extinguishers, etc.	Apr. 20	June 2	394
1	Tillage and Fences	Apr. 28	May 3	320
	Between three and four months in arrears.			
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Apr. 11	July 2	289
18	Steam-Engineering, etc	Mar. 24	June 17	282
10	Carriages and Wagons and Railway-Cars.	Mar. 30	June 15	671
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Apr. 8	June 11	335
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Mar. 28	May 24	360
19	Stoves and Furnaces	Mar. 24	May 19	413
4	Civil Engineering, etc	Mar. 31	May 14	469
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Feb. 29	June 4	506
13	Metal-Working, Arms and Projectiles, etc.	Mar. 1	May 16	393
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 11	May 5	461
	Between five and six months in arrears.			
26	Electricity, Generation, Distribution, etc.	Jan. 26	June 14	377
	Total number of applications awaiting action			9,435
	Under one month in arrears.			
	Designs	July 5	July 7	21
	Trade-Marks	July 9	July 11	24

PATENTS

GRANTED JULY 19, 1892.

478,976. SIEVE. WILLIAM L. ARMSTRONG, Bellport, N. Y. Filed Aug. 25, 1891. Serial No. 403,732. (No model.)



Claim.—The combination, with a frame having a bottom piece secured to the rear side of the side pieces, of a sieve pivoted intermediate of its ends to the side pieces of said frame and constructed to oscillate when material is thrown against its upper portion above the pivotal point, the said sieve having sufficient length to contact with the bottom piece of the frame, a prop for the frame, and a stop on the prop for limiting the tilting of the sieve, substantially as specified.

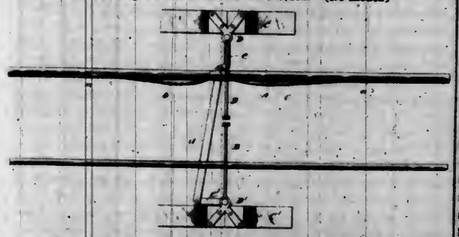
478,977. OIL-CUP. WILLIAM H. BAILEY and ALFRED J. BAILEY, Salford, England. Filed Apr. 4, 1892. Serial No. 427,703. (No model.) Patented in England Feb. 27, 1891, No. 3,564.



Claim.—1. In combination with a lubricator, a valve controlling the outlet thereof and a disk eccentrically pivoted to the stem of the valve and having a suitable bearing for its periphery, substantially as described.

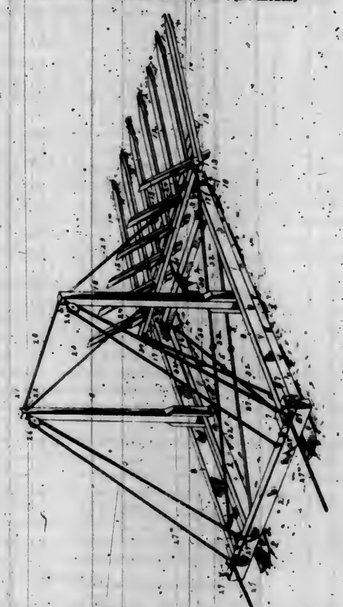
2. In combination with the cup *a*, the valve, and stem *d*, passing through the cup, a disk pivoted eccentrically to the upper end thereof and bearing on the upper part of the cup, substantially as described.

478,978. RAILWAY-GATE. LYCURGUS S. BARNETT, Birch Tree, Mo. Filed Aug. 22, 1891. Serial No. 403,412. (No model.)



Claim.—In an automatically-operated railway-gate, a train-actuated bar A, located adjacent to the rail and adapted by its movement to accommodate itself to the wheels of a passing train, in combination with the swinging gates B B and mechanism for operating the same, consisting of the rods *b e* beneath and parallel to the train-bar and connected therewith by means of the vertically adjusted bent levers *a a*, fulcrumed between the train-bar and rods *b* and *c*, the arms *c d*, secured to the rear mullions of the gates, and the cross link *d*, parallel to the closed gates and having one end articulated to the rods *b c* and arm *c* and the other to the arm *c'*, the whole being adapted to co-operate with automatic closing mechanism, substantially as described.

478,979. HAY-STACKER. PHILIP BERNARD, Jefferson, S. D. Filed Sept. 8, 1891. Serial No. 405,071. (No model.)

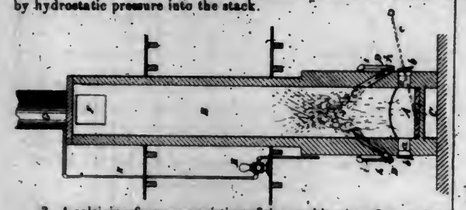


Claim.—In a hay-fork, the combination, with a runner-frame, of parallel fork-arms pivoted on opposite sides and at one end of said frame and provided with reduced outer tapered ends having squared shoulders at their extremities, opposite swinging standards pivoted at their lower ends between said fork-arms and to opposite sides of the runner-frame, a transverse connecting-rod loosely connected to the upper end of one of said standards and detachably to the opposite standard, wedge-blocks resting upon the tapered ends of said arms, the fork having front and rear cross-bars above and below the tines thereof, respectively, the front bar resting in said outer shoulders and the rear bar upon said wedge-blocks, clip-bolts encircling the tapered ends of the fork-arms and clamped to said bars to hold them to their respective places, diagonal jointed brace and securing rods loosely connected at one end to the fork-arms near their pivotal points and removably connected at their other ends to the rear cross-bar of the fork, fork-rods loosely connected to said opposite standards and detachably to said rear cross-bar, and means for moving said standards to elevate and lower the fork, substantially as set forth.

478,980. APPARATUS FOR RECOVERING ALKALI. HENRY BLACKMAN, New York, N. Y. Filed Sept. 20, 1889. Serial No. 324,551. (No model.)

Claim.—1. A calcining-furnace consisting of the combination of an upright stack, an inlet for gases of combustion at the lower part thereof, so that the gases ascend therethrough, and an upwardly-directed nozzle entering said stack, through which a liquid to be treated may be injected.

2. A calcining-furnace consisting of the combination of an upright stack, an inlet for gases of combustion at the lower part thereof, so that the gases ascend therethrough, an upwardly-directed nozzle entering said stack, and an elevated reservoir of liquid to be treated connected by a pipe with said nozzle, whereby the liquid to be treated is injected by hydrostatic pressure into the stack.



3. A calcining-furnace consisting of the combination of an upright stack, an inlet for gases of combustion at the lower part thereof, so that the gases ascend therethrough, an upwardly-directed nozzle entering said stack through which a liquid to be treated may be injected, and an evaporator for the liquid to be treated arranged to be traversed by the gases of combustion after the latter have passed beyond the injected liquid, whereby the gases first evaporate the spray of denser liquid injected beneath and subsequently their heat is utilized to concentrate the less dense liquid.

4. In a calcining-furnace, the combination of an upright stack, an inlet for gases of combustion at the lower part thereof, so that the gases ascend therethrough, a nozzle entering said stack through which a liquid to be treated may be injected into the ascending gases, and an evaporator for the liquid to be treated arranged to be traversed by the gases after they have passed beyond the injected liquid and consisting of shelves or trays, over which the liquid is flowed, arranged in the path of the gases, whereby the liquid is brought into direct contact therewith.

5. A calcining-furnace consisting of the combination of an upright stack, an inlet for gases of combustion at the lower part thereof, so that the gases ascend therethrough, an upwardly-directed nozzle entering said stack through which a liquid to be treated may be injected, and an evaporator for the liquid to be treated arranged to be traversed by the gases of combustion after the latter have passed beyond the injected liquid and consisting of a horizontal trunk through which the gases pass from the stack, and superposed trays therein for holding the liquid.

6. In a calcining-furnace, the combination of a calcining-chamber extended horizontally and provided with a calcining hearth or floor divided into two portions, a primary calcining-hearth at the entering end of the chamber and a secondary calcining-hearth extending thence to the discharge end, separated by an inclined plane leading up from the primary to the secondary hearth, an inlet for gases of combustion at the discharge end of said chamber, and means for introducing the material to be treated at the entering end thereof.

478,981. APPARATUS FOR AND PROCESS OF RECOVERING ALKALI. HENRY BLACKMAN, New York, N. Y. Filed Dec. 12, 1889. Serial No. 333,503. (No model.)

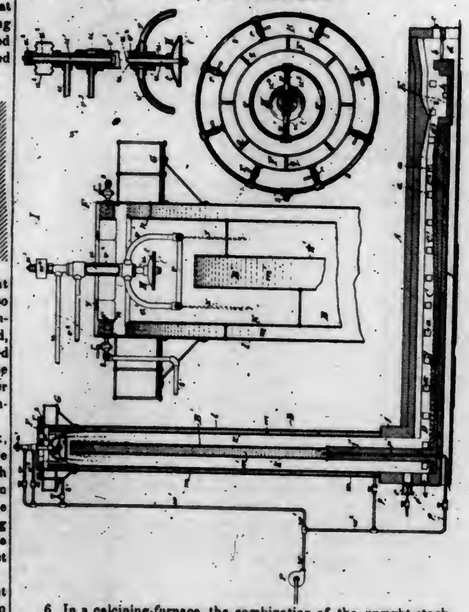
Claim.—1. The process consisting in introducing the liquid to be treated in a concentrated condition in a bath on the calcining-hearth, subjecting said bath to the heat of gases of combustion, whereby its volatile constituents are vaporized, moving the material from said bath along the calcining-hearth while under the influence of burning gases until its combustible constituents are calcined out, and finally fusing the purified material and causing it to flow off from said hearth.

2. In a calcining-furnace, the combination of an upright stack, an inlet for gases of combustion at its lower part, so that the gases ascend therethrough, a liquid-reservoir constructed as part of said stack and having a passage from the upper part of said reservoir into the stack, whereby the liquid to be treated is heated in said reservoir and discharged thence into the stack to descend therethrough.

3. In a calcining-furnace, the combination of an upright stack constructed in part of double walls constituting a liquid jacket or reservoir between them, and the inner wall ascending to less height than the outer wall and having a pipe for introducing the liquid to be treated into the lower part of said reservoir, whereby the liquid is caused to ascend through said reservoir and overflow the top of the inner wall into the stack.

4. In a calcining furnace, the combination of an upright stack, an annular trough or liquid-vessel constructed in the upper part of said stack, and a pipe for introducing the liquid to be treated into said trough and causing it to overflow therefrom within the stack.

5. In a calcining-furnace, the combination of an upright stack, an annular liquid-vessel or trough constructed at the upper part thereof and divided into compartments, and separate valved liquid-inlet pipes communicating with the respective compartments.



6. In a calcining-furnace, the combination of the upright stack thereof through which pass hot gases of combustion from the furnace, with a spray-valve within the upper part of said stack constructed to throw a spray of liquid to be treated across the stream of ascending gases and against the walls of the stack, whereby the liquid is exposed to the gases first in the form of spray and subsequently while streaming down said walls.

7. In a calcining-furnace, the combination of an upright stack with a vertical column arranged within it and an inlet for the liquid to be treated constructed to flow said liquid against the sides of said column and cause it to stream down the surface thereof.

8. In a calcining-furnace, the combination of an upright stack with a vertical column therein, constructed in part as a heating-reservoir for the liquid to be treated, with the top of said reservoir open to admit the liquid to overflow therefrom down the outer sides of the column, and an inlet-pipe for admitting liquid to the lower part of said reservoir to cause it to ascend therethrough.

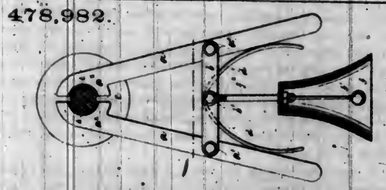
9. A calcining-furnace consisting of a horizontal chamber having a calcining hearth or floor, an inlet for the gases of combustion at the discharge end thereof and an outlet therefor at the receiving end, a bath at the receiving end for the concentrated liquid to be treated, and a calcining-hearth constructed to ascend from said bath toward the discharge end of the furnace, and the chamber constructed with doors or openings for the insertion of stirring-tools by which to push the material being calcined up said inclined portion of the hearth.

10. A calcining-furnace consisting of a horizontal chamber having a long calcining hearth or floor and constructed with a pit or vat for receiving fused material at the discharge end of the chamber and with the portion of the hearth adjacent to said pit constructed to slope toward the pit, an inlet for gases of combustion at the discharge end of the chamber and an outlet therefor at the receiving end, and the chamber shaped to direct the gases flowing over the calcining-hearth to impinge upon and impart the most extreme heat to the downwardly-inclined portion thereof, so that the calcined material may be fused thereon and caused to drain into said pit.

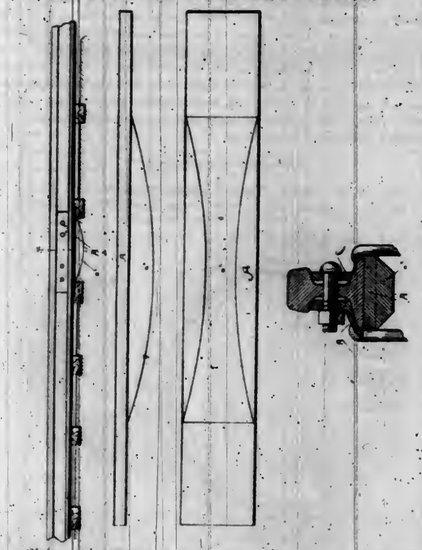
478,982. ALARM. FRANK F. BOSGNER, New York, N. Y. Filed Apr. 1, 1892. Serial No. 427,336. (No model.)

Claim.—The combination of a pair of converging levers *a*, having concave jaws a^2, with the connecting-arm *b*, to which the levers are pivoted, a spring *d* for forcing the jaws a^2 together, and a bell *f*, suspended from the connecting-arm substantially as specified.

478,982.

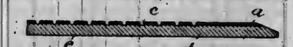


478,983. RAILWAY-JOINT. FREDERICK W. BOND, Springfield, Mo. Filed Nov. 30, 1889. Serial No. 332,124. (No model.)



Claim.—A rail-joint bridge consisting of a plate having ends adapted to rest upon the ties and having on its under side a curved strengthening-rib whose ends are adapted to bear against the said ties, the said rib having its sides curved inward toward its center, whereby the rib at its center is largest in vertical section and smallest in transverse section, substantially as described.

478,984. THERMOMETER-SCALE. FRANZ BRANDT, Philadelphia, Pa. Filed Apr. 13, 1892. Serial No. 428,940. (No model.)



Claim.—1. A panel for thermometers, composed of composite or flashed glass and having on its face an etched scale, substantially as and for the purposes set forth.

2. A panel composed of composite or flashed glass and adapted for the reception of a thermometer-tube and having on its back a ground-glass surface and having on its face an etched scale, substantially as and for the purposes set forth.

3. A panel composed of etched composite material, as flashed glass, for holding a thermometer tube and bulb, substantially as and for the purposes set forth.

478,985. ORNAMENTAL FENCE-WIRE. CHARLES W. BRIDGES, Indianapolis, Ind. Filed Apr. 7, 1892. Serial No. 428,137. (No model.)

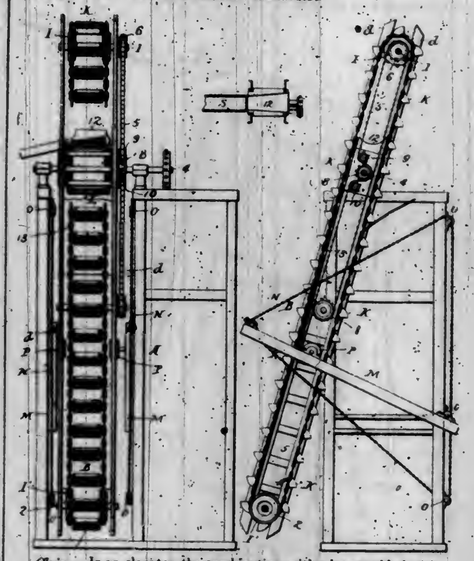


Claim.—1. In an ornamental wire ribbon, a main wire whose shape in cross-section is oval or flattened, and a secondary round wire formed in double loops, such loops bent closely to the main wire in opposite directions, the ends of the loops extending alternately from the opposite sides of the main wire in a plane with the longer diameter of the main wire, substantially as shown and described.

2. In an ornamental fence-wire ribbon, a main wire whose shape in cross-section is oval or flattened, and a secondary wire formed in double loops, such loops bent around the main wire in opposite directions and fitting closely thereto, the ends of the loops extending alternately in opposite directions from the main wire, the form of the main wire preventing them from turning, substantially as shown and described.

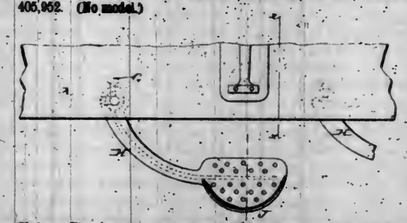
3. A wire ribbon composed of a straight wire whose shape in cross-section is oval or flattened and a secondary wire bent around the same, forming loops on opposite sides, substantially as shown and described.

478,986. ELEVATOR. CHARLES A. CASE, New York, N. Y. Filed Aug. 29, 1891. Serial No. 404,136. (No model.)



Claim.—In an elevator, the combination, with a leg provided with drums at its upper and lower ends and an endless chain of buckets extending around said drums, of a guide-block, a driving-shaft having a sprocket-wheel and extending through the guide-block, and a driving-chain extending around the wheel upon the driving-shaft, the wheel upon the shaft of the upper drum, and a wheel 7, mounted upon the leg below the driving-shaft, substantially as set forth.

478,987. OPERATOR'S SEAT. CHARLES H. COLBY, Brooklyn, N. Y., assignor to J. Colby & Co., same place. Filed Sept. 17, 1891. Serial No. 405,952. (No model.)



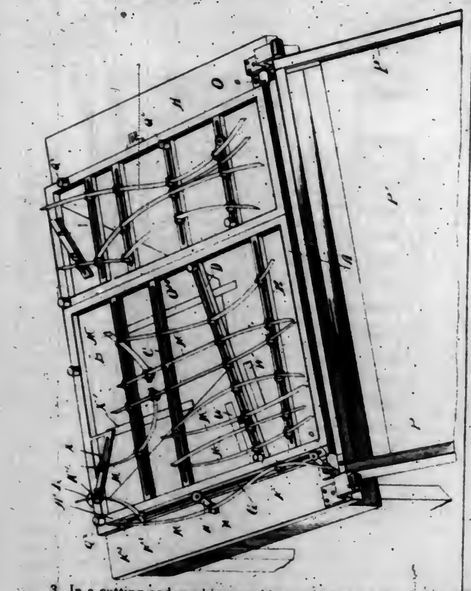
Claim.—The combination, substantially as hereinbefore set forth, of a table, a support thereof having upper and lower bearings, the line of which is somewhat inclined from the vertical, a bar pivoted at its upper and lower ends to said bearings, a sleeve carrying a set-screw, fitted to slide up and down on said pivot-bar, and an arm rigidly attached to said sleeve and carrying at its outer end an operator's seat *J*.

478,988. MACHINE FOR CUTTING AND MARKING GARMENTS. SARAH A. COOKE, Chicago, Ill. Filed Oct. 28, 1891. Serial No. 410,146. (No model.) Patented in England Nov. 4, 1887, No. 15,021.

Claim.—1. In a cutting and marking machine, in combination with the outline-frame and the flexible blades projecting edgewise from the plane of said frame, bars extending transversely across the outline-

frame, shafts extending longitudinally through said bars and journaled therein, and pinions fixed on the opposite ends of said shafts, the side bars of the outline-frame having racks in which said pinions engage and travel, and the blade supports adjustable longitudinally with respect to said bars, substantially as set forth.

2. In a cutting and marking machine, in combination with a base-frame comprising a plurality of bars, the flexible blades and supports for such blades, mounted and adjustable longitudinally and adapted to be secured in adjusted position on such bars, said blade-supports having the immediate seat for the blades adapted to permit the blade to slide longitudinally therethrough and swiveled to the secured portion of the support, whereby the blades are permitted to assume flowing outlines controlled by the position of the support on the frame, substantially as set forth.



3. In a cutting and marking machine, a slotted bar, in combination with a blade-support, which consists of the yoke N^4 within the bar, having a stem projecting through the slot at one side of the bar and a clamp-nut on said stem outside the bar, and the immediate seat for the blade, located at the opposite side of the bar and provided with a stem projecting through the slot at that side and swiveled to the yoke, said yoke having an aperture n^4, substantially as set forth.

4. In a cutting and marking machine, in combination with a bar slotted longitudinally through from side to side, the blade-support adapted to slide longitudinally in such slot, consisting of the yoke N^4 within the bar and having a stem projecting out through the slot at one side, and the immediate seat for the blade, having a stem projecting in through the slot from the opposite side and swiveled to the yoke, the clasp N^5 on the protruding stem of the yoke and having flanges which embrace the bar, and the clamp-nut on the stem outside the clasp, substantially as set forth.

5. In combination with the frame comprising a longitudinally-slotted bar, the blade-support adapted to be adjusted and secured in said bar, having an arm adjustably secured to it provided with a swiveled seat for the blade at one end, substantially as set forth.

6. In combination with the frame comprising a longitudinally-slotted bar, and the blade-support adapted to be adjusted and secured in such bar and having an arm swiveled to it, said arm being provided at the free end with a swiveled seat for the blade, substantially as set forth.

7. In combination with the base-frame and the blades secured thereto, the stools Q, removably secured to the frame and having their upper surfaces at the plane of the operating edges of the blades, substantially as set forth.

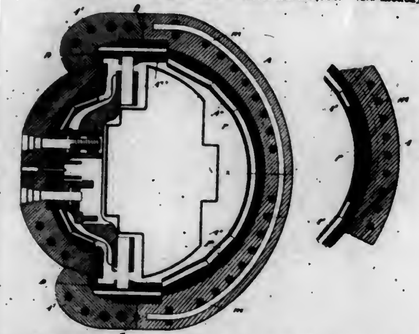
8. In a cutting and marking machine, in combination with the outline-frame comprising side bars having longitudinal racks a', the bar D, extending transversely between said side bars and having telescoping end pieces, and the pinions having ball-and-socket joint bearing on said end pieces, said pinions being adapted to engage the racks, the side bar having a guard-lip behind which the pinions are retained, substantially as set forth.

9. In a cutting and marking machine, a base-frame and the flexible blades and their supports adjustable with respect to said frame, combined with a stand, to one edge of which such base-frame is hinged, such hinge being adapted to permit the frame to swing from a horizontal position on the table to an upstanding position above the hinge, such stand being recessed at the side opposite the hinge, whereby the operator may approach the upstanding frame to operate it from the side which is downward when the frame is horizontal on the stand, substantially as set forth.

10. In combination with the stand, a frame having the cutting-blades secured to it, hinged to the stand, and adapted to be set upright or laid horizontal at will and a frame having the flexible fabric P' also hinged to the stand and adapted to fold down over the blade-carrying frame, substantially as and for the purpose set forth.

11. In combination with the stand, the blade-carrying frame hinged thereto and adapted to be folded down thereupon, the frame P, having the flexible fabric P', also hinged to the stand and adapted to be folded down upon the blade carrying frame, said frame P having rigid with its side bars racks overhanging the plane of the fabric P', and the roller S, having equal pinions S^2, rigid with its shaft, at its opposite ends and adapted to engage the racks, respectively, and the forked handle having bearings for the roller-shaft between the roller and the pinions, substantially as set forth.

478,989. SAFE. WILLIAM CORLISS, Providence, R. I. Filed July 28, 1891. Renewed May 27, 1892. Serial No. 434,531. (No model.)



Claim.—1. In a burglar-proof safe, a shell the exterior face of which is of hard metal and the interior portion of which is made separately, as a lining, and is traversed by bars of hard metal, all combined and arranged substantially as herein specified.

2. In a burglar-proof safe, an exterior shell of hard metal traversed by bars of soft iron and a separately-formed lining of soft iron traversed by bars of hard steel applied together, substantially as herein specified.

3. In a safe, a lining of separately-formed pieces matched together like the voussoirs of domes, so as to be self-supporting, as herein specified.

4. In a burglar-proof safe, an exterior shell formed of separate pieces screw-threaded interiorly near the lines of junction, in combination with an exteriorly-screw-threaded connecting-ring, substantially as set forth.

5. In a burglar-proof safe, an exterior shell formed of separate pieces screw-threaded interiorly near the lines of junction, in combination with a lining formed of detached pieces matched together, and an exteriorly-screw-threaded connecting-ring forming a part of the lining and abutting against the outermost of the other lining-pieces, substantially as set forth.

6. The burglar-proof safe described, having an exterior shell A A' in separate pieces screw-threaded in their interior near the lines of junction, and lining A, extending across the joint on the interior, separately formed of soft iron correspondingly screw threaded, with hard-steel bars P inclosed therein, adapted to serve the double function of a burglar-proof lining and a connection for the parts of the outer shell, as herein specified.

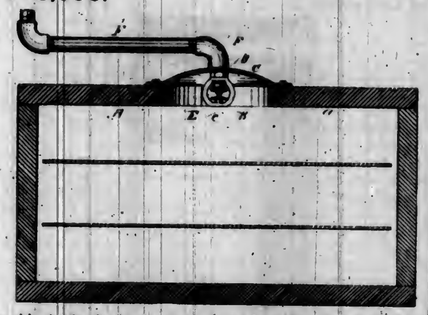
478,990. TRUNK FOR USE WITH COTTON-PICKERS, &c. ROBERT L. CUNDOCK, Henderson, Ky. Filed Mar. 31, 1892. Serial No. 427,167. (No model.)

Claim.—1. A conveyer-trunk having an opening closed on the outside by a cap, in combination with an automatic sprinkler having its head or rose contained within said opening and cap, all as set forth.

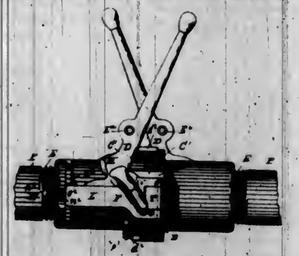
2. A conveyer-trunk having an opening closed on the outside by a dome-shaped removable cap, in combination with an automatic sprinkler having its head or rose secured to the cap and contained within said opening and cap, all as set forth.

3. The sprinkler-hanger above described, consisting of a dome-shaped piece having a hole through its center, through which a sprinkler may be hung and adapted to be suitably attached at its edges to the outer wall of the conveyer-trunk, all as set forth.

478,990.



478,991. STEAM-PIPE COUPLING FOR RAILWAY-CARS. THOS. CURLEY, Troy, N. Y. Filed July 18, 1891. Serial No. 399,967. (No model.)



Claim.—The combination of the two coupler parts C C, each having the packing-face O and packing p' and each made with a hinged latch L, constructed with an end recess l^7, and each of said coupler parts constructed with a pivoted lever D, made with the finger F, and cam K, constructed and arranged to operate connectedly, substantially in the manner as and for the purposes set forth.

478,992. DENTAL ENGINE. FRANK A. DAMON, Fitchburg, Mass. Filed Apr. 6, 1892. Serial No. 428,013. (No model.)

Claim.—1. In a dental engine, a motor and a power-transmitting shaft, combined with a friction-gearing composed of a disk having a concave portion and a friction-wheel having contact with said disk, excepting at its concave portion, and means to move said friction-wheel across the faces of said disk while in contact therewith to obtain motion in either of two directions and at varying speed and also to move it opposite such concave portion to stop the machine, substantially as described.

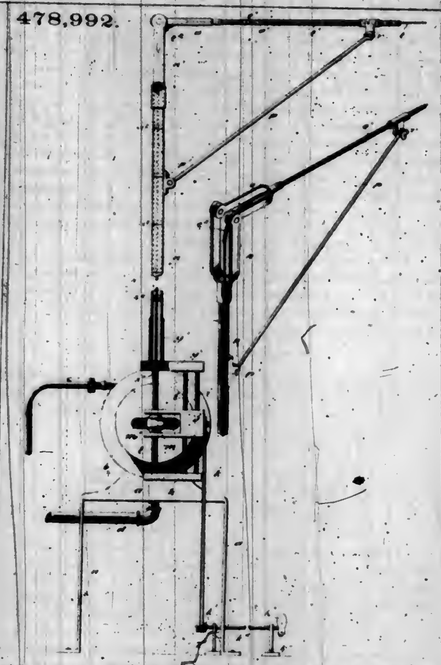
2. In a dental engine, a motor and a power-transmitting shaft, combined with a friction-disk on the end of the motor-shaft having a concave portion, a short vertical shaft connected with the power-transmitting shaft, a friction-wheel connected with said short shaft to turn it and movable longitudinally thereof, a pedal, and connections between the pedal and friction-wheel, whereby said friction-wheel is adapted to be moved up and down said shaft to effect an engagement with and disengagement from the friction-disk and thereby to change the direction of rotation, vary the speed, and stop the machine, substantially as described.

3. In a dental engine, a frame, a motor supported thereby, a vertical friction-disk arranged on the motor-shaft and having a concave portion, brackets projecting from said frame and containing vertical guide-rods, a carrier arranged upon said guide-rods, means to move it longitudinally thereof, and a vertical short shaft supported in said brackets, combined with a friction-wheel arranged to slide on said short shaft and to turn it and movable into and out of engagement with the friction-disk by its said carrier, substantially as and for the purpose described.

4. In a dental engine, a motor and a power-transmitting shaft, combined with intermediate gearing, and a rock-shaft for controlling such gearing, having a pedal at one side of the operator's chair and extending across to the other side thereof, substantially as described.

5. In a dental engine, the column or standard, combined with the power-transmitting shaft, and washers to support it in the said column or standard, substantially as described.

478,992.



478,993. CAR-COUPLING. JAMES C. DEVLIN, Hernando, Miss., assignor of four-fifths to Don M. Dockery, James P. Meredith, and Stillman W. McLaughlin. Filed Oct. 10, 1891. Serial No. 408,376. (No model.)



Claim.—1. The combination, with a draw-bar, of a jaw pivotally mounted thereon and adapted to engage its duplicate upon another car and a keeper mounted to swing laterally with said jaw and independently away from the same, and devices offering yielding resistance to such independent motion.

2. The combination, with the draw-bar having the partial cylindrical cavity in its enlarged free end, of the jaw and keeper projecting from said cavity and swinging freely from side to side therein, and devices offering yielding resistance to the increase of the distance between said jaw and keeper, said draw-bar being provided with shoulders limiting the swinging of the jaw and keeper to either side.

3. The combination, with the draw-bar and a laterally-swinging hooked jaw mounted therein and adapted to engage a like jaw of another coupler, of a wedge sliding in the jaw first named transversely to the plane thereof to force the engaging jaw out of engagement, substantially as set forth.

4. The combination, with a hooked jaw of a coupler, of a rearwardly-inclined uncoupling-wedge sliding in the jaw transversely to the plane thereof, substantially as and for the purpose set forth.

5. The combination, with the hooked jaw adapted to engage the like hook of another coupler, of the bar pivoted in the jaw to swing into or across the hook for uncoupling, the rearwardly-inclined wedge sliding in the jaw and adapted to force the swinging of said bar, the shaft having the handles and intermediate crank, and a chain connecting the free end of the crank to said wedge to raise it.

6. The combination, with the draw-bar having the cylindrical cavity in its enlarged free end, of the jaw pivoted in the axis of said cavity, fitting against its side and rear walls and projecting at the front as a hook, and the keeper lying alongside said jaw, fitting the cavity in like manner and separated from the jaw at the rear of the cavity by the rubber cushion, substantially as and for the purpose set forth.

7. The combination, with the draw-bar having in its enlarged free end the cylindrical cavity, whose horizontal walls terminate in curved shoulders whose center is the axis of the cavity and whose vertical walls end in vertical shoulders, of the hooked jaw and keeper mounted in said cavity to swing about its axis and provided with shoulders to meet the shoulders above named, the cushion interposed between the rear ends of the jaw and keeper, and means for forcing out of the jaw's hook the hook of another coupler.

8. The combination, with a draw-bar, of a hooked jaw and a keeper mounted therein to swing from side to side together and adapted to receive the like parts of another coupler and devices to exert a yielding pressure tending to keep the free end of the keeper at its minimum distance from the hook.

478,994. OVERSEAMING SEWING-MACHINE. PHILIP DIEHL, Elizabeth, N. J., assignor to The Singer Manufacturing Company of New Jersey. Filed Apr. 6, 1891. Serial No. 387,793. (No model.)



Claim.—1. In a sewing machine, the combination, with a needle-bar, needle, a loop-taking device co-operating with said needle, means for reciprocating said needle-bar and needle both vertically and horizontally, and a driving-shaft from which said needle and loop-taking device are both operated, of a compensating mechanism for causing the said needle and loop-taking device to meet each other earlier in the rotation of the said driving-shaft when the needle is working in one vertical plane than when it is working in the other.

2. In a sewing-machine, the combination, with a needle-bar, needle, a loop-taking device co-operating with said needle, means for reciprocating said needle-bar horizontally, and a driving-shaft from which said needle-bar and loop-taking device are both operated, of a pitman connected to said driving-shaft and a horizontally-rocking lever carrying said needle-bar and having a stud engaged by said pitman.

3. In a sewing-machine, the combination, with a needle-bar and needle and means for reciprocating the same horizontally, of a horizontally-reciprocating shuttle, a driving-shaft from which said needle-bar and shuttle are both operated, a pitman connected to said driving-shaft, and a horizontally-rocking lever to which said needle-bar is attached and which is provided with a stud engaged by said pitman.

4. In a sewing-machine, the combination, with the shuttle, the swinging needle-bar frame, the driving-shaft, and means for operating said shuttle and frame from said shaft, of the pitman L, connected to said shaft, the stationary rod O, and the rocking lever *m*, having a fork embracing said rod and having, also, the ball-headed stud m^3 entering an aperture in said pitman, and the needle-bar attached to said block.

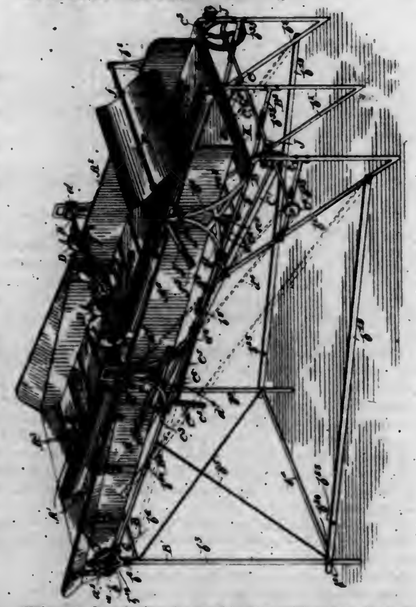
478,995. REFRIGERATOR-CAR. GEORGE A. FOWLER, Kansas City, Mo. Filed Oct. 3, 1891. Serial No. 407,629. (No model.)



Claim.—1. A refrigerator-car provided at each end with a vertical transverse partition extending from near the floor of the car toward its roof, two sets of parallel longitudinal skids secured to the floor of the car and each set extending from one side of the transverse center of the car to one end thereof and beneath the corresponding partition, and two sets of air-conducting pipes secured beneath the roof and each set of pipes extending from one side of the transverse middle of the car through the corresponding partition and opening into the top of the corresponding end of the car, the ends of the pipes which are adjacent to the transverse center of the car being bent downward, and said pipes being of different lengths, so as to bring their bent ends nearer to and farther from the transverse center of the car, substantially as set forth.

2. A refrigerator-car provided at each end with a vertical transverse partition extending from near the floor of the car toward its roof, two sets of parallel longitudinal skids secured to the floor of the car and each set extending from one side of the transverse center of the car to one end thereof and beneath the corresponding partition, two sets of air-conducting pipes secured beneath the roof of the car and each set extending from one side of the transverse center of the car through the corresponding partition and opening into the top of the corresponding end compartment of the car, the pipes of each set being of different lengths and the inner ends of the pipes being bent downward, a number of vertical receptacles for refrigerant located in each end compartment and disposed with vertical spaces between them to receive the ends of the air-pipes, and a number of skeleton-formed supports for the bottoms of the receptacles, each of said supports being attached to the end of the car at the lower part thereof by inverted-L-shaped portions and each having at an opposite end two legs, the feet of which are secured to cleats attached to the bottom of the car, substantially as set forth.

478,996. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. CHARLES F. GRAHAM, Ludlow, Ill. Filed Oct. 24, 1891. Serial No. 409,643. (No model.)



Claim.—1. In a feeder, the combination, with a trough, of two spreaders consisting of two transverse rods pivoted in the bottom of the trough, provided with teeth extending into the trough, an adjusting-lever attached to the one spreader, a link for connecting the lever with the other spreader, and means for holding the adjusting-lever in its positions of adjustment, substantially as set forth.

2. In a feeder, the combination of the following parts: a series of band-cutters mounted on a rotary shaft, provided with a sprocket-wheel, vertically-movable bearings for the shaft, a crank-shaft for swinging the feed-troughs, provided with a sprocket-wheel, a chain connecting the two sprocket-wheels, and an adjusting-lever for raising and lowering the movable bearings of the band-cutter shaft, the said lever being provided with a belt-tightener, substantially as shown and described.

3. In a feeder, as a means for supporting the rear end of the trough or troughs, a main frame provided with serrated upper surfaces, in combination with a trough-supporting transverse frame having serrated lower surfaces at its outer ends to engage with the serrated surfaces of the main frame, and means for securing the said trough-supporting frame to the main frame, substantially as shown and described.

4. In a feeder, as a means for supporting the rear end of the trough or troughs, a main frame provided with serrated upper surfaces, in combination with a transverse trough-supporting frame provided with a slotted plate having lower serrated surfaces, and bolts for securing the two together, said bolts passing through the main frame and into the slots of the slotted plates, substantially as shown and described.

5. In a feeder, a transverse frame for supporting the troughs, consisting of a horizontal rectangular frame provided with serrated and slotted end plates, in combination with standards rising from the rectangular frame, and depending links pivoted in eyes in the standards, substantially as shown and described.

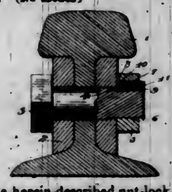
6. In a feeder, two troughs arranged side by side provided with outer walls and inner walls bent over toward each other so as to meet in a longitudinal line, in combination with three standards rising from the supporting-frame, the inner standards being arranged within the space between the inner bent-over walls of the troughs, cross-bars attached to the bottoms of the troughs, and links pivoted to the three standards and to the said cross-bars, substantially as shown and described.

7. In a feeder, a supporting-frame consisting of the rear rectangular frame, as B', the forward triangular frames b^3, connected together, and connecting-rods, as B^4, hinged to the rear frame and the outer triangular frames, substantially as shown and described.

8. In a feeder, the combination, with the supporting-frame, of clamps attached thereto, each clamp consisting of an angle-iron, as *j*, a jaw, as j', and means to force the two together and adapted to secure the feeder to the separator, substantially as shown and described.

9. In a feeder, the combination, with the supporting-frame, of a clamp secured thereto, said clamp consisting of an angle-iron, as *j*, provided with a jaw or clamping portion and a slotted tongue, as j^3, in combination with a movable jaw, as j', having a clamping-screw threaded thereinto and adapted to engage with the slotted tongue j^3, substantially as set forth.

478,997. NUT-LOCK. JAMES C. GRIMM, Jules burg, Mo., assignor of one-half to John W. Johnson, same place. Filed May 17, 1892. Serial No. 433,322. (No model.)



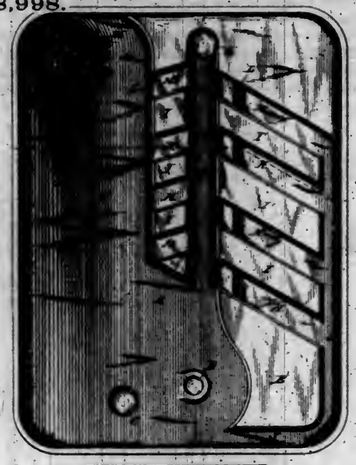
Claim.—1. The herein-described nut-lock, the same consisting of the bolt provided with a longitudinal groove, the nut threaded on the bolt and provided at one side of its opening with a perforation, a cylindrical locking-pin mounted in the perforation, a head at one end of the same countersunk into the rear face of the nut, a kerf for the reception of a screw-driver at the outer end of the pin, and a fragmentary thread formed at one side of the pin and adapted to form a continuation of the threads of the nut, substantially as specified.

2. The bolt having the series of longitudinal grooves curved in cross-section, combined with the nut threaded thereon and provided at one side of its opening with a perforation, and the pin mounted for rotation in the perforation and locked against withdrawal and provided at one side with fragmentary threads forming a continuation of those of the nut, substantially as specified.

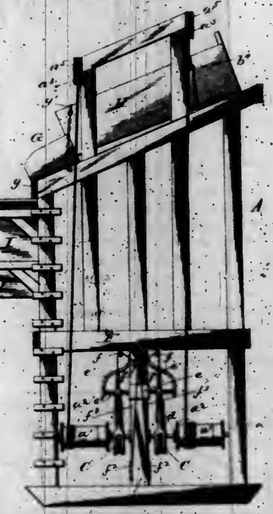
478,998. PUZZLE. CHARLES E. O. HAGER, Hagersville, Canada. Filed July 25, 1891. Serial No. 401,012. (No model.)

Claim.—In a game-board, the cavities C, D, G, and M, raised portions E, I, and I', rounded Narrow Pathway F, sunken Broad Road K, side passages H, with declivities L and L', passage-way J, and raised ledge B, as described and shown.

478,998.



478,999. ELEVATOR. PLEASANT D. HARPER, Fullerton, Ill. Filed Apr. 25, 1892. Serial No. 430,561. (No model.)



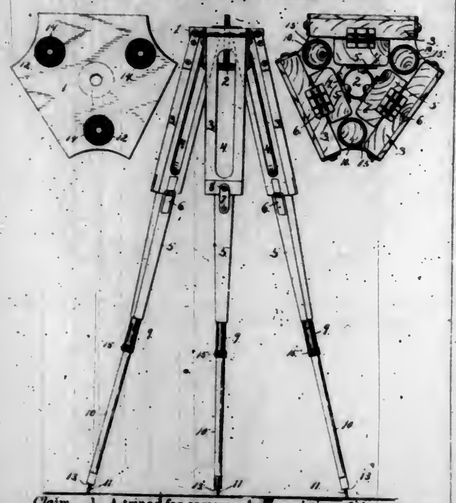
Claim.—1. The combination of the frame A, spools *a'*, rigidly secured on the axle *a*, ratchet-wheels *c*, rigidly secured on said axle, levers *d*, pivoted on said axle and carrying the dogs *d'*, levers d^3, pivoted to the free ends of said levers *d* and provided with feet d^5, levers d^6, pivoted to the rear ends of levers *d*, bar d^7, one end pivoted to the lower end of said lever d^3 and its other end to the dog *d'*, rods d^8, uniting the upper ends of said levers d^3 and d^6, cables a^2, one end attached to the spools a^3 and their other ends passing over pulleys a^4 and a^5 in the upper end of said frame, and a body-lifter B, substantially as shown and described, and for the purposes set forth.

2. The combination of the frame A, spools *a'*, rigidly secured on the axle *a*, ratchet-wheels *c*, rigidly secured on said axle, levers *d*, pivoted on said axle and carrying the dogs *d'*, levers d^3, pivoted to the free ends of said levers *d* and provided with feet d^5, levers d^6, pivoted to the rear ends of levers *d*, bar d^7, one end pivoted to the lower end of said lever d^3 and its other end to the dog *d'*, rods d^8, uniting the upper ends of said levers d^3 and d^6, axle e^3, passing through central upright E and secured in position by braces *e'*, dogs e^2, pivoted on said rod and working in the teeth of the ratchet-wheels *c*, levers f^3, pivoted one on each side of the center upright E, cords f^2, their lower ends attached to said levers and their upper ends passing over the pulleys *f* and *f'* and secured to the dogs e^2, cables a^2, one end attached to the spools a^3 and their other ends passing over pulleys a^4 and a^5 in the up-

per end of said frame, and the body-lifter B, substantially as shown and described, and for the purpose set forth.

3. In an elevator, substantially as shown and described, the body-lifter B, consisting of the upper cross-beam *b*, lower cross-beams *b'*, elbow-braces *b³*, pivoted at their elbows, one at each end of said beams, and chains *b⁴*, attached to the outer ends of said braces and of the beam *b*, substantially as shown and described.

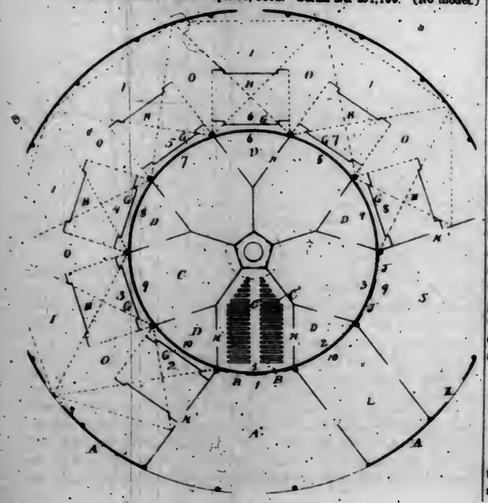
479,000. TRIPOD. OSCAR H. HAWENSTEIN, Buffalo, N. Y. Filed Apr. 28, 1892. Serial No. 430,972. (No model.)



Claim.—1. A tripod for cameras, &c., consisting of the upper sections 3, hinged to the platform 1, the smaller intermediate sections 5, hinged to the lower ends of the sections 3, so as to form a rule-joint, and adapted to be secured in line by the hinged catch-plates 7 and screws 8, and the lower spurred sections 10, adapted for insertion in the sockets 9 of the sections 5, substantially as shown and described.

2. A tripod for cameras, &c., adapted to be packed in small compass, consisting of the platform 1, having the apertures 12 and pads 14, the upper sections 3 and intermediate sections 5, hinged together, so as to form a rule-joint, and provided with catches 7 8, and the removable lower sections 10, having the bands 15, the whole arranged to be taken apart, folded together, and packed, substantially as shown and described.

479,001. THEATRICAL APPLIANCE. JESUS H. Y GUTIERREZ, Mexico, Mexico. Filed Apr. 28, 1892. Serial No. 431,199. (No model.)



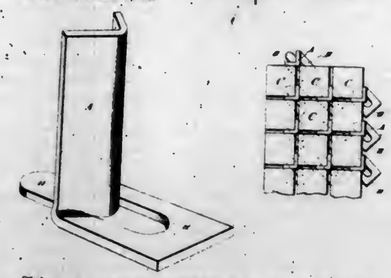
Claim.—1. In a building for theatrical, scenic, and other displays, a series of stationary, separate, and independent scenic compartments, in combination with a revolving platform having separate audience-chambers to coincide with said scenic compartments, substantially as described.

2. The combination within a suitable building of a stage divided into separate independent stages or scenic compartments, spaces for green-rooms and communicating passages with a revolving platform having audience-chambers arranged to coincide with the said scenic compartments, a lobby or vestibule having passages leading to said scenic compartments and also to said audience-chambers, substantially as described.

3. The revolving platform having the central space for music-stand, separate audience-chambers extending from said space, angular ante-chambers between the audience-chambers, a lobby communicating with said structure, and communicating passages between said chambers, substantially as described.

4. The combination, with a circular stationary stage provided with entrance-vestibule, independent scenic compartments, and exit-saloon, of a central-revolving audience platform or chamber and communicating passages, substantially as described.

479,002. PAVEMENT. ERNEST HILL, Sheffield, England. Filed Sept. 12, 1891. Serial No. 405,559. (Model.) Patented in England June 7, 1890. No. 8,796.



Claim.—A pavement consisting of a suitable foundation upon which is superposed a series of rectangular blocks connected at their angles by wrought-metal studs having a horizontal base B, an integral tongue D, cut therefrom and bent in opposite direction in the same plane and having the other end of the plate struck up into vertical angular form, substantially as and for the purpose set forth.

479,003. BUCKLE. STEPHEN T. HIBLEY, Syracuse, N. Y. Filed July 2, 1891. Serial No. 398,305. (No model.)



Claim.—In a buckle, a body consisting of a plate of metal, arms projecting from one end thereof adjacent to the edges, flanges turned longitudinally along and standing at substantially right angles to the plane of said arms and forming the outer edges thereof, and mortises cut in the angles between and partly in and transverse to said flanges and partly in and transverse to the portions of said arms which lie in the same plane as the body, in combination with a lever having pintles projecting laterally into said mortises and lying, normally, in those portions thereof which are in the flanges and across the flat portions of said arms and when operated bearing against said flanges as to one edge of the pintles and against part of the flat portions of said arms as to the other edge of said pintles.

479,004. FRAMED PICTURE, MIRROR, AND THE LIKE, AND METHOD OF FORMING THE SAME. JOHN JACOBSON, Boston, Mass. Filed June 26, 1891. Serial No. 397,531. (No model.)

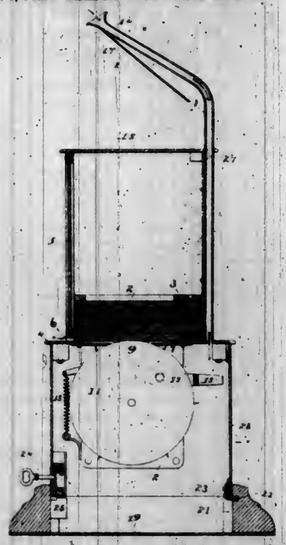
Claim.—1. A framed article—such as a picture—having the frame formed of plastic material molded about and inclosing the edges of the article front and back, substantially as described.

479,004.



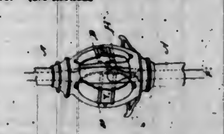
2. The method of framing articles, which consists in supporting the article to be framed in a mold and leaving the edges of such article free at front and back, then introducing into said mold a frame-forming material in plastic condition and working it about the front and back edges of the article, thereby to inclose such article in such plastic material and to fashion the frame, then allowing the frame to set, and then separating it from the mold, substantially as described.

479,005. VENDING-MACHINE. VIRGIL A. KREPS, Kenosco, N. Y., assignor, by mesne assignments, to Daniel I. Caldwell, Lynn, and Robert Mills, Newton, Mass., trustees, and Harry W. Mason, Newton, Mass. Filed Nov. 9, 1891. Serial No. 411,285. (No model.)



Claim.—A vending apparatus comprising a receptacle for the merchandise, provided with a slot or opening in line with the bottom package, a spring-actuated wheel-train, a series of radial spurs driven by a shaft of the train and adapted to sweep through an opening in the bottom of the receptacle and engage the bottom package, said spurs being out of contact with the package when the apparatus is inactive, and a coin-operated detent to release the train.

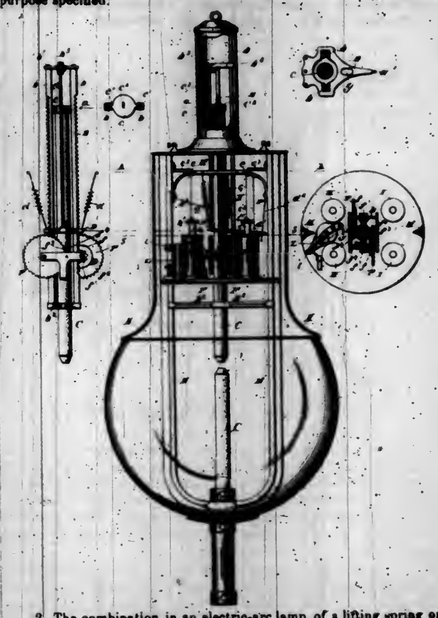
479,006. LAMP-POST SIGN. CHARLES F. KUECHLER, Chicago, Ill., assignor of one-half to Frederick Rahn, same place. Filed Dec. 11, 1890. Serial No. 374,275. (No model.)



Claim.—In combination with a lamp-post bearing at the top thereof an electric lamp for street-lighting and a chamber below the lamp, said chamber having one or more transparent walls or wall-sections adapted to receive and support signs, lamp-wires for supplying the lamp with an electric current, and a lamp within the chamber and included in the lamp-circuit, substantially as described.

479,007. ELECTRIC-ARC LAMP. MAURICE S. LOGAN, Otterville, assignor of one-half to James H. Bailey, Sedalia, Mo. Filed Aug. 29, 1891. Serial No. 404,167. (No model.)

Claim.—1. The combination, in an electric-arc lamp, of a coil permanently located in the arc circuit, a feed-regulating coil in a branch circuit around the arc, an auxiliary coil located (temporarily while the arc circuit is open) in a second branch circuit around the arc, and means for switching said auxiliary coil into the arc circuit in multiple with the coil permanently located therein, substantially as and for the purpose specified.



2. The combination, in an electric-arc lamp, of a lifting spring or springs, a feed-controlling magnet, feed-regulating mechanism controlled thereby, an auxiliary magnet located, first, (when the lamp is out of action,) in a branch circuit around the arc, and, second, (during the action of the lamp,) in a branch of the arc circuit, performing the office first, of starting the lamp, and, second, of assisting the feeding-magnet, a switch for changing the circuit of said auxiliary magnet, and a magnet in the arc circuit for actuating said switch, all substantially as shown and described.

3. The combination, in an electric-arc lamp, with feed-regulating mechanism, of the combination-lever E, the lifting spring or springs K, a feeding-magnet I, an auxiliary magnet H, capable of being switched from a branch circuit around the arc into the arc circuit in multiple with a magnet J, a switch for changing the circuit of said auxiliary magnet, and a magnet J for actuating said switch, substantially as shown and described.

4. In an electric-arc lamp, a combination feed-regulating lever consisting of a combination of two separate levers, each provided with the lateral arms *e e*, supplemented by corresponding arms of the other and adapted to admit of a vertical motion of the magnet cores or plungers, each lever being further provided with such other arms or shoulders, or both, as may be necessary, each arm or shoulder being supplemented by a corresponding arm or shoulder of the other, substantially as specified.

5. In an electric-arc lamp, a carbon-feed rod or carbon-holding rod provided with means for holding the carbon in a collateral position therewith, and also provided with means by which said carbon travels thereon in a longitudinal direction.

6. In an electric-arc lamp, a combination feed-rod embracing in its construction two parallel bars *b b*, having suitable space between them adapted to receive the carbon therein, in combination with the carbon inserted between the bars *b b* and having means provided whereby the carbon travels upon said bars in addition to the feeding movement of the bars *b b*.

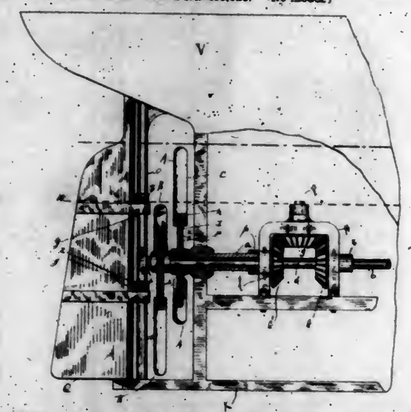
7. In an electric-arc lamp, the combination of a double-rack feed-rod with two trains of wheels adapted to engage therewith, substantially as specified.

8. In an electric-arc lamp, the combination of the stationary guide rod or rods G with a traveling arm or arms *b'*, attached to the upper end of the feed rod B and adapted to move up and down upon said guide rod or rods, substantially as specified.

9. A dash-pot substitute consisting of one, two, or more iron strips

or rods so placed that their free ends come in contact with the armature plate or plates and held in place by the magnetism thereof with sufficient force to check the sudden motions of said armature plate or plates, substantially as described.

479,008. **PROPELLER-WHEEL.** CHARLES J. LOWE, Chicago, Ill. Filed Jan. 14, 1892. Serial No. 418,023. (No model.)



Claim.—1. A propeller composed of two wheels revolving concentrically in different directions, the shaft of one passing through the shaft of the other, each blade of said wheels having an approximately straight surface across the forward and central portions *d* and E, for the purpose described, and curved more abruptly at its rear edge D to complete the turning of the water, substantially as and for the purpose set forth.

2. A propeller composed of two wheels revolving concentrically in different directions, the shaft of one passing through the shaft of the other, each blade of said wheels having an approximately straight surface across its forward and central portions *d* and E, for the purpose described, and curved more abruptly at its rear edge D, for the purpose set forth, and with the outer end R turned over, as and for the purpose set forth.

3. A propeller-wheel made of composite parts, consisting of the blade C, fastened to the integral wheel L, the key N, passing through a slot in said blade and underneath the rim of said wheel L, as shown, said blade having the projection I, fitting into the slot *f* of said integral wheel, and the aperture R, fitting over the projection S of the arms of said integral wheel, said parts adapted to be placed and held together, substantially as shown and described.

4. A propeller composed of two wheels revolving concentrically in different directions, the shaft of one passing through the shaft of the other, each blade of said wheels being approximately straight in its length, and curved over at the outer end for the purpose of arresting the centrifugal action, substantially as described.

5. A propeller-wheel composed of composite parts, detachable blades C, a central hub-wheel L, the arms P of which are single at their insertion in the hub and divided at their outer end, a part being inserted into the rim on each side of the propeller-blade, substantially as shown and described.

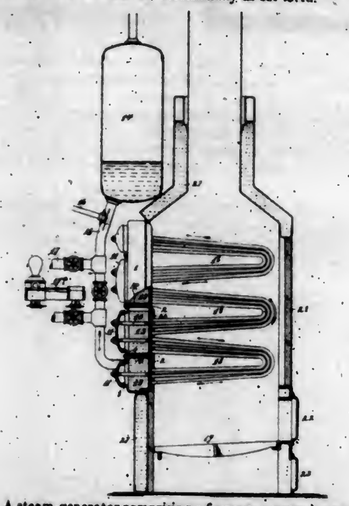
6. A propeller composed of two wheels revolving concentrically in different directions, the shaft of one passing through the shaft of the other, and each blade of said wheels being approximately straight across the forward and central portions *d* and E and curved more abruptly at its rear edge D and approximately straight throughout its length and curved over at its outer end *L*, as and for the purpose specified.

7. A propeller-wheel composed of a central or hub wheel L, detachable blades C, secured to said wheel, substantially as described, said blades being straight across the forward and central sections *d* and E and curved at their rear edge D and straight in their length and curved over at their outer ends, as and for the purposes set forth.

479,009. **STEAM-GENERATOR.** EDWARD A. MACEE, Brooklyn, N. Y. Filed Aug. 15, 1891. Serial No. 402,706. (No model.)

Claim.—1. In a steam-generating apparatus, the combination, with a furnace, of steam-generating pipes, compartments or chambers connected by said pipes, pipes to carry off the steam to be used independently from the several compartments or chambers, and means, as a separating-drum and a pipe leading from the water-space thereof, for separating the water and returning it to the boiler, all substantially as herein specified.

2. A steam-generator having a series of compartments connected by heat-pipes extending into the furnace, the ends of the series being connected, respectively, with the water-space and the steam-space of a separating drum or receiver, substantially as set forth.



3. A steam-generator comprising a furnace, a water leg or column forming a wall of the same and having a series of compartments, steam-generating tubes connecting said compartments in pairs and extending into the furnace, and a drum having its steam and water spaces independently connected with separate compartments of the generator, substantially as set forth.

4. The combination of a steam-generator having a series of compartments, steam-generating tubes connecting said compartments in pairs and extending into the furnace, connection between one compartment and the water-space of the receiving-drum, and a connection between a higher compartment and the steam-space of said drum, substantially as set forth.

5. The combination of a water leg or column having separate compartments, a furnace, return-pipes connecting the compartments in pairs and extending forward into the furnace, a steam and water drum and connection between the water-space of the latter and one compartment of the generator, an inlet-pipe for feed-water near the upper end of such connection, and connections between the steam-space of the drum and the remaining compartments of the generator, substantially as set forth.

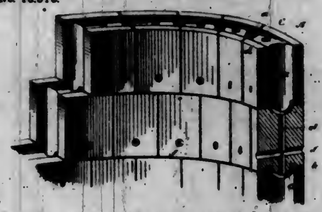
6. In a steam-generator, the combination of a furnace, a water-leg forming the back wall of the same and having a series of compartments, circulating or generating pipes connecting such compartments in pairs, netting or holding material attached to the front wall of the water-leg around and between such generating-pipes, and a covering of refractory material attached to such netting or holding device, substantially as set forth.

7. In a device of the class described, the combination, with the furnace, of a boiler having water-tubes or other efficient steam-generating surfaces, a non-conducting wall exterior thereto, and a surrounding water reservoir or receptacle exterior to the whole, the lower and upper ends of which are connected, respectively, with a source of supply and with a condenser, substantially as and for the purpose set forth.

8. In a device of the class described, the combination, with the boiler proper, of a water jacket or receptacle, the lower and upper ends of which are adapted to be connected, respectively, with a source of supply and with a condenser, and an outer shell or casing placed adjacent to said outer jacket or receptacle, arranged to allow the partial vacuum or draft of the furnace to draw the air downwardly through the space between said outer casing and the water jacket or receptacle for the purpose of supplying hot air to support combustion, substantially as set forth.

9. The combination of a furnace, a water-jacket, an exterior shell or casing placed adjacent to said water-jacket and forming an air duct or passage, the water-leg having suitable compartments, the circulating and generating pipes connecting said compartments in pairs, the steam and water drum, the pipe connecting the water-space of the latter with the lowermost compartment of the water-leg and having a supply-pipe near its upper end, and connections between the remaining compartments and the steam-space of the drum, substantially as set forth.

479,010. **WELL-CURBING.** ALOYS MÖHLE, Saarbrücken, Germany. Filed Apr. 7, 1892. Serial No. 428,130. (No model.) Patented in Germany July 8, 1891, No. 61,661; in France Sept. 12, 1891, No. 216,078; in Belgium Sept. 29, 1891, No. 96,582, and in England Sept. 29, 1891, No. 16,518.



Claim.—1. The improved blocks or stones for use in the sinking of wells or shafts, consisting of segmentally-shaped pieces having side flutings *a*, a channel *c* at the top, and a corresponding but smaller projection *b* at the bottom, together with two drill-holes *d* and *f*, the former of which is placed vertically and centrally, while the latter is horizontal and passes from the front to the back of the block or stone and is formed in the vicinity of the lower edge of the stone and intersects the drill-hole *d*.

2. A block of stone or analogous material having its vertical sides fluted and provided with a vertical drill-hole *d* and transverse drill-hole *f*, meeting and crossing each other, substantially as described, and for the purposes set forth.

3. A block of stone or analogous material having its sides fluted, its upper end being partially concave and its lower end being provided with a convex projection *b*, and also with vertical and transverse drill-holes, substantially as described, and for the purposes set forth.

4. In a series of blocks of stone, the combination of side flutings *a*, adapted to form tubular grooves *d* for the reception of cementing material, channels *c*, and projections *b*, substantially as described, and for the purposes set forth.

479,011. **CAN-OPENER.** CHARLES MORGAN, Latah, Wash. Filed Jan. 28, 1892. Serial No. 419,569. (No model.)



Claim.—1. In a can-opener, the combination of a frame having standards provided with notches, a vertically-reciprocating plunger mounted in the frame and carrying a blade, an adjustable base supported by the standards, and spring-actuated levers mounted on the lower face of the base and arranged to engage the notches, substantially as described.

2. In a can-opener, the combination of a frame having a vertical casing, a plunger mounted for vertical reciprocation in the casing, a blade secured to the lower end of the plunger, and a spiral spring disposed on the plunger and arranged within the casing and holding the plunger elevated, substantially as described.

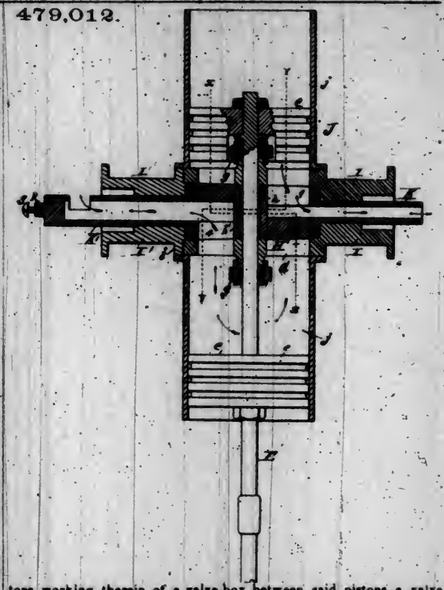
3. In a can-opener, a blade provided with a spring-lip formed by slitting the body of the blade and adapted to engage the lower face of the cut portion of a can to lift the same out of the can, substantially as described.

4. In a can-opener, the combination of a frame having standards, a vertically-reciprocating plunger mounted in the frame and carrying a blade, and a vertically-adjustable base supported by the standards, substantially as described.

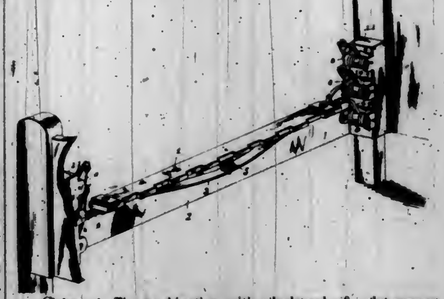
479,012. **OSCILLATING ENGINE.** JULIAN MOSS, Detroit, Mich., assignor of two-thirds to Edward Richard Blanchard and Holden B. White, same place. Filed Dec. 11, 1891. Serial No. 414,671. (No model.)

Claim.—1. An oscillating engine having two pistons, a reversing-valve between said pistons, and a rod connecting said pistons, passing through an aperture in said valve, and having enlarged ends to permit the shifting of the valve, substantially as described.

2. The combination, with an oscillating cylinder having two pistons working therein, of a valve-box between said pistons, a valve working in said valve-box, and a removable trunnion attached to said valve-box to allow of the insertion of the valve in the valve-box, substantially as described.



479,013. **BEDSTEAD.** CHARLES E. MCCLINTOCK, Ozark, assignor of one-half to Hymenus G. Sadler and Ralph A. Sadler, Paris, Ark. Filed Mar. 3, 1892. Serial No. 423,614. (No model.)

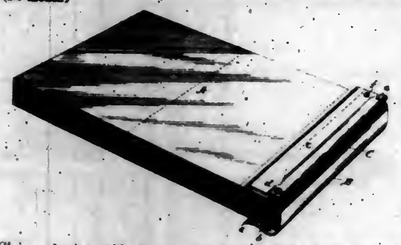


Claim.—1. The combination, with a bedstead, of a slat-supporting bar provided at its ends with hinged loops, and the series of springs arranged at the ends of the bedstead and having right and left hand coils, and a centrally-arranged hooked upwardly-extending arm detachably engaging the loops, substantially as described.

2. The combination, with a bedstead, of a slat-supporting bar provided at its ends with loops, a series of supporting-springs arranged at each end of the bedstead and each spring having a centrally-arranged hooked arm, and coils arranged on opposite sides of the arm, and the detachable link-hooks connecting the arms of the springs, the lower spring having its arm engaging the adjacent loop of the slat-supporting bar, substantially as described.

3. The combination of the bedstead provided with blocks 11, the supporting-springs secured to the blocks and each provided with a centrally-arranged hooked arm and with coils arranged on opposite sides of the arm, the hook-links connecting the arms of the springs and provided at one end with a loop and at the other end with a hook, the cylindrical cores arranged within the coils, the slat-supporting bar, the truss-strap secured to the lower face of the bar and provided at its ends with loops engaging the arms of the lowermost springs, and an elastic spring-strut interposed between the strap and the slat-supporting bar, substantially as described.

479,014. COMBINED BOOK AND CARBON-SHEET HOLDER. JAMES S. MCDONALD, Chicago, Ill. Filed Aug. 3, 1891. Serial No. 401,591. (No model.)



Claim.—1. A combined book and carbon-sheet holder comprising a U-shaped book-holder composed of bent spring metal adapted to embrace and hold a series of sheets in book form and a carbon-sheet holder secured to the book-holder and provided with a spring-clamp for removably holding a sheet of carbon-paper in position for use upon the book, substantially as described.

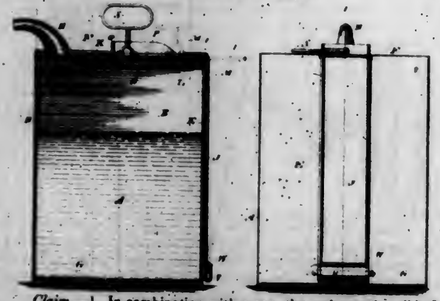
2. A combined book and carbon-sheet holder comprising a U-shaped book-holder composed of bent spring metal adapted to embrace and hold a series of sheets in book form, a plate secured thereto, and a spring-clamp for embracing the edge of said plate, so as to constitute a carbon-sheet holder for removably holding a sheet of carbon-paper in position for use on the book, substantially as described.

3. A combined book and carbon-sheet holder comprising a removable spring book-holder adapted to hold a series of sheets in book form and a carbon-sheet holder attached to and forming a part of the book-holder for holding a sheet of carbon-paper in position for use upon the book, substantially as described.

4. A combined book and carbon-sheet holder comprising a U-shaped book-holder and a supporting-plate for the carbon-holder, composed of a single piece of bent spring metal; and a U-shaped spring-clamp for embracing the edge of said plate, so as to constitute a carbon-sheet holder, substantially as described.

5. A combined book and carbon-sheet holder comprising a U-shaped book-holder composed of bent spring metal and adapted to embrace and hold a series of sheets in book form, a plate integral with said holder, a spring-clamp for embracing the edge of said plate so as to constitute a carbon-sheet holder, and a pivot connection between one end of said clamp and the plate, substantially as described.

479,015. TIN-CAN. ELEANOR E. OERTEN, New York, N. Y. Filed Mar. 23, 1892. Serial No. 426,093. (No model.)



Claim.—1. In combination with a can, the reciprocating slide I, guides therefor, a stop to prevent undue outward movement of the slide, and the handle J, hinged at one end to the body of the can and at its other end hinged to the outer end of said slide I, substantially as set forth.

2. In combination with a can having a discharge-spout, the slide I, adapted to close said spout, the guide L, in which said slide is adapted to have its movement, the opening P in the can in line with said slide, the hinged handle S, secured to the slide within the outline of said opening P, and means for locking said slide in its inward position, substantially as set forth.

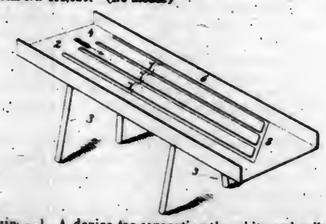
3. In combination with an oil-can having the discharge-spout, the slide I, having the opening K, the guide L, receiving said slide and having the openings N O, the top F, having the opening P, the handle S, hinged to said slide within the outline of said opening P, the flange Q at the edge of said opening P, and the notch R in said flange, substantially as set forth.

4. In combination with the can having the discharge-nozzle, the reciprocating slide I, adapted according to its position to open or close said nozzle, the guide in line with said nozzle and receiving said slide, and the handle J, hinged at one end to the can-body and at the other end to the outer end of said slide, substantially as and for the purposes set forth.

5. In combination with the can having the discharge-spout, the slide I, adapted to close said spout, the guide receiving said slide, the handle S, secured to said slide, and the handle J, hinged at its upper end to said slide and at its lower end to the can-body, substantially as set forth.

6. In combination with the can having the discharge-spout, the slide I, adapted to close said spout, the guide receiving said slide, the openings through said guide, slide, and can-body, forming a vent and a means for filling the can, and the handle J, hinged at its upper end to said slide and at its lower end to the can-body, substantially as set forth.

479,016. DEVICE FOR SEPARATING THE WHITE AND YELK OF EGGS. LYMAN F. PETTEE, Brooklyn, N. Y. Filed Jan. 22, 1892. Serial No. 418,929. (No model.)



Claim.—1. A device for separating the white and yelk of an egg, consisting of an inclined table, as 2, provided with a longitudinal slot as 7, and a transverse slot, as 8, substantially as shown and described

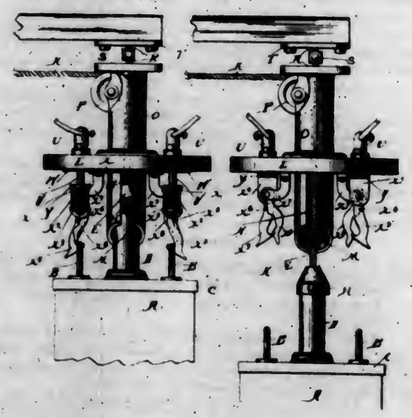
2. A device for separating the white and yelk of eggs, consisting of an inclined table or support provided with a longitudinal slot or slots and a transverse slot communicating with the longitudinal slot or slots, substantially as shown and described.

3. A device for separating the white and yelk of eggs, consisting of a table or support provided with a longitudinal slot or slots and a transverse slot and so supported as to give it an endwise and lateral inclination, substantially as shown and described.

4. A device for separating the white and yelk of eggs, consisting of a table or support provided with a longitudinal slot or slots and a transverse slot and an upwardly-extending flange 6, said device being so supported as to give it a lateral and longitudinal inclination, substantially as shown and described.

5. A device for separating the white and yelk of eggs, consisting of a table, as 2, provided with a longitudinal slot, as 7, a transverse slot, as 8, communicating with the longitudinal slot, and an upwardly-extending flange, as 6, said device being supported in a laterally and longitudinally inclined position, substantially as shown and described.

479,017. HANGER FOR ELECTRIC-ARC LAMPS. CHARLES A. PFLUGER, Chicago, Ill., assignor, by mesne assignments, of one-half to the Standard Electric Company, of Illinois. Filed Jan. 23, 1891. Serial No. 378,807. (No model.)

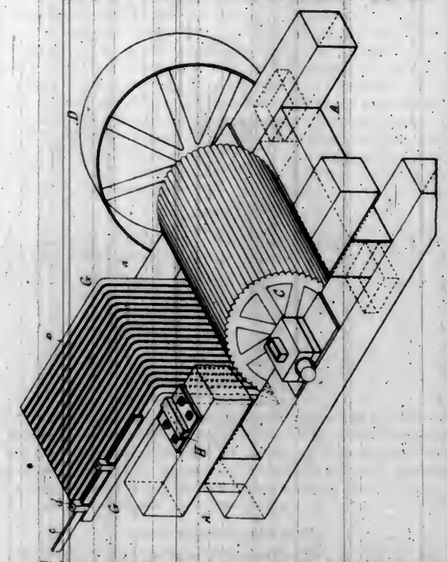


Claim.—1. In a hanger for an electric-arc lamp, the combination of two depending circuit-closing hooks with a circuit-closing loop on the lamp, adapted to engage the hooks, and cams which normally hang when the lamp is in position upon the same side of the loop as the hook and on the opposite side thereof when the lamp is lowered

2. In a hanger for an electric-arc lamp, the combination of a movable portion carrying a hook adapted by the movement of such portion to be cut in or out of the main circuit with a suspending-loop on the lamp, adapted to engage the hook and a cam, whereby the two are disengaged when the lamp is to be lowered, same cam fixed in position, and a pin on the hanger to be engaged by said cam.

3. In a hanger for an electric-arc lamp, the combination of two depending circuit-closing hooks with a circuit-closing loop on the lamp, adapted to engage the hooks and cams, consisting of a part which covers the hook when disengaged from above, but serves as a guide to it from below.

479,018. ORE AND COAL CRUSHER AND SEPARATOR. SAMUEL B. PRICE, Jr., CHARLES E. MARTIN, and BENJAMIN PURSER, Brookwood, Ala. Filed Mar. 20, 1891. Serial No. 385,791. (No model.)



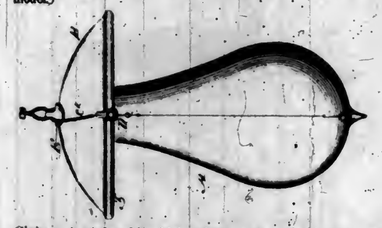
Claim.—1. A coal and ore crusher consisting of a horizontal crushing-roller, in combination with a plurality of independently-movable narrow crushing-bars co-operating therewith and proportioned to the desired size of the crushed particles, as set forth, each crushing-bar consisting of an elbow-lever pivotally hung at its bend, one arm of which lever hangs vertically and tangentially to said roller and constitutes a crushing-arm and the other arm of which extends horizontally and at an angle to said crushing-arm and constituting a weighting-arm, and an adjusting weighting-bar adjustable longitudinally on said weighting-arm, substantially as set forth.

2. A coal and ore crusher consisting of a horizontal crushing-roller, in combination with a plurality of independently-movable narrow crushing-bars co-operating therewith and proportioned to the desired size of the crushed particles, as set forth, each crushing-bar consisting of an elbow-lever pivotally hung at its bend, one arm of which lever hangs vertically and tangentially to said roller and constitutes a crushing-arm and the other arm of which extends horizontally and at an angle to said crushing-arm and constitutes a weighting-arm, substantially as set forth.

479,019. PROCESS OF HARDENING OBJECTS MADE OF CRUDE GYPSUM. CARL REINER, Halle, Germany. Filed Aug. 26, 1891. Serial No. 403,752. (No specimens.)

Claim.—The process of hardening and rendering water-proof objects cut from crude gypsum, consisting in drying the objects by the application of heat and steeping the dried objects first in a solution of hydrate of barium and afterward in a solution of oxalic acid, substantially as described

479,020. INCANDESCENT ELECTRIC LAMP. MAX A. RICHTER and JAMES G. NOLES, Chicago, Ill., assignors to the Illinois Electric Lamp Company, same place. Filed Feb. 10, 1892. Serial No. 420,954. (No model.)



Claim.—1. A combined incandescent electric lamp and moisture-shedding shade comprising the imperforate concavo-convex shade B, of glass or analogous vitreous material, and the bulb A, having its body and neck portion thereof of glass and united to the imperforate central portion of the shade as an integral part thereof by a direct union, substantially as set forth, between the glass or analogous vitreous material of the shade and the material forming the glass neck portion of the bulb.

2. A combined incandescent electric lamp and moisture-shedding shade comprising the bulb A and the imperforate concavo-convex shade B, one of said members being provided with a socket formed directly in the material of which it is composed and the other member being formed with a neck of the same material as the body of the member and fitted and cemented within said socket, substantially as described.

3. A combined incandescent electric lamp and shade comprising the shade provided with a pendent stem and the bulb having its neck drawn to form a seating concavity in which the stem on the shade is secured, substantially as described.

4. The combination, with the imperforate shade having the bulb of an incandescent electric lamp united thereto, substantially as set forth, of clips attached upon the rim of the shade, conducting-wires leading from the clips to the bulb, and conducting and suspending wires attached to the clips so as to suspend the shade without strain upon the wires leading from the clips to the bulb and at the same time electrically connect with said wires.

5. The shade provided upon its top portion with an eye and the bulb of an incandescent electric lamp united to the shade, substantially as set forth, and the suspending and conducting wires arranged to pass through said eye and connect with holders on the rim of the shade.

479,021. ENAMELED BRICK AND PROCESS OF MAKING THE SAME. ISAAC T. RUE, Matawan, N. J. Filed Dec. 14, 1891. Serial No. 415,026. (No specimens.)

Claim.—1. An enameled brick comprising the enameled surface, the brick-body, and a dust lining interposed between the two and constituting an integral part of the brick-body, whereby the liability to cracking and scaling of the lining is obviated, substantially as described.

2. The method of making a lined enameled brick, which consists of forming the brick-body and the dust lining at the same time, pressing them together, and firing, whereby the lining is made an integral part of the brick-body, and subsequently applying the enamel, substantially as described.

3. The method of making a lined enameled brick, which consists of placing in the mold the material for the brick-body proper and also the material for the lining in the dust, submitting the whole to pressure, and firing, whereby the lining is made an integral part of the brick-body, and subsequently applying the enamel, substantially as described.

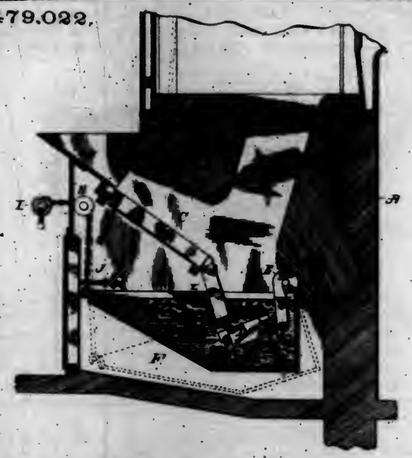
479,022. AIR-FEEDING DEVICE FOR FURNACES. HERMAN H. E. SCHOMBURG, Berlin, Germany. Filed Dec. 21, 1891. Serial No. 415,763. (No model.)

Claim.—1. The combination, with the fire-box of a furnace or the like, of a water-tank and grate-bars occupying a position normally without the tank and adapted to be submerged in the water, substantially as described.

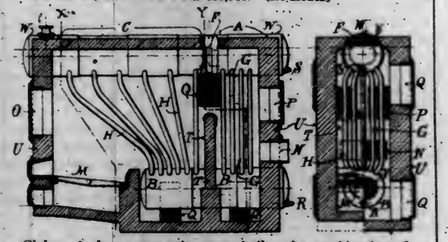
2. The combination, with the fire-box of a furnace or the like, of a pivoted water tank and grate-bars adapted to be submerged in the said tank, substantially as specified.

3. The combination, with the fire-box of a furnace or the like, of a pivoted water-tank, grate-bars adapted to be submerged in the said tank, and mechanism for raising or lowering the tank, substantially as described.

479,022.



479,028. STEAM-BOILER. MINOR SCOVEL, New York, N. Y. Filed Jan. 26, 1892. Serial No. 419,320. (No model.)



Claim.—1. In a water-tube steam-boiler, the combination of an elevated feed-water and steam chamber, a mud-drum, feed-water-heating tubes leading from the feed-chamber down to the mud-drum, an elevated steam disengaging and storage chamber, steam-generating tubes leading from the mud-drum to the steam-disengaging chamber, and a dam separating the elevated feed-water chamber from the steam-disengaging chamber, substantially as and for the purposes described.

2. In a water-tube steam-boiler having an elevated feed-water chamber, an elevated steam-disengaging chamber, and a mud-drum, the combination of the feed-water chamber, mud-drum, and steam-disengaging chamber, with a feed-water-inlet pipe, feed-water-heating tubes leading from the elevated feed-water chamber down to the mud-drum, the said tubes having a total sectional area greater than the sectional area of the inlet-pipe, and steam-generating tubes leading from the mud-drum up to the elevated steam-disengaging chamber, the total sectional area of such steam-generating tubes being greater than that of the feed-water-heating tubes, substantially as and for the purposes described.

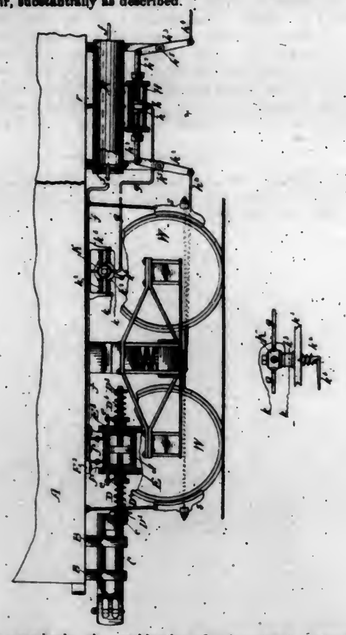
3. In a water-tube steam-boiler, an elevated feed-water and steam chamber, a mud-drum, and an elevated steam disengaging and storage chamber, in combination with a second steam disengaging and storage chamber separated from the first steam disengaging and storage chamber by a dam, and feed-water-heating tubes connecting the feed-water chamber with the mud-drum, and steam-generating tubes connecting the mud-drum with the elevated steam disengaging and storage chambers, substantially as and for the purposes described.

4. In a water-tube steam-boiler, two or more elevated drums or receptacles connected by a cross-drum or receptacle and divided by dams into feed-water and steam disengaging chambers, in combination with feed-water-heating tubes leading from the feed-water chambers down to a mud-drum space, and steam-generating tubes leading from the mud-drum space up to the steam-disengaging chambers, substantially as and for the purposes described.

479,024. CAR-COUPLING BRAKE. JESSE P. BRAWELL, Clarksburg, Mo. Filed Aug. 5, 1891. Serial No. 401,735. (No model.)

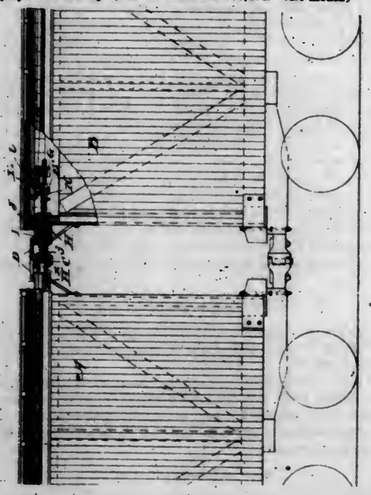
Claim.—1. In a car-brake, the combination of a draw-head, a piston-rod connected with said draw-head, a piston and its inclosing cylinder E, and check-valves in the ends of said cylinder, a spring between said cylinder and the draw-head, an air-reservoir and brake-cylinder, and means for connecting the brake-cylinder with the air-reservoir, substantially as described.

2. In a car-brake, the combination of a draw-head, a piston-rod connected with said draw-head and carrying a piston, the cylinder E, its check-valves and springs bearing against the packing-boxes at the ends thereof, with cushions within the cylinder, an air-reservoir and brake-cylinder, and means for connecting the brake-cylinder with the air-reservoir, substantially as described.



3. In a car-brake, the combination of a draw-head, a piston-rod and piston connected with said draw-head, the cylinder E, having check-valves at the ends, an air-reservoir, a brake-cylinder and pipes connecting the brake-cylinder and air-reservoir with the cylinder E, a three-way cock to control the air from the reservoir to the brake-cylinder, and means for operating said cock, substantially as described.

479,025. TOP BUFFER FOR FREIGHT-CARS. HENRY H. SESSIONS, Chicago, Ill., assignor to the Pullman's Palace Car Company, same place. Filed July 6, 1891. Serial No. 398,471. (No model.)



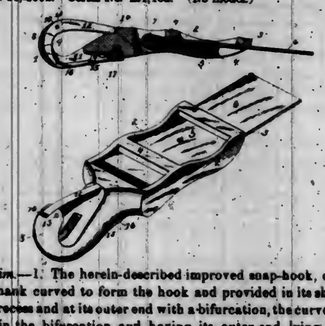
Claim.—1. In combination with the end of a car, a chafing-plate pivotally connected to rods having a sliding support and capable of movement in the direction of the length of the car, a yoke or equivalent coupling having a bearing upon said rods, an outwardly-forcing spring interposed between the chafing-plate and the end of the car, and a tie-rod connecting the outer end of the spring with the yoke, substantially as described.

2. In combination with a car, a chafing-plate mounted toward the top thereof upon rods pivotally connected thereto and having a sliding support in the end wall of the car, a yoke adapted to bear at its ends upon each of said rods, a tie-rod pivotally connected to said yoke, and a spring connected at one end to the rod and adapted to exert an outward pull thereon, substantially as described.

3. In combination with an end of a car, a casting or equivalent frame-piece secured therewith near the top of the car and having apertures to form ways, and a spring-pocket, a spring seated in said pocket, rods mounted to slide in said ways, and a chafing-plate pivotally connected to the forward end of said rods, a yoke having a bearing on said rods, and a tie-rod connecting the spring and the yoke and passing through an elongated aperture, whereby said yoke is adapted to permit the chafing-plate to assume an angular position with reference to the end wall of the car, substantially as described.

4. In combination with an end of a car apertured for the passage of rods therethrough, said rods passing through said apertures and supported from the car-roof, a chafing-plate pivotally connected to said rods at their outer ends, shoulders upon said rods, and a yoke having its ends embracing said rods, so as to slide thereon and adapted to rock over said shoulders, a guide-plate having a slot therein and a lug on the yoke entering said slot, a spring interposed between the end of the car and the chafing-plate, and a tie-rod bearing upon the outer end of the spring and projecting through the axis thereof and pivotally connected to the yoke, substantially as described.

479,026. SNAP-HOOK. WILSON R. SHEAL, Grahamton, Pa. Filed Feb. 11, 1892. Serial No. 421,182. (No model.)



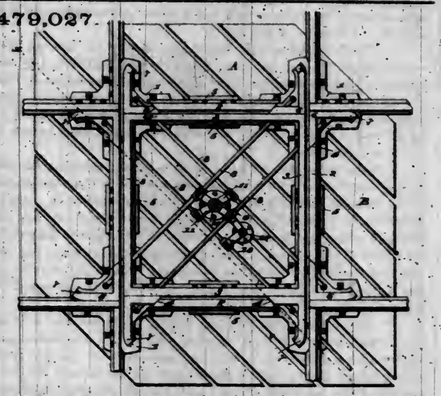
Claim.—1. The herein-described improved snap-hook, consisting of the shank curved to form the hook and provided in its shank with a slot or recess and at its outer end with a bifurcation, the curved tongue pivoted in the bifurcation and having its outer end lying upon the shank and its inner end curved to approximate the hook and terminating in the opening or slot in the shank thereof immediately adjacent to the end of the locking-lever, and the locking-lever pivoted between its ends in said slot and having its outer end spring-pressed into the path of the inner end of the tongue, substantially as specified.

2. The combined snap-hook and buckle, the same consisting of the curved shank forming the hook and provided at its inner end with a slot and at its outer end with a bifurcation, the curved tongue pivoted in the bifurcation and having its outer end lying upon the shank and its inner end curved to approximate the hook and terminating in the slot immediately adjacent the outer end of the locking-lever, the locking-lever pivoted between its ends in said slot and having its outer end spring-pressed into the path of the inner end of the tongue, the frame comprising the front and rear cross-bars, from which former the shank extends, the opposite side bars connecting the front and rear bars, the intermediate cross-bars arranged at opposite edges of the side bars and out of alignment with each other, the rearmost of said intermediate bars having an upwardly-disposed stud 5, and the cross-bar 7, arranged in front of the two intermediate cross-bars and opposite the space between the same, substantially as specified.

479,027. RAILROAD-CROSSING. THOMAS SMITH, Philadelphia, Pa. Filed Sept. 13, 1891. Serial No. 406,081. (No model.)

Claim.—1. The combination of the track-rails, the guard-rail, the fixed rail-sections, and the movable rail-sections adapted to move from the guard-rail to the track-rails between the track-rails and the fixed rail-sections.

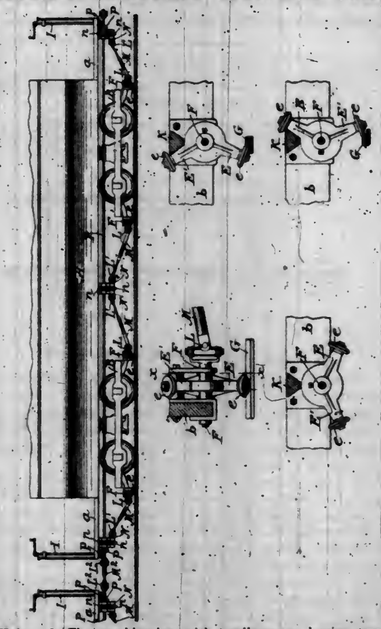
479,027.



2. In a railroad-crossing of the character described, the movable rail-sections having one end turned slightly outward, substantially as and for the purposes set forth.

3. The combination of the movable rail-sections, the rods connecting the same in pairs, links connecting the rods in pairs, an angle-lever connecting the pairs of rods, and means for operating the said lever.

479,028. STREET-RAILWAY SWITCH. ROSWELL T. SMITH, Nashua, N. H. Filed Jan. 27, 1892. Serial No. 419,395. (No model.)



Claim.—1. The combination, with a railway-car having two or more trucks, of a switching device supported in front of each truck, a common actuating device, and connections therefrom to said switching device, substantially as shown and described.

2. The combination, with a railway-car having two or more trucks of a switching device supported in front of each truck, a common shaft running lengthwise of the car, means to rotate said shaft, and connections from said shaft to each of said switching devices, substantially as shown and described.

3. The combination, with a railway-car having a truck with two or more pairs of wheels, of a switching device supported in front of the truck, a second switching device supported in the rear of the truck, a longitudinal rotatable shaft, gears between said switching devices and said shaft, whereby said switching devices may be moved in the

same direction at the same time, and means to operate said shaft, substantially as shown and described.

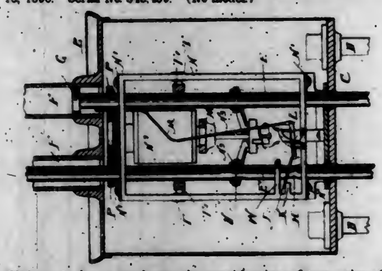
4. The combination, with two or more railway-cars adapted to be coupled together, of a switching device comprising a swinging arm adapted to engage a switch-rail or guide-rail and supported in front of each truck-frame, a common actuating device, connections therefrom to each of said switching devices, whereby they may move together, and means to operate said actuating device, substantially as shown and described.

5. The combination, with two or more railway-cars adapted to be coupled together, of switching devices supported by the truck-frames of the cars and each comprising a swinging arm adapted to engage a switch-rail or guide-rail, a shaft running lengthwise of the first car, means to rotate said shaft, connections from said shaft to the switching device of the first car, a shaft supported by the second car, and intermediate connections to the switching device of the second car, and a coupling between said shafts, substantially as shown and described.

6. In a street-railway switching device, the combination, with the truck-frame, of a short shaft mounted upon said truck-frame, oppositely-placed arms secured to said shaft and adapted to engage a guide or switch rail, a hand-shaft mounted upon the platform of the car, a short shaft also supported by said platform and geared to said hand-shaft, and an extensible shaft intermediate the short shaft supported by the platform and that supported by the truck-frame and connected thereto by universal joints, substantially as shown and described.

7. In a street-railway switching device, the combination, with the truck-frame, of a substantially straight bar pivotally supported at its middle on a cross-bar of the truck-frame and having its members extended to the line of the wheels on either side and having its ends adapted to engage switch-rails at the side of the track, an operating device mounted upon the platform of the car, and extensible and yielding transmitting means between said hand operating device and said pivoted bar, substantially as shown and described.

479,029. ELECTRIC-ARC LAMP. ELMER A. SPERRY, Chicago, Ill., assignor to the Sperry Electric Company, same place. Filed Apr. 18, 1890. Serial No. 348,459. (No model.)



Claim.—1. In an arc lamp, the combination of two pairs of carbons with encircling feeding-clamps for the two upper carbon-rods and a similar suspending-clamp for one of such carbon-rods, and a groove or ledge encircling said carbon-rod and receiving such clamp, so as to retain such carbon-rod at a proper elevation for a determinate period, as and for the purpose shown and described.

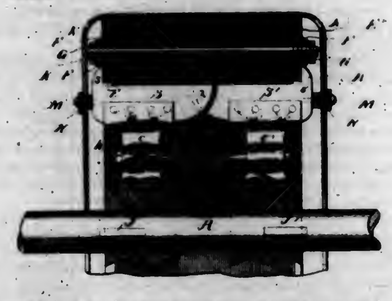
2. In an electric-arc lamp, the combination of a spring-supported frame with a shunt-magnet, a lever on which such frame rests, a cut-out magnet normally open, and an angularly-bent rod one end of which is attached to a lever by which the cut-out magnet can be closed and the other placed in proximity to a moving portion of the spring-supported frame of the shunt-magnet lever.

3. In an arc lamp, the combination of two pairs of carbons with feeding-clamps for the two upper carbon-rods and a suspending-clamp for one of such carbon rods, and a groove or ledge encircling one of said carbon-rods and receiving such clamp so as to retain such carbon-rod at a proper elevation, the same carbon-rod being also provided with a second groove or ledge encircled by one of the feeding-clamps, so as to prevent feeding of this carbon when the other carbon is burning.

4. In an arc lamp, the combination of two pairs of carbons with feeding-clamps for the two upper carbon-rods and a suspending-clamp for one of such carbon-rods, the same carbon-rod being also provided with a second groove or ledge encircled by one of the feeding-clamps, so as to prevent feeding of this carbon when the other carbon is burning.

5. In an arc lamp, the combination of two pairs of carbons with feeding-clamp N^3 for the two upper carbon-rods E and E' and a suspending-clamp J, encircling a groove or ledge H on carbon-rod E' at a proper elevation, the carbon-rod E being also provided with a second groove or ledge V, the said groove or ledge V being encircled by one of the feeding-clamps N^3, so as to prevent feeding of carbon D^4 when carbon D^4 is burning, the said rod E being released by action of the rod E raising the clamp J, thereby allowing rod E' to descend.

479,030. ARMATURE FOR ELECTRIC MACHINES. ELMER A. SPERRY, Chicago, Ill., assignor to the Thomson-Houston Electric Company, Boston, Mass. Filed Dec. 17, 1891. Serial No. 415,397. (No model.)



Claim.—1. In an armature for electric machines whereof the core is made up of thin rings or disks, axially-extending projections secured to the end disks or rings through which the tie-bolts pass and from which they are insulated.

2. In an armature for electric machines whereof the core is made up of thin rings or disks insulated from each other, a thicker ring or disk on the end of the core, having axially-extending projections secured thereto, in combination with tie-bolts passing through the projections and insulated therefrom.

3. In an armature for electric machines whereof the core is made up of thin rings or disks insulated from each other, a thicker ring or disk on each end of the core, provided with axially-extending projections, said projections being provided with a shoulder bearing against the outer side of the ring and riveted on the inner side, in combination with tie rods passing through the projections and insulated therefrom.

4. In an armature for electric machines, a laminated sheath surrounding the coils and the core, said sheath consisting of a series of thin annular metallic rings insulated from the coils and the core.

5. In an armature for electric machines, a laminated sheath surrounding the coils and the core, said sheath consisting of a series of thin annular rings of magnetic metal insulated from the coils and from the core.

6. In an armature for electric machines, a laminated sheath surrounding the core and the coils, said sheath consisting of a series of thin annular rings of soft iron insulated from the coils and the core.

7. In an armature for electric machines whereof the coils are wound in grooves in the core, a laminated sheath covering the coils and the core and insulated therefrom, said sheath consisting of thin annular rings of soft iron.

8. In an armature for electric machines, a laminated sheath covering the coils and the core and insulated therefrom, said sheath consisting of a series of thin annular metallic rings and retained in position by caps rotating with the armature and bearing against the ends of the sheath.

9. In an armature for electric machines, a laminated sheath covering the coils and the core and insulated therefrom, said sheath consisting of a series of thin annular metallic rings, in combination with caps secured to the armature and insulated therefrom and bearing against the ends of the sheath.

10. In an armature for electric machines, a laminated sheath covering the coils and the core and insulated therefrom, said sheath consisting of a series of thin annular metallic rings, in combination with caps bearing against the ends of the sheath and rotating with the armature and provided with ventilating-holes.

11. In an armature for electric machines, a laminated sheath covering the coils and the core and insulated therefrom, said sheath consisting of a series of thin annular metallic rings, in combination with caps of aluminium-silver rotating with the armature and bearing against the ends of the sheath.

12. In a ring-armature for electric machines, the combination of the shaft, two hubs mounted thereon, supports secured to the hubs and insulated therefrom, those of one hub bearing against one end of the armature-core and those of the other hub bearing against the other end of the armature-core, and means for drawing the hubs together on the shaft and clamping the core between the supports, coils upon the armature-core, and a laminated sheath covering the coils and insulated therefrom, with caps secured to the supports borne by the hubs, insulated therefrom, and bearing against the ends of the sheath.

13. In a ring-armature, in combination with the core and the shaft, two hubs mounted upon the shaft, supports secured to the hubs and insulated therefrom, those of one hub bearing against one end of the armature-core and those of the other hub bearing against the other end of the armature-core, and means for forcing the hubs toward each other on the shaft and clamping the armature-core between the supports.

14. In a ring-armature, in combination with the core and the shaft, two hubs mounted upon the shaft, supports secured to the hubs and insulated therefrom, those of each hub overlapping those of the other between the hubs and bearing against the respective ends of the armature-core, with bolts passing through the two hubs and adapted to draw the hubs together, whereby the core is clamped between the supports, substantially as described.

15. In a ring-armature, two hubs mounted upon the armature-shaft, supports secured to the hubs and insulated therefrom and bearing against the inner side of the core, the supports secured to each hub overlapping those of the other in alternate order between the hubs and bearing against the respective ends of the armature-core, with bolts passing through the hubs and adapted to draw them together, whereby the core is clamped between the supports.

16. In a ring-armature, in combination with the core, two hubs mounted upon the armature-shaft, supports secured to the hubs and insulated therefrom and bearing against the inner side of the core, the supports secured to each hub overlapping those of the other between the hubs and bearing against the respective ends of the armature-core, with bolts passing through the hubs, adapted to draw them together, whereby the core is clamped between the supports.

479,031. DELIVERY-WAGON. CHARLES H. SUPPLEE, Philadelphia, Pa. Filed Mar. 14, 1892. Serial No. 424,760. (No model.)

Claim.—1. A two-wheel delivery-wagon provided with a body having a driver's seat adjacent to the rear wall and entrances and exits located in the side walls opposite the ends of the seat and having a closed lower front portion adapted to contain parcels, cans, and the like and to afford a space above the same for the passage of the reins, substantially as and for the purposes set forth.

2. A two-wheel delivery-wagon provided with a body having a driver's seat, a closed rear wall forming a back for said seat, side walls having entrances and exits opposite the extremities of said seat, and a dasher at the front of the body, over which the reins pass, substantially as and for the purposes set forth.

3. A two-wheeled delivery-wagon comprising a body provided with a driver's seat located at the rear thereof and with entrances and exits opposite the ends of said seat, an axle cranked downward at the center thereof to accommodate the body, shafts connected by front and rear distance-pieces and curved upward to accommodate the axle, transversely-ranging springs connecting the front and rear of the body to said shafts, and side springs attached, respectively, to the under side of the straight portions of the axle and having their extremities connected with the shafts, substantially as and for the purposes set forth.

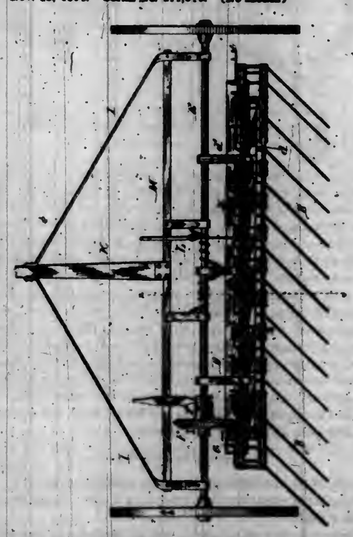
479,032. FLEXIBLE HANDLE FOR TOOLS. JOHN S. BURBADGE, Ottumwa, Iowa. Filed Aug 10, 1891. Serial No. 402,215. (No model.)

Claim.—1. As an improved article of manufacture, a handle for striking-tools, consisting of a length of coiled wire having its one end adapted in shape to enter the eye of a tool, and means for securing it therein, for the purposes stated.

2. A handle for striking-tools, consisting of a length of coiled wire having its one end adapted in shape to enter the eye of a tool, and a plug adapted to enter the end of the handle when in the eye of the tool, and means for jointly fastening the end of the handle and the plug within the eye of the tool.

3. A tool-handle consisting of two or more concentric coils of wire and a solid-metal filling in the inner coil, substantially as set forth, for the purposes stated.

479,033. HORSE HAY-RAKE. ERNEST SWIFT, De Kalb, Ill. Filed Nov. 12, 1891. Serial No. 411,810. (No model.)

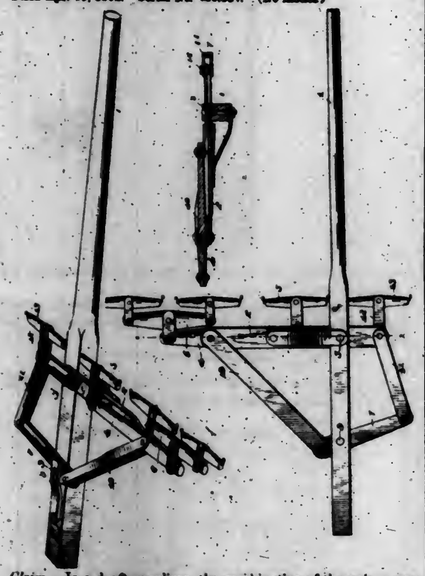


Claim.—1. A hay-rake comprising a transversely-positioned endless rake-tooth carrier arranged across the machine and operated for side delivery and a set of curved rake-teeth attached to the endless carrier and supported to set while raking with their curved portions in planes oblique both to the line of progression of the machine and to the line of travel of the endless carrier toward one side of the machine, the teeth engaged in raking being carried diagonally forward and maintained to respectively exert upon the material being raked a forward pull in a direction coincident with the plane occupied by the curved portion of the tooth, substantially as described.

2. A hay-rake comprising a tilting frame arranged in rear of and supported by the wheeled axle, an endless carrier supported upon the tilting frame and arranged parallel with the axle, so as to travel from side to side of the machine, a set of curved rake-teeth attached to the endless carrier and supported to set while raking with their curved portions in planes oblique both to the line of progression of the machine and to the line of travel of the endless carrier, substantially as described.

3. The combination, in a hay-rake, of the endless transversely-positioned carrier arranged across the machine and the curved rake-teeth attached to the carrier so as to set while raking with their curved portions in planes oblique both to the line of progression of the machine and to the line of travel of their endless carrier and having horizontal stems or shanks which are arranged transversely to and pivotally supported by the endless carrier, substantially as described.

479,084. DRAFT-EQUALIZER. JOHN S. THOMPSON, Cyrus, Minn. Filed Apr. 16, 1892. Serial No. 429,367. (No model.)



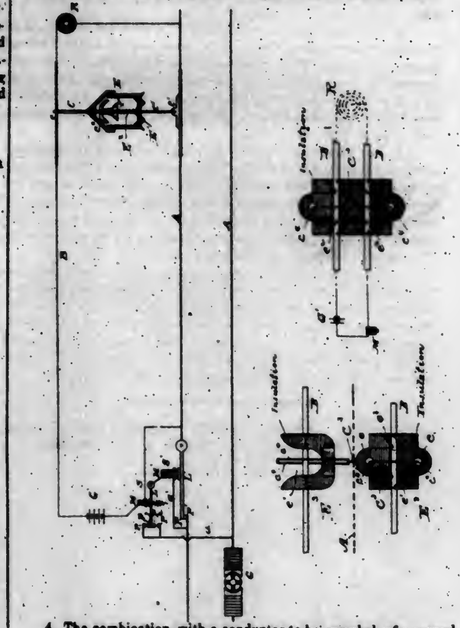
Claim.—In a draft-equalizer, the combination of the pole, a supplemental beam extending outwardly from and terminating at its inner end at the pole and having a beam eccentrically connected to the outer portion thereof and carrying a singletree at the inner end thereof and a doubletree at the outer end of the same, a pair of connecting-bars, attached at their forward ends to the outer end of the beam, secured to the supplemental beam, all of said parts being arranged on one side of the pole, a lever eccentrically mounted on the pole in rear of the supplemental beam, to one end of which the rear portion of said connecting-bars are attached, said lever being confined in position by a clip, a pair of connecting-bars extending from the opposite side of said lever, a lever carried by the bolt of the said supplemental beam independent of and extending outward in line with said supplemental beam, on the outward end of which the last-named connecting-bars are secured, and a singletree secured to the latter lever and the adjacent connecting-bars, substantially as described.

479,085. SAFETY DEVICE FOR ELECTRIC CIRCUITS. MANDEVILLE TEWS, Louisville, Ky. Filed June 5, 1891. Serial No. 395,266. (No model.)

Claim.—1. The combination, with a conductor to be guarded, of a second or guard conductor arranged in proximity thereto and constituting a part of an electric circuit, a safety device in said circuit and adapted to effect a change in the guarded circuit, and conducting and electric contact devices between said conductors adapted to complete an electric connection between them upon an undue displacement of one of the said conductors, substantially as set forth.

2. The combination, with a conductor to be guarded, of a second or guard conductor constituting a part of an electric circuit, a safety device in said circuit adapted to effect a change in the guarded circuit, a source of electrical energy for said circuit separate from the generator of the guarded circuit, and normally-open circuit-closing devices between said conductors, substantially as set forth.

3. The combination, with a conductor to be guarded, of a second or guard conductor in an electric circuit and arranged in proximity to the first conductor, a safety device in said circuit, and conducting and electric contact devices between said conductors adapted to complete an electric connection between them upon an undue displacement of one of the said conductors, substantially as set forth.



4. The combination, with a conductor to be guarded, of a second or guard conductor in an electric circuit in which the guarded conductor is included and arranged in proximity to the latter, a safety device in said circuit, and conducting and electric contact devices between said conductors adapted to complete an electric connection between them upon an undue displacement of one of the said conductors, substantially as set forth.

5. The combination, with a guarded conductor and a guarding-conductor, of an electrical connection joined to one of said conductors and extending beyond the other conductor, and an insulating-guide mounted on the latter conductor and engaging said connection, the latter being adapted to engage the conductor beyond which it extends upon undue displacement of one of the conductors, substantially as set forth.

6. The combination, with a conductor and a second conductor acting as a guard therefor, of a circuit-closing conductor connected with the first conductor and extending above and adapted to engage said guard, and an insulating-guide depending from the guard and engaging the circuit-closing conductor, substantially as set forth.

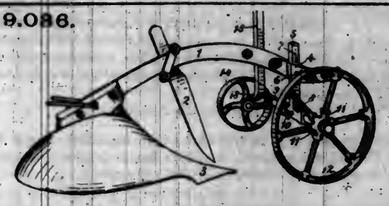
7. The combination, with the conductor A and the guard B, having a connection C^3, of an insulating-guide E^3, mounted on the guard and engaging said connection, substantially as set forth.

8. The insulating support and guide E^3, adapted to be mounted upon a conductor and having slot e^3 for engaging the conductor, and apertures e, adapted to receive and guide an electrical connection, substantially as set forth.

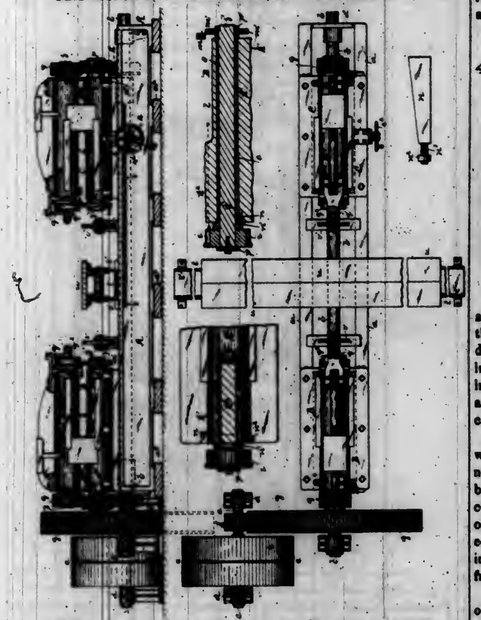
479,086. PLOW. THOMAS TINKLER, Whitchurch, Canada. Filed Aug. 24, 1891. Serial No. 403,517. (No model.) Patented in Canada Apr. 21, 1891, No. 36,433.

Claim.—In a plow, the combination of the furrow-wheel secured to revolve on the end of the crom-bar adjustably secured in the T-headed lower extremity of a vertical standard adjustably secured toward its upper extremity to the front end of the plow-beam, the whole to regulate the width and depth of the score, and the land-wheel secured to revolve on the lower extremity of another vertical standard adjustably secured to the plow-beam at a point conveniently in rear of the standard of the furrow-wheel to maintain the plow at right angles to the surface of the land, substantially as shown and described.

479,086.



479,087. ROTARY SHEARS. SAMUEL TRETHEWEY, Pittsburg, Pa., assignor to the Trethewey Manufacturing Company, same place. Filed June 30, 1891. Serial No. 398,023. (No model.)

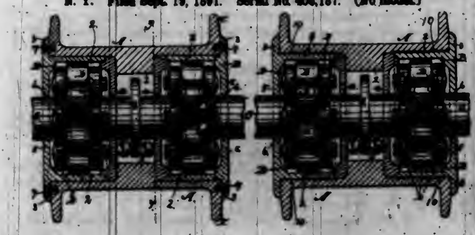


Claim.—1. In rotary shears, the combination, with a bed or frame, of cutter-shafts journaled therein, cutters secured to said shafts, and a bracket projecting out over the upper cutter and having a depending arm carrying a roller, said roller being adapted to press upon the upper face of the sheet, plate, &c., being cut, substantially as and for the purposes set forth.

2. In rotary shears, the combination, with the frame, of cutter-shafts journaled therein, the one above the other, and a wedge-shaped key engaging a flange on a bushing surrounding the lower cutter-shaft, said key acting to force back the said cutter-shaft and prevent any longitudinal movement on the part of the cutter secured thereto, substantially as and for the purposes set forth.

3. In rotary shears, the combination, with the frame, of the lower cutter-shaft *f*, a bushing *o*, having the flange *n'*, the wedge *n*, the plate *p*, secured to the shaft *f*, the cutter *m'*, and nut *p'*, substantially as and for the purposes set forth.

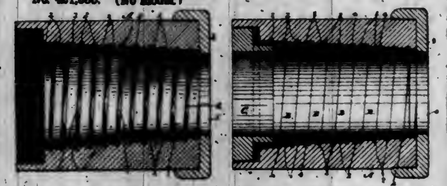
479,088. ROLLER-BEARING. FRANK VAN BENTHUYSEN, Albany N. Y. Filed Sept. 19, 1891. Serial No. 406,167. (No model.)



Claim.—1. The combination of a shaft provided with a circumferential flange which separates the journal into two parts, a wheel-hub having at each end a recess for containing a roller-bearing, said recesses being separated by an internal circumferential flange or rib and each of said roller-bearings being contained in a cage that is removable from said hub, and anti-friction balls or rollers interposed between the inner end of said cages and the flange of said shaft, as and for the purpose herein specified.

2. The combination of a hub A, having an open-ended chamber, an annular end piece 4, having at the periphery of its outer face an annular groove, said end piece being fitted to bear against the inner end of said chamber, a cage B, consisting of a body-piece 2 and the end piece 4, said body-piece having its inner end fitted to engage in the annular groove of said end piece and its outer end provided with a circumferential flange which overlaps onto the outer face of said hub, and a roller-bearing D, contained in said cage and fitted to revolve therein, as and for the purpose herein specified.

479,089. REDUCIBLE LINING FOR JOURNAL-BEARINGS. FRANK VAN BENTHUYSEN, Albany, N. Y. Filed Feb. 12, 1892. Serial No. 421,335. (No model.)



Claim.—1. A reducible lining for journal-bearings, consisting of a metallic ribbon which tapers uniformly in thickness from one end to the other, said ribbon being coiled in a helicoidal form, so as to produce a bore of uniform diameter, said lining being uniformly reduced in its outer diameter from one end of the coil to the other and having its outer face provided with means, substantially as described, for adapting said lining to be screwed into the corresponding bore of a casing, as and for the purpose herein specified.

2. The combination of a reducible lining for journal-bearings, which consists of a metallic ribbon which tapers uniformly in thickness from one end to the other and is coiled in a helicoidal form, the bore of said coil having a uniform diameter, and the outer face of said coil decreasing uniformly in diameter from one end of the coil to the other, and a casing whose bore is formed by a series of helicoidal steps corresponding to the outer surface of said lining, the bore of said casing decreasing uniformly in diameter by means of said helicoidal steps from one end to the other, as and for the purpose specified.

3. The combination of a reducible lining for journal-bearings, made of a metallic ribbon of uniform width, but tapering in thickness from one end to the other and having on one face a longitudinal rib, said metallic ribbon being coiled in a helicoidal form to produce a bore of uniform diameter and the said rib being arranged on the outer face of said lining, and a casing for containing said lining, whose bore is composed of a series of helicoidal steps corresponding to the formation of the outer face of said lining and provided with a helicoidal groove for receiving the rib of said lining, as and for the purpose herein specified.

4. The combination of a lining for journal-bearings, which is made in a helicoidal form, whose outer diameter decreases uniformly from one end to the other, a casing whose bore is formed of a series of helicoidal steps fitted to receive said lining, and means, substantially as herein described, for securing said lining in said casing, as and for the purpose herein specified.

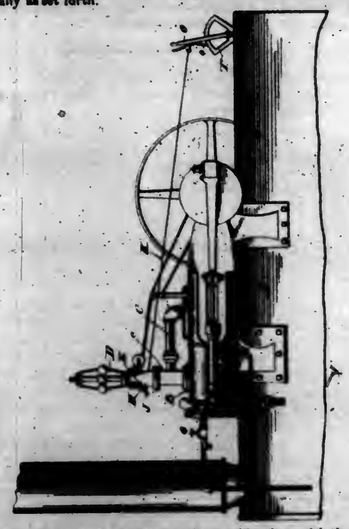
479,040. SPEED-GOVERNOR ATTACHMENT. WILLIAM B. WARNER and HENRY F. WARNER, Monticello, Iowa. Filed Dec. 31, 1891. Serial No. 416,706. (No model.)

Claim.—1. In a governor-valve regulator, the combination, with the governor-valve and the stem-casing thereabove, of an actually-rocking shaft journaled in the valve-stem casing, a lever or rock-arm keyed to said shaft and loosely connected with the valve-stem, an oscillating head loosely working upon said shaft, a coiled spring secured to said lever and head, and means for oscillating said head, substantially as set forth.

2. In a governor-valve regulator, the combination, with the governor-valve and the stem-casing thereabove, of an actually-rocking shaft journaled at one end in the valve-stem casing, a forked lever or rock-arm keyed to said shaft and loosely embracing and connected with the valve-stem, an oscillating head loosely working upon said shaft and provided with an inner flanged arm, and a supplemental inwardly-projecting arm opposite to said flanged arm, a coiled spring

secured to said forked lever and head, an operating chain and rod secured to said flanged arm and passing under said supplemental arm, and means for operating said chain and rod, substantially as set forth.

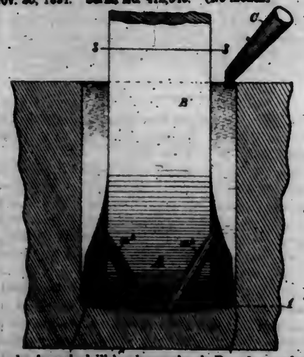
3. In a governor-valve regulator, the combination, with the governor-valve and the stem-casing thereabove, of an actually-rocking shaft journaled at one end in the valve-stem casing, a forked lever or rock-arm keyed to said shaft and loosely embracing and connected with the valve-stem, an independent actuating-lever keyed to and depending from the outer end of said shaft, an oscillating head loosely working upon said shaft and provided with an inner flanged end or arm, and an outwardly-projecting tappet-arm adapted to engage with said independent lever, a coiled spring secured to said forked lever and said head, a lever-and-segment attachment, and an operating chain and rod connected with said flanged end or arm and said attachment, substantially as set forth.



4. In a governor-valve regulator, the combination, with the governor-valve and the stem-casing thereabove, of an actually-rocking spring-actuated shaft journaled in the valve-stem casing and having a rock-arm connected with the valve-stem, and means for controlling the spring rocking said shaft, substantially as set forth.

5. In a governor-valve regulator, the combination, with the governor-valve and the stem-casing thereabove, of an actually-rocking spring-actuated shaft journaled in the valve-stem casing, a lever or rock-arm keyed to said shaft and connected with the valve-stem, and means for controlling the spring oscillating said shaft, substantially as set forth.

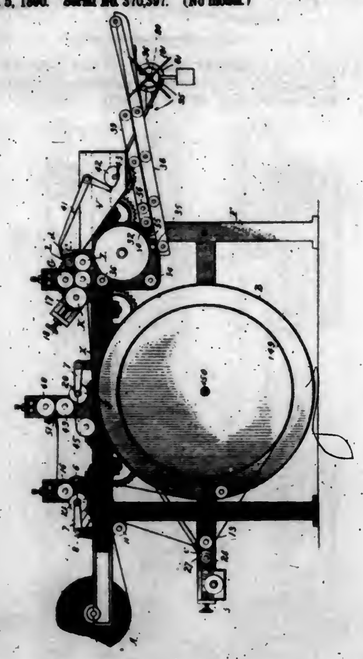
479,041. ROCK-DRILLING TOOL. GEORGE L. WELLER, Elyria, Ohio, assignor to Parks Foster and Eugene K. Mussey, same place. Filed Nov. 23, 1891. Serial No. 412,849. (No model.)



Claim.—1. A rock-drill having a shank B and an enlarged head provided with the channels a^2 a^2, the operating-face of said head having V-shaped ends, substantially as set forth.

2. A rock-drill having a shank B and an enlarged head provided with the channels a^2 a^2, the operating-face of said drill having V-shaped ends and straight sides, which are parallel to and equidistant from a straight line extending between the points of said V-shaped ends, substantially as set forth.

479,042. ENVELOPE-MAKING MACHINE. JAMES WEST, St. Louis, Mo., assignor of one-half to Samuel Cupples, same place. Filed Nov. 5, 1890. Serial No. 370,397. (No model.)



Claim.—1. The combination, with the rolls for creasing and folding the strip and the cutter for severing the blanks from the web, of a transverse cutter for severing the corners of the strip, substantially as set forth.

2. The combination, with the transverse cutting devices and the feed-rolls, of the cutter-bar C, blades *d*, arranged to shear with the bar C, and means for moving said blades periodically, substantially as described.

3. The combination, with the creasing, folding, and cutting device arranged to deliver the blanks downward with the flaps uppermost, of a carrier for carrying the folded blanks forward and a folder constructed to turn down the flaps, substantially as described.

4. The combination, with the folding and cutting rolls, of a cylinder recessed to receive the flap of the envelope and carrying a folding-bar, with means for bringing the latter against the flap to fold it down against the body of the envelope, substantially as set forth.

5. The combination, with the cylinder 32, of the sliding and hinged folding-bar 61 and side guides wherein it can slide peripherally upon the cylinder, arranged substantially as set forth.

6. The combination, with the cylinder, of the plate 160, sliding peripherally in guides upon the cylinder, the folding-bar 61, hinged thereto, and the detent for temporarily holding the bar in one position, substantially as described.

7. The combination of the cylinder 32, supporting one or more hinged folding-bars and recessed to receive the flaps of the envelopes and traveling bands arranged to hold the body of the envelopes against the cylinder, substantially as specified.

8. The combination, with the devices for feeding the envelopes and finishing them by folding down the flaps, of traveling conducting-bands and means for driving them at a speed slower than that at which the envelopes pass from the said devices, and mechanism for separating the envelopes into bundles, substantially as described.

9. The combination, with the traveling bands 28, of one or more revolving blades 181 and means for carrying them at intervals forward against the envelopes, substantially as described.

10. The combination, with the traveling bands, of a shaft carrying cross-blades and means for imparting an intermittent revolution to the shaft, substantially as set forth.

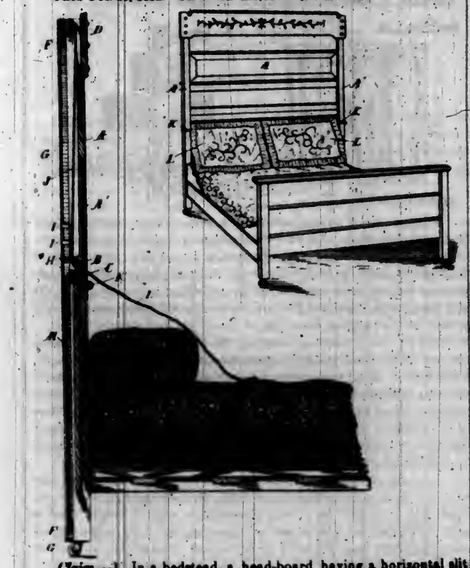
11. The combination, with the shaft and its carrying-blades, of a disk provided with projections, a weighted arm carrying a pawl, and means, substantially as described, for raising and lowering the arm and for carrying said pawl to and from said projection, substantially as set forth.

12. The combination, with the shaft 80 and its blades, of a disk 81, having projections 94, a rotating disk 85, having projections 86, a weighted arm provided with a pivoted dog, and a fixed stop for making contact with said dog, substantially as set forth.

13. The combination, with the disks 81 and 85, their projections, and weighted arm and dog, of cams 88 89, substantially as set forth.

14. The combination, with the disk 81, weighted arm, and operating appliances, of a ratchet 81 82 and pawl 83, extended to make contact with a part of the weighted arm, substantially as described.

479,043. BEDSTEAD. PETER L. WHITE, Grand Rapids, Mich. Filed Feb. 10, 1892. Serial No. 421,017. (No model.)



Claim.—1. In a bedstead, a head-board having a horizontal slit near the middle, a roll journaled in the upper side of said slit, a roll journaled near the top of and behind said head-board, tapes attached to the upper edge of the pillow-shams and passing under the first-named roll and over the upper roll, and a bar attached to the other end of said tapes, substantially as described.

2. In a bedstead, a head-board having a horizontal slit near the middle, a roll near the top and behind said head-board, pillow-shams having their upper edges inserted in said slit and extended upward and over said roll and attached to a bar sliding in vertical grooves in the head-board posts, and an adjustable stop for said sliding bar, substantially as described.

3. In a bedstead, a head-board having a horizontal slit near the middle, rolls journaled in the same near its respective upper and lower sides and a short distance apart, a roll journaled near the top of and behind said head-board, vertical grooves in the head-board posts, weight-bars running in said grooves, shams passing between said rolls, tapes attached to the upper edge of said shams, passing over said upper roll, and attached to said upper weight-bar, and a netting also passing between said rolls, attached to said lower weight-bar at its rear end, and having a laterally-projecting rod attached to its forward end, substantially as described.

479,044. COFFIN-HANDLE. LEWIS H. WILLIAMS, Akron, Ohio. Filed May 24, 1892. Serial No. 434,201. (No model.)



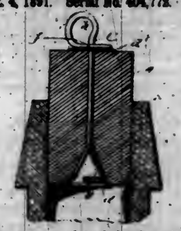
Claim.—1. In a coffin-handle, a screw-threaded shaft and a handle pivotally connected therewith, combined with two nuts meshing on said shaft, one to form an adjustable abutment for the other to draw against, substantially as shown.

2. In a coffin-handle, an arm having a knuckle-joint member, and a finger projecting beyond said member, and an escutcheon having a hollow boss with an opening to receive, fit, and conceal the jointed part of said arm, and a diaphragm back of said boss, combined with a screw-threaded shaft having knuckle-joint members to receive said arm member, a shoulder to engage said diaphragm, and a nut to attach the whole to a coffin, substantially as shown and described.

3. In a coffin-handle, the combination of a screw-threaded shaft having knuckle-joint members and two nuts meshing on its screw-threaded portion, an arm having a knuckle-joint member pivoted to the members of said shaft, and a projecting finger to engage the upper part of said shaft members when the arm is rocked upward, an escutcheon having a boss with an opening to receive and conceal the joint of the handle and shaft, and a diaphragm to engage the back of the joint members of said shaft, substantially as shown and described

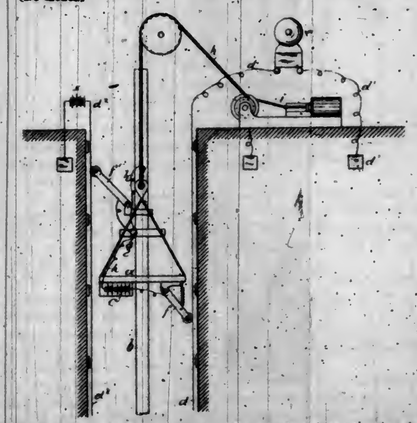
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479,045. BOTTLE-STOPPER. GEORGE F. ATWOOD, Malden, Mass., assignor, by direct and mesne assignments, to George M. French, same place. Filed Sept. 4, 1891. Serial No. 404,772. (No model.)



Claim.—A bottle-stopper of cork having a conical recess in its bottom, a conical wooden button B to fit closely within and against the walls of said recess, and a lifting-wire C, the lower end of which is secured to said button in the groove, while the upper end is bent to form both a loop and clamping-arm, substantially as specified.

479,046. ELECTRIC SIGNAL FOR MINE-SHAFTS. FREDERICK W. BACORN, Marysville, Mont. Filed Feb. 27, 1892. Serial No. 422,995. (No model.)



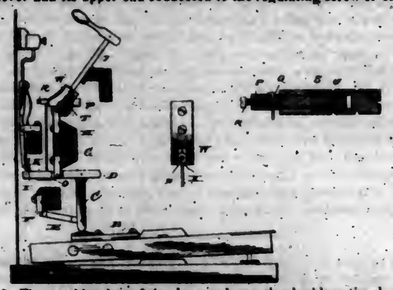
Claim.—The combination, with a mine-shaft and an electric wire therein extending through its length, electrically open at its lower end and connected at its upper end with signaling mechanism, and a cage provided with a trolley on said wire, of a second open wire extending through the length of the shaft, and a trolley thereon, and a push-button electrically connecting said trolleys and wires, said wires completing the circuit through said signaling mechanism, substantially as specified.

479,047. PIANO-ACTION. EUGENE C. BAUMAN, Philadelphia, Pa. Filed Apr. 18, 1891. Serial No. 389,431. (No model.)

Claim.—1. In a piano-action, the combination of the double-act-

ing lever, the hammer, and a perpendicular spring-rod connecting the double-acting lever and the hammer.

2. The combination of the double-acting lever, the hammer, the regulating screw or case mounted in the hammer-butt, and the perpendicular spring-rod having its lower end secured to the double-acting lever and its upper end connected to the regulating screw or case.



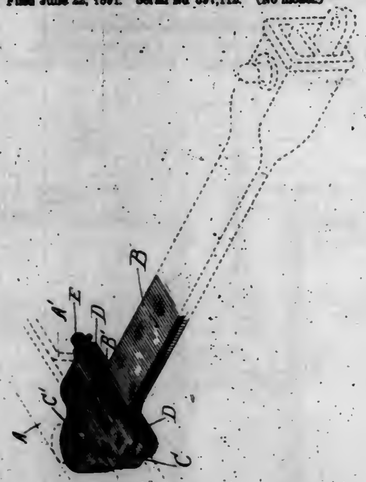
3. The combination of the damper-lever, the double-acting lever having its rear end acting on the damper-lever, the hammer, and the perpendicular spring-rod having its lower end secured to the double-acting lever and its upper end connected to the hammer.

4. The combination of the hammer, the spring-rod acting thereon, the plug having the end of the spring-rod secured thereto, and the rotatable barrel engaging the plug.

5. The combination of the hammer-butt, the barrel mounted therein, the pin engaging the barrel, and the spring-rod having its upper end secured to the plug.

6. The combination of the hammer-butt, the double-acting lever, the plug carried by the hammer-butt, the spring-rod having its upper end secured to the said plug and its lower end bent under and inserted into the double-acting lever, and the clamping-plate secured to the double-acting lever over the said bent end of the spring-lever.

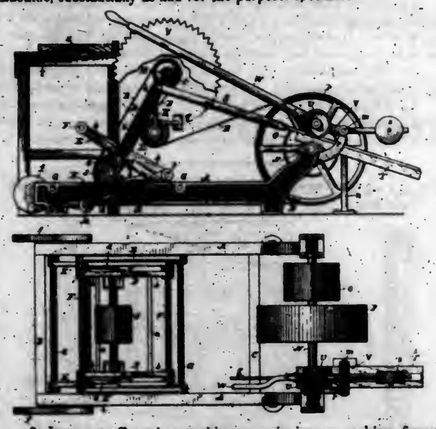
479,048. DRAW-BAR FOR CARS. JOHN L. BLESSING, Chicago, Ill. Filed June 22, 1891. Serial No. 397,113. (No model.)



Claim.—In a draw-bar for cars, the combination, with two parallel supporting cross-bars, of a block having an eye in its rear and horizontal ears, the upper and lower faces of the entire block being parallel and flat throughout its entire width and length, a pin passing through the eye and cross-bars, a draw-bar having a horizontal eye in its end and a coupling device on its opposite end, and a pintle passing through the ears of the block and eyes of the draw-bar, substantially as described.

479,049. CUT-OFF SAWING-MACHINE. MAURICE R. BLOOD, Kalamazoo, and CLARENCE C. BLOOD, Petoskey, assignors of one-half to Orville T. Blood, Petoskey, and the Fuller Brothers Manufacturing Company, Kalamazoo, Mich. Filed Nov. 19, 1890. Serial No. 371,968. (No model.)

Claim.—1. In a cut-off sawing-machine, a swinging or rocking frame carrying the saw-arbor H in its upper part and an idler-pulley J in its lower part, the said rocking frame being pivoted at its four lower corners to the upper end of four arms E E E E, the said arms E E crossing each other at the sides of the said rocking frame and being pivoted at the lower end to the main or stationary frame of the machine, substantially as and for the purposes specified.



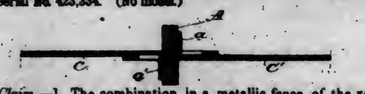
2. In a cut-off sawing-machine, a swinging or rocking frame for carrying the saw, and the location and arrangement on said rocking frame of the saw-arbor H, idler-pulley J, and the pivot points or bearings on the four lower corners for hinging the supports, in combination with suitable supports having a yielding action hinged to the said pivot-points on the lower corners of the said frame, substantially as and for the purposes specified.

3. In a cut-off sawing-machine, the swinging frame that carries the saw-arbor made of side pieces in the form of an inverted cross, the outer ends of these cross-arms pivoted to the upper ends of arms or supports, which arms or supports cross each other at the sides of the swinging frame and are pivoted at their lower ends to the main frame of the machine, all the parts arranged in such a manner as to carry the saw-arbor forward and backward in a straight or nearly straight line, substantially as and for the purposes specified.

4. A cut-off sawing-machine having a rocking or swinging frame to carry the saw-arbor and the swinging frame supported on the pivoted arms E E E E, in combination with a counter-weight *f*, rock-shaft M, having an arm *d*, and a connecting-link *e* for balancing the swinging frame and throwing it backward, substantially as and for the purposes specified.

5. In a cut-off sawing-machine, a swinging or rocking frame pivoted on the upper ends of four arms E E E E, which arms are each pivoted to the main frame A at their lower ends, the said swinging or rocking frame carrying on its upper part the saw-arbor and also carrying a tightener-pulley L, which is on a frame K, pivoted to the said swinging or rocking frame, substantially as and for the purposes specified.

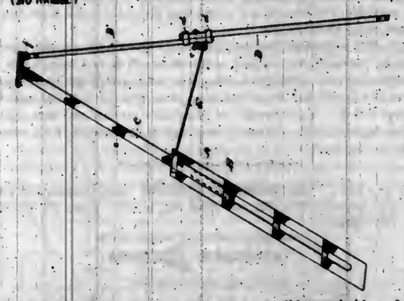
479,050. FENCE. ALBERT L. BONNAFFON, Philadelphia, Pa., assignor of one-half to James G. Lindsay, same place. Filed Mar. 1, 1892. Serial No. 423,334. (No model.)



Claim.—1. The combination, in a metallic fence, of the vertical posts A, having vertical slots *s*, provided therein, of a length about equal to the width of the rail ends to be inserted, longitudinal rails C C, passing through the slots *s*, enlargements provided opposite each other in each side of the vertical slot *s* to allow of the entrance of the spur provided in the rail when only partially struck out, and locking-spurs *a a'*, provided in the respective rails integral therewith, struck outwardly away from the adjacent rail, and adapted to engage on opposite sides of the vertical post A, securing the rails rigidly thereto in opposite directions, substantially as described.

2. In a metallic fence, the combination of vertical posts A, having vertical slots *s*, each of a length about equal to the width of the rail ends to be inserted therein, enlargements being provided in the sides of the vertical slot opposite each other to allow of the introduction of the rail ends when the spurs provided therein are but partially struck out, longitudinal rails C C, and spurs *a a'*, stamped in the ends of the rails, said spurs having their ends when formed adjacent to the end of the rail in which they are formed, the spurs of the rails when in position in the post struck outwardly from the adjacent rails at a substantially right angle to the face of the rails and on opposite sides of the said post, substantially as described.

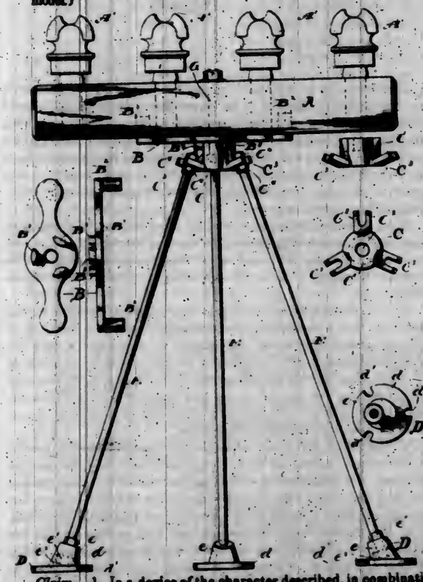
479,051. STEP-LADDER. LAFAYETTE E. BOWER and ARBURY E. BOWER, San Francisco, Cal. Filed July 30, 1891. Serial No. 400,658. (No model.)



Claim.—1. The combination, with an extensible step-ladder, of the sliding ladder-support pivotally secured thereto, thumb-screw working in an opening formed in said support and adapted to hold the sections securely together, and of the brace-wires for holding the ladder-support firm, as and for the purpose set forth.

2. The combination of a permanent section of a step-ladder, a sliding or telescoping upper section moving in an elongated slot in the lower section, a hinged support pivoted at the upper end to said sliding section and provided with an elongated slot, a lower support provided with an elongated slot, a set-screw passing through the registering slots of the two supports, guide-loops secured to the lower support, a transverse rod having one end pivotally secured to the upper support and its opposite end connected to the lower section of the ladder, oblique brace-rods having their extremities secured to the upper and lower ends of the upper support, and similar rods having their upper extremities secured to the upper end of the lower support and their lower ends to the base-piece thereof, substantially as set forth.

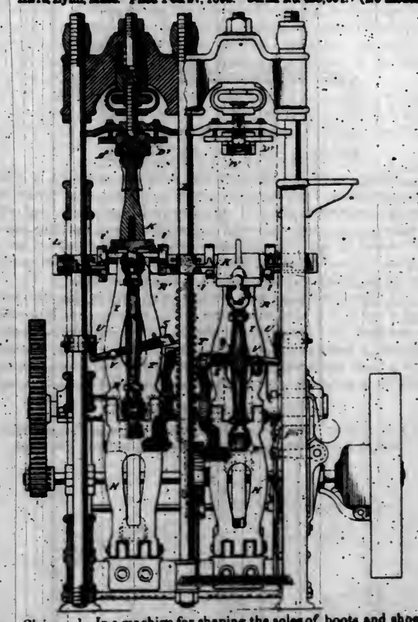
479,052. ELECTRIC-WIRE SUPPORT. WILLIAM B. BRAGDON, Cumberland Mills, Me. Filed Mar. 4, 1892. Serial No. 423,760. (No model.)



Claim.—1. In a device of the character described, in combination, the rods E, the castings D, forming the feet of the tripod and adapted to be bolted to the lower ends of the rods E, and the castings C, having body portion C' and inclined bifurcated arms, the upper ends of the rods being secured within the bifurcations of said arms by nuts upon the rods, substantially as described, and for the purpose specified.

2. The herein-described tripod for supporting electric-wire insulators, the same comprising, in combination, the rods E, forming the legs of the tripod, the castings D, detachably secured to the lower ends of the rods E and adapted to be secured to the roof of a building, the casting C, having inclined bifurcated arms to receive the upper ends of the rods E, the nuts C^4 upon said rods, the casting B, having upwardly-extended arms or projections B^2 and bosses B^3 upon its lower face, said bosses being adapted to engage recesses in the casting C, the cross-bar A, seated upon the casting B, and the bolt G, passed through said cross-bar and castings and serving to hold the same together, substantially as described.

479,053. SOLE-MACHINE. MAURICE V. BRENNAHAN and JOHN J. HAYS, Lynn, Mass. Filed Feb. 27, 1892. Serial No. 423,091. (No model.)



Claim.—1. In a machine for shaping the soles of boots and shoes, the combination of a mold or form D^3, a last and last-carrier, two toggle-levers, and the adjustable connection R, substantially as shown and described.

2. In a machine for shaping the soles of boots and shoes, the combination of a pair of toggle-levers, a latch and a catch for locking said toggles, and an incline plane or longitudinal cam for releasing said latch from the catch, substantially as described, and for the purpose set forth.

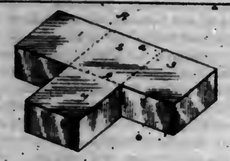
3. In a machine for shaping the soles of boots and shoes, the combination of a pair of toggle-levers, a last-block mounted on one of said toggles, a latch and a catch, a longitudinal cam, an adjustable connection connected from lower toggle to said last-block, a crank-shaft, and a connection from said crank to said toggles, substantially as described, and for the purpose set forth.

4. In a machine for shaping the soles of boots and shoes, the combination of a mold-carrier, a pivoted hook mounted on said mold-carrier, and an adjustable screw mounted on mold D^3, said pivoted hook arranged to drop over the head of the adjusting-screw at any part of said adjustment, for the purpose set forth, and substantially as described.

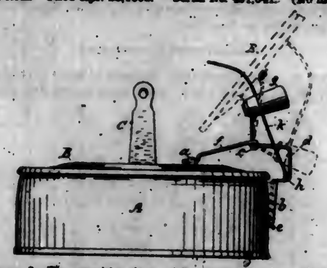
479,054. BUILDING-BLOCK. GEORGE R. BROWN, Pittsburg, Pa. Filed Feb. 24, 1891. Serial No. 382,661. (No model.)

Claim.—As an improved article of manufacture, the herein-described building-block, comprising the oblong part A and the substantially square part 4, said part 4 being secured to the edge of the part A opposite the middle thereof and extending therefrom on a line with the top and bottom thereof, said parts being of greater width than depth, substantially as shown and described

479,054.



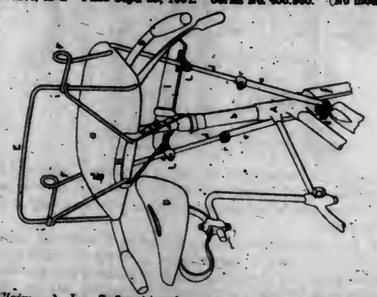
479,055. LID-LIFTER FOR KETTLES, &c. ALTON B. COBB, Phœnix, Ariz. Filed Apr. 23, 1892. Serial No. 431,041. (No model.)



Claim.—1. The combination, with a vessel having a lid, of a lid-lifter consisting of a stanchion formed of a bent rod, two lifting-arms pivotally connected with said stanchion and loosely connected with a finger-piece, a cross-rod loosely connected with said stanchion and a rod carried by said cross-rod and extending upward therefrom, and a finger-piece provided with a clamp for connection with the rod carried by the cross-rod, substantially as set forth and described.

2. The combination, with a vessel having a lid and provided with lugs *a* and *b*, of a stanchion *d*, bent rod *f*, forming two lifting-arms constructed to be connected with the lid, a rod *h*, made fast to a cross-rod having bearings in the stanchion, and a finger-piece *g*, provided with a clamp and loosely connected with rod *f* and movably connected with the finger-piece, substantially as and for the purposes described.

479,056. SEAT FOR VELOCIPEDES. HOWARD R. COOKE, Woonsocket, R. I. Filed Sept. 26, 1891. Serial No. 406,865. (No model.)



Claim.—1. In a Safety bicycle or tricycle, the combination of the handle-bar B and carrying-arm C with a child's carrying-chair arranged centrally over and above the head of the carrying-arm and secured thereto either in a permanent or detachable manner, substantially as described.

2. In a Safety bicycle or tricycle, a child's carrying-chair having groove *m* formed in the under side of the seat, in combination with the handle-bar B and carrying-arm C, arranged centrally upon and over the handle-bar and head of the carrying-arm and secured thereto either in a permanent or detachable manner, substantially as described.

3. In a Safety bicycle or tricycle, a child's carrying-chair consisting of seat G, having therein grooves *c c* and *m*, frame E, and strap N, arranged centrally over and upon the handle-bar B and head of carrying-arm C and secured thereto either in a permanent or detachable manner, in combination with the connecting-rods *d d*, connecting the chair to the front forks, substantially as described.

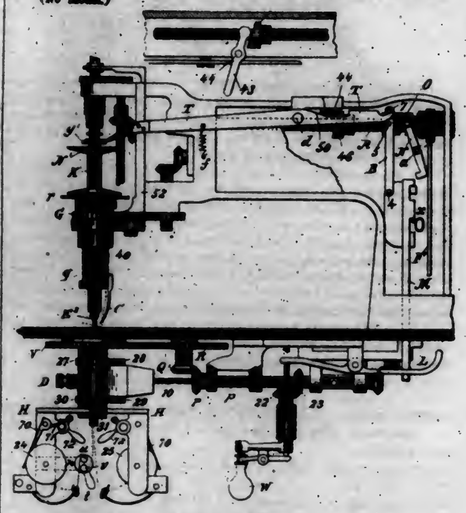
4. In a Safety bicycle or tricycle, a child's carrying-chair consisting of seat G, having therein grooves *c c*, *l l*, *m*, and *h*, the frame E, back-braces F, and strap N, arranged centrally over and upon the handle-bar B and head of the carrying-arm C and secured thereto either in a permanent or detachable manner, in combination with connecting-rods *d d*, connecting the chair to the front forks, substantially as described.

5. In a Safety bicycle or tricycle, a child's carrying-chair arranged centrally over and above the handle-bar B and head of the carrying-arm C and secured thereto either in a permanent or detachable manner, in combination with connecting-rods *d d*, connecting the chair to the front forks, substantially as described.

6. In a Safety bicycle or tricycle, the child's carrying-chair arranged centrally over and above the handle-bar B and carrying arm C and secured thereto either in a permanent or detachable manner, in combination with adjustable connecting-rods *d d* and clamp-sockets *e e*, provided with clamps *r r*, connecting the chair to the front forks, substantially as described.

7. The adjustable foot-rest I, having therein slots *n n*, the brackets L L, provided with lugs *o o*, the screws M M and clamps *p p*, in combination with a child's carrying-chair arranged centrally over and above the handle-bar B and the head of carrying-arm C and secured thereto either in a permanent or detachable manner and converging connecting-rods *d d*, connecting the chair to the front forks, substantially as described.

479,057. EMBROIDERING-MACHINE. EMIL CORBELY and ROBERT CORBELY, Paris, France. Filed Jan. 9, 1892. Serial No. 417,502. (No model.)



Claim.—1. In an embroidering-machine organized to produce a seam composed of parallel rows of stitches with a thread wound around both rows, the combination of the nipple-tube, the revolving thread-carrier, the spool surrounding said nipple-tube for supplying thread to said carrier, and the two needle-bars and their support, each of said needle-bars being adjustable transversely with respect to said support, so that they may work at different distances from each other, substantially as described.

2. In an embroidering-machine, the combination, with a suitable looper and its actuating mechanism, of the nipple-tube and two needle-bars inclosed thereby, said needle-bars being each carried by a slide adjustable transversely in the needle-bar support, substantially as described.

3. In an embroidering-machine of the character specified, having a universal feed, a nipple-tube, a revolving thread-carrier, and a spool surrounding said nipple-tube and adapted to supply said thread-carrier, the combination of a brake-lever having its end in proximity to said tube, a cam, and means actuated from the handle of the universal feed for shifting the cam to couple and uncouple the main from the driving shaft, and a lever actuated by said cam to apply and release the brake-lever, substantially as described.

4. The combination, with the spool surrounding the nipple-tube, the brake-lever, and means for applying the latter when the machine is stopped, of a hand-lever for releasing the brake-lever while the machine is at rest, and a cam for restoring said hand-lever to its normal position when the machine is set in operation, substantially as described.

5. The combination, with the universal feed mechanism, the two needles, and their needle-bars connected with the operating-handle of said feed mechanism, of a looper co-operating with said needles to form a double row of chain stitches, a double-spool holder, also connected with said operating-handle, and an adjustable tension device carried by said spool-holder, substantially as described.

479,058. HAT-HOOK. THOMAS CORNADEAU, New Britain, Conn., assignor to the Stanley Works, same place. Filed Oct. 10, 1890. Serial No. 367,663. (No model.)

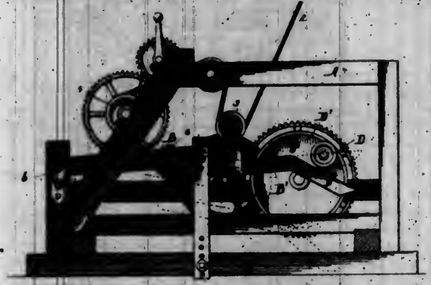


Claim.—1. The herein-described hook, made from a flat piece of sheet metal slit and separated into two members, one of which constitutes a hat-hook with integral fastening-shank and the other a supporting-brace for said hook, substantially as described, and for the purpose specified.

2. The herein-described sheet-metal hook, having the front end of the complete hook curved upwardly and the rear portion and body thereof slit into a central and two side members separated from each other, with one part extending rearwardly and terminated in a fastening-shank, while the other part is curved downwardly and forms a brace, substantially as described, and for the purpose specified.

3. The herein-described sheet-metal hook, having the perforated outer end curved upwardly, as described, two side portions 13, extended rearwardly therefrom and terminating in barbed fastening-shanks, and the central member curved downwardly to form a brace, substantially as described, and for the purpose specified.

479,059. APPARATUS FOR DRILLING WELLS, &c. JOHN R. DAVIS, Chicago, Ill. Filed Feb. 8, 1892. Serial No. 420,822. (No model.)



Claim.—1. An apparatus for drilling wells and like purposes, comprising the combination, with an eccentric-pin and suitable adjunctive devices, of a walking-beam provided with an inclined extension or end portion, along which said eccentric-pin will travel and whereby the drop of the walking-beam will be moderated, substantially as described.

2. An apparatus for drilling wells and like purposes, comprising the combination, with suitable adjunctive devices, of a walking-beam and an extension for said walking-beam, having an inclined end portion, said extension being detachably connected to said walking-beam, substantially as described.

3. An apparatus for drilling wells and like purposes, comprising the combination, with suitable adjunctive devices, of a walking-beam having an extension or end portion provided with a part B^3 and means for adjusting said part at different inclines, substantially as described.

4. An apparatus for drilling wells and like purposes, comprising the combination, with suitable adjunctive devices, of a walking-beam provided with an extension B', adjustably connected to the walking-beam, and a part B^3, adjustably connected to said extension B', substantially as described.

479,060. COMPOSITION OF MATTER FOR PLASTERING. EDWARD W. DIXON, Clyde, N. Y. Filed Feb. 23, 1892. Serial No. 422,451. (No specimens.)

Claim.—The above-named composition of matter, consisting of sand, plaster-of-paris, shell marl, glue, alum, sulphate of zinc, lime, and cut rope or hair, combined in the manner and in about the proportions hereinbefore set forth.

479,061. GRADUATED COCK FOR PNEUMATIC TOOLS. DANIEL DRAWBAUGH, Eberly's Mill, Pa., assignor to the Pneumatic and Electric Tool Company, New York, N. Y. Filed Apr. 13, 1892. Serial No. 429,004. (No model.)

Claim.—1. In a graduated cock for pneumatic tools, adapted to be held in the hand, the combination, with the body having longitudinal and transverse passages therethrough and the key seated in the transverse passage, of the finger-piece pivotally connected to the top of the key and the retaining projection and ring, substantially as described.

2. In a graduated cock for pneumatic tools, the combination, with the body and key, of the finger-piece pivoted to the upper end of the key, the projection and co-operating retaining-ring, and the spring engaging the finger-piece to keep the ring and projection in engagement, substantially as described.

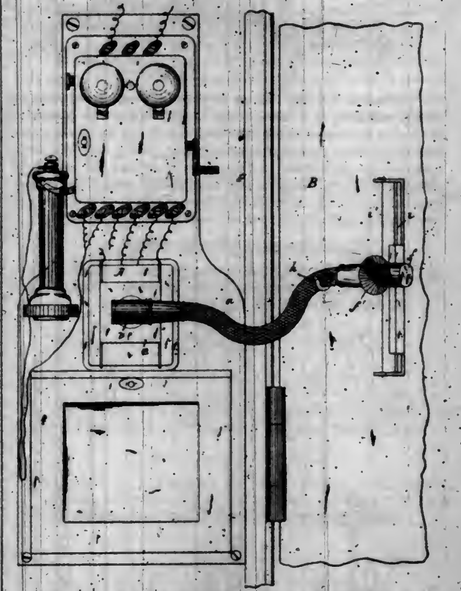


3. In a graduated cock for pneumatic tools, the combination, with the body and key having the upper end recessed, of the finger-piece pivoted to the upper end of the key, the spring seated in the recess and engaging the under side of the finger-piece, and the projection and co-operating retaining-ring held in engagement by the spring, substantially as described.

4. In a cock for pneumatic tools, adapted to be held in the hand, the combination, with the body having the handle projecting at one end, of the key and the finger-piece mounted on the upper end of the key, substantially as described.

5. In a cock for pneumatic tools, adapted to be held in the hand, the combination, with the body having one end formed for attachment to the tool and the handle on the opposite end, with means for attaching the supply-pipe thereto, of the key and the finger-piece mounted on the upper end of the key, substantially as described.

479,062. SPEAKING ATTACHMENT FOR TELEPHONES. DANIEL ELDERIDGE, Boston, Mass. Filed Feb. 26, 1892. Serial No. 422,843. (No model.)



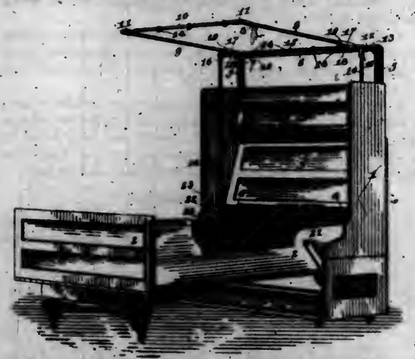
Claim.—1. The telephone-receiver and long flexible connections therefor and the telephone-transmitter and stationary support therefor, combined with the speaking-tube having a mouthpiece at one end and an end piece at the opposite end and adapted to abut against the face of said transmitter and completely inclose the speaking-orifice thereof, a retaining device for holding said end piece firmly abutted against the face of the transmitter, the support B, swinging on a vertical axis, and an adjusting device thereon, which supports the outer end of said speaking-tube, whereby the mouthpiece may be moved at an angle with relation to the face of the transmitter and adjusted as to its height, substantially as described.

2. A telephone-transmitter and stationary support therefor, com-

bined with a flexible speaking-tube *e*, having an end piece at one end, comprising the cap *c*, of suitable size and shape to abut against the face of the transmitter and completely inclose the speaking-orifice thereof, a yielding pad having a hole through it interposed between the cap and the face of the transmitter, and a retaining device for holding the cap *c* firmly abutted against the face of the transmitter, and an end piece *f* at the opposite or outer end of said speaking-tube, provided with the mouthpiece *f'*, and the swinging support B for said outer end of the speaking tube, substantially as described.

3. A telephone-transmitter, combined with a speaking-tube having a mouthpiece at one end and an end piece at the opposite end, comprising the cap *c*, the yielding pad *d*, interposed between said cap and the face of the transmitter, and a retaining device comprising the plate *e*, having a hole through it to receive the cap *c*, and spring-acting fingers *d'*, secured to said plate, by means of which it is held in position on the transmitter, and a packing ring interposed between the cap *c* and the edge of the hole of the plate *e*, substantially as described.

479,068. CANOPY FOR FOLDING BEDS. ADDISON H. EVA, Austin, Tex. Filed Oct. 3, 1891. Serial No. 408,126. (No model.)



Claim.—In a folding bed, an automatically raising and lowering canopy consisting of a raising-frame having vertical bars pivoted to the bed at the bottom and a horizontal connecting-bar at the top, a canopy-top frame pivoted to the bed-casing, having side bars and a horizontal connecting-bar, and couplings connecting the bars of the raising and canopy frames, within which the side bars of the canopy-frame have a sliding movement and the horizontal bar of the raising-frame has an oscillating movement, substantially as set forth.

479,064. VELOCIPEDE. CHARLES FELL, Southport, England. Filed Nov. 23, 1891. Serial No. 412,889. (No model.) Patented in England Oct. 8, 1891. No. 17,101.





Claim.—1. In a velocipede for carrying more than two riders, a series of sections flexibly connected by means of couplings and spring-buffers, the first or leading section only being provided with a steering arrangement, substantially as hereinbefore described, and as illustrated by the accompanying drawings.

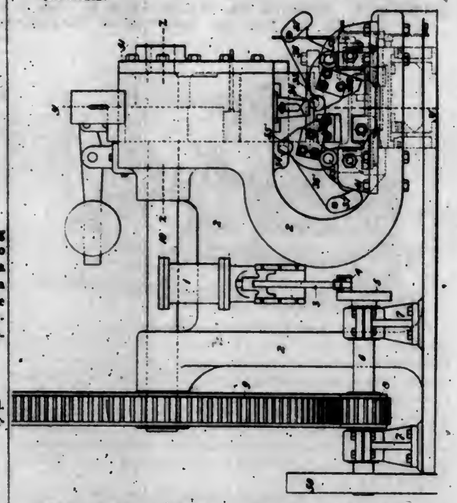
2. In an articulated or flexible velocipede, the combination and arrangement, with a spring-buffer, of a coupling passing axially through the buffer, substantially as hereinbefore described, and as illustrated by the accompanying drawings.

479,065. NUT-LOCK. HENRY FRESER, Granburg, Ohio. Filed May 16, 1892. Serial No. 433,180. (No model.)



Claim.—The combination, with the bolt and nut, the former having a front square end, of an inner U-shaped plate perforated to receive the bolt and having its side walls embracing the side walls of the nut and beyond the same provided with pairs of opposite perforations, and the outer U-shaped plate having its side walls taken between those of the inner plate and having a central portion provided with a square opening to receive the square end of the bolt and its opposite edges slotted to receive the side walls of the inner plate, and the split pins passed through the perforations formed in the inner plate beyond the plane of the outer plate and having their extremities clinched, substantially as specified.

479,066. MACHINE FOR CUTTING RIGHT-ANGLED STRUCTURAL SHAPES. ROBERT W. GRACE, Pittsburg, assignor of one-half to John A. Potter, Munhall, Pa. Filed May 16, 1890. Serial No. 352,052. (No model.)



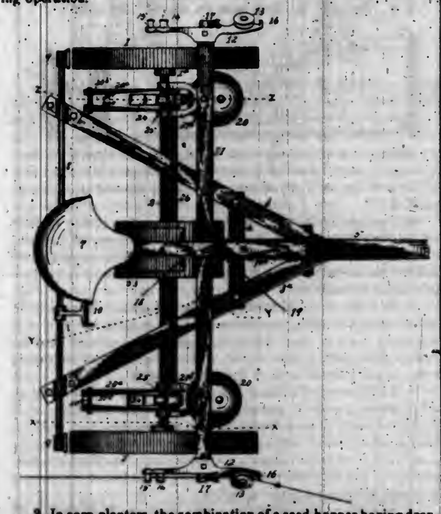
Claim.—1. In a machine for severing I-beams, channels, angles, and other merchant shapes, the combination of a power-block sliding in guides, a gag-block at the base of said power-block, a web-block carrying the upper knife-blade, and two bed-knives between which said upper knife-blade descends, substantially as shown, and for the purposes set forth.

2. In a machine for severing I-beams, channels, angles, and other merchant shapes, the combination of a power-block sliding in guides, a gag-block at the base of said power-block, a flange-block, a gag-block at the base of said flange-block to communicate power to a tilting knife-holder carrying an upper knife, and two bed-knives between which said upper knife descends, substantially as shown, and for the purposes described.

3. In a machine for severing I-beams channels, angles, and other merchant shapes, the combination of a power-block, devices for communicating power therefrom to a web-block and to a flange-block, a web-block carrying the upper knife, bed-knives between which said upper knife descends, a flange-block, means for communicating power from said flange-block to a tilting knife-holder, said tilting knife-holder carrying the upper knife, and two bed-knives between which said upper knife descends, substantially as shown, and for the purposes set forth.

479,067. CORN-PLANTER. LEVI P. GRAHAM, Decatur, Ill. Filed May 9, 1890. Serial No. 351,148. (No model.)

Claim.—1. In corn-planters, the combination of a seed-hopper having dropping mechanism in its lower end, a rock-arm pivoted at or near the upper end of the hopper, and a seed-depositing prod-bucket suspended from the rock-arm held normally under the vent of the hopper and adapted to swing rearwardly from the hopper at each planting operation.



2. In corn-planters, the combination of a seed-hopper having dropping mechanism in its lower end, a valve on which the grain falls from the dropping mechanism, a rock-arm having a pivot at or near the upper end of the hopper, and a seed-depositing prod-bucket suspended from the rock-arm and adapted to open the valve and receive the grain therefrom.

3. In corn-planters, the combination of a rock-arm, a corn-receiving prod-bucket suspended from the arm at some distance from the pivot thereof, and a corn-depositing plunger in the prod-bucket and suspended from the rock-arm at a greater distance from the pivot, whereby the plunger may travel farther than the prod-bucket and the travel of both may be regulated by varying the extent of the oscillation of the rock-arm.

4. In corn-planters, the combination of a prod-bucket having a front valve, an actuating-bar secured to the prod-bucket approximately midway between the valve and the rear wall, and a plunger in the space between the bar connection and the rear wall of the prod-bucket.

5. In corn-planters, the combination of a seed-depositing prod having a downward and upward motion and also a pendulous motion, and a latch or catch securing the prod against pendulous motion until the downward motion shall have begun.

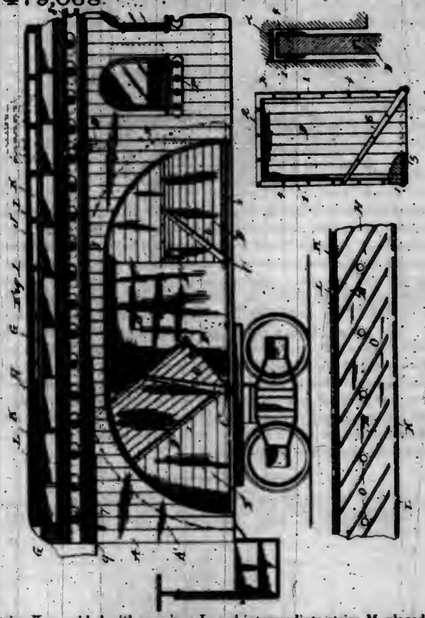
6. In corn-planters, the combination of a rock-arm, a seed-depositing prod-bucket swung therefrom, and an extension-spring connected with the prod-bar and with a relatively immovable part of the planter in an oblique position.

7. In corn-planters, the combination of carrying-wheels on a main shaft, a rock-shaft carrying seed-depositing prod-buckets, a crank adapted to impart motion to the rock-shaft, and clutch-gearing connecting the main shaft with the crank and adapted to be actuated by the knots on a check-row line, whereby the rock-shaft is oscillated by the rotation of the crank when the clutch is in mesh.

8. A check-row bar or head for corn-planters having guide-pulleys and the customary forked lever, and also having tilting motion on a pivot parallel with the axle of the planter, whereby the rear guide-pulleys are elevated, the front pulley depressed, and the check-row line automatically discharged from the pulleys and lever.

9. In corn-planters, the combination of a wheel or carrying-frame, a seed-hopper pivoted in the frame on a transverse pivot, a check-row head carried by the hopper above the pivot, and planting mechanism carried by the hopper below the pivot, whereby the planting mechanism is raised and the check-row line discharged when the hopper is tilted on its pivot.

479,068.



stripe K, provided with openings L, and intermediate stripe M, placed diagonally between the stripe K and projected across the openings L therein, substantially as shown, and for the purpose described.

2. In a combined freight and passenger car, the combination of the roof H, provided with adjustable ventilating-openings O, the deck J, interposed longitudinal stripe K, provided with openings L, and diagonal intermediate stripe M, projected past said openings, substantially as shown, and for the purpose described.

479,069. PACKAGE-CARRIER FOR VELOCIPEDES. ELIOT H. HEATH, Boston, Mass. Filed Aug. 15, 1891. Serial No. 402,731. (No model.)



Claim.—The bar B and the hammock-supporting clamps and their bolts, combined with a hook and a hammock, substantially as described.

479,070. GRAIN-DOOR FOR CARS. EDWARD A. HILL, Chicago, Ill., assignor of one-half to James L. Mallory and Edgar A. Hill, same place. Filed Jan. 5, 1892. Serial No. 417,053. (No model.)



Claim.—The combination of a door, a pivot at or near each upper corner thereof, a guide-rod at each side of the doorway, and a shackle connecting each pivot and rod, said shackle having separate apertures through which the pivot and rod respectively pass, substantially as described.

479,071. BED-LOUNGE. STEWARD A. HOLSTEIN, Cleveland, Ohio. Filed Mar. 5, 1892. Serial No. 423,867. (No model.)

Claim.—1. A bed-lounge having a box-body and a removable

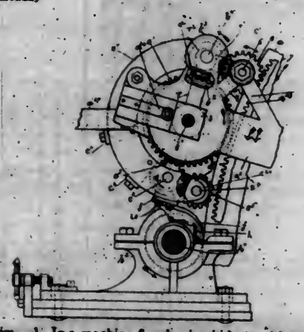
479,071.



back provided with folding legs, which, when disconnected from the body of the lounge, forms an independent bed, suitable means of attachment of the back to the lounge, and a series of independent removable finished beds in the body of said lounge provided with folding legs, said beds being entirely disconnected from the body of the lounge, both in and out of use, and adapted to be set up in different parts of the room away from the lounge, substantially as described.

2. A lounge having a box-body, a removable back provided with folding legs, which, when disconnected from the lounge, forms an independent bed, and a hinged head-rest provided with a concavity for the reception of a bed-spread, a series of independent removable finished beds in the body of said lounge, which are provided with folding legs, said beds being entirely disconnected from the body of the lounge and adapted to be set up in different parts of the room away from the lounge, substantially as described.

479,072. MACHINE FOR SHAVING HIDES OR SKINS. ALFRED A. HUNTING, Salem, Mass. Filed June 15, 1891. Serial No. 396,235. (No model.)



Claim.—1. In a machine for shaving hides or skins, the following instrumentalities, viz: a movable drum or carrier for the hide or skin to be shaved, a retarding device to bear upon and hold the hide or skin between it and the said drum or carrier, a pressure-bar comprising a series of independently-yielding fingers, and a rotating cylindrical cutter contacting with the hide or skin adjacent to the ends of said yielding fingers, to operate substantially as described.

2. In a machine for shaving hides and skins, a movable drum or carrier, a retarding device, and a pressure-bar comprising a series of independently-yielding fingers curved at their ends to partially surround the cutter, combined with a rotating cylindrical cutter and mechanism intermediate the retarding device and the cutter to impart thereto a reciprocating motion during its rotation to thus enable the knives or blades on the cutters to act with a drawing cut upon the hide or skin, substantially as described.

3. In a machine for shaving hides or skins, a movable drum or carrier, a retarding device, and means including a gear having movable bearings supported by pivoted links to move it in the same direction, but at a slower surface speed than that of the drum or carrier, combined with a pressure-bar having yielding fingers to bear upon the hide or skin, a swinging frame to which it is attached, and with a rotating cylindrical cutter, to operate substantially as described.

4. In a machine for shaving hides or skins, a movable drum or carrier, a retarding device, and means to move it in the same direction, but at a slower surface speed than that of the drum or carrier, combined with a swinging frame, a pressure-bar having yielding fingers attached to said frame, and with a rotating cylindrical cutter, and with a pressure-roll carried by said frame between the retarding device and the pressure-fingers, to operate substantially as described.

5. In a machine for shaving hides or skins, a rotating drum or carrier, a widthwise stretching-roll provided with spiral grooves extended right and left from its center and jaws to engage and hold the end of the hide or skin, combined with a retarding device intermediate said stretching-roll and the cutter, substantially as described, and with a rotating cylindrical cutter to act upon the surface of the skin or hide.

479,073. FOLDING STAND. HERMAN A. KOEHLER, New York, N. Y. Filed Mar. 16, 1892. Serial No. 425,097. (No model.)



Claim.—1. In a device for exhibiting goods, the slides D and folding wings E hinged thereto, in combination with each other and with the series of shelves G' G³, all arranged to serve substantially as herein specified.

2. In a device for exhibiting goods, the series of shelves G' G³, and the folding wings E, adapted to support them in stepped positions, in combination with each other and with the flexible connections H between the several shelves, all arranged for joint operation substantially as herein specified.

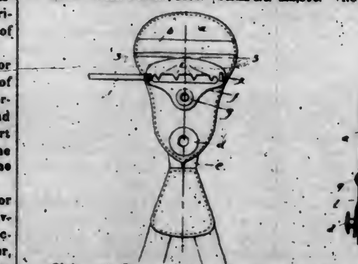
3. In a device for exhibiting goods, the series of shelves G' G³, and the folding wings E, slotted horizontally, as indicated by d' d^2 d^3, adapted to support them therein in stepped positions, and with the slides or side pieces D, also slotted horizontally, the slots registering as shown and adapted to serve as herein specified.

4. In a device for exhibiting goods, the series of shelves G' G³, and the folding wings E, slotted horizontally, as indicated by d' d^2 d^3, adapted to support them therein in stepped positions, and with the slides or side pieces D, also slotted horizontally, the slots registering as shown, and with the tongue *g*, carried on one of the shelves and extending beyond the parts when folded, adapted to facilitate locking in the closed position, as herein specified.

5. In a device for exhibiting goods, the series of shelves G' G³, and the folding wings E, slotted horizontally, as indicated by d' d^2 d^3, adapted to support them therein in stepped positions, and with the slides or side pieces D, also slotted horizontally, the slots registering as shown, and with the cover composed of plates M M', &c., flexibly connected, and locking means adapted to secure the whole, all arranged to serve substantially as herein specified.

6. In a device for exhibiting goods, the series of shelves G' G³, and the folding wings E, slotted horizontally, as indicated by d' d^2 d^3, adapted to support them therein in stepped positions, and with the slides or side pieces D, also slotted horizontally, the slots registering as shown, and with the tongue *g*, carried on one of the shelves and extending beyond the parts when folded, adapted to facilitate locking in the closed position, and with the clamping means C, arranged to secure the parts in the extended or contracted position at will, all substantially as herein specified.

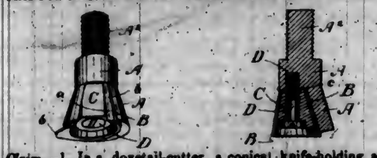
479,074. SUSPENDER-BUCKLE. HYMAN LIEBENTHAL, Bay City, Mich. Filed Feb. 23, 1892. Serial No. 422,990. (No model.)



Claim.—1. In a suspender, the piece *a*, having a transverse strap *b*, between which and said piece a suspender-web is adapted to pass, a plate *f*, located below said strap and having a slot provided at one edge with teeth *i*, a cross-bar *j*, pivoted at one end to the slotted plate and constructed at its opposite end to engage a catch *k* on the plate, and a button *d*, mounted on the lower end of the piece *a* for engaging a suspender-end *e*, substantially as described.

2. A suspender-buckle consisting of a piece *a*, having a button *d* to engage the suspender-end *e*, a plate *f*, having teeth *i* and a catch *k*, a cross-bar *j*, pivoted at one end to the plate and constructed at its opposite end to engage a catch, and a transverse strap *b*, arranged above the toothed plate and between which and the piece *a* a suspender-web is adapted to pass, substantially as described.

479,075. DOVETAIL-CUTTER. ALBERT C. MEAD, Boston, Mass. Filed Feb. 17, 1892. Serial No. 421,839. (No model.)



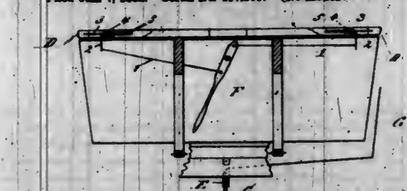
Claim.—1. In a dovetail-cutter, a conical knife-holding socket with the axis of rotation of which the conical exterior surface of said socket is concentric and the conical interior eccentric, whereby the socket is open along one side, in combination with an open hollow conical cutting-knife, a conical plug, and a fastening-screw, all constructed and arranged substantially as described.

2. In a dovetail-cutter, the combination, with an open hollow conical knife-holding socket, of an open hollow conical cutting-knife suitably clamped within said socket eccentric with the axis of rotation, whereby the size of the cut may be varied by the lead of the sharpened knife-edge beyond the edge of the socket, substantially as described.

3. In a dovetail-cutter, an open hollow conical knife-holding socket, in combination with an open hollow conical cutting-knife suitably clamped within said socket, said knife being provided on its outer end with a sharp horizontal outwardly-projecting cutting-lip integral with said knife, substantially as described.

4. In a dovetail cutter, the holder-shank A, provided with the screw A^3, and the hollow open conical knife-holding socket A', in combination with the open hollow conical knife B, eccentrically set within said socket, the plug C, provided with the projection *c*, engaging with a depression in the inner end of said socket, and the fastening-screw D, all constructed and arranged substantially as and for the purposes described.

479,076. WAGON END-GATE. PIERRE MILLET, Bonnet Carre, La., assignor of two-thirds to Ernest Millet and Albert Millet, same place. Filed Jan. 7, 1892. Serial No. 417,295. (No model.)



Claim.—The combination, with the wagon-body having the side rails extended rearwardly and provided with the apertures, of the end-gate having the angular clasps D to embrace said extended ends, the slidable rods 3 3, having springs 4 and arms 2, the lever F, pivoted on the end-gate, the rods 1 1, connecting said lever on opposite sides of its pivoted point with the arms 2, the spring-catch E, arranged beneath the body, and the latch-lever G, all adapted to operate substantially as specified.

479,077. AXLE-LUBRICATOR. JAMES S. PATTEN, Baltimore, Md. Filed Sept. 16, 1891. Serial No. 406,056. (No model.)



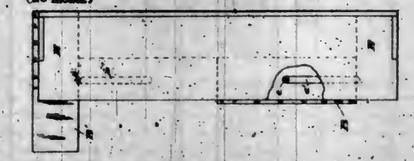
Claim.—1. In a car-axle lubricator, the combination, with the lubricant-holding box and take-up roller, of the reversible bearing-blocks supported in the former, each of said blocks having a journal-groove extending entirely across its face, whose width is twice the length of the journals of said roller, as shown and described.

2. In a car-axle lubricator, the combination, with the lubricant-holding box and take-up roller, of the bearing-blocks for the latter having journal-grooves arranged opposite and parallel in upper and under sides, and adapted to be reversed top for bottom, as shown and described.

3. In a car-axle lubricator, the body portion of the lubricant-holding box, having the rearwardly-extended and inwardly-inclined semi-circular flange which conforms to the axle, provided with a series of ribs and a series of intervening grooves, which become gradually shallower as they extend outwardly to vanishing points, whereby they serve to reconvey into the box that portion of the lubricant scraped off the journal by the said ribs, as specified.

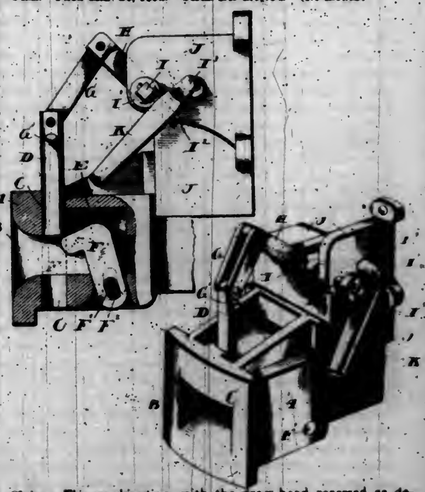
4. In a car-axle lubricator, the body A of the lubricant-holding box, constructed integrally and having in its outer sides and outer end the oil-conducting grooves a^2 and a^3, which incline downwardly, and an opening in said outer end for allowing the lubricant received in the grooves to re-enter the box, as shown and described.

479,078. WARDROBE, CHIFFONIER, &c. THOMAS W. PURCELL and JOHN B. CRAIG, St. Louis, Mo. Filed Dec. 28, 1891. Serial No. 416,312. (No model.)



Claim.—The combination, in a folding bed having a chiffonier or book-case connected therewith by means of guide-pins and guides at the top and bottom and supported upon ball-bearings, of the base provided with a hinged extension at each end adapted to receive and support the sliding front parts when open, substantially in the manner shown and described, and for the purposes set forth.

479,079. CAR-COUPLING. RICHARD S. ROBERTSON, Castle Gate, Utah. Filed Mar. 28, 1892. Serial No. 426,734. (No model.)

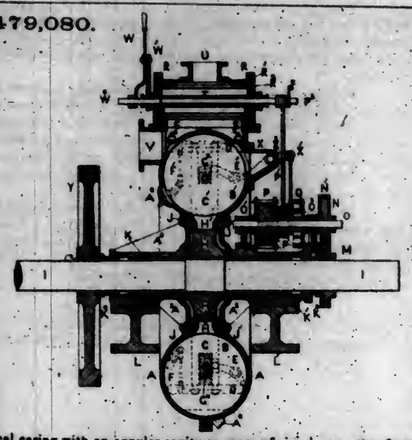


Claim.—The combination, with the draw head recessed as described, of the casting F, pivoted within a recess to the rear of the coupling-pin opening, the coupling-pin having lugs extending laterally therefrom near its upper end, the shaft I, journaled in bearings above and to the rear of the draw-head, pivoted link connections, as described, between the shaft and pin, the casting I^1, having upon one of its sides the stub-shaft I^2, and the lever K, sleeved at a point near one of its ends upon the stub-shaft, the short arm of the lever being curved, as described, and adapted to be thrown into engagement with an opening in the casting J, substantially as described, and for the purpose specified.

479,080. ROTARY ENGINE. JEFFREY SHELLING, East Greenwich, England. Filed Oct. 9, 1890. Serial No. 367,622. (No model.) Patented in England Dec. 24, 1889, No. 20,703.

Claim.—1. The combination, in a rotary engine having a cylin-

479,080.



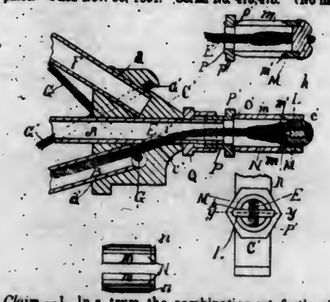
drical casing with an annular cavity or space of circular or other form and conical faces formed upon the inside of the casing, of the spring-rings between said faces, the piston-wheel with recesses formed in its periphery and fitted upon a shaft between the spring-rings, the pistons of circular or other form, with sliding bolts, bars, levers, springs, and connecting-rods fitted within the pistons for connecting and disconnecting to and from the piston-wheel and casing, respectively, and used as pistons and partitions alternately, the releasing-levers, shaft, and cam-rod for connecting and disconnecting the pistons to and from the piston-wheel, the shaft, cam, and wheels for actuating the releasing-levers and valve-gear, and the reversing or expansion and inlet valves, with their ports, for controlling the admission and release of steam, air, gas, and other fluids to and from the annular cavity of a simple non-reversing rotary-engine casing, substantially as described.

2. The combination, in a rotary engine having a cylindrical casing with an annular cavity or space of circular or other form and removable cover and conical faces formed upon the inside of the casing, of the spring-rings between said faces, the piston wheel with recesses formed in its periphery and fitted upon a shaft between the spring-rings, the pistons of circular or other form with sliding bolts, bars, levers, springs, and connecting-rods fitted within the pistons for connecting and disconnecting to and from the piston-wheel and casing, respectively, and used as pistons and partitions alternately, the releasing-levers, shaft, and cam-rod for connecting and disconnecting the pistons to and from the piston-wheel, the shaft, cam, and wheels for actuating the releasing-levers and valve-gear, and the reversing or expansion and inlet valves, with their ports, for controlling the admission and release and also altering the direction of the steam, air, gas, and other fluids to and from the annular cavity of a reversing rotary-engine casing, substantially as described.

3. The combination, in a rotary engine having a cylindrical casing with an annular cavity or space of circular or other form and removable cover and conical faces formed upon the inside of the casing, of the spring-rings between said faces, the piston-wheel with recesses formed in its periphery, forged solid upon the shaft, and fitted between the spring-rings, the pistons of circular or other form, with sliding bolts, bars, levers, springs, and connecting-rods fitted within the pistons for connecting and disconnecting to and from the piston-wheel and casing, respectively, and used as pistons and partitions alternately, the releasing-levers, shaft, and cam-rod for connecting and disconnecting the pistons to and from the piston-wheel, the shaft, cam, and wheels for actuating the releasing-levers and valve-gear, and the reversing or expansion and inlet valves, with their ports, for controlling the admission and release of steam, air, gas, and other fluids to and from the annular cavity of compound or other expansion and condensing rotary-engine casings, substantially as described.

4. The combination, in a rotary engine having a cylindrical casing with an annular cavity or space of circular or other form, of a steel lining fitted within annular cavity, leaving a space between the lining and casing for a water-jacket, and conical faces formed upon the steel lining, the spring-rings between said faces, the piston-wheel with recesses formed in its periphery, forged solid upon the shaft, with a hole formed through the center of the shaft for water-service, and fitted between the spring-rings, the pistons of circular or other form, with sliding bolts, bars, levers, springs, and connecting-rods fitted within the pistons for connecting and disconnecting to and from the piston-wheel and casing, respectively, and used as pistons and partitions alternately, the releasing-levers, shaft, and cam-rod for connecting and disconnecting the pistons to and from the piston-wheel, the shaft, cam, and wheels for actuating the releasing-levers and valve-gear, and the reversing or expansion and inlet valves, with their ports, for controlling the admission and release of steam, air, gas, and other fluids to and from the annular cavity of a high-speed rotary-engine casing, substantially as described.

479,081. SUSPENSION TRUSS-BRIDGE. GEORGE A. STEPHENSON, Los Angeles, Cal., assignor of one-half to John Francis Butler, same place. Filed Nov. 30, 1891. Serial No. 413,475. (No model.)



Claim.—1. In a truss, the combination set forth of the thrust-beam, the tubular lower chord converging thereto at the ends, two thrust or head blocks arranged, respectively, at the points of convergence of the thrust-beam and the lower chord to seat the ends thereof, a series of interposed brace-blocks arranged between the lower chord and the thrust-beam, the suspension-cable extending through the lower chord and through the head-blocks, means for securing such cable and thrust-beam to the head-blocks, and suitable means for straining the cable against the thrust-beam and head-blocks.

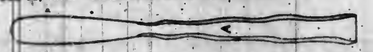
2. The truss set forth, comprising the combination of the thrust-beam, the tubular lower chord converging thereto at the ends, two thrust or head blocks arranged, respectively, at the points of convergence of the thrust beam and the lower chord to seat the ends thereof, a series of interposed brace-blocks D, arranged between the lower chord and thrust-beam, the suspension-cable extending through the lower chord and through the head-block, suitable means for straining the cable against the thrust-beam and head-blocks, the upper chord parallel at its mid-length with the thrust-beam and converging at its ends to the head-blocks and seated thereagainst, a series of interposed brace-blocks D', arranged between such upper chord and the thrust-beam coaxial with the brace-blocks D, and suitable tension-cables secured to the head-blocks and arranged to compress the upper and lower chords against the brace-blocks and draw the head-blocks against the ends of the chords.

3. In a truss, the combination set forth of the thrust-beam, the tubular lower chord converging thereto at the ends, the thrust-blocks arranged at the points of convergence of the thrust-beams and lower chord to seat the ends thereof, the interposed brace-blocks, the suspension-cable passing through the lower chord and thrust-blocks and provided with a loop at each end, the adjusting-ferrule screwed upon the end of the thrust-beam and arranged to engage the head-blocks, the ring-ferrule, the anchor-key passed through the loop of the cable and arranged to rest against the ring-ferrule, the screw-ferrule screwed upon the end of the thrust-beam, and the divided straining-ferrule arranged between the screw-ferrule and the ring-ferrule.

4. The combination of the ring-ferrule provided in its inner end with the annular channel, the anchor-key arranged to rest against the outer end of such ring-ferrule, the divided ferrule provided on one end with the chine arranged to fit in such annular channel, the screw-ferrule provided with the annular channel arranged to receive the other end of the divided ferrule and arranged to screw upon a suitable support, and the straining-cable secured to the anchor-key and extending through the ring-ferrule, divided ferrule, and screw-ferrule.

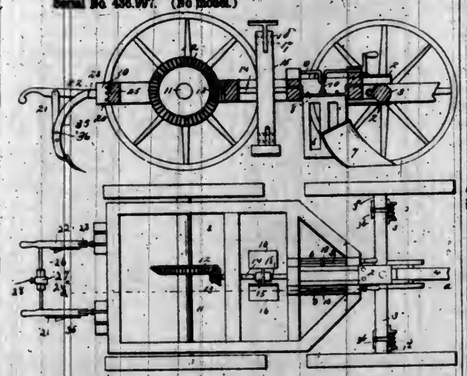
5. In a truss of the class described, having the screw-ferrule and the ring-ferrule, as set forth, the divided ferrule N, arranged between the screw-ferrule and ring-ferrule.

479,082. BRUSH. SAMUEL P. STORRS, New Britain, Conn. Filed Oct. 31, 1891. Serial No. 410,631. (No model.)



Claim.—In a brush, the combination of an aluminum back provided with an undercut recess adapted to receive the cap, the brush-tufts and means for securing them in their perforations, and the cap secured in the recess by pressure, substantially as described.

479,083. COMBINED COTTON CHOPPER AND CULTIVATOR. LORANEY H. ABERNATHY, Holland, Ark., assignor of one-half to S. W. Levelling, same place. Filed June 20, 1891. Renewed June 16, 1892. Serial No. 436,997. (No model.)



Claim.—1. The combination of the pivoted front axle-section 3, the end sections 3^a, hinged to the ends of the main section 3, and the spiral springs 5, secured at their inner ends to the main section and at their outer ends to the hinged sections 3^a, substantially as set forth.

2. The combination, with the machine-frame, of the scraper-frames 6, having the inclined blades 7 and mounted on the longitudinal crank-shafts 8, the upper crank-shafts 9, having the operating-handles, and the links 10, connecting the crank-shafts 9 and 8, substantially as and for the purpose set forth.

3. The combination, with the main frame and the series of bearing-blocks 19, connected thereto and having a series of apertures 20, of the plow-handles, the vertical plates 23, hinged to the forward ends of said handles and having the apertures 24, and the removable pivot-rod 25, substantially as and for the purpose set forth.

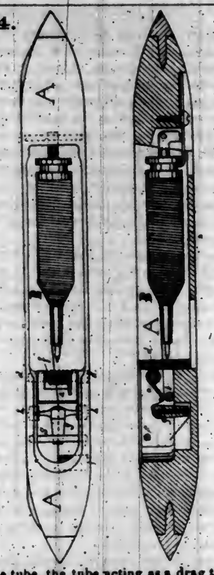
4. The combination of the machine-frame formed with the pointed or V-shaped forward end and having the horizontal bearing-plates 2 2 arranged as specified, the main axle-section 3, centrally pivoted between said plates, the end axle-sections 3^a 3^a, hinged to the ends of the main section 3, and the springs 5, connecting the hinged sections with the main section, substantially as set forth.

479,084. TENSION DEVICE FOR LOOM-SHUTTLES. HENRY BARDSLEY, Philadelphia, Pa. Filed Dec. 29, 1891. Serial No. 416,442. (No model.)

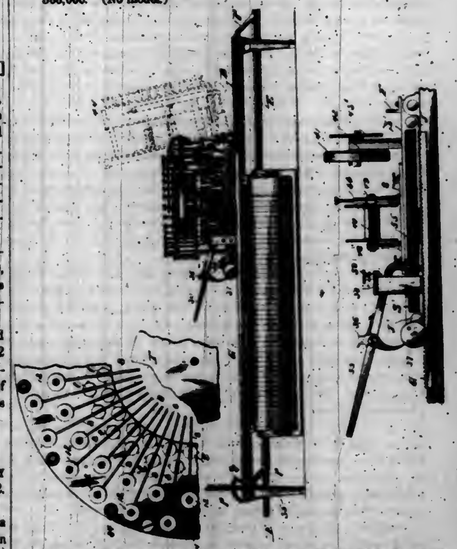
Claim.—A loom-shuttle having a tension device consisting of a bar *b*, a plate *a*, mounted on the adjusting screw or pin *d* and held in contact with the bar *b* by the coiled spring *f*, one end of which rests in the slot *c* of the pin *d*, whereby the pressure of the plate *a* may be regulated, the said screw or pin *d* and spring *f*, and a swinging tube *g*, through which the weft passes, and a stop *s* to limit the upward movement of the tube, the tube acting as a drag to take up the slack in the weft, substantially as shown and described.



479,084.



479,085. TYPE-WRITING MACHINE. HENRY T. BEAURDOARD and FRANCIS S. FLOWER, Chicago, Ill. Filed Apr. 13, 1891. Serial No. 388,660. (No model.)



Claim.—1. In a type-writing machine, the combination of a main frame provided on two of its sides, respectively, with a parallel rack-bar and slide-bar, means suspended pivotally from said frame for elevating adjustably the book or page to receive the type-stroke, and a superposed frame supporting and carrying a type-writing carriage and operating devices and provided with pinions engaging said rack-bars, all substantially as shown.

2. In a type writing machine, the combination of a main frame provided with a parallel rack-bar and slide-bar on its two respective sides, means connected with said frame for elevating adjustably the book or page to receive the stroke of the type, a superposed frame in two sections hinged together at one side and capable of opening

and folding together, the lower section thereof resting and moving upon the slide bars of such frame, pinions engaging said rack-bars, and means for operating said pinions, and said upper section being provided with slide-bars, upon which rests and is carried the carriage of said type-writing machine, all substantially as shown.

3. In a type-writing machine, the combination of a main frame provided with rack-bars and slide-bars, one or more swinging bars suspended pivotally from opposite sides of said frame and having means to elevate and lower them adjustably, two angular cross-bars, the ends of which are adjustably connected with the two opposite sides of said frame, a superposed frame in two sections hinged together at one side, and a type-writing carriage movably attached to said second frame, all substantially as shown.

4. In a type-writing machine, the combination of a main frame with a superposed frame having two sections hinged together at one side, provided with slide-bars, and means for propelling said frame along upon said main frame, and a type-writing carriage supported movably upon said superposed frame, and means for propelling said carriage by regular and limited movement along upon said last-mentioned frame, substantially as shown.

5. In a type-writing machine, the combination of a main frame, a second frame superposed movably upon said main frame and having pinions engaging with the rack-bars of said main frame, and means to operate said pinions, a type-writing carriage movable upon said superposed frame and provided with a central plate T, operated by each respective type-key of the said carriage, a pivoted lever 6, the movable plate *d*, and the levers *h* and *k*, pivotally connected to the plate *c* with their respective dogs, whereby the operation of the type-keys causes the respective dogs *i* and *l* to engage and disengage the rack-bar H and said type-writing carriage to move in spaces regulated thereby, all substantially as shown.

6. In a type-writing machine, the combination of a main frame provided with rack-bars and slide bars or ways with a superposed frame provided with means for moving it along upon said main frame, said second frame provided, also, with a rack-bar and slide bars or ways, a type-writing carriage movable upon said superposed frame and provided with a central plate capable of vertical movement, the pivoted levers 8, operated by their corresponding type-keys, the type-arms 22, connected pivotally with the stems 9 of said type-keys by connecting-rods, the pivoted lever 6, the plate *d*, movably attached to the plate *c*, the levers *h* and *k*, with their respective dogs *i* and *l*, and the rack-bar H, whereby the stroke of the type-keys operates the type-arms and produces the spacing or step-by-step movement of the carriage across the superposed frame at the same time, all substantially as shown.

7. In a type-writing machine, the combination of a series of type-keys held in bearings in the frame of the carriage, corresponding type-levers pivotally supported on said frame, pivoted levers 8, corresponding to and each operated by its respective type-key, a plate T, capable of vertical movement and supported in bearings in said frame, the lever 6, pivotally connected with said frame, the plate *d*, movably attached to the plate *c*, connected with said frame, the levers *h* and *k*, with their respective dogs *i* and springs, and the rack-bar H, all substantially as shown.

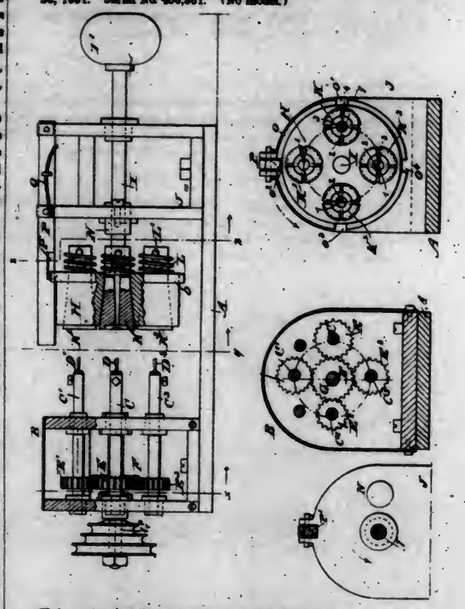
8. In a type-writing machine, the combination of the carriage-frame provided with keys held in bearings therein with a plate T, having a post supported in bearings in said frame, type-arms pivotally held by brackets attached to said frame and each connected with and operated by its respective type-keys, means for operating said plate T by the operation of each type-key, respectively, the pivoted lever 6, the movable plate *d*, attached to the plate *c*, the two locking-levers *h* and *k*, with their respective dogs and springs, and the rack-bar H, all substantially as shown.

9. In a type-writing machine, a plate *c*, permanently attached to the carriage, in combination with a plate movably attached thereto and means whereby the downward stroke of the type-key causes said movable plate to bear upon and move the locking-levers, said locking-levers being provided with springs restoring them and said movable plate to their normal positions all as substantially shown.

10. In a type-writing machine, the combination of a frame provided with a rack-bar, a carriage movable on said frame, the two locking-levers *h* and *k*, each provided with its respective dog *i* and *l*, and means for alternately engaging and disengaging said dogs, respectively, with and from said rack-bar, and a carriage-lever pivotally attached to said carriage and connected by a rod or link with the locking-lever *k*, whereby the dog of the said locking-lever *k* may be disengaged from said rack-bar and said carriage moved freely upon said frame, all substantially as shown.

11. In a type-writing machine, a frame adapted to support a movable carriage and provided with a rod held in bearings in the opposite ends of said frame, the ends of said rod carrying pinions, a post rigidly attached to said frame and carrying a lever pivotally held thereon, and a thumb-screw to regulate the stroke of said lever and engaging with one of said pinions, and a spring restoring said lever to its normal position, all substantially as shown.

479,086. DRILLING-MACHINE. OTTO STERNOFF-BEYER, Cartstadt, N. J., assignor to Bohm Brothers, New York, N. Y. Filed Sept. 26, 1891. Serial No. 406,881. (No model.)



Claim.—1. A drilling-machine provided with a series of simultaneously-revolable drills arranged in a circle and eccentric to the axis of the article supporting devices, substantially as shown and described.

2. A drilling-machine comprising a disk carrying a series of article-supporting devices arranged in a circle and a series of simultaneously-revolving drills arranged in a circle eccentric to the circle in which the article-supporting devices are arranged, substantially as shown and described.

3. A drilling-machine comprising a series of simultaneously-revolving drills arranged in a circle and a series of chucks for supporting the article to be drilled and arranged in a circle eccentric to the circle in which the drills are arranged, substantially as shown and described.

4. A drilling-machine provided with a wheel mounted to turn and to slide and a series of spring-pressed chucks arranged in a circle on the said wheel and formed with split sections, and a recess to centrally support the article to be drilled, substantially as shown and described.

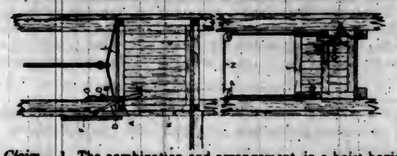
5. A drilling-machine provided with a wheel mounted to turn and to slide, a series of spring-pressed chucks arranged in a circle on the said wheel and formed with split sections, and a recess to centrally support the article to be drilled, and a fixed lug adapted to engage the chuck to open the latter, substantially as shown and described.

6. In a drilling-machine, the combination, with a series of simultaneously-revolving drills arranged in a circle, of a wheel mounted to slide and to turn and arranged opposite but eccentric to the said drills and chucks arranged in a circle on the said wheel and adapted to support centrally the articles to be drilled, substantially as shown and described.

7. In a drilling-machine, the combination, with a series of simultaneously-revolving drills arranged in a circle, of a wheel mounted to slide and to turn and arranged opposite but eccentric to the said drills, chucks arranged in a circle on the said wheel and adapted to support centrally the articles to be drilled, and means, substantially as described, for opening and closing one of the chucks at a time, as set forth.

8. In a drilling-machine, the combination, with a series of simultaneously-revolving drills arranged in a circle, of a wheel mounted to slide and to turn and arranged opposite but eccentric to the said drills, chucks arranged in a circle on the said wheel and adapted to support centrally the articles to be drilled, and means, substantially as described, for holding the said wheel in position while sliding forward and backward, as set forth.

479,087. HOIST. JAMES GARNER, THOMAS COCKERILL, and CHRISTOPHER PORRETT, Manchester, England. Filed Feb. 23, 1892. Serial No. 422,501. (No model.) Patented in England Oct. 5, 1891, No. 16,677.



Claim.—1. The combination and arrangement, in a hoist having vertically-sliding doors, with a locking device consisting of a bent lever, a catch, and a fixed projection, of a rocking shaft mounted in the cage and having secured thereon an arm arranged to trip said lever and raise the door, substantially as hereinbefore described, and as illustrated by the accompanying drawings.

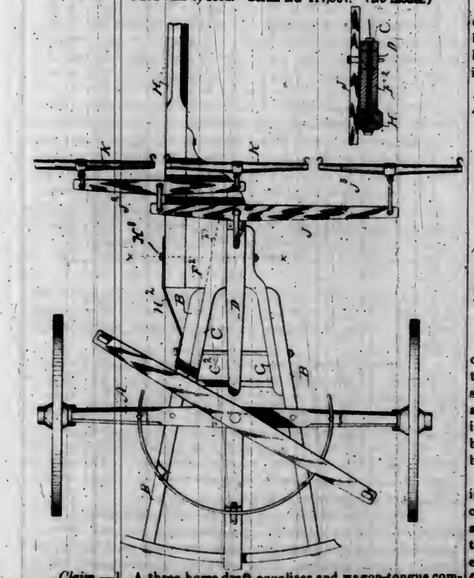
2. The combination and arrangement, in a hoist having vertically-sliding doors, of a door locking device consisting of a bent lever, a catch, and a fixed projection, with a rocking shaft having the arm B and the hook E secured thereon, a cam-surface to engage the arm B, and the rope N, adapted to be engaged by the hook E and to liberate the locking device and lift the door, substantially as hereinbefore described, and as illustrated by the accompanying drawings.

3. The combination, in a hoist having vertically-sliding doors, of a door locking device consisting of a bent lever and catch pivoted on the door and a fixed projection on the door-casing, a rocking shaft mounted in the cage, an arm on said rock-shaft arranged to trip the lever and lift the door, a second arm arranged to travel in proximity to the framework, and a cam-surface on said framework lying in the path of said second arm, substantially as described.

4. The combination, in a hoist, of a vertically-sliding door having pivoted thereon the lever H and latch Q, the link R, connecting said parts, the bridge M, spanning the latch, the rope N, attached at one end to the door and at the other end to the latch and running over pulleys P, and a cage having a rock-shaft mounted thereon carrying a hooked arm to engage with said rope, substantially as described.

5. In a hoist, the combination, with vertically-sliding doors having pivoted catches and devices whereby they may be operated, of a cage having the rock-shaft A, mounted therein, carrying the arms B, D, and E, and a handle Z, and cam-surfaces on the framework to engage the arm B and cause the arms D E to operate the catches, substantially as described.

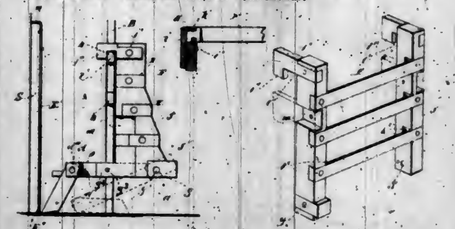
479,088. DRAFT-EQUALIZER. THOMAS J. FREDERICKS, Audubon, Iowa. Filed Jan. 9, 1892. Serial No. 417,587. (No model.)



Claim.—1. A three-horse draft-equalizer and wagon-tongue comprising tongue-hounds pivoted between the hounds of a wagon, a short tongue-section secured between the said tongue-hounds, a block secured to one side of the said tongue-hounds and tongue-section, a wagon-tongue secured to the side of the said block, a trebletree secured to the forward end of the said tongue-section, having arms of unequal length, a doubletree pivoted to the shorter arm, having its ends on opposite sides of the wagon-tongue, and a singletree pivoted to the longer arm, substantially as set forth.

2. A three-horse draft-equalizer and wagon-tongue comprising tongue-hounds pivoted between the hounds of the running-gear of a wagon, a section fixed between the said tongue-hounds, a laterally-extending portion on one side of the tongue-hounds, a tongue fixed to one side of the laterally-extending portion, a brace fixed to the tongue and to the hounds of the running-gear, a bolt extended through the tongue, the tongue-hounds, and the said section, a trebletree pivoted to the forward end of the said section, comprising a bar having arms of unequal lengths, a doubletree pivoted to the shorter arm and a singletree pivoted to the longer end, the singletree of the said doubletree being on opposite sides of the tongue, substantially as shown and described, to operate in the manner set forth.

479,089. FIRE-GRATE. ROBERT GILCHRIEST, Louisville, Ky. Filed Apr. 22, 1891. Serial No. 389,940. (No model.)



Claim.—1. The herein-described fireplace-grate, comprising a front grate-section having an adjustable support, a bottom section having its forward end bar removably journaled in the lower forward portion of the front section, and adjustable oblique supports for the rear portion of said lower section, substantially as specified.

2. The grate-section comprising the end castings having shouldered recesses therein to receive the grate-bar ends, the grate-bars having shouldered recessed ends engaging said recesses and shoulders of the end castings and held therein by removable lugs or castings, and adjustable supporting lugs secured to the upper portion of said end castings, substantially as specified.

3. The grate section comprising the end castings having shouldered recesses therein to receive the grate-bar ends and the grate-bars having recessed shouldered ends secured therein by removable lugs or castings, said bars having the oblique rear faces and arranged in different vertical planes, substantially as specified.

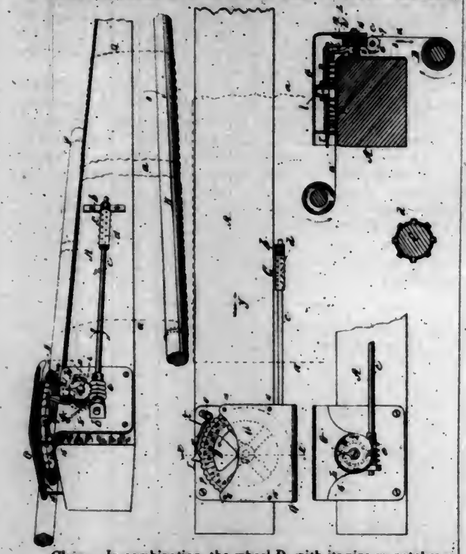
479,090. SHEARS. HERMAN HERDER, Philadelphia, Pa. Filed Apr. 30, 1892. Serial No. 431,332. (No model.)



Claim.—1. In shears, means for pivotally connecting the blades and operating to facially separate the blades when opening the shears and to draw them facially toward each other when closing the same, consisting of a connecting-pin with a screw-threaded end adapted to fit and be rotated in a screw-threaded recess in one of the blades, a bearing on the pin for preventing rotation of the same in the opposite blade, and a spring bearing on the outer face of the latter blade and beneath the locking-nut, substantially as described.

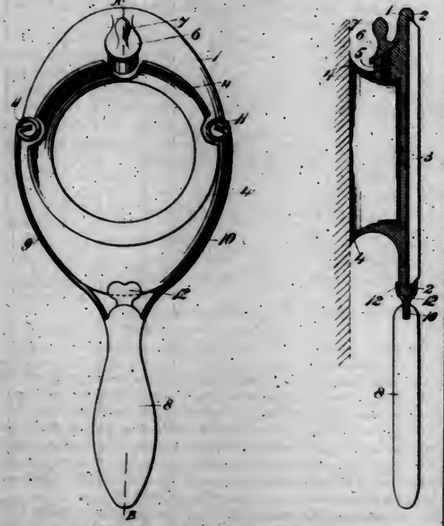
2. In shears, the combination, with the blades, one of them having a screw-threaded recess and the other a polygonal-shaped recess opposite each other, of a connecting-pin screw-threaded at each end and provided intermediately with a polygonal-shaped bearing adapted to fit said polygonal-shaped recess in the upper blade, with a spring encircling the connecting-pin and having a bearing between the outer face of the upper blade and the locking-nut on said pin, substantially as described.

479,091. FABRIC-MEASURING DEVICE. LLEWELLYN H. HUSTOCE, Madison, Me. Filed Mar. 3, 1892. Serial No. 423,559. (No model.)



Claim.—In combination, the wheel D, with its pins *m*, notches *p*, index I, graduations, and dial figures, the pinion A, with its finger *k* and index L, the shaft e, with its serrated roll C and worm *e*, and the guard G cut away to expose to view the index I and the numeral on the dial of the wheel D expressing the whole number of yards woven, said guard having, also, a dial 18, graduations, and figures expressing the fractional portion of a yard, as and for the purpose set forth.

479,092. HAND-MIRROR. WILLIAM A. JULIAN, Cincinnati, Ohio. Filed Mar. 10, 1892. Serial No. 424,373. (No model.)

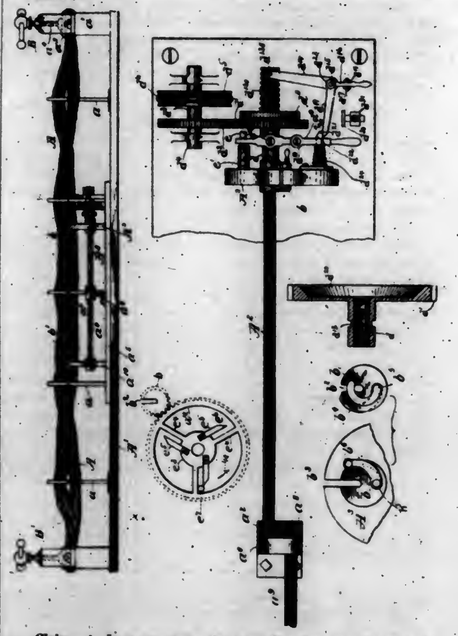


Claim.—1. In a hand-mirror, the combination, with a mirror-casing, of an elastic outwardly-flaring flange formed integral on the back surface thereof, a suitable opening formed in said flange, and suitable means for opening and closing said opening, substantially as and for the purpose set forth.

2. In a hand-mirror, the combination, with a mirror-casing, of an elastic or flexible outwardly-flaring flange formed on the rear surface thereof, a vent-opening, and an automatic closing-flap valve over said opening, substantially as and for the purpose set forth.

3. The combination, with the mirror-casing, of a handle provided with clamping clips engaging with the end of the casing and the curved rods secured to the handle and extending part way around the sides of the casing and provided with forked ends coiled against the front and the back of the casing, substantially as described and shown.

479,093. MACHINE FOR MAKING WAX-ENDS. ROBERT M. MACINTOSH, Boston, Mass. Filed Mar. 7, 1892. Serial No. 423,980. (No model.)



Claim.—1. In an apparatus for providing threads with tapering ends, the combination of the following instrumentalities, viz: two clamps or thread-holding devices, one of which is rotatable, a driving mechanism for said rotatable clamp, a clutch to engage the rotatable clamp with its driving mechanism, a locking device to hold the clutch in its operative position to produce rotation of the rotatable clamp, and an automatically-operated stopping mechanism actuated by the driving mechanism to act on the lock and release the clutch, and means to act on the clutch after it has been thus released and disengage the rotatable clamp from its driving mechanism, substantially as described.

2. In an apparatus for providing threads with tapering ends, the combination of the following instrumentalities, viz: a shaft A^3, provided at one end with a worm, a shaft a^9, connected to the shaft A^3 to rotate in an opposite direction, a rotary thread holding device or clamp connected to each shaft, a main or driving shaft, a clutch to couple the driving-shaft with the shaft A^3, a locking device for the clutch, a pivoted lever having one arm d^{14} provided with a pin or stud to engage the worm on the shaft A^3 and having its other arm d^{15} adapted to engage the locking device for the clutch, substantially as described.

3. In an apparatus for providing threads with tapering ends, the combination of the following instrumentalities, viz: two clamps or thread-holding devices, one of which is rotatable, a shaft to which the rotatable clamp is connected, a driving-shaft, and a clutch mechanism to couple the driving-shaft to the clamp-rotating shaft, means to lock the clutch mechanism in engagement with the clamp-rotating shaft, and an automatically-operated stopping mechanism to disengage the clutch from the clamp-rotating shaft and stop the rotation of rotatable clamp, substantially as described.

4. In an apparatus for providing threads with tapering ends, the combination of the following instrumentalities, viz: two clamps or thread-holding devices rotatable in opposite directions, a drifting-shaft for said rotatable clamps, a clutch to couple the driving-shaft with the rotatable clamps, and an automatic stopping mechanism actuated by the driving-shaft when the latter is coupled to the rotatable clamps to act on the clutch and disengage the driving-shaft from the rotatable clamps, substantially as described.

5. In an apparatus for providing threads with tapering ends the combination of the following instrumentalities, viz: two clamps or thread-holding devices, one of which is rotatable, a shaft A^3, to which the rotatable clamp is connected, a driving-shaft, and a clutch mechanism to couple the driving-shaft to the clamp-rotating shaft, a gear a^{12}, mounted on the shaft A^3, a toothed hub *b* in mesh with said gear and provided with a slot b^3, and a clamping device secured to said hub, substantially as described.

6. In an apparatus for providing threads with tapering ends, the combination of the following instrumentalities, viz: two clamps or thread-holding devices, one of which is rotatable, a shaft A^3, to which the rotatable clamp is connected, a driving-shaft, and a clutch mechanism to couple the driving shaft to the clamp-rotating shaft, a gear a^{12}, mounted on the shaft A^3, a toothed hub *b* in mesh with said gear and provided with a slot b^3, a clamping device secured to said hub, and an automatic stopping device to disengage the shaft A^3 from the driving-shaft and stop the rotation of the gear a^{12}, substantially as described.

7. In an apparatus for providing threads with tapering ends, the combination of the following instrumentalities, viz: a shaft A^3, a shaft a^9, connected to the shaft A^3, to rotate in an opposite direction, a rotary thread-holding device or clamp connected to each shaft A^3 a^9, a main or driving shaft, and a clutch to couple the driving-shaft with one of the shafts A^3 a^9, substantially as described.

8. The combination, with hank-holding devices, of a thread-untwisting mechanism interposed between the said devices and consisting of two clamps or thread-holding devices, one of which is rotatable, a driving-shaft for the rotatable clamp, a clutch to couple the driving-shaft with the rotatable clamp, a lock to hold said clutch in engagement with the driving-shaft, and an automatic stopping mechanism to act on said lock and release the said clutch and stop the rotation of the clamp, substantially as described.

9. In an apparatus for providing threads with tapering ends, the combination of the following instrumentalities, viz: two clamps or thread-holding devices, one of which is rotatable and consists of a slotted hub, through which the thread is passed, means to lock the said thread in the slot of the hub, a gear a^{12} to rotate said slotted hub and consisting of a toothed rim, a hub c^2, and arms connecting said hub and rim, spring-arms c^3, secured to the hub c^2, an inclosing case in which said gear is located, a shaft A^3, extended through the said case and upon which the said gear is mounted within the case, the said case or shell being provided with an opening c^7, a rod *e*, adapted to enter said opening, a clutch-lever to actuate said rod, a driving-shaft, and a clutch operated by the said clutch-lever to connect the shaft A^3 with the driving-shaft, a pivoted lever having one arm adapted to engage the locking device and having a second arm provided with a stud or pin, a worm on the shaft A^3, with which the said stud or pin engages, and means to act on the clutch-lever and move the rod *e* into the case or shell to be engaged by one of the spring-arms c^3, substantially as described.

479,094. AGRICULTURAL IMPLEMENT. MALCOLM MACLEOD, Los Angeles, Cal. Filed Dec. 12, 1890. Serial No. 374,527. (No model.)



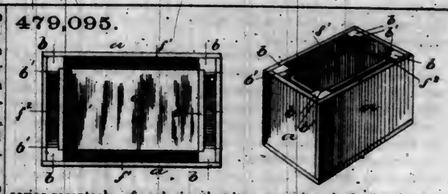
Claim.—1. In an agricultural machine organized substantially as set forth, the combination of the frame, the front oscillating cutter-shaft D, having the crank-arm *x*, the rear oscillating cutter-shaft angular in part of its cross-section, the hand-lever detachably connected with such rear shaft, and the connecting-rod Q, provided with the angular catch R to clasp the angular portion of the shaft.

2. An agricultural machine comprising the roller-supported frame, and the cutter-shaft provided with the cultivator-cutters and having the weed cutter-knife fixed thereon and extending from side to side thereof in front of the cultivator-cutters.

479,095. PACKAGE FOR BUTTER. FREDERIC M. PECK, Hartford, Conn. Filed July 16, 1891. Serial No. 399,697. (No model.)

Claim.—A package for merchandise consisting of two receptacles, an exterior receptacle with solid air-excluding walls, interior corner-posts extending from top to bottom, to which the walls are secured, having their inner edges channeled, and an interior receptacle with solid air-excluding walls of less length, width, and depth than the ex-

479,095.



terior receptacle, of such size that its corners loosely fit the channels in the corner-posts, and loose strips passing across above and below the inner receptacle between the channels of the two adjacent posts, whereby the inner receptacle when in place is held from contact with but braces and strengthens the outer air-tight receptacle, substantially as specified.

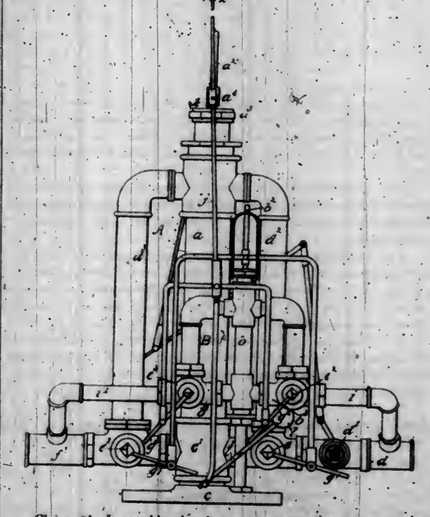
479,096. REIN-HOLDER. EDMUND RANKIN, Jr., Lincoln, Ill. Filed Sept. 23, 1891. Serial No. 406,580. (No model.)



Claim.—1. A rein-holding device consisting of a base-plate having formed in its under side a recess or recesses for the reception of the harness-straps, a flat spring secured to the under side of the base-plate and having a free end or ends for detachably securing the holder to the harness-straps, and rein-retaining loops secured to or formed integral with the base-plate, substantially as described.

2. A rein-holding device consisting of a plate provided with a recess on its under side, and a rearwardly-extending bearing-plate, retaining-loops constructed as described and secured on said plate, in combination with a leaf-spring secured to the under side of the base plate and having a free end or ends, substantially as described, and for the purpose set forth.

479,097. WATER-MOTOR. IRA H. SPENCER, Hartford, Conn. Filed Oct. 5, 1891. Serial No. 407,706. (No model.)

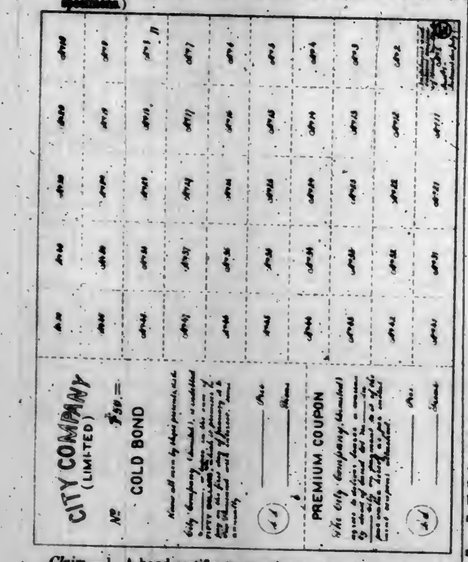


Claim.—1. In combination, in a water-motor, a main engine having the inlet and exhaust pipes connected with the opposite ends of the cylinder, the inlet and exhaust valves appurtenant to the inlet and exhaust pipes, a secondary engine having corresponding parts and valves, a yoke connected to the lever-handles of the valves of the secondary engine and to the cross-head secured to the piston of the main engine, the adjustable stops attached to the connecting-rod on opposite sides and in the path of movement of the yoke, and the yoke secured to the piston-rod of the secondary engine and connected with

the lever-handles of the inlet and exhaust valves of the main engine, all substantially as described.

2. In a fluid-motor, in combination with a main engine having a reciprocating piston with chambers at opposite ends of the cylinder and inlet and outlet pipes connected with said chambers, the inlet and exhaust valves located in the respective pipes, the secondary engine connected to the main supply-pipe at points beyond the said valves and having a reciprocating piston, and the inlet and exhaust valves, the valve-operating rods operatively connecting the inlet and exhaust valves of the secondary engine with the pistons of the main engine, and the secondary engine having its piston-rod operatively connected with the lever-handles of the inlet and exhaust valves of the main engine, all substantially as described.

479,098. CERTIFICATE REPRESENTING VALUE. WARREN W. C. STRONG, Boston, Mass. Filed Jan. 18, 1892. Serial No. 418,431. (No specimens.)



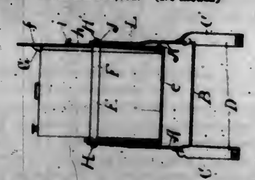
Claim.—1. A bond-certificate or other paper representing value or an obligation on the part of the maker, provided with a coupon representing a premium value or obligation additional to that borne by the body of said certificate or the interest thereon, substantially as described.

2. A certificate or other paper representing value, provided with a series of interest-coupons and a premium-coupon representing an additional value or an obligation on the part of the maker, substantially as described.

3. A certificate representing value, comprising a body bearing on its face the amount of such value, a series of installment-coupons, each representing an amount the aggregate of which equals the amount of said certificate-body, and a premium-coupon representing value additional to the amount of said body, substantially as described.

4. A certificate representing value, comprising the body B, a series of combined interest and installment coupons D, and a premium-coupon C, arranged substantially as described.

479,099. CAN-STAND. EDWARD THOMAS, Los Angeles, Cal. Filed July 16, 1891. Serial No. 399,602. (No model.)



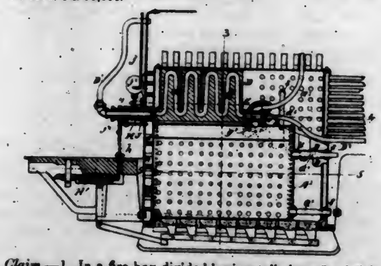
Claim.—1. The combination of the U-shaped metallic strap comprising the standards A A' and the tie B, secured to suitable supports, and the can-tilting frame pivoted to the standards and consisting of the can-encircling band F and the can-sustaining stirrup *e*, one side of which stirrup extends upward above the band and is provided with a lug arranged to engage the top of the can to hold it in the tilting frame.

2. The combination of the standards, the tilting frame pivoted thereto and comprising the band and stirrup, the stop-hook *i* on arm *h*, projecting beyond the frame and arranged to engage one of the standards when the frame is tilted, and the head of rivet J, projecting outward from the corner of the band and arranged to engage the standard.

3. The base comprising the combination, with the standards and cross-tie, of the two metallic straps, each twisted to form the vertical member *a*, secured to its standard, the two twisted members *b b'*, and the two transverse members *c c'*.

4. The combination of the tilting frame provided with the stop-hook *i*, projecting beyond the frame, and with the projecting rivet-head and the standards, one of which is provided with the beveled face L, arranged in the path of the rivet-head.

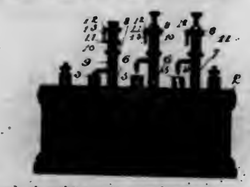
479,100. SMOKE-CONSUMING FURNACE. ROBERT L. WALKER, Boston, Mass. Filed Nov. 18, 1891. Serial No. 412,292. (No model.) Patented in England Mar. 4, 1890, No. 3,487; in France Mar. 10, 1890, No. 204,227; in Belgium Mar. 10, 1890, No. 89,781, and in Germany Mar. 14, 1890, No. 53,998.



Claim.—1. In a fire-box divided horizontally by a fire-brick partition B B' and water-damper D and longitudinally by the water-leg A^3, the damper D, having a channel *d* through it which connects at one end with the upper part of the boiler and at the other end with the lower part of the boiler, and the water-leg A^2, which connects at both ends and also at its upper edge with the boiler, the water-leg A^3 serving as support for the damper D, all substantially as described.

2. In combination with the water-damper D and water-leg A^3, the saddle G, having the water-ways *g g'*, substantially as and for the purposes specified.

479,101. RHEOSTAT. JOHN WARING, Manchester, Conn. Filed Apr. 28, 1892. Serial No. 431,063. (No model.)



Claim.—1. A resistance-box consisting of a base with an insulating-slab, bearing binding-screws, switches, coils, and contacts, with bridges movably supported adjacent to the contacts and held therefrom by a counter-balance, substantially as specified.

2. A resistance-box consisting of a base with an insulating-slab, bearing binding-screws, switches, coils, and contacts, with bridges movably supported above the contacts and held raised by a counter-balance, said bridges being provided with a stop, whereby they may be held depressed, substantially as specified.

3. A resistance-box consisting of a base with an insulating-slab, bearing binding-screws, switches, coils, and contacts, plates supported above the contacts, bridges movably borne by the plates and held raised by counter-balances, said bridges having pins which in their lower position may engage a strip on one plate to keep the bridges down, substantially as specified.

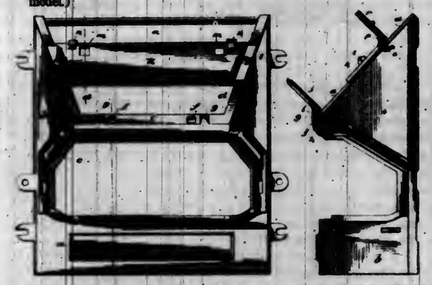
4. A bridge for a resisting-box, consisting of a plug of conducting material, an insulated support adapted to engage a box, and a counter-balance for holding the plug in the support away from the box, substantially as specified.

479,102. SCALPEL. EMIL WILLBRANDT, Indianapolis, Ind., assignor to Wm. H. Armstrong & Co., same place. Filed May 3, 1892. Serial No. 431,667. (No model.)



Claim.—As a new article of manufacture, a surgeon's knife having an aluminum handle, substantially as set forth.

479,103. BACK OR LINING FOR FIREPLACES. WILLIAM E. FITCH, Louisville, Ky. Filed Feb. 24, 1892. Serial No. 422,671. (No model.)

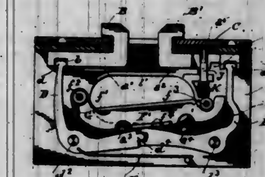


Claim.—1. A back or lining for fireplace-grates, having the inturned flanges *e d* on the upper or top edges of its rear and side walls, respectively, and a removable top secured thereto, substantially as described.

2. A back or lining for fireplace-grates, having rear and side walls, each of which is constructed with an integral flange at its top and projecting inwardly, combined with a removable top composed of a cross-piece bolted to the side walls, flanges, and hinged dampers, substantially as described.

3. A back or lining for fireplace-grates, having rear and side walls, each of which is constructed with an integral flange projecting inwardly, combined with a removable top composed of a cross-piece bolted to the flanges of the side walls, a damper hinged to such cross-piece, and a damper hinged to the flange of the rear wall, substantially as described.

479,104. LOCK. GEORGE FLEISCHEL and JOSEPH BERTRAND, San Francisco, Cal. Filed Mar. 24, 1892. Serial No. 426,288. (No model.)



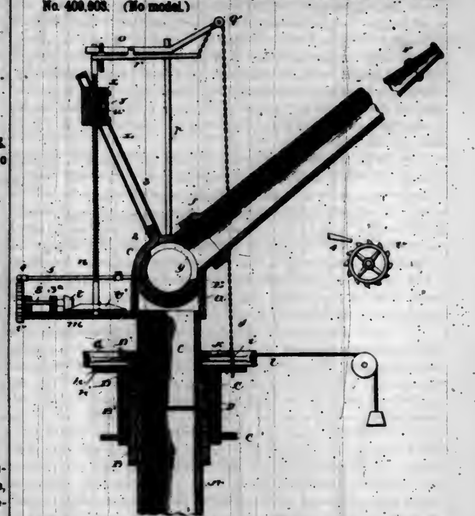
Claim.—1. The combination, in a lock, of simultaneously-sliding bolts, spring-pressed interconnected levers engaging said bolts and normally keeping them in a locked position, and means to depress the connected ends of said levers and thereby withdraw the bolts, substantially as set forth.

2. The combination, in a lock, of simultaneously-sliding bolts normally kept in a locked position, spring-pressed interconnected levers controlling the same, a depressing device acting on said levers to withdraw said bolts, and means to keep said bolts retracted, substantially as set forth.

3. The combination, in a lock, of simultaneously-sliding bolts, interconnected levers engaged therewith, a spring pressing upon the connected ends of said levers and holding said bolts in a locked position, a device adapted to depress said levers oppositely to said spring and thereby retract the bolts, a spring-actuated outwardly-projecting pin engaging and holding the bolts when retracted, and a striker-plate contacting with the projecting end of said pin, substantially as set forth.

4. The combination, in a lock, of simultaneously-movable bolts, spring-pressed interconnected levers normally keeping the same in a locked position, a stop f^2, and a pivoted lever-depressing handpiece the free end whereof is normally wedged in between said stop and one of said levers, substantially as set forth.

479,105. APPARATUS FOR IRRIGATING AND SPRINKLING LAND. JAMES FRANKLIN, Montverde, Fla. Filed Oct. 23, 1891. Serial No. 409,603. (No model.)



Claim.—1. In an apparatus for sprinkling lands, a discharge-nozzle connecting with the source of water-supply and having a lever-arm extension, a follower adapted to travel up and down said extension to vary the inclination of the nozzle, and means for operating the follower, substantially as herein described.

2. In an apparatus for sprinkling lands, a nozzle mounted on a turning post so that it may move in horizontal planes, and a means for automatically locking the turning post to a non-rotary portion of the apparatus, whereby the horizontal movement of the nozzle is limited.

3. In an apparatus for sprinkling lands, a discharge-nozzle mounted on a horizontal axis, a follower adapted to move up and down on the nozzle to cause the discharge end of said nozzle to move in a reverse direction and to continuously rise and fall in vertical planes from a position approximately horizontal to one nearly vertical, and means for actuating the follower, substantially as herein described.

4. In an apparatus for sprinkling lands, the combination of a nozzle mounted upon a vertical turning post, a follower adapted to travel up and down said nozzle to move its outer ends in vertical planes, and a mechanism actuated by the follower to release the turning post at the predetermined times, whereby said post may move horizontally, substantially as herein described.

5. In an apparatus for sprinkling lands, a turning post adapted to be fitted to a source of water-supply and a nozzle mounted on said post at one side of its axis, in combination with means for automatically moving the discharge end of the nozzle in vertical planes from the point of maximum range to nearly vertical, and vice versa, and a means for periodically rotating the post, whereby the discharged end of the nozzle is moved horizontally.

6. In an apparatus for sprinkling lands, a turning post adapted to be fitted to the source of water-supply and having a nozzle mounted on a horizontal axis at one side of the vertical axis of the turning post, said nozzle having an inclined lever-arm extending from it, in combination with a follower adapted to travel upon said arm to move the nozzle about its axis, whereby its inclination is varied, and means for actuating the follower.

7. In an apparatus for sprinkling lands, a turning post adapted to be fitted to a source of water-supply and having a nozzle mounted on a horizontal axis at one side of the vertical axis of the turning post, a lever-arm projecting at an inclination from the head of the nozzle, a follower adapted to travel upon said arm and to cause the discharge end of the nozzle to continuously rise and fall, and a mechanism tripped by the follower to impart a movement to the nozzle in a horizontal plane.

8. In an apparatus for sprinkling lands, a vertical turning post normally held against movement, a discharge-nozzle mounted on said post at one side of its vertical axis, an arm projecting at an inclination from the head of said nozzle, a follower adapted to travel up and down said arm to change the inclination of the nozzle, and a mechanism tripped by the follower at the limit of its movement for automatically and periodically releasing the vertical turning post from a

locked position and enabling it to have a slight rotary movement, whereby the discharge end of the nozzle is moved in a horizontal plane.

9. In an apparatus for sprinkling lands, a discharge-nozzle mounted so as to have a slight movement in a horizontal plane and having a horizontal axis about which it may be turned to change its inclination, an arm projecting at an angle from the head of the nozzle, a follower adapted to travel continuously up and down the lever-arm, whereby the discharge end of the nozzle alternately rises in one movement of the follower and lowers in the succeeding movement, means for operating the follower and imparting a periodical and partial rotation to the turning post.

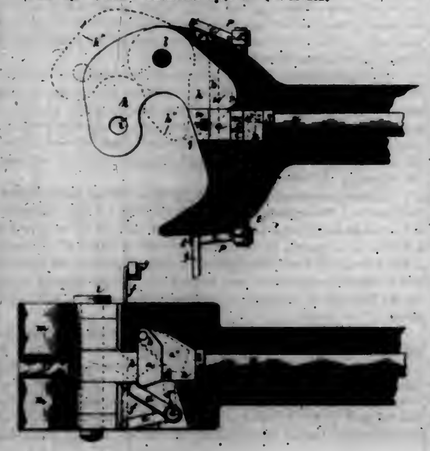
10. In an apparatus for sprinkling lands, the bushing B, the pipe C, seated to rotate thereon, and a coupling-sleeve uniting said bushing and pipe so as to form a turning post, said sleeve having a flange provided with concentric circles of holes, in combination with a discharge-nozzle carried by the pipe C at one side of its axis, a spring-actuated pin carried by the turning post and adapted to normally engage the concentric circles of holes in the coupling-sleeve, and means for effecting the periodical and automatic disengagement of said pin with the holes, whereby the turning post may partially rotate and move the discharge end of the nozzle in a horizontal plane.

11. In an apparatus for sprinkling lands, the combination of a discharge-nozzle mounted on a horizontal axis and fitted to a vertical turning post, whereby the nozzle has both a vertical and horizontal movement, a slotted lever-arm projecting at an inclination from the head of the nozzle, a nut adapted to travel on said arm, a screw for operating the nut and causing it to move the discharge end of the nozzle to different angles in a vertical plane, means for rotating the screw, a spring-actuated pin for locking the turning post to a non-rotary part of the apparatus, a pivoted lever at the limit of movement of the nut and actuated by said nut, and a connection from said lever to the spring-actuated pin, whereby the latter may be withdrawn and the turning post periodically moved, substantially as and for the purpose described.

12. In an apparatus for sprinkling lands, a nozzle mounted upon a horizontal axis and a slotted lever-arm projecting from said nozzle, in combination with a vertically-supported screw having right-and-left threads, means for rotating the screw, a nut adapted to travel upon the slotted lever-arm and having a dog engaging the threads of the screw, so that it may be transferred from the right-hand threads to the left-hand threads at the limit of each movement of the nut, whereby the inclination of the nozzle is varied, substantially as herein described.

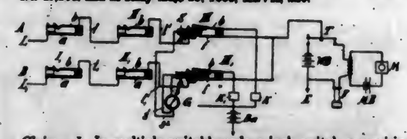
13. In an apparatus for sprinkling lands, a nozzle mounted to move in horizontal and vertical planes and having an inclined lever-arm, a means for temporarily holding the nozzle against horizontal movement, a double-threaded screw, a water-wheel and interposed gearing for revolving the screw, a nut adapted to travel upon the lever-arm and having a dog engaging the threads of the screw and mounted so that at the limit of movement of the nut the dog automatically shifts from one set of threads to the other, whereby the nozzle is continuously and automatically raised and lowered, and vice versa, and a pivoted adjustable lever, and connections automatically tripped by the traveling nut and temporarily releasing the nozzle, so that it may be turned in a horizontal plane, substantially as herein described.

479,106. CAR-COUPLING. GRANVILLE R. LEWIS, Lynchburg, Va. Filed Apr. 5, 1892. Serial No. 427,915. (No model.)



Claim.—The combination of the gravity lock-pin *a*, the lever *c*, rock-shaft or rod *d*, the levers *e e*, and chains or rods *f*, and levers *g*, substantially as and for the purpose described.

479,107. TELEPHONE-SWITCHBOARD. WILHELM OSTERRIEDE, Berlin, Germany, assignor to Mix & Genest, same place. Filed Aug 7, 1889. Serial No. 320,009. (No model.) Patented in Germany Mar. 16, 1887, No. 45,143; in Austria-Hungary June 26, 1888, No. 27,901 and No. 49,966, and in Italy Aug. 25, 1888, XLVII, 299.



Claim.—1. In multiple switchboards, a jack-switch comprising a switch-body one end of which is tubular, and a contact-spring having a V-shaped portion *o* and being secured to but insulated from said switch-body in such manner that the free end of the spring will normally contact with the tubular portion of a switch-body, and a telephone-line electrically connecting the switch-body of one jack-switch with the contact-spring of the next jack-switch throughout the series of the same telephone-line, in combination with a test-battery interposed in the ground connections of the terminal switch of a series of such, for the purpose set forth.

2. In a system of multiple switchboards, the combination, with the switches of a telephone, constructed and connected as described, of a three-part switch composed of a body *a*, a contact-spring *b*, provided with a projection *i*, of insulating material, the free end of which spring lies in contact with the switch-body when the parts are in a normal state, and a contact-spring *f*, that is permanently isolated from the switch-body, substantially as and for the purposes specified.

3. In multiple switchboards, the combination, with a series of jack-switches comprising a switch-body one end of which is tubular and a contact-spring secured thereto and insulated therefrom at the point of attachment, the free end of said spring normally contacting with the tubular portion of the switch-body, electrical connections connecting the switch-body of one jack-switch with the contact-spring of the next throughout the series of switches in the same telephone-line, and a telephone-line electrically connected with the tubular portion of one of the contact-switches of the series, of a line-tester comprising a galvanoscope, a test-plug composed of two elements insulated from each other and connected with the terminals of the coil of the galvanoscope, a local telephone-circuit, and a switch-lever interposed therein and connected with the galvanoscope-circuit, for the purpose set forth.

4. In multiple switchboards, the combination, with the switches of the telephone-lines, comprising a switch-body one end of which is tubular and a contact-spring secured thereto and insulated therefrom at the point of attachment, the free end of said spring normally contacting with the tubular portion of the switch-body, a telephone-line electrically connected with the switch-body of the initial jack-switch of a series, and electrical connections connecting the switch-body of one switch with the contact-spring of the next switch throughout the series, of a test-plug composed of two elements insulated from each other, a galvanoscope having the terminals of its coil respectively connected with said elements, a plug S, also connected with one of the terminals of the galvanoscope-coil, and a telephone in the ground branch of one of the lines, for the purpose set forth.

5. In multiple switchboards, the combination, with the jack-switches of the telephone-lines, comprising a switch-body one end of which is tubular and a contact-spring secured thereto and insulated therefrom at the point of attachment, the free end of said spring normally contacting with the tubular portion of the switch-body, a terminal switch from one end of said lines having a like tubular portion, and two contact-springs *b* and *f*, secured thereto and insulated therefrom at the point of attachment, said springs being provided with insulators *i* and *i'*, respectively arranged as set forth, and a telephone in the ground connections of one of the springs of the terminal switch of one of the series, of a line-tester comprising a galvanoscope, two plugs S and the two-part plug S', said plug S and one of the elements of the plug S' being connected to one of the terminals of the galvanoscope and the other element of plug S' with the other terminal of said coil, for the purpose set forth.

6. In multiple switchboards, the combination, with the described auxiliary jack-switch, of the plugs S and S', the rails I, II, and III, the contact-springs *p* and *q*, electric connections between the spring *p* and one element of plug S' and between the other element of said plug and the rail III, a like connection between the spring *q* and plug S, a galvanoscope having the terminals of its coil connected with rails II and III, a telephone-circuit connected with rails I and III, the contacts *r'* and *r*², respectively connected with rails I and II, and the switch-lever U, for the purpose set forth.

7. In multiple switchboards, the combination, with the described auxiliary jack-switch, of the plugs S and S', the rails I, II, and III, the contact-springs *p* and *q*, electric connections between the spring *p* and one element of plug S' and between the other element of said plug and the rail III, a like connection between spring *p* and plug S', a galvanoscope having the terminals of its coils connected with rails II and III, a telephone-circuit connected with rails I and III, the contacts *r'* and *r*², respectively connected with rails I and II, an annunciator-circuit having contacts *u* and *v* in proximity to the springs *p* and *q*, and the switch-lever U, for the purpose set forth.

8. In multiple switchboards, the combination, with the described auxiliary jack-switch, of the plugs S and S', the rails I, II, and III, the contact-springs *p* and *q*, electric connections between the spring *p* and one element of plug S' and between the other element of said plug and the rail III, a like connection between spring *p* and plug S', a galvanoscope having the terminals of its coils connected with rails II and III, a telephone-circuit connected with rails I and III, the contacts *r'* and *r*², respectively connected with rails I and II, an annunciator-circuit having contacts *u* and *v* in proximity to the springs *p* and *q*, and the switch-lever U, for the purpose set forth.

9. In multiple switchboards, the combination, with the described auxiliary jack-switch, the rail IV, connected with the contact-spring of said switch, and an annunciator-drop in said connection, of the plugs S and S', the rails I, II, and III, the contact-springs *p* and *q*, electric connections between the spring *p* and one element of plug S' and between the other element of said plug and the rail III, a like connection between the spring *q* and plug S, a galvanoscope having the terminals of its coils respectively connected with rails II and III, a telephone-circuit connected with rails I and III, the contacts *r'* and *r*², respectively connected with rails I and II, an annunciator-circuit having contacts *u* and *v* in proximity to the springs *p* and *q*, and the switch-lever U, for the purpose set forth.

10. In multiple switchboards, the combination, with the described auxiliary jack-switch, the rails I, II, and III, the line tester comprising the plugs S and S', the contact-springs *p* and *q*, respectively connected with one of the elements of plug S' and with plug S, a connection between the other element of plug S' and rail III, a galvanoscope having its terminals connected with rails II and III, the contacts *r'* *r*², respectively connected with rails II and I, and the switch-lever U, adapted to operate the springs *p q*, of a telephone-circuit connected with rails I and III and a switch-lever interposed therein between the telephone and said rail III, for the purpose set forth.

11. In multiple switchboards, the combination, with the described auxiliary jack-switch, the rails I, II, and III, the line-tester comprising the plugs S and S', the contact-springs *p q*, respectively connected with one of the elements of plug S' and with plug S, a connection between the other element of plug S' and rail III, a galvanoscope having its terminals connected with rails II and III, the contacts *r'* *r*², respectively connected with rails II and I, and the switch-lever U, adapted to operate the springs *p q*, of a telephone-circuit connected with rails I and III, a switch-lever interposed therein between the telephone and said rail III, and a condenser interposed in the line between said lever and the telephone, for the purpose set forth.

12. A multiplex switchboard having the lowermost row of switch-holes in a horizontal plane and the successively-superposed rows in planes gradually increasing in inclination from a horizontal toward a vertical, substantially as and for the purpose specified.

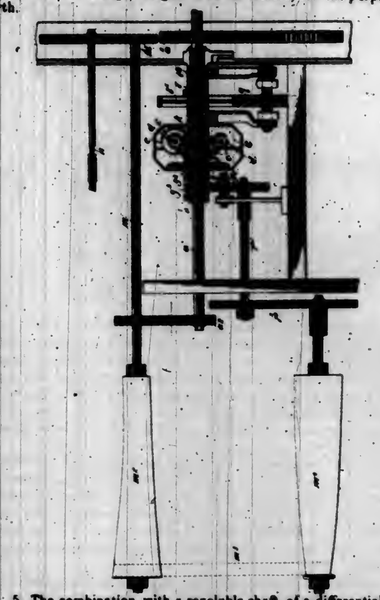
479,108. DIFFERENTIAL GEARING. GEORGE SHAW, Manchester, England, assignor of one-half to Samuel Herbert Brooks, same place. Filed Dec. 4, 1891. Serial No. 414,019. (No model.) Patented in England Nov. 26, 1890, No. 19,948, and in Belgium Sept. 4, 1891, No. 96,291.

Claim.—1. The combination, with a revoluble shaft, of a differential gearing comprising a gearing, as a worm-gearing, one element of which revolves with the shaft and the other of which has independent rotation thereon, a driving-gear on and adapted to revolve at a different speed from that of the shaft, and a transmitting-gear for transmitting the rotary motion of the driving-gear to the independently-revoluble element of the gearing through the like element that revolves with the shaft, for the purpose set forth.

2. The combination, with a revoluble main driving-shaft, of a differential gearing comprising a gearing, as a worm-gearing, one of whose elements revolves with the shaft and the other of which has independent rotation thereon, an auxiliary driving-shaft rotated by the main shaft, means for varying the speed of rotation of said auxiliary shaft, and transmitting-gearing for transmitting the rotary motion of the auxiliary shaft to the independently-revoluble element of the worm or helically-toothed gear through the element that revolves with the main driving-shaft, for the purpose set forth.

3. The combination, with a revoluble shaft, of a differential gear comprising a gear, as a worm-gearing, adapted to revolve in bearings secured to the shaft, a driving-gear revoluble on and at a different speed from that of the shaft for driving said worm or helically-toothed gear, and a transmitting-gear for transmitting the rotation of the worm or helically-toothed gear, for the purpose set forth.

4. The combination, with a revoluble main driving-shaft, of a differential gearing comprising a gear, as a worm-gear, mounted in bearings secured to the main shaft and adapted to revolve on its own axis, a like gear on and revolving independently of said main shaft and meshing with the gear secured thereto, an auxiliary driving-shaft rotated by the main shaft, means for varying the speed of said auxiliary shaft, and transmitting-gearing operated by the auxiliary shaft for transmitting the rotary motion thereof to the independently-revoluble gear on the main shaft through the gear secured thereto, for the purpose set forth.



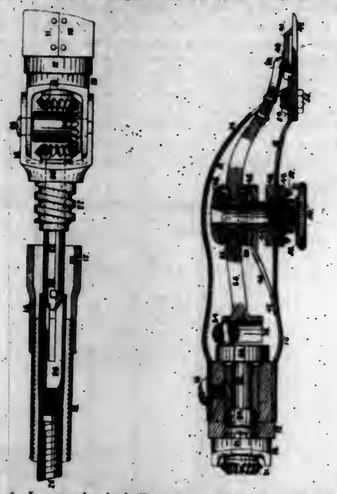
5. The combination, with a revoluble shaft, of a differential gear comprising a gearing, as a worm-gearing, one element of which revolves with the shaft and the other of which has independent rotation thereon, a driving-gear on and adapted to revolve at a different speed from that of the shaft, a transmitting-gear for transmitting the rotary motion of the driving-gear to the independently-revoluble element of the gearing through the element thereof that revolves with the shaft, and a two-part casing or housing for said gear respectively connected with the differential gear, so as to rotate therewith at the same speed, for the purpose set forth.

6. The combination, with the shaft *a*, the worm-wheel *k*, loose thereon, the worms *d*, in gear with worm *k* and revoluble in bearings secured to the shaft, the gear-wheels *e* on the worm-spindles, the gear-wheels *e'*, in gear with wheels *e* and revoluble on bearings also secured to the shaft *a*, and the bevel-wheels *f*, revoluble with the gear-wheels *e'*, of the wheel *g*, loose on shaft *a* and in gear with bevel-wheels *f*, substantially as and for the purpose set forth.

7. In a differential gear such as described, the combination of the wheel *g*, having a housing-section *g'* formed thereon, the transmitting-sleeve *l*, the housing-section *i*, loosely mounted thereon and fitting onto section *g'*, and the studs or short shafts *e*², projecting into recesses *i'*, formed in said housing-section *i*, substantially as and for the purpose set forth.

8. The combination, with the main driving-shaft of a slubbing, intermediate, or roving frame, the cone-drums, and the wheel *g*, of a differential gear comprising a gearing, as a worm-gearing, one element of which revolves with the main driving-shaft, the other having independent rotation thereon, a driving-wheel on and revoluble independently of said main driving-shaft, intermediate gearing operated by the driven cone-drum and operating the driving-wheel, transmitting-gear for transmitting the rotary motion of said driving-wheel to the independently-revoluble element of the differential gear through that element thereof which revolves with the driving-shaft, and transmitting-gearing for transmitting the rotary motion of said independently-revoluble element of the differential gear to the wheel *g*, for the purpose set forth.

479,109. ANIMAL-SHEARS. PHILIP ASHBERRY and WALTER BARBER, Sheffield, England. Filed Mar. 29, 1892. Serial No. 426,941. (No model.) Patented in England June 22, 1891, No. 10,572.



Claim.—1. In a mechanical clipper, the combination, with a handle-casing carrying a horizontal comb and with a reciprocating cutter superposed upon said comb, of a horizontal arm carrying vertical studs which drive the cutter and a spring-finger to press upon the cutter, two circles of anti-friction balls, between which said arm vibrates, and tension-regulating devices which comprise a vertically-movable pivot-post carrying supports for said balls and a tension-screw for adjusting said post endwise, substantially as hereinbefore specified.

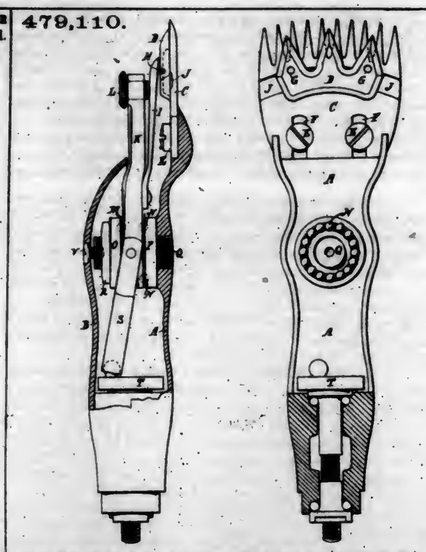
2. In a mechanical clipper of the kind hereinbefore specified, the combination, with the reciprocating cutter and handle-casing, and with a cutter-driving arm carrying a spring-finger to press upon said cutter, and a vertically-movable post supporting the bearings of said arm, of a rearwardly-projecting tension-spring attached to said post and co-acting at its rear end with the bottom of said casing, for the purpose set forth.

3. The combined tension-spring and lock-nut 46, in combination with the handle-casing and with the vertically-movable post 44, having the flange 43 and collar 45, the two circles of balls 37 38, supported by said post, and the cutter-driving arm 36, which vibrates between said circles of balls, substantially as hereinbefore specified.

4. In combination with the vertically-adjustable post 44 and the two horizontal circles of anti-friction balls 37 38, supported by said post, and with the crank-disk 33, having its crank-pin provided with the spherical roller 34, the cutter-driving arm 36, having at its respective ends the vertically-extended cylindrical socket 35 and stude 39, substantially as hereinbefore specified.

5. In combination with the flexible shaft 25, having the deeply-notched hollow terminal 26, and the spindle 27, having the lateral studs 28, the non-rotary shaft-casing 15, having the socket 16, provided with the inwardly-projecting stud 17, and the joint-piece 18, having the pin-end 22 fitted to said socket and provided with a quick screw-thread to coact with said stud, substantially as hereinbefore specified.

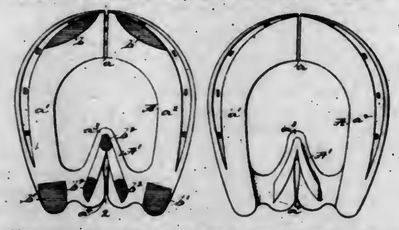
479,110. ANIMAL-SHEARS. PHILIP ASHBERRY and WALTER BARBER, Sheffield, England. Filed Mar. 31, 1891. Serial No. 387,149. (No model.) Patented in England May 6, 1890, No. 6,962.



Claim.—1. In a mechanical clipper, the two circles of anti-friction balls M N, in combination with the ball-supporting collars O P, the central stud Q, supporting both of said collars, and a cutter-driving arm K, supported between the two circles of balls, the opposing faces of said collars and said arm having ball-retaining grooves concentric with said stud, substantially as shown, whereby said arm is adapted to oscillate freely without contact with any relatively-fixed part, for the purposes set forth.

2. In a mechanical clipper of the class set forth, the screwed stud Q, provided with the fixed collar P, internally-threaded collar O, and lock-nut R, in combination with the two circles M N of anti-friction balls supported by said collars, the cutter-driving arm K, interposed between said balls and provided in common with said collars with ball-retaining grooves concentric with said stud, a combined tension-bar and driver I, movable relatively to said arm, a reciprocating cutter engaged by said tension-bar and driver, a relatively-fixed comb against which said cutter is pressed, and adjusting devices carried by said arm and by said tension-bar and driver, whereby the latter is adjusted to regulate the tension of the cutter without disturbing said arm and the arm is adapted to oscillate freely in a given plane without contact with any relatively-fixed part whatever, substantially as hereinbefore specified.

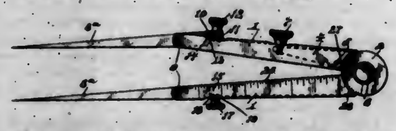
479,111. OPEN-TOED HORSESHOE. ARTHUR D. BAKER, Brooklyn, N. Y. Filed Mar. 9, 1892. Serial No. 424,330. (No model.)



Claim.—1. A horseshoe consisting of two side portions separate one from the other at the forward ends and joined at the rear ends by a transverse portion rigidly attached to the shoe and providing a frog-protector, substantially as specified.

2. The combination, with the shoe, of the transverse portion joining the rear ends thereof and conforming substantially to the shape of a natural frog and calks on said shoe and transverse portion, substantially as specified.

479,112. DIVIDERS. WILLIAM A. BERNARD, New Haven, Conn. Filed Oct. 1, 1891. Serial No. 407,262. (No model.)



Claim.—1. A divider consisting of legs U-shaped in cross-section and having disks at the inner ends parallel with the sides and a washer between the inner disks and points pivoted at the outer ends of the U-shaped legs and adapted to fold within the legs, so as to be wholly covered and protected when in the closed position.

2. A divider consisting of legs U-shaped in cross-section, disks at the inner ends of said legs parallel with the sides of said legs, the disks upon one of the legs lying outside of the disks upon the other leg, a washer lying between the inner disks, and a pivoted locking-piece the rear end of which is adapted to engage the washer, thereby locking the legs at any required adjustment.

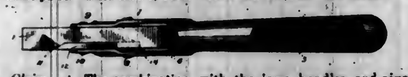
3. A divider consisting of legs U-shaped in cross-section, disks at the inner ends of said legs, a washer between the inner disks, a pivoted locking-piece in one of the legs, the rear end of which is adapted to engage the washer, and a set-screw engaging the other end of the locking-piece, whereby it is operated.

4. A divider having legs U-shaped in cross-section and folding points pivoted at the outer ends of the legs, one of said points having at its base screw-threads, and an adjusting piece having a thread adapted to engage the threads on the base of the point, whereby said point may be placed at any required adjustment.

5. A divider consisting of legs struck up from sheet metal and folding points pivoted in the outer ends of said legs, one of said points having at its base screw-threads and the back of the leg being provided with a rotary adjusting piece adapted to engage the threads upon the point.

6. A divider consisting of legs struck up from sheet metal and having folding points pivoted at their outer ends, one of said points having at its base screw-threads adapted to engage a thread upon a rotary adjusting-piece in the leg, the other point having at its base a shoulder adapted to be engaged by a rotary locking-button, whereby it is held in operative position, said locking-button having a cut-away portion, which permits the point to be folded inward, substantially as described.

479,113. COMBINED PLIERS AND CUTTER. WILLIAM A. BERNARD, New Haven, Conn., assignor to the William Schollhorn Company, same place. Filed Dec. 9, 1891. Serial No. 414,450. (No model.)

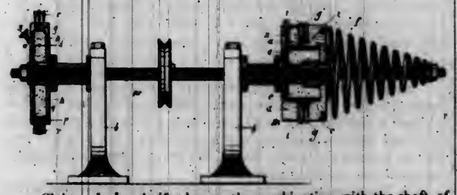


Claim.—1. The combination, with the jaws, handles, and pivots 6, 6*, 7, 8, 9, and 10 of parallel-jaw pliers, of a cutting-jaw 11, formed upon the back of one of the plier-jaws, and a cutting-jaw 12, pivoted on 10 and having a shank pivoted on 8.

2. The combination, with the handles, jaw 2, jaw 1, having a cutter 11, and pivots 6, 6*, 7, 8, 9, and 10, of cutting-jaw 12, recessed into jaw 1 and pivoted on 10 and having a shank pivoted on 8.

3. The combination, with the handles and jaws 1 and 2, having slots 5, said jaw 1 having a cutting-edge 11 and jaw 2 having a recess 15, and pivots 6, 6*, 7, 8, 9, and 10, of cutting-jaw 12, recessed into jaw 1 and having a boss through which pivot 10 passes and a shank through which pivot 8 passes, the end of said shank in the closed position lying in recess 15.

479,114. APPARATUS FOR POLISHING AND SHARPENING KNIVES, FORKS, &c. FRIEDRICH DOMS, Berlin, Germany. Filed Oct. 16, 1891. Serial No. 408,935. (No model.)



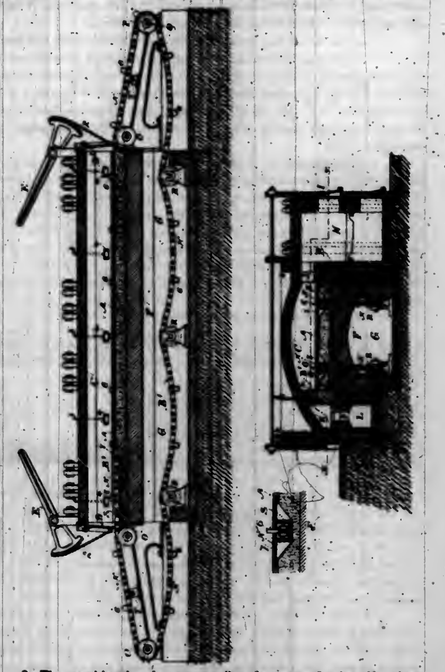
Claim.—1. In a knife-cleaner, the combination, with the shaft, of a disk keyed to said shaft, another disk loosely mounted and sliding on said shaft, a spring mounted on the shaft and bearing against said disk, the india-rubber disk mounted on the adjacent edges of the disks, recesses in the adjacent sides of the disk, and a perforated box fitting said recesses and containing the polishing material, substantially as described.

2. A knife and fork cleaner comprising a shaft having mounted upon one end a hollow disk having orifices in its periphery and brushes arranged thereon and having on its other end a disk keyed to said shaft, another disk loosely mounted and sliding on said shaft, a spring mounted on the shaft and bearing against said disk, india-rubber rings mounted on the adjacent edges of the disk, recesses in the adjacent sides of the disk, and a perforated box fitting said recesses, substantially as described.

479,115. ANNEALING-FURNACE. ALFRED A. COWLES, New York, N. Y., and JOSEPH F. GILPIN, Ansonia, Conn., assignors to the Ansonia Brass and Copper Company, Ansonia, Conn. Filed Nov. 9, 1891. Serial No. 411,287. (No model.)

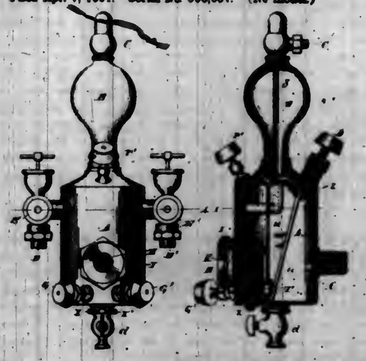
Claim.—1. The combination, with the heating-chamber in an annealing-furnace and chains for moving the articles to be annealed through the heating-chamber, of tubular chainways introduced into the floor below the bottom of the heating-chamber, such tubular chainways being slotted along the top for the lug or connection between the chain and pan or article to be moved through the heating-chamber and also forming an air-tube to keep the chain cool, substantially as specified.

2. The combination, with the heating-chamber in an annealing-furnace and chains for moving the articles to be annealed through the heating-chamber, of tubular chainways below the bottom of the heating-chamber, such tubular chainways having projecting flanges 7 and being slotted along the top for the lug or connection between the chain and pan or article to be moved through the heating-chamber and also forming an air-tube to keep the chain cool, substantially as specified.



3. The combination, in an annealing-furnace, of a heating-chamber and doors at the ends, fire-chambers at one side and dampers and flues at the other side opening downwardly into an escape-flue, chains for moving the articles to be annealed progressively through the heating-chamber, and tubular chainways introduced below the floor of the heating-chamber and slotted along the top and forming air-tubes to keep the chain cool, substantially as specified.

479,116. LUBRICATOR. WARREN H. CRAIG, Lawrence, Mass. Filed Apr. 7, 1891. Serial No. 388,067. (No model.)



Claim.—1. In a lubricator, the reflector M, having the tongue N, which forms the reflector into two chambers, in combination with an

oil-induct pipe, leading into each chamber of the reflector, and an oil-educt pipe leading from each chamber to the part to be oiled, as set forth.

2. In a lubricator, the sight-feed-glass holder and its contained glass and the reflector, in combination with the follow-ring on the inside bearing against the glass, as set forth.

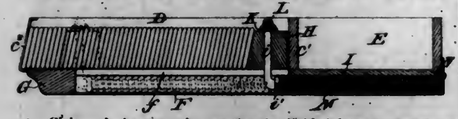
3. In a lubricator, the combination of a sight-feed glass, its holder, and the packing on the outside of the glass, and the follow-ring on the inside, as set forth.

4. In a lubricator, the sight-feed glass, its holder, and the follow-ring on the inside, in combination with the reflector and the spring which bears against the reflector, whereby the reflector is held resiliently against the follow-ring and holder, as set forth.

5. In a lubricator, the combination of the oil-reservoir A, the chambers V V', having a connection with such oil-reservoir through which oil passes to said chambers, the valves G G' controlling such connection, the double sight-feed chamber, the conduits W W', leading from the chambers V V' into the double sight-feed chamber, and oil-discharging conduits leading from such double sight-feed chamber, as set forth.

6. In a lubricator, the combination of the oil-reservoir A, the oil-discharging conduit u leading therefrom, the chamber T at the bottom of the oil-reservoir and into which the oil-discharging conduit leads, the chambers V V', connected with the chamber T and having the valves G G', controlling the opening between them, the conduits W W', the double sight-feed chamber, the conduits W W', leading from the chambers V V' into the double sight-feed chamber, and the oil-discharging conduits leading from such double sight-feed chamber, as set forth.

479,117. CASE FOR EXHIBITING NEEDLES. ERNEST R. DENNY, Spokane, Wash. Filed Mar. 5, 1892. Serial No. 423,810. (No model.)



Claim.—1. A case, a drawer therein divided into compartments for the reception of packages, the front of said drawer having openings corresponding with the compartments, recesses formed along the bottom of the drawer under each of said compartments in the direction of their length and having direct communications with the compartments, followers within the compartments, and follower-actuating means located within the said recesses, substantially as set forth.

2. A case, a drawer therein divided by partitions into delivery and storage compartments, the storage-compartments being situated to the rear of the delivery-compartments, the front of each delivery-compartment being provided with an opening therethrough, and a spring-actuated follower within the delivery-compartment, substantially as set forth.

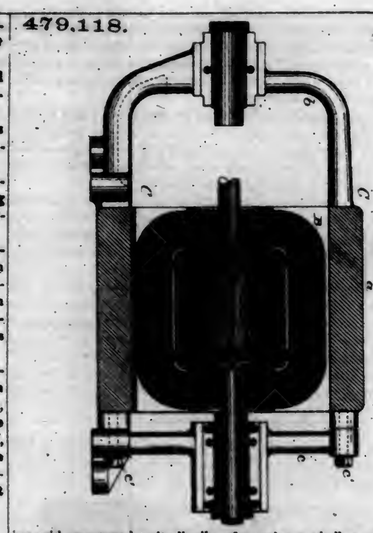
3. A case, a drawer therein divided into delivery and storage compartments, a recess along the bottom of the drawer underneath each of said compartments and having a communication therewith by means of a groove, a follower within the compartment, a pin within the recess, having an arm uprising therefrom and secured to the follower, a spring within the recess, exerting a forward pressure upon the pin, and thereby upon the follower, and means for confining the pin and spring within the recess, substantially as set forth.

4. A case, a drawer therein divided into delivery and storage compartments, the front of said drawer provided with openings corresponding with the delivery-compartments, a recess extending along the bottom of the drawer under each set of delivery and storage compartments and having a direct communication with the delivery-compartment, a follower within the delivery-compartment, a pin within the recess, having an arm uprising therefrom and secured to the follower, a spring within the recess, exerting a forward pressure upon the pin, a strip of metal along the bottom of the drawer for confining the spring and pin, and a removable plate or cover over the rear end of the recess, whereby access is obtained to the spring, substantially as set forth.

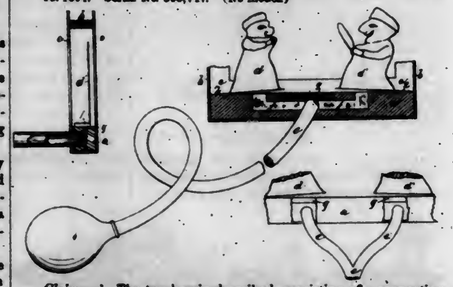
479,118. DYNAMO-ELECTRIC MACHINE. RUDOLF EICKEMEYER, Yonkers, N. Y. Filed Dec. 21, 1889. Serial No. 334,468. (No model.)

Claim.—1. In a dynamo-electric machine, the combination, with a cylindrical or drum armature having an iron core and field-coils surrounding said armature longitudinally, of an iron shell or casing which surrounds the field-coil and armature and is solid or continuous in planes at right angles to the axis of the armature, substantially as described, and for the purposes specified.

2. In a dynamo-electric machine, the combination, with a cylindrical or drum armature having an iron core and field-coils surrounding said armature longitudinally, of a casing or shell surrounding said field-coils and armature, composed of solid seamless soft-iron plates, each continuous in a plane at right angles to the axis of the armature, substantially as described.



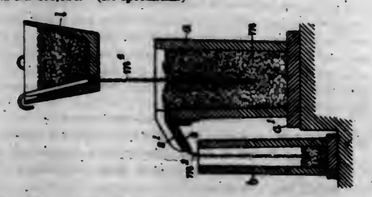
479,119. TOY. MYRON A. GILMAN, Westfield, Mass. Filed June 10, 1891. Serial No. 395,747. (No model.)



Claim.—1. The toy herein described, consisting of a supporting-base *a*, formed with an air-passage opening up through the floor thereof, a yieldingly-supported figure having a base 1 integral therewith and turned laterally at right angles thereto and arranged over the air-passage, and a tube leading into the air-passage, substantially as and for the purpose specified.

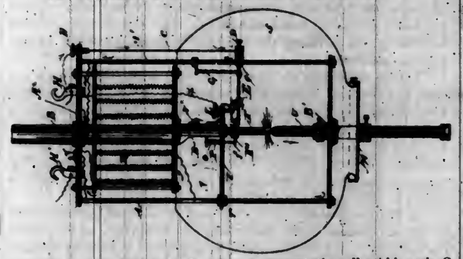
2. The toy herein described, consisting of a suitable support having two or more air-passages and an inlet-tube provided with branches of collapsible material leading to each conduit in said support, substantially as and for the purpose specified.

479,120. PROCESS OF PREVENTING SEGREGATION IN LARGE INGOTS. WILLIAM R. HEBBDALE, Newark, N. J. Filed July 27, 1891. Serial No. 400,231. (No specimens.)



Claim.—The method of casting ingots, which consists in, first, filling the mold with a charge of fluid steel; second, pausing and allowing the ingot thus formed to partially cool, as described, and, third, pouring steel homogeneous with the first charge into the central fluid portion of the ingot, and thus displacing the same by a fresh supply of fluid steel, substantially as herein set forth.

479,121. ELECTRIC-ARC LAMP. WILLIAM E. IRISH, Chicago, Ill. Filed Jan. 2, 1892. Serial No. 416,786. (No model.)



Claim.—1. In a lamp for an arc current, the adjustable strip C, located in the main circuit, the pivoted lever E, provided with operating-spring G, the clutch E, spring K, and shunt-circuit X, substantially as described.

2. In a lamp, the combination of side rods A A', &c., upper disk A^1, supporting the carbon holder B, expansible strip C, adjustably secured by screw D to said strip-lever E, pivoted at *e* upon rod A', having one end secured to one extremity of the expansible strip and connected by spring G with rod A', the clutch F', rod P, spring C, and guide I, substantially as described.

3. In a lamp, the combination of an upper-carbon holder, a spring of irregular shape within the holder at the side thereof, a movable clamp within the holder, provided with a grooved head, and an inwardly-bent extremity to the spring adapted to engage said groove when the clamp is down in the lower end of the holder, substantially as described.

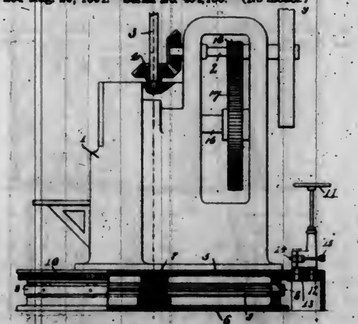
4. In an arc lamp, means for controlling automatically the upper carbon, consisting in the carbon-holder B, rod J, clutch F, provided with flanges *f* and *f'*, pins O and O', springs P and P', pivoted lever E, and expanding strip C, substantially as described.

5. In an arc lamp, means for controlling automatically the movement of the upper electrode, consisting of the combination of a tube surrounding loosely the electrode, outwardly-projecting flanges surrounding and attached to said tube at the upper and lower ends, springs resisting the upward movement of said flanges, an operating pivoted lever upon which one of the said flanges rests, and a thermo-expansive electric conductor and actuating-spring connected with and controlling said lever.

6. In an arc lamp, the combination of a thermo-expansive electric conductor in the main circuit, a clutch upon the electrode, a lever provided with a retractile spring and connected to said conductor and engaged with said clutch, a spring terminal K, a shunt-circuit conductor, and a terminal L therefor, lying in the path of said spring K, which lies in the path of said clutch or lever.

7. In an arc lamp, the combination, with the upper electrode, which is provided with a notch in its upper end, of a holder therefor provided with a slot and a spring passing through said slot and pressing upon said electrode.

479,122. SHEARING-MACHINE. JOHN M. LOVE, Hamilton, Ohio. Filed Aug. 29, 1891. Serial No. 404,153. (No model.)



Claim.—1. The combination, substantially as set forth, of a turn-table mounted for rotation on a vertical axis, a locking device to secure the same in adjusted position, a shearing-machine mounted on the turn-table, and a shear blade mounted in the shearing-machine and arranged to reciprocate in a vertical plane.

2. The combination, substantially as set forth, with a shearing-machine and mechanism for imparting operative motion to it in any position of rotary adjustment upon a vertical axis, of a foundation-plate below such machine, a sole-plate under said machine and over said foundation-plate and connected to the foundation-plate by a vertical axis of rotation, and means for rotating said sole-plate.

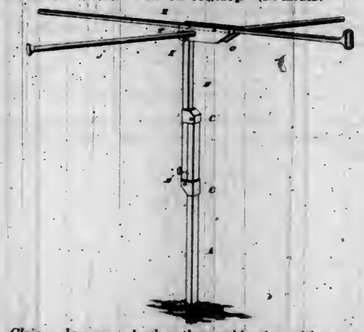
479,123. POST-TOP. MICHAEL E. LOUGHLIN, Indianapolis, Ind., assignor to the Cleveland Fence Company, same place. Filed Mar. 22, 1892. Serial No. 425,931. (No model.)



Claim.—1. The combination, with a post having a pin or projection near its top, of a top having a socket with vertical grooves for receiving said pins or projections, and circumferential and slightly-inclined grooves extending from said vertical grooves, into which said projections may be forced.

2. The combination, with a post having a pin formed of wire extending through a hole in its top, which pin has its ends bent down, of a top having a socket and internal grooves into which the ends of said pin will enter, and whereby the post and top are secured together, substantially as set forth.

479,124. CORN-SHOCKER. THOMAS J. MASON, Green Bay, Iowa. Filed Feb. 16, 1891. Serial No. 381,730. (No model.)



Claim.—In a corn-shocker, the combination, with a cross-arm H, pivoted through plates O to an extensible standard composed of bars A and B, clasps *c c*, and set-screw D, of a stop-pin T and a removable cross-arm *j* for locking the arm H in horizontal position, all substantially as described, and for the purpose set forth.

479,125. TOOL FOR TRIMMING HEADS OF CARTRIDGE-SHELLS. CHARLES R. RICHARDS, Bridgeport, Conn., assignor to the Union Metallic Cartridge Company, same place. Filed Feb. 8, 1892. Serial No. 420,739. (No model.)



Claim.—1. A tool for trimming heads of cartridge-shells, consisting of a revoluble body having at its lower end a recess adapted to receive a tool-carrier, suitable means for adjusting and locking said

tool-carrier in position, a tool adapted to engage the head of a shell, and a pin adapted to engage the primer-pocket in the shell, whereby both tool and shell are centered.

2. A tool for trimming heads of cartridge-shells, consisting of a revolvable body having a transverse recess near its lower end, one end of which is cut through to the lower end of the body, an L-shaped tool-carrier lying in said recess and provided with notches 7, a tool adapted to engage the head of a shell, and set-screws engaging said notches, whereby the carrier and tool are adjusted.

479,126. FLOORING. JAMES W. SEE, Hamilton, Ohio. Filed July 6, 1891. Serial No. 398,466. (No model.)



Claim.—1. As an article of manufacture, a board with one of its surfaces held under transverse strain by hard-filling composition seated in uncut punctures in one surface of the board and displacing the fibers sidewise.

2. As an article of manufacture, a board having closely-grouped uncut punctures in its surface filled flush with filling composition and having its surface fibers between the punctures compressed sidewise.

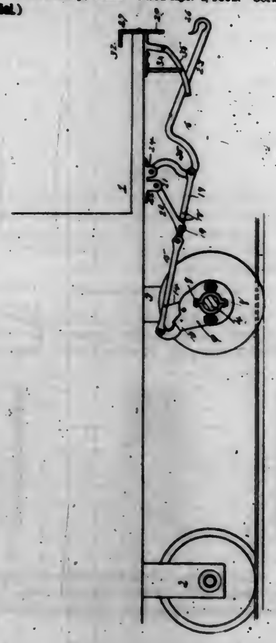
3. As an article of manufacture, a board having closely-grouped uncut punctures filled flush with colored filling composition, the fibers between said punctures being compressed sidewise.

4. As an article of manufacture, a board having a number of closely-grouped uncut punctures filled flush with a colored filling composition, and having similar punctures similarly filled with filling composition of a different color, the fibers between said punctures being compressed sidewise.

5. The improved flooring consisting of tongued and grooved boards laid close together edgewise and having their upper surfaces provided with closely-grouped uncut punctures filled flush with filling composition, the fibers between said punctures being compressed sidewise.

6. The improved flooring consisting of tongued and grooved floor-boards laid close together edgewise and having their upper surfaces provided with transverse cuts filled flush with filling composition and provided, also, with closely-grouped uncut punctures filled flush with filling composition, the fibers between said punctures being compressed sidewise.

479,127. CAR-STARTER. GEORGE B. WARNER and LEWELLYN J. ALLEN, Woodbury, Conn. Filed Apr. 4, 1892. Serial No. 427,687. (No model.)

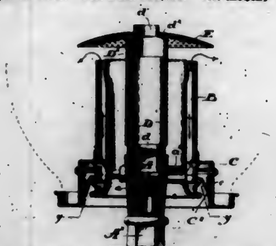


Claim.—1. The combination, with a car truck or body having its front axle provided with a ratchet-wheel, which is fixed thereto, an incasement surrounding said ratchet-wheel and provided with projecting lugs, and an opening above said lugs, of an arm connected with the ratchet-wheel, fulcrumed in the casing and projecting outwardly therefrom, of a sectional adjustable draw-bar connected with the arm of the ratchet-wheel, suspended in bearings depending from the floor of the car, and a spring-actuated foot-lever provided with depending hooks for holding and releasing the draw-bar, substantially as and for the purposes set forth.

2. In a car-starter, the combination, with a supporting-axle of the same, of a sectional ratchet-wheel, a sectional inclosing case provided with an opening in its front, and a detent pivoted in said opening, of a sectional draw bar supported in bearings beneath the car-body or car-floor and provided at its forward end with a draw-hook, and a spring-actuated foot-lever provided with connected holding and releasing hooks for engaging and disengaging the front section of the sectional draw-bar, substantially as specified.

3. The combination, with a car-body or car-truck provided with an incased ratchet-wheel and an arm projecting from an opening in the incasement, of a sectional draw-bar supported in bearings depending from the bottom of the car-body, a depending regulating-guard near the front end of the sectional draw-bar, and a foot-lever provided with an integral and a connected holding and releasing hook, substantially as specified.

479,128. GAS-BURNER. BENNET C. WILSON, Philadelphia, Pa. Filed Apr. 13, 1891. Serial No. 388,706. (No model.)



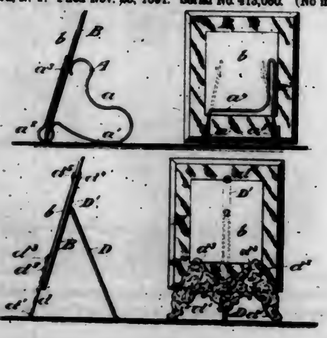
Claim.—1. In combination, an annular chamber or Argand burner, a gas-receiving chamber connected by branch pipes therewith, an extensible spreader-carrier composed of two telescopically-related perforated cylinders, one of which is connected with the burner and the other with the perforated spreader, and a perforated spreader, substantially as set forth.

2. In combination with an Argand burner provided with a longitudinally-adjustable spreader-carrier equipped with a perforated spreader, a chimney-holder applied to and vertically adjustable with respect to the walls of the burner and having an imperforate top and perforated walls, whereby the relative adjustment of the chimney and spreader is rendered possible, substantially as set forth.

3. In combination with an Argand burner and with a spreader-carrier connected therewith, a perforated metal spreader provided with a rim of incandescent material, substantially as set forth.

4. The combination, to form an extensible spreader-carrier for an Argand burner, of two telescopically-related perforated cylinders and means for connecting one of said cylinders with the burner proper, substantially as set forth.

479,129. SETTING FOR CARDS OR PICTURES. MAURICE WIRTH, New York, N. Y. Filed Nov. 25, 1891. Serial No. 413,060. (No model.)



Claim.—1. The setting for a card or picture, comprising a transparent or translucent plate and a holder, said holder being adapted to confine the card or picture at the front of the plate, a margin being preserved on the plate, which presents a transparent or translucent border around the card or picture, substantially as set forth.

2. The setting for a card or picture, comprising a plate and a holder, said holder being adapted to confine the card or picture at the front of the plate, a margin being preserved on the plate, which presents a transparent or translucent border around the card or picture, substantially as set forth.

3. The setting for a card or picture, comprising a plate and a holder, said holder being adapted to confine the card or picture at the front of the plate, a margin being preserved on the plate, which presents a transparent or translucent border around the card or picture, the holder being further constructed to extend over the edge of the card or picture to be held and conceal its edge, substantially as set forth.

4. The combination, with the plate, of the card or picture holder, said holder being adapted to confine the card or picture at the front of the plate, a margin being preserved on the plate, forming a border around the card or picture, and a support for the plate, located at the rear of the plate and connected with the holder at the front of the plate, plate, substantially as set forth.

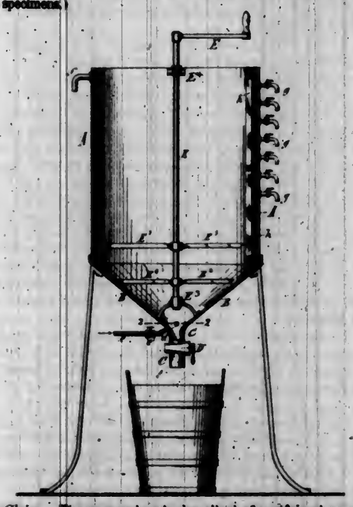
5. The combination, with a transparent or translucent plate, of a plate-support having an upwardly-projecting portion at the front of the plate, adapted to hold a card in position against the front of the plate, so as to leave a transparent or translucent border surrounding the card, substantially as set forth.

6. The combination, with a transparent or translucent plate, of a plate-support having a rearwardly-extending brace and an upwardly-extending portion adapted to receive a card between it and the front of the plate and hold the latter in position thereon, leaving a surrounding transparent or translucent border, substantially as set forth.

7. The plate-support comprising a rearward brace portion, and a plate and card holding portion connected with the brace and adapted to engage both the front and rear faces of the plate when the latter is in position, substantially as set forth.

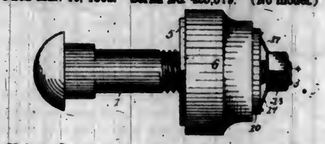
8. The plate-support comprising a wire or strip of metal having its ends in position to engage the rear of the plate to be held and extending from the ends downwardly and rearwardly to form rear treads, thence forwardly to form plate-holding loops and treads, and thence upwardly in position to engage a card at the front of the plate, substantially as set forth.

479,130. PROCESS OF SEPARATING YEAST-CELLS. RUDOLF ALLERT, New York, N. Y. Filed May 7, 1892. Serial No. 432,143. (No specimens.)



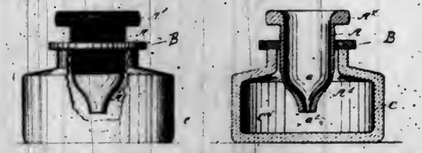
Claim.—The process herein described of purifying brewers' yeast, which consists of the following steps: first, mixing the body of yeast to be purified with a quantity of water; second, subjecting the liquid to agitation and the oxidizing influence of air-currents admitted to the lower part of said liquid; third, removing the bacteria and the light and degenerated yeast-cells from the upper part of the liquid; fourth, permitting the remaining yeast-cells to settle by subsidence, and, lastly, separating the smaller and weaker yeast-cells from the stronger and heavier yeast-cells collected at the bottom, substantially as set forth.

479,131. NUT AND BOLT LOCK. JOHN E. ARTHUR, Clinton, Ill. Filed Mar. 19, 1892. Serial No. 425,579. (No model.)



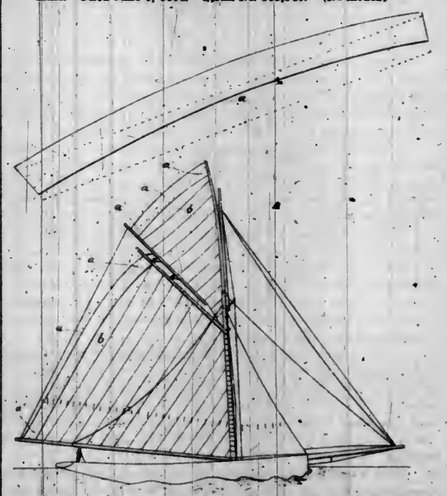
Claim.—In nut and bolt locks, the combination of a nut 5, and a bolt 1, having the usual threads, the rectangular part 2, and the extension 3, having lock-threads provided with recesses 4, the nut 5, adapted to the usual threads of the bolt, cap 6, having recess 8 and inclines 9, washer 10, having inclines 12, conforming to the inclines of the cap and also having a rectangular hole fitting part 2 of the bolt, spring-washer 16, and lock-nut 13, having threads adapted to engage the recesses 4 of the bolt.

479,132. COVER AND ADJUSTABLE INK-WELL. ROBERT L. BOYD, New York, N. Y. Filed Mar. 33, 1892. Serial No. 426,069. (No model.)



Claim.—The combination of an inkstand with a cover loosely placed upon the top of the same and removable at will and provided with an orifice and with a therein-contained vertically-adjustable ink-well provided with an opening constructed and arranged to communicate with the reservoir of the inkstand, whereby by grasping the said cover with one hand and manipulating the ink-well with the other the said ink-well may be caused to descend into the inkstand-reservoir.

479,133. SAIL FOR VESSELS. JOSEPH H. COFFIN, Somerville, Mass. Filed June 6, 1891. Serial No. 395,341. (No model.)



Claim.—The improved sail for sailing-vessels, provided with a swelled leech, consisting of a curved strip of any suitable sail material, having a concave inner edge and a convex outer edge, said concave inner edge being attached to the length of the after-leech of the sail, as set forth.

479,134. INSULATOR. CHAUNCEY B. CONOVER, Cincinnati, Ohio. Filed Jan. 30, 1892. Serial No. 418,722. (No model.)

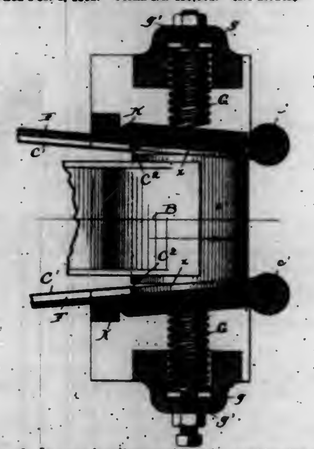
Claim.—An insulator consisting of a main body having a hole lon-

479,184.



gitudinally through its center for securing it with a nail or a screw to a fixed object and being provided at one side of said fastening-hole and in a plane at right angles therewith with a line-wire groove or seat, and having, also, in the same plane therewith and encircling said main body a tie-wire groove, a straight groove arranged diagonally with said line-wire groove or seat and leading thereto, and the ears 2 and 3, one at each end of said diagonal groove and above the line-wire groove or seat, for retaining the line-wire therein, substantially as described.

479,185. CAN-HEADING MACHINE. LEWIS E. CURTIS, Chicago, assignor to Edwin Norton, Maywood, and Oliver W. Norton, Chicago Ill. Filed Feb. 1, 1892. Serial No. 419,862. (No model.)



Claim.—1. In a can-heading machine, the combination of a mold which partly encircles the can with a can-head holder constructed to hold the can-head in position to complete the mold, whereby the can-body is trued to receive the head between the embrace of a portion of the head-flange and the part mold, substantially as specified.

2. In a can-heading machine, the combination of a mold which presses against the can-body at one side and a can-head holder constructed to hold the flange of the can-head in opposition thereto, and thereby size and round the can-body by external pressure thereon, and thus adapt it for entrance in the can-head, substantially as specified.

3. In a can-heading machine, the combination of a mold which presses against the can-body at one side and a can-head holder constructed to hold the flange of the can-head in opposition thereto, and thereby size and round the can-body by external pressure thereon, and thus adapt it for entrance in the can-head, and means for pressing or forcing the can-head on the body when the latter is thus sized and rounded, substantially as specified.

4. In a can-heading machine, the combination of a mold which presses against the can-body at one side and a can-head holder constructed to hold the flange of the can-head in opposition thereto, and thereby size and round the can-body by external pressure thereon, and thus adapt it for entrance in the can-head, said can-head holder being arranged at an angle to the axis of said mold, substantially as specified.

5. In a can-heading machine, the combination of a mold which presses against the can-body at one side and a pair of can-head holders arranged at an angle to the axis of said mold and constructed each to hold the flange of the can-head in opposition to said mold, and thereby size and round the can-body by external pressure thereon, and thus adapt it to enter the heads, substantially as specified.

6. In a can-heading machine, the combination, with a part mold B, of a can-head-holding device for holding the can-head against or to resist the pressure of said part mold, whereby the half-flange of each can-head is in turn made to serve as a temporary part mold to true up and round the can-body in conjunction with said part mold B, and a chute or passage for delivering the can-heads to said holding device, substantially as specified.

7. In a can-heading machine, the combination, with a part mold B, of a can-head-holding device for holding the can-head against or to resist the pressure of said part mold, whereby the half-flange of each can-head is in turn made to serve as a temporary part mold to true up and round the can-body in conjunction with said part mold B, a chute or passage for delivering the can-bodies to said part mold B, and a chute or passage for delivering the can-heads to said can-head-holding device, substantially as specified.

8. In a can-heading machine, the combination of means for sizing and rounding the can-body, consisting of a movable part mold B, in conjunction with a device for holding the can-head to adapt the half-flange of the can-head to serve as an opposing part mold between which and said part mold B the can-body is externally compressed, with means for forcing the can-head on the body when the latter is thus sized and rounded, and a device for delivering the can-bodies to said part mold, substantially as specified.

9. In a can-heading machine, the combination, with a movable carrier, of a series of molds mounted thereon, each of which presses against the can-body at one side, and a can-head holder constructed to hold the flange of the can-head in opposition thereto, and thereby size and round the can-body by external pressure thereon, and thus adapt it to enter the head, substantially as specified.

10. In a can-heading machine, the combination, with a movable carrier, of a series of molds mounted thereon, each of which presses against the can-body at one side, and a can-head holder constructed to hold the flange of the can-head in opposition thereto, and thereby size and round the can-body by external pressure thereon, and thus adapt it to enter the head, a chute or device for delivering the can-bodies automatically into the molds on said carrier, and a chute for delivering the can-heads to said holder, substantially as set forth.

11. In a can-heading machine, the combination, with a movable carrier, of a series of molds mounted thereon, each of which presses against the can-body at one side, and a can-head holder constructed to hold the flange of the can-head in opposition thereto, and thereby size and round the can-body by external pressure thereon, and thus adapt it to enter the head, a chute or device for delivering the can-bodies automatically into the molds on said carrier, and a chute for delivering the can-heads to said holder, said can-head holder being arranged at an angle to the axis of said molds, substantially as specified.

12. The combination, with a movable half-mold B, of a can-head-holding device C, furnished with a friction-roller c' to engage the can-head, and a yielding support for said can-head-holding device C, substantially as specified.

13. The combination, with a movable half-mold B, of a can-head-holding device C, furnished with a friction-roller c' to engage the can-head, a guide c, and a yielding support for said can-head-holding device, substantially as specified.

14. In a can-heading machine, the combination of a movable mold B, which partly encircles the can with a can-head holder C, arranged at an angle to the axis of said mold and constructed to hold the can-head in position to complete the mold, whereby the can-body is trued to receive the head between the embrace of a portion of the head-flange and the part mold, and a can-head chute F, having a portion adjacent to said can-head holder extending substantially in the path or direction of movement of said movable mold B, substantially as specified.

15. In a can-heading machine, the combination of a movable mold which presses against the can-body at one side, and a can-head holder arranged at an angle to the axis of said mold and constructed to hold the flange of the can-head in opposition thereto, and thereby size and round the can-body by external pressure thereon, and thus adapt it to enter the head, a can-head-delivery chute F, and a guard C^3 to prevent the rear edge of the can-head flange coming in contact with the end of the can-body before the can-body is trued up and rounded, substantially as specified.

16. The combination, with a movable half-mold B, of a can-head-holding device C, arranged at an angle to the axis of said half-mold and pivoted at one edge thereof, and a spring or yielding support for holding said can-head-holding device in position, substantially as specified.

17. The combination, with a movable half-mold B, of a pair of can-head-holding devices C, arranged at an angle to each other, said can-head-holding devices being pivoted to the frame at their front edges, and yielding supports for said can-head holding devices, substantially as specified.

18. The combination, with a movable half-mold B, of a pair of can-head-holding devices C, arranged at an angle to each other, said can-head-holding devices being pivoted to the frame at their front edges, and yielding supports for said can-head-holding devices, and each of said can-head-holding devices being furnished with a guide c, substantially as specified.

19. The combination, with a movable half-mold B, of a pair of can-head-holding devices C, arranged at an angle to each other, said can-head-holding devices being pivoted to the frame at their front edges, and yielding supports for said can-head-holding devices, each of said can-head-holding devices being furnished with a guide c and a projection c', substantially as specified.

20. The combination of a revolving carrier-wheel D, having a series of part molds B mounted thereon, the can-body-delivery chute E, guards or extensions b' on said carrier-wheel, and a pair of can-head-holding devices C, furnished with guides c and projections or shoulders c' and arranged at an angle to the axis of said part molds on said wheel, substantially as specified.

21. The combination of a revolving carrier-wheel D, having a series of part molds B mounted thereon, the can-body-delivery chute E, guards or extensions b' on said carrier-wheel, a pair of can-head-holding devices C, furnished with guides c and projections or shoulders c' and arranged at an angle to the axis of said part molds on said wheel, and a pair of can-head-delivery chutes F, substantially as specified.

22. The combination of a revolving carrier-wheel D, having a series of part molds B mounted thereon, the can-body-delivery chute E, guards or extensions b' on said carrier-wheel, a pair of can-head-holding devices C, furnished with guides c and projections or shoulders c' and arranged at an angle to the axis of said part molds on said wheel, and a pair of can-head-delivery chutes F, said can-head chutes having inner side pieces C', furnished with guards C^3 to prevent the flanges of the can-heads and the end of the can-bodies from clashing before the can-body is rounded, substantially as specified.

23. The combination of a revolving carrier-wheel D, having a series of part molds B mounted thereon, the can-body-delivery chute E, guards or extensions b' on said carrier-wheel, and a pair of can-head-holding devices C, furnished with guides c and projections or shoulders c' and arranged at an angle to the axis of said part molds on said wheel, the projecting shoulders c of said can-head-holding devices being adapted to yield or separate to permit the passage of the headed can between them, substantially as specified.

24. The combination of a revolving carrier-wheel D, having a series of part molds B mounted thereon, the can-body-delivery chute E, guards or extensions b' on said carrier-wheel, and a pair of can-head holding devices C, furnished with guides c and projections or shoulders c' and arranged at an angle to the axis of said part molds on said wheel, the projecting shoulders c' of said can-head-holding devices being adapted to yield or separate to permit the passage of the headed can between them, together with plates C C, upon which said projecting shoulders are mounted, substantially as specified.

25. The combination of a revolving carrier-wheel D, having a series of part molds B mounted thereon, the can-body-delivery chute E, guards or extensions b' on said carrier-wheel, a pair of can-head-holding devices C, furnished with guides c and projections or shoulders c' and arranged at an angle to the axis of said part molds on said wheel, and a pair of can-head-delivery chutes F, and movable latches or guards C^3, substantially as specified.

26. The combination of a revolving carrier-wheel D, having a series of part molds B mounted thereon, the can-body-delivery chute E, guards or extensions b' on said carrier-wheel, a pair of can-head-holding devices C, furnished with guides c and projections or shoulders c' and arranged at an angle to the axis of said part molds on said wheel, and a pair of can-head-delivery chutes F, and a pair of movable latches or guards C^3 for each of said can-head-holding devices, one arranged above and one below and adapted to be moved out of the way by the can-body as it is moved into position by the carrier and part molds, substantially as specified.

479,186. CLOTHES-LINE HOLDER. MARTIN R. BYERLEY, Portsmouth, N. H. Filed Mar. 12, 1892. Serial No. 424,647. (No model.)

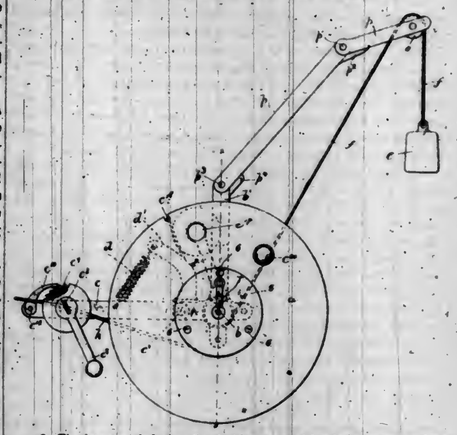
Claim.—1. A clothes-line holder comprising in its construction a frame or support, a clothes-line reel rotatively connected with said support, an automatic motor—such as a weight or spring—adapted to wind the line upon the reel, and a line stretching and locking device independent of the reel-shaft and carried by said support to prevent the line-winding action of the weight or spring, as set forth.

2. A clothes-line holder comprising in its construction a frame or support, a clothes-line reel rotatively connected with said support, a motor adapted to automatically wind the line upon the reel, and a rotary line tightening and locking device supported by the frame at one side of the reel, as set forth

3. A clothes-line holder comprising in its construction a frame or support, a clothes-line reel rotatively connected with said support, an arm pivotally connected with the support, a motor adapted to automatically wind the line upon the reel, a rotary line tightening and locking device mounted on the arm, and a spring which yieldingly holds the tightening device in its normal position and permits it to yield therefrom, as set forth.

4. A clothes-line holder comprising in its construction a frame or support, a motor adapted to automatically wind the line on the reel, separable connections between the reel and motor, a line-wiper arranged at one side of the reel, and means for detachably connecting said wiper with the frame or support, the reel and wiper being removable with the line from the support, as set forth.

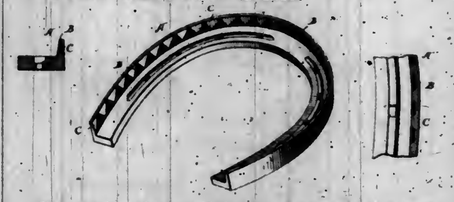
5. In a clothes-line holder, the combination of a frame or support provided with a stud, a drum mounted to rotate on the stud and provided with clutch-teeth, a clothes-line reel mounted on the stud and provided with clutch-teeth adapted to engage the teeth of the drum, means for detachably securing the reel on the stud and permitting its removal therefrom, and a motor connected with the drum and adapted to be adjusted for action by the rotation of the drum, as set forth.



6. The improved clothes-line holder, comprising in its construction a frame or support, a clothes-line reel having a socket, such as c^{17}, a motor to automatically wind the line on said reel, separable connections between the motor and reel, and a rotary line-tightening device having a stud or trunnion, such as c^3, detachably connected with the support and adapted to enter the socket c^{17}, as set forth.

7. The improved clothes-line holder, comprising in its construction a frame or support, a clothes-line reel having a socket, such as c^{17}, a motor to automatically wind the line on the reel, and a line tightening and locking device comprising a shaft rotatably and detachably connected with the support at one side of the reel and provided with a crank or handle, a ratchet affixed to said shaft, and a pawl on the support adapted to engage said ratchet, as set forth.

479,187. HORSESHOE. ROBERT F. LEWIS, Scranton, Pa. Filed Jan. 7, 1891. Serial No. 376,957. (No model.)



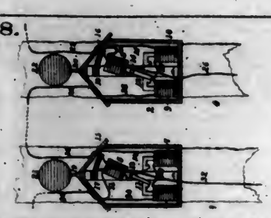
Claim.—A horseshoe provided with a continuous calk or outer wall formed of vertical layers of metal of different degrees of hardness, the harder metal being serrated to form teeth and the softer metal being disposed at the side of and between said teeth, substantially as shown and described.

479,188. SIGNAL FOR ELECTRIC RAILWAYS. FRANK F. LOOMIS, Akron, Ohio. Filed Apr. 8, 1892. Serial No. 428,305. (No model.)

Claim.—1. In a signal-box for electric railways, an electro-magnet pivoted to rock vertically, combined with two fixed electro-magnets, the core of the pivoted magnet arranged to rock between the poles of the fixed magnets, the rocking magnet being connected with the source of electrical energy and having a ground-wire from its opposite terminal, the fixed magnets being connected in inverse directions with said source, and a signaling apparatus arranged to be actuated by the rocking magnet, substantially as shown and described.

2. In a signaling system for electric railways, a series of boxes,

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each having an electro-magnet pivoted to rock vertically, combined with two oppositely-disposed fixed electro-magnets, the core of each pivoted magnet arranged to rock between the cores of the fixed magnets of its box, each rocking magnet connected with the source of electrical energy in the same direction and each having a ground-wire, the fixed magnets being connected in inverse directions with said source, said boxes being electrically connected to permit their several magnets to be energized, and signaling devices arranged to be actuated by said rocking magnets, substantially as shown and described.

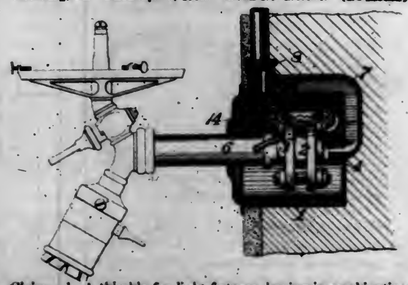
3. In a signal for electric railways, the boxes electrically connected, each having the rocking electro-magnets arranged to be constantly polarized in the same direction by the electric current, combined with the sets of fixed electro-magnets, the magnets of each set being arranged to be simultaneously polarized in opposite directions by the current from one direction and to be oppositely polarized by the current from the opposite direction, the cores of the pivoted magnets arranged to rock between the cores of the fixed magnets, and signaling devices arranged to be simultaneously operated by the rocking magnets, substantially as shown and described.

4. In a signal for electric railways, the rocking magnets arranged to be constantly polarized in the same direction and the sets of fixed magnets with the magnets of each set arranged to be oppositely polarized and the cores of the rocking magnets arranged to vibrate between the cores of their respective sets of fixed magnets, combined with a connecting-wire and a transmitter arranged to be engaged by the trolley and make electric connection between the trolley-wire and said magnets, substantially as shown and described.

5. The combination, with the signal-boxes and their mechanism and the connecting-wire, of the fixed spring 38, the rocking spring 39, the rocking loop 41, arranged to be engaged by the trolley and rock said spring 39 against the spring 38, to make connection between the trolley-wire and connecting-wire, substantially as shown and described.

6. The combination, with the electrically-connected signal-boxes and their mechanism and the connecting-wire 23, of the fixed spring 38, rocking spring 39, having the pin 40, rocking loop 41, sliding wire 43, having the pin 44, and spring 45, all constructed and arranged substantially as shown and described, and for the purpose specified.

479,139. THIMBLE FOR LIGHT-FIXTURES. JOHN J. MILLER, Pittsburg, Pa. Filed Apr. 6, 1892. Serial No. 428,071. (No model.)



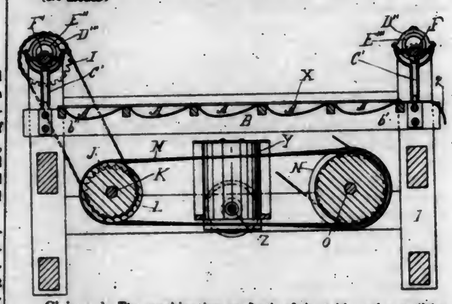
Claim.—1. A thimble for light-fixtures, having in combination a shell adapted to be embedded in a wall or partition and provided with openings in its walls for the insertion of electric-light wires and a nipple adapted to be connected at its ends to a fixture and a gas-supply pipe, respectively, the fixture end of the nipple being within the shell, substantially as set forth.

2. A thimble for light-fixtures, having in combination a cup-like shell adapted to be embedded in a wall or partition and provided with openings in its walls for the insertion of electric wires, a nipple projecting into the shell for connection with a fixture, and means for securing the shell in the wall, &c., substantially as set forth.

3. A thimble for light-fixtures, having in combination a shell adapted to be embedded in a wall or partition and a nipple adapted to be connected at its ends to a fixture and a gas-supply pipe, respectively, the fixture end of the nipple being within the shell, substantially as set forth.

4. The combination of a gas-fixture connected with a supply-pipe and a thimble embedded in the wall adjacent to the fixture and surrounding the joint between the fixture and supply-pipe, substantially as set forth.

479,140. AMALGAMATOR AND ORE-CONCENTRATOR. LAVOISIER C. MORELAND, Ogilby, Cal. Filed May 2, 1891. Serial No. 391,439. (No model.)

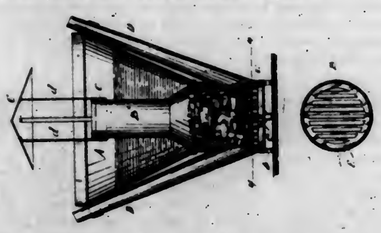


Claim.—1. The combination set forth of the table and pan tilting and oscillating mechanism, and the table provided with the series of scoop-shaped pans which are deep at the rear and shallow at the front, each having a flat mouth or discharge end and rounded sides and rear end and arranged with the grade of the bottom of the pan sloping down from the front to the rear, and the grade of the top of the pan sloping down from the rear to the front, substantially as and for the purpose set forth.

2. The combination set forth of the frame of the machine, the supporting-shafts F F', provided with the sprocket-wheels, the sprocket-chain H, connecting such wheels, the eccentrics E E' E'' E''', arranged in pairs, respectively, upon the two supporting-shafts, the eccentric collars D D' D'' D''', mounted upon such eccentrics, the table-supporting swings which depend from such collars, the table suspended by such swings and provided with the series of sloping-bottomed pans deep at the rear and shallow at the front, and means for oscillating the table and rotating the supporting-shafts.

3. The combination set forth of the pan-table, the supporting-shafts F F', the eccentrics arranged upon the shafts, the eccentric collars, the table-suspending swings, the sprocket-wheels G G', mounted, respectively, upon the supporting-shafts, the sprocket-chain connecting such sprocket-wheels, the driven sprocket-wheel I, fixed upon one of the supporting-shafts, the driven pulley-shaft K, the sprocket-wheel J and cone-pulley L, fixed upon such pulley-shaft, the power-shaft O, the driving cone-pulley N, fixed upon the power-shaft, the crank-shaft V, operatively connected with the driven pulley-shaft K, and the oscillating pitman connecting the cranks of the crank-shaft with the pan-table.

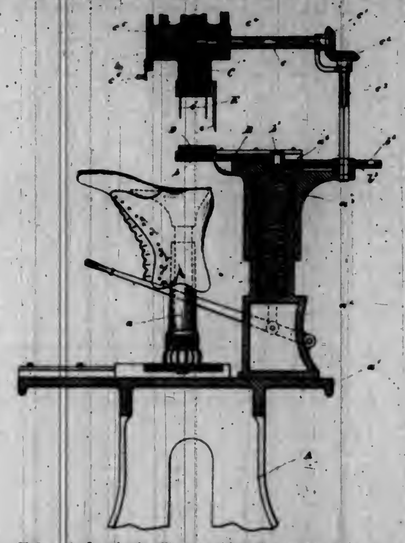
479,141. WATER-HEATER. EDUARD NAGEL, Hoboken, N. J. Filed Mar. 25, 1892. Serial No. 426,350. (No model.)



Claim.—1. A water-heater consisting of a conical vessel or reservoir, a furnace closed at the bottom and extending into the lower part of the vessel, a chimney passing through the vessel, inclined air-tubes extending from the furnace to the upper part of the vessel, and a grate in the furnace, substantially as set forth.

2. A water-heater composed of a conical vessel or reservoir, a cylindrical furnace provided with a closed bottom and extending into the lower part of the vessel, air-tubes extending from the lower part of the furnace to the upper part of the heating-vessel and being attached to the latter by a fastening device, the chimney extending from the upper part of the furnace up through the center of the vessel, a hood supported above the chimney, and a grate formed of two semicircular sections, located near the bottom of the furnace, substantially as set forth.

479,142. HEEL-NAILING MACHINE. FREDERICK F. RAYMOND, 2d, Newton, Mass. Filed July 27, 1889. Serial No. 318,946. (No model.)



Claim.—1. In a heel-nailing machine, the combination of a carriage having ways in which a templet-plate is movable horizontally, the said templet-plate, its templet, and a nail-carrier having a set of awl-holes and a set of nail-carrying holes attached to the templet-plate over the templet and having a slight or limited movement upon said templet sufficient to permit the awl-holes to be moved out of line with the holes of the templet and the nail-carrying holes to be moved into line with said holes of the templet, as and for the purposes described.

2. The combination, in a heel-nailing machine, of a carriage having ways or guides in which a templet-plate is movable horizontally, said templet-plate, a nail-carrier attached to said templet-plate and movable therewith, having a set of awl-holes and a set of nail-carrying holes, a cam connected with said templet for simultaneously moving the same and the nail-carrier, and a reciprocating tappet for moving the nail-carrier in relation to the holes of the templet-plate, substantially as described.

3. The combination, in a heel-nailing machine, of the nail-driving devices, the horizontally-movable templet, a cam for moving it into and out of position, a nail-carrier attached to said templet-plate, movable therewith by said cam, a reciprocating actuating device in the form of a tappet for moving said nail-carrier or its hole-covering plate in relation to the holes of the templet, and said hole-covering plate having an opening and closing movement, substantially as described.

4. In a heel-nailing machine, the improved combined templet and nail-carrier comprising a templet-plate B, having the templet *b* at its front end and a separate nail holder or block secured to said templet or templet-plate in a position over said templet, a spring for holding the nail-holder out of alignment with the holes of the templet and adapted to deliver nails from its holes to the holes of the templet, and a reciprocating tappet for moving said nail-holder over the holes of the templet or template-plate, substantially as specified.

479,143. CAR-DOOR. ABRAHAM B. TAYLOR, Mount Airy, Ohio. Filed July 6, 1891. Serial No. 398,564. (No model.)

Claim.—1. A car-door suspended from a tram-rail by means of hangers C, the latter having a pulley in their top portions, said pulleys resting and adapted to travel on said rail, the lower end portions of said hangers being pivoted centrally within recesses in the top edge of said door, and suitable means for locking the latter, substantially as set forth.

2. The round tram-rail B, connected to the car-door A, hangers C, having a pulley *d* therein and resting on said tram-rail, circular recesses *d'* in said hangers, through which said rail passes, the lower end portion of said hangers being pivotally connected within recesses in the top edge of said door, and suitable means for manipulating and locking the latter, substantially as specified.

3. The combination of tram-rail B, hangers C, having pulleys in the housing thereof, said pulleys resting upon said tram-rail, door A, having recesses in the top portion thereof, plates *a*, secured within said recesses, the lower end portions of said hangers being pivotally connected to said plates centrally within the door, and suitable means for locking the latter, substantially as set forth.

479,144. CAR-DOOR. ABRAHAM B. TAYLOR, Mount Airy, Ohio. Filed Sept. 14, 1891. Serial No. 405,644. (No model.)



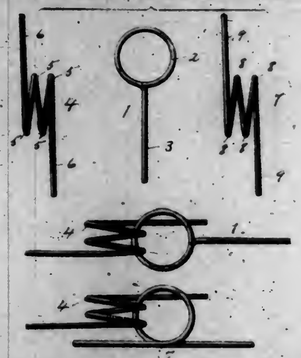
Claim.—1. A car having a suitable cased opening with guide-rails connected thereto above and below said opening, in combination with a door provided at top and bottom with lugs F, having a groove *f* therein, and lugs G, connected to the top and bottom casing of said opening, said latter lugs having a tongue *g*, and suitable means for sliding said door out of its opening onto the lower rail and for retaining said door thereon in a sliding position, substantially as set forth.

2. In combination with a car having a suitable opening therein, the rails D and E, connected to said car, said rails having flanges *d* and *e*, respectively, door A, having lugs F connected to the top and bottom thereof, said lugs having the extensions f^3 and groove *f*, the lower lugs having an auxiliary extension f^4, lugs G, connected to the top and bottom casing of said opening, said lugs having a tongue *g*, the lower rail having a recess e^2, the tongues *g* resting and adapted to slide within the grooves *f*, and suitable means for operating and locking said door.

3. A car having an opening with flanged guide-rails connected thereto above, below, and extending to one side of said opening, lugs F, connected to the top and bottom of said door, with grooves *f* in said lugs, lugs G, connected to the top and bottom casing of said opening, with tongues *g* on said latter lugs, and rod H, connected

to said door, said rod at each end having the angular portions A A^3, the portions A^3 engaging at the rear of the flanges on said guide-rails, for the purposes set forth.

479,145. WIRE PUZZLE. CHARLES E. WHITWORTH, Worcester, Mass., assignor of two-thirds to Thomas Hill and John W. Buckley, same place. Filed Mar. 16, 1891. Serial No. 385,911. (No model.)

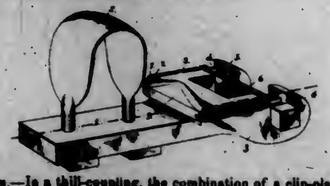


Claim.—1. A wire puzzle consisting of two double coils with projecting ends and a single ring or coil with a projecting end, substantially as set forth.

2. The combination of a wire having its central portion formed into coils with its ends left projecting in opposite directions with a second wire having its central portion formed into coils with its ends left projecting in opposite directions, substantially as described.

3. A puzzle consisting of two wires having their middle portions bent into coils, with their ends left projecting, and a ring encircling one or more of the wire coils, substantially as described.

479,146. THILL-COUPLING. WILLARD C. WILLIAMS, Rush Creek Valley, assignor of one-half to Levi S. Sanders, Campbellsville, Ind. Filed Jan. 5, 1892. Serial No. 417,073. (No model.)



Claim.—In a thill-coupling, the combination of a clip-plate provided with forwardly-projecting ears having open bearing-recesses and provided with longitudinal bolt-openings arranged at the upper ends of the bearing-recesses and disposed at right angles thereto, bolts arranged in the bolt-openings and closing the mouths of the bearing-recesses, spiral springs disposed on the bolts and arranged within the bolt-openings and bearing against the rear walls of the latter and shoulders of the bolts, a cross-piece connecting the rear ends of the bolts and provided with a central lip, and a coupling-bolt arranged within the recesses of the ears and secured thereto by the spring-actuated bolts, substantially as described.

479,147. ELECTRIC BELT. DUANE P. ANDRUS, St. Louis, Mo. Filed Dec. 14, 1891. Serial No. 415,012. (No model.)



Claim.—1. An electric belt having a pocket or pockets adapted to move upon said belt, a battery placed within the same, conducting-cords leading from the positive and negative poles of said battery, an electrode or electrodes electrically connected with the opposite end of said connecting-cord, and a U-shaped wire or wires attached to the concave surface of said electrode, substantially as set forth.

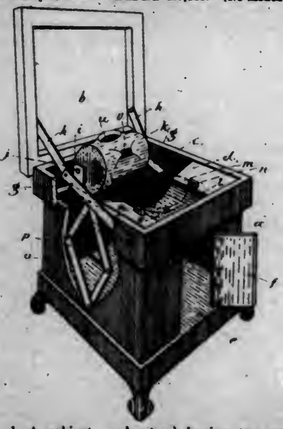
2. In an electric belt, an electrode or electrodes, consisting of a circular plate 9, a U-shaped wire attached thereto, having arms 11 out of contact with said plate, a metallic strip adapted to be held to the said electrode or electrodes by the said arms, and conducting-cords 16 and 17, leading from the positive and negative poles of the battery and connected to one end of the insulated wire or wires 15 of said strip or strips, the opposite end of said wire or wires 15 in electrical contact with said electrode or electrodes, substantially as set forth.

3. An electric belt having a battery composed of a series of cells, each of which consists of a plate 20, of oxidizable metal, having perforations 21, a copper wire 22, passing through the said openings and adapted to connect said plate with the next cell, a copper plate 25, adapted to receive the ends of the wires 22, and a suitable amount of absorbent material interposed between each of the said plates, substantially as set forth.

4. An electric belt having a battery composed of a series of cells each of which consists of a plate 20, of oxidizable metal, having perforations 21, a copper wire 22, passing through the said openings and adapted to connect said plate with the next cell, and a copper plate 25, adapted to receive the ends of the wires 22, substantially as set forth.

5. An electric belt having a battery composed of a series of cells, each of which consists of a plate 20, of oxidizable metal, having perforations 21, a copper wire 22, passing through the said openings and adapted to connect said plate with the next cell, and a copper plate 25, provided with perforations 27, through which the ends of the copper wire 22 are adapted to pass, substantially as set forth.

479,148. WASH-STAND. NATHAN O. BOND, Fairfax Court-House, Va., assignor to William F. Phinney, Standish, Me. Filed Mar. 26, 1891. Renewed Mar. 16, 1892. Serial No. 425,115. (No model.)



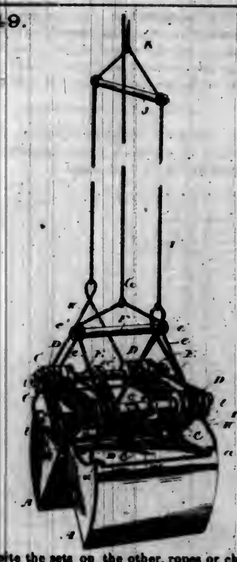
Claim.—1. A cabinet wash-stand having two compartments therein and a cover hinged to the top thereof at the back edge, a supporting-frame pivoted in one compartment near the front thereof and linked to said cover, a water-reservoir journaled in said frame, and a bow set in the other compartment, substantially as and for the purpose set forth.

2. In a cabinet wash-stand having a rear and front compartment and a cover hinged thereto, a supporting-frame pivoted to the casing in the rear compartment near the front thereof and linked to the cover, a collapsible lever pivotally connected to said supporting-frame and the cabinet-case, a reservoir journaled in the supporting-frame, and a bowl mounted on trunnions in the front compartment in such position that when the cover is raised and the water-reservoir is tipped the water will run into the bowl, substantially as and for the purposes set forth.

479,149. WELL-EXCAVATOR. GEORGE W. GALE, Greeley, Colo. Filed Jan. 5, 1892. Serial No. 417,087. (No model.)

Claim.—1. In combination, the two buckets, the shaft hinging them, the sets of radial arms on each bucket, the rods connecting such arms, the two sets of pulleys on each rod, the sets on one rod being

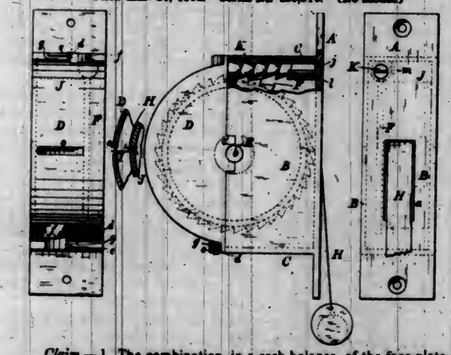
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arranged opposite the sets on the other, ropes or chains connecting each set on one rope to the opposite set on the other, the bar connecting the two latter ropes, and the lifting means connected to said bar, substantially as described.

2. In combination, the two buckets, the shaft hinging them, the sets of radial arms on each bucket, the rods or shafts connecting such arms, the pulleys or wheels on the rods or shafts, the ropes or chains connecting in horizontal lines the pulleys of one rod with those of the other, the lifting rope or chain connected to said ropes or chains, and the lowering rope or chain connected to each bucket on the side of its hinge opposite the arms thereof, and the rod connecting said ropes, substantially as shown and described.

479,150. SASH-BALANCE. FREDERIC H. KIMBALL, Rochester, N. Y. Filed Mar. 26, 1892. Serial No. 426,516. (No model.)



Claim.—1. The combination, in a sash-balance, of the face-plate A, having cheeks B B, the cover D, and a spring-drum and suspension carried by a central spindle having journals supported in bearings formed in the meeting edges of the cheeks and cover, a ratchet-wheel attached to the central spindle, and a worm meshing with the ratchet and capable of being revolved from the exterior of the face-plate, substantially as described.

2. The combination, in a sash-balance, of the face-plate A, having cheeks B B, the cover D, and the spindle E, the spring-drum J, having tape H thereon, supported on the spindle on one side only and arranged to bear on a suitable friction-surface on the opposite side and a ratchet-wheel attached to the central spindle, and a worm meshing with the ratchet and capable of being revolved from the exterior of the face-plate, substantially as described.

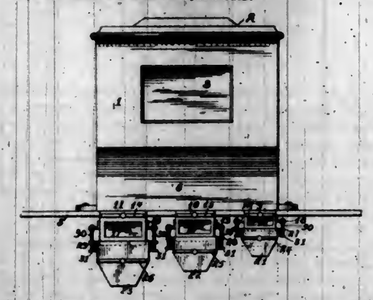
3. The combination, in a sash-balance, of the face-plate A, having cheeks B B and end plate C, provided with inwardly-projecting flange m, the spring-drum J, tape H, spindle E, ratchet F, and worm K, located in the angle between one of the cheeks and the end plate and supported laterally by the flange m, substantially as described.

4. The combination, with the mechanism of a spring sash-balance, of the face-plate A and casing B C, having lugs e e, and the removable cover D, having lugs f f and the pins d d, substantially as described.

5. The combination, in a sash-balance, of the face-plate A, having cheeks B B, the cover D, and a spring-drum and suspension carried by a central spindle having journals supported in bearings formed in the meeting edges of the cheeks and cover, substantially as described.

6. The combination, in a sash-balance, of the face-plate A, having cheeks B, the cover D, having slot o, and the slotted spring-drum J, and means for revolving the spindle to wind up the spring by drawing it through the slots, substantially as described.

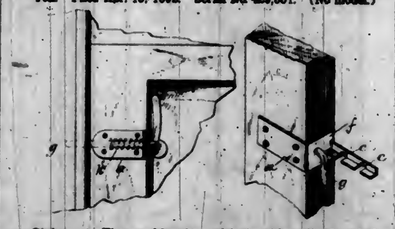
479,151. MEASURING-RECEPTACLE. CHARLES T. MEISER, St. Louis, Mo., assignor of one-half to Henry Gerlitz, same place. Filed Apr. 19, 1892. Serial No. 429,902. (No model.)



Claim.—1. In a measuring-receptacle, the combination, with a spout provided at opposite sides with right-angular apertured brackets, of a sleeve receiving said spout and provided with two oppositely-located brackets, the latter being in line with the brackets carried by the spout and provided with screw-threaded apertures, and reversible thumb-screws keyed to the spout-brackets and working in the sleeve-brackets, substantially as and for the purpose set forth.

2. A measuring-receptacle comprising a receptacle provided with an inclined bottom and with a transparent front, an opening formed in said receptacle above said inclined bottom, an outwardly-inclined face-plate for said opening, spouts located below said opening, glass plates secured in said spouts, right-angular brackets also secured to the same, adjustable spouts or sleeves mounted on said first-mentioned spouts, right-angular screw-threaded brackets secured to said adjustable sleeves, cut-off valves located in said first-mentioned spouts and similar outlet-valves located in said adjustable sleeves, and screw-threaded bolts mounted in said brackets for adjusting said adjustable sleeves or spouts, substantially as set forth.

479,152. SASH-FASTENER. STEPHEN MCLELLAN, San Marcos, Tex. Filed Apr. 15, 1892. Serial No. 429,351. (No model.)

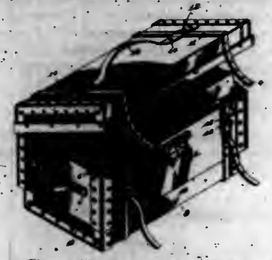


Claim.—1. The combination, with the side rail of a window-sash, of the plate a, having the longitudinal slot b, cross-slots c, and perforations f and f^3, bolt g, handle I, secured to said bolt and having a small perforation j, and torsional spring K, one end passing through the perforation f^3 and the other through the perforation j and adapted to throw the handle I into the cross-slots c, said lock adapted to be secured to said rail by any substantial means, substantially as shown and described.

2. The combination, with the side rail of a window-sash, of the plate a, having the longitudinal slot b, cross-slots c, perforated lugs d, and perforated nose f, bolt g, having the threads h, handle I, having a threaded perforation and screwing on the bolt g, and a small perfo-

ration to receive one end of the spring K, and coil-spring K, one end passing through the perforation *j* and the other through the perforation of the nose *f*, said lock adapted to be secured to the rail by bolts or nuts passing through the perforated lugs *d*, substantially as shown and described.

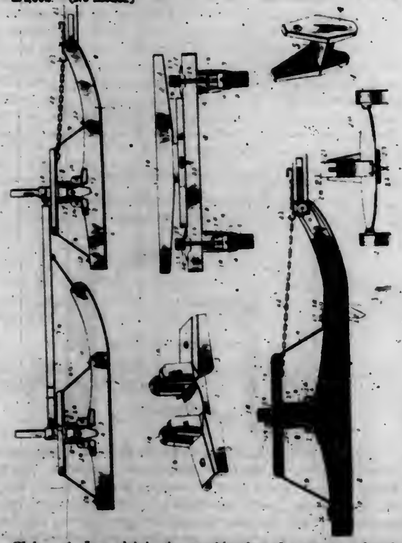
479,153. TELESCOPIC TRUNK. FRANK J. PALIGA, Racine, Wis. Filed Sept. 24, 1891. Serial No. 406,669. (No model.)



Claim.—1. The combination, with the rectangular trunk-body having open upper and lower ends, and the triangular brackets 4, having the angular flanges 5, secured in the corners of the body, of the tray removably mounted on the brackets, the hinged cover surmounting the trunk, the removable bottom located in the trunk-body and having surrounding side walls adapted to abut against the brackets, and means for securing the bottom and cover in position, substantially as specified.

2. The combination, with the rectangular body having upper and lower open ends, and the triangular brackets 4, having angular flanges 5, secured in the corners of the body, of the hinged cover, the tray removably mounted upon the brackets, the removable bottom having surrounding side walls mounted within the open bottom of the body, the leather loops 16, riveted to the front wall of the body, the buckles 17 in the upper and lower ends of the loops, and the straps 11, passed around the cover, body, and bottom and perforated for adjustable engagement with the buckles, substantially as specified.

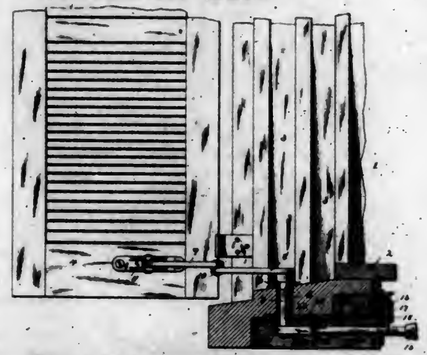
479,154. SLEIGH. ARTHUR P. PIPE, Antigo, Wis., assignor of one-half to Henry Leiber, same place. Filed Mar. 14, 1892. Serial No. 424,892. (No model.)



Claim.—1. In a sleigh, the combination of a runner, a bearing-plate secured to the runner and provided with ears arranged on opposite sides of its bearing-surface, a knee, and rods arranged on opposite sides of the knee and having their lower ends pivoted between the ears and their upper ends loosely secured, substantially as described.

2. In a sleigh, the combination of a runner, a bearing-plate provided with depending flanges and having perforated ears arranged at opposite sides of its bearing-surface, a knee, a journal-plate mounted on the bearing-plate and provided with depending extensions arranged between the flanges, and the rods arranged on opposite sides of the knee and having their lower ends pivoted between their ears and their upper ends rigidly secured, substantially as described.

479,155. SHUTTER-WORKER. EDWIN H. PRICE, Lansdale, assignor of one-half to Jeremiah B. Alderfer, Souderton, Pa. Filed Apr. 7, 1892. Serial No. 428,196. (No model.)



Claim.—1. In a shutter-worker, the combination of a lazy-tong connection having one portion thereof pivotally connected to a shutter and a post depending from the other portion of the same, a link connected to the lower end of said post, and a rod or bar pivotally attached to the said link and having a push and pull and lateral movement, substantially as described.

2. In a shutter-worker, the combination of a lazy-tong connection having one portion thereof pivotally connected to a shutter and a post depending from the other portion of the same, a link connected to the lower end of said post, a sleeve surrounding said post and having a flange at the upper end thereof resting on the casing or frame, a bar or rod connected to said link and having a push, pull, and lateral movement and provided with a series of openings, and a spring-actuated latch-pin adapted to engage the openings of said bar or rod, substantially as described.

3. In a shutter-worker, the combination of a post depending from a part thereof, a sleeve surrounding said post, a flanged plate connected to said sleeve and having openings in the bottom thereof, and an arm secured to the frame or casing and having openings therein, said arm being adjustably fitted in the said plate and adapted to have the openings therein align with the openings in said plate to receive a fastening, substantially as described.

4. In a shutter-worker, the combination of a lazy-tong connection having one portion thereof pivotally connected to a shutter and a post depending from the other portion of the same, a link connected to the lower end of said post, a sleeve surrounding said post and having a flange at the upper end thereof resting on the casing or frame, a bar or rod connected to said link and having a push, pull, and lateral movement and provided with a series of openings, a spring-actuated latch-pin adapted to engage the openings of said bar or rod, a flanged plate connected to said sleeve and having openings in the bottom thereof, and an arm secured to the frame or casing and having openings therein, said arm being adjustably fitted in the said plate and adapted to have the openings therein align with the openings in the plate to receive a fastening, substantially as described.

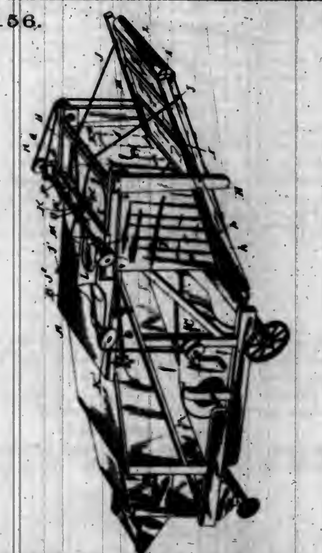
5. An adjusting device for a shutter-worker, consisting of a flanged plate connected to the mechanism of the worker and having openings therein, and an arm secured to the frame or casing of the window and in like manner provided with openings, said arm being adjustably fitted in the said plate and adapted to have the openings therein align with the openings in the plate to receive a fastening, substantially as described.

479,156. THRASHING-MACHINE ATTACHMENT. ALBERT REASON, Pinckney, Mich. Filed April 26, 1892. Serial No. 430,694. (No model.)

Claim.—1. In an attachment for thrashing-machines, a swinging carrier-frame pivotally connected with the machine-body over the delivering end thereof and depending below and under said delivering end, an endless carrier pivotally mounted within said depending frame, and means for swinging said carrier-frame, substantially as set forth.

2. In an attachment for thrashing-machines, the thrashing-machine having an extended rear top deck, a swinging table pivotally

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mounted upon and working over said deck, a depending frame portion connected with said table and extended under the delivering end of the thrasher, an endless carrier pivotally mounted in said depending frame portion, and means for swinging said table and adjusting said carrier, substantially as set forth.

3. The combination, with a thrashing-machine having a rear top deck, of a swinging table pivotally mounted upon and supported by said deck, opposite supporting-standards depending from the opposite outer ends of said table, opposite parallel pivot-arms projecting from the lower ends of said standards under the delivering end of the thrasher, an endless carrier pivotally mounted between the inner ends of said arms, and means for swinging said table and adjusting said carrier, substantially as set forth.

4. The combination, with a thrashing-machine, of a swinging carrier-frame depending below the delivering end of the thrasher and having a pivot-bolt working in the rear top deck of the thrasher, a horizontal gear-wheel secured to said pivot-bolt under said frame, an adjacent adjusting-shaft having a screw meshing with said gear-wheel to swing the frame, and an endless carrier pivotally mounted in said swinging frame and adapted to be adjusted therein, substantially as set forth.

5. The combination, with a thrashing-machine, of a swinging carrier-frame having a pivot-bolt journaled in the rear top deck of the thrasher, a gear-wheel secured to said pivot-bolt beneath said frame, an inclosing casing surrounding said gear-wheel and secured to the deck of the thrasher to hold the frame thereon, and an adjacent adjusting-shaft provided with a screw end projecting into said inclosing casing and meshing with said gear-wheel, substantially as set forth.

6. In an attachment for thrashing-machines, the thrasher having an extended rear top deck, a swinging table supported by said deck and having an end bolster provided with a pivot-bolt journaled in said deck, supporting-standards depending from the opposite outer ends of said table, rearwardly-inclined pivot-arms projecting from the lower ends of said standards under the delivering end of the thrasher, an endless carrier working between said standards and arms and pivoted at its lower end to said arms, a horizontal gear-wheel secured to said pivot-bolt under the bolster, an adjacent adjusting-shaft having the screw at one end meshing with said gear-wheel, and means for adjusting said carrier, substantially as set forth.

7. In an attachment for thrashing-machines, a swinging carrier-frame pivotally mounted upon the rear end of the thrasher and having a depending frame portion extended under said delivering end, an endless carrier pivotally mounted in said extended frame portion and provided with cord-guides near the outer end thereof, guide-rollers centrally mounted upon the carrier-frame upon the top of the thrasher, opposite cord-guides secured to opposite top sides of the thrasher, a winding-drum located beneath one of said guides, and an adjusting-cord connected fixedly at one end to one side of the thrashing-machine, passing under the outer end of the endless carrier, through the guides thereunder centered between the central top guide rollers, passing around the opposite top guides, and connected at its free end with said winding-drum, substantially as set forth.

8. In an attachment for thrashing-machines, a swinging carrier-frame pivotally mounted upon the rear end of the thrasher and having a depending frame portion extending under the delivering end of the machine, an endless carrier pivotally mounted in said extended frame portion and having a belt-shaft provided with a pulley at one end, upper and lower pairs of guide-pulleys mounted on one side of the depending frame portion, a drive-shaft fixedly journaled upon the frame of the machine, a corresponding adjacent drive-shaft journaled upon the top of the swinging frame and provided with a belt-pulley at one end, a flexible spring-coupling connecting the adjacent ends of said shafts, and a belt passing over said upper and lower pairs of guide-rollers and connected with the belt-shaft pulley and said drive-shaft pulley, substantially as set forth.

479,157. LANDING-NET FRAME. JAMES REED, Cambridge, Mass. Filed Sept. 24, 1889. Serial No. 324,931. (No model.)



Claim.—1. The side bars of the landing-net frame and the ferrule *g*, combined with the joint composed of two arms pivoted together and having each a threaded shank, said shanks when brought together forming a threaded hub to enter the said ferrule, the said arms receiving and holding the said side bars, substantially as described.

2. A side bar of a landing-net and the joint at its outer end hinged together permanently by the pin *e* and notched, as described, combined with an independently-movable lock to engage notches of the said joint and keep it open, substantially as described.

3. In a landing-net frame, the two arms *A m*, hinged together and provided with shanks, and the side bars inserted in the said sockets, combined with means to hold the said arms in the said sockets, substantially as described.

4. In a landing-net frame, the two arms *A m*, having lips and recessed, as described, and hinged together, combined with two side bars, substantially as described.

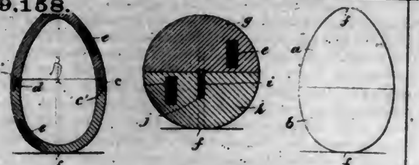
5. In a landing-net frame, the socketed arms *c d*, permanently jointed together, and a lock for the same, shanks and two arms *A m*, permanently jointed together and having sockets and threaded shanks, combined with two flexible side bars connected rigidly to the said arms, and with a ferrule to receive the said threaded shanks, substantially as described.

6. A joint composed of two pivoted sections, each section having a side-bar carrier and a semi-cylindrical shank with threads on the outer surface, the threaded shanks of said sections forming, when brought together in the movement of the sections upon their pivot, a threaded hub for engaging with a correspondingly screw-threaded ferrule, and the carriers at the opposite ends of said sections for engaging with the free ends of a net-frame.

479,158. TOY OR PUZZLE. GEORGE T. SMALLWOOD, Washington, D. C., assignor of one-half to Otis Cole, Rochester, N. Y. Filed March 18, 1892. Serial No. 425,473. (No model.)

Claim.—1. In a toy, a shell or body and counterbalancing-weights therefor, said shell or body being constructed to support said weights off the center and said weights being relatively movable with respect to each other, whereby the toy may be poised on end.

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2. In a toy, a sectional shell or body, each section being heavier at one side and being relatively movable to the other, substantially as explained.

3. In a toy, a sectional shell or body, each section having a weight embedded therein at one side, the relative positions of the weights being changeable, substantially as explained.

4. In a toy, a shell or body constructed of rotatable sections, each section being weighted at one side and being relatively movable to the other, substantially as explained.

5. In a toy, a shell or body constructed of rotatable sections, each section having a weight embedded therein at one side, whereby the relative positions of the weights may be changed, substantially as explained.

6. In a toy, a shell or body constructed of separable sections, each section being weighted at one side and being relatively movable to the other, substantially as explained.

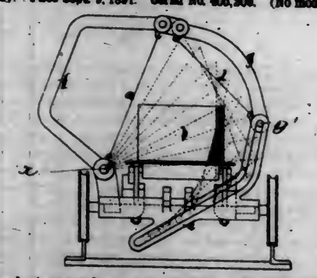
7. In a toy, a shell or body constructed of separable rotatable sections, each section being weighted at one side and being relatively movable to the other, substantially as explained.

8. In a toy, a sectional shell or body of plastic material, each section having a weight embedded therein at one side between the inner and outer surfaces, so as to be hidden from view, the relative positions of the weights being changeable, substantially as explained.

9. In a toy, an egg-shaped shell or body composed of sections, each section being weighted at one side of the longitudinal axis of the shell or body, substantially as explained.

10. In a toy, a shell or body provided with two counterbalancing-weights attached thereto and located off the center and relatively movable with respect to each other, substantially as explained.

479,159. BRICK-CUTTING MACHINE. EUGENE STERN, Helmstedt, Germany. Filed Sept. 9, 1891. Serial No. 405,209. (No model.)



Claim.—1. A cutter for brick-machines, consisting of cutting levices located in the same vertical plane and adapted to engage opposite sides of the stream of clay to be severed, substantially as described.

2. A cutter for brick-machines, consisting of two opposing series of cutting-wires, the wires of each series being in the same vertical plane as the wires of the opposing series and said series adapted to engage opposite sides of the stream of clay, and means for moving said opposing series of wires toward each other, substantially as described.

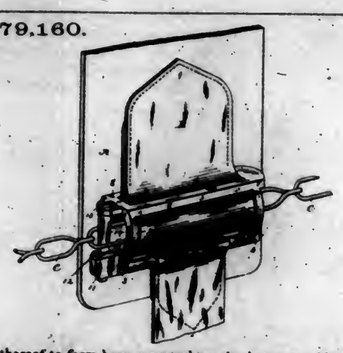
3. In a cutter for brick-machines, a series of cutting-wires and a pivoted support for the same, a second series of wires and a support for the same hinged to said pivoted support, guides for the supports for said second series of wires, adapted to force the same toward those of the second series, and means for supporting a stream of clay intermediate the two series of cutting-wires, substantially as described.

479,160. TRACE-CARRIER. SAMUEL H. WELLBORN, Centre Point, Tex. Filed Apr. 8, 1892. Serial No. 428,361. (No model.)

Claim.—1. In a trace-carrier, the combination of an elongated substantially cylindrical body arranged obliquely to a vertical line and provided with upper and lower supporting-bars and a spring-latch extending across one open end of said body at an angle of inclination to a vertical line, substantially as described.

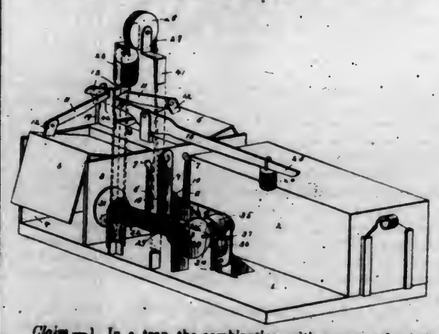
2. In a trace-carrier, the combination of a cylindrical body of elongated form and obliquely arranged and having slots in the upper

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part thereof to form bars, a central top slot between said bars, and a lower bar having a recess therein, an obliquely-inclined spring-latch extending across one of the open ends of said body, the back-band having a strap to pass around said body, and a girth-strap connected to said lower recessed bar, substantially as described.

479,161. ANIMAL-TRAP. DAVID WISERT, Greenbush, Ill. Filed Sept. 24, 1891. Serial No. 406,752. (Model.)



Claim.—1. In a trap, the combination, with a cage, of a bait-compartment communicating therewith, L-shaped doors arranged at opposite ends of the bait-compartment and forming the ends and top of the bait-compartment, a lever fulcrumed intermediate its ends, catch-bars pivotally connected to the doors and engaging the lever and adapted to hold the doors in an elevated position, and a bait-holder connected with the lever and adapted to depress the same to release the doors, substantially as described.

2. In a trap, the combination, with a cage, of a bait-compartment communicating therewith, L-shaped doors arranged at opposite ends of the bait-compartment and adapted to close the same, a lever fulcrumed intermediate its ends, catch-bars pivoted to the doors and engaging one end of the lever, a bait-holder connected with that end of the lever, and an adjustable weight mounted on the lever and arranged at the other end thereof, substantially as and for the purpose described.

3. In a trap, the combination of a cage, a bait-compartment communicating therewith, L-shaped doors closing the bait-compartment, rock shafts connected with the doors and carrying the same and provided with depending arms, an oscillating bar arranged between the arms of the rock-shafts and adapted to engage the same to turn the rock-shafts, means for actuating the oscillating bar, an escapement mechanism, a lever, catches connected to the doors and adapted to engage the lever to hold the doors elevated, and a bait-holder connected with the lever and adapted to disengage the same from the catches, substantially as described.

4. In a trap, the combination of a cage, a bait-compartment communicating therewith, doors closing the bait-compartment and provided with catches, a lever fulcrumed intermediate its ends and provided at one end with adjustable weights and having its other end engaged by said catches, a rod depending from the latter end of the lever, and a bait-carrying platform attached to the lower end of the rod, substantially as described.

5. In a trap, the combination of a cage, a bait-compartment communicating therewith, doors closing the bait-compartment and provided with catches, a lever provided at one end with an adjustable weight and having its other end engaged by said catches, a bait-

holder connected with the lever, rock-shafts carrying the doors and provided with depending arms, an oscillating bar arranged between the arms to move the same to lift the doors, a shaft connected with and actuating the oscillating bar, a hinged door arranged within the cage and closing the entrance of the same, escapement mechanism connected with the hinged door and the shaft and operated by the former, and means for rotating the shaft, substantially as described.

6. In a trap, the combination of a cage, a bait-compartment communicating with the same, doors closing the bait-compartment, a lever connected with the doors and holding the same open, a bait-holder connected with the lever and adapted to disengage the same from the doors to close the latter, a shaft connected with the door and adapted to reset the trap and provided at one end with a disk having a projection, a hinged door arranged in the cage and adapted to close the ends thereof, a rock-shaft carrying the hinged door and provided at one end with a weighted bell-crank lever-arm adapted to hold the hinged door closed, and a trip-bar connected with the bell crank lever-arm and provided with a stop to engage the projection of the disk, substantially as described.

7. In a trap, the combination of a cage, a bait-compartment communicating therewith, a door closing the bait-compartment and provided with a catch, a lever arranged to be engaged by the catch, and a bait holder connected with the lever and adapted to disengage the same from the catch, substantially as described.

479,162. NUT-LOCK. CHARLES A. BARTLETT, Memphis, Tenn. Filed Sept. 9, 1891. Serial No. 405,187. (No model.)



Claim.—1. The combination, with a bolt and its nut, of the herein-described locking-ring, fitted over the bolt and having its inner periphery provided with a series of oppositely-deflected spring-teeth, one series wedged between the thread on the bolt and nut and the other or outer series sprung under an adjacent outer thread on the bolt, substantially as specified.

2. The herein-described nut-lock, consisting of a ring adapted to fit a bolt and having its inner periphery provided with a series of spring-teeth, each alternate tooth being deflected or disposed in opposite directions and beyond the opposite sides of the ring, substantially as specified.

479,163. GARMENT-FASTENER. GEORGE BRADSHAW, Chicago, Ill., assignor of one-half to George W. Hoyt, same place. Filed Feb. 1, 1892. Serial No. 419,922. (No model.)



Claim.—1. The herein-described pin-fastener, consisting of a wire or wires bent into a heart-shaped configuration, at one end having two points the extremities of which lie adjacent to and in the same plane with each other and at the other end provided with a resilient connection which permits the points to be sprung apart, substantially as described.

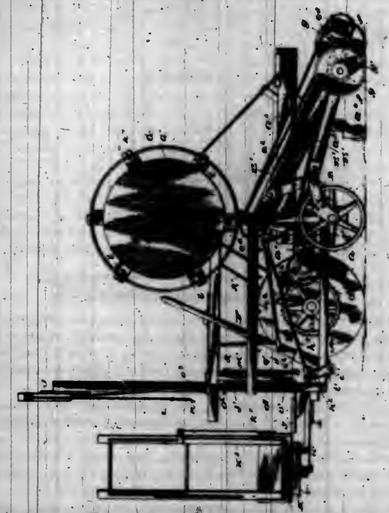
2. The herein-described pin-fastener, consisting of a wire or wires bent into a heart-shaped configuration at one end and a hook at the other, said heart-shaped configuration having two points the extremities of which lie adjacent to and in the same plane with each other, and a resilient connection between the ends, which permits the said points to be sprung apart.

479,164. SIGNAL-LIGHT. HENRY COCHRAN, Chester, Pa. Filed Dec. 3, 1891. Serial No. 413,803. (No model.)



Claim.—A signal-light ring or casing having a stationary glass or pane arranged within the same and provided in front of the stationary glass or pane with an L-shaped flange forming a pocket and having in its top a slot to provide a mouth or opening, said pocket being adapted for the reception of a supplemental glass or pane, and the portion S, formed by the slot or opening, being resilient and adapted to clamp the supplemental glass, substantially as described.

479,165. CORN-HARVESTER. JOSEPH T. HESS, Duffield's, W. Va. Filed Oct. 23, 1891. Serial No. 409,613. (No model.)



Claim.—1. The corn-harvester having the series of knives or cutters arranged in front of the usual cutter-bar and having oblique cutting-edges and adapted to transversely receive through their shanks said cutter-bar, substantially as and for the purpose set forth.

2. The corn-harvester having the corn or stalk elevator comprising the pivoted V-shaped-like frames having secured to their rear ends arms, in combination with the rock-shaft and hand-lever having a slot-and-rod connection with said arms, adapted to have a limited movement independent of said rock-shaft and hand-lever, substantially as specified.

3. The corn-harvester having the crane compromising the axially-pivoted standard, in combination with a slide supporting said standard at its lower end and a bracket supporting said standard a short distance upward from said slide, substantially as set forth.

4. The corn-harvester having the crane and the shock or corn elevating rope or other suitable medium having a stop, in combination with the pulley or drum to which one end of said rope is connected, and the clutch-box adapted to engage said pulley and cause it to revolve with the transporting wheel-axle, and the clutch-box shipping-lever actuated by a supplemental lever, itself actuated by said stop on the elevating-rope, substantially as described.

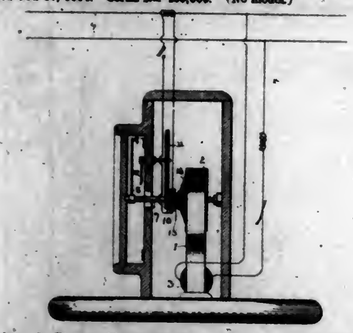
5. The corn-harvester having the shock receiver or stand having secured to its under side a cross-bar v, hinged or pivoted at one edge to a second cross-bar v', centrally pivoted to the outer end of a bar w, pivoted at its inner end to a bracket or support of the framework of the machine, in combination with a segmental bar secured to said bracket and supporting the bar w, substantially as set forth.

479,166. DIE FOR FORMING AXES. JAMES P. KELLY, Louisville, Ky. Filed Oct. 9, 1891. Serial No. 408,278. (No model.)



Claim.—A two-part die for making axes or hatchets, each part having in its working face a cavity corresponding with the general shape of the implement to be formed and having located in such cavity a raised portion C, adapted to produce a label-recess in the finished implement, substantially as hereinbefore described.

479,167. ELECTRICAL METER. ARTHUR E. KENNELLY, Orange, N. J., assignor to the Edison General Electric Company, New York, N. Y. Filed Oct. 17, 1891. Serial No. 408,009. (No model.)

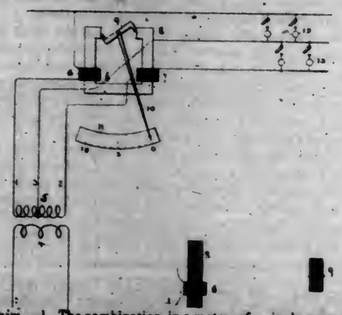


Claim.—1. The combination, with a continuous-current circuit, of a meter comprising an indicating mechanism, an electrical motor for driving it, the armature of said motor having a working coil connected to the circuit, and a closed idle coil or conductor serving to put a load on the motor, substantially as described.

2. The combination, with a continuous-current circuit, of a meter comprising an indicating mechanism, an electrical motor for driving it, the armature of said motor having a working coil connected to the circuit, a closed idle coil or conductor serving to put a load on the motor, and a field-magnet coil connected to the same circuit, substantially as described.

3. The combination of a continuous-current circuit, a meter comprising an indicating mechanism, a motor therefor, the field-magnet coil of which is connected to said circuit, an armature having a coil connected to a commutator, commutator-brushes connected to said continuous current circuit on opposite sides of a resistance, said armature having also a closed idle conductor serving to put a load on the motor, substantially as described.

479,168. ELECTRICAL METER FOR THREE-WIRE SYSTEMS. ARTHUR E. KENNELLY and JOHN F. OTT, Orange, N. J., assignors to the Edison General Electric Company, New York, N. Y. Filed Oct. 21, 1891. Serial No. 409,379. (No model.)



Claim.—1. The combination, in a meter, of a single core, co-operating coils thereon, each coil being connected or adapted to be connected to a separate main, an armature, and an indicating device moved thereby, substantially as described.

2. The combination, in a meter adapted for alternating-current systems, of a laminated core, co-operating coils thereon, each coil being connected or adapted to be connected to a separate main, an armature, and an indicating device moved thereby, substantially as described.

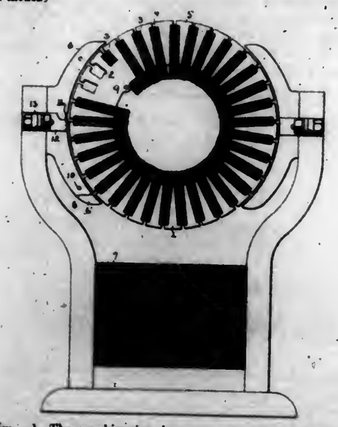
3. The combination, in a meter adapted for alternating-current systems, of a laminated core, co-operating coils thereon, each coil being connected or adapted to be connected to a separate main, a laminated armature, and a pointer or indicating device moved thereby, substantially as described.

4. The combination, in a meter adapted for alternating-current systems, of co-operating coils adapted to be connected to separate mains, laminated pole-pieces therefor, an armature, and an indicator, substantially as described.

5. The combination, in a three-wire system, of the positive, negative, and neutral mains, the source of alternating current connected thereto, and a single meter having two co-operating coils, one connected to a positive and one connected to a negative main, substantially as described.

6. The combination, with positive and negative wires and a source of alternating current connected thereto, of a meter having two co-operating coils, one connected to the positive and one connected to the negative wire, a soft-iron armature therefor, and an indicator or pointer moved thereby, substantially as described.

479,169. ELECTRO-MAGNETIC MACHINE. ARTHUR E. KENNELLY and JOHN F. OTT, Orange, N. J., assignors to the Edison General Electric Company, New York, N. Y. Filed Oct. 21, 1891. Serial No. 409,380. (No model.)

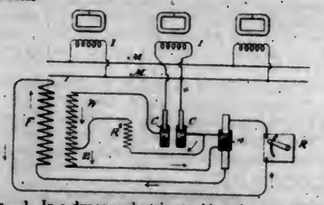


Claim.—1. The combination, in a magnet, of a main body, a separate pole-piece, and a strap securing said body and pole-piece together, substantially as described.

2. The combination, in a magnet, of a main body and a laminated pole-piece, said pole-piece and body being secured together by a strap passing around the pole-piece and fastened to the body, substantially as described.

3. The combination, in a magnet, of a main body and a laminated pole-piece, said pole-piece and body being secured together by a strap passing around the pole-piece and fastened to the body, the pole-piece having a groove across its outer face in which the strap rests, substantially as described.

479,170. COMPOUND-WOUND ALTERNATING-CURRENT DYNAMO. HERMANN LEMP, Lynn, Mass., assignor to the Thomson Electric Welding Company, of Maine. Filed Oct. 17, 1889. Serial No. 327,267. (No model.)



Claim.—1. In a dynamo-electric machine, the combination, with the field-magnet, of two armatures or armature-coils in series with one another, one being the source of current for the work-circuit, and a connection leading across from one side to the other of the series circuit and containing an artificial resistance.

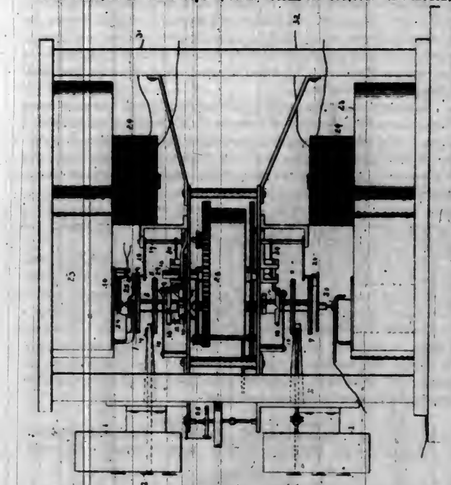
2. In an alternating-current dynamo, the combination, with a field-magnet circuit and an alternating-current work-circuit, of two armatures or armature-coils connected in series through the field-magnet coil, a commutator in such series circuit, a cross connection at an uncommuted portion of the circuit, and a reactive coil or resistance in such connection.

3. The combination, substantially as described, of a field-magnet circuit, two armatures or sections of armature supplying the same in series, a commutator in the series circuit, an uncommuted portion of circuit forming the work-circuit, a connection from one side of the series circuit to the other, made at alternating-current points, and a reactive coil in the said connection.

4. The combination, substantially as described, of two armature coils or sections of coil in series, a field-magnet circuit supplied from the same in series, a commutator in the series connections, a work-circuit in the alternating-current connection to the commutator, a connection across from one side of the series circuit to the other, an artificial resistance in said connection, and a collector-ring for forming such connection.

5. The combination, with the two coils or sections of coil in series, a commutator in the circuit supplied by such coils in series, and an artificial resistance carried by the armature and placed in a connection from a point between the coils to the circuit leading to the commutator.

479,171. ELECTRIC METER. JOHN F. OTT and ARTHUR E. KENNELLY, Orange, N. J., assignors to the Edison General Electric Company, New York, N. Y. Filed Sept. 7, 1891. Serial No. 405,051. (No model.)



Claim.—1. The combination, in an electrical meter, of a recording device, a regulated motor adapted to advance said recording device when in engagement, mechanism operated by said regulated motor for throwing the motor and recording device into engagement at intervals, and a trip comprising a hand or arm moved in one direction by the current, an engaging wheel or device driven by the motor and operatively connecting the hand and motor when the motor and recorder are in engagement, whereby the hand is carried backward through the same distance by the motor for disengaging said parts when they have moved a distance corresponding to the strength of the current, substantially as described.

2. The combination, in an electrical meter, of a recorder, a motor mechanism adapted to advance said recorder when in engagement, a cam for throwing the same into engagement at intervals, and a tripping device consisting of a pointer moved in one direction by the coil through which the current to be measured passes and moved in the opposite direction by the motor, and a retracting-lever moved by said pointer, substantially as described.

3. The combination, in a meter, of a recorder, a wheel for advancing it, a rotating wheel movable into and out of gear therewith, a motor and mechanism operated thereby for moving said wheels into engagement at regular intervals, a hand or pointer normally free to move, a coil to which said pointer is connected and through which the current to be measured flows, and means for engaging said pointer when the wheel is engaged and moving it, and a trip operated by means of said pointer to disengage the wheels, substantially as described.

4. The combination, in a meter, of a recording or indicating device, a motor and means operated by said motor for periodically throwing it into engagement with the recorder or indicator, a hand or pointer and coil, through which coil the current to be measured passes, said hand being operatively connected to the motor so as to be moved thereby when the motor and recorder are in engagement, the hand not being normally operatively connected to the motor, and a trip operated through said pointer for disengaging the motor from the recorder or indicator, substantially as described.

5. The combination, in a meter, of a recorder, a driving-wheel therefor, a clock work or motor, a gear-wheel driven thereby, mechanism operated by said motor for moving said wheel into and out of engagement with said driving-wheel, a hand or pointer adapted to be moved by the current through a distance exactly corresponding to the strength of the current, the hand being normally disconnected from the motor, a moving part driven by the motor and adapted to connect the hand and motor, said parts being in operative position when the motor and recorder are in engagement, and a tripping device for disengaging the motor from the recorder, said trip being operated through the hand or pointer, substantially as described.

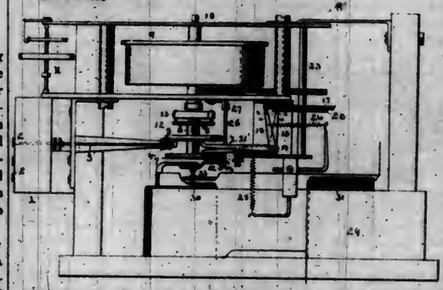
6. The combination of the recorder, the motor, the motor-shaft the gear-wheels and cam movable longitudinally thereon, the bolt co-operating with said cam to move said parts in one direction, and the tripping device comprising a hand or pointer, an operating-coil, and a retractor for the bolt in position to be operated by or through the hand or pointer, substantially as described.

7. The combination of the recorder, the motor, the motor-shaft, the gear-wheels and cam movable thereon, the spring for moving said parts in one direction, the bolt co-operating with said cam to move said parts in the other direction, and the tripping device comprising a hand or pointer, an operating-coil, and a retractor for the bolt in position to be operated by or through the hand or pointer, substantially as described.

8. The combination, in a meter, of a recording device having a driving-wheel, a motor, a wheel driven by the motor, means for moving said wheel into gear with the driving-wheel, consisting of a disk having cam-faces, a sliding bolt pressing against the rim of said disk, but adapted to move lengthwise when a cam-notch is brought in line with it and to move the cam and connected parts forward, and a tripping device comprising a hand or pointer, an operating coil, and a retractor for the bolt in position to be operated by or through the hand or pointer, substantially as described.

9. The combination, in an electrical meter, of two recording devices with driving-wheels therefor, a single clockwork or motor for operating both recorders, gear-wheels movable into and out of gear with the driving-wheels, mechanism operated by the motor for moving the same, and trips the operation of which is dependent on the current used for disengaging the wheels, substantially as described.

479,172. ELECTRIC-CURRENT METER. JOHN F. OTT and ARTHUR E. KENNELLY, Orange, N. J., assignors to the Edison General Electric Company, New York, N. Y. Filed Nov. 30, 1891. Serial No. 413,461. (No model.)



Claim.—1. The combination, in a meter, of a recording device, a motor, intermediate driving connections, a pivoted lever having a retracting-spring for moving said driving connection out of engagement, a regularly-moving cam controlling said lever, and a trip or disengaging device controlled by the force being recorded, substantially as described.

2. The combination, in an electric meter, of a recording device, a regulated motor for advancing said recording device when in engagement, means for throwing the same into engagement at regular intervals, comprising suitable levers, springs adapted to move said levers forward, and regularly-moving cams for putting said springs under tension and then releasing them, and a trip or disengaging device controlled by the current being recorded, substantially as described.

3. The combination, in a meter, of a recording device, a wheel for advancing it, a rotating wheel movable into and out of gear therewith, means for moving said wheels into engagement at regular intervals, a hand or pointer normally free to move, a coil to the axis of which said pointer is connected and through which the current to be measured flows, and means for engaging said pointer when the wheel is en-

gaged and moving it, means for moving said wheels out of engagement, and a detent in position to detain said means from operating, said detent being disengaged at the proper moment by means of said hand or pointer, substantially as described.

4. The combination of a recording device, a regulated motor for advancing it when in engagement, a wheel driven by the motor and movable into and out of gear with the driving-wheel of the recorder, spring-operated levers for moving the first mentioned wheel, regularly-moving cams driven by the motor and in position to act on said levers to put their springs under tension and then to release them, and a trip or disengaging device controlled by the current or force to be recorded, substantially as described.

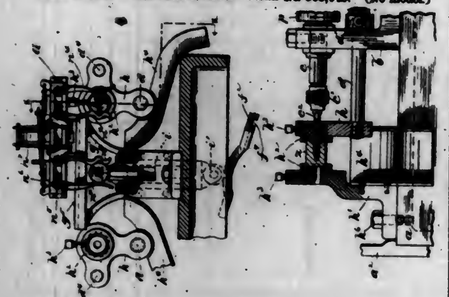
5. The combination of the recorder driving-wheel, the wheel adapted to gear therewith, and means for engaging and disengaging the same, comprising two pivoted levers with operating-springs, one lever and spring being in position to move the wheel in one direction, the other lever and spring being in position to move the wheel in the opposite direction, and the operating-cams, and a trip or disengaging device controlled by the current or force to be recorded, substantially as described.

6. The combination, in an electric meter, of the recorder driving-wheel, the wheel adapted to gear therewith, and means for engaging and disengaging the same, comprising two pivoted levers with operating-springs, one lever and spring being in position to move the wheel in one direction and the other lever and spring being in position to move the wheel in the opposite direction, the operating-cams, a detent for holding the disengaging lever and spring from operation, and a detent the operation of which is dependent on the current being measured, substantially as described.

7. The combination, in an electrical meter, with a driven wheel of a recorder, of two crown-wheels, one of which is a driving-wheel adapted to gear with the driven wheel of the recorder, two pivoted levers terminating adjacent to said wheels one acting against the same in one direction and the other in the opposite direction, springs connected to said levers, cams acting on the levers, and a trip or disengaging device controlled by the current being recorded, substantially as described.

8. The combination, in a meter, of a coil, an arm or pointer moved thereby, a recording device, a regulated motor adapted to drive the recording device when connected thereto, a movable gear driven by the motor, means comprising pivoted levers with springs of different strength, and cams operating thereon for moving said wheel into or out of engagement, substantially as described.

479,173. SPOOL-BORING MECHANISM. JOHN M. PARKER, Pawtucket, R. I. Filed June 9, 1891. Serial No. 395,645. (No model.)



Claim.—1. In a spool-boring machine, the combination, with a blank-holding hopper, a runway or chute leading therefrom, and a vertically-moving plunger, as *i*, communicating with the mouth of the runway, of a pair of horizontally-mounted drills adapted to continuous rotation, a pair of blank-holders arranged in line with and in advance of each drill, a guided carriage provided with yielding fingers adapted to receive and release a spool-blank, mechanism for reciprocating the carriage transversely of the machine to carry blanks alternately from the plunger to the said holders, and mechanism for intermittingly and alternately moving the drills and holders in a longitudinal direction, substantially as hereinbefore described.

2. In a spool-boring machine, the combination, with blank feeding, conveying, and boring mechanisms, of a vertically-movable plunger adapted to receive a spool-blank from the mouth of the runway, and a yielding tongue forming a continuation of the top portion of the runway, substantially as described.

3. In a spool-boring machine, the combination of a blank-guiding runway provided at its mouth with a yielding tongue, as r^{11}, a plunger arranged to travel up and down past the mouth of the runway, a spring-resisted shipper-lever connected with suitable main driving mechanism, and a stop-motion device connected both with the said tongue and shipper-lever, substantially as described.

4. In a spool-boring machine, the combination, with a runway, a pair of revolving laterally-separated longitudinally-movable drills, and a guided blank-carrier traveling back and forth across the machine in advance of the drills, of a vertically-guided plunger arranged to receive a spool-blank from the runway and elevate it into engagement with the carrier, and means for intermittingly reciprocating the plunger in a vertical direction, substantially as described.

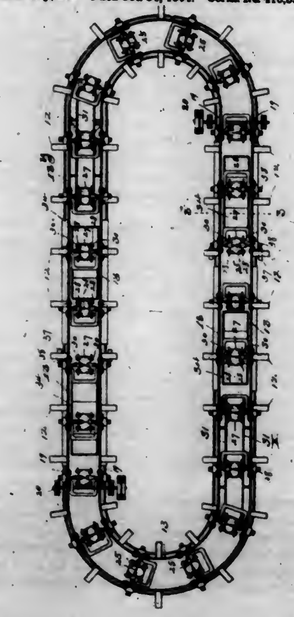
5. In a spool-boring machine, the combination, with a guided blank-carrier provided with yielding blank-receiving fingers, all arranged to travel transversely of the machine, of a vertically-guided and automatically-falling plunger, a jointed lever arranged to engage the plunger, provided with an adjustably-secured arm for controlling the plunger's movement, and a revolving cam arranged to engage said arm to effect the vertical travel of the plunger, substantially as described.

6. In a spool-boring machine, the combination of two hollow stationary self-centering blank-holders arranged at the front and the rear sides of the machine, two hollow yielding longitudinally-movable self-centering blank-holders, mechanisms for intermittingly placing spool-blanks in position singly between the adjacent faces of said stationary and movable holders, a pair of continuously-revolving drills mounted in line with the axes of said holders and blanks, springs for forcing the movable holders into frictional engagement with the blanks, and mechanism for feeding the revolving drills endwise through the holders and the retained blanks and returning the parts to their normal positions, substantially as described.

7. In a spool-boring machine, the combination of a blank-holding hopper laterally adjustable to accommodate blanks varying in size, a runway leading therefrom communicating with mechanism for conveying the blanks singly to revolving drills, a guide-wheel revolving in a contrary direction to the path of the column of blanks leading to the runway, an intermittingly-moving pusher, as m^3, located in the front portion of the hopper, and oppositely-arranged reciprocating agitator-plates mounted above the guide-wheel, all arranged and operating substantially as hereinbefore described.

8. In an automatic spool-boring machine, the combination, with an intermittingly moving plunger and a runway arranged to deliver spool-blanks singly thereon, of two suitably-mounted revolving drills, mechanism for alternately and intermittingly moving the drills in a longitudinal direction, yielding self-centering separable holders arranged in line with said drills, and a carriage reciprocating transversely of the machine arranged to remove the blanks from the plunger and place them in position to be acted upon by the said holders and drills, substantially as described.

479,174. CAN-SOLDERING MACHINE. WILLIAM P. QUENTELL, Kansas City, Mo. Filed Oct. 31, 1891. Serial No. 410,529. (No model.)



Claim.—1. In a can-soldering apparatus, the combination of a track having inclined portions therein, solder-wells located along said track, carriers moving thereon, reversible can-supports mounted in said carriers, means for moving said carriers over the track and causing the can to dip into the molten solder without rotating the can, and means for reversing the supports, whereby to present the ends of the can successively to the solder, substantially as described.

2. In a can-soldering apparatus, the combination of a track having inclines therein, solder-wells located along said track, carriers moving on the track, can-supports journaled in the carrier, said can-supports being yieldingly connected, a supplemental track adapted to engage one of the supports, whereby to separate them at proper intervals, means for moving the carriers along the track and inclines, whereby the ends of the can are dipped into and then raised out of the solder without rotation of the cans, and means for reversing the can-supports, whereby the ends of the can are presented successively to the solder, substantially as described.

3. In a can-soldering apparatus, a can-support comprising a hollow cup having a vent in its bottom and a valve carried by a pivoted lever, said valve adapted to seal said vent, and a trip to rock the lever whereby to open the valve, substantially as described.

4. In a can-soldering apparatus, the combination of a track having inclines therein, carriers adapted to move upon said track, can-supports journaled in said carriers, a gear upon the journal of the can-support, a rack located between the solder-wells and adapted to engage said gear, whereby to rock the journal and reverse the position of the can, and means for propelling the carriers over said track and inclines, whereby the ends of the can are successively dipped into and then out of the solder without rotation of the cans, substantially as described.

5. In a can-soldering apparatus, can supports consisting of hollow cups yieldingly connected together, said cups being adapted to bear upon the heads of the can inside the flange thereof and their hollow bodies serving to receive superfluous solder, substantially as described.

479,175. WOOD-SCREW AND METHOD OF MAKING THE SAME. CHARLES D. ROGERS, Providence, R. I., assignor to the American Screw Company, same place. Filed June 21, 1888. Serial No. 277,776. (No model.) Patented in England Jan. 4, 1889, No. 9,271; in France June 11, 1889, No. 196,947; in Belgium June 15, 1889, No. 86,646; in Italy June 30, 1889, No. 25,639, and in Canada Nov. 8, 1889, No. 32,765.



Claim.—1. The method of forming screws herein described, by forging a finished screw-head, including the slot, upon the end of the wire from which screws are produced, cutting off from the wire and pointing by compression between dies a piece of the required size to form a screw, and forging a thread thereon by rolling it between dies, the ribs of which at the commencement of their operation penetrate the metal to the required depth and then force the metal by lateral compression to expand radially and give the required form to the thread.

2. The wood-screw herein described, having the surfaces of its solid thread, which is raised from the body of the blank by rolling it between dies that compress laterally the metal to form the thread and force it to expand radially from the blank into grooves in the dies having a form transversely the counterpart of that to be given to the thread, of the top and under side of the head, of the slot in said head, and of the portion of the shank adjacent to the head of the thread all composed of compressed metal, substantially as described.

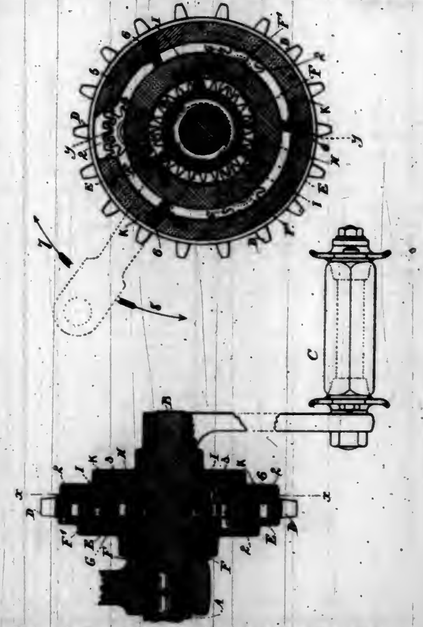
479,176. HANDLE. JOHN B. SCHRODER, Cincinnati, Ohio. Filed Dec. 7, 1891. Serial No. 414,947. (No model.)



Claim.—1. The detachable handle hereinbefore described, consisting of the handle having locking-shanks, the plate having perforations to receive said shanks, a latch upon the inside of the plate to lock the shanks to the plate, and a handle projecting inwardly from said latch to move it for the purpose of releasing the handle from the plate, the parts combined and arranged substantially as specified.

2. The combination, substantially as hereinbefore set forth, of the plate provided with slotted handle-sockets *a'*, the latch-plate C, fitted to slide in rear of the plate A, portions of said plate C being arranged to pass into the slots in the sockets *a'*, the handle B, having shanks *b* to enter the sockets *a'* and notched at *b'* to register with the slots in said sockets, and the handle projecting inward from the latch-plate for the purpose of sliding it up to release the handle from the inside.

479,177. SPEED-GEAR FOR VELOCIPEDES. CHARLES VOGEL, Fort Lee, N. J. Filed Sept. 24, 1891. Serial No. 406,647. (No model.)



Claim.—1. The combination, with a chain-wheel for a bicycle or similar vehicle, of a crank or pedal shaft, a stationary bearing through which the crank-shaft passes and around which the hub of the chain-wheel is rotated, a central gear-wheel loose upon the crank-shaft, pinions gearing into the same and into the teeth of the gear within the chain-wheel, stationary supports for the intermediate pinions, a disk permanently connected with the crank-shaft, an inclosing face-plate, and pawls acting in opposite directions, whereby the crank-shaft is directly connected with the chain-wheel when revolved in one direction and intermediately connected by the gearing with such chain when revolved in the opposite direction, substantially as set forth.

2. The combination, with the crank-shaft and pedals, of a stationary bearing through which the crank-shaft passes, a chain-wheel and hub revolving around the tubular bearing, such chain-wheel having internal gear-teeth, a gear-wheel loose upon the crank-shaft, intermediate gear-wheels between the center gear-wheel and the internal gear of the chain-wheel, fixed bearings supported by the tubular bearing and receiving such intermediate pinions, a disk upon the crank-shaft having a rim, pawls pivoted to such rim and acting at their inner ends upon a cylindrical flange of the center gear-wheel, a recessed face-plate inclosing the gearing and screwed to the chain-wheel, and pawls connected to the rim of the face-plate and acting inwardly against the edge of the disk, substantially as and for the purposes set forth.

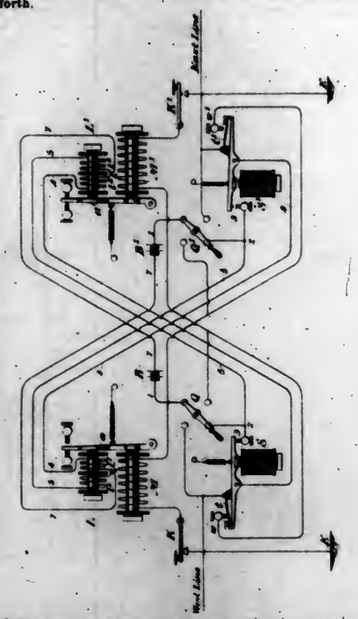
3. The combination, with the chain-wheel, the fixed bearing, and the crank-shaft and pedals, of a sun or planet gear between the crank-shaft and chain-wheel, pawls acting in opposite directions, and an inclosing face-plate whereby the entire gear is protected from dust and dirt and the chain-wheel is directly connected to the crank-shaft when the latter is revolved in one direction and intermediately connected to the gearing when the crank-shaft is revolved in the other direction, substantially as set forth.

479,178. TELEGRAPHIC REPEATER. ROSEWELL H. WHITE, New York, N. Y. Filed Feb. 8, 1892. Serial No. 420,710. (No model.)

Claim.—1. In a telegraphic repeater, the combination, with the

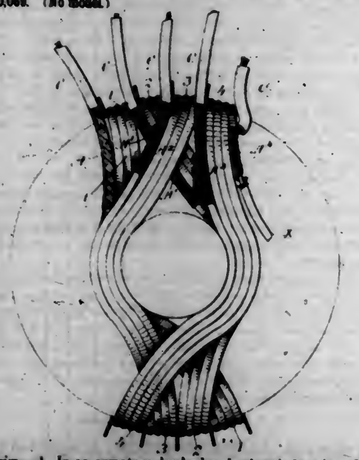
armature of the main receiving-magnet, of an independent auxiliary differential magnet, one winding of which is included in a circuit controlled by the armature of the opposite receiving-magnet, substantially as set forth.

2. In a telegraphic repeater, the combination, with the armature of the main receiving-magnet, of an independent differential electro-magnet, a local battery, and a breaking-point included in the circuit of one winding of said differential magnet, which is brought into action before the circuit of the main magnet is broken, substantially as set forth.



3. In a telegraphic repeater, the combination, with the armature-lever of each repeating-sounder, of two independent contact-points, one of which breaks the circuit of the auxiliary magnet of the opposite relay before the other breaks the main circuit of said relay, substantially as set forth.

479,179. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. MERLE J. WIGHTMAN, Scranton, Pa. Filed Oct. 26, 1891. Serial No. 410,069. (No model.)



Claim.—1. In an armature, lead-wires having their point of connection with the armature-wires bound down and clamped against vibration by the wire of a succeeding section wound directly upon it.

2. In an armature, flexible lead-wires attached directly to the armature-winding and bound down or clamped against vibration at the point of attachment by the armature-windings.

3. In an armature, lead-wires connected to the coil-sections beneath the coil-windings, and each bound down at the point of connection by the winding of a succeeding section.

4. In an armature, the combination, with the coil-sections, of a leading-wire connected directly to a coil-winding where it lies upon the armature-head and held in place by another section wound over the point of connection.

5. The combination, with the armature-coils applied as a continuous winding without projecting loops, of leading-conductors twisted around the wire of said windings at proper points to divide the same into sections, the joints between the leading-wires and sections being each bound by the winding of a succeeding section, as and for the purpose described.

6. In an armature, flexible lead-wires having their points of attachment to the armature-conductors bound down or held against vibration by the armature-winding and their flexible portions only left free to vibrate.

7. In an armature, the combination, substantially as described, with the armature-windings, of flexible lead-wires having their points of attachment to the armature bound down by the armature-winding and having their commutator ends fixed in radial slots in the commutator-segments.

8. The combination, with the flexible lead, of the attached flattened tubular terminal, and a slotted segment or block, in the slot of which the flattened tube is held.

9. The combination, with the flexible lead, of the attached flat sheet-metal terminal, and commutator segments or blocks having radial slots adapted to receive and hold said flat sheet-metal terminal by friction.

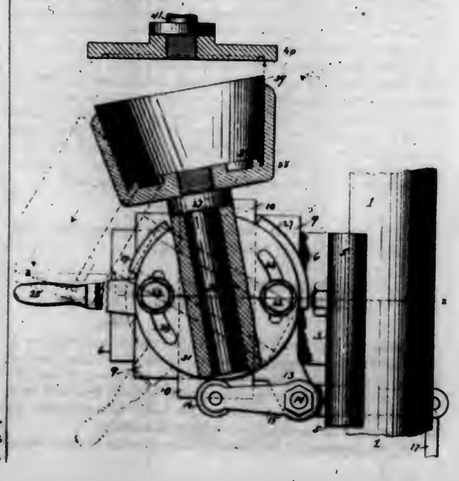
479,180. BOX FOR BITS. ISAAC J. BOOTH, Birmingham, Conn. Filed Feb. 25, 1891. Renewed Dec. 21, 1891. Serial No. 415,718. (No model.)



Claim.—1. In a box for packing bits, the combination, with a notched bar adapted to support the bit-shanks and means for holding the bit-points, of a guided and longitudinally-movable locking-bar adapted to engage the squared and tapered rear ends of the bits, substantially as described.

2. In a bit-packing box, the combination of the transverse fixed bar adapted to support the shanks, the longitudinally-movable lock-bar, and an inclined end wall or block having seats for the points of the bits, substantially as and for the purpose set forth.

479,181. METHOD OF AND MACHINE FOR TREATING THE MARGINS OF SHEET-METAL VESSELS. CHARLES M. BROWN and EDWARD P. HOLDEN, Chicago, Ill. Filed Nov. 24, 1891. Serial No. 412,902. (No model.)



Claim.—1. The method of treating sheet-metal articles, which consists in forcing the margin of the article into contact with a tool consisting of a disk having a working surface on one of its flat sides, maintaining the margin of the article and the working surface of the tool in planes that converge so that only a small portion of the circumference of the article has contact with the tool at any one time, and successively bringing all parts of said circumference under the action of the tool, substantially as set forth.

2. The method of treating sheet-metal articles, which consists in presenting the margin of the article to the flat working surface of a revolving tool, maintaining said article in a plane that converges with the plane of the working surface of the tool, so that only a small portion of the circumference of the article has contact with the tool at any one time, forcing them together by pressure applied in a plane parallel with the side of the article that is for the time being in contact with the tool, and successively bringing all parts of the circumference of the article under the action of the tool.

3. The combination of a tool consisting of a disk having a working surface on one of its flat sides, a rotary chuck for holding the article, and means for pressing the margin of the article against the flat face of the tool, the axes of the tool and chuck being inclined with relation to each other, so as to maintain the tool and the margin of the article in converging planes, substantially as set forth.

4. The combination of a rotary chuck for holding the article, a tool consisting of a rotary disk having a working surface on one of its flat sides, the axis of said tool being situated within the circumference of the margin of the article and at an angle to the axis of the chuck, and means for forcing the margin of the article against the face of the tool, substantially as set forth.

5. The combination of a revoluble tool consisting of a disk having a half-round annular groove in one of its flat sides, a chuck for holding the margin of the article in a plane that converges with the plane of the working surface of the tool, and means for forcing the article and tool together, substantially as set forth.

6. The combination, with a tool, of a chuck, a spindle by which it is supported, a plate adjustable about an axis perpendicular to said spindle, a fixed bearing for said spindle carried by said plate, and means for securing said plate so as to hold the parts in the positions to which they are adjusted, substantially as set forth.

7. The combination, with a tool, of a chuck, a spindle by which it is carried, a tilting plate having a socket in which said spindle is journaled and by which it is held against lateral movement relatively thereto, and means for tilting the plate, substantially as set forth.

8. The combination, with a tool, of a chuck, the tilting plate 23, supporting said chuck, a hand-lever for moving said plate, and a dog for locking it in position, substantially as set forth.

9. The combination, with a tool and a chuck, of a tilting plate 23, a handle for operating it, a plate 31, supporting the chuck, and means adjustably connecting the two plates, substantially as set forth.

10. The combination, with a rotary tool and a chuck having axes inclined with relation to each other, of a slide carrying said chuck and a guide for compelling said slide to move in a plane parallel with the side of the article that is for the time being in contact with the tool, substantially as set forth.

11. The combination, with a rotary tool and a chuck having axes inclined with relation to each other, of a slide carrying said chuck and a guide for said slide adjustable to different angles with respect to the tool, substantially as set forth.

12. The combination, with a tool and a chuck, of a slide, means for adjustably connecting the chuck thereto, and an adjustable guide for said slide, substantially as set forth.

13. The combination, with a tool and a chuck, of the slide 18, the adjustable guide 10, upon which it works, the plate 31, carrying the chuck, and means for adjustably connecting the plate 31 and slide 18, substantially as set forth.

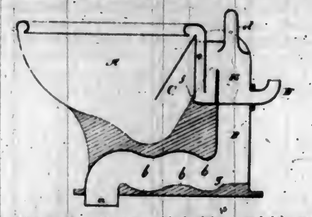
14. The combination of the guide 10, the slide 18, fitting thereon, the plate 23, swiveled to the slide and having the handle 28, the dog 29, the plate 31, secured adjustably to plate 23 and having the socket 35, the spindle 36, occupying said socket, the chuck 38, carried by said spindle, and the tool, all constructed and arranged to operate substantially as set forth.

15. The combination, with the chuck having lugs 48, of the ring 46, surrounding the chuck near its top, the bolts 47, loosely connecting the ring and lugs, and the springs 50, surrounding the bolts and bearing in opposite directions against the lugs and ring, substantially as set forth.

479,182. SIPHON WATER-CLOSET. GEORGE F. BROWN, Philadelphia, Pa. Filed Mar. 2, 1892. Serial No. 423,445. (No model.)

Claim.—1. An improved siphon water-closet in which the longer leg of the siphon is provided in its horizontal portion with a number of projecting surfaces which tend to bank up the water descending through said siphon and render the priming thereof more effectual, substantially as shown and described.

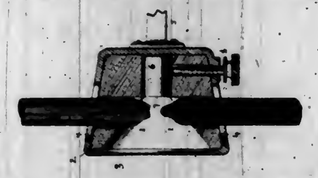
2. A siphon water-closet provided with a receiving and distributing chamber connected with the flushing-tank by a suitable pipe and provided with an outlet to the flushing rim that is normally sealed and with an unsealed outlet to the longer leg of the siphon, substantially as shown, and for the purposes specified.



3. A siphon water-closet provided with a receiving and distributing chamber connected with the flushing-tank by a suitable pipe and provided with an outlet to the flushing-rim that is normally sealed and with outlets into both legs of the siphon, that into the longer leg being unsealed, substantially as shown, and for the purposes specified.

4. A siphon water-closet provided with a receiving and distributing chamber connected with the flushing-tank by a suitable pipe and provided with outlets to the flushing-rim and into both legs of the siphon, the opening into the outlet leading to the longer leg of the siphon being somewhat higher in the chamber than the opening into the outlet leading to the flushing-rim, substantially as described, and for the purposes specified.

479,183. REFLECTOR FOR ARC LIGHTS. ROBERT S. DOBBIE, Brooklyn, assignor to the Edison General Electric Company, New York, N. Y. Filed Apr. 8, 1891. Serial No. 388,104. (No model.)



Claim.—1. The combination, with a hollow refractory body, of lamp-carbons forming an arc within said body, a socket therein, and a refractory block adapted to become incandescent supported in said socket, substantially as described.

2. The combination, with a hollow refractory body having a socket, of lamp-carbons forming an arc within said body, a refractory block in the socket and near the arc, adapted to become incandescent, and means for securing said block and for adjusting the same, substantially as described.

479,184. FAC-SIMILE TELEGRAPH. THOMAS A. EDISON, Menlo Park, N. J., and PATRICK KENNY, New York, N. Y. Filed Dec. 6, 1881. Serial No. 47,216. (No model.) Patented in England July 19, 1881, No. 3,140; in Belgium Sept. 15, 1881, No. 56,623; in Canada Oct. 19, 1881, No. 13,577, and in France Nov. 3, 1881, No. 144,646.

Claim.—1. A fac-simile telegraph having transmitting and receiving instruments, the transmitting-circuit being controlled by the depressions produced by marking autographically upon paper or other material, substantially as set forth.

2. In fac-simile telegraphs, the combination of the transmitting and receiving instruments with a transmitting-style having circuit connections and contacts in circuit controlled by the depressions in the surface of the prepared message caused by marking autographically thereon, substantially as set forth.

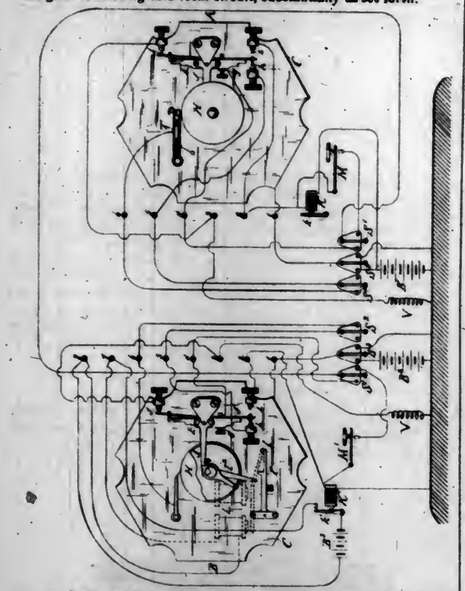
3. In fac-simile telegraphs, the synchronously-revolving cylinders, one carrying the message prepared by marking autographically upon the transmitting-sheet and the other a chemically-prepared recording-paper, in combination with the transmitting and receiving styles having a movement at right angles to the cylinders, the said transmitting-style having contacts in circuit controlled by the depressions in the surface of the message, substantially as set forth.

4. In fac-simile telegraphs, the combination of the synchronously-revolving cylinders with movable contacts operated by the machines for breaking the circuit when the styles are passing the secured edges of the paper, substantially as set forth.

5. In fac-simile telegraphs, the combination of the two machines having cylinders revolving at slightly-different speeds with a device for checking the faster cylinder and contacts made simultaneously by

the two machines for operating the checking device by completing the circuit through the same, substantially as set forth.

6. In fac-simile telegraphs, the combination of two machines having cylinders revolving at slightly-different speeds with a checking device for the faster cylinder, operated by an electro-magnet in the circuit of a local battery, and contacts made simultaneously by the two machines and completing the main circuit through an electro-magnet controlling said local circuit, substantially as set forth.



7. In fac-simile telegraphs, the combination of the cylinders and the electro-magnetic checking device with sounders for indicating the synchronism of the cylinders, signaling-keys placed in shunts around the machines, and switches for throwing in and out the machines and keys alternately, whereby the sounders will be operated by the machines or keys, according to the position of the switches, substantially as set forth.

8. In fac-simile telegraphs, the combination of the two machines having cylinders and motors revolving the said cylinders at different speeds and an electro-magnetic checking device for one of them with a pivoted lever on each machine connected to line and two contacts between which said lever plays, one connected through the style-circuit to battery or ground and the other through the relay and sounder circuit, such lever being moved once during each revolution of each cylinder to break the style-circuit and make the relay and sounder circuit, substantially as set forth.

9. In fac-simile telegraphs, the combination, with the synchronously-revolving cylinders and motors and the transmitting and receiving styles, of cams revolving with the cylinders, pivoted levers worked by said cams and connected to line, and making contacts for completing the style, the sounder, and the "compensation" circuits, substantially as set forth.

10. In fac-simile telegraphs, the combination, with the revolving cylinders and the motors working such cylinders, of the revolving cams and the style-carriages controlled by escapements worked by said cams and having a step-by-step movement, substantially as set forth.

11. In fac-simile telegraphs, the combination of the electric motors with weighted centrifugal arms arranged oblique to the motor-shafts, said arms being carried by universal rocking joints and connecting the motors with the driven mechanisms, substantially as set forth.

12. In fac-simile telegraphs, the combination of the horizontal electric motors with the weighted centrifugal arms arranged oblique to the motor-shafts, said arms being carried by universal rocking joints and the slotted cranks, substantially as set forth.

479,185. EAR-MUFF. HARVEY HADDEN, Peekskill, N. Y. Filed Dec. 18, 1889. Serial No. 334,241. (No model.)

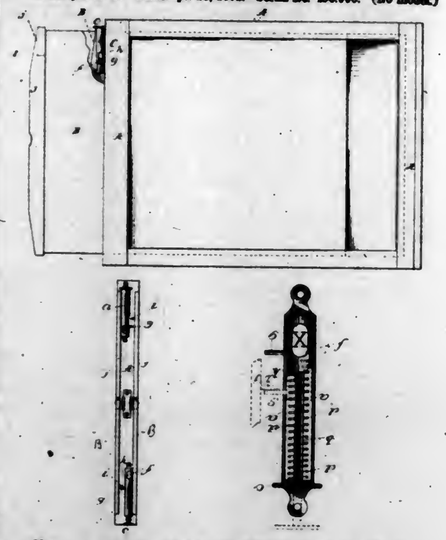
Claim.—An ear-muff comprising a wire frame, a covering therefor, and a hanger for securing said frame to a hat, the wire frame

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terminating in spirals wound around the shank of the hanger, substantially as herein set forth.

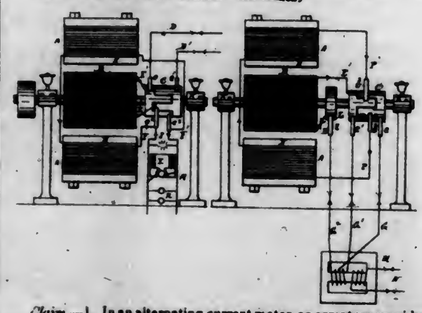
479,186. PHOTOGRAPHIC-PLATE HOLDER. JAMES H. HARE, Brooklyn, N. Y. Filed Apr. 28, 1892. Serial No. 430,990. (No model.)



Claim.—1. In a plate-holder, the combination of an indicator, a spring which actuates the indicator, a slide provided with a ledge, and a device upon the indicator adapted to engage with the ledge upon the slide, substantially as set forth.

2. The combination, in a plate-holder, of a tube fastened to the plate-holder, a spindle within the tube, an indicator on the spindle, a spring adapted to move the spindle, a pin for the spindle, a slide, and a ledge on the slide, substantially as set forth.

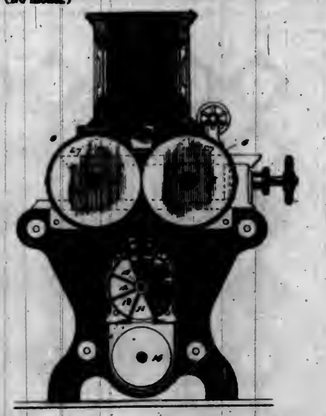
479,187. ALTERNATING-CURRENT MOTOR. THOMAS H. HICKS, Detroit, Mich., assignor of one-half to H. L. Obetz, same place. Filed Mar. 9, 1891. Serial No. 384,292. (No model.)



Claim.—1. In an alternating-current motor, an armature provided with conductors traversed by alternating currents, said armature rotatable between field-magnet poles, each wound with two distinct conductors, one conductor traversed by current impulses of one direction and the other conductor traversed by current impulses of an opposite direction, and a commutator rotatable with the armature-shaft to separate said current impulses, substantially as described.

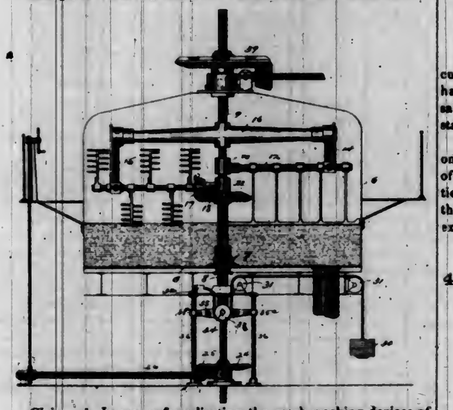
2. The combination, with an alternating-current motor, of a converter having its primary coil in circuit with an alternating current, all its secondary coils in circuit with the armature of the motor, and a part of said secondary coils in circuit with the field-magnet coils of the motor through a commutating or current-shifting device rotatable with said armature, substantially as set forth.

479,188. MEANS FOR PREVENTING EXPLOSIONS IN MILLS. CHARLES KARSTNER, Chicago, Ill. Filed May 13, 1889. Serial No. 310,576. (No model.)



Claim.—In means for preventing explosions in mills, the combination, with the grinding mechanism, of a discharge-passage for the ground material, having hinged wall-sections, and a valve located in the discharge-passage below said movable wall-sections and adapted to discharge the grain therethrough in separated quantities, substantially as described.

479,189. BREWER'S MASHING-MACHINE. CHARLES KARSTNER, Chicago, Ill. Filed Apr. 2, 1891. Serial No. 387,337. (No model.)



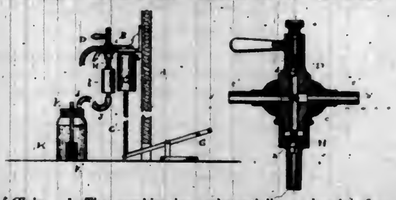
Claim.—1. In means for adjusting the mash-working devices of brewers' mashing-machines, the combination of a vertically-movable shaft constructed in two sections, the upper one of which is rotatable upon the lower and carries the mash-working devices, said lower section being hollow and secured against rotation, and an adjusting-screw having a threaded engagement with the lower section and adapted to project into the hollow thereof in adjusting the shaft, substantially as described.

2. In means for elevating the central shaft of brewers' mashing-machines, the combination, with the central shaft, of a screw for raising it, a driving-gear for turning the screw, a support and ball-bearings for the hub of the driving-gear, and a divided coupling engaged with the support and the hub of the driving-gear for maintaining them in alignment, substantially as described.

3. In means for elevating the mash-working devices of brewers' mashing-machines, the combination, with the central shaft, of a screw for raising it, a driving-gear for turning the screw, a support and ball-bearings for the hub of the driving-gear and a divided coupling engaged with the support and driving-gear, a driving-shaft having a pinion enmeshed with the driving-gear, and a bearing for the inner end of said shaft connected with the coupling, whereby the shaft may be adjusted radially, substantially as described.

4. In means for adjusting the central shaft of brewers' mashing-machines, the combination, with a counterbalance, of guide-arms secured with the shaft and having studs carrying sheaves, over which the counterbalance-cables are carried, substantially as described.

479,190. BEER APPARATUS. FRANK M. LA BOITEAUX, Cincinnati, Ohio. Filed Jan. 3, 1887. Serial No. 223,329. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the air-pump, its supporting-bracket, and cock for controlling the passage of air from the pump, the filtering-vessel I, connected to the supply-duct of the pump, and the filtering-vessel K, provided with tube *k*, wire cage *k'*, and tube J to connect the cap of the vessel K to the vessel I.

2. In a beer apparatus, substantially as hereinbefore set forth, the combination of the air-pump C and the cock D for controlling the discharge-duct, said cock being longitudinally perforated, with the spring-loaded valve *d* and plug *d'*, said plug being provided with an alarm, for the purpose set forth.

479,191. BUTTON. FREDERICK H. LARTER, Newark, N. J. Filed Nov. 7, 1891. Serial No. 411,154. (No model.)



Claim.—1. The combination of heads *a a'*, a link permanently secured to one of said heads and separable from the other, the said link having an opening and being provided with a tube formed adjacent to said opening, and a sliding tongue to open or close said opening, substantially as set forth.

2. The combination of heads *a a'*, a link permanently secured to one of said heads and separable from the other, said link consisting of a wire bent at its opposite ends and provided with tubular extremities, and a sliding tongue and spring inserted in one of said extremities, the tongue being adapted to normally close the opening between said extremities, substantially as set forth.

479,192. LAWN-MOWER CLUTCH. GEORGE D. LEEDLE, Springfield, Ohio, assignor to the O. S. Foos Company, same place. Filed May 25, 1891. Serial No. 394,092. (No model.)



Claim.—1. The combination, with a shaft having a rigid collar with ratchet projections and a driving pinion located loosely on said shaft and provided with pockets with inclined bottoms, of an intermediate clutch-collar located between said rigid collar and pinion, ratchet projections on one side of said clutch-collar to engage with the rigid collar, and driving projections on the opposite side thereof adapted to extend into said pockets and engage said inclined bottoms, said driving projections and pockets being provided with engaging faces on opposite sides, substantially as and for the purpose specified.

2. The combination, with a shaft and a rigid collar having ratchet-

teeth, of an intermediate movable collar having similar engaging teeth, and a driving wheel or pinion having cam-faces adapted when revolved in one direction to produce a lateral movement of said intermediate collar, and bearing-faces on the engaging projections of the respective collars, substantially as specified.

3. The combination, with a shaft, a rigid collar having teeth in the face thereof, and a driving-pinion mounted loosely on said shaft, of an intermediate laterally-movable collar provided on one side with ratchet projections to engage with said rigid collar and on the other side with said straight driving edges and inclined bearing-faces adapted to be engaged by similar straight and inclined faces on said pinion, whereby the intermediate collar is caused to be moved laterally and revolved positively by said pinion, substantially as specified.

4. In a clutch, a pinion provided at one end with an inclined and a positive face for exerting an axial and a rotary impulse, respectively, and with a rear face for exerting a rotary impulse.

479,193. PROCESS OF TESTING MILK. HENRY LEFFMANN and WILLIAM BEAM, Philadelphia, Pa., assignors of one-third to John E. Longan, same place. Filed June 3, 1891. Serial No. 394,952. (No specimens.)

Claim.—1. The process of separating the fatty matter from milk, &c., which consists in adding to such liquid an admixture of alcohol and hydrochloric acid, heating the mixture, and then imparting to the containing-vessel centrifugal motion, substantially in the manner and for the purpose set forth.

2. The process of separating the fatty matter from milk or other similar liquid, which consists in adding to the liquid an admixture of alcohol and hydrochloric acid, then heating the mixture by adding sulphuric acid, and then imparting to the containing-vessel centrifugal motion, substantially as and for the purpose described.

479,194. FISH-HOOK. ALBERT G. MACK, Rochester, N. Y., assignor of one-half to Charles E. Felton, Chicago, Ill. Filed Feb. 18, 1891. Serial No. 381,636. (No model.)



Claim.—1. In combination, a fish-hook or series thereof, an incandescent lamp, and a shield therefor, all arranged in juxtaposition as an artificial bait, substantially as described.

2. In combination, a group of fish-hooks and an incandescent electric lamp supported to extend inside and be shielded by the said group and insulated conductors extending from the lamp for connection with a suitable generator, substantially as described.

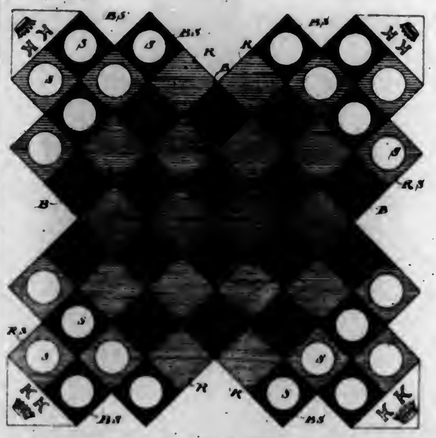
3. In combination, a fish-hook having secured to it a tube *r*, an incandescent electric lamp connected with the hook and having insulated conductors passing through the tube for connection with a suitable generator, and a fish-line fastened to the hook, substantially as and for the purpose set forth.

4. In combination, a fish hook having secured to it a tube *r*, an incandescent electric lamp connected with the hook and having insulated conductors passing through the tube for connection with a suitable generator, a fish-line fastened to the book, and a flexible tube D^9, of insulating material, fastened to the tube *r* and enveloping the fish-line and conductors, substantially as and for the purpose set forth.

479,195. GAME APPARATUS. CARRIE N. MAXWELL and NATHANIEL H. MAXWELL, Cincinnati, Ohio. Filed Feb. 18, 1891. Serial No. 381,777. (No model.)

Claim.—1. A game consisting of squares and of the shape of a Greek cross or X, two of the points or corners of the cross being on the line facing the players, each of the arms having the two squares BS and RS standing beyond the rest of said squares BS RS, substantially as and for the purposes specified.

2. In a game-board consisting of squares and in approximately of the shape of an X, part of the squares being of one color or kind, these squares alternating, the end portions of each terminal of the extended corners or ends of the X being provided with similar alternating squares, but these latter squares—viz., BS and RS—being provided with an additional mark or character for distinguishing them from the remainder of the squares, substantially as and for the purposes specified.



3. In a game-board consisting of squares and in approximately of the shape of an X, part of the squares being of one color or kind, these squares alternating, the end portions of each terminal of the extended corners or ends of the X being provided with similar alternating squares, but these latter squares—viz., BS and RS—being provided with an additional mark or character for distinguishing them from the remainder of the squares, there being a row of four of the last-named squares and an outer row of two thereof, substantially as and for the purposes specified.

4. The game board consisting of alternate squares B and R, differently characterized and arranged in the shape of a Greek cross, and squares BS and RS at the terminal of the cross, having the indicatory disks S, substantially as and for the purposes specified.

5. The game-board having the squares B and R and having its end portions or corners each provided with the squares BS and RS and for the purposes specified.

6. The game-board in the form of a cross, substantially as shown, and having the alternate squares B and R and having its end portions or extended corners provided with a row of four squares BS and RS—viz., two squares BS alternating with two squares RS—and a row of two additional squares, one BS and the other RS, and the outlying spaces K K beyond the last-named row, substantially as and for the purposes specified.

7. The game-board in the form of a Greek cross and provided with squares of two main distinguishing colors, arranged so that all of the squares of one color shall lie in parallel rows, each point or corner of one of these squares touching the adjacent point of an adjacent square, the points or corners of the cross being provided with the spots or spaces K K, respectively located at the ends of the arms and in line with the length of the latter, substantially as and for the purposes specified.

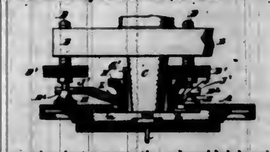
8. A game consisting of squares and of the shape of a Greek cross or X, two of the points or corners of the cross being on the line facing the players, each of the arms having the two squares BS and RS standing beyond the rest of said squares BS RS, a space K K, lying next to and extending out from said two squares BS and RS and forming a narrow or pointed end for the adjacent portion of the cross, substantially as and for the purposes specified.

479,196. TRIPOD-HEAD FOR ENGINEERS' TRANSITS AND ANALOGOUS INSTRUMENTS. JOHN PAOLI, Hoboken, N. J. Filed Nov. 23, 1891. Serial No. 412,712. (No model.)

Claim.—1. In a surveying-instrument, the tripod-plate A, having a central aperture *a*, and the under plate or plane bearing-piece G, applied below and having the threaded tube G', of smaller diameter,

changeable in position in the hole *a*, in combination with each other and with the threaded ring or nut H, and suitable connections to the instrument arranged to tighten and relax the hold of the latter on the tripod-plate by a single central adjustment, substantially as herein described.

2. In a surveying-instrument, the arms B and leveling-screws D, adjustable therein and having spheroidal lower ends D^9, in combination with the shoes E, spider-frame J J', under plate G, having the threaded tube G' and nut H, engaged on the latter, with provisions for communicating pressure at will to the spider-frame, all arranged for joint operation substantially as herein specified.



3. In a surveying-instrument, the spheroidal bearing L, the nut or threaded ring H, acting thereon, and the spider J, with a spheroidal cavity to receive said bearing L, in combination with each other and with the tripod-plate A, having the aperture *a*, and with the under plate G and screw-threaded tube G', carried thereon, all arranged for joint operation substantially as herein specified.

479,197. STOCK-WATERING APPARATUS. ANDREW ROCKFELLOW, South Richland, N. Y. Filed Oct. 12, 1891. Serial No. 408,428. (No model.)



Claim.—1. A stock-watering apparatus consisting of a tank, an elbow communicating with the tank, a supply-pipe, said elbow being adapted to turn on the supply-pipe, the couplings on the supply-pipe, and the elbows leading from the couplings and carrying drink cups or receptacles.

2. A stock-watering apparatus consisting of a tank, an elbow communicating with the tank, a supply-pipe, said elbow being adapted to turn on the supply-pipe, the couplings on the supply-pipe, the elbows leading from the couplings and carrying drink-cups, the flexible discharge-pipe and connections for raising and lowering the same, and the lever connected to the supply-pipe, all substantially as and for the purpose described.

479,198. PLOTTER. LEE P. WATSON, Fairmont, W. Va. Filed Aug. 20, 1891. Serial No. 403,222. (No model.)

Claim.—1. In an instrument of the class described, two arms pivoted upon each other and a third arm mounted pivotally at each end upon each of the two arms, and a protractor located at and movable with each of the pivots of the third arm, substantially as specified.

2. The combination, with a handle, of two arms pivoted to each other and to the handle, and a third arm mounted pivotally and to slide upon the other arms, substantially as specified.

3. The combination, with a handle having a recess, of two arms pivoted to the handle, and a detachable stem having a protractor and a pivoted arm, substantially as specified.

4. The combination, with a handle carrying pivoted arms, of a detachable stem carrying a pivoted arm provided with an arm sliding thereupon and always at a right angle therewith, substantially as specified.

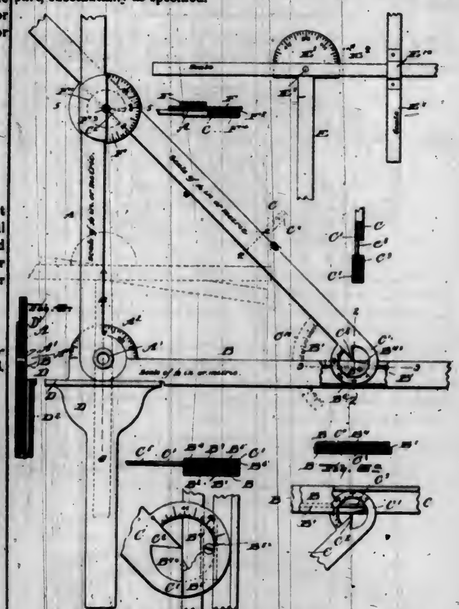
5. The combination of a handle and two arms connected therewith by a hollow eyelet or rivet, substantially as and for the purpose set forth.

6. The combination, with two arms, as A and C, of a protractor provided with an arm-receiving loop and of a companion plate provided with an arm-receiving loop and a hollow eyelet or rivet for uniting the protractor and plate, substantially as specified.

7. A pivotal and sliding joint comprising a longitudinally movable and rotatable annulus and a plate having a rib and means for connecting the plate movably with an arm, substantially as specified.

8. A pivotal and sliding joint comprising a longitudinally movable and rotatable annulus and a semi-disk arranged within the annulus and means for keeping the parts in operative position, substantially as specified.

9. A pivotal and sliding joint comprising one piece with an annulus formed on or attached thereto, a semi-disk arranged within the annulus and retained in connection with and within a groove in the other part, substantially as specified.



10. A pivotal and sliding joint comprising one piece with an annulus, a semi-disk having a rib, and a slotted arm having a groove in one wall of the slot, substantially as specified.

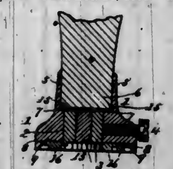
11. A pivotal and sliding and indicating joint comprising one piece with an annulus having an inwardly-projecting point, a slotted arm, and means for retaining the annulus movably within the slot, substantially as specified.

12. A pivotal, sliding, and indicating joint comprising one piece with an annulus having an inwardly-projecting point and a semi-disk having a recess for the reception of the point, substantially as specified.

13. The combination of two arms pivoted to each other and a third arm formed in sliding sections and terminating at each end with a pivotal sliding connection with the two first-mentioned arms, substantially as specified.

14. The combination, with two arms pivoted to each other, of a third arm constructed in overlapping sections and terminating at each end in an annulus arranged to embrace a semi-disk mounted to move longitudinally along the two first-mentioned arms, substantially as specified.

479,199. HAND-STAMP. HERMAN RAUNGARTEN, Washington, D. C. Filed Dec. 24, 1891. Serial No. 416,091. (No model.)





Claim.—1. The stamp-body having the socket 5, the mortise 2, and the rim 8, which is made smaller between its outside and inside edges, the plastic printing-form 13, secured in the said rim, as specified, the movable type 3, secured in the mortise, and the plate 7, located between the said socket and mortise, entirely separating them and forming a stationary abutment for the said movable type, substantially as shown and described, and for the purpose set forth.

2. The stamp-body having the socket 5, the mortise 2, and the rim 8, which is made smaller between its outside and inside edges, the movable type 3, secured in the mortise, and the plate 7, located between the said socket and mortise, entirely separating them and forming an abutment for the said movable type, in combination with the printing-form 13, adapted to be introduced into the said stamp body by heating it, substantially as shown and described, and for the purpose set forth.

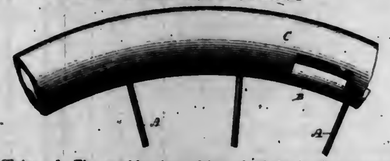
479,200. CARPET-SWEEPER. THOMAS H. BEDELL, Grand Rapids, Mich. Filed March 4, 1892. Serial No. 423,688. (No model.)



Claim.—1. The combination, in a sweeper, of a box, a brush, suitable traction-wheels, and pivoted dust-pans with a series of springs, each engaging at one end with the pans and at the other with the wheel-axles, substantially as described.

2. The combination, in a sweeper, of a box, a brush, traction-wheels, dust-pans, dump-levers pivoted to the dust-pans, and a series of springs engaging at one end with the dump-levers and at the other end with the wheel-axles and having an intermediate bearing upon the box, substantially as described.

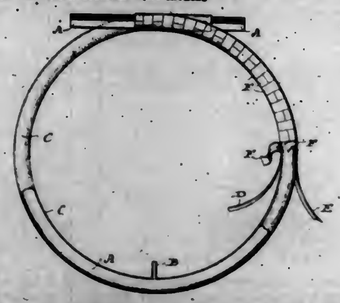
479,201. VELOCIPEDE-WHEEL TIRE. FRANK H. BOLTE, Milwaukee, Wis., assignor of one-half to Parker H. Sercombe, same place. Filed Feb. 9, 1891. Serial No. 380,813. (No model.)



Claim.—1. The combination, with a wheel-rim having a concave outer periphery, of an elastic tire in which that portion thereof adjacent to the wheel-rim is in the form of a seat that engages this rim, but is eccentric to the tire itself when the latter is viewed in transverse section, substantially as set forth.

2. The combination, with a wheel-rim having a concave outer periphery, of an elastic tire in which that portion thereof adjacent to the wheel-rim is provided with a seat for the same, this seat being the result of forming circumferential recesses in the body of the tire on opposite sides of its radius eccentric to the center of said tire in transverse section at any point of its circumference, substantially as set forth.

479,202. PNEUMATIC TIRE. FRANK H. BOLTE, Milwaukee, Wis., assignor of one-half to Parker H. Sercombe, same place. Filed Aug. 21, 1891. Serial No. 403,292. (No model.)



Claim.—1. A pneumatic tire comprising an endless tube of caoutchouc vulcanized in one piece with fibrous material so disposed as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of said tube, substantially as set forth.

2. A pneumatic tire comprising an endless tube of caoutchouc vulcanized in one piece with fibrous material so disposed as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of said tube, and an outer protective covering for the tube, substantially as set forth.

3. A pneumatic tire comprising an endless tube of caoutchouc, having a circumferential bracing of fibrous material and a wrapping of like material so disposed as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of the tube, substantially as set forth.

4. A pneumatic tire comprising an endless tube of caoutchouc, having a circumferential bracing of fibrous material and a wrapping of like material, the latter being so disposed as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of the tube, and an outer protective covering for the tube, substantially as set forth.

5. A pneumatic tire comprising an endless tubular base of caoutchouc, wound with a series of fibrous reinforcing-strips so disposed as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of said tubular base, substantially as set forth.

6. A pneumatic tire comprising an endless tubular base of caoutchouc, wound with a series of fibrous reinforcing-strips so disposed as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of said tubular base, and an outer protective covering on the fibrous material, substantially as set forth.

7. A pneumatic tire comprising an endless tubular base of caoutchouc, having one or more circumferential bracing-strips of fibrous material and a series of fibrous reinforcing-strips wound on the base and bracing-strips at right angles to the latter in such a manner as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of said base, substantially as set forth.

8. A pneumatic tire comprising an endless tubular base of caoutchouc, having one or more circumferential bracing-strips of fibrous material and a series of fibrous reinforcing-strips wound on the base and bracing-strips at right angles to the latter in such a manner as to present a variable number of layers in cross-section, the greatest number of these layers being on the tread portion of said base, and an outer protective covering on the fibrous material, substantially as set forth.

9. A method of manufacturing pneumatic-tire tubes, that consists in shaping a previously-formed tube of caoutchouc upon a ring-like mandrel, enveloping this tube with a reinforce of fibrous material previously stretched and treated with caoutchouc, withdrawing the tube from the mandrel and joining its ends, injecting the tube with a material expansible under heat, and then vulcanizing in a suitable mold, substantially as set forth.

10. A method of manufacturing pneumatic-tire tubes, that consists in shaping a previously-formed tube of caoutchouc upon a ring-like mandrel, wrapping the tube with previously-stretched and caoutchouc-coated strips of fibrous material so disposed as to present a variable number of layers at different points, withdrawing the tube from the mandrel and joining its ends, injecting the tube with a material expansible under heat, and then vulcanizing in a suitable mold, substantially as set forth.

11. A method of manufacturing pneumatic-tire tubes, that consists in shaping a previously-formed tube of caoutchouc upon a ring-like mandrel, bracing the tube with one or more strips of fibrous material previously stretched and treated with caoutchouc, wrapping the tube and bracing-strips with other fibrous strips, also previously stretched and treated with caoutchouc, whereby a variable number of layers are had at different points, withdrawing the tube from the mandrel and joining its ends, injecting the tube with a material expansible under heat, and then vulcanizing in a suitable mold, substantially as set forth.

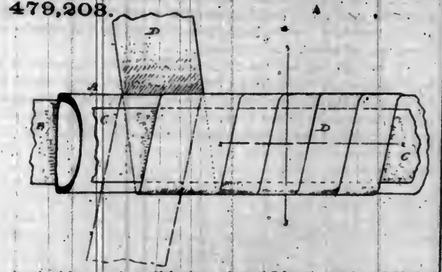
12. A method of manufacturing pneumatic-tire tubes, that consists in shaping a previously-formed tube of caoutchouc upon a ring-like mandrel, enveloping the tube in a reinforce of fibrous material previously stretched and treated with caoutchouc, withdrawing the tube from the mandrel, and joining its ends, injecting the tube with a material expansible under heat, then vulcanizing in a suitable mold, and afterward securing a protective covering on the vulcanized product, substantially as set forth.

479,203. PNEUMATIC TIRE. FRANK H. BOLTE, Milwaukee, Wis., assignor of one-half to Parker H. Sercombe, same place. Filed Aug. 31, 1891. Serial No. 404,248. (No model.)

Claim.—1. A pneumatic tire comprising an endless tube of caoutchouc vulcanized in one piece with a practically-continuous strip of fibrous material that is spirally disposed and so wound as to overlap about one-half of itself throughout its length, and thus form two thicknesses at all points, substantially as set forth.

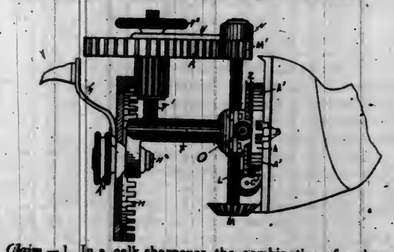
2. A pneumatic tire comprising an endless tube of caoutchouc

479,203.



vulcanized in one piece with circumferential bracing-strips of fibrous material and a practically-continuous strip of like material spirally disposed and so wound as to overlap about one-half of itself throughout its length, substantially as set forth.

479,204. CALK-SHARPENER. JAMES H. R. CLARK, Council Bluffs, Iowa. Filed Feb. 16, 1892. Serial No. 421,761. (No model.)



Claim.—1. In a calk sharpener, the combination of a clamping base-bar, a worm attached to said bar, a pinion-stock pivotally secured to said base-bar, provided with a worm-gear meshing with said worm, a cutter-shaft within said stock, and gears for operating said cutter-shaft, substantially as and for the purpose set forth.

2. In a calk-sharpener, the combination of a clamping base-bar, a pinion-stock pivoted to said bar, provided with a stub-shaft and adjustable upon said bar by means of a worm and gear, a cutter-shaft within said stock, provided with a pinion, an adjustable gear upon said stub-shaft, meshing with said pinion, and means for operating said gear, all substantially as and for the purpose set forth.

3. In a calk-sharpener, the combination of a clamping base-bar, a pinion-stock pivotally secured to said bar and provided near its upper end with a threaded stub-shaft, a cutter-shaft free within said stock, provided with a pinion, a threaded sleeve adjustable upon said threaded stub-shaft, provided with a gear meshing with said pinion, and means for operating said gear, substantially as set forth.

4. In a calk sharpener, the combination of the following instrumentalities, to wit: a clamping base-bar provided with a worm, a pivoted pinion-stock secured to said bar, having a threaded stub-shaft near its upper end, and a worm-gear meshing with said worm at its lower end, a cutter-shaft free within said stock, provided with a pinion, a threaded sleeve upon said stub-shaft, having a gear meshing with said pinion, a tie-bar connecting said cutter-shaft to said sleeve, and means for operating said gear, all substantially as and for the purpose set forth.

5. In a calk-sharpener, the combination of the following instrumentalities, to wit: a clamping base-bar, a worm connected to said bar, a pivoted pinion-stock secured to said bar, provided at the upper end with a shaft opening centrally with a threaded stub-shaft and at the lower end with a worm-gear, a cutter-shaft free within said stock, provided with a pinion, and a compound gear and pinion adjustable upon said stub-shaft, said gear meshing with the pinion upon the cutter-shaft, a crown-gear secured to the upper end of the stock, said crown-gear meshing with the pinion of said compound gear, a tie-bar revolubly securing said cutter-shaft to said compound gear, and means for actuating said crown-gear to operate said cutter-shaft, said cutter-shaft having a radial and circumferential adjustment within one plane, all substantially as and for the purpose set forth.

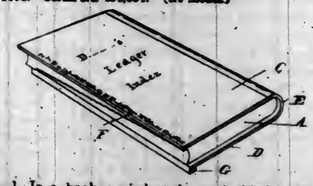
479,205. TUBE FOR BEER-COOLERS. CHARLES A. COTTER, Waterbury, Conn., assignor to Randolph & Clowes, same place. Filed Feb. 29, 1892. Serial No. 423,170. (No model.)

Claim.—A tube for beer-coolers and similar uses, having a longitudinally outwardly-projecting flange extending from the body of the tube, said flange being integral with and formed upon one side only of the metallic strip from which the tube is made, the curved end of the blank being secured to the base of the flange, the tube and its flange thus consisting of one piece of metal.

479,205.



479,206. INDEX. FRANKLIN S. DEWEY, Alpena, Mich. Filed May 2, 1892. Serial No. 431,551. (No model.)



Claim.—1. In a book, an indented marginal index, the covers, one projecting to or beyond the outer edge of the leaves of the book, and the other cut off at the inner edge of the indentations, a flange at or near the margin of the narrow cover, and an index on the outer face of the wide cover, corresponding to the indented index, substantially as described.

2. In a book, an indented marginal index, the covers, one projecting to or beyond the outer edge of the leaves and the other cut off at the inner edge of the indentations, a metal binding for the narrow cover, a flange or bend formed in said binding to raise the outer edge of the book, and an index on the outer face of the wide cover, corresponding to the indented index, substantially as described.

479,207. SHADE FOR INCANDESCENT ELECTRIC LAMPS. WILLIAM J. EDMOND and THOMAS J. KEON, Philadelphia, Pa. Filed Feb. 29, 1892. Serial No. 423,234. (No model.)



Claim.—1. A shade comprising a series of sections pivoted to a base, a tongue or tongues projecting from each of said sections, a grooved operating-ring engaging with said tongue, and means for effecting the vertical movement of such grooved ring, substantially as specified.

2. A shade comprising a base ring, a series of sections pivoted thereto, tongues projecting from said sections, a grooved operating-ring encircling said base-ring and adapted to engage with said tongues, and means for effecting the vertical movement of said grooved operating-ring, substantially as specified.

3. A shade comprising a base-ring, a series of sections pivoted thereto, tongues *l l* on each of said sections, an operating-ring, a flange thereon adapted to fit between said tongues, and means for effecting the vertical movement of said operating-ring, substantially as specified.

4. A shade comprising a base-ring, an internal flange *h* thereon, and having a peripheral groove *i*, a series of sections, pivot-blocks thereon, a pivot pin or ring passing through each of said blocks and adapted to said groove *i*, tongues projecting from said pivot-blocks, and a grooved operating-ring, to which said tongues are adapted, with means for effecting the vertical movement of said ring, substantially as specified.

5. A shade comprising a base-ring, an internal flange thereon, and having a peripheral groove *i*, a series of overlapping sections, pivot-blocks thereon, a pivot pin or ring passing through each of said blocks and adapted to said groove *i*, tongues *l l*, projecting from each of said sections, an operating-ring, a flange thereon adapted to fit between said tongues, and means for effecting the vertical movement of said operating-ring, substantially as specified.

6. A shade comprising a base-ring, an internal flange thereon, and

having a peripheral groove *i*, a series of overlapping sections, pivot-blocks thereon, a pivot pin or ring passing through each of said blocks and adapted to said groove *i*, tongues *l l'*, projecting from each of said blocks, an operating-ring, a flange thereon adapted to fit between said tongues, and a pin projecting from said operating-ring and adapted to a cam-groove in the base-ring, substantially as specified.

7. A shade comprising a base-ring B, having an inclined cam-groove *r*, a series of overlapping shade-sections pivoted to said base-ring, tongues projecting from each of said sections, a grooved operating-ring engaging with said tongue, and a pin carried by said grooved operating-ring and adapted to the cam-groove of the base-ring B, substantially as specified.

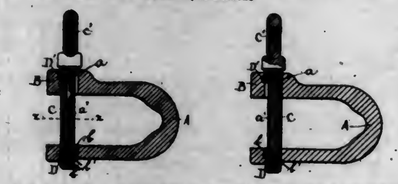
8. A shade comprising a series of sections, each of said sections having one of its edges so arranged as to overlap the edge of the next adjoining section and its opposite edge being overlapped by another of said sections, substantially as specified.

9. The combination of the base-ring, a series of overlapping sections pivoted thereto means for operating said sections, and a holding-ring comprising an upper clamp-ring *c* and a lower ring *d*, and catches carried by said lower ring and adapted to engage with said base-ring, substantially as specified.

10. The combination of the base-ring, the shade carried thereby, openings in said ring, a holding-ring A, secured to the lamp-socket, and tongues *f*, projecting from said holding-ring and adapted to engage with the openings in the base-ring, substantially as specified.

11. The combination of the base-ring B, having openings, the shade carried by said base-ring, the holding-ring A, comprising an upper split ring *c*, a clamping-screw for holding said ring in position on the socket, and catches carried by said holding-ring and adapted to engage with the openings in the base-ring, substantially as specified.

479,208. CLEVIS. JAMES M. RESCHEN, Crete, Nebr. Filed Mar. 21, 1892. Serial No. 425,944. (No model.)



Claim.—1. As a new article of manufacture, a clevis the stubs of which are provided with registering pin-openings, in combination with a draft-pin working within said pin-openings, provided with an upper groove and a flat or mutilated portion extending from said groove, and a pin passing through the side of the upper stub and resting partly within the groove of the draft-pin, substantially as described.

2. As a new article of manufacture, a clevis the stubs of which are provided with registering openings adapted to contain a draft-pin, the lower stub being provided with a lip projecting into its pin-opening, in combination with a draft-pin working within said opening provided with an upper circumferential groove, a mutilated portion extending a suitable distance from said groove, and a lower circumferential groove leading into a mutilated portion below, said lower groove being adapted to accommodate said projecting lip and the upper groove a non-removable pin, all substantially as and for the purpose set forth.

3. As a new article of manufacture, the clevis A, the stubs of which are provided with pin-openings, the lower stub having the lip D, in combination with the pin C, having the groove *a*, the mutilated portion *a'*, the lower groove *b'*, and the mutilated portion *b''*, all substantially as and for the purpose set forth.

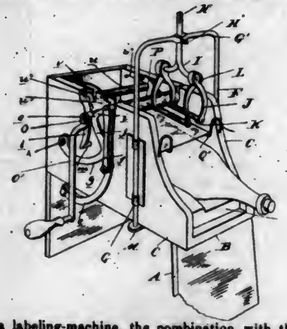
479,209. MACHINE FOR PASTING LABELS ON BOTTLES. ANDREW STEER, Saginaw, Mich. Filed Nov. 16, 1891. Serial No. 411,968. (No model.)

Claim.—1. In a labeling-machine, the combination, with sides and holder, of a vertically-disposed frame movably secured on the sides, consisting of two side bars and a top cross-bar having an aperture therein, a vertical standard passing through the aperture, a set-screw carried by the cross-bar engaging the standard, a horizontal head on the standard, spring-arms on the opposite ends of the heads, and means for actuating the frame, substantially as described.

2. In a labeling-machine, the combination, with a frame having a label-receptacle therein, of a feed-roll, gumming-rolls, guide-arms between the feed and gumming rolls, pressing-rolls, and means for actuating the feed and gumming rolls and pressing-rolls, substantially as described.

3. In a labeling-machine, the combination, with the frame and means for pressing the labels on the articles, of a label-receptacle in the frame, a spring for normally forcing the bottom of the receptacle up, and means for holding the bottom down against the pressure of the spring, substantially as described.

4. In a labeling-machine, the combination, with the frame, of a label-receptacle therein having a movable bottom, a spring below the bottom engaging the same, means for holding the bottom in a lowered position against the tension of the spring, a feed-roll, gumming-rolls, and reciprocating presser-rolls, substantially as described.



5. In a labeling-machine, the combination, with the actuating mechanism, of the feed-roller *u*, the table *v'*, and the rolls P P², of the guides *v*, extending above the table *v'* and beyond the roller P, passing through grooves formed in said roller, substantially as and for the purpose described.

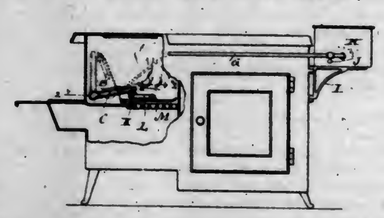
6. In a labeling-machine, the combination, with the label-receptacle, of the bottom board *q*, the spring *q'* for raising the same, the rod *r'*, lever *s*, shaft *t*, notched crank-arm *t'*, and the pawl *t²*, engaging therewith, substantially as and for the purpose described.

7. In a labeling-machine, the combination, with the feed-roller and its drive-pinion, the delivery and gumming rollers, and a drive-pinion therefor, of a main drive-shaft between said pinions and a segmental gear thereon adapted to successively engage with said pinions to intermittently actuate the same, substantially as described.

8. In a labeling-machine, the combination, with a frame, of a reciprocating label-attaching device, a label-receptacle formed in the frame, a feed mechanism for moving the labels from the label-receptacle, a single driving-shaft and actuating connection between said shaft, feed mechanism, and attaching device, substantially as described.

9. In a labeling-machine, the combination, with the label-attaching mechanism, of means for reciprocating the same intermittently, consisting of the crank-shaft O, crank-arm *l* thereon, the actuating-lever *g*, having the portions *i j* separated by a shoulder *o*, the lever *c*, linked to said actuating-lever at one end, the shaft *d*, to which the other end of the lever is secured, the lever *a*, secured to the shaft *d*, and links to the reciprocating frame, and the spring *c*, the parts arranged and operating substantially as described.

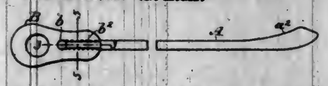
479,210. STOVE. JOHN FISCHER and EMIL PREISER, Milwaukee, Wis. Filed Feb. 13, 1892. Serial No. 421,435. (No model.)



Claim.—1. The combination, with a stove, of a wick-case trunnioned therein to connect with a source of liquid fuel and a pivotal plate linked to the back of the wick-case to move therewith, whereby this plate serves as a grate-cover when said wick-case is swung down and a fire-box wall when the same is raised, substantially as set forth.

2. The combination of a stove, a wick-case trunnioned therein, one trunnion of the wick-case made hollow for a portion of its length and provided with jet-openings, a socket provided with a fluid-tight bushing for the hollow trunnion, a turning plug fitted in the socket, a pipe leading from said socket to a source of liquid fuel, a handle rigid on one of the trunnions, and a pivotal plate linked to the back of the wick-case to move therewith, substantially as set forth.

479,211. PILE-WIRE. CHARLES FORD, Lowell, Mass. Filed June 4, 1891. Serial No. 395,056. (No model.)



Claim.—1. The combination of a flat metallic pile-wire head provided in one of its sides with a groove or slot cut to a depth less than the thickness of said head and a pile-wire secured in said slot, substantially as described.

2. The combination of the flat metallic head provided with a groove or slot of less depth than the thickness of said head, said slot being narrowest at its open side, and the pile-wire inserted in said slot and secured therein, as and for the purpose specified.

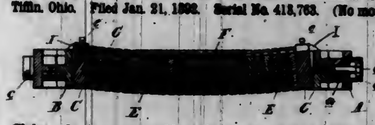
3. The combination of the flat metallic head provided with a hole and provided in one of its sides with a groove or slot extending nearly to the opposite side of said head and from said hole to the end of said head and the pile-wire inserted in said slot and bent into said hole, as and for the purpose specified.

4. The combination of the head provided with a hole and with a slot or groove of less depth than the thickness of said head and extending from said hole to the end of said head, said slot being narrower at its open side, and the pile-wire inserted in said slot and bent into said hole; as and for the purpose specified.

5. The combination of the flat metallic head provided with a hole and with a slot or groove extending nearly to the opposite side of said head and from said hole to the end of said head and the pile-wire inserted in said slot and bent into said hole and secured to said head by sweating or soldering with soft solder, as and for the purpose specified.

6. The combination of the head provided with a hole and with a slot or groove of less depth than the thickness of said head and extending from said hole to the end of said head, said slot being narrower at its open side, and the pile-wire inserted in said slot and bent into said hole and secured to said head by sweating or soldering with soft solder, as and for the purpose specified.

479,212. CRAYON-MOLDING MACHINE. ARTHUR A. FUOSS, Tiffin, Ohio. Filed Jan. 21, 1892. Serial No. 418,763. (No model.)



Claim.—1. A crayon-mold consisting of a series of sectional mold-strips wedge-shaped in cross-section and a flexible transverse support which connects said mold-strips together on the back to form a mold-plate adapted to open and close the molds by its flexion, substantially as described.

2. A crayon-mold consisting of a frame, two sliding heads supported within said frame, and a series of sectional molds transversely connected at the back to one or more flexible supporting-bars and suspended by said bars between the sliding heads, to which the ends of the supporting-bars are connected, substantially as described.

3. The combination of the frame reversibly suspended on trunnions within an outer stationary supporting-frame, two sliding heads supported within said frame, a series of sectional molds between the heads, and a flexible support secured to the under side of the heads and sectional molds and adapted to clamp the same together by the weight of said molds, substantially as described.

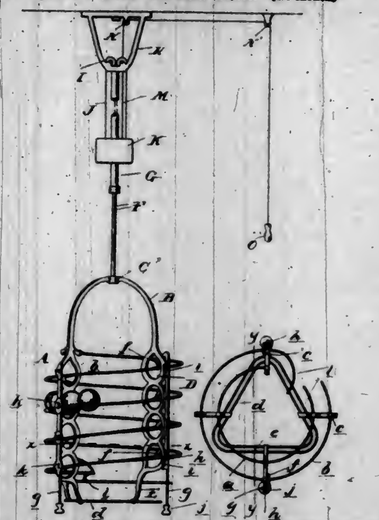
4. The combination of a frame, reversibly supported on trunnions, two sliding heads supported within said frame, and a series of sectional mold-strips secured upon and supported by a flexible bar or bars between the sliding heads and shoulders on rests on the reversible frame to limit the deflection of said bars, substantially as described.

5. The combination, in a crayon-mold, of a series of sectional molds, a flexible bar or bars to which said molds are secured on the back and upon which they are suspended, two heads between which said series of molds is adapted to be clamped and to which the ends of the flexible bars are secured, a frame within which said heads are slidingly supported, and trunnions by means of which said frame is reversibly suspended within an outer frame, said trunnions being slidingly secured in one frame and having a screw-thread engagement in the other frame and adapted to clamp the sliding heads and sectional molds together, substantially as described.

6. The combination, in a crayon-mold, of an outer stationary supporting-frame, an inner frame reversibly suspended therein by trunnions sliding in the outer frame and having a screw-thread engagement through the inner frame, sliding heads supported within said inner frame, and a series of sectional molds supported between said heads by a flexible bar or bars, substantially as described.

7. The combination of the stationary outer frame, the inner frame reversibly secured therein, the sliding trunnions *a*, having a screw-thread engagement with said inner frame, and the adjustable caps *c* on the heads of said trunnions, substantially as described.

479,218. POOL RACK AND SPOTTER. CHARLES H. FUOSS, Tiffin, Ohio. Filed Mar. 31, 1892. Serial No. 427,179. (No model.)



Claim.—1. A pool-rack consisting of a series of standards having a series of loops thereon, a spiral way passing through the loops, a series of movable stops normally in the way, means for moving the stops, and a spotter at the base of the way, formed of different-sized frames, substantially as described.

2. The combination of a rack, standards having a series of loops therein, a spiral runway connecting said loops and ending at the base in an inwardly-extending spout, a series of movable stops dividing it into sections, a series of inwardly-extending fingers at the base of the standard, and a spotter-frame secured to said fingers, substantially as described.

3. The combination of a rack formed of four standards having a vertical series of radially-arranged loops formed therein, a spiral runway formed through said loops by wire secured on opposite sides thereof, and a series of movable stops in said runway dividing it into sections, substantially as described.

4. The combination of a track formed of standards having a vertical series of radially-arranged loops formed therein, a spiral runway formed through said loops and discharging inwardly at the base, a series of movable stops dividing said runway into sections, and a spotter-frame within said track at the base, composed of two separated wire triangles, the upper one being of the greater area, substantially as described.

479,214. INJECTOR. OTTO L. HALLBERG, West Salem, Ill. Filed June 4, 1891. Serial No. 395,140. (No model.)



Claim.—1. An automatic drip cock or valve having a series of vertical grooves and a depending stem having a bore or hole extending throughout the valve and stem, substantially as shown and described, and for the purpose set forth.

2. The combination, with an injector having the seats *b*, of a valve

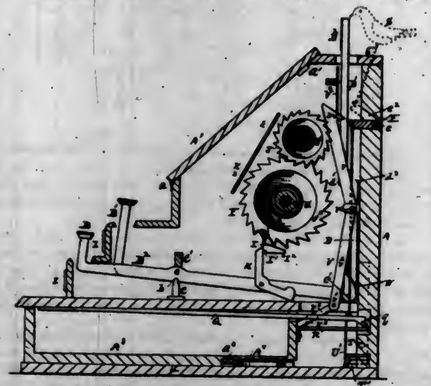
having vertical grooves and located in the cap of the injector and a coil-spring surrounding the stem of the valve and situated in the chamber of the cap, whereby the injector is drained after it is stopped, substantially as described.

3. An automatic drip-cock operated by a current of water, steam, or fluid, having a grooved valve, and a stem having a central bore which extends through the valve, said stem being provided with a conical lower end having apertures formed at right angles to said central bore, in combination with the injector-cap and the coil-spring surrounding the valve-stem, having its bearing upon the valve and bottom of the said cap, substantially as shown and described, and for the purpose set forth.

4. The combination, with an injector having a delivery-tube provided with prongs or projections G, of a valve having vertical grooves and located in the cap of the injector, the valve-stem having a conical end provided with a series of apertures which open into a central opening in the valve-stem, a coil-spring surrounding the stem, whereby the valve is forced up against the said prongs or projections, and the screw-threaded extension having the lock-nut, substantially as and for the purpose set forth.

5. A drip-valve for injectors, &c., having vertical grooves and the valve-stem having a conical end provided with a series of apertures, in combination with the coil-spring and a regulating device therefor consisting of the screw-threaded extension L and its lock-nut *l*, substantially as set forth.

479,215. CASH REGISTER AND INDICATOR. MICHEL HERPE, Detroit, Mich. Filed Nov. 2, 1891. Serial No. 410,627. (No model.)



Claim.—1. In a cash register and indicator, a series of primary registering-wheels F, each provided with a pin *f*, a series of secondary registering-wheels operated at each revolution of the primary wheels, respectively, operating-levers B^3, provided with operating-keys, a pawl engaged with each of said levers extending adjacent to the corresponding primary wheel to operate the wheel, a tilting guide-bar I, extending transverse said wheels and levers, provided with fingers *i*, extending adjacent to the faces of the primary wheels, respectively, and a stop I^2 to limit the movement of the guide-bar in one direction, the construction and arrangement being such that the finger and guide-bar will be tripped by the pin *f* as the adjacent wheel F rotates in one direction and will limit the reverse rotation of said wheel, substantially as described.

2. In a cash register and indicator, a series of registering-wheels mounted loosely upon a shaft, means for operating said wheels, stationary collars located upon said shaft between adjacent wheels, and springs located between pairs of adjacent wheels, each spring exerting its tension upon one of said wheels, substantially as and for the purpose described.

3. In a cash register and indicator, the combination, with a case provided with a recess c^3, of operating-levers B^3, upright bars D, jointedly engaged with the levers B^3, respectively, and a rocking cross-piece E, having one edge thereof extending into the recess of the case, said upright bars each provided with a device to engage the cross-piece when projected upward thereabove, the edge of the recess in the case below the cross-piece forming a stop and a normal support for the cross-piece, substantially as described.

4. In a cash register and indicator, the combination, with a case provided with a recess c^3, of operating-levers B^3, upright bars D, jointedly engaged with the levers, respectively, each provided with a hook *d* and indicator D^4, and a rocking cross-piece E to engage said hooks when projected upward, said cross-piece having one edge thereof extending into the recess of the case, the edge of the case below the cross-piece forming a stop and normally supporting said cross-bar, substantially as described.

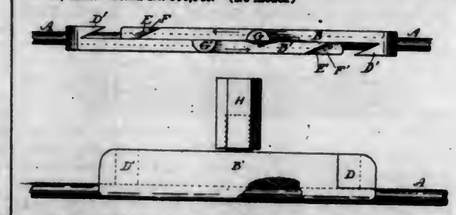
5. In a cash register and indicator, the combination, with a case provided with a recess c^3, of operating-levers B^3, upright bars D, jointedly connected with said levers, respectively, each provided with a hook *d* and indicator D^4, a rocking cross-piece E to engage said hooks when projected upward, said cross-piece having one edge thereof extending into the recess of the case and common to all said upright bars, the construction and arrangement being such that the cross-piece will hold the last indicator manipulated exposed and drop it at the next subsequent manipulation of the operating-levers, substantially as described.

6. In a cash register and indicator, the combination, with an inclosing case, of a drawer, registering mechanism, operating-levers B^3, upright bars D, a lever V, provided with a foot v^3, a rocking cross-piece to engage said upright bars and the lever V, and a pivoted stop V^4 to bear upon the lever V and to be moved out of the way thereof when desired, substantially as and for the purpose described.

7. In a cash register and indicator, the combination of an operating-lever B^3, an upright bar D, jointedly connected with the lever and having a hook *d*, a rocking cross-piece E, operated by said bar, a cuckoo figure connected with the cross-piece, a pipe for each key to sound cuckoo notes, and a bellows to actuate said pipes, said bellows connected with said cross-piece, substantially as set forth.

8. In a cash register and indicator, the combination, with a case provided with a recess c^3, of an operating-lever B^3, an upright actuating-bar D, and rocking cross-piece E, having one edge engaged in said recess, said bar D provided with a hook *d*, projecting rearward of the adjacent portion of the bar, said bar at a little distance below the hook projecting rearwardly of the rear face of the hook, the edge of the recess underlying the cross-piece forming a stop and normal support for said cross-piece, substantially as set forth.

479,216. CLAMP FOR ELECTRIC CONDUCTORS. JOHN INGMANSON and RUDOLPH LORANG, Chicago, Ill., assignors to said Lorang, John A. Ingmanson, and Emil H. Ingmanson, all of same place. Filed July 13, 1891. Serial No. 399,340. (No model.)



Claim.—1. In a clamp for electrical conductors, the combination of a pair of jaws, a tongue projecting laterally from one of said jaws and having a cam-face for engaging the other, and means for locking the jaws against relative longitudinal movement, substantially as set forth.

2. In a clamp for electrical conductors, the combination of a pair of jaws, a tongue projecting laterally from each, said tongues being presented in opposite directions, and means for locking the jaws against relative longitudinal movement, substantially as set forth.

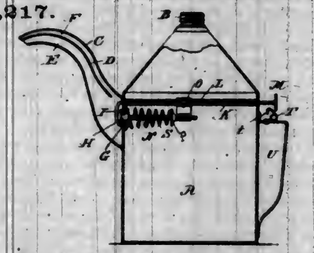
3. In a clamp for conductors, the combination of a pair of jaws, a tongue projecting laterally from each, said tongues being presented in opposite directions and having cam-faces, and means for locking the jaws against relative longitudinal movement, substantially as set forth.

4. In a clamp for electrical conductors, the combination of a pair of jaws, a tongue projecting laterally from one and engaging the other, a shoulder engaging said tongue, and means for locking the jaws against relative longitudinal movement, substantially as set forth.

5. In a clamp for electrical conductors, the combination, with the jaw B, having at one end the cam-faced tongue D and having its other end beveled, as at E, of the jaw B', similar and complementary to the jaw B, and means for locking the jaws against relative longitudinal movement, substantially as set forth.

6. In a clamp for electrical conductors, the combination, with the jaw B, having at one end the cam-faced tongue D and having its other end beveled off at E, forming shoulder F, of the jaw B', similar and complementary to the jaw B, and means for holding the jaws against relative longitudinal movement, substantially as set forth.

479,217. SAFETY OIL-CAN. HIRSH KAPLAN, New York, N. Y. Filed Apr. 18, 1892. Serial No. 429,099. (No model.)



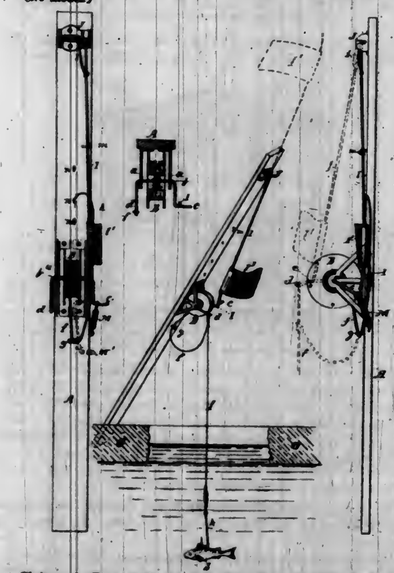
Claim.—The combination with the can A, having cap B, double spout C, and thumb-spring T, of the valve H, secured to one end of the rod K, the other end of which terminates in a push-button M, which is adapted to be engaged by the said thumb-spring T, substantially as shown and described.

479,218. FASTENING FOR SHOES, GLOVES, &c., AND LACE THEREFOR. PHILIPP KOPPENHÖFER, Speyer, Germany. Filed Aug. 26, 1891. Serial No. 404,091. (No model.) Patented in Germany Aug. 22, 1890, No. 55,815.



Claim.—In combination with the outer metal disks *a a'*, the flexible disks *b b'*, held within the metal disks by the flanges of the latter disks with their faces in contact, the two sets of disks being connected by a headed post, the heads of which are interposed between the metal disk and the flexible disk, substantially as described.

479,219. APPARATUS FOR FISHING THROUGH ICE. GEORGE H. LANE, Worcester, Mass. Filed Mar. 24, 1892. Serial No. 426,257. (No model.)



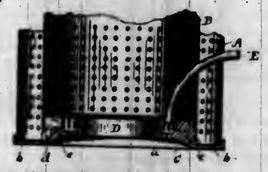
Claim.—1. The combination, substantially as described, of the support-bar, the revolable reel, its axis supported in bearings on said bar, with its ends forming the crank *c* and line-supporting finger *d*, as shown, and the swinging tilt or flag-wire hinged at one end to said bar and provided with a spring, and its other end disposed for engagement with the reel-crank, for the purpose set forth.

2. The reel formed of two oppositely-disposed disks having offset centers secured together and the wire axial shaft passing through and rigidly fixed therein and having one of its ends bent to form the crank *c* and the other bent to form the line-holding finger *d*, in combination with the bar, the axle-bearings fixed to said bar, the spring-pressed tilt, and the line, all substantially as and for the purposes set forth.

3. The combination, with the bar, the revolable reel mounted in bearings thereon, and the reel-operating crank, of the spring M, having one of its ends attached to the bar and its free end formed into a loop adapted to pass over said crank, substantially as and for the purposes set forth.

4. The combination of the bar having an eye or holes *n* formed in its front side for engaging the fish-hook, as shown, the revolable line-reel mounted in bearings on said bar, the line-guide *g*, fixed in the front of the bar below the reel, and a holding device or hook adjacent thereto attached to the bar by eye-staples, wherein said hook can be turned forward for engaging the reel-plate, substantially as described, for retaining said reel stationary when the line is wound up and the apparatus not in use.

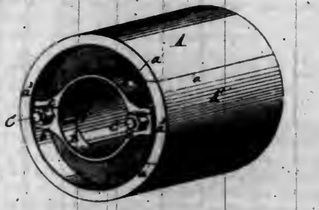
479,220. VAPOR-BURNER. JOHN A. LANNERT and WILLIAM B. JEAVONS, Cleveland, Ohio. Filed Mar. 9, 1892. Serial No. 424,337. (No model.)



Claim.—1. A vapor-burner provided with a vapor and combustion chamber and a vapor-distributing chamber and channels to convey the vapor from the distributing-chamber to the vapor and combustion chamber, substantially as described.

2. A vapor-burner having a vapor and combustion chamber closed at its bottom against admission of air and having air-inlets in its sides, a vapor-distributing chamber, and channels or ducts leading from said distributing-chamber to the said vapor and combustion chamber, substantially as described.

479,221. PULLEY. EBER A. LONG, South Bend, Ind., assignor to the South Bend Pulley Company, same place. Filed Apr. 9, 1892. Serial No. 428,472. (No model.)



Claim.—1. The combination of the pulley proper and clamping devices comprising clamp-sections movable axially toward and from the pulley and radially relatively thereto and having interlocking flanges and bolts longitudinal to the axis of the pulley for uniting the clamp-sections and applying them to the shaft.

2. The combination of the pulley proper and clamping devices comprising clamp-sections movable axially toward and from the pulley and radially relatively thereto and having flanges formed with inclined abutting surfaces and bolts longitudinal to the axis of the pulley for uniting the clamp-sections and applying them to the shaft.

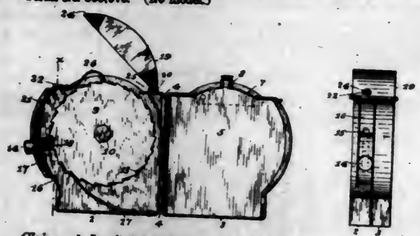
3. The combination of the pulley and clamping devices comprising separable clamp-sections movable radially independently of the pulley proper and having arms formed with interlocking flanges with inclined abutting surfaces and bolts longitudinal to the axis of the pulley, which constitute the sole means for connecting the clamp-sections to the pulley and which also unite the clamp-sections and apply them to the shaft.

4. The combination of the pulley and clamping devices at each end thereof, comprising a pair of half-rings movable radially relatively to the pulley and formed with arms having interlocking flanges and longitudinally-arranged bolts for applying the ring-sections to the shaft and for connecting them to the pulley.

5. The combination of the pulley and clamping devices, comprising clamp sections movable radially relatively to the pulley and longitudinally-arranged bolts passing through the body of the pulley and through the clamp-sections for uniting them and moving the clamp-sections radially.

6. The combination, with the pulley formed with recesses at each end, of a pair of clamp-sections or half-rings within each of said recesses and movable radially relatively to the pulley, and bolts extending longitudinally through the body of the pulley and through the clamp-sections and having adjusting-nuts for firmly uniting the clamp-sections to the pulley and for moving them radially relatively to the pulley.

479,222. POCKET-LAMP OR LIGHTING DEVICE. NATHAN F. MATTHEWS, Providence, R. I., assignor, by mesne assignments, to the Little Gem Manufacturing Company, of New Jersey. Filed May 18, 1891. Serial No. 393,078. (No model.)



Claim.—1. In a lighting device, a revolubly-mounted drum adapted to receive and hold secured upon its periphery, so as to be rotated therewith, a tape provided with drops or bits of fulminating material, substantially as shown and described.

2. In a lighting device, the combination, with a drum adapted to receive and hold secured upon its periphery, so as to be rotated therewith, a tape provided with drops or bits of fulminating material, of means for rotating the drum and for exploding the bits of fulminating material one by one as the drum is rotated, substantially as shown and described.

3. In a pocket-lamp or lighting device, the combination, with a drum adapted to receive upon its periphery a tape provided with drops or bits of fulminating material, of means for securing the fulminating-tape to the drum, so that the same may be rotated therewith, and means for rotating the drum and exploding the bits of fulminating material one by one as the same is rotated, substantially as shown and described.

4. In a pocket-lighting device, the combination, with a drum adapted to receive upon its periphery a tape provided with drops or bits of fulminating material, of means for securing the tape to the drum, so that the same may be rotated therewith, a spring scratcher adapted to press upon the tape on the drum and explode the bits of fulminating material one by one as the tape is carried beneath it, and means for rotating the drum step by step, substantially as shown and described.

5. In a lighting device, the combination, with a drum adapted to receive and hold secured upon its periphery, so as to be rotated therewith, a tape provided with drops or bits of fulminating material, of a holder for an ignitible wick adjacent to the periphery of the drum, means for exploding the drops or bits of fulminating material one by one at a point adjacent to the wick as the drum is rotated, and means for rotating the drum step by step, substantially as shown and described.

6. In a lighting device or pocket-lamp, the combination, with a drum adapted to receive and hold secured upon its periphery, so as to be rotated therewith, a tape provided with drops or bits of fulminating material, of a reservoir adapted to receive an absorbent material, and a wick, one end of which protrudes therefrom, means for exploding the drops or bits of fulminating material one by one at a point adjacent to the protruding portion of the wick as the drum is rotated, and means for rotating the drum step by step, substantially as shown and described.

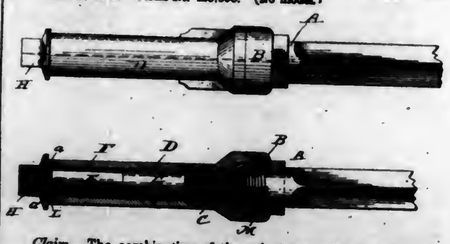
7. In a pocket-lamp or lighting device, a revoluble disk having a flange secured thereto forming a drum, said flange being provided with a slot, as 28, by which a tape provided with drops or bits of fulminating material may be secured upon the periphery of the drum formed by the flange in such manner as to be rotated with the drum, and means by which the ends of the tape may be secured within said slot, substantially as shown and described.

8. In a pocket-lamp or lighting device, the combination, with a revoluble disk, of a flange forming a drum secured thereto and adapted to receive upon its periphery a tape provided with drops or bits of fulminating material, said flange having a slot through which the ends of the tape pass, of means located within the drum formed by the flange for drawing the expended tape upon the flange within the same and coiling it and at the same time drawing a fresh portion of unexploded tape from the interior of said drum upon the periphery thereof, substantially as shown and described.

9. In a pocket-lamp or lighting device, the combination, with a revoluble disk, of a flange forming a drum secured thereto, having a slot, as 28, and adapted to receive and hold upon its peripheral surface a tape provided with drops or bits of fulminating material, of means located within the drum formed by the flange for holding a coil of unexpended tape, and a stud also located within the drum and adapted to be rotated, whereon the expended tape upon the periphery of the drum may be wound after being drawn through the slot 28, the expended tape as it is drawn within the drum drawing from the interior thereof through the slot sufficient unexpended tape to cover the periphery of the drum, substantially as shown and described.

10. In a pocket-lamp or lighting device, the combination, with a revoluble disk provided with a flange forming a drum adapted to receive upon its peripheral surface a tape provided with drops or bits of fulminating material and having a passage or slot through which the ends of such tape pass to the interior of the drum formed by such flange, of two studs located within such drum, one of which is adapted to hold a coil of unexpended tape and the other of which is adapted to rewind upon itself as it is rotated the expended tape upon the peripheral surface of the flange, and thus draw from the other stud out upon such flange sufficient unexpended tape to cover the same, substantially as shown and described.

479,223. AXLE. WILLIAM H. MATTHEWS, Zanesville, Ohio. Filed Mar. 22, 1892. Serial No. 425,893. (No model.)



Claim.—The combination of the axle A, provided with a screw-threaded portion, the shouldered sleeve B C, adapted to engage the said screw-threaded portion and be adjusted thereon, and a sleeve or bushing F, adapted to fit the reduced portion E of said axle, substantially as described.

479,224. SANITARY VENTILATOR. WILSON I. POTTER, Hartford, Conn. Filed Nov. 4, 1891. Serial No. 410,859. (No model.)



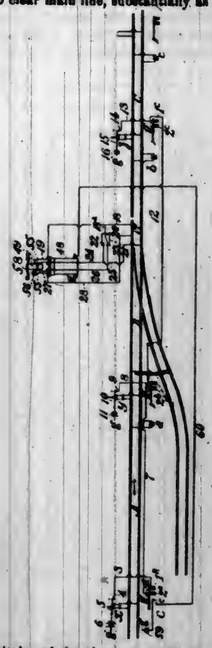
Claim.—In a sanitary ventilator, the combination of a vertical draft-tube passing from the interior to the exterior of a building, a burner located in said tube near the top, the leading-tube swiveled to the draft-tube below the burner and capable of complete rotation thereabout, and valve-controlled draft-openings in said draft-tube, located beneath the leading-tube, substantially as set forth.

479,225. SWITCH AND SIGNAL APPARATUS. JESS G. SCHREUDER, Edgewood, Pa. Filed Jan. 20, 1892. Serial No. 418,690. (No model.)

Claim.—1. In a switch and signal apparatus, the combination of movable switch-rails, a fluid-pressure mechanism for locking such rails in position for clear main line, electrically-operated valves controlling the flow of fluid-pressure to and from such mechanism, a normally-closed circuit controlling said valves and provided with a circuit-breaker, and a signal controlling a track-section adjacent to the switch and adapted when shifted to "danger" to open the valve-controlling circuit, and thereby so shifting the valves as to effect a locking of the switch rails to clear main line, substantially as set forth.

2. In a switch and signal apparatus, the combination of movable switch-rails, electrically-controlled mechanism for locking the rails in position for clear main line, a normally-closed circuit controlling the lock mechanism and provided with a circuit-breaker, a signal controlling a track-section adjacent to the switch, means operated by said signal when shifted to "danger" to open the circuit controlling the switch-lock, thereby locking the switch-rails to clear main line, and a hand-operated device for unlocking the switch-rails and simultaneously breaking the normally-closed circuit, whereby the signal controlling the adjacent section is shifted to "danger," substantially as set forth.

3. In a switch and signal apparatus, the combination of movable switch-rails, electrically-controlled mechanism for locking such rails in position for clear main line, a normally-closed circuit controlling such mechanism and provided with a circuit-breaker, a home signal controlling a track-section adjacent to said switch, and a distant signal controlling the track-section containing the switch and controlled by the home-signal and adapted when shifted to "danger" to open the circuit controlling the switch-locking mechanism, and thereby lock the switch-rails to clear main line, substantially as set forth.



4. In a switch and signal apparatus, the combination of movable switch-rails, electrically-controlled mechanism for locking such rails in position for clear main line, a normally-closed circuit controlling such mechanism and provided with a circuit-breaker, a home-signal controlling a track-section adjacent to said switch, a distant signal controlling the track-section containing the switch and controlled by said home-signal and adapted when shifted to "danger" to open the circuit controlling the switch-locking mechanism, and thereby lock the switch-rails to clear main line, and a home-signal controlling the track-section containing the switch and adapted when at "danger" to hold the distant signal at "danger," substantially as set forth.

5. In a switch and signal apparatus, the combination of a track-circuit formed in part by the rails of a section of track and in part by contact-plates, a movable plug or other suitable hand device for holding said spring-plates in contact, thereby completing the track-circuit, a switch extending from said track-section, fluid-pressure mechanism for locking the switch to clear main line and controlled by the movable plug, and a normally-closed circuit controlling the signals protecting the track-section and controlled by the track-circuit, whereby a movement of the plug to unlock the switch will break the track-circuit, thereby causing the protecting-signals to go to "danger," substantially as set forth.

6. In a switch and signal apparatus, the combination of a track-section forming a part of a circuit, contact-plates, also forming a part of said circuit, a movable plug or other suitable hand device normally holding the contact-plates together, thereby completing the track-circuit, a switch extending from the track-section, fluid-pressure mechanism for locking the switch to clear main line and controlled by the movable plug, a normally-closed circuit controlling the signals protecting the track-section and controlled by the track-circuit, and a normally-open shunt-circuit from the track-circuit adapted to be closed by the movement of the plug to open the track-circuit and operate the switch-locking mechanism, substantially as set forth.

7. In a switch and signal apparatus, the combination of a track-section forming part of a track-circuit, contact-plates, also forming a part of said circuit, a movable plug or other suitable hand device, normally holding the plates together, thereby completing the track-circuit, a switch extending from said track-section, fluid-pressure mechanism for locking the switch to clear main line and controlled by the movable plug, a normally-closed circuit controlling the signals protecting the track-section and controlled by the track-section, and an electric switch included in the track-circuit and operated by the movable rails of the track-switch to break the track-circuit when the movable rails are shifted to siding, substantially as set forth.

8. In a switch apparatus, the combination of a locking-bar provided with a notch and connected to the movable switch-rails, a movable bar adapted to engage the notch in said locking-bar, a spring for pressing said movable bar in one direction, and a fluid-pressure cylinder provided with a piston for shifting the bar in the opposite direction, substantially as set forth.

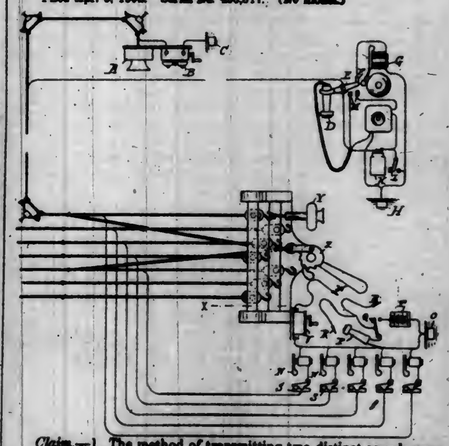
9. In a switch and signal apparatus, the combination of movable rails, a locking mechanism therefor, a fluid-pressure mechanism for operating the locking mechanism, a spring-actuated plug for shifting the valves of the fluid-pressure mechanism, spring-plates adapted to form parts of a track-circuit and normally held in contact by the plug in certain position thereof, and a locking device for holding the plug in such position as to keep the spring-plates in contact, substantially as set forth.

479,226. TELEPHONE. GEORGE F. SHAVER, Yonkers, N. Y., assignor of one-half to Stephen F. Sherman, New York, N. Y. Filed Mar. 2, 1892. Serial No. 423,511. (No model.)



Claim.—In a telephone-receiver, the combination of one or more magnets, each forming an incomplete ring and having pole-pieces extending into the ring, the magnets being reversed and laid one upon the other with a diaphragm adjacent to the pole-pieces, substantially as described.

479,227. TELEPHONY. GEORGE F. SHAVER, Yonkers, N. Y. Filed Apr. 8, 1892. Serial No. 428,317. (No model.)



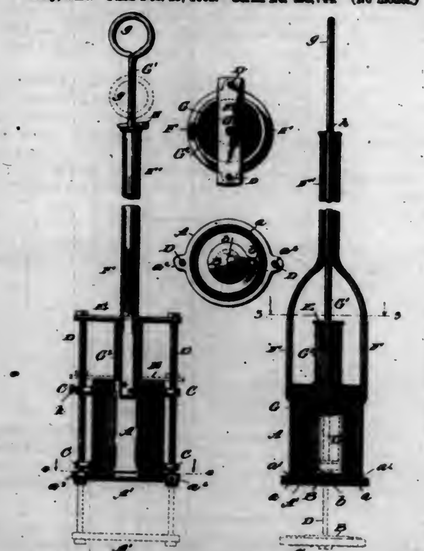
Claim.—1. The method of transmitting two distinct sounds over a single conductor simultaneously, as herein described, by causing electrical undulations similar in form to the vibrations of the air accompanying one of said sounds and mechanical vibrations similar in form to the vibrations of the air accompanying the other of said sounds, substantially as described.

2. A duplex telephone-exchange system comprising mechanical-telephone subscribers' stations, magnetic-telephone subscribers' stations, a central station, lines connecting the central station with the subscribers' stations, there being at least one mechanical and one magnetic

telephone subscriber's station on each line, means for connecting any pair of lines for transmission of mechanical vibrations, and means for connecting any pair of lines for transmission of electrical currents, substantially as described.

3. A duplex telephone-exchange system comprising mechanical-telephone subscribers' stations, magnetic-telephone subscribers' stations, a central station, lines connecting the central station with the subscribers' stations, there being at least one mechanical and one magnetic telephone subscriber's station on each line, means for connecting any pair of lines for transmission of vibrations mechanically, means for connecting any pair of lines for transmission of vibrations electrically, and an annunciator connected with said lines, substantially as described.

479,228. CISTERN OR WELL CLEANER. JESSE SHILLING, Jr., Troy, Ohio. Filed Feb. 25, 1892. Serial No. 422,744. (No model.)



Claim.—1. The combination, with the cylinder and its movable bottom, of a plunger fitted within the cylinder, a cross-bar connected with the bottom, guides and rods carrying said bottom, and a rod connected with the plunger, and a block on the upper end of the plunger beneath the cross-bar, substantially as and for the purpose specified.

2. The combination, with the cylinder and its movable bottom, of a plunger fitted within the cylinder, rods connected with the bottom and working in guides on the cylinder, a cross-bar carried by the upper ends of said rods, a plunger-rod passed through said cross-bar, and a block on the rod and above the plunger and below the cross-bar, as and for the purpose specified.

3. The combination, with the cylinder and its movable bottom with opening and inwardly-opening valve, of a plunger in the cylinder, rods connected with the bottom and carrying a cross-bar at their upper ends, a plunger-rod, a block between the plunger and cross-bar, and a tubular handle to the cylinder through which the plunger-rod passes, as shown and described.

479,229. TROUSERS-GUARD. CHARLES SULZNER, Philadelphia, Pa. Filed Feb. 27, 1892. Serial No. 423,010. (No model.)

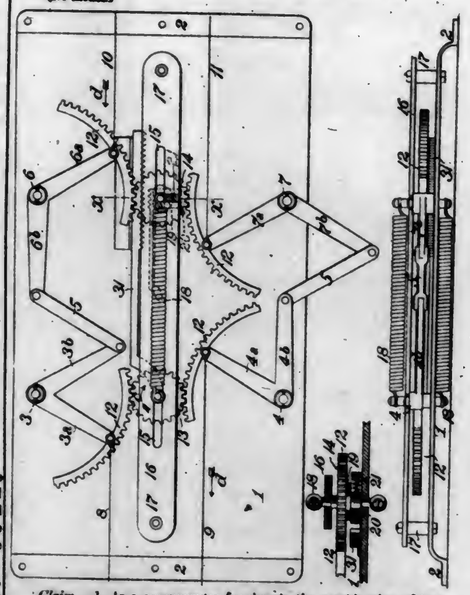


Claim.—1. A trousers-guard having a body with shoulders at one end and spurs laterally projecting from said shoulders and a prong and a hook projecting from the other end of the body, said prong and hook projecting in opposite direction to said spurs, and the parts being combined substantially as described.

2. A trousers-guard formed of wire and having a body with shoulders at one end with spurs and provided at the other end with a prong and hook and spurs intermediate of said end spurs and hook, the end spurs projecting in an opposite direction to said prong and hook, and said parts being combined substantially as described.

3. A trousers-guard consisting of a body with the shoulders E and laterally-projecting spurs B on one end thereof, the hook C and laterally-projecting prong D at the other end of the body, and the inwardly-projecting spurs F, secured to the body near said prong and hook, said parts being combined substantially as described.

479,230. COMPENSATOR FOR SIGNALS. JAMES J. TURNER, Pittsburg, Pa. Original application filed Feb. 6, 1892, Serial No. 421,165. Divided and this application filed May 25, 1892. Serial No. 434,345. (No model.)



Claim.—1. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, rack-bars secured to one arm of a member of each pair of bell-cranks, and a pinion intermeshing with said rack-bars, substantially as set forth.

2. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, rack-bars secured to one arm of a member of each pair of bell-cranks, a laterally-movable pinion engaging said rack-bars, and a spring for shifting the pinion, substantially as set forth.

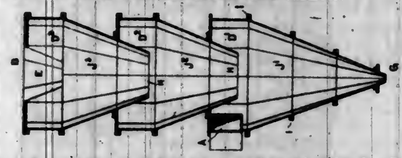
3. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, rack-bars secured to one arm of a member of each pair of bell-cranks, a movable pinion engaging said rack-bars, a spring for shifting the pinion, and a lock for holding the pinion as against movement, substantially as set forth.

479,231. DUST-COLLECTOR. PIETER VAN GELDER, Sowerby Bridge, England. Filed Dec. 19, 1891. Serial No. 415,592. (No model.)

Claim.—1. In a dust-collector, a polygonal portion D', having a tangential air-inlet and a top air-outlet and having a very obtuse angle at the junction of the sides or plates which form the polygon or polygonal chamber, in combination with a tapering discharge-chamber.

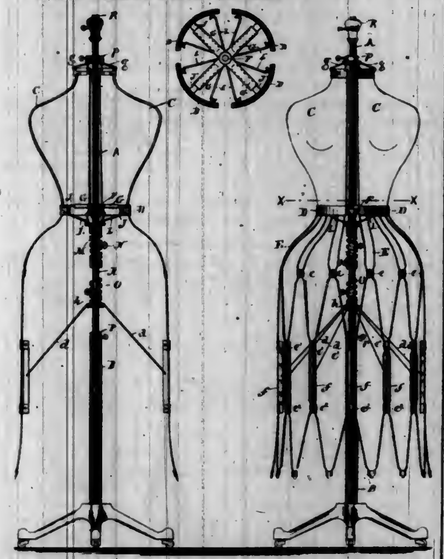
2. In a dust-collector, a polygonal portion D', having a tangential air-inlet and a top air-outlet, in combination with a tapering dust-discharge chamber, also polygonal in cross-section.

3. In combination with a tapering-chamber D' J', into which the air enters tangentially, a second tapering chamber extending down into the top of the first-mentioned chamber and having an outlet at the top, all substantially as shown and described, whereby the rotary action of the lower air-current is continued in the upper chamber and a further amount of dust separated by centrifugal force in the upper chamber and caused to descend into the lower chamber.



4. In combination with the polygonal tapering chamber D' J', having a tangential air-inlet and a top air-outlet, the second tapering chamber D^2 J^2, polygonal in cross-section, provided at its top with an air-outlet and having its lower portion J^2 extending down through the top of the lower chamber.

479,232. DRESS-FORM. WILLIAM VOGLER, Somerville, assignor to Charles A. Morse, Boston, Mass. Filed Oct. 25, 1888. Renewed Jan. 16, 1892. Serial No. 418,260. (No model.)



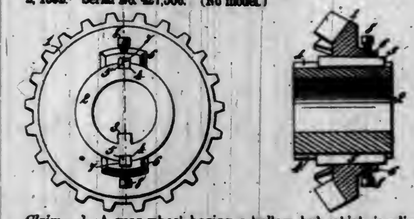
Claim.—1. An adjustable skirt-form provided with means for expanding and contracting it and supported upon a central standard, said skirt-form being composed of waistband-sections D D and a series of longitudinal wires or strips E E, arranged in pairs and rigidly secured to said sections at their upper ends, the wires of each pair being secured to each other at or near the hip portion by clips *e e* and also at their lower ends, each wire being also connected to the nearest wire of the pair next to it at one or more points between the clips *e e* and the lower connected ends of the wires, substantially as set forth.

2. An adjustable skirt-form provided with means for expanding and contracting it and supported upon a central standard, said skirt-form being composed of waistband-sections D D and a series of longitudinal wires E E, arranged in pairs and rigidly secured to said sections at their upper ends, said wires being also secured to each other at or near the hip portion and at their lower ends, and the adjacent wires of the pairs being secured at two intermediate points, as *d' e'*, and provided with vertical strips *f f*, secured at *d' e'*, all substantially as described.

3. In an adjustable dress-form, a central standard A, having the waistband-sections D D and a collar F, free to revolve on the standard, said collar being held against vertical movement and provided with a series of horizontal sleeves G G, in combination with a series of horizontal arms or slide-bars J J, rigidly secured to the band-sections and sliding in said sleeves revolving with the collar, and a series of braces L L, pivotally connected at their outer ends to said dress-form sections and at their inner ends to a collar adjustable upon the standard, substantially as described.

4. In an adjustable dress-form, a central standard A, having the waistband-sections D D and a collar free to revolve on said standard, said collar being held against vertical movement and provided with a series of horizontal sleeves G G, in combination with a series of horizontal arms or slide-bars J J, fixed to the band-sections and sliding in said sleeves, and a series of braces L L, pivotally connected at their outer ends to said dress-form sections and at their inner ends to a worm M, engaging with the stud or screw N, fixed to the standard, and a series of braces *d d*, pivotally connected to the dress-form sections at their outer ends and at their inner ends to the reversely-threaded worm O, which engages with the stud or screw A, fixed in the standard, the inner ends of the braces being higher than their outer ends, substantially as described.

479,233. GEAR-WHEEL. ALEXANDER WALKER, West Chester, Iowa, assignor of one-half to William Thompson, same place. Filed Apr. 2, 1892. Serial No. 427,506. (No model.)



Claim.—1. A gear-wheel having a hollow hub which is adjustable lengthwise through the wheel, independent of the latter, substantially as described.

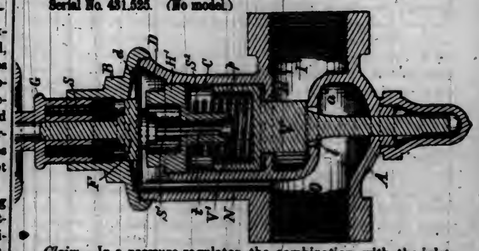
2. A gear-wheel having a hollow hub which is adjustable lengthwise through the wheel independent thereof, combined with means for rigidly locking the wheel and hub together after the desired adjustment is effected, substantially as described.

3. A gear-wheel having a hollow hub which is adjustable lengthwise through the wheel, combined with set-screws carried by the wheel for rigidly connecting the wheel and hub together after the desired adjustment is effected, substantially as described.

4. A gear-wheel having a hollow hub provided interiorly with a key or feather and adjustable lengthwise through the wheel, combined with devices carried by the wheel for rigidly connecting the latter to the hub after the desired adjustment of the parts is effected, substantially as described.

5. A gear-wheel having a hollow hub provided exteriorly with a key-seat, a key or wedge engaging the key-seat and a part of the gear-wheel, and a set-screw carried by the gear-wheel and acting against the key or wedge, whereby the hub can be adjusted lengthwise through the wheel and then rigidly connected therewith, substantially as described.

479,234. FLUID-PRESSURE REGULATOR. EDWARD WIRE, Reading, assignor to Nelson Curtis, Boston, Mass. Filed May 2, 1892. Serial No. 431,525. (No model.)

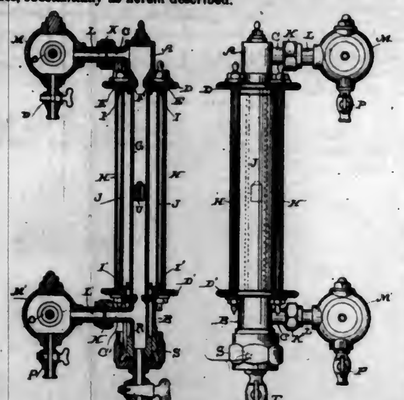


Claim.—In a pressure-regulator, the combination, with the inlet and outlet arms I and O, partition *a*, provided with port *l* and piston-valve V, of the cylinder C, provided with the two cylinder-heads H and H', cap B, diaphragm *d*, passage-way N, and valve V', having its seat in said cylinder-head H', and a suitable regulating device located in said cap B, the said piston-valve V having its piston between said cylinder-heads H and H', substantially as described.

479,235. WATER-GAGE. WILLIAM A. WOODS, San Francisco, Cal. Filed Nov. 9, 1891. Serial No. 411,401. (No model.)

Claim.—1. In a water-gage, the top and bottom chambers having grooved seats on their inner faces, in combination with concentric glass tubes having their opposite ends seated in the grooved seats of the chambers to form tight joints, substantially as herein described.

2. In a water-gage, the top and bottom chambers facing each other, an annular groove in the face of the upper chamber, and a supplemental removable chamber fitting the lower chamber below its face, having an annular groove in its upper edge, packing-washers fitting said grooves, adapted to receive the ends of the tube, and a screw-cap by which the lower supplemental chamber is pressed against the end of the tube, so as to form tight joints at both ends without the use of stuffing-boxes, substantially as herein described.



3. In a water-gage, the chambers A and B, disks formed upon the adjacent faces of these chambers, an annular groove with packing-collar in the lower face of the upper disk, a removable tubular chamber having a corresponding annular groove and packing-washer to receive the lower end of the tube, a slot formed in the side of the chamber B, through which the horizontal tubular passage C projects, and a cap screwing upon the bottom of the chamber B to retain the inner supplemental tubular chamber in place and force it against the bottom of the gage-tube, said inner chamber and tube being removable when the cap has been removed, substantially as herein described.

4. In a water-gage, the chambers A and B, having the confronting faces, an annular groove and packing-collar formed in the face of the upper chamber, a supplemental tubular chamber movable in the chamber B beneath the lower face, having an annular groove and packing-collar, a glass gage-tube the ends of which abut against the packing-collars in the upper and lower grooves, annular grooved disks surrounding the upper and lower ends of the glass gage-tube and abutting upon the faces of the chambers A and B, and an exterior glass tube concentric with the inner one, having its ends fitting the annular movable disks with washers, whereby tight joints are made at the ends, substantially as herein described.

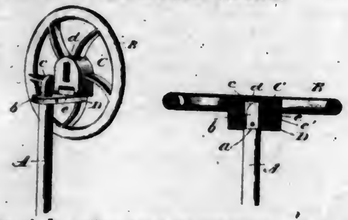
5. A water-gage consisting of the inner and outer concentric glass tubes, chambers with annular grooves and packing-collars, a means for pressing the ends of the tubes against the packing-collars to prevent leakage, a supplemental tubular chamber having an annular groove at the upper end in which the lower end of the inner gage-tube is supported and a cap by which it is held in position from below, and a passage and a cock connecting with the interior of said supplemental chamber, whereby the tube may be blown out and cleaned, substantially as herein described.

6. In a water-gage, the inner and outer glass tubes, the chambers at the upper and lower ends connected with the boiler and facing each other, with annular grooves and packing-collars to receive the ends of the tubes, a means for forcing them into contact with the packing-collars to prevent leakage, a blow-off cock and passage connecting with the inner tube, and an exterior passage connecting the outer tube with the lower exterior chamber, substantially as herein described.

7. In a water-gage, the tubular concentric glasses, the chambered heads with annular grooves, packing-collars between which the ends of the tubes are retained and a tight joint made without stuffing-boxes, horizontally-projecting tubes and couplings whereby the chambered heads are connected with valve-chambers, which in turn are connected with the boiler, blow-off cocks at the lower sides of said valve-chambers, and corresponding screw-threaded caps fitted to the opposite sides, said caps and cocks being interchangeable, whereby the position of the valve may be reversed and the gage used either as a left or right hand gage, substantially as herein described.

8. In a water-gage, the interior and exterior concentric glass tubes, chambered metallic heads with annular grooved channels and packing collars against which the ends of the tubes abut, and means for clamping the tubes against the collars to make tight joints without stuffing-boxes, and an annular chambered float fitting the inner tube and the discharge passes vertically through its center, substantially as herein described.

479,286. CAR-BRAKE. CHARLES H. ALLEN, Stroudsburg, Pa. Filed Apr. 7, 1892. Serial No. 428,213. (No model.)

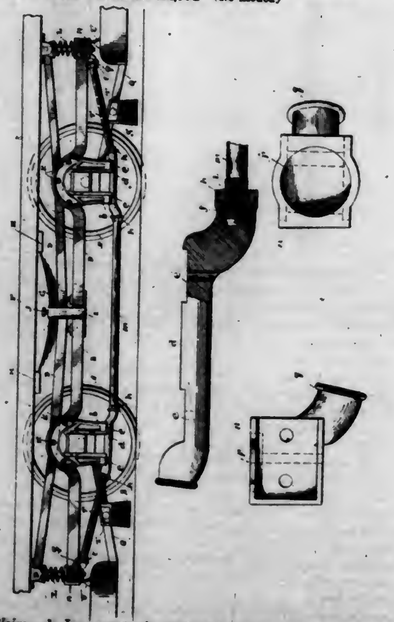


Claim.—1. In a railway-brake, the combination, with the brake-shaft, of a plate rigidly secured thereto and a brake-wheel hinged to said plate to one side of the shaft, said brake-wheel when turned to a horizontal position being adapted to engage with the upper end of the shaft, substantially as shown, and for the purpose set forth.

2. In a railway-brake, the combination, with the brake-shaft, of a plate rigidly attached to said shaft and having a projecting portion, to which a brake-wheel is hinged, said brake-wheel having a socket within which the upper end of the brake-shaft lies when the plate and hub of the brake-wheel contact with each other, substantially as shown, and for the purpose set forth.

3. In a railway-brake, the combination of a brake shaft having a squared or reduced upper end, one side being curved or cut away, as shown, a plate D, rigidly secured to the brake-shaft and provided with an upwardly-projecting lug *c*, a brake-wheel B, having a hub with a cut-away portion at one end, to which the lug of the plate D is secured by a pintle, and a recess *d* to one side of the hinged connection, said recess being adapted to receive the upper portion of the brake-shaft, substantially as shown, and for the purpose set forth.

479,287. CAR-TRUCK. JOHN E. ANGER, Green Island, N. Y. Filed Mar. 11, 1892. Serial No. 424,564. (No model.)



Claim.—1. In a car-truck, castings *b*, having curved upper ends, bars B, supported on said castings, bars D, adapted to rock on the said curved upper ends of the castings, a guide in which the inner

ends of the bars D move vertically, and a spring confined within the said guide, the parts being combined to operate substantially as shown and described.

2. In a car-truck, the castings *b*, having forked upper ends, bars B and D, confined within the said forks, springs interposed between the outer ends of the said bars, a guide in which the inner ends of the bars D move vertically, and a spring secured in the guide, the parts being combined to operate substantially as shown and described.

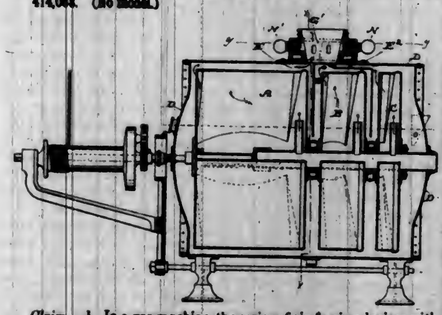
3. In a car-truck, the castings *b*, bars B and D, springs interposed between the outer ends of the bars, a guide for the inner ends of the bars D, which move vertically between the bars B, a spring secured in the upper end of the said guide, and a set-screw J, the parts being combined to operate substantially as shown and described.

4. In a truck, a suitable frame, the wheels journaled therein, equalizing-bars pivoted between their ends substantially over the axles and extending inward to substantially the center of the truck, combined with the car-body, which has its ends resting upon the outer ends of the equalizing-bars, and a spring between the center of the body and the inner ends of the said bars, substantially as set forth.

5. In a car-truck, forked castings *b*, arranged over the journal-boxes of the trucks, bottom stays *d*, secured to the lower ends of said castings and having their adjacent ends bent downward and recessed, screw-threaded nuts fitting the recesses thus formed, and a screw-threaded truss-brace which connects the said stays, substantially as shown and described.

6. In a car-truck, wheels, axles, and axle-boxes, depending castings supported by the latter, a longitudinal bar supported on the upper end of the castings, castings secured to the ends of said bar, socket portions *q*, projecting from said castings, and a truss-brace secured at its respective ends to the said sockets, substantially as shown and described.

479,288. AIR-SUPPLYING DEVICE FOR GAS-MACHINES. EDGAR B. BADLAM, San Francisco, Cal. Filed Dec. 4, 1891. Serial No. 414,064. (No model.)



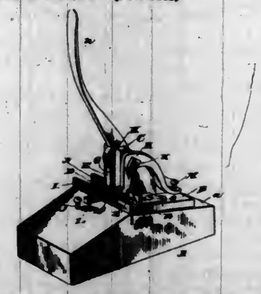
Claim.—1. In a gas-machine, the series of air-forcing devices with separate and independent casings, passages leading therefrom, a valve having interior and exterior chambers, a valve-casing consisting of exterior and interior cylindrical walls forming an annular chamber, diaphragms whereby this chamber is divided, openings through the inner cylindrical wall of the casing and openings connecting the interior space, in which the valve turns with the pipes N' and N, which lead, respectively, to an evaporating-chamber and an air-mixing chamber, means for turning the valve-plug so as to unite the various chambers and connect them with the air-forcing mechanisms, and a dial-plate whereby each connection is indicated, substantially as herein described.

2. In a gas-machine, a series of air-forcing devices with passages leading therefrom, a valve-casing consisting of concentric walls, openings through the inner wall communicating with the interior space, radial diaphragms by which the space between the walls is subdivided, passages connecting each subdivision with one of the air-forcing devices, a hollow valve-plug fitting and turning in the central compartment having a central passage communicating with the other air-forcing device, chambers around the exterior of the plug with which the openings in the inner wall of the valve-casing connect, a passage Q from one of these chambers to the interior of the plug and an opening P through the opposite wall of the plug to connect with the openings in the casing, and openings N N' through the inner wall of the casing connecting with pipes leading to a mixing and drying compartment and to an evaporating compartment, substantially as herein described.

3. In a gas-machine, a series of air-forcing devices, independent evaporating and drying compartments, a valve interposed between these compartments and the air-forcing devices, with communicating passages through which varying proportions of air are delivered to the two compartments, a handle by which the valve is turned, a disk having holes or stops corresponding with the different positions of the valve, and a spring-actuated pin passing through the handle so as to engage either of the stops and hold the valve-plug in either position, substantially as herein described.

4. In a gas-machine, a series of air-forcing devices, independent evaporating and drying compartments, a valve interposed between the compartments and the air-forcing mechanisms with passages by which the proportions of air delivered to either compartment are varied by changing the position of the valve-plug, a handle by which the plug is turned, a disk with stops corresponding with the different positions of the plug, a spring-actuated pin carried by the handle so as to engage either of the stops and hold the valve in place, and a projection upon the pin by which it is withdrawn when desired to move the plug, substantially as herein described.

479,289. SAW-SET. CLARK BAKER, Greenville, Ohio. Filed Apr. 22, 1892. Serial No. 430,346. (No model.)



Claim.—1. In a saw-set, the oppositely-beveled base, a base-plate secured to one face of said base and provided with an anvil, a die working over the anvil and provided with a spring-shank secured to the base and normally holding the die above the anvil, a lever having an eccentric head pivotally mounted upon said base and working over said die, a transverse saw-rest secured to the base in front of the base-plate and the anvil thereon, a gage-screw adjustably working in the opposite face of said base, and adjustable gage-plates mounted upon opposite sides of said base-plate adjacent to the saw-rest, substantially as set forth.

2. In a saw-set, the oppositely-beveled base, a base-plate secured to one face of said base and provided with an anvil, a spring-die working upon said base over the anvil, an eccentric lever pivoted upon the base over said die, a transverse rest-plate located in front of the base-plate and the anvil thereon, a gage-screw, and an adjustable retaining-lever adjustably mounted upon said base-plate and projecting over the rest-plate and adjacent to the gage-screw, substantially as set forth.

3. In a saw-set, the combination, with the base-plate, setting devices mounted upon said plate, a transverse rest-plate, and an adjacent gage-screw, of a retaining-lever centrally pivoted over the base-plate and provided with a forwardly-extending retaining-arm projecting over the rest-plate over one side of the gage-screw, and an opposite threaded end, and an adjusting-screw engaging said threaded end and bearing upon the base-plate, substantially as set forth.

479,240. PARLOR SLEEPING-CAR. DE WITT C. BREED, Medina, N. Y. Filed June 19, 1890. Renewed June 23, 1892. Serial No. 437,780. (No model.)

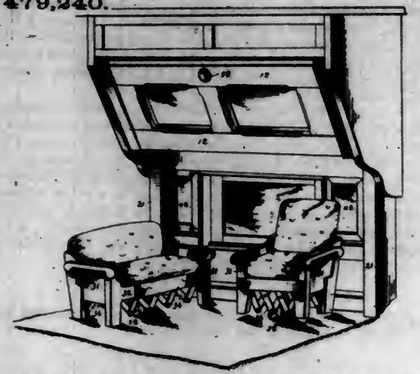
Claim.—1. The combination, with a car having an overhanging rail or bar and a hinged swinging berth, of leaves or plates hinged at their lower edges to the ends of the berth and provided at their upper ends with notches, forming abutments to engage the rail or bar for sustaining the berth in its horizontal position and rigidly locking it against accidentally collapsing, substantially as described.

2. The combination, with a hinged berth adapted to swing down to a horizontal position, of a drop-berth connected with the hinged swinging berth, substantially as described.

3. The combination, with a hinged swinging berth, of a leaf or plate hinged to each end thereof, adapted to turn to a vertical position and having means to engage a fixed part of the car to lock the hinged berth stationary when opened, and a drop-berth connected with the hinged berth and adapted to rise and fall and when raised to turn or swing with the hinged berth, substantially as described.

4. The combination, with a hinged swinging berth, of a drop-berth connected with the hinged berth and adapted to rise and fall independent of the latter and when raised to turn and swing with the hinged berth, substantially as described.

479,240.



5. The combination, with a hinged swinging berth, of a drop-berth having extensible and collapsible end walls connecting it with the hinged berth, substantially as described.

6. The combination, with a hinged berth adapted to swing down to a horizontal position and means for rigidly locking the berth against movement in any direction when lowered, of a drop-berth connected with and carried by the hinged berth and folding or turning upward therewith, substantially as described.

7. The combination, with an upper berth, of a drop-berth capable of being lowered to make up a lower berth and balancing mechanism for the drop-berth, which assists in elevating the drop-frame, substantially as described.

8. The combination, with an upper berth, of a drop-berth having expansible and collapsible end walls which suspend it from the upper berth and when perpendicular are rigidly locked and thereby brace the drop-berth in its lowered position, and balancing mechanism which assists in elevating the drop berth, substantially as described.

9. The combination, with a movable upper berth, of a drop-berth carried thereby and adapted to be lowered to make up a lower berth, and balancing mechanism which assists in lifting the drop-berth against the upper berth and then aids in moving both berths into position for storage, substantially as described.

10. The combination, with a movable upper berth, of a drop-berth adapted to be lowered to make up a lower berth, cables connected with the drop-berth and a spring-drum mechanism, and balancing mechanism for keeping the cables taut and assisting in the elevation of the drop-berth, substantially as described.

11. The combination, with a hinged berth having end pulleys or sheaves, of a drop-berth connected with the hinged berth, turning therewith and adapted to be lowered to make up a lower berth, cables connected with the drop-berth and passing over the pulleys or sheaves on the hinged berth, and means for automatically keeping the cables taut and assisting in the elevation of the drop-berth, substantially as described.

12. The combination, with a movable upper berth having end pulleys or sheaves, of a drop-frame connected with the upper berth and adapted to be lowered into the position required for use, cables connected with the drop berth and passing over the pulleys or sheaves on the upper berth, and spring-drum mechanism for keeping the cables taut and assisting in the elevation of the drop-berth, substantially as described.

13. The combination, with an upper berth, of a drop-berth having end walls each composed of two bars hinged to the drop-berth, and an intermediate plate hinged to the upper berth and pivotally connected between its extremities to the hinged bars to constitute collapsible and extensible ends to the drop-berth, substantially as described.

14. The combination, with a hinged swinging berth and vertical guideways below the latter, of a drop-berth connected with the hinged berth and having end brackets or arms in sliding engagement with the vertical guideways, substantially as described.

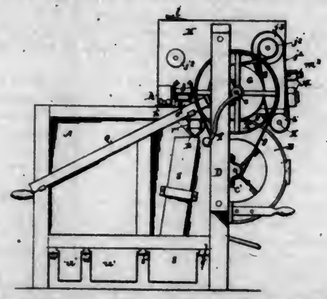
15. In a parlor-car for railroads, the combination, with a berth-frame, of rotating single-seat chairs, each extensible and collapsible rectilinearly to change its width for receiving and sustaining one end of the berth-frame to make up a berth, substantially as described.

16. In a parlor-car for railroads, the combination, with a drop-frame adapted to rise and fall, of single-seat chairs, each extensible and collapsible to convert it from a single seat into a support for one end of the drop-berth frame, substantially as described.

17. In a parlor-car for railroads, the combination, with a berth-frame, of a rotating single-seat chair which is extensible and collapsible rectilinearly and when extended lowers itself to the car-floor for standing stationary to support the berth-frame, substantially as described.

18. The combination, with a berth-frame, of a single-seat parlor-car chair journaled to rotate axially on a stationary pedestal and comprising two independent arm and seat sections, and an extensible connection between the two arm-sections for simultaneously adjusting the same to rigidly support the berth-frame, substantially as described.

479,241. FANNING-MILL. HENRY BUSH, Holgate, Ohio. Filed Dec. 12, 1891. Serial No. 414,814. (No model.)



Claim.—1. In a grain-separator, the combination, with the casing and the fan located therein, of a feed-hopper located above the fan and having an inclined bottom, opposite vertical grooves and slanting grooves cutting or crossing said vertical grooves, located in opposite inner edges of the hopper, a corrugated feed-roller journaled in said blocks, a guard-board removably secured in said slanting grooves directly above said feed-roller, and removable regulating and cut-off gates working in said vertical grooves and in front of the guard-board to secure the same in place, substantially as set forth.

2. In a grain-separator, the combination, with the casing and the fan located therein, of a double-hopper frame detachably secured upon said casing and having opposite hoppers provided with centrally-meeting inclined bottoms, opposite vertical and crossing slanting grooves at the front edges of the hoppers, a corrugated feed-roller journaled at the front lower edges of the hoppers, a guard-board removably secured in said slanting grooves directly above said feed-roller, removable regulating and cut-off gates working in said vertical grooves in front of the guard-boards, a division cover or lid hinged at the apex or meeting point of the inclined bottoms and adapted to be thrown over either of the hoppers, reciprocating screens within said hopper-frame, and means for operating the same, substantially as set forth.

3. In a grain-separator, the combination, with the casing and a fan located at one end thereof, of a detachable double-hopper frame mounted upon said casing directly over the fan, opposite pairs of oscillating levers secured to opposite inner sides of said hopper-frame, upper and lower screen-frames secured pivotally to the upper and lower ends, respectively, of said levers, and means for oscillating said levers, substantially as set forth.

4. In a grain-separator, the combination, with the casing and a fan located at one end thereof, of a detachable frame mounted upon said casing, opposite pairs of oscillating levers secured to opposite inner sides of said frame, upper and lower screen-frames pivotally secured to the upper and lower ends, respectively, of said levers, vibrating conducting-spouts mounted transversely beneath the front ends of each screen-frame, and means for simultaneously oscillating said levers and vibrating said spouts, substantially as set forth.

5. In a grain-separator, the combination, with the casing and a fan located at one end thereof, of a double-hopper frame detachably mounted upon said casing, oscillating levers secured to inner opposite sides of said frame, the rear levers having lower projecting ends, upper and lower screen-frames pivotally secured to the upper and lower ends, respectively, of said levers, curved operating-plates secured to the rear ends of the lower screen-frames, a square operating-shaft journaled beneath the screen-frames and adapted to alternately strike the lower projecting ends of said levers and said curved plates, and means for simultaneously operating said shaft with the fan, substantially as set forth.

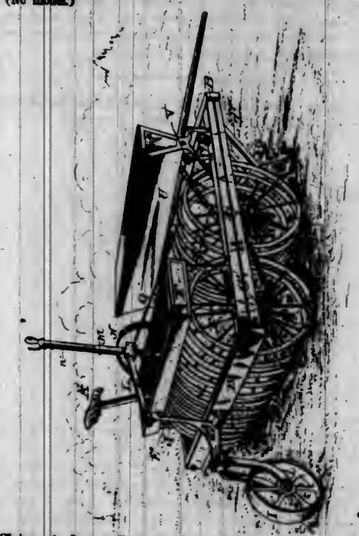
6. In a grain-separator, the combination, with the casing and a fan located in one end thereof, of a double-hopper frame detachably mounted upon said casing, oscillating levers secured to inner opposite sides of said frame, the rear levers having lower projecting ends, upper and lower screen-frames secured to the upper and lower ends, respectively, of said levers, curved operating plates secured to the lower ends of the lower screen-frame, a square or rectangular operating shaft journaled beneath the screen-frame, opposite strike-plates

secured to opposite sides at each end of said shaft and adapted to alternately strike the lower projecting ends of said levers and said curved plates, and means for simultaneously operating said shaft with the fan, substantially as set forth.

7. In a grain-separator, the combination, with the casing and a fan located at one end thereof, of a detachable frame mounted upon said casing, upper and lower reciprocating screen-frames working within said frame, parallel angle-plates secured to the inner ends of said screen-frames and having the ends thereof turned at an angle to the length of said frames, vibrating conducting-spouts located transversely beneath the front ends of the screen-frame and provided with supporting and sliding pins secured to one end thereof and adapted to slide in the sides of said frame and casing, respectively, and with upwardly-projecting studs adapted to engage between said angle-plates, swinging links supporting the outer ends of said spouts, and means for operating said screen-frame simultaneously with the fan, substantially as set forth.

8. In a grain-separator, the combination, with the casing of a fan located at one end thereof, of a series of vertical dividing-receptacles in front of said fan, a detachable double-hopper frame mounted upon said casing directly over the fan, upper and lower reciprocating screen-frames working within said hopper-frame, swinging and vibrating spouts located transversely beneath the front ends of said screen-frames and connected with and operated thereby, conducting chutes and spouts under the discharging ends of each vibrating spout, a series of boxes or drawers beneath each receptacle, and means for operating said screen-frames simultaneously with the fan, substantially as set forth.

479,242. SEEDER, ROLLER, AND PULVERIZER. HARDY W. CAMPBELL, Putney, S. D. Filed Mar. 24, 1892. Serial No. 426,248. (No model.)

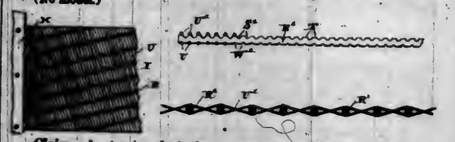


Claim.—1. In a combined roller, soil packer and pulverizer, the combination of a suitably-constructed frame having the bed F, the axles C and C', secured near the center and rear portions of said frame, the series of wheels mounted upon said axles, the caster-wheel secured to the center of the rear cross-bar of the frame, and the mechanism whereby the weight of said machine is thrown upon said caster-wheel and the front series of wheels D, substantially as described, and for the purpose set forth.

2. In a combined seeder, roller, soil packer and pulverizer, &c., the combination of a suitably-constructed frame provided with the bed F, the axles C and C', secured near the center and rear portions of said frame, the series of wheels D and D', mounted upon said axles, the caster-wheel secured to the center of the rear cross-bar of the frame, the drag-bars pivoted to the cross-bar B, the seed-box located in front of the bed F and upon the ends of the longitudinal pieces A and A' and provided with a suitable feed mechanism, the seed-tubes secured to the cross-bar 1 of the machine and the bottom of the seed-box, and the mechanism whereby the caster-wheel I, the drag-bars, and the feeding mechanism are operated, substantially as described, and for the purpose set forth.

3. In a combined seeder, roller, soil packer and pulverizer, &c., the combination of a suitably-constructed frame with the axle-bars secured near the front and rear portions of said frame, the series of wheels mounted upon said axle-bars, the caster-wheel secured to the center of the rear cross-bar of the frame, the seed-box located upon the front ends of the longitudinal pieces A and A' and provided with a suitable feed mechanism, and the mechanism whereby the caster-wheel I and feeding mechanism are operated, substantially as described, and for the purpose set forth.

479,243. APPARATUS FOR MANUFACTURING PAPER-PULP. JOHN R. CARTER, Kokomo, Ind. Filed June 18, 1891. Serial No. 396,756. (No model.)

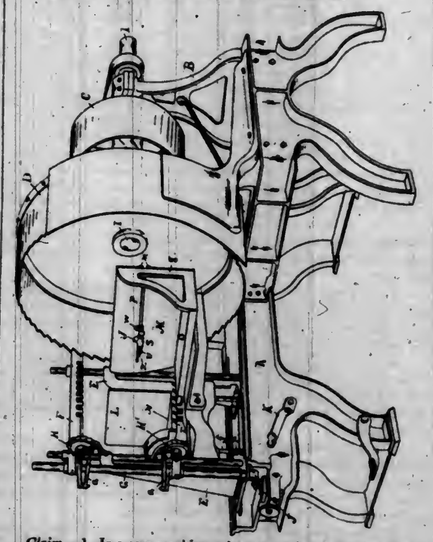


Claim.—1. A wire-cloth for wood-pulp-reducing machines, consisting of large wires having transverse water-ways on their upper sides and small wires which cross the large wires and are placed between the said grooves, substantially as described.

2. In a pulp-reducing machine, a reciprocating frame, a wire-cloth secured thereto having large wires, and small wires passed over and under the said large wires, and tightening devices which are connected with one or more of the large wires for the purpose of stretching the said cloth, substantially as described.

3. In a pulp-reducing machine, a vat, a reciprocating wire-cloth over the vat, a feed-box supported over the wire-cloth, perforated water-pipes under the said cloth, and water-supply pipes extending over the feed-box, the parts combined substantially as specified.

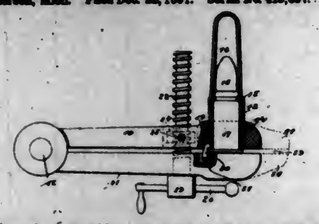
479,244. SAWING-MACHINE. DENNIS CHASE, Orange, Mass. Filed May 26, 1891. Serial No. 394,218. (No model.)



Claim.—1. In a saw-machine, a box to receive the chair-backs or other articles as they are cut from the block, in combination with a sliding piece S, forming a bearing for a rod V, provided with a sharpened point and being normally thrust forward by a coiled spring U, said piece S sliding in a horizontal slot P in the back of said box and receding under pressure from the block as it is fed forward, substantially as described.

2. In a saw-machine, a box to receive chair-backs or other articles as they are cut from the block, in combination with a sliding piece S, forming a bearing for a rod V, provided with a sharpened point and being normally thrust forward by a coiled spring U, said piece S sliding in a horizontal slot P in the back of said box and having rolls W W bearing upon the inside of said box, and a spring X, bearing upon the outside thereof to sustain the sliding piece S in position, substantially as described.

479,245. CARTRIDGE-RELOADER. FREMONT R. CRAWFORDSON, Emerson, Mich. Filed Dec. 22, 1891. Serial No. 415,827. (No model.)

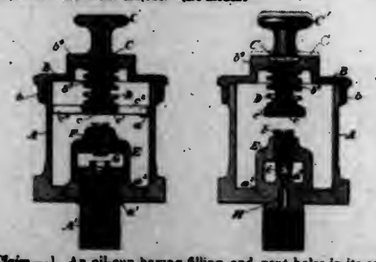


Claim.—1. A cartridge-reloader comprising oppositely-arranged jaws, a tapering tube held in one of the jaws and shaped to fit a cartridge, and a screw extending transversely through the jaws, one of the jaws carrying a pivoted nut to receive the screw, substantially as described.

2. A cartridge-reloader comprising oppositely-arranged jaws, a detachable cartridge-receiving tube carried by one of the jaws and adapted to fit a cartridge, a nut pivoted in one of the jaws, a screw extending through one of the jaws and through the nut of the opposite jaw, and an extractor for the cartridge, substantially as described.

3. The combination, with the movable jaws, one of which is provided with a cartridge-receiving tube and has a recess adjacent to the tube, of a hook pivoted on one of the jaws and adapted to engage the flange of the cartridge, substantially as described.

479,246. OIL-CUP. JOSEPH M. COALE, Baltimore, Md. Filed Feb. 24, 1892. Serial No. 422,621. (No model.)



Claim.—1. An oil-cup having filling and vent holes in its cap, a cover adapted to open and close said holes by a partial rotation, and a spring holding said cover upon the cap, substantially as described.

2. An oil-cup having filling and vent holes in its cap, a cover for said holes, consisting of a plate mounted upon a stem, on which it has both a rotatory and an axial sliding movement, and a spring holding said plate against the cap, substantially as described.

3. An oil-cup having filling and vent holes and an oblong groove in its cap, a cover for said holes, consisting of a plate adapted to be received in said recess, and means for holding said plate yieldingly in the recess, substantially as described.

4. An oil-cup having filling and vent holes and a transverse groove in its cap, a cover for said holes, consisting of a plate adapted to be received in said groove, said plate being rotatable and also axially movable, and having a spring holding it in said groove, substantially as described.

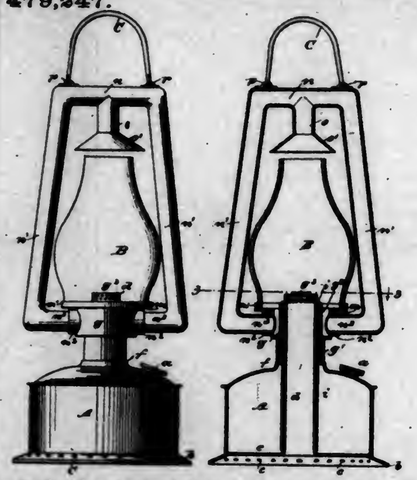
5. The combination, with the oil-cup A, of the cap B, provided with a transverse groove and having the holes b' b^2 opening into said groove, the plate C, having a spindle c midway between said holes, the collar c' on said spindle, and the spring E, compressed between said collar and the cap B, substantially as described.

6. The combination, with the oil-cup A, having the lugs a, and the cap B, having the filling and vent holes and the groove, of a plate C, having a spindle c, provided with the collar c' and arms c^2, and the spring D, substantially as described.

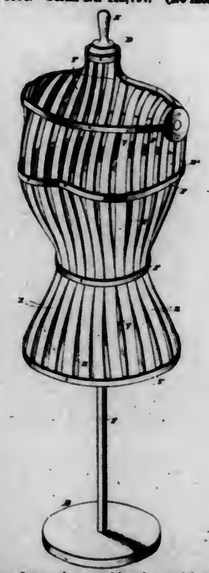
7. The combination, with an oil-cup A, of a tubular wrought-iron stem screwed into the bottom of said cup, a yoke E, screwed upon the inner end of the stem, and a screw working in the yoke above and in line with the bore of the stem to regulate the feed, substantially as described.

479,247. LANTERN. DANIEL W. CROSBY, Little Rock, Ark. Filed Feb. 16, 1892. Serial No. 421,770. (No model.)

Claim.—As an improved article of manufacture, a central-draft lantern consisting in the annular reservoir A, having an apertured supporting-flange b, a central draft-tube d, closed at its upper laterally-foraminated end, and a collar f, concentric with and of greater diameter than the tube, the shell g, secured upon said neck at g' and having an upward extension g^2, extending adjacent to the upper end of the tube d to form the wick-space, the opposite apertured globe-supporting flange or plate m on the upper end of the shell, and the tubular frame having inward-bent lower ends n^2, connected with the opposite sides of the said shell, and the hood o' within the upper end of the tubular frame, substantially as set forth.



479,248. CLOTHING-FORM. HERBERT H. CUMMER, Cadillac, Mich. Filed Nov. 23, 1891. Serial No. 412,797. (No model.)



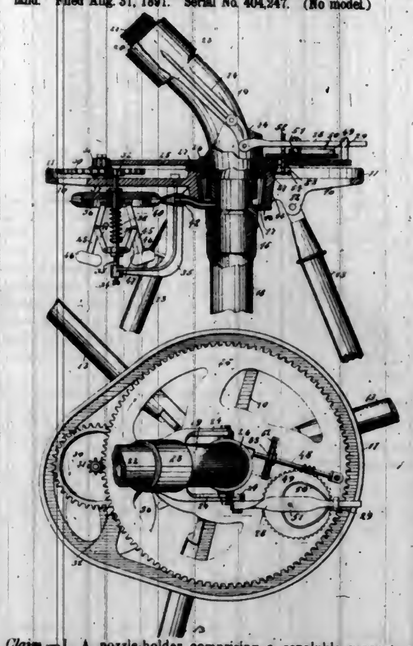
Claim.—1. In a form, the combination, with a base, an upright rising therefrom and a downwardly-facing spring-catch on the upright, and a pin in the upper end of said upright, of the form proper comprising horizontal blocks connected by an exterior covering, the lowermost two blocks having a hole to receive said upright, the next block having a socket to receive said pin and to permit the face of the catch at that time to stand above the lowermost block, and the latter having a hole through which said catch may be reached, as set forth.

2. The herein-described form, the same comprising horizontal blocks at the hip, waist, bust, and shoulder lines, an upright top block on the uppermost horizontal block, a horizontal disk supported by the top block, a vertical bar connecting said blocks, an exterior covering therefor, and a support, as set forth.

3. The herein-described form, the same comprising a number of blocks cut to the proper size, a bar connecting them, upright veneer strips secured to the edges of the blocks to make the general contour approximate the human figure, and fabric strips secured over said veneer strips opposite the edges of all said blocks, as hereinbefore set forth.

4. The herein-described form, comprising horizontal blocks at the hip, waist, bust, and shoulder lines and arranged one above the other, a vertical bar rigidly connecting said blocks, an exterior covering therefor consisting of veneer strips secured to the edges of the said blocks and bent into shape to assume the general contour of the human figure, an upright support, and a vertically-disposed spring secured to one of said blocks and engaging the said support, substantially as described.

479,249. NOZZLE-HOLDER. ARTHUR CUTHBERT, London, England. Filed Aug. 31, 1891. Serial No. 404,247. (No model.)



Claim.—1. A nozzle-holder comprising a revoluble support, a pivoted deflector in which a nozzle is loosely held, carried by the said support, and means for swinging the deflector on its pivots as a support is revolved, substantially as described.

2. A nozzle-holder comprising a frame having a hose-coupling in an opening therein, a horizontal revoluble wheel mounted on the frame, a nozzle-holding deflector pivoted to the said wheel, and means for swinging the deflector on its pivot as the wheel is revolved, substantially as described.

3. A nozzle-holder comprising a frame having a central opening therein, a hose-coupling secured in the opening and provided with a side jet-pipe, a revoluble deflector mounted above the hose-coupling and adapted to support a nozzle, a water-motor mounted on the frame and having its wheel in the path of the jet-pipe, a gear mechanism connecting the deflector with the motor, and a cam-operated lever mechanism for changing the angle of the deflector, substantially as described.

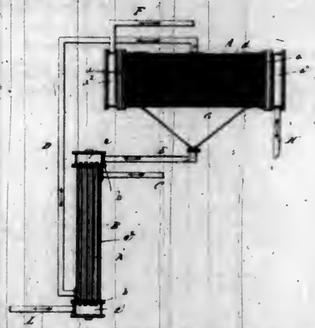
4. A nozzle-holder comprising a frame having a central opening therein, a hose-coupling secured in the opening, a deflector mounted above the coupling and adapted to support a nozzle, a centrally-apertured wheel mounted horizontally upon the frame, a lever held to slide on the wheel and connected with the deflector, a cam mechanism for operating the lever, and a motor for revolving the wheel, substantially as described.

5. The combination, with the frame having a central opening therein to receive a pipe, the revoluble wheel held to turn horizontally around the central opening, the nozzle-holding deflector pivoted on the wheel, and the lever pivoted to the deflector and held to slide on the wheel, of a cam-wheel mounted on the main wheel and adapted to engage a roller on the lever, a worm-shaft for operating the cam-wheel, and a star-wheel secured to the worm-shaft and adapted to engage fixed projections on the main frame, substantially as described.

6. The combination, with the motor-shaft and the motor-wheel held to slide thereon, of a spring arranged to support the wheel and weights adapted to balance the spring, said weights being pivoted to the under side of the wheel and having a link connection with the shaft, substantially as described.

7. In a nozzle-holder, the combination, with the revoluble wheel held to turn horizontally, as described, of a deflector comprising a sleeve having depending legs pivoted to the central portion of the wheel, and a lever mechanism for changing the position of the deflector in relation to the wheel, substantially as described.

479,250. APPARATUS FOR CLARIFYING SUGAR SOLUTIONS. EUGENE W. DEMING, New Orleans, La. Filed Nov. 18, 1891. Serial No. 412,321. (No model.)



Claim.—The apparatus, substantially as and for the purpose set forth, comprising the heater or defecator having the chamber a', the chambers a^3, and the pipes connecting the chambers a^3, the steam-feed pipe connected with one of the chambers a^3, the steam-discharge pipe connected with the other chamber a^3, the stand-pipe having the chamber c^3, the chambers cc', and the pipes connecting said chambers cc', a pipe connecting the chamber c^3 of the stand-pipe and the chamber a' or the heater or defecator, a pipe connecting the chamber a' of the heater or defecator and the chamber c of the stand-pipe, and a pipe leading from the chamber c' of said stand-pipe, all adapted to operate substantially as and for the purpose set forth.

479,251. WOOLEN BOOT. WALLACE H. DODGE and ROBERT D. O. SMITH, Mishawaka, Ind. Filed Oct. 13, 1887. Serial No. 252,266. (No model.)



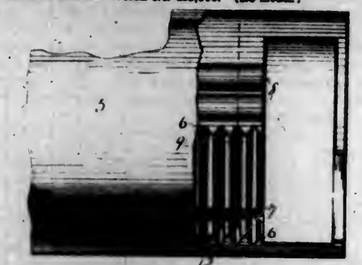
Claim.—1. A woolen all-knit boot whereof the leg portion of loosely-twisted yarn is, after fulling and finishing, hard and stiff and the foot portion of hard-twisted yarn is flexible, as set forth.

2. A boot whereof the leg and foot portions constitute one continuous or interwoven fabric, the former portion being composed of soft loosely-twisted yarn felted together thoroughly and the latter portion being composed of hard-twisted yarn relatively unfelted and flexible, as set forth.

3. An all-knit boot whereof the leg and foot portions are one continuous knit fabric, the former extending down and including the heel, being composed of soft loosely-twisted yarn felted together thoroughly and the latter being composed of hard-twisted yarn unfelted and flexible, as set forth.

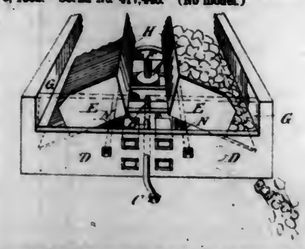
4. An all-knit boot consisting of a stiff felted or fulled leg and a flexible or unfelted foot portion, substantially as set forth.

479,252. STEAM-BOILER. DANIEL DOSAHUE, New York, N. Y. Filed Mar. 5, 1892. Serial No. 423,860. (No model.)



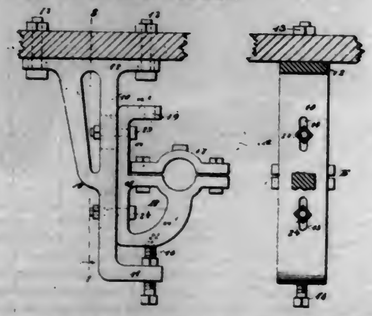
Claim.—The combination, in a steam-boiler, of a corrugated shell and water-pipes located between the corrugations and connected with the boiler, substantially as described.

479,253. AIR DUMP-CAR. CHARLES H. DOW, Ellensburg, assignor of one-sixth to James Garvey and Harry L. Smith, Tacoma, Wash. Filed Jan. 8, 1892. Serial No. 417,440. (No model.)



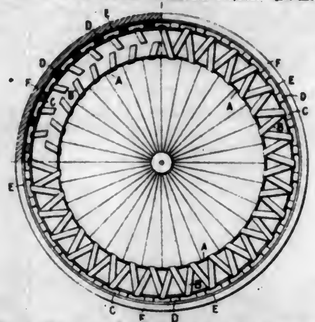
Claim.—A dumping car and means for dumping the same, comprising in its construction a car having stationary sides and ends and formed with two dumping-sections E E, which are inclosed by the stationary sides of the car and pivoted to the frame of the car near their outer edges, said sections being provided with inclined inner sides H H, which meet at a point when the sections are in a normally-adjusted position, thereby preventing coal, stone, or debris getting in between the two sections and preventing the sections operating, an air or steam conducting pipe B, a cylinder A, and piston F, which works against the under side of the inner ends of the sections and raises the same, said sections being so pivoted that when the load is dumped they automatically return to their lowered condition, substantially as described.

479,254. HANGER. JAMES G. DUKE, Memphis, Tenn. Filed Mar. 16, 1892. Serial No. 425,162. (No model.)



Claim.—The combination, with a hanger capable of attachment to an overhead, to a vertical, or to a low horizontal support, the said hanger comprising, essentially, a body-section and an arm extending at an angle therefrom at one end, the body-section of the hanger being provided with elongated slots located one above the other, of a box consisting of a bracket comprising a body-section having an elongated transverse slot therein near one end and an aperture near the opposite end, an arm projected from one end of the body and having an elongated opening formed therein, a second arm extending from the body and supporting a bearing, the latter arm being provided with a recess, adjusting-bolts passed through the upper body-slot of the bracket and the lower aperture therein and through the elongated slots in the body of the hanger, and an adjusting-screw carried by the arm of the hanger, adapted to enter the recess in one arm of the box or pass through the slot in the opposite arm of said box, as and for the purpose specified.

479,255. WHEEL FOR VELOCIPEDES. JOHN B. DUNLOP, Belfast, Ireland. Filed Feb. 10, 1892. Serial No. 421,012. (No model.)

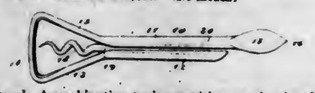


Claim.—1. In a wheel for velocipedes or other vehicles, the combination, with a rigid rim, of a flexible or elastic covered ring or hoop larger than and concentric with the said rim and bands of cloth or other pliable and non-elastic textile material connecting the said rim with the elastic ring, substantially as and for the purpose specified.

2. In a wheel for a velocipede or other vehicle, the combination, with a rigid rim, of flexible rings or hoops larger than and concentric with the said rim, said rings or hoops being firmly secured together by blocks of india-rubber interposed between and cemented to them, and bands or strips of pliable cloth connecting the said rings to the rigid rim, substantially as described.

3. In a wheel for velocipedes or other vehicles, the combination, with a rigid rim, of a covered flexible compound ring made up of a series of convolutions larger than and concentric with the said rim and bands or strips of cloth or other pliable material connecting the said compound ring to the rigid rim, substantially as described.

479,256. CAN-OPENER. SMITH ERENGER, Park City, Utah. Filed Feb. 5, 1892. Serial No. 420,436. (No model.)



Claim.—1. A combination tool comprising a spring-handle having longitudinally-separable members of unequal lengths, the longer member terminating in cutting-blades, and a corkscrew adapted to fold longitudinally between the members and having a pivot connection with one member of the handle, substantially as described.

2. A combination tool comprising a longitudinal separable handle having an enlarged outer end formed into a scraper and adapted to exert a spring action on the handle members and having one of the said members provided at one end with cutting-blades, and a corkscrew adapted to extend longitudinally between the members, said corkscrew being pivoted to one member of the handle, substantially as described.

3. A combination-tool comprising a longitudinally-separable handle having an enlarged outer end formed into a scraper and adapted to exert a spring action on the members of the handle, and a corkscrew having its shank pivoted between the members of the handle, substantially as described.

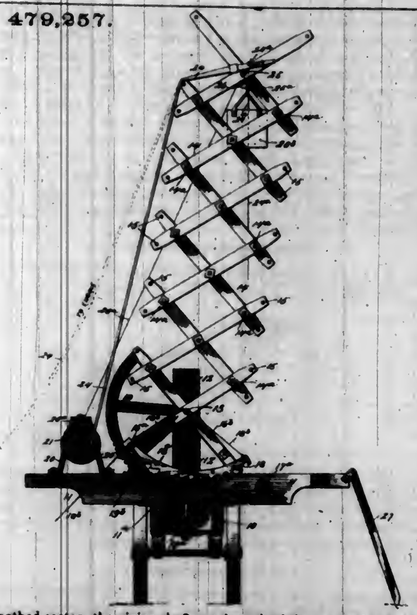
479,257. FIRE-ESCAPE. CARL F. ZEMAN, Marshalltown, Iowa. Filed Feb. 9, 1892. Serial No. 420,929. (No model.)

Claim.—1. In a fire-escape, the combination, with the lazy-tongs the links or levers of which are extended beyond the outer joints of the rounds or bars connecting the ends of the said links or levers, substantially as shown and described.

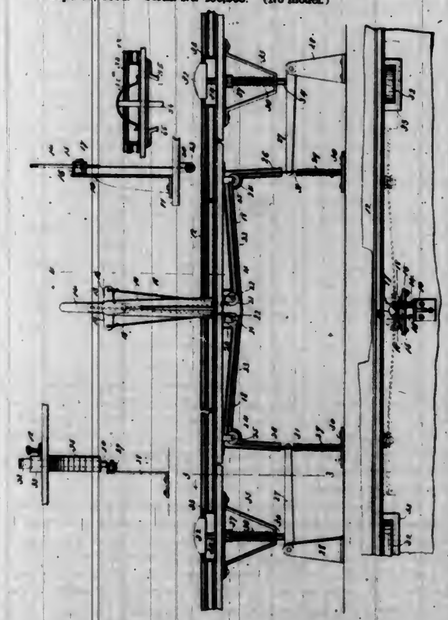
2. The combination, with the frame, of the upright standards, the lazy-tong extension-ladder journaled between the same, the elevating-strap, the winding-drum, the locking-bar, the toothed swinging frame connected with the ladder and adapted to engage the locking-bar, the toothed sector, the pinion-shaft, ratchet-wheel thereon, and engaging pawl, all arranged substantially as shown and described.

3. In a fire-escape, the combination of a lazy-tong extension-ladder, a toothed semicircular segment secured to one of the lower members, an elevating-strap attached to the other lower member, the pinion and shaft for operating the toothed sector, and the pawl for locking the same, whereby the ladder can be adjusted at any suitable angle, and the winding-drum for operating the elevating-strap, substantially as shown and described.

479,257.



479,258. RAILWAY-SIGNAL. SAMUEL ENRICH, Reno, Nev. Filed Sept. 19, 1891. Serial No. 406,303. (No model.)

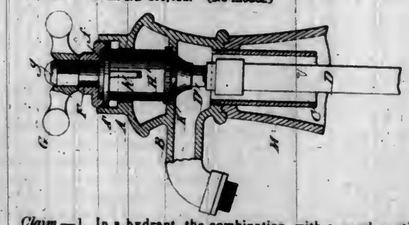


Claim.—1. A railway-signal comprising a pivoted signal-arm, pivoted and spring-pressed levers, cables connected to opposite sides of the signal-arm and to the free ends of the said levers, and vertically movable and spring-pressed contact-blocks adjacent to the rails and having depending shanks adapted to engage the pivoted levers, substantially as described.

2. A railway-signal comprising a signal-post, a swinging signal-arm mounted thereon, a casing arranged adjacent to and parallel with the track, swinging spring-pressed levers mounted beneath the open ends of the casing, cables having an operative connection with the signal-arm and extending over guide-pulleys in the casing to connect with the free ends of the levers, and spring-pressed contact-blocks arranged adjacent to the track, said blocks having depending shanks adapted to contact with the levers, substantially as described.

3. A railway-signal comprising a post arranged adjacent to the track, a signal-arm pivoted on the post and provided with oppositely-extending arms at its base, a casing arranged parallel with the track and extending beneath the foot of the post, vertically-swinging spring-pressed levers mounted beneath the open ends of the casing, cables secured to the free ends of the levers and to the outer ends of the base-arms of the signal-arm, said cables extending over suitable guide-pulleys in the casing, and spring-pressed contact-blocks arranged adjacent to the track-rail, said blocks having depending shanks adapted to strike the upper sides of the swinging levers, substantially as described.

479,259. HYDRANT. CHARLES G. BYRD, St. Louis, Mo. Filed Oct. 24, 1891. Serial No. 409,732. (No model.)



Claim.—1. In a hydrant, the combination, with a nozzle-section having an integral nozzle, of the stem which connects with the valve in the water-way, a conical perforated rubber packing-ring on said stem and seated upon the seat in the nozzle-section, the cylinder bearing upon said packing-ring and located non-rotatively within the nozzle-section, an adjusting-ring screwed in the upper end of the nozzle-section, and a metallic block within said ring, provided with a screw-threaded projection engaging the head of the valve stem, all arranged substantially as described.

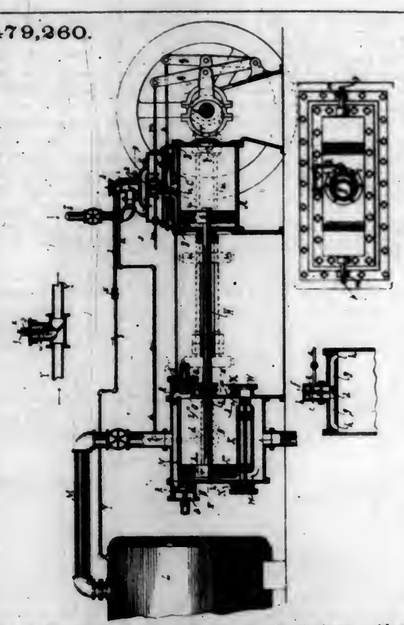
2. In a hydrant, the combination of a nozzle-section having an integral nozzle, a circular seat and the internal screw-threaded upwardly-projecting cylindrical extension, the stem which is connected to the valve in the water-way, a single conical perforated rubber packing-ring on said stem and seated on the aforesaid circular seat, a cylinder located within the nozzle-section so as to be adjustable vertically, but non-rotative, said cylinder bearing at its lower end upon the packing-ring, an adjusting-ring screwed into the aforesaid screw-threaded extension, a block inside of said ring, having a downward screw-threaded projection engaging the head of the valve-stem, and a handle device secured to the aforesaid block, so as to rotate the same, and thus open or close the valve, substantially as described.

479,260. AIR-COMPRESSOR. THOMAS F. FARRELL, Paterson, N. J. Filed July 9, 1891. Serial No. 398,944. (No model.)

Claim.—1. The combination, with a receiver and a cylinder K, having a housing *b*, of a valve-chamber F, a pipe Y, leading from the receiver to the valve-chamber, a pipe *a*, leading from the valve-chamber to the housing *b*, a valve Z, located in the valve-chamber F and actuated by the pressure in the pipe Y to open the pipe *a*, and a piston located in the housing of said cylinder, said cylinder being provided with a channel having mouths *h*, leading into the cylinder at opposite sides of the piston, and a stopper or valve *d* for said channel, said stopper or valve being actuated by the pressure in the pipe *a*, substantially as described.

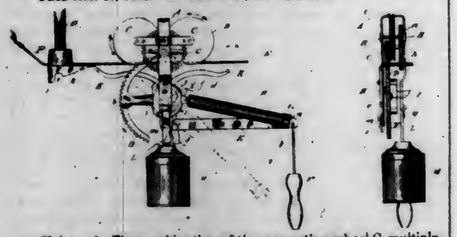
2. The combination, with a receiver, of a cylinder made to communicate with said receiver, said cylinder being provided with a piston I and with a channel having mouths *h*, leading into the cylinder at opposite sides of the piston, a stopper or valve *d* for said channel, an actuating-piston B, a cylinder A for said actuating-piston, stoppers or valves *l* for intercepting the steam-supply to said cylinder, a supply-pipe Y, and pipes or channels *a i* for conveying pressure from the re-

479,260.



ceiver to the valves *d l*, respectively, for actuating the latter, said supply-pipe being provided with a valve and a spring or weight for holding said valve closed until a certain pressure is attained and said pipe Y being made to communicate with the pipes or channels *a i*, leading, respectively, to the valves *d l*, and a valve Z, actuated by the pressure in the pipe Y for opening the pipes or channels *a i*, substantially as described.

479,261. CASH-CARRIER. FAY O. FARWELL, Dubuque, Iowa. Filed Mar. 10, 1891. Serial No. 384,460. (Model.)



Claim.—1. The combination of the supporting-wheel C, multiplying-gearing connected therewith, a toothed segment D, engaging with said multiplying-gearing, a lever-arm E, pivoted to the frame of the cash-carrier, a cylinder or tube G, pivoted to said lever-arm, and a spring within said cylinder connected with the toothed segment, substantially as set forth.

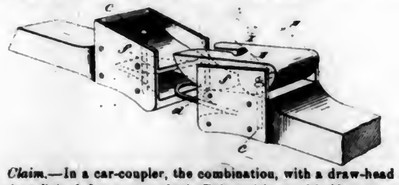
2. The combination of the supporting-wheels C C, multiplying-gearing connected therewith, a toothed segment D, adapted to engage with said multiplying-gearing, having a hub provided with a smooth segment I, a lever-arm E, pivotally connected to the frame of the carrier, a tube or cylinder pivoted to said lever-arm, and a spring within said tube or cylinder attached to the smooth segment, substantially as set forth.

3. The combination of the supporting-wheels C C, multiplying-gearing connected therewith, a toothed segment D, adapted to engage with said multiplying-gearing, a smooth segment connected with said toothed segment, a lever-arm E, pivoted to the frame of the carrier, a cylinder or tube E, pivoted to said lever-arm, a spring within said cylinder or tube connecting with said smooth segment, and retaining-arms K K, secured to the frame of the carrier, for the purposes set forth.

4. The combination of the supporting-wheels C C, multiplying-gearing connected therewith, a toothed segment adapted to engage with said multiplying-gearing, a smooth segment connected to said toothed segment, a lever-arm pivoted to the frame of the carrier, a cylinder or tube G, pivoted to said lever-arm, a spring within said tube or cylinder connecting with said smooth segment, deflecting-arms K K, pivoted to the frame of the carrier for the purposes set forth and having notches *e e* at their lower ends, and the cross-piece *f* on said lever-arm adapted to engage with one or the other of said notches.

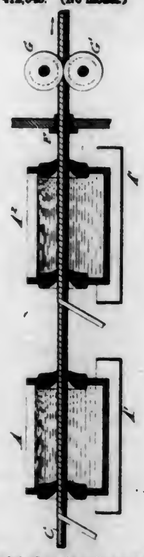
5. The combination of the supporting-wheel C, multiplying-gearing connected therewith, a toothed segment adapted to engage with said multiplying-gearing, a smooth segment connected to said toothed segment, a lever-arm E, pivoted to the frame of the carrier, a cylinder or tube G, pivoted to said lever-arm, a spring within the tube or cylinder connected with the toothed segment, and the arm L, hinged to the main frame of the cash-carrier and carrying a cash-holder, substantially as set forth.

479,262. CAR-COUPLING. JOHN FAUBION, Sr., Leander, Tex. Filed Sept. 5, 1891. Serial No. 404,911. (No model.)



Claim.—In a car-coupler, the combination, with a draw-head A, the pin *c*, link *d*, flanges *f*, and trip B for raising and holding in position the draw-pin *c* until it shall automatically fall into the hole provided in the opposite draw-head, engaging the link, thereby completing the coupling, substantially as and for the purpose described.

479,268. ART OF AND APPARATUS FOR MAKING PARCHMENTIZED-FIBER TUBES. ROBERT P. FRIST, Wilmington, Del., assignor to the Delaware Hard Fibre Company, same place. Filed Nov. 23, 1891. Serial No. 412,843. (No model.)



Claim.—1. The hereinbefore-described improvement in the art of making parchmentized-fiber tubes, which improvement consists in winding a strip of dry or untreated paper spirally into tubular form, with closely adjacent edges, converting the tube into parchmentized fiber by passing it as fast as formed through a transforming-bath, and then consolidating the tube thus formed and treated into a homogeneous fabric by pressure.

2. The hereinbefore-described improvement in the art of making parchmentized-fiber tubes, which improvement consists in winding a strip of dry or untreated paper spirally into tubular form, with closely abutting or overlapping edges, immersing the tube thus formed in a transforming-bath, winding a second strip of dry or untreated paper on the treated tube, and passing both the treated and untreated layers or convolutions through a second transforming-bath.

3. The combination, substantially as hereinbefore set forth, of a tank for containing a transforming-bath, a mandrel, means for revolving it below the surface of the transforming-bath, for traversing it endwise therethrough, for winding a strip of dry or untreated paper thereon, and for carrying its convolutions through the bath to be acted upon thereby as fast as formed, and means for consolidating the transformed fabric into a homogeneous structure.

4. The combination, substantially as hereinbefore set forth, of a series of transforming-baths, a mandrel, means for rotating and traversing it endwise through the baths and for winding a strip of dry or untreated paper thereon and for passing it through one of the baths, and means for winding a second strip upon the first after passing through the first bath and for passing both strips through the succeeding bath, for the purposes described.

5. The combination, substantially as hereinbefore set forth, of a transforming tank or bath, a mandrel, means for rotating it, for winding a strip thereon, and for moving both the mandrel and strip endwise through the bath, and gates or valves through which the shaft, with the strip wound thereon, passes to subject it to the action of the bath.

6. The combination, substantially as hereinbefore set forth, of a transforming tank or bath, a rotating mandrel movable endwise therethrough, elastic or yielding gates in the tank, through which the mandrel passes, together with the paper wound thereon, and means, such as eyes or grooved rollers, for consolidating the tube as it emerges from the bath.

7. The combination, substantially as hereinbefore set forth, of a series of transforming tanks or baths, a rotating mandrel movable endwise therethrough, elastic or yielding gates in the tanks through which the mandrel passes, together with the paper wound thereon, and means, such as eyes or grooved rollers, for consolidating the tube as it emerges from the bath, whereby a strip of dry or untreated paper may be wound upon the mandrel, passed through the bath, successive strips or layers of untreated paper wound thereon, and the whole passed through another bath and consolidated after emerging therefrom.

479,264. ART OF AND APPARATUS FOR MAKING PARCHMENTIZED-FIBER TUBES. ROBERT P. FRIST and CHARLES G. RUPERT, Wilmington, Del., assignors to the Delaware Hard Fibre Company, same place. Filed Nov. 23, 1891. Serial No. 412,855. (No model.)

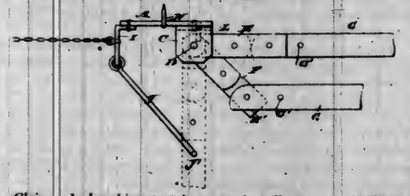


Claim.—1. The hereinbefore-described improvement in the art of making parchmentized-fiber tubes, which improvement consists in winding a strip of dry or untreated paper spirally into tubular form and conveying to the tube an acid or transforming-fluid to convert the paper into parchmentized fiber as fast as wound into tubular form.

2. The hereinbefore-described improvement in the art of making parchmentized-fiber tubes, which improvement consists in successively winding strips of dry or untreated paper spirally into tubular form one upon the other, conveying to each layer of the tube as formed an acid or transforming-fluid to convert it into parchmentized fiber, and then consolidating the transformed layers, as described.

3. The combination, substantially as hereinbefore set forth, of a series of saturating-rolls, means for applying a transforming-fluid thereto, a mandrel rotating and moving endwise past these rolls to wind the paper spirally into a tube and feed it past them, balancing or pressure rolls on the opposite side of the mandrel to that of the saturating-rolls, and means, such as eyes or rollers, through or between which the mandrel passes endwise with the saturated tube thereon.

479,265. WIRE-STRETCHER. WILLIAM D. FULBRIGHT, Nichols, Mo., assignor to himself and Harry E. Patton, same place. Filed Oct. 29, 1891. Serial No. 410,187. (No model.)

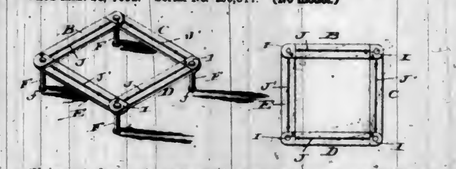


Claim.—1. In a wire-stretcher, two pivotally-supported independent arms, having each a complementary lever, which serves, in connection with its arm, to grip the wire and movable alternately by said levers for exerting tension on the wire, and a locking device for the levers, the one arm with its lever serving when locked to maintain the wire under tension until gripped by the other arm and lever, substantially as described.

2. In a wire-stretcher, the combination, with a plate adapted to be temporarily attached to a fence-post, of two arms pivoted on the said plate one above the other, gripping-jaws attached to the opposite faces of the said pivoted arms, and levers pivoted on the said arms in line with the respective gripping-jaws, substantially as shown and described.

3. In a wire-stretcher, the combination, with a plate provided with a pin and a chain for holding the plate in position, of two arms pivoted on the said plate one above the other, gripping-jaws attached to opposite faces of the said pivoted arms, levers pivoted on the said arms in line with the respective gripping-jaws, and a locking device, substantially as described, for locking the said lever and pivoted arm in place for stretching the wire, as set forth.

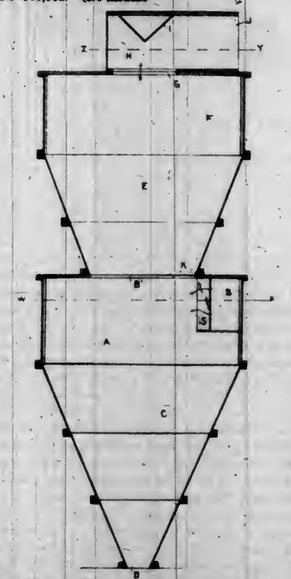
479,266. GAME APPARATUS. WILLIAM FULD, Baltimore, Md. Filed Mar. 28, 1892. Serial No. 426,817. (No model.)



Claim.—1. In a parlor game of the described type, a pointer-frame composed of four sides jointed loosely together at their ends and provided at their jointed ends or corners with legs of suitable height, substantially as and for the purpose set forth.

2. The jointed pointer-frame for parlor-games of the type described, consisting of the four side bars having metallic plates I I, the reinforcing-wires J and J', the legs or fingers F, metallic rods G, inserted through said legs, and the caps H, all constructed and combined to operate substantially as and for the purpose shown and set forth.

479,267. APPARATUS FOR SEPARATING DUST FROM AIR. PIETER VAN GELDER, Sowerby Bridge, England. Filed Nov. 4, 1890. Serial No. 370,302. (No model.)



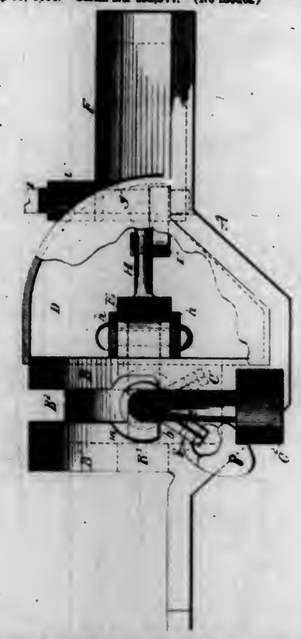
Claim.—1. In an apparatus for separating dust from air, a cylindrical casing having a central air-exit in its upper end and peripheral embayments, as described, a tangential air-inlet device adapted to cause the incoming dusty air to whirl around said casing, a downward

conical extension of said casing having a dust-discharge orifice at its lower end, a smaller casing communicating directly with said air-exit and having a discharge-pipe tangential to the exit spout of the smaller casing, and a conical deflector depending from the upper wall of the last-named casing directly above the last-named air-exit, substantially as described.

2. The combination of the cylindrical corrugated casing F, having central air-exit G, the conical extension E, the superposed casing H, having tangential air-exit J and communicating with exit G, the deflecting-cone I above exit G, and an air-inlet opening into the lower end of the casing F, substantially as described.

3. The combination of the cylindrical corrugated casing A, having tangential air-inlet B and central air-outlet B', conical extension C, having dust-discharge opening D, second cylindrical corrugated casing F above casing A, conical casing E, connecting casings F and A, additional casing H, having tangential exit J and communicating with the air-exit G of casing F, and deflecting-cone I above exit G, substantially as described.

479,268. SWITCH-STAND. VICTOR J. GOETZ, Hillburn, N. Y., assignor of one-half to W. C. Kidd and J. B. Suffern, same place. Filed Aug. 13, 1891. Serial No. 402,577. (No model.)



Claim.—1. In a switch-stand, the combination, with a hub mounted therein, of a grooved lever carried by said hub, a weighted arm projecting from said grooved lever, and a moving rod having a pin adapted to enter the grooves of said lever, substantially as set forth.

2. In a switch-stand, the combination, with a hub mounted therein, of a grooved operating-lever carried by said hub, a weighted arm projecting from said grooved lever, a projection on said lever, a projection on the stand, and means for locking said projections together to lock the stand, a moving rod, and a pin carried by said moving rod and adapted to enter the grooves in the operating-lever, substantially as set forth.

3. In a switch-stand, the combination, with a hub mounted therein, of a lever carried by said hub and made with grooves therein, a moving rod, a pin projecting from said moving rod and adapted to enter the grooved lever, and rollers carried by said moving rod and adapted to run on one side of the hub, substantially as set forth.

4. In a switch-stand, the combination, with a hub mounted therein, of a grooved lever mounted in said hub, a moving rod, a pin carried by said moving rod and adapted to enter the grooved lever, a spring, and a link or toggle connecting said moving rod with the spring, the connection of said toggle or link with the moving rod being diametrically opposite the pin in said rod, substantially as set forth.

5. In a switch-stand, the combination, with a hub mounted therein, of a lever mounted in said hub and provided with grooves, a moving rod, a pin carried by said moving rod and adapted to enter said grooved lever, rollers carried by said rod at opposite sides of the pin, a spring, and a link connecting said moving rod and spring, the connection of said link with the moving rod being at a point diametrically opposite the pin and rollers, substantially as set forth.

6. In a switch-stand, the combination, with suitable bearings, of a hub mounted therein, said hub being provided with an elongated slot or groove, a grooved lever mounted in said hub, a moving rod, and a pin carried by said moving rod and adapted to enter said grooved lever, substantially as set forth.

7. In a switch-stand, the combination, with a hub mounted therein, of a lever located in said hub, said lever having elongated slots, a moving rod, and a pin projecting from said moving rod and adapted to enter one of said elongated slots when the device is operated automatically, substantially as set forth.

8. In a switch-stand, the combination, with a hub mounted therein, of a lever located in said hub, said lever being provided with annular grooves, a sliding rod, and a pin projecting from said sliding rod and adapted to enter one of said annular grooves when the device is operated by hand, substantially as set forth.

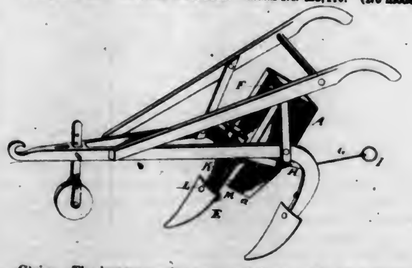
9. In a switch-stand, the combination, with a hub mounted therein, of a lever located in said hub, said lever being provided with annular grooves near the ends of its body portion, and elongated slots or grooves in its body portion, a moving rod, and a pin carried by said moving rod and adapted to enter said grooves, substantially as set forth.

10. In a switch-stand, the combination, with a revoluble operating-lever, of a projection thereon, said projection being adapted to be secured to the stand at an angle, substantially as set forth.

11. In a switch-stand, the combination, with a revoluble operating-lever, of a projection thereon, a projection on the stand, said projections being so arranged that they may be secured together at an angle to the axis of the lever, substantially as set forth.

12. In a switch-stand, the combination, with a hub mounted therein of a weighted operating-lever having an elongated slot or groove, a moving rod, and a pin projecting from said rod and adapted to enter said elongated slot or groove, substantially as set forth.

479,269. CORN-PLANTING ATTACHMENT. WILLIAM P. GOINS, Paragould, Ark. Filed Mar. 18, 1892. Serial No. 425,419. (No model.)



Claim.—The hopper, spring-retracted dropper-slide, roller-spring held on the slide, clip-carrying roller, and a cord attached to slide, all combined and arranged as shown and described.

479,270. DRAWING-PEN. OSCAR F. GRANT, Pittsburg, Pa. Filed Apr. 29, 1892. Serial No. 431,145. (No model.)



Claim.—1. A drawing-pen having two blades, one of said blades being hinged to the other and having an ink-reservoir on its lower end, whereby ink may be taken from a receptacle and conveyed to the stationary blade, substantially as described.

2. A drawing-pen provided with an auxiliary blade hinged to one of the blades of the pen, said auxiliary blade having an ink-receptacle on its lower end, whereby ink may be carried from a receptacle to the point of the pen, substantially as described.

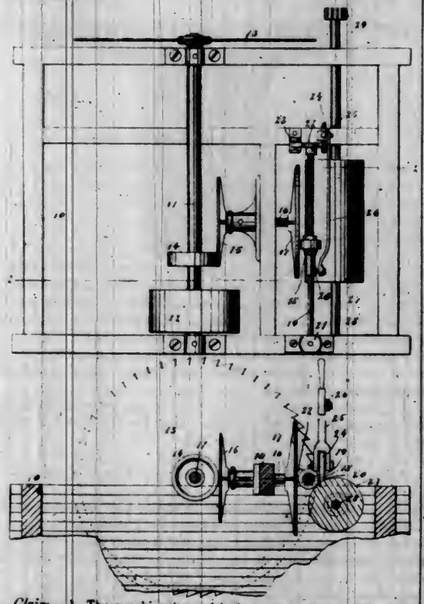
3. A drawing-pen provided with an auxiliary blade having an ink-reservoir on its lower end, one of the blades of the pen being formed with an orifice adjacent to its point, whereby ink from the reservoir is conveyed to the point of the pen, substantially as described.

479,271. STEAM-CONDENSER. CHARLES GROSMAN, Lincolnville, N. Y. Filed Mar. 3, 1892. Serial No. 423,967. (No model.)



Claim.—A condenser comprising the main case 20, provided with a top inlet and a bottom outlet, upper and lower series of tubes 33 33ª, extending through the case and its heads, opposite inner lower chambers 34 32, connected by the lower series of tubes 33, and outer lower inlet chamber 29, separate from chamber 34 and connected with an opposite lower outer chamber 31 by a series of tubes 30, passing through the tubes 33 and chambers 34 32, a passage 32ᵇ, connecting the chambers 31 32, opposite upper inner chambers 34ª 32ª, separate from the lower chambers and connected by the upper series of tubes 33ª, the chamber 34ª, having an outlet 37, an upper outer chamber 36, having a passage 35, connecting it with the lower inner chamber 34, an upper outer opposite chamber 31ª, having a passage 32ª, leading into upper inner chamber 32ª, and the upper inner series of tubes 30ª, extending through the tubes 33ª and connecting chambers 31ª and 36, substantially as set forth.

479,272. VARIABLE FEED FOR SAWMILLS. CALVIN HARBAUGH, Pleasant Home, Ohio. Filed Aug. 25, 1891. Serial No. 403,684. (No model.)

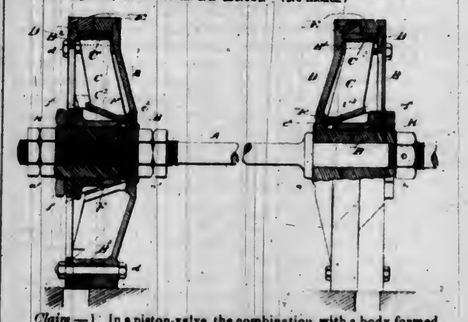


Claim.—1. The combination, with the saw-mandrel and the feed-shaft arranged parallel therewith and provided with a friction-drum, of friction-disks driven by the mandrel, a movable shaft, a friction-pulley mounted on said shaft and engaging one of the friction-disks and the friction-drum, and a lever mechanism for moving the said shaft and the friction-pulley thereon, substantially as described.

2. The combination, with the saw-mandrel having a friction-pulley thereon and the feed-shaft arranged parallel therewith and provided with a friction-drum, of a shaft mounted transversely between the feed-shaft and mandrel, friction-disks secured to the transverse shaft, one disk contacting with the friction-pulley on the mandrel and the other being arranged adjacent to the friction drum, a swinging shaft mounted between one of the friction-disks and the friction-drum, a friction-pulley held to slide on the shaft and adapted to contact with a friction-disk and the friction-drum, and a lever mechanism for moving the friction-pulley, substantially as described.

3. The combination, with the saw-mandrel and the feed-shaft arranged parallel therewith and provided with a friction-drum, of a friction-disk arranged adjacent to the friction-drum and driven by the saw-mandrel, a vertically-swinging shaft mounted between the friction-disk and the friction-drum, a loose pulley held to slide on the shaft and to contact with the friction-disk and the friction-drum, and a lever mechanism for moving the pulley and shaft, substantially as described.

479,273. PISTON-VALVE. MARTIN E. HERSHEY, Harrisburg, Pa. Filed Apr. 11, 1892. Serial No. 428,681. (No model.)



Claim.—1. In a piston-valve, the combination, with a body formed by the disk having the annular peripheral channel on one side and the central hub projecting on the same side as the peripheral channel, of the packing-rings in the channel, the sectional spider underlying the rings, the expander surrounding the hub within the valve and co-operating with the sectional spider, and the set-nuts working on the end of the hub to adjust the expander, substantially as described.

2. In a piston-valve, the combination, with the body having the annular peripheral channel and central hub and the packing-rings in said channel, of the sectional spider having the segmental plates underlying said rings, the central inclined plates, and the radial arms uniting said plates, the conical expander working in the hub and co-operating with the inclined plates, and the set-nuts on the hub for holding the expander in adjusted position, substantially as described.

3. In a piston-valve, the combination, with the body formed by the disk, having the central hub and slotted flange near its periphery, the face-plate or ring secured to the flange, and the packing surrounding the flange between the disk and the face plate or ring, of the segmental plates underlying the packing-rings, the radial arms carrying said plates passing through the slots in the flange, and the conical expander working on the hub for moving the segmental plates outward to tighten the packing, substantially as described.

4. In a piston-valve, the combination, with the disk having the central hub and flange near the periphery, having slots or openings therein, the face-plate or ring secured to said flange, and the packing-rings between said plate and disk, of the sectional spider consisting of the segmental plates underlying the packing-rings, the central inclined plates, and the radial arms passing through the flange and uniting the said plates, the expander working on the hub and having the inclined ribs or projections engaging the inclined plates, and the set-nuts for holding the expander in adjusted position, substantially as described.

5. In a piston valve for steam-engines, the combination, with the piston-rod, of the two independent heads mounted on said rod and adjustable toward and from each other, substantially as described.

6. In a piston-valve, the combination, with the valve-rod and the head secured permanently thereon, of the opposite head mounted on said rod and having set-nuts on both sides of the same, whereby it may be adjusted longitudinally of the shaft, substantially as described.

7. In a piston-valve, the combination, with the rod, of the oppositely-arranged heads secured thereon and having the outwardly-projecting hubs and peripheral chambers, the packing-rings, the sectional spiders, the expanders, the set-nuts for adjusting said expanders screwing on the outer ends of the hubs, whereby the heads may be adjusted while in the valve-chest and without dismembering the valve, and the nuts on the rod engaging the hub to hold the valve in place irrespective of the adjustment of the expanders, substantially as described.

8. A piston-valve for steam-engines, having the support for the packing-rings formed of metal having a greater range of expansibility than the valve-chest under the influence of variations in temperature, substantially as described.

9. In a piston-valve for steam-engines, the combination, with the packing-rings, of the relatively thin radial arms for supporting the same, formed of metal having a greater range of expansibility than the cylinder under the influence of variations in temperature, substantially as described.

10. In a piston-valve for steam-engines, the combination, with the body portion, of the packing-rings and the spider supporting said rings, formed of metal having a greater range of expansibility than the body portion under the influence of variations in temperature, substantially as described.

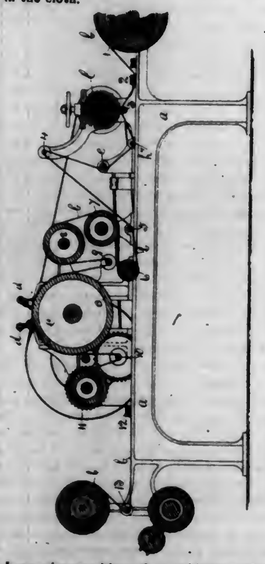
11. In a piston-valve for steam-engines, the combination, with the iron or steel body portion and the packing-rings, of the supporting-spider for said rings, formed of brass, substantially as described.

12. In a piston valve for steam-engines, the combination, with the body portion formed of metal having a small range of expansibility and the packing-rings, of the sectional spider supporting said rings, having its radial arms formed of metal having a greater range of expansibility than said body portion, substantially as described.

13. In a piston-valve for steam-engines, the combination, with the body portion formed of metal having a small range of expansibility and the packing-rings, of the sectional spider supporting said rings, having relatively thin radial arms formed of metal having a greater range of expansibility than said body portion, and an expander co-operating with the sectional spider to adjust the same for wear, substantially as described.

479,274. PEGGING-MACHINE FOR PILE FABRICS. HARVEY HEYWOOD and JOHN HOLLAND, Middleton, near Manchester, England. Filed Sept. 3, 1891. Serial No. 404,639. (No model.) Patented in England Feb. 2, 1891. No. 1,854.

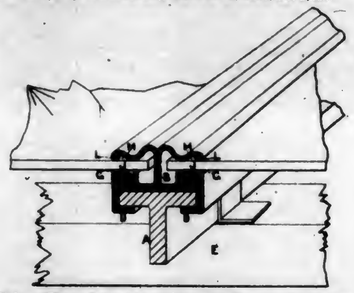
Brief.—The cloth is "pegged" between a rotating cylinder and stationary peg-bars, means being provided whereby the peg-bars may be raised at intervals to allow them to be cleaned of any fluff or to prevent creases in the cloth.



Claim.—1. In pegging-machines, the combination of apparatus for temporary releasement of the pegs, formed by the revolving cams *f*, with recesses f^3, the bowls *h h'*, periodically received by such recesses, the bowl-levers h^2 h^3, moving with the bowls, the short levers h^3 h^4, attached to the axis of the pegs, and the connecting-links *k k'*, receiving motion from the bowl-levers, and the hand-lever *g'*, attached to the eccentric bush *g* of the cams *f*, which lever when moved over on its center forces such cams *f* against the projecting arms on the bowl-levers h^2 h^3, moving forward the same and their aforementioned connections *k k'* h^2 h^3, all substantially as set forth.

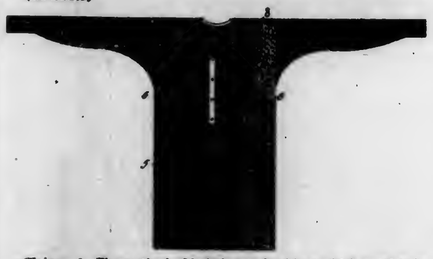
2. In pegging-machines, the combination of stationary pegs or presser-bars *d* and the revolving bed *c*, over which the cloth travels, with apparatus for temporary releasement of the pegs, formed by the revolving cams *f*, with recesses f^3, the bowls *h h'*, periodically received by such recesses, the bowl-levers h^2 h^3, moving with the bowls, the short levers h^3 h^4, attached to the axis of the pegs, and the connecting-links *k k'*, receiving motion from the bowl-levers, and the hand-lever *g'*, attached to the eccentric bush *g* of the cams *f*, which lever when moved over on its center forces such cams *f* against the projecting arms on the bowl-levers h^2 h^3, moving forward the same and their aforementioned connections *k k'* h^2 h^3, all substantially as set forth.

479,275. GLAZING-BAR FOR SKYLIGHTS. WILLIAM H. HEYWOOD, Huddersfield, England. Filed Dec. 22, 1891. Serial No. 415,945. (No model.) Patented in England Feb. 12, 1890, No. 2,263.



Claim.—The combination, with the T-iron A, of a glazing-bar B, resting upon the table of said T-iron, and having wings D D at its lower part to embrace said T-iron and secure said bar thereto, grooves H H, formed in that portion of said bar which rests upon the table of said T-iron, wings K K, provided at their outer ends with beads L L, and packing G G in the grooves H H, substantially as described.

479,276. UNDERSHIRT AND METHOD OF MAKING THE SAME. JAMES HOLROYD, Albany, N. Y. Filed Mar. 23, 1892. Serial No. 426,139. (No model.)



Claim.—1. The method of knitting undershirts, which consists in producing an initial strip of flat ribbed fabric, then producing a tubular web of plain knitting integral with said strip, and finally producing a further strip of flat ribbed fabric, and then folding the resulting fabric and uniting the edges where necessary.

2. In an undershirt, the body portion thereof consisting in part of ribbed fabric of single thickness and in part of tubular plain fabric, substantially as described.

3. In an undershirt, the body portion thereof consisting in part of one-and-one-ribbed fabric of single thickness and in part of tubular plain fabric, substantially as described.

4. In an undershirt, the body portion thereof consisting in part of fabric of single thickness and in part of a tubular web, substantially as described.

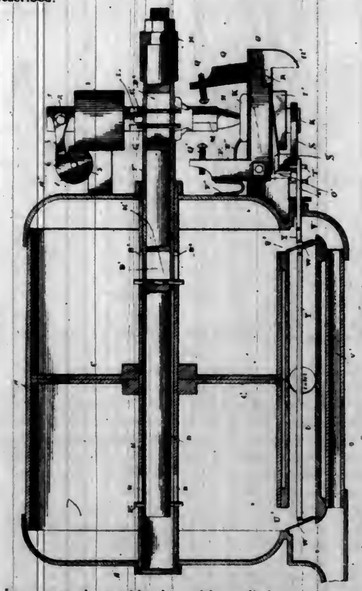
5. In an undershirt, the body portion thereof consisting in part of fabric of single thickness and in part of double fabric, the combined thickness of the walls of the double fabric being substantially equal to the thickness of the single fabric, substantially as described.

479,277. FLUID-METER. FREDERIC W. HOLT, St. George, Canada. Filed Jan. 25, 1892. Serial No. 419,214. (No model.)

Claim.—1. In a meter, the combination, with a cylinder, a slotted hollow guide therein, and a piston moving on said guide, of a projecting rod, which reciprocates in the guide, a stop secured to the inner end of the rod, an adjustable sleeve on said rod, a stop secured to the sleeve, both of said stops being engaged by the piston, and a registering and a valve-throwing mechanism, which are operated by the rod, substantially as shown and described.

2. In a meter, the combination, with a cylinder, a slotted hollow guide therein, and a piston moving on said guide, of a projecting rod which reciprocates in the guide, a stop secured to the inner end of the rod, a sleeve on said rod, a stop secured to the sleeve, both of said stops being engaged by the piston, an interiorly-screw-threaded cap swiveled to the outer end of the rod and which engages the outer end of the sleeve, whereby the latter is made adjustable in relation to the rod, and a registering and a valve-throwing mechanism, which are operated by the rod, substantially as shown and described.

3. In a meter, the combination, with a cylinder, a reciprocating rod, and a piston, of a shaft journaled to one side of the rod, an arm secured to said shaft, which is loosely connected to the rod, a registering mechanism, which is actuated by the shaft, and a valve-throwing mechanism which is also operated by the shaft, substantially as shown and described.



4. In a meter, the combination, with a cylinder, a reciprocating rod, a piston, and a partially-revolving shaft which is operated by the rod, of a laterally-projecting pin in the upper end of the shaft, arms loosely connected to the opposite ends of the said pin, a worm-shaft, heads secured thereon which are engaged alternately by the said arms, a registering mechanism which is operated by the worm-shaft, and a valve-throwing mechanism, substantially as shown and described.

5. In a meter, the combination, with a cylinder, a reciprocating rod, and a piston, of a shaft which is partially rotated by the rod, a second shaft adjacent to the first-named shaft, a spring which is clamped at its opposite ends to the adjacent ends of the shafts, a valve-throwing mechanism which is operated by the said shafts, and a registering mechanism, substantially as shown and described.

6. In a meter, the combination, with a cylinder, a reciprocating rod, and a piston, of a shaft J, which is partially rotated by said rod, arm M on said shaft, a shaft K, a spring which connects the adjacent ends of the shafts, arm S, secured to shaft K, a valve-throwing rod which is reciprocated by the arm S, a locking mechanism for said rod, which is operated by the arm M, and a registering mechanism, substantially as shown and described.

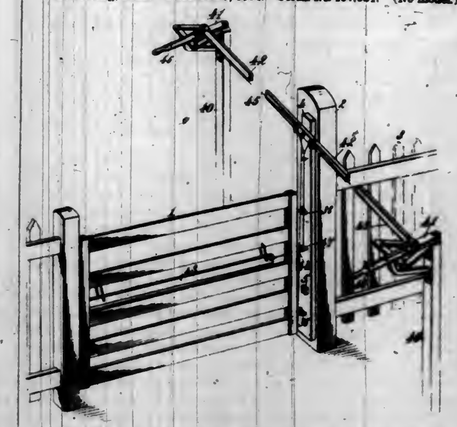
7. In a meter, the combination, with a cylinder, a reciprocating rod, and a piston, of a shaft J, which is partially rotated by the said rod, arm M, shaft K, a spring connecting the adjacent ends of the shafts J K, arm S, a valve throwing rod reciprocated by the arm S, pivoted latches which lock the said rod at the ends of its stroke and which are engaged by the arm S, and a registering mechanism, substantially as shown and described.

8. In a meter, the combination, with a cylinder, a reciprocating rod, and a piston, of a shaft J, which is partially rotated by said rod, arm M, shaft K, a spring which connects the said shafts, arm S, a valve-throwing rod which is operated by said arm, pivoted latches having notched ends which engage the arm S at the end of its throw, inwardly-projecting set screws on the opposite ends of the latches and which are engaged by the arm M, and a registering mechanism, substantially as shown and described.

9. In a meter, the combination, with a cylinder, a reciprocating rod, and a piston, of a shaft J, which is partially rotated by said rod, arm M, shaft K, a spring connecting said shafts, arm S, a valve-throwing rod operated by said arm, support O, having projections O', L-shaped latches pivoted to said support and having notched lower ends which engage and hold the arm S at the ends of its throw, set-screws in the upper ends of the latches, which are engaged by the arm M, and a registering mechanism, substantially as shown and described.

10. In a meter, the combination, with a cylinder provided with ports at its opposite ends and an inlet and outlet chamber arranged beneath the cylinder, which are in communication with said ports, of valves pivoted to the bottom of said inlet-chamber directly beneath the ports and which are adapted to close either the inlet or outlet chamber, a link extending through the inlet-chamber and pivotally connected at its ends to the valves, an outwardly-extending valve-operating rod, a piston, a reciprocating rod, and a registering mechanism actuated by said rod, substantially as shown and described.

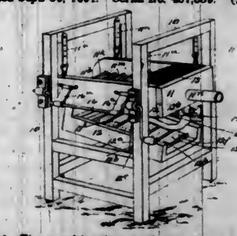
479,278. GATE-ACTUATING MECHANISM. JAMES F. HOUSTON, Lewisburg, Tenn. Filed Oct. 6, 1891. Serial No. 407,921. (No model.)



Claim.—1. The combination, with a gate-post, of a gate-carrying beam pivoted between its extremities to the post and adapted to swing thereon in a vertical plane, a gate having its end bar hinged to the gate-carrying beam, a pair of posts or standards arranged at opposite sides of the gate-post, a pair of swinging hand-levers pivoted, respectively, at one end to the upper portions of the posts or standards, and a rigid rod connection between the pair of levers and the upper end of the gate-carrying beam, substantially as described.

2. The combination, with a gate-post, of a gate-carrying beam pivoted between its extremities to the gate-post and adapted to swing thereon in a vertical plane, a gate having its end bar hinged to the gate-carrying beam, a pair of posts or standards arranged at opposite sides of the gate-post, a pair of horizontally-swinging levers pivoted, respectively, to the upper ends of the posts or standards, a rigid rod connection pivoted to the levers and to the gate-carrying beam, and cords running from the hand-levers to the gate-latch for operating the latter, substantially as and for the purposes described.

479,279. ORE-CONCENTRATOR. GOTTLIEB D. HUSEMANN, St. Louis, Mo. Filed Sept. 30, 1891. Serial No. 407,359. (No model.)



Claim.—1. The combination, with the frame, of the upper box adjustably and pivotally suspended therefrom, the lower box hinged to the upper box and adjustably suspended therefrom, the horizontal crank-shaft journaled to the side of the frame, and the pitmen connecting said shaft and the upper box, whereby as said shaft is revolved the boxes will be reciprocated horizontally, substantially as and for the purposes described.

2. The combination, with the upper box suspended in an inclined position, of the lower box hinged to the lower end of the upper box and inclined in an opposite direction, the tube or conduit arranged centrally and longitudinally upon the bottom of the upper box, having inlet-apertures in its upper side and a discharge-pipe attached to its lower end, discharging into the lower box, and a similar tube or conduit arranged upon the bottom of the lower box in a similar manner and provided with a discharge-pipe at its lower end, substantially as shown and described.

3. The combination, with a box having a solid bottom, of a perforated riffle-plate arranged above the bottom, thereby providing a water-space beneath the said riffle-plate, a conduit having openings in its upper side communicating with the upper surface of the riffle-plate, and a water-supply pipe connected with the box, substantially as shown and described.

4. The combination, with an inclined box carrying a riffle-plate, of the hopper-shaped sieve arranged at the upper end thereof and an apron arranged between the sieve and riffle-plate, substantially as and for the purpose described.

5. The combination, with an inclined box having a solid bottom, of a riffle-plate arranged above the bottom, said plate sloping toward the longitudinal center of the box, a conduit arranged beneath the lowest portion of the plate, said plate and conduit being provided with perforations at the points of contact, a water-supply pipe entering the box between the bottom and plate, the bottoms of the riffles being perforated, and the hoods or covers adapted to protect the conduit-openings, substantially as shown and described.

6. The combination, with the frame of the upper and lower inclined boxes having solid bottoms, of the tubes or conduits arranged upon the said bottoms and perforated at their upper sides, the sloping riffle-plates perforated as described, the water-supply pipe entering each box between the bottom and plate thereof and its respective riffle-plate, the hoods or covers arranged to protect the conduit-openings, the sieve, the bail-suspending straps, and means for reciprocating the boxes, all arranged substantially as shown and described.

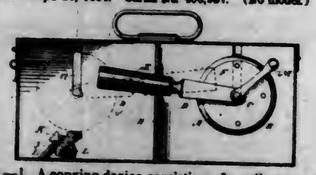
7. The combination, with a frame, of the upper box having a centrally-sloping perforated riffle-plate arranged above the bottom of said box, a water-supply pipe entering the box between the bottom and plate, the lower box hinged to the upper box and having a similarly-arranged riffle-plate, the water supply pipe attached to said lower box, the discharge-pipe leading from the upper box to the lower one, and the lower discharge-pipe, arranged substantially as shown and described.

8. In an ore-washer, the combination, with a riffle-plate having transverse partitions and apertures produced in said plate between the partitions, of the hood arranged between said partitions and adapted to cover the said apertures, substantially as shown and described.

9. In an ore-washer, the combination, with a riffle-plate having partitions and apertures between said partitions, of the hoods adapted to cover the said apertures and the yokes or connecting-plates adapted to connect the hoods and straddle the partitions, substantially as shown and described.

10. The combination with an inclined box, of a centrally-sloping riffle-plate arranged above the bottom of the same, said riffle-plate having a transverse row of perforations extending across the face of the same and a series of perforations produced along the center of said plate, and a tube or conduit arranged beneath the center of said plate and communicating with the central perforations, substantially as shown and described.

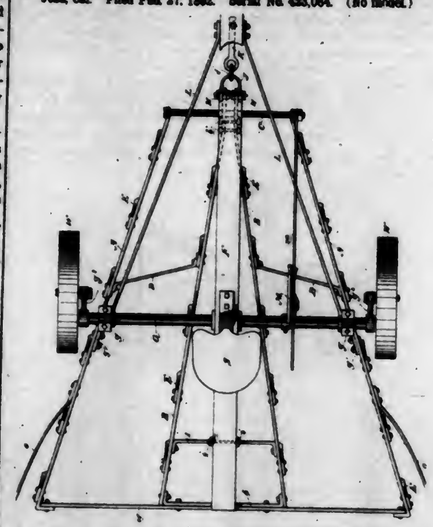
479,280. COPYING DEVICE. JOSEPH C. INGRAM, San Francisco, Cal. Filed Sept. 26, 1891. Serial No. 406,927. (No model.)



Claim.—1. A copying device consisting of a roller mounted upon a shaft and journaled in a frame, a box having vertical slots made in its sides, into which the projecting ends of the roller-shaft lie, a cleansing-sponge fixed in the bottom of the box, and a crank fixed to the roller-shaft, whereby it may be rotated in contact with the sponge, substantially as herein described.

2. A copying device consisting of a roller having its shaft journaled in a frame and a crank upon the outer end of the shaft, a box having vertical slots formed in its sides to receive the roller-shaft with the crank exterior to the sides of the box, a cleansing-sponge, clamps between which said sponge is secured, and inclined slotted guides in the bottom of the box, into which said clamps are fitted, substantially as herein described.

479,281. CULTIVATOR. CHARLES JOHNSON and OTTO OLSON, San José, Cal. Filed Feb. 27, 1892. Serial No. 423,064. (No model.)



Claim.—1. In a cultivator, the convertible frame thereof consisting of the outer bars A, the inner bars B, the main back bar *a*, connecting the rear ends of said bars A and B, the back bar *b*, connecting the rear ends of the bars B, and the removable tie-bolt C, connecting the front ends of the bars A and B, substantially as herein described.

2. A cultivator consisting of the convertible tooth-carrying frame composed of the outer bars A, the inner bars B, the main back bar *a*, connecting the rear ends of said bars A and B, the back bar *b*, connecting the rear ends of the bars B, and the removable tie-bolt C, connecting the front ends of the bars A and B, and the pole or tongue F, secured to and carried by the inner bars B of the frame, substantially as herein described.

3. A cultivator consisting of the convertible tooth-carrying frame composed of the outer bars A, the inner bars B, the main back bar *a*, connecting the rear ends of said bars A and B, the back bar *b*, connecting the rear ends of the bars B, and the removable tie-bolt C, connecting the front ends of the bars A and B, the pole or tongue F, secured to and carried by the inner bars B of the frame, and the wheeled axle G, carried by the outer bars A of said frame, substantially as herein described.

4. A cultivator consisting of the convertible tooth-carrying frame composed of the outer bars A, inner bars B, back bar *a*, connecting the rear ends of bars A and B, back bar *b*, connecting the rear ends of the bars B, and the removable tie-bolt C, connecting the forward ends of said bars A and B, the wheeled axle carried by the outer bars A of the frame, the tongue or pole F, carried by the inner bars B of said frame, and the draft connection between said inner bars and pole consisting of the pivoted bail and the link-rod K, substantially as herein described.

5. A cultivator consisting of the convertible tooth-carrying frame composed of the outer bars A, the inner bars B, the main back bar *a*, connecting the rear ends of said bars A and B, the back bar *b*, connecting the rear ends of the bars B, and the removable tie-bolt C, connecting the front ends of the bars A and B, the pole or tongue F, secured to and carried by the inner bars B of the frame, the wheeled crank-axle G, carried by the outer bars A of said frame, the lever for operating the crank-axle, and the rack-bar carried by the tie-bolt C for engaging the lever, substantially as herein described.

6. In a cultivator, the combination of the forwardly-converging frame-bars B, the tongue or pole carried thereby and adapted to be vertically adjusted, and the draft connection between said bars and pole consisting of the bail pivoted in the forward ends of the bars, and the link-rod connecting said bail and pole, substantially as herein described.

7. In a cultivator, the forwardly-converging frame-bars B, having the parallel forward ends bolted together and the vertical perforated standards rising from said forward ends, in combination with the tongue or pole fitted between said standards and vertically adjustable therein, and the draft connection between said forward ends, and the pole consisting of the pivoted bail and link-rod, substantially as herein described

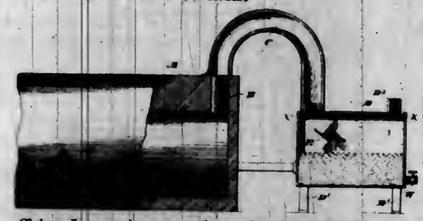
8. A cultivator having an inner frame consisting of the converging bars B, secured together at their ends, an outer frame consisting of the converging bars A, removably secured at their ends to the ends of the bars B, the wheeled crank-axle, the adjusting lever and rack, and guard-springs carried by said outer frame, and the tongue or pole carried by the inner frame, substantially as herein described.

479,282. ELECTRIC ALARM. ROBERT L. KEITH, Brazil, Ind. Filed May 26, 1892. Serial No. 434,484. (No model.)



Claim.—In an electric alarm for the detection of poisons, the combination, in a circuit, of a battery, an alarm, and a wire connecting the battery and alarm with a shelf, a metal rod constituting part of the circuit and carrying one or more spring-levers, each lever provided with a projection extending through said shelf, and one or more bottles, each adapted to rest upon one of said projections, whereby on the removal of a bottle from one of the said projections the circuit is closed by the action of said lever and the alarm sounded, substantially as and for the purpose described.

479,283. SPARK-ARRESTER. JOHN F. LANDRETH, Eliaville, Ga., assignor of one-half to Stephen A. Sellars, same place. Filed Mar. 14, 1892. Serial No. 424,890. (No model.)



Claim.—In a spark-arrester, the combination, with a furnace, of a semicircular curved pipe or stack hinged thereto and adapted to be raised and lowered in a vertical plane only, an arrester removably attached to the opposite end of said pipe or stack and consisting of a tank or box to contain water and having a bladed wheel therein revolving above the water by means of the current of the products of combustion, substantially as described.

479,284. REPEATING FIREARM. JOSEF LAUBAEK, Vienna, Austria-Hungary, assignor to the Ludw. Loewe & Company Commandit-Gesellschaft auf Actien, Berlin, Germany. Filed May 12, 1890. Serial No. 351,558. (No model.)

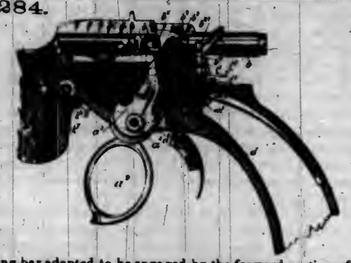
Claim.—1. A cartridge-magazine having a pair of vertical or nearly vertical slots in the opposite sides thereof, the slots in one side of the magazine being respectively opposite to those in the other side of the same, and convex corrugations extending from one slot to its fellow slot in the same side, the convex corrugations in one side being respectively opposite to the convex corrugations in the other side, and a convex corrugation with the corresponding one opposite to it forming a seat for one cartridge, as set forth.

2. The combination, with the cartridge-magazine, of a stop on the back thereof, having one of its bottom corners cut away, thereby producing an incline, a bolt working in a transverse socket in the side and back of the magazine-chamber, the head of which bolt projects through the said side and presents itself at the side of the arm, a notch cut in the front face of the said bolt, having one of its sides inclined and adapted in respect of its position to be engaged by the above-mentioned incline on the stop on the back of the magazine, an internal spiral spring adapted to keep the head of the said bolt projected through the said side of the magazine-chamber, and a plane-horizontal face in the under side of the said bolt communicating with the inclined side of the said notch in the face of the said bolt and adapted to be locked above the said stop on the back of the magazine-chamber by the resilient action of the said spring, as set forth.

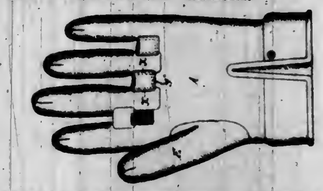
3. The combination of a breech-bolt, a locking-bar pivoted on the side thereof, a notch in the breech-bolt cylinder adapted in respect of contour and position to receive the operative nose of the said locking-bar when the breech-bolt is in the firing position, a front stud on the said locking-bar adapted to be engaged by the forward motion of the trigger top and to pull the operative nose of the locking-bar into the said notch, and a back stud on the said locking-bar adapted to be engaged by the cocking motion of the trigger top and to raise the said nose out of the said notch, as set forth.

4. The combination of a lever in the vertical plane and having its fulcrum in the end plate of the arm, a horizontal locking-bolt within the chamber of the breech mechanism, the rear end of which bolt projects through an arc-shaped slot in the said end plate and also through a second slot in the said lever, a lateral extension on the internal end of the said bolt adapted to be moved out of the path of the trigger by the engagement of the arc-shaped slot in the lever with the rear end of the locking-bolt when the said lever is moved about its fulcrum in one direction and to stand just in front of the trigger, the latter being in the cocked position and just behind it if in the firing position when the said lever is moved about its fulcrum in the opposite direction, as set forth.

479,284.



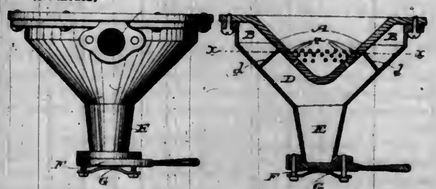
479,285. GLOVE. PRESTON B. LEE, Philadelphia, Pa. Filed July 14, 1891. Serial No. 399,507. (No model.)



Claim.—1. A glove having its adjacent finger-stalls separated at the base and the openings thus formed closed by bridge-pieces completely spanning the opening from front to rear and stitched at their side edges to the lower edges of the adjacent sides of the finger-stalls, substantially as described.

2. A glove having the adjacent finger-stalls separated at the base and the openings so formed closed by bridge-pieces D, each formed by an extension of the palm extending from front to back between two of the finger-stalls and each stitched at its side edges to the lower edges of the adjacent sides of the finger-stalls, substantially as set forth.

479,286. BLACKSMITH'S FORGE. THEODORE W. LESSEN and LOUIS HECKENROTH, San José, Cal. Filed Nov. 4, 1891. Serial No. 410,849. (No model.)



Claim.—1. In a blacksmith's forge, a fire-receptacle of inverted-cone shape having a closed bottom and a series of holes in its inclined sides, in combination with a surrounding air-chamber having a partition dividing said chamber into upper and lower passages which communicate with each other through an opening formed in said partition, said lower passage communicating with the fire receptacle, substantially as herein described.

2. In a blacksmith's forge, a fire-receptacle, an air chamber or passage communicating with the bellows and encircling the upper portion of the fire-receptacle, and a partition *d* in said passage, forming a second passage or chamber separated from the first and surrounding

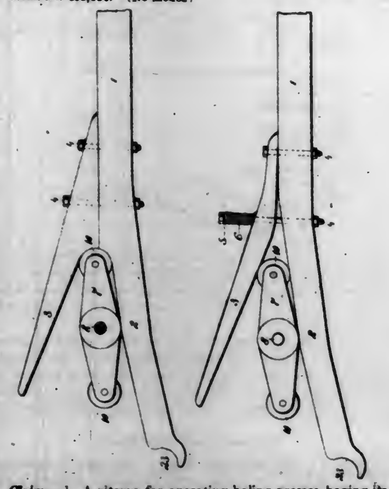
the lower portion of the fire-receptacle, said second chamber communicating with the first and also communicating with the fire-receptacle, substantially as and for the purpose herein described.

3. A blacksmith's forge having a fire-receptacle of an inverted conical shape, an annular air passage or chamber surrounding its upper portion and communicating with the bellows and having a partition in said passage, forming a second air passage or chamber surrounding its lower portion and separated from the first passage or chamber, a communication between the two passages or chambers, and a series of upwardly-inclined communicating apertures between the second passage or chamber and the fire-receptacle, substantially as herein described.

4. A blacksmith's forge having the inverted conical fire-receptacle A, the encircling communicating air passages or chambers B D, having a partition separating one from the other, said chamber D communicating through the holes *a* with the fire-receptacle, the discharge-neck E and the laterally-swinging pivoted lock or gate F, and the spring G below the same, controlling said neck, substantially as herein described.

5. A blacksmith's forge consisting of the inverted-conical-shaped casting forming the fire-receptacle A, provided with the series of inwardly and upwardly inclined holes *a*, the surrounding shell with apertured partition forming the air passages or chambers B and D and neck E, the controlling-gate at the bottom of the neck, having a booked end, the bolts upon one of which the hook end of the gate engages to lock said gate, and a spring below the gate and held in place by the bolts, substantially as herein described.

479,287. BALING-PRESS. WINFIELD S. LIVINGOOD, Kansas City, Mo., assignor to Ephraim C. Scoy, same place. Filed Sept. 14, 1891. Serial No. 405,639. (No model.)



Claim.—1. A pitman for operating baling-presses, having its forward end forked, and means, in connection with the arms of said forked end, for operating said pitman, substantially as described, and for the purpose set forth.

2. In a baling-press, the combination of the pitman forked at one end, the trip-lever working in said forked end and adapted to engage the sides of the arms of said forked end, and means for moving said trip-lever upon its fulcrum, substantially as and for the purpose set forth.

3. In a baling-press, the combination of a pitman having its forward end forked, a trip-lever for engaging the arms of said forked end, one of said arms having its face constructed on an angle of greater degree than the angle of the other arm, substantially as described, and for the purpose set forth.

4. In a baling-press, the combination of a pitman having its forward end forked, one arm of said fork having its face constructed on an angle of greater degree than the other arm and having said arms formed of unequal lengths, substantially as described, and for the purpose set forth.

5. The combination, with a baling-press, of a pitman provided with suitable bearings and having a forked head whose arms are of unequal lengths and have their faces constructed at angles of different degrees and the longer one of which arms has a curved end, and the trip-lever adapted to work in said forked end and engage the respective faces of the arms and to engage said curved end of the longer arm, substantially as and for the purpose set forth.

6. In a baling-press, the combination of a pitman having its forward end forked and a trip-lever for engaging the same, one arm being removably connected with the pitman and the other arm.

7. In a baling-press, a pitman having its forward end forked, one arm of said fork being an integral part of the pitman and the other being secured thereto by bolts having a spring for permitting lateral movement of the latter arm.

8. In a baling-press, the combination of a pitman having forked arms 2 3 pivoted thereto, a trip-lever for engaging said forked arms, one of said arms having its face formed on an angle of greater degree than the other arm, substantially as described, and for the purpose set forth.

9. In a baling-press, the combination of a pitman having forked arms 2 3 pivoted thereto, a trip-lever for operating the same, and spring connection between the different arms of the fork for giving elasticity to the same, substantially as described, and for the purpose set forth.

10. In a baling-press, the combination of a pitman, forked arms pivoted thereto, a shoulder 21 for limiting the backward movement of the arm 2, a pin 22 for limiting the forward movement of said arm, substantially as described, and for the purpose set forth.

11. In a baling-press, the combination of a pitman, forked arms 2 3, pivoted thereto, an extension 13 on the arm 3, a bolt 15 for connecting the same with the arm 2, and a spring on said bolt, substantially as described, and for the purpose set forth.

12. In a baling-press, the combination of a pitman, forked arms pivoted thereto, an extension 13 on the arm 3, a lug 19 on the arm 2, a bolt 15 for connecting said extension with said lug, a spring 17 on said bolt, a collar 18 on said bolt, and set-nuts 20 for adjusting said bolt, substantially as described, and for the purpose set forth.

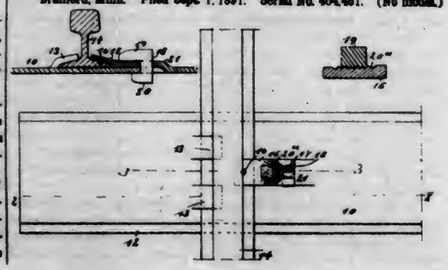
479,288. BOILER. JAMES R. LUTGEN, Winlock, assignor of one half to Charles A. Sturm, Castle Rock, Wash. Filed Feb. 9, 1892. Serial No. 420,897. (No model.)



Claim.—1. In a boiler, a sectional water-pipe comprising a circular base-pipe, vertical pipes extending from the said base-pipe, a second circular pipe arranged above the base-pipe and connected with the said vertical pipes, and a concentric circular pipe arranged within the said second circular pipe, and a series of hollow radial arms which connect with two circular pipes, substantially as shown and described.

2. In a boiler, a sectional water-pipe comprising a circular base-pipe, concentric pipes arranged above the said base-pipe and connected with each other, upright pipes set in the said concentric pipes, top concentric pipes connected with the said upright pipes, and short vertical pipes connecting the said base-pipe with the first set of concentric pipes, substantially as shown and described.

479,289. RAILROAD-RAIL FASTENING. HENRY A. LYDDON, Brainerd, Minn. Filed Sept. 1, 1891. Serial No. 404,461. (No model.)

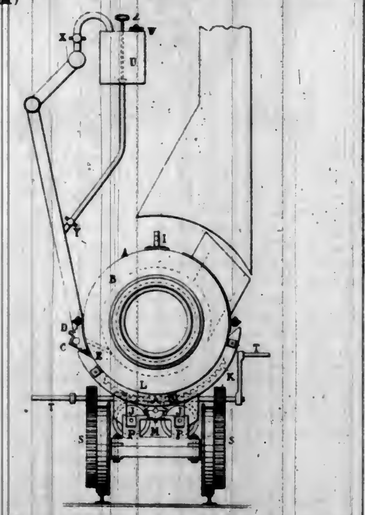


Claim.—1. In a device of the class specified, a lever pivoted at its center and movable in a vertical plane on said pivotal point carrying a bucket on each of its ends, each bucket having an aperture in its bottom and a ball seated over said aperture when the bottom of said bucket is substantially horizontal and adapted to roll from or over said aperture upon the departure of said bucket from said horizontal position, and means for guiding said ball in its movements, in combination with a water-supply adapted to fill said buckets on their elevation, for the purpose specified.

2. In a device of the class specified, a lever pivoted near its middle and movable in a vertical plane on its pivot and carrying a bucket on each end, each bucket having an aperture in its bottom, a ball normally seated over said aperture and adapted to roll from or over said aperture on the tilting of the lever, and guides for said ball in its movements, consisting of wires inclosing the same, in combination with a water-supply adapted to fill said buckets on their elevation, substantially as and for the purpose specified.

Claim.—A rail-fastening comprising lugs formed on the top surface of a railroad-tie and shaped to fit the flange of a rail, a lug produced on the tie, so as to be opposite the other flange of the rail, a clamping-plate adapted to fit between the lug and the rail, said plate having a recessed outer end, a spur at its inner end to fit a socket in the flange and a corrugated upper surface, and a locking-key adapted to enter the recess of the clamping-plate and a hole in the tie, said key having end arms, the upper of which is corrugated to fit the corrugated surface of the clamping-plate, substantially as shown and described.

479,290. PROCESS OF TREATING NICKEL-MATTE. PIERRE MANHES, Lyons, France. Filed Dec. 19, 1888. Serial No. 294,112. (No specimens.)



Claim.—The process of reducing ores of nickel or cobalt, which consists in melting the ore to concentrate the metallic elements, removing the melted ore to a highly-heated converter that has been previously rotated or inclined from a vertical position to a nearly horizontal position, then blowing air through the molten metal while in the converter, and gradually turning back the converter to a vertical position, so that the air will pass upward from the bottom of the converter and traverse the entire metallic mass, then gradually inclining the converter to admit air at successively higher levels as the principal combustible elements disappear, whereby the nickel or cobalt will collect below the line where the air is admitted, and thus escape oxidation, then casting the metal product, and subsequently remelting the metal to refine it, substantially as described.

479,291. HYDRAULIC MOTOR. SPENCER S. MARSH, Atlanta, Ga. Filed Nov. 24, 1891. Serial No. 413,019. (No model.)



Claim.—1. In a device of the class specified, a lever pivoted at its center and movable in a vertical plane on said pivotal point carrying a bucket on each of its ends, each bucket having an aperture in its bottom and a ball seated over said aperture when the bottom of said bucket is substantially horizontal and adapted to roll from or over said aperture upon the departure of said bucket from said horizontal position, and means for guiding said ball in its movements, in combination with a water-supply adapted to fill said buckets on their elevation, for the purpose specified.

2. In a device of the class specified, a lever pivoted near its middle and movable in a vertical plane on its pivot and carrying a bucket on each end, each bucket having an aperture in its bottom, a ball normally seated over said aperture and adapted to roll from or over said aperture on the tilting of the lever, and guides for said ball in its movements, consisting of wires inclosing the same, in combination with a water-supply adapted to fill said buckets on their elevation, substantially as and for the purpose specified.

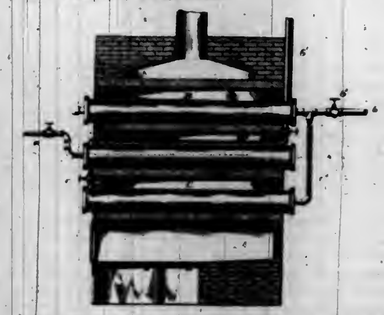
479,292. WATCH-CASE SPRING. JULES MENDOAT and ARMAND MENDOAT, Brooklyn, N. Y. Filed Mar. 5, 1892. Serial No. 423,895. (No model.)



Claim.—1. A spring for watch-cases, consisting of the arc-shaped metal strip having the blade and head, the movable or slidable holder resting upon said strip, having a groove running from end to end and provided with holes to receive a retaining-screw, and the securing-strip resting in said groove and having its ends secured to said spring, substantially as described.

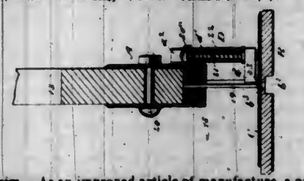
2. The combination, with a watch-case, of the movable or slidable holder having a groove running from end to end and a series of screw-holes, the retaining-screws by which the holder is fastened to the case, the spring upon which the holder rests, and the securing-strip resting in said groove in the holder and having its ends secured to the spring, substantially as described.

479,293. PROCESS OF MANUFACTURING GAS. FRANK D. MOSES, Chicago, Ill., assignor, by direct and mesne assignments, to the Universal Gas Construction Company, same place. Filed Feb. 13, 1892. Serial No. 421,406. (No specimens.)



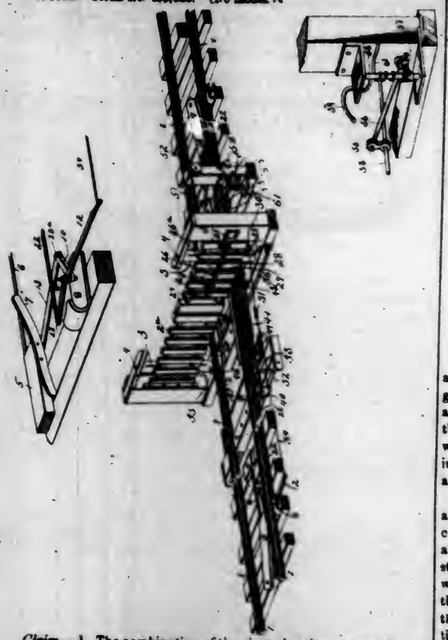
Claim.—The process of manufacturing a gaseous product, which consists in first vaporizing any suitable hydrocarbonaceous matter at a proper heat, then fixing the resulting vaporous product at a higher heat, and then mixing atmospheric air in suitable quantity with the resulting gas, while both the air and the gas are subjected to a strong heat of a temperature below that of ignition of the mixture or of injurious decomposition of the gas, substantially as and for the purpose described.

479,294. PERFORATING-MACHINE. CHARLES O. MORGAN, Morton, Minn. Filed Aug. 7, 1891. Serial No. 402,018. (No model.)



Claim.—As an improved article of manufacture, a punch-bar consisting of a hard-metal casing comprising a horizontal member and vertical members extending upward from the sides of the horizontal member, punches projected upward through the horizontal member within the casing, a soft-metal bed resting upon the horizontal member of the casing and surrounding the punches, and a locking device whereby the bar is attached above the soft-metal bed to the sliding frame of the perforating-machine, substantially as shown and described.

479,295. AUTOMATIC RAILWAY-GATE. EDWARD A. MORROW and JOHN WILSON, Chester, Ark. Filed July 11, 1891. Renewed June 6, 1892. Serial No. 436,620. (No model.)



Claim.—1. The combination of the pivoted spring-actuated levers 5 14, arranged at suitable distances on both sides of the crossing and provided at their free ends with the metal shoes 7 16, and adapted to be engaged by the flanges of the car-wheels, the vertical shafts 9 18, having the projecting arms pivotally connected to the free ends of said levers, the connecting-rod 22, arranged as specified, the swinging gates 2 2^a, connected by the coupling-rod so that they will move simultaneously, and a connection between one of the arms of the shaft 9 and the pivoted gate 2, substantially as set forth.

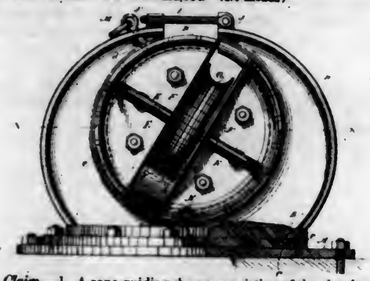
2. The combination of the pivoted spring-actuated levers 5 14, arranged between the rails on both sides of the crossing and having at their free ends the metal shoes 7 and 16, adapted to be engaged by the flanges of the car-wheels, the swinging gates 2 2^a, the vertical shafts 9 18, arranged as specified and having the projecting arms, the bars pivotally connecting the free ends of the levers with the arms of said vertical shafts, the connecting-rod 22, the sliding spring-actuated locking-bolt 24, the shaft 27, pivotally mounted on the gate 2 and having the upper arm 28, which engages with the pin 29 on the locking-bolt, the lower shaft-arm 30, the coiled spring 31, connected to the said arm, and a connection between said spring and an arm of the vertical shaft 9, substantially as set forth.

3. The combination, with the swinging gates 2 2^a, connected by the coupling-rods so that they will act simultaneously, of the spring-actuated locking-bar 37, adapted to automatically lock the gates in their opened position, the unlocking device adapted to be operated by the wheels of the train, and the curved guard-arms 59 60, adapted to be actuated by the wheels of a passing train to hold the gates open until the last car has passed entirely through the gateway, substantially as set forth.

4. The combination, with the swinging gates 2 2^a and the automatic device for locking and releasing the same, of the spring-actuated shaft 58, having the short arm 57, the curved guard-arm 59, secured to the upper part of the said vertical shaft, the longitudinal shaft 53, having the arm 54, extending beneath the rail and curving upward at its free end, the connecting-rod 56, arranged as specified, the spring-arms 45, and the flat longitudinal bar 46, secured on the free ends of the spring-arms, so that it will be actuated by the wheel-flanges of a passing train, substantially as set forth.

5. The combination, with the swinging gates 2 2^a, connected by the coupling-rods, so that they will act simultaneously, of the spring-actuated locking-bar 37, the pivoted shaft 42, the lever 41, secured to said shaft, and the arm 43, extending from said shaft and connected at its free end with the locking-bar 37, the spring-actuated shaft 47, extending beneath the rails and having the upwardly-extending arms 48 and 49 at its ends, and the spring-supported bar 46, adapted to be operated by the wheels of a passing train, substantially as set forth.

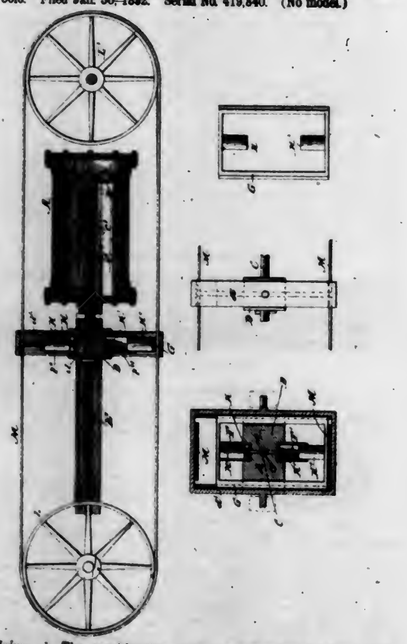
479,296. ROPE-GUIDING SHEAVE. SAMUEL MURRAY, San Francisco, Cal., assignor of one-half to William F. Murray, same place. Filed Mar. 21, 1892. Serial No. 425,514. (No model.)



Claim.—1. A rope-guiding sheave consisting of the circular block, a pulley journaled within the block, a standard having a circular groove made in it within which the block may be rotated, said standard having an opening through which the rope may be introduced to the sheave or removed therefrom, a pin by which the block is locked when the pulley stands at the desired angle, and a closing and locking yoke by which the opening in the standard is closed, substantially as herein described.

2. A rope-guiding sheave consisting of the circular block having a grooved periphery, a standard having a correspondingly-shaped circular opening to receive the block, a pulley journaled within the block at right angles with its face, a means for locking the block in the standard with the pulley at any desired angle, a flanged disk upon which the standards are supported, a corresponding base within which the disk may be rotated at right angles with the plane of rotation of the pulley-block, and a means for locking this disk in any desired position, substantially as herein described.

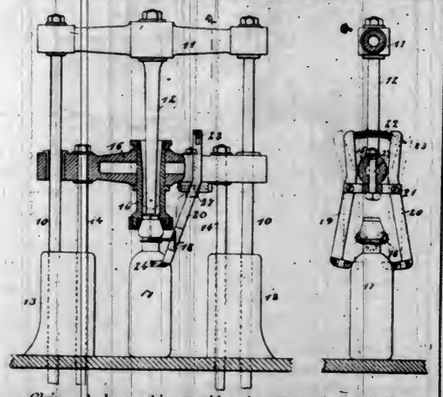
479,297. POWER-TRANSMITTER. DANIEL MCCARTHY, Earle, Colo. Filed Jan. 30, 1892. Serial No. 419,840. (No model.)



Claim.—1. The combination, with a steam-cylinder, piston, and rod, of an endless belt, a cross-head carried by the end of rod and having steam communication with the steam-cylinder, the outer frame carried upon said cross-head, the cylinders, inner frame, and plungers all arranged substantially as described.

2. The combination, with cross-head, cylinders, and outer frame of the inner frame and plungers, the endless belt, the ranges of which pass between the inner and outer frames, the piston-rod having steam-passages which communicate with the cylinders carried by the cross-head, and the piston and main cylinder, all arranged substantially as shown and described.

479,298. BOTTLE-FILLING APPARATUS. MICHAEL J. MCHUGH, Jersey City, N. J. Filed July 27, 1891. Serial No. 400,803. (No model.)



Claim.—1. In a corking-machine, the combination, with the cross-head carrying the cork-tube, of pivoted levers depending from cross-head and having feet at their lower ends to engage the bail and seat it over the cork when the cross-head is moved away from the bottle, the said feet projecting inwardly under the lower end of the cork-tube to be pressed apart by the bottle in the descent of the cross-head, substantially as set forth.

2. In a corking-machine, the combination, with the cross-head carrying the cork-tube, of a bail-seater comprising two depending levers at opposite sides of the cross-head and provided with inward-projecting feet and a spring pressing the lower ends of the levers toward each other, substantially as set forth.

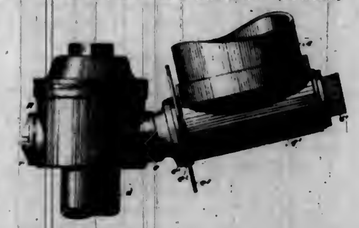
3. In a corking-machine, the combination, with the cross-head carrying the cork-tube, of a bail-seater depending from the cross-head and comprising two levers having inward-projecting feet provided with inclined upper faces, substantially as set forth.

4. In a corking-machine, the combination, with the cross-head carrying the cork-tube and provided with a vertical bolt-aperture, of the bail-seater comprising a cross-bar having a bolt extending up through said aperture, levers depending from the ends of the bar and having inward-projecting feet at their lower ends, and a spring throwing said lower ends toward each other, substantially as set forth.

5. A bail-seating attachment for corking-machines, comprising two levers provided at their lower ends with inward-projecting feet inclined on their upper faces, a spring pressing the lower ends toward each other, and an attaching bar connecting the said levers, substantially as set forth.

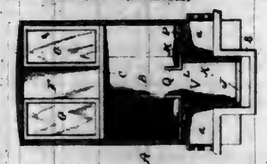
6. A bail-seating attachment for corking-machines, comprising an attaching cross-bar, two levers pivoted between their ends to the ends of said bar and inclined outward from their pivotal points, feet formed on the lower ends of the levers, and a spring between and forcing the upper ends of the levers apart, substantially as set forth.

479,299. PUMP VALVE AND CASE. JOHN NEUMANN, Brooklyn, N. Y. Filed Nov. 21, 1891. Serial No. 412,635. (No model.)



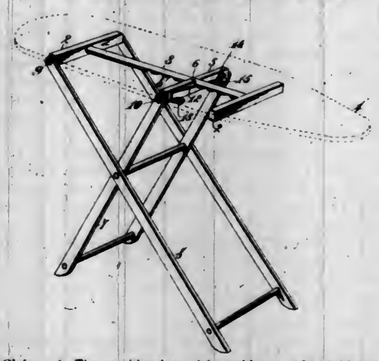
Claim.—The combination, with the pump-barrel provided with a chamber at its lower end, said chamber having diametrically-opposite openings, of a valve-casing provided with a flanged trough-shaped limb projecting into the openings of the chamber and having its end internally screw-threaded and a screw-plug screwed into the said limb, substantially as herein shown and described.

479,300. CAB. DAVID J. O'DONNELL, Grafton, Nebr. Filed Mar 15, 1892. Serial No. 424,996. (No model.)



Claim.—In a cab or two-wheeled vehicle, the combination, with the angular walls A L K, the bottom I, with reduced portion J, and the entrance V, of the sectional hinged seats M T, having ledges Q, the section P, secured to the wall L, with the movable section M, with its ledge extending over the sides of the entrance V, and the said ledges being adapted to engage the inner surfaces of the side walls A when thrown upward, substantially as and for the purposes specified.

479,301. IRONING-TABLE. WILBUR F. PARMELEE, Middletown, Conn. Filed Aug. 8, 1891. Serial No. 402,118. (No model.)



Claim.—1. The combination, with a table-top, of a rigid ratchet-bar immovably attached to the under side of the table-top, the pivoted leg-frames, one of which is pivoted to a cross-bar in interlocked sliding engagement with the immovable ratchet-bar, and a spring-arm attached to the sliding, cross-bar and directly engaging the ratchet-teeth of the ratchet-bar, substantially as described.

2. A folding table consisting of a table-top having cleats secured to its under side, a rigid ratchet-bar having its extremities immovably fixed to the cleats, a cross-bar in interlocked sliding engagement with the ratchet-bar and provided with a spring-arm directly engaging the ratchet-teeth of the ratchet-bar, and pivoted leg-frames pivoted, respectively, to one of the cleats and to the sliding cross-bar, substantially as described.

3. A folding table consisting of a table-top having cleats secured to its under side, a rigid cylindrical ratchet-bar immovably fixed to the cleats, a cross-bar having an approximately circular orifice between its extremities and in interlocked sliding engagement with the cylindrical ratchet-bar, a wire arm directly engaging the ratchet-teeth of the ratchet-bar, having at one extremity a finger-piece and at the opposite extremity provided with a series of spirals or coils secured directly to the cross-bar, and pivoted leg-frames pivoted, respectively, to one of the cleats and to the sliding cross-bar, substantially as described.

479,302. PAPER-CUTTING MACHINE. BENJAMIN J. PAYNE and THOMAS BURNS, St. Louis, Mo., assignors to James G. Payne, same place. Filed Feb. 20, 1892. Serial No. 423,273. (No model.)

Claim.—1. The combination, with the paper-clamp member 9, of the hinged member 16, adapted to be raised and lowered on the paper-clamp member, substantially as described.

2. In a paper-cutting machine, a paper-clamp consisting of a member 9, sliding in fixed ways, and a member 16, hinged to the

member 9 and having a broad base 16ª, adapted to extend below the lower edge of the member 9, substantially as set forth.

3. The combination, in a paper-cutting machine, of the clamp having a sliding member 9 and a member 16, having slots 19 and orifices 20 and hinged to fixed pins 15 of the member 9, carrying set-screws 18, all constructed and adapted to operate substantially as set forth.



4. The combination, in a paper-cutting machine, of the clamp having a sliding member 9 and a member 16, hinged to the member 9, so as to be raised and lowered, the knife 3, and the gage 14, the clamp being constructed and adapted to operate substantially as set forth.

479,303. PENCIL-SHARPENER. WILLIAM G. PRICE, New Orleans, La. Filed Mar. 22, 1892. Serial No. 425,939. (No model.)



Claim.—1. The combination of a rotary grinder for sharpening the lead points of pencils with a tubular pencil-sharpener provided with a side blade for cutting the wood of the pencil preparatory to the grinding of its lead point, whereby the wood is first cut to a conical point and the lead of the pencil immediately thereafter, without removal of the pencil from the sharpener, ground to a point, substantially as described.

2. The combination of the wood-cutting portion and the lead-cutting portion of the sharpener and gearing and means for operating the grinder and insuring the cutting away of the wood and the lead successively without removing the pencil from the sharpener, substantially as described.

3. The combination of the spring and adjusting-screw with the grinder and the wood cutting portion of the sharpener, the combined sharpener and grinder being adapted for cutting away the wood and the lead successively without removing the pencil from the sharpener, substantially as described.

4. A rotary emery grinder applied at the conical end of the tubular wood-cutting portion of the sharpener, the combined sharpener and grinder being adapted for cutting the wood and lead successively without removing the pencil from the sharpener, substantially as described.

5. The combination of the tubular wood-cutting portion of the sharpener, the shaft of the grinder, the plug, and the confining-lug, substantially as described.

6. The plug provided with a milled head, in combination with the wood-cutting portion of the sharpener and the rotary grinder, substantially as described.

7. The combination of the shaft of the rotary grinder provided with the toothed wheel, the plug provided with a toothed wheel, the rotary grinder, and the wood-cutting portion of the sharpener, substantially as described.

8. The rotary hollow grinding-wheel for a tubular pencil-sharpener, having a beveled emery-covered internal surface, a shaft, suitable bearings, and a wheel for insuring the revolution of the grinder when the pencil is revolved within the wood-cutting portion of the sharpener, substantially as described.

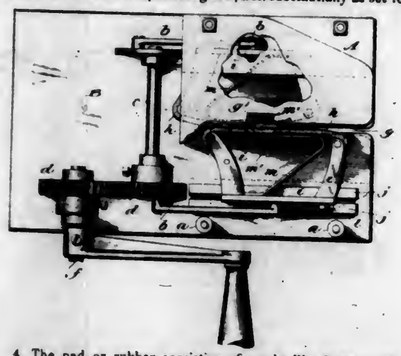
9. A rotary yielding grinder applied at the end of the wood-cutting portion of the tubular pencil-sharpener and means for revolving the grinder when the pencil is revolved, said grinder pointing the lead of the pencil immediately after the wood is cut away and the pointing being effected without removing the pencil from the tubular wood-cutting portion of the sharpener, substantially as described.

479,304. MACHINE FOR CLEANING AND POLISHING KNIVES. JOHN PLETCHER, Baltimore, Md. Filed Mar. 17, 1892. Serial No. 425,330. (No model.)

Claim.—1. The combination of the front and back plates A B, provided with slits for the insertion of the knife, the two pads arranged between and mounted to reciprocate in said plates and having spring-pressed meeting faces, and means for simultaneously reciprocating the pads in opposite directions to each other, as and for the purposes shown and described.

2. The friction pads having each a pliable face and a backing consisting of a plate-spring m of approximate V form, in combination with the frame, in which said parts are mounted to reciprocate, and means for reciprocating the pads simultaneously in directions opposite to each other, as herein shown and described.

3. The pads consisting each of a frame, a pliable strap stretched between the arms of said frame, and a plate-spring of approximate V shape interposed between the back plate of the frame and the strap, in combination with the guides, in which said pads are supported and move, and means for reciprocating the pads, substantially as set forth.

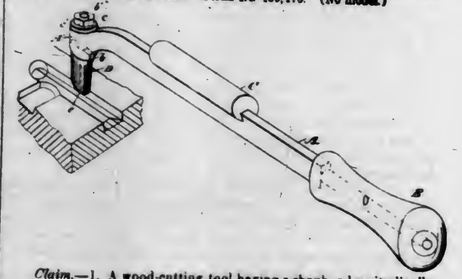


4. The pad or rubber consisting of a yoke-like frame, a pliable strap extending between the arms of the yoke, means for adjusting the tension of the strap, and a plate-spring of approximate V form interposed between the strap and the back plate of the yoke, substantially as herein set forth.

479,305. MANUFACTURE OF PHOTOGRAPHIC FILMS. HENRY M. REICHENBACH, Rochester, N. Y., assignor, by mesne assignments, to the Eastman Kodak Company, same place. Original application filed Apr. 9, 1889, Serial No. 306,375. Divided and this application filed Nov. 18, 1889. Serial No. 330,638. (No specimens.)

Claim.—The hereinbefore described improvement in the art of forming flexible photographic films, the same consisting in depositing and spreading a fluid solution of nitro cellulose and camphor upon a supporting-surface in the form of a thin layer or film and drying the same, then washing the face of the dried film-support with a binding solution, such as a solution of silicate of potash, then spreading upon the surface of said film-support a film of fluid gelatino-argentic emulsion and drying the same, and finally stripping the photographic film from its support.

479,306. WOOD-CUTTING TOOL. ROBERT ROBERTS, Brooklyn, N. Y. Filed Oct. 22, 1891. Serial No. 409,473. (No model.)

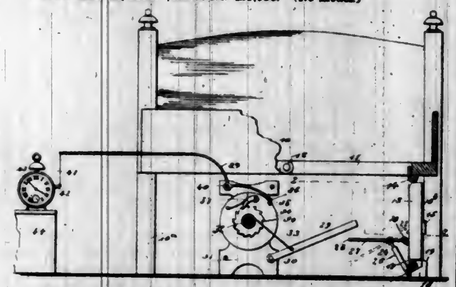


Claim.—1. A wood-cutting tool having a shank, a longitudinally-extending handle on one end of said shank, a rest-block on the normally-upper edge of the shank, a hub on the other downwardly-curved end of the shank, that is axially perforated to receive the stem of the cutter-blade, and a cutter-blade adapted to cut with its side edges and free end and securable in the shank-hub by its stem, and a nut on the threaded end of the said stem, substantially as described.

2. A wood-cutting tool comprising an elongated shank having a longitudinally-extending handle at one end, a rest C, extending longitudinally along the upper edge of the shank between its ends, and a downwardly-extending two-edged cutting-blade on the forward end of the shank and in the plane thereof, substantially as set forth.

3. The combination, with the shank having a hub on one end provided on its lower end with a transverse groove in the plane of the shank, of the two-edged cutting-blade D, engaging at its upper edge said groove and having a shank extending up through the hub and provided with a securing device, substantially as described.

479,307. TIME-ALARM BED. GEORGE O. SEAMAN, Brooklyn, N. Y. Filed Mar. 22, 1892. Serial No. 425,938. (No model.)



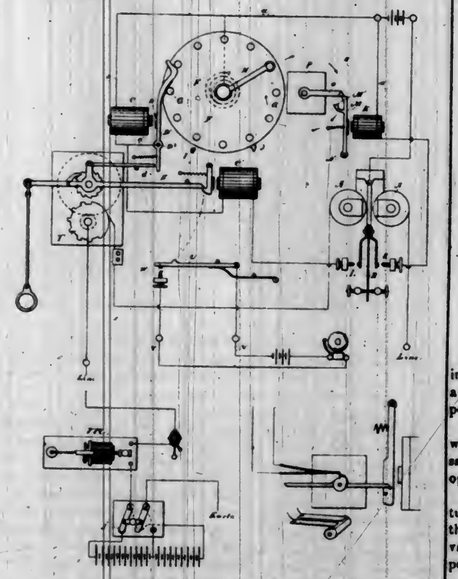
Claim.—1. The combination, with the bed, the swinging bottom, the loose legs for supporting the bottom, and the lever mechanism for fastening the legs, of a clock-work mechanism adapted to release the lever mechanism and trip the legs, substantially as described.

2. The combination, with the swinging bed-bottom and its supporting legs, of an inclined cleat forming a rest for the legs, a swinging leaf hinged to the cleat, a crank-rod carried by the leaf and adapted to be fastened to the legs, and a clock-work-operated tripping-lever adapted to swing against the crank, substantially as described.

3. The combination, with the swinging bed-bottom and its supporting-legs, of an inclined support for the legs, a rod connecting the two legs, a swinging leaf hinged to the inclined support, a crank-rod journaled on the leaf and having a hook to engage the leg-rod, a swinging lever adapted to strike on the crank of the crank-rod, and a clock-work mechanism for releasing the lever, substantially as described.

4. The combination, with the swinging bed-bottom and its supporting-legs, of an inclined support for the legs, a fastening device to hold the legs to the support, a swinging crank-arm adapted to release the fastening device, a swinging lever adapted to strike the crank-arm, and a clock-work mechanism for releasing the lever, substantially as described.

479,308. INDIVIDUAL ALARM SIGNAL APPARATUS. PAUL SEILER, San Francisco, Cal. Filed Aug. 1, 1891. Serial No. 401,403. (No model.)



Claim.—1. The rotary disk with projecting pins, a lever and clock-train, an escapement and controlling electro-magnet by which the disk is advanced one interval at each movement of the armature, a second magnet with an armature which actuates a stop engaging the pins at each movement, and a connection from the circuit wires through one of the pins, whereby a short circuit is established through this pin and the stop when they are in contact and the magnet is thrown out of action, substantially as herein described.

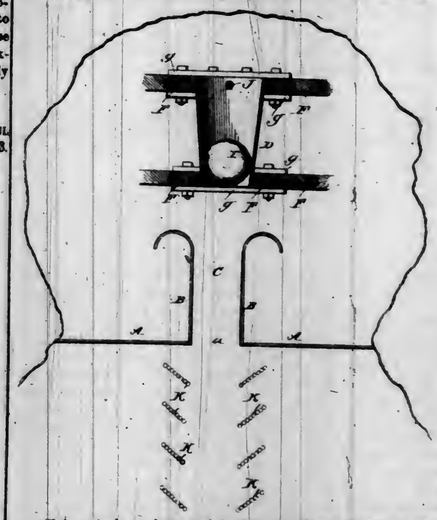
2. The magnet C and its armature, the rotating disk and a pin by which the electrical current is diverted from the magnet, a return-signal mechanism, and a second magnet by which it is actuated when the current is diverted from the first magnet to pass through the second, substantially as herein described.

3. The magnet C with its armature, the rotating disk and a pin by which the electrical current is diverted from the magnet, a return-signal mechanism, and a second magnet by which it is actuated when the current is diverted from the first magnet to pass through the second, a contact maker and breaker, and a releasing device to free the first armature, substantially as herein described.

4. A return-call mechanism consisting of two magnets of different resistances within the same circuit, a mechanism operated when the call is made, whereby the magnet if of higher resistance is short-circuited and the second magnet is thrown into action, a return-signal, and a device to return the armature of the first magnet, actuated by the second magnet when it is thrown into action, substantially as herein described.

5. A return-call mechanism consisting of a polarized relay in the main circuit, contact-points L and R, to one or the other of which the armature is attracted by a reversal of the current, and a spring by which it is returned to a central position when the current is cut off, a mechanism actuated when the call is made, whereby one of two magnets of different resistances is short-circuited and the other is thrown into action, a contact-maker operated by the second magnet to produce a return-signal, and a device whereby the armature of the first magnet is released, substantially as herein described.

479,309. HARBOR. ROBERT H. F. SEWALL and NICHOLAS H. SEWALL, Bessemer, Ala. Filed July 6, 1891. Serial No. 398,491. (No model.)



Claim.—1. In an improved harbor, a wall provided with openings made circular in cross-sections and the check-valve consisting of a ball movable within said opening, all substantially as and for the purposes set forth.

2. An improved harbor having main wall portions and channel-wings or portions extended from the adjacent ends of said wings, the said main wall portions being provided with flumes and with inwardly-opening check-valves, all substantially as and for the purposes set forth.

3. In a harbor, a wall composed of a plurality of rows of piles, tubular flumes extending through the wall, a filling of concrete between the rows of piles and around the flumes, and inwardly-opening check-valves controlling the said flumes, all substantially as and for the purposes set forth.

4. An improved harbor comprising the main wall portions provided with flumes and with check-valves controlling the same and the wings extended in parallel lines and projected from the adjacent ends of the main portions, all substantially as and for the purposes set forth.

5. An improved harbor comprising the main wall portions having flumes and check-valves, channel-wings extended from the adjacent ends of the main wall portions, and dikes arranged in rows on oppo-

site sides of the channel-line and inclined with respect to said line, substantially as described, and for the purposes set forth.

6. An improved harbor comprising the main wall portions provided with flumes and check-valves and the channel-wings extended from the adjacent ends of the main portions inwardly toward the land, substantially as set forth.

7. In a harbor, a wall composed of a plurality of rows of piles, the rows being separated by an intervening space, tapering tubular flumes extended between said rows of piles and opening at their opposite ends through the same; ball-valves movable within said tapering flumes, whereby they may operate as check-valves, and retaining devices whereby the said balls are held from escaping from the large ends of the flumes, all substantially as and for the purposes set forth.

8. In an improved harbor, the combination, with the main wall portions, of the channel-wings extended from the adjacent ends of the main portions inwardly toward the land, the said main portions being provided with flumes and with check-valves controlling the same, substantially as set forth.
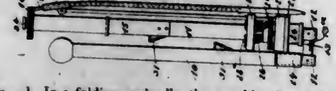
9. In a harbor, a wall formed of side piles, a metal flume-casing extending from side to side thereof, a ball-valve in said casing, and concrete filled in between the side piles and around the flume-casing, substantially as set forth.

10. In a harbor, substantially as described, the combination, with the main wall portions having side piles, flumes, and concrete filling and provided with inwardly-opening check-valves controlling the said flumes, of the channel-wings extended from the adjacent ends of the main wall portions, all substantially as and for the purposes set forth.

11. In a harbor, the combination, substantially as described, with the main wall portions having openings and inwardly-opening check-valves controlling the same, of the channel-wings extending from the adjacent ends of the main wall portion, said channel-wings being also provided with openings and inwardly-opening check-valves controlling the same, substantially as and for the purposes set forth.

12. In a harbor, substantially as described, the combination of the main wall portion, the channel-wings extended from the adjacent ends of the main wall portions, and the spur dikes arranged outside the main wall and extended in rows on opposite sides of the line of the channel and at an angle to such line, all substantially as and for the purposes set forth.

479,310. FOLDING UMBRELLA. GEORGE H. SEYMOUR, Stanton, Tex., assignor to himself and William H. Tersch, same place. Filed Nov. 18, 1891. Serial No. 412,265. (No model.)



Claim.—1. In a folding umbrella, the combination, with a folding stick, of ribs formed of two sections, the upper sections being pivoted to the upper portion of the stick and sliding in the lower section, and braces pivoted to the runner of the stick and to the lower rib-sections and with their ends projecting into the paths of the upper sections, substantially as and for the purpose set forth.

2. The combination, with the folding stick and the runner held to slide thereon, of ribs pivoted to the upper portion of the stick, each rib comprising a tubular outer section having a longitudinal slot therein and a solid upper section having at its lower end a lug to slide in the slot, sleeves fixed on the upper end of the lower or outer section of the rib, and braces pivoted on the sleeves with their ends projecting into the paths of the lugs on the upper rib-sections and extending to the runner, substantially as shown and described.

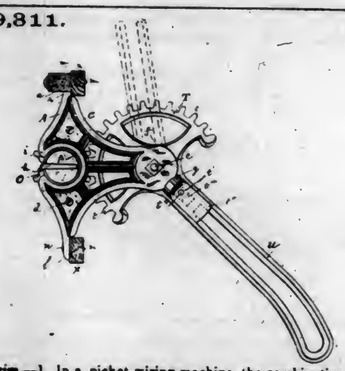
3. In a folding umbrella, the combination, with the folding stick and the ribs pivoted thereon, of a runner held to slide on the stick and provided with notched springs at its upper end, a ring held to slide on the runner, and braces pivoted on the runner and to the telescoping ribs, substantially as described.

4. In a folding umbrella, the combination, with the upper and lower stick-sections, of a link pivoted to each section and provided with a slit forming a spring, and a sleeve sliding on the sections, substantially as described.

5. A folding umbrella comprising a stick formed of three sections, the two lower sections being hinged together and the uppermost section sliding in the upper hinged section, ribs formed of two sections, one sliding in the other, a runner provided with springs, braces hinged to the runner and to the outer rib-sections and projecting into the paths of the upper rib-sections, and a ring sliding on the runner over the braces, substantially as described.

479,311. PICKET-WIRING MACHINE. JAMES R. SHAFFER, Huntington, Ind.; Jane Shaffer administratrix of said James R. Shaffer, deceased. Filed Mar. 2, 1892. Serial No. 423,590. (No model.)

479,311.

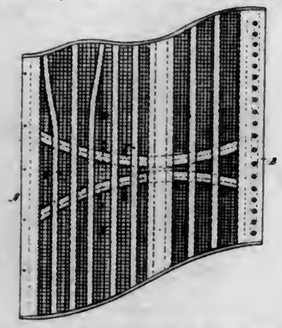


Claim.—1. In a picket-wiring machine, the combination, with a suitable frame, of a gear-wheel having a radial slot and side journals, as described, a segmental rack adapted to engage the gear-wheel, and a lever connected with the rack for operating the same, substantially as set forth.

2. In a picket-wiring machine, the combination of a frame composed of two triangular plates having perforated inner projections and securing-bolts, as described, the forward part of the frame having a slotted bearing and a radially-slotted gear-wheel journaled therein, an operating-lever with segmental rack pivoted in the rear part of the frame, indentures at the rear of the frame-plates, and the spring-actuated catches of the operating-lever, substantially as described.

3. The combination, in a picket-wiring machine, of a triangular frame having a slotted bearing and a radially-slotted gear-wheel journaled therein, an operating-lever with segmental rack pivoted in the rear of the frame, a pair of bearing-plates at the forward part of the frame, and a gage-block secured to one of the bearing-plates, substantially as and for the purpose described.

479,312. CORSET. MYRON W. SHERMAN, West Brookfield, Mass. Filed Sept. 7, 1891. Serial No. 404,959. (No model.)



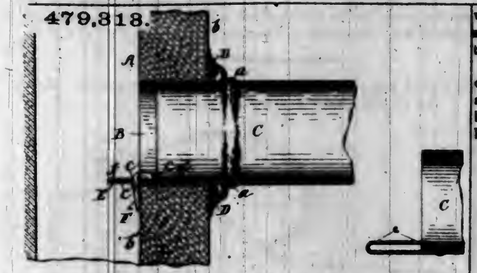
Claim.—A corset having each half composed of a front or busk strip and a rear or eyelet strip, combined with segment-shaped sections F G, extending transversely from front to rear, the said sections being of substantially equal width from front to rear, the section F curved downward and the section G curved upward, said sections being of two thicknesses of material, the zone-shaped section C, extending from front to rear, with its upper edge secured to the lower edge of the section F and between the two thicknesses of that section F, the lower edge of said zone-shaped section C secured to the upper edge of the section G and between its two thicknesses, the upper section D having its lower edge secured to the upper edge of the section F and between its two thicknesses, and the lower section E having its upper edge secured to the lower edge of the section G and between its two thicknesses, the sections C, D, and E being reversely curved at their respective edges, substantially as described.

479,313. STOVEPIPE-HOLDING DEVICE. CHARLES F. SPENCER, Rochester, N. Y., assignor to William Horcheler, same place. Filed Feb 29, 1892. Serial No. 423,208. (No model.)

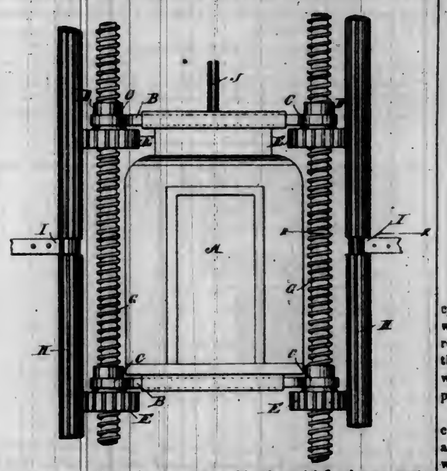
Claim.—1. The terminating section of a stovepipe provided with a narrow perforated extension projecting beyond its forward end and adapted for receiving into one or the other of its perforations an angular or headed pin or nail, said pin or nail bearing against the unexposed surface of the flue-wall of the chimney or other structure, substantially as described.

2. The combination of the terminating end section of a stovepipe, the perforated extension projecting into the chimney-flue, the fastening pin or nail, and the collar abutting against the head or corrugation of the pipe-section and against the flue-wall, substantially as described.

479,313.



479,314. ELEVATOR. COLLINS M. STEARNS, Milwaukee, Wis., assignor to himself, Emil John Field, and Thomas Field, same place. Filed Dec. 18, 1891. Serial No. 415,533. (No model.)



Claim.—1. In an elevator, the combination, with fixed screw-posts, of gear-wheel nuts mounted to turn on the said posts and adapted to support the cage and revoluble shafts fluted to form long pinions in mesh with the said gear-wheel nuts, substantially as shown and described.

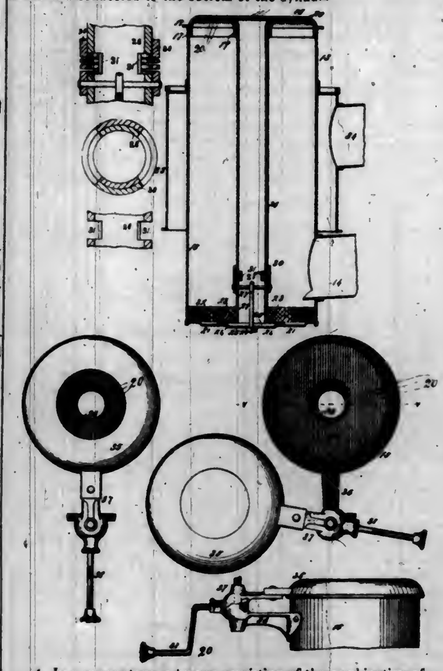
2. In an elevator, the combination, with a cage provided with bars having eyes, of gear-wheel nuts engaged at their hubs by the eyes of the said bars, fixed screw-posts on which said nuts turn, and revoluble shafts fluted to form long pinions in mesh with the said gear-wheel nuts, substantially as shown and described.

479,315. VAPOR-STOVE. LOUIS STOCKSTROM, St. Louis, Mo., assignor of one-half to Charles A. Stockstrom, same place. Filed May 9, 1891. Serial No. 392,175. (No model.)

Claim.—1. The combination of a gravity-carburetor, a main burner arranged below the level of the carburetor, having a cylinder provided with a cap, a pipe by which the carburetor is connected with the cylinder, a pipe passing through the cylinder, having openings located near its lower end, and a collar sleeved or fitted onto the pipe, having holes adapted to register with the openings in the pipe, substantially as and for the purpose set forth.

2. In a vapor-stove, a burner consisting of the combination of a cylinder having a bottom 21, a burner-cap fitting on the cylinder and having a central flared neck, a pipe located within the cylinder and having a flared upper end fitting in the neck of the burner-cap, a washer fitting against the bottom of the cylinder, a pin passing transversely through the pipe, and a bolt extending from the pin through said washer and having a nut on its lower end, substantially as and for the purpose set forth.

3. In a vapor-stove, a burner consisting of the combination of a cylinder having a bottom, a burner-cap fitting on top of the cylinder and having a flared neck, and a pipe located within the cylinder and having a flared upper end fitting in the neck of the burner-cap and its lower end connected to the bottom of the cylinder



4. In a vapor-stove, a burner consisting of the combination of a cylinder, a burner-cap fitting on top of the cylinder, a pipe located within the cylinder and secured to the cap at the upper end, a washer resting against the bottom of the cylinder, a pin passing transversely through the pipe, and a bolt extending from the pin through said washer and having a nut at its lower end, substantially as and for the purpose described.

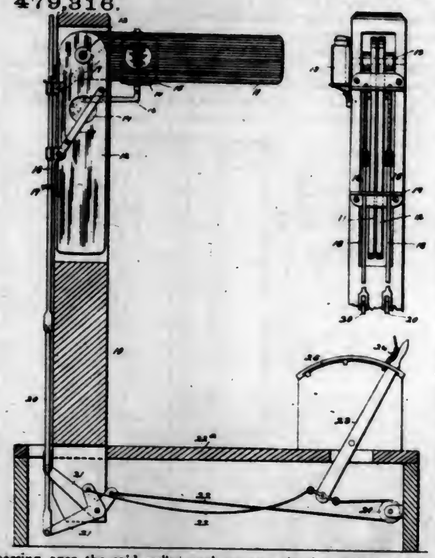
5. The combination of the cylinder, the burner-cap formed with a central opening, with a vertical flange fitting within the cylinder, with a horizontal flange resting on the top of the cylinder, and with an outwardly-flared and downwardly-extending neck, a bottom to the cylinder, formed with a central opening, with a neck around the opening and with a raised portion, a central pipe formed with a flared upper end fitting the flared neck of the cap and its lower end fitting the neck of the bottom, a perforated disk fitting the raised portion of the bottom, a pin extending transversely of the pipe near its lower end, and an eye-pin and nut by which the disk is secured to the transverse pin, substantially as and for the purpose set forth.

6. The combination of the cylinder, the burner-cap formed with a central opening, with a vertical flange fitting within the opening, with a horizontal flange resting on the top of the cylinder, and with a downwardly-extending neck, a bottom to the cylinder, formed with a central opening and with a neck around the opening, a central pipe fitting the neck of the cap and the neck of the bottom, having small holes near its lower end, a perforated disk, a pin extending transversely of the pipe near its lower end, and an eye-pin and nut by which the disk is secured to the transverse pin, substantially as and for the purpose set forth.

479,316. SEMAPHORE-SIGNAL. PERRY G. STUART, Fitchburg, assignor of one-half to H. Prentice Kendall, Sterling, Mass. Filed July 30, 1891. Serial No. 401,172. (No model.)

Claim.—1. In a signal, the combination, with a standard and semaphore-arms pivoted thereto, of vertically-sliding rods at one side of the standard, links pivoted to the semaphore-arms and to the rods, bell-crank levers to which the lower ends of the sliding rods are pivoted, a pulley, a cord or wire secured to the bell-crank levers and

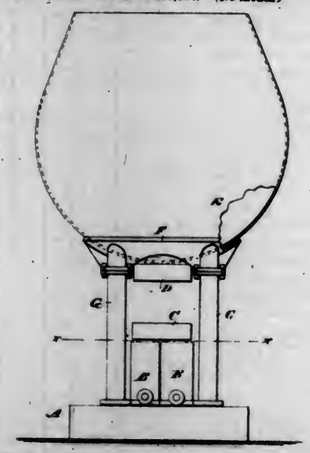
479,316.



passing over the said pulley, and an operating-lever connected directly to the said cord or wire, substantially as described.

2. A semaphore-signal comprising a chambered standard, a lantern secured to the standard, two apertured semaphore-arms pivoted in the chamber of the standard, vertically-sliding rods on one side of the standard, links pivoted to the semaphore-arms and to the rods, bell-crank levers to the longer arms of which the sliding rods are pivoted, a pulley, a cord or wire secured to the short arms of the bell-crank levers and passing over the pulley, and an operating-lever secured directly to the cord or wire, substantially as herein shown and described.

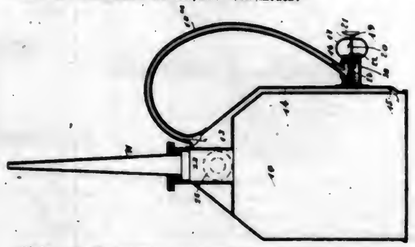
479,317. HYDRAULIC PRESS. JOHN F. TAYLOR, West Park, N. Y. Filed Oct. 17, 1891. Serial No. 409,077. (No model.)



Claim.—1. A compress comprising vertical supports, a weight mounted on said supports and carrying the upper platen on its under side, and the vertically-movable piston having a platen on its upper end, the said weight being sufficient to wholly withstand any pressure that the piston may exert, thereby relieving said supports from tensile strain, substantially as described.

2. The herein-described compress, comprising vertical supports, a weight-receiving receptacle mounted on said supports and adapted to contain a sufficient weight to withstand any pressure that the piston may exert without exerting any tensile strain on said supports, an upper platen on the bottom of the vessel between the supports, and a hydraulic piston on the base between the supports and carrying the lower piston, substantially as described.

479,318. OIL-CAN. HANS H. THIELLESEN, Custer City, S. D. Filed Nov. 12, 1891. Serial No. 411,677. (No model.)

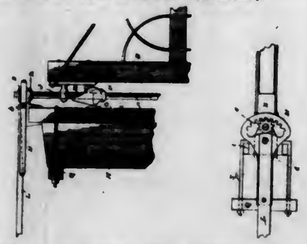


Claim.—1. The combination, with an oil-can having an air-chamber in the upper part thereof, of a hollow handle opening into the air-chamber, an air-compressor connected with the handle, and a channel leading from the air-chamber to the lower portion of the can, substantially as shown and described.

2. The combination, with an oil-can having an air-chamber in the upper part thereof, of a hollow handle connected with the chamber, a case supported on the can and connected with the handle, an apertured collapsible ball secured to the case, a spring-pressed plug mounted in an opening of the case and extending into the ball, and a thumb-piston secured to the plug and extending through the ball, substantially as shown and described.

3. The combination, with an oil-can having the usual discharge-nozzle, of an air-chamber arranged in the top of the can, near the base of the nozzle, a channel leading from the air chamber to the bottom portion of the can, and an air-compressor mounted exteriorly upon the can and adapted to force air into the channel, substantially as described.

479,319. DRIVE-GATE. JAMES M. THOMAS, Chillicothe, Ohio. Filed Jan. 16, 1892. Serial No. 418,347. (No model.)



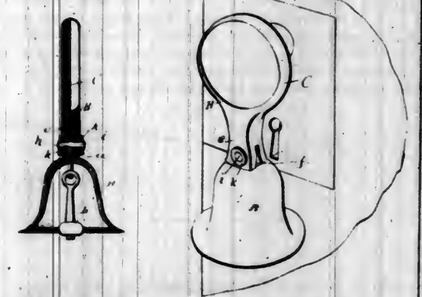
Claim.—1. In a swinging gate, the combination, with the main upright, of an adjustable hinge-plank secured thereto, provided with a cap-plate at its upper end, a cogged rim pivoted to said cap-plate, a cogged pinion meshing therewith, secured rigidly to the upper end of the hinge-rod, a hinge-rod journaled on the hinge-plank, a roller-cam, constructed substantially as described, supported on said rod, a swinging gate provided with a roller near its upper inner end, adapted to run upon the roller cam, and means for opening and closing said gate and holding it in a closed and supported position, substantially as described.

2. In a swinging gate, the combination of the main upright E, the adjustable hinge-plank C, attached thereto, carrying at its upper end the cap-plate K, the cogged rim M, pivoted to the cap-plate, the hinge-rod D, suitably journaled to the adjustable hinge plank C, roller-cam P, constructed substantially as described, supported on said hinge-rod, the gate suitably secured to said hinge-rod, roller R, carried by the gate, the pins W, secured at the front ends of said gate, the supports U for the front end of the gate, secured to a suitable upright, latches T T, and stop V, together with means for opening and closing said gate, substantially as described.

479,320. BURGLAR-ALARM. PIERRE G. TROUE, New Orleans, La., assignor of one-half to Hermann Levi, same place. Filed Apr. 21, 1891. Renewed May 26, 1892. Serial No. 434,394. (No model.)

Claim.—1. As an improved article of manufacture, the burglar-alarm described, comprising the bell having its shank or stem provided with a hole and the attaching device formed wholly from rubber or elastic material and having the band or ring of concavo-convex form

479,320.

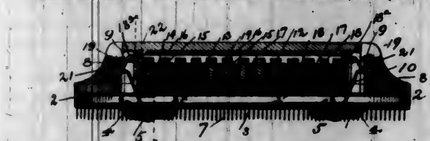


in cross section and the solid branch slitted and the slitted branches perforated to receive a bolt or rivet for securing the bell-shank thereto, substantially as specified.

2. The combination, with a bell, of a rubber band adapted to embrace a door-knob and having an integral branch secured to the shank or stem of the bell, substantially as specified.

3. In a burglar-alarm, the combination, with a bell and a door-knob, of a band of rubber or elastic material adapted to snugly embrace the knob and having an integral solid branch slitted and the slitted branches perforated for the attachment of a sounding device, substantially as specified.

479,321. ELECTRIC BRUSH. ROBERT R. WILLIAMS, Dallas, Tex., assignor of two-thirds to Val. E. Winston, same place, and Drew Ferguson, Homer, La. Filed Jan. 2, 1892. Serial No. 416,876. (No model.)



Claim.—1. In an electric brush, the combination, with the metal plate having an upwardly and downwardly extending rim, the non-conducting plate upon the under side thereof, the electrodes, the conducting-strips connected with the electrodes and secured to blocks upon the upper side of said metal plate, and the pivoted conductors electrically connected with said strips, of the battery adapted to rest upon the metal plate, having conducting-loops at each end, with which the pivoted conductors engage, substantially as and for the purpose set forth.

2. A galvanic battery for an electric brush, comprising a trough divided into a series of cells by transverse partitions having notches in their upper edges, the bent metal plates seated in said notches, the battery elements contacting with said plates, and the conductors in the ends of the trough, substantially as described.

3. A galvanic battery for electric brushes, comprising a series of cells and the positive and negative plates located in said cells, having holes or apertures near their upper edges, substantially as and for the purpose described.

479,322. CONNECTOR FOR ELECTRIC CIRCUITS. JOHN F. WOLLENSAK, Chicago, Ill. Filed Apr. 26, 1892. Serial No. 430,749. (No model.)



Claim.—1. In electric-circuit connectors, the combination of an insulating-piece secured to a face-plate and provided with two sockets, said plate having holes registering with the sockets, contact-springs secured to said insulated piece and communicating with said sockets through openings in the sides thereof, substantially as described.

2. In electric-circuit connectors, the combination of an insulating-piece provided with two sockets and secured to a face-plate, means whereby said piece may be prevented from turning out of position on said plate, holes in said plate registering with said sockets, contact-springs secured to the insulating-piece and communicating with the sockets through openings in the sides thereof, whereby as the plugs of a portable terminal are inserted in the sockets the springs will contact therewith to complete the circuit, substantially as described.

3. In electric-circuit connectors, the combination of an insulating-piece secured to a face-plate and provided with sockets, openings in the insulating-piece, contact-springs communicating at one of their ends with the sockets through said openings and having their other ends bent between the free end of said insulating-piece and an insulating-disk, and a screw passing through said disk and insulating-piece and screwing into the face-plate, whereby the said parts are secured to the face-plate and the contact-springs are secured to the insulating-piece, substantially as described.

4. In electric-circuit connectors, the combination of an insulating-piece secured to a face-plate, a lug upon said plate, and a notch arranged in the insulating-piece, whereby the said insulating-piece is prevented from turning upon the face-plate, substantially as described.

479,323. DULCIMER. IGNATIUS D. BAGDASARIAN, Cambridge, Mass. Filed Apr. 19, 1892. Serial No. 429,711. (No model.)

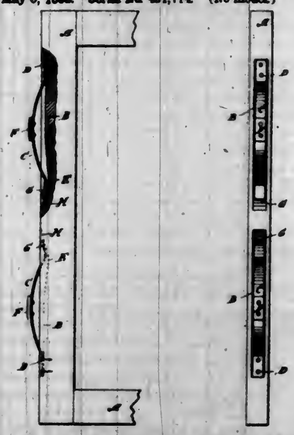


Claim.—1. In a dulcimer, the combination, with the end bridges of the sounding board and the stringing of the instrument, of two separate rows of bridge-posts unattached to and at a greater height from the sounding-board than the height of said end bridges and converging from the front to the rear of the dulcimer and having the strings at a bearing thereon, but alternately as to those of each row, substantially as described, for the purpose specified.

2. In a dulcimer, blocks to receive the hitch and tuning pins, located at opposite ends of the instrument, and each made with a downward and outward incline from the corresponding end bridge, substantially as described, for the purpose specified.

3. In a dulcimer, the combination, with the end bridges of the sounding-board and the stringing of the instrument, of two separate rows of bridge-posts unattached to and at a greater height from the sounding board than the height of said end bridges and converging from the front to the rear of the dulcimer and having the strings at a bearing thereon, but alternately as to those of each row, and skeleton brace-bars for the sounding board, a pair for each row of the bridge-posts and severally attached to the body, and those of each pair converging from the rear to the front of the instrument and along the opposite sides of the row of said bridge-posts to which they belong, substantially as described, for the purposes specified.

479,324. SASH-HOLDER. EMIL BROCKELWIRTH, Brooklyn, N. Y. Filed May 3, 1892. Serial No. 431,714. (No model.)



Claim.—The combination, with a shutter or blind A, having grooves B in one of its sides, of springs C, secured at one end in the groove and provided centrally between their ends with friction-pads of elastic material for deadening noise and increasing frictional contact with a frame in which the shutter or blind slides, substantially as described.

479,325. CONNECTOR FOR ELECTRIC CIRCUITS. WILLIAM H. GILL, Chicago, Ill., assignor to John F. Wollensak, same place. Filed Apr. 26, 1892. Serial No. 430,735. (No model.)

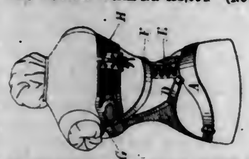


Claim.—1. In electric-circuit connectors, the combination of a plate provided with a hole therethrough, a stationary block of insulating material attached to the plate and provided with a hole registering with the hole in the plate, and springs of unequal lengths projecting beyond the end of the block and forming stationary terminals for the ends of the circuit-wires, substantially as described.

2. In electric-circuit connectors, the combination of a portable block into which the ends of circuit-wires are led, and stems, one within the other, fastening the ends of the circuit-wires in the block, with the inner stem projecting beyond the outer and forming portable terminals, substantially as described.

3. In electric-circuit connectors, the combination of a plate provided with a hole therethrough, a stationary block of insulating material attached to the plate and provided with a hole registering with the hole in the plate, springs of unequal lengths projecting beyond the end of the block and forming stationary terminals for the ends of circuit-wires, a portable block into which the ends of circuit-wires are led, and stems, one within the other, fastening the ends of the circuit-wires in the block, with the inner stem projecting beyond the outer and forming portable terminals contacting with the stationary terminals when the stems are inserted in the plate and stationary block, substantially as described.

479,326. SPINAL BRACE. CHARLES G. GÜMPEL, London, England. Filed May 11, 1892. Serial No. 432,604. (No model.)



Claim.—1. In apparatus for supporting the spine, the combination of a supporting-band, such as A, adapted to be secured around the body, the spring E, having its lower end secured to the central portion of said band A and adapted to fit into the hollow of the back, the metal band or rod F, centrally secured to the upper end of said spring and having its ends curved upward to the armpits, and crutches G G, attached to the ends of the band or rod F and adapted to fit under the arms of the wearer, substantially as and for the purpose described.

2. In apparatus for supporting the spine, the combination of the supporting-band A, the adjustable belt B, the corset-front C, attached to said belt and provided with straps D for attachment to the band A, the spring E, having its lower end secured to the central portion of said band and adapted to fit into the hollow of the back, the metal band or rod F, centrally secured to the upper end of said spring and having its ends curved upward to the armpits, crutches G G, attached to the ends of the band or rod F and adapted to fit under the arms of the wearer, and an adjustable belt or band H, connecting said crutches, as and for the purpose described.

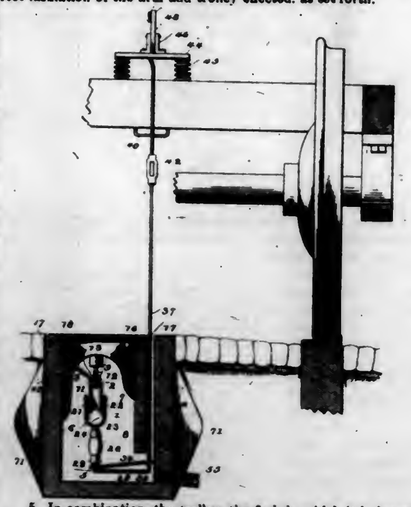
479,327. CONDUIT-TROLLEY FOR STREET-CARS. ARTHUR H. HEATHMAN, Baltimore, Md., assignor of one-half to Harry D. Heatzman, same place. Filed Mar. 24, 1891. Serial No. 386,196. (No model.)

Claim.—1. The conductor-support herein described, consisting of a stem and two downwardly-inclined plates forming an inverted-V-shaped or angle iron, the stem being secured to or formed on the apex of this iron and the plates being provided with openings to receive the securing-screws, as set forth.

2. In combination, the housing having brackets, the insulators secured to said brackets, the inverted-V-shaped conductor-support secured to the insulators, and the conductor secured to the supports, substantially as set forth.

3. In combination, the housing provided with side plates, connecting bottom plate, downward partition, with clear space below it to accommodate foot of trolley-arm, brackets secured to upper inner parts of one side plate and the partition and forming top cross-bars, two sets of insulators carried by said brackets, and a conductor and auxiliary conductor carried by said sets of insulators, as set forth.

4. A trolley-support consisting of a hollow rubber structure, through which the wires pass, formed at one end for connection with the trolley-bearing and at the other for connection with the toe of the trolley-arm, whereby a yielding support is given to the trolley and perfect insulation of the arm and trolley effected, as set forth.



5. In combination, the trolley, the fork in which it is journaled, the toe of the trolley-arm, and the rubber trolley-support embracing the fork at one end and the toe at the other, as set forth.

6. In combination, a trolley-arm, a trolley, a bearing for the trolley, and an insulating-support connected to the arm at its lower end and by a swivel-joint to the trolley-bearing at its upper end, as set forth.

7. The trolley-support consisting of the arm having horizontal foot and vertical toe at the end thereof, in combination with the inclined brace connecting the arm and toe, as set forth.

8. The trolley-arm formed as a conduit for insulated wires from the trolley, in combination with the trolley and an insulating-support connecting the trolley-arm and trolley, as set forth.

9. The combination of the trolley-arm and toe with a connecting-brace secured to each of them by means of an embracing eye or socket, as set forth.

10. The trolley-arm and car, in combination with a brace secured at the top to the car and at the bottom to the arm and traveling in the slot, as set forth.

11. The trolley-arm and car, in combination with a brace secured at the top to the car and having a vertically-sliding connection with the arm at the bottom, as and for the purpose set forth.

12. The trolley-arm and car, in combination with a brace connected at its upper end with the car by a horizontally-sliding connection and at its lower end with the trolley-arm, as set forth.

13. The trolley-arm and car, in combination with a brace having a horizontal sliding connection with the car at its upper end and a vertically-sliding connection with the trolley-arm at its lower end, as set forth.

14. The combination, with the car and the trolley-supporting arm having foot and toe, as described, of a brace connecting the toe and arm by means of sliding connections and a second brace secured at its lower end to the first brace at the arm and at its upper end to the car by a horizontally-sliding connection, as and for the purpose set forth.

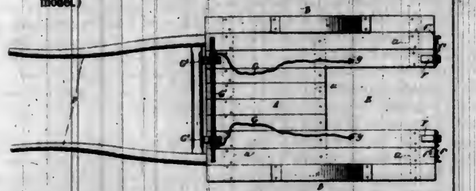
15. In combination, the car, the hand-lever, the pivoted cam, the trolley-arm connected thereto, and the spring-platform upon which the cam is supported, as set forth.

16. A trolley-arm provided with a horizontal foot and vertical toe, in combination with the trolley and an elastic connection between it and the toe, as set forth.

17. In combination, the trolley, the fork in which it is journaled, the toe of the trolley-arm, and the elastic insulating trolley-support embracing the fork at one end and the toe at the other, as set forth.

18. In combination, a trolley-arm, a trolley, a bearing for the trolley, and an elastic insulating-support connected to the arm at its lower end and by a swivel-joint to the trolley-bearing at its upper end, as set forth.

479,328. VEHICLE FOR CARRYING GRAIN. RICHARD W. JOSH, Rock Hall, Md. Filed Apr. 12, 1892. Serial No. 428,832. (No model.)



Claim.—1. A vehicle for use in carrying cut grain, having a platform flat on its upper surface and provided in its rear with a cut-away portion or opening, and means located at either end of the platform for retaining the grain in place, substantially as described.

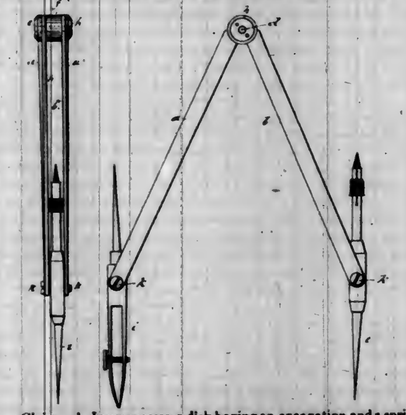
2. A vehicle for use in carrying cut grain, having a platform flat on its upper surface and provided in its rear with a cut-away portion or opening, and means, such as described, located on the platform, whereby the contents of the vehicle may be drawn toward the operator, substantially as described.

3. In a vehicle of the class described, a device for use in unloading, comprising ropes, each having one of its ends secured to the platform of the vehicle and its other end attached to a bar, and rests provided in the front of the platform for receiving said bar, substantially as described.

4. In a vehicle of the class described, the combination of the platform having the rearward opening, tail-gates hinged to the rear portion of said platform and having the described notches therein, and the locking-bolts operating with said notches, in the manner and for the purpose set forth.

5. In a vehicle of the class described, the combination of the platform having the rearward opening, tail-gates hinged to the rear of the platform, having the notches therein as described, locking-bolts, means, such as described, for drawing the contents toward said opening, comprising two cords secured at one end to the rear portion of the platform and at their forward end to a bar, uprights on the forward end of the platform having rests for said bar, and guards on the sides of said platform to protect the contents of the vehicle from the wheels, the combination being and operating substantially as set forth.

479,329. COMPASSES. ADOLPH KOLESCH, Brooklyn, N. Y. Filed Apr. 29, 1891. Serial No. 390,995. (No model.)

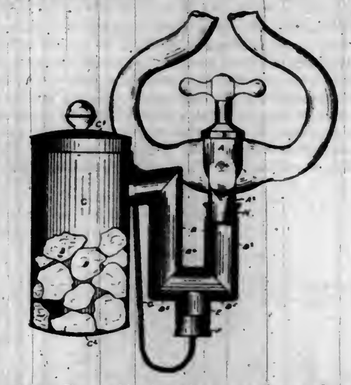


Claim.—1. In compasses, a disk having an excavation and a spring-acting dished or conical washer in said excavation placed on the pivot-pin of the head of the compasses, so that the washer acts as a spring against one of the legs of the compasses, substantially as set forth.

2. Compasses having its legs consisting each of two blades cut or stamped out of sheet metal and secured to the pivot-pin of the head outside of an interposed disk, substantially as set forth.

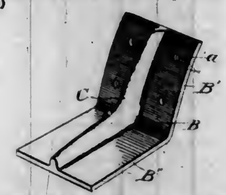
3. In a pair of compasses, the combination of a disk having in an excavation of the same a spring-acting dished or conical washer, with two blades cut out or stamped out of sheet metal placed on each side of the disk and forming the legs of the compasses and a pivot-pin passing through the head ends of the blades and the disk and washer and secured to the same by means of a knob and a screw-cap, substantially as set forth.

479,330. SOAP-HOLDER ATTACHMENT FOR WATER-FAUCETS. ABRAHAM B. MIRANDA, Boston, Mass. Filed Mar. 26, 1892. Serial No. 426,573. (No model.)



Claim.—The combination, with a water-faucet, of a vertical receptacle located at one side of said faucet and at its upper portion adapted to be charged with soap and having a perforated bottom, and a U-pipe in communication at one end with the upper portion of said receptacle and at the other end with said faucet and between the faucet and receptacle and at its lower portion having a discharge-orifice adapted to be opened and closed, all as described, for the purposes specified.

479,331. BOILER-LUG AND METHOD OF MAKING THE SAME. GEORGE I. MCGREGOR, Chicago, Ill. Filed Dec. 14, 1891. Serial No. 414,989. (No model.)



Claim.—1. The improvement in the art of manufacturing boiler lugs or brackets, which consists in forming a metal blank, rolling such blank to form a web, and bending the blank to form the completed lug, substantially as described.

2. The improvement in the art of manufacturing boiler lugs or brackets, which consists in forming a metal blank, rolling the blank to form a web along the middle thereof, cutting the blank to the desired lengths, and bending the pieces so formed to make the completed lugs, substantially as described.

3. The improvement in the art of manufacturing boiler lugs or brackets, which consists in taking a metal blank provided with a web, cutting such blank to the proper lengths and shapes, and drilling and bending the pieces so formed to make the completed lugs, substantially as described.

4. A boiler lug or bracket made out of a continuous metal blank by rolling the same to form a web and bending it to form a curved member to be attached to the boiler and a flat member to rest upon the boiler-support, substantially as described.

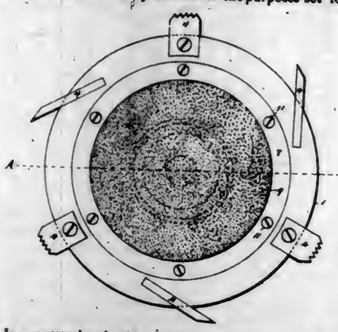
479,332. COMBINED CUTTING AND SCOURING DEVICE. EDWARD K. PATTEN, Whitesborough, N. Y., assignor to the Seaman Drawer Fitting Machine Company, Milwaukee, Wis. Filed Jan. 14, 1892. Serial No. 418,085. (No model.)

Claim.—1. A rotating cutter-head having cutting-spurs in the face of the head, extending substantially parallel therewith and projecting beyond the periphery, and clearing-spurs set substantially at right angles to the cutting-spurs, extending beyond the periphery of the head, in combination with a scouring-surface upon the face of the head within the cutters substantially flush with the face of the cutters, substantially as and for the purposes set forth.

2. A rotating cutter-head having serrated cutting-spurs in the face of the head, extending substantially parallel therewith and projecting beyond the periphery, and clearing-spurs set substantially at right angles to the cutting-spurs, extending beyond the periphery of the head,

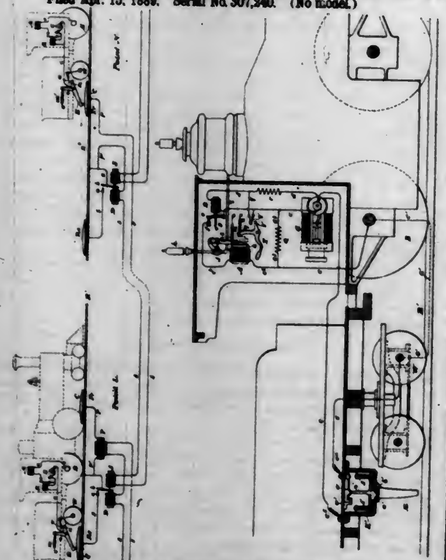
in combination with a scouring-surface upon the face of the head within the cutting-spurs and substantially flush with the face thereof and held to the face by rings and screws, substantially as and for the purposes set forth.

3. The combination, with a rotating disk mounted upon the end of a shaft, of one or more cutters secured in the face of the disk at right angles with the shaft extending beyond the periphery of the disk, and one or more clearers at right angles with the cutters, extending beyond the periphery of the disk, and sand-paper or other scouring material upon the face of the disk within the cutters, and clearers substantially flush with the plane of the cutters and adapted to cut and scour a width equal to the diameter of the scouring material upon the face of the disk, substantially as and for the purposes set forth.



4. In a cutter-head, the combination, with a rotating planer-head, of one or more clearers attached to the head at right angles thereto and projecting beyond its periphery, and one or more cutters attached to the head with their cutting-edges substantially at right angles to the cutting-edges of the clearers, constructed to move simultaneously for the cutting and crosscutting and clearing the material and adapted to plane a width equal to the diameter of the head and cutters, in combination with sand-paper or other scouring material upon the face of the head within the cutters, and ring and screws for securing the sand-paper or scouring-surface to the face of the head, substantially as and for the purposes set forth.

479,333. ELECTRIC RAILWAY-SIGNAL. THEODORE A. B. PUTNAM, New York, N. Y., assignor to Ella Sarah Webster, same place. Filed Apr. 15, 1889. Serial No. 307,240. (No model.)



Claim.—1. The combination, with a locomotive, of a partial electric circuit thereon, a current-generator in said circuit, and two conducting-terminals for said circuit in contact with the rail, whereby normally said circuit is closed through the rail between said terminals, and a mechanical circuit-manipulator carried by the locomotive and adapted when displaced by contact with some provision on the track to break or vary the resistance of said circuit.

2. The combination, with a locomotive, of a partial electric circuit thereon, a current-generator in said circuit, and two conducting-terminals for said circuit in contact with the rail, whereby normally said circuit is closed through the rail between said terminals, and a circuit-breaking lever carried by the locomotive and adapted when displaced by contact with some provision on the track to break or increase the resistance of said circuit.

3. The combination, with a locomotive, of a normally-closed electric circuit thereon, a current-generator carried by the locomotive, feeding said circuit, a circuit connection between one terminal of said generator and the rail, and a contact-lever carried by the locomotive, adapted to make electrical contact with some provision along the track and in electrical connection with the other terminal of said generator.

4. A locomotive, a partial circuit thereon terminating in connections with one of the track-rails and normally closed therethrough, a current-generator upon the locomotive, feeding said circuit, and a contact device carried thereby and in electrical connection with said circuit, in combination with a track having a practically continuous or uninsulated track rail or rails with a contact plate or rail along the track, insulated from the track-rails and arranged to be touched by said contact device in its passage, and a partial track-circuit with one terminal connected to said contact-plate and the other to one of said continuous track-rails.

5. The combination of a railway-track having a contact plate or rail insulated from the track-rails and a partial circuit with one terminal connected to said plate and the other to one of the track-rails, with a locomotive, a partial circuit thereon terminating in connections with the rail, whereby it is normally closed through the rail, a current-generator on the locomotive, feeding said partial circuit, and a contact lever or device carried by the locomotive, connected with said partial circuit and arranged to make contact with said contact-plate in passing it, and thereby to connect the partial track-circuit momentarily to said partial locomotive-circuit.

6. The combination of a railway-track having a contact plate or rail insulated from the track-rails and a partial circuit with one terminal connected to said plate and the other to one of the track-rails, with a locomotive, a partial circuit thereon terminating in connections with the rail, whereby it is normally closed through the rail, a current-generator on the locomotive, feeding said partial circuit, a contact lever or device carried by the locomotive, connected with said partial circuit and arranged to make contact with said contact-plate in passing it, and thereby to connect the partial track-circuit momentarily to said partial locomotive-circuit, and a circuit-breaker operated by the contact of said lever with the contact-plate and adapted to break the partial locomotive-circuit between the connection of said contact-lever and the rail connections, whereby a greater proportion of the current from said generator is diverted through said partial track-circuit.

7. The combination of a railway-track having a contact plate or rail insulated from the track-rails and a partial circuit with one terminal connected to said plate and the other to one of the track-rails, with a locomotive, a partial circuit thereon terminating in connections with the rail, whereby it is normally closed through the rail, a current-generator on the locomotive feeding said partial circuit, a contact lever or device carried by the locomotive, connected with said partial circuit and arranged to make contact with said contact-plate in passing it, and thereby to connect the partial track-circuit momentarily to said partial locomotive-circuit, and an alarm-magnet in operative connection with said partial locomotive-circuit and adapted to give an alarm upon a certain change in the volume of current from the normal.

8. The combination of a railway-track having a contact plate or rail insulated from the track-rails and a partial circuit terminating at said plate and one of the track-rails, with a locomotive, a current-generator and contact-lever carried thereby, said lever arranged to make contact with and be displaced by said contact-plate in passing it, a partial circuit on the locomotive terminating in connections with the rail, whereby it is normally closed through the rail, and a circuit-breaker in said partial locomotive-circuit operated to break it or increase its resistance by the displacement of said contact-lever.

9. The combination, with a railway-track, a contact plate or rail consisting of plates or bars laid longitudinally side by side, spread apart or flared laterally at their ends, and movable relatively toward or from each other, and a spring for pressing said plates together, of a locomotive carrying a contact-lever adapted to enter between said plates in passing, a partial circuit connected to said lever, and a current-generator on the locomotive feeding said partial circuit.

10. The combination, with a railway-track, of a plate f', mounted on the ties, a plate f^2, arranged against said plate and movable toward and from it, a lever j', on which said plate f^2 is fixed, and a spring k', arranged to exert its tension against said lever to press the two plates together.

11. The combination, with a locomotive, of a circuit-breaking lever carried thereby, a ball-and-socket connection between said lever and its bearing, springs for holding said lever in its normal position, a contact-arm on said lever, and a contact-spring arranged to be touched by said arm in the normal position of the lever and to break contact therewith on the deflection of the lever.

12. The combination, with a locomotive, of a circuit-breaking lever carried thereby, a half-ball formed on said lever, a hemispherical socket in which said ball is held, a movable plate lying against the flat side of said ball, and springs pressing against said plate to return the plate to its normal position when displaced.

13. The combination, with a locomotive, of a box or casing U', having a hemispherical socket b', a contact-lever E, having a half-ball d' movable in said socket, a plate d', lying against the flat side of said ball, and springs s' s', pressing said plate against said ball, whereby the lever E may be deflected in any direction and will be restored to its normal position by the tension of said springs.

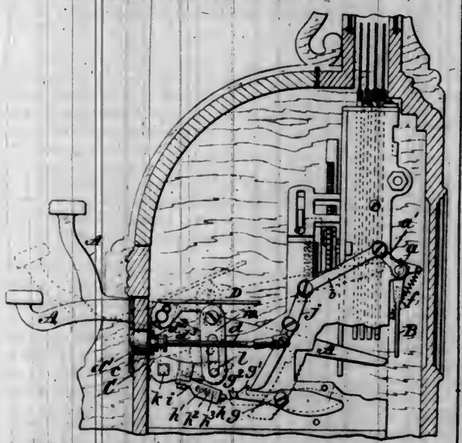
14. The combination, with a locomotive, of a partial electric circuit thereon terminating in connections with the rail and normally closed therethrough, a current-generator in said circuit, an electro-magnet and circuit-breaking contacts in said circuit, a relay-magnet for operating said contacts, and a short circuit cutting out said alarm-magnet and contacts, but not said rail connection, and including a resistance, whereby the absolute breaking of the partial circuit through the rail connections by the separation of the relay-contacts is prevented.

15. The combination, with a locomotive, of a partial circuit thereon, a current-generator and an alarm-magnet in said circuit, circuit-breaking contacts in said circuit, a relay-magnet for operating said contacts to break said circuit, and a switch for manually decreasing or discontinuing the current through said relay to cause it to release its armature and restore the current through said alarm-magnet.

16. The combination, with a locomotive, of a partial circuit thereon, a current-generator in said circuit, an alarm-magnet operating to give an alarm upon the release of its armature, a relay-magnet for governing the operation of said alarm-magnet, connected in a shunt of said partial circuit, a switch for manually varying the current through said relay to cause it to restore the normal current to the alarm-magnet, and a restoring-lever arranged when vibrated to restore its armature to said alarm-magnet and to operate said switch, whereby the alarm-magnet is caused to reattract and hold its restored armature.

17. The combination, with a locomotive, of a partial circuit thereon, a current-generator and alarm-magnet in said circuit, circuit-breaking contacts for breaking said circuit, a relay-magnet for operating said contacts, the circuit of said relay, short-circuiting contacts in said relay-circuit, adapted to cut out said relay, and a restoring-lever arranged when vibrated to restore its armature to said alarm-magnet and to close said short-circuit, whereby the relay-magnet is caused to release its armature and the normal circuit through the alarm-magnet is restored.

479,334. CASH-REGISTER. JOHN J. RANGE, Northampton, Mass., assignor to the Boston Cash Register Company, same place. Filed Feb. 16, 1892. Serial No. 421,766. (No model.)

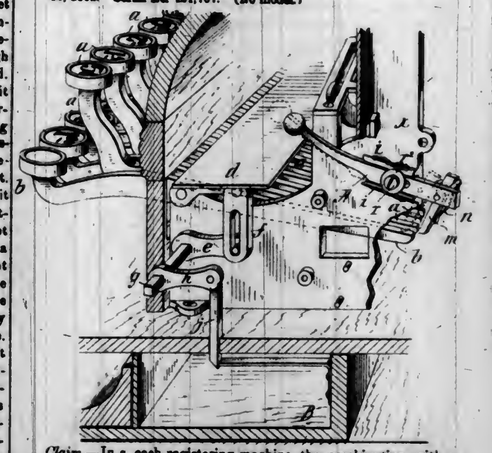


Claim.—1. In a cash-register, the combination, with one or more operating key-levers, of a key-lever-engaging member mounted to normally engage the levers and movable to disengage a device for temporarily holding the locking member in its disengaging position, and means actuated by either of the key-levers on a registering movement thereof to terminate the engagement between said temporary holding device and said locking member, for the purpose set forth.

2. In a cash-register, the combination, with a series of key-levers, of the movable locking-bar, the lever j, intermediately pivoted and a medium of connection between said lever and the locking-bar, a pawl or trigger for engaging said lever, and a dog movable in conjunction with the operation of the key-levers to release said pawl, substantially as and for the purposes set forth.

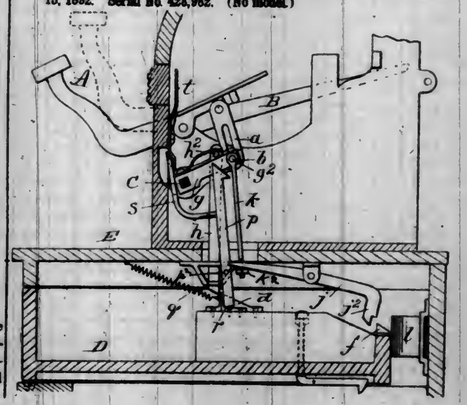
3. In a cash-register, the combination, with a series of key-levers, of the common tilting plate, the swinging dog-carrier linked to said plate, and the spring-pressed dog, the pivoted lever j, the pawl g for engaging said lever and having its nose in proximity to the course of movement of said dog, a medium of connection between the said lever and said locking-bar, and the push-rod d, all arranged for operation substantially as described.

479,335. CASH-REGISTER. JOHN J. RANGE, Northampton, Mass., assignor to the Boston Cash Register Company, same place. Filed Feb. 16, 1892. Serial No. 421,767. (No model.)



Claim.—In a cash-registering machine, the combination, with a cash-drawer and a locking device therefor, of a series of key-levers having an operative connection with the register and a blank-key lever, which, together with the register-key levers, is in operative connection with the cash-drawer-locking device, and a handle-bar mounted for a sliding movement forward and back on a stationary support which is adjacent the blank key, and said handle-bar having thereon a pivoted pawl located in a plane coincident with the course of movement of the blank-key lever, which is held normally forwardly spring-pressed and which has an upward and rearward inclination, substantially as and for the purposes set forth.

479,336. CASH-REGISTER. JOHN J. RANGE, Northampton, Mass., assignor to the Boston Cash Register Company, same place. Filed Apr. 13, 1892. Serial No. 428,962. (No model.)

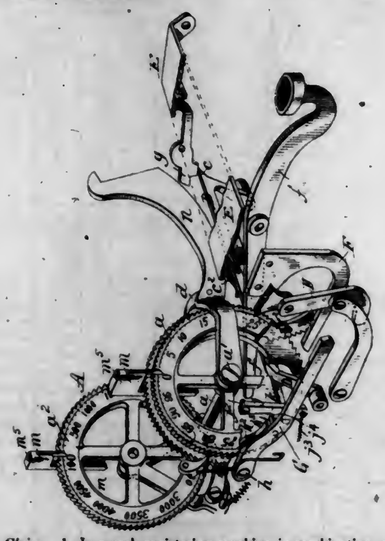


Claim.—1. In a cash-registering machine, the combination, with a key-lever and a cash-drawer, of a catch for holding the drawer closed, and a medium of connection between the key-lever and the drawer-catch, arranged and adapted to permit of the maintenance of the locked relations of the catch and drawer on the working movement of the key-lever and to be operated for the release of the drawer only on a return movement of the key-lever, for the purpose set forth.

2. In a cash-registering machine, the combination, with one or more key levers and a movable cash-drawer having two catch-abutments, of a catch adapted to engage each of said abutments, and mechanism of connection between each of said catches and the key-levers, whereby one of the catches will disengage its abutment on the working movement of a key-lever and the other catch will disengage its abutment on the return movement of the key-lever, substantially as described.

3. In a cash-registering machine, the combination, with the key-lever and the rocking bar C, movable therewith and having the arm *g*, of the cash-drawer having the catch-abutment *d* and the catch-abutment *f*, the bolt A, having the stud A^3, projected to be engaged by said arm *g*, the intermediately-pivoted catch-lever *j* and a connection between one arm thereof and said arm *g*, and the spring for forwardly forcing the drawer, all substantially as described.

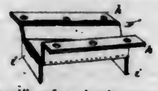
479,337. CASH-REGISTER. WILLIAM H. SAUNDERS, JOHN J. RANGE, and EDWARD M. FOOTE, Northampton, Mass., assignors to the Boston Cash Register Company, same place. Filed Feb. 16, 1892. Serial No. 421,769. (No model.)



Claim.—1. In a cash-registering machine, in combination, a register-wheel having a series of teeth, operating key-levers, and mechanism between the key-levers and register-wheel for imparting on the working movement of the lever a registering movement of the wheel, and a rocker-plate movable with the key-levers and having the member H connected thereto, a detent-arm movable to engage and disengage the teeth of the ratchet-wheel and having its engaging movement imparted by the said rocker-plate member H on the completion of the working movement of the key, a trigger for engaging and retaining the detent-arm in its engagement with the register-wheel, and a movable device adapted to be released on the completion of the return movement of the rocker-plate to force the trigger out of engagement with the detent-arm, substantially as described.

2. In a cash-registering machine, in combination, a registering-wheel, and a series of operating key-levers therefor, the rocking plate E, having the arm F and the member H, the swinging member D, having an engagement member, as *e*, and the trigger *g* for engaging the latter, the pivotally-mounted detent-arm G, having the catch member A^3, and the pivotally-mounted and spring-constrained trigger *j* for engaging said catch member, all for conjoint operation, substantially as described.

479,338. DERAILING-FROG. OWEN J. TRAVIS, Marshalltown, Iowa, assignor of one-half to Albert E. Shorthill, same place. Filed Nov. 23, 1891. Serial No. 413,391. (No model.)

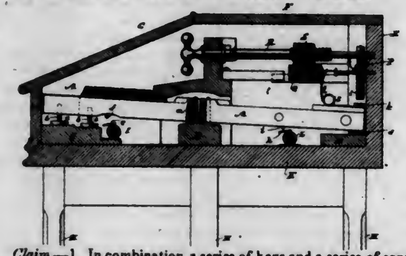


Claim.—1. A derailing-frog having a recess in its under side to receive the ball or head of a railway-rail and having an oblique recess or guide on its upper side, said frog being hinged so as to turn laterally, substantially as specified.

2. The derailing-frog comprising the block having the transverse recess in its under side to bridge a rail and the oblique recess in its upper side, the straps secured to the said block, the wear-plate or shoe secured in said oblique recess, and the bolt for pivotally connecting one end of the straps to a tie, substantially as specified.

3. The combination, with a railway-rail and cross-tie, of a stand-bolt rising from one end of said tie, the two straps pivoted at one end to the head of the bolt, the block secured to said straps and having the groove or recess in its under side to straddle a rail-head, and the oblique groove on its upper side to receive a car-wheel and the angular plate secured in the upper groove, substantially as specified.

479,339. EXERCISING-KEYBOARD. ALSON K. VIRGIL, New York, N. Y. Filed Mar. 9, 1889. Serial No. 302,635. (No model.)



Claim.—1. In combination, a series of keys and a series of sound-producing devices adapted to produce a short quick sound, (not a musical tone,) arranged in position to be operated when the depression of the key is substantially completed, whereby a distinct sound commences and occurs at the moment when the key is down, substantially as described.

2. In combination, a series of keys and a series of sound-producing devices adapted to produce a short quick sound, (not a musical tone,) arranged in position to be operated when the ascent of the key is substantially completed, whereby a distinct sound commences and occurs at the moment when the key is up, substantially as described.

3. In combination, a series of keys, a series of sound-producing devices adapted to produce a short quick sound, (not a musical tone,) arranged in position to be operated when the depression of the key is substantially completed, whereby a distinct sound commences and occurs at the moment when the key is down, and a series of cushions arranged under the forward ends of the keys in such position as to be in contact with the key when the sound-producer is struck, substantially as described.

4. In combination, a series of keys, a series of sound-producing devices adapted to produce a short quick sound, (not a musical tone,) arranged in position to be operated when the ascent of the key is substantially completed, whereby a distinct sound commences and occurs at the moment when the key is up, and a series of cushions arranged under the rear of the keys in such position as to be in contact with the key when the sound-producer is struck, substantially as described.

5. In combination, a series of keys, a series of cushions for said keys, and a series of sound-producing devices adapted to produce a short quick sound, (not a musical tone,) arranged in position to be operated when the key is in contact with said cushion, substantially as described.

6. In combination, a series of keys and two series of sound-producing devices adapted to give a short quick sound, (not a musical tone,) one series arranged in position to be operated when the depression of the key is substantially completed and the other series arranged in position to be operated when the ascent of the key is substantially completed, whereby one distinct sound commences and occurs at the moment when the key is down and another distinct sound commences and occurs at the moment when the key is up, substantially as described.

7. In combination, a series of keys, two series of sound-producing devices adapted to produce a short quick sound, (not a musical tone,) and a separate means for adjustment for each series of sound-producing devices, whereby the same may be thrown out of operation independently of the other, substantially as described.

8. In combination, a series of keys and a series of sound-producing devices adapted to produce a short quick sound, (not a musical tone,) one member of each sound-producing device consisting of a rigid projection from the key and the other member consisting of a rigid piece in position to be struck by the projection when the key has completed its movement, substantially as described.

9. In a key-exercising apparatus containing a series of keys, in combination with each key, two independent click-producing devices constructed and arranged to be operated by said key, one of the same producing said click upon the upward movement of said key, the other of the same producing said click upon the downward movement thereof, and each of the same provided with independent means of adjustment, whereby either may be disconnected from the operation of said key, substantially as described.

10. In a keyboard-exercising apparatus having a series of keys, the combination, with said series of keys, of a hard or metal plate extending continuously adjacent to the various keys of said series, whereby it may be struck by mechanism connected with each of said keys to produce a short quick click, substantially as described.

11. In a keyboard-exercising apparatus having a series of keys, the combination, with said series of keys, of a hard or metal plate extending continuously adjacent to each of said keys, secured substantially as described, whereby it has an overhanging portion to be struck by mechanism connected with each of said keys to produce a short quick click, substantially as described.

12. In a key-exercising apparatus, the combination, with a series of keys, of a hard or metal plate extending continuously adjacent to said keys and secured by one of its edges to an adjustable bar, whereby it may be adjusted into or out of position to be struck by mechanism connected to said keys, substantially as described.

13. The combination, in a key-exercising apparatus, of a series of keys, a continuous hard or metal plate extending beneath the forward end of said keys, and a hard or metal spur secured to each of said keys in position to strike said plate upon the descent of its key and thereby produce a sharp quick click, substantially as described.

14. In a key-exercising apparatus, the combination, with a series of keys having counterbalance extensions, of a hard or metal plate extending continuously transversely to said extensions, and a hard or metal spur connected with each of said keys and arranged in position to impinge upon said plate upon the upward movement of its key and thereby produce a quick sharp click, substantially as described.

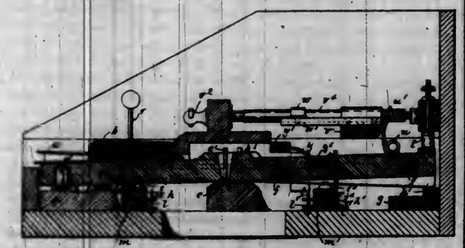
15. In combination, a series of keys, an adjustable bar, mechanism whereby the same may be adjusted, a spring-arm interposed between said bar and each key and extending approximately in the direction of motion of said key, whereby as said key moves the friction produced by the sliding contact of said spring-arm is in a direction opposed to the action or reaction of said spring, substantially as described.

16. In combination, a series of keys, the coil-springs *s*, the extensions *f* of the same, and the adjustable bar Q, bearing against said extensions, whereby the strain of the springs upon the keys is regulated, substantially as described.

17. In combination, a series of keys, an adjustable bar arranged behind the name board, a screw-shaft extending through the name-board and connecting with said adjustable bar, and a spring interposed between said adjustable bar and each of the keys, substantially as described.

18. In combination, a series of keys, the name-board running transversely above the same, a scale on said name-board, a vibrating finger, a shaft extending through said name-board and connected with said finger, an adjustable bar connected with said shaft, and a spring interposed between said bar and each key, all substantially as described, whereby the pressure exerted by said springs will be indicated.

479,340. EXERCISING-KEYBOARD FOR MUSICIANS. ALSON K. VIRGIL, New York, N. Y. Filed Apr. 15, 1891. Serial No. 389,021. (No model.)



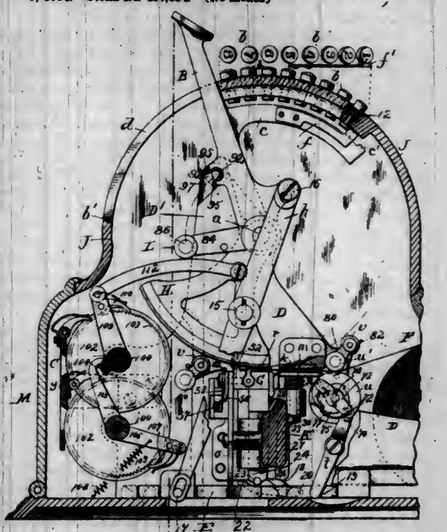
Claim.—1. In a key-exercising apparatus containing click-producing devices adapted to be operated by the keys, in combination with such devices, a sliding bar having an inclined surface, whereby as the bar slides one member of the click-producing device is raised, substantially as described.

2. In a key-exercising apparatus containing a series of keys and a series of springs connected therewith operated upon by a compressing-bar, in combination with such bar, a screw-shaft, a supplemental bearing for said screw-shaft, and braces connecting said supplemental bearing with said bar, whereby the said bar is compelled to move squarely to and from said springs, substantially as described.

3. In a key-exercising apparatus containing a series of keys, in combination with said keys, a series of springs extending into approximately-vertical spring-arms, a bar adapted to bear against said spring-arms in an approximately-horizontal direction, and another series of springs adapted to press downward upon said keys, substantially as described.

4. In combination with the click-producing devices, the bar *k*, supporting one member of the same, the slide *l*, and the inverse inclines *o* and *p*, substantially as described.

479,341. CASH-REGISTERING AND CHECK-MAKING MACHINE. JEROME J. WEBSTER and WILLIAM H. SAUNDERS, Northampton, Mass., assignors to the Boston Cash Register Company, same place. Filed Oct. 3, 1891. Serial No. 407,634. (No model.)



Claim.—1. In a cash-registering machine, in combination, a register-disk and a pivoted part comprising a type-segment and a key-lever and a medium of connection between the register and the key-lever part, whereby the movement in any extent of the latter will positively impart a corresponding degree of movement to the register-disk, a platen located adjacent and movable against and away from the type-segment, and means for effecting the printing impact between the platen and type-segment, substantially as described.

2. In a cash-register, the combination, with one or more key-levers and corresponding type-segments movable therewith, of a slide having a cam which is movable therewith and a platen having a member thereof which is extended across the course of the cam and means for moving the slide, substantially as described.

3. The combination, with the side uprights D D, having the block K supported between them above their bases, which is provided with the vertical socket or way 25, of the platen supported upon said block and having the pending rod or member 24 passed through said socket with the stud 23, extended laterally from its lower extremity, and the slide E, constrained for a horizontal movement below said block and having the cam-coded arm *i* pivoted thereon, and means for imparting forward and backward movements to the slide, substantially as described.

4. In a cash-register, the combination of one or more key-levers and type-bearing portions movable therewith, of a platen, a feed device for supplying strip material between the platen and the type-bearing portions, a cutter for severing portions of the strip, means for effecting the printing impact of the platen and type-bearing portions, a pusher mounted on the platen and means for moving it to push the printed check along the platen, and a register movable through suit-

able connections in unison and in extent corresponding to the movement of the key-lever, substantially as described.

5. In a cash-register, the combination, with one or more key-levers and corresponding type-bearing portions movable therewith and a slide having a cam and means for imparting a reciprocatory movement to the slide, of a platen supported adjacent the said type-bearing portion and having a member which is extended across the course of the cam and a shear adjacent the platen, a movable member thereof being provided with a rod which is extended across the course of the slide, and paper-supply devices and an operating member therefor, which is extended into engagement with said slide, substantially as described.

6. The combination, with key-levers having type-bearing portions movable in conjunction therewith, of a platen having at one side one or more abutments 21, means for feeding sheet material to constitute the check onto said platen up to the abutment, means for securing the printing impact, and a pusher for forcing the check along the platen in a direction at right angles to its direction of infeed, substantially as described.

7. The combination, with key-levers having type-bearing portions movable in conjunction therewith, of a platen and means for securing the printing impact, delivery-rolls mounted adjacent the platen, a pusher and means for moving it to force the check along the platen to the nipping action of the delivery-rolls, and devices for rotating said rolls, substantially as described.

8. The combination, with key-levers having type-bearing portions movable in conjunction therewith, of a platen and means for securing the printing impact, delivery-rolls mounted adjacent the platen and the one spring-pressed with relation to the other and separable therefrom, a part movable to secure the separation of the rolls for a slight period, a pusher for forcing the check along the platen and between the rolls, and means for then rotating said rolls, substantially as described.

9. In a cash-registering machine, the combination, with the part having the type and a platen movably supported and guided and means for moving the type with relation to the platen for the presentation for printing of the desired character, and a slide having thereon a pivoted member which is provided with a cam-forcing portion which on the forward movement of the slide impinges upon an extension of the platen, forcing same to printing impact, and all so that on the return movement of the slide the pivoted forcing member will pass without action by the part of the platen previously forced thereby, substantially as described.

10. In a cash-registering machine, the combination, with the movable type-bearing portions, and a platen movably supported and guided and means for moving the type-bearing portions with relation to the platen for the presentation for printing of the desired character, means for feeding to the platen portions of a continuous supply-strip of sheet material, a stationary cutter-bar and a reciprocating knife coacting therewith at the rear of the platen and normally located lower than the platen-surface, a slide having thereon a pivoted member which is provided with a cam-forcing portion which on the forward movement of the slide successively impinges upon an extension of the platen, forcing same to printing impact, and on an extension of the movable cutter forcing the latter to sever the check portion which is upon the platen, and all so that on the return movement of the slide the pivoted forcing member will pass without action by the parts of the platen and cutter previously forced thereby, substantially as described.

11. In a cash-registering machine, the combination, with frame parts, as D D, and the key-levers and type-segments pivotally supported thereon and the block K, supported on the frame above the bottom of the machine, but under the segments, and having a vertical guideway therein, the platen G, having the pending member 24, movable in said vertical way and provided with a stud 23, the stationary cutter-bar *k*, the slide 27, playing in a vertical way in said support K and having at its bottom the lateral extension 26 and at its upper part the cutter *j*, a slide horizontally movable under said block K and having the pivoted member *i*, with the lateral cam-formed portion 22, and means for securing a reciprocatory movement of the slide, all substantially as described, for the purposes set forth.

12. In a cash-registering machine, the combination, with the key-lever and printing-segment having types "0" to "9," successively, and the casing having the slot *d*, through which the key-lever plays, the arm rearwardly extended from the key-lever and having an abutment portion *c'*, and said key-lever and type-segment being pivotally mounted and standing normally to present a type at its one end in the printing position, a series of eight movable stop buttons for limiting the movement of the segment for the eight intermediate segment characters, and the end *b'* of said casing-slot being located to constitute the stop for the proper presentation of the last character, substantially as described.

13. In a cash-register, in combination, the key-lever with the type-segment thereon pivotally mounted, a series of movable stops for limiting the key-lever having an extension which is adapted as the lever is positively moved to click over substantially a corrugated surface which is provided near the course of movement of said spring-finger and the finger exercising, while the lever is to remain in its set position, and a spring-retaining bind for the lever, substantially as described.

14. The combination, with a pivotally-mounted device comprising a key lever or arm and a pivotally-mounted segment with type successively arranged in the course of its swinging movement and a platen adjacent and movable against and away from said type-segment, of a register-disk having a ratcheted portion, a pawl which engages said register-disk ratchet, a pivotally-mounted carrier for said pawl, and a link between the key-lever segment and pawl-carrier, substantially as and for the purposes described.

15. In a cash-register, in combination, the support or casing having a series of socket-holes and the key-lever and type-segment pivotally mounted and said lever provided with the spring-finger with a lateral projection, as *f'*, the series of stop-buttons comprising the spindle portions playing through said socket-holes and having enlargements above and below said holes, and the springs 12, all arranged for the operations set forth.

16. In a cash-registering and check-printing machine, the combination, with a register, a series of key-levers and conjoint type-segments pivotally mounted, and a medium of connection secured to each key-lever and also having an engagement with the register for imparting on a movement of a key-lever a corresponding recording action of the register, and a platen movable toward and away from the type-segments, of a slide having a cam thereon which is adapted for an operating impingement upon a member of the platen which is suitably extended relative to the course of said cam and a lever connected to and for operating the slide, substantially as described.

17. In a cash-registering machine, the combination, with the support for a supply roll or strip of paper, a movable type-bearing portion and platen, and means for securing the printing adjustment of the type-bearing portion over the platen, of a pair of feed-in rolls *u u'*, located near the platen, one thereof having therein a ratchet-wheel, a pawl-carrier mounted to oscillate adjacent said ratchet and having the pawl, the slide, and a lever intermediately pivotally mounted and having its one arm connected to said pawl-carrier and its other projected to be rocked in opposite directions on the forward and backward movements of the slide, for the purposes set forth.

18. In a cash-register, the combination, with the type segment, the platen, the supply roll support, and the feed-in rolls and operating device for one thereof, which comprises the intermediately-pivoted lever *t*, of the slide having the separated abutments 18 and 19, adapted to alternately engage said lever at separate intervals, in the manner and for the purpose set forth.

19. In a cash-registering and printing machine, the combination, with one or more key-levers, each having a type-segment and a platen adjacent thereto and means for feeding strip material onto the platen and for effecting the contact of the platen against the type-segment, of a stationary cutter-bar *k*, supported adjacent the rear edge of the platen relative to the direction of infeed of the paper, the movable knife or cutter *j* for coaction with the said cutter-bar *k*, and means for effecting the movement of the movable cutter-bar, all whereby the printed portion of the check while remaining on the platen will be severed from the main strip, substantially as described.

20. In a cash-registering and check-printing machine, the combination, with a movable type-bearing part and an adjacent platen and means for effecting the printing contact between the type and platen, of a pusher supported and guided for movement on the platen, the slide E, having a cam-surface, a lever suitably mounted and having one end subject to impingement by said cam-surface and having its other end connected to said pusher, and a lever for operating the said slide E, substantially as described.

21. In a cash-register, the combination, with a movable type-bearing part and adjacent platen having therein the socket 44, with the shaft 45, and a pusher carried thereon and movable as the shaft is moved over the top of the platen, the slot through the side of the platen leading to said passage and the stud 52, extended through the slot and connected to said shaft 45, the slide E, having a cam-surface *n*, the lever *o*, intermediately pivoted and having its one end in connection with the said shaft and its other end extended to be engaged by said slide-cam, and a lever for imparting the movements to the cam-provided slide, substantially as described.

22. The combination, with the platen and a pusher supported and guided for movement relative to the platen, the delivery-rolls *p q*, the one thereof mounted upon a spring-pressed and yielding bearing-support which is provided therefor, a slide having the cam or forcing portion and the lever adapted to be engaged thereby and connected to the pusher for securing its movement, and a separator device movable in conjunction with the pusher and adapted to engage and pass out of engagement from said movable roll-support, substantially as described.

23. The combination, with the platen and a reciprocatory pusher,

of a pair of delivery-rolls adjacent the platen having on its axis a ratchet-wheel, an oscillating pawl-carrier and pinion loosely mounted on said axis, and a pawl on the carrier in engagement with the teeth of the ratchet, a rack-bar meshing with said pinion and means for imparting thereto forward and backward movements, all whereby the pinion may be thereby turned in one direction without effect to rotate the delivery-roll, but to secure on the reverse rotation of the pinion a delivery rotation of said roll.

24. In a cash-register, the combination, with a movable type-bearing portion and adjacent platen having therein the socket 44 and the spring 40 and provided with the upper longitudinal slot 48 and the lateral slot 50, of the shaft 45, having thereon the angular pusher *r* and the stud 52, the delivery-rolls at the end of the platen, a socketed guide and a spindle 39, movable therein, and the spring 40, against which said spindle moves, and the spindle having the members 38 38, in which the upper one of said delivery-rolls is supported, the lower roll having fixed on its arbor the ratchet 60 and the loose pinion and pawl-carrier 59 and 62, which latter carries the pawl 64, the separator device mounted on said stud 52 and adapted to operate upon the portion of one of said ear-pieces 38, the rack-bar 57, also supported on said stud and meshing with the pinion, the slide E, having the cam *n*, and the intermediately-pivoted lever *o*, having one end subject to the action of said cam and having its other end connected to the said stud 52, substantially as described.

25. In a cash-register, the combination, with the key-levers and segments pivotally mounted, of the block K, supported below said segments, but above the bottom of the machine and having the vertical way 25, and another vertical way and a horizontal way 58, and the ear-pieces 37, the platen having a pending number movably guided in said way 25, and the cutter-slide with the knife *j*, which slide is movably guided in said second-named vertical way, one of the pair of delivery-rolls supported in said ear-pieces 37, and located at the end of the platen and a rack-bar guided for movement in the said horizontal way in said block, and adapted to have a co-operative action with appliances on one of the said delivery-rolls, and the cam-slide for imparting vertical movements to the platen and cutter and through suitable medium of connection which is provided to secure the movement of the said rack-bar, substantially as described.

26. In a cash-register, the combination, with the series of key-levers, of a bar and supporting-arms therefor which are pivotally mounted and said bar being normally free to be swung in a direction corresponding to and in advance of the key-levers, and a general lever pivotally mounted and adapted to be swung down to the lower position of said bar and said bar and general lever being constructed for an interlocking engagement the one with the other, and means for effecting the disengagement of the general lever and bar on the replacement of the parts, substantially as described.

27. In a cash-register, the combination, with the series of key-levers, of the bar L and one or more supporting-arms pivotally mounted and said bar having a longitudinal opening or passage with the rod *w*, axially movable therein, and having at one end the head 86, and the spring for normally maintaining the rod with said head toward its end and for securing normally the projection of the other end of the rod beyond the proximate end of the bar, the general lever pivotally mounted and having the depression 92 within its side and the contracted recess through the thickness of the lever and leading from its edge to said depression and having the members of the lever at either side of said recess cam-inclined, and the cam 97 for forcing the rod endwise against the spring through the bar as the latter is swung into its uppermost position, substantially as described.

479,842. BOTTLE-WIRING MACHINE. SOL WILE and HENRY LA CASSE, Rochester, N. Y., assignors to the Bottlers' Specialty Company, same place. Filed Dec. 24, 1890. Serial No. 375,735. (No model.)

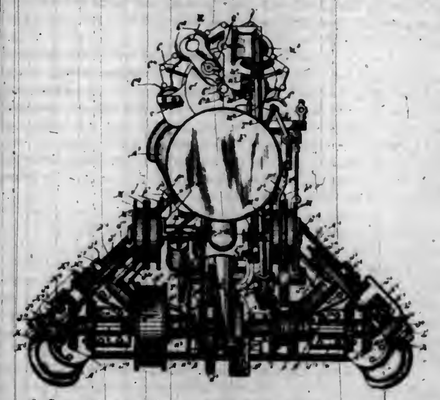
Claim.—1. In a wiring machine, the combination of a spindle for receiving strands of wire, rotating mechanism for revolving said spindle to wind thereon and unwind the desired amount of wire, and means operatively connected therewith, substantially as described, for securing these strands of wire to the bottle, substantially as and for the purpose set forth.

2. In a wiring-machine, the combination of a spindle for receiving strands of wire, rotating mechanism for revolving said spindle to wind thereon and unwind the desired amount of wire, and movable wire-securing jaws for securing the strands of wire to the bottle, substantially as and for the purpose set forth.

3. In a wiring-machine, the combination of a tapering spindle for receiving strands of wire, rotary mechanism for revolving said spindle to wind spirally thereon and to unwind the desired amount of wire, and a pair of wire-securing jaws supported by said spindle for receiving the wire from the spindle and securing it to the bottle, substantially as set forth.

4. In a wiring-machine, the combination of a reversely-revolving spindle for receiving the strands of wire, a head at the forward extremity of the spindle, and a pair of jaws hinged to said head for receiving the wire from the spindle and feeding it to the bottle, substantially as described.

5. In a wiring-machine, the combination of a reversely-revoluble tapering spindle for receiving the strands of wire, a head at the forward extremity of the spindle, having a recess, and a pair of spring-actuated jaws mounted in said recess for receiving the wire from the spindle and securing it to the bottle, substantially as specified.



6. In a wiring-machine using two strands of wire, the combination of a guide for separating the strands, a spindle for receiving the strands, rotating mechanism for reversely revolving said spindle, and means, substantially as described, for securing the wire to the bottle, substantially as described.

7. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by said shaft and constructed for winding thereon and unwinding the desired amount of wire, and movable wire-securing jaws also carried by said shaft in advance of the spindle for applying the wire to the bottles, substantially as and for the purpose described.

8. In a wiring-machine using two strands of wire, the combination of a guide for separating the strands, a spindle in proximity to the guide, rotary mechanism for revolving said spindle to wind spirally thereon and to unwind the desired amount of wire, and a pair of wire-securing jaws supported by the spindle, substantially as specified.

9. In a wiring-machine, the combination, with a reversely-revoluble shaft, of a wire-shuttle on the shaft and yielding jaws on said shuttle for securing strands of wire to the bottle, substantially as set forth.

10. In a wiring-machine using strands of wire, the combination of a guide for separating the wire, a reversely-revoluble spindle constructed for winding thereon and unwinding the desired amount of wire, and movable wire-securing jaws in proximity to said spindle for applying the wire to the bottles, substantially as and for the purpose specified.

11. In a wiring-machine, the combination, with a reversely-revoluble shaft, of a wire-shuttle on the shaft for securing strands of wire to the bottle and means, substantially as described, for moving said shuttle toward and away from the bottle, substantially as and for the purpose described.

12. In a wiring-machine, the combination, with a reversely-revoluble shaft, of a wire-shuttle on the shaft for securing strands of wire to the bottle, means, substantially as described, for moving said shuttle toward and away from the bottle and for raising and lowering the shuttle, and connected mechanism between the foregoing parts, substantially as specified.

13. In a wiring-machine, the combination, with a reversely-revoluble shaft, of a wire-shuttle on the shaft for securing strands of wire to the bottle, means, substantially as described, for moving said shuttle toward and away from the bottle and for raising and lowering the shuttle, a stop for stopping the rotation of the shaft when the shuttle is in its horizontal position, and connected mechanism between the foregoing parts, substantially as and for the purpose set forth.

14. In a wiring-machine, the combination of a reversely-revoluble shaft, a shuttle on the shaft for securing strands of wire to the bottle, and means, substantially as described, for reciprocating the shuttle toward and away from the bottle, said reciprocating mechanism being adapted to move with varying rapidity in relation to the rotation of the shaft for varying the tightness of the wire-twists, substantially as specified.

15. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by said shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by said shaft for applying the wire to the bottles, and means, substantially as described, for moving said shaft toward and away from

the bottle, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose set forth.

16. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by said shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by said shaft for applying the wire to the bottles, means, substantially as described, for moving said shaft toward and away from the bottle and for raising and lowering the shaft, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose specified.

17. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by said shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by said shaft for applying the wire to the bottles, means, substantially as described, for moving said shaft toward and away from the bottle and for rotating said shaft at unequal speed during its movement toward and away from the bottle, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose described.

18. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by said shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by said shaft for applying the wire to the bottle, means, substantially as described, for moving said shaft toward and away from the bottle and for raising and lowering the shaft, a stop for stopping the rotation of the shaft when the jaws are in their horizontal position, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose specified.

19. In a wiring-machine, the combination of a reversely-revoluble shaft, a tapering spindle carried by said shaft and constructed for winding thereon and unwinding the desired amount of wire, yielding wire-securing jaws also carried by said shaft in advance of the spindle for applying the wire to the bottle, means, substantially as described, for moving said shaft toward and away from the bottle for raising and lowering the shaft, and a stop for stopping the rotation of the shaft when the jaws are in their horizontal position, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose described.

20. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by said shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by said shaft for applying the wire to the bottle, means, substantially as described, for moving said shaft toward and away from the bottle and for rotating said shaft at unequal speed during its movement toward and away from the bottle, a stop for stopping the rotation of the shaft when the jaws are in their horizontal position and for raising and lowering the shaft, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose set forth.

21. In a wiring-machine, the combination of a reversely-revoluble shaft, a shuttle supported by the shaft, a pair of gears on the shaft, and a pair of movable clutches adapted to engage said gears, substantially as and for the purpose specified.

22. In a wiring-machine, the combination of a reversely-revoluble shaft, a shuttle supported by the shaft, a pair of gears on the shaft, and a pair of movable clutches adapted to engage said gears, said clutches being so arranged in relation to the gears that both clutches may be simultaneously out of operation, substantially as and for the purpose set forth.

23. In a wiring-machine, the combination of a reversely-revoluble shaft, a shuttle supported by the shaft, a pair of gears on the shaft, a pair of movable clutches adapted to engage said gears, and a lock adapted to intermittently prevent the shaft from rotation, substantially as described.

24. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by the shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by the shaft for applying the wire to the bottle, a pair of gears on the shaft, and a pair of movable clutches adapted to engage said gears, substantially as and for the purpose specified.

25. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by the shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by the shaft for applying the wire to the bottle, a pair of gears on the shaft, and a pair of movable clutches adapted to engage said gears, said clutches being so arranged in relation to the gears that both clutches may be simultaneously out of operation, substantially as set forth.

26. In a wiring-machine, the combination of a reversely-revoluble shaft, a spindle carried by the shaft and constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws also carried by the shaft for applying the wire to the bottle, a pair of gears on the shaft, a pair of movable clutches adapted to engage said gears, and a lock adapted to intermittently prevent the shaft from rotation, substantially as described.

27. In a wiring-machine, the combination of a pair of spindles arranged at an angle with each other and constructed for winding the wire upon and unwinding it from their peripheries, wire-securing means, substantially as described, for receiving the strands of wire from the spindles and securing them to the bottle, and connected mechanism between the foregoing parts, substantially as described.

28. In a wiring-machine, the combination of a pair of reversely-revoluble spindles arranged at an angle with each other and constructed for winding the wire upon and unwinding it from their peripheries, wire-securing means, substantially as described, for receiving the strands of wire from the spindles and securing them to the bottle with their extremities projecting therefrom at an angle with each other, and connected mechanism between the foregoing parts, substantially as set forth.

29. In a wiring-machine, the combination of a pair of reversely-revoluble spindles arranged at an angle with each other and constructed for winding the wire upon and unwinding it from their peripheries, wire-securing means, substantially as described, for receiving the strands of wire from the spindles and securing them to the bottle, and means, substantially as described, for moving the spindles toward and away from the bottles, substantially as described.

30. In a wiring-machine, the combination of a pair of spindles arranged at an angle with each other and constructed for winding the wire upon and unwinding it from their peripheries, wire-securing means, substantially as described, for receiving the strands of wire from the spindles and securing them to the bottle, for passing the wire over the top of the bottle and the inserted cork, and for securing the wire in said position, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose set forth.

31. In a wiring-machine, the combination of a pair of reversely-revoluble shafts arranged at an angle with each other, a spindle on each shaft constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws on said shafts for receiving the wire from the spindles and applying the same to the bottle, and connected mechanism between the foregoing parts for operating them in due order, substantially as described.

32. In a wiring-machine, the combination of a pair of reversely-revoluble shafts arranged at an angle with each other, a spindle on each shaft constructed for winding thereon and unwinding the desired amount of wire, wire securing jaws on said shafts for receiving the wire from the spindles and applying the same to the bottle, means for moving the shafts toward and away from the bottles, and connected mechanism between the foregoing parts for operating them in due order, substantially as set forth.

33. In a wiring-machine, the combination of a pair of reversely-revoluble shafts arranged at an angle with each other, a spindle on each shaft constructed for winding thereon and unwinding the desired amount of wire, heads on the spindles, yielding jaws mounted on said heads for receiving the wire, wire-securing jaws on said shafts for receiving the wire from the spindles and applying the same to the bottles, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose described.

34. In a wiring-machine, the combination of a pair of reversely-revoluble shafts arranged at an angle with each other, a spindle on each shaft constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws on said shafts for receiving the wire from the spindles and applying the same to the bottle, means for raising and lowering said shafts and for preventing the same from rotation, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose set forth.

35. In a wiring-machine, the combination, with a wire-feeder, of a tapering spindle for receiving the strands of wire and unwinding the same therefrom, means, substantially as described, for securing the wire to the bottle, and connected mechanism between the foregoing parts, substantially as set forth.

36. In a wiring-machine, the combination, with a wire-feeder, of a reversely-revoluble spindle for receiving the strands of wire and unwinding the same therefrom, means, substantially as described, for securing the wire to the bottle, and connected mechanism between the foregoing parts, substantially as specified.

37. In a wiring-machine, the combination, with a wire-feeder, of a reversely-revoluble spindle for receiving the strands of wire and unwinding the same therefrom, means, substantially as described, for securing the wire to the bottle, and a take-up for preventing slack of the wire, and connected mechanism between the foregoing parts, substantially as set forth.

38. In a wiring-machine, the combination, with a wire-feeder, of a tapering spindle for receiving the strands of wire and unwinding the same therefrom, means, substantially as described, for securing the wire to the bottle, a guide for separating the strands of wire, and connected mechanism between the foregoing parts, substantially as set forth.

39. In a wiring-machine, the combination, with a wire-feeder, of a spindle for receiving strands of wire, mechanism for rotating the spindle to wind thereon and unwind the desired amount of wire for stopping the rotation of the spindle and for securing the wire to the bottle, and connected mechanism between the foregoing parts for operating them in due order, substantially as set forth.

40. The combination, with a wire-feeder, of a pair of spindles arranged at an angle with each other and constructed for winding the wire upon and unwinding it from their peripheries, wire-securing means, substantially as described, for receiving the strands of wire from the spindles and securing them to the bottle, and connected mechanism between the foregoing parts, substantially as described.

41. The combination, with a wire-feeder, of a pair of reversely-revoluble shafts arranged at an angle with each other, a spindle on each shaft constructed for winding thereon and unwinding the desired amount of wire, wire-securing jaws supported on said shafts for receiving the wire from the spindles and applying the same to the bottle, and connected mechanism between the foregoing parts for operating them in due order, substantially as set forth.

42. In a wiring-machine, the combination of a pair of reversely-revoluble spindles arranged at an angle with each other and constructed for winding the wire and unwinding it from their peripheries, a pair of wire-feeders for feeding wire to the respective spindles, movable jaws for receiving the wire from the spindles and securing the same to the bottle, and connected mechanism between the foregoing parts for operating them in due order, substantially as specified.

43. In a wiring-machine, the combination of a wire-feeder, wire-securing jaws for securing the wire and applying it to the bottle, mechanism for moving the wire securing jaws toward and away from the bottle, a take-up for preventing the slack of the wire, connecting mechanism between the wire-feeder and take-up for operating both conjointly, and connected mechanism between the foregoing parts for operating them in due order, substantially as described.

44. In a wiring-machine, the combination of a wire-feeder, wire-securing jaws for securing the wire and applying it to the bottle, mechanism for removing the wire-securing jaws toward and away from the bottle, a take-up for preventing the slack of the wire, connecting mechanism between the wire-feeder and take-up for operating both conjointly, a guide on the take-up lever for separating the wires, and connected mechanism between the foregoing parts for operating them in due order, substantially as specified.

45. In a wiring-machine, the combination of a wire-feeder, a spindle for receiving the strands of wire and unwinding the same therefrom, means, substantially as described, for securing the wire to the bottle, a take-up for preventing slack of the wire, connected mechanism between the wire-feeder and take-up for operating both conjointly, and connected mechanism between the foregoing parts for operating them in due order, substantially as set forth.

46. In a wiring-machine, the combination of a wire-feeder, a spindle for receiving the strands of wire and unwinding the same therefrom, a guide in proximity to the spindle for separating the strands, jaws for receiving the wire from the spindle and applying it to the bottle, a take-up preventing slack of the wire, and a guide in proximity to the take-up lever for separating the strands, substantially as and for the purpose described.

47. In a wiring-machine, the combination of a continuously-operating feeder, a reciprocating spindle for receiving the strands of wire and unwinding the same therefrom, wire-securing mechanism substantially as described, for securing the wire to the bottle, and connected mechanism between the foregoing parts, substantially as specified.

48. In a wiring-machine, the combination of a continuously-operating feeder, a reciprocating spindle for receiving the strands of wire and unwinding the same therefrom, wire-securing mechanism, substantially as described, for securing the wire to the bottle, a take-up for preventing slack of the wire, and connected mechanism between the foregoing parts, substantially as described.

49. In a wiring-machine, the combination of a continuously-operating feeder, a reciprocating reversely-revoluble spindle for receiving the strands of wire and unwinding the same therefrom, wire-securing mechanism, substantially as described, for securing the wire to the bottle, a take-up for preventing slack of the wire, a guide between the feeder and spindle, and connected mechanism between the foregoing parts, substantially as and for the purpose set forth.

50. In a wiring-machine, the combination of a feeder for feeding two strands of wire, a reciprocating spindle for receiving strands of wire and unwinding the same therefrom, a guide for separating the wire, wire-securing means for securing the strands of wire to the bottle, and connected mechanism between the foregoing parts, substantially as and for the purpose described.

51. In a wiring-machine, the combination, with a wire-feeder, of a pair of reversely-revoluble spindles arranged at an angle with each other for winding the wire upon and unwinding it from their peripheries, wire-securing means, substantially as described, for receiving the strands of wire from the spindles and securing them to the bottle, and connected mechanism between the foregoing parts, substantially as set forth.

52. In a wiring-machine, the combination, with a wire-feeder, of a pair of reversely-revoluble spindles arranged at an angle with each other for winding the wire upon and unwinding it from their peripheries, take-ups for preventing slack of the wire, wire-securing means, substantially as described, for receiving the strands of wire from the spindles and securing them to the bottle, and connected mechanism between the foregoing parts, substantially as specified.

53. In a wiring-machine, the combination, with a wire-feeder, of a pair of spindles arranged at an angle with each other for receiving the strands of wire and unwinding the same therefrom, jaws for receiving the wire from the spindles and applying it to the bottles, a pair of movable levers having their extremities interposed between the feeder and the spindles for supporting the wire and taking up the slack thereof, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose specified.

54. In a wiring-machine, the combination of a wire-feeder, a revoluble spindle for receiving the strands of wire and unwinding the same therefrom, a take-up lever having one end mounted at one side of the spindle and engaged with the wire between said spindle and feeder, means for reciprocating the lever toward the spindle, and connected mechanism between the foregoing parts for operating them in due order, substantially as and for the purpose set forth.

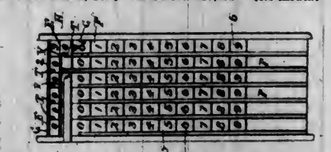
55. The combination, with mechanism for receiving and applying the wire to the bottle, of a feeding-roller having a conical peripheral face for engaging the wire, means, substantially as described, for positively driving the feeding-roller, a spring-guide movable toward said roller for yieldingly forcing the wire against the same, and an adjuster for varying the position of the positively-driven roller to regulate the feed of the wire, substantially as and for the purpose specified.

56. The combination, with mechanism for receiving and applying the wire, of a revoluble shaft, a conical feeding-roller for the wire mounted on said shaft and movable lengthwise thereon, and an adjuster for moving the roller lengthwise on the shaft and regulating the feed of the wire, substantially as and for the purpose set forth.

57. The combination, with mechanism for receiving and applying the wire, of a longitudinally-movable tapering feeding-roller, a spring-guide bearing against said roller, and an adjuster for varying the position of the roller for regulating the feed of the wire, substantially as and for the purpose described.

58. The combination, with mechanism for receiving and applying the wire, of a revoluble shaft, a tapering feeding roller for the wire mounted on said shaft, an adjuster for varying the position of the roller on the shaft and regulating the feed of the roller, and a guide for conducting the wire to the feeding-roller, substantially as and for the purpose set forth.

479,343. ADDING-MACHINE. WILLIAM H. WILSON, Moline, assignor of one-half to John V. Emmitt and Robert L. Kimbro, Sterling, Ill. Filed Dec. 2, 1891. Serial No. 413,759. (No model.)



Claim.—1. A series of separately-pivoted wheels E, provided with peripheral notches G, serially numbered, and bars F, provided with the double series of notches 4 and 5, the notches 5 being serially numbered and the bars being adapted to be separately moved longitudinally to engage and actuate, respectively, the wheels E, substantially as shown, and for the purpose described.

2. The combination of a transverse series of wheels E, provided with serially-numbered peripheral notches G, bars F, having lower engaging and upper serially-numbered notches and adapted to be carried upon and actuate, respectively, said wheels E, and a retaining-spring 18 for each bar, substantially as shown, and for the purpose specified.

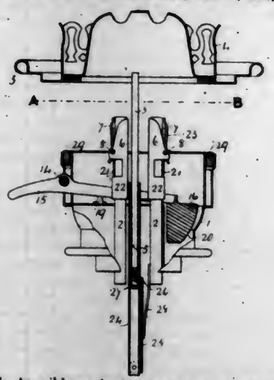
3. The combination, with a frame, of a series of notched wheels journaled therein, each notch being provided with a number, a series of longitudinally-movable notched bars engaging with said wheels, the outer notches of said bars being provided each with a number, and a cross-bar secured to the frame outside of and near the upper ends of the bars when the latter are in their normal position, whereby the movement of each bar upwardly until the desired notch in the bar is

adjacent to the lower edge of the cross-bar the wheel will have been rotated the distance, substantially as set forth.

4. The combination, with a frame, of a series of notched wheels journaled therein, each of the notches being provided with a number and one of them with a radially-projecting pin, a notched bar for each wheel, the upper end of each bar being provided with a laterally-projecting lug upon the right-hand edge, whereby it may be engaged by the pin upon the next adjacent wheel to the right, substantially as set forth.

5. The combination of a series of separately-rotating wheels E, having a common axis of rotation and being peripherally notched and numbered, as described, and provided in their "0" notches with the radial spur T, and the separately-movable bars F, notched and numbered, as described, and provided with lateral lug V, adapted to be engaged by spur T, and thereby impart partial rotation to the next adjacent wheel E, substantially as shown, and for the purpose specified.

479,844. OIL-LAMP. JOHN D. YOUNG, Barnstaple, and HENRY R. YOUNG, London, England. Filed Feb. 11, 1891. Serial No. 381,264. (No model.) Patented in England Feb. 11, 1889, No. 2,391, and Dec. 29, 1890, No. 21,131; in France Feb. 12, 1891, No. 211,350; in Belgium Feb. 12, 1891, No. 93,744, and in Germany Feb. 19, 1891, No. 59,104.



Claim.—1. An oil-lamp burner consisting of the body of the burner, wick-tubes, sliding extinguisher-boxes with their shutters and frame-lever having a fixed weight attached thereto, such weight being admitted into a recess formed in the lower part of the burner, and a lever-operating spring, all substantially as set forth, and for the purposes specified.

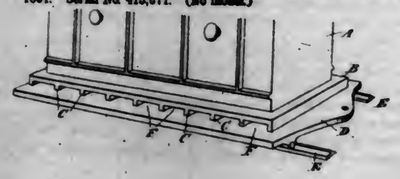
2. The combination, in oil-lamps, of the operating-lever having a fixed weight attached thereto and sliding extinguisher-boxes and shutters, and wick-tubes, with the burner-body having in its lower part a recess formed to receive the said lever-weight, substantially as set forth.

3. The combination, in oil-lamps, of the shutter-boxes 6 6, sliding upon wick-tubes 2 2 and having extinguishing-shutters 7 7, and side connecting-pieces 12 12, with the extending sliding legs 13 13 taking into slide-holes in the bottom of the burner, the whole being operated by the lever 5 and spring 19, all substantially as set forth.

4. The combination, in oil lamps, of the raising-gallery having the leg 5, in which is provided the hole 27, with the body of the burner having the slideway 24, upon which is carried the vertical lever 25, having a tooth 26, whose upper side is beveled or sloped considerably, the said lever being pressed inward by spring 28, all substantially as set forth, and for the purposes specified.

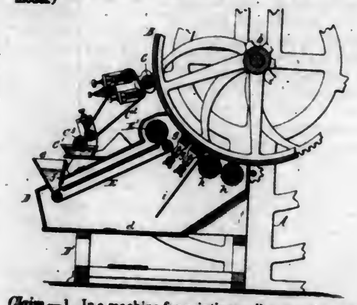
5. In oil-lamps, the combination of a raising-gallery, with the body of the burner having a cushion 29, substantially as described and shown, and for the purposes specified.

479,845. ANNEALING-BOX. AUGUSTUS BEYER, New Philadelphia, Ohio, assignor to himself and A. W. Brown, same place. Filed Dec. 1, 1891. Serial No. 413,671. (No model.)



Claim.—An annealing-box open at its bottom and provided with the usual carrier or bottom plate D and the auxiliary bottom plate B, having a series of transverse ribs C C, resting on upper side of the carrier or bottom plate D and forming air passages F between said two bottoms or plates, substantially as set forth.

479,846. APPARATUS FOR PRINTING WALL-PAPER. GEORGE K. BIRGE, Buffalo, N. Y. Filed July 27, 1891. Serial No. 400,784. (No model.)



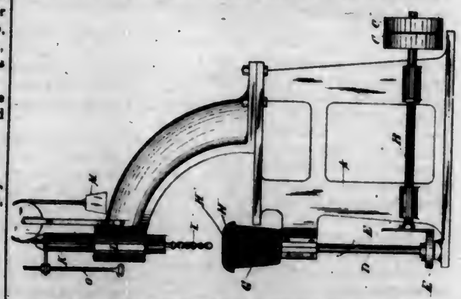
Claim.—1. In a machine for printing wall-paper, the combination, with an endless impression-surface, of a preliminary sizing-roller, whereby the pattern is printed by an adhesive liquid, a subsequent printing-roller, whereby the pattern is printed with color, and an intermediate bronze-applying device, whereby bronze or powdered material is applied to the size printing while the paper is moving in the printing-machine from the sizing-roller to the color-printing roller, substantially as set forth.

2. In a machine for printing wall-paper, the combination, with an endless impression-surface, of a sizing-roller arranged on the receiving side of the impression-surface, a color-printing roller arranged on the delivery side of the impression-surface, and an intermediate bronze-applying device arranged on the under side of the impression-surface, substantially as set forth.

3. In a machine for printing wall-paper, the combination, with an endless impression-surface, of a sizing-roller, by which the pattern is printed with an adhesive liquid, and a rotating bronze-applying device having its faces arranged at a distance from the under side of the impression-surface and from the paper moving with the same, whereby the bronze is thrown against the paper while the bronze-applying device does not come in contact therewith, substantially as set forth.

4. In a machine for printing wall-paper, the combination, with an endless impression-surface, of a sizing-roller, whereby the pattern is printed with an adhesive liquid, a bronze-applying device, whereby bronze or powdered material is delivered upon the printed paper, a polisher whereby the bronze is smoothed, a cleaner whereby the surplus bronze is removed, and a print-roller whereby a color is printed upon the bronzed paper, substantially as set forth.

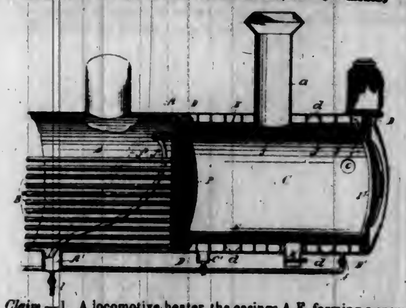
479,847. MACHINE FOR MAKING HOLLOW ARTICLES. AMBROSE A. BLOUNT, Springfield, and FRANK K. WAY, Dayton, Ohio, assignors, by mesne assignments, to the Boston Filter Company, Boston, Mass. Filed Nov. 13, 1891. Serial No. 411,816. (No model.)



Claim.—1. The herein-described forming-tool for making hollow articles, the same consisting of a twisted blade or strip in the shape of a spiral with a transversely-rounded entering end and having the sides and end of said spiral rounded on its opposing edges, substantially as shown and described, and for the purpose set forth.

2. In a machine for making hollow articles, the combination, with a mold to form the outside of said articles, of a forming-tool consisting of a twisted blade or strip in the form of a spiral blunt on its entering end and provided with rounded opposing edges, substantially as and for the purpose described, one member being reciprocatable and either member rotatable, and means to effect such reciprocation and rotation of said members with respect to each other.

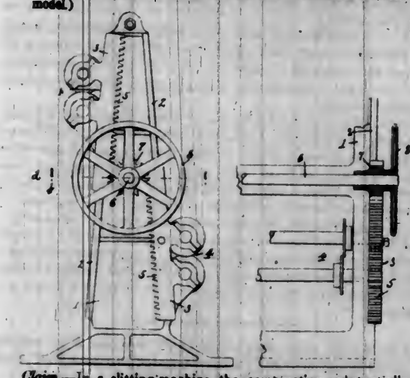
479,848. LOCOMOTIVE FEED-WATER HEATER. NEWTON S. CHAPMAN, Kansas City, Mo., assignor of one-half to Frank Hagerman, same place. Filed Apr. 4, 1892. Serial No. 427,633. (No model.)



Claim.—1. A locomotive heater, the casings A E, forming a space which is provided with horizontal partitions G, around which the water circulates, the coil-pipe I, connected to said chamber by drain-pipe I, and the return-pipe J, all in combination with a locomotive-boiler, substantially as and for the purposes set forth and described.

2. In a locomotive-heater, the water-chamber and the front extension, the horizontal partitions G, which keep up a circulation, the coil-pipe and return-pipe conveying the partially-heated water to the mud-drum, in combination with a locomotive-boiler, substantially as and for the purposes set forth and described.

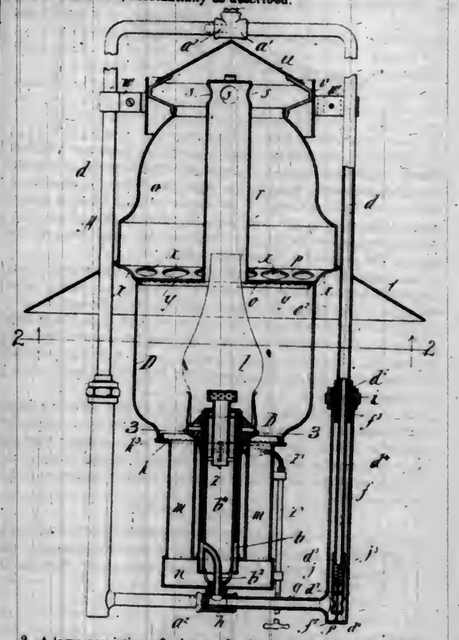
479,849. PAPER-SLITTING MACHINE. LEWIS P. CLAWSON and JOHN A. KELLER, Hamilton, Ohio, assignors to the Black & Clawson Company, same place. Filed Apr. 13, 1892. Serial No. 428,948. (No model.)



Claim.—In a slitting machine, the combination, substantially as set forth, of a pair of uprights provided with front and rear carriage-guides, slitter-carriages arranged for up-and-down motion on said guides and provided with inwardly-facing racks at each upright, a set of slitters mounted in each carriage, a shaft disposed across the machine between the planes of movement of the two carriages, and pinions on said shaft at each side of the frame in position to engage each with a pair of said racks.

479,850. LAMP. LESLIE A. COOPER, Springfield, Mass., assignor of one-half to Alfred A. Warner and Albert W. Allen, same place. Filed Jan. 28, 1892. Serial No. 419,713. (No model.)

Claim.—1. A lamp consisting of a burner having a central draft-tube and a conduit for conveying oil to the burner, a transparent chimney supported by the burner and extended upwardly therefrom, and a globe which widely surrounds the upper portion of the burner and extends upwardly therefrom and which also surrounds the chimney, a wall which substantially closes the globe at its bottom, there being, however, flues in communication with the globe-chamber, leading downwardly therefrom and communicating with the central draft-tube of the burner, a hood or dome having a bottom wall supported at the top of the globe-chamber and having an opening at its top and also having a central-draft tube, into the lower open end of which the chimney may direct the products of combustion, and having openings in its top, which has its position below the top of the hood, and the said hood having openings for taking air thereinto near its bottom and also having openings through its bottom for communicating with the globe-chamber, substantially as described.



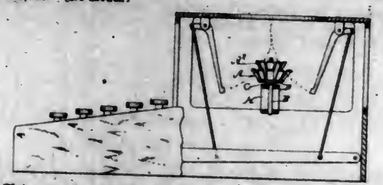
2. A lamp consisting of a burner having a draft-tube and conduit for conveying oil to the burner and the parallel vertical supports *d d*, the chimney *l*, supported by the burner and extended upwardly therefrom, and a globe which widely surrounds the upper portion of the burner extending upwardly therefrom, also surrounding the chimney and having a wall which substantially closes it at its bottom, there being, however, flues in communication with the globe-chamber, leading downwardly therefrom and communicating with the draft-tube of the burner, the hood or dome *g*, having the bottom wall *o*, with the openings *y y* for their communication between the hood and globe, and having at its bottom the air-ingress openings *x x*, the downwardly-flaring flange *t*, and the central draft-tube *r*, into the lower end of which the chimney may direct the products of combustion, which tube has openings in its top, which latter has its position below the top of the hood, and the said hood provided at its top with the exit-flues and also having the radially-extended clips *w w*, which have sliding engagements with the said parallel vertical supports, all substantially as and for the purposes set forth.

3. The combination, with a lamp, of a tubular support formed in sections *d* and *f*, the former having a connection with the oil-supply and having a contracted tubular extension which enters the section *f*, and which has the opening for establishing communication between the tube-sections *d* and *f*, and having the normally-closing valve with the axially-extended spindle f^3, and a coupling for drawing the section *f* to connection with the section *d* and for effecting the abutment of a portion of said section *f* against said spindle for forcing the valve open, and a pipe connection between said section *f* and the burner, substantially as described.

4. The combination, with a lamp, of a support therefor, consisting of tubular sections *d* and *f*, the former for connection with the oil-supply and the latter connected with the burner and having a wall or rest f^3 and rotatably engaged with its upper portion, the coupling *i*, and the section *d*, having the screw-threaded external portion, and the pipe extension, of reduced size, extended downwardly into the section *f* and having a valve-seat opening in communication with the passage of the section *f*, and the spring-pressed valve with a stem mov-

ably supported by the section which has the valve-seat and adapted to be borne upon by said rest on the coupling of the parts to hold the valve open, substantially as described.

479,351. DEVICE FOR INKING TYPE-WRITING MACHINES. ADOLPHUS S. DENNIS, Des Moines, Iowa, assignor to the Dennis Duplex Writing Machine Company, same place. Filed Oct. 10, 1891. Serial No. 408,390. (No model.)

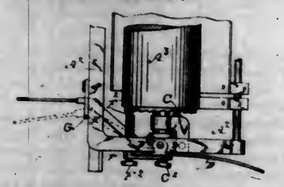


Claim.—1. In an inking-pad for type-writing machines, a flexible circular pad having incisions or openings extending radially from its circumference toward its center, a rigid stem having a shoulder, a rigid washer inclined upward at its circumference, a bibulous washer on top of the rigid washer, and means for clamping the pad and bibulous washer together on the stem, arranged and combined with the frame of the machine to operate as set forth.

2. An inking device for type-writing machines, comprising a stem adapted to be fastened to the frame of a machine, a rigid circular washer in engagement with a support at the lower portion of the stem and the circumferential edge of the washer inclined upward, a flexible circular pad on top of the rigid washer, bibulous washers on top of the pad, and a nut on the screw-threaded top end of the stem, adapted to clamp the pad and washers together in the manner set forth, for the purposes stated.

3. A detachable inking device for type-writing machines, comprising flexible pads connected with a rigid stem having a shoulder or fixed collar, a rigid plate supported by said collar, washers between the two pads, and a nut on the screw-threaded top end of the stem, arranged and combined with a type-writing machine to operate in the manner set forth.

479,352. LINE-SPACING MECHANISM FOR TYPE-WRITING MACHINES. ADOLPHUS S. DENNIS, Des Moines, Iowa, assignor to the Dennis Duplex Writing Machine Company, same place. Filed Oct. 10, 1891. Serial No. 408,391. (No model.)



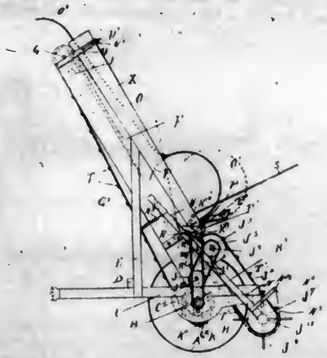
Claim.—1. In a type-writing machine, a device for spacing, comprising a bent lever having a tubular short arm and a spring-actuated pawl in said arm adapted to engage a ratchet on the end of a roller, a tube having a spring-actuated detent therein adapted to engage the ratchet on the end of the roller, and a curved arm connected with the outer end of the pawl in the short tubular arm of the lever, and a lever adapted to engage the curved arm to simultaneously disengage the pawl and the detent from the ratchet on the end of the roller, arranged and combined with a carriage-frame and a roller mounted thereon having ratchet-teeth on its ends, to operate in the manner set forth.

2. A lever carrying a spring-actuated pawl, with its short arm pivoted to the sliding carriage of a type-writing machine, a tube carrying a spring-actuated detent and having an arm extending at right angles and connected with the outer end of the pawl, and a lever pivoted to the frame and its short arm extended under the arm of the detent-carrier, and a roller carried by the frame, having a circular ratchet on its end, arranged and combined to operate in the manner set forth, for the purposes stated.

479,353. HAY-LOADER. GEORGE A. DICKERMAN and JOSEPH P. ELLACOTT, Chicago, Ill.; said George A. Dickerman assignor to Frances S. Dickerman. Filed Sept. 28, 1891. Serial No. 407,068. (No model.)

Claim.—1. In a hay-loader, the combination of an elevator to carry the hay upward, a buncher of substantially the width of the elevator arranged adjacent to the surface thereof between its ends to intercept the hay being elevated and collect it into bundles, means whereby the buncher is moved away from the elevator to permit the bundle to continue with the elevator, and a guide substantially equal in width to the width of the elevator, between which and the elevator the hay moves as a bundle after leaving the buncher.

2. In a hay-loader, the combination, with the elevator, of a bunching device of substantially the width of the elevator, consisting of curved fingers arranged adjacent to and above the elevator and between its ends and supported upon a rock-shaft, and means for intermittently automatically rocking such shaft to gather and discharge the bunch or bundle.



3. In a hay-loader, the combination, with the elevator, of a buncher consisting of substantially-semicircular fingers arranged adjacent to the elevator between its ends, and the guide-fingers curved at their lower ends to substantially correspond with the buncher-fingers and extending from the buncher to the discharge end of the elevator, whereby the hay after being bunched passes between the elevator and such guide-fingers to the place of delivery.

4. In a hay-loader, the combination, with the elevator, of the buncher situated adjacent to and between the ends of the elevator and consisting of curved bunching-fingers supported upon a rock-shaft, means for intermittently rocking such shaft to gather and discharge the bunch or bundle, and stripping-fingers supported on a rock-shaft and adapted in a like manner to be operated to strip the hay from the bunching-fingers.

5. In a hay-loader, in combination with an elevator, a bunching and discharge device located adjacent to and between the ends of the elevator and consisting of gathering and stripping fingers projecting from rock-shafts, and means for intermittently rocking such shafts in opposite directions.

6. In a hay-loader, the combination, with the elevator, of a bunching device located adjacent to and between the ends of the elevator and consisting of bunching and stripping fingers supported each series upon a rock-shaft, said rock-shafts being operatively connected, so as to rotate with different rapidities in opposite directions, and driving connections for the same from some driving part of the machine.

7. In a hay-loader, the combination of an elevator, with a bunching device arranged between its ends, a supplemental elevator arranged above the lower portion of the main elevator, guide-slats passing parallel with the latter elevator and terminating at the bunching device, and a cross-piece, to which the upper ends of the said guide-slats are secured.

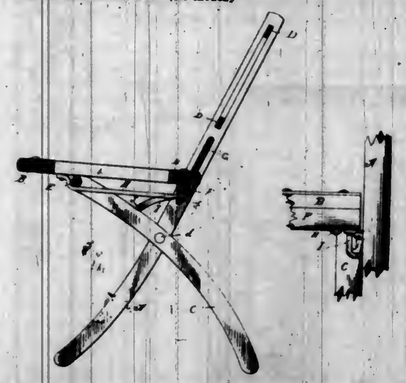
479,354. DIE. HENRY C. DICKINSON, Springfield, Mass., assignor to the Springfield Specialty Manufacturing Company, same place. Filed Oct. 5, 1891. Serial No. 407,819. (No model.)



Claim.—1. The metallic base-plate having a channel therein and a pin entering said channel, the removable die members B B, resting directly in said channel and having depressions in line with said pin and conforming to the shape of the stud which is covered and supported by said die members, the die member D, having a depression therein opposite the recess in the die members B B, and the block C, embracing and inclosing said die member D and having means for causing said die members to register, all combined substantially as described.

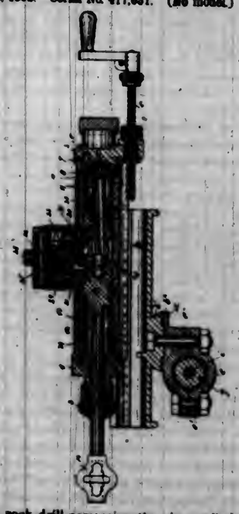
2. The base die-block having the channel therein and the pin supported at an intermediate part of the base of the channel and extending upwardly into the channel, the separable and removable die members B B, constructed to rest in the channel and having matching depressions in their adjacent faces in line with the pin and conforming to the exterior of the metallic stud, and the upper die-block with the depression conforming to the desired shape of the molded article, with means for guiding said die members in a direct line, all combined substantially as described.

479,355. FOLDING CHAIR. EDWARD E. ELDRIDGE, North East, Pa., assignor of one-half to Alonzo W. Stone, same place. Filed Mar. 5, 1890. Serial No. 342,801. (No model.)



Claim.—In a folding chair, substantially as described, the combination, with the legs A, extending above the seat-frame and having the longitudinal slots G in their inner sides, of the seat having the cross-piece F adjacent to its rear transverse edge, the pins connected to the said cross-piece and sliding in the slots G of the legs A, the guides H, secured to the under side of the seat and to the cross-piece F, the legs C, pivotally connected to the legs A, the transverse round E, connecting the upper ends of the legs C and sliding between the guides H and the lower side of the seat, and the arm I, connected to the cross-piece F and having an angular branch adapted to engage with the upper portion of one of the legs C when the chair is being unfolded, substantially as and for the purpose set forth.

479,356. ROCK-DRILL. THOMAS F. FARRELL, Paterson, N. J. Filed Jan. 11, 1892. Serial No. 417,631. (No model.)



Claim.—1. A rock-drill containing therein a cylinder, a cylinder-head secured to each end of said cylinder, a drill-carrying piston adapted to move up and down in said cylinder, a drill-rotating bar provided at its top with a flattened portion adapted to rest in a corresponding recess on the inside of the upper cylinder-head, a wheel provided on its flattened surface with teeth and arranged to rest partly against the under side of said flattened portion of the drill-rotating bar and also against the inside of the said upper cylinder-head, a locking plate or disk at the under side of said wheel and adapted to prevent the rotating bar from turning during the downward stroke of the piston, pins arranged in said cylinder-head and adapted to operate in the teeth of said wheel, and spiral springs controlling said pins, all said parts being arranged and adapted to operate substantially as described, and for the purposes set forth.

2. In a rock-drill-rotating device, the combination, with the cylinder, piston, and cylinder-heads, of a rotating bar, a flattened top made integral with said bar and adapted to rest in a corresponding recess in the cylinder-head, a wheel provided at its upper surface with teeth and resting against said flattened top and the said cylinder-head, pins arranged in said cylinder-head and acting as pawls for said toothed wheel, and a locking-disk arranged beyond said wheel and adapted to force the said wheel against the flattened top of the rotating bar and the cylinder-head during the downward motion of the piston, thereby preventing said bar from turning, substantially as described, and for the purposes set forth.

3. In a rock-drill, the combination, with the cylinder and its guide, of a mounting-plate secured to said guide and provided with a circular projection b^3, a spindle provided at each end with a cap and around the center part with a shell consisting of two parts, the upper one of which is provided with a flattened top, to which the mounting-plate of the guide is pivotally secured, a circular recess arranged in said flattened top and adapted to receive the circular portion b^3, bolts holding said shell parts together, one of them serving, also, as a fulcrum for the mounting-plate, a bolt passing through said spindle and holding said caps and shells in place, a ball-socket arranged on each of said caps and made integral therewith, a leg holder or socket provided at its upper end with a ball adapted to work in said ball-socket, a recess arranged in said ball, a bolt pivotally secured with its lower rounded portion in said recess and with its upper portion in said ball-socket, and a yoke provided with the third or rear leg-holder and pivotally secured to the spindle, all said parts being arranged and adapted to operate substantially as described, and for the purposes set forth.

4. In a rock-drill, the combination, with the cylinder and the piston, of a groove provided in said piston, a valve chamber secured to said cylinder, a double-headed cylindrical piston-valve arranged in said valve-chamber, a valve-lever 23, pivotally secured in the joint of the cylinder and the said valve-chamber, and provided at its lower part 20 with inclines 18 and 19, a ball 22, arranged at the upper end of valve-lever 23, and a ball-socket arranged in the connecting-stem of the said double-headed piston-valve and adapted to engage with said ball 22, said valve-lever being adapted to be operated by the groove in the piston of the cylinder, substantially as described, and for the purposes set forth.

479,357. CASH REGISTERING AND INDICATING MACHINE. EDWARD N. FOOTE and JOHN J. RANGE, Northampton, Mass., assignors to the Boston Cash Register Company, same place. Filed Apr. 13, 1892. Serial No. 428,987. (No model.)

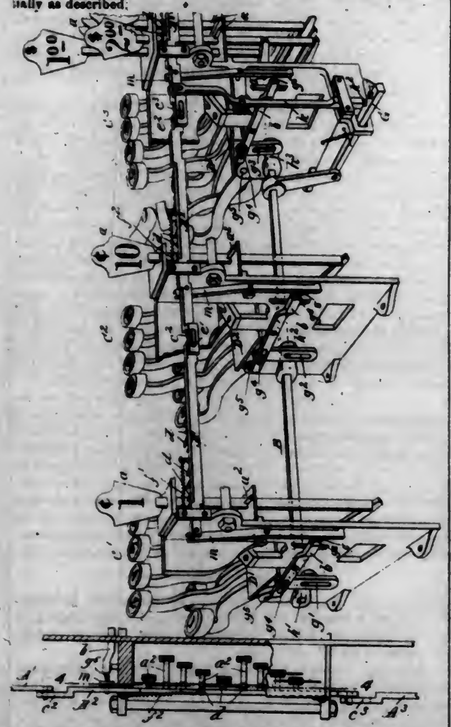
Claim.—1. A cash-register having two or more banks of keys and indicating-tags respectively therefor having support-stops, support-bars having supporting portions for the engagement with the indicator-stops, and the several bars having sliding engagements one relative to the other, whereby the sliding movement of a bar for one of the higher banks will draw the bars for the other banks, but whereby the sliding movement of the bar of a lower bank may be independent of the bar of the next higher bank, and means for effecting on the depression of the key of any bank a sliding movement of the highest support-bar and a special medium of connection between the keys of each of the banks below the highest bank and the support-bar therefor for effecting on the working of a lower-bank key the sliding movement of the support-bar for such bank, substantially as and for the purposes set forth.

2. A cash-register having two or more banks of keys and indicating-tags respectively therefor having support-stops, support-bars having portions for supporting engagement with the indicator-stops, and the several bars having sliding engagements one relative to the other, whereby the sliding movement of a bar for one of the higher banks will draw the bars for the other banks, but whereby the sliding movement of the bar of a lower bank may be independent of the bar of the next higher bank, and means for effecting on the depression of the key of any bank a sliding movement of the highest support-bar, and special mediums of connection between the keys of the highest bank and its support-bar and between the keys of the lower banks and their support-bars for effecting the sliding movements of the bars, respectively, of such banks, substantially as and for the purposes set forth.

3. In a cash-indicating machine, in combination, two or more

sets of movable indicators, support-bars arranged for supporting engagement respectively with the said sets of indicators and having sliding engagements with each other, whereby one may move out of its indicator-supporting position and draw the one next thereto, but whereby the latter on moving out of its indicator-supporting position will be without effect on the first-named bar, substantially as described.

4. In a cash registering and indicating machine, in combination, two or more banks of keys and sets of movable indicators therefor and support-bars respectively for the said indicators, having sliding engagements the one relative to the other, whereby the sliding movement of a bar for a higher bank will draw the bar of the lower bank, but whereby the sliding movement of the bar of a lower bank may be independent of the bar of the higher bank, means for moving the support-bar for one of said banks on the operation of any key of either bank, a separate lever connected to the support-bar for each bank, and an actuating-cam for each of said levers and each cam adapted to be moved by the operation of any key of one of the said banks, substantially as described.



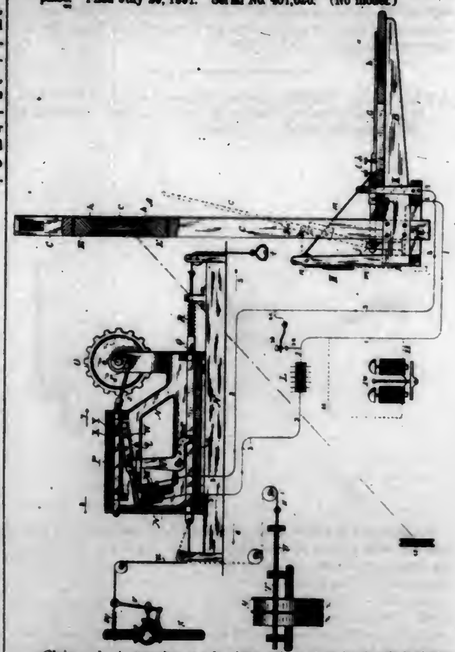
5. In a cash registering and indicating machine, the combination, with two or more banks of keys and indicators respectively therefor, of separate support-bars for engagement with the indicator-stops of the several banks, having sliding engagements the one with the other, substantially as described, the rock-bar common to and having an engagement, substantially as described, with the key-levers of all of the banks, and a medium of connection between the said rock-bar and the support-bar of one of the banks of keys, the separate rocker-plates for the several banks of key-levers, levers pivotally mounted and connected, respectively, with the support-bars, and other levers having cams therein to exert forcing actions on said first-named levers and connected for their swinging movements to said rocker-plates, substantially as described.

6. The combination, in a cash registering and indicating machine having two or more banks of key-levers with sets of indicators respectively therefor and support-bars for the indicators, having engagements the one relative to the other, whereby the sliding movements of higher-bank bars will draw lower-bank bars, but whereby the movement of the lower-bank bars may be independent of the higher-bank bars, of levers *m*, intermediately pivotally supported, each having an abutment portion thereon, pivoted levers *b b*, intermediately pivoted to have their extremities swing in proximity with said abutment portion and each having the oblique cam g^6 thereon and said levers mounted for a slight movement laterally of their planes of swinging movement.

and mediums of connection between said levers and the keys of the different banks, substantially as and for the purpose described.

479,358. ELECTRIC STOP-MOTION FOR TEXTILE MACHINERY.

SAMUEL L. FOSTER, Wilmington, Del., assignor to John T. Ahrens, same place. Filed July 29, 1891. Serial No. 401,096. (No model.)



Claim.—1. A stopping mechanism and an electric circuit including an electric generator and an electro-magnet, which controls said stopping mechanism, said electric circuit terminating in separated electrodes, in combination with a movable circuit-controller movable between and from said electrodes, said circuit-controller having a guide through which the material acted upon in its normal condition freely passes, but which does not permit the passage of a tangle, knot, or equivalent obstruction, enlargement, or defect in said material, and said movable circuit controller having a portion which is normally located between said electrodes, substantially as set forth, whereby upon the occurrence of a tangle, knot, or equivalent obstruction, enlargement, or defect in the material acted upon said movable circuit-controller is moved by the material from between said electrodes, and the normal condition of the electric circuit is changed, thereby stopping the machine.

2. A stopping mechanism and a normally-open electric circuit including an electric generator and an electro-magnet, which controls said stopping mechanism, said electric circuit terminating in normally-separated spring-electrodes, in combination with a movable circuit-controller movable between and from said electrodes, said circuit-controller consisting of a pivoted lever having an insulated portion, which is normally located between and separates said spring-electrodes, said pivoted lever having a guide through which the material acted upon in its normal condition freely passes, but which does not permit the passage of a tangle, knot, or equivalent obstruction, enlargement, or defect in said material, on the occurrence of which said lever is moved by the material from between said electrodes, and the latter come together, thus closing the electric circuit and stopping the machine, substantially as set forth.

3. A defect-detector having two separated guides *b c*, between which material being acted upon passes, two normally-separated spring-electrodes, a stopping mechanism, and an electric circuit terminating in said electrodes, said circuit including a generator and an electro-magnet, which controls the operation of said stopping mechanism, in combination with a pivoted circuit-controlling lever, said lever having two separated arms located between said guides *b c*, between which arms the material passes in its path between said guides *b c*, and said lever having a portion which is normally located between said spring-electrodes, thereby separating the same, substantially as set forth.

4. A frame having two separated guides *b* and *c*, in combination with a circuit-controller having an open guide located between said guides *b c*, said controller being movable between said guides *b c*, the guide of said controller being when the controller is in one position in the line between said guides *b* and *c*, but being out of said line when said controller is in another of its positions, substantially as set forth.

5. The circuit-controller G, having a guide through which the material acted upon in its normal condition freely passes, but which prevents the passage of a tangle, knot, or equivalent obstruction, enlargement, or defect in said material, in combination with the terminal spring-electrodes J and K, which tend to approach each other and which grasp and hold said circuit-controller between them during the passage of said material in its normal condition, but which permit said circuit-controller to be withdrawn from between them on the occurrence of a tangle, knot, or equivalent defect in said material, substantially as set forth.

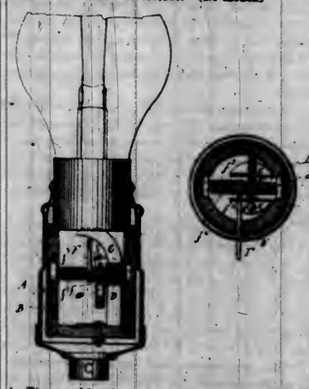
6. The pivoted circuit-controlling lever occupying normally a horizontal position and having a guide through which the material acted upon in its normal condition freely passes, but which prevents the passage of a tangle, knot, or equivalent obstruction, enlargement, or defect in said material, in combination with the terminal spring-electrodes J and K, which tend to approach each other and which grasp and hold said lever in its normal horizontal position during the passage of said material in its normal condition, but which permit said lever to be withdrawn from between them on the occurrence of such a defect, and a weight connected with said lever for maintaining it away from said electrodes when displaced by the occurrence of a defect in the material, substantially as set forth.

7. The lever G, having a guide between which material in its normal condition freely passes, but which does not permit the passage of a tangle, knot, or other equivalent obstruction, enlargement, or defect, said guide being formed by two arms adjustable to and from each other, whereby the guideway may be adjusted to accommodate varying sizes of the material in its normal condition, substantially as set forth.

8. The frame A, having entrance guide-opening *b* and upper guide-opening *c* above said guide-opening *b*, the overbalanced lever G, pivoted to said frame, said lever having guide-arms *i i*, with an open guide-space between them, said lever occupying normally a horizontal position between said guide-openings *b* and *c*, with its arms *i i* across said guide-opening *b*, whereby a warp or bundle of threads in traveling from opening *b* to opening *c* passes between said arms *i i*, and a tangle, knot, or similar defect in said warp lifts said lever, and said lever having a circuit-breaking block I of insulating material, in combination with a stopping mechanism, an electric circuit including a generator and an electro magnet, which controls said stopping mechanism, said circuit terminating in two spring-electrodes, which tend to approach each other, said block I on said lever being in the normal position of said lever located between said electrodes, thereby separating the same, substantially as set forth.

479,359. INCANDESCENT-LAMP SOCKET.

ISAAC GOLDBERG, New York, N. Y., assignor to Louis Stirn and Julius Sombern, same place. Filed Dec. 15, 1891. Serial No. 415,100. (No model.)

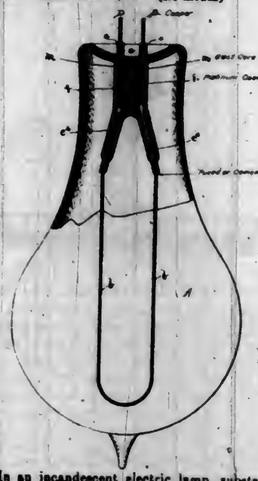


Claim.—1. The combination of a socket provided with electrical conductors, a spindle arranged between said conductors, an oblong block on said spindle, a ratchet-wheel and pawl also arranged on said spindle, a lever, and a clutch device interposed between the lever and the spindle, so as to produce the turning of the block when moving the lever in downward direction without turning the spindle when the lever is returned by its spring in upward direction, substantially as set forth.

2. The combination, with a socket having electrical conductors, of a rotary spindle arranged between said conductors, a block on said spindle adapted to engage or release the said conductors, a ratchet-wheel on said spindle, a check-pawl engaging said ratchet-wheel, a sleeve mounted loosely on said spindle, a lever attached to said sleeve, a helical spring acting on said lever and sleeve, and a clutch device between the sleeve and the spindle, substantially as set forth.

479,360. INCANDESCENT ELECTRIC LAMP.

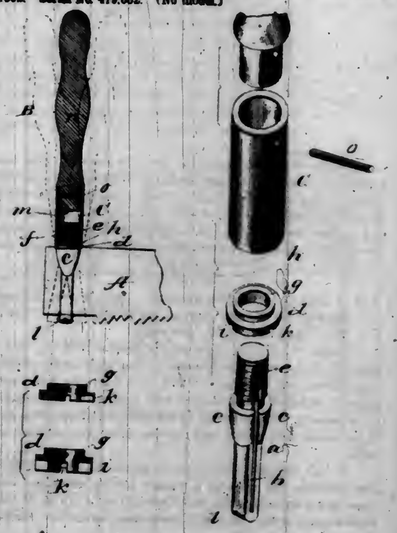
HENRY GREEN, Hartford, Conn., assignor of one-half to F. C. Rockwell, same place. Filed Sept. 2, 1891. Serial No. 404,535. (No model.)



Claim.—In an incandescent electric lamp, substantially as described, the combination of the bulb, the seal connected to the neck of the bulb and comprising the body and the depending legs, the leading-in tubes incased in the body and depending legs of the seal, the glass cores or fillings in the leading-in tubes, the filament within the lamp having its ends secured in the lower ends of the tubes, and the wires secured in the upper ends of the tubes, all substantially as and for the purpose set forth.

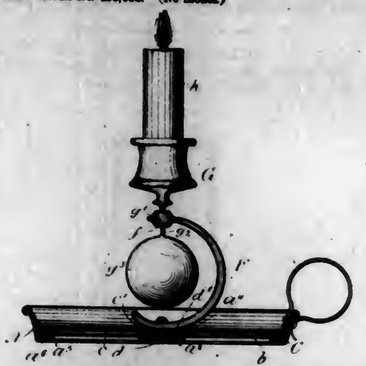
479,361. CROSSCUT-SAW HANDLE.

JOHN GREEN, Renovo, Pa., assignor of one-half to Emerick Miciangi, same place. Filed Jan. 29, 1892. Serial No. 419,632. (No model.)



Claim.—A saw-handle provided with a ferrule, having a receptacle for a lubricant within the ferrule and an aperture in the end of the ferrule through which to move said lubricant, in combination with a saw-supporting bolt closing said aperture.

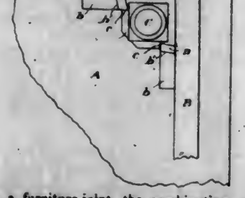
479,862. CANDLESTICK. HARRY M. HAMRICK, Philadelphia, Pa., assignor to the Mechanical Novelties Company, same place. Filed Feb. 2, 1892. Serial No. 420,082. (No model.)



Claim.—1. A candlestick provided with a base comprising a saucer-shaped skeleton plate having radial arms carrying a central hub, a frame-work provided with radial arms carrying a central seat, a translucent plate or disk intermediate of the plate and framework, a weighted candle-holder provided with a ball, and a curved arm secured to said seat and hub and provided with a spherical socket engaging said ball, substantially as and for the purposes set forth.

2. In a candlestick, a base comprising a saucer-shaped skeleton plate having radial arms carrying a central hub, a framework provided with radial arms carrying a central seat, a translucent plate or disk intermediate of the plate and frame, and means for connecting said framework and plate, substantially as and for the purposes set forth.

479,868. FURNITURE-LEG FASTENING. HENRY M. HANSON, Janesville, Wis., assignor to the Hanson Furniture Company, of Wisconsin. Filed Jan. 23, 1892. Serial No. 419,071. (No model.)



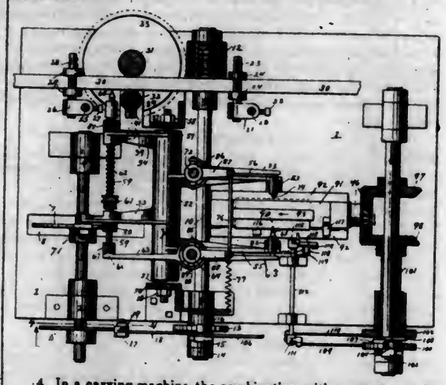
Claim.—In a furniture-joint, the combination, with horizontal bed-pieces meeting at an angle and provided on their inner sides with offsets having their inner edges inclined vertically and horizontally, of a detachable standard provided with vertical grooves facing said offsets and inclined horizontally, and wedge-shaped locking-pins secured between said grooves and offsets, substantially as shown and described.

479,864. CARVING-MACHINE. MAX HENTEL, Chicago, Ill., assignor to the National Machine Works, same place. Filed Sept. 23, 1891. Serial No. 406,564. (No model.)

Claim.—1. In a carving-machine, the combination, with a cutter movable both endwise and laterally, a pattern having elevations and depressions, and a stylus movable both laterally and endwise and adapted to follow the surface of said pattern, of differential connections between said stylus and cutter for transmitting from the former to the latter both lateral and endwise movement, substantially as set forth.

2. In a carving-machine, the combination, with a cutter movable both laterally and endwise, a pattern having elevations and depressions, and a stylus movable both laterally and endwise, of connections between said stylus and cutter, comprising means for transmitting the lateral and endwise movements of the stylus independently of each other, substantially as set forth.

3. In a carving-machine, the combination, with a cutter movable both laterally and endwise, a pattern having elevations and depressions, and a stylus movable both laterally and endwise for following said pattern, of connections between said stylus and cutter, comprising a pair of differential levers, one transmitting the lateral and the other transmitting the endwise movement of the stylus, substantially as set forth.



4. In a carving-machine, the combination, with a cutter movable both laterally and endwise, a pattern having elevations and depressions, and a stylus movable both laterally and endwise, of connections between said stylus and cutter, comprising a lever for transmitting the lateral movement of the stylus and a second lever carried by the first for transmitting the endwise movement of the stylus, substantially as set forth.

5. In a carving-machine, the combination, with a cutter, a pattern, and a stylus for following said pattern, of a lever carrying the stylus and cutter on opposite sides of its fulcrum and a second lever carried by the first and engaging the stylus and cutter-spindle at its opposite ends, said levers having differential motions, substantially as set forth.

6. In a carving-machine, the combination, with a cutter, a pattern, and a stylus, of a lever carrying the cutter and stylus at different distances from its fulcrum and a second lever fulcrumed to the first and engaging the cutter-shaft and stylus at equal distances from its fulcrum, substantially as set forth.

7. In a carving-machine, the combination of the lever X, having arms 53 and 55, the cutter 60, the endwise-movable spindle 62, carried by the arm 53, the endwise-movable stylus 65, engaged by the arm 55, and the lever 63, fulcrumed to the lever X and engaging the spindle 62 and stylus 65, substantially as set forth.

8. In a carving-machine, the combination of the lever X, having arms 53, 54, and 55, the endwise-movable cutter-spindle 62, journaled in the arms 53 and 54, the pulley 61, and the spindle, the spring 65, surrounding and exerting its force against the spindle, the endwise-movable stylus 65, engaged by the arm 55, and the lever 63, fulcrumed to the lever X and engaging the cutter-spindle and stylus, substantially as set forth.

9. In a carving-machine, the combination, with a pattern, of means actuated by the pattern, having elevations and depressions for producing a fac-simile thereof, and means actuated by the pattern for producing a complement thereof, both of said means comprising a stylus movable endwise, a cutter movable endwise, and connections between them for transmitting the movement of the former to the latter, substantially as set forth.

10. In a carving-machine, the combination, with a cutter and pattern, of two styluses presented in opposite directions and adapted to engage the pattern from opposite sides and means for transmitting the movement of either stylus to the cutter, substantially as set forth.

11. The combination, with the endwise-movable cutter and the pattern, of a pair of styluses, a pair of levers partaking of the endwise movement of said styluses, and means for transmitting the movement of either of said levers to the cutter, substantially as set forth.

12. The combination, with the endwise-movable cutter and the pattern, of the stylus 65, the lever 63, partaking of the endwise movement of said stylus and transmitting it to the cutter, the second stylus 74, the lever 73, by which it is carried, and a connection between the levers 63 and 73, substantially as set forth.

13. In a carving-machine, the combination of the levers X and X^5, the bar 80, connecting them, a plurality of cutters having spindles journaled in said bars, means for oscillating the levers, and means for producing the desired endwise movement of the cutter-spindles, substantially as set forth.

14. The combination of the levers X and X^5, the bars 80 and 82, connecting them, a plurality of cutters having their spindles journaled in bar 80, the rod 64, connected to levers X and X^5, the sleeve 84, surrounding said rod, a plurality of levers 63, &c., fulcrumed to the sleeve and engaging the cutter spindles, the stylus 65, engaged by the lever 63 and rod 82, and a pattern, substantially as set forth.

15. In a carving-machine, the combination, with a cutter movable endwise and means for feeding the stock, of an oscillating lever carrying the cutter back and forth across the stock and means for producing the desired endwise movement of the cutter, substantially as set forth.

16. In a carving-machine, the combination, with a cutter movable endwise, a stylus movable endwise, and a pattern having elevations and depressions, of means for simultaneously advancing the pattern and stock at different surface speeds, an oscillating lever carrying the stylus and cutter, and means for transmitting the endwise movement of the stylus to the cutter, substantially as set forth.

479,865. PROCESS OF PLATING CLAY WITH GLASS AND IN ARTICLES MADE ACCORDINGLY. ARTHUR A. HOUGHTON and ROBERT D. HAIWEL, Corning, N. Y., assignors, by direct and mesne assignments, to the Clay Glass Tile Company, same place. Filed Oct. 15, 1891. Serial No. 408,783. (No model.)

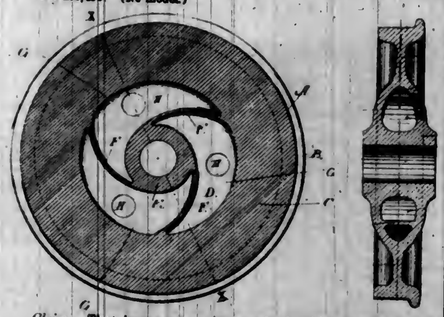


Claim.—1. The process of manufacturing glass-plated bricks, tiles, and other articles, which consists in forming the article of clay or clay composition of approximately the same degree of contraction and expansion as the glass employed, raising the said article to a high temperature, applying to the surface to be coated glass in a molten condition, compressing the molten glass onto the surface of the brick, so that the under surface of the glass will adhere to the clay, and finally annealing the glass-plated article, substantially as set forth.

2. A brick or tile composed of clay or clay composition and glass compressed on the clay, said clay and glass being approximately of the same degree of contractibility and expansion, substantially as set forth.

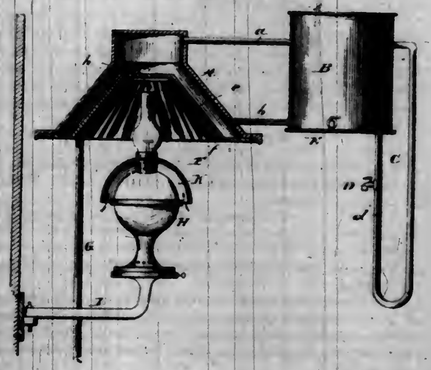
3. A brick or tile composed of a body of clay or clay composition formed with an opening through it, such as *f*, and a glass plate compressed onto the face of said body and covering said opening, substantially as set forth.

479,866. CAR-WHEEL. ALFRED HYMAN, Albany, N. Y., assignor of one-half to Jacob Brockley, same place. Filed Apr. 9, 1892. Serial No. 428,435. (No model.)



Claim.—That improvement in car-wheels which consists in connecting the rim of the car-wheel to the hub by means of an annular member of single thickness integrally joined to two walls, which are bulged outwardly to form annular swells, said walls being connected together by means of curved arms, which are integrally joined to said hub and walls and which curve tangentially from the periphery of said hub, whereby the space between said hub and walls is separated into a series of segmental chambers, as and for the purpose herein specified.

479,867. MEANS FOR UTILIZING HEAT OF LAMPS. ALEXANDER S. H. JOHNSTON and ANNA JOHNSTON, Columbiana, Ohio, and JAMES G. THOMPSON, New Brighton, Pa., administrators of James J. Johnston, deceased, assignors of one-half to David C. Reinohl, Washington, D. C.; John R. Allen, present administrator, succeeding prior administrators. Filed Oct. 1, 1891. Serial No. 407,449. (No model.)



Claim.—1. An air-heater having a chamber within its walls, ingress and egress apertures, and a heat-reflecting surface, in combination with a branched tubular conduit upon which said heater is supported, communicating with the heating-chamber and extending to or near the floor of a compartment, and a support for a lamp between the branches of the conduit, substantially as described.

2. An air-heater having a chamber within its walls, ingress and egress apertures, and a heating-reflecting surface, in combination with a tubular conduit and a heating-coil within the conduit, substantially as described.

3. An air-heater supported upon a tubular conduit and having a heat-reflecting surface on its lower side, in combination with a lamp supported under said heater and a shield supported by and engaging the neck of the lamp.

4. An air-heater supported upon a tubular conduit, in combination with a lamp and a shade surrounding the chimney of the lamp and constructed to collect heat radiated from the burner through the chimney and direct the same against the air-heating chamber.

5. An air-heater supported upon a tubular conduit, in combination with a lamp and a vertically-separable shade pivotally secured to the tubular conduit and surrounding the chimney of the lamp, as and for the purpose set forth.

479,868. MEANS FOR UTILIZING HEAT OF LAMPS. ALEXANDER S. H. JOHNSTON and ANNA JOHNSTON, Columbiana, Ohio, and JAMES G. THOMPSON, New Brighton, Pa., administrators of James J. Johnston, deceased, assignors of one-half to David C. Reinohl, Washington, D. C.; John R. Allen, present administrator, succeeding prior administrators. Filed Oct. 1, 1891. Serial No. 407,449. (No model.)

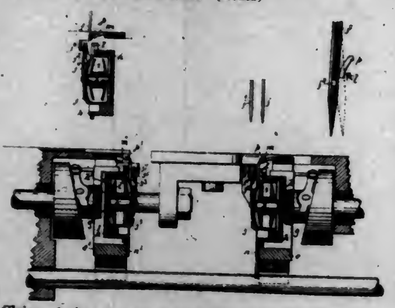
Claim.—1. The combination, with a water-reservoir, of a water-heating chamber and suitable connections, an air-heating chamber under said water-heating chamber and a conduit for conducting air to said air-heating chamber, and a heating device under the water and air heating chamber.

2. The combination of a water-heating chamber, an air-heating chamber having one of its walls formed by one of the walls of the water-heating chamber, means for conducting air from or near the floor of a compartment to said air-heating chamber, and a heating device under both of said chambers.

3. The combination, with a reservoir, of a water-heating chamber provided with a deflecting-surface, a reflector, an air-heating chamber between the water-heater and the reflector, and a suitable heating device.

4. The combination, with a reservoir, of a water-heating chamber provided with a deflecting-surface, a reflector attached to the water-chamber, an air-heating chamber, a conduit for conducting air to said chamber, and a heating device.

479,369. SEWING-MACHINE. FERDINAND KERN, Linden, N. J., assignor to the Kern Multiple Machine Company, of New Jersey. Filed Nov. 3, 1891. Serial No. 410,716. (Model.)



Claim.—1. In a sewing-machine, in combination, the needle, a loop-taker disposed in such position with respect to the needle as to normally engage the needle-thread beneath the fabric and co-operate with the needle in forming the stitch, and a member interposed between said needle and said loop-taker, whereby the engagement of the needle-thread by its loop-taker is prevented, and a support for said member admitting of its being retracted to permit the formation of stitches, substantially as described.

2. In a sewing-machine, in combination, the needle, a loop-taker disposed in such position with respect to the needle as to normally engage the needle-thread beneath the fabric and co-operate with the needle in forming the stitch, a member whereby the needle-thread is shoved out of position to be engaged by said loop-taker, and means whereby said member may be retracted to permit the formation of stitches, substantially as described.

3. In a duplex sewing-machine, in combination, the two needles, a loop-taker for each of said needles disposed in such position with respect to the needle as to normally engage the needle-thread beneath the fabric and co-operate with the needle in forming the stitch, and a movable member whereby the needle-thread of one of said needles may be shoved out of position to prevent the engagement thereof by its loop-taker, substantially as described.

4. In a sewing-machine, in combination, the needle, the loop-taker by which the needle-thread is engaged beneath the fabric, an inclined member located in the normal path of said needle, whereby said needle may be deflected away from said loop-taker, and means whereby said member may be retracted, leaving the needle and loop-taker in the normal relative position for forming stitches, substantially as described.

479,370. ROCKING-HORSE. EMANUEL KEUSER, Philadelphia, Pa., assignor to Mary Keuser, same place. Filed Mar. 3, 1892. Serial No. 423,854. (No model.)

Claim.—1. A rocking-horse mounted on a truck and having cords secured to the body of said horse and passing in reverse direction around pulleys on the axle of the truck, ratchets secured to said axle, and said pulleys carrying pawls which engage with said ratchets, substantially as described.

2. A rocking-horse mounted on a truck having ratchets secured to the axle, and pulleys which surround the ratchets, carrying pawls which engage said ratchets, and cords secured to the body of the horse and passing in reverse direction around the said pulleys, substantially as described.

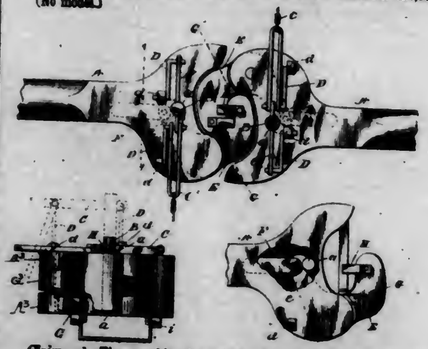
479,370.



3. A rocking-horse having a truck with a front cross-piece and a rear axle, a body pivoted to said truck, pulleys on the front cross-piece and pulleys on the rear axle, and cords attached to the front of the body and passing around the pulleys on the front cross-pieces and in reverse direction around pulleys on the rear axle, substantially as described.

4. A rocking-horse having a truck with a front cross-piece and running-wheels and a rear axle with running-wheels, pulleys loosely mounted on said axle and cross-piece, ratchets secured to the axles, and pawls engaging said ratchets, and cords secured to the opposite ends of the body of the horse and passing in reverse direction around the pulleys on said rear axle, said parts being combined whereby continuous forward motion is imparted to said rocking horse, substantially as described.

479,371. CAR-COUPLING. EDGAR KLING, Louisville, Ky., assignor to Isaac Kling, same place. Filed Mar. 30, 1892. Serial No. 427,000. (No model.)



Claim.—1. The combination of the draw-bar and pin, the rod slidably connected to said bar, and the straps pivoted to said rod and to a suitable support, whereby when the rod is pulled longitudinally it is caused to rise vertically, substantially as specified.

2. The combination of the draw-bar, the coupling-jaw, and the plate adapted to uphold the locking-pin until the jaw-shank passes in rear thereof, substantially as described.

3. The combination of the draw-bar, the coupling-pin, and the swinging jaw with the plate connected to the end of the jaw-shank and adapted to uphold the pin until the shank passes behind the pin-openings, substantially as described.

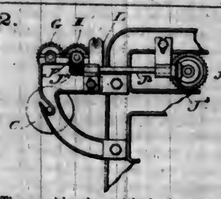
4. The combination of the draw-bar and the swinging jaw connected therewith with the coacting beveled lug and recess on said bar and jaw for causing said jaw to swing open, substantially as described.

5. The combination of the draw-bar having a forwardly-projecting downwardly-beveled lug on its front end beside the jaw and the swinging jaw having a beveled recess adapted to receive and engage said lug, substantially as and for the purpose described.

6. In combination with a draw-bar, a swinging jaw having an arm, as H, substantially as and for the purpose specified.

479,372. LET-OFF MECHANISM FOR DOUBLE-PILE FABRIC LOOMS. MARK LEACH, JOHN HEATON, and JOHN BENTLEY, Bradford, England, assignors to John Dobson and James Dobson, Philadelphia, Pa. Filed Mar. 26, 1890. Serial No. 345,677. (No model.)

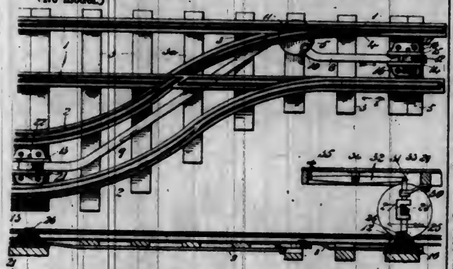
479,372.



Claim.—1. The combination, with the loom-frame and the warp-beam C, of a pair of covered friction-rollers D and E of uniform size, arranged parallel and adjacent to but separate from each other, with connecting actuating-gearing on the axes of their shafts, said gearing being adapted to revolve them at a uniform speed, but in opposite directions to each other, the shaft of one of said rollers being extended and provided with mechanism to rotate the same, and a continuously-driven actuating-shaft with driving-gearing actuating the said shaft, whereby the pile-warp fed from the beam may pass over and partly around the first feed-roller, and then to and under and partly around the second feed-roller, substantially as described.

2. The combination of mechanism for supplying, delivering, and guiding pile-warp to the weaving mechanism, consisting of a warp-beam, a pair of separated covered rollers of even diameter, and their shafts, with cog-gears on the ends of said roller shafts engaging with each other and adapted to revolve said rollers at a uniform speed, but in opposite directions to each other, a continuously-driven shaft with actuating-gearing thereon meshing with gearing on the end of the shaft of one of said covered rollers, and guiding devices between the delivering covered roller and the weaving mechanism, said parts being constructed, combined, and arranged relatively to each other, substantially as and for the purposes set forth.

479,373. AUTOMATIC RAILWAY-SWITCH. JOHN LIPMAN and CHARLES J. RINDERKNECHT, Indianapolis, Ind., assignors of one-fourth to Frank X. Bourpere, same place. Filed Nov. 23, 1891. Serial No. 413,450. (No model.)



Claim.—1. The combination, with a switch-rail and a pivoted disk provided with a pin for shifting the switch-rail, of a rod pivoted to the said disk and provided with a toothed rack and an oscillatory trip provided with teeth engaging with the said rack and having a detent arranged in the path of the trip-bar on the car, substantially as set forth.

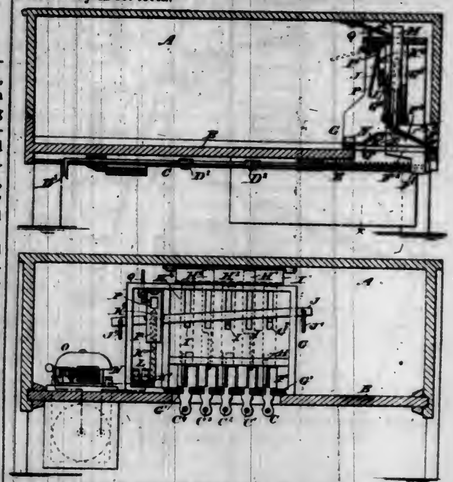
2. The combination, with a switch-rail and a pivoted disk provided with a pin for shifting the switch-rail, of a rod pivoted to the said disk and provided with a toothed rack, a standard arranged in the center of the track and provided with reversely-inclined sides, an oscillatory strip supported in the said standard and provided with a detent and with teeth engaging with the said rack, and a trip-bar carried by the car and arranged to one side of the center of the track, whereby the trip-bar is raised slowly out of contact with the detent after operating it to shift the switch-rail according to the direction of the motion of the car, substantially as set forth.

479,374. ALARM-LOCK. FRANK MAHANNAH, Omaha, Nebr., assignor of one-half to John R. Mahannah, same place. Filed Sept. 29, 1891. Serial No. 407,109. (Model.)

Claim.—1. The combination, in an alarm-lock, with a stationary frame, a series of vertical locking-bolts mounted thereon, an alarm, and connections between the bolts not in the combination and the said alarm, of a series of sliding blocks, one for each bolt, each block having on its upper face at opposite sides of its longitudinal center reversely-extending inclines, one incline serving to lower the bolt when it is active and the other to raise it when inactive or out of the combination.

2. The combination, with the vertically-sliding reversible bolts, of a sliding block beneath each bolt, each block having on its upper face at opposite sides of its longitudinal center reversely-extending inclines, one incline serving to lower the bolt when active or in the combination and the other serving to raise the same bolt when inactive or out of the combination, substantially as set forth.

3. The combination, with the vertically-sliding bolts and their operating-blocks, of keys formed of two longitudinally-aligned rods having overlapped parallel inner ends adjustably clamped together, substantially as set forth.



4. In an alarm-lock, the combination, with a series of locking-bolts, of a sliding block for each locking-bolt and each block being provided with two wedges or inclines arranged in opposite directions and adapted to engage the lower end of the respective bolt, substantially as shown and described.

5. In an alarm-lock, the combination, with a pivoted plate arranged in a casing, of a series of locking-bolts mounted to slide vertically in the drawer, sliding blocks for the said locking-bolts and each provided with two inclines arranged in opposite directions, the inclines being adapted to engage the lower end of the respective bolt, and keys for imparting a sliding motion to the said blocks, substantially as shown and described.

6. In an alarm-lock, the combination, with a pivoted plate arranged in a casing, of a series of locking-bolts mounted to slide vertically in the drawer, sliding blocks for the said locking-bolts and each provided with two inclines arranged in opposite directions, the inclines being adapted to engage the lower end of the respective bolt, keys for imparting a sliding motion to the said blocks, and springs pressing on the said keys for returning the same to a normal position for being pressed, substantially as shown and described.

7. In an alarm-lock, the combination, with bolts provided with pins and mounted to slide vertically, of a bar adapted to be engaged by the pins of the bolts not forming a combination and a sleeve adapted to be actuated by the said bar to establish an electric connection with an electric alarm, substantially as shown and described.

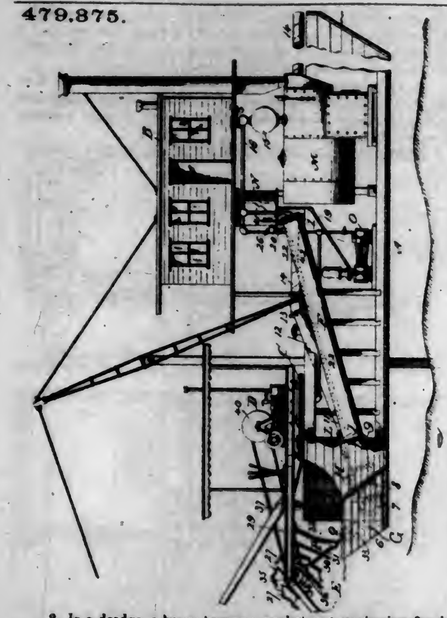
8. In an alarm-lock, the combination, with bolts provided with pins and mounted to slide vertically, of a bar adapted to be engaged by the pins of the bolts not forming a combination, a sleeve adapted to be actuated by the said bar to establish an electric connection with an electric alarm, and an electric alarm provided with two spring-plates adapted to be connected with each other by the said sleeve, substantially as shown and described.

9. In an alarm-lock, the combination, with a series of bolts mounted to slide vertically and each provided with a pin, of a bar adapted to be raised by pins of the bolts not forming a combination, a sleeve adapted to be raised by the said bar and arranged to establish an electric connection with an electric alarm, and a pivoted arm adapted to lock the said sleeve in an uppermost position and raised by the said bar, substantially as shown and described.

479,375. DREDGING-MACHINE. JAMES M. MILLER, Washington, D. C. Filed June 23, 1891. Serial No. 397,223. (No model.)

Claim.—1. In a dredge, the combination, with a barge having a pocket and mechanism for depositing dredged material within the said pocket, of a steam and vacuum pumping apparatus supported in an inclined position on the barge and opening at its lower end into the pocket below the water-line.

479,875.



2. In a dredge, a barge having a pocket and mechanism for depositing dredged material within the said pocket, in combination with a steam and vacuum pumping apparatus opening into the pocket, a tapered discharge-nozzle, and a discharge pipe connecting therewith and leading to the dump, and connections uniting the said apparatus and the nozzle.

3. In a dredge, a barge having a pocket and mechanism for depositing dredged material within the said pocket, in combination with a fender located behind the dredging mechanism and a series of agitators arranged within the pocket.

4. In a dredge, a barge having a pocket, mechanism for depositing dredged material within the said pocket, a steam and vacuum pumping apparatus opening into the pocket, and a series of agitators for disintegrating the material in the pocket.

5. In a dredge, a barge having a pocket open at or slightly above the water-line and mechanism for depositing dredged material within the said pocket, in combination with a series of agitators arranged within the pocket and means for actuating the dredging mechanism and the agitators in unison.

6. In a dredge, a barge having a pocket open at or slightly above the water-line and a series of agitators arranged within the said pocket, in combination with a drive-shaft carrying the dredging apparatus and mechanism carried by the shaft for actuating the agitators.

7. In a dredge, the combination, with a barge having a pocket and mechanism for depositing dredged material within the pocket, of a steam and vacuum pumping apparatus supported in an inclined position on the barge and opening into the pocket below the water-line, said apparatus comprising two parallel cylinders, a discharge-pipe, a three-way coupling connecting the said cylinders and discharge-pipe and provided with automatically-operating valves, and steam-supply and water-supply pipes connecting with the cylinders.

479,876. WATCH. JAMES L. NEWELL, Ashland, Wis., assignor to Walter B. Felton and Everitt W. Felton, same place, William H. Webb, Superior, and Anselm C. Bossard, Kaukauna, Wis. Filed Mar. 24, 1892. Serial No. 426,209. (No model.)

Claim.—1. In a watch provided with the usual train of works carried between two pillar-plates, an upper pillar-plate having recesses to receive and carry the cannon-pinion and hour and minute wheels and provided on its upper surface with a dial-cap removably held in place over said recesses, leaving a peripheral space on said pillar-plate for the printing or impressing thereon of the hours and subdivisions thereof, all substantially as shown.

2. In a watch provided with the usual train-works carried between two pillar-plates, an upper pillar-plate having recesses to receive and carry the mechanism controlling the relative movements of the hour and minute hands and provided on its upper surface with a circular abutment, in combination with a dial cap capable of being sprung or snapped into and removably held by said abutment over said recesses, leaving a peripheral space on said pillar-plate exterior to said dial-cap for the printing or impressing thereon of the hours and subdivisions thereof, all substantially as shown.

3. In a watch provided with the usual train-works carried between two pillar-plates, an upper pillar-plate having recesses to receive and carry the mechanism controlling the relative movements of the hour and minute hands and having symbols indicating the hours and their subdivisions printed or impressed upon the exterior peripheral area of said plate, in combination with a dial-cap and means for removably attaching said dial-cap to said plate immediately over said recesses, all substantially as shown.



4. In a watch provided with the usual train-works carried between two pillar-plates, an upper pillar-plate having recesses to carry the mechanism controlling the relative movements of the hour and minute hands and provided on its upper surface with a circular groove, in combination with a circular dial-cap dished near its peripheral edge and capable of being sprung or snapped into said groove and held over said recesses and leaving a circular space exterior thereto on the face of said plate for printing or impressing symbols of the hours and subdivisions thereof, all substantially as shown.

479,877. MORTISING-AUGER. ANDREW L. NEWTON, Norwich, Conn., assignor of one-half to Mabel A. Evans, same place. Filed June 20, 1891. Serial No. 396,981. (No model.)

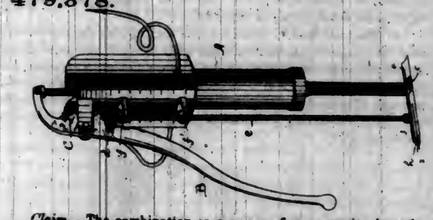


Claim.—1. In an auger, substantially as described, the combination, with the bit having the square shoulders adjacent to its upper end, of the laterally-reciprocating cutting-blade 6, the longitudinally-slotted cross-head mounted on the bit and engaging the shoulders thereof, the upwardly-extending lug carried by said cross-head, the cap-piece loosely mounted on the bit and having a rectangular groove engaging the lug of the cross-head, the lever pivotally connected at an intermediate point in its length to the bit and having its ends connected to the cross-head and the blade 6, respectively, a suitable means for rotating the bit, and a suitable means for holding the cap-piece stationary, substantially as specified.

2. In an auger, substantially as described, the combination, with the bit having the square shoulders adjacent to its upper end and the laterally-reciprocating cutting-blade 6, of the longitudinally-slotted cross-head mounted on the bit and engaging the shoulders thereof the upwardly-extending lug carried by said cross-head, the cap-piece loosely mounted on the bit and having a rectangular groove engaging the lug of the cross-head, suitable means for transmitting reciprocatory motion from the cross-head to the cutting-blade 6, a suitable means for rotating the bit, and a suitable means for holding the cap-piece stationary, substantially as specified.

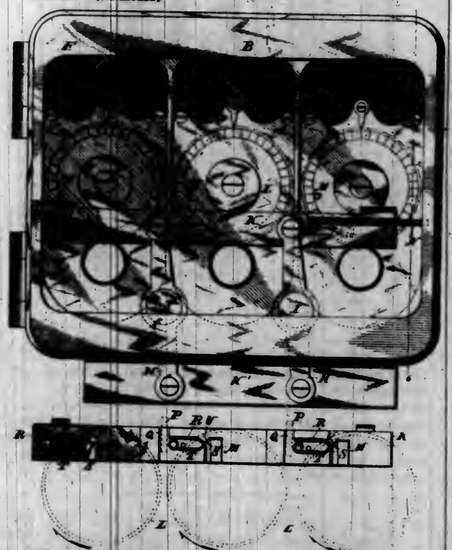
479,878. COMBINED PUMP AND MIXER. ADELBERT M. PHILLIPS, Lockport, N. Y., assignor to Harrison S. Chapman and Charles A. Barnes, same place. Filed Oct. 24, 1891. Serial No. 409,703. (No model.)

479,878.



Claim.—The combination, in a pump, of an operating-lever having a segmental rack at its pivotal point, a vertical shaft journaled at the side of the pump, a pinion at the upper end of said shaft to engage the rack, and a dasher, as described, at the lower end of the shaft to operate below the suction-pipe of the pump, as and for the purpose set forth.

479,879. TIME-LOCK MECHANISM. EMORY STOCKWELL and HERBERT C. STOCKWELL, Stamford, Conn., assignors to The Yale & Towne Manufacturing Company, same place. Filed Nov. 13, 1891. Serial No. 411,529. (No model.)



Claim.—1. In a time-lock, a block or frame carrying the time-movements and the operative mechanism of the lock, in combination with a case, which is secured to the door and supports said block on cushioned studs, so that the entire operative mechanism is free to move with reference to the case and may be removed therefrom without derangement, substantially as set forth.

2. In a time-lock, the combination of time mechanism, a primary unlocking-bar, a secondary unlocking-bar, pivotal connections between the two bars, and a dog or other device to be actuated or unlocked, the arrangement being that the time mechanism engages with the primary unlocking-bar, and said bar acts through the pivotal connections upon the secondary unlocking-bar, and the secondary unlocking-bar acts upon a dog or other device to be actuated, substantially as described.

3. In a time-lock, in combination with time mechanism, an unlocking-bar K, composed of two parts hinged together, provided with a spring tending to keep them apart, substantially as described.

4. In a time-lock, the combination of time mechanism and bars K K', of the projections P, the bar K being composed of two parts and its hinged part being provided with notches for engagement with the projections, substantially as set forth.

5. In a time-lock, the combination, with time movements, of the pin M, the primary unlocking-bar K, composed of two parts and provided with an incline R and with a lug or rib S, substantially as set forth.

6. In a time-lock, the combination, with the lock-case having openings with connecting mechanism and a secondary unlocking-bar adapted to cover said openings in the case, substantially as set forth.

7. In a time-lock, the combination, with time-movements and primary and secondary unlocking-bars K and K', of pivoted connecting-levers between the bars and connecting the bars with the time-movements, substantially as set forth.

8. In a time-lock, the combination of a time-movement and a primary unlocking-bar, with which it engages, and a secondary unlocking-bar actuated by the primary bar, and two or more pivoted parallel connecting-levers supporting said bar, substantially as set forth.

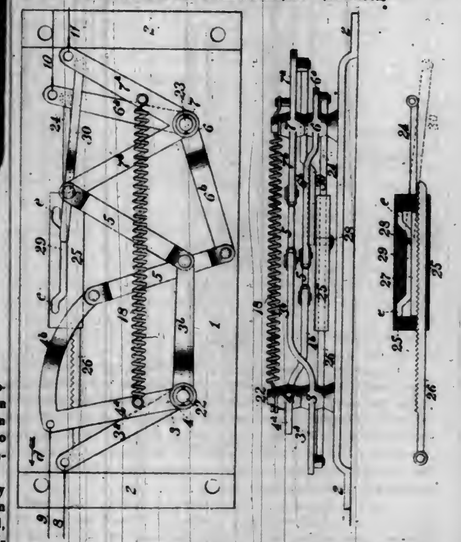
9. In a time-lock, a primary unlocking-bar having a movable section and a rib or projection in the lock, with which such movable section tends to engage, whereby the bar cannot be moved in the direction for unlocking until the time-movements are properly operated, substantially as set forth.

10. In a time-lock, a block or frame held in place within the lock-case upon studs fastened to the inside of said case with cushion-springs both in front and rear of said block, said block being also provided with a plurality of recesses, each to receive separate self-contained movements, so that said block and the movements may be bodily removed from the lock-case or each movement may be separately removed from said block, substantially as described.

11. In a time-lock, the combination of time mechanism, the primary and secondary unlocking-bars, and between said bars double connecting mechanism, so that upon the failure of any one connection the connection between the time-movements and the device to be unlocked is not severed, substantially as described.

12. In a time-lock, the combination, with time-movements and a device to be unlocked thereby, of balanced connecting mechanism between the time-movements and the device to be unlocked, substantially as described.

479,880. COMPENSATOR FOR SIGNALS. JAMES J. TURNER, Pittsburg, assignor to the Union Switch and Signal Company, Swissvale, Pa. Filed Feb. 11, 1892. Serial No. 421,165. (No model.)



Claim.—1. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, and mechanism whereby motion is transmitted from the lever-operated member of one pair to the signal-operating member of the other pair, substantially as set forth.

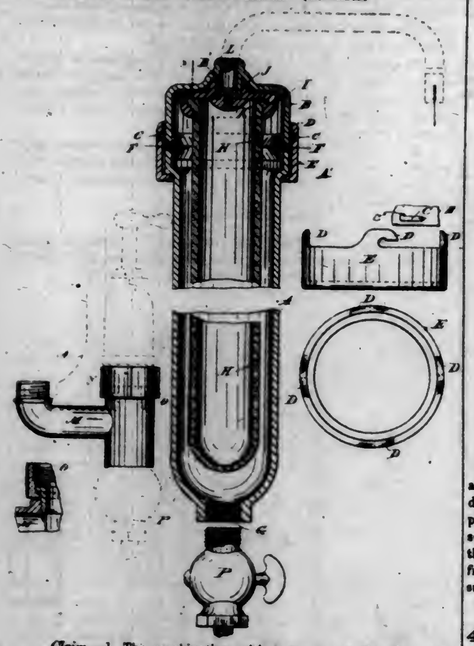
2. In a compensator for signals, the combination of two pairs of connected bell-crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, mechanism whereby motion is transmitted from the lever-operated member of each pair to the signal-operating member of the other pair, and a spring connected to one member of the lever-operated pair and to the signal-operating member of the other pair, substantially as set forth.

3. In a compensator for signals, the combination of two pairs of connected bell crank levers, one member of each pair being connected to an operating-lever and the other member of each pair to a signal, mechanism whereby motion is transmitted from the lever member of

each pair to the signal-operating member of the other pair, a spring connected to one member of the lever-operated pair and to the signal-operating member of the other pair, and a lock for securing the synchronous movement of all the members of both pairs, substantially as set forth.

4. In a compensator for signals, the combination of two pairs of connected levers 3 7 and 4 6, a box having a cam slot formed therein and connected to one arm of the lever 6, a serrated or toothed rod connected to the lever 3 and projecting into said box, a toothed or serrated block arranged in the box and adapted to engage the serrated rod, and a pin operated by the lever 7 for forcing the block into engagement with the serrated rod, substantially as set forth.

479,381. LIQUID-PURIFYING DEVICE. FRANK K. WAY, Dayton, Ohio, assignor to the Domestic Water Purifier Company, Chicago, Ill. Filed Oct. 26, 1891. Serial No. 409,782. (No model.)



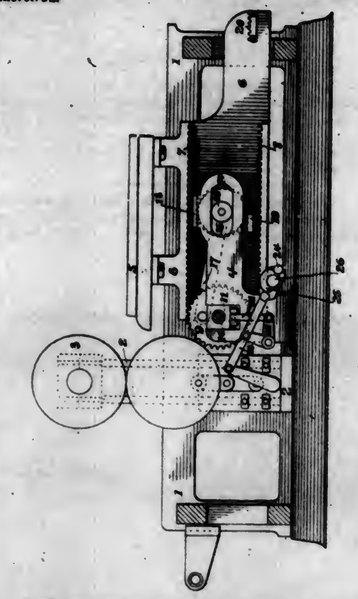
Claim.—1. The combination, with a case, a cap therefor, and a filter proper having a projecting shoulder at one end and mounted within said case, of a flexible coupling between said filter proper and said cap and consisting of an annular recessed portion embracing said shouldered end of the filter proper and of a tubular portion opposite thereto, the said cap having an extension matching said tubular portion of the coupling, and a stud-bolt supporting said coupling and mounted in said cap extension.

2. In a liquid-purifying device, the combination, with a casing, a cap therefor, and a filter proper mounted within said casing, of couplings between said cap and casing and said cap and filter proper, respectively, the first consisting of an annular portion or ridge extending outward to be gripped between the edges of the cap and the casing and of flaring portions thinned at their edges and pressing against the inside of the casing, the other consisting of an undercut recessed portion forming a lip adapted to support the filter proper, and an oppositely-extending tubular portion adapted to embrace a matching portion of the cap and be pressed tightly against the same by the pressure of the water, and means to maintain the said couplings and their adjacent parts respectively in engagement.

479,382. MECHANISM FOR OPERATING BEDS OF PRINTING-MACHINES. STORRS WHITLOCK, Shelton, Conn. Filed Aug. 3, 1891. Serial No. 401,456. (No model.)

Claim.—1. The combination, with the bed having two opposed driving-racks, of the main driving-gear and means for engaging it first with one rack and then with the other, two supplemental racks, also carried by said bed, and means, as described, whereby the main driving-gear imparts movement to the bed through and by means of said supplemental racks during the time of its disengagement from the main racks, substantially as specified.

2. The combination, with the bed having the forward-driving main rack and the rearward-driving main rack, of the three supplemental racks carried by the bed and bracket and a supplemental driving-gear connected to and operated by means of said main driving-gear and adapted to engage the supplemental racks on the bed and to carry said bed during the disengagement of the main driving-gear therefrom



3. The combination, with the longitudinal reciprocating bed and a pair of opposed main driving-racks mounted thereon, of a main driving-gear and means for engaging it alternately with said racks, a pitman cranked to the main driving-gear and operated thereby, and supplemental driving means interposed between the said pitman and the bed, whereby during the disengagement of the main driving-gear from the main driving-racks the bed is actuated through said pitman, substantially as specified.

479,388. APPARATUS FOR BLEACHING AND DYEING. GEORGE YOUNG, Winton, and FRANK PEARL, Gorton, near Manchester, England; said Pearn assignor to William Crippin, Egerton Mills, Patricroft, near Manchester, England. Filed Jan. 15, 1892. Serial No. 418,155. (No model.) Patented in England Jan. 22, 1890, No. 1,157; in Brazil Nov. 21, 1890, No. 995; in France Jan. 23, 1891, No. 210,970; in Belgium Feb. 18, 1891, No. 93,799; in Italy Feb. 18, 1891, LX, 133; in Spain and Colonies Aug. 13, 1891. No. 11,992, and in Austria-Hungary Sept. 21, 1891.

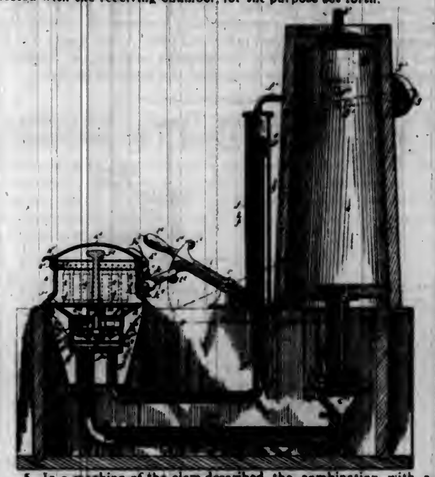
Claim.—1. In a machine of the class described, the combination of a vat, a treating-chamber in communication with and having its lower end below the level of the liquid in the vat, a receiving-chamber in communication with the treating-chamber and vat through a valved passage, a table for the material to be treated covering the mouth of said valved passage within the treating-chamber and having a port or ports opening into the passage, and a suitable exhausting apparatus adapted to draw the liquid from the vat into the treating-chamber through the port or ports in the table to and through the valved passage into said receiving-chamber, for the purpose set forth.

2. In a machine of the class described, the combination of a vat, a treating-chamber in communication with and having its lower end below the level of the liquid in the vat, a receiving-chamber in communication with the treating-chamber and vat through a valved passage, a table for the material to be treated covering the mouth of the passage within the treating-chamber and having a port or ports opening into said passage, an air-exhaust in communication with the passage and treating-chamber, and a suitable exhausting apparatus connected with the receiving-chamber, for the purpose set forth.

3. In a machine of the class described, the combination of a vat, a treating-chamber arranged above the level of the liquid in the vat, a connection between the chamber and vat having its inlet below the level of the liquid, a receiving-chamber in communication with the

treating-chamber and vat through a valved passage, a table for the material to be treated covering the mouth of said valved passage within the treating-chamber and having a port or ports opening into the passage, and a suitable exhausting apparatus adapted to draw the liquid from the vat into the treating-chamber through the port or ports in the table to and through the valved passage into said receiving-chamber, for the purpose set forth.

4. In a machine of the class described, the combination of a vat, a treating-chamber arranged above the level of the liquid in the vat, a connection between the chamber and vat having its inlet below the level of the liquid, a receiving-chamber in communication with the vat and treating-chamber through a valved passage, a table for the material to be treated detachably seated on the mouth of said passage within the treating-chamber, and a suitable exhausting apparatus connected with the receiving-chamber, for the purpose set forth.



5. In a machine of the class described, the combination, with a vat, a treating-chamber, and a tubular connection between the two having its inlet below the level of the liquid in the vat, of two receiving-chambers in communication with the vat and treating-chamber through independent valved conduits, a chamber common to both conduits within the treating-chamber, a table for the material to be treated covering said chamber for the conduits and having one or more ports, and suitable exhausting devices connected with the receiving-chambers, for the purpose set forth.

6. In a machine of the class described, the combination, with a vat, a treating-chamber, and a tubular connection between the two having its inlet below the level of the liquid in the vat, of two receiving-chambers of unequal capacities in communication with the vat and treating-chambers through independent valved conduits, a chamber common to both conduits within the treating-chamber, a table for the material to be treated covering said chamber for the conduits, and an exhausting apparatus adapted to be connected with either receiving-chamber, for the purpose set forth.

7. In a machine of the class described, the combination, with a vat, a treating-chamber closed at one end by a cover and inlet at the opposite end by the liquid in the vat, a duct formed around the upper end of the treating-chamber and communicating therewith, and a three-way valve connected with said duct, of two receiving-chambers connected with the vat and treating-chamber through independent valved conduits, a chamber common to two of the conduits within the treating-chamber, a table covering said chamber for the conduits and having one or more ports, and an exhausting device adapted to be connected with either receiving-chamber, for the purpose set forth.

8. In a machine of the class described, the combination, with a vat, a treating-chamber in communication therewith below the level of the liquid therein, a receiving-chamber in communication with the treating-chamber and vat through a valved duct, and a table seated on said valved duct within the treating-chamber and having a port or ports leading to the chamber and duct, of an exhausting device, a slide-valve having a port or passage adapted to be connected with said device and the receiving-chamber, and a lever for actuating the slide-valve, for the purpose set forth.

9. In a machine of the class described, the combination, with a vat, a treating-chamber in communication therewith below the level of the liquid therein, two receiving-chambers, independent valved ducts connecting the receiving-chambers with a chamber located in the treating-chamber above the level of such liquid, a table provided with a port or ports seated on the chamber in said treating-chamber, and valved passages connecting the receiving-chamber with the vat, of an exhausting device, a slide-valve adapted to connect either receiving-chamber with the exhausting device, and a lever for operating the slide-valve, for the purpose set forth.

10. In a machine of the class described, the combination, with a vat, a treating-chamber in communication therewith below the level of the liquid therein, said treating-chamber being closed at top and having a duct encompassing the upper end thereof and in communication therewith, a three-way cock connected with said duct, two receiving-chambers, independent valved ducts connecting the receiving-chamber with a chamber located within the treating-chamber above the level of the liquid in the vat, a table provided with one or more ports seated on the chamber within said treating-chamber, and valved passages connecting the receiving-chambers with the vat, of an exhausting device, a slide-valve adapted to connect either receiving-chamber with said device, and a lever arranged and adapted to simultaneously operate the slide-valve and three-way cock, for the purpose set forth.

11. The combination, with the vat *a*, the treating-chamber *A*, seated thereon and extending into the same, the valve-casing A^7, constructed with the upper flaring portion *d* and having valves c^4 f^4, two passages c^7 c^7, leading to the valve-chamber above said valves, and a central passage leading to the flaring portion *d* and to the valve-chamber below the valves, and a table having one or more ports seated fluid-tight on said flaring portion of the valve-casing, of two receiving-chambers *b f*, two pipes connecting the receiving-chambers with the two passages c^7, and a suitable exhausting device adapted to be connected with either of the receiving-chambers, for the purpose set forth.

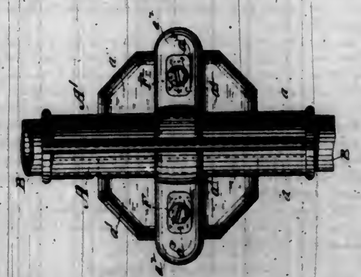
12. The combination, with the vat *a*, the treating-chamber *A*, seated thereon and extending into the same, the valve-casing A^7, constructed with the flaring portion *d* and having valves c^4 f^4, two passages c^7 c^7, leading to the valve-chamber above the valves, and a central passage leading to the flaring portion *d* and to the valve-chamber below the valves, and a table having one or more ports seated fluid-tight on said flaring portion of the valve-casing, of two receiving-chambers *b f*, two pipes connecting the receiving-chambers with the passages c^7 c^7, respectively, discharge-valves operating automatically to discharge the contents of the receiving-chambers into the vat, and an exhausting device adapted to be connected with either of the receiving-chambers, for the purpose set forth.

13. The combination, with the treating-chamber and an exhaust-chamber located therein so as to form passages between the two, of the perforated table *j*, seating on said exhaust-chamber and forming the top thereof, said table having an open-ended hollow handle, for the purpose set forth.

14. The combination, with the treating-chamber, a three-way cock provided with an operating-handle, the receiving-chambers *b f*, a slide-valve casing having passages connected with said chambers, and a slide-valve controlling the said passages, of a lever connected with the slide-valve and a segement on the lever or lever-fulcrum having two pins adapted to engage the handle of the three-way cock, for the purpose set forth.

15. The combination, with the receiving-chambers *b f*, of a slide-valve casing having passages *e e* connected with said chambers, a suction-passage adapted to be connected with a suction apparatus, and ports e^4 e^5 e^{11} of the slide-valve e^3, adapted to control said ports and a cover for the valve-casing provided with air-ports e^6, substantially as and for the purpose set forth.

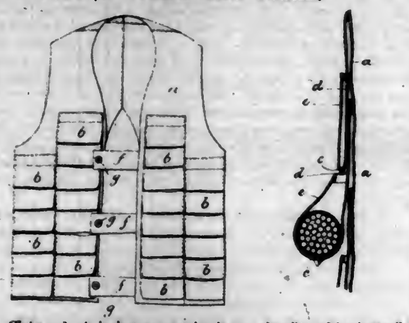
479,384. PIPE-HOLDER. CHARLES H. ALAFAW, St. Louis, Mo., assignor of one-half to Alfred M. Baker, same place. Filed Dec. 21, 1891. Serial No. 415,730. (No model.)



Claim.—The combination of the sections, the bar, and the screw or spike, said sections each consisting of a semicircular part, a base, and a rib and the two sections jointly forming a tubular holder, said

bar being a separate part from both said sections, enabling said sections to be adjusted laterally upon said bar, and said sections being attachable to said bar, substantially as described.

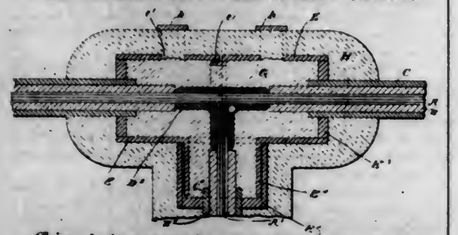
479,385. SHOOTING-JACKET. EDWARD D. BEAR, Arlington, Mass. Filed Sept. 21, 1891. Serial No. 406,561. (No model.)



Claim.—1. A jacket or vest having a plurality of horizontally-arranged cartridge-holding pockets at the front and side portions thereof, each pocket being attached to said jacket along its upper portion and entirely along one end, the other end and bottom being substantially free, so that it can swing outwardly from the body of said jacket, and having an opening at its upper side by which the cartridge may be inserted and removed, as set forth.

2. A huntsman's jacket or vest provided with a series of horizontally-arranged cartridge-receiving pockets, the rear wall of the lower pocket extending up, back, or in rear of the pocket next above, one end of each pocket being connected with the body of the jacket, while the other end and bottom are left substantially free, as shown and described.

479,386. CAST JOINT FOR ARMORED CONDUCTORS. FREDERICK M. BENNETT, New York, N. Y., assignor to Joseph W. Marsh, Pittsburg, Pa. Filed Mar. 28, 1890. Serial No. 345,693. (No model.)



Claim.—1. As a means for making joints for electric cables, a hollow box-body having separable ends, the ends having openings, the inner contours of which are adapted to snugly hug the periphery of the cables to be joined, while the outer periphery of the ends fits tightly into the cylindrical body of the box, substantially as described.

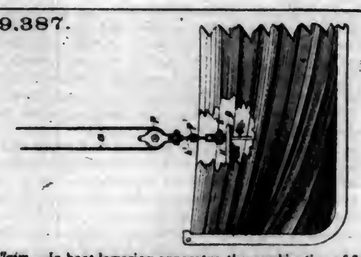
2. As a means for making joints for electrical cables, a hollow cylindrical box-body having ends fitting the contour of the cables and having a drum at one side of the cylinder and an end piece fitting the contour of the cables and adapted to be applied to the drum, substantially as described.

3. As a means for uniting cables at an angle to each other, a cylindrical box having a drum provided with end pieces fitting the coupling of the cables and a joint for the reception of the exposed ends of the conductors of the cables, substantially as described.

4. As a means for making a T-shaped joint for electrical cables, the combination, with the exposed ends of the conductors of the adjacent cables, of a T-shaped coupling-piece, to which the ends are connected, and a cylindrical box having a drum, the box being provided with heads, through which the adjacent ends of the cables pass, substantially as described.

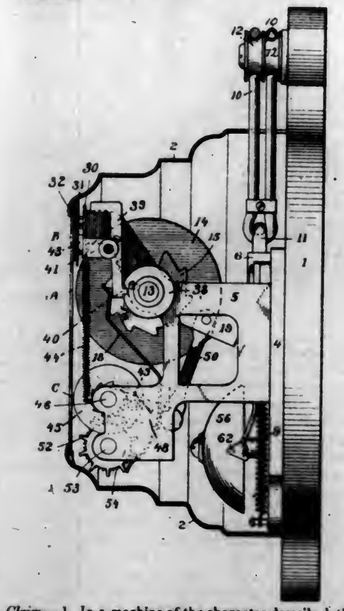
5. The combination, with two or more metal armored conductors, of a hollow cast-metal joint and of a hollow core, both provided with perforations and stopping devices.

479,387. BOAT-LOWERING APPARATUS. HENRY E. BOWRING, East, Molesey, England. Filed Apr. 17, 1891. Serial No. 389,376. (No model.) Patented in England Oct. 14, 1890, No. 16,364.



Claim.—In boat-lowering apparatus, the combination of fall, suspension-bar, point of suspension at the end of the fall adapted to engage with and carry the suspension-bar, a horizontal bar bisected by the suspension-bar and joined to it near its top at right angles, and a pair of rigid rods connecting the respective outer ends of the horizontal bar to the fall above the point of suspension, as set forth.

479,388. FARE-REGISTER. FREDERICK C. BOYD and RICHARD MARTIN, New Haven, Conn. Filed Dec. 14, 1891. Serial No. 414,910. (No model.)



Claim.—1. In a machine of the character described, the shaft 13, bearing the independently-journaled indicating-wheels constituting the trip-register and having means for engaging and restoring said wheels to zero, as described, of the zero-register, an operating-lever for actuating said zero-register, and a locking-lever normally holding the shaft 13 as against rotation, but adapted to be engaged and withdrawn by the upward movement of the actuating-lever of the zero-register, whereby prior to the return of the indicating-wheels the operation of the zero-register is essential, substantially as specified.

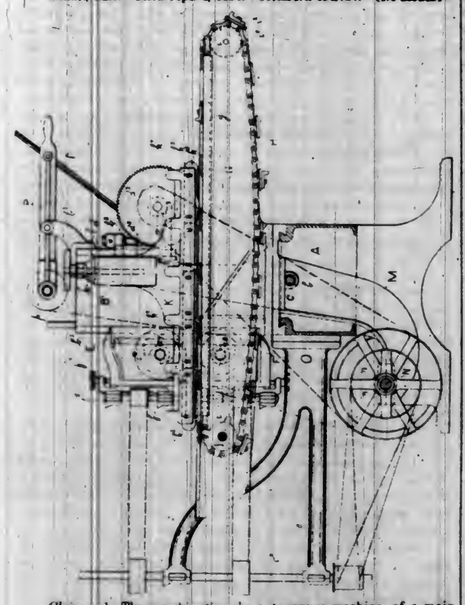
2. In a machine as described, the combination, with the vertically-movable cord-operated slide, of the triple-toothed pawl and means of connection between it and the slide, the trip-register consisting of the wheels 14, independently journaled upon the shaft 13 side by side, means, as described, interposed between said shaft and each of the wheels for turning the latter back to zero by the rotation of the former, a zero-register having a lever for its actuation step by step, and a locking-lever normally holding the shaft 13 as against rotation and lying in the path of the actuating-lever of the zero register, the whole adapted to operate substantially as described.

3. In a machine of the character described, the combination, with a set of indicating-wheels constituting a trip-register for the indication of the separate fares, a shaft whereon said wheels are independently journaled, a snail cam and spring-actuated plunger interposed between said shaft and each of the wheels for engaging and turning back the latter by rotation of the former, a locking-lever normally engaging the shaft of the indicating-wheels and preventing the rotation thereof in either direction, a zero-register contiguous to the indicating-train, and an actuating-lever for said zero-register, said lever adapted to release the locking-lever when the zero-register is operated, substantially as described.

4. In a machine of the character specified, a vertically-movable slide constituting the prime mover and a triple toothed actuating-pawl operated by said slide, in combination with the shaft 13, a series of indicating-wheels independently journaled on said shaft and constituting the trip-register and provided each with a ratchet-wheel in position to be engaged by the triple pawl, the means for connection between said shaft and wheels, consisting of the snail-cams on the shaft and the spring-actuated plungers on the wheels, the zero-registering train adjacent to the indicating-wheels, an operating-lever for the zero-registering train, and a locking-lever normally engaging and holding the notched disk on the shaft 13, but adapted to be engaged and thrown out of its locked position by the operating-lever of the zero-register, substantially as described.

5. The prime mover consisting of the slide and the yoke and the pivoted triple pawl actuated by said prime mover, in combination with the shaft 13, the wheels 14 upon said shaft, the ratchet-wheels borne upon said wheels 14 in the field of operation of the triple pawl, the cams and plungers interposed between the wheels 14 and the shaft, the locking-lever having normal engagement with said shaft 13, the zero-register, and a lever 41 for the operation of said register and adapted, also, at each registering movement to release the shaft 13 by disengaging the locking-lever therefrom, the whole arranged and adapted to operate as described.

479,389. TENONING-MACHINE. GEORGE W. BUSBEE, Delhi, and FREDERICK DANNER, Home City, assignors to the Egan Company, Cincinnati, Ohio. Filed Sept. 4, 1891. Serial No. 404,727. (No model.)



Claim.—1. The combination, in a tenoning-machine, of a main frame, a pair of supplemental frames thereon, a screw-shaft or similar means for adjusting one or both of them longitudinally on the main frame, with a cutter head or heads on each supplemental frame, vertically-adjustable bearings in which they are mounted, a saw on each supplemental frame, an extended support in which the saw is mounted projecting in advance of the supplemental frame, and an adjusting-screw or similar means for raising and lowering the support, substantially as and for the purpose specified.

2. The combination, in a tenoning-machine, of a main frame, a pair of supplemental frames thereon, a screw-shaft or similar means for adjusting one or both of them longitudinally on the main frame, with a cutter head or heads on each supplemental frame, vertically-adjustable bearings in which they are mounted, a saw on each supplemental frame, an extended support in which the saw is mounted projecting in advance of the supplemental frame, an adjusting-screw or similar means for raising and lowering the support, and an endless traveling feed, substantially as and for the purpose specified.

3. The combination, in a tenoning-machine, of a main frame, a pair of supplemental frames thereon, a screw-shaft or similar means for adjusting one or both longitudinally on the main frame, with a tenon cutter or cutters on each supplemental frame, vertically-adjustable bearings in which they are mounted, a cope cutter or cutters in rear of the same and adjustable with and independently thereof, a saw on each supplemental frame, and an extended support in which the saw is mounted projecting in advance of the supplemental frame, substantially as and for the purpose specified.

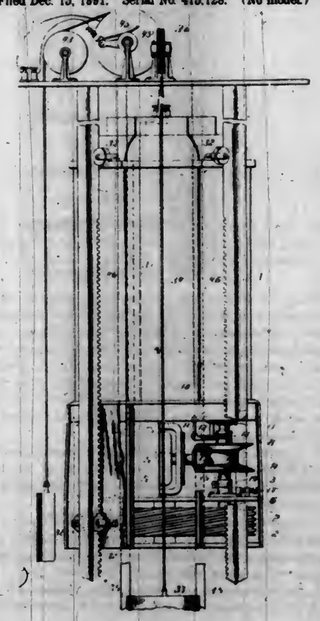
4. The combination, in a tenoning-machine, of a main frame, a pair of supplemental frames thereon, a screw-shaft or similar means for adjusting one or both of them longitudinally on the main frame, with a cutter head or heads on each supplemental frame, vertically-adjustable bearings in which they are mounted, an extended support projecting in advance of the supplemental frame, a plate on the support, a saw-arbor mounted on the plate, and bolts or similar means for adjusting the plate relatively to the support, whereby the saw-arbor is adjusted in a horizontal plane, substantially as and for the purpose specified.

5. The combination, in a tenoning-machine, of a pressure-bar, a groove in the lower end thereof, a series of disconnected pressure-plates inserted in the groove, the forward end of one being in rear of the rear end of the next succeeding plate in front thereof, a series of sockets above the ends of the pressure-plates, and springs taking into the sockets and bearing against the ends of the plates, substantially as and for the purpose specified.

6. The combination, in a tenoning-machine, of a pressure-bar, a groove in the lower end thereof, a series of disconnected pressure-plates inserted in the groove, the forward end of one being in rear of the rear end of the next succeeding plate in front thereof, the pins A^4, taking through each pressure-plate independently near the ends thereof, the slots A^4 in the pressure-bar for receiving the pins, a series of sockets above the ends of the pressure-plates, and springs taking into the sockets and bearing against the ends of the plates, substantially as and for the purpose specified.

7. In a double-ended self-feed tenoning-machine, the combination of the main frame, a supplemental frame at each end thereof, means for adjusting the distance between them, the cutter-heads mounted on each of the supplemental frames, the adjustable saw-supports in front of the cutter-heads, and the driving-shaft underneath for driving both the cutter-heads and the saws independently.

479,390. ELEVATOR. MARVIN Y. CALCUTT, Seattle, Wash., assignor of two-thirds to Henry L. Rochelle and Edward Brady, same place. Filed Dec. 15, 1891. Serial No. 415,128. (No model.)



Claim.—1. In an elevator, the combination of a screw having a vertical axis and operating in vertical screw-racks, a car carried by or supported upon the screws, an electric motor located in a frame depending from the car and geared to the screw, roller-bearings interposed between the screw-frame and the weight supported thereby, and a central adjusting-screw to regulate the pressure on the rollers, substantially as described.

2. In an elevator, a screw having a vertical axis and engaging vertical screw-racks, a car located above the screw, a frame suspended from the car, a motor mounted in the frame and having a horizontal armature-shaft provided with a pinion, a vertical shaft carrying gears engaged by the pinion, the lower end of said shaft being also provided with a pinion to actuate the screw, and an adjusting-screw for moving the shaft laterally, as and for the purpose specified.

3. In combination with an elevator-car, an electric motor secured to the car, electric cables leading from the car to a drum located at the top of the elevator-well, said drum being provided with cable-receiving grooves, and a counterbalance-rope winding in a groove between the cable-grooves to counterbalance the cables, as and for the purpose specified.

REISSUES.

11,254. RAILWAY-CAR. JOHN M. BURTON, Wichita, Kans. Filed May 14, 1892. Serial No. 433,095. Original No. 470,326, dated Mar. 8, 1892.



Claim.—1. In a railway-car, the combination of the end-sill bars, the channeled bars arranged at the inner side of said end-sill bars and provided with post-recesses in the upper flanges thereof, the channeled end-wall posts stepped into said recesses, the intermediate sills arranged with their ends seated within said channel-bars and within the channel of the said wall-posts, said intermediate sills being provided with screw-threaded shanks extending through holes in said end posts and in said end-sill bars, and nuts on said shanks for locking said parts in position, substantially as set forth.

2. A railway-car one of the side sills of which is provided with an outward flange forming a step upon which one of the side walls rests and with an inward flange forming a step which serves as a support for the flooring-planks.

3. In the frame of a railway-car, the combination of a side sill provided with an outward flange, a side post supported on said flange, and a clamping-plate fastened to said side sill and provided with a loop engaging said post and clamping it in position.

4. In the frame of a railway-car, the combination of a side sill provided with an outward flange, a side post supported on said flange, a clamping-plate fastened to said side sill and provided with a loop engaging said post and clamping it in position, and a sheathing extending down between said clamping-plate and sill.

5. In the frame of a railway-car, the combination of a side sill provided with an outward flange, a channeled side post supported on said flange, a clamping-plate fastened to said side sill and provided with a loop engaging said post and clamping it in position, and a sheathing composed of plates having flanges engaging said channeled posts and extending down between said clamping-plate and sill.

6. In a railway-car frame, the combination of a side sill and an end sill, the meeting ends of said sills being provided with interlocking hooks, substantially as described.

7. In a railway-car frame, the combination of an end sill having inwardly-projecting flanges the upper flange being provided with slots, a channeled end post stepped into said end sill through one of said slots, a longitudinal sill extending into the channeled end post between said flanges of the end sill, and means for fastening said post, substantially as described.

8. In a railway-car frame, the combination of an end sill having inwardly-projecting flanges, the upper flange being provided with slots, a channeled end post stepped into said end sill through one of said slots, a longitudinal sill extending into the channeled end post between said flanges of the end sill, said longitudinal sill being provided with a screw-threaded shank extending through said end sill, and a nut on said shank for clamping said posts together.

9. In a railway-car frame, the combination of a channeled corner-post, side sheathing provided with a flange engaging one of the flanges of said post, end sheathing provided with a flange engaging the other flange of said post, a filling-strip interposed between one flange of said post and one of said sheathings, and a filling-strip interposed between the opposite side of the same sheathing and the flange of the other sheathing, substantially as described.

10. In a railway-car frame, the combination of a channeled corner-post, side sheathing provided with a flange engaging one of the flanges of said post, end sheathing provided with a flange engaging the other flange of said post, a filling strip interposed between one flange of said post and one of said sheathings, a filling-strip interposed between the opposite side of the same sheathing and the flange of the other sheathing, and an inner strip entering the channeled post and clamping-post and clamping the flanges of the sheathing-plates therein.

11. A railway-car consisting of the combination, with the lower frame and end walls, of a series of sections of metallic plates provided with side flanges and bent to form a combined side-wall sheathing and roof-covering, a series of combined metallic channeled posts and carlings arranged inclosing the flanges of said plates within their channels, and a series of supplemental flanged and channeled bars arranged within the channels of said combined posts and carlings and clamped therein by means of bolts for holding said plates, substantially as set forth.

12. In a railway-car frame, the combination of a channeled corner-post, side sheathing provided with a flange engaging one of the flanges of said post, end sheathing provided with a flange engaging the other flange of said post, a filling-strip interposed between one flange of said post and one of said sheathings, a filling-strip interposed between the opposite side of the same sheathing and the flange of the other sheathing, and an inner strip entering the channeled post and provided with flanges shutting over the inner faces of the sheathing-plates.

13. A railway car provided with metallic channeled bars, each bar comprising two side-wall posts disposed on opposite sides of the car and a carling continuous with said posts, and metallic plates provided with side flanges and made to conform to the said combined posts and carlings and arranged with their flanges clamped within the channels of the combined posts and carlings, said plates forming a combined side-wall sheathing and roof-covering, substantially as set forth.

14. In a railway-car frame, the combination of an end wall composed of channeled posts, and sheathing-plates having side flanges clamped within said posts, and a channeled carling at the end of the car shutting over said end wall.

15. In a railway-car frame, the combination of a channeled carling at the end of the car-frame and an end wall the upper edge of which extends into the channel of said carling.

16. A railway-car provided with metallic channeled side-wall posts, in combination with metallic sheathing-plates provided with side flanges corresponding with the flanges of the posts and arranged within the channels of said posts, with corresponding flanged metallic channeled clamping-bars arranged within the channels of said posts and engaging said sheathing-plates, and with wooden bars arranged within said channeled clamping-bars, the whole being secured together by means of bolts arranged through said posts and bars, substantially as set forth.

17. A railway-car consisting of the combination, with the lower frame and end walls, of a series of combined metallic channeled side-wall posts and carlings, series of sections of metallic plates provided with side flanges and bent to form a combined side-wall sheathing and roof-covering and arranged with their flanges clamped within the channels of said combined posts and carlings, and the two-part sill-bars of the car, arranged clamping the lower end portion of said posts and plates between them, substantially as set forth.

18. A railway-car provided with the side walls and roof made in combined sections consisting of a series of combined metallic channeled posts and carlings and of a corresponding series of metallic plates bent to conform to the posts and carlings and provided with side flanges held clamped within the channels of said combined posts and carlings and with end walls consisting of similar parts and plates similarly united and clamped and arranged terminating at their upper end within the channel of the end carlings of the car, substantially as set forth.

19. A railway-car provided with end sills, with channel-iron end-wall posts stepped into mortises or recesses of said sills, and with the intermediate car-sills or stringers secured within said sills within the flanges of said posts, substantially as set forth.

20. A railway-car roof consisting of a series of inverted metallic U-shaped or channeled carlings and of a corresponding series of metallic plates provided with side flanges clamped within the hollows or channels of said carlings, substantially as set forth.

DESIGNS.

21,714. SPOON. CHARLES S. CHAMPION, Washington, D. C. Filed June 23, 1892. Serial No. 437,779. Term of patent 3½ years.



Claim.—The design for a spoon, as herein shown and described.

21,715. SPOON. HUGH B. HOUSTON, Philadelphia, Pa., assignor to J. B. Caldwell & Co. Filed June 9, 1892. Serial No. 436,156. Term of patent 14 years.



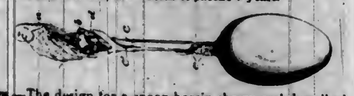
Claim.—The design for a spoon, substantially as shown and described.

21,716. SPOON. FREDERICK F. HOBE, Colorado Springs, Colo. Filed June 10, 1892. Serial No. 436,270. Term of patent 3½ years.



Claim.—The design for a spoon, substantially as herein shown and described.

21,717. SPOON. JAMES M. VAN SLYKE, Madison, Wis. Filed Apr. 2, 1892. Serial No. 427,546. Term of patent 7 years.



Claim.—The design for a spoon herein shown and described.

21,718. WATCH-CHARM. JAMES A. DAWLEY, Denver, Colo. Filed Sept. 19, 1891. Serial No. 406,964. Term of patent 3½ years.



Claim.—The design for a watch-charm or similar article, as herein shown and described.

21,719. WATCH-CASE. JOHN C. DUEBER, Canton, Ohio. Filed June 13, 1892. Serial No. 436,612. Term of patent 14 years.



Claim.—The design for a watch-case, as herein described and shown.

21,720. WATCH-CASE. JOHN C. DUEBER, Canton, Ohio. Filed June 13, 1892. Serial No. 436,613. Term of patent 14 years.



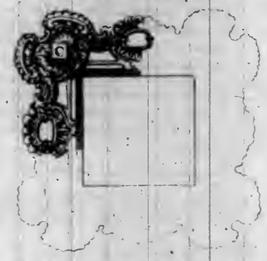
Claim.—The design for a watch-case, as herein described and shown.

21,721. WATCH-CASE. CHARLES L. DEPOLLIER, Brooklyn, N. Y. Filed June 21, 1892. Serial No. 437,521. Term of patent 3½ years.



Claim.—The design for a watch-case, as herein shown and described.

21,722. TABLE-TOP. FRANK YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed June 20, 1892. Serial No. 437,361. Term of patent 3½ years.



Claim.—The design for a table-top, as herein shown and described.

21,723. HOLDER FOR LAMP-FOUNTS. FRANK YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed June 20, 1892. Serial No. 437,362. Term of patent 3½ years.

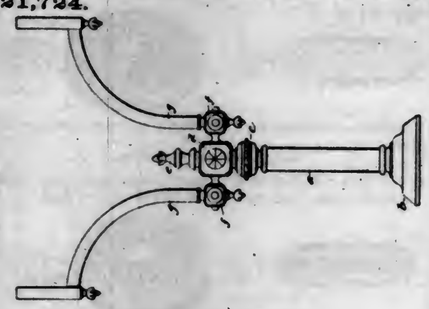


Claim.—The design for a lamp-fount, as herein shown and described.

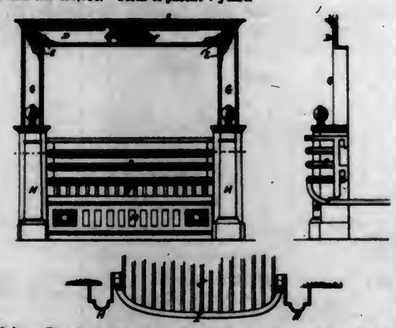
21,724. STANDARD FOR WASH-BASIN SLABS. JAMES TOTHAM, New Haven, Conn., assignor to Peck Bros. & Co., same place. Filed June 13, 1892. Serial No. 436,574. Term of patent 14 years.

Claim.—The design for the standard for wash-basin slabs, as herein described, and shown in the accompanying illustration.

21,724.



21,725. FIREPLACE-FRONT. ROBERT M. HOVEY, New York, N. Y., assignor to Wm. H. Jackson & Co., same place. Filed Apr. 21, 1892. Serial No. 430,156. Term of patent 7 years.



Claim.—The design for a fireplace-front, as shown and described, the same comprising the representation of a molded denticulated projecting cornice over figures in relief of "Colonial sunburst" and acanthus-leaves on the frieze, figures representing vertical columns in relief on the lower half of the pilasters with caps, rectangular bases, and globular finials, and below the figure of a grate the figure of a crown-plate with openings and checkered squares and representations of beaded border-moldings, forming altogether the figure of an ornamental rectangular fireplace-front.

21,726. ANDIRON. EDWARD T. SCHOONMAKER, New York, N. Y. Filed Jan. 27, 1892. Serial No. 419,457. Term of patent 3½ years.



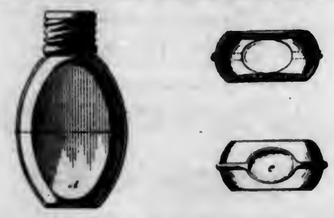
Claim.—The design for andirons herein shown and specified.

21,727. ORNAMENTATION OF GLASS VESSELS. LOUIS A. ROSE, Paris, France, assignor to L. Straus & Sons, New York, N. Y. Filed June 24, 1892. Serial No. 437,914. Term of patent 14 years.



Claim.—The design for the ornamentation of glass vessels, substantially as herein shown and described.

21,728. POCKET-BOTTLE. HORATIO H. FRASER, New York, N. Y. Filed May 26, 1892. Serial No. 434,501. Term of patent 14 years.



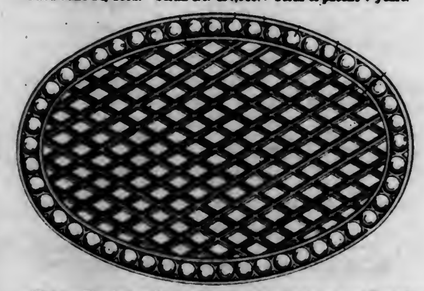
Claim.—The design for a pocket-bottle, substantially as shown.

21,729. CAMPAIGN-BUTTON. RUDOLPH LIEBMANN, New York, N. Y. Filed May 31, 1892. Serial No. 435,073. Term of patent 3½ years.



Claim.—The design for a campaign-button, substantially as herein shown and described.

21,730. RUBBER MAT. HENRY R. SPADONE, New York, N. Y. Filed June 24, 1892. Serial No. 437,913. Term of patent 7 years.



Claim.—The design for a rubber mat herein shown and described.

21,731. CORNICE. AUGUST CARLEWITZ, Newark, N. J. Filed May 6, 1892. Serial No. 432,082. Term of patent 7 years.



Claim.—The design for a cornice herein shown and described, the same comprising the upper and lower plain moldings B and C and the intervening cove A, with raised stem and leaves, substantially as shown and described.

TRADE-MARKS

REGISTERED JULY 19, 1892.

21,455. SOAP FOR LAUNDRY AND HOUSEHOLD USE. THOMAS ARMSTRONG, Baltimore, Md. Filed June 15, 1892.

GOODY-2-SHOES

Essential feature.—The words and figure "GOODY-2-SHOES." Used since 1884.

21,456. SALVE. BOSCHEE'S GALL CURE COMPANY, Old Town, Me. Filed Apr. 19, 1892.

BE SURE AND WORK THE HORSE

Essential feature.—The words "BE SURE AND WORK THE HORSE." Used since April 4, 1892.

21,457. CORSETS. JOSEPH BROKEL & Co., New York, N. Y. Filed June 10, 1892.

AZRA

Essential feature.—The word "AZRA." Used since April, 1892.

21,458. BICYCLES. BUFFALO WHEEL COMPANY, Buffalo, N. Y. Filed June 15, 1892.

NIAGARA.

Essential feature.—The word "NIAGARA." Used since July, 1891.

21,459. FLUID REMEDY FOR CONSUMPTION AND ALL DISEASES OF THE LUNGS. MRS. STEVEN D. CHAPMAN, Orville, Tex. Filed Apr. 9, 1892.

Consumption Conquered



Essential feature.—The words "CONSUMPTION CONQUERED" with a picture of the registrant, Mrs. Steven D. Chapman. Used since January, 1892.

21,460. COMPOUND OF FRUIT AND CASCARA-BARK FOR THE CURE OF DYSPEPSIA AND OTHER DISEASES. HENRY T. BOOTH, Brooklyn, N. Y. Filed May 17, 1892.

FRUITANZA

Essential feature.—The word "FRUITANZA." Used since April 4, 1892.

21,461. WATCHES. ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Filed June 10, 1892.

ELGIN ILL'S

Essential feature.—The word "ELGIN" and the abbreviation "ILL'S." Used since April, 1867.

21,462. WATCHES. ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Filed June 10, 1892.

ELGIN

Essential feature.—The word "ELGIN." Used since April 11, 1868.

21,463. WATCHES. ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Filed June 10, 1892.

LADY ELGIN

Essential feature.—The words "LADY ELGIN." Used since December 11, 1870.

21,464. WATCHES. ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Filed June 10, 1892.

ELGIN NATIONAL WATCH CO.

Essential feature.—The words "ELGIN NATIONAL WATCH CO." Used since February, 1874.

21,465. WATCHES. ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Filed June 10, 1892.

ELGIN WATCH CO.

Essential feature.—The words and abbreviation "ELGIN WATCH CO." Used since October, 1873.

21,466. SHERRY-WINE. ERNST FELDMANN, New York, N. Y. Filed May 25, 1892.

GALWEY-MONGRAND

Essential feature.—The word "GALWEY-MONGRAND." Used since January 28, 1889.

21,467. WHISKY. CLARENCE M. ROOF, New York, N. Y. Filed June 17, 1892.

NEW YORK CLUB

Essential feature.—The words "NEW YORK CLUB." Used since July 1, 1889.

21,468. MONTHLY SERIAL OR FAMILY PAPER. ELIZABETH J. SMITH, Providence, R. I. Filed June 21, 1892.

HOME GUARD

Essential feature.—The words "HOME GUARD." Used since December 1, 1886.

21,469. JEWELRY. UNITED SOCIETY OF CHRISTIAN ENDEAVOR Boston, Mass. Filed May 20, 1892.



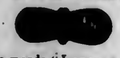
Essential feature.—The capital letter "E" surrounded by the capital letter "C." Used since May 15, 1888.

21,470. WASHING-POWDER. THOMAS ARMSTRONG, Baltimore, Md. Filed June 15, 1892.

HORSE-SHOE

Essential feature.—The words or symbol "HORSE SHOE." Used since April 1, 1892.

21,471. SCOURING AND CLEANING POWDER. THOMAS ARMSTRONG, Baltimore, Md. Filed June 15, 1892.



Essential feature.—The words "LITTLE GIANT." Used since April 1, 1892.

21,472. RAZORS. BROCH & THIERRS CUTLERY CO., St. Louis, Mo. Filed Mar. 21, 1892.

CLIMAX

Essential feature.—The word "CLIMAX." Used since December 21, 1882.

21,473. PERFUMERY. BEAN & VAIL BROTHERS, Philadelphia, Pa. Filed June 18, 1892.

OUR PET

Essential feature.—The words "OUR PET." Used since May 1, 1888.

21,474. PERFUMERY. BEAN & VAIL BROTHERS, Philadelphia, Pa. Filed June 18, 1892.



Essential feature.—A representation of the United States Government building of the World's Columbian Exposition at Chicago, Ill. Used since May 5, 1892.

21,475. MINERAL WATER. CARSE & OHLWEILER, Rock Island, Ill. Filed May 26, 1892.

BLACK HAWK

Essential feature.—The words "BLACK HAWK" and a portrait of the head and bust of an Indian. Used since April 1, 1882.

21,476. CIGARS. CHARLES J. COOPER, Newark, N. J. Filed June 13, 1892.

VENDOME CLUB CIGARS

Essential feature.—The words "VENDOME CLUB CIGARS." Used since May 1, 1892.

21,477. DENTIFRICE. FLORENCE MANUFACTURING COMPANY, Northampton, Mass., New York, N. Y., and Chicago, Ill. Filed June 20, 1892.

OPERLE CREAM.

Essential feature.—The words "OPERLE CREAM." Used since June 1, 1892.

21,478. RAZORS AND POCKET AND CARVING KNIVES. HERMANN BOKER & Co., New York, N. Y. Filed June 4, 1892.



Essential feature.—The perspective representation of the building of the World's Columbian Exposition at Chicago, Ill. Used since May 14, 1892.

21,479. CIGARS. PETER LE FRANCIS, Cambridge, Mass. Filed May 9, 1892.

Northern Light.

Essential feature.—The words "NORTHERN LIGHT." Used since May 1, 1888.

21,480. PENCILS, COMPRISING LEAD-PENCILS AND PENCIL AND PEN HOLDERS. AMERICAN LEAD PENCIL COMPANY, New York N. Y. Filed May 17, 1892.

GLASS-FINISH

Essential feature.—The word "GLASS-FINISH." Used since September 15, 1891.

21,481. SEWING-MACHINES. CHARLES G. AKAN, Chicago, Ill. Filed June 6, 1892.

HOMESTEAD

Essential feature.—The word "HOMESTEAD." Used since 1882.

21,482. CORSETS FOR LADIES' USE. BAY STATE CORSET COMPANY, Springfield, Mass. Filed June 18, 1892.

R V

Essential feature.—The letters "R V." Used since March 22, 1890.

21,483. ROASTED AND SELF-SETTLING COFFEE. GRIGGS, COOPER & Co., St. Paul, Minn. Filed Apr. 2, 1892.



Essential feature.—The representation of a keystone bearing a shield surmounted by a crown. Used since April 22, 1891.

21,484. ROASTED COFFEE. MIDLAND COFFEE AND SPICE COMPANY, St. Joseph, Mo. Filed Mar. 31, 1892.

MIDLAND

Essential feature.—The word "MIDLAND." Used since September, 1890.

21,485. CURE FOR DRUNKENNESS. ALONZO HOTSMAN, Toledo, Ohio. Filed May 17, 1892.

Essential feature.—A portrait of the registrant and the word "ALCOMANIA." Used since March 1, 1892.

21,487.



ALCOMANIA

21,486. LUBRICATING-OIL. HENRY W. PEABODY & Co., Boston, Mass. Filed June 13, 1892.

GREYHOUND

Essential feature.—The word "GREYHOUND." Used since May, 1891.

21,487. SMOKED HAMS, SHOULDERS, AND BACON. SWIFT AND COMPANY, Chicago, Ill. Filed May 19, 1892.

SWIFT'S PREMIUM

Essential feature.—The words "SWIFT'S PREMIUM," the word "Premium" extending in a straight line and the word "Swift's" being arranged in the form of an arch above it. Used since May 11, 1892.

21,488. REMEDY FOR THROAT DISEASES. MARIA SCOTT, San Diego, Cal. Filed May 12, 1892.

Scott's Singing Balm

Essential feature.—The words "SCOTT'S SINGING BALM." Used since November 4, 1889.

21,489. LINIMENTS, EMBROCATIONS, AND LIKE EXTERNAL REMEDIES. WILBUR F. YOUNG, Meriden, Conn. Filed June 4, 1892.

ABSORBINE

Essential feature.—The word "ABSORBINE." Used since June 15, 1891.

21,490. CULINARY VESSELS. HERMAN AICH, New York, N. Y. Filed June 14, 1892.

ONYX

Essential feature.—The word "ONYX." Used since May 1, 1892.

21,491. ACCOUNT-BOOKS. ROBERT R. BARTON, Catlettsburg, Ky. Filed June 11, 1892.



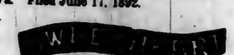
Essential feature.—A fac-simile of registrant's signature in connection with the representation of the pages of an account-book. Used May 1, 1891.

21,492. VETERINARY REMEDIES, INCLUDING CONDITION-POWDERS FOR HORSES AND CATTLE. R. A. CRANSHILL & Co., Lynchburg, Va. Filed June 24, 1892.

BLACK BEAUTY

Essential feature.—The words "BLACK BEAUTY." Used since January 28, 1892.

21,493. TOILET AND LAUNDRY SOAP. H. C. DAVIS, Jr., & Co., Norfolk, Va. Filed June 17, 1892.



Essential feature.—The word "SWEETHEART." Used since May 1, 1892.

21,494. CEMENT. RICHARD M. SPENCER, Duluth, Minn. Filed June 14, 1892.

SQUARE ■ BRAND.

Essential feature.—A square figure and the words "SQUARE BRAND." Used since June 6, 1892.

21,495. CANNED SALMON. TAYLOR, YOUNG & Co., Portland, Oreg. Filed May 3, 1892.

INDIAN CHIEF

Essential feature.—The words "INDIAN CHIEF" formed of block capitals. Used since October 1, 1889.

21,496. CHAINS, RINGS, CLIPS, HOOKS, AND OTHER CARRIAGE-HARDWARE. BAKER CHAIN AND WAGON IRON MANUFACTURING COMPANY, Allegheny, Pa. Filed June 3, 1892.



Essential feature.—The representation of a wagon-clip bearing the name "BAKER." Used since January 3, 1887.

21,497. WEARING-APPAREL, OUTER AND UNDER WEAR, BEDDING, AND THE MATERIALS OF WHICH THEY ARE MADE. DR. JAEGER'S SANITARY WOOLEN SYSTEM COMPANY, New York, N. Y. Filed Mar. 2, 1892.

DR JAEGER'S SANATORY WOOLEN GOODS.

Essential feature.—The words "DR. JAEGER'S SANITORY WOOLEN GOODS." Used since April 19, 1887.

21,498. WEARING-APPAREL, OUTER AND UNDER WEAR, BEDDING, AND THE MATERIALS OF WHICH THEY ARE MADE. DR. JAEGER'S SANITARY WOOLEN SYSTEM COMPANY, New York, N. Y. Filed Mar. 2, 1892.

JAEGER GOODS

Essential feature.—The words "JAEGER GOODS." Used since April 19, 1887.

21,499. WEARING-APPAREL, OUTER AND UNDER WEAR, BEDDING, AND THE MATERIALS OF WHICH THEY ARE MADE. DR. JAEGER'S SANITARY WOOLEN SYSTEM COMPANY, New York, N. Y. Filed Mar. 2, 1892.

JAEGER

Essential feature.—The word "JAEGER." Used since April 19, 1887.

21,500. UNDERWEAR AND THE KNIT AND WOVEN FABRICS OF WHICH IT IS COMPOSED. DR. JAEGER'S SANITARY WOOLEN SYSTEM COMPANY, New York, N. Y. Filed Mar. 2, 1892.

JAEGER UNDERWEAR

Essential feature.—The words "JAEGER UNDERWEAR." Used since April 19, 1887.

21,501. NORWEGIAN BRANDY. JOSEPH R. LYSHOLM, Trondhjem, Norway. Filed June 6, 1892.



Essential feature.—The representation of a Norwegian peasant boy seated astride a keg and holding a keg under each arm. Used since September 14, 1885.

21,502. NORWEGIAN BRANDY. JOSEPH R. LYSHOLM, Trondhjem, Norway. Filed June 6, 1892.



Essential feature.—The word "AQUAVIT" in combination with a circular figure or disk. Used since September 14, 1885.

21,508. MEN'S OVERALLS, PANTALOONS, SUSPENDERS, SHIRTS, SCARFS, COLLARS, AND CUFFS. PLANT & ISAAC, Cincinnati, Ohio. Filed May 6, 1892.

HOPE

Essential feature.—The word "HOPE." Used since January, 1868.

21,504. WHISKY. THOMAS PEASE, SON & Co., Darlington, England, and Leith, Scotland. Filed June 25, 1892.

BOS

Essential feature.—The word "BOS." Used since December 19, 1891.

21,505. FLAVORING-EXTRACTS. A. J. HILBERT & Co., Milwaukee Wis. Filed June 27, 1892.



Essential feature.—The word "FISHERS." Used since October, 1878.

21,506. MEAD. JOHN MCCLOSKEY, New Orleans, La. Filed June 13, 1892.

ESTABLISHED 1891.
Mc CLOSKEY'S
ORIGINAL
NEW ORLEANS MEAD.

Essential feature.—A crescent bearing the word "ESTABLISHED" and the figures "1851" in conjunction with the words "MCCLOSKEY'S ORIGINAL NEW ORLEANS MEAD." Used since June, 1851.

21,507. TIN AND TERNE PLATES, INCLUDING ROOFING-PLATES AND BRIGHT PLATES. C. S. MESSER & Co., New Haven, Conn. Filed June 27, 1892.

ELM

Essential feature.—The word "ELM." Used since June 1, 1892.

21,508. COMPRESSED PEA-SOUP. THE C. W. KOTT COMPANY, New York, N. Y., and Boston, Mass. Filed May 11, 1892.



Essential feature.—The representation of a quart-measure. Used since February 1, 1891.

21,509. COMPRESSED PEA-SOUP. THE C. W. KOTT COMPANY, New York, N. Y., and Boston, Mass. Filed May 11, 1892.



Essential feature.—The representation of a human arm and hand. Used since February 1, 1891.

21,510. FLY-PAPER. THE FLY BUTTON CO., Maumee, Ohio. Filed June 27, 1892.



Essential feature.—The representation of a button with a fly thereon. Used since May 2, 1892.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

ECKERSON *v.* COX.

Decided June 9, 1892.

PRACTICE—INTERFERENCE—REDUCTION TO PRACTICE.

As between interference contestants, he who was last to conceive of an improvement is not entitled to take a patent therefor over him who was first to conceive, unless by reason of the latter's delay his opponent becomes the first to reduce to practice.

APPEAL from the Examiners-in-Chief.

PRINTING-PRESS.

Application of D. I. Eckerson filed July 28, 1890, No. 360,132. Application of J. L. Cox filed July 22, 1890, No. 359,563.

Messrs. M. T. E. Chandler & Co. for Eckerson; *Mr. W. G. Henderson*, associate.

Mr. T. H. Alexander for Cox.

SIMONDS, *Commissioner:*

This is an appeal from a decision of the Examiners-in-Chief awarding priority of invention to Cox.

Eckerson's history, as stated by himself, is as follows: He conceived the invention in controversy in March, 1888; made certain drawings in November, 1888, and certain other drawings in the latter part of 1889; began working drawings March 25, 1890, which he finished April 23, 1890. He began the construction of a working-machine about the 1st of June, 1890; applied for a patent July 28, 1890, and he had a working-machine finished in December, 1890.

Cox made a working model embodying the larger part of the improvement in controversy in 1878. In 1886 he possessed an idea and knowledge of the improvement in controversy in its entirety, and in that year made certain drawings of parts thereof. He made certain other drawings in January, 1890. In April or May, 1890, he made a very large and complete drawing of the whole thing. He began the construction of a full-size machine in May or June, 1890, and had it finished in August or September, 1890.

Cox was the first to make actual reduction to practice, and he was the first to make a constructive reduction to practice by filing an application for a patent. He also had a conception of the invention in controversy before Eckerson had such conception.

Eckerson contends that Cox was not duly diligent in reducing to practice, largely because of the delay between 1[illegible] 1886. As this delay occurred before Eckerson appeared in the field, and Cox was nevertheless the first to reduce to practice, it is not seen how it can inure to the benefit of Eckerson. The cases decided by the courts do not seem to hold that he who was the last to conceive of an improvement is entitled to take a patent therefor over him who was first to conceive, unless, by reason of the delay on the part of him first to conceive, his opponent becomes the first to reduce to practice, which is not the present case.

The decision of the Examiners-in-Chief is affirmed.

MORFORD *v.* CARPENTER.

Decided June 23, 1892.

1. PRACTICE—EARLY SKETCHES AS EVIDENCE TO ESTABLISH DATE OF CONCEPTION—THEIR WEIGHT AS SUCH.

The fact that an applicant's rough sketch, introduced to corroborate him upon his alleged date of conception, shows a variation from the true proportions of the actual perfected invention will not necessarily impair its weight as evidence even though these proportions are an important feature of the patent.

2. DELAY IN REDUCTION TO PRACTICE—HOW ACCOUNTED FOR.

A delay of five months between conception and reduction to practice is satisfactorily explained by proof of applicant's limited means during that period.

APPEAL from Examiners-in-Chief.

ELECTRO-HEATING APPARATUS.

Application of Thomas E. Morford filed December 19, 1890, No. 375,175. Patent granted Charles E. Carpenter February 24, 1891, No. 447,023; application filed September 27, 1890.

Mr. P. H. Gunckel for Morford.

Messrs. Elliott & Omohundro for Carpenter.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Morford with reference to the following interference issue:

In an electro-heating apparatus, the combination, with the heated surface-plate and the resistance, of a coating of enamel or its equivalent securing the resistance to but insulating it from said plate.

Carpenter's application for patent was filed September 27, 1890. Morford's application was filed December 19, 1890. A patent inadvertently issued upon Carpenter's application February 24, 1891, No. 447,023; but in this interference the status of both contestants is that of applicants. If Carpenter was an original inventor, the date of the making of the invention by him, so far as it can be determined from the evidence, was September 9, 1890. He states that he conceived the invention about December 1, 1889, (Q. 700;) but the idea which he then had was simply the idea of a desirable result without a knowledge of a means how to attain that result. On the 9th day of September, 1890, he had made a surface-plate such as is defined in the interference issue, and under all the circumstances

that must be taken to be the date both of his effective conception and of his reduction to practice.

Morford testifies that in the month of July, 1890, he communicated the improvement in controversy to Arthur E. Morford, Thomas T. Morford, and Parker H. Litchfield, and that during the same month he make a sketch exhibiting the improvement and showed and explained the same to the two other Morfords; also, that during the month he had a plate enameled (but not containing the entire invention) and exhibited the same to Carpenter. Arthur E. Morford and Thomas T. Morford corroborate Thomas E. Morford's testimony as to disclosure to them and as to the sketch. Litchfield corroborates Morford as to the disclosure to him. Carpenter admits that Morford had the surface-plate enameled in July, 1890, and that in that month he showed the same to him.

Morford made no actual reduction to practice previous to his application for patent December 19, 1890; but that application is necessarily a constructive reduction to practice. Morford's delay between the conception in July, 1890, and the constructive reduction to practice in the following December is about five months. He accounts for this delay by saying that he was not possessed of the necessary means to make application for patent, and also that for a large part of the time his occupation forced him to go from place to place in such a way as practically to prevent him from giving attention to the matter. As Morford was a young married man at this time, having a salary of only ten dollars a week from July to October and only fifteen dollars a week after that, and was compelled to borrow money from his father to eke out the payment of his expenses, his plea of lack of funds must be taken to be satisfactory.

Carpenter criticises different features of Morford's case. He says that the sketch which Morford made in July, 1890, does not necessarily or probably disclose the improvement in controversy because that sketch has walls at the edges of the enamel, and because when the sketch is developed by enlargement to a full-sized device the enamel proves to be about half an inch thick, while in practice it is less than a sixteenth of an inch thick. These are criticisms based upon fruition, but applied to a first conception. Moreover, it is thought that the sketch is just such a one as would naturally be made for the purpose in hand, for there are not many persons who would hastily attempt to make a sketch showing with accurate dimensions the embedding of a resistance-coil in a coating of enamel something less than one-sixteenth of an inch thick. Carpenter contends that the walls at the edges of the enamel in this sketch indicate an intention to use something else besides enamel—pulverized clay, for instance—an idea that is negatived by the fact that Morford's device, as disclosed in July, 1890, was intended to be water-proof.

Carpenter contends, further, that there is a discrepancy between Morford's allegation in his preliminary statement that he conceived of the improvement in controversy in June, 1890, and the fact, as developed in his evidence, that the conception was not made until July, 1890, overlooking the fact in making this criticism that there is a larger discrepancy of much the same kind in his own case. Again, about July 15, 1890, Morford had a plate coated with enamel without embedding a resistance-coil, while his sketch and his disclosure to the other Morfords made a few days previously embodied the full idea, and Carpenter claims that this is a feature of inconsistency. Morford explains by saying that he had no resistance-coil which he felt that he could use for that purpose, and this particular criticism by Carpenter overlooks the fact that Carpenter, after seeing this plate which Morford had had enameled, himself had five or six other plates enameled without embedding a resistance-coil. Still further, Carpenter makes the criticism that Morford did not disclose the improvement to Carpenter or the company with which both were connected under circumstances naturally calling for it. This criticism overlooks the fact that neither did Carpenter make a similar disclosure to Morford at a time when their relations were friendly and disclosure would seem to have been natural.

In Carpenter's testimony there occurs the following:

> Question 713. Was that all you did about this enamel matter? If not, please state fully what you did from that date on.
>
> Answer. On September 8th I left for Chicago and took with me the sad-iron plate which Mr. Morford had brought from Chicago, together with a resistance-card, and on the following day, September 9th, about ten o'clock a. m., called upon Mr. Omohundro, of the firm of Elliott & Omohundro, at Chicago, and explained my invention to him and instructed him to apply for a patent upon the same, and said that I would show him an apparatus constructed in this way some time in the afternoon. I then took a cab and drove to Cribben, Sexton & Company's factory, and in Mr. Cribben's presence detached the wires from the card of asbestus and took this plate with wires to the enameling-room. The foreman gave this enameled-surface plate another coating of enamel and I placed the wires myself upon and into this coating of enamel while it was wet. He then said that if I would return about two o'clock it would be dry and fused, or "burned," as he called it. I remember then of going back to the hotel and returned, I think, about two o'clock, when the iron was given another coat of enamel, which completely covered the wire. The drying and burning required about an hour, and as soon as the same was cold enough to handle I wrapped it up in a piece of paper and took it to Mr. Omohundro at his office, instructing him, to make drawings from it and forward the same to me by express to New York city, and also to send specifications for the patent upon it as soon as prepared also to my address in New York. I left Chicago upon that day, I believe, at five p. m. for New York.

This rather extraordinary celerity on Carpenter's part in instructing his solicitor to prepare an application for patent on the same day he made reduction to practice, but before accomplishing that reduction, is a somewhat curious thing in view of Carpenter's statement that the whole thing had flashed upon him when Morford showed him the enameled plate in the previous July, and it is unexplained in the evidence. It leads to the suspicion that some material fact had occurred not developed in the testimony.

It must either be found that Morford fully conceived the invention in controversy in July, 1890—which was previous to Carpenter's conception in September, 1890—or the testimony of the three Morfords and that of Litchfield must be rejected because of the things claimed by Carpenter to be inconsistencies on the part of Morford. The criticisms made by Carpenter are not sufficient for that purpose.

The decision of the Examiners-in-Chief is affirmed.

EX PARTE HAGGENMACHER.

Decided June 27, 1892.

TRADE-MARK—FOREIGN APPLICANT—RULE WHERE "LOCATION" AND "CITIZENSHIP" ARE AT VARIANCE.

Where an applicant for a Trade-Mark appears on the record as "located" in a foreign country other than that of which he is a citizen, his application will be governed by the existing treaty, convention, or law of the country of location rather than that of citizenship.

ON petition.

TRADE-MARK FOR MACHINES.

Application of Carl Haggenmacher filed March 12, 1892.

Mr. H. W. T. Jenner for the applicant.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks declining to register a Trade-Mark.

The question involved is a somewhat unusual one. A citizen of Switzerland, located and having a place of business at Buda-Pesth in Austria, is an applicant here for the registration of a Trade-Mark which is of a character specially excepted from protection under the laws of Austria. The applicant urges apparently that citizenship, regardless of location, is the true criterion in determining questions of this character. The Examiner, however, takes the ground that the place of business as set forth in applicant's specification is the reasonable and proper test, and he denies the application, as asking for something which this country, by virtue of its existing treaty with Austria, is bound to deny to a citizen of that country. The mark sought to be registered is an arbitrary word-symbol, and the Austro-Hungarian law explicitly forbids the registration of such marks. If, then, the question is to be determined by Austrian law, it follows that the registration must be refused, since this Government guarantees to furnish applicants such protection and such protection only as their respective governments accord them. It is significant that the law guarantees protection to Trade-Marks when the owners thereof are—

> domiciled in the United States or *located* in any foreign country or tribe which, by treaty, convention, or law, affords similar privileges to citizens of the United States.

There seems no ambiguity here and little chance for a misconception of the meaning of the law. It is an old principle of statutory construction that words are to be given their natural and every-day meaning rather than a forced and unreasonable construction. The word "located" was probably used advisedly by the framers of this statute. We are not at liberty to assume that by the use of a broad term, whose meaning is well defined and whose use is common, the framers of the statute meant to convey a meaning other than that usually attached to it; but if there were otherwise any doubt as to the meaning of the word in this connection, there is no room for it in this case, since in the next paragraph of the act under consideration occurs the phrase "location and citizenship," which shows that the words are used contrastingly and with their own respective and ordinary meanings.

Since this is a true test, and since the applicant by his own voluntary statement appears on the records of this Office as having his primary place of business in Austria, it is the duty of the Office to be guided by Austrian law. Applicant has applied for the registration of a mark in which the Austrian law explicitly declares he has no property right. His mark cannot be protected as against the public in that country—in other words, it is public property. This being so, the application for registration here must be denied.

EX PARTE KUPPENHEIMER BROTHERS.

Decided July 7, 1892.

TRADE-MARK—WHAT IS NOT REGISTRABLE AS.

A fac-simile of the certificate issued by a State Board of Pharmacy to registered pharmacists is not registrable as a Trade-Mark.

ON petition.

TRADE-MARK FOR CIGARS.

Application of Kuppenheimer Brothers filed September 23, 1891.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Examiner of Trade-Marks, denying the registry, as a Trade-Mark for cigars, of a fac-simile of the certificate issued by the Board of Pharmacy of Michigan to registered pharmacists.

It is conceivable that upon the suggestion of the Board of Pharmacy of Michigan a court would enjoin any one from attempting to use their certificate as a Trade-Mark for cigars, and it is conceivable that such board might have serious objections to any such use of their certificate.

It is further conceivable that registered pharmacists in Michigan may wish to give public notice of the fact that they hold these certificates by affixing labels or the like to packages of goods, cigars, or anything else sold by them (not, however, in any way contending that such certificate is a Trade-Mark,) and that the registry by this office of that certificate as a Trade-Mark would interfere with the doing of such a thing by the registered pharmacists of Michigan.

It is still further conceivable that this certificate, affixed as a Trade-Mark to a box of cigars, may convey in some way the impression to the purchaser that the particular cigars bearing such Trade-Mark are guaranteed or approved by the Board of Pharmacy of Michigan.

It is thought that the Patent Office should not lend its aid in any of these directions.

The petition is denied.

RAFFARD *v.* DE FERRANTI.

Decided June 18, 1892.

INTERFERENCE—TESTIMONY IN FOREIGN COUNTRIES—HOW TAKEN.

Testimony cannot properly be taken in foreign countries otherwise than as prescribed by Rule 158, (3) unless this procedure be waived *by stipulation of the parties.* [Rule 158 (5).]

APPEAL on motion.

ELECTRIC LOCOMOTIVE.

Application of Nicolas Jules Raffard filed July 25, 1891, No. 400,397. Patent granted Sebastian Z. de Ferranti April 30, 1889, No. 402,311.

Messrs. Bentley & Knight for Raffard.

Messrs. Baldwin, Davidson & Wight for de Ferranti.

FROTHINGHAM, *Assistant Commissioner:*

The junior party to this interference, Raffard, filed a motion before the Examiner of Interferences to take testimony abroad. This motion was in harmony with the requirements of Rule 158. The senior party, de Ferranti, however, at a later date and before a hearing was had, formally asked by motion that Raffard's request for a commission to take testimony abroad be modified and that the Examiner of Interferences order that the testimony be taken orally rather than by written interrogatories and cross-interrogatories, as the rule provides. The Examiner granted Raffard's motion to take testimony under the rule and denied de Ferranti's motion for a modified order, whereupon de Ferranti has appealed to the Commissioner.

Rule 158, under which a suitor before this Office may secure and introduce evidence taken in foreign countries, is precise in its terms and points out a definite and specific mode of procedure. It directs that after a petitioner has presented his motion and secured permission to take such testimony interrogatories must be filed within a limited time, and cross-interrogatories, also, if the opposing party shall elect to question the witness. This is the natural and prescribed way of proceeding under the rule; but it is definitely provided that this procedure may be waived to the extent of permitting an oral examination *by stipulation of the parties*. There can be no doubt as to the meaning of this, and there is no question that a party seeking the protection of the rule is entitled to all the privileges which it guarantees in terms. Plainly, nothing short of the mutual assent of all the interested parties can avoid its strict letter.

But the appellant lays much stress upon the alleged fact that an exclusive construction of the rule is at variance with the practice by the Federal courts, and he urges that it is a matter of discretion with the Commissioner whether or not the rule shall be relaxed in particular cases, quoting in support of his proposition Rule 153, which provides that—

> In contested cases the practice on points to which the rules shall not be applicable will conform * * * to that of the United States courts.

It may be said in answer to this contention that while it is the policy of the Patent Office to follow the rules of the Federal courts as far as those rules may be adapted to meet the peculiar conditions of practice here it was never intended that the Office should not pass such rules for the proper conduct of its business and for the protection of parties before it as best meet its requirements. The rule under which this question arises was undoubtedly framed with reference to this principle, and it is not difficult to foresee the endless vexation and expense that might result to parties before the Office if this plain intent were overridden by such a ruling as that asked for by de Ferrranti in the present case. It is therefore held that Rule 153 is not of any force in determining the question under consideration, since the precise point at issue is plainly met and covered by Rule 158. But it may be said in conclusion that, even granting this to be a question for the exercise of a reasonable discretion on the part of the Office, the appellant has fallen far short of making such a showing as would, in my opinion, warrant the granting of the motion.

The decision of the Examiner of Interferences is therefore affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

REMINGTON STANDARD TYPE-WRITER MANUFACTURING COMPANY *et al. v.* BAILEY.

Decided June 11, 1892

PATENT—INFRINGEMENT—PRELIMINARY INJUNCTION AGAINST A SELLING AGENT.

A complainant may have a preliminary injunction against an infringing defendant who is a mere selling agent where, the patent having nearly expired, the court might refuse it against a manufacturer giving proper security.

Mr. H. D. Donnelly for the complainants.

Messrs. Campbell, Hotchkiss & Reiley and *Messrs. Maynadier & Beach* for the defendant.

LACOMBE, *J.:*

This is an application for preliminary injunction against infringement of Patent No. 170,239, (to Lucien S. Crandall, November 23, 1875,) for improvement in type-writing machines.

The third claim of the patent is as follows:

> 3. The combination of the vibrating platen with the swinging compound type-bars, provided with types corresponding to each vibration on printing-point of the platen, substantially as specified.

The record shows that Crandall was the first to use swinging type-bars provided each with more than one type and a vibrating platen by whose vibrations the centers or printing-points on which the types strike might be increased. The combination of these two novel features in the art of type-writing seems clearly covered by the claim above quoted, unless, as defendant contends, the use of the word "compound" confines the claim to bars, which not only bear a plurality of types, but also, by means of the oscillating finger-levers (elsewhere described in the patent) are themselves oscillated, thus having a duplex motion. I am of opinion, however, that the word "compound" is used to indicate that the bars bear more than the single type, which was characteristic of all type-bars before Crandall made his invention. As thus construed the third claim is concededly infringed by defendant's machine.

The first claim seems to cover a combination of which oscillating finger-levers, and therefore oscillating type-bars, are elements, and these are not found in defendant's machine. The validity of the second claim for the vibrating platen and mechanism to vibrate it is not sufficiently free from doubt to warrant a preliminary injunction.

Were the manufacturers defendants in this suit, it might be, in view of the short time the patent has to run, that preliminary injunction should be refused upon giving proper security; but as defendant is only a selling agent complainant may take his order against infringement of the third claim.

U. S. Circuit Court—Southern District of New York.

CUERVO *v.* JACOB HENKELL COMPANY *et al.*

Decided March 14, 1892.

TRADE-MARK—INFRINGEMENT—INJUNCTION—LABELS ON CIGARS.

A manufacturer of cigars whose goods are protected by Trade Mark is entitled to an injunction against a manufacturer of cigar-boxes who, although he does not make cigars, furnishes the trade with boxes supplied with labels confessedly counterfeits of the complainant's registered mark.

BILL by G. Garcia Cuervo against the Jacob Henkell Company and others for infringement of Trade-Mark. Heard on motion for a preliminary injunction. Granted.

Messrs. Jones & Govin for the complainant.

Messrs. Wise & Lichtenstein for the defendants.

LACOMBE, *J.:*

There is no dispute as to the facts of this case. The complainant, a manufacturer of cigars, is concededly the owner of a Trade-Mark which, as an entirety, is embodied in four separate labels placed inside and

outside the boxes containing his cigars. The goods thus marked and put up have obtained a wide celebrity and for the last twenty-five years have had an extensive sale in this and other States of the Union. The defendants do not make or deal in cigars. They manufacture cigar-boxes, which they sell to cigar-makers. They also procure from lithographers labels which are almost an exact reproduction of those used by the complainant, even the signature being copied therein. That boxes thus labeled are so close an imitation of the packages in which complainant sells his goods that an ordinarily careful purchaser would be deceived thereby is not controverted. Not only do the defendants affix to their boxes the three labels which are placed thereon before packing, but with each box they also sell to their customers a fourth label, which can only be placed on the box, as complainant places it, after the box is filled and closed. Were there any conflict as to the intent of the defendants it would be difficult to escape the conviction that they prepare these boxes for the express purpose of enabling their customers to foist upon the public goods not of complainant's manufacture, representing them to be genuine. But there is no conflict. Defendants concede that they know for what purpose their labeled boxes are to be used, and that they make and sell them for that purpose.

In defense it is urged that it has been for many years the custom of the cigar trade in this country to use what are known as "Spanish labels;" that labels like those complained of in this suit have been on open sale at various lithographers and could be obtained by any one, and that nearly all the cigar-box manufacturers in this city, as well as in other cities in this country, have made and sold boxes bearing labels similar to those complained of in this suit. As to the imitation of labels of other manufacturers—"Spanish labels" generally, as defendants call them—that is wholly immaterial. Complainant is not to be deprived of his Trade-Mark because other owners of other Trade-Marks suffer infringement without objection; and as to other imitations of his own Trade-Mark there is not a particle of evidence to show that these were made or sold with his consent or acquiescence. This defense has been so frequently and forcibly condemned by authority that further discussion is profitless. (*Taylor* v. *Carpenter*, 3 Story, 458; 2 Woodb. and M., 7; Browne, Trade-Marks, sec. 685, and cases cited.) Nor is there anything to the suggestion that injunction will not lie against defendants because they do not themselves make, pack, or sell the fraudulent cigars. No doubt they may make the boxes without objection. There is no Trade-Mark, so far as appears, in the style, size, or shape of a cigar-box. But they do much more. They procure labels counterfeiting the complainant's and assemble these labels with their boxes with the obvious purpose of enabling others by the use of the labels to palm off their goods upon the public as the goods of the complainant. Complainant is clearly entitled to an injunction against all who knowingly combine together to accomplish that purpose. (*De Kuyper* v. *Witteman*, 30 O. G. 345; 23 Fed. Rep., 871; *Hostetter Co.* v. *Brueggeman-Reinert Distilling Co.*, 56 O. G. 550; 46 Fed. Rep., 188.)

Motion granted.

U. S. Circuit Court—Southern District of New York.

IN RE VINTS CHGER *al.*

Decided April 15, 1892.

TRADE-MARK—SIMULATED ON FOREIGN IMPORTS—SECTION 7 OF THE TARIFF ACT OF OCTOBER 1, 1890.

In an application for mandamus to compel the collector of customs to examine into the validity of a certain registered Trade-Mark which he had declared simulated on certain imported goods which he had declined to admit to entry under the provisions of section 7 of the tariff act of October 1, 1890, *Held* that the circuit court had no jurisdiction to grant a mandamus, and that whether the decision of such officer that any particular import is within the statute's prohibition is reviewable in the courts was not before the court in this proceeding.

APPLICATION for mandamus.

STATEMENT OF THE CASE.

This was an order to show cause why a mandamus should not be issued to compel the collector of the port of New York to take and hear the evidence and proofs of the applicants, composing the firm of Markt & Co., and to determine whether one E. Meyers, of the Meyers Putz Pomade Company, were the owners of an alleged trade-mark, and whether, notwithstanding the fac-simile of the alleged Trade-Mark of the Meyers Putz Pomade Company on file in the office of said collector, entry should be refused of certain goods imported by the said firm of Markt & Co. It appeared from the affidavit upon which the order to show cause was granted that the applicants, composing the firm of Markt & Co., doing business in New York city, imported the merchandise in question—namely, a certain quantity of metal polish, called "Universal Metall Putz Pomade;" that on or about the 14th day of March, 1892, the firm of Markt & Co. attempted to enter the same at the custom-house in the city of New York, but that the collector of said port refused to allow the goods to be entered upon the grounds that he, the said collector, had received from the Secretary of the Treasury a certificate to the effect that the Meyers Putz Pomade Company had, in accordance with section 7 of chapter 1244 of the laws of the United States of 1890, (the tariff act of October 1, 1890,) caused to be deposited with the Department of the Treasury a fac-simile of a trade-mark which the said Meyers Putz Pomade Company claimed as domestic manufactures, and that he (the said collector) had neither the power nor the time to investigate the question whether or not the Meyers Putz Pomade Company were domestic manufacturers or the rightful owners of the said Trade-Mark.

The affidavit of the said applicants for the mandamus further set forth that one E. Meyers, who had been succeeded by the Meyers Putz Pomade Company, was formerly the agent of the firm of Schmitt & Foerderer, the manufacturers of the goods in Germany, and as such agent, and as long ago as 1886, imported goods into this country under the identical marks and trade-marks which he and the Meyers Putz Pomade Company now claimed were their property; further, that the Meyers Putz Pomade Company was a corporation incorporated under the laws of West Virginia, having its principal office at Boston, Mass., and that the Trade-Mark which the Meyers Putz Pomade Company claimed was derived from one E. Meyers, who was formerly the agent of said firm of Schmitt & Foerderer, which latter firm had used such Trade-Mark long prior to its alleged adoption by the Meyers Putz Pomade Company. On the return of the order to show cause the affidavit of the collector of customs at New York was read, by which it appeared that on or about the 19th day of February, 1892, the deponent, as such collector, received from the Treasury Department at Washington a letter, dated February 18, 1892, inclosing the two fac-similes of the Trade-Mark therein referred to of the Meyers Putz Pomade Company, which fac-similes were duly recorded at the New York custom-house February 23, 1892, pursuant to instructions contained in the circular of the Treasury Department,

dated October 31, 1890, (printed in Synopsis Decisions of the Treasury Department for 1890, No. 10,309;) that the merchandise attempted to be entered was invoiced from Wahlershausen-Cassel, Germany, as "metal polish," contained in small tin boxes, having on the top of each an inscription or trade-mark, which boxes were in condition to be put upon the market of this country and sold; that said merchandise was examined according to law by the appraiser of said port of New York, who, on the 23d day of March, 1892, made his official return thereof to deponent, as such collector, stating therein, among other things, "Trade-Mark illegal;" that deponent, as such collector, thereupon, exercising due and proper care, decided that the articles of merchandise imported as above did copy or simulate the Trade-Mark of "The Meyers Putz Pomade Company," of which fac-similes were received from the Treasury Department and recorded and filed in the New York custom-house, as above set forth, and that such articles of merchandise should not be admitted to entry at the custom-house and port of New York.

Section 7 of the tariff act of October 1, 1890, above referred to, is as follows:

SEC. 7. That on and after March first, eighteen hundred and ninety-one, no article of imported merchandise which shall copy or simulate the name or trade-mark of any domestic manufacture or manufacturer shall be admitted to entry at any custom-house of the United States. And, in order to aid the officers of the customs in enforcing this prohibition, any domestic manufacturer who has adopted trade-marks may require his name and residence and a description of his trade-marks to be recorded in books which shall be kept for that purpose in the Department of the Treasury, under such regulations as the Secretary of the Treasury shall prescribe, and may furnish to the Department fac-similes of such trade-marks; and thereupon the Secretary of the Treasury shall cause one or more copies of the same to be transmitted to each collector or other proper officer of the customs.

On behalf of the applicants for the mandamus it was argued that repeated applications had been made for relief both to the collector of the port and to the Secretary of the Treasury without effect and that, unless the court interfered by mandamus to compel the collector to examine into the question of the legality of the alleged Trade-Mark filed in the Treasury Department at Washington and the right as claimed by the importers to use the same as their own, the importers seemed to be without remedy, as their merchandise was deteriorating in value and possession thereof was refused them by the collector.

On behalf of the collector it was urged, first, that the circuit court of the United States had no authority or power to issue a writ of mandamus as an original and independent proceeding, the United States attorney citing, among other authorities, *Bath Co.* v. *Amy*, (13 Wall., 244;) *McIntire* v. *Wood*, (7 Cranch., 504;) *McClung* v. *Silliman*, (6 Wheat., 601;) secondly, that even if the court had jurisdiction mandamus would lie only where there is a refusal to perform a ministerial act involving no exercise of judgment or discretion or where the officer refuses to decide and the aggrieved party could have the decision of the officer reviewed by another tribunal, citing *Commissioner* v. *Whiteley*, (4 Wall., 522;) *Decatur* v. *Paulding*, (14 Pet., 515;) thirdly, that more cannot be required of a public officer by mandamus than the law has made it his duty to do, citing *Ex parte Rowland*, (104 U. S., 612.)

Messrs. Goepel & Raegener for the applicants.

Mr. Edward Mitchell, United States attorney, and *Mr. James T. Van Rensselaer*, assistant United States attorney, for the collector.

LACOMBE, *J.:*

Under the provisions of section 7 of the tariff act of October 1, 1890, the question whether a domestic manufacturer has adopted a name or trade-mark and whether any articles of imported merchandise do copy or simulate such name or trade-mark are to be determined, in the first instance, by the administrative officers to whom the execution of the tariff laws is entrusted. The provision of the same section that a record shall be kept in the Treasury Department describing such trade-marks does not make that record conclusive evidence of the fact that the person who "may require his name and residence and a description of his trade-marks to be recorded" is a domestic manufacturer or has any trade-mark. The record-book is, in the language of the statute, but an "aid" to the customs officers, and the prohibition is directed only against articles which copy or simulate the genuine trade-marks of *bona fide* domestic manufacturers. Whether the decision of the proper customs officers that any particular import is within the prohibition is reviewable in the courts, and, if so, in what way it may be presented for review, is not now before this court. This application is for a mandamus to compel the collector to examine into the facts and decide whether entry should be refused or not, and it is abundantly settled by authority that the power to issue a writ of mandamus as an original and independent proceeding does not belong to the United States circuit courts. (*Bath Co.* v. *Amy*, 13 Wall , 244.)

Motion denied.

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[BY AUTHORITY OF CONGRESS.]

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Changes in Classification.

(ORDER No. 768.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 18, 1892.

Sub-class 9, Tire-heating furnaces, in Class 152, Wagon, Car, and Track Irons, is hereby transferred from Division XIII to Class 75, Division III.

N. L. FROTHINGHAM,
Acting Commissioner.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1 50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Issue of July 26, 1892.

Patents	385—No. 479,391 to No. 479,775, inclusive.
Designs	6—No. 21,732 to No. 21,737, inclusive.
Trade-Marks	22—No. 21,510 to No. 21,532, inclusive.
Labels	None.
Reissue	1—No. 11,255.
Total issue	414

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	3	....	Nevada	....	....
Arizona Territory	1	....	New Hampshire	1	....
Arkansas	1	....	New Jersey	17	....
California	8	....	New Mexico Territ'y	....	....
Colorado	2	2	New York	76	9
Connecticut	8	....	North Carolina	1	....
Delaware	2	....	North Dakota	1	....
District of Columbia	7	....	Ohio	28	1
Florida	2	....	Oregon	....	....
Georgia	2	1	Pennsylvania	33	2
Idaho	....	....	Rhode Island	3	....
Illinois	36	1	South Carolina	....	....
Indian Territory	....	....	South Dakota	2	....
Indiana	13	....	Tennessee	2	....
Iowa	12	....	Texas	9	....
Kansas	4	....	Utah Territory	....	....
Kentucky	1	1	Vermont	1	....
Louisiana	4	....	Virginia	2	....
Maine	3	1	Washington	3	....
Maryland	8	....	West Virginia	1	....
Massachusetts	33	....	Wisconsin	6	....
Michigan	6	1	Wyoming	1	....
Minnesota	10	....	U. S. Army	2	....
Mississippi	1	....	U. S. Navy	1	....
Missouri	10	1			
Montana	3	....	Total to citizens of the United States	371	20
Nebraska	1	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Austria-Hungary	3	....	Netherlands	....	....
Barbadoes	....	....	Newfoundland	....	....
Belgium	....	....	New South Wales	....	....
Bermuda	....	....	New Zealand	....	....
Brazil	....	....	Norway	1	....
Canada	4	....	Porto Rico	....	....
Chile, Republic of	....	....	Queensland	....	....
Cuba	....	....	Russia	....	....
Denmark	....	....	Scotland	....	....
Ecuador	....	....	South Australia	....	....
Egypt	....	....	Spain	....	....
England	7	....	Sweden	1	....
France	2	....	Switzerland	....	....
Germany	2	1	Victoria	....	....
Guatemala	....	....	West Australia	....	....
Ireland	....	1			
Italy	....	....	Total to citizens of foreign countries	20	2
Luxemburg	....	....			

APPLICATIONS UNDER EXAMINATION.

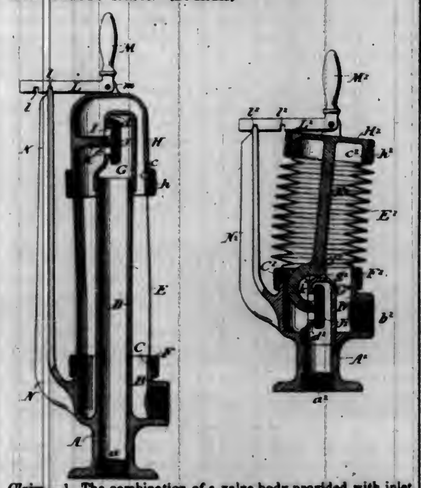
Condition at Close of Business July 19, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications waiting action.
	Between one and two months in arrears.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	May 27	July 18	88
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	May 27	July 14	251
7	Harvesters, Games and Toys	May 27	July 11	247
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	May 27	July 6	110
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	May 20	July 5	215
	Between two and three months in arrears.			
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 13	July 13	186
24	Sewing-Machines and Apparel	Apr. 20	July 12	109
23	Instruments of Precision, Acoustics, Optics, etc.	Apr. 26	July 5	269
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Apr. 25	July 5	268
21	Textiles, etc.	Apr. 29	July 2	188
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Apr. 21	July 2	367
9	Hydraulics, Fire-Extinguishers, etc.	May 2	July 1	357
17	Paper-Manufactures and Printing.	Apr. 27	July 1	196
22	Fire-Arms, Navigation, Signals, etc.	May 2	June 23	192
18	Steam-Engineering, etc	Apr. 30	June 23	264
2	Farm Stock, Products, etc	Apr. 26	June 23	306
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Apr. 22	June 23	222
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Apr. 23	June 22	200
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	May 18	June 21	253
12	Mechanical Engineering, Store-Service, etc.	Apr. 29	June 13	194
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 2	June 11	307
5	Fine Arts, Stationery, Book-Binding, Music, etc.	May 17	June 8	237
8	Furniture, Toilet, Umbrellas and Canes, etc.	Apr. 25	June 6	370
1	Tillage and Fences	May 2	May 19	202
	Between three and four months in arrears.			
10	Carriages and Wagons and Railway-Cars.	Apr. 4	July 12	636
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Mar. 19	June 20	482
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Mar. 30	May 24	341
19	Stoves and Furnaces	Mar. 31	May 20	432
4	Civil Engineering, etc.	Apr. 2	May 18	468
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 23	May 17	473
	Between four and five months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Mar. 1	June 2	397
	Between five and six months in arrears.			
26	Electricity, Generation, Distribution, etc.	Feb. 18	June 25	415
	Total number of applications awaiting action			9,332
	Under one month in arrears.			
	Designs	July 12	July 13	40
	Trade-Marks	July 15	July 13	52

PATENTS

GRANTED JULY 26, 1892.

479,891. VALVE FOR STEAM OR HIGH-PRESSURE FLUIDS. WILLIAM G. ADAMS and JOHN S. FOSTER, Philadelphia, Pa. Filed Oct. 3, 1891. Serial No. 407,590. (No model.)



Claim.—1. The combination of a valve-body provided with inlet and outlet orifices and a valve-seat, a continuous closed casing capable of rocking movement mounted upon said body and communicating only therewith, and a valve operatively connected with said casing and so arranged with relation to said seat as to be shifted toward or from the same in conformity with the rocking movement of the casing, substantially as set forth.

2. The combination of a valve body provided with inlet and outlet orifices and a valve-seat, a continuous closed casing capable of rocking movement mounted upon said body at a point intermediate between said inlet and outlet orifices, said casing being adjacent to but out of the direct path of the fluid, and a valve operatively connected with said casing and so arranged with relation to said seat as to be shifted toward or from the same in conformity with the rocking movement of the casing, substantially as set forth.

479,892. METAL-SHEARS. HENRY AIKEN, Pittsburg, Pa. Filed Nov. 18, 1891. Serial No. 412,014. (No model.)

Claim.—1. The combination of a series of hydraulic motors set in tandem, each comprising a cylinder and plunger, one of which is stationary and the other movable, supports for the stationary parts of the motors, common guides within which the movable parts move, connections between said movable parts, and an operating-tool, substantially as and for the purposes described.

2. The combination of a series of hydraulic motors, each comprising a cylinder and plunger one of which is stationary and the other movable, supports for the stationary parts of the motors, said motors being set one in advance of the other with their moving parts connected, and an operating-tool at the outer end of the last motor of the series, substantially as and for the purposes described.

3. In metal-shears, the combination of a series of hydraulic motors, each comprising a cylinder and plunger, of which one is stationary and the other movable, supports for the stationary parts of the motors, said motors being set one above the other with their moving parts connected, a head or block above the end of the series, an upright frame connecting the same with the base of the machine, a shear-knife fixed to the head or block, and a shear-knife moved by the motors, substantially as and for the purposes described.

4. The combination of an upright series of stationary plungers set on supports one above the other, cylinders set on the plungers, a guide-frame for the cylinders, said cylinders being connected, so that the power of one shall be transmitted to the next, an operating-tool, a plunger fixed to the top of the guide-frame, and a cylinder set on the plunger and acting on said series in the opposite direction, substantially as and for the purposes described.

5. The combination of an upright series of stationary plungers set on supports one above the other, cylinders set on the plungers, a guide-frame for the cylinders, said cylinders being connected, so that the power of one shall be transmitted to the next, an operating-tool, a plunger fixed to the top of the guide-frame, and a cylinder set on the plunger and acting on said series in the opposite direction, substantially as and for the purposes described.

6. The combination of a series of stationary plungers set on supports, cylinders set on the plungers, a guide-frame for the cylinders, said cylinders being connected, so that the power of one shall be transmitted to the next, a knife-blade moved by said series of cylinders, and a stationary knife-blade fixed to the end of the frame, substantially as and for the purposes described.

479,893. FOLDING CHAIR. RICHARD W. BATES, Chicago, Ill. Filed Jan. 28, 1892. Serial No. 419,523. (No model.)

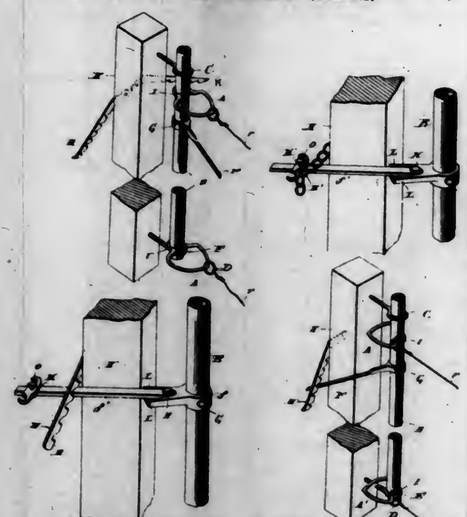
Claim.—A folding chair having the back and seat frames made of light metallic tubing pivoted together, as shown, in combination with a bottom made of a series of separate chains having one of their ends secured to the top rung of the seat-frame and their opposite ends

479,393.



passed over a rung a^3 of the back-frame level with the top rung of the seat-frame and severally attached to a free cross-piece b' behind said rung a^3, which free cross-piece projects beyond the side edges of the bottom, so as to engage the side pieces of the back-frame above the rung a^3 for holding the chains extended laterally and taut between the open frames, as specified.

479,394. WIRE GATE. CRAYTON BERRYMAN, Sioux City, Iowa. Filed Dec. 28, 1891. Serial No. 416,173. (No model.)



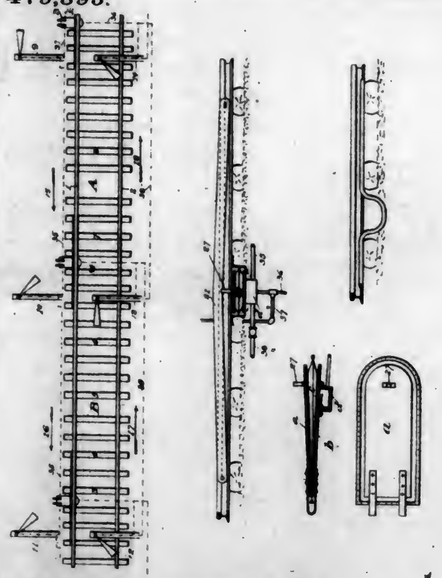
Claim.—1. The combination of a rigidly-set post K, through the upper and lower portions of which pass suitable eyebolts C and E, a movable upright B, supported loosely in the eyebolts, wires *r*, which are connected with the upright by means of clevises A and rings D and are tightened or loosened by the movement of the clevises in the rings, a lever fastened securely to the upright and adapted to turn the upright in either direction, thus changing the position of the clevises in the rings, by which the wires of the gate are tightened or loosened, and a fastening secured to the post to hold the lever securely in position when the gate is closed, all substantially as set forth.

2. The combination of a rigidly-set post K, through the upper and lower portions of which pass suitable eyebolts C and E, a movable upright B, supported loosely in the eyebolts, wires *r*, which are connected with the upright by means of clevises A and rings D and are tightened or loosened by the movement of the clevises in the rings, a lever *f f*, rigidly attached to the upright, having a joint that permits a limited horizontal movement, and a fastening device on the post, adapted to engage therewith.

3. The combination of a rigidly-set post K, through the upper and lower portions of which pass suitable eyebolts C and E, a movable upright B, a lever secured thereto having an adjustable clasp furnished with suitable hooks, and a thumb-screw, clevis-hooks A, rings D, wires *r*, and a chain H', all substantially as set forth.

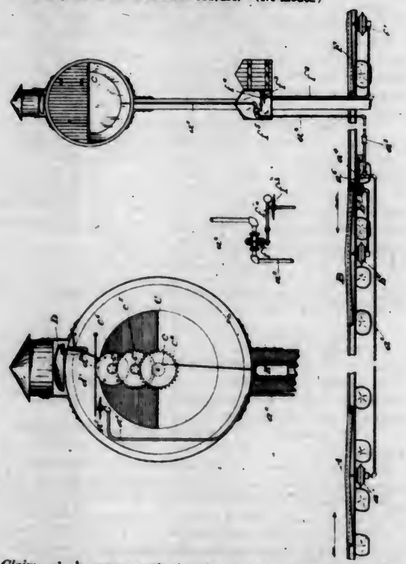
479,895. RAILROAD-SIGNAL. ROBERT T. BOWIE, Benson, Md., assignor to the Bowie Pneumatic Signal Company, of West Virginia. Filed Mar. 26, 1891. Serial No. 386,429. (No model.)

479,895.



Claim.—In a signaling system for rail or tram ways, a track divided into a series of blocks, and a lever or bar located at the end of each block, operated by a passing train or car, in combination with an air-chamber in which the air is compressed by the passage of the train over the lever, a series of pneumatic pipes for setting the signals and power driving mechanism for operating the signal-shaft, and an independent air-receiver connected with the power mechanism, whereby said power mechanism is rewound by the pulsation of air from a track-compressor.

479,896. SIGNALING DEVICE. ROBERT T. BOWIE, Benson, Md., assignor to the Bowie Pneumatic Signal Company, of West Virginia. Filed May 12, 1891. Serial No. 392,421. (No model.)



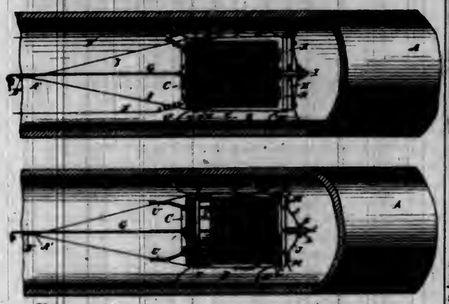
Claim.—1. In a pneumatic signaling system, a signaling mechanism located near a track or railway, a compressible air-chamber in which the air is compressed by a passing engine or train, and a tube for conveying the compressed air to the signaling mechanism when the air-chamber is compressed by an engine or train running in a given direction, in combination with means for allowing the compressed air in the tube to escape and prevent it from affecting the signaling mechanism when the air-chamber is compressed by a train running in the opposite direction.

2. In a pneumatic signaling system, a signaling mechanism located near a track or railway, a compressible air-chamber in which the air is compressed by a passing engine or train, a tube for conveying the compressed air to the signaling mechanism, and a check-valve in the air-conveying tube to prevent the air from returning when forced through the tube by an engine or train running in a given direction, in combination with an aperture in the tube behind the check-valve, opened by mechanism operated by a passing engine or train to allow the air in the tube behind the valve to escape and prevent it from affecting the signaling mechanism when the air-chamber is compressed by an engine or train running in the opposite direction.

3. In a pneumatic signaling system, a signal-box containing a train of gears revolved by a weight, and a lever and detent for checking and holding the train, in combination with an expansive air-chamber operated by an engine or train upon the railway to expand the chamber and lift the detent-lever to release the gear-train, and means also actuated by an engine or car on the track to allow the air to escape from the expanded chamber and permit the detent-lever to engage and stop the gear-train.

4. In a railway-signaling device, a flash-signal normally at rest and means for imparting to the same continuous revolution, in combination with means for releasing and arresting the signal operated by a passing train or car upon the railway, substantially as described.

479,397. CORD-CARRIER FOR UNDERGROUND CONDUITS. STEPHEN R. BRADLEY, Nyack, N. Y. Filed Jan. 27, 1892. Serial No. 419,475. (No model.)



Claim.—1. The combination, in a carrier, of an electro-magnet, an armature having a retractile spring, means connected with the armature, and other means connected with the magnet which bear against the walls of the tube, both of said means being adapted to resist rearward movement, whereby the attraction of the armature by the magnets effects a forward movement of the magnets and the action of the armature-spring effects a forward movement of the armature, substantially as set forth.

2. The combination, in a wire carrier, of an electro-magnet, an armature, a spring or springs for retracting the armature, elastic legs attached to the armature, and other similar legs attached to the magnets, substantially as set forth.

3. The combination, in a wire-carrier, of an electro-magnet, an armature, a spring or springs for retracting the armature, elastic legs attached to the armature, other similar legs attached to the magnets, and longitudinally-moving rings provided with cords adapted to slide over the legs and draw them inwardly, substantially as set forth.

4. The combination, in a wire-carrier, of an electro-magnet, a sliding armature, a spindle projecting beyond the magnets upon which the armature slides, a spring or springs attached to the spindle, which engage with the armature, and devices actuated by the movement of the armature which engage with the sides of the tube, and other devices for supporting the magnets, substantially as set forth.

5. In a wire-carrier, an electro-magnet, an armature, means for retracting the armature, and spider legs attached both to the armature and to the magnets and provided with rearwardly-extending barbs, substantially as set forth.

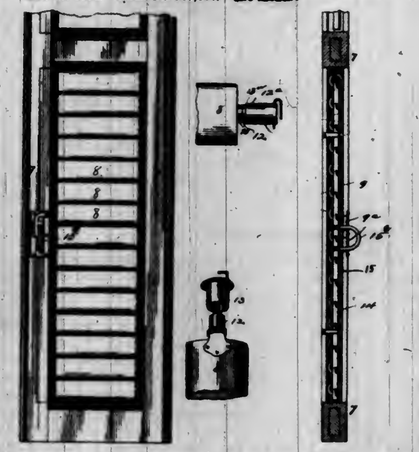
6. In a wire-carrier, an electro magnet, an armature, means for retracting the armature, spider legs attached both to the armature and the magnets, provided with rearwardly extending barbs, and means for drawing the spider legs inwardly, operated by a cord or wire extending to the rear end of the tube, substantially as set forth.

7. In a wire-carrier, an armature provided with springs for its retraction and having legs attached to it extending from the armature to the inner walls of the tube, an electro magnet, and a movable ring provided with means to pull the same rearwardly, adapted to slide over the inclined surface upon the legs, substantially as set forth.

8. In a wire-carrier, an electro-magnet and an armature provided with springs for its retraction and having legs attached to it extending from the armature to the inner walls of the tube, said legs having rearwardly-extending barbs or points to engage with the walls of the tube, substantially as set forth.

9. The combination, in a wire-carrier, of an electro-magnet provided with an armature, means attached to the armature which engage with the walls of the tube, and other means attached to the magnets, which likewise engage with the walls of the tube, said means being (both of them) provided with devices whereby they catch on the walls of the tube when moved in one direction, but not when moved in the other direction, substantially as set forth.

479,398. WINDOW-BLIND. HENRY T. BURNHEIM, Elgin, Ill. Filed Apr. 30, 1891. Serial No. 389,677. (No model.)



Claim.—1. The combination, with the pivoted slats of a blind, of sleeves applied to the tenons of said slats, said tenons having projections thereon, whereby they are adapted to interlock with the sleeves, and an operating-bar eccentrically connected with said sleeves, substantially as described.

2. In combination with a blind having one of its vertical stiles cut away, a strip fitted to said stile at the cut-away portion, a longitudinal recess in the outer face of said strip and perforations through its inner wall, pivoted slats having their tenons extended through the perforations in the strip into the recess, sleeves upon said tenons, and said tenons having projections thereon adapted to interlock with the sleeve, and an operating-bar eccentrically connected to said sleeves and adapted to be reciprocated within the recess, substantially as described.

3. In a blind, the combination, with the pivoted slats, of a removable grooved strip adapted to be secured to one of the vertical stiles of the frame, said strip being recessed on its outer face and perforated through its inner face for the passage of the slat-tenons, said tenons having ferrules secured thereon, sleeves fitted over said ferrules, and means for locking the sleeves and ferrules together, and an operating-bar eccentrically connected to said sleeves and adapted to be reciprocated within the recess of the grooved strip, substantially as described.

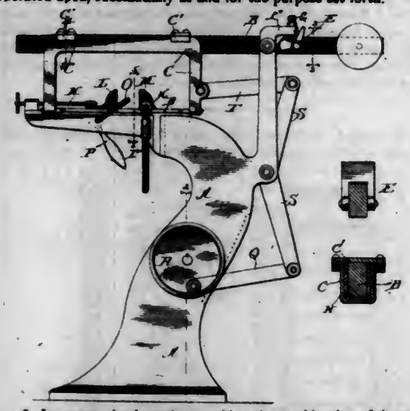
4. In means for adjusting the slats of window-blinds in unison, the combination, with said slats and a grooved strip having perforations to receive the slat-tenons, of ferrules secured on the tenons and bearing locking-pins, sleeves fitting over said ferrules and adapted to be locked thereto by engagement with the pins, said sleeves having eccentric projections thereon, and an operating-bar engaged with the several projections of the sleeves and having a handle working through a slot in the grooved strip, substantially as described.

479,399. POWER HACK-SAWING MACHINE. OLIVER COLBORNE, Chicago, Ill. Filed Mar. 28, 1892. Serial No. 426,832. (No model.)

Claim.—1. In a power hack-sawing machine, the combination of a main frame, a lever pivoted therein counterweighted at one end and

serving at its other end as a guide and support for the yoke which carries the saw-blade, and an elbow-lever pivoted to the counterweighted lever and abutting against a projection from the main frame for co-operation therewith in order to sustain the saw-blade in an elevated position, substantially as and for the purpose set forth.

2. In a power hack-sawing machine, the combination, with the saw proper of a curved limiting-stop having bearings in the main frame and a cam mounted thereon for clamping it in such bearings and having its end projecting into the path of the material to be operated upon, substantially as and for the purpose set forth.



3. In a power hack-sawing machine, the combination of the main frame, a driving-crank having bearings therein, a bell-crank lever pivoted to the main frame and connected pivotally by links or pitmen with such crank and with a yoke carrying the saw-blade, and a pivoted counterweighted lever affording a support and guide for such yoke, substantially as and for the purpose set forth.

4. In a power hack-sawing machine, the combination of a main frame, a driving-crank having bearings therein, a bell-crank lever pivoted to the main frame and connected pivotally by links or pitmen with such crank and with a yoke carrying the saw-blade, another lever independently pivoted in the main frame and carrying a yoke for the saw-blade at one end and a counter-weight at the other end, and an elbow-lever pivoted to the weighted lever and acting in conjunction with a set-screw in the main frame in order to sustain the blade in an elevated position, substantially as and for the purpose set forth.

5. In a power hack-sawing machine, the combination of a main frame, a lever pivoted therein and carrying the movable saw-frame at one end and a counter-weight at the other end, a set-screw having a bearing in the main frame and acting against the counterweighted lever to adjust the downward movement of the saw-frame, and the locking device carried by the counterweighted lever and operating against the main frame to retain the saw-blade in an elevated position while the material to be operated upon is being placed, substantially as and for the purpose set forth.

6. In a power hack-sawing machine, the combination of a main frame, supporting mechanism for driving the saw, a lever pivoted to the main frame and having a bearing at one end for the movable frame of the saw and a counter-weight at its other end, a set-screw journaled in the main frame and normally bearing upon the upper surface of the counterweighted lever, an elbow-lever pivoted to the counterweighted lever, having approximately horizontal and vertical arms, and a stationary pin secured to the counterweighted lever underneath the horizontal arm of the elbow-lever, whereby the counterweighted lever is normally held at a determinate position when it is depressed at either end, substantially as and for the purpose set forth.

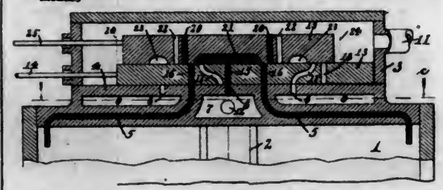
479,400. RADIATOR-VALVE DEVICE. JOHN COLLIS, Des Moines, Iowa. Filed Apr. 21, 1891. Serial No. 389,801. (No model.)



Claim.—1. In a radiator-valve device, a shell having an outlet-opening at which to connect the device with a radiator and a supply-opening and a discharge-opening in vertical line with each other to one side of the outlet-opening at which to connect the device with the circulating-pipe system, said supply and discharge openings having permanent open communication with each other in the shell past the said outlet-opening, in combination with a vertically-adjustable valve confined in the shell with relation to its outlet-opening and provided with means for operating it to open and close the said opening, substantially as described.

2. A three-way-valve device for use with a radiator and its circulating-pipe system, comprising a shell having an outlet-opening *o*, a tube cast therein adapted to be connected at its outer end with the inlet-opening of a radiator and projecting at its other end within the shell to form a valve-seat *n*, a supply-opening *p* and a discharge-opening *q*, respectively, above and below the plane of the outlet-opening to one side of the latter and having branches *f'* and *e'* connecting them with the circulating-pipe system, and a vertically-adjustable valve C, confined in the shell with relation to the said outlet-opening and provided with means for raising and lowering it to open and close the opening *o*, the openings *p* and *q* having permanent direct communication with each other, whereby when the valve is closed the circulation is continued between the said branches and whereby when the valve is open condensation in the steam-supply from the branch pipe *f'* discharges directly into the branch pipe *e'*, substantially as described.

479,401. STEAM-ENGINE VALVE. JOHN R. COOK and CAREY S. HINCHMAN, Rushville, Ind. Filed Apr. 21, 1892. Serial No. 429,992. (No model.)



Claim.—In a steam-engine valve, the combination, substantially as set forth, of a valve-seat with two steam-ports and with three exhaust-ports, a seat-plate adjustable on said valve-seat and provided with ports to coincide with the two steam-ports and central exhaust-port of the valve-seat when the plate is in one position and with ports to register with the steam-ports and two outside exhaust-ports of the valve-seat when shifted to another position, and a slide-valve working upon said seat-plate and having three exhaust-pockets and four steam-ports.

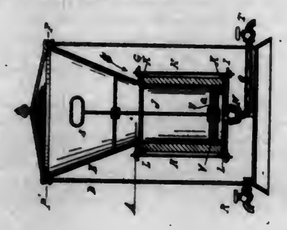
479,402. FOOD PRODUCT AND METHOD OF MAKING THE SAME. SAMUEL CRUMP, Montclair, N. J. Filed Nov. 9, 1891. Serial No. 411,297. (No specimens.)

Claim.—1. As a new article of manufacture, a non-fibrous food compound composed of the natural ingredients of the cocoanut deprived of the fibrous portions of the nut, having added thereto sugar and the milk of the cocoanut, and in a condensed or desiccated form, substantially as hereinbefore set forth.

2. As a new article of manufacture, a non-fibrous food compound having as component parts the natural ingredients of the cocoanut deprived of the fibers thereof, with a proportion of sugar, and in a condensed or desiccated form.

3. The method of preparing a product of cocoanut hereinbefore described, which consists in crushing, grinding, or dividing the nut, adding thereto the milk of the cocoanut, sugar, and a proportion of water, straining the mass, and subjecting the liquor to evaporation *in vacuo*.

479,403. FILTER. JOHN J. CURRAN, Toledo, Ohio. Filed Mar. 21, 1891. Serial No. 385,895. (No model.)



Claim.—1. In a water-filter, the combination, with an outer case, of an inner case hanging within the outer and having a horizontal flange at its lower end, a porous cylinder below the pendent case, a plate below the lower end of said cylinder, than which it is larger in diameter, and rods detachably connecting said flange and plate, substantially as and for the purpose set forth.

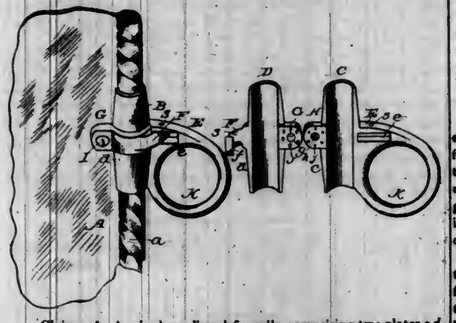
2. In a water-filter, the combination, with an outer case, of an inner case hanging within the outer and having an inturned flange at its lower end, a porous cylinder smaller in diameter than said pendent case and resting against said flange, a plate below the cylinder and larger in diameter than the same, threaded rods passing through said flange and plate, and nuts thereon, substantially as and for the purpose set forth.

3. In a water-filter, the combination, with an outer case and an inner case hanging therein and having a flange at its lower end, of a porous cylinder below the flange, a plate below the cylinder, a vertical ring-shaped member on the plate surrounding the end of the cylinder, and rods connecting said flange and plate outside the ring, all substantially as set forth.

4. In a water-filter, the combination, with an outer case, an inner case hanging therein and removable therefrom, a flange on said inner case, a porous cylinder, a plate supporting the cylinder, rods connecting the plate and flange, and a downwardly-extending tube at the center of said plate, of a refuse-pipe within the outer case and leading outside the same to a faucet, and a socket on the inner end of said pipe, into which said tube passes when the inner case and cylinder are inserted, substantially as and for the purpose set forth.

5. In a water-filter, the combination, with an outer case, an inner case hanging therein and removable therefrom, a porous cylinder, a plate below the same having a downwardly-extending tube at its center, and connections between said plate and inner case, of a socket into which said tube fits, a refuse-pipe leading thence outside the outer casing, a piston-head within said cylinder, comprising two perforated plates and a sheet of packing between and extending beyond the edges thereof, and an operating-rod secured to said head and rising to within said inner case, as and for the purpose hereinbefore set forth.

479,404. CRINGLE FOR SAILS. WILLIAM R. CUTLER, Bath, Me., assignor of two-thirds to Alexander M. Cutler, same place, and William P. Cutler, Baltimore, Md. Filed Apr. 4, 1892. Serial No. 427,702. (No model.)



Claim.—1. A cringle or lizard for sails, comprising two plates *c d*, approximately semicircular in cross-section and forming, conjunctively, a tubular clamp, said plates being pivotally connected together at one edge and provided at their free edges with coincident lugs G H, and a clamping-screw I, passing through said lugs, substantially as and for the purpose set forth.

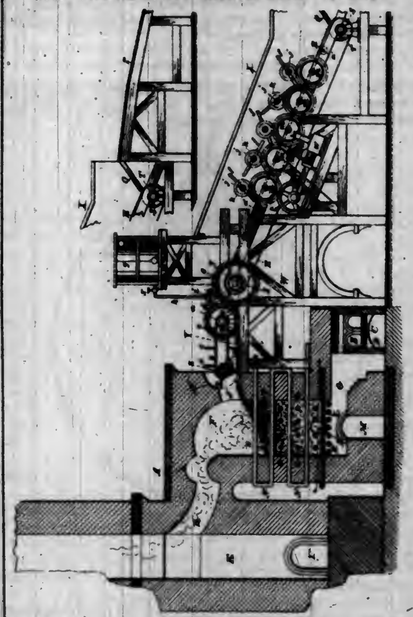
2. A cringle or lizard for sails, comprising two clamping-plates pivotally connected together and provided with clamping means for locking said plates together, and a ring or loop carried entirely by one of said plates, substantially as and for the purpose set forth.

3. A cringle or lizard for sails, comprising two clamping-plates, one of which being provided with an arm E, having an elongated slot *e*, and the other plate provided with an arm F, carrying a T-head *f*, adapted to engage and be locked in said slot, substantially as and for the purpose set forth.

4. In a cringle or lizard for sails, the combination of two members, one of which being provided with a slotted arm and the other with an angular arm carrying at its free end an approximate T-head adapted to be received by the slotted arm and engage the distal side thereof, and means for clamping said plates at their free edges, substantially as and for the purpose set forth.

5. As an improved article of manufacture, a cringle or lizard for sails, consisting of two metallic members, one of which being provided with an approximate semicircular clamping-plate, a lug projecting from the free edge thereof, and with a slotted arm at its opposite edge, the other plate being provided with a coincident clamping-plate and lug and with an angular arm having an approximate T-head adapted to engage said slotted arm, all parts of said respective members being integral, a ring or loop integral with one of the members, and a clamping-screw engaging said lugs, substantially as and for the purpose set forth.

479,405. GARBAGE OR REFUSE CREMATORY. ALFRED G. DELABOY, New York, N. Y., assignor of one-half to John R. McKay, same place. Filed Oct. 13, 1891. Serial No. 408,562. (No model.)



Claim.—1. In a garbage-crematory, the endless conveying-belt extending from the dumping-point to a receiving-platform and a spray for treating the garbage with an inflammable material after reaching the upper end of said belt, combined with the endless scraper-belt to move the garbage along said platform, and the furnace having the garbage-combustion chamber intermediate the fire-box and flue and its inlet in line with said platform, the whole being arranged and operating substantially as and for the purposes set forth.

2. In a garbage-crematory, the endless conveying sieve-belt and the series of agitator-arms over said belt, combined with the spray for treating the garbage with an inflammable material prior to its entering the combustion-chamber and the furnace to receive the garbage, said furnace having a combustion-chamber for garbage, means therein for lightening the mass, the fire-box, and flue, with independent grates for the said chamber and box, the whole being arranged and operating substantially as and for the purposes set forth.

3. In a garbage-crematory, the endless conveying-belt and the spray at the upper end of said belt and leading from a tank of inflammable material, combined with the furnace having the flue, garbage-combustion chamber, and fire-box, the whole being arranged and operating substantially as and for the purposes set forth.

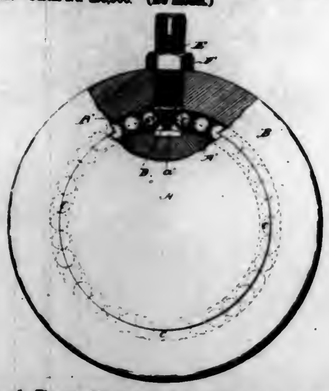
4. In a garbage-crematory, the endless conveying-belt and the spray leading from a tank of inflammable material, combined with the furnace, the flue, garbage-combustion chamber and fire box therein, the series of tubes for lightening the mass in the combustion-chamber, and the tubular grate-bars in said chamber, the whole being arranged and operating substantially as and for the purposes set forth.

5. In a garbage-crematory, the endless conveying-belt extending upward from the dumping-point, the platform receiving the material from said belt, and the endless belt having scraper-arms on said platform, combined with the furnace having the inlet to its garbage-combustion chamber in line with said platform, said inlet at its upper part being of a form adapted to be closed by said arms and having its lower surface inclined, the whole being arranged and operating substantially as and for the purposes set forth.

6. In a garbage-crematory, the furnace having the fire-box and grate, the combustion-chamber with grate and door for same, the flue with door at base of same, the passages between the fire-box and combustion-chamber and between the combustion-chamber and flue, and the inlet for garbage to said combustion-chamber, and means for lighting the mass in said combustion-chamber, the whole being arranged and operating substantially as and for the purposes set forth.

7. In a garbage-crematory, the furnace, combined with the endless conveying sieve-belt extending from the dumping-point to a receiving-platform, the endless scraper-belt on said platform leading to the inlet of the garbage-combustion chamber of said furnace, the transverse shafts carrying agitator-arms over said sieve-belt, and means, substantially as described, for actuating said shafts and arms, substantially as and for the purposes set forth.

479,406. MEANS FOR SECURING COLLARS TO CRANK-PINS. SIMEON K. DICKERSON and CHARLES D. KEE, Roanoke, Va. Filed Mar. 30, 1892. Serial No. 426,560. (No model.)



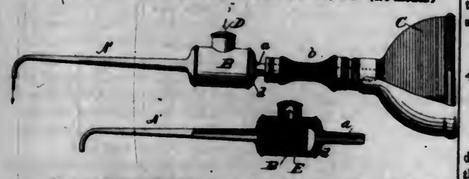
Claim.—1. The combination, with a crank-pin, of a collar, balls interposed between said crank-pin and collar, a wedge adapted to enter between two of said balls and bind the remaining balls, and a binding-screw for impinging against said wedge, substantially as and for the purposes described.

2. The combination, with a crank-pin, of a collar, balls interposed between said crank-pin and collar, a wedge seated in the crank-pin and adapted to enter between two of said balls, and a binding-screw, substantially as and for the purposes described.

3. The combination, with a crank-pin provided with a groove, of a collar provided with a similar groove, balls in said grooves, and a wedge for forcing said balls together, substantially as and for the purposes described.

4. The combination, with a crank-pin provided with a circumferential groove, of a collar provided with a similar groove to one side of the groove in the crank-pin, balls in the space formed by the grooves, a wedge adapted to enter between two of said balls, said wedge being provided with grooves in its inclined faces, and a binding-screw, substantially as and for the purposes described.

479,407. DENTAL SYRINGE. JOHN M. DRENNAN, New York, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed June 2, 1892. Serial No. 435,264. (No model.)



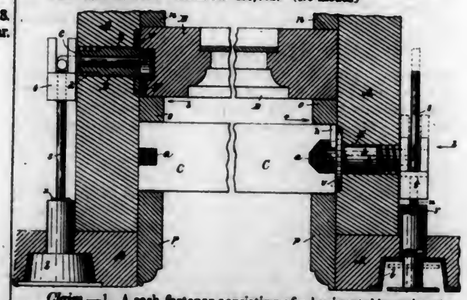
Claim.—The combination, with the syringe, the tube of which has the chamber or enlargement, of the removable heat-retaining plug inclosed in said chamber, substantially as and for the purpose set forth.

479,408. REDUCTION OF IRON ORE. CHARLES J. RAMIN, New York, N. Y. Filed Dec. 5, 1891. Serial No. 414,157. (No specimens.)

Claim.—1. The method herein described for reducing iron ore, which consists in adding to the ore the bituminous reducing agent termed "brea," grinding the two together to obtain an intimate mixture and pulverulent mass, and finally subjecting the mixture thus obtained to a reducing heat in a suitable furnace, substantially as and for the purposes specified.

2. The process herein described for reducing iron ore, which consists in liquefying the bituminous reducing agent termed "brea," adding thereto iron ore to assist in pulverization, pulverizing the admixture of brea and iron ore, adding the pulverulent reducing agent thus obtained to the mass of ore to be reduced, and finally subjecting the whole to a reducing heat in a suitable furnace, substantially as and for the purposes specified.

479,409. SASH-FASTENER. JOHN L. EBERT, Farmington, N. Y. Filed Apr. 19, 1892. Serial No. 429,772. (No model.)



Claim.—1. A sash-fastener consisting of a horizontal barrel in the window-casing opposite the sash, a non-endwise moving rotary axial shaft in said barrel, and a spring in the barrel to turn the shaft, the axis of the latter being parallel with the plane of the sash, the shaft having a pawl or arm at right angles with it to engage the sash and having its opposite end turned at right angles with the shaft, in combination with a push-button held in the casing, formed with an extended part at right angles with said shaft, and a longitudinally-adjustable block secured to the extended part of the push-button to engage the upturned part of said shaft, and a returning-spring for said push-button, substantially as shown and described.

2. A window provided with a lock and holder for each sash, placed at opposite sides of the window, each lock and holder consisting of a shaft in the casing of the window opposite the edge of the sash, provided with a pawl to engage the sash, the axes of said shafts being parallel and in the same horizontal plane, and a push-button for each sash-holder to actuate said shaft thereof, said shafts and push-buttons being actuated by springs, the springs of said shafts acting in a manner to press the sashes toward each other or against the middle stops *o o*, substantially as described.

479,410. ELECTRIC BELT. ANDREW M. EELUND, Minneapolis, Minn. Filed May 2, 1892. Serial No. 431,531. (No model.)

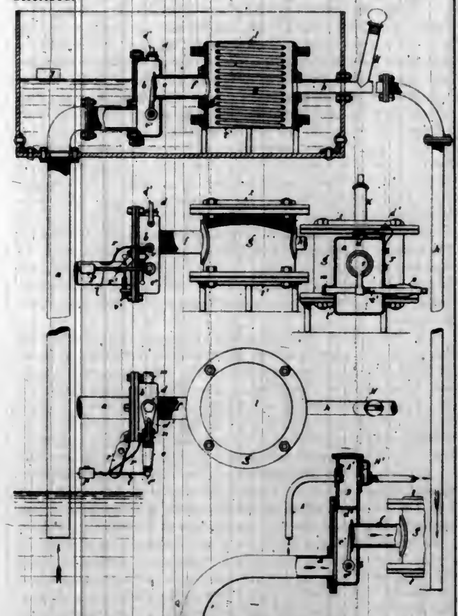


Claim.—In a medical battery, a series of cells electrically connected and inclosed by a flexible covering of insulating material, said covering being provided with elastic extensions, and means for securing the battery in position, the contact-plates and conductors, whereby the current may be conducted to any portion of the body, and the substitute blanks in the form of links, as described, for decreasing the strength of the current, substantially as and for the purpose set forth.

479,411. ELEVATING-SIPHON. EUGÈNE ETÈVE and JULES LEMICHEL, Paris, France. Filed Feb. 17, 1892. Serial No. 421,633. (No model.) Patented in France May 24, 1890, No. 205,888; in England Dec. 24, 1890, No. 21,084, and in Belgium Oct. 19, 1891, No. 96,353.

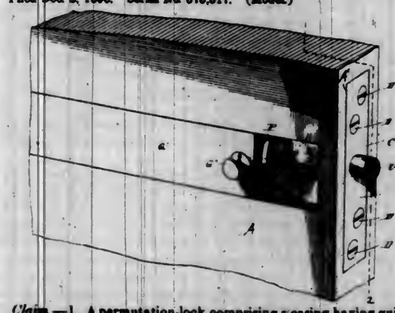
Claim.—1. The combination, in a siphon, of a suction-pipe *a* and discharge-pipe *h*, of smaller diameter than said suction-pipe *a*, with the box *b*, containing the stop-valve *c* and valve *d*, and with the chamber *g*, having movable and resilient walls, in connection with said box *b* through the stop-valve *c*, and having flexible heads *t t'*, separated by a spring *x*, said box *b* and chamber *g* being interposed between said suction-pipe *a* and discharge-pipe *h* and so arranged that a portion of the water circulating in said suction-pipe will be discharged through valve *d* into a suitable elevated reservoir, substantially as described.

2. The combination, in a siphon, of a suction-pipe *a*, leading into a compartment *b*, having an upper outlet-valve *d* and a weighted stop-valve *c*, with chamber *g*, having movable and resilient walls, and discharge-pipe *h*, of smaller diameter than the pipe *a*, all arranged so that at stated intervals the valve *d* will open and stop-valve *c* close, and vice versa, whereby a portion of the water in said suction-pipe *a* will be discharged through valve *d* into a suitable elevated reservoir and a portion will be discharged into said discharge-pipe *h*, substantially as described.



3. In a siphon, the combination of the box *b*, having an orifice *f*, with a spindle *d'*, passing through said box *b* and carrying the valve *e* within the box *b*, adapted to close said orifice *f*, and with a weighted lever *p*, adapted to actuate said spindle *d'*, adjustable springs *r r'*, between which said weighted lever *p* vibrates, and with the sleeve *m* and elastic packing *o* placed about said spindle *d'*, substantially as and for the purposes set forth.

479,412. COMBINATION-LOCK. JOHN F. FOSTER, Marceline, Mo. Filed Dec. 2, 1890. Serial No. 373,317. (Model.)



Claim.—1. A permutation-lock comprising a casing having guide-ribs upon the inner surfaces of its sides, a number of supports or standards having notches upon their edges to receive the ribs, and also having each a central opening, a central cavity in the side of the support or standard having a circular margin, and an upper and lower segmental shoulder formed upon the side of the standard concentric with the margin of the cavity, and a number of revoluble permutation-disks, each provided with a central opening and on each side with a boss having a circular margin to register with the margin of the standard cavity, and a circular periphery registering with the segmental shoulders of the standards and having, also, a number of recesses, each communicating at its inner end with the central opening of the disk, substantially as set forth.

2. A permutation-lock comprising a suitable casing, a number of standards or supports having each a central bore, a number of operative permutation-disks having each also a central opening, and a number of recesses opening radially from said central opening, and a number of intermediate blind disks having each a central opening and also a single radial recess opening from said central opening, substantially as set forth.

3. A permutation-lock comprising a longitudinally-movable bolt having a reduced body portion, a number of collars mounted revolubly upon the reduced portion of the bolt and having each a radial lug or wing, and a number of stationary washers also surrounding the reduced portion of the bolt and retained in position by set-screws, substantially as set forth.

4. A permutation-lock comprising a suitable casing having a number of guide-ribs upon the inner surfaces of its sides, a number of supports having notched edges to receive the guide-ribs, a number of revoluble disks mounted in cavities in opposite sides of the supports and having each a central opening, and a number of radial recesses opening from said opening, and a locking-bolt extending through said openings and provided with revoluble collars having each a radial lug or wing to enter one of the radial recesses, substantially as set forth.

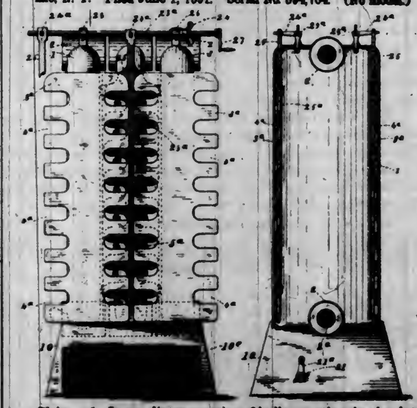
5. A permutation-lock comprising a suitable casing having guide-ribs upon the inner surfaces of its side walls, a number of supports having notches in their edges to receive said ribs, and having also each a central opening and a circular cavity in each side, a locking-bolt having a number of revoluble collars, each provided with a radial lug or wing, a number of revoluble permutation-disks mounted revolubly in said cavities and having each a central opening, and a number of radial recesses opening from said central opening, and a spring surrounding the bolt and operating to retain the same in its outermost position, substantially as set forth.

6. A permutation-lock comprising a suitable casing, a number of supports mounted therein, a block mounted in the outer part of the casing, a bolt extending horizontally through the block and supports, a laterally-projecting finger-piece carried by the bolt, a slot in the block to receive the finger-piece, and screws passed through the end of the lock-casing and impinging upon the block, substantially as set forth.

7. A permutation-lock comprising a suitable casing having an opening in one of its side walls, a slide working in said opening, and a number of permutation-disks mounted revolubly within the casing and having characters upon their peripheries, the peripheries of the disks being exposed through the opening when the slide is moved into open position, substantially as set forth.

8. A permutation-lock comprising a suitable casing having guide-ribs upon the inner surfaces of its side walls, a number of supports for the locking-bolt having central openings and notches upon their peripheries to receive the ribs, a plate located at the inner end of the lock-casing and having notched edges and a central opening, auxiliary supports at the ends of the casing having notched edges and a circular cavity in one side and also a central opening, a block located in the outer end of the casing and having a central channel for the bolt, and screws passed through the outer end of the casing and impinging upon the block, substantially as set forth.

479,413. SEMI-DIRECT RADIATOR. ARTHUR H. FOWLER, Buffalo, N. Y. Filed June 1, 1891. Serial No. 394,704. (No model.)



Claim.—1. In a radiator, a series of hollow sections having lateral flanges at each side provided with openings or perforations, the flanges of two sections extending toward each other, a vertically-sliding plate

provided with similar openings and located in slideways at the sides of said flanges, and a means, substantially as above described, for moving them so as to cover or uncover the openings, in combination with an intermediate section and a means, substantially as above set forth, for securing them together.

2. In a radiator, a series of three connected hollow sections having passages communicating with each other, the outer sections having open-work flanges projecting laterally in opposite directions from the narrow sides of the same toward each other, so as to inclose the intermediate section and present a perforated wall at each side to permit the air to pass out from the sides, as well as upward through the top, and an intermediate section having a series of hollow projections which extend into the air-space for increasing the heating surface, substantially as described.

3. The combination of two outside hollow radiator-sections with an intermediate smaller hollow section wholly inclosed within the sides and flanges of the two adjoining sections and made tapering from the bottom up to the top, so as to gradually enlarge the surrounding air-space from the base upward, the whole being closely connected together by nipples at the top and bottom and communicating with the interior, substantially as described.

4. In a radiator, the combination of two outside radiator-sections provided with flanges extending laterally from each side and an intermediate section inclosed between the two outside sections and their flanges, the whole connected together by nipples at the top and bottom which communicate with the interior of the sections, substantially as described.

5. In a radiator, a series of hollow sections secured together so as to have a free passage through the whole, and flanges extending laterally from the outer sections toward each other, the intermediate sections being smaller and substantially inclosed by the outer sections and their flanges, thereby leaving a central air-space surrounding the intermediate section for the air to ascend between the sections through the top of the radiator, substantially as specified.

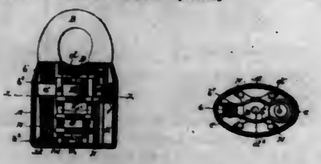
6. A radiator consisting of two outer sections and a smaller intermediate section located between them, an outer section being permanently connected to one side of the intermediate section by nipples rigidly secured to both and the other side of the intermediate section being secured to the other outer section by a removable joint, substantially as and for the purposes described.

7. A radiator consisting of two outer sections and a smaller intermediate section located between the two outer sections, one outer section being rigidly and permanently connected at one side with one side of the intermediate section by nipples rigidly secured thereto at the top and bottom, the other side of the outer section having an opening provided with an annular recess to receive a short nipple for a removable connection attachment with another radiator-section, the other side of the intermediate section having a removable connection with the opposite outer section, consisting of a short nipple and a bolt and nut for securing them at the top and bottom, and the outer side of the opposite outer section having openings to receive the nipple for a permanent connection with another radiator-section, substantially as described.

8. A radiator consisting of hollow sections connected together, having a passage-way from one to the other, and open-work flanges extending laterally in opposite directions from the narrow sides of the sections, in combination with vertically-sliding plates and mechanism for operating them to open or close the openings in the flanges, a hollow box upon which the radiator stands, an inclosed receptacle having inclined open sides communicating with an opening leading outside, and pivoted damper for opening or closing the inclined openings or closing the openings in the outer box, whereby the air may be taken wholly from the outside or from the room in which the radiator is located, or both, substantially as described.

9. The combination, with two outside radiator-sections, of an intermediate section inclosed vertically between the inner sides and projecting flanges of the outer sections, so as to leave an air-space surrounding the intermediate section and being provided with a series of projections for increasing the heating-surface, and the whole connected together, substantially as described.

479,414. PADLOCK. EDWARD T. FRAIM, Lancaster, Pa. Filed Oct. 30, 1891. Serial No. 410,382. (Model.)



Claim.—1. In a padlock, the combination, with the case and shackle, of a stationary plate having legs formed on one face thereof, a spring located between said legs and extending horizontally between the ends of the case, said spring being adapted to engage the long limb of the shackle to lock both limbs in the case and prevent the long limb being withdrawn therefrom, and means for holding the spring in place, substantially as and for the purpose specified.

2. In a padlock, the combination, with a case having vertical ribs formed therein, of a shackle with notches cut in the body of the long limb and a boss formed on the end thereof, an upper plate located between said ribs and having an aperture through it, studs on the upper and legs on the lower face of said plate, a V-shaped spring located between said legs and adapted to engage with the notches and boss of said long limb, and means for holding the spring between said legs, substantially as and for the purpose specified.

3. In a padlock, the combination, with a case having vertical ribs formed therein, of a shackle with notches cut in the body of the long limb and a boss formed on the end thereof, an upper perforated plate located between said ribs and having studs on the upper and legs on the lower face thereof, a V-shaped spring located between said legs and having a head constructed to receive the short limb of the shackle, the leaves of the spring being adapted to engage with the notches and boss of the long limb, a stationary plate located below said spring and having an extension projecting under the head thereof, and means for supporting the stationary plate, substantially as and for the purpose specified.

4. In a padlock, the combination, with a case having vertical ribs formed therein, of the long limb of the shackle, constructed to be engaged by a spring to lock both limbs in the case and prevent the long limb being withdrawn therefrom, an upper stationary plate located between said ribs and having legs formed on one face thereof, a spring located between said legs adapted to engage the long limb of the shackle, and plates resting upon the bottom of the case and supporting the upper stationary plate, substantially as and for the purpose specified.

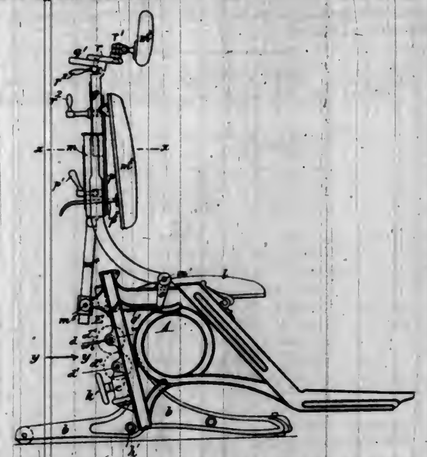
5. In a padlock, the combination, with a case having vertical ribs formed therein, of a shackle with notches cut in the body of the long limb and a boss formed on the end thereof, an upper perforated plate located between said ribs and having studs on the upper and legs on the lower face thereof, a V-shaped spring located between said legs and having a head constructed to receive the short limb of the shackle, the leaves of the spring being adapted to engage with the notches and boss of the long limb, a stationary plate located below said spring and having an extension projecting under the head thereof, and plates resting on the bottom of the case and supporting the stationary plate below the spring, substantially as and for the purpose specified.

6. In a padlock, the combination, with a case having vertical ribs formed therein, of a shackle with notches cut in the body of the long limb and a boss formed on the end thereof, an upper perforated plate located between said ribs and having studs on the upper and legs on the lower face thereof, a V-shaped spring located between said legs and having a head constructed to receive the short limb of the shackle, the leaves of the spring being adapted to engage with the notches and boss of the long limb, a stationary plate located below said spring and having an extension projecting under the head thereof, plates resting on the bottom of the case and supporting the stationary plate below the spring, and a lug formed on the bottom of the case and adapted to engage the boss on the long limb of the shackle when locked in the case, substantially as and for the purpose specified.

479,415. CHAIR. THOMAS H. GARDNER and EDWARD GARDNER, Cornbrook, Manchester, England. Filed July 9, 1891. Serial No. 398,891. (No model.)

Claim.—1. The combination, substantially as hereinbefore set forth, of a chair base or foot, standard-sections fixed thereon, racks on these standards, another set of standard-sections movable endwise thereon, a seat suitably supported, cross-bars connecting these movable standards and constituting with them a gear-frame, means for lifting this frame, a cross-shaft mounted in this gear-frame, pinions on this shaft gearing with the racks on the fixed standard-sections, a rotary self-acting locking-clutch on the shaft, which clutch permits the gear-frame to rise, but prevents its descent, a worm-wheel on the rotary pawl of the clutch, a worm of slight pitch gearing with the worm-wheel, and an actuating-wheel controlling the worm, these members being organized and operating, as specified, to lift and hold up the gear-frame and allow it to descend when the clutch is released by the rotation of the worm-wheel and continue to descend as long as that wheel rotates, but is automatically locked by the stoppage of its rotation.

2. The combination, substantially as hereinbefore set forth, of a chair base or foot, standard-sections fixed thereon, racks on these sections, another set of standard-sections movable endwise thereon, cross-bars connecting these sections and constituting with them a gear-frame, means for lifting this frame, a lower cross-shaft mounted in this gear-frame, pinions on this shaft gearing with the racks on the fixed standard-sections, an upper cross-shaft also mounted in the gear-frame, pinions thereon, gearing connecting the two cross-shafts, a seat-frame, standard-sections carrying it, movable endwise on or parallel with the gear-frame, means for locking the seat-support and gear-frame together, and racks carried by these standard-sections and gearing with the pinions on the upper cross-shaft, these members being organized and operating, as specified, to cause the gear-frame and seat-frame to move together at all times.



3. The combination, substantially as hereinbefore set forth, of a chair base or foot, standard-sections fixed thereon, racks on these sections, another set of standard-sections movable endwise thereon, cross-bars connecting these sections and constituting with them a gear-frame, means for lifting this frame, a lower cross-shaft mounted in this gear-frame, pinions on this shaft gearing with the racks on the fixed standard-sections, a rotary self-acting locking-clutch on this shaft, which clutch permits the frame to rise, but prevents its descent, a worm-wheel on the rotary pawl of the clutch, a worm of slight pitch gearing with the worm-wheel, an actuating-wheel controlling the worm, a seat-frame, standard-sections which carry it movable endwise on or parallel with the other standard-sections, racks carried thereby, an upper cross-shaft carried by the gear-frame, pinions on this shaft working in these racks, and gearing connecting the two cross-shafts, these members being organized and operating, as specified, to cause the gear-frame and seat-frame to move together at all times while free to rise, but automatically locked to prevent their descent until the locking-clutch common to both is released.

4. The combination, substantially as hereinbefore set forth, of a chair base or foot, standard sections or racks fixed thereon, a gear-frame movable endwise thereon, a seat-frame, endwise moving standard-sections or supporting-racks carrying it, gearing carried by the gear-frame engaging with both the fixed and movable rack-sections, and a rotary locking clutch, its releasing-gear and actuating-wheel, also carried by the gear-frame, these members being organized and operating, as specified, to allow the seat-frame to rise without obstruction, but automatically preventing its descent until the locking-clutch is released and kept released by the rotation of its actuating-wheel when the seat-frame descends by its own weight.

5. The combination, substantially as hereinbefore set forth, of a chair-seat frame and a chair-back pivotally connected or hinged to the seat-frame above the top of the bottom on which the cushion is supported in approximately the same axial line as that of the hip-joints of the occupant of the chair.

6. The combination, substantially as hereinbefore set forth, of a chair-seat frame, a chair-back pivotally connected or hinged to the seat-frame in approximately the same axial line as that of the hip-joints of the occupant of the chair above the top of the bottom on which the cushion is supported, and a counterbalancing-spring connected to the chair-frame and to the back, for the purpose specified.

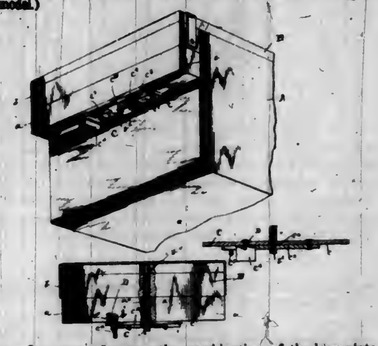
7. The combination, substantially as hereinbefore set forth, of the chair-seat frame, the back pivotally connected therewith, a downwardly-projecting rod connected to the back, and a clutch through which the rod extends, comprising clamping devices normally engaging the rod to prevent its downward movement, but which are constructed and arranged to permit the rod to move upwardly freely, and means for positively actuating the clamping devices to release them from the rod to permit it to descend, the arrangement being such that the back may be swung rearwardly and held in the desired position by positively releasing the clamping devices, but may be moved forward or righted quickly without any manipulation of the clamping devices.

8. The combination, substantially as hereinbefore set forth, of the chair-seat frame, the back pivotally connected therewith, the downwardly-projecting rod hinged to the back, a pivoted clutch through which the rod extends, comprising devices which clamp the rod when it is moved backwardly, but which permit it to be moved upwardly freely, and means for releasing the clamping devices to permit the downward movement of the rod, and a counterbalancing-spring connected with the chair-back and the chair-seat frame, for the purpose specified.

9. The combination, substantially as hereinbefore set forth, of a chair-seat frame, a chair-back, journals or pivot-joints connecting the back and seat-frame, an arm projecting downwardly from the journal of the chair-back, a counterbalancing-spring connecting said arm with the seat-frame, a self-acting locking-clutch on the back of the seat-frame, and an adjusting-rod movable endwise through the clutch and pivoted to the chair-back, these members being organized and operating as and for the purpose specified.

10. The combination, substantially as hereinbefore set forth, of a chair-seat frame, a chair-back, brackets thereon, journals or pivot-joints connecting these brackets and the side bars of the seat-frame above and nearer the front than the rear of said bars, a spring counterbalancing the weight of the chair-back, a self-acting locking-clutch on the back of the seat-frame, an adjusting-rod movable endwise through the clutch, and means, substantially such as described, for throwing the clutch out of operation to permit the descent of the chair-back.

479,416. BOX-FASTENER. JOHN G. GIMBERE and EDWARD SCHULTZ, Jr., Houston, Tex. Filed Apr. 15, 1891. Serial No. 389,082. (No model.)



Claim.—In a cover-fastener, the combination of the base-plate provided with a perforation adapted for the reception of a bolt, a movable plate mounted on the base-plate and having a perforation and a slot connected with the same and having its movement limited by guides and provided with an outwardly-turned lug c^4, a bolt provided with a neck, and a gravity locking-pin arranged in an opening of the base-plate and adapted to engage the lug c^4, substantially as described.

479,417. CASH-CARRIER. EMANUEL C. GIFT, Freeport, Ill., assignor of one-half to Oscar J. Ziegler, same place. Filed Aug. 13, 1891. Serial No. 402,523. (No model.)

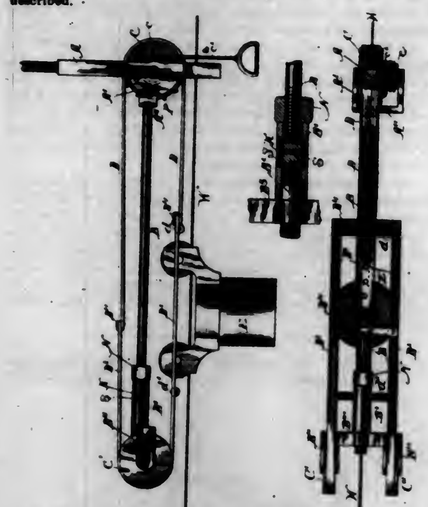
Claim.—1. The combination, with a suitable bracket or standard and a suitably-supported track, of an arm supported by the standard above the track, pulleys supported above the track at opposite ends of said arm, an endless belt extending about said pulleys, and two transverse stops fastened to the endless belt and separated by a space sufficient to receive a carrier moving on the track, that part of the belt to which the stops are fastened being made up of two parallel straps separated by a space for the passage of a carrier on the track, substantially as shown and described.

2. The combination, with the bracket or standard A, of the pulley C, journaled therein, the arm B, supported thereby, the pulleys C' C', journaled at the free end of the arm, the endless belt extending about the pulleys C C' and made up of the single strap D and the parallel straps D', and the stops d d, fastened transversely upon the straps D', substantially as shown and described.

3. The combination, with the bracket or standard A, having the integrally-formed plates A' and web A^3, of the pulley C, journaled between said plates, the arm B, fastened to and supported by the web A^3, the transverse web B^3, supported at the free end of the arm B and

longitudinally adjustable thereon, the plates B^2 B^2, supported by the web B^2, and the pulleys C C, journaled therein, the endless belt D D', extending about said pulleys C C, and the stops d d, fastened to the part D' of the belt, substantially as shown and described.

4. The combination, with the standard or bracket A, arm B, and pulleys C C, of the endless belt extending about said pulleys and made up of the single strap D and the parallel straps D', said single strap being perforated and said pulley C being furnished with pins p, adapted to enter the perforations in the belt D, substantially as shown and described.



5. The combination, with the bracket or standard A, plates A^1, and web A^2, of the arm B, fastened to the plate, the sleeve B', adjustable on the end of said rod and formed with a slot S, the pin K, permitting longitudinal movement of the sleeve upon the rod, but preventing rotation of the sleeve, the nut N, adapted to adjust the sleeve upon the rod, the plates B^2, supported by the sleeve, and the pulleys C C, journaled in said plates, substantially as shown and described.

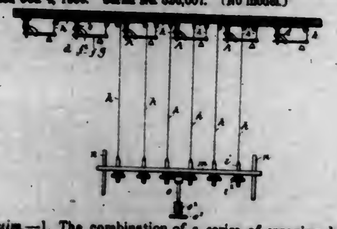
479,418. PUZZLE. HENRY C. GUERTIN, Winchendon, Mass. Filed Sept. 18, 1891. Serial No. 406,085. (No model.)



Claim.—1. A puzzle comprising a box or similar body provided with points of obstruction on its bottom, a hollow body adapted to roll on said bottom and provided with a mouth or opening, and a ball of a size suitable to enter said mouth, substantially as specified.

2. A box having a series of vertical hoops or loops, as g, disposed therein, in combination with the hollow body C, having the mouth A, and ball D, substantially as set forth.

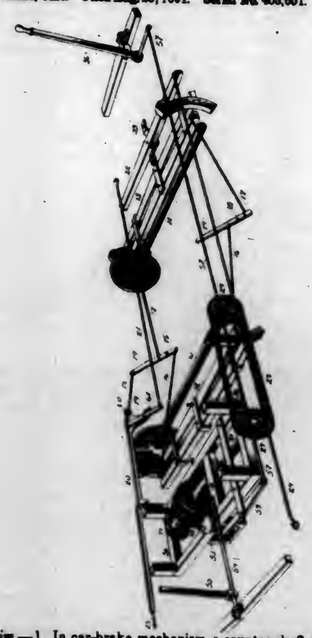
479,419. APPARATUS FOR COOLING MALT LIQUORS. CLARENCE C. HANFORD, Medford, and CHARLES D. STANFORD, Boston, Mass. Filed Oct. 4, 1889. Serial No. 326,007. (No model.)



Claim.—1. The combination of a series of spraying devices or delivery-tubes, each having a deflector controlling the orifice thereof and a support for said deflector, with a movable bar and flexible connectors between said bar and each of said deflector-supports, as described, and means for operating said bar, whereby all the said deflectors may be moved simultaneously, each deflector being movable independently of the others by its flexible connector, substantially as and for the purpose set forth.

2. The combination, with a series of spraying devices or delivery-tubes, each having a deflector controlling the orifice thereof and a lever connected with said deflector, of cords or chains connected with said levers and a movable bar and adjustable connectors by which said cords are adjustably connected with said bar, substantially as and for the purpose described.

479,420. BRAKE MECHANISM FOR CARS. HENRY V. HARTE, Cleveland, Ohio. Filed Aug. 25, 1891. Serial No. 403,651. (No model.)



Claim.—1. In car-brake mechanism, a counter-shaft driven from the car-axle and a pinion fixed thereon, a friction-band having internal gear, friction mechanism to engage said band, and a winding-drum with a head carrying pinions free to travel within the friction-band, substantially as described.

2. In car-brakes, a friction-band having gear on its inside, a draw-bar, and mechanism operated by said band and connected with the said draw-bar, a shaft having a pinion to operate said friction-band, and a device to engage said friction-band and hold it from rotating, substantially as described.

3. The counter-shaft and a series of pinions operated thereby, the winding-drum turned by said pinions, the internally-geared band meshing with said pinions, and the clamping mechanism for said band, substantially as described.

4. In brake mechanism for cars, the internally-geared band and the clamping mechanism about the same, the counter-shaft and the pinions to turn said band, the winding-drum and the draw-bar, and power connections from the car-axle to the counter-shaft, substantially as described.

5. In brake mechanism for cars, a counter-shaft and positive driving mechanism connecting the shaft with the car-axle, a pinion fixed on said shaft, a band-wheel driven by said pinion and intermediate gear, a winding-drum, and friction mechanism to lock said band-wheel and cause the drum to rotate, substantially as described.

6. In a car-brake, a counter-shaft and driving-pinions, an internally-geared friction-band meshing with said pinions, a clamp to tighten on said band and stop its rotation, a winding-drum driven through said pinion, and mechanism connecting with the car-axle to drive said parts, substantially as described.

7. In car-brake mechanism, a car-axle, a counter-shaft having a fixed pinion, a friction-wheel sleeved loosely upon said shaft and having internal teeth, gears between said friction-wheel and said pinion, and a drum operated through said gears, substantially as described.

8. In a car-brake, a brake-bar, a shaft driven from the car-axle, an internally-geared band and clamps to engage the outer surface thereof, pinions operated from said shaft meshing with said geared band, and a rotating device operated by said gear and connected with the draw-bar, substantially as described.

9. The counter-shaft provided with a fixed pinion, a sleeve about said shaft, and a winding-drum about said sleeve provided at one end with a disk, pinions on said disk meshing with the pinion on the counter-shaft, an internally-geared band meshing with the pinions on the said disk, and friction-clamps about said band, substantially as described.

10. In a car-brake, a shaft connected with the car-axle by positive driving mechanism, a pinion on said shaft, and a drum and a disk rigid therewith carrying a pair of pinions meshing with said pinion, in combination with a band-gear meshing with said pair of pinions and friction-clamps engaging the outer surface of said band-gear, substantially as described.

11. In a car-brake mechanism, the car-axle, a counter-shaft, and driving mechanism connecting said axle and shaft, in combination with a friction-band having a supporting-sleeve at one side around said shaft and a bushing supporting said sleeve, a winding-drum, and gear to turn said drum meshing with the said friction-band, substantially as described.

12. In a car-brake, a friction-band and clamps arranged around said band, in combination with a shaft and sliding mechanism on said shaft connected with said clamps, substantially as described.

13. In a car-brake, a rotating band having internal gear and an outside friction-surface, clamps to engage said friction-surface, a separate loose cam connected with each clamp, and a shaft with fixed cams engaging said loose cams, substantially as described.

14. In a car-brake, a pair of fixed cams on a shaft and a pair of movable cams between the fixed cams, in combination with a friction-band and clamps to engage said band having one end connected with the said movable cams, substantially as described.

15. In a car-brake, a rotating shaft carrying fixed cams and a pair of movable cams between the fixed cams, in combination with clamps held at one end by said movable cams, a friction-band engaged by said clamps, a winding-drum, a shaft supporting said drum, and gear operated by said shaft engaging said friction-band and rotating said drum, substantially as described.

16. In a car-brake, a counter-shaft driven from the car-axle and a drive-pinion fixed thereon, a band-gear and pinions between said band-gear and said drive-pinion, clamps to engage the band-gear, and a shaft with cams to tighten said clamps, substantially as described.

17. In a car-brake, mechanism to set the brake, consisting of a shaft rotated by a lever, clamps operated by devices on said shaft and a friction-band having internal gear engaged on its surface by said clamps, in combination with a winding-drum, a shaft on which said drum is mounted, and pinions driven by said shaft and engaging said friction-band, substantially as described.

18. In a car-brake, a brake-bar, brake mechanism to bear against the wheels, an evener connected with said brake mechanism and said brake-bar, and a drum driven from the car-axle to move said brake-bar, substantially as described.

19. In a car-brake, a draw-bar and an evener on said draw-bar to operate the brake mechanism, in combination with a shaft having power connection with a car-axle, a winding-drum on said shaft connected to the brake-bar, and mechanism to lock said shaft and the winding-drum together, substantially as described.

20. In a car-brake, a counter-shaft driven from the car-axle and a winding-drum thereon, a brake-bar and an evener operated thereby, brake mechanism operated from said evener, and friction mechanism to engage the said winding-drum, with the shaft carrying the drum whereby the drum is turned, substantially as described.

21. In car-brake mechanism, a draw-bar, an evener pivoted, and a fixed stop on the said bar to limit the movement of the evener beyond said stop, substantially as described.

22. In car-brake mechanism, a draw-bar having fixed stops for an evener and an evener pivoted between said stops, substantially as described.

23. In car-brake mechanism, a draw-bar and an evener thereon and a connection with said evener to unite to the brake mechanism of a second car, substantially as described.

24. In car-brake mechanism, a draw-bar and an evener thereon, a horizontally-arranged evener and connections between said eveners, and connections on the horizontally-arranged evener to control the brake mechanism of another car, substantially as described.

25. In car-brake mechanism, a counter-shaft, friction mechanism sleeved loosely on said shaft, and fixed bushing supporting said friction mechanism, in combination with a stationary sleeve around said shaft and a winding-drum supported on said sleeve and operated through said friction mechanism, substantially as described.

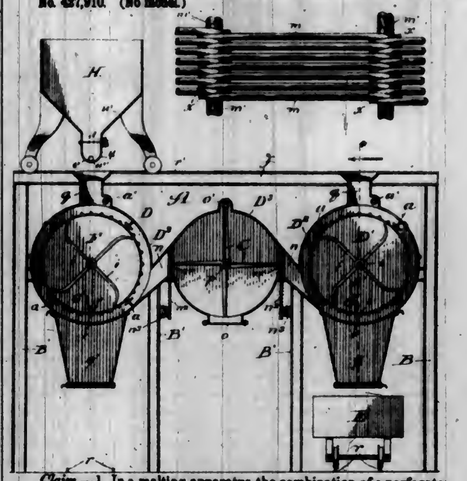
26. In car-brake mechanism, a counter-shaft driven from the car-axle and a friction-band provided with a sleeve portion loosely surrounding the said shaft, in combination with a bushing surrounding said sleeve and forming a bearing therefor and a frame to which the bushing is rigidly fastened, substantially as described.

27. In car-brake mechanism, a friction-band and friction-clamps thereon, in combination with a shaft having separate movable pieces thereon to which the said clamps are connected, and means on said shaft to move said pieces toward and from one another, substantially as described.

28. In car-brake mechanism, a shaft, a friction-band sleeved loosely on said shaft and having internal gear geared to said shaft and friction-clamps around its outside, in combination with a vertically-arranged shaft having separate movable pieces connected with said clamps, substantially as described.

29. In car-brakes, a shaft, a winding-drum on said shaft, friction mechanism about said shaft, the supporting-frame, and bushing fixed to said frame supporting the said friction mechanism, substantially as described.

479,421. APPARATUS FOR MANUFACTURING MALT. CHARLES HAUPTMANN and JOSEF SCHWARZ, Chicago, Ill. Filed Apr. 5, 1892. Serial No. 427,910. (No model.)



Claim.—1. In a malting-apparatus, the combination of a perforate rotary drum forming the grain-receptacle and having a gate and enveloped in a stationary casing having a supply-inlet and discharge-outlet, a rotary stirrer in the drum, adapted to be rotated contrary thereto, and means for supplying moist air to the drum, substantially as described.

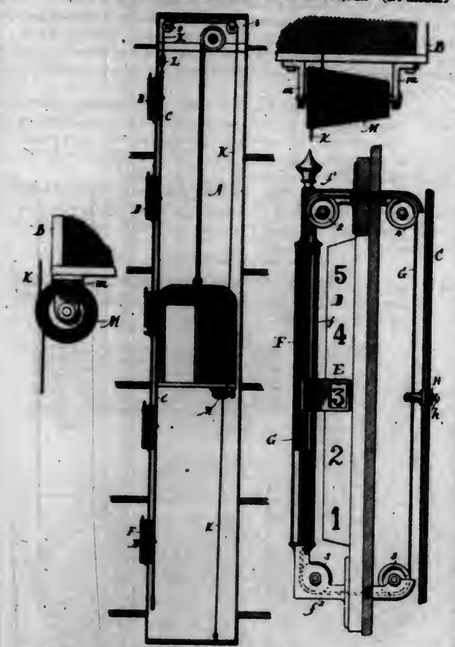
2. In a malting apparatus, the combination of a perforate rotary drum having a gate G and inclosed in a casing D^3, having a supply-inlet q and a discharge-outlet q', deflectors a, interposed at intervals between the drum and its envelope, a rotary stirrer F in the drum, and a fan C, communicating with the drum through its said casing, substantially as described.

3. In a malting apparatus, the combination, with an inclosure A, of a circumferentially perforate rotary drum having a gate G and inclosed in a casing D^3, having a supply-inlet q and a discharge-outlet q', a rotary stirrer F in the drum, adapted to be rotated in the direction contrary to the rotation of the drum, and a fan C, communicating with the drum through the said casing and forming a support in the said inclosure for stored ice, substantially as described.

4. In a malting apparatus, the combination, with an inclosure A, of rotary drums D and D', each having a gate G and being inclosed in a casing D^3, having a supply-inlet q and a discharge-outlet q', a rotary stirrer F in each drum, adapted to be rotated in the direction contrary to that of the drum, and a fan C, interposed between and controllably communicating with the two drums, substantially as described.

5. A malting apparatus comprising, in combination with an inclosure A, a steep-tank car H on a track r' above the said inclosure, rotary drums D and D', each having a gate G and being inclosed in a casing D^3, having an upper supply-hopper q and a lower discharge-hopper q', a rotary stirrer F in each drum, deflectors a, provided at intervals around the drums inside their said casings, and a fan C, interposed between and controllably communicating with the two drums and having an air-straining inlet and a water-supply pipe in its casing D^3, the whole being constructed and arranged to operate substantially as described.

479,422. INDICATOR FOR ELEVATORS. THADDEUS W. HERRMAN, Chicago, Ill., assignor to the Elevator Supply and Repair Company, same place. Filed June 24, 1891. Serial No. 397,342. (No model.)



Claim.—1. An indicator mechanism for elevators, comprising the combination, with suitable individual indices and with a vertically-moving part of the elevator mechanism—such, for example, as the car—of an indicator-cable connected with said indices and by the shifting of which cable said indices are operated, said indicator-cable extending into engagement with said vertically-moving part of the elevator mechanism and having a fixed support and being sustained in a manner permitting its working length to be varied, and suitable means for shifting said cable to vary its working length, and thereby effect the proper movement of the indices, substantially as described.

2. An indicator mechanism for elevators, comprising the combination, with suitable individual indices and with a vertically-moving part of the elevator mechanism, such as the car, of an indicator-cable engaged by said vertically-moving part of the elevator mechanism, said indicator-cable extending from top to bottom of the hatchway and having a fixed connection and being sustained in a manner permitting it to be shifted so as to vary its working length, and suitable means for shifting said indicator-cable to vary its working length, and thereby impart movement to the several indices, substantially as described.

3. An indicator mechanism for elevators, comprising the combination, with suitable individual indices, of a vertically-moving part of the elevator mechanism—such, for example, as the elevator-car—an indicator-cable extending from top to bottom of the hatchway, a fixed support for one end of said cable, the opposite end of said cable being free to move and being suitably connected with the indices, and suitable means operated by the vertically-moving part of the elevator mechanism, whereby the working length of said cable may be varied to effect the movement of said indices, substantially as described.

4. An indicator mechanism for elevators, comprising the combination, with suitable individual indices, of an indicator-cable suitably connected with said individual indices, a reciprocating part of the elevator mechanism, such as the car, with which said cable is engaged, said indicator-cable having a fixed connection or support and being connected with the indices in manner permitting the working length of said cable to be varied, and suitable differential mechanism for varying the working length of the cable to effect the shift of the indices, substantially as described.

5. An indicator mechanism for elevators, comprising the combination, with suitable indices, of an indicator-cable extending from top to bottom of the hatchway, a fixed support for one end of said cable, the opposite end of said cable being free to move and being suitably connected with the indices, and a differential drum over which said cable passes and whereby the working length of said cable may be varied to effect the movement of the indices, substantially as described.

6. An indicator mechanism for elevators, comprising an indicator-cable having one end sustained by a fixed connection and having its opposite end free to shift and suitably connected with the indices, an elevator-car, and a differential drum or pulley connected to said elevator-car over which said indicator-cable passes and whereby the working length of said cable may be varied to impart movement to the indices, substantially as described.

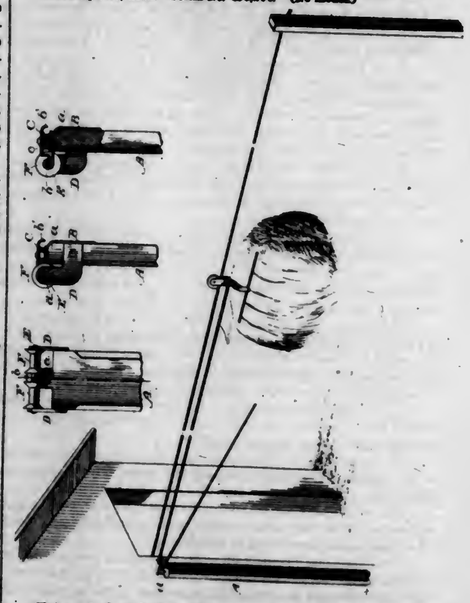
7. An indicator mechanism for elevators, comprising the combination, with suitable indices, of means for shifting said indices, consisting of an indicator-cable connected with said indices, a vertically-moving part of the elevator mechanism with which said cable is engaged, and a spirally-grooved idler-drum of varying diameter over which said indicator-cable passes, whereby said cable when shifted from end to end of said drum will cause the working length of said indicator-cable to vary to effect the movement of the indices, substantially as described.

8. An indicator mechanism for elevators, comprising a suitable indicator-cable extending from top to bottom of the hatchway and a differential mechanism engaging the said cable to impart a varying shift thereto, said differential mechanism being connected to the elevator-car, and a suitable index or indices, and a connection between said index and said cable, substantially as described.

9. An indicator mechanism for elevators, comprising the combination, with suitable indices, of the indicator-cable K, extending from top to bottom of the hatchway and suitably connected to said indices, an elevator-car B, and a spirally-grooved drum or pulley M, attached to the elevator-car over which drum the indicator-cable passes, substantially as described.

10. An indicator mechanism for elevators, comprising the combination, with suitable indices, of the indicator-rod C, connected to said indices, an indicator-cable K, extending from top to bottom of the hatchway and having its lower end fast and its upper free end connected to the indicator-rod, and a differential drum carried by the car and around which drum the said indicator-cable passes, substantially as described.

479,428. HAY-CARRIER. JOSEPH L. HOFFMAN, Longtown, Mo. Filed Apr. 22, 1892. Serial No. 430,261. (No model.)



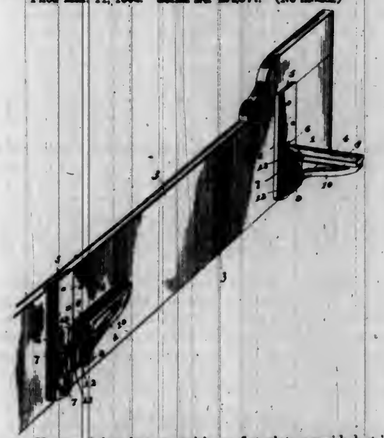
Claim.—1. In a device of the character described, the combination, with an upright post carrying a pulley journaled on a vertical bearing upon the top of said post, of a horizontal shaft located at the top of said post and in front of said pulley and two pulleys or spools journaled upon said horizontal shaft and located in front of the central pulley and respectively at each side of the same, said pulleys being independent of each other, and the arrangement being such that the horizontal pulley is located centrally between the two pulleys or spools projecting at the front of the post, substantially as and for the purpose set forth.

2. In a device of the character described, the combination, with an upright post provided at its upper end with an upward projection, of a U-shaped plate mounted upon the latter, a pulley journaled in said plate and upon a vertical bearing, brackets projecting forwardly and upwardly from the sides of the post, a horizontal shaft secured in said brackets, and two corresponding pulleys or spools journaled on said shaft, substantially as and for the purpose set forth.

3. In a device of the character described, the combination, with an upright post provided at its upper end with an upward projection, of a plate secured to the latter, bent forwardly over the same and thence rearwardly, the free end of said plate being turned downwardly, a pulley journaled in the frame formed by said plate, a horizontal shaft located in front of the post, and two corresponding pulleys or spools journaled on said shaft, substantially as and for the purpose set forth.

4. A device of the character described, consisting of a vertical post having an upwardly-projecting central extension at its upper end, a plate secured at the back of said extension, thence bent forwardly over the same and formed in front of the post with an eye, thence bent rearwardly and its free end finally downwardly, a pulley journaled in the frame formed by said plate, forwardly and upwardly projecting brackets secured to the sides of the post and provided at their free ends with eyes in horizontal alignment with the eye of the plate, a shaft mounted in said eyes, and two corresponding pulleys or spools journaled on the shaft between the supports therefor, substantially as and for the purpose set forth.

479,424. BRACKET. JOHN HUFF and ELLIS JOHNSON, Lusk, Wyo. Filed Mar. 11, 1892. Serial No. 424,877. (No model.)



Claim.—A bracket comprising a flat plate provided at its upper edge with a horizontal supporting-flange 5 and having a longitudinal slot intermediate of its ends and provided with outwardly and upwardly projecting lugs arranged in pairs on opposite sides of the slot and having beveled edges, the lower lugs being connected at their bottoms with a supporting-web formed integral with them, and a detachable bracket-arm having a central longitudinal flange to fit into the slot and provided with integral downwardly-projecting lugs arranged in pairs on opposite sides of the flange and having beveled edges to conform to the lugs of the plate, substantially as described.

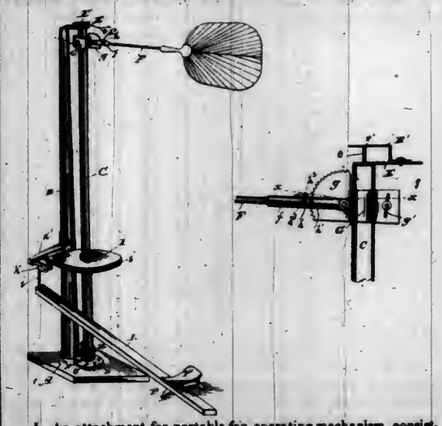
479,425. FAN-OPERATING DEVICE. ROBERT F. HUNT, Washington, D. C. Filed Aug. 15, 1889. Serial No. 320,901. (No model.)

Claim.—1. In a portable fan-operating mechanism, the combination, with a base and upright rigidly mounted thereon, the plate having the bearing therein on the base, and the projections or lugs thereon, of the fan-shaft journaled in said bearing, the coil-spring surrounding said shaft and having the catch engaging said projections, and the pulleys, cord, and treadle, substantially as and for the purpose specified.

2. In a fan-operating mechanism, the combination, with the base, upright, and fan-shaft journaled at the bottom on the base and having the journal at the upper end, of the bearing for the top of the same, formed by the arm on the upright having the bearing thereon for the journal, and the movable bracket for preventing the upward movement of the shaft and journal, substantially as described.

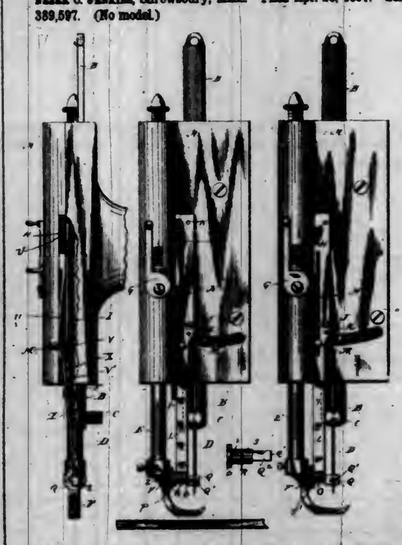
3. In a portable fan-operating mechanism, the combination, with the vertical fan-shaft and operating-treadle, as described, of the bracket on the fan-shaft, having the toothed segment thereon, the arm pivoted in said segment and having the sleeve thereon engaging the teeth thereof with the notches to permit the vertical adjustment of the arm, substantially as described.

4. In a portable fan-operating mechanism, the combination, with the vertical fan-shaft and operating-treadle, as described, of the adjustable bracket split on one side, with the thumb-screw for drawing the sides together and having the toothed segment thereon, the fan-arm pivoted on said segment and having the sleeve thereon engaging the teeth with the notches to permit the vertical adjustment of the arm, substantially as described.



5. An attachment for portable fan-operating mechanism, consisting of the forwardly-extending base, with the bearing at one end, and the top or treadle pivoted in said bearings and adapted to rest on the operating-treadle, whereby the necessity for fastening the base down is dispensed with, substantially as described.

479,426. NEEDLE-THREADER FOR SEWING-MACHINES. EBENEZER C. JENKINS, Shrewsbury, Mass. Filed Apr. 20, 1891. Serial No. 389,597. (No model.)



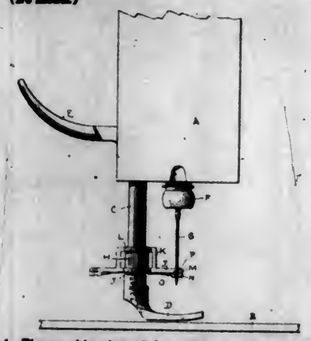
Claim.—1. The sewing-machine-needle-threading device consisting of the bar sliding on the machine-head, the thread-guide journaled in the lower end thereof, having the toothed sector, and the rack with which said sector is adapted to co-operate, substantially as described.

2. The sewing-machine-needle-threading device consisting of the bar L, sliding on the head, the thread guide journaled in the lower end thereof, the slot S, cut in the bar L, and the pin B for limiting the

rotation of the thread-guide, and means for rotating the thread-guide, substantially as described.

3. The sewing-machine-needle-threading device consisting of the sliding bar L, the thread-guide Q, journaled in the lower end thereof and having the toothed sector P, the rack T, with which said sector may engage to turn said guide, and a guide with which the sliding bar co-operates, and means whereby the thread-guide will be moved in a straight line while the sector is in engagement with said rack and then on a curved line to and from the needle, substantially as described.

479,427. NEEDLE-THREADER FOR SEWING-MACHINES. EBENEZER C. JENKINS, Shrewsbury, Mass. Filed Nov. 5, 1891. Serial No. 410,933. (No model.)

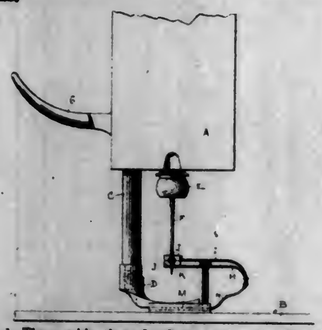


Claim.—1. The combination of the presser-bar, the collar loosely mounted on the same, means, as a set-screw, for holding the collar in vertical adjustment, the arm J, bridge-piece K, and piece L, united as described, the pieces J and K being journaled on the presser-bar below and above the collar, and the thread-guide carried by the arm J, whereby the thread-guide may be turned laterally relatively to the presser-bar and vertically adjusted on the presser-bar by collar H, substantially as described.

2. The combination of the presser-bar, the collar H, held on the same, the frame having a bearing above and below said collar, the frame having the spring-arms 1, 2, 3, and 4, and the thread-guide carried by the said frame, substantially as described.

3. The combination of a presser-bar, the collar H, mounted on a collar S or bush held on said presser-bar, the ends of said bush projecting above and below said collar H, and a frame carrying a threading device, said frame being journaled on the projecting ends of said bush, and thus on the presser-bar, substantially as described.

479,428. SEWING-MACHINE-NEEDLE THREADER. EBENEZER C. JENKINS, Shrewsbury, Mass. Filed Nov. 5, 1891. Serial No. 410,933. (No model.)



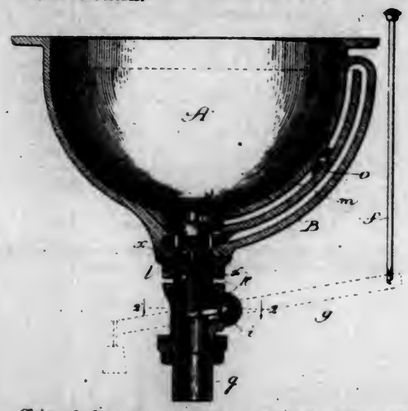
Claim.—1. The combination of a frame, a thread-guide suitably attached to said frame, and side flanges M, fastened to said frame, the distance between said flanges being substantially the width of the presser-foot of a sewing-machine, the whole being arranged so that the device may be held in place by the presser-foot and the thread-guide in register with the eye of the needle, substantially as described.

2. The combination of spring H, bent as described, the spring I, fastened to the spring H, each spring carrying at the end thereof a member of a divided thread-guide, and a fulcrum mounted between the springs, and the flanges M, fastened to the spring H, whereby the device may be set in place on a sewing-machine, substantially as described.

3. The combination of spring H, bent substantially as described, a divided thread-guide carried by said spring, and the pieces M M, fastened to said spring H, said flanges extending above and below the spring H, for the purpose set forth.

4. The combination of spring H, spring I, fastened thereto, the thread-guide J, carried by said springs, the flanges M, fastened to the spring H, the cross-piece N, and the screw tapped in said piece N, the head P of said screw resting between said springs H and I, substantially as described.

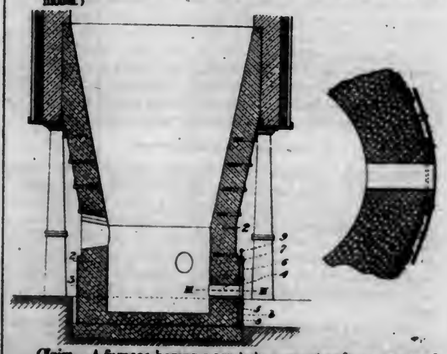
479,429. WASH-BASIN. JAMES KELLY, Chicago, Ill., assignor of one-half to John Kelly, same place. Filed Dec. 21, 1891. Serial No. 415,729. (No model.)



Claim.—1. In combination with a wash-basin, a plug *p*, seated over its discharge-opening *r*, a chamber B, formed in the wall of the basin, divided into channels *n* and *m* by a diaphragm *o*, extending upward and defining the water-line in the basin, the said channels *n* and *m* leading, respectively, into the basin above the plug at the upper end of the discharge-opening and into the discharge-pipe below the plug, and the channel *n* being provided with a swell *t*, substantially as described.

2. In a wash-basin, the combination, with the discharge-outlet *r* and its plug *p*, of a combined overflow and discharge siphon leading from the inner base of the basin in the wall thereof upward and defining the water-line therein and thence down to the discharge from the basin below the plug, a swell in the outgoing channel of the siphon for augmenting the backflow of water for the seal, and means for raising the plug from its seat from without the basin, substantially as described.

479,430. WATER-COOLING DEVICE FOR FURNACES. JULIAN KENNEDY, Pittsburg, Pa. Filed Feb. 19, 1892. Serial No. 422,150. (No model.)



Claim.—A furnace having a tap-hole, a guard or frame surrounding the same, an exterior splash-plate fixed to the guard or frame and open to afford access to the intermediate space, and a water-supply pipe adapted to wet the furnace-walls within the splash-plate, substantially as and for the purposes described.

479,431. PHONOGRAPH. VINCENZ LABOLA, Vienna, assignor to Bela Steiner, Buda-Pesth, Austria-Hungary. Filed July 11, 1891. Serial No. 399,190. (No model.)



Claim.—1. In a phonograph, the combination, with the blank or phonograph cylinder carrier, of a producer or reproducer arranged above said carrier and comprising a casing, a diaphragm arranged therein with its axis parallel to the axis of rotation of the cylinder, two sound-ducts leading to opposite sides of the diaphragm, a stylus-carrier adapted to rock in bearings on the under side of said casing, said stylus-carrier being connected with the diaphragm by an arm E^2, a hinged support for said producer or reproducer, and an adjusting device for adjusting the same relatively to the phonograph-carrier, substantially as and for the purpose set forth.

2. The combination, with a revoluble carrier for the blank or phonogram cylinder, said carrier being provided with interiorly-threaded bearings, of a stationary screw-shaft adjustable about its own axis, for the purpose set forth.

3. The combination, with the blank or phonograph carrier, its motor, the producer or reproducer arranged above said carrier, and a hinged support for said producer or reproducer, of two connected levers adapted to stop the motor and simultaneously lift the producer or reproducer support from the carrier.

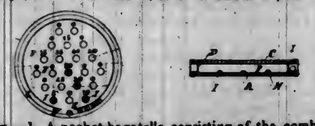
4. The combination, with the blank or phonogram cylinder carrier, its motor, and the producer or reproducer, of two levers adapted to operate jointly to stop the motor and move the producer or reproducer away from the carrier, for the purpose set forth.

5. The combination, with the blank or phonogram carrier, its motor, the winding-shaft thereof, the winding-key having endwise motion on the shaft, and interlocking devices connected with the shaft and key to interlock the same, of a lever having a bearing on the winding-key at or about at its point of interlocking with the winding-shaft and adapted to drop on said winding-shaft when the key is moved out of engagement therewith, said lever being provided with a projection in the path of the governor or fly of the motor when said lever rests on the winding-key, for the purposes specified.

6. The combination, with the blank or phonogram carrier, its motor, the winding-arbor thereof, the winding-key having endwise motion on the shaft, interlocking devices connected with the shaft and key to interlock the same, and the producer or reproducer, of a lever having bearing on the winding-key at or about at its point of interlocking with the winding-shaft and adapted to drop on said winding-shaft when the key is moved out of engagement therewith, said lever being provided with a projection in the path of the governor or fly of the motor when said lever rests on the winding-key, and an auxiliary lever actuated by the motor-locking lever and adapted to hold the producer or reproducer away from the carrier when said motor-locking lever rests on the winding-key, for the purpose set forth.

7. The combination, with the producer or reproducer, the motor-governor, the winding-shaft of the motor, provided with a radial lug or projection a^2, and the key D, provided with a flange *d* and a lug or projection adapted to engage the radial lug a^2, and a spring exerting its power to hold said lugs in engagement, of the lever B, provided with the lug or projection *b*, the lever B′, provided with the pin b^2, and a fulcrum common to both levers, for the purposes set forth.

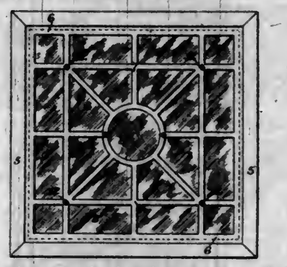
479,432. POCKET BAGATELLE-BOARD. FRANK L. LATHROP, Brooklyn, N. Y. Filed June 26, 1891. Serial No. 397,566. (No model.)



Claim.—1. A pocket-bagatelle consisting of the combination of an inclosed case having a transparent cover, a partition forming two communicating compartments within the case, a series of numbered depressed pockets in one of said compartments adapted to retain balls which have settled therein and permit the inclination of the case in any direction without disturbing such balls, and a plurality of balls adapted to be rolled from one compartment into the other and to be caused by manipulation of the case to settle in said pockets and make a score according to the numbers of the latter, substantially as set forth.

2. The combination of the glass C, the partition D, the perforated false bottom F, the bottom A, a support or edge between said bottoms, said parts being superposed one on the other, as shown, a plurality of balls I, of diameter smaller than the perforations of said false bottom, and the rim forming with the said portion a circular runway and having flanges overlapping said glass and bottom and holding in contact said superposed parts, substantially as set forth.

479,433. WINDOW OR DOOR SASH. GEORGE B. LEE, Providence, R. I., assignor of two-thirds to George W. Stafford and Thomas E. Nudd, same place. Filed July 23, 1891. Serial No. 400,471. (No model.)

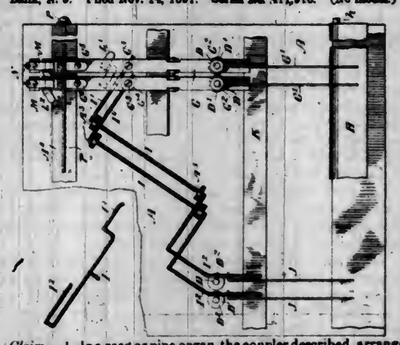


Claim.—1. A metal sash adapted to contain panels formed of sheet metal, having designs cut or stamped therefrom to form front and back frames, as described.

2. The combination with front and back frames stamped from sheet metal, one or both having strengthening-ribs 10, of fastening devices adapted to hold the frames together, as described.

3. The combination, with the frame 9, having ribs, each of which is provided with a fastening device secured to such ribs, and panels held in place between such ribs, of the front frame 6, having bars 7, perforations in said bars through which fastening devices pass, and nuts 12 to secure said fastening devices, as described.

479,434. KEY-COUPLER FOR ORGANS. JOHN LLOYD, Jr., Red Bank, N. J. Filed Nov. 14, 1891. Serial No. 411,918. (No model.)



Claim.—1. In a reed or pipe organ, the coupler described, arranged to operate the coupled valve by a gentle yielding force, as herein specified.

2. In a reed or pipe organ, the coupler described, arranged to operate the coupled valve by a gentle yielding force, in combination with a stronger spring or set of springs which, unless prevented, hold the valves closed and with coupling-wires, as I I′ I^3, arranged to prevent the action of such latter springs and to allow the valves to open when required, substantially as herein specified.

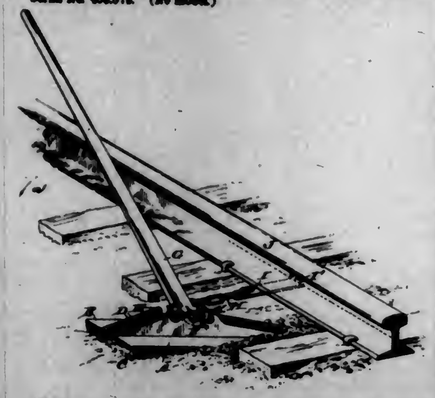
3. In a reed or pipe organ, the coupler described, arranged to operate the coupled valve by a gentle yielding force, in combination with a stronger spring or set of springs which, unless prevented, hold the valve closed and with mechanism operated by the key-lever for relieving the valve from the control of such stronger springs and allowing it to be opened, as herein specified.

4. In a reed or pipe organ having coupling-wires arranged to allow the depression of a key to open its proper valve and also to liberate and allow to be opened a valve giving the octave thereof, provis-

lose, as the levers L and their lateral arms L', for holding out of action the valves on one side of the octave of the one being played, so that only the extreme lowest and highest keys shall produce their octave-sounds, as herein specified.

5. In a reed or pipe organ having coupling-wires adapted to sound the octaves of the extreme keys, the levers L and the lateral arms L' L² thereon adapted to engage each lever L with the corresponding lever on one side thereof and to insure that the levers L on one side of the one being played shall be operated, and thus to allow the sounding of the octave of the extreme key to compel the non-sounding of the octaves of others, the key-levers of which may be depressed simultaneously, as herein specified.

479,485. TRACK-RAIL-ALIGNING DEVICE. WALLACE H. LOUNSBURY and ALONZO H. MCQUEW, Centreville, S. D. Filed Oct. 13, 1891. Serial No. 408,578. (No model.)



Claim.—1. A rail-track-aligning device comprising a frame, a lever mounted to turn in the said frame and adapted to be actuated thereon, and a plate connected with the said lever and adapted to engage the rail, substantially as shown and described.

2. In a rail-track-aligning device, the combination, with a frame formed with parallel toothed arms, of a lever adapted to be passed between the said toothed arms and provided with a projecting pivot-pin engaging a set of corresponding teeth on the said arms, and a plate connected with the said lever and formed with a flange adapted to engage the base of the rail, substantially as shown and described.

3. In a rail-track-aligning device, the combination, with a frame formed with parallel toothed arms, of a lever adapted to be passed between the said toothed arms and provided with a projecting pivot-pin engaging a set of corresponding teeth on the said arms, a plate connected with the said lever and formed with a flange adapted to engage the base of the rail, and a chain for connecting the said plate with the said lever, substantially as shown and described.

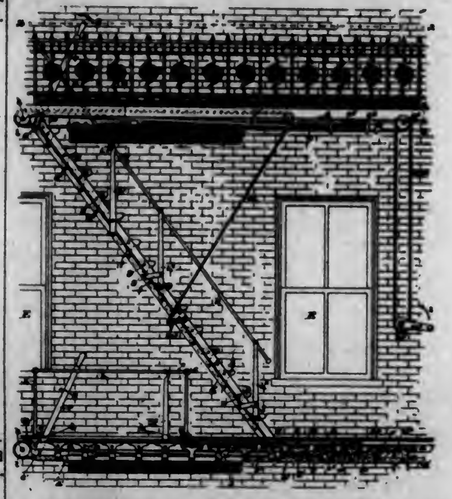
4. A rail-track-aligning device provided with a frame comprising a base-plate, angular flanges projecting from the ends of the said base-plate and standing in the same direction, and toothed arms held on the said plate, substantially as shown and described.

5. In a rail-track-aligning device, the combination, with a frame comprising a base-plate, angular flanges projecting from the ends of the said base-plate and extending in the same direction, and toothed arms arranged on top of the said base-plate, of a lever formed with a pivot-pin adapted to engage the said toothed arm, a chain connected with the said lever, and a plate connected with the said chain and formed at its free end with an angular flange adapted to engage the base of the rail, substantially as shown and described.

6. In a rail-track-aligning device, the combination, with a frame comprising a base-plate, angular flanges projecting from the ends of the said base-plate and extending in the same direction, and toothed arms arranged on top of the said base-plate, of a lever formed with a pivot-pin adapted to engage the said toothed arms, a chain connected with the said lever, a plate connected with the said chain and formed at its free end with an angular flange adapted to engage the base of the rail, and a cam projection formed on the fulcrum end of the said lever below the said chain, substantially as shown and described.

479,486. FIRE-ESCAPE. WILLIAM W. LUMMUS, Lynn, Mass. Filed July 10, 1890. Serial No. 358,232. (No model.)

Claim.—1. The combination, in a fire-escape, of a balcony attached to and projecting from the wall of a building and provided with an opening in its floor, a flight of stairs composed of two stringers, each comprising two parallel independent bars placed one above the other and each attached at one end by independent pivots to the under side of said balcony, said pivots being arranged in the same vertical plane, a series of treads, each connected at each end by independent pivots in the same vertical plane to two stringer-bars, a hand-rail-supporting standard erected in a fixed position on the balcony-floor at the head of the stairway-opening, a second rail-supporting standard pivoted by two independent pivots in the same vertical plane to the two bars of a stringer, and a hand-rail pivoted to the upper ends of said standards, all so constructed and arranged that said hand-rail will at all times be maintained in a position parallel to and at a suitable distance from the stair-stringers to serve as a hand-rail, whatever may be the position of said stringers.

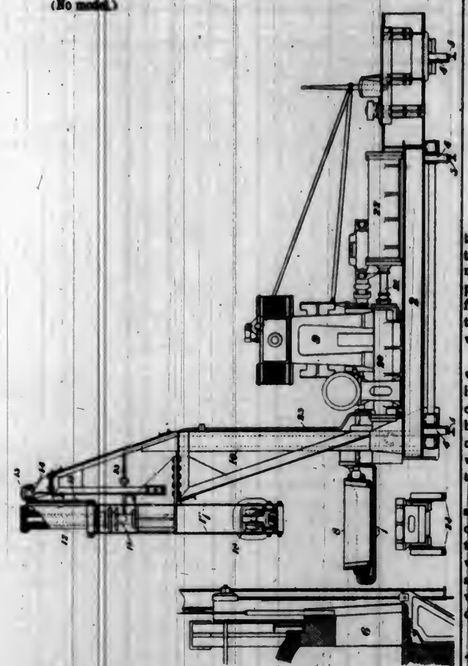


2. The combination, in a fire-escape, of a balcony attached to and projecting from the wall of a building and provided with a stairway-opening in its floor, a flight of stairs comprising four stringer-bars, two at each side of the stairs, the bars of each pair being arranged one above the other and pivoted at one end by independent pivots in the same vertical plane to the under side of the balcony, and a series of treads, each connected at each end by independent pivots in the same vertical plane to two of said stringer-bars, two standards pivoted by a single pivot to the upper of said stringer-bars, two links, each pivoted at one end to one of said standards and at its other end to the lower stringer-bar, and a hand-rail pivoted to the upper ends of both of said standards, all so constructed and arranged that when the stair-stringers are raised into a horizontal position the hand-rail will be folded down upon the upper stringer-bar, substantially as described.

3. In combination with a balcony attached to and projecting from the wall of a building and having a stairway-opening through its floor, a flight of stairs having its side stringers, each composed of two parallel bars arranged one above the other and connected at one end by independent pivots in the same vertical plane to the under side of said balcony and each of its treads connected to the two bars of its stringer by independent pivots in the same vertical plane, a fixed standard at the head of said stairs, a double or slotted standard pivoted to the two bars of a stringer by independent pivots in the same vertical plane and having its upper end bent to form a recess in its upstairs side, a section of a hand-rail pivoted to said fixed and double or slotted standards, a section of a hand-rail pivoted to two other standards, the lower ends of which are connected by a single pivot each to the upper bar of a stringer, the upper end of said rail extending between the two parts of the double or slotted standard and being provided with lateral projections to engage the recessed sides of said double or slotted standard, and two links, each pivoted at one end to one of said singly-pivoted standards and at its other end to the lower stringer-bar, substantially as described.

4. The combination, in a fire-escape, of a balcony attached to and projecting from the wall of a building and provided with a stairway-opening in its floor, a flight of stairs pivoted at one end to the under side of said balcony, a system of drums, ropes, or chains and sheaves or sprocket-wheels for raising the movable end of said stairway to a horizontal position beneath said balcony, an automatic locking device for holding said stairs in said horizontal position, a lever and connections for retracting said locking device to release said stairs and permit the same to drop to the proper inclined position for use, and an air-cylinder and its piston constructed and adapted to serve as an air-cushion to retard the descent of said stairs, substantially as and for the purposes described.

479,487. CHARGING-MACHINE FOR FURNACES. JOHAN F. LUNDAHL, Homestead, Pa. Filed Sept. 17, 1891. Serial No. 405,956. (No model.)



Claim.—1. In a charging apparatus for furnaces, the combination of a carrier movable in front of the furnace or furnaces, a box-support carried thereby, means for feeding the box-support forward, a platform mounted on the carrier and extending longitudinally in front of the furnace or furnaces, means for moving the platform vertically, and carrying devices mounted on the platform and adapted to deliver the charge to the box-support, substantially as and for the purposes described.

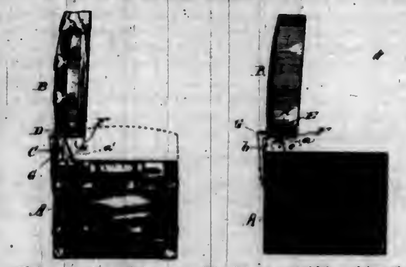
2. In charging apparatus for furnaces, the combination of a carrier movable in front of the furnace or furnaces, a box-support carried thereby, means for feeding the box-support forward, a lifting-cylinder and plunger mounted on the carrier, and carrying devices upheld above the box-support by the cylinder and plunger and extending substantially parallel with the furnace or furnaces, substantially as and for the purposes described.

3. In charging apparatus for furnaces, the combination of a carrier movable in front of the furnace or furnaces, a box-support carried thereby, means for feeding the box-support forward, a platform mounted on an upright frame on the carrier and extending longitudinally of the furnace or furnaces, means for moving the platform vertically, and carrying devices mounted on the platform and adapted to deliver the charge to the box-support, substantially as and for the purposes described.

4. In charging apparatus for furnaces, the combination of a carrier movable in front of the furnace or furnaces, a box-support carried thereby, means for feeding the box-support forward, motors, comprising cylinders and plungers, upheld by the carrier, supporting devices connected with said motors and movable vertically thereby, and gearing connecting the movable elements of the motors and causing them to move in unison, substantially as and for the purposes described.

5. In a charging apparatus for furnaces, the combination of a carrier movable in front of the furnace or furnaces, a box-support carried thereby, means for feeding the box-support forward, a platform mounted on the carrier, means for moving the platform vertically, and carrying devices suspended from trolleys which are mounted on and are movable on the platform above the box-support, substantially as and for the purposes described.

479,488. TRUNK. FRANCIS LYFORD, Augusta, Me. Filed Oct. 12, 1891. Serial No. 408,483. (No model.)

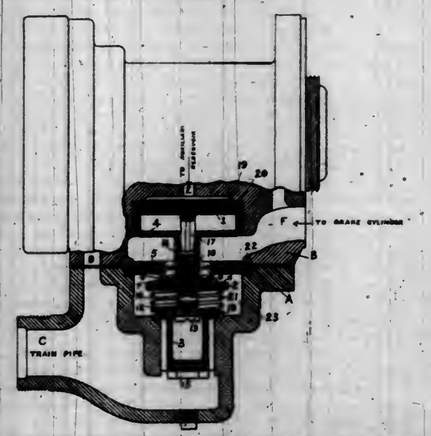


Claim.—1. A trunk having a lid of the same width and length as the body of the trunk, pivotally attached at its ends to the end walls of the trunk at points above the center of depth of and at or near the upper rear corners of the lid, whereby said lid is adapted to swing practically clear of the upper edges of the walls of the trunk and when fully raised to stand or be supported with its top in vertical line with the rear wall of the trunk and bodily above the upper edges of the walls of the same, substantially as described.

2. The combination, with a trunk having a back valance formed with an inturned upper edge, of a lid having a longitudinal groove in its rear wall, said lid being pivoted at its ends near their upper rear corners to plates or brackets secured to the end walls of the trunk-body, so as to swing practically clear of the upper edges of the walls of the trunk and when fully raised stand bodily above the trunk-walls, with its top in vertical line with the rear wall of the trunk, substantially as described.

3. A trunk having its lid pivoted at its ends to plates or brackets secured to the end walls of the body of the trunk, so as to swing clear of the upper edge of said body, a lug secured to the rear wall of the trunk and formed with an elongated slot or opening, the upper end of which is formed with inwardly and downwardly inclined outer surface, and an upwardly and outwardly extending hook secured to the rear wall of the lid and adapted to enter said slotted lug, substantially as described.

479,489. FLUID-PRESSURE VALVE. HARRY G. MANNING, Watertown, N. Y., assignor to the New York Air Brake Company. Filed Dec. 5, 1891. Serial No. 414,160. (No model.)

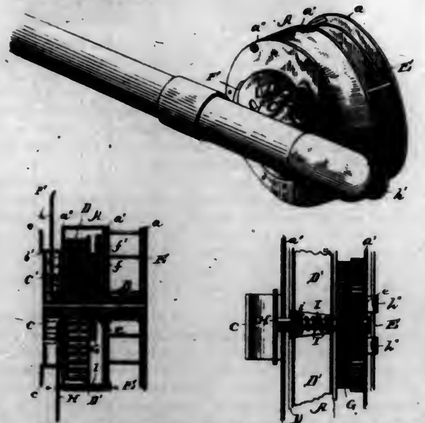


Claim.—1. In a fluid-pressure valve for quick-action train-brakes, a piston 1, exposed to reservoir-pressure on one side and to train-pipe pressure on the other side and independent of the control of the main piston of the triple valve, combined with the valve 2, controlling a passage between the train-pipe and the brake-cylinder, a port 16, opening communication between the under side of piston 1 and the under side of valve 2, and a check-valve 3, connected to valve 2 by a connection of such length as to keep check-valve 3 off its seat when

valve 2 is seated, thus affording open communication for fluid-pressure from the train-pipe to the under side of piston 1, substantially as set forth.

2. In a fluid-pressure valve for quick-action train brakes, a valve 2, controlling a passage between the train-pipe and a brake-cylinder, held on its seat by train-pipe pressure, and a piston 1, exposed to train-pipe pressure on the side next the valve and to reservoir-pressure on the side opposite the valve, so that the pressure from the reservoir tending to open valve 2 will be resisted by the train-pipe pressure on both the piston and the valve, combined with a check-valve attached to valve 2 by a connection of such length as to keep the check-valve off its seat when valve 2 is seated and an open passage from the chamber above the check-valve to the under side of piston 1, substantially as set forth.

479,440. FISHING-REEL. HERMAN W. MARTIN, Ilion, N. Y., assignor to Frances I. Martin, same place. Filed May 6, 1891. Serial No. 391,836. (No model.)



Claim.—1. In a fishing-reel, the combination, with an inclosing shell, of a shaft journaled therein, a spring-barrel having a coiled spring therein, a line-spool arranged within the inclosing shell, a train of gears intermediate of the spring-barrel and the line-spool, and a winding wheel or disk attached to one end of the shaft and arranged closely adjacent to said reel, substantially as shown and described, for the purpose specified.

2. In a fishing-reel, the combination, with an inclosing shell or case, of a shaft journaled therein, a coiled spring fitted in a suitable barrel arranged in a chamber of said shell and connected at one end with the shaft, a line-spool fitted loosely around the shaft in another chamber of the reel, a train of gears connecting the spring-barrel and the line-spool, a winding wheel or disk secured to one end of the shaft and provided with a series of stops or pins, and a pallet pivoted on the inclosing shell and engaging with the stops or pins on said wheel, substantially as and for the purpose specified.

3. In a fishing-reel, the combination, with an inclosing case or shell adapted to be secured on a pole, of a central shaft journaled therein, a coiled spring arranged in a suitable barrel which is fitted loosely on the central shaft, a line-spool fitted loosely on the central shaft, a train of gears intermediate of the spring containing the barrel and the line-spool, a winding-wheel attached to the end of the central shaft, arranged closely adjacent to the inclosing shell of the reel, a pallet pivoted to the inclosing shell and engaging with the winding-wheel, and a brake fulcrumed on the side of the reel and contacting with the line-spool, substantially as shown and described, for the purpose specified.

4. In an automatic fishing-reel, the combination of a line-spool, a brake-plate fulcrumed on the outer shell of the reel, and a brake pin or rod arranged between the brake-plate and line-spool and adapted to be moved longitudinally against the side of said line-spool, substantially as described.

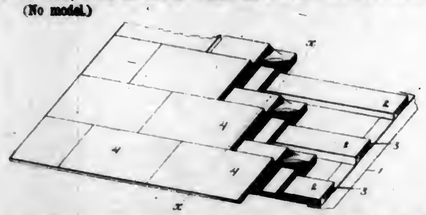
5. In a fishing-reel, the combination, with an outer shell, a spring and its barrel, and a line-spool, of a winding-wheel arranged laterally of the shell, close to the side thereof, and geared to the spring-barrel, substantially as described.

6. In a fishing-reel, the combination, with an outer shell, a spring-drum containing a spring, and a line-spool, of a winding-wheel having the integral lips or flanges struck up from the metal plate forming the wheel and a verge or pallet pivoted to the reel case or shell and engaging with the lips of the winding-wheel, substantially as described.

7. In a fishing-reel, the separable spring-drum comprising the flat perforated disk or plate and another plate having integral posts fitted in the apertured plate and secured thereto, substantially as described.

8. In a fishing-reel, the casing or shell comprising the outer pillar-plates and the intermediate pillar-plate having the enlarged central aperture, all of said plates being rigidly fastened together, combined with a central shaft, a line-spool fitted closely on said shaft between the central pillar-plate and one of the outer pillar-plates and having a hollow gear-stud passing through the aperture in the central pillar-plate, the spring-drum arranged between said central pillar-plate and the outer plate and having a gear or pinion meshing with the gear-stud of the line-spool by an intermediate gear mounted on the central pillar-plate, and the winding-wheel rigid with the shaft exteriorly of the casing, substantially as described.

479,441. TILE. FREDERICK N. MARVICK, San Mateo, and JOHN WALTER, Winter Haven, Fla. Filed June 22, 1891. Serial No. 397,083. (No model.)



Claim.—1. A tile provided with a body portion having upper and lower flanges, said upper flange being formed at one end on its bottom surface with a depending projection which is bounded on two sides by a plane and a curved surface, substantially as described.

2. A tile provided with a body portion having upper, lower, and side flanges, one of said side flanges being formed in its upper surface with a recess or depression which is bounded on two sides by a plane and a curved surface, substantially as described.

3. A tile provided with a body portion having an upper and a lower flange, said upper flange being arranged in a lower plane than said lower flange, with side flanges, one of said side flanges being formed on its upper surface with an inwardly-inclined gutter, and means for securing said tile to strips or ribs which are fastened to the beams or rafters of roofs, substantially as described.

4. A tile provided with a body portion having an upper and a lower flange and side flanges, said upper flange being arranged on a lower plane than said lower flange, one of said side flanges having formed on its upper surface an inwardly-inclined gutter, and means for securing said tile to strips or ribs which are fastened to the beams or rafters of roofs, said means consisting of a beveled support formed on the bottom surface of said tile, substantially as described.

5. A tile provided with a body portion having an upper and a lower flange and side flanges, one of said side flanges having provided on its upper surface an inwardly-inclined gutter and a recess or depression, as 16, which is bounded on two sides by a plane and a curved surface, and means for securing said tile to strips or ribs fastened to the beams or rafters of roofs, substantially as described.

6. A tile provided with a body portion having an upper, lower, and side flanges, said upper flange being formed at one end with a depending projection which is bounded on two sides by a plane and a curved surface, one of said side flanges being formed on its upper surface with a recess or depression which is bounded on two sides by a plane and a curved surface, and means for securing said tile to strips or ribs which are fastened to the beams or rafters of roofs, substantially as described.

7. A tile provided with a body portion having upper, lower, and side flanges, said upper flange being formed at one end with a depending projection which is bounded on two sides by a plane and a curved surface, one of said flanges being formed on its upper surface with a recess or depression which is bounded on two sides by a plane and a curved surface, and a beveled support formed on the bottom surface of said tile for securing said tile to strips or ribs which are fastened to the beams or rafters of roofs, substantially as described.

8. A tile provided with a body portion having upper, lower, and side flanges, said upper flange being arranged in a lower plane than said lower flange and formed at one end, on its bottom surface, with a depending projection which is bounded on two sides by a plane and a curved surface, one of said side flanges being formed on its upper surface with an inwardly-inclined gutter and at its upper end with a recess or depression which is bounded on two sides by a plane and a curved surface, and means for securing said tile to strips or ribs fastened to the beams or rafters of roofs, substantially as described.

9. A tile provided with a body portion, with a flange at its upper

end, having a depending projection at one end, with a beveled flange at its lower edge, with side flanges, a recess or depression bounded by plane and curved surfaces, an inwardly-inclined gutter, and a depending beveled support on its bottom surface, in combination with a correspondingly-beveled strip or rib secured to a beam or rafter of a roof, substantially as described.

479,442. TILE. FREDERICK N. MARVICK, San Mateo, Fla., assignor of one-half to David S. Tingley and Samuel J. Wells, same place. Filed Nov. 3, 1891. Serial No. 410,769. (No model.)



Claim.—1. A tile provided with an upper flange having a transverse recess or gutter formed therein, with an upwardly-projecting and transversely-extending shoulder or ledge which forms the outer wall of said recess or gutter, with a lower flange which is arranged in a higher plane than said upper flange, and with rearwardly-curved recesses, as 9, terminating in the upper surface of said lower flange, substantially as described.

2. A tile provided with an upper flange having a transverse recess or gutter formed therein, with an upwardly-projecting and transversely-extending shoulder or ledge which forms the rear wall of said recess or gutter, and with angularly-shaped elevations at one end of said recess or gutter having inclined or mitered edges, substantially as described.

3. A tile provided with an upper flange having a transverse recess or gutter formed therein, with an upwardly-projecting and transversely-extending shoulder or ledge which forms the rear wall of said recess or gutter, with a lower flange which is arranged in a higher plane than said upper flange, with rearwardly-curved recesses, as 9, terminating in the upper surface of said lower flange, and with angularly-shaped elevations at one end of said recess or gutter having inclined or mitered edges, substantially as described.

4. A tile provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, and with deep grooves leading downwardly from said deflectors, substantially as described.

5. A tile provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, with deep grooves leading downwardly from said deflectors, and means for fastening said tile to strips and ribs, which are fastened to the beams or rafters of roofs, substantially as described.

6. A tile provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, with deep grooves leading downwardly from said deflectors, and means for fastening said tile to strips and ribs, which are fastened to the beams and rafters of roofs, said means consisting of a beveled support, as 24, formed on the bottom surface of the tile, substantially as described.

7. A tile provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, with deep grooves leading downwardly from said deflectors, and with intermediate shallow grooves, substantially as described.

8. A tile provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, with deep grooves leading downwardly from said deflectors, and with intermediate shallow grooves, said grooves gradually lessening in depth down to their lower ends, substantially as described.

9. A tile provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, with deep grooves leading downwardly from and between said deflectors, and with upwardly-projecting stops at the upper ends of said grooves, substantially as described.

10. A tile provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, with deep grooves leading downwardly from said deflectors, with intermediate shallow grooves, and with upwardly-projecting stops at the upper ends of said deep grooves, substantially as described.

11. A title provided with upper and lower flanges at its upper end, the lower flange having A-shaped deflectors along its upper edge, with deep grooves leading downwardly from and between said deflectors, and with upwardly-projecting stops at the upper ends of said grooves, said grooves gradually lessening in depth down to their lower ends, substantially as described.

12. A tile formed with longitudinally-extending and alternating deep and shallow grooves in its upper surface and with intermediate ribs having rounded upper portions and flattened lower portions, substantially as described.

13. A tile formed with longitudinally-extending and alternating deep and shallow grooves in its upper surface and with intermediate ribs having curved upper ends, rounded upper portions, and flattened lower portions, substantially as described.

14. A tile formed with longitudinally-extending and alternating deep and shallow grooves in its upper surface and with oppositely and downwardly inclined grooves at the lower ends of said shallow grooves, substantially as described.

15. A tile formed with longitudinally-extending and alternating deep and shallow grooves in its upper surface, which gradually lessen in depth down to their lower ends, with intermediate ribs, and with oppositely and downwardly inclined grooves at the lower ends of said shallow grooves, substantially as described.

16. A tile formed with longitudinally-extending and alternating deep and shallow grooves in its upper surface, which gradually lessen in depth down to their lower ends, with intermediate ribs having rounded upper portions and flattened lower portions, and with oppositely and downwardly inclined grooves at the lower ends of said shallow grooves, substantially as described.

17. A tile formed with longitudinally-extending and alternating deep and shallow grooves in its upper surface, which gradually lessen in depth down to their lower ends, with intermediate ribs having rounded upper portions, flattened lower portions, and curved upper ends, with upwardly-projecting stops at the upper ends of said deep grooves, and with oppositely and downwardly inclined grooves at the lower ends of said shallow grooves, substantially as described.

18. The combination of two tiles formed at their adjacent sides with overlapping and underlapping flanges constituting the joint, said underlapping flange having inwardly-inclined grooves upon its upper surface, and with oppositely and downwardly inclined grooves leading inwardly from said joint, substantially as described.

19. The combination of two tiles provided with upper and lower flanges, the former having upwardly and rearwardly inclined recesses, with upwardly and transversely extending shoulders or ledges which form the outer walls of said recesses and with angularly-shaped elevations at the ends of said recesses, having mitered edges, substantially as described.

20. The combination of two tiles provided with upper and lower flanges, the former having upwardly and rearwardly inclined recesses, with upwardly and transversely extending shoulders or ledges which form the outer walls of said recesses, with overlapping and underlapping grooved flanges along their sides, and with angularly-shaped elevations at the ends of said recesses, having mitered edges, substantially as described.

21. The combination of two tiles provided with upper and lower flanges, the former having upwardly and rearwardly inclined recesses, with upwardly and transversely extending shoulders or ledges which form the outer walls of said recesses, with overlapping and underlapping grooved flanges along their sides, with angularly-shaped elevations at the ends of said recesses, having mitered edges, and with downwardly and upwardly curved recesses adjacent to said elevations, substantially as described.

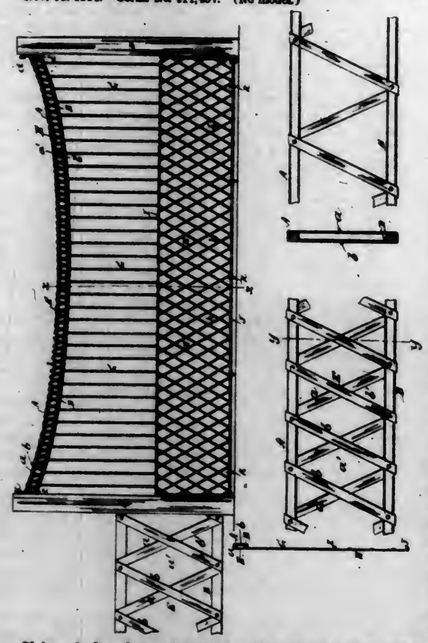
22. The combination of two tiles provided with upper and lower flanges, the former having upwardly and rearwardly inclined recesses, with upwardly and transversely extending shoulders or ledges which form the outer walls of said recesses, with overlapping and underlapping grooved flanges along their sides, the underlapping flange having inwardly-inclined grooves in its upper surface, which are formed with rearwardly-curved upper ends, with angularly-shaped elevations having mitered edges, with opposing flat shoulders adjacent to said elevations at one side thereof, and with downwardly and upwardly curved recesses at the other side thereof, substantially as described.

23. The combination of two tiles provided with upper and lower flanges, the former having upwardly and rearwardly inclined recesses, with upwardly and transversely extending shoulders or ledges which form the outer walls of said recesses, with overlapping and underlapping grooved flanges along their sides, the underlapping flange having inwardly-inclined grooves in its upper surface, which are formed with rearwardly-curved upper ends, with angularly-shaped elevations having mitered edges, with opposing flat shoulders adjacent to said elevations at one side thereof, with downwardly and up-

wardly curved recesses at the other side thereof, with deep and shallow grooves, and with ribs intermediate of said grooves, substantially as described.

24. The combination of two tiles provided with upper and lower flanges, the former having upwardly and rearwardly inclined recesses, with upwardly and transversely extending shoulders or ledges which form the outer walls of said recesses, with overlapping and underlapping grooved flanges along their sides, the underlapping flange having inwardly-inclined grooves in its upper surface, which are formed with rearwardly-curved upper ends, with angularly-shaped elevations having mitered edges, with opposing flat shoulders adjacent to said elevations at one side thereof, with downwardly and upwardly curved recesses at the other side thereof, with deep and shallow grooves, and with ribs intermediate of said grooves, said grooves having curved upper ends, rounded upper portions, and flattened lower portions, substantially as described.

479,448. FENCE. DAVID MILLIKEN, Fort Wadsworth, N. Y. Filed Nov. 10, 1891. Serial No. 411,437. (No model.)



Claim.—1. In a fence substantially such as described, the combination of the supports C D, suspenders A B, upper lattice-work *a b*, pendants G, lower lattice-work H, and means for securing said lower lattice-work H against lateral displacement, the whole arranged substantially in the manner and for the purpose described.

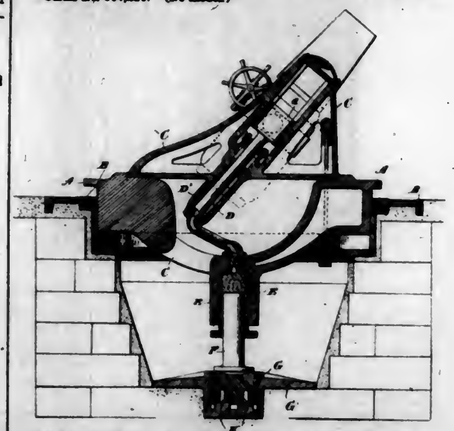
2. In a fence substantially such as described, the combination of the supports C D, suspenders A B, upper lattice-work *a b*, pendants G, lower parallel bars I J, and lower lattice-work H, the whole arranged and operating substantially in the manner and for the purpose described.

479,444. MINER'S TOOL. NATHAN W. MOODEY, Fresno, Cal. Filed Oct. 20, 1891. Serial No. 409,311. (No model.)



Claim.—As an improved article of manufacture, the implement for the use of miners in fastening caps on giant-powder fuses and splitting the same preparatory to igniting, made, essentially, in the form of pliers, the same having jaws 77, semicircular and beveled at 8 to form crimpers, and also provided, respectively, with a tongue and notch arranged in the transverse middle of their free ends and adapted to engage, the notch being V-shaped and the tongue being beveled and sharpened to fit snugly in the notch, substantially as and for the purpose specified.

479,445. MORTAR-MOUNTING. WILLIAM H. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and John R. Morgan, same place. Filed June 23, 1891. Serial No. 397,229. (No model.)



Claim.—1. The combination, with a vertically-movable gun-carriage, of a cylinder and plunger for elevating said carriage, means actuated by the recoil of the gun for forcing a liquid into said cylinder, and means adapted to yield to accommodate fluid force into the cylinder before the carriage begins to move upwardly, substantially as set forth.

2. The combination, with a vertically-movable gun-carriage and hydraulic devices supporting the gun and adapted to yield under the recoil thereof, of a cylinder and plunger for elevating said carriage, a port or pipe leading from the hydraulic devices on the carriage to the hydraulic cylinder under the carriage whereby the liquid forced from the upper hydraulic device operates to elevate the carriage, and means connected with the lower cylinder and adapted to yield to make space for the fluid forced into the lower cylinder before the carriage begins to move upwardly, substantially as set forth.

3. The combination, with a vertically-movable gun-carriage and hydraulic devices thereon adapted to yield under the recoil, of a cylinder and plunger for elevating the carriage, pipes leading from the hydraulic devices on the carriage to the cylinder below the carriage, and springs supporting one of said parts, substantially as set forth.

4. The combination, with a vertically-movable gun-carriage and hydraulic devices thereon adapted to yield under the recoil, of a cylinder attached to the carriage for elevating the same and a spring-supported plunger fitting in said cylinder, substantially as set forth.

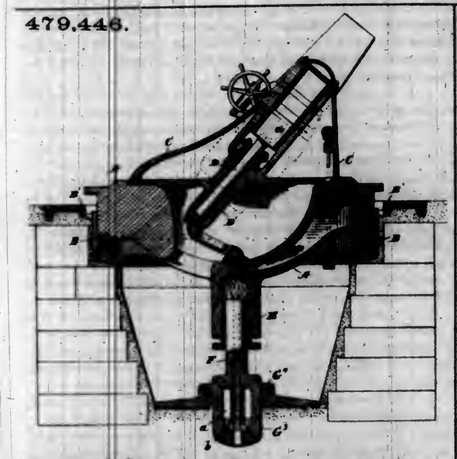
5. The combination, with a vertically-movable gun-carriage and hydraulic devices thereon adapted to yield under the recoil, of a cylinder attached to the carriage, a plunger fitting in said cylinder, and a yielding block supporting said plunger, the said cylinder and plunger adapted to elevate the carriage, substantially as set forth.

479,446. MORTAR-MOUNTING. WILLIAM H. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and John R. Morgan, same place. Filed June 24, 1891. Serial No. 397,352. (No model.)

Claim.—1. The combination, with a gun-carriage and hydraulic devices thereon adapted to yield under the recoil, of a cylinder and plunger for elevating the carriage, pipes leading from the hydraulic devices on the carriage to the cylinder below the carriage, and an air-chamber in open communication with said cylinder, substantially as set forth.

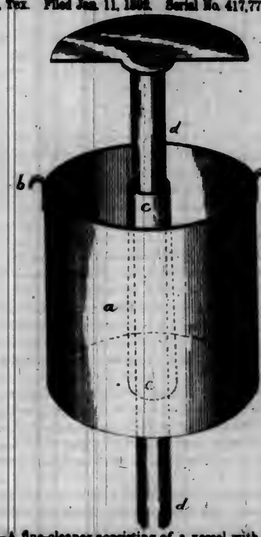
2. The combination, with a gun-carriage and hydraulic devices thereon, adapted to yield under the recoil, of a cylinder and plunger below the cylinder, pipes leading from the hydraulic devices on the carriage to the cylinder below the carriage, an air-chamber and fluid passage-ways leading from the cylinder below the carriage to the air-chamber, substantially as set forth.

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3. The combination, with a gun-carriage and hydraulic devices thereon, adapted to yield under the recoil, of a cylinder below the carriage and connected thereto and a stationary plunger fitting said cylinder and provided with an air-chamber and with a bore or passage-way leading from its inner end to said chamber, substantially as set forth.

479,447. STOVE-FLUE CLEANER. THOMAS B. MOTHERSHED, Corsicana, Tex. Filed Jan. 11, 1892. Serial No. 417,777. (Model.)



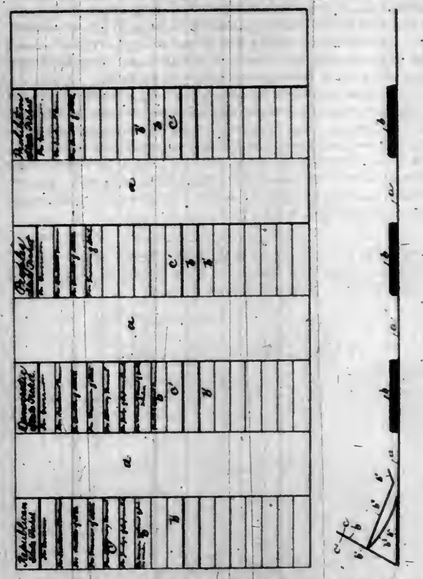
Claim.—A flue-cleaner consisting of a vessel with a tube extending therethrough and a handle fitted to slide through said tube and carrying a scraper, as set forth.

479,448. FIRE-EXTINGUISHER. WILLIAM W. MCKAY, Dickinson, N. D. Filed July 24, 1891. Serial No. 400,571. (No model.)



Claim.—The improved fire-extinguishing blanket herein described, consisting of a plurality of metallic plates arranged in parallel series, the plates of each being connected together by rings joining the adjacent corners and having loose play in elongated slots therein, and loops connecting each two adjacent ring slots to form the blanket, as set forth.

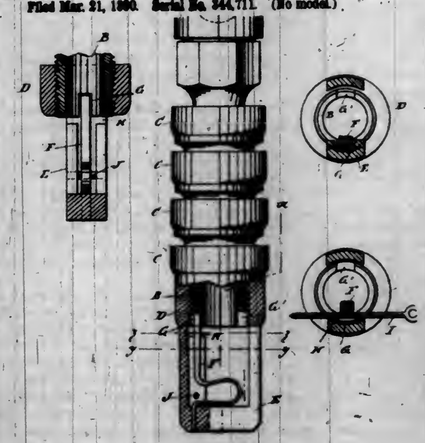
479,449. TALLY-SHEET. ALVIN L. NICHOLS, Grove City, Ohio. Filed Oct. 17, 1891. Serial No. 408,623. (No model.)



Claim.—1. In a tally-sheet, the sheet *b*, having, as described, two or more parallel folds, as b', b^3, b^3, and b^4, name-spaces on both faces of the first fold and registering with each other, tally-spaces on the remaining folds arranged opposite said name-spaces, and two rows of numbers in multiples of five arranged, as described, above said tally-spaces, substantially as and for the purpose specified.

2. In a tally-sheet, the sheet *b*, having, as described, two or more parallel folds, as b' b^3 b^3 b^4, name-spaces on both faces of the first fold and registering with each other, tally-spaces on the remaining folds arranged opposite said name-spaces, number-spaces on the fold b^3 and arranged in alignment with the tally-spaces, and name and number spaces on the opposite sides of the folds b^3 b^4, said last-mentioned spaces registering with the horizontal tally-rows of the opposite side of the sheet, substantially as described.

479,450. VALVE. BLANCHER D. NORTRUP, Washington, Pa. Filed Mar. 21, 1890. Serial No. 344,711. (No model.)

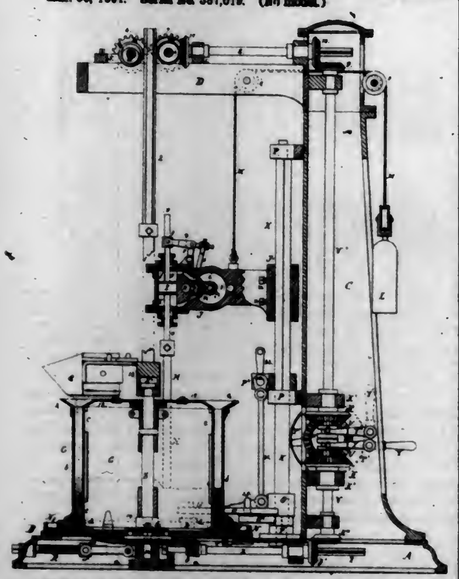


Claim.—1. The combination of a piston for deep-well pumps, having an externally-threaded lower end and a cap screwed thereon and provided with a depending U-shaped offset and a longitudinally-extending latch mounted within said offset and projecting at its free end into the threaded portion of the cap and into engagement with the lower portion of the piston-body, substantially as set forth.

2. As a new article of manufacture, an end cap D for pistons of deep-well pumps, provided with internal screw-threads and a depending U-shaped offset E, having a notch H in the inner side of one arm, and a longitudinally-extending spring-latch secured at one end in the offset and extending at its free end past said notch into the screw-threaded portion of the cap, substantially as set forth.

3. A piston A for deep-well pumps, the body of which has notches G' in its lower edge and an end cap D screwed thereon and formed with the U-shaped offset E, one arm of which has a transverse notch H across its inner face, and a longitudinally-extending spring F, secured at its lower end within the offset and extending at its upper portion past said notch H into one of the notches in the body, and a pin I to pass through notch H under the spring F and press it inwardly out of notch G', substantially as set forth.

479,451. MACHINE FOR MAKING CEMENT PIPES. EMANUEL OBERLE, Omaha, Nebr., assignor to Jeff W. Bedford, same place. Filed Mar. 30, 1891. Serial No. 387,019. (No model.)



Claim.—1. In a cement sewer-pipe-molding machine, the combination, with the horizontally-rotating pipe-mold, of the vertically-sliding arm or rammer-stock, the guide-bar upon which it is arranged to slide, the steam or air cylinder carried by said arm, the piston having a rammer secured to its rod, and a counterbalancing device or weight, substantially as specified.

2. The combination, with the rotating sewer-pipe and the vertical raising core-mold mechanism shown, of the steam-rammers H, with the arms J, the pistons I, cylinders I', and the weight L, and guide-arbors K and arms O, with friction-rollers *g*, and the guide-ring N, substantially as and for the purpose herein mentioned.

3. The combination, with the rotating pipe-mold consisting of the outer shell *b*, the expanding core-mold *c*, and bell-mold *d*, the rotating mechanism shown, and the core-mold-raising mechanism shown, of the steam rammer or rammers H, with their cylinders I', piston I, valve *n*, the arbor K, the arms J, and the weight L, substantially as and for the purpose herein set forth.

4. The combination, with the horizontally-rotating pipe-mold consisting of the outer-shell *b* and core-mold *c* and bell-mold *d*, and the mold-rotating mechanism shown, of the steam rammer or rammers H, with their pistons I, and cylinders I', and the arms J and arbors K and weight L, and the core-mold-raising mechanism consisting of the friction-rollers 3 and 4 and the bar 2 and gears 6 and 7, the shaft 8 and V', and the bevel-gears 9, 10, 11, and 12, substantially as and for the purpose herein set forth.

5. In a sewer-pipe-molding machine, the combination, with a rotating table B and guide-hub 59 and the outer mold *b* and bell-mold *d*, of the inner mold *c*, with the shaft 8 and its pivot 58, the sleeve 22, the wings 23, the shoulders 21, the rollers 24, the studs 27, the slots 26, and stops 60.

6. In a sewer-pipe machine, the combination of a rotary mold comprising an expansible vertically-movable core, mechanism for raising said core, a drive-shaft, gearing therefrom to rotate said mold, a clutch to throw said gearing into or out of gear with the drive-shaft, gearing from the drive-shaft to operate the core-raising mechanism, and a clutch to throw said gearing into and out of gear with the drive-shaft, substantially as described.

7. In a pipe-machine, the combination, with a rotary mold, of a vertically-adjustable support arranged above the mold, provided with a cylinder having suitable ports and valves, and a reciprocating piston in said cylinder, the piston-rod thereof being provided with a rammer to operate on the substance in the mold, said valve being connected with and operated by said piston-rod, substantially as described.

8. In a sewer-pipe machine, the combination, with the mold, of a vertically-adjustable and laterally-movable support above the mold, an automatic reciprocating engine carried by said support above the mold, and a rammer carried by the piston-rod of said engine to pack the substance in the mold, substantially as described.

9. In a sewer-pipe machine, the combination of the rotary mold, a vertically and laterally movable support, means, substantially as described, for counterbalancing the same, a vertically-disposed automatic reciprocating steam or air engine carried by such support, a rammer carried by the piston-rod of such engine to pack the material in said mold, and means, substantially as described, controlling the lateral swing of said support and engine.

10. In a sewer-pipe machine, the combination of the rotary mold and means for rotating the same, the vertical shaft, a vertically-movable support on the shaft, an automatic reciprocating engine carried by and moving laterally and vertically with said support, a rammer carried by the piston-rod of said engine to pack the material in said mold, a counterbalancing device for said support and engine, and means, substantially as described, connected with said shaft to automatically turn the same to swing said support and engine laterally, substantially as described.

11. The combination, with a mold, of a vertically-disposed vertically-movable automatic reciprocating steam or air engine, a rammer carried by the piston-rod of said engine to pack the material in the mold, and operating mechanism whereby there is a relative movement between the mold and engine, so that the material is packed around the mold, substantially as described.

12. In combination, the vertically-movable support having a cylinder formed therein, a steam-chest communicating with opposite ends of the cylinder, a rocking valve controlling the ports and exhaust, a reciprocating piston in the cylinder, connections between the piston-rod and said valve to automatically operate the same, the rammer carried by said piston-rod, and a mold in which said rammer operates, substantially as described.

13. In combination, the mold, mechanism for rotating the same, a vertical shaft and supports therefor, an arm connected with said shaft and engaging the mold to control the turning of the shaft, a horizontal support mounted to turn with and slide vertically on said shaft and provided with raising means, and a reciprocating steam or air engine carried by said support and vertically disposed and having its piston-rod provided with a rammer to pack the material in the mold, substantially as described.

14. The combination, with the rotary mold, of the vertical shaft, an arm therefrom engaging said mold to control turning of shaft, means, substantially as described, to throw said arm out of operative relation with the mold, and the vertically-movable reciprocating engine having its carrier sliding on said shaft, substantially as described.

15. In combination, a bed, a rotary table supported thereon and capable of horizontal adjustment, a mold on said table, mechanism for adjusting said table horizontally, comprising a movable cross-head connected with said table, a screw for shifting the head and table, a movable shaft mounted in said head and geared to drive said table, and mechanism for driving said shaft, substantially as described.

16. In combination, a mold having a removable core provided with an upwardly-extending lifting-bar, a support extending upwardly and over the mold, a horizontally-adjustable frame on said support, two horizontal shafts carried by said frame, provided with friction-wheels to engage and lift said bar, and a longitudinally-adjustable drive-shaft geared to drive said horizontal shafts, substantially as described.

17. In a sewer-pipe machine, the combination, with operating and lifting mechanism, of a mold comprising an outer shell and an inner removable expansible core having inclined vertical faces, as described, and a lifting-bar having means to engage said faces when moving down and thereby expand the core, and means, substantially as described, whereby the core is contracted when said bar is raised, substantially as described.

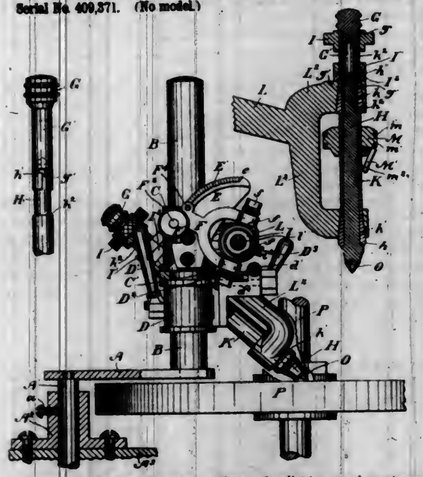
18. In combination, the mold having its bell end at the top, a bell-mold, and steam or air ramming engine located above the same and capable of moving vertically and laterally, and means, substantially as described, to automatically swing said ramming-engine laterally to pack the bell when the mold is filled to the bell, substantially as described.

19. The combination of the mold having its bell at the top, the vertically-movable expansible bell-mold, and rammers and operating mechanism, substantially as described.

20. The combination of the mold, a vertically-movable steam or air ramming engine for said mold, an air-pump carried by the carrier of said engine and automatically operated by the movement of the engine, and a cylinder supplied by said pump and having its piston connected to raise said engine, substantially as described.

21. The combination of the rotary mold, the vertical shafts having arms held against the sides of the mold to control turning of shafts, means to yieldingly hold the arms against the mold, and the steam or air ramming engines carried by said shafts, substantially as described.

479,452. MACHINE FOR CUTTING AND POLISHING PRECIOUS STONES. EDWIN PASSMORE, Somerville, Mass. Filed Oct. 21, 1891. Serial No. 409,371. (No model.)



Claim.—1. In a machine for cutting and polishing precious stones, an upright post, in combination with a bearing-piece mounted on said post to slide and turn thereon, said bearing-piece being provided with a graduated scale, an angularly-adjustable frame mounted in said bearing-piece, a pointer and clamping device engaging with said scale and mounted on a connection of said frame to turn therewith, and a revoluble stone-holding stick suitably mounted in said frame, substantially as described.

2. In a machine for cutting and polishing precious stones, a suitably-mounted angularly-adjustable frame, in combination with a revoluble stick-holder having bearings in said frame and provided with a graduated regulating-drum mounted thereon, a stone-holding stick fixed in said holder to turn therewith, and a spring-lever pivoted to a connection of the frame, said lever having a pin engaging with said graduated drum, substantially as and for the purposes described.

3. In a machine for cutting and polishing precious stones, a suitably-supported bearing-piece provided with a graduated scale, in combination with an angularly-adjustable frame mounted in said bearing-piece, a clamping device and pointer engaging with said scale and mounted on a connection of said frame, whereby the frame may be set at any desired angle of inclination, a revoluble stick-holder having bearings in said frame and provided with a graduated regulating-drum, a stone-holding stick fixed in said holder to turn therewith, and a spring-lever pivoted to a connection of the frame, said lever having a pin engaging with said drum, all constructed and arranged substantially as and for the purposes described.

4. In a machine for cutting and polishing precious stones, an upright post B, in combination with a bearing-piece C C^3, mounted on said post to slide and turn thereon, a lateral arm L', mounted in said bearing-piece to turn therein, a frame L^3 L^3, carried at the end of said arm, and a revoluble stone-holding stick H, suitably held in said frame, substantially as described.

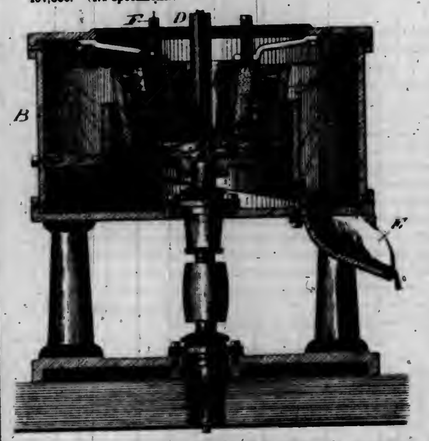
5. In a machine for cutting and polishing precious stones, a frame L^3 L^3, in combination with a revoluble stick-holder K, having bearings in said frame and having the screw-threaded portion A^2, a stone-holding stick H, having the enlarged end A and provided with the pin A', a socket G', engaging with the stem of said stick, having bayonet-slots *g'*, engaging with said pin and provided with an enlarged head G, and a thumb-nut I, mounted on said screw-threaded portion A^2 of the holder, all constructed and arranged and operating substantially as described.

6. In a machine for cutting and polishing precious stones, the combination, with an upright post B, of a bearing-piece C C^3, supporting a suitably-mounted angularly-adjustable revoluble stone-holding stick, a clamping-sleeve D, having a fastening device whereby the said sleeve may be clamped at any desired height on said post, a cam B^3, fixed to a spindle mounted in a connection of the sleeve D, and a cam-operating handle D^3, the said cam being arranged to support the bearing-piece and to adjust the working position of the bearing-piece on the post, substantially as described.

7. In a machine for cutting and polishing precious stones, the combination, with an upright post B, of a bearing piece C C^3, supporting a suitably-mounted angularly-adjustable stone-holding stick, and a wedge-shaped piece C' on the bottom of said bearing-piece, and a clamping-sleeve D, provided with a handle-operated cam D^3, engaging with said piece, substantially as and for the purposes described.

8. In a machine for cutting and polishing precious stones, the combination, with an upright post B, of a bearing-piece C C^3, supporting a suitably-mounted angularly-adjustable stone-holding stick, said piece C C^3 being loosely mounted on said post to slide and turn thereon and having, also, a lateral play on said post, substantially as and for the purposes described.

479,453. PROCESS OF SEPARATING PARTICLES OF DIFFERENT DEGREES OF SPECIFIC GRAVITY. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Oct. 5, 1891. Serial No. 407,809. (No specimens.)



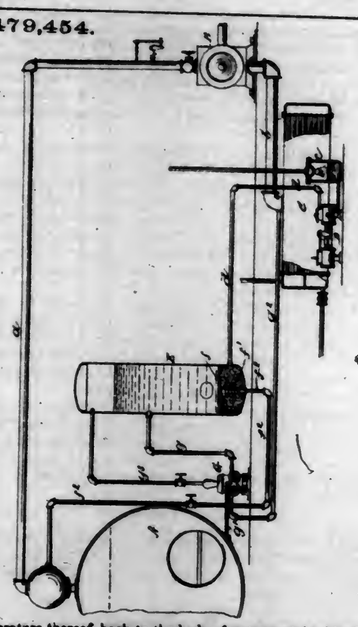
Claim.—1. The process of separating particles of different degrees of specific gravity in a finely-divided or powdered condition, which consists in subjecting them to the action of centrifugal force in a revolving vessel and at the same time forcing streams of water and air or steam against them, substantially as described.

2. In an apparatus for separating particles of different degrees of specific gravity while in a finely-divided or powdered condition, the combination of a revoluble vessel, means for revolving the same, and means for forcing sprays or jets of water and air or steam against the inner walls of the revolving vessel, substantially as described.

479,454. GENERATION OF STEAM-POWER. CASSIUS C. PECK, Warsaw, N. Y. Filed Oct. 26, 1891. Serial No. 409,817. (No model.)

Claim.—1. The process herein set forth of attaining increased efficiency in the generation of steam, consisting in generating steam of a prescribed pressure and temperature in a suitable generator, utilizing the energy of the steam in a suitable motor, condensing the exhausted steam by an independent supply of condensing liquid having no direct contact with the exhaust-steam or its water of condensation, heating the water of condensation thus obtained to or approximating the temperature of the water remaining in the steam-generator by means of live steam derived therefrom, and returning the said heated water of condensation, together with the steam condensed in equalizing the

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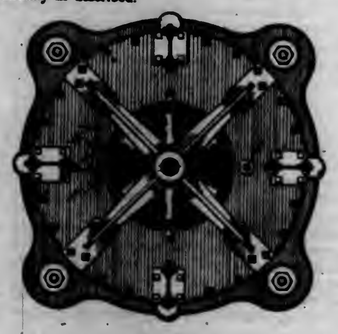


temperature thereof, back to the body of water contained in the generator to be reconverted into steam.

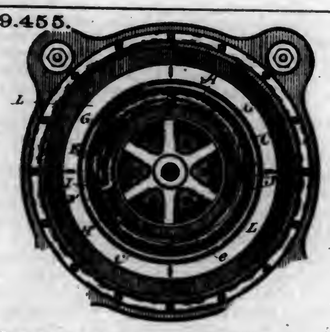
2. The combination of a steam-generator A, a steam-engine B, connected with and operated by steam from said steam-generator A, a surface condenser C, connected with and arranged to condense the exhaust-steam from said steam-engine B by means of an independent supply of condensing liquid having no direct contact with the steam or water of condensation, forcing mechanism D, and pipe connections for transferring the water of condensation from said surface condenser C to a heater E, said heater E arranged to heat the said water of condensation received from the surface condenser C to or approximating the temperature of the water remaining in the steam-generator A by means of live steam derived directly from said steam-generator A, and means for returning the said water of condensation and the steam condensed in equalizing the temperature thereof back to the body of water contained in the steam-generator A, the several parts being arranged with relation to each other and operating substantially in the manner and for the purpose described.

479,455. PROCESS OF SEPARATING POWDERED OR FINELY-DIVIDED PARTICLES, &c. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,661. (No specimens.)

Claim.—1. The process of separating powdered or finely-divided particles containing mineral-bearing substances of different degrees of specific gravity, which consists in subjecting such particles to the action of centrifugal force and then discharging the heavier particles from the action of centrifugal force by jets or streams of water under pressure, substantially as described.



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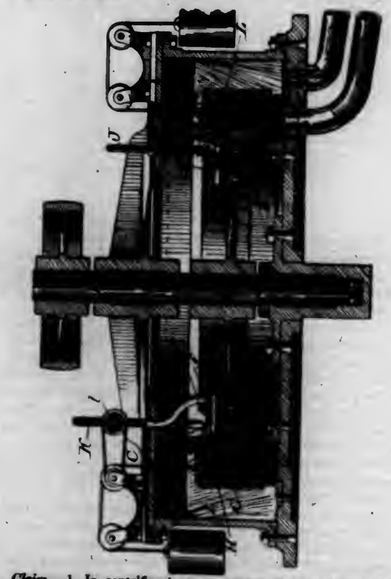


2. The process of separating powdered or finely-divided particles containing mineral-bearing substances of different degrees of specific gravity, which consists in subjecting such particles to the action of centrifugal force, assisting in discharging the lighter particles from the action of centrifugal force by gentle sprays of water, and then assisting in discharging the heavier particles from the action of centrifugal force by jets or streams of water under pressure, substantially as described.

3. The process of separating powdered or finely-divided particles containing mineral-bearing substances of different degrees of specific gravity, which consists in subjecting such particles to the action of centrifugal force and currents or sprays of water and then discharging the heavier particles from the action of centrifugal force by the combined action of centrifugal force and hydraulic streams or jets of water, substantially as described.

4. The process of separating powdered or finely-divided particles containing mineral-bearing substances of different degrees of specific gravity, which consists in subjecting such particles to the action of centrifugal force at one place and discharging the lighter particles from the action of centrifugal force at another place farther around in the direction of revolution and discharging the heavier particles from the action of centrifugal force at another place farther around in the direction of revolution, substantially as described.

479,456. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,662. (No model.)



Claim.—1. In centrifugal ore-separators, the combination of a rotatable separating-surface adapted to receive the material to be treated, means for forcing jets or streams of water under pressure for removing the material treated from the action of centrifugal force at

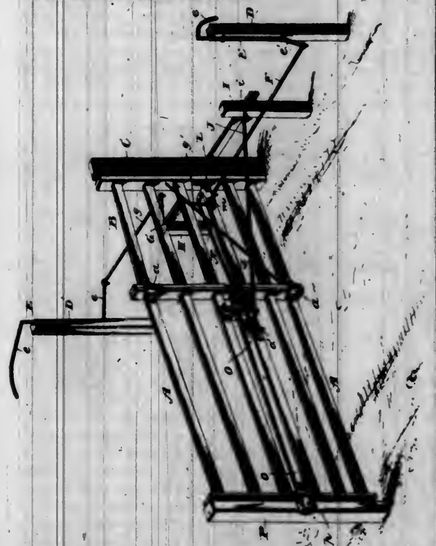
desired times, and means for rotating the separating-surface, substantially as described.

2. In centrifugal ore-separators, the combination of a rotatable separating-wheel, means for depositing the material to be treated on the separating-surface of such wheel, means for forcing jets or streams of water under pressure for removing the material treated from the action of centrifugal force at desired times, and means for rotating the separating-wheel, substantially as described.

3. In centrifugal ore-separators, the combination of a rotatable separating-wheel, means for depositing the material to be treated on the separating-surface of such wheel at desired intervals, means for supplying water upon the material while under treatment for assisting in the discharge of the lighter particles, means for forcing jets or streams of water under pressure on the material after it has been sprayed to assist in discharging the heavier particles, and means for rotating the separating-wheel, substantially as described.

4. In centrifugal ore-separators, the combination of a rotatable separating-wheel, means for depositing the material to be treated on the separating-surface of such wheel, a water-supply pipe spraying water on the separating-surface of the wheel to assist in the separation of the lighter particles and a hydraulic pipe forcing streams or jets of water against the separating-surface of the wheel to remove the heavier particles, means for catching and securing such particles, and means for rotating the separating-wheel, substantially as described.

479,457. GATE. ALFRED PETERSON, Orion, Ill. Filed Mar. 15, 1892. Serial No. 424,995. (No model.)



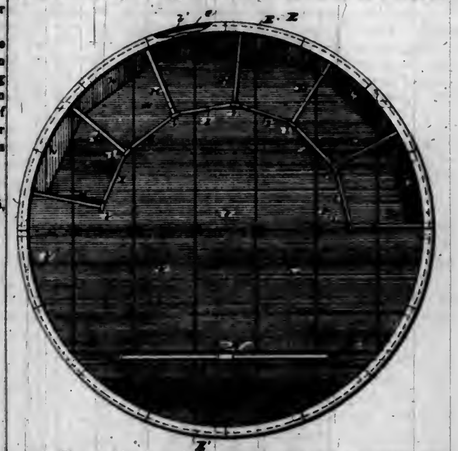
Claim.—1. The combination of the two gate-sections A and B, hinged together, the section B being hinged to a post, the bell-crank lever attached to the section B, the latch device connected to one arm of said lever and having one end working in a notch in the adjacent uprights of the two sections and extended across the same, the two oppositely-extending gate-swinging devices connected to the other arm of the lever, and the rod extending between the section A and a relatively-fixed point.

2. The combination of the two gate-sections A and B, hinged together, the section B being hinged to the post, the bell-crank lever attached to the section B, the stop device to limit its motion, the sliding latch-bar capable of a vertical motion, the locking-bar to cooperate with said latch-bar, the rod connecting the latter and one arm of said bell-crank lever, the two crank-shafts on opposite sides of the gate, the connections between said shafts and the other arm of said bell-crank lever, including upon one side a bell-crank lever G, and a vertical rod g', connecting one arm thereof with the bell-crank lever on the section B, and the rod extending from the section A to a relatively fixed point.

479,458. VOTING-BOOTH. FREDERICK K. PLUMBLY, Buffalo, N. Y. Filed June 20, 1891. Serial No. 397,095. (No model.)

Claim.—1. A knockdown building consisting, essentially, of the sills, the floor having the segmental strips secured on its under side around the edge thereof, a side consisting of sheets of iron supported by said strips and secured to said floor, a ring resting upon the upper edge of the side and forming a backing for the same with its vertical portion, battens on the outside and inside of the side overlapping the contiguous edges of the sheet of iron and secured together by bolts, and a roof secured to said ring and supported therefrom, as and for the purpose specified.

2. The combination, with the sills, of the floor secured thereto, the segmental strips secured around the edge of said floor, the side secured with its lower end to said floor and resting on said strips, a ring resting upon the upper edge of the side and to which said side is secured, said ring being composed of sections, a door-frame located in said side and formed integral with one of said sections, and a roof secured to said ring and supported therefrom, substantially as set forth.

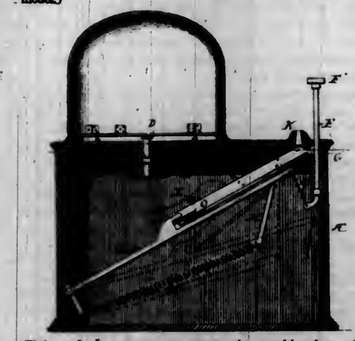


3. The combination, with the circular structure, of a conical canvas roof removably secured with its lower end to the upper end of said structure, a ventilator at the apex of said roof, a pole engaging said ventilator and supporting the same and the apex of the roof, a stop in said pole, a socket on said pole engaging said stop, and supporting-braces from the top of said structure supporting said socket, as set forth.

4. The combination, with the floor and side, of a door-frame D, a groove in each vertical edge for the reception of the contiguous edges of the sheets of iron adjoining said frame, the section E' of the ring E, secured to the upper edge of said door, and the remaining sections E, secured together, substantially as set forth.

5. The combination, with the timbers a, of the sills a', resting upon the same, the floor secured to said sills a', the stripe b', secured on the under side of the said floor and projecting beyond the edge thereof, the side resting upon said strips and nailed to the edge of the floor the door in said side, and the roof secured to the upper end of the side, as set forth.

479,459. COIN-OPERATED GAME APPARATUS. WILLIAM R. POPE, New York, N. Y., assignor to the Automatic Manufacturing Company, of New York. Filed Feb. 29, 1892. Serial No. 423,274. (No model.)



Claim.—1. In a game apparatus, the combination, with the disk forming a support for the dice, of a system of coin-controlled levers,

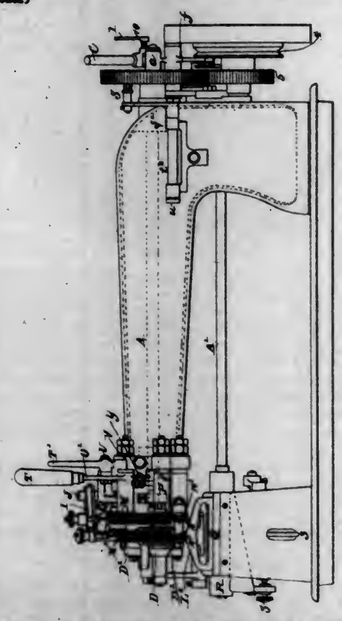
an operating-rod for the levers, a spring for retracting the levers, and an arm connected to the levers for operating the disk, substantially as described.

2. In a game apparatus, the combination, with the disk forming a support for the dice and having a downward projection, of the coin-controlled levers having an arm arranged to strike the projection on the disk, an operating-rod for the levers, and a spring for retracting them, substantially as described.

3. In a game apparatus, the combination, with the disk forming a support for the dice and having a downward projection, of the levers, an arm connected to one of the levers for operating the disk, an operating-rod for the levers, and a spring for retracting them, and connections between the levers controlled by a coin, whereby the levers are operated only when the coin is in position, substantially as described.

4. In a game apparatus, the combination of the disk having a projection, the chute-lever, an arm carried by said lever, a stop for said lever, another lever having a projection arranged to normally pass by the chute-lever, a spring connecting the two levers, and a push-rod connected to one of the levers and arranged to operate both when a coin is interposed between the two levers, substantially as described.

479,460. MACHINE FOR TREATING SKINS, &c. OSCAR POTRLOUP, Limoges, France. Filed Oct. 15, 1890. Serial No. 368,344. (No model.)



Claim.—1. In combination, the knife and the knife-carrier pivotally supported to have movement vertically and laterally, the means for reciprocating said carrier, with its pivotal support, forward and backward, means for moving the carrier up and down, and the guiding means for moving the carrier laterally as it moves forward and backward, substantially as described.

2. In combination, the knife and the knife-carrier, the pivotal support therefor, consisting of the block E', the vertical shaft F, passing through the same and the eyes of the knife-carrier, the horizontal shaft E, passing through the said block and upon which the carrier and its block pivots vertically, the movable supports for the shaft E, the means for reciprocating the shaft-supports, with the block E' and carrier, forward and backward, and the guiding means I J for moving the carrier laterally as it moves forward and backward, substantially as described.

3. In combination, the knife, the knife-carrier, the means for moving the same to and from the work, the spring for applying the tension to the carrier, and the means for automatically regulating said tension as the carrier moves the knife to and from the work, consisting of the lever NN', connected to the spring, and the cam for operating the said lever, substantially as described.

4. The combination, with the beating-knife and its carrier, of the cam X', roller g' and its oscillating lever NN', and spring M' and support Z' to give the beating-knife the desired force or pressure on the skin.

5. In combination, the knife, the knife carrier arranged to have vertical movement to move the knife to and from the work, the means for operating the carrier, consisting of the lever OO', having a roller, and the cam for operating the lever, the pivoted hook carried by the lever, and the catch v on the frame for engaging the same and holding the lever up from the operative connection with the cam, the said lever, with its roller, being arranged intermediate of the cam and carrier, whereby the said lever will raise the carrier and the knife from working position when the lever is disconnected from the cam, substantially as described.

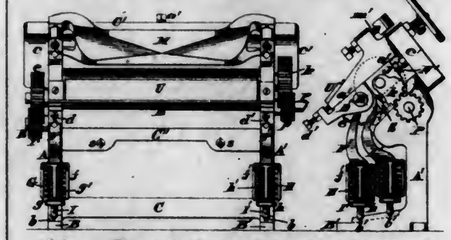
6. The combination, with the knife-bearer C, of connecting-rod L', mounted on axle E, and of the oscillating lever K, to continue and carry over by rod L the above-specified forward-and-backward motion to beating-knife bearer C.

7. The combination, with the main shaft and knife L^3, the cam X^3 on the main shaft, and the rollers g^4 Z, and abutment b, of elbow-lever PP' and a screw Y, mounted to limit or suspend the action of knife L^3 on the skin, substantially as set forth.

8. In combination, the main shaft, the knife and carrier, the connections from the said shaft to the carrier for operating the same, the main shaft, the feed-roller 1, the shaft A', carrying the same, the connection from said shaft to the main shaft, including the rod a, the lever c, the pawl-and-ratchet mechanism between the same and the shaft A', and the adjustable connection between the said lever and the rod a, consisting of the socket d, to which the rod is pivoted, and the jam-screw, substantially as described.

9. The combination, substantially as described, of the feed-rollers 1 and 2, the main shaft A, with the cutting and beating mechanism actuated thereby, the secondary shaft A', controlling the movement of the feed-rolls 1 and 2, mechanism for transmitting a step-by-step movement to the secondary shaft from the main shaft, the platen, and the wedge and screw for adjusting the platen, substantially as set forth.

479,461. LEATHER-SPLITTING MACHINE. SILAS H. RANDALL, Wyoming, Ohio. Filed Apr. 9, 1892. Serial No. 428,457. (No model.)



Claim.—1. The combination, in a leather-splitting machine, of a frame to which is secured a knife, which frame is provided with bearings a a', against which slide roll-carriers J J', in which is journaled a gage-roll K, and against which bearings a a' also slide, roll-carriers D D', in which is journaled a feed-roll E, pressure devices, which obliquely press roll-carriers D D' J J' against and along bearings a a', stops which limit the motion of roll-carriers D D', and a device which adjusts the roll-carriers J J' along said bearings a a', the only parts of the frame which these roll-carriers D D' J J' touch being said bearings a a', as herein described.

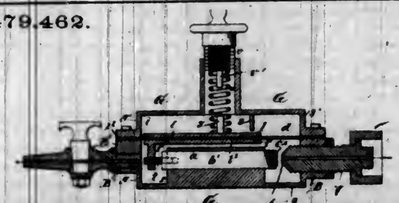
2. The combination, in a leather-splitting machine, of a frame A A', having bearings a a', the roll E, journaled in carriers D D', each of which is in contact with said bearings, push-stems F F', working obliquely against said bearings and provided with cages f f' for springs, and adjustable springs G H, housed within said cages.

3. The combination, in a leather-splitting machine, of the push-stems F F', working against roll-carriers, as described, cages f f' belonging to said stems, springs G H within said cages, bearers g h for said springs to rest upon, spindles g' h', projecting within said springs and from said bearers, and adjusting-screws I I', engaged with said spindles.

479,462. PRESSURE-REGULATING VALVE. CARL A. REHPEN and EMIL ANDRE, Hanover, Germany, assignors to Franz Heuser & Co., same place. Filed Oct. 12, 1889. Serial No. 326,810. (No model.) Patented in France June 24, 1886, No. 176,992; in Germany Mar. 16, 1889, No. 53,170; in England July 26, 1889, No. 11,925; in Italy Sept. 30, 1889, XXIII, 26,908, and I, 104, and in Austria-Hungary Dec. 19, 1889, No. 32,900 and No. 63,698.

Claim.—1. A diaphragm pressure-regulator comprising a casing having inlet and outlet passages, a tubular valve-bearing on the bottom

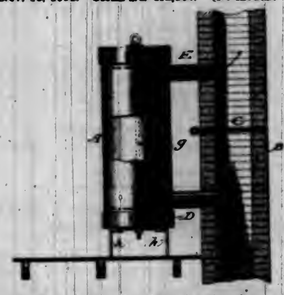
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of the casing, a cylindrical valve b' to said bearing operating to control the flow of liquid through the passage, a flexible diaphragm above the inlet and outlet passages, stiffening-plates l and l', secured to the opposite faces of the diaphragm near one end thereof to form a hinge-joint i, an arm depending from the lower plate l, connected with the valve, and an abutment for limiting the amplitude of vibration of said stiffened diaphragm, substantially as and for the purpose set forth.

2. A diaphragm pressure-regulator comprising a casing having inlet and outlet branches, said inlet branch being adjustable in its bearings in the casing and having a valve-seat formed at its inner end, a tubular bearing on the bottom of the casing, a valve b' in said bearing operating to control the flow of liquid through the inlet branch, a flexible diaphragm above said inlet and outlet branches, stiffening-plates l and l', secured to the opposite faces of the diaphragm near one end thereof to form a hinge-joint i, and a connection between the lower plate and the valve b', substantially as and for the purpose set forth.

479,463. HEATING APPARATUS. MARY ROE, Dayton, Minn. Filed Nov. 16, 1891. Serial No. 412,107. (No model.)

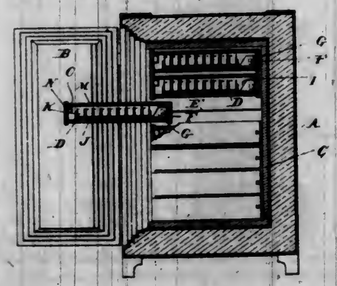


Claim.—1. The combination, in a heating-drum, of removable heads held in place by removable rods encircled by caps which press downward upon the upper head of the drum, substantially as set forth, for the purpose specified.

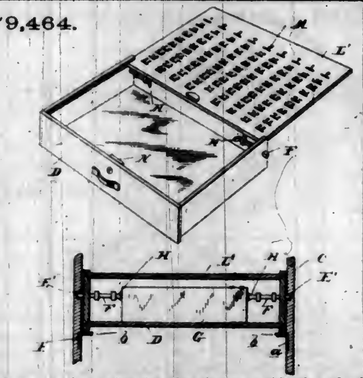
2. The combination, in a heating-drum, of removable rods which pass downward through the upper head and inner part of the drum, thence through the lower head and removable section (to which standards are to be attached) into nuts, said rods being encircled by caps which press downward upon the upper head of the drum, all substantially as shown, for the purpose specified.

3. The combination, in a heating-drum, of hot-air spaces below and above a cavity, the inner and outer cylinders of said drum uniting on either side of the cavity in the form of a half-circle, all substantially as described, for the purpose specified.

479,464. SAFE. ALBERT A. ROOT, Detroit, Mich. Filed Feb. 23, 1892. Serial No. 422,444. (No model.)



479,464.



Claim.—1. In a safety-deposit safe, the combination of a drawer or till having an apertured lid and compartments corresponding to the apertures arranged in series, the compartments of each series being connected, substantially as described.

2. In a safety-deposit safe, the combination of a drawer or till having an apertured lid, independently-pivoted compartments corresponding to the apertures arranged in series, and a connecting-rod upon which the compartments of each series are independently pivoted, substantially as described.

3. In a safety-deposit safe, the combination of a drawer or till having an apertured lid, compartments corresponding to the apertures, and a detachable case J, in which said compartments are located, substantially as described.

4. In a deposit-safe, the combination, with a drawer and supports therefor having guideways formed therein, of bolts passing through the drawer and resting in said guideways and a removable block located between the ends of the bolts, substantially as described.

5. In a saving-deposit safe, the combination, with the lining C, of the drawers D, the guides E, formed of angle-iron having the leg a set in a gain in the side of the lining flush with the case thereof, and the leg b, extending laterally therefrom and forming the guides for the drawer, and the bolts H, engaging in apertures in the side of the case, substantially as described.

6. In a safe-deposit safe, the combination of the drawers, the bolts H to prevent their detachment, but permit a limited withdrawal thereof, the case J in said drawers, the block G, having the inclined face I, the compartments in said case, and the lid L', substantially as described.

479,465. TUG-HOOK. ANDREW RYAN, Bayfield, Wis. Filed Nov. 25, 1891. Serial No. 413,125. (No model.)



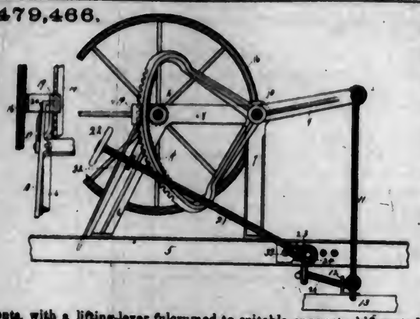
Claim.—1. The combination, with a hook, of a tongue consisting of a spring secured to one side of the hook and conforming substantially to the outline thereof and having its free end at a point beyond the end of the hook bent transversely over the shank to a point beneath the end of the hook and thence upwardly, closing the mouth of the hook, substantially as described.

2. The combination, with a hook, of a tongue consisting of a flat spring secured to one side of the hook at a point beyond the end of the hook, bent upwardly and transversely across the top of the shank, and at a point beneath the end of the hook bent upwardly and rearwardly, its extreme end resting beneath the end of the hook and closing the mouth thereof, substantially as described.

479,466. ROAD-GRADER. HENRY J. SCHNEIDER, Fort Wayne, Ind., assignor to Charles Pape, same place. Filed Mar. 18, 1892. Serial No. 425,396. (No model.)

Claim.—1. In a road-grader having a frame mounted on wheels, the combination of a bar supporting the scraper-blade and its attach-

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ments, with a lifting-lever fulcrumed to suitable supports, bifurcated at one end and having lifting-rods pivotally attached at the other end, with suitable connections to said supporting-bar, the bifurcated ends being connected by a segment provided with teeth on both its inner and outer curves, a pinion meshing with the teeth on the inner curve of said segment and provided with a journal supported in suitable bearings attached to a hand-wheel, a lug provided with a slot adapted to receive and guide therein the teeth on the outer curve of said segment with part of the segment, a spring-lever provided at one end with a pin and adapted to enter an orifice in said lug and engage the outer teeth of said segment, an operating-rod provided with a beveled gear-wheel meshing with another beveled gear-wheel, to which is attached a threaded rod, both rods being journaled suitably in bearings, a follower mounted on a cross-bar attached to said frame, a screw-collar attached to said follower and adapted to engage said threaded rod, and a shifting-rod pivotally attached one end to said supporting-bar and the other to a lug attached to said follower.

2. In a road-grader having a frame mounted on wheels, the combination of a bar supporting the scraper-blade and its attachments, with a lifting-lever fulcrumed to suitable supports, bifurcated at one end and having lifting-rods pivotally attached at the other end, with suitable connections to said supporting-bar, the bifurcated ends being connected by a segment provided with teeth on both its inner and outer curves, a pinion meshing with the teeth on the inner curve of said segment and provided with a journal supported in suitable bearings attached to a hand-wheel, a lug provided with a slot adapted to receive and guide therein the teeth on the outer curve of said segment with part of the segment, and a spring-lever provided at one end with a pin adapted to enter the orifice in said lug and engage the outer teeth of said segment.

3. In a road-grader having a frame mounted on wheels, the combination of a bar supporting the scraper-blade and its attachments, an operating-rod provided with a beveled gear-wheel meshing with another beveled gear-wheel, to which is attached a threaded rod, both rods being journaled suitably in bearings, a follower mounted on a cross-bar attached to said frame, a screw-collar attached to said follower and adapted to engage said threaded rod, and a shifting-rod pivotally attached one end to said supporting-bar and the other to a lug attached to said follower.

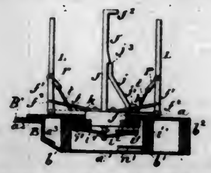
4. In a road-grader having a frame mounted on wheels, the combination of a bar supporting the scraper-blade and its attachments, an operating-rod provided with a beveled gear-wheel meshing with another beveled gear-wheel, to which is attached a threaded rod, both rods being journaled suitably in bearings, a shifting-rod pivotally attached to said supporting-bar, and a screw-collar rigidly attached to said shifting-rod and adapted to engage said threaded rod.

5. In a road-grader having a frame mounted on wheels, the combination of a bar supporting the scraper-blade and its attachments, with a lifting-lever fulcrumed to suitable supports, bifurcated at one end and having lifting-rods pivotally attached at the other end, with suitable connections to said supporting-bar, the bifurcated ends being connected by a segment provided with teeth on both its inner and outer curves, a pinion meshing with the teeth on the inner curve of said segment and provided with a journal supported in suitable bearings attached to a hand-wheel, a lug provided with a slot adapted to receive and guide therein the teeth on the outer curve of said segment with part of the segment, and means to lock said lifting-lever at any desired elevation.

479,467. GRAIN-CONVEYER FOR MINERS, &c. GEORGE SOBYBEEZ, Walnut, Tex. Filed Mar. 27, 1891. Serial No. 386,705. (No model.)

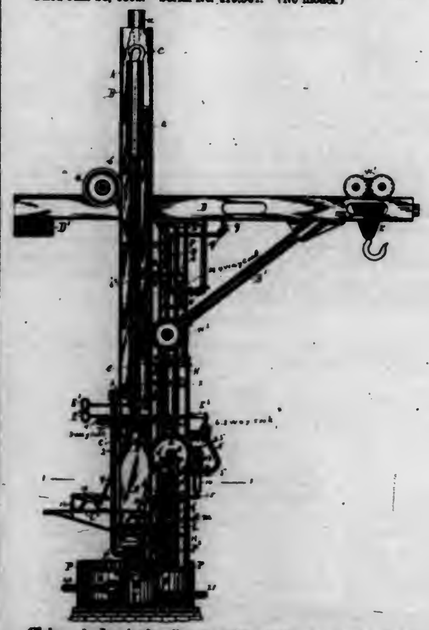
Claim.—1. In a grain-conveyer, the combination of a platform A, comprising the plates *a*, projecting inwardly over the side walls or strips *b* and *b'* and leaving a slot g^2 in the platform, a notch *c'* in one of the projecting edges, a spring below said slot g^2 near the notch *c'*, a conveyer-block D, moving in said slot g^2, a lever J, pivoted in said block, with the extension I extending down below said block, arms *f f*, mounted on vertical pivots having a rotary movement in said block D, cranks i^2 i^2, rigidly secured to said pivots, connecting-rods i^3 i^3, connecting said cranks to the extension I, as shown, and the lever J, provided with a rod *j*, all as shown, and for the purpose described.

2. In a grain-conveyer, the combination of a platform A, comprising the plates *a*, projecting inwardly over the side walls or strips *b* and *b'* and leaving a slot g^2 in the platform, notches *c'* in one of the projecting edges, a spring *n'* below the slot g^2, projecting to near the notch *c'*, a conveyer-block D, moving in said slot g^2, a slot D^2 in said block D, as shown, a lever J, pivoted in the block D, with the extension I extending down below said block D and grainward, as shown, arms *f f*, mounted on vertical pivots having a rotary movement in the block D, cranks i^2 i^2, rigidly secured to the lower end of said pivots *i i*, connecting-rods i^3 i^3, connecting said cranks to the extension I, substantially as shown, and the lever J, provided with a rod *j*, all for the purpose described.



3. In a grain-conveyer, the combination of a platform A, a slot g^2 therein, a switch *o* in the projecting plate *a* near the outer end of the slot, a spring *n* below said slot g^2, projecting grainward with its free end to near the switch *o*, a conveyer-block D, moving in said slot g^2, a lever J, pivoted in said block, provided with the downward-projecting arm I, arms *f f*, mounted on vertical pivots, cranks i^2 i^2, secured to said pivots *i i*, connecting-rods i^3 i^3, connecting the cranks i^2 i^2 to the arm I, arms *f' f'*, pivoted to the free ends of arms *f f* and connected to the block D by the rods *k k*, in connection with extensions L L, provided with arms or projections P P and pivoted to the free ends of arms *f' f'* and linked to the arms *f f* by wires or rods *t t*, as shown, and means to open said extensions at the right time with the lever J, provided with the rod *j* and crooked at its upper end, as shown, and for the purpose described.

479,468. HYDRAULIC CRANE. HENRY C. SHAW, Joliet, Ill. Filed Jan. 23, 1892. Serial No. 419,561. (No model.)



Claim.—1. In a hydraulic crane, the combination of the auxiliary cylinder H, provided with a pressure-supply pipe, the ram F, the lifting-cylinder B^4 and its ram B^3, and the pipes 4 and 8 for connecting said cylinders, and the cock 7, interposed between said pipes, substantially as and for the purpose set forth.

2. In a hydraulic crane, the combination, with the pillar A and jib D, of cylinder H, pipe X for supplying said cylinder under pressure, hollow open-bottom ram F, located within cylinder H and secured at its upper end to said jib, cylinder B^4, arranged adjacent to and connected with cylinder H by means of a supply-pipe, hollow open-bottom ram B^3, located within cylinder B^4 and secured at its upper end to said jib, pipes 4, 8, and *d* for connecting said cylinders with cock 7, cock 7, pipe *c*, leading from said cock to tank B, tank B, pipes C, 1, and 2, leading from said tank to hollow bearing *a'*, and the hollow bearing *a'*, having the discharge-pipe 20, all arranged to operate substantially as and for the purpose set forth.

3. In a hydraulic crane, the combination, with the pillar and jib of the cylinders H and J and their hollow open-bottom rams F and G, pressure-supply pipe X for supplying cylinder H under pressure, cock *n*, connected with hollow ram F, cylinder F^2, pipe *g* for connecting said cylinder and cock, cylinder F^3, pipe *g* for connecting said cylinder and cock, rams F^3 and F^4, carriage E, hollow ram G, discharge-pipe V for connecting cock *n* with said ram G, pipes *d'* and *c*, and the means for operating said cock *n*, substantially as and for the purpose set forth.

4. In a hydraulic crane, the combination, with the pillar and jib, of the cylinder H, water-motor K, a pipe for connecting said cylinder and motor, having a cock for regulating the supply of water from said cylinder to said motor, bevel-gears *d' d*, and shaft *f m*, friction-clutch N, gear-wheel L, loose in its shaft-pinion P', annular gear P, clutch 17, and the means for operating said clutch, substantially as and for the purpose set forth.

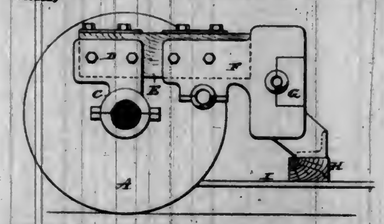
5. The combination of the pillar A, having the hollow bearings *a* and *a'*, jib D, having the wheels W journaled to its inner end and adapted to roll on the back of the pillar, brace B' for supporting the outer end of said jib and having wheels W^2 boxed to its lower end and adapted to roll on the pillar on its opposite side from wheels W, the box of said wheels W being attached to ram F, cylinders B^4, J, and H, respectively provided with the hollow open-bottom rams B^3, G, and F, connecting said cylinders and jib, cylinders F^2 and F^3, secured to said jib and provided, respectively, with the rams F^3 and F^4, respectively connecting said cylinders with carriage E, adapted to travel on said jib, the pipes *g*, *g'*, and V, having cock N for connecting ram G with cylinders F^2 and F^3, and the means for rotating the crane in either direction, substantially as and for the purpose set forth.

6. In a hydraulic crane, the combination of the water-motor K, pipe 5 for feeding said motor, discharge-pipe P^2, shafts *f* and *m*, friction-clutch for connecting said shafts, bevel-gears *d d'*, gear-wheel P, driven from shaft *m* and loose on its shaft, pinion P', annular gear P, base S, clutch 17 on the upper end of the shaft of gear L, lever 15, pivoted at *h* to cylinder J and having the weight 16, yoke 18 for connecting clutch 17 with one end of said lever, cylinder 13, connected with and opening into pipe 5, plunger 24, having cross-head 25, and yoke 14 for connecting said plunger with the outer end of said lever, substantially as and for the purpose set forth.

7. In a hydraulic crane, the combination, with its pillars and jib, of a lifting-cylinder having a ram connecting it with the jib and an auxiliary pressure-supply cylinder having a ram connecting it with the jib and connected by a pipe with the lifting-cylinder, substantially as and for the purpose set forth.

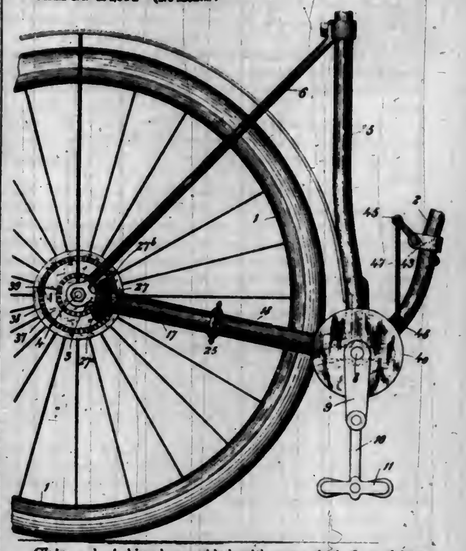
8. In a hydraulic crane, the combination of a distributing-cylinder and its ram for nearly sustaining the jib and its appendages, a lifting-cylinder and its ram, and the means for connecting and supplying said cylinders, substantially as and for the purpose set forth.

479,469. MOTOR-FRAME FOR ELECTRIC LOCOMOTIVES. SIDNEY H. SHORT, Cleveland, Ohio, assignor to the Short Electric Railway Company, same place. Filed Oct. 29, 1889. Serial No. 328,546. (No model.)



Claim.—The combination, with a driving-axle, of a two-part motor-frame, one part journaled on the axle and the other supported by the truck-frame, wooden beams interposed between and serving to connect the two parts of the motor-frame, and a wooden cross-beam supported at the ends on the side bars of the truck-frame and serving as an insulating-support for one end of the motor-frame, substantially as set forth.

479,470. BICYCLE. GEORGE T. SMALLWOOD, Washington, D. C., assignor of one-half to Otis Cole, Rochester, N. Y. Filed Mar. 9, 1892. Serial No. 424,314. (No model.)



Claim.—1. A bicycle provided with a crank-shaft, a driving-wheel, and a flexible shaft connecting the crank-shaft and driving-wheel, said crank-shaft being located outside the wheel, substantially as set forth.

2. A bicycle provided with a crank-shaft, a driving-wheel, and a flexible drive-shaft extending alongside the driving-wheel and connecting the same with the crank-shaft, substantially as set forth.

3. In a bicycle, the driving-wheel, a shiftable drive-shaft, and power and speed devices adapted to the shiftable drive-shaft, substantially as set forth.

4. In a bicycle, the driving-wheel, a longitudinally-shiftable drive-shaft, and power and speed devices adapted to the drive-shaft, substantially as set forth.

5. In a bicycle, the driving-wheel, a flexible drive-shaft, and power and speed devices adapted to the drive-shaft, substantially as set forth.

6. In a bicycle, the driving-wheel, a shiftable flexible drive-shaft, and power and speed devices adapted to the drive-shaft, substantially as set forth.

7. In a bicycle, the driving-wheel and a torsion drive-shaft adapted to drive the wheel, substantially as set forth.

8. In a bicycle, the driving-wheel, the crank-shaft provided with links, the pedals carried by the links for turning the crank-shaft and to assist in overcoming dead-centers, and a power-storing device operated by the crank-shaft, substantially as set forth.

9. In a bicycle, the combination, with the driving-wheel, the crank-shaft, and a disk having a double series of teeth, of a drive-shaft having a double-faced wheel adapted to engage either of said series of teeth and having connection with the driving-wheel, substantially as set forth.

10. In a bicycle, the herein-described relatively adjustable gearing provided with intermeshing teeth running to points at their extremities, substantially as set forth.

11. In a bicycle, the combination, with the driving-wheel, the crank-shaft, and two disks respectively on the driving-wheel and crank-shaft, said disks being each provided with a double series of teeth, of a shiftable drive-shaft having a double-faced wheel at each end, adapted to engage with the teeth on said disks, substantially as set forth.

12. In a bicycle, the combination, with the driving-wheel and the crank-shaft, of a drive-shaft adapted to connect the driving-wheel and the crank-shaft, said drive-shaft comprising relatively movable casings and a torsion-spring located within and connected with the casings, substantially as set forth.

13. In a bicycle, the combination, with the driving-wheel and the

crank-shaft, of a drive-shaft adapted to connect the driving-wheel and the crank-shaft, said drive-shaft comprising relatively-movable casings, a boxing connecting the casings, ball-bearings within the boxing, and

Claim.—1. The combination of a dressing-case having horizontal ways near the bottom, horizontally-movable slides engaging said

whereby the machine may be employed for forming cigar-bunches with

479,478. MACHINE FOR PASTING, CUTTING, AND TRIMMING

crank-shaft, of a drive-shaft adapted to connect the driving-wheel and the crank-shaft, said drive-shaft comprising relatively-movable casings, a boxing connecting the casings, ball-bearings within the boxing, and a torsion-spring located within and connected with the casings, substantially as set forth.

14. In a bicycle, the combination, with the driving-wheel, the crank-shaft, and power and speed devices, of a shiftable drive-shaft to which said power and speed devices are adapted, said drive-shaft comprising relatively-movable casings and a torsion-spring located within and connected with the casings, substantially as set forth.

15. In a bicycle, the herein-described gearing, the same comprising a wheel having two series of teeth separated by a peripheral groove and a noise-deadening ring confined in said groove, substantially as set forth.

16. An attachment for bicycles, tricycles, and the like, the same comprising relatively-movable casings provided with gear-wheels and a spring confined within and acting upon the casings, substantially as set forth.

17. An attachment for bicycles, tricycles, and the like, the same comprising relatively-movable casings provided with gear-wheels, a boxing in which the meeting ends of the casings bear, and a spring confined within and acting upon the casings, substantially as set forth.

18. An attachment for bicycles, tricycles, and the like, the same comprising relatively-movable casings provided with gear-wheels and a torsion-spring acting upon the casings, substantially as set forth.

19. An attachment for bicycles, tricycles, and the like, the same comprising relatively-movable casings provided with gear-wheels and a spiral spring acting upon the casings, substantially as set forth.

20. An attachment for bicycles, tricycles, and the like, the same comprising relatively-movable casings provided with gear-wheels, a confined inner tube or spindle, and a spiral spring inclosing the tube or spindle and inclosed in and acting upon the casings, substantially as set forth.

21. An attachment for bicycles, tricycles, and the like, the same comprising a hollow flexible shaft provided with gear-wheels and a tube or spindle extending therethrough and on which the flexible shaft turns, substantially as set forth.

22. An attachment for bicycles, tricycles, and the like, the same comprising relatively-movable casings provided with gear-wheels, a spiral spring within and acting upon the casings, and a tube or spindle extending through the spring and casings and on which the spring and casings turn, substantially as set forth.

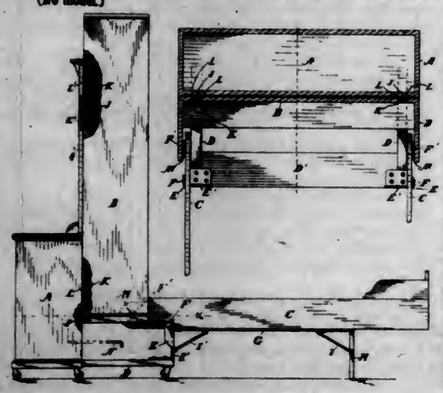
23. An attachment for bicycles, tricycles, and the like, the same comprising a hollow flexible shaft provided with gear-wheels, a tube or spindle extending therethrough, and a friction-clutch on the tube, substantially as set forth.

24. An attachment for bicycles, tricycles, and the like, the same comprising a hollow flexible shaft provided with gear-wheels, a tube or spindle extending therethrough, and anti-friction bearings on which the gear-wheels turn, substantially as set forth.

25. In a bicycle, the combination of the driving-wheel and a flexible or torsion drive-shaft with the crank-shaft, links pivoted to the cranks of the latter, and the pedals carried by the links, substantially as and for the purpose set forth.

26. In a bicycle, the driving-wheel, power-storing mechanism operated by the pedals, and a clutch for preventing reaction of the power-storing mechanism, substantially as set forth.

479,471. WARDROBE-BED. ISRAEL C. SMITH and EDWARD E. EMERSON, Grand Rapids, Mich. Filed May 20, 1891. Serial No. 393,457. (No model.)



Claim.—1. A combined and convertible long-filler and short-filler cigar-bunch machine, comprising, in combination with the bunch-rolling mechanism, an initial receptacle for the filler, means for reciprocating the said receptacle between its long-filler-receiving position and its discharge position in the machine, feed mechanism for short-filler over the path of the receptacle, and detachable means for actuating the said feed mechanism at proper intervals, whereby the machine may be employed for forming cigar-bunches with either or both long-filler and short-filler tobacco, substantially as described.

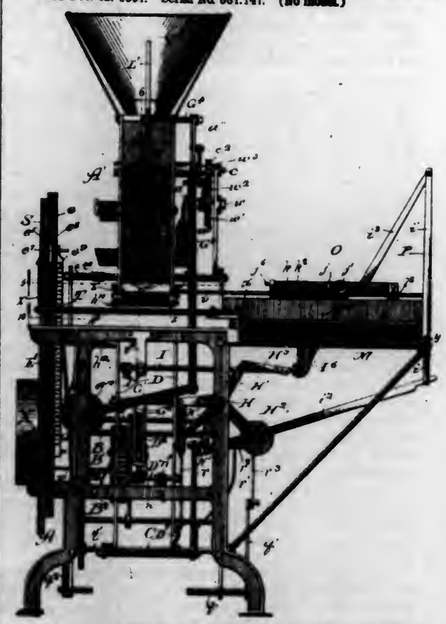
2. A combined and convertible long-filler and short-filler cigar-bunch machine, comprising, in combination with the bunch-rolling mechanism, an initial receptacle for the filler, means for reciprocating the said receptacle between its long-filler receiving position and its discharge position in the machine, and feeding mechanism for short-filler above the said discharge position of the receptacle, whereby the machine may be employed for forming cigar-bunches with either or both long-filler and short-filler tobacco, substantially as described.

3. A combined and convertible long-filler and short-filler cigar-bunch machine, comprising, in combination with the bunch-rolling mechanism, an initial receptacle for the filler, detachable means for reciprocating the said receptacle between its long-filler receiving position and its discharge position in the machine, and feeding mechanism for short filler above the said discharge position of the receptacle, *Claim.*—1. The combination of a dressing-case having horizontal ways near the bottom, horizontally-movable slides engaging said ways, casters beneath the outer ends of said slides, a folding section pivoted upon said slides substantially above said casters, and a vertically-movable case detachably secured to the back of said dresser, said case pivoted to said folding section and resting upon said slides when the bed is closed, substantially as described.

2. The combination of a stationary case, a vertically-movable case detachably connected thereto, a folding section pivoted by vertically-open bearings to said movable case, horizontally-movable slides pivoted to said folding section and supporting said movable case when the bed is closed, and a stop-pin to limit the movement of said case, substantially as described.

3. The combination of a vertically-movable case, a folding section pivoted to the same and balanced thereby, horizontally-movable slides beneath and supporting said vertically-movable case when the bed is closed, outer supporting-legs pivoted to said folding section, a horizontally-movable rod on said folding section, and connecting-rods pivoted to said movable rod and to the said legs and slides, substantially as described.

479,472. CIGAR-BUNCH MACHINE. WILLIAM M. STEBBLE, Chicago, Ill., assignor to Bernard Gradle and Nicolas Strotz, same place. Filed Feb. 12, 1891. Serial No. 381,147. (No model.)



Claim.—1. A combined and convertible long-filler and short-filler cigar-bunch machine, comprising, in combination with the bunch-rolling mechanism, an initial receptacle for the filler, means for reciprocating the said receptacle between its long-filler receiving position and its discharge position in the machine, feed mechanism for short-filler over the path of the receptacle, and detachable means for actuating the said feed mechanism at proper intervals, whereby the machine may be employed for forming cigar-bunches with either or both long-filler and short-filler tobacco, substantially as described.

2. A combined and convertible long-filler and short-filler cigar-bunch machine, comprising, in combination with the bunch-rolling mechanism, an initial receptacle for the filler, means for reciprocating the said receptacle between its long-filler receiving position and its discharge position in the machine, and feeding mechanism for short-filler above the said discharge position of the receptacle, whereby the machine may be employed for forming cigar-bunches with either or both long-filler and short-filler tobacco, substantially as described.

3. A combined and convertible long-filler and short-filler cigar-bunch machine, comprising, in combination with the bunch-rolling mechanism, an initial receptacle for the filler, detachable means for reciprocating the said receptacle between its long-filler receiving position and its discharge position in the machine, and feeding mechanism for short filler above the said discharge position of the receptacle,

whereby the machine may be employed for forming cigar-bunches with either or both long-filler and short-filler tobacco, substantially as described.

4. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism, of an initial receptacle for the filler, a reservoir for filler-tobacco, provided with an opening in its lower side, a chute extending from said opening and terminating over the receptacle, valve mechanism at the said opening to discharge at intervals filler from the reservoir upon the chute, a deflector upon the chute for dividing and distributing the filler in the said receptacle, and a discharger operating to transfer the filler from the receptacle to the bunch-rolling mechanism, substantially as described.

5. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism and initial receptacle for the filler, of mechanism above the receptacle, operated from the driving-power of the machine to feed the filler at intervals to the receptacle, consisting of a reservoir having an opening in its lower side, a chute extending from said opening and terminating over the receptacle, a valve at the said opening, comprising a box having a passage through it provided with an auxiliary valve for controlling the size of the passage and movable into and out of the said opening, whereby the passage is filled through its upper end as the box enters the reservoir and discharged through its lower end as the box advances out of the reservoir, a deflector upon the said chute for dividing and distributing the filler in the said receptacle, and a discharger operating to transfer the filler from the receptacle into the bunch-rolling mechanism, substantially as described.

6. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism and initial receptacle for the filler, of mechanism above the receptacle, operated from the driving-power of the machine to feed the filler at intervals to the receptacle, consisting of a reservoir having an opening in its lower side, a valve in said opening, comprising a box having a passage through it, with an auxiliary valve for controlling the size of the passage, and having a wing-plate b^5 extending into the reservoir and forming a false bottom therein, the box being operated to reciprocate into and out of the said opening, whereby the passage is filled through its upper end as the box enters the reservoir and discharged through its lower end as the box advances out of the reservoir, and stirring mechanism in the reservoir, substantially as and for the purpose set forth.

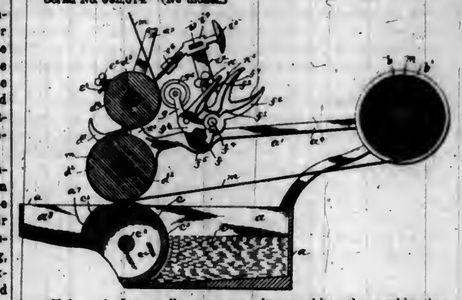
7. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism and final receptacle for the bunch, of a movable carrier operated from the driving-power of the machine to transfer the bunch from the bunch-rolling mechanism to the final receptacle and comprising a frame provided with a stationary and a pivotal jaw, the jaws affording between them a receptacle for the bunch, a spring upon the frame maintaining the jaws normally closed, a projection upon the pivotal jaw, and a stationary stop in the path of the said projection, whereby the pivotal jaw is opened by contact of its projection with the said stop and closed by the spring in the movement of the carrier, and ejecting mechanism, substantially as described, for discharging the bunch from the carrier into the final receptacle, as set forth.

8. In a cigar-bunch machine, the combination, with the bunch-forming mechanism, carrier R, and ejector, of a vertically-disposed mold-board T, a frame in which the mold-board is yieldingly supported at its lateral edges to move freely in an upward direction and be resisted in its movement in a downward direction, a guide-wheel c^{10}, bearing against the front side of the mold-board, and intermittent raising mechanism for the mold-board, comprising a pawl to engage the mold-board at its cavities and a rock-shaft with which the pawl is pivotally connected, actuated from the driving power of the machine to reciprocate the pawl and raise the mold-board the distance of one cavity with each operation, substantially as and for the purpose set forth.

9. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism and driving-power of the machine, of a receptacle for the filler, mounted upon a movable carrier reciprocating across a vertical plane between the long-filler-feeding position and the discharge position of the receptacle, and feed mechanism for short-filler tobacco above the said discharge position of the receptacle, automatically actuated as the receptacle nears the discharge position to feed short-filler to the receptacle, substantially as described.

10. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism, the initial receptacle upon a reciprocating carrier, the reservoir for short-filler tobacco, and intermittingly-operating discharge mechanism therefor, all operated from the driving-power of the machine, and the chute extending downward from the said reservoir over the path of the reciprocated receptacle, of a valve W, normally blocking the lower end of the chute and provided with a projection, which extends normally into the path of the reciprocating carrier to be actuated by the movement thereof to open the valve W, substantially as and for the purpose set forth.

479,473. MACHINE FOR PASTING, CUTTING, AND TRIMMING WALL-PAPER. LOUIS STOCK, Columbus, Ohio. Filed May 15, 1891. Serial No. 392,614. (No model.)

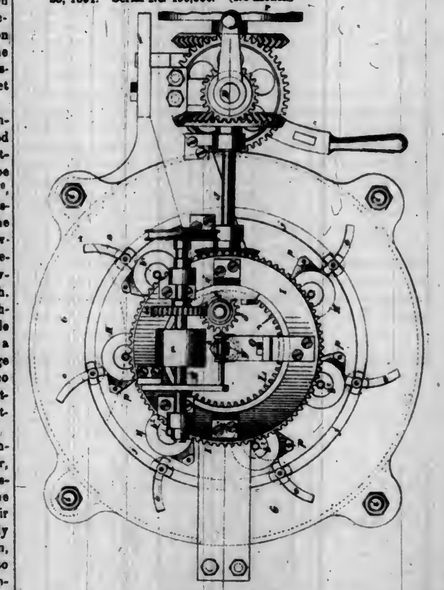


Claim.—1. In a wall-paper-preparing machine, the combination, with a paste-tank *a*, a roll-carrying frame arising therefrom, and a paper-reel journaled in said frame, of a paste-roll journaled in said tank, a feed-roll d^3, movably journaled, as described, above said paste-roll, and a roll d^4, journaled above said feed-roll, substantially as described.

2. In a wall-paper-preparing machine, the combination, with a paste-tank *a*, a roll-carrying frame arising therefrom, a paper-reel journaled in said frame, and a paste-roll journaled in said tank, of a feed-roll d^3, movably journaled, as described, above said paste-roll, a roll d^4, journaled above said feed-roll, and one or more trimming-wheels *g*, having their cutting-edges adjustably supported against the periphery of the roll d^3, substantially as and for the purpose specified.

3. In a wall-paper-preparing machine, the combination, with a paste-tank *a*, a roll-carrying frame arising therefrom, a paper-reel journaled in said frame, and a paste-roll journaled in said tank, of a feed-roll d^3, movably journaled, as described, above said paste-roll, a roll d^4, journaled above said feed-roll, the hinged bracket f^3, rising from the upper portion of the frame, a horizontally-sliding knife-block on said bracket, and a cutting disk or knife supported thereby, said disk being adapted to be made to bear upon the periphery of the roll d^3, substantially as and for the purpose specified.

479,474. ROTARY BRAIDING-MACHINE. HENRY W. STRUSS, New York, N. Y., assignor to Marie F. Struss, same place. Filed Sept 25, 1891. Serial No. 406,800. (No model.)



Claim.—1. The combination of the cam-plate B and mechanism, substantially as described, for rotating the same, said cam-plate hav-

ing interlocking undulating grooves *b d*, with the stationary plate G, having annular slot *j* and cross-slots *o*, and with means for holding spools F suspended below the cam-plate, thread-guides A, projecting from the cam-plate through the annular slot *j*, and with the swiveled carriers *l m n*, whose lower portions are fitted into the grooves *b d*, while their upper portions enter the traversing slots *o*, and with thread-guides *p*, all arranged for operation substantially as herein shown and described.

2. The combination of the stationary plate G, having annular slot *j* and cross-slots *o*, with the rotating cam-plate B, having intersecting undulating grooves *b d*, and with spool-carriers held in said grooves and cross-slots, and lower spool-carriers *g*, all arranged for operation substantially as herein shown and described.

3. The combination of the cam-plate B, arranged to receive upwardly-projecting spools H and downwardly-projecting spools F on its opposite sides, with mechanism for traversing one set of spools and rotating the other set of spools around the axis of said cam-plate, substantially as herein shown and described.

479,475. PUZZLE. LOUIS F. STUTZ, Washington, D. C. Filed Apr. 21, 1892. Serial No. 430,054. (No model.)



Claim.—1. The herein-described game or puzzle, illustrating the discovery of America, and comprising a globe or curved surface and ships or travelers having a loose sliding connection therewith and movable thereon, substantially as set forth.

3. The herein-described game or puzzle, consisting of a globe provided with the representations of two continents or countries and with an intervening space representing the ocean, undercut or equivalently-shaped intersecting grooves in the said space, and ships engaging said grooves and movable therein, substantially as set forth.

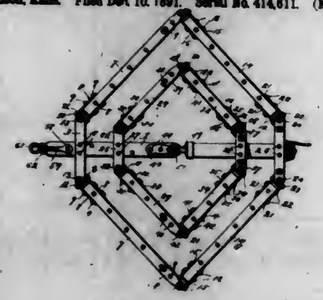
3. A game or puzzle consisting of a globe having intersecting grooves and ships or travelers engaging said grooves and movable therein by their gravity, as the globe is manipulated, over the surface of the globe, substantially as set forth.

4. A game or puzzle consisting of a hollow globe having intersecting grooves, an opening into the interior of the globe, having a cover or plug, and detachable ships or travelers adapted to engage said grooves or be stored within the globe, substantially as set forth.

5. A game or puzzle consisting of a suitable base adapted to be manipulated or tilted by hand, and having an undercut groove or slit, a traveler engaging the groove, and a separate weight in the inner or wider part or space of the groove and adapted by such manipulation to be moved to actuate the traveler, substantially as set forth.

6. The herein-described game or puzzle, consisting of a globe having grooves leading in a direction which is not desired to be pursued, travelers adapted to follow said grooves by their gravity as the globe is manipulated, and intersecting grooves meeting the first-mentioned grooves at an angle and leading to the desired destination, substantially as set forth.

479,476. HARROW. AUGUST H. TEICHNER and PAUL H. TEICHNER, Atchison, Kans. Filed Dec. 10, 1891. Serial No. 414,611. (No model.)



Claim.—1. A harrow comprising a harrow-frame composed of a front section, a rear section detachably connected to the front section, a bar or rod sliding in the rear section and detachably connected to the front section, and a flexible connection attached to said rod or bar and detachably connected to the rear section, substantially as set forth.

2. A harrow comprising a front section, a rear section detachably connected to the front section, a longitudinal center bar for the front section, a tubular longitudinal center bar for the rear section, a rod or bar located within the tubular center bar and detachably connected to the rear end of the front center bar, and a flexible connection attached to the rear end of the rod or bar and detachably connected to the rear end of the rear center bar, substantially as set forth.

3. A harrow composed of a number of bars constituting the outer harrow-frame section, having relatively vertical and horizontal pivotal movements, and a number of similar bars constituting inner harrow-frame sections and having, also, relatively vertical and horizontal pivotal movements, the said bars being so connected as to form front and rear sections and said sections being detachably connected to each other, substantially as set forth.

479,477. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. JACOB W. TURNER, Van Wert, Ohio, assignor of one-half to Theodore Clapper. Filed Jan. 26, 1891. Serial No. 379,109. (No model.)



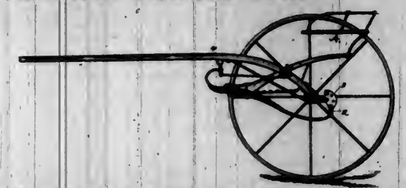
Claim.—1. In a band-cutter and feeder, the combination, with the carrier-belt and cutter, of the lateral distributers A', disposed over each side of the carrier-belt and suspended from a link Z, freely mounted in one end of an adjustable lever Y and carrying plates C, provided with sleeves D', fitting loosely over crank-shafts E', journaled in bearings on the feeder-frame, and gearing for rotating said crank-shafts, substantially as described.

2. In a band-cutter and feeder, the combination, with the carrier-belt and cutter, of lateral distributers, each consisting of a frame A', formed at its lower end with curved teeth B' and suspended by a link Z from a vertically-adjustable lever Y, a plate C, secured to each of said distributers and provided with a sleeve D', crank-shafts mounted in bearings on the feeder-frame, and gearing for actuating said crank-shafts, the sleeves D' being loosely mounted on said crank-shafts, whereby a reciprocatory vibrating movement in a line transverse to the carrier-belt is imparted to the distributers, substantially as described.

3. The combination, with the carrier-belt and cutter, of the lateral distributers A', suspended over each side of the carrier-belt by a link Z, carried by a vertically-adjustable lever Y and having secured thereto plates C', provided with sleeves D', loosely mounted on crank-shafts E', journaled in bearings on the feeder-frame, the holdback-fingers M', suspended transversely over carrier-belt by a link L', carried by a vertically-adjustable lever K' and having secured thereto plates P', provided with sleeves R', loosely mounted on a crank-shaft S', journaled in bearings in the feeder-frame, and gearing for rotating said crank-shafts for imparting a reciprocatory vibrating movement to said distributers and holdback-fingers, substantially as described.

4. The combination, with the carrier-belt and cutter, of the spreading-fingers, each consisting of two curved arms united at their tops by an eye and connected together in pairs by a link engaging said eyes, said link being loosely connected at its center to one end of an adjustable lever, plates secured to said curved arms and provided with sleeves, rock-shafts secured in bearings on the feeder-frame and passing through said sleeves, and gearing for rotating said rock-shafts, whereby each pair of spreading-fingers has imparted to it a reciprocatory vibrating movement, substantially as shown and described.

479,478. ROAD-CART. JOSEPH C. VALENTINE, Watertown, N. Y. Filed Oct. 22, 1891. Serial No. 409,526. (No model.)

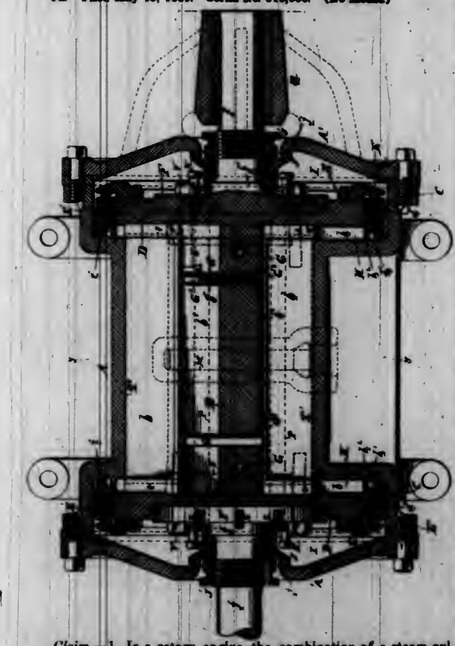


Claim.—1. In a two-wheeled vehicle, thills and springs at their forward ends loosely secured thereto and at their rear ends loosely and adjustably secured to the rearwardly-extending shank.

2. In a two-wheeled vehicle, thills, rearwardly-extending shanks, springs at their forward ends loosely secured to the thills and at their rear ends loosely secured to said shank by means of a vertical plate, and the vertical plate, as set forth.

3. In a two-wheeled vehicle, the thills, rearwardly-extending shanks, springs at their forward ends secured to the thills by means of a double shackle, a rod connected to the lower end of the said shackle, and means for securing its other end rigidly at a point rearwardly, a vertical plate having openings in its periphery secured to the rear end of the shanks, and the shackle connecting the plate to the rear end of the spring, as set forth.

479,479. ROTARY ENGINE. EDWARD WALDRON, Philadelphia, Pa. Filed May 15, 1889. Serial No. 310,800. (No model.)



Claim.—1. In a rotary engine, the combination of a steam-cylinder formed with shaft-bearings at each end, a rotary drum and pistons of a length equal to the length of the cylinder, a steam-tight packing between the ends of the drum and cylinder, a shaft at each end supported in said bearings and having a flanged head bolted to the respective ends of the drum and supporting it, cylinder-heads for each end of the cylinder, and a rotatable steam-tight packing encircling the shafts between their heads and the respective cylinder-heads through which the shafts extend.

2. In a rotary engine, the combination of the cylinder having heads at each end provided with apertures of larger diameter than the shaft-sections of the engine, a rotary drum and pistons secured to the shaft-sections, sleeves surrounding the shaft-sections and movable longitudinally thereon and forming annular steam-tight rotary joints with the inner faces of the cylinder-heads, packing between the sleeves and shaft-sections, glands screwed upon the shaft-sections to keep the packing in place, and springs to press the sleeves outward against the inner faces of the cylinder-heads.

3. In a rotary engine, a cylinder having its inner surface formed of concentric and eccentric parts arranged alternately about the axis of rotation of the shaft, and steam inlet and exhaust ports arranged diametrically opposite and of different lengths, in which the exhaust-port occupies a space more than ninety degrees, in combination with a rotary shaft and piston carried with the shaft and sweeping the interior face of the cylinder.

4. In a rotary engine, a cylinder having two oppositely-arranged concentric parts T T' of different radii and two opposite cam or eccentric parts T^2 T^2, connecting said concentric parts and respectively provided with steam and exhaust ports, in which the exhaust-port consists of two oblique ports substantially covering the width of the cylinder, in combination with traveling pistons moving about a fixed axis and sweeping the interior surface of the cylinder.

5. In a rotary engine, the combination of a cylinder having concentric and eccentric parts, substantially as set out, and provided with steam and exhaust ports arranged in the eccentric parts diametrically opposite and in which the adjacent edges of the two ports are separated a distance corresponding to ninety degrees and in which the exhaust-port is of greater length than the steam-port, with a rotary drum arranged within the cylinder, and rotary movable pistons arranged diametrically in pairs and movable in races formed in the drum.

6. In a rotary engine, the cylinder having an interior surface made cam or eccentric shaped, in combination with a drum provided with piston-races arranged within said cylinder and of substantially equal length with the cylinder, pistons for said drum, removable heads for the ends of said drum to hold the pistons against longitudinal movement, and two shafts having heads and arranged one at each end and bolted to the drum, whereby the shaft at one end can be removed and the pistons withdrawn without removing the drum.

7. In a rotary engine, the cylinder having interior concentric and eccentric shaped surfaces arranged alternately about its interior circumference and parallel end surfaces, in combination with a rotary drum and reciprocating pistons, a head bolted to each end of the drum, having radial slots, and packing-rings carried by said heads, having piston guide-pieces fitting said slots and movable to and from the end surfaces of the cylinder.

8. In a rotary engine, the cylinder having interior concentric and eccentric shaped surfaces arranged alternately about its interior circumference and parallel end surfaces, in combination with a rotary drum and reciprocating pistons, a head bolted to each end of the drum, having radial slots, and packing-rings carried by said heads, having piston guide-pieces fitting said slots and movable to and from the end surfaces of the cylinder, and springs supported by the heads to force said rings against the end surfaces.

9. In a rotary engine, the cylinder having interior concentric and eccentric shaped surfaces arranged alternately about its interior circumference and parallel end surfaces, in combination with a rotary drum and reciprocating pistons, a head bolted to each end of the drum, having radial slots, and packing-rings carried by said heads, having piston guide-pieces fitting said slots and movable to and from the end surfaces of the cylinder, the said rings having a thin annular contact-rim, and guide-races for the pistons.

10. In a rotary engine, the cylinder having interior concentric and eccentric shaped surfaces arranged alternately about its interior circumference and parallel end surfaces, in combination with a rotary drum and reciprocating pistons, a head bolted to each end of the drum, having radial slots, and packing-rings carried by said heads, having piston guide-pieces fitting said slots and movable to and from the end surfaces of the cylinder, the said rings being formed with a thin annular contact-rim having a steam-lubricating groove and recess leading from the interior of the cylinder to its contact-surface.

11. In a rotary engine, the cylinder having interior concentric and eccentric surfaces arranged alternately about its interior circumference and parallel end surfaces, in combination with a rotary drum within the cylinder, provided with reciprocating pistons, end heads for said drum rotating with it and provided with V-shaped guide notches or slots in their interior surfaces, and packing-rings encircling said heads, provided with V-shaped pieces forming races for the pistons and fitting in said notches or slots in the drums.

12. In a rotary engine, a cylinder having its inner surface formed

of concentric and eccentric parts arranged alternately about the axis of rotation of the shaft, and steam inlet and exhaust ports arranged diametrically opposite, in which the exhaust-port extends over a space of more than ninety degrees, in combination with a rotary shaft and four pistons arranged at angles of ninety degrees and carried with the shaft and sweeping the interior face of the cylinder.

13. In a rotary engine, the combination of the cylinder having heads at each end, a rotary drum and pistons within the cylinder, a shaft projecting from the drum through the head, a stuffing box or sleeve surrounding the shaft, a packing between the shaft and said box or sleeve, and springs to press the box or sleeve against the interior surface of the head and make a steam-tight rotary joint.

14. In a rotary engine, the combination of the cylinder having heads at each end, a rotary drum and pistons within the cylinder, a shaft projecting from the drum through the head, a stuffing box or sleeve surrounding the shaft, a packing between the shaft and said box or sleeve, and springs to press the box or sleeve against the interior surface of the head and make a steam-tight rotary joint, and screws, substantially as shown, to hold said box or sleeve to the drum and shaft when the cylinder-head is removed.

15. In a rotary engine, the combination of the cylinder having heads at each end, a rotary drum and pistons within the cylinder, a shaft projecting from the drum through the head, and a box or sleeve carried with the rotating shaft and forming a steam-tight joint between the shaft and cylinder-head.

16. In a rotary engine, the combination of the cylinder having heads at each end, a rotary drum and pistons within the cylinder, a shaft projecting from the drum through the head, a box or sleeve J, encircling the shaft and having an annular flange forming a steam-tight rotary joint *j* with the cylinder-head, a packing between the box or sleeve and shaft, and a packing gland or ring for said box or sleeve.

17. In a rotary engine, the combination of the cylinder having an interior made of concentric and eccentric parts, with a rotary drum located therein and formed with radial races for the pistons provided with enlargements or channels at the bottom entirely across the drum for the ready escape of water and steam from under the pistons when moving inwardly to the ends of the drum, and pistons movably supported and made steam-tight in said races.

18. In a rotary engine, the combination of the cylinder having an interior made of concentric and eccentric parts, with a rotary drum located therein and formed with radial races for the pistons, provided with enlargements or channels at the bottom entirely across the drum for the ready escape of water and steam from under the pistons when moving inwardly to the ends of the drum, and pistons for said races, formed with grooves on their ends for the escape of the water and steam from the ends of the races to the exhaust-port.

19. In a rotary engine, a cylinder having an interior made of concentric and eccentric shaped parts and parallel end surfaces, in combination with a rotary drum of greater length than the interior surface of the cylinder and of greater diameter on its ends than at the middle and formed with radial piston-races, heads for said drum, pistons working in the races of said drum, and a packing or skeleton ring encircling said heads of the drum and formed with guide or race pieces for the pistons, extending inward toward the enlarged diameters of the drum and moving longitudinally to make a tight joint with the end surfaces of the cylinder.

20. In a rotary engine, the cylinder having an interior surface consisting of eccentric and concentric parts and parallel end surfaces, in combination with a rotary drum, pistons and heads therefor, and encircling packing-rings for said heads, having irregular contact-surfaces at their outer portions, consisting of a thin annular rim, and outwardly-extending parts arranged at intervals about the circumference and having steam-spaces in them for making a steam-tight joint with the end surfaces and allowing of ample lubrication.

21. In a rotary engine, the cylinder having a concentric and eccentric shaped interior, substantially as shown, and parallel end surfaces, in combination with a rotary drum, pistons and heads therefor, and encircling packing-rings for said heads, an irregular contact-surface for making a steam-tight joint with the end surfaces and allowing of ample lubrication, said surface consisting of a narrow annular rim, and guide-pieces for the pistons, said guide-pieces projecting beyond the annular rim and formed with steam-spaces extending beyond the said rim.

22. In a rotary engine, the cylinder having interior concentric and eccentric surfaces arranged alternately about its interior circumference and parallel end surfaces, in combination with a rotary drum within the cylinder provided with reciprocating pistons, end heads for the said drum, rotating with it and provided with V-shaped guide notches or slots in their interior surfaces, and packing-rings encircling said heads, provided with V-shaped pieces forming races for the pistons and fitting in said notches or slots in the drums, and springs to force said rings against the end surfaces of the cylinder.

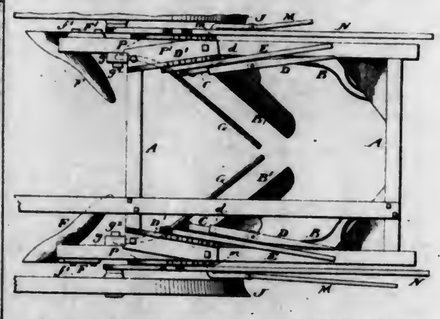
23. In a rotary engine, a cylinder having its interior surface made of eccentric and concentric parts, in combination with a rotary drum having radial piston-races, radially-reciprocating pistons working in said races, and distance-rods formed of the tubes G', heads G^2, and internal spring *g*, acting to separate the tubes and heads for keeping the pistons out against the cylinder-surfaces.

24. In a rotary engine, the cylinder having an interior made concentric and eccentric and in which said parts each occupy ninety degrees and are arranged alternately and formed with steam and exhaust ports arranged on diametrically-opposite and eccentric sides, and also having grooves S on the end edges of the cylinder and of a length corresponding to the exhaust-port and in which the exhaust-port occupies more space than ninety degrees, extending upon the larger concentric part, in combination with a rotating drum having radial races arranged at ninety degrees apart, and radially-reciprocating pistons for said races, having end grooves opening into the grooves S in the cylinder to relieve the water and steam under the piston before the steam in the cylinder back of the piston is exhausted.

25. In a rotary engine, a cylinder having its inner surface formed of concentric and eccentric parts arranged alternately about the axis of rotation of the shaft, and steam inlet and exhaust ports arranged diametrically opposite, in which the exhaust-port extends over a space of more than ninety degrees and the steam-port a space of less than ninety degrees, in combination with a rotary shaft and four pistons arranged at angles of ninety degrees and carried with the shaft and sweeping the interior face of the cylinder, whereby two spaces between the pistons may be exhausting while only one is receiving steam and the pistons over the exhaust are relieved before moving on the eccentric part of the cylinder.

26. In a rotary engine, a cylinder having its interior composed of alternate concentric and eccentric parts and in which the concentric parts are alternately of different diameters, a steam-port arranged in one of the eccentric parts and an exhaust-port arranged in the alternate eccentric part and being of a length equal to that of the eccentric part and part of the concentric part, in combination with a rotating drum having its axis arranged concentric with the concentric parts of the cylinder and provided with piston-races separated a number of degrees corresponding to that of the concentric and eccentric parts of the cylinder, and reciprocating pistons carried by the drum and adapted to sweep the interior of the cylinder, the whole operating to exhaust the steam from back of the pistons before the said pistons reach the eccentric portion of the cylinder, and thereby reduce the friction and wear upon the engine and allowing a higher speed to be attained.

479,480. BEAN-HARVESTER. WILLIAM H. WILDER, Caledonia, N. Y. Filed Sept. 24, 1891. Serial No. 406,706. (No model.)



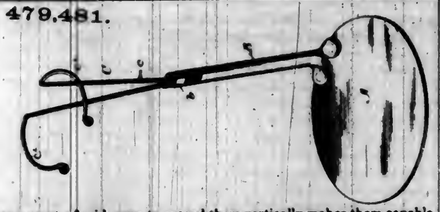
Claim.—1. In bean-harvesters, the root-cutter standard B, having an integral share B' at one end and at the other two counterbracing branches hinged separately to the frame at *b b*, the hinges being in a plane parallel to the edge *b'* of the share, whereby the share B' may not be turned out of a horizontal plane.

2. The combination, with the share-shank B, the end-pivoted rod C, and the lift-lever E, of the secondary lever D and rack D', the said lever D being pivoted to lift-lever E and provided with a pin *d*, which passes through lever E into the notches of rack, as and for the purpose set forth.

479,481. DOLL-SUPPORT. ALFRED B. WILLCOX, Chicago, Ill., assignor of two-thirds to Mary L. Butler and S Ella Geer, same place. Filed Feb. 29, 1892. Serial No. 423,309. (No model.)

Claim.—1. The combination, with a suitable base and a standard thereon, provided with a fixed guide, of a pair of vertically-movable spring-arms extending upward through said guide and adapted to be sprung away from each other above the same, whereby the upward

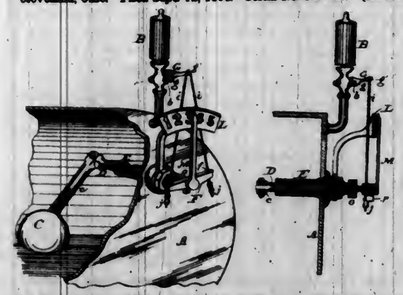
479,481.



movement of said arms to extend them vertically makes them capable of a wider separation laterally, substantially as described.

2. The combination, with a base and standard supported thereby, provided with a suitable guide, of a spring-clasp composed of a piece of metal bent upon itself to form a double portion adapted to slide up and down in said guide, and two oppositely-arranged arms extending from the tops of the respective members of said double portion, substantially as described.

479,482. HIGH AND LOW WATER ALARM. ALLEN J. WRIGHT, Cleveland, Ohio. Filed Sept. 12, 1891. Serial No. 405,562. (No model.)



Claim.—1. In a high and low water alarm, the combination, with the whistle having steam connection with the boiler, of a lever adapted to actuate the whistle-valve, a rock-shaft extending through the boiler-shell and actuated by a float within the boiler, a rigid transverse arm on the outer end of said shaft, rods or their equivalent connected with the whistle-actuating lever and having their threaded lower ends passing through the ends of said transverse arm, and nuts on said rods below said arm substantially as described.

2. The combination of the whistle having steam connection with the boiler and having a lever adapted to actuate the whistle-valve, a rock-shaft extending through the boiler-shell and having a float laterally attached thereto within the boiler and a transverse arm rigidly attached thereto outside the boiler, threaded rods or their equivalent connecting the whistle-actuating lever with the transverse arm of the rock-shaft and having adjusting-nuts on their lower ends below said arm, an indicator-scale, and an index secured to said rock-shaft, substantially as described.

3. The combination of the rock-shaft having a transversely-attached float within the boiler and a transverse arm outside the boiler, the sleeve passing through the boiler-shell and having at each end bearings for said shaft, the whistle communicating through said sleeve with the interior of the boiler and having a lever to actuate the whistle-valve, the threaded rods or their equivalent connected at their upper ends to the whistle-actuating lever and passing through slots in the ends of said transverse arm of the rock-shaft, and the adjusting-nuts threaded upon said rods below the transverse arm, substantially as described, and for the purpose set forth.

4. The combination of the rock-shaft with float and transverse arm, the sleeve passing through the boiler-shell and having at each end bearings for said shaft, the whistle communicating through said sleeve with the interior of the boiler and having a lever to actuate the whistle-valve, the threaded rods or equivalent connected at their upper ends to the whistle-actuating lever and passing through slots in the ends of the transverse arm of said rock-shaft and having adjusting-nuts below said arm, the indicator-scale, and the index secured to said rock-shaft, all combined and operating substantially as described.

5. In a high and low water alarm, the combination, with the alarm whistle, of the lever pivoted thereto and adapted to actuate the whistle-valve, the rods or their equivalent connecting said lever with the transverse arms of a rock-shaft extending through the boiler-shell and actuated by a float within the boiler, and the adjusting-nuts threaded on said rods below the transverse arms and adapted to operate the whistle-lever when the shaft rocks in either direction, substantially as described.

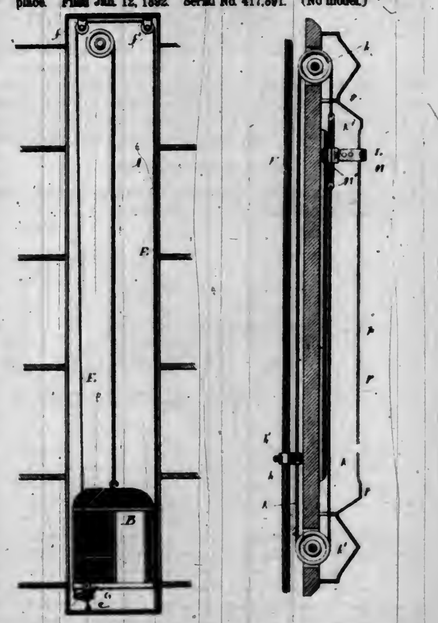
6. In a high and low water alarm, the combination, with the whistle having steam connection with the boiler, the lever adapted to actuate the whistle-valve, and a rock-shaft having laterally-attached float within the boiler and transverse arms outside the boiler, of the adjustable connection between the whistle-lever and each of the rock-shaft arms, whereby the amount of fluctuation in the water-level necessary to sound the alarm may be varied at will, substantially as described.

479,483. CAR-COUPLING. STRAM W. WRIGHT, Eden, Ala. Filed Mar. 3, 1892. Serial No. 423,626. (No model.)



Claim.—In a car-coupling such as described, the combination, with the draw-head and the hook or coupling-head pivoted therein to swing horizontally, of the weighted locking-dog pivoted in the top of the draw-head and free to hang in the path of the rear end of the hook, the ears on the rear side of the locking-dog, the link connected with said ears and passing out through the top of the draw-head, and the housing for the locking-dog, substantially as described.

479,484. INDICATOR FOR ELEVATORS. EDWARD WILDE, Chicago, Ill., assignor to the Elevator Supply and Repair Company, same place. Filed Jan. 12, 1892. Serial No. 417,891. (No model.)



Claim.—1. An indicator mechanism for elevators, comprising an indicator-working cable sustained in a manner permitting its working length to be varied, suitable indices connected with said cable, a grooved drum or pulley engaging with said cable to vary its working length, and a stop adjacent one end of said drum or pulley to determine the position of the indicator-working cable with respect thereto, substantially as described.

2. An indicator mechanism for elevators, comprising an indicator-working cable, a spirally-grooved differential drum over which said cable passes and by means of which the working length of said cable can be varied, and a stop adjacent one end of said differential

drum for determining the position of the indicator-working cable thereon, substantially as described.

3. An indicator mechanism for elevators, comprising an indicator-working cable, suitable indices with which said cable is connected, an elevator-car, a spirally-grooved drum or pulley over which said indicator-working cable passes, said drum or pulley having shallower grooves adjacent its larger end, and a stop adjacent the larger end of said drum for determining the position of the cable with respect thereto, substantially as described.

4. An indicator mechanism for elevators, comprising the combination, with a suitable device—such, for example, as an indicator-rod for effecting the movement of the indices—of an index-plate, a pointer, a suitable slip-joint connection between said pointer and the indicator-rod, and a stop for arresting the indicator-pointer, substantially as described.

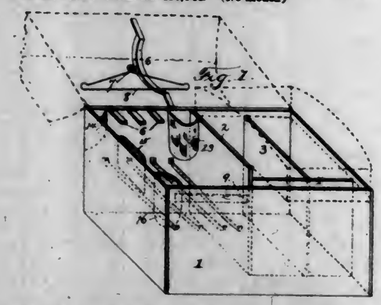
5. An indicator mechanism for elevators, comprising the combination, with a suitable device—such, for example, as an indicator-rod for effecting the movement of the indices—of an index-plate, an indicator-pointer, a cord connecting said indicator-pointer with the indicator-rod, and a slip-joint connection between said cord and the indicator-pointer, and a stop for arresting the movement of the indicator-pointer, substantially as described.

6. An indicator mechanism for elevators, comprising the combination, with a suitable device—such, for example, as an indicator-rod for effecting the movement of the indices—of an index-plate, an indicator-pointer, a cord for connecting said indicator-pointer with the indicator-rod, said cord having its ends suitably connected together, whereby it will serve to shift the indicator-pointer in both directions, and a slip-joint connection between said indicator-pointer and said cord, and suitable stops for arresting the movement of said indicator-pointer, substantially as described.

7. An indicator mechanism for elevators, comprising the combination, with a suitable device—such, for example, as an indicator-rod for effecting the movement of the indices—of an index-plate, an indicator-pointer, a cord K, having its ends connected by a rod K', said indicator-pointer being clamped to said rod K' in a manner permitting it to slip thereon, and stops for arresting the movement of said indicator-pointer, substantially as described.

8. An indicator mechanism for elevators, comprising the combination, with a suitable device—such, for example, as an indicator-rod for effecting the movement of the indices—of an index-plate, an indicator-pointer, a bar M', guide rods N for said bar, provided with stops *n*, a clamp-plate M, carrying said indicator-pointer, a friction-ring O, a rod K', and a cord K, connected with the indicator-rod, substantially as described.

479,485. TRUNK. PHILOMENA B. YARDER, Helena, Mont. Filed Jan. 21, 1892. Serial No. 418,841. (No model.)



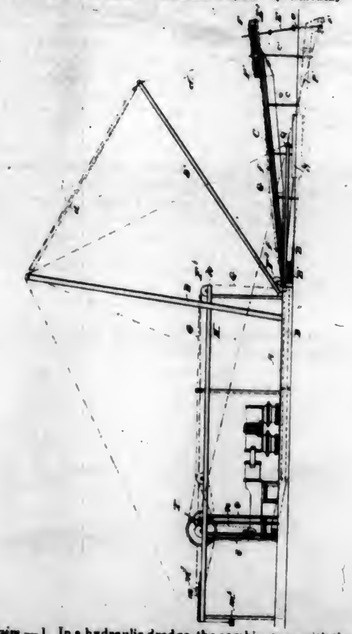
Claim.—1. In combination with a trunk-body, cross-bars supported thereon, extending up into the cover and provided with coat-stretchers, substantially as described.

2. In combination with a trunk-body, cross-bars extending up into the cover, each having one end hinged to the trunk and its other end resting on a cleat attached thereto, substantially as described.

3. The combination of a trunk having front, back, and end walls and partitions 2, 3, and 4, the last two partitions being slightly lower than the partition 2, with the tray 5 resting on partitions 3 and 4 and held against moving toward the coat-compartment by said partition 2, substantially as described.

4. As an improved article of manufacture, a trunk constructed substantially as herein shown and described, comprising a coat-receptacle provided with arched supports for the coats, partitions 2, 3, and 4, a tray resting on said partitions 3 and 4, and pockets 13, 14, 15, and 16, constructed and arranged substantially as shown and described.

479,486. HYDRAULIC DREDGE. CALEB H. BOOTH, Dubuque, Iowa. Filed Jan. 8, 1892. Serial No. 417,412. (No model.)



Claim.—1. In a hydraulic dredge, the combination, with the barge and supporting-jib and a suction-pipe, of a curved bell-mouth for the pipe, arranged to have a slight axial movement, a stirrer at the mouth, means for actuating the stirrer, and moving means connected with the sides of the bell-mouth, extending out laterally therefrom, substantially as described.

2. In a hydraulic dredge, the combination, with the suction-pipe having a bell-mouth arranged to have a slight rotary axial movement and a stirrer at the end thereof, of ropes or the equivalent attached to the sides of the mouth and extending in opposite directions substantially on a horizontal plane obliquely to the suction-pipe, and means for moving the ropes, substantially as described.

3. In a hydraulic dredge, the combination, with the barge, of the suction-pipe, a curved bell-mouth arranged to have a slight rotary movement, a stirrer, means for actuating the stirrer, booms hinged to the barge and extending horizontally and at an incline therefrom, ropes passing over the outer ends of the booms and attached to the sides of the bell-mouth, and means for winding the ropes up, substantially as described.

4. In a hydraulic dredge, the combination, with the suction-pipe having a curved bell-mouth thereon arranged to have a slight rotary movement, of a stirrer at the mouth thereof and drawing means on the sides of the mouth of the suction-pipe extending out substantially on a horizontal plane to create a side draw when the suction-pipe is to be moved, substantially as described.

5. In a hydraulic dredge, the combination, with a barge, a supporting-jib, and a suction-pipe having a flexible section, of means for raising and lowering the pipe, a bell-mouth arranged at an angle to the pipe and allowed a slight rotary axial movement, a stirrer at the mouth, booms extending out horizontally from the corners of the barge, winding-drums on the barge, and ropes on the drums extending out to the ends of the horizontal booms and back to the mouth of the suction pipe, to which they are attached, substantially as described.

6. In a hydraulic dredge, the combination, with the barge, a supporting-jib, and a suction-pipe, of a stirrer for the suction-pipe, a grooved wheel on the supporting-jib, a shaft for said wheel connected with the stirrer, an endless cable wound on the wheel, two wheels arranged at the inner end of the supporting-jib, a superstructure on the barge, wheels on the structure, having their peripheries arranged directly over the wheels on the inner end of the supporting-jib, and means for driving the cable, substantially as described.

7. In a hydraulic dredge, the combination, with the barge, supporting-jib, and suction-pipe, of a stirrer on the pipe, an endless cable for actuating the stirrer, a grooved wheel over which the cable passes located at the end of the jib, a grooved wheel on the barge, over

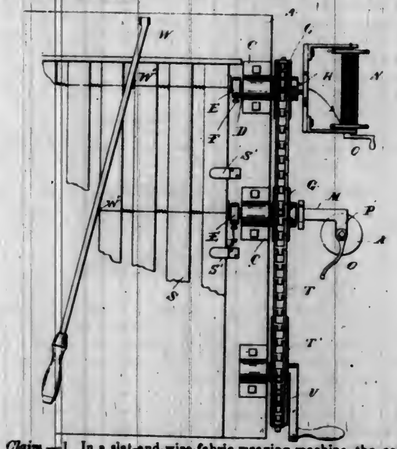
which the opposite end of the cable passes, means for taking up the slack in the cable, a friction-disk having connection with a suitable motive power, and means engaging the disk and connected with the shaft of the wheel on the barge, substantially as described.

8. In a hydraulic dredge, the combination, with a barge, a supporting-jib, and a suction-pipe, of a curved bell-mouth on the pipe, arranged to have a slight axial movement, a stirrer at the mouth of the pipe, means for actuating the stirrer, ropes secured to the sides of the mouth of the suction-pipe, pulley-blocks arranged beyond the barge on a plane substantially horizontal with the deck thereof and over which the ropes pass, winding-drums on the barge, with which the inner ends of the ropes are connected, and friction-wheels connected with the shafts of the drums and actuated by the stirrer-actuating means, substantially as described.

9. In a hydraulic dredge, the combination, with the suction-pipe, of a curved bell-mouth on the pipe, arranged to have a slight axial rotary movement, a stirrer at the mouth, means connected with the sides of the mouth for drawing the same horizontally in the arc of a circle, drums to which said drawing means are attached, shafts on said drums, friction-wheels on the ends of said shafts, gearing for actuating the stirrer, friction-wheels actuated by said gearing, and means for forcing said friction-wheels into engagement, substantially as described.

10. In a hydraulic dredge, the combination, with the suction-pipe, a stirrer at the end thereof, means for actuating the stirrer, and ropes connected with the mouth of the suction-pipe, of drums for winding said rope and means for actuating the drums, consisting of flexible shafts, friction-disks on the shafts, friction-wheels normally out of contact with said disks, means for actuating said friction-wheels, and levers for forcing the friction-disks into contact with the friction-wheels, substantially as described.

479,487. SLAT-AND-WIRE-FABRIC-WEAVING MACHINE. MARVIN A. CADWELL, Lansing, Mich. Filed Mar. 18, 1892. Serial No. 425,376. (No model.)



Claim.—1. In a slat-and-wire-fabric-weaving machine, the combination of the frame, the bearings thereon, and the twister-wheels journaled in said bearings, such wheels being composed of the outer tubes D, collars E at one end of the tubes, sprocket-wheels G at the opposite ends of the tubes, and twister-heads I, secured in the forward ends of the tubes, substantially as described.

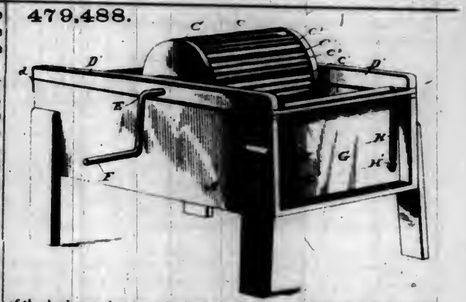
2. In a slat-and-wire-fabric-weaving machine, the combination of the frame, the bearings thereon, the twister-wheels journaled therein and comprising the sleeves D, the collars E at the forward end, the sprocket-wheels G at the rear ends of the bearings, the twister-heads I, detachably secured at the forward end, the frames M, secured to the rear end, having the offset portions P, and the wire-spools N, journaled in said offsets, substantially as described.

3. In a slat-and-wire-fabric-weaving machine, the combination, with the twister head and frame, of the spring-arm V, arranged in front of the twister-head to press the wire to the head, substantially as and for the purpose described.

479,488. WASHING-MACHINE. ZACHARIAH T. CHAMBERS, California, Mo. Filed Feb. 26, 1892. Serial No. 422,969. (No model.)

Claim.—The herein-described washing-machine, the same comprising, in combination, the body portion of the machine, the corrugated roller journaled therein at substantially the longitudinal center

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of the body portion near its bottom, the frame D', hinged at one of its ends to the body portion, the cylinder C, journaled in said frame and having corrugated periphery and radial openings provided with an operating-crank, and the spiral springs H, secured at their upper ends to the under side of the end strip of the frame and at their lower ends having hooks, as described, whereby the said springs may be detachably connected with the body portion of the machine, substantially as described.

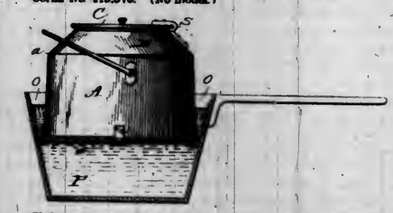
479,489. PROCESS OF ENRICHING LEAD-FUMES. ARTHUR CRAFUTD and MALVERN W. ILES, Denver, Colo. Filed Mar. 22, 1892. Serial No. 426,067. (No specimens.)

Claim.—1. The described process, consisting in screening and saving the metallic fumes and solid particles from lead-reducing furnaces, mixing with said fumes sulphide of silver, and then igniting the fumes to obtain the mixture of lead and silver compounds in a solid state.

2. The described process, consisting in screening and saving the metallic fumes and solid particles from lead-reducing furnaces, spreading sulphide of silver between layers of such fumes, and igniting the fumes to obtain the mixture of lead and silver compounds in a solid state.

3. The described process, consisting in smelting argentiferous lead ores, screening and saving the metallic fumes and solid particles driven off by the furnace, mixing with the fumes thus collected sulphide of silver, igniting the mixture to bring it to a solid condition, and charging the mixture after ignition into the furnaces.

479,490. KETTLE-COVER. NATHAN COSMAN, Seattle, Wash., assignor of one-half to O. P. Wegener, same place. Filed Dec. 17, 1891. Serial No. 416,373. (No model.)



Claim.—1. A kettle cover having a lower bearing or bearings to fit against the interior of the kettle-walls, with openings around the lower part of the cover adjacent to said bearings, the sides of the cover inclining inwardly and upwardly from the lower bearings, and a top for the cover, substantially as described.

2. A kettle-cover having a series of clips on its lower edge for supporting the same and a wire supported by said clips, substantially as described, and for the purpose set forth.

3. A kettle-cover having clips secured to its lower edge and a pivoted top, said cover being inclined from its upper to its lower part, substantially as described.

4. A kettle-cover having the supporting means at its lower edge to hold the same slightly from the sides of the kettle and having the truncated upper portion with the top therefor, substantially as described.

5. In combination, a kettle having flaring sides, the cover of less diameter adapted to fit therein and having the bearings at its lower edge to fit against the inner walls of the kettle to hold the cover away from the walls and to provide a space between, and the top for the cover, substantially as described.

6. In combination, the kettle, the cover of less diameter adapted to fit within the kettle and to be supported at its lower edge against the inner walls thereof to form a cooler-chamber O between it and the kettle and having about its lower edge narrow openings connecting

the chamber O with the interior of the kettle, and a top for the cover, substantially as described:

479,491. RAILROAD-RAIL BENDER. WILLIAM H. COWELL, Logan, Ohio. Filed Apr. 18, 1892. Serial No. 429,630. (No model.)



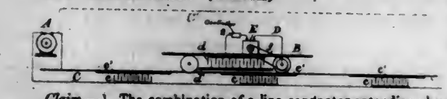
Claim.—The combination of the frame and its two cross-bars, one of which is hollow and has an opening with curved sides, the toothed slide in such hollow bar, the links secured to the bar, the spring at the rear of the bar, the forked lever secured to the slide, and the lever to hold the toothed slide, as set forth.

479,492. CORSET-STEEL CLASP. LYDIA A. DAVIS, Atwood, Ill. Filed Apr. 26, 1892. Serial No. 430,684. (No model.)



Claim.—A corset-fastening comprising two similarly-constructed plates, each of which is formed with a large slot having a smaller slot extending therefrom into a nose, and lips at the rear of said plates with which said noses engage, the opposite sides of said plates being formed with shouldered portions to guide and limit the movement of each nose inward, substantially as described.

479,493. ELECTRIC RAILWAY. MARK W. DEWEY, Syracuse, N. Y., assignor to the Dewey Corporation, same place. Filed July 24, 1891. Serial No. 400,587. (No model.)



Claim.—1. The combination of a line conductor extending along the path over which a vehicle moves, a source of irregular or alternating electricity connected to the line, a condensing plate or strip upon the vehicle, carried in inductive proximity to said conductor, and an electric motor on the vehicle, connected to the condensing plate or strip and with the vehicle for moving the same.

2. In an electric railway, the combination of a line conductor extending along the railway, a source of irregular or alternating electricity connected to the line, a condensing plate or strip upon the vehicle, carried in inductive proximity to said conductor, and an electric motor on the vehicle, connected with the condensing plate or strip and with the vehicle for moving the same.

3. The combination of a vehicle, a line conductor parallel to the path over which the vehicle moves and in static inductive proximity to a plate or strip of conducting material upon the vehicle, means for alternately charging the line with positive and negative electricity at a fixed station, a conductor on the vehicle, connected to the vehicle plate or strip, and an electric motor on the vehicle in the vehicle-conductor and arranged to propel the vehicle.

4. The combination of a vehicle, two line conductors parallel to the path over which the vehicle moves, a source of irregular or alternating electricity at a fixed station and connected to and between said lines, two condensing plates or strips upon the vehicle, carried in inductive proximity to said conductors, and an electric motor on the vehicle, connected to and between the condensing plates or strips and arranged to propel the vehicle.

5. The combination, in an electric railway, of an open-circuit line conductor having a condensing-surface, a condensing plate or strip upon a car, carried in inductive proximity to said conductor and connected with a rail, a source of alternating currents at a fixed station connected to the line, and an electric motor on the vehicle, connected to the condensing plate or strip and with the vehicle for moving the latter.

6. In an electric railway, the combination of a vehicle, two condensing-strips a distance apart and parallel to the railway, a source of irregular or alternating electricity at a fixed station and connected to and between said strips, two condensing plates or strips upon the vehicle, parallel with the former strips and carried in inductive proximity thereto, and an electric motor on the vehicle, connected to and between the plates or strips thereon and arranged to propel the vehicle.

7. In an electric railway, the combination of a vehicle, a source of irregular or alternating current, an electric condenser extending along the railway and connected to the source, an electric motor on the vehicle, arranged for propelling the same, and an electric condenser carried on the vehicle in inductive proximity to the former condenser and connected to the motor.

8. In an electric railway, the combination of a source of irregular or alternating current at a fixed station, a conductor connected to the source and extending along the railway, a plurality of condensers connected to the conductor and having condensing-plates parallel to the railway, an electric motor on the vehicle, arranged for propelling the same, and an electric condenser carried on the vehicle and having a condensing-plate parallel to and adapted to be moved in inductive proximity to the former plates successively and electrically connected to the motor.

9. In an electric railway, the combination of a source of irregular or alternating current at a fixed station, line conductors connected to the terminals of the source and extending along the railway, a plurality of condensers connected to each conductor and having condensing-plates parallel to the railway, an electric motor on the vehicle, arranged for propelling the same, two electric condensers carried on the vehicle and each having a condensing-plate parallel to and adapted to be moved in inductive proximity to the plurality of condensing-plates of the condensers connected to one of the line conductors, and electric connections between the vehicle-condensers and the motor.

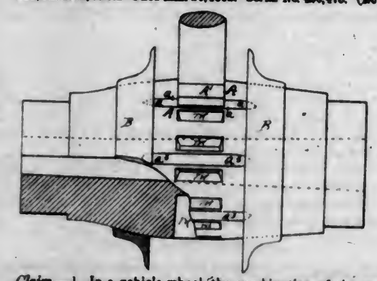
10. In an electric railway, the combination of a source of irregular or alternating current at a fixed station, line conductors connected to the terminals of the source extending along the railway and open-circuited at the distant end thereof, a plurality of condensers distributed at intervals along the way and connected to each conductor, condensing-plates parallel to the railway and connected to the condensers, an electric motor on the vehicle, arranged for propelling the same, two electric condensers carried on the vehicle, a condensing-plate parallel to and adapted to be moved in inductive proximity to the plurality of condensing-plates of the condensers connected to one of the line conductors, and electric connections between the vehicle-condensers and the motor.

479,494. MILK-COOLER. WILLIAM C. EBERHARDT, Plymouth, Wis. Filed Sept. 18, 1891. Serial No. 406,162. (No model.)



Claim.—The milk-cooler consisting of a series of connecting-chambers on the inside of which are horizontal plates or sheets secured by braces to the side of the chambers and having a narrow space between them and the inner surface of the chambers, a case inclosing the strainer and extending over the upper side of the top chamber, a water-tank connected by a tube with the lowest chamber, and a cylindrical outer case extending above the cooling-chambers, the whole resting on a base adapted to be fitted upon a milk-can, as set forth.

479,495. VEHICLE-WHEEL. THOMAS F. FOLEY and JOHN R. FOLEY, Jackson, Mich. Filed Mar. 26, 1892. Serial No. 426,473. (No model.)

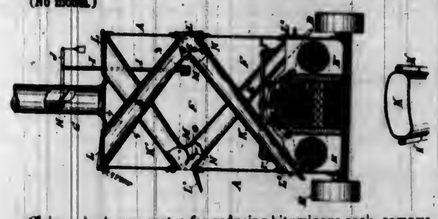


Claim.—1. In a vehicle-wheel, the combination of the spokes S, gained out substantially as described, the pintles A, adapted to fit into the opening through the spokes and provided with a portion extending beyond the spokes when in position, said extended portion being

provided with an inclined upper surface, and the hub-bands B B, substantially as and for the purpose set forth

2. In a vehicle-wheel, the combination of the gained-out spokes S, the pintles A, adapted to fit into the opening through said spokes and provided with a portion which shall extend beyond the spokes when the pintle is in position, said extended portions having inclined upper surfaces, said pintles being provided with spurs *a''* along its lower surface, and the hub-bands B B, substantially as shown and described.

479,496. APPARATUS FOR REDUCING BITUMINOUS ROCK. ARCHIBALD FORD, Golden Gate, Cal. Filed Feb. 3, 1892. Serial No. 420,194. (No model.)



Claim.—1. An apparatus for reducing bituminous rock, comprising a fire-chamber, a compartment arranged above and communicating with said fire-chamber, wherein the products of combustion are diffused, and a series of substantially vertically-disposed retorts arranged in said compartment and extending through the same.

2. In an apparatus of the character described, the combination, with the heating-chamber, of downwardly-inclined retorts extending vertically through said chamber and tapering toward their lower ends.

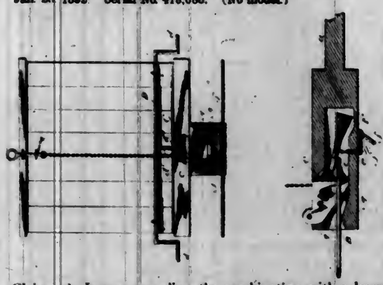
3. The combination, with the heating-chamber, of a series of bent tubular retorts extending through the said chamber in a substantially vertical position.

4. The combination of bent inclined tubular retorts and breaking-bars in the angles thereof, substantially as set forth.

5. The combination of bent inclined retorts, bars in the bends thereof, and stirrers working in connection with said bars, substantially as set forth.

6. The combination of a fire-chamber, retorts above the same, and air-pipes arranged on the fire-chamber connected with the retorts, substantially as and for the purposes set forth.

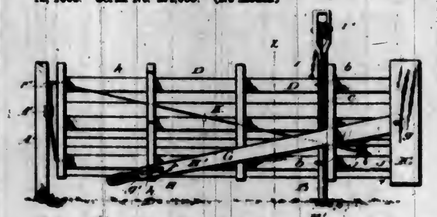
479,497. CAR-COUPLING. WILLIAM R. GARNER, Chicago, Ill. Filed Jan. 20, 1892. Serial No. 418,683. (No model.)



Claim.—1. In a car-coupling, the combination, with a draw-head having a fulcrum B therein, of a link, a hook pivoted in said draw-head and operating in a slot therein to engage with a link inserted in said draw-head, said link being adapted to force the hook against the front of said draw-head, a weighted lever pivoted within the draw-head in rear of the hook and having its free end extending forwardly to engage with the link to raise or lower the same, and means for operating said lever, substantially as described.

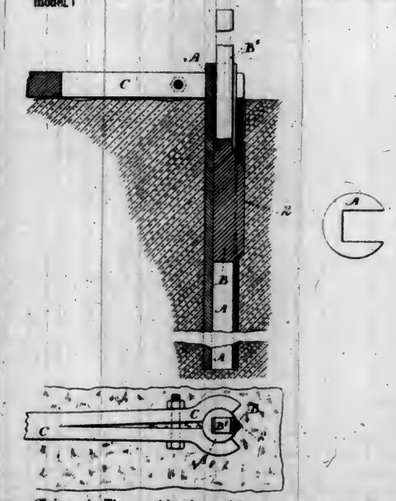
2. In a car-coupling, the combination, with a draw-head having an enlargement B, which converges to a sharp edge to form a fulcrum, a hook pivoted in lugs on the top of the draw-head and arranged to bear against the front thereof, said hook operating in a slot in the draw-head to engage with the link inserted therein and adapted to be drawn by said link against its pivot and the front of the draw-head, a rock-shaft D, having an extension *d'*, a chain connecting the extension and the hook, whereby the latter may be released from engagement with the link, a rock-shaft F, secured on the draw-head and having a short bar *e*, projecting outward therefrom, and a chain connecting said bar and the free end of the weighted lever to operate the same, substantially as described.

479,498. GATE. DANIEL GREISINGER, Teegarden, Ind. Filed Mar. 12, 1892. Serial No. 424,683. (No model.)



Claim.—The combination, with the gate and the balance at one end, of the vertical post on which the gate is pivoted to swing, the upright C, held to said post by rings, a pulley on said post, a lever pivoted on the balance and passed through a slot in the said upright C, a chain connecting the lever and gate and passed over the said pulley, and means for holding the lever in its different vertical planes, as set forth.

479,499. CHANNELING-TOOL FOR ROCKS. GEORGE M. GITHENS, Brooklyn, N. Y. Filed Sept. 19, 1891. Serial No. 406,253. (No model.)



Claim.—1. The combination, with a channeling-tool having one projecting cutting-edge, of a guide-bar having a longitudinal channel at one side thereof and adapted to pass into a drill-hole, the channeling-tool projecting from the slot of the guide-bar and bearing at the other side against the interior of the guide-bar, the channeling-tool having a shank extending to the top of the drill-hole, so as to be driven into the hole in channeling the side thereof, substantially as set forth.

2. The guide-bar having a cylindrical exterior surface and a longitudinal channel in one side thereof, in combination with a channeling-tool fitting loosely into the channel of the guide-bar and having a projecting cutting-edge at one side and bearing at the other side against the bottom of the groove in the guide-bar, substantially as set forth.

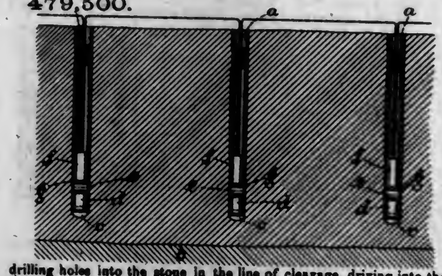
479,500. BLASTING STONE. GEORGE M. GITHENS, Brooklyn, N. Y. Filed Jan. 2, 1892. Serial No. 416,756. (No specimens.)

Claim.—1. The method herein specified of splitting stone, consisting in drilling a hole into the stone to the place where the cleavage is to be commenced, then driving a straight-edged chisel into the stone at the bottom of the hole to start a fracture in the line of cleavage, and then continuing the separation by pressure within the hole, substantially as set forth.

2. The method herein set forth of splitting stone, consisting in drilling holes into the stone in the line of cleavage, driving into the stone at the bottom of each hole a chisel to start the fracture in the line of cleavage and continuing the splitting action by wedges within the bottoms of the holes, substantially as set forth.

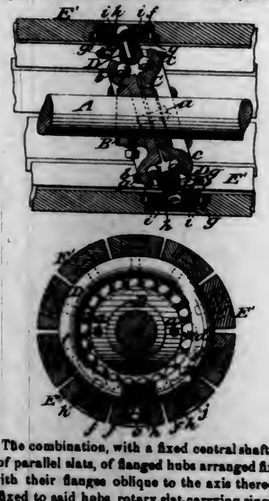
3. The method herein set forth of splitting stone, consisting in

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drilling holes into the stone in the line of cleavage, driving into the stone at the bottom of each hole a chisel to start the fracture in the line of cleavage, and introducing into such holes wedges and explosive material to act on such wedges and split the stone, substantially as set forth.

479,501. CLOTH-STRETCHING MACHINE. CALVIN L. GODDARD, New York, N. Y. Filed Mar. 10, 1892. Serial No. 424,423. (No model.)



Claim.—1. The combination, with a fixed central shaft and a surrounding series of parallel slats, of flanged hubs arranged fixedly upon the said shaft with their flanges oblique to the axis thereof, flanged annular disks affixed to said hubs, rotary slat-carrying rings arranged between the flanges of said hubs and disks, and loose washers interposed between said rotary rings and the flanges of said hubs and disks, substantially as herein described.

2. The combination, with a fixed central shaft and a surrounding series of parallel slats, of hubs having concave flanges arranged fixedly upon said shaft with the said flanges oblique to the axis thereof, annular disks having concave flanges affixed to said hubs, rotary slat-carrying rings arranged between the flanges of said hubs and disks, a loose washer composed of series of balls interposed between said rotary rings and the concave flanges of said hubs and disks and retained by the concavity of said flanges, substantially as herein described.

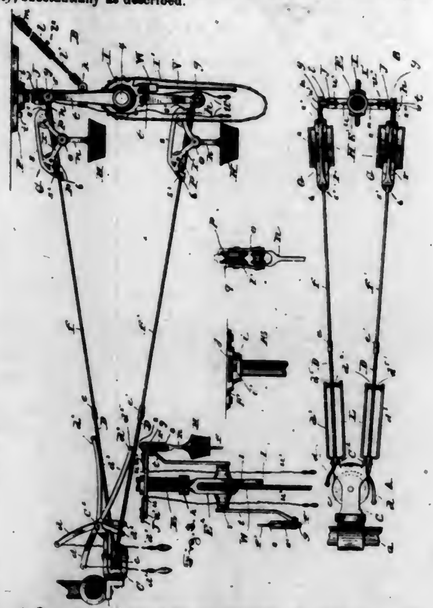
3. The combination, with the stationary shaft and the oblique heads affixed thereto, of a slat-carrying ring arranged to rotate about said heads, ball-headed pins inserted in said ring, and slats having concave sockets for the reception of the ball-heads of the pins, substantially as herein set forth.

479,502. STORE-SERVICE APPARATUS. JOHN H. GOODFELLOW, Lansingburg, N. Y., assignor, by mesne assignments, to the Lamson Consolidated Store Service Company, of New Jersey. Filed Sept. 7, 1889. Serial No. 323,267. (No model.)

Claim.—1. In a cash and parcel carrier apparatus, the combination, with two ways and a carrier adapted to move on each of said ways, of two pivoted arms, each of said arms supporting one end of each way, a pulley for supporting the opposite ends of the ways, means for moving said arms to change the inclination of the respective ways, and a flexible connection attached to the ends of the ways, substantially as specified.

2. In a cash and parcel carrier apparatus, the combination, with two ways and a carrier adapted to move on either of the ways, of two pivoted arms suitably mounted and supported so as to alternately raise and lower the two ways connected thereto, a suitably-mounted pulley serving as an intermediate support at the opposite terminus of the ways, whereby the movement of the arms will cause each way to move bodily over the pulley, and suitable operating appliances to revolve the crank-shaft to alternately change the position of each way for the purpose of causing the carrier or carriers to gravitate in either direction, substantially as described.

3. A store-service apparatus consisting of a way pivotally connected to and supported by an arm secured to a shaft journaled in a suitable support and the other end supported by a pulley, suitable connecting devices for holding the way taut against the action of the arm, a carrier on the way and means for holding it near the lever, means for contacting the carrier and imparting a motion thereto upon the arm moving upwardly, and a catch retaining the said arm in a raised position, whereby the carrier will be impelled along the way by gravity, substantially as described.



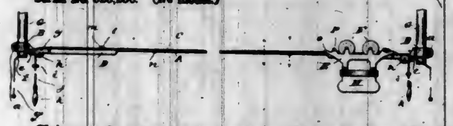
4. In a cash and parcel carrier apparatus, the combination, with a cash and parcel carrier, of an extensible support therefor consisting of a pair of crooked arms, one of which is pivotally connected to the carrier-frame, so as to swing loosely therefrom in the line of travel, and the other rigidly connected to the receptacle, and a connecting-link having its opposite ends pivotally connected to the free ends of the said arms and adapted to move thereon at right angles to the line of travel, said arms being so constructed and arranged that when the receptacle is elevated the pivotal connections of the receptacle arm and link will be at a point past the vertical line of the opposite pivotal point, whereby the receptacle will be retained in a raised position, substantially as described.

5. In a cash and parcel carrier apparatus, the combination of a way supported at one end by a pivoted arm and the opposite end supported by a pulley, a spring connected to the said pulley, causing the latter to take up the said way, a sprocket-wheel and chain for operating the lever to change the inclination of the way, and a latch for locking the arm in any desired position, substantially as described.

6. In a cash or parcel carrier apparatus, the combination, with two connected pivoted arms, of a horizontally-pivoted bracket having a vertically-pivoted pulley therein, and a way passing around the said pulley and having its opposite ends secured to the said arms, and means whereby the said arms may be alternately raised and lowered, substantially as described.

7. In a cash or parcel carrier apparatus, the combination, with a horizontal shaft, of two arms extending therefrom in opposite directions, a sprocket-wheel mounted on the said shaft, a way having its opposite ends secured to the ends of the said arms, a pulley around which the central portion of the way passes, and spring-actuated pressed bars extending contiguous to the paths of the ends of the said ways when elevated and adapted to engage the carriers thereon or to make contact with the said carriers and to impart a movement thereto, and a chain passing over the said sprocket-wheel, whereby the ends of the said way may be alternately raised or lowered by revolving the said shaft, substantially as described.

479,503. STORE-SERVICE APPARATUS. JOHN H. GOODFELLOW, Lansingburg, N. Y., assignor, by mesne assignments, to the Lamson Consolidated Store Service Company, of New Jersey. Filed Sept. 7, 1889. Serial No. 323,268. (No model.)



Claim.—1. In a store-service apparatus, the combination, with a fixed track extending from station to station, of an elastic treadway having its one end secured to the said track, means for distending the said treadway parallel to the said track, a carrier adapted to rest on the track and treadway, and means carried by the said treadway for engaging the carrier, substantially as described.

2. In a store-service apparatus, the combination, with a fixed track extending from station to station, of an elastic treadway secured to the said track, a carrier adapted to travel on the said track and treadway, means for distending the end of the said treadway in a line parallel with the track, a stop i, limiting the contraction thereof, and means carried by the end of the said treadway for engaging the carrier, substantially as described.

3. In a store-service apparatus, the combination, with a fixed track, of a carrier adapted to travel thereon, an elastic treadway supported by the said track and carrying the said carrier, means upon the end of the said treadway adapted to engage the said carrier, and a pulley over which a continuation of the said treadway passes in a line parallel to the line of the track, substantially as described.

4. In a store-service apparatus, the combination, with a fixed track extending from station to station, of an elastic treadway secured to and upon the said track and carrying means adapted to engage a carrier, a carrier adapted to rest on the said treadway, and means whereby the ends of the said treadway may be distended parallel to the line of the track, and a stop whereby the contraction of the said treadway will be suddenly limited, substantially as described.

5. In a store-service apparatus, the combination, with brackets, of a fixed track extending between the said brackets, an elastic treadway upon the said track and having means adapted to engage a carrier, a carrier adapted to travel over the said elastic treadway, a pulley mounted in each of the said brackets, over which the ends of the said treadway extend in a line parallel to the line of the track, stops i, whereby the contraction of the said treadway may be suddenly stopped, and pawls whereby the said ends may be retained in their extended position, substantially as described.

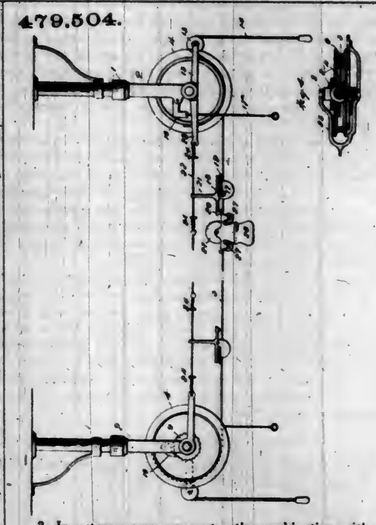
6. In a store-service apparatus, the combination, with a fixed track extending from station to station, of a carrier adapted to travel on the said track, an elastic treadway supported by the said track and carrying the said carrier, means for extending the end of the said elastic treadway in a line parallel to the line of the track, and a catch mounted upon the end of the said treadway and adapted to automatically engage the carrier and to become automatically disengaged therefrom upon the contraction of the elastic treadway, substantially as described.

479,504. STORE-SERVICE APPARATUS. JOHN H. GOODFELLOW, Lansingburg, N. Y., assignor, by mesne assignments, to the Lamson Consolidated Store Service Company, of New Jersey. Filed Oct. 17, 1889. Serial No. 327,386. (No model.)

Claim.—1. In a store-service apparatus, the combination, with two normally-balanced spring-pulleys, one at each station, the said pulleys being concentrically mounted upon fixed supports, of a wire-way extending from station to station and passing around the periphery of the said pulleys to which it is attached, a carrier mounted upon the said way, and means whereby the said way may be wound upon one of the said pulleys against the tension of the opposite pulley, substantially as described.

2. In a store-service apparatus, the combination, with two antagonistic spring-pulleys, one at each station, of a way extending therebetween and passing over and secured to the said pulleys, a carrier moving on the said way, a follower secured to the way near each end thereof and having a catch adapted to engage the said carrier, means for winding the way upon one of the said pulleys against the tension of the opposite pulley, and detents adapted to trip the catch of the said followers upon the way resuming its normal position, substantially as described.

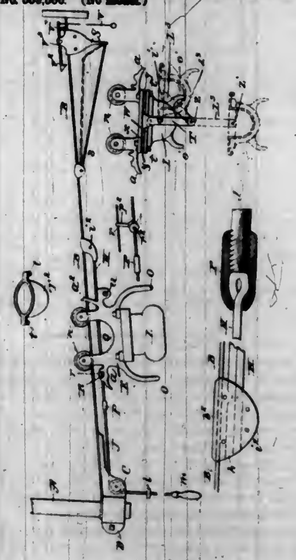
479,504.



3. In a store-service apparatus, the combination, with two antagonistic spring-pulleys, one at each station, of a way extending therebetween and passing over and secured to the said pulleys, a carrier moving on the way, a follower secured to the way near each end thereof and having a latch adapted to engage the said carrier, a pull-cord passing around each of the said pulleys in directions opposite to that of the cable, a clutch adapted to engage each of the pulleys, and a detent adapted to disengage the latch on each follower from the carrier upon the follower reaching the forward limit of its movement, substantially as described.

4. In a store-service apparatus, the combination, with the longitudinally-movable way and with a carrier moving thereon, of a clip secured to the said way, a lever pivoted in the said clip and having its one arm engaging the said carrier, and a stop adapted to retract another arm of the said lever when the way has reached the end of its movement, whereby the carrier will be disengaged, substantially as described.

479,505. STORE-SERVICE APPARATUS. JOHN H. GOODFELLOW, Lansingburg, N. Y., assignor, by mesne assignments, to the Lamson Consolidated Store Service Company, of New Jersey. Filed July 22, 1890. Serial No. 359,586. (No model.)

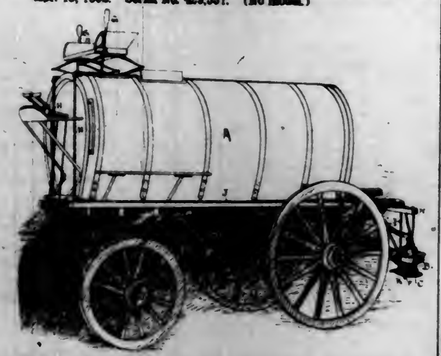


Claim.—1. In a store-service apparatus, the combination, with a track and a carrier adapted to travel thereon, of a propelling means consisting of an elastic cord or band having one end clipped to the track, means secured to the motor to check, engage, and hold the carrier, a traveling guide secured to said motor, and means for tensioning the motor to create power to impel the carrier over the track, substantially as specified.

2. In a store-service apparatus, the combination, with a track and a carrier provided with a wheel, of an elastic cord connected to the track at one end and to a support at the other to form a stop at an angle to the track and in line therewith, said wheel adapted to engage said elastic cord and distend the same out of its normal position, and a suitable catch for holding the carrier against the tension of the cord, whereby when released the cord will set the carrier in motion and resume its normal position, substantially as described.

3. In a carrier for store-service apparatus, the combination, with a carrier-frame having bearing-wheels journaled therein, of a receptacle hung from the said frame by pivoted arms, the arms being folded back upon themselves upon raising the said receptacle, and a downwardly-pressed plate yieldingly secured to the under surface of the frame and adapted to be raised by the receptacle when in a raised position and to hold the said receptacle in that position by its resistance to the initial horizontal component of the circular motion of the receptacle, substantially as described.

479,506. SPRINKLER. JOHN B. HAMERLY, South Bend, Ind. Filed Apr. 15, 1892. Serial No. 429,331. (No model.)



Claim.—1. In a sprinkler B, having a transverse issue-slot, a severed ring C, adjustable to cover said slot more or less at will, said ring being adapted by resiliency to clasp said cylinder tightly, and means whereby the ends of said ring may be forced apart to loosen the same and cause it to slide easily.

2. In a sprinkler B, having a transverse issue-slot, a severed ring C, adjustable to cover said slot more or less, said ring being adapted by its resiliency to clasp said cylinder, and means whereby the severed ends of said ring may be forced apart to loosen it upon said cylinder, and means whereby the driver while upon his seat may operate the device for separating the ends of said ring and moving it upon said cylinder.

3. In a sprinkler B, having a transverse issue-slot, and elastic severed ring C, adapted by its resiliency to clasp said sprinkler B, the lever F, placed between the ends of said ring to force the same apart, and a system of rock-shafts and connecting-rods whereby the driver while on his seat may operate said ring to shift its adjustment as to said issue-slot.

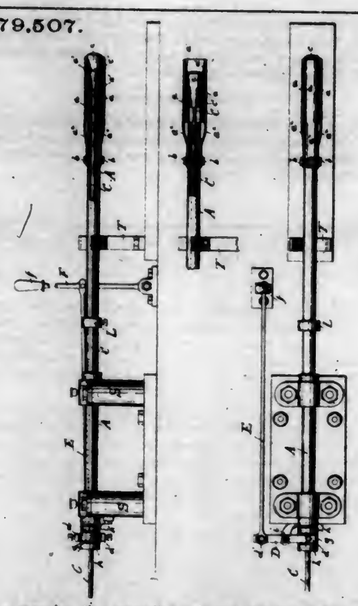
4. In a sprinkler-head B, having a transverse issue-slot, a severed ring C, a supplemental spring L, a lever F, and rock-shafts and connecting-rods whereby the driver while on his seat may operate said ring, as set forth.

479,507. APPARATUS FOR MANUFACTURING METAL TUBES. EDMUND F. HARTSHORN, of Newark, assignor to Stewart Hartshorn, Short Hills, N. J. Filed June 10, 1891. Serial No. 396,753. (No model.)

Claim.—1. In an apparatus for soldering shade-rollers, in combination, the tube A, supported at one end and near the middle and adapted to turn in its bearings, provided with the expansible ends *a a*, the rod C, having the conical head *c* engaging the expansible ends, and means for moving and holding the rod within the tube at any position, whereby the ends are caused to expand and are held fixed at any degree of expansion, substantially as described.

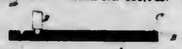
2. In combination, the tube A, adapted to turn in its bearings and provided with the expansible ends *a a*, the rod C, having the conical

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head *c* engaging the expansible ends, and the fixed collars *h h'*, the pivoted arm D, engaging at one end with the loose collar *g* and at the other end with the rod E, and the rod E, arranged to be moved by the lever F, substantially as and operating in the manner described.

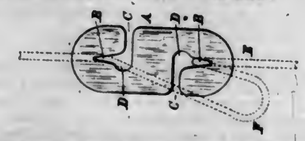
479,508. ART OF PRINTING. WILLIAM F. HERALD, New York, N. Y. Filed Jan. 20, 1892. Serial No. 418,645. (No model.)



Claim.—1. The method of obtaining a printing-surface herein described, which consists in superposing independent thin sheets of metal and a matrix material, impressing character-dies successively into the metal sheets, and stripping apart the said sheets, as set forth.

2. The method of obtaining a metallic relief-printing surface herein described, which consists in superposing two thin sheets of annealed copper and a matrix card-board, impressing successively and by sudden impacts character-dies into the copper sheets, and then stripping apart the said sheets, as set forth.

479,509. CORD-ADJUSTER FOR ELECTRIC LAMPS. JOHN W. HEAPHY, JR., Rochester, N. Y., assignor to Fred G. Kimman, same place. Filed Nov. 11, 1891. Serial No. 411,610. (No model.)



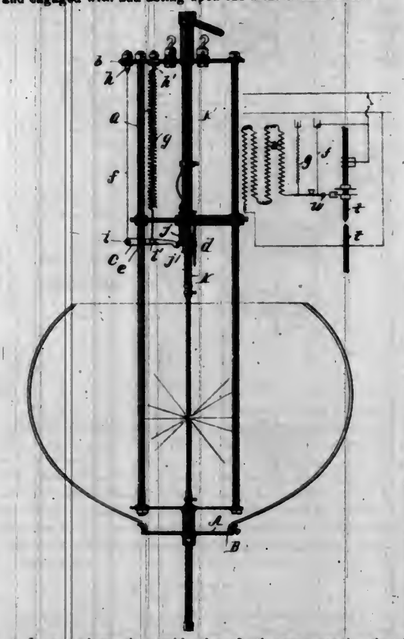
Claim.—The herein-described cord-adjuster for electric lamps, consisting of a plate or bar of suitable material having lateral throats provided with enlarged mouths communicating with an enlarged opening for the passage of a cord said opening having a tapering recess with a transverse dimension less than that of a throat to receive and hold the cord, substantially as set forth.

479,510. ELECTRIC-ARC LAMP. WILLIAM E. IRISH, Cleveland, Ohio. Filed May 4, 1892. Serial No. 431,795. (No model.)

Claim.—1. In an arc lamp, the combination, with the movable electrode, of separate clutches thereon and independently movable to positions parallel or inclined to each other, a thermo-expansive electric conductor, and means for communicating the motions of said conductor to the said clutches.

2. In an arc lamp, a single expansible conductor capable of expansion under the passage of the current and acting with a spring to control two independent clutches, one of which tends to raise and support the carbon and the other to lower the carbon while partially supporting it against falling by gravity.

3. In an arc lamp, the combination of a movable electrode, tubes loose thereon, springs partially resisting the motion of the tubes in a direction parallel to the electrode, a fulcrumed lever engaged with the upper end of the lower tube and with the lower end of the upper tube, and a thermo-expansive electric conductor and spring both under tension and engaged with and acting upon the arms of said lever.



4. In an arc lamp, the combination of a thermo-expansive electric conductor, a longitudinally extensible and compressible spring, a rod *a*, forming a part of the frame of the lamp, a lever fulcrumed thereon and pivoted at different points to said conductor and spring, adjusting-screws fastened to said rod and to said conductor and spring, a movable carbon or carbon-holder, and a clutch for said carbon or carbon-holder engaged with said lever.

5. In an arc lamp, the combination of a thermo-expansive electric conductor normally under tension, a spring under tension and reacting against the tension of said conductor, a lever whose arms are pivoted to said conductor and spring and forked at one end, a movable electrode, flanged and movable tubes upon the electrode and so engaged with said fork that the lower tine thereof is below the lower flange and the upper tine between the two flanges, and springs resisting the action of said tubes.

6. In an arc lamp, the combination of a thermo expansive electric conductor, a movable carbon or carbon-holder, tubes loose upon the carbon or carbon-holder, flanges respectively on the lower end of the upper tube and on the upper end of the lower tube, rods parallel to the carbon and passing loosely through said flanges, springs on said rods and pressing upon said flanges, and means engaged with said conductor and with said flanges for communicating motion from said conductor to said tubes.

479,511. NUT-LOCK. CHARLES IVES, Clinton, N. Y. Filed Oct. 26, 1891. Serial No. 409,790. (No model.)



Claim.—1. The combination of fish-plates, each having a longitudinal rib thereon, perforations for bolts therein in line with the ribs, a bolt having recessed head adapted to engage the rib on one plate, a lock-body having a groove adapted to engage the rib on the other plate and a dovetailed projection from the side, a nut, and a locking-piece adapted to engage on the dovetailed projection and abut against the side of the nut, substantially as set forth.

2. The combination, with a bolt and nut, of a lock-body adapted to engage the surface on which it rests and provided with dovetailed projection to one side of the surface on which the nut engages the lock-body, and a locking-piece adapted to engage on the dovetailed projection and abut against the side of the nut, substantially as set forth.

3. The combination, with a bolt having a head adapted to engage the surface with which it contacts and prevent rotation thereof, of a nut and nut-lock consisting of a body portion adapted to engage the surface on which it rests and having a dovetailed projection to one side of the body on which the nut engages, a locking-piece adapted to engage on the dovetailed projection, and a pin for securing the body and locking-piece together, substantially as set forth.

4. The combination, with a rail, of fish-plates 2 2, having ribs 2^a, a bolt 3, having a head 4 with recess 4^a, a nut 5, lock-body 6, having a groove 6^a and dovetailed projection 6^b, and a locking-piece 7, which abuts against the side of the nut, and pin 8, substantially as set forth.

479,512. METHOD OF CONVERTING MESQUITE-BEANS. THOMAS H. JACOBS, San Antonio, Tex. Filed Feb. 16, 1892. Serial No. 421,737. (No model.)



Claim.—The herein-described method of producing flour from the mesquité-bean, which consists, first, in a preliminary drying of the bean as a whole to eradicate moisture; second, breaking the thus-dried bean into short pieces to render it more readily affected by the heat and uniformly roasted; third, roasting the broken particles to render friable or more brittle; fourth, grinding the mass, and, fifth, separating the powdered bean and outer pod from the hull, these steps being carried out in the order named, substantially as and for the purpose specified.

479,513. NEWSPAPER-FILE. CHARLES H. JAENICKE, Eagle Pass, Tex. Filed Jan. 16, 1892. Serial No. 418,232. (No model.)



Claim.—The combination, with a standard formed at or near its upper and lower ends, respectively, with a suitable perforation extending through the same from the back to the front thereof, of springs arranged upon the back of the standard, one near each end thereof and each formed at its free end with an eye registering with said respective perforations of the standard, and a binder-rod disposed upon the side of the standard opposite that upon which the springs are located and having its ends extended or bent inwardly, with the lower end thereof passing loosely through the perforation near the lower end of the standard and connected loosely with the eye of the lower spring, the upper end of said binder-rod passing loosely through the perforation near the upper end of the standard and also through the eye of the upper

spring and provided at such end with a thumb nut or cap for releasably securing the end of said rod to the spring, substantially as and for the purpose set forth.

479,514. CHICKEN-COOP. ANDREW H. KINDLE, Versailles, Mo., assignor of one-half to Charles H. Mason, same place. Filed Nov. 17, 1891. Serial No. 412,206. (No model.)



Claim.—1. The herein-described knockdown chicken-coop, the same consisting of a base, ends hinged thereto and having laterally-projecting pins at their free corners, staples in the edges of the base, a top having spring-loops at its corners, and sides hinged to the edges of said top and having eyes passing over said staples, as and for the purpose set forth.

2. The herein-described knockdown chicken-coop, the same consisting of a base, ends hinged thereto and having laterally-projecting pins at their free corners, a top having spring-loops at its corners adapted to engage said pins, and also having hooks adapted to engage the upper edges of the ends, and sides hinged to the edges of said top and detachably secured to the edges of the base, as and for the purpose set forth.

3. The herein-described knockdown chicken-coop, the same consisting of a base having staples in its edges and hooks in its upper face, ends hinged to said base and having laterally-projecting pins at their free corners, a top having spring-loops at its corners and small hooks at its ends detachably engaging said pins and the upper edges of said ends, said upper edges taking under the hooks in the base when the ends are folded, doors in the top, sides hinged to the edges of said top, and eyes carried by the free edges of the sides and passing over said staples in the base, as and for the purpose hereinbefore set forth.

479,515. OLIVE DYE. RICHARD LAUCH, Elberfeld, Germany, assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Nov. 18, 1891. Serial No. 412,312. (Specimens.) Patented in France Dec. 2, 1887, No. 187,365.

Claim.—1. The process of producing a new coloring-matter, which consists in reacting with one molecule of tetrazo-diphenyl upon one molecule of salicylic acid and one molecule of alpha-naphthylamine, treating said product with fuming sulphuric acid, diazotizing the thus-obtained sulphonated product, combining the so-formed diazo compound with one molecular proportion of the sodium salt of dihydroxy-naphthaline monosulpho-acid, and treating the dye-stuff thus obtained with fuming sulphuric acid.

2. The new dye-stuff hereinbefore described, which forms in a dry state a grayish-black powder difficultly soluble in cold water and more easily in hot water and soluble in diluted solutions of sodium carbonate, with olive color, which latter becomes brownish red by adding sodium carbonate in excess, soluble in soda-lye and ammonia, with brownish-red color, from which on the addition of acids a grayish-green fine precipitate separates, the liquid becoming almost colorless; in concentrated sulphuric acid it dissolves, with violet color, that turns green by adding water, but after some time a blackish-green precipitate separates and the liquid becomes almost colorless, and it dyes unmordanted cotton olive in alkaline-soap baths.

479,516. PLATE-PRINTING MACHINE. HOMER LEE, New York, N. Y. Filed Sept. 12, 1887. Serial No. 249,535. (No model.)

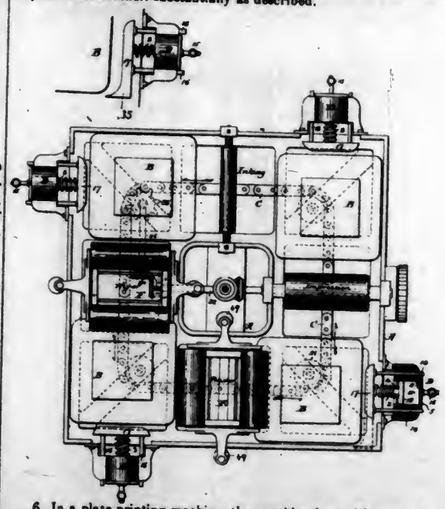
Claim.—1. The combination, with the polygonal bed or plank, of the pneumatic cushioning apparatuses having valves for varying their effect and each located at the end of the different planes of movement of the plank to contact with a different one of the sides of the plank as it travels in a polygonal path, substantially as described.

2. In a printing-machine wherein the bed or plate travels in a polygonal path, the combination, with the bed, of a buffer located at the point of the change in the direction of the bed and having a curved guiding-face, substantially as described.

3. The combination, in a plate-printing machine, of a traveling bed carrying the plate, an inking apparatus, a wiper for removing the ink from the surface of the latter, and a moving polisher arranged at an angle to the longitudinal axis of the wiper, substantially as described.

4. The combination, in a plate-printing machine, of a traveling bed carrying the plate, an inking apparatus, a wiper having a moving cloth for removing the ink from the surface of the plate, and a polisher arranged at an angle to the longitudinal axis of the wiper, substantially as described.

5. The combination, in a plate-printing machine, of a traveling bed carrying the plate, an inking apparatus, and a plurality of moving wipers with their longitudinal axes arranged at different angles with respect to each other, substantially as described.



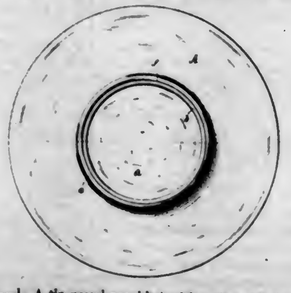
6. In a plate-printing machine, the combination, with two independent mechanical wipers, of a moving bed or plank carrying a plate moving under and in contact with each of said wipers and means for causing the plank to change its presenting or forward end after passing one wiper and before reaching the other, substantially as described.

7. In a plate-printing machine, the combination, with a moving bed or plank carrying a plate, of two mechanical wipers and means for moving the wipers in paths across the surface of the plate at an angle to each other, substantially as described.

8. In a plate-printing machine, the combination of two elliptically-moving wipers and a mechanically-moving plate with means for causing the plate after passing under one of said wipers to change its direction at right angles to its first movement before passing under the other wiper, substantially as described.

9. In a plate-printing machine, the combination of two mechanically-moved wipers having progressively-moved cloths and a mechanically-moved plate with means for causing the plate after passing under one of said wipers and cloths to change its direction at right angles to its first movement before passing under the other wiper and cloth, substantially as described.

479,517. ANTI-RUST VESSEL. GEORGE W. LEE, Clifton Springs, N. Y. Filed Mar. 18, 1892. Serial No. 425,478. (No model.)

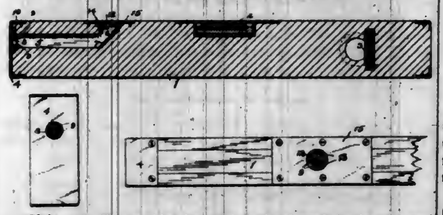


Claim.—1. A tin vessel provided with a sheet of zinc having its edges bound or covered with a strip of tin firmly pressed thereon and forming with said zinc sheet a piece or part separate from the vessel, said piece or part thus constructed being secured to the vessel, substantially as shown and described.

2. A vessel formed with a sheet of zinc having its edges bound with a strip of tin firmly secured thereto, as by pressure, the tin and zinc parts together constituting a rigid piece or part separate from the vessel and secured to the latter, said vessel being formed with an inclosing bead for the rigid piece or part, substantially as shown and set forth.

3. A sheet of zinc having its edge covered or bound with a strip of tin rigidly pressed thereon, the parts together constituting a rigid piece, the strip of tin being folded or doubled at one side of the zinc sheet to form a smooth edge and left raw at the other side of the zinc, said rigid piece being soldered to the bottom or wall of a tin vessel with the smooth edge of the tin strip turned from the contiguous part of the vessel, substantially as shown.

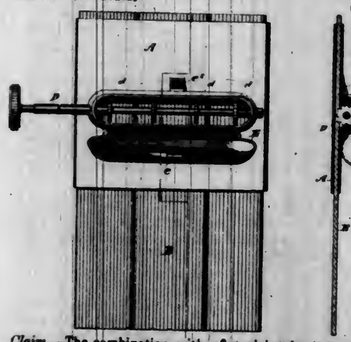
479,518. LEVELING-INSTRUMENT. CHARLES H. LOCKWOOD, Rochester, N. Y., assignor of one-half to Joseph A. Begy, same place. Filed Dec. 12, 1891. Serial No. 414,855. (No model.)



Claim.—1. The combination, with the level-stock having the passages arranged at right angles to each other and the mirror arranged at the intersection of the passages, of the two open rings having supporting-stems, one ring being arranged in each passage, substantially as described.

2. The combination, with the level-stock having the passages arranged at right angles to each other and the mirror arranged at the intersection of the passages, of the two open rings, each having supporting-stems on opposite sides thereof arranged in the passages, the stems of the rings being arranged at right angles to each other, substantially as described.

479,519. WICK-TUBE. JAMES D. LUTHER, Brooklyn, assignor to Luther & Lederbos, New York, N. Y. Filed Jan. 25, 1892. Serial No. 419,119. (No model.)

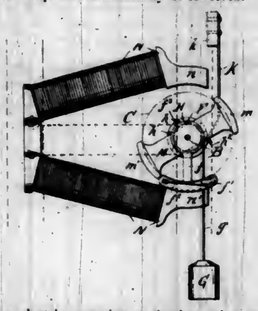


Claim.—The combination, with a flat wick-tube A, provided with a side opening, of a wick-ratchet D, projecting through said opening, and a hollow cap E, pivoted to the wick-tube, and a catch e^4, all said parts being arranged so that said cap when closed will contact with the wick-tube and house the projecting parts of the ratchet, substantially as described, and for the purposes set forth.

479,520. ELECTRIC SELF-WINDING CLOCK. MALCOLM MACKELLAR and GEORGE D. WEAVER, Reading, Pa. Filed Aug. 12, 1891. Serial No. 402,421. (No model.)

Claim.—1. In an electric actuating mechanism for clocks, the combination, with the clock-train and the electro-magnet, of the oscillating armature loosely mounted upon one of the train-arbors and attached directly to the actuating-weight and through a pawl-and-ratchet connection to the clock-train, and means for automatically making and breaking the circuit, all arranged and adapted to operate substantially as set forth.

2. The combination, with a clock-movement, of an electric actuating mechanism consisting of electro-magnet N N, armature M, carrying pulley F and pawl f' and loosely mounted on the arbor of ratchet-wheel C, circuit-closer H, with projections h and h' engaging a projection of the armature, as described, and a contact-spring K, all arranged and adapted to operate substantially as set forth.



3. In an electric actuating mechanism, substantially as described, the circuit-closer H, having insulations h^2 and h^4 with intermediate contact-surface h^3, in combination with the contact-spring K and means for automatically moving the circuit-closer, substantially as and for the purpose set forth.

4. In an electric actuating mechanism, substantially as described, the circuit-closer H, having a notch h^3 depressed below the insulated face of the circuit-closer, in combination with a contact-spring having an end k' adapted to firmly engage said notch, whereby perfect contact is secured and the movement of the circuit-closer retarded.

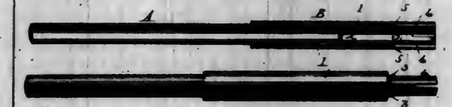
479,521. SPIRIT-LEVEL FOR MEASURING-TAPES. ERNEST MCCULLOUGH, San Francisco, Cal. Filed Apr. 6, 1891. Serial No. 387,867. (No model.)



Claim.—1. The spirit-level, with the clamps E attached to the opposite sides of the base, substantially as described, and for the purposes specified

2. A spirit-level with a spring-clamp at each end and attached on opposite sides of the base for application to tapes and other measuring devices, substantially as described, and for the purposes specified.

479,522. PENHOLDER. GEORGE MCELWAIN, Chicago, Ill., assignor of one-half to Julian Kune, same place. Filed Jan. 18, 1892. Serial No. 418,400. (No model.)



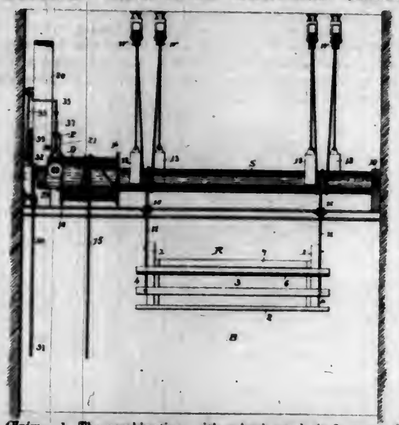
Claim.—1. In a penholder, the combination, with the stem, of the sleeve mounted thereon to slide backward and forward, said sleeve constructed and arranged to positively eject the pen on its forward movement and to permit the discharge of the same on its rearward movement, substantially as described.

2. In a penholder, the combination, with the stem provided near its forward end with a slot, of a sleeve surrounding the stem and a transverse pin fixed to the sleeve and extending through the slot normally midway between its ends, whereby the sleeve may be moved to the rear and expose the forward end of the stem and also moved forward beyond the same.

3. In a penholder, the combination, with the stem provided near its forward end with a shoulder, of a longitudinally-sliding sleeve mounted on said stem and provided near its forward end with the interior shoulder, said sleeve constructed and arranged to positively eject the pen on its forward movement and to permit the discharge of the same on its rearward movement, substantially as described.

4. In a penholder of the type herein described, the combination, with the stem having its forward end reduced to form an annular shoulder, of the sleeve mounted on said stem to slide backward and forward, said sleeve enlarged interiorly near its forward end to form an annular shoulder, substantially as described.

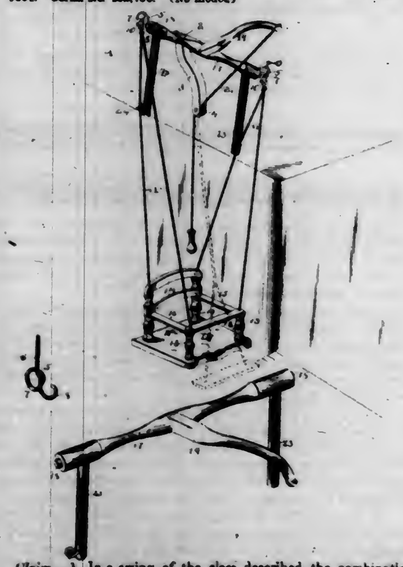
479,523. SUSPENDED RACK. JAMES J. NEWBERRY, Round Mountain, Ala. Filed Nov. 30, 1891. Serial No. 413,589. (No model.)



Claim.—1. The combination, with a horizontal shaft, means for turning the same, a suspended rack, and ropes leading therefrom to and around the shaft, of a ratchet on the shaft, a weighted and pivoted pawl engaging said ratchet, a bell-crank lever pivoted at its angle above said pawl, one end being connected therewith, an upright rod having a handle at its lower end and a crank at its upper end, its body being mounted in bearings, and a link connecting said crank with the other end of said bell-crank lever, as and for the purpose set forth.

2. The combination, with a rack located in a store, a horizontal shaft mounted in bearings in the room above, ropes leading from said rack through the ceiling and around the shaft, counterbalancing-weights on the other ends of said ropes, and an operating-rope leading to the store for turning the shaft, of a ratchet on the shaft, a pawl engaging the same, a bell-crank lever having one end connected to said pawl, a vertical rod mounted in bearings and having a handle at its lower end in the store and a crank at its upper end, and a link connecting this crank with the other end of the bell-crank lever, as and for the purpose hereinbefore set forth.

479,524. SWING. JACOB H. NICHOLSON, Roanoke, Va., assignor to the Roanoke Wood Novelty Company, same place. Filed Aug. 15, 1891. Serial No. 402,738. (No model.)



Claim.—1. In a swing of the class described, the combination, with the depending standard secured to a ceiling and provided with a pulley, the hooks arranged at opposite sides of the standard, rings removably mounted in the hooks, and ropes depending from the rings and connected with the seat, of a rock-shaft removably mounted in bearings at the inner sides of the hooks, a central rock-arm extending forwardly from the shaft, a propelling-rope connected to the end of the rock-arm and passing rearwardly over the pulley of the standard, from which latter it depends, and opposite rock-arms depending from the ends of the rock-shaft and removably connected with opposite seat-suspension ropes, substantially as specified.

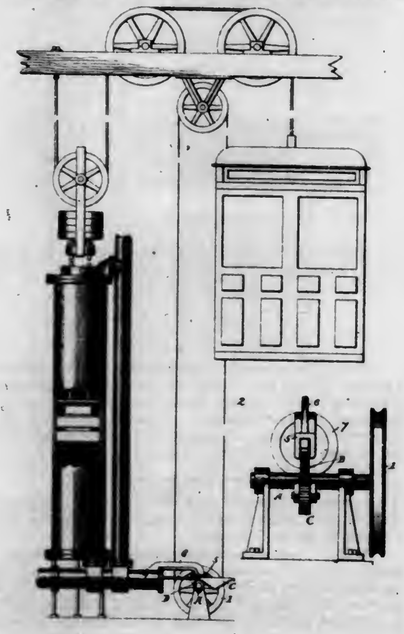
2. In a swing of the class described, the combination, with the securing-plate connected with the ceiling and having the depending bifurcated standard provided with a grooved pulley, the opposite hooks arranged at equidistant sides of the standard and consisting of the shank portions, the coiled hooks beyond the same and terminating in the bearing eyes, the rings mounted in the hooks, the opposite pairs of ropes depending from the rings, and the seat supported at the lower end of the ropes, of the transverse rock-shaft terminating in bearings removably mounted in the bearing-eyes of the hooks, the centrally-located and forwardly-disposed rock-arm projecting from the shaft, the propelling-rope connected to the front end of the arm, passed rearwardly over and depending from the grooved pulley, and terminating in a pull, the opposite rock-arms depending from the rock-shaft near the ends thereof and disposed at a right angle to the central rock-arm, and the coiled hooks extending from the lower ends of the end rock-arms and removably engaging with the rear ropes, substantially as specified.

479,525. ELECTRIC CONDUCTOR. FREDERIC A. C. PERRINE, Trenton, N. J., assignor to the John A. Roebling's Sons Company, same place. Filed Sept. 23, 1891. Serial No. 406,562. (No model.)

Claim.—1. The combination, with a single-strand conductor twisted to spiral form, of a covering of paper or other suitable material applied about the conductor and supported on the exterior lines of the spiral to form air-spaces between the conductor and covering, substantially as described.

2. The combination, with a flat conductor twisted to spiral form, of a covering of paper or other suitable material applied about the conductor and supported on the edges of the conductor to form air-spaces between the conductor and covering, substantially as described.

479,526. MECHANICAL MOVEMENT. GEORGE H. REYNOLDS, New York, N. Y., assignor, by mesne assignments, to the National Company, Chicago, Ill. Filed Mar. 4, 1892. Serial No. 423,781. (No model.)

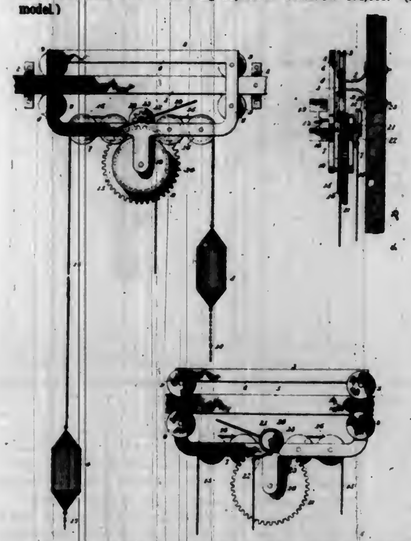


Claim.—1. A mechanical movement consisting of a shaft, a pinion secured to and arranged at one side of the axis of said shaft with the periphery intersecting said axis, and a rack engaging said pinion, substantially as set forth.

2. The combination of a shaft, a regular pinion carried by said shaft at one side of the axis thereof, a rack engaging with said pinion, and a guide arranged to hold the pinion and rack in gear, substantially as set forth.

3. The combination, in a mechanical movement, of a shaft, a regular pinion carried at one side of the axis of said shaft, and a rack having two inclined toothed edges and gearing with said pinion, substantially as described.

479,527. FIRE-ESCAPE. CHARLES R. RICE and LEWIS R. MCDONALD, Little Rock, Ark. Filed July 29, 1891. Serial No. 401,063. (No model.)



Claim.—In a fire-escape, the combination of a track-bar, a car or hanger provided with rollers and mounted on the track-bar and provided with a depending extension, a large pulley 14, journaled on the lower end of the extension, the two pairs of small pulleys arranged at opposite sides and above the large pulley 14 and the inner pulleys of each pair having their inner sides located directly over the large pulley 14, a cable passing under the large pulley 14 and converging at the top of the same and passing over the small pulleys, the latter causing the cable to bind against the large pulley 14 and to produce friction and to retard rotation, baskets secured to the ends of the cable, and means for controlling the descent of the baskets, substantially as described.

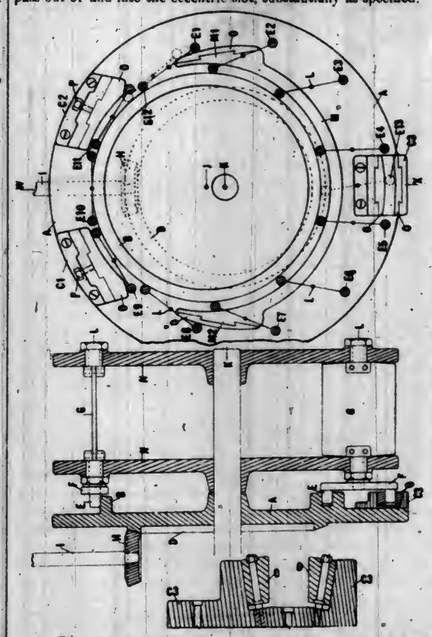
479,528. FEATHERING PADDLE-WHEEL. GEORGE T. RIGGS, Plainfield, N. J. Filed Oct. 14, 1891. Serial No. 408,713. (No model.)

Claim.—1. The combination, with a shaft and wheel, of buckets pivoted to the wheel and having their edges equidistant at each side of the pivots, a cross-arm connected with a pivot of each bucket and two crank-pins near the ends of such arm, and a cam-slot eccentric to the axis of the wheel, receiving the respective crank-pins, such slot being open at one side and provided with stationary auxiliary guides for moving the respective crank-pins out of and into such eccentric slot, substantially as specified.

2. The combination, with the shaft and wheel, of buckets pivoted to the wheel and having their edges equidistant at each side of the pivots, a cross-arm connected with a pivot of each bucket and two crank-pins near the ends of such arm, a cam-slot eccentric to the axis of the wheel, receiving the respective crank-pins, such slot being open at one side and provided with stationary auxiliary guides C' C^2 for moving the respective crank-pins out of and into such eccentric slot, and the guiding-cam C^3, substantially as specified.

3. The combination, with the shaft and wheel, of buckets pivoted to the wheel and having their edges equidistant at each side of the pivots, a cross-arm connected with the pivot of each bucket and two crank-pins near the ends of such arm, a cam-slot eccentric to the axis of the wheel, which slot receives the respective crank-pins and is open at one side, and stationary auxiliary guides having separate removable faces for moving the respective crank-pins as they pass out of and into the eccentric slot, substantially as specified.

4. The combination, with the shaft and wheel, of buckets pivoted to the wheel and having their edges equidistant at each side of the pivots, a cross-arm connected with the pivot of each bucket and two crank-pins near the end of such arm, a cam-slot eccentric to the axis of the wheel, which slot receives the respective crank-pins and is open at one side, stationary auxiliary guides having adjusting-screws, and separate removable faces for moving the respective crank-pins as they pass out of and into the eccentric slot, substantially as specified.
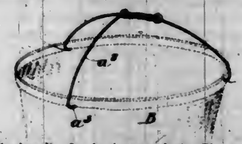


5. The combination, with the shaft and wheel, of buckets pivoted to the wheel and having their edges equidistant at each side of the pivots, a cross-arm connected with a pivot of each bucket and two crank-pins near the ends of such arm, a plate surrounding the wheel-shaft and having a cam-slot eccentric to the axis of the wheel, and mechanism for turning the plate and the parts carried by it, the slot receiving the respective crank-pins and being open at one side, and auxiliary guides connected to the plate and moving the respective crank-pins out of and into such eccentric slot, substantially as specified.

6. The combination, with the shaft and wheel, of buckets pivoted to the wheel and having their edges equidistant at each side of the pivots, a cross-arm connected with the pivot of each bucket and two crank-pins near the ends of such arm, a cam-slot eccentric to the axis of the wheel and having a removable facing at one side of the slot, the slot being open at one side, and auxiliary guides for moving the respective crank-pins out of and into the eccentric slot, substantially as specified.

7. The combination, with the shaft and wheel, of buckets pivoted to the wheel, crank-arms connected with the buckets, and a plate having an eccentric cam-slot and a circular wheel, the periphery of which forms the inner side of the eccentric cam-slot, substantially as set forth.

479,529. BASKET HANDLE OR CARRIER. SAMUEL F. ROBBINS, Langhorne, Pa. Filed Dec. 10, 1891. Serial No. 414,563. (No model.)



Claim.—The handle for baskets and the like, composed of two pieces of wire, one of which is bent to form two diverging arms, the

point of divergence of which is bent laterally in parallel lines and spirally wound around one end of the other wire, the latter comprising a third diverging arm, all said arms being provided with hooks or basket-engaging portions at their outer extremities, substantially as described.

479,530. FLOATING FIGURE. EDWARD P. ROBERTS, Cleveland, Ohio. Filed Oct. 5, 1891. Serial No. 407,719. (No model.)



Claim.—1. As a new article of manufacture, a receptacle, a fluid contained therein, a hollow body submerged in said fluid having an orifice through which the fluid may flow into and out of said body, a substance contained in said body which is adapted to chemically combine with said fluid and generate a gas whereby the fluid is expelled from said body, and automatically-acting means for periodically permitting the escape of the gas and consequent readmission of the fluid, whereby said body automatically rises and falls in said fluid, substantially as set forth.

2. The combination of a receptacle and a fluid contained therein with a hollow buoyant body having two orifices, one in its lower end and one in its upper end, an automatically-closing valve adapted to close the upper orifice, and a substance contained in said body adapted to chemically combine with said fluid and produce a gas, and means for opening said valve, substantially as and for the purpose specified.

3. The combination of a receptacle and a fluid contained therein with a hollow buoyant body having two orifices, one in the lower part and one in the upper part, a valve adapted to close the upper orifice, a float attached to said valve, and a substance contained in said body adapted to chemically combine with said fluid and produce a gas, substantially as and for the purpose specified.

4. The combination of a receptacle and a fluid contained therein with a hollow glass figure having a bifurcated lower end, thereby forming two legs, said figure having one orifice in its upper end and another in one leg, a float-valve adapted to close the upper orifice, and a substance contained in the imperforate leg which is adapted to chemically combine with the said fluid and produce a gas, substantially as and for the purpose specified.

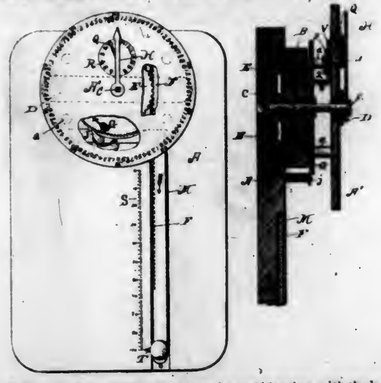
5. The combination of a receptacle and a fluid contained therein with a hollow glass figure having its lower part non-transparent, said figure having two openings, one in the lower and one in the upper part, a float-valve adapted to close the upper opening, and a substance contained in said figure adapted to chemically combine with said fluid and produce a gas, substantially as and for the purpose specified.

6. The combination of a receptacle and a fluid contained therein with a hollow buoyant body having two orifices, one in the upper part and one in the lower part, a valve adapted to close said upper orifice, a stem to said valve extending out through said orifice, an adjustable stop adapted to be engaged by the outward extension of said valve, whereby the valve is opened, and a substance contained in said body adapted to chemically combine with said fluid and produce a gas, substantially as and for the purpose specified.

7. The combination of a receptacle and a fluid contained therein with a hollow buoyant body having two orifices, one in its upper and one in its lower end, a valve adapted to close said upper orifice, having a stem extending out through said orifice, a stop arranged to be engaged by the outward extension of said valve when the final outlet of the upper orifice is above the level of said fluid, and a substance contained in said body adapted to chemically combine with said fluid and produce a gas, substantially as and for the purpose specified.

8. A hollow buoyant body having two orifices, one in the upper part and one in the lower part, and a substance contained in said body and adapted to chemically combine with a fluid in which the body may be placed and generate a gas, combined with a float-valve adapted to close the upper orifice, substantially as and for the purpose specified.

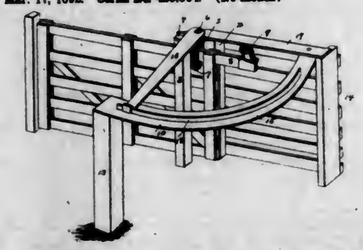
479,531. ADDING-MACHINE. RINALDO S. ROBERTSON, Artondale, Wash. Filed Oct. 16, 1891. Serial No. 408,589. (No model.)



Claim.—1. In an adding-machine, the combination, with the body, the dial mounted on the body and having a series of numbers arranged in a circle, the axle carrying a hand adapted to swing upon the outside of the dial, and the ratchet-wheel G, fixedly mounted upon the axle, of a drum loosely mounted on the axle and carrying a pawl adapted to engage and rotate the ratchet-wheel G in one direction, a pinion fixedly connected to the drum, the scale S, and the longitudinally-movable rack-bar engaging the pinion of the drum and carrying a finger or index, substantially as and for the purpose set forth.

2. In an adding-machine, substantially as described, the combination, with the body, the dial mounted on the body and having a series of numbers arranged in a large circle and a series of numbers arranged in a smaller circle, the axle carrying a hand adapted to swing upon the outside of the dial, the shaft 1, carrying a hand adapted to swing upon the outside of the dial, a sprocket-wheel fixed on said shaft, and the ratchet-wheel G, fixedly mounted upon the axle and carrying a depending lug adapted to engage the teeth of the sprocket-wheel, of the drum loosely mounted on the axle and carrying a pawl adapted to engage and rotate the ratchet-wheel G in one direction, a pinion fixedly connected to the drum, the scale S, and the longitudinally-movable rack-bar engaging the pinion of the axle and carrying an indicator, substantially as and for the purpose set forth.

479,532. GATE. WILLIAM H. H. SALLEE, Rutledge, Mo. Filed Mar. 17, 1892. Serial No. 425,304. (No model.)

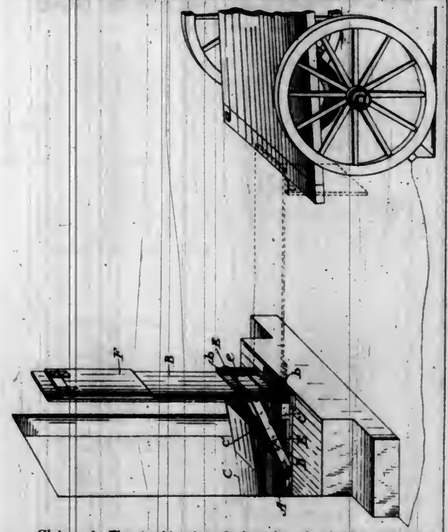


Claim.—1. The combination of a gate, a swiveled hanger having a roller supporting the gate, a swiveled roller mounted at the inner end of the gate and extending upward therefrom, and a curved track-bar arranged to be engaged by the swiveled roller, substantially as described.

2. The combination of a gate, a swiveled hanger having a roller supporting the gate, a straight track-bar disposed in a line with the gate, a curved track-bar extending from the rear end of the straight track-bar, and a swiveled caster mounted on the inner end of the gate and projecting upward and adapted to engage the lower faces of the track-bars, substantially as described.

3. The combination of a gate, a swiveled hanger provided with a roller and supporting the gate, a swiveled caster mounted on the inner end of the gate, a straight track-bar extending from and arranged in a line with the gate, the frame comprising the curved track-bar provided with a flange, the vertical post supporting the outer end of the curved track-bar, and a brace 16, having one end secured to the curved track-bar and bracing the same, substantially as described.

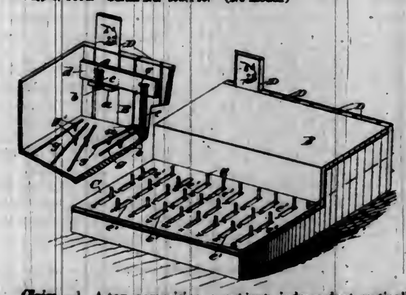
479,533. DRAWBRIDGE FOR SIDEWALKS, &c. JOHN F. SCHULTE, Brooklyn, N. Y. Filed Jan. 25, 1892. Serial No. 419,116. (No model.)



Claim.—1. The combination of a base-board, a bridge connected thereto to swing in a vertical plane, a foot-board, means to elevate said foot-board, and connections between said foot-board and said bridge, substantially as shown and described.

2. The combination of a base-board, a bridge connected thereto to swing in a vertical plane, a foot-board, a spring interposed between the base-board and the foot-board, arms pivotally connected to the base-board and having a sliding connection with the bridge, and links connecting the foot-board with the arms, substantially as shown and described.

479,534. TOY. GEORGE W. SHAMAN, Jr., Allegheny, Pa. Filed Aug. 4, 1891. Serial No. 402,146. (No model.)



Claim.—1. A toy comprising a cabinet, independent vertically-movable picture-slides therein, a contractile spring for each slide that elevates the slide, a set of reciprocating trigger-rods for each slide, adapted to hold it depressed and release it when all the rods of a set are moved, and a letter for each rod, substantially as described.

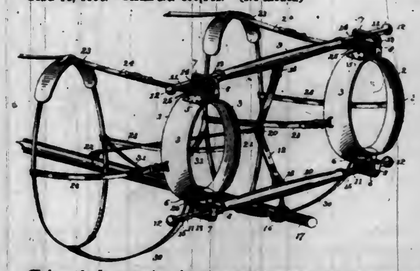
2. The combination, with a cabinet and a series of independent picture-slides vertically movable therein, of a transverse cross-bar in the cabinet, a contractile spring for each slide, connecting it with the cross-bar and adapted to separately move its connected slide, a set of connectible reciprocating trigger-rods for each slide, which release if when all the rods for a slide are retracted, and an appropriate designating-letter for each trigger-rod, substantially as described.

3. The combination, with a cabinet, a series of independent picture-holding slides vertically and separately movable therein at one end of the cabinet, and a transverse bar in the cabinet near the slides, of a contractile spring for and connecting each slide with the cross-bar and normally elevating said slide, a set of longitudinally-movable trigger-rods for each slide, together adapted to hold the slide depressed and its spring stretched until all the rods of a set are retracted, and an alphabetic letter for each rod of a set that in proper order indicates the name of the pictured representation on the slide, substantially as described.

4. The combination, with a cabinet having an elevated rear section and a lower front section having a series of slots in its top wall, a series of picture-holding slides vertically movable on the rear wall of the cabinet, and a horizontal cross-bar in the cabinet and near the slides, of a spring for each slide, connecting it and the cross-bar, and a set of detent trigger-rods for each slide, extended from the slots in the cabinet-wall to engage ledges on the lower end of the slides, each rod being designated by a letter of the alphabet and each set of rods adapted to hold a slide depressed and its springs stretched, substantially as described.

5. The combination, with a cabinet having an elevated rear section and a lower front section having a series of slots in its top wall, a series of picture-slides vertically movable on the rear wall of the cabinet, each slide provided with a forwardly-projecting transverse ledge at its lower end, and a horizontal cross-bar in the cabinet, near the slides and above the ledges, of a retracting-spring connecting each slide with the cross-bar, a set of longitudinally-movable trigger-rods for each slide, adapted to loosely engage its ledge, supplementary rods for some of the trigger-rods, and a designating-letter for each main trigger-rod, substantially as described.

479,535. DRAFT-YOKE. CHARLES W. SNEDEKER, Marbletown, N. Y., assignor of one-half to Edward W. Ostrander, same place. Filed Sept. 18, 1891. Serial No. 406,142. (No model.)



Claim.—1. In a neck-yoke, the combination, with the opposite collars provided at their upper and lower sides with transverse keepers and with swiveled hooks located upon the front ends of the keepers, of upper and lower yoke-bars having their ends located in said keepers and provided with a series of perforations for engaging the hooks, a draft-strap connecting the bars, and draft devices leading from the strap, substantially as specified.

2. In a neck-yoke, the combination, with the opposite collars provided at their upper and lower ends with transverse keepers, of upper and lower yoke-bars connected together and reduced at their ends for movement within the keepers, said lower yoke-bar being provided at its edge with notches for engaging the edge of the keeper when the yoke-bar is turned, and a draft-pole-receiving eye on the center of said yoke-bar, substantially as specified.

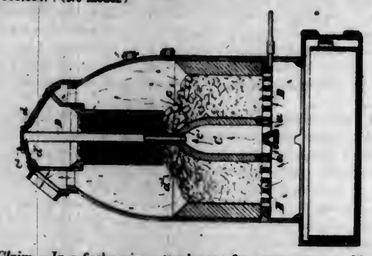
3. The combination, with the opposite collars and their keepers, the latter provided at their opposite edges and near their front ends with recesses, of the connected draft-bars flattened near their ends to fit loosely in the keepers and at their ends provided with knobs or heads, in rear of which perforations are formed, and hooks swiveled on the front ends of the keepers and removably engaging said perforations, substantially as specified.

4. In a neck-yoke, the combination, with the opposite collar-sections, a clasp at the lower ends, and a hinge at their upper ends, the latter having a pintle, of upper keepers pivoted upon the pintles of the hinges, a lower pair of keepers pivoted to the lower ends of the collars, yoke-bars loosely connected with the keepers, and draft connections between the bars, substantially as specified.

5. In a neck-yoke, the combination, with the opposite collars provided at their upper and lower sides with transverse keepers and with swiveled hooks located upon the keepers, of upper and lower yoke-

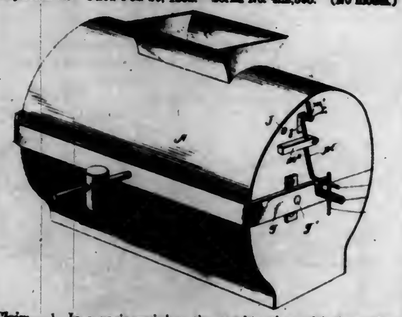
bars having their ends located in said keepers and provided with a series of perforations for engaging the hooks, substantially as specified.

479,536. FUEL-SAVING ATTACHMENT FOR STOVE-GRATES. ARTHUR STOCKER, Forest House, Pa. Filed June 11, 1891. Serial No. 395,897. (No model.)



Claim.—In a fuel-saving attachment for stoves, the combination of a stove-body having a shaking-grate and an upwardly-projecting conical shell connected to the central or middle portion of the grate and provided in its apex with a tapered hole or seat c', a tube D, tapered at its lower end d^2, seated in the tapered hole or seat c' of the conical shell and extending up through the fuel-magazine, and a slide-valve d^3, connecting with the top plate of the stove and adapted to open and close the upper end of the tube D, substantially as specified.

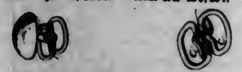
479,537. ROTATING GRAIN-WEIGHER. WILLIAM SWARTOUT, Reynolds, Ill. Filed Feb 26, 1892. Serial No. 422,895. (No model.)



Claim.—1. In a grain-weigher, the combination, with the casing, of the partitioned counterbalanced revolvable cylinder supported within said casing and provided with opposite locking-lugs at each end of the openings therein, dogs pivotally secured in each end of said casing and engaging in front of and behind said lugs, locking and trip pins connected with the front set of dogs and projecting through the ends of the casing, shouldered levers engaging said trip-pins, and means for automatically operating said levers, substantially as set forth.

2. In a grain-weigher, the combination, with the casing having slots in the opposite ends thereof, of a weighted yoke fulcrumed to said casing, a revolvable partitioned cylinder supported upon said yoke within the casing and provided with opposite locking lugs or blocks at each end of the openings therein, locking-dogs pivoted at opposite ends of said casing and engaging in front of and behind said lugs, locking and trip pins secured to the front set of dogs and projecting through the slots in the ends of the casing, opposite trip and lock levers pivoted to the opposite ends of said casing and provided with lower outwardly-extending operating-arms, upper shoulders and over-balancing-weights normally throwing said shoulders under said locking and trip pins, and devices for operating said trip-levers from the cylinder-shaft, substantially as set forth.

479,538. BUTTON-FASTENER. JEROME C. TOWNSEND, Minneapolis, Minn. Filed Apr. 28, 1892. Serial No. 430,467. (No model.)

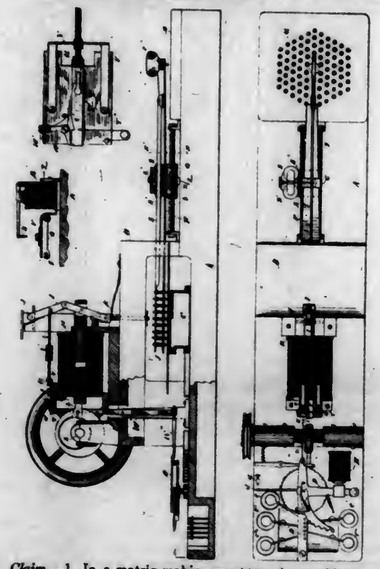


Claim.—1. A button-fastening approximately in the form of a figure 8, having a central bar and free ends bent to the center of the fastening and approximately parallel with the central bar, substantially as described.

2. A button-fastener approximately in the form of a figure 8, having a central bar flattened on each side and free ends bent in to the center parallel to the said central bar, each of said free ends being flattened upon one side and rounded on the outer faces, substantially as described.

3. A fastening device approximately in the form of the figure 8, with a central bar having a central bend or loop therein, the free ends of the fastening extending parallel with the central portion and having corresponding bends formed therein, substantially as described.

479,539. MATRIX-MAKING MACHINE. CHARLES L. TRAVIS, Minneapolis, Minn., assignor to the Minneapolis Electro Matrix Company, same place. Filed Jan. 16, 1890. Serial No. 337,093. (No model.)



Claim.—1. In a matrix-making machine, the combination, with the character-selecting key, a die-carriage, and die-depressing device, of a locking device for said die-carriage adapted to be brought into operation to lock said carriage in a given position by the depression or manipulation of the key and to be unlocked by the operation of the depressing device, as set forth.

2. In a matrix-making machine, the combination, with the combined die-carriage and character-key, of the matrix-feed mechanism controlled by said key, the die-depressing device controlled by said feed mechanism, and a locking device for retaining the matrix and the selecting-die at the printing-point, the said locking device being dependent for such operation upon the action of the character-key and for its release upon a movement of the depressing device necessary to make a completed impression.

3. In a matrix-making machine, the combination, with the combined die carriage and character-key, of the matrix-feed controlled from said key, the die-depressing device controlled from said matrix-feed, and a common automatic lock for securing the matrix and the selected die at the printing-point until a completed impression is made controlled to lock from said key and to unlock from said die-depressing device.

4. In a matrix-making machine, the combination, with the die-carriage, of an electrically-controlled lock for said carriage, electrically-controlled feed and impression devices, electric connections for said electric devices, and circuit-controlling mechanism for said connections.

5. In a matrix-making machine, the combination, with the die-carriage, of an electrically-controlled lock for said carriage, electrically-controlled matrix-feed and die-impression devices, electric connections for said electric devices, a hand circuit-controller for initiating the movement of said electric devices, and an automatic circuit-breaker operated from the die-impression device for breaking the circuit at the completion of the impression.

6. In a matrix-making machine having electrically-controlled feed and impression devices, the combination, with the die-aligning and character-selecting key-lever controlling the feed and impression device circuits, of an electro-magnet in circuit with the die-depressing device adapted to lock said key-lever in contact, and an automatic circuit-breaker operated by the die-depressing device for releasing the lock, substantially as and for the purpose set forth.

7. In a matrix-making machine, the combination, with the electrically-controlled impression device, of an automatic circuit-breaker under the control of the impression device comprising a pair of contacts inseparable until the impression device has made a complete stroke and returned to its normal position, substantially as and for the purpose set forth.

8. In a matrix-making machine, the combination, with the die-depressing device and an electro-magnet for controlling the same, of an automatic circuit-breaker comprising a pair of shifting contacts controlled by the impression device normally in circuit with said magnet and inseparable until the depression device has made a complete stroke and returned to its normal position, substantially as and for the purpose set forth.

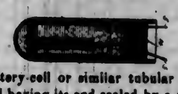
9. In a matrix-making machine, the combination, with the electrically-controlled feed and impression devices, of an automatic circuit-breaker in the impression-device circuit, comprising a pair of shifting contacts under the control of the impression device normally in contact, a retaining device for engaging one of said contacts at the limit of the die-stroke, and a trip actuated from the feed for releasing said plate after the circuit is opened elsewhere.

479,540. ELECTRIC SIGNALING DEVICE FOR FIRE-HOSE. JOHN C. WHARTON and JAMES W. BRAID, Nashville, Tenn. Filed Nov. 11, 1891. Serial No. 411,614. (No model.)



Claim.—The combination, with a hose, a play-pipe, and the couplings thereof, of an internal conductor connected to the members of the couplings, the external bands 9 10, seated directly upon the coupling members and insulated therefrom, another band 16, insulated from the play-pipe and carrying a transverse contact-maker 19, which operates through aligned openings in the band 16 and its insulation 17 to make contact with the coupling member to which the play-pipe is connected, another internal conductor connected to the insulated bands 9 10, the short bridge-pieces between the bands 9, 10, and 16 on the couplings and the play-pipe, a signal, and a battery, substantially as and for the purpose described.

479,541. SEALED BATTERY-CELL OR SIMILAR ARTICLES. CHARLES WILLIS, Baltimore, Md. Filed Apr. 30, 1892. Serial No. 431,248. (No model.)



Claim.—1. A battery-cell or similar tubular article of glass or similar fragile material having its end sealed by a plug of plastic material which expands on setting, placed inside the end of the tube a sufficient distance to remove the strain of the expansion of the plastic material from the edges of the tube, whereby the breakage of the tube by such expansion is prevented, substantially as described.

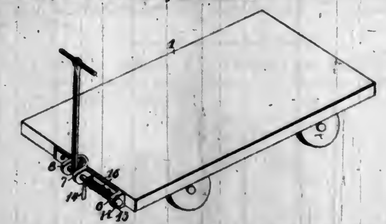
2. A battery-cell consisting of a tube of glass or similar fragile material containing the battery elements, said tube being permanently closed at one end and sealed at the open end by a plug of plastic material which expands on setting, said plastic material being packed about the conductors and placed inside the end of the cell a sufficient distance to remove the strain of the expansion of the plastic material from the edges of the cell, whereby the breakage of the cell by expansion is prevented, substantially as described.

479,542. TRUCK-HANDLE SUPPORT. CHARLES F. WOERNER, St. Louis, Mo., assignor of one-half to Louis C. Koch, same place. Filed Mar 21, 1892. Serial No. 426,703. (No model.)

Claim.—1. A device for holding truck-handles in an elevated position, having a bolt adapted to be held in its normal position by means of a spring, behind which the said handle is adapted to be located, substantially as described.

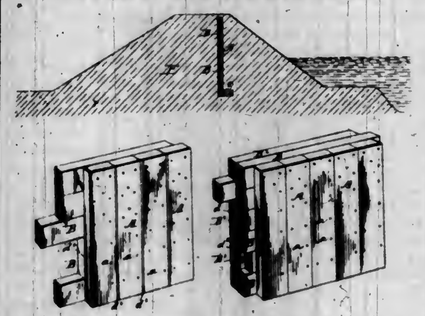
2. A device for holding truck-handles in an elevated position, consisting of a casting having a curved portion, such as 3, into which the said handle is adapted to be placed, a bolt carried by said casting for holding the said handle within said curved portion, and a spring for holding the said bolt in a locked position, substantially as described.

3. A device for holding truck-handles in an elevated position, consisting of a casting, such as 2, having a curved portion 3, ears formed integrally with the said casting, a bolt, such as 10, adapted to move in said ears, a head formed on said bolt and provided with projections, such as 12, adapted to be received by corresponding depressions 13, formed in one of the said ears, a handle fixed to the said bolt for operating the same, and a coil-spring encircling said bolt and interposed between one of the ears and the said handle for holding the same in a locked position, substantially as described.



4. A device for holding truck-handles in an elevated position, consisting of a casing adapted to be secured to one end of the truck, a curved portion 3, formed with the said casting, openings 5, formed in the same, through which screws are adapted to be passed for securing the same to said truck, ears, such as 6, 7, and 8, formed with the said casting and provided with horizontal openings 9, a bolt 10, adapted to be passed through said openings, a head 11, formed on said bolt and provided with projections 12, depressions 13, formed in one side of the said ears 6 and adapted to receive the said projections, a handle 14, fixed to said bolt, and a coil-spring encircling said bolt and interposed between the ears 6 and the said handle for preventing the said bolt from turning and holding the same in a locked position in front of the truck-handle, substantially as described.

479,543. DAM OR LEVEE. CHARLES E. WRIGHT, Vicksburg, Miss. Filed June 15, 1892. Serial No. 436,840. (No model.)



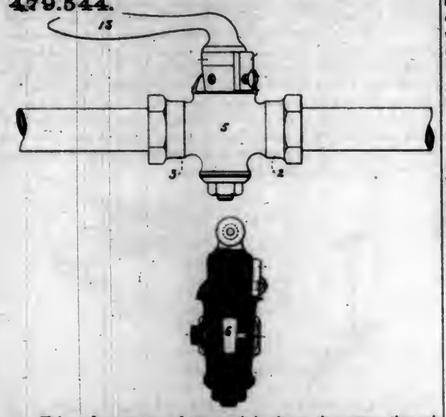
Claim.—1. In combination with an earthen embankment, a bulk-head buried therein and consisting of a series of standing boards having their edges in close contact with each other and a series of horizontally-laid boards having their edges superposed and in contact and nailed to the standing boards, substantially as described.

2. In combination with an earthen embankment, a bulk-head buried therein and consisting of a series of standing boards having one of their edges beveled and laid against the adjacent standing board, with cement along said beveled edge, and a series of horizontally-laid boards having their edges superposed and nailed to the standing boards, substantially as described.

3. In combination with an earthen embankment, a bulk-head buried therein and consisting of a series of standing boards having their edges in close contact with each other, a series of horizontally-laid boards having their edges superposed and one of said edges beveled, cement along said edge, and cleats inclosing said cement, with nails or their described equivalents uniting the standing boards to the horizontal boards, substantially as described.

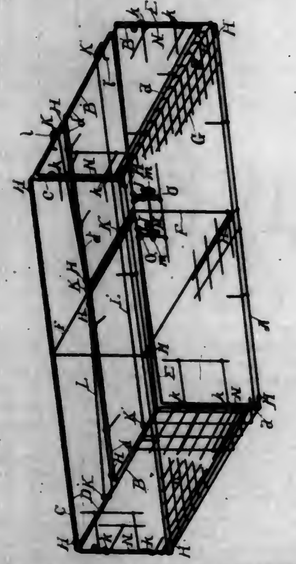
479,544. WASTE AND STOP COCK. GEORGE H. BAILEY and THOMAS GRACE, Pittsburg, Pa., assignors to the Bailey Farrel Manufacturing Company, same place. Filed Aug. 20, 1891. Serial No. 404,054. (No model.)

479,544.



Claim.—In a waste and stop cock having a plug rotary through an arc of ninety degrees, a slot 6, extending through the plug, a passage 7, leading therefrom substantially at right angles, opposite water connections 2 3, and a hole 8, formed in the shell of the cock substantially at right angles to the line of the water connections and capable of registering with the slot 6, the combination, with such plug, of a detachable and adjustable handle, a collar set on a plug and movable therewith, said collar having a tongue adapted to be moved separately from the handle and adjusted in either of two positions ninety degrees apart, and stops on the shell to limit the motion of the tongue, substantially as and for the purposes described.

479,545. SHIPPER'S FOLDING CRATE OR COOP. CHARLES F. BAYER, Murrietta, Cal. Filed Sept. 26, 1891. Serial No. 406,770. (No model.)

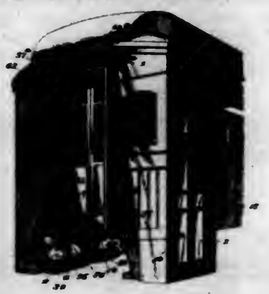


Claim.—1. In a folding crate, the combination set forth of the bottom member, the front and rear wall members hinged thereto, the ends and partition hinged to the bottom member and provided with the upwardly-projecting fastening-loops, the lid comprising the back member hinged to the rear-wall member and the front lid member hinged to the back lid member, and the fastening-rod adapted to be inserted through the fastening-loops above the back and front members when the crate is in its erect position.

2. The combination set forth of the several hinged wire-netting members specified, the fastening-rods L L' and pins M N, and suitable staples J J' and fastening-loops K K' *k*, arranged, as specified, to receive the fastening-rods L L' and pins M N to secure the parts in position when set up erect in crate form, and also so arranged, as specified, that when the several parts are folded together the staples J J' will pass through the meshes of the wire-netting, as set forth, to allow the fastening-rods to be passed therethrough to secure the members of the crate in their closed position.

3. A crate comprising the combination of the wire-netting, bottom, front, rear, top, and end members arranged to fold upon each other, the lid-fastening hasps hinged to the top, and the staples projecting from the front member and arranged to receive the lid-fastening hasps when the crate is in its upright position and to project upward through other members of the crate when folded to receive the fastening-rods to secure the crate in its folded position, and such fastening-rods.

479,546. VESTIBULE-CAR. EDGAR H. BUCKLEY, Elkhart, Ind. Filed Jan. 13, 1891. Serial No. 377,616. (No model.)



Claim.—1. In a vestibule-car, the combination, with the folding doors having the vertical hinge-rods extending through bearing-plates at their upper and lower ends and provided with arms or levers near their lower ends, of an intermediate lever and links connecting the ends of said lever with the arms at the lower ends of the hinge-rods, substantially as and for the purpose set forth.

2. In a vestibule-car having the steps arranged inside the end walls, the combination of the folding doors having the vertical hinge-rods provided with levers at their lower ends, connections between the said levers, and the casings having the sliding removable bottom plates, substantially as and for the purpose set forth.

3. In a vestibule-car, the combination, with the steps arranged inside the end walls, of the trap-doors arranged to close in the direction of said end walls and adapted when open to form railings or side guards for the said steps, substantially as set forth.

4. In a vestibule-car having the steps arranged inside the end walls of the car and the inwardly-folding doors arranged at the lower ends of said steps, the trap-doors arranged to fold against the said folding doors and to retain the latter in a closed position, substantially as set forth.

5. In a vestibule-car, the combination of the folding doors, the trap-door, a sliding latch mounted in a recess in one of the folding doors and adapted to be engaged by the trap-door, a spring to actuate said latch, and a lock having a vertically-sliding bolt to engage a recess in the upper side of said latch, substantially as set forth.

6. In a vestibule-car having the steps, the trap-doors provided with treadles near their inner ends and with operating-levers at the outer ends of their hinge-rods, substantially as and for the purpose set forth.

7. In a vestibule-car having the side strips and the folding doors arranged at the lower ends of said strips, a trap-door arranged to cover the said steps and to close against the said folding doors, and locking mechanism for connecting the latter with the said trap-door, substantially as set forth.

8. In a vestibule-car, the combination of the longitudinally-movable spring-actuated buffer-stem with the buffer-plates mounted adjustably at the front ends of said stems, substantially as set forth.

9. The combination, with the longitudinally-movable buffer-springs having horizontally-recessed and vertically-perforated heads, of the vertically-adjustable buffer-plates having series of laterally-extending vertically-perforated ears or lugs, substantially as and for the purpose set forth.

10. The combination, with the longitudinally-movable buffer-stems, of the adjustable and detachable buffer-plates having laterally-extending vertically-perforated ears or lugs, and forwardly-extending beveled pins and provided with recesses in their under edges, substantially as set forth.

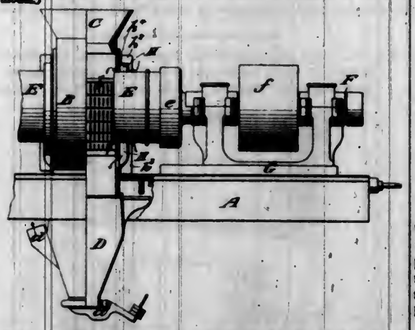
11. The combination, with the longitudinally-movable buffer-stems, of the bearing-plates attached to the front sides of the cross-sills of the car and the adjustable and detachable buffer-plates, substantially as set forth.

12. In a vestibule-car having the end walls inclosing the side steps, the door-frames arranged in said end walls and provided at one side with U-shaped catches attached to flexible curtains wound upon spring-actuated rollers and at the other side with flanges having heads to engage said U-shaped clasps, substantially as set forth.

13. In a vestibule-car, the connecting door-frames, the meeting faces of which are provided on one side of the vertical center, and spring-rollers having flexible curtains provided with catches at their outer edges and at the other side of the vertical center with flanges having heads to engage said catches, substantially as and for the purpose set forth.

14. A vestibule-car having end walls provided with door-frames, in combination with flexible connections mounted on spring-rollers at one side of the vertical center of said door-frames and automatic couplings on the other car to engage the said flexible connections when the cars come in contact, said automatic couplings being adapted to become automatically disconnected when the cars are pulled apart, substantially as set forth.

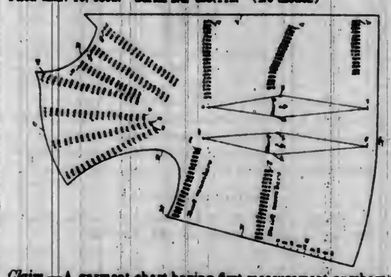
479,547. DUST-GUARD FOR ATTRITION-MILLS. TALMADGE BLAIR, Brewster, N. Y. Filed Dec. 9, 1891. Serial No. 414,497. (No model.)



Claim.—1. The combination, with the casing and bushing of an attrition-mill, of a chamber exterior to the casing and communicating with the space which surrounds the bushing between it and the casing, and an exhaust-conduit in communication with the chamber, substantially as set forth.

2. In combination, the mill-casing, the bushing, and the guard-plates forming, in connection with the casing and bushing, an annular dust-receiving holder surrounding the bushing in proximity to the casing, and means for removing the dust from the casing, substantially as set forth.

479,548. DRESS-CHART. JESSIE BLANARD, Fort Recovery, Ohio. Filed Mar. 16, 1892. Serial No. 425,112. (No model.)



Claim.—A garment-chart having first-measurement numbers and perforations contiguous thereto arranged in series, said first-measurement numbers indicating the number of inches in a measurement taken from the neck-joint, around over the shoulder, and up under the arm to the place of beginning.

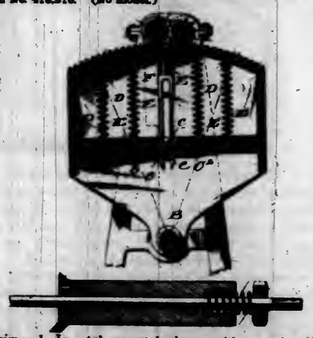
479,549. DRINKING-FOUNTAIN FOR FOWLS. FREDERICK G. BONFORD, Cleveland, assignor of one-half to John H. Werner, Canton, Ohio. Filed Nov. 2, 1891. Serial No. 410,706. (No model.)

Claim.—In a drinking-fountain, the combination, with a supporting-bar having a top or canopy, of a ring on its lower end provided with internal screw-threads, a removable cup supported in said ring by said screw-threads, and an inverted bottle supported in the canopy, its open mouth resting in the bottom of said cup, substantially as described.

479,549.



479,550. MACHINE FOR STRIPPING AND BOOKING LEAF-TOBACCO. CHARLES BOWMAN, Hanover, Pa. Filed Jan. 16, 1892. Serial No. 418,218. (No model.)



Claim.—1. In a tobacco-stripping machine, a pivotally-mounted table having arc-shaped tops and centrally-arranged cutting-plates, with a passage between them, rotary cutting-disks over the central part of the table and acting in conjunction with the cutting-plates, the rollers, and winding-drums, and pieces of canvas, and means operatively connecting the disks with the table, and means on the tops for holding them step by step as they are depressed, as set forth.

2. In a tobacco-stripping machine, a pivotally-mounted table having arc-shaped tops and centrally-arranged cutting-plates, with a passage between them, rotary cutting-disks over the central part of the table and acting in conjunction with the cutting-plates, the rollers, and winding-drums, and pieces of canvas, means operatively connecting the disks with the table, and springs for yieldingly supporting the said table-tops, and means on the tops for holding them step by step as they are depressed, as set forth.

3. In a tobacco-stripping machine, a pivoted table having depressible arc-shaped tops, cutting-plates centrally arranged, rotary disks acting in conjunction with the cutting-plates over the center of the table, means operatively connecting the disks with the table, the winding-drums G', and rollers I, the pieces of canvas, and the means connecting the same at one end to the table-tops and at the other end to the rollers, and means on the tops for holding them step by step as they are depressed, as set forth.

4. The combination, with the pivoted table having centrally-arranged cutting-plates and depressible arc-shaped tops, of the rollers, and winding-drums and rotary cutting-disks, means operatively connecting the disks and table, whereby the disks are actuated through the movement of the table, and the pieces of canvas secured to said tops and to the rollers, and means on the tops for holding them step by step as they are depressed, as set forth.

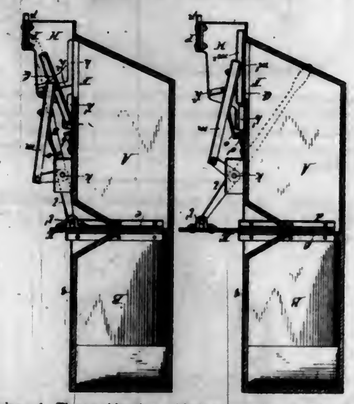
5. The combination, with the pivoted table having depressible arc-shaped tops, of the springs supporting said tops, guides for the springs, the partition having an opening for the passage of the bifurcated post, and the notched bifurcated post carried by the top, as set forth.

6. The combination, with the pivoted table having depressible arc-shaped tops and the cutting-plates, of the springs supporting the tops, the partition, the notched bifurcated posts carried by the tops, the rotary cutting-disks, and means operatively connecting the disks and table, whereby the disks are actuated through the movement of the table, as set forth.

7. The combination, with the pivoted table and its depressible top, of the partition beneath the top and means for holding the top step by step as it is depressed, as set forth.

8. The combination, with the pivoted table having separated tops, with a passage between them, of the stripping mechanism and a disk arranged above said passage to guide the separated stem out of the machine, as set forth.

479,551. GRAIN-MEASURE. LEVI BROSSON, Buffalo, N. Y., assignor of one-half to the Pitts Agricultural Works, same place. Filed Mar. 28, 1892. Serial No. 426,690. (No model.)



Claim.—1. The combination, with the measuring-chamber having inlet and discharge openings, of a cut-off gate applied to said inlet-opening, a sliding discharge-gate applied to said discharge-opening and capable of moving vertically and outwardly away from said opening, and actuating devices connecting said gates, whereby one gate is opened when the other is closed, substantially as set forth.

2. The combination with the measuring-chamber having inlet and discharge openings, of a cut-off gate applied to said inlet-opening, vertical ways arranged on the measuring-chamber and having outwardly-extending branchways, a sliding discharge-gate applied to the discharge-opening of the measuring-chamber and having studs or projections moving in said ways, and actuating devices connecting the cut-off and discharge gates, substantially as set forth.

3. The combination, with the measuring-chamber having inlet and discharge openings, of a cut-off gate applied to said inlet-opening, vertical guideways arranged on opposite sides of said discharge-opening and having outwardly-extending branchways, a discharge-gate applied to said discharge-opening and provided at its upper end with studs or projections arranged in the upper portions of said vertical ways, and studs or projections arranged below its upper end and moving in the lower portions of said inclined ways and their outwardly-extending branchways, and actuating devices connecting the cut-off and discharge valves, substantially as set forth.

4. The combination, with the measuring-chamber having an inlet-opening at its top and a discharge-opening on one side near its bottom, of a cut-off gate applied to said inlet-opening, a discharge-gate applied to said discharge-opening, a rock-shaft supported on the measuring-chamber, an elbow-lever mounted on said shaft and having its upper arm attached to the cut-off gate, and a rod connecting the lower arm of said lever with the discharge-gate, substantially as set forth.

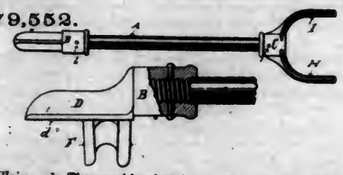
5. The combination, with the measuring-chamber having inlet and discharge openings, of a cut-off gate applied to said inlet-opening, vertical ways arranged on said measuring-chamber and having outwardly-extending branchways, a sliding discharge-gate applied to said discharge-opening and having guide-studs moving in said ways, a rock-shaft supported on the measuring-chamber, an elbow-lever mounted on said shaft and having its upper arm attached to the cut-off gate, and a rod connecting the lower arm of said lever with the sliding discharge-gate, substantially as set forth.

6. The combination, with the measuring-chamber having inlet and discharge openings, of a cut-off gate applied to said inlet-opening, upright plates arranged on opposite sides of the discharge-opening and having upright ways provided with inclined branchways, a discharge-gate having studs moving in said ways, a rock-shaft, an elbow-lever mounted on said shaft and having its upper arm connected to the cut-off gate, and a rod connecting the lower arm of said elbow-lever with the sliding discharge-gate, substantiallyas set forth.

7. The combination, with the measuring-chamber having an inlet-opening at its top and a discharge-opening on one side thereof, of a cut-off valve applied to said inlet-opening, an upwardly-sliding gate applied to said discharge-opening, a bag-support arranged below and in front of said discharge-opening, and actuating devices connecting the cut-off and discharge gates, substantially as set forth.

479,552. RAILWAY-TRACK GAGE. ELMER E. BUCHWALD, Erie, Pa. Filed Jan. 9, 1892. Serial No. 417,592. (No model.)

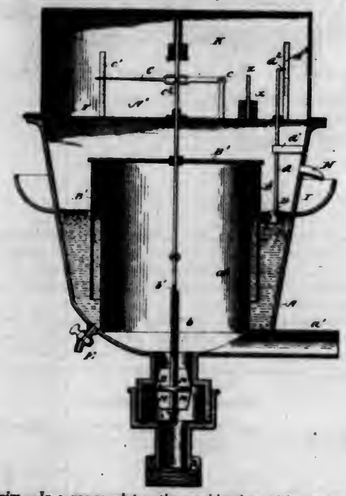
479,552.



Claim.—1. The combination, in a railway-track gage, of gage-heads, as B and C, connected together by means of a section of pipe screwed into sleeves or collars on said gage-heads, horizontal arms, as D and H I, on said gage-heads, the bearing-faces *d* and *h h* of which are on a horizontal line with or slightly below the sleeves or collars on the gage-heads, with a double-faced lug F G projecting downwardly from the face *d* of the horizontal arm D, and lugs J J, projecting downwardly from the faces *h h* of the horizontal-curved arms H I, substantially as and for the purpose set forth.

2. The combination, in a railway-track gage, consisting of heads, as B and C, permanently connected by a pipe-section A, with horizontal arms on the gage-heads, as D and H I, the bearing-faces, as *d* and *h*, of which are on a plane with or slightly below the lowermost parts of said gage-heads, a vertical double-faced lug, as F G, on the arm D of the gage-head B, and vertical lugs, as J J, on the arms H I on the gage-head C, substantially as and for the purpose set forth.

479,553. GAS-GOVERNOR. SAMUEL G. CABELL, Washington, D. C., assignor, by mesne assignments, to the Quincy Gas Economiser Company, Quincy, Ill. Filed Feb. 11, 1892. Serial No. 421,206. (No model.)



Claim.—In a gas-regulator, the combination, with a main casing having a liquid-reservoir and inlet and outlet openings, of a counter-balancing hood, a plug-valve having an area less than that of the vertical passage, the valve being flexibly connected to the hood and having wings to guide it through the passage, so that it may be readily inserted to and withdrawn from position through the top of the casing, and indicating devices connected to the valve for indicating the position of said valve relatively to its seat, substantially as described.

479,554. SPOOL-HOLDER. ESTHER CARPENTER, Helena, Mont. Filed May 12, 1892. Serial No. 432,734. (No model.)

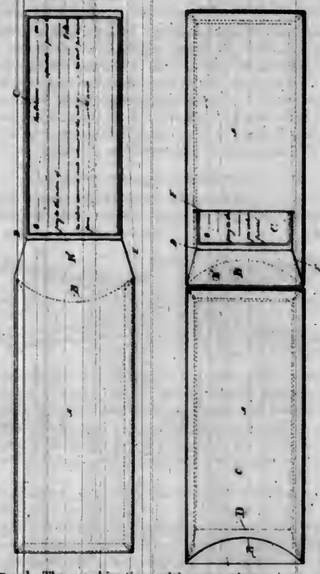


Claim.—1. In combination, a yoke-piece, a spindle hinged thereto, a fixed jaw rigidly secured to the yoke-piece, and a spring-actuated movable jaw pivotally secured to the fixed jaw, substantially as herein set forth.

2. In combination, a yoke-piece having a spindle hinged thereto, a fixed jaw rigidly secured to the yoke-piece, and a spring-actuated movable jaw pivoted to the fixed jaw and having an eye for the passage of thread, substantially as herein set forth.

3. In combination, a yoke-piece having a spindle hinged thereto, a cutter on the yoke-piece, a fixed jaw rigidly secured to the yoke-piece, and a spring-actuated movable jaw pivoted to the fixed jaw and having an eye for the passage of thread, substantially as herein set forth.

479,555. COMBINED PROMISSORY NOTE AND ENVELOPE. CHARLES CARROLL, New Orleans, La. Filed Aug. 15, 1891. Serial No. 402,783. (No specimens.)



Claim.—1. The combination, with a promissory note, of an envelope or pocket having an intervening flap by which the note is connected therewith, adapted to form a receptacle for the collateral and note, substantially as described and shown.

2. The combination, with a promissory note, of an envelope or pocket connected therewith, adapted to form a receptacle for the collateral and note, having a slit in the body thereof through which the outer part of the note is inserted, substantially as described and shown.

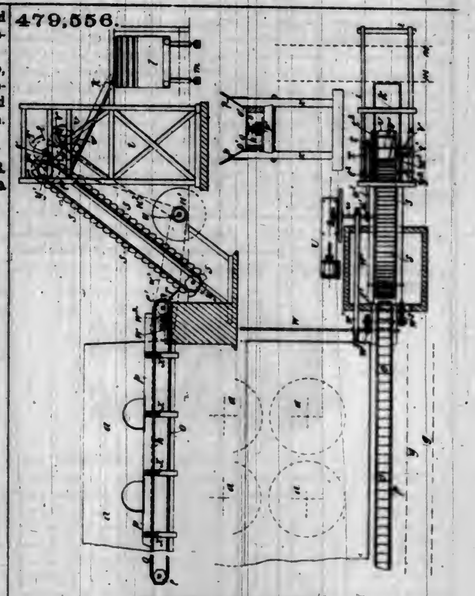
3. The combination, with a promissory note, of an envelope or pocket having an intervening flap by which the note is connected therewith, formed with reduced portions, substantially as described and shown.

4. The combination, with a promissory note, of an envelope or pocket connected therewith, having a slit in the body thereof through which the outer part of the note is inserted, and a separating-line of perforations between the note and the envelope or pocket, substantially as described and shown.

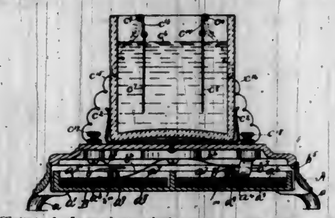
479,556. APPLIANCE FOR LOADING COKE. ARTHUR M. CHAMBERS and THOMAS SMITH, Chapeltown, England. Filed Aug. 4, 1891. Serial No. 401,694. (No model.)

Claim.—An apparatus of the class herein described, comprising the longitudinal trough *p*, fixed in front of a series of coke-ovens, angle-irons *o' o'*, arranged within the said trough, the horizontal traveling platform of plates partly supported upon the angle-irons *o' o'* and carried by the endless chain A, anti-friction rollers mounted beneath the said traveling platform and partly supporting the latter, the drums over which the endless chain passes, the shaft *w*, geared to one of the said drums and also to the steam-engine U, the chute *r* to conduct the coke from the horizontal carrier to the inclined carrier, with the upwardly-inclined carrier to receive the coke from the horizontal platform of plates, drums over which the said carrier passes, a drum *v*, having curved partitions to receive the coke from the inclined carrier and lower it onto the screen *k*, the shaft T, geared to the shaft of the upper drum of the inclined carrier, the gear-wheels f^6 and f^7, communicating motion from the inclined carrier to the drum *v*, and the engine U, connected by the belt u^6 with the shaft T, substantially as described.

479,556.



479,557. ELECTROPLATING TOY APPARATUS. EDWARD A. CLARK, Boston, Mass. Filed Mar. 16, 1892. Serial No. 425,064. (No model.)



Claim.—1. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base provided with a cover, contact-arms secured to the under side of the cover and co-operating with the positive and negative poles of the battery contained in said base, a jar or vessel attached to the cover on its upper side and adapted to contain an electrolytic solution, electrodes suspended within the said jar or vessel, and conductors connecting the said electrodes with the contact-arms on the under side of the cover, substantially as described.

2. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base provided with a cover, contact-arms secured to the under side of the cover and co-operating with the positive and negative poles of the battery contained in said base, a holder attached to the cover on its upper side, a jar or vessel detachably secured in said holder and adapted to contain an electrolytic solution, electrodes c^1 c^2, suspended in said solution, supports for said electrodes, and conductors connecting the said electrodes with the contact-arms on the under side of the cover, substantially as described.

3. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base consisting of the frame A, provided with the detachable cover b^4, a battery containing cell supported within said base and provided with two batteries, each consisting of two metal plates and interposed electrolytic material, contact-arms b^6 b^7 b^8, attached to the under side of the cover and co-operating with the positive and negative poles of the said batteries, binding-posts secured to the upper side of the cover and electrically connected to the contact-arms b^7 b^8, a jar or vessel attached to the upper side of the cover and provided with electrodes c^1 c^2, and conductors connecting the said electrodes with the said binding-posts, substantially as described.

4. In an electroplating toy apparatus, the combination of the following instrumentalities, viz: a battery-containing base consisting of

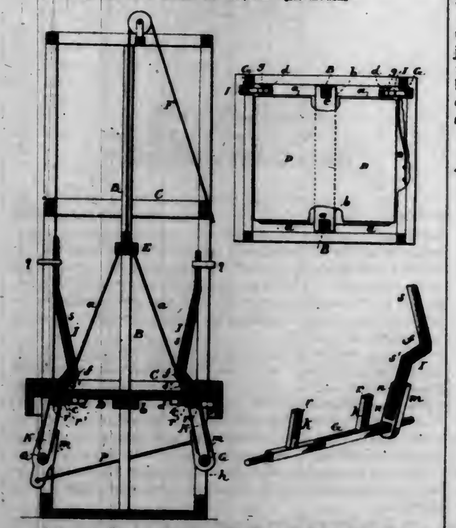
the frame A, provided with the detachable cover b^4, a battery-containing cell supported within said base and provided with two batteries, each consisting of two metal plates and interposed electrolytic material, contact-arms b^6 b^7 b^8, attached to the under side of the cover and co-operating with the positive and negative poles of the said batteries, binding-posts secured to the upper side of the cover and electrically connected to the contact-arms b^7 b^8, a holder attached to the upper side of the cover, a jar or vessel detachably secured in said holder, electrodes c^2 c^3 in said jar or vessel, supports for said electrodes, extended over the jar or vessel, and conductors connecting the said supports to the binding-posts, substantially as described.

479,558. OIL-BURNER. JOHN F. COATES, Terre Haute, Ind., assignor of five-sixths to Leo J. Weinstein, Edward Weinstein, and Isaac Pechheimer, same place. Filed Jan. 28, 1892. Serial No. 419,600. (No model.)



Claim.—In an oil-burner, the combination of a cylindrical body having an enlarged blast-receiving chamber or dome at one end, a dome-shaped tapering combustion-chamber located in the opposite end of said body and terminating in a flared mouth or orifice at the ignition end of the burner, an intermediate tubular passage between and connecting said chambers and provided with opposite intersecting spiral atomizing-grooves winding through said tubular passages and opening into said opposite chambers, an oil-supply pipe projecting within said blast-chamber and terminating at the center of the inner end of said tubular passage, and a suitable blast, substantially as set forth.

479,559. ELEVATOR. CHARLES W. COLLINS, Granite, Mont. Filed Apr. 19, 1892. Serial No. 429,774. (No model.)



Claim.—1. The combination, with the main frame of an elevator-well, of two opposite shafts having bearings in said frame, opposite chairs rigidly attached to said shafts, opposite arms provided with inwardly-projecting offsets and rigidly connected with said shafts, a cage provided with hoisting mechanism and constructed to impinge against said offsets and press outward said opposite arms, and devices for pressing inward said arms and chairs, substantially as and for the purposes described.

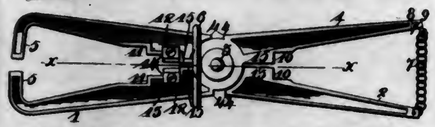
2. The combination, with a main frame, of the opposite shafts G, shoes *m*, rigidly connected therewith, arms I, provided with offsets *f* and rigidly and adjustably secured to said shoes, chairs *k*, rigidly secured to said shafts, devices for pressing inward said arms and chairs, a cage provided with a platform, and arms projecting from said platform and provided with bearing-pieces in position to impinge against the offsets of arms I, substantially as set forth, for the purposes described.

479,560. HEEL FOR BOOTS OR SHOES. NATHANIEL S. DRAKE, Pittsfield, N. H. Filed Feb. 8, 1892. Serial No. 420,180. (No model.)



Claim.—As an improved article of manufacture, a heel-blank comprising a block or plug having a shoulder b^3 and an inner concave heel-seat depression b^3, skeleton lifts of varying widths surrounding said block or plug, and one or more tread-lifts applied to the block or plug and secured by fastenings passing through the tread-blanks and skeleton lifts outside of the edges of the block or plug, said skeleton lifts being arranged to bring the greatest body of leather toward the tread of the heel-blank, substantially as described.

479,561. COMBINATION WIRE-FENCE TOOL. STEPHEN M. FORBES, St. Louis, Mo. Filed Mar. 7, 1892. Serial No. 424,041. (No model.)



Claim.—1. The improved wire-fence tool comprising pivoted members 1 and 2, having opposite clamping-jaws 15 15 located adjacent to the fulcrum thereof and the adjacent ends of said members at one end of the tool turned inwardly to form opposite lugs 5 5, and a chain 7, adapted for connection with the ends of the members at the end of the tool opposite the ends carrying said lugs, substantially as described.

2. The improved wire-fence tool comprising two members pivoted together at approximately the center and formed at two of their adjacent ends with inturned opposing lugs, said members being provided with clamping-jaws 15, recesses 10 and 11, and cutters 12, a clamping-loop 6, embracing said members, and a chain 7 for connecting the ends of the members opposite said inturned lugs, all arranged substantially as and for the purpose set forth.

479,562. MACHINE FOR CLEANING AND PEELING VEGETABLES. FREDERIC GROSS, Naples, N. Y. Filed Nov. 18, 1891. Serial No. 412,282. (No model.)



Claim.—1. The herein-described machine, consisting of a containing-vessel, a shaft mounted within said vessel and provided with polygonal bars, a frame or spider also mounted within the vessel and provided with polygonal bars, and gearings, substantially such as described and shown, for causing the two sets of bars to travel about the shaft simultaneously in opposite directions.

2. In a vegetable-peeling machine, the combination of a containing-vessel, polygonal bars located near the walls of said vessel, a rotary shaft, and polygonal bars carried by said shaft and adapted to move past the polygonal bars placed near the walls of the vessel.

3. In combination with a vessel provided near its walls or surface with polygonal bars or ribs, a rotary frame and yielding polygonal bars carried by said frame and adapted to move past the polygonal bars placed near the walls or surface of the vessel.

4. In combination with vessel A and with grooved, fluted, or polygonal bars *i*, shaft C, provided with slotted bars E and F, polygonal bars G, extending between the bars E and F, and springs *g*, bearing against the bars G and affording a yielding support therefor.

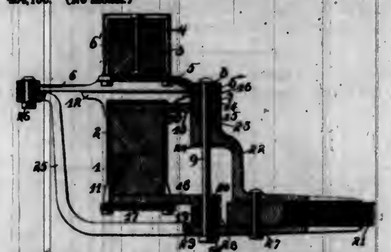
5. In combination with vessel A, shaft C, and slotted bars E F, polygonal bars G, extending between the bars E F, and clamping-screws A, serving to hold the bars G with any required degree of friction.

6. In combination with vessel A and shaft C, horizontal bars E F, and polygonal bars G, the bar F having its upper face beveled or inclined to pass beneath and lift the vegetables within the vessel.

7. The herein-described machine for washing and peeling vegetables, consisting of vessel A, provided with cover B, shaft C, located centrally within said vessel, bars E F, carried by shaft C, polygonal bars G, extending between the bars E F, spider I, loosely mounted upon shaft C and provided with bars *i* and annular gear-ring *j*, pinion J, and gear-wheel K, for imparting motion to the spider and the bars *i*, all substantially as set forth.

8. In a machine for peeling vegetables, the combination, with a containing-vessel, of a rotary frame within the vessel and yielding polygonal bars carried by said frame and adapted to act upon and remove the skin from the vegetables.

479,563. FIFTH-WHEEL. WILLIAM J. HUBER, St. Louis, Mo., assignor of two-thirds, by mesne assignments, to the St. Louis Carriage Manufacturing Company, same place. Filed Mar. 8, 1892. Serial No. 424,136. (No model.)



Claim.—1. As an improvement in fifth-wheels of the class described, the combination, with the head-block, axle-bed, axle, and reach, of a plate 5, secured to the head-block and carrying the circular plate 6, said plate 5 being provided with a rearward extension 6*, having in the under side of its free end a socket 7, a plate 10, secured to the axle-bed and provided at its ends with bearings 12 and centrally with a rearwardly-projecting extension 13, carrying upwardly and downwardly projecting extensions 14 and 15, respectively, a rearwardly-projecting plate 17, provided at its free end with a downwardly-projecting extension 19, a reach-iron 22, provided in its upper end with a socket 23, a brace 25, provided with an upward extension 28, formed with a socket 29, the free end of said brace being bolted to the circular plate 6, and a king-bolt 9, passing through the bearings of the plates 5, 10, and 17 and the brace 25, all arranged and adapted to operate substantially as and for the purpose set forth.

2. A fifth-wheel having plates, such as 10 and 17, attached to the axle and axle-bed, respectively, the upper of which is provided with two conical-shaped projections projecting in opposite directions, a downwardly-projecting conical-shaped extension formed on the lower of said plates, a brace carried by the reach and provided with a conical-shaped socket adapted to receive the lower of said conical-shaped projections, a reach-iron secured to the upper surface of the said reach and provided with a conical-shaped socket which is adapted to receive the downwardly-projecting socket carried by the plate 10, and a plate 5, secured to the front block 3 and provided with a conical-shaped socket adapted to receive the upper projecting conical-shaped extension carried by the said plate 10, substantially as described.

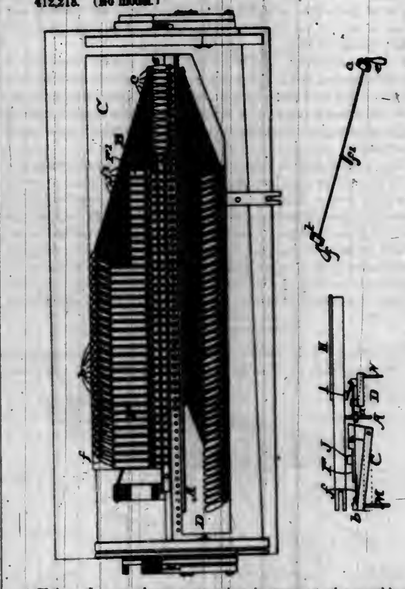
479,564. TROUSERS. SUMNER A. ISAACSON, Boston, Mass. Filed Mar. 30, 1892. Serial No. 426,719. (No model.)

Claim.—Trousers comprising in their construction a waistband pocket or hem and a gore at the back, a belt formed of two parts arranged in said pocket or hem, the rear ends of the two parts being reduced to form narrow tongues, one of which passes through a slot near the rear end of the other part, the extreme rear ends of the tongues being attached to the trousers material each side of the gore,



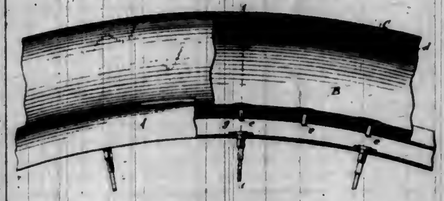
and means for adjustably securing the front ends of the two parts of the belt together, as set forth.

479,565. REED-ORGAN. JOHN H. LANE, Cleveland, Ohio, assignor to Franklin L. Raymond, same place. Filed Nov. 17, 1891. Serial No. 412,218. (No model.)



Claim.—In a reed-organ or other instrument, the combination, with a double-octave attachment, of the half-levers F and rollers B, provided with the middle arm f^3, substantially as and for the purpose set forth.

479,566. VEHICLE-WHEEL. BENJY G. LATTA, Friendship, N. Y. Filed Jan. 16, 1892. Serial No. 418,263. (No model.)



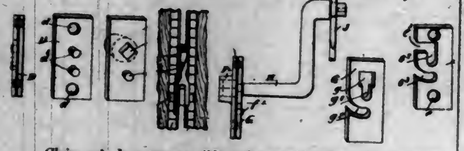
Claim.—1. A pneumatic tire consisting of an inner inflatable air-tube and a flexible envelope having overlapping edges, one of said edges being provided at intervals with studs or projections and the other with openings which receive said studs or projections, whereby the overlapping edges are united and positively held against longitudinal displacement on each other, substantially as set forth.

2. The combination, with a wheel-rim provided in its face with openings or recesses, of an inflatable tire composed of an inner air-tube and an envelope having its edges separably united by studs or projections which enter the openings of the rim, substantially as set forth.

3. The combination, with a wheel-rim having a concave face pro-

vided with openings or recesses, of an inflatable tire composed of an inner air tube or chamber and a surrounding envelope having overlapped edges separably united by studs or projections which enter the openings of the rim, substantially as set forth.

479,567. TRANSOM-LIFTER. JAMES M. MADDOX, Birmingham, Ala. Filed Aug. 5, 1891. Serial No. 401,743. (No model.)

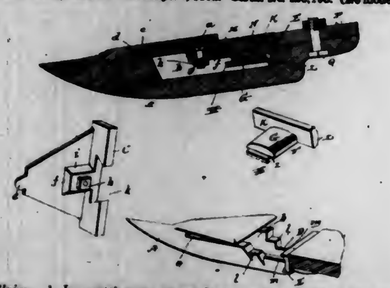


Claim.—1. In a transom lifter, the combination, with a pivoted transom, of guide-pins projecting from the ends of the transom and working in ways in the frame in which the transom is pivoted, substantially as described.

2. The combination, with a transom and the frame in which it is hung, of plates secured in the frame and provided with vertical slots and with curved slots below the vertical slots and plates secured to the ends of the transom, said plates being pivoted in the vertical slots and having projecting pintles extending into the curved slots, substantially as described.

3. In a transom-lifter, the combination, with a transom having one end pivoted, as described, and having the opposite end provided with a plate with a squared opening therein and a projecting pintle thereon, of a plate secured in the door-frame opposite the transom-plate, said plate having a squared opening in its upper end with a vertical slot beneath the opening, and a curved slot to receive the pintle of the transom-plate, a crank mounted in the vertical slot of the frame-plate and having a squared end extending into the opening of the transom-plate, and means for turning the crank, substantially as described.

479,568. HARVESTER-CUTTING APPARATUS. GOTTLIEB MINCHLER, Rock Island, Ill. Filed Apr. 7, 1892. Serial No. 428,193. (No model.)



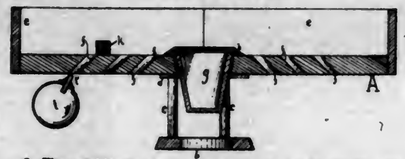
Claim.—1. In a cutting apparatus for harvesters, the combination, with a guard-finger recessed, as described, of a lower cutting-knife, a block secured to the under side thereof and adapted to enter the recess of the guard-finger, and also having a dovetail recess to engage the lugs or shoulders of said finger, and a locking-key having its horizontal portions provided with a lip or projection to enter the recess in the guard-finger and within the dovetailed recess of said block or head, and also having a cross branch, so as to be interposed between the rear edge of the lower cutting-knife and the finger-bar, substantially as specified.

2. The guard-finger recessed, as described, and having the shoulders in rear of the knife-slot and also having the vertically-disposed curved wall or flange in rear of the recess, in combination with the lower knife, the cross bar or block secured to the rear under side thereof and having a dovetail recess to engage said shoulders or lugs of the guard-finger, and the key having its horizontal branch rabbeted in its under longitudinal sides and recessed so as to form a projection at its forward end and also having the transverse branch beveled on its rear side, said key being interposed between the block or head carrying the lower knife and the rear curvilinear wall or flange of the finger-bar, so as to lock said branch forwardly in its seat, substantially as specified.

479,569. GAME-BOARD. EDWIN L. MCCONAUGHY, Philadelphia, Pa. Filed Sept. 17, 1891. Serial No. 406,018. (No model.)

Claim.—1. A game-board having a flat top, a border-wall, numerous air-shafts extending upward through the board to its upper surface and all inclined toward the goal, so that when one of the objects is displaced by an air-jet it will be likely to fall in front of another of the numerous air-shafts with which the surface is covered and so be in position for another play unless it is forced into the central goal on the first play, substantially as described.

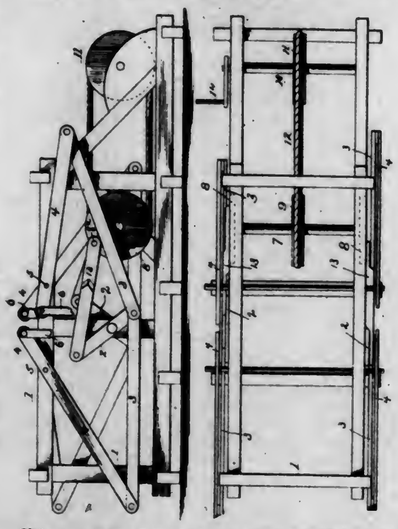
2. The combination of a game-board having a flat top, a border-wall, a central removable depressed cup, and many air-shafts extending upward through the board in an oblique direction, all inclined toward the center, so as to direct the air-jet from the ball-blower toward the objects to be blown into the central goal, with the blocks to be blown by the air-jet, substantially as described.



3. The combination, in a game-board, of a table having a flat top without grooved paths, a border-wall, a central removable depressed cup, and many air-shafts extending upward through the board, all inclined toward the goal, with a fixed pedestal or support to elevate the table for the purpose of allowing of the introduction of the blower underneath the board, and a hollow gum ball-blower, and blocks on the upper surface, substantially as set forth.

4. The combination, in a game-board having a flat top free from grooved paths or many-cupped stations, a central removable depressed cup with a solid bottom for receiving the numerous blocks to be blown into it by air-jets from the many oblique air-shafts that extend upward through the board and converge toward the center, with the blocks on the upper surface, substantially as set forth.

479,570. MOTOR. ROBERT F. NICHOLS, Sr., Alturas, Cal. Filed Oct. 8, 1891. Serial No. 408,184. (No model.)

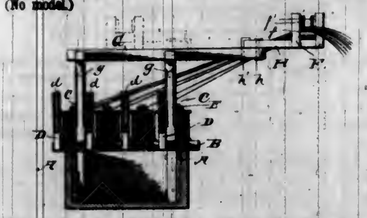


Claim.—1. In an apparatus for actuating pump-pistons and the like, the combination, with the main frame and a piston-rod, of the lever 4, pivotally connected to the frame at an intermediate point in its length and pivotally connected at its upper end to the piston-rod, the vibrating lever 2, pivotally connected to the frame at an intermediate point of its length, a link 3, connecting the lower ends of the levers 2 and 4, a transverse rotary shaft carrying a crank-wheel 8 at one end, a pitman 13, pivotally connected at one end to the crank-wheel 8, off the center thereof, and pivotally connected at its opposite end to the upper end of the vibrating lever 2, and a suitable means for rotating the rotary shaft carrying the crank-wheel, substantially as specified.

2. In an apparatus for actuating pump-pistons and the like, the combination, with the main frame and two piston-rods, of the levers 4, pivotally connected to the frame at an intermediate point in their length and pivotally connected at their upper ends to the piston-rods, the vibrating lever 2, pivotally connected to the frame at an intermediate point of its length, the links 3, connecting the lower end of the lever 2 and the lower ends of the levers 4, a transverse rotary shaft carrying a crank-wheel 8 at one end, a pitman 13, pivotally connected at one end to the crank-wheel 8, off the center thereof, and pivotally connected at its opposite end to the upper end of the vibrating lever 2, and a suitable means for rotating the rotary shaft carrying the crank-wheel, substantially as specified.

3. In an apparatus for actuating pump-pistons and the like, the combination of the main frame, the transverse shafts 7, journaled in the main frame and carrying fixed pulleys, a crank-wheel 8, fixed on the ends of the respective shafts 7, the levers 4, pivotally connected to the main frame on opposite sides of each crank-wheel, the piston-rods pivotally connected to the upper ends of the levers 4, the vibrating levers 2, pivotally connected to the main frame on opposite sides of each crank-wheel, the links 3, connecting the lower ends of the levers 2 and the lower ends of the levers 4, the pitmen 13, pivotally connected at one end to the crank-wheels 8, off the center thereof, and pivotally connected at their opposite ends to the upper ends of the vibrating levers 2, the drive-shaft 10, arranged between the shafts 7 and carrying a pulley-wheel, an endless belt taking around the pulley-wheel of the shafts 7 and 10, and a suitable means for rotating said shafts 10, substantially as and for the purpose set forth.

479,571. WIRE-DISTRIBUTER FOR WIRE FENCES. HENRY C. PRATT, Canandaigua, N. Y. Filed Nov. 12, 1891. Serial No. 411,717. (No model.)



Claim.—1. A wire-distributer provided with rows of spool-supports located in different transverse planes and a delivery-guide and open slotted wire-guides secured in position intermediate the spool-supports of the row adjacent to the delivery-guide, substantially as described.

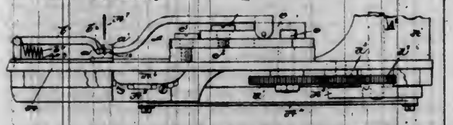
2. In a wire-distributer, the combination, with the spool-supports and open slotted guides extending above the tops of the spools, of the elevated delivery-guide, a support for the same, and adjusting means for securing said guide rigidly in relation to said support in different positions, substantially as described.

3. In a wire-distributer, the combination, with the spool-supports, of the delivery-guide, a support for the same, and securing means for holding said guide normally in fixed relation to its support, but permitting it to yield when engaged by an obstacle, substantially as described.

4. In a wire distributer, the combination, with the spool-supports, of a delivery-guide, a support for the same, said guide being pivotally secured to said support, and a retaining device adapted to hold said guide normally in fixed position with its support by frictional contact with a part connected with said guide, whereby said guide is permitted to disengage said retaining device and swing on said pivot when engaged by an obstacle, substantially as described.

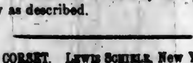
5. In a wire-distributer, the combination, with the spool-supporting spindles, of the elevated supporting-bar, the supplemental arm pivotally connected thereto intermediate its ends, the hook-bolt frictionally engaging one end of said supplemental arm, and the delivery-guide secured to the other end of said arm, substantially as described.

479,572. SEWING-MACHINE FOR FINISHING BUTTONHOLE-PIECES. JOHN REECE, Boston, Mass. Filed Sept. 5, 1887. Serial No. 248,857. (No model.)



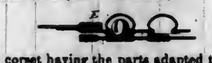
Claim.—In a sewing-machine for stitching thrum ends, the combination of the following instrumentalities, viz: a feeding device arranged above the bed-plate and to engage the material, a vertically-reciprocating eye-pointed thread-carrying needle and complemental stitch-forming devices, devices to actuate the said feeding and stitch-forming devices to form an overseaming or zigzag stitch, a work-holder movable longitudinally in a horizontal plane, and a guide-block supported on the bed-plate and having a longitudinal groove or recess within the path of the needle and above the cloth-plate and disposed thereto so that a line perpendicular to the base of said groove is parallel with the cloth-plate, the said horizontally-movable work-holder bending the material into the groove or recess of the said guide-block, thus enabling the needle at one thrust to enter and pass out from the material at the same side and between the right face of the material and the stay-cord and thrum ends, the needle at another thrust or descent passing the material outside the stay-cord and thrum ends and making a stitch to cross and hold the stay-cord and thrum ends in place, substantially as described.

479,573. CORSET. LEWIS SCHIELE, New York, N. Y. Filed Apr. 4, 1892. Serial No. 427,664. (No model.)



Claim.—In a corset, the front edges of the two parts constructed each part with a stay at the meeting edge and with a second stay parallel therewith, but distant therefrom, so as to leave a flexible portion between the two stays of each part, combined with a series of studs on said flexible portion of one part and corresponding series of sockets on the said flexible portion of the other part, substantially as described.

479,574. CORSET. LEWIS SCHIELE, New York, N. Y. Filed Apr. 4, 1892. Serial No. 427,665. (No model.)



Claim.—A corset having the parts adapted to meet at the front, one part at the front having a stay A at the edge, and a second stay B distant therefrom and parallel therewith, so as to leave a flexible portion C between the two stays, the other part constructed with flexible straps projecting therefrom, the said straps on the one part and the flexible portion on the other part provided the one with studs and the other with corresponding sockets, the said sockets being adapted to set upon the studs and engage therewith, substantially as and for the purpose described.

479,575. SPOON-BAIT. GARDINER M. SKINNER, Clayton, N. Y. Filed Dec. 10, 1890. Serial No. 374,135. (No model.)



Claim.—1. A draw-wire for a trolling spoon-bait, consisting of a single piece of wire bent to form a closed eye at the top and bent at the bottom to form a ring closed by the crossing of the wire, and bent to form the outwardly-projecting angles above the ring and having a hook upon its free end detachably engaging with the main wire, as set forth.

2. A draw-wire for a trolling spoon-bait, consisting of a single piece of wire provided with a closed eye at the top and bent at the bottom to form a ring, then crossed and bent outwardly on both sides, then bent inwardly and again crossed, then bent outwardly on both sides, and then bent inwardly, the free end being bent to form a hook adapted to fit over the body of the wire detachably, as set forth.

3. A draw-wire for a trolling spoon-bait, consisting of a single piece of wire provided with a closed eye at the top and bent at the bottom to form a ring, then crossed and bent outwardly on both sides, then being inwardly and again crossed on the opposite side to the first crossing, then bent outwardly on both sides, and then bent inwardly with a hook upon the free end adapted to fit over the body of the wire detachably, as set forth.

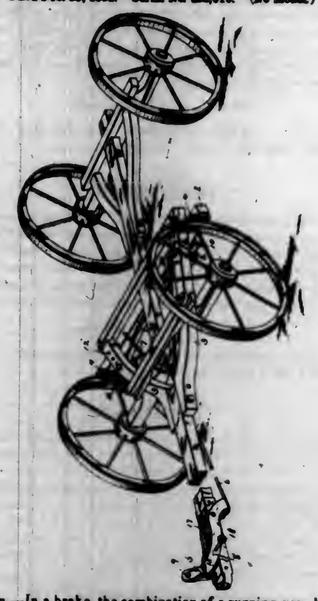
479,576. LETTER-BOX. JAMES SPEAR, Philadelphia, Pa. Filed Nov. 19, 1891. Serial No. 412,490. (No model.)



Claim.—A mail-box having separate compartments, a casing at

the top and side of the upper compartments, forming with the back walls of said compartments a throat to said lower compartment, a door for said throat above said compartments, said throat entering said lower compartment at the rear portion of the top thereof, and said lower compartment extending in rear of the upper compartments, said parts being combined substantially as described.

479,577. AUTOMATIC BRAKE. JERRY M. STOUT, Howe's Valley, Ky. Filed Feb. 26, 1892. Serial No. 422,810. (No model.)



Claim.—In a brake, the combination of a running-gear having its front bounds provided with perforations, keepers arranged on the lower faces of the front bounds and provided with perforations, and a plate arranged at the front end of the tongue and provided with a projection, of a brake-bar arranged in the keepers and provided with brake-shoes, a spring centrally secured to the brake-bar and having its ends arranged in the keepers, pins arranged in perforations of the front bounds and the keepers to regulate the tension of the spring, and a brake-lever having a longitudinal opening to receive the tongue and fulcrumed on the same and connected with the brake-bar and provided at its upper end with a latch to engage the said projection, substantially as described.

479,578. SAFETY-GUARD FOR SCARF-PINS, STUDS, &c. WARREN R. TROTT, Brooklyn, N. Y. Filed Nov. 12, 1891. Serial No. 411,692. (No model.)

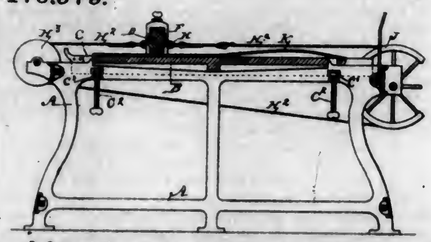


Claim.—A safety guard for securing scarf-pins, studs, brooches, and similar articles, consisting of a plate having a slot in one end, an eye attached to one side of said plate, and a spring-snap attached to the other side of the plate and extended normally across said slot to engage and fasten the shank of a pin or stud passed through the slot, substantially as described.

479,579. PRINTING-PRESS. AUGUSTUS W. VADNER, Stuart, Iowa. Filed July 23, 1891. Serial No. 400,519. (No model.)

Claim.—1. In combination with the bed of a printing-press, a tympan-frame having its parallel side portions formed of curved elastic material and the lower end of the tympan pivotally connected with a part of the press, to operate in the manner set forth, for the purposes stated.

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2. In a printing-press, in combination with a bed and a supporting-frame, tracks adjustably connected with the sides of the frame, a cylinder carried in bearings fixed to said tracks, means for securing an adjustable pressure between the cylinder and the bed, means for reciprocating the cylinder over the bed, and a tympan-frame having elastic curved sides pivotally connected with the said tracks, for the purposes stated.

3. A hand printing-press consisting of a supporting-frame A, a bed B, adjustable tracks C, a roller D, frames F, the adjustable blocks F^3, portions F^2, projecting from the frames, having the guide-wheels F^4 journaled therein, a connecting-bar H, a belt H^3, a belt-wheel H^2, and a crank-wheel J, adapted to admit the belt, and the tympan K, constructed and combined, substantially as described, to operate in the manner set forth, for the purposes stated.

479,580. SOLUBLE CHOCOLATE. SERVETUS T. ASHOR, Brooklyn, N. Y. Filed Feb. 6, 1892. Serial No. 420,555. (No specimens.)

Claim.—1. A cake composed of chocolate, cream, and sugar and having incorporated therewith such an additional amount of sugar as will render the cake readily disintegrable in water, substantially as described.

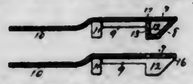
2. A cake composed of chocolate, cream, and sugar and having incorporated therewith such an additional amount of sugar as will render the cake readily disintegrable in water and provided with a protective coating.

3. A cake composed of chocolate, cream, and sugar and having incorporated therewith such an additional amount of sugar as will render the cake readily disintegrable in water and provided with a protective crystalline saccharine coating.

479,581. PROCESS OF MAKING SOLUBLE CHOCOLATE. SERVETUS T. ASHOR, Brooklyn, N. Y. Filed Feb. 6, 1892. Serial No. 420,554. (No specimens.)

Claim.—The process of forming a chocolate compound readily soluble in water, which consists in first making a paste of chocolate or cocoa, cream, and sugar, then incorporating an additional amount of sugar, molding to form cakes, immersing such cakes in a thick sirup to obtain a crystalline coating, and then drying the cakes, as set forth.

479,582. SHEET-METAL LATCH-BOLT. HOWARD D. ALLEN, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Feb. 1, 1892. Serial No. 419,856. (No model.)



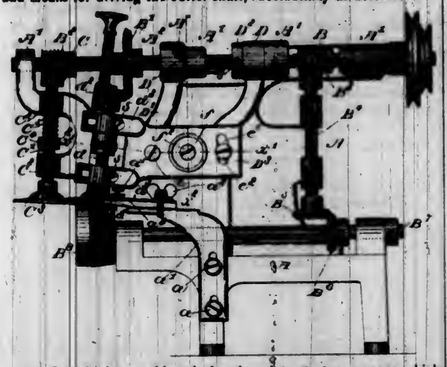
Claim.—The herein-described latch-bolt, consisting of a main portion having side wings 12, bent up from a connected back, and an angular finishing-piece set in between said wings and secured to said back, substantially as described, and for the purpose specified.

479,583. LEATHER-SKIVING MACHINE. CHARLES H. BAILEY, Boston, Mass. Filed Mar. 17, 1892. Serial No. 425,341. (No model.)

Claim.—1. In a leather-skiving machine, the following instrumentalities, viz: a rotatable support or feed-wheel, a cutter-shaft provided with a disk cutter, a rotating driving-shaft, gearing between it and the cutter-shaft to rotate the latter, a swing-frame in which the cutter-shaft has its bearings, and bearings for the said swing-frame, parallel to the center of rotation of the said work-support or feed-wheel, the frame being hung from said bearings and about which it is free to be oscillated as a center, as and for the purposes set forth.

2. In a leather-skiving machine, the main shaft, its attached bevel-gear, a swing-frame composed of a hanger and bearings therefor concentric to said main shaft, whereby said hanger is free to be oscillated about the center of rotation of the said main shaft, and of a bearing-plate D^2, pivotally connected therewith, of a work-support, a cutter-shaft mounted in bearings in the said bearing-plate, a disk cutter attached to said cutter-shaft, and a bevel-gear on said cutter-shaft in mesh with the bevel-gear on the driving-shaft, and devices to adjust the said swing-frame about the center of rotation of the main shaft, the center of rotation of the cutter-shaft being always radial to the center of rotation of the driving-shaft, substantially as and for the purposes set forth.

3. In a leather-skiving machine, the bearing-plate, means to support it, a shaft mounted in bearings on the said bearing-plate, and adjustable caps for the said bearings, and a disk cutter on said shaft, combined with set-screws and adjustable stops for said to act upon said caps, whereby wear on the cutter-shaft may be compensated for, and means for driving the cutter-shaft, substantially as described.



4. In a skiving-machine, the bearing-plate, the hanger upon which it is adjustably mounted, the cutter-shaft having a disk cutter and a bevel-gear, means to rotate the said shaft, a collar on the cutter-shaft, a slide-plate pronged to embrace the cutter-shaft, a threaded spindle to adjust the slide-plate, and devices to compensate for wear between portions of the spindle and the bearing-plate, substantially as described.

5. In a skiving-machine, the hanger, means to support it, and the bearing adjustably mounted thereon and adapted to receive and support the cutter-shaft, and means to rotate said shaft, combined with a hollow screw, and an abutment against which the inner end of the set-screw acts, and a set-screw extended through the said hollow screw, to operate substantially as described.

6. In a skiving-machine, a driving-shaft and bearings therefor, combined with a cutter-shaft, its cutter, and bearings therefor pivotally supported to rotate about the axis of rotation of the driving-shaft, whereby the axis of said cutter-shaft is made to intersect and adapted to be radially adjustable about the axis of the said driving-shaft, and actuating connections between said driving and cutter shafts, substantially as described.

479,584. OPERATING MECHANISM FOR RAILWAY-SWITCHES. ARTHUR BURBY, Philadelphia, Pa. Filed Aug. 22, 1891. Serial No. 403,411. (No model.)

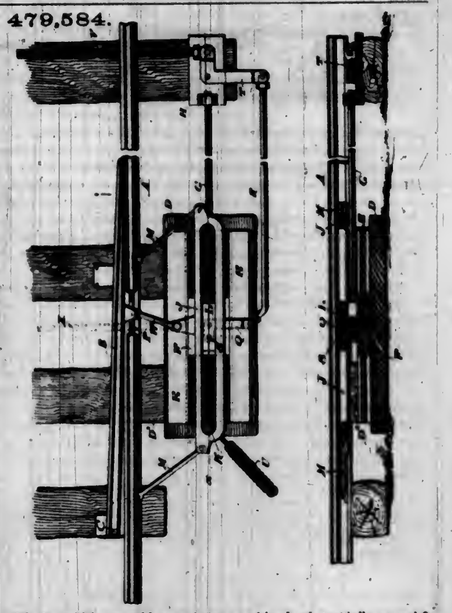
Claim.—1. A movable track-rail, a bar linked to said track-rail and to a fixed support, a block movable on and controlled by said bar, a movable support, and a lever fulcrumed to said movable support and connected with said block, said parts being combined substantially as described.

2. The combination of a movable support, a lever pivoted thereto, a slotted bar, a block movable in said slot and pivoted to said lever, parallel arms connected to said bar, and an expansible and contractile rod G, connected with said movable support and said lever, substantially as described.

3. The combination of a movable track-rail, a main rail, a base with guides thereon, a block movable in said guides and having one end of a rod connected therewith, the other end of the said rod having a fixed connection, a lever pivoted to said block, an operating-rod connected with said lever, a slotted bar connected by parallel arms of equal length to said main rail and by a pivoted bar to said movable track-rail, and a block fitted and moving in said slotted bar and pivotally connected to a limb of the said lever, substantially as and for the purpose described.

4. A compensator for the operative mechanism of a switch, semaphore, gate, &c., consisting of a block fitted and freely moving in suitable stationary guides, thereby forming a movable fulcrum, a lever mounted on said fulcrum, a rod connected therewith, and a rod secured to said block of substantially equal length to the rod connected with the said lever, said parts being combined substantially as and for the purpose set forth.

479,584.



5. A movable track-rail, a main rail, a bar connected with said main and movable track-rails and adapted to operate the latter, a fixed base with a block movable thereon, an elbow-lever pivoted to said block and to a second block guided on said bar, an operating-rod connected with said angle-lever, and a compensating rod, of substantially equal length to the said operating rod, secured at one end to said first block and at its other end having a stationary support, said parts being combined substantially as described.

479,585. HEAD-REST. ROBERT R. CHERRINGTON, Hyde Park, Mass. Filed Oct. 12, 1891. Serial No. 408,419. (No model.)



Claim.—1. In a head rest, a recessed base-block, risers or supports at each side thereof, and a top cushion supported by said risers or supports, combined with upholstery, as a^2, with which the recess in the base-block is filled, substantially as described.

2. The recessed base-block and upholstery with which said recess is filled and two yielding risers or supports *b*, one at each side of said block, combined with the strip *c*, connecting the upper ends of said risers, upholstery *g*, and a covering *g'*, inclosing said upholstery and the risers or supports to form a top cushion, said covering being secured at its lower edge to the base-block, substantially as described.

3. The recessed base-block and upholstery with which said recess is filled and two spring acting risers or supports *b*, one at each side of said block, and the strip *c*, connecting the upper ends of said risers, combined with side cushions or rolls *f*, upholstery *g* between them, and the covering *g'*, inclosing said rolls and upholstery and extended over the risers to the base-block and secured thereto at its lower edge, substantially as described.

479,586. HOT-AIR REGISTER. RICHARD S. T. CHEEK, Elizabeth, N. J. Filed Dec. 22, 1890. Serial No. 376,444. (No model.)

Claim.—1. In a hot-air register, the combination, with a support-

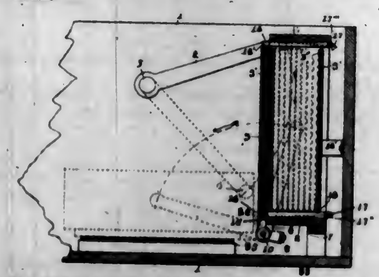
479,586.



ing-frame having an angularly-recessed boss, of slats pivoted to said frame, a governing-rod pivoted eccentrically to said slats, an operating-lever pivoted to the governing-rod, a screw-pivot passed through the supporting-frame and the shank of the operating-lever, a nut engaging said screw-pivot, and a centrally-perforated sheet-metal box passed over said screw-pivot and lying between the operating-lever and the nut within the recessed boss of the supporting-frame, said box having upturned flanges embracing the sides of the nut and a concentric flange on its under side, substantially as described.

2. In a hot-air register, the combination of a supporting-frame having an angularly-recessed boss, slats pivoted to said frame, a governing-rod pivoted eccentrically to said slats, an operating-lever pivoted to the governing-rod, a screw-pivot passed through a slot in the supporting-frame and the shank of the operating-lever, a nut engaging said screw-pivot, and a centrally-perforated sheet-metal box passed over said screw-pivot and lying between the operating-lever and the nut and seated in the recessed boss of the supporting-frame, said box having upturned flanges embracing the sides of the nut and provided upon its under side with a central bushing surrounding the screw-pivot and a raised concentric flange exerting a frictional action on the operating-lever, substantially as described.

479,587. MAGAZINE-CAMERA. STEPHEN C. FAY and HENRY WILLIS, Rochester, N. Y. Filed Jan. 16, 1892. Serial No. 418,286. (No model.)



Claim.—1. The combination, in a camera, of the case, the plate-transferring frame, the magazine-holder, the shaft secured in the case, both the frame and the holder being pivotally supported by arms on the shaft and adapted to be rocked by said shaft in the same direction, with mechanism for independently turning said holder on its arm-pivots, whereby opposite sides of the holder can be successively brought in contact with the frame, substantially as set forth.

2. The combination, in a camera, of a case, the plate-transferring frame, the magazine holder, the shaft secured in the case, both the frame and holder being pivotally supported by arms on the shaft and adapted to be rocked by said shaft in the same direction, with mechanism for independently turning said holder on its arm-pivots, whereby opposite sides of the holder can be successively brought in contact with the frame and support 7, substantially as set forth.

3. The combination, in a camera, of the pivoted plate-transferring frame, the magazine-holder pivotally supported in swinging arms, said arms, devices for turning the holder on its pivotal supports in the arms, spring-catches secured in the holder to engage the edges of the front and rear plates, and a spring-follower to push the plates through the magazine-holder, substantially as set forth

4. In a camera, the combination of a case, a magazine-holder provided with arms pivotally connected thereto near its top and to the case of the camera, and a rocking shaft provided with arms pivotally connected to said holder near the center of its sides, whereby said holder can be simultaneously lowered and turned on a longitudinal axis, substantially as set forth.

5. In a camera, the combination of a case, a magazine-holder provided with arms pivotally connected thereto near its top and to the case of the camera, and a rocking shaft provided with arms pivotally connected to said holder near the center of its sides, whereby said holder can be simultaneously lowered and turned on a longitudinal axis, said holder having plate-engaging spring-catches 17, substantially as set forth.

6. In a camera, the combination of a case, a magazine-holder provided with arms pivotally connected thereto near its top and to the case of the camera, and a rocking shaft provided with arms pivotally connected to said holder near the center of its sides, whereby said holder can be simultaneously lowered and turned on a longitudinal axis, said holder having plate-engaging spring-catches 17 to retain the plates at the rear of the holder, substantially as set forth.

7. In combination, the camera box or case, a shaft supported therein, the transfer-frame loosely connected with said shaft, the magazine or holder loosely supported on said shaft, the clutch for alternately fixing the said frame and holder on the shaft, and devices for turning the shaft, substantially as set forth.

8. The camera-box provided with a cushion 35, in combination with the pivoted plate-transferring frame, the pivoted magazine-holder provided with spring-catches, and mechanism for moving the holder to cause the catches to engage a plate in the transferring-frame at rest upon the cushion, substantially as set forth.

9. The transfer-frame provided with spring-catches, each having an inclined projection 17′ and extension 17‴, in combination with the magazine-holder having studs 17‴ on its rear arranged to engage said extensions and move the spring-catches when the holder is placed upon the frame, and devices for bringing the frame and said holder together successively on opposite sides of the latter, whereby said spring-catches are first made to engage a plate in front of the holder and whereby said studs subsequently release the catches, substantially as set forth.

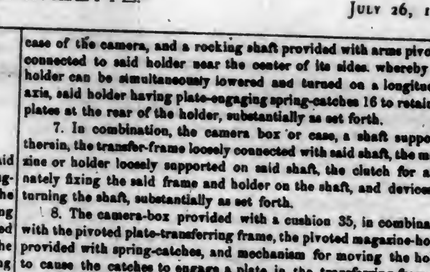
479,588. HANDLE FOR WASH-BOILERS. JAMES I. FLANAGIN, Philadelphia, Pa. Filed Mar. 5, 1892. Serial No. 423,554. (No model.)



Claim.—1. A handle for a wash-boiler, consisting of ears with sockets at their ends and adapted to be secured to said boiler, a grip with its ends fitting in said sockets, and a rod extending through openings in the said grip and sockets and having angular limbs at its ends outside of said sockets extending over the ears and embracing the same and are fixed thereto, substantially as described.

2. A handle for a boiler, consisting of metallic ears formed of open sides having sockets at their ends, a hollow wooden grip with its ends fitting in said sockets, and a rod passing through said grip and sockets and having limbs at its ends extending along the open sides and rigidly secured thereto, said parts being combined substantially as described.

479,589. FLOUR-BOLT. CLARK S. FULLER, Lafayette, Ind., assignor, by mesne assignments, to the Geo. T. Smith Middlings Purifier Company, Jackson, Mich. Filed July 27, 1883. Serial No. 102,042. (No model.)



Claim.—1. In a flour-bolt, the combination of reel-heads, longitudinal ribs connecting the reel-heads, a bolting-cloth supported upon the reel-heads and by the longitudinal ribs intermediate of the reel-heads and having an uninterrupted inner surface, and lifting plates or buckets mounted within the reel and having their outer edges out of contact with the bolting-surface, substantially as set forth.

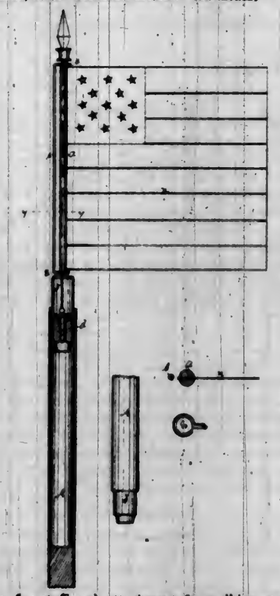
2. In a flour-bolt, the combination of a rotary reel having an uninterrupted inner surface, a deflector within the reel adapted to direct material to the bolting-cloth, and a series of intermediate longitudinal lifting plates or buckets secured to and revolving with the reel, their outer edges slightly separated from the bolting-surface, substantially as set forth.

3. A flour-bolt provided with a series of elevators arranged inside of the cloth with their outer edges at short distances from the cloth, in combination with a deflector which projects above the axis of the bolt and extends downward into close proximity to the bolting-cloth, whereby it is adapted to receive material taken up by the elevators and discharge the same upon the bolting-cloth, substantially as set forth.

4. In a flour-bolt, the combination of a rotating reel having an uninterrupted inner surface and a series of elevators arranged inside of the cloth and supported from the reel-heads, their outer edges at short distances from the adjacent bolting-cloth, substantially as set forth.

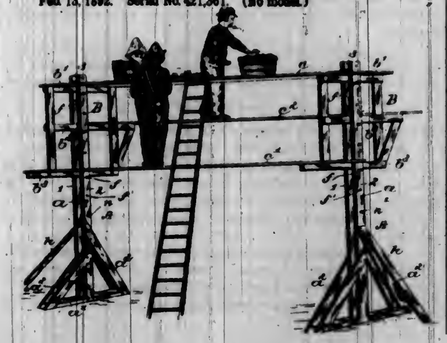
5. In a flour-bolt, the combination, with a bolting-reel provided upon its inner surface with a series of elevators, of a single deflector suspended from the reel-shaft with its lower edge below the axis of the reel and in close proximity to the elevators on the upward moving side of the reel and having its opposite edge above the axis of the reel and in close proximity to the elevators on the downward moving side of the reel, substantially as set forth.

479,590. COMBINED CANE AND FLAG. EDGAR GASH, Macomb, Ill. Filed Mar. 26, 1892. Serial No. 426,451. (No model.)



Claim.—In a flag-staff and attachment for walking-canes, the flag-staff *a*, in two parts composed of two half-round spring-metal rods, the slotted reversible ferrule J, rigidly attached to the lower end of the staff, the upper end of the staff being securely attached to a spear-head or ornament, and the guide-frame *e*, having eyes *e e*, which are fitted loosely around the staff at each end, substantially as shown and described, and for the purpose set forth.

479,591. SCAFFOLD. FRANK B. GILBRETH, Boston, Mass. Filed Feb. 13, 1892. Serial No. 421,361. (No model.)



Claim.—1. A scaffold having a central platform and two platforms arranged at different levels on opposite sides of and below said central platform, substantially as and for the purposes set forth.

2. A scaffold comprising a single line of standards and supporting-frames thereon carrying two platforms at different levels and upon opposite sides of the said standards and a third platform located above the said platforms, substantially as described.

3. A scaffold comprising a series of horses, each having a single vertical standard, a series of frames carried by and adjustable on said standards, each frame having three platform-supports arranged each at a different level, one of the supports being above and between the other two, substantially as described.

4. In a scaffold, a horse having a vertical standard composed of two members secured to each other and constituting a single standard, and a frame supported entirely by said standard and fitted to move vertically between and guided by said members, the said frame having supports for three platforms arranged at different levels, substantially as described.

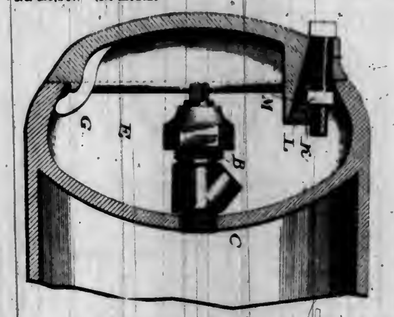
5. A scaffold comprising a series of horses, each having a single vertical standard, and a series of platform-supporting frames carried by and adjustable on said standards, each supporting-frame having supports for two or more platforms arranged at different levels, substantially as described.

6. In a scaffold, a series of horses arranged in line, each having a single vertical standard, a platform-supporting frame carried solely by each standard, and a lifting-jack sustained by a pin inserted in the standard and acting against and to lift the supporting-frame carried by said standard, substantially as described.

7. In a scaffold, a series of horses having vertical standards comprising two members each, platform-supporting frames arranged between said members and supported by pins extending through said members, combined with lifting-jacks for the said frames, arranged between the members of the said standards and supported upon pins passed through said members, substantially as described.

8. In a scaffold, a series of horses comprising vertical standards, feet *a′*, and diagonal braces a^3, and platform-supporting frames carried by said standards, combined with the end braces *h*, hinged to the ends of the diagonal braces a^3, whereby they may be turned upwardly against the standards or outwardly against the braces, substantially as described.

479,592. SHIPPING-FLASK FOR ANHYDROUS AMMONIA. THEODORE J. GOLDSCHMID, Philadelphia, Pa. Filed Mar. 17, 1892. Serial No. 425,247. (No model.)



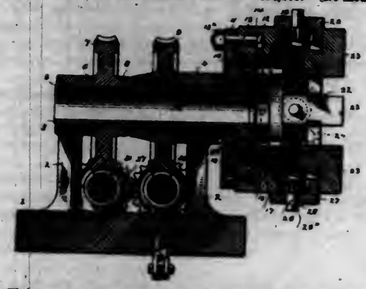
Claim.—1. A shipping-flask for anhydrous ammonia, provided with a cap for closing the valve-chamber thereof and a bolt and nut for tightly holding said cap in position on the flask, the nut being within said chamber resting on an inclined guide and the head of the bolt outside of the cap, said parts being combined substantially as described.

2. A shipping-flask for anhydrous ammonia, provided with a cap for closing the valve-chamber thereof, said cap having an opening and an inclined guide, in combination with a bolt in said opening and a nut on said bolt, the nut resting on said guide and when screwed up tightening against the rim of the flask, substantially as described.

3. A shipping-flask for anhydrous ammonia, having a cap closing the valve-chamber thereof, said cap having an opening, a channel continued inwardly therefrom, and an inclined guide in said channel, a bolt in said opening, and a nut on the bolt resting on said guide, said parts being combined substantially as described, whereby said bolt engages with the rim of the flask through the medium of said nut, as stated.

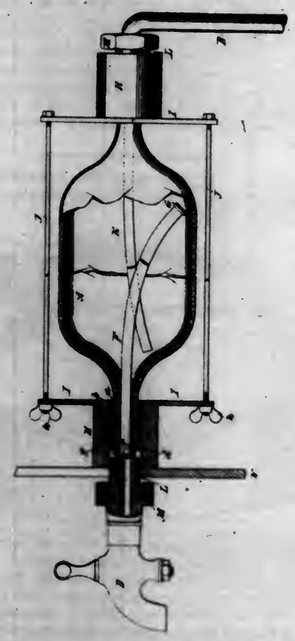
4. A shipping-flask for anhydrous ammonia, having a cap for closing the valve-chamber thereof, said cap being provided with a bolt, a nut, and a lug for tightening the same on the rim of the flask, substantially as described.

479,593. MECHANICAL MOVEMENT. JAMES GREGORY, Bridgeport, Conn. Filed Dec. 7, 1891. Serial No. 414,365. (No model.)



Claim.—A mechanical movement consisting of a power-shaft having a worm 32 and a gear 31, a slide carrying a shaft having a worm 36, and a gear meshing with gear 31 and adapted to slide longitudinally of said gear, a shaft carrying a gear engaging worm 32, and a sleeve adapted to oscillate on said shaft and carrying a gear-engaging worm 36, so that normally said shaft and sleeve will rotate together, but when the slide is moved the sleeve will be oscillated on the shaft and its movement either accelerated or retarded relatively to said shaft.

479,594. BEVERAGE APPARATUS. ALBERT HILDEBRANDT, Brooklyn, N. Y. Filed Dec. 24, 1891. Serial No. 416,083. (No model.)

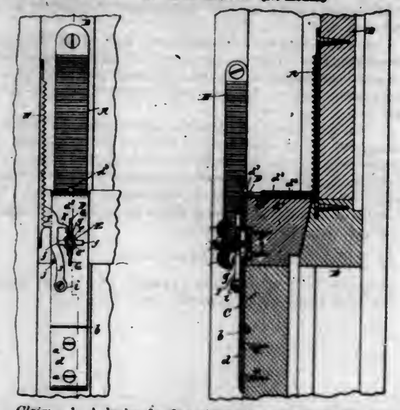


Claim.—1. The combination of the receptacle A, having open necks *a a*, sleeves H H, fitting over said necks, rod J, connecting said sleeves, and means for connecting said sleeves with a pipe and faucet, respectively, substantially as described.

2. The combination of the receptacle A, having open necks *a a*, sleeves H H, having internal flanges *d*, washers *c c*, fitting between said necks and said flanges, and means for connecting said sleeves with an induction-pipe, a faucet, or the like, and with rods J for holding the sleeves H upon the necks *a a*, substantially as described.

3. The combination of the receptacle A, having open necks *a a*, sleeves H H thereon, flanges *d d* in said sleeves, tubes E F, passing through said sleeves and having flanges *f*, tubes L L, screwing into the sleeves H H and pipe B, and a faucet or the like connecting with said tubes L L, substantially as described.

479,595. SASH-FASTENER. GEORGE G. HOPKINS, Brooklyn, N. Y. Filed Mar. 24, 1892. Serial No. 426,196. (No model.)

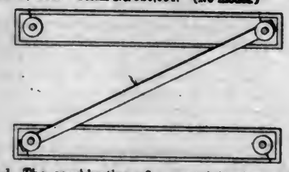


Claim.—1. A device for fastening sashes to each other in varying positions, consisting of a ratchet-strip, as A, adapted to be secured to one sash, a suitable detent, including an adjustable part d^3 and adjusting-screw d^2, adapted to be secured to the other sash and to engage with such ratchet-strip A, and a suitable device, as the projections *f f*, adapted to hold the part d^3 in engagement with the ratchet-strip A at any desired point, substantially as described and shown.

2. In a device for fastening sashes to each other and to the window-casing, a ratchet-strip A, secured to one sash, a detent adapted to engage with such ratchet-strip A, and a locking device, as the projections *f f*, moving on the stem E, adapted to hold the detent in engagement with the strip A, in combination with a suitable ratchet-strip, as H, disposed on the window-casing, and a suitable locking device adapted to engage with the ratchet-strip H and to be held in engagement therewith by the projections *f f*, substantially as described.

3. A sash-fastening device adapted to secure a window-sash rigidly in position at varying points in the window-casing, consisting of a ratchet-strip H and a suitable toothed lever I, adapted to engage therewith, disposed on the sash-frame, in combination with a ratchet-strip A, disposed on the other sash-frame, and a suitable detaining device adapted to secure the sashes to each other at varying positions of such ratchet-strip A, and a locking device, as the projections *f f*, moving upon the stem E, substantially as described.

479,596. THERMO-ELECTRIC ELEMENT. CHARLES W. IDEN, New York, N. Y., assignor to the Thermo Electric Company, same place. Filed Nov. 11, 1889. Serial No. 329,931. (No model.)



Claim.—1. The combination of a containing-box, a metal cast therein, and two pole-pieces, of different metal from that in the box, cast therein at or about the extremities of the same, substantially as described.

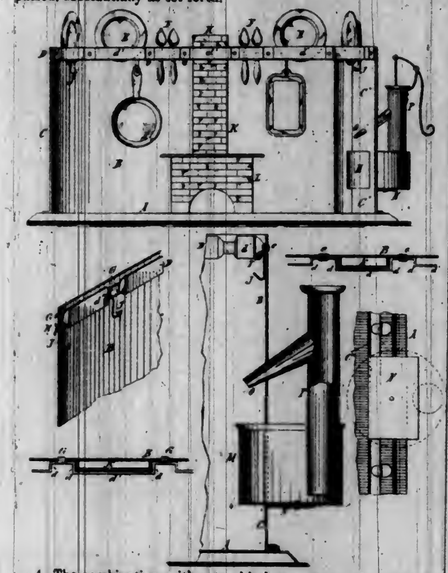
2. The combination of the iron box, the compound of zinc and antimony cast therein, and the pole-pieces made of another metal and cast in the ends of said zinc and antimony, substantially as described.

479,597. TOY KITCHEN AND STOVE. JULIUS JABSEN, Rutherford, N. J. Filed Jan. 28, 1892. Serial No. 419,517. (No model.)

Claim.—1. The combination, with the walls of a toy kitchen or stove, of sheet-metal strips bent to have offsets forming pockets for plates or spoons, which strip is fastened to the inner surfaces of the walls of the kitchen by mechanical fastening devices, substantially as set forth.

2. The combination, with a toy kitchen or stove, of a sheet-metal strip bent to have offsets forming pockets for plates and spoons and provided with tongues projecting from the edges of those parts of the strips between the pockets, which tongues are passed through slots in the walls of the toy kitchen or stove and bent over, substantially as set forth.

3. The combination, with a toy kitchen or stove, of a sheet-metal strip bent to have offsets forming pockets for plates and spoons and provided with tongues projecting from the edges of those parts of the strips between the pockets, which tongues are passed through slots in the walls of the toy kitchen or stove and bent over, and suspending-hooks passed through the same slots through which the tongues are passed, substantially as set forth.



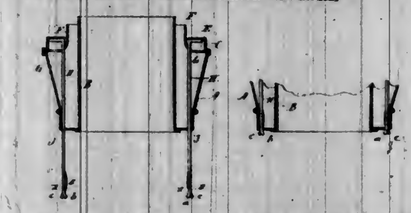
4. The combination, with a toy kitchen or stove, of a strip bent to have offsets between which pockets for plates and spoons are formed, which strip is fastened to the upper edge of the rear wall of said toy kitchen or stove, and a chimney having its upper end passed through one of said pockets, substantially as set forth.

5. The combination, with a toy kitchen or stove having part cut in one side wall and bent outward and downward to form a bracket, of a water-receptacle resting on said bracket.

6. The combination, with a toy kitchen or stove having part of one side wall cut to form a bracket, of a water-receptacle part of which is projected through said opening into the interior of the kitchen, which water-receptacle rests upon and is connected with said bracket, substantially as set forth.

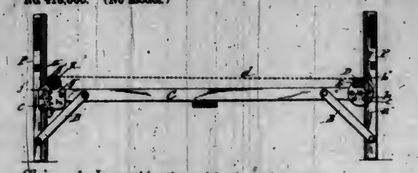
7. The combination, with a toy kitchen having part of one side wall cut and bent downward and outward to form a bracket, of a water-receptacle resting on said bracket and a spout passed through said wall of the kitchen above said receptacle, substantially as set forth.

479,598. LAMP-BURNER. JOSEPH JAUCH, Meriden, Conn., assignor to The Bradley & Hubbard Manufacturing Company, same place. Filed Nov. 23, 1891. Serial No. 412,771. (No model.)



Claim.—In a lamp-burner, the combination of the body of the burner constructed with holes J through its base with a chimney-holder adapted to rest upon the said body and provided with rods H, corresponding to and extending downward through said holes J, the lower ends of the said rods split to form two or more fingers, the said fingers bent to form notches by which the said rods may engage the burner when in the up position, substantially as described.

479,599. FOLDING BED. WINFIELD KELSEY, Kansas, N. Y., assignor to Fannie R. Kelsey, same place. Filed Jan. 18, 1892. Serial No. 418,365. (No model.)



Claim.—1. In combination with the side rail, the post provided with a vertical guide-groove, a metal plate rigidly attached to the side rail and provided with a lug extending into said guide-groove, and a brace pivotally connected at opposite ends to the post and side rail and guiding the post to its folded position, as set forth.

2. In combination with the side rails and cross-bar attached to the ends of said rails, the posts provided with vertical grooves and metal plates attached to the side rails and provided with lugs extending into the grooves of the posts and with abutments engaging the aforesaid cross-bar, as set forth.

3. In combination with the side rails and cross-bar attached to the ends of said rails, the posts provided with vertical grooves and metal plates attached to the side rails and provided with lugs extending into the grooves of the posts and with hooks holding down the outer portions of the cross-bar, substantially as described and shown.

4. In combination with the side rails and cross-bar attached to said rails, the posts provided with vertical grooves and metal plates provided with lugs extending into said grooves and with abutments engaging the inner side of the cross-bar and with hooks holding down the outer portion of said cross-bar, substantially as described and shown.

5. In combination with the side rail C, the posts P P, provided with the vertical grooves *a a*, the plates *b b*, fastened to opposite ends of the side rail and provided with the lugs *c c*, extending into said grooves, the braces B B, pivotally connected to the posts and side rails and guiding said posts into their folded positions, the projections *e e* on the side of the side rail, and the safety-hooks *f f*, projecting from the posts and engaging said projections to retain the posts in their erect positions, all constructed and combined to operate substantially as described and shown.

479,600. BEAN-HARVESTER. JOSEPH F. KING, Montalvo, Cal., and SAMUEL B. STOKELY, Kansas City, Mo., assignors to the Eagle Manufacturing Company, Davenport, Iowa. Filed Mar. 4, 1892. Serial No. 423,766. (No model.)



Claim.—1. In a bean-harvester, a wheeled propelling-frame, longitudinal vertically-movable runners connected therewith, rearwardly-

diverging blades attached to the runners, and rearwardly-diverging rods or feeders above the blades, whereby the vines are delivered laterally.

2. In a bean-harvester, the longitudinal frame, a swiveling axle provided with main wheels midway of the length of the frame, a swiveling rear wheel, draft connections in rear of the main wheels, and longitudinal runners provided with rearwardly-diverging blades forward of the main wheels, whereby the vines are severed and thrust to the right and left, affording an open passage for the main wheels and the team.

3. The main frame, its supporting-wheels, and the swiveling rear wheel, in combination with the forward cutter, the runners, and the divergent obliquely-arranged blades L', connected with and carried from the forward end of the frame.

4. The wheeled main frame and the runners laterally connected thereto and provided with blades, in combination with the lever P, the rods K, adapted to lift the runners, the runner-depressing springs on said rods, and means for locking the lever in position.

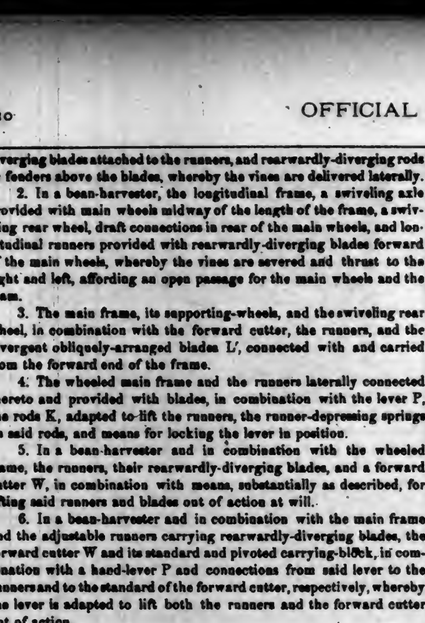
5. In a bean-harvester and in combination with the wheeled frame, the runners, their rearwardly-diverging blades, and a forward cutter W, in combination with means, substantially as described, for lifting said runners and blades out of action at will.

6. In a bean-harvester and in combination with the main frame and the adjustable runners carrying rearwardly-diverging blades, the forward cutter W and its standard and pivoted carrying-block, in combination with a hand-lever P and connections from said lever to the runners and to the standard of the forward cutter, respectively, whereby the lever is adapted to lift both the runners and the forward cutter out of action.

479,601. KNITTING-MACHINE. MICHAEL KIRSHNER, Philadelphia, Pa. Filed Jan. 24, 1891. Serial No. 378,950. (No model.)

Claim.—1. A knitting-machine having a cam-cylinder with a gear-wheel, a shaft with a gear engaging the cam-cylinder gear-wheel, a bevel gear-wheel loosely mounted on said shaft, the bevel gear-wheel Y, loosely mounted on said shaft and having mechanism to reciprocate the same, a clutch on said shaft and rotatable therewith, a main driving-shaft, a train of gearing connected with said driving-shaft and said first bevel gear-wheel, an oscillating lever adapted to shift said clutch, a cam for operating said lever, a wheel loosely mounted on the driving-shaft and adapted to operate the said cam and carrying pins with connected levers, a spring-bar and a disk controlling said levers, and a rotary wheel operated by the rotation of the driving-shaft and provided with pins for actuating the said spring-bar, said parts being combined substantially as described.

2. The combination of a rotary shaft with a cam thereon and rotary therewith, a gear-wheel loosely mounted on said shaft and provided with levers connected with pins movable in openings in said wheel, an arm projecting from said shaft and adapted to engage a projecting pin on said wheel, a pivoted lever with a pawl, the ratchet-wheel M', having the connected gear-wheel N', the gear-wheel P', having pins projecting therefrom, a spring-controlled bar with projections adapted to be engaged by said pins on the last-mentioned gear-wheel, and a cam with an attached gear engaging with the first-mentioned gear-wheel, substantially as described.



3. In a knitting-machine, a needle-cylinder with needles movable therein, a main driving-shaft, a cam-cylinder with an oscillating cam, rotary rings with pins thereon, disks engaged by said pins, and pivoted levers connected therewith, said parts being combined substantially as described.

4. A knitting-machine having a needle-cylinder with needles provided with double heels, oscillating rings, disks engaged by said rings, and levers connected to said disks, one of each of the levers engaging a single needle and alternately engaging the two heels thereof to raise and lower the same, thereby automatically throwing out of and into action needles of the needle-cylinder required to be lifted out of the way of the cam-cylinder during the forming of a pocket in a tubular piece of fabric, said parts being combined substantially as described.

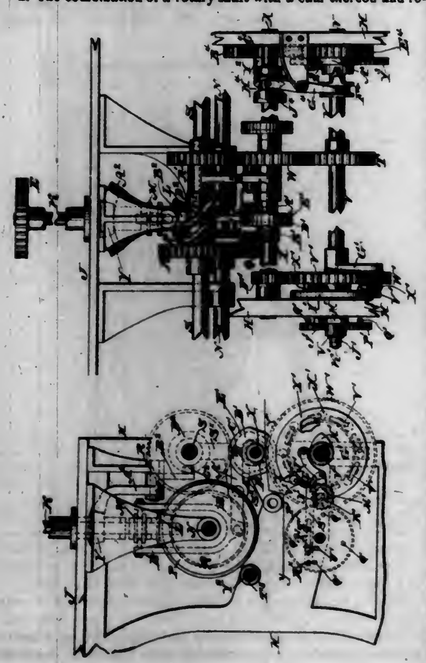
5. A knitting-machine having a needle-cylinder with needles therein, oscillating rings having suitable supports and provided with pins, disks with recesses in which said pins engage, so as to rotate the said disks, arms connected with said disks, levers attached to said arms which engage the needles, and mechanism, substantially as described, for operating said rings, said parts being combined as stated.

6. The combination of a needle-cylinder with needles movable thereon, rings having projecting pins and movable on suitable supports, pivoted disks with recesses in which said pins move, arms connected to said disks, levers connected to said arms and having their ends adapted to engage the said needles, a cam-cylinder with mechanism, substantially as described, for oscillating the same, and mechanism for imparting a motion to said rings, so as to move said pins from one disk to the adjacent one during an oscillation of the cam-cylinder, substantially as described.

7. The combination of a rotary shaft, a segmental piece with toothed rims, two gear-wheels of equal diameters, two sets of pinions, each pinion being of one-half the diameter of one of the said gear-wheels, and two rotary shafts, each having a pinion to engage with one of the first-mentioned gear-wheels and with one pinion of the corresponding set of pinions, said segmental piece having one of its rims engaging one pinion of one of said sets of pinions and another rim engaging the gear-wheel pertaining to the other set of pinions, substantially as described.

8. The combination of a rotary shaft, mechanism, substantially as described, for moving said shaft endwise in its bearings at intervals of time, a bifurcated segmental piece secured on said shaft and having toothed rims, two gear-wheels of equal diameters, and two sets of pinions, each pinion of one-half the diameter of one of the gear-wheels, and two rotary shafts having pinions meshing with said gear-wheels and sets of pinions, substantially as and for the purpose set forth.

9. The combination of a main driving-shaft, a train of gearing, a bifurcated segment secured to the shaft of the last wheel of said train and having triple gear-rims, two rotary gear-wheels suitably journaled, two shafts having gear-wheels thereon and engaging said rotary gear-wheels, and two trains of gearing between said first-mentioned gear-wheels, one wheel of each train meshing with the gear-wheel on the corresponding shaft, one rim of said triple gearing engaging alternately with the two trains and each of the other rims being adapted to engage with the rotary gear of its respective train, substantially as described.



479,602. TANK. HYMEN L. LIPMAN, Philadelphia, Pa. Filed Jan 14, 1892. Serial No. 418,048. (No model.)

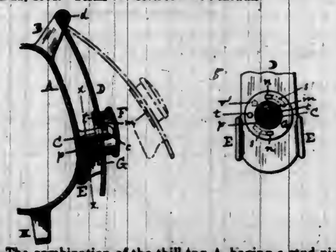
Claim.—1. A tank having a post with grooves on its opposite sides and a series of bent side pieces with their ends in said grooves, and a bottom secured to the lowest piece of said series, said parts being combined substantially as described.

479,602.



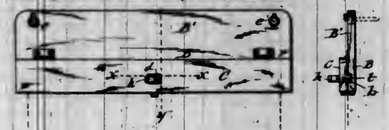
2. A tank formed of a post having grooves on its opposite sides, a series of curved or bent boards, each having its ends held in said grooves and its horizontal edges tongued and grooved with the adjacent board, and a bottom seated in a recess in the lower board, said post having its lower end extending below the lower board, said parts being combined substantially as described.

479,603. THILL-TUG. NATHAN F. MATHEWSON, Providence, R. I. Filed Oct. 22, 1891. Serial No. 409,508. (No model.)



Claim.—The combination of the thill-tug A, having a stud-pin C, with a slot *c*, a clasp D, pivotally mounted on projections of said tug and provided with an aperture *p*, slots *s*, and holes *v v'*, the knob F, having the interior locking-piece *m*, adapted to enter the slot *c*, the spring-washer G, connected with said knob F by rivets *n* through the slots *s*, and a tent *t*, attached to said washer and engageable with said holes *v v'*, substantially as specified.

479,604. BILL-FILE. SIDNEY B. MEREDITH, Oneida, N. Y. Filed Mar. 28, 1892. Serial No. 426,671. (No model.)



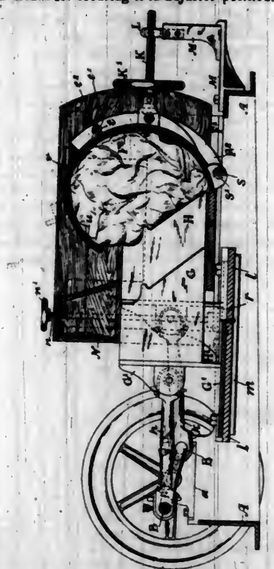
Claim.—1. The improved bill-file consisting of the base B and the clamping-plate C, provided with a tongue-and-groove joint on their gripping-faces, and a clamp or clamps locking the plate C on the base, as set forth.

2. A bill-file consisting of the base B and the clamping-plate C, provided with a tongue-and-groove joint on their gripping-faces, a staple on said base, and a hook on the clamping-plate, adapted to engage and release the said staple, substantially as described and shown.

3. A bill-file consisting of the base B, formed with the groove *b*, opening *c* in said groove, and with the upward extension B', the plate C, hinged to said base and provided with the tongue *f* and opening *d*, the pin *e*, attached to the base transverse of the opening *c*, and the hook A, pivoted to the plate C and extending through the opening *d*, substantially as described and shown.

479,605. FULLING-STOCK. JOHN H. MITCHELL and ISAAC MITCHELL, Brockholes near Huddersfield, England. Filed Mar. 21, 1892. Serial No. 425,779. (No model.)

Brief.—The invention includes a fulling-mill having beaters reciprocating longitudinally on a bed adjustable in order to vary the width of the chamber in which the cloth is fulled. This chamber has a yielding top and a pivoted adjustable end frame, the latter being provided with means for securing it in adjusted position.



Claim.—1. In a fulling-machine, the combination, with the bed, the crank-shaft carried by the bed, and the feet reciprocated by the said crank-shaft, of the box adjustable longitudinally on the bed and provided with a clamping device, the curved end frame pivoted in the said box and provided with a clamping-bolt, and a screw connected with the bed and with the end frame and adapted to be revolved to adjust the position of the said box and also the position of the said end frame with respect to the said feet, substantially as set forth.

2. In a fulling-machine, the combination, with the bed and the box longitudinally adjustable on the bed, of the curved end frame pivoted in the box and provided with a clamping device, a bracket secured to the bed behind the end frame, a nut pivoted in the said bracket, and a revoluble adjusting-screw pivoted to the said end frame and engaging with the said nut, substantially as set forth.

3. In a fulling-machine, the combination, with the reciprocating feet, of the box, the curved end plate pivoted in the lower part of the box and provided with a clamping-bolt, the curved lid hinged to the upper part of the said end plate and extending part way over the said feet, and the cover supported over the said feet and adapted to prevent the material from lodging on top of them, substantially as described and shown.

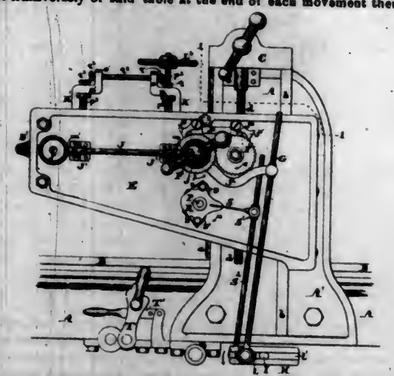
479,606. METAL-PLANING MACHINE. GEORGE F. MCINDOE, Boston, Mass., assignor of one-half to James W. McIndoe, same place. Filed Nov. 5, 1891. Serial No. 410,904. (No model.)

Claim.—1. In a metal-planing machine, the combination, with the ordinary uprights and vertically-movable cross-head mounted thereon, of two side arms secured to and movable with said cross-head, a second cross head or bar secured to the ends of said side arms with its dovetailed slide facing toward said ordinary cross-head, tool supporting and manipulating mechanism carried by and adjustable on said cross head and bar, two cutting-tools carried by the central member of said tool-supporting mechanism, said tools being arranged with their cutting-points facing in opposite directions, a pair of feed-screws for moving said tools and tool-supporting mechanism transversely of the work-supporting table, said screws being connected together so as to be operated in unison, a toothed wheel secured to one of said screws, an elbow-lever mounted loosely on said screw and carrying a reversible pawl to engage said wheel, a second toothed wheel engaging said first-mentioned wheel, a lever mounted loosely on the axis of said second wheel and carrying a reversible pawl to engage the teeth of said wheel, a link connecting the two pawl-carrying arms, the rod G, and the oscillating bar H.

2. In a metal-planing machine, the combination, with the reciprocating table of an ordinary planer and any suitable gearing for op-

erating said table, of the cross-heads D D', the brackets or side arms E E, the duplicate sliding plates g and g', mounted on said cross-heads, the duplicate plates K and K', pivoted upon and clamped to the plates g and g', the duplicate plates L and L', fitted to and movable vertically on the plates K and K', the screw-shafts p^3 and p^3, connected together by the gears q, q', q^3, and q^3 and the shaft q^4, the hand-wheel L^3, the frame M, pivoted upon and clamped to the plates L L', the tool-holder N, pivoted to the frame M, the cutting-tools O and O', each provided with a slot near its upper end, the screws v and v' for adjusting said tools vertically, and means having provision for feeding said tools and their holders transversely of the table and moving the tool-holder about its pivotal support at the end of each movement of said table.

3. In a metal-planing machine, the combination, with the reciprocating work-supporting table and a cutting tool or tools constructed and arranged to act upon the work during each movement of said table, of the feed-screw i, the toothed wheel F, secured thereon, the elbow-lever j^3, the pawl j^3, carried by said lever, the rod G, the oscillating bar H, the toothed wheel F', the lever j^4, the link j^5, and the pawl j^3, all constructed, arranged, and operating to feed said cutting-tool transversely of said table at the end of each movement thereof.



4. In a metal-planing machine, the combination, with the reciprocating work-supporting table, of a pivoted tool-holder, a tool or tools having two cutting-edges facing in opposite directions, the toothed rod or bar w^2, connected to said tool-holder, the toothed shaft P, engaging said toothed bar, the sleeve P', movable endwise on said toothed shaft and forming a bearing for the toothed rod or bar w^2, the forked stand P^2, secured to and movable with the tool-holder-supporting slide, and a ratchet and-pawl mechanism constructed and arranged to impart an intermittent partial rotation of said shaft about its axis alternately in opposite directions, one of said partial rotations taking place at each reversal of the motion of said table.

5. In a metal-planing machine, the combination, with the reciprocating work-supporting table, of a pivoted tool-holder, a cutting tool or tools having two cutting-points facing in opposite directions, a toothed rod or bar connected to the movable end of said tool-holder, the toothed shaft P, engaging said toothed bar, the sleeve P', mounted upon said toothed shaft and movable transversely of said table with the tool-holder, the ratchet-wheel R, secured on said shaft, the pawl-carrying plate R', the pawls y and y', the spring-arm S, secured to said pawl-carrying plate, the rod S^2, the oscillating bar H, and the two pawl-controlling pins 5 5, set in the side bracket E in positions to hold the pawls y and y' out of engagement with the teeth of the wheel R when the pawl-carrying plate is in the center of its vibratory motion, substantially as described.

479,607. TRIAL-FRAME FOR OPTICIANS. ANGUS G. MCKENZIE, Boston, Mass. Filed Sept. 14, 1891. Serial No. 405,613. (No model.)

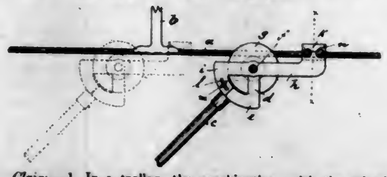


Claim.—1. In a trial-frame, the combination, with the rims of the frame, of parallel fingers fixed to each rim and offset therefrom on opposite sides thereof to co-operate at their free ends with the side of a lens-holder and its handle and retain the lens-holder between said free ends and rim, the end of the space between each finger and attached rim forming a limiting-stop for the handle of the lens-holder, said holder being thereby retained in position at several isolated and independent points, substantially as described.

2. The frame having rims provided with a concaved stop or projection g and an outwardly-yielding curved finger attached at one end to and offset from said frame, combined with a lens-holder having a handle, said holder being retained in place in the space between the inner side of the free end of the offset finger and adjacent portion of the rim and resting in the concaved stop, to operate substantially as described.

3. The frame having rims provided with concaved stops g and projections h and a connected yielding finger on the front and rear of each rim, said fingers being offset from the rims and parallel to each other and to the plane of the rims, the inner sides of the free ends of said fingers, and the adjacent portions of the rims, with the stops g and projections h forming a series of separate and independent retaining-points for the lens-holders, substantially as described.

479,608. TROLLEY. FREDRICK F. POOLE, Newark, N. J. Filed May 11, 1892. Serial No. 432,593. (No model.)

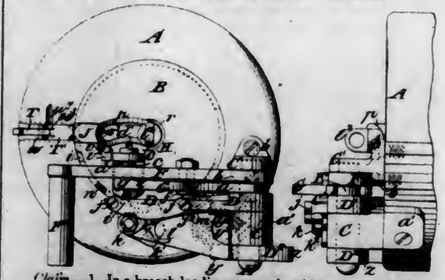


Claim.—1. In a trolley, the combination, with the wheel, the axle, and its support, of spring-plates adjustably secured to the sides of said support and fulcrumed on the axle, and metal blocks arranged on said springs and adapted to touch beyond but in the center line of the wheel, substantially as described, and for the purposes set forth.

2. In a trolley, the combination, with the wheel, the axle, and its support, of spring-plates fulcrumed at the said axle and provided with an elongated curved slot, a set or binding screw passing through said slot and adapted to secure said spring-plates to the said support, and metal blocks arranged on and adapted to be held together by said spring-plates, substantially as described, and for the purposes set forth.

3. In a trolley system, the combination, with the wire, of a wheel adapted to roll on the under side of said wire, an axle, a forked support for said axle, said support being provided with a segmental portion, metal blocks arranged beyond the wheel and above the wire and adapted to form a channel for said wire, and means for adjustably securing said metal blocks to the support, substantially as described and set forth.

479,609. BREECH-LOADING CANNON. SAMUEL SEABURY, U. S. Navy. Filed Apr. 12, 1892. Serial No. 428,753. (No model.)



Claim.—1. In a breech-loading cannon in which the breech-block has both a turning movement on its axis and a backward-and-forward movement, the combination, with such a breech-block, of a pivot attached to the breech of the cannon and a breech-block retractor connected with the said block and having a slotted connection with said pivot, whereby it is capable not only of a turning movement on said pivot for retracting the said block from the gun and inserting it therein, but also of a movement across the face of the breech for the purpose of turning the said block on its axis, substantially as herein set forth.

2. In a breech-loading cannon in which the breech-block has both a turning movement about its axis and a backward-and-forward movement, the combination with such breech-block, of a pivot attached to the breech of the cannon, a breech-block retractor having at one end a slotted connection with such pivot, and a connecting-piece having a pivotal connection with the other end of said retractor and a separate pivotal connection with the breech-block, substantially as and for the purpose herein set forth.

3. In a breech-loading cannon in which the breech-block has both a movement about its axis and a direct backward-and-forward movement, the combination, with such breech-block, of a fulcrum-pin attached to the breech of the gun, a lever working on said fulcrum-pin and carrying a second pin, and a retractor consisting of a cam-plate connected pivotally with the breech-block and engaging with said fulcrum-pin and said second pin for the two purposes of producing the movement about the axis and the direct forward-and-backward movement of the breech-block by the movement of said lever, substantially as herein set forth.

4. In a breech-loading cannon in which the breech-block is withdrawn in a rearward direction, the combination, with the breech-block carrier hinged to the breech of the cannon, of a hand-lever attached to the breech to move independently of the carrier and carrying a pin or stud, and a swinging retractor connected with the breech-block and having a pivotal connection with the breech, on which pivotal connection it works independently of the hand-lever and carrier and having a direct engagement with said pin or stud on the hand-lever, substantially as herein set forth.

5. In a breech-loading cannon in which the breech-block has both a movement about its axis and a backward-and-forward movement, the combination of a breech-block carrier hinged to the breech of the cannon, a lever and a fulcrum-pin for the same attached to the breech, and a retractor consisting of a cam-plate connected to the breech-block and engaging with said lever for the purposes of retracting it from the breech into the carrier and of pushing it from the carrier into the breech, substantially as herein set forth.

6. In a breech-loading cannon in which the breech-block has a turning movement about its axis and a direct backward-and-forward movement, the combination of a fulcrum-pin attached to the breech of the cannon, a lever working on said fulcrum-pin and carrying a second pin, a breech-block retractor consisting of a cam-plate having two slots, by one of which it engages with said second pin and by the other with said fulcrum-pin, and a connecting-piece having a pivotal connection with the breech-block and a separate pivotal connection with the breech-block retractor, substantially as herein set forth.

7. The combination, with the breech of the cannon, the breech-block capable of moving backward and forward therein, the swinging breech-block carrier, and the locking-hook l on the breech, of the locking-latch, consisting of a pivot k, arranged lengthwise of the tray of the carrier and having at its ends catches k' k^2 to engage, respectively, with the said locking-hook l, and with a notch n' in the breech-block by a movement transverse to the tray, substantially as herein set forth.

8. The combination, with the gun and the breech-block fitted to turn on its axis therein and the firing-pin passing through the block, of a connecting-piece attached to said block for turning it and provided with a cam for engaging with and cocking the firing-pin, substantially as herein set forth.

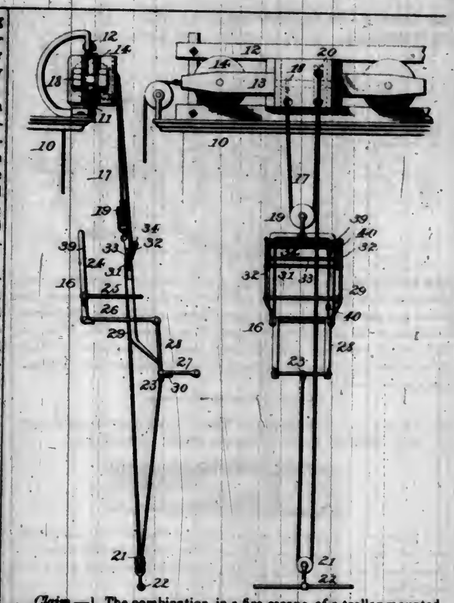
9. In a breech-loading cannon in which the breech-block has a turning movement on its axis and in which there is a firing-pin passing through said breech-block, the combination, with a cam plate or bar and means of moving the same across the breech for turning the latter, of a connecting-piece between the said plate or bar and the breech-block and the firing-pin, the said connecting-piece having a pivotal connection with the breech-block and a separate pivotal connection with the said cam plate or bar and having on it a cam for engaging with the firing-pin for the purpose of cocking the said pin, substantially as herein set forth.

10. The combination, with the breech-block and the firing-pin passing through the same, of the projection o' on the firing-pin and the spiral guide o^3, provided in the breech-block to receive said projection for the purpose of preventing the firing-pin from turning with the breech-block, substantially as herein described.

11. The combination, with the screw breech-block, the sear fitted radially to said block, and the connecting-piece attached to the breech-block for turning the latter, of the locking-piece v^2 v^3, fitted to the breech-block to engage with the sear for locking the same and to be disengaged by said connecting piece in the act of screwing up the breech, substantially as herein set forth.

12. The combination, with the breech-face provided with a radial groove and with a groove w^4 communicating with said radial groove, of the trigger T, trigger-slide T', and their connecting-pin w, all arranged within said radial groove with the said pin held in place by said groove, substantially as herein described.

479,610. FIRE-ESCAPE. THEODORE R. WOODWARD, Norway, Pa. Filed Mar. 30, 1892. Serial No. 427,068. (No model.)



Claim.—1. The combination, in a fire-escape, of a trolley mounted on rails attached to a house, an escape chair having a pulley attached to it, a rope or chain attached at one end to the trolley and passing down around the said chair-pulley, thence up over a pulley in the trolley, and thence downward and with a return-bend extending again upward and attached at its other end to the chair, there being another pulley on a handle and mounted in the return-bend of the rope, substantially as described.

2. The combination, in a fire-escape, of a chair-back, arms, a bottom, a front, and a step, all hinged together, the front being provided with a stop-lug for the step, and a main brace hinged to the arms and bottom and extending below the latter and forward as a brace for the front, substantially as described.

3. The combination, in a fire-escape, of a chair having a main brace extending up beside the arms and a brake pivoted in the main brace and comprising three cross-bars, one of which is the pivot-pin, one on the binder of the brake and the other on the handle, substantially as described.

479,611. CANE-CUTTER. FREDERICK R. ALEXANDER, Brooklyn, N. Y. Filed Aug. 18, 1891. Serial No. 402,968. (No model.)



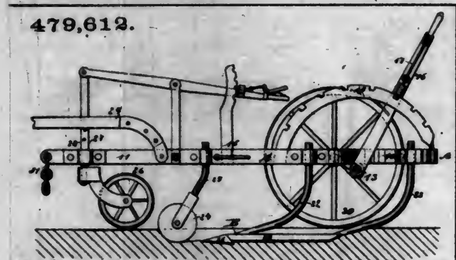
Claim.—1. A cane-cutter comprising a longitudinally-bored stock 10, having an attaching-shank 11 and cut away or reduced between its ends, as shown, a ∩-shaped knife 17, embracing with its longitudinal edges the cut-away part of the shank, its concave cutting-edge being opposite the adjacent concave portion of the bore and forming an oval passage in connection therewith, said knife being adapted to impart a half-oval form to the flat side of the cane, and a clamping device securing the cutter to the stock, substantially as set forth.

2. A cane-cutter comprising a longitudinally-bored stock 10, having an attaching-shank and reduced or cut away between its ends, as shown, a ∩-shaped knife embracing the cut-away portion of the shank with its longitudinal edges and having its inner concave cutting-edge opposite the adjacent concave portion of the bore and forming an oval passage in connection therewith, parallel clamping-plates 15 at opposite sides of the stock and having flanges 16 overlapping the longitudinal edges of the cutter, and the securing-bolts 18, substantially as set forth.

479,612. WEED-CUTTER. GROSVENOR S. ANDRUS, Walla Walla, Wash. Filed Nov. 10, 1891. Serial No. 411,590. (No model.)

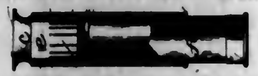
Claim.—A weeding or cultivating machine comprising the frame A, formed of a bar or strap of metal bent into a horizontal oval or

479,612.



open form at the rear and having its ends brought together in front thereof to form the straight forward section 11, a cutter beneath the frame and having three upward-curved posts, the side post 23 of which is clipped to the ends of the oval part of the frame and the front post 22 of which is secured to the straight portion 11, supporting-wheels for the frame, and means for adjusting the frame vertically, substantially as set forth.

479,613. CARTRIDGE-LOADER. FRANK R. BALDWIN, Jersey City, N. J. Filed Apr. 6, 1892. Serial No. 428,087. (No model.)



Claim.—1. A cartridge-loader having a concentric inward projection near its upper end and provided with vertical flexible fingers in planes coincident with the body of the loader and extending below said projection.

2. A cartridge-loader having a concentric seat near its upper end and an annular chamber below said seat provided with parallel walls.
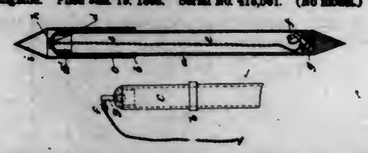
3. A cartridge-loader having a concentric inward projection near its upper end and an annular chamber below said projection provided with parallel walls, the inner one of which is resilient.

4. A cartridge-loader having a concentric seat and flexible fingers provided with rounded and inwardly-bent ends to embrace and protect the broken end of a cartridge while loading.

5. A cartridge-loader having a bell mouth terminating in an annular contraction forming a throat of a diameter about equal to the inside of the cartridge, a concentric collar forming a seat for the end of a cartridge, and a flexible guard for the upper end of the cartridge.

6. A cartridge-loader having a bell mouth, and a chamber having a shoulder or seat and vertical and parallel walls to receive the end of a cartridge, the inner one of said walls being flexible.

479,614. QUOIT-PEG. FLEMING A. O'R. BERESFORD, Mutford, England. Filed Jan. 19, 1892. Serial No. 418,561. (No model.)



Claim.—1. The combination, with a peg provided with a chamber and a central hole *d* at its top, of a flexible measuring device carried in the said chamber and adapted to be drawn out through the said central hole, whereby the distances of surrounding objects from the peg may be measured, substantially as set forth.

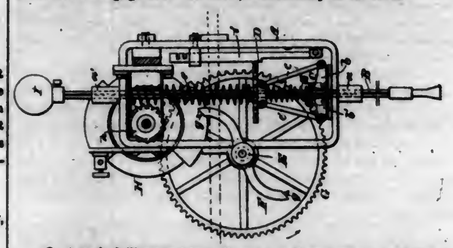
2. The combination, with a hollow peg provided with a central hole *d* at its top, of a flexible measuring device provided with the plug *g* and the swivel *f* and adapted to be drawn out of the peg through the said central hole, substantially as and for the purpose set forth.

3. The combination, with a peg provided with a chamber and a central hole *d* at its top, of a flexible measuring device carried in the said chamber and adapted to be drawn out through the said central hole, and a cap fitting over the top of the peg and protecting the projecting end of the said measuring device, substantially as set forth.

479,615. ROCK-DRILL. PERLEY P. BELT, Waco, Tex., assignor to Frank Osborn, Twin Lakes, Colo. Filed Oct. 3, 1891. Serial No. 408,133. (No model.)

Claim.—1. In a rock-drill, the combination of the drill-rod, a tappet-plate placed loosely on the drill-rod, clutch mechanism connected with the tappet-plate for engaging the drill-rod, a spring for impelling the drill-rod, a cam provided with conical ends for lifting the tappet-plate, and the guide *i*, substantially as specified.

2. In a rock-drill, the combination, with a frame and a drill-rod sliding and rotating freely in the frame, of a tappet-plate having a slotted edge and sliding freely on the drill-rod and held from turning thereon, a friction-clutch carried by the said tappet-plate to raise the drill-rod, a vertically-extending guide-bar adapted to engage the slotted edge of the tappet-plate and prevent it from rotating during its entire throw, and a rotary tappet, the arms of which engage the lower side of the plate to raise it and also to rotate it when the guide-bar is out of engagement therewith, substantially as set forth.



3. A rock-drill comprising a frame, a drill-rod turning and sliding freely therein, a tappet-plate sliding freely on the rod and held against turning thereon, a plate C beneath the tappet-plate, and through which the drill-rod freely passes, a clutch-lever pivoted to the plate C to engage the drill-rod, a link *e*, connecting the clutch-lever and tappet-plate, a spring on the rod between the two plates, a spring on the rod between the upper part of the frame and upper side of the tappet-plate, a vertically-extending guide-bar pivoted at its lower end to the frame to swing inward into engagement with the slotted edge of the tappet-plate and extending upward as far as the upward throw of the tappet-plate, and a rotary tappet, the arms of which engage the under side of the tappet-plate, substantially as set forth.

4. In a rock-drill, the combination of a revoluble drill-rod B, a radially-slotted tappet-plate D, a clutch mechanism C, attached to the tappet-plate, the guide *i*, and the cam F, provided with the conical ends *g*, substantially as specified.

5. In a rock-drill, the combination, with the drill-rod B, of the radially-slotted tappet-plate D, clutch-levers *b b'*, connected with the tappet-plate, the spring *d*, and the cam, provided with conical ends *g*, for lifting the tappet-plate, substantially as specified.

479,616. COMBINED SCRUBBING AND SWEEPING MACHINE. GEORGE M. BENNETT, Burlington, Iowa. Filed Mar. 21, 1891. Serial No. 385,846. (No model.)



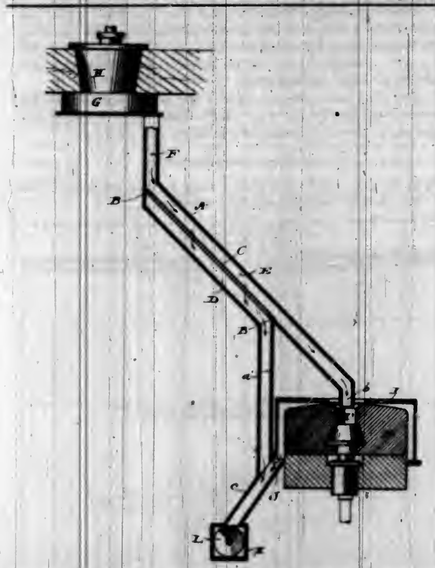
Claim.—1. A portable scrubbing and sweeping machine consisting, essentially, of the perforated wheeled casing having the interior receptacle, the brush having the polygonal core and the alternative bristles and moppers, which are secured to the angles or corners of said core and lie tangentially to the axis of the same, and means for positively rotating the brush, substantially as described.

2. In a portable scrubbing and sweeping machine, the brush consisting of the polygonal core 2 and the alternate moppers and bristles 4 3, secured to said core at its angles or corners and arranged tangentially to the axis of the same, substantially as and for the purpose described.

3. In a portable scrubbing and sweeping machine, a brush comprising a polygonal core having the longitudinal recesses in its faces near the corners or angles thereof, the battens secured in said recesses and having the series of tangential bristles united thereto, and the flexible tangential mopper-strips fastened to the core between the series of bristles, substantially as described.

479,617. SEPARATOR FOR CRUSHED CEMENT, &c. JOSEPH B. BERTHELET, Milwaukee, Wis. Filed Nov. 30, 1888. Serial No. 292,176. (No model.)

Claim.—1. The combination, in a separating apparatus, of a finisher, a chute having two outlets, one of which delivers to the eye of the stone in said finisher and the other to the outlet of the same, and a screen placed within the said chute and extending over the second-named outlet of said chute, substantially as set forth.



2. The combination, in a separating apparatus, of a crusher and a finisher, and a chute interposed between said crusher and finisher, said chute being arranged at an angle of practically fifty degrees and divided into an upper and a lower channel by a screen, with an independent spout leading from each channel, one of said spouts leading to said finisher and the other spout leading to the outlet of said finisher, substantially as set forth.

479,618. METALLIC FRAME FOR WAGONS. WILLIAM P. BERTENDORF, Davenport, Iowa. Filed Dec. 24, 1891. Serial No. 416,021. (No model.)



Claim.—1. A combined wagon-axle and sand-board consisting of two complementary parts, each formed from a single sheet of metal and the two united, substantially as described.

2. A sheet-metal axle consisting of two semi-tubular sections having their ends welded together in the form of conical spindles and the intermediate portions riveted together.

3. A combined axle and sand-board consisting of two complementary parts, each formed from a single sheet of metal, one edge bent into semi-tubular form and the opposite edge bent to form one side of the sand-board.

4. In a sheet-metal axle, the two longitudinal complementary parts, in combination with the internal strengthing-sleeves C, extending from the spindle into the main body.

5. The combined axle and sand-board consisting of the two longitudinal complementary parts united face to face, vertical depressions being formed in their proximate faces to provide a king-bolt opening F.

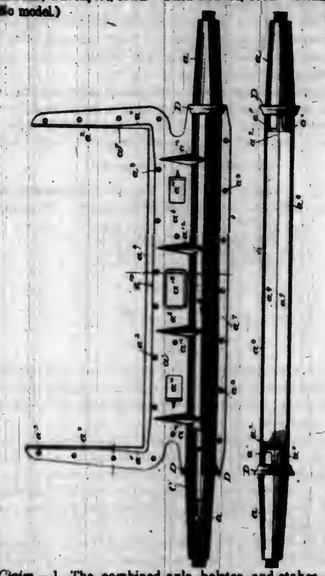
6. The sheet-metal axle consisting of longitudinal members, one having tubular necks or rivets raised therefrom and projected through and fastened to the other member.

7. The combined axle and sand-board consisting of the two complementary sheet-metal parts, substantially as described, united face to face and provided with corrugations E.

8. In a combined axle and sand-board, the complementary sheet-metal parts united face to face and provided with openings a^4, having the lips a^5 turned outward therefrom in opposite directions to receive the sway-bar.

9. The blank for an axle and sand board, consisting of a sheet-metal plate having substantially the outline shown in Fig. 1, with end projections *a a* to form complementary parts of the spindles and the side extension *a'* to form a complementary part of the sand-board.

479,619. METALLIC FRAME FOR WAGONS. WILLIAM P. BERTENDORF, Davenport, Iowa. Filed Dec. 24, 1891. Serial No. 416,022. (No model.)



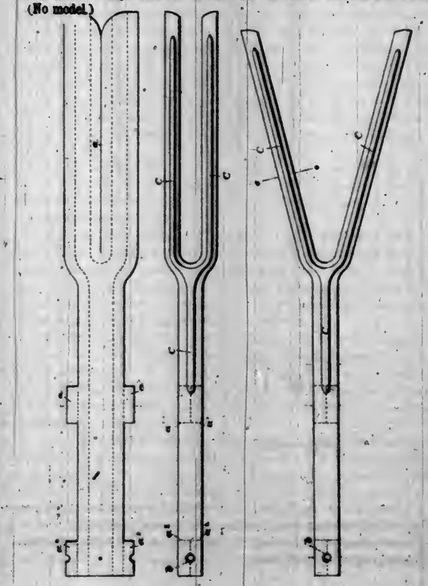
Claim.—1. The combined axle, bolster, and stakes consisting of two longitudinal complementary parts formed from sheet metal and united face to face, substantially as described and shown.

2. The tubular axle, the bolster integral therewith, and the standards integral with the bolster, said parts constructed substantially as described.

3. In a wagon, the tubular axle, the flanged bolster, and the flanged standards rising from the bolster, said parts constructed of two complementary sheet-metal members.

4. The herein described blank, having substantially the outline shown in Fig. 1, with the extensions *a a*, the portion *a'*, and the extensions a^3.

479,620. METALLIC FRAME FOR WAGONS. WILLIAM P. BERTENDORF, Davenport, Iowa. Filed Jan. 15, 1892. Serial No. 418,134. (No model.)

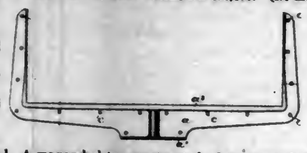


Claim.—1. The combined wagon reach and hounds constructed as herein described and comprising a single hollow reach and diverging hollow hounds integral therewith.

2. As a new article of manufacture, the combined wagon reach and hounds constructed as shown and described and comprising a single semi-tubular reach and diverging semi-tubular hounds integral with the reach.

3. The combined wagon reach and hounds constructed as shown and described and comprising a single reach and diverging hounds integral therewith, the reach being tubular at points to afford bearings for the king-bolt and sway-bar and semi-tubular at all other points.

479,621. WAGON-BOLSTER. WILLIAM P. BETTENDORF, Davenport, Iowa. Filed Jan. 15, 1892. Serial No. 418,135. (No model.)



Claim.—1. A wagon-bolster constructed of two complementary sheet-metal plates secured together face to face and having their upper and lower edges bent outward to form bearing-surfaces, substantially as shown and described.

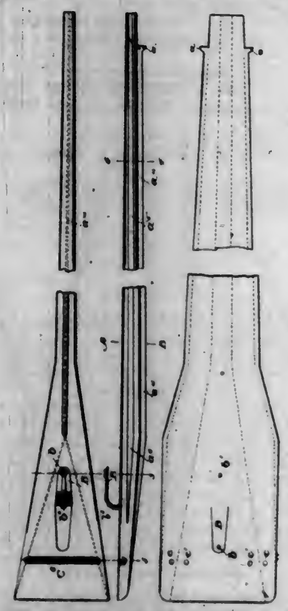
2. A wagon-bolster with standards at its ends, composed of two complementary sheet-metal halves, each consisting of a single piece of sheet metal flanged longitudinally and bent upward at the ends.

3. The sheet-metal bolster consisting of the two united sheet-metal members, each flanged at the base and at the top and upturned at the ends to form standards.

4. The sheet-metal bolster consisting of the two longitudinal sheet-metal members joined face to face, each member having a top flange extending horizontally outward and turned downward at the outer edge.

5. A sheet-metal wagon-standard consisting of two members of L form in cross-section, joined face to face.

479,622. METALLIC WAGON-TONGUE. WILLIAM P. BETTENDORF, Davenport, Iowa. Filed Jan. 15, 1892. Serial No. 418,136. (No model.)

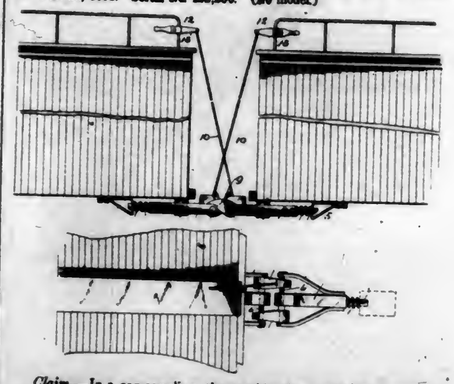


Claim.—1. A wagon-tongue formed of sheet metal, the front or pole portion bent into tubular form and the rear portion flat and of a width and shape to fit between the front hounds of the wagon, substantially as shown and described.

2. A wagon-tongue formed of sheet metal, the front or pole portion bent into tubular form and the rear portion flat, of size and shape to fit between the front hounds of the wagon, and having downturned edges with openings therein for the reception of the cross-bolt, substantially as shown and described.

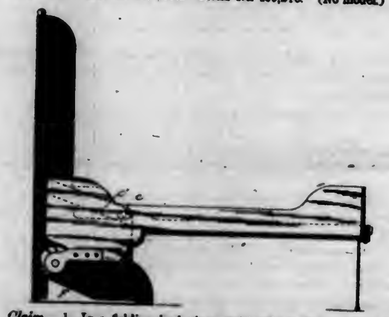
3. A sheet-metal wagon-tongue having an integral hammer-strap formed by bending up a strip of metal severed along its longitudinal edges and at one end, substantially as shown and described.

479,623. CAR-COUPLING. ADAM BITTNER, Custer, Ill. Filed Feb. 20, 1892. Serial No. 422,236. (No model.)



Claim.—In a car-coupling, the combination, with the draw-bar, of the tranverse rod projecting laterally from each side thereof, the curved bars connecting the ends of said bar with the draw-bar, the beveled hook pivoted to said rod, and the connecting-rod and lever, substantially as described.

479,624. WARDROBE-BEDSTEAD. ADELBERT M. BRAINARD, Chicago, Ill. Filed Oct. 19, 1891. Serial No. 409,210. (No model.)



Claim.—1. In a folding bed, the combination of a rigid casing, a secondary frame jointed thereto near the base to turn outward and downward, and a bed-frame hinged to the secondary frame at or near the foot end.

2. In a folding bed, the combination of a rigid casing, a secondary frame supported on a movable bearing near the base of the casing and adapted to turn outward and downward, and a bed-frame hinged to the secondary frame above the movable support of the latter.

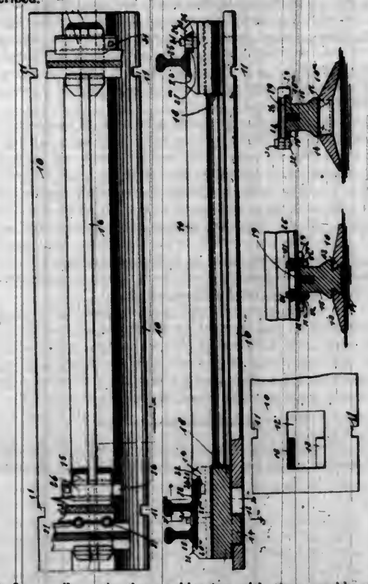
3. The casing, the gravitating head-board, the secondary frame connected with the casing by the vertically and horizontally moving pivots, the bed-frame hinged at its foot end to the secondary frame, and the tracks to sustain the head end of the bed-frame.

4. The casing, in combination with a secondary frame jointed thereto to swing from a vertical to a horizontal position, a gravitating weight on which it acts, a bed-frame jointed at its foot end to the secondary frame, and an inclined track on which the head of the bed-frame travels as the bed is extended for use.

479,625. RAILWAY-TIE. ALBERT G. BUDINGTON, Austin, Tex. Filed Mar. 3, 1892. Serial No. 423,606. (No model.)

Claim.—1. A railway-tie comprising a base-plate having slots in the bottom near its opposite ends, which slots have at their outer ends converging walls, chairs having dovetailed blocks on their under sides to fit between the converging walls of the base-plates, said chairs having their upper surfaces recessed to receive the rails, a tie-bar extending between the chairs and secured thereto, and fastening devices to secure the rails to the chairs, substantially as described.

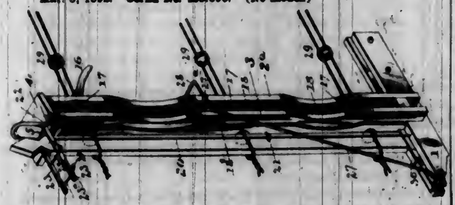
2. The combination, with the base-plate and the detachable chairs secured thereto and having grooves in their upper ends and transverse recesses to receive the rails, of tie-bars extending between the chairs and having their upper portions shaped to enter the grooves, the ties having recesses to register with the chair-recesses, and a fastening device to secure the rails to the tie-bar and chairs, substantially as described.



3. In a railway-tie, the combination, with the movable chairs having dovetailed recesses in their upper surfaces, and the detachable tie-bars adapted to be secured to the rails and having recesses to register with the chair-recesses, of binding-keys adapted to enter the recesses of the chairs and tie-bars and clamp the flanges of the rails, and means for fastening the keys in place, substantially as described.

4. The combination, with the recessed chairs and tie-bars, of binding-keys adapted to fit the rail-flanges and to enter the recesses, said keys having flanges at one end and holes to receive fastening-bolts at the opposite end, substantially as described.

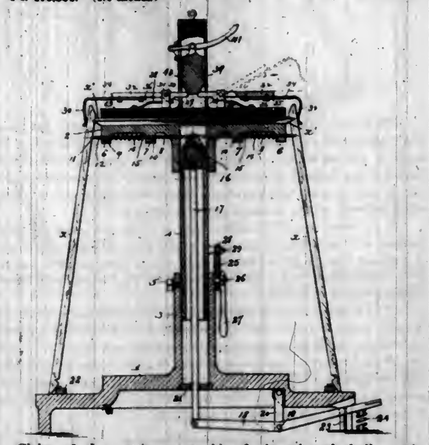
479,626. MACHINE FOR WIRING FENCE-PICKETS. WILLIAM CALLAWAY, Sr., Knox, assignor to Frank B. Yarbro, Kewanna, Ind. Filed Mar. 5, 1892. Serial No. 423,890. (No model.)



Claim.—1. In a fence-wiring machine, the combination, with the base, the uprights, the block at the top, having a slot or notch therein, the gage consisting of the bent metal rod pivoted to said block and having the two arms provided with a series of apertures, the adjustable spacing-rod for said apertures, and the vertical guide-wires, of the twisters having peripheral cogs, the endless chain engaging therewith, the screw-bolts intermediate of the center and end twisters for holding the chain in engagement with the cogs, and means for actuating the twisters, substantially as described.

2. In a fence-wiring machine, the combination, with the base, the uprights, the block at the top, having a slot or notch therein, the vertical guide-wires, the twisters having peripheral cogs, the endless chain, the screw-bolts, and the sleeves loosely mounted thereon, of the gage consisting of the bent metal rod pivoted to said block, having the two arms provided with a series of apertures, the adjustable spacing-rod for said apertures, the spring-gage plate secured to the base, and the rod for limiting the movement of the picket being wired, substantially as described.

479,627. SETTING-UP AND FORMING MACHINE FOR BARRELS, &c. HENRY CAMPBELL, Baltimore, Md., assignor to the Campbell Barrel Machine Company, same place. Filed Oct. 29, 1891. Serial No. 410,206. (No model.)



Claim.—1. In a setting up machine for barrels and similar articles, the combination of a stand, a support for the barrel-head carried thereby, and outwardly-directed radially-movable pins having points adapted to engage the staves, substantially as set forth.

2. The combination of the stand, means for supporting the barrel-head, radially-movable parts having outwardly-directed points for engaging the staves, and means for retracting said parts, substantially as set forth.

3. The combination of the table, the clamp 13 opposite thesame and adapted to secure the barrel-head, pins 8 for engaging the staves, springs 14, connected with said pins, the cone 16, engaging the pins, and means for moving the latter, substantially as set forth.

4. The combination of a support for the head, radially-movable parts having points for engaging the staves, means for retracting said parts, and movable fingers adapted to hold the staves against the head and in engagement with said points, substantially as set forth.

5. The combination, with a support for the head, of upwardly and downwardly movable pivoted arms mounted thereon and fingers adapted to engage the outer faces of the staves and carried by and longitudinally adjustable on said arms, substantially as set forth.

6. The combination, with the weight or clamp 13, of the arms 32, pivotally mounted thereon, fingers 30, adjustable on said arms, and means for operating and holding the arms, substantially as set forth.

7. The combination, with the weight 13, of the arms 32, having projections 37, springs 38, engaging the latter, fingers 30, carried by the arms, and the slide 35 for depressing the inner ends of the latter, substantially as set forth.

8. In a barrel-setting-up machine, the combination, with the stand, of pivoted and vertically-oscillatory fingers mounted above and adapted to pass down over and engage the outer sides of the upper ends of the staves, means for individually supporting said fingers, and an actuating device or mechanism for simultaneously disengaging them from the staves, substantially as set forth.

9. The combination of a table, a clamp opposite to the same and adapted to secure the barrel-head, pins having outwardly-directed points radially movable and adapted to engage the inner faces of the staves, springs for moving said pins radially in one direction, and means for moving and holding said pins against the action of the springs, substantially as set forth.

10. In a barrel-setting-up machine, the combination of means for holding the barrel-head, a series of pivoted and vertically-oscillatory arms adapted to come down toward the ends of the staves as the latter are put in place, and inwardly-operating spring-fingers carried by the arms, substantially as set forth.

11. In a barrel-setting-up machine, the combination of a means for holding the barrel-head, a support for the lower ends of the staves, and upwardly and downwardly movable holders or fingers independ-

ent of each other, supported above the said head-holding means and adapted to be brought down over and outside of the upper ends of the staves, substantially as set forth.

479,628. LAST. JOHN R. CASS, Brooklyn, N. Y. Filed Feb. 25, 1892. Serial No. 422,757. (No model.)

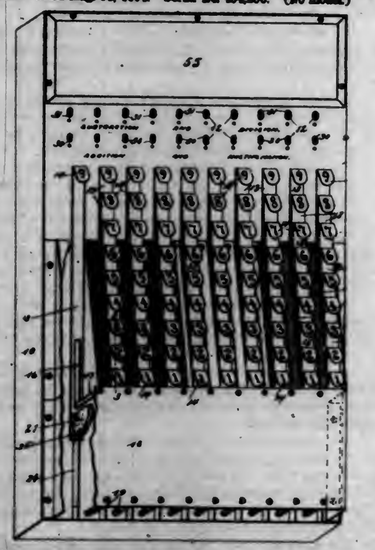


Claim.—1. In a last, the combination, with a vertically-apertured and longitudinally-slotted last-stock, of a cap-plate imposed on the comb of the last-stock, a pendent socket-tube, two longitudinally-extended wings integral therewith, a latch-dog for an instep-block, pivoted to the cap-plate, and transverse pins or screws passing through the stock and both wings, substantially as described.

2. In a last, the combination, with a stock and an instep-block thereon, of a cap-plate on the comb of the stock, a latch-dog pivoted in a slot on the cap-plate and adapted to latch into a recess in the top of the instep-block, and a spring pressing the dog toward said recess, substantially as described.

3. In a last, the combination, with a last-stock, an instep-block thereon, and a cap-plate held on the comb of the stock by wings on a socket-tube, and pins passing through the stock and wings, of a latch-dog pivoted between depending ears and in a slot in the cap-plate and adapted to enter a recess in the top of the block, and a plate-spring secured by one end in a groove of the last-stock and pressing the heel of the latch-dog, substantially as described.

479,629. CALCULATOR. CHARLES H. CLARRIDGE, Libertyville, Iowa. Filed Aug. 31, 1891. Serial No. 404,350. (No model.)



Claim.—1. A calculator comprising a base-plate having rows of holes therein, number-wheels pivoted on the base-plate and having numerals to register with the holes, rack-bars geared to the number-wheels, rows of numbered finger-keys adapted to move upon the base-plate, a sliding abutment arranged at the end of each of the finger-keys, and elbow-levers pivoted in the abutments and having their inner ends connected with the rack-bars, substantially as described.

2. A calculator comprising a plate having holes therein, number-wheels pivoted on the plate and having numbers to register with the holes, rack-bars geared to the number-wheels, sliding abutments arranged beneath the rows of keys and connected by lever mechanism with the rack-bars, and a series of numbered finger-keys arranged in rows to press upon the sliding abutments, the keys having longitudinal slots of dissimilar lengths and limiting-pins extending through the slots, substantially as described.

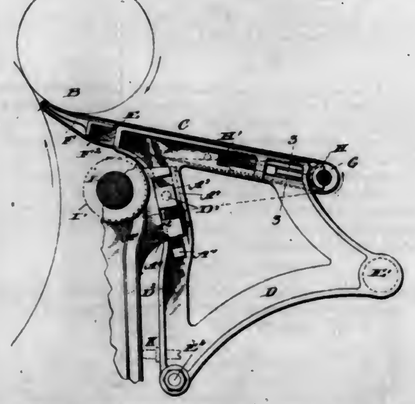
3. In a calculator, the combination, with the revoluble number-wheels having a gear mechanism to revolve them, of cams secured to the wheels and provided with shoulders on one side, movable rack-bars adapted to operate the wheels, spring-pressed carrier-bars adapted to engage a cam of one wheel and a rack-bar of a wheel in advance of it, and a releasing device to limit the movement of the carrier-bars, substantially as described.

4. In a calculator, the combination, with the rows of number-wheels and the movable rack-bars adapted to operate the wheels, of cams secured to the wheels and provided on one side with a shoulder, movable spring-pressed carrier-bars having their ends in engagement with the cams, sleeves mounted on the carrier-bars and adapted to overlap the rack-bars, a spring-pressed catch to fasten the carrier-bars and sleeves together, and an automatic releasing device for the catch, substantially as described.

5. A calculator comprising a base-plate, rows of keys held to slide on the base-plate, said keys having outwardly-bent and numbered ends, sliding abutments mounted on the base-plate below each vertical row of keys, elbow-levers pivoted in the abutments, movable rack-bars carried by the elbow-levers, numbered wheels geared together and held to turn opposite holes in the base-plate, said wheels having a ratchet connection with the rack-bars, cams on the number-wheels, spring-pressed carrier-bars held to slide on the base-plate, each carrier-bar being adapted to engage a cam on a number-wheel and the rack-bar in advance of it, and a device for releasing the carrier-bars and limiting their movement, substantially as described.

6. The combination, with the number-wheels having cams on their back and the rack-bars geared to the number-wheels, of spring-pressed carrier-bars held to slide near the rack-bars, the carrier-bars having bent ends to engage the cams, sleeves mounted on the carrier-bars and adapted to engage the rack-bars, and a releasing device to free the rack-bars and carrier-bars, substantially as described.

479,630. MECHANICAL FEEDING DEVICE. ALLEN COMLING, Chicago, Ill. Filed Dec. 29, 1891. Serial No. 416,415. (No model.)



Claim.—1. The combination, with a primary feed-roll and its supporting mechanism, of an endless apron having its supporting mechanism mounted independently of that of said feed-roll and adapted to support the apron with relation to the feed-roll with variable surface contact, the apron-guiding devices remaining relatively unchanged, substantially as specified.

2. The combination, with a primary feed-roll, of an endless apron having oppositely-located apron supporting and guiding mechanisms, and a framework for supporting said apron and its said mechanisms mounted adjustable to and from and independently of the said feed-roller, substantially as specified.

3. The combination, with a primary feed-roll, of an endless apron, oppositely-located apron guiding and directing mechanisms, a framework for supporting said mechanisms, and means for adjusting said framework toward and along the active surface of said feed-roll, substantially as specified.

4. The combination, with a roll and an endless apron and with its moving and guiding mechanisms, of a framework for the support and operation of said mechanisms, said framework being mounted for bodily and pivotal movement, substantially as specified.

5. The combination, with a feed-roll or its equivalent and with an endless apron and of means for supporting said apron with one end higher than the other, of a pivoted framework, adjustable bearings for the pivots, and means for changing the position of the framework with relation to its points of support, substantially as specified.

6. The combination, with a pair of feed-rolls, of a bed adapted to be projected between said rolls, an endless apron mounted on the bed, with one end higher than the other, and means for simultaneously supporting and moving the bed inwardly and upwardly, substantially as specified.

7. The combination of a feed-roll and an endless apron mounted on a movable apron-supporting bed having a curved extension, which said apron surrounds, and means for moving the bed inwardly and upwardly with relation to the feed-roll, as set forth.

8. The combination, with a feed-roll and an endless apron, of the bed having a curved extension at one end and a roller for supporting the apron and means for adjusting the bearings and said roller at the other end, a framework for supporting said bed, and means for moving the framework simultaneously upward and inward, substantially as specified.

9. The combination, with a feed-roll and an endless apron, of a bed terminating with an extension and provided with an apron tightening and carrying roller, and a framework adapted by adjusting devices for upward and inward movement toward said roll, substantially as specified.

10. The combination, with a feed-roll and an endless apron, of a bed having suitable apron supporting and moving devices and a framework mounted for upward and inward movement toward said roll and having a tie-bar and rod, substantially as specified.

11. The combination, with the primary feed-rolls of the machine and an endless apron, of a bed having apron supporting and moving devices mounted independently of a feed-roll and means for changing the vertical and longitudinal position of the bed with relation to the said primary rolls of a machine, substantially as specified.

12. The combination of a feed-roll and an endless apron, a bed having a curved extension, a roller, and a frame having a sliding box in each side thereof, an adjusting-screw for each box, a supporting sliding block on each side of the frame, and brackets adapted to support the framework and provided with adjusting-screws, substantially as specified.

13. The combination, with a feed-roller or its equivalent and an endless apron, as C, of the bed, as E, terminating at one end in a bent plate and provided at or near its other end with a roller, as G, and with a roller, as J, movably connected with the bed outside of the point of contact of the roller J with the apron, substantially as specified.

479,631. SHAFT-SUPPORT FOR VEHICLES. HENRY L. CORDNEY, Mount Union, Iowa. Filed Feb. 24, 1892. Serial No. 422,661. (No model.)



Claim.—1. In a combined anti-rattler and shaft-support, the combination of a spring-body having two arms, one of which extends up and is provided with a curved flattened portion and a flattened portion adapted to lock a coupling-bolt in place, the other arm being provided with a loop, substantially as described.

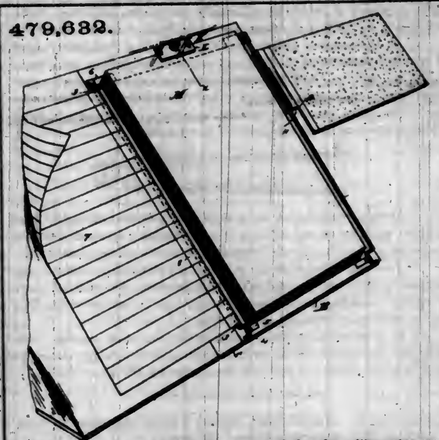
2. A combined anti-rattler and shaft-support consisting of the coiled spring having two arms, one longer than the other, the shorter arm being provided with a flattened curved portion adapted to bear against the thill-eye and a flattened portion at right angles thereto adapted to bear against the coupling-pin, while the longer arm near its free end is bent at an angle and thence back at right angles to itself, whereby a loop g^3 is formed, the center of which is directly in line with the main body of said arm, in combination with the plate I, having a notch in its forward edge in which said short arm rests, whereby the whole is held in proper position.

479,632. WRITING-TABLET. CALVIN D. CRANE, Dayton, Ohio. Filed June 22, 1891. Serial No. 397,066. (No model.)

Claim.—1. As an improved article of manufacture, a writing-tablet consisting of a base, a screw-threaded post and pillars carried by the base, a thumb-nut on the post, a clamping-plate on the pillars and engaged by said nut, writing-sheets held by the clamping-plate, a wire attached to the base on each side of the writing-paper and detachable, a writing-guide consisting of a sheet ruled on both sides and carried by one of said wires, and a blotter carried by the other wire.

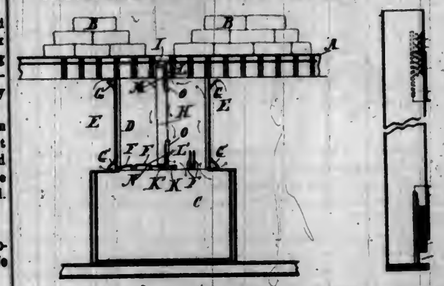
2. As an improved article of manufacture, a paper-holder or clamp

479,632.



consisting of a base and a screw-post carried thereby, pillars also carried thereby, a clamping-plate sliding on the pillar and having an open slot at one edge, and a thumb-nut grooved to receive the plate and fitted to said slot and mounted upon said post.

479,633. REFRIGERATOR. AVERYL I. DREYER, Whitewater, Wis. Filed Dec. 10, 1891. Serial No. 414,568. (No model.)



Claim.—1. A refrigerator comprising an ice-room arranged to hold a supply of ice, a cold-air room below the ice-room, a series of tanks suspended in the cold-air room from the floor of the ice-room and opening at the top into the ice-room, so as to be readily filled with ice therefrom, apertures in the walls of the tanks in the cold-air room near its floor and ceiling, respectively, cold-storage rooms in the same horizontal plane and adjoining the cold-air room, into which passages closed by doors open from the cold-air room near the floor and ceiling, respectively, a freezing-room below the cold-air room, and passages closed by doors through the floor of the cold-air room into the freezing-room below, the latter passages being arranged, respectively, near to and at a distance from the tanks suspended in the cold-air room, substantially as described.

2. In a refrigerator, an ice-chamber, a cold-air room below the ice-chamber, a tank suspended in the cold-air room from the floor of the ice chamber, into which it opens at its top, which tank is adapted to be filled from the top with a freezing mixture, a series of openings near the top of the tank, adapted to permit the passage of air from the room into the tank, tongues punched from the wall of the tank in forming the opening, which tongues are bent inwardly obliquely at their upper attached edges, whereby the tongues are adapted to guard and partially cover the openings, so as to prevent the passage outwardly from the tank of the mixture within and to carry the drip on the interior of the tank inwardly into the tank away from the openings, and a screen over an aperture in the lower part of the tank, substantially as described.

479,634. MANDREL. WILLIAM O. DUNN, Newark, N. J. Filed Feb. 6, 1892. Serial No. 420,574. (No model.)

Claim.—1. The improved mandrel for turning eccentric-rings, which consists in a tapering mandrel having at its opposite ends rotatively-adjustable end centers for the lathe, substantially as set forth.

2. The improved mandrel consisting of a tapering body portion provided at the opposite ends with laterally-sliding end centers for the

lathe, arranged in rotatively-adjustable end pieces, said end pieces, and means for holding the same, substantially as set forth.

3. In combination with the tapering mandrel, end pieces arranged at opposite ends of said mandrel and rotatively adjustable in relation to the said mandrel, and transverse center-bearings arranged in passages in said end pieces, a wedge or key for holding said center-bearings in place, and means for holding the rotative end pieces in fixed relation to the mandrel, substantially as set forth

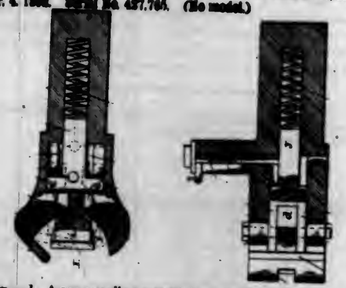


4. In combination with the mandrel, an end piece having a shank adapted to be set or secured in said mandrel and a transverse sliding center-bearing to receive the lathe-center, substantially as set forth.

5. In combination with the mandrel, an end piece rotatively adjustable in its relation to said mandrel, a catch to hold said end piece as adjusted, a sliding center-bearing, and a key for holding said sliding center-bearing, substantially as set forth.

6. In combination with the mandrel, an end piece rotatively adjustable in its relation to the mandrel and a center-bearing piece adjustable in its relation to said end piece, substantially as set forth.

479,635. CAR-COUPLING. SAMUEL B. DOVER, Adairsville, Ga. Filed Apr. 4, 1892. Serial No. 427,706. (No model.)



Claim.—1. A car-coupling comprising a draw-head, an operating-bar moving longitudinally therein, and a jaw pivoted between its ends to the front end of the said draw-head, the said bar having a recess in its side for the reception of the inner end of the said jaw, substantially as set forth.

2. A car-coupling comprising a draw-head, an operating-bar moving longitudinally therein and provided with a laterally-extending projection, and a jaw pivoted between its ends to the outer end of the draw-head, the inner end of the said jaw being rounded upon its outer side, and with which the said lateral projection engages, substantially as described.

3. A car-coupling comprising a draw-head, an operating-bar moving longitudinally therein, two jaws being each pivoted between their ends to opposite sides of the outer end of the draw-head, the inner ends of the said jaws engaging the said bar to be operated thereby, and a lock for the said bar, substantially as specified.

4. A car-coupling comprising two jaws pivoted at opposite sides of its front end, one jaw extending inward farther than the other, and a means for operating the two jaws to throw them inward when engaged by the jaw or jaws of an adjoining car, substantially as set forth.

5. A car-coupling comprising a draw-head, a jaw pivoted therein, a locking-bar for the jaw, a projection upon the draw-head having a vertical pin-opening and a slot communicating with the said opening extending longitudinally of the said projection, and a locking-pin which moves in the said opening, the pin having an arm which extends laterally therefrom and moves in the said slot, substantially as specified.

479,636. HAND-DRUM. EDWARD H. DROOP, Washington, D. C. Filed May 3, 1892. Serial No. 431,730. (No model.)



Claim.—1. A hand-drum having a rim, a head, and a projecting handle and provided with a hammer arranged within its rim and free to vibrate in contact with the head of the drum as the latter is vibrated, substantially as set forth.

2. A hand-drum comprising a thin tambourine-like drum provided within its rim with a hammer free to vibrate in contact with the head of the drum as the latter is vibrated, substantially as set forth.

3. A hand-drum having a rim, a head, and a handle by which it may be vibrated, a hammer free to vibrate in contact with the head of the drum as the latter is vibrated, and a snare which may be set into and out of contact with the head, substantially as set forth.

4. A hand-drum provided with a hammer free to vibrate in contact with its head and having a snare which may be adjusted into and out of contact with its head, substantially as set forth.

5. A hand-drum having a handle by which it may be vibrated, a hammer free to vibrate in contact with its head, and a snare adjustably connected with its rim, whereby it may be set into and out of contact with its head, substantially as set forth.

6. A hand-drum having a hammer and a snare provided at one end with a crank-like portion journaled to the drum, whereby it may be adjusted into and out of contact with the head, substantially as set forth.

7. A drum having a snare connected adjustably with it and adapted to be adjusted into and out of contact with the head of the drum without detaching or disconnecting said snare from the drum, substantially as set forth.

8. The combination, with the drum, of the snare having a crank-like portion provided with a shaft journaled in the rim of the drum, substantially as set forth.

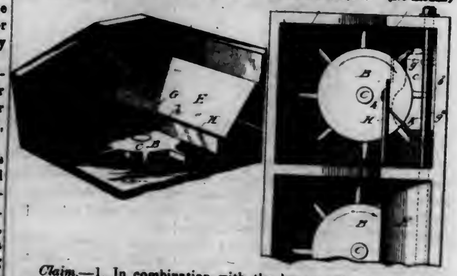
9. A hand-drum having a vibrating hammer provided with a spring-support adjustable, whereby the hammer may be set to strike in different places, substantially as set forth.

10. In a hand-drum, the combination of the rim and head, the handle secured to said rim, and the hammer arranged within the rim and having a spring-support held by said handle, substantially as set forth.

11. In a hand-drum, the combination of the rim having a tapered socket, the handle having a tapered portion fitted in said socket and provided in its end with a slit, and the hammer having its support held in said slit, substantially as set forth.

12. A hand-drum having a handle provided in its end with a slit and a hammer arranged to vibrate in contact with the drum-head and having its support held in the end slit of the handle, substantially as set forth.

479,637. FERTILIZER-DISTRIBUTER. SAMUEL H. EVERETT, Macedon, N. Y. Filed Feb. 11 1892. Serial No. 421,171. (No model.)



Claim.—1. In combination with the hopper, the peripherally-toothed wheel, the wall or plate E, having an opening through which the wheel works, and the rock-shaft provided with the vertically-movable gate parallel to the said wall or plate to control the size of the opening through which the wheel works.

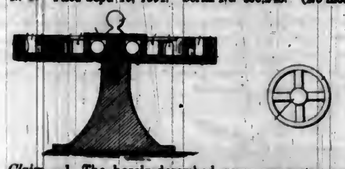
2. In combination with the hopper, the peripherally-toothed wheel, the wall or plate E, having an opening through which the wheel works, the rock-shaft, and the vertically-movable gate above the wheel and parallel to the said wall to control the size of the opening through which the wheel works.

3. In combination with the hopper, the wheel B and the plate E, having an opening over the surface of the wheel, and a reversible cut-off gate H to close the opening above the wheel.

4. In a fertilizer-distributer of the type herein shown, the feed-wheel having peripheral teeth and an overlying plate E, in combination with a hopper having in rear of the plate an outlet-opening *c*, enlarged from one end toward the other.

5. In combination with the feed-wheel having peripheral teeth and an overlying wall or plate E, beneath which the wheel delivers the material, a bottom plate having a discharge-opening *c*, over which the teeth sweep and which is widened at one end to extend beneath the body of the wheel.

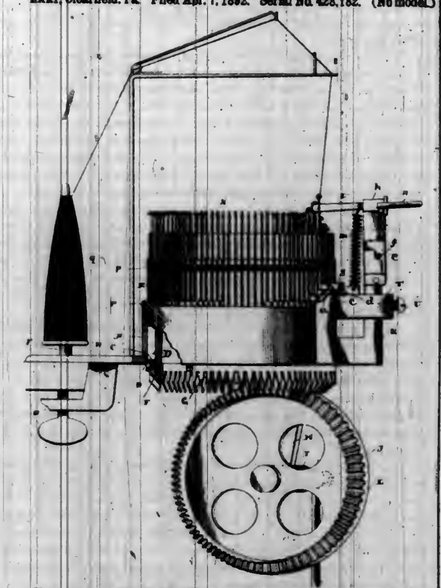
479,638. GAME APPARATUS. DENIS L. FALARDEAU, Cohoes, N. Y. Filed Sept. 19, 1891. Serial No. 406,245. (No model.)



Claim.—1. The herein-described game apparatus, comprising a base or support having a vertical pivot or standard, a circular disk or carriage loosely journaled thereon, the dial marked around the marginal edge of said carriage, a ring supported on said dial and forming a series of pockets in said dial, an opening communicating with said pockets, a cap removably supported centrally on said carriage, and the balls or marbles, substantially as specified.

2. The herein-described game apparatus, comprising the base or support having a vertical pivot, a circular rotary carriage loosely journaled on said pivot, a dial bearing a series of indications removably supported on the marginal edge of said carriage, outer and inner rings supported on said carriage, a series of pockets between said rings, a series of openings through said inner rings communicating with said pockets, and a removable cup supported centrally on said carriage and adapted to hold balls or marbles, substantially as specified.

479,639. CIRCULAR-KNITTING MACHINE. JOSEPH E. GEARHART, Clearfield, Pa. Filed Apr. 7, 1892. Serial No. 428,182. (No model.)



Claim.—1. A circular-knitting machine comprising a base having a depression to form a cam, a cam above the said depression, a latch at the upper end of the said depression, a revoluble cylinder inside of the said cam, and a means for revolving the said cylinder.

2. A circular-knitting machine comprising a base having a depression to form a cam, a vertical support outside of the said cam, and a cam adjustably held upon and at the inner side of the said support by means of a clamp, substantially as specified.

3. A circular knitting machine comprising a base having a vertical portion having a cam, a revoluble cylinder inside of the said vertical portion, carrying needles with shanks, a vertical support outside of the said vertical portion, a standard pivoted or journaled at the upper end of the standard to be reversible, and a spring having one end secured to the inner end of the thread-guide and its opposite end to a portion of the machine.

4. A circular-knitting machine comprising a base having a vertical portion provided with a cam, a revoluble cylinder inside of the said vertical portion, carrying needles with shanks, a means for revolving the cylinder, a vertical support outside of the said vertical portion, a standard pivoted to the upper end of the said support, a thread-guide journaled in the upper end of the said standard, having its inner end formed into a guide and the outer end formed into a handle, stops upon the standard which the handle engages, and a spring secured to the thread-guide for holding it to its proper position and also for holding the said standard inward.

5. A circular-knitting machine comprising a base having a vertical portion provided with a cam-depression, a spring-actuated latch at each end of the said depression, which is normally held at its free end upon the vertical portion, a cam above the said depression, a revoluble cylinder inside of the said vertical portion, carrying needles with shanks, and a means for revolving the said cylinder.

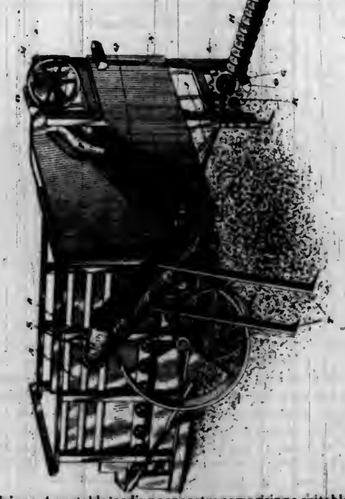
6. A circular-knitting machine comprising a base having a vertical portion provided with a cam, projections at each end of the said cam and outside thereof, latches having arms which are pivoted in the said projections and provided with inclined upper edges, springs for holding the free ends of the latches normally upon the said vertical portion, a revoluble cylinder inside of the said vertical portion, carrying needles with shanks, and a means for revolving the said cylinder.

479,640. COMPOUND FOR PRESERVING THE COLOR OF FINISHING-BRICKS. JACOB D GRAYBILL, Shreveport, La. Filed Apr. 30, 1892. Serial No. 431,353. (No specimens.)

Claim.—1. The compound for preserving the color of finishing-bricks, consisting of the oily and mucilaginous extract of flaxseed, glue, and Japan drier in an aqueous solution or menstruum in or about the proportions described.

2. The compound for preserving the color of finishing-bricks, consisting of the oily and mucilaginous extract of flaxseed, glue, Japan drier, and Venetian red in an aqueous solution or menstruum in or about the proportions described.

479,641. MACHINE FOR LOADING COAL. JAMES GRIERSON, Toronto, Canada. Filed Dec. 3, 1891. Serial No. 413,906. (No model.)

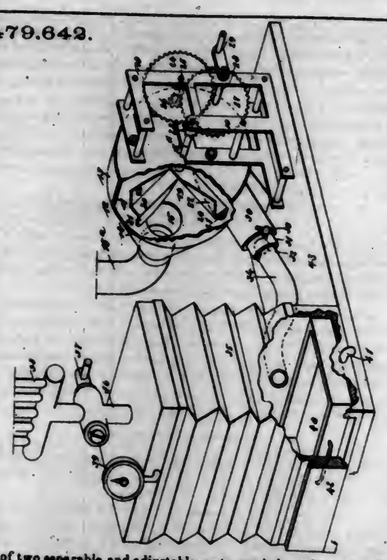


Claim.—A portable loading apparatus comprising a suitable frame, a horse-power connected thereto, an Archimidean screw H, having its shaft extending under the horse-power and adjustable lengthwise thereunder, the endless chain of buckets N O, the screen Q, and an endless apron-carrier R, a gear-wheel B, receiving motion from the horse-power and driving the screw through the medium of the chain C and gears I, D, E, and F and the endless chain of buckets through the medium of the chain J and gears K L, all constructed and arranged substantially as shown and described.

479,642. ROTARY BLOWER. JOHN HAMILTON, St. John, Canada. Filed Dec. 21, 1891. Serial No. 415,758. (No model.)

Claim.—1. In a ventilating apparatus, the combination, with the fan adapted to rotate, of a casing having an air inlet and outlet and com-

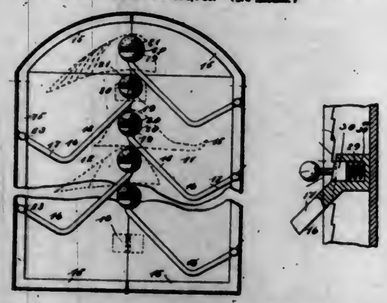
479,642.



posed of two separable and adjustable parts, one being adapted to slide within the other, as shown and described, whereby the casing is adapted to be enlarged or contracted in size, as specified.

2. In a ventilating apparatus, the rotary fan having blades constructed of three parts or sections, two being in different radial planes and the intermediate one being parallel to the plane of rotation and permanently attached to the others at its opposite edges, as shown and described.

479,643. HAT-CASE. NELLIE F. HURDIS, New York, N. Y. Filed Dec. 14, 1891. Serial No. 414,940. (No model.)



Claim.—1. A hat-case comprising two similar parts hinged together, a vertical frame arranged within the case and extending around the walls thereof, and a series of vertically-adjustable hat-supporting arms arranged one above the other and terminating at their inner ends in hat-hangers, substantially as described.

2. In a hat-case, the combination, with the grooved knobs supported on arms, as described, of horizontally-extending hat-hooks having their inner ends terminating in a band adapted to be secured in the grooves of the knobs, substantially as described.

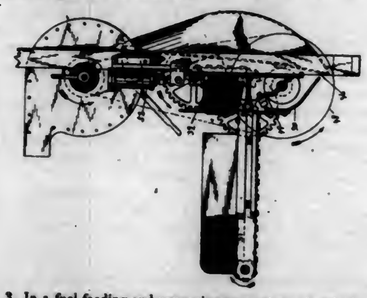
3. A hat-case provided with an internal frame and a series of vertically-sliding arms mounted adjustably on said frame and provided at their free ends with cushions to which the hats may be pinned, substantially as set forth.

4. A vertically-divided hat-case provided on its inner side with a grooved supporting-frame and a series of vertically-adjustable arms having a pawl-and-ratchet connection at one end with said grooved frame, substantially as set forth.

479,644. PNEUMATIC FUEL-FEEDING APPARATUS FOR STRAW. BYRON JACKSON, San Francisco, Cal. Filed Feb. 16, 1892. Serial No. 422,095. (No model.)

Claim.—1. In a fuel feeding and conveying apparatus as herein described, a traction-engine, and a fan-blower mounted thereon or upon a vehicle drawn thereby, connected to the furnace of the steam-boiler by suitable pipes or conductors and having an inlet, with apparatus for feeding light fuel that can be thus conveyed and supplied to the boiler in quantities as the amount of steam may require, substantially in the manner and for the purpose described.

2. In a fuel feeding and conveying apparatus as herein described, a traction-engine, a fan-blower mounted thereon or on a vehicle drawn thereby, a conducting-pipe connecting the fan-blower with the boiler-furnace, and an inlet-pipe provided with cutting appliances to reduce fibrous fuel to short lengths, so that it may pass the suction and discharge pipes of the fan-blower without clogging the same, in the manner and for the purpose described.



3. In a fuel feeding and conveying apparatus as herein described, a traction-engine, a fan-blower mounted thereon or upon a vehicle drawn behind, a conducting-pipe connecting to the boiler-furnace, a suction-pipe to receive fibrous material, a cutting apparatus to reduce the same, and a rotating endless belt in combination therewith to concentrate and feed the fuel to the cutting apparatus and the suction-pipe of the fan-blower, substantially in the manner and for the purposes described.

4. In a fuel feeding and conveying apparatus as herein described, a traction-engine, a fan-blower mounted thereon or upon a vehicle drawn thereby, a suction-pipe provided with apparatus to cut and reduce the fuel so that it will pass through the pipes, and a discharge-pipe leading to and connected with a closed furnace having no other air-supply than that by which the fuel is conveyed, so that the latter is burned in suspension and the amount of heat and steam is continually as the amount of air and fuel entering together at the suction-pipe, substantially in the manner and for the purposes described.

5. In a fuel feeding and conveying apparatus as herein described, a traction-engine, a fan-blower mounted thereon or on a vehicle drawn thereby, a suction-pipe with appliances for preparing and feeding fuel thereto, and a discharge-pipe leading from the fan blower to a closed boiler-furnace provided with hinged baffling-plates to prevent the fuel while suspended in the air from entering the boiler-flues, substantially in the manner and for the purposes described.

6. In a fuel feeding and conveying apparatus as herein described, a traction-engine, a fan-blower mounted thereon or on a vehicle drawn thereby, a suction-pipe having apparatus to prepare and feed straw or other light fuel thereto, a discharge-pipe for conducting the fuel to the boiler-furnaces, and hinged baffling-plates to prevent the fuel from clogging the flues, the plates hung in an inclined position and provided with an automatic latch, substantially in the manner and for the purposes described.

7. In a fuel feeding and conveying apparatus as herein described, a traction-engine, a fan-blower mounted thereon or on a vehicle drawn thereby, a conducting-pipe for conveying straw or other light fuel to the boiler-furnace from a fan blower, and cutting and feeding apparatus, the whole operated by a steam-cylinder connected and driven, as herein described, so that the furnace can be supplied with fuel and air when the traction-engine is standing still, substantially in the manner and for the purposes described.

8. In a fuel feeding and conveying apparatus as herein described, a traction-engine, a fan-blower mounted thereon or upon a vehicle drawn thereby, a conducting-pipe for conveying straw or other light fuel to the boiler-furnace from a fan-blower, cutting and feeding apparatus, and the hinged chute 50, conducting the cut fuel from the knife to the suction-pipe, but easily swung back on the hinges, letting the straw drop out of the mouth of the suction-pipe in case it should become choked, substantially in the manner and for the purposes described.

9. In a fuel feeding and conveying apparatus as herein described, a traction-engine, with a fan-blower mounted thereon or on a vehicle drawn thereby, a conducting-pipe for conveying straw or other light fuel to the boiler-furnace from a fan-blower, cutting and feeding apparatus, and the air-gate 36, fitted to the mouth of the air-pipe, so that when operated in conjunction with the chute 50 the volume of air can be controlled to correspond with the amount of fuel required by the traction-engine boiler, substantially as described.

479,645. ILLUMINATING-TILE. JACOB JACOBS, New York, N. Y. Filed Jan. 19, 1889. Serial No. 296,835. (No model.)



Claim.—1. An illuminating-tile which is composed of a plate or body having lens-receiving openings that are surrounded by downwardly-extending flanges or curbs, in combination with a coating of suitable cement or other like material applied to the under side of such plate or body in the space surrounding the curbs or flanges, substantially as and for the purpose specified.

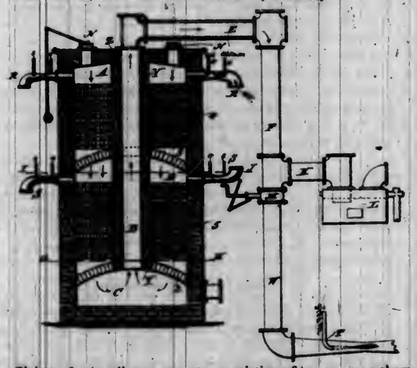
2. An illuminating-tile which is composed of a plate or body having lens-receiving openings that are surrounded by upwardly and downwardly extended flanges or curbs, in combination with a coating of cement or other like material applied to both sides of said plate in the spaces surrounding the curbs or flanges, substantially as and for the purpose shown.

479,646. ATTACHMENT FOR FEED-BAGS. FRED S. KERR, New York, N. Y. Filed May 22, 1891. Serial No. 393,725. (No model.)



Claim.—The combination, with a neck-strap, a head-strap having its ends attached to the neck-strap, guides secured to the straps at their junction, and a feed-bag, of a strap or rope adapted to support the bag, said strap or rope being passed through the guides and one end firmly attached to the bag, a tension device attached to the opposite end of the rope or strap, which tension device consists of a block having an inner convexed side, an opposite toothed side, and apertures extending from one side to the other and through which the rope is passed, and a link pivoted in the block and adapted for attachment to the bag, as and for the purpose specified.

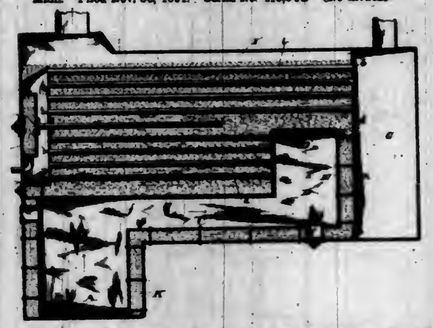
479,647. GAS-GENERATOR. JOHN J. KIRKHAM, Terre Haute, Ind. Filed June 23, 1891. Serial No. 397,244. (No model.)



Claim.—1. An oil-gas generator consisting of two or more chambers arranged vertically one above the other and communicating with each other, checker-work arranged in each chamber, air-inlets and oil-injectors opening into each chamber above the checker-work, and a central retort or outlet-flue communicating at the bottom with the lowest chamber and passing out through the top of the generator and communicating with the conduit-pipes, substantially as shown and described.

2. An oil-gas generator consisting of a series of vertical chambers each containing a body of checker-work and each having independent oil-injectors and separate air-inlets, a central retort or outlet-flue opening at its lower end into the lowest chamber and passing out through the top of the generator, and a conduit-pipe connecting therewith and having one branch leading to a hydraulic seal and another branch provided with a valve and a suction apparatus, substantially as shown and described.

479,648. LOCOMOTIVE-BOILER. LEWIS W. LESTER, Glencoe, Minn. Filed Nov. 30, 1891. Serial No. 413,544. (No model.)



Claim.—1. In a steam-boiler, the combustion-chambers D and F, located at the respective end portions of the boiler, the former being partially inclosed thereby, the external flue C, leading to the chamber D, and the internal flues *a* and *b*, and a smoke-box G, extending along the entire rear of the boiler and into which lead the upper flues, the parts being so arranged that the gases of combustion are caused to pass first from the fire-box externally of the boiler to the chamber D, thence through the flues *a* to the chamber F, and thence through the flues *b* to the smoke-box G, and a mud and heating drum for the feed-water within the chamber F and secured to the front wall thereof, whereby it is subjected on three sides to the gases in said chamber, substantially as specified.

2. A steam-boiler having a combustion-chamber F at its front portion and communicating with the upper and lower flues and a mud and heating drum for the feed-water within said chamber and secured to the front wall thereof, whereby it is subjected on three sides to the gases in said chamber, substantially as specified.

3. A boiler having a combustion-chamber D at its lower rear portion, into which open the lower flues, a smoke-box G, extending across the entire rear of the boiler and separated from the chamber D at its lower portion by a water-chamber forming a part of the water-jacket, an external flue leading from the fire-box to the chamber D, a second smoke or combustion chamber at the front, into which open both the upper and lower flues, and a mud and heating drum for the feed-water in said chamber and secured to the front wall thereof, substantially as specified.

479,649. LINK FOR SLEEVE OR CUFF BUTTONS. PHILIP H. LETTRÉ, North Attleborough, Mass., assignor to T. I. Smith & Company, same place. Filed May 9, 1892. Serial No. 432,267. (No model.)



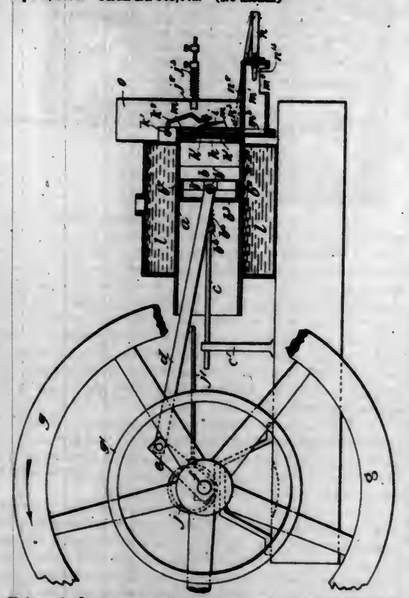
Claim.—A cuff-fastener consisting of the buttons *b b* and means for connecting said buttons, consisting of a plain symmetrical link open at one side, a spring-barrel sliding on one of the arms of the said link, and a ridge encircling the outer periphery of the barrel and adapted to engage with the edge of the buttonhole to open the link for the insertion of the button, substantially as described.

479,650. FRUIT-PACKER. ANDREW J. LONGENECKER, Elk Grove, Cal. Filed Jan. 16, 1892. Serial No. 418,310. (No model.)



Claim.—The herein-described device for packing fruit, comprising the chambered base or support and the form, said form consisting of the side and end pieces *a a* and *b b*, having each an eye or loop at its lower edge, a continuous angular wire passed through said eye or loop and forming therewith the hinges for said side and end pieces, the horizontal flange on the lower edge of each of said pieces and projecting both inwardly and outwardly therefrom, one of said flanges being hinged to the base or support, and the removable bottom supported on the inward projections of said flanges, substantially as specified.

479,651. ENGINE. ROBERT M. LOWRY, London, England. Filed Sept. 5, 1890. Serial No. 363,972. (No model.)



Claim.—1. In an engine, the combination, with the cylinder having an opening therein, a burner arranged at said opening, a valve for closing said opening, and means for closing said valve, of a spring for opening the valve when the equilibrium between the interior and exterior of the cylinder is established, substantially as set forth.

2. In an engine, the combination, with the cylinder having an opening, the burner arranged at said opening, and a valve for closing said opening, of the eccentric-rod, a spring connected with said rod for closing the valve, and a spring for opening the valve, substantially as set forth.

3. In an engine, the combination, with the cylinder having an opening and a valve for closing said opening, of a spring for holding said valve normally open, and the burner having the opening *k'* arranged opposite the opening in the cylinder, substantially as set forth.

4. In an engine, the combination, with the cylinder having an opening and a valve for closing said opening, of a spring for holding said valve normally open, the burner having an opening arranged opposite the opening in the cylinder, and the auxiliary burner n^3, arranged near the latter opening, substantially as set forth.

5. In an engine, the combination, with the cylinder having an opening and a valve for closing said opening, of the burner having the vertical box *m*, provided with the opening *k'*, arranged opposite the opening in the cylinder, and a semicircular chimney or screen arranged against the box *m* and surrounding the valve and said opening *k'*, substantially as set forth.

6. In an engine, the combination, with the cylinder having an opening, the burner arranged at the said opening, and a valve for closing said opening, of a rod on which said valve is mounted, a crank having a pin on said rod, the eccentric-rod, a spring connecting the eccentric-rod with said pin, and a projection on said eccentric-rod adapted to strike said pin, substantially as set forth.

7. In an engine, the combination, with the cylinder having an opening and a valve for closing said opening, of a burner having the flat box *m*, provided with an opening opposite the opening in the cylinder, substantially as set forth.

8. In motive-power engines, the combination of working cylinder *a*, having one of its ends open to the atmosphere, the single small opening *k* in its other end adapted for the double purpose of admitting flame to the cylinder and exhausting the gas therefrom, a burner-box communicating with said opening *k*, the valve *i*, guarding the opening *k*, means for operating said valve for opening and closing said opening, a burner in said burner-box for supplying flame and heated gas directly to the interior of said working cylinder *a* through the said opening *k*, and a piston located in said cylinder, substantially as set forth.

9. In an engine, the combination of the cylinder *a*, piston *b*, an opening *k* in one end of the cylinder proper and being of smaller diameter than the interior of said cylinder, a valve *i*, means for operating such valves to open and close said opening *k*, and a burner *m* for supplying flame and heated gas to the interior of the cylinder *a* through said opening *k*, said burner being arranged transversely to as contradistinguished from coaxially with said opening, substantially as set forth.

10. In a low-pressure engine, the combination of a cylinder, the piston-body working in said cylinder and having a connecting-rod, the spring-pressed plate b^2, the split rings arranged between said plate and piston-body, and means for operating said piston in the cylinder, substantially as set forth.

479,652. FIELD-RANGE. JOHN MARCER, U. S. Army. Filed Jan. 22, 1892. Serial No. 418,901. (No model.)



Claim.—1. A field cooking apparatus comprising an outer vessel having pivoted bails at its ends, legs pivoting on the said bails, a cover across which the legs are adapted to fold to engage at their free ends the opposite bails, and a longitudinally-extensible oven and cover, both formed of sliding or telescopic sections adapted to be extended when removed from the outer inclosing vessel and held against accidental extension by said vessel, substantially as set forth.

2. In a field-range, the oven comprising a series of open-topped sliding pan-like sections adapted to fit one within the other and an extensible cover for the oven, substantially as described.

3. In a field range, the oven comprising a series of pan-like sections held to slide one within the other, the sections having extension ends adapted to overlap adjacent sections, and an extensible cover for the oven, substantially as described.

4. In a field cooking apparatus, the oven comprising a series of pan-like sections slidable one within the other and an extensible cover also formed of sections slidable one within the other, the inner longitudinal edges of the middle cover-section having ways 35 and the outer sections having their longitudinal edges bent upon themselves and entering said ways, substantially as set forth.

5. In a field cooking apparatus, the extensible oven formed of sections slidable one upon the other and having an outer vessel to receive them when folded or contracted, a series of transverse spacing-bars 27, a series of pans 26 within the oven and adapted to nest therein, and a series of supports 23 for the oven when extended and adapted to be placed within the outer vessel when the apparatus is knocked down, substantially as set forth.

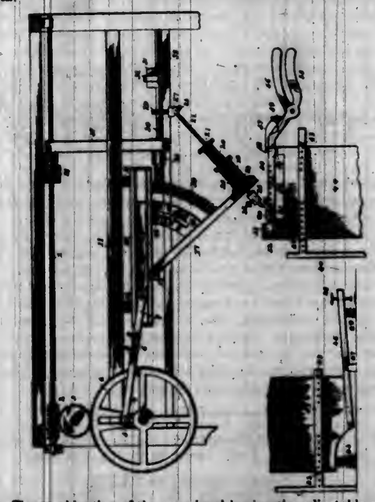
479,653. CARVING-MACHINE. RUSSELL C. MILLER, Salisbury, Conn., assignor of two-thirds to Morgan Tyler and William W. Keywerth, same place. Filed Apr. 30, 1891. Serial No. 391,116. (No model.)

Claim.—1. In a machine of the class described, the combination of a reciprocating cross-head, a suitable guide for the same, springs interposed between said guide and its support, an arm pivoted to and connected adjustably with said cross-head, and the cutting-tool mounted at the free end of said arm, substantially as set forth.

2. In a machine of the class described, the combination of the reciprocating cross-head, the yieldingly-supported guide for the same, an arm pivoted to and connected adjustably with said cross-head, the socket at the outer end of said arm, and the tool-holder mounted yieldingly in said socket, substantially as set forth.

3. In a machine of the class described, the combination of the reciprocating cross-head, the yieldingly-supported guide for the same, the arm pivoted to and connected adjustably with said cross-head, the tool-holder or cutter-rod journaled at the free end of said arm, and means for imparting an oscillating motion to said cutter-rod, substantially as set forth.

4. The combination of the reciprocating cross-head having a slotted segment, the arm pivoted to said cross-head and having a slotted segment, the clamping-screw connecting the said slotted segments, and the cutter-rod mounted at the free end of said arm, substantially as set forth.



5. The combination of the cross-head having the adjustable arm, the socket at the free end of said arm, the adjusting-screw and bearing mounted in said socket, the cutter-rod extending through said socket and screw and having an annular flange within the socket, the spring arranged in the socket between said flange and the screw, the tool-holder at the lower end of the cutter-rod, and means for imparting to the latter an oscillating or vibrating motion, substantially as set forth.

6. The combination, with the cutter-rod mounted yieldingly in a socket, as herein described, of the collar mounted at the upper end of said rod and having an upwardly-extending finger, a transversely-reciprocating slide having a longitudinal slot receiving said finger, thereby imparting to the cutter-rod an oscillating or vibratory movement, and means for moving the finger in said slot, substantially as set forth.

7. The combination, with the reciprocating cross-head, of the transversely-reciprocating slide having a longitudinal slot, the yieldingly-supported guide for the cross-head, the arm hinged to and connected adjustably with the latter, the socket at the free end of said arm having an adjusting-screw and bearing mounted therein, the cutter-rod extending through said socket and adjusting-screw and bearing and having an annular flange, a spring arranged in the socket and bearing against said flange, a tool-holder at the lower end of the cutter-rod, the collar mounted adjustably at the upper end of the latter, and the finger extending upwardly from said collar through the longitudinal slot in the transversely-reciprocating slide, substantially as and for the purpose set forth.

8. In a machine of the class described, the combination, with the cutter arranged to have a longitudinally-reciprocating and an oscillating or vibrating motion, of the supporting-block mounted adjustably between arms extending forwardly from a suitable upright, a spring supporting said block, a lever connected pivotally with the latter, a spring arranged under the free end of said lever, and an adjusting-screw or gage-screw mounted in the latter to regulate the extent to which the supporting-block may be raised by said lever, substantially as set forth.

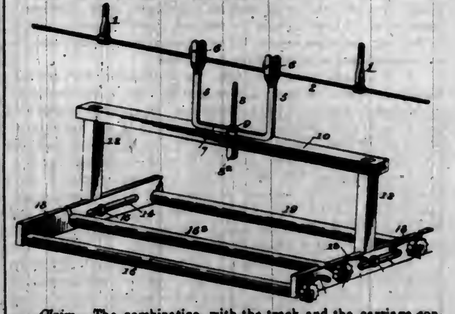
9. The combination, with the supporting-block, of the work-holder connected with said block by a ball-and-socket joint, substantially as set forth.

10. The combination, with the supporting-block having a suitable socket, of the work-holder having a spherical head or ball fitted in said socket and provided at its free end, on its under side, with a semi-spherical supporting-lug, substantially as and for the purpose set forth.

11. The combination, with the vertically-adjustable supporting-block, of the work-holder having a spherical head engaging a socket upon said supporting-block and provided with a semi-spherical supporting-lug, the toothed block mounted adjustably at one end of said work-holder, the toothed dog pivoted at the opposite end of the same, a spring attached to the heel end of said dog, and an angle lever having one arm extended under said dog, the other arm of said lever being extended over the handle of the work-holder, substantially as set forth.

12. In a machine of the class described, the combination, with the cutter mounted to oscillate in a socket carried by a longitudinally-reciprocating cross-head and suitable mechanism for operating said cross-head and cutter, of the vertically-adjustable supporting-block, and the work-holder having a spherical head mounted in a ball-socket upon said supporting-block, and yielding supports for said block, for the guide in which the reciprocating cross-head is mounted, and for the cutter-rod, substantially as and for the purpose set forth.

479,654. QUILTING-FRAME FOR SEWING-MACHINES. GEORGE McN. MOORE and GEORGE W. STEER, Commerce, Tex. Filed Feb. 20, 1892. Serial No. 422,341. (No model.)



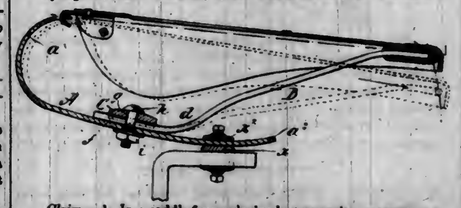
Claim.—The combination, with the track and the carriage consisting of the U-shaped bail formed from a single piece of metal, having the ends bifurcated and provided with grooved wheels or rollers, of the screw-threaded rod having a head at its lower end, passing through an aperture in the bail, the burr or nut consisting of the interiorly-screw-threaded collar, with which said rod engages, the beam having an aperture, through which said rod loosely passes, the depending bars, the side bars, and the rollers, substantially as described.

479,655. WALLET. GEORGE K. MORTON, St. Thomas, Canada. Filed Nov. 27, 1891. Serial No. 413,279. (No model.)



Claim.—As a new article of manufacture, the herein-described wallet, closed at the bottom and ends and open at the top, the sides being flexible and free from flaps and having fastening devices held thereto at the inner surface of each near the top, said fastenings being adapted to engage each other and extending when closed transversely across the interior of the wallet, thus forming a stop for preventing outward movement of the contents of the wallet, the opening at either side of the fastening being directly in line with the interior of the wallet, affording inspection of the contents thereof and permitting entrance of one's fingers in a direct line to the interior for the ready disengagement of the fastening devices while holding securely with the same hand, substantially as described.

479,656. SADDLE FOR VELOCIPEDES. BENJAMIN F. PERT, Springfield, Mass. Filed May 3, 1892. Serial No. 431,666. (No model.)



Claim.—1. In a saddle for a velocipede, two spring-support members for the seat-leather, which are united intermediately of the saddle-frame, the one consisting of a single flat strip of spring metal extending forwardly and upwardly and then rearwardly and having its extremity capable of a yielding movement rearwardly and the other

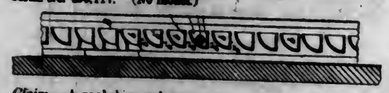
member formed of heavy spring-wire having its intermediate portion of loop form continued in the forwardly-extended legs *d d*, which are extended upon and clamped to the first spring member at the rear of its forward bend, said wire-formed member being inclined from its place of confinement rearwardly and upwardly and adapted to have in its deflection against its spring reaction its rear portion swing both downwardly and rearwardly, thereby assuming a position at an increased distance from the normal position of the extremity of the forward spring-support, substantially as and for the purpose set forth.

2. In a saddle for a velocipede, in combination, the flat spring A, having the upwardly-curved and rearwardly-terminating portion *a* and the member B formed of heavy spring-wire, having its intermediate portion of loop form terminating in the parallel separated legs *d d*, lying upon the flat spring A and having from said place of connection the rearward and upward inclination, the clamping-block C, having its bottom grooved, and the bolt *h* and nut *i* and seat-leather connected to said front and rear spring-supports and adapted on the downward deflection of the latter to have the rear end thereof assume a position farther from the front support for exerting thereon through the seat an increased tension, substantially as described.

3. In a saddle for a velocipede, the combination, with the forward seat-support member A, consisting of a flat spring having an approximately horizontal lower section and the upwardly-curved section *a*, rearwardly terminating and provided with the aperture, as shown, of the rear support B, consisting of a spring-wire formed into the laterally-extended loop with the forwardly-extended legs *d d*, which are connected with said member A and said section B, rearwardly and upwardly inclined, as shown, and the seat-leather supported at its rear by the loop-formed section of the member *b* and having at its forward end the hook *k*, which engages the aperture in the aforesaid section *a*, substantially as described.

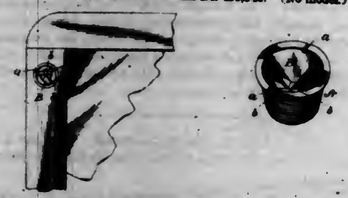
4. In a saddle for a velocipede, the flat strip A, having the upwardly-curved and rearwardly-terminating portion *a* and the member B formed of heavy spring-wire, having its intermediate portion of loop form terminating in the legs *d d*, connected to said forward section and having from said place of connection the rearward and upward inclination, and a seat-leather connected to said front and rear spring-supports and adapted on the downward deflection of the latter to have the rear end thereof assume a position farther from the front support *a* for exerting thereon through the seat an increased tension, substantially as described.

479,657. SASH-BALANCE. GEORGE T. PETERS, Jersey City, N. J., assignor to himself and Clifford Shaw, same place. Filed Apr. 21, 1892. Serial No. 430,117. (No model.)



Claim.—A rack-bar and gear movement composed of a cog-wheel with round or cylindrical spokes and a rack-bar with recesses having a rectilinear bottom edge and a quarter-circular top edge, substantially as described.

479,658. PENCIL-SHARPENER. WILLIAM A. PHILLIPS, U. S. Army. Filed Apr. 8, 1892. Serial No. 428,349. (No model.)

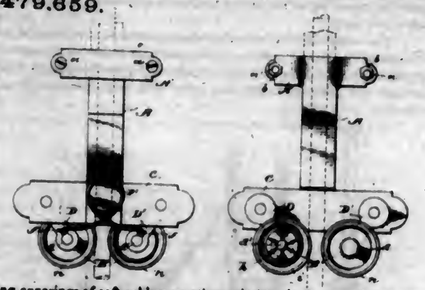


Claim.—1. The pencil-sharpener consisting of the conical externally-screw-threaded chamber or receptacle having internal pyramid-shaped cutters or blades, substantially as and for the purposes set forth.

2. The pencil-sharpener consisting of the conical externally-screw-threaded chamber or receptacle having its flared or flanged end provided with screw-threaded grooves, said chamber or receptacle having internal pyramid-shaped cutters or blades, substantially as set forth.

479,659. ELECTRIC-ARC LAMP. JONATHAN A. PIERCE, Austin, Minn. Filed Oct. 15, 1891. Serial No. 408,808. (No model.)

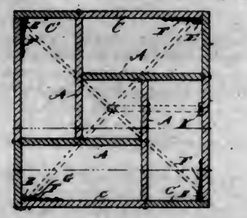
Claim.—1. A carbon-feed-regulating device for electric-arc lamps, consisting of the combination, with the bracket A, provided with the cross-bar C, of the swinging arms D and D', pivoted to said cross-bar and provided with pins, the rollers E, journaled on said pins and having coverings of soft rubber or other suitable elastic material to exert a proper yielding pressure or grip action against the carbon electrode, and a spring F for forcing said rollers toward each other.



2. In an electric-arc lamp, the combination, with spring-pressed rollers between which the carbon electrode is placed, of friction-washers between which one of the said rollers is held, a spring for exerting a proper frictional pressure of said washers against said roller, and an adjusting-nut serving to regulate the pressure of the said spring.

3. The combination, with the bracket A, of the swinging arms pivoted thereto and provided with suitable pins, the rubber-covered rollers journaled on said pins, the spring F for pressing said rollers toward each other, and an adjustable tension-spring and friction pads or washers to vary the frictional drag on said rollers.

479,660. FILING-CABINET. HAROLD M. PLIMPTON, Springfield, Ohio. Filed June 8, 1892. Serial No. 435,962. (No model.)



Claim.—1. A filing-cabinet composed of a plurality of vertical partitions arranged about a common center, each partition abutting at its inner edge against the previous adjacent partition and forming an abutment for the succeeding adjacent partition, horizontal partitions dividing the plurality of similarly-arranged compartments into a series of pigeon-holes, and inclosing sides for said partitions, having doors to give access to said pigeon-holes.

2. A filing-cabinet composed of a plurality of uniform vertical partitions symmetrically arranged about a common center, each partition abutting on the previous adjacent one and forming an abutment for the succeeding partition, horizontal partitions secured to said vertical partitions and dividing the compartments into pigeon-holes, substantially as shown and described, inclosing uniform sides for said compartments, having doors to give access thereto, and a locking device to lock said doors simultaneously.

3. A filing-cabinet composed of a plurality of vertical partitions, each partition extending opposite to the previous adjacent one, shelves forming horizontal partitions and secured to said vertical partitions at one side and end, inclosing sides for said partitions, having doors adapted to give access to the pigeon-holes formed thereby, and a locking device to lock said doors simultaneously, consisting of a frame operatively connected to each door to retain the door in its closed position normally, a lever fulcrumed in the cabinet and engaging with said frame to move it into locking position, and a lock proper actuating said lever to maintain said doors locked.

4. A filing-cabinet consisting of vertical partitions and horizontal partitions, the vertical partitions being arranged at right angles to each other, whereby the compartments thus formed are likewise at right angles to each other, substantially as shown and described, and inclosing sides, each side having a door giving access to the series of compartments corresponding thereto, and means to lock said doors in their closed position.

5. A filing-cabinet composed of four vertical partitions extending the length of the cabinet and arranged at right angles to each other in four vertical planes, substantially as shown, a series of horizontal partitions forming shelves and secured to said vertical partitions, substantially as shown, inclosing sides for said partitions, having doors corresponding thereto, a spring-catch and engaging-piece to maintain said doors normally closed, and a lock proper operatively connected with said catches to maintain the doors in their locked position.

6. A filing-cabinet composed of vertical and horizontal partitions, the former arranged at right angles to each other and forming a central compartment and a plurality of outer compartments, inclosing sides for said compartments to constitute pigeon-holes and having doors corresponding thereto, a locking device for said doors, consisting of a frame-work operatively connected to each door and a lock proper to actuate said framework and secure the doors in their locked position, a pivotally-supporting post mounted in said interior compartment and engaged with the cabinet at substantially the center of gravity thereof, and a base to support said post in its upright position.

7. A filing-cabinet composed of vertical and horizontal partitions, the former being at right angles to each other and secured together to form a central axial compartment and a series of outer compartments vertically over each other, inclosing sides for said cabinet, each side having a door for the vertically-arranged series of compartments, a spring-catch mounted on each side of said cabinet, and an engaging-piece on each door to engage with the catch opposite thereto, a frame operatively connected to each catch and movable to and from the same, whereby said catches and doors connected therewith are locked in their closed position, and means to effect the movement of said frame, a supporting-piece in the central compartment, having a bearing at substantially the center of gravity of said cabinet, a pivotal standard engaging with said bearing and mounted on a supporting-base, and means to steady said cabinet in its rotation on said standard above said base.

8. A filing-cabinet composed of vertical and horizontal partitions, the former being at right angles to each other and secured together to form a central axial compartment and a series of outer compartments vertically over each other, inclosing sides for said cabinet, each side having a door for the vertically-arranged series of compartments, a spring-catch mounted on each side of said cabinet, and an engaging-piece on each door to engage with the catch opposite thereto, a frame operatively connected to each catch and movable to and from the same, whereby said catches and doors connected therewith are locked in their closed position, and means to effect the movement of said frame.

9. A filing-case composed of vertical and horizontal partitions forming compartments, the vertical partitions being at right angles to each other and symmetrically arranged about the central axis, inclosing sides for said compartments and doors corresponding thereto, a supporting-standard pivotally engaged with said cabinet at substantially the center of gravity thereof, a base for said standard to maintain the same in its erect position within the central compartment of the cabinet, and rollers between said base and cabinet and adapted to steady the cabinet in its rotation.

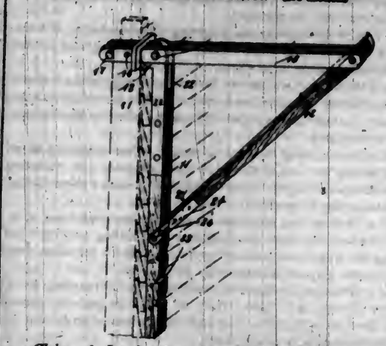
10. A filing-cabinet composed of vertical and horizontal partitions, the former being raised symmetrically about a common center and of substantially the same dimensions and shape, inclosing sides, top, and bottom for said compartments, each of the sides proper having a hinged door for the series of compartments opening on that side of the cabinet, a spring-catch and an engaging-piece for each door, adapted to normally maintain the doors in their closed position, a frame mounted in said cabinet and carrying looped pieces engaging with said catches and adapted to prevent the depression of each catch, a lever fulcrumed in said cabinet and engaging with the frame to tighten said looped pieces on said catches, and the lock proper acting on said lever to lock the catches and doors in their closed position.

479,661. SPADE. PETER POULSON, Somers, Wis. Filed July 14, 1891. Serial No. 399,065. (No model.)



Claim.—In a spade substantially as described, the combination, with the blade provided on its upper edge with an integral socket-neck formed by a front wall and the rearwardly and laterally bent portions and the pedal branches formed integral with the socket-neck and blade and extending laterally and downwardly, the blade, socket-neck, and pedal branches being formed from a single blank having the portions struck therefrom and bent rearwardly and laterally so as to form the pedal branches and the socket-neck, of a handle having its lower portion enlarged and tapered toward its end to conform to the shape of the socket-neck and a suitable means for fastening the handle in the said socket-neck, substantially as specified.

479,662. SCAFFOLD-BRACKET. CHARLES RANDALL, Perry, Me. Filed Jan. 20, 1892. Serial No. 418,606. (No model.)



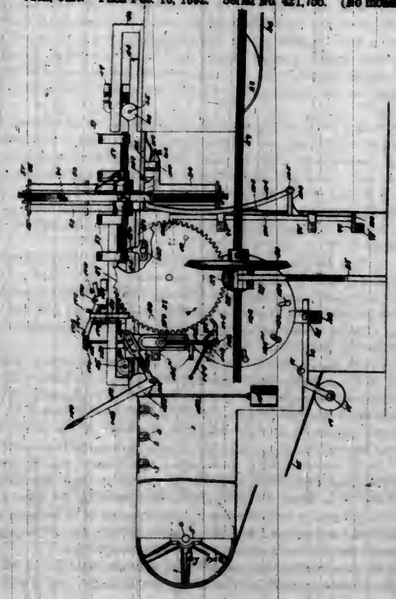
Claim.—1. In a bracket, the combination, with a bearer adapted to embrace a stud, of an upright having a cam-shaped upper end pivoted to the bearer and a brace pivoted to the outer end of the bearer and engaging the upright, substantially as described.

2. In a bracket, the combination, with a bearer adapted to embrace a stud, of an upright having cam-shaped upper end pivoted in an opening in the bearer and a slotted plate on the bearer and engaged by the cam-shaped end of the upright, substantially as described.

3. The combination, with the bracket having a bearer formed of perforated plates adapted to embrace a stud, a slotted fastening-plate adapted to fit on the inner end of the bearer-plates, said plate having a roughened inner face, and a fastening-pin to enter the holes in the bearer-plates, substantially as described.

4. A scaffold-bracket comprising the bearer formed of parallel plates having perforated inner ends adapted to embrace a stud, a roughened and slotted fastening-plate to fit over the inner ends of the bearer-bars, a pin adapted to extend through the perforations in the bearer-bars, an upright hinged to the bearer near its inner end and provided near its lower end with notches and transverse holes, a brace hinged between the outer ends of the bearer-bars and arranged to project above them, said brace having its lower end shaped to enter the notches, perforated side plates secured to the lower end of the brace and adapted to embrace the upright, and a fastening-pin to extend through the side plates and holes in the upright, substantially as described.

479,663. BRICK-CUTTING MACHINE. HORACE A. RICE, Plymouth, Ohio. Filed Feb. 16, 1892. Serial No. 421,755. (No model.)



Claim.—1. In a brick-cutting machine, a cutting-wheel consisting of a central hub, an outer rim, and cutting devices connecting the hub and rim, substantially as specified.

2. In a brick-cutting machine, a cutting-wheel consisting of a central hub, a surrounding rim, and cutting-wires radiating from the hub to the rim, substantially as specified.

3. In a brick-cutting machine, a rotating cutting device comprising a central disk or wheel mounted upon a shaft, a loosely-detachable surrounding rim, and cutters radiating from the wheel to the rim, substantially as specified.

4. In a brick-cutting machine, a cutting-wheel consisting of an inner hub having an annular flange or disk, an outer rim, radiating cutting-wires connecting the disk and rim, and tension devices for the wires, substantially as specified.

5. In a brick-cutting machine, a cutting-frame comprising an inner disk or wheel, an outer detachable rim, radiating cutting-wires connecting the wheel and rim, and tension devices for the wires, resting upon elastic supports, substantially as specified.

6. In a brick-cutting machine, a cutting-wheel comprising an inner disk or hub mounted upon a shaft, an outer flanged rim, cutters extended between said disk or hub and rim, and securing devices for the cutters, substantially as specified.

7. In a brick-cutting machine, a cutting-wheel comprising an inner disk or hub, an outer flanged rim the edge of which is provided with inclined slots, wire cutters mounted in the slots and having their inner ends secured to the disk, and securing devices for the cutters mounted over the slots upon the rim, substantially as specified.

8. In a brick-cutting machine, a cutter consisting of a hub having a disk, threaded studs projecting from the hub, clamping-nuts mounted on the studs, an outer surrounding rim having openings, wire cutters wound upon the studs and clamped by the nuts and having their outer ends extended through the openings of the rim, L-shaped brackets mounted upon the rim over the openings, eyebolts depending through perforations in the brackets and connected to the outer ends of the wire cutters, and nuts threaded on the outer ends of the eyebolts, substantially as specified.

9. In a brick-cutting machine, a cutting device comprising a wheel mounted upon a shaft ranged longitudinal with the machine, cutting-wires attached to said wheel and extending radially to an outer detachable rim supported by said cutting-wires, and means of automatically rotating the cutting-wheel, whereby the cutting-wires sever the bars of clay, substantially as specified.

10. In a brick-cutting machine, a cutting device comprising an inner hub having an annular flange or rim, an outer rim or wheel, cutting-wires having their inner ends secured to the disk, securing devices for the cutting-wires, attached to the outer rim or wheel, and means of applying tension to the wires, substantially as specified.

11. In a brick-cutting machine, a rotating cutting device comprising an inner hub or wheel mounted upon a shaft ranged longitudinally with the framework of the machine and an outer flanged detachable rim or wheel supported and secured in position by cutters radiating from the inner wheel, to which said cutters are attached at their inner ends, the outer ends of said cutters extending through apertures in the outer rim and connected to devices mounted upon the rim over the apertures for securing the cutters, substantially as specified.

12. In a brick-cutting machine, a cutting device comprising an inner hub or disk, an outer flanged rim having openings or depressions therein, wire cutters mounted within the free ends of the openings and having their inner ends clamped to studs in the disk, and securing and tension devices for the free ends of the cutters mounted upon the rim, in combination with means for automatically rotating said cutting device, whereby the bars of clay are cut into brick, substantially as described.

13. In a brick-cutting machine, the combination, with a series of U-shaped frames 53, radiating from a common point, a shaft at said point, and guide-plates mounted adjustably upon the U-shaped frames, of the hub mounted on the shaft, the rim encircling the hub and located between the plates, and the series of wire cutters connecting the hub and rim, substantially as specified.

14. In a brick-cutting machine, the combination, with a framework and a rotatable cutter mounted at an angle to the same and provided at one side with teeth, of means for feeding a column of clay to the cutter, a vertically-reciprocating trip-rod, a pawl pivoted to the trip-rod and at its free end engaging the teeth of the cutter, and means for raising and lowering the trip-rod, substantially as specified.

15. In a brick-cutting machine, the combination, with the frame and the rotary cutter mounted thereon and at an angle thereto and provided with teeth, of a gear, means for operating the gear, trip-pins on the gear, a reciprocating trip-rod adapted to be engaged successively by the pins, and a pawl pivoted to the trip-rod and engaging the teeth of the rotary cutter, substantially as specified.

16. In a brick-cutting machine, the combination, with the framework, a cutter extending at an angle to the same, and a trip-rod mounted for reciprocation at the side of the frame, of means for intermittingly operating the trip-rod and connections between the rod and cutter for communicating motion from the former to the latter, substantially as specified.

17. In a brick-cutting machine, the combination, with the frame, the rotatable cutter mounted in the transverse opening in the same, and means for operating the cutter and for feeding a column of clay thereto, of a plate yieldingly supported in the table of the machine at the side of the path of the cutter, substantially as specified.

18. In a brick-cutting machine, the combination, with the carriage having the bottom provided with a transverse opening, the rotary cutter, and means for operating the same, of the plate 108, mounted at one side of the cutter and occupying a portion of the opening, the arm 109, supporting the plate, the standard 111, depending from the under side of the bottom and pivotally connected to the arm, and the spring 113, bearing on the rear end of the arm, substantially as specified.

19. In a brick-cutting machine, the combination, with the carriage having the bottom provided with a transverse opening, the rotary cutter, and means for operating the same, of the plate 108, mounted at one side of the cutter and occupying a portion of the opening, the arm 109, supporting the plate, the standard 111, depending from the under side of the bottom and pivotally connected to the arm, the spring 113, connected to the bottom, and the set-screw 112, passing through the rear end of the arm 109 and borne upon by the free end of the spring, substantially as specified.

20. In a brick-cutting machine, the combination, with the front and rear sections of the frame, the feed and delivery belts, and their pulleys mounted in their respective sections, of the intermediate reciprocating carriage, the bottom of which is not equal to the distance between the upper sides of the adjacent pulleys of the two belts, and the intermediate yieldingly-supported roller 185, located in the path of and adapted to be depressed by the rear end of the bottom, substantially as specified.

21. In a brick-cutting machine, the combination, with the framework, the drum journaled at the intermediate portion thereof, the pulley at the front end of the framework, and the endless feed-belt passing around the pulley and drum, of a movable carriage mounted on the framework above the drum, stops on the drum for moving the carriage to the rear, means for returning the carriage at or before the end of its movement, a cutter, and means for operating the cutter during the forward movement of the carriage, substantially as specified.

22. In a brick-cutting machine, the combination, with the framework, the pulley at the front end of the same, the shaft 8, the disks 10, mounted on the shaft, the curved rim-sections 14, and the pairs of opposite segmental plates 13, having slots and adjusting-screws passing therethrough into the disks, said rims being provided with stops 178, of the reciprocating carriage mounted on the framework above the drum, the pawls pivoted to the framework and depending in front of the stops, whereby the carriage is moved to the rear by rotation of said drum, means for raising the pawls out of engagement with the stops, and means for returning the carriage after such raising, substantially as specified.

23. In a brick-cutting machine, the combination, with the framework, the pulley, the drum, the endless feed-belts, and stops mounted upon the periphery of the drum, of the movable carriage mounted on the framework, gravity-pawls pivoted to the carriage and depending into the path of the stops, means for operating the drum, means for elevating the pawls out of engagement with the stops at the end of the rearward movement of the carriage, and means for automatically returning the carriage to its starting-point, substantially as specified.

24. In a brick-cutting machine, the combination, with the framework, the rotatable drum, means for operating the same, and stops upon the drum, of a movable carriage mounted above the drum, pawls on the same for engaging the stops of the drum, rock-arms pivoted on the carriage, connections between the same and pawls, a rotatable gear provided with pins, means for operating the gear in a reverse direction to that of the drum, and an arm depending from the rock-arms into the path of and adapted to be struck by the pins, substantially as specified.

25. In a brick-cutting machine, the combination, with the framework, the drum mounted for rotation therein, means for operating the drum, and a series of stops mounted on the drum, of a carriage mounted for movement on the framework above the drum and having opposite T-shaped standards, angle-levers for each of the standards, a rock-shaft connecting the standards, journaled therein and connected rigidly with the angle-levers, springs for normally depressing the angle-levers, set-screws mounted at opposite sides of the rock-shaft in said angle-levers, links connected to the outer slotted ends of said angle-levers and to the free ends of the pawls, an arm depending from one of the levers, a rotatable wheel having pins for striking the arms, and means for operating the wheel, substantially as specified.

26. In a brick-cutting machine, the combination, with the framework, a cutting medium mounted across the same, a trip-rod, and means upon the rod for operating the cutting medium, of a main shaft, a gear located at the side of the frame, means for communicating motion from the main shaft to the gear, a disk above the gear, provided with a toothed periphery, with the exception of the intermediate plain portions, pins upon the disk for reciprocating the trip, and devices for intermittingly slightly rotating the disk so as to throw its teeth into engagement with the gear, substantially as specified.

27. In a brick-cutting machine, the combination, with the framework, the cutter located across the same, the reciprocating trip, and devices mounted on the trip for operating the cutter at each reciprocation of the trip, of a longitudinal power-shaft, a gear located at one side of the same, a disk supported rotatably above the gear, having a toothed periphery and intermediate plain untoothed portions, pins on the disk for engaging the trip, means for communicating motion from the shaft to the gear, a rod supported at one side of the disk and provided at its lower end with a finger normally out of engagement with the teeth of the disk, and means for intermittingly throwing the finger into engagement with the disk and oscillating the rod, substantially as specified.

28. In a brick-cutting machine, the combination, with the framework, the cutter located across the same, the reciprocating trip, and devices mounted on the trip for operating the cutter at each reciprocation of the trip, of a longitudinal power-shaft, a gear located at one side of the same, a disk supported rotatably above the gear, having a toothed periphery and intermediate plain untoothed portions, pins on the disk for engaging the trip, means for communicating motion from the shaft to the gear, a rod pivotally supported at one side of the disk, a finger or pawl pivoted to the lower end of the rod, a spring for retracting the rod and pawl, a disk located at one side of the lower end of the rod, pins extending from the disk, means for rotating the disk, and an inclined shoulder mounted on the lower end of the rod in the path of the pins, substantially as specified.

29. In a brick-cutting machine, the combination, with the framework, the cutter located across the same, the reciprocating trip, and devices mounted on the trip for operating the cutter at each reciprocation of the trip, of a longitudinal power-shaft, a gear located at one side of the same, a disk supported rotatably above the gear, having a toothed periphery and intermediate plain untoothed portions, pins on the disk for engaging the trip, means for communicating motion from the shaft to the gear, a rod pivotally supported at one side of the disk, a finger or pawl pivoted to the lower end of the rod, a spring for retracting the rod and pawl, a disk located at one side of the lower end of the rod, pins extending from the disk, means for rotating the disk, an inclined shoulder mounted on the lower end of the rod in the path of the pins, and means for throwing the rod into and withdrawing the same from the path of the pins of the disk, substantially as specified.

30. In a brick-cutting machine, the combination, with the framework, the cutter located across the same, the reciprocating trip, and devices mounted on the trip for operating the cutter at each reciprocation of the trip, of a longitudinal power-shaft, a gear located at one side of the same, a disk supported rotatably above the gear, having a toothed periphery and intermediate plain untoothed portions, pins on the disk for engaging the trip, means for communicating motion from the shaft to the gear, ways located upon the frame above the last-mentioned disk, a vertically-sliding frame mounted in the ways and provided with a pin and with an open box, obtuse slots formed in the opposite side walls of the box, a pin extending from the frame through the box, a sleeve formed in two sections swiveled together and mounted on the pin for reciprocation, trunnions mounted on the rear section and taking into the slots of the box, a depending rod secured to the front section of the sleeve and provided with a shoulder located in the path of the pins of the disk, a spring for retracting the rod, a pawl pivoted to the lower end of the rod and adapted to engage the teeth of the first-mentioned disk, a spring for elevating said pawl, and an elbow-lever pivoted on the framework terminating at one end in a handle and at the other end in an eye, the latter engaging the pin of the sliding frame, substantially as specified.

31. In a brick-cutting machine, the combination, with the framework, the cutter mounted across the same, and means for feeding clay to the cutter, of the vertically-reciprocating trip, keepers for the same, means for operating the trip and releasing the same, devices mounted on the trip for operating the cutter, and the support 100, pivoted to the bracket 98 and adapted to be swung into and out of the path of the trip, substantially as specified.

32. In a brick-cutting machine, the combination, with the front and rear frame-sections and the opposite pairs of horizontal track-frames 43 of substantial E shape, of the intermediate movable carriage comprising opposite side bars, bearings extending outwardly from the side bars over the lower terminals of the frames 43, rollers journaled in the bearings and bearing against the upper surfaces of the lower terminals of the frames 43, pairs of perforated lugs extending from standards mounted on the side bars opposite the upper terminals of the frames 43, and rollers loosely mounted in the lugs and bearing against the upper terminals of the frames 43, substantially as specified.

33. In a brick-cutting machine, the combination, with the framework, the cutter mounted across the same, and means for feeding clay to the cutter, of a vertically-reciprocating trip, keepers for the same, means for operating the trip and releasing the same, devices mounted on the trip for operating the cutter, and means for regulating the throw of the trip, substantially as specified.

34. In a brick-cutting machine, the combination of front and rear sections having endless carriers mounted thereon, a carriage movably mounted longitudinally between said front and rear sections and having a rotary cutter mounted therein, a wheel having projections extending therefrom, and means for intermittingly communicating motion from the wheel to the cutter, substantially as specified.

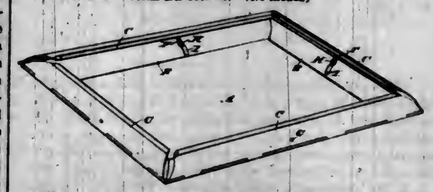
35. In a machine for cutting off brick, the combination of a movably-mounted rotary cutter, the framework having front and rear sections, endless carriers operating in said sections, the intermediate longitudinally-movable reciprocating carriage supporting the rotary cutter, and means for feeding clay to the cutter, substantially as specified.

36. In a machine for cutting off brick, the combination of the framework, the front and rear sections thereof, the drum mounted in the front section, means for expanding and contracting the circumference of the drum adjustably to the length of the brick, the longitudinally-movable carriage mounted on the front and rear sections, and means for operating a cutter upon a bar of clay, whereby the same is cut into brick, substantially as specified.

37. In a machine for cutting off brick, a framework having a front section, an adjustable expansible drum mounted therein, a band-wheel mounted on the shaft carrying the drum, and an endless feed-belt rotating on said drum, in combination with a rear section, a delivery-belt revolving over pulleys mounted within the frame of said rear section, a band-wheel mounted on the shaft carrying one of the pulleys of the delivery-belt, means of revolving the delivery-belt, and a band or belt connecting the band-wheels, and means of applying tension to the band or belt, substantially as specified.

38. In a machine for cutting off brick, a framework, front and rear sections thereof, endless carriers mounted therein, a band-wheel mounted on the shaft of a pulley over which the rear carrier revolves, a band-wheel mounted on the shaft of a pulley or drum over which the front or feed carrier revolves, means of connecting said band-wheels, tension devices for regulating the friction applied to the band-wheels, the carriage mounted on said front and rear sections for reciprocation therein, the rotary cutter mounted within the carriage and at an angle thereto, and means for feeding a bar or bars of clay in the path of the cutter, substantially as specified.

479,664. TRAY. MAX S. ROSENWEIG, New York, N. Y. Filed Nov. 5, 1891. Serial No. 410,979. (No model.)



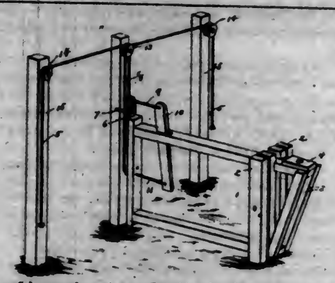
Claim.—1. A tray provided with inwardly-extending flanges pivoted to the sides of the body of the tray and a support for each of the said flanges to hold the same in an uppermost or extended position, substantially as shown and described.

2. A tray comprising a body, sides extending from the said body, flanges pivoted to the said sides and extending inward, and supports extending between the said flanges and sides to support the former in an extended position, substantially as shown and described.

3. In a tray, the combination, with a body and sides extending therefrom, of flanges pivoted to the upper ends of the said sides and extending inward and a support for connecting each flange with its side, the said support comprising an arm pivoted to the flange and a button pivotally connected with the arm and fitted to slide in the side, substantially as shown and described.

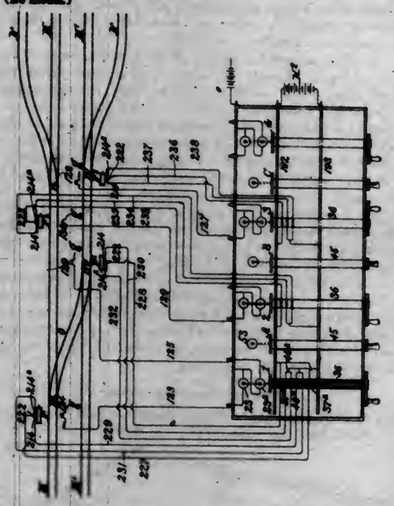
479,665. GATE. JOHN W. RUHL, Millinburg, Pa., assignor of one-half to David L. Ruhl, same place. Filed Mar. 16, 1892. Serial No. 426,139. (No model.)

Claim.—The combination of the posts, a gate pivotally mounted between the posts and provided with a weighted inverted triangular extension projecting rearwardly from it, rigid with it, and forming a part of it, a latch arranged at the front of the gate, a vertically-di-



posed lever fulcrumed on the gate and having its upper end connected with the latch, and operating-ropes connected with the lower end of the lever and adapted to release the latch and lift the gate, substantially as described.

479,666. SWITCH AND SIGNAL APPARATUS. JESSE G. L. SHERWOOD, Edgewood, Pa. Filed June 10, 1891. Serial No. 395,771. (No model.)



Claim.—1. The combination of a fluid-pressure motor for operating a switch or other part or appliance connected with a track and provided with an electrically-controlled valve mechanism with an electrically-controlled lock for locking said valve mechanism and make-and-break mechanisms for controlling the circuits leading to the lock and valve mechanisms of the motor, substantially as set forth.

2. The combination of a fluid-pressure motor for operating a switch or other part or appliance connected with a track and provided with an electrically-controlled valve mechanism with a make-and-break mechanism for controlling the circuits leading to the valve mechanism of the motor and an electrically-operated mechanism for locking the make-and-break mechanism during the operation of the motor, substantially as set forth.

3. The combination of a fluid-pressure motor for operating a switch or some part or appliance connected with a track and provided with an electrically-controlled valve mechanism with an electrically-controlled lock for the valve mechanism of the motor, make-and-break mechanisms for controlling the circuits leading to the lock and valve mechanisms of the motor, and an electrically-controlled mechanism for locking the make-and-break mechanism during the operation of the motor, substantially as set forth.

4. The combination of a series of two or more fluid-pressure motors for operating a series of two or more switches or other parts or appliances connected with a track and provided with electrically-controlled valve mechanisms with electrically-controlled locks for the valve mechanisms and a make-and-break mechanism for controlling the circuits leading to the lock and valve mechanisms of the motors, substantially as set forth.

5. The combination of a series of two or more fluid-pressure motors for operating a series of two or more switches or other parts or appliances connected with a track and provided with electrically-controlled valve mechanisms with a make-and-break mechanism controlling the circuits leading to each of the valve mechanisms of the motors and electrically-operated mechanisms for locking the make-and-break mechanisms during the operation of the motors, substantially as set forth.

6. The combination of a lever for operating the make-and-break mechanism controlling the switch and a lock operated by the lever for preventing a partial forward-and-return movement of the lever, substantially as set forth.

7. The combination of a lever for controlling the movements of the switch, pivotal plates provided with shoulders adapted to engage the latch of said lever and having spurs with inclined faces, spring-actuated plungers adapted to engage said spurs, and a slide arranged between the spurs, substantially as set forth.

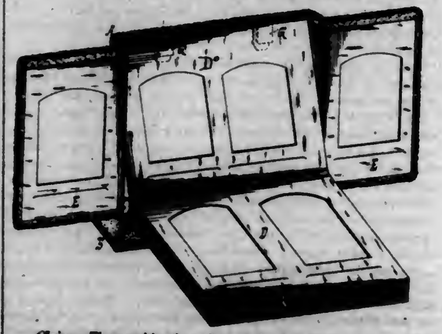
8. The combination of a lever for controlling the movements of the switch, pivotal plates provided with shoulders adapted to engage the latch of said lever and having spurs with inclined faces, spring-actuated plungers adapted to engage said spurs, a slide arranged between the spurs, and a dog operated by the slide and adapted to engage the pivotal plates, substantially as set forth.

9. In combination with a fluid-pressure cylinder and piston, a distributing-valve governing the supply and exhaust pistons to actuate said valve, electrically-actuated valves, each controlling the admission and exhaust of fluid-pressure to and from one side of each of said pistons, and a lock for holding the distributing valve in different positions, substantially as set forth.

10. In combination with a fluid-pressure cylinder and piston, a distributing-valve governing the supply and exhaust, and a locking-pin for holding said valve in different positions, the pin and valve being provided with interlocking projections and recesses, substantially as set forth.

11. In combination with a fluid-pressure cylinder and piston, a distributing-valve governing the supply and exhaust, pistons to actuate said valve, electrically-actuated valves, each controlling the admission and exhaust of fluid-pressure to and from one side of each of said pistons, and an electrically controlled locking device adapted to so engage the distributing-valve as to necessitate a preliminary shifting of the distributing-valve to permit of the withdrawal of the locking device, substantially as set forth.

479,667. PHOTOGRAPHIC ALBUM. GUSTAVE SCHWAB, New York, N. Y. Filed May 3, 1892. Serial No. 431,696. (No model.)



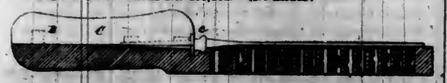
Claim.—The combination of a case having a base, to which it is secured, and a laterally-opening door with a set of downwardly and outwardly opening album-leaves connected at the bottom by flexible strips and adapted to hold photographic or other pictures and a hook-and-socket connection between the back leaf of the set and the back of the case, the hook being free to move up and down in the socket and to be readily removable from the same, substantially as described.

479,668. DIE FOR CUTLERY. THOMAS SHAW, Newark, N. J. Filed July 22, 1891. Serial No. 400,264. (No model.)



Claim.—The combination, with the male die provided with a recess in its wearing-surface and an aperture in said recessed part, of a separate auxiliary die having a part adapted to engage said recess, and a screw-threaded extension adapted to pass through said aperture, and a nut for engaging said extension of the die for clamping it in position in said recess, substantially as described.

479,669. KNIFE-HOLDER. THOMAS SHAW, Newark, N. J. Filed July 22, 1891. Serial No. 400,262. (No model.)



Claim.—1. The herein-described knife-holder with a perforated seat adapted to be engaged by the knife-blade.

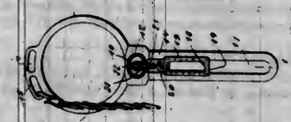
2. The herein-described knife-holder, provided with a perforated seat for the knife-blade and clamping means for engaging other portions of the knife to hold said blade in engagement with said perforated seat.

3. The herein-described knife-holder, provided with a perforated seat for the knife-blade, a recessed portion for the tang and bolster, and the keeper, substantially as described.

4. The herein-described knife-holder, provided with the perforated portion adapted to support the knife-blade and a porous covering engaging said perforated portion of the holder.

5. The herein-described knife-holder, provided with the perforated portion adapted to support the knife-blade, a porous covering for said perforated part, and the clamping devices for securing said porous covering to said holder.

479,670. BRIDLE-BIT. OLIVER M. SLOAT, Brooklyn, N. Y. Filed Apr. 8, 1892. Serial No. 428,334. (No model.)

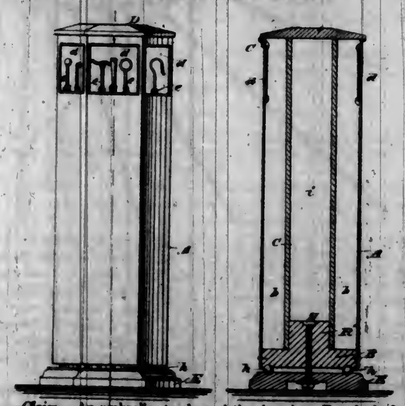


Claim.—1. The combination, with the bit having slotted cheek-pieces and a hollow mouth-bar, of rein-eyes held to slide in the cheek-pieces and a spring held within the mouth-bar and secured to the rein-eyes, substantially as described.

2. The combination, with the bit having a hollow mouth-bar and depending slotted cheek-pieces, of rein-eyes held to slide in the cheek-pieces and having hooks at their upper ends and a spring held within the mouth-bar and secured at its outer ends to the hooks of the rein-eyes, substantially as described.

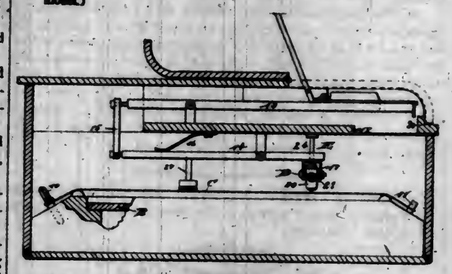
3. The combination, with the bit having depending slotted cheek-pieces and a hollow mouth-bar closed at its ends and with openings on the under side and near the end portions, of rein-eyes held to slide in the cheek-pieces and a spring held in the mouth-bar and having its free ends extending downward through the openings in the mouth-bar and connected with the rein-eyes, substantially as described.

479,671. UMBRELLA-STAND. PETER V. SMITH, New York, N. Y. Filed Sept. 10, 1891. Serial No. 405,288. (No model.)



Claim.—An umbrella-stand consisting in a base E and a body rotating thereon and comprising a bottom block B, having a raised central portion R', a pivot-bolt *g*, connecting the base and block, anti-friction rollers interposed between the adjacent faces of the base and block, the inner case C, receiving at its lower end the portion R', the outer case the lower end of which incloses the block B and having a glazed upper end, and the cover D, closing the compartments formed within said casings, substantially as set forth.

479,672. PICK FOR STRINGED INSTRUMENTS. HENRY G. A. SMITH, Buffalo, N. Y. Filed Dec. 22, 1891. Serial No. 415,850. (No model.)



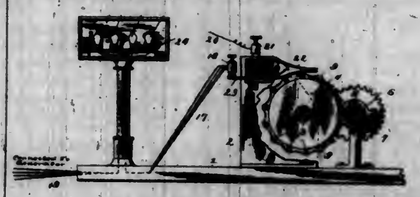
Claim.—1. In a stringed instrument, the combination, with a key, of a pivoted pick connected to the key and provided with means for holding it in the position to which it has been moved, and a trip mechanism engaging the pick in its upward and downward movements, whereby provision is made for swinging the pick into an inclined position to cause it to slide over and release the string and to restore it to its normal position after it has risen above the string, substantially as described.

2 The combination, with a string stretched to vibrate and a key or lever located adjacent to the string, of a pick pivotally attached to the key or lever, a trip mechanism operating in conjunction with the pick, and a tension device applied to the pick and adapted to hold the pick in a predetermined position during its upward and downward stroke until the trip mechanism restores the pick to its normal position for the next stroke, as and for the purpose set forth.

3. In a stringed instrument, the combination, with a key, of a pivoted and frictionally-held pick connected with the key and provided with a spring-finger and a lip and a trip mechanism engaging the lip of the pick to swing it on its pivot, substantially as herein shown and described.

4. In a stringed instrument, the combination, with a key, of a pivoted pick connected with the key and provided with a spring-finger and a lip, a trip mechanism comprising abutments or stops, between which the lip of the pick projects, and means for holding the pick from turning on its pivot only when engaged by the trip mechanism, substantially as herein shown and described.

479,673. APPARATUS FOR PRODUCING VARIEGATED LIGHTS. FRANK J. M. SMITH and WILLIAM J. BRYAN, Chicago, Ill. Filed Jan. 5, 1892. Serial No. 417,071. (No model.)



Claim.—1. The combination, with a series of differently-colored lamps, of a single chamber inclosing all of said lamps and having semi-transparent material on one or more of its sides and means, substantially as described, for automatically bringing said lights into action in combination, whereby said material will transmit colors differing from either of the lamps, as set forth.

2. The combination, with a series of differently-colored electric lamps, of a single chamber inclosing all of said lamps and having semi-transparent material on one or more of its sides, electric circuits for said lamps, and mechanism, substantially as described, for automatically breaking and making said circuits, as set forth.

3. The combination, with a series of differently-colored electric lamps, of a single chamber inclosing all of said lamps and having one or more of its sides covered with semi-transparent material, a series of electric circuits and contacts therefor corresponding to the lamps,

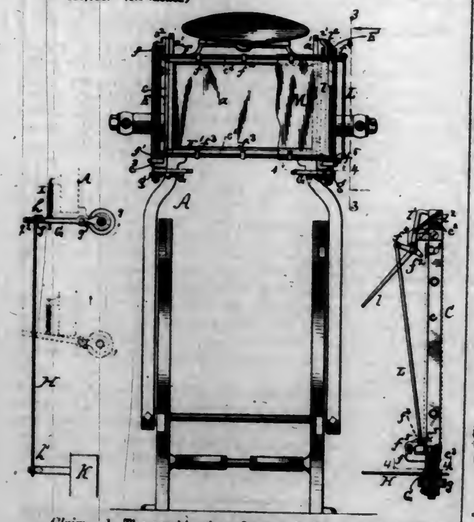
and a revolving cylinder provided with means for automatically closing said circuits, substantially as described.

4. The combination, with a series of differently-colored electric lights, of a single chamber inclosing all of said series of lights, having one or more of its sides capable of transmitting light, a series of electric circuits corresponding to the lamps, and a like series of plates 22 and 23, forming part of said circuits and normally holding them open, and a rotary cylinder provided with teeth to close said circuits and set the lamps in action in different combinations, substantially as described.

5. The combination, with a series of differently-colored electric lights, of a single chamber inclosing all of said series of lights, having one or more of its sides capable of transmitting light, a series of electric lamps inclosed therein, a series of electric circuits corresponding to the lamps, and a like series of plates 22 and 23, forming part of said circuits and normally holding them open, a rotary cylinder provided with teeth to close said circuits and set the lamps in action in different combinations, and means for giving said cylinder an intermittent rotary motion, substantially as described.

479,674. INKING ATTACHMENT FOR PRINTING-PRESSES.

THOMAS G. SPENCE, Brooklyn, N. Y. Filed Dec. 24, 1891. Serial No. 416,088. (No model.)



Claim.—1. The combination of a type-bed, an attachable frame therefor, a roller at each side of said frame, a ribbon attached to such rollers and extending across the frame, and means, such as described, for intermittently operating said rollers, as set forth.

2. In a printing-press, the combination of the type-frame, the platen, the inking-ribbon extending across the frame between it and the platen, a roller at each end of the ribbon, to which the ribbon is secured, a ratchet-and-pawl mechanism for such roller, and a rod extending therefrom and connected with the platen, whereby after each impression a portion of the ribbon is moved for the next impression, as set forth.

3. In a printing-press, the combination of the type-frame, the platen, an inking-ribbon between them, rollers at the end of such ribbon, and tighteners located at the loose opposite edges of such ribbon, as set forth.

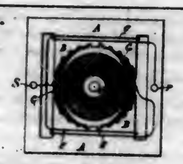
479,675. ALTERNATING-CURRENT MOTOR.

WILLIAM STANLEY, Jr., Pittsfield, Mass., and JOHN F. KELLY, New York, N. Y. Filed Nov. 14, 1891. Serial No. 411,986. (No model.)

Claim.—1. The combination, with the armature of an alternating-current motor and the energizing-coils wound thereon, of a stationary coil closed upon itself and having its conductors or convolutions substantially parallel to those of the armature-coil, whereby the self-induction of the armature will be neutralized, as set forth.

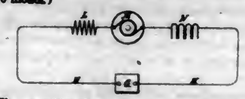
2. The combination, with the armature of an alternating-current motor having a commutator to which the coils wound on the armature are connected, of a stationary coil closed upon itself and having its conductors or convolutions substantially parallel to those of the armature-coil, whereby the self-induction of the armature will be neutralized, as set forth.

479,625.



479,676. ALTERNATING-CURRENT MOTOR.

WILLIAM STANLEY, Jr., and JOHN F. KELLY, Pittsfield, Mass. Filed Mar. 5, 1892. Serial No. 423,822. (No model.)



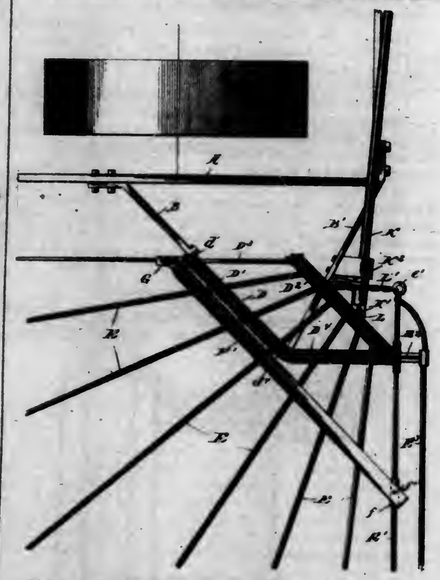
Claim.—1. The combination, with an electric circuit possessing self-induction, of a source of alternating currents and conducting-plates arranged in couples in an electrolyte and connected in series with the circuit and adapted by adjustment to the electrical conditions of the circuit to neutralize by polarization the electro-motive force of the self-induction in the circuit, as set forth.

2. The combination, with an alternating-current motor and in series with the circuit or circuits of the same, of a polarization-cell adapted to yield an electro-motive force opposite to that of the self-induction of the motor, as set forth.

3. The combination, with an alternating-current motor and in series with the same, of a series of couples of conducting-plates immersed in an electrolyte which does not chemically attack said plates and adapted or proportioned to act as a polarization-cell for neutralizing the electro-motive force of the self-induction of the motor.

479,677. BUNDLE-CARRIER FOR GRAIN-BINDERS.

ANDREW STARK, Chicago, Ill. Filed Jan. 13, 1892. Serial No. 418,494. (No model.)



Claim.—1. In a bundle carrier, a frame having a plurality of carrying arms pivoted to it and extending rearward and stubbleward, the pivotal connections of said arms to the frame being in a line which extends forward and stubbleward oblique to the direction of travel.

2. In combination with a harvester-frame, a bundle-carrier supported thereon, comprising a tilting frame and a plurality of bundle-carrying arms severally pivoted at one end to such tilting frame near the outer forward corner of the harvester-frame and radiating rearward and stubbleward therefrom, substantially as set forth.

3. In combination with a harvester-frame, a bundle-carrier comprising a frame tilting on the harvester-frame over an axis approximately forty-five degrees divergent forwardly and outwardly from the line of travel, and a plurality of bundle-carrying arms pivoted to such tilting frame near the outer forward corner of the harvester-frame and radiating therefrom when the carrier is in position to receive its load, substantially as set forth.

4. In combination with a carrier-frame and the bundle-carrying arms severally pivoted thereto, a bar pivotally connected to one of said arms and having sliding connection with the remainder and with the carrier-frame, and suitable means for swinging the first mentioned arm about its pivot on the carrier-frame, whereby the carrier consisting of said arms may be collapsed, substantially as set forth.

5. In combination with the harvester, a carrier comprising a plurality of arms severally pivoted at one end, a lever-arm E', having its pivot fixed with respect to the pivots of the carrier-arms, the bar F, having a pivot fixed with respect to its distance from the pivot of the lever-arm E' and having a sliding support at a distance from said pivot, and sliding connections with the carrier-arms, substantially as set forth.

6. In combination with the harvester, a carrier comprising a plurality of arms severally pivoted at one end, a lever-arm E', having its pivot fixed with respect to the pivots of the carrier-arms, the bar F, having a pivot fixed with respect to its distance from the pivot of the lever-arm E' and a sliding support at a distance from said pivot, and sliding connections with the carrier-arms, and a shaft K, journaled on the harvester-frame, having the crank K^3 and a link connection from said crank to the lever-arm E', whereby the rocking of the shaft is adapted to expand the carrier, substantially as set forth.

7. In combination with the carrier-frame having pivotal support upon the harvester-frame and adapted to tilt over such support and comprising the arms adapted to be collapsed by rearward pressure and expanded by the reverse action, the shaft K, journaled on the harvester-frame and having the crank-arm K^3, and the link connections to one of the collapsible carrier-arms, the position of said shaft relatively to the link connection made from its crank to the said carrier-arms being substantially as shown and described, whereby the complete collapse of the carrier causes it to be tilted up, substantially as set forth.

8. In combination with the tilting carrier-frame having collapsible carrier-arms, the shaft K, journaled upon the harvester-frame and having the cranks K' and K^3, connected, respectively, to the carrier-frame and to one of its collapsible arms, the latter connection being flexible and the position of the cranks relative to their connections to the frame and said carrier-arms, respectively, being such that the rocking of the shaft in the direction necessary to permit the tilting of the frame causes the crank K^3 to approach its connection with said carrier-arms, whereby the frame may tilt without collapsing and may be collapsed by rearward pressure upon its arms without regard to its position with respect to tilting, substantially as set forth.

9. In combination with the harvester-frame, the carrier-frame D, pivoted thereto at a line extending forward and stubbleward oblique to the line of travel and adapted to tilt over such pivotal connection, the carrier-arms pivoted to such frame and normally diverging, the bar F, pivotally connected to one of said arms and having sliding connection with the other and with the frame D, the shaft K, journaled on the harvester-frame and having cranks K' and K^3, and the draft-chains L and L', extending from said cranks, respectively, the former to the frame D and the latter to one of said carrier-rods, substantially as set forth.

10. In combination with the collapsible arms of the carrier, the bar F, comprising the upper and lower members, and the oblique webs F^3, connecting them and spaced, as described, to permit the carrier-arms to pass through the bar and swing therein, substantially as set forth.

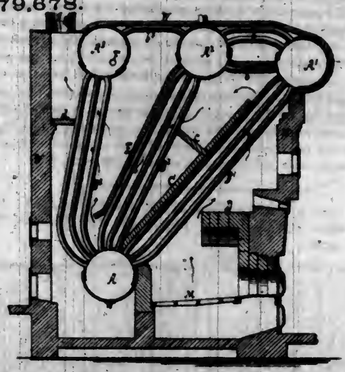
11. In a bundle-carrier, in combination with the collapsing arms, the front guard-arm E^3, attached to and moving with the foremost of said collapsing carrier-arms, substantially as set forth.

479,678. STEAM-BOILER.

ALLAN STIRLING, New York, N. Y., assignor to the Stirling Company, Chicago, Ill. Filed Mar. 24, 1892. Serial No. 426,266. (No model.)

Claim.—1. A water-tube boiler consisting of a single mud-drum A, two elevated steam and water drums A' A^2, having their steam and water spaces respectively placed in communication, the water-tubes B' B^2, extending from the mud-drum to the drums A' A^2, the feed-drum A^3, the water-tubes B^3, extending from the mud-drum to the feed-drum, and the pipes A^3, connecting the feed-drum with one of the steam and water drums, substantially as described.

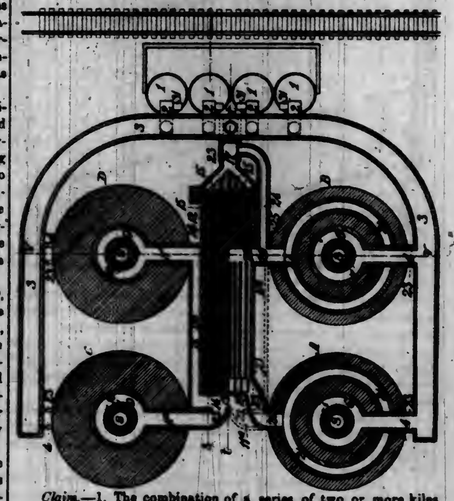
2. A water-tube boiler consisting of a furnace structure, a single mud-drum A, the elevated steam and water drums A' A^2, having their steam and water spaces respectively placed in communication, two sets of water-tubes B' B^2, directly connected at their upper ends with the steam and water drums and both sets connected at their lower ends with the single mud-drum, the feed-drum A^3, the water-tubes B^3, connecting the feed-drum with the mud-drum, the brick arch D, extending over the fireplace from the wall of the furnace structure close to



the front set of water-tubes B', the fire-brick partition C, inclined between the two sets of water-tubes B' B^2, and the fire-brick partition E, situated between the water-tubes B^3 and B^4, substantially as described.

479,679. BRICK-KILN.

WILLIAM SWINDELL, Allegheny, Pa. Filed Jan. 6, 1892. Serial No. 417,163. (No model.)



Claim.—1. The combination of a series of two or more kilns, gas-producers, flues connecting the producers and kilns, and a regenerator having flue connections for air and products of combustion with each of the kilns, substantially as set forth.

2. The combination of a series of two or more kilns, gas-producers, flues connecting the producers and kilns, a regenerator having flue connections for air and products of combustion with each of the kilns, and valves in the flues for the gas, air, and products of combustion, whereby one or more of the kilns may be cut out of operation, substantially as set forth.

3. The combination of a series of two or more kilns, gas-producers, flues connecting the producers and kilns, a regenerator having flue connections for air and products of combustion with the kilns, valves in the flues for the products of combustion, and flues provided with valves for conducting the products of combustion from each kiln direct to the stack, substantially as set forth.

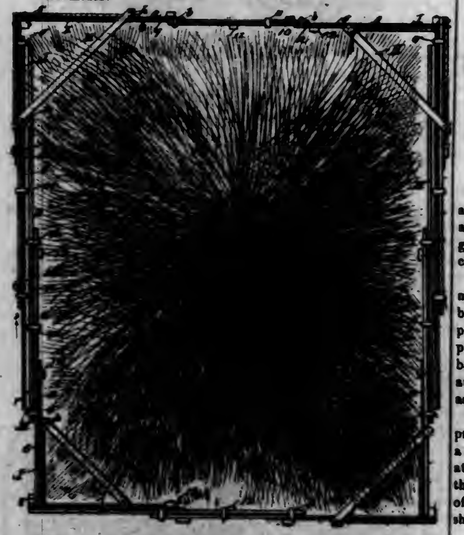
4. The combination of a series of two or more kilns, gas-producers, flues connecting the producers and kilns, a regenerator having flue connections for air and products of combustion with the kilns, valves for opening and closing the air and gas flues of each kiln, and a pipe or flue provided with valves connecting the kilns in pairs at the tops thereof, substantially as set forth.

5. The combination of a series of two or more kilns, gas-producers, flues provided with valves connecting the producers and kilns, a regenerator having flue connections for air and products of combustion with each of the kilns, valves located in said flue connections, a

pipe or flue provided with valves connecting the flues in pairs at the tops thereof, and flues provided with valves for conducting the products of combustion direct to the stack, substantially as set forth.

6. The combination of a series of two or more kilns, gas-producers, flues connecting the producers and kilns, valves for stopping the flow of gas from the producers to the flues, a regenerator having flue connections for air and products of combustion with each of the kilns, a valve interposed between the regenerator and stack, and a flue provided with a valve connecting the stack with the gas-flues at or near their junction with the producers, substantially as set forth.

479,680. COLLAPSIBLE FENCE FOR HAY-STACKS. SVEN O. THOMPSON, McPherson, Kans. Filed June 23, 1891. Serial No. 397,207. (No model.)



Claim.—1. A collapsible fence for a hay or straw stack, adapted to yield automatically to external pressure by sliding connections along its sides, so as to contract its area, substantially as described.

2. A collapsible fence for hay or straw stacks, having its sections vertical and connected at the junctional corners and each section made longitudinally extensible and contractible by sliding connections, substantially as described.

3. A rectangular collapsible fence having four upright sides which are joined and braced at the corners and each composed of parallel rails and a bottom board, which sides are each longitudinally adjustable to alter their length, substantially as described.

4. In an expansible and contractible fence, the combination, with four upright panel-sections, each extensible and contractible, of two diagonal horizontal braces at each corner and two diagonal braces for each corner, which are upwardly and outwardly inclined and are attached to the exterior or interior faces of the fence-sections, substantially as described.

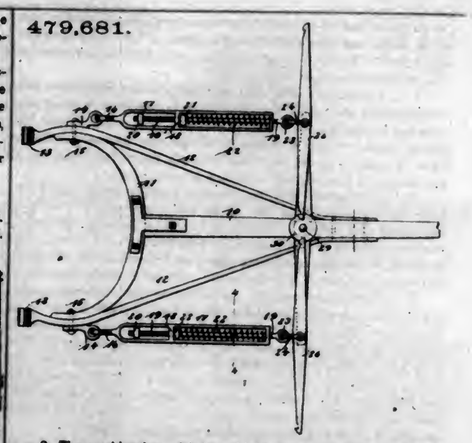
5. The combination of four similar fence-sections connected at their ends to produce a quadrangular structure, each section being composed of two parallel rails and a bottom board, each rail and bottom board being made of lapped pieces held loosely together by clip-bands and provided with means to facilitate the longitudinal sliding movement of the clasping clip-bands for the expansion or contraction of the fence-sections, substantially as described.

6. In an expansible and contractible fence, the combination, with the fence-sections that each have lapped rails held movably together by clip-bands, of intermediate channeled bars which are loosely secured to the rails by clip-bands and adapted to extend the length or width of the fence beyond the length of the rails lapped thereon, substantially as described.

479,681. SPRING DRAFT ATTACHMENT. JOHN F. TIPER, Laverna, Tex., assignor to himself and Robert C. Houston, same place. Filed Feb. 9, 1892. Serial No. 420,888. (No model.)

Claim.—1. The combination, with a pole, of arms having their inner ends pivoted to the pole, singletrees pivoted on the outer ends of the arms, and an independent and yielding connection between each arm and the bow portion of the pole, substantially as described.

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2. The combination, with the vehicle-pole, of oppositely-extending arms pivoted thereon, singletrees pivoted on the outer ends of the arms, swinging open frames pivoted to a support in the rear of the singletrees, and spring-repressed draw-bars mounted in the frames and connected with the singletrees and arms, substantially as described.

3. The combination, with the vehicle-pole, of swinging arms mounted thereon and extending on opposite sides thereof, curved braces connected with the arms and pivoted to the under side of the pole, singletrees carried by the outer ends of the arms, open frames pivoted to a support in the rear of the arms, spring-repressed draw-bars held to slide in the frames and connected with the singletrees and arms, and stops to limit the movements of the draw-bars, substantially as described.

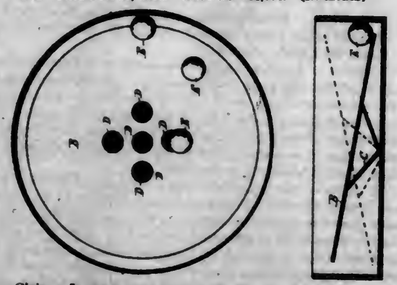
4. A spring drawing attachment for vehicles, consisting of a frame provided with an eye at one end and with a cross-bar near its center, a draw-bar having one end screw-threaded and provided with an eye at its other end and with a collar at its screw-threaded end, a nut on the draw-bar, and a spring surrounding the draw-bar between one end of the frame and the collar of the draw-bar, substantially as herein shown and described.

479,682. REAMER. JORDAN W. TOMPKINS, Amesbury, Mass. Filed Dec. 17, 1891. Serial No. 415,579. (No model.)



Claim.—The reamer having its bit formed with concavo-convex wings or lips, with their convexities tapering to the point of the bit and rounded outward from and beginning at the inner edges or bases of their concavities, respectively, along oblique or inclined lines diverging from each other upon opposite sides of the bit outward and upward and converging or meeting at the point of the bit, said concavities being presented in opposite directions and having inclined cutting-edges tapering to the point of the bit, substantially as set forth.

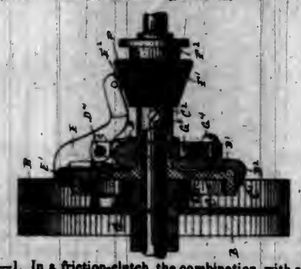
479,683. GAME APPARATUS. EDGAR H. TRUMAN, Wilmington, Del. Filed Nov. 10, 1891. Serial No. 411,538. (No model.)



Claim.—In a game apparatus, in combination with a case or holder, the herein-described circular tilting tablet or disk, provided about

centrally with one or more cavities or pockets adapted to engage one or more balls, substantially as and for the purpose herein set forth.

479,684. FRICTION-CLUTCH. JOSEPH D. WHITCOMB, Worcester, assignor of two-thirds to George Anson Walker, Boston, Mass. Filed Dec. 17, 1891. Serial No. 415,382. (No model.)



Claim.—1. In a friction-clutch, the combination, with a shaft and a pulley running loosely thereon, of a friction-flange attached concentrically to said shaft, a bar extending diametrically across said friction-flange, with one end arranged to press radially against said friction-flange, a lever pivoted at its opposite end, a friction-shoe carried by said lever and arranged to bear on said friction-flange, and connected actuating mechanism by which said lever is rocked and its shoe carried against the friction-flange, substantially as described.

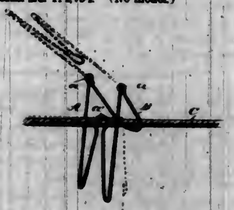
2. In a friction-clutch, the combination, with a shaft and a pulley running loosely on said shaft, of a friction-flange attached to said shaft, a collar D, inclosing the shaft, an arm D′, extending radially from said collar and operatively connected with said pulley, with its free end bearing against the friction-flange, a lever pivoted on the opposite side of said collar, a friction shoe carried by said lever, and a cone sliding on said shaft by which said lever is actuated, substantially as described.

3. In a friction-clutch, the combination, with a shaft and a pulley running loosely on said shaft, of a friction-flange attached to said shaft, clutching mechanism by which said flange is engaged, a radial arm attached to said pulley, and a pivoted link connection between said radial arm and said clutching mechanism as rotated by said pulley, substantially as described.

4. In a friction-clutch, the combination, with a shaft and a pulley running loosely thereon, of a friction-flange attached to said shaft, a collar inclosing said shaft, an arm projecting radially from said collar, with its free end bearing radially against said friction-flange, and a link placed at an acute angle with said arm by which said arm is operatively connected with said pulley and mechanism connected with said arm, whereby its free end is drawn radially against said friction-flange, substantially as described.

5. In a friction clutch, the combination, with a shaft, a pulley running loosely on said shaft, a friction-flange attached to said shaft and clutching mechanism applied to said friction-flange and operatively connected with said pulley, said mechanism comprising a pivoted lever, of a pinion carried in the end of said pivoted lever and a sliding cone by which said lever is connected, said cone being provided with a series of parallel concentric ribs forming teeth adapted to engage the teeth of said pinion, substantially as described.

479,685. CLOTHES-PIN. ALLAN WATT, Rocky Mount, N. C. Filed Dec. 11, 1891. Serial No. 414,754. (No model.)



Claim.—1. A clothes-pin whose body is formed of an elastic wire bent into the form of the letter W and a top portion or loop, also formed of elastic wire and adapted to receive a clothes-line, and thus secure the pin proper thereto, as shown and described.

2. The improved clothes-pin composed of the elastic bifurcated body A and the elastic top loop B, which is loosely jointed to said body and adapted to resist lateral distension of the latter, as shown and described.

479,686. TOOL-HEATER. ANTON WELLER, Auburn, N. Y., assignor to W. Albertine L. Weller, same place, and Gerhard Weller, Utica, N. Y. Filed Oct. 8, 1891. Serial No. 408,190. (No model.)

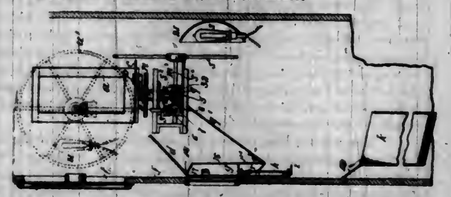


Claim.—1. In a tool-heater, the combination, with the burner, of a valve controlling the admission of gas to the burner, means connected with said valve adapted to receive the weight of a tool for moving said valve in one direction, a spring for moving the valve in the opposite direction, and means for adjusting the tension of said spring, substantially as described.

2. In a tool-heater, the combination, with the key seat having a discharge-opening and having a collar for attachment to a supporting-pipe and a key fitting said key-seat, of a burner connected with said key, a spring engaging said burner and holding said key in a position to close the discharge-aperture, a tool-rack secured to said burner, whereby the said burner may be depressed by the weight of a tool into line with the said discharge-opening, and an auxiliary tube extending to a point adjacent to the burner in its lower position for lighting the gas discharged into said burner, substantially as described.

3. In a tool-heater, the combination, with the key-seat having a discharge-passage, of the burner connected to said key and provided with a tool rack, a spring engaging said burner and holding the key normally in a position to close said passage, whereby the burner may be depressed by the weight of a tool on said rack and made to operate said key to open the discharge-passage, an auxiliary tube extending to a point adjacent to the burner in its lower position, and stops for limiting the downward movement of the burner, substantially as described.

479,687. ADVERTISING-CLOCK. FRANZ WELLERA, Sr., FRANZ WELLERA, Jr., and LUDWIG WAGNER, Vienna, Austria-Hungary. Filed July 24, 1891. Serial No. 400,621. (No model.)



Claim.—1. In an advertising apparatus, the combination of the following instrumentalities, to wit: a casing provided with a display-aperture, a rocking support for the cards arranged in rear of said aperture, an inclined rocking table above the rocking support, a holder for the cards proximate to the table, and an ejector for ejecting one card after another from the holder onto the table, for the purpose set forth.

2. In an advertising apparatus, the combination of the following instrumentalities, to wit: a casing provided with a display-aperture, a rocking support for the cards arranged in rear of said aperture, an inclined rocking table above the rocking support, a holder for the cards proximate to the table, an ejector for ejecting one card after another from the holder onto the table, and an intermittingly-operating motor for actuating said devices, for the purpose set forth.

3. In an advertising apparatus, the combination, with a casing provided with a display-aperture, a fixed illuminating device for the same, and an intermittingly-revolving multi-colored light-transmitting medium interposed between the illuminating device and display-aperture, of transparent or translucent advertising-cards, a holder therefor, an intermittingly-moving ejector for ejecting the cards one after the other from the holder, an intermittingly-rocking table to which the

cards are fed, and an intermittingly-rocking support and shifting device interposed between the display-aperture and light-transmitting medium, to which the cards are transferred by the table, for the purpose set forth.

4. In an advertising apparatus, the combination, with a casing provided with a display-aperture, an illuminating device for illuminating said aperture, a revoluble light-transmitting medium divided into sections differing in color interposed between the display-aperture and illuminating device, transparent or translucent advertising-cards, and a holder therefor, of an ejector operating to successively eject the cards from the holder, a receiver and transfer table adapted to receive the ejected cards and operating to transfer the same to a point between the display-aperture and the light-transmitting medium, a shifting device for shifting the cards from said aperture, and an intermittingly-operating motor for actuating said devices, for the purpose set forth.

5. In an advertising apparatus, the combination, with a casing provided with a display-aperture, and illuminating device for illuminating said aperture, a revoluble light-transmitting medium divided into sections differing in color interposed between the display-aperture and illuminating device, transparent or translucent advertising-cards, and a holder therefor, of an ejector operating to successively eject the cards from the holder, a receiver and transfer table adapted to receive the ejected cards and operating to transfer the same to a point between the display-aperture and the light-transmitting medium, a shifting device for shifting the cards from said aperture, and an electrically-controlled and intermittingly-operating motor for actuating said devices, for the purpose set forth.

6. In an advertising apparatus, the combination, with a casing provided with a display-aperture, an illuminating device for illuminating said aperture, a revoluble multicolored light-transmitting medium interposed between the aperture and illuminating device, transparent or translucent advertising-cards, and a holder therefor, of an ejector operating to successively eject the cards from their holder, a receiving and transfer table adapted to receive the cards and operating to transfer the same to a point between the display-aperture and light-transmitting device, a shifting device operating to shift the cards from the aperture, an audible signal, and an intermittingly-operating motor for actuating said devices, for the purpose set forth.

7. In an advertising apparatus, the combination, with a casing provided with a display-aperture and a time-dial and containing a time-movement, of a holder for the cards, an ejector for ejecting said cards from the holder one after the other, a rocking table to which the cards are fed, a rocking support and shifting device in rear of the display-aperture for supporting the cards thereat and shifting the same therefrom, and a motor controlled by the time-movement to intermittingly operate said devices, for the purpose set forth.

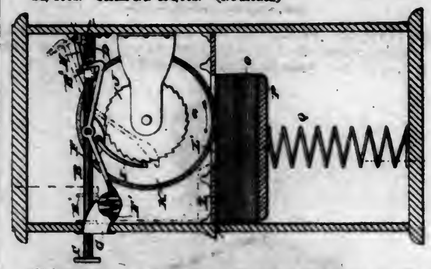
8. In an advertising apparatus, the combination, with a casing provided with a display-aperture, a fixed illuminating device, and a multicolored light-transmitting device interposed between the display-aperture and the illuminating device, of a holder for the advertising-cards, located above the display-aperture, a feed-table interposed between the holder and display-aperture, adapted to receive the cards and transmit them to said aperture, feeding mechanism for feeding the cards one after another from the holder to the said table, a shifting mechanism, such as described, for shifting said cards from said aperture, an intermittingly-revoluble driving-shaft, and transmitting mechanism operated by said shaft and operating the revoluble light-transmitting device and the card feeding and shifting devices, substantially as and for the purposes set forth.

9. The means for transferring the advertising-cards to the display-aperture *e* and shifting the same from said aperture, consisting of the table *d*, the rock-shaft 14, carrying said table, the rock-shaft A, carrying the mutilated disks *g i* and having a radial arm *r'* and the crank-shaft g^4, connected with rock-shaft 14 and having a forked crank-arm *r* in engagement with the radial arm *r'* of rock-shaft A, in combination with a revoluble driving-shaft carrying an eccentric connected with the crank-shaft p^3 and operating to impart a rocking motion to said shaft, as described, for the purpose set forth.

10. The means for illuminating the display-aperture *e*, consisting of a lamp and reflector and a circular transparent screen interposed between the lamp and aperture, said screen being divided into sections of differently-colored glass arranged relatively to the lamp to present one of its sections thereto, in combination with an intermittingly-revoluble driving-shaft and transmitting-gear for transmitting a like motion to the screen, for the purpose set forth.

11. The means for intermittingly feeding the transparent or translucent advertising-cards to the receiving and transfer table *d*, consisting of a holder for the cards, having a slot in its opposite lower ends, a pair of ejector toggle-levers *c d'*, adapted to operate in the rear slot of the holder, the intergearing wheels *n* and *n'*, to which the links of the toggle-lever *c d'* are respectively connected, and the bevel-pinion *m'* on shaft of gear *n'*, in combination with the motor-shaft 1, carrying bevel-pinion *m* in gear with pinion *m'*, substantially as described.

479,688. VENDING-MACHINE. GUSTAVUS A. WELLER, La Salle, Ill., assignor of one-half to Charles L. Diesterweg, same place. Filed May 24, 1892. Serial No. 434,162. (No model.)



Claim.—1. A vending-machine comprising a spring-pressed bar a coin-holding lever fulcrumed on the said bar, and a locking-arm pivotally connected with the said lever and adapted to engage the said bar to lock the latter in place, substantially as shown and described.

2. A vending-machine comprising a spring-pressed bar, a coin-holding lever fulcrumed on the said bar, a locking-arm pivotally connected with the said lever and adapted to engage the said bar to lock the latter in place, and a coin-chute opening on the spoon end of the said lever, so that when the coin passes on the latter the arm H disengages the said bar to unlock the latter, substantially as shown and described.

3. In a vending-machine, the combination, with a wheel mounted to revolve and adapted to engage the article to be sold, of a spring-pressed bar mounted to slide and carrying a pawl engaging a ratchet-wheel on the said wheel, a coin-holding lever fulcrumed on the said bar and formed at its front end with a spoon adapted to receive the coin, and a locking-arm pivotally connected with the rear end of the said lever and adapted to engage the said bar to lock the latter in place, substantially as shown and described.

4. In a vending-machine, the combination, with a wheel mounted to revolve and adapted to engage the article to be sold, of a spring-pressed bar mounted to slide and carrying a pawl engaging a ratchet-wheel on the said wheel, a coin-holding lever fulcrumed on the said bar and formed at its front end with a spoon adapted to receive the coin, a locking-arm pivotally connected with the rear end of the said lever and adapted to engage the said bar to lock the latter in place, and a spring-pressed plate carrying the articles to be sold and forcing the uppermost article in contact with the periphery of the said wheel, substantially as described.

5. In a vending-machine, the combination of a spring-pressed bar provided with a lug and fitted to slide transversely, a pivoted arm adapted to engage the said lug to lock the bar in place, a coin-holding lever fulcrumed on the said bar and pivotally connected at its rear end with the said arm, a fork arranged at the front end of the said lever to receive the coin, a pawl fulcrumed on the said bar, a ratchet-wheel engaged by the said pawl, and a wheel carrying the said ratchet-wheel and adapted to engage with its rim the article to be sold, substantially as shown and described.

479,689. MANUFACTURE OF ROSE OR ORANGE STAINED GLASS. FRANZ WELS, Klostergrab, Austria-Hungary. Filed Jan. 11, 1892. Serial No. 417,676. (No specimens.)

Claim.—1. In the manufacture of colored glass, the herein-described process, which consists in mixing selenium with molten glass, as set forth.

2. In the manufacture of colored glass, the herein-described process, which consists in mixing selenium and cadmium sulphide with molten glass, as set forth.

479,690. OIL AND VAPOR BURNER. WILLIAM H. WILDER, Florence, Mass., and JOHN A. LANNERT and WILLIAM R. JEAVONS, Cleveland, Ohio. Filed Mar. 26, 1892. Serial No. 426,472. (No model.)

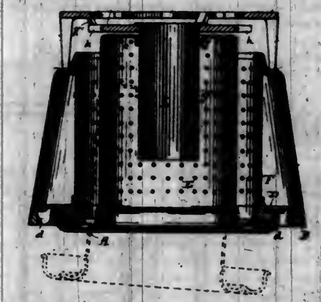
Claim.—1. In a burner, the inner tube shouldered at its lower portion to engage the inner wall of the vapor-bowl to hold and secure it to said bowl, substantially as described.

2. In a vapor-burner, the inner perforated tube having the metal at its lower portion bent or formed out of line with the sides of the tube, whereby it engages the inner wall of the vapor-bowl to hold and secure it to said bowl, substantially as described.

3. The burner-bowl and combustion-tubes, the inner tube having its lower extremity enlarged and bearing against the sides of the burner-bowl, and a projection bearing on the upper edge of the bowl, substantially as described.

4. A burner provided with a vapor-bowl and combustion-tubes, the inner perforated tube having an air-deflector formed integral therewith at its top, substantially as described.

5. A burner having perforated combustion-tubes forming a combustion-chamber between them, and the spider having two deflecting-plates one above the other and above the combustion-chamber, substantially as described.



6. The burner-bowl and perforated combustion-tubes, an air-deflector at the top of the inner tube having a central opening, and a flame-deflector supported above said air-deflector, substantially as described.

7. In a burner having combustion-tubes, the inner tube having an air-deflecting partition with a central opening, and a guide for the inner tube supported within said central opening, substantially as described.

8. A vapor burner provided with a combustion-chamber, a flame-deflecting plate having a central opening and an air-supply tube depending from about said opening, and a flame-deflector above said combustion-chamber, substantially as described.

9. A burner having perforated tubes forming a combustion-chamber between them, and the flame-plates, the outer one above and overlapping the lower inner plate and the combustion-chamber, substantially as described.

10. In a burner, the flame-plate whose outer portion is raised above the inner portion and having arms extending inward over the lower inner portion to distribute the flame, substantially as described.

11. The burner-bowl and a perforated combustion-tube secured thereto, an air-deflector at the top of said tube provided with an opening, and a flame-deflecting plate having an opening, and an air-supplying tube secured to said plate about said opening and projecting into said tube, substantially as described.

479,691. GEAT FOR UMBRELLAS OR PARASOLS. JAMES WILLIS, Rosendale, Bournemouth, England. Filed Dec. 11, 1891. Serial No. 414,731. (No model.)



Claim.—A gest for an umbrella or parasol, consisting of a piece of metal having near the middle thereof apturned ears for attachment of the stretcher and made of greater thickness than the intermediate metal to form shoulders beneath which the rib may lie and having at opposite ends ears to embrace the back of the rib and adapted to be bent down into said rib, substantially as and for the purposes described.

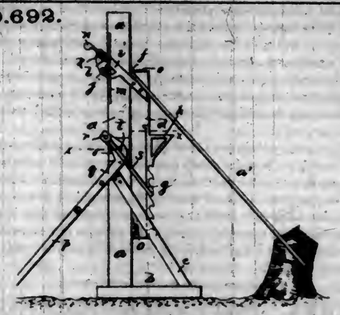
479,692. LIFTING-JACK. WILLIAM A. WOLFINGER, Milton, Pa. Filed Apr. 7, 1892. Serial No. 428,161. (No model.)

Claim.—1. In a lifting-jack, the combination of the standard having the apertured rack at its rear edge, the lifting-bar having the rack on its front edge, the lifting-lever fulcrumed to the standard and having the link engaging said lifting-bar rack, the arm rigid with the lifting-bar and located on opposite sides of the standard, and the pawl mounted in the ends of said arms to engage said apertured rack and hold the lifting-bar up, substantially as described.

2. In a lifting-jack, the combination of a standard, a lifting-bar having the vertical rack, the lifting-lever fulcrumed to the standard and having the link to engage said rack, the rack on the rear edge of said standard, the guide rigid with said lifting-bar and embracing the standard, and a pawl carried by said guide and engaging the standard, substantially as described.

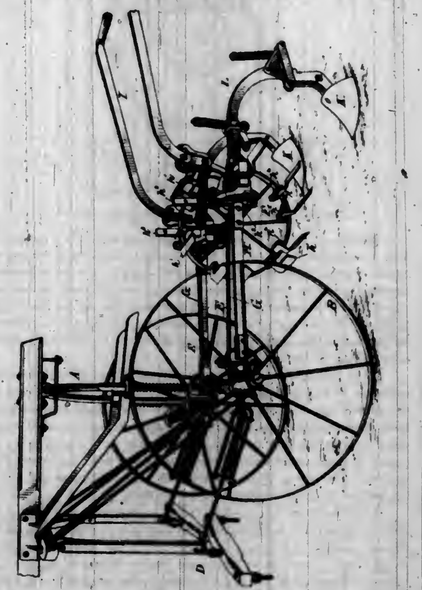
3. In a lifting-jack, the combination of the standard having the rack on its rear edge, the lifting-bar having the front-edge rack and

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the arms rigid with its upper portion and extending rearwardly on each side of the standard, the pawl pivoted between said arms to engage said standard-rack, the upwardly-extending handle carried by said arms, and the lifting-lever and its lifting-link, substantially as described.

479,693. COTTON-CHOPPER. EDGAR A. WRIGHT, Memphis, Tenn. Filed Dec. 17, 1891. Serial No. 415,380. (No model.)



Claim.—1. In combination with a wheeled frame, two beams jointed to said frame to swing freely laterally, and a wheel sustained by and between said beams to revolve in the direction of travel and provided with transverse knives, substantially as described and shown.

2. In combination with a wheeled frame, two laterally-swinging beams jointed thereto and cross-heads connected to the beams by vertical pivots and adapted to receive a wheel-support, a knife-carrying wheel, and a support for the wheel, said support provided with means by which it may be attached to or detached from the cross-heads at will.

3. In combination with a wheeled frame, two laterally-swinging beams, cross-heads connected thereto by vertical axes, a knife-carrying wheel, a wheel-support attached to the cross-heads, shovel-carrying standards also attached to the cross-heads, and shovels applied to said standards, whereby the shovels are caused to face constantly in a forward direction as they swing laterally with the chopper-wheel.

4. In combination with a wheeled frame, a knife-carrying wheel arranged to rotate in the direction of travel, and suitable connections between the frame and the knife-carrying wheel, constructed to admit of the free bodily movement of the latter in a horizontal direction, whereby the said wheel may be moved laterally at will while the machine is in action.

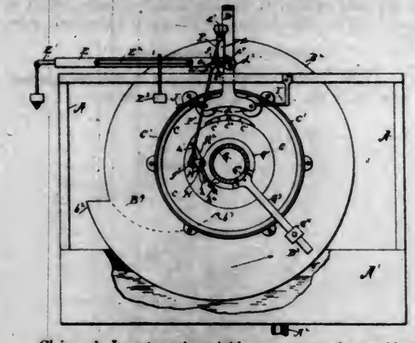
5. The cotton-chopper attachment for a cultivator, consisting of a wheel with transverse knives and an axle having its ends adapted for connection at will with the cultivator-beams in such manner as to sustain the wheel so that it may rotate in the direction of travel.

6. In a cotton-chopper, a wheel having a rim, in combination with knives provided with slotted shanks and applied horizontally to said rim transversely thereof and the fastening-bolts extending through the slots and around the rim.

7. In a cotton chopper, a wheel having a rim, in combination with a knife having an angular shank doubled upon itself to form a slot, and a fastening device extending through the slot and around the rim.

8. In combination with a wheeled frame and two beams provided at their rear ends with vertical sockets, a transverse axle having its ends upturned and extended through the sockets and adjustably connected thereto, and a knife-carrying wheel mounted to rotate on said axle.

479,694. AUTOMATIC WEIGHING APPARATUS FOR LIQUIDS. JOHN P. BALDWIN, New Orleans, La. Filed Sept. 3, 1890. Renewed May 19, 1892. Serial No. 433,536. (No model.)



Claim.—1. In automatic weighing apparatus, the combination, with a rotatable container of the volute or scroll shape variety suspended from a weigh-beam, of an induction-pipe and a sleeve journaled thereon, the latter having a side discharge and adapted to discharge into different sections of the container according as the sleeve is rotated to different positions, and mechanism, substantially as indicated, for oscillating the sleeve and holding the latter in different positions, substantially as set forth.

2. In automatic weighing apparatus, the combination, with a container of the variety specified suspended from a weigh-beam and an induction-pipe and sleeve, substantially as indicated, of a pendulum-lever connected with the sleeve and a toggle adapted to hold the pendulum-lever at the one extreme of its throw, such toggle being connected with an attachment of the weigh-beam with the arrangement such that the tilting of the weigh-beam tilts the toggle and releases the pendulum-lever, substantially as set forth.

3. In combination, a weigh-beam, a container, a feed-pipe, and sleeve, substantially as indicated, a pendulum-lever connected with the sleeve, a toggle operatively connected with the sleeve and with the weigh-beam in position to be tripped by the tilting of the latter, the toggle being adapted to lock the sleeve in the one position of the latter, and a dog for locking the sleeve with the container in the reverse position of the sleeve, the dog being connected with and operated by the toggle, substantially as set forth.

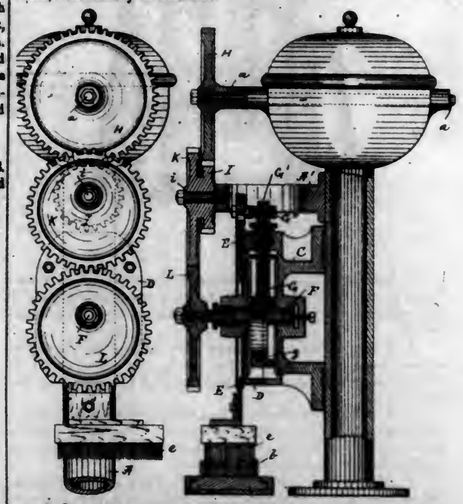
4. The combination of a rotative container, substantially as indicated, with a bent-tube, the bent section being so located inside the container as to be filled with each charge of the container, such tube having a discharge outside the container, the arrangement being such that the tube is emptied with each revolution of the container, substantially as set forth.

479,695. DABBING APPARATUS FOR WOOL-COMBING MACHINES. JAMES L. BALLANTYNE, Newton, Mass., assignor to the Nonantum Worsted Company, same place. Filed Feb. 5, 1892. Serial No. 420,403. (No model.)

Brief.—The invention surrounds with a loose ring the cam or eccentric which actuates the dabbing-brush and by means of eccentrically-disposed gear-wheels between the main driving-shaft and the cam-shaft causes the dabbing-brush to reciprocate at variable speeds.

Claim.—1. In a dabbing apparatus, the combination of a variably-reciprocating dabbing-brush, a driving-shaft, a rotary shaft having a cam or eccentric thereupon, a ring loosely journaled on the cam or eccentric, a reciprocating cam-carrier connected with the dabbing-brush, and gearing between the driving-shaft and the cam-shaft for imparting a variable reciprocating motion to the dabbing-brush substantially as described.

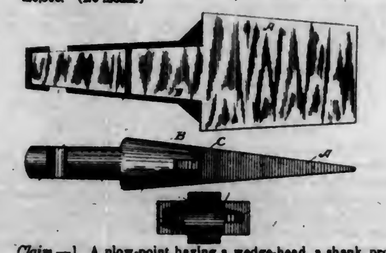
2. In a dabbing apparatus, a variably-reciprocating dabbing-brush, in combination with a rotary shaft having a cam, a driving-shaft, and gear connections between the driving-shaft and cam-shaft for imparting a positive variable reciprocating motion to the dabbing-brush, substantially as described.



3. In a dabbing apparatus, the combination, with a rotary driving-shaft, of a variably-reciprocating dabbing-brush and gearing connecting the driving-shaft and brush for imparting a variable reciprocating motion to the latter, substantially as described.

4. In a dabbing apparatus, the combination, with a rotary comb-circle and a rotary driving-shaft, of a variably-reciprocating dabbing-brush and gearing connecting the shaft and brush for imparting a variable reciprocating motion to the latter, substantially as described.

479,696. REVERSIBLE PLOW-POINT. THELUS M. BISSELL and JOHN B. HUBER, South Bend, Ind. Filed Apr. 16, 1892. Serial No. 429,596. (No model.)

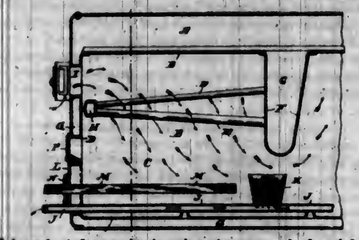


Claim.—1. A plow-point having a wedge-head, a shank projecting therefrom, and triangular webs uniting said shank and head, and a tenon on the end of the shank, in combination with a plowshare having a recess to receive the shank, a mortise to receive the tenon, and notches in the edges of said recess to receive the webs, substantially as specified.

2. The combination of the share having a recess provided with concave sides and a mortise at its rear ends with a point having a shank formed with convex sides to fit in a recess, and a tenon to fit the mortise of the share, and a securing-pin, substantially as and for the purpose described.

3. A plow-point having a wedge-head, a shank projecting therefrom, and webs uniting said shank and head, and a tenon on the end of said shank and having shoulders on its opposite sides, both tenon and shank having tapered sides *s a d*, in combination with a share having a recess in its point and a mortise at the rear end of said recess, both having tapered sides to receive the tenon and shank of the point, and notches at the front end of the recess to receive the webs of the point, and a securing-pin, all constructed and arranged to operate substantially as and for the purpose specified.

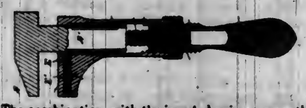
479,697. DOWNWARD-DRAFT FURNACE. JAMES P. BLAIR, Boston, Mass. Filed Oct. 31, 1890. Serial No. 369,890. (No model.)



Claim.—1. A furnace having above its grate a draft and feed inlet and below the grate a flame-chamber, as described, in combination with longitudinal water-containing tracks through the lower part of said chamber and a door for insertion and removal of articles to be moved along such tracks, substantially as set forth.

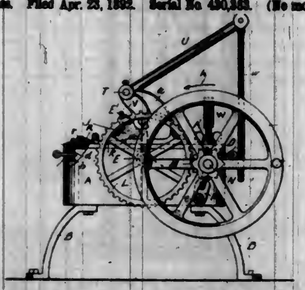
2. In a downdraft-furnace, the combination, with the flame-chamber below the grate, of tracks or supports within each chamber, a door in line therewith for inserting and removing articles to be heated, and a transparent panel for inspection of the interior of such chamber, substantially as set forth.

479,698. WRENCH. HENRY BORNSTEIN, Boston, assignor of one-half to John A. W. Seabury, Malden, Mass. Filed Jan. 28, 1892. Serial No. 419,520. (No model.)



Claim.—The combination, with the jaw A, having a smooth shank A', provided with a screw-threaded spindle *a*, of the jaw B, formed integral with the sleeve B', having at its lower end the recess *b*, the handle C, screwed into the recessed end of the sleeve and engaging the threaded spindle of the smooth shank, and the check-nut D, provided with a pin *d* and formed integral with an annular flange D', which receives and incloses the recessed end of the sleeve to prevent dust and dirt entering at this point, said pin on the check-nut entering the recess in the lower end of the sleeve, substantially as and for the purposes described.

479,699. CEMENTING-MACHINE. HENRY W. BRETT, Boston, Mass. Filed Apr. 23, 1892. Serial No. 430,363. (No model.)



Claim.—1. In combination, a receptacle for cement or any suitable adhesive material, a wheel secured to a revolving shaft adapted to turn in said receptacle, and a spring-presser secured to a suitable support and arranged to bear by its free end on the periphery of the wheel.

2. In combination, a receptacle for cement or any suitable adhesive material, a wheel secured to a revolving shaft adapted to turn in said receptacle, a spring-presser comprising a series of spring-fingers secured to a suitable support and arranged to bear by their free ends on the periphery of the wheel.

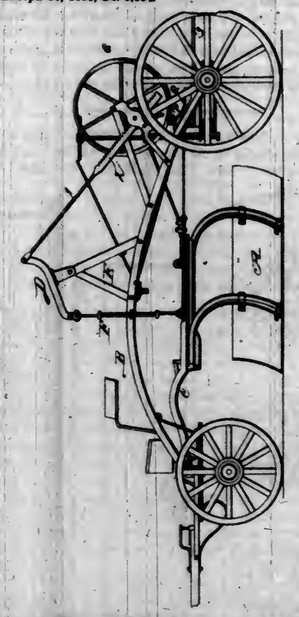
3. In combination, a receptacle for cement or any suitable adhesive material, a wheel secured to a revolving shaft adapted to turn in said receptacle, a spring-presser secured to a suitable support and arranged to bear by its free end on the periphery of the wheel, and a guide-plate for guiding the article through the machine.

4. In combination, a receptacle for cement or any suitable adhesive material, a wheel secured to a revolving shaft adapted to turn in said receptacle, a spring-presser secured to a rock-shaft and arranged to bear by its free end on the periphery of the wheel, and an arm secured to said shaft connected to means for operating said arm, for the purpose specified.

5. In combination, a receptacle for cement or any suitable adhesive material, a wheel secured to a revolving shaft adapted to turn in said receptacle, a plate secured to the cover on each side of the wheel, and a plate secured to the cover in front of the periphery of said wheel, for the purpose specified.

6. In combination, a receptacle for cement or any suitable adhesive material, a wheel secured to a revolving shaft adapted to turn in said receptacle and having its periphery serrated or grooved transversely, and a spring-presser secured to a suitable support and arranged to bear by its free end on the periphery of the wheel.

479,700. ROAD-WORKING MACHINE. MORTON G. BUSSELL, Chicago, Ill., assignor to Frederick C. Austin, same place. Original application filed Mar. 24, 1891, Serial No. 386,184. Divided and this application filed Apr. 26, 1892. Serial No. 430,715. (No model.) Patented in Victoria Sept. 16, 1891, No. 9,054.



Claim.—1. The combination, in a road-working machine, of a scraper-blade, a vibratory raising and lowering support from which the scraper-blade is suspended, a tilting and longitudinally-movable rack-bar having a jointed connection with an extended back from said vibratory support, and a hand-wheel gear connected with the rack-bar, the latter being moved longitudinally by the gear and being supported in connection therewith so as to tilt about the gear in conformity with the independent vibratory movement of the support from which the scraper-blade is suspended, substantially as described.

2. The combination, in a road-working machine, of a scraper-blade, an elevated vibratory support from which the scraper-blade is suspended, the inclined longitudinally-movable rack-bar attached to and extended downwardly and rearwardly from the said vibratory support and arranged so that the vibratory action of the latter shall be caused by an independent end-thrust on the part of the rack-bar, and a hand-wheel gear connected with the rack-bar, substantially as described.

3. The combination, in a road-working machine, of the elevated vibratory levers D and the scraper-blade suspended therefrom by hangers, the rack-bars I, having at their forward ends direct jointed connections with the rear ends of said vibratory levers and extended rearwardly from the same, and hand-wheels respectively gear-connected with one and the other of the rack-bars, substantially as described.

4. In a road-working machine comprising a scraper-blade and means suitable for suspending, raising, and lowering the same, a hand-wheel and a rack-and-pinion movement arranged for operating said means for the purpose set forth, and comprising, in combination there-

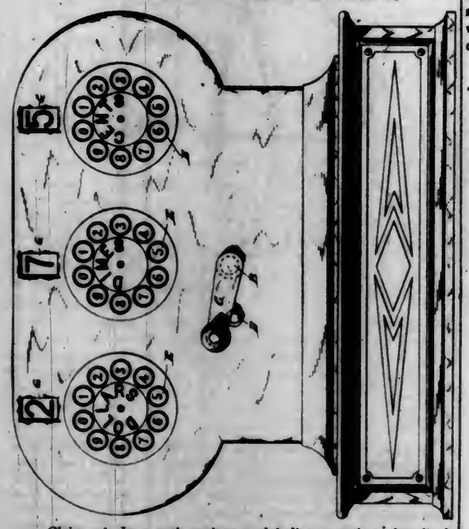
with, a tilting and longitudinally-movable rack-bar arranged to tilt about the gear, which operates to cause an end-thrust on the part of the rack-bar, and a hand-wheel for actuating the gear, substantially as and for the purpose described.

5. The combination, in a road-working machine, of the scraper-blade, a vibratory support from which the scraper-blade is suspended, the tilting and longitudinally-movable rack-bar having a jointed connection with the vibratory support and extended rearwardly therefrom, a hand-wheel gear connected with the rack-bar, and an anti-friction roll supporting the rack-bar in engagement with the gear and permitting the rack-bar to tilt in conformity with the movement of the vibratory support from which the scraper-blade is suspended, substantially as described.

6. In a road-working machine, the combination, with the scraper-blade, hand-wheel, and suitable connection between the hand-wheel and scraper-blade as a means for raising and lowering the latter, of a spring-supported rocking brake-shoe normally in engagement with the hand-wheel and arranged to rock and operate as a cam or wedge for locking the hand-wheel, substantially as and for the purpose set forth.

7. In a road-working machine, the combination, with the scraper-blade, a hand-wheel, and suitable connection between the hand-wheel and scraper-blade as a means for raising and lowering the latter, of the spring-supported rocking brake-shoe normally in engagement with the hand-wheel and the spring-lever whereon said rocking brake-shoe is pivotally supported, substantially as and for the purpose described.

479,701. CASH REGISTER AND INDICATOR. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Mar. 5, 1892. Serial No. 423,861. (No model.)



Claim.—1. In a cash register and indicator such as described, the combination of an oscillatory indicating-dial, driving mechanism therefor, having a defined movement back and forth at each operation of the machine, a latch for connecting such mechanism with the indicating-dial to carry it backward to "0" upon one stroke of the driving mechanism and forward from "0" upon the reverse stroke of said mechanism, a series of keys co-operating with the latch to disconnect the dial from the driving mechanism at different points during the reverse stroke of the latter, and an automatic screen co-operating with the driving mechanism to hide the dial at the beginning of the forward movement of the driving mechanism and to expose it at the end of the reverse movement of said mechanism.

2. In a cash register and indicator, the combination of an oscillatory dial arranged within a casing having a reading-opening for the separate exposure of the numbers upon the dial, a driving mechanism for the dial, actuated by a rock-shaft having a definite stroke in each direction at every operation of the machine, a latch for connecting the dial with the driving mechanism to turn the dial backward to "0" upon one stroke of the rock-shaft and forward from "0" upon the reverse stroke of the shaft, a series of keys co-operating with the latch to disconnect the dial from the driving mechanism at different points during the reverse stroke of the shaft, and an automatic screen operated by the rock-shaft and movable into a position behind the reading-opening at the beginning of the forward stroke of the shaft and away from said opening during the backward stroke of the shaft.

3. In a cash register and indicator, the combination of two or more oscillatory indicating-dials arranged side by side, a driving mechanism therefor, operating to turn said dials backward to "0" and thence forward to the new indication, and two automatic screens, one for each dial, operated by the driving mechanism to hide the dials at the beginning of the operation of the machine and to expose them at the end of such operation.

4. In a cash register and indicator, the combination of two or more oscillatory indicating-dials arranged side by side within a casing having two reading-openings for the exposure of their numbers, a driving mechanism therefor, actuated by a rock-shaft and operating to turn said dials backward to "0" during one stroke of the shaft and forward to the new indication during the reverse stroke of the shaft, and two automatic screens, one for each dial, operated by the rock-shaft and movable to a position between the dials and reading-openings at the beginning of the forward stroke of the shaft to hide the dials and away from such position during the reverse stroke of the shaft to expose the dials.

5. In a cash register and indicator, the combination of two or more oscillatory indicating-dials A, arranged side by side within a casing having the reading-openings G, the oscillatory driving-shaft B, the sliding bar I, spring-pressed in one direction and actuated by the shaft B in the other, and the screens N, operated by the bar I and co operating with the dials A and reading-openings G, in the manner described.

6. In a cash-register, the combination of two or more oscillatory indicating-dials A, arranged side by side within a casing having the reading-openings G, the oscillatory driving-shaft B, the sliding bar I, spring-pressed in one direction and actuated by the shaft B in the other, and the screen-plates N, mounted to oscillate upon axes concentric with those of the dials and connected with the bar I, substantially as described.

479,702. GATE. EDWARD A. CASPER, Princeville, Ill. Filed Jan. 22, 1892. Serial No. 418,914. (No model.)



Claim.—1. In a gate, the combination of suitable rollers on which the same is hung and guided with means for automatically opening and closing said gate, consisting of a double rack-bar, a cogged pinion engaged by said rack-bar, a vertical arm attached to said rack-bar, a horizontal lever pivoted to the cross-piece of the main uprights, and the handle for operating said horizontal lever, together with the intervening levers between the cogged pinion and the gate, substantially as described.

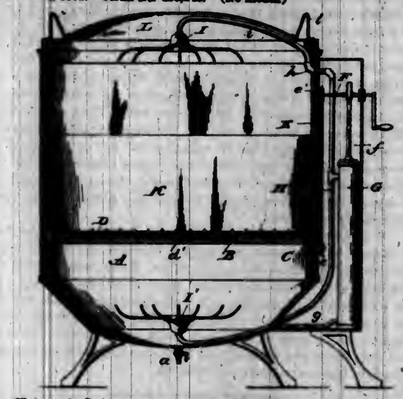
2. The combination, with the gate, of suitable rollers connected thereto, the levers for operating said gate, the cogged pinion for operating said levers, the vertical arm carrying the double rack-bar engaging said pinion and the horizontal lever, and the handles for operating the same, substantially as described.

3. The combination, with the gate A, of the rollers G^2, G^3, and G^4, levers L and N, reciprocating rod I, having the double rack-bar I', the cogged pinion M, horizontal lever J, and handle J' for operating the same, substantially as described.

4. The combination, with the gate A, of the levers L and N, said lever L being bent at its lower end into a right angle, which right-

angled portion is pivoted to the lower part of one of the main standards and having its free end pivoted to the free end of the lever, the other end of said lever N being pivoted to the main frame, the cogged pinion connected rigidly to the right-angled portion of the lever L, the double rack-bar for operating said pinion, said rack-bar being held in brackets secured to the main uprights, and the reciprocating rod for operating said rack-bar, together with the horizontal lever and its operating-handles, substantially as described.

479,703. DISH-WASHER. MARY A. CROSBY, Durand, Wis. Filed Feb. 4, 1892. Serial No. 420,948. (No model.)

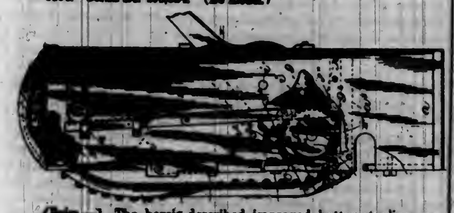


Claim.—1. In an apparatus for washing dishes, a vessel provided with a pump connected to the interior of the same, said pump having an eduction-pipe connected to a spraying device I', located near the bottom of the vessel, and a revolving tray having a grated bottom, which tray is geared to the driving-shaft of the pump, substantially as shown, and for the purpose set forth.

2. In a dish-washer, the combination of a vessel having a stationary ledge and a revolving tray-support mounted upon said ledge and gearing connecting the revolving tray-support with a driving-shaft, said driving-shaft also operating a pump having eduction and induction pipes extending into the vessel and receiving a liquid supply therefrom, substantially as set forth.

3. In a dish-washer, the combination of heads I and I', having a plurality of curved hollow discharge-fingers of different lengths, a revolving tray interposed between the same, water-forcing mechanism having a supply-pipe therefor which leads into the vessel, eduction-pipes connecting the water-forcing mechanism with the heads, and mechanism connected with the driving-shaft for revolving the tray, substantially as shown, and for the purpose set forth.

479,704. BUTTON-SETTING MACHINE. CHARLES R. DENTON, Attica, Kans., assignor to Ida M. Denton, same place. Filed Oct. 10, 1891. Serial No. 408,294. (No model.)



Claim.—1. The herein-described improved button-stapling machine, comprising the frame having a chamber, the movable bar or mandrel seated on the bottom of said chamber, the cutting and bending bar or plate, the clincher bar or block movable therewith and having an inwardly-extended flange, the operating-shaft, the toothed wheel secured thereon having shoulders on its periphery designed to engage said bar or mandrel and effect the back-and-forward movement thereof, and a third shoulder, also on its periphery, to engage said flange, the pitman operated by said shaft and connected to said cutting and bending bar or plate, means for operating said wheel, the supply tube or chute, and the clinching-die secured to said frame, substantially as set forth.

2. In a button-stapling machine, the cutting and bending bar or plate having parallel arms, the clincher bar or block loosely secured between said arms, and the link rigidly secured to said bar or block and loosely connected to said bar or plate, in combination with the mandrel with which said clincher bar or block is brought into contact and means for operating said parts, substantially as set forth.

3. In a button-stapling machine, the combination, with the frame, of the button-hopper having a picker-arm movable therein, the bar for imparting motion to said picker-arm, the cutting and bending bar or plate, the crank-wheel having two shoulders, the adjustable stop-block designed to be engaged by said shoulders, and means for cutting and bending and clinching a wire staple, and the pitman connected to said cutting and bending bar or plate and to said crank-wheel, substantially as set forth.

4. The combination, with the frame, of the bar or mandrel, the operating-shaft having a wheel thereon designed to operate said bar or mandrel, the crank-wheel secured on said shaft and having two shoulders on its periphery, the adjustable stop-block designed to be engaged by said shoulders, the cutting and bending bar or plate, the pitman connected thereto and to said crank-wheel, the clincher bar or block movable with said cutting and bending bar or plate, the button hopper and chute, the picker-arm, and the bar for imparting motion to said picker-arm and connected to said crank-wheel, substantially as set forth.

5. The combination, with the frame, of the bar or mandrel having an upwardly-projecting lip, the operating-shaft having a toothed wheel provided with three shoulders, two of which are designed to engage said lip, the crank-wheel secured on said shaft having two shoulders, the slot-block having a slot therein, the set-screw projected therethrough, the cutting and bending bar or plate, the pitman connected thereto and to said crank-wheel, the clincher bar or block movable with said cutting and bending bar or plate and having a flange with which one of the shoulders of said toothed wheel is designed to engage, the button hopper and chute, the picker-arm having its shaft provided with a pinion, the rack-bar engaging said pinion and pivoted at its lower end to said crank-wheel, and the operating-lever having a toothed cam end engaging said toothed wheel, substantially as set forth.

6. The herein-described improved stapling-machine, comprising the frame having a button hopper or receptacle in its upper end and a lower chamber, a shaft extended through said hopper and having a picker-arm, a pinion secured on one end of said shaft, the button-feed tube or chute leading from said hopper and projected through an opening in said frame, the bar or mandrel seated on the bottom of said lower chamber and having a slot in its forward end and an upwardly-projecting lip, an operating-shaft, a toothed wheel secured thereon having shoulders designed to engage said lip, the cutting and bending bar or plate, the clincher bar or block carried thereby and designed to be engaged by said toothed wheel, whereby it is given an additional final movement, the wheel on said shaft, the pitman connected to said wheel and to said cutting and bending bar or plate, the operating-lever having a toothed cam end engaging said toothed wheel, and the rack-bar engaging said pinion and connected to said wheel, substantially as set forth.

7. In a button-stapling machine having a hopper or receptacle, a rotary shaft projected through said hopper and having a picker-arm secured thereto and composed of two parts pivotally and yieldingly connected together, and means for operating said shaft, substantially as and for the purpose stated.

8. In a button-stapling machine, the combination, with the frame, the button-hopper, the cutting and bending bar or plate, and the clincher bar or block having a slot therein, of the tube or chute extended at its upper end into said hopper and having an opening therein facing outward and gradually winding around to the opposite or inner side of said tube or chute at the lower end thereof, said opening being widest at its upper end and gradually decreasing in width to its lower end opposite the slot in said clincher bar or block, said tube or chute also having an outer slot in its lower end, and the plate-spring attached to said tube or chute and extended over said latter slot, substantially as set forth.

9. In a button-stapling machine having a cutting and bending bar or plate, the wire-feeding device herein described, comprising a spring-pressed movable arm, through which the wire is passed, two pivoted jaws engaging said wire, and the plate-spring secured to said arm and bearing against the outer ends of said jaws, the wire being also passed through said plate-spring, said arm being operated at each depression of said cutting and bending bar or plate, substantially as set forth.

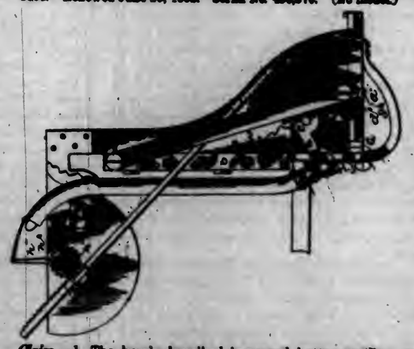
10. In a button-stapling machine, the combination, with the frame and the cutting and bending bar or plate having an upper projection, of the curved arm pivotally connected to a stud of said frame and extended into the path of said projection, the spring-pressed arm adjustably connected to said curved arm and through which the wire is passed, the pivoted jaws engaging said wire, and the spring secured to said spring-pressed arm and bearing against said jaws, substantially as set forth.

11. In a button-stapling machine having a cutting and bending impelled wire-feeding device, and the movable plate having a groove

11. In a button-stapling machine having a cutting and bending bar or plate, a rigid wire-holding arm having pivoted jaws engaging and holding a wire as against retraction, a plate-spring bearing against the inner ends of said jaws and through which the wire is passed, and a spring-pressed wire-feeding arm also having pivoted jaws engaging and feeding said wire forward, substantially as set forth.

12. In a button-stapling machine, the combination, with the frame and the cutting and bending bar or plate having an upper projection, of the curved arm pivotally connected to a stud of said frame and extended into the path of said projection, the arm connected to said curved arm, the plate-spring extended from said stud and bearing against said arm, the pivoted jaws carried by said latter arm and between which the wire is passed, the plate-spring secured to said arm and bearing against the ends of said jaws, the rigid arm attached to said frame and having pivoted jaws engaging and holding said wire as against retraction, and a plate-spring secured to said rigid arm and bearing against the pivoted jaws thereof, substantially as set forth.

479,705. BUTTON-ATTACHING MACHINE. CHARLES B. DENTON, Attica, Kans., assignor to Ida M. Denton, same place. Filed Mar. 12, 1891. Renewed June 20, 1892. Serial No. 436,976. (No model.)



Claim.—1. The herein-described improved button-stapling machine, comprising the supply-tube, the clincher bar or block having a slot therein, the cutting and bending bar or plate, the movable bar or mandrel, the shaft, the wheel secured thereon and having pins or shoulders projecting therefrom and engaging said bar or mandrel, and the stationary arm or support having a clinching-die at its outer end, substantially as set forth.

2. The herein-described improved button-stapling machine, comprising the supply-tube, the clincher bar or block having a slot coincident with the lower end of said tube and a cross-bar having projecting ends, the movable cutting and bending bar or plate having front projecting pins with which the ends of said cross-bar engage so as to be moved thereby, the sliding bar or mandrel, the stationary arm or support, and the means for moving said cutting and bending bar and mandrel, substantially as set forth.

3. The herein-described improved stapling-machine, comprising the operating-shaft having a lug secured thereon, the supply-tube having a slot therein for the button-shanks and a lower open end, the spring secured to said latter end, the movable clincher bar or block provided with a vertical slot and a flange or shoulder and having a temporary support, a rigid arm or support carrying a clinching-die at its outer end, and means for cutting and bending the wire, said clincher bar or block having an additional movement after the staple is formed and the temporary support is withdrawn by reason of contact of said lug with said flange or shoulder, substantially as set forth.

4. The herein-described improved button-stapling machine, comprising the frame or support, the stationary knife secured thereto having an oblique end, the movable cutting and bending bar secured to said frame and having lower parallel arms, one of which at its lower end conforms to said stationary knife, the clincher bar or block loosely mounted between said arms of the cutting and bending bar, the movable mandrel located in the lower end of said frame or support, the stationary arm or support having a clinching-die at its outer end, the shaft engaging said clincher bar or block, the wheel on said shaft having pins or shoulders engaging said bar or mandrel, and the pitman connected to said wheel and to said cutting and bending bar, substantially as set forth.

5. The herein-described improved button-stapling machine, comprising the frame or support, the movable cutting and bending bar secured to said frame, the stationary knife having a lug or crest, the clincher bar or block loosely secured to said cutting and bending bar, the mandrel movable beneath said clincher bar or block, the spring-impelled wire-feeding device, and the movable plate having a groove or recess corresponding to said lug or crest for forming a kink in the wire, and means for moving said cutting and bending bar and bar or mandrel, substantially as set forth.

6. In a button-stapling machine, the wire-feeding device herein described, consisting of the tube, the block therein through which the wire is passed, the weighted lever engaging said wire, and the spring bearing against said block and impelling the same forward, substantially as set forth.

7. The herein-described improved button-stapling machine, comprising the frame or support, the movable cutting and bending bar secured thereto and having lower parallel arms, the stationary knife, the clincher bar or block located between said parallel arms and having a cross bar or plate engaging studs or pins on the front of said arms and also having a shoulder projecting from its rear side, the shaft having a lug designed to engage said shoulder, the bar or mandrel moving in the lower end of said frame or support and having a forward reduced end designed to project between said parallel arms and form a temporary support for said clincher bar or block and provided with an arm or projection on one side, the wheel secured on said shaft, having two pins or shoulders for engaging said arm or projection, the pitman secured at its upper end to said cutting and bending bar and having a lower slotted end connected to said wheel, and the rigid arm or support having a clinching-die beneath said clincher bar or block, substantially as set forth.

8. In a button-stapling machine, the combination, with the frame or support, of the button receptacle or chamber, the feed or supply tube leading therefrom and having a slot therein and a lower open end, the spring-plate secured to said lower end, the shaft having a pinion in one end, the picker arm or finger secured to said shaft, the rack bar or rod engaging said pinion, the main shaft, the wheel secured thereon, having teeth on a segment of its periphery and with which said rack bar or rod engages, and the lever and treadle for operating said main shaft, substantially as set forth.

479,706. PLOW. GEORGE H. DEXTER, Jr., Hinsville, Ga. Filed Apr. 21, 1892. Serial No. 430,094. (No model.)



Claim.—1. The within-described improvement in plows, consisting in a shovel or share formed with countersunk slot having beveled surfaces above the bottom surface of the shovel and stay, lugs of homogeneous metal extending below the bottom surface of the shovel, and a fastening-bolt having a head corresponding in form to the slot and set therein so as to have the top of its head flush with the top surface of the shovel, and a standard which receives the lugs, substantially as described.

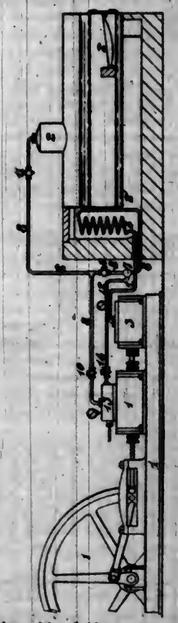
2. The improved new article of manufacture, consisting of the shovel or share formed with the bolt-hole having a countersunk seat between its top and bottom surfaces and with lugs of homogeneous metal projecting from its under surface immediately at the countersunk seat, substantially as described.

479,707. APPARATUS FOR PRODUCING MIXTURES OF STEAM AND HOT AIR. EDWARD FIELD, London, England. Filed Mar. 10, 1891. Serial No. 384,503. (No model.) Patented in England Mar. 31, 1890, No. 4,623; in France Jan. 26, 1891, No. 210,998; in Belgium Jan. 26, 1891, No. 93,503; in Norway Feb. 17, 1891, No. 2,174; in Switzerland Feb. 17, 1891, No. 3,453; in Germany Feb. 18, 1891, No. 63,600; in Luxemburg Feb. 18, 1891, No. 1,410; in Victoria Mar. 26, 1891, No. 3,615; in South Australia Mar. 26, 1891, No. 1,886; in Italy Mar. 31, 1891, LVII, 300; in Queensland Mar. 31, 1891, No. 1,265; in New South Wales Mar. 31, 1891, No. 2,994; in New Zealand Apr. 11, 1891, No. 4,923; in Brazil Apr. 15, 1891, No. 1,139; in Spain Apr. 24, 1891, No. 11,794; in Austria-Hungary June 17, 1891, No. 9,256, and in India Oct. 5, 1891, No. 90.

Claim.—1. Apparatus for producing mixture of steam and hot air for use as motive fluid, comprising air compressing and heating apparatus, steam-supply apparatus, and a mixing apparatus having a hot-air valve and a steam-valve arranged to open and close together and simultaneously controlling the admission of heated compressed air and steam through separate inlets, substantially as described.

2. Apparatus for producing mixture of steam and hot air for use as motive fluid, consisting of air compressing and heating apparatus, steam-supply apparatus, and mixing apparatus comprising a vessel having separate inlets of unequal area for steam and hot air, a common outlet for mixed steam and air, a steam-valve, and a hot-air valve, said valves being connected together and arranged to open and close together and simultaneously control the passage of hot air and steam through said inlets, substantially as herein described.

3. In apparatus for producing mixture of steam and hot air for use as motive fluid, the combination of air compressing and heating apparatus, steam-supply apparatus, and mixing apparatus connected with said air and steam apparatus, said mixing apparatus having separate inlets for steam and hot air, a common outlet for mixed steam and air, and steam and hot-air valves of unequal area for controlling said inlets, said valves being connected by a vertically movable stem, whereby both valves will open and close together, substantially as described.



4. The combination, with a fluid-pressure engine, of air compressing and heating apparatus, steam-supply apparatus, a mixer having separate inlets connected to said air and steam apparatus, respectively, and a common outlet for mixed steam and air, a steam-valve, and a hot-air valve, said valves being connected together and arranged to open and close together and simultaneously control said inlets, and a mixture-main connecting the outlet of said mixer with said engine, substantially as described.

5. In apparatus for producing mixture of steam and hot air for use in engines, the combination, with air compressing and heating apparatus and steam-supply apparatus, of a mixer provided with differential self-acting valves for admitting steam and hot air simultaneously but separately thereto and a mixture-main into which mixture of heated compressed air and steam is delivered from said mixer.

6. The combination, with a fluid-pressure engine, of air compressing and heating apparatus, steam-supply apparatus, a mixer provided with differential self-acting valves capable of automatically controlling the supply of air and steam from said apparatus, and a mixture-main in communication with said mixer and with said engine.

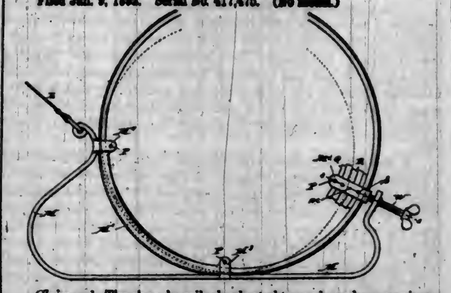
7. The combination, with a fluid-pressure engine, of air compressing and heating apparatus, steam-supply apparatus, and a mixer provided with differential self-acting valves capable of automatically controlling the admission thereto of steam and heated compressed air from said apparatus, a steam-nozzle, and a hot-air passage, for the purposes specified.

8. For producing mixture of steam and hot air for use in fluid-pressure engines, a mixer having inlets for steam and heated compressed air, an outlet for mixture of heated compressed air and steam, and differential self-acting valves of unequal area for simultaneously controlling said inlets for steam and heated compressed air.

9. For producing mixture of steam and hot air for use in fluid-pressure engines, a mixer having inlets 25 and 26 for steam and heated compressed air, respectively, a steam lift-valve 15 and a hot-air lift-valve 16 for simultaneously controlling said inlets, said valves being of unequal areas, a stem 17, connected to said steam-valve and loosely connected to said hot-air valve, a steam-nozzle 21 in communication with said steam-inlet, and a hot-air passage 25, surrounding said steam-nozzle, substantially as herein described, for the purpose specified.

10. The combination of an engine, a steam-generator 2, an air-compressor and means for driving the same, an air-heater in communication with said compressor, a mixer 7, a pipe 8, with valve 9, for connecting said mixer with said steam-generator, a pipe 6, connecting said mixer with said air-heater, a mixture-main 12, with valves 14, for connecting said mixer with said engine, and a pipe 8, with starting-valve 10, for connecting said engine direct with said steam-generator, substantially as herein described.

479,708. WHEEL-SHOE. JOHN FRANKHAM, New York, N. Y. Filed Jan. 9, 1892. Serial No. 417,475. (No model.)

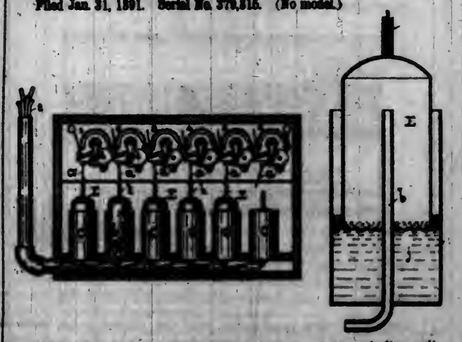


Claim.—1. The shoe described, adapted to apply under a carriage-wheel, having the body M with a long base and turned-up ends, channel-iron M', curved to match a wheel of small diameter and strongly fixed within the body in the position shown, extending from the ears M^3 at the lowest point forward and upward to the ears M^4 at the forward bearing of the shoe on the wheel, three pairs of ears M^3 M^3 M^4, and corresponding bolts P, set in each pair of ears, the rearmost being a sufficient distance from the channel-iron to afford a valuable support independent thereof, as herein specified.

2. The shoe described, adapted to apply under a carriage-wheel, having the body M with a long base and turned-up ends, channel-iron M', curved to match a wheel of small diameter and strongly fixed within the body, three pairs of ears M^3 M^3 M^4, arranged as shown, the bolts P, set in each pair of ears with the outer faces flush, the notched blocks Q, lying in contact with the bolts P, and the block or blocks E, arranged in the required positions within or without the wheel-rim, as shall be required to match wheels of different diameters, substantially as herein specified.

3. The ears M^3 M^3 M^4, with means for engaging the same with the wheel-rim, in combination with the body M of the shoe, channel-iron M', curved to match a wheel of small diameter, and the screw W, connected to one of the pairs of ears, arranged to urge the same inward or outward and tighten the hold on the wheel, as herein specified.

479,709. FIRE-ALARM APPARATUS. ALBERT GOLDSTEIN, Baltimore, Md., assignor of one-half to Anthony A. Lohmann, same place. Filed Jan. 31, 1891. Serial No. 379,815. (No model.)



Claim.—1. In a pneumatic fire-alarm apparatus, a winding call-movement having a trigger, combined with a jar provided with a body of liquid, an inverted cup in the said jar having an extension at its upper end adapted for connection with the said trigger, and a clock-

movement with connecting mechanism to lift the said cup out of its body of liquid and admit fresh air to the said cup, substantially as and for the purpose specified.

2. In a pneumatic fire-alarm-telegraph apparatus, a winding call-movement having a trigger, combined with a jar provided with a body of liquid, and an inverted cup with an extension at its upper end, which may be connected to the said trigger when the cup is elevated to prevent the said call-movement from being set in motion, substantially as specified.

3. In a pneumatic fire-alarm-telegraph apparatus, a winding call-movement having a trigger, combined with a jar partially filled with a body of liquid, and an inverted cup in the said jar, having a sleeve adapted for connection with the said trigger, whereby in the falling of the said inverted cup the said sleeve is detached from the said trigger and the call-movement set in operation, substantially as specified.

4. In a pneumatic fire-alarm-telegraph apparatus, a winding call-movement having a trigger, combined with a jar provided with a body of liquid, and an inverted cup in the said jar, having an extension at its upper end adapted for connection with the said trigger, a lever adapted at one end to engage with the said extension or some attachment thereof and at the other end operated by a clock-movement, whereby the said cup is periodically lifted out of its body of liquid and fresh air admitted to the said cup, substantially as specified.

5. In a pneumatic fire-alarm-telegraph apparatus, a series of winding call-movements having triggers, combined with a series of jars provided with liquid, inverted cups in the said jars, with extensions adapted to engage with the said triggers and when in an elevated position prevent the running down of the said call-movements, collars on the extensions of the said jars, a rod situated under the said collars, a lever extending from the said rod, and a clock-movement adapted to periodically operate the said lever and thereby elevate the said rod, and with it the series of cups, and thereby lift them from the liquid and admit fresh air thereto, substantially as and for the purpose specified.

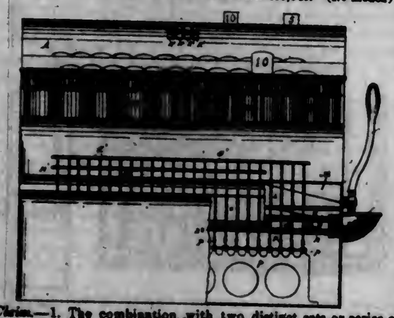
6. In a pneumatic fire-alarm-telegraph apparatus, a tube having an aperture closed by fusible metal and a call-movement whereby on the escape of air from the said tube the said call-movement mechanism is put in operation, an inflated-bulb reservoir, and a weighted lever which bears on the said bulb to retain the air in the said tube at a uniform pressure, and thereby provide for variations in temperature, substantially as specified.

479,710. MANUFACTURE OF DISINFECTANTS. HERMAN HENDEMANN, Chicago, Ill., assignor to William Risser & Co., New York, N. Y. Filed Oct. 24, 1891. Serial No. 409,714. (No specimens.)

Claim.—1. The product herein described, which is composed of beta-naphthol and acetate of soda and which forms a white or almost white powder readily soluble in a large quantity of water, also soluble in alcohol, and which becomes decomposed by benzine.

2. The within-described process of producing the new product above named, which process consists in melting acetate of soda, then adding to the melt about one-third of its weight of beta-naphthol, and finally allowing the mass to harden, substantially as described.

479,711. CASH REGISTER, INDICATOR, AND AUTOMATIC CHANGE-MAKER. JOHN J. HOYE, Minneapolis, Minn., assignor, by direct and mesne assignments, of two-thirds to Wilbur B. Lawrence, same place. Filed Aug. 26, 1891. Serial No. 403,642. (No model.)



Claim.—1. The combination, with two distinct sets or series of pieces, as G and H, located approximately parallel with each other and representing, respectively, possible amounts of purchase and of cash, of a series or set of pieces, as E, located between and transversely to G and H and representing the available elements of change, the pieces G and H being arranged for direct action on one or more of said pieces E, as predetermined for every possible combination of purchase and cash amounts represented, whereby the action of the parts G and H on the parts E may be made to indicate or effect directly or indirectly the proper amount of change.

2. The combination, with two distinct sets or series of pieces, as G and H, arranged parallel with each other and corresponding sets of keys connected therewith marked, respectively, with possible amounts of purchase and of cash, of an intermediate set of pieces, as E, located between and transversely to the pieces G and H, representing available elements of change, the said parts G and H being arranged for action each on one or more of said parts E, as predetermined for every possible combination of cash and purchase amounts, whereby the indication of the purchase on the purchase-key, followed by the indication of the cash on the cash-key, will act on the parts E to indicate or effect directly or indirectly the proper change.

3. The combination, with two distinct sets or series of movable pieces, as G and H, located approximately parallel with each other and representing, respectively, possible amounts of purchase and of cash, of a series of movable pieces, as E, located between and transversely to the pieces G and H, and representing available elements of change, the said parts G and H being arranged for action on one or more of the said pieces E, as predetermined, for every possible combination of purchase and cash amounts represented, whereby the movement of any given purchase representative G, followed by the movement of any given cash representative H, will move all of the change representatives E, except such as, taken individually, represent the available element for and, taken collectively, represent the amount of the proper change.

4. The combination, with a series of coin-founts, as B, containing the available elements of change, of a dropper shifter or operating device, a series of coin-droppers, one for each of said founts, releasably connected to said shifter, two distinct sets or series of pieces, as G and H, representing possible amounts of purchase and of cash, parallel with each other, and a series of pieces, as E, located between and transversely to the pieces G and H, corresponding to the founts or available elements of change, the parts G and H being arranged for action on one or more of the parts E, as predetermined, for every possible combination of purchase and cash amounts to effect through the same the release from the shifter of all the droppers except only such as are required to effect the change.

5. The combination, with the coin-founts, of a dropper shifter or operating device, coin-droppers, one for each fount, releasably connected to said shifter, the parallel sets of movable pieces G and H, representing possible amounts of purchase and cash, and the movable pieces E, located between and transversely to the pieces G and H, corresponding to the founts or change elements, and movable by the said pieces G and H to release the said droppers, substantially as and for the purpose set forth.

6. The combination, with the coin-founts and the dropper shifter or operating device, of the coin-droppers having hinged tail-pieces releasably connected to the shifter, the releasing connections F, the series of movable pieces E for operating said connections, and the movable pieces G and H on opposite sides of the rods E and arranged for action, each on one or more of the rods E, as may be required, and the sets of cash or purchase keys G' and H', respectively, for operating the pieces G and H, substantially as and for the purpose set forth.

7. The combination, with the coin-founts containing the available elements of change, of the dropper-shifter, the coin-droppers releasably connected to the shifter, and the change-indicating sight-pieces operated by such of the droppers as are moved by the shifter, substantially as and for the purpose set forth.

8. The combination, with the sight-pieces having a telescoping connection with their operating-rods for permitting the rods to return to normal position while the sight-pieces may be withheld in view, of a retaining device arranged to engage and hold in view any given set of sight-pieces until another set are thrown into view, substantially as described.

9. In a cash-register, the combination, with the keys, of the sight-pieces having a telescoping connection with their operating-rods, and the retaining device for upholding any given set of sight-pieces, arranged to be tripped by the next set of sight-pieces thrown up from the keys, substantially as described.

10. The combination, with the sight-pieces, of their operating-rods having telescoping connection therewith and provided each with a projection, of the yielding bail adapted to engage under the sight-pieces when in their uppermost position and to be tripped from under the same by the said projections on the rods, substantially as and for the purpose set forth.

479,712. EARTH-CLOSET. HAMILTON A. JOHNS, Winnipeg, Canada. Filed Jan. 14, 1892. Serial No. 418,194. (No model.)

Claim.—The combination, in a dry closet or commode, of the box A, with the opening *c* in rear, the seat *b*, with suitable opening, hinged lid *a*, hinged door *d*, with aperture *c* in or below door, the bucket B with overhanging lip *j*, handle *f*, and lug *g*, the bucket C, with handle *k* and lug *m*, and the pipe D, entering dry closet through aperture *e* to connect with stovepipe or flue, substantially as set forth.

479,712.



479,713. TRAVERSE-RING. JAMES W. LESLIE, Everett, assignor to the Leslie Manufacturing Company, Boston, Mass. Filed Jan. 23, 1892. Serial No. 419,008. (No model.)



Claim.—1. A traverse-ring composed of two tubular curved parts *a b*, friction-rolls located between the adjacent ends of said parts *a b*, axles for said friction-rolls, and supports for said axles, contained within the hollow ends of said parts, substantially as described.

2. A traverse-ring composed of two separate hollow parts *a b*, axles *c'*, supported by means contained within the part *b* and having reduced end portions, and blocks on said end portions contained within the hollow ends of the part *a*, and friction-rollers on said axles, substantially as described.

3. A traverse-ring composed of two separate hollow parts *a b*, axles *c'*, supported by means contained within the part *b*, and blocks *f* contained within the part *a*, and friction-rollers on said axles, substantially as described.

4. A traverse-ring composed of two separate hollow parts *a b*, axles *c'*, formed on the end of a rod or bar contained within the part *b*, friction-rollers on said axles, and blocks *f* on the ends of said axles adapted to enter the hollow ends of the part *a* and be secured therein, substantially as described.

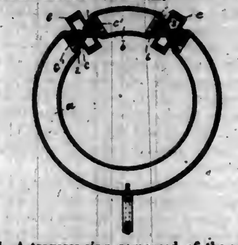
5. A traverse-ring composed of two separate hollow parts *a b*, axles *c'*, blocks *d* on said axles, which enter the hollow ends of the part *b*, friction-rollers freely revoluble on said axles, and blocks *f* on the ends of said axles adapted to enter the hollow ends of the part *a*, substantially as described.

6. A traverse-ring composed of two separate hollow parts *a b*, axles *c'*, blocks *d* on said axles, which enter the hollow ends of the part *b*, friction-rollers freely revoluble on said axles, and blocks *f* on the ends of said axles adapted to enter the hollow ends of the part *a* and having circumferential grooves to receive the material of the part *a* to thereby more securely hold them in place, substantially as described.

7. A traverse-ring composed of two separate hollow parts *a b*, one comprising more and the other less than half a circle, a bent rod or bar *c*, contained in the part *b*, axles *c'*, formed centrally on the ends of said bent rod or bar, and friction-rollers freely revoluble on said axles, blocks *d* on said axles to hold the rod or bar and part *b* assembled, and blocks *f*, secured to the ends of said axles and abutting against the shoulders 3 and adapted to enter the part secured within the hollow ends of the part *a* and thereby complete the ring, substantially as described.

8. A traverse-ring composed of the parts *a b*, with hollow ends, a rod or bar *c*, having reduced end portions *c' c²*, presenting shoulders 2 3, and blocks *d* on said reduced portions *c'* abutting against the shoulders 2 and having flanged ends *d'* abutting against the ends of the part *b*, friction-rollers on said portions *c'*, and blocks *f* on said reduced portion *c²*, having flanged ends which abut against the shoulders 3 at one side and against the ends of the part *a* at the opposite side, substantially as described.

479,714. TRAVERSE-RING. JAMES W. LESLIE, Everett, assignor to the Leslie Manufacturing Company, Boston, Mass. Filed Mar. 2, 1892. Serial No. 423,460. (No model.)

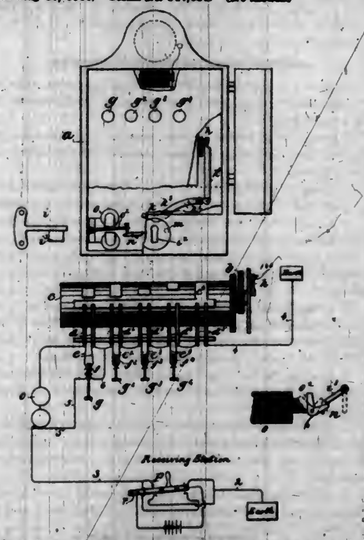


Claim.—1. A traverse-ring composed of the separate parts *a b*, axle *c*, shouldered at 2 2, a friction-roll on each axle, and supports for the ends of the axle, comprising the end or face 3, with a central hole through it, an outer flange or rim 4, and an annular projection 5, located at and concentric with the hole, said supports being connected to the ends of the parts of the ring, substantially as described.

2. A traverse-ring formed to present adjacent end portions, the axle *c*, shouldered at 2 2, and friction-roll on said axle-supports for the ends of said axle, each comprising the end or face 3, with a central hole through it and adapted to abut against the shoulder 2, and also having an annular rim or flange 4 and a central annular projection 5, said supports being connected to the adjacent ends of the ring, substantially as described.

3. A traverse-ring composed of separate tubular parts *a b*, axle-supports secured to the adjacent ends of said parts, axles *c*, shouldered at 2 2, secured to said axle-supports, the shoulders 2 2 thereof abutting against the ends of said supports to prevent them approaching each other, and friction-rolls loosely mounted on said shouldered axles, substantially as described.

479,715. KEY-CONTROLLER AND SIGNAL-TRANSMITTER. MORRIS MARTIN, Malden, assignor to John C. Wilson, Boston, Mass. Filed July 16, 1889. Serial No. 317,951. (No model.)



Claim.—1. A signal-box and signal-transmitter inclosed therein connected in circuit with a central office, said box being provided with an opening to receive a detachable handle or key for operating said signal-transmitter, combined with a detent that engages said key when introduced into the box, and an electro-magnet that operates the said detent, and a circuit-changer at the central office for operating said electro-magnet, substantially as described.

2. The combination of a box and signal-transmitter inclosed therein adapted to be operated by a detachable handle or key introduced from the outside of the box without opening the same, a detent for retaining said key, and an electro-magnet for operating said detent included in the transmitting-circuit of the box, and a normally-closed

sheet for said magnet and circuit-breaker therein, substantially as described.

3. A signal-box containing a signal-transmitter composed of a motor and a number of signaling-surfaces operated simultaneously thereby, said motor being adapted to be operated by a detachable handle introduced without opening the box, combined with a detent for said detachable handle, an electro-magnet included in the transmitting-circuit for operating the said detent, a shunt around said magnet, and circuit-breaker in said shunt operatively connected with the controlling mechanism for one of the signaling-surfaces of the transmitter, as set forth, whereby said shunt is broken when one only of said signaling-surfaces is placed in control of the transmitting-circuit, substantially as described.

4. A signal-transmitting instrument comprising a number of distinct signaling-surfaces connected to move simultaneously and contacts controlled by said surfaces connected in series with one another in the transmitting-circuit, combined with shunt-circuits connecting the co-operating contacts for all of said surfaces but one, which one pair of contacts is normally disconnected except at the co-operating signaling-surface, and an independent circuit-breaker in each of said shunts, substantially as and for the purpose described.

5. In an electric circuit, a multiple-signal transmitter comprising two signaling-surfaces and contacts or breakers co-operating therewith, one of which is normally in said circuit and the other of which is normally shunted out, a movable part or member for opening and closing said shunt, and automatic mechanism for moving said signaling-surfaces, substantially as described.

6. In an electric circuit, a multiple-signal transmitter comprising three signaling-surfaces and contacts or breakers co-operating therewith, one of which is normally in said circuit and each of the others normally shunted out, and two independently-movable parts or members, one for opening and the other for closing each said shunts, substantially as described.

7. In a signal-box, the combination, with a case and door, of a multiple-signal transmitter having several horizontally-sliding independent controlling devices therefor adapted to be drawn out by hand and returned to their normal position by being struck by the door as it is closed, substantially as described.

479,716. LABEL-HOLDER. CHARLES W. MILLER, Clifton, Ariz., assignor of one-half to Charles Royce, same place. Filed Feb. 20, 1892. Serial No. 422,542. (No model.)

Claim.—1. A tag or label holder having an eye the edges of which are thickened with upset metal of the head of the holder, substantially as specified.

2. A tag or label holder having a rounded eye and a neck-strengthening rib, both consisting of upset material of the holder, substantially as specified.

3. A tag or label holder having integral side flanges and cross-bars upon opposite sides of the center, substantially as specified.

4. A tag or label holder having a cord-eye and side flanges and end cross-bars formed integrally, substantially as specified.

5. A tag or label holder having side flanges, a guiding-lip, and cross-bars near the ends and all formed integrally, substantially as specified.

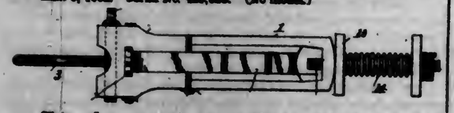
6. A tag or label holder having a head perforated and struck up to form a rounded cord-eye, a projection struck up from its back, side flanges, cross-bars upon opposite sides of the center, and a guiding-lip, all formed of a single piece, substantially as specified.

7. A blank for forming a tag or label holder, consisting of a back A, cross-bars D, near the ends, neck G, and head F, substantially as specified.

8. A tag-holder having a head struck up and perforated, forming a rounded cord-eye, and a neck-strengthening rib extending therefrom and merged into the back to form a stop for the label, substantially as specified.

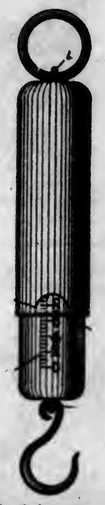
9. A label-holder formed of a single piece of metal with side flanges, a beige, and means for retaining a label therein, as set forth.

479,717. CAR-COUPLING. HUGH MOORE, Mauch Chunk, Pa. Filed Mar. 5, 1892. Serial No. 423,882. (No model.)



Claim.—In a car-coupler, the combination of the shank provided with a socket into which a plate-spring may be slid, the short jaw-head pivoted to the shank by a removable pin, the plate-spring which has an eye formed by carving its outer end, and the removable pin which passes through said jaw-head and through the eye in the plate-spring, substantially as described.

479,718. SPRING-BALANCE. FRANCIS H. MORGAN, Manchester, and GEORGE H. SCOTT, of Worcester, Mass., assignors to the Morgan Spring Company, same place. Filed Aug. 24, 1885. Serial No. 175,155. (No model.)



Claim.—1. In a spring-balance, the combination of the telescopic tubes, the inner tube being provided with a graduated scale and the outer tube with an opening disclosing said scale, a spring connecting the end of one tube with the opposite end of the other tube, the outwardly and inwardly turned flanges, whereby the sliding motion of said tubes is limited in one direction, and an index-bar extending across the opening of the outer tube, said index-bar being formed by the inwardly-turned flange of said tube, substantially as described.

2. In a spring-balance, the combination of the telescopic tubes having their outer and opposite ends closed and provided with slots, a spring connecting said closed ends by means of loops formed in the ends of said spring, said loops passing through said slots, and wires passed through said loops outside the closed ends of said tubes, whereby the end coils of said spring are drawn against the inside of the closed ends of said tube, substantially as described.

3. The combination, with the inner tube having its outer surface graduated, of an outer tube having a flange turned inwardly at its overlapping end and an opening at said end disclosing the graduations on the inner tube, said flange being carried across said opening and forming an index-bar, as and for the purpose set forth.

4. The combination, with the outer and the inner concentric sliding tubes or shells and a spiral spring connecting the same, substantially as described, of a graduated scale on the outer surface of the inner tube, the outer tube or shell having an opening E and an index-bar F, as and for the purpose set forth.

479,719. WARDROBE-BED. FRANK P. PARKER, Goshen, Ind., and SAMUEL C. JONES and NATHAN P. COFFEY, Carrollton, Mo., assignors, by direct and mesne assignments, to the St. Joseph Folding Bed Company, St. Joseph, Mo. Filed Mar. 4, 1892. Serial No. 423,798. (No model.)



Claim.—1. In a folding wardrobe-bedstead, substantially as shown and described, the combination of an upright stationary frame, a pivoted bed-frame, the sectional head-board having the upper part rigid with the stationary frame and the lower part attached to the bed-frame and guided in suitable ways on the stationary frame, the independent weight-frame also guided on the stationary frame and having a direct pivotal connection with the sliding part of the head-board, and the two double pulleys carried by the weight-frame and each pulley having one cord attached to the stationary frame and another cord connected to a vertically-movable weight, as and for the purposes set forth.

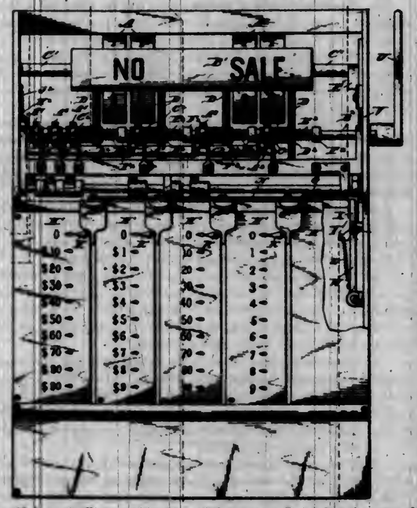
2. In a folding wardrobe-bedstead, the combination, with a stationary upright frame and a pivoted bed-frame, of the sliding head-board attached to the bed-frame and guided at its free end in suitable ways on said stationary frame, the independent weight-frame also guided in ways on said stationary frame above the free end of the sliding head-board, the two double pulleys carried by said weight-frame, a weight, and two cords for each double pulley, which are wound reversely on the different-sized sections thereof, one of said cords being connected to the weight and the other cord secured to the stationary frame, as and for the purposes set forth.

3. In a folding wardrobe-bedstead, substantially as shown and described, the combination, with a stationary upright frame and a pivoted bed-frame, of the divided head-board having its upper part attached to the stationary frame and its lower member attached to the bed-frame and guided at its free end in ways on the stationary frame, an independent sliding weight-frame also guided in ways on the stationary frame above the sliding part of the head-board and having a direct pivotal connection therewith, and a weight sustained or carried by the sliding weight-frame, as and for the purposes described.

4. In a folding wardrobe-bedstead, the combination of a stationary upright frame, a folding bed-frame, a sliding head-board attached to the bed-frame and having its free end guided in ways on the stationary frame, an independent sliding weight-frame arranged above said free end of the head-board and having a direct pivotal connection with said end of the head-board, said weight-frame being guided in ways independently of the head-board, and a weight sustained or carried by the weight-frame, as and for the purpose set forth.

5. In a folding wardrobe bedstead, substantially as shown and described, the combination, with a stationary upright frame, a folding bed-frame, and a sliding head-board guided at its free end on the stationary frame, of the independent sliding weight-frame also guided in ways on the stationary frame above the free end of the sliding head-board and bearing directly thereon and a weight carried or sustained by the sliding weight-frame, as and for the purpose described.

479,720. CASH REGISTER, INDICATOR, AND RECORDER. JOHN PFEIFER, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Feb. 26, 1892. Serial No. 423,881. (No model.)



Claim.—1. The combination of the sectors D, having the curved arms F, and the reciprocating keys or handles H, connected with the arms F, substantially as described.

2. The combination of the indicator-wheels A, the sectors D, geared thereto and having the curved arms F, and the reciprocating keys or handles H, connected with the arms F, substantially as described.

3. The combination of the sectors D, having the curved arms F, the inclined guide-rods G, and the keys H, mounted upon said rods and connected with the arms F, substantially as described.

4. The combination of the sectors D, having the curved arms F, the inclined guide-rods G, and the keys H, mounted upon the rods G, said keys having finger-pieces upon their forward sides and arms I upon their rear sides, said arms I carrying friction-rollers J, bearing against the sides of the sector-arms F, substantially as described.

5. The combination of the sectors D, having the curved arms F, the inclined rods G, and the keys H, mounted thereon, said keys consisting of a middle body portion carrying friction-rollers bearing against the rods G and a forwardly-projecting finger-piece and having on their rear sides rearwardly-extending forked arms I, embracing the sector-arms F and carrying friction-rollers J, bearing against the rear sides of said arms F, substantially as described.

6. The combination of the sectors D, having the curved arms F, the reciprocating keys H, connected with the arms F and carrying pointers K, and the indicor H', co operating with said pointers, substantially as described.

7. The combination of the indicator-wheels A, the sectors D, geared thereto and having the curved arms F, the reciprocating keys H, connected with the arms F and carrying the pointers K, and the indicor H', co-operating with the pointers, substantially as described.

8. The combination of the sectors D, having the curved arms F, the pinions D^2, driven by the sectors, the reciprocating keys H, connected with the arms F, and the registering-wheels moving with the pinions in one direction but not in the other, substantially as described.

9. The combination of the gear-toothed sectors D, having the curved arms F, the reciprocating keys H, connected with the arms F, the sliding pinions D^2, meshing with the sectors D and provided with clutch-teeth at one end, and the registering-wheels having hubs provided with clutch-teeth co-operating with those on the pinions D^2, substantially as described.

10. The combination of the gear-toothed sectors D, having the curved arms F, the reciprocating keys H, connected with the arms F, the shaft B^2, the pinions D^2, splined thereon and provided with clutch-teeth at one end, the registering-wheels having hubs provided with clutch-teeth co-operating with those on the pinions D^2, the springs E^2, pressing the pinions against the hubs of the registering-wheels, and means for preventing backward movement of the registering-wheels, substantially as described.

11. The combination of the reciprocating keys H, carrying the pawls P, and the ratchet-bars L, co-operating with the pawls P and movable into and out of engagement therewith.

12. The combination of the reciprocating keys H, carrying the pawls P, and the ratchet-bars L, co-operating with the pawls P' and movable into and out of engagement therewith.

13. The combination of the reciprocating keys H, each carrying a pawl P and a pawl P', and the bars L, each provided with two ratchets co-operating alternately with the pawls P and P' and movable out of engagement with one and into engagement with the other.

14. The combination of the reciprocating keys H, provided with the pawls P, the ratchet-bars L, co-operating with the pawls P, means for simultaneously moving the ratchet-bars out of engagement with the pawls P, and springs for resetting the keys.

15. The combination of the reciprocating keys H, provided with the pawls P, the pivotally-supported ratchet-bars L, co-operating with the pawls P, and the bar N, co-operating with the ratchet-bars L to simultaneously swing them out of engagement with the pawls P.

16. The combination of the reciprocating keys H, provided with the pawls P, the pivotally-supported ratchet-bars L, co-operating with the pawls P, the bar N, co-operating with the ratchet-bars L to simultaneously swing them out of engagement with the pawls P, and the springs for resetting the keys.

17. The combination of the reciprocating keys H, provided with the pawls P, the pivotally-supported ratchet-bars L, co-operating with the pawls P and having the bell-crank plates M at one end, the bar N, connected to the plates M, and the spring O for resetting the bar N and ratchet-bars L.

18. The combination of the reciprocating keys H, mounted upon the rods G and provided with the pawls P, the ratchet-bars L, hung upon the rods G and having the bell-crank plates M at one end, the bar N, connected with the plates M, and the spring O for resetting the bar N and ratchet-bars L.

19. The combination of the reciprocating keys H, provided with the pawls P', the ratchet-bars L, co-operating with the pawls P' and movable into and out of engagement therewith, and the bar N, co-operating with the bars L to simultaneously move the same.

20. The combination of the reciprocating keys H, provided with the pawls P and P', the bars L, each provided with two ratchets co-operating with the pawls P and P', respectively, and means for simultaneously moving the bars L into position to engage both of their ratchets with the pawls P and P' and thereby lock the keys.

21. The combination of the reciprocating keys H, provided with the pawls P and P', the bars L, each provided with two ratchets co-

operating with the pawls P and P', respectively, means for simultaneously moving the bars L out of engagement with the pawls P and into engagement with the pawls P', and springs for resetting the keys.

22. The combination of the sectors D, having the arms F, the reciprocating keys H, provided with the pawls P and connected with the arms F, the ratchet-bars L, co-operating with the pawls P and movable into and out of engagement therewith, and springs for resetting the keys and sectors.

23. The combination of the indicator-wheels A, the sectors D, geared thereto and having the arms F, the reciprocating keys H, connected with the arms F and provided with the pawls P, the ratchet-bars L, movable into and out of engagement with the pawls P, and springs for resetting the keys, sectors, and indicator-wheels.

24. The combination of the sectors D, having the arms F, the reciprocating keys H, connected with the arms F and provided with the pawls P, the ratchet-bars L, co-operating with the pawls P, means for simultaneously moving said bars out of engagement with the pawls, and springs for resetting the keys and sectors.

25. The combination of the sectors D, having the arms F, the reciprocating keys H, connected with the arms F and provided with the pawls P and P', the ratchet-bars L, co-operating with the pawls P and P', means for simultaneously moving the ratchet-bars out of engagement with the pawls P and into engagement with the pawls P', and springs for resetting the keys and sectors.

26. The combination of the reciprocating keys H, provided with the pawls, the ratchet-bars L, co-operating with the pawls and movable into and out of engagement therewith, the hand-lever U, and connections between said lever and the bars L for moving the latter by the operations of the lever.

27. The combination of the reciprocating keys H, provided with the pawls P and P', the ratchet-bars L, co-operating therewith, the hand-lever U, connections between said lever and the bars L, operating at one stroke of the lever to move the bars into engagement with both sets of pawls and operating upon the opposite stroke of the lever to disengage the bars from the pawls P, and springs for resetting the keys.

28. The combination of the reciprocating keys H, provided with the pawls P, the ratchet-bars L, co-operating therewith, the bar N, connected with the bars L for simultaneously moving the same, the hand-lever U, connections between said lever and the bar N for moving said bar and the bars L in one direction, and a spring for moving them in the opposite direction.

29. The combination of the keys H, provided with pawls P, ratchet-bars L, bar N, spring O, arm W, rack-bar V, gear T, and lever U.

30. The combination of the keys H, provided with pawls P, ratchet-bars L, bar N, spring O, arm W, trip Y, rack-bar V, gear T, and lever U.

31. The combination of the keys H, provided with the pawls P and P', ratchet-bars L, bar N, spring O, arm W, trip Y, rack-bar V, gear T, and lever U.

32. The combination of the indicator-wheels A, the sectors D, geared thereto and having the arms F, the reciprocating keys H, connected with arms F, the screen-plate B', movable to and from a position in front of the indicator-wheels to alternately hide and expose the numbers thereon, and a lever U for operating the screen-plate.

33. The combination of the reciprocating keys H, movable over indices H', the oscillatory hand-lever U, and a lock for the lever, operating to lock the same when the keys H are all in normal position and thrown out of operation by the movement of any key H from such position.

34. The combination of the sectors D, having the arms F, the reciprocating keys H, connected with the arms F, the rock-shaft K', the arms L', fast thereon and provided with notches co-operating with pins M' on the sectors D, the rock-shaft E, having the lever U fast thereon, and the arm O', fast on the rock-shaft K' and co-operating with a stop or shoulder Q' on the rock-shaft E.

35. The combination of the reciprocating keys H, movable over indices H', the oscillatory hand-lever U, and a lock co-operating with the lever U and controlled by the keys H, said lock being thrown out of operation to release the lever whenever the operated key is moved to a point opposite a number upon its index and thrown into operation to lock the lever whenever the operated key stands at a point between two numbers upon its index, whereby the lever is locked, except when the operated key is moved to the proper point to make an exact indication and registration.

36. The combination of the sectors D, having the arms F, the reciprocating keys H, connected with the arms F, the rock-shaft E, having the lever U fast thereon, the rock-shaft R', the notched arms S', fast thereon and co-operating with pins T' on the sector-arms F, the arm V', fast on the shaft R', and the hooked arm X', hung on the shaft K' and co-operating with the arm V' and with a lug Y' on the rock-shaft R.

37. The combination of the reciprocating keys H, movable over indices H', the oscillatory hand-lever U, and a lock co-operating therewith and controlled by the keys H, said lock being thrown into operative position by the movement of any key from normal position and thrown out of operative position by the return of all the keys to such position, whereby after one or more keys have been operated and the lever U has been given a stroke in one direction it cannot be given a full stroke in the opposite direction until all of the keys are returned to normal position.

38. The combination of the sectors D, having the arms F, the reciprocating keys H, connected with the arms F, the rock-shaft E, having the lever U fast thereon, the rock-shaft K', the arms L', fast thereon and co-operating with pins M' on the sectors D, the arm O', provided with the pin Z^2, and the arm Z', hung on the shaft K' and co-operating with the pin Z^2 and with a shoulder Z^3 on the rock-shaft E.

39. The combination of the type-wheels O^3, the platen D^3, co-operating therewith, the inclined guide-rods G, the keys H, embracing said rods and reciprocating thereon, and connections between the keys and type-wheels for turning the latter as the keys are moved.

40. The combination of the concentric sleeves B^3, the type-wheels O^3, fast thereon, the platen D^3, co-operating with the type-wheels, the guide-rods G, the keys H, embracing said rods and reciprocating thereon along indices H', and connections between said keys and the sleeves B^3 for turning the type-wheels as the keys are moved.

41. The combination of the indicator-wheels A, the type-wheels O^3, moving with the wheels A, the platen D^3, co-operating with the type-wheels, the guide-rods G, the keys H, mounted to reciprocate thereon along indices H', and connections between the keys and indicator-wheels for turning the latter and the type-wheels as the keys H are moved.

42. The combination of the indicator-wheels A, secured upon the concentric sleeves B^3, the type-wheels O^3, fast upon said sleeves, the platen D^3, co-operating with the type-wheels, the reciprocating keys H, movable over indices H', and connections between the keys H and respective indicator-wheels for turning the latter as the keys are moved.

43. The combination of the indicator-wheels A, the reciprocating keys H, movable over indices H', connections between the keys and indicator-wheels for turning the latter as the keys are moved, the type-wheels O^3, turning with the indicator-wheels, the platen D^3, co-operating with the type-wheels, the rock-shaft E, and the cam G^3 thereon for actuating the platen.

44. The combination of the indicator-wheels A, secured upon the concentric sleeves B^3, the type-wheels O^3, also secured upon said sleeves, the reciprocating keys H, movable over the indices H', connections between said keys and the indicator-wheels for turning the latter as the keys are moved, the platen D^3, co-operating with the type-wheels, the rock-shaft E, the cam G^3 thereon for actuating the platen, and the lever U for rocking the shaft.

45. The combination of the sectors D, having the arms F, the reciprocating keys connected with the arms F, the type-wheels O^3, geared to the sectors D, and the platen D^3, co-operating with the type-wheels.

46. The combination of the sectors D, having the arms F, the reciprocating keys connected with the arms F, the indicator-wheels A and type-wheels O^3, geared to the sectors D, and the platen D^3, co-operating with the type-wheels.

47. The combination of the sectors D, having the arms F, the reciprocating keys H, connected with the arms F, the indicator-wheels A, secured upon the concentric sleeves B^3 and geared to the sectors D, the type-wheels O^3, fast on the sleeves B^3, the platen D^3, co-operating with the type-wheels, and the cam G^3 for actuating the platen.

48. The combination of the indicator-wheels A, the inclined guide-rods G, the keys H, embracing said rods and adapted to reciprocate longitudinally thereon, and connections between the keys and indicator-wheels for turning the latter as the keys are moved.

49. The combination of the indicator-wheels A, the guide-rods G, the indices H', the keys H, embracing and adapted to reciprocate lengthwise of the rods G and provided with pointers K, co-operating with the indices H', and connections between the keys and indicator-wheels for turning the latter as the keys are moved.

50. The combination of the indicator-wheels A, the reciprocating keys H, connections between said keys and wheels for turning the latter as the keys are moved, catches for temporarily holding the keys and wheels in the positions to which they are moved to make an indication, means for simultaneously releasing all the catches, and springs for resetting the keys and wheels.

51. The combination of the indicator-wheels A, the type-wheels O^3, moving with the indicator-wheels, the platen D^3, co-operating therewith, the reciprocating keys H, connections between the latter and the indicator and type wheels for turning the latter as the keys are moved, catches for temporarily holding the keys and wheels in the positions to which they are moved to make an indication, means for simultaneously releasing all the catches, and springs for resetting the keys and wheels.

52. The combination of the sectors D, having the arms F, the reciprocating keys H, connected with the arms F, the indicator-wheels A, geared to the sectors D, the screen-plate E', movable to and from a position in front of the indicator-wheels, a lever U, and connections between the same and the screen E' for operating the latter.

53. The combination of the drawer-bolt N^3, the lever L^3, link S^3, rock-shaft E, arm T^3, fast thereon, and plate U^3, pivoted upon said arm and provided with a cam V^3, co-operating with the lug W^3 upon the link S^3.

54. The combination of the gong O^3, lever L^3, link S^3, rock-shaft E, arm T^3, fast thereon, and plate U^3, pivoted upon said arm and provided with a cam V^3, co-operating with a lug W^3 upon the link S^3.

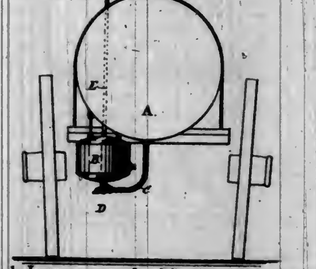
55. In a registering-machine, the combination, with a registering-wheel and a primary moving part of said machine which has to be moved at each operation thereof, of a locking device thrown by the registering-wheel into position to lock such primary part when the wheel has completed a predetermined portion of a revolution, whereby the machine becomes automatically locked when the registering-wheel reaches such position.

56. In a registering-machine, the combination, with a registering-wheel and a shaft which has to be moved at each operation of the machine, of a locking-bar co-operating with said wheel and shaft and moved by the wheel into the path of a projection upon the shaft to lock the same when the wheel has completed a predetermined portion of a revolution.

57. In a registering-machine, the combination, with a registering-wheel provided with a cam and a shaft provided with a shoulder, of a locking-lever movable into the path of the shoulder on the shaft to lock the same and actuated by the registering-wheel to move into such position when the wheel has completed a given portion of a revolution.

58. The combination of the registering-wheel A^7, having its hub provided with the cam K^3, the rock-shaft E, having the shoulder Z^3, and the lever H^3, co-operating with the cam K^3 and shoulder H^3.

479,721. REGISTERING AND MEASURING FAUCET. HARRY F. REAM, Baltimore, Md., assignor of one-half to Levi A. Dodd, same place. Filed Aug. 19, 1891. Serial No. 403,144. (No model.)

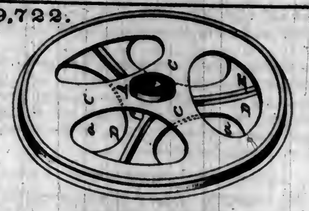


Claim.—1. In an apparatus for delivering and registering oil or other fluids, the combination, with the main tank, the delivery-tank, and the interposed three-way cock actuating a register, substantially as described, of a combined vent-pipe and stop-valve consisting of a tube E in the delivery-tank, containing a float-valve *n*, a valve-seat *o*, an oil-inlet *t* in the tube below the float, and one or more air-vents *p p* in the tube above the float, substantially as described.

2. A vent-pipe for oil-tanks or other receptacles for fluids, consisting of a tube E, containing a float-valve *n*, a valve-seat *o*, an oil-inlet *t* in the tube below the float-valve, and an air-vent *p p* in the tube above the float-valve, substantially as described.

3. A vent-pipe for oil-tanks or other receptacles for fluids, consisting of a tube E, containing a float-valve *n*, a valve-seat *o*, an oil-inlet *t* in the tube below the float-valve, an air-vent *p p* in the tube above the float-valve, and one or more sight-openings *s s*, substantially as described.

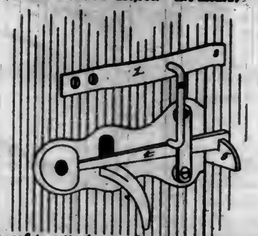
479,722. WHEEL. FRANS H. RUNDQUIST-WARNER, Stockholm, Sweden. Filed Jan. 16, 1892. Serial No. 418,215. (No model.)



Claim.—1. The combination, in a wheel, of the hub A, rim B, and spoke-webs C and D, alternately merging into one another in hypercycloidal curves *a* between the hub and the rim, substantially as set forth.

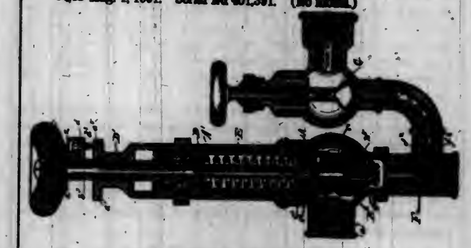
2. As an improved article of manufacture, a metallic wheel having the hub and rim connected by a central part or body comprising the alternating spoke-webs C and D and their connecting oblique rim-webs *c* and *d*, constructed and arranged substantially as and for the purpose shown and set forth.

479,723. ATTACHMENT FOR LATCHES. GEORGE G. RUPERT, Decatur, Ill., assignor of one-half to William H. Logan, same place. Filed Jan. 8, 1892. Serial No. 417,333. (No model.)



Claim.—A safety attachment for door-latches, consisting of a spring-bar adapted to be secured to a door and having a projecting end to engage the door-casing and a hook or latch-support secured to the spring-bar and adapted to sustain the latch when the door is not closed, as set forth.

479,724. AUTOMATIC RELIEF-VALVE. FRANK SHERIDY, Mansfield, Ohio, assignor to the Safety Cylinder Valve Company, same place. Filed Aug. 1, 1891. Serial No. 401,391. (No model.)



Claim.—1. The combination of the valve-case, a spring-pressed relief-valve within said case, a housing for the valve-spring, rigidly secured to and movable with the valve, and means, such as shown, for adjusting the tension of the spring and locking the tension when adjusted, substantially as shown and described.

2. The combination of the outer case, the valve, and the valve-spring housing connected together and fitted to slide within said case, the follower D within the housing and having a stem extending to the outside, the tube D', screw-threaded through the case and forming part of the plunger-stem, whereby the follower is moved within the spring-housing, the spring compressed between the follower and the valve, and means to lock the adjustment of the spring for the purpose of holding it to the desired tension, substantially as shown and described.

3. The combination of the two-part outer case A A', the spring-housing C, and attached valve B, fitted to slide therein, the follower D, having divided hollow stem *d* D', the part D' being screw-threaded through the neck of the part A' and having laterally-extending lug d^2, the screw-pin d^3, tapped into said lug and adapted to interlock with the case, and the stem *b*, extending to the outside of the case and provided with cap-nut b^2, substantially as shown and described.

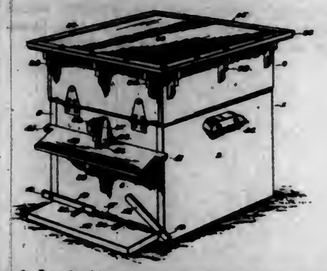
4. The combination of the valve-case, a spring-pressed relief-valve within said case, a housing for the spring and follower, provided with a screw-threaded stem to compress or relax the spring, a supplemental valve, as b^4, forming part of the spring-pressed valve but movable independent of it, and the stem b^3 and hand-wheel B^3 to move said supplemental valve independent of the main valve, substantially as and for the purpose set forth.

5. The combination of the outer case, the spring-pressed relief-valve therein, means for adjusting the spring and locking the tension

when adjusted, and a graduated index to indicate the pressure with which the relief-valve is held to its seat, substantially as shown and described.

6. The combination of the valve-case, a spring-pressed relief-valve within it, and an auxiliary relief and indicator valve, as G, adapted to connect directly with the cylinder and having a screw-threaded exhaust branch, as *g*, for attaching an indicator, said auxiliary valve being arranged to act independently of the spring-pressed relief-valve, substantially as shown and described.

479,725. BEEHIVE. HENRY F. SNOWHAM, Newark, Ohio. Filed Apr. 25, 1892. Serial No. 429,563. (No model.)

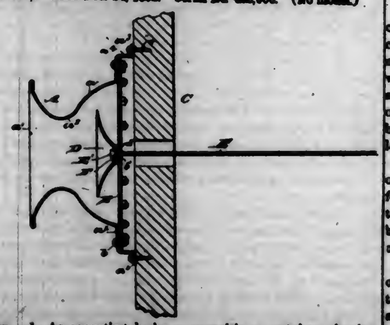


Claim.—1. In a beehive, the combination of the body provided with an inclined bottom board extended beyond the front side to form an alighting-ledge, said body being provided with a bee-opening 17, the strips having their outer ends pivoted to the body and folding inward to close partially the bee-opening when in a horizontal position and having extended ends 19, arranged to engage the extended portion of the bottom board when in a perpendicular position, and the blocks so secured to the upper face of the alighting-ledge and arranged at intervals, substantially as described.

2. In a beehive, the combination of the brood-frames 8 and 8^a, the upper bars of which have recesses, the L-shaped guide-plates secured to the brood-frames 8^a, and the rows of honey-sections having upper and lower recesses and secured together and arranged to engage the recesses of the guide-plates, whereby the recesses in the honey-sections are readily made to register with the recesses in the brood-frames, substantially as described.

3. In a beehive, the combination of the series of honey-sections arranged in rows, the dividing-plates interposed between the rows and partially separating the sections and providing at their upper and side edges with flanges engaging the faces of the sections, the metallic end plates 20, closing the open faces of the honey-sections of one end row and provided at its top and side edges with flanges, and the transparent plate closing the sections of the other end row, substantially as described.

479,726. ACOUSTIC TELEPHONE. ALFRED L. SIMPSON, New York, N. Y. Filed Feb. 24, 1892. Serial No. 422,602. (No model.)



Claim.—1. An acoustic telephone comprising a metal case having a bell-shaped mouth, a flaring resonating-body, an annular diaphragm-seat, a neck extending from the seat and an attaching-flange extending from the neck parallel with the said seat, a diaphragm secured near its periphery only to the seat, and a bell-like resonator held to the outer face of the diaphragm by the tension of the line-wire only, substantially as described.

2. In an acoustic telephone, the combination, with a case having a bell-shaped mouth and a flaring resonating-body and a diaphragm held to the rear of the resonating-body, of a bell-shaped resonator of a size greater than the diameter of the neck formed by the junction of the mouth and body and held to the diaphragm by the tension of the line-wire, substantially as and for the purpose set forth.

479,727. ALTERNATING-CURRENT MOTOR. WILLIAM STANLEY, Jr., and JOHN F. KELLY, Pittsfield, Mass. Filed Mar. 8, 1892. Serial No. 424,249. (No model.)



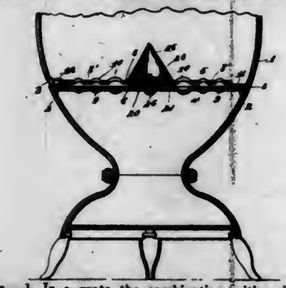
Claim.—1. The combination, with an alternating-current motor having independent energizing-circuits, of a polarization-coil included in one circuit and a self-induction device in the other, as set forth.

2. The combination, with an alternating-current motor having independent energizing-circuits, of a polarization-coil included in one circuit adapted by its electro-motive force to advance the phase of the current in its circuit with respect to that of the current in the other circuit, as set forth.

3. In an alternating-current motor having energizing-circuits adapted by predetermined relations of self-induction and capacity to produce a difference in phase between the currents therein, the combination, with one or both circuits as the means for neutralizing the lag of self-induction, of conducting-plates immersed in an electrolyte and connected in series in the same, as herein set forth.

4. The combination, with a main circuit and branches from the same of different self-induction and capacity, whereby a difference in phase will be produced in the currents passing therein, of a polarization-coil included in the main circuit and adjusted or adapted to neutralize the resultant lag of the two branch circuits.

479,728. GRATE. WILLIAM W. SWEETLAND, Edwardsburg, Mich. Filed Oct. 19, 1891. Serial No. 409,166. (No model.)



Claim.—1. In a grate, the combination, with a lower member consisting of a central body, radial arms having downward beads, and concentric projections secured at their centers to said arms, of an upper member comprising similar body and arms, the latter being provided with upward beads registering with the downward beads in the lower arms, concentric projections on the arms, secured to the latter slightly out of the centers of the projections, a pivot at the centers of said members, and means for oscillating the upper member and supporting the lower.

2. In a grate, the combination, with a lower member consisting of a central body and radial arms having downward beads and means for supporting said member, of an upper member consisting of a central body and radial arms having upward beads registering with the beads in the lower arms, a pivot at the centers of said bodies, and means for oscillating the upper member.

3. In a grate, the combination, with a lower member consisting of a central body, radial arms, and concentric projections secured at their centers to said arms, and means for supporting this member, of an upper member consisting of similar body, arms, and projections, the latter being secured to the arms slightly out of the centers of the lengths of said projections, a pivot at the centers of said bodies, and means for oscillating the upper member.

4. In a grate, the combination, with a lower member consisting of a central body, radial arms, and concentric projections secured at their centers to said arms, means for supporting this member, a step rising from its center, and a fixed washer adjacent said step and provided with an arc-shaped notch, of an upper member consisting of similar body, arms, and projections, the latter being secured to the arms slightly out of the centers of the lengths of said projections, a cavity in the upper member fitting said step and having a lug adjacent engaging said notch, the combined length of the projections in each member forming a half-circle, and said notch being of a length to permit the movement of each upper projection from above its corresponding lower projection nearly but not quite off the same, and means for oscillating the upper member.

5. In a grate, the combination, with a lower member consisting of a central body, radial arms, and projections, a step rising from said body, and means for supporting this member, of an upper member comprising similar body, arms, and projections, the body having a cavity turning on said step and of a depth to hold the adjacent faces of the members out of contact, and means for oscillating the upper member.

6. In a grate, the combination, with a lower member consisting of a central body, radial arms, and projections, a step rising from said body and having a central hole, and means for supporting this member, of an upper member comprising similar body, arms, and projections, the body having a cavity turning on said step and of a depth to hold the adjacent faces of the members out of contact, a hollow cone on the upper side of the body of this member, a screw passing upwardly through said hole in the lower member and into the upper member, and means for oscillating the latter.

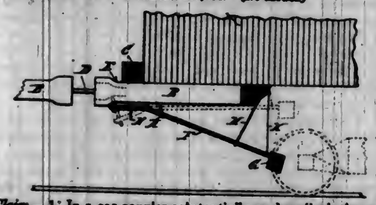
7. In a grate, the combination, with a lower member consisting of a central body having a central hole, radial arms, and projections, and means for supporting this member, of an upper member comprising similar body, arms, and projections, a hollow cone on the upper side of the body, a screw passing loosely through said hole in the lower member and into the upper member, and means for oscillating the latter.

8. In a grate, the combination, with a lower member consisting of a central body, radial arms, and concentric projections secured at their centers to said arms and means for supporting this member, of an upper member consisting of similar body, arms, and projections, the latter being secured to the arms slightly out of the centers of the lengths of said projections, a pivot at the centers of said bodies, means for oscillating the upper member, and means for permitting the movement of each upper projection from above its corresponding lower projection nearly but not quite off the same.

9. In a grate, the combination, with a lower member consisting of a central body, radial arms, and projections, means for supporting this member, a step rising from its center, and a fixed washer adjacent said step and provided with an arc-shaped notch, of an upper member consisting of similar body, arms, and projections and a cavity in the upper member, fitting said step and having a lug adjacent engaging said notch, and means for oscillating the upper member.

10. In a grate, the combination, with a lower member consisting of a central body, radial arms, and projections, means for supporting this member, a step rising from its center and having a central hole, and a fixed washer adjacent said step and provided with an arc-shaped notch, of an upper member consisting of similar body, arms, and projections, the body having a cavity turning on said step and of a depth to hold the adjacent faces of the members out of contact, a hollow cone on the upper side of the body of this member, a screw passing upwardly through said hole in the lower member and into the upper member, and means for oscillating the latter.

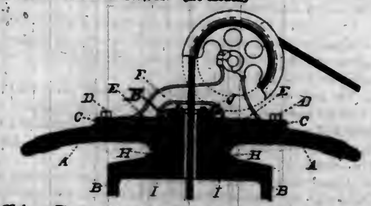
479,729. CAR-COUPLING. ROBERT R. WILSON, New Orleans, La., assignor of one-half to W. H. Bolinger and Arthur Burbank, same place. Filed Mar. 14, 1892. Serial No. 424,860. (No model.)



Claim.—1. In a car-coupler substantially as described, the combination, with the draw-head having aligned apertures in its top and bottom walls adjacent to its mouth, of a lever fulcrumed at an intermediate point in its length beneath the draw-head and carrying the weight at its rear end, the pin connected to and carried by the forward end of the lever and adapted to play through the aligned apertures in the draw-head, and a suitable means for raising and lowering the weighted end of the lever, all substantially as and for the purpose set forth.

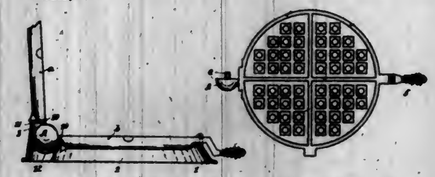
2. In a car-coupler substantially as described, the combination, with the draw-head having aligned apertures in its top and bottom walls adjacent to its mouth, of a lever fulcrumed at an intermediate point in its length beneath the draw-head and carrying the weight at its rear end, the pin connected to and carried by the forward end of the lever and adapted to play through the aligned apertures in the draw-head, the guide-hangers H for guiding and limiting the movements of the lever, and a suitable means for raising and lowering the weighted end of said lever, all substantially as and for the purpose set forth.

479,730. DERRICK-CRANE. JOHN R. ANDERSON, Montpelier, Vt., assignor to the Lane Manufacturing Company, same place. Filed Sept. 10, 1891. Serial No. 405,312. (No model.)



Claim.—The combination of the flat circular guy-plate to which the guy-ropes are adapted to be fastened, said guy-plate having on its under side a circular flange serving as a hub, the mast-cap having a circular depression in which the aforesaid hub rests and turns and having also a central forward extension which lies within a central opening in the guy-plate and projects therefrom, being provided on its upper end with a horizontal plate, circular gib secured on the upper side of the guy-plate and having its inner peripheral edge inclined, the sheave-hanger having its bottom plate likewise provided with an inclined edge and fitting under the circular gib, and the sheave journaled in said hanger, all the parts being arranged so that by simply loosening the gib the hanger and its sheave can be horizontally adjusted so as to locate the sheave in the desired plane, substantially as described.

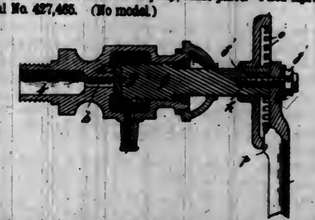
479,731. COMBINED BALL-JOURNAL AND HINGE. ROBERT O. BEDEMAN, Sydney, Ohio, assignor to the Wagner Manufacturing Company, same place. Filed Feb. 23, 1892. Serial No. 422,494. (No model.)



Claim.—1. A combined hinge and journal for uniting and supporting duplex sections, as *a b*, consisting of a semi-spherical ball upon each of said sections, one of said semi-spherical balls provided with a pivot and the other of said balls having a recess to receive said pivot, substantially as described.

2. The combination of a base 1, having a concave socket-bearing 3, the sections *a b*, a semi-spherical ball formed on the section *a*, a semi-spherical ball formed on the section *b*, a horizontal pivot formed on one of said semi-spherical balls, the other of said semi-spherical balls having a recess to receive said pivot, a vertical flange on the base 1, and an annular flange on each section *a b*, substantially as described.

479,732. GAGE-COCK. THOMAS R. BUTMAN, Chicago, Ill., assignor to the Butman Furnace Company, same place. Filed Apr. 2, 1892. Serial No. 427,465. (No model.)



Claim.—1. A gage-cock having the screw valve-stem, the weighted lever controlling the movement of said stem and adjustably secured

thereon, so as to be capable of turning independently thereof, and means, substantially as described, whereby said lever is rigidly held in the desired position to turn with said valve-stem, substantially as described.

2. A gage-cock consisting of the casing or shell having a single discharge-nozzle and the valve-seat, the rotary screw-threaded valve-stem having the end valve to engage said seat, and the laterally-extending lever screwed to the outer end of said valve-stem and having its outer end weighted, substantially as described.

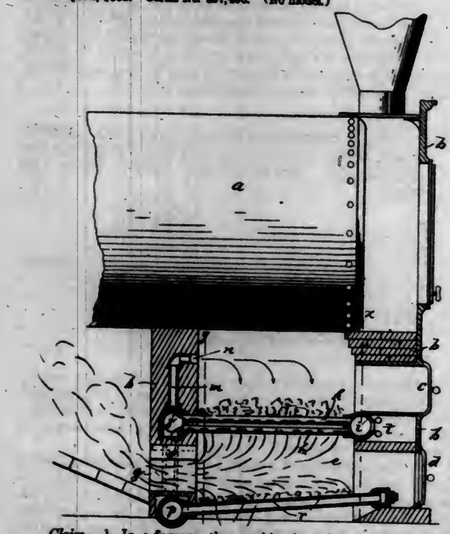
3. The gage-cock consisting of the shell having the valve-seat, the rotary screw valve-stem having the valve to engage said seat, and the weighted lever-arm adjustably secured to and extending laterally from the outer end of said valve-seat, as described.

4. A gage-cock having a rotary valve-stem, a laterally-extending lever adapted to receive weights and adjustably secured to the end of said valve-stem, and a disk rigid with the valve-stem having notches to receive and hold said levers.

5. The gage-cock having a rotary valve-stem, the notched disk rigid with the outer end of the valve-stem, the lever adapted to be weighted and engaged and be held by said projections, and a screw passing through the end of said lever into the valve stem to hold the lever in a notch.

6. A gage-cock having the rotary valve-stem provided with a disk rigid with the outer end thereof and having a lateral notched rim, the weighted lever having a feather to fit in one of said notches, and a screw passed through the end of said lever into said stem to hold the feather in the notch.

479,733. STEAM-BOILER FURNACE. THOMAS R. BUTMAN, Chicago, Ill., assignor to the Butman Furnace Company, same place. Filed Apr. 2, 1892. Serial No. 427,466. (No model.)



Claim.—1. In a furnace, the combination of the tubes forming the grate-bars, having supply-pipes, connections from said tubes, arranged to discharge the heated steam and air therefrom over the fire and produce a downdraft, and connections for conveying part of the heated steam and air from said tubes and discharging the same in the combustion-chamber beneath the said grate-bars, substantially as described.

2. In a furnace, a grate, a combustion-chamber beneath the grate, having a discharge, means, substantially as described, for heating air and steam, connections for discharging a portion of said heated air and steam over and onto the fire, and connections for conveying the remainder of the heated steam and air and discharging the same in the combustion-chamber beneath the grate, whereby the flame-consuming gases, &c., meet and are consumed in said chamber, substantially as described.

3. In a furnace, the combination of the heating-tubes in proximity to the fire, supply connections therefor, distributing-pipes in the combustion-chamber beneath the fire, and connections from said tubes to convey a portion of the heated air and steam to said distributing-pipes and to discharge the remainder thereof onto and above the fire and produce a downdraft, substantially as described.

4. In a furnace, the combination of the tubes forming grate-bars, steam and air supply for said tubes, connections from said tubes, arranged to distribute a portion of the heated air and steam therefrom over the fire on said tubes, and thereby produce a downdraft, and a series of perforated tubes beneath and supplied with heated air and steam from said grate-bars, for the purpose described.

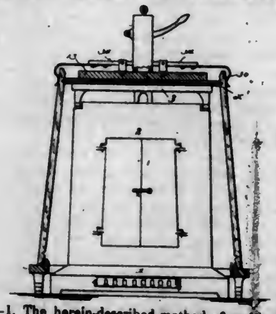
5. In a furnace, the means, substantially as described, for heating air and steam and discharging the same over the fire to produce a downdraft and distributing-pipes beneath the fire to distribute air and steam into the downwardly-passing burning gases and flame, substantially as described.

6. In a furnace, the combination of the hollow grate-bars, the rear header thereof, means for supplying air and steam to said bars, the perforated pipes in the combustion-chamber beneath the grate-bars, the header for said perforated pipes, and the pipes connecting said headers, substantially as described.

7. In a furnace, the combination of the hollow grate-bars, the headers therefor, air and steam supply openings in one header, and the water-nozzles projecting into said header and having a supply pipe or pipes, substantially as described.

8. In a furnace, the bridge-wall having the bottom opening, the furnace-front, a header in the furnace-front, having steam and air injectors in its ends, a header in the bridge wall, the hollow grate-bars connecting said headers, and the distributing-pipes in the bridge-wall from the rear header to produce a downdraft, substantially as described.

479,734. METHOD OF MAKING BARRELS, &c. HENRY CAMPBELL, Baltimore, Md., assignor to the Campbell Barrel Machine Company, same place. Filed Jan. 28, 1892. Serial No. 419,508. (No model.)



Claim.—1. The herein-described method of making barrels and similar articles, which consists in first crozing the staves individually or when uncombined permanently in the barrel, then setting up the staves around one of the heads of the barrel and forming the latter, then applying permanently the hoops to that end of the barrel containing said head, then, the partly-finished barrel having been fired, forcing in the staves at the other end of the barrel, the other head being at the same time inserted, then applying the head-hoop to secure the last-mentioned head, and applying the remaining hoops, substantially as set forth.

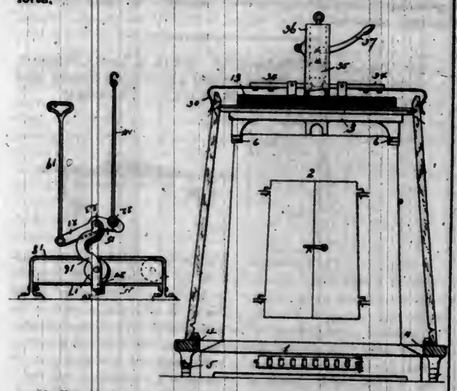
2. The herein-described method of making barrels and similar articles, which consists in first crozing the staves individually or when uncombined in the barrel, then setting up the staves around one of the heads of the barrel and forming the latter and simultaneously firing the barrel, then applying permanently the hoops to that end of the barrel containing said head, then forcing in the staves at the other end of the barrel, the other head being at the same time inserted, then applying the head-hoop to secure the last-mentioned head, and lastly applying the remaining hoops, substantially as set forth.

3. The herein-described method of making barrels and similar articles, which consists in first crozing the staves individually or when uncombined in the barrel, then consecutively setting up a series of barrels, applying to each one or more of its permanent hoops, and beginning the firing of each barrel when its setting up is begun, and then consecutively wiodlassing and finishing said barrels, substantially as set forth.

479,735. BARREL SETTING-UP AND FIRING MACHINE. HENRY CAMPBELL, Baltimore, Md. Filed Feb. 8, 1892. Serial No. 420,773. (No model.)

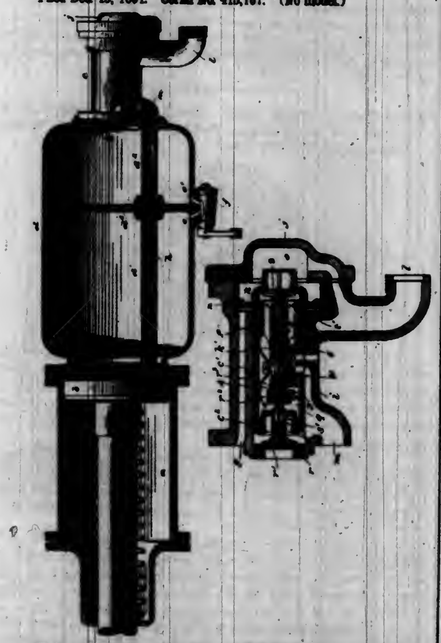
Claim.—1. In a setting-up and firing machine for the manufacture of barrels and similar articles, the combination, with a heater, of a plate or former supported above said heater and within the space included by the upper ends of the staves and adapted to receive the inner sides of the upper ends of the staves, substantially as set forth.

2. The combination, with a heater or firing device, of a table or support above the same and adapted to receive a barrel-head and means for temporarily holding said head in place, substantially as set forth.



3. The combination, with a heater or firing device, of a table situated above the same, a support for the lower ends of the staves, and a means for adjusting the distance apart of said support and table, substantially as set forth.

479,736. AIR-BRAKE. JESSE F. CARPENTER, Washington, D. C. Filed Dec. 15, 1891. Serial No. 415,167. (No model.)



Claim.—1. An auxiliary reservoir divided into two chambers, combined with a passage between said chambers, a valve in said passage, and an operating hand-lever for the valve within convenient reach of trainmen, to be actuated by hand in making up trains, substantially as described, and for the purposes specified.

2. In an automatic valve for train-brakes, the combination of the main piston, the check-valve therein, and the slide-valve connected with and operated by the piston for releasing the brakes, with the valve *r*, carried by the piston and controlling a small passage to the brake-cylinder, and the valve *s*, in which the valve *r* and its passage are located and itself controlling a large passage to the brake-cylinder, substantially as described.

3. The combination of the piston and the slide-valve *u* for releasing the brakes, the valves *r* and *s* for controlling the passage of air to the brake-cylinder, the former seating within the latter and both actuated by the piston, the chamber *q*, the check-valve in the piston, and the passage *p* between the auxiliary reservoir and the chamber *q* and made larger than the passage through the valve *r*, but smaller than the passage through the valve *s*, substantially as described.

479,737. SCISSORS-SHARPENER. GEORGE S. COLLUM, Hartford, Conn., assignor to Charles H. Russell and William H. Collum, same place. Filed Feb. 5, 1892. Serial No. 420,432. (No model.)

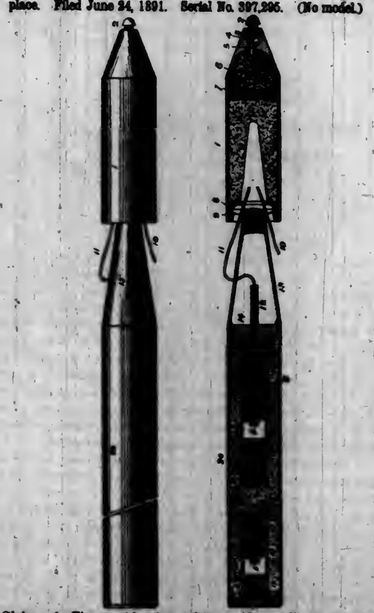


Claim.—1. As an article of manufacture, a scissors-sharpener consisting of a wide cylindrical body portion or hub and at each end thereof an outwardly-flaring smooth guiding-flange, substantially as described.

2. As an article of manufacture, a scissors-sharpener consisting of a wide roughened cylindrical body portion or hub and at each end thereof an outwardly-flared smooth guiding-flange, substantially as described.

3. As an article of manufacture, a scissors-sharpener consisting of a wide cylindrical body portion or hub and at each end thereof an outwardly-flaring smooth guiding-flange having a pocket to protect the finger and thumb, substantially as described.

479,738. DYNAMITE ROCKET. PATRICK CUNNINGHAM, New Bedford, Mass., assignor to the American Carrier Rocket Company, same place. Filed June 24, 1891. Serial No. 397,295. (No model.)



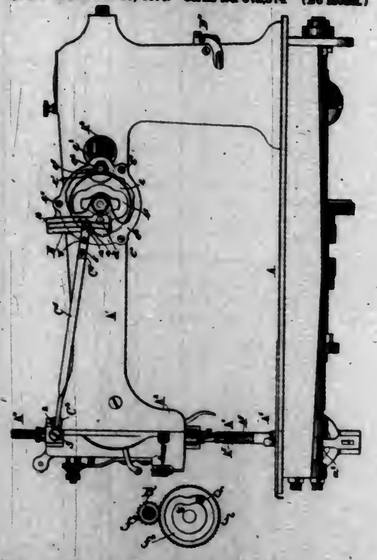
Claim.—1. The combination, with a self-propelling projectile or rocket, of a tube forming the tail of the rocket, adapted and arranged to carry explosives, percussion firing devices connected with an explosive-chamber of the device, firing weights or hammers adapted to be actuated by the arrest of the flight of the rocket, and a time fuse connecting the rocket-chamber with the explosive-chamber, arranged substantially as shown and described.

2. The combination, with a self-propelling projectile or rocket having a rearwardly-open propelling-chamber charged with a gradually-burning propelling compound, of a tube forming the tail thereof, arranged for carrying explosives, and a time-fuse connected therewith and with the rocket propelling chamber, substantially as shown and described.

3. The combination, with the rocket having a rearwardly-open chamber charged with a gradually-burning propelling compound, an explosive carried in the apex of the rocket-head, and means for exploding the same, operated by the arrest of the flight of the rocket, of the tubular tail and an explosive carried thereby, substantially as set forth.

4. The combination, with a self-propelling projectile or rocket having a rearwardly-open chamber charged with a gradually-burning propelling compound, of a receptacle for explosive, forming the tail of the rocket, and a percussion or concussion piece and cap communicating with and adapted to fire the explosive, arranged substantially as shown and described.

479,739. SEWING-MACHINE. GEORGE H. DUNHAM, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed Nov. 26, 1890. Serial No. 372,574. (No model.)



Claim.—1. The feed-bar C, the feed-dog attached thereto, the rock-shaft D, the feed-adjusting link D^3, jointed thereto, a rock-shaft D^4, parallel to the rock-shaft D, said rock-shaft having a grooved segmental arm D^4, which is entered by a stud of the said link, means to move the said link D^3 and place its stud more or less near the center of said rock-shaft to thereby regulate the length of stitch, an arm f, connected to the rock-shaft D^4 and provided with a stud f', a pattern-cam having a groove to receive said stud f' and having a series of teeth, the shaft E', means to rotate it, a loop-taker, devices between it and the said shaft to rotate the loop-taker, and a gear f^5 on the shaft E' to engage the teeth of and rotate the pattern-surface to determine the direction of feed, substantially as described.

2. The feed-bar C, the feed-dog attached thereto, the rock-shaft D, the feed-adjusting link D^3, jointed thereto, a rock-shaft D^4, parallel to the rock-shaft D, said rock-shaft having a grooved segmental arm D^4, which is entered by a stud of the said link, means to move the said link D^3 and place its stud more or less near the center of said rock-shaft to thereby regulate the length of stitch, a rotating needle-bar-actuating shaft having a gear e^5, a needle-bar having an eye-pointed needle, a horizontally-swinging needle-bar frame, connections between said shaft and needle-bar to reciprocate the latter vertically in said frame, the shaft E', means to rotate it, a loop-taker, devices between it and the said shaft to rotate the loop-taker, a pattern-surface, gearing connecting said pattern-surface and the gear e^5, connections comprising a vibrating slotted segment and block adjustable thereon between the pattern-surface and the said needle-bar frame to move the latter intermittingly in a lateral direction, a feed-bar-actuating mechanism therefor, an arm f, connected to the rock-shaft D^4 and provided with a stud f', a pattern-cam having a groove to receive said stud f' and having a series of teeth, and a gear f^5 on the shaft E' to engage the teeth of and rotate the pattern-surface between some stitches and not between other stitches, the combination being and operating, substantially as described, to enable a variety of stitches to be made, as set forth.

479,740. SEWING-MACHINE. GEORGE H. DUNHAM, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed Nov. 5, 1891. Serial No. 411,113. (No model.)



Claim.—1. The combination, with the bed-plate of a sewing-machine, of a detachable throat-plate having a raceway and a spur to hold the material at the center of the needle-hole, a feed-wheel placed in the said raceway and having points at its upper side, a cap or plate to retain the said feed-wheel in the said raceway, a reciprocating pawl-carrier resting in a groove made in the upper side of said throat-plate, a pawl carried thereby to engage and rotate the feed-wheel step by step, the feed-bar B^{10}, means to reciprocate it, connections between it and the said pawl-carrier, a presser-foot or clamp to hold the material upon the feed-wheel, and stitch-forming mechanism adapted to make an overseaming stitch, all to operate substantially as described.

2. In a sewing-machine, the throat-plate a^3, provided with a raceway and with a guideway a^6, having in its bottom a slot, as a^{20}, the hub a^4, and spur located at the center of the raceway, and a feed-wheel placed in said raceway and having ratchet-teeth at its periphery and pins at its upper side, combined with a reciprocating pawl-carrier provided with a pawl and with a stud extended through said slot a^{20}, the feed-bar, and a plate attached thereto having an opening to receive the stud to reciprocate the said pawl-carrier to operate substantially as described.

479,741. POCKET-LAMP. JOHN H. FARRER, Camden, N. J., assignor to J. Walter Douglass, Philadelphia, Pa. Filed Dec. 15, 1890. Serial No. 374,763. (No model.)



Claim.—1. A lighting device having an oil-receptacle provided with a wick, an igniter in proximity thereto, a rotatable carrier, a disk applied thereto and having drops, bits, or pellets of explosive material, and means for rotating said carrier and bringing the drops, bits, or pellets of said disk into contact with said igniter, substantially as and for the purposes set forth.

2. A lighting device having a wick, an igniter, a rotatable carrier, and a disk having drops, bits, or pellets of explosive material applied thereto, the construction being such that when the carrier is revolved the drops, bits, or pellets of said disk are ignited, substantially as and for the purposes set forth.

3. A lighting device having an igniter, a rotatable carrier provided with pins or studs, and a disk having bits, drops, or pellets of explosive material applied thereto and holes formed therein, the construction being such that the disk may be removed from and applied to the carrier and revolved therewith, for the purposes set forth.

4. A lighting device having an oil-receptacle provided with a wick, a rotatable carrier supporting a removable disk having bits, drops, or pellets of explosive material applied thereto, a spring interposed between said disk and carrier, and an igniter, the construction being such that the pellets, drops, or bits are successively presented to the igniter, substantially as and for the purposes set forth.

5. A lighting device having an oil-receptacle provided with a wick and a boss formed integral with the inner wall of said receptacle, a rotating carrier supporting a removable disk having bits, drops, or pellets of explosive material applied thereto, a spring interposed between said carrier and disk, and an igniter, the construction being such that the disk is normally in contact with the boss, substantially as and for the purposes set forth.

6. A lighting device having a cylindrical casing provided with a lid, an oil-receptacle attached to a plate closing one extremity of said casing, a wick, an igniter, a carrier removably fitted to the other extremity of said casing, and a disk having explosive material applied thereto and removably attached to said carrier, the construction being such that the carrier may be rotated within the casing, substantially as and for the purposes set forth.

7. The combination, in a lighting device, of a cylindrical casing provided with a lid closed at one extremity thereof, with an oil-receptacle, a wick, an annulus having a flange and fitted into the other extremity of said casing, a carrier provided with lugs engaging said flange and closing one extremity of said casing, an igniter, and a removable disk having explosive material applied thereto, substantially as and for the purposes set forth.

8. The combination, in a lighting device, of a cylindrical casing provided with a lid closed at one extremity thereof, an oil-receptacle provided with a boss, a wick, an annulus fitted into the other extremity of said casing, a carrier engaging said annulus, an igniter, a removable disk having explosive material applied thereto and attached to said carrier by pins or lugs engaging in slots, and a spring interposed between said disk and carrier, substantially as and for the purposes set forth.

479,742. CONVEYER AND SCREEN. RICHARD L. HASKELL, Chicago, Ill. Filed Feb. 3, 1892. Serial No. 420,196. (No model.)

Claim.—1. The combination of a reciprocating conveyer-trough moving with an increasing speed toward the end of the forward stroke and having a curved motion at the end of its forward stroke and a bearing or series of bearings for giving the conveyer-trough a curved motion at the end of its forward stroke, substantially as and for the purpose specified.

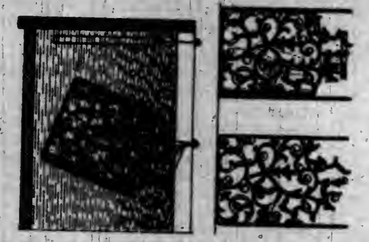
2. The combination of a reciprocating conveyer-trough moving in a slot or runway curved at the end nearest to the discharge end of the conveyer and a slotted bearing or frame having its slot or runway curved at the end nearest to the discharge end of the conveyer, substantially as and for the purpose specified.

3. The combination of a slotted bearing or frame having its slot or runway curved at the end nearest to the discharge end of the conveyer, a reciprocating conveyer-trough moving in said slot or runway, and a spring 34, substantially as and for the purpose specified.

4. In combination with a reciprocating conveyer, the driving mechanism specified, consisting, substantially, of the driving-shaft 27, the disk 26, the bearing 28, the slotted bar 23, and the crank-arm, whose center of rotation is placed to one side of the center of the driving-shaft 27.

479,743. PROCESS OF MOUNTING METALLIC ORNAMENTS UPON GLASS, &c. CHARLES B. HEARLY and JOHN S. GARROW, Philadelphia, Pa. Filed Feb. 13, 1892. Serial No. 421,499. (No specimens.)

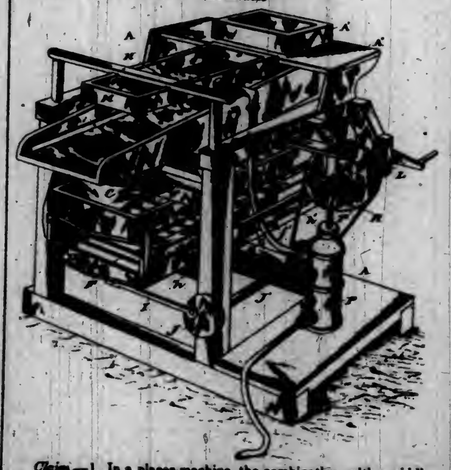
Claim.—1. The within-described process of ornamenting glassware or similar material, said process consisting in casting the metallic open-work ornamental design, fitting it to the article to be ornamented, soldering it together at the joints, subjecting it to an electroplating solution, which will plate the metallic ornamentation and the solder joints without plating the article, substantially as set forth.



2. The within-described process of ornamenting glassware or similar material, said process consisting in casting the metallic open-work ornamental design, fitting it to the article to be ornamented in such a manner that it can be withdrawn from the article, soldering it together at the joints, removing it from the article, subjecting it to a plating solution in order to plate the back of the ornamentation, mounting it again upon the article, turning down and fitting and soldering together the remaining portion of the ornamentation so as to confine it to the article, and, finally, immersing the article, with the ornamentation, in an electroplating solution which will plate the metallic ornamentation without plating the article, substantially as specified.

3. The process herein described of ornamenting glassware or similar material, said process consisting in first casting a design in white-metal and having tapered portions to fit over a shoulder, mounting said ornamentation upon a form, securing the edges together by solder, immersing the article, with the ornamentation, in an electroplating-bath, whereby the ornamentation and soldered joints are plated without plating the article, substantially as specified.

479,744. PLACER-MACHINE. WILLIAM M. JEWELL, Pipe, assignor of one-half to George Robertson, Durango, Colo. Filed Dec. 24, 1891. Serial No. 416,081. (No model.)



Claim.—1. In a placer-machine, the combination, with a riddle-box having a screen therein and the inclined removable tank having a perforated bottom and an elongated opening at one end discharging into said riddle-box, of the riffle-boxes arranged to receive the discharge through an opening in the bottom of said riddle-box and mechanism for imparting a reverse rocking reciprocating motion to said riddle and riffle boxes, substantially as specified.

2. In a placer-machine, the combination, with a riddle-box having a perforated screen therein and a solid bottom below said screen, said bottom having an opening therein near its lower end, of the riffle-boxes, one above the other, under said riddle-box and arranged to receive the discharge from the opening in the bottom thereof, mechanism for imparting a reverse rocking reciprocating movement to said riddle and

riffle boxes, the inclined removable tank having an elongated opening at its lower end discharging into said riddle-box, and means for supplying said tank with water, substantially as specified.

3. The combination, with the tank, the riddle-box, the riffle-boxes, the swinging supporting-frame for said box, the cranked rock-shafts connected to said frame, and the driving-shaft, of the pump for supplying water to said tank, said pump having in the upper portion of its piston-rod a slot engaged by a pin on the driving-shaft, substantially as specified.

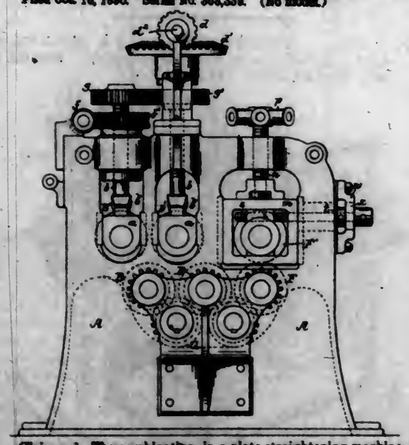
4. The combination, with the frame and the riddle and riffle boxes, of the inclined removable tank having a perforated bottom and provided with a transverse elongated discharge at its lower forward end, substantially as specified.

5. The combination, with the rocking reciprocating riddle-box having the screen and the discharge-opening therein, of the riffle-boxes supported below the riddle-box and having a reverse movement thereto, said boxes being held rigidly but removably together and having their lowest points at the central portion, substantially as specified.

6. The combination, with the frame, of the inclined perforated tank having an elongated transverse discharge-opening at its lower end, the inclined riddle-box underneath said tank, the hopper underneath, a discharge-opening in said box, the oppositely-inclined riffle-boxes rigidly and removably secured together, the rock-shafts having opposite crank-arms connected to the upper and lower portions of a swinging frame, on which said riddle and riffle boxes are supported, the driving-shaft, and the operating-shaft having crank-rods connected to said swinging frame, substantially as specified.

7. The combination, with the main frame, the rock-shafts journaled therein, and the crank-arms of said shafts, of the swinging frames carried by said crank-arms, the riffle-boxes supported in the lower portion of said swinging frame, the riddle-box supported on the upper portion of said frame, the mechanism for operating said crank-shafts, the spring connected at one end to the frame, and the link connecting the other end of said spring to the riddle-box, substantially as specified.

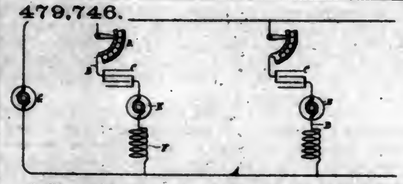
479,745. PLATE-STRAIGHTENING MACHINE. HENRY C. JOHNS, Wilmington, Del., assignor to the Hilles & Jones Company, same place. Filed Oct. 16, 1890. Serial No. 368,339. (No model.)



Claim.—1. The combination, in a plate-straightening machine, of the upper and lower sets of non-reducing straightening-rolls offset so as to act alternately upon the plate with a pair of straight-faced compression and drawing rolls set so as to act simultaneously upon the plate, whereby the length of the plate is extended, substantially as specified.

2. The combination, in a plate-straightening machine, of the upper and lower sets of straightening-rolls with a pair of compression-rolls and means for adjusting one of said rolls both vertically and laterally with respect to the other, substantially as specified.

479,746. ELECTRO-MAGNETIC MOTOR. JOHN F. KELLY, New York, N. Y., and WILLIAM STANLEY, Jr., Pittsfield, Mass. Filed May 28, 1891. Renewed Mar. 5, 1892. Serial No. 423,964. (No model.)

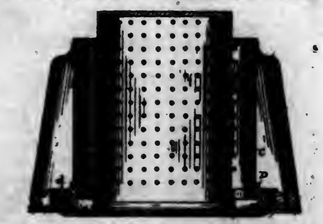


Claim.—1. The combination, with a generator of alternating currents and a motor, both of the elements of which are energized by the directly-impressed electro-motive force of the generator, of a condenser in series with each motor and adapted to neutralize its self-induction, as herein set forth.

2. The combination, with a generator of alternating currents and a series-wound motor or motors connected therewith, of a condenser in series with each motor and of a capacity or value capable of neutralizing the self-induction of the motor with which it is associated.

3. The combination, with a generator of alternating currents and one or more series-wound motors connected therewith, of a condenser in series with each motor and of a capacity or value capable of neutralizing the self-induction of the same, and a variable resistance associated with each motor, adapted to regulate the amount of current passing through said motor, as set forth.

479,747. OIL AND VAPOR BURNER. JOHN A. LAMBERT and WILLIAM B. JEAVONS, Cleveland, Ohio, and WILLIAM H. WILDER, Florence, Mass. Filed Mar. 20, 1892. Serial No. 426,471. (No model.)



Claim.—1. A vapor-burner having combustion-tubes and a hood fixed firmly at its lower end and connected with the top of the outer of said tubes and holding it upon its seat, substantially as described.

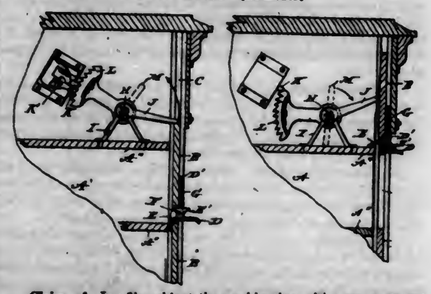
2. A vapor-burner having combustion-tubes, a base for supporting the outer of said tubes, and a hood connecting the said base and the said outer tube, substantially as described.

3. A vapor-burner provided with concentric combustion-tubes and a vapor-bowl, a base for supporting the outer of said tubes, and a hood locked on the said base and the top portion of the outer combustion-tube, substantially as described.

4. In a vapor-burner constructed substantially as described, the base and the outer tube seated thereon, and a hood bent inward at its top and engaging the said tube and locked on the said base at its lower portion, substantially as described.

5. In a vapor-burner of the kind described, the base for supporting the outer tube having a projection about its outside, the hood constructed to engage on the said projection and to hook over the top of the outer tube, and the said outer tube, substantially as described.

479,748. CABINET. WILFRED I. OHMER, Dayton, Ohio. Filed Nov. 27, 1891. Serial No. 413,184. (No model.)



Claim.—1. In a file-cabinet, the combination, with a compartment-case and sets of slidable doors for said compartments, of a rotatable cross-bar mounted adjacent to said doors and adapted to engage with the upper door of each series to lock all the doors in that set, a segment ratchet carried by said rotatable bar and operating in an arc about the center of said bar, and a stop-catch passing said segment with a ratchet

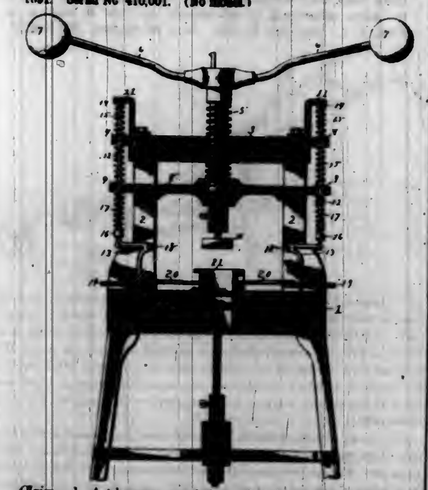
action when the bar is turned downward on the side next to the doors and key-operated to free the segment on a reverse movement of the said bar.

2. In a file-cabinet, the combination, with a compartment-case and sets of slidable doors for said compartments, of a rotatable cross-bar mounted adjacent to said door and having projecting arms to lock said doors down, the said arms being thrown into locking position by rotating the cross-bar by hand toward said door and reversely thrown out of locking position by lifting said doors and remaining in such inoperative position till the bar is again rotated, and key-operated means to secure said bar against said reverse rotation and lock said doors.

3. In a file-cabinet, the combination, with a compartment-casing, slidable doors mounted to close said compartments, and means to lift them and support them in a lifted position, of a rotatable cross-bar adapted to be turned into engagement with the upper door of each series to hold them down, the reverse movement of said bar being effected by raising said doors, and key-operated locking means to prevent said reverse movement of said bar, and thus lock said doors when desired.

4. In a file-cabinet, the combination, with a compartment-casing and slidable doors for said compartments, of intermittent locking means for said doors, consisting of a cross-bar adapted to be rotated by hand to engage with said doors and lock them and reversely rotated out of engagement, ratchet means for said bar, consisting of a ratchet-piece and a key-operated catch therefor, the rotation of said bar into locking engagement with said doors effecting a ratchet action of the said ratchet means till the doors are fully locked, and a reverse rotation of the bar being effected only after operating said ratchet-catch, whereby the doors may slide freely up and down without engagement with the locking mechanism till it is desired to lock said doors.

479,749. TILE-PRESS. ANDERS M. STRANDLAN, Woodbridge, N. J., assignor of one-half to Robert W. Lyle, New York, N. Y. Filed Oct. 27, 1891. Serial No. 410,001. (No model.)



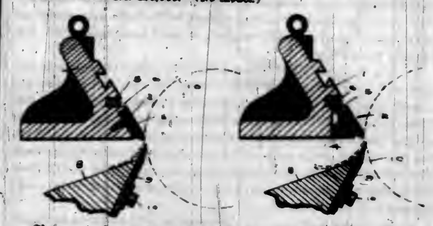
Claim.—1. A tile-press consisting of a descending cross-bar 8, having perforated ends, upright rods 12 12, working through the perforations in cross-bar 8, said rods having their upper ends threaded and provided with the nuts 14 14 and their lower ends provided with the adjustable collars 16 16 and pivoted to the levers 13 13, springs 15 15, working around rods 12 12 between the under face of nuts 14 14 and the upper face of cross-bar 8, springs 17 17, working around rods 12 12 between the under face of cross-bar 8 and the upper faces of collars 16 16, pivoted crank-levers 18 18, the lower ends engaging the bars 19 19, and forks 20 20 secured to the bars 19 19, substantially as shown and described.

2. In a tile-press, the combination, with a movable cross-bar 8, carrying a die thereon, of sliding forks and a spring connection between the forks and the descending cross-bar, substantially as described.

3. In a tile-press, the combination, with a mold, of a movable cross-bar carrying a die thereon, sliding rods, forks projecting into the said mold, crank-levers connecting the said rods and forks, and springs secured to the said rods and bearing on the said cross-head, substantially as described.

4. In a tile-press, the combination, with a mold, of a movable perforated cross-head carrying a die thereon, rods having enlargements thereon passing through the perforations in the said cross-head, springs surrounding the said rods and interposed between the said cross-head and the said enlargements, forks adapted to be projected into the said mold, and crank-levers having their opposite arms connected with the said rods and forks, respectively, substantially as described.

479,750. ADJUSTABLE PRESSURE-BAR FOR VENEER-CUTTING MACHINES. MARSHALL D. WILLIAMSON, Indianapolis, Ind., assignor to Geo. P. Adams and Marshall D. Williamson, same place. Filed Feb. 6, 1892. Serial No. 420,609. (No model.)



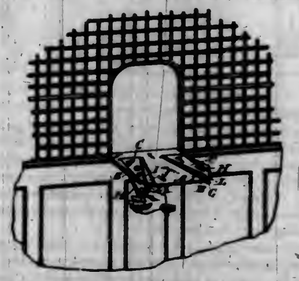
Claim.—1. In a veneer-cutting machine, a pressure-bar secured to the cap thereof by screws, and bolts provided with tapered heads seated in such cap, such heads adapted to come in contact with the pressure-bar, whereby it is adjustable, in combination with a cutting-knife secured to the bed-plate of the machine, substantially as shown and described.

2. In a veneer-cutting machine, a pressure-bar secured to the cap thereof and adjustable in relation to the edge of the knife by means of bolts seated in such cap, such bolts provided with tapered heads adapted to bear against the under side of the pressure-bar, in combination with a cutting-knife secured to the bed-plate of the machine, substantially as shown and described.

3. In a veneer-cutting machine, a cap having a pressure-bar secured to the face thereof by set-screws, recesses formed in the rear of such bar, and bolts seated in the cap, their beveled heads within such recesses and bearing against the under side of the pressure-bar, whereby the latter may be laterally adjusted, in combination with a cutting-knife secured to the bed-plate of the machine, substantially as shown and described.

4. In a veneer-cutting machine, a cap having a pressure-bar attached to its face by means of screws, recesses formed in the cap between such screws, and bolts seated in the cap and provided with beveled heads, the latter working within such recesses, the beveled heads of such bolts bearing against the under side of the pressure-bar, whereby the latter may be adjusted in relation to the edge of the knife-blade, in combination with a cutting-knife secured to the bed-plate of the machine, substantially as shown and described.

479,751. CHANGE-RECEIVER. CELESTIN BERGERON, New York, N. Y. Filed Oct. 1, 1891. Serial No. 407,365. (No model.)



Claim.—1. A change-receiver comprising a pivot, a chute hung on said pivot and extending at angles therefrom, a spring pressing on the said chute to hold the same in flush with the change-table, and flanges held on the sides of the said chute and diverging rearwardly from the free end of the chute toward the pivot, substantially as shown and described.

2. In a change-receiver, the combination, with a change-table provided in its top with an opening, of a chute fitting into the said opening, a pivot for the said chute and held on the said change-table, the said pivot extending at angles to the chute, a spring pressing on the said chute to hold the same flush with the change-table, and flanges

held on the sides of the said chute and diverging rearwardly from the free end of the chute toward the pivot, substantially as shown and described.

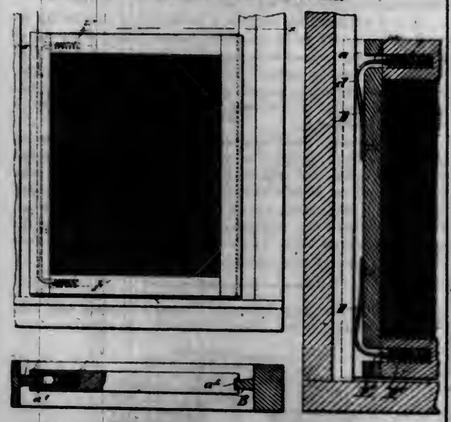
3. In a change-receiver, the combination, with a change-table provided with an opening, of a chute fitting into said opening and pivoted to the said change-table, a spring pressing on the under side of the said chute to hold the same flush with the change-table, but to permit of its being depressed, and a finger-piece held on the said chute, substantially as described.

4. In a change-receiver, the combination, with a change-table provided with an opening, of a chute fitting into the said opening and pivoted to the said change-table, a spring pressing on the under side of the said chute to hold the same flush with the change-table, but to permit of its being depressed, a finger-piece held on the said chute, and flanges held on the sides of the said chute and extending upward, substantially as described.

5. In a change-receiver, the combination, with a change-table provided with an opening, of a chute fitting into the said opening and pivoted to the said change-table, a spring pressing on the under side of the said chute to hold the same flush with the change-table, but to permit of its being depressed, a finger-piece held on the said chute, flanges arranged on the sides of the said chute and extending upward, and stops held on the said change-table and serving to limit the upward and downward swinging motion of the said chute, substantially as shown and described.

6. In a change-receiver, the combination, with a change-table provided with an opening, of a chute fitting into the said opening and pivoted to the said change-table, a spring pressing on the under side of the said chute to hold the same flush with the change-table, but to permit of its being depressed, a finger-piece held on the said chute, flanges arranged on the sides of the said chute and extending upward, and a flange forming a guide for the said chute and formed on the under side of the said change-table, substantially as shown and described.

479,752. WINDOW-SCREEN. WILLARD E. COBB, Portland, Me. Filed Dec. 15, 1891. Serial No. 415,087. (No model.)



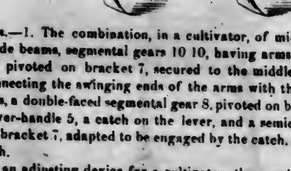
Claim.—1. The combination, with a window-screen frame having a vertical groove in one of its side edges and transverse recesses extending from the inner or bottom wall of said groove, of plate-springs secured at one end to the frame within the groove and bent to extend at their opposite ends into the transverse recesses, spiral springs housed within the said recesses and engaging the inwardly-bent ends of the plate-springs, the latter forming an efficient contact-surface, and the protected spiral springs serving to force the plate-springs outward at all times, substantially as described.

2. The combination, with a window screen frame having vertical grooves in its side edges and transverse recesses extending from the grooves into the frame, of plate springs secured in the grooves and formed with an outward bend and inbent at one end, the extreme end being formed with dovetail or undercut projections, and spiral springs housed in the recesses mentioned and engaging the dovetail projections of the plate springs, substantially as described.

479,753. SECONDARY BATTERY. ARTHUR E. COLLATZ, New York, N. Y., assignor of one-half to Lowell Mason, same place. Filed Apr. 26, 1892. Serial No. 430,717. (No model.)

Claim.—1. A plate for secondary batteries, consisting of an assemblage of strands composed of flat strips or ribbons of lead twisted in the manner described.

2. A plate for secondary batteries, consisting of an assemblage of strands composed of flat strips or ribbons of lead, corrugated and twisted in the manner described.



3. A plate for secondary batteries, consisting of an assemblage of strands composed of lead strips perforated and twisted, as described.

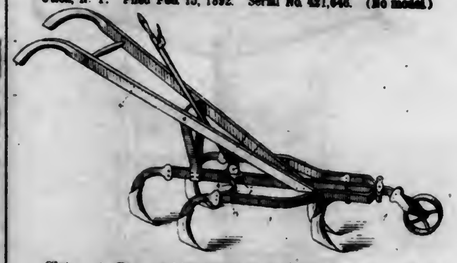
4. A plate for secondary batteries, consisting of an assemblage of strands composed of lead strips perforated, corrugated, and twisted, as set forth.

5. A plate for secondary batteries, consisting of a woven lead fabric, the strands of which are composed of lead strips perforated, corrugated, and twisted, as set forth.

6. The combination, with a lead frame provided with a terminal, of a woven fabric of perforated, corrugated, and twisted lead strands contained within said frame and having its edges fused to the same, as set forth.

7. The combination, with two or more secondary-battery plates composed of lead frames surrounding a woven lead fabric, of interposed corrugated insulating-frames for separating the plates and permitting the circulation of the electrolyte between them, as set forth.

479,754. ADJUSTING DEVICE FOR CULTIVATORS. HENRY H. DURR, Utica, and HENRY D. BABCOCK, Leonardsville, assignors, by direct and mesne assignments, to said Babcock, and Chas. H. Childs & Co., Utica, N. Y. Filed Feb. 15, 1892. Serial No. 421,646. (No model.)



Claim.—1. The combination, in a cultivator, of middle and adjustable side beams, segmental gears 10 10, having arms 9 9, respectively, and pivoted on bracket 7, secured to the middle beam, links 13 13, connecting the swinging ends of the arms with the adjustable side beams, a double-faced segmental gear 8, pivoted on bracket 7 and having lever-handle 5, a catch on the lever, and a semicircular rack 16 on the bracket 7, adapted to be engaged by the catch, substantially as set forth.

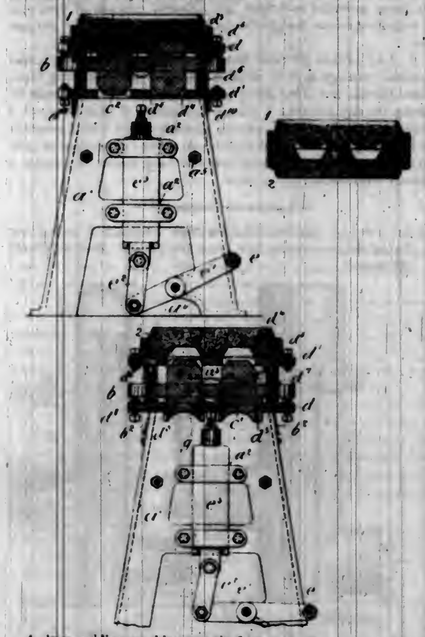
2. In an adjusting device for a cultivator, the combination of a pair of swinging arms pivotally connected with a beam of the cultivator and lying in the same plane with the beams, each arm provided with a segmental gear concentric with the pivotal point thereof, links connecting the swinging ends of the arms with the adjustable beams of the cultivator, a vertical pivoted segmental gear meshing with the two gears of the arms, an operating lever connecting with the vertical pivoted sector, a catch on the lever, and a rack adapted to be engaged by the catch, substantially as set forth.

479,755. MOLDING-MACHINE. WILLIAM EVANS, Philadelphia, Pa. Filed Oct. 20, 1891. Serial No. 410,171. (No model.)

Claim.—1. A molding-machine provided with a rotatable pattern-carrying plate, templets carried by the rotatable pattern-plate and afforded a range of play transversely thereof, and reciprocating mechanism arranged in position to act on one of the templets and shift both of them relative to the pattern-plate, substantially as and for the purposes set forth.

2. A molding-machine provided with a rotatable pattern-plate, templets rigidly connected together by distance-pieces working in apertures in the pattern-plate, and reciprocating mechanism arranged in position to act on one of the templets and shift both of them relative to the pattern-plate, substantially as and for the purposes set forth

3. In a molding-machine, a rotatable pattern carrying plate having a pattern extending through the same and projecting from the respective faces thereof, templets located on opposite sides of said pattern carrying plate, distance-pieces working in apertures in said pattern-carrying plate and rigidly connected at the respective extremities thereof with said templets, and means engaging one of said templets to shift the other templet with relation to its corresponding pattern, substantially as and for the purposes set forth.



4. In a molding-machine, a main frame, a pattern-carrying plate journaled in said frame and provided with lugs adapted to contact with said frame, templets rigidly connected together and afforded a range of play transversely of said pattern-carrying plate, and catches for locking said lug in contact with said frame, substantially as and for the purposes set forth.

5. A molding-machine comprising a main frame provided with travelers and complemental treadle mechanism for reciprocating said travelers, a pattern-carrying plate journaled to said frame, and templets rigidly connected together and afforded a range of play transversely of the pattern-plate, the construction being such that one of said templets is shifted into range of the travelers by the rotation of the pattern-carrying plate, substantially as and for the purposes set forth.

6. A molding-machine comprising a main frame provided with travelers and complemental treadle mechanism for reciprocating said travelers, a pattern-carrying plate journaled to said frame, templets rigidly connected together and afforded a range of play transversely of said pattern-plate, and adjusting-screws engaging said travelers and having their heads in range of one of said templets, substantially as and for the purposes set forth.

7. A molding-machine provided with a rotatable pattern-carrying plate having portions of the pattern projecting from the respective faces thereof, templets located on opposite sides of said pattern-carrying plate and having openings corresponding, respectively, with the contour of the adjacent portions of the patterns, distance pieces working in apertures in said pattern-carrying plate and connected with said templets, screw-bolts extending through said templets and adapted to contact with said pattern-carrying plate, and means for shifting said templets with relation to said pattern-carrying plate, substantially as and for the purposes set forth.

479,756. COMBINED POCKET-LIGHTER AND MATCH-SAFE. ANDREW J. FREDERICKS, Grand Rapids, Mich., assignor of one-half to John Tournell, same place. Filed Feb. 26, 1891. Serial No. 382,912. (No model.)

Claim.—1. The combination of a short cylinder having one head attached, an opposite head having an annular flange provided with L-shaped channels in its outer surface, and lugs projecting from the inner surface of said cylinder and engaging said channels, substantially as described.

2. The combination of a cylinder having one head attached, an opposite head having an annular flange, L-shaped channels in said flange, lugs on said cylinder engaging said channels, openings in the side of said cylinder and flange, and a spring and lighter adjacent to said openings, substantially as described.



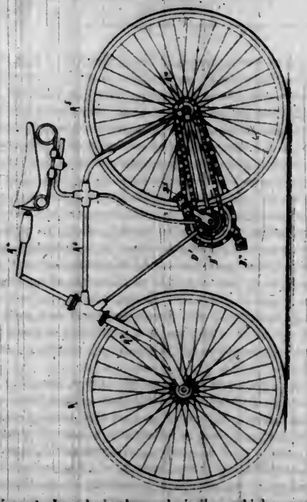
3. The combination of a case having an opening in the side thereof, a lighter near said opening, openings each side of said lighter, a chamber beneath the same, and a spring adapted to press against said lighter, substantially as described.

4. The combination of a case having an opening in the side thereof, a lighter near said opening, openings at each side of and a chamber beneath the same, a spring pressing upon the same, and a stop-hook near the same, substantially as described.

5. The combination of a cylindrical case having an opening in its side, a spring opposite said opening, and lugs on its inner surface, an annular flange adapted to rotate within said case having an opening in its side, a lighter attached near said opening, and circumferential channels with the ends of which said lugs engage, substantially as described.

6. The combination of a cylindrical case having an opening in its side and one head attached, a spring opposite said opening, a stop-hook at one side of the same, and lugs on its inner surface, an opposite head having an annular flange having an opening, and a lighter attached near said opening, adapted to engage said spring, L-shaped channels in the surface of said flange, having concave seats and engaging said lugs, substantially as described.

479,757. BICYCLE. WALTER L. FRUEN, Minneapolis, Minn., assignor of one-third to William H. Fruen, same place. Filed Sept. 15, 1891. Serial No. 405,772. (No model.)



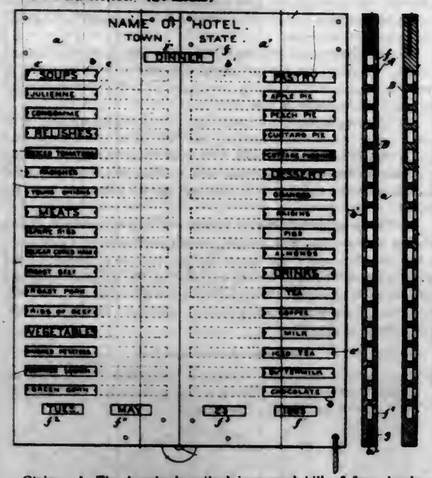
Claim.—1. In velocipedes and similar vehicles, a shaft having oppositely-connected pedals, a traction-wheel, two independent sets of gearing connecting said pedal-shaft with the axle of said traction-wheel, and two clutches connected together and adapted to be engaged with and disengaged from said gearing by the act of holding the pedals in different positions.

2. In velocipedes and similar vehicles, a shaft having oppositely-connected pedals, a traction-wheel having two chain-wheels upon its axle, two chain-wheels loose upon said pedal-shaft and with clutch members upon or connected thereto and connected to the chain-wheels

upon said axle by chains, and two clutch members connected together and adapted to be engaged with or disengaged from either of the clutch members of said chain-wheels by holding the pedal-shaft in different positions.

3. In velocipedes and similar vehicles, a shaft having oppositely-connected pedals, a traction-wheel having two chain-wheels upon its axle, two chain-wheels loose upon said pedal-shaft and with clutch members upon or connected thereto and connected to the chain-wheels upon said axle by chains, and two clutch members connected together and adapted to be engaged with or disengaged from either of the clutch members of said chain-wheels by holding the pedal-shaft in different positions, the teeth of said clutch members being undercut in opposite relations to cause them to retain their engaged relations, substantially as and for the purpose set forth.

479,758. BILL OF FARE. JOHN A. GUNN, Spearfish, S. D., assignor of one-half to Abraham L. Maxim and Ivor L. Brind, Omaha, Nebr., and Daniel C. Dwinnell, Spearfish, S. D. Filed Sept. 14, 1891. Serial No. 405,668. (No model.)



Claim.—1. The herein-described improved bill of fare, having front and back boards provided each with a column of openings, the openings of one column being contiguous with the openings of the adjacent columns, and one or more series of indicating-blocks having corresponding names or marks on its opposite sides and capable of being moved from the openings of one column to the openings of the next adjacent column, and thus being visible on the other side of the bill of fare and concealed from view on the side at which first visible, and a pivoted bar or arm adjacent to one of said columns of openings for limiting the movement of said blocks in one direction, as set forth.

2. The herein-described bill of fare, composed of two parts or sections pivotally connected together at their lower meeting edges and capable of being locked together and having front and back boards, said front boards being provided with two columns of openings adjacent to their longitudinal edges and said back boards with two columns of openings adjacent to the said meeting edges of said parts or sections, and two series of indicating-blocks normally exposed to view through the said columns of openings in said front boards, substantially as set forth.

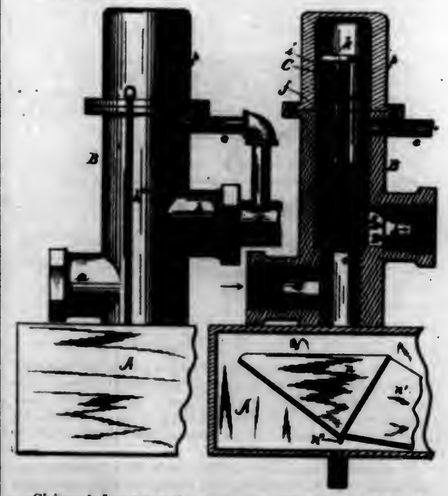
3. The herein-described improved bill of fare, composed of two parts or sections pivotally connected together at their lower meeting edges, a pivoted bar or arm located between said meeting edges, each of said parts or sections having an outer front column of openings and an inner back column of openings contiguous with said former columns of openings, and indicating-blocks capable of being moved from one column of openings to the other or adjacent column, the blocks of one part or section being held in place by said bar or arm while the blocks are being placed in the other part or section, substantially as set forth.

4. The herein-described improved bill of fare, composed of two parts or sections pivotally connected together at their lower meeting edges, a pivoted bar or arm located between said meeting edges, each of said parts or sections having an outer front column of openings and an inner back column of openings contiguous with said former columns of openings, indicating-blocks capable of being moved from one column of openings to the other or adjacent column, the blocks of one part or section being held in place by said bar or arm while the blocks are being placed in the other part or section, and a spring-catch projecting from one of said parts or sections for engaging and locking the other part or section, substantially as set forth.

5. The herein-described improved bill of fare, composed of two parts or sections having each front and back boards with an intervening space, the hinge pivotally connecting said parts or sections together at their lower meeting edges, an arm extending from one of said parts or sections, and a plate-spring secured thereto and designed to engage a shoulder of the other part or sections, said parts or sections being provided each with two adjacent columns of openings, and indicating-blocks designed to be operated as and for the purpose stated.

6. A bill-of-fare indicator formed in sections and having upper coincident openings at their meeting edges, a meal-indicating block located therein, and lower series of openings with blocks therein indicating the day and date, a column or columns of front openings, a column or columns of back openings adjacent to said former openings, and indicating-blocks located in said front column or columns of openings and capable of being moved into said back column or columns of openings, substantially as set forth.

479,759. PROPORTIONAL METER. WILLIAM D. HAWLEY and SILAS J. HOBAN, Syracuse, N. Y. Filed Aug. 31, 1891. Serial No. 404,259. (No model.)



Claim.—1. In a meter, the combination, with the meter-body provided with induction and eduction ports and the main valve seated therein and normally closing the eduction-port and provided with a vertical stem and an arm upon its upper end, of a separate valve-chamber supported within the meter-body above the main valve and provided with induction and eduction ports and piping connected therewith and a valve in said chamber connected to the arm upon the main-valve stem.

2. In a meter, the combination, with the meter-body provided with induction and eduction ports and the main valve seated therein and normally closing the eduction-port and provided with a vertical stem and an arm upon its upper end, of a separate valve-chamber supported within the meter-body above the main valve and provided with induction and eduction ports and piping connected therewith and a valve in said chamber connected to the arm upon the main-valve stem and means for measuring the discharge from the latter valve-chamber.

3. In a meter, the combination, with the meter-body provided with eduction and induction ports and the valves therein, of a pipe connecting the eduction-pipe with the chamber in the body above the main valve.

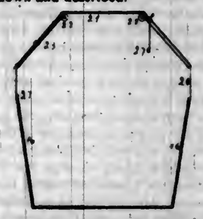
4. In a meter, the combination, with the main valve operated to open and close a rectangular eduction-port, of an auxiliary valve connected to and simultaneously operated by the main valve to open and close another eduction-port from the auxiliary-valve chamber, an inlet-pipe thereto, and an eduction-pipe therefrom, and tilting buckets receiving the discharge from the latter eduction-pipe, as and for the purpose set forth.

479,760. ASH-CART. DANIEL M. HOLMES, Arlington, N. J. Filed Oct. 30, 1891. Serial No. 410,312. (No model.)

Claim.—1. The combination of a cart supporting and inclosing

frame mounted upon an axle, said frame having upwardly-projecting stops at each side thereof, and a cart-body supported within said frame at the front and upon rocking trunnions secured to the sides of the body, as set forth, whereby when the body is tilted the trunnions will rock backward in a fixed course upon the sides of the body inclosing the frame, substantially as shown and described.

2. The combination, with a cart-body having a closed top, of curtains mounted upon spring-rollers and forming a portion of said top, substantially as shown and described.



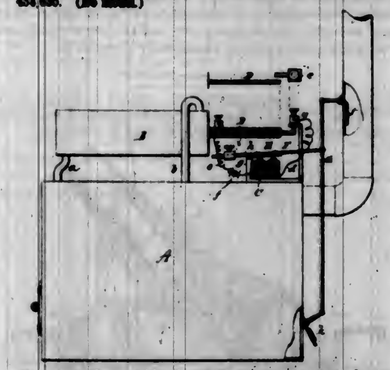
3. In a cart-body of the character herein specified, the combination, with the fixed portions of the top of the body, of curtains mounted upon spring-rollers, said curtains being held in place and arranged to operate substantially as shown and described.

4. In a running-gear and supporting-frame for carts, shafts secured to a cross-piece, downwardly and backwardly extending bars connected to the cross-piece and shafts and to a bent axle, and brace-bars extending from the shafts around the cross-piece to which the shafts are connected and thence to the axle near the wheels, the whole combined and arranged substantially as shown and described.

5. A running-gear and support for cart-bodies, in which is comprised a bent axle, braces passing from the highest parts of the axle to the sides of the shafts, a cross-piece and shafts secured thereto, bars extending from the shafts and cross-pieces downward and then backward to the depressed portion of the axle, and braces passing from the lower sides of the shafts to said bars, the whole combined and arranged substantially as shown and described.

6. The combination, with the cart-body and the supporting-axle, of stop-hooks upon the body, adapted and arranged to bear against the axle and pass thereabeneath when the body is tipped, substantially as shown and described.

479,761. TEMPERATURE-REGULATOR. WASHINGTON H. KILBOURN, Greenfield, Mass., assignor to Albert J. Smart and J. E. Hubbard, same place. Filed May 13, 1891. Renewed June 30, 1892. Serial No. 438,695. (No model.)

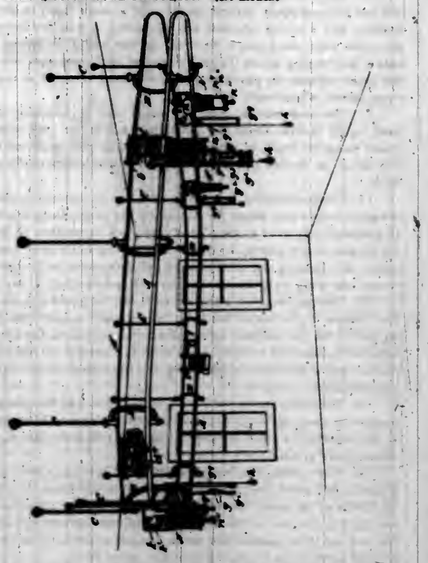


Claim.—1. The combination, with a water-heater and a tank or radiator connected therewith, of a thermostat-bar extending into and projecting beyond the tank or radiator, an electro-magnet, an electric circuit including the thermostat-bar, the electro-magnets and a contact, and dampers connected with the armature of said electro-magnet, so that when the electric circuit is opened or closed by the thermostat-bar one of said dampers will be open and the other closed, substantially as set forth.

2. The combination, with a water heater and a tank or radiator connected therewith, of a thermostat-bar extending into and beyond the tank or radiator, an electro-magnet, an electric circuit including said electro-magnet, a contact, and the thermostat-bar, a rod or bar secured to the armature of said electro-magnet, a rod connected at a point between its ends to the end of said rod or bar, and dampers connected to the ends of said rod, substantially as set forth.

3. The combination, with a furnace, a water-tank or radiator, a smoke-pipe, and doors or dampers in the smoke-pipe and furnace, of a thermostat-bar extending into and beyond the tank or radiator, an electro-magnet, an electric circuit including said electro-magnet, a contact, and the thermostat-bar, a rod or bar secured to the armature of the electro-magnet, and a rod connected at a point between its ends to the end of said rod or bar, said rod being connected at one end to the damper of the furnace and at the other end to the damper in the smoke-pipe, substantially as set forth.

479,762. CASH-CARRIER APPARATUS. MARY A. B. LIVERMORE, Providence, R. I., executrix of Charles W. Livermore, deceased, assignor to the Kenney Electrical Cash Carrier Company, Portland, Me. Filed June 4, 1890. Serial No. 354,259. (No model.)



Claim.—1. In a cash-carrier apparatus, the combination, with a track and a pouch supported near the track, of a carriage adapted to move along the track, the said carriage being provided with a pair of parallel bars located upon the side thereof and extending in the direction of the movement of the carriage in position to engage the supported pouch, substantially as set forth.

2. In a cash-carrier apparatus, the combination, with a track, a pouch-support near the track, and a pouch, of a stop upon the opposite side of the track to release a pouch and a carriage adapted to move along the track, the said carriage being provided upon each of its opposite sides with a pouch collector and distributer, the said collector and distributer extending longitudinally in the direction of the path of movement of the carriage and having vertically-separated bearings for engaging the pouches and preventing them from swaying laterally, substantially as set forth.

3. In a cash-carrier apparatus, the combination, with a carriage having a collector and distributer bar secured thereto, of a stop seated in the bar and having a reciprocatory sliding movement transversely thereto and a lever for operating the stop, substantially as set forth.

4. In a cash-carrier apparatus, the combination, with a carriage having a collector and distributer bar secured thereto, of a stop seated in the bar and having a reciprocatory movement transversely thereto and a lever fulcrumed to the bar and loosely connected with the stop to operate it, substantially as set forth.

5. The combination, with the collector and distributer bar, of a stop seated therein and having a reciprocatory sliding movement transversely to the bar and means for applying friction to the stop to hold it in the desired adjustments, substantially as set forth.

6. The combination, with the collector and distributer bar, of a stop seated therein and having a reciprocatory movement transversely to the bar, the stop being held in its adjustment by friction, and a device for regulating the friction of the stop, substantially as specified.

7. The combination, with the pouch-support at the side of the track, the collector and distributer on the carriage, and the grasping device at the opposite side of the track, of the pouch separable from the support, carriage, and grasping device and provided with separate

retaining devices corresponding, respectively, to the said support, collector and distributer, and grasping device, substantially as set forth.

8. The combination, with the pouch-support at the side of the track, the collector and distributer on the carriage, and the grasping device at the opposite side of the track, of the pouch provided with an attachment, from which the receptacle portion of the pouch is suspended, the said attachment comprising a device to engage the support at the side of the track, a device to engage the collector and distributer and a device to engage the said grasping device, substantially as specified.

9. The combination, with the pouch provided with its attachment for supporting it, of a pouch-supporting bar and a guide located over the bar and spaced therefrom for preventing the improper suspension of the pouch, substantially as specified.

10. The combination, with the bracket adapted to rise and fall and the pouch-support carried thereby, of a catch fixed to the said bracket, and a spring-actuated arm supported in position to engage the catch when the pouch is elevated, the free end of the spring-actuated arm extending across the path traversed by the carriage, whereby the latter releases the pouch-support and allows it to fall as the carriage passes, substantially as set forth.

11. The combination, with the pouch and its releasing-tongue fixed rigidly thereto above the pouch and means for conveying the pouch along the track, of grasping-jaws fixed at the side of the track in position to receive the tongue on the pouch, substantially as set forth.

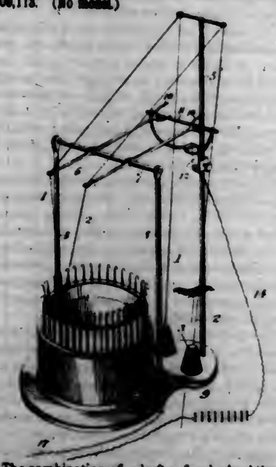
12. The combination, with the pouch and its laterally-projecting releasing-tongue and means for conveying the pouch along the track, of grasping-jaws fixed at the side of the track in position to receive the tongue on the pouch, one of the jaws having an inclined face, and means for adjusting the jaws toward and away from each other and toward and away from the plane of the rails, substantially as set forth.

13. The combination, with the track and the pouch-grasping device located at the side of the track, of a pocket beneath the grasping device for the reception of the pouch, the pocket having a spring-actuated bottom free to move away from and toward the body of the pocket, and guide-rods for directing the movement of the bottom, substantially as set forth.

14. The combination, with the grasping-jaws and the track, of a support for the grasping-jaws fixed rigidly to the upper and lower rails of the track and a receiving-pocket suspended from the said support, substantially as set forth.

15. The combination, with the track, the carriage provided with a distributer, and a reciprocating stop on the distributer, of a grasping device at the side of the track and inclines located at points along the track in the path of the stop, one of the inclines tending to throw the stop out of the path of the pouch and the other to throw the stop into the path of the pouch, substantially as set forth.

479,763. STOP-MOTION FOR KNITTING-MACHINES. GEORGE J. MANDERFIELD, Royer's Ford, Pa., assignor of one-half to J. M. Lewin, Samuel Lewin, W. S. G. Finkbiner, and A. R. Saylor. Filed Oct. 19, 1891. Serial No. 408,113. (No model.)



Claim.—1. The combination of a shaft, a fixed wheel thereon having a notched rim, a driving-wheel loose upon the shaft and having a tooth to engage the notched rim of the fixed wheel, a spring encircling the shaft and holding the wheels normally apart, a cam projection on the bearing for the shaft, and a cam-shaped lever working between the bearing and the hub of the loose wheel, substantially as described.

2. The combination of a shaft, a fixed wheel thereon, a loose wheel thereon, a spring encircling the shaft between the wheels and holding them normally apart, a cam-shaped projection on the shaft-bearing nearest the loose wheel, a pivoted lever having a cam-surface co-operating with the cam on the shaft-bearing, and a spring encircling the pivot-pin of the lever and holding the latter up to the cam on the bearing, substantially as described.

3. In a stop-motion for knitting-machines and the like, the combination of an operating-shaft, a drive-wheel normally loose thereon, a wheel fixed on the shaft and adapted to be engaged with the loose wheel, a cam-shaped lever for forcing and holding the wheels together, a spring-catch for holding the lever up to its work, a weight arranged to strike and release the spring-catch, a guide through which the yarn passes, and an electric circuit, including the guide and the mechanism for dropping the weight, substantially as described.

4. The combination of a shaft, a wheel fixed thereon and having notches, a driving-wheel normally loose on the shaft, a spring encircling the shaft between the wheels and holding them normally apart, a weighted cam-shaped lever for forcing and holding the wheels together, and a spring-catch for holding the lever up to its work, substantially as described.

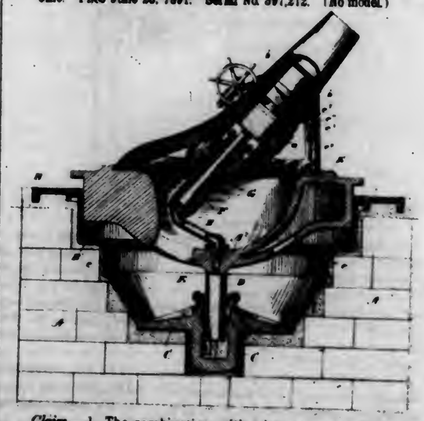
5. The combination of a shaft, a wheel fixed thereon, a driving-wheel loose thereon, a spring encircling the shaft between the wheels and holding them normally apart, a cam on the shaft-bearing adjacent to the loose wheel, and a wedge-shaped cam working between the bearing and the loose wheel for causing it to engage the fixed wheel, substantially as described.

6. The combination of a shaft, a wheel fixed thereon, a driving-wheel loose thereon, a spring encircling the shaft between the wheels, a cam on the shaft-bearing adjacent to the loose wheel, a pivoted lever having a wedge-shaped cam and adapted to work between the shaft-bearing cam and the loose wheel, and a catch for holding the lever up to its work, substantially as described.

7. The combination of a shaft, a wheel fixed thereon, a drive-wheel loose thereon, a spring encircling the shaft between the wheels, a cam on the shaft-bearing adjacent to the loose wheel, a pivoted lever having a wedge-shaped cam and adapted to work between the shaft-bearing cam and the loose wheel, and a catch for holding the lever up to its work, the lever being weighted to fall upon the release of the catch, substantially as described.

8. In a stop-motion for knitting-machines and the like, the combination of an operating-shaft, a drive-wheel normally loose thereon, a fixed wheel on the shaft, a spring interposed between the wheels and holding them normally apart, a weighted cam-shaped lever for forcing the wheels together and holding them in engagement, a spring-catch for holding the lever up to its work, a weighted trip-arm for the catch, a magnet whose armature is arranged to hold the trip-arm elevated, a guide through which the yarn passes, and an electric circuit including the guide and the magnet, substantially as described.

479,764. MORTAR-MOUNTING. THOMAS R. MORGAN, Sr., JOHN R. MORGAN, THOMAS R. MORGAN, Jr., and WILLIAM H. MORGAN, Alliance, Ohio. Filed June 23, 1891. Serial No. 397,212. (No model.)



Claim.—1. The combination, with a base or support, a carriage resting thereon, a gun, upper plungers supporting the gun and adapted to be moved by the recoil thereof, and hydraulic cylinders in which said upper plungers move, of a cylinder and plunger located below the carriage, and fluid passage-ways between the upper and lower cylinders, substantially as set forth.

2. The combination, with a base or support, a carriage resting thereon, and a gun mounted on the carriage, the said gun being normally above the base or support and the said carriage being laterally supported at all times by the base, of means for elevating the carriage, and devices for turning the carriage while thus elevated.

3. The combination, with a base or support, a carriage normally resting thereon, a gun, upper plungers supporting the gun, and hydraulic cylinders in which said upper plungers move, of a cylinder and plunger located below the carriage and adapted to support same when in an elevated position, the said last-mentioned cylinder adapted to receive the fluid displaced by the upper plungers for elevating the carriage, substantially as set forth.

4. The combination, with a carriage, a gun located thereon, upper plungers for supporting the gun and adapted to be actuated by the recoil of the gun, and hydraulic cylinders in which said upper plungers move, of a cylinder and plunger located below the carriage, fluid passage-ways between the upper and lower cylinders, and a check-valve in said passage-way for preventing a return of the fluid to the upper cylinders, substantially as set forth.

5. The combination, with a carriage, a gun located thereon, upper plungers in operative connection with said gun and adapted to be actuated by the recoil of the gun, and hydraulic cylinders in which said upper plungers move, of a cylinder and a plunger located below the carriage, fluid passage-ways between the upper and lower cylinders, a check-valve in said passage-way for preventing a return of the fluid to the upper cylinders, a by-pass pipe or shunt around said valve, and a valve in said by-pass or shunt, substantially as set forth.

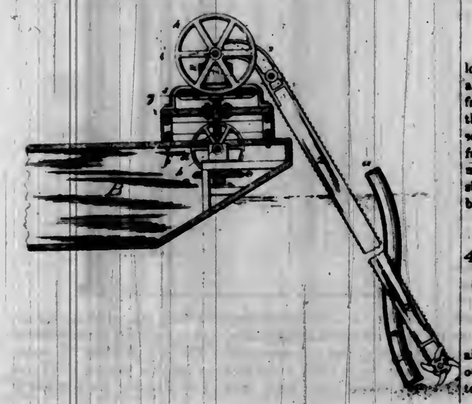
6. The combination of a gun-carriage carrying cylinders, plungers actuated by the recoil of the gun, and a cylinder and plunger located below the carriage, the said cylinders having therein a fluid under pressure and so connected that when the plungers which are actuated by the recoil of the gun are forced into their cylinders the fluid in said cylinders is forced into the lower cylinder and the carriage elevated above its seat, and when the lower cylinder is opened for the escape of the fluid therein the weight of the elevated carriage forces the fluid in said lower cylinder into the upper cylinders, thereby elevating the gun, substantially as set forth.

7. The combination, with a ring having an inwardly-projecting horizontal flange, of a gun-carriage seated within the ring and resting on the flange, a cylinder and plunger located below the carriage, and means actuated by the recoil of the gun for forcing a liquid into the cylinder, substantially as set forth.

8. The combination, with a gun-carriage and a support therefor, of a hydraulic cylinder and plunger located below the carriage, hydraulic devices supporting the gun and adapted to receive the force of the recoil, and passage-ways between the hydraulic devices which receive the force of the recoil, and the hydraulic cylinder below the carriage, whereby the fluid which receives the impact is forced into the cylinder below the carriage and elevates said carriage above its support, substantially as set forth.

479,765. DREDGING-PUMP. JOHN D. MCRAE, Baldwinsville, N. Y. Filed Jan. 2, 1892. Serial No. 416,784. (No model.)

Claim.—1. A frame, a stationary vertical post, a sleeve thereon, wings upon the sleeve, upon which the frame is pivoted, stirrers secured upon a shaft journaled in said frame, and means to rotate said stirrers, in combination.



2. A drive-shaft and gear, a vertical shaft, bevel-gears upon said shaft, engaging with each other, a horizontal shaft, bevel-gears upon the latter and upon said vertical shaft, engaging with each other, and sprockets upon the horizontal shaft, a frame, a shaft journaled therein and provided with sprocket-gears, belting connecting said gearing and leading to and driving a shaft in the lower end of said frame to rotate the stirrers thereon, and a suction-pipe supported by the frame carrying the stirrers, in combination, as set forth.

3. The combination, with the pump and its suction-pipe, of a frame to which the pipe is connected, a shaft across the lower end of said frame, a pivot-post, a sleeve around it and wings upon said sleeve, upon which the frame is hinged, a stirring apparatus upon said frame, and gearing and belting leading from a source of power to and actuating the stirring apparatus.

479,766. WINDOW-SHADE FIXTURE. JUDSON C. PERKINS, Meriden, Conn., assignor to the Meriden Curtain Fixture Company, same place. Filed Jan. 31, 1891. Serial No. 379,760. (No model.)



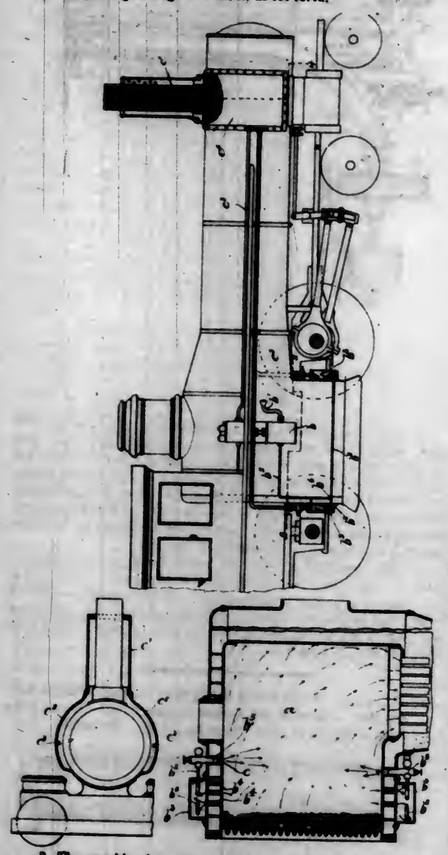
Claim.—In a window-shade fixture, the combination of the following-named instrumentalities, viz: a shade roller suitably mounted, a shade attached to and adapted to be wound upon and unwound from said roller, a roller-locking mechanism thrown into and out of the roller-locking condition by the action upon it of the shade, and some suitable stationary part—such, for instance, as the window-frame—or some fixture thereon with which the said roller-locking mechanism is caused to engage by the action on the latter of the shade, the combination being and operating substantially as hereinbefore described, for the purpose set forth.

479,767. SMOKE-CONSUMING APPARATUS FOR BOILER AND OTHER FURNACES. WESLEY SMITH, Toledo, Ohio, assignor, by direct and mesne assignments, to Charles W. Morris, Jr., trustee, and Charles W. Morris, Boston, Mass. Filed Mar. 10, 1892. Serial No. 424,285. (No model.)

Claim.—1. The combination, with a furnace or fire-box, of an air-compressor, a conduit connecting said compressor with the interior of the fire-box, and a secondary air-conduit arranged to conduct external air to the delivering end of the compressed-air conduit, said

secondary conduit being arranged to subject the air passing through it to heat, as set forth.

2. The combination, with a furnace or fire-box, of an air-compressor, a conduit connecting said compressor with the interior of the fire-box and arranged to subject the air passing through it to heat, and a secondary air-conduit adapted to conduct external air to the delivering end of the compressed-air conduit and arranged to subject the air passing through it to heat, as set forth.



3. The combination, with a fire-box or furnace, of an injector comprising an inner and an outer nozzle, air-conduits connected with said nozzles and arranged to heat the air passing through them, and an air-compressor connected with the conduit communicating with the inner nozzle, as set forth.

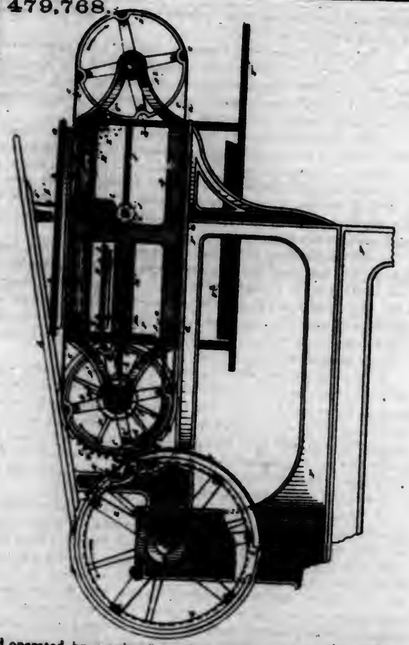
479,768. COMBINED PAPER-FOLDING AND SHEET-DELIVERING MECHANISM FOR PRINTING-PRESSES. JOHN H. STONEMETZ, Erie, Pa. Filed Jan. 2, 1886. Serial No. 187,371. (No model.)

Claim.—1. The combination, with a printing-press, of a paper-folding machine provided with a set of conveyer-tapes, bands, or chains having sheet-grippers thereon and adapted to convey sheets from the press into and over and beyond the folder, and two sets of gripper-trippers, one of which is adapted to be adjusted to open the grippers and release the sheet over the first set of folding-rolls and the other to open the grippers and release the sheet after it has passed over the folder, substantially as and for the purpose set forth.

2. The combination, in a paper-folding machine, of conveyer-tape wheel at each end of said machine with conveyer-tapes having grippers thereon, said tapes operating on said tape-wheels and passing over the folder in one direction and back under the folder in the other, and gripper-tripping mechanism for opening the grippers and releasing the sheet, substantially as and for the purpose set forth.

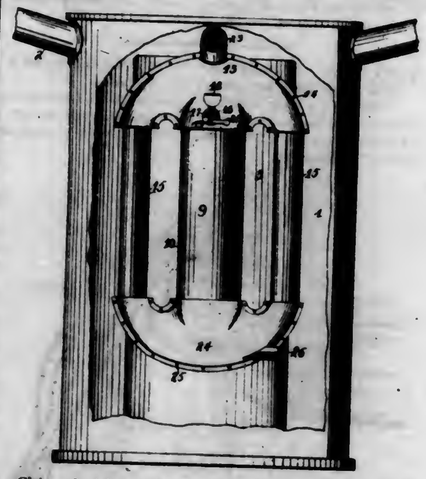
3. The combination, with a printing-press, of a paper-folding machine having conveyer tape-wheels adjacent to the impression-cylinder

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and operated by gearing from the press, carrier-tapes having sheet-grippers thereon and passing around said tape-wheels and over the folding-machine in one direction and back under it in the other, and adjustable mechanism for opening the tape-grippers and releasing the sheet on the top of the folder, and also mechanism for opening the tape-grippers as they pass under the folder for releasing a sheet and for gripping another sheet, substantially as and for the purpose set forth.

479,769. HOT-AIR FURNACE. WILLIAM THURNER, Jr., and PAUL HERCKENBACH, St. Louis, Mo., assignors to the Star Cornice and Furnace Company, same place. Filed Mar. 15, 1892. Serial No. 425,067. (No model.)

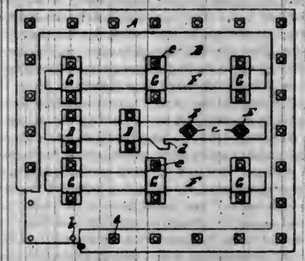


Claim.—1. A hot-air furnace comprising two couplings, the upper one of which is in communication with the chimney or other source, three pipes or flues in communication with said couplings, the larger or center one in direct communication with the furnace, a valve or damper located in the upper coupling for directing the products of

combustion, and a suitable opening also formed in the said upper coupling and provided with a suitable door through which the air is allowed to pass when it is desired to cut off the draft of air from the furnace, substantially as described.

3. A hot-air furnace consisting of a large central flue 10, in communication with the furnace, side flues 15, located on either side of the said flue 10 and in communication with the same, couplings 16 and 24, composed of sections bolted together, into which the ends of the pipes are adapted to be fitted, an opening, such as 26, for removing the soot or other accumulations, a damper 20, located in the coupling 16 and adapted to close the upper end of the pipe 10, a pipe 17, in communication with the said coupling, through which air is adapted to pass, and a door 18, attached to said pipe and adapted to close the opening formed therein, substantially as described.

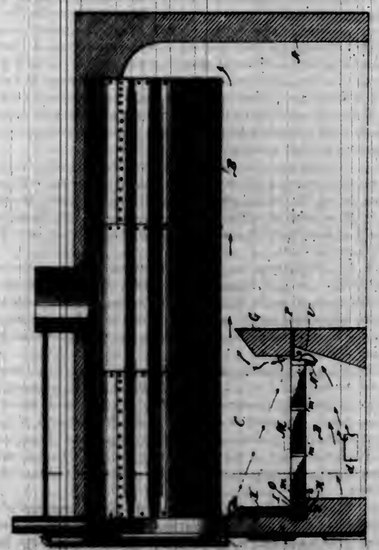
479,770. SHEET-METAL-OVEN BOTTOM FOR RANGES. WILLIAM H. WHITEHEAD, Erie, Pa. Filed Mar. 21, 1892. Serial No. 425,969. (No model.)



Claim.—1. The combination, in a sheet-metal-oven bottom, of a sheet-metal plate, as B, and a frame, as A, secured to the periphery thereof, with longitudinal bars secured to the under side of said sheet-metal plate in such a manner as to provide for the unequal expansion and contraction of the sheet-metal plate and the bars secured thereto, substantially as and for the purpose set forth.

2. The combination, in a sheet-metal oven, of a bottom consisting of a plate of sheet metal, with longitudinal bars secured thereto by means of bolts passing through slotted holes in said bars, substantially as and for the purpose set forth.

479,771. FURNACE. WILLIAM WALTERS, Chicago, Ill., assignor of one-fourth to George D. Garland, same place. Filed Oct. 20, 1891. Serial No. 409,275. (No model.)



Claim.—1. In a furnace, the combination, with a fire-box and the ash-pit, of the injector-nozzles arranged to direct a stratum of fluid across the fire-box, and hollow grate-bars communicating with the ash-pit at one end and with such injector-nozzles at their other ends, substantially as set forth.

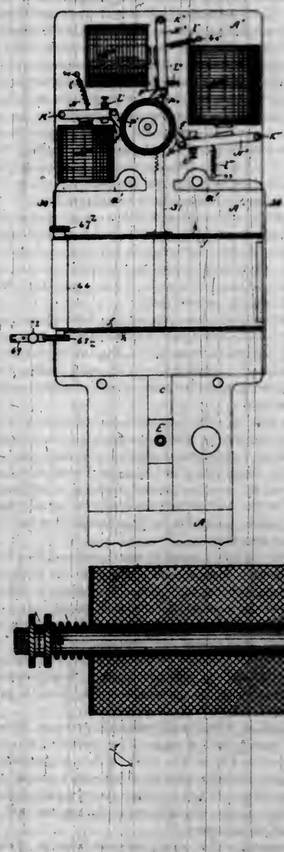
2. In a furnace, the combination, with the fire-box and ash-pit, of hollow grate-bars communicating with the ash pit and an injector arranged withi the fire-box and having communication with said grate-bars and having its nozzle so aimed as to direct a current across the fire-box in a downward direction, substantially as set forth.

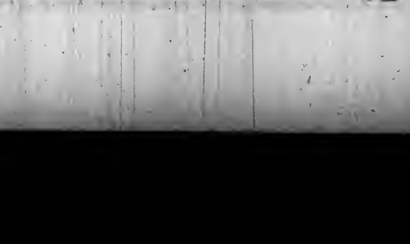
3. In a furnace, the combination, with the fire-box and ash-pit, of hollow grate-bars communicating with the ash-pit at their inner ends, a manifold chamber with which said bars communicate at their other ends, upright branch pipes leading from said manifold chamber, and injector-nozzles on said branch pipes aimed across the fire-box, substantially as set forth.

4. In a furnace, the combination, with the fire-box and ash-pit, of hollow grate-bars communicating with the ash-pit at their inner ends, a manifold chamber with which said bars communicate at their other ends, upright branch pipes leading from said manifold chamber, and injector-nozzles on said branch pipes aimed in a downward direction across the fire-box, so as to project fluid passing therethrough toward the base of the bridge-wall, substantially as set forth.

5. In a furnace, the combination, with the fire-box and ash-pit, of hollow independently-removable grate-bars having communication at their inner ends with said ash-pit, a manifold chamber with which said bars communicate at their outer ends, branch pipes projecting upwardly from said manifold chamber, and steam-injectors on the upper ends of said pipes aimed toward the base of the bridge-wall, substantially as set forth.

479,772. MATRIX-MAKING MACHINE. GEORGE A. GOODSON and ALEXANDER S. CAPEHART, Minneapolis, Minn., assignors, by mesne assignments, to Thomas S. Beauford, New York, N. Y., receiver of the Minneapolis Electro-Matrix Company. Filed May 31, 1887. Serial No. 239,735. (No model.)





Claim.—1. In a matrix-making machine, the combination, with a movable matrix-material carriage, of character-selecting devices classified into groups according to the space required by the characters to which they correspond, independent and complete automatic feed mechanisms less in number than the characters and each adapted to effect a movement of said carriage a determinate distance in the same direction, and connections between the character-selecting devices and said feed mechanisms, whereby the appropriate feed mechanism for each group will be brought into operation by the manipulation of any of the character-selecting devices of said group, substantially as described.

2. The combination, with the movable matrix-material carriage, of a character-board representing a series of characters, said characters being classified on the board into groups according to the space required by each character, independent and complete automatic feeding devices for the matrix-material carriage less in number than the characters represented on said board, said feeding devices being adapted to move the matrix-material carriage a determinate distance in the same direction, and a different connection between each group of the character-board and the feeding devices, substantially as described.

3. In a matrix-making machine, the combination, with a movable matrix-material carriage, of character-selecting devices classified into groups according to the space required for each character, independent and complete electrically controlled feed mechanisms less in number than the character-selecting devices and each adapted to move the matrix material carriage a determinate distance in the same direction, and different electrical connections between each group of the selecting devices and the feed mechanisms, substantially as described.

4. The combination, with a movable matrix-material carriage, of a character-board representing a series of characters, said characters being classified on said board into groups according to the space required for each character, independent and complete feeding devices comprising two or more electric motors, each adapted to move the matrix-material carriage a determinate distance in the same direction, and different electric connections between each group of the character-board and the feeding devices, said electric connections being provided with circuit-controlling devices, substantially as described.

5. The combination, with the movable matrix-material carriage, of a character-board representing a series of characters, said characters being classified on said board into groups according to the space required for each, as many independent and complete automatic feeding devices as there are groups of characters, each feeding device adapted to move said carriage a different distance in the same direction, and a suitable connection from each group of characters to the corresponding feeding device, substantially as described.

6. The combination, with a movable matrix-material carriage, of two or more electrically controlled independent and complete feeding devices, each adapted to effect the movement of said carriage a determinate distance in the same direction, and electric connections for said feeding devices, said electric connections being provided with circuit-controllers, substantially as described.

7. The combination, with a movable matrix-material carriage, of electrically-controlled independent and complete feeding devices, each feeding device being adapted to move said carriage a different distance in the same direction, and a different circuit for each feeding device, each of said circuits being provided with circuit-controlling devices, substantially as described.

8. In a matrix-making machine, the combination, with a movable matrix-material carriage, of character-selecting devices classified into groups according to the space required for each character, electrically-controlled independent and complete feed mechanisms, each adapted to move the matrix-material carriage a different distance in the same direction, and electric circuits including said feeding devices, said circuits being controlled by said character-selecting devices, substantially as described.

9. The combination, with a movable matrix-material carriage, of feeding devices comprising two or more electric motors, each motor being adapted to move said carriage a different distance in the same direction, a different electric connection for each motor, and a character-board representing a series of characters, said characters being classified on said board into groups or classes according to the space required for each character, each of said connections being provided with circuit-controlling devices, one part of said circuit-controlling devices in each of said circuits being connected with one of the groups of the character-board, substantially as described.

10. The combination, with a matrix-material carriage, of electric feeding devices for moving said carriage, a bar provided at one end with a series of type-dies and at the other with a single hand-key having a contact-point, an index-plate provided with key-seats corresponding to said type-dies and having contact-points adjacent thereto, and electrical connections between said contact-points and said feeding devices, substantially as described.

11. The combination, with a matrix-material carriage, of electric feeding devices for the same and electric connections for said feeding devices, a die-carriage, an electric hammer for depressing the dies, an electric circuit for said hammer, and an electric circuit-controlling device for the hammer-circuit, located in the electric connections for said feeding devices, said electric connections for the feeding devices being provided with circuit-controlling devices, substantially as described.

12. The combination, with a matrix-material carriage, of two or more electric motors in different circuits adapted each to move said carriage a different distance, a die-carriage, an electric hammer for depressing said dies, an electric circuit for said hammer, and an electric-circuit-controlling device for the hammer-circuit, located in each of said motor-circuits, said motor-circuits being provided with a circuit-controlling device or devices, substantially as described.

13. The combination, with a matrix material carriage, of electric feeding devices for the same and electric connections for said feeding devices, a die-carriage and electric hammer for depressing the dies, an electric circuit for said hammer, a hand circuit breaker in said hammer-circuit, and an electric-circuit-controlling device for said hammer-circuit, located in the electric connections for the said feeding devices, the electric connections for the feeding devices being provided with a circuit-controller, whereby the said hammer may be operated from the feeding circuits or the feeding devices be worked independently of said hammer, as desired, substantially as described.

14. The combination, with a matrix-material carriage, of two or more electric motors adapted each to move said carriage a different distance in the same direction, a lever provided with a die-carriage at one end and a hand-key at the other, said hand-key having a contact-point, an index-plate provided with key-seats corresponding to the dies of said die carriage and having contact-points adjacent thereto, electric circuits through each of said contact-points, an electric die-depressing device, and an electric-circuit controller for said electric die-depressing device located in the feeding-circuit, substantially as described.

15. The combination, with a matrix-material carriage, of a character-board representing a series of characters, said characters being classified on said board into groups according to the space required for each character, feeding devices comprising two or more electric motors each adapted to move said carriage a certain distance in the same direction, an electric die-depressing device, different electric connections from each group of characters to the corresponding feeding device, an electric connection for said die-depressing device, the said connections for the feeding devices being provided with circuit-controllers, and a circuit-controller for the connections of the die-depressing device, substantially as described.

16. The combination, with a matrix-material carriage, of a die-carriage seat, a bar capable of movement in all directions in a plane parallel with the plane of the carriage-seat, provided with type-dies at one end classified according to the space required for each, and with a hand-key at the other having a contact-point, an index-plate having key-seats and contacts corresponding to said type-dies, feeding devices consisting of two or more electric motors each adapted to move said carriage a certain distance in the same direction, an electric die-depressing device, different electric connections from each group of contacts to the corresponding feeding device or devices, an electric circuit through said connections, hand-key, and contacts, an electric circuit through said die-depressing device, and an electric-circuit controller for said depressing device located in the connections of the electric feeding devices, substantially as described.

17. In combination, the electro-magnet 19, provided with a hollow axis, the armature 20, serving as a hammer, provided with a retracting-spring 22, the die depressing pin 17, the cap-plate 3, the brass bushing 16, an electric circuit through said magnet, and means, substantially as described, for opening and closing said circuit, as and for the purposes set forth.

18. In combination, magnet 19, provided with a hollow axis, closely-fitting armature-hammer 20, provided with the head 24, the sleeve 23, the bushing 16, and the pin 17, resting in said bushing and provided with a head closely fitting the interior of said sleeve, whereby an air-cushion is provided preventing jarring contact between said hammer and said sleeve.

19. In a matrix-making machine, the combination, with a matrix-material carriage, of a rack attached thereto, a pinion engaging said rack, a ratchet-wheel connected with the pinion, a series of actuating-pawls engaging said ratchet, each having a different range of movement of fixed extent, the movement of each greater pawl being a multiple of the movement of the pawl moving the least distance, and an independent electro-magnet for actuating each pawl, substantially as described.

20. The combination, with a matrix-material carriage and a rack attached thereto, of a pinion engaging said rack and its shaft, a ratchet-cylinder having a smooth surface adjacent to the ratchet-teeth, keyed on the pinion-shaft rotating therewith, and movable longitudinally thereon, and an actuating pawl engaging said ratchet, substantially as described.

21. In feeding devices for matrix-making machines, a ratchet-cylinder keyed to and movable lengthwise of its supporting-shaft and revolving therewith, having a smooth surface adjacent to its ratchet-teeth, the said smooth portion and the broader faces of the teeth being connected by inclines, and an actuating-pawl engaging said ratchet when at one extreme of movement, substantially as described.

22. In feeding devices for matrix-making machines, a cylinder keyed to and movable lengthwise of its supporting-shaft and having on its periphery a series of ratchet-teeth the outer tips of which extend to the periphery of the cylinder, the larger faces of said ratchet-teeth being connected with the smooth portion of the cylinder by inclines, and an actuating-pawl engaging said ratchet-teeth when in one extreme of movement, substantially as described.

23. The combination, with a matrix-material carriage provided with a rack, of a pinion engaging said rack, having a hub extending on one side of the same, a cap-sleeve mounted on the axis of the pinion, movable lengthwise of the same, a cylinder having ratchet-teeth and a smooth peripheral portion adjacent to its ratchet-teeth keyed to said extending hub and said sleeve, and an actuating-pawl engaging said ratchet, substantially as described.

24. The combination, with a matrix-material carriage provided with a rack, of a pinion engaging said rack, having a hub extended on one side of the same, a cap-sleeve keyed to the axis of the pinion and movable lengthwise of the same, a cylinder having a smooth peripheral portion adjacent to its ratchet-teeth keyed to said extended hub and mounted on said sleeve, an actuating-pawl engaging said ratchet-teeth, and a band-spring attached at one end to said cap-sleeve and at the other to the interior of the cylinder, substantially as described.

25. In a matrix-making machine, the combination, with type-dies, an impression device, and an oscillating and sliding lever adapted to present said dies successively to the impression device, of a carriage for a matrix-body thereunder, and suitable electrical devices for moving said carriage and actuating the impression device upon the closing of a circuit by the operation of said lever.

26. In a matrix-making machine, a die-carrier adapted to present the dies in sequence to an impression device, a matrix-carriage thereunder, a rack connected thereto, a pinion engaging the rack, a ratchet-wheel and pawls arranged to turn the pinion, armatures actuating the pawls and having different degrees of movement, and electro-magnets therefor, substantially as set forth.

27. In combination, in a matrix-machine having means for presenting type-dies in succession to an impressing device, a matrix-carriage provided with side pieces having guides for the edges of a matrix-strip, and a central bridge constituting an anvil, feed-rolls, and ratchet and pawl devices for turning them to slide the strip in its guides to separate lines of impressions, and means for advancing the carriage to space the impressions in the lines, substantially as set forth.

28. In a matrix-machine, the combination of a die-carrier provided with a series of type-dies movable in guides in said carrier, a matrix-carriage movable laterally, a lever controlling the movement of the die-carrier for locating the type-dies opposite the impression-point, a feed mechanism for advancing the matrix-carriage, an impressing device for engaging each type-die when brought to the impression-point, a character-index co-operating with the controlling-lever for locating the type-dies, electro-magnetic devices operating the impressing device and the feed mechanism of the matrix-carriage, circuit connections, and circuit-controlling devices operated by the lever which adjusts the position of the type-dies, substantially as set forth, whereby as the dies are successively brought into position at the impression point the matrix-carriage is advanced and the impressing device operated to project the type-dies into the matrix-strip.

29. In a matrix-machine, an impressing device, type-dies mounted to reciprocate in guides in a movable die-carrier, a plate provided with a centering-aperture opposite the impressing device, a matrix-carriage movable laterally of the central aperture, variably-feeding devices for actuating said matrix-carriage, and a lever controlling the motions of the die-carrier and determining the position of the type-dies relatively to the impressing device and centering-aperture, electro-magnetic devices controlling the feed mechanism and circuits, and circuit connections controlled by the lever which locates the die-carrier, substantially as set forth.

30. In a matrix-machine, an impressing device, a laterally-movable die-carrier provided with type dies, a plate provided with a centering-aperture, a matrix-carriage movable laterally of and below the said plate and providing guides for a matrix-strip, and a feeding device movable with said matrix-carriage and engaging the matrix-strip borne thereby, substantially as set forth.

31. In a matrix-machine, the combination of a laterally-movable die-carrier provided with movable type-dies, a matrix-carriage, and devices for intermittingly advancing said carriage, a lever or arm moving with the die-carrier and serving to locate the type-dies opposite the impression-point, electro-magnets and circuit connections governing the devices for advancing the matrix-carriage, an index-plate with which the arm on the die-carrier co-operates to locate the type-dies, and circuit-controlling devices in circuit with the said electro-magnets, arranged to be operated by the movement of the arm connected with the die-carrier as said arm is moved to engage with the index-plate to position the type-dies, substantially as set forth.

32. In a matrix-machine, the combination of a series of type-dies movable toward a common impression-point, an anvil toward which the type dies are reciprocated in making an impression, a matrix carriage movable laterally of the impression-point and provided with edge guides between which the matrix-strip is received, and a feeding device mounted upon said carriage and engaging the matrix-strip to advance the latter between the guiding-strips, substantially as set forth.

33. In a matrix-machine and in combination with type-dies adapted to be brought to a common impression-point, a carriage for the matrix-strip movable laterally of the impression-point and carrying an anvil and edge guides for the matrix-strip, substantially as set forth.

34. In a matrix-machine, the combination of the following elements: A movable die-carrier provided with a series of type-dies movable toward a common impression-point, an impressing device, a movable matrix-carriage, feeding devices for advancing the matrix-carriage intermittingly, electro-magnets controlling said feeding mechanism, an electro-magnet controlling the application of the impressing device, circuit connections for the said electro-magnets, including circuit-controlling devices, an arm moving in unison with the die-carriage and co-operating with an index-plate, and the circuit-controlling devices for locating the type-dies and setting in action the impressing and feeding mechanism.

35. In a matrix-machine, an impressing device, a matrix-carriage, a die-carriage, an oscillating sliding lever, one arm attached to the die-carrier and the other carrying a circuit-closer, and devices for determining the position of the type-dies, electro-magnets controlling a feeding mechanism for the matrix-carriage, an electro-magnet controlling the impressing device, circuit connections for said electro-magnets, and contacts in said circuits co-operating with the circuit-closer of the oscillating sliding lever, substantially as set forth.

36. In a matrix-machine, the combination of an impressing device reciprocated in guides, a matrix-carriage movable laterally of said impressing device and provided with feeding mechanism for advancing the matrix-strip on said carriage, a series of type-dies movable laterally of the impressing device between the latter and the matrix-carriage, a feeding mechanism connected to the matrix-carriage, and devices for actuating the feed mechanism and locating the position of the type-dies, substantially as set forth.

37. In a matrix-machine, an impressing device, a series of type-dies movable laterally of the impressing device, a movable carriage, upon which the matrix-strip is supported beneath the type-dies, a feed mechanism for advancing said carriage, electro-magnetically controlled, an electro-magnetic device controlling the impressing device, a lever carrying the type-dies, an index-plate with which said lever co operates to locate the type-dies, circuit connections, including the electro-magnets of the impressing and feeding devices, and a pin carried by said lever for engaging both the index-plate and a circuit controlling device, substantially as set forth.

38. In a matrix-making machine, a sliding oscillating lever carrying type-dies adapted to present them in succession at a common point, an impression device operating at such a point, a perforated index-plate, a circuit-closing pin carried by the lever-arm, contact-points coinciding with perforations of the index-plate, a matrix-carriage, a ratchet attached thereto, a pinion, armatures, and connecting devices for rotating the pinion variable distances, electro-magnets, and electro connections between said contact-points and the appropriate magnet, and also between the contact-points and the impression-device mechanism, for the purposes set forth.

39. The combination, with a matrix-carriage of a matrix-making machine, of a rack, a pinion, a ratchet-wheel, a retracting-spring therefor, pawls, armatures, and electro-magnets for turning the ratchet-wheel in one direction, a locking-dog, and a lever for sliding the ratchet-wheel out of engagement with pawls and dog to permit said spring to reverse the movement and retract the rack, substantially as set forth.

40. The combination, with a matrix-carriage of a matrix-making machine, of a rack, a pinion, a post therefor, a ratchet-wheel arranged to turn with and slide on the hub of the pinion, a sliding sleeve on the post, a spring connected thereto and to the ratchet-wheel, pawls, and means for reciprocating them, and a lever for sliding said sleeve and ratchet-wheel to release the pawls and permit said spring to reverse the wheel movement and cause the retraction of said rack, substantially as set forth.

41. In a matrix-machine, an oscillating and reciprocating lever carrying type-dies on one arm and a circuit-closer on the other arm, a character-index, and corresponding contact points, a matrix-carriage, variable-feed device therefor, an impression device, electric magnets for operating the feed device and the impression device, and suitable

electrical connections between said contact-points and said electro-magnets, substantially as set forth.

42. In a matrix-machine, the combination, with a series of movable type-dies and devices for bringing each type to a common impression-point, of an anvil located opposite the said impression-point, a carriage for the matrix-trip, a plurality of feeding devices connected to said carriage, each of said feeding devices producing a different feed movement from the others, electro-magnets controlling the application of said feed mechanism, a separate circuit for each of said electro-magnets, and circuit-controlling devices in each circuit for throwing either one of the feed mechanisms into action, substantially as set forth.

43. In a matrix-machine, the combination, with a series of type-dies movable toward a common impression-point, of a lever movable with the type-dies and co-operating with an index-plate to determine the position of the type-dies relative to the impression-point, an anvil upon which the matrix-strip is impressed by the type-dies, a movable carriage for the matrix-strip, differential-feed mechanism operating upon the carriage to intermittingly advance the latter, a series of electro-magnets operating upon the feed mechanism to determine the degree of feed movement, circuit connections for electro-magnets, and circuit-controlling devices for each electro-magnet, co-operating with the lever moving with the type-dies, substantially as set forth.

44. In a matrix-machine, a die-carrier adapted to locate type-dies successively at the printing-point and carrying, also, a circuit-controlling device, a series of contacts arranged to co-operate with said circuit-controller, a series of electro-magnetic levers having circuit connections with said contacts, a differential-feed mechanism operated thereby, and an impressing device also operated thereby, substantially as set forth.

45. In a variable-feed mechanism for a matrix-machine, a rack and pinion for propelling the matrix-carriage, a ratchet-wheel arranged to turn with and slide on the axis of the pinion, detents, and means for engaging and disengaging them by the axial movement of the ratchet-wheel, substantially as described.

46. In a feed mechanism, a propelling-gear and a ratchet-wheel turning on a common axis, pawls for turning the ratchet-wheel, and means for the ratchet-wheel's axial movement to engage and disengage said pawl, substantially as set forth.

47. In a matrix-machine, a die-carrier adapted to locate type-dies successively at the printing-point and carrying, also, a circuit-controlling device, a series of contacts arranged to co-operate with said circuit-controller, a series of electro-magnetic devices having circuit connections with said contacts, and a differential-feed mechanism operated thereby, substantially as set forth.

48. In a matrix-machine, a die-carriage adapted to locate type-dies in succession at the printing-point and carrying, also, a circuit-controlling device, a series of contacts arranged to co-operate with said circuit-controller, a series of electro-magnetic devices having circuit connections with said contacts and serving to actuate pawls varying distances, and a ratchet-wheel actuated thereby to provide variable-feed movements substantially as set forth.

49. In a matrix-making machine, the combination, with a die-carrier having different-spaced dies classified into groups according to the space required by each, of corresponding groups of character-selecting devices, a matrix-material carriage, a variable-feed mechanism for the same, and connections from said groups of character-selecting devices to the feed mechanism, whereby the extent of feed is dependent on the group of characters to which the selected die belongs.

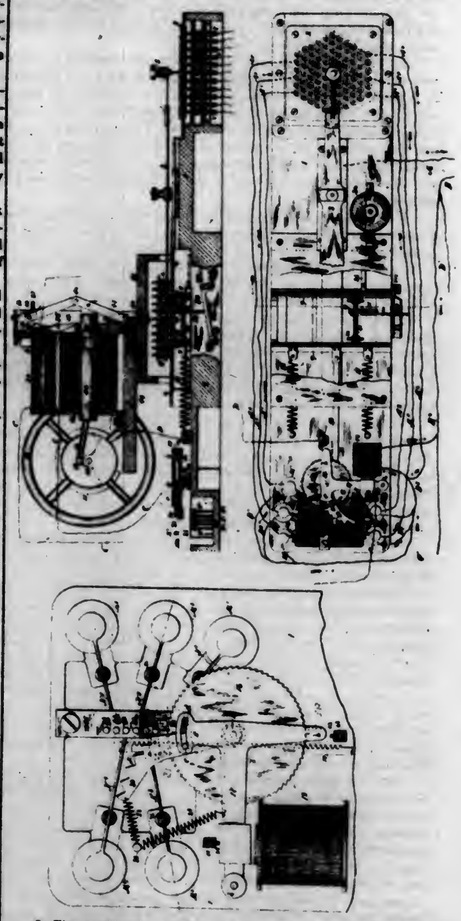
50. In a matrix-making machine, the combination, with a die-pressing device, of a die-carrying lever carrying differently-spaced dies, classified into groups according to the space required by each, adapted to present the dies in succession to the depressing device, a character-board having its characters classified into groups corresponding to the groups of dies forming with said lever, the means of selecting the characters, a matrix-material carriage, a variable-feed mechanism for the same, and connections between said feed mechanism and the groups of characters, whereby the extent of feed depends upon the group of characters to which the selected die belongs.

51. In a matrix-making machine, the combination, with a die-pressing device, of a carrier for bringing the dies in succession to the die-depressing device, having its dies classified into groups according to the space required for each a matrix-material carriage, a variable electro-magnetic feed mechanism for the same, electrical contacts corresponding to each group of dies, and connections from the same to the feed mechanism, through which are produced the requisite feed movements for each group of dies.

479,778. MATRIX-MAKING MACHINE. GEORGE A. GOODSON, Minneapolis, Minn., assignor, by mesne assignments, to Thomas S. Bamford, New York, N. Y., receiver of the Minneapolis Electro-Matrix Company. Filed Mar. 30, 1888. Serial No. 267,796. (No model.)

Claim.—1. The combination, with a matrix-material carriage under tension, of character-selecting devices classified into groups, according to the space required by the characters to which they correspond, movable stops for limiting the movement of said carriage, allowing it to move a greater or less distance in the same direction, electric controlling devices for said stops, a branched circuit including said electric controlling devices for said stops, and circuit-controllers for the branches of said circuit, each adapted to be operated by a single group of the character-selecting devices, substantially as described.

2. The combination, with a matrix-material carriage under tension, of electrically-controlled stops for variably limiting the travel of said carriage, a bar provided with a series of type-dies at one end and a hand-key at the other having a contact-point, an index-plate having key-seats corresponding to said type-dies and having contact-points adjacent thereto, and an electric circuit through the stop-controllers, hand-key, and contacts adjacent to the key-seats, normally open at the index-plate, but capable of being closed by said hand-key, substantially as described.



3. The combination, with a matrix-material carriage under tension, of an escapement for locking and releasing said carriage, an electro-magnet for operating said escapement, two or more movable stops for variably limiting the travel of said carriage, electro-magnets for actuating said stops, and a common electric circuit through said escapement-magnet and said stop-magnets, said circuit being provided with a circuit-controller for closing said circuit through said escapement-magnet and one of said stop-magnets, substantially as described.

4. The combination, with a matrix-material carriage under tension, of a rack secured to said carriage, a pinion engaged by said rack, a ratchet-wheel connected to said pinion, a pivoted armature having arms on its free end projecting into the vicinity of said ratchet-wheel and provided one with a pawl for engaging with and locking

said wheel and the other with a slot, an electro-magnet for operating said armature, a stop-lever pivoted to said armature and having a lug working in said slot, retraction-springs attached, respectively, to said stop-lever and said armature at one end and to a fixed resistance at the other, and one or more movable stops for limiting the movement of said stop-lever, electro-magnets for operating said stops, an electric circuit through said escapement-magnet with branches through said stop magnets normally open, and a circuit-controller adapted to close said circuit through the escapement-magnet and one of said branches, substantially as described.

5. The combination, with a matrix-material carriage under tension, of electrically-controlled stops for variably limiting the travel of said carriage, a die-carriage, an electrically-controlled die-depressing device, an electric circuit with branches normally open through the controllers of the electrically-controlled stops and die-depressing device, a circuit-controller for making and breaking a circuit through one of said electric stop-controllers, and an electric circuit-closer on the common return-wire of the branch circuits through said controllers for closing the branch through the die depressing device, substantially as described.

6. The combination, with a matrix-material carriage under tension, of an electrically-controlled escapement for locking and releasing said carriage, a series of electrically-controlled stops for variably limiting the travel of said carriage, a die-carriage, an electrically-controlled die-depressing device, an electric circuit with branches normally open through said stop and escapement controllers, an electric circuit normally open through the controller of the die-depressing device, a circuit-controller for making and breaking a circuit through said escapement-controller and one or another of the controllers of said stops at will, and a circuit-closer actuated by said escapement for closing a circuit through said die depressing device.

7. The combination, with a matrix-material carriage under tension, of an escapement for locking and releasing the same, a magnet for actuating said escapement, a series of electrically controlled stops for variably limiting the travel of said matrix-carriage, a die-carriage, a die-depressing device, a magnet for controlling said die-depressing device, an electric circuit through the controlling magnet of the said die-depressing device and said escapement normally open at the escapement-contacts and provided with a circuit-breaker, an electro-magnet for closing the contacts of said circuit-breaker, and an electric circuit through said escapement, and said circuit-closing magnet normally closed at the escapement-contacts, and a circuit-controller for making and breaking a circuit through said escapement-magnet and one or another of the controllers for said stops at will, substantially as described.

8. In a matrix-machine having a variable-feed mechanism and an impressive device, means for operating them by a single electric circuit.

9. In a matrix-machine, an impressive device, a magnet therefor, a feed-escapement and magnets therefor, a die-carrying lever provided with a circuit-maker, and a single circuit for all of said magnets.

10. The combination, with the feed-wheels, their shaft, the friction-wheel, and its pawl and lever, of a pivoted pendent arm on the lever, and an adjustable incline on which said arm rides during the return matrix carriage movement, substantially as and for the purpose set forth.

11. The combination, in a matrix-carriage, with the lever for feeding the matrix body to space for lines, of the pendent arm pivoted thereto, and a grooved incline therefor adjustable to different angles and arranged to cause said arm to pass free of the incline during the forward carriage movement and to ride up the incline during the return movement, substantially as and for the purposes set forth.

12. In a matrix-making machine, the combination, with the matrix-carriage having a spring-tension for moving it to space for impressions, of a rack, pinion, and escapement for controlling said movement, an electrically-actuated lever carrying one of the pawls and a pivoted stepped lever carrying the other pawl, and electrically-controlled stops for the latter arranged in a course substantially radial to the wheel, for the purpose set forth.

13. The combination, with an escapement for controlling the feed in a matrix-making machine, of a pivoted stepped lever carrying one of the pawls of the escapement, radially-arranged stops therefor, and means for moving the stops to engagement, as required, substantially as set forth.

14. A matrix-making machine having an escapement for controlling the degree of matrix-feed, a spring-lever, an armature and electro-magnet for operating the holding-pawl, a second lever pivoted to the former and carrying the free pawl, retreating steps thereon, radially-arranged stops therefor, and levers and electro-magnets for lifting the stops singly to engagement for permitting different measures of movement of the escape-wheel, substantially as set forth.

15. In combination, an escape-wheel for controlling the feed of the matrix-carriage, a T-shaped lever having its stem pivoted, a pawl on one of its shorter arms and a slot in the other, a second lever fulcrumed to the first having a pin in said slot, a pawl for engaging the wheel, and retreating steps on its outer end portion, movable stops for engaging said steps, and means for operating said levers and stops, substantially as set forth.

16. In a matrix-machine, the combination, with a matrix-strip, supporting devices, and intermitting feed mechanism provided with a ratchet-wheel, of a reciprocating bar carrying a detent engaging the ratchet-wheel when the bar is at one extreme of its movement, an arm movable transversely thereto, said arm being provided with a detent or pawl engaging the ratchet when the bar is moved to the opposite extreme of its movement, a series of stops located at different distances from said arm in the direction of its movement, and devices for projecting any one of said stops into the path traversed by the arm to arrest the movement of the latter and the ratchet with which it is engaged, substantially as set forth.

17. In a matrix-machine, a reciprocating matrix-carriage carrying a matrix-strip supporting and guiding frame, toothed feed-wheel on a shaft mounted in said frame for engaging the under surface of the matrix-strip to advance it transversely to the carriage movement, a pawl carrying lever for rotating said shaft, a pivoted arm of the lever, and an adjustable incline arranged to engage it to operate the lever while the matrix-carriage is making a return movement, substantially as set forth.

18. The combination, with the matrix-carriage and a rack for moving the same, of a rotating graduated disk and a rack-and-pinion connection between the same and the matrix-carriage, as set forth.

19. In a matrix-machine, a magnet controlling the operation of an impressive device, a series of magnets separately controlling a variable-feed mechanism, a circuit including the impressive-device-controlling magnet and having branches to each of the feed-controlling magnets, and a circuit-closer for completing the circuit through the former magnet and any one of the latter, substantially as set forth.

20. In a matrix-machine, a die-impressing device, a controlling mechanism therefor including an electro-magnet, a matrix-feed escapement, mechanism for producing the varying feed movements thereof and including a separate electro-magnet for each measure of movement, and suitable circuit connections between the escapement controlling the magnet and the impressing-device magnet, substantially as set forth.

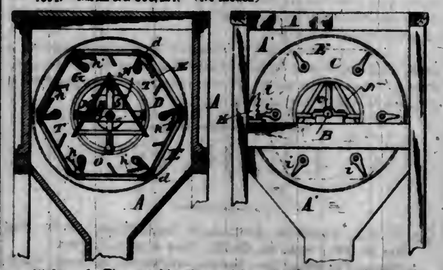
479,774. INKSTAND. HANS H. SCHIVE, Christiania, Norway. Filed June 20, 1891. Serial No. 396,998. (No model.) Patented in England Sept. 23, 1890, No. 15,064; in Denmark Nov. 24, 1890; in Norway Feb. 18, 1891, No. 1,978; in Austria-Hungary Feb. 20, 1891, No. 57,314 and No. 59,974, and in France July 15, 1891, No. 212,315.



Claim.—1. The combination, with an inkstand, of a yielding valve adapted normally to close the pen-opening and an adjustable stop for regulating the extent to which the valve may yield, substantially as shown and described.

2. The combination, with an inkstand provided with the usual pen-opening, of the internal valve for closing said opening, the shank attached at one end to the valve, the screw *d*, tapped in the opposite end of the shank, and the spiral spring encircling the said shank and screw and acting on the valve, substantially as described.

479,775. FLOUR-BOLT. CLARK S. FULLER, Lafayette, Ind., assignor to Rufus H. Emerson and Zenas C. Eldred, Jackson, Mich., receivers of the G. T. Smith Middlings Purifier Company. Filed June 16, 1891. Serial No. 396,421. (No model.)



Claim.—1. The combination, with a bolting-reel, of elevating buckets or plates movable independent of the reel and arranged on

the inner side of the bolting-surface and means whereby said buckets or plates are automatically caused to discharge the material resting therein, substantially as set forth.

2. In a flour-bolt, the combination, with the bolting-reel, of a series of internal oscillating elevators hung thereon and mechanism connecting each elevator with the end of the bolt, whereby the rotation of the reel causes a positive oscillation of the elevators to discharge the material, substantially as set forth.

3. In a flour-bolt, the combination, with the bolting-reel, of a series of elevators journaled therein and each provided at one end with a crank-arm and a cam engaging with the crank-arm, whereby the revolution of the reel causes the oscillation of the elevators to discharge the material, substantially as set forth.

4. The combination, with a bolting-reel, of buckets *g*, provided with springs *h* and arms *i*, and a stop whereby the buckets are turned or depressed, substantially as set forth.

5. The combination, with a bolting reel, of buckets or plates *g*, provided with a spring *h* and arms *i*, and a stop having a face constructed with a series of shoulders or ratchets, substantially as set forth.

6. The combination, with a bolting-reel, of buckets or plates arranged on the inner side of the bolting-surface, mechanism whereby the buckets are automatically depressed, turned for discharging the material thereon, fixed buckets secured to the discharge of the reel, and a discharge-trough which receives tailings elevated by the buckets at the discharge end of the reel, substantially as set forth.

7. The combination, with a bolting reel, of buckets or plates arranged on the inner side of the bolting-surface, mechanism whereby said buckets or plates are automatically depressed or turned to discharge the material resting thereon, and a deflecting-plate whereby the material which has not been discharged over the outer edges of the buckets is collected and returned to the working side of the reel, substantially as set forth.

8. In a flour-bolt, the combination, with a bolting-reel provided with a shaft *b*, of elevators movable independently of the reel and arranged on the inner side of the bolting-surface and a deflecting-plate hung loosely on the shaft and provided with a weight whereby it is held in position, substantially as set forth.

9. In a flour-bolt, the combination, with the shaft *b*, of the deflector provided upon its upper surface with bearings, the upper and lower edges of the deflector being arranged upon opposite sides of the axis of the reel, and a weight attached to the under side of the deflector at both ends by the brackets, substantially as set forth.

10. In a flour-bolt, the combination of a reel-frame and elevator arranged within the reel and adapted to be automatically tilted into different positions as the reel rotates, substantially as set forth.

11. In a flour-bolt, the combination, with a bolting-reel, of an eddy-chamber having its lower side open and having one inclined side facing and adjacent to the downward-moving side of the reel, substantially as set forth.

12. In a flour-bolt, the combination, with a bolting-reel provided upon its inner surface with a series of elevators, of a deflector having the lower edge of one of its sides in close proximity to the elevators on the upward-moving side of the reel and having the opposite edge in close proximity to the elevators on the downward-moving side of the reel, substantially as set forth.

REISSUES.

11,255. PAINT. JOHN H. PALMER, West New Brighton, N. Y. Filed Oct. 13, 1887. Serial No. 252,763. Original No. 360,765, dated Oct. 12, 1886.

Claim.—1. The herein-described composition of matter constituting a paint, consisting of the residuum of linseed-oil resulting from the purification of such oil by forced filtration, combined with linseed-oil, substantially as specified.

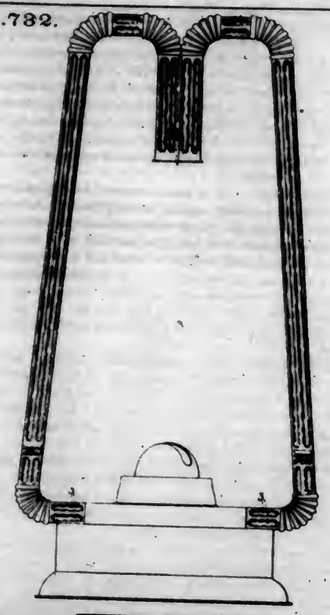
2. The herein-described composition of matter constituting a paint, consisting of the residuum of linseed-oil resulting from the purification of such oil by forced filtration, combined with linseed-oil, in proportions substantially as specified.

DESIGNS.

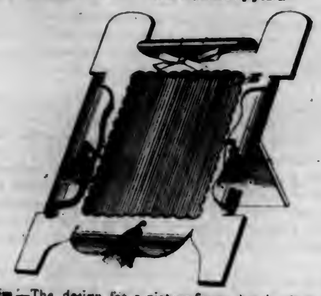
21,732. LANTERN. ARCHIBALD W. PAULL, Wheeling, W. Va. Filed May 16, 1892. Serial No. 433,293. Term of patent 14 years.

Claim.—The design for a lantern, substantially as herein shown and described.

21,732.

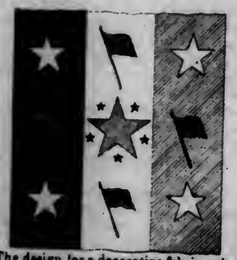


21,733. PICTURE-FRAME. ALBERT SELTER, Hoboken, N. J., assignor to William Johansen & Co., New York, N. Y. Filed June 18, 1892. Serial No. 437,207. Term of patent 3½ years.



Claim.—The design for a picture-frame, herein shown and described.

21,734. DECORATIVE FABRIC. SAMUEL M. SCHWAB, Jr., New York, N. Y. Filed June 27, 1892. Serial No. 438,215. Term of patent 7 years.



Claim.—The design for a decorative fabric, substantially as herein shown and described.

21,735. DECORATIVE FABRIC. SAMUEL M. SCHWAB, Jr., New York, N. Y. Filed June 27, 1892. Serial No. 438,216. Term of patent 7 years.

21,735.



Claim.—The design for a decorative fabric, substantially as herein shown and described.

21,736. BOTTLE. FRANK H. THUEMLER, Chicago, Ill. Filed Jan. 18, 1892. Serial No. 418,508. Term of patent 7 years.



Claim.—The design for a flask or bottle, substantially as shown and described.

21,737. SPOON. KALLIE I. WRIGHT, Washington, D. C. Filed July 2, 1892. Serial No. 438,528. Term of patent 3½ years.



Claim.—The design for a spoon, as herein described and illustrated.

TRADE-MARKS

REGISTERED JULY 26, 1892.

21,511. LINIMENT. WILLIAM F. GRELL, New York, N. Y. Filed June 27, 1892.

DOCTOR STANLEY'S AFRICAN CURE

Essential feature.—The words "DOCTOR STANLEY'S AFRICAN CURE." Used since January 1, 1891.

21,512. LINIMENTS OR LOTIONS FOR EXTERNAL AND INTERNAL USE FOR MAN AND ANIMALS. POWELL & GILBERT, Amsterdam, N. Y. Filed June 28, 1892.

WITCH WASH.

Essential feature.—The words "WITCH WASH." Used since March 28, 1892.

21,513. HARDWARE. CASH BUYERS' UNION, Chicago, Ill. Filed June 13, 1892.



Essential feature.—The representation of a wreath inclosing a disk, which is encircled by radiating lines. Used since May 1, 1892.

21,514. WHISKY. AGNES COWAN, Belfast, Ireland. Filed June 24, 1892.



Essential feature.—The representation of a shield having on it a St. Andrew's cross with a ribbon underneath bearing the motto "SICITUR IN ALTUM" and a barrel with "No. 4" thereon and surmounted by a regal crown. Used since 1871.

21,515. SAWS, TOOLS, FILES, AND STEEL. HENRY DISSTON & SONS, INCORPORATED, Philadelphia, Pa. Filed June 30, 1892.



Essential feature.—The representation of the key-stone in connection with the words "ALUMINUM STEEL." Used since January 1, 1891.

21,516. REMEDY FOR NERVOUS DISORDERS. WILLIAM H. GARNETT, Augusta, Me. Filed June 29, 1892.

OXIEN

Essential feature.—The word "OXIEN." Used since January 10, 1888.

21,517. PREPARED FOODS, MALT EXTRACTS, AND MEDICATED WINES. JOHANNES P. LIEBE, Dresden, Germany. Filed June 4, 1892.



Essential feature.—The representation of a stork. Used since 1866.

21,518. POLISHING PREPARATION. THE ZUCKER & LEVETT CHEMICAL COMPANY, New York, N. Y. Filed June 21, 1892.

WHITE ROUGE

Essential feature.—The words "WHITE ROUGE." Used since March 1, 1892.

21,519. MEDICINE FOR CERTAIN NAMED DISEASES. ARTHUR L. WORDEN, Detroit, Mich. Filed May 11, 1892.

PROTECTIO

Essential feature.—The word "PROTECTIO." Used since April 28, 1892.

21,520. ARTIFICIAL FERTILIZERS. BALDWIN FERTILIZER COMPANY, Savannah, Ga., and Port Royal, S. C. Filed May 21, 1892.



Essential feature.—A transverse stripe (or two stripes) produced in the material of a bag by successive threads of blue, red, and yellow extending around the said bag and being in contrast to the color of the bag. Used since May 1, 1867.

21,521. DRESS-BINDINGS. THE BERMAN & MCCARTHY COMPANY, Syracuse, N. Y. Filed May 31, 1892.

VELVENA

Essential feature.—The word "VELVENA." Used since May 1 1891.

21,522. TOILET-SOAP, FACE-POWDER, FACE-CREAM, TOOTH-POWDER, AND PERFUMES. RUPUS & BRINDENBACH, Dayton, Ohio. Filed June 20, 1892.

EMPRESS JOSEPHINE

Essential feature.—The words "EMPRESS JOSEPHINE." Used since January 1, 1892.

21,523. LARD. J. M. CEBALLOS & CO., New York, N. Y. Filed July 2, 1892.

PELAYO

Essential feature.—The word "PELAYO." Used since May 1892.

21,524. MEDICATED PLASTERS. DR. DAVID KENNEDY CORPORATION, Kingston, N. Y. Filed June 25, 1892.



Essential feature.—A circular band encircling the picture of a building, with the words "GOLDEN PLASTERS" upon the band. Used since 1870.

21,525. REMEDY FOR DISEASES OF THE STOMACH AND BOWELS AND OTHER PAINFUL DISORDERS. DR. DAVID KENNEDY CORPORATION, Kingston, N. Y. Filed June 30, 1892.

[OLD 897]

Essential feature.—The words "GOLDEN DROPS." Used since 1870.

21,526. BEER. FRANK FEHR BREWING COMPANY, Louisville, Ky. Filed May 27, 1892.

21,526.



Essential feature.—The representation of the head of a beer-cask having winged supports provided with arms. Used since May 1, 1892.

21,527. BEER. CARL A. LAEMMER, Denver, Colo. Filed June 4, 1892.

Silver-State-Cabinet

Essential feature.—The words "SILVER-STATE-CABINET." Used since September 1, 1891.

21,528. MEDICINE FOR INTERNAL USE FOR DYSPEPSIA, NAUSEA, AND ALL DERANGEMENTS OF THE ENTERIC AND URINARY SYSTEMS. SALITONIA PHARMACAL COMPANY, St. Louis, Mo. Filed June 3, 1892.

Salitonia

Essential feature.—The word "SALITONIA." Used since April 5, 1891.

21,529. MEDICINAL COMPOUND THE BASIS OF WHICH IS THE CHLORIDES OF GOLD AND SODIUM. MCCROSKY & TAYLOR, Pueblo, Colo. Filed June 11, 1892.



Essential feature.—The arbitrary words "SILVER STATE GOLD CURE." Used since May 24, 1892.

21,530. BOXES, BOTTLES, TUBES, ATOMIZERS, AND POWDER-DISTRIBUTERS USED FOR DISPENSING POWDERS, LIQUIDS, AND SEMI-LIQUIDS. MCKESSON & ROBBINS, New York, N. Y. Filed June 30, 1892.

ALBOLENE.

Essential feature.—The word "ALBOLENE." Used since January 1, 1890.

21,531. CORDED COTTON FABRICS. SHARPLESS BROS., Philadelphia, Pa. Filed Mar. 5, 1891.

21,581. PERSIAN

Essential feature.—The word "PERSIAN." Used since January 1, 1891.

21,582. PERFUMERY. ALFRED WRIGHT, Rochester, N. Y. Filed July 1, 1892.

21,583.

MARY STUART

Essential feature.—The name "MARY STUART." Used since February, 1872.

PHOTO-LITH WASHINGTON D.C. THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISION OF SECRETARY OF THE INTERIOR.

EX PARTE NOAKES.

NO APPEAL LIES TO THE SECRETARY OF THE INTERIOR FROM THE COMMISSIONER'S REFUSAL TO PERMIT THE AMENDMENT OF A PRELIMINARY STATEMENT.

A decision of the Commissioner of Patents denying an interfering party's motion to amend his preliminary statement is a judicial rather than a ministerial act, and consequently one over which the Secretary of the Interior has no appellate jurisdiction. (Citing *Petithomme v. Bedbury*, 52 O. G., 605.)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., July 15, 1892.

SIR: The appeal of William H. Noakes, by his attorney, Charles Turner Brown, from your decisions of May 12 and June 8, 1892, respectively, denying motion made by Noakes to amend his preliminary statement in the interference case entitled Henderson *v.* Noakes, applicants for patent for improvement in metallic bars for window-sashes, etc., is dismissed for the reason that the Secretary of the Interior has no appellate jurisdiction in matters judicially determined by the Commissioner of Patents.

A copy of Department letter of this date addressed to Mr. Brown advising him as to the disposition of the case is herewith transmitted.

Very respectfully,

JOHN W. NOBLE,
Secretary.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., July 15, 1892.

SIR: Referring to your appeal as attorney for William H. Noakes from the decisions of the Commissioner of Patents, dated May 12, 1892, and June 8, 1892, respectively, denying motion made by Noakes to amend his preliminary statement filed in the interference case entitled Henderson *v.* Noakes, applicants for patent for metallic bars for window-sashes, etc., I have to inform you that the Secretary of the Interior has no jurisdiction over the actions of the Commissioner of Patents in his judicial capacity.

A full statement of the views of the Department on this subject will be found in the opinion of the Assistant Attorney-General for the Interior Department, dated May 21, 1890, in the matter of the appeal of Joseph Petithomme from the action of the Commissioner of Patents in refusing to direct the filing, etc., of a certain deposition taken in the interference proceedings between the applications of Petithomme and George W. Bedbury for a patent for improvement in car axle boxes, reported in volume 52, OFFICIAL GAZETTE, page 605.

The appeal is accordingly dismissed,

Very respectfully,

JOHN W. NOBLE,
Secretary.

MR. CHARLES TURNER BROWN,
Chicago, Ill.

COMMISSIONER'S DECISIONS.

EX PARTE SHEPARD.

Decided July 14, 1892.

PRACTICE—SUBSTITUTE DRAWING—CANCELLATION REQUIRED WHEN SUPERFLUOUS AND UNCALLED FOR.

An applicant of his own motion filed a substitute sheet of drawings, which was entered as a part of the application. The Examiner subsequently held it to be unwarranted by the specification, and required cancellation. On appeal, *Held* that while the better course would have been to refuse to enter the new drawing until after the final determination of the question as to its admissibility, yet, it being clear that the drawing was uncalled for and superfluous, the requirement of cancellation must be sustained.

ON petition.

STOVE-POLISHING MITTEN AND DAUBER.

Application of Albert A. D. Shepard filed February 18, 1889, No. 300,368.

Mr. Sylvenus Walker for the applicant.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Examiner requiring applicant to cancel a sheet of drawings filed January 11, 1892.

The history of the case is, briefly, as follows: On May 27, 1889, a letter was written to the applicant calling attention to certain informalities in the specification and citing a certain patent held by the Examiner to anticipate the alleged invention. On February 20, 1891, applicant appointed his present attorney, and on April 15, 1891, a substitute specification was filed. On June 10, 1891, the claims were rejected, and on January 11, 1892, a new sheet of drawings was filed as a substitute for the sheet then on file. On February 12, 1892, the Examiner wrote to applicant as follows:

> The new drawing forwarded as a substitute for the drawing originally filed cannot be accepted, because it not only wholly fails to show the construction originally shown and described, but is not warranted by anything contained in the application when originally filed.
>
> As applicant can only make such changes by amendment as are authorized by Rule 70, he is required to cancel the substitute drawing and confine the application to the invention originally shown and described.

Thereupon applicant requested that the original drawing be restored and that the new sheet be made supplemental thereto. The Examiner repeated his requirement that the new sheet be canceled, whereupon the present petition was filed.

The record shows that neither a substitute nor an additional drawing was called for by the Office, either directly or by implication, but it also shows that the new sheet of drawings was actually entered as a part of the application.

It is obvious that the better course would have been to have refused to enter the new drawing and the amendment to the specification relating thereto pending the final determination of the question raised by the present petition.

Upon examination of the drawings it appears that the original figures fully and clearly illustrate the alleged invention as set forth in the specification. Furthermore, the original drawing illustrates and the specification describes (though imperfectly) a flanged plate riveted to the back of the polishing-mitten, and to this plate the dauber is shown as pivotally attached by means of a bent rod or wire. In the new drawing the said flanged plate is not shown, and the dauber is shown only in a detached view. It appears from a letter filed by applicant that he now desires to separately illustrate the polishing-mitten and dauber because he now manufactures and sells them as separate devices. This is clearly inconsistent with the original illustration and description; but apart from such consideration there is no valid reason why the Office should receive and incorporate into the records of a case an additional drawing, which is uncalled for and superfluous, merely because an applicant for some reason best known to himself chooses to present such a drawing.

The petition is denied.

EX PARTE HINES.

Decided July 14, 1892.

1. PRACTICE—DIVISION.

On appeal from Examiner's decision requiring division between claims for a printing block or plate and the process of making it, *Held* that no wider range of search being required under the present practice of the Office for both groups of claims than for one of them division should not be required.

2. SAME.

Where on a question of division applicant alleges that his article cannot be produced except by his process, and the Examiner says it can, without pointing out the mode, the Examiner's position is not tenable.

ON petition.

PRINTING PLATE OR BLOCK FORMED BY PHOTOGRAPHIC MEANS.

Application of Joseph Hines filed April 19, 1892, No. 429,778.

Messrs. W. P. Thompson & Co. and *Messrs. Dodge & Sons* for the applicant.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Examiner requiring division between claims 1, 2, and 3 for a printing block or plate, on the one hand, and claims 4 to 8, inclusive, for the process of making such block or plate, on the other hand.

There is nothing of record to indicate whether or not the process and its product or either of them are new, except the statement of the Examiner that the article—

can be *made* by *several old processes* well known to any one skilled in the art of photography.

It would seem that if one or more old processes for producing this product are in existence the product itself must be old; but in the absence of anything showing such a state of things, except the statement of the Examiner above quoted, it must be assumed for the purpose of deciding the question here presented that both process and product are new.

That the process covered by the second group of claims will, if practiced, produce the article covered by the first group and that it will produce no other product is not disputed. Such being the case, it remains to be determined whether or not the product may be produced by any other process, and, if so, whether a wider range of search is required for both process and product than would be required for one of them.

As stated above, the Examiner alleges that the article may be made by other processes. This allegation is denied by the applicant. In the absence of any demonstration of the Examiner's statement in this connection, the question is not sufficiently free from doubt to warrant the finding that the process and product are distinct inventions.

Assuming, however, for the purpose of considering the second branch of the question stated above, that the process and its product are distinct inventions, as alleged by the Examiner, it is not clear that if presented in separate applications such applications would be assigned to and examined in different divisions of the Office. In fact, it is believed that under the existing classification the reverse would be true and that substantially no wider range of search would be required for both groups of claims than for one of them.

The petition is granted.

EX PARTE SCHOTTEN & CO.

Decided June 13, 1892.

TRADE-MARK—PRACTICE—WHAT THE OATH MUST EMBRACE.

An applicant for Trade-Mark registration, relying upon commerce with Indian tribes to bring him within the statute, will be required in his oath to specify by name the tribe or tribes with which such commerce is carried on.

ON petition.

TRADE-MARK FOR COFFEE.

Application of William Schotten & Co. filed April 21, 1892.

Mr. Charles F. Benjamin for the applicants.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition requesting the Commissioner—

to waive in this case the literal or technical enforcement of that part of Rule 12 quoted in the Office letter of May 11, 1892, and to accept the original declaration, together with the supplementary declaration, as answering the requirement of the statute for "a written declaration, verified."

The letter above referred to is as follows:

The informal amendment to the oath * * * cannot be admitted into the case, as Rule 12, Rules of Practice, says: "The declaration cannot be amended. If that filed with the application is faulty or defective, a substitute declaration may be filed." Therefore an entire new oath is required, in conformity, as nearly as practicable, to the illustration (b) page 15 of the Rules, omitting therefrom all reference to former declarations or amendments.

The record shows that the original oath to the application contains, among other things, the following:

That said Trade-Mark is used * * * in commerce between the United States and foreign nations or Indian tribes, (particularly with the tribes located in the Indian Territory;)

that the Examiner required a substitute oath setting forth "commerce with some particular foreign nation or Indian tribe;" that applicant, after said requirement had been repeated, filed a supplemental oath, in which he stated as follows:

In addition to the declaration heretofore made by him and filed in said case, and which declaration is made a part hereof, as though the same were fully repeated herein, he declares that the said Trade-Mark is particularly used by said firm in lawful commerce with the Cherokee Indian tribe, domiciled in said Indian Territory;

that thereupon the Examiner wrote the letter of May 11, 1892, above quoted, which led to the bringing of the present petition.

If the first oath is defective, it is clear, under the rule, that it cannot be cured by amendment. (Rule 12.) If the first oath is not defective, then there is no necessity for a substitute declaration. The question to be decided, then, is whether or not the first oath is a sufficient compliance with the practice and the rules. While it is undoubtedly true that the rules should not be construed in such a manner as to make them oppressive, and while it may be true that the first declaration under oath may, in a general way, comply with the spirit of the law, yet it it is not advisable as a matter of policy to relax the rules and practice to such an extent as would tend to make them indefinite and loose. It would be difficult to draw the line just where the Commissioner would be satisfied that applicant was using his mark in foreign commerce between the United States and Indian tribes other than by requiring that he should specify by name the tribe or tribes with which the commerce is being carried on. This has been the practice since the present Trade-Mark law was enacted, and as there is no hardship connected with it I see no good reason for departing from it. (See *Ex parte Strasburger & Co.*, C. D., 1881, 23, and case cited therein.)

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Circuit Court of Appeals—Sixth District.

KILBOURNE *et al. v.* W. BINGHAM COMPANY.

Decided June 6, 1892.

1. PATENT—PROCESS AND ARTICLE OF MANUFACTURE—METAL SINKS.

Claim 1 of Letters Patent No. 240,146, issued April 12, 1881, to James Kilbourne, is for "the herein-described sink, made of a single sheet of wrought steel or iron, without joint, seam, or interior angle, substantially as set forth," and the specification sets forth that the invention consists of a "sink swaged or struck up from a single sheet of wrought iron or steel, without joint, seam, or interior angle." The method of construction not being further referred to in the patent, *Held* that the patent does not cover a process.

2. SAME—CERTAIN FEATURES NOT SHOWING INVENTION.

The use of a single sheet of metal and the absence of "joint, seam, or interior angle" do not confer patentability, since these features are old in analogous devices.

3. SAME—SUBSTITUTION OF MATERIALS.

The use of wrought iron or steel in lieu of cast metal is a mere substitution of materials and is not patentable, notwithstanding the superior results obtained.

APPEAL from the Circuit Court of the United States for the Northern District of Ohio, Eastern Division.

STATEMENT OF THE CASE.

Suit by James Kilbourne and the Kilbourne & Jacobs Manufacturing Company against the W. Bingham Company for infringement of patent. The circuit court dismissed the bill, and complainants appeal. Affirmed.

Appellant Kilbourne is the patentee and owner of and the corporation appellant the exclusive licensee under Letters Patent No. 240,146, issued April 12, 1881, on application filed December 28, 1880, for certain new and useful improvements in sinks. This suit was brought to restrain the alleged infringement of that patent. The patentee in his specification states the nature of his invention thus:

My invention consists of a sink swaged or struck up from a single sheet of wrought iron or steel, without joint, seam, or interior angle.

He then sets forth various defects in sinks made of cast metal, saying:

Sinks of this kind are neither strong nor durable. They break easily and frequently in shipping or in storing them, and also in placing or setting them up in position for use. They are also liable to fracture or break if water should freeze in them, and in order to give them the modicum of strength which they possess a considerable amount of metal must be used in their construction, making them cumbersome and heavy, and increasing expense of manufacture.

He gives this description of his invention:

I have discovered that the above-specified defects can be completely removed by making the sink of wrought iron or steel, said sinks being swaged or struck up from a single sheet of such metal, as hereinbefore first specified. Such a sink is, of course, stronger than one of cast metal, and is not liable to be fractured or broken by a sudden jar or blow. It is cheaper than a cast-metal sink, for the reason that much less metal is required in its construction, and it can, by the swaging operation—as, for instance, by being struck up in a drop-press—be made more rapidly and economically. * * * The sink, being, as seen in the drawings, without interior angle, has practically equal strength at all points, and has no corners, where sediment or dirt can gather.

The issue between the parties is confined to the first claim of the patent, which is thus stated:

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The herein-described sink, made of a single sheet of wrought steel or iron, without joint, seam, or interior angle, substantially as set forth.

The answer denies the infringement charged, the value and utility of the alleged invention, and that the patentee was the original and first inventor or discoverer of any material or substantial part of the thing patented. It gives the names and residences of numerous persons who knew and used the thing patented prior to its alleged invention by Kilbourne. It also alleges that the article had been patented and described prior to its supposed invention by Kilbourne in some thirty prior American patents and one English patent, and specifies several printed publications circulated in the United States in which it had been described, and pleads that the patented article had been in public use and on sale in this country for more than two years prior to Kilbourne's application. It also insists that in view of the state of the art of manufacturing sinks, bath-tubs, and many like articles long before said alleged invention the Letters Patent fail to disclose any invention and that the means claimed as original by said Kilbourne under his patent were common and well known.

Before JACKSON, *Cir. J.*, and SWAN, *Dis. J.*

Messrs. Watson, Burr & Livesay and *Mr. M. D. Leggett* for the complainants.

Messrs. Briesen & Knauth, Mr. H. M. Turk, and *Mr. Arthur von Briesen* for the defendant.

SWAN, *J.:*

Complainants claim the monopoly of making and vending under Kilbourne's patent the single article of sinks—

swaged or struck up from a single sheet of wrought steel or iron, without joint, seam, or interior angle.

The conceptions claimed as original, on which the

validity of the patent is predicated by the argument, are: first, the mode of construction; second, the entirety of the material composing the completed article; third, the use of the wrought steel or iron in the manufacture of the sink; fourth, the interior form, without joint, seam, or angle.

First. If the first element of this claim were a new process, it is not sufficiently described to meet the requirements of section 4888, Revised Statutes of the United States, that an inventor shall make and file in the Patent Office a written description of his invention and—

of the manner and process of making, constructing, compounding, and using the same, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same.

The antiquity of the process and the fact that the patentee does not expressly or by implication claim it save the patent from this objection. The art of swaging metals into any required form was venerable long anterior to this patent. The drop-press, drop-hammer, dead-stroke hammer, dishing-ram, dies, die-press, forcers, and stamping-machines have long been familiar to metal-workers as implements by which hollow ware in all its forms and varieties has been manufactured for over half a century, and are regarded in the art as simply equivalent machines or tools for swaging—that is, beating or drawing the ductile metals into desired shapes. The use of one or the other of these agencies is merely a preferential application by the workman of the power required for the work in hand. The variety of manufactures by this process has been limited only by the art of designing, the ductility of metals, and the possibilities of machinery. The inventor of a new design or material for an article of manufacture or of a new device for the application of the power needed in this art, or the discoverer of a process for the treatment of refractory metals, is entitled to the monopoly assured by the patent laws. These would be additions to our knowledge and contributions to the industry evolved from the inventive faculty. The appreciation and utilization of the efficiency of old methods, means, and material for the manufacture of domestic, mechanical, and agricultural wares—

does not spring from that intuitive faculty of the mind put forth in the search for new results or new methods creating what had not before existed or bringing to light what lay hidden from vision, but, on the other hand, are the suggestions of that common experience which arose spontaneously and by a necessity of human reasoning in the minds of those who had become acquainted with the circumstances with which they had to deal. (*Hollister* v. *Manufacturing Co.*, 113 U. S., 72; 5 Sup. Ct. Rep., 717.)

It is not enough that the new manufacture, because of the fitness of the material to the purposes of the article, has obviated innumerable objections inherent in prior manufactures and superseded them in the trade. It must possess an advantage and novelty in form or construction beyond the ability of a mechanic of ordinary skill and intelligence or be the resultant of means or methods devised by the maker.

The law—

says Judge Woodruff in *Smith* v. *Elliott*, (1 O. G., 331; 9 Blatchf., 408)—

gives no monopoly to industry to wise judgment or to mere mechanical skill in the use of known means, nor to the product of either, if it be not new. These are within the proper field of competition and open to all. In general they will in that competition be justly appreciated and will command their proper remuneration if usefully employed. It is invention of what is new, and not comparative superiority or greater excellence in what was before known, which the law protects, and it is that alone which is secured by patent.

The state of the art of metal-working conclusively disproves Kilbourne's claim to a monopoly for the process used in this manufacture and remits him for his reward to the quality of his wares. He has contributed nothing to its resources or machinery unknown before to the craft. He obtained his patent April 12, 1881. No model accompanied his specification. From that date until some time in 1883 the sum of his achievements in this line of industry was the abstract conception of the adaptability and fitness of wrought steel and iron to this article of household furniture. He admits that during this interval he expended thousands of dollars and ruined thousands of plates in endeavoring to make the sink. He says:

I made first small dies and then large ones; had to change and change again the shape of the dies, and almost despaired of success; but I had spent so much time and money on it that I persevered and finally succeeded.

This confession not only demonstrates that the patentee has failed to disclose the secret of his process and specify his invention in such a way that others of the same trade would be enabled to do the thing for which the patent was granted without any new invention or addition of their own—has merely "set them a problem to solve," to use the phrase of Baron Alderson in *Morgan* v. *Seaward*, (Webs. Pat. Cas., 174)—but also that the process was a mystery to himself which for two years after his patent had issued baffled solution. The result of his experiments has justified his faith in the adequacy of "the swaging operation" to this manufacture; but the necessity for the experiments proves that the machinery of his success, which is patentable if original, was obviously a hard-born afterthought which he had not conceived. But beyond this there is no language in this patent which can by any latitude of construction be held a claim for the process beyond the curt references to the swaging operation, and one of its tools—the drop-press—which are alluded to as well-known agencies or machinery equal to the manufacture of the article.

The argument that under the case of *Smith* v. *Vulcanite Co.* (11 O. G., 246; 93 U. S., 492) the process detailed is made as much a part of the invention as are the materials of which the product is composed has no applicability. There, as is said—

the properties of vulcanite were well known; but how to make use of them for artificial sets of teeth remained undiscovered and apparently undiscoverable until Cummings revealed the mode.

The patent was sustained as a combination of process and product, both of which were new, though the materials were old. The process was fully detailed. The distinctions between that case and this are obvious. For the reasons stated the claim for the process is untenable.

Second. The record shows that neither the entirety of the material of which the sink is made nor the absence of joint, seam, and interior angle is a new feature in this class of manufactures. Butlers' trays, plumbers' sinks, flanged baking-pans, bidet-pans, and numerous other domestic and mechanical utensils were made by the swaging operation from single sheets of metal long anterior to the plaintiffs' patent. All of these articles were jointless, seamless, without

interior angles, strong, durable, cheap, and light as compared with like utensils of cast metal; so elastic as largely to obviate injury to dishes placed or dropped therein; could be safely and easily handled, shipped, and set in position; subjected without detriment to extremes of heat and cold; were not affected by the freezing of their contents, non-odorous, and easily cleansed. In short, they remedied every objection to cast-metal utensils which experience has developed and the specification of this patent and the proofs of complainants have particularized.

Defendant's exhibit bidet-pans is a small bathing-vessel stamped or swaged from sheet metal, without joint, seam, or interior angle. These were made by Hodges, Taylor & Hodges, in Brooklyn, N. Y., as early as 1854, and also as early by Ketchum, of New York. They were usually from eighteen to twenty inches long, ten or eleven inches wide, and from six to eight and one-half inches in depth. The size was limited by the demand, not by difficulty of construction.

Defendant's exhibit baking-pan is a type of an utensil which has been manufactured and sold at least since 1850, and has been made with and without flanges. Many sizes and varieties of this dish were made, and they were used for different purposes. Sheet-tin was the material commonly used; but where that was not obtainable of sufficient size sheet-iron was substituted. They were formed of a single sheet of metal, without joint, seam, or interior angle, by the wheeling process, which is defined as—

simply raising articles of various forms and depths out of one flat piece of material—copper, iron, brass, or any other material whatever in the form of sheets—

by means of two co-operating wheels, one of which is adjustable, so arranged that by their pressure the metal forced between them could be given any desired form. The capacity of this process for the manufacture of household utensils of any depth or shape is practically unlimited. The usual depth of its manufactures was from eight to eight and and a half inches.

Defendant's exhibit butler's tray is another exemplification of these wares. It is, in fact, a portable sink for use in the dining-room, formed of—

a single sheet of wrought-iron, without joint, seam, or interior angle—

by the swaging operation. In shape, material, and manner of construction it is strikingly suggestive of the Kilbourne sink. The proofs are convincing that these were made as early as 1878, if not in 1876. Between the basin of this tray and defendant's flanged baking-pan, which is as old as the tray, there is but little difference in shape. They were made in the same manner before the year 1880. They were twenty inches in length and sixteen inches in width.

As long ago as 1846 British Letters Patent No. 11,073 were granted to Thomas F. Griffiths for an improvement in the form of dies and a combination of the processes of shaping sheet metal by stamping and burnishing into required shapes and designs.

Speaking in his specifications of stamping plate and sheet metal in accordance with his process, he says:

A great variety of articles, it is well known, are now made by stamping and by stamping combined with burnishing to form, and both these processes are well known.

He appends to the specifications three illustrative drawings of articles stamped from single pieces of sheet metal and iron plate of the same shape as the sinks made by complainant, and thus verifies his claim that—

the workman will only have to vary his dies, forcers, and chucks in order to make articles of other sizes and forms.

December 21, 1869, J. G. Knapp obtained Letters Patent for an improvement in sheet metals, flour, grain, and other scoops. His invention consisted—

in forming the bowls in one piece of metal, without seams or joints, by stamping up sheets of metal into the form of troughs, with a flange around the top, etc.

Letters Patent were granted James Kidd, December 19, 1876, for an improvement in metal wheelbarrows, which consists in making the tray or body of the barrow of a single sheet of steel struck up or stamped from a plate of steel or any other sufficiently ductile metal by a dishing-ram. On the same day Kidd took out another patent for an improvement in dishing metals, by which plates of sheet metal—

can be stretched or stamped into a dished or concave form, with any desired outline of the concave and with a surrounding flange or strengthening edge

Farrington and Armstrong's patent, of November 18, 1873, for improvement in sheet-metal coffins furnishes another anticipation of Kilbourne's use of the single sheet of metal. They made these caskets of two pieces of wrought-iron by dishing or distorting the plain sheets or plates of iron by means of dies into the required shape and depth.

T. E. Rowland's patent, of May 30, 1876, for an improvement in wrought-iron vessels for buoys, etc., consisted in forming a complete hollow welded vessel of two hemispheres struck up by dies from entire circular plates. These hemispheres were flanged by the same process, so that they could be welded to form the buoy or hollow vessel.

Under Morris Wells's patent, of January 2, 1866, for sheet-metal dies seamless hollow ware was struck up from single sheets of metal by a series of dies.

November 4, 1879, Hiram W. Ball received a patent for an improvement in road-scrapers, under which the scoops of those implements were constructed of a single piece of steel—

having upturned sides and back, without seams, joint, or interior angle—

swaged or formed to the required shape. Of this patent Kilbourne is the assignee.

The similitude of language and ideas in Ball's and complainants' specifications and the fact that Kilbourne is the assignee of the Ball patent are at least suggestive of his appreciative apprehension of the prior manufacture. With Ball's patent before him his ingenuity would not be taxed to discern the efficacy of the swaging operation to strike up a blank sheet of wrought steel or iron into a four-sided vessel—

without seam, joint, or interior angle—

the Kilbourne sink in short—with as much facility as it produced Ball's three-sided scoop from the same metals.

William G. Avery obtained a patent November 4, 1879, for an elevator-bucket, without joint or seam, struck up from a single piece of metal and formed with a flat bottom, curved front and sides, and flat back. It is useless to multiply examples of manufactures from single sheets of wrought metals possessing every merit and peculiarity claimed for this sink.

The list might be indefinitely prolonged. The catalogue of patented machines and process for swaging, stamping, and striking up household and miscellaneous utensils and conveniences which were jointless and seamless and preserved the entirety of the material of the article is as voluminous. The instances cited of the application of this art to common uses deprive these features of this sink to all claim to novelty.

While an exact counterpart of Kilbourne's sink in shape had not been produced in wrought metal, its prototype in form appears in Bignall's cast-iron sink, for which Letters Patent were issued January 1, 1867, to L. C. and M. C. Bignall. This is without joint, seam, or interior angle and has a grooved or recessed flange in its upper and outer edge, projecting horizontally, into which the upholding framework or inclosure is fitted. The flat flange of complainants' sink serves the same purpose. The form or pattern therefore lacks originality.

Third. The use of wrought steel or iron in lieu of cast metal is mere substitution of materials, which, whatever the degree of superiority given to the manufacture thereby, is not patentable. (*Hotchkiss* v. *Greenwood*, 11 How., 248; *Hicks* v. *Kelsey*, 5 O. G., 94; 18 Wall., 670; *Phillips* v. *Detroit*, 17 O. G., 191; 111 U. S., 604; 4 Sup. Ct. Rep., 580; *Gardner* v. *Herz*, 35 O. G., 999; 118 U. S., 180–192; 6 Sup. Ct. Rep., 1027; *Brown* v. *District of Columbia*, 47 O. G., 398; 130 U. S., 87; 9 Sup. Ct. Rep., 437; *Florsheim* v. *Schilling*, 53 O. G., 1737; 137 U. S., 64; 11 Sup. Ct. Rep., 20.)

The decree of the circuit court dismissing the complainants' bill is clearly correct, and is affirmed, with costs.

Supreme Court of the District of Columbia—General Term.

ODELL, ADMINISTRATOR, *v.* THE COMMISSIONER OF PATENTS.

Decided February 1, 1892.

PATENTS FOR INVENTIONS—PATENTABLE NOVELTY—INDEXED LETTER-FILES.

An applicant for a patent for an improvement in letter-files already held a patent for an indexed letter-file consisting of a series of perforated index-sheets arranged at one end to hinge and slide upon an upright rod and being free at the other end to permit of their being lifted from their position. The perforations in the sheets were circular and little larger than the rod itself. *Held*, that an improvement which consisted merely in making these perforations elliptical to admit of freer action upon the rod does not constitute patentable invention.

APPEAL from the Commissioner of Patents denying the appellant's application for a patent for an improvement in indexed letter-files. Commissioner affirmed.

STATEMENT OF THE CASE.

Appellant's decedent held a patent of the same character the only improvement urged over which in the present application was that the perforations in the filing-sheets were elliptical in form, so as to permit the sheets to slide easily on the rod, whereas in the patent the perforations were circular and were found in practice to bind and rub upon the rod when the sheets were tilted at any angle.

Messrs. Poole & Brown for the appellant.

Mr. W. S. Case for the Commissioner.

The Chief-Justice and Justices COX and JAMES present.

COX, *J.:*

This is an appeal from the Commissioner of Patents in the name of J. J. P. Odell, administrator, seeking a patent for an invention by his intestate, which is claimed to be patentable. The claims as described in the brief of the claimant are for a—

combination, with the receptacle comprising the bottom and back and a vertical rod parallel with the back, of a series of index-sheets [of this character, indicating] provided with coincident apertures for the rod but little wider than the rod in a direction parallel with the back and materially longer than the diameter of the rod in a direction at right angles with the back, substantially as described.

The combination, with the receptacle comprising a bottom and back and a vertical rod parallel with the back, of a series of index-sheets provided with coincident apertures for the rod materially larger than the rod in a direction at right angles with the back and located at substantially the same distance as the rod from the back, whereby the rod occupies the inner part of the aperture when the sheets are horizontal, substantially as described.

The invention claimed is for combining with the back, two ends and the bottom, and a vertical rod or pin certain stiff sheets, which work up and down in this way [indicating] by means of a slot or hole elliptical in form at right angles to the back.

The application for this patent was filed in 1883 and never came to final hearing until recently, when the Commissioner rejected the application on two (2) references: one a patent to one T. Towndrow, May 29, 1860, and another patent to the deceased claimant, T. H. Brown, Jr., October 30, 1877. The Towndrow patent was one where there were several apertures that were elliptical in form but parallel to the back. It does not strike us that the object of that was the same as the object of this alleged invention. It seems, further, that the object of those holes elliptical in form was simply to avoid any trouble in sliding the leaf off the pin. We do not think that that anticipates the present alleged invention; but we think that the first Brown patent does. As we understand it, the first patent in 1877 was for exactly the same thing as this, except that the hole by which the sheets worked on the pin was round and close to the pin, whereas these are elongated in a direction at right angles to the back. The inventor says that he found a defect in this; that when he undertook to raise the sheet the edge of the hole would catch against the pin and the paper would become torn and the sheets were put in that position, [indicating.] He proposes to remedy that by elongating that aperture, making it larger in shape and at right angles to the back, so that it can be raised up without rubbing against the pin or tearing a sheet or shortening it. Now, it seems to us that the first Brown patent anticipated this and that it did not require any invention to do what is done in this, as it would occur to anybody having this first patent, if he found that the paper caught there, to take his penknife and slit that and make the aperture longer. It would be natural for any one to do that. It did not require any skill or invention to do it. It would be the first thing that would attract the attention of any one. Suppose that the Government patented this arrangement. What would be the consequence if people who are provided with the boxes constructed under the first patent with a round hole should take something and elongate the hole in the manner I have described? The effect would be that nobody could take a penknife, as I have observed, and elongate that hole without paying a royalty. The patent, which was issued in 1877, had seventeen years to run, which will soon expire, and to grant the one applied for would virtually be extending it for seventeen years longer, which is opposed to the policy of the patent law. The first patent must be considered as anticipating the present one, and the decision of the Commissioner will therefore have to be affirmed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 60.—No. 5. TUESDAY, AUGUST 2, 1892. PRICE—$5 per year.

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Attorneys.

(ORDER No. 741.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 29, 1892.

With the approval of the Secretary of the Interior, Henry J. Ennis, of Washington, D. C., is hereby disbarred from practice before the Patent Office, pursuant to section 487 of the Revised Statutes.

W. E. SIMONDS,
Commissioner.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 73 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of August 2, 1892.

Patents	465	No. 479,776 to No. 480,240, inclusive.
Designs	20	No. 21,738 to No. 21,757, inclusive.
Trade-Marks	36	No. 21,553 to No. 21,588, inclusive.
Labels	None.	
Reissue	1	No. 11,256.
Total issue	522	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	6	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	6	1
Arkansas	2	.....	New Jersey	17	3
California	10	.....	New Mexico Territ'y	1	.....
Colorado	1	.....	New York	73	7
Connecticut	26	1	North Carolina	.....	2
Delaware	1	.....	North Dakota	.....	.....
District of Columbia	3	.....	Ohio	31	2
Florida	2	.....	Oregon	6	.....
Georgia	4	.....	Pennsylvania	35	3
Idaho	.....	.....	Rhode Island	3	1
Illinois	39	2	South Carolina	3	.....
Indian Territory	.....	.....	South Dakota	2	1
Indiana	15	.....	Tennessee	2	.....
Iowa	13	2	Texas	5	.....
Kansas	7	1	Utah Territory	.....	.....
Kentucky	9	.....	Vermont	1	.....
Louisiana	2	.....	Virginia	5	1
Maine	2	.....	Washington	2	.....
Maryland	.....	.....	West Virginia	.....	.....
Massachusetts	50	5	Wisconsin	18	.....
Michigan	13	1	Wyoming	.....	.....
Minnesota	9	.....	U. S. Army	.....	.....
Mississippi	3	.....	U. S. Navy	2	.....
Missouri	18	2			
Montana	.....	.....	Total to citizens of the United States	452	35
Nebraska	5	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Mexico	1	...
Austria-Hungary	.....	.....	Netherlands	.....	...
Belgium	.....	.....	Newfoundland	.....	.....
Bermuda	.....	.....	New South Wales	.....	.
Brazil	.....	.....	New Zealand	.....	..
Canada	5	.....	Norway	.....	.....
Cape Colony	.....	.....	Queensland	.....	.....
Chile, Republic of	.....	.....	Russia	1	.....
Cuba	.....	...	Scotland	3	...
Ecuador	.....	.....	South Australia	.....	...
England	8	1	Spain	.....	.....
France	4		Sweden	1	.....
Germany	6	.....	Switzerland	3	...
Hawaii	.....	.....	Victoria	.....	.....
Ireland	1	.....			
Italy	.....	.....	Total to citizens of foreign countries	33	1
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

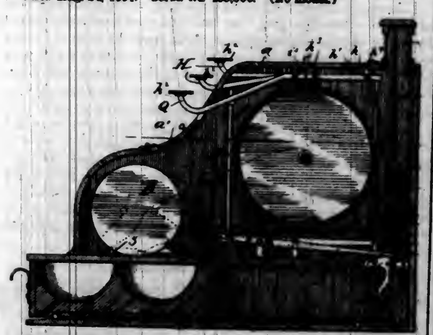
Condition at Close of Business July 26, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
7	Harvesters, Games and Toys	June 3	July 20	220
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	June 1	July 19	94
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	May 28	July 19	236
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	May 27	July 19	93
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	May 26	July 12	198
5	Fine Arts, Stationery, Book-Binding, Music, etc.	May 27	July 1	173
	Between two and three months in arrears.			
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 17	July 18	181
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	May 2	July 15	251
23	Instruments of Precision, Acoustics, Optics, etc.	Apr. 30	July 14	277
24	Sewing-Machines and Apparel	May 11	July 12	102
21	Textiles, etc.	May 6	July 11	183
2	Farm Stock, Products, etc	Apr. 26	July 6	295
22	Fire-Arms, Navigation, Signals, etc.	May 9	July 5	227
9	Hydraulics, Fire-Extinguishers, etc.	May 10	July 1	351
17	Paper-Manufactures and Printing.	May 5	July 1	187
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Apr. 28	July 1	240
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	May 20	June 25	261
12	Mechanical Engineering, Stores-Service, etc.	May 16	June 24	192
18	Steam-Engineering, etc	May 10	June 24	241
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	May 3	June 22	222
8	Furniture, Toilet, Umbrellas and Canes, etc.	May 23	June 14	297
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 2	June 11	333
1	Tillage and Fences	May 2	May 26	302
	Between three and four months in arrears.			
10	Carriages and Wagons and Railway-Cars.	Apr. 11	July 12	719
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Apr. 21	July 2	412
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Apr. 1	June 29	472
4	Civil Engineering, etc.	Apr. 7	June 4	460
26	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 30	June 4	484
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Apr. 5	May 24	341
	Between four and five months in arrears.			
20	Electricity, Generation, Distribution, etc.	Feb. 29	June 15	450
13	Metal-Working, Arms and Projectiles, etc.	Mar. 1	June 2	417
19	Stoves and Furnaces	Mar. 7	May 20	466
	Total number of applications awaiting action			9,877
	Under one month in arrears.			
	Designs	July 20	July 20	41
	Trade-Marks	July 23	July 25	12

PATENTS

GRANTED AUGUST 2, 1892.

479,776. CASH-REGISTER. HARVEY R. ADAMS, Marseilles, Ill. Filed Aug. 24, 1891. Serial No. 403,506. (No model.)



Claim.—1. In a cash-register, a recording-cylinder mounted on the shaft by which it is turned and movable lengthwise thereon, in combination with clock-work whereby said shaft is rotated, a recording-strip upon said cylinder, spaced to correspond with the indicating-keys, each of said spaces being subdivided circumferentially, and change mechanism whereby at the end of one revolution the said cylinder is released and slipped forward on its shaft half the distance of one of said spaces, thereby adjusting it for operation during another revolution, substantially as described.

2. In a cash-register, the recording-cylinder E, movable lengthwise on its shaft *c* and provided at its inner end with a halved sleeve-hub e^2, in combination with the sleeve-clutch F, mounted loosely on the cylinder-shaft and notched at each end, as described, the fixed sleeve e^3 on the cylinder-shaft, also halved at its inner end, the clutch-spring f^3, a stop to arrest the rotation of the clutch at the end of each revolution of the shaft, and a spring E', adapted to slide the cylinder forward on its shaft when released from the clutch, substantially as described.

3. In a cash-register, a recording-cylinder E, adapted to slide on its shaft *c*, in combination with the spring E', arranged to slide the cylinder on its shaft, the sleeve-clutch F, notched as described and provided with a pin f^2, the cylinder-hub e^2 and fixed sleeve e^3, notched as described, the clutch-spring f^3, the yielding stop F', the stop-removing arm e^4, and clock-works applied to rotate said cylinder-shaft, substantially as described.

4. In a cash-register, a recording-cylinder, in combination with the clock-work for rotating the same, a recording-strip applied to said cylinder and divided to indicate hours and subdivisions thereon, and a series of indicating-levers, each provided with a series of movable indicating-points arranged in different vertical planes and adjustable to operate separately and in succession, substantially as described.

5. In a cash-register, a recording-cylinder, in combination with a suitably-spaced recording-strip applied thereto, key-levers H, short shafts I, mounted thereon and provided with indicating-points *i*, arranged circumferentially around said shaft and in different vertical planes, and a device for giving the said shaft a turn at each operation of the lever to change the position of the said points, substantially as described.

6. In a cash-register, a recording-machine, in combination with key-levers H, constructed with loops h^3, square shafts I, mounted in said loops and provided with indicating-points *i*, arranged one on each face of the shaft but in different vertical planes, the holding-spring f', the ratchet-wheel i^3, fixed on the shaft, and a spring-pawl i^4, adapted to engage with said ratchet-wheel to turn the shaft upon the upward movement of the lever after depression, substantially as described.

7. In a cash-register, the case lid or cover *a*, in combination with the key-levers H, pivoted thereto in slotted lugs h^4, the springs *h'*, the perforating-points mounted on the levers, and the recording-cylinder E, arranged below the levers, substantially as described.

8. In a cash-register, a series of vertically-sliding tablet-rods provided with yielding stops or springs in combination with mechanism whereby said rods are lifted by the depression of the key-levers, a stop-bar mounted on vibrating springs, a cash-box arranged to press back said springs to hold the said bar out of engagement with the stops on the rods when the drawer is closed, and mechanism whereby the drawer is released by the depression of any one of the keys, thereby releasing the said springs from tension and swinging the stop-bar into operative position, substantially as described.

9. In a cash-register, the suspension-springs *m*, with their free ends arranged behind the cash-drawer, in combination with a stop-bar M, mounted on said springs, the sliding tablet-rods K, provided with stop-springs *k'*, adapted to yield as they pass the said bar when the rods are raised, and a sliding cash-drawer B, arranged to move the suspension-springs backward to carry the stop-bar out of working position when closed and to permit the springs to move forward, bringing the bar into working position when opened, whereby two or more tablet-rods may be lifted without closing the drawer and all will be released together whenever the latter is closed, substantially as described.

479,777. HAWSER-CLAMP. ROBERT ASHWORTH, St. Cloud, Minn. Filed Apr. 30, 1892. Serial No. 431,237. (No model.)



Claim.—1. A guy clamp consisting of two members and a screw-nut, one member having three parallel perforations and the other member being in the form of a T-headed bolt having its body passing through the central perforation and through the nut and its arms through the other perforations, substantially as described.

2. In a guy-clamp, the combination of a metal block having three perforations parallel with each other and grooves in the bottom thereof between said perforations, a T-headed bolt having its screw-threaded body passing through the central perforation and its arms through the perforations on the sides of the central one, with a nut on said body, substantially as described.

479,778. APPARATUS FOR COOLING LIQUIDS. PETER ESSNER, Mannheim, Germany. Filed Feb. 23, 1892. Serial No. 422,466. (No model.) Patented in Belgium Dec. 23, 1891, No. 97,754; in France Dec. 29, 1891, No. 218,251, and in Switzerland Dec. 30, 1891, No. 4,469.

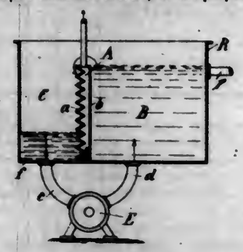
Claim.—1. A cooling apparatus comprising a tank or vessel divided into feed and exhaust chambers by a hollow partition of less height than the vessel and means for supplying a cooling agent to and exhausting the same from the hollow partition, for the purposes set forth.

2. A cooling apparatus comprising a tank or vessel divided into feed and exhaust chambers by a hollow partition provided with an irregular cooling-surface, said hollow partition being of less height than the vessel, and means for supplying a cooling agent to and exhausting the same from the hollow partition, for the purposes set forth.

3. A cooling apparatus comprising a vessel divided into feed and exhaust chambers by a hollow partition of less height than the vessel,

means for feeding the liquid to be cooled to one of said chambers, and means for causing the liquid to continuously circulate from one chamber to the other, comprising a pump having its suction connected with the exhaust-chamber and its discharge with the feed-chamber of the vessel, and means for supplying a cooling agent to the hollow partition, as and for the purposes set forth.

4. A cooling apparatus comprising a vessel divided into feed and exhaust chambers by a hollow partition of less height than the vessel and a pipe connected with the last-named chamber for injecting air or a gas into the liquid contained therein, for the purpose set forth.



5. A cooling apparatus comprising a closed vessel divided into feed and exhaust chambers by a hollow partition of less height than the vessel, a pump having its suction connected with the exhaust-chamber and its discharge with the feed-chamber, a supply and an exhaust pipe connected at different levels with the hollow partition for supplying thereto and exhausting therefrom a cooling agent, and a perforated pipe within the exhaust-chamber, near the bottom thereof, for the introduction of air or a gas into the liquid, for the purpose set forth.

6. A cooling apparatus comprising a vessel divided into feed and exhaust chambers by a hollow partition of less height than the vessel and means for supplying cooling agents of different temperatures to the inner faces of the opposite walls of the hollow partition, comprising two supply-ducts arranged at the upper end of the hollow partition and having ports opening toward the opposite inner faces of the walls of said partition and suitable feed-pipes for feeding cooling agents of different temperatures to said ducts, for the purpose set forth.

7. A cooling apparatus comprising a vessel divided into feed and exhaust chambers by a hollow partition having zigzag-shaped vertical walls *b* and *a* and means for supplying cooling agents of different temperatures to the inner faces of said zigzag walls, comprising two ducts arranged at the upper end of the hollow partition, said ducts having ports *c'* and *c''* facing said opposite inner faces of the walls of the partition, and suitable feed-pipes connected with the ducts, as set forth.

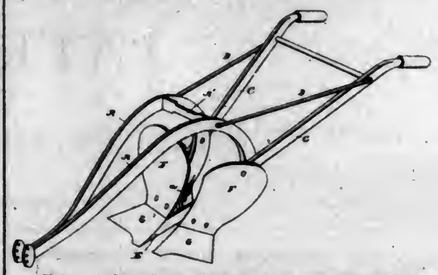
8. In an apparatus of the class described, the combination, with the cooling-chamber A, having two supply-ducts at its upper end, of the T-coupling H, provided with the three-way valve *z'*, pipes *y''* *x''*, connected with the supply-ducts of the chamber A and with the horizontal branch *z* of the T-coupling on opposite sides of the valve, the feed-pipes *x* and *y*, connected with the vertical branch of the T-coupling and provided with a suitable valve, and a valved branch connecting pipe *y* with branch *y''*, as and for the purpose set forth.

9. A cooling apparatus comprising a cylindrical vessel, a hollow cylindrical partition, of less height than the vessel, dividing the same into a cylindrical inner feed-chamber, a like outer exhaust-chamber, a concave bottom for said inner chamber, and an exhaust-pipe extending axially through and adjustable in said bottom, for the purpose set forth.

10. A cooling apparatus comprising a vessel, a hollow partition of less height than the vessel and dividing the same into feed and exhaust chambers, means for supplying a cooling agent to and exhausting the same from the partition, and means for causing the liquid to circulate from one chamber to the other, comprising a pump having its suction connected with the exhaust-chamber and its discharge with a pipe *d*, extending into the feed-chamber above the upper edge of the partition, and a receiving-pipe *e*, open at both ends and encompassing the pipe *d*, substantially as and for the purpose set forth.

11. A cooling apparatus comprising a cylindrical vessel, a like hollow partition of less height than the vessel and dividing the same into an outer cylindrical exhaust-chamber and a like inner feed-chamber, a substantially V-shaped bottom for the outer chamber below the hollow partition, a concave bottom for the inner chamber, also below the hollow partition, means for feeding a cooling agent to and exhausting the same from the hollow partition, a pump having its suction connected with the exhaust-chamber and its discharge with the feed-chamber, and an exhaust-pipe extending through the concave bottom and adjustable vertically therein, substantially as and for the purpose set forth.

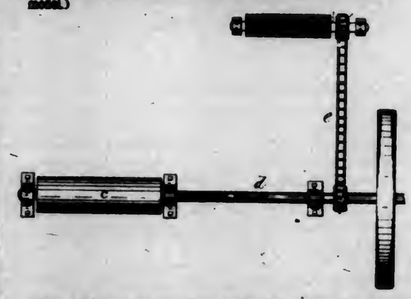
479,779. LISTING-PLOW. BENNETT BLANKENSHIP, Belleville, Kans. Filed Feb. 26, 1892. Serial No. 422,889. (No model.)



Claim.—1. In a plow for listing corn, the combination of a beam made in two parts diverging from each other rearward and continued downward and bent outwardly and then curved inwardly to increase the size of the throat between the said lower portions of the diverged parts of the beam and mold-boards and landsides connected to said diverged parts of the beam, thereby forming an intervening space between the opposing situated landsides, substantially as described.

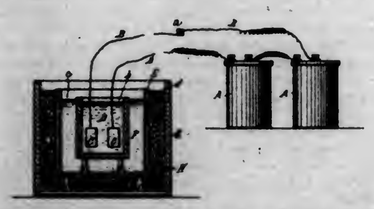
2. In a plow for listing corn, the combination of the beam made of two parts diverging rearwardly and which are curved outward, bent outwardly, and then curved inwardly at their rear lower ends and downward for attachment to landsides arranged parallel with each other and having an intervening space between them, mold-boards attached to said beam, and curved angularly-bent braces extending from the mold-boards and plow-points thereof to said landsides, substantially as described.

479,780. PROCESS OF SCALING SHEET METAL. JOSEPH W. BRITTON, Cleveland, Ohio. Filed Nov 20, 1891. Serial No. 412,577. (No model.)



Claim.—The herein-described method of scaling sheet metal by passing the heated sheets through two sets of rolls, the faces of the first set being corrugated lengthwise and the faces of the second set smooth, substantially as set forth.

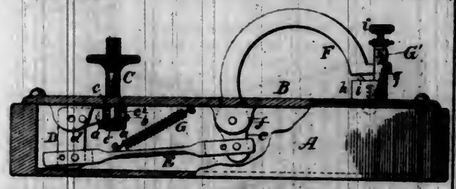
479,781. PROCESS OF PURIFYING LIQUIDS. COURTLAND W. BRUNSON, Hamilton, Ohio. Filed Nov. 9, 1891. Serial No. 411,416. (No specimens.)



Claim.—1. The process of purifying spirituous liquor or other liquid by means of the application thereto of electrolysis while said liquor or liquid is kept in a state of frigidity approximating its freezing-point.

2. The process of purifying spirituous liquor or other liquid, consisting in first reducing the temperature thereof to near its freezing-point and then submitting it to the action of electricity.

479,782. MECHANICAL TELEGRAPH-INSTRUMENT. BENJAMIN F. BUTLER, Logansport, Ind. Filed May 16, 1892. Serial No. 433,175. (No model.)



Claim.—1. The combination, with a base-plate, of a key pivotally connected therewith, a sounder pivotally connected with said base-plate, a rod or bar pivotally connected with said sounder, a bell-crank lever pivotally connected with the other end of said rod or bar, and means for connecting said bell-crank lever with the key, and a single spring for retaining the key and sounder in their normal positions, substantially as set forth.

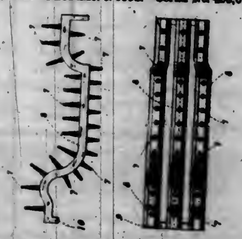
2. The combination, with a base-plate, of a key pivotally connected therewith, a sounder pivotally connected with said base-plate, a bell-crank lever, a rod or bar connecting one arm of said bell-crank lever with the sounder, an arm connecting the other arm of the bell-crank lever with a key, and a spring for maintaining the key and sounder in their normal positions, substantially as set forth.

3. The combination, with a base-plate, of lugs on the under face thereof, a key pivoted between said lugs, flanges on the under face of the base-plate adjacent to said lugs, an arm projecting from the key and guided between said flanges, a sounder, and means for connecting said arm with the sounder, whereby the operation of the key will operate the sounder, substantially as set forth.

4. The combination, with a base-plate, of a key pivotally connected therewith, a sounder also pivotally connected with the base-plate, lugs on the under face of the base-plate and provided with a series of transverse perforations for the reception of a pivot-pin, a bell-crank lever pivoted between said lugs, an arm on the key and connected with one arm of said bell-crank lever, and a rod or bar provided in each end with a series of perforations for the reception of pivot-pins, one end of said rod or bar being connected with the other arm of said bell-crank lever and the other end of said rod or bar being connected with an arm of the sounder, substantially as set forth.

5. The combination, with a base-plate, of a key pivotally connected thereto, an arm projecting from said key, a bell-crank lever, a pin in the end of one arm of said bell-crank lever, a loop or eye on the arm of the key adapted to embrace said pin, a sounder, and devices connecting said sounder with the other arm of the bell-crank lever, substantially as set forth.

479,783. SKELETON FRAME FOR SAND-CORES. WILLIAM H. CASE, Buffalo, N. Y. Filed Apr. 6, 1892. Serial No. 428,011. (No model.)

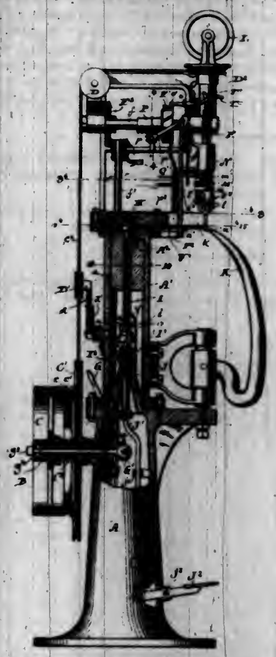


Claim.—A skeleton frame for supporting a green-sand core for molding journal-boxes for railroad-cars, consisting of a series of longitudinal bars secured together by transverse pieces at the ends, each longitudinal bar being curved to conform substantially to the bottom of the core and provided with a series of upward and downward projecting pins, and downwardly-projecting supporting-pieces at each end, for the purposes described.

479,784. SHOE-NAILING MACHINE. EDWARD D. CHILDS, Milwaukee, Wis., assignor of one-half to George W. Strohmeyer and John F. Strohmeyer, same place. Filed July 21, 1891. Serial No. 400,248. (No model.)

Claim.—1. The combination, with the feeding mechanism of a shoe-nailing machine, of a vertical shaft, a vertically-movable head carried by said shaft, said shaft being screw-threaded at its lower end and engaged with a nut, means for giving a continuous rotation to the said shaft, means for holding said nut from rotation at certain portions of the revolution of said shaft, and a support for holding the work in position to receive the nails, substantially as and for the purposes described.

2. The combination, in a shoe-nailing machine, of a vertical shaft carrying a vertically-movable head provided with wire-feeding mechanism, said shaft being screw-threaded at its lower end and engaged with a nut, a movable step for supporting the lower end of said shaft, means for giving a continuous rotation to said shaft, means for holding said nut from rotation at certain portions of the revolution of said shaft, and means for raising and lowering said movable step, substantially as and for the purposes described.



3. The combination, in a shoe-nailing machine, of a shaft extending vertically through the inside of the machine-frame and carrying at its upper end a vertically-movable head provided with wire-feeding mechanism, said shaft having a screw-threaded engagement with a rotary nut at its lower end, a spring-pawl adapted for engagement with said nut, and a cam upon the said shaft adapted for engagement with said spring-pawl upon the rotation of said shaft to free said nut, substantially as and for the purposes described.

4. In a shoe-nailing machine, the combination, with a vertically-movable head carrying feeding-rolls for advancing the strand of wire, of a cam-wheel rotated by the driving-gears, a lever engaged with said cam-wheel at one end and operatively engaged at its other end, and means for throwing said feeding-rolls into and out of operation at successive portions of the rotation of said cam-wheel, substantially as described.

5. In a shoe-nailing machine, the combination, with a vertically-movable head provided with feeding-rolls for advancing the strand of wire, of a cam-wheel rotated by the driving-gears and provided upon its surface with alternate raised portions and depressions extending from face to face of said cam-wheel and made tapering from end to end, a lever adapted to engage with the surface of said cam-wheel at one end and connected at its other end with means for throwing said feeding-rolls into and out of operation at successive stages of the rotation of the said cam-wheel, and means for moving said cam-wheel longitudinally upon the shaft, substantially as described.

6. In a shoe-nailing machine, the combination, with a vertically-movable head provided with feeding-rolls for advancing the strand of wire of a cam-wheel constantly rotated by the driving-gears, said cam-wheel being provided with alternate raised portions and depressions in its surface, said raised portions and depressions being tapered from end to end, a lever pivoted to the frame of the machine and engaged at one end with the surface of said cam-wheel and at its other end connected with means for throwing the feeding-rolls into and out of oper-

ation by the vibration of said lever, a longitudinally-movable collar engaged with said cam-wheel and provided with rack-teeth upon one of its sides, and a pinion journaled upon the movable upper portion of the machine and engaged with said rack-teeth, said pinion being provided with a radial arm engaged at its outer end with a connecting-rod, which rod is secured at its other end to a stationary portion of the machine frame, whereby said pinion is rotated by an upward movement of the movable portion of the machine-frame, so as to advance said cam-wheel upon its shaft to a distance corresponding to said upward movement of said head, substantially as described.

7. In a shoe-nailing machine, the combination, with a vertically-movable head carrying feeding-rolls for advancing the strand of wire to form the nails, of a cam-wheel rotated by the driving-gears, a lever engaged at one end with said cam-wheel and engaged at its other end with means for throwing the feeding mechanism into and out of operation at successive portions of the rotation of said cam-wheel, and a detent adapted for engagement with said lever to hold it out of engagement with the cam-wheel, substantially as and for the purposes described.

479,785. PAINT. SAMUEL P. CITIZEN, Terre Haute, Ind., assignor to himself and C. M. Wellabrd, Guthrie, Oklahoma. Filed July 3, 1891. Serial No. 398,243. (No specimens.)

Claim.—The improved paint consisting of resin-oil, sulphate of copper, and Chattanooga red, substantially as specified.

479,786. GALVANIC BATTERY. MARTIN M. CLARK, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Jan. 9, 1892. Serial No. 417,443. (No model.)



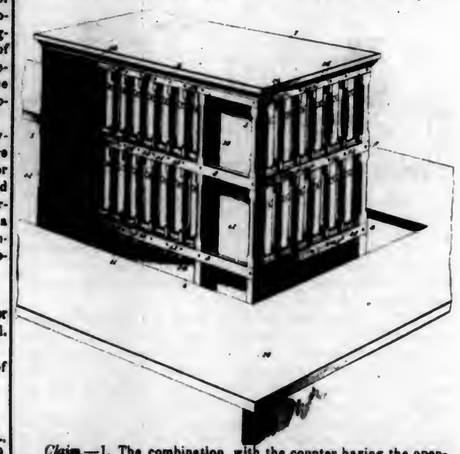
Claim.—In an electric battery, the combination, with a cup-shaped positive element adapted to surround and inclose the electrolyte and negative element, of a porous cup immersed in said electrolyte, a negative element within said porous cup and surrounded by a depolarizing substance, a packing of fibrous material above the electrolyte, a suitable sealing material adapted to close the battery, and a tube secured to the positive element and extending through the sealing and packing material to the electrolyte, said tube being provided with a removable closing-cap, substantially as described.

479,787. CORNICE DRAPERY-FIXTURE. MERRILL E. CLARK and FLORENTINE S. SHAW, Worcester, Mass., assignors to the Clark Moulding Works, same place. Filed Mar. 4, 1891. Serial No. 383,662. (No model.)



Claim.—In a drapery-fixture, the usual cornice thereof, in combination with the block *g*, having longitudinal guide-openings for the rods *f f* and fastened centrally to the back of said cornice, slide-blocks *c c*, arranged at each end of and back of the cornice in alignment with said central stationary guide-block *g* and having means, substantially as described, for holding them in position when moved in the cornice and for fastening the same after adjustment, also being adapted to rest and be held on the supporting-brackets of the fixture, and the longitudinal rods *f f*, fastened one at each outer end in said slide-blocks and at their inner ends fitted to slide in a central stationary guide-block, substantially as and for the purpose set forth.

479,788. BOOK-RACK. EDWIN G. COOK and HENRY H. EYMAN, Fullerton, Nebr. Filed Dec. 4, 1891. Serial No. 414,025. (No model.)

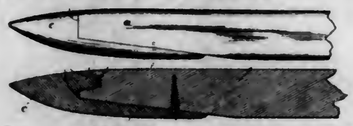


Claim.—1. The combination, with the counter having the opening, the vault or storage-chamber, and the track leading from the vault to the opening in the counter, of the book-rack mounted upon wheels fitting the track, the width of said rack approximating that of the opening in the counter, substantially as specified.

2. In a book-rack, the combination, with the opposite sides, a front horizontal connecting-bar, and an inner partition, of a series of cleats connected at their ends to the cross-bar and partition and arranged parallel to each other, a series of shafts extending through the partition, and series of loose rolls mounted on the shafts between the partitions, the inner or rear series of rolls being provided with convexed bosses at their centers, substantially as specified.

3. In a book-rack, the combination, with the opposite sills, the transverse connecting-sills located some distance from the ends of the first sills, the pair of vertical transverse partitions, the four posts rising from the ends of the first sills, and the intermediate posts located at the edges of the partitions and rising from the first-mentioned sills, of the series of horizontal post-connecting strips, the top, the central longitudinal partition connecting the transverse partitions, the series of cleats having their outer ends recessed to receive the cross-bars and their inner ends connected to the partitions and extending above and below the cross-bars, the series of loose rolls mounted between the cleats, and the upper series of cleats depending from the roof and corresponding with those heretofore described, substantially as specified.

479,789. RAKE-TOOTH. JOSEPH DAIN, Jr., Carrollton, Mo. Filed Feb. 23, 1892. Serial No. 422,426. (No model.)



Claim.—As a new article of manufacture, a rake-tooth point having a substantially flat surface arranged vertically at the rear and adapted to fit snugly against the end of the rake-tooth, a projecting piece adapted to fit against one side of the rake-tooth for securing the point to the tooth, and a conical dowel projecting from said flat surface and adapted to fit into a suitable recess in the rake-tooth, whereby the greater part of the surface of the tooth will remain uncovered and the accumulation of water around the end of the tooth and consequent decaying of the tooth will be prevented, substantially as described.

479,790. RUBBER-TREAD HORSESHOE. WARREN DAVIS, Crawfordsville, Ind. Filed Feb. 29, 1892. Serial No. 423,171. (No model.)

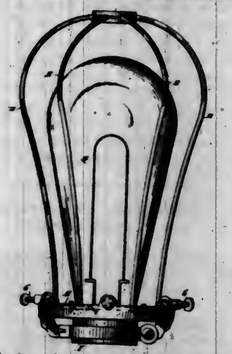
Claim.—1. The herein-described horseshoe, consisting of the metal shoe proper channeled upon its under side between its edges and provided at intervals at its center with perforations and having its outer wall at intervals cut away and registering with nail-holes, the rubber tread fitted between the flanges and within the channel, and a securing device passed through the openings in the shoe and through the perforations registering therewith and formed in the tread, substantially as specified.

2. The herein-described horseshoe, the same consisting of the metal shoe proper, the under side of which is provided with a channel, perforations formed in the shoe and nail-holes formed in the outer edge of the shoe, the rubber tread or sole molded to fit within the channel and provided with perforations registering with those of the shoe and with transverse recesses at its under side registering with the perforations, and split or T rivets passed through the perforations in the shoe and tread and having their terminals upset within the recesses of the tread, substantially as specified.



3. The herein-described horseshoe, consisting of the metal shoe proper provided upon its under side and between its edges with a channel and at intervals with perforations, a molded rubber tread seated in the channel, and securing devices passed through the tread and perforations of the shoe, the walls of the channel being inwardly bent near the heel portions of the shoe, so as to overlap or embrace the sides of the tread and prevent lateral displacement, yet permit of longitudinal retraction, the said walls or flanges beyond said heel portions standing at a right angle to the face of the shoe and permitting of lateral withdrawal of the tread, substantially as specified.

479,791. INCANDESCENT-LAMP GUARD. GEORGE W. DEMMICK, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed June 22, 1889. Serial No. 315,187. (No model.)



Claim.—1. An incandescent-lamp guard consisting of flexible or elastic wires, strips, or rods permanently secured together at one end and free at their other to permit them to be spread or sprung apart for application to the lamp, in combination with a suitable clamp for holding the free ends together after the guard has been placed over the lamp-bulb.

2. An incandescent-lamp guard consisting of a series of wires B, permanently fastened together at one end and provided at their opposite free ends with hooks, in combination with a fastening ring or clamp for holding them against spreading when the guard is applied in position on the lamp bulb.

3. The combination, with the lamp-guard composed of wires, strips, or rods attached together at one end and provided at their opposite free ends with hooks, of a ring adapted to encircle the free ends, and a cup-shaped holder for receiving the ring and free ends and provided with suitable fastening screws.

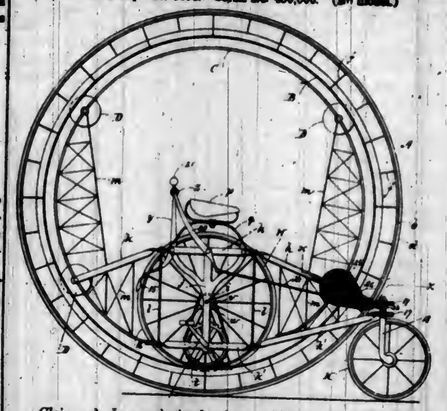
4. As a new article of manufacture, an incandescent-lamp guard composed of a number of wires fastened together at one end and provided at their opposite free ends with hooks, and a detachable ring encircling the free ends.

5. The combination, with a lamp-guard having hooks on the ends of the wires of which it is composed, of a removable ring encircling the free ends and engaged by the hooks and means for supporting the ring on a suitable holder, as and for the purpose described.

6. The combination, with an electric or other lamp, of a protector consisting of a number of wires, strips, or rods attached together at one end and adapted to be bent apart at the other end, and suitable means for securing and supporting said protector over the lamp, substantially as and for the purpose described.

7. A protector for electric or other lamps, consisting of a ring or spider having wires, strips, or rods supported at its periphery, said wires, strips, or rods being secured together at one end and being adapted to be spread apart at their opposite end, as and for the purpose specified.

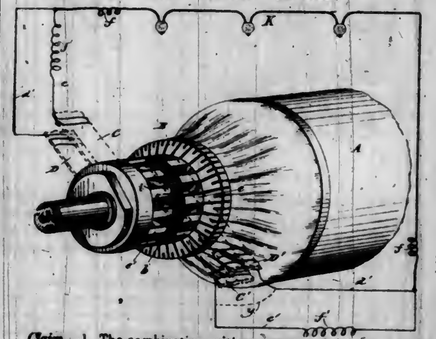
479,792. VELOCIPEDE. WILLIAM A. W. EAGER, West Gardner, Mass. Filed Sept. 18, 1891. Serial No. 406,066. (No model.)



Claim.—1. In a velocipede, the combination of a circular rim provided with an annular track on its inner face, a frame traveling in said track, a driving-wheel mounted on said frame directly over the tread of the rim, a shaft mounted on the frame, sprocket-wheels mounted on said shaft and frame, a sprocket chain on said wheels, a seat mounted above the shaft over the tread of the wheel, a guide-wheel outside said rim, rods *k* and *k'*, connecting said wheel with the frame, handle-rods pivoted to the frame, a horizontal arm attached to the rod of the guide-wheel, rods 24, connecting the handle-bars with the horizontal arm, a fan mounted in the frame between the connecting-rods *k*, and a shield inclosing said fan, substantially as described.

2. In a velocipede, a rim A, provided with a track B, in combination with a frame C, provided with wheels D, working in said track, and a fan-blower actuated by one of the said wheels for directing an air-current onto said rim.

479,793. COMMUTATOR. WILLIAM H. ELKINS, Cambridge, Mass. Filed Jan. 26, 1892. Serial No. 419,261. (No model.)



Claim.—1. The combination, with an armature having a series of coils wound on a core and rotating in a field of force, of a commutator having insulated segments equal in number to the armature-coils and connected to said coils, the contact portions of alternate segments being in two different series in different planes of rotation, and a brush or brushes engaging with both said series of contacts.

2. The combination, with an armature having a series of coils wound on a core and rotating in a field of force, of a commutator having two series of contacts in different planes of rotation and connected successively and alternately to said coils and a brush or brushes bearing on said contacts and making or breaking with contacts of the two series alternately.

3. The combination, with an armature having a series of coils, of a commutator having two series of insulated contacts connected succes-

ively and alternately to said coils and a brush or brushes engaging with contacts of the two series successively.

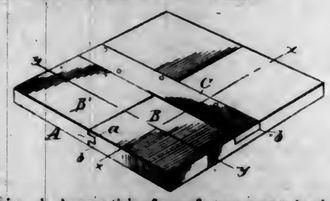
4. A rotary commutator having a number of individually-insulated segments and alternate segments having contact portions in different planes of rotation.

5. A rotary commutator having a number of individually-insulated segments, a portion of the top of each segment being covered with insulation, such insulation being offset in alternate segments, leaving two series of contact portions in different planes of rotation.

6. A rotary commutator having a number of individually-insulated segments, a portion of the top of each segment being covered with insulation, such insulated portions being offset and overlapping in alternate segments, leaving two series of contact portions in different planes of rotation, with an intermediate insulating-space.

7. The combination, with an armature having a series of coils, of two series of contacts connected successively and alternately to said coils and arranged alternately with their contact portions out of line with one another in the direction of rotation and a brush or brushes extending along the commutator and engaging with both series of contacts and making and breaking with contacts of the two series alternately.

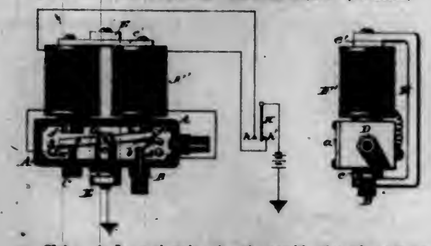
479,794. CRATE-HEAD. JOSEPH L. EMPIE, Orlando, Fla. Filed Aug. 31, 1891. Serial No. 404,314. (No model.)



Claim.—1. As an article of manufacture, a crate-head composed of strips of material joined by tongues and grooves at their contiguous edges and a batten sunk in the surface of the strips, said batten extending transversely of the joint, substantially as set forth.

2. As an article of manufacture, a crate-head composed of sections joined at their contiguous edges by tongues and grooves and a batten dovetailed in the sections and extending transversely of the joint, substantially as set forth.

479,795. VALVE-CONTROLLER. CHARLES L. FORTIER, Milwaukee, Wis. Filed Mar. 5, 1892. Serial No. 423,820. (No model.)



Claim.—1. In an electric valve, the combination of two magnets arranged to mutually act upon each other, one being movable and provided or connected with the valve or the part to be shifted and one having coils wound in reverse directions, substantially as and for the purposes set forth.

2. In an electric valve, the combination of a valve-case having supply and exhaust connections, an armature within said case, provided with valves controlling said connections, pole-pieces in proximity with said armature, and magnets connected with said pole-pieces and armature, one of said magnets having a differential winding, whereby its polarity may be reversed, substantially as and for the purposes set forth.

3. In an electric valve, the combination of two magnets arranged to mutually act upon each other, one being movable and provided or connected with the valve or part to be shifted and the other having two pole-pieces arranged in proximity therewith, one of said magnets being differentially wound, so as to change its polarity when the current is shifted from one coil through the other, and a circuit-breaker operated by the movable magnet to shift the current alternately through said coils, substantially as and for the purposes set forth.

4. In an electric valve, the combination, with two magnets arranged to mutually act upon each other, one of said magnets being movable and provided or connected with the valve or part to be shifted and one having coils wound in opposite directions, so as to change its polarity, of a circuit-controlling device, the contact-points of which are connected with terminals of said coils, and a circuit-breaker operated by the movable magnet and connected with the other terminals of said coils, substantially as and for the purposes set forth.

5. In an electric valve, the combination of a permanent magnet having a movable armature provided or connected with a valve and mounted upon one leg and two pole-pieces upon the other leg and coils wound in opposite directions on said pole-pieces, substantially as and for the purposes set forth.

6. In an electric valve, the combination of a suitable case provided with supply and exhaust connections, a permanent magnet provided on one leg with two pole-pieces projecting into said case and on the other leg with a movable armature within said case, coils wound in opposite directions on said pole-pieces, and a circuit-breaker by which the circuit is closed alternately through said coils, substantially as and for the purposes set forth.

7. In an electric valve, the combination of a suitable case, a permanent magnet having three pole-pieces projecting into said case, one of said pole-pieces having a movable part provided or connected with the valve or part to be shifted and the other two pole-pieces having coils wound thereon in opposite directions, contact-pieces with which terminals of said coils are connected, arranged to be engaged alternately by the movable part of the magnet, and a circuit-controlling device arranged to direct the current through either of said coils, substantially as and for the purposes set forth.

8. In an electric valve, the combination of a valve-case having induction and eduction connections, an armature provided with a valve or valves controlling said connections, a pole-piece in proximity with said armature, and a differentially-wound coil arranged to reverse the polarity of said pole-piece, substantially as and for the purposes set forth.

9. In an electric valve, the combination of a valve-case having suitable connections, a permanent magnet outside of said case having a pole or poles projecting into the same, a movable magnet provided or connected with a valve, and means for changing the polarity of one of said magnets, substantially as and for the purposes set forth.

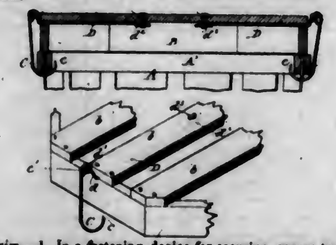
10. In an electric valve, the combination of a valve-case having suitable connections and one or more valves controlling said connections, a permanent magnet outside of said case, a movable magnet within the case, connected with and arranged to operate said valve or valves and located in the field of said permanent magnet, and means for changing the polarity of one of said magnets.

479,796. TOOTH-BRUSH. LEWIS T. FOSS, Boston, Mass. Filed Sept. 19, 1891. Serial No. 406,234. (No model.)



Claim.—The combination of a tooth-brush and blade held together by means of a dovetail and screw, a back spring *g*, hollow handle-case, door, and retention-spring *h*, all as shown, and for the purposes set forth.

479,797. FASTENING FOR BASKET-COVERS. GEORGE C. GARRAPER, Watervliet, N. Y. Filed Feb. 3, 1892. Serial No. 420,146. (No model.)

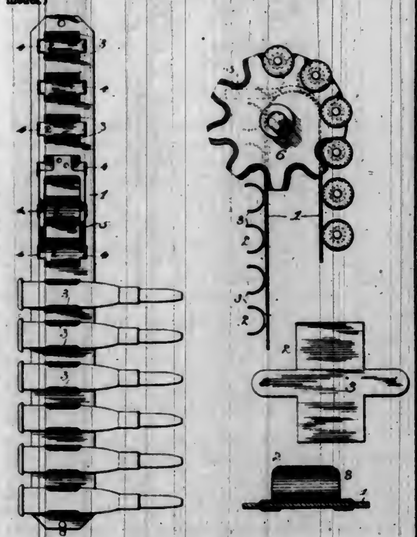


Claim.—1. In a fastening device for securing covers to baskets, the combination, with a hook, of the elastic arm adapted to be twisted and having in its outer end the lever *d*, provided in a loop or eye by which said hook is jointed with the said arm and having in its opposite or inner end a holding device d^3, provided with means described for rigidly securing it with the cover, substantially as and for the purposes set forth.

2. In a fastening device for securing covers to baskets, the combination, with the arm D, having in its inner end the means for effecting a secure holding of the said arm with the cover when said arm is subjected to a twisting or torsional strain and having integral with its outer end lever *d*, provided with an eye or loop, of the hook C, having its bow provided with the sharp point *c*, for operation substantially as and for the purposes set forth.

3. The combination, with a basket having a top rim and a cover calculated to be seated on said rim, of the arms D D, provided at their outer ends with levers *d* and having their inner ends rigidly secured to the cover, and the hooks C, jointed, respectively, with said arms by the said levers *d*, with the said arms adapted to be twisted when their levers are turned about their axes, substantially as and for the purposes set forth.

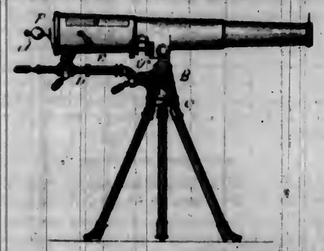
479,798. AMMUNITION-BELT. FRANK M. GARLAND, New Haven, Conn., assignor of two-thirds to Ebenezer B. Beecher, William A. Pockett, and Frederick P. Newton, same place, and Thomas H. Sherman, Washington, D. C. Filed Sept. 19, 1891. Serial No. 406,257. (No model.)



Claim.—1. An ammunition-belt consisting of a flexible web bearing upon one face a number of cups for firmly grasping the cartridges, open on one side, so that the cartridges may be removed therefrom laterally, and provided with projecting wings on the edges to afford a bearing for the cartridge-removing device, substantially as specified.

2. An ammunition-belt consisting of a flexible web bearing upon one face a number of cups for firmly grasping the cartridges, open on one side, so that the cartridges may be removed therefrom laterally, and provided with projecting wings on the edges to afford a bearing for the cartridge-removing device, the ends of said wings passing through the web and clinched on the opposite face, substantially as specified.

479,799. MACHINE-GUN. FRANK M. GARLAND, New Haven, Conn., assignor of two-thirds to Ebenezer B. Beecher, William A. Pockett, and Frederick P. Newton, same place, and Thomas H. Sherman, Washington, D. C. Filed Oct. 10, 1891. Serial No. 408,321. (No model.)



Claim.—1. In a machine-gun, in combination with the loading and firing mechanism, feeding mechanism consisting of a pair of wheels having pocketed peripheries mounted upon shafts on each side of the shell beneath the barrels, the shafts being connected with and alternately rotated by the driving-shaft, guides adjacent to the feed-wheels, adapted to receive the heads of the cartridges as they pass from the wheels, and combs attached to the shell adjacent to the wheels for stripping the cartridges from the belts, substantially as specified.

2. In a machine-gun, in combination with the loading and firing mechanism, feeding mechanism consisting of a pair of wheels having pocketed peripheries mounted upon shafts on each side of the shell beneath the barrels, the said shafts bearing ratchets, pawls for rotating the ratchets, racks for driving the pawls, pinions for reciprocating the racks, slides bearing racks for driving the pinions, and levers in contact with cams upon the driving-shaft for moving the slides, substantially as specified.

3. In a machine-gun, in combination, cams loosely mounted upon the driving-shaft, ratchets adjacent to the cams, with one piece secured to the shaft and the complementary pieces secured to the cams, bolts movable into and out of the path of the pawls, feeding mechanism connected with and driven by the cams, loading mechanism reciprocated by the cams, and firing mechanism released by the rotation of the cams, substantially as specified.

4. In a machine-gun, in combination, cams bearing pawls loosely mounted upon the driving-shaft, ratchet-disks secured to the shaft adjacent to the cams and adapted to engage the pawls, bolts projecting through the shell for releasing the pawls from the ratchets, feeding mechanism connected with and driven by the cams, loading mechanism reciprocated by the cams, and firing mechanism released by the rotation of the cams, substantially as specified.

5. In a machine gun, in combination, cams bearing pawls loosely mounted upon the driving-shaft, ratchet-disks secured to the shaft adjacent to the cams, adapted to engage the pawls, bolts projecting through the shell for releasing the pawls from the ratchets, feeding mechanism consisting of wheels mounted upon shafts intermittently rotated through the means of levers oscillated by the cams, reciprocating loading-spindles, jointed levers operated by the cams attached to the loading-spindles, firing mechanism, and slides moved into and out of contact with the firing mechanism by contact with the pawls upon the cam-blocks as they revolve, substantially as specified.

6. In combination, in the herein-described machine-gun, reciprocating spindles, cams on the driving-shaft connected by levers with the spindles, each of said spindles having a longitudinal mortise, a firing-pin held in said mortise, plates covering said mortise, and a button having an eccentric base for holding each plate in place, substantially as specified.

7. In combination, in the herein-described machine-gun, reciprocating spindles, cams on the driving-shaft connected by levers with the spindles, each of said spindles having a longitudinal mortise, a firing-pin held in said mortise, a cocking-roll secured to the spindle, and a hammer in the path of the cocking-roll, whereby when the spindles are moved rearward the hammers are cocked, substantially as specified.

8. In combination with the shell of the herein-described machine-gun, a frame consisting of plates having ways for supporting the reciprocating spindles and plates for supporting the hammers and triggers, said frame being connected with the shell at one end by means of dowel-pins that pass into sockets in a part secured to the shell and at the opposite end by a button, a support rising from the shell holding the button, reciprocating spindles supported by the ways, and hammers and triggers supported by the frame, whereby a turn of the button releases the frame, allowing it with the hammers and triggers to be freely removed, substantially as specified.

479,800. ROTARY CULTIVATOR. SANFORD GARNER, Trout Creek, Mich. Filed Mar. 30, 1892. Serial No. 427,080. (No model.)

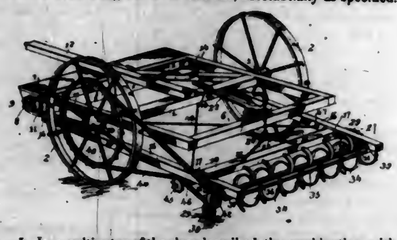
Claim.—1. In a cultivator of the class described, the combination, with the axle, wheels, and main frame, of the opposite side bars loosely connected at their front ends to the main frame, opposite boxes loosely connected to the side bars and adapted to oscillate and provided with bearings, a transverse cultivator-shaft, cultivators mounted thereon, and means for operating said shaft, substantially as specified.

2. In a cultivator of the class described, the combination, with the axle, ground-wheels, and main frame, of the opposite side bars loosely connected at their front ends to the main frame, the transversely-opposite bearing-boxes provided at their opposite sides with trunnions, bearing-eyes depending upon the side bars and loosely receiving the trunnions, a transverse cultivator-shaft terminating in bearing ends mounted in the bearings of the boxes, and means for rotating the shaft, substantially as specified.

3. In a cultivator of the class described, the combination, with the wheels, axle, and main frame, of opposite side bars pivotally connected at their front ends to the frame, opposite bearing-boxes mounted for oscillation at the under side of the side bars and provided with bearings, a transversely-disposed tooth-carrying cultivator-shaft, means for

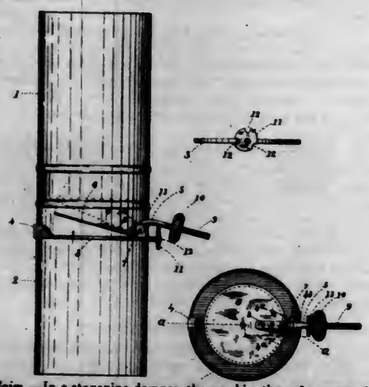
rotating the shaft, a hand-lever pivoted on the main frame, a transverse connecting-bar between the two side bars, pivotal connections between the side bars and the ends of the transverse bars, and a chain connected to the lever and to the transverse bar, substantially as specified.

4. In a cultivator of the class described, the combination, with the wheels, axle, and main frame supported on the latter, of the opposite side bars loosely connected at their front ends to the main frame, the opposite bearing-boxes loosely suspended and adapted to oscillate under the side bars, the transverse cultivator-shaft mounted for rotation in said boxes, the opposite plates secured to the inner sides of the side bars and provided with central recesses and opposite bearing-eyes, the transverse bar terminating in the recesses, the pivoting-pins passed through the eyes and bar, the lever fulcrumed on the main frame, and the chain connecting the lever and bar, substantially as specified.



5. In a cultivator of the class described, the combination, with the axle, wheels, and main frame, of the opposite cultivator-bars loosely connected at their front ends to the main frame, the transverse bar loosely pivoted at its ends to said bars, the loosely-suspended oscillating bearing-boxes, the transverse cultivator-shaft journaled therein, means for operating said shaft, the front and rear eyes secured, respectively, near the front and rear ends of the side bars, the diagonally-disposed rods, the lever, and the chain connecting the lever with the cross-bar, substantially as specified.

479,801. SELF-ACTING WIND-PROOF DAMPER. AUGUSTUS J. GUNTHER, Buffalo, N. Y. Filed Nov. 30, 1891. Serial No. 413,467. (No model.)

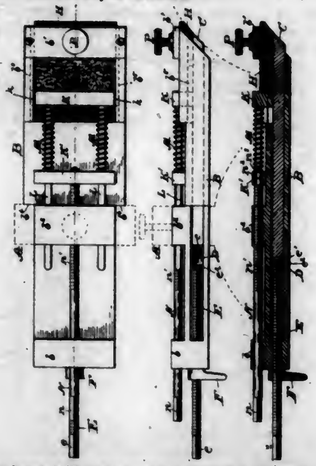


Claim.—In a stovepipe-damper, the combination of a supporting-ring provided with a projecting lug 4 for the purpose described, two upwardly-projecting lugs or ears 4^a on the same face at the opposite side of the ring, a projecting piece from the periphery of the ring back of the ears or lugs 4^a, upon which is pivoted an adjusting thumb-piece 11, having a series of notches of varying distances from the center for adjusting the height the damper shall rise, a damper 6, having a curved handle 5 pivoted between the ears 4^a and provided with a screw portion, upon which is mounted an adjusting-weight adapted to screw back and forth on said handle, substantially as and for the purposes described.

479,802. BRUSH-HOLDER. FRANCIS J. HASELER, U. S. Navy. Filed Nov. 5, 1891. Serial No. 410,902. (No model.)

Claim.—1. In a brush-holder, the combination, with a frame, of a copper brush fitted in said frame, a carbon brush in contact with said copper brush and normally pressed forward by a plurality of springs, and a regulating-screw passing through the rear end of said frame and adapted to adjust the tension uniformly on all of said springs, substantially as described.

2. In a brush-holder, the combination, with a frame, of a copper brush fitted in said frame, a carbon brush in contact with said copper brush and normally pressed forward by a plurality of springs, and a regulating-screw passing through the rear end of said frame and adapted to adjust the tension uniformly on all of said springs, and a clamp-screw set in said frame and adapted to clamp said carbon brush when desired, substantially as described.



3. In a brush-holder, the combination, with a carrier-block, of a frame having shoulders adapted to bear against said carrier-block, a copper brush fitted in said frame, a carbon brush in contact with said copper brush and normally pressed forward by a plurality of springs, and a regulating-screw passing through the rear end of said frame and adapted to adjust the tension uniformly on all of said springs, substantially as described.

4. In a brush-holder, the combination, with a carrier-block, of a frame having shoulders adapted to bear against said carrier-block, a copper brush sliding in said frame, a regulating-screw revolubly attached to the rear end of said copper brush and screwing into the rear end of said frame, a carbon brush sliding in said frame and normally pushed forward by a plurality of springs, and a regulating-screw fitted in said frame and adapted to increase simultaneously and uniformly the tension on all of said springs, substantially as described.

5. In a brush-holder, the combination, with the carrier-block, of a frame having shoulders adapted to bear against said carrier-block, a copper brush adapted to slide in said frame, with means of regulating the said brush, a carbon brush adapted to slide in said frame above and in contact with said copper brush, springs for pressing said carbon brush forward in said frame, and means for regulating said springs, substantially as described.

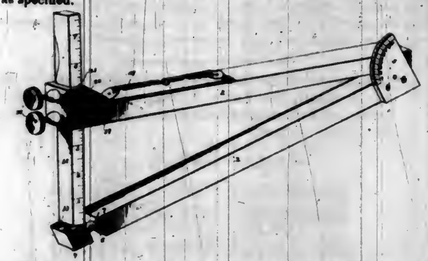
6. In a brush-holder, a device for regulating the tension upon a brush, consisting of a cross-piece at the rear of said brush, a plurality of guide-rods or plungers rigidly attached to said cross-piece and moving in suitable guides, spiral springs inclosing the said guide-rods or plungers, a cross-piece in rear of said springs and sliding on said plungers, and a regulating-screw for moving said rear cross-piece backward or forward and so adjusting the tension of said springs, substantially as and for the purposes described.

7. In a brush-holder, a device for regulating the tension upon a brush, consisting of a suitable frame, a cross-piece at the rear of said brush, having two guide-lugs sliding in grooves in said frame, two guide-rods or plungers rigidly attached to said cross-piece and moving in guides in said frame, spiral springs inclosing the said guide-rods or plungers, a cross-piece in rear of said springs and sliding on said plungers, and a regulating-screw for moving said rear sliding cross-piece backward or forward and so adjusting the tension of said springs, substantially as and for the purposes described.

479,803. GRADE-MEASURE. JOHN M. HAHN, Florence, Ohio. Filed Sept. 11, 1891. Serial No. 405,621. (No model.)

Claim.—1. In an instrument of the class described, the combination, with the two members or bars hinged together at their rear adjacent corners, the lower member being extensible, of a gage-plate of quadrant shape having degrees of a circle indicated thereon, a gage-bar connecting the outer ends of the two members, and means for locking the bar, substantially as specified.

2. In an instrument of the class described, the combination, with the opposite members, the upper one of which is provided with a slot or opening and the lower one with a longitudinal bore, and a hinge connecting the rear adjacent corners of said members, of a graduated gage-bar mounted in the bore of the lower member and a graduated bar mounted in the slot of the upper member and adjustable therein, the two bars having their meeting ends loosely connected, substantially as specified.



3. In an instrument of the class described, the combination, with the opposite members hinged together at their adjacent rear corners, the upper member having a slot and the lower member longitudinally bored, of gage-bars mounted in the slot and in the bore and hinged at their adjacent ends and a coiled spring interposed between the lower gage-bar and the end of the bore, substantially as specified.

4. In an instrument of the class described, the combination, with the opposite members hinged together at their adjacent corners, the lower member being bored and the upper member terminating in a slotted box, of a gage-bar mounted in the slot of the box, set-screws mounted in the box for binding upon the gage-bar, a shaft mounted transversely in the box, provided at its center with a toothed wheel for engaging teeth formed upon the gage-bar and at its ends terminating in milled nuts, a gage-bar mounted in the bore of the lower member and terminating at its outer end in a head flush with the outer surface of said lower member, and a hinge connecting the upper surface of the said head with the lower end of the gage-bar of the upper member, substantially as specified.

5. An instrument of the class described, the same consisting of two bars of the same length, hinged at their rear extremities, the upper bar being provided with a spirit-level, a loop or box at the free end of the upper member, a set-screw in said loop or box, and a rigid strip, bearing a scale of inches, flexibly connected at its lower end to the free end of the lower bar, passing through the loop or box, and impinged upon by the screw, substantially as specified.

6. An instrument of the class described, the same consisting of two bars of the same length, hinged at their rear extremities, the upper bar being provided with a spirit-level, a loop or box at the free end of the upper member, a set-screw in said loop or box, and a rigid strip, bearing a scale of inches, flexibly connected at its lower end to the free end of an extensible bar which has bearings in the lower bar, passing through the loop or box, and impinged upon by the screw, substantially as specified.

479,804. ELECTRO-MAGNET BOBBIN. EDWARD B. HATCH and CHARLES A. COLTON, Hartford, Conn., assignors to the Johns-Pratt Company, same place. Filed Jan. 13, 1892. Serial No. 417,921. (No model.)



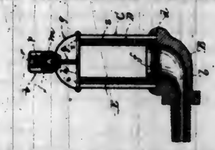
Claim.—In an electro-magnet, in combination, a metallic core, a bobbin with projecting flanges of partially-vulcanized india-rubber and asbestus composition in a single piece, and helices of wire wound about the bobbin between the flanges, substantially as specified.

479,805. VENTILATED SHOE. WILLIAM M. HELBACH, Chicago, Ill. Filed May 8, 1891. Serial No. 392,132. (No model.)



Claim.—The combination, with a shoe having perforations in its insole and a channel between its inner sole and outer sole and having its heel formed with a chamber communicating with said channel and formed with ports *d*, of a spring C within said chamber in the heel, a tube D, having its end inserted, with said ports bowed or bent upward within said chamber and formed in its upper side with a longitudinal opening D′, and longitudinal springs within the channel between the insole and the outer sole, said springs being closely coiled at their rear ends and gradually opened and flattened as they extend toward the toe of the shoe, substantially as described.

479,806. AUTOMATIC RELIEF-VALVE FOR RADIATORS. ALBERT S. HODGE, Boston, Mass., assignor of one-half to J. Henry Hodge, same place. Filed Feb. 29, 1892. Serial No. 423,191. (No model.)



Claim.—1. A relief-valve mechanism for radiators, comprising a casing, a connection opening into the bottom thereof from the radiator, a tube of expansible material disposed around the mouth of said connection, a flanged float supported by said tube, having air openings in said flange, a valve-seat in the top of said casing, and a valve on said float, adapted to engage said seat, all being arranged to operate substantially as described.

2. In a relief-valve for radiators, a cylinder of heat-expansible material disposed within the valve-casing around the inlet, a valve-seating in said casing, and a float secured to said valve and pendent within said cylinder, said float being so disposed that air expelled from the radiator may pass between it and said cylinder, substantially as described.

3. The connection B, provided with the duct *b*, a casing supported on said connection and provided with the relief-valve seat, a cylinder of expansible material disposed within the casing around the mouth of said duct, and a float pendent within said cylinder and bearing a valve adapted to engage said seat, substantially as described.

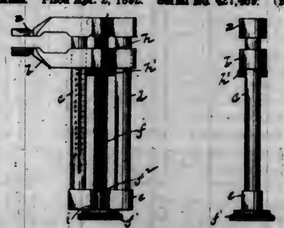
4. In a device of the character described, the connection, a casing provided with the adjustable plug *j*, and the valve-seat *n* and port *p*, in combination with the expansible cylinder and the pendent float therein bearing a valve adapted to engage said seat, all being arranged to operate substantially as described.

5. The connection and casing provided with the adjustable valve-seat, in combination with the hard-rubber cylinder D, and the float E, pendent therein and bearing a valve adapted to engage said seat, substantially as described.

6. The connection and casing provided with the adjustable valve-seat, in combination with the expansible cylinder D, and the closed float E, having the notched supporting-flange *h* and bearing a valve adapted to engage said seat, all being arranged to operate substantially as specified.

7. In a device of the character described, the connection and casing, in combination with the adjustable plug *j* in said casing, provided with the valve-seat and port, the expansible cylinder disposed around the inlet in said connection, the closed float E, disposed within said cylinder and provided with the flange *h*, having the notches *i*, and the valve *q* on said float, adapted to engage said seat, substantially as described.

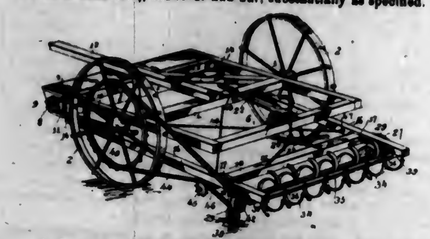
479,807. MICROMETER-CALIPERS. EDWIN L. HOLCOMB, Springfield, Mass. Filed Apr. 2, 1892. Serial No. 427,469. (No model.)



Claim.—1. The micrometer-calipers herein described, comprising a fixed jaw and end piece, two guide-rods extending between said jaw and end piece, a movable jaw having a sliding bearing upon both of said rods, and a leading-screw journaled at its ends in said fixed jaw

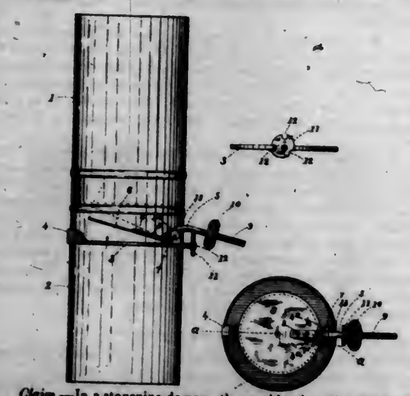
rotating the shaft, a hand-lever pivoted on the main frame, a transverse connecting-bar between the two side bars, pivotal connections between the side bars and the ends of the transverse bars, and a chain connected to the lever and to the transverse bar, substantially as specified.

4. In a cultivator of the class described, the combination, with the wheels, axle, and main frame supported on the latter, of the opposite side bars loosely connected at their front ends to the main frame, the opposite bearing-boxes loosely suspended and adapted to oscillate under the side bars, the transverse cultivator-shaft mounted for rotation in said boxes, the opposite plates secured to the inner sides of the side bars and provided with central recesses and opposite bearing-eyes, the transverse bar terminating in the recesses, the pivoting-pins passed through the eyes and bar, the lever fulcrumed on the main frame, and the chain connecting the lever and bar, substantially as specified.



5. In a cultivator of the class described, the combination, with the axle, wheels, and main frame, of the opposite cultivator-bars loosely connected at their front ends to the main frame, the transverse bar loosely pivoted at its ends to said bars, the loosely-suspended oscillating bearing-boxes, the transverse cultivator-shaft journaled therein, means for operating said shaft, the front and rear eyes secured, respectively, near the front and rear ends of the side bars, the diagonally-disposed rods, the lever, and the chain connecting the lever with the cross-bar, substantially as specified.

479,801. SELF-ACTING WIND-PROOF DAMPER. AUGUSTUS J. GIFFORD, Buffalo, N. Y. Filed Nov. 30, 1891. Serial No. 413,467. (No model.)

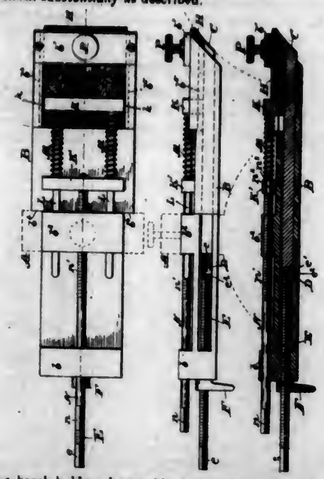


Claim.—In a stovepipe-damper, the combination of a supporting-ring provided with a projecting lug 4 for the purpose described, two upwardly-projecting lugs or ears 4^a on the same face as the opposite side of the ring, a projecting piece from the periphery of the ring back of the ears or lugs 4^a, upon which is pivoted an adjusting thumb-piece 11, having a series of notches of varying distances from the center for adjusting the height the damper shall rise, a damper 6, having a curved handle 5 pivoted between the ears 4^a and provided with a screw portion, upon which is mounted an adjusting-weight adapted to screw back and forth on said handle, substantially as and for the purposes described.

479,802. BRUSH-HOLDER. FRANCIS J. HASSELER, U. S. Navy. Filed Nov. 5, 1891. Serial No. 410,908. (No model.)

Claim.—1. In a brush-holder, the combination, with a frame, of a copper brush fitted in said frame, a carbon brush in contact with said copper brush and normally pressed forward by a plurality of springs, and a regulating-screw passing through the rear end of said frame and adapted to adjust the tension uniformly on all of said springs, substantially as described.

2. In a brush-holder, the combination, with a frame, of a copper brush fitted in said frame, a carbon brush in contact with said copper brush and normally pressed forward by a plurality of springs, and a regulating-screw passing through the rear end of said frame and adapted to adjust the tension uniformly on all of said springs, and a clamp-screw set in said frame and adapted to clamp said carbon brush when desired, substantially as described.



3. In a brush-holder, the combination, with a carrier-block, of a frame having shoulders adapted to bear against said carrier-block, a copper brush fitted in said frame, a carbon brush in contact with said copper brush and normally pressed forward by a plurality of springs, and a regulating-screw passing through the rear end of said frame and adapted to adjust the tension uniformly on all of said springs, substantially as described.

4. In a brush-holder, the combination, with a carrier-block, of a frame having shoulders adapted to bear against said carrier block, a copper brush sliding in said frame, a regulating-screw revolubly attached to the rear end of said copper brush and screwing into the rear end of said frame, a carbon brush sliding in said frame and normally pushed forward by a plurality of springs, and a regulating-screw fitted in said frame and adapted to increase simultaneously and uniformly the tension on all of said springs, substantially as described.

5. In a brush-holder, the combination, with the carrier-block, of a frame having shoulders adapted to bear against said carrier-block, a copper brush adapted to slide in said frame, with means of regulating the said brush, a carbon brush adapted to slide in said frame above and in contact with said copper brush, springs for pressing said carbon brush forward in said frame, and means for regulating said springs, substantially as described.

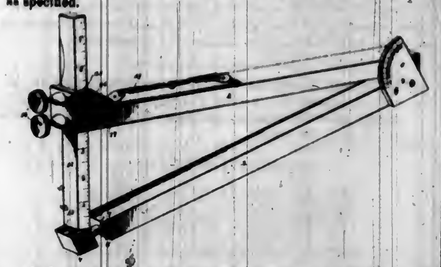
6. In a brush-holder, a device for regulating the tension upon a brush, consisting of a cross-piece at the rear of said brush, a plurality of guide-rods or plungers rigidly attached to said cross-piece and moving in suitable guides, spiral springs inclosing the said guide-rods or plungers, a cross-piece in rear of said springs and sliding on said plungers, and a regulating-screw for moving said rear cross-piece backward or forward and so adjusting the tension of said springs, substantially as and for the purposes described.

7. In a brush-holder, a device for regulating the tension upon a brush, consisting of a suitable frame, a cross-piece at the rear of said brush, having two guide-lugs sliding in grooves in said frame, two guide-rods or plungers rigidly attached to said cross-piece and moving in guides in said frame, spiral springs inclosing the said guide-rods or plungers, a cross-piece in rear of said springs and sliding on said plungers, and a regulating-screw for moving said rear sliding cross-piece backward or forward and so adjusting the tension of said springs, substantially as and for the purposes described.

479,803. GRADE-MEASURE. JOHN M. HAINE, Florence, Ohio. Filed Sept. 11, 1891. Serial No. 405,421. (No model.)

Claim.—1. In an instrument of the class described, the combination, with the two members or bars hinged together at their rear adjacent corners, the lower member being extensible, of a gage-plate of quadrant shape having degrees of a circle indicated thereon, a gage-bar connecting the outer ends of the two members, and means for locking the bar, substantially as specified.

2. In an instrument of the class described, the combination, with the opposite members, the upper one of which is provided with a slot or opening and the lower one with a longitudinal bore, and a hinge connecting the rear adjacent corners of said members, of a graduated gage-bar mounted in the bore of the lower member and a graduated bar mounted in the slot of the upper member and adjustable therein, the two bars having their meeting ends loosely connected, substantially as specified.



3. In an instrument of the class described, the combination, with the opposite members hinged together at their adjacent rear corners, the upper member having a slot and the lower member longitudinally bored, of gage-bars mounted in the slot and in the bore and hinged at their adjacent ends and a coiled spring interposed between the lower gage-bar and the end of the bore, substantially as specified.

4. In an instrument of the class described, the combination, with the opposite members hinged together at their adjacent corners, the lower member being bored and the upper member terminating in a slotted box, of a gage-bar mounted in the slot of the box, set-screws mounted in the box for binding upon the gage-bar, a shaft mounted transversely in the box, provided at its center with a toothed wheel for engaging teeth formed upon the gage-bar and at its ends terminating in milled nuts, a gage-bar mounted in the bore of the lower member and terminating at its outer end in a head flush with the outer surface of said lower member, and a hinge connecting the upper surface of the said head with the lower end of the gage-bar of the upper member, substantially as specified.

5. An instrument of the class described, the same consisting of two bars of the same length, hinged at their rear extremities, the upper bar being provided with a spirit-level, a loop or box at the free end of the upper member, a set-screw in said loop or box, and a rigid strip, bearing a scale of inches, flexibly connected at its lower end to the free end of the lower bar, passing through the loop or box, and impinged upon by the screw, substantially as specified.

6. An instrument of the class described, the same consisting of two bars of the same length, hinged at their rear extremities, the upper bar being provided with a spirit-level, a loop or box at the free end of the upper member, a set-screw in said loop or box, and a rigid strip, bearing a scale of inches, flexibly connected at its lower end to the free end of an extensible bar which has bearings in the lower bar, passing through the loop or box, and impinged upon by the screw, substantially as specified.

479,804. ELECTRO-MAGNET BOBBIN. EDWARD B. HATCH and CHARLES A. COLTON, Hartford, Conn., assignors to the Johns-Pratt Company, same place. Filed Jan. 13, 1892. Serial No. 417,981. (No model.)



Claim.—In an electro-magnet, in combination, a metallic core, a bobbin with projecting flanges of partially-vulcanized india-rubber and asbestus composition in a single piece, and helices of wire wound about the bobbin between the flanges, substantially as specified.

479,805. VENTILATED SHOE. WILLIAM M. HELBACH, Chicago, Ill. Filed May 8, 1891. Serial No. 392,132. (No model.)



Claim.—The combination, with a shoe having perforations in its insole and a channel between its inner sole and outer sole and having its heel formed with a chamber communicating with said channel and formed with ports *d*, of a spring C within said chamber in the heel, a tube D, having its end inserted, with said ports bowed or bent upward within said chamber and formed in its upper side with a longitudinal opening D′, and longitudinal springs within the channel between the insole and the outer sole, said springs being closely coiled at their rear ends and gradually opened and flattened as they extend toward the toe of the shoe, substantially as described.

479,806. AUTOMATIC RELIEF-VALVE FOR RADIATORS. ALBERT S. HODGE, Boston, Mass., assignor of one-half to J. Henry Hodge, same place. Filed Feb. 20, 1892. Serial No. 422,191. (No model.)



Claim.—1. A relief-valve mechanism for radiators, comprising a casing, a connection opening into the bottom thereof from the radiator, a tube of expansible material disposed around the mouth of said connection, a flanged float supported by said tube, having air openings in said flange, a valve-seat in the top of said casing, and a valve on said float, adapted to engage said seat, all being arranged to operate substantially as described.

2. In a relief-valve for radiators, a cylinder of heat-expansible material disposed within the valve-casing around the inlet, a valve-seating in said casing, and a float secured to said valve and pendent within said cylinder, said float being so disposed that air expelled from the radiator may pass between it and said cylinder, substantially as described.

3. The connection B, provided with the duct *b*, a casing supported on said connection and provided with the relief-valve seat, a cylinder of expansible material disposed within the casing around the mouth of said duct, and a float pendent within said cylinder and bearing a valve adapted to engage said seat, substantially as described.

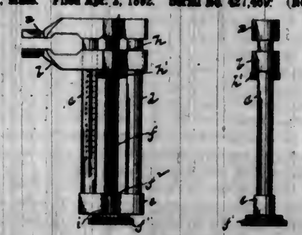
4. In a device of the character described, the connection, a casing provided with the adjustable plug *j*, and the valve-seat *n* and port *p*, in combination with the expansible cylinder and the pendent float therein bearing a valve adapted to engage said seat, all being arranged to operate substantially as described.

5. The connection and casing provided with the adjustable valve-seat, in combination with the hard-rubber cylinder D, and the float E, pendent therein and bearing a valve adapted to engage said seat, substantially as described.

6. The connection and casing provided with the adjustable valve-seat, in combination with the expansible cylinder D, and the closed float E, having the notched supporting-flange *h* and bearing a valve adapted to engage said seat, all being arranged to operate substantially as specified.

7. In a device of the character described, the connection and casing, in combination with the adjustable plug *j* in said casing, provided with the valve-seat and port, the expansible cylinder disposed around the inlet in said connection, the closed float E, disposed within said cylinder and provided with the flange *h*, having the notches *i*, and the valve *q* on said float, adapted to engage said seat, substantially as described.

479,807. MICROMETER-CALIPERS. EDWIN L. HOLCOMB, Springfield, Mass. Filed Apr. 2, 1892. Serial No. 427,469. (No model.)



Claim.—1. The micrometer-calipers herein described, comprising a fixed jaw and end piece, two guide-rods extending between said jaw and end piece, a movable jaw having a sliding bearing upon both of said rods, and a leading-screw journaled at its ends in said fixed jaw

and end piece, respectively, between said rods and operatively engaging said movable jaw, combined and operating substantially as set forth.

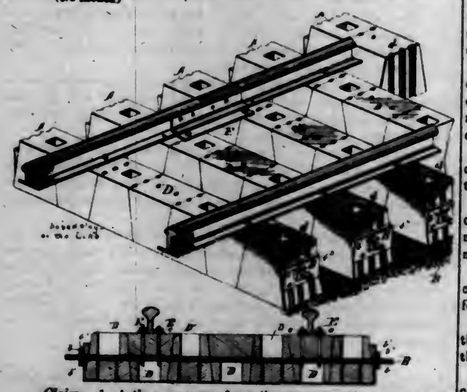
2. The micrometer-calipers herein described, consisting of a fixed jaw, an end piece, two parallel guide-rods secured at their ends in said jaw and end piece, respectively, a movable jaw having a sliding bearing upon both of said rods, and a leading-screw supported at its ends in conical bearings on said fixed jaw and end pieces, respectively, and operatively engaging said movable jaw, one of said conical bearings being adjustable to compensate for wear of said screw, substantially as described.

3. The micrometer-calipers herein described, consisting of a fixed jaw, an end piece, two parallel guide-rods supported at their ends in said jaw and end piece, respectively, a movable jaw embracing both of said rods and having therein a slightly-tapered threaded hole to receive a bushing, an externally and internally threaded tapered bushing adapted to enter the hole in said jaw, said bushing being split longitudinally to render it compressible, and a leading-screw journaled at its ends in said fixed jaw and end piece, respectively, and engaging between its ends the internal threads of said bushing, said screw carrying a milled head to enable it to be revolved manually, substantially as set forth.

4. In micrometer-calipers, the combination, with a fixed jaw, an end piece, and two parallel rods extending between the same, one of said rods having graduations marked thereon, of a movable jaw embracing both of said rods, and a leading-screw journaled at one end in said fixed jaw and having its opposite end extended through said end piece and provided with a milled head for turning the same, which head is also provided with peripheral graduations, said screw operatively engaging between its ends said movable jaw, arranged and operating substantially as described.

5. In micrometer-calipers, the combination, with fixed jaw *a*, rods *c d*, end piece *e*, and jaw *b*, movable upon said rods, of leading-screw *f*, having one end thereof passed through said end piece and having a beveled shoulder engaging a beveled surface at the inner side of said end piece, and conically-pointed screw *g*, passing through said fixed jaw and engaging a conical socket in the opposite end of said leading-screw, substantially as set forth.

479,808. TRACK CONSTRUCTION FOR RAILWAYS. THOMAS W. HUTCHINS, Wyoming, Pa. Filed Mar. 10, 1892. Serial No. 424,609. (No model.)



Claim.—1. A tie or support for railway-track rails, composed of a series of abutting sections of mineral substances united by a tie-rod passing way through the same, substantially as described.

2. A tie or support for railway-track rails, composed of a series of abutting sections of mineral substances united by a tie-rod passing through the same, the sections upon which the rails rest being wedge shape, whereby the pressure of the rails on the larger ends distributes the strain throughout the tie, substantially as described.

3. A tie or support for railway-track rails, composed of a series of abutting wedge-shaped sections united by a tie-rod, adjacent sections being reversed, substantially as described.

4. A tie or support for railway-track rails, composed of a series of abutting wedge-shaped sections united by a tie-rod, adjacent sections being reversed and the abutting faces corrugated or formed with channels, substantially as described.

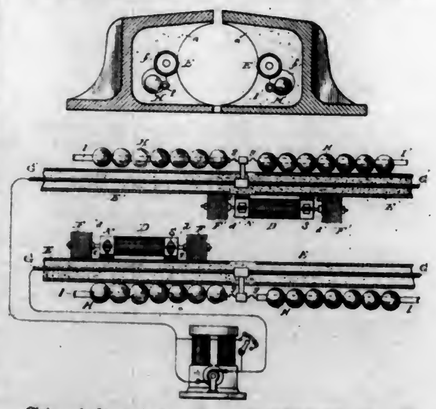
5. A tie or support for railway-track rails, composed of a series of abutting sections united by a tie-rod with central vertical apertures in said sections, substantially as described.

6. The combination, with the series of abutting wedge-shaped sections, of the tie-rod passing through said sections, and the washers at the ends of the rod thicker at one edge than at the other to compensate for the inclination of the faces of the end sections, substantially as described.

7. The combination, with the series of abutting sections and tie-rod passing through the same, of the track-rail fasteners passing in through the sections and connected to the tie-rod, substantially as described.

8. The combination, with the series of abutting sections and tie-rod passing through the same, of the eyebolts through which the rod passes, extending out through the top of the sections and adapted to secure the track-rails in place, substantially as described.

479,809. CLOSED CONDUIT FOR ELECTRIC RAILWAYS. EDWARD H. JOHNSON, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company, same place. Filed Feb. 10, 1887. Serial No. 227,139. (No model.)



Claim.—1. In an electric railway, the combination, with a car, of two contact-carriers carried thereby, two separate conduits in which such carriers travel, and a working conductor in each of such conduits, substantially as set forth.

2. In an electric railway, the combination, with the working conductors normally disconnected from the source of electrical energy, of iron balls or rollers and a magnet on the car moving such balls or rollers by a magnetic attraction into position to connect the working conductors in circuit as it passes over them, substantially as set forth.

3. In an electric railway, the combination, with the working conductors, of the main conductors, the auxiliary main conductors, and the magnetic balls, substantially as set forth.

4. In an electric railway, the combination, with the working conductors, of the main conductors, the auxiliary main conductors connected with the main conductors through safety-catches, and the magnetic balls, substantially as set forth.

5. In an electric railway, the combination, with a hollow working conductor, of a main conductor inclosed thereby, substantially as set forth.

6. In an electric railway, the combination, with a hollow sectional working conductor, of a continuous main conductor inclosed thereby, substantially as set forth.

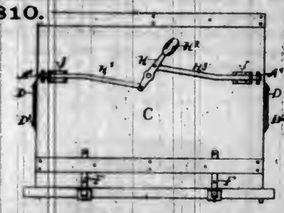
7. In an electric railway, the combination, with a conduit, of a contact-carrier traveling therein and plungers of insulating material forming part of such carrier, said plungers bearing on all sides in the conduit and keeping the carrier central therein, substantially as set forth.

8. In an electric railway, the combination, with the conduit and the working conductors, of the electro-magnetic contact-carriers having contact-brushes bearing on such working conductors and the plungers maintaining the central position of such contact-carriers, substantially as set forth.

479,810. WAGON END-GATE. GEORGE H. JOHNSON, Jamaica, Iowa. Filed Aug. 15, 1891. Serial No. 402,702. (No model.)

Claim.—An improved end-gate-locking device comprising a lever pivoted to the rear end of an end-gate, two arms or bolts pivotally connected with the lever on opposite sides of the fulcrum and extended horizontally in opposite directions, perforated plate secured to the wagon-bed and adapted to receive the ends of said arm-bolts, and a weight secured to the free end of the lever, adapted when the end-gate is being locked to pass a vertical line and remain at an incline and securely hold the said arms or bolts outward by means of the said weight, substantially as set forth.

479,810.

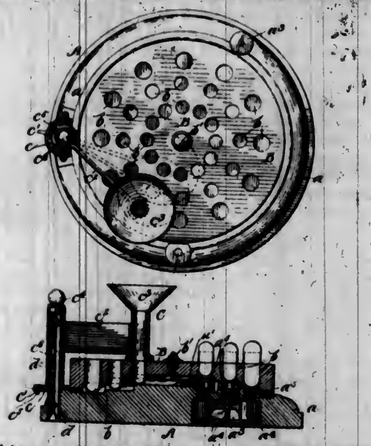


479,811. WHIP-SOCKET. GEORGE A. L. JOHNSON, Lincoln, Nebr. Filed Nov. 27, 1891. Serial No. 413,344. (No model.)



Claim.—The combination, with a whip-socket formed with an opening at one side, of a lock consisting of a plate formed with parallel channels and a central screw-threaded opening, a clamp B, having a concave vertical face and parallel horizontal arms extending into the channels of the plate A, and a shank *c*, loosely secured to the clamp at one end, shaped to receive a key at its other end, and screw-threaded to turn within the opening of the plate A, substantially as described.

479,812. CAPSULE-FILLING MACHINE. WILLIAM K. JOHNSTON, Cordova, Ill. Filed Nov. 12, 1891. Serial No. 411,803. (No model.)



Claim.—1. A machine for filling capsules, comprising a stationary base provided with a raised incline, an auxiliary capsule-ejector, a revolving capsule-carrying plate, and a filler, which latter is adjusted over capsules to be filled, substantially as described.

2. A machine for filling capsules, comprising a stationary base, a revoluble capsule-carrying plate having a plurality of rows of holes, a horizontally-swinging and vertically-sliding filler, and means whereby the filler can be adjusted to register with any one of a plurality of rows of holes in the revoluble capsule-carrying plate, substantially as described.

3. In a capsule-filling machine, the combination of the stationary base, the revoluble capsule-carrying plate having stop-notches on its under side, a catch working in conjunction with said notches and adapted for holding and releasing the revoluble plate, and a filler, substantially as described.

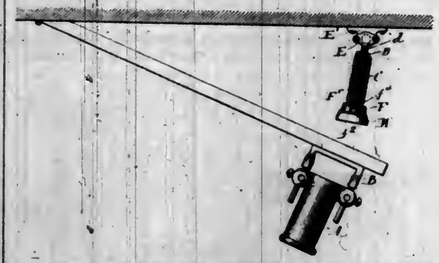
4. A capsule-filling machine comprising a stationary base, revoluble capsule-carrying plate, and a filler, substantially as described.

5. In a capsule-filling machine, the combination of the capsule-carrying plate provided with capsule-cap receptacles, a horizontally-swinging and vertically-sliding filler, adjusting-holes whereby the filler may be made to register with the holes in any one of the rows of receptacles in the plate and hold in such position, a spring depression cap or plug for keeping the parts of the filler together and holding it down on the top of the plate, substantially as described.

6. In a capsule-filling machine, the combination of the stationary base, a platform for bringing the capsule close up to the filler, a revoluble capsule-carrying plate, and a swinging filler, substantially as described.

7. A machine for filling capsules, comprising a stationary base having a raised incline, a revolving capsule-carrying plate, and a filler, which latter is adjusted over the holes in the capsule-carrying plate, substantially as described.

479,813. DOOR-CHECK. JOSEPH KEESE, Chicago, Ill., assignor to the Chicago Spring Butt Company, same place. Filed Nov. 3, 1891. Serial No. 410,690. (No model.)



Claim.—1. In a door-check, the combination, with an open-ended cylinder or casing, of a piston-head, said parts being constructed the one for attachment to the door and the other for stationary attachment and so that the two may entirely separate by the withdrawal of the piston-head from the cylinder, and a flexible body or carrier for sustaining the piston-head in manner permitting it to be entirely withdrawn from and to re-enter the open-ended cylinder, substantially as described.

2. In a door-check, the combination, with an open-ended cylinder or casing, of a piston-head, said parts being constructed the one for attachment to the door and the other for stationary attachment and so that the two may entirely separate by the withdrawal of the piston-head from the cylinder, and a flexible body or carrier for sustaining the piston-head in manner permitting it to be entirely withdrawn from and to re-enter the open-ended cylinder, said flexible body or carrier having one end fixed to the piston-head and having its opposite end rigidly fixed to a bracket for attachment to the door or casing, substantially as described.

3. In a door-check, the combination, with an open-ended cylinder or casing, of a piston-head, said parts being constructed the one for attachment to the door and the other for stationary attachment and so that the two may entirely separate by the withdrawal of the piston-head from the cylinder, and a flexible connection or support for sustaining the piston-head in manner permitting it to be entirely withdrawn from and to re-enter the open-ended cylinder, said connection consisting of a coiled spring, substantially as described.

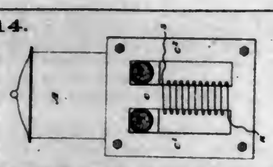
4. In a door-check, the combination, with the open-ended cylinder or casing, of a piston-head, said parts being constructed the one for attachment to the door and the other for stationary attachment and so that the two may entirely separate by the withdrawal of the piston-head from the cylinder, and an elastic flexible connection or support for sustaining the piston-head in manner permitting it to be entirely withdrawn from and to re-enter the open-ended cylinder, and means for attaching said support to the door or lintel and for adjusting it in different positions, substantially as described.

5. A door-check comprising the combination, with a suitable cylinder and casing, of a piston-head, a suitable flexible support for said piston-head, comprising a coiled spring, a suitable plug or attachment D for the inner end of said coiled spring, said plug having a stem or extension, and suitable clamp-plates for engaging with the head or end of said stem or extension and within which plates the position of said plug can be adjusted, substantially as described.

479,814. ELECTRICAL WATER-HEATER. RANKIN KENNEDY, Kilmarnock, Scotland. Filed Apr. 1, 1891. Serial No. 388,436. (No model.)

Claim.—1. In apparatus for heating by electricity, the combination of a magnetizing-coil and a source of alternating or pulsatory electric currents with an iron core and one or more chambers, tubes, or other receptacles for containing liquid to be heated inclosed wholly or in part by said core and having walls of conducting material, within which secondary currents are induced and caused to generate heat substantially as set forth.

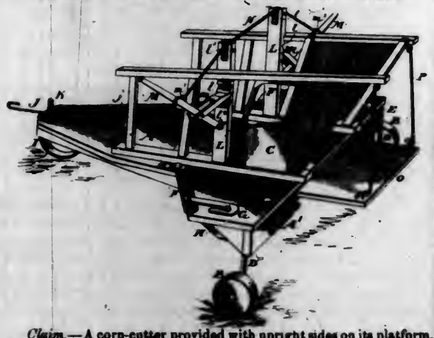
479,814.



2. The combination of an endless tubular core with a magnetizing-coil and a source of alternating or pulsatory electric currents.

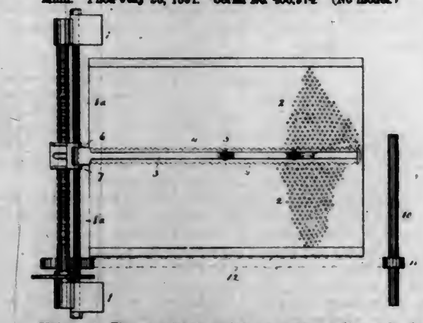
3. In apparatus for heating by electricity, the combination of a magnetizing-coil and a source of alternating or pulsatory electric currents with an endless iron core surrounding or inclosing a receptacle for containing a liquid to be heated.

479,815. CORN CUTTER OR HARVESTER. JOHN KIPP, Sr., Piqua, Kans. Filed Feb. 3, 1892. Serial No. 420,183. (No model.)



Claim.—A corn-cutter provided with upright sides on its platform, ratcheted standards L L, with pulleys at the top, the levers M M, carrying the pawls *m m*, and the tie-cord N', whereby the fodder may be securely held and transported, as set forth.

479,816. WHEAT-SEPARATOR. ALVA H. KIRK, Fergus Falls, Minn. Filed July 28, 1891. Serial No. 400,974. (No model.)



Claim.—1. The combination, with a screening medium, of a cleaning device arranged to sweep its surface and consisting of a bar having its sides beveled and serrated, substantially as set forth.

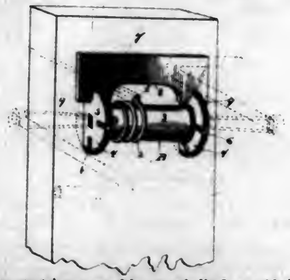
2. The combination, with a reciprocating screening medium, of a cleaning device for sweeping its surface and consisting of a bar rigid laterally and yielding vertically and having serrated beveled sides, substantially as set forth.

3. In a grain-cleaning machine, the combination, with a shaking screening medium, of a cleaning device consisting of a bar having its under surface smooth and its sides serrated, and means for reciprocating it on such medium, substantially as set forth.

4. In a grain-cleaning machine, the combination, with a shaking screening medium, of a cleaning device consisting of a laterally-reciprocating bar composed of hinged sections having their under surface smooth and their sides serrated, substantially as set forth.

479,817. WIRE-FENCE STRETCHER. WILLIAM KRAMER, Chicago, Ill., assignor of one-half to Charles Opitz, same place. Filed Apr. 4, 1892. Serial No. 427,940. (No model.)

Claim.—1. A wire-stretcher comprising a spindle 3, provided at its end with openings 5, adapted to receive a suitable winding-tool, disks 4 at the ends of said spindle provided with radial cuts or slots 6, and a holding-plate 7, adapted to enter said radial cuts or slots 6, substantially as described.

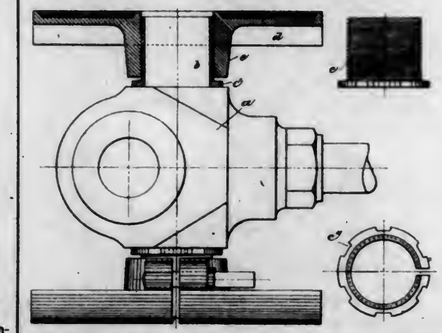


2. A wire-stretcher comprising a spindle 3, provided at its end with openings 5, adapted to receive a suitable winding-tool, disks 4 at the ends of said spindle provided with radial cuts or slots 6, and a holding-plate 7, provided with a cut-away portion 8 and end lugs 10, said end lugs 10 being adapted to enter said radial cuts or slots 6, substantially as described.

3. A wire-stretcher comprising a spindle 3, provided at its end with openings 5, adapted to receive a suitable winding-tool, disks 4 at the ends of said spindle provided with radial cuts or slots 6, and a holding-plate 7, adapted to enter said radial cuts or slots 6 and provided with toes 9, located to embrace the ends of said spindle, substantially as described.

4. A wire-stretcher comprising a spindle 3, provided at its end with openings 5, adapted to receive a suitable winding-tool, disks 4 at the ends of said spindle provided with radial cuts or slots 6, and a holding-plate 7, provided with a cut-away portion 8 and end lugs 10, having toes 9, said lugs being adapted to enter said slots and said toes being located to embrace the ends of said spindle, substantially as described.

479,818. CROSS-HEAD. WILLIAM LAYCOCK, Chicago, Ill., assignor to the Chandler & Taylor Company, Indianapolis, Ind. Filed Apr. 1, 1892. Serial No. 427,409. (No model.)



Claim.—1. The combination, with a cross-head and trunnions carried thereby, of bushes mounted upon said trunnions and gibs screwed upon said bushes, substantially as described.

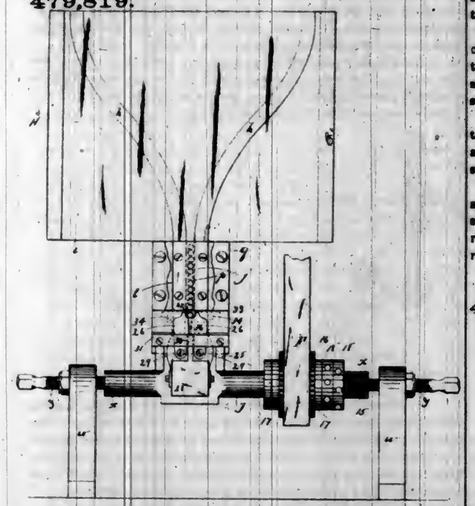
2. The combination, with a cross-head and trunnions carried thereby, of split bushes mounted upon said trunnions and gibs screwed upon said bushes, substantially as described.

3. The combination, with a cross-head and trunnions carried thereby, of split bushes mounted upon said trunnions, and gibs, each of said gibs having a boss adapted to screw upon said bushes, and slits in said bosses, substantially as described.

4. The combination, with a cross-head and trunnions carried thereby, of split bushes mounted upon said trunnions, gibs *d*, each of said gibs having a boss *e*, adapted to screw upon said bushes a slit *d'* in each of said bosses, and a bolt for contracting said slit, substantially as described.

479,819. ATTACHMENT FOR CARTRIDGE-PRIMING MACHINES. JOHN G. LIDDELL, New Haven, Conn. Filed Mar. 24, 1892. Serial No. 426,231. (No model.)

479,819.



Claim.—1. In a cartridge-priming machine, the priming-plunger, in combination with a raceway, a shaft rocked by the movement of said plunger, and spring-tensioned clamping-fingers on said shaft adapted to receive a cap from the raceway, substantially as described.

2. In a device of the character described, the combination of a cap-raceway arranged at an angle to the cartridge-holder and a rock-shaft actuated by the priming-plunger, with a cap-carrier mounted on said shaft and adapted to receive a cap from the race and deliver said cap over the shell in position to be struck by the plunger-tool, all in operative connection, substantially as described.

3. A cap-race for cartridge-priming machines, comprising two rigidly-supported parallel plates separated by curved bars, the lower ends of which converge into parallelism, forming a race proper, in combination with a cap-carrier for delivering caps from said race to the cartridge, substantially as described.

4. A cap-race for cartridge-priming machines, comprising two vertically-inclined glass plates separated by curved bars, the lower ends of which converge into parallelism and project beyond said plates, forming a race proper, in combination with a cap-carrier for receiving caps from said race and delivering them to the cartridge, substantially as described.

5. A cap-race for cartridge-priming machines, comprising two vertically-inclined parallel plates separated by curved bars, the lower ends of which converge into parallelism, forming a race proper, in combination with a spring-pushed block operating at right angles to said race at its mouth and forming a cut-off, and a cap-carrier adapted to move said block to release a cap from said race, substantially as described.

6. In a device of the character described, the raceway H, comprising vertically-inclined plates separated by converging bars *h*, forming the race proper *p*, in combination with the spring-pushed cut-off 33 and the cap-carrier K', arranged to operate substantially as described.

7. In a cartridge-priming machine, the rock-shaft J and actuating mechanism, in combination with the cap-carrier K, mounted on said shaft, and a cap-race for feeding caps to said carrier, substantially as described.

8. In a cartridge-priming machine, the plunger bearing a rack-bar, in combination with a rock-shaft bearing a cap-carrier and a friction-pinion on said shaft meshing with said rack, whereby the shaft may be driven during a determined portion of the plunger movement.

9. In a cartridge-priming machine, the plunger and rack-bar, in combination with the rock-shaft, a cap-carrier thereon, the pinion 16, loose on the said shaft, and the tension mechanism for said pinion, all in operative connection, substantially as described.

10. The cap-race and cut-off, in combination with the rock shaft and actuating mechanism, and the carrier K on said shaft provided with clamping-fingers 26, adapted to depress said cut-off and receive a cap from said race, all in operative connection, substantially as described.

11. In a cartridge-priming machine, the shaft and actuating mechanism, in combination with the cap-carrier secured to said shaft, a stop for limiting the movement of the carrier toward the delivery-point, a cap-race for feeding caps to said carrier, and a cut-off for said race adapted to be released by contact of said carrier, substantially as described.

12. The carrier K, comprising the block 25 and spring-pushed clamping-fingers pivoted thereon, in combination with the rock-shaft to which said block is fast and connecting mechanism for rocking said shaft from the movement of the plunger of a cartridge-primer, substantially as described.

13. The rigidly-supported cap-race and an automatic cut-off therefor, in combination with the cap-carrier mounted on a rock-shaft and adapted to engage said cut-off and actuating mechanism for said shaft, substantially as described.

14. The plunger and rack, in combination with the rock-shaft and frictionally-held pinion therein, the cap-carrier on said shaft, stops limiting the movement of the carrier in either direction, a cap-race, and an automatic cut-off therefor opened by contact of the carrier, all in operative connection, substantially as described.

479,820. APPARATUS FOR DELIVERING CARDS AND OTHER ARTICLES FOR ADVERTISING PURPOSES. ROBERT H. LITTLE, Chicago, Ill., assignor of two-thirds to Henry H. Heimerdinger and Isaac Meyer. Filed Nov. 24, 1890. Serial No. 372,460. (No model.)



Claim.—1. In apparatus of the class described, the combination, with a compartment for holding the cards, of a vertically-movable plunger or support for sustaining the cards, a slide provided with one or more pivoted ejecting-pawls and fingers, and suitable mechanism for operating said slide, substantially as described.

2. In apparatus of the class described, the combination, with a compartment for holding the cards, of a vertically-movable plunger or support for sustaining the cards, and a slide provided with one or more vertically-movable ejecting-fingers, and suitable mechanism for operating said slide, substantially as described.

3. In apparatus of the class described, the combination, with a compartment for holding the cards, of a vertically-movable plunger or support for sustaining the cards, a slide provided with one or more pivoted pawls, and ejecting-fingers and toggle mechanism for operating said slide, substantially as described.

4. In apparatus of the class described, the combination, with a compartment for holding the cards, of a vertically-movable plunger or support for sustaining the cards and a reciprocating vertically-adjustable ejecting-finger for forcing the cards from the compartment, substantially as described.

5. In apparatus of the class described, the combination, with a compartment A' for holding the cards, of a reciprocating slide-plate H, pivoted pawls K, provided with ejecting-fingers K', one of said pawls being arranged at each side of said slide-plate, and toggle-levers G G' for operating said slide-plate, substantially as described.

6. In apparatus of the class described, the combination, with a compartment for holding the cards, of a vertically-movable plunger or support for sustaining the cards and differential weight mechanism for feeding said cards upward, said weight mechanism comprising

means for throwing portions of the lifting-weight out of action as the stack of cards decreases, substantially as described.

7. In apparatus of the class described, the combination, with a compartment for holding the cards, of a vertically-movable plunger or support for sustaining the cards, a cord connected to said plunger or support, a series of weights carried by said cord, and a weight-box provided with projections adapted to successively throw said weights out of action, substantially as described.

8. In apparatus of the class described, the combination, with a movable arm and suitable means for operating it, of a hand provided with a movable thumb and with a finger, said thumb having an extension and said finger being provided with a recess adapted to receive said extension, substantially as described.

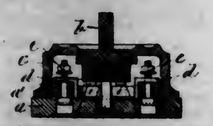
9. In apparatus of the class described, the combination, with a movable arm, of a rotatable shaft for swinging said arm, suitable connections leading from said shaft to the motive power, a stop or check mechanism connected with said rotary shaft to arrest its movement, a hand provided with a movable part—such, for example, as a thumb—a lever adapted to be moved by said thumb, a spring of sufficient power to move said thumb and said lever, and a suitable mechanical connection between said lever and said stop or check mechanism, whereby when said thumb is shifted under the force of said spring said lever will be moved to shift said mechanical connections and release the stop mechanism, substantially as described.

10. In apparatus of the class described, the combination, with a movable arm, of a shaft *r*, connected with said arm, a rocking lever S, attached to said shaft and suitably connected with the motive power, an arm X and a shaft *x*, sustained by said lever S, an arm 61, connected to said shaft *x* and provided with a stop or roller 62, a pivoted check-pawl V, a cord 50, connected to said arm X, a lever W, a delivery-hand P', by which said lever W is sustained, and a movable spring-actuated thumb 25, substantially as described.

11. In apparatus of the class described, the combination, with a movable arm and a shaft for swinging said arm and to which said arm is connected, of a swinging stop or roller 62, connected to said shaft, a pivoted check-pawl V for arresting said stop or roller 62, a delivery-hand P', provided with a movable spring-actuated thumb 25, and a suitable connecting mechanism between said thumb 25 and said stop or roller 62, whereby when the card is removed from the grasp of said thumb the stop or roller 62 will be thrown out of engagement with said pawl V, substantially as described.

12. In apparatus of the class described, the combination, with a movable arm P, of a shaft *r* for swinging said arm, said shaft being suitably connected with the motive power, a stop or roller 62, connected with said shaft, a pivoted pawl V for engagement with said stop or roller 62, an arm 61 for carrying said stop or roller 62, and suitable means for sustaining said arm 61, and a movable deflecting-plate Y, substantially as described.

479,821. ELECTRIC SWITCH. ANDREAS P. LUNDBERG, London, England. Filed Dec. 29, 1891. Serial No. 416,487. (No model.) Patented in England Oct. 24, 1891, No. 18,260.



Claim.—1. In an electric switch, the combination of a recessed base, combined with binding-posts and contact-plates fastened to the sides of the recess of the base, a rotary spindle carrying coiled contact-springs, and bearings for the spindle, formed by the beveled cover and the recessed base.

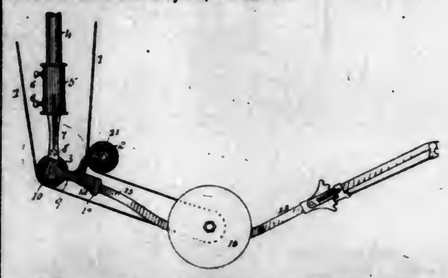
2. The combination of a squarely-recessed base, angular contacts fastened by the binding-posts to the base and projecting into the several sides of the recess, a rotary spindle, coiled contact-springs mounted on split pins carried by the spindle, and the base and cover forming bearings for said spindle, substantially as described.

479,822. GRINDING AND POLISHING MACHINE. ALBERT MARKS, Cerro Gordo, Ill. Filed Oct. 10, 1891. Serial No. 408,351. (No model.)

Claim.—1. In grinding and polishing machines, the combination of hanger 4, having bracket 7, frame 9, pivotally connected with the bracket and having idlers 2 and 3 so located that the nearer surface of idler 2 and the farther surface of idler 3 are equidistant from the pivot, wheel-driving pulley 21, carried by side bars connected with frame 9, and belt 1, extending around the pulley and bearing against the idlers, as set forth.

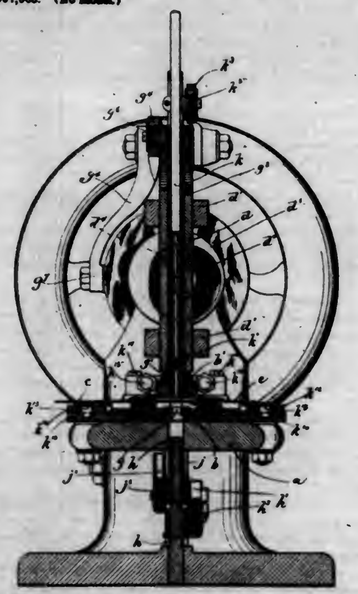
2. In grinding and polishing machines, the combination of the side bars having the manipulating-handles, the wheel-carrying frame connected with the side bars in a manner permitting motion in different directions, and the spring tending to hold the wheel-carrying frame in a certain position relative to the side bars, as set forth.

3. In grinding and polishing machines, the combination of the side bars, the frame pivotally connected with the side bars, the yoke connected pivotally with the frame, and the spring-rod connected with the side bars and with the yoke, as set forth.



4. The combination of the side bars, the frame pivotally connected with the side bars, the yoke carrying the wheels and having a boss extending through a hole in the frame, an angular bolt extended through a corresponding hole in the boss and connecting the frame and yoke together, and a spring-rod extending through the head of the bolt and connecting with a cross-piece of the side bars, as set forth.

479,823. MACHINE FOR MAKING SHEET-METAL BUTTONS. JOSEPH MATHEWS, Somerville, Mass. Filed June 26, 1891. Serial No. 397,605. (No model.)



Claim.—1. In a machine for making pronged buttons from sheet metal, the combination of blank-cutting dies, feeding mechanism arranged to feed a strip of sheet metal to said dies, a plunger and anvil for shaping the central portion of the blank, and dies for bending the ends of the blank to form the prongs.

2. In a machine for making pronged sheet-metal buttons, the combination of a fixed female cutting-die, a reciprocating male cutting-die, feeding mechanism for feeding a strip of sheet metal between said dies, and blank folding and forming mechanism comprising a fixed annular die located under the female cutting-die in position to receive a blank from the latter, a reciprocating plunger arranged to pass through both cutting-dies and co-operate with the annular die in imparting the preliminary shape to the blank, the anvil arranged to co-operate with the plunger in forming the button-head, the shank-forming dies arranged to act on the arms of the blank at a point between the anvil and plunger, the mandrel arranged to enter the space between the said arms and co-operate with the shank-forming dies in forming the shank, and the tubular holder surrounding the anvil and adapted to hold and prevent the displacement of the margin of the button-head during the operation of forming the shank, as set forth.

3. In a machine for making pronged sheet-metal buttons, the combination of an annular die and a plunger formed to enter said die, and co-operate therewith in imparting a cup shape to the central portion of the blank hereinbefore described and laterally-movable dies to co-operate with the annular die and plunger in bending the arms or wings of said blank to form prongs, as set forth.

4. In a machine for making pronged sheet-metal buttons, the combination of an annular die, a plunger formed to enter said die and partially form the button-head, and an anvil formed to co-operate with said plunger in perfecting the top of the button-head, and laterally-movable dies for forming the arms of the blank into prongs, as set forth.

5. In a machine for making sheet-metal buttons, the combination of an annular die, a plunger formed to enter said die and partially form the button-head, an anvil formed to co-operate with said plunger in perfecting the button-head, and a tubular holder surrounding the anvil and vertically movable relatively thereto, whereby it is adapted to co-operate with the plunger and anvil in shaping the marginal portion of the button-head, and mechanism for operating said plunger, anvil, and holder, as set forth.

6. In a machine for making sheet-metal buttons, the combination, with devices for holding a sheet-metal blank consisting of a concavo-convex head or central portion and arms or wings standing parallel with each other at opposite sides of said head, of a mandrel adapted to enter the space between said arms, shank-forming dies formed to co-operate with said mandrel in converting portions of said arms into a substantially tubular two-part shank, and mechanism for operating said mandrel and dies, as set forth.

7. In a machine for making sheet-metal buttons, the shank-forming dies adapted to close upon the two arms of the blank hereinbefore described and form portions of said arms into a shank, combined with the slotted arm-engaging plates yieldingly mounted on said dies and engaged with guides on the dies, as set forth.

8. In a machine for making sheet-metal buttons, the combination of a fixed annular die, a reciprocating plunger formed to enter said die and partially form the button-head, a reciprocating anvil which co-operates with the plunger in perfecting the button-head, the mandrel which enters the space between the arms of the blank, the shank-forming dies which are closed upon the arms of the blank at a point between the anvil and plunger and co-operate with the plunger and mandrel in forming the shank c^4 and shoulders c^5 of the button, and mechanism for operating said plunger, anvil, mandrel, and dies, as set forth.

9. In a machine for making pronged sheet-metal buttons, the combination of a fixed female cutting-die, a reciprocating male die formed to co-operate with the female die in cutting blanks of the form shown from sheet metal, a fixed annular die arranged to support the central portion of the said blank, a reciprocating plunger movable in a guide or way formed for it in said male die, said plunger being arranged to pass through the female die and enter the annular die, and thereby force the central portion of the blank into the annular die, laterally-movable dies for bending the ends of the blank into prongs, and mechanism for reciprocating said male die and plunger, as set forth.

10. The combination of a fixed female cutting-die, a reciprocating male cutting-die, a fixed annular die arranged in line with the central portions of said dies, a reciprocating plunger movable in a guide or way in the male cutting-die and adapted to enter said annular die, a reciprocating mandrel movable in a guide or way in said plunger and adapted to project below the latter, a reciprocating anvil arranged to co-operate with the plunger in forming a button-head, a pair of reciprocating shank-forming dies arranged to act on the arms of a blank at a point between the annular die and the anvil, and mechanism for operating said reciprocating parts, as set forth.

11. The combination of the fixed female die, the movable male die, a carrier supporting the male die, means for reciprocating said carrier, the fixed annular die below the female die, the plunger movable in a way in the male die and carrier, the lever L^3, rod L^4, and cam L^5 for operating said plunger, and the laterally-movable dies L^6, as set forth.

12. The combination, with the male and female cutting-dies, the fixed annular die, the plunger, and means for operating said male die and plunger, of the reciprocating anvil *k*, the tubular holder *j*, surrounding said mandrel, the levers *k'* *j'*, rods k^4 j^4, and cams k^7 j^7, whereby said anvil and holder are operated, the shank-forming dies arranged between the anvil and the plunger, and means for operating said dies, as set forth.

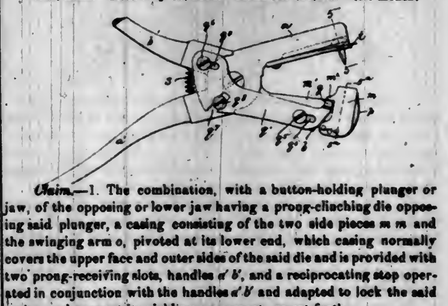
13. The combination of the fixed female die, the movable male die, a carrier supporting the male die, means for reciprocating said carrier, the fixed annular die below the female die, the plunger movable in a way in the male die and carrier, means for operating said plunger, the rod *l*, movable in a way in said plunger and provided at its lower end with the mandrel *k'*, the lever L^3, rod L^4, and cam L^5, whereby said rod and mandrel are operated, the shank-forming dies arranged to co-operate with the mandrel, and means for operating said dies, as set forth.

14. The combination, with the anvil and the plunger for holding a partly-formed blank composed of a concavo-convex head and two parallel arms thereon, of the shank-forming dies arranged to bend portions of said arms inwardly, the bell-crank levers L^{12} L^{13}, engaged with said dies, the movable slide or frame engaged with said levers, and means for reciprocating said slide, as set forth.

15. The combination, with the cutting-dies and button-forming mechanism co-operating therewith, of the reel-support o^3, the swinging arm p^3 on said support, having the jaw *p*, the jaw *p'*, pivotally connected to said arm, a rod p^4, connecting the jaw *p'* with a lever or arm reciprocated by the operation of the machine, whereby the arm p^3 is oscillated, and a stop carried by the arm p^3 to limit the backward movement of the jaw *p*, as set forth.

16. The combination, with the cutting-dies and button-forming mechanism co-operating therewith, of the reel-support o^3, the swinging arm p^3 on said support, having the jaw *p*, the jaw *p'*, pivotally connected to said arm, a rod p^4, connecting the jaw *p'* with a lever or arm reciprocated by the operation of the machine, whereby the arm p^3 is oscillated, and a stop carried by the arm p^3 to limit the backward movement of the jaw *p*, and a pair of jaws, such as o^4 and o^5, whereby the strip is prevented from moving loosely backward, as set forth.

479,824. BUTTON-SETTING TOOL. JOSEPH MATHEWS, Somerville, Mass. Filed July 13, 1891. Serial No. 399,264. (No model.)



Claim.—1. The combination, with a button-holding plunger or jaw, of the opposing or lower jaw having a prong-clinching die opposing said plunger, a casing consisting of the two side pieces *m m* and the swinging arm *o*, pivoted at its lower end, which casing normally covers the upper face and outer sides of the said die and is provided with two prong-receiving slots, handles *a' b'*, and a reciprocating stop operated in conjunction with the handles *a' b'* and adapted to lock the said casing and prevent its yielding movement, as set forth.

2. The combination, with a button-holding jaw or plunger, of an opposing or lower jaw having a prong-clinching die, a casing which normally covers the upper face and outer sides of the said die, the upper portion of the said casing being provided with two prong-receiving slots, handles *a' b'*, and a movable stop operated in conjunction with the handles *a' b'* and consisting of the arm *q'*, movably supported by the lower jaw and the handle *b'* and having an upwardly-turned end *q* and adapted to lock said casing to the jaw and prevent its yielding movement, as set forth.

3. The combination, with a button-holding jaw, of an opposing or lower jaw having a yieldingly connected prong-clinching die, a casing which normally covers said die and is provided with prong-receiving slots over the die, a movable stop adapted to lock said casing to the jaw and prevent its yielding movement, an arm supporting said stop and having a sliding connection with the lower jaw, and a stud or projection connected with the upper jaw and engaged with said arm, whereby the stop is automatically moved by the opening and closing of the jaws, as set forth.

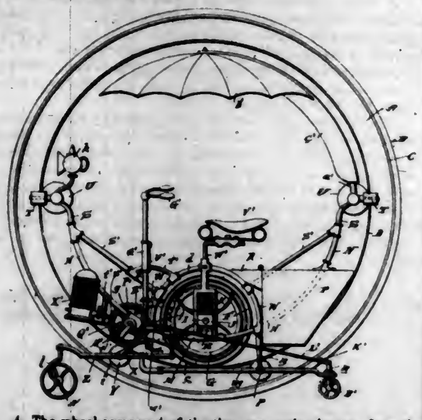
4. The combination, with a button-holding jaw, of a lower jaw having the clinching-die rigidly affixed to it, combined with the independently-movable die-covering casing comprising an arm, such as *m'*, pivotally connected with said jaw, side pieces affixed to said arm and located at opposite sides of the block, said pieces having prong-receiving slots, and an arm, such as *o*, pivoted to the arm *m'* and pressed by a spring into the space between the side pieces, as set forth.

479,825. MONOCYCLE. JAMES D. MATTHEW, Saginaw, Mich. Filed Sept. 25, 1891. Serial No. 406,795. (No model.)

Claim.—1. The combination, with a wheel, of a frame sustained therein, a base roller frame vertically adjustable with respect to the wheel, a semi-rotatable bar connected with a handle-bar, and rods connecting said semi-rotatable bar with wheels of the roller-frames so as to guide the same, substantially as specified.

2. The combination, with a wheel, of a frame sustained therein, the rack-bar, the upright pivoted handle-post, the two vertically-adjustable rollers A', and levers connecting the same with the handle-post, the sleeve on said handle-post having the curved arms, the steering wheels or rollers, the levers pivotally connecting the same with the handle-post, and the guide-rods connecting said wheels with the sleeve on the handle-post, substantially as specified.

3. In a monocycle, the combination, with a wheel, of a suitable frame sustained therein, a pivoted post, a forked sleeve arranged on said post, guide-wheels, rods connecting said guide-wheels with the branches of the sleeve, and a suitable handle for manipulating the post, substantially as specified.



4. The wheel composed of the tire-seat section bent to form the circumferential tire-seat and having separated parallel branches on its inner side, the section D, having the lapped edges, and the connecting-web having one edge received in the lapped portions of the section D and the opposite edge or edges secured between the parallel flanges of the tire-seat sections to serve substantially as specified.

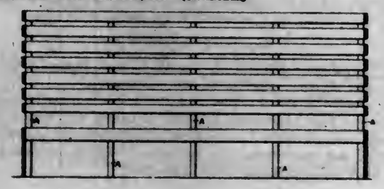
5. In a monocycle, the combination, with a wheel having an inner band, of a frame sustained therein, a drive-wheel yieldingly sustained in said frame and adapted to engage the inner band of the wheel, said wheel also having one or more ratchet-wheels, an endless belt or chain, and suitable means for imparting motion to the same, substantially as specified.

6. In a monocycle, the combination, with a wheel, of the frame sustained therein by friction-rollers, the hanger-frame having vertical guideways and carrying a seat, the spring-backed bearing arranged in said ways, the shaft sustained in the bearings, a drive-wheel fixed to said shaft and having one or more sprocket-wheels formed thereon, and a felt or other suitable ring set in the face of the drive-wheel and adapted to contact with the inner band of the main wheel, and means for imparting motion to the main wheel, substantially as specified.

7. In a monocycle, the combination, with a wheel having an inner friction-band, as described, of a frame arranged therein and friction-rollers for engaging the inner and outer sides of said band and also the lateral edges thereof, said frame being adapted to support driving mechanism, and a vertically-movable roller base-frame, substantially as specified.

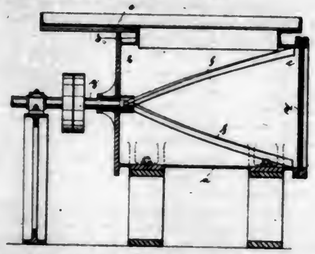
8. In a monocycle, the combination, with the wheel having the inner friction-band, of the frame arranged therein and carrying friction-rollers engaging the inner and outer sides of said band and also the lateral edges thereof, and the roller-frame connected with the first frame, and devices for raising and lowering the latter frame, whereby said roller-frame may be let down and present a broad base for sustaining the main wheel when not in use, substantially as specified.

479,826. HAY-RACK. JOHN F. MOORE, Crowell, Nebr. Filed June 29, 1891. Serial No. 397,983. (No model.)



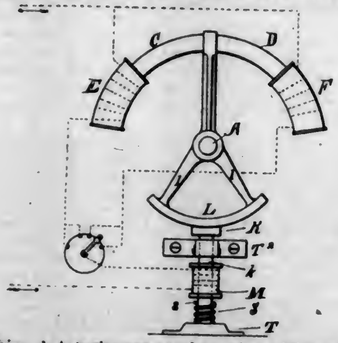
Claim.—The herein-described combined hog-house and hay-rack, comprising a lower housing closed upon three sides and having a solid deck provided with a central latticed portion extending longitudinally from end to end, in combination with a crib forming part of said housing and extending above said central latticed portion, so as to leave a suitable space between said deck and crib, said crib extending from said central latticed portion, the whole of said deck being surrounded by a guard, all substantially as and for the purpose set forth.

479,827. APPARATUS FOR KNEADING DOUGH AND SHAPING IT INTO LOAVES. WILHELM J. MÜLLER, Ehrenberg, Germany. Filed Dec. 30, 1891. Serial No. 416,578. (No model.)



Claim.—In a machine for kneading and shaping loaves of dough, the combination, with the cylindrical casing open at one end and having the hopper at the top, of the power-shaft journaled in the closed end of the cylinder, the kneader or agitator carried by said shaft and having the arms projecting toward the open end, and the cut-off lid or door working across and closing the open end of the cylinder, whereby the dough may be severed into loaves and the dough retained in the casing when requiring extra kneading, substantially as described.

479,828. ELECTRIC STEERING-GEAR. EDGAR H. MUNFORD, Detroit, Mich. Filed Aug. 20, 1891. Serial No. 403,196. (No model.)

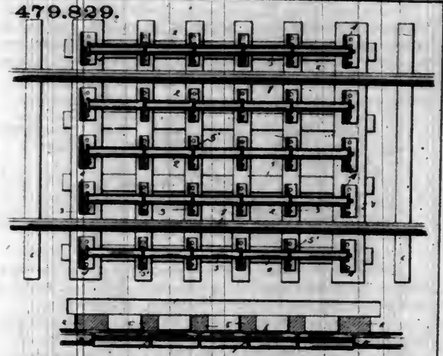


Claim.—1. A steering apparatus for vessels, consisting of a rudder and rudder-post, a tiller, and a curved arm of magnetic material attached thereto concentric to said rudder-post, and a solenoid fixed to the body of the vessel, arranged to receive within its coils a portion of said curved arm and to move it around its central support through the force of an electric current passing through said solenoid, substantially as and for the purpose described.

2. In a steering apparatus, the combination of a rudder, rudder-post, tiller-arm, a circular arm of magnetic material attached at its middle point to said tiller-arm and extending in either direction therefrom into a curved solenoid, a line in electric connection with an electric generator, and a switch adapted to switch the circuit into either or both of said solenoids or to break connection with either or both, substantially as and for the purpose specified.

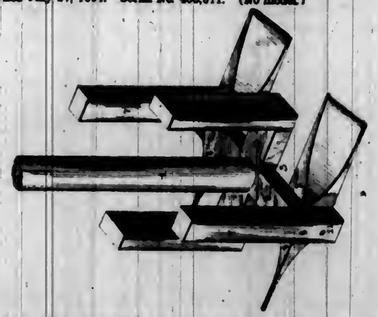
3. In a steering apparatus, the combination of the rudder, rudder-post, tiller, electrically-controlled arms projecting from the tiller, an electric brake, solenoids operating said tiller-arms, solenoids operating said brake, and a switch mechanism and conducting-wires whereby the electrical force is directed at will through the tiller-arm, solenoids, or the brake-solenoids, substantially as and for the purpose described.

479,829. RAILROAD-CROSSING. JOHN MCCARTHY, Manistique, Mich. Filed Nov. 21, 1891. Serial No. 412,606. (No model.)



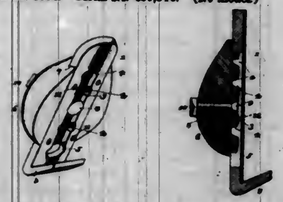
Claim.—The herein-described crossing for railroads, the same consisting of sleepers located below and at right angles to the ties, larger ties at the sides of the crossing, closed bearings supported on said larger ties, open bearings on the ties intervening, and rollers journaled in said bearings parallel with the rails and between and outside of the same, as and for the purpose hereinbefore set forth.

479,830. CHURN-DASHER. FRANCIS L. MCCOY, Enkridge, Kans. Filed July 27, 1891. Serial No. 400,811. (No model.)



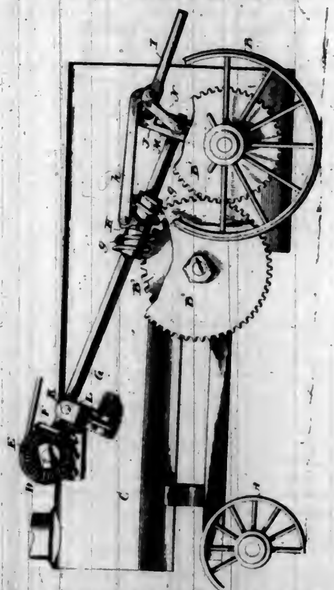
Claim.—The combination of a vertically-reciprocating dasher-rod and a rotating dasher arranged at the lower end of the dasher-rod and comprising the horizontal bars centrally secured together and crossing each other and arranged at right angles and pivoted at the lower end of the dasher-rod, one of the bars being longer than the other, the vertical blades 6 and 7, secured at the ends of the horizontal bars, the blade 7 being arranged at the ends of the longer bar, and having their lower ends depending therefrom, and horizontal propelling-blades secured intermediate of their ends to the ends of the longer bar and to the depending portions of the vertical blades and having their ends disposed at an angle or inclined, said vertical blades being adapted to cause an agitation of the liquid and the propelling-blades to cause a rotation of the dasher, substantially as described.

479,831. TOE-WEIGHT. CHARLES M. MCMILLAN, Red Cloud, Nebr. Filed Oct. 20, 1891. Serial No. 409,310. (No model.)



Claim.—The combination, with the standard 1, having opposite dovetailed edges, a lower bent end 2, and a longitudinal slot 3, having beveled edges, said slot being provided at its lower end with an enlarged opening 5 and at intervals above the same with countersunk recesses 4, of the weight 6, the rear face of which is provided with the dovetailed recess 7, mounted for sliding upon the standard, the bolt provided with a head at its inner end, passed through a perforation flared at its rear end and formed in the weight and through the slotted standard, the head of the bolt being adapted to be withdrawn through the hole 5 of the standard, and the nut upon the outer end of the bolt, substantially as specified.

479,832. TRACTION-ENGINE. PETER T. NEUHAUS, Galion, Ohio. Filed Apr. 16, 1892. Serial No. 429,688. (No model.)



Claim.—1. In combination with the main shaft of a motor and a worm-wheel, a second shaft driven from said main shaft, the double worm on said second shaft in mesh with said wheel, and means for raising said shaft to lift one part of said worm out of mesh with its wheel and for shifting said worm and then lowering the shaft to place another portion of the worm in mesh with the wheel, substantially as shown and described.

2. In combination with the main shaft of a motor and a worm-wheel, a second shaft driven from said main shaft and journaled at one end in a pivoted box or bearing, the double worm slidable on said second shaft to mesh with said wheel, and the pivoted lever connected to said worm and to its shaft to move the latter on its pivot and to slide the worm, substantially as shown and described.

3. In combination with the main shaft of a motor and a worm-wheel, a second shaft driven from the main shaft, the pivoted box journaling it at one end, the sliding block journaling it at its other, the worm on such second shaft meshing with said wheel, the pivoted lever, and links connecting the same with said worm and with said sliding journaling-block.

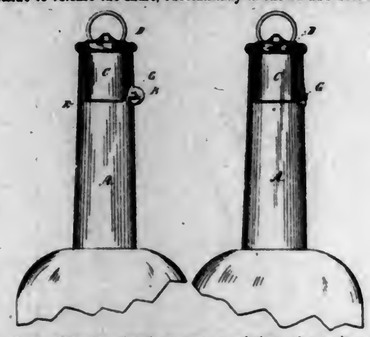
4. In combination, the main shaft of a traction-engine, the bevel-gear thereon, the traction-wheel, the worm-wheel geared to the latter, the second shaft having a bevel-gear meshing with the gear of the main shaft, and a double worm to mesh with said worm-wheel, the pivoted box journaling one end of said second shaft, the slidable block journaling the other, and the pivoted lever connected to said block and to said double worm, as shown and described.

5. In combination, the main shaft of a traction-engine, the bevel-gear thereon, the traction-wheel, the worm-wheel geared to the latter, the second shaft having a beveled gear meshing with the gear of the main shaft, the double worm to mesh with said worm-wheel, the collar thereon, the pivoted box journaling one end of said second shaft, the slidable block journaling the other end, the slotted standard in which said block is movable, the lever pivoted to said standard, links connecting said lever, and the collar on the worm, all substantially as shown and described.

479,833. BOTTLE-STOPPER. JOHN R. ORR, Covington, Ky., assignor to Richard P. Ernst, same place. Filed Aug. 5, 1891. Serial No. 401,751. (No model.)

Claim.—1. In a bottle-stopper, the combination, with the stopper and spring-bolt therein, of a destructible groove or recess in the neck of the bottle to receive said bolt, whereby said stopper is locked until the groove or recess is destroyed, substantially as shown and described.

2. In a bottle-stopper, the combination of a spring-bolt attached to the stopper and a thin hollow teat in the neck of the bottle, opening inwardly to receive the bolt and adapted to be broken from the outside to release the same, substantially as shown and described.

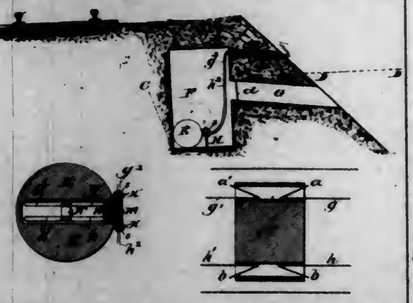


3. A self-locking bottle-stopper consisting of a cork or stopper provided with a spring-bolt, a thin hollow teat in the bottle to receive said bolt and adapted to be broken from the outside to release the bolt, and plates on either end of the stopper, connected by a rod, substantially as shown and described.

4. A bottle-stopper consisting of a cork reinforced by end plates joined by a rod passing through the cork and a spring-bolt with a destructible recess in the neck of the bottle to receive same, substantially as shown and described.

5. In combination with a stopper provided with a bolt, a bottle constructed with a thin hollow teat opening internally to receive said bolt and adapted to be broken on the outside to release the bolt, substantially as and for the purpose described.

479,834. DEVICE FOR INDICATING WASHOUTS IN RAILROAD-BEDS. JOSÉ O. Y HERNOSA, Mexico, Mexico. Filed Oct. 23, 1891. Serial No. 409,591. (No model.)



Claim.—1. A chamber F with inclined inlet-pipe G, embedded in and opening through the side of the railroad embankment, in combination with a float arranged in the bottom of said chamber and containing a movable circuit-breaker and one or more electric circuits adapted to be broken by the change in the position of the float, substantially as shown and described.

2. The float E, having a central chamber, in combination with a tightly-fitting screw-plug *n m*, having parallel wire terminals and trunnion extensions and a circuit-breaker sliding on said parallel wire terminals and connecting the latter, substantially as shown and described.

3. The combination, with the standards H, having eyes or journal-bearings, of the float E, having a central chamber and a screw-plug *n m*, sliding said chamber and having trunnioned ends fitting in the eyes or journal-bearings of the standards, substantially as shown and described.

4. The sliding circuit-breaker M, having one or more holes through it provided with a metal lining, in combination with wire terminals arranged in line and having their ends bent back upon themselves to form springs and also act as stops to prevent the closing of the circuit again when once broken, as substantially shown and described.

5. The combination of the chamber F with pipes or tubes M G, standards H, arranged in the bottom of the chamber, the float E, hinged on its standards and provided with circuit-breaking devices, and circuit-wires extending through the trunnions and out through pipe M to the stations, substantially as shown and described.

479,835. STORAGE-BATTERY PLATE. HARRY G. OSBURN, Chicago, Ill. Filed Nov. 21, 1891. Serial No. 412,663. (No model.)

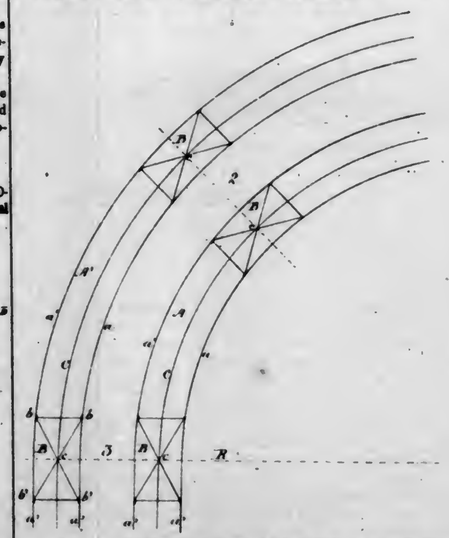


Claim.—1. In a secondary-battery electrode, a grid or plate consisting of longitudinal webs and the transverse ribs or bars deflected alternately in opposite directions, substantially as described.

2. In a secondary-battery electrode, a grid or plate having a multiplicity of connected ribs or bars which are deflected in opposite directions and form open receptacles for active material, substantially as described.

3. In a secondary-battery electrode, a grid or plate having the longitudinal webs *d* and the transverse ribs or bars *e e'* integral therewith and deflected alternately in opposite directions to form a series of open receptacles for the reception and exposure of active material, substantially as described.

479,836. RAILWAY-TRACK. CHARLES W. PARKS, Troy, N. Y. Filed May 14, 1891. Serial No. 392,654. (No model.)

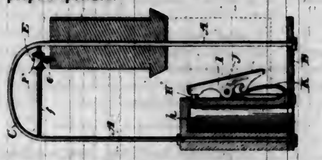


Claim.—1. In combination with a straight three-rail or three-way track having the central way equidistant from each side way, and a curved track having its intermediate way nearer to the inner rail of the curve by approximately the product of the radius or curvature and the versed sine of the angle formed by two radii of the curve, one such radius passing through an axle of the car upon the curve and the other passing midway between the axles of said car, as set forth.

2. In combination with a straight three-rail or three-way track having the central way equidistant from each side way, a curved track having its intermediate way nearer to the inner rail of the curve by approximately the versed sine of the angle formed by two radii of the curve, one such radius passing through an axle of the car upon the curve and the other passing midway between the axle of said car, and an intermediate way having a curve in one direction gradually approaching the center way of the straight track and in the other direction the off center way of the curved track, substantially as described.

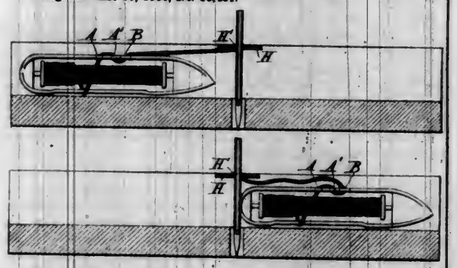
479,837. DETONATING FIRE-ALARM. LEVI PARSLEY, Bonney, Ark. Filed Apr. 18, 1892. Serial No. 429,653. (No model.)

Claim.—1. In a detonating alarm of the character described, in combination, the gravity-casting, the suspending-cord therefor, and a system of pulleys over which the cord is passed, the chamber for containing the powder, said cylinder having an outlet at its lower end and at its upper end provided with a cone to receive the discharge-cap, a pivoted hammer held normally by the tension of a spring in contact with the cap, and the lower end of the said lever inclined outwardly and in the path of the gravity casting, substantially as described, and for the purpose specified.



2. The combination, with the base-plate, of the wire or rod having its ends attached thereto and formed into an arch with vertical sides, the gravity-casting sleeved upon one side of said arch, the lower end of the casting being provided with a beveled flange or extension, as described, the cord for suspending said casting, the pulleys over which the cord is passed, the cylinder H, having an interior chamber opening at its lower end through the plate B and at its upper end provided with a cone to receive the firing-cap, and the hammer pivoted at its center between lugs upon the outer face of the cylinder, with the lower end of the hammer held normally in the path of the gravity-casting by the action of a spring, substantially as described.

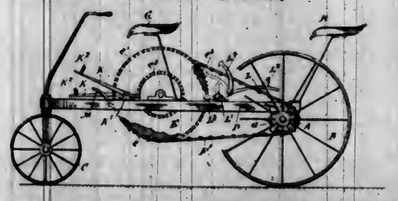
479,838. SEWING-MACHINE. MARSHALL H. PEARSON, Leicester, England, assignor to the John O'Flaherty Company, Montreal, Canada. Filed Oct. 30, 1891. Serial No. 410,345. (No model.) Patented in England June 26, 1889, No. 10,481.



Claim.—1. The combination, in a sewing-machine, of a frame or plate having a needle-opening, a shuttle provided with a hole for the delivery of the thread, and mechanism, substantially such as shown and described, for imparting motion to said shuttle and adapted to carry the thread-delivery hole of the latter to a greater distance in rear of the needle-hole than in front of the same, whereby the thread required to form a stitch is drawn from the shuttle during the backward movement of the latter.

2. In a sewing-machine, the combination, with a frame or plate H, provided with a needle-hole H', of a reciprocating shuttle provided with a thread-delivery hole B, and means, substantially such as shown and described, for actuating the shuttle and carrying its thread-delivery hole B farther to the rear side of the needle-hole H' than to the other side.

479,839. VELOCIPEDE. JOHN PFLEGER, Minneapolis, Minn. Filed Nov. 17, 1891. Serial No. 412,129. (No model.)



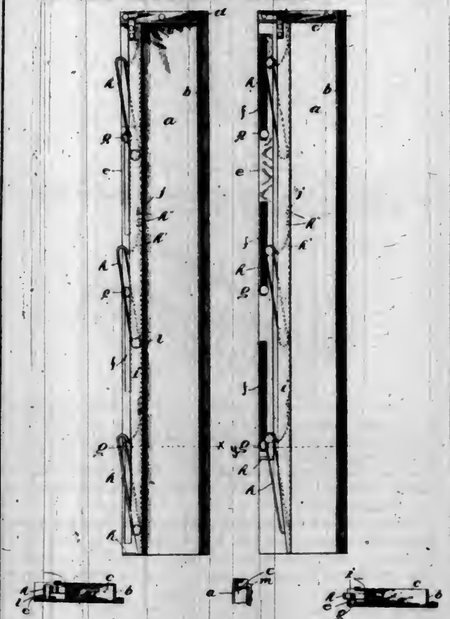
Claim.—1. In a velocipede, the combination, with a driving-wheel provided with annular ratchets arranged for moving the wheel in opposite directions, of ratchet-levers engageable with either set of said ratchets at the will of the operator, substantially as described.

2 In a velocipede, the combination, with a drive-wheel supported on the main frame free from the ground and provided with annular ratchets, some of which have their teeth arranged for forward and others for backward motion, of seats for two operators, and two sets of foot-power ratchet-levers arranged for action on said ratchets at opposite points of the driving-wheel, substantially as described.

3. In a velocipede, the combination, with the drive-wheel supported on the main frame free from the ground and provided with annular ratchets, of the foot-power ratchet-levers and a foot-power brake operating on said drive-wheel, substantially as described.

4. In a velocipede, the combination, with a drive-wheel supported on the maip frame free from the ground and provided with annular ratchets, some of which have their teeth arranged for forward and others for backward motion, of seats for two operators, arranged one to the front and the other to the rear of the driving-wheel, and two sets of foot-power ratchet-levers arranged for action on said ratchets at opposite points of the said driving-wheel for either forward or backward motion, substantially as described.

479,840. GALLEY-LOCK. JOHN PRELAN, Pittsburg, Pa., assignor of two-thirds to William Trimble and Jacob H. Jones, same place. Filed Nov. 10, 1891. Serial No. 411,472. (No model.)



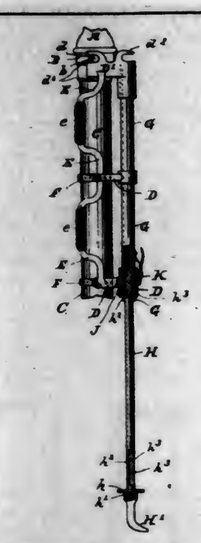
Claim.—1. In a galley-lock, a galley having the usual side and end walls, in combination with a side-stick provided with slots having yielding walls extending obliquely to the plane of the side-stick and a locking-bar carrying studs movable in the slots, as set forth.

2. In a galley-lock, the combination of a galley having the usual side and end walls, a laterally-movable quoin provided with a guide-lip to prevent longitudinal movement, a series of oblique spring-bearings, and a locking-bar carrying fixed pins movable in bearings, all arranged and adapted to operate in the manner and for the purpose substantially as described.

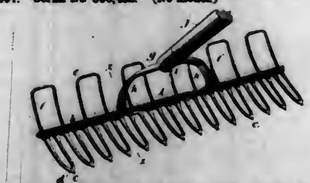
479,841. HOSE-NOZZLE HOLDER. CYRUS B. ROBINSON, East Concord, N. H. Filed Jan. 23, 1892. Serial No. 418,983. (No model.)

Claim.—In a fire-hose support upon which metal brackets and straps are used for attaching the hose, the herein described tubular connection, upon which said brackets are mounted, an extension-rod mounted in said tubular connection provided with a longitudinal groove adapted to receive a screw or pin projecting interiorly from its bearing, a spring-locking device for securing said rod in an extended position, or vice versa, a suitable crooked tip or point threaded to the outer end of said extension-rod, and the insulated handles formed upon side-bars connecting the said hose-brackets, all substantially for the purpose set forth.

479,841.



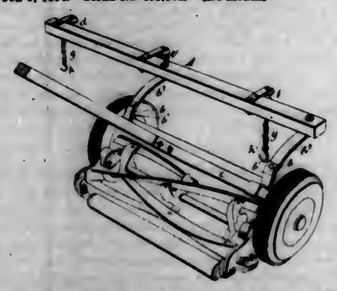
479,842. RAKE. JACOB V. ROWLETT, Richmond, Ind. Filed June 16, 1891. Serial No. 396,482. (No model.)



Claim.—1. In a rake, the combination, with a head, of a series of teeth formed integrally therewith and arranged in pairs, each tooth of each pair converging at its outer end toward the other, short solid points arranged at the intersection of each pair, and the hood constituted of a series of fingers integral with the head and extending outwardly therefrom and connected in pairs, all substantially as and for the purposes set forth.

2. In a rake, the combination, with the head or central portion formed with upwardly-extending lugs or projections adapted to be upset, of a handle-brace constituted of arms united at one end with a sleeve for the handle, the other ends having sockets formed by flanges, said sockets having apertures therein engaging with the lugs and the flanges with the rake-head, substantially as described.

479,843. LAWN-MOWER. JACOB V. ROWLETT, Richmond, Ind. Filed Oct. 6, 1891. Serial No. 408,072. (No model.)



Claim.—1. In combination with a hand lawn-mower, a horse-attaching device therefor comprising a draft bar and accessories, substantially as described, and supporting-arms connected at one end to said bar and at the other end to the mower at a point to the rear and above the axle of the drive-wheel, for the purpose set forth.

2. In a lawn-mower, a horse-attaching device consisting of a draft-bar and supporting-arms therefor having clamps in their ends for connection with the handle-brace, as described.

3. In combination with a hand lawn-mower, a horse-attaching device therefor comprising a draft-bar and accessories, substantially as described, supporting-arms connecting said bar with the mower at a point to the rear and above the axle of the drive-wheel, a set of rollers arranged on said bar, and a draft-chain adapted to pass around said rollers, and operating in the manner and for the purpose set forth.

4. In a horse-attaching device for lawn-mowers, the combination, with the draft-bar, of the supporting-arms therefor having connection with the handle-brace, and the rollers *d e f*, and the draft-chain adapted to pass around said rollers and provided with hooks for connection with the traces, all substantially as described.

479,844. STOVEPIPE-FASTENER. CHRISTIAN ROSCH, Milwaukee, Wis., assignor of one-half to Friedrich C. Hamm, same place. Filed Dec. 4, 1891. Serial No. 413,993. (No model.)

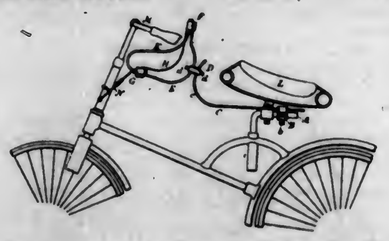


Claim.—1. The combination, with a pipe-thimble, of a flexible metallic strap attached at one end to one side of the thimble and extending around on the inside of the thimble about one half of its circumference and a cylindrical cam journaled eccentrically on the thimble in a recess therefor at one side of the pipe-aperture through the thimble, which eccentric is provided with an axial keyhole adapted to receive a key for rotating it, substantially as described.

2. The combination, with a stovepipe-thimble having a recess in its wall near its outer end at one side of its pipe-aperture, of a flexible metallic strap secured at one end to the thimble at one side and extending half around the thimble on the inside, terminating at its other end in a loop, and a cylindrical cam about which the loop at the end of the strap passes and against which it bears, which cam is journaled in the walls of the recess, its axis being parallel with the axis of the thimble, substantially as described.

3. The combination of a stovepipe-thimble having its circumference at diametrically-opposite points bent out angularly to form recesses, a cam within one of the recesses, a removable plate forming the outer wall of the cam-recess, a part of the plate projecting out laterally at a point above an indented portion of the thimble, whereby a socket is formed, an inclined catch or lug within the opposite recess, a flexible strap having one end connected to a pin within said recess and its opposite end looped upon the cam in the opposite recess, and an angular guard adapted to be placed against the end of the thimble, so as to completely cover the same, provided with an aperture registering with the thimble-aperture and also with depending hooks, one of which is adapted to engage the inclined lug and the other the socket of the thimble, substantially as set forth.

479,845. SEAT FOR BICYCLES. JAMES H. SAGER, Rochester, N. Y., assignor to Rich & Sager, same place. Filed Oct. 19, 1891. Serial No. 409,224. (No model.)



Claim.—1. The combination, with a bicycle, of a spring-support consisting of a bar or bars partly straight and partly bent in a regular curve, means of adjustably clamping said straight part horizontally, or nearly so, to the frame of the bicycle, a seat, and means of adjustably fastening the same to said curved part, substantially as and for the purpose set forth.

2. The combination, with a bicycle, of a spring-support consisting of a pair of parallel bars having straight portion and portions bent in a regular curve, means of adjustably fastening said straight parts horizontally, or nearly so, to the frame of the bicycle, a seat, and means of adjustably fastening the same to said curved portions, substantially as and for the purposes set forth.

3. The seat herein described, consisting of a back cross-piece and a front cross-piece, a seat connecting the same, a seat-support connected to said back and front pieces and passing underneath and back of said seat, and suitable means of attaching the same to a bicycle, substantially as set forth.

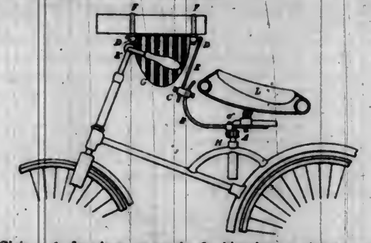
4. The seat herein described, consisting of a back cross-piece and a front cross-piece, a seat connecting the same, a seat-support consisting of a pair of parallel rods connected to said back and front pieces and passing underneath and back of said seat, and suitable means of attaching the same to a bicycle, substantially as set forth.

5. In a supplementary seat for bicycles, the combination of a back cross-piece, a front cross-piece, a seat connecting the same, rods connecting said back and front pieces outside of said seat, and a spring-support attached to the main frame of the bicycle and to said rods, substantially as set forth.

6. In a supplementary seat for bicycles, the combination of a back cross-piece, a front cross-piece, a seat connecting the same, parallel curved rods connecting said back and front pieces and passing underneath and back of said seat, and a spring-support attached to the main frame of the bicycle and to said rods, substantially as set forth.

7. In a supplementary seat for bicycles, the combination of a back cross-piece, a front cross-piece, a seat connecting the same, a pair of parallel curved rods connecting said back and front pieces and passing underneath and back of said seat, and a spring-support consisting of a pair of parallel bars in part straight and in part bent in a regular curve, means of attaching said straight part to the main frame of the bicycle, and means of attaching said curved part adjustably to said rods and movable with reference to the same, substantially as set forth.

479,846. LUGGAGE-CARRIER FOR BICYCLES. JAMES H. SAGER, Rochester, N. Y., assignor to Rich & Sager, same place. Filed Oct. 19, 1891. Serial No. 409,225. (No model.)



Claim.—1. In a luggage-carrier for bicycles, a main support and a clamp adapted to fix said support to a bicycle, in combination with luggage-supporting rods and transverse strap-bars fixed thereon, as by set-screws, and a clamp attaching said rods to said support and in which said rods and said support are each movable and adjustable, substantially as described.

2. In a luggage-carrier for bicycles, a main support and a clamp adapted to fix said support to a bicycle, in combination with luggage-supporting rods clamped to said support and adjustable vertically with reference thereto and transverse strap-bars fixed to said rods, as by set-screws, substantially as described.

3. In a luggage-carrier for bicycles, a main support and a clamp adapted to fix said support to a bicycle and wherein the same is adjustable horizontally, in combination with a luggage-supporting frame clamped to said support and adjustable vertically with reference thereto, substantially as described.

4. In a luggage-carrier for bicycles, a main support having a portion clamped to a bicycle and adjustable horizontally and an upwardly-curved portion, in combination with a vertically-adjustable luggage-supporting frame clamped to the upwardly-curved portion, whereon the frame is adjustable at different angles to a horizontal plane, substantially as described.

5. In a luggage-carrier for bicycles, a main support consisting of a pair of parallel rods having a portion straight and a portion curved, a luggage-supporting frame fixed to a pair of rods depending therefrom, and a clamp adjustably connecting the depending rods to the curved portion of the rods first mentioned, together with a clamp adapted to fasten said first named rods to a suitable part of the bicycle, substantially as described.

6. In a luggage-carrier for bicycles, the combination of a main support, a clamp adapted to fix said support to a bicycle, a luggage-supporting frame fixed upon said support and composed of a pair of horizontal parallel rods having depending ends and connected by such depending ends to such support, a pair of transverse supporting-bars fixed upon said rods, provided with pairs of transverse and longitudinal slots, substantially as described, in the ends of said bars, and straps passing through said slots, for the purposes described, substantially as described.

7. In a luggage-carrier for bicycles, an adjustable support, of goose-neck form, composed of a main support having a horizontal portion and an upwardly-curved portion, a luggage-supporting frame having a depending portion, an adjustable clamp connecting said main support and said frame, and a clamp adapted to connect said main support to a bicycle, substantially as described.

8. In a luggage-carrier for bicycles, supporting-bars having pairs of transverse and longitudinal slots, substantially as and for the purposes described.

9. A clamp for devices of the class described, consisting of two sections, one provided with two arms having perforations therethrough and set-screws to clamp rods in said perforations, the two arms joined by a suitably-shaped connection, the other section having depressions of different contours on opposite sides thereof, and means for clamping the two sections together with either of said depressions opposed to the first section, substantially as set forth.

10. A clamp for devices of the class described, consisting of two sections, one *a* provided with two arms *c c*, having therethrough cross-perforations *d d* at right angles with each other and joined by a connecting-piece *a'*, integral therewith and having a concavity on one side, and set-screws *c' c'* to clamp rods in said perforations, the other section *b* having depressions of different contours on opposite sides, and means, as bolts *e e*, for clamping the two sections together with either of said depressions opposed to the first section, substantially as shown and described.

479,847. REIN-BUTTON. WILLIAM H. SANBORN, Rutland, Vt. Filed Feb. 3, 1892. Serial No. 420,228. (No model.)



Claim.—As an improved article of manufacture, a rein-holder consisting of a body of shell-like form with rear extensions and curved contour to provide a grip for the fingers and having a channel extending therethrough between a lower table and an upper wall, both of which are horizontally arranged and opening from one side, and a detent mounted in the upper portion and in rear of the body, adapted to be operated by an extension thereof projecting upward, against which a spring has bearing to hold the detent normally closed, the said table extending entirely through the holder, substantially as described.

479,848. MECHANISM FOR HARVESTER-REELS. GEORGE SCHUESSLER, Walnut, Tex. Filed Aug. 24, 1891. Serial No. 403,567. (No model.)

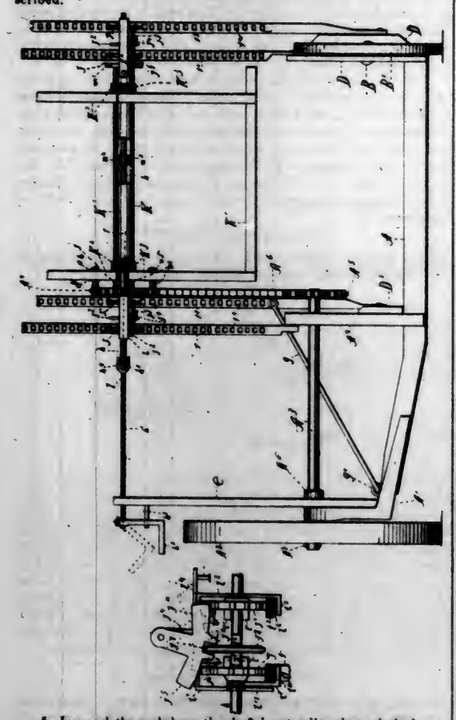
Claim.—1. In a reel, rack-bars pivoted to the harvester-frame and extending with their upper ends through a frame or housing pivoted on the shaft *h*, pinions journaled on the shaft *h* in the housing, adapted to engage with the rack-bars, a dog j^3, pivoted to the housing and adapted to engage with the pinions, a disk secured to the shaft *h* between the pinions and provided with projections f^1 to engage with corresponding notches on the pinions and with its periphery engaging the dog j^3, and means to rotate the shaft *h*, substantially as described.

2. In a reel, rack-bars pivoted to the harvester-frame and extending with their upper ends through a frame or housing journaled on the shaft *h*, pinions J and J', journaled on the shaft *h* in the housing, adapted to engage with the rack-bars, a dog j^3, pivoted to the housing and adapted to engage with the pinions J and J', a disk secured to the shaft *h* between the pinions J and J' and provided with projections f^1 to engage with corresponding notches on the pinions J and J' and with its periphery engaging the dog j^3, the rack-bar f^2, secured in position by the brace *g*, lugs i^2 and i^3 in the housing, and a shaft *h'*, connected to the shaft *h* by a universal coupling and provided with a crank, as shown, and for the purpose described.

3. In a reel, rack-bars pivoted to the harvester-frame and extending with their upper ends through a frame or housing journaled on the shaft *h*, a bracket i^9, journaled on the shaft *h*, with its lower end bent at an angle, and a bar i^{10} secured thereto, the bracket i^9 turned at a right angle i^7 and a bar i^8 secured thereto, pinions J and J', journaled

on the shaft A in the housing, adapted to engage with the rack-bars, a disk secured to the shaft A between the pinions J and J' and provided with projections i^6 to engage with corresponding notches on the pinions J and J' and with its periphery engaging the dog j^3, the rack-bar f^2, secured in position by the brace g, lugs i^3 and i^5 in the housing, a dog j^3, pivoted to the housing, adapted to engage with its ends with one or both of the pinions J and J', and means to rotate the shaft A, as shown, and for the purpose described.

4. In a reel, a housing constructed of the brackets i' and i^3, journaled on the shaft A and having the projections i^3 and i^5 and rigidly secured to a bar i^4 a proper distance apart, the end i^{12} of the bracket i' projecting beyond the shaft, as shown, the lower end of the bracket i^3 provided with a bar i^9, a bracket i^8, journaled on the shaft A with its lower end provided with a bar i^{10}, a bracket j^5, secured to the bar i^4, and a dog j^3, pivoted to the bracket j^5 in position to engage or disengage with the pinions J and J', as shown, and for the purpose described.



5. In a reel, the rack-bars, the shaft A, extending through the housings i and i^{11}, pinions having clutch-faces mounted loosely on the said shaft and engaging the said rack-bars, the dog pivoted to the housing between the pinions, and a disk fixed to the shaft between the pinions, said disk engaging with the dog and having a clutch-face on each side, engaging the clutch-faces on the pinions, substantially for the purpose described.

6. In a reel, a shaft A, extending through the housings i and i^{11}, a support for said housings, a hollow reel-shaft K, provided with flanges m and m' on each end, the housing provided with a bar projecting over said flanges m and m' and provided with rollers to operate on the rear of the flanges, and bearings secured in the hollow reel-shaft and journaled on the shaft A, substantially as shown, and for the purpose described.

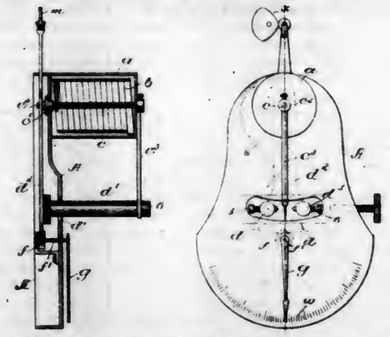
479,849. THERMOSTAT. THOMAS W. SHEPHERD, Peabody, Mass. Filed Aug. 6, 1891. Renewed June 27, 1892. Serial No. 438,065. (No model.)

Claim.—1. In a thermostat, a contact-arm and a lamina to move the same, combined with a movable contact, a cam to move the same, and a time mechanism geared to and to move the said cam, substantially as described.

2. In a thermostat, a pivoted contact-arm and a coiled lamina to move the same, combined with a sector the pivotal point of which coincides or is in line with the pivotal center of said contact-arm, and coil-contacts carried by said sector, and a pivoted indicating-arm actuated by said sector, substantially as described.

3. In a thermostat, a pivoted contact-arm and a lamina to move the same, combined with a sector, contacts carried thereby, a spring acting to move the sector in one direction, and adjusting means to move the sector in the opposite direction, substantially as described.

4. In a thermostat, a staff, a coiled lamina surrounding and to rotate the same, and a contact-arm fast upon said staff at one side of the said lamina, combined with a sector arranged at the opposite side of the said lamina and with its pivotal center coincident with the axis of the said staff, adjustable contacts carried thereby, and means to move the said sector, substantially as described.

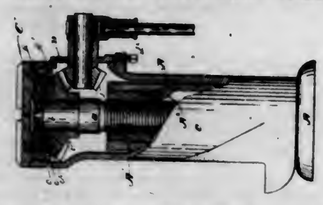


5. In a thermostat, a staff, a lamina to rotate the same and a contact-arm fast to one end of said staff, combined with a toothed sector placed at the opposite end of said staff, with its pivotal center coincident with the axis of the staff, contacts carried thereby, a pinion rotated by said sector, and an indicating-arm moved thereby, substantially as described.

6. The back A, case a, a lamina therein, and a staff rotated by said lamina, and a contact-arm fast on said staff, combined with a sector d^3 and means to move it, contacts thereon to co-operate with said contact-arm, the shaft f', pinion f, indicating-arm g, and scale w, substantially as described.

7. In a thermostat, a contact-arm and a lamina to move the same, combined with a sector b^3, contacts carried thereby between which said contact-arm normally moves, the cam m, acting against and to move said sector, and a time mechanism geared to and to rotate said cam, substantially as described.

479,850. SCREW-JACK. FRANCIS H. SLEEPER, Waterville, assignor to Arthur Osmore Norton, Coaticook, Canada. Filed Sept. 30, 1889. Renewed Jan. 21, 1892. Serial No. 418,747. (No model.)



Claim.—1. The combination of the stand and screw and means for revolving said screw with the sleeve C, provided with a head having a bearing for said screw, composed of a plate, and a train of balls interposed between said plate and the screw for sustaining said screw against lateral displacement, substantially as described.

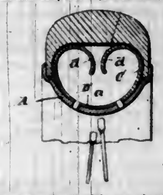
2. The combination of the stand and the screw and means for rotating the said screw with the sleeve and its head, plates a a', a number of concentric rings interposed between said plates, and trains of balls arranged between the plates and rings, substantially as described, and for the purpose set forth.

3. The combination, with the stand, screw B, sleeve C, head C', plate a, and trains of steel balls b, and mechanism for turning the screw, of the plate a', rings c c c, and the trains of steel balls filling the annular spaces between the said rings, substantially as described, and for the purpose set forth.

4. The combination of the stand, screw, nut in said stand through which the screw is raised and lowered by axial rotation therein, means to rotate the screw, a sleeve carried by the screw, a head applied to said sleeve, a bearing for said screw in said head, and a train of balls interposed laterally immediately between the end of the screw and the bearing in the head, substantially as described.

5. The combination, with the stand A, screw B, sleeve C, having a head, and means, substantially as described, for revolving the screw within the said sleeve, of the cap D and adjusting-screw d^3, substantially as and for the purpose set forth.

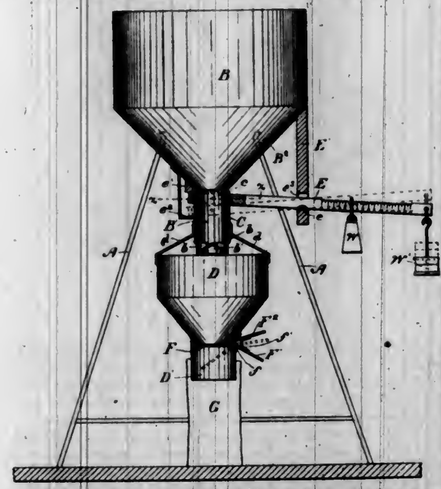
479,851. SPRING-TIRE. WILLIAM C. SMITH, Goshen, Ind. Filed Sept. 4, 1891. Serial No. 404,759. (No model.)



Claim.—1. The combination, with an elastic tire having a concave inner face and with the felly having a groove or seat therein, of a series of springs interposed between said felly and tire and seating in the concavity of the latter and in the groove or seat of the former, and a band or belt of flexible material within the concavity of the tire and extended downwardly into the seat of the felly at its side edges, substantially as specified.

2. The combination, with the felly and an elastic tire secured thereto, of a series of springs interposed between said tire and felly, said springs consisting each of a metal plate bent into semicircular form and having its free ends bent inwardly and downwardly, and a flexible band or belt within the concavity of the tire for the purpose of equalizing the action of said springs, said band bearing against the end portions of the springs, substantially as specified.

479,852. WEIGHING-MACHINE. EPHRIAN W. SPEAR, Boston, Mass. Filed Dec. 7, 1891. Serial No. 414,213. (No model.)



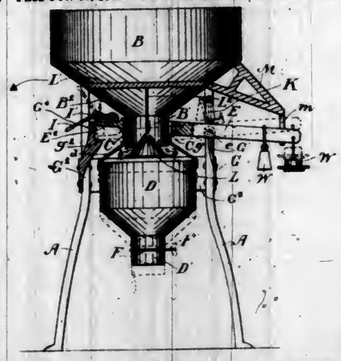
Claim.—1. In an automatic weighing-machine, a stationary receptacle provided with a spout having a suitable outlet, in combination with a movable receptacle having yielding connection with said stationary receptacle and a sleeve connected with said movable receptacle, said sleeve being movable over said spout to open and close said outlet, substantially as described.

2. In an automatic weighing-machine, a stationary receptacle having a spout closed at the bottom, but provided with openings around its sides, in combination with a movable receptacle, a sleeve connected thereto and movable over said spout, and a weight-operated scale-beam fulcrumed to a connection of the stationary receptacle and connected to said sleeve, all arranged and operating substantially as and for the purposes described.

3. In an automatic weighing-machine, a stationary receptacle B, provided with the spout B', closed at the bottom, but having openings b around the sides thereof, in combination with the sleeve C, movable over said spout, the receptacle D, hung from said sleeve and movable therewith, the weight-operated graduated scale-beam E, fulcrumed at e to a connection of the stationary receptacle and pivoted at c to said sleeve, and stops c' c^2, limiting the motion of said scale-beam, substantially as described.

4. In an automatic weighing-machine, a stationary receptacle having a spout closed at the bottom, but provided with a series of openings around the sides thereof, in combination with a sleeve movable over said spout, a second receptacle hung from said sleeve and movable therewith, said movable receptacle being provided with a suitable dumping device at the bottom, and a weight-operated scale-beam fulcrumed to a connection of said stationary receptacle and connected to said sleeve, substantially as described.

479,853. WEIGHING-MACHINE. EPHRIAN W. SPEAR, Boston, Mass. Filed Feb. 17, 1892. Serial No. 421,836. (No model.)



Claim.—1. In an automatic weighing-machine, a stationary receptacle having a spout at the bottom, in combination with a separate bottom-forming piece rigidly held beneath said spout, whereby a continuous outlet is formed between said spout and said piece, a weight-operated scale-beam, a sleeve movable over said spout and outlet, and a movable receptacle connected to said sleeve, substantially as described.

2. In an automatic weighing-machine, a stationary receptacle having a spout B' open at the bottom, in combination with a separate cone-shaped piece L, rigidly held beneath said spout, but not directly connected thereto, whereby a continuous outlet b is formed, a weight-operated scale beam, a sleeve C, movable over said spout and outlet, pivotally connected to said beam, and a movable receptacle connected to said sleeve, all arranged and operating substantially as described.

3. In an automatic weighing-machine, a stationary receptacle having a spout provided with a suitable outlet, in combination with a movable receptacle, a sleeve connected to said movable receptacle and movable over said spout, a suitably-fulcrumed weight-operated scale-beam having its motion confined between certain limits, and an upwardly-extending frame secured to said scale-beam above the fulcrum thereof, provided with a weight hung within said frame, arranged and operating substantially as and for the purpose described.

4. In an automatic weighing-machine, a stationary receptacle provided with a spout having a suitable outlet, in combination with a movable receptacle, a sleeve connected to said movable receptacle and movable over said spout, a suitably-mounted weight-operated scale-beam having a connection pivoted to said sleeve and provided with a projection opposite said scale-beam, and an operating handle-lever engaging with said projection, substantially as and for the purpose described.

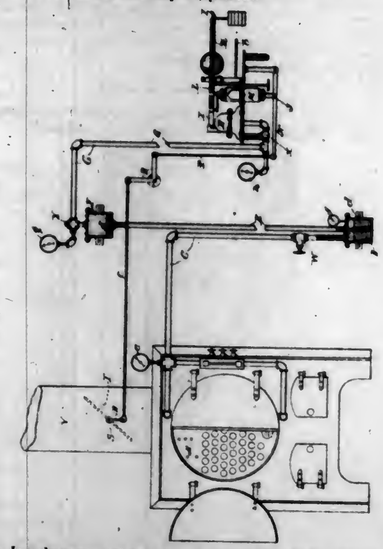
5. In an automatic weighing-machine, a stationary receptacle provided with a spout having a suitable outlet, in combination with a movable receptacle, a sleeve connected to said movable receptacle and movable over said spout, a suitably-mounted weight-operated scale-beam and connection E E^2, provided with the projection E^3 and pivotally connected to the sleeve, and a handle-lever I, provided with the weighted arm I', overbalancing the handle-arm of the lever, said weighted arm engaging with said projection, whereby the scale-beam is automatically locked with the spout-outlet closed, substantially as described.

479,854. DAMPER-REGULATOR. JOHN E. SPENCER, Salem, Mass. Filed Feb. 20, 1890. Serial No. 341,158. (No model.)

Claim.—1. The combination, with a boiler, a damper, and a damp-

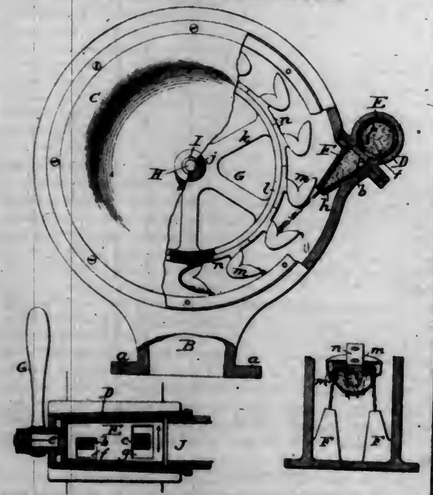
er-regulator connected with the boiler and arranged to control the damper, of a body of mercury interposed in the conduit between the boiler and said regulator and arranged to receive and resist a portion of the boiler-pressure and to transmit to the damper-regulator the balance of the boiler-pressure, substantially as specified.

2. The combination of a boiler, as A, a damper-regulator having a conduit connection with said boiler, a receptacle, as D, with a body of mercury arranged therein and interposed in said conduit, and a second receptacle, as F, arranged above said receptacle D and in the line of said conduit, substantially as specified.



3. In a damper-regulator, the combination of a boiler, a damper-regulator connected by conduit with the boiler, a receptacle, as D, arranged in said conduit with a body of mercury therein, and a second receptacle, as F, arranged in said conduit above receptacle D and connected therewith by a pipe whose lower orifice is near the bottom of the latter receptacle, substantially as specified.

479,855. FLUID-MOTOR. HENRY C. STILWELL, Dayton, Ohio. Filed July 28, 1891. Serial No. 400,941. (No model.)



Claim.—1. In combination with a suitable casing and with a bucket-wheel mounted and arranged to rotate therein, nozzles arranged to deliver water or fluid to the buckets of the wheel, and a controlling valve or gate for said nozzles, consisting of barrel D, having openings *b* and *c*, communicating with the respective nozzles, and tubular plug E, provided with openings *f* and *g*, adapted to be brought into and out of register with the openings *b c*, the opening *g* being longer in the direction of movement of the plug than the opening *f*, substantially as and for the purpose set forth.

2. In combination with shell or casing A, provided with nozzles F, detachable barrel D, applied to the exterior of the shell or casing, and tubular valve plug or gate E, arranged within said barrel, all substantially as described and shown.

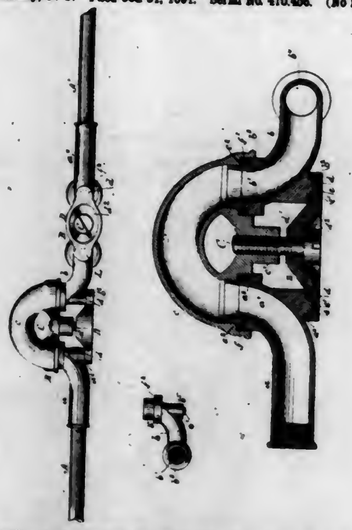
3. A motor-wheel provided with buckets comprising lateral receiving-wings and a central discharge-lip.

4. In a motor, a wheel provided with buckets, each comprising two lateral wings or impact surfaces, and a central discharge-lip, said discharge-lip being farther removed from the center of the wheel than the wings or impact surfaces.

5. In combination with shell or casing A, provided with nozzle F, a removable lining applied to said nozzle, and a valve-barrel D, applied to the shell or casing and serving both to contain a regulating-valve and to retain the nozzle-lining in place.

6. In combination with a water-wheel having buckets provided with lateral receiving-wings and an intermediate discharge-lip, two nozzles arranged to deliver the water simultaneously upon said wings, whence it is directed toward and discharged over the intermediate discharge-lip.

479,856. FLEXIBLE COUPLING FOR PIPES. JOHN SUYDAM, Albany, N. Y. Filed Oct. 31, 1891. Serial No. 410,456. (No model.)



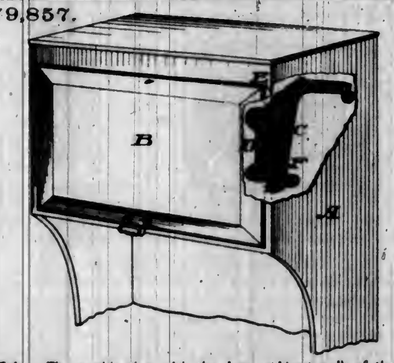
Claim.—1. A coupling for pipes, comprising two sections, each formed with a lateral neck and a bearing in line with the neck, in combination with a connecting-pipe formed with a bridge and a yoke and bolt for holding the said lateral necks and the ends of the connecting pipe firmly together, substantially as shown and described.

2. The connecting-pipe *c*, formed with a bridge *c'* and with open ports and seats for packing, the yoke D, formed with seats *d*, and the bolt C, in combination with the sections *a b*, formed with lateral necks and seats for packing, and bearings in line with the necks and fitted in the ports of the connecting-pipe, substantially as described.

3. The couplings B B, connected with pipes A A' by sections *a' a*, in combination with the intermediate section *b*, formed at the ends with lateral necks arranged at different angles and formed with bearings in line with the necks, substantially as described.

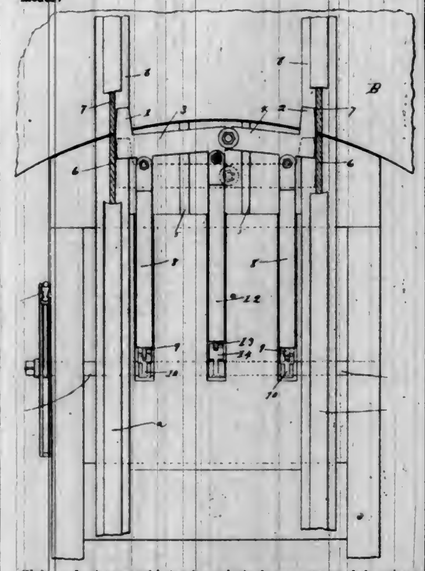
4. The section *a*, formed with a lateral neck *a'* and with a stud *c'*, and the section *b*, also formed with a lateral neck and with a stud, in combination with the yoke D, formed with recesses *e*, the bolt C, and the connecting-pipe *c*, formed with a bridge *c'* and with open ports to receive the lateral necks of the said sections *a b*, substantially as described.

479,857. RANGE HOT-CLOSET DOOR. JOHN TETTELBACH, Cleveland, Ohio. Filed May 2, 1892. Serial No. 431,575. (No model.)



Claim.—The combination, with the door and end walls of the closet, of the grooved angle-iron C and the angle-iron D, having wide and narrow projections E F, provided with pins riding in the groove of iron C, substantially as and for the purpose set forth.

479,858. TURN-TABLE. NICHOLAS W. THILLMAN and CHRISTIAN W. FIRME, Chicago, Ill. Filed Aug. 17, 1891. Serial No. 402,886. (No model.)



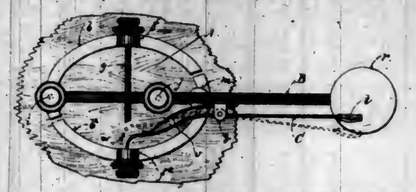
Claim.—1. A turn-table having relatively movable wedging-shoes located between the rails thereon and means for operating the same practically as described, so that said wedging-shoes will be thrown outward against the rails and retracted therefrom, respectively.

2. A turn table having relatively-pivoted wedging-shoes located between the rails thereon and means for operating the same practically as described, so that each of said wedging shoes will be turned on its pivot and thrown outward against the rails and retracted therefrom, respectively.

3. A turn-table having wedging-shoes located between the rails thereon and mounted upon arms 3 and 4, said arms being pivoted together, a rod 12, pivotally connected with said arms near their pivotal connection, rods 8, connected with said arms near their outer ends, and devices for moving said arm 12 to a greater extent than said arms 8.

4. A turn-table having wedging-shoes located between the rails thereon and mounted upon arms 3 and 4, said arms being pivoted together, rods 8, pivotally connected with the outer end portions of said arms 3 and 4 and with the arms 10 and rock-shaft 11, and a rod 12, pivotally connected with said arms 3 and 4 adjacent to their pivotal connection and with an arm 14, carried by said rock-shaft, said arm 14 being longer than said arms 10.

479,859. TELEGRAPH-KEY. ALBERT F. TUCKER, Auburndale, Mass. Filed Mar. 24, 1892. Serial No. 426,236. (No model.)

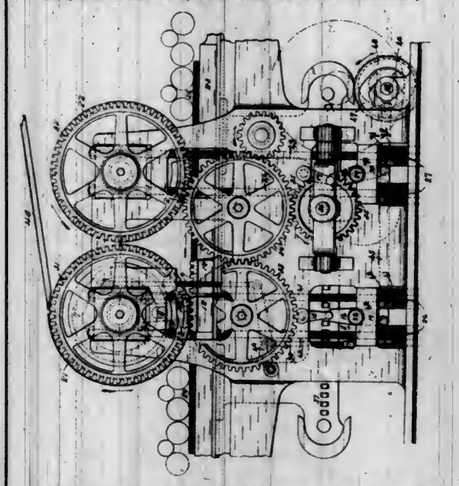


Claim.—1. In a telegraph-instrument, two disconnected plates respectively in electrical contact with the line wires, a telegraph-key pivoted on said plates and insulated from one thereof, contact-points on said key in position to alternately engage said plate, and a spring-pushed switch pivoted to the key and normally in contact with said insulated plate, substantially as described.

2. In a telegraph-instrument, the combination of the plates, as b b^3, respectively connected with the contact-wires, and the key B, insulated from the plate b^3 of the switch C, normally in electrical contact with the plate b^3, substantially as described.

3. In a telegraph-instrument, the combination, with the plates b b^3 and mechanism for attaching them, respectively, to the conducting-wires, of the key B, pivoted on said plates and insulated from one thereof, contact-points on said key for alternately engaging said plates, and the spring-tensioned switch C, pivoted to said key and normally in contact with said insulated plate, substantially as described.

479,860. REGISTERING MECHANISM FOR DOUBLE-CYLINDER FLAT-BED PRINTING-MACHINES. STEPHEN D. TUCKER, New York, N. Y. Filed Feb. 2, 1892. Serial No. 420,133. (No model.)



Claim.—1. The combination, with companion impression-cylinders, of a fixed registering toothed segment carried by one cylinder, a movable registering toothed segment carried by the other cylinder, and means for protruding and withdrawing the latter toothed segment, substantially as described.

2. The combination, with two companion impression-cylinders, one carrying a fixed registering toothed segment and the other carrying a movable registering toothed segment, of the cam 7 and means for automatically adjusting the same to cause the timely movements of said movable toothed segment, substantially as described.

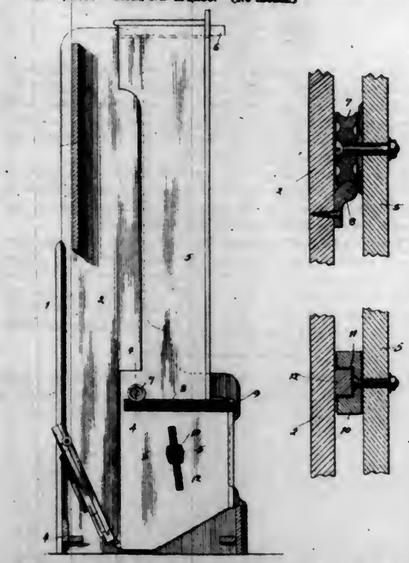
3. The combination, with two impression-cylinders and a reciprocating type-bed, of the fixed registering toothed segment upon one cylinder, the moving registering toothed segment upon the other cylinder, and coacting bed-racks, substantially as described.

4. The combination, with two impression-cylinders driven by independent gearing from the bed-driving shaft and provided with means for raising and lowering them, of registering toothed segments, one of which is movable and made to intermesh with the companion toothed segment during the operation of transferring the sheet from one cylinder to the other, substantially as described.

5. The combination, with two impression-cylinders, each driven

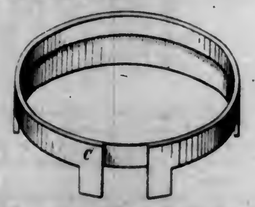
by an independent train from the driving-shaft, provided with means for raising it out of printing relation to the type-bed and carrying a registering toothed segment, of a type-bed and registering rack thereon and means for withdrawing and protruding one of said registering toothed segments for co-operation with each other and with the bed-rack, substantially as described.

479,861. FOLDING BED. CASPER M. WAGNER, Chicago, Ill. Filed Mar. 8, 1892. Serial No. 424,235. (No model.)



Claim.—The combination, with the stationary frame 1, the folding-bed portion 5, the horizontal rails 8, secured to the stationary frame, and the rollers 7, mounted on the folding-bed portion to traverse the rails, of the guide-blocks 10, swiveled to the folding frame beneath the said rollers and each provided with a groove 11, and the guide-stripe 12, rigidly secured to the stationary frame beneath the horizontal rails and movable in the grooves of the guide-blocks, said folding-bed portion being detachable from the stationary frame by raising it and lifting the guide-blocks from the guide-stripe, substantially as described.

479,862. DEVICE FOR CENTERING KNITTING-MACHINE CYLINDERS. CHARLES E. WAKEMAN, Pontiac, Mich. Filed Jan. 26, 1892. Serial No. 419,101. (No model.)

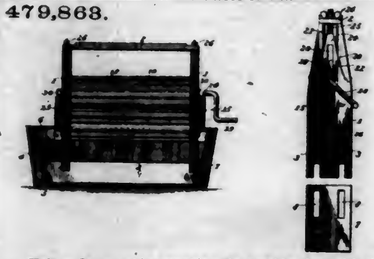


Claim.—1. In a circular knitting machine, the combination of a needle-cylinder, a cam-cylinder, and means attached thereto for centering the needle-cylinder, substantially as described.

2. In a circular-knitting machine, the combination of the needle-cylinder B, the cam-cylinder A, and the collar C for centering the needle-cylinder within the cam-cylinder, substantially as described.

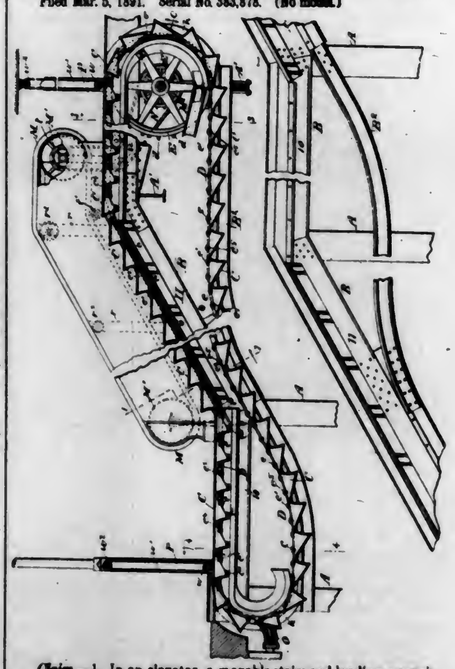
3. In a circular-knitting machine, the combination of a needle-cylinder, a bearing adapted to grip and hold the bottom end of said needle-cylinder, and a guiding-collar adapted to center and hold in place the upper end of said needle-cylinder, substantially as and for the purposes described.

479,863. WASHING-MACHINE. JEFFERSON W. WATSON, Chariton, Iowa. Filed Nov. 27, 1891. Serial No. 413,295. (No model.)



Claim.—In a washing-machine, the combination, with the frame-work, whose end pieces are provided with vertical slots having longitudinal tongues on their opposite faces, a top bar connecting said pieces, and a lower roller journaled between these end pieces, of blocks mounted in said slots and having grooves engaging said tongues, the bodies of said blocks having longitudinally-slotted bearings and their upper ends being reduced and extended through said top bar, threads on said ends, nuts on said threads, an upper roller whose shaft is journaled in said bearings and extended at one end into a crank-handle, and springs bearing this roller normally toward the lower roller, substantially as hereinbefore set forth.

479,864. ELEVATOR. GEORGE A. WHEELER, New York, N. Y. Filed Mar. 5, 1891. Serial No. 383,878. (No model.)



Claim.—1. In an elevator, a movable stairs and landing comprising a connected series of trucks, in combination with a track or guideway having an incline and a horizontal or approximately horizontal portion, the trucks at the incline being in the form of steps and those lying on the horizontal portion of the guideway having their upper surfaces in alignment and forming a movable level landing of practically unbroken continuity and which is a continuation of the movable stairs, substantially as described.

2. In an elevator, a movable stairs and landing comprising an endless series of trucks, in combination with a track or guideway having an inclined and a horizontal or approximately horizontal portion, such horizontal portion extending in a straight direction, the trucks at the incline being in the form of steps and those at the horizontal portion of the track lying with their upper surfaces in alignment, the juxtaposed edges of the several trucks lying in the same horizontal plane and forming a level movable landing, substantially as described.

3. An elevator having a series of four-wheeled trucks that engage tracks on a supporting-frame and become steps on inclines of said frame, all the trucks connected by sprocket-chains and moved by sprocket-wheels, each truck having the journals of one pair of its wheels pivoted to links of the sprocket-chains, affording a flexing joint between the chains and the trucks, substantially as described.

4. An elevator having a frame provided with tracks on inclines of the frame and also on level places at the terminals of the inclines, movable trucks which form level landings when on the level portions of the tracks, and steps on the inclines thereof, and a transverse guard-roller on each landing actuated in a direction opposite to the movement of the trucks, substantially as described.

5. An elevator having a longitudinally-moving series of trucks which are adapted to become steps on portions of the frame and a transverse vertically-revolving guard-wall near a terminal of the elevator-frame above a landing formed by the trucks, substantially as described.

6. The combination, with an elevator, of a traveling hand-rail separate therefrom, substantially as described.

7. An elevator having an incline on its supporting-frame, furnished with steps that may be movable or stationary, and an endless hand-rail which is longitudinally movable and adapted to guard the side of the elevator, substantially as described.

8. An elevator having level portions and inclines produced on its frame, tracks thereon, an endless series of wheeled trucks on all the tracks, and mechanism adapted to move the trucks longitudinally on the frame and further provided with an endless longitudinally-movable hand-rail that is adapted to guard the side of the elevator, and a transverse movable guard-wall near each terminal of the elevator-frame, substantially as set forth.

9. An elevator having a frame provided with opposite inclines, level places below and above at ends of the inclines, tracks on the frame, trucks connected to endless chains and adapted to be moved thereby on the tracks, and pressure-rollers secured to the frame on the upper level portion thereof above the trucks and adapted to have contact with projections at the ends of the trucks, substantially as described.

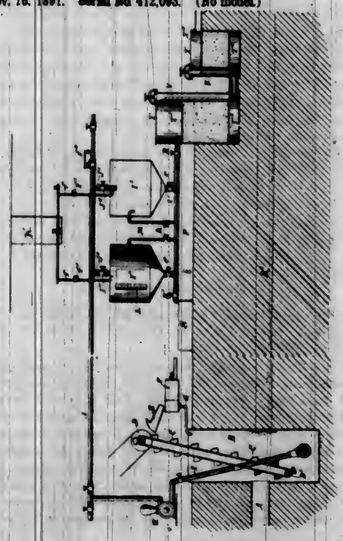
10. The combination, with an elevator, of a traveling continuous hand rail separate from the elevator, substantially as described.

11. The herein-described hand-rail, movable in a suitable guide-way, in combination with guards overlapping the same, substantially as described.

12. The herein-described hand-rail, consisting of an endless traveling band, and a cylindrical rail proper secured to and traveling with said band, substantially as described.

13. The herein-described hand-rail, consisting of an endless belt, and a cylindric rail proper secured to and traveling with the said belt and provided with a separate covering, serving as a means of uniting the rail to the belt, substantially as described.

479,865. APPARATUS FOR PURIFYING SEWAGE. JOHN WILSON, New York, N. Y., assignor to Roman Debes, same place. Filed Nov. 16, 1891. Serial No. 412,093. (No model.)

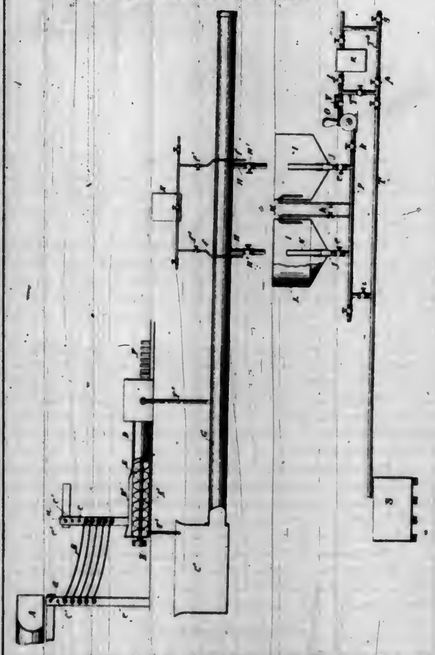


Claim.—1. A sewage-disposal plant comprising, in combination, the following devices: a series of inclined screens for receiving the sewage discharged from a main and upwardly curved at the ends remote from the discharge, a conveyer and press for receiving and compressing the solid matter, a conduit for carrying off the liquid separated and expressed from the solid matter, tanks into which said conduit discharges, outlets for said tanks at different levels therein for drawing off the liquid or the sludge, a pump connected with the outlets, and ducts or pipes therefrom to a discharging-filter and to a receptacle for the sludge, as set forth.

2. The combination, with a main tank or receptacle for containing the liquid separated and expressed from the solid matter of a sewerage system, of a series of tanks under independent discharge-pipes from the main tank, a reservoir for chemicals connected with the said discharge-pipes or the tanks thereunder, a conduit for liquid from each of the series of tanks, a pump and filter therein, and a discharge-pipe at a lower level for the sludge, as set forth.

3. The combination, in a sewage-disposal plant, with a series of settling or storage tanks for the liquid separated and expressed from the solid matter of the sewage, of a pipe connected with the outlets of said tank and a pump connected therein, a pipe or duct from said pump to and through a filter, another around said filter, another pipe T to a tank or receptacle for sludge, and a pipe or duct from the outlet of the tanks to the sludge tank direct, and cocks or valves for controlling said pipes or ducts, as herein set forth.

479,866. APPARATUS FOR PURIFYING SEWAGE. JOHN WILSON, New York, N. Y., assignor to Roman Debes, same place. Filed Nov. 16, 1891. Serial No. 412,094. (No model.)



Claim.—1. In apparatus for purifying and disposing of sewage, the combination, with a sewer-main and a tank or pit into which such main opens, of a support carrying a series of traveling perforated screening buckets for receiving the contents from the main, a press for receiving the solid matter from the buckets and provided with a pipe leading back to the pit, a delivery-chute between the buckets and press, a pipe leading to the bottom of the pit and provided with an enlarged lower end, and a pump connected to the upper end of said pipe, substantially as shown, and for the purpose set forth.

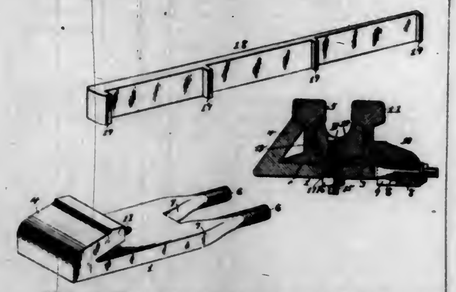
2. In apparatus for purifying and disposing of sewage, the combination, with a sewer-main and a tank or pit into which said main opens, of a support carrying a series of traveling perforated screening-buckets for receiving the contents from the main and elevating such contents to the top of the pit, a delivery-chute, a press receiving the material from said chute, a pipe leading to the bottom of the pit, two

or more separate settling-tanks, and pipe connections between said settling-tanks and pumps and provided with suitable cocks and valves, substantially as and for the purpose described.

3. In apparatus for purifying and disposing of sewage of the character described, the combination, with the elevator, press, and pump, of the discharge-pipe leading from said pump, the settling-tanks, and the branch pipes connecting said discharge-pipe with said tanks, the reservoir, and the pipes leading from said reservoir and communicating with the branch pipes, each of the pipes named being provided with suitable cocks or valves, substantially as shown, and for the purpose set forth.

4. In apparatus for purifying and disposing of sewage, the combination, with the settling-tanks, of the pipe or conduit communicating therewith at the bottom and provided with suitable cocks or valves, the sludge-tank S, the siphon-pipes connecting said tanks with the conduit and controlled by cocks, and a suitable filter apparatus, substantially as described.

479,867. RAIL-CLAMP. HENRY R. WOLFERT, Lancaster, Pa. Filed Feb. 15, 1892. Serial No. 422,008. (No model.)



Claim.—1. The combination, with a clamp comprising a plate having a rigid jaw at one end and an adjustable jaw arranged at the other end of the plate, of a block designed to be interposed between two rails and a gage-plate tapering in thickness and adapted to vary the width of the block, substantially as described.

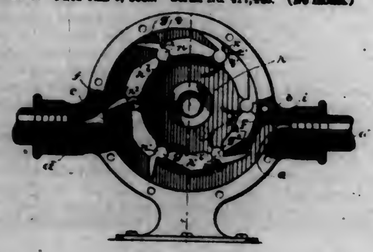
2. The combination, with a clamp comprising a plate having a rigid jaw at one end and an adjustable jaw arranged at the other end of the plate, of a block designed to be interposed between two rails and a tapering gage-plate provided at intervals with shoulders arranged to fit against the ends of the block, substantially as and for the purpose described.

3. The combination, with a clamp comprising a plate having an elongated opening and provided at one end with a rigid jaw and an adjustable jaw arranged at the other end of the plate, of a block provided with a vertical opening, a bolt arranged in the opening of the block and in the opening of the plate and securing the two parts together and a gage-plate tapering in thickness to vary the width of the block, substantially as described.

4. The combination of a clamp comprising a plate provided at one end with a flange forming a rigid jaw and arranged to engage a rail beneath the head of the same and an adjustable jaw arranged at the other end of the plate, a block secured to the plate, and a gage-plate to vary the width of the block, substantially as described.

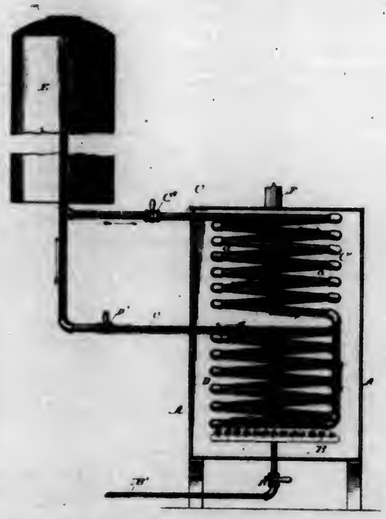
5. The combination of a clamp comprising a plate provided at one end with a rigid jaw and having seats at different heights and an adjustable jaw arranged at the other end of the plate, a block secured to the plate, and a gage-plate, substantially as described.

479,868. HYDRAULIC MOTOR. WILLARD A. WOOD, Brooklyn, N. Y. Filed Jan. 9, 1892. Serial No. 417,443. (No model.)



Claim.—In a hydraulic motor, the combination, with the inclosing case, whose inner surface is that of three arcs of circles, two being concentric and united by the third, of an inlet leading into and an outlet leading from the portion of said case having the greatest radius, said inlet being immediately adjacent to the portion of the case having the shortest diameter and said outlet being provided with a flaring opening from the case, a rotating disk having a radius equal to the shortest radius of the interior of the inclosing case, said disk being mounted in said case and adapted to rotate therein with its periphery in contact with the inner periphery of the case at the point thereof having the shortest radius and immediately above the inlet, and swinging gates attached to said rotating disk, said gates being provided with arms adapted to engage with a pin and to open to receive the impact of the liquid entering through said inlet, said gates being also provided with shoulders adapted to rest upon seats provided upon the periphery of said disk, whereby said gates are held to receive the impact of the liquid entering the inlet and said disk is caused to revolve, substantially as described.

479,869. GAS WATER-HEATER. WALTER S. WRIGHT, Chicago, Ill. Filed Aug. 25, 1890. Renewed June 25, 1892. Serial No. 437,962. (No model.)



Claim.—1. The combination of the upright chamber A, coil C', located in the upper portion of said chamber, coil D, located in the lower portion of said chamber, and a burner B, located within said chamber and beneath the coil D, said coil C' having an inlet at its upper portion and an outlet at its lower portion leading into the lower portion of the coil D, and the coil D having an outlet from its upper portion, substantially as shown and described.

2. The combination of the boiler E, the upright chamber A, the coil C', located in the upper portion of said chamber, the coil D, located in the lower portion of said chamber, and a burner B, located within said chamber and beneath the coil D, said coil C' having an inlet at its upper portion from the boiler E and an outlet from its lower portion leading into the lower portion of the coil D, and the coil D having an outlet from its upper portion to the boiler E, substantially as shown and described

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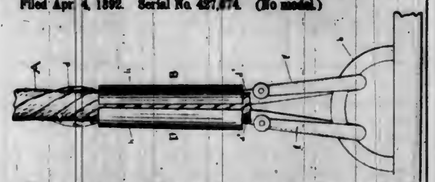
479,870. LOCOMOTIVE ATTACHMENT FOR SUPPLYING STEAM TO PUMPS. ROBERT ZIMMATER, Galion, Ohio. Filed Oct. 23, 1891. Serial No. 409,616. (No model.)

Claim.—The combination, with a locomotive water-supply tank and a steam-pump connected with said tank, of a steam-pipe connected with the steam-pump, said pipe having a hose or flexible tubing connected therewith, and a rack or suitable support located at the side of the track for holding the discharge end of said flexible tubing in an elevated position, substantially as indicated, said flexible tubing having suitable means connected therewith for normally holding the discharge end of said tubing against the rack or support aforesaid, said flexible tubing being adapted to be connected with the steam-supply of a locomotive, substantially as and for the purpose set forth.

479,870.



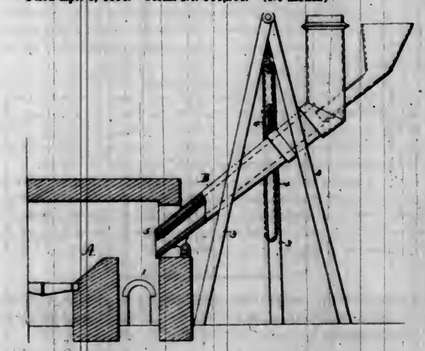
479,871. GRAPPLE-HOOK. CHARLES W. ABBOTT, Albion, Me. Filed Apr. 4, 1892. Serial No. 427,574. (No model.)



Claim.—1. A grapple iron or hook comprising two pivoted diverging arms provided with hooks at their outer ends and two approximately semi-cylindrical members, each mounted longitudinally on the shank of one of said arms, said semi cylindrical members forming a clamping-socket which closes tightly as the hooks are sprung together under the strain of the load, substantially as set forth.

2. A grapple iron or hook comprising two pivoted diverging arms provided with hooks at their outer ends and two approximately semi-cylindrical corrugated members, each mounted longitudinally on the shank of one of said arms, said semi-cylindrical members forming a clamping-socket which closes tightly as the hooks are sprung together under the strain of the load, substantially as set forth.

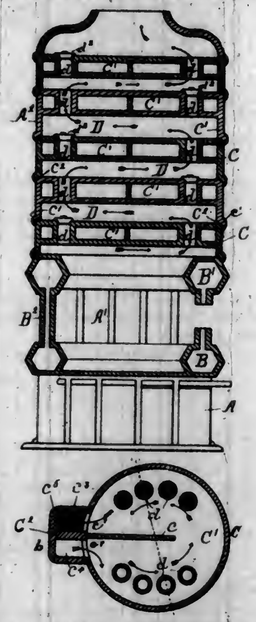
479,872. PHOSPHATE-ROCK DRIER. WILLIAM B. CHISOLM, Charleston, S. C., assignor of one-half to Samuel Hughes, same place. Filed Apr. 9, 1891. Serial No. 388,261. (No model.)



Claim.—1. The combination, with a furnace or other heater, of a non-rotary combined chimney and chute hinged in proximity to the furnace or heater and adapted to receive the products of combustion therefrom and carry the material being treated downward toward the furnace, substantially as set forth.

2. The combination, with a furnace or other heater, of a non-rotary chimney and chute hinged in position to receive the products of combustion from the furnace or heater, a hopper delivering into this chimney, and means for regulating the inclination of the chimney, substantially as set forth.

479,873. SECTIONAL WATER-BOILER. THOMAS DOHERTY, Sarnia, Canada. Filed Dec. 2, 1891. Serial No. 413,820. (No model.)



Claim.—1 In a water-boiler, a section consisting of an inclosed water-chamber, smoke-flues through said section, an annular flange on the walls of said section whereby a smoke chamber is provided within said flange and between the two sections when joined, a rear extension attached thereto containing two water-passages, one of which opens only into a lower adjacent section and the other of which opens only into an upper adjacent section, substantially as described, and also within and integral with said water-chamber, and a central perpendicular diaphragm extending from the division between the two water-passages centrally nearly across said water-chamber, as set forth.

2. In a sectional water-heater, the combination of a fire-pot, a basic water-chamber, sections C C C, adapted to be joined to form a heating-chamber, each containing central transverse diaphragms extending nearly across the water-chamber, and water-passages upon either side of the central diaphragm, one of which leads to the lower chamber and the other of which leads to the upper chamber, and a horizontal diaphragm at the junction of each section in said water-passages, preventing the water from circulating otherwise than through each section, and return-pipes, substantially as described.

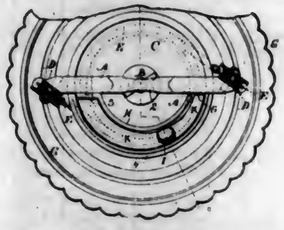
479,874. SUSPENSION DEVICE FOR LAMPS. FRANK G. BUNGE, Waterbury, Conn., assignor to the Plume & Atwood Manufacturing Company, same place. Filed Mar. 3, 1892. Serial No. 423,569. (No model.)

Claim.—1. The combination, with a spring-barrel and suspending devices, of a ball-stop within a horizontal recess that is narrower at one end than the other, one side of such recess being a portion of or connected with the spring-barrel and the other side a stationary eccentric or clamp, the suspending device allowing the surface on which the ball rests to be inclined to cause the ball to roll out of action, substantially as set forth.

2. The combination, with the spring-barrel and suspending devices,

of a yoke for receiving and sustaining the spring-barrel and its vertical axis, sheaves upon the yoke over which the suspending-chains pass, a rim upon the upper end of the spring-barrel, and an eccentric clamp connected with the yoke, and a ball-stop between the rim and the eccentric clamp, substantially as set forth.

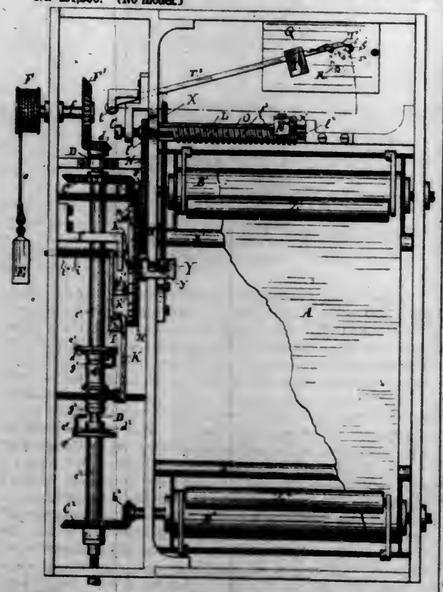
3. The combination, in a suspending device for lamps, of a yoke, a spring-barrel and axis carried by such yoke, a rim upon the spring-barrel, a stationary eccentric clamp permanently fastened at one end the other end being allowed to yield, and a ball-stop between the eccentric clamp and the rim, substantially as set forth.



4. The combination, in a suspension device for lamps, of a spring-barrel and its axis, a yoke or frame for suspending such spring-barrel, an annular flange or rim upon the spring-barrel, an eccentric clamp, a ball between the eccentric clamp and the rim, and a shoe upon which such ball rolls, substantially as set forth.

479,875. APPARATUS FOR ROLLING UP STRIPS OR WEBS.

CHARLES FAURE, Neufchâtel, Switzerland. Filed Feb. 12, 1892. Serial No. 421,268. (No model.)



Claim.—1. The combination, with the web and the rollers upon which the same is wound, of a motor and gearing connecting the respective rollers to the motor, ratchet-wheels and pawls and a sliding coupling for disconnecting one pawl or the other, a lever for moving the sliding coupling, and a hammer and mechanism for raising the same and allowing it to drop in either one direction or the other to shift the coupling, substantially as set forth.

2. The combination, with the web and the rollers upon which it is wound, of a motor and gearing, substantially as specified, for giving motion to the rollers and web first in one direction and then the other, a screw and gearing connecting the same to one of the web-rolls, a nut moved by the screw, stops upon the screw, and a lever acting in connection with the stops upon the screw to arrest the movement of the parts, and mechanism, substantially as specified, controlled by a clock-movement for liberating the screw periodically and starting the rotation of the web and its rollers, substantially as set forth.

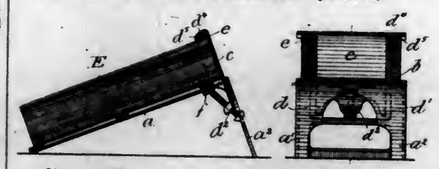
3. The combination, with the web and the rollers upon which it is wound, of mechanism for rotating the rollers and moving the web first in one direction and then in the other, a screw and gearing for connecting the same with one of the web-rolls, there being stops on the screw, a nut moved by the screw, and a lever carried by the nut for arresting the rotation of the screw by contact with either of the stops, a rocker to act upon the lever and liberate the stop of the screw, a hammer and means for raising the same, and an escapement, controlled by the clock-movement, for allowing the hammer to drop and act upon the rocker periodically, substantially as set forth.

4. The combination, with the web and the rollers upon which it is wound in either direction, of mechanism for rotating the web-rolls, a coupling box for changing the direction of rotation, a lever for moving the same, a hammer for acting upon the lever, and a wheel having a projection to act upon the hammer, the axis of the hammer being eccentric to the axis of the wheel, so that the projection on the wheel clears the projection on the hammer and allows the latter to drop, substantially as set forth.

5. The combination, with the web and the rollers upon which it is wound in either direction, of mechanism for rotating the web-rolls, a coupling-box for changing the direction of rotation, a lever for moving the same, a hammer for acting upon the lever, a wheel having a projection to act upon the hammer, the axis of the hammer being eccentric to the axis of the wheel, so that the projection on the wheel clears the projection on the hammer and allows the latter to drop, and a cam for moving the axis of the hammer endwise to allow the hammer to clear the lever upon the return movement, substantially as set forth.

479,876. CALENDAR-HOLDER.

WILLIAM E. GARY, Philadelphia, Pa. Filed Mar. 25, 1892. Serial No. 426,339. (No model.)



Claim.—1. The combination, with a calendar provided with stubs, of a holder provided with an adjustable clamping-plate adapted to engage the stub portion of the calendar, substantially as and for the purposes described.

2. The combination, with a calendar, of a holder provided with a detachable clamping-plate adapted to engage the upper part of the calendar and means for securing the clamping-plate to the calendar, substantially as and for the purposes described.

3. The combination, with a calendar, of a holder provided with a detachable clamping-plate provided with an overhanging lip adapted to engage the upper portion of the calendar and means for securing the clamping-plate to said portion of the calendar, substantially as and for the purposes described.

4. The combination, with a stub-calendar, of a holder provided with an adjustable recessed clamping-plate provided with an overhanging lip having a knife-edge and means for clamping said plate to said calendar, substantially as and for the purposes described.

5. The combination of a skeleton holder, a detachable recessed clamping-plate fitting said holder and having an overhanging lip, a calendar provided with stubs, and means for clamping the stub portion of the calendar to said holder, substantially as and for the purposes described.

6. A skeleton holder for the reception of a calendar provided with stubs, said holder provided with legs and a slot for the insertion of a clamping-plate and means for adjustably securing said plate to position in contact with the stub portion of said calendar, substantially as described.

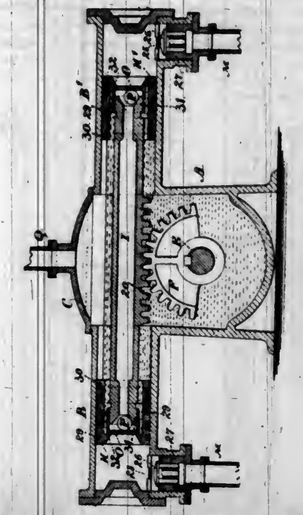
7. A holder for a calendar, comprising a frame provided with legs and a lug, a slot in the rear portion of said frame, a recessed clamping-plate provided with an overhanging lip, feet, and a bearing, and means adapted to be inserted through said bearing and engaging with the lug of said frame for holding said clamping-plate in position against said calendar, substantially as described.

8. A holder for a stub-calendar, comprising a skeleton frame with front and rear legs and a slot for the reception of a recessed plate provided with an overhanging lip having a sharp edge, and means for clamping said plate to position in contact with the stub portion of the calendar, substantially as described.

479,877. PUMP FOR REFRIGERATING APPARATUS.

MAX GRIMM, West Hoboken, N. J. Filed Dec. 30, 1891. Serial No. 416,517. (No model.)

Claim.—1. The circular valve-seat, in combination with a valve fitting such seat and having a cylindrical rear projection, a cylinder fitting within the cylindrical projection of the valve and having a conical recess, and a ball within such recess acting to press the valve toward its seat, substantially as specified.

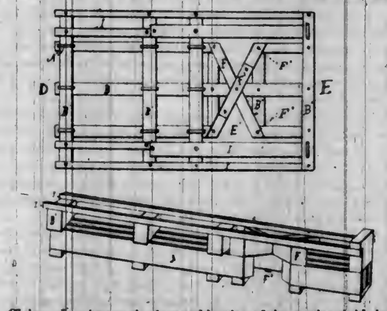


2. The combination, with the case and the pump-cylinders and the heads and caps, of a rock-shaft across the case, tubular bearings for such rock-shaft and packings for the same, a segmental gear on the rock-shaft, pistons within the pump-cylinders, a piston-rod connecting such pistons and provided with a rack engaging the segmental gear, and a crank upon the rock-shaft, a connecting-rod, crank-pin boxes, and springs at each side of the crank-pin boxes, substantially as set forth.

3. The combination, with the pump-cylinder, of a tubular piston having a valve-seat within one end thereof, a valve adapted to sit upon the valve-seat and made with a cylindrical rear projection, a cylindrical connection to the piston within the cylinder of the valve and formed with a conical recess at the end adjacent to the valve, and a valve-closing ball within the recess and acting against the inner side of the valve, substantially as set forth.

479,878. HAY-RACK.

JAMES E. HAYNES and CHARLES B. HAYNES, Ames, Ill. Filed Apr. 12, 1892. Serial No. 428,903. (No model.)

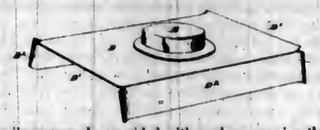


Claim.—In a hay-rack, the combination of the sectional side beam A, the center beam B, the cross composed of two beams mortised together and provided with plates F^6 F^6, bolted together on the top and bottom, and a strengthening-plate H, bolted on the bottom of the beam B, thereby strengthening the connection between the parts D and E, substantially as described.

479,879. RAILWAY-TORPEDO.

EUGENE N. HILL, Buffalo, N. Y. Filed Dec. 11, 1891. Serial No. 414,652. (No model.)

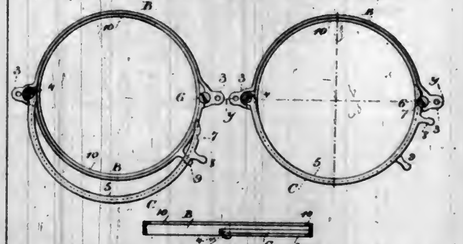
Claim.—1. The railway-torpedo described, having a box B, adapted to protect the fulminate, in combination with the shoe D, having sled-runner ends D′ and wings D^2, extending downward on each side, said ends and said wings being formed integral with the shoe, all arranged for joint operation, as herein set forth.



2. A railway-torpedo provided with a shoe carrying the fulminate and adapted to slide upon a rail and pass over the rail-joints without being displaced, said shoe having wings D^2, extending downward on each side, and upturned or sled-runner ends D′, substantially as described.

479,880. SUPPORTING-RING FOR LAMPS.

THOMAS HIPWELL, Long Island City, assignor to the Manhattan Brass Company, New York, N. Y. Filed Feb. 25, 1892. Serial No. 422,756. (No model.)



Claim.—1. The combination, with the complete ring B and the suspending or supporting device therewith connected, of a ring-section pivoted near one end to the ring B and having an inwardly-projecting flange and a beveled end to the ring-section, and a screw 6 for receiving and supporting the moving end of said ring-section, substantially as set forth.

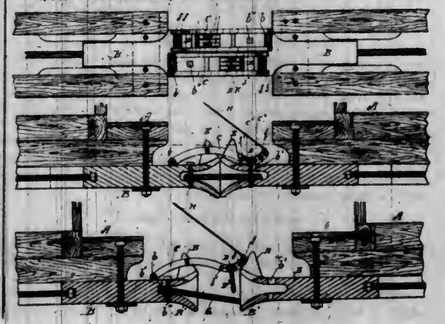
2. The combination, with the lamp suspending ring having an inwardly-projecting flange around the top edge thereof, of a ring-section, a pivot at one end thereof to connect it with the complete ring, a bevel at the other end, an inwardly-projecting flange at the lower edge, and an outwardly-projecting arm by which the ring-section is moved, substantially as set forth.

3. The combination, with a lamp-suspending ring, of a ring-section of substantially half the width of the main ring, a pivot at one end for connecting the ring section to the complete ring, an inwardly-projecting flange and a bevel at the end of the ring section, a supporting screw or head for the moving end of the ring section, and two projecting arms, one on the ring-section and the other on the ring for use in moving the ring-section in either direction, substantially as set forth.

4. The combination, with a lamp-suspending ring having projecting ears for the supporting or suspending devices, of a ring-section, a pivot for attaching the ring-section to the complete ring, such ring-section having an internal projecting flange, a support for the moving end of the ring-section, and a projection upon the ring-section by which it may be moved in opening or closing the same, substantially as set forth.

479,881. CAR-COUPLING.

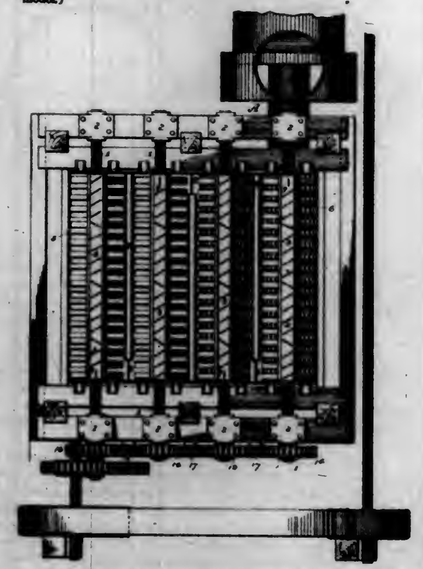
ORIS HOOD, Onset, Mass. Filed Apr. 4, 1892. Serial No. 427,590. (No model.)



Claim.—1. The herein-described automatic car-coupler, consisting of draw-bars having flaring mouths and a link connected to one of the draw-bars combined with a shackle-frame pivoted to one of the draw-bars and having a yielding shackle bar and pin mounted in slots in said shackle-frame, one or more anti-friction rollers on the latter, and wedge-shaped projections and a locking-perforation on the opposite draw-bar, substantially as and for the purpose set forth.

2. The herein-described automatic car-coupler, consisting of a pair of flaring-mouthed draw-bars, each one having a link adapted to be connected to the opposite draw-bar, a pivoted shackle-frame, a yielding shackle bar and pin mounted in slots in said shackle-frame, one or more anti friction rollers on the latter, and wedges and a locking-perforation for automatically guiding the locking-pin on the shackle-frame through the locking-perforation and the link, the device on one draw-bar being arranged to one side of the corresponding mechanism on the opposite draw-bar, substantially as and for the purpose set forth.

479,882. APPARATUS FOR REMOVING IRON AND ALUMINA. SAMUEL HUGER, Charleston, S. C., assignor of one-half to William B. Chisolm, same place. Filed Apr. 13, 1891. Serial No. 388,620. (No model.)



Claim.—1. The combination, with a washer, of a débris-pump so located and arranged that the débris from the washer flows into it, substantially as set forth.

2. The combination, with a series of communicating compartments and rotary shafts therein, of a débris-pump into which the débris from the compartments flows, substantially as set forth.

3. In a washer, the combination, with a series of troughs, a part of which have closed bottoms and a part grated bottoms, of toothed shafts revolubly supported and adapted to operate in the troughs, means for supplying water to the several troughs, and a débris-pump into which the water passing through the grate is discharged, substantially as set forth.

4. In a washer, the combination, with a set of communicating compartments, a part of which have open-work bottoms, the alternate compartments communicating through corresponding ends, so that the material has a continuous passage from one end of the washer to the other, of rotary shafts located in said compartments and means for communicating motion to said shafts, substantially as set forth.

5. The combination, with suitable troughs having grated bottoms, rotary shafts, and means for discharging the débris from the troughs, of a débris-pump and means for conducting the débris from the washer into the pump, substantially as set forth.

479,883. FURNACE DRAWING AND CHARGING APPARATUS. THOMAS JAMES, Braddock, Pa. Filed Oct. 20, 1891. Serial No. 409,285. (No model.)

Claim.—1. In furnace charging or drawing apparatus, the combination of tongs adapted to grasp an ingot or bloom, a power-cylinder connected with the tongs and adapted to operate the same, a valve controlling said cylinder, and a stop whereby on motion of the apparatus the valve is engaged and shifted to operate the cylinder, substantially as and for the purposes described.

2. In furnace charging or drawing apparatus, the combination of tongs adapted to grasp an ingot or bloom, a power-cylinder connected with the tongs and adapted to operate the same, a valve controlling said cylinder, a stop whereby on forward motion of the apparatus the valve is engaged and shifted, and a second stop whereby the valve is engaged on rearward motion of the apparatus, substantially as and for the purposes described.

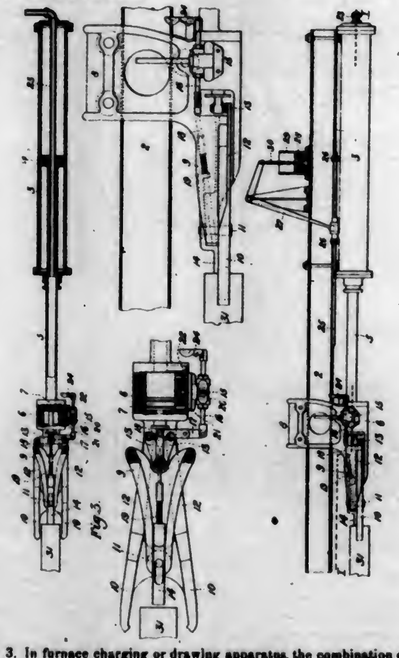


Fig. 3.

3. In furnace charging or drawing apparatus, the combination of tongs adapted to grasp an ingot or bloom, a power-cylinder connected with the tongs and adapted to operate the same, a valve controlling said cylinder, and a rod connected with the valve and adapted to engage the ingot or bloom to be seized, substantially as and for the purposes described.

4. In a furnace charging or drawing apparatus, the combination of tongs adapted to grasp an ingot or bloom, a power-cylinder connected with the tongs and adapted to operate the same, a valve controlling said cylinder, a rod connected with the valve and adapted to engage the ingot to be siezed, and an interposed spring, substantially as and for the purposes described.

5. In furnace charging or drawing apparatus, the combination of tongs adapted to grasp an ingot or bloom, a power cylinder connected with the tongs and adapted to operate the same, a valve controlling said cylinder, a stop whereby on forward motion of the apparatus the valve is engaged and shifted, a second stop whereby the valve is engaged on rearward motion of the apparatus, and a cushion for the second stop, substantially as and for the purposes described.

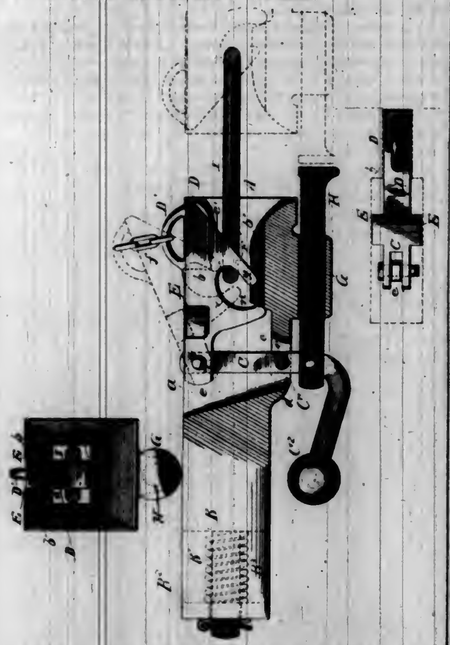
6. In furnace charging or drawing apparatus, the combination of tongs adapted to grasp an ingot or bloom, a power-cylinder connected with the tongs and adapted to operate them, a cylinder connected with the tongs and adapted to project them, a hollow piston-rod for the last-named cylinder, and a motive-fluid-supply pipe extending telescopically into the piston-rod and connected by the latter with the tongs-operating cylinder, substantially as and for the purposes described.

479,884. NECKTIE-FASTENER. BERNHARD KESSLING, Ovelgönne, Germany. Filed Mar. 28, 1892. Serial No. 426,705. (No model.)



Claim.—In a necktie-fastener, the combination, with the stud *a*, reamed conically at the front end *c* and having cavity c^2 at the rear end, the stem *d*, adapted to be inserted therein, said stem being split to form the spring catches d' d^2 and having hooks d^3, the plate *e* on which they are mounted, said plate being attached to the tie, substantially as set forth.

479,885. CAR-COUPLING. WILLIAM A. LEE, Winfield, Kans. Filed Mar 25, 1892. Serial No. 426,371. (No model.)



Claim.—1. The combination, with a draw-head having a slot in its top and shoulders or stops at each side of the slot, of a hook and stops on the hook rearward of the stops on the draw-head and out of engagement with said stops when the hook is in its upward or normally-elevated position, substantially as set forth.

2. The combination, with a draw-head having stops formed thereon, of a longitudinally-movable hook and stops thereon rearward of the stops on the draw-head in position to clear the stops on the draw-head when the hook is in its normal or elevated position and adapted to strike the stops on the draw-head when the hook is drawn out of its normal position, substantially as set forth.

3. The combination, with a draw-head and a longitudinally-movable hook, of a pivoted weighted lever pivotally connected to said hook, substantially as set forth.

4. The combination, with a draw-head having a groove therein, of a longitudinally-movable hook, said hook having a member adapted to enter said groove in the draw-head, substantially as set forth.

5. The combination, with a draw-head having a groove therein, of a longitudinally-movable hook, said hook having two depending members adapted to enter said groove in the draw-head, substantially as set forth.

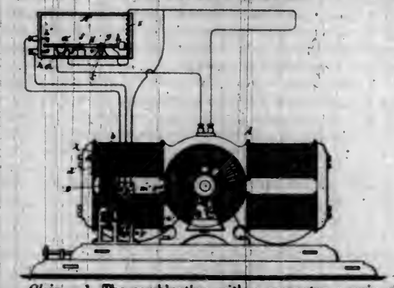
6. The combination, with a draw-head having a groove in its lower portion and a slot in its upper portion, of a pivoted hook adapted to have a longitudinal movement, said hook having depending members adapted to enter said groove, and a loop or handle projecting from the top of said hook through the slot in the top of the draw-head, substantially as set forth.

7. The combination, with a draw-head, of a longitudinally-movable hook therein, a pivoted weighted lever pivotally connected to said hook, and a sliding bar or bumper pivotally connected to said weighted lever at one side of its fulcrum, substantially as set forth.

8. The combination, with a draw-head, of a pivoted weighted lever projecting therein, a bar or buffer pivotally connected to said weighted lever at a point beneath the draw-head, and a longitudinally-movable hook pivotally connected to said weighted lever, substantially as set forth.

9. The combination, with a draw-head and a depending bracket, of a pivoted weighted lever, a sliding bar or bumper mounted in said depending bracket and pivotally connected to said weighted lever at a point below the draw-head, and a longitudinally-movable hook pivotally connected to said weighted lever, substantially as set forth.

479,886. ELECTRIC-CURRENT REGULATOR. ALVARO S. KROH, Defiance, Ohio, assignor of one-half to Andrew Sauer, same place. Filed Mar. 26, 1891. Serial No. 386,548. (No model.)



Claim.—1. The combination, with a generator, a main electric circuit, and a shunt-circuit, of a solenoid included in the shunt-circuit, an electro-magnetic device included in the main circuit and adapted to maintain said shunt-circuit normally open and determine the direction of current through the solenoid, said solenoid being composed of a series of coils, devices connecting the core of the solenoid with the generator, and means carried by said devices for automatically controlling the number of coils of the solenoid included in the shunt-circuit, substantially as set forth.

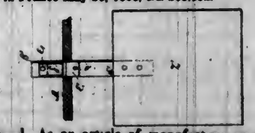
2. In a current-regulator, the combination, with a commutator-brush holder of a dynamo-electric machine, a main electric circuit, and a shunt-circuit, of a solenoid included in the shunt-circuit and composed of a series of coils, an electro-magnetic device included in the main circuit, a pivoted lever, said lever being connected at one end with the core of the solenoid and with the commutator-brush holder, and an arm carried by said lever and adapted to determine the number of coils to be included in the shunt-circuit, corresponding with the varying strengths of the current in said shunt-circuit, substantially as set forth.

3. In a current-regulator, the combination, with a generator, of a pivoted lever connected with a commutator-brush holder, means connected with said lever for varying the output of the generator, said means comprising a solenoid composed of a series of coils, a core for said solenoid, connected with said pivoted lever, electro magnetic devices included in the main line, and contacts therefor, said contacts being included in circuit with the solenoid, substantially as set forth.

4. In a current-regulator, the combination, with the commutator-brush holder of a dynamo-electric machine, of a solenoid composed of a series of coils of wire, means connecting the core of said solenoid with the commutator-brush holder of the dynamo, a commutator-bar to which the coils of the solenoid are connected, and a commutator brush or plate adapted to engage said commutator-bar and electro-magnetic devices, for causing the current to enter one or the other end of the solenoid, accordingly as the current in the main line exceeds or recedes from its normal strength, substantially as set forth.

5. The combination, with a movable commutator-brush holder and a solenoid, of stems projecting from said core, means for connecting one of said stems with the movable brush holder, and a friction-brake connected with the other stem to hold said core in its normal position, substantially as set forth.

479,887. GALVANIC BATTERY. FÉLIX DE LALANDE, Paris, France. Filed June 27, 1891. Serial No. 397,749. (No model.) Patented in France May 28, 1890, No. 205,952.



Claim.—1. As an article of manufacture, an electrode for galvanic batteries, consisting of an agglomerated mass of copper oxide having its surface reduced to a metallic state.

2. In a galvanic battery, an electrode and a support therefor, consisting of a frame having shoulders at the top and bottom to sus-

tain the electrode, and a removable spring extending between the shoulders, substantially as described.

3. A support for an electrode, consisting of a metallic plate having a cut-out central portion, supports B E, depending from the cover, flanges I K for sustaining the electrode, and springs passing through openings in the said flanges, substantially as described.

4. In a galvanic battery, an electrode Z', a blade supporting the same and extending through an opening in the cover, and a spring-support for said blade, resting on the top of the cover, substantially as described.

5. In combination with the electrode Z', a supporting-blade passing through an opening in the cover, a limiting-piece f', secured to the blade, and a spring-support for the blade, secured thereto and resting on the cover, substantially as described.

6. In combination with the zinc plates Z' and Z^2 and their supports, the electrode a and its support, and spacing-pieces T U T' U' of insulating material, secured to the support of the electrode a and adapted to keep the zinc plates apart, substantially as described.

479,888. BOOK-REST. JACOB R. LAWSER, Newark, N. J. Filed May 5, 1892. Serial No. 431,876. (No model.)



Claim.—1. In a book-rest, the combination of a support adapted to be secured to a chair or other article of furniture, a rod a, adjustably arranged in said support, a bracket or support fitted to the upper end of said rod, said bracket consisting, essentially, of a plate c', having ears c^3, a chambered portion c^4, a pivot-chamber c^5, and an opening c^7, a ratchet portion d', pivotally arranged between said ears and provided with a stem for arranging the same in a sleeve-like portion in said rod a, and a finger-piece e, adapted to engage with saw-cuts in said ratchet portion d', said finger-piece being pivotally arranged in said pivot-chamber c^5 and projecting through said opening c^7, and a spring arranged in said chamber c^5, engaging with the back of said finger-piece, substantially as and for the purpose set forth.

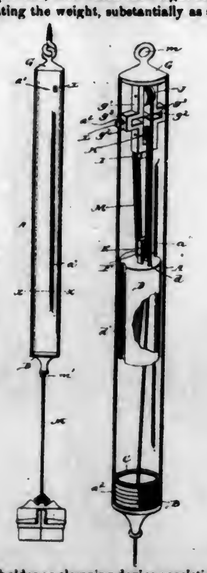
2. In a book-rest, the combination of a support adapted to be secured to a chair or other like article of furniture, a rod a, adjustably arranged in said support, a bracket or support fitted to the upper end of said rod, said bracket consisting, essentially, of a plate c', having ears c^3 and stop c^6, projecting from one of said ears, a ratchet portion d', pivotally arranged between said ears and provided with a stem for arranging the same in a sleeve-like portion in said rod a, a slot or cutaway portion d^2 in said ratchet portion d', into which said stop d' projects to limit the movement thereof, and a spring-actuated finger-piece adapted to engage with the saw-cuts in said ratchet portion d' to tilt the bracket at different angles, substantially as and for the purposes set forth.

3. In a book-rest, the combination of a support adapted to be secured to a chair or other article of furniture, a rod a, adjustably arranged in said support, a bracket or support consisting, essentially, of a plate c', having ears c^3, a stop c^6, projecting from one of said ears, a chambered portion c^4, a pivot-chamber c^5, and an opening c^7, a ratchet portion d', pivotally arranged between said ears and provided with a stem for arranging the same in a sleeve-like portion in said rod a, a slot or cutaway portion in said ratchet portion d', into which said stop c^6 projects, to limit the movement thereof, and a finger-piece e, adapted to engage with saw-cuts in said ratchet portion d', said finger-piece being pivotally arranged in said pivot-chamber c^5 and projecting through said opening c^7, and a spring arranged in said chamber c^5, engaging with the back of said finger-piece, substantially as and for the purposes set forth.

479,889. BILLIARD-CHALK HOLDER. GEORGE J. LECHNART, Ashland, Ohio. Filed Aug. 21, 1891. Serial No. 403,234. (No model.)

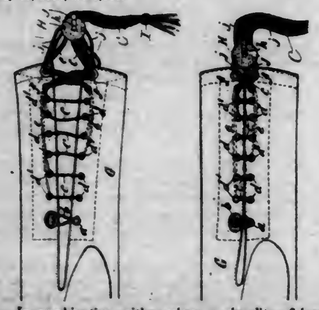
Claim.—1. In a chalk-holder for billiard-tables, pool-tables, and the like, the combination of an outer casing provided at diametrically-opposite points with inward projections or guides, a tubular weight provided at diametrically-opposite points with grooves or recesses engaged by the guides and having a closed top, said top provided with an aperture and having a bracket extending therefrom, a sheave or pulley journaled in said bracket, a top or cover for the casing, provided upon its upper side with means for attachment and having a bracket depending from its under side, said bracket provided with angular side extensions with screw-threaded apertures registering with similar apertures in the casing and adapted to receive retaining-screws, upper and lower sheaves journaled in said bracket, and an operating-cord, one end thereof attached to the weight-bracket and extending upward over the lower pulley of the cover-bracket, downward around the pulley of the weight-bracket, thence upward over the upper pulley of the cover-bracket, and finally downward through the weight and casing, its lower end having the chalk-clamp secured thereto, substantially as set forth.

2. In a chalk-holder, the combination of a casing having its lower open end provided with interior threads, a weight having a vertical movement within the casing, an apertured screw-cap inserted in the threaded end of the casing, said screw-cap constructed to receive a washer in its upper end, with which the weight normally contacts, and a cord for operating the weight, substantially as set forth.



3. A chalk-holder or clamping device consisting of a blank having its edges turned downwardly to form clamping springs or flanges, the top of said blank provided with elongated angular slots to form a central web or strip, said web or strip being widest at its center and provided at such point with opposite recesses to receive the operating-cord, substantially as set forth.

479,890. GLOVE-FASTENING. JOHN LYE, Glasgow, Scotland. Filed Feb. 20, 1892. Serial No. 422,329. (No model.) Patented in England May 13, 1891, No. 8,188.



Claim.—In combination with a glove, a plurality of laces connected therewith, a clamp arranged to slide on the said laces, and the means for automatically operating the said clamp toward the glove as the laces are drawn upon, consisting of the cords $j\,j$, attached at one end to the clamp, passing thence through a pair of eyelets on the glove, the free ends of said cords being attached to the laces, substantially as described.

479,891. MOLD FOR THE MANUFACTURE OF ELECTRICAL SWITCHBOARDS. JOHN B. LYON, Brooklyn, N. Y. Filed Jan. 19, 1891. Renewed June 16, 1892. Serial No. 436,993. (No model.)



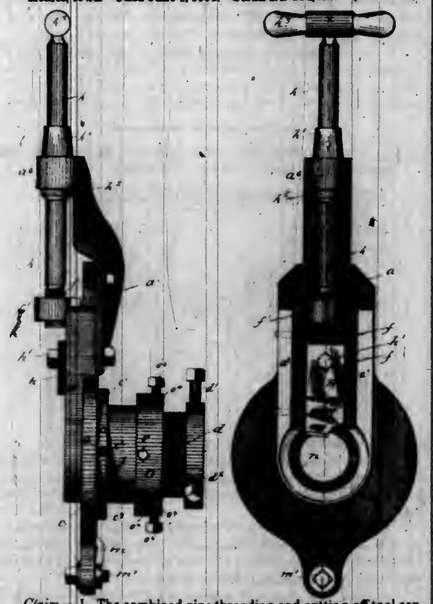
Claim.—1. In a mold for forming cards or sections of electrical switchboards, the combination of a frame, parts of which are removable, with devices for supporting the contact-pieces of the section, said devices being attached to or carried by the removable parts of the frame, substantially as described.

2. The combination, with the frame B, B', and B^2, of the plates $p\,p^2$, provided with the groove p', for the purpose set forth.

3. The combination, with a mold provided with removable sections, such as the plates $p\,p$, of a removable plate or plug shaped to fit a portion of the mold, for the purpose set forth.

4. A mold for forming cards or sections of electrical switchboards, consisting of a plate provided with a plurality of mandrels arranged in a row, a second plate provided with a plurality of supporting-pins, and a frame adapted to hold the two plates and itself, forming part of the mold, substantially as described.

479,892. TOOL FOR CUTTING OFF PIPES. JOHN F. MASON, Des Moines, Iowa. Filed June 1, 1891. Serial No. 394,798. (No model.)



Claim.—1. The combined pipe threading and cutting-off tool consisting in the combination, with a threaded sleeve furnished with a clamping device for attaching it to the pipe, of a second threaded sleeve mounted thereon, a rotating plate, a cutting-tool carried thereby, a clamping device for fixing said rotating plate to said last-mentioned sleeve for cutting threads upon the pipe, and a clamping device for securing said threaded sleeves together in different positions for cutting off the pipe at any point desired, substantially as specified.

2. The combination, with a cutting-tool adapted to cut threads upon and to sever a pipe, of a rotating plate carrying said tool and two threaded sleeves, upon one of which said rotating plate is mounted, said rotating plate revolving on said sleeve in cutting off the pipe and with the sleeve in cutting threads on the pipe, substantially as specified.

3. The combination, with a rotating plate, of a threaded sleeve upon which it is mounted, a second sleeve screw-threaded with the first, a clamp-collar and screw for fixing said sleeves together, a set-screw for fixing said second sleeve to the pipe, a radially-adjustable knife carriage or slide mounted on said rotary plate, a knife or cutting-tool mounted in said carriage or slide, and a clamp for fixing said rotating plate to said first-mentioned sleeve, whereby said tool operates both to thread and to cut off the pipe, substantially as specified.

4. The combination, with rotating plate a, of knife carriage or slide f, mounted thereon, a screw-shaft for adjusting the same radially, a cutting-tool g, carried by said slide, a threaded sleeve b, upon which said plate a is journaled, a screw-threaded sleeve d, a clamp-collar o, fixed to said sleeve b and furnished with radially-movable threaded segment clamps for engaging the other sleeve d, a clamp or set-screw for fixing said sleeve d to the pipe, and a clamp for fixing said plate a to said sleeve b, substantially as specified.

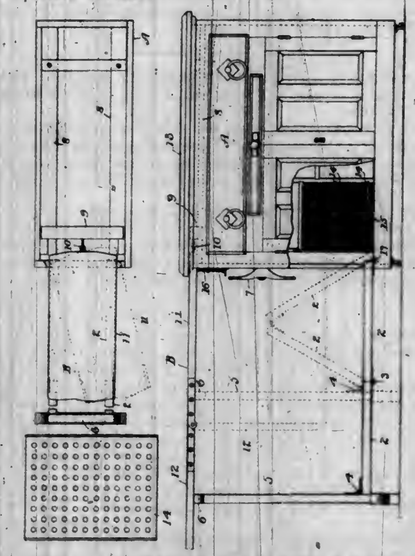
5. The combination of two threaded sleeves $b\,d$ with a clamp-collar fixed to one of said sleeves and furnished with radially-movable threaded clamp-segments, substantially as specified.

6. The combination of two threaded sleeves $b\,d$ with a clamp-collar fixed to one of said sleeves and furnished with radially-movable threaded clamp-segments and set-screws for operating said clamp-segments, substantially as specified.

7. The combination, with a cutting-tool adapted to cut threads upon and to sever a pipe, of a rotating plate carrying said tool and two threaded sleeves, upon one of which said rotating plate is mounted, said rotating plate revolving on said sleeve in cutting off the pipe and with the sleeve in cutting threads on the pipe, said cutting-tool being secured to a radially-adjustable slide mounted upon said rotary plate, substantially as specified.

8. The combination, with a rotating tool-carrying plate, of two screw-threaded sleeves, one for fixing the implement to a pipe and the other carrying said rotating plate, a clamp device for fixing said plate to said last-mentioned sleeve, and a clamp device for fixing said sleeves together in different positions for cutting off the pipe where desired, substantially as specified.

479,893. COMBINED KITCHEN-CABINET AND IRONING-BOARD. ALEXANDER MERON, St. Paul, Minn. Filed Sept. 3, 1891. Serial No. 404,594. (No model.)



Claim.—1. The combination, with the cabinet, of the cross-bar sliding under the top thereof, the board also sliding underneath said top and having pivoted connection with said bar, the independent extensible frame connected to the cabinet and adapted to be drawn outward to support said board, and means for securing said frame to the cabinet when collapsed, substantially as described.

2. The combination of the cabinet, the board sliding under the top thereof, the standards for supporting the outer end of the board, the knuckle-jointed bars connecting said standards to said cabinet, and means for securing said standards to the cabinet when said bars are folded together, substantially as described.

479,894. BEDSTEAD-EXHIBITOR. JOHN R. MOORE, Louisville, Ky. Filed Jan. 26, 1892. Serial No. 419,602. (No model.)

Claim.—1. A bedstead-exhibitor having, in combination, the sills, a support above one of said sills, guide-rails connecting the sills and having the upturned ends, upper guide-rails connecting the support and

the upturned ends, and a brace-rod connecting the upturned ends, substantially as set forth.

2. A bedstead-exhibitor having, in combination, the sills, the support above one of said sills, the upper guide-rods, the lower guide-rods, and the shoes constructed substantially as described and operating in the manner set forth.



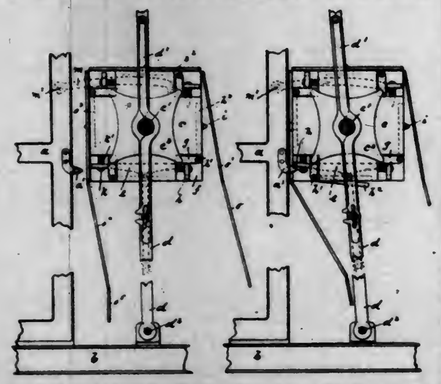
3. A bedstead-exhibitor comprising a support, guide-rods arranged above and below said support, the shoes for supporting the displayed article, consisting of a caster-block having a clamp thereon, substantially as and for the purpose described.

4. A bedstead-exhibitor comprising the sills, a support above one of said sills, the upper guide-rods, the lower guide-rods, and shoes for supporting the displayed article, consisting of a block mounted on casters, an upright on said block, and a clamp, all substantially as and for the purpose set forth.

5. In a bedstead-exhibitor, a shoe for supporting the displayed article, comprising a block having casters thereon, an upright brace for said upright, and a clamp constituted of a single rod bent to form the threaded ends and connecting-piece, confining-nuts, and a pad and a binding-plate, substantially as described.

479,895. CARD AND JACQUARD MACHINE PROTECTOR. SIMON MORGAN, Paterson, N. J. Filed Mar. 23, 1892. Serial No. 426,052. (No model.)

Brief.—Disengagement and removal of the card from the under face of the cylinder are effected on each movement of the cylinder toward the needles by means of levers pivoted in the edges of the cylinder, the projecting end of one of which engages a stud on the frame.



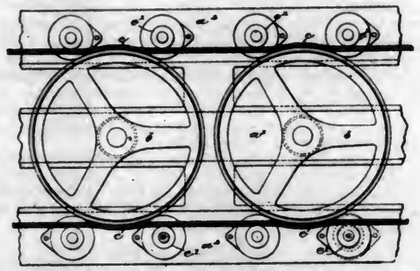
Claim.—1. In a Jacquard machine, the combination, with the frame, the oscillating cylinder, and its supporting-bar, of a lever pivoted to the said cylinder and a pin secured to the frame opposite said lever and adapted to operate said lever, whereby the pattern-card is removed from said cylinder, substantially as described and set forth.

2. In a Jacquard machine, the combination, with the frame, of a cylinder adapted to be oscillated in said frame and provided in or near its corners with grooves or recesses, levers pivotally arranged in said grooves, and a pin secured to the frame and adapted to operate said levers alternately, substantially as described and set forth.

3. In a Jacquard machine, the combination, with the frame, of a cylinder adapted to be oscillated in said frame and provided in or near each corner with a groove or recess, bearings arranged in said groove, a lever pivotally secured in said bearings, a pin secured to the frame and adapted to operate said lever, and a spiral spring controlling the return motion of said lever, all said parts substantially as described, and for the purposes set forth.

4. In a Jacquard machine, the combination, with the frame, of a cylinder adapted to be oscillated in said frame and provided in or near each corner with a groove or recess, a lever pivotally secured in said groove, a spiral spring holding said lever in its normal position, and means for operating said lever, substantially as described and set forth.

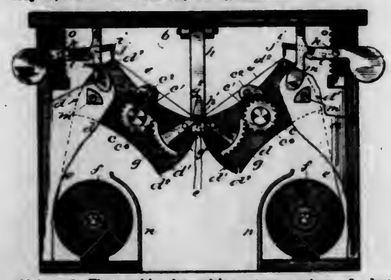
479,896. DEVICE FOR DRIVING SPINDLES. WALTER G. MORRISON, Willimantic, Conn. Filed Feb. 10, 1891. Serial No. 380,877. (No model.)



Claim.—1. In combination with a spindle-rail having a spindle-socket, a driving-belt located in a plane transversely of the axis of said socket, and a spindle having a hub eccentric to the axis of the spindle, said hub fitting the spindle-socket, all substantially as described.

2. In combination in a spinning-frame, a spindle-rail having a line of spindle-sockets, a driving-belt supported in line by guide pulleys or idlers, and a series of spindles eccentrically supported in the respective sockets and in operative relation to the belt, all substantially as described.

479,897. COMMODE. DANIEL H. MURPHY, Hartford, Conn. Filed May 25, 1891. Serial No. 393,944. (No model.)



Claim.—1. The combination, with a rotary receiver, of a destructible lining passing over said receiver, and a knife for severing a portion of the lining before each rotation of the receiver, substantially as specified.

2. The combination, with a movable seat, of a receiver rotated by the movement of the seat, a destructible lining passing over said receiver, and a knife for severing a portion of the lining before each rotation of the receiver, substantially as specified.

3. The combination, with a movable seat, of a receiver connected with and rotated by the movement of the seat, a destructible lining passing from each side over the receiver, and a knife for severing a portion of the lining before each rotation of the receiver, substantially as specified.

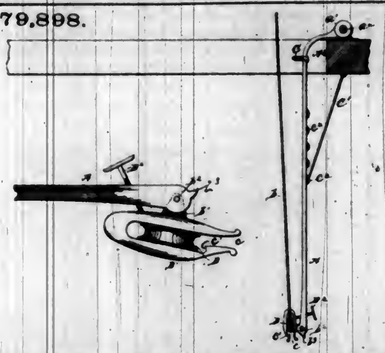
4. A commode having a bottom formed of two rolls, a destructible lining passing over each of the rolls, and knives for severing portions of the lining before each movement of the rolls, substantially as specified.

5. A commode having a movable seat, a bottom formed in two parts connected with the seat, a destructible lining passing from each side over the parts, and knives connected with the seat for severing portions of the lining at each movement of the seat, substantially as specified.

479,898. DRYING-LINE SUPPORT. JOHN PAGLIUGHI and JOSEPH A. PAGLIUGHI, New York, N. Y., and FELIX DE CANTO, Union Hill, N. J. Filed Jan. 4, 1892. Serial No. 416,968. (No model.)

Claim.—1. In a line-support, the combination, with the swinging arm, of a pulley and a pulley-block arranged at one side of the outer end of the arm and having a pivotal connection with said arm, and a stop, as b^2, on the arm, substantially as specified.

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2. In a line-support, the combination, with the swinging arm, of the pulley, the pulley-block adjustable relatively to the said arm, and an adjustable stop for holding the said block in its adjusted position away from the arm, substantially as specified.

3. In a line-support, the combination, with an arm, of the pulley-block having the outward opening, one wall of said opening having a shoulder or hook portion, and a pulley within the block, substantially as specified.

479,899. PYROTECHNIC SUIT. HENRY J. PAIN, New York, N. Y. Filed Mar. 23, 1892. Serial No. 426,659. (No model.)



Claim.—1. The combination, with a fire-proof suit adapted to being worn, of sockets attached to and supported by such suit and adapted to receive combustible fireworks to form lights upon such fire-proof suit that receive their motion from the party wearing the suit, substantially as set forth.

2. A fire-proof suit having an exterior surface of abestos or similar material and a foundation of canvas, to which the fire-proof surface is permanently attached, in combination with sockets and base-pieces connected with the sockets and fastened to the fire-proof suit and adapted to receive combustible materials into the sockets to form lights that move with the fire-proof suit by the movements of the person wearing such suit, substantially as set forth.

3. The combination, with a fire-proof suit adapted to be worn by a performer, of sockets for the reception of combustible materials, and frames connected to and moved by the person wearing the fire-proof suit for the production of animated fireworks, substantially as set forth.

479,900. STOP-WATCH. WILLIAM PIGUET, Sentier, Switzerland. Filed Dec. 8, 1891. Serial No. 414,431. (No model.)

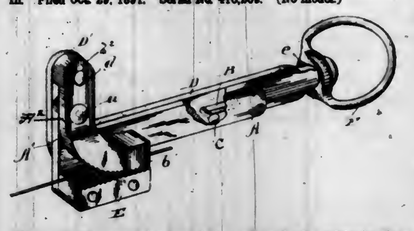
Claim.—1. The combination, with the main and independent seconds-hands, of an arbor carrying the main seconds-hand, a tubular arbor surrounding the same, carrying the independent seconds-hand, and a stop-wheel connected with the tubular arbor, a heart-cam upon the arbor of the main seconds-hand, and a spring-lever on the stop-wheel acting against the heart-cam, a wheel surrounding the arbor of the independent seconds-hand, and a pin acting upon the lever of the heart-cam, and mechanism, substantially as specified, for holding the stop-wheel and independent seconds-hand and for moving the wheel and pin to separate the spring-lever from the heart-cam, substantially as set forth.

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2. The combination, with the main and independent seconds-hands and their arbors, of a heart-cam on the arbor of the main seconds-hand, a stop-wheel connected with the arbor of the independent seconds-hand, a spring-lever upon the stop-wheel acting against the heart-cam, a ratchet-wheel surrounding the arbor of the independent seconds-hand, and a pin on the same to act upon the heart-cam lever, spring-clamps for acting upon the stop-wheel, a wedge-lever for opening the spring clamps, a ratchet and lever for acting upon the ratchet-wheel and pin, and a push mechanism, ratchet-wheel, and cam-wheel for acting upon the wedge-lever and the ratchet-lever, respectively, substantially as set forth.

479,901. WIRE-STRETCHER. CHARLES F. STEINKAMP, Golconda, Ill. Filed Oct. 29, 1891. Serial No. 410,309. (No model.)



Claim.—A wire-stretcher consisting of an L-shaped body-plate A A', lying upon a similarly-formed handle plate D D', the arms A D being held to slide upon each other by a pin and slot, a stationary clamping jaw secured to the body-plate opposite arm A', and an eccentric jaw connected by separate pivots to arms A' D', all substantially as shown.

479,902. MUSIC-CHART. HARRY S. SUTTON, St. Paul, Minn., assignor of one-half to Ansen N. Hilger, same place. Filed July 11, 1891. Serial No. 399,170. (No model.)

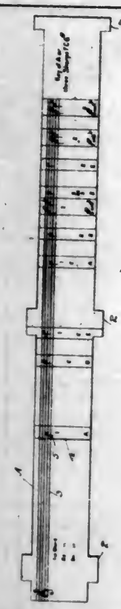
Claim.—1. In a music-chart, a card-board formed to fit on edge on the keyboard of an instrument, having a music-bar and transverse vertical lines inscribed thereon, the spaces between the vertical lines standing immediately above the keys of the board beneath, musical notes comprising the several chords of a musical key inscribed upon the music-bar between the vertical lines and their corresponding letters of the alphabet, and designating-numerals for different chords inscribed within the spaces beneath the notes, substantially as and for the purposes set forth.

2. In a music-chart, the card-board having projections upon its edges to fit between the black keys of a keyboard, a music-bar inscribed longitudinally thereon, musical notes inscribed upon said bar comprising the chords of a selected musical key, and series of designating numerals for the notes belonging to different chords of the key, substantially as and for the purposes set forth.

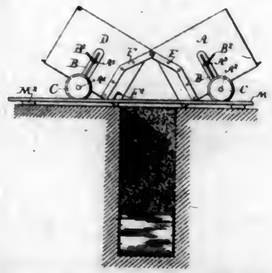
3. In a music-chart, the card-board adapted to be placed upon the keyboard of the instrument, a music-bar inscribed thereon, notes upon said bar, and letters of the alphabet upon said card, indicating all the keys of the keyboard which are required to be struck to sound all the chords of a selected musical key, and designating-numerals upon said card indicating the keys of the instrument to be struck to sound the different chords of the musical key, substantially as and for the purposes set forth.

4. As an improved article of manufacture, a board adapted to be fitted upon the keyboard of a musical instrument and having imprinted thereon in proper relation to the keys of the keyboard the notes of a musical chord arranged upon a music-bar and their designating-letters of the alphabet, substantially as and for the purposes set forth.

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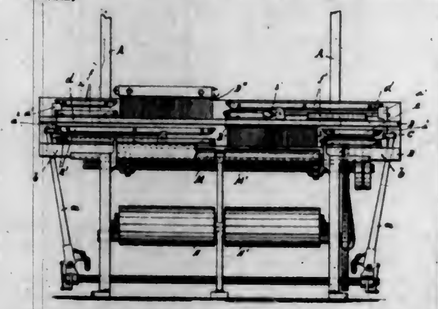


versely in its central portion, mounted upon wheels, the forward and rear parts thereof being hinged to each other at their upper meeting edges and detachably connected at their under meeting edges, and a tongue attached to the forward end of the device, substantially as set forth.



3. A dumping-car comprising a rectangular box open at its top and provided with a removable end piece divided transversely in its central portion, an axle having a flanged wheel on each end beneath each section, bolts projecting outwardly from the sides of the sections above the said axles, vertically-slotted upwardly-extending projections secured to the said axles and having the said bolts extended through the slots therein, nuts placed on the ends of the said bolts, hinges connecting the upper meeting edges of the said sections, and latches to connect the under meeting edges thereof, a tongue pivoted to the forward end thereof, and a bar adapted to be connected with the tongue and the rear section when it is placed on top of the forward section, all substantially as and for the purposes stated.

479,903. PICKER FOR LOOMS. LOUIS TEWELES and THOMAS A. ROBINSON, Paterson, N. J. Filed Dec. 14, 1891. Serial No. 414,944. (No model.)



Claim.—1. The combination of a frame having an elevated raceway and adapted to be secured to the raceway of a loom parallel therewith, shuttle-boxes arranged on each of the raceways, shuttles operated from said boxes, a vertical arm having enlargements at its ends and connected to the picker-stick by a flexible strip, said arm resting on the raceway of the loom and extending up through the upper raceways, a pad on one end of the said arm, a horizontal arm secured to the other end of the same, a cross-head at the end of said horizontal arm, and a pad secured to the end of the horizontal arm and around the cross-head.

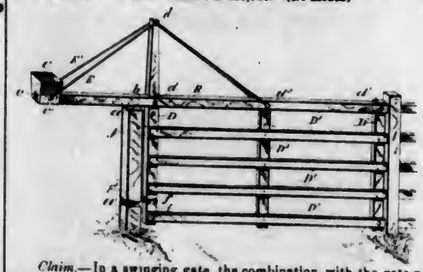
2. A picker for looms, consisting of a vertical arm having an extension at its lower end adapted to ride on the lower raceway, a flexible loop adapted to connect said vertical arm with the picker-stick, and a horizontal arm connected to the upper end of said vertical arm and extending along the upper raceway.

479,904. BURIAL APPARATUS. SAMUEL D. WAGER, Winterset, Iowa. Filed Apr. 28, 1892. Serial No. 431,096. (No model.)

Claim.—1. A dumping-car comprising a rectangular box divided transversely in its central portion, mounted on wheels in such a manner as to be vertically adjustable thereupon, the two parts so formed being hinged to each other at their upper meeting edges and detachably connected with each other at their under meeting edges, and means for advancing the same, substantially as set forth.

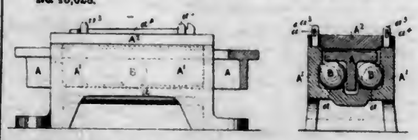
2. A dumping-car comprising a rectangular box divided trans-

479,905. SWINGING GATE. JOHN D. WHITE, Worthington, Iowa. Filed Mar. 19, 1892. Serial No. 425,520. (No model.)



Claim.—In a swinging gate, the combination, with the gate-post having a socket in its upper end and an annular groove around its base, of a gate having the top rail thereof projecting inwardly beyond the top of the post and its inner standard projecting upwardly beyond the top rail, a pivot on the under side of the top rail engaging in the socket in the post, a counterbalancing-weight on the inner end of the top rail, wire braces secured to the upper end of the upright, extending downwardly in opposite directions, and secured to the top rail, and a central bearing-plate having the arms *f* secured to the lower end of the upright and formed with the outward-extending curved arms F', engaging in the annular groove and partly encircling the post, substantially as described.

479,906. DEFLECTION-STAND FOR SWITCH AND SIGNAL RODS. HENRY WILLIAMS, Glasgow, Scotland. Filed Mar. 21, 1892. Serial No. 425,777. (No model.) Patented in England Sept. 10, 1888, No. 13,028.



Claim.—1. The combination comprising railway switch and signal operating rods, traveling spherical balls, and containing-housings, substantially as and for the purposes set forth.

2. The combination comprising a railway switch and signal operating rods A, traveling spherical balls B, and containing-housings

formed of a lower casing A', with ball-guide grooves *a*, and an upper inclosing cap A^2, substantially as and for the purposes set forth.

3. The combination comprising a railway switch and signal operating rods A, formed of T-section, traveling spherical balls B on each side of the central web of said rod A, and containing-housings A' A^2, substantially as and for the purposes set forth.

479,907. EYEGLASSES. JOHN CURRIN, Southbridge, Mass., assignor to the American Optical Company, same place. Filed Apr. 25, 1892. Serial No. 430,554. (No model.)



Claim.—1. In an eyeglass-frame, the combination, with the post having a depression in its outer end adapted to receive the end of the bowspring and the end of the nose-piece and having a groove in its inner end adapted to receive the ends of the eye-wire, of the eye-wire made separate from the post and having one end rigidly secured in the groove in the inner end of the post and the other end detachable from the post and provided with a lug adapted to extend into said groove, and means for holding said lug in said groove, substantially as set forth.

2. In an eyeglass-frame, the combination, with the post having a depression in its outer end adapted to receive the end of the bowspring and the end of the nose-piece and having a groove in its inner end adapted to receive the ends of the eye-wire, of the eye-wire made separate from the post and having one end rigidly secured in the groove in the inner end of the post and the other end detachable from the post and provided with a lug adapted to extend into said groove, and means for holding said lug in said groove, consisting of a screw turning in a threaded hole in the side of the post with its inner end adapted to extend into a notch in the lug on the free end of the eye-wire, substantially as set forth.

479,908. BILL-FILE. GEORGE W. HALL, Washington, D. C. Filed Oct. 7, 1890. Renewed Jan. 5, 1892. Serial No. 417,093. (No model.)



Claim.—1. The combination of the pointed hook having a reflex bend, as at E, a shoulder C, and a screw-threaded portion B, with a slotted spring F, having a bent portion along the slot, which embraces the hook, and having a perforation through which the screw-threaded portion of the hook passes, substantially as described.

2. The combination of the hook A, having a reflex portion E, with the perforated spring F, through which the base of the hook passes and having a reflex curve G, slotted lengthwise and embracing the reflex bend of the hook, substantially as described.

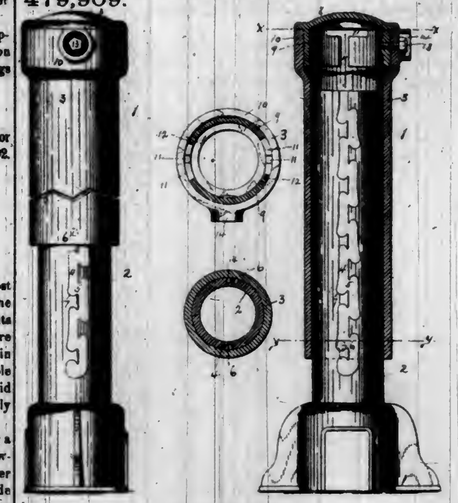
3. The combination, with a base-piece, of a sharpened spindle projecting therefrom, a plate-spring having a perforation through which said spindle passes and having a reflex bend slotted lengthwise and in position to straddle the spindle or needle, all substantially as described.

479,909. SERVICE-BOX FOR WATER OR GAS PIPES. JOSEPH M. HURLEY, Buffalo, N. Y. Filed Feb. 3, 1892. Serial No. 420,685. (No model.)

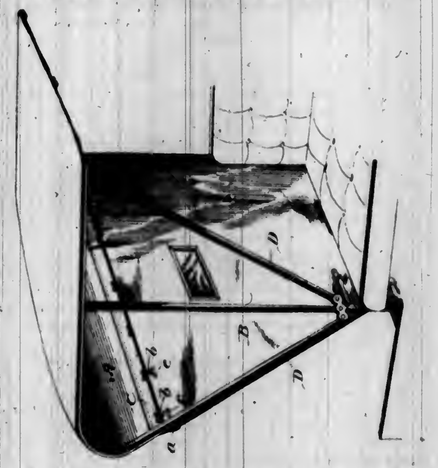
Claim.—1. A service-box consisting of a pipe having grooved ways on its outer surface for the reception of lugs upon a second pipe, which is adjustable over the same, the grooved ways being arranged in two vertical series, the grooves of one series overlapping those of the other series and connected with each other at the overlapping portions, and the lower overlapped portion of each alternate groove forming a rest or socket for the engaging lug, substantially as and for the purpose stated.

2. In a service-box, the combination of the inner pipe 2, having the grooved ways 4, connected to each other and forming the grooves 5, and the outer pipe 3, having the lugs 6 at or near its inner lower end, said lugs being adapted to travel within the grooves 4, and the cap 8, having the sleeve 9, in which are cut the grooved ways 11 for the reception of the lugs 12, the cap 8 being bolted to the pipe 3 by the horizontal bolt 13, substantially as shown and described.

479,909.



479,910. STORM-CURTAIN FOR VEHICLE-TOPS. PETER LUGENBELL, Greensburg, Ind., assignor of one-half to J. S. Lugenbell, Delaware, Ohio. Filed Oct. 27, 1891. Serial No. 409,986. (No model.)



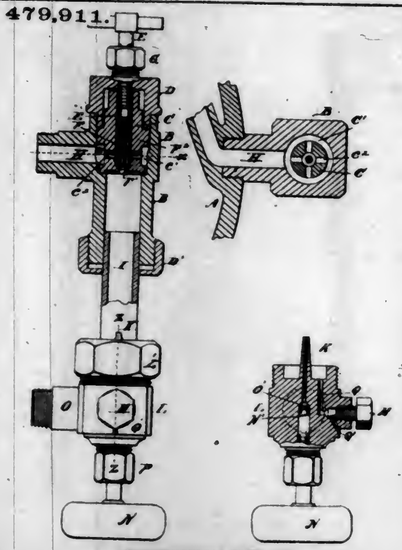
Claim.—1. In a vehicle-top, the combination, with a quarter having its lower portion *a* free and a strip C attached to said portion *a*, of a storm-curtain constructed to be attached to said strip C and have its upper edge overlapped by the said portion *a*, substantially as shown, and for the purpose specified.

2. The combination, with a vehicle-top having the lower portion *a* of its quarter free and a strip C, secured near its upper edge to the portion *a*, of the storm-curtain and complementary fastenings provided on the said strip C and the upper edge of the storm-curtain, substantially as shown, for the purpose set forth.

479,911. LUBRICATOR. FRANK W. MARVIN and GEORGE B. HEBER, Detroit, Mich., assignors to the Michigan Lubricator Company, same place. Filed Nov. 16, 1891. Serial No. 412,028. (No model.)

Claim.—In combination with the sight-feed glass of a lubricator and oil induction and eduction tubes, a slip-joint check-valve capable of both automatic and positive movement placed in the oil-eduction from the sight-glass, and a blow-off conduit and plug in the fitting at the oil-induction end of the sight-glass for cleaning the glass when the oil is shut off, substantially as set forth.

479,911.



479,912. HORSESHOE-PAD. NICHOLAS G. MOONEY, New York, N. Y. Filed Apr. 13, 1892. Serial No. 428,978. (No model.)



Claim.—1. A protecting-pad for horses' hoofs, composed of several layers, cushioning-springs arranged in the socket-holes at the rear ends of the pad and projecting above the pad, and covering or protecting layers extending over the cushioning-springs, substantially as set forth.

2. A protecting-pad for horses' hoofs, composed of a base layer of leather, an intermediate layer of cork, and a top layer of felt, said pad being provided with cushioning-springs set into socket-holes at the rear ends of the pad, said springs projecting above the pad, and with covering or protecting layers extending over the springs, substantially as set forth.

3. A protecting pad for horses' hoofs, composed of a bottom layer of sole-leather, an intermediate layer of cork, and a top layer of absorbent material, cushioning-springs arranged in socket holes at the rear ends of the pad, covering-layers for said cushioning-springs, a retaining-catch attached to the front part of the pad, and elastic plates or calks attached to the under side of the base-layer at the front and rear ends of the pad, substantially as set forth.

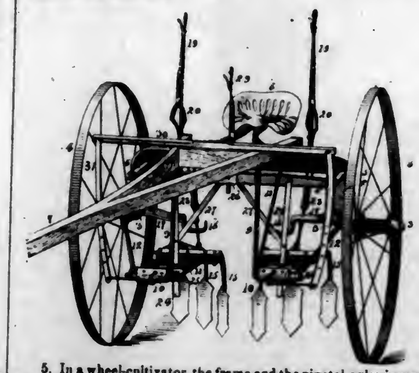
479,913. WHEEL-CULTIVATOR. ALBERT R. MOREY, Akron, Ohio, assignor to The Akron Tool Company, same place. Filed Dec. 14, 1891. Serial No. 414,962. (No model.)

Claim.—1. In a wheel-cultivator, the combination, with pivotal axles and means for rocking them, of cultivator-gangs arranged to be simultaneously rocked by intermediate mechanism connected with said axles, the blades of each gang being arranged to maintain when swung in either direction the same relative position to the axial line of said vehicle, substantially as shown and described.

2. In a wheel-cultivator, the combination, with a cross-beam mounted on pivotal axles and means for rocking said axles, of sets of gangs arranged to be rocked laterally by said axles through intermediate connecting mechanism, the blades of each gang being arranged to maintain the same relative distance from each other with reference to a line at right angles with the axial line of said vehicle, substantially as shown and described.

3. In a wheel-cultivator, the combination, with the cross-beam mounted on pivotal axles and means for rocking said axles, of two sets of gangs arranged to be rocked laterally by mechanism connected with said axles, the separate blades of each gang being arranged to constantly maintain the same relative position to the axial line of the vehicle and the same distance from each other with reference to a line at right angles to said axial line, and means for causing said gangs to approach and recede from each other, substantially as shown and described.

4. In a wheel-cultivator, the combination, with the supporting-frame and the pivotal axles having lever-arms connected by a cross-bar, of two fixed trees rigidly attached to said frame, and two movable trees severally united with the fixed trees by parallel bars, and cultivator-blades attached directly to said movable trees, substantially as shown and described.

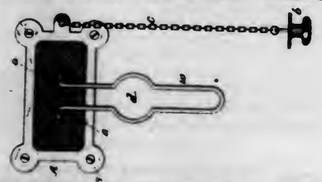


5. In a wheel-cultivator, the frame and the pivotal axles journaled therein, having lever-arms united by a cross-bar, and means for rocking said axles, combined with the fixed and movable trees severally united by parallel draft-bars, and cultivator-blades attached to said movable trees, and intermediate mechanism for causing said movable trees to rock in unison with said axles, substantially as shown and described.

6. The pivotal axles having lever-arms, and the cross-bar uniting said arms, and the fixed and movable trees, and the parallel draft-bars severally uniting said fixed and movable trees, combined with depending rods attached to said cross-bar and passing through links pivotally connected between pairs of said draft-bars, substantially as shown and described.

7. In a cultivator of the class designated, the combination, with the fixed trees, the draft-bars, the movable trees, and the pivoted links interposed between said draft-bars, of the depending rods passing through said draft-bars and the diagonal links connected with said depending bar and united in a yoke arranged to be raised and lowered by a lever, substantially as shown, and for the purpose specified.

479,914. CLOTH-HOLDER. GEORGE McG. MORRIS, Cincinnati, Ohio. Filed Dec. 26, 1891. Serial No. 416,149. (No model.)

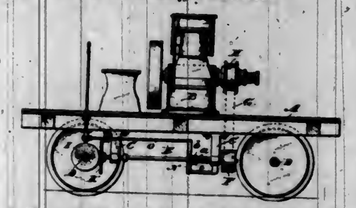


Claim.—In a cloth-holder, the combination of a plate or bracket provided with screw-holes for attachment to a wall, counter, or other permanent support and with lugs projecting from its face, a wire loop having a lower bight with parallel sides opening into an enlargement and having its free ends turned oppositely outward, engaging pivotally in the lugs and retained by the outward spring of the wire, a grooved button adapted to enter the enlargement of the loop and pass downward into the lower bight and engage the parallel sides by means of its groove, and a flexible cord or chain connecting the button with the supporting-bracket, substantially as set forth.

479,915. DRIVING MECHANISM FOR CARS. JACOB V. MOTTER, Brooklyn, N. Y. Filed Mar. 31, 1892. Serial No. 427,193. (No model.)

Claim.—1. The combination, with a propelling-shaft and a friction-wheel feathered so as to slide thereon, of a friction-disk for said wheel, means for shifting said wheel, means for disengaging the contact of said wheel and disk when the former is at or near the center of the latter, and a single lever for operating both of said means, substantially as described.

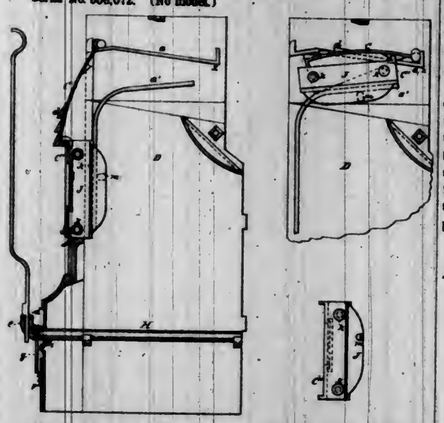
2. The combination of the axle D, the friction-wheel I, feathered thereon, the lever J with connections for shifting said wheel, a friction-disk for said wheel I, the shaft E, carrying said disk, and a motor for driving the shaft E, substantially as described.



3. The combination of the axle D, having the friction-wheel I feathered thereon, means for shifting said wheel, the shaft E, a friction-disk on said shaft for the friction-wheel, the spring *a* for the shaft E, and a motor for driving said shaft, substantially as described.

4. The combination of the axle D, having the friction-wheel I feathered thereon, the shaft E, carrying the friction-disk, the shifter M for the wheel I, having the cam *m*, the lever N, and link O, connected to the shaft E, and the lever J, connected to the shifter M, whereby when the wheel I approaches the center of the disk K from either direction the cam *m* engages the link O and disengages the disk K from the wheel I, substantially as described.

479,916. OPEN FIRE-GRATE. JOHN H. McILVAIN, Camden, N. J., assignor to Charles F. Bartlett, Philadelphia, Pa. Filed July 8, 1890. Serial No. 358,072. (No model.)



Claim.—1. The segmental covers C C', constructed as herein shown and described, in combination with the jambs D, having the cleats and guides *a a'* formed upon their surfaces, substantially as and for the purpose set forth.

2. The cover C', having the plates J, provided with the lugs *m*, bolted to its ends or side portions for the purpose of preventing said cover from being drawn outward from connection with the cleats *a'* of the jambs D during the upward or downward movements of the said cover, substantially in the manner herein shown and described.

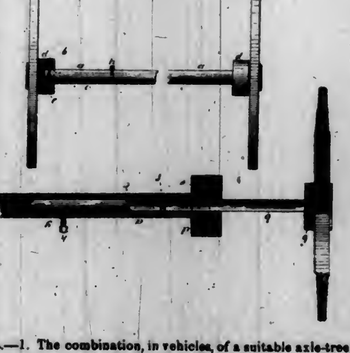
3. The combined mechanism for open fire-grate or fireplace, consisting of the portions C C', plate J, bolted to the portion C', and the jambs D, having the cleats *a a'* cast upon their surfaces and adapted for the right and left hand sides of the fireplace, substantially as herein shown and described.

479,917. ADDRESSING ATTACHMENT FOR PRINTING-PRESSES. IRA W. NEWMAN, Toledo, Ohio. Filed Aug. 3, 1891. Serial No. 401,462. (No model.)

Claim.—1. A chase or type-frame for printing-presses provided with a rotary shaft or bar journaled therein, substantially as shown and described, for the purpose specified.

2. A chase or type-frame for printing-presses, having a rotary shaft or bar journaled therein, in combination with means for rotating said shaft or bar in harmony with the movement of the platen and ink-rollers of the press, substantially as shown and described, for the purpose specified.

3. A chase or type-frame for printing-presses, having a mortise with a shaft or bar journaled therein, in combination with a pawl and ratchet on said shaft, substantially as shown and described, for the purpose specified.



4. A chase or type-frame for printing-presses, having a mortise with a shaft or bar journaled therein, in combination with a pawl and ratchet on said shaft and an arm engaging the ink-rolls of the press and adapted to actuate said pawl and ratchet intermittently between the successive impressions of the press, substantially as shown and described, for the purpose specified.

5. In an addressing attachment for printing-presses, a chase having a shaft therein, provided with means for rotating said shaft, journaled between the successive impressions of the press, and a flexible type-band having upon its face the characters from which impressions are to be taken and adapted to travel upon said shaft, substantially as shown and described, for the purpose specified.

6. An addressing attachment for printing-presses, comprising in its construction a chase having a shaft journaled therein, provided with means for rotating said shaft between the successive impressions of the press, and a series of plates having upon their faces the characters from which impressions are to be taken, suitably attached to one or more flexible ribbons or bands, forming a flexible type-band, said type-band traveling upon said shaft and having suitable reels adapted to pay out and to take up said flexible type-band as it is fed to the press, substantially as shown and described, for the purpose specified.

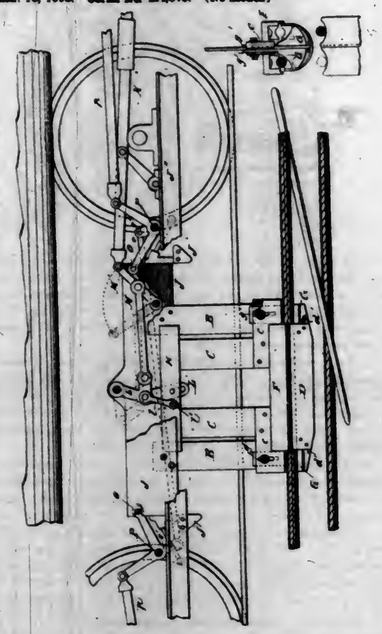
479,918. WAGON-AXLE. NEIL OLSEN, Portland, Oreg. Filed Feb. 20, 1892. Serial No. 422,326. (No model.)

Claim.—1. The combination, in vehicles, of a suitable axle-tree or axle-trees provided with tubular recesses or sockets in which to receive the axle-sections of the respective wheels, said tubular sockets being provided with fixed butting-collars *c* and caps *d*, adapted to be secured on the hubs of the wheels, and wheels having fixed axle-sections *b* for revolving in said tubular sockets, the hubs *b'* of which wheels are adapted to abut against said collars *c* and to be held in place by said caps *d*, substantially as set forth.

2. The combination, in vehicles, of a suitable axle-tree or axle-trees provided with tubular recesses or sockets in which to receive the axle-sections of the respective wheels, said tubular sockets being pro-

vided with fixed butting-collars *e* and set-screws *h* and caps *d*, adapted to the purposes specified, and wheels having fixed axle sections *b* for revolving in said tubular sockets, the hubs *b'* of which wheels are adapted to abut against said collars *e* and to be held in place by said caps and said axle-sections being also provided with annular grooves *f*, in which to receive the set-screws *h* as additional means for holding the wheels in place, all substantially as described.

479,919. CABLE RAILWAY. JOHN H. PENDLETON, Brooklyn, assignor to the Rapid Transit Cable Company, New York, N. Y. Filed Mar. 10, 1892. Serial No. 424,375. (No model.)



Claim.—1. In combination, in a gripper apparatus for cable railways, jaws and jaw-supports for the cable or cables, mechanism for raising and lowering the said jaws, mechanism for opening and closing the said jaws relatively to each other, deflecting-shoes operated by the relative movement of the jaws to throw out the cable or cables from the said jaws, an actuating hand-lever for the said mechanism for opening and closing the said jaws, a connecting-rod therefor secured to the said lever by a sliding connection, and a controlling-link for the said sliding connection, substantially as and for the purposes set forth.

2. In combination, in a gripper apparatus for cable railways, jaws and jaw-supports for the cable or cables, mechanism for raising and lowering the said jaws, mechanism for gripping the said jaws upon the cable or cables, and a supplemental link pivotally secured to the last said mechanism and operated thereby to open the said jaws, and deflecting-shoes operated by the relative movement of the said jaws to throw the cables therefrom, substantially as and for the purposes set forth.

3. In combination, in a gripper apparatus for cable railways, jaws and jaw-supports for the cable or cables, mechanism for gripping the said jaws upon the cable or cables, a supplemental link pivotally secured to and operating with the said mechanism to open the said jaws, and deflecting-shoes operated by the relative movement of the said jaws to throw out the cable or cables therefrom, substantially as and for the purposes set forth.

4. In combination, in a double gripper for cable railways, jaws and jaw-supports for the cables, mechanism for gripping the said jaws, a supplemental link pivotally secured to and operating with the said mechanism to open the said jaws, and means operated by the relative motion of the jaws to throw out the cable or cables therefrom, substantially as and for the purposes set forth.

5. In combination, in a gripper for cable railways, jaws for gripping the cable or cables and one or more shoes for throwing out the cable or cables, operated by the movement of the said jaws, into or out of operative position to the jaws on one side alone or on both sides, substantially as and for the purposes set forth.

6. In combination with a gripper for cable railways, one or more vertically-adjustable deflecting-shoes for throwing the cable or cables from the said gripper and means for raising and lowering the said shoes into or out of operative relation to the said gripper upon one side alone or upon both sides, substantially as and for the purposes set forth.

7. In combination with a double gripper for cable railways, one or more deflecting-shoes G upon each side of the said gripper and means for bringing the said shoes at will either upon one or upon both sides of the said gripper into operative relation thereto, substantially as and for the purposes set forth.

8. In combination with a double gripper provided with two pairs of co-operating jaws, one or more deflecting-shoes G for each of said pairs of jaws, adjustable into and out of operative relation to one or to both the said pairs of jaws, and a lip *f* for preventing the entrance of the cable into one pair of jaws while the other pair are in position to receive the cable, substantially as and for the purposes set forth.

9. In combination with a double gripper provided with two pairs of co-operating jaws, one or more deflecting-shoes G for each of said pairs of jaws, vertically adjustable by the opening and closing of the said jaws into and out of operative relation to one or to both the said pairs of jaws, and a lip *f* for preventing the entrance of the cable into one pair of jaws while the other pair are in position to receive the cable, substantially as and for the purposes set forth.

10. In combination, in a double gripper for cable-railways, a pair of co-operating jaws upon each side of the said gripper, one or more deflecting-shoes G, secured to the upper jaw of each pair by a slot and pin, stops for the said shoes upon the lower jaws, the said slots and pins being so arranged that the shoe or shoes of one pair of jaws come into action by the opening of the jaws before those of the other pair, and a lip upon the latter pair preventing the entrance of the cable thereinto while the other jaws are in position to receive the cable, substantially as and for the purposes set forth.

11. In combination with the co operating jaws of a cable grip, a cable-deflecting shoe carried by one jaw thereof and sliding thereon and stops for each of the said jaws to limit its travel thereon, substantially as and for the purposes set forth.

12. In combination with the mechanism for closing a cable-gripper, a link-motion arranged to independently open the same, substantially as and for the purposes set forth.

13. In combination with the toggles or other mechanism for closing the jaws of a cable-gripper, one or more links *l* for opening the said jaws, substantially as and for the purposes set forth.

14. In combination, in a cable-gripper, toggles for closing the gripper and a link *l* for opening the said gripper, secured to and operating by the said toggles, the said toggles and the said link being arranged to permit the independent action of the toggles in closing and the link in opening the said gripper, substantially as and for the purposes set forth.

15. In combination, in a cable-gripper, toggles for closing the gripper and a link *l*, pivotally secured at one end to the said toggles and at its other end connected by a pin and slot with the movable jaw of the said gripper, whereby the said toggles may be utilized in closing and the said link in opening the said gripper, substantially as and for the purposes set forth.

16. A mechanism for exerting varying power upon the operating parts of a cable-gripper, consisting of a hand-lever R, a connecting-rod N, secured to the said lever by a sliding pivotal connection, and a controlling device *v* for altering the position of the said sliding connection as the said lever is moved, substantially as and for the purposes set forth.

17. In combination with the other parts of a cable-gripper, a connecting-rod for operating the same, a hand-lever, a frame to which the said lever is fulcrumed, a sliding pivotal connection between the said rod and the said lever, and a link *v*, fulcrumed in the said frame and pivotally secured to the said sliding connection, substantially as and for the purposes set forth.

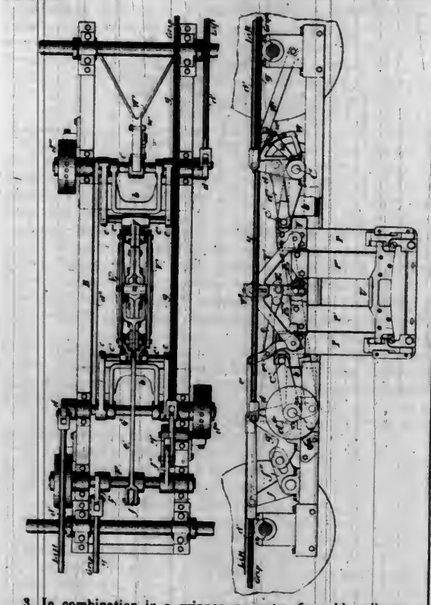
18. In combination with the mechanism for gripping and for dropping the cable of a cable railway, a pawl and rack for securing the mechanism in position, mechanism for raising and lowering the said gripper, and a slide-plate or segment for detaching the said pawl from the said rack, actuated by the movement of the said raising and lowering mechanism, substantially as and for the purposes set forth.

19. In combination with the mechanism for gripping and for dropping the cable of a cable railway, a pawl and rack for securing the mechanism in position and a slide-plate or segment for detaching the said pawl from the said rack, actuated by the rise and fall of the gripper, substantially as and for the purposes set forth.

479,920. CABLE RAILWAY. JOHN H. PENDLETON, Brooklyn, assignor to the Rapid Transit Cable Company, New York, N. Y. Filed June 18, 1892. Serial No. 436,482. (No model.)

Claim.—1. In combination, in a gripper apparatus for cable railways, a frame therefor, a pair of cranks mounted upon the said frame and provided with supporting-shafts *c*, parallel with their axes, a gripper provided with channels for the said shafts, connections between the said cranks for causing them to turn equally and together, and one or more torsion-springs inclosed in suitable casings upon the axes of the said cranks, substantially as and for the purposes set forth.

2. In combination, in a gripper apparatus for cable railways, a frame therefor, a pair of cranks *c*, mounted upon the said frame and provided with supporting-shafts *c'*, parallel to their axes, a gripper provided with channels for the said shafts, connections between the said cranks for causing them to turn equally and together, and one or more levers *D'* and connecting-rods *d* for operating the said cranks to raise and lower the gripper, substantially as and for the purposes set forth.



3. In combination, in a gripper apparatus for cable railways, a frame therefor, a pair of cranks *c*, mounted upon the said frame, a gripper independently suspended from each of the said cranks, and one or more connections between the said cranks for causing them to turn equally and together, substantially as and for the purposes set forth.

4. In combination, in a gripper apparatus for cable railways, a frame therefor, a pair of cranks *c*, independently mounted upon the said frame, a gripper suspended from the said cranks, and one or more springs upon the axes of the said cranks, substantially as and for the purposes set forth.

5. In combination, in a gripper apparatus for cable railways, a frame therefor, a pair of cranks *c*, mounted upon the said frame and provided with supporting-shafts *c'*, parallel to their axes, a gripper provided with channels for the said shafts, connections between the said cranks for causing them to turn equally and together, one or more operating-rods for the said cranks, a cam W, turning with the said cranks, a catch W' for engaging the said cam when the gripper is in its normal position, and a detaching device for the said catch arranged to be adjusted by the rise of the gripper above normal to interfere with the said catch, substantially as and for the purposes set forth.

6. In combination with a raising and lowering mechanism for a cable-gripper, a shaft C, moving therewith and provided with a cam W, a hook or catch W', pivoted to the frame of the mechanism and arranged to engage the said cam when the gripper is in its normal position, a detaching-block *w*, pivoted to the said cam, stops to restrict its motion upon the said cam, and a stud or lug *w'* upon the said catch, substantially as and for the purposes set forth.

7. In combination with a raising and lowering mechanism for a cable-gripper, a catch for engaging the moving parts of the said mechanism and retaining the gripper in its raised position, a detaching-block therefor carried upon the said moving parts, and stops for the said detaching-block, between which it may be free to travel, the said block being so formed that when the gripper has been raised above a certain position the said detaching-block on the lowering of the gripper may interfere with said catch and prevent it from engaging the said moving parts, substantially as and for the purposes set forth.

8. In combination with a pair of upper and lower jaws of a cable-gripper and a shank P for the lower jaw, a cable-deflecting shoe O, constructed to slide upon the said shank and provided with guideways *o o'* of limited length, a guide upon the said shank for one of the said guideways, and a guide moving with the upper jaw and traveling in another of the said guideways, whereby the said shoes may be allowed a limited travel relatively to each of the said jaws, substantially as and for the purposes set forth.

9. A cable-deflecting shoe O for the purposes set forth, provided with guideways *o o'*, terminating in stops for limiting travel within such guideways, substantially as set forth.

10. A cable-deflecting shoe O for the purposes set forth, consisting of a sliding plate provided with guideways *o o'*, and a toe-piece detachably secured to the said sliding plate.

11. In combination with a pair of upper and lower jaws of a cable-gripper apparatus and a shank P for the lower jaw, a cable-deflecting shoe O, constructed to slide upon the said shank and provided with guideways *o o'* of limited length, a guide upon the said shank for one of the said guideways, and a guide moving with the upper jaw and traveling in another of the said guideways, whereby the said shoe may be allowed a limited travel relatively to each of the said jaws, one or more lugs or ears U upon the upper jaw of the said gripper, and one or more rails U', arranged to pass under the said lugs or ears, and thereby automatically raise the said upper jaw, substantially as and for the purposes set forth.

12. In combination with the stationary jaw or jaws and jaw-shanks of a cable apparatus and for the purposes set forth, a pair of head-blocks V, secured to the said shanks and provided with supporting-channels, and a pair of side frames V', secured to the said heads, substantially as set forth.

13. In combination, in a cable-gripper apparatus, an equalizer for the gripping mechanism thereof, consisting of a pair of levers *h*, a pair of operating-rods *g*, extending from the centers of the said levers to the platforms of the car, a frame H, to which is pivotally secured one end of each said levers, and connecting-rods *e' h'*, connecting the remaining ends of the said levers, respectively, with the gripper and gripper mechanism, sockets G for a hand-lever and to which the said operating-rods *g* are connected, and one or more catch-hooks K for locking the said sockets in position, substantially as and for the purposes set forth.

14. In combination, for the purposes described, a hand-lever socket G, a frame J, to which the said socket is fulcrumed, a catch-hook K, pivoted to the said socket and arranged to engage with the said frame, and an operating-rod *g*, pivotally secured to the said socket, substantially as set forth.

15. In combination, for the purposes described, a lever-socket G, a frame J, to which the said socket is fulcrumed, a catch-hook K, pivoted to the said socket and arranged to engage with the said frame, and a lever fitting the said socket, provided with a shoulder constructed to disengage the said catch-hook from the said frame when the said lever is placed in the said socket, substantially as set forth.

16. In combination with the operating-rods *d'* for the raising and lowering mechanism and the operating-rod *g* of the gripping mechanism, of a cable-gripper apparatus, a hand-lever socket G, to which is pivoted the said rod *g*, a frame J, to which the said socket is fulcrumed, a catch-hook for locking the said socket in position, and a hand-lever socket D, to which is pivoted the said rod *d'*, arranged to interfere with the said catch-hook in certain positions, and thereby disconnect it, substantially as for the purposes set forth.

17. In combination with the operating-rods *d'* for the raising and lowering mechanism and the operating-rods *g* of the gripping mechanism, of a cable-gripper apparatus, a lever-socket G, to which is pivoted the said rod *g*, a catch-hook K, pivoted to the said socket, and a second hand-lever socket D, to which the said rod *d'* is pivoted, provided with one or more inclined faces formed to run under and disconnect the said catch-hook, substantially as and for the purposes set forth.

18. In a compound lever for the purposes described, consisting of link M, provided with a rack, a hand-lever L, pivoted to the said link at the center of curvature of the said rack, a pawl pivoted upon the said hand-lever and provided with a detent formed to fit in a notch upon the said link, and a fulcrum-hook N, pivoted to the said hand-lever and engaging with the said pawl when the said detent is in the said notch, whereby the said fulcrum-hook may be disconnected and the said lever and said link operated as a simple lever, substantially as set forth.

19. A compound lever for the purposes described, consisting of a link M, a hand-lever L, pivoted to the said link M, a detent pivoted on the said lever and arranged to lock the link and said lever, a fulcrum-hook N, pivoted to the said lever, and means for controlling the said detent and the said fulcrum-hook, substantially as set forth.

20. A compound lever for the purposes described, consisting of a hand-lever L and a link or lower lever M and means for independently fulcruming the said hand-lever, substantially as set forth.

21. In combination with a pair of crossing cables, a cable-trench for the lower of said cables, provided with a deepened portion extending a sufficient distance from the crossing to permit the descent of the gripper thereinto to follow the dip of the cable as it approaches the crossing, substantially as set forth.

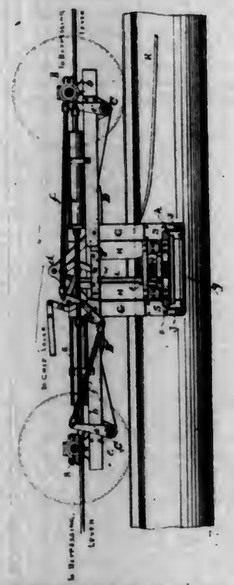
22. In combination with a pair of crossing cables, a cable-trench for the lower of said cables, provided with a deepened portion to permit the descent of the gripper thereinto, and one or more depressing rails secured within the said trench, substantially as set forth.

23. In combination with a pair of crossing cables, a gripper for the lower of said cables, one or more lugs or ears U on the said gripper, and a rail adjacent to the crossing cables, constructed to co-operate with the said lugs or ears to depress the said gripper as it approaches the crossing and then to elevate the said gripper to clear the upper of the said cables, substantially as and for the purposes set forth.

24. The method of crossing the gripper-car of a cable railway over the overlying cables of a crossing cable railway, which consists of in first depressing the gripper to follow the descent of the cable under the crossing, releasing the cable therefrom, and then raising the gripper to pass clear of the said overlying cable, substantially as and for the purposes set forth.

25. The method of crossing the gripper-car of a cable railway over the overlying cable of a crossing cable railway, which consists in automatically depressing the gripper and releasing the cable as the gripper approaches the crossing and then automatically elevating the said gripper to pass clear of the overlying cable, substantially as and for the purposes set forth.

479,921. CABLE RAILWAY. JOHN H. PENDLETON, Brooklyn, and ANDREW BRYSON, New York, assignors to the Rapid Transit Cable Company, New York, N. Y. Filed May 28, 1892. Serial No. 434,754. (No model.)



Claim.—1. In combination, in a gripper for cable railways, a lower jaw, one or more supporting plates or shanks therefor, an upper jaw movable relatively to the said lower jaw, one or more supporting plates or shanks therefor, one or more sliding shoes for the said lower jaw arranged to be raised in position to shield the said lower jaws from the cable, a carrier movable upon the said upper jaw and arranged to raise the said deflecting-shoes with the said upper jaw and with or without lost motion between the said jaw and the said shoes, according to the position of the said carrier, and means for controlling the position of the said carrier, substantially as and for the purposes set forth.

2. In combination with the double jaws and jaw-supports of a double gripper, one or more deflecting-shoes for each of the said lower jaws for shielding them from the cables, pins and slots or other stops to limit the downward travel of the said shoes relatively to the said lower jaws, a carrier moving with and adjustable relatively to the said upper jaws and constructed to raise the said deflecting-shoes on one side simultaneously with the said upper jaws, but upon the other side to permit lost motion between the said shoes and the said jaws, the said carrier being adjustable to transfer the said lost motion from one side of the gripper to the other, and means for adjusting the said carrier, substantially as and for the purposes set forth.

3. In combination, in a gripper apparatus for cable railways, jaws and jaw-supports, deflecting-shoes relatively movable to both upper and lower jaws, but attached to the upper jaw by a lost-motion connection, and means for permitting or preventing such lost motion, substantially as and for the purposes set forth.

4. In combination, in a gripper for cable railways, a lower jaw, an upper jaw movable relatively to the said lower jaw, stops to limit the travel of the said shoes relatively to the said lower jaw, a carrier moving with the said upper jaw and constructed to raise the said shoes with the said upper jaw, but adjustable thereon to permit or prevent lost motion between the said shoes and the said upper jaw, and means for adjusting the said carrier, consisting of a plate L, provided with a slot inclined to its line of motion, a pin upon the said carrier traveling in the said inclined slot, a crank for actuating the said plate pivotally secured to and moving with the said upper jaw, and means for turning the said crank, substantially as and for the purposes set forth.

5. In combination, in a mechanism for raising and lowering a gripper for cable railways, one or more bell-crank levers, from which the said gripper is suspended, one or more rods *e*, sliding in suitable guides and connected to one or more of the arms of the said bell-crank levers, springs E for the said rods, counterbalancing the weight of the said gripper, and a connection between the bell-crank levers for causing them to turn equally, substantially as and for the purposes set forth.

6. In combination, in a gripper apparatus for cable railways, a gripper-head provided with horizontal channels for receiving supporting-shafts, a frame for the said gripper apparatus, a pair of shafts C, mounted upon the said frame, one or more lever-arms *c* upon each of the said shafts terminating in a horizontal rod or shaft *c'*, fitting within one of the said horizontal channels in the gripper-head, one or more lever-arms *c'* upon the said shaft C, one or more sliding rods connected with the said lever-arms *c'*, and springs for the said sliding rods, substantially as and for the purposes set forth.

7. In combination with a spring-supported gripper for cable railways, one or more laterally-projecting depressing lugs or ears Q for the said gripper, pivotally secured thereto, depressing-rails arranged at suitable positions for engaging with the said lugs, and a sliding carrier K, provided with inclined faces for altering the position of the said lugs to cause them to project from either side of the said gripper, substantially as and for the purposes set forth.

8. In combination with a gripper for cable railways, a sliding carrier K, one or more depressing lugs or ears Q, having a pivoted support extending through an opening in the said carrier, the said opening being so formed that its adjustment will cause the said support to turn and to alter the position of the said lugs, substantially as and for the purposes set forth.

9. In combination, in a gripper for cable railways, a lower jaw, one or more supporting plates or shanks therefor extending through the slot, an upper jaw movable relatively to the said lower jaw, one or more supporting-plates therefor, one or more sliding deflecting-shoes for the said lower jaw, arranged to be raised in position to shield the said lower jaw from the cable, a sliding carrier arranged to raise the said deflecting-shoes with the said upper jaw and with or without lost motion between the said jaw and the said shoes, according to the position of the said carrier, means for controlling the said carrier, and one or more depressing lugs or ears Q, adjustable by the movement of the said carrier, substantially as and for the purposes set forth.

10. In combination with the frame, jaws, and jaw-supports of a gripper apparatus, a crank mounted upon the supports of the movable jaw, a hand-rod for turning the said crank, mounted upon the said frame and adapted to engage with the said crank when the gripper is in its normal position, a spring for withdrawing the said rod from the said crank, and a vertically-sliding plate for operating certain attachments of the said gripper, provided with a horizontal slot for the crank-pin of the said crank, substantially as and for the purposes set forth.

11. In combination with the supporting-frame and the jaws and jaw-shanks of a gripper apparatus, and all arranged substantially as and for the purposes described, a crank mounted upon the shanks of the movable jaw or jaws, a rod for turning the said crank, mounted upon the said supporting-frame, and a vertically-reciprocating plate L, actuated by the said crank.

479,922. INVERTED BURNER FOR GAS-LAMPS. DAVID W. SUGG, London, England. Filed Feb. 21, 1887. Serial No. 228,285. (No model.) Patented in France Mar. 26, 1886, No. 167,948; in Italy June 1, 1886, No. 20,030, and in England Dec. 15, 1886, No. 16,467.

Claim.—An inverted burner having a head of externally-convex form and having in said head a chamber *a* of concave form of larger

479,922.



diameter than its inlet, said head being provided with holes *b*, opening through the side walls of said chamber in a downward direction and tangentially to an imaginary circle concentric to the axis of the burner, substantially as and for the purpose herein set forth.

479,928. WATCH-MOVEMENT. ERNST H. THIEL, Ruhla, Germany. Filed Mar. 23, 1892. Serial No. 426,062. (No model.)



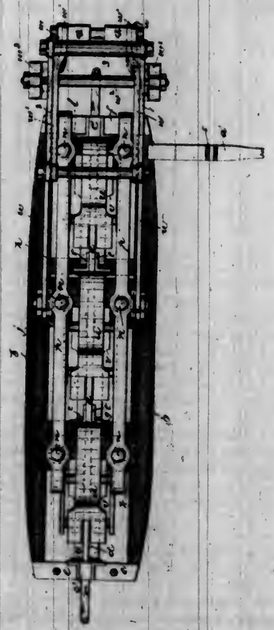
Claim.—1. The combination, with the front and back plates of a watch-movement, said plates being connected by bent-up flanges retained by locking-keys, of a bridge attached to one flange of the back plate for supporting the inner end of the winding-stem, substantially as set forth.

2. In a watch-movement, the combination of a back plate having bent-up flanges at diametrically-opposite points, said flanges having recessed lugs at their free ends, with a top plate having openings through which the lugs can pass, and wedge-shaped key-plates inserted in the recessed lugs of the flanges and resting on the top plate for the purpose of locking said plates together, substantially as set forth.

3. In a watch, the combination, with a top plate having openings at diametrically-opposite points, of a dial-plate provided with depressions and bushings, the latter fitting into the openings of the top plate, substantially as set forth.

4. In a watch, the combination, with the winding-stem and its pinion, of a winding-wheel located between the back plate of the movement and a cap-plate secured to the same, said winding-wheel carrying the mainspring, the outer end of which is connected to the winding-wheel, while the inner end is secured to a disk of the first wheel-arbor, substantially as set forth.

479,924. PROPELLING MECHANISM FOR ROW-BOATS. GUSTAV VOGEL, Orange Valley, N. J. Filed Mar. 11, 1892. Serial No. 424,511. (No model.)



Claim.—1. A propelling mechanism for a row-boat, consisting of a frame adapted to be secured in said boat, a carriage mounted upon said frame and having a forward and backward movement thereon, a series of posts mounted upon said carriage, each post being provided with a slot to receive the inner ends of the oars, guides arranged to engage with said ends of the oars and impart thereto the requisite upward and downward motions, and means for imparting to said carriage a forward-and-backward movement, as described, and for the purposes set forth.

2. The combination, with the frame, of the bar *d*, carried thereby, the guides *s*, carried by said bar, the carriage mounted upon said frame and provided with means to receive the inner ends of the oars, and means for shifting said oars from one side to the other of said guides and for imparting to said carriage a forward-and-backward movement, as described, and for the purposes set forth.

3. In a propelling mechanism for row-boats, the combination of a bar *d*, guides *s*, arranged in pairs and carried thereby, two springs *w* and *v* for each pair, said springs being located between the guides and one of them being above and the other one below the bar, and mechanism for holding the oars with their inner ends between the springs and for moving them back and forth, whereby the inner ends may be made to engage with one side of guides when they are moved in one direction and with the other side when they are moved in the opposite direction, substantially as set forth.

4. In a propelling mechanism for operating row-boats, the combination of a reciprocatory carriage, slotted posts rotatably secured thereto and movable therewith and adapted to receive the inner ends of the oars, and mechanism between the posts for engaging with the ends of the oars and moving them vertically at the limits of the reciprocations of the frame, substantially as set forth.

5. In a propelling mechanism for operating row-boats, the combination, with a frame, of an upright secured to each end thereof, a bar secured to the uprights and extending longitudinally of the frame, guides and supports secured to the bar, a spring secured to each of the end supports for the bar, and two springs secured to each of the supports upon the bar, said springs being arranged in pairs, the free ends of the springs below the bar normally pressing upwardly and the ends of the springs above the bar normally pressing downwardly, and reciprocating oar-operating mechanism within the frame adapted to engage the inner ends of the oars and cause each of them to engage with one side of its respective guide when the carriage is moved in one direction and with the opposite side of the guide when moved in the opposite direction, substantially as set forth.

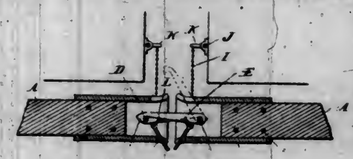
6. In a propelling mechanism for operating row-boats, the combination, with a frame having a longitudinal guide-supporting bar arranged longitudinally thereof, of a reciprocatory carriage upon the frame, comprising a longitudinal bar, a cross-bar, and cross-heads, said cross-bar and cross-heads being provided with grooves or recesses at their ends and centers which fit upon the frame, posts secured to the carriage and provided with means for engaging with the inner ends of the oars, and means for moving the carriage and causing said ends of the oars to engage with the guides upon the bar of the frame, substantially as set forth.

7. In a propelling mechanism for operating row-boats, the combination, with a frame provided with means for moving the inner ends of the oars vertically and a reciprocatory carriage mounted upon said frame for moving the oars forward and back, of a spiral spring secured to the carriage at one end and to the frame at the other, a lever at one end of the frame, and connecting-rods secured to the lever and to the carriage, substantially as set forth.

479,925. DOUBLE SALTS OF FLUORIDE OF ANTIMONY AND SULPHATE OF AMMONIA. CARL WACHENDORFF, Oestrich, Germany, assignor to Rudolph Koepp & Co., same place. Filed Nov. 23, 1891. Serial No. 412,839. (Specimens.) Patented in Germany Apr. 6, 1890, No. 57,615.

Claim.—As an article of manufacture, the double compound of fluoride of antimony and sulphate of ammonia having the formula $(SbFl_3)_2.H(NH_4)_2SO_4$, substantially as set forth.

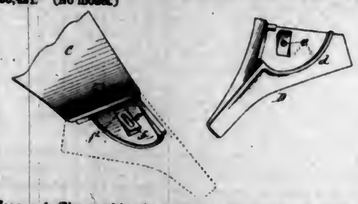
479,926. CAR-COUPLING. JAMES E. WALKER, Detroit, Mich., assignor of two-thirds to Lafayette Griffith and Charles F. Hunt, same place. Filed Mar. 18, 1892. Serial No. 425,488. (No model.)



Claim.—1. In a car coupler, the combination of the draw-bar, a box-shaped draw-head thereon, a transverse shaft journaled therein, a hook secured at one side of said shaft, the portion G of said shaft forming a hook-bar, and the laterally-extending lugs L, and means for disengaging said hooks, substantially as described.

2. In a car-coupler, the combination of the draw-bar, a box-shaped draw-head thereon, a transverse shaft D, journaled in the head and carrying the forwardly-extending hook, the draw-head provided with a notch N, into which the hook may be turned, and the link M, pivoted below the hook, and the notches O in the draw-head, in which said link is adapted to engage, substantially as described.

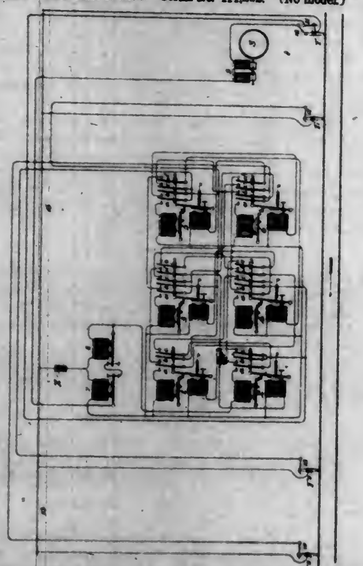
479,927. PLOW. FREDERICK WIARD, Batavia, N. Y., assignor of one-half to John W. Pratt, same place. Filed May 18, 1892. Serial No. 433,421. (No model.)



Claim.—1. The combination, with the plow-standard having an incline and an elongated opening arranged lengthwise of said incline, of a plow-point provided on its under side with an incline bearing against the incline of the standard, and a fastening-bolt passing through the point and the elongated opening of the standard, whereby the plow-point is drawn rearwardly upon tightening the bolt, substantially as set forth.

2. The combination, with the plow-standard having an inclined lug and an elongated opening arranged lengthwise in said lug, of a plow-point provided on its under side with an inclined lug bearing against the corresponding lug of the standard and having a bolt-hole extending through said lug and a fastening-bolt passing through said bolt-hole and the elongated opening of the standard, said inclined lugs being capable of lengthwise movement upon each other, substantially as set forth.

479,928. ELECTRIC SIGNALING APPARATUS. ADONIRAM J. WILSON, Port Chester, N. Y., assignor to the Hall Signal Company, of Maine. Filed Nov. 9, 1891. Serial No. 411,292. (No model.)



Claim.—1. In a permissive block-signal system, a signaling-circuit operating or controlling the operation of a signal guarding a given section of track, in combination with a series of branch circuits and a corresponding series of multiple-circuit instruments controlling said branch circuits, all arranged to be operated in succession in one direction by trains successively entering the guarded section of track, one set by the first train, a second set by the second train, a third set by the third train, and so on, and all arranged to be operated in reverse succession and direction by said trains on their subsequently successively leaving the guarded section of track, the last to be restored by the first train to leave, the next to the last to be restored by the next train to leave, and so forth, whereby a train entering the guarded section of track throws the signal to "danger" but does not clear said signal on leaving the guarded section if another train or trains have meantime entered the guarded section behind it and does clear said signal if such be not the case, substantially as and for the purposes set forth.

2. In a permissive block-signal system applied to overlapping blocks, a signaling-circuit operating or controlling the operation of a signal guarding a given section of track, consisting of one block and an overlap on the next succeeding block, in combination with a series of double sets of branch circuits and a series of double sets of multiple-circuit instruments controlling said branch circuits, all arranged to be operated in succession in one direction by trains entering the overlap and leaving the overlap in succession, and to be operated in reverse succession and direction by said trains on their subsequently and one after another entering the overlap of the next succeeding block and on their leaving the same, substantially as and for the purposes set forth.

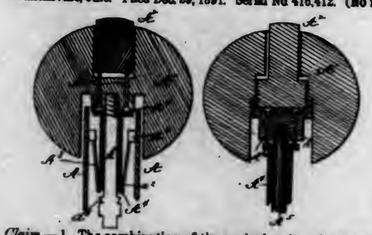
479,929. UMBRELLA-STICK. GEORGE C. WOLFE, Chippewa Falls, Wis., assignor of two-thirds to William H. Stafford, same place, and Thomas F. Frawley, Eau Claire, Wis. Filed Apr. 7, 1891. Serial No. 388,034. (No model.)



Claim.—1. The combination, in an umbrella, of an extensible stick or handle and the runner and the pin and the locking-ring to secure the parts of the handle in a projected position and fasten the runner on the stick, substantially as described.

2. In an umbrella, the combination, with the handle and the pin M, projected from the handle, of the runner having slot *m* and having the annular ribs I and having the pin *k* between the said ribs and to one side of the said slot *m*, and the locking-ring held on the runner between the ribs I and having a portion cut away at K to receive the pin *k* and having channel *l* on its inner side for the pin M to pass through, substantially as and for the purpose described.

479,930. WATCH-CASE PENDANT. EVERTON J. ARRICK, MacConnellsville, Ohio. Filed Dec. 29, 1891. Serial No. 416,412. (No model.)



Claim.—1. The combination of the conical spring, the crown having a stem provided with a cone, a spreader on said stem, and a push-button in the crown for operating said spreader.

2. The combination of a conical spring, the crown having a stem provided with a cone, a spreader on said stem, a push-button in the crown, and screws connecting the spreader and push-button.

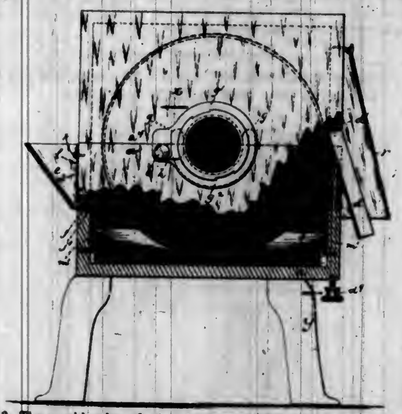
3. The combination of the crown having annular recesses, a push-button having a shoulder and located in the upper recesses, a plug for holding said push-button in place, a stem having a cone and secured to said plug, a conical spring, and a spreader operated by said push-button.

4. The combination of the crown having annular recesses, a push-button having a shoulder and located in the upper recesses, a plug for holding said push-button in place, a stem having a cone and secured to said plug, a conical spring, a spreader operated by said push-button, and screws connecting said spreader and push-button.

479,931. ICE-CREAM FREEZER. HENRY W. ATWATER, East Orange, N. J. Filed June 6, 1891. Serial No. 395,417. (No model.)

Claim.—1. The process herein described of manufacturing ice-cream, water-ices, and the like, which consists in freezing a coating upon the ice-cream or water-ice freezing devices prior to freezing said ice-cream or water-ice thereon, the said preliminary coating being of a harder texture than said ice-cream or water-ice, and then freezing said cream, water-ice, or similar product upon said preliminary coating, substantially as set forth.

2. The process herein described, which consists in freezing a layer of ice of one degree of hardness upon a suitable surface and then freezing upon the frozen ice a mixture which when congealed is softer than said ice and removable from said ice without materially affecting the same.



3. The combination of a freezing-cylinder *b*, adapted to contain a freezing mixture, a scraper, and a rod d^3, interposed between the scraper and freezing-surface and movable away from said freezing-surface with said scraper to force the scraper edge from contact with the cylinder, the opposite ends of said rod being free to be grasped by the hand to give the desired movement, substantially as set forth.

4. The combination, with the case *a* and freezing-cylinder, of a chute *d*, held into engagement with said cylinder by spring-power, and a rod d^3, having bearings at the opposite sides of said case and extending between the chute and cylinder into engagement with said chute and adapted to be grasped by the hands and moved against the power of the springs in said bearings to force the chute from scraping-contact with the cylinder, substantially as set forth.

5. In combination with the case, freezing-cylinder, and scraper, a rod d^3, having bearings in said case and engaging said scraper to move the latter from scraping-contact with the cylinder, said rod being longitudinally removable from its bearings, substantially as and for the purposes set forth.

6. In combination with a suitable case or inclosure having on opposite sides thereof slots admitting of a lateral movement of a rod therein and providing bearings to hold said rod, so that the same will hold the scraper away from contact with the freezing-cylinder, said cylinder, scraper, and rod, the last being arranged in said slots and both laterally and longitudinally movable therein, substantially as set forth.

7. In combination with the case *a*, having angular slots and bearings to hold the rod d^3 in position to hold the scraper away from the cylinder, and a scraper-holding rod arranged in said slots, substantially as set forth.

8. In combination with the freezing-cylinder *b*, a chute *d*, and its scraper d^2, carried by spring supports or bearings d^3, and adjusting-screws d^3, substantially as set forth.

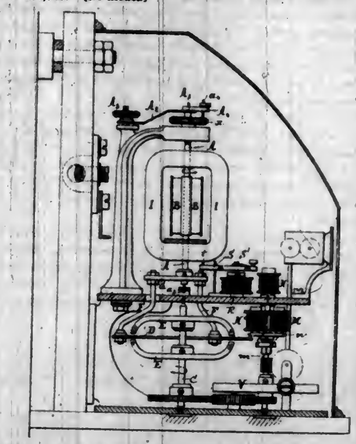
9. In an ice-cream freezer, the combination, with the case-sections a^3 a^4, of plates *g*, secured to one of said sections, providing journal-bearings for the freezing-cylinder and projecting into engagement with the other of said sections to prevent lateral displacement, substantially as set forth.

10. In an ice-cream freezer, the combination, with sections a^3 a^4 of the case *a*, having apertures for the freezing-cylinder journals, of said freezing-cylinder having said journals and outer plates g^1 g^2, secured to the said sections at said apertures, one of which overlaps the other, and set-screws for holding or binding the plates together, all arranged and operating substantially as set forth.

11. In an ice-cream freezer, the combination, with case-sections a^3 a^4, of cylinder *b*, adjustable chute and scraper *d*, pan *f*, and supply-funnel, and plates d^5, secured to one of said sections over holes therein and provided with slots to receive a separator-rod, and said rod adapted to separate and hold the scraper from the freezing-surface, substantially as set forth.

12. In an ice-cream freezer, a cylinder having shallow recesses at the opposite ends thereof, the bottoms of which are in vertical planes and serve as seats or bearings against which the journal-flanges are fastened, and journals having said flanges conforming to said recesses, so as to be centered thereby and fastened in said recesses, substantially as and for the purposes set forth.

479,932. ELECTRIC METER. LUCIEN V. BELLIER, Paris, France, assignor to the Compagnie Anonyme Continentale pour la Fabrication des Compteurs à Gaz et Autres Appareils. Filed Oct. 2, 1891. Serial No. 407,545. (No model.)



Claim.—1. An electric meter consisting of the combination of an electro-dynamometer, an electromotor, and a retarder consisting of two relatively-movable members, the one connected to the dynamometer to be oscillated thereby and the other connected to the motor to be rotated thereby and the two being relatively constructed to cause the rotative one to exert a propulsive effort upon the other, which is resisted by said dynamometer.

2. An electric meter consisting of the combination of an electro-dynamometer, an electromotor, a retarder consisting of two relatively-movable members, the one connected to the dynamometer to be oscillated thereby and the other connected to the motor to be rotated thereby, and a current regulator for controlling said motor operated by the dynamometer.

3. An electric meter consisting of the combination of an electro-dynamometer, an electromotor, and a magnetic retarder consisting of a movable magnet and a movable closed armature rotative relatively to the magnet in the field thereof, the one connected to the dynamometer to be oscillated thereby and the other connected to the motor to be rotated thereby and both influenced, but oppositely to each other, by the current to be measured.

4. An electric meter consisting of the combination of an electro-dynamometer, an electromotor, and a magnetic retarder consisting of a movable magnet and a movable closed armature rotative relatively to the magnet in the field thereof, the one connected to the dynamometer to be oscillated thereby and the other connected to the motor to be rotated thereby, and a current-regulator for controlling the speed of the motor operated by the dynamometer.

5. An electric meter consisting of the combination of an electro-dynamometer, an electromotor, and a magnetic retarder consisting of a movable magnet and a movable closed armature rotative relatively to the magnet in the field thereof, the one connected to the dynamometer to be oscillated thereby and the other connected to the motor to be rotated thereby, and a current-regulator for controlling the speed of the motor, operated by the dynamometer and consisting of a circuit-closer and a resistance, the former constructed to first introduce and then short-circuit the resistance when moved by an increase of current through the dynamometer and to first introduce the resistance and then break the circuit when moved by a decrease of current.

6. An electric meter consisting of the combination of an electro-dynamometer, an electromotor, and a magnetic retarder consisting of a movable magnet and a movable closed armature rotative relatively to the magnet in the field thereof, the one connected to the dynamometer to be oscillated thereby and the other connected to the motor to be rotated thereby, and a current-regulator for controlling the speed of the motor, operated by the dynamometer and consisting of a circuit-closer and two resistances, the circuit-closer constructed when moved by an increase of current through the dynamometer to first introduce one resistance in series with the motor, then both in

derivation, and finally to short-circuit both, and vice versa, when moved by a decrease of current.

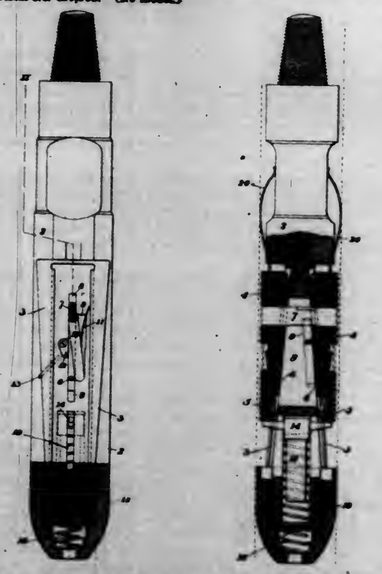
7. An electric motor consisting of the combination of an electro-dynamometer, an electromotor, and a magnetic retarder consisting of magnets carried by an axis rotated by the motor and a disk armature in the field of said magnets carried by an axis oscillated by the dynamometer, whereby the rotation of the magnets by the motor at varying speeds exerts a proportionally-varying effort against said armature, and hence against the dynamometer.

8. An electric meter consisting of the combination of an electro-dynamometer, an electromotor, and a magnetic retarder consisting of electro-magnets carried by an axis rotated by the motor and a disk armature in the field of said magnets carried by an axis oscillated by the dynamometer, said magnets having normally undersaturated cores and excited by a current varying proportionately to the variations in the current being measured.

9. The combination, with an electro-dynamometer and an electromotor, of a current-regulator for the latter, consisting of a movable part actuated by the former, two resistances, fixed contacts, contact-springs carried by said movable part in separate branch circuits, and circuit-breaking contacts between said movable part and dynamometer located in one of said branch circuits, substantially as and to the effect specified.

10. A speed indicator or regulator consisting of a rotative axis driven at or proportional to the speed to be measured, magnets carried thereby, a closed armature in the field thereof, and an oscillative axis carrying said armature and oscillating against a resisting force, whereby the degree of its oscillation is proportional to the speed of the magnets.

479,933. CASING-SPEAR. JOHN CARRUTHERS, Harmony, Pa., assignor of one-half to Myron J. Peters, same place. Filed Apr. 18, 1892. Serial No. 429,562. (No model.)



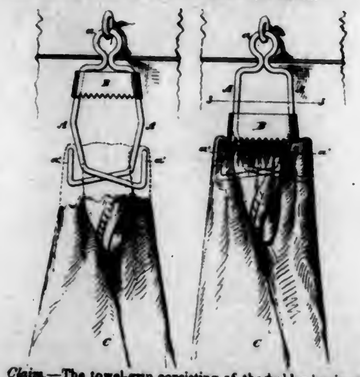
Claim.—1. In a casing-spear, the combination, with the tool-stock, of two contrarily-acting sets of wedge-slips, one set being mounted upon inclined guideways on the stock and the second set being mounted upon similar oppositely-inclined guideways upon the first set, and a pawl for locking the first set in retracted position, substantially as and for the purposes described.

2. In a casing-spear, the combination, with the tool-stock, of a set of wedge-slips mounted in inclined guideways thereon, a cross-bar connecting the slips and moving in a slot passing through the stock, a spring-pawl arranged to engage said cross-bar, and a second set of contrarily-acting wedge-slips mounted in reversely-inclined guideways upon the first set, substantially as and for the purposes described.

3. In a casing-spear, the combination, with the tool-stock, of a set of wedge-slips mounted in inclined guideways thereon, a cross-bar connecting the slips and moving in a slot passing through the stock, a spring-pawl arranged to engage said cross-bar, a second set of contrarily-acting wedge-slips mounted in reversely-inclined guideways upon the first set, a cross-head moving in a second slot passing through the stock, and a spiral spring surrounding the stem supporting said cross-head, substantially as and for the purposes described.

4. In a casing-spear, the combination, with the tool-stock, of a set of wedge-slips mounted in inclined guideways thereon, a cross-bar connecting the slips and moving in a slot passing through the stock, a spring-pawl arranged to engage said cross-bar, a trigger arranged to engage the spring-pawl, a hole extending from said trigger to the exterior of the casing, and a second set of contrarily-acting wedge-slips mounted in reversely-inclined guideways upon the first set, substantially as and for the purposes described.

479,934. TOWEL-GRIP. GEORGE S. CHAMBERLIN, New York, N. Y. Filed July 24, 1891. Serial No. 400,523. (No model.)



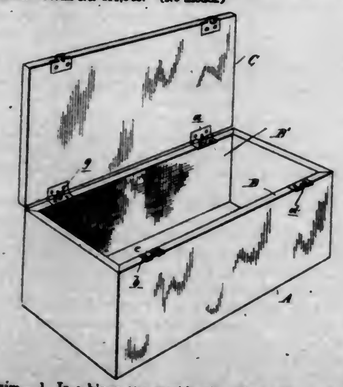
Claim.—The towel-grip consisting of the holder having the outwardly-bowed opposite spring sides whose lower free ends curve inward toward and across each other, combined with the slide closely encompassing and adapted to have a sliding motion on said spring sides, substantially as and for the purposes set forth.

479,935. SOLUTION OF MYRRH-RESIN AND MODE OF MAKING THE SAME. ADOLF FLÜCKE, Frankfort-on-the-Main, Germany. Filed May 13, 1892. Serial No. 432,860. (Specimens.) Patented in France Nov. 11, 1890, No. 208,436, and in England Apr. 13, 1891, No. 6,308.

Claim.—1. The process of manufacturing a solution of myrrh-resin in castor-oil, consisting in first dissolving myrrh in alcohol and castor-oil, next filtering the solution from the constituents of the myrrh, which are insoluble in alcohol, and finally driving off the alcohol, substantially as set forth.

2. As a new article of manufacture, a clear solution of myrrhic resin in castor-oil.

479,936. HINGE. LEBBEUS H. FOSTER, Adrian, Mich. Filed Nov. 9, 1891. Serial No. 411,349. (No model.)



Claim.—1. In a hinge, the combination of the plates *a b*, the pin *d* upon one plate, the hook *f* upon the other plate, the oscillating finger *g*, engaged in an aperture in the plate *a*, and the crank-arm *h* upon the opposite side of said plate for actuating said finger, substantially as described.

2. In a hinge, the combination, with the plates *a b*, of the sockets *c* on one plate, the pin *d*, engaging said sockets and spanning the cut-away portion *e* of said plate *b* of the inwardly-curved hook *f* on the plate *a*, the oppositely-extended finger *g*, pivoted in an aperture in said plate, the crank-arm *h* upon the opposite side of said plate, and the shoulder *j*, the parts arranged and operating substantially as and for the purpose described.

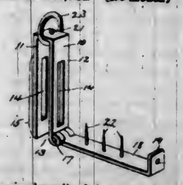
3. A hinge consisting of two members, one of which is provided with a pintle or pin and the other formed with an extended hook arranged to engage said pin and having a movable finger extending over the hook when the same is in engagement with the pin, substantially as described.

479,937. SPATULA. CLARENCE W. FOX, Saugus, Mass. Filed May 19, 1892. Serial No. 433,616. (No model.)



Claim.—The spatula herein described, composed of a blade of rubber having a broad thin steel core and a handle, substantially as described.

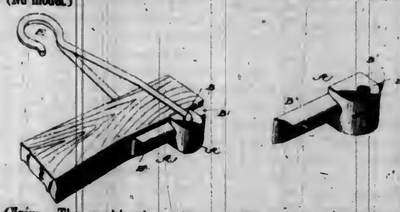
479,938. CLASP. JOSEPH L. FREDLIEF, Porterville, Cal. Filed Mar. 26, 1892. Serial No. 426,544. (No model.)



Claim.—1. The herein-described improved clasp, the same consisting of the inverted-U-shaped rigid metal body slotted transversely from its lower end to near its upper end, forming front and rear walls, the former having a slot in its front face, the swinging member hinged in the lower end of the slot of the front wall and provided on its inner face with needles inwardly disposed and adapted to enter cavities formed in the front face of the rear wall, and means for removably locking said swinging member in a closed position, substantially as specified.

2. The herein-described improved clasp having the inverted-U-shaped body forming the front and rear walls, each provided with a slot, a reinforcing or backing wall located in rear of the slot of the back wall and provided with cavities, and the inverted-L-shaped hinged member 18, pivoted, as at 17, to the lower end of the front wall and having the spurs 22 for engaging the cavities of the back wall, the upper angular end of the member having a perforation 20, adapted to spring over a locking-lug 21, located upon the upper end of the clasp body, substantially as specified.

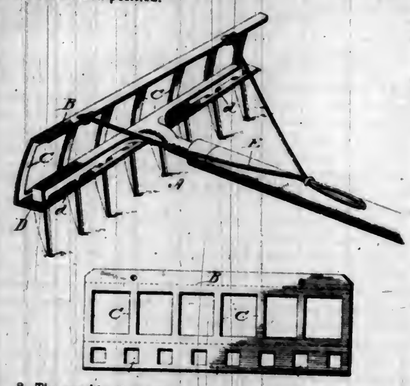
479,939. WHIFFLETREE-HOOK. ALFRED N. GREEN, Lewistown, Ohio. Filed Jan. 12, 1891. Renewed June 14, 1892. Serial No. 436,675. (No model.)



Claim.—The combination, with a whiffletree, of a plate secured thereto and in a longitudinal plane therewith, and a boss formed integral with the plate and projecting beyond the outer upper and lower sides thereof, for the purpose described, said boss being provided with an eye at right angles to the plate, and a link or hook of approximately triangular shape having its straight vertical side mounted loosely within the eye, substantially as and for the purpose set forth.

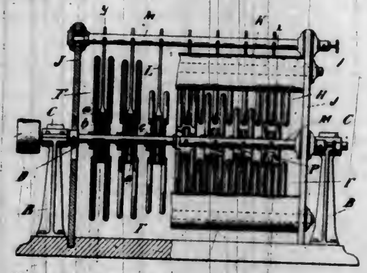
479,940. COMBINED GUARD AND CLEANER FOR LAWN-RAKES. JOHN H. HALDEMAN, Marietta, Pa. Filed Sept. 19, 1891. Serial No. 406,260. (No model.)

Claim.—1. The combination, with a rake, of a combined guard and cleaner consisting of the plate D, perforated at intervals to correspond with and receive the rake-teeth, the plate B, parallel with and connected at intervals by means of the strips C with the said plate D, the said strips C forming the guard, substantially as and for the purpose described, and a spring for holding and returning the attachment to a normal position.



2. The combination, with a rake, of the hereinbefore shown and described combined guard and rake, consisting of a single piece of sheet metal having a portion along its top and bottom edges bent to form the plates B and D and having the intermediate portion perforated at intervals to form the strips C, the plate D being perforated at intervals to correspond with and receive the rake-teeth, and a spring E, substantially as and for the purpose specified.

479,941. INFLUENCE-GENERATOR OF ELECTRICITY. WILLIAM HENRY, Detroit, Mich. Filed May 29, 1891. Serial No. 394,519. (No model.)



Claim.—1. In an electric generator, the combination of two groups of insulated metallic bodies, one forming a statically-electrified field of positive and negative inductors and the other group adapted to become polarized at intervals by moving in inductive relation to said inductors, and an exterior work-circuit having connecting devices electrically connecting the induced bodies receding from a negative inductor and approaching to a positive inductor, with the induced bodies receding from a positive inductor and approaching to a negative inductor during their polarizations, substantially as described.

2. In an electric generator, the combination of two groups of insulated metallic sectors, one statically electrified to form positive and negative inductors and the other adapted to move in inductive relation thereto, the sectors of the two groups being arranged in relatively different inductive proximity to each other, whereby polarization takes place in the induced sectors at different moments of time, substantially as described.

3. The combination, in an electric generator, of two groups of insulated metallic sectors arranged radially around a common axis, one adapted to form a statically-electrified field of positive and negative electrification and the other adapted to revolve within said field, the two groups of sectors being arranged in alternating planes parallel with each other and equidistant apart and with portions of the sectors of the two groups in relative different inductive proximity to each other, a commutator and brushes for each portion of moving sectors having the same relative inductive proximity to the inducing-sectors and forming the positive and negative poles thereof during their phases

of polarization by the inducing-sectors, and an exterior circuit electrically connecting all the brushes, substantially as described.

4. In an electrical generator, the combination of a group of insulated metallic sectors arranged radially around a central axis and adapted to form a stationary electrified field of positive and negative inductors, an armature arranged to revolve within said field and composed of a shaft, and a series of sector-wheels adjustably grouped upon said shaft and consisting of an insulating-hub and metallic sectors radially secured thereto in planes at right angles to the shaft, substantially as described.

5. In an electrical generator, the combination of a group of insulated metallic sectors arranged radially around a central axis and adapted to form a statically-electrified field of positive and negative inductors, an armature adapted to revolve within said field and composed of a group of like sectors secured to insulating-hubs upon the shaft of said armature and forming sector-wheels adapted to be independently adjusted upon said shaft, and commutators, one for each sector-wheel, formed upon the hub of each sector-wheel, substantially as described.

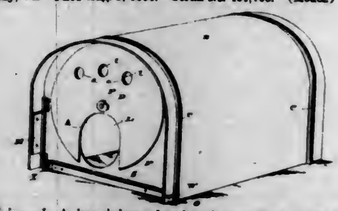
6. In an electrical generator, the combination of a group of stationary inducing-sectors of positive and negative statical electrification, a group of movable sectors secured to a revolving shaft in alternating planes between said stationary sectors, commutator and brushes forming the positive and negative poles of the movable sectors during their phases of polarization, an exterior work-circuit connecting such poles, and a governor for regulating the inductive influence of the inducing-sectors, substantially as described.

7. In an electrical generator, the combination of stationary inducing-sectors of positive and negative statical electrification, movable sectors secured by insulating hubs to a revolving shaft and forming sector-wheels spirally grouped upon said shaft in inductive relation between the stationary sectors, a commutator and brushes for each sector-wheel and forming the positive and negative poles thereof at coincident phases of polarization, an exterior work-circuit connecting such poles, and a governor for regulating the inductive influence of the stationary sectors, substantially as described.

8. In an electrical generator, the combination of stationary sectors of positive and negative statical electrification, movable sectors secured to a revolving shaft in inductive relation between the stationary sectors, connecting devices whereby the differently-induced movable sectors are electrically united during coincident phases of polarization, and connecting devices between a portion of the stationary and movable sectors for maintaining the electrification of the inducing-sectors, substantially as described.

9. In an electrical generator, the combination of the revolving shaft, the sector-wheels adjustably secured upon said shaft, a commutator for each sector-wheel, a pair of brushes for each commutator, an exterior work-circuit connecting all the brushes, stationary sectors radially and adjustably secured in inductive proximity between the sector-wheels, and a governor for regulating the inductive influence in the stationary sectors, said governor being connected into an exterior circuit, substantially as described.

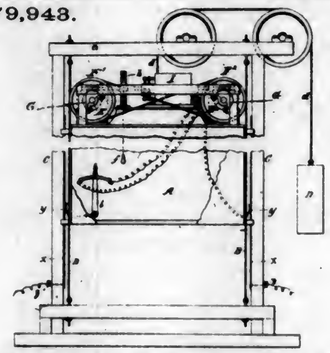
479,942. KNOCKDOWN HEN-HOVEL. JOHN M. HOLLADAY, Holladay, Va. Filed Aug. 5, 1891. Serial No. 401,763. (Model.)



Claim.—1. A knockdown hen-hovel comprising a flexible roof and end walls hinged each at one side to the body member, said roof extending over the side and upper edges of the end walls and forming the top and sides of the hen-hovel and the sides of said end members which are not hinged to the roof being detachably secured to the same, substantially as described.

2. A knockdown hen-hovel comprising a flexible roof provided with creases C and walls, each hinged at one side to the roof and provided with means for detachably securing its other side to the roof, the body member being extended over the end walls to form the top and sides of the hovel and having the edges of the end walls arranged in its creases, substantially as described.

479,943. ELEVATOR. LEWIS M. HOSEA, Cincinnati, Ohio. Filed Aug. 21, 1891. Serial No. 403,271. (No model.)



Claim.—1. In an elevator, the combination of the cab, two interconnected carrying-sheaves of equal diameter journaled thereon, one or more fixed suspension-ropes secured at the top of the runway and wound in reverse over the sheaves, thereby suspending the cab, and means for rotating said sheaves simultaneously in relatively-opposite directions, substantially as set forth.

2. In an elevator, the combination of suspension-ropes secured at opposite ends to the top and bottom of the runway, a cab provided with two equal sheaves journaled thereon to rotate in a common plane and engaging the suspension-ropes in opposite bights formed by reversed winding over the sheaves as a pair, right-and-left worm-gears, and a right-and-left worm-shaft connecting and driving said sheaves in relatively-opposite directions, substantially as set forth.

3. The combination, in an elevator, of one or more fixed suspension-ropes, a cab provided with carrying-sheaves suspending the cab in bights of the suspension-ropes, worm-wheels to operate the carrying-sheaves, worms engaging the worm-wheels, an electric motor upon the cab engaging and driving said worms, a moving connection for delivering the electric current to said motor, and controlling devices upon the cab for regulating the delivery and action of the current, substantially as set forth.

4. The combination, in an elevator or lift, of the cab or platform, the suspension-ropes, the carrying-sheaves, the right-and-left worm-wheels, the right-and-left worm-shaft, and the electric motor, substantially as set forth.

5. The combination, in an elevator, of the cab, the suspension-ropes, the carrying-sheaves, the worm-wheels, the electric motor, the motor shaft having screws engaging the worm-wheels, and the brake upon the motor-shaft, substantially as set forth.

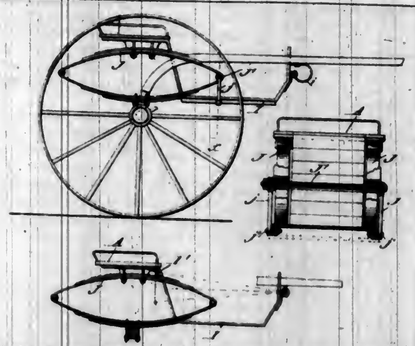
6. In an elevator of the character described, the combination of the cab, two equal interconnected sheaves arranged to rotate in a common plane at opposite sides upon the cab, each sheave having peripheral grooves, and two or more fixed suspension-ropes forming suspending-bights by winding each from above under its primary sheave, and thence over and around under the opposite sheave, and thence back over its primary sheave and downward, substantially as set forth.

7. In an elevator of the character indicated, the combination of two opposite parallel shafts journaled upon the cab, two sheaves upon each shaft of equal diameter each with each throughout and arranged in parallel planes in pairs of opposites, a worm-wheel upon each shaft between its sheaves, a cross-shaft having right-and-left worms, respectively, engaging the worm-gears, four suspending-ropes fixed in the elevator-runway in outer tangential relations with the sheaves, respectively, and engaging the same by reversed winding-bights, as shown, a rotating armature carried by said cross-shaft, field-magnets carried upon the cab-frame surrounding said armature and constituting with it an electric motor, and electrical connections with said motor for driving the same, substantially as set forth.

8. In an elevator of the character indicated, the combination of a cab provided with interconnected propelling-sheaves, two or more ropes secured at the top of the runway and winding over said sheaves, forming bights in which the cab is suspended and extended thence to the bottom of said runway, and take-up devices for said ropes at their top and bottom holdings for adjusting and maintaining the ropes in proper relation and taking up the slack, substantially as set forth.

479,944. ROAD-CART. SAMUEL B. IRWIN, West Hebron, N. Y. Filed Mar. 30, 1891. Serial No. 386,962. (No model.)

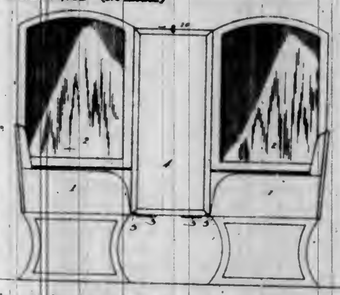
Claim.—1. In a road-cart or other vehicle, the combination of the body I, the seat A, consisting of a flat horizontal surface, the vehicle-axle, transverse elliptical springs J J, supported on said axle and sustaining thereon the seat, the hinges or joints I', connecting the seat



with the aforesaid body at a point near the front edge of the seat-surface and directly beneath said edge, and the springs i, which connect the forward end of the vehicle-body with the cross-bar of some other corresponding part of the thills, substantially as described.

2. In a road-cart or other vehicle, the combination of seat A, vehicle-body I, transverse elliptical springs J J, supported on said axle and sustaining thereon the seat, the pivoted links or connections j j, which connect the forward ends of the elliptical springs with the bottom edge of the body A, the hinges or joints I', connecting the seat directly with the body at a point near the front edge of the seat-surface and directly beneath said edge, and the yielding springs, which connect the forward end of the body I with the cross-bar or some other corresponding part of the thills, substantially as described.

479,945. CAR. HENRY M. JOHNS, Denver, Colo., assignor to the Jones Vestibule Sleeping Car Company, same place. Filed Mar. 30, 1891. Serial No. 387,044. (No model.)



Claim.—1. In a lower berth for sleeping-cars, the combination, with two seats facing each other, of a leaf or panel hinged to the wall of the car and adapted to be let down between the seats of the section, in which position it is supported by suitable stays, substantially as and for the purpose set forth.

2. An upper berth for sleeping-cars, consisting of a suitable body supported by the depending rods flexibly secured to the ceiling of the car and also to each end of the body of the berth, which is provided with grooves upon its upper surface to receive two of the rods when folded, or those located at one end of the berth, whereby the berth may be swung up against the ceiling of the car, covering the rods at one end which enter the grooves, the rods at the opposite end being exposed and lying to one side of the berth, substantially as described.

3. In a vestibule-car, the combination, with the platform-floor having a recess formed beneath the same, of a sliding leaf adapted to enter said recess, whereby it is concealed within the same, and capable of being drawn out, so as to cover the side steps leading to the platform, and suitable means for supporting said sliding leaf in the extended position, substantially as described.

479,946. VEHICLE-WHEEL. EMMIT G. LATTA, Friendship, N. Y. Filed Jan. 21, 1892. Serial No. 418,902. (No model.)

Claim.—1. The combination, with a wheel-rim having a concave or grooved face, of an inflatable tire consisting of an inner air-tube, a removable envelope inclosing the air-tube and having meeting edges located within the concave face of the wheel-rim, and a detachable lacing-cord connecting the meeting edges of the envelope and adapted to be removed from the openings in said meeting edges for obtaining access to the air-tube, the lacing-cord being arranged within the concave face of the rim and the tire being capable of removal from the rim without unlacing its envelope, substantially as set forth.

2. The combination, with the tire consisting of an air-tube and a surrounding envelope having its meeting edges separably connected, of a supporting-rim provided in its face with a circumferential groove or depression which receives the meeting edges of the envelopes, substantially as set forth.



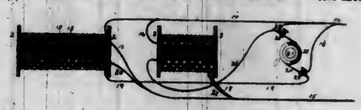
3. A wheel-rim having a concave face and composed of a strip of sheet metal having its lateral portions doubled inwardly toward its concave face, the inner edges of such doubled portions being flattened against the central portion of the concave rim-face, rendering the center of the rim solid, while the outer edges of such doubled portions are rounded and separated from the inner thickness of the rim by an intervening space, substantially as set forth.

479,947. HARNESS-SUPPORT. JOHN LEININGER, Canton, Ohio. Filed Oct. 17, 1891. Serial No. 409,063. (No model.)



Claim.—In a harness-support, the combination of the head B, provided with the ledge or stop *a'*, the hook C, provided with the extended arm D, pivotally attached to said head, the apertures *b* and *b'*, the detachable pin E, and means for supporting said head, substantially as and for the purpose set forth.

479,948. RECIPROCATING ELECTRIC DRILL. FRANK F. LOOMIS, Akron, Ohio. Filed Apr. 11, 1891. Serial No. 388,587. (No model.)



Claim.—1. In an electric reciprocating drill of the class designated, the combination, with two duplex-wound solenoids arranged in alignment, one wire of each connected with the direct and return circuit of a dynamo and the second wires of each connected with branches from said direct and return currents, of a circuit-breaker interposed in said branch direct current and arranged to alternately connect said second wires therewith, substantially as shown and described.

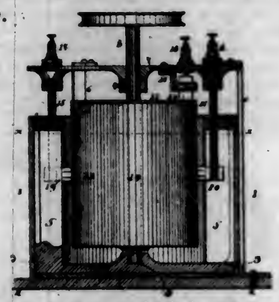
2. In a reciprocating drill of the class designated, the combination, with a duplex-wound solenoid having one wire connected with the direct and return current of a dynamo and the other wire connected with a branch direct and return current and a circuit-breaker interposed in said branch direct current and arranged to intermittently break and close the circuit, of an oppositely-disposed solenoid connected with said direct and return currents and adjusted to overcome the attraction of the duplex-wound solenoid, reduced by the current in one wire thereof, substantially as shown and described.

479,949. ELECTRIC SWITCH. FRANK F. LOOMIS, Akron, Ohio. Filed July 31, 1891. Serial No. 401,336. (No model.)

Claim.—1. In a revolving electric switch, a tank and a revolving non-conducting cylinder mounted therein and partially covered with a conducting-plate, and brushes arranged to rest on said cylinder, combined with an acid-metallic solution, substantially as shown and described, and for the purpose specified.

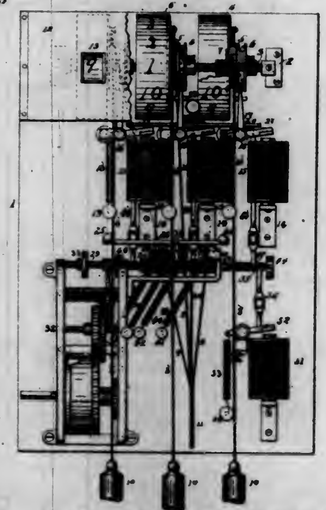
2. In a revolving electric switch, a tank and a non-conducting cylinder partially covered with conducting material, combined with oppositely-disposed brushes arranged to alternately engage said con-

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ducting material, and a brush arranged to be in constant connection with said conducting material, and an acid-metallic solution in said tank, substantially as shown and described, and for the purpose specified.

479,950. FIRE-ALARM-TELEGRAPH INDICATOR. FRANK F. LOOSER, Akron, Ohio. Filed Dec. 1, 1891. Serial No. 413,651. (No model.)



Claim.—1. In a fire-alarm indicator to be operated by the opening and closing of the circuit from a fire-alarm box, the combination, with indicating-wheels normally forced to revolve to present successive numbers and to be successively operated and a like number of electro-magnets having armatures arranged to operate escapement-wheels to permit a partial revolution of one of said indicating-wheels at each closing of the circuit, of a like number of studs electrically interposed one between one end of the main line and the first magnet and the others between the first and second and the second and third magnets, and a like number of contact-plates electrically interposed between the said magnets, the last connecting with the opposite end of the main line, and vibrating blades connected with said studs and arranged to successively engage said contact-plates, substantially as shown, and for the purpose specified.

2. The combination, with the studs 35, contact-plates 28, and vibrating blades 37, of the insulated sleeve having screw-threads 31, and intermediate spaces and a motor for driving said sleeve, substantially as shown and described, and for the purpose specified.

3. The combination, with the studs 35, contact-plates 28, and vibrating blades 37, normally drawn in one direction by the spring 40, of the rocking arms 50, arranged to be operated by the armatures 16, and rods 48 to raise said blades from the screw-threads as the circuit is broken, substantially as shown and described.

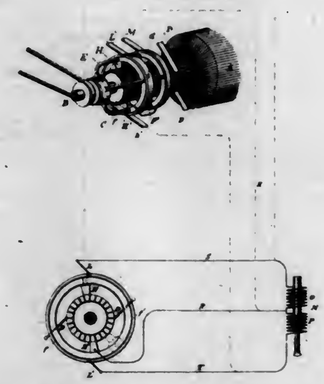
4. The combination, with escapement-actuating magnets arranged to be successively placed in circuit, and vibrating blades, and contact-plates arranged to successively place them in circuit, and guide-screws, of the rocking bar arranged to simultaneously raise said vibrating blades from the guide-screws, substantially as shown and described, and for the purpose specified.

5. The combination, with the escapement-actuating magnets and their armatures, and the vibrating blades, and guide-screws, and the contact-plates, of the loosely-mounted sleeves severally united with said armatures by connecting-rods and provided with crank-arms to raise said blades to restore them to their normal position, substantially as shown and described.

6. The combination, with the escapement-actuating magnets and their armatures, and the vibrating blades, and guide-screws, and contact-plates, and a driving-train, of a separate electro-magnet provided with an armature to release the driving-train to operate said guide-screws when placed in circuit, substantially as shown and described.

7. In an apparatus for placing successively in circuit electro-magnets to operate escapement mechanism for indicating-wheels in a fire-alarm indicator, the combination, with a motor, of a series of vibrating blades and contact-plates to create short circuits about said magnets, and a separate electro-magnet to operate releasing mechanism, and a non-conducting sleeve arranged to be operated by said motor and provided with screw-threads and intermediate spaces for said vibrating blades and having a separate screw-thread and a vibrating blade arranged to run therein, the last-mentioned blade and screw-thread being provided with pins to engage and stop said mechanism when the alarm has been given.

479,951. PULSATING-CURRENT GENERATOR. HARRY H. MARVIN, Schenectady, N. Y. Filed Dec. 3, 1891. Serial No. 413,885. (No model.)



Claim.—1. The combination, with the commutator of a continuous-current armature, of bearing blocks or brushes capable of rotating about the commutator and means for establishing connection alternately between said brushes and the two coils or circuits of a drill or drill system, as set forth.

2. The combination, with the commutator of a continuous-current armature, of two rotary brushes, contact-terminals in electrical connection with the two rotary brushes, respectively, and collecting-brushes adapted for connection with the conductors of two drill-circuits and taking the currents from the said terminals alternately, as herein set forth.

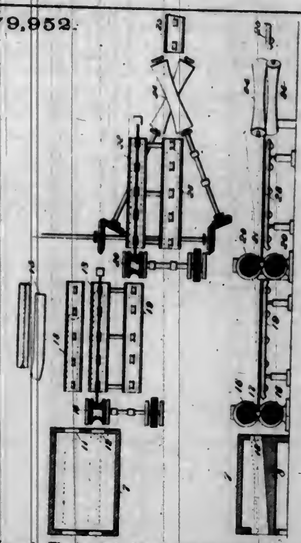
3. The combination, with the commutator of a continuous-current armature, of rotating brushes and means for connecting the same alternately with two working circuits, said brushes being capable of adjustment or varying angular displacement, as and for the purposes set forth.

4. The combination, with the commutator of a continuous-current armature, of an independently-rotable frame or structure surrounding the commutator, brushes carried thereby and bearing on the commutator, a metallic continuous ring and a metallic segment on the frame, to which the said brushes are respectively connected, a single brush bearing on the continuous ring, and two brushes bearing alternately on the half-ring, the said brushes forming the terminals of two working circuits, as herein described.

5. The combination, with the rotating commutator of a continuous-current armature, of rotating collecting-brushes connected or adapted for connection with a working or translating device, said brushes being capable of adjustment or varying angular displacement with respect to each other and the line of commutation, as and for the purpose set forth.

479,952. PROCESS OF MAKING METAL PIPES OR TUBES. WILLIAM S. MCMANUS, South Chester, assignor to Joseph D. Potts, trustee, Philadelphia, Pa. Filed Feb. 5, 1891. Serial No. 380,374. (No specimens.)

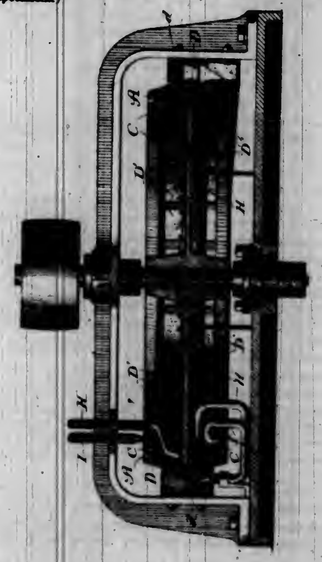
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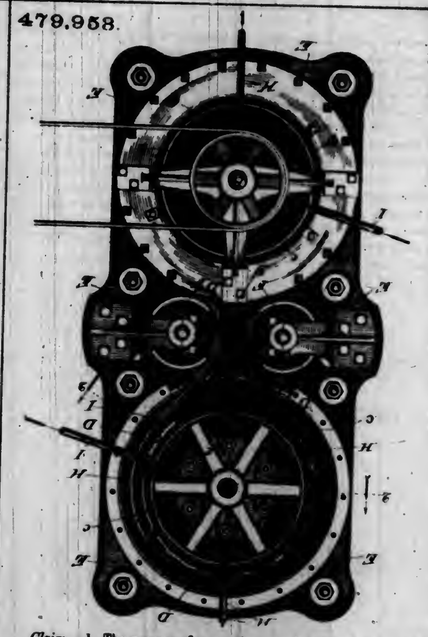
Claim.—1. The hereinbefore-described method of welding metallic tubes and pipes, which consists in the following continuous operation, to wit: first, introducing the heated skelp into the end of the welding-furnace adjacent to the welding-rolls, whereby the end of the skelp which is to first enter the rolls is preserved in better condition to undergo the subsequent steps of the operation; second, passing it at a welding heat in a reverse direction from the furnace to and over a ball and through welding-rolls, and, third, passing it from these rolls having elliptical passes at a lower heat, but without reheating, to and over a ball and through rolls having cylindrical passes.

2. In the art of welding metallic tubes and pipes, the improvement which consists in passing a heated skelp at a welding heat over a ball and through rolls having elliptical passes and then passing it from these rolls at a lower heat, but without reheating, to and over a ball and through rolls having cylindrical passes.

479,953. PROCESS OF SEPARATING POWDERED OR FINELY-DIVIDED PARTICLES. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,683. (No specimens.)



479,953.



Claim.—1. The process of separating powdered or finely-divided particles containing mineral-bearing substances of different degrees of specific gravity, which consists in depositing the material to be separated on the separating-surface of a traveling belt and first subjecting them to the action of centrifugal force in a direction toward the separating-surface of the belt and afterward subjecting the particles adhering to the belt to the action of centrifugal force in an opposite direction to throw them off from the separating surface, substantially as described.

2. The process of separating powdered or finely-divided particles containing mineral-bearing substances of different degrees of specific gravity, which consists in depositing the particles of material to be treated on the surface of a belt where it is traveling in a circular direction and carrying the particles which adhere to the belt to a point where it ceases to travel in a circular course, where they are thrown off by the reversal of the direction of action of the centrifugal force, substantially as described.

3. The process of separating powdered or finely-divided particles containing mineral-bearing substances of different degrees of specific gravity, which consists in causing the lighter particles to be carried by the action of centrifugal force across the surface of a belt where it is traveling in a circular direction to a point of discharge and carrying the heavier particles on the belt to a point where it ceases to travel in a circular course, where they are moved, substantially as described.

479,954. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,684. (No model.)

Claim.—1. In centrifugal ore-separators, the combination of rotatable pulleys and a belt provided with a separating-surface and traveling around such pulleys during a portion of its course and at a tangent to a circle in another portion of its course, substantially as described.

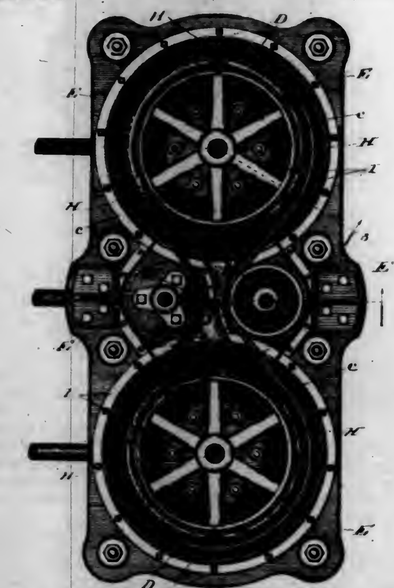
2. In centrifugal ore-separators, the combination of rotatable pulleys and a belt provided with a separating-surface and traveling around such pulleys in a circle during a portion of its course and at a tangent to a circle in another portion of its course, substantially as described.

3. In centrifugal ore-separators, the combination of rotatable pulleys, a belt provided with a separating-surface and traveling around such pulley during a portion of its course and at a tangent to a circle in another portion of its course, a material-supply pipe depositing material to be carried against the separating-surface of the belt at or near the point where it enters its circular course around the pulleys, and a water-pipe spraying water against the separating-surface of the belt while passing in its circular course, substantially as described.

4. In centrifugal ore-separators, the combination of rotatable pulleys, a belt provided with a separating-surface and traveling around

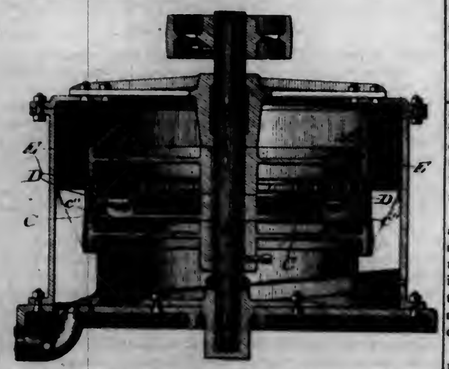
such pulleys during a portion of its course and at a tangent to a circle in another portion of its course, a material-supply pipe depositing the material to be carried against the separating-surface of the belt at or near the point where it enters its circular course around the pulleys, a water-pipe spraying water against the separating-surface of the belt while passing in its circular course, and means for detaching the particles adhering to the belt while passing through the tangential portion of its course, substantially as described.

5. In centrifugal ore-separators, the combination of rotatable pulleys, a belt provided with a separating-surface and traveling around such pulleys during a portion of its course and at a tangent to a circle in another portion of its course, and idlers abruptly changing the course of the belt from a tangential to a circular course to cause particles adhering to its separating-surface to be discharged, substantially as described.



6. In centrifugal ore-separators, a belt provided with a separating-surface, traveling a portion of its course in a circular direction, means for causing such travel of the belt, and means for supplying the separating-surface of the belt with the material to be separated, substantially as described.

479,955. CENTRIFUGAL ORE-SEPARATOR. ORRIN R. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,635. (No model.)

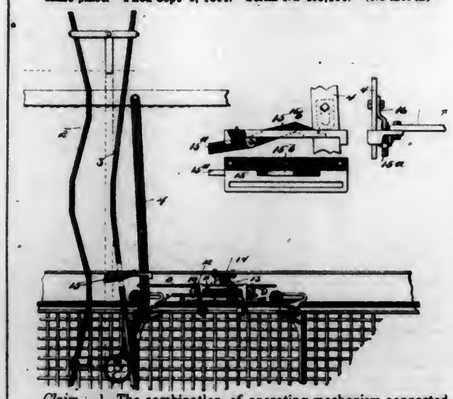


Claim.—1. In centrifugal ore-separators, the combination of rotatable pulleys and a belt engaging such pulleys at its upper and lower portions and provided with a separating-surface on its middle portion, substantially as described.

2. In centrifugal ore-separators, the combination of rotatable pulleys and a belt engaging said pulleys at its upper and lower portions and provided with a separating-surface on its middle portion and with one or more inwardly-projecting ribs or flanges, substantially as described.

3. In centrifugal ore-separators, the combination of rotatable pulleys and a belt engaging such pulleys at its upper and lower portions and provided with a separating-surface on its middle portion and holes or perforations along the edge of the separating-surface for the escape of the lighter particles of the material being treated, substantially as described.

479,956. DEVICE FOR OPERATING ELEVATOR-DOORS. HAROLD ROWETREE, Kansas City, Mo., assignor of one-half to J. B. Burdett, same place. Filed Sept. 9, 1891. Serial No. 405,180. (No model.)



Claim.—1. The combination of operating mechanism connected to the landing-doors of an elevator-well, control mechanism through which the stopping and starting of the car is effected, and a movable contact-piece upon the car, connected to said control mechanism and adapted to put said door-operating mechanism into action to open the door when the control mechanism is shifted to bring the car to rest opposite the landing, substantially as described.

2. The combination of mechanism attached to the landing-doors of an elevator-well, a movable contact-piece upon the car, adapted to put said door-operating mechanism into action, control mechanism capable of operation from the car to stop and start the said car, and connections between said movable contact-piece and said control mechanism, whereby said contact-piece is shifted to its operative position when the control mechanism is moved to bring the car to a state of rest, substantially as described.

3. The combination of an elevator landing-door, slides carried by said door and provided with fingers, a spring connected to said door through said slides, to the fingers of which the opposite ends of said spring are attached, and catches by which the door is locked in its opened and closed position, all combined substantially as described, and devices adapted to put the said spring in tension in one direction when the door is opened and in the other direction when the door is closed, substantially as described.

4. The combination, with an elevator-door-operating mechanism, of a framework attached to the door, carrying two slides having projections at their opposite ends, fingers attached to said slides, a spring attached at its opposite ends to said fingers, a swinging lever engaging with the projections on said slides, and guides upon the car for operating said swinging levers, whereby the spring is put in tension for opening the door as the car approaches the landing and is put in tension for closing the door as the car recedes therefrom, substantially as described.

5. The combination, with the landing door of an elevator-well, of a door-closing device consisting of a spring connected to the door, a swinging lever connected to said spring and having a projection, guides upon the car by which said swinging lever is moved to put said spring in tension, and a latch by which said door is locked in its open position and having a curved face coacting with the projection on said swinging lever-arm by which said door is released, substantially as described.

6. An improved door-operating mechanism for elevators, comprising a pivoted catch mounted adjacent to the elevator-door, and having an upwardly-curved face and a swinging lever mounted adjacent to the door, a spring connecting said lever thereto, an adjustable projection on said lever for engaging the curved face of the said catch and moving said catch into position to disengage the door when the latter is to be closed, and devices adapted to move said lever, whereby the spring is put in tension and the catch released, substantially as set forth.

7. The combination, with the landing-door of an elevator-well, of a door-opening mechanism consisting of a spring connected to the door, a swinging lever having connections to said spring, guides upon the car by which said swinging lever is operated, a catch by which said door is locked in its closed position, a movable contact-piece carried by the car, and connections between said movable contact-piece and the elevator-control devices by which the contact-piece is moved in position to act upon said catch when the control devices are shifted to arrest the movement of the car, substantially as described.

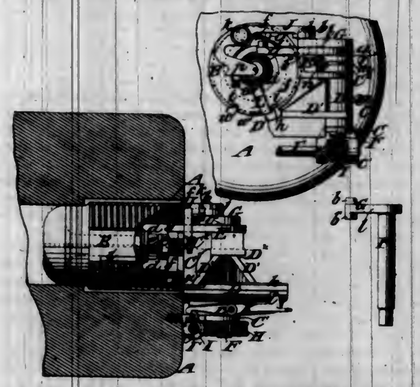
8. The combination, with the movable contact-piece carried by the elevator-cage, of a cable running over sheaves at the top and bottom of the well, one of the sheaves being supported in movable bearings and said cable connected with a lever upon the cage, connections between said lever and said contact-piece, an operating-rope for stopping and starting the cage, and connections between the operating-rope and the movable sheave, substantially as set forth.

9. The combination, with the door of an elevator-well, a locking device for said door, and a spring connected to the latter, of means for automatically putting the spring under tension as the cage approaches each landing, a movable contact-piece carried by the cage, the operating-rope, and connections between the latter and said contact-piece whereby the contact-piece is protected or retracted upon stopping or starting the cage, substantially as set forth.

10. An improved door-operating mechanism for elevators, &c., comprising a movable catch-actuating contact-piece carried by the car-body and a sliding rod operatively connected to said contact-piece, a pull-rope operating the control-valve, and connections whereby said rod may be actuated by the pull-rope to move the contact-piece out of contact with the catch, substantially as set forth.

11. In a device for releasing the doors of elevator-wells, a slide mounted in bearings on the elevator-car, a contact-piece having a straight central portion secured to the forward end of the same, and means for operating said slide, connected to the control devices governing the movements of the car, substantially as described.

479,957. BREECH-LOADING CANNON. SAMUEL SEABURY, U. S. Navy. Filed Feb. 12, 1892. Serial No. 421,337. (No model.)



Claim.—1. The combination, with a breech-loading cannon and a breech-block for the same which has both a rotary and a backward-and-forward movement, a swinging carrier for said breech-block, and a hinge-pin attached to the breech and constituting a pivot upon which the said carrier swings, of a crank on said pin and a bar or rod pivoted to the breech-block and having a hook or slotted yoke engaging with a wrist of said crank, substantially as and for the purpose herein set forth.

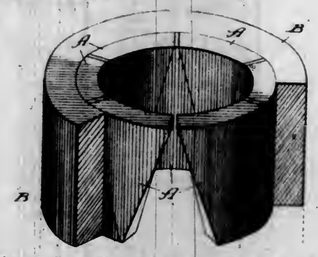
2. The combination, with a breech-loading cannon and a breech-block for the same which has both a rotary and a backward-and-forward movement, a swinging carrier for said breech-block, a swinging retractor for drawing the breech-block into the carrier and pushing it therefrom into the gun, and a hinge-pin attached to the breech and constituting a pivot on which said carrier and retractor swing independently of each other, of a bar or rod pivoted to the said breech-block and having a curved slotted yoke or hook and a crank on the hinge-pin having two wrists, one of which engages with the said slotted yoke or hook for turning the breech-block and the other engages with the retractor for withdrawing the breech-block from the gun, substantially as herein set forth.

3. The combination, with the breech-loading cannon and a breech-block which has both a rotary movement and a backward-and-forward movement in the breech thereof and in which there is a circumferential groove, of a breech-block retractor hinged to the breech and engaging in said groove in the breech-block, substantially as and for the purpose herein set forth.

4. The combination, with a breech-loading cannon and a breech-block having a turning movement therein, of a pin pivoted to the breech, a crank on said pin, and a bar or rod which is pivoted to the breech-block and connects the crank therewith and a portion of which covers and leaves uncovered the vent in the breech-block as the latter is turned in one direction or the other, substantially as herein set forth.

5. The combination, with the breech of a breech-loading cannon and a screw breech-block fitted to the same, of a locking-bolt fitted to slide in a substantially radial groove in the said block and engaging in a notch within the breech when the block is screwed up, substantially as herein specified.

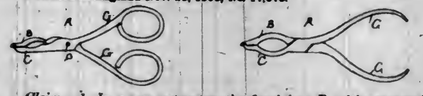
479,958. CHILL-RING. WILLIAM A. SPRING, Chicago, Ill., assignor to the Gates Iron Works, same place. Filed Nov. 20, 1891. Serial No. 412,506. (No model.)



Claim.—1. For chilling the interior of castings, a chilling-ring comprising a number of pointed sections with the point of one section at the butt of the adjacent section, substantially as described.

2. For chilling the interior of castings, a chilling-ring comprising a number of pointed sections having abutting edges radial to the axis of the ring arranged point to butt and movable endwise from each other under external pressure to diminish the diameter of the ring as the casting contracts on it, substantially as described.

479,959. PEN-EXTRACTOR. WILLIAM F. STANLEY, South Norwood, England. Filed Dec. 5, 1891. Serial No. 414,129. (No model.) Patented in England Nov. 23, 1888, No. 17,078.



Claim.—1. In a pen-extractor, the fixed jaw B, with concaved outer end, and the movable jaw C, with inverted-V-shaped end, both jaws pivoted together at D and forming the extended jaws beyond the said pivot-point D into scissor-handles, substantially as and for the purpose set forth.

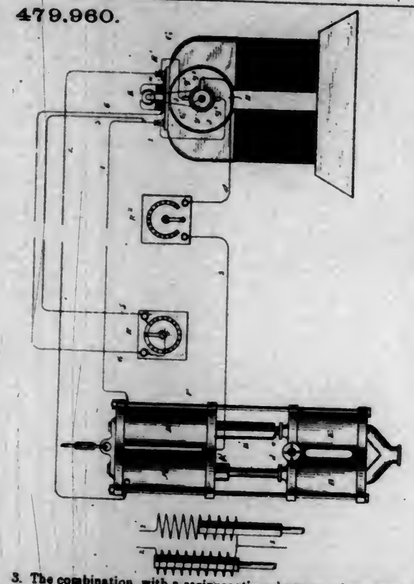
2. In a scissor-shaped pen-extractor, the fixed jaw B, with concaved outer end, and movable jaw C, with inverted-V-shaped end, both jaws pivoted at D, substantially as and for the purpose set forth.

479,960. CONTROLLING MECHANISM FOR RECIPROCATING ELECTRIC ENGINES. CHARLES J. VAN DEPOELE, Lynn; C. A. Coffin and Albert Wahl, executors of said Van Depoele, deceased, assignors to the Thomson-Houston Electric Company, Boston, Mass. Filed Dec. 31, 1889. Serial No. 335,531. (No model.)

Claim.—1. The combination, with a reciprocating electric engine comprising a magnetic piston and motor-coils for imparting motion thereto, of a circuit supplying alternating currents to said coils and means located near the engine for regulating and controlling the current strength and also the rate of its alternations or phases in the motor-coils.

2. The combination, with a reciprocating electric engine comprising a magnetic piston and motor-coils, of a dynamo-electric machine and circuit extending therefrom for supplying currents to said coils in alternation and means for regulating and controlling the rate of such alternations irrespective of the rate of rotation of the armature of the dynamo-electric machine.

479,960.



3. The combination, with a reciprocating electric engine comprising a magnetic piston and motor-coils, of a generator and a circuit for supplying currents to said coils in alternation and means connected with the source of said supply-currents for raising and lowering the rate at which they are supplied to the motor-coils of the engine irrespective of the rate of rotation of the generator-armature.

4. The combination, with a reciprocating electric engine comprising a magnetic piston and motor-coils, of a source of current, conductors extending between said source and the motor-coils of the engine, means for directing the supply-currents to the circuits of the motor-coils in alternation, and means located near the engine for raising or lowering the rate at which the supply-currents rise and fall in the respective coils.

5. The combination, with a reciprocating electric engine comprising motor-coils and a magnetic piston, of a source of current therefor, conductors extending from said source to the engine, mechanism located near the engine and connected with the source of current for distributing said current alternately in the motor-circuits, and manually-actuated means, also near the engine, for controlling the speed of the current-distributing mechanism.

6. The combination, with a reciprocating pumping-engine, of a reciprocating electro-magnetic engine having its piston connected to the piston of the pump, circuits extending from a suitable source of current to and including the motor-coils, and means located near the engine for reducing the speed of the electric engine when starting the pump and for regulating the flow of current according to the work.

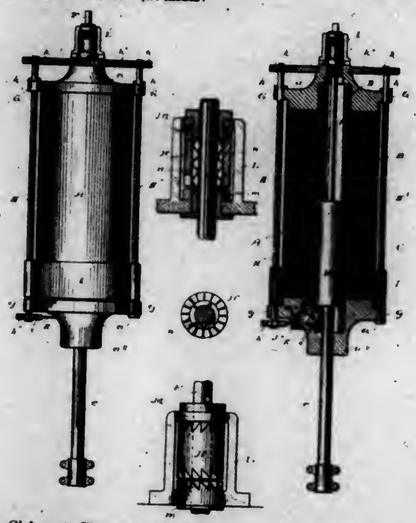
7. The combination, with a reciprocating pump, of a magnetic plunger connected to the piston thereof, a motor coil or coils for imparting reciprocating motion to the magnetic plunger and the pump-piston, a distant source of current and circuit connections extending therefrom to the motor coil or coils, and means adjacent to the pumping-engine for controlling the current-supply at the distant source.

8. The combination of a portable electrically-operated reciprocating pump, a distant source of current, electrical connections between the source and the motor-coils of the pumping-engine, and a portable current-controlling device adapted to be placed near the pumping-engine.

9. The combination of an electrically-operated reciprocating pump, a source of rising-and-falling currents connected by circuits to the motor-coils of the pump, and means for varying the rise and fall and the amount of current supplied to the motor-coils irrespective of the rate of rotation of the armature supplying the currents at the source.

10. The combination, with a reciprocating electric engine comprising a magnetic piston and motor-coils adapted to be energized in alternation, of a source of current remote therefrom, supply-conductors extending from the source to the motor-coils of the engine, means connected with the source of current for directing the same alternately to the respective motor-coils, and means adjacent to the engine for controlling the current-distributing mechanism at the distant source of supply current.

479,961. FEED MECHANISM FOR ELECTRIC RECIPROCATING ENGINES. CHARLES J. VAN DEPOELE, Lynn; C. A. Coffin and Albert Wahl, executors of said Van Depoele, deceased, assignors to the Thomson-Houston Electric Company, Boston, Mass. Filed May 22, 1890. Serial No. 352,718. (No model.)



Claim.—1. The combination, in a reciprocating engine, of a cylinder having heads and a reciprocating piston having a tool-holding extension at one end and grooved or splined extension at the other, a fixed support through which the cylinder is movable, two feed-screws on opposite sides of the engine, said screws being sustained in the fixed support and engaging screw-threaded extensions upon the cylinder, a gear-wheel at one end of each feed-screw and an idler in mesh with both, a ratchet at the other end of one of the feed-screws, a movable trigger in the path of the piston, and a connection between the trigger and the ratchet, whereby the feed mechanism is operated by the movement of the plunger, and a rotating mechanism engaging the splined extension and actuated by the reciprocations of the plunger to impart rotary movement thereto at each stroke.

2. In a reciprocating engine, a tool-rotating mechanism comprising stationary face-ratchets, a reciprocating extension from the moving parts, and a double-ended ratchet in frictional engagement with the moving extension, but non-rotatable thereon, and arranged to be thereby moved into engagement with first one and then the other of the face-ratchets, one of said ratchets being displaced, whereby the return-stroke of the extension will move the double ratchet into engagement with the displaced face-ratchet and cause a partial rotation of the double ratchet and connected parts.

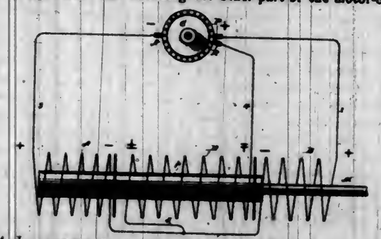
3. In a reciprocating engine, the combination, with an extension from the piston, of a pair of opposing face-ratchets, one of said ratchets being displaced and between which the said extension is reciprocated, a double-ended ratchet movable between the face-ratchets to engage first one and then the other, said double ratchet being non-rotatable upon the extension, and a frictional connection between the double ratchet and the said extension, whereby the double ratchet is moved into engagement with the face-ratchets alternately in accordance with the reciprocations of the extension.

479,962. RECIPROCATING ELECTRIC ENGINE. CHARLES J. VAN DEPOELE, Lynn; C. A. Coffin and Albert Wahl, executors of said Van Depoele, deceased, assignors to the Thomson-Houston Electric Company, Boston, Mass. Filed Sept. 19, 1890. Serial No. 365,546. (No model.)

Claim.—1. A reciprocating-electric-engine system comprising a plurality of motor-coils, a magnetic plunger adapted to be reciprocated therethrough, a generator having an armature of the continuous-current type and sectional commutator, means for dividing the current of the generator, two separate and independent circuits extending between the generator and engine and each including part of the coils of the engine, and means for directing the divided current into said circuits.

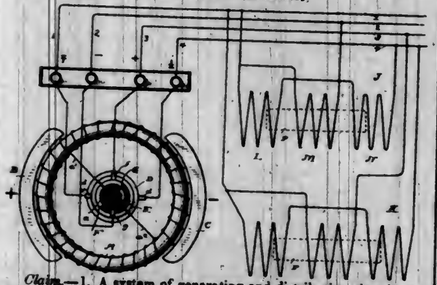
2. A reciprocating-electric-engine system comprising a plurality of motor-coils, and a magnetic plunger adapted to be reciprocated therethrough, a source of continuous current, means for dividing the said current into currents of continuous direction and of alternating polarity, separate circuits, each including parts of the motor-coils, and means for directing the current of one character to one of said circuits and the current of different character to the other circuit, whereby current of one character is supplied to one part of the motor-coils and current of the other character to the remaining motor-coils.

3. An electro-magnetic reciprocating-engine system comprising motor-coils, a magnetic plunger adapted to be reciprocated therethrough, a generator of the continuous-current type having main stationary commutator-brushes and a pair of auxiliary commutator-brushes movable toward and away from the main stationary brushes, a circuit extending from the stationary brushes and including part of the motor-coils, and a separate and independent circuit extending from the moving brushes and including the other part of the motor-coils.



4. In a system of reciprocating electric engines, an engine having coils operated by continuous currents and coils operated by alternating currents, an iron plunger magnetized by the alternating-current coil or coils and reciprocated by reaction upon the continuous-current coils, a generator arranged to give both continuous and alternating currents, and separate independent circuits between the continuous-current part of the generator and the continuous-current coils of the engine and between the alternating-current part of the generator and the alternating-current coils of the engine.

479,963. SYSTEM OF SUPPLYING CURRENTS TO RECIPROCATING ELECTRIC ENGINES. CHARLES J. VAN DEPOELE, Lynn; C. A. Coffin and Albert Wahl, executors of said Van Depoele, deceased, assignors to the Thomson-Houston Electric Company, Boston, Mass. Filed Apr. 11, 1891. Serial No. 388,565. (No model.)

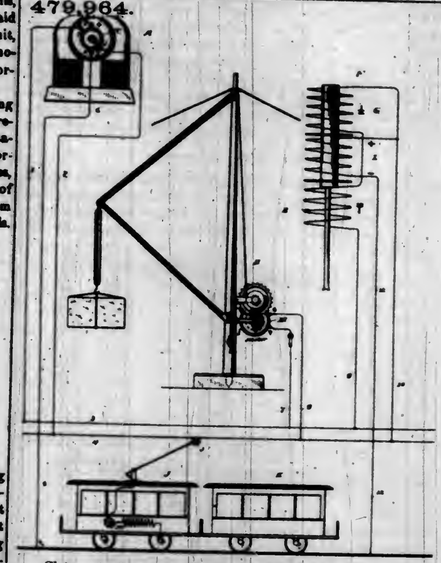


Claim.—1. A system of generating and distributing electric currents, comprising an armature rotating within a field of force and having a suitable winding provided with terminals connected to two continuous rings and also to two discontinuous rings, a working circuit connected with and supplied by the continuous rings with current of alternating direction, and a separate circuit connected with and supplied by the discontinuous rings with current of continuous direction, and a motor coil or coils connected separately in each circuit and supplied thereby with currents of different character.

2. A system of generating and distributing electric currents, comprising an armature having a suitable winding terminating in two terminals, each of which is connected both to a continuous ring and to a ring forming part of a circle, a reciprocating electric engine having motor-coils energized by currents of different character, connections between the continuous ring and part of the motor-coils, and connections between the discontinuous ring or rings and the remainder of the motor-coils, whereby currents of different character are supplied to the separate sets of motor-coils.

479,964. SYSTEM OF DISTRIBUTING ELECTRIC CURRENTS. CHARLES J. VAN DEPOELE, Lynn; C. A. Coffin and Albert Wahl, executors of said Van Depoele, deceased, assignors to the Thomson-Houston Electric Company, Boston, Mass. Filed May 20, 1891. Serial No. 393,474. (No model.)

479,964.



Claim.—1. A system of electrical distribution comprising a source of current of the continuous type, means located at the source for dividing the current into pulsating currents of continuous direction and pulsating currents of alternating direction, circuit-conductors extending from said source, and electric-motor translating devices adapted to be operated by currents of different character in circuit with and supplied with currents suitable to each directly from the source through part or all of the said conductors.

2. A system of electrical distribution comprising a source of current of the continuous type, means located at the source for dividing the current into pulsating currents of continuous direction and pulsating currents of alternating direction, comprising one stationary and two moving commutator-brushes upon the commutator thereof, circuit-conductors extending from said brushes, and electric-motor translating devices adapted to be operated by currents of different character in circuit with and supplied with currents suitable to each directly from the source through part or all of the said conductors.

3. A system of electrical distribution comprising a source of current of the continuous type, means for changing the continuous current into currents of different character, comprising stationary and moving commutator-brushes upon the commutator thereof, circuit-conductors extending from said brushes, and alternating-current, continuous-current, and combined-current translating devices in circuit with said conductors, substantially as described.

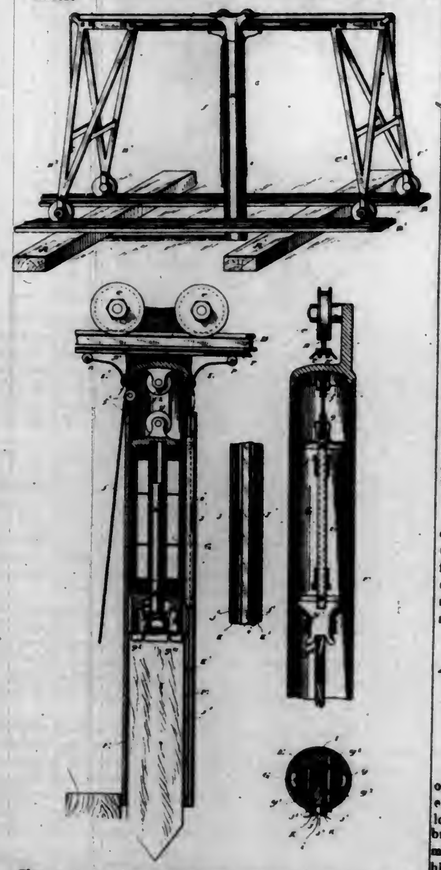
4. A system of distributing electrical currents, which comprises an electro-dynamic machine of the continuous-current type, stationary and moving brushes upon the commutator thereof, and working circuits extending from said brushes, and supplied, respectively, with pulsating currents of alternating and continuous direction, and translating devices of the continuous, alternating, and combined current types in circuit with and operated by the several conductors, substantially as described.

5. In a system of distributing electrical currents, which comprises a continuous-current electro-dynamic machine, stationary brushes upon the commutator thereof, an auxiliary set of commutator-brushes adapted to be moved upon said commutator toward and away from the stationary brushes, line conductors connected with and supplied by the moving brushes with alternating currents having a defined rise and fall, and a third conductor connected with one of the stationary brushes, alternating-current translating devices in circuit between the alternate-current conductors, continuous-current devices in circuit between the third conductor and one of the alternating conductors, and translating devices adapted to be energized by both alternating and direct currents placed in circuit with both sets of conductors, substantially as described.

6. A system of electrical distribution comprising a source of continuous current, stationary brushes upon the commutator thereof, moving brushes also upon said commutator, and a working circuit extending from said moving brushes and supplied thereby with alternating currents having a defined rise and fall, an electric-railway track connected to one of the stationary brushes and forming a third conductor.

a motor-car upon the track, provided with a continuous-current motor, traveling connections between one side of the alternating-current circuit and the track, whereby the car-motor is supplied with intermittent pulsating currents of continuous direction, stationary translating devices of the alternating-current type, and stationary translating devices of the alternate-current type in circuit with the alternate-current conductors, and a translating device or devices of the combined-current type in circuit with all of the conductors, substantially as described.

479,965. RECIPROCATING ELECTRIC PILE-DRIVER. CHARLES J. VAN DEPOELE, Lynn; C. A. Coffin and Albert Wahl, executors of said Van Depoele, deceased, assignors to the Thomson-Houston Electric Company, Boston, Mass. Filed May 23, 1891. Serial No. 393,848. (No model.)



Claim.—1. An electric pile-driver comprising a longitudinally-movable tubular casing, a reciprocating electric engine vertically movable within said casing, a frame supporting the casing in operative position, and electrical connections between the frame, the casing, and the reciprocating electric engine, substantially as described.

2. In an electric pile-driver, the combination of a movable track, a frame movable upon the track, a way upon the frame, a tubular casing suspended from the way, a reciprocating electric engine within the casing, insulated conductors carried by the way on the frame, traveling contacts between said conductors and insulated conductors carried by the casing, and traveling collector-brushes connected with the electric engine.

3. In an electric pile-driver, the combination, with a suitable frame including a horizontal way, of a tubular casing adapted to be moved longitudinally upon the way and formed with a vertical slit, said casing being adapted to receive and to guide the object to be driven, and a vertically-movable electric engine within the casing, substantially as described.

4. A reciprocating electric engine for pile-drivers, having an exterior casting provided with feet for resting upon the object to be driven, a loose drift also carried by the casting and having a foot-rest upon the object to be driven, and a reciprocating plunger within the casing arranged to strike the drift at each stroke, substantially as described.

5. A reciprocating electric engine for pile-drivers, having feet for resting upon the object to be driven, a loose drift also having a foot-rest upon the object to be driven, and a reciprocating plunger arranged to strike the drift at each stroke, a tubular metallic casing within which the engine and the object to be driven are sustained and guided, and means for raising the engine in the casing after the completion of each operation, substantially as described.

6. In an electric pile-driver, the combination, with a movable horizontal way, of a tubular casing or guide suspended from said way and formed with a vertical slit through which the object to be driven can be inserted, if desired, a reciprocating electric engine adapted to move vertically within the casing, bare conductors carried by the casing, traveling contacts carried by the engine engaging said conductors, and traveling connections between the casing and suitable conductors carried by the horizontal way substantially as described.

7. In an electric pile-driver, a vertical horizontally-movable tubular casing formed with a vertical slit, a suitable supporting-frame having a horizontal way, from which the casing is suspended, and a reciprocating electric engine arranged to move vertically within the casing and provided with a guide arranged to travel in the slit of the casing and provided with feet at its lower extremity adapted to rest upon and sustain the entire weight of the reciprocating engine upon the object to be driven.

8. The combination, with a suitable support, of a tubular casing having a vertical slit and adapted to contain and guide the object to be driven, a reciprocating electric engine adapted to move vertically within the casing and provided with feet for resting upon the object to be driven and having, also, a guide moving in the slit of the casing, and means whereby the engine may be raised and lowered within the casing.

9. In an electric pile-driver, the combination, with a vertical tubular casing adapted to receive and guide the object to be driven, of a reciprocating electric engine arranged within and adapted to move vertically within the casing, feet upon the engine resting and sustaining the weight thereof upon the object to be driven, and a vertically-movable part or drift resting upon the object to be driven and arranged in the path of the reciprocating plunger of the engine, whereby the recoil of the engine is rendered effective.

10. In an electric pile-driving machine, a reciprocating electric engine having a metallic exterior envelope, suspending devices at its upper end and feet at its lower end, a central aperture between the feet, a loose part or drift movable in the aperture and resting upon the object to be driven, a magnetic plunger for the engine, and a non-magnetic extension or hammer upon said plunger, said hammer adapted to strike the drift at each downward stroke.

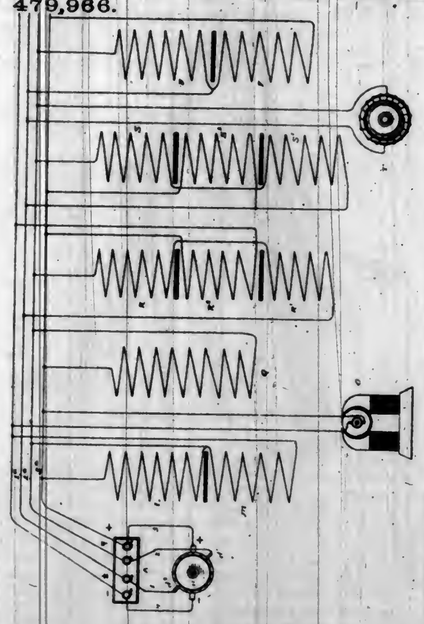
479,966. ELECTRICAL TRANSMISSION OF POWER. CHARLES J. VAN DEPOELE, Lynn; C. A. Coffin and Albert Wahl, executors of said Van Depoele, deceased, assignors to the Thomson-Houston Electric Company, Boston, Mass. Original application filed May 6, 1891, Serial No. 391,799. Divided and this application filed Sept. 24, 1891. Serial No. 406,741. (No model.)

Claim.—1. A system of electrical distribution comprising a source of supply-current of relatively high potential, a motor-armature, a generator-armature wound to produce currents of the desired potential below that of the supply, a sectional commutator, main stationary brushes and auxiliary moving brushes, and connections between said main and auxiliary brushes, and suitable working circuits whereby the high-tension supply-current is converted into currents of lower potential, part having a defined rise and fall and part of constant potential.

2. A system of electrical distribution comprising a motor-armature, a generator-armature, both of the continuous-current type and each provided with a sectional commutator, a common field-magnet, a source of supply of relatively high potential connected with the motor-armature, stationary and moving brushes on the secondary commutator, and working circuits of different character connected, respectively, with the stationary and with the moving brushes and supplied with current of different character and of modified potential.

3. A system of electrical distribution comprising a motor-armature, a generator-armature, a common field-magnet, a source of supply-current of relatively high potential connected with the motor-armature, means connected with the generator-armature for imparting a pulsating or rising-and-falling character to part of the current produced thereby, consisting of auxiliary moving commutator-brushes, a working circuit or circuits connected with the said auxiliary moving brushes, and a circuit or circuits connected with the stationary brushes and supplied with continuous current, also of modified potential.

479,966.



479,967. PLASTIC COMPOSITION. RAPHAEL G. DE VAMOS, Paris, France, assignor to La Subérine, same place. Filed Dec. 22, 1891. Serial No. 415,838. (No specimens.) Patented in France Jan. 22, 1889, No. 195,535, and Feb. 25, 1889, Nos. 196,284 and 196,285; in England July 14, 1890, No. 10,982, and in Belgium Jan. 24, 1891, No. 93,532.

Claim.—1. A composition consisting of from one to two volumes of fragments or powder of cork and two to one volumes of an agglutinant composed of plaster-of-paris, dextrine, and sesquioxide of iron, substantially as herein set forth.

2. A composition consisting of one to two volumes of fragments of powder of cork and two to one volumes of an agglutinant composed of plaster-of-paris, dextrine, sesquioxide of iron, and an oxychloride, such as the oxychloride of zinc, substantially as herein described.

479,968. DUPLICATING APPARATUS. HENRY T. C. WEBB, Philadelphia, Pa. Filed Oct. 27, 1890. Serial No. 369,506. (No model.)



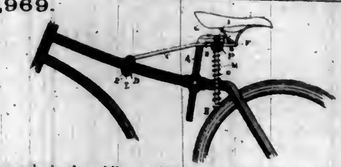
Claim.—In a duplicating apparatus, a bed, a two-part stencil-carrying frame having the pins *b*, and slotted standards having branch slots through which the pins pass to enable the frame to be removed and reversed, whereby impressions may be taken from either side of the stencil-sheet, substantially as herein described.

479,969. SADDLE FOR VELOCIPEDES. DAVID D. WRIGHT and WILLIAM R. BERRY, Peoria, Ill. Filed Feb. 11, 1892. Serial No. 421,105. (No model.)

Claim.—1. In a velocipede-saddle, the L-post A, secured in the frame of machine and having its upper horizontal portion split in halves and each having the semicircular indentations K made therein to form a circular bearing, said halves being designed to clamp together, for the purposes herein set forth and described.

2. In a velocipede-saddle, a rod C, having one end pivoted to the frame of machine and having a portion of its length flattened and having a slot cut in said flattened portion for the purposes described and carrying on its opposite free end the adjustable saddle B, substantially as herein set forth and described.

479,969.



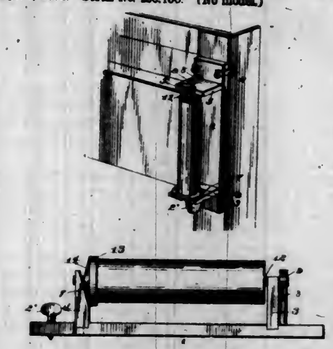
3. In a velocipede-saddle, a rod I, clamped between the two halves of the L-post A in the manner set forth and described and provided near either end thereof with a vertical rod M, said rods being provided with spiral springs O O, supporting the bracket or support P, said springs bearing on the headed ends of the rods M M, for the purposes herein set forth and described.

4. In a velocipede-saddle, the L-post A, secured in the frame of machine, with the upper horizontal portion split in halves and securing the rod I in the semicircular indentations K, the vertical rods secured in the ends of said rod I and passing through the bracket or support P, and the springs O, resting on the headed ends of said vertical rods M M and supporting the said bracket or support P, and the rod C, pivoted on the frame of machine, having a portion thereof flattened and provided with a slot for the purposes set forth, and said rod C resting in the supporter-bracket P and carrying on its free end the adjustable saddle B, substantially as herein set forth and described.

479,970. METHOD OF PRESERVING EGGS. EUGENE T. BURNETTE, Haywards, Cal. Filed June 9, 1892. Serial No. 436,147. (No specimens.)

Claim.—The method of preserving eggs, which consists in subjecting them to the action of the fumes or vapors arising from the combustion of a composition of matter consisting of chlorate of potash, sugar, and salicylic acid, substantially as herein described.

479,971. PAPER-HANGER. GEORGE CARR, Carrville, Iowa. Filed Apr. 7, 1892. Serial No. 428,150. (No model.)



Claim.—In a papering device of the character set forth, the combination of a frame or support having clamps at one end and a thumb-screw at the other, standards extending from said frame or support, one of which is provided with a slot and the other with an aperture, a roller removably engaging said standards, and a spring-catch extending outward adjacent to one of said standards and engaging one end of the roller, substantially as described.

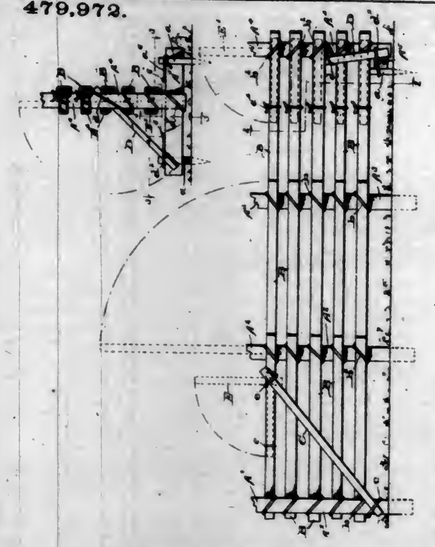
479,972. FENCE. HERMAN CARTER, Lilly Chapel, Ohio, assignor to Cyrus Crabbs, Toronto, Canada. Filed Aug. 29, 1889. Serial No. 322,386. (No model.)

Claim.—1. The combination of the posts, rails, fastening-wires passed around the rails and the posts, and the horizontal brace-arms having one end engaged with the fastening-wire and the other secured to the rails, substantially as set forth.

2. The combination, with the ends of fence-rails where the fence terminates and the end post by which said rails are supported, of wires b^3 and locking-levers E' and fasteners for said locking-levers, whereby the end of the fence is finished and held in place.

3. The combination, in a fence, of the posts, the rails secured thereto by wires passing around them and the posts, braces C, extending longitudinally of said fence, lateral braces D, and locking-levers E and E', all substantially as shown and described.

479,972.



479,973. DOOR FOR REFRIGERATORS. RODNEY G. CHASE, Elsdon, Ill. Filed Apr. 30, 1892. Serial No. 431,373. (No model.)



Claim.—1. The packing for a door, consisting of a rigid strip faced with a yielding material, springs at the back of said strip, said strip and springs being located in a recess at the meeting edges of the door or jamb, and a strip of canvas or like flexible material covering over said recess, substantially as described.

2. The packing for a door, consisting of a strip hinged at one edge and faced with a yielding material, springs at the back of said strip, said strip and springs being located in a recess at the meeting edges of the door or jamb, and a strip of canvas or like flexible material covering over said recess, substantially as described.

3. The packing for a door, consisting of a strip having a hinge consisting of a wire folded in to one edge and staples driven over said wire, said strip being faced with a yielding material, springs at the back of said strip, said strip and springs being located in a recess at the meeting edges of the door or jamb, and a strip of canvas or like flexible material covering over said recess, substantially as described.

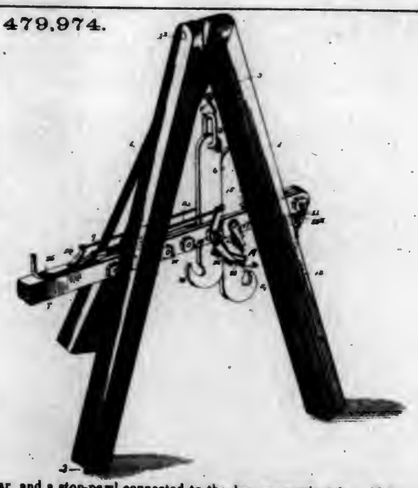
479,974. STUMP OR ROCK EXTRACTOR. OSCAR S. DISTRICK, Weatherly, Pa., assignor of one-half to Allen G Swartz, same place. Filed May 21, 1892. Serial No. 433,869. (No model.)

Claim.—1. In a stump or rock extractor, the combination of a support, a lever suspended from said support, a ratchet-bar freely movable through said lever, pull and stop pawls engaging the said ratchet-bar, arms controlling the engagement of said pawls with the said ratchet-bar, and a lever connected to said arms and adapted to be oscillated in a horizontal plane to alternately operate said arms, substantially as set forth.

2. In a stump or rock extractor, the combination of a suspended lever having a counterpoise weight secured thereto, a ratchet-bar freely movable through the said lever, pull and stop pawls engaging the said ratchet-bar, lifting-arms adapted to control the engagement of the said pawls, rods connected to said arms at their forward end, and a horizontally-disposed lever pivotally connected to the aforesaid lever and having the rear ends of said rods attached thereto, substantially as described.

3. In a stump or rock extractor, the combination of a lever freely suspended from a support and having a counterbalancing-weight attached thereto, a vertical bar to which said lever is pivotally connected and attached only at one point, a ratchet-bar freely movable through said lever, a pull-pawl connected to said lever and engaging said ratchet-bar, and a stop-pawl connected to the bar supporting the said lever, all arranged and operating substantially as described.

479,974.

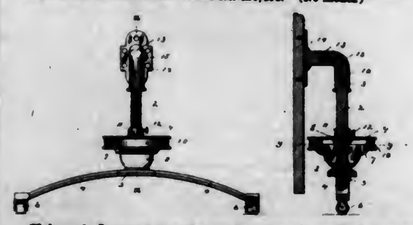


4. In a stump or rock extractor, the combination of the supporting-legs, a bar suspended from said legs, a lever pivotally connected to said bar, a ratchet-bar freely movable through said lever, the said bar and ratchet-bar having lower hooked ends, a pull-pawl connected to said lever and engaging said ratchet-bar, a stop-pawl connected to said bar, and also engaging the ratchet-bar, lifting-arms secured to said lever and controlling the engagement of the pawls with the said ratchet-bar, rods connected to said lifting-arms, a horizontally-disposed lever pivotally connected to the aforesaid lever to which said rods are also attached, and a counterbalancing-weight attached to the front end of the said lever, substantially as described.

479,975. ENVELOPE-SEAL. HENRY DENIS, New Orleans, La. Filed June 10, 1891. Serial No. 396,518. (No model.)

Claim.—A permanent fastening for envelopes and wrappers, consisting of an outer member constructed of thin metal in the form of a single disk or plate having peripheral prongs or clips and a stud formed with a shank or stem and a head or knob of plano-convex shape, and the inner member constructed of thin metal in the form of a single disk or plate having peripheral prongs or clips, a hole or orifice registering with the stud, slots or slits, and inbent flexible lips by which the head or knob of the stud is guided into position and held permanently from withdrawal, substantially as described.

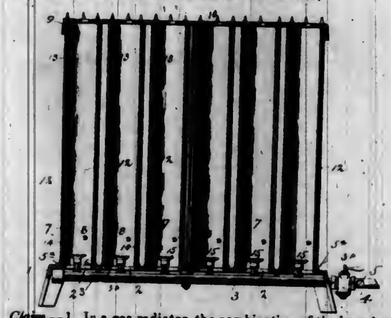
479,976. ANT OR INSECT GUARD. JONATHAN ELWOOD, Sanger, Cal. Filed Apr. 16, 1892. Serial No. 429,408. (No model.)



Claim.—1. In an ant-trap, the combination of a cup having a channel concentrically surrounding the upper edge thereof and a standard centrally arising from said cup and projecting above the same, a socket to engage the upper end of said standard, a flanged lid adjustably mounted on said standard, and arched arms secured to the bottom of said cup and having casters in the ends thereof, substantially as described.

2. In an ant-trap, the combination of a cup having its channel concentrically surrounding the upper edge thereof and a standard centrally rising from said cup and projecting above the same, the upper end of said standard being tapered, a socket secured to the device to which the attachment is applied and having a conical opening to receive the tapered end of said standard, a flanged lid movably secured on said standard, and arched arms connected to the lower part of said cup and having casters in the ends thereof, substantially as described.

479,977. GAS-RADIATOR. WILLIAM J. FRAHER, New York, N. Y. Filed Feb. 23, 1892. Serial No. 422,493. (No model.)



Claim.—1. In a gas-radiator, the combination of the base having a series of apertures, the gas-pipe connected with said base and located below the apertures, the vertical tubes aligned with said apertures and their lower ends resting on said base, the casings surrounding said tubes or pipes, having apertures near their upper and lower ends, the cap-plate having a series of openings resting upon the upper ends of said tubes and casings and connected with the base, and the burners connected with the gas-pipe and projecting up through the apertures in the base, substantially as described.

2. In a gas-radiator, the combination of the base having a series of apertures, the gas-pipe located below said base, the open-ended vertical pipes resting on said base, having apertures near their lower ends, the casings surrounding said pipes resting upon said base and provided with apertures near their upper and lower ends, the cap-plate resting upon said pipes and casings, provided with a series of openings and connected with the base, and the burners connected with the gas-pipe and projecting up through the apertures in the base, substantially as described.

3. In a gas-radiator, the combination of the base having apertures therein, the open-ended vertical pipes resting on said base, the casings surrounding said pipes also resting on said base and provided with apertures near their upper and lower ends and inwardly-projecting integral tongues near their upper ends, the cap-plate resting on said pipes and casings, provided with a series of apertures and connected with the base, and the gas-pipe located below the base and provided with a series of burners projecting up through the apertures in the base, substantially as described.

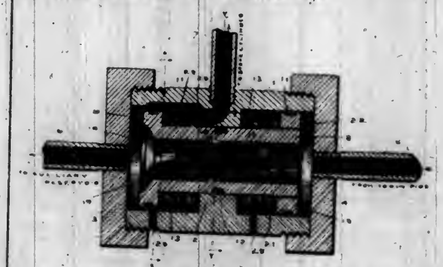
4. In a gas-radiator, the combination, with the base having a series of apertures therein and surrounding annular grooves and bosses, of the open-ended vertical pipes having their lower ends resting in said grooves, the casings surrounding said pipes, with their lower ends resting upon said bosses, the cap-plate having openings resting upon said pipes and casings and connected with the base, the gas-pipe located below said base, and the burners connected with said pipe, projecting up through the apertures in the base, substantially as described.

5. In a gas-radiator, the combination, with the base having a series of openings or apertures therein, the vertical pipes and casings having apertures seated upon said base, and the cap-plate seated upon said pipes and casings and connected with the base, of the gas-pipe located underneath the base, provided with a stop-cock and having a series of burners projecting up through the base, the jet-pipe parallel with said gas-pipe, and the jet-burners connected with the jet-pipe, substantially as described.

6. In a gas-radiator, the combination, with a base having apertures therein, the connected cap-plate, and the open-ended vertical tubes interposed between the cap-plate and base, of the gas-burners located in the lower ends of said pipes and connected with a gas-supply pipe, said burners consisting of the disk, the rim provided with peripheral perforations, the flaring bottom, and the pipe connecting it with the gas-pipe, substantially as described.

479,978. VALVE FOR AIR-BRAKES. WILLIAM M. GILMORE, Boggstown, Ind. Filed Oct. 30, 1891. Serial No. 410,368. (No model.)

Claim.—1. A regulating-valve for air-brake mechanism, comprising a cylinder, an inlet from the train-pipe, connected at one end thereof, a similar pipe connected at the opposite end, leading to the auxiliary air reservoir, a pipe leading to the brake-cylinder, a central rib in such main cylinder, a piston-valve moving therein having springs between the end flanges of the valve and on each side of the rib for holding the valve normally in an operative position, such main valve provided with a central bore, an auxiliary valve working in such bore and having openings to admit the passage of air through to the auxiliary reservoir, such cylinder also provided with ports for permitting the passage of air to the brake-cylinder, exhaust-ports for permitting the escape of the compressed air from such cylinder on one side of the main valve, and an air-vent opening into the cylinder on the train-pipe side thereof, substantially as shown and described.



2. A regulating-valve for air-brake mechanism, comprising a cylinder, its ends closed by caps, an inlet from the train-pipe passing through one cap into the cylinder, a similar pipe from an auxiliary reservoir passing through the opposite cap and connecting with the air-space in the cylinder, such cylinder also provided with an outlet-pipe leading to the brake-cylinder, exhaust-ports connected with the air-chamber at one end of the cylinder, an air-vent connecting with the chamber at the opposite end so as to facilitate the movement of the valve, a piston-valve provided with the usual packing moving in such cylinder and having springs mounted upon its valve-stem bearing against the flanges of the valve on one side and against a rib centrally formed in such cylinder on the other, whereby the valve is normally held in such position that the ports leading to the brake-cylinder and to the exhaust are kept closed, an auxiliary valve working through the main valve having holes bored centrally through it to admit the passage of air, such valve located in line with the openings to the train-pipe and auxiliary reservoir and having its seat in the flange of the main valve adjacent to the opening to the auxiliary reservoir, and a spring mounted on the valve-stem of such auxiliary valve for normally holding it to its seat, such auxiliary valve adapted to be opened by a preponderance of pressure in the train-pipe over that of the auxiliary reservoir and automatically closed when there is no such preponderance, both valves being shorter than the cylinder, whereby the excess of pressure on either side the main valve is adapted to operate the same, opening and closing the ports leading to the brake-cylinder, all combined substantially as shown and described.

3. A regulating-valve for air-brake mechanism, comprising a cylinder, its ends closed by suitable caps, an inlet from the train-pipe connected through one cap to an outlet-pipe to an auxiliary reservoir connected through the other cap, a piston-valve working in such cylinder normally held in position by the pressure of springs coiled upon its stem so as to close the exhaust and inlet ports to the brake-cylinder, such valve centrally bored, a smaller valve working in such bore, having holes to admit the passage of air through it to the auxiliary reservoir and normally held closed by the pressure of a spring coiled upon its stem, exhaust-ports leading from the chamber at one end of such cylinder, and an air-vent leading from the chamber at the opposite end thereof, in combination with suitable main and auxiliary air-reservoirs and a brake-cylinder, substantially as shown and described.

479,979. SPRINKLING APPARATUS. GEORGE S. GLENN, Nashville, Tenn. Filed Jan. 5, 1891. Serial No. 376,696. (No model.)

Claim.—1. In a sprinkling apparatus, the combination of a pipe arranged along the surface to be sprinkled, connections between said pipe and a source of water-supply, and a plurality of convex-faced sprinklers in said pipe projecting above the surface to be sprinkled and provided with outwardly-tapering openings upon their lower portions to throw the water downwardly and unperforated upon their upper portions, the two portions of the sprinkler having a hinged connection to each other, substantially as described.

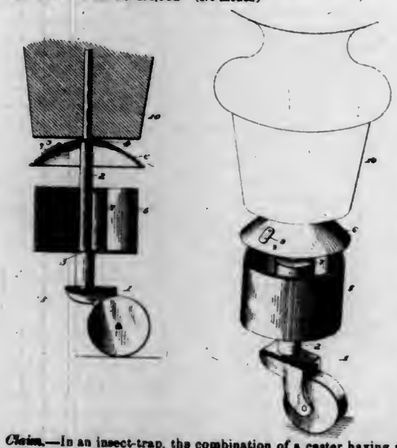
2. The combination, with pipe A, of the sprinkler F, connected to said pipe and inclined upwardly and toward the surface to be sprinkled, the lower portion of the face of said sprinkler being perforated and its upper portion unperforated, the two portions of the sprinkler having a hinged connection to each other, whereby access may be had to its interior, substantially as described.

479,979.



3. In a sprinkling apparatus, the combination of a sprinkler the face whereof is made in two parts having a hinged connection to each other, whereby the interior of the sprinkler may be exposed for cleaning, one of said parts being perforated and the other unperforated, substantially as described.

479,980. CASTER. WILLIAM GORDON, Stubbs, Tex. Filed Apr. 29, 1892. Serial No. 431,144. (No model.)



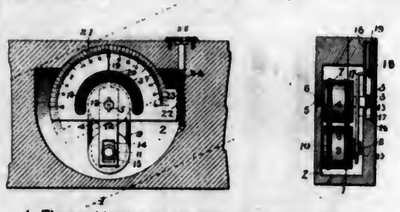
Claim.—In an insect-trap, the combination of a caster having an elongated stem provided with upper and lower annular supporting-shoulders, a poison-receptacle having a central opening in its bottom to receive the stem and provided with a central vertical tube having a top provided with an opening receiving the stem, said receptacle being supported by the lower shoulder, and a concavo-convex shield supported by the upper shoulder and arranged over the mouth of the receptacle and provided with a filling-orifice and having a pivoted cover to cover the same, substantially as described.

479,981. PLUMB-LEVEL. JAMES F. HALL, Kansas City, Mo., assignor of one-fourth to Thomas B. Buckner, same place. Filed Aug. 18, 1891. Serial No. 403,018. (No model.)

Claim.—1. The combination of the stock, the upper disk secured to the stock, the lower disk suspended from the upper disk, the dial-plate having a slot, and the link supported on the shaft, connected with the lower disk, and having an index-finger projecting through the slot, substantially as described.

2. The combination of the stock, the upper grooved disk, the lower grooved disk having an extension, the cords by which the lower disk is suspended from the upper disk, the dial-plate having a slot, and the link supported on the shaft, having a slot by which it is connected to the extension of the lower disk, and provided with an index-finger projecting through the slot of the dial-plate, substantially as described.

3. The combination of the stock 1, disk 4, secured rigidly to said stock, a movable disk in connection with said stationary disk, a link connecting said disks, an index-finger secured to said link, and a suitable scale secured to said stock, substantially as described, and for the purpose set forth.



4. The combination of the stock 1, stationary disk 4, having its periphery grooved, a movable disk 9, having its periphery grooved, a flexible support resting in said grooves and supporting disk 9, a link connecting said disks, an index-finger on said link, and a scale secured to said stock, substantially as described, and for the purpose set forth.

5. The combination of the stock 1, pivoted link 12, having its lower end weighted, an index-finger 19 on the upper end of said link, a dial-face 16, having an opening 18, and a scale 21, said dial-face being provided with grooves 22, with which a screw 24 engages for adjusting the same, substantially as described, and for the purpose set forth.

479,982. DEVICE FOR MEASURING SHOT. JOHN M. HEATH, Talbotton, Ga. Filed Apr. 23, 1892. Serial No. 430,351. (No model.)

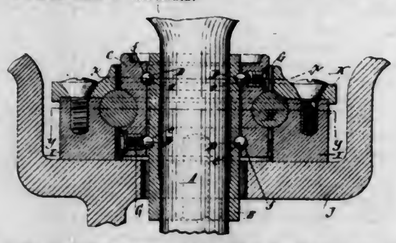


Claim.—1. A rotatable compartment-cylinder having radial projecting arms for rotating it, combined with a gravity locking device engaging any of said arms, and a top and bottom plate having openings, as set forth.

2. The combination, with the cylinder with its compartments, projections, and top and bottom plates with openings, of a bifurcated gravity locking device engaging any of said arms for said cylinder, as set forth.

3. The device described, consisting of the cylinder having compartments and radial projecting arms for revolving it and a top and bottom plate with openings arranged as described, and a pivoted weighted locking device having bifurated ends to receive any one of said projections, substantially as specified.

479,983. JOURNAL-BOX. JOHAN L. JÖNSSON, Stockholm, Sweden, assignor to the Aktiebolaget Separator, same place. Filed Nov. 23, 1891. Serial No. 412,767. (No model.)



Claim.—The combination, with the spindle, of a bushing surrounding the same, a sleeve surrounding the bushing, anti-friction balls interposed between the sleeve and the bushing, a fixed frame surrounding the sleeve, and an elastic support interposed between the sleeve and the frame, substantially as set forth.

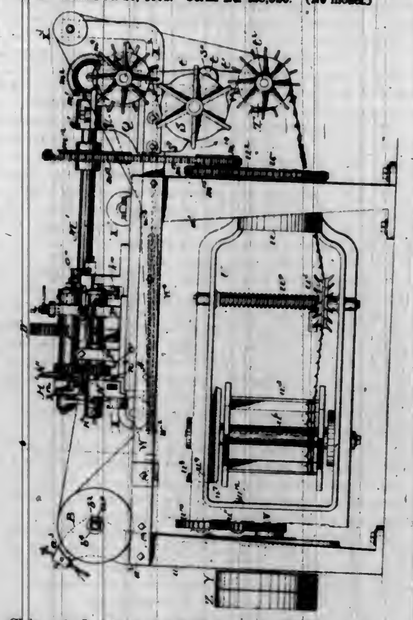
479,984. BALE-TIE. RAMON KILNER, Newburg, N. Y. Filed Feb. 10, 1892. Serial No. 420,996. (No model.)



Claim.—1. A wire bale-tie having a hooked end for engaging the other end of the tie and provided at such hooked end with an auxiliary catch or lock which is securely held by such hooked end.

2. The bale-tie A, having the end *a*, formed with a hook a^1 and provided with the auxiliary catch or lock consisting of a ring B, securely held by such hook, as set forth.

479,985. BARB-WIRE MACHINE. IRVING A. KILNER, Newburg, N. Y. Filed Feb. 29, 1892. Serial No. 423,220. (No model.)



Claim.—1. In a barb-wire machine, the combination of a reel at one end of the traverse of the main wire, a guide-wheel at the other end of such traverse, devices for placing barbs upon the main wire, located between such reel and guide-wheel, and means, such as described, for binding the guide-wheel resiliently against the main wire, whereby such main wire is kept at uniform tension and with a steady feed, as set forth.

2. In a barb-wire machine, the combination of a coiling-head provided with a coiling-pin and a passage for the wire to be barbed, of a barbing mechanism and a barb-pusher whereby when the barb is formed it is pushed along the line-wire out of the way of the coiling-pin, as set forth.

3. The coiling-head provided with the coiling-pin and the tubular guide provided with the tubular nipple or barb-pusher e^3, which projects from the coiling-head, as set forth.

4. The tubular guide and its tubular nipple or barb-pusher e^3, in combination with the collar G, the yoke H, and means, substantially as set forth, for operating said yoke.

5. The combination of the tubular guide E and its nipple or barb-pusher e^3 with the collar G, the yoke H, the fork h^7 of which yoke clasps the collar G, the bevel-wheel h^9, held by the yoke H, and the cam-wheel H', as set forth.

6. The combination of the tubular guide E and its tubular nipple e^3 with the collar G, having the groove g', the pivoted yoke H, having the fork h^7, which clasps the collar G in the groove g', and the double arm h^4, the bevel-wheel h^9 in such double arm h^4, the cam-wheel H', and the spring h^{10}, as set forth.

7. In a barb-wire machine, the combination of the tubular wire-guide E, the collar G, surrounding such guide, the standard f, placed in front of such guide and collar, and the adjustable thimble F, secured in such standard in line with the guide E, such guide having its front end e^3 fitting loosely in such thimble, as set forth.

8. The combination of the box C and the wheel D therein and provided with the recess d^3 and face-plate d^5 with the block c^2 and the coiling-pin D^2, projecting from the said block through the face plate, the tubular guide E, and the nipple or barb-pusher e^3, which latter projects through the block c^2 and the face-plate d^5, as set forth.

9. The combination of the box C and the wheel D therein, provided with the face-plate d^5, with the tubular guide E, with the wheel D, and the nipple or barb-pusher e^3, projecting from said wheel, as set forth.

10. The combination of the block K, having the knife k^2, and the lever L, pivoted thereon, carrying the knife l^2 and having the forked end l^3, with the cam-wheel M and the shaft M', as set forth.

11. In a barb-wire machine, the main-wire take-up, which consists of a continuously-driven rotating shaft provided with a crank-pin provided with a loosely-turning wheel, on which the wire bears during the entire rotation of the shaft, as set forth.

12. In a barb-wire machine, the combination of the mechanism for placing the barb upon the main wire and the mechanism for drawing forward such line-wire after it is barbed with a main-wire take-up interposed between the same, which consists in a shaft provided with a crank-pin at one end, on which the pressure of the main wire is taken during the entire rotation of the shaft, as set forth.

13. The combination of the disk m^3, having the pin r', the wheel R, loose on said pin, the shaft m^2, carrying said disk, the shaft M', and intermediate gearing between the two shafts, as set forth.

14. In a barb-wire machine, the combination of the reel, its operative mechanism, and a brake therefor with a wheel over which the main wire passes to the reel and intermediate mechanism between such wheel and brake, whereby such brake is automatically affected by the traverse of the wire over the wheel, as set forth.

15. The combination of the reel w^2, the reel and twister-frame supporting the same, the wheel V upon the stud of said frame, the intermediate gearing between the reel and the wheel V, a brake for said wheel V, a wheel over which the main wire passes to the reel, and intermediate mechanism between such wheel and brake, whereby such brake is automatically affected by the traverse of the wire over the wheel, as set forth.

16. The combination of the reel w^2 and the train of mechanism for operating the same, one member of which is provided with a brake, with the loose wheel T and its supporting-arm t', the last connected with said brake, as set forth.

17. The combination of the reel w^2 and its operating mechanism, one member of which is provided with a brake having the lever v^{10}, with the wheel T, its supporting-arm t', the rod W, connecting the said arm with the said handle, the nut w^3 on the rod, the lug w^5 on the machine-frame, and the spring w^4 on the rod W and bearing between the lug-nut w^3 and the lug w^5, as set forth.

18. The combination of the reel w^2 and its operating mechanism, one member of which is provided with a brake, with the wheel T and its supporting-arm t', connected with such brake, the positively-driven wheel S, and the main-wire take-up R, as set forth.

479,986. KNITTING-MACHINE. ROBERT W. KING, Montreal, Canada. Filed Oct. 20, 1891. Serial No. 409,306. (No model.)

Claim.—1. In a knitting-machine, a conical needle-bed having an annular projection or rim extended around its surface near its smaller end to support a sinker-actuating ring, substantially as and for the purpose specified.

2. In a knitting-machine, a conical needle-bed having an annular projection or rim upon its surface to support a sinker-actuating ring and provided with an annular recess or groove above said rim and outside the bed to receive a wire, upon which the sinkers may be fulcrumed, substantially as and for the purpose specified.

3. In a knitting-machine, a conical needle-bed having an annular projection or rim and an annular recess or groove for the support of the sinker-fulcrum, and a sinker-fulcrum, combined with a series of sinkers and a sinker-actuating ring mounted on the said rim, to operate substantially as described.

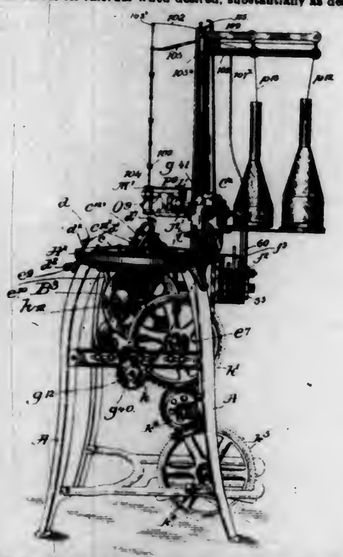
4. In a knitting-machine, a conical needle-bed having a series of needle-grooves and a series of grooves between them to receive sinkers, combined with a fulcrum-wire supported by the said bed near its outer side and with a series of sinkers made as levers of the first order and mounted on the said fulcrum-wire, substantially as described.

5. In a knitting-machine, a conically-shaped needle-bed having a supporting-rim upon its upper side for the reception of a sinker-actuating cam and having at its inner side at a distance from its lower end a cylindrical neck, to operate substantially as described.

6. A conical needle-bed having a rim erected thereon between its ends and shaped to constitute a guide for a sinker-actuating cam-ring, said bed being grooved and slotted, as described, for the reception of needles and sinkers, a sinker-actuating cam-ring mounted and made movable and rotatable upon the said rim about said needle-bed, and a fulcrum-wire A^9, supported upon the outer side of the said bed in said

annular groove, combined with a series of sinkers having each a slot or projection at one edge between its ends to slip over or embrace the said fulcrum-wire and having at one end a hook or point and below it a breast and having its other end located at a point below said fulcrum-wire and shaped to be acted upon by said sinker-actuating cam-ring, to operate substantially as described.

7. A conical needle-bed having a rim erected thereon between its ends and grooved and slotted, as described, for the reception of needles and sinkers, a fulcrum-wire supported upon the outer side of the said bed near said rim, and a series of sinkers having a slot or projection at one edge between its ends to slip over or embrace the said fulcrum-wire and having hooks or points, combined with a sinker-actuating ring mounted and made movable upon the said rim and provided with a removable portion, whereby any sinker may be readily withdrawn from its fulcrum when desired, substantially as described.



8. A sinker having at one end a breast curved as described and a hook and at one edge between its ends an open slot to co-operate with a fulcrum and shaped at its other end to be engaged and vibrated about its fulcrum by a cam, substantially as described.

9. A stationary conical needle-bed having a cylindrical shank connected therewith between its upper and lower ends and projecting at some distance below the lower end of the bed, combined with a friction-ring surrounding the said shank to rotate thereon and a cam-ring attached to the periphery of the said friction-ring and gearing to engage and move the said cam-ring, substantially as described.

10. A conical needle-bed having a projecting rim slotted for the reception of the needles, the said bed being also slotted for the reception of a series of sinkers, combined with a fulcrum-wire and a series of sinkers having slots to embrace the said fulcrum-wire, and with a sinker-actuating ring to act upon the outer ends of the sinkers to vibrate them and at the same time keep the sinkers seated upon the fulcrum-wire, substantially as described.

11. In a knitting-machine, a needle-bed having projections to serve as a rim or support for a sinker-actuating cam, said needle-bed being grooved for the reception of a series of needles and slotted through at its upper end, as at A^4, between adjacent needle-grooves for the reception and guidance of a series of sinkers, substantially as described.

12. In a reversible knitting-machine, a cam-ring having knitting and non-knitting grooves and right and left hand guiding-gates located in proximity to the junction of the said grooves, combined with an oscillating directing-cam pivoted between the points of the said guiding-gates and devices to actuate said gates automatically, to operate substantially as described.

13. In a reversible knitting-machine, a cam-ring having knitting and non-knitting grooves and its guiding-gates, combined with an angular oscillating directing-cam movable with said ring and a friction device to steady the movement of the said directing-cam, substantially as described.

14. In a reversible knitting-machine, a cam-ring having knitting and non-knitting grooves and knoodle-guiding gates, combined with an oscillating directing cam fixed to a stem suitably journaled with relation to the cam-ring and provided with a stop by which the oscillating movement of the directing-cam is restricted, substantially as described.

15. In a knitting-machine, the combination, with a cam-ring and its main drawing-down cam, of a co-operating yielding false face located near the acting-edge of said cam, to operate substantially as described.

16. A knitting-machine containing the following instrumentalities, viz: a conical needle-bed, a conical cam-ring having knitting and non-knitting grooves and needle elevating and depressing cams suitable for roundabout or circular and reciprocating knitting, and a directing-cam and guiding-gates and actuating devices to automatically operate the said gates during reciprocating knitting for narrowing and widening, substantially as described.

17. The cam-ring having knitting and non-knitting grooves and its attached right and left hand guiding gates and lever for moving said gates, combined with a cam-controlled device to move said lever, substantially as described.

18. The cam-ring having knitting and non-knitting grooves and attached right and left hand guiding-gates, combined with a cam and means between it and the said gates to actuate the latter and means to automatically actuate said cam, substantially as described.

19. A knitting-machine containing the following instrumentalities, viz: a needle-bed to contain a series of needles, a cam-ring having knitting and non-knitting grooves and adapted to actuate the said needles, the said cam-ring carrying right and left hand guiding-gates and having a directing-cam pivoted between them, a gate-moving cam located outside the said bed, tripping-pins to actuate automatically the said cam, and means between the gate-moving cam and gate to actuate the latter, substantially as described.

20. In a reversible knitting-machine, a cam-ring having knitting and non-knitting cam-grooves, right and left hand guiding-gates located in proximity to the junction of the said grooves, a lever connected to the said gates, a cam-wheel having a locking-block and adapted to move the said gate, combined with a spring to act against the block and hold the cam in position, substantially as described.

21. In a knitting-machine, the combination, with a cam-ring having knitting and non-knitting grooves and right and left hand guiding-gates and a lever for moving the same, of a cam-wheel, substantially as described, having two radial grooves and cam projections for positively moving the said lever, substantially as described.

22. A knitting-machine containing the following instrumentalities, viz: a needle-bed containing a series of needles, a surrounding cam-ring having knitting and non-knitting grooves and guiding-gates at its inner side and drawing-down and elevating cams, a gate-controlling cam located outside the cam-ring, means to reciprocate the cam-ring, connections between the gate-controlling cam and gates, tripping-pins, stop rings or racks, and means to automatically move them to move the said tripping-pins and put them into proper positions to operate the gate-controlling cam at the proper time to actuate the gates, as and for purposes set forth, during reciprocating knitting.

23. A knitting-machine containing the following instrumentalities, viz: a conical needle-bed having a projecting rim, a series of needles, and a series of sinkers supported upon the outer side of the said conical bed, a sinker-actuating ring mounted upon the said rim and adapted to actuate the sinkers, a cam-ring having knitting and non-knitting grooves and right and left hand guiding-gates and a director and drawing-down and elevating cams, a gate-controlling cam located outside the cam-ring, means to operate the sinker-actuating ring from the cam-ring, as described, means to reciprocate the cam-ring, connections between the gate-controlling cam and gates, tripping-pins, stop rings or racks, and means to automatically move them to move the said tripping-pins and put them into proper positions to operate the gate-controlling cam at the proper time to actuate the gates, as and for the purposes set forth, during reciprocating knitting.

24. A knitting-machine containing the following instrumentalities viz: a stationary needle-bed to contain a series of needles, a rotating cam-ring having a removable drawing-down cam, an annular raceway presenting a level track and entirely surrounding the said cam-ring, means to move the raceway vertically, and connections between the said raceway and the said drawing down cam, whereby the change in vertical position of the raceway effects the shortening and lengthening of the stitches, substantially as described.

25. A knitting-machine containing the following instrumentalities, viz: a stationary conical needle-bed to receive a series of needles, a rotating cam-ring containing a movable drawing-down cam, an annular vertically-movable raceway entirely surrounding the said cam-ring and presenting a level surface to constitute a track, and a lever carried by the cam-ring and having one end connected with the drawing-down cam and its other end adapted to ride upon the said raceway, substantially as described.

26. A sinker made as a lever of the first order and having a hook with a curved breast below and slotted at its under side and having a curved rear end notched, as described.

27. A knitting-machine containing the following instrumentalities, viz: a stationary needle-bed adapted to receive a series of needles, a rotating cam-ring provided with a movable drawing-down cam, an annular raceway entirely surrounding said cam-ring and having a smooth level top, means between the said raceway and drawing-down cam to actuate the latter according to the changing positions of the raceway, a pattern-surface, and intermediate connections between it and the said raceway to automatically move the same and thereby effect the regulation of the length of the stitches, substantially as described.

28. In a knitting-machine, a raceway made as a smooth-topped ring having supports whereby the raceway may be moved vertically as it is partially rotated, as described, combined with a pattern-surface, a monitor-lever, and adjustable connections between it and the said raceway, to operate substantially as described.

29. A knitting-machine containing the following instrumentalities, viz: a needle-bed grooved for the reception of needles, a surrounding cam-ring having knitting and non-knitting grooves and right and left hand guiding-gates, a directing-cam located between said guiding-gates, a gate-controlling cam located outside the said cam-ring and made movable with it in its reciprocations and rotations, devices intermediate the said cam-ring and the said guiding-gates, a yoke connected with the hub of the said cam, a controller and two rings having each a tripping-pin, and means to automatically move it to put the said controller into position to enable the said cam to be put into operative position or to be put out of operative position with relation to the said tripping-pins, substantially as described.

30. In a knitting-machine, the combination, with a conically-shaped needle-bed having grooves for the reception of a series of needles, of a thread-support and latch-guard located above the smaller end of the said bed in proximity to the hooks of the needles, the said combined support and latch-guard receiving the thread upon its outer surface and delivering it to the needles, substantially as described.

31. In a knitting-machine, a conically-shaped needle-bed, in combination with a latch guard suspended over the needles and a thread-guide adapted to direct the thread onto the outside of the latch-guard, the latter having a suitable projection to prevent the thread slipping above it, substantially as described.

32. In a knitting-machine, a conical needle-bed and a latch-guard suspended above it to surround the upper ends of the needles, the said guard having a suitable support, combined with an independent thread-guide adjustably connected to the cam-ring, substantially as described.

33. The combination, in a knitting-machine, with a conical needle-bed, a cam-ring, and a series of needles projecting above the said needle-bed, of a thread-guide and means interposed between the said thread-guide and the said needles to prevent the contact of the thread between the knitting-point and the thread-guide with the needles when rotating the machine and the said needles are not knitting, substantially as described.

34. In a knitting-machine, a needle-bed having projections to serve as a rim or support for a sinker-actuating cam, said needle-bed being grooved for the reception of a series of needles and slotted through at its upper end, as at A^4, between adjacent needle-grooves for the reception and guidance of a series of sinkers, said needle-bed being also provided with an annular groove A^5, located between the said rim or support and the upper end of the said cylinder and intersecting the said sinker-slots, combined with a series of sinkers and a pivotal wire A^6, placed in said annular groove to constitute fulcra for the series of sinkers, substantially as described.

35. In a knitting-machine, a cam-cylinder, two freely-movable rings having tripping-pins supported by the said cylinder, and two stop rings or racks mounted on the bed-plate of the machine, each ring or rack having gear-teeth and being provided with adjustable stops, between which are received the said tripping-pins, combined with pinions to remove the said rings or racks, to operate substantially as described.

36. In a knitting-machine, a cam-cylinder, two freely-movable rings having tripping-pins supported by the said cylinder, and two stop rings or racks mounted on the bed-plate of the machine, each ring or rack having gear-teeth and being provided with adjustable stops, between which are received the said tripping-pins, combined with pinions to move the said rings or racks and with means, substantially as described, to intermittingly operate the said pinions, to operate substantially as described.

37. In a knitting-machine, a cam-cylinder, two freely-movable rings b b', having tripping-pins supported by the said cylinder, and two stop rings or racks mounted on the bed-plate of the machine outside the said rings b b', each ring or rack having gear-teeth and being provided with adjustable stops, between which are received the said tripping-pins, combined with pinions to move the said rings or rack, means, substantially as described, to intermittingly operate the said pinions, and locking devices for the said pinions, to operate substantially as described.

38. In a knitting-machine, a stop ring or rack having teeth, a movable ring, as b', having a tripping-pin b^4 and a pinion to actuate the same, and a change-wheel carried by the said pinion, combined with a reciprocating frame having two pawls and with means to reciprocate the said frame, to operate substantially as described.

39. In a knitting-machine, a stop ring or rack having teeth and a pinion to actuate the same, and a change-wheel carried by the said pinion, combined with a reciprocating frame having two pawls, means to reciprocate the said frame, and devices to control the position of the said frame to enable one or the other of its pawls to engage the change-wheel, to operate substantially as described.

40. In a knitting-machine, a stop ring or rack having teeth and a pinion to actuate the same, and a change-wheel carried by the said pinion, combined with a reciprocating frame having two pawls, means to reciprocate the said frame, and means to change the position of the said frame to enable one or the other of its pawls to actuate the change-wheel or keep both pawls from engagement with the change-wheel, substantially as described.

41. In a knitting-machine, a stop ring or rack having teeth, a pinion to actuate the same, a movable ring, as b', having a tripping-pin, as b^4, and a change-wheel carried by the said pinion, combined with a reciprocating frame having two pawls, means to reciprocate the said frame, and a locking rod or bar to engage and lock the change-wheel, substantially as described.

42. In a knitting-machine, the shaft A^{13}, having a pinion k^7, means to both reciprocate and rotate the said shaft, gears k^8 k^9 in engagement with the gear k^7, and cams k^{10} k^{11}, combined with pawl-carrying frames actuated by the said cams and pinions, stop rings or racks, and change-gears, to operate substantially as described.

43. In a knitting-machine, the combination, with a pair of reciprocating frames having pawls and slotted as described, of the eccentrics, their attached gears, a double quadrant, a pattern-surface, and intermediate connections whereby the said quadrant may be moved to rotate the said gears and eccentrics and move the pawl-carrying frames, so that one or the other of their pawls may be in operative position, substantially as described.

44. In a knitting-machine, the reciprocating pawl-frame, its actuating-cam, and the leg depending from the pawl-frame and provided with a projection, combined with a stilt to keep the pawl-frame elevated at desired times, substantially as described.

45. The shaft A^{13}, its gear B^2 and pinion A^{10}, and gear-wheel A^3, provided with a reciprocating plate having a locking-stud, combined with shaft c^7, its attached notched disk, means to rotate the shaft, a vibrator mounted loosely on the said shaft and having a notch, means to actuate the said vibrator, and means to move the said plate and compel the coupling-pin to rest in the notch of the disk in order that the said disk may assume control of and rotate the said gear and shaft A^{13}, substantially as described.

46. The shaft A^{13}, its gear B^2 and pinion A^{10}, and gear-wheel A^3, provided with a reciprocating plate having a locking-stud, combined with shaft c^7, its attached notched disk, means to rotate the shaft, a vibrator mounted loosely on the said shaft and having a notch, means to actuate the said vibrator, and means to move the said plate in a direction to cause the coupling-pin to engage the notch in the said vibrator in order that it may assume control of the said gear-wheel and effect the oscillations of the said shaft A^{13}, substantially as described.

47. In a knitting-machine, the main rotating shaft c^7, a notched disk fixed thereto, a vibrator provided with a notch and mounted loosely with relation to the said shaft, means to actuate the vibrator, a gear-wheel mounted loosely on the said shaft, a second shaft having a pinion in mesh with the said gear-wheel, a guide-plate mounted in the said gear-wheel and made movable diametrically in connection therewith, a coupling-pin carried by the said guide-plate, the latter having at one end a projection extended outside the said gear-wheel, and a spring connected with the said guide-plate, combined with a movable brake and means to actuate it to control the engagement of the said coupling-pin with either the notch in the said disk or in the said vibrator, substantially as described.

48. The shaft c^7, provided with a notched disk, a gear-wheel loosely mounted on the said shaft and provided with a diametrically-sliding guide-plate having a coupling-pin and a roller or projection at or near its end opposite the coupling-pin, a shaft or pinion thereon with which the said gear-wheel is in engagement, and a vibrator having a notch and provided with a spring-held locking-dog, combined with a shoe and with means to move the vibrator and to rotate the shaft having the notched disk, the shoe acting through the guide-plate to retain the coupling-pin in the notch of the vibrator, substantially as described.

49. In a knitting-machine, a power-shaft having a tight and two loose pulleys, and a belt-shifter adapted to control two belts, combined with a pattern or monitor chain, a monitor-lever, and connections intermediate the monitor-lever and the belt-shifter to automatically determine which of the two belts shall be put upon the tight pulley, according to whether the cam-ring is to be rotated or reciprocated, substantially as described.

50. In a knitting-machine, the shaft e^3 and shoe controlled thereby to effect the change from rotating or circular knitting to reciprocating knitting, the belt-shipper controlling the driving-belts, a monitor-lever f^3, connections between it and the belt-shipper, a toe 13 on the said monitor-lever, and a monitor-lever f, having a toe, combined with a monitor-chain whereby the belt-shipper is actuated at a slight period of time in advance of the rocking of the shaft e^3, as and for the purposes set forth.

51. In a knitting-machine, the following instrumentalities, viz: a stationary needle-bed, a series of needles therein, a rotating cam-ring having a movable drawing-down cam, a surrounding annular raceway having a smooth top or upper surface all around said ring, actuating devices between the said raceway and the said drawing-down cam, inclined supports for the said raceway, and a pattern-surface, combined with intermediate devices, substantially as described, and actuating means therefor, whereby the said raceway may be moved for the production of a slack course at times determined upon by the pattern-surface, substantially as described.

52. In a knitting-machine, the following instrumentalities, viz: a needle-bed containing a series of needles, a cam-ring having cams to reciprocate the same, a yarn-guide, and rolls between which the yarn being knitted is passed, the said yarn serving to rotate the said rolls to thereby feed a supplemental thread, substantially as described.

53. In a knitting-machine, a thread-feeding attachment containing a pair of rolls, two yarn-arms located above said rolls, and means to change their relative positions to put the yarn carried by either of said yarn-arms between the said rolls to be held thereby, substantially as described.

54. In a knitting-machine, a thread-feeding attachment containing a pair of rolls, two yarn-arms located above said rolls, and means to change the relative positions of said yarn-arms to place that one of the said yarns going to the needles out of contact with the said rolls and leave the end of the yarn not then used in knitting between and held by the said rolls, substantially as described.

55. In a knitting-machine, a shaft having yarn-passages and two yarn-arms, each having a yarn-passage for a distinct and separate yarn, combined with means to rotate the said shaft and yarn-arms, substantially as described.

56. In a knitting-machine, a shaft having yarn-passages and two yarn-arms, each having a yarn-passage for a distinct and separate yarn, combined with holding-rolls, means to rotate the said shaft and yarn arms, and means to move one of the said yarn-arms to take its yarn away from the rolls referred to, the other yarn-arm being positively brought into position to have its thread held by the said rolls, substantially as described.

57. In a knitting-machine, the combination, with rolls between which the thread is passed on its way to the yarn-guide, of cutting mechanism located between the said rolls and the usual yarn-guide to sever the thread below the rolls, substantially as described.

58. A needle-bed, a cam-ring, a yarn-guide mounted on the cam-ring, a pair of rolls located above the said yarn-guide, two yarn-arms located above the said rolls, a support for the yarn-arms, means to actuate the said yarn-arms to place one of the yarns outside of and the other between the bight of the said rolls, and a thread-cutter, to operate substantially as described.

59. In a knitting-machine, a thread-feeding device and a pair of rolls between which the yarn is held, combined with a pair of shears and with an arrow-pointed cam p^2 to close said shears, substantially as described.

60. In a knitting-machine, a thread-feeding device and a pair of rolls between which the yarn is held, combined with a pair of shears and with a suitable cam p^2 to co operate with the said shears, substantially as described.

61. In a knitting-machine, a thread-feeding device and a pair of rolls between which the yarn is held, combined with a pair of shears and with two arrow-pointed cams to co-operate with the said shears, substantially as described.

62. In a knitting machine, the following instrumentalities, viz: a needle-bed, a series of needles therein, a cam-ring to reciprocate the said needles, a yarn-guide, two vibratable yarn-arms, each provided with a yarn, a pair of rolls to engage and hold both the said yarns between the yarn-guide and yarn-arms, and means to effect the twisting of the said yarns between the said rolls and yarn-arms, substantially as described.

63. In a knitting-machine, the following instrumentalities, viz: a rotating shaft, as e^7, provided with a notched disk fixed thereto, a gear-wheel, as A^2, loose on the said shaft, a guide-plate carried by said gear-wheel and provided with a coupling-pin, a shaft A^{12}, having a pinion engaged constantly by the said gear-wheel, said shaft being provided with a bevel-gear, a needle-bed, a cam-ring having teeth in engagement with the teeth of the said bevel-gear, a vibrator loose on said shaft e^7 and having a notch, gearing and connections between said shaft e^7 and the said vibrator to reciprocate the same as the shaft is rotated, and a device to slide the said plate in the said gear-wheel to cause the said coupling-pin to engage either the notch in the said disk or the notch in the said vibrator to thereby enable the said disk or the said vibrator to assume control of and move the said gear-wheel, according as it is desired to rotate or reciprocate the said cam-ring, substantially as described.

64. A knitting-machine containing the following instrumentalities, viz: a needle-bed, a series of needles therein, a cam-ring having cams to actuate the said needles, a yarn-guide to present yarn to the needles, two guide-arms, each provided with a yarn, and a pair of rolls located between said guide arms and the yarn-guide, the said rolls receiving at times both yarns between their bight and aiding one yarn to carry the other with it toward the needles and at other times to hold the end of but one of the said yarns—viz., the one not engaged in the fabric at the needles, substantially as described.

65. A knitting-machine containing the following instrumentalities, viz: a needle-bed, a series of needles therein, a cam-ring having cams to actuate the said needles, a yarn-guide to present yarn to the needles, two guide-arms, each provided with a yarn, and a pair of rolls located between said guide-arms and the yarn-guide, the said rolls receiving at times both yarns between their bight and aiding one yarn to carry the other with it toward the needles and at other times to hold the end of but one of the said yarns—viz., the one not engaged in the fabric at the needles—means to twist together the said yarns between the said yarn-arms and rolls, and thread-cutting mechanism located and made operative below said rolls and between them and the yarn-guide to sever one or the other of the said yarns, according to which one is not then to be engaged by the needles, substantially as described.

66. The hollow shaft N', the thread-arms O^3 P^3, pivoted thereon, and the gear M', combined with means to rotate the said shaft in one and then in an opposite direction and to vibrate the said thread-arms substantially as described.

67. The rolls B^x and the hollow yarn-guiding shaft N', adapted to guide and keep separated two yarns, the center of rotation of said shaft being substantially in line with the bight of said rolls, combined with two thread-arms and with means to impart rotary reciprocatory movement to said shaft and to vibrate the said thread-arms, substantially as described.

68. The shaft K', its attached pinion, the rack and means to reciprocate it, and the segment-arm L', combined with the gear M', the connected hollow yarn-guiding shaft, its pivoted arms, and the rolls, to operate substantially as described

69. The take-up and a rotating shaft having passages for the yarns, combined with a series of jointed guides interposed between them, substantially as described.

70. The take-up lever provided with a quadrant at its rear end, combined with a spring adapted to be adjustably secured at different points of the quadrant, to operate substantially as described.

71. In a knitting-machine, needle-bed having a series of stationary seats, combined with a series of sinkers having their bearings when the stitch is being drawn on the said seats and means to actuate the said sinkers, substantially as described.

72. In a knitting-machine, the combination, with rolls between which the thread is passed on its way to the yarn-guide, of yarn-arms and means to move them and hold their yarns out of contact with the said rolls, as when both the yarns are to be fed to the needles, one yarn reinforcing the other, substantially as described.

73. In a reversible knitting-machine, a needle-bed adapted to receive and guide a series of needles and a needle-actuating cam ring or plate having a knitting-groove and a non-knitting groove on a level extended all around the upper edge of the said ring and adapted to receive the butts of the said needles and maintain them in correct position not only for all-around or circular work, as well as when narrowing and widening, as described, but also for topping, combined with mechanism to depress from the said level into the knitting-groove and elevate from said knitting-groove back into the said level all the said needles in succession for all-around work or any number of said needles less than the whole number, as may be required for heel and toe knitting, substantially as described.

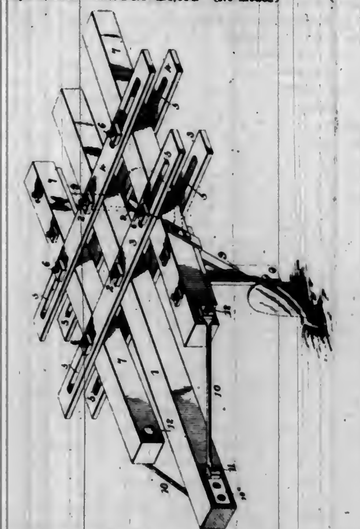
74. In a knitting-machine, a bed for the needles, a series of needles therein, a cam-ring to actuate the needles, a series of seats stationary with relation to the cam-ring, and a sinker-actuating cam, combined with a series of sinkers the breasts of which are drawn in a curve struck from the point of contact of the end of the sinker with the said seats at the time that the needles are drawing their loops about the breasts of the sinkers below their hooks, substantially as described.

75. A knitting machine containing the following instrumentalities, viz: a bed-plate having an opening, a conical needle-bed having a shank to fit said opening, a narrow cone-shaped cam-ring having a series of cams, substantially as described, a yarn-guide, and a yarn-rest interposed between said yarn-guide and needles to receive the yarn and prevent it from sliding on the needles not being reciprocated to form loops, whereby conical beds of various lengths may be used in connection with the same cam-ring, according to the diameter of the tube to be knitted, substantially as described.

76. In a knitting-machine, the combination, with a needle-bed for roundabout or circular knitting, said needle-bed being grooved for the reception of a series of needles, the upper end of the bed being provided with a series of slots in line with the dividing-walls of the needle-grooves and adapted to receive and guide a series of sinkers, of a series of sinkers having their fulcra between the upper and lower ends of the said sinker-grooves, a series of needles, a cam-ring to actuate the said sinkers, and a ring having cams to reciprocate the said needles, for the purposes set forth.

479,987. LISTING-PLOW.

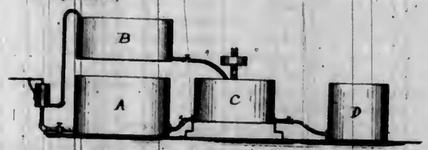
CALVIN N. LEATHERWOOD, Hutto, Tex. Filed Apr. 7, 1892. Serial No. 428,184. (No model.)



Claim.—In a listing-plow, the combination, with the main beam 1, the upper and lower front and rear cross-bars 3 and 4, embracing the upper and lower sides thereof, the bolts 2, passed through the cross-bars and beam 1, securing the beams and bars rigidly together, the longitudinal slots formed in the cross-bars and at opposite sides of the beam 1, and the bolts adjustably mounted in the slots, of the opposite beams 7, provided at diagonally-opposite ends with depending plow-carrying standards and having perforations through which the bolts 6 pass, whereby the bars and beams 7 are adjustably connected, the loose connecting-rods between the front ends of the beams 7 and 1, the opposite inclined bounds 10, bolted at their rear ends to the front ends of the beams 7 and provided at their front ends with securing-plates having a series of holes, and bolts passed through the same into the beam 1, substantially as specified.

479,988. METHOD OF RESTORING NITRATING ACIDS.

HUDSON MAXIM, New York, N. Y., assignor to The Columbia Powder Manufacturing Company, same place. Filed May 16, 1891. Serial No. 392,958. (No specimens.)

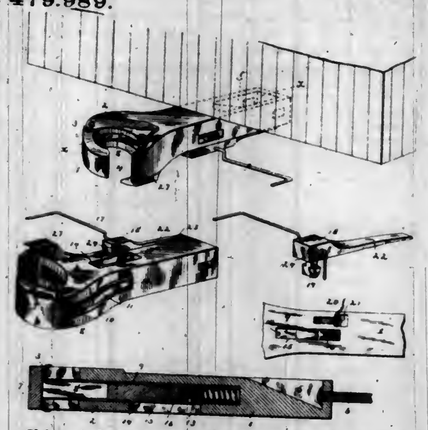


Claim.—The method of restoring mixed nitric and sulphuric acids which have become weakened in the production of nitro compounds, which consists in adding a quantity of dry nitrate to the weakened mixture, allowing the acid sulphate produced by this addition to crystallize, removing the liquid from the crystals by a centrifugal machine, and further washing the crystals by a portion of the weakened mixture, substantially as described.

479,989. CAR-COUPLING.

RICHARD J. REYNOLDS, Springville, Ala., assignor of one-half to George M. Jones, same place. Filed Mar. 30, 1892. Serial No. 427,042. (No model.)

479,989.

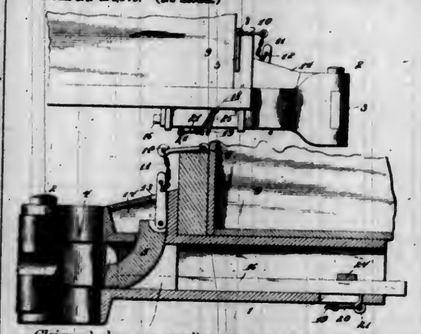


Claim.—1. In a car-coupling, the combination of a draw-head having a draw-bar extending rearward therefrom provided with a recess in the upper face thereof near one end having an inclined bottom surface, and a tail-pin fitted in said recess, substantially as described.

2. In a car-coupling, the combination of a draw-head having a jaw pivotally mounted therein provided with a shank, a spring seated in the side of said draw-head and engaging said shank of the jaw, a dog movably mounted within the draw-bar and adapted to engage the shank of the jaw, an operating-lever to engage said dog, and a support removably connected to the draw-bar, in which said operating-lever is pivotally mounted, substantially as described.

479,990. CAR-COUPLING.

JOHN P. ROLLINS, Cedar Rapids, Iowa, assignor of one-half to George O. Rollins, same place. Filed Mar. 11, 1892. Serial No. 424,573. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head having a longitudinal opening and provided with slightly-curved inclined ways, a knuckle hinged to the draw-head, a curved latch-block arranged on the ways and adapted to engage the knuckle, a bar pivotally secured to the latch-block, and a rock-shaft connected with the bar, substantially as described.

2. In a car-coupling, the combination of a draw-head having a longitudinal opening and provided with a slot, a knuckle hinged to the draw-head, a sliding bar arranged to engage the knuckle and having a stem projecting through the slot, and a rock-shaft connected with the stem, substantially as described.

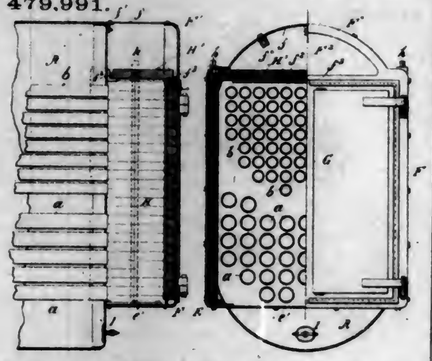
479,991. PORTABLE TUBULAR BOILER.

GEORGE SELDEN, Erie, Pa. Filed Jan. 7, 1892. Serial No. 417,302. (No model.)

Claim.—1. The combustion-chamber for connecting the direct and return tubes of the tubular boiler, made removable and composed of cast side and rear connecting-frames and doors paneled and bricked, substantially as described.

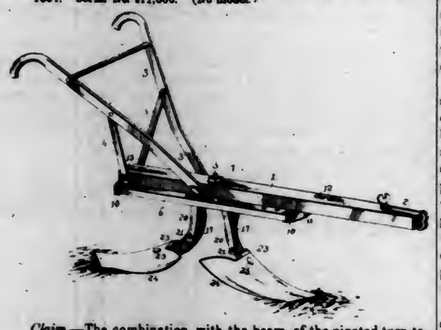
2. The combination, with a portable tubular boiler made cylindrical in form over the fire-pot and elliptical in form in rear thereof and provided in said rear elliptical portion with direct flues and over

479,991.



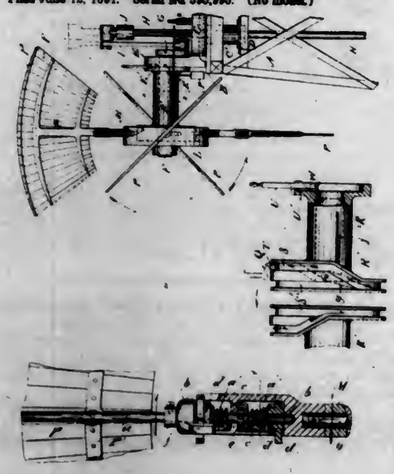
the latter with return-tubes and with a hand-hole for giving access to said flues, of a removable brick-lined combustion-chamber located above said hand-hole and connecting the direct and return tubes, substantially as described.

479,992. PLOW. KELLY N. SHARP, Mozelle, Ga. Filed Nov. 14, 1891. Serial No. 411,886. (No model.)



Claim.—The combination, with the beam, of the pivoted turn-table secured thereto and provided with central and diagonally-opposite series of openings, and a pair of plow-standards provided with plows and terminating at their upper ends in securing-plates, and bolts for securing said standards removably to the central or diagonally-opposite series of openings, substantially as specified.

479,993. WIND-MACHINE. JAMES T. SHOUP, Jr., Springfield, Ohio. Filed June 12, 1891. Serial No. 395,993. (No model.)



Claim.—1. In a wind-machine, the combination, with a turn-table head and a wind-wheel shaft carried by said head, of wind-wheels having rotatable blades, shafts connected to said blades, crank-pieces on said shafts, rollers on the inner ends of said cranks and fitting in a groove in said cam, whereby the blades are rotated according to the direction of said groove, and a lever pivoted to said cam and adjustable in notches in said head, whereby the cam may be rotated to adjust the grooves to different positions and change the points at which said rotatable blades are operated.

2. In a wind-machine, the combination, with a head and an adjustable cam mounted thereon having guiding-grooves, of a wind-wheel mounted on said shaft, rotatable blades forming the wings of said wind-wheel and provided with axial spokes, blade-shafts, crank-pieces connecting said shafts with said cam-grooves, and a yielding driving mechanism between each blade and its respective blade-shaft, the same consisting of a driving-cage mounted on the blade-shaft and having bearings for the said spoke and provided with a plurality of bars connecting said bearings, stop-pieces having wings adapted to engage with said bars and fixed to said spoke, and a pair of coil-springs, each engaged at one end with its respective stop-piece and at the other end with said cage.

3. In a wind-machine, the combination, with a wheel-rim, rotatable blades therefor having axial spokes on which they rotate, blade-shafts rotatably mounted in said rim, and means to rotate them, of a driving extension or cage from each blade shaft, having bearings for its respective blade-spoke, and a spring connection between each spoke and said driving extension or cage, consisting of a pair of springs mounted on said blade-spoke and acting reversely thereon, one end of each spring being connected with the driving extension or cage and the other end of each spring with the blade-spoke, whereby the rotative influence of the blade-shaft will be exerted on the respective spoke through one spring and the reaction of the blade in stopping will be exerted through the other spring.

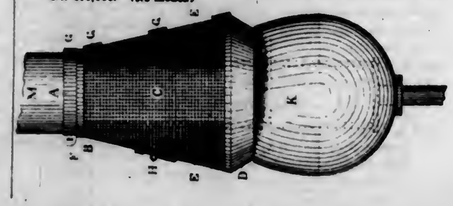
4. In a wind-machine, the combination, with a wind-wheel, its shaft, rotatable blades for said wheel, blade-shafts mounted in the rim of said wind-wheel, and a yielding connection between each blade and blade-shaft, respectively, of a cam having grooves and adjustably mounted adjacent to said wind-wheel, crank-pieces forming the operative connection between each blade-shaft and said cam, each crank-piece having a gear-segment, a segment on each blade-shaft meshing with said crank-piece, whereby the cam-groove will rotate the crank-pieces and the respective blades, and a cam-switch consisting of a deflecting pivoted piece mounted on said cam and adapted to guide the crank-pieces from one groove to another, according to its adjusted position as a switch, and means to operate said cam-switch to vary the influence of the cam on said blades.

5. In a wind-machine, a wind-wheel having rotatable blades, shafts, and cranks for said blades, a cam having grooves on its periphery, substantially as described, rollers mounted on said cranks and adapted to travel in said grooves, a switch to open one or another portion of said cam-grooves, and means to operate said switch.

6. In a wind-machine, the combination, with a wheel-rim, rotatable blades therefor having axial spokes, blade-shafts rotatably mounted in said rim, and means to rotate said shafts, of a yielding mechanism between each spoke and shaft, consisting of spoke-bearings connected by a plurality of bars forming a cage and mounted on said shaft to rotate therewith, stop-pieces fixed to said spoke and having wings extending out between said bars, and springs connected at one end to their respective stop-piece and at the other end to said driving-cage, whereby the rotative impulse is mainly transmitted to said blades before the said stop-wings are in contact with said bars.

7. The herein-described yielding driving mechanism between two rotatable shafts, the same consisting of a driving-cage mounted on the driving-shaft and having bearings for the driven shaft and provided with a plurality of bars connecting said bearings, stop-pieces having wings adapted to engage with said bars and fixed to said driven shaft, and a pair of coil-springs, each engaged at one end with its respective stop-piece and at the other end with said cage, substantially as shown and described.

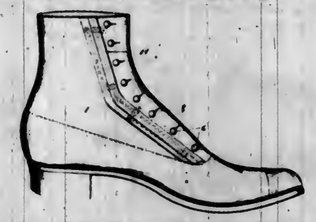
479,994. SPARK-ARRESTER FOR ELECTRIC-ARC LAMPS. CHARLES SHALLWOOD, Birmingham, Ala. Filed Dec. 26, 1891. Serial No. 416,108. (No model.)



Claim.—1. In a spark-arrester for electric lamps, the combination of the metallic frame with inwardly-projecting taper bottom having gauze or wire-netting on the inside, said frame secured to one-half of the band A and having at its bottom the braces I I, with thumb-screws J J, substantially as described.

2. In a spark-arrester for electric lamps, the combination of a metallic frame with inwardly-projecting taper bottom and gauze or wire-netting, said frame secured to a metallic band and having a door made with metallic frame and inwardly-projecting taper bottom and gauze or wire-netting, said door having hinges on one side and a bolt on the opposite side, substantially as described.

479,995. SHOE-FASTENING. EDWARD E. STACY, Whiting, Iowa. Filed Apr. 15, 1892. Serial No. 429,354. (No model.)



Claim.—1. In a self-buttoner for shoes and the like, the combination of two plates pivotally connected to each other and extending lengthwise of the upper and carrying buttons or heads, and levers pivotally connected to a portion of said plates for operating the button-flap to draw the same over onto the said buttons or heads, substantially as described.

2. In a self-buttoner for shoes and the like, the combination of two plates, pivotally connected and carrying buttons or heads, the same being secured to the upper, pivoted levers connected to the button-flap, operating-levers connected to said pivoted levers, and clasps connected to said button-flap to be engaged by said operating-levers, substantially as described.

479,996. STRAWBERRY-VINE CUTTER. WILLIAM H. STARKS, Bellevue, Wash. Filed Mar. 22, 1892. Serial No. 426,917. (No model.)



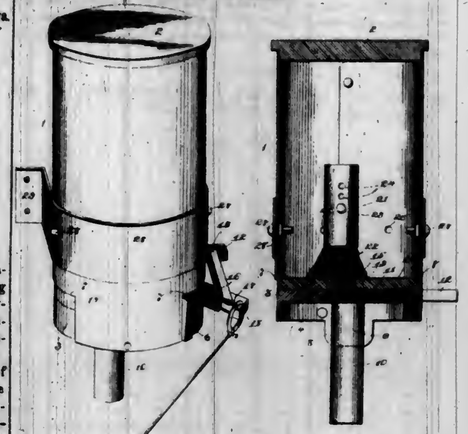
Claim.—In a cutting implement, the combination with the handle, of a stationary shear-blade secured to one end of said handle and curved up and away from the lower end thereof, a stub-shaft projecting from said handle near its lower end, a rolling gage-wheel mounted on said shaft, and a traveling cutting-disk secured to the inner face of said wheel and provided with a peripheral series of sharpened cutting-teeth extending beyond the periphery of said wheel and working against said stationary shear-blade, substantially as set forth.

479,997. BREAD-PAN, &c. ANDREW H. STEVENS, Farmington, Wis. Filed June 8, 1891. Serial No. 395,602. (No model.)



Claim.—The herein described bake-pan, comprising a lower and and an upper inverted section, the two being provided at their meeting edges with horizontal annular flanges, and the lower section provided at the inner edge of its horizontal flange with an internal inclined flange fitting within the lower edge of the upper section, the rigid loosely-interlocked and removably-connected bails 7 and 8, secured, respectively, to the sections 4 and 1, and the horizontally-disposed U-shaped locking-bail 9, located diametrically opposite the rigid bails and having its upper terminal or branch pivotally connected to the upper pan-section above its horizontal flange and its lower branch or terminal adapted to be removably sprung under and engaged with the horizontal flange of the lower pan-section, substantially as described.

479,998. REPLANTING ATTACHMENT FOR CULTIVATORS. ROBERT C. SUMNERS and WILLIAM BOLINGER, Eureka, Kans. Filed Sept. 26, 1891. Serial No. 406,838. (No model.)



Claim.—1. The combination, with the standards of a cultivator, of the transverse connecting-bar having the opposite slotted ends, the J-shaped bolts mounted in the slots and embracing the cultivator-standards, the hopper-cylinder, means for operating the feed-disk, and the U-shaped metal strap embracing the hopper-cylinder and having its ends laterally bent to form perforated ears and bolted to the center of the bar, substantially as specified.

2. The herein-described corn-planting cultivator attachment, comprising a cylindrical hopper and feed-disk-operating means, said hopper having a series of annular perforations, and a metal strap, of U shape, embracing the cylinder, bolts passing through the strap and any pair of the perforations of the cylinder, whereby the strap is adjustable upon the same, said strap being adapted at its ends for connection with the cultivator, substantially as specified.

3. In an attachment of the class described, the combination, with the sheet-metal cylinder and the cast-metal circular bottom having a surrounding depending flange riveted to the cylinder and provided with a tangentially-disposed arm, of a circular feed-disk mounted for oscillations in the cylinder and provided with a central opening, mounted for rotation upon a stud concentrically located upon the upper side of the bottom plate, and provided with a laterally-disposed arm extending through the wall of the cylinder, a spring connection engaging the arm and that of the bottom plate, and a cord leading from the arm of the feed-disk and adapted when drawn to throw the seed-opening of the feed-disk into register with the discharge-opening in the bottom, substantially as specified.

4. In an attachment of the class described, the combination, with the cylindrical hopper formed of sheet metal and provided near its bottom edge with slots, of the cast metal bottom inserted in the hopper and having lugs extending up in front of the slots thereof, the oscillating feed-disk mounted upon the bottom and provided with a seed-opening adapted to be thrown in register with the discharge-opening of the bottom, and means for oscillating the feed-disk, substantially as specified.

5. In an attachment of the class described, the combination, with the sheet-metal cylindrical hopper and the cast-metal cylindrical bottom provided with a depending perforated lug and a discharge-opening adjacent thereto, of a seed-tube, a bolt passing through the perforated lug and tube, an oscillating feed-disk having a seed-opening, and means for oscillating said feed-disk, substantially as specified.

479,999. CORRUGATED PACKING. ROBERT H. THOMPSON, New York, assignor to the Thompson & Norris Company, Brooklyn, N. Y. Filed May 9, 1891. Serial No. 392,162. (No model.)

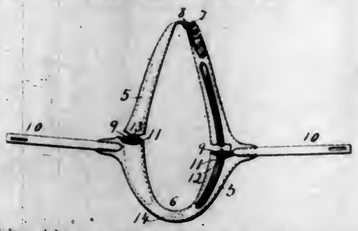
479,999.



Claim.—1. A packing material comprising two strips or pieces of corrugated paper or like substance united, with their corrugations extending at an angle to each other, the corrugations being indented at the points of contact, substantially as specified.

2. A packing material comprising two strips or pieces of corrugated paper or like substance united, with their corrugations extending at an angle to each other and having broadened contact-points, and also comprising strips or pieces of plain paper or like substance secured to the outer sides of the corrugated strips or pieces, substantially as specified.

480,000. HORSE-COLLAR. ALLEN D. ULRICH, Kokomo, Ind. Filed Aug. 24, 1891. Serial No. 403,589. (No model.)



Claim.—A horse-collar having cushioned or padded side portions, a flexible unpadded portion joining the side portions in front, a flexible portion to join the pads at the top, stiffeners permanently secured up and down the shoulders upon the pads, and means for attaching traces to the pad portions at a distance from the stiffeners, substantially as described, whereby the collar is adapted to bend freely at the front and top to permit the pads to rest steadily on the horse's shoulders while each shoulder advances and recedes to avoid chafing.

480,001. ALARM-BELL FOR DOORS. JOEL H. WELLER, Boyertown, Pa. Filed Mar. 2, 1892. Serial No. 423,467. (No model.)



Claim.—1. The combination, with a door, drawer, or other movable part, of a bell having a pivotal spring actuated hammer provided at one end with a projecting loop, and a stationary arm carrying a trip pivotally connected with it and constituting a catch at one end for engaging said projecting loop of the bell hammer and at the opposite end weighted and arranged to stop against the arm, one of said parts—the bell or arm—carried by the door, drawer, or other movable part and the other stationarily located with respect to the said movable parts.

2. The combination, with a door, drawer, or similar movable part, of a bell having a pivoted hammer, and an arm carrying a pivoted and overbalanced trip stopping against said arm and arranged to engage the bell-hammer, said arm swiveled to move laterally and take the trip out of operative relation with the said hammer and spring-actuated to an upright position, one of said parts—viz., the bell or arm—fastened to the door and the other stationarily located.

3. The combination, with a door, drawer, or similar movable part, of a bell having a post with a pin extending transversely therethrough, and a hammer in one piece comprising an arm pivoted on said pin and having a clapper at one end and a loop at the opposite end, and a spring coiled on a pin and its end fastened in the post, and a trip for engaging said loop, substantially in the manner and for the purpose described.

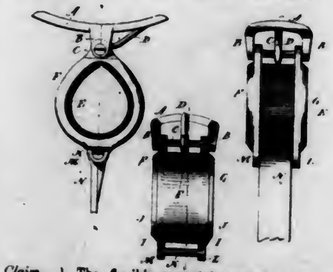
480,002. MEAT-CUTTER. OLIVER D. WOODRUFF, Southington, Conn. Filed Nov. 16, 1891. Serial No. 411,995. (No model.)

Claim.—1. In a machine for cutting meat and similar purposes, the combination of a case provided with a hopper near one end, through which meat may be supplied to the case, the interior of the case constructed with a series of spiral ribs running from the hopper end toward the opposite or delivery end, but terminating near the said delivery end and so as to leave a plain annular surface within the case at the delivery end, combined with a revolving forcer constructed with a spiral rib by which the meat may be forced toward the delivery end, the body of the forcer from the hopper toward the delivery end constructed with a surface substantially parallel with the corresponding surface of the case and with a series of spiral ribs upon its surface from the hopper toward the delivery end inclined in the same direction as the ribs in the case, but the said spiral ribs on the body of the forcer terminating at a distance from the outer or delivery end of the forcer, the said outer or delivery end filling the said annular plain surface at the delivery end of the case, but extending inward therefrom, and corresponding in diameter to the internal diameter of the ribs in that part of the case and constructed with one or more openings upon the said plain surface leading outward through the end of the forcer, the said openings in said plain surface of the forcer being adapted to pass over the ribs in that part of the case, substantially as described.



2. In a machine for cutting meat and similar purposes, the combination of a case adapted to receive the material to be cut, the case constructed upon its inside with spiral ribs inclined toward the delivery end of the case, combined with a revolving forcer within the case adapted to force the meat supplied to the case toward the delivery end of the case, the delivery end of the forcer constructed with its surface plain and corresponding in diameter to the internal diameter of the corresponding portion of the ribs in the face, the said plain surface of the forcer constructed with openings into the interior of the case and so that said openings may work across the ribs in the case as the forcer is revolved, the said openings each turned outward toward and through the delivery end of the forcer, so as to form separate and independent outlets from each of said openings, substantially as described.

480,008. TUG-LOOP. HERMANN ARMBRUSTER, New Haven, Conn. Filed May 2, 1892. Serial No. 431,540. (No model.)



Claim.—1. The flexible material loop E, constructed with a groove around its two edges, forming ribs I I and flaps J J, combined with metal reinforces F G, grooved upon their insides, corresponding to the ribs I I of the loop and adapted to receive the same, while the flaps J will overlap the metal of the reinforces upon their inner surface, and the two reinforces secured together, substantially as described.

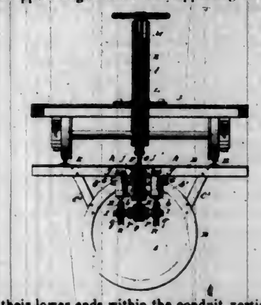
2. A flexible metal loop E, combined with the metal reinforces F G, constructed to inclose the edges of the said loop, and the reinforces constructed with a projection from their lower side, with a bolt K through the said projections, and a buckle-frame constructed with outwardly-projecting ears B, the reinforces constructed with corresponding ears and a transverse bar C through said ears and through corresponding projections on the reinforce, whereby the loop is hinged to the buckle-frame with the tongue B hung upon the said bar C, substantially as described.

480,004. ELECTRIC RAILWAY. CHARLES H. BAKER, Lake Geneva, Wis. Filed Sept. 1, 1891. Serial No. 404,423. (No model.)

Claim.—1. In an electric railway, the combination, with the car and motor, of the conduit-rings having spaced ends extending downwardly and forming supplemental arches on opposite sides of said

space at the top of the conduit, side plates secured to opposite sides of said ends and forming a longitudinal way or slot, vertically-adjustable hangers suspended within said supplemental arches, conducting-wires supported by said hangers, and means for removably engaging said wires and connecting the same with the electric motor, substantially as set forth.

2. In an electric railway, the combination, with the motor-car, of the conduit-rings provided with supplemental arches located on opposite sides of the slot, perforated cylindrical brackets secured over said arches, vertically-sliding hangers supported within said brackets and provided with upper flanged heads and supporting the main conduct-



ing-wires at their lower ends within the conduit, vertically-adjustable contact-rollers supported within the conduit from the car-frame, means for adjusting said rollers, and wires passing from said rollers to the motor, substantially as set forth.

3. In an electric railway, the combination, with the motor-car, of the conduit having the longitudinal slot and the ring arches having the supplemental arches located on opposite sides of said slot, hangers adjustably suspended within said supplemental arches, conducting-wires supported by said hangers, the grooved or perforated hanger and conductor suspended from the motor-car through the slot, a right-angularly-disposed hollow shaft secured to the lower end of said hanger within the conduit, revolving contact-wheels mounted upon each end of said shaft and adapted to engage said conducting-wires, means for vertically adjusting said shaft and contact-wheels, and wires passing from said wheels to the motor, substantially as set forth.

4. In an electric railway, the combination of the conduit having a longitudinal slot and supplemental arches located on opposite sides of said slot, hangers adjustably suspended within said supplemental arches, conducting-wires supported by said hangers, the car-frame provided with a tubular upright, a sliding shaft located within said upright and vertically adjustable therein, the longitudinally perforated or grooved hanger and conductor-bar secured to the lower end of said shaft and projecting within said slot, a right-angularly-disposed hollow shaft suspended from the lower end of said hanger within the conduit and provided with hollow spindle ends in communication with the interior bore of said hanger, and revolving contact-wheels mounted upon said hollow spindle, substantially as set forth.

480,005. GATE-LATCH. BENJAMIN BENNETT, Scranton, Pa. Filed Dec. 9, 1891. Serial No. 414,510. (No model.)

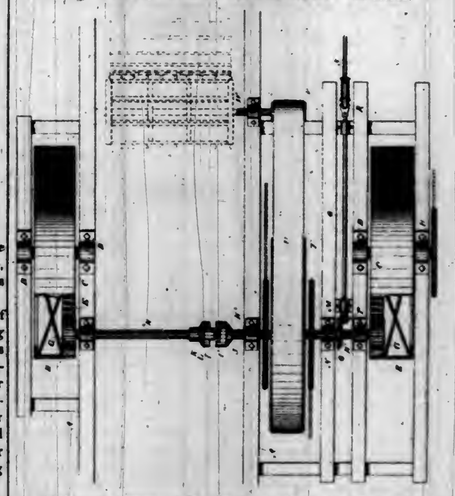


Claim.—1. In a fastener for gates, the combination, with the spring-catch and co-operating locking projection, of the rock-shaft pivoted in bearings on the gate to turn on its longitudinal center and having the cranked end co-operating with the catch to release the same, substantially as described.

2. In a fastener for gates, the combination, with the spring-catch and the co-operating locking projection, of the rock-shaft pivotally mounted on the gate and the upwardly-extending crank-handle at one end and the downwardly-extending crank at the opposite end of the rock-shaft, co-operating with the catch for disengaging the same, substantially as described.

3. The combination, with a gate hinged to open in one direction, of a spring-catch, a co-operating locking projection with which the catch engages to lock the gate when closed, the rock-shaft journaled on the gate, having the crank co-operating with the catch, and the handle moving in the direction of the movement of the gate in opening to turn the rock-shaft and release the catch, whereby by one continuous movement the catch is released and the gate opened, substantially as described.

480,006. TRAVELING HARVESTER. DANIEL BEST, San Leandro, Cal. Filed Sept. 14, 1891. Serial No. 405,696. (No model.)



Claim.—An improved traveling harvester, consisting of the main frame, the bearing-shafts journaled independently upon opposite sides of the frame and carrying the bearing-wheels, counter-shaft sections from which the header and thrasher are driven independently, journaled across the frame in a line above and behind the line of the bearing-wheel shafts and carrying spur-pinions upon their outer ends, internally-toothed gears fixed to the bearing-wheels and engaging said pinions, a thrashing-cylinder having a belt-pulley on the end of its shaft upon the side opposite from the bearing-wheel which drives the cylinder, a pulley on the same side of one of the counter-shaft sections, a belt running from the counter-shaft pulley to the pulley on the thrashing-cylinder and driving the cylinder from the side remote from the main driving-wheel, and a clutch mechanism interposed in the length of the counter-shaft and serving as a bearing for the outer part of said shaft, all combined, constructed, and arranged to operate as herein described.

480,007. MACHINE FOR WEAVING COILED-WIRE FABRIC. ORLANDO P. BRIGGS and FRED L. BRYANT, Chicago, Ill. Filed Aug. 29, 1891. Serial No. 404,084. (No model.)

Claim.—1. In a machine for weaving coiled wire fabric for bed-bottoms, the combination, with a stationary coiler, a longitudinally-movable carriage in line with said coiler, fabric engaging and releasing mechanism supported by said carriage, and trimming mechanism supported upon the ends of said carriage and suitably connected with the driving mechanism of the machine, substantially as shown and described.

2. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a stationary coiler, of a longitudinally-movable carriage in line with said coiler, fabric engaging and releasing mechanism supported by said carriage, and trimming mechanism supported by said carriage at the ends and at the middle thereof and suitably connected with the driving mechanism of the machine, substantially as shown and described.

3. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a coiler, of a carriage arranged in line with said coiler and automatically reciprocating devices supported by said carriage for engaging and releasing the marginal coil of the fabric, the reciprocation of said devices being toward and from said marginal coil, substantially as shown and described.

480,007.



4. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a coiler, of a carriage arranged in line with said coiler, reciprocating mechanism supported by said carriage for engaging and releasing the marginal coil of the fabric, and mechanism also supported by said carriage for drawing the fabric from said reciprocating, engaging, and releasing mechanism, the reciprocation of said mechanism being toward and from said marginal coil, substantially as shown and described.

5. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a coiler, of a series of pins for engaging the marginal coil of the fabric at the side of the wire of said coil toward said fabric, said pins being suitably connected to a part of the machine periodically reciprocating in a direction parallel to the coiling-axis, whereby the sides of said pins and said coil are reciprocated in a direction parallel to the coiling-axis, substantially as shown and described.

6. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a coiler, of a series of pins arranged to engage the marginal coil of the fabric at the side of the wire of said coil toward said fabric, and a support for said pins, and mechanism for periodically reciprocating said support in a direction parallel to the coiling-axis and subsequently in a direction at right angles to the coiling-axis, substantially as shown and described.

7. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a coiler, of a series of pins for engaging the marginal coil of the fabric at the side of the wire of said coil toward said fabric, said pins being suitably connected to a part of the machine periodically reciprocating in a direction parallel to the coiling-axis, whereby the sides of said pins and said coil are reciprocated in a direction parallel to the coiling-axis, and a reciprocating knife-edge for engaging the marginal coil, and automatic mechanism for actuating said knife-edge, substantially as shown and described.

8. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a coiler, of a series of pins arranged to engage the marginal coil of the fabric at the side of the wire of said coil toward said fabric and a support for said pins, and mechanism for periodically reciprocating said support in a direction parallel to the coiling-axis and subsequently in a direction at right angles to the coiling-axis, and a reciprocating knife-edge for engaging the marginal coil, and automatic mechanism for actuating said knife-edge, substantially as shown and described.

9. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism, of automatically-reciprocating devices for engaging the marginal coil of the fabric at the side of the wire of said coil toward the fabric and holding the same in fixed relation to the coiling-axis while a new coil is being projected, the reciprocation of said devices being toward and from said marginal coil, substantially as shown and described.

10. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism, of a support for the coil being projected from the coiling mechanism and reciprocating mechanism for engaging the marginal coil of the fabric at the side of the wire of said coil toward said fabric and holding the same in a fixed position adjacent to the support for the new coil, the reciprocation of said mechanism being toward and from said marginal coil, substantially as shown and described.

11. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism, of a channel for the coil being projected from the coiling mechanism and reciprocating mechanism for engaging the marginal coil of the fabric at the side of the wire of said coil toward the fabric and holding the same in a fixed position adjacent to the channel for the new coil, the reciprocation of said mechanism being toward and from said marginal coil, substantially as shown and described.

12. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism, of a channel for the coil being projected from the coiling mechanism and reciprocating mechanism located at a higher level than said channel for engaging the marginal coil of the fabric at the side of the wire of said coil toward the fabric and holding the same in a fixed position adjacent to the channel for the new coil, the reciprocation of said mechanism being toward and from said marginal coil, substantially as shown and described.

13. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a channel for receiving the new coil and reciprocating mechanism for engaging the marginal coil of the fabric at the side of the wire of said coil toward the fabric and holding the same in a fixed position adjacent to said channel, the reciprocation of said mechanism being toward and from said marginal coil, substantially as shown and described.

14. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism and means for drawing the fabric away from the coiling-axis, of reciprocating mechanism for engaging the marginal coil of the fabric and holding the same in a fixed position while a new coil is being projected from the coil-forming mechanism, the reciprocation of said mechanism being toward and from said marginal coil, substantially as shown and described.

15. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with mechanism for forming the coils, of means for drawing the fabric away from the coiling-axis and a series of movable pins adapted to engage the marginal coil of the fabric while a new coil is being formed and release the same and engage the new marginal coil of the fabric prior to the forming of a second new coil, substantially as shown and described.

16. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two series of movable pins adapted to alternately engage the marginal coil of the fabric while a new coil is being formed, substantially as shown and described.

17. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism, of a reciprocating pin-bar and a series of pins located upon said pin-bar and adapted to engage the marginal coil of the fabric at the side of the wire of said coil toward the fabric, substantially as shown and described.

18. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with mechanism for forming the coils, of a reciprocating pin-bar and a series of pins supported by said pin-bar and adapted to engage the marginal coil of the fabric at the side of the wire of said coil toward the fabric, and a coil-receiving channel adjacent to said pins, substantially as shown and described.

19. In a machine for weaving coiled wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two reciprocating pin-bars, each bearing a series of pins adapted to alternately engage the marginal coil of the fabric, substantially as shown and described.

20. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two reciprocating pin-bars, each bearing a series of pins adapted to alternately engage the marginal coil of the fabric, and a coil receiving channel located adjacent to said pins, substantially as shown and described.

21. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of an automatically-reciprocating knife-bar adapted to engage the marginal coil of the fabric at the side of said coil toward the fabric, substantially as shown and described.

22. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a knife-bar for engaging the marginal coil of the fabric at the side of said coil toward the fabric, and a coil-receiving channel located adjacent and parallel to said knife-bar, substantially as shown and described.

23. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two automatically-reciprocating knife-bars adapted to alternately engage the marginal coil of the fabric at the side of said coil toward the fabric, substantially as shown and described.

24. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two automatically-reciprocating knife-bars adapted to alternately engage the marginal coil of the fabric at the side of said coil toward the fabric, and a coil-receiving channel located adjacent and parallel to said knife-bars, substantially as shown and described.

25. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of an automatically-reciprocating knife-bar adapted to engage the marginal coil of the fabric at the side of said coil toward the fabric, and automatic mechanism for drawing the fabric from the coiling-axis, substantially as shown and described.

26. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a knife-bar for engaging the coil of the fabric at the side of said coil toward the fabric, and a coil-receiving channel located adjacent and parallel to said knife-bar, and automatic mechanism for drawing the fabric from the coiling-axis, substantially as shown and described.

27. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two automatically-reciprocating knife-bars adapted to alternately engage the marginal coils of the fabric at the sides of said coils toward the fabric, and automatic mechanism for drawing the fabric from the coiling-axis, substantially as shown and described.

28. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two automatically-reciprocating knife-bars adapted to alternately engage the marginal coil of the fabric at the side of said coil toward the fabric, and a coil-receiving channel located adjacent and parallel to said knife-bars, and automatic mechanism for drawing the fabric from the coiling-axis, substantially as shown and described.

29. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a series of movable pins adapted to engage the marginal coil of the fabric, automatic mechanism for moving said pins and an automatically-reciprocating knife-bar adapted to co-operate with said series of pins in engaging and retaining the marginal coil in a fixed position, substantially as shown and described.

30. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a reciprocating pin-bar and a series of pins supported by said pin-bar and adapted to engage the marginal coil of the fabric, an automatically-reciprocating knife-bar adapted to co-operate with said pins in engaging the marginal coil of the fabric, and a coil-receiving channel adjacent and parallel to said pins and said knife-bar, substantially as shown and described.

31. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two reciprocating pin-bars, two series of pins, one supported by one of said pin-bars and the other by the other of said pin-bars and adapted to alternately engage the marginal coil of the fabric, and an automatically-reciprocating knife-bar adapted to co-operate with said pins in engaging the marginal coil of the fabric, substantially as shown and described.

32. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two reciprocating pin-bars, two series of pins, one supported by one of said pin-bars and the other by the other of said pin-bars and adapted to alternately engage the marginal coil of the fabric, and an automatically-reciprocating knife-bar adapted to co operate with said pins in engaging the marginal coil of the fabric, and a coil-receiving channel located adjacent and parallel to said pins and knife-bar, substantially as shown and described.

33. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two reciprocating pin-bars and two series of pins, one being supported by one of said pin-bars and the other by the other of said pin bars and adapted to alternately engage the marginal coil of the fabric, and two automatically-reciprocating knife-bars adapted to alternately co-operate with one of said series of pins in engaging the marginal coil of the fabric and retaining the same in a fixed position, substantially as shown and described.

34. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two reciprocating pin-bars and two series of pins, one being supported by one of said pin-bars and the other by the other of said pin-bars and adapted to alternately engage the marginal coil of the fabric, and two automatically-reciprocating knife-bars adapted to alternately co-operate with one of said series of pins in engaging the marginal coil of the fabric and retaining the same in a fixed position, and a coil-receiving channel located parallel and adjacent to said pins and knife-bars, substantially as shown and described.

35. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a series of pins for engaging the marginal coil of the fabric, and means for shifting said series of pins in a direction parallel to said marginal coil, and an automatically-reciprocating knife-bar adapted to engage the marginal coil of the fabric, substantially as shown and described.

36. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a series of pins for engaging the marginal coil of the fabric, and means for shifting said series of pins in a direction parallel to said marginal coil, and an automatically-reciprocating knife-bar adapted to engage the marginal coil of the fabric, and a coil-receiving channel located adjacent and parallel to said pins and knife-bar, substantially as shown and described.

37. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of fabric supporting and shifting mechanism, automatic mechanism for operating said fabric supporting and shifting mechanism, and automatic mechanism for at intervals disengaging said mechanism for operating said fabric supporting and shifting mechanism, substantially as shown and described.

38. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with a coil-forming mechanism, of reciprocating pins for holding the marginal coil while the new coil is being formed and intertwined therewith and then releasing said marginal coil, automatic mechanism for shifting said pins, and automatic mechanism for periodically arresting the action of the mechanism for shifting said pins, whereby said pins are left in engagement with the marginal coil while an increased number of new coils are projected into the same coil-space and made to intertwine with the marginal coil, substantially as shown and described.

39. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of pins and a knife-bar for engaging the marginal coil and retaining the same in a fixed position while a new coil is being formed and made to intertwine with said marginal coil, automatic mechanism for moving said pins and knife-bar out of engagement with said marginal coil and into engagement with the new marginal coil, and automatic mechanism for preventing said first-mentioned mechanism for causing said pins and knife-bar to disengage said marginal coil until an increased number of new coils have been projected into the same coil-space and made to intertwine with said marginal coil, substantially as shown and described.

40. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a series of pins for engaging the marginal coil of the fabric, a pin-bar supporting said pins, and a shaft extending parallel with said pin-bar and having cams for reciprocating said pin-bar, substantially as shown and described.

41. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of two pin-bars, each bearing a series of pins adapted to alternately engage the marginal coil of the fabric, and cams for engaging said pin-bars and alternately moving said series of pins into engagement with the final coil of the fabric, substantially as shown and described.

42. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism, of a suitable support for the fabric and a knife-bar for engaging the final coil of the fabric and holding the same in a fixed position, said knife-bar being secured to a relatively fixed support, so as to move by gravity in one direction with reference to the marginal coil of the fabric, and a cam for periodically forcing said knife-bar in the opposite direction with reference to said marginal coil, substantially as shown and described.

43. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with the coil-forming mechanism and a suitable support for the fabric, of two knife-bars arranged to alternately move by gravity in one direction with reference to the marginal coil of the fabric, and a cam for alternately moving said knife-bars in the opposite direction with reference to the marginal coil of the fabric, substantially as shown and described.

44. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism and mechanism for carrying the fabric transversely, of automatic cutting mechanism located between the ends of the space to be occupied by the fabric, substantially as shown and described.

45. In a machine for weaving coiled-wire fabric for bed-bottoms,

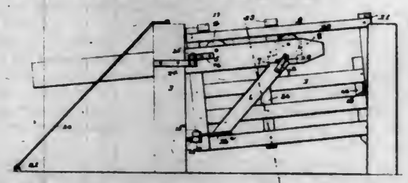
the combination, with automatic mechanism for engaging the marginal coil of the fabric and a relatively fixed wall located at one side of the path of the fabric, of a yielding presser-bar O, located at the side of the fabric opposite said relatively stationary wall and having a flat face to press upon said fabric to keep the latter in the same plane, substantially as shown and described.

46. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a longitudinally-shiftable carriage for receiving the fabric, said carriage having two faces to which the line of movement is substantially perpendicular, two cam-faces, and a suitable support and suitable driving mechanism therefor, one pair of said faces extending between and being adapted to be engaged by the other of said pairs of faces, and said faces being adjustable with reference to each other, substantially as shown and described.

47. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination, with coil-forming mechanism, of a shiftable fabric-support adapted to be shifted toward and from the coil-forming mechanism and having faces to which the line of movement of said support is substantially perpendicular, and a duplex adjustable cam J, arranged to make engagement with said faces, and automatic means for rotating said cam, substantially as shown and described.

48. In a machine for weaving coiled-wire fabric for bed-bottoms, the combination of automatic means for coiling the wire and passing the running wire through the final coil of the fabric, automatic means for feeding the fabric, and automatic means for intermitting this feed whenever extra wires are to be inserted into any part of the fabric, substantially as shown and described.

480,008. GATE. JOSEPH F. DOUGHERTY, Hale, Mo. Filed Nov. 30, 1891. Serial No. 413,532. (No model.)



Claim.—1. The combination, with a post, of a hanger hinged to the post and composed of a horizontal arm provided at its outer end with an elongated mortise and with recesses at the inner end of the mortise, and an inclined brace provided at its upper end with a tenon arranged in the mortise, said brace being adapted to engage the recesses, and a gate suspended from the hanger, substantially as described.

2. The combination, with a post, of a hanger composed of a horizontal arm provided at its outer end with an elongated mortise and having recesses at the inner end of the mortise, an inclined brace provided at its upper end with a tenon and arranged to engage the recesses, link-plates arranged on opposite sides of the arm and the brace and connecting the two parts, and a gate suspended from the hanger, substantially as described.

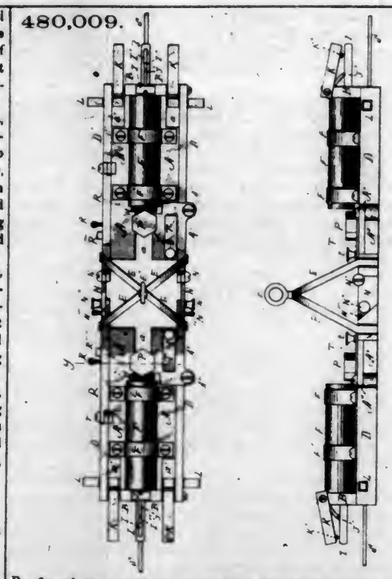
480,009. SAFETY CUT-OUT. RUDOLPH FURGANG, Boston, Mass., assignor of one-half to Isaac Kaffenburgh, same place. Filed Oct. 14, 1891. Serial No. 408,707. (No model.)

Claim.—1. In a safety attachment for electrical wires, the plate A, of conductive material and provided with the spaces or openings *a'*, end pieces B, and swinging weights K, held normally up, as described, the ground connections L, the bolt H and spring *d* within the cylinder F, and the block P, to which the end of the wire is secured, combined and arranged substantially as set forth.

2. In a safety attachment for electrical wires, the plate A, of conductive material, cylinder F, spring *d*, end piece B, rod I, provided with the perforation I', shaft J, sustained by the said end piece, and catch-pin J', whereby when the spring is released the bolt is checked in its outward movement, substantially as described.

3. In a safety attachment for electrical wires, the pair of plates A A, of conductive material, a supporting insulated frame, as E, conductive gates, as N, capable of being opened to destroy the connection, bolts and springs sustained by said plates, and blocks, as P, to which the ends of the electric wire are secured, said blocks being held against the bolts by the tension of the wire, whereby the breaking or cutting of a wire releases the spring on that side, thus causing the bolt to throw out the block to which the broken or cut wire is secured and drop it through the central space between the two plates, substantially as set forth.

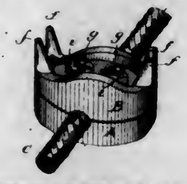
4. In an apparatus of the character described, the combination of the plates A, of conductive material, ground connections L, and latches



R, of conductive material, arranged, as described, to swing back into contact with the said ground connections, substantially as set forth.

5. In an apparatus of the character described, the combination of the plates A, of conductive material, bolt H, and spring *d*, block P, to which the end of the wire is secured, and outwardly-swinging gate A', whereby access may be had to the said block, substantially as described.

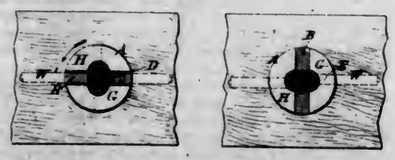
480,010. SPROCKET DEVICE FOR CONVEYERS. MICHAEL GARLAND, Bay City, Mich. Filed Apr. 25, 1892. Serial No. 430,486. (No model.)



Claim.—1. In that type or species of log-haul-up machines or conveyers in which a rope or cable is employed, the combination, with the traveling rope or cable, of an attachment device comprising two metallic castings, each grooved to constitute a half-housing for the rope or cable, one of said castings being formed or provided with sets of upwardly-projecting log-engaging teeth and the two parts being securely clamped together and onto the cable, all in substantially the manner and for the purposes hereinbefore set forth.

2. A rope or cable carrier attachment device composed of two parts A and B, adapted to be clamped onto the rope, as specified, the upper part B having the teeth *f* and the combined parts being shaped to coact or properly engage with the teeth of a sprocket-wheel, all as and for the purposes set forth.

480,011. INSULATOR. JOHN J. GREEN, Boonton, N. J., assignor to the Security Insulator Company, of New Jersey. Filed Mar. 24, 1892. Serial No. 426,220. (No model.)

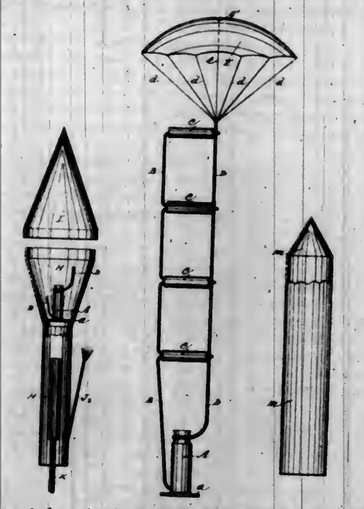


Claim.—1. An insulator having a transverse diametrical groove formed in its upper portion for the introduction of the wire, a chan-

nel at right angles to said groove for permanently retaining said wire, and an axial perforation extending from the intersection of said groove and channel to the bottom of the insulator, through which a screw or pin is made to pass for securing the insulator to its support, at the same time permitting it to be rotated for the purpose of securing the wire, as set forth.

2. An insulator frictionally movable upon a central axis, having a transverse diametrical groove formed in its upper portion for the introduction of the wire, and a channel at right angles to said groove for permanently retaining said wire, which channel is provided with three or more bearing points or surfaces so disposed with reference to each other as to produce a bend in the wire when the insulator has been rotated into position, as set forth.

480,012. SIGNAL-ROCKET FOR VESSELS. THOMAS W. HAND and WALTER TEALE, Hamilton, Canada. Filed Jan. 9, 1892. Serial No. 417,459. (No model.)



Claim.—1. In a signal-rocket, the combination of an igniting-light A with its wad *a* and its attached fuse B, which is also attached to a series of colored lights C, substantially as described.

2. In a signal-rocket, an igniting-light A and its attached fuse B, with the colored lights C, in combination with the non-ignitible connecting-line D, substantially as described.

3. In a signal-rocket, the combination of the igniting-light A, colored lights C, fuse B, connecting-line D, and a parachute E, with its strands *d*, its center elastic strand *e*, and its center *d'*, substantially as described and set forth.

4. The rocket H, having widened top with its close-fitting conical cover I, forming a chamber containing and inclosing the igniting-light and wad, the flexible fuse, the colored lights, the flexible and non-ignitible connecting-line, and fabrical parachute, with fuse J, attached to lower part of said rocket H, giving power to the whole, substantially as described and set forth

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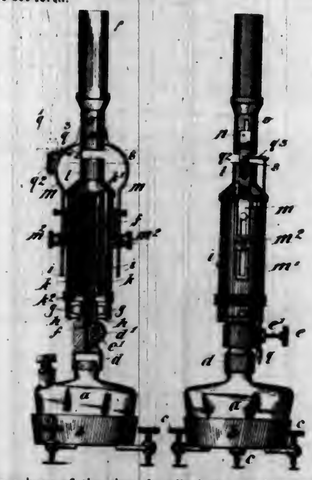
480,013. STANDARD OIL-LAMP. AUGUSTUS G. V. HARCOURT, Cowley Grange, England. Filed Dec. 4, 1888. Serial No. 292,663. (No model.) Patented in England Sept. 3, 1887, No. 11,995, and in France June 20, 1888, No. 191,339.

Claim.—1. In a lamp of the class described, the combination, with the burner, of a non-transparent chimney composed of two superposed sections adjustable relatively to each other, so as to form a space between them, the proximate ends of said sections lying above the burner in the vertical plane of the same, for the purpose set forth.

2. In a lamp of the class described, the combination, with a jacketed burner, of a non-transparent chimney composed of two superposed sections adjustable relatively to each other, so as to form a space between them, the proximate ends of said sections lying above the burner in the vertical plane of the same, for the purpose set forth.

3. In a lamp of the class described, the combination, with the burner, of a non-transparent chimney composed of a lower stationary section encompassing the burner and having a contracted portion extending beyond said burner, so as to inclose the lower portion of the flame, and an upper section, the lower portion of which is likewise contracted and adapted to inclose the upper portion of the flame, said upper section having curved arms *m*, and means for adjusting the said arms on the stationary section of said chimney, for the purpose set forth.

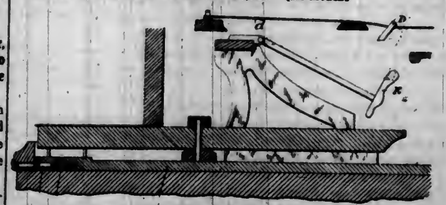
4. In a lamp of the class described, the combination, with the burner, of a non-transparent chimney composed of a lower stationary section encompassing the burner and having a contracted portion extending beyond said burner, so as to inclose the lower portion of the flame, and an upper section, the lower portion of which is likewise contracted and provided with two vertical slots o diametrically opposite each other, said contracted and slotted portion being adapted to inclose the upper portion of the flame, said upper section having curved arms *m*, one of which is provided with a bearing q^3, and means for adjusting the said arms on the stationary section of said chimney, for the purpose set forth.



5. In a lamp of the class described, the combination, with the burner, of a non-transparent chimney composed of a lower stationary section encompassing the burner and having a contracted portion extending beyond said burner, so as to inclose the lower portion of the flame, and an upper section, the lower portion of which is likewise contracted and adapted to inclose the upper portion of the flame, said upper section having curved and recessed arms *m*, said recesses being formed in the edges of the arms diametrically opposite each other, and means for adjusting the said arms on the stationary section of said chimney, for the purpose set forth.

6. In a lamp of the class described, the combination, with the burner and a chimney composed of two sections adjustable vertically relatively to each other, the proximate ends of said sections lying above the burner in the vertical plane thereof, of means, such as a gage-disk *v*, for determining the hiatus between the two chimney-sections, substantially as and for the purpose set forth.

480,014. PIANO-ACTION. WILLARD L. HAWES, Wakefield, Mass. Filed Apr. 18, 1892. Serial No. 429,548. (No model.)



Claim.—1. A piano-action mounted upon a frame adjustable inward and outward in relation to the bed or key-frame bottom and the key-blocks, whereby the position of the hammers in relation to the agraffe is varied at will, as and for the purposes described.

2. In an action for grand and similar pianos, the longitudinally-movable key-frame carrying the action and hammers, and means for adjusting said frame or one end of it inward or outward in relation to the piano-front and upon the bed, as and for the purposes described.

3. In a grand piano, the combination of the longitudinally and transversely movable key-frame, the hammers and hammer-actions supported thereby, and the agraffe, as and for the purposes described.

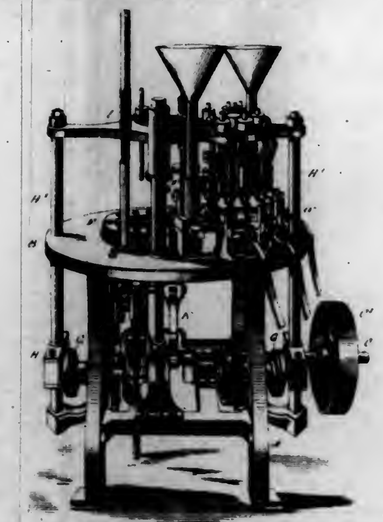
4. The combination, in a piano, of a key-frame, the hammers and hammer-actions supported thereby, the agraffe, the key-blocks, and guiding connection between one or both ends of the key-frame and key-block, and means for moving the key-frame and bolt or guide transversely in relation to each other, as and for the purposes described.

5. The combination of the key-frame, the hammers and hammer-actions mounted thereon, the agraffe, the key block or blocks, the bolt or key-frame guide connecting the key-frame at each end with the blocks arranged at one end at least to be adjustable transversely to the frame, with an adjusting-screw carried by said frame and engaging said bolt, as and for the purposes described.

6. The combination of the key-frame, the key-block, the bolt at one end entering a slideway in said block and adjustably connected with the key-frame, and means for adjusting said frame on said bolt carried by said frame, as and for the purposes described.

7. The combination of the key-frame, the key-block, the adjustable connecting-bolt, and the key-slip having a hole by which access to the adjusting-screw is had, as and for the purposes described.

480,015. CARTRIDGE-LOADING MACHINE. CHARLES S. HENRY, Aurora, Ind., assignor to the Standard Cartridge Company, of New Jersey. Filed Apr. 11, 1892. Serial No. 428,669. (No model.)



Claim.—1. In a machine for loading cartridges, the combination, with the primary actuating mechanism and tool-carrier, of two reciprocating shafts for moving the tool-carrier, provided with box-yokes at their lower ends, substantially as described.

2. In a machine for loading cartridges, the combination, with the primary actuating mechanism, of a reciprocating shaft carrying independently-pivoted levers for giving the crimpers vertical movement and for inserting shells into the shell-carrier through intermediate mechanism, substantially as described.

3. In a machine for loading cartridges, and in combination with the actuating mechanism thereof, a rotating shell-placer operated thereby, whereby the cartridge-shells are successively transferred from said placer to the shell-carrier, substantially as described.

4. In a machine for loading cartridges, the combination, with a shell-carrier, of a rotating shell-placer provided with cells for the ingress and egress of shells therefrom, substantially as described.

5. In a machine for loading cartridges, the combination, with the shell-carrier, shell-feeding tube, and a vertically-reciprocated rod, of a rotating shell-placer provided with cells or holes for the ingress and egress of shells therefrom, substantially as described.

6. In a machine for loading cartridges, the combination, with the shell-carrier, shell-feeding tube, and a vertically-reciprocated rod, of a horizontally-rotating shell-placer provided with cells and means for revolving the same, substantially as described.

7. In a machine for loading cartridges, the combination, with the actuating mechanism, of a shell-carrier in the form of a ring provided with cells and having notches in the inner rim and gear-teeth on the periphery of its lower part and mechanism for rotating the same, substantially as described.

8. In a machine for loading cartridges, the combination, with a shell-carrier, substantially as described, of a vertical shaft provided with a cap having a pin near its periphery carrying a block which slides in a box formed in an oscillating lever, an oscillating lever, a cam on the driving-shaft, a rod having a crank on its lower end provided with a pin or roll riding in the groove of the cam and on its upper end a short arm or lever, and a spring-pressed lever whereby the shell-carrier is given an intermittent movement, substantially as described.

9. In a machine for loading cartridges, the combination, with the driving-shaft having crank-wheels at each end provided with crank-pins, of two reciprocating shafts having box-yokes at their lower ends in which said crank-pins slide in blocks and carrying at their upper ends a tool-carrier provided with loading-tools, substantially as described.

10. In a machine for loading cartridges, the combination, with the powder and shot magazines, of a charge-slide or bar provided with an aperture having a cup or ring to regulate the charge of powder or shot, substantially as described.

11. In a machine for loading cartridges, the combination, with the powder and shot magazines, of a charge-slide provided with an apertore and having gear-teeth at one end, a segment-gear and rack-bar fixed to a guide-rod secured to the tool-carrier, whereby with the upward and downward movement of the tool-carrier the charge-slide is given a forward and backward movement, as and for the purpose described.

12. In a machine for loading cartridges, the combination, with the shell-carrier, the wad-feeding, wad-cutting, and wad-placing devices, and the powder and shot magazines, of two crimpers successively operating by suitable means and mechanism upon the cartridge-shell, substantially as described.

13. In a machine for loading cartridges, the combination, with the rotating shell-placer, shell-carrier, and tool-carrier, of shell-feeding and shell-delivery tubes and an ejector, substantially as described.

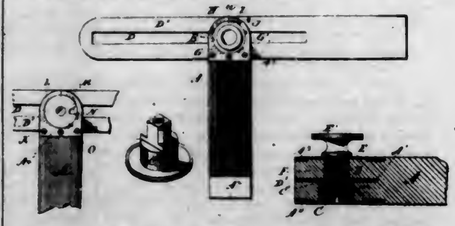
14. In a machine for loading cartridges, the combination, with the driving-shaft, of cam D, having opposed faces, rod K, having an arm at its lower end provided with a pin or roll working in and operated by said cam and at its upper end a short arm or lever K^2, whereby the locking-lever K^2 is released from engagement with the shell-carrier, substantially as described.

15. In a machine for loading cartridges, the combination, with the shell-carrier in the form of a ring, a tool-holder, and loading devices, of wad-feeding rolls, wad-cutting and wad-placing devices arranged on a circular line, and ratchet-and-pawl mechanism W' for operating the wad-feeding rolls, substantially as described.

16. In a machine for loading cartridges, the combination, with the primary actuating mechanism, shafts H' H', tool-holder I, slotted lever W^2, and pawl and ratchet W', of the wad-feeding rolls W, arranged in a circular line on the table B and geared together by the bevel-gears w, whereby said rolls are given simultaneous movement, substantially as described.

17. In a machine for loading cartridges, the combination, with the ring-shaped shell-carrier F, provided with cells f' for receiving and holding the shells while being charged, and the tool-carrier I, of the powder and shot magazines having actuated charge-slides provided with charge-regulating rings, and the wad-cutting and wad-placing devices arranged above and in circular line with said shell-carrier, whereby predetermined charges of powder and shot are delivered into the shells in said carrier and wads are cut and rammed or placed on said charges successively, as set forth and described.

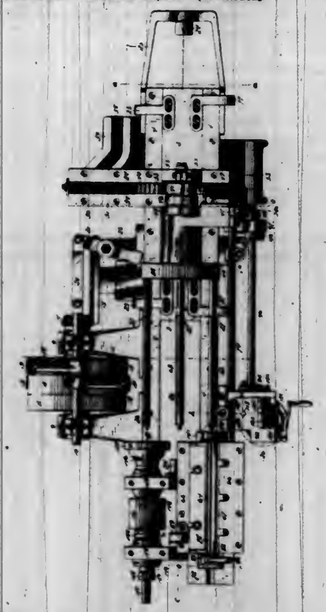
480,016. BEVEL. DAVID HOADLEY, Naugatuck, Conn. Filed Feb. 23, 1892. Serial No. 422,409. (No model.)



Claim.—1. In a bevel-square, the combination, with a longitudinally-cleft stock having the opposite faces of its inner end provided with circularly-arranged graduations, of a slotted blade inserted into the cleft of the stock, a rotatable coupling-head having one end provided with an index-disk and constructed with a centrally-threaded bore and with a rib to fit into the slot of the blade, a disk for attachment to the said head at the opposite end thereof from the disk before mentioned, and a clamping-screw entering the said head and bearing upon the outer face of the removable disk, substantially as described.

2. In a bevel-square, the combination, with a longitudinally-cleft stock, of plates applied to the upper and lower faces of the inner end of the same, having circular openings and circularly-arranged groups of graduations adjoining such openings, a slotted blade located in the cleft of the stock, a rotatable coupling-head having one end provided with an index-disk and constructed with a centrally-threaded bore and with a rib to fit into the slot of the blade, a disk for attachment to the said head at the opposite end thereof from the disk before mentioned, and a clamping-screw entering the said head and bearing upon the outer face of the removable disk, substantially as described.

480,017. MACHINE FOR SIZING AND POLISHING PAPER TUBES. ALFRED C. HOBBS and CHARLES B. RICHARDS, Bridgeport, Conn., assignors to the Union Metallic Cartridge Company, same place. Filed June 23, 1886. Serial No. 205,959. (No model.)



Claim.—1. A rotating disk having arbors which take up the tubes, in combination with sizing-jaws which rotate about the tubes while on the arbors and stripping-jaws whereby the tubes are removed therefrom.

2. The reciprocating carriage and the disk having arbors to take up the tubes, said disk being adapted to make a quarter-revolution at each forward movement of the carriage, in combination with a lubricator 59 for the arbors, jaws 67, which hold the tubes singly while they are taken up by the arbors, and sizing-jaws through which the tubes pass singly, as and for the purpose set forth.

3. The reciprocating carriage and the intermittently-rotating arbor-disk, in combination with lubricator 59, jaws 67, the sizing-jaws, and a set of spring stripping-jaws, operating substantially as described.

4. The reciprocating carriage and intermittently-rotating arbor-disk, in combination with jaws 67, from which the tubes are taken singly by the arbors, roller 88, which lubricates the tubes while on the arbors, and sizing-jaws 153.

5. The arbors having shoulders 27, in combination with jaws 67, from which the tubes are taken singly, rotating sizing-jaws 153, through which the tubes pass while on the arbors, and stripping-jaws 161, having shoulders which spring over the ends of the tubes and rest upon the shoulders 27, whereby the sized tubes are removed from the arbors.

6. The combination, with the carriage-disk 28, carrying the arbors, jaws 67, and the sizing-jaws 153, of mechanism, substantially as described and shown, for imparting reciprocatory motion to the carriage and intermittent rotary motion to the disk.

7. The carriage having brackets 30 and lateral extension 31, in combination with disk 28, shaft 29, having ratchet 46, cross-slide 33, engaging cam-slot 38 and segment-gear 41, and a pawl pivoted to said segment, whereby said cross slide is caused to actuate shaft 29 and the disk.

8. The reciprocating carriage provided with a reciprocating cross-slide and shaft 29 upon said carriage, in combination with ratchets 46 and 48, keyed to said shaft, segment-gear 41, free to turn thereon, pawl 43, pivoted to the segment and engaging ratchet 46, and sliding pawl 47, engaging ratchet 48, whereby, after each forward movement of the shaft it is held against backward movement.

9. In a machine of the class described, shaft 29, having ratchet 46, a loose segment 41, pawl 43, pivoted to said segment and engaging the ratchet, and a friction-disk 54, in combination with cross-slide 33, engaging said segment, and clamping-arms 55, engaging said disk.

10. Shaft 29, carrying ratchets 46 and 48, and a loose segment 41, having a pawl engaging ratchet 46, in combination with cross-slide 33, engaging the segment, pawl 47, engaging ratchet 48, and pivoted lever 50, one end of which is pivoted to pawl 47 and the other provided with a roller to engage a cam, whereby pawl 47 is caused to release the ratchet when the forward movement takes place.

11. The combination, with the reciprocating carriage and intermittently-rotating arbor-disk, of lubricator 59 for lubricating the arbors singly.

12. The reciprocating carriage and the intermittently-rotating arbor-disk, in combination with lubricating-washers 60, a spring-band encircling them, and bracket 65, upon which they are supported.

13. The combination, with the arbors and operating mechanism, substantially as described and shown, of the hopper-jaws 67 and means, substantially as shown and described, for opening and closing the jaws.

14. Jaws 67 and plates 68, to which they are secured and which are provided with screw-pins carrying rollers, in combination with a slide having angular slots engaged by said rollers, whereby the jaws are opened and closed.

15. Slide 72, having slots 71, and plates 68, carrying rollers engaging said slots, in combination with jaws 67, adjustably secured to said plates.

16. The slide having slots 71 and the jaws having rollers which engage said slots, in combination with an adjustable bed 78.

17. The bed having a V-shaped notch 80 and screws 79, whereby it is adjusted up or down, in combination with jaws having angular faces corresponding with said notch, rollers 70, and a slide engaged by said rollers, whereby the jaws are opened and closed.

18. The combination, with the slide, of the bed having semi-cylindrical pieces 81 and the jaws having quadrant-shaped pieces 82, whereby the ends of the tubes are firmly grasped, so that they cannot be crushed when the arbors are forced in.

19. The slide and jaws 67, having angular faces and carrying quadrant-shaped pieces 82, in combination with an adjustable bed having a V-shaped groove corresponding with the faces of the jaws and a semi-cylindrical piece 81, which forms with pieces 82 a perfect circle when the jaws are closed, as and for the purpose set forth.

20. The combination, with the arbors and the jaws, of spring-actuated slides 84, having curved recesses at their inner ends which permit the points of the arbors to pass but hold back the tubes and then permit the arbors to pass forward with the tubes as the jaws open.

21. The arbors, the bed, the jaws, and slide 72, in combination with slides 84, having recesses 87, and springs 85, whereby they are pressed together.

22. The bed, jaws 67, slide 72, and the reciprocating carriage having dogs 77, in combination with rod 74, having an arm adapted to engage said dogs, and pivoted lever 73, one end of which is pivoted to the slide and the other to rod 74.

23. The arbors, slide 72, and jaws 67, in combination with block 83, having an opening 86, slides 84, carried by said block, and springs 85, whereby they are held in position.

24. The combination, with the reciprocating carriage, the arbors, and an intermittently-rotating disk by which they are carried, of lubricator 59, whereby the arbors are lubricated, spring actuated slides 84, and jaws 67.

25. The reciprocating carriage and arbors 26 upon an intermittently-rotating disk carried thereby, in combination with lubricator 59, bed 78, having semi-cylindrical pieces 81, and jaws 67, having quadrant-shaped pieces 82, whereby the ends of the tubes are clamped to prevent crushing when the arbors are forced in.

26. The reciprocating carriage and arbors 26 upon an intermittently-rotating disk carried thereby, in combination with lubricator 59, jaws 67, and bed 78, having pieces 81 and 82, and spring-actuated slides 84, as described, and for the purpose set forth.

27. The arbors and lubricator 59, in combination with guide 141 and jaws 67.

28. The combination, with the arbors and jaws 67, which hold the tubes singly as the jaws are pressed in, of lubricating-roller 88, whereby the exterior of the tube is lubricated.

29. The combination, with the arbors, lubricator 59, and jaws 67,

which hold the tubes as the arbors are pressed in, of roller 88, whereby the tubes are lubricated as they are drawn out from the jaws.

30. Slide 90, carrying roller 88 and having an adjustable block 94, in combination with rock-shaft 96 and lever 95, carried by said shaft and pivoted to block 94.

31. The rock-shaft, slide 90, lever 95, and roller 88, in combination with cam 106, slide 102, having pivoted arm 103, and crank 99, secured to the rock-shaft and pivoted to slide 102.

32. The rock-shaft, lever 95, the crank, slide 102, having a pivoted arm, and face-cam 106, against which said arm bears, in combination with air-cylinder 138, having a petcock, and piston 140, pivoted to lever 95 and adapted to slide in said cylinder, as and for the purpose set forth.

33. Slide 96, carrying roller 88, slotted to receive an adjustable block 94, the rock-shaft, and lever 95, in combination with stop 135, spring 137, and the piston and air-cylinder.

34. Roller 88, the slide, and the rock-shaft, in combination with lever 95 and the piston and air-cylinder.

35. In a machine of the class described, cam 106 and the rock-shaft having lever 95 and crank 99, in combination with slide 102, to which said crank is pivoted and which is provided with a roller engaging said cam, whereby the shaft is actuated, and stop 135, whereby the oscillation of said shaft is limited.

36. The rock-shaft having crank 99 and oscillating face-cam 106, in combination with slide 102, to which said crank is pivoted, a stud 105 on said slide, and arm 103, pivoted to said slide and engaging said cam and provided with a curved slot through which the stud passes, whereby when the cam is oscillated in one direction the arm is held down and the slide reciprocated and when oscillated in the other direction the arm is raised and the slide remains stationary.

37. The combination, with the arbors, rollers 88 and 112, and casting 92, having a recess for lubricating material in which roller 112 rotates, of a slide 90, by which roller 88 is carried, and mechanism, as a rock-shaft and connections, by which said slide is reciprocated.

38. The reciprocating carriage and the tube-carrying arbors carried by an intermittently-rotating disk on said carriage, in combination with lubricating-roller 88, carried by a reciprocating slide, and a roller 112, rotating in a recess containing lubricating material, whereby during the forward movement of the carriage roller 88 receives lubricating material and during the backward movement of the carriage it lubricates tubes upon the arbors.

39. The tube-carrying arbors, roller 88, and roller 112 upon shaft 113, in combination with a reservoir, a casting having a recess 123 for lubricating material, and intermediate connections with shaft 107, whereby rocking motion is imparted to roller 112.

40. The combination, with the tube-carrying arbors and lubricating-roller 88, of a reservoir 120, having a passage leading to recess 123, a piston 124 for forcing the lubricating material into said recess, and a roller 112 in said recess, whereby the lubricating material is transferred to roller 88.

41. Arbors 26, rollers 88 and 112, and lubricator-reservoir 120, in combination with piston 124, rack 125, and a pinion and pawl whereby the piston may be lifted out of the reservoir to permit filling.

42. Rollers 88 and 112 and reservoir 120, having a passage leading to recess 123, in combination with rack 125, a piston pivoted to said rack, a weight for forcing down the lubricating material, and a pinion engaging said rack, whereby the piston may be raised out of the reservoir.

43. Reservoir 120, having a recess 123, communicating therewith, and roller 112, journaled in said recess, in combination with rack 125, a piston pivoted thereto, a pinion for raising said rack, a pawl for holding said rack in its raised position, and a spring-rack 134 for holding the pawl in disengaged position when the piston is in operative position.

44. The reciprocating carriage, the arbors, an intermittently-rotating disk upon said carriage by which the arbors are carried, and arbor-lubricator 59, in combination with jaws 67, from which the arbors take the tubes, and lubricating-roller 88, by which the tubes are lubricated on the arbors.

45. The reciprocating carriage, the arbors carried by an intermittently-rotating disk upon said carriage, and arbor-lubricator 59, in combination with jaws from which the tubes are taken by the arbors, a roller upon a reciprocating slide by which the tubes are lubricated during the backward movement of the carriage, and a roller 112, by which roller 88 is lubricated.

46. The reciprocating carriage and the arbors carried by an intermittently-rotating disk on said carriage, in combination with jaws 67, from which the paper tubes are taken by the arbors, and a chuck 146, having jaws 153, whereby the tubes are sized while on the arbors.

47. The arbors, the outer shell, and the chuck secured thereto, in combination with jaws 153, ring 154, secured to the chuck, whereby the jaws are held in place, and set-screws 156, whereby the jaws may be adjusted.

48. The tube-carrying arbors and the rotating outer shell carrying sizing-jaws 153, in combination with a non-rotating inner shell carrying stripping-jaws 161.

49. The outer shell carrying jaws 153 and provided with a belt-pulley whereby rotation is imparted, in combination with the inner shell having spring stripping-jaws secured thereto and clamp 158, whereby the inner shell is held in position.

50. The inner shell having shoulders 160 and the stripping-jaws having shanks 162, secured to the shell, as shown, in combination with clamp 158, the rotating outer shell, and the sizing-jaws carried thereby.

51. The inner shell carrying spring stripping-jaws and held by clamp 158, in combination with a rotating outer shell carrying chuck 146, provided with undercut ways 152 to receive the sizing-jaws, and ring 154, whereby said jaws are held in place.

52. The combination, with the tube-carrying arbors having shoulders 27, of the rotating outer shell carrying sizing-jaws through which the tubes pass while on the arbors and a non-rotating inner shell carrying stripping-jaws provided with shoulders 163.

53. The tube-carrying arbors and lubricating-roller 88, in combination with the chuck carrying sizing-jaws 153.

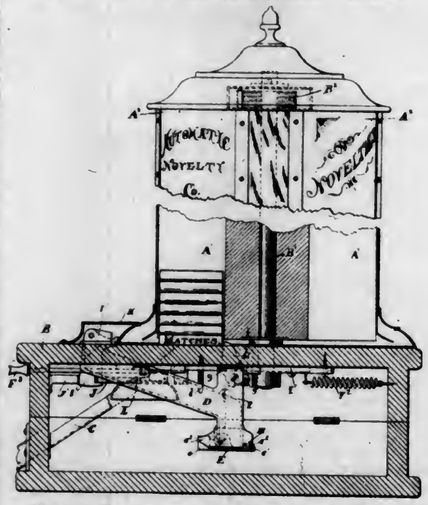
54. The arbors, lubricating-roller 88, and a rotating outer shell carrying a chuck with sizing-jaws, in combination with a non-rotating inner shell carrying spring stripping-jaws.

55. Lubricator 59 and the tube-carrying arbors, in combination with lubricating-roller 88 and the sizing-jaws.

56. Lubricator 59 and the tube carrying arbors, in combination with lubricating-roller 88, the sizing-jaws, and spring stripping-jaws.

57. The reciprocating carriage and the arbors carried by an intermittently-rotating disk, in combination with bracket 65, carrying lubricator 59 and the feeding mechanism, bracket 93, carrying lubricating-rollers 88 and 112, and bracket 143, having an opening 142, carrying the sizing and stripping jaws.

480,018. COIN-ACTUATED MACHINE. JAMES M. HUNTER, Chicago, Ill. Filed May 19, 1892. Serial No. 433,539. (No model.)



Claim.—1. In coin-actuated machines, the combination of a rotatable turret provided with storage-compartments, a spring for rotating the turret for bringing the storage-compartments successively into relation to a point of discharge, coin-actuated mechanism for releasing the discharging mechanism, and discharging mechanism for forcing out the desired article, substantially as described.

2. In coin-actuated machines, the combination of a rotatable turret provided with storage-compartments, a spring for rotating the turret for bringing the storage-compartments successively into relation to a point of discharge, means for holding the turret from rotating until after the discharge of an article, coin-actuated mechanism for releasing the discharging mechanism, and discharging mechanism for forcing out the desired article, substantially as described.

3. In coin-actuated machines, the combination of an article-storage compartment, coin-actuated mechanism for releasing the discharge mechanism, discharge mechanism comprising a longitudinally-movable bar, a pivoted discharge-finger advancing with said bar in an erect position, and means for tripping said finger at the limit of its advanced movement, substantially as described.

4. In coin-actuated machines, the combination of an article-storage compartment, coin-actuated mechanism for releasing the discharge mechanism, discharge mechanism comprising a longitudinally-movable bar, a pivoted discharge-finger, means for tripping it into its two positions, and a balanced latch closing the end of the coin-chute, the coin-chute provided with a hook, notch, and beveled corners, substantially as described.

5. In coin-actuated machines, the combination of a coin-chute, a latch closing the discharge end of the chute and locked to prevent it from being moved away from the end of the chute until unlocked by a coin, means for moving the latch away from the end of the chute when unlocked and at the same time advancing the discharge mechanism of the machine, and means for locking the latch and discharge mechanism against a second advance until they have been returned to their initial position, substantially as described.

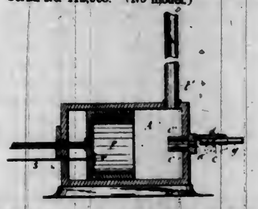
6. In coin-actuated machines, the combination of the draw-bar F', the flexible spring-bar J, with its latch *j* attached to and moving longitudinally with the draw-bar, the inclined guide J', arranged to throw the spring-bar into position for operating the turret-pawl, the pawl I' and lugs I for holding the turret in such position that its storage-compartments are in line with the discharge-opening, and the shield K for covering and limiting the motions of the pawl I, substantially as described.

7. In coin actuated machines, the combination of the draw-bar F', the discharge-finger G, attached thereto, and its lug g^3, moving with the draw-bar, and the stops g^5 g^4, arranged to trip the discharge-finger into two positions, substantially as described.

8. In coin-actuated machines, the combination of the draw-bar, the discharge-finger G and its lug g^3, attached thereto and moving with said bar, the stops g^5 g^4 for tripping the discharge-finger into its two positions, the vertical post F, attached to the draw-bar and carrying the balanced latch E at its lower end, the coin-chute D, with the hook e^3 at its lower end for locking the discharge mechanism in its initial position, the safety-notch H, located in the lower end to prevent the discharge mechanism from being moved forward until it has been returned to its initial position, and the beveled lower end e^2 for guiding the balanced latch, substantially as described.

9. In coin-actuated machines, the combination of the draw-bar F' and the discharging mechanism attached thereto, the vertical post F, attached to and moving with said bar, the flexible spring-bar L^3, with its weighted end L' attached to the post F, the post *l* for tripping the spring-bar L^3, and the bell L, substantially as described.

480,019. EXPLOSIVE ENGINE. JOHN JOYCE, Oswego, N. Y. Filed Nov. 21, 1891. Serial No. 412,605. (No model.)



Claim.—1. An explosive engine comprising a chamber, a piston in said chamber, a cartridge-holder in the end wall of said chamber, a cartridge-ejector movably connected to the cartridge-holder, a cartridge-carrier movable toward and from said holder, and a plunger in said carrier, as set forth.

2. In an explosive engine, the combination of a chamber, a piston in said chamber, a cartridge-holder in the end wall of the chamber, a cartridge-carrier movable toward and from the holder, a plunger in said carrier, a lever connected to said plunger, a hammer back of the plunger, a spring drawing the hammer to the plunger, an arm adapted to hold the hammer remote from the plunger, a cam on the aforesaid lever adapted to throw the arm out of engagement with the hammer, and connections between said levers and main shaft of the engine to operate said levers, as set forth.

3. An explosive engine comprising a chamber, a piston in said chamber, a cartridge-holder in the end wall of the chamber, a cartridge-ejector movably connected to the cartridge-holder, and a lever connected to said ejector and actuated by the main shaft of the engine, as set forth.

4. The combination, with the chamber A and piston P, of the block C, seated stationary in the rear wall of said chamber, the block C', seated movable longitudinally on the block C, and the port *a* in the adjacent sides of said blocks, the loops *d d*, extending rearward from the movable block C', and the rock-arm D, consisting of two rods united at the ends and spread apart at the center and passing through the aforesaid loops, as and for the purpose set forth.

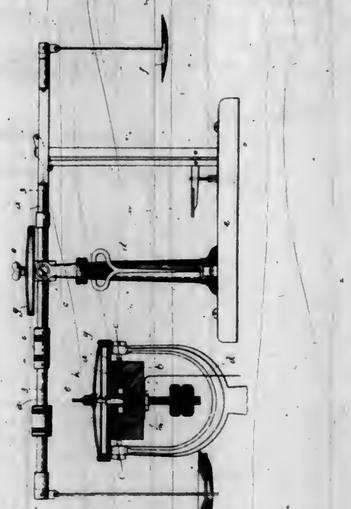
5. In combination with the chamber A and piston P, the cartridge-holder C C', pivoted post *f*, cartridge-carriers *c c'*, pivotally connected at the front end to said post, the lever A, and the plunger *g*, connected to said lever and supporting the rear end of the plunger, substantially as described and shown.

6. In combination with the chamber A, provided with the cartridge-holder in its end wall, the cup-shaped piston P, disposed with its mouth toward the cartridge-holder, and the valve *v*, connected to the solid end of the cup and arranged to open inward, substantially as and for the purpose set forth.

7. In combination with the case A and cross-head T, the piston P, formed cup-shaped and having its closed end toward the front and provided with the valve *v*, and the stem *s*, adjustably connected to the cross-head and having its inner end in line with said valve, as and for the purpose set forth.

8. In combination with the case A and piston P, the cartridge-holder C C', cartridge-carrier *c c'*, plunger *g*, lever A, connected to said plunger and actuated by the main shaft of the engine, the cam *i*, attached to said lever, the hammer H, provided with the shoulder *l*, the arm *l'*, adapted to engage said shoulder, and the spring S, drawing the hammer toward the plunger, substantially as set forth.

480,020. WEIGHING-SCALES. EDWARD C. JUDD, Boston, Mass., assignor to the American Scale Manufacturing Company, same place. Filed Mar. 30, 1891. Renewed July 5, 1892. Serial No. 438,936. (No model.)



Claim.—The combination of the block *b*, pivoted to a supporting-standard, the beam passing through and affixed to said block and provided with a longitudinal slot or guide, a rack-bar adapted to slide in said slot or guide, a weight engaged with one end of said bar, and a hand or pointer carrying shaft journaled in said block and provided with a pinion meshing with said bar and at its upper end with a handle or thumb-piece, whereby the shaft may be rotated to move the weight through the rack-bar, said shaft passing through a dial affixed to the block, as set forth.

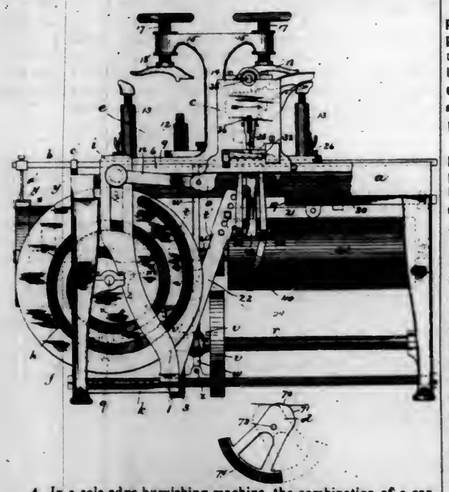
480,021. SOLE-EDGE-BURNISHING MACHINE. GEORGE A. KNOX, Lynn, Mass. Filed Sept. 3, 1889. Renewed Dec. 30, 1891. Serial No. 416,565. (No model.)

Claim.—1. In a sole-edge-burnishing machine, the combination of a carriage having a burnishing-tool, means for impelling said tool upon the carriage, fixed guides on which said carriage is movable in a rectilinear direction, automatic means, substantially as described, whereby said carriage is given a progressive movement on said guides, then held at rest, and then given a second progressive movement, a jack adapted to be partially rotated, and means, substantially as described, for giving said jack a half-rotation while the carriage is held at rest between its first and second progressive movements, as set forth.

2. In a sole-edge-burnishing machine, the combination of a carriage, fixed guides on which said carriage is movable in a rectilinear direction, a burnishing-tool mounted on the carriage, independent

means for reciprocating said tool, automatic means, substantially as described, for giving said carriage a first and a second progressive movement in one direction, and means, substantially as described, for stopping the operation of the machine at the end of the second progressive movement, as set forth.

3. In a sole-edge-burnishing machine, the combination of a carriage, fixed guides on which said carriage is movable in a rectilinear direction, a burnishing-tool mounted on said carriage, a motor having the cam-grooved disk *f*, and connections between the same and the carriage for giving said carriage a first and a second progressive movement in one direction, and automatic means, substantially as described, for reversing the said motor and thereby giving the carriage a first and a second progressive movement in the opposite direction, as set forth.



4. In a sole-edge-burnishing machine, the combination of a carriage, a burnishing-tool thereon, a power-rotated disk *f*, having two cam-grooves *h h'*, connections, substantially as described, between the cam-groove *h* and the carriage, whereby the latter is given a first and a second progressive movement in one direction and an intermediate period of rest, a jack pivotally connected to a fixed support and provided with a pinion concentric with its pivot, a movable rack engaged with said pinion, and connections, substantially as described, between said rack and the cam-groove *h'*, whereby the rack is held at rest during the progressive movements of the carriage and moved to partly rotate the pinion and jack while the carriage is at rest between said movements, as set forth.

5. In a sole-edge-burnishing machine, the combination of a carriage, a burnishing-tool thereon, a shaft, as 38, journaled in bearings on said carriage and adapted to reciprocate the burnishing-tool, means for giving the carriage a first and a second progressive movement in one direction, an elongated pulley impelled by the power that gives the carriage its progressive movements, and a belt which communicates motion from said pulley to the tool-reciprocating shaft on the carriage, said belt being adapted to move along the elongated pulley with the carriage, as set forth.

6. In a sole-edge-burnishing machine, the combination of a carriage, a burnishing-tool thereon, a shaft journaled in bearings on said carriage and adapted to reciprocate the burnishing-tool, means for moving the carriage progressively, an elongated power-driven pulley, a belt running from said pulley to the tool-reciprocating shaft on the carriage, and a bracket affixed to the carriage and provided with flanged idle-pulleys, whereby the belt is moved with the carriage along the elongated pulley, as set forth.

7. In a sole-edge-burnishing machine, the combination of a carriage, a burnishing-tool thereon, a driving shaft *u*, having fast pulleys *y y'* and a loose pulley *z*, intermediate means operated by said shaft, whereby the carriage is moved progressively, a belt-shipper engaged with a driving-belt on said pulleys and having adjustable collars *d' d*, and a projection *f'* on the carriage arranged to strike said collars and move the shipper to stop the machine at the end of the progressive movement of the carriage in each direction, as set forth.

8. In a sole-edge-burnishing machine, the combination of the shaft *u*, having the fast pulleys *y y'* and loose pulley *z*, the shaft *u*, the loose pulleys *e d'* on said shaft connected by belts 80 81 with fast pulley *ff* on the shaft *u*, one of said belts being crossed and the other open, a clutch *v* on the shaft *r*, adapted to engage either the pulley *z* or the pulley *d'* with said shaft, a carriage *c*, having a burnishing-tool, the cam-grooved disk impelled by a connection with the shaft *r*, connections between said disk and the carriage whereby the latter is moved progressively by the rotation of said disk, a shipper *a'*, engaged with the belt that imparts motion to the shaft *u*, a bar *b'*, carrying said shipper and provided with collars *d' d*, a lug *f'* on the carriage *c*, arranged between said collars and adapted to move the bar and shipper to stop the operation of the machine at the ends of the progressive movement of the carriage, and a connection, as the lever *w*, between the shipper-bar and the clutch *v*, whereby a movement of the shipper-bar by the operator to start the machine after each stoppage thereof also reverses the rotation of the disk *f* and changes the direction of the progressive movement of the carriage, as set forth.

9. In a sole-edge-burnishing machine, a jack composed of a base-plate connected at one end by a pivot 7 to a fixed support, an upper plate connected centrally to said base-plate by a pivot 10 at one side of the pivot 7, and duplicate boot or shoe holding devices supported by said upper plate at opposite sides of the pivot that connects the latter with the base-plate, combined with a burnishing-tool, and means, substantially as described, for presenting said tool to a sole-edge supported by said jack, as set forth.

10. In a sole-edge-burnishing machine, a jack composed of a base-plate connected at one end by a pivot 7 with a fixed support, an upper plate 9, connected centrally by a pivot 10 with said base-plate and having a central post 14, arms 15 on said post, screws 17, working in sockets in two pairs of standards 12 13 on the upper plate 9, said arms and clamps on said screws formed to bear simultaneously on the heels and soles of boots or shoes supported by said standards, combined with a burnishing-tool, and means, substantially as described, for presenting said tool to a sole-edge supported by said jack, as set forth.

11. In a sole-edge-burnishing machine, the combination of a carriage, fixed guides on which said carriage is movable in a rectilinear direction, means for moving the carriage progressively, a holder, as 53, mounted on the carriage and provided with parallel guides and with locking devices, whereby it may be secured to the carriage with said guides in either a horizontal or an inclined position, and a reciprocating cross-head fitted to move on the guides supported by the cross-head, as set forth.

12. In a sole-edge-burnishing machine, the combination of a carriage, fixed guides on which said carriage is movable in a rectilinear direction, means for moving the same progressively, a reciprocating cross-head movable on guides on the carriage, vertical guides on said cross-head, a slide movable vertically on said guides, and a burnishing-tool carried by said slide and adapted thereby to rise and fall while in operation, as set forth.

13. In a sole-edge-burnishing machine, the combination of a carriage, fixed guides on which said carriage is movable in a rectilinear direction, means for moving the carriage progressively, a reciprocating cross-head movable on guides on said carriage, a vertically-movable slide on said cross-head, a burnishing-tool carried by said slide, and an arm or presser-foot attached to said slide and adapted to bear on the tread-surface of the sole of a boot or shoe held in a fixed position whereby said slide and tool are caused to rise and fall by the curvature of said tread-surface, as set forth.

480,022. WHEEL. AXEL LEVEDAHL, Aurora, Ill., assignor to the Gardner Sewing Machine Company, same place. Filed Apr. 21, 1892. Serial No. 430,107. (No model.)



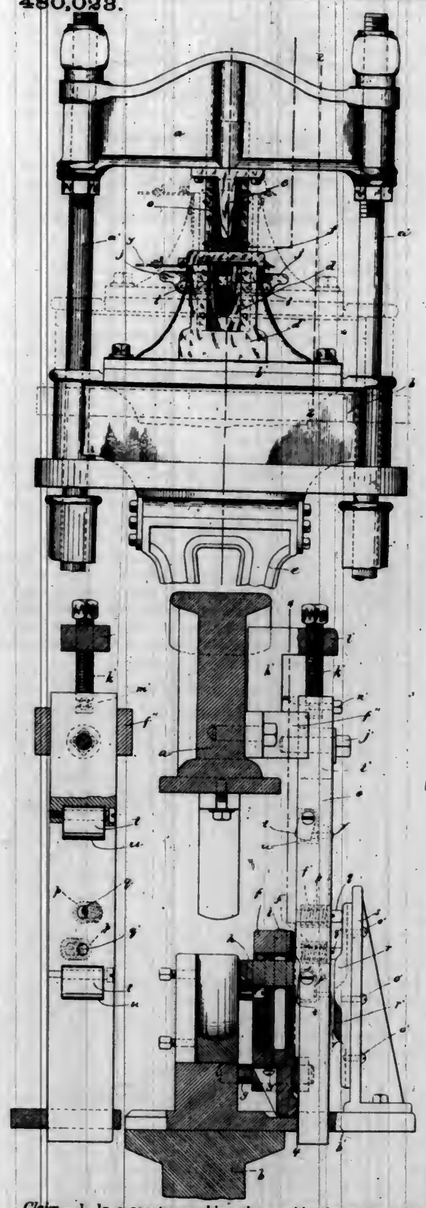
Claim.—1. The wheel, substantially as described, consisting of a rim, a flat sheet-metal plate secured to the rim at or near its outer margin, a hub secured to the said metal plate, and braces connecting the body of the wheel with the hub externally to the plate.

2. In combination with a wheel-rim, a flat sheet-metal plate secured to the rim at or near its outer edge, a hub secured to the plate and projecting externally thereto, and inclined braces connecting the outer end of the hub with the wheel at or near its margin.

3. In combination with a wheel-rim, a flat sheet-metal plate secured to the rim at or near its outer edge, a hub secured to the plate and projecting externally thereto, and braces connected with the outer end of the hub and passing through the plate into connection with the rim.

480,023. HEEL-STIFFENER MACHINE. LEMUEL W. LITCH, Swampscott, Mass. Filed Feb. 21, 1891. Renewed June 20, 1892. Serial No. 437,346. (No model.)

480,023.



Claim.—1. In a counter-machine, the combination of the fixed male former, the female former mounted on a reciprocating cross-head, the yoke affixed to said cross-head, the block *h*, adapted to move with said yoke and also independently thereof on vertical guides in the yoke, the side wipers *j j*, pivoted to said block, studs affixed to the yoke and projecting into slots in said pivoted wipers, and means for arresting said block at a given point in the movement of the female mold, thereby causing the wipers to swing crosswise of the path in which the female former moves, as set forth.

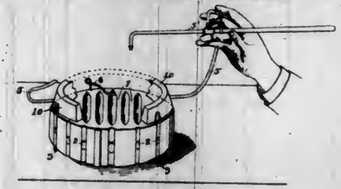
2. In a counter-machine, the combination of the fixed male former, the female former mounted on a reciprocating cross-head, the yoke affixed to the cross-head and provided with vertical guides, the block *h*, movable on said guides and having the flange-wiper *g'*, the side wipers pivoted to said block at opposite ends of the wiper *g'*, and means, substantially as described, for swinging said side wipers to form the side portions of a counter-flange, the wiper *g'* forming the intermediate portion of said flange, as set forth.

3. In a counter-machine, the combination of the fixed male former, the female former mounted on a reciprocating cross-head, the yoke affixed to the cross-head and provided with vertical guides, the block *h*, movable on the said guides and having the flange-wiper *g'*, the side wipers pivoted to said block at opposite ends of the wiper *g'*, the binding-bar *o*, secured to a fixed support and provided with the spring-retracted pins or bolts *q q'*, adapted to engage the block *h*, and the standards *s*, affixed to the reciprocating cross-head and provided with cams or projections *r r'*, adapted to project said pins, as set forth.

4. In a counter-machine, the combination of the fixed male former, the female former mounted on a reciprocating cross-head, the yoke affixed to the cross-head and provided with vertical guides, the block *h*, movable on said guides and having the flange-wiper *g'*, the side wipers pivoted to said block at opposite ends of the wiper *g'*, the binding-bar *o*, secured to a fixed support and provided with the spring-retracted pins or bolts *q q'*, adapted to engage the block *h*, the standards *s*, affixed to the reciprocating cross-head and provided with cams or projections *r r'*, adapted to project said pins, and means for vertically adjusting said binding-bar, as set forth.

5. In a counter-machine, the combination of the fixed male former, the female former mounted on a reciprocating cross-head, the yoke affixed to the cross-head and provided with vertical guides, the block *h*, movable on said guides and having the flange-wiper *g'*, the side wipers pivoted to said block at opposite ends of the wiper *g'*, the binding-bar *o*, secured to a fixed support and provided with the spring-retracted pins or bolts *q q'*, adapted to engage the block *h*, the standards *s*, affixed to the reciprocating cross-head and provided with cams or projections *r r'*, adapted to project said pins, and the take-up pieces *t t*, mounted on said binding-bar and arranged to rigidly support the yoke and flange-wipers during the flange-forming operation, as set forth.

480,024. BLOWPIPE-PAD. GEORGE W. MELOTTE, Ithaca, N. Y. Filed Mar. 2, 1892. Serial No. 423,469. (No model.)



Claim.—A bed or pad for soldering jewelry and the like, provided with ridges formed on the face of the bed integral therewith and adapted to support the articles to be soldered and permit access of flame and heat to their under sides, said pad being open directly over the ridges to allow free use of a blowpipe, substantially as set forth.

480,025. JOURNAL-BEARING. JOHN R. MONTAGUE and JOHN A. PROSS, Syracuse, N. Y. Filed Nov. 2, 1891. Serial No. 410,642. (No model.)



Claim.—1. A journal-bearing consisting of the combination, substantially as hereinbefore set forth, of a series of rollers of uniform diameter from end to end, a series of sets of balls arranged between the rollers, and means for holding the rollers and the balls in position.

2. A journal-bearing consisting of the combination, substantially as hereinbefore set forth, with a housing, of a series of rollers and a series of sets of balls arranged between the rollers, each roller being a little greater in diameter than that of each ball and about equal in length to each set of balls.

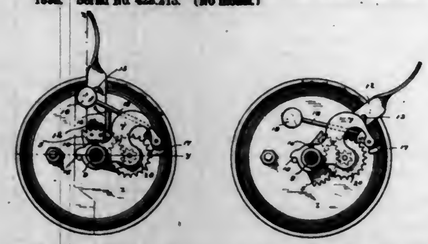
3. The combination, substantially as hereinbefore set forth, of a shaft, a flanged sleeve secured thereto, a bearing-block formed with a recessed opening, within which the sleeve is arranged, a series of rollers arranged between the flanges, and a series of sets of balls also arranged between the flanges and between the rollers.

4. The combination, substantially as hereinbefore set forth, of a shaft, a flanged sleeve secured thereto, a bearing-block formed with a recessed opening, within which the sleeve is arranged, a bushing seated in the opening and interposed between the sleeve and the block,

a series of rollers arranged between the flanges, and a series of sets of balls arranged between the flanges and between the rollers.

5. The combination, substantially as hereinbefore set forth, of a shaft, a flanged sleeve secured thereto, a bearing-block formed with a recessed opening, within which the sleeve is arranged, a series of rollers, a series of sets of balls arranged between the flanges, and the securing-ring which closes the opening at one side of the bearing-block and serves to hold the parts in position.

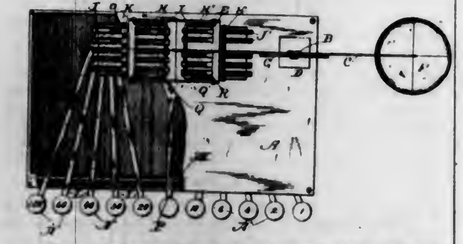
480,026. BICYCLE-BELL. AUGUSTUS MORTON, Bridgeport, Conn., assignor to The Bridgeport Brass Company, same place. Filed Feb. 29, 1892. Serial No. 422,913. (No model.)



Claim.—1. The combination, with the standard, bell, and hammer, of the operating-lever having a stop 13, against which the hammer normally rests, the segment-gear, a verge to which the hammer is attached, a pinion engaging the segment-gear, and an escape-wheel connected to the pinion and engaging the verge, so that movement of the lever in either direction will cause the hammer to strike the bell, the stop acting to hold the hammer out of contact with the bell until the lever is moved.

2. The combination, with the bell and hammer, of the operating-lever, connections intermediate the operating-lever and the hammer which vibrate the latter when the lever is moved, a spring acting to return the lever to position, and a stop upon the lever, which is normally engaged by the hammer to prevent the latter from striking the bell.

480,027. WEIGHT-PAN FOR BALANCES. ROBERT H. MCCLELLAND, Williamsville, Ill. Filed Jan. 26, 1892. Serial No. 419,346. (No model.)

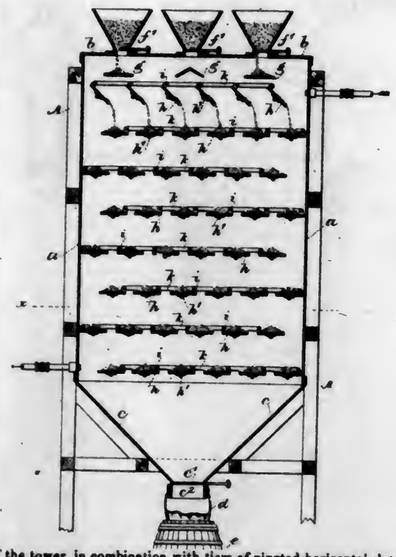


Claim.—An improved device for weighing, consisting of a scale-pan provided with two or more tilting cups or receptacles arranged in series, a suitable finger-lever for tilting all of the receptacles within a series, two or more tilting weight-holding cups or receptacles, and an independent finger-lever for tilting each of said cups or receptacles, in combination with two or more disk-shaped weights, all combined substantially as described.

480,028. APPARATUS FOR MAKING BLEACHING-POWDER. EDMUND C. NATION, Peekskill, assignor to himself, and Eugene Waugh, Brooklyn, N. Y. Filed Jan. 11, 1892. Serial No. 417,621. (No model.)

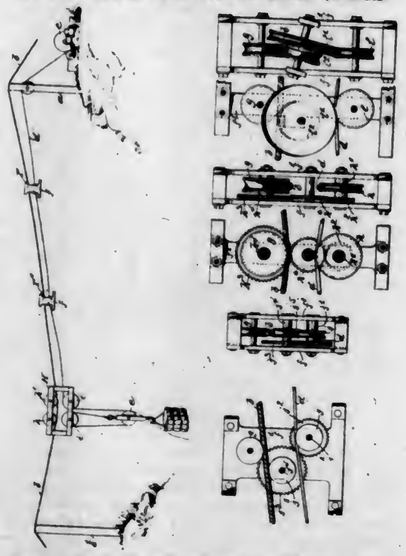
Claim.—1. A closed tower for the manufacture of bleaching-powder, having feed-hoppers and slides at the upper end and a hopper at the lower end and a pipe for supplying the gas at the upper part of the tower, in combination with tiers of pivoted horizontal slats at suitable distances and with the slats in one tier above the spaces between the slats in the next tier, the slats in each tier being connected at one end, and means for tilting the slats from outside the tower, substantially as specified.

2. A closed tower for the manufacture of bleaching-powder, having hoppers and slides at the upper end for supplying the hydrated lime into such tower and a hopper at the lower end for receiving the bleaching-powder and a pipe for supplying the gas at the upper part



of the tower, in combination with tiers of pivoted horizontal slats set at suitable distances one above the other, the slats of one tier being intermediate to those of each other tier, bosses upon the corners of the slats, rods pivoted to said bosses for connecting the slats of the respective tiers, the shaft of one slat in each tier passing outside the tower, and a crank-arm or equivalent device connected therewith for tilting the slats of the tiers, substantially as specified.

480,029. CONVEYING APPARATUS. CHARLES M. NORTH, Montclair, N. J., assignor to the Lidgerwood Manufacturing Company, New York, N. Y. Filed Mar. 8, 1892. Serial No. 424,135. (No model.)



Claim.—1. In a conveying apparatus, in combination, a cable or track-way, a load-carriage, a rope traveling therewith, and a rope-carrier containing a wheel adapted to be turned by said traveling rope, a wheel adapted to bear against the cable or track-way, and connections between said two wheels, whereby the rotation of the first is communicated to the second, substantially as described.

2. In a conveying apparatus, in combination, a cable or track-way, a load-carriage, a rope traveling therewith, and a series of rope-carriers, each containing a wheel adapted to be turned by said traveling rope, a wheel adapted to bear against said cable or track-way, and connections between said two wheels, whereby the rotation of the first is communicated to the second, the said connections being constructed to produce various speeds as between different members of the series, substantially as described.

3. In a conveying apparatus, in combination, a cable or track-way, a load-carriage, a rope traveling therewith, and a rope-carrier containing a wheel adapted to be turned by said traveling rope, a wheel adapted to bear against said cable or track-way, and connections between said two wheels, whereby the rotation of the first is communicated to the second at a reduced speed, substantially as described.

4. In a conveying apparatus, in combination, a cable or track-way, a load-carriage, a rope traveling therewith, and a rope-carrier mounting the following parts, viz: two wheels between which the cable or track-way is clamped, a third wheel adapted to support said traveling rope, and connections whereby the rotation of said third wheel is communicated to one of the two wheels first mentioned, substantially as described.

5. In a conveying apparatus, in combination, a cable or track-way, a load-carriage, a rope traveling therewith, the supports by which said cable or track-way is stretched on an incline, and a rope-carrier mounting the following parts, viz: a wheel adapted to run on top of the cable or track-way, two wheels arranged below on opposite sides of a vertical line dropped from the center of the first wheel, and connections between said lower two wheels, one of said lower two wheels being adapted to support said traveling rope and the other being adapted to bear against the under side of the cable or track-way, substantially as described.

6. In a conveying apparatus, in combination, a cable or track-way, a load-carriage, a rope extending to said load-carriage and running approximately parallel with the cable or track-way, and a rope-carrier mounting the following parts, viz: a traction device adapted to travel on the cable or track-way and mechanism actuated by said rope, whereby the movement of said traction device, and thereby that of the carrier, is controlled, substantially as described.

7. In a conveying apparatus, in combination, a cable or track-way, a load-carriage, a rope extending to said carriage and running approximately parallel with the cable or track-way, and a series of rope-carriers, each of which mounts the following parts, viz: a traction device adapted to travel on the cable or track-way and mechanism actuated by said traveling rope, whereby the movement of said traction device, and thereby that of the carrier, is controlled, substantially as described.

8. In a conveying apparatus containing a cable or track-way, a carriage, a rope extending to said carriage and running approximately parallel with the cable or track-way, a rope-carrier, a device mounted on said carrier, adapted to travel on the cable or track-way, and a device mounted on said carrier, adapted to engage with said rope, the combination, with said devices, of connections whereby the motions of one of said devices are communicated to the other, substantially as described.

9. In a conveying apparatus containing a cable or track-way, a carriage, a rope extending to said carriage and running approximately parallel with the cable or track-way, a series of rope-carriers, a device mounted on each of said carriers, adapted to travel on the cable or track-way, and a device mounted on each of said carriers, adapted to engage with said rope, the combination, with said devices on each carrier, of connections whereby the motions of one are transmitted to the other, the speed of said transmission being in decreasing series from the carriage toward the end of the cable or track-way, substantially as described.

10. In a conveying apparatus, in combination, a load-carriage, a cable or track-way, a member connected with the carriage and extending along the cable or track-way, a rope-carrier, mechanism mounted thereon engaging with and driven by said member, propelling mechanism, also mounted upon said carrier, and means whereby the movement of the mechanism driven by said member is communicated at a reduced speed to said propelling mechanism, substantially as described.

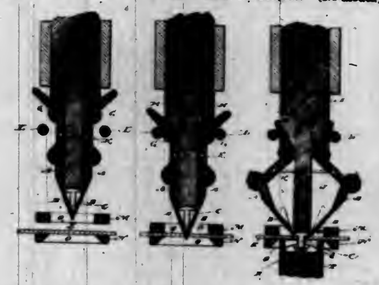
11. In combination, a cable or track-way, a load-carriage, a fall-rope extending to said load-carriage, and a fall-rope carrier mounting the following parts, viz: a propelling device engaging with said cable or track-way and mechanism engaging with said fall-rope, whereby the motions of said fall-rope are communicated to said propelling device, substantially as described.

480,080. SPRING-RIM FOR VELOCIPEDE-WHEELS. WILLIAM J. PERRY, Bristol, England. Filed Mar. 17, 1892. Serial No. 425,298. (No model.) Patented in England May 14, 1891, No. 8,349.



Claim.—In a spring-rim, the combination, with the rim B, of the series of springs A, curved or otherwise shaped so as to partly overlap each other, the holes *d*, by means of which the springs are fastened to the rim B, the resilient substance C, mounted upon the material D, the substance C being graduated in thickness from the center to the edges, causing the center or exposed part *d* to be the thickest, the holes *e* in part D, and means engaging therewith for holding the substance C in position, substantially as set forth.

480,081. BUTTON-SETTING MACHINE. IRVING G. PLATT, Waterbury, Conn. Filed Mar. 1, 1889. Serial No. 301,639. (No model.)



Claim.—1. In a machine for attaching hollow-shanked buttons to cloth, the combination, with a reciprocal shank-carrier pointed at its lower end to puncture the cloth, constructed to contain a button-shank, and comprising one or more movable members, of a plunger arranged to move in line with the said shank-carrier when the same is in its normal position to push the contained button-shank out of it, a button-head carrier, means for actuating the same, and a cloth-holder located between the said shank-carrier and plunger and the said button-head carrier, substantially as set forth.

2. In a machine for attaching hollow shanked buttons to cloth, the combination, with a reciprocal shank-carrier having its lower end pointed to puncture the cloth, constructed to receive a button-shank, and comprising one or more pivotal arms, of a plunger arranged to move in line with the said shank-carrier when the same is in its normal position to push the contained button-shank out of it, a button-head carrier, means for actuating the same, and a cloth-holder located between the shank-carrier and plunger and the button-head carrier, substantially as set forth.

3. In a machine for attaching hollow-shanked buttons to cloth, the combination, with a reciprocal shank-carrier pointed at its lower end to puncture the cloth, constructed to contain a button-shank and with a lateral opening to admit the same, and comprising one or more pivotal arms, of a plunger arranged to move in line with the said shank-carrier when the same is in its normal position to push the contained button-shank out of it, a button-head carrier, means for actuating the same, and a cloth-holder located between the shank-carrier and the plunger and the button-head carrier, substantially as set forth.

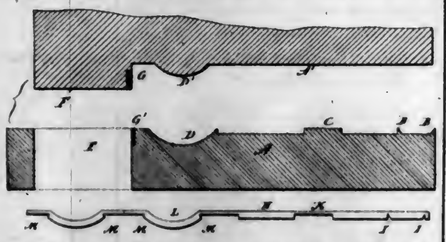
4. In a machine for attaching hollow-shanked buttons to cloth, the combination, with a reciprocal shank-carrier pointed at its lower end to puncture the cloth, constructed to contain a button-shank, and comprising one or more pivotal arms, of a reciprocal head constructed at its lower end with a plunger and having the said arm or arms pivoted to it, stationary means independent of the head for co-operating with the shank-carrier to withdraw the pointed end thereof from the cloth, a button-head carrier, means for actuating the same, and a cloth-holder located between the said button-head carrier and the said reciprocating head, substantially as set forth.

5. In a machine for attaching hollow-shanked buttons to cloth, a reciprocating head carrying a plunger, two bell-crank levers pivoted to such head on opposite sides of the said plunger, two shank-carrying arms having their lower ends pointed and pivoted to the lower ends of the said levers, and means for rocking the levers to separate the shank-carrying arms and so withdraw them from the cloth, substantially as set forth.

6. In a machine for attaching hollow-shanked buttons to cloth, the combination, with a reciprocal head constructed at its lower end with a plunger, of two bell-crank levers pivoted to the said head on opposite sides of the said plunger, two shank carrying arms pivoted

to the lower ends of the said levers and having their lower ends pointed and constructed to contain a button-shank which they normally support below the lower end of the said plunger, stationary pins for engagement by the upper ends of the bell-crank levers as the said head descends, a spring for holding the levers and arms in their normally-closed positions, a button-head carrier, means for actuating the same, and a cloth-holder located between the lower ends of the said arms and the button-head carrier, substantially as set forth.

480,032. METHOD OF FORMING BUTTON-BARS. IRVING G. PLATT, Waterbury, Conn. Filed Dec. 21, 1891. Serial No. 415,775. (No specimens.)



Claim.—1. A method of forming button-bars, consisting in flattening the stock-strip to form walls standing approximately at a right angle to the face thereof and bending the unflattened strip between two of such walls, whereby they are set to form, virtually, undercut shoulders, substantially as described.

2. A method of forming button-bars, consisting in first forming two notches near together in the same face of the stock-strip, the outer walls of the notches standing approximately at a right angle to the faces of the said strip, then flattening the strip between the notches, then bowing the unflattened strip between two places so notched and flattened, and then cutting up the strip midway of the length of the flattened places, substantially as described, and whereby by notching and bending the strip as described virtually undercut shoulders are formed in the bar between its ends and bowed central portion.

480,033. METHOD OF PREPARING BATTERY SOLUTIONS. EDWARD POPPOWITSCH, Brooklyn, N. Y. Filed Feb. 6, 1892. Serial No. 420,577. (No specimens.)

Claim.—1. The described method of preparing a saturated solution for a battery fluid, consisting in suspending a mass of soluble crystals at a point near the bottom of the solvent or liquid and allowing the bottom portion of the liquid to absorb the dissolved crystals, and then raising the mass to a higher point for a time, and continuing the steps in succession until the liquid has become fully saturated.

2. The described method of preparing a saturated solution of bichromate of potash or analogous depolarizing-salt for use in a voltaic battery, consisting in suspending a mass of bichromate crystals in a volume of water at a point near the bottom of the containing-vessel until the lower portion of the volume is completely saturated, then raising the mass a short distance until an additional portion of the volume is completely saturated, and continuing the successive steps until the entire or complete saturation is effected.

480,034. APPARATUS FOR FORMING AND SOLDERING SHEET-METAL CANS. WILLIAM P. QUENTELL, Kansas City, Mo. Filed Oct. 31, 1891. Serial No. 410,531. (No model.)

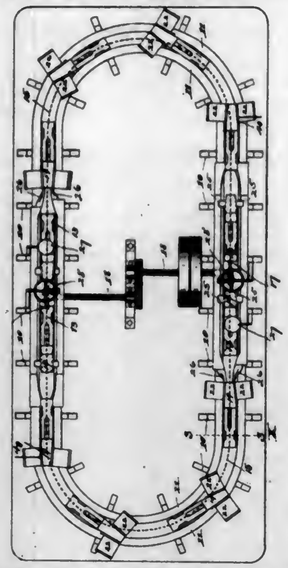
Claim.—1. In an apparatus for forming sheet-metal cans and soldering the side seams thereof, the combination, with a track, of a carriage movable upon said track, a form mounted on said carriage, folders mounted upon the carriage, adapted to engage the blank, and stationary cams adapted to move the folders, and means for soldering the seam, substantially as described.

2. In an apparatus for forming sheet-metal cans and soldering the side seams thereof, the combination, with a track, of a carriage movable upon said track, a form mounted on said carriage, folders mounted upon the carriage, adapted to engage the stock and fold it upon the form, and means for applying the solder to the seam, and an ejector adapted to strip the finished can from the form, substantially as described.

3. In an apparatus for forming sheet-metal cans and soldering the side seams thereof, the combination, with a track, of a carriage movable upon said track, a form mounted on said carriage, a bed-plate to support the blank, folders mounted upon the carriage, adapted to engage the stock and fold it upon the form, and means for applying the solder to the seam, substantially as described.

4. In an apparatus for forming sheet-metal cans and soldering the side seams thereof, the combination, with a track, of a carriage movable upon said track, a form mounted on said carriage, a bed-plate located beneath the form to support the blank, vertically-movable folders hinged to the bed-plate, said folders adapted to engage the stock and fold it upon the form, and means for applying the solder to the seam, substantially as described.

5. In an apparatus for forming sheet-metal cans and soldering the side seams thereof, the combination, with a track, of a carriage movable upon said track, a form mounted on said carriage, folders mounted upon the carriage, adapted to engage the stock and fold it upon the form, and a solder-receptacle having a valve therein whereby to apply the solder to the seam, substantially as described.

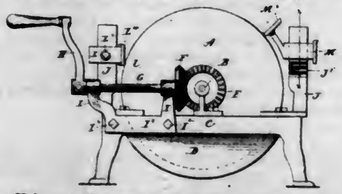


6. In an apparatus for forming sheet metal cans and soldering the side seams thereof, the combination, with a track, of a carriage movable upon said track, a form mounted on said carriage, folders mounted upon the carriage, adapted to engage the stock and fold it upon the form, a solder-receptacle provided with a valve, and means to operate said valve whereby to apply solder to the seam, substantially as described.

7. In an apparatus for forming sheet-metal cans and soldering the side seams thereof, the combination, with a track, of a carriage movable upon said track, a form mounted on said carriage in fixed relation thereto, a bed-plate pivotally mounted on the carriage and adapted to support a blank, folders mounted upon the carriage and adapted to engage the stock and fold it upon the form, and means for applying the solder to the seams, substantially as described.

8. In an apparatus for forming sheet-metal cans and soldering the side seams thereof, the combination, with a horizontal track, of a carriage movable upon said track, a form mounted on said carriage in fixed relation thereto, a pivoted bed-plate to support the blank, pivoted folders mounted upon the carriage and adapted to engage the blank, and suitable means for soldering the seams, substantially as described.

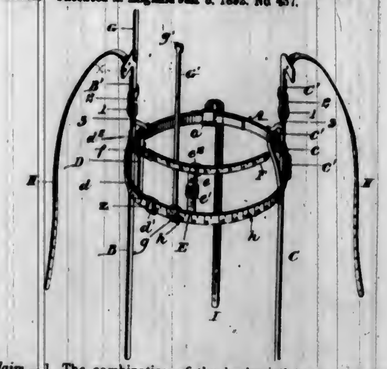
480,035. CUTLERY-GRINDER. DANIEL REED, Ansonia, Conn. Filed Jan. 4, 1892. Serial No. 416,974. (No model.)



Claim.—1. In a machine for grinding cutlery, the combination, with the standard thereof, of a grindstone journaled thereupon, means for rotating the said stone, a laterally-adjustable rest-carrier having two corresponding horizontal slotted feet adapted in their spread to rest upon the opposite sides of the said standard at one end thereof, and an upright riding centrally between the said feet, and a rest having an opening to adapt it to fit over the said upright to which it is adjustably secured.

2. In a machine for grinding cutlery, a rest having a square face constructed at its lower edge with an inwardly-projecting curved lip, substantially as described.

480,036. TAILOR'S MEASURING APPARATUS. JOHN H. REESE, Philadelphia, Pa. Filed Dec. 16, 1891. Serial No. 415,236. (No model.) Patented in England Jan. 8, 1892. No. 437.



Claim.—1. The combination of the horizontal body-encircling band, a main vertical arm rigidly affixed thereto so as to cross the same, a similar arm adjustably connected with said band, and a short vertical arm adjustably mounted upon the band in rear of one of said main vertical arms, the said main vertical arms being adapted to bear forwardly against the arms of the person to whose body the band is applied and the said short vertical arm being adapted to be adjusted rearwardly toward one arm of the person, substantially as described.

2. The combination of the main horizontal body-encircling band, a main vertical arm affixed thereto so as to cross the same and adapted to bear forwardly against the arm of the person to whose body the band is applied, an angular section extensible on the upper portion of said main vertical arm, and a short vertical arm adjustably mounted in rear of the said main vertical arm and adapted to be adjusted rearwardly toward the arm of the person, substantially as described.

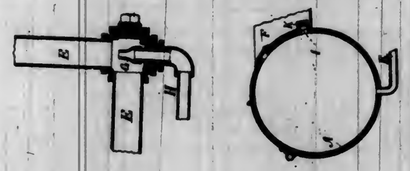
3. The combination of the main horizontal band, a main vertical arm thereon, a horizontally-adjustable arm in the rear of said vertical arm, and a vertically-movable horizontal band having a sliding connection with said adjustable arm, substantially as described.

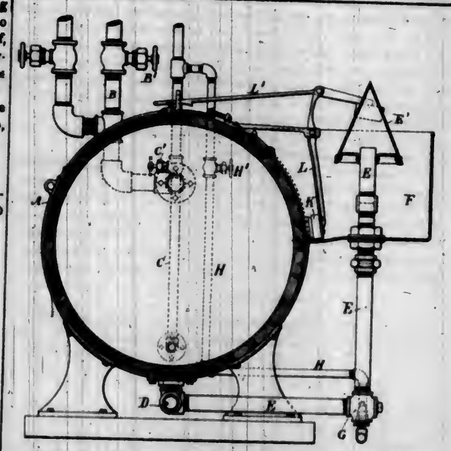
4. The combination of the main horizontal band, the vertical arm, its extensible angular section, the flexible member G, the horizontally-adjustable arm D, the vertically-adjustable band F, and the sliding member G', substantially as described.

5. The combination of the main horizontal band provided with means whereby its ends may be connected, the two main vertical arms, the shoulder-straps connected therewith, and the fastening devices on the horizontal band, with which said straps may be engaged, substantially as described.

480,037. WASHING-MACHINE ATTACHMENT. HENRY L. ROWE, New York, N. Y., and GEORGE W. MCDONALD, Franklin, N. J. Filed Feb. 27, 1892. Serial No. 422,974. (No model.)

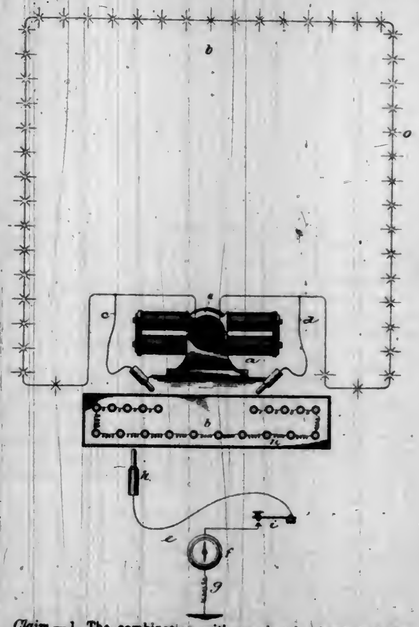
Claim.—1. The combination, with a washing-machine and the discharge water-pipe therefrom, of an elevated reservoir, a pipe leading to the same, and a steam-injector in such pipe for discharging the water from the washing-machine into the reservoir, and a branch or connection between the reservoir and the washing-machine and a valve and cock in the same, substantially as and for the purposes set forth.





2. The combination, with the washing-machine and the discharge water-pipe therefrom, of an elevated reservoir, a pipe leading from the bottom of the washing-machine to the reservoir and a deflector thereon, a steam-pipe and cock for supplying steam to the washing-machine, an ejector-nozzle, and a pipe and cock therewith connected for supplying steam to eject the water from the washing-machine into the reservoir, substantially as set forth.

480,038. TESTING APPARATUS FOR ELECTRIC-LIGHTING CIRCUITS. CHARLES H. RUDD, Evanston, assignor to the Western Electric Company, Chicago, Ill. Filed Dec. 10, 1888. Serial No. 293,124. (No model.)



Claim.—1. The combination, with an electric circuit including translating devices and a dynamo-machine for supplying said circuit, of branch circuits *c d* from opposite sides of said dynamo-machine, provided each with a movable connecting device, a rheostat with which said connecting device may be connected at will to include the rheostat between the terminals of the dynamo-machine, and a ground branch including a galvanometer and provided with a movable switching device or plug for connecting said branch with different portions of said

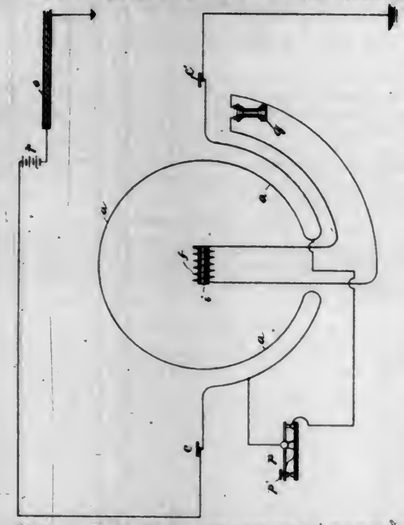
rheostat, whereby the neutral point of the rheostat with respect to a leak on the circuit may be determined, substantially as specified.

2. The combination, with an electric circuit containing translating devices and an electric generator, of a rheostat adapted to be connected with different sides of said generator and a ground branch including a condenser, a galvanometer, and a discharging device, said ground branch being adapted to be connected between different coils of the rheostat, whereby the location of any accidental leak on the lamp-circuit may be approximately located.

3. The combination, with an arc-light circuit including a dynamo, of connecting devices on different sides of said dynamo, a condenser, with the opposite ends of which said connecting devices are adapted to be connected, respectively, and an indicating device adapted to be connected to different portions of said rheostat to determine the neutral point thereof with respect to any leak that may exist at any point of the lamp-circuit, substantially as and for the purpose specified.

480,039. DEVICE FOR MEASURING ELECTRICAL CURRENTS.

CHARLES H. RUDD, Evanston, assignor to the Western Electric Company, Chicago, Ill. Filed Nov. 6, 1891. Serial No. 411,090. (No model.)



Claim.—1. The combination, with a field-coil, of a measuring-coil concentric with and in the field thereof and movable with respect thereto and a telephone in the circuit of the measuring-coil, substantially as described.

2. The combination, with a field-coil in circuit of the current to be measured, of a measuring-coil concentric with and in the field of said field-coil and movable with respect thereto, and means for interrupting the current through the field-coil, and a telephone included in the circuit, substantially as described.

3. The combination, with a field-coil in circuit of the current to be measured, of a measuring-coil rotatable about one of its diameters, said diameter being coincident with a diameter of the field-coil, placed concentric with said field-coil, and suitable means for interrupting the current through said field-coil, an index in connection with said measuring-coil, and a scale adapted to indicate the angle between the axes of the two coils, and a telephone included in the circuit, substantially as described.

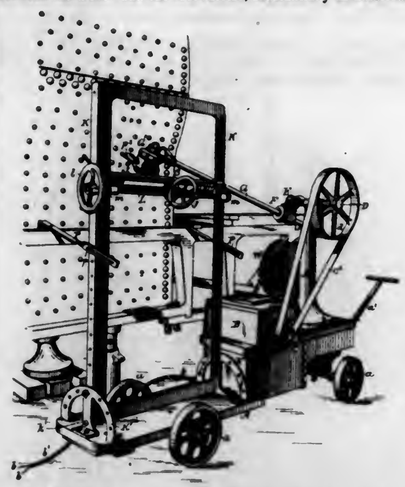
4. The combination, with a field-coil in circuit of the current to be measured, of a measuring-coil rotatable about a diameter, said diameter being coincident with a diameter of the field-coil placed concentric with said field-coil, suitable means for interrupting the circuit through said field-coil, a suitable scale attached to said field-coil, and a suitable index attached to said measuring-coil, adapted to indicate on the scale the angle between the planes of the two coils, and a telephone included in the circuit, substantially as described.

480,040. PORTABLE MACHINE FOR DRILLING.

JOHN R. SAYLOR, Philadelphia, Pa. Filed Jan. 7, 1892. Serial No. 417,966. (No model.)

Claim.—1. The combination, in a portable drilling-machine, of the carriage, a motor carried thereby, a supporting-frame also mounted upon the carriage, the tool-carrier mounted upon the supporting-frame, and the tool, with adjustable gearing between the motor and the tool, whereby the tool can be adjusted upon the frame without disengaging the gearing, substantially as described.

2. The combination, in a portable drilling-machine, of the carriage, a vertical frame pivoted to said carriage, a motor, a tool-carrier, and a cross-frame on which the tool-carrier is mounted, said cross-frame being pivoted to the vertical frame, with intervening gearing between the motor and the tool-carrier, substantially as described.



3. The combination of the carriage, motor thereon, a frame, vertically-adjustable slide mounted on said frame, a tool-spindle, feed-screw attached to the spindle and to the slide, a head carrying said tool-spindle, a shaft G, gearing with the said tool-spindle, and a head E, carrying a sleeve to which the shaft is adapted, said head carrying gear-wheels driven by the motor, substantially as specified.

4. The combination of the pivoted frame, racks thereon, a slide, pinions on said slide, a tool-carrier mounted on said slide and adjustably geared to a motor, means for locking the tool-carrier to the slide, and means for locking the slide to the frame, substantially as specified.

5. The combination of the carriage, motor thereon, gearing, a tool-carrier adjustably connected to said gearing, a slide to which the tool-carrier is attached, a vertical frame on which the slide is mounted, said frame being pivoted to the carriage, and cleats for securing the frame to the article to be drilled, substantially as described.

6. The combination of the tool-carrier, a sleeve thereon, right and left gear-wheels having clutch-faces adapted to engage with the clutch-faces on the drill-spindle, and a head carrying gearing which meshes with the gear-wheel and which is adjustably connected to the driving mechanism, substantially as described.

7. The combination, in mechanism for drilling, &c., of the shaft D, mechanism for driving said shaft, a sleeve hung to said shaft, gear-wheel on the sleeve, and a gear-wheel on the shaft, and intervening gearing, and a shaft G, adapted to slide in but turn with the sleeve, with drilling mechanism at the end of said shaft G, substantially as described.

8. The combination of the shaft D, the shaft G, geared thereto, and drilling mechanism geared to said shaft G, a supporting cross-frame J, blocks in which said frame is pivoted, a supporting-frame K for the said blocks, and means for locking the blocks to the supporting-frame, substantially as described.

9. The combination of the shaft D, the drilling mechanism geared to said shaft, a carrying-frame for the said drilling mechanism, a shaft, pinions on said shaft, a supporting-frame on which the carrying-frame slides, and racks on the said supporting-frame with which the gear-wheels mesh, substantially as described.

480,041. HAT.

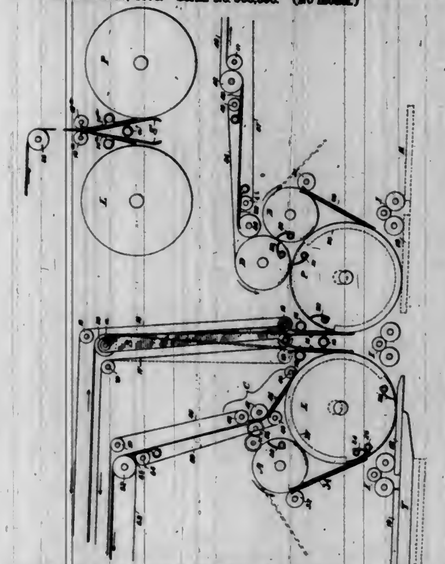
DAVID SCHLESINGER, New York, N. Y. Filed Jan. 11, 1892. Serial No. 417,808. (No model.)



Claim.—In a folding hat, the combination, with a crown composed of a series of tapering pieces of fabric sewed to each other, of a band connecting the lower ends of said pieces, eyelets in said band, a brim formed of sector-shaped pieces sewed to each other, a steel band in the outer edge of said brim, and an elastic band in the inner edge of said brim, the crown being connected with the brim at a short distance outward from said elastic band, substantially as set forth.

480,042. PRINTING-MACHINE.

WALTER SCOTT, Plainfield, N. J. Filed Feb. 10, 1891. Serial No. 380,980. (No model.)



Claim.—1. In a printing-machine, the combination of a reciprocating type-bed carrying the forms, two oscillating impression-cylinders, a sheet-feeding apparatus common to the two cylinders, the cylinders alternating in receiving the leading sheet therefrom, and delivery means for each cylinder, substantially as described.

2. In a printing machine, the combination of a reciprocating type-bed carrying an inner and an outer form, two oscillating impression-cylinders arranged to print in both directions of their movement, a sheet-feeding apparatus common to both cylinders, the cylinders alternating in receiving the leading sheet from the feeding apparatus, sheet-reversing appliances, and delivery means, substantially as described.

3. In a printing-machine, the combination of a reciprocating type-bed carrying an inner and an outer form, two oscillating impression-cylinders which take impressions in both directions of their movement, an apparatus feeding the sheets to the cylinders at adjacent points thereof, the cylinders alternating in taking the leading sheet, reversing appliances for each cylinder, and delivery means for each cylinder, substantially as described.

4. In a printing-machine, the combination of a reciprocating type-bed, two oscillating impression-cylinders, an apparatus for feeding the sheets down between the cylinders, the cylinders alternating in receiving the leading sheet from the feeding apparatus, and reversing appliances and delivery means for each cylinder, substantially as described.

5. In a printing-machine, the combination of a reciprocating type-bed, two oscillating impression-cylinders, an apparatus for feeding the sheets down between the cylinders, the cylinders alternating in receiving the leading sheet from the apparatus, reversing appliances at the outer side of each cylinder, and delivery means above each cylinder, substantially as described.

6. In a printing-machine, the combination of a reciprocating type-bed, two oscillating impression-cylinders, an apparatus for feeding the sheets down between the cylinders, guides and switching devices directing one sheet to one cylinder and the next sheet to the other cylinder, and reversing appliances and delivery means for each cylinder, substantially as described.

7. In a printing-machine, the combination of a reciprocating type-bed, two oscillating impression-cylinders, an apparatus for feeding the sheets down between the cylinders, guides and switching devices directing one sheet to one cylinder and the next sheet to the other cylinder, reversing appliances at the outer side of each cylinder, and delivery means above each cylinder, substantially as and for the purposes described.

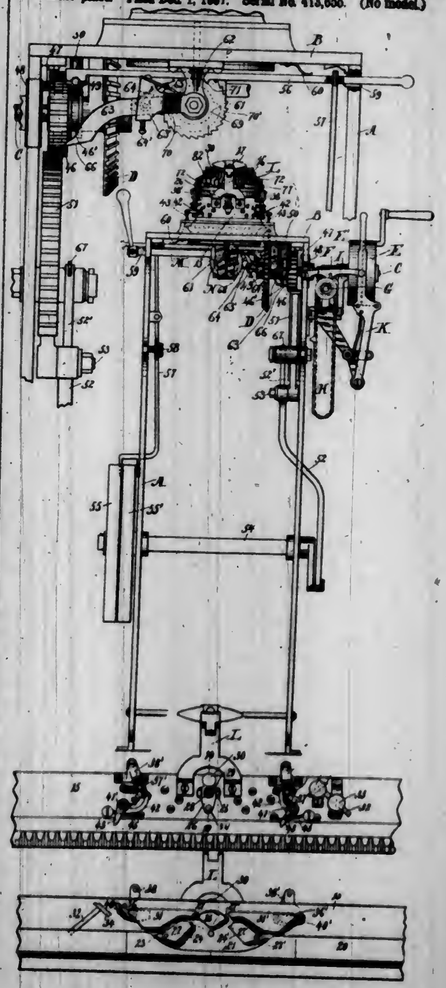
8. In a printing machine, the combination of a reciprocating type-bed, two oscillating impression-cylinders, a set of feeding-tapes, guides and swinging arms directing one sheet to one cylinder and the next sheet to the other cylinder, reversing appliances at the outer side of each cylinder, and delivery means above each cylinder, substantially as and for the purposes described.

9. In a printing-machine, the combination of a reciprocating type-bed, two oscillating impression-cylinders, a set of feeding-tapes, swinging arms carrying a pair of the rollers for said tapes, guides for each cylinder, reversing appliances at the outer side of each cylinder, and delivery means above each cylinder, substantially as and for the purposes described.

10. In a printing-machine, the combination of a reciprocating type-bed, two oscillating impression-cylinders, a set of feeding-tapes, rollers for said tapes, swinging arms carrying a pair of said rollers and having its axis of motion coincident with the axis of another of said rollers, guides for each cylinder, reversing appliances at the outer side of each cylinder, and delivery means above each cylinder, substantially as and for the purposes described.

480,043. CIRCULAR-KNITTING MACHINE.

ADOLPH SEDNIKARDEKY, Milwaukee, Wis., assignor to the Kalamazoo Knitting Company, same place. Filed Dec. 1, 1891. Serial No. 413,655. (No model.)



Claim.—1. In a circular-knitting machine, the combination of the following devices: a revolvable cam-cylinder, two block-cams fixed on the cam-cylinder at a little distance apart, a single tilting cam mounted on a swinging arm pivoted directly on the cylinder between the block-cams, the tilting cam having no vertical movement in relation to the cam-cylinder, except such as it has by the swinging of the arm on which it is mounted, and being so arranged as to be locked in position medially between and out of contact with the block-cams, but when released to tilt from one cam to the other, and means for locking the cam releasably in the medial position, the tilting cam being arranged when held in medial position between the block-cams to receive against its under edges from both directions the thrust of the studs on the needles and carry them downwardly into position to engage the fixed cams and when released and tilted to one or the other of the fixed cams to receive the needles and successively to carry them in opposite directions alternately out of action, substantially as described.

2. In a circular-knitting machine, the combination, with a revolvable cam-cylinder and block-cams fixed on the cylinder, of a lifting-cam, a swinging arm pivoted on the cylinder, a stud rigid on the cam and movable endwise through the swinging arm and faced therein to prevent pivotal movement of the cam on the arm, a pin securing the stud in the arm, a spring holding the stud and cam yieldingly to the arm, and means for locking the arm in position midway between cams fixed on the cylinder, substantially as described.

3. In a circular-knitting machine, the combination, with a revolvable cam cylinder and upper cam-blocks rigid on the cam-cylinder, the outer ends of which blocks are inclined inwardly downward, of a movable needle-catcher on the inner surface of the cam-cylinder, having a body part arranged to swing under the rigid cam-block and a terminal inwardly-projecting flange inclined on its outer face inwardly downward, a swinging arm pivoted on the outer surface of the cam-cylinder, a pin fixed in the needle-catcher and pivoted in the swinging arm, and a spring adapted to hold the needle-catcher yieldingly upward on the arm, substantially as described.

4. In a circular-knitting machine, the combination, with a revolvable cam-cylinder, of a needle-catcher mounted on a swinging arm pivoted on the cam-cylinder and a tripping device pivoted on the cylinder, arranged to be tripped by the movement of the cam-cylinder when passing a relatively fixed pin, and thereby to tilt the needle-catcher and said pin to actuate the tripping device, substantially as described.

5. In a circular-knitting machine, the combination, with a revolvable cam-cylinder, of a needle-catcher mounted on a swinging arm pivoted on the cam-cylinder, a tripping device pivoted on the cam-cylinder, comprising an arm adapted to engage the swinging arm on which the needle catcher is mounted and a tripping-arm adapted to engage a relatively fixed pin when the cam-cylinder is reciprocated, and said tripping-pin, substantially as described.

6. In a knitting-machine of the class described, the combination, with a ratchet-wheel, a disk rigid thereto, having a part of greater radial extent and a part of less radial extent, and the tripping-pin resting on and actuated by the disk, of an actuating-lever pivoted alongside the ratchet-wheel and having a pawl adapted to engage the ratchet-wheel in one direction, and reciprocating mechanism arranged to actuate the lever, substantially as described.

7. In a circular-knitting machine, the combination, with a tripping-pin, a pin-actuating wheel having parts of greater and less radial extent, a ratchet-wheel rigid thereto, and a swinging pawl-provided arm for actuating it, of a reciprocating rod or pitman wristed on a shaft and having a part arranged to strike against the arm and swing it, substantially as described.

8. In a circular-knitting machine, mechanism comprising a ratchet-wheel 61, a swinging arm 63, a spring-actuated pawl pivoted on the arm and arranged to engage the ratchet-wheel, a bracket 63′, an adjusting-screw 64′, and a lever-actuating rod 52, wristed at one extremity on the crank of a shaft and near its other extremity wristed on an oscillating arm, which rod is provided with a projecting part arranged to strike against and actuate the ratchet-arm 63, substantially as described.

9. In a knitting-machine of the class described, the combination, with the main driving-shaft and an independent or auxiliary driving-shaft having a fast and a loose pulley, and means for connecting the auxiliary shaft mechanically to the driving-shaft to operate it reciprocally, including a gear loose on the main shaft and a disk fast thereon, of a spring-actuated belt-shifting lever arranged normally to guide the belt to the loose pulley, a sliding catch-provided locking and shifting bar connected movably to the belt-shifting lever, and a gear-shifting lever connected to the sliding bar, whereby by the releasing of the sliding bar the spring-actuated belt-shifting lever shifts the belt from the fast to the loose pulley on the auxiliary shaft and the gear on the main driving-shaft is put out of engagement with said disk, substantially as described.

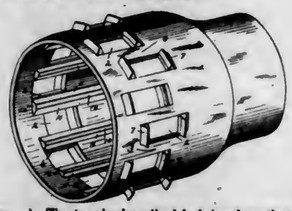
10. In a knitting-machine of the class described, the combination, with the frame, a locking and sliding bar provided with a catch adapted to engage the frame, a spring-actuated lever connected to the bar, a gear on the main shaft, and a lever connected to the bar and adapted to shift the gear on the main shaft, of a tooth-provided wheel adapted at a prescribed point in its revolution to engage and lift and thereby release the sliding bar, substantially as described.

11. In a circular-knitting machine, a sinker constructed of sheet metal, comprising a head or bearing part 73, nearly circular, a hooked guard 74, extending outwardly from its outer edge, adapted to pass over and engage a supporting and guiding flange, a tongue 75, projecting from its inner edge, a catcher 76 on its inner edge above the tongue, adapted to take onto the thread or yarn detachably, and a needle-cylinder 16, having a radial slot to receive the tongue 75 and maintain the sinker movably in an upright position, substantially as described.

12. In a circular-knitting machine, the combination, with a needle-cylinder, of a sinker-ring on the outside of the needle-cylinder, provided with an annular partially-round channel, and sinkers having nearly circular lower extremities adapted to rest in recesses therefor in the outer surface of the needle-cylinder in the partitions between the needle-grooves therein and be held movably thereto by the sinker-ring, into which a portion of the lower circular part of the sinkers is received, substantially as described.

13. In a circular-knitting machine, the combination, with a needle-cylinder and a cam-cylinder revolubly thereabout, of a series of sinkers pivoted to the needle-cylinder on the outside and tiltable slots therefor in the needle-cylinder, the sinkers being provided with guards adapted to ride on and be controlled by a cam-ring, and the cam-ring having a radially eccentric or cam part on which the sinkers ride and by which they are tilted, which ring is supported revolubly on the needle-cylinder and is carried around by the revolving cam-cylinder, substantially as described.

480,044. WHEEL-HUB CASTING. MELVIN L. SMITH, Muncie, Ind., assignor of one-half to Sarah B. Smith, same place. Filed Apr. 11, 1892. Serial No. 428,693. (No model.)



Claim.—1. The herein-described hub-band casting, the same being provided with mortise openings, having upon its outer side and at the front and rear ends of the openings diverging lugs, and the bars between the openings having their outer edges flared and their inner edges converged, substantially as specified.

2. The herein-described hub-band casting, the same having the series of mortises or openings and intermediate bars, which have their opposite outer edges flared and their inner edges converged or inwardly flared, substantially as specified.

3. The herein-described hub-band, the same having the series of mortises, the intermediate bars of which have their outer edges flared outwardly and their inner edges flared inwardly, and the intermediate superficial internal ribs located upon the under side of each bar and having their opposite faces inwardly converged and forming a continuation of the inner face of the bars, substantially as specified.

4. The herein-described cast-metal hub-band, having series of mortises, the intermediate bars of which have their outer corners or edges flared outwardly and their inner corners or edges flared inwardly, the internal annular shoulder formed in rear of the mortise, and the series of ribs extending from the shoulder forwardly upon the under side of the bars, said ribs having their front ends beveled and their opposite faces converged toward their inner edges and forming continuations of the faces of the bars, substantially as specified.

480,045. TRAY FOR JEWELERS. HENRY B. SOMMER, Philadelphia, Pa. Filed Mar. 24, 1892. Serial No. 426,232. (No model.)

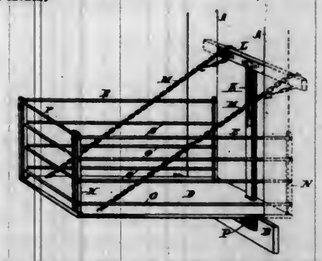


Claim.—1. A tray having supporting-pieces with journals on the lower parts of the ends, with bearings in the sides of the tray, and side bars supported on journals connected with the upper part of the ends of the supporting-pieces, said parts being combined substantially as described.

2. A tray having parallel supporting-pieces journaled in the sides thereof and with grooves in their upper edges, substantially as described.

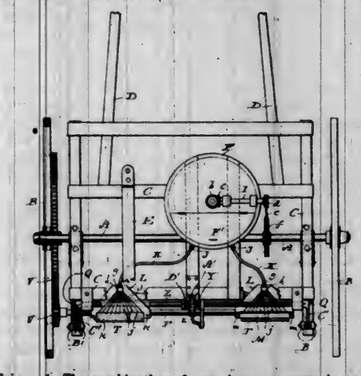
3. A tray provided with supporting-pieces, each of which is provided with journals mounted on the sides of the tray, and an additional journal mounted on a rising and falling bar, the latter being formed with recesses in its under side, so as to pass over the journals proper of the supporting-piece, substantially as described.

480,046. PORTABLE WINDOW-SCAFFOLD. ADOLPH STAUBER and CARL STAUBER, Clinton, Iowa. Filed Mar. 1, 1892. Serial No. 423,418. (No model.)



Claim.—The combination of the platform D, provided with exterior marginal guards, the vertical post K, hinged at its base at the center of the inner end of the said platform, the transverse bar L, adapted to extend in each direction beyond the jambs of the window and supported from the inner end of said platform by the post K, the chains M, adjustably attached at their upper ends to the bar L and extended diagonally outwardly and downwardly therefrom and attached at their outer ends to the outer portion of the platform D, and the legs G, pivoted, respectively, at their upper ends to the inner end of the platform D near the corners of the latter and crossed midway of their length and adapted to rest at their lower ends on the floor of the building and further provided centrally with the longitudinal slots H, and the adjusting-bolt J through said slots, substantially as set forth.

480,047. SPRINKLER. JACOB R. STEITZ, St. Francis, Wis. Filed Aug. 21, 1891. Serial No. 403,339. (No model.)



Claim.—1. The combination of a carriage, a receptacle mounted thereon, a rotary brush, a stationary brush in opposition to the rotary one, a distributing-shield extended beyond the stationary brush and having its discharge end over the rotary brush, and tubes connecting the receptacle and the shield, substantially as set forth.

2. The combination of a carriage, a receptacle mounted thereon, a laterally-adjustable rotary brush, a stationary brush in opposition to the rotary one and laterally adjustable therewith, and suitable means for conveying the contents of the receptacle to said brushes, substantially as set forth.

3. The combination of a carriage, a receptacle mounted thereon, a vertically-adjustable rotary brush, a stationary brush in opposition to the rotary one and vertically adjustable therewith, and suitable means for conveying the contents of the receptacle to said brushes, substantially as set forth.

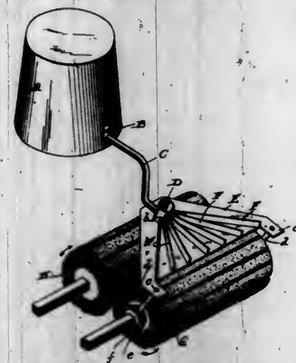
4. The combination of a carriage, a receptacle mounted thereon, a vertically and laterally adjustable rotary brush, a stationary brush always in opposition to the rotary one, and suitable means for conveying the contents of the receptacle to the brushes, substantially as set forth.

5. The combination of a carriage, a receptacle mounted thereon, a rotary brush, a stationary brush in opposition to the rotary one, a radially-channeled shield having its discharge end over the rotary brush, and tubes leading from the receptacle to the shield, substantially as set forth.

6. The combination of a suitable receptacle, a pair of spraying-brushes in frictional contact, a shield positioned to have its rear end over one of the brushes, a series of radiating plates set on edge upon the shield, and a tubular connection between said shield and receptacle, substantially as set forth.

7. The combination of a suitable receptacle, a pair of spraying-brushes in frictional contact, a shield positioned to have its rear end over one of the brushes, a slotted cup on the shield, having a tubular connection with the receptacle, and a series of plates set on edge upon the shield to radiate from the cup, substantially as set forth.

480,048. SPRINKLER. JACOB R. STEITZ, St. Francis, Wis. Filed Mar. 14, 1892. Serial No. 424,803. (No model.)

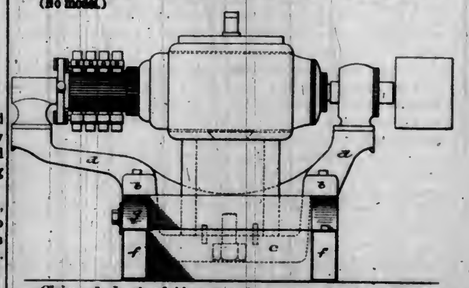


Claim.—1. The combination of a suitable receptacle, a pair of rotary brushes in frictional contact, and a distributing-shield having a tubular connection with the receptacle and positioned to discharge onto one of the brushes, substantially as set forth.

2. The combination of a suitable receptacle, a pair of rotary brushes in frictional contact, and a radially-channeled shield having a tubular connection with the receptacle and positioned to discharge onto one of the brushes, substantially as set forth.

3. The combination of a suitable receptacle, a pair of rotary brushes in frictional contact, and a distributer having a tubular connection with the receptacle and positioned to discharge onto at least one of the brushes, substantially as set forth.

480,049. FIELD-MAGNET FRAME FOR DYNAMO-ELECTRIC MACHINES. ERNST P. WARNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Feb. 10, 1890. Serial No. 339,916. (No model.)



Claim.—1. In the field-magnet frame or casting for a dynamo-electric machine, the combination, with the feet or supports and the heel-bar, said supports being raised above the heel-bar, of the arms extending outwardly from said supports, and a strut between said feet or supports, substantially as and for the purpose specified.

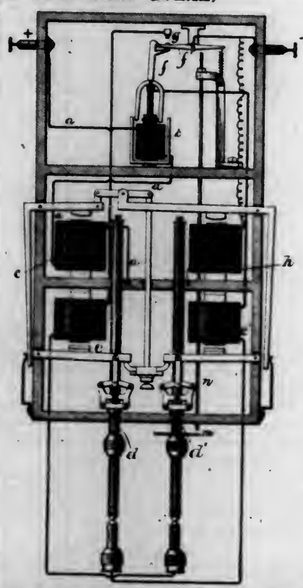
2. The combination, in the field-magnet frame or casting for a dynamo-electric machine, of the feet raised above the heel-bar thereof, said heel-bar, the movable frame of the carriage upon which said feet are placed, and arms curved outwardly and extending above said feet, and the bearings of the armature supported upon said arms, substantially as and for the purpose specified.

3. The combination, in the field-magnet frame of a dynamo-electric machine, of the feet or supports thereof raised above the heel-bar, the sliding frame supporting the said feet, and the heel-bar extending downwardly, and the stationary and movable parts of the carriage inclosing said heel-bar, substantially as specified.

4. In the field-magnet frame for a dynamo-electric machine, the combination, with the feet or supports thereof, of the heel-bar, said feet or supports being raised above the heel-bar, the arms extending above said feet or supports, and the journal-bearings of the armature resting thereon, substantially as and for the purpose specified.

5. The field-magnet frame for a dynamo-electric machine, consisting in the combination, with the pole-pieces and the cores, of the heel-bar *c*, extending downwardly below the supporting-feet *b*, said supporting-feet *b*, the arms *d*, and the strut *e* for bracing the feet, said strut being placed between the cores, substantially as and for the purpose specified.

480,050. DUPLEX ARC LAMP. ERNEST P. WARNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Feb. 24, 1891. Serial No. 382,362. (No model.)



Claim.—1. The combination, with two pairs of carbons placed in derived circuit, of a unitary electro-magnetic device for controlling the same and a polarized electro-magnetic switching device or commutator adapted upon the reversal of the current to transfer the arc from one pair of carbons to the other.

2. The combination, with two independently-adjustable carbon-rods and unitary means for automatically controlling the same, of a polarized electro-magnetic switching device for shifting the arc from the carbons of one rod to the other on the reversal of the current, substantially as and for the purpose specified.

3. The combination, with one of two independently-adjustable carbon-rods, of a disk *m*, secured thereto, and a rod *n*, against which the disk is brought to force the said rod *n* against the pivoted lever *f* of the polarized switching device, substantially as and for the purpose specified.

480,051. SKATE. JAMES WARNER, East Somerville, Mass. Filed Mar. 14, 1892. Serial No. 424,793. (No model.)



Claim.—1. The combination, with the transversely-apertured runner, of the foot and heel plates having depending slotted arms or brackets and a pivoted locking-hook mounted on one arm or bracket of each plate and engaging the apertures in the runner, substantially as set forth.

2. The combination, with the runner and its adjustable foot-plate adjustable toward and from the heel-plate, of the longitudinal bar extending from heel to foot plate and carrying the sole-clamps, a lever pivoted to said plate and operating the clamps, and a pivoted wedge on the heel-plate and locking the longitudinal bar thereto, substantially as set forth.

3. The combination, with a runner having front and rear series of parallel inclined slots, of the foot and heel plates having depending slotted arms or brackets and pivoted depending locking-hooks passing through the slots and forcing the upper edge of the runner firmly against the upper walls of the slots in the arms or brackets, substantially as set forth.

4. In a skate, a bracket for the toe-plate, comprising two divergent limbs curved above to lie in the same plane and adapted for attachment upon the lower side of the toe-plate, said limbs being integrally connected below by a hook portion that is cross-grooved to fit upon a runner, the limbs being transversely slotted to receive two clamping-arms, substantially as described.

5. In a skate, a toe-plate having a bracket provided with two divergent limbs having transverse clamp-receiving slots and a depending hook portion cross-grooved to fit a runner and provided with a locking-hook crossing said slot, substantially as set forth.

6. In a skate, the combination, with a runner in which spaced holes are formed in series near its top edge, of a toe-plate provided with front and rear limbs grooved to fit upon the top of the runner near the front, a bracket the limbs of which are affixed upon the lower side of the toe-plate and diverged from an integral hook portion below that is grooved to seat it upon a runner near its toe, and a locking-dog pivoted on said hook portion and having a cam-hook adapted to interlock with either of the holes in the runner, substantially as described.

7. In a skate, the combination, with a runner having spaced perforations near the top edge, of a toe-plate having two depending limbs notched to straddle the runner and a cam-hook locking-dog pivoted to a depending piece on the toe-plate and adapted to interlock with either of the perforations, substantially as described.

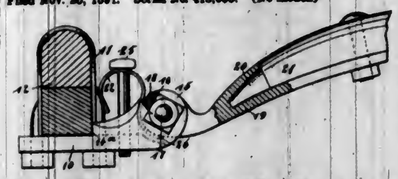
8. In a skate, the combination, with a runner perforated in series near the heel, of a heel-plate whose depending notched limbs are adapted to seat upon the top edge of the runner and provided with two spaced upwardly-projected toes at the rear edge, a cap-plate below the heel-plate, having a locking-toe projected through a longitudinal slot in the heel-plate and bearing a sharp lip turned rearward at the free top end, a tongue or rivet fixed to the heel-plate and loosely secured in a longitudinal slot in the cap-plate, a U-shaped brace fast on the cap-plate and grooved where bent below to embrace the top edge of the runner, and a lever-dog having a cam-hook and pivoted on one limb of the brace, which is adapted when upwardly vibrated to interlock with either of the perforations in the runner, substantially as described.

9. In a skate, the combination, with a runner perforated in series near the toe and heel, a toe-plate whereon are two depending limbs front and rear that are grooved to embrace the top edge of a runner, a bracket thereon between said limbs, and a cam-hook locking-dog on the bracket, which will engage either of the perforations in the runner at the front, of a heel-plate on which two upwardly-projected toes are formed at the rear edge, two depending limbs on the heel-plate front and rear, grooved in alignment to embrace the runner above, a cap-plate below the heel-plate, a toe thereon projected through a longitudinal slot in the heel-plate and provided with a sharp lip above, and a locking-dog that has a cam-hook, which will interlock with either of the perforations at the rear end of the runner, substantially as described.

10. In a skate, the combination, with a runner and a bracket at its rear provided with a locking-dog that engages either of a series of transverse holes in said runner, of a heel-plate having two toes at the rear and two depending limbs that are notched below and embrace the runner above, said heel-plate being slotted longitudinally to allow a toe on the cap-plate of the bracket to project through it, and a device to lock the heel-plate in connection with a toe-plate of the skate, substantially as described.

11. In a skate, the combination, with a runner, a toe-plate, and a heel-plate independently and adjustably attachable upon the runner, of a connecting-bar, two curved clamping-arms adapted to slide below on the toe-plate and pivoted to a cam-lever and on the connecting-bar, a stud on the bar engaging with a cam-slot on the lever, and a vibratable wedge-lever pivoted on the heel-plate and adapted to lock said plate to the connecting-bar, substantially as described.

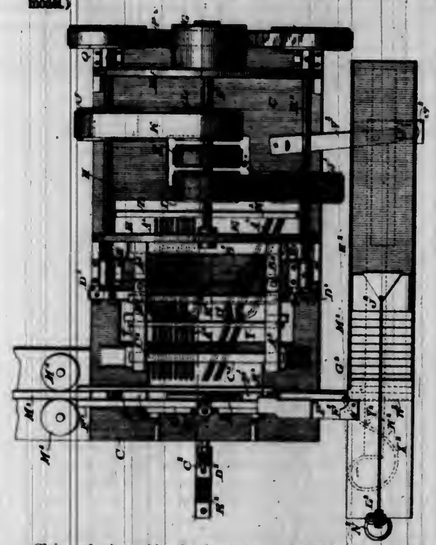
480,052. THILL-COUPLING. SAMUEL A. WHITFIELD, Chicago, Ill. Filed Nov. 26, 1891. Serial No. 413,095. (No model.)



Claim.—1. The combination, with the thill-coupling, of a spring 22, curved to rest on the rear end of the thill-iron, thence curved or bowed upward, rearward, and downward into contact with the thill-clip, and a bolt extending down through the upward bow into the thill-clip, substantially as shown and described.

2. A thill-coupling comprising a clip-bar adapted to be secured to an axle, said clip-bar having side flanges with slots therein to receive the axial bolt of the thill-iron knuckle, an S-shaped spring held between the flanges, one end of the spring pressing against the under side of the knuckle and the opposite end pressing against the axle-clip, and a tension-bolt extending downward through the spring and into a threaded hole in the clip-bar, substantially as described.

480,053. BRUSH-BLOCK-BORING MACHINE. VESTUS P. WILLCOX, Trenton, N. J. Filed Apr. 22, 1891. Serial No. 389,923. (No model.)



Claim.—1. A machine for the purpose set forth having a stationary frame, a reciprocating frame movable on said stationary frame, plates secured to the stationary frame for supporting and also preventing the endwise movement of the boring-tools, mechanism, substantially as described, for rotating said boring-tools, a brush-block holder on said reciprocating frame, and an automatic feeding device operated by the movement of the reciprocating frame for conveying the brush-blocks to the said holder, said parts being combined substantially as described.

2. A stationary frame, a reciprocating frame having a holder thereon, a sliding bar with a pivoted clamping-arm, a lever pivoted to the reciprocating frame and connected with said sliding bar, and means, substantially as described, for moving said lever, so as to operate said sliding bar, said parts being combined substantially as described.

3. A reciprocating frame with a holder thereon, a sliding bar having a pivoted arm adapted to clamp a block in said holder, a lever pivoted to said reciprocating frame and adapted to operate said sliding bar, and means, substantially as described, for raising and lowering said lever, said parts being combined substantially as described.

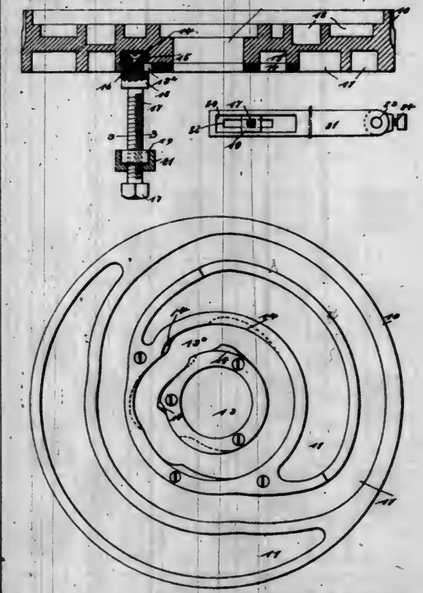
4. A reciprocating frame with a holder thereon, a sliding bar having a pivoted arm adapted to clamp a block in said holder, a lever pivoted to said reciprocating frame and connected with said sliding bar, so as to be adapted to operate the same in opposite directions, a frame with inclined top, a roller connected with the outer end of the lever and riding on said inclined top, and springs bearing against said lever, said parts being combined substantially as described.

5. A reciprocating frame with a brush-block holder thereon, a supply-trough with a discharge-opening in its side at one end thereof, a lever engaged and oscillated by an arm attached to the reciprocating frame, a spring-finger attached to said lever and adapted to engage the end block in said trough, and means, substantially as described, for keeping the blocks which are in the trough at the discharge end thereof, said parts being combined substantially as described.

6. A reciprocating frame with a brush-block holder thereon, a supply-trough for said brush-blocks having a discharge-opening at one side, a lever having an angular limb engaged by an arm attached to the reciprocating frame, a finger connected with the said lever and adapted to move across the front end of the supply-trough, and a guide located between said trough and holder, said parts being combined substantially as described.

7. A machine for the purpose named having a stationary frame with side bars, a movable plate having bosses mounted on said bars, a driving-shaft mounted on said movable frame and connected with said driving-shaft by intermediate mechanism carried by said movable frame, a counter-shaft having a worm wheel thereon and journaled in lugs on the under side of the movable frame, wheels on said rotary shaft, and pitmen connected with said wheels and pivoted to bosses on said side bars, said parts being combined substantially as described.

480,054. CAM FOR BUTTONHOLE-MACHINES. JOSEPH F. WINCHESTER, Brooklyn, N. Y. Filed Apr. 19, 1892. Serial No. 429,513. (No model.)

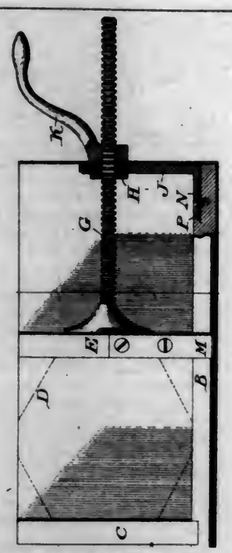


Claim.—1. A buttonhole cam-wheel having the usual grooves 11 12 in its opposite faces and the auxiliary guiding cam-grooves 13 and 14, produced on one side thereof and opposite each other and between the axis of the wheel and its grooves 11, substantially as shown and described.

2. The combination, with the cam-wheel having the double cam-groove therein and the grooved arm adapted to connect with the guide-plate of the machine, of a nut held in the groove of the arm, a bolt secured in the nut, and a roller journaled on one end of the bolt, so as to enter the cam-grooves, substantially as shown and described.

480,055. CIGAR-PRESS. ELVIN T. ZELLERS, Philadelphia, Pa. Filed Apr. 11, 1892. Serial No. 428,626. (No model.)

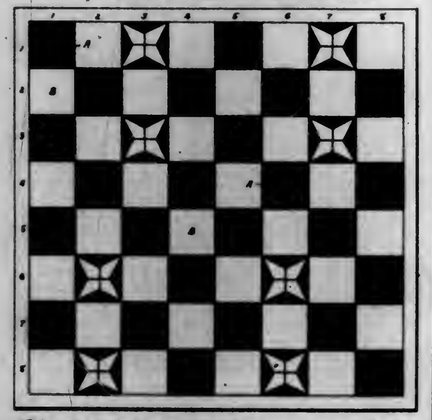
480,055.



Claim.—1. A cigar-press consisting of a base, end, and back pieces, a follower having lips guiding it on the base and back pieces, a standard secured to the base, a screw secured to the follower and passing through the standard, and a nut swiveled to the standard and mounted on the screw, said parts being combined substantially as described.

2. In a cigar-press, a follower connected with the back and base of the frame by means of angular lips, one limb of each of which enters a groove in the respective part, a portion of the base being recessed to raise the adjacent lip so as to clear the table, substantially as described.

480,056. GAME APPARATUS. FRANK H. ADAMS, Rutherford, N. J. Filed Aug. 22, 1891. Serial No. 403,380. (No model.)

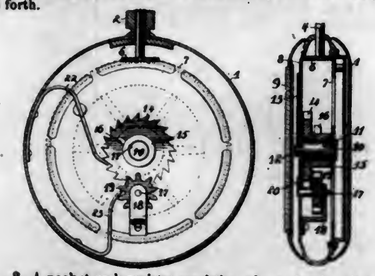


Claim.—1. A checker-board in which some, but not all, of the initial-playing squares are differentiated from the others by suitable marks, symbols, or colors.

2. A checker-board in which the initial-playing squares on the third and seventh rows from the left on the opposite sides of the board are differentiated from the others by suitable marks, symbols, or colors.

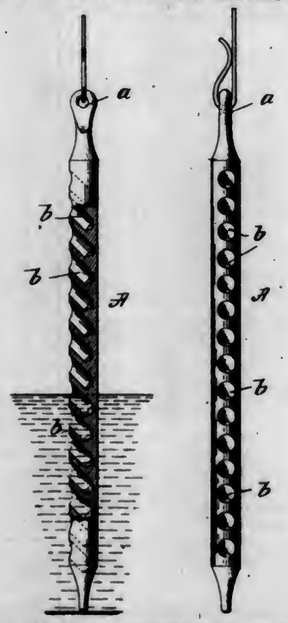
480,057. POCKET CASH-REGISTER. WILLIAM ARBENTER, St. Louis, Mo. Filed Mar. 25, 1892. Serial No. 426,358. (No model.)

Claim.—1. In a pocket cash-register, the combination, with a casing provided with a main and an auxiliary dial and at its periphery with a tubular post 2, of a main shaft journaled in said casing and carrying a hand traveling over the main dial, a gear-wheel 7, fixed to said shaft, a shaft 4, disposed in the post 2 and carrying a knob 5 at its outer end and a pinion 6 at its inner end meshing with the gear 7, a second shaft journaled at one side the main shaft and carrying a hand traveling over the auxiliary dial, a pinion 19, fixed to said auxiliary shaft, and a pin or stud 16, projecting from the main shaft and adapted to engage the pinion 19, substantially as and for the purpose set forth.



2. A pocket cash-register consisting of a casing 1, a dial 8, fixed therein, a smaller dial 21, printed on said first-named dial, a shaft 10, fastened to the center of said dial 8, a hand 13, carried by said shaft, a gear-wheel 7, fixed to the opposite end of said shaft, a shaft 4, provided with a gear-wheel 6, the teeth of which are adapted to mesh with the teeth of the gear-wheel 7, a ratchet-wheel 14, also fixed to said shaft, a spring 22 in contact with the said ratchet-wheel, a shaft 17, also passing through the said dial and carrying a suitable hand, a gear-wheel 19, fixed to said shaft 17, a pin 16, secured to the extension 15 of said ratchet-wheel and adapted to come in contact with the teeth of said gear-wheel, a bracket 18 for supporting the said shaft 17, and a spring 23, the free end of which is in contact with the said gear-wheel 19 for holding the same against movement independent of the operating mechanism, substantially as described.

480,058. WAINAGE-ROD. JOHN F. BARKER, Springfield, Mass. Filed May 26, 1892. Serial No. 434,446. (No model.)

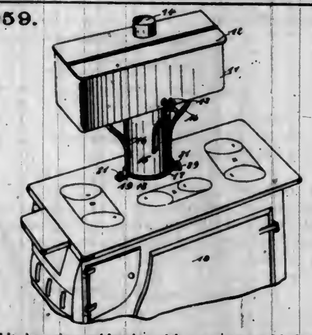


Claim.—A liquid-depth gage consisting of a bar provided at intervals along its length with a series of outwardly-opening pockets having their axes oblique to the length of the bar, substantially as and for the purpose set forth.

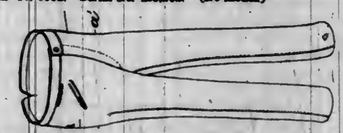
480,059. HOT-WATER BOILER. CONRAD BOHER, Hopewell, N. J. Filed Feb 8, 1892. Serial No. 420,857. (No model.)

Claim.—A stove-boiler having a vertical flue through it and a flange around its base, in combination with a separate and independent ring 18 upon its lower end and lugs 19, sliding on said ring and provided with bolt-openings, substantially as set forth.

480,059.



480,060. TROUSERS. JOSEPH BERNSTEIN, Philadelphia, Pa. Filed Mar. 17, 1892. Serial No. 425,282. (No model.)



Claim.—The herein-described trousers, the front and back portions of each leg of which are composed of a single piece of fabric, said portions being undivided or seamless at the outer side of the upper or body part thereof and being sewed along their contiguous lower or cut edges on the outer and inner sides of the leg of the garment, substantially as shown and specified.

480,061. BICYCLE-SUPPORT. FRANCIS H. BURCHARD, Milwaukee, Wis. Filed Oct. 9, 1891. Serial No. 408,270. (No model.)



Claim.—1. In a support for bicycles, the combination of the bicycle-frame, a non-rotatable shaft secured to and projecting out laterally from opposite sides of the frame, said shaft having its opposite ends provided with cammed or beveled surfaces, disks rotatably mounted upon said shaft, supporting-standards rotatable with the disks, said standards turning against the cammed surfaces, and means for holding the disks in adjusted position, substantially as set forth.

2. In a support for bicycles, the combination of the frame thereof, a segmental rack secured thereto, a non-rotatable shaft passing through said segment, supporting-standards movable upon said shaft, and a spring-actuated pawl for controlling the supporting-standards in their adjusted positions, substantially as set forth.

3. In a support for bicycles, the combination of the frame thereof, a segmental rack secured thereto, a non-rotatable shaft passing through said segment and having upon its opposite ends bevel or cam surfaces, supporting-standards having their inner ends bearing against the beveled ends of the non-rotatable shaft and rotatable upon screws or trunnions extending therefrom, and a spring-actuated pawl for controlling the supporting-standards, substantially as set forth.

4. In a support for bicycles, the combination of the frame thereof, an arm connected thereto, said arm formed or provided upon its outer end with a segmental rack, disks upon opposite sides of the segment, a non-rotatable shaft passing through registering apertures in said segment and disks, said shaft provided upon its opposite ends with beveled or cammed surfaces, supporting-standards secured upon screws or trunnions extending from the beveled or cammed ends and rotatable with the disks, and a spring-actuated pawl engaging the ratchet-teeth of the segment, substantially as set forth.

5. In a support for bicycles, the combination of the frame thereof, an arm connected thereto, said arm formed or provided upon its outer end with a segmental rack, disks upon opposite sides of the segment, said disks provided with laterally-tubular extensions, a non-rotatable shaft passing through registering apertures in the segment and disks, said shaft provided upon the opposite ends with beveled or cammed surfaces, supporting-standards passing through slots or recesses in the tubular extensions and turning with the disks upon screws or trunnions extending from the non-rotatable shaft, and means for holding the disks and supporting-standards in their adjusted position, substantially as set forth.

6. In a support for bicycles, the combination of the frame thereof, an arm connected thereto, said arm formed or provided upon its outer end with a segmental rack, disks upon opposite sides of the segment, a non-rotatable shaft passing through registering apertures in the segment and disks, said shaft provided upon opposite ends with beveled or cammed surfaces, supporting-standards secured upon screws or trunnions extending from the beveled or cammed ends and rotatable with the disks, and a spring-actuated angular pawl for engaging the teeth of the segment provided at its outer end with a finger-piece at right angles thereto, substantially as set forth.

7. The combination, with the frame of a bicycle, of rods pivoted to a non-movable portion thereof, said rods being non-movable laterally and adapted to swing in an arc of a circle upon their pivot so as to embrace the wheel of the machine and prevent the same from turning laterally upon its pivot, substantially as set forth.

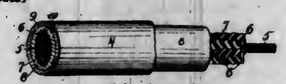
8. In a support for bicycles, the combination of supporting-standards pivoted to a non-movable portion of said frame constructed to be swung down to engage the ground, and rods working upon the same pivot, non-movable laterally and constructed to move in an arc of a circle simultaneously with the supporting-standards so as to embrace the wheel of the machine and prevent the same from turning laterally upon its pivot, substantially as set forth.

480,062. WAIST. ADOLPHE BOUCHARD, St. Elmo, Ala. Filed Mar. 12, 1892. Serial No. 424,726. (No model.)



Claim.—A jacket or waist formed with a vertically-arranged sheath on its inside under the button-line of its meeting edges, a spring arranged in the sheath, and hooks on the spring arranged and adapted to engage an undergarment and hold the spring and jacket close thereto, substantially as specified.

480,063. WATERPROOF WOVEN SNARE-STRING FOR DRUMS. EMIL BOULANGER, St. Louis, Mo. Filed May 10, 1892. Serial No. 432,492. (No model.)



Claim.—1. As a new article of manufacture, a snare string comprising a number of strands of fibrous material and a weatherproof compound applied thereto and all compressed, substantially as set forth.

2. As a new article of manufacture, a snare-string comprising a number of strings of fibrous material weatherproof, compressed, and having applied to its smooth outer surface a weatherproof covering, substantially as set forth.

3. As a new article of manufacture, a snare-string comprising a number of strings of fibrous material weatherproofed, compressed, and having applied to its smooth outer surface a coating of shellac or other resinous material, substantially as set forth.

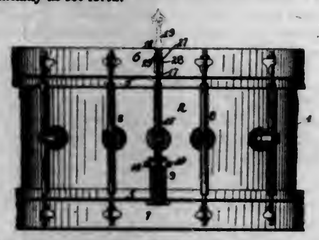
480,064. DEVICE FOR ADJUSTING DRUM-SNARES. EMIL BOULANGER, St. Louis, Mo. Filed May 10, 1892. Serial No. 432,493. (No model.)

Claim.—1. A device for securing and adjusting drum-snare strings, consisting of an interiorly-screw-threaded tubular rod carrying a clamp at one end, a guide-bracket encircling said rod and carrying a projection engaging said slot, and an adjusting-screw working in the tubular rod, substantially as and for the purpose set forth.

2. A device for securing and adjusting drum-snare strings, having a bracket 21, secured to the shell 2 by screw-headed bolt 23, said bolt

having its end fitted to engage in the elongated slot in the hollow tube 15, substantially as set forth.

3. A device for securing and adjusting drum-snare strings, having a hollow tube, one end of which is secured in a fixed clamping-jaw, the opposite end interiorly screw-threaded and having in its outer periphery an elongated slot adapted to engage the end of a screw-headed bolt, substantially as set forth.



4. A device for securing and adjusting drum-snare strings, having a hollow tube secured to a fixed clamping-jaw, the opposite end of the tube interiorly screw-threaded and said tube constructed with an elongated slot fitted to engage and travel on the end of a screw-headed bolt, substantially as set forth.

480,065. TOY. SAMUEL M. BOYD, Middletown, N. Y. Filed Aug. 31, 1891. Serial No. 403,296. (No model.)



Claim.—1. In a toy, the combination, with a suitable base, of a spring thereon, a plate carried by said spring and provided with an audible signal, a spring-acted catch on said plate, adapted to sound said signal, and a pneumatic device automatically controlling the release of said catch, substantially as described.

2. In a toy, the combination, with a suitable base, of a spring thereon, a standard supported from said spring, a slide on said standard, a hollow rubber ball collapsible by the relative movements of said slide and standard, a catch also supported from said spring and adapted to hold the latter under tension, and connections between the slide and catch for releasing the latter by the movement of the slide in response to the reaction of the ball, substantially as described.

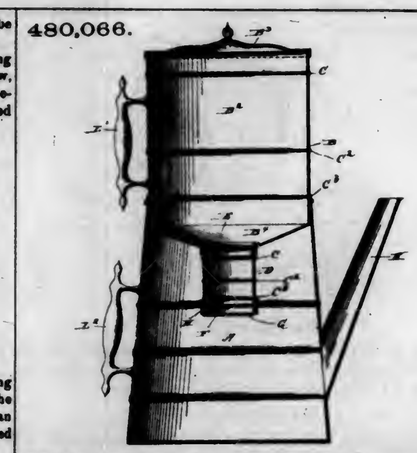
3. In a toy, the combination of a base having a bar thereon, a spring on said base, catch devices supported from said spring, adapted to engage said bar, a rubber ball also having support from said spring, and connections between the ball and catch, substantially as described.

4. In a toy, the combination of a suitable base having a bar thereon, a spring on the base, a plate supported on the spring and formed with a rectangular recess at its lower edge, a spring-acted catch pivoted on said plate and formed with an inclined edge at the bottom and with a shoulder at the upper extremity of said incline, the shoulder normally lying adjacent to the recess of the plate, said catch being adapted to engage the bar secured to the base, a standard also supported from the plate, a slide on said standard, a rubber ball adapted to be collapsed by the movement of the slide relatively to the standard, and a flexible connection between the slide and catch, substantially as described.

5. In a toy, the combination, with a base and a spring thereon, of a spring-acted catch adapted to maintain the spring under tension, a pneumatic device automatically controlling the release of the catch, and an audible signal adapted to be sounded by the catch, substantially as described.

480,066. COFFEE-POT. ROBERT G. BROWN, Kansas City, Kans. Filed Mar. 17, 1892. Serial No. 425,354. (No model.)

Claim.—The combination, with an apparatus comprising a lower or receiving vessel having a spout and handle, of a superimposed vessel removably secured thereon and consisting of two chambers for the reception of tea or coffee and water, the upper or water chamber having a cover adapted to be used in connection with the lower or receiving chamber, and an approximately conical bottom tapering to the diameter of the intermediate or coffee chamber, the latter being provided with a removably-secured reticulated disk or strainer at or near its upper end, a second strainer at or near the lower end on which the



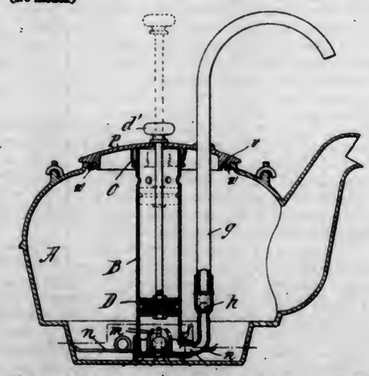
substance contained therein is supported, a third strainer arranged over the mouth of said chamber and held in position by a friction-ring, and the beads C, C^2, and C^3, formed on the upper or water chamber and the intermediate or coffee chamber to facilitate a proper proportioning of the ingredients, substantially as described, and for the purpose set forth.

480,067. CARRIAGE-CURTAIN FASTENER. ALPHA BOKER, Hueneme, Cal. Filed Mar. 29, 1892. Serial No. 426,980. (No model.)



Claim.—The herein-described improved carriage-curtain fastener, consisting of the stationary plate having a hole or opening and a slot and parallel guideways, the movable member having flanged ends fitting in said guideways and having a longitudinal cylindrical chamber fitting said slot, the bridge near the inner end of said cylindrical chamber, the lug or stop secured to said stationary plate and projecting into said cylindrical chamber, and the coil-spring bearing at its inner end against the inner end of said cylindrical chamber and at its outer end against said lug or stop, substantially as set forth.

480,068. COMBINED LIQUID RECEPTACLE AND PUMP. JAMES H. BULLARD, Springfield, Mass. Filed Jan. 18, 1892. Serial No. 418,370. (No model.)

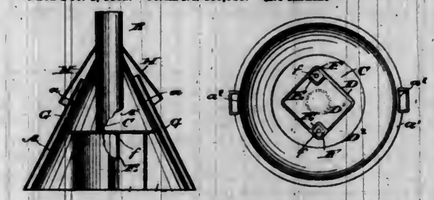


Claim.—1. In a receptacle and pump of the character described, the combination, with the receptacle, of the contained chamber-casing comprising the casting *x*, of cup form, having the opening *a* in its bottom, the downwardly-extending supporting-feet, the lateral hubbed opening, the upper internal rabbet or socket, and the upwardly-extended lugs *m m*, the ends of which are adapted to be inwardly turned, all integrally formed, and the cylindrical shell B fitted in said socket, the piston and its operating-rod, the ball-valve *b* for closing said opening *a* and restrained against displacement by said lugs *m*, and an outlet-pipe connected to the said lateral opening and extended to the exterior of the receptacle and provided with a check-valve, all substantially as described and shown.

2. In a receptacle and pump of the character described, in combination, a receptacle having an entrance-opening and a closing lid with an aperture therein, a pump-casing contained in the receptacle, having at its lower portion a valved opening leading thereto from the receptacle-chamber and having its upper extremity extended to terminate just below the lid within said aperture and having thereat an inverted-cup-formed cap, which is centrally apertured and having an outwardly-extended flange which lies under the inner edge portion which surrounds the aperture in said lid, the pump-piston with its rod extended through the aperture in said cap above the top of the lid and provided with a handle-knob, and the valved outlet-conduit leading from the pump-chamber below the piston to the exterior of the main receptacle, substantially as described.

3. In a liquid receptacle and pump of the character described, the combination, with the receptacle having an opening within and through its top and a removable centrally-apertured lid for said opening, of the pump casing centrally set in the receptacle, with the upwardly and outwardly extended spring-arms *q q*, which are adapted to lie under the edge portion of the receptacle-top which surrounds the opening, a valved opening in the bottom of the pump-casing, and the valved outlet-opening and conduit leading from near the bottom of the pump-casing to the exterior of the receptacle, and the piston and rod extended through and above the lid, substantially as and for the purpose set forth.

480,069. CLOTHES-POUNDER. DAVID D. CADY, Munson, Ill. Filed Feb. 1, 1892. Serial No. 419,995. (No model.)



Claim.—1. A clothes-pounder having a horizontal partition forming an upper closed chamber, communicating by apertures in its side walls with the exterior of the pounder, a depending partition in the lower chamber, concentric with the outer shell of the pounder, or approximately so, and vertical tubes formed within the depending partition and braced by the latter, said tubes communicating with the upper closed chamber of the pounder, substantially as described, the horizontal partition being imperforate, except the apertures registering with the vertical tubes, substantially as described.

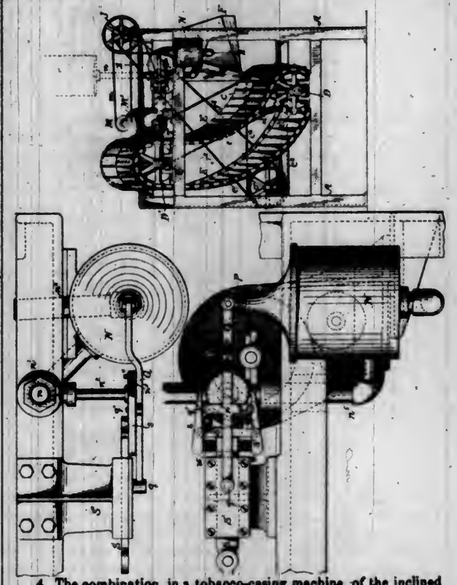
2. A clothes-pounder consisting of a conical shell flanged at the bottom and having a horizontal partition forming an upper closed chamber which is in communication with the exterior of the shell by reason of apertures in the latter, said shell being imperforate below the horizontal partition, a handle-socket secured to the horizontal partition and projecting through the upper end of the shell, an imperforate vertical partition depending from the horizontal one, vertical tubes formed partly by said depending partition and communicating by apertures with the upper closed chamber, open-ended air-conductors on the exterior of the shell, said conductors extending at their upper ends over the apertures leading to the upper closed chamber and communicating with said chamber by such apertures, the lower ends of the tubes extending to the extreme bottom of the shell, the flange of which is removed at such conductors, and guard-hoods secured to the handle-socket and overhanging the upper ends of the conductors, substantially as described.

480,070. TOBACCO-CASING MACHINE. JOHN T. CARTER, Danville, Va., assignor to the Carter Machine Company, same place. Filed June 6, 1891. Serial No. 395,377. (No model.)

Claim.—1. A carrying-belt for tobacco-spraying machines, having one part covered with canvas and the other part surfaced with metallic slats overlapping each other, substantially as described.

2. The combination, in a machine for casing tobacco, of the two inclined shafts, a slack carrying-belt for the tobacco, adapted to the shafts, said carrying-belt having part of its surface composed of metallic slats overlapping each other, with a spraying device opposite said metallic slats, substantially as described.

3. The combination, in a tobacco-spraying machine, of the two shafts, a carrying-belt adapted thereto, wheels on said shafts, the wheel on one shaft being adjustable thereon, and means for locking the wheel to its shaft, with a chain belt passing over the wheels on the shafts so that one shaft is driven from the other, the whole so arranged that the trough of the belt can be regulated, substantially as and for the purpose described.



4. The combination, in a tobacco-casing machine, of the inclined shafts, carrying-belt thereon, mechanism for driving said shafts, a feed-chute, and a partition or fence, with a spraying device for spraying the tobacco as it passes along the belt, the whole arranged substantially as described.

5. The combination, in a tobacco-spraying machine, of the feeding devices for the tobacco, a spraying device having a tank for the liquor, a float box or cylinder connected to the tank, a float in said box, and a valve controlled by said float, whereby the supply of liquor to the float-box is regulated, substantially as described.

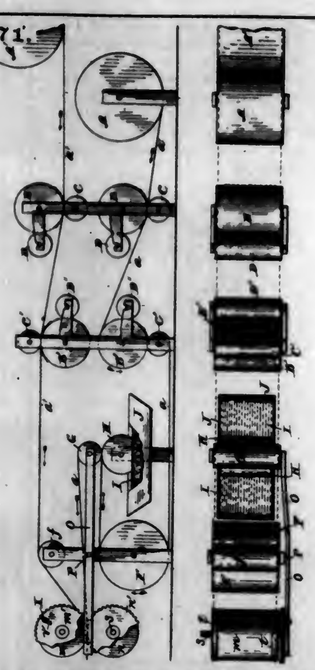
6. The combination of a spraying device, the tobacco-agitating belt, a tank, a float-box connected to said tank, a float in said box, a lever connected to said float, a reciprocated slide, pawls carried thereby, ratchet-wheels with which said pawls are adapted to engage, a feed-pipe for said float-box, a valve therein controlled by said ratchet-wheels, and projections on said float-lever acting to throw one or other of the pawls into or out of gear with its ratchet-wheel, whereby the valve in the feed-pipe is operated and the supply of fluid is regulated, substantially as specified.

7. The combination of the float-box, a float therein, a lever connected to said float, projections on said lever, a reciprocating slide, pawls on said slide, situated in the path of the projections on the lever, an inlet-pipe for the float-box, a valve in said pipe, a ratchet-wheel controlling the operation of said valve, and the pawls being arranged to operate the valve through the medium of the ratchet-wheels, substantially as described.

8. The combination, in a tobacco-spraying machine, of the inclined shafts, tobacco-carrying belts thereon, tobacco-spraying device, a float-box, a float therein, a float-lever, a reciprocating slide, a connecting-rod connected to a crank-pin on one of said inclined shafts and to the slide, whereby a reciprocating motion is imparted to said slide, pawls carried by said slide, a supply-pipe for the liquor, a valve therein, ratchet-wheels on the spindle of the valve, and pawls adapted to engage with said ratchet-wheels, with projections on the lever connected to the float for throwing one or the other of the pawls out of engagement with its ratchet-wheel, substantially as and for the purpose set forth.

480,071. MACHINE FOR MAKING STICKY FLY-PAPER. FRANK B. CLAGGETT, Oshkosh, Wis. Filed May 2, 1892. Serial No. 431,513. (No model.)

480,071.



Claim.—1. In a machine for making sticky fly-paper, the combination of a pan for holding a fly-catching substance, a coating-roller working in said pan, a guiding-roller for bringing the paper in contact with the coating-roller, and a pivoted lever or its equivalent for raising said guiding-roller and the paper carried thereby out of contact with the coating-roller, and means for operating the lever, whereby spaces at regular intervals are formed on said paper, substantially as and for the purpose described.

2. In a machine for making sticky fly-paper, the combination of a supply-pan for holding a fly-catching substance, a coating-roller working in said pan, a guiding-roller G above said coating-roller for bringing the paper to be coated in contact with the coating-roller, and a pivoted lever connected by one end to the said guiding-roller G and its other end working in conjunction with a pin on a feed-roller, whereby the guiding-roller G is automatically and periodically raised, thereby raising the paper at regular intervals from off the coating-roller to form uncoated spaces, substantially as and for the purpose described.

480,072. CLOTHES-PIN. JOHN W. COOK, Harrisburg, Oreg., assignor of one-half to John R. Medley, same place. Filed Jan. 22, 1892. Serial No. 418,966. (No model.)



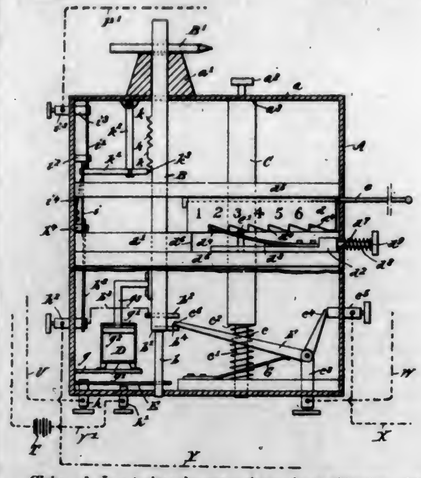
Claim.—1. A clothes-pin provided with a bearing to run upon the supporting-line, a guide-opening for the pulling-cord, and a plurality of clasps for holding the clothing, whereby the article of clothing being dried may be utilized to connect the adjacent pins, substantially as set forth.

2. A clothes-pin having at its upper end a bearing to run upon the supporting-line and provided below such bearing with a guide-opening for the pulling-cord and below such opening with the clasps, substantially as shown and described.

3. The improved clothes-pin formed of wire bent and twisted to form the clasps A and the guide-opening C and provided with a bearing to run upon the supporting-wire, substantially as set forth.

4. The combination of the supporting-line and its supports, the guide-pulleys 1 and 2, the clothes-pins having bearings arranged to run on the supporting-line, and also having guide-openings for the pulling-cord and provided below each opening with a plurality of clasps, whereby the clothes being dried may be utilized to connect the adjacent pins, and the pulling-cord passed over pulley 1, thence through the guide-openings of the pins around the pulley 2, and then back and secured to the foremost pin, all substantially as and for the purposes set forth.

480,073. TRAIN-ORDER ANNUNCIATOR. LEONARD T. CRABTREE, Embarrass, Wis. Filed Oct. 15, 1891. Serial No. 408,743. (No model.)



Claim.—1. In a train-order annunciator, the combination, with a battery and a telegraph receiving-instrument, of a train-order recording and indicating device, a current-changer that will hold a visual signal exposed, a signal-bell, electric connections between the battery telegraph-instrument, recording device bell, and current-changer, and a normally-open circuit-closer electrically connected to the bell, battery, and order-recorder, that will be mechanically closed by impact of a car-wheel, substantially as described.

2. In a train-order annunciator, the combination, with a battery, a switchboard, main-line wires, a receiving-instrument, a train-order recorder and indicator, and wires connecting these devices electrically, of an electrically-connected signal-bell, a normally-open circuit-closer, and a mechanical device connecting the circuit-closer with a rock-shaft and treadle-arm thereon, that will be depressed by impinge of wheels on a locomotive or car, close the circuit, and ring the bell, substantially as described.

3. In a train-order annunciator, the combination, with a battery, a switchboard, main-line wires, a receiving-instrument, a train-order recorder and indicator, a current-changer, and wires connecting all these devices electrically, of a cord or other operating device for a visual signal, which may be connected to the lever of the current-changer and hold it rocked, a normally-open circuit-closer, a signal-bell, wires to connect the bell with the circuit-closer, battery, and order-recorder, and a mechanical device which will close the circuit and cause the bell to ring when engaged by the wheel of a locomotive or car, substantially as described.

4. In a train-order-annunciator apparatus, a current-changer comprising a rocking lever on a base-block, a rock-shaft supporting the lever, a crank-arm thereon, two separated spring contact-plates supported on binding-posts, a shifting contact-plate which is secured on a rotatable binding-post and that may engage either spring-plate, an arm on said post, and a link-bar loosely connecting this arm with the crank-arm of the rock-shaft, substantially as described.

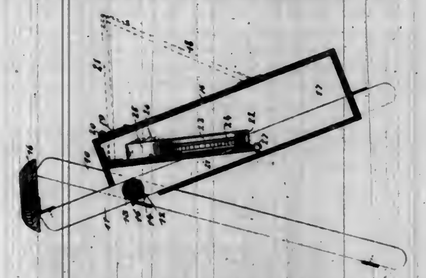
5. In a train-order-annunciator apparatus, a recording and exhibiting device comprising a case, movable indicator-slides therein having numerals that may be exposed before sight-holes in the front of the case, a vertically-adjustable gravity-bar, means to move the indicator slide-plates longitudinally, a rocking bell-crank lever supported on a binding-post that will engage its short arm with another post when the gravity-bar is elevated, a contact-bar on the gravity-bar that will engage the long arm of the bell-crank when the gravity-bar is depressed, a binding-post bearing a spring contact-plate that will be depressed when the gravity-bar falls, and another binding-post that will be engaged by the spring contact-plate when the gravity-bar falls, substantially as described.

6. The combination, with a case, a gravity-bar adapted to slide vertically in the case, a removable style that supports the bar elevated, a series of separated projections formed on one side of the gravity-bar, and a dash-pot device connected with the bar, of a finger-bar supported to swing and loosely engage the projections on the gravity-bar with one end, and a contact-plate that is actuated to make and break a closed electric circuit by the other end of the finger-bar when the gravity-bar falls, substantially as described.

7. In a train-order annunciator, the combination, with a case having an apertured front wall, indicator slide-plates numbered in series which when slid will expose a number before an aperture, a pusher-bar for each slide-plate, and a spring on each pusher-bar that engages its free end with teeth on the edge of a slide-plate, of a vertical slide-bar, pins on said bar that will compress the springs on the pusher-bars when the slide-bar is depressed, and a spiral spring below on the slide-bar that holds it normally elevated, substantially as described.

8. In a train-order-annunciator apparatus, the combination, with a signal-bell, a battery, an annunciator-case, a gravity-bar vertically movable in the case, a binding-post on the case supporting a contact spring-plate that is loosely engaged by the lower end of the gravity-bar, another adjacent binding-post whereon the contact-plate will be imposed when the gravity-bar falls, a circuit-closer comprising a box, two binding-posts thereon, to one of which a circuit-closing bar is hinged by one end and adapted to bear on the other post when swung upwardly, and connecting-wires between the bell binding-posts, battery, and posts on the annunciator-case, of a rod depending from the circuit-closing bar, a spiral spring on said rod which holds it and the circuit-closing bar normally depressed, a rock-shaft below having a crank on one end connected with the depending rod, and an arm on the other end of the rock-shaft near a track-rail, which will be depressed and close the circuit when impinged upon by a car-wheel, substantially as described.

480,074. FOLDING BLACKING-STAND. JOHN A. CRAMPTON, Newport, Del. Filed Aug. 19, 1891. Serial No. 403,063. (No model.)



Claim.—1. A folding blacking-stand comprising folding cross-legs having a hinged foot-rest at the top and a box carried by the stand and provided with a swinging lid and an outwardly-swinging shelf, substantially as described.

2. A folding blacking-stand comprising folding cross-legs, a hinged foot-rest, and a box having a hinged lid, substantially as described.

3. In a blacking-stand, the combination, with a frame, of a box secured to the frame and having an outwardly-swinging lid and a shelf hinged in the box and adapted to be swung upwardly out of the box and supported by the lid thereof, substantially as described.

4. In a blacking-stand, the combination, with a box having an outwardly-swinging lid provided with a hook for engaging an eye on the box to lock the lid closed, of a shelf hinged in the box and provided with an eye, said box being adapted to be swung upwardly out of the box and its eye engaged by the hook of the lid of the box, substantially as and for the purpose specified.

5. In a blacking-stand, the combination, with pivoted cross-frames, one of which is provided with a cross-bar and the other with a hook for engaging said bar, of a foot-rest pivoted to one frame and adapted to rest on the other, a box secured to one frame and having a hinged lid, and a hinged shelf in the said box, substantially as herein shown and described.

6. A blacking-box stand comprising a folding frame, a hinged foot-rest carried by the frame, a box secured to the frame and having a hinged lid, and a shelf hinged in the box and adapted to be supported by the lid of the box when swung out of the same, said shelf carrying a blacking-box holder and a sponge-holder, substantially as herein shown and described.

480,075. LATCH. GEORGE H. DUNCAN, Greenwich, Mass. Filed Dec. 28, 1891. Serial No. 416,297. (No model.)



Claim.—1. In a door-latch, the hollow cylindrical barrel b B', made in two parts, one of said parts being integral with the latch-plate and the other being adapted to fit edgewise upon the first, in combination with the latch-bolt reciprocating within said barrel in the direction of its length, the knob-spindle reciprocating through the same at right angles thereto, and with the connecting-tongue J and anti-friction rollers L, for the purpose set forth.

2. In a door-latch, the knob spindle adapted to move longitudinally in actuating the latch-bolt and provided with the corner-notches h, in combination with escutcheon-plates having square sockets to fit said spindle and annular sleeves surrounding the same, and with a lock-plate N n, having a similar socket through which the spindle passes, said plate being inserted transversely through said sleeve and adapted by a partial rotation to engage with the notches n, for the purpose set forth.

480,076. BROILER ATTACHMENT FOR STOVES. THOMAS P. DUNNE, New York, N. Y. Filed Nov. 19, 1891. Serial No. 412,371. (No model.)



Claim.—1. A broiler attachment for stoves, composed of two telescoping sections, each having a triangular end piece, and an inclined top plate connected at one end with the oblique top edge of the end piece, substantially as set forth.

2. A broiler attachment composed of two triangular end pieces and inclined top plates provided at each lower end with a flange, and pins projecting downwardly from said flange, substantially as set forth.

3. A broiler attachment composed of two triangular end plates, a curved top plate provided at its lower end with a flange, pins projecting downward from said flange, and a curved hood formed along the upper edges of the inclined plate, substantially as set forth.

4. A broiler attachment composed of two end plates and inclined top, and a curved hood formed along the upper edge of the inclined top, substantially as set forth.

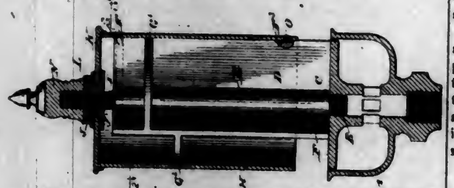
480,077. FOOT-LATCH FOR REVERSIBLE PLOWS. OSCAR H. EDDY, Greenwich, N. Y., assignor to W. Eddy & Sons, same place. Filed Mar. 5, 1892. Serial No. 423,812. (No model.)



Claim.—In a foot-latch for reversible plows, the combination, with a bell crank lever having end hooks and means for securing the lever pivotally upon a plow, of a spring-supporting rod having one end pivoted to the bell-crank lever and provided with a spring-supporting

flange and the other end movable in a fixed support, and a coil-spring inclosing the rod with one end of the spring bearing upon the flange on the rod and the other end upon the fixed support, substantially as described.

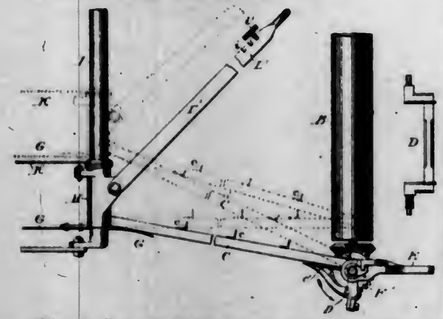
480,078. STEAM-WHISTLE. JOHN EISIG, Jacksonville, Fla. Filed Mar. 15, 1892. Serial No. 424,985. (No model.)



Claim.—1. A steam-whistle comprising a fixed web and a bell held longitudinally adjustable on the said web and forming with the latter longitudinal chambers of different lengths, substantially as shown and described.

2. A steam-whistle comprising a nozzle, a web secured on the said nozzle and provided with longitudinal and transverse partitions, and a bell fitted over the said web and held longitudinally adjustable thereon, substantially as shown and described.

480,079. GRAIN-BINDER. GEORGE ESTERLY, Whitewater, Wis., assignor to the Esterly Harvesting Machine Company. Filed Dec. 5, 1891. Serial No. 414,147. (No model.)



Claim.—1. In a grain-binding machine, the combination of a laterally and longitudinally moving butt-board and a supporting-plate overlapping the same and extending beyond its lower end to support the butt-ends of the adjusted grain and prevent the same from shifting forward.

2. In a grain-binding machine, and in combination with the binding-table whereon the loose grain is delivered, the butt-board, the driving-crank at its upper end, the plate G, against which it slides at the lower end, the plate-supporting sleeve, the sleeve-supporting guide extending in a fore-and-aft direction, and means under the control of the driver for shifting the sleeve in a fore-and-aft direction and fixing it in position.

3. In a grain-binding machine, and in combination with the binding-table whereon the loose grain is delivered, the butt-board, means for moving the same laterally and longitudinally at its upper end, the stationary butt-supporting plate overlapping and extending beyond its lower end, and a spring-finger forward of said plate to act upon and retain the butts of the grain.

4. In a grain-binding machine, and in combination with the binding-table whereon the loose grain is delivered, the butt-board, the actuating-crank at its upper end, the plate G, extending beyond its lower end, the support for said plate, adjustable in a fore-and-aft direction, and the spring-finger attached to said support.

480,080. INTERCHANGEABLE-INITIAL FINGER-RING. JOSEPH H. FINK, New York, N. Y. Filed Apr. 14, 1891. Serial No. 388,873. (No model.)

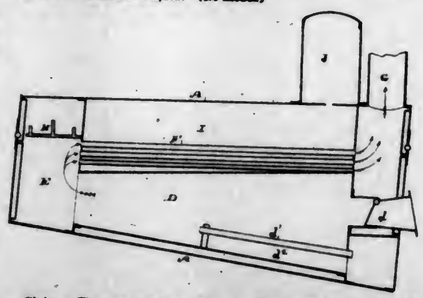
Claim.—1. In an interchangeable-initial finger-ring, the combination, with the box of the ring and a perforated setting, of an initial letter or like character having arrow-headed locking-bars, which pass through perforations of the setting, enter the box below, and engage removably with a laterally-elastic securing device that is firmly attached to the bezel of the box or ledges thereon, substantially as described.

480,080.



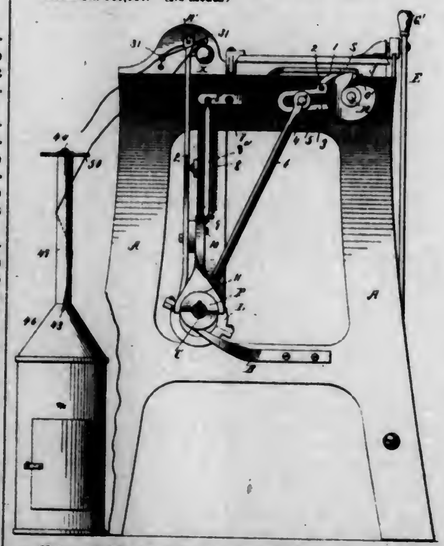
2. In an interchangeable-initial finger-ring, the combination, with a ring having a box attached to its hoop portion, a setting which is perforated, and seats in the box, and an initial letter for the ring, of two parallel keeper-rods that are elastic and are affixed by their ends to ledges in the box and one or more locking-bars which have one end affixed to the initial letter, pass through the perforated setting, and interlock arrow-heads on their free ends between the keeper-rods, substantially as described.

480,081. BOILER. FRANK X. FISCHER, Oakland, Cal. Filed Mar. 6, 1889. Serial No. 302,152. (No model.)



Claim.—The combination, with a boiler having one end smaller than the other, of a wheeled frame having a rear axle provided with a curved seat at its middle portion, adapted to receive the larger end of the boiler, and a front axle supporting the smaller front end of said boiler and pivotally secured thereto, so that it may turn about its pivot without impediment, substantially as herein described.

480,082. MACHINE FOR SEWING STRAW COVERS FOR BOTTLES. VALENTIN FLECKENSTEIN, Oshkosh, Wis. Filed Oct. 31, 1890. Serial No. 369,917. (No model.)



Claim.—1. The combination of a forming-cylinder, a guiding-scroll, a stationary straw-supporting table, an endless-chain straw-carrier extended far enough to carry the sewed cover around the cylinder between the same and the scroll, mechanism for automatically stopping the stitch-forming mechanism and the endless straw-carrier mechanism for varying the length of the stitch, and a hand mechanism for restarting the machine when a new cover is to be made, substantially as described.

2. The combination of stitch forming mechanism, the forming-cylinder, the guiding-scroll, a straw-carrier, a binder H, pivoted at A to the frame and swinging over upon the top of the feed-table for holding the straw down, the horizontal sliding platform G, and a lever G', connected thereto and to the frame, the said platform being on a plane above the binder and serving for doubling the straw and holding it upon the binder, substantially as described.

3. The combination of stitch-forming mechanism, a forming-cylinder, a guiding-scroll, a straw-carrier, a ratchet-wheel and pawl, a notched wheel and pawl, a slotted arm, an adjustable connecting-rod 6, and mechanism for operating the stitch-forming devices, and the endless-chain straw-carrier whereby the length of the stitches can be varied and the machine automatically stopped when the cover is finished and the cutting of the threads is to be performed, substantially as described.

4. The combination of stitch-forming mechanism, a forming-cylinder having a removable cover, a guiding-scroll provided with an opening intermediate of its length for admitting access to the straw-cover, the straw-feeding mechanism, and mechanism for operating the stitch-forming and straw-feeding devices, substantially as described.

5. The combination of stitch-forming mechanism comprising a reciprocating hooked needle, arm 19, carried by wheel 17 and carrying the thread, toothed bar 16, toothed wheel 17, and means for operating said bar 16, the forming-cylinder, a guiding-scroll, a straw-carrier, and mechanism for operating said carrier and the other parts of the stitch-forming mechanism, substantially as described.

6. The combination of the stitch-forming mechanism comprising the hooked needle, rocking thread-carrier 19, thread-gripper 28, lever x for operating the same, slotted plate 26, through which the thread and needle pass, and knife 42, applied to the gripper and operated by the lever which operates the gripper, a forming-cylinder, a guiding-scroll, a straw-carrier, mechanism for operating said carrier, and mechanism for operating the stitch-forming mechanism, substantially as described.

7. The combination of stitch-forming mechanism, feeding mechanism, plate 26, provided with a slot 27, gripper 28, knife 42, mounted on the same pivot as the gripper, but set at a different angle so as to engage the wall of the slot later, and lever x, as and for the purpose described.

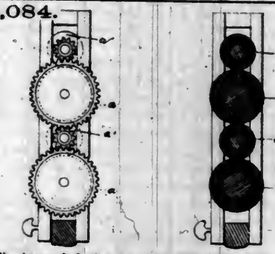
480,083. WASHING-MACHINE. JOHN FLYNN, Vail, Iowa. Filed Oct. 26, 1891. Serial No. 410,061. (No model.)

Claim.—In a washing-machine, the combination of the suds box, the pounder having the openings and formed of the perforated pieces and provided with the rigid upwardly-extending arm, and the operating means for the pounder, and the holding-rack to secure the articles to be washed to the under side of the pounder, and the cords for detachably holding the said rack in position.

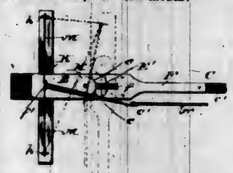
480,084. MACHINE FOR DECORTICATING RAMIE, &c. WALTER T. FORBES, Atlanta, Ga. Filed Dec. 29, 1891. Serial No. 416,451. (No model.)

Claim.—The improved machine for decorticating ramie and similar growths, consisting of the frame and the two pairs of yielding surfaced rolls journaled therein, the said rolls being arranged in a common plane and the rollers of each pair being relatively one large and the other small, the rollers of each pair being in contact and the small roll of one pair being in contact with the large roll of the other pair, and the drive mechanism arranged to turn the small rolls faster than the large ones, substantially as set forth.

480,084.



480,085. GATE. GEORGE FORD, New Harmony, Ind. Filed Nov. 19, 1891. Serial No. 412,390. (No model.)



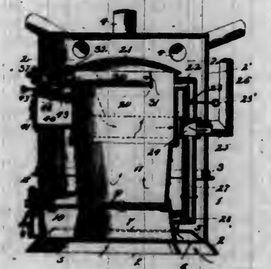
Claim.—1. In a gate, the combination, with the hinge-post, of the block connected therewith and having a concaved rear face, the hinge-pin secured therein, the gate, the longitudinal bar or beam rigidly attached to the gate and having a longitudinal slot, the friction-roller upon the under side of the bar or beam, the lower hinge, and the cords and levers connected with the bar or beam, substantially as shown and described.

2. In a gate, the combination, with the hinge-post, of the block having a concaved rear face and convex forward face, the vertical hinge-pin inserted in said block, the gate having a rigid rearwardly-projecting bar slotted longitudinally and carrying a roller rear of said slot and upon the under side of said bar, and the cords connected with the bar rear of the roller, substantially as shown and described.

3. In a gate, the combination, with a hinge-post, of a gate hinged thereto, the rigid rearwardly-projecting bar or beam slotted, as described, the vertical hinge-pin, the cross-beam connected with the hinge-post and arranged adjacent the rear end of the bar or beam, guides carried at the ends of the cross-beam, the cords passed through said guides and connected with the bars or beams, and the lower hinge, substantially as shown and described.

4. The combination, with the hinge and supplemental posts, of the beam connecting the same, the block having the concave rear face and convex forward face, the vertical hinge-pin, the gate, the slotted bar or beam rigid with the gate, the friction-roller attached to the under side of the bar or beam, the lower hinge, the cross-beam, guides, ropes, and levers, all arranged substantially as shown and described.

480,086. FURNACE. THOMAS E. FREEMAN, Sioux Falls, S. D., assignor of one-half to William D. Roberts, same place. Filed Apr. 21, 1892. Serial No. 430,123. (No model.)



Claim.—1. In a furnace, the combination, with the casing, the hot-air pipes leading therefrom, the furnace-body, a box in rear thereof, and the smoke-flue leading from said box to the chimney, of a shield within the furnace-body, its rear edge standing near the top and rear of said body and its front opening through said body, a front radiator between the casing and body, curving through about one-third of a circle and communicating at its center with said opening from the shield, a rear radiator similarly located and occupying the remaining two-thirds of a circle, its center communicating with said box, and depending oblique pipes connecting the ends of the front and rear radiators, as and for the purpose set forth.

2. In a furnace, the combination, with the casing, the hot-air pipes leading therefrom, the furnace-body, a box in rear thereof, an exit-pipe connecting the body with said box, a damper in said pipe, and the smoke-flue leading from the box to the chimney, of an opening at the front of said body near its top, a front radiator between the casing and body, curving throughout part of a circle and communicating at its center with said opening, a rear radiator similarly located, occupying the remaining part of the circle and communicating at its center with said box, and depending oblique pipes connecting the ends of the radiators, as and for the purpose set forth.

3. In a furnace, the combination, with the casing, the hot-air pipes leading therefrom, the furnace-body, a box in rear thereof, a dust-exit flue connecting said box with the ash-pit of the body, a damper in said flue, and the smoke-flue connecting the box with the chimney, of an opening in the front of the furnace-body near its top, a front radiator between the casing and body, curving throughout part of a circle and connecting at its center with said opening, a rear radiator similarly located, occupying the remaining part of the circle and communicating at its center with said box, and depending pipes connecting the ends of said radiators, as and for the purpose set forth.

4. In a furnace, the combination, with the casing, the hot-air pipes leading therefrom, the furnace-body, a box in rear thereof, an exit-pipe connecting the body with said box, a damper in said pipe, a dust-exit flue connecting the box with the ash-pit, a damper in said flue, and the smoke-flue connecting the box with the chimney, of a front radiator between the body and casing, curving throughout part of a circle and communicating at its center with the front of the body, and a rear radiator similarly located, occupying the remaining part of the circle, communicating at its center with said box, and connected at its ends with the ends of the front radiator, as and for the purpose set forth.

5. In a furnace, the combination, with the casing, the hot-air pipes leading therefrom, the furnace-body having a convex top, the coal-chute opening into the front of said body and having a door, and the smoke-flue leading to the chimney, of a front radiator curving around the body within the casing and near the top of said body, with which it communicates at its center, a rear radiator also curving around the body, connected with the front radiator, and communicating with the smoke-flues, a pipe connecting the front radiator with said chute, and a damper in this pipe, all as and for the purpose hereinbefore set forth.

480,087. PORTFOLIO OR POCKET-CASE. CHARLES GALLE, St. Louis, Mo. Filed Dec. 11, 1891. Serial No. 414,692. (No model.)



Claim.—1. As a new article of manufacture, a portfolio comprising an inner layer forming the body, a cover of pyroxyline material suitably secured thereto, and the flexible connections joining the side edges of the portfolio, substantially as described.

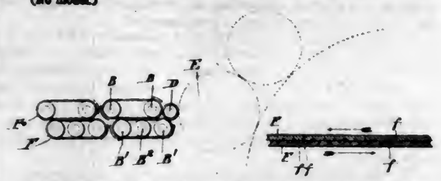
2. As a new article of manufacture, a portfolio comprising a single foundation layer doubled or folded upon itself to form two sides and an end, and a cover of pyroxyline material secured to said body, the edges of the sides formed by the layer and cover being joined together, substantially as described, for the purpose specified.

3. A portfolio comprising the inner layer, the transparent cover secured to the layer, and flexible connections which join the side edges of the layer and cover, substantially as described.

4. A portfolio comprising the inner layer, the pyroxyline cover, said layer and cover being folded to form the sides or faces of the portfolio, and the lacing connecting the edges of said sides or faces, substantially as described.

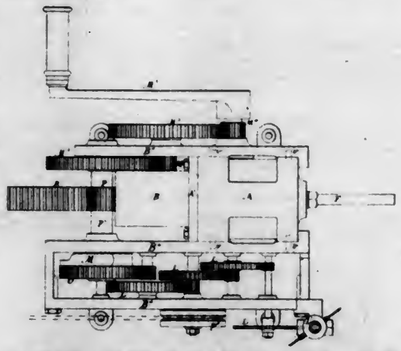
5. As a new article of manufacture, a portfolio comprising an inner layer forming the body thereof, and a pyroxyline cover secured to said body and having an ineffaceable inscription on the inner face of said cover, the sides of the portfolio being flexibly connected together, substantially as described.

480,088. RUBBING-APRON FOR CONDENSING CARDING-ENGINES. SAMUEL H. GIDLEY, Philadelphia, Pa., assignor to John Dobson and James Dobson, same place. Filed June 25, 1891. Serial No. 397,405. (No model.)



Claim.—In rub-roll mechanism for condensing carding-engines, the combination, with two pairs of rub-roll shafts mounted relatively to each other, as described, of short endless aprons or belts mounted thereon laterally between said shafts and provided on their rubbing-surfaces with a series of shallow longitudinal channels or grooves, substantially as described.

480,089. COMPRESSED-AIR MOTOR. PAUL GIFFARD, Paris, France. Filed Aug. 25, 1888. Serial No. 283,761. (No model.) Patented in France Mar. 5, 1888, No. 189,141, and in England July 23, 1888, No. 10,645.



Claim.—1. A compressed-air motor consisting of a compressed-air cylinder having one end open, a hollow plunger also having one end open and entering the open end of the cylinder, and multiplying gear driven by the plunger for transmitting power to the apparatus to be driven, substantially as described.

2. A compressed-air motor consisting of a compressed-air cylinder having one end open, a hollow plunger also having one end open and entering the open end of the cylinder, an air-pump connected with the cylinder for storing air therein, and gear driven by the plunger for transmitting power to the apparatus to be driven, substantially as described.

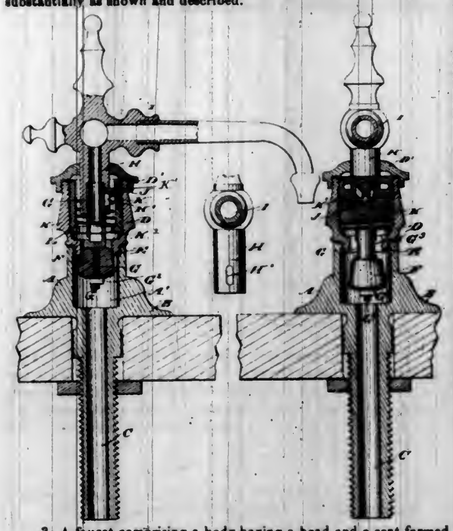
3. For a compressed-air motor, an expansible-air reservoir consisting of the combination of a compressed-air cylinder having one end open and an air-pump communicating with the other end, with a hollow plunger, also having one end open, entering the open end of the cylinder, and a rack-bar extending from the closed end of the piston for communicating motion to the driving-gear of the motor, substantially as described.

4. A compressed-air motor consisting of a compressed-air cylinder having one end open, a hollow plunger also having one end open and entering the open end of the cylinder, an air-pump connected with the cylinder for storing air therein, multiplying gear driven by the plunger, and other gear connected to the said plunger for returning it to its original position against the action of the compressed air, substantially as described.

480,090. FAUCET. JAMES M. GILMOUR, East Orange, N. J. Filed Jan. 7, 1892. Serial No. 417,942. (No model.)

Claim.—1. A faucet comprising a body provided with a valve-seat, a valve adapted to be seated on the said valve-seat and arranged to close in line with the pressure of the water service, a discharge-spout loosely engaging the stem of the said valve and formed with a slot, the said spout being mounted to turn in the said valve-body, and a pin projecting from the valve-stem and passing through the slot in the spout to engage a groove on the said body, so that on turning the spout the pin moves in the groove to actuate the valve and at the same time the pin slides in the slot of the spout, substantially as shown and described.

2. A faucet comprising a body having a head and a seat formed thereon, a valve adapted to be seated on the said seat and arranged to close with the pressure of the water service, a valve-stem carrying the said valve and connected with the discharge-spout, and a pin held on the said stem and engaging a V-shaped groove on the said head, substantially as shown and described.



3. A faucet comprising a body having a head and a seat formed thereon, a valve adapted to be seated on the said seat and arranged to close with the pressure of the water service, a valve-stem carrying the said valve and connected with the discharge-spout, a pin held on the said stem and engaging a V-shaped groove on the said head, and a spring pressing on the said pin for automatically closing the valve, substantially as shown and described.

4. A faucet comprising a body, a head held thereon and formed with a valve-seat, a sleeve held on the said head and formed with a V-shaped groove, a valve adapted to be seated on the said valve-seat, a valve-stem carrying the said valve, a discharge-spout formed with a stem engaging the said valve-stem, and a pin projecting from the said valve-stem and passing through a vertical slot in the said spout to engage with its outer end the said V-shaped groove, substantially as shown and described.

5. A faucet comprising a body, a head held thereon and formed with a valve-seat, a sleeve held on the said head and formed with a V-shaped groove, a valve adapted to be seated on the said valve-seat, a valve-stem carrying the said valve, a discharge-spout formed with a stem engaging the said valve-stem, a pin projecting from the said valve-stem and passing through a vertical slot in the said spout to engage with its outer end the said V-shaped groove, and a spring held in the said sleeve and pressing against the said pin, substantially as shown and described.

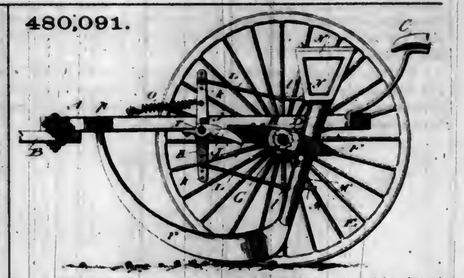
480,091. SEED-PLANTER. JACOB C. HAAS, Bremen, Ind., assignor of one-half to George F. Wahl and I. L. D. Seiler, same place. Filed Feb. 10, 1892. Serial No. 420,992. (No model.)

Claim.—1. The combination, with the frame, wheels, and axle, of a ratchet-lug on the axle and the dropping mechanism actuated by said lug, as set forth.

2. The combination, with the frame, wheels, and axle, of the lug on the axle, the shaft forward of the axle, the cam on said shaft in the path of said lug, the vertical arms on the ends of said shaft, the pivotal adjustable arms carrying pivotal slides, and the spring acting on the vertical arm, substantially as described.

3. The combination, with the axle and the lug loosely seated thereon, of the ratchet fast on the axle and operative connections between said lug and ratchet, as set forth.

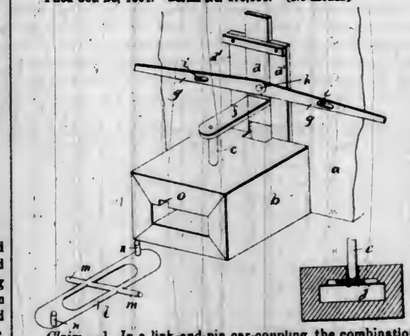
480,091.



4. The combination, with the axle, of the chambered lug loosely sleeved thereon, the ratchet fast on said axle and arranged in the chamber of the lug, and the flat spring on said lug engaging said ratchet, substantially as and for the purpose specified.

5. The combination, with the frame, axle, and wheels, of the chambered lug loose on the axle, the ratchet fast on the axle in the chamber of the lug, the springs on the lug engaging the ratchet, the rock-shaft forward of the axle, the adjustable cam thereon, the vertical arms carried by said shaft, the springs acting thereon, and the pivotal adjustable rods connected with said arm and having the slides pivotally connected therewith, substantially as described.

480,092. CAR-COUPLING. WILLIAM HERRICK, Russell, Minn. Filed Oct. 28, 1891. Serial No. 410,098. (No model.)



Claim.—1. In a link-and-pin car-coupling, the combination, with the coupling head, of a horizontally-swinging pin-holding cam pivoted to the upper face of the head-opening, so as to swing from and beneath the pin-opening, said cam being so shaped as to be swung in opposite directions by a lug or portion of the link, substantially as described.

2. The link-and-pin coupling-head, in combination with the horizontal cam pivoted between its ends in the top of the interior of the head and arranged and constructed substantially as described, and a link having a projection arranged so that when the link enters the head it will engage the cam and swing it from beneath the link-hole and when the link moves out of the head it will engage said cam and swing it beneath said hole, substantially as set forth.

3. In a car-coupler, the combination of the coupling-head, the coupling-pin, and the swinging cam within the head, arranged to hold and automatically drop said pin, and the coupling-link having the central lateral stops and the projections at its ends, said cam being so constructed as to be operated by the in-and-out movement of the said projection and the coupling-link, as set forth.

4. The coupling-head having the cam provided with curved edges and pivoted between its ends to the top of the interior of the head, so as to rest above the link, and a link having a portion adapted to engage said cam when it leaves and enters the head, and thereby swing the link in opposite directions, as described.

480,093. BAND-SHELL FOR WHEEL-HUBS. HENRY HIGGIN, Newport, Ky. Filed Apr. 18, 1892. Serial No. 429,581. (No model.)

Claim.—1. As an article of manufacture, a shell for hub-bands, having an inturned flange adapted to take over the point of the hub-band and provided with an annular depression, substantially as and for the purpose specified.

2. As an article of manufacture, a shell for hub-bands, adapted to engage with the point of the hub-band provided with an annular

depression and having a corrugated or knurled portion between its outer end and the annular depression, substantially as and for the purpose specified.

3. The combination, with a hub-band having an annular groove, of a shell adapted to engage with the point of the band and provided with an annular depression adapted to take into the groove on the band, substantially as and for the purpose specified.



4. The combination, with the hub-band B, having groove *b'* and bead-ring *b²*, of the shell-band C, having flange *c* and depression *c'*, and adapted to abut against the bead-ring of the band, substantially as and for the purpose specified.

480,094. COMPOSITION FOR AND METHOD OF MAKING HEADS AND LIMBS OF DOLLS. SOLOMON D. HOFFMANN, Moscow, Russia. Filed Apr. 23, 1892. Serial No. 430,360. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of glue, glycerine, zinc oxide, and Japanese wax, in substantially the proportions set forth.

2. The herein-described method of producing the heads and the limbs of dolls, which consists in reducing glue, glycerine, zinc oxide, and Japanese wax to a liquid state, pouring the liquid into molds, smoothing the molded mask, dipping the mask in a bath of glue, glycerine, white zinc oxide, Japanese wax, and coloring-matter reduced to a thin liquid, and finally decorating the molded article and immersing it in its decorated state in a bath of collodion, as herein set forth.

480,095. DEMIJOHN-HOLDER. ERIC W. H. HOLME, Toronto, Canada. Filed Jan. 14, 1892. Serial No. 418,064. (No model.)



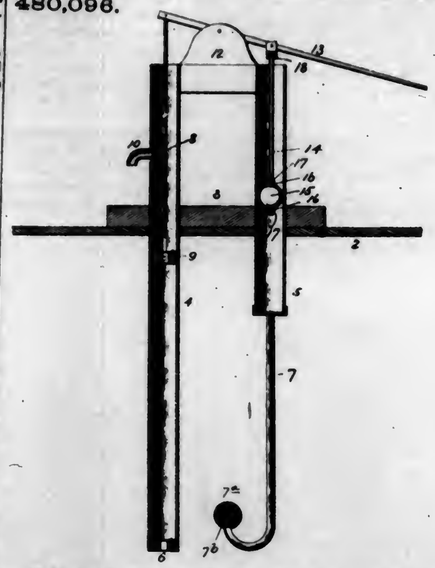
Claim.—1. A frame for the purpose described, comprising the side bars A, straight feet B, extending substantially at right angles from the bottom of said bars A completely under and forming a support for the demijohn, rockers D, and cross-bars E and F, substantially as described.

2. A frame for holding demijohns, comprising the side bars A, arch-shaped at top to fit over the top of the demijohn, straight feet B, extending at right angles from the bottom of said side bars completely under and supporting said demijohn, rockers D, and cross-bars E and F, all substantially as shown and described.

480,096. PURIFYING-PUMP. GEORGE W. HORN and JOHAN L. HORN, Farmington, assignors, by direct and mesne assignments, to William W. Norman, Delta, Mo. Filed Jan. 13, 1892. Serial No. 417,994. (No model.)

Claim.—1. In a pump of the character described, the combination, with the air-cylinder having a downwardly-extending pipe provided with a wire nozzle and a gravity-valve, of the plunger located in said cylinder provided with an aperture, the vertically-movable tube passing through said aperture, and having a nut or collar at its upper end, the cage connected with the pump-handle, provided with an aperture through which said rod loosely passes, the cross-piece, and valve, substantially as specified.

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2. In an air-cylinder, the combination, with the operating-handle and the cage connected therewith, having an aperture in its lower side, and a cross-piece and valve, of the vertically-movable tube passing loosely through said aperture and provided with a nut or collar, and the plunger having an aperture through which the lower end of said tube passes, substantially as described.

480,097. RUBBER SHOE. BERNHARD HOROVITZ, Stillwater, Minn. Filed Mar. 28, 1892. Serial No. 426,685. (No model.)



Claim.—The combination, with a low-cut rubber or overshoe having a bellows-like vamp or tongue-flap connecting the quarters of the shoe, of a snow-excluder consisting of a hem-like strip of flexible material secured water-tight at the mouth of the shoe with its edge projecting forward and provided with draw strings or cords passing outward and forward through eyes in the quarters of the shoe, whereby when the shoe is in position and the strings are drawn tight and tied the edge of said hem-like strip will be embedded in the socks of the wearer and the quarters will be secured over the bellows-like flap, making a water-tight and snow-tight joint, substantially as and for the purpose set forth.

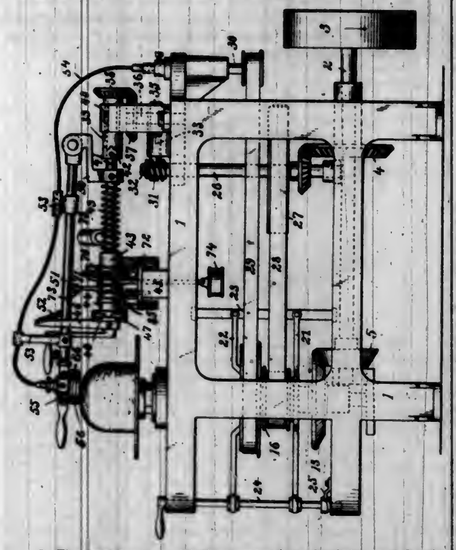
480,098. MACHINE FOR POUNCING HATS. JOHN R. HOWE, Danbury, Conn. Filed May 7, 1891. Serial No. 391,892. (No model.)

Claim.—1. In a hat-pouncing machine, the combination, with the rotative hat-support, of the pouncer-lever, the pouncer connected therewith, a weight and connections interposed between it and the pouncer-lever, whereby the pouncer is forced against the hat, the notched disk and the hook engaging therewith, the gears 79 and 70, and means, as described, for disengaging the hook from the disk, the whole arranged and adapted to operate substantially as set forth.

2. The combination, with the pouncer-lever and the shaft whereby it is carried, of a clutch interposed between said shaft and a constantly-moving part of the machine, a spring for normally holding the shaft in engagement, and a pair of cams whereby the disengagement of the clutch is effected and the shaft stopped, substantially as and for the purpose set forth.

3. The combination, with the pouncer-lever having accommodation for a pouncer-head, of the feeding-shaft 41, a clutch for connecting said shaft to a constantly-moving portion of the machine, cams, as described, for disengaging said clutch, and a slotted crank embracing the pouncer-lever, whereby said lever will be moved over the surface of the hat, but may be thrown outward in the slot for purposes of disengagement.

4. The combination, with the pouncer-lever, of the feeding-shaft 41, the clutch whereby said shaft is connected with its motor part, the spring for engaging the clutch, the means for disengaging the clutch, the slotted crank carried by said shaft, the strap and weight mechanism for drawing the pouncer-head against the hat, and the spring for disengaging it therefrom, substantially as described.



5. The combination, with the pouncer-lever having a seat for the pouncer-head, of the bracket to which said lever is fulcrumed, the shaft to which the bracket is attached, means for starting and stopping the shaft, a slotted crank whereby the lever is carried with the shaft, a weight and strap for insuring the engagement of the pouncer, and a spring for effecting the disengagement of the pouncer, substantially as described.

6. The combination, with the pouncer-lever and the pouncer-head seated and adapted to revolve in said lever, of the feeding-shaft whereby said pouncer-lever is carried over the surface of the hat, the flexible shaft connected to and adapted to drive the pouncer-head, and driving means, as described, for the rotation of the flexible shaft, substantially as set forth.

7. The combination, with the pouncer-lever, its pouncer, and the feeding-shaft 41, of the double strap-wheel having the connected gear journaled on the feed-shaft, the straps and weights connected to the pouncer-lever, the rock-shaft 75, a disk 80, secured thereto, and a pin 81, secured to a gear connecting with the gear of the feed-shaft, and a weight borne by the shaft 75 and adapted to rotate the same, substantially as set forth.

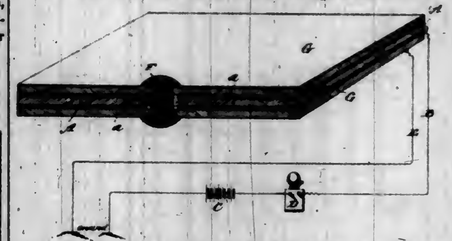
8. The combination, with the feeding-shaft, the strap-wheels and gear journaled thereon, and the straps and weight, of the rock-shaft journaled behind the feed-shaft and bearing the weight, the gear on said rock-shaft and engaging the gear on the feed-shaft, and the notched disk and the hooked lever engaging the latter, whereby the weight is held in its lifted position, and means for disengaging the rear shaft to permit the weight to act, substantially as specified.

9. The combination, with the hat-support, of the pouncer-head, the pouncer-lever, a handle connected to the end of the latter, said handle having a cut-out portion 67 to receive a swinging ring 68 and having a bearing for the pouncer-head, and a binding-screw 69 to clamp said ring in its desired position, substantially as described.

10. The combination, with the lathe-shaft, of the friction-disk and its hub splined to the lathe-shaft and provided with a clutch, the pulley 16, having two clutch-faces and journaled upon the lathe-shaft, a pulley 20, journaled above the pulley 16 and provided with a clutch-face, and levers connected to the disk-hub and the pulley 20, whereby engagement and disengagement of the several clutch-faces are effected, substantially in the manner hereinbefore specified.

11. The disk 13 upon the hub 12, splined to the lathe-shaft, and the pulley 20, adapted to drive the pouncer, in combination with levers whereby said parts 12 and 20 may be raised relative to the lathe-shaft, and an intermediate pulley journaled about the lathe-shaft and adapted for engagement either with the pulley 20 or the hub 12, substantially as set forth.

480,099. ELECTRIC JAIL-PLATE. WILLIAM S. HULL, Sheffield, Ala. Filed Dec. 8, 1891. Serial No. 414,405. (No model.)



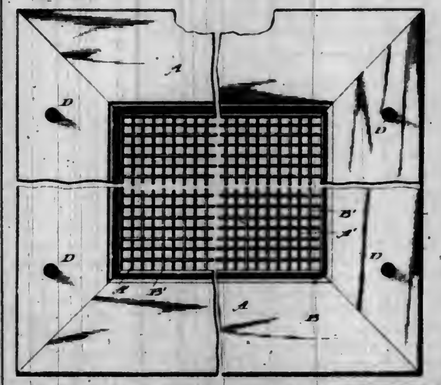
Claim.—1. A compound plate for the purpose described, comprising two outer plates, an intermediate insulated plate, and a bolt or rivet electrically disconnected from the intermediate plate and binding said plates together, and electrical connections extending from one of the outer plates and from the intermediate plate to a battery and to an alarm, substantially as specified.

2. An electrical plate for the walls of jails, safes, vaults, &c., consisting of two outer plates, an intermediate insulated plate, and bolts or rivets binding the plates together, the holes in the intermediate plate being larger than those of the outer plates, substantially as specified.

3. A safe, jail, or vault wall comprising outer plates, an intermediate plate, an interposed mass of insulating material upon both sides of the intermediate plate, and means for binding the plates together, said means being electrically disconnected from one of said plates, as set forth.

4. A jail, safe, or vault wall consisting of a plurality of plies of metal plates, all intermediate plies being insulated from the adjacent plies throughout their entire surfaces, plate-binding devices mechanically separated from one intermediate ply, and electrical connections between intermediate plies, a battery, an alarm, the ground, and an outer ply, substantially as shown and described.

480,100. ELECTRIC SCREEN FOR DOORS OR WINDOWS. WILLIAM S. HULL, Sheffield, Ala. Filed Feb. 3, 1892. Serial No. 420,190. (No model.)



Claim.—1. A guard or screen consisting of two normally-separated screens supported to slide bodily toward and from each other, and a sounding device electrically connected with said screen, as set forth.

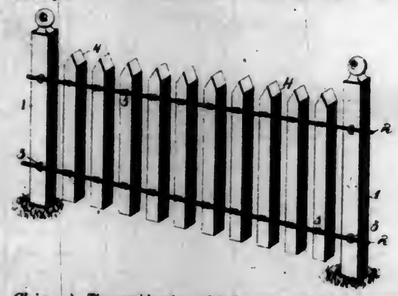
2. A guard or screen composed of two sections arranged face to face and normally separated and slidingly supported with interposed springs, and a sounding device and battery electrically connected with said section, as set forth.

3. A guard or screen composed of two sections arranged with the screenings face to face, normally separated and slidingly supported with interposed springs, combined with a sounding device and battery connected with the screening of said section, as set forth.

4. A screen or guard composed of two frames provided with screenings upon their adjacent faces, said screenings being alternately arranged as to their wires, the two frames being normally separated,

spring-held, and slidingly supported, combined with a sounding device and battery connected with the said screenings, substantially as described.

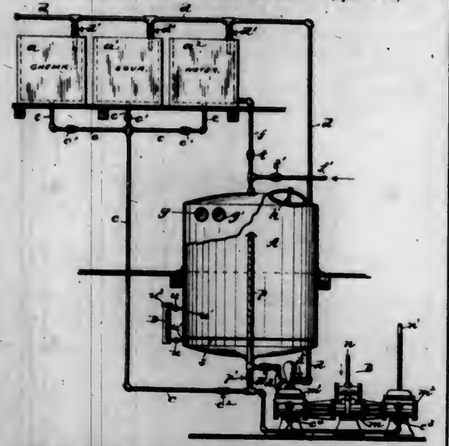
480,101. WIRE-AND-PICKET FENCE. BENJAMIN F. INGRAM, Bowling Green, Mo. Filed Mar. 15, 1892. Serial No. 425,041. (No model.)



Claim.—1. The combination, with the posts and the wires secured thereto, of the pickets and spring clamping devices rigidly secured to the pickets and adapted to be clamped upon said wire, said devices consisting of outwardly-convergent jaws having their free ends bent from each other, substantially as and for the purpose set forth.

2. A fence consisting of posts 1, wires 2, secured to the same, pickets 4, adapted to be removably attached to the said wires at predetermined distances apart, clasps 5, secured to the said pickets and having jaws 6, the terminal ends of which project in an opposite direction, and a suitable device for securing the said clasps to the pickets, whereby any of the said pickets may be removed at any time and a new one fixed without in any way affecting or changing the said wires, substantially as described.

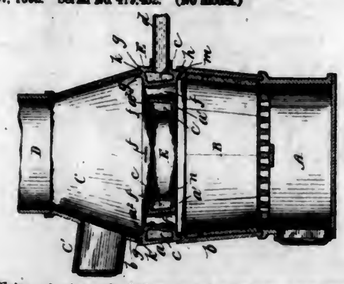
480,102. PROCESS OF BLEACHING. SAMUEL D. KEENE, Providence, R. I., assignor, by direct and mesne assignments, of three-fourths to Herbert H. Fenner, same place, Edward G. Blodgett, Edmund W. Orswell, Pawtucket, R. I., and the Holyoke Machine Company, Holyoke, Mass. Filed Aug. 23, 1889. Serial No. 321,778. (Specimens.)



Claim.—1. The process of bleaching or dyeing fibrous or porous materials or substances herein described, the same consisting in, first, placing the material or substance, in a dry condition, in a suitable keir; second, creating a vacuum within said keir; third, admitting the liquid bleaching or dyeing agent to the keir at atmospheric pressure, with the outlets to the keir closed; fourth, creating an artificial pressure much greater than that of the atmosphere upon the stationary body of liquid within the keir; fifth, removing said liquid agent from the keir, and, finally, repeating said second, third, fourth, and fifth steps in connection with the liquid agents to which the material or substance is subsequently subjected in the ordinary bleaching or dyeing process.

2. The process of bleaching fibrous or porous materials or substances herein described, the same consisting in, first, placing the material or substance, in a dry condition, within a keir; second, exhausting the air from the keir to form a vacuum; third, admitting the bleaching chemic to the keir at atmospheric pressure; fourth, creating a considerably-increased artificial pressure upon the stationary body of chemic within the keir; fifth, removing the chemic from the keir; sixth, repeating the second, third, fourth, and fifth steps in connection with the sour; seventh, repeating said second, third, fourth, and fifth steps in connection with the washing liquid, and, finally, removing the material or substance from the keir and drying the same.

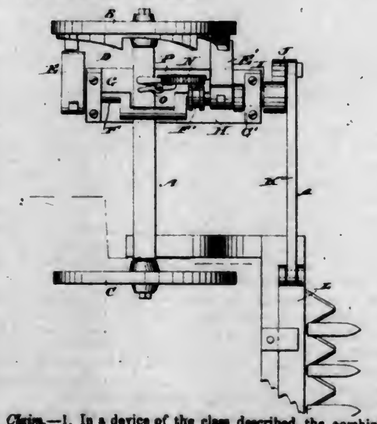
480,103. COMBINED RADIATING AND HOT WATER OR AIR HEATING FURNACE. JOHN H. KEYSER, New York, N. Y. Filed Jan. 27, 1892. Serial No. 419,452. (No model.)



Claim.—1. An updraft furnace or heating-stove constructed with a flame or hot-gas expansion feed-door section C C', an updraft-section D, a lower fire-chamber section B, an ash-pit section A, and an intermediate hollow ring-section E, having tubular flame-flues through it in communication with the chambers C and D, said section serving for heating and distributing water or air, and the same being constructed with a water or air heating chamber and a central circular passage and arranged to overhang a fire-bed below it, so that the flame passes in contact with it and through its flues and central circular passage and therefrom into the chamber C and out at a draft-passage above, said hollow rim-section being applied between the feed-door section and the fire-chamber-section, and thus leaving the lower and upper portions of the furnace free to radiate heat, substantially as and for the purpose described.

2. The combination of the hollow intermediate water or air heating and distributing ring-section, the fire-bed and fire-chamber of greater diameter than the central circular passage of the ring-section, and the feed-door section having a base of greater diameter than the said circular passage of the hollow ring-section, whereby a furnace having an upper and lower radiating-surface and an intermediate water-heating portion is produced and the heat from the grate effectively brought in contact with said water-heating portion, substantially as described.

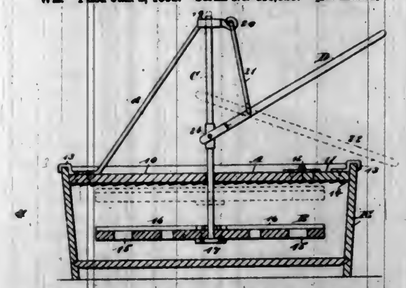
480,104. SICKLE-BAR MOVEMENT FOR MOWERS AND REAPERS. ALVIN W. LANPHERE, Indian Lake, N. Y. Filed Mar. 21, 1892. Serial No. 425,794. (No model.)



Claim.—1. In a device of the class described, the combination, with a toothed wheel, of a rock-shaft arranged parallel to the said toothed wheel, arms secured to the said rock-shaft and extending onto the teeth of the said wheel at opposite sides, the said arms being arranged at angles to each other, so as to be alternately engaged by the teeth of the said wheel, a sleeve fitted on the said shaft and arranged to turn with the latter and to permit a sliding motion of the shaft, and a crank-arm secured on the said sleeve and adapted to be connected with the sickle-bar, substantially as shown and described.

2. In a device of the class described, the combination, with a toothed wheel, of a rock-shaft arranged parallel to the said toothed wheel, arms secured to the said rock-shaft and extending onto the teeth of the said wheel at opposite sides, the said arms being arranged at angles to each other, so as to be alternately engaged by the teeth of the said wheel, a sleeve fitted on the said shaft and arranged to turn with the latter and to permit a sliding motion of the shaft, a crank-arm secured on the said sleeve and adapted to be connected with the sickle-bar, and means, substantially as described, for imparting a longitudinal sliding motion to the said shaft to throw the said arms into and out of mesh with the said toothed wheel, substantially as shown and described.

480,105. WASHING-MACHINE. FRANK A. LAPHAM, Waterford, Wis. Filed Jan. 2, 1892. Serial No. 416,825. (No model.)



Claim.—1. As an improved article of manufacture, a washing-machine adapted for attachment to a tub or like receptacle, the said machine consisting of a cover provided upon its under face with a ribbed or rubbing surface, a rubber located below the rubbing-surface of the cover, a shaft connected with the rubber and extending through the cover, a bearing for said shaft, and a lever whereby the shaft may be raised or lowered and revolved, substantially as and for the purpose specified.

2. In a washing-machine, the combination, with an upper plate or cover provided upon its inner face with a ribbed or rubbing surface, and arms projected upward from the plate or cover and connected at their upper ends, of a rubber located beneath the rubbing-surface of the plate or cover, a shaft attached to the rubber and journaled in the upper connecting medium of the arms, a lever connected with the shaft, and a link connection between the lever and the connecting medium of the arms, whereby the shaft may be raised or lowered, and consequently the rubber, or whereby the shaft may be rocked or rotated, substantially as and for the purpose set forth.

3. The combination, with a receptacle, of a cover adapted to close the upper portion thereof and constructed in hinged sections, brackets supporting the cover in position, the said cover being provided upon its upper face with a ribbed or rubbing surface, and arms projected upward from the cover attached thereto and connected at their upper ends by a plate or block, of a rubber, of substantially disk shape, located beneath the rubbing-surface of the cover, the said rubber being provided with apertures extending through from top to bottom and ribs upon its upper face, a shaft connected with the rubber, passing loosely through the cover and journaled in the connecting medium of the cover-arms, a lever having a pivotal connection with the shaft, and a link connecting the lever with the connecting medium of the cover-arms, substantially as shown and described, whereby the rubber may be raised or lowered and rocked within the receptacle in engagement with the rubbing-surface of the cover or below said surface, as and for the purpose specified.

480,106. SIGN-LETTER. LOUIS LEVETT, New York, N. Y. Filed Nov. 20, 1891. Serial No. 412,522. (No model.)

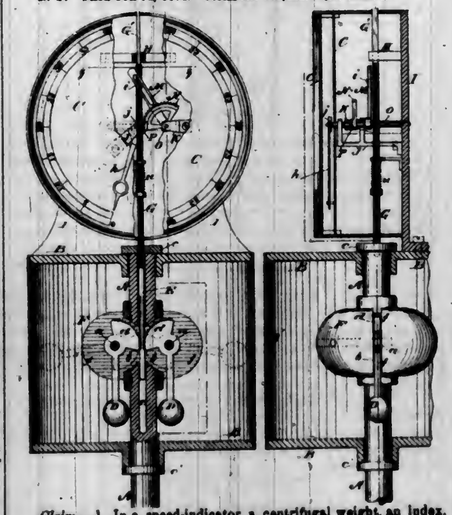


Claim.—1. A window-sign letter comprising separable parts, some of which are provided with suitable fastenings for attachment to glass plates or other objects, which parts are adapted to receive and hold the remaining parts of the letter, the several parts when joined and combined together forming a complete letter, as set forth.

2. In a device of the class described, the combination, with a glass plate or equivalent object, of a window-sign letter adapted to be carried by the said glass plate and composed of separable parts, some of which are provided with suitable fastenings for attachment to the said plate, which parts are adapted to receive and hold the remaining part or parts of the letter, the several parts when joined and combined together forming the complete letter, as set forth.

3. As a new article of manufacture, a sign-letter comprising a body portion and a support for holding and securing a letter to an object and forming a part of the letter, as specified.

480,107. SPEED-INDICATOR. ISAAC H. LEWIS, Fort Schuyler, N. Y. Filed Oct. 31, 1891. Serial No. 410,422. (No model.)



Claim.—1. In a speed-indicator, a centrifugal weight, an index, and means for imparting uniform motion to the index from the variable motion of the weight, consisting in a pivoted arm through which motion is transmitted at a radius which varies with the speed.

2. In a centrifugal speed-indicator, the combination of a rotary shaft, centrifugally-actuated weighted arms thereon, a linearly-operated indicator-spindle controlled by the said arms, a dial index-hand, and an index-arm for operating the same, fulcrumed aside from the line of movement of said indicator-spindle, having connection therewith at radial distances from its said fulcrum, which vary with the speed; substantially as and for the purposes described.

3. The combination, in a centrifugal speed-indicator, of a revolving shaft, centrifugal weights pivoted thereon bearing toothed segments, a toothed rack tangentially engaging with said segments, a non-rotary indicator-spindle supported on the said rack, a speed-indicating dial, and an index thereon operated by the said spindle.

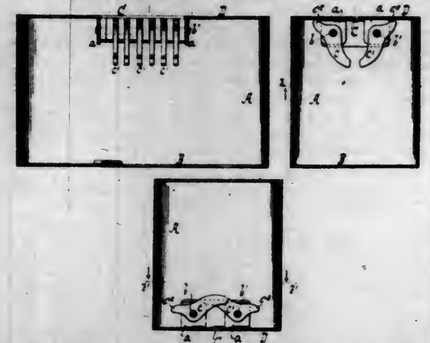
4. The combination, in a centrifugal speed-indicator, of a rotary shaft, centrifugal weights pivotally suspended thereon, toothed segments attached to the weights, a rack in the axis of the shaft engaging tangentially with said segments, and an index operated by the rack.

5. In a centrifugal speed-indicator, the combination, with a rotary shaft, centrifugally-actuated weighted arms suspended thereon, a toothed index-operating rack, and toothed segments, engaging tangentially therewith, fixed to the said weighted arms, of an index-arm pivoted aside from the line of movement of the said rack or an extension thereof, such as the spindle G, and a projecting pin upon the said rack or its extension engaging with said arm at variable distances from its pivot, substantially as and for the purposes described.

6. The combination, in a centrifugal speed-indicator, of a rotary shaft or equivalent, weights pivoted thereon having centrifugally-in-

parted angular motion, an indicator-spindle operated longitudinally by said angular motion, a dial having approximately equal subdivisions representing rates of speed, a slotted index-arm pivoted aside from the spindle, a pin in the latter engaging with the slotted arm at variable distances from its pivot, a toothed segment on the axis of the arm, and an index-hand for the dial and pinion thereon engaged with by the said toothed segment.

480,108. SLOT-PROTECTOR FOR MONEY-SAFES. JOSEPH LOCH, Brooklyn, N. Y. Filed Apr. 7, 1892. Serial No. 428,172. (No model.)

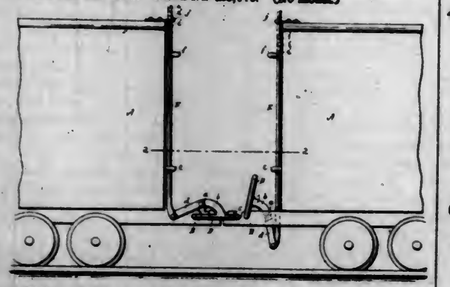


Claim.—The combination, with a toy money-box having its top wall provided with a coin-slot and having on its inside a series of pendent lugs *a*, of the pins *b b'*, carried by the lugs, and the sets of fingers *c c'*, mounted intermediate their extremities on the pins and formed at their outer ends with the toe-pieces c^2 c^2, which bear against the inside of the top wall when the latter is uppermost, substantially as and for the purposes described.

480,109. PROCESS OF RECOVERING SULPHUR, CARBONATE OF SODA, AND IRON OXIDE. GEORGE LUNGE, Zurich, Switzerland, and JAMES DEWAR, Cambridge, England. Filed Dec. 19, 1891. Serial No. 415,660. (No specimens.) Patented in England May 9, 1891, No. 8,018; in France Dec. 5, 1891, No. 217,871, and in Belgium Dec. 8, 1891, No. 97,497.

Claim.—The herein-described process of recovering sulphur, carbonate of soda, and iron oxide from the residue obtained by decomposing sodium sulphide with a ferrite, which consists in acting on the said residue in a moist condition with a suitable mixture of carbonic acid and oxygen.

480,110. CAR-COUPLING. JOHN B. MAINES, Providence, R. I. Filed Mar. 16, 1892. Serial No. 425,170. (No model.)



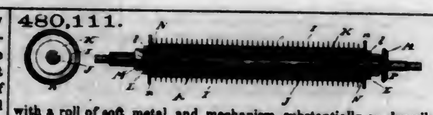
Claim.—In a car-coupling, the combination, with the hook-bar B, of the coupling-link D, provided with the arm *b*, the connecting-link *d*, the operating-rod E, provided with the pins *i i* and the handle *g*, the elongated guide-eye *f*, and the hook-rest *j*, adapted to engage with the pins *i i*, substantially as described.

480,111. MACHINE FOR CUTTING AND TRIMMING PAPER. JOHN J. MANNING, New York, N. Y. Filed July 22, 1891. Serial No. 400,366. (No model.)

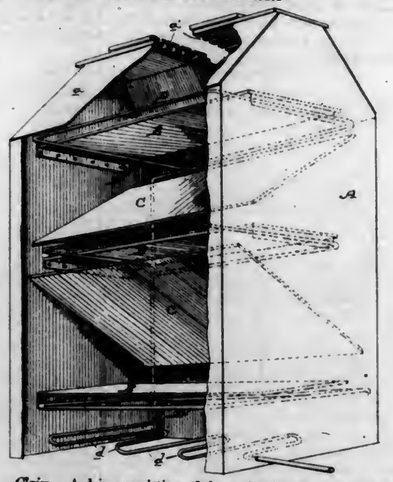
Claim.—1. The combination of the pair of supporting-cylinders, the winding spool-shaft for the roll of paper to be wound upon, the movable segment overlapping one of the supporting-cylinders and provided with a roll of soft metal, and mechanism, substantially as described, for moving the segment and roll back and forth.

2. The combination, with the revolving cutter-shaft, of the circular cutters, the washers or fillings between the same, the end collars, clamping-nuts, and flanged guide wheels or idlers running loosely on the end collars, substantially as described.

480,111.

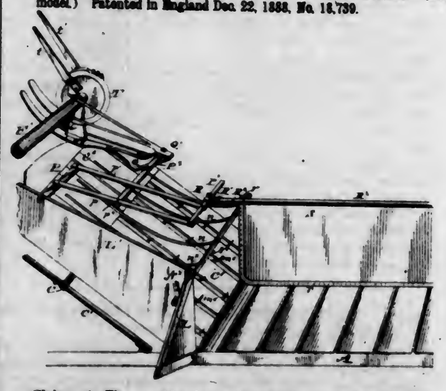


480,112. DRIER. STEPHEN A. MERRIMAN, Santa Clara, Cal. Filed Oct. 2, 1891. Serial No. 407,562. (No model.)



Claim.—A drier consisting of the casing having an air-regulator at its top, the horizontal separated trays supported at different heights within said casing, a deflector-plate located between adjacent trays, adjacent plates being oppositely inclined and having their edges extending beyond vertical planes of the edges of the trays and terminating short of the walls of the casing, the steam-pipe entering the upper portion of the casing under the uppermost tray and extending around under each tray, and a coil formed in said pipe in the bottom of the casing, substantially as herein described.

480,118. GRAIN-BINDING HARVESTER. LEWIS MILLER, Akron, Ohio. Original application filed Apr. 30, 1886, Serial No. 200,754. Divided and this application filed Apr. 2, 1889. Serial No. 305,753. (No model.) Patented in England Dec. 22, 1888, No. 18,739.



Claim.—1. The combination, substantially as hereinbefore set forth, of a fender or guide-board, a bar secured thereto, parallel links pivoted thereon and extending toward the grain-platform, a cross-bar pivoted on the opposite ends of these links, a wind-board supported on this bar, an adjustable breast-plate, binder-head, or knotter-shield, and an intermediate bar supported on the binder-head and pivoted to one of the links, whereby the adjustment of the binder-head imparts a greater range of adjustment to the wind-board.

2. The combination, substantially as hereinbefore set forth, of a platform-carrier, an inclined slotted elevating binder-table, pickers or gatherers working therethrough, a breast-plate, a wind-board, and flexible supporting connections interposed between the breast-plate and wind-board and overhanging the pickers and elevator.

3. The combination, substantially as hereinbefore set forth, of the fender or guide-board, the rearwardly-projecting rock-shaft mounted therein, and the elastic floating fingers carried thereby, under which the grain passes on its way to the binder.

4. The combination, substantially as hereinbefore set forth, of an intermediately horizontally divided sectional elevating binder-table, a rock-shaft overhanging the fixed section, and elastic floating fingers carried thereby, overlying both sections of the table.

5. The combination, substantially as hereinbefore set forth, of the fender, the rock-shaft of the float, turning in bearings therein, the crank-arm actuating the binder-shaft, and the connecting-rod uniting them.

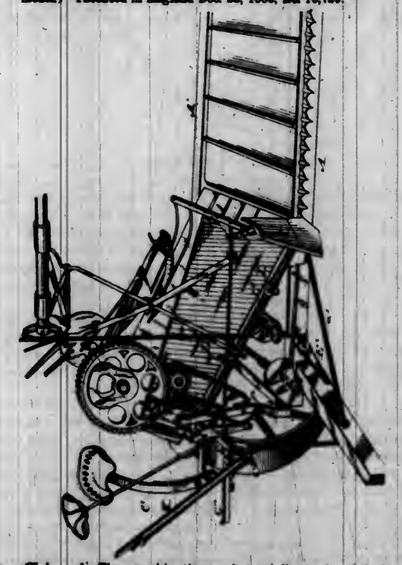
6. The combination, substantially as hereinbefore set forth, of the binder-arm crank, the rock-shaft of the float, the divided connecting-rod uniting them, the intermediate crank-arm therein, and the rock-shaft carrying the cut-off fingers actuated by said crank-arm.

7. The combination, substantially as hereinbefore set forth, of the binder-frame, the slotted lower fixed portion or section of the horizontally intermediately divided binder-table, its upper movable portion, the rock-shaft journaled therein, and the cut-off fingers carried by said shaft, over which fingers the grain passes.

8. The combination, substantially as hereinbefore set forth, of a binder-frame, a binder-gear standard adjustable therein, a slotted horizontally-divided sectional binder-table, the upper portion of which is adjustable with the binder-gear standard, a rock-shaft journaled in said upper portion, cut-off fingers on said shaft, a vibrating binder arm or needle, and a link directly connecting the binder-arm and cut-off to vibrate them in unison.

9. The combination, substantially as hereinbefore set forth, of a carrier-platform, a slotted divided binder-table, pickers gathering and elevating the grain, elastic floating fingers pressing upon the grain in its upward passage, cut off fingers temporarily arresting the flow of the grain, packers consolidating the grain while thus arrested, and a binder-arm encircling the bundle with band material at the proper moment.

480,114. GRAIN-BINDING HARVESTER. LEWIS MILLER, Akron, Ohio. Original application filed Apr. 30, 1886, Serial No. 200,754. Divided and this application filed Apr. 2, 1889. Serial No. 305,754. (No model.) Patented in England Dec. 22, 1888, No. 18,739.



Claim.—1. The combination, substantially as hereinbefore set forth, of the transverse sills, the longitudinal frame-bars, the connecting corner-pieces, the standards mounted, respectively, on the inner, front, and rear corner-pieces, the longitudinal supporting-bar or upper binder-frame tube of the binder-gear frame mounted thereon, and the inclined transverse bracing binder-frame tubes respectively connecting the front and rear sills directly with the longitudinal supporting-bar.

2. The combination, substantially as hereinbefore set forth, of the transverse sills, the longitudinal frame-bars, the connecting corner-pieces, the diagonal braces connecting the sills and rear corner-pieces, the box-bracket on the front sill at the point of intersection of the braces, the standards on the inner corner-pieces, the longitudinal supporting-bar or upper frame-tube supported by said standards, and the inclined transverse bracing-frame bar or bars respectively connecting the front and rear sills with the longitudinal supporting-bar.

3. The combination, substantially as hereinbefore set forth, of the transverse sills, the longitudinal frame-bars, the connecting corner-pieces, the standards thereon, the longitudinal supporting-bar or upper frame-tube mounted thereon and extending beyond its forward supporting-standard, the forward inclined transverse frame-bar connecting the front sill and longitudinal supporting-bars and extending beyond the forward supporting-standard, the inclined brace C', connecting the forward end of the upper longitudinal frame-tube and the outer end of the forward inclined transverse frame-bar, and the driver's-seat-supporting standard carried by said brace.

4. The combination, substantially as hereinbefore set forth, of the transverse sills, the inner longitudinal frame-bar, the connecting corner-pieces, the standards mounted on the inner corner-pieces, the forwardly-extended longitudinal supporting frame-tube mounted on said standards, the forward inclined bracing binder-frame bar extending outward beyond the intersecting longitudinal frame-tube, the inclined brace connecting the projecting ends of these tubes, and the driver's-seat-supporting standard and the driver's foot-board both mounted on the brace so as to bring them above, in front, and outside of the longitudinal plane of the driving-wheel.

5. The combination, substantially as hereinbefore set forth, of the transverse sills, the longitudinal frame-bars, the corner-pieces, the standards, the upper longitudinal frame-tube, the inclined transverse forward binder-frame tube, the inclined brace connecting the projecting ends of these tubes, the rack thereon, the adjusting-lever, and the link connecting the lever and tongue.

6. The combination, substantially as hereinbefore set forth, of the transverse sills, the longitudinal frame-bars, the connecting corner-pieces, the standards, the longitudinal frame-tube, the forward transverse inclined intersecting bracing binder-frame tube, the brace connecting the projecting ends of these tubes, the rack and adjusting-lever thereon, the tongue pivoted on the frame, the box-bracket on the front sill, the pivoted draft-rod connecting the box-bracket and tongue, and the link connecting the tongue and adjusting-lever.

7. The combination, substantially as hereinbefore set forth, of the front sill, the box-bracket thereon, the forward inclined transverse bracing binder-frame tube, the longitudinal supporting-frame tube intersecting it, the deflector, and the fender or guide-board secured to the box-bracket, and inclined transverse binder-frame tube.

8. An angular box-bracket constructed substantially as hereinbefore set forth, secured to the front transverse frame-bar or sill near the heel end of the cutting apparatus and constituting a guard and guide for the heel end of the knife and the pitman, a support for the inner shoe and grain guard or deflector, a point of attachment for the draft-rod connected with the tongue, and a support for the front bar of the binder-frame.

9. A corner-piece constructed substantially as hereinbefore set forth, secured to the inner front corner of the frame and constituting a support for the inner longitudinal and front transverse frame-bars, the binder-frame, the axle support, binder-gear standard, gearing, adjusting devices, shafts, and tongue-plate.

10. The inner rear corner-piece constructed substantially as hereinbefore set forth, constituting a support for the inner longitudinal and rear transverse frame-bars, binder-frame, axle-support, shafts, and gearing.

11. The combination, substantially as hereinbefore set forth, of the transverse sills, the inner longitudinal frame bar or tube, the interposed socketed angular corner-pieces, the crank-shaft journaled therein, and standards mounted thereon supporting the longitudinal binder-frame support on which the binder-gear standard is adjustable.

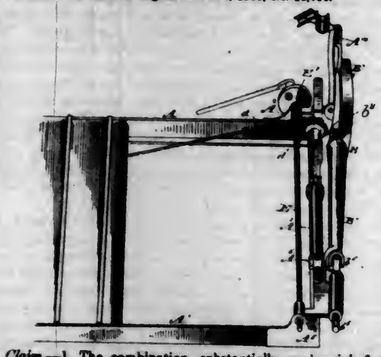
12. The combination, substantially as hereinbefore set forth, of the combined main and binder frame, the inclined brace-bar C', and the driver's seat and the tilting lever mounted thereon.

13. The combination, substantially as hereinbefore set forth, of the platform-frame, the binder-frame, a binder-gear standard adjustable therein, the inclined transverse brace-bar C' and a lever mounted on said bar, a tongue hinged to the platform-frame, and a link connecting the tongue and lever to tilt or rock the machine on its supporting-wheels.

14. The combination, substantially as hereinbefore set forth, of the front sill, a shoe thereon which supports the inside deflector or

nose-piece and the butt guide-board, and a transverse inclined bracing frame-tube, the lower end of which is attached to the shoe, while the upper end is connected with the upright standard which supports the upper longitudinal binder-frame tube near its point of intersection with said transverse inclined bracing frame-tube.

480,115. GRAIN-BINDING HARVESTER. LEWIS MILLER, Akron, Ohio. Original application filed Apr. 30, 1886, Serial No. 200,754. Divided and this application filed Apr. 3, 1889. Serial No. 305,756. (No model.) Patented in England Dec. 22, 1888, No. 18,739.



Claim.—1. The combination, substantially as hereinbefore set forth, of the platform-frame, its inner rear corner-bracket, the sleeve-bearing thereon, the driving-wheel, its tubular arm or support interposed between the wheel and frame, the joint connecting said arm and sleeve-bearing, the two-part counter-shaft, its universal joint, the bevel-pinion B^3 on the counter shaft, and the bevel-wheel B^4 on the driving-wheel, and the adjustable connection between the frame and the free end of the supporting-arm.

2. The combination, substantially as hereinbefore set forth, of the platform-frame, its inner corner-bracket, the sleeve-bearing thereon, the driving-wheel, the tubular arm or support on which it is mounted, interposed between the driving-wheel and the platform-frame, the joint connecting said arm and frame, the vertically-expanded plate or extension of the supporting-arm, the driving-wheel axle secured thereto, the adjustable connection between the frame and the free end of this plate, the jointed counter-shaft inclosed by the axle-support, and its driving-gears.

3. The combination, substantially as hereinbefore set forth, of the platform-frame, the fixed bearing-sleeve on the inner rear corner thereof, the axle-supporting arm jointed thereto, its vertically-expanded plate, the axle and gear-shield connected therewith, the driving-wheel or bevel-gear-wheel carried thereby, and the bevel-pinion on the jointed counter-shaft, the secondary shaft driven by said bevel-wheel, and the adjustable connection uniting the free end of the axle-support with the frame.

4. The combination, substantially as hereinbefore set forth, of the platform-frame, the fixed bearing on the inner rear corner thereof, the axle-supporting arm pivoted thereto, the expanded plate forming a guide-flange as well as a support for the driving-wheel axle, a standard on the inner front corner of the platform-frame in which said guide-flange traverses, and adjusting-gear on the guide-flange, actuating corresponding mechanism on the axle-support to vary its relation to the main frame.

5. The combination, substantially as hereinbefore set forth, of the platform-frame, the fixed bearing on the inner rear corner thereof, the axle-supporting arm pivoted thereto, the driving-wheel outside both of said arm and frame, the jointed secondary or counter shaft, the movable portion of which has bearings in the axle-supporting arm, and the gear on the driving-wheel, meshing with a pinion on said shaft.

6. The combination, substantially as hereinbefore set forth, of the platform-frame, the jointed tumbling shaft mounted on the inner rear corner thereof, the driving-wheel, its axle-supporting arm inclosing said shaft and pivoted to the frame at a point where the sections of the jointed tumbling shaft are connected, and the adjustable connection of its free end with the frame in advance of the driving-wheel.

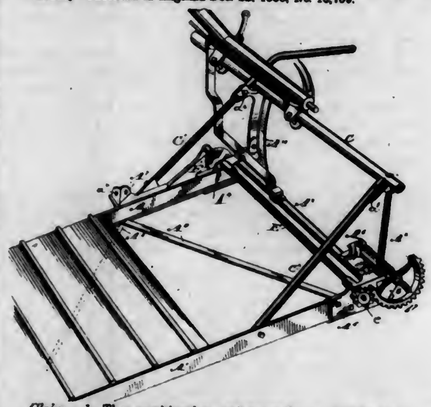
7. The combination, substantially as hereinbefore set forth, of the transverse sills, the inner longitudinal frame bar or tube, the interposed front and rear inner or stubble side corner-pieces, the fixed bearing-sleeve for the pinion-shaft or counter-shaft, mounted on the inner rear corner-piece, the tubular arm or axle-support, the joint connecting the fixed bearing-sleeve and tubular arm, the vertically-expanded or plate-shaped extension of the jointed arm, the driving wheel axle projecting outwardly therefrom, the standard on the inner front corner-piece, its guide-flange, the front edge of the axle-support working in the guide-flange, its rack, and the worm-gear mounted on the corner-piece and actuating the rack to adjust the axle relatively to the frame.

8. The combination, substantially as hereinbefore set forth, of the transverse sills, the inner longitudinal frame-bar, the connecting corner-pieces, the driving-wheel-axle support pivoted on the inner rear corner-piece, the guide-flange in which its free end traverses, the adjusting-gearing mounted on the inner front corner-piece, the pulley on the longitudinal frame-bar, and the lifting cord or chain passing from the axle-support over this pulley to the grain-wheel arm to adjust both ends of the frame simultaneously.

9. The combination, substantially as hereinbefore set forth, of the transverse sills, the longitudinal frame-bars, the connecting corner-pieces, the grain-wheel-supporting arm pivoted to a standard on the outer divider, a rear depending bracket on the frame, the pulley thereon, a loose pulley on the inner or stubble side supporting-bar, the driving-wheel, its axle-support hinged to a sleeve-bearing on the rear inner corner piece or bracket, the adjusting mechanism of the axle-support, and a chain or cord passing from the grain-wheel-supporting arm under its pulley, across the frame, and over the stubble-side pulley to the axle-support, so that both ends of the machine may be adjusted simultaneously.

10. The combination, substantially as hereinbefore set forth, of the platform-frame, the grain-guard board secured thereon, the grain-wheel-supporting arm pivoted to the front sill or finger beam, its expanded rear end, the sector rack thereon, the bracket on the grain-guard, the worm carried thereby meshing with the sector-rack, and the jointed handle which actuates and locks the worm in position to adjust and hold the grain-wheel in proper relation to the frame.

480,116. GRAIN-BINDING HARVESTER. LEWIS MILLER, Akron, Ohio. Original application filed Apr. 30, 1886, Serial No. 200,754. Divided and this application filed Apr. 3, 1889. Serial No. 305,756. (No model.) Patented in England Dec. 22, 1888, No. 18,739.



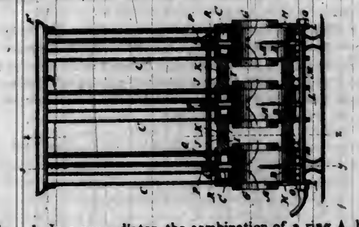
Claim.—1. The combination, substantially as hereinbefore set forth, of the front and rear transverse angle-iron frame bars or sills, the longitudinal frame-tubes, the interposed socketed angular braces or corner-pieces connecting these longitudinal tubes and transverse frame-bars, a brace extending diagonally backward from the front transverse frame bar or sill to the rear inner drive-wheel or stubble-side corner-piece, and a second diagonal brace extending diagonally backward from the front sill to the rear divider or grain-side corner-piece to give additional stiffness to the frame.

2. The combination, substantially as hereinbefore set forth, of the front transverse frame bar or sill, the inner longitudinal frame-tube, their connecting corner-piece, the tongue hinged directly thereto, the angular box-bracket on the front sill, and the draft-rod connecting the box-bracket and tongue.

3. The combination, substantially as hereinbefore set forth, of the transverse sills, the diagonal braces converging from the ends of the rear sills and intersecting at the front sill, the tongue, and the draft-rod connecting the front sill and tongue at the intersection of the braces.

4. The combination, substantially as hereinbefore set forth, of the front and rear sills, the longitudinal frame-bars, the shoe, a tongue-brace attached to or near said shoe, diagonal braces extending, respectively, from the front sill near the shoe to the outer and inner ends of the rear sill, and an inclined transverse bracing frame-bar forming one bar of the support for the binder-gear standard, both the diagonal braces and transverse frame-bar rigidly bracing the machine at the point of its heaviest strain from the draft.

480,117. GAS-RADIATOR. WILLIAM J. MULLEN, New York, N. Y. Filed Feb. 4, 1892. Serial No. 420,334. (No model.)

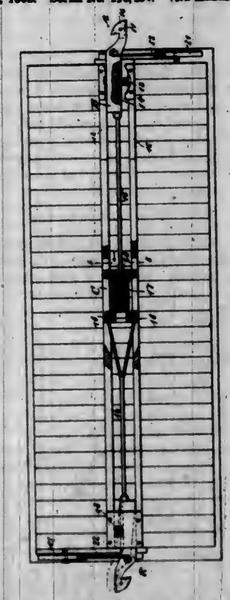


Claim.—1. In a gas-radiator, the combination of a ring A, having opposite side openings G communicating with the external atmosphere, the flues C, rising from the uppermost side of the ring, a gas-burner B, located in the ring, and a gas-supply pipe M, connected with the gas-burner, substantially as described.

2. In a gas-radiator, the combination of a series of rings A, each having opposite side openings G, which are in communication with the external atmosphere, devices for detachably connecting the rings, a pair of flues C, rising from the uppermost side of each ring, a gas-burner projecting into each ring, and a gas-supply pipe M, connected with the gas-burners, substantially as described.

3. In a gas-radiator, the combination of a series of rings A, each formed with a grooved boss I and having opposite side openings G, communicating with the external atmosphere, the keys K, engaging the grooved bosses, a pair of flues C, rising from the uppermost side of each ring, a perforated diaphragm extending over the upper open ends of all the flues, a perforated cap surmounting the tubes and diaphragm, devices for detachably connecting the rings, a gas-burner projecting into each ring, and a gas-supply pipe connected with the gas-burners, substantially as described.

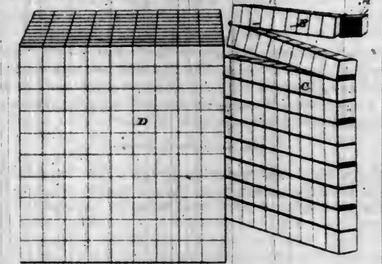
480,118. CAR-COUPLING. ROBERT L. MURDOCH, Silver City, N. Mex. Filed Jan. 18, 1892. Serial No. 418,457. (No model.)



Claim.—1. In a car-coupler, the combination, with parallel slotted guides and the cylinder 17 therebetween, provided with lugs 18 18 at opposite sides of its ends, sliding in said slots, and the spiral spring within the cylinder, of the sliding draw-heads, a rod extending from one draw-head through the closed end of the cylinder and through the spring and there provided with a head or cross-piece, and a rod connecting the other draw-head with the opposite end of the cylinder, substantially as set forth.

2. In a car-coupler, the combination, with the longitudinal parallel beams 12 12, slotted midway of their ends, a cylinder 17, having lugs 18 sliding in said slots, and a spiral spring within the cylinder, of the draw-heads mounted to slide longitudinally and laterally between the outer ends of the beams, a spring between each draw-head and one beam to hold said draw-head against the opposite beam, a rod 15, extending from one draw-head through the closed end of the cylinder, through the spring therein and provided with a head bearing on the spring, and a rod 16, connecting the other draw-head with the opposite end of the cylinder, substantially as set forth.

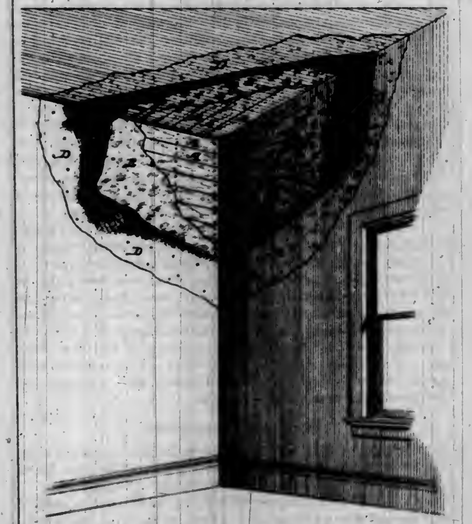
480,119. METRIC MODEL. JAMES MCCOURT, Salem, Oreg. Filed May 4, 1891. Serial No. 391,563. (No model.)



Claim.—1. A metric model composed of a cube of suitable material having a separable one-tenth part on one side, said part being divided into tenths and one of said tenths having a separable cube forming a one-tenth part of it, substantially as herein described.

2. A metric model composed of a cube of suitable material having a separable one-tenth part on one side thereof, said part being divided into ten equal strips hinged together and one of said strips having divided from and hinged to its end a cube forming a one-tenth part of said strip, substantially as herein described.

480,120. WALL OR CEILING COVERING. JOHN P. MCMURRAY, San Francisco, Cal. Filed Oct. 9, 1891. Serial No. 408,262. (No model.)



Claim.—The improved wall or ceiling covering consisting of a continuous surface of boards, a thin adhesive plaster coat spread upon the board surface, a continuous coating of burlaps pressed and rubbed into the adhesive first coat, and one or more overlying subsequent coats of adhesive plaster applied thereto, substantially as herein described.

480,121. DENTAL DISK-CARRIER. MATHEW S. NICHOLS, Central Village, Conn. Filed June 26, 1891. Serial No. 397,484. (No model.)

Claim.—1. In a dental disk-carrier, the combination, with a shank or body of the carrier, of a head hinged to the outer end thereof, a clamp movable upon said shank or body at the rear of the head, and

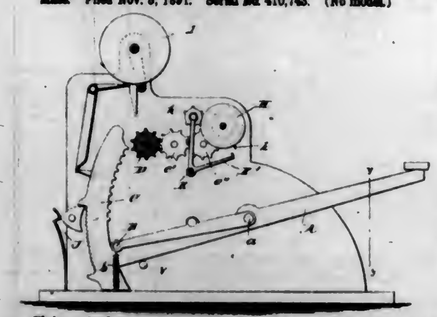
means for operating the clamp, essentially as and for the purpose specified.

2. The combination, with the shank or body of the carrier having a flattened outer end portion, of a head hinged to said outer end portion capable of being turned parallel with or at a right angle to said shank, a slotted sliding clamping sleeve receiving said flattened shank portion within or through it, and means for locking or holding the sleeve when adjusted outward, essentially as specified.



3. An implement of the character described, consisting in the shank A, having a threaded portion *f* and a flat outer end *b*, the head B, pivoted at its under side to the outer extremity of the end *b*, as shown at *c*, a slotted sleeve C, sliding on the end *b*, and a nut *e*, working on the threaded part *f*, substantially as set forth.

480,122. CASH REGISTER AND INDICATOR. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 3, 1891. Serial No. 410,745. (No model.)



Claim.—1. In a cash-register and accounting-machine, the combination, with the key-levers and their arc racks having, respectively, teeth corresponding in number to the required action of the key and the fluted shaft or roller operated upon by said teeth and having thereon a loose toothed wheel connected thereto by a pawl and ratchet so arranged that said wheel is carried with the shaft during the forward movement of the latter, but is held stationary during its backward movement of the series of adding-wheels arranged upon a shaft parallel with said fluted roll and alongside thereof, the pinion thereon, the carrying devices, and the idler-wheels for transmitting the movement of said shaft to the adding-wheel shaft, substantially as specified.

2. In a cash-register and accounting-machine having a fluted shaft or roll acted upon by an arc rack on the key-levers and carrying a pinion loosely thereon and connected thereto by a pawl-and-ratchet device so arranged that said wheel is revolved with the shaft during its forward movement, but permits the shaft to turn loosely thereon during its backward movement, the combination therewith of the adding-wheels arranged side by side upon a shaft and alongside thereof parallel with said fluted shaft, the idler-wheels in gear with said loose wheel and with the pinion of the first adding-wheel, and the series of carrying-pinions for the adding-wheels, said pinions being journaled on a movable frame, substantially as specified.

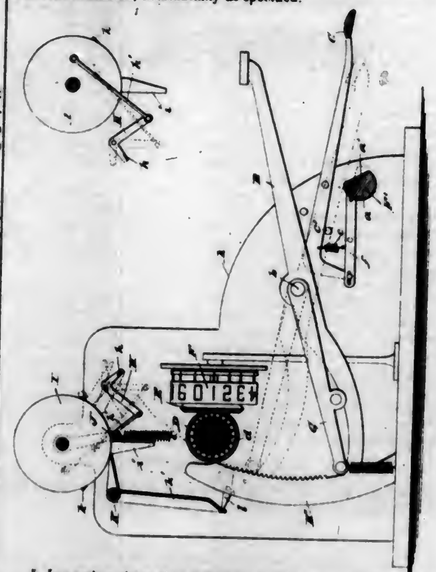
480,123. CASH REGISTER AND INDICATOR. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 4, 1891. Serial No. 410,866. (No model.)

Claim.—1. In a cash-register, the combination, with a series of keys marked with multiples of ten, a five-cent-key lever, and an independent bail or key lever representing five cents, common to all said keys and adapted to be operated in connection therewith, of a series of adding-wheels, connecting mechanism, and an adjustable stop-bar having stop-bearings of varying radial distances from the axis of said stop-bar, substantially as specified.

2. In a cash-register, the combination, with a series of keys marked with multiples of ten, and a five-cent-key lever, all in connection with adding mechanism, of an additional five-cent bail or key lever, an adjustable stop-bar having stop-bearings of varying radial distances from its axis, and a series of indicators, substantially as specified.

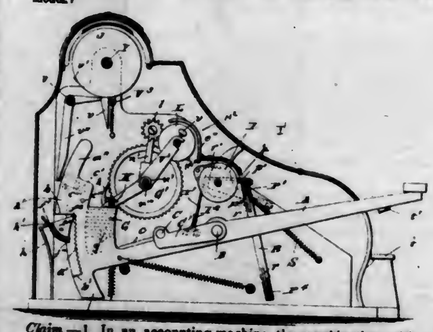
3. In a cash-register, the combination, with a series of keys marked with multiples of ten, and a five-cent-key lever, of an additional five-cent bail or key lever, an adjustable stop-bar having stop-bearings of varying radial distances from its axis, a series of indicators marked with multiples of ten, and two five-cent indicators, substantially as specified.

4. In a cash-register, the combination, with a series of keys marked with multiples of ten, and a five-cent-key lever, all in connection with adding mechanism, of an additional five-cent bail or key lever, an adjustable stop-bar having stop-bearings of varying radial distances from its axis, a series of indicators marked with multiples of ten, and two five-cent indicators, substantially as specified.



5. In a cash-register, the combination, with a series of keys marked with multiples of ten and a five-cent lever, all in connection with adding mechanism, of an additional five-cent bail or key lever, an adjustable stop-bar having stop-bearings at varying radial distances from its axis, the series of indicators operated each by its respective key, and the independent indicator arranged to be operated in common by all the keys, and the necessary releasing and actuating mechanism for said indicators, substantially as specified.

480,124. CASH REGISTER, INDICATOR, AND CHECK-PRINTER. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 5, 1891. Serial No. 410,964. (No model.)



Claim.—1. In an accounting-machine, the combination, with a series of key-levers, each having an arc ratchet and a trip at each end of said ratchet, and an upwardly-extending spring-actuated forked pawl, of a continuous triangular pawl and a series of springs acting, respectively, upon said pawl, a series of numbered multiplying-wheels and their connections, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

2. In an accounting-machine, the combination, with a series of key-levers, each having an upwardly-extending spring-actuated pawl and an arc ratchet provided with a trip at each extremity of said ratchet, of a continuous triangular pawl having a double-acting spring engaging its apex, numbered multiplying-wheels and their connections, a stop-bar for limiting the downward stroke common to all said key-levers, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a trip to disengage the same, substantially as specified.

3. In an accounting-machine, the combination, with a series of key levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet provided with a trip at each extremity, of a continuous triangular pawl, double-acting springs therefor, a series of sets of numbered multiplying-wheels and their connections, a spring-actuated bar common to all and engaging all said key-levers for bringing the same back to their normal position, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a trip to disengage the same, and a returning device, substantially as specified.

4. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a continuous triangular pawl having a double-acting spring engaging its apex, a series of sets of numbered multiplying-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting-arm at each end, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, and a returning device, substantially as specified.

5. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a continuous triangular pawl, a series of double-acting springs engaging the same, a series of sets of numbered multiplying-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting-arm at each end, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

6. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a continuous triangular pawl, a series of double-acting springs engaging the same, a series of sets of numbered multiplying-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting-arm at each end, with a stop-bar for limiting the downward stroke common to all said keys for bringing the same back to their normal position, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

7. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, and an arc ratchet having a trip at each extremity, of a continuous triangular pawl, a series of double-acting springs engaging the same, a toothed wheel and transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels, the toothed gearing attached thereto, their spur-like projections, the carrying-pinions and a stop-bar adapted to engage with said adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

8. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, an arc ratchet having a trip at each extremity, of a continuous triangular pawl, a series of double-acting springs engaging said pawl, a series of sets of numbered multiplying-wheels and their connections, a toothed wheel, a transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions, a stop mechanism for said adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and releasing-trip to disengage the same, substantially as specified.

9. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a continuous triangular pawl, a series of double-acting springs engaging the same, a series of sets of numbered multiplying-wheels and their connections, a toothed wheel, transverse bail-lever and a pawl attached thereto actuating said wheel, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions, and a stop device for said adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and the releasing-trip to disengage the same, substantially as specified.

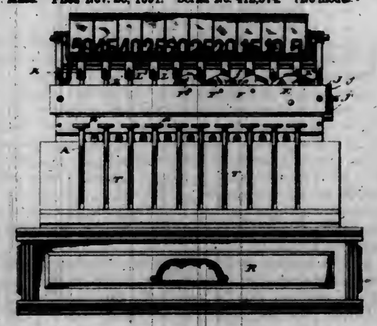
10. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a continuous triangular pawl, a series of double-acting springs engaging the same, a series of sets of numbered multiplying-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars, connected by a supporting arm or bar at each end, a toothed wheel and transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions, and a stop device adapted to engage with the adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and the releasing-trip to disengage the same, substantially as specified.

11. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a continuous double pawl, a series of double-acting springs engaging the same, a series of sets of numbered multiplying-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by supporting-arm at each end, a stop-bar for regulating the extent of the downward stroke common to all of said keys, a toothed wheel and transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions and stop mechanism adapted to engage with said adding-wheel, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common-pawl bar, and a releasing-trip to disengage the same, substantially as specified.

12. In an accounting-machine, the combination, with a series of key levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc-ratchet having a trip at each extremity, of a continuous double pawl, a series of double-acting springs engaging the same, a series of sets of numbered multiplying-wheels and their connections, a series of vertical slides, each having a roller at each extremity, said slides being located between the two grooved bars connected by a supporting-arm at each end with a spring-actuated bar common to and engaging all said keys for bringing same back to their normal position, of a toothed wheel, a transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions and stop mechanism adapted to engage with said adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

13. In an accounting-machine, the combination, with the adding mechanism, the indicator-disks, and the sets of numbering-wheels, of the key-levers, the trip-frame resting thereon, the continuous triangular pawl, its double-acting springs, the common pawl-bar, and the pivoted frame carrying the vertical slides for preventing more than one key from being operated at a time, substantially as specified.

480,125. CASH REGISTER AND INDICATOR. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 20, 1891. Serial No. 412,574. (No model.)



Claim.—1. In a cash-register or accounting-machine, the combination, with a series of key-levers and their ratchet-arms, of a series of adding-wheels having gearing and carrying devices, a transverse fluted shaft engaging said arc ratchets when operated and common to all said key-levers, a toothed wheel loosely journaled at the end of said fluted shaft, a ratchet-and-pawl connection between said toothed wheel and shaft, the spring and stop for said shaft, and the stop device operated by the operation of any key-lever to prevent the adding mechanism being carried beyond the proper point by its momentum, substantially as specified.

2. In a cash-register or accounting-machine, the combination, with the series of aligned adding-wheels, their gearing and carrying devices, and their operating mechanism, of the bar resting on the key-levers and operated by any one of said levers, said bar having a projection adapted to engage the gear of the adding mechanism when any lever reaches the limit of its stroke, and projections for releasing the indicators and for operating devices to permit the return of the keys upon the completion of their stroke, substantially as specified.

3. The combination, with a series of key-levers having the arc ratchets or racks arranged to actuate the adding mechanism and the pivoted bail-bar resting on said levers and operated by any one thereof, of the device for insuring the complete stroke of each key, said device comprising a loosely-journaled plate-like bar having one of its edges normally held in contact with the arc ratchet-arms of the keys and designed to engage with any one of said arms upon the depression of its key, the devices operated by said bail-bar for releasing said plate-like bar when the stroke is completed, and a lug or projection on said bail for acting upon the plate-like bar to throw it back into engagement when the key has returned to its normal position, substantially as specified.

4. The combination, with the series of key-levers and the adding and indicating mechanism operated thereby, of the pivoted bail-bar resting on said levers and common to and actuated by all the series, and devices connected with and operated by said bar for insuring each key its full stroke, for returning the indicator-disks to their normal positions, and for operating the lock of the cash-drawer, substantially as specified.

5. In a cash-register, the combination, with the series of key-levers, the adding and indicating mechanism operated thereby, and means for preventing more than one key from being operated at a time, of the bar P, common to said series of levers and resting thereon, the stop-bar normally in engagement with teeth on the ratchet-arms of said key-levers, means whereby an engagement is effected with said stop-bar by the bar P when any key-lever approaches the limit of its stroke to release said bar from engagement with said lever, the holding-pawl for said bar, and means operated by the bar P for releasing said pawl and retracting the stop-bar when the lever returns to its normal position, substantially as specified.

6. The combination, with the series of key-levers and the bar P, common thereto and resting thereon, said bar having a projection designed to serve as a stop for the adding mechanism and having devices for releasing the indicators and the key-levers, of the cash-drawer, its lock and bolt, the rock-shaft to which said bolt is loosely connected, and a connection between said shaft and an arm of the bar P, whereby when the latter is operated by any key-lever said bolt is withdrawn from the lock, substantially as specified.

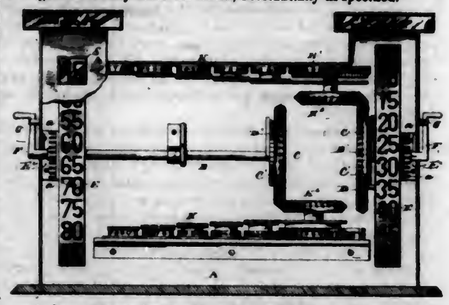
7. The combination, with the series of key-levers, the adding and indicating mechanism operated thereby, and the bar P, resting on said levers at the rear of their pivotal points, of the pivoted stop-bar parallel with and in close proximity with said indicator-disks and engaged by a projection on any one of said disks when the disk is operated to hold it in indicative position, and a connection between said stop-bar and the bar P, whereby the former is withdrawn from engagement with said projection to allow said disk to return to its normal position when a subsequent key is struck, substantially as specified.

480,126. CASH REGISTER AND INDICATOR. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Dec. 3, 1891. Serial No. 413,918. (No model.)

Claim.—1. An accounting-machine comprising a suitable case, a shaft journaled in each end portion of said case, one end of each shaft having an operating crank or handle and the other end portion a bevel gear-wheel thereon, and a series of aligned adding-wheels in both the upper and lower portion of the case and operated by the gear on the respective shafts, one series of said wheels being designed to register the amounts received and the other series amounts paid out, the two series being arranged one directly over the other, whereby an excess of registration by either series may be readily observed, substantially as specified.

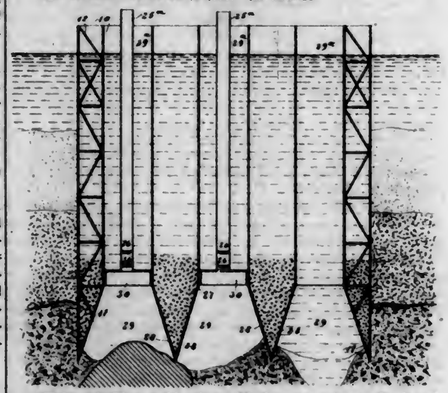
2. An accounting-machine comprising a suitable case, a series of aligned adding-wheels arranged periphery to periphery in the upper portion of said case, a similar series in the lower portion of the case and directly under the upper series, a bevel gear-wheel on the shaft of the first or cent wheel of each series, a shaft journaled on each end portion of the case and provided with an operating handle or crank, a bevel toothed wheel on the inner portion of each shaft, said wheels engaging the gear-wheels on the first wheels of the respective adding series, and indicators on each said shaft, substantially as specified.

3. In an accounting-machine, the combination of a shaft having loose bearings, a bevel toothed wheel loosely mounted on the inner portion of said shaft and connected thereto by a pawl and ratchet, an indicator-wheel fast on said shaft and rotating therewith, a handle or crank on the outer portion of said shaft and capable of an endwise sliding movement thereon, a series of engaging-stops on the frame, designed to be engaged by said handle, a return-spring for the indicator-wheel and shaft, and adding mechanism operated from said shaft through said loosely-mounted wheel, substantially as specified.



4. In an accounting-machine, the combination, with the adding mechanism, of the shaft having gear operating said mechanism, an indicator-wheel fast on said shaft and having its periphery marked at regular intervals with a series of indications, a crank or handle on said shaft and capable of an endwise sliding movement thereon, and a circular series of projecting pins or stops carried by the frame and designed to be engaged by said handle, said stops corresponding in number to the number of indications on the periphery of the indicator-wheel, substantially as specified.

480,127. CAISSON. JOHN F. O'ROURKE, New York, N. Y. Filed Apr. 28, 1892. Serial No. 431,055. (No model.)



Claim.—1. The combination, with the open caisson, of a detachable bell held to fit within the open caisson and provided with a suitable shaft, substantially as described.

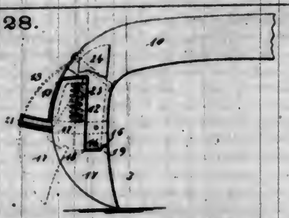
2. A convertible caisson comprising an open main caisson having an inclined lower edge and a removable bell or roof held to fit within the open caisson and provided with a suitable shaft, substantially as described.

3. The combination of the main caisson, a detachable bell held to fit therein, and the inflatable packing-tubes held between the walls of the bell and caisson, substantially as described.

480,128. CULTIVATOR. ERNST D. OWEN, Cuba, S. D. Filed Oct. 26, 1891. Serial No. 409,841. (No model.)

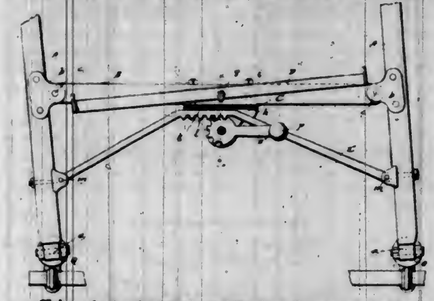
Claim.—1. In an agricultural implement, the combination, with a beam the lower end of which is curved and provided with a recess at its rear and a spring-plate secured to the beam and extending downward over the recess, of a shank a portion of which extends below the beam and another portion is fitted in the recess of the beam, a curved pin attached to the beam and extending rearwardly through and beyond the shank, and a spring located within a chamber of the shank and connected with the pin, the spring-plate having a bearing against the upper rear portion of the shank, as and for the purpose set forth.

480,128.



2. In an agricultural implement, the combination, with a beam the lower end of which is curved downward, provided with a recess in the upper rear portion of its curved section and a smaller recess at the front lower end of said section, of a shank having a recess in its front upper portion, one section of the shank fitting in the recess of the beam, the said shank being fitted with a rib fitting in the lower recess of the beam and the front surfaces of the shank and beam being smooth, a spring-plate secured to the beam and having a bearing against the upper portion of the shank, an upwardly-curved pin attached to the beam and extending through and beyond the rear portion of the shank, and a spring contained within a chamber of the shank and attached at one end to the pin, as and for the purpose specified.

480,129. VEHICLE-THILL. WILL PATTERSON and LORENS SWENSON, Cresco, Iowa. Filed Apr. 1, 1892. Serial No. 427,376. (No model.)



Claim.—1. A pair of shafts or thills pivotally connected by a cross-bar and also pivotally connected in rear of the cross-bar and suitable means for shifting the latter connection, whereby the thills may be moved parallel at desired angles to the body of a vehicle, substantially as specified.

2. The combination, with a pair of shafts or thills, of a slidable rod pivotally connecting said thills and arranged in a suitable bearing and means for shifting the rod so as to move the shafts parallel and at desired angles to a vehicle, substantially as specified.

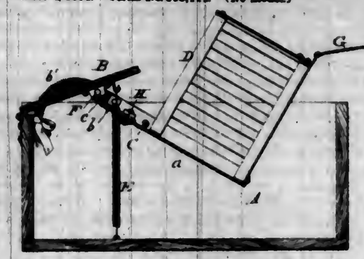
3. The combination, with a pair of shafts, of a cross-bar pivotally connecting said shafts, a bearing secured to the cross-bar, a rod connecting the shafts and having a portion arranged in the bearing, and suitable means for fixing the rod to the bearing, substantially as specified.

4. The combination, with a pair of shafts, of a cross-bar pivotally connecting the same, a bearing secured to the cross-bar, a toothed rod arranged in the bearing and pivotally connecting the shafts in rear of said cross-bar, and a toothed lever adapted to engage the toothed rod to shift the same and having a lock at its handle end to secure the lever on the rod, substantially as specified.

5. The combination, with a pair of shafts, of a cross-bar pivotally connecting the same, a bearing secured to the cross-bar, a slidable rod having rack-teeth arranged in the bearing and pivotally connecting the shafts in rear of the cross-bar, the toothed lever arranged in the bearing and adapted to engage the toothed rod, and a spring-pressed handle arranged on the outer end of the lever and forked or recessed at its lower end to engage the connecting-rod, substantially as specified.

6. The combination, with a pair of shafts, of a bearing secured to a cross-bar pivotally connecting the shafts, a slidable rod arranged in the bearing and pivotally connecting said shaft in the rear of the cross-bar, and a fastening for adjustably fixing the rod in the bearing, substantially as specified.

480,130. SPORTING-TRAP. ROGER S. PEASE, Rose, Minn. Filed June 4, 1891. Serial No. 395,111. (No model.)



Claim.—1. The herein-described trap, consisting of box or frame A, platform B, and cage D, said cage being adapted to move to and from a position over the platform.

2. In a trap, the combination of a platform at or about the level of the ground, a cage adapted to move to and from a position over said platform, and a box or pit below the surface of the ground to receive the cage when removed from over the platform.

3. In combination with a box or frame A, a platform B, hinged or jointed thereto, a cage D, hinged or pivoted in said box or frame and adapted to swing over the platform B, and an arm carried by one of said hinged parts and adapted to engage with a projection upon the other hinged part, whereby the platform B is lifted as the cage is thrown back from over the platform.

4. In combination with box or frame A, tipping platform B, provided with bolt F, and tipping cage D, provided with adjustable arm *b*.

5. The combination, in a sporting-trap, of a roughened platform and a cage movable to and from a position over said platform.

6. In a sporting-trap, the combination of a supporting-frame, a cage mounted in said frame and adapted to be moved from over the bird, and a flexible arm carried by said cage and adapted to vibrate near the bird when the cage is thrown back.

7. In combination with tipping cage D, flexible arm *b'*, provided with bits of ribbon or bright material.

8. In a sporting-trap, a cage to inclose the bird, having the side toward the sportsman closed to prevent the bird from being seen and provided elsewhere with openings to admit light.

9. In a sporting-trap, a cage having the side toward the sportsman closed and the remaining sides provided with openings, whereby the bird is hidden from the sportsman, but is enabled to get its bearings before the trap is sprung.

10. The herein-described sporting-trap, consisting of box or frame A, platform B, hinged to said box or frame, cross-rod C, extending beneath the free end of the platform, cage D, pivoted upon said rod, spring E, attached to the platform and to the box or frame, arm *b*, projecting from the cage and serving to lift the platform, and flexible extensions *b'*, carrying bits of bright material, all substantially as described and shown.

11. In a sporting-trap, the combination of a cage and a vibratory arm adapted to be set in motion by the retraction or removal of the cage for the purpose of frightening the bird and causing it to fly promptly.

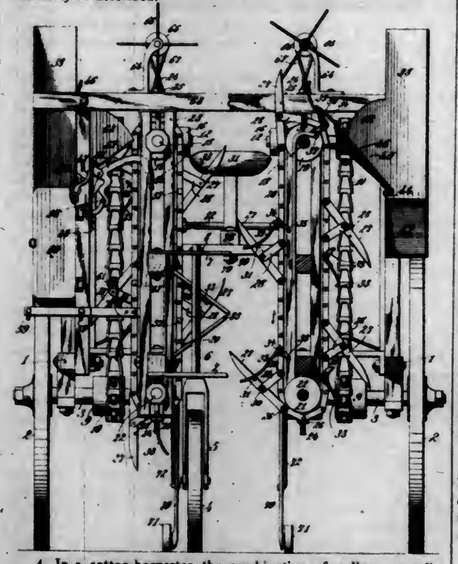
480,131. COTTON-HARVESTER. ALVY G. PERRY, Coldwater, Miss. Filed Dec. 5, 1891. Serial No. 414,151. (No model.)

Claim.—1. In a cotton-harvester, the combination of a frame adapted to straddle a row of plants, short independent axles provided with traction-wheels and sprocket-wheels, transverse shafts journaled in the upper part of the machine-frame and having sprocket-wheels connected with and driven from the sprocket-wheels of the axles, upper longitudinally-arranged and parallel shafts driven by miter-gearing from said transverse shafts and provided with sprocket-wheels, lower longitudinally-arranged and parallel shafts having sprocket-wheels, endless gathering chains or belts mounted on the sprocket-wheels of said upper and lower longitudinally-arranged shafts, gathering devices carried by said endless belts or chains and adapted to pluck or strip the cotton-bolls from the opposite sides of the row of plants, stripping devices carried by and moving with the endless chains or belts for removing the bolls from the gathering devices, and shoes located on opposite sides of the machine to receive the cotton from the gathering devices, substantially as described.

2. In a cotton-harvester, the combination of a frame adapted to straddle a row of cotton-plants and provided with short independent axles, vertically-movable endless chains or gathering-belts arranged in opposite sides of the machine frame and actuated from said independent axles, a series of gathering devices supported at intervals on each of said gathering-belts and adapted to pluck or gather the bolls from opposite sides of the row of plants, shoes located on opposite sides of

the machine to receive the cotton from said gathering devices, a set of pivotal fingers supported at the entrance to each shoe, levers actuated from the gathering-belts to pull down said fingers into an inclined position to permit the passage of the cotton into the shoes, and a spring to return said fingers to their normal position when the actuating-levers are released, substantially as described.

3. In a cotton-harvester, the combination of endless vertically-movably gathering belts or chains, transverse rods carried by and connecting said chains, a series of rigid gathering-fingers arranged in gangs at suitable intervals on the rods that connect said belts or chains, stripping devices accompanying each set or gang of rigid fingers and pivotally supported by said belts or chains, a shoe to receive the cotton-bolls from the gathering devices, and a trip-rod to tilt or rock the pivotally-supported stripping devices and cause them to strip the bolls from the rigid gathering-fingers and throw them into the shoe, substantially as described.



4. In a cotton-harvester, the combination of endless vertically-movable gathering belts or chains, rigid gathering-fingers arranged in sets or gangs at suitable intervals on said belts or chains, pivotally supported tilting or rocking stripping devices accompanying each set of rigid fingers and provided with trip-lugs, a trip-rod with which said lugs engage to tilt or rock the pivotally-supported stripping devices, and a shoe to receive the cotton-bolls from the gathering mechanism, substantially as described.

5. In a cotton-harvester, the combination of endless vertically-movable gathering belts or chains, rigid gathering-fingers arranged in sets or gangs at suitable intervals on said belts or chains, pivotally-supported tilting or rocking stripping devices accompanying each set of rigid fingers, a shoe to receive the cotton-bolls, pivotally-supported fingers located at the entrance to said shoe, levers actuated from the gathering belts to pull down said fingers into an inclined position to permit the passage of the cotton into the shoe, a spring to return said fingers to their normal position, and a reel adapted to engage and clean the fingers carried by the gathering-belts, substantially as described.

6. In a cotton-harvester, the combination of a frame adapted to straddle a row of cotton-plants, vertically-movable endless gathering belts or chains arranged on opposite sides of the machine and carrying gathering devices adapted to strip the cotton bolls from opposite sides of the row of plants, pivoted stripping-fingers carried by and moving with the endless chains or belts, and a pair of pivotally-supported lifting-rods provided with operating handles or levers, whereby said lifting-rods are adapted to raise the lower limbs and fallen stalks of plants, substantially as described.

7. In a cotton-harvester, the combination, with the endless vertically-movable gathering belt or chain, of rigid gathering-fingers 27, carried by the chain and provided with a rod 31, which extends through the several fingers, and rocking stripping fingers carried by and moving with the endless chain and normally resting on said rod, substantially as described.

8. In a cotton-harvester, the combination of the endless vertically-movable gathering belts or chains 20, connected by transverse rods 26 and 29, the rigid gathering-fingers 27, mounted in gangs or sets on the rods 26, and connected by rods 30 and 31, the braces 28, connecting the rods 29 and 30, and the thimbles 32 on the rods 26, 29, and 30 to space said rigid gathering-fingers, substantially as described.

9. In a cotton-harvester, the combination of the endless vertically-movable gathering belts or chains 20, the rigid gathering-fingers 27 and rock-bars 34, carried by said belts or chains, the stripping-fingers 33 and trip-lugs 35, secured to the rock-bars 34, and the trip-rod 37, with which the lugs 35 are adapted to engage to tilt or rock the bar 34 and attached fingers 33, substantially as described.

10. In a cotton-harvester, the combination of the vertical endless gathering belts or chains 20, provided with lugs 57, the rigid gathering-fingers 27, and pivotally-supported stripping fingers 33, carried by said belts or chains, the shoe 38, the rock-bar 44, journaled at the lower part of the entrance to said shoe and provided with arms 47 and 49, the fingers 45 and guards 46, carried by said rock-bar, the double-armed lever 51, having a curved arm 53 and a depending arm 52, provided with notches 54 and 55, the fulcrum 56, the link 50, connecting the arm 49 and lever 51, and the spring 48, bearing on the arm 47, substantially as described.

11. In a cotton-harvester, the combination of the vertical endless gathering belts or chains 20, the fingers 27 and 33, carried by said belts or chains, the reel 65, and the shoe 38, substantially as described.

12. In a cotton-harvester, the combination of the vertical endless gathering belts or chains 20, the gathering devices carried by said belts or chains, the pivoted stripping-fingers 33, carried by and moving with the endless belts or chains, the shoe 38, having an inclined chute 42, and means for suspending a sack at the lower end of said chute, substantially as described.

13. In a cotton-harvester, the combination of a frame adapted to straddle a row of plants, the vertical endless gathering belts or chains 20, provided with gathering devices adapted to operate on the opposite sides of the row of plants, the pivoted stripping-fingers 33, carried by and moving with the endless belts or chains, trip mechanism for the fingers, and the shields 69, located in front of the gathering-belts to hold up and guide the limbs of the plants, substantially as described.

14. In a cotton-harvester, the combination of a frame adapted to straddle a row of plants, the vertical endless gathering belts or chains 20, provided with gathering devices, the pivoted stripping-fingers 33, carried by and moving with the endless belts or chains, trip mechanism for the fingers, and the pivoted lifting-rods 70, having rollers 71, substantially as described.

15. In a cotton-harvester, the combination of a machine-frame adapted to straddle a row of plants, the vertical endless gathering belts or chains 20, provided with gathering devices, stripping devices carried by and moving with the endless belts or chains, the shields 69, the lifting-rods 70, and the shoes 38, having chutes 42, substantially as described.

480,182. SPOON-BAIT. ERNEST F. PFLUEGER, Akron, Ohio. Filed Apr. 16, 1892. Serial No. 429,407. (No model.)

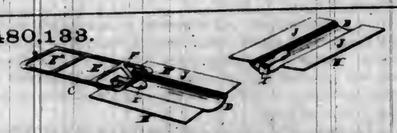


Claim.—1. The herein-described device for attaching trolling or other bait to a rod or snood, said device comprising a piece of wire or sheet metal bent into bow form and having apertures near each extremity, which loosely engage the rod or snood, substantially as specified.

2. The combination, with a trolling-spoon or other bait having a hole or aperture therein, of a fastening device for attaching said spoon or bait to a rod or snood, said device consisting of a short metal bow loosely engaging said aperture at its central portion and provided with apertures near each end, which loosely engage the rod or snood, substantially as specified.

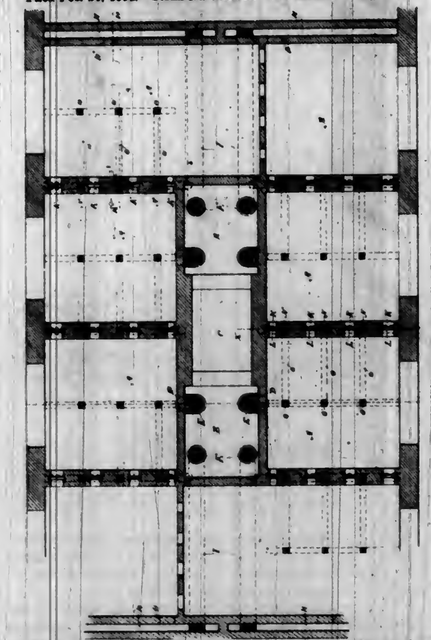
480,183. SHOE-FASTENING. JOHN H. POULTER, Arcola, Ill., assignor of one-half to John H. Sullivan, same place. Filed Dec. 8, 1890. Serial No. 373,990. (No model.)

Claim.—1. As an improved article of manufacture, a fastener for overshoes or other articles of wearing-apparel, a metallic retaining-plate H, with flaring sides J J, and center depression and engaging-hook I, bent back on a line and parallel with the upper surface of plate H and adapted to receive and securely hold the loop F, and a loop F, secured to an elastic strap B, substantially as described, and for the purpose set forth.



2. The combination, in a shoe-fastener, of the plate H, adapted to be secured at one side of the shoe and formed with the locking-tongue I, an elastic strap secured at one end to the side of the shoe, and the buckle-frame C, having the cross-bars and formed near its center with the inclined loop F, projecting in at an angle, as shown, substantially as and for the purpose set forth.

480,184. BRICK-KILN. WILLIAM RADFORD, San Francisco, Cal. Filed Feb. 20, 1891. Serial No. 382,246. (No model.)



Claim.—1. In a brick-kiln, a series of independent adjacent chambers with intervening walls having the vertical passages N made in them, the passages N', opening from the passages N into the sides of the chambers near the bottom, and the passages O O', leading beneath the floor from the passages N to the central portions of the chambers, in combination with the air-supply tubes P, adjustable within the passages N, through which air is admitted, substantially as herein described.

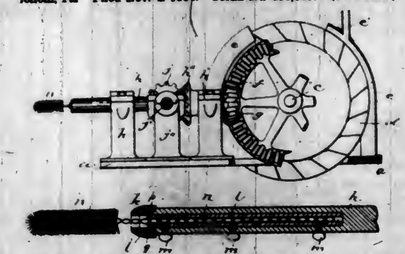
2. In a brick-kiln, a series of independent adjacent chambers with intervening walls, vertical passages N within said walls, passages N' and O O', connecting the vertical passages with the sides and centers of the chambers, passages K between the chambers with vertical connections and dampers, and horizontal passages R, intersecting the vertical passages near their upper ends and having controlling-dampers S at their inner ends, whereby they may be used for draft purposes to discharge the water vapors and smoke during the first part of the operation and be closed when the passages N are in use for direct draft, substantially as herein described.

3. In a brick-kiln, a series of independent adjacent chambers with intervening walls, passages K K', connecting the chambers, and dampers by which they are opened or closed, and horizontal passages R in the upper parts of the walls, having a damper or cap S and communicating through its passages K with the chambers, substantially as herein described.

4. In a brick-kiln, a series of independent adjacent chambers with intervening walls, passages K K' through the walls, said dampers L, by which they are closed, transverse passages R in the upper parts of the walls, dampers by which they may be opened or closed, vertical passages N in the walls, located between the passages K and communicating with the sides and central portions of the chamber-floors through the passages N' and O O', and means for closing these passages, whereby a draft through the passage R is induced when it is open for the escape of vapor and an inward draft of air through the passage N when it is open and the passage R is closed, substantially as herein described.

5. In a brick-kiln, a series of independent adjacent chambers A, parallel with and upon opposite sides of a central chamber, which communicates with a common chimney, and chambers A', situated exterior to the ends of the chamber B, passages H in the outer walls of the chambers A', with openings leading into them from the chambers, and passages I beneath the floors of the chambers, connecting the passages H with the central chamber B, substantially as herein described.

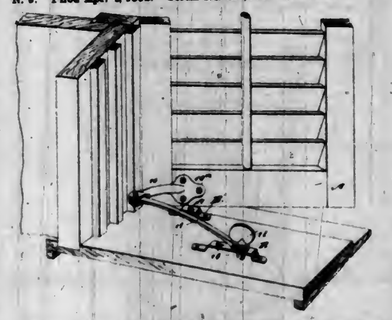
480,185. BOTTLE-WASHING MACHINE. ELVIN RAIDLINE, Bethlehem, Pa. Filed Nov. 4, 1891. Serial No. 410,865. (No model.)



Claim.—1. In a bottle-washing machine, the combination of a shaft having a socket formed in its ends, a tube *l*, fitted to slide in the socket, said tube having a series of threaded perforations formed in it, a brush having its stem fitted to slide in said tube, and a set-screw *m*, tapped through the socket on the shaft and entering one of the perforations in the sliding tube and bearing on the stem of the brush, whereby the tube and brush may be adjusted independently of each other and independently of the socket and be held rigidly against longitudinal movement in any of their adjusted positions, substantially as described.

2. In a bottle-washing machine, the combination of the brush-carrying shaft, said shaft having a reduced outer end, an annular shoulder or collar on said reduced end, the brush carried by the said shaft, and suitable driving mechanism, and an elastic buffer tapered toward its outer end and sprung over the annular shoulder or collar on the reduced outer end of the brush-carrying shaft, substantially as described.

480,186. SHUTTER-BOWER. HERMAN REICHWEIN, Spring Lake, N. J. Filed Apr. 4, 1892. Serial No. 427,676. (No model.)



Claim.—1. In a blind-fastener, the combination, with two arms pivotally connected, one of which is adapted for attachment to a blind and the other being provided with a circular opening in its outer extremity, of a key having one section fitted to turn snugly in the opening in the arm and provided with a lower section eccentrically located with respect to the upper one, and a keeper provided with an opening adapted to receive the lower section of the key, whereby when the key is turned in one direction the arms, after having been fastened in one position, are forced farther outward or inward, as desired, substantially as and for the purpose specified.

2. In a blind-fastener, the combination, with the body portion thereof, comprising two curved and pivotally-connected arms, one longer than the other, the shorter arm being adapted for attachment to the blind and the longer arm having a circular opening produced near its outer end, of a key constructed in two sections of different

diameters, the upper section being fitted to turn snugly in the opening of the longer arm and the lower section being eccentrically located with respect to the upper section and provided with a rib, and a keeper having a keyhole-slot produced therein adapted to receive the lower portion of the key, as and for the purpose set forth.

3. In a blind-fastener, the combination, with an arm adapted for connection with the blind and provided with a circular opening at one end, of a key made in two sections of different diameters, the upper section being of the greatest diameter and adapted to turn snugly in the opening in the arm, the lower section of the key being eccentrically located with respect to the upper section and provided with a rib, and a keeper having a keyhole-slot formed therein to receive the lower or eccentric section of the key, as and for the purpose specified.

480,137. ROTARY CUTTER-HEAD. JOSEPH T. RHODES, Shell, Ala. Filed Jan. 9, 1892. Serial No. 417,536. (No model.)



Claim.—1. In a rotary cutter-head, substantially as described, the combination, with the sections A A', having recesses C formed at intervals in the peripheries of said sections, and the flaring recesses I, formed at intervals in the peripheries of the sections and arranged alternately with respect to the recesses C, of the bits E and a suitable means for adjustably fixing said bits with respect to the cutter-head, substantially as and for the purpose specified.

2. In a rotary cutter-head, substantially as described, the combination, with the sections A A', having circular recesses C formed at intervals in the peripheries of said sections and having the seats D, the seats F, and the clearance-apertures H, and the vertically-flaring recesses I, formed at intervals in the peripheries of the sections and arranged alternately with respect to the recesses C and reduced in size at the insides of the sections, of the circular bits E, having lateral collar-flanges G, and the binding-screws M for adjustably fixing said bits, substantially as and for the purpose set forth.

480,138. MACHINE FOR MAKING RETORTS, &c. EVO ROGERS, Nevada, Mo. Filed Apr. 17, 1891. Serial No. 389,359. (No model.)



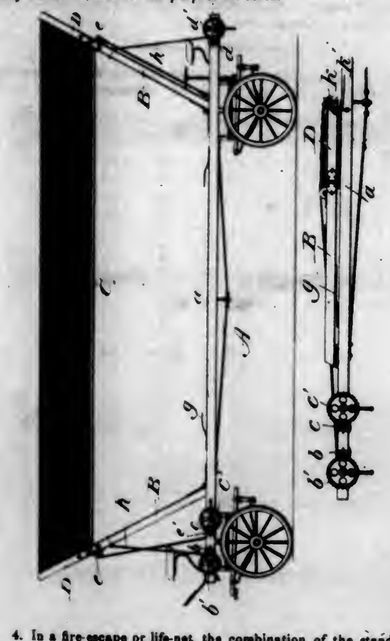
Claim.—The combination, in a retort-machine, of the mold 1, open at its upper end, the removable bottom 8, the chains 9, provided with weights 10, connected with said bottom and passing around sheaves or pulleys, the shaft 2, having radial blades 3, the hollow metallic shell secured to said shaft, and the wooden plug fitting in the lower end of said shell, substantially as and for the purpose specified.

480,139. LIFE-NET FIRE-ESCAPE. JAMES RYAN, New York, N. Y. Filed Apr. 14, 1892. Serial No. 429,183. (No model.)

Claim.—1. In a fire-escape, the combination of a truck having side beams *a a*, hinged standards B B, carrying rollers *c c*, and a net C, adapted to be passed over said rollers and secured at one end to the frame of the truck and at the other end to a drum carried by the truck-frame, substantially as shown, and for the purpose set forth.

2. In a fire-escape, the combination of a truck, standards B B, hinged thereto and provided with rollers over which a life-net passes, a drum or windlass carried by the truck, around which the life-net is passed, and guy-ropes *h h* for raising the supporting-standards and maintaining them in an elevated position, substantially as shown, and for the purpose set forth.

3. The combination, with a truck A, having standards B B hinged thereto, of a life-net supported by said standards and connected at one end to the truck-frame by springs, the other end of the net being secured to a suitable drum or windlass carried by the frame, substantially as shown, and for the purpose set forth.



4. In a fire-escape or life-net, the combination of the standards B B, suitably supported upon a truck, said standards having hinged to the outer sides thereof extensions D, carrying side and end nets, substantially as shown, and for the purpose set forth.

5. The combination, with a life-net or fire-escape constructed substantially as shown, of the standards B B, provided at their upper ends with extensions D, which are hinged thereto, rack-bars F F, pivoted to the extensions and held in looped engagement with each other, and means for spreading said extensions by engagement with the rack-bars, substantially as shown, and for the purpose set forth.

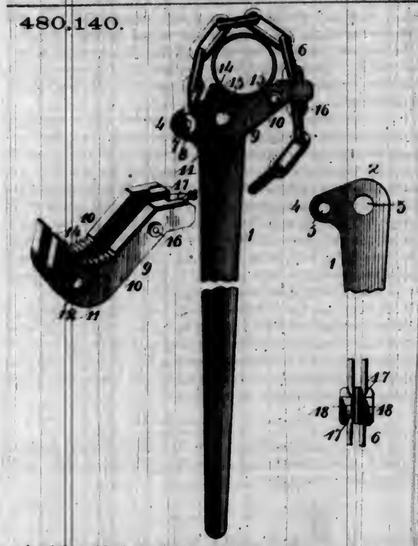
6. The combination, with a truck having side beams *a a*, standards B B, hinged thereto and provided with supports for a life-net, of springs *g g*, upon which said standards bear when folded, and means for positively engaging the free ends of said standards with the side beams, substantially as shown, and for the purpose set forth.

7. In combination with a truck, side beams *a a*, having standards hinged thereto to be supported in an inclined position thereon, said standards having extensions D hinged to swing upward from the upper ends of said standards, side and end nets carried by said extensions, and a life-net C, supported by rollers *c c*, the ends of said life-net being connected with the truck-frame, drums also carried by the truck-frame and provided with guy-ropes which connect thereto and with the standards, and a net or flexible bottom G, supported by the side beams and cross-bars of the truck, substantially as shown, and for the purpose set forth.

480,140. CHAIN PIPE-WRENCH. JOHN F. SAUERMAN, Coal Hill, Ark., assignor of one-half to Edward S. Stiewel, same place. Filed Feb. 23, 1892. Serial No. 422,440. (No model.)

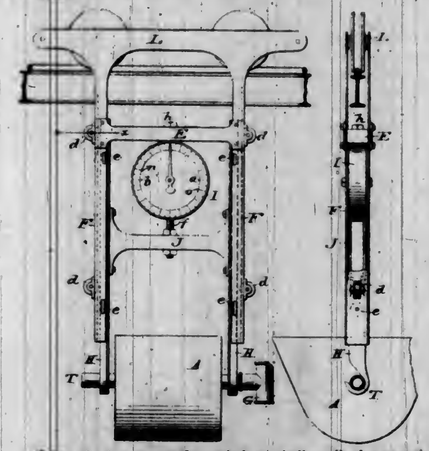
Claim.—A chain pipe-wrench consisting of a lever 1, an extension 4, formed on one side of the same, a chain one end of which is movably attached to the said extension, a jaw 9, adapted to be movably attached to the said lever and composed of plates 10, teeth 14, formed on the impinging surfaces of said plates, angular extensions 15, formed by the said plates, a bolt 16 for rigidly attaching the said plates together, cut-away portions 17, formed on the inner surfaces and at the

480,140.



ends of the said plates, leaving projections 18, and a bolt or rivet 13 for attaching said jaw to the said lever, substantially as described.

480,141. APPARATUS FOR WEIGHING ASPHALT. SAMUEL B. SCHARF, Washington, D. C. Filed Apr. 4, 1892. Serial No. 427,710. (No model.)



Claim.—1. A conveyor for asphalt or similar adhesive material, consisting of a frame adapted to be moved on a rail, with a secondary sliding frame adapted to support a bucket, the two frames being connected by an interposed scale, substantially as shown and described, whereby the weight of the material placed in the bucket and also the weight of the varying adhering amount of material remaining in the bucket are automatically indicated at each operation, as set forth.

2. The herein-described apparatus for conveying and automatically indicating the weight of asphalt or similar material, the same consisting of a suspended frame having pendent arms F and a sliding frame H H, adapted to support a bucket, the two frames being connected by an interposed scale and each provided with anti-friction rollers, all constructed and arranged to operate substantially as and for the purpose set forth.

480,142. PROJECTILE. JOSEPH E. SCHLORFF, Pesotum, Ill. Filed Mar. 24, 1892. Serial No. 426,290. (No model.)

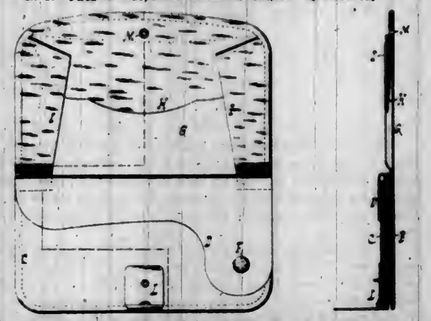
Claim.—1. In combination with a shell or projectile having a chamber for the reception of explosive material, a movable spring-projected point attached to a bar E and a bar or bars H, having inclined surfaces upon which the inclined surfaces of the bar E slide when the point is moved inward, substantially as shown, and for the purpose set forth.

2. The combination, in a shell or projectile having a chamber which contains explosive material, of a bar E, having inclined faces, said bar being connected to a movable point, and bars H H, with inclined faces, adapted to slide upon the inclined surfaces on the bar E, said bars H H bearing upon the rear wall of the chamber B and connected to the bar E by straps, substantially as shown, and for the purpose set forth.



3. The combination, in a shell or projectile constructed substantially as shown and provided with a point which is held normally projected by a spring, said point carrying a bar E, having inclined faces *e e* on opposite sides and near the front and rear ends of the chamber containing the explosive, of straps or guides F F, secured to the bar E adjacent to its inclined portions, and bars H H, which engage with the guides and have inclined portions, said bars being held against longitudinal movement by abutting against the front and rear walls of the chamber B, substantially as shown, and for the purpose set forth.

480,143. POCKET-BOOK OR PURSE. ERNST SCHNOFF, Brooklyn, N. Y. Filed Mar. 10, 1892. Serial No. 424,459. (No model.)



Claim.—1. The combination, with the pocket-book having a pouch B and a closing-flap G, of a gusset or catch-flap H, secured to the closing-flap and having its end portions free from attachment thereto, so that the gusset or catch-flap can be bodily lifted into a position approximately at right angles to the closing-flap to serve as a guard for coin sliding out of the pouch upon the closing-flap, substantially as described.

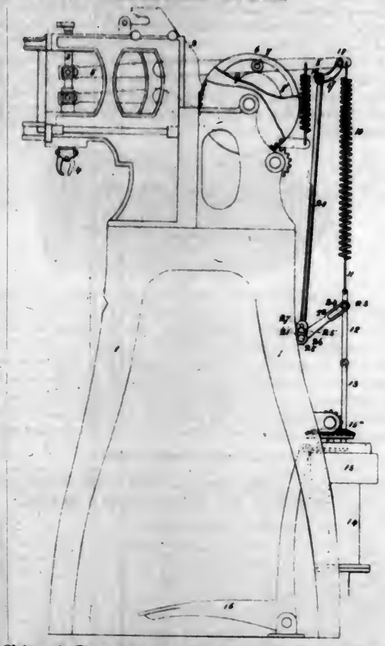
2. The combination, with a pocket-book having a pouch B and a closing-flap G, of a gusset H, secured to the closing-flap and adapted to be bodily lifted into a position approximately at right angles thereto to serve as a guard for coin sliding out of the pouch upon the closing-flap, and the gussets I, secured to opposite sides of the closing-flap and extending along the same to prevent coin from sliding or falling laterally therefrom, substantially as described.

480,144. VEHICLE-SEAT. JASPER E. SCOTT, Meadville, Miss. Filed Dec. 28, 1891. Serial No. 415,991. (No model.)



Claim.—The combination, with a seat-bottom and overlapping rails secured thereto, of a coil at each of the overlapping ends which encircle the rail which it overlaps, arms projecting from the said coils, and a back supported by the arms, substantially as shown and described.

480,145. LASTING-MACHINE. CHARLES SEMINS, St. Louis, Mo., assignor to the Standing Lasting Machine Company, same place. Filed Mar. 21, 1892. Serial No. 426,736. (No model.)

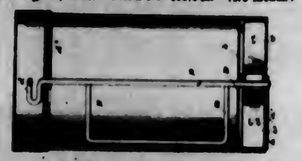


Claim.—1. The combination, with the lever 5 and the spring 10, of means for elongating the spring 10, the rod 20, forming a stop for the lever 5, a connection between the lever and the rod, the cam 21, supporting the rod 20, and an arm 22 of the cam, connected with the extensible end of the spring 10, substantially as and for the purpose set forth.

2. The described combination of the lever 5, the spring 10, the link 17, rod 20, with roller 27, cam, and slotted end 25, working on the axis of the cam, the cam-arm 22, slotted at 24, the rod 12, connected with the spring 10 and having a stud 23, engaging in the slot 24, and means for stretching the spring 10, substantially as and for the purpose set forth.

3. The combination, with the stand, the head, the pincher-rod, the crimping-pinchers, the lever, the spring, the rod, and the means for adjusting the tension of the spring, of a movable stop device for the said lever connected with the latter and with the rod and having bearing on the stand, substantially as described.

480,146. MEASURING-CAN. LEANOR G. SOUDER, Philadelphia, Pa. Filed Aug. 18, 1891. Serial No. 403,042. (No model.)



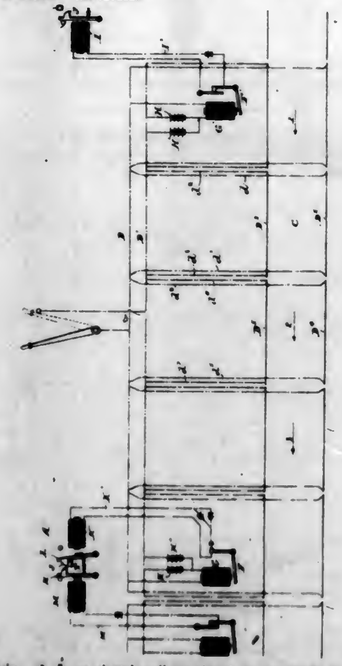
Claim.—1. A measuring-can or other vessel provided with a bottom discharge-opening, a parallel stationary perforated diaphragm located within said can and secured therein so that its perforation or opening lies directly opposite the solid portion of the bottom, and a revolving measuring-disk provided with graduated pockets adapted to revolve between said stationary diaphragm and the bottom of the can, substantially as set forth.

2. A measuring-can or other vessel provided with a bottom triangular discharge-opening, a triangular pivoted gate inclosing said discharge-opening, a parallel stationary perforated diaphragm located within said can and secured therein so that its perforation or opening lies directly opposite the solid portion of the bottom, a revolving disk provided with opposite angular pockets adapted to register alternately with said discharge-opening and the perforation in said stationary diaphragm, and an operating-rod and agitator secured in the can and to said revolving disk, said agitator traveling around within said can adjacent to the inner periphery thereof to stir the contents of the can simultaneously with the rotation of said disk, substantially as set forth.

3. A measuring-can or other vessel provided with a triangular discharge-opening, a triangular pivoted gate inclosing said discharge-opening, a diaphragm having a semicircular opening located within the can parallel with the bottom thereof, a revolving disk provided with opposite angular recesses, and flanges depending from the sides of said recesses and forming graduated pockets, said disk being seated within the space inclosed by said diaphragm in the bottom of the can, an operating-rod rigidly secured to said revolving disk, a transverse bearing-brace located near the top of said can, and an agitator secured to said operating-rod and traveling around within said can adjacent to the inner periphery thereof, substantially as set forth.

4. A measuring-can or other vessel having a discharge-opening, a parallel stationary perforated diaphragm located over said discharge-opening and having its perforation or opening opposite the solid portion of the bottom, and a revolving measuring-disk provided with graduated pockets adapted to revolve between said diaphragm and discharge-opening, substantially as set forth.

480,147. AUTOMATIC DEVICE FOR ELECTRIC BLOCK-SIGNALS. JOSEPH B. STEWART, Haverstraw, N. Y. Filed Jan. 26, 1892. Serial No. 419,351. (No model.)



Claim.—1. In an electric railway-signal, an automatic device for locking and unlocking the signal, comprising an electric circuit including the magnets at each station, a locking device controlled thereby, and a battery at each station, the batteries being opposed to each other on the line, substantially as described.

2. In an electric railway-signal, an automatic device for locking and unlocking the signal-levers, comprising a closed electric circuit including a magnet at each end, a battery at each end, the batteries being opposed to each other on the line, local circuits controlled by said magnets, a locking device controlled by each local circuit, and tap-lines from the main circuit to the sections of the track, substantially as described.

3. In an electric railway-signal, an automatic device for locking and unlocking the signal-levers, comprising a closed electric circuit having opposed batteries and including a magnet at each end, the local circuits controlled by each magnet, a locking device controlled by each local circuit, and a track, the rails of which are divided in divisions, the rails of each division being connected to the main circuit by tape, substantially as described.

4. In an electric railway-signal, a closed main line having opposing batteries of equal strength, a magnet at each end of the line controlling the signals, and a track divided in divisions, the rails of the track of each division being connected to the circuit by two tap-lines or connectors, one at each end of each division, substantially as described.

5. In an electric railway-signal, the combination of the charged main line having opposing batteries of equal strength, the track divided in divisions, and tap-lines connected to each end of each rail of the division and to the main line, substantially as described.

6. In an electric railway-signal, a main charged line including a magnet at each end, batteries located at each end of the circuit and opposed to each other, connectors from the main circuit to the rails of the track, and local circuits at each end of the line, controlled by the line and controlling the signals, substantially as described.

7. In an electric railway-signal, a closed electric circuit including a magnet at each end and having two batteries arranged in multiple at each station, the batteries of the stations being opposed to each other of equal strength, and the rails of the track being in divisions, and connections from each track-division to the circuit, the arrangement being such that a train passing over the rails will short-circuit the main closed electric circuit, thus preventing signals passing over the line, substantially as described.

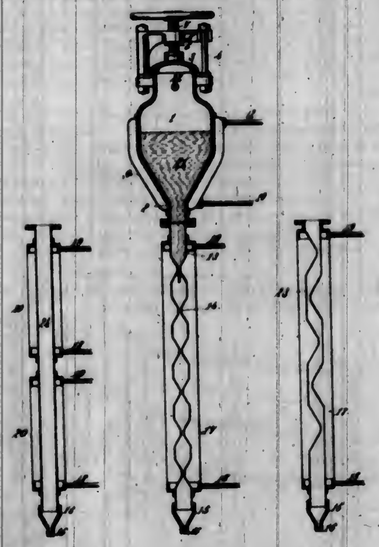
8. In an electric railway-signal, a closed electric circuit including a magnet at each end and having opposed batteries, tap-lines leading from the main line, and a switch included in the tap-lines, whereby the main line may be short-circuited by the switch, substantially as described.

480,148. SASH-FASTENER. EDWARD R. THEBY, Neenah, Wis. Filed Feb. 27, 1892. Serial No. 423,063. (No model.)



Claim.—In combination with a vertically-sliding window-sash having a finger-access aperture at its front, a sash-fastener consisting of one or more bolts adapted for entering the casing at the side and connected with one or more angular levers recessed within the bottom rail at the center to operate the same, the said levers being constructed and arranged so as to be operated directly by the application of the fingers through the aperture directly to their free ends while the hand is in position to raise the sash, substantially as described.

480,149. CANDY-MACHINE. BURCHARD THOMS, New Orleans, La. Filed Nov. 25, 1891. Serial No. 413,091. (No model.)



Claim.—1. A candy-making machine consisting of a vessel or container having a discharge-neck and a closing-cover and a pipe connected with the discharge-neck and provided with a series of contractions, substantially as described.

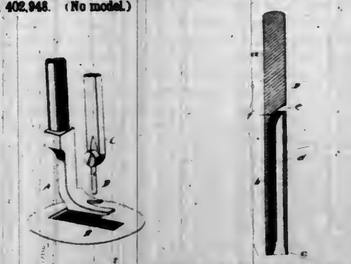
2. A candy-making machine consisting of a vessel or container having a discharge-neck and a closing-cover, a pipe connected with the discharge-neck and provided at intervals with a series of contractions, and a nozzle secured to the lower end of the pipe and provided with a contracted orifice, substantially as described.

3. A candy-making machine consisting of a vessel or container having a discharge-neck and a closing-cover, a jacket surrounding the vessel or container and having inlet and outlet pipes, a conveying-pipe connected with the discharge-neck of the vessel or container and having at its lower end a nozzle provided with a contracted orifice, and a jacket surrounding the conveying-pipe and having an inlet and an outlet, substantially as described.

4. A candy-making machine consisting of a vessel or container provided with an air-inlet opening 22, a discharge-neck 2, and a closing-cover 3, a jacket 9, surrounding the vessel or container and having an inlet and an outlet, a conveying-pipe connected with the discharge-neck and having at its lower end a nozzle provided with a contracted orifice, and a jacket surrounding the conveying-pipe and provided with an inlet and an outlet, substantially as described.

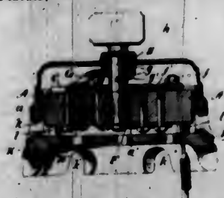
5. An apparatus for manipulating candy material, consisting of a suitable closed vessel, means for subjecting the contents thereof to pressure, a pipe or conveyer into which the contents of said vessel are discharged under pressure, said pipe or conveyer having at suitable intervals contracted or strangulated portions forming part of the continuous passage and being provided with a tip having a contracted exit-opening, and one or more jackets inclosing said pipe or conveyer and having suitable inlet and outlet, substantially as described.

480,150. CYLINDRICAL SEWING-MACHINE NEEDLE. MINNETTIE R. THURSTON, Kalamazoo, Mich. Filed Aug. 17, 1891. Serial No. 402,948. (No model.)



Claim.—As an improved article of manufacture, the needle for producing paper stencils herein shown and described, consisting, essentially, of the bar of steel having the solid shank *a*, adapted to be secured to the needle-bar of a sewing-machine, and the hollow stem *b*, terminating at its lower end in a circular cutting-edge *c* and having the lateral notch *e* at its upper end for the discharge of the cut pieces, and also having the wall formed as at *f* to facilitate the discharge of said pieces, substantially as specified.

480,151. RHEOSTAT. CHARLES W. TOBEY, New Bedford, Mass., assignor to Burt & Tobey, same place. Filed July 11, 1891. Serial No. 399,290. (No model.)



Claim.—1. A resistance-conductor for electric currents, composed of powdered graphite and asbestus compressed into a cohering compact body, substantially as and for the purpose specified.

2. A resistance-conductor for electric currents, consisting of a composition of proportionate parts of powdered graphite, asbestus, and cement compressed into a cohering compact body, substantially as and for the purpose shown.

3. A resistance-conductor for electric currents, consisting of a com-

position of proportionate parts of powdered graphite, asbestus, and cement mixed with water and compressed into a cohering compact body, substantially as and for the purpose set forth.

4. A resistance for electric currents, consisting of powdered graphite and a non-conductor compressed into a coherent body, to whose opposite ends are secured metallic pieces, substantially as and for the purpose described.

5. A resistance for electric currents, consisting of powdered graphite compressed into a metal holder in a cohering body, which holder but partially incloses the same and constitutes means for its attachment to a support, substantially as and for the purpose specified.

6. In combination with the resistance composition, the holder therefor, consisting of a shell or casing partly inclosing the same, and the disk or piece affixed to such composition, substantially as and for the purpose shown.

7. In combination, the resistance composition and the holder therefor, consisting of a shell or casing partly inclosing the same and the disk with a shank affixed thereto, united to such composition by having such shank embedded therein, substantially as and for the purpose set forth.

8. A resistance for electric currents, consisting of powdered graphite, asbestus, and cement compressed and united with a holder consisting of a shell partly inclosing the same and the disk or piece superimposed upon a portion thereof not contained in said shell, substantially as and for the purpose described.

9. In combination, the several resistances composed each of powdered graphite, asbestus, and cement compressed into a cohering body connected in series, and the switch for placing any number from one to the whole series in the circuit, substantially as and for the purpose specified.

10. In combination with several resistances, the fusible conductor connecting them, substantially as and for the purpose set forth.

11. In combination with the resistance device of a rheostat forming part of a circuit, a fusible conductor connected directly to said resistance and also forming a part of the circuit, substantially as and for the pupose specified.

12. In combination, the several resistances, the supporting-plate for each resistance, acting as a contact, the body to which said plates are attached, the attaching-screws, and the fusible conducting-strip extending from one resistance to one of the attaching-screws of the next adjacent resistance, substantially as and for the purpose set forth.

13. In combination, the supporting-body of insulating material having a slot or opening, the series of resistances in the latter, the contact-plates for said resistances, from which the same are supported, and the switch, substantially as and for the purpose shown.

14. In combination, the series of resistances, their contacts, the circuit-closing contact, the cut-out contact, said contacts being arranged in a circle with the last named two adjacent to each other, and the spring-switch, said cut-out contact having a depression to seat said switch, substantially as and for the purpose described.

15. In a switch, in combination with the spring movable brush or contact device, the circuit-closing contact and the cut-out contact having a depression for seating said brush, substantially as and for the purpose specified.

480,152. ELECTRIC-CORD TIP. CHARLES W. TOBEY, New Bedford, Mass., assignor to Burt & Tobey, same place. Filed Nov. 24, 1891. Serial No. 412,941. (No model.)



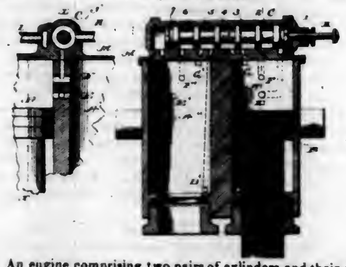
Claim.—As an article of manufacture, the device for use in connection with electric conductors, consisting of a strip bent into U form and having both of its legs forked or provided with open-ended slots to admit the shank of the fastening-screw, substantially as and for the purpose specified.

480,153. STEAM-ENGINE. CHARLES W. TREMAIN and SANDER JOHNSON, Portland, Oreg., assignors to the Prospective Mining and Machinery Company, same place. Filed Apr. 19, 1892. Serial No. 429,783. (No model.)

Claim.—1. The combination of multiplex cylinders, a valve-chest for the same, steam and exhaust passages communicating between said valve-chest and the cylinders and each passage terminating in two cylinders, pistons working in said cylinders, and a valve governing the admission of steam to the steam-passages, substantially as described.

2. The combination of a pair of cylinders having four pairs of passages on one side thereof forming steam and exhaust passages, one member of each pair communicating with one cylinder and the other member with the other cylinder in substantially the same position in both cylinders, and all the pairs having their entrances into the cylinders at different distances from the ends thereof, pistons working in said cylinders, and a valve governing the admission of steam to the steam-passages, substantially as described.

3. An engine comprising a valve and valve-chest, four cylinders, and their pistons and having steam and exhaust passages arranged between the cylinders, each passage running from the valve-chest and terminating in a pair of mouths, each mouth of the pair opening into a different cylinder, substantially as described.



4. An engine comprising two pairs of cylinders and their pistons, a valve and its chest arranged centrally between the pairs, and a series of passages running from the chest to and terminating in two cylinders arranged in a line at right angles to the valve and its chest substantially as described.

5. An engine comprising two pairs of cylinders and their pistons, a valve and its chest arranged centrally over the tops of the cylinders and between the pairs, and a series of passages arranged between the cylinders running from the valve-chest to and each passage terminating in two cylinders, substantially as described.

6. The combination of the four cylinders A, A′, A″, and A‴, corresponding pistons working therein, a cap M, covering said four cylinders, a valve-chest L, mounted on the cap and having passages leading therefrom, each passage communicating with two cylinders, and a valve governing the ingress and egress of the steam, substantially as described.

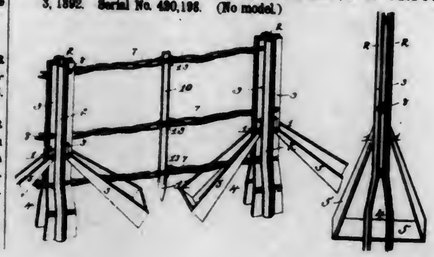
7. The combination of a valve and valve-chest with a pair of cylinders A A″, pistons B B, working therein, said cylinders having passages D D′, admitting steam beneath said pistons, passages E E′, admitting steam to the ends of the valve-chest, passages F F′, communicating with the exhaust, and passages G G′, communicating through the valve with the passages D D′, whereby the steam operates to strike the blow as well as raise the piston.

8. The combination of a valve and valve-chest with a pair of cylinders A A″, pistons B B, working therein, said cylinders having passages D D′, terminating near the bottom thereof, passages E E′, admitting steam to the ends of the valve-chest, and exhaust-passages F F′, having mouths arranged near the top of the cylinder to be closed by the pistons, whereby the steam in the cylinder above the said mouths of the passages F F′ serves as a cushion for the pistons, substantially as described.

9. The combination, with a cylinder and piston, of a valve-chest and a valve operated by steam from said cylinder, said valve having an exhaust-passage independently of the exhaust from the cylinder, substantially as described.

10. The combination of two cylinders having passages D D′ E E′ F F′ G G′, pistons working in said cylinders, a valve-chest communicating with said passages, and a valve having the annular grooves 1, 2, 3, 4, 5, 6, and 7, said grooves 1 and 7 being open to the ends of the valve-chest, substantially as described and shown.

480,154. FENCE. JAMES VAN NESS, Batavia, N. Y. Filed Feb. 3, 1892. Serial No. 420,196. (No model.)



Claim.—1. The herein-described metal fence, the same consisting of the series of posts comprising opposite semi-tubular metal clamping-plates arranged face to face for the major portions of their lengths and provided at opposite edges with securing-flanges, said flanges being diverged at their lower ends, the series of plaited strands passed between the clamping-plates, rivets passed through the plates and strands, the perforated metal-pointed stays located between the posts, and the short tie-wires passed through the perforations of the stays and connecting with the strands, substantially as specified.

2. The herein-described fence, the same consisting of a series of posts, each comprising opposite metal clamping-plates, semi-tubular and provided with opposite flanges, the hooks passing through the flanges, and the strands connected to the hooks, substantially as specified.

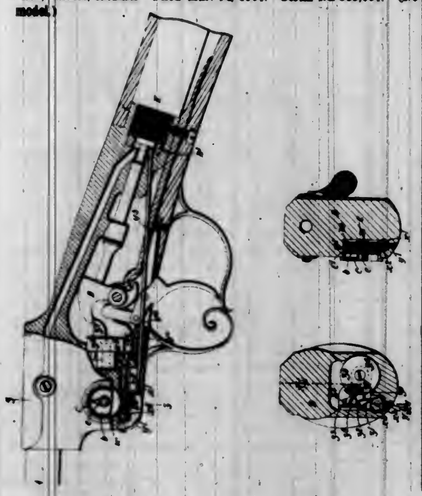
3. The combination, with a fence-post, of a sheet-metal brace formed integral and consisting of a substantially oblong blank bent at opposite sides of its center on a transverse line and forming an intermediate flat anchoring portion and opposite terminals, the latter embracing the opposite sides of and secured to the post and the former being buried in the ground and constituting an anchoring device, substantially as specified.

480,155. SLIDING GATE. DOUGLAS WALKER, Liberty, Ill. Filed Aug. 10, 1891. Serial No. 402,285. (No model.)



Claim.—In a gate, the combination of the supporting-posts, the gate, the long lever N, at its lower end fulcrumed to a post, the L-shaped stop *a*, rigid with and projecting laterally from the upper edge of the opposite end of said lever N, the short lever O, at its upper end fulcrumed to the gate and at its opposite end pivoted to the long lever N at a point below its upper end and provided with notch Q′ to receive said stop *a*, and the operating-levers S S and their connections to said long lever, to operate as described.

480,156. CHARGE-INDICATOR FOR GAS-GUNS. JOHN S. WALLACE, Belfast, Ireland. Filed Mar. 14, 1891. Serial No. 385,061. (No model.)



Claim.—In a gun, the combination, with a hammer and a reservoir for compressed or liquefied gas, of indicating or counting mechanism and devices engaging said mechanism and said hammer and operated by the movement of the latter, substantially as described.

2. The combination, with a hammer and a reservoir for compressed or liquefied gas, of a counter or indicator comprising an index-finger and an endless screw engaged therewith and actuated by the movement of the hammer, substantially as described.

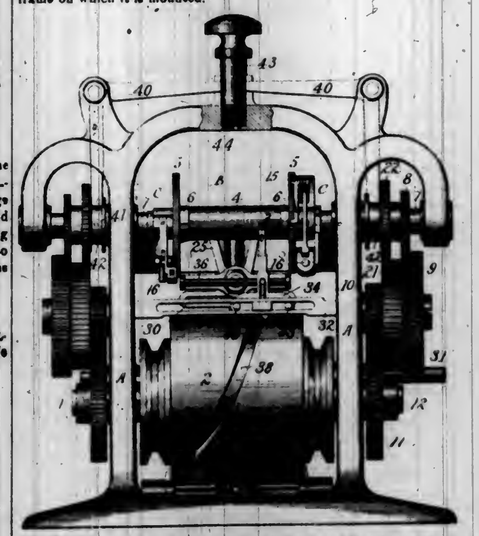
3. In a gun, the combination, with a hammer and a reservoir for compressed or liquefied gas, of a counter or indicator comprising an index-finger, a movable endless screw engaged therewith and actuated by the movement of the hammer, and a movable piece supporting said endless screw connected with the reservoir, substantially as described.

4. In a gun, the combination, with a hammer and a reservoir for compressed or liquefied gas, of indicating or counting mechanism comprising a rotatable disk having a projection for engaging said hammer, a sliding piece engaging a second projection on the rotatable disk, an index-finger, an endless screw carrying a ratchet-wheel, and a pawl on the sliding piece engaging said ratchet-wheel, substantially as described.

5. In a gun, the combination, with a reservoir E for compressed or liquefied gas, a counter or indicator, and the frame in which the said reservoir and indicator are mounted, of a rod y^3, that engages with the reservoir and with a pivoted bearing y^4, that supports one end of the worm-shaft that actuates the indicator, as and for the purpose specified.

480,157. APPARATUS FOR WINDING COPS OR BALLS. SIMON W. WARDWELL, Jr., Boston, assignor to Joseph R. Leeson, Newton, Mass. Filed Dec. 26, 1891. Serial No. 416,230. (No model.)

Brief.—The spool-holder is given an increment of movement at each rotation by means of the pawl 18 moving over the face of the cam 19. The thread-guide lies close to the surface of the cop, and as the latter increases in size the former moves backward with a sliding frame on which it is mounted.



Claim.—1. In a cop-winding machine, the combination, with a revolving holder for supporting the cop and with a reciprocating thread-guide supported to move in a course parallel to the axis of the cop, of mechanism adapted to give the holder an increment of movement at each rotation, for the purpose set forth.

2. A machine for winding cops, provided with a holder for the cop, and a reciprocating guide for the thread supported to move parallel to the axis of the cop and outward as the cop increases in diameter, and means for turning the holder and for reciprocating the guide, and mechanism for varying the relative movements of the holder and guide to insure an increment of movement to the holder at each rotation, whereby each reversal of the movement of the guide takes place after the holder has turned beyond the point of its revolution occupied at the moment of the preceding reversal of the movement of the guide, substantially as set forth.

3. A machine for winding cops, provided with a revolving holder for supporting the cops and with a reciprocating thread-guide and means for varying the relative movements of the thread-holder and

guide, constructed substantially as described, to secure each successive reversal of the movement of the guide at the outer end of the holder after and only after the holder in its rotation has reached a point beyond the point reached at the moment of the preceding reversal of the movement of the guide at such end, substantially as set forth.

4. In a cop-winding machine, the combination of a guide and means for imparting to the same a regular reciprocating movement parallel to the cop, and a holder for supporting the cop, and means for imparting to the same a progressive rotary movement at each rotation, substantially as set forth.

5. The combination, in a cop-winding machine, of a reciprocating thread-guide for guiding the thread parallel to the holder, a cop-holder, a shaft for imparting motion to said holder, and means for imparting an increment of movement to the holder at each rotation of said shaft, substantially as set forth.

6. The combination of the cop-holder, rotating shaft for driving the holder, a cam operating independently of said shaft, and devices between the cam and the holder to rotate the latter independently of the shaft, substantially as set forth.

7. The combination of the holder consisting of disks carried by rotating shafts, pawls for engaging teeth upon said disks, cams, and means for moving the same independently of the disks, and devices between each cam and each pawl, whereby the latter is moved by the cam to impart additional movement to the adjoining disk independently of the movement of the shaft, substantially as described.

480,158. METHOD OF WINDING COPS OR BALLS. SIMON W. WARDWELL, Jr., Boston, assignor to Joseph R. Leeson, Newton, Mass. Filed Jan. 2, 1892. Serial No. 416,848. (No model.)

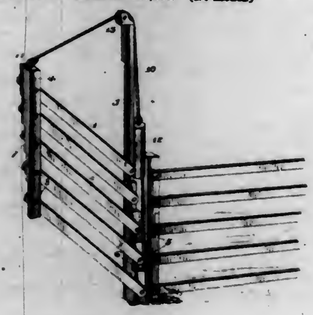


Claim.—1. The within-described mode of winding cops, consisting in winding the thread spirally upon a tube or cylinder in successive coils with substantially the same number of coils in each layer, and in carrying the thread of each coil at each end of the cop across the thread of a previous coil, and bending the last laid portion with an abrupt bend at a point beyond that where the previously-laid portion is bent to form a cop with a substantially flat end, substantially as described.

2. The improvement in the art of winding cops, consisting in winding the thread in successive coils, laying each thread at the end of the coil across and over that previously laid and there bending the thread back at a point adjacent to the previous bend, and winding it in a course parallel with that of a previously-laid coil to form a cop with a substantially flat end, substantially as described.

3. The process of manufacturing cops, which consists in winding the thread in successive coils, each coil parallel to but not in contact with the thread of a preceding coil, and then subjecting the cop to end pressure to bring the thread of the adjacent coils together, substantially as described.

480,159. FOLDING GATE. AMASA H. YOUNG, Centralia, Ill. Filed Apr. 5, 1892. Serial No. 427,886. (No model.)



Claim.—In a folding gate, the combination of a post provided with a series of shoulders or faces arranged in parallel vertical planes, an end bar provided with a series of faces or shoulders arranged in parallel vertical planes to coincide with those of the post, a series of rails arranged parallel and having their ends pivoted to said faces or shoulders, a swiveled caster mounted on the post, and a rope connected with the end bar and passing over the pulley and provided with a weight, substantially as described.

480,160. LADDER-GUARD. JOSEPH C. ADAMS, New London, assignor of one-third to Charles A. Todd, Scytheville, N. H. Filed Apr. 9, 1892. Serial No. 428,496. (No model.)

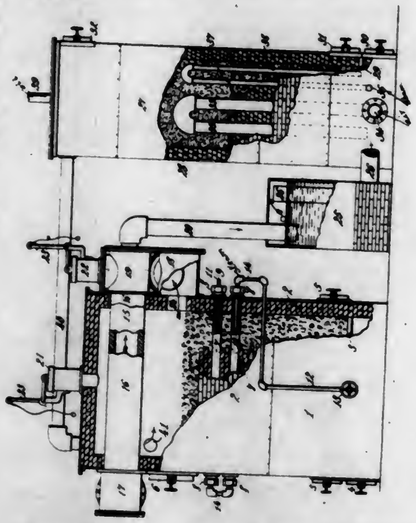


Claim.—1. The combination, with a ladder, of a shoe loosely connected thereto and having triangularly-arranged projecting engaging-points, substantially as described.

2. The combination, with a ladder, of a triangular-shaped shoe, which is dished to provide projecting engaging-points, said shoe being loosely connected, substantially as described.

3. The combination, with a ladder, of metallic strips, headed studs or pins projecting therefrom, and triangular-shaped dished shoes loosely connected to said headed studs or pins, substantially as described.

480,161. APPARATUS FOR THE MANUFACTURE OF GAS. JOSEPH ASKINS, Lima, Ohio. Filed Jan. 9, 1892. Serial No. 417,578. (No model.)



Claim.—1. In an apparatus for the manufacture of carbureted water-gas, the combination of a water-gas generator having a valve in its upper part and provided below the bed of fuel with inlets for air and steam, gas-superheating retorts located in said generator and communicating with the interior thereof above the bed of fuel, a valve connected with one of said retorts, a hydrocarbon-vapor generator having at its top an inlet for oil and provided below the bed of fuel with inlets for air and steam, and a pipe for conducting hot hydrocarbon vapors from the hydrocarbon-vapor generator into the water-gas generator, substantially as described.

2. In an apparatus for the manufacture of carbureted water-gas, the combination, with a water-gas generator, of a generator for hydrocarbon vapors provided with a grate and having doors above and below said grate, superheating air and steam pipes located in the refractory lining of said hydrocarbon-vapor generator and discharging below the bed of fuel therein, a pipe for the admission of oil into the upper part of said hydrocarbon-vapor generator, and a pipe for conducting the hot hydrocarbon vapors from said last-named generator into the water-gas generator, substantially as described.

3. In an apparatus for the manufacture of carbureted water-gas, the combination of a water-gas generator having a valve in its upper part and provided with inlets for air and steam below the bed of fuel, gas-superheating retorts located in the said generator and communicating with the interior thereof above the bed of fuel, couplings that connect the ends of said retorts outside the generator, a valve in one of said couplings, a hydrocarbon-vapor generator provided at the top with an inlet for oil and having air and steam inlets below the bed of fuel, a pipe for conducting hot hydrocarbon vapors from the hydrocarbon-vapor generator into the water-gas generator, and a pipe for conveying gas from the superheating-gas retorts of the water-gas generator into a washer or holder, substantially as described.

4. In an apparatus for the manufacture of carbureted water-gas, the combination of a water-gas generator having the valve 21 at its top, the steam-superheaters 7, located in the refractory lining of said generator, the steam-pipes 9 and 10, extended through and forming part of said superheaters, the gas-superheating retorts 15 and 16, located in and extended across the upper portion of said generator and communicating therewith, the valve 22, communicating with one of the retorts, a hydrocarbon-vapor generator having superheating air and steam pipes 33 and 37, provided with branches 35 and 38, communicating with the lower part of the generator, the oil-inlet pipe 39 for the admission of oil into the top of the hydrocarbon-vapor generator, the pipe 40 for conducting hot hydrocarbon vapors from the hydrocarbon-vapor generator into the water-gas generator, the water seal 25, and the pipe 20, connecting the said water seal with the gas-superheating retorts in the water-gas generator, substantially as described.

480,162. VEHICLE-WHEEL. WILLIAM E BAKER, Newport News, Va. Filed Oct. 20, 1891. Serial No. 409,247. (No model.)



Claim.—1. A hub for vehicle-wheels, comprising a central ring or sleeve provided with a series of spoke-sockets arranged in two alternate series and opening at the respective faces of said ring or sleeve, a front and rear section, and a bushing disposed in the bore of said parts and adapted to bind the same together, substantially as set forth.

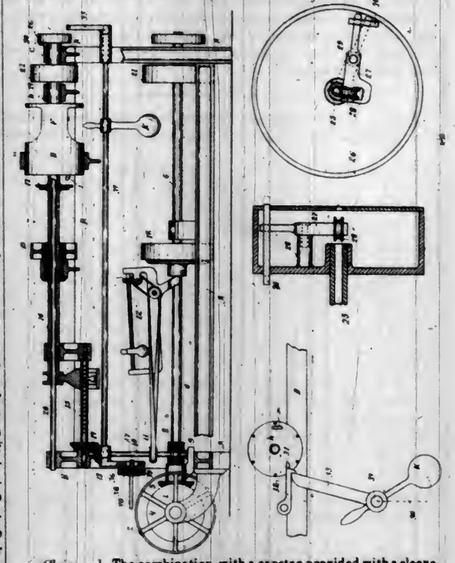
2. A hub for vehicle-wheels, comprising a central ring or sleeve provided with radially-arranged spoke-sockets, a front section provided with internal screw-threads, a rear section, and a bushing passing through the rear section and central ring or sleeve and provided with external screw-threads meshing with the threads in the front section, whereby said bushing is secured directly to the latter, substantially as set forth.

3. In a vehicle-wheel, the combination of a hub consisting of a central ring or sleeve carrying the spokes, front and rear sections, and packing-rings interposed between the opposing faces of the ring or sleeve and the front and rear sections, and a bushing disposed in the bore of the hub and binding the parts thereof together, substantially as set forth.

4. In a vehicle-wheel, the combination of a hub consisting of a central ring or sleeve carrying the spokes and provided with transverse screw-threaded apertures at each side, front and rear sections provided with coincident apertures, securing-screws engaging said apertures, and packing-rings interposed between the ring or sleeve and the front and rear sections and provided with apertures for the passage of said screws, and a bushing disposed in the bore of the hub and binding the parts thereof together, substantially as and for the purpose set forth.

480,163. SPINDLE AND FLIER. JACOB BALDNER, Xenia, Ohio. Filed Mar. 22, 1892. Serial No. 426,894. (No model.)

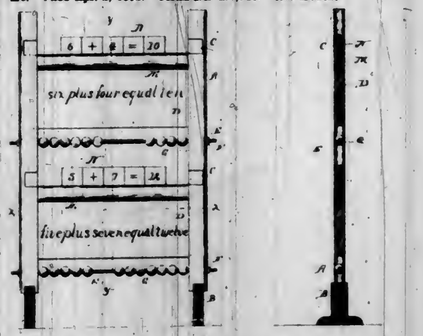
Brief.—To the end of the hollow flier-shaft is fixed a pulley. To this pulley is pivoted a rocker-arm 27, carrying a roller over which the yarn passes. When the yarn breaks, the rocker-arm is thrown inward by centrifugal force, thereby drawing out the slide 30, which releases the catch 32 from the arm of the belt-shipping shaft 34.



Claim.—1. The combination, with a capstan provided with a sleeve-shaft and a driving-pulley, of a rocker-arm pivoted to said pulley, a friction-pulley mounted in said rocker-arm and arranged opposite the opening in the sleeve-shaft of the capstan, said rocker-arm pivoted to turn inwardly by centrifugal force, and unshipping mechanism operated by the movement of said rocker-arm, substantially as described.

2. The combination, with the driving-pulley 26, of the rocker-arm 29, carried within said pulley, the unshipping mechanism operated thereby, consisting of the latch 30, catch 32, the rock-shaft 34, and the rocker-arm 33, and the belt-shifting mechanism connected to and operated by the movement of said rock-shaft 34, substantially as described.

480,164. EDUCATIONAL APPLIANCE. SAM S. BARRETT, Salem, Mo. Filed Apr. 2, 1892. Serial No. 427,513. (No model.)



Claim.—1. In an educational appliance, substantially as described, the combination, with the side uprights having vertical grooves or ways in their inner edges and a notch or recess in the front wall of each of said ways or grooves, a blackboard seated in the ways or grooves of the uprights and resting between the same, and a suitable means for connecting the said uprights, of a card-holder having a groove to receive cards and adapted to be introduced into the ways or grooves of the uprights through the notches or recesses in the front walls thereof, substantially as specified.

2. In an educational appliance, substantially as described, the

combination, with the side uprights having vertical grooves or ways in their inner edges and a notch or recess in the front wall of each of said ways or grooves, of a blackboard seated in the ways or grooves of the uprights and resting between the same, a card-holder having a groove to receive cards and adapted to be introduced into the ways or grooves of the uprights through the notches or recesses in the front walls thereof, a connecting-rod taking through the transverse walls of the uprights and having its ends threaded, nuts mounted on the threaded ends of the rod, and counters loosely mounted on said rod, all substantially as specified.

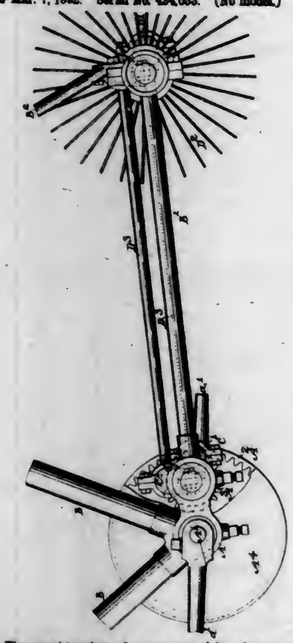
480,165. SURGICAL INSTRUMENT. STERLING V. B. BATES, Charleston, Tenn. Filed Dec. 21, 1891. Serial No. 415,717. (No model.)



Claim.—1. In a surgical instrument, substantially as described, the combination of the hand-levers pivotally connected together and having their contiguous edges corrugated or roughened and the jaws formed integral with said hand-levers in advance of the pivotal connection thereof and having their inner sides dished or beveled, substantially as set forth.

2. In a surgical instrument, substantially as described, the combination of the hand-levers pivotally connected together and the jaws formed integral with said hand-levers in advance of the pivotal connection thereof and having their inner sides dished or beveled, substantially as and for the purpose set forth.

480,166. BICYCLE. ARTHUR J. BATTERSBY, Nottingham, England. Filed Mar. 7, 1892. Serial No. 424,033. (No model.)

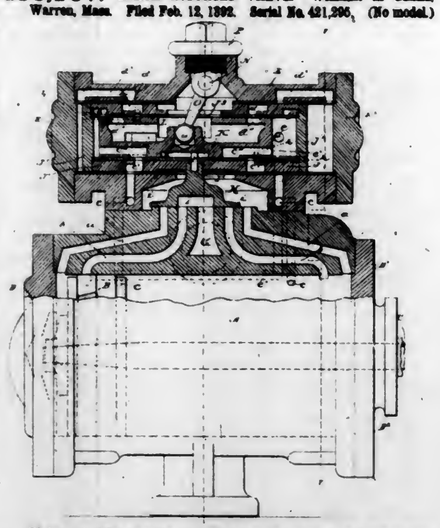


Claim.—1. The combination of a two-armed bracket A with the framing B B and B′ B′ of a bicycle, the back ends of the framing B′ B′ forming bearings for the axle D of the driving-wheel D^3 of a bicycle.

2. In a bicycle, the combination of a two-armed bracket A, forming bearings for a pedal-axle A′, with an axle C, provided with two cranks C′, and the pedal-axle carrying a toothed wheel A^2, gearing into a wheel A^1 on the axle C, both wheels being covered by a plate A^4, substantially as described.

3. In a bicycle, the combination, with a pedal-axle, of a two-armed bracket in which said axle is journaled, a second axle C, journaled in the arms of said bracket, a toothed wheel A^2, carried by the pedal-axle, a toothed wheel A^3, carried by the second axle and gearing with the wheel A^2, the cranks C′ C′, and connections between the same and the driving-wheel, substantially as described.

480,167. STEAM-ACTUATED VALVE. WILLIAM H. BLAKE, Warren, Mass. Filed Feb. 12, 1892. Serial No. 421,295. (No model.)



Claim.—1. The combination of the main cylinder, the slide-valve governing the steam supply and exhaust of said cylinder, an auxiliary steam-cylinder, a primary shell-piston working in said auxiliary cylinder and having an opening through its bottom wall, a secondary valve-piston supported in the primary shell-piston and having a longitudinal groove in its under side, an arm or rib extending from the slide-valve and engaging the opening in the primary shell-piston and the groove in the secondary valve-piston, and a main piston working in the main cylinder, substantially as and for the purpose set forth.

2. The combination of the main cylinder, an auxiliary steam-cylinder, a primary shell-piston working in said auxiliary steam-cylinder and governing the steam supply and exhaust of said main cylinder, a secondary valve-piston working in the primary shell-piston and controlling the supply of steam thereto, steam-supply ducts extending from the main cylinder to the opposite ends of the primary shell-piston and communicating with the ends of the secondary valve-piston, independent exhaust-ducts extending from the ends of the primary shell-piston to the ends of the main cylinder, each of said ducts extending to the end of said main cylinder which is opposite to the end of the shell-piston from which it leads, and a main piston working in the main cylinder, substantially as and for the purpose set forth.

3. The combination of the main cylinder, an auxiliary steam-cylinder, a primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said main cylinder, a secondary valve-piston working in the primary shell-piston and controlling the supply of steam thereto, the duct *c*, ports *c′*, and ports *c″*, extending longitudinally through the secondary valve-piston to its ends, suitable steam-supplies for said primary shell-piston, suitable exhausts for said primary and secondary pistons, and the main piston working in the main cylinder, substantially as set forth.

4. The combination of the main cylinder, an auxiliary cylinder, a primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said main cylinder, a hollow secondary valve-piston supported in said primary shell-piston, suitable steam supply and exhaust ducts for said secondary valve-piston, the ports *d*, ducts *d′*, and a steam-supply to the inside of said secondary valve-piston, substantially as set forth.

5. The combination of the main cylinder, an auxiliary cylinder, a primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said main cylinder, a hollow secondary valve-piston working in said primary shell-piston, a steam-supply to said hollow secondary piston, steam-supply ducts *c*, steam-supply ports *c′*, *c″*, and *d*, steam-supply ducts *d′*, suitable independent exhausts for said primary and secondary valve-pistons, and the main piston working in the main cylinder, substantially as set forth.

6. The combination of the main cylinder and the piston therein, the auxiliary cylinder, the primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said cylinder, the secondary hollow valve-piston working in the primary shell-piston and controlling the steam-supply thereto, a steam-supply to the inside of said secondary hollow piston, the ducts *c* and ports *c′* and *c″*, suitable exhausts adapted to be cut off by the movement of the secondary valve-piston before the end of its stroke, and the ports *d* and live-steam-cushion ports *g*, substantially as and for the purpose set forth.

7. The combination of the main cylinder and the piston therein, the auxiliary cylinder, the primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said cylinder, the secondary valve piston working in said primary shell-piston, the ducts *c*, ports *c′* *c″*, arranged so as to be cut off by the movement of the secondary valve-piston, the exhaust-ports *e* and ducts *e′*, also adapted to be cut off by the movement of the secondary piston, whereby the secondary piston will be held between two confined steam-cushions, and suitable means for moving the primary shell-piston and throwing both ends thereof into communication with the exhaust end of the main cylinder, substantially as set forth.

8. The combination of the main cylinder and the piston therein, the auxiliary cylinder, the primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said cylinder, the slide-valve, the secondary valve-piston working in said primary shell-piston, suitable steam supplies for operating both of said valve-pistons, the exhaust-ports *f*, the ducts *f″*, the ports *h*, and the recesses *h′* in the sides of the secondary valve-piston, all arranged and adapted to operate substantially in the manner set forth.

9. The combination of the main cylinder formed with the ducts *a* and *b*, the slide-valve provided with projecting lips *i*, the auxiliary cylinder, the primary valve-cylinder supported in said auxiliary cylinder, the supplemental valve-piston supported in said primary valve-cylinder, the steam-supply ducts *c*, and the exhaust-ducts *e* and *f*, arranged in suitable relation with said primary and secondary valve-pistons, whereby the main piston working in the main cylinder will be cushioned at the end of its stroke at the moment the steam-supply ducts are opened for admitting steam to the valve-pistons for shifting the slide-valve, substantially as and in the manner hereinbefore set forth.

480,168. BOTTLE-CLOSURE. RUDOLPH BLOEMER, Scranton, Pa. Filed Nov. 6, 1891. Serial No. 411,066. (No model.)



Claim.—1. In a closure for bottles, &c. the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover and having the downwardly extending portions at each side passing back of the center line of the bottle, the semicircular loop uniting said downwardly-extending portions and adapted to fit beneath the flange, and the finger-piece at the center of said loop, substantially as described.

2. In a closure for bottles, &c., the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover forward of the center line of the bottle and having the downwardly-exteeding portions at each side passing back of the center line of the bottle, the semicircular loop uniting said downwardly-extending portions and adapted to fit beneath the flange, and the finger-piece at the center of said loop, substantially as described.

3. In a closure for bottles, &c., the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover and having the downwardly-extending portions at each side formed into coils extending back of the pivotal point, the semicircular loop uniting said depending portions, and the finger-piece at the center of said loop, substantially as described.

4. In a closure for bottles, &c., the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover and having the downwardly-extending portions at each side bent inward to bear against opposite sides of the jar, the semicircular loop uniting said downwardly-extending portions and adapted to fit beneath the flange, and the finger-piece, substantially as described.

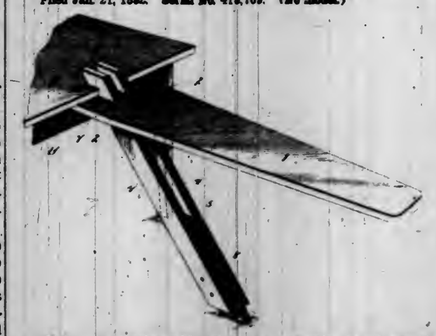
480,169. PUMP. DANIEL R. CARROW, Akron, Ohio. Filed Feb. 20, 1891. Serial No. 382,208. (No model.)



Claim.—1. A continuous and straight-barreled cylinder interiorly screw-threaded at its upper and lower ends, an exteriorly-screw-threaded valve disk or cap 7, vertically adjustable in the lower end of the cylinder on the threads therein and having a central threaded opening 8, an upper exteriorly-threaded valve disk or cap 4, vertically adjustable in the upper end of the cylinder on the threads therein and having a central stuffing-box inclosed within the cylinder, an annularly-flanged valved disk 9, mounted in the central threaded opening 8 of the lower disk 7, an inner auxiliary cylinder 11, secured to said disk 9 and extending upwardly therefrom to a point short of the upper adjustable disk 4, so as to leave a communicating passage between the interior of the auxiliary cylinder and the encircling water-passage, and the hollow plunger moving in said inner auxiliary cylinder and the centrally-located stuffing-box above the same, substantially as set forth.

2. In a pump of the class described, the combination, with a continuous and straight-barreled cylinder, of the plunger comprising the hollow casting 22, having an annular shoulder 24, and a downwardly-extending exteriorly-screw-threaded flange 25, an annularly-flanged disk 26, engaging said flange 25 and forming with the shoulder 24 a dovetailed annnular groove or recess, packing inserted in said dovetailed groove and clamped therein by said flanged disk 26, and a plunger-rod 19 and cage 20, connected with said plunger, substantially as set forth.

480,170. IRONING-BOARD. FREDERICK N. CRAPIN, Austin, Tex. Filed Jan. 21, 1892. Serial No. 418,769. (No model.)



Claim.—An ironing-table comprising an ironing-board provided at its rear end with parallel slots, the ribs 6 and 7, secured to the lower face of the ironing-board and forming grooves or ways, a prop or leg

combination, with the side uprights having vertical grooves or ways in their inner edges and a notch or recess in the front wall of each of said ways or grooves, of a blackboard seated in the ways or grooves of the uprights and resting between the same, a card-holder having a groove to receive cards and adapted to be introduced into the ways or grooves of the uprights through the notches or recesses in the front walls thereof, a connecting-rod taking through the transverse walls of the uprights and having its ends threaded, nuts mounted on the threaded ends of the rod, and counters loosely mounted on said rod, all substantially as specified.

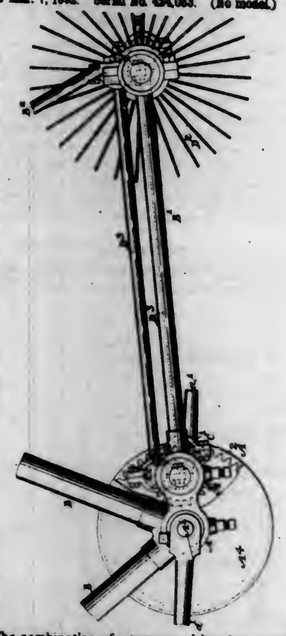
480,165. SURGICAL INSTRUMENT. STERLING V. R. BATES, Charleston, Tenn. Filed Dec. 21, 1891. Serial No. 415,717. (No model.)



Claim.—1. In a surgical instrument, substantially as described, the combination of the hand-levers pivotally connected together and having their contiguous edges corrugated or roughened and the jaws formed integral with said hand-levers in advance of the pivotal connection thereof and having their inner sides dished or beveled, substantially as set forth.

2. In a surgical instrument, substantially as described, the combination of the hand-levers pivotally connected together and the jaws formed integral with said hand-levers in advance of the pivotal connection thereof and having their inner sides dished or beveled, substantially as and for the purpose set forth.

480,166. BICYCLE. ARTHUR J. BATTERSBY, Nottingham, England. Filed Mar. 7, 1892. Serial No. 424,063. (No model.)

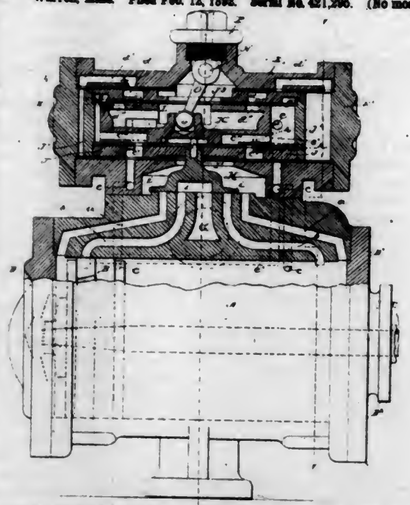


Claim.—1. The combination of a two-armed bracket A with the framing B B and B' B' of a bicycle, the back ends of the framing B' B' forming bearings for the axle D of the driving-wheel D^2 of a bicycle.

2. In a bicycle, the combination of a two-armed bracket A, forming bearings for a pedal-axle A^1, with an axle C, provided with two cranks C', and the pedal-axle carrying a toothed wheel A^3, gearing into a wheel A^5 on the axle C, both wheels being covered by a plate A^4, substantially as described.

3. In a bicycle, the combination, with a pedal-axle, of a two-armed bracket in which said axle is journaled, a second axle C, journaled in the arms of said bracket, a toothed wheel A^3, carried by the pedal-axle, a toothed wheel A^5, carried by the second axle and gearing with the wheel A^3, the cranks C' C', and connections between the same and the driving-wheel, substantially as described.

480,167. STEAM-ACTUATED VALVE. WILLIAM H. BLAKE, Warren, Mass. Filed Feb. 12, 1892. Serial No. 421,295. (No model.)



Claim.—1. The combination of the main cylinder, the slide-valve governing the steam supply and exhaust of said cylinder, an auxiliary steam-cylinder, a primary shell-piston working in said auxiliary cylinder and having an opening through its bottom wall, a secondary valve-piston supported in the primary shell-piston and having a longitudinal groove in its under side, an arm or rib extending from the slide-valve and engaging the opening in the primary shell-piston and the groove in the secondary valve-piston, and a main piston working in the main cylinder, substantially as and for the purpose set forth.

2. The combination of the main cylinder, an auxiliary steam-cylinder, a primary shell-piston working in said auxiliary steam-cylinder and governing the steam supply and exhaust of said main cylinder, a secondary valve-piston working in the primary shell-piston and controlling the supply of steam thereto, steam-supply ducts extending from the main cylinder to the opposite ends of the primary shell-piston and communicating with the ends of the secondary valve-piston, independent exhaust-ducts extending from the ends of the primary shell-piston to the ends of the main cylinder, each of said ducts extending to the end of said main cylinder which is opposite to the end of the shell-piston from which it leads, and a main piston working in the main cylinder, substantially as and for the purpose set forth.

3. The combination of the main cylinder, an auxiliary steam-cylinder, a primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said main cylinder, a secondary valve-piston working in the primary shell-piston and controlling the supply of steam thereto, the duct *c*, ports *c'*, and ports *c''*, extending longitudinally through the secondary valve-piston to its ends, suitable steam-supplies for said primary shell-piston, suitable exhausts for said primary and secondary pistons, and the main piston working in the main cylinder, substantially as set forth.

4. The combination of the main cylinder, an auxiliary cylinder, a primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said main cylinder, a hollow secondary valve-piston supported in said primary shell-piston, suitable steam supply and exhaust ducts for said secondary valve-piston, the ports *d*, ducts *d'*, and a steam-supply to the inside of said secondary valve-piston, substantially as set forth.

5. The combination of the main cylinder, an auxiliary cylinder, a primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said main cylinder, a hollow secondary valve-piston working in said primary shell-piston, a steam-supply ports *c'*, *c''*, and *d*, steam-supply ducts *d'*, suitable independent exhausts for said primary and secondary valve-pistons, and the main piston working in the main cylinder, substantially as set forth.

6. The combination of the main cylinder and the piston therein,

the auxiliary cylinder, the primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said cylinder, the secondary hollow valve-piston working in the primary shell-piston and controlling the steam-supply thereto, a steam-supply to the inside of said secondary hollow piston, the ducts *c* and ports *c'* and *c''*, suitable exhausts adapted to be cut off by the movement of the secondary valve-piston before the end of its stroke, and the ports *d* and live-steam-cushion ports *g*, substantially as and for the purpose set forth.

7. The combination of the main cylinder and the piston therein, the auxiliary cylinder, the primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said cylinder, the secondary valve piston working in said primary shell-piston, the ducts *c*, ports *c' c''*, arranged so as to be cut off by the movement of the secondary valve-piston, the exhaust-ports *e* and ducts *e'*, also adapted to be cut off by the movement of the secondary piston, whereby the secondary piston will be held between two confined steam-cushions, and suitable means for moving the primary shell-piston and throwing both ends thereof into communication with the exhaust end of the main cylinder, substantially as set forth.

8. The combination of the main cylinder and the piston therein, the auxiliary cylinder, the primary shell-piston working in said auxiliary cylinder and governing the steam supply and exhaust of said cylinder, the slide-valve, the secondary valve-piston working in said primary shell-piston, suitable steam supplies for operating both of said valve-pistons, the exhaust-ports *f*, the ducts *f'*, the ports *h*, and the recesses *h'* in the sides of the secondary valve-piston, all arranged and adapted to operate substantially in the manner set forth.

9. The combination of the main cylinder formed with the ducts *a* and *b*, the slide-valve provided with projecting lips *i*, the auxiliary cylinder, the primary valve-cylinder supported in said auxiliary cylinder, the supplemental valve-piston supported in said primary valve-cylinder, the steam-supply ducts *c*, and the exhaust-ducts *e* and *f*, arranged in suitable relation with said primary and secondary valve-pistons, whereby the main piston working in the main cylinder will be cushioned at the end of its stroke at the moment the steam-supply ducts are opened for admitting steam to the valve-pistons for shifting the slide-valve, substantially as and in the manner hereinbefore set forth.

480,168. BOTTLE-CLOSURE. RUDOLPH BLOMER, Scranton, Pa. Filed Nov. 6, 1891. Serial No. 411,066. (No model.)



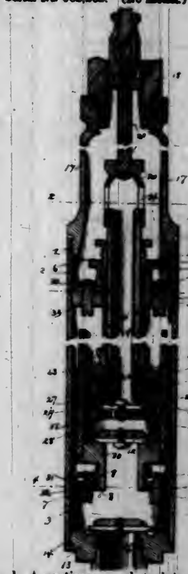
Claim.—1. In a closure for bottles, &c. the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover and having the downwardly extending portions at each side passing back of the center line of the bottle, the semicircular loop uniting said downwardly-extending portions and adapted to fit beneath the flange, and the finger-piece at the center of said loop, substantially as described.

2. In a closure for bottles, &c., the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover forward of the center line of the bottle and having the downwardly-extending portions at each side passing back of the center line of the bottle, the semicircular loop uniting said downwardly-extending portions and adapted to fit beneath the flange, and the finger-piece at the center of said loop, substantially as described.

3. In a closure for bottles, &c., the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover and having the downwardly-extending portions at each side formed into coils extending back of the pivotal point, the semicircular loop uniting said depending portions, and the finger-piece at the center of said loop, substantially as described.

4. In a closure for bottles, &c., the combination, with the bottle having the overhanging flange and cover pivotally connected to the bottle, of the catch pivotally connected to the cover and having the downwardly-extending portions at each side bent inward to bear against opposite sides of the jar, the semicircular loop uniting said downwardly-extending portions and adapted to fit beneath the flange, and the finger-piece, substantially as described.

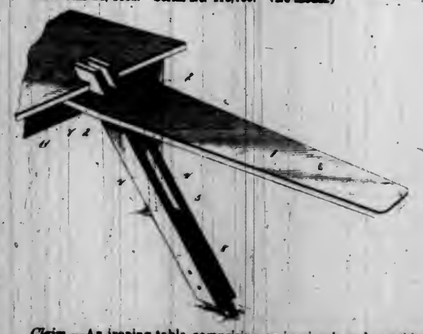
480,169. PUMP. DANIEL R. CARROW, Akron, Ohio. Filed Feb. 20, 1891. Serial No. 382,202. (No model.)



Claim.—1. A continuous and straight-barreled cylinder interiorly screw-threaded at its upper and lower ends, an exteriorly-screw-threaded valve disk or cap 7, vertically adjustable in the lower end of the cylinder on the threads therein and having a central threaded opening 8, an upper exteriorly-threaded valve disk or cap 4, vertically adjustable in the upper end of the cylinder on the threads therein and having a central stuffing-box inclosed within the cylinder, an annularly-flanged valved disk 9, mounted in the central threaded opening 8 of the lower disk 7, an inner auxiliary cylinder 11, secured to said disk 9 and extending upwardly therefrom to a point short of the upper adjustable disk 4, so as to leave a communicating passage between the interior of the auxiliary cylinder and the encircling water-passage, and the hollow plunger moving in said inner auxiliary cylinder and the centrally-located stuffing-box above the same, substantially as set forth.

2. In a pump of the class described, the combination, with a continuous and straight-barreled cylinder, of the plunger comprising the hollow casting 22, having an annular shoulder 24, and a downwardly-extending exteriorly-screw-threaded flange 25, an annularly-flanged disk 26, engaging said flange 25 and forming with the shoulder 24 a dovetailed annular groove or recess, packing inserted in said dovetailed groove and clamped therein by said flanged disk 26, and a plunger-rod 19 and cage 20, connected with said plunger, substantially as set forth.

480,170. IRONING-BOARD. FREDERICK H. CHAPIN, Austin, Tex. Filed Jan. 21, 1892. Serial No. 418,769. (No model.)



Claim.—An ironing-table comprising an ironing-board provided at its rear end with parallel slots, the ribs 6 and 7, secured to the lower face of the ironing-board and forming grooves or ways, a prop or leg

composed of parallel bars adapted to fold in said grooves or ways and having their upper ends pivoted between the ribs 6 and 7 and arranged to project through the slots and provided with recesses, an extensible foot-piece arranged between the lower ends of the bars and provided with a longitudinal slot, and the transverse pins arranged in the longitudinal slot and passing through the bars and securing the foot-piece to the latter, substantially as described.

480,171. LATCH. JOHN K. CLARK, Buffalo, N. Y., assignor, by mesne assignments, to Mary K. Clark, same place. Filed Apr. 7, 1891. Serial No. 388,022. (Model.)



Claim.—1. The combination, with a striker, of a latch casing having a slot, a latch pivoted between its ends in the casing and having its rear extremity provided with an angular transverse orifice, and a handle or knob formed as a separate piece from the latch and having an angular shank secured in the angular orifice of such latch, substantially as described.

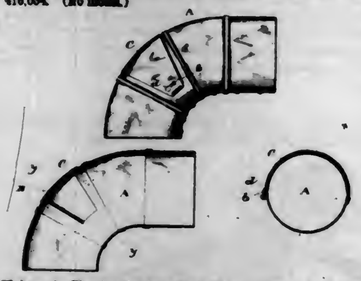
2. The combination, with a striker, of a latch-casing having a slot, a latch pivoted between its ends within the casing and having its rear extremity provided with an angular orifice in coincidence with the slot in the casing, a handle or knob having an angular shank extending through the angular orifice in the latch, and a screw entering the shank of the handle or knob to rigidly attach the latter to the latch, substantially as described.

480,172. CHAFE-IRON. HENRY S. COWLES, East Hartford Meadow, Conn., assignor of one-half to William Duffy, same place. Filed Dec. 30, 1891. Serial No. 416,532. (No model.)



Claim.—A chafe-iron for vehicles, consisting of a plate bearing integral ears with integral tapering hubs projecting from their inner faces, a wrought or drawn-steel core supported by the ears and permanently secured thereto, a cylinder surrounding the core, and flexible washers supported by the tapering hubs between the ends of the cylinder and the inner faces of the ears, substantially as specified.

480,173. ELBOW FOR FACILITATING THE CLEANING OF STOVEPIPES. OTTO G. CRANSTON, Kincaid, Kans., assignor of two-thirds to Walter F. Richards, Quincy, Ill. Filed Dec. 24, 1891. Serial No. 416,084. (No model.)

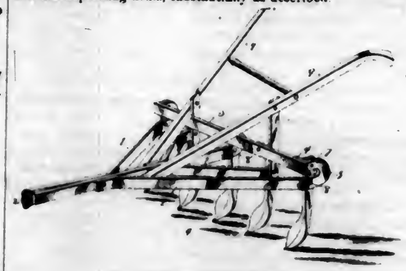


Claim.—1. The herein-described elbow or joint for stovepipes, having in the outer wall of its bend an opening or slot B and a spring-metal pivoted plate designed to close said opening, substantially as specified.

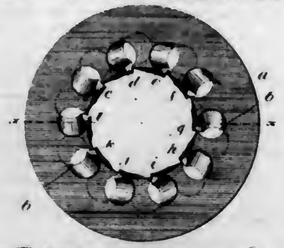
2. The herein-described elbow or joint for stovepipes, having in the outer wall of its bend an opening B and a spring-metal plate adapted to closely fit the surface of the pipe and close said opening, one end of said plate being connected to the pipe by a pivot-pin and an approximately-keyhole-shaped slot in its other end portion designed to engage a headed pin or projection of the pipe, substantially as specified.

480,174. SIDE HARROW AND CULTIVATOR. THOMAS J. CROFT, Hillsville, Miss. Filed Mar. 5, 1892. Serial No. 423,854. (No model.)

Claim.—A harrow or cultivator comprising a series of edgewise reach-bars connected together at their forward ends and at their rear ends formed with a curve and angular arm, the diagonal bar bolted to said arms, the standards bolted to said curved portions, the handles, and the depending arms, substantially as described.

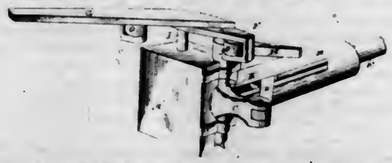


480,175. SCREW-THREADING DIE. RICHARD J. DEARBORN, Boston, Mass., assignor of one-half to the Trimont Manufacturing Company, Portland, Me. Filed Mar. 31, 1891. Serial No. 387,090. (No model.)



Claim.—The herein described die for cutting teeth on the thin edges of quadrilateral bars, it comprehending a block having inclined series of spiral teeth, each series being arranged with relation to the others, substantially as described, whereby the leading tooth of one series and the cutting-tooth of another series are in a line extending longitudinally through the die and intersecting its center, and clearance-spaces between the series of teeth of less width than the thin edges of the bar to be cut, teeth of two or more series always being in contact with each thin edge of the bar, to operate substantially as described.

480,176. BALING-PRESS. PETER K. DEDERICK, Loudonville, N. Y. Filed Nov. 13, 1889. Serial No. 330,209. (No model.)



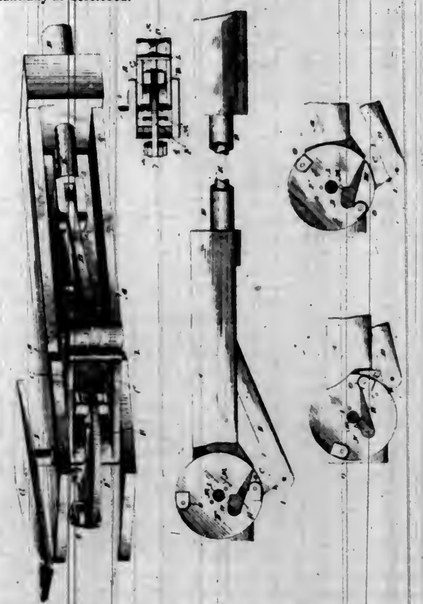
Claim.—In a baling-press power, the combination, with the crank-shaft, crank-arm, pitman, and cam-arm at the upper end of the crank-shaft, of the power-head pivoted on a center independent of the crank-shaft and having the rollers or projections co-operating with and rotating around the cam-arm, substantially as described.

480,177. BALING-PRESS. PETER K. DEDERICK, Loudonville, N. Y. Filed Nov. 13, 1889. Serial No. 330,210. (No model.)

Claim.—1. In a baling-press power, the combination, with the crank-shaft, cam carried thereby, crank, and pitman forming a toggle, of the rotary power-head co-operating with the cam and pivoted on a center located on the side of a line drawn through the crank-shaft and cam when at the forward extreme of its movement, toward which the cam moves during its forward stroke, substantially as described.

2. In a baling-press power, the combination, with the crank-shaft, cam carried thereby, crank, and pitman forming a toggle, of the rotary power-head co-operating with the cam and pivoted on a center located on the side of a line drawn through the crank-shaft and cam when at the forward extreme of its movement, toward which the cam moves during its forward stroke, and forward of a line drawn through the crank-shaft at right angles to the first-mentioned line, substantially as described.

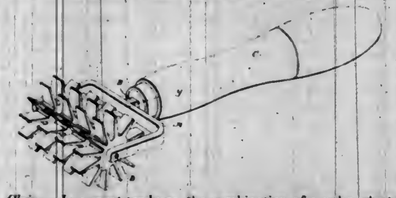
3. In a baling-press power, the combination, with the crank-shaft, cam carried thereby, crank, and pitman forming a toggle, of the power-head having the rollers or equivalent passing around the cam and the projections passing between the crank-shaft and power head pivot, co-operating with the cam to return the same to normal position, substantially as described.



4. In a baling-press power, the combination, with the pitman, crank-shaft, crank, and cam carried thereby of less length than the crank, of the power-head pivoted on the side toward which the cam moves, having the rollers or equivalent co-operating with the cam and passing off the same within the radius of the crank, substantially as described.

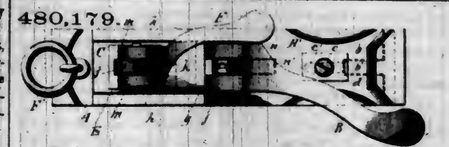
5. In a baling-press power, the combination, with the pitman, crank-shaft, crank, and cam carried thereby in advance of the crank, of the power-head pivoted on the side toward which the cam moves in its forward stroke and having rollers or equivalent co-operating with and passing around the cam and between its end and the joint between the crank and pitman, substantially as described.

480,178. BEEF-TENDERER. ALBERT C. DE SHEPPARD, Bloomsburg, Pa. Filed Mar. 5, 1892. Serial No. 423,928. (No model.)



Claim.—In a meat-tenderer, the combination of a yoke adapted to be secured to a handle and having a rod or bar fixed in the arms thereof and non-rotatable, and a series of toothed wheels freely mounted on said rod or bar to provide an independent rotation thereof and having their opposite faces bevsled equally and convergingly from the centers to the peripheries of the same, said wheels being held in proper transverse position by the enlargement in the center of each bearing against a similar enlargement of the adjacent wheel on each side in a loose manner, substantially as described.

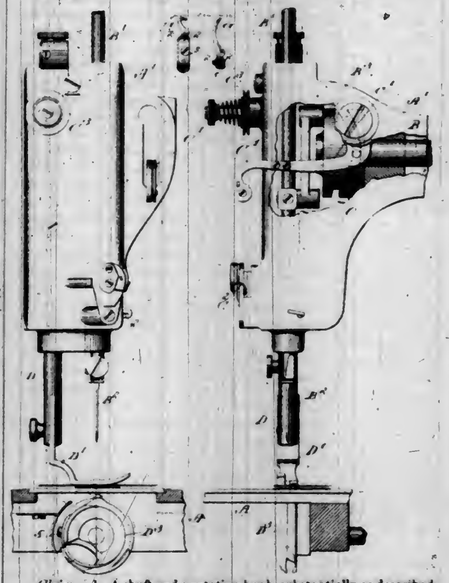
480,179. HITCHING DEVICE. DANIEL W. DE SYLVIA, Richmond, Va. Filed Oct. 8, 1891. Serial No. 408,160. (No model.)



Claim.—1. In a clamp or hitching device, the combination, with two sliding plates and a jaw on one end of each plate, of a cam-lever adapted to slide said plates in either direction, a sliding plate adapted to control the degree to which said clamp may be opened, and a clamp for maintaining said sliding plate at any desired adjustment, substantially as set forth.

2. In a clamp or hitching device, the combination, with two plates and a jaw at one end of each plate, of a cam-lever for sliding said plates to open or close the clamp, a sliding plate for regulating the degree to which the clamp may be opened, said plate having serrations thereon, a serrated clamping-block located on said plate, and a cam-lever adapted to engage said clamping-block and thus clamp the sliding plate at any desired adjustment, and means for attaching a hitching-strap to said clamp or hitching device, substantially as set forth.

480,180. LOOP-TAKER FOR SEWING-MACHINES. WILBUR F. DIAL, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed Nov. 2, 1891. Serial No. 410,595. (No model.)



Claim.—1. A shaft and a rotating hook, substantially as described, fixed thereto and having a point and a heel and having fixed to it at its heel end a loop-receiving finger having its point or free end located back of the regular point of the hook, the said finger receiving upon its point directly from the point of the hook the loop cast upon the finger, being free to pass substantially to the base thereof, the finger serving to detain and expand the loop so cast upon it until the needle has again descended and passed through the said loop and the regular point of the hook has entered a new loop of needle-thread, as and for the purposes set forth.

2. In a sewing-machine, the following instrumentalities, viz: a needle-bar having an eye-pointed needle, means to reciprocate the same, and a rotating shaft provided with a hook fast thereon and having a loop-taking point, as *d*, to enter the loop of needle-thread and having a loop-receiving finger, as *a*, fixed to it at its heel, said finger being secured thereto at a distance from the point of the hook in the direction of its rotation, the said finger terminating at its free end at a distance behind the point *d* of the hook and within the circular path traveled by the beak of said hook, the said finger being adapted in the rotation of the hook to have cast about it from the point *d* of the hook the loop of needle-thread, said finger by entering the loop serv-

ing to detain and spread the same while the needle in its next descent penetrates the loop held by the finger, the finger thereafter discharging the said loop, but not until after the point of the hook has passed through the loop of needle-thread carried through the detained loop, substantially as described.

480,181. SEWING-MACHINE. WILBUR F. DIAL, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed May 21, 1892. Serial No. 433,836. (Model.)



Claim.—1. An eye-pointed needle and a circularly-moving loop-taker provided with a point having as a continuation of it an overhanging cast-off flange or lip, said point having a throat leading inwardly toward the center of motion of the said loop-taker, combined with a bobbin case or shell having an open notch or pocket and containing an under thread, the throat of the loop-taker pulling one-half of the loop of needle-thread into the said open notch or pocket as the loop-taker commences to draw the loop, the part of the loop put into the said notch or pocket remaining therein and being drawn out therefrom after the loop has been cast about the under thread, substantially as described.

2. An eye-pointed needle and a loop-taker provided with a point prolonged by an overhanging flange or lip to serve as a cast-off and having a throat and a needle-clearance space, the throat leading into the said clearance-space toward the center of motion of the loop-taker, and a bobbin case or shell containing an under or second thread, said case having an open notch or pocket into which one-half of the loop of needle-thread is extended and held within the space circumscribed by the loop-taker while the loop of needle thread is being cast about the under or second thread, combined with a take-up to draw the said loop out of said notch or pocket and off from the point of the loop-taker and finish the stitch before the point of the loop-taker in its continued movement again engages the loop of needle-thread, substantially as described.

3. An eye-pointed needle and a loop-taker provided with a point prolonged by an overhanging flange or lip to serve as a cast-off and having a throat and a needle-clearance space, the throat leading into the said clearance-space toward the center of motion of the loop-taker, and a bobbin case or shell containing an under or second thread, said case having an open notch or pocket into which one-half of the loop of needle-thread is extended and held within the space circumscribed by the loop-taker while the loop of needle-thread is being cast about the under or second thread, combined with a take-up to draw the said loop out of said notch or pocket and off from the point of the loop-taker and finish the stitch before the point of the loop-taker in its continued movement again engages the loop of needle-thread and with devices to rotate said loop-taker at a variable speed during the formation of each stitch, substantially as described.

4. An eye-pointed needle and a circularly-movable loop-taker provided with a point, a cast-off flange, a throat, and clearance-space, combined with a bobbin case or shell having at its rear side an open notch or pocket and having an open face for the reception of a mass of under or second thread, substantially as described.

5. An eye-pointed needle and a circularly-movable loop-taker provided with a point, a cast-off flange, a throat, and clearance-space, combined with a bobbin case or shell having at its rear side an open notch or pocket and having an open face for the reception of a mass of under or second thread and provided with a radial fin to enter a groove within the overhanging flange constituting the cast-off, substantially as described.

6. An eye-pointed needle and a circularly-movable loop-taker provided with a point, a cast-off flange, a throat, and clearance-space, combined with a bobbin case or shell having at its rear side an open notch or pocket and having an open face for the reception of a mass of under or second thread and provided with a radial fin to enter a groove within the overhanging flange constituting the cast-off and having a post and locking device, the post receiving about it the under or second thread, substantially as described.

7. A sewing-machine containing the following instrumentalities, viz: an eye-pointed thread-carrying needle, a take-up, a cam to operate the same, a circularly-moving loop-taker provided with a point, a flange or cast-off in continuation thereof and grooved internally, a needle-clearance space, and a throat leading from the point inwardly toward the center of motion of the loop-taker and to the needle-clearance space, a bobbin case or shell having an open face for the reception of a bobbin containing an under or second thread and having a radial fin and at its inner end an open notch or pocket into which the point and throat of the loop-taker puts one-half the loop of needle-thread prior to casting said loop about the under or second thread, said throat holding said loop within the said notch or pocket and within the space circumscribed by said bobbin case or shell until the take-up takes the loop of needle-thread off the point of the hook, and means to restrain the rotation of the said bobbin case or shell with the said loop-taker, substantially as described

480,182. SEWING-MACHINE LOOP-TAKER. WILBUR F. DIAL, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed June 4, 1891. Renewed June 13, 1892. Serial No. 436,420. (No model.)



Claim.—1. A sewing-machine containing the following instrumentalities, viz: an eye-pointed thread-carrying needle, a loop-taker shaft, a circularly-moving loop-taker actuated thereby and having a point to take the needle-thread, and a track, and a loop-shedder the inner wall of which occupies a position in a circle outside the circle of the said track, a bobbin-case holder, and a non-rotating bobbin-case adapted to contain an under thread and provided at its rear side next the face of the loop-taker with a notched flange or projection, as 3, to co-operate with the track in the face of the loop-taker, the said projection and track preventing radial movement of the bobbin-case with relation to the center of motion of the loop-taker, the location of the inner wall of the shedder outside the track affording clearance for the thread between the periphery of the bobbin-case and the inner wall of the said shedder in order that the needle-thread may be passed freely about the bobbin-case while one part of it is contained in the notch in the said lange or projection, the needle-thread being free from impingement or pinching action throughout the entire rotation of the loop-taker, substantially as described.

2. A sewing-machine containing the following instrumentalities, viz: a reciprocating eye-pointed thread carrying needle, a loop-taker shaft, a circularly-moving loop-taker actuated thereby and provided with a point and having a loop-shedder at the rear thereof, and a throat, and a track having its walls located wholly within a circle smaller in diameter than the circle occupied by the inner wall of the shedder and having a clearance-space for the said needle cut radially through the said track, and a non-rotating bobbin-containing case having at its rear side or edge next the loop-taker a notched flange or projection co-operating with the said track and adapted to be restrained thereby against lateral movement with relation to the center of motion of the said loop-taker, the notch in the said flange or projection receiving in it and between it and the face of the loop-taker one half of the loop of needle-thread, retaining it there during the formation of the said loop and while it is being carried about the bobbin-case, the other half of the loop being simultaneously carried over the bobbin-case into the needle clearance-space, further rotation of the loop-taker uncovering the thread-receiving notch and permitting the two halves of the loop to come together in the said notch and rise therefrom, substantially as described.

3. A sewing-machine containing the following instrumentalities, viz: a reciprocating eye-pointed thread-carrying needle, a loop-taker shaft, a circularly-moving loop-taker actuated thereby and provided with a point and having a loop shedder at the rear thereof extended around substantially one-half the periphery of the loop-taker and a throat and a track having its walls located wholly within a circle smaller in diameter than the circle occupied by the inner wall of the shedder and having a clearance-space for the said needle cut radially through the said track, and a non-rotating bobbin-containing case co-operating with the said track and adapted to be restrained thereby against lateral movement with relation to the center of motion of the said loop-taker and having a thread-receiving notch, substantially as described, at its inner side or edge next the face of and entering the raceway in the face of the loop-taker, in which notch and between it and the face of the loop-taker one half of the loop of needle-thread is contained during the formation of the said loop and while it is being carried about the bobbin-case, the other half of the loop being simultaneously carried over the bobbin-case into the needle-clearance space, further rotation of the loop-taker uncovering the thread-receiving notch and permitting the two halves of the loop to come together therein, the said bobbin-case having a tension device attached thereto, substantially as described.

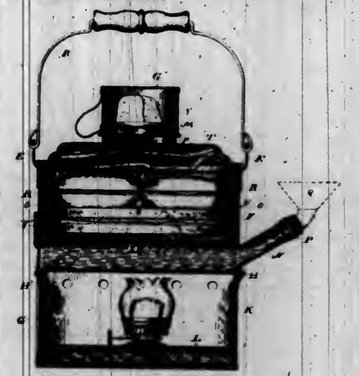
480,188. PAVEMENT. ROBERT D. DUFF, Tacoma, Wash. Filed Mar. 10, 1891. Renewed May 21, 1892. Serial No. 433,796. (No model.)

480,188.



Claim.—In a wooden pavement of the character hereinbefore indicated, the combination, with the paving-blocks proper B, having a dovetailed base portion *b b* and separated by narrow spaces, of the wooden stringers A, having upper dovetailed portions *a a*, that interlock with the blocks B, and the tie-rods G, passing transversely through the base portions of the said stringers and beneath the paving-blocks, all as shown and described.

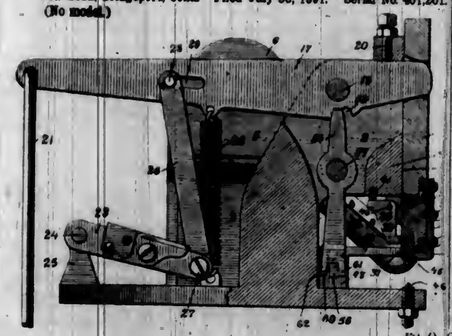
480,184. DINNER-BUCKET. JOHN C. DUNPER, Unionville Centre, assignor to Robert E. Robinson, Plain City, Ohio. Filed June 17, 1891. Serial No. 396,553. (No model.)



Claim.—1. In a lunch-heater, the combination, with a lamp-heater within a lower portion or casing, a solid upper portion connected thereto and having a false bottom forming a liquid-chamber, and a nozzle for said chamber, of a removable food-receptacle fitting loosely within said upper portion and rising nearly to the upper edge thereof, a steam-tube extending through and above the false bottom, provided with steam-ports and supporting the receptacle, a disk fitting in the upper portion above said receptacle, upon whose edges it rests, the edges of said disk being turned upwardly, and a top or cover closing said upper portion above the disk and provided with an annular flange depending into the space between the wall of the boiler and that of the pan or disk, as and for the purpose set forth.

2. In a lunch-heater, the combination, with a lamp-heater within a lower portion or casing, of an upper portion connected thereto and having a false bottom forming a liquid-chamber above the heater, an upwardly-inclined nozzle at one end of said chamber, a removable plug on said nozzle, a steam exit vent at the other end rising for some distance along the outer face of the upper portion, said false bottom having a steam-exit opening, and a food-receptacle fitting loosely within said upper portion above the false bottom, as and for the purpose hereinbefore set forth.

480,185. MACHINE FOR SETTING LACING-HOOKS. FREDERICK BEER, Bridgeport, Conn. Filed July 30, 1891. Serial No. 401,201. (No model.)



Claim.—1. The combination of the plate capable of a vertical reciprocation within the hopper, the blade pivoted within said plate and having its edge normally in a horizontal plane, the guard-lip projecting from the upper edge of said plate above the plane of the edge of the blade and separated from the latter by a space sufficient to admit the heads of the hooks, but too narrow to admit the shanks of the latter, means for moving said plate and blade together through the mass of hooks, and means for elevating said blade independent of the plate to deposit the hooks on the chute, substantially as set forth.

2. The combination of the hopper, the plate adapted to be vertically-reciprocated therein and having an upward-projecting guard-lip, the blade pivoted within said plate, the upper edge of said blade extending normally in a plane below that of said lip, while the blade itself is separated from the lip by a space sufficient only to accommodate the heads of the hooks, the chute which leads to the setting devices, means for elevating said plate and blade together through the mass of hooks, and means for tilting said blade independent of the plate at the end of its upper movement into proper alignment with said chute, substantially as set forth.

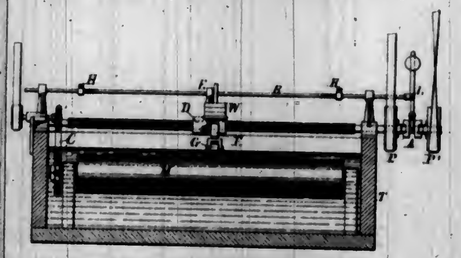
3. In a machine of the character described, the combination of the vertically-reciprocating press-gate, the pivoted press-bar loosely connected to said gate and having a recess in its under side, the pivoted block capable of a horizontal movement, the hook selecting and delivering lever pivoted to said block and capable of a vertical movement within prescribed limits, and the pivoted lever whose upper end extends within said recess and whose lower end is connected to the hook selecting-lever, substantially as set forth.

4. The combination of the chute, whose lower end leads to the setting devices, the lever pivoted to a horizontally-swinging block and capable of a vertical movement, said lever extending transversely above said chute, and means for operating said lever, whereby the same is raised above the lowermost hook, swung to a plane in the rear thereof, depressed immediately behind said hook, and finally thrown forward, thereby delivering said hook to the setting devices, substantially as set forth.

5. The combination of the reinforce-block secured to the press-gate, the setting-head pivoted to the latter, the spring-bolt normally maintaining the position of said head, and the face plate secured to said head and capable of a vertical play and having integral therewith the setting-toe, which latter extends immediately beneath said block, substantially as shown and described.

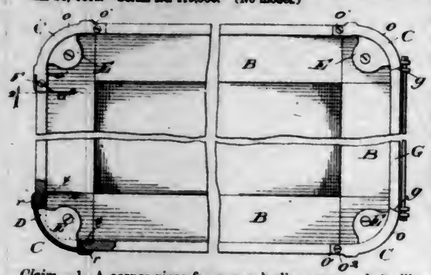
6. In a machine for setting lacing-hooks, the herein-described device for selecting and lifting said hooks, with their heads extending in one direction, from a mass of such hooks within a hopper, said device comprising a blade pivoted to a plate, and a guard-lip projecting from said plate above the plane of the edge of the blade and separated from the latter by a space sufficient to admit the heads of the hooks, but too narrow to admit the shanks of the latter, in combination with means for reciprocating said plate and blade together vertically through the mass of hooks and means for tilting said blade on its pivotal point independent of the plate at the end of its upward movement, substantially as set forth.

480,186. METHOD OF MANUFACTURING TUBES. FRANCIS E. ELMORE and ALEXANDER S. ELMORE, Leeds, assignors to Elmore's American and Canadian Patent Copper Depositing Company, Limited, London, England. Filed Aug. 12, 1891. Serial No. 402,447. (No specimens.) Patented in England Mar. 23, 1891, No. 5,167; in Luxemburg June 1, 1891, No. 1,456, and in Italy June 10, 1891, LVIII. 229.



Claim.—The herein-described method of manufacturing tubes, which consists in subjecting a thin shell of metal first deposited on a mandrel to the pressure of a narrow roller or set of rollers caused to travel along it short of one end to loosen the same, thereafter depositing to desired thickness on the shell thus loosened, and separating therefrom the portion over which the roller or rollers have not been caused to pass.

480,187. CORNER-IRON FOR WAGON BODIES OR SEATS. EDWIN FISH, Elkhart, Ind., assignor to S. D. Kimball, Chicago, Ill. Filed Jan. 28, 1892. Serial No. 419,555. (No model.)



Claim.—1. A corner-piece for wagon bodies, seats, and the like, comprising a curved plate having an inward-projecting flange D, constituting a brace, presenting an angular configuration at its inner edge for the reception of the sill end, substantially as described.

2. A corner-piece for wagon bodies, seats, and the like, comprising a curved plate having at its lateral edge a double flange producing a mortise for the reception of the panel, substantially as described.

3. A corner-piece for wagon bodies, seats, and the like, comprising a curved plate having at each lateral edge a mortise to receive the panels and provided on its top with a curved strip projecting beyond the sides, substantially as described.

4. A corner-piece for wagon bodies, seats, and the like, comprising a curved plate provided with means for attaching the panels and sills thereto and provided with an upward-projecting stud F for the attachment of the dasher-rod, substantially as described.

5. A corner-piece for wagon bodies, seats, and the like, comprising, in combination, a curved plate C, inward-projecting flange at the lower end in the form of a brace D, presenting an angular configuration, double flanges affording mortises at each side of the plate for the reception of the side and end boards, curved plate o at the top of the plate and extending beyond the sides thereof, and shelf E, projecting inward from the plate C, substantially as and for the purpose set forth.

480,188. PENCIL. ALFRED FORNANDER, New York, N. Y. Filed Mar. 17, 1892. Serial No. 425,343. (No model.)



Claim.—1. In a pencil, a number of individual marking-points, a magazine containing said points, a push-piece, and means adapted to be actuated thereby to renew the points, substantially as described.

2. The combination, in a pencil, of a magazine containing a number of individual marking-points, a point-holding nose, a pusher adapted to hold the points in said nose individually, and means for discharging the worn or broken points out of said point-holding nose below or in advance of the points in reserve in the magazine, substantially as described.

3. The combination, in a pencil, of a magazine containing a number of individual marking-points, a point-holding nose, a pusher adapted to hold the points in said nose individually, and means for discharging the worn or broken points backward out of said point-holding nose below or in advance of the points in reserve in the magazine, substantially as described.

4. The combination, in a pencil, of a magazine containing a number of individual marking-points, a point-holding nose, a pusher adapted to hold the points in said nose individually, a discharge-opening for the worn or broken points through the side of the magazine above or back of the point-holding nose, and an adjustable cover for said opening, substantially as described.

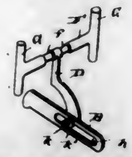
5. The combination, in a pencil, of a magazine containing a number of individual marking-points, a point-holding nose, a pusher adapted to hold the points in said nose individually, a discharge-opening for the worn or broken points through the side of the magazine above or back of the point-holding nose, and a cover for said opening consisting of the point-holding pusher, substantially as described.

6. The combination, in a pencil, of a magazine containing a number of individual marking-points, a point-holding nose, a pusher adapted to hold the points in said nose individually, a tube inclosing the magazine and having the pusher attached, said tube and magazine movable lengthwise relatively to each other, and a spring actuating the pusher, substantially as described.

7. The combination, in a pencil, of a magazine containing a number of individual marking-points, a point-holding nose, a pusher adapted to hold the points in said nose individually, a discharge-opening for the worn or broken points through the side of the magazine above or back of the point-holding nose, a tube inclosing the magazine and having the pusher attached, said tube and magazine movable lengthwise relatively to each other, and a spring actuating the pusher, substantially as described.

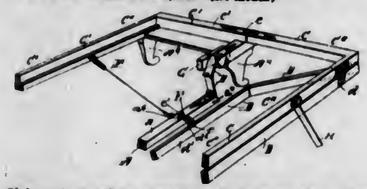
8. The combination, in a pencil, of a magazine containing a number of individual marking-points, a point-holding nose, a discharge-opening through the side of the magazine above or back of the point-holding nose, the spring point-pusher, and discharge-opening cover, the tube inclosing the magazine and having the pusher attached, said tube and magazine movable lengthwise relatively to each other, and the ledge of the discharge opening adapted to effect the lateral movement of the pusher, substantially as described.

480,189. GATE-LATCH. JAMES T. FOX, Sherman, Tex., assignor to W. H. Torian, same place. Filed Apr. 30, 1892. Serial No. 431,259. (No model.)



Claim.—A gate-latch comprising the latch-bar B, having therein a longitudinal slot *h*, the arm D, connected to the intermediate portion of said bar by a bolt or pin *k*, passing adjustably through said slot, said arm being curved forwardly at its upper portion, and a transverse handle-bar F, rigidly secured to the upper end of said arm, said handle-bar having a central reduced portion *f*, forming a journal for its rocking support on the gate-post, substantially as specified.

480,190. BED-LOUNGE. ALBERT L. GILLES, Bradford, Mass. Filed Feb. 5, 1892. Serial No. 420,412. (No model.)



Claim.—1. A sofa-bed consisting of a stationary frame and a folding section hinged together to sustain a suitable mattress, the stationary frame provided with a suitable head-rest, back-rest, and vertical sustaining-legs and with suitable stops, guide-pieces on said stops, a vertically-movable traveling rail connected by toggle-joints with said stops, straps connecting said traveling rail with the stationary frame, and the folding section provided with swinging legs, a rectangular seat-frame hinged to said folding section, and links connecting said seat-frame to the traveling rail, whereby said traveling rail is vertically raised and lowered by the movement of the folding section, substantially as set forth.

2. In a sofa-bed, the combination of a stationary and of a folding section hinged together, the front rail of the stationary section being suitably severed and engaged with the same by toggle-joints, as described, and laterally governed by suitable chalks and straps, and links connecting the folding section with the front rail, whereby said rail is vertically raised or lowered through the movement of the folding section, substantially as described.

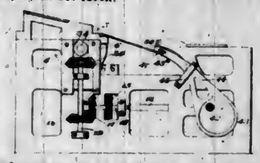
3. In a sofa-bed, a stationary section having its front rails designed to be vertically raised and lowered, a folding section hinged to the stationary section, and links connecting the folding section with the front rail of the stationary section, whereby the said front rail is vertically raised and lowered by the movement of the folding section, substantially as described.

480,191. PRINTING-PRESS. JAMES HACKETT, Taunton, Mass. Filed Sept. 16, 1891. Serial No. 405,892. (No model.)

Claim.—1. In a printing-press, the combination, with the fountain-roller having a ratchet-wheel at one end, of the main driving-shaft, a cam mounted upon said shaft, the spring-regulated pawl-plate loosely mounted adjacent to said cam and operated thereby, and a pawl adjustably secured to the upper end of said plate and adapted to engage said ratchet-wheel, substantially as set forth.

2. In a printing-press, the combination, with the fountain-roller having a ratchet-wheel at one end, of the main driving-shaft, the cam mounted upon said shaft, a vertical pawl-plate having a lower bifurcated end taking over said shaft, and a friction-roller engaged by the periphery of said cam, and a pawl having a diagonal slot adjustably secured to the upper end of said pawl-plate and adapted to engage said ratchet-wheel, substantially as set forth.

3. In a printing-press, the combination, with the fly thereof, of the main drive-shaft, an eccentric carried by said shaft, an eccentric arm or pitman operated by said eccentric, and means for loosely connecting one end of said eccentric arm or pitman eccentrically with said fly, substantially as set forth.



4. In a printing-press, the combination, with the fly thereof, of the pin extending laterally from one end of the fly block or shaft and eccentrically to the journals thereof, the main drive-shaft, an eccentric mounted on said shaft, and an eccentric arm or pitman having a sleeve working over said eccentric, and a longitudinally-disposed slot at its outer end engaging said fly pin or arm, substantially as set forth.

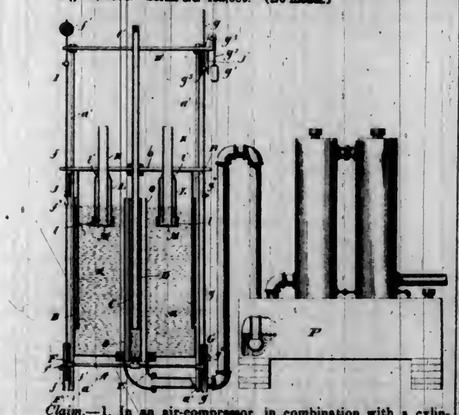
480,192. MOP-WRINGER. ALFRED H. HAFER, Cleveland, Ohio. Filed Oct. 19, 1891. Serial No. 408,180. (No model.)



Claim.—1. In a mop-wringer, a stationary roller secured to a removable support near the edge of a bucket, a movable roller mounted upon the shorter arm of a foot-lever, also secured to said removable support and adapted to be brought into engagement with the stationary roller by the movement of the lever, and a projecting prop secured to said support in close proximity to the pedal extremity of the lever, substantially as described.

2. In a mop-wringer, vertical straps detachably secured to the side of a bucket and connected above the pail by a horizontal strap resting therein, bearings on side extensions of said strap to support a roller, and angular extensions of the said strap extending inwardly toward the roller and separating an enlarged central portion of the roller from end extremities of lesser diameter, substantially as described.

480,193. AIR-COMPRESSOR. JOHN G. HAINES, Omaha, Nebr. Filed Aug. 17, 1891. Serial No. 402,389. (No model.)



Claim.—1. In an air-compressor, in combination with a cylinder or tank containing a liquid, a cylinder or shell movable within the other and an air-inlet-controlling valve carried by the same, having a liquid seal contained in a cup that is adapted to be plunged into the liquid contained in the tank, substantially as and for the purpose set forth.

2. In an air-compressor, in combination with a cylinder or tank containing a liquid, a cylinder or shell movable therein and an air-inlet-controlling valve consisting of a pipe or tube open throughout its length, a shell inclosing the same, and a cup inclosing the end of the latter, containing a liquid submerging the end of the shell and a portion of said pipe or tube, substantially as and for the purpose specified.

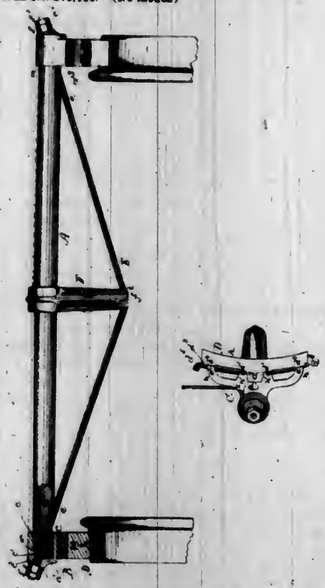
3. In a valve, in combination, a pipe or tube, a shell surrounding the same, and a cup surrounding an end of said shell adapted to hold water or other fluid to submerge a portion of the shell and the tube inclosed thereby, substantially as and for the purpose shown.

4. In a valve, in combination, a pipe or tube, a shell surrounding the same, adapted to permit passage of air, and a cup surrounding an end portion of said shell adapted to hold a liquid to submerge the portion of the shell inclosed thereby and a portion of the tube within the shell, the inclosed portions of the latter having openings through its sides, substantially as and for the purpose shown.

5. In a valve, in combination, a pipe or tube, a shell surrounding the same, adapted to permit passage of air, and a cup surrounding an end portion of said shell adapted to hold a liquid to submerge the portion of the shell inclosed and a portion of the tube within the shell, the lower end of the latter being provided with numerous slits, substantially as and for the purpose set forth.

6. In an air-compressor, in combination with a tank or cylinder for holding a liquid, a cylinder movable within the same, a piston connected to said second-named cylinder, a cylinder for said piston arranged within the liquid-holding tank, and an air-discharge pipe inclosing the piston-cylinder, the latter being adapted for connection with a source of steam-supply, substantially as and for the purpose described.

480,194. BRAKE-BEAM. PHILIP HIEN, Rock Island, assignor to the National Hollow Brake Beam Company, Chicago, Ill. Filed Apr. 10, 1888. Serial No. 270,188. (No model.)



Claim.—1. A metallic brake-beam consisting of a compression member, a tension member, and an interposed strut, the compression member having a camber and the beam structure containing means of adjustment whereby the camber of the compression member is produced and the resiliency of the beam made available.

2. A metallic brake-beam consisting of a hollow compression member, a tension member, and an interposed strut, the compression member having a camber, and the beam structure containing means of adjustment whereby the camber of the compression member is produced and the resiliency of the beam made available.

3. The combination, with a trussed tubular brake-beam having a

slot for the passage of the truss-rod and a notch for the reception of a lug on the brake-head, of a brake-head having a cupped recess for the reception of the end of the beam and provided with a lug adapted to enter the recess in the end of the beam, as set forth.

4. The combination, with a tubular beam notched at its end, of a brake-head having a cupped recess or socket with a lug corresponding to the notch in the end of the tubular beam, as set forth.

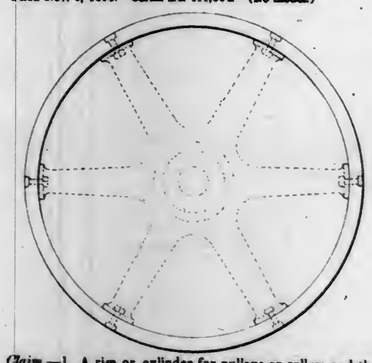
5. A trussed hollow or tubular brake-beam having a camber and having one or more notches at its ends, in combination with brake-heads having cup-shaped recesses, inclined bearings, and one or more projections, and the truss-rod passing through and holding said heads in position.

6. A trussed hollow or tubular brake-beam having a camber, in combination with brake-heads having cup-shaped recesses, a truss-rod passing through and holding said heads in position, and the inclined bearings for supporting the nuts on the end of the truss-rod.

7. In a trussed brake-beam, the combination of a tension member having threaded ends and nuts therefor, a strut, and a cambered compression member which maintains the tension of the parts and prevents the rotation of the nuts, substantially as specified.

8 In a trussed brake-beam, the combination, with a cambered compression member, of brake-heads having cup-shaped recesses for the reception of the ends of the cambered compression member and a tension-rod, substantially as and for the purposes specified.

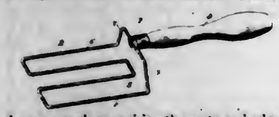
480,195. DRAWING-ROLL. PHILIP H. HOLMES, Gardiner, Me. Filed Nov. 6, 1891. Serial No. 411,064. (No model.)



Claim.—1. A rim or cylinder for pulleys or rollers and the like, consisting of wood fiber compressed into shape, then thoroughly dried, and afterward subjected to a bath of drying and hardening material, substantially as set forth.

2. As an article of manufacture, a rim or cylinder for pulleys or rollers, composed of wood fiber compressed into shape and then dried and hardened and finally treated to a bath of shellac or equivalent drying and hardening varnish, substantially as set forth.

480,196. CURRY-COMB. THEODORE H. IRELAND, Green County, Iowa. Filed Apr. 15, 1892. Serial No. 429,334. (No model.)

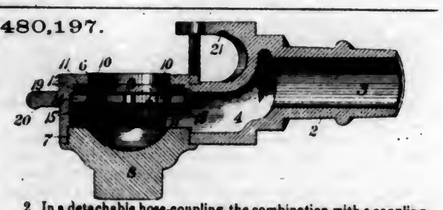


Claim.—A curry-comb comprising the rectangular brushing-frame constructed of a single piece of wire and provided with the central resilient tongue extending inward from the outer end of the frame throughout the entire length of the latter, said wire being extended upward from the sides of the frame and being formed into a tang, and a handle receiving the tang, substantially as described.

480,197. HOSE-COUPLING. ARARIAH W. JACKSON, Chicago, Ill., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa. Filed Dec. 3, 1891. Serial No. 413,909. (No model.)

Claim.—1. In a detachable hose-coupling, the combination, with a coupling-shell having a chamber formed therein and an opening in the face of the coupling of smaller diameter than the chamber, of a gasket fitting in the opening and a compressor-ring having a peripheral screw-thread engaging a screw-thread in the chamber and adjustable independently of the screw-plug in the back of the coupling, substantially as set forth.

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2. In a detachable hose-coupling, the combination, with a coupling-shell having a chamber formed therein and an opening in the face of the coupling of smaller diameter than the chamber, of a gasket fitting in the opening and provided with a flange bearing against the wall of the shell and a compressor-ring located entirely within the chamber inside of the flange and disconnected from the closing parts of the back of the coupling and having a peripheral screw-thread engaging a screw-thread in the chamber, whereby the compressor-ring may be moved outwardly to clamp the flange of the gasket, substantially as set forth.

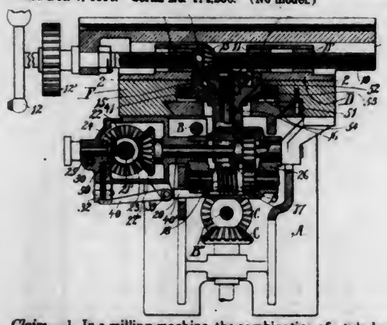
3. In a detachable hose-coupling, the combination of a coupling-shell having a chamber formed therein, a removable threaded ring located in the chamber, a compressor having a peripheral screw-thread engaging the thread on the ring, and a gasket fitting in an opening in the face of the coupling and held in place by the compressor, substantially as set forth.

4 In a detachable hose coupling, the combination of a coupling-shell having a chamber therein and an opening in the face of the coupling of smaller diameter than the chamber, a ring fitting in the chamber and screw-threaded on its inner side, and a compressor having a peripheral screw-thread adapted to engage the thread on the ring, whereby the compressor may be moved back and forth, so as to clamp or release a gasket in the opening in the face of the coupling, substantially as set forth.

5. In a detachable hose-coupling, the combination of a coupling-shell having a chamber therein and an opening in the face of the coupling of smaller diameter than the chamber, a screw-threaded ring in the chamber, a screw-threaded compressor fitted in the ring, and a screw-plug fitting in an opening in the back of the shell for the insertion of the ring and compressor, substantially as set forth.

6. In a detachable hose-coupling, the combination of a coupling-shell having a chamber therein and an opening in the face of the coupling, a cylindrical gasket fitting in the opening and provided with a flange on its inner end, a ring bearing on the flange, and a compressor adjustable through the opening in the face of the coupling independently of the back parts of the coupling and adapted to clamp the ring against the flange on the gasket, the compressor being provided with a peripheral screw-thread engaging a screw-thread in the chamber, substantially as set forth.

480,198. MILLING-MACHINE. FRANK KEMPSMITH and THOMAS L. SMITH, Milwaukee, Wis.; said Smith assignor to said Kempsmith. Filed Dec. 7, 1891. Serial No. 414,338. (No model.)



Claim.—1. In a milling-machine, the combination of a tubular vertical feed-driving shaft journaled in the turn-table, gearing for actuating said shaft and for connecting said shaft with the table-feeding screw, and a rod passing through the tubular shaft arranged to disengage the actuating-gearing, substantially as described.

2. In a milling-machine, the combination, with a tubular vertical shaft journaled in the center of the turn-table and geared to the table-feeding screw and to actuating mechanism, of a rod passing through the shaft, movable endwise therein, and means for imparting motion thereto by the movement of the work-table, and thereby to disengage the actuating mechanism, substantially as described.

3. In a milling-machine, the combination of a tubular vertical shaft journaled in the turn-table and geared to the table-feeding screw, a movable rod extending through it, a cam above the rod, arranged to engage with and force it downward, means on the traversing table, adapted to engage and actuate the cam, and a lever below the rod arranged to be tilted thereby and to lift a latch and disengage the feed-driving mechanism, substantially as described.

4. In a milling-machine, the combination of a vertical shaft journaled in the turn-table, geared to the table-feeding screw, and carrying a worm-wheel rigid thereon, with a driven shaft, a worm geared thereto at a right angle to the vertical shaft, and a swinging frame in which the worm is journaled, which frame is pivoted about the driven shaft and arranged to carry the worm into and out of engagement with the worm-wheel, substantially as set forth.

5. In a milling-machine, the combination of a driving-shaft, a driven shaft, a worm geared to the driven shaft and journaled in a swinging frame concentric with the driven shaft, which frame is adapted to swing the worm into and out of engagement with its worm-wheel without affecting its driving connections, and gears on the driving and driven shafts for reversing the direction of motion of the worm, substantially as described.

6. In a milling-machine, the combination of a vertical feed-driving shaft carrying a worm-wheel, a worm mounted in a swinging frame, the swinging frame fulcrumed to carry the worm into and out of engagement with the worm-wheel without affecting its driving connections, and a nest of three bevel-gears, two running loosely on a driving-shaft and provided with inwardly-projecting clutch-faces arranged to be singly engaged by a sliding clutch between them, feathered to said driving-shaft, whereby the third gear, the worm, and worm-wheel can be driven in either direction at will, substantially as shown, and for the purposes set forth.

7. In a milling-machine, the combination of a vertical feed-driving shaft journaled in the turn-table and carrying a worm-wheel, a feed-worm journaled in a swinging frame, arranged to carry the worm into and out of engagement with the worm-wheel without affecting its driving connections, a rock-shaft with a lever on its inner end, engaging the swinging frame, and a hand-lever on its outer end, provided with a pin or detent, and a latch or hook engaging the pin or detent when the worm is engaged with worm-wheel, substantially as set forth, and for the purpose specified.

8. In a milling-machine, the combination of a rock-shaft 39, a latch 32, a lever 40, extending under the latch 32, a lever 40', extending under the center of the turn-table, and a vertical rod 41, extending upward through the center of the turn-table, resting on lever 40', and arranged by suitable connections to the work-table to be depressed by the work-table, so as to lift the latch 32, for the purposes set forth.

9. In a milling-machine, the combination, with the shaft 43, journaled in the turn-table and provided with cam 44 and pinion 45, a movable rack provided pin 46, and means on the traversing table for actuating the pin, of the vertical rod 41, passing through the center of the turn-table and movable downwardly by the limited rotation of the cam, latch 32, and a lever actuated by the rod to lift the latch 32, substantially as described.

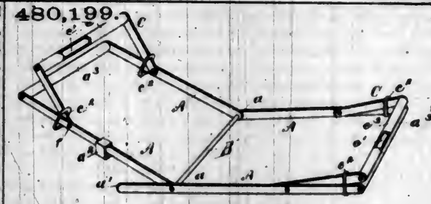
10. In a milling-machine, the combination of a turn-table consisting of a table supporting and guiding plate, as D, and a guiding and bearing piece, as 52, rigid to the plate and provided with a peripheral conical surface, with a saddle in which the bearing-piece is received, and a contractible clamping-ring provided with an interior conical surface formed to engage the conical surface of the bearing-piece and when contracted to bear evenly against the saddle on surfaces thereof about and on opposite sides of the axis of the bearing-piece, substantially as described.

11. In a turn-table for a milling-machine, the combination of the table supporting and guiding plate D, the bearing-block 51, rigidly attached thereto and provided with exterior cylindrical guiding-surface, exterior conical clamping-surface, and interior shaft-bearing, the split clamping-ring 54, with interior conical surface and upper plane surface encircling cone on bearing-block, and the clamping-screw 55, substantially as shown and described, and for the purposes set forth.

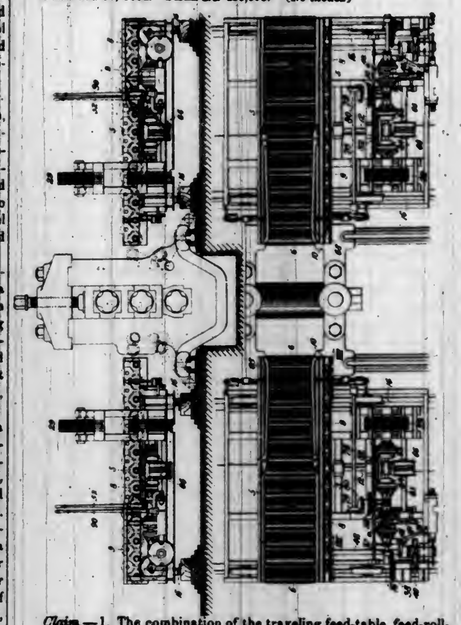
480,199. TROUSERS-STRETCHER. GEORGE S. MACDONALD, Detroit, Mich., assignor, by direct and mesne assignments, to the Trousers Stretcher Company. Filed Feb. 12, 1892. Serial No. 421,281. (No model.)

Claim.—In a trousers-stretcher, the combination, with two frames composed, respectively, of side bars and end bars, one frame being of smaller dimensions than the other, a cross-rod pivotally uniting the inner ends of the side bars, locking means for retaining the frames in a parallel position, frames pivoted to the outer ends of the side bars, carrying cross-bars parallel with the cross-bars of the main frame, means for holding the cross-bars together, and a rubber covering on the cross-bars, substantially as described.

480,199.



480,200. MILL APPLIANCE. WILLIAM H. MADDOCK, Pittsburg, Pa., assignor of one-half to the Riverside Iron Works, Wheeling, W. Va. Filed Oct. 17, 1891. Serial No. 408,995. (No model.)



Claim.—1. The combination of the traveling feed-table, feed-rollers mounted thereon, a drum mounted on the table, and mechanism for driving the rollers, an endless cable encircling the drum and passing to and around an anchored wheel, and an anchored power-drum, substantially as and for the purposes described.

2. The combination of the traveling feed-table having feed-rollers, a driving-drum mounted on the table and connected with the rollers by suitable mechanism, an endless cable encircling the drum, an anchored wheel, an anchored power-drum, and a tautening-drum, substantially as and for the purposes described.

3. The combination of the traveling feed-table having feed-rollers, a power-drum 27 and friction drum 29, mounted thereon, an endless cable, an anchored wheel, and an anchored power-drum, substantially as and for the purposes described.

4. The combination, with the pivoted feed-table, of a lifting-pitman connected thereto, a wheel on the pitman-shaft, a reciprocating rod arranged to engage the wheel and lock the table in its various positions, and a clutch arranged to engage the pitman shaft and raise and lower the table, substantially as and for the purposes described.

5. The combination, with the pivoted feed-table, of a shaft carrying a pitman, arranged to raise and lower the table, a locking-wheel upon said shaft, a reciprocating locking-rod arranged to engage the locking-wheel, a clutch upon the pitman-shaft, and operative connections between the clutch and the locking-rod, substantially as and for the purposes described.

6. The combination, with the laterally-movable feed-table, of a drum carried thereon, a cable wound about the drum and secured at each end, a power-shaft upon the carriage, clutches upon the power-shaft, and mechanism engaging the clutches and drum-shaft and arranged to turn the drum-shaft in opposite directions, substantially as and for the purposes described.

7. The combination, with a feed-table, of a manipulator mounted

thereon, a pivoted rock-arm connected to the manipulator, said arm being arranged to contact with a stationary portion as the table is lowered, and thereby shift the manipulator, and means for raising and lowering said table, substantially as and for the purposes described.

8. The combination, with the movable feed-table mounted on rails, of the manipulator-bars pivotally mounted thereon and rock-arms connected to said bars and having projecting portions arranged to contact with stationary parts as the table is lowered, and thereby move the manipulator-bars inwardly, substantially as described.

9. The combination, with the pivoted feed-table and feed-rollers thereon, of the two sets of auxiliary feed-rollers between the table and the rolls and sprocket-wheel connections arranged to rotate the sets of auxiliary rollers in opposite directions, substantially as and for the purposes described.

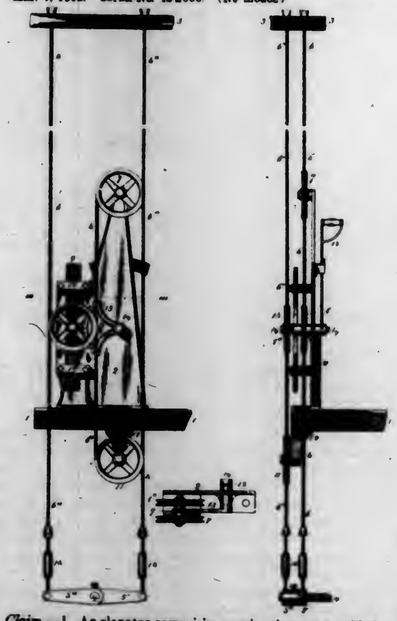
480,201. REFLECTOR. CHARLES A. MEADOWS, Yonkers, N. Y. Filed Dec. 31, 1891. Serial No. 416,721. (No model.)



Claim.—1. As an article of manufacture, a reflector for lamps, comprising a body of a rounded or bulb form provided with a rolled and inwardly-curved extension or wing protruding at bottom and sides, as set forth.

2. The combination, with a lamp and a suspending-cord, of a reflector provided with aperture G, and a hook or catch M to engage the cord, as set forth.

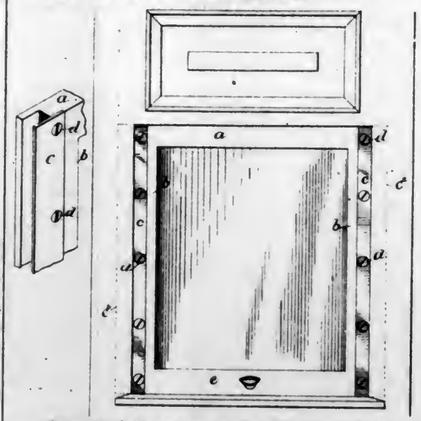
480,202. ELEVATOR. EDWARD W. MOON, St. Louis, Mo. Filed Mar. 7, 1892. Serial No. 424,066. (No model.)



Claim.—1. An elevator comprising a cab, a hanger provided with a pulley and depending from the cab-floor, the valve-shaft having arms, the pulley mounted on the side of the cab, the bearings on the side of the cab, the rack-bar adapted to slide in the bearings having inner and outer pulleys, the rope extending from one of the arms over the pulley on the side of the cab under the inner pulley on the rack-bar to the top joist, another rope extending from the other arm over the outer pulley on the rack-bar under the pulley on the hanger to the top joist, and means for shifting the rack-bar, substantially as described.

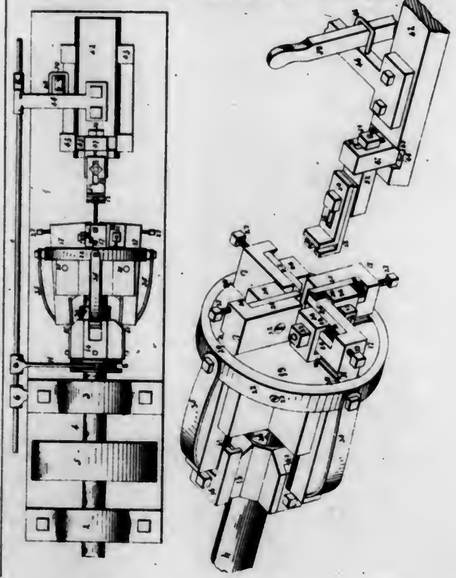
2. An elevator comprising a cab, a hanger provided with a pulley and depending from the cab-floor, the valve-shaft having arms, the pulley mounted on the side of the cab, the bearings on the side of the cab, the rack-bar adapted to slide in the bearings having inner and outer pulleys, the rope extending from one of the arms over the pulley on the side of the cab under the inner pulley on the rack-bar to the top joist, another rope extending from the other arm over the outer pulley on the rack-bar under the pulley on the hanger to the top joist, and the shaft journaled in the side of the cab having a cog-quadrant meshing with the rack-bar, and a hand-lever, substantially as described.

480,203. WINDOW-SASH. EDWIN MOORE, Brooklyn, N. Y. Filed Feb. 8, 1892. Serial No. 420,811. (No model.)



Claim.—A window-sash rabbeted or cut away at its front vertical edge and a yielding strip of metal attached thereto so as to form in conjunction with the uncut-away-side edge a rectangular groove or edge to said sash, substantially as described, and for the purposes set forth.

480,204. BOLT-THREADING MACHINE. FREDERICK MUTIMER, Rockford, Ill., assignor of one-half to the Rockford Bolt Works, same place. Filed Oct. 9, 1891. Serial No. 408,260. (No model.)



Claim.—1. In a bolt-threading machine, the combination of a revolving head, jaws pivoted therein, dies affixed by clamps to the jaws, said clamps formed with two depending lips, a groove in each jaw for one of the lips, the other lip engaging the bevel-edge of the die, a bolt for holding the clamp in position, and means for opening and closing the dies.

2. In a bolt-threading machine, the combination of a revolving head, jaws pivoted therein, and a movable wedging-hub having radial ribs thereon, one or more of said ribs provided with a slotted plate for receiving the end of one of the pivoted jaws, forming a rotative connection between the hub and the revolving head.

3. In a bolt-threading machine, the combination of a revolving head, jaws pivoted therein, a movable wedging-hub having radial ribs thereon, one or more of said ribs provided with a slotted plate for receiving the end of one of the pivoted jaws, the plate having flanges for engaging the sides of its rib, and means for securing the plate to the rib.

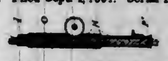
4. In a bolt-threading machine, the combination of a hub having a sliding connection with the driving-shaft and having also a slotted face, jaws located in the slots, and a ring encircling the periphery of the face, forming stops for the jaws.

5. In a bolt-threading machine, the combination of a hub having a rotative connection with the driving-shaft, said hub having a slotted face, jaws located in the slots, a ring encircling the periphery of the face, and springs supported by the ring for operating the jaws.

6. In a bolt-threading machine, the combination of a supporting-frame, a revolving head, dies movably secured therein, ways on the frame, a carriage on the ways, a post on the carriage, having a vertically-elongated opening and capable of lateral adjustment, and a bar movably secured to the post, said bar supporting a bolt-holding device.

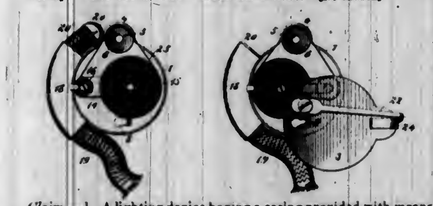
7. In a bolt-threading machine, the combination of a revolving head, jaws pivoted therein and having a recess in one face thereof, dies located in the recess and having a bevel-edge, and a clamp secured to the jaw overlying the die and having a lip with a bevel-face engaging the bevel edge of the die, holding it in position.

480,205. WICK-RAISER FOR LAMPS. EDWARD MCDOWELL, Spartanburg, S. C. Filed Sept. 4, 1891. Serial No. 404,695. (No model.)



Claim.—The herein-described wick-raiser, consisting of a vertical tube, an inner tube sliding vertically in the said vertical tube and longer than the same, the lower end of the inner tube being flared and one side thereof provided with a vertical row of holes, a stop at the lower end thereof, and a series of vertical slots on the opposite side of said inner tube, and a shaft having a toothed wheel at its inner end and projecting into the outer tube of the lamp-body, said shaft having a milled wheel at its outer end, all arranged and combined substantially as described.

480,206. POCKET LIGHTING DEVICE. WILLIAM W. MCKENNEY, New York, N. Y., assignor to the Magic Introduction Company, of New Jersey. Filed Oct. 2, 1891. Serial No. 407,520. (No model.)



Claim.—1. A lighting device having a casing provided with means for holding and rewinding within itself a coil of tape consisting of a pin or spindle upon which the coil of tape is mounted and a second pin or spindle which is revoluble, upon which the tape is rewound from the first spindle, both of said spindles being so mounted as to be capable of movement in a straight line, substantially at right angles to the axis thereof, as the tape is wound from the one upon the other, substantially as shown and described.

2. The combination, with the casing of a lighting device, one of the walls of which is provided with a straight slot, of a revoluble pin or spindle mounted in said slot and adapted to slide along the same, means located upon the exterior of the casing for revolving said spindle, a spindle or support upon which a coil of tape provided with ignitible pellets may be mounted, which is capable of movement in the same direction as the revoluble pin or spindle, and means for igniting the pellets upon the tape one by one as the same is drawn from the supporting-spindle and rewound upon the revoluble spindle as the same is rotated, substantially as shown and described.

3. A lighting device having means for holding and rewinding a roll of fulminating tape, consisting of a slot, as 13, in one wall of the device, the pins or spindles 15 and 16, adapted to slide in said slot, one of which is revoluble, the plates 14, in which the pins are mounted and by which they are held in position, the plates being also adapted to slide along the slot, and means for rotating the revoluble pin, substantially as shown and described.

4. In a lighting device, the combination, with a casing, of means located within the same for holding and rewinding therein a coil of fulminating tape, a support over which the tape is drawn to be rewound, a removable cover forming one side of the casing, pivotally attached to the main portion thereof in such manner as to be capable of being moved aside at right angles to the axis of the roll of tape within the casing, so as to uncover the same, and a spring-scratcher secured to the cover in such manner that the point thereof will be brought into contact with the fulminating tape upon the support when the cover is in place on the casing, substantially as shown and described.

5. In a lighting device, the combination, with a casing forming a tape chamber, means for holding and rewinding a coil of fulminating tape located within the tape-chamber, a support secured to the casing, over which the tape is drawn in the operation of rewinding, and a spring-scratcher secured to the side of the casing opposite to that upon which the support is mounted, normally in contact with the fulminating tape upon the support when the casing is closed, the side of the casing to which such scratcher is attached being hinged or pivoted to the main portion of the casing in such manner as to be capable of being swung aside at right angles to the axis of the coils of tape within the casing, so as to uncover the tape chamber and remove the scratcher from the support, substantially as shown and described.

6. In a lighting device, the combination, with a casing, of a pin or spindle adapted to receive a coil of tape located therein, a second pin or spindle which is revoluble and adapted to rewind upon itself the tape from the other spindle when rotated, also located in such casing, both of said spindles being so mounted as to be capable of movement substantially at right angles to the axes thereof as the tape is wound from the one upon the other, a support over which the tape is drawn to be rewound, a removable cover forming one side of the casing, pivotally attached to the main portion thereof in such manner as to be capable of being moved aside at right angles to the axis of the roll of tape within the casing so as to uncover the same, and a spring-scratcher secured to the cover in such manner that the point thereof will be brought into contact with the fulminating pellets of the tape upon the support when the cover is in place on the casing, substantially as shown and described.

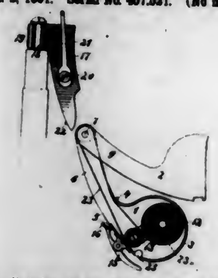
7. In a lighting device, the combination, with a casing, one of the walls of which is provided with a slot, of a revoluble pin or spindle mounted in said slot and adapted to slide along the same, means for rotating said spindle, located upon the exterior of the casing, a spindle or support upon which a coil of tape provided with pellets of fulminating material may be mounted, capable of movement in the same direction as is the revoluble spindle, also mounted within the casing, a cover for the tape chamber, formed by the casing, so pivoted thereto as to be capable of a sidewise sliding movement at substantially right angles to the axes of the two spindles, a support over which the tape is drawn secured to the casing, and a spring-scratcher secured to the cover in such manner that when the cover is closed the point of the scratcher will come in contact with the tape as the same is drawn over the support, substantially as shown and described.

8. In a lighting device, the combination, with a casing forming a tape-chamber, of means for holding and rewinding a coil of tape located within the tape-chamber, a support secured to the casing, over which the tape is drawn in the operation of rewinding, a pin, as 7, provided with an elongated head, as 8, secured to the casing, a cover provided with a substantially circular opening having an extension, as 10, of the same form as the elongation of the head of the pin 7, and a curved spring-scratcher secured to the cover in such manner that the point thereof will be in proximity to the support when the cover is closed, so as to explode the fulminating material upon the tape as the same is drawn over the support, the construction of the pin 7, head 8, and the cover being such that the cover may be entirely detached from the main portion of the casing when desired, substantially as shown and described.

9. In a lighting device, the combination, with a casing, one of the walls of which is provided with a slot, of a revoluble pin or spindle mounted in said slot and adapted to slide along the same, means for rotating said spindle, located upon the exterior of the casing, a spindle or support upon which a coil of tape provided with pellets of fulminating material may be mounted, capable of movement in the same direction as is the revoluble spindle, also mounted within the casing, a support secured to the casing, over which the tape is drawn in the operation of rewinding, a pin, as 7, provided with an elongated head,

as 8, secured to the casing, a cover provided with a substantially circular opening, having an extension, as 10, of the same form as the elongation of the head of the pin 7, and a curved spring-scratcher secured to the cover in such manner that the point thereof will be in proximity to the support when the cover is closed, so as to explode the fulminating material upon the tape as the same is drawn over the support, the construction of the pin 7, head 8, and the cover being such that the cover may be entirely detached from the male portion of the casing when desired, substantially as shown and described.

480,207. LIGHTING DEVICE. WILLIAM W. MCKENNEY, New York, N. Y., assignor to the Magic Introduction Company, of New Jersey. Filed Oct. 2, 1891. Serial No. 407,531. (No model.)



Claim.—1. In a lighting device for gas or other burners, the combination, with a casing adapted for holding and rewinding within itself a coil of fulminating tape and having an elongated neck or extension provided at its outer extremity with a roller or support over which the tape is drawn, of a sheath or casing into which the elongated neck or extension is inserted and held, means attached to the sheath for exploding the fulminating material upon the tape as the same is drawn over the roller or support, and means for attaching the sheath to the burner, substantially as shown and described.

2. In a lighting device for gas or other burners, the combination, with a casing adapted for holding and rewinding within itself a coil of fulminating tape and having an elongated neck or extension, of a roller or support over which the tape is drawn, located at the outer extremity of the elongated neck or extension of the casing, a sheath or casing into which such neck or extension is inserted, a scratcher secured to the sheath in such manner as to be in contact with the tape upon the roller or support when the neck is in position in the sheath, and means secured to the sheath for attaching the same to the burner, substantially as shown and described.

3. In a lighting device for gas or other burners, the combination, with a casing adapted for holding and rewinding within itself a coil of fulminating tape and having an elongated neck or extension, of a roller or support over which the tape is drawn, located at the outer extremity of the elongated neck or extension, a sheath or casing into which such neck or extension is inserted, a scratcher secured to the sheath in such manner as to be in contact with the tape upon the roller or support when the neck is in position in the sheath, means secured to the sheath for attaching the same to the burner, and a spring-lever, as 15, which operates to hold the sheath and casing together when in position, substantially as shown and described.

4. In a lighting device for gas and other burners, the combination, with a casing provided with an elongated neck or extension, of a roller or support located at the outer extremity of such neck or extension, mechanism located within the casing for holding, drawing over the roller or support, and rewinding within the casing a coil of fulminating tape in such manner that the rewound coil shall occupy substantially the same space that such tape occupied when first inserted in the casing, a sheath or casing adapted to receive and hold the neck or extension, and means attached to the sheath for exploding the fulminating material upon the tape as the same is drawn over the roller or support, substantially as shown and described.

5. In a lighting device for gas and other burners, the combination, with a casing provided with an elongated neck or extension, of a roller or support located at the outer extremity of such neck or extension, mechanism located within the casing for holding, drawing over the roller or support, and rewinding within the casing a coil of fulminating tape in such manner that the rewound coil shall occupy substantially the same space that such tape occupied when first inserted in the casing, a sheath or casing adapted to receive and hold the neck or extension, means for securing the sheath to the burner attached thereto, and a scratcher secured to the sheath in such manner as to be in contact with the tape upon the roller or support when the neck is in position in the sheath, substantially as shown and described.

6. In a lighting device for gas and other burners, the combination, with a casing provided with an elongated neck or extension, of a roller or support located at the outer extremity of such neck or extension, a spindle adapted to receive a coil of fulminating tape located within the casing, a revoluble spindle adapted to draw over the roller or support and rewind upon itself the coil of tape upon the other spindle, the supporting-spindle being adapted to slide away from and the rewinding-spindle toward the center of the casing as the tape is rewound upon the rewinding-spindle, means for rotating the rewinding-spindle, a sheath or casing adapted to receive and hold the neck or extension, and means attached to the sheath for exploding the fulminating material upon the tape as the same is drawn over the roller or support, substantially as shown and described.

7. In a lighting device for gas or other burners, the combination, with a casing provided with an elongated neck or extension, of a roller or support located at the outer extremity of such neck or extension, a spindle adapted to receive a coil of fulminating tape located within the casing, a revoluble spindle adapted to draw over the roller or support and rewind upon itself the coil of tape upon the other spindle, the supporting-spindle being adapted to slide away from and the rewinding-spindle toward the center of the casing as the tape is rewound upon the rewinding-spindle, means for rotating the rewinding-spindle, a sheath or casing adapted to receive and hold the neck or extension, and a scratcher secured to the sheath in such manner as to be in contact with the fulminating tape upon the roller or support when the neck is in position in the sheath, substantially as shown and described.

8. In a lighting device for gas or other burners, the combination, with a casing having an elongated neck or extension provided at its outer extremity with a roller or support, one side of said casing being pivoted near the outer extremity of the neck and being free to be swung aside so as to uncover the interior of the casing, of mechanism located within the casing for holding, drawing over the anvil or support, and rewinding within the casing a coil of fulminating tape in such manner that the rewound coil shall occupy substantially the same space that such tape occupied when first inserted in the casing, a sheath or casing adapted to receive and hold the neck or extension, and a scratcher secured to the sheath in such manner as to be in contact with the fulminating tape upon the roller or support when the neck is in position in the sheath, substantially as shown and described.

9. In a lighting device for gas or other burners, the combination, with a casing having an elongated neck or extension provided at its outer extremity with a roller or support, one side of said casing being pivoted near the outer extremity of the neck and being free to be swung aside so as to uncover the interior of the casing, of a spindle adapted to receive a coil of fulminating tape located within the casing, a revoluble spindle adapted to draw over the roller or support and rewind upon itself the coil of tape upon the other spindle, the supporting-spindle being adapted to slide away from and the rewinding-spindle toward the center of the casing as the tape is rewound upon the rewinding-spindle, means for rotating the rewinding-spindle, a sheath or casing adapted to receive and hold the neck or extension, and means attached to the sheath for exploding the fulminating material upon the tape as the same is drawn over the roller or support, substantially as shown and described.

480,208. CASH-REGISTER. WILLIAM K. NICHOLS, San Francisco, Cal. Filed Jan. 4, 1892. Serial No. 417,045. (No model.)

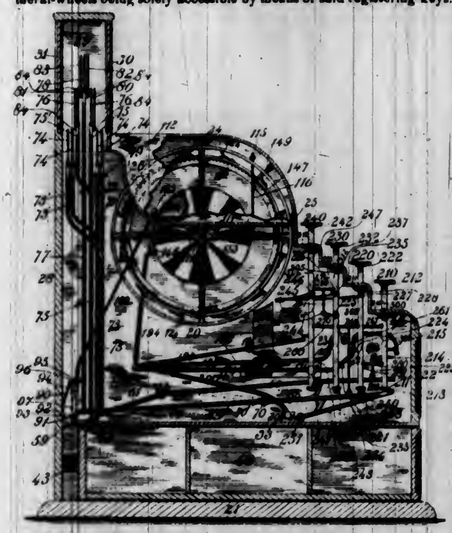
Claim.—1. A cash-register having a permanently-closed case, a series of registering-wheels inclosed within said case and adapted to be actuated independently of each other, a series of registering-keys extending through said case, and adjunctive mechanism connecting said keys with said registering-wheels for operating said wheels to register given sums, said registering-wheels being solely accessible by means of said registering-keys.

2. A cash-register having a permanently-closed case, a series of registering-wheels inclosed within said case and adapted to be actuated independently of each other, a series of registering-keys extending through said case, adjunctive mechanism connecting said keys with said registering-wheels for actuating the latter to register given sums, and connecting mechanism between said wheels for transferring the sum of one wheel to the next, said registering-wheels being solely accessible by means of said registering-keys.

3. A cash-register having a permanently-closed case, a series of numeral-wheels inclosed within said case and adapted to be actuated independently of each other, indicating mechanism also inclosed within said case, a series of registering-keys extending through said case, and adjunctive mechanism connecting said numeral-wheels and said indicating mechanism with said keys, said indicating mechanism and numeral-wheels being solely accessible by means of said registering-keys.

4. A cash-register having a permanently-closed case, a spring-actuated drawer at the bottom of said case, a series of numeral-wheels inclosed within said case and adapted to be actuated independently of each other, a series of registering-keys extending through said case, a drawer locking and releasing mechanism also inclosed within said case and actuated by said keys, and adjunctive mechanism connecting said keys with said numeral-wheels, said numeral-wheels being solely accessible by means of said registering-keys.

5. A cash-register having a permanently-closed case, a spring-actuated drawer at the bottom of said case, a series of numeral-wheels inclosed within said case and adapted to be actuated independently of each other, indicating mechanism also inclosed within said case, a drawer locking and releasing mechanism also inclosed within said case, and a series of registering-keys extending through said case, and an adjunctive mechanism connecting said keys with the said numeral-wheels and indicating mechanism, said indicating mechanism and numeral-wheels being solely accessible by means of said registering-keys.



6. In a cash-register, the combination of a case, registering and adjunctive mechanisms therein, several rows of vertically-sliding keys for actuating the several mechanisms, a sliding spring-actuated drawer, a horizontal yoke-shaped lever pivoted within said case and provided with a latching-dog for engaging said drawer, said lever having bars fixed thereto and disposed in position to be engaged by any key of either row for releasing said drawer, and means for restoring said lever to its normal position.

7. In a cash register and indicator, the combination of a number of indicator-levers, keys actuating said levers, vertical rods actuated by said levers and provided with branches, and numeral-display plates attached to the different branches, the display-plates attached to the branches projecting in one direction exhibiting their numerals on one side and the duplicate display-plates attached to the branches projecting in the other direction exhibiting their numerals on the opposite side.

8. In a cash register and indicator, the combination of a number of indicator-levers, keys actuating said levers, vertical rods of different lengths actuated by said levers, numeral-display plates attached to said rods in different planes, and fixed screens for hiding the plates of the lower planes when in their normal positions.

9. In a cash register and indicator, the combination of indicator-levers, keys actuating said levers, vertical rods actuated by said levers, numeral-display plates attached to said rods in different planes, and screens for hiding some of said plates when in their normal positions, said screens serving as guides for said rods.

10. In a cash register and indicator, the combination of a series of sliding keys, a series of levers the front ends of which are engaged by said keys, rods directly engaged by said levers and lifted thereby, numeral-display plates disclosed by the movement of said rods, a rocking frame latching under said levers for holding said rods in elevated position, an independent releasing-lever for retracting said rocking frame, adjunctive mechanism between said rocking frame and releasing-lever, and an actuator for said releasing-lever common to the several keys.

11. In a cash register and indicator, the combination of indicator-levers, rods actuated by said levers, numeral display plates disclosed by the movement of said rods, a rocking frame for holding the rods in elevated position, a stop on said rocking frame, a weighted pivoted dog on said rocking frame adjacent to said stop, and an indicator-releasing lever adapted to engage said dog for swinging back said rocking frame to release the elevated display-plates.

12. In a cash register and indicator, the combination of indicator-levers, keys for actuating said levers, a pivoted rocking frame having a cam-faced bar for latching under said levers when raised, rods connected with said levers and carrying numeral-display plates, a stop on said rocking frame, a weighted pivoted dog on said rocking frame adjacent to said stop, a drawer-releasing lever actuated by said keys, and an indicator-releasing lever adapted to engage said dog for swinging back said rocking frame to release the elevated display-plates, the front end of said indicator-releasing lever extending under and being actuated by said drawer-releasing lever.

13. In a cash-register, the combination of an arbor, a series of numeral-wheels disposed on said arbor, one of said numeral-wheels having sets of numerals, the numbers in each set ranging from "0" to "95" in multiples of five, and another of said numeral-wheels having sets of numerals, the numbers in each set ranging from "0" to "9," transferring mechanism for transferring the totals of one wheel to the next, a series of cents-keys having numerals from "0" to "95" in multiples of five, actuating mechanism between said cents-keys and the first numeral-wheel, a series of dollar-keys, actuating mechanism between said dollar-keys and the second numeral-wheel, a final numeral-wheel on said arbor disconnected from the keys and having a single continuous series of numerals, and transferring mechanism for carrying the totals of the preceding wheels to said final numeral-wheel.

14. The combination of a series of sliding keys of different values, a yoke-shaped lever having a bar disposed adjacent to said keys, lateral studs disposed on the stems of said keys at different distances from said bar, a spring for retracting said yoke-shaped lever, a registering-wheel, and connecting mechanism between said yoke-shaped lever and registering-wheel.

15. The combination of a series of vertically-sliding keys of different denominations and of different values in each denomination, a series of numeral-wheels of different denominations corresponding with the denominations of the keys, yoke shaped levers for the several numeral-wheels, having their bars disposed adjacent to the said keys, springs for retracting said levers, lateral studs disposed on the stems of said keys at different distances from said bars, and connecting mechanism between said levers and said numeral-wheels.

16. The combination of a series of sliding keys of different denominations and of different values in each denomination, the stems of said keys being provided with lateral studs disposed in different planes, a series of numeral-wheels of different denominations corresponding with the denominations of the keys, yoke-shaped levers for the several numeral-wheels, having bars disposed in the paths of the studs of their respective keys, and connecting mechanism between the numeral-wheels for transferring the sum from the wheel of one denomination to the wheel of the next denomination.

17. The combination of a series of numeral-wheels representing different denominations of figures, a yoke-shaped lever for each numeral-wheel of higher denomination, two yoke-shaped levers for the numeral-wheel of lowest denomination, connecting mechanism between said levers and said wheels for actuating the latter, connecting mechanism between the numeral-wheels for transferring the sum of a wheel of one denomination to a wheel of the next higher denomination, and a series of sliding keys provided with lateral studs disposed in different planes on the key-stems for engaging said levers to actuate said wheels.

18. In a cash register and indicator, the combination of a series of sliding keys, the stems of which are provided with separate series of lateral studs, the studs of one series being disposed in different planes, a drawer-releasing lever engaged by one series of said studs, indicator-levers for actuating the indicating display-plates disposed in position to be engaged by said key-stems, a registering mechanism comprising a series of numeral-wheels, and levers for actuating said numeral-wheels disposed in position to be engaged by the lateral studs of different planes on the key-stems.

19. In a cash-register, the combination of a case, a registering mechanism therein, two or more rows of vertically-sliding keys for actuating said mechanism, a spring-actuated sliding drawer, a horizontal yoke-shaped lever pivoted within said case and provided with a latching pivoted dog engaging said drawer, said lever having bars corresponding to the rows of keys and disposed adjacent to said rows respectively, whereby said lever is directly actuated by any key of either row for releasing said drawer, and means for restoring said lever to its normal position.

20. In a registering mechanism, the combination of a series of numeral-wheels provided with lateral projections, two ratchet-disks fixed on the sleeve of each numeral-wheel after the first, one of said disks shutting within the projections of the adjacent wheel, spring-dogs disposed on said projection, means for depressing said dog to actuate the succeeding numeral-wheel, arms swiveled on the sleeves of said numeral-wheels and carrying pawls engaging the other disks, and means for actuating said pawl-carrying arms.

21. In a cash-register, the combination of rows of sliding keys, the stems of which are provided with locking notches or projections,

and locking-plates disposed between said rows, said plates being shifted by contact of a key-stem belonging to either row into engagement with the notches or projections of the key-stems of the other rows, thereby locking the keys of said other rows.

22. In a cash-register, the combination of two rows of sliding keys, the stems of which are provided with locking notches or projections, and a locking-plate disposed between said rows, said plate being shifted by contact of a key-stem belonging to either row, so as to lock the keys of the other row.

23. In a cash-register, the combination of two rows of sliding keys, the stems of which are provided with locking and releasing recesses or projections disposed in different planes, and a locking-plate disposed between said rows, said plate being shifted into position to engage the locking notches or projections on the stems of either row on the partial downstroke of any key of the other row and released on the full downstroke of said key.

24. In a cash-register, the combination of four rows of sliding keys, the stems of which are provided with locking notches or projections, a locking-plate disposed between the first and fourth rows of said keys and provided with slots through which the keys of the second and third rows play, said plate being swung into engagement with the stems of the third and fourth rows of keys on the depression of a key of the first or second row and into engagement with the stems of the keys of the first and second rows on the depression of a key of the third or fourth row, a locking-plate disposed between the first and second rows of keys and adapted to engage the stems of either row on the depression of a key of the other row, and a locking-plate disposed between the third and fourth rows of keys and adapted to engage the stems of either row on the depression of a key of the other row.

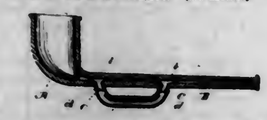
25. In a cash register, the combination of four rows of sliding keys, the stems of which are provided with locking and releasing notches or projections, a locking-plate disposed between the first and fourth rows of said keys and provided with slots through which the keys of the second and third rows play, a locking-plate disposed between the first and second rows of keys, and a locking-plate disposed between the third and fourth rows of keys.

26. In a cash-register, the combination of two rows of sliding keys, the stems of which are provided with cams and with locking notches or projections, pockets extending along said rows of keys and provided with transverse slots through which said stems play, a series of locking-slides in each of said pockets, provided with end notches of less depth than the cam-faced stems, and a locking-plate disposed between said rows, whereby on the depression of a key of either row said plate is shifted into engagement with the notches or projections of the key-stems of the other row and said slides are moved into position to lock the key-stems of the same row.

27. In a cash-register, the combination of two rows of sliding keys, the stems of which are provided with locking notches or projections, a locking-plate disposed between said rows, said plate being shifted on the depression of a key of either row into position to lock the keys of the other row, and mechanism for locking the other keys of the row to which the depressed key belongs.

28. In a cash-register, the combination of a numeral-wheel, an actuating-disk therefor, an arm carrying a pawl for engaging said disk, a spring actuated depressing-lever, a rod connected at its upper end to said pawl-carrying arm and at its lower end with said depressing-lever, two lifting-levers for lifting said depressing-lever and the mechanism connected therewith, and two sets of keys for actuating said lifting-levers.

480,209. TOBACCO-PIPE. ADOLPH OSTERLOH, Richmond, Va. Filed Nov. 17, 1891. Serial No. 412,150. (No model.)

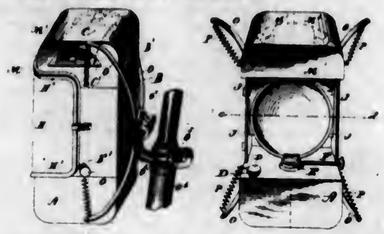


Claim.—1. A tobacco-pipe having its stem provided with a central or direct smoke passage and with lateral openings communicating therewith and having pendent tubular flanges around said lateral openings, and a tubular connection with said lateral flanges external of said central passage, substantially as specified.

2. A tobacco-pipe having its stem provided with a central or direct smoke-passage and with lateral openings communicating with said central passage and having pendent tubular flanges around said lateral openings, and a flexible pipe connection with said lateral flanges external of said central passage, substantially as specified.

3. A tobacco-pipe having its stem provided with a central or direct smoke-passage and with openings communicating therewith and having a chamber below said central or direct passage connecting said openings, substantially as described.

480,210. CYCLE-LAMP. ALBERT H. OVERMAN, Springfield, Mass., assignor to the Overman Wheel Company, Hartford, Conn. Filed Sept. 1, 1890. Serial No. 363,616. (No model.)



Claim.—1. A cycle-lamp having parallel sides and containing an exposed fount, a combustion-chamber, and a hood, all forming divisions of the same body portion, a reflector located in the said chamber, means for supplying a draft of air thereto, a horizontal diaphragm separating the combustion-chamber from the hood, and a bowed glass constructed to extend across the front and partially around the sides of the combustion-chamber, which is thereto appropriately formed, substantially as set forth.

2. A cycle-lamp having continuous exterior lines and containing an exposed fount, a combustion-chamber, and a hood, all forming divisions of the same body portion, an upright partition located in the rear portion of the combustion-chamber, a reflector set into the said partition and forming therewith a draft-flue supplying air to the combustion-chamber, a diaphragm separating the combustion-chamber from the hood and constructed with an opening into the latter, and a bowed glass extending across the front and partially around the sides of the combustion-chamber, which is thereto appropriately constructed, substantially as set forth.

3. A cycle-lamp having parallel sides and containing an exposed fount, a combustion-chamber, and a hood, all forming divisions of the same body portion, a reflector located in the said chamber, means supplying a draft of air thereto, a horizontal diaphragm separating the combustion-chamber from the hood, a bowed glass constructed to extend across the front and partially around the sides of the combustion-chamber, which is thereto appropriately formed, and an upright flange located upon the edges of the upper face of the fount and within the exterior lines of the body portion of the lamp, substantially as set forth.

4. A cycle-lamp having continuous exterior lines of substantially uniform cross-section and containing an exposed fount, a combustion-chamber, and a hood, all forming divisions of the same body portion, an upright partition located in the rear portion of the combustion-chamber, a reflector set into this partition and co-operating therewith to form a draft-flue supplying air to the combustion-chamber, a diaphragm separating the combustion-chamber from the hood and constructed with an opening into the latter, which is ventilated, and a bowed glass extending across the front and partially around the sides of the combustion-chamber, which is thereto appropriately formed, and conforming to the upright lines of the lamp, substantially as described.

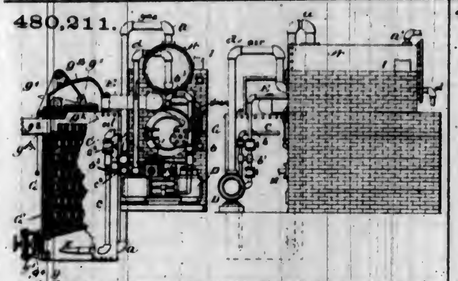
5. The combination, with a cycle-lamp, of a suspension device comprising four springs attached to the lamp on opposite sides thereof and diverging therefrom in radial lines, and means located on opposite sides of the lamp for supporting the outer ends of the said springs and sufficiently separated from the lamp for the radial interposition of the springs between them and it, substantially as set forth, and whereby the lamp is permitted to move in any direction under the control of the springs, which are opposed to each other in tension.

6. The combination, with a cycle-lamp, of a suspension device comprising two longitudinally-bowed carriers, four radially-arranged and tensionally-opposed springs respectively secured to the ends of the said carriers and to the lamp, and means for attaching the said carriers to a vehicle-frame, substantially as described.

480,211. APPARATUS FOR THE MANUFACTURE OF GAS. LEWIS C. PARKER, Indianapolis, Ind. Filed Apr. 4, 1892. Serial No. 427,708. (No model.)

Claim.—1. In a gas apparatus, the combination of the converter having over its upper open end a hood and also a hinged valve or cover, the vaporizer and carburetor having air and oil inlet pipes and gas and residuum outlet pipes, the pipe leading from the vaporizer and carburetor and connecting with the converter near its lower end, the chamber below and partially encompassing said vaporizer and carburetor, and the pipe connecting with said hood and forming an outlet of said converter for the gaseous products of combustion thereof and delivering said products of combustion into said chamber, substantially as set forth.

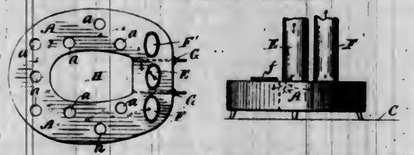
480,211.



2. In a gas apparatus, the combination of the converter having over its upper open end a hood and also a hinged valve or cover having connected thereto a line passing out through said hood within convenient reach for manipulation, the vaporizer and carburetor having air and oil inlet pipes and gas and residuum outlet pipes, the pipe leading from the vaporizer and carburetor and connecting with the converter near its lower end, the chamber below and partially encompassing said vaporizer and carburetor, and the pipe connecting with said hood and forming an outlet of said converter for the gaseous products of combustion thereof and delivering said products of combustion into said chamber, substantially as specified.

3. The gas apparatus or plant comprising the converter having a hinged cover or valve and a hood with gas-outlets at its upper end, and means for operating said cover or valve, the oil vaporizer and carburetor having a series of internal plates, spaced off from the ends thereof at their alternately-opposite ends and having oil and air inlet, gas-outlet, and residuum-discharge pipes, a pipe connecting the hood above the cover of the converter with a chamber below said vaporizer and carburetor, the air-inlet pipe of said vaporizer and carburetor connecting with an air-pump or air source of supply, an oil or petroleum supply pipe connecting with the oil-inlet pipe of the vaporizer and carburetor and connecting with a burner-pipe leading to the combustion-chamber of the converter, and air and steam branch pipes connecting with said burner pipe and with the air-inlet pipe of the vaporizer and carburetor and a steam-pipe of a boiler, respectively, the gas-outlet pipe of the vaporizer and carburetor connecting also with the combustion-chamber of the converter, substantially as specified.

480,212. AUXILIARY BASE FOR STOVES. JOHN D. RASEY, Oshkosh, Wis., assignor of one-half to F. M. Hasbrouck, same place. Filed Feb. 17, 1892. Serial No. 421,869. (No model.)



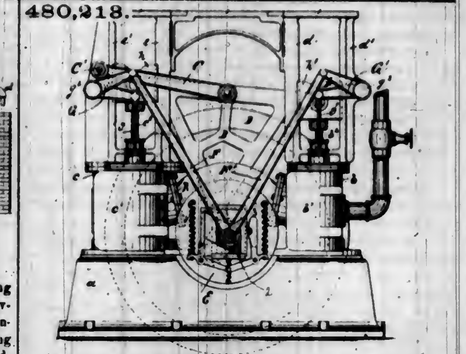
Claim.—1. An auxiliary heating base or drum located directly beneath the stove, connected with the stovepipe, and provided with an inlet-passage, two or more outlet-passages F and F', caps *f*, and damper G, whereby the products of combustion are caused to pass entirely around the drum and thoroughly heat the same, substantially as described.

2. A portable heating-drum located beneath and outside the stove near the floor and connected directly with the stove by an inlet-pipe E, through which the products of combustion pass from the stove directly into the drum, the said inlet-pipe being independent of the stovepipe, and the drum also connected to the stovepipe by an outlet-pipe F, through which the products of combustion pass from the drum directly to the stovepipe, said outlet-pipe F being independent of the inlet-pipe, and a damper G, located in the drum for directing the products of combustion entirely around the drum, substantially as described.

480,213. STEAM-ENGINE. THEODORE SCHEFFLER, Paterson, N. J. Filed Oct. 7, 1891. Serial No. 407,994. (No model.)

Claim.—1. A steam-engine comprising a shaft, two cylinders and their respective valve-chambers, a double guide-frame secured to the top of each cylinder and provided with inner concave surfaces, an elongated slot arranged in the inner portion of each guide frame, cross-heads carrying the piston-rods and adapted to slide within said guide-frames, pockets A^2, arranged in said cross-heads, a slide A^3, adapted to oscillate within said pocket, a triangular beam provided at each outer end with a flattened portion adapted to operate in said slide, a slot

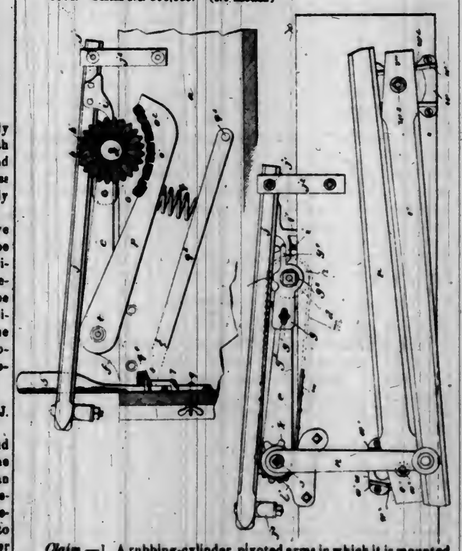
480,213.



arranged in said flattened portion, a pin secured to the cross-head and passing through said slide and slot and adapted to form the fulcrum for the oscillating slide, said triangular beam being adapted by means of its connection to the cross-heads to transmit their motion to the shaft, and a governor adapted to control through eccentrics the valve-chambers and their respective cylinders, all said parts being combined to operate substantially as described, and for the purposes set forth.

2. A steam-engine comprising a shaft, two cylinders and their respective valve-chambers, a double guide-frame secured to the top of each cylinder and provided with inner concave surfaces, an elongated slot arranged in the inner portion of each guide-frame, cross-heads carrying the piston-rods and adapted to slide within said guide-frames, pockets arranged in said cross-heads, a slide adapted to oscillate within said pocket, a triangular beam provided at each outer end with a flattened portion adapted to operate in said slide, a slot arranged in said flattened portion, a pin secured to the cross-head and passing through said slide and slot and adapted to form the fulcrum for said oscillating slide, said triangular beam being adapted by means of its connection to the cross-heads to transmit their motion to the shaft, and a lever pivoted at one end to one of the said guide-frames and at its other end to the center of the upper portion of said triangular beam, all said parts being combined to operate substantially as described, and for the purposes set forth.

480,214. WASHING-MACHINE. JACOB W. SPANGLER, York, Pa., assignor of one-half to Moses E. Hartsler, same place. Filed June 12, 1891. Serial No. 396,005. (No model.)



Claim.—1. A rubbing-cylinder, pivoted arms in which it is mounted to rotate, and a lever-frame for supporting said cylinder and its arms

and for imparting downward pressure thereupon, combined with a rubbing-surface, substantially as described.

2. A rubbing-cylinder, pivoted arms in which it is mounted to rotate, and a lever-frame for supporting said cylinder and its arms and for imparting a downward pressure thereupon, combined with a rubbing-surface supported upon pivoted arms and made yielding with the cylinder, substantially as described.

3. A rubbing-cylinder, pivoted arms in which it has bearings, and a lever-frame supporting the said arms and consequently the cylinder and adapted to impart a downward pressure thereupon, combined with the rubbing-surface, pivoted arms supporting the same, and springs tending normally to force the said arms upwardly, substantially as described.

4. In a washing-machine, a rotary cylinder, pivoted arms in which it is mounted to rotate, and a lever-frame for supporting the cylinder and arms and for regulating the pressure thereupon, combined with an exposed rubbing surface or bed arranged wholly below said cylinder, whereby the clothing being washed is taken from the tub and passed between the cylinder and rubbing-surface back into the tub at the other end and then returned, being exposed to view and subjected to the variable pressure of the cylinder in such passage, substantially as described.

5. In a washing-machine, a rotary corrugated or fluted cylinder adapted to be revolved in either direction, pivoted arms in which it is mounted to rotate, and a lever-frame for supporting the cylinder and arms and for regulating the pressure thereupon, combined with an exposed rubbing surface or bed arranged wholly below said cylinder and yielding supports therefor, whereby the clothing may be run back and forth between the tub and cylinder and bed and rubbed and wet, being exposed to view and subjected to the variable pressure of the cylinder in its passage, substantially as described.

6. The cylinder and its end gudgeons, castings having boxes to receive the said gudgeons, end projections from said castings, a lever-frame having brackets to receive the said projections, and supports for said castings, substantially as and for the purpose described.

7. A body *a*, provided with sockets *w*, having flanges *w'* cut away at w^2, and legs adapted to fit said sockets longitudinally to support the body and to be turned up transversely of the said sockets and secured thereto, so as to fold the legs substantially within the compass of the body for the purposes of transportation and storage, and bolts to unite the legs and sockets in either position, substantially as described.

8. A rubbing-cylinder, pivoted arms in which it is mounted to rotate, a lever-frame for supporting it and its arms, a rubbing-surface, and pivoted arms in which it is supported, combined with a pressure-regulator comprising springs interposed between the pivoted arms of the rubbing-surface and supports therefor and an adjusting mechanism for raising and lowering the spring-supports to increase and diminish the tension of the springs, substantially as described.

9. A rubbing-cylinder, pivoted arms in which it is mounted to rotate, a lever-frame for supporting it and its arms, a rubbing-surface, and pivoted arms in which it is supported, combined with a pressure-regulator comprising springs, pivoted supports for such springs, the said springs being interposed between the pivoted arms of the rubbing-surface and the pivoted supports, a cross-bar connecting the free ends of the pivoted supports, and a rock-lever engaged by the cross-bar by which the cross-bar may be raised and lowered, substantially as described.

10. A rubbing-cylinder, pivoted arms in which it is mounted to rotate, a lever-frame for supporting it and its arms, a rubbing-surface, and pivoted arms in which it is supported, combined with a pressure-regulator comprising springs, pivoted supports for such springs, the said springs being interposed between the pivoted arms of the rubbing-surface and the pivoted supports, a cross-bar connecting the free ends of the pivoted supports, a rock-lever engaged by the cross-bar, by which the cross-bar may be raised and lowered, and an adjustable fulcrum-piece for said rock-lever, substantially as described.

480,215. MORTAR-CARRIAGE. HARRY A. SPILLER, Boston, Mass., assignor to the Pneumatic Gun Carriage and Power Company, Wheeling, W. Va. Filed Oct. 9, 1891. Serial No. 408,245. (No model.)

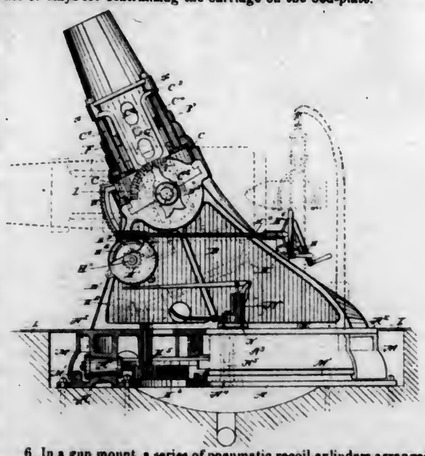
Claim.—1. In a gun-mount, an all-round traverse, a circular bed-plate thereon, a carriage on the bed-plate, and means operating independently of the traverse for centralizing the carriage on the said plate.

2. In a gun-mount, an all-round traverse, a circular bed-plate thereon, a carriage on the bed-plate, and rollers operating independently of the traverse for centralizing the carriage on the said plate.

3. In a gun-mount, an all-round traverse, a circular bed-plate thereon, a carriage on the bed-plate, and rollers carried by the bed-plate and operating independently of the traverse for centralizing the carriage thereon.

4. In a gun-mount having an all-round traverse, a circular bed plate or table, checks secured thereon and supporting in bearings the pneumatic recoil-cylinders, which are cast in pairs and arranged on each side of the gun, slide-blocks into which the gun is trunnioned, said slides adapted to work in ways formed between the recoil-cylinders and provided with cross-heads, tubular piston-rods, chambered piston-heads having communicating passages, and a differential cylindrical valve, substantially as and for the purpose described.

5. In a gun-mount, an all-round traverse, a circular bed-plate having pillars or stays, a carriage on the bed-plate, and rollers in the pillars or stays for centralizing the carriage on the bed-plate.



6. In a gun mount, a series of pneumatic recoil-cylinders arranged as described, slide-blocks working in ways between the recoil-cylinders, the elevating-band secured to the slide-blocks, mechanism for elevating and depressing the gun to be controlled by hand-wheels, and a system of tell-tales for indicating the elevation and traverse of the gun, substantially as set forth.

7. In a gun-mount, a series of pneumatic recoil-cylinders arranged as described and provided with trunnions which are supported in bearings in the cheeks of the carriage, slide-blocks working in ways between said recoil-cylinders and into which the gun is trunnioned, the elevating-racks H, pinions H', friction worm-gear H^3, worm H^2, shaft H^4, and hand-wheel H^5, substantially as described.

8. In a gun-mount, a series of pneumatic recoil-cylinders arranged as described and provided with trunnions which are supported in bearings in the cheeks of the carriage, slide-blocks working in ways between said recoil-cylinders and into which the gun is trunnioned, the elevating mechanism and traversing rack K^9, pinion K^8, and worm-gear K^4 on same shaft, worm K^3, and bevel-gears K^2, shaft K', designed to be controlled by hand-wheel K, and a system of tell-tales for indicating the angle of elevation and traverse of the gun, substantially as described.

9. In a gun-mount, an all-round traverse, a circular bed-plate thereon, and a carriage on the said plate having its cheeks provided with trunnion-bearings, in combination with a series of pneumatic cylinders arranged in pairs about the gun, said cylinders having trunnions engaging the trunnion bearings.

10. A carriage and a gun trunnioned thereon, in combination with pneumatic recoil-cylinders arranged in pairs on each side of the gun and trunnioned in the carriage-cheeks, mechanism connecting the cylinders with the gun, air-supply and equilibrium pipes communicating with the cylinders and with a suitable source of supply, and a check-valve for regulating the supply of air to the said pipes.

480,216. GAS CAR-HEATER. SAMUEL STEWART, Newark, N. J., assignor to the Stewart Manufacturing Company, of New Jersey. Filed Sept. 4, 1891. Serial No. 404,792. (No model.)

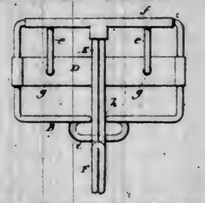


Claim.—1. The combination, with a street-car, of the gas-stove set in the floor of the same and comprising the body *b'*, open at the top, and the inclosed chamber *n*, having the burners *s*, the pipes *k*, extending the whole length of the car and provided with the smoke-flues *l* at the ends, and the hood *q*, connecting the top of the chamber *n* with the said pipes, substantially as and for the purpose set forth.

2. The combination, with a street-car, of the gas-stove set in the floor of the same and comprising the body *b'*, open at the top, and the inclosed chamber *n*, having the burners *s*, the pipes *k*, extending the whole length of the car and provided with the flues *l* at the ends, the hood *q*, connecting the top of the chamber *n* with the said pipes, and a partition *r* in the hood, extending across the pipes *k* to divide the heated air and gases from the stove and direct them equally into each of the pipes *k*, substantially as shown and described.

3. The combination, with a street-car, of a receiver G for compressed gas, the stove set in the floor of the car and provided with the chamber *n* and gas-burners *s*, as described, the heating-pipes *k*, connected with the chamber and extended to the ends of the car, a gas-pipe extended from the receiver to the platform and thence to the burners *s*, a cock in the gas-pipe, accessible from the platform of the car, and an independent pilot-burner adjacent to the said burners, the whole arranged and operated as and for the purpose set forth.

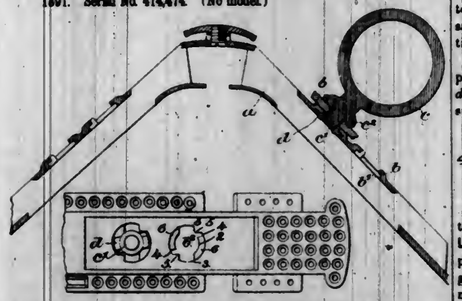
480,217. BUCKLE. JAMES STOVELL, Waterbury, Conn., assignor to the Waterbury Buckle Company, same place. Filed July 23, 1891. Serial No. 400,416. (No model.)



Claim.—1. In a buckle, the combination of a frame made from wire with a lever hung in said frame and adapted to swing backward and forward as a means for engaging the strap passing through the frame, the said lever extending across and beyond the side of the frame opposite its hinge, the said opposite side of the frame bent backward at its center and forming an open elastic loop, the plane of the bend to form the loop being at right angles to the plane of the frame, and the loop of greater width than the width of the lever, but the opening into the said loop somewhat narrower than the width of the lever, said loop being an integral part of the frame, substantially as and for the purpose described.

2. In a buckle, the combination of a frame made from wire, composed of two sides A B, connected by ends C C, a lever E, also made from wire doubled, the doubled end bent to form the hook F, the two branches above turned to the right and left, the ends of the branches returned substantially parallel with the lever and so as to form prongs *r e*, the lever hung to the side A of the frame as a hinge upon which the lever may swing, the other side B of the frame bent backward to form an opening *h*, and a loop *i* in rear of said opening *h*, the said opening *h* corresponding in position to the lever, but somewhat narrower than the width of the lever, substantially as described.

480,218. SADDLE-TREE. ORRIN TABER, Nashua, N. H., assignor to the Nashua Saddlery Hardware Company, same place. Filed Dec. 9, 1891. Serial No. 414,474. (No model.)

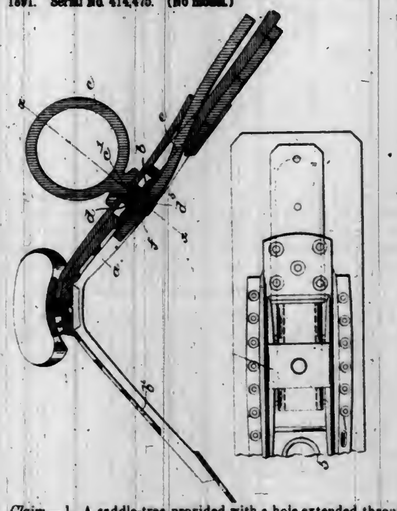


Claim.—1. A saddle-tree having a boss on its upper side, a hole through it for the screw-threaded shank of the terret, and a terret-nut provided with projections, the hole having oppositely-extended side openings and a connected central portion to permit the passage therethrough of the nut, and a recess in the under side of the boss to receive and hold the nut when inserted therein, substantially as described.

2. A saddle-tree having a boss thereon, a hole through it for the screw-threaded shank of a terret and shaped to provide openings 3 3 and 4 4, and the locking-nut *d* for the screw-threaded shank of the terret, having projections d^2 d^3 and shoulders d^4 d^5, said shoulders resting in the openings 4 4 when the nut is in place, substantially as described.

3. A saddle-tree having a hole through it for the screw-threaded shank of the terret and shaped to provide openings 3 3 and 4 4, and also having a nut-receiving recess in its under side, comprising the shoulders 6 6, and a locking-nut adapted to be turned on the shank of the terret in said recess and having projections d^2 d^3 and shoulders d^4 d^5, substantially as described.

480,219. SADDLE-TREE. ORRIN TABER, Nashua, N. H., assignor to the Nashua Saddlery Hardware Company, same place. Filed Dec. 9, 1891. Serial No. 414,475. (No model.)



Claim.—1. A saddle-tree provided with a hole extended through it and a terret having a screw-threaded shank, combined with a nut threaded at one end to receive the shank of the terret and having a downwardly-extended foot to enter a lug-strap to hold the latter in place, and a support for the foot beyond said strap, substantially as described.

2. A saddle-tree having a boss, as described, cut through to form an opening 2 and shaped to leave a nut-receiving recess at its under side and a fixed plate *f*, combined with a terret-receiving nut contained in said recess and having a foot to pass through the lug-strap and enter a hole in the said plate, substantially as described.

3. A saddle-tree having a hole made through it, having oppositely-extended portions 3 3, combined with a terret-nut having projections d^2 d^3 thereon and adapted to be passed through said hole and its extended portions from its outer side and having a foot extended below said projections to enter a hole in the lug-strap, to operate substantially as described.

4. A saddle-tree having a hole made through it, said hole having passages 3 3 4 4, combined with a terret-nut *d*, having projections d^2 d^3 and shoulders d^4 d^5, and a foot to enter and hold the lug-strap, substantially as described.

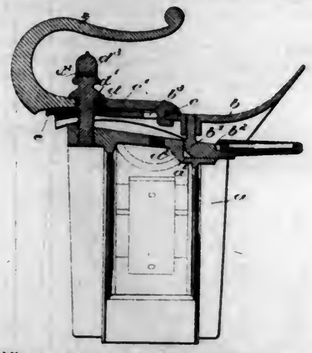
480,220. SADDLE-TREE. ORRIN TABER, Nashua, N. H., assignor to the Nashua Saddlery Hardware Company, same place. Filed Dec. 30, 1891. Serial No. 416,527. (No model.)

Claim.—1. A saddle-tree having a mortise *a'* with an opening at the rear thereof, combined with a seat having upon its under side an L-shaped hook to enter and rest in said mortise, the end of said hook projecting through the opening in said mortise to bear against and engage the under side of the adjacent part of the tree, and thereby connect it to the saddle at one point, substantially as described.

2. A saddle-tree having a mortise *a'* with an opening at the rear thereof, combined with a seat having upon its under side a detachable

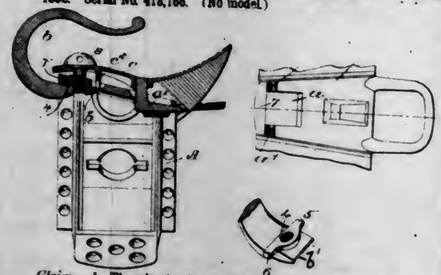
L-shaped hook to rest in said mortise, the shank of said hook being screw-threaded to enter a socket in the seat, the end of the hook projecting through the opening in the mortise, bearing against and engaging with the under side of the adjacent portion of the tree, and thereby connecting it to the saddle at one point, substantially as described.

3. A saddle-tree having a hook-retaining opening, and a seat having upon its under side a hook to enter and engage with said opening, said seat having an opening therein, combined with a checkrein-hook having a hook upon its under side to engage with the opening in the seat and connect said checkrein-hook thereto at one point, substantially as described.



4. A saddle-tree and a seat connected therewith and a hook-retaining opening in said seat, combined with a checkrein-hook having at one end a retaining-hook to enter said opening and engage the seat, and a bolt extending through the other end of said checkrein-hook and the seat to connect them to the tree, substantially as described.

480,221. SADDLE-TREE. ORRIN TABER, Nashua, N. H., assignor to the Nashua Saddlery Hardware Company, same place. Filed Jan. 15, 1892. Serial No. 418,166. (No model.)



Claim.—1. The checkrein-hook having a shoulder or other projecting portion provided with oppositely-extended lugs, combined with the tree having a hole or recess, one side wall of which presents an abutment against which the said shoulder or other projection bears and transverse recesses to receive the lugs, a seat having a depending leg which bears upon the rear end of the hook, and a screw which connects the seat and hook together, substantially as described.

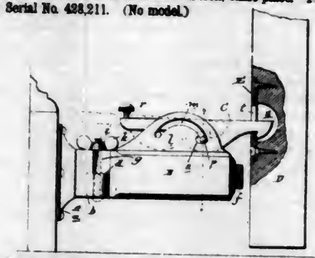
2. The checkrein-hook having a shoulder or other projecting portion provided with oppositely-extended lugs, combined with the tree having a hole or recess, one side wall of which presents an abutment against which the said shoulder or other projecting portion bears, said tree also having two shoulders 2 3, which receive between them the shank of the hook, and recessed bearings for the lugs on the hook, substantially as described.

3. The tree having a hole through it and transverse recesses *a' a'*, combined with a checkrein-hook adapted to pass through said hole and provided with oppositely-projecting lugs 5 6, which are supported in said recesses, and means to connect the hook to the seat, substantially as described.

4. The tree having a hole through it and transverse recesses *a' a'*, combined with the checkrein-hook adapted to pass through the said hole and provided with oppositely-projecting lugs 5 6, which are supported in said recesses, and a seat having on its under side a projection which bears upon the end of the hook, and a screw connecting the seat and hook together and thereby securing them to the tree, substantially as described.

5. The tree having a hole *a* through it and recesses *a' a'*, combined with a checkrein-hook having a rear end portion *b'*, which occupies a position in said hole *a*, and the oppositely-projecting lugs 5 6, which enter said recesses *a' a'*, and a shoulder 4, which bears against one side wall of said hole *a*, the seat *c*, and screw connecting the seat and tree, substantially as described.

480,222. DOOR-CHECK. CHARLES H. TURNER, John Day, Oreg., assignor of one-half to Clarence Johnson, same place. Filed Apr. 7, 1892. Serial No. 428,211. (No model.)

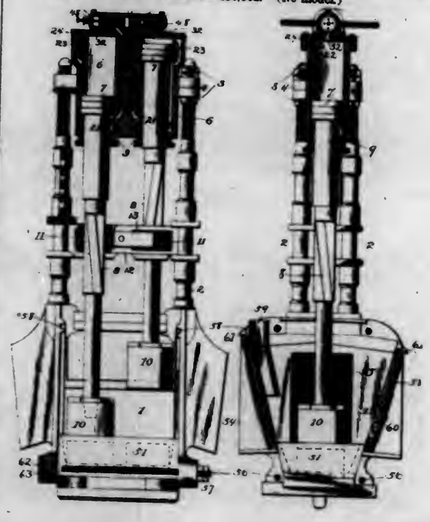


Claim.—1. In a door stop and retainer, substantially as described, the combination, with the stop provided on its upper side with flanges having corresponding longitudinal slots provided with an offset at their forward ends, of the slidable gravitating latch having a pivot stud or lug projecting from opposite sides and arranged to play in the slots and offsets of the flanges on the stop, substantially as and for the purpose specified.

2. In a door stop and retainer, substantially as described, the combination, with a bracket having an attaching flange, a semicircular wall, as *c*, and a lug arranged in advance of the wall *c* and below the horizontal plane of the same and provided with the vertical eye or aperture and the corrugated or ratchet-like face, of the stop having the rounded lug *g* at its inner end, provided with a corrugated or ratchet-like face, adapted to engage the corresponding face of the bracket-lug and having an aperture corresponding with the aperture of said bracket-lug, a pivot-bolt taking through the aperture of the bracket-lug and the stop-lug, and a wing-nut mounted on said pivot-bolt, substantially as specified.

3. The improved door stop and retainer described, comprising a bracket to be secured to the base or sill board of a room, a stop and a pivot-bolt, and set-nut for adjustably connecting the stop to the bracket, said stop being also provided on its upper side with flanges having corresponding longitudinal slots provided with an offset at their forward ends, and the slidable gravitating latch having a pivot stud or lug projecting from opposite sides and arranged to play in the slots and offsets thereof, substantially as specified.

480,223. STEAM-STAMP. CHARLES W. TREMAIN, Portland, Oreg. Filed Jan. 23, 1892. Serial No. 419,062. (No model.)



Claim.—1. The combination, with two cylinders and their pistons, of a single valve controlling the inlet and exhaust steam of both cylinders and the steam from one cylinder moving the valve to admit steam to the other cylinder, substantially as described.

2. The combination, with two cylinders and their pistons, of a single valve operated by the direct pressure of the steam controlling the inlet and exhaust steam of both cylinders and the steam from one cylinder moving the valve to admit steam to the other, substantially as described.

3. The combination, with two cylinders and their pistons, of a single piston-valve having the ends of its chest communicating with both cylinders and operated by the direct action of the steam on its ends and controlling the inlet and exhaust steam of both cylinders, substantially as described.

4. The combination, with two cylinders and their pistons, of a cap-plate covering both cylinders and carrying a valve-chest and a valve governing the inlet and exhaust of both cylinders and said cap having passages 32 to admit steam to the ends of the chest to operate the valve, substantially as described.

5. The combination, with a piston and valve, of a cylinder in which the piston works, having a passage 23, terminating at the top of the cylinder, and a passage 32 in the cap to permit steam from the cylinder to operate the valve, substantially as described.

6. The combination, with two cylinders having passages 21 and 22 and pistons working in said cylinders, of a reciprocating valve having ports 37, 38, 39, 40, 41, and 42, communicating with said passages 21 and 22, and a valve-chest in which said valve reciprocates, having suitable inlet and exhaust passages, substantially as described.

7. The combination, with two cylinders having passages 21, 22, and 23 and pistons working in said cylinders, of a valve having ports 37, 38, 39, 40, 41, and 42, communicating with said passages 21 and 22, and a valve-chest in which said valve works and communicating at its opposite ends with the passages 23 to admit steam to operate said valve, substantially as described.

8. The combination, with two cylinders having passages 21, 22, and 23 and pistons working in said cylinders, of a valve having the annular groove 43, holes 44, and the ports 37, 38, 39, 40, 41, and 42, communicating with said passages 21 and 22, a cap-plate covering said cylinder having openings 32, and a valve-chest on said cap-plate communicating with the passages 21 and 22, and suitable inlet and exhaust passages, substantially as described.

480,224. STEP-LADDER. HENRY V. VANDERBILT, Brooklyn, N. Y., assignor to himself and Sadie A. Bunnell, same place. Filed Aug. 24, 1891. Serial No. 403,630. (No model.)

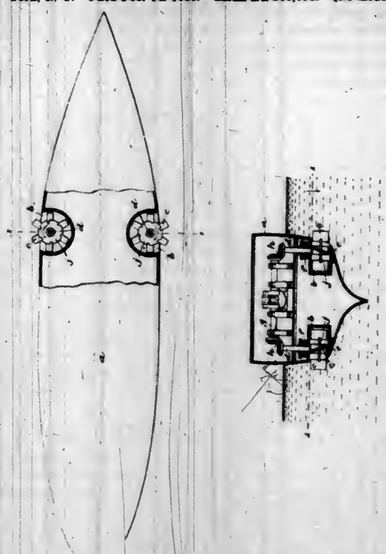


Claim.—1. A step-ladder having its legs provided with a cross-piece recessed to form shoulders, combined with a jointed connection hinged at one end in said recess to be embraced at its side edges by said shoulders and hinged at its opposite end to one of the steps of the ladder, substantially as described.

2. A step-ladder having its legs provided with a cross-piece and the body of the ladder provided with a step parallel with said cross-piece and recessed in its rear edge to form shoulders, in combination with a jointed connection hinged at one end to said cross-piece and hinged at the other to the step in said recess to be embraced at its side edges by said shoulders, substantially as described.

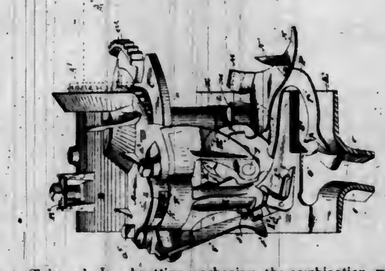
3. A step-ladder having its legs provided with a cross-piece centrally recessed to form shoulders and a step parallel with said cross-piece and centrally recessed at its rear edge to form shoulders, in combination with a jointed connection hinged at one end to the cross-piece in the recess therein and hinged at the other end to the step in the recess formed therein, substantially as described.

480,225. RECESSED PADDLE-WHEEL. JACOB S. BAKER, New York, N. Y. Filed Feb. 14, 1889. Serial No. 299,851. (No model.)



Claim.—The combination, with a boat, of horizontal paddle-wheels consisting of paddles connected to the vertical shaft by a central disk and located in recesses in the sides of the boat forward of the middle and having a spiral pitch of the paddles directed to have lifting effect on the boat, substantially as described.

480,226. GRAIN-BINDER. MILTON E. BENEDICT, Perry, N. Y., assignor of one-half to Richard T. Tuttle, same place. Filed Feb. 4, 1888. Serial No. 263,030. (No model.)



Claim.—1. In a knotting mechanism, the combination, with the cord-clamp and knotter-bill, of the gear-segment, the stripper and cam mounted on the same axis and moving with the gear-segment, and the tucker pivoted on an axis parallel with the stripper-axis and adapted to be operated by the cam, substantially as described.

2. In a knotting mechanism, the combination, with the cord-clamp and knotter bill, of the gear-segment arranged on an axis parallel with the bill-shaft and adapted to operate the latter, a stripper and cam mounted on the same axis and moving with the gear-segment, and the tucker pivoted on an axis parallel with that of the segment and operated by the cam on the segment, substantially as described.

3. In a knotting mechanism, the combination, with a cord-clamp and knotter-bill, of the gear-segment operating the bill, arranged on an axis parallel with the bill-shaft, a stripper and a cam mounted on the same axis and moving with the segment, and the tucker pivoted on an axis parallel with that of the segment, having the outwardly-extended neck and operated by the cam, substantially as described.

4. In a knotting mechanism, the combination, with the breast-

plate having the cord-opening, of the rotating knotter-bill, the gear-segment operating the bill-shaft, the cam and stripper-arm both mounted on the same axis and moving with the segment, and the pivoted swinging tucker operated by the cam and having the forked end and the extended neck curved in the line of movement of the stripper, substantially as described.

5. In a knotting mechanism, the combination, with the breast-plate having the cord-opening, of the rotating knotter-bill, the gear-segment operating the bill, the cam and stripper, both mounted on the same axis and moving with the segment, and the swinging tucker pivoted on the breast-plate having the opening with which the cam co-operates, the forked outer end, and the extended neck curved in the line of movement of the stripper, substantially as described.

6. In a knotting mechanism, the combination, with the breast-plate having the cord-opening, of the rotating bill, the gear-segment operating the knotter, the stripper-arm mounted on the same axis as and moving with the segment, the cam below said stripper on the same axis as and moving with the segment, and the swinging tucker pivoted to and resting upon the breast-plate and operated by said cam, substantially as described.

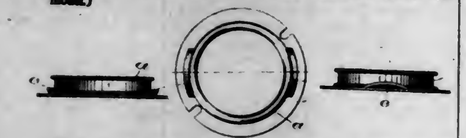
7. In a knotting mechanism, the combination, with the breast-plate, the knotting-bill, the cord-clamp, the cutter, and the stripper, of a vibrating tucker located below said stripper, having the extended neck curved in the line of movement of said stripper for permitting the passage of the cord when the loop is removed from the bill, as set forth.

8. In a knotting mechanism, the combination, with the breast-plate, of the knotting-bill, the cord-clamp, the cutter, and the stripper, a gear for operating the latter, and a tucker pivoted upon the breast-plate and operated by a cam moving with the stripper-operating gear, substantially as described.

9. The combination, with the knotter-hook and the stripper operating to remove the knot-loop therefrom to form the knot, of the breast-plate having the opening for the cord and the recess or depression in its upper surface at the side of the cord-opening and in line with the movement of the stripper for the accommodation of the cord ends, substantially as described.

10. In a knotting mechanism, the combination, with the cord-clamp and knotter-bill, of the gear-segment for operating the bill, the cam mounted on the same axis as and moving with the segment, and the tucker pivoted on an axis parallel with that of the segment and adapted to be operated by the cam, substantially as described.

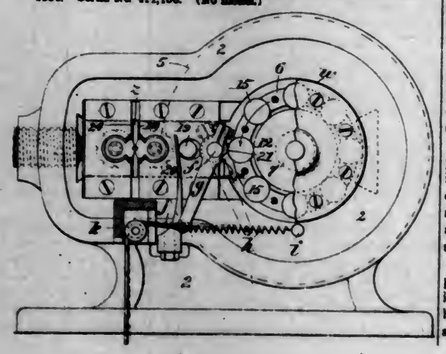
480,227. HOLDER FOR RINGS IN SPINNING AND TWISTING FRAMES. JOHN H. BENNETT, Worcester, assignor to George Draper & Sons, Hopedale, Mass. Filed Feb. 23, 1892. Serial No. 422,423. (No model.)



Claim.—1. A ring-holder composed of a plate and provided with bridge-like ring-holding loops, to operate substantially as described.

2. A ring-holding plate having bridge-like loops, combined with a double-raced ring, substantially as described.

480,228. SWAGING-MACHINE. JOHN BERRY, Springfield, Mass., assignor to the National Needle Company, same place. Filed Nov. 7, 1891. Serial No. 411,158. (No model.)

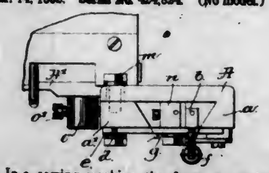


Claim.—1. In a swaging-machine, the combination, with a series of revoluble hammer-rolls, of a pair of swaging-dies, one of which is movable toward and from the other and has provided therefor an abutment piece or member that is suitably movable at pleasure for receiving the impact from the hammer-rolls and transmitting movement to the working die or for being placed out of the path of the hammer-rolls, thereby rendering the working die immovable, substantially as described.

2. In a swaging-machine, the combination, with a series of revoluble hammer-rolls, of a pair of swaging-dies, one of which is movable toward and from the other and has a stud with its one side face reduced mounted thereon for a rotational movement, and devices connected with said stud for securing a rotational movement thereof, for the purpose set forth.

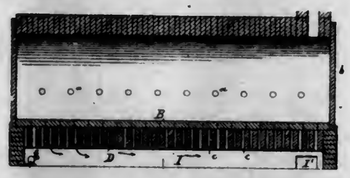
3. In a swaging-machine, the combination, with a series of revoluble hammer-rolls, of a pair of swaging-dies, one of which is movable toward and from the other and is provided with a flat-faced stud mounted thereon for a rotational movement, a lever rigidly fixed to said stud, the cord, sheave, and treadle-lever, and the spring *h*, applied for a retractile action on said stud-lever, all substantially as described, for the purposes set forth.

480,229. SEWING-MACHINE. AUSTIN W. BIGELOW, Everett, Mass., assignor to the Goodyear Shoe Machinery Company, Hartford, Conn. Filed Mar. 14, 1892. Serial No. 424,834. (No model.)



Claim.—In a sewing-machine, the frame or casting A, having a side piece *a*, forming one half of a guideway, and a detachable side piece *a'*, forming the other half of the guideway, a dovetailed needle-bar acted upon directly by the edge of the detachable side piece, and set-screws extended through the said side piece and into the casting A, combined with an adjusting-screw, as *o'*, adapted to act upon the edge of the detachable side piece and move the same toward the needle-bar when the set-screws are loosened, as and for the purpose described.

480,230. LEER OR ANNEALING-FURNACE FOR SHEET OR PLATE GLASS. JAMES W. BOSTA, Wayne, assignor to James H. Shakespeare, trustee, Philadelphia, Pa. Filed July 24, 1891. Serial No. 400,550 (No model.)



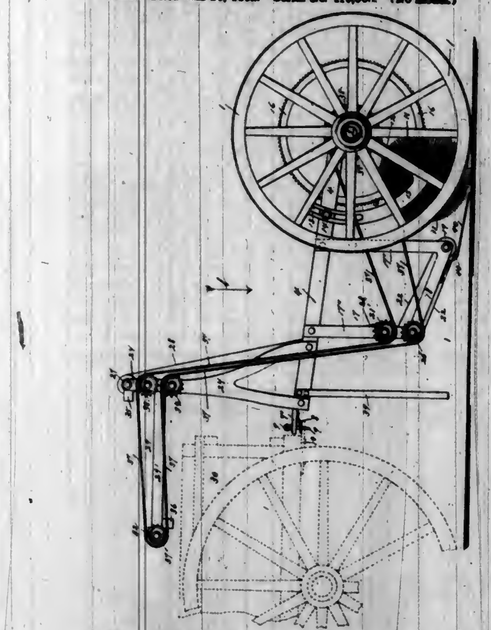
Claim.—1. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed or table on which the sheet or plate of glass is laid, and a supporting structure for said table, having air-spaces open only at the bottom, whereby the supporting structure is ventilated without unduly cooling the table, substantially as specified.

2. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed or table on which the sheet or plate of glass is laid, and a supporting structure for said table, having air-spaces open only at the bottom, and a foundation having air-circulating passages communicating with said air-spaces, substantially as specified.

3. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed or table on which the sheet or plate of glass is laid, and a supporting structure for said table, having air-spaces open only at the bottom, and a foundation having air-passages communicating with said air-spaces, and air-jet pipes and outlets whereby a circulation of air through said passages is effected, substantially as specified.

4. The combination, in a leer or furnace for annealing sheet or plate glass, of the flat bed or table on which the sheet or plate of glass is laid, and a supporting structure for said table, composed of bricks having ribs at the ends, whereby when said bricks are assembled air-spaces are formed in the supporting structure, substantially as specified.

480,231. SWEEPING-MACHINE. CHARLES BRUSO, Worcester, Mass. Filed Jan. 26, 1892. Serial No. 419,508. (No model.)



Claim.—1. In a street-sweeping machine, the combination, with a wheeled axle, of a frame and two arms loosely mounted thereon, said frame being provided with endless elevating-carriers and adapted to be detachably secured to the rear end of a cart, and said arms each being provided with an upwardly-curved and slotted extension whereby it can be adjustably secured to the frame, and a revolving brush or sweeper journaled in the lower ends of said arms, substantially as set set forth.

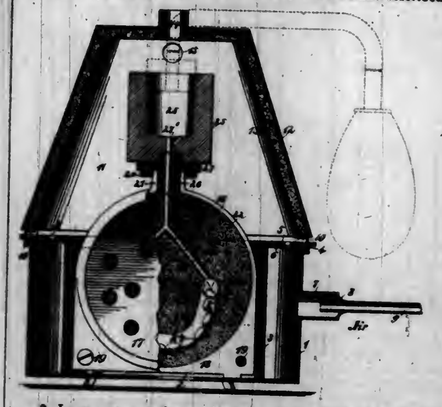
2. In a street-sweeping machine, the combination, with a wheeled axle, of a frame loosely mounted thereon, said frame being adapted to be detachably secured to the rear of a cart, two substantially rectangular frames secured to the under side of and two standards secured to and projecting above the frame secured to the axle, said standards being provided with a forwardly-projecting frame, three rollers journaled in the lower portion of the rectangular frames, three rollers journaled in the upper portion of the standards, and one roller journaled in the forward portion of the forwardly-projecting frame, each of said rollers except one in the rectangular frames being provided at one end with a driving wheel or pulley, a driving belt or chain extending from the axle and passing over two of the rollers in each of the frames and over the front roller, an elevating-carrier passing over all of the rollers except the top one in the standard, a supplemental belt passing over a pulley in the rectangular frame and in the standards, and a revolving brush or sweeper suspended from the axle of the machine, substantially as set forth.

3. In a street-sweeper, the combination, with a wheeled axle, of a frame loosely mounted thereon at its rear end, perforated arms projecting from the front end of said frame, each provided with a perforated spring, whereby the sweeper may be connected with the rear end of a cart, a pin through said perforations, legs depending from the front end of the frame, and a revolving sweeper, and an endless carrier within said frame, the front loop of which carrier projects beyond the front end of the frame for depositing the sweepings in the cart, substantially as set forth.

480,232. APPARATUS FOR MELTING AND CASTING METALS. CRAFT C. CARROLL, New York, N. Y. Filed Sept. 5, 1891. Serial No. 404,890. (No model.)

Claim.—1. The combination, with an annular burner, of a mold-flask supported therein so that the flame-openings of the burner are at or near the top of the flask, a crucible mounted upon the mold-flask and in communication with the metal-chamber of the mold, and a removable conical hood or cover mounted upon the burner and inclosing the flame-openings thereof and the crucible in such manner as to direct the flame from the burner-openings upon the crucible, substantially as shown and described.

2. In an apparatus for melting and casting metals for dental or other purposes, the combination, with an annular burner having flame-openings in the top thereof, of a mold-flask supported therein so that the top of the burner is at or near the top of the flask, a crucible mounted on the top of the flask and in communication with the metal-chamber thereof, a conical removable hood or cover mounted upon the burner and inclosing the flame-openings thereof, so as to direct the flame upon the crucible, and means for forcing the molten metal from the crucible into the metal-chamber of the mold-flask after the hood or cover has been removed, substantially as shown and described.



3. In an apparatus for melting and casting metals for dental or other purposes, the combination, with an annular burner, of a mold-flask supported therein in such manner that the flame-openings of the burner are at or near the top of the mold-flask, a crucible supported on the mold-flask, provided with a duct or passage through the bottom thereof which communicates with a duct or passage in the mold-flask leading to the chamber thereof, the joint between the crucible and the mold-flask being air-tight, and means for forcing the molten metal from the crucible into the metal-chamber of the flask consisting of a flexible tube and pneumatic bulb, substantially as shown and described.

480,233. ALLOY. ALEXANDER I. COCKER, GEORGE W. COLLYER, and CLARENCE HAINES, Tarrytown, N. Y. Filed Sept. 24, 1891. Serial No. 406,721. (No specimens.)

Claim.—The method of forming an alloy of iron and tin, consisting in mixing the same in substantially the proportions specified and fusing the metals in the presence of a flux composed of borax, carbonate of iron, sal-ammoniac, and salt.

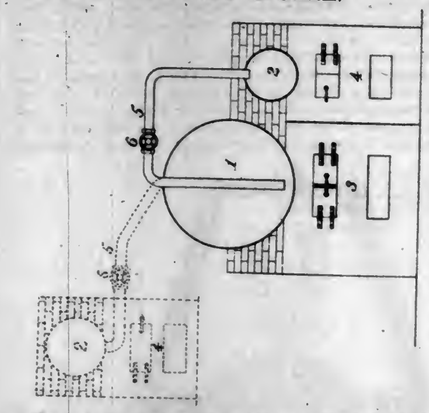
480,234. MANUFACTURE OF ASPHALTUM. JESSE A. DUBBS, Allegheny, assignor of one-half to James H. White, Pittsburg, Pa. Filed July 10, 1891. Serial No. 399,080. (No specimens.)

Claim.—1. The method herein described of manufacturing asphaltum, which consists in heating the crude petroleum or residuum free from paraffine wax to sufficient heat to remove the moisture therefrom, adding sulphur to the heated material in about the proportions stated, and then raising the temperature of the mixture to a point a little below that of distillation of the oil or residuum and maintaining it at such temperature until the desired chemical combination has been effected, substantially as set forth.

2. The method herein described of manufacturing asphaltum, which consists in mixing a crude petroleum or residuum free from paraffine-wax and sulphur in about the proportions stated, heating the mixture to a point a little below the point of distillation, and maintaining it at such temperature until the desired combination has been effected, substantially as set forth.

3. The method herein described of manufacturing asphaltum, which consists in subjecting crude petroleum or residuum thereof to the action of steam, thereby removing the paraffine-wax therefrom, adding sulphur to the material thus purified in about the proportions stated, subjecting the mixture to a temperature a little below the temperature of distillation, and maintaining the mixture at such temperature until the desired combination has been effected, substantially as set forth.

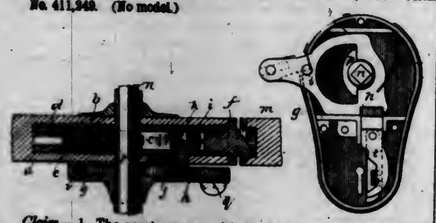
480,285. MANUFACTURE OF ASPHALTUM. JESSE A. DUBBS, Allegheny, assignor of one-half to James H. White, Pittsburg, Pa. Filed July 27, 1891. Serial No. 400,862. (No specimens.)



Claim.—1. As an improvement in the art of manufacturing asphaltum, the method herein described, which consists in heating crude petroleum or residuum thereof, charging fluid sulphur therein, and maintaining the heat of the charge until the desired combination has been effected, substantially as set forth.

2. As an improvement in the art of manufacturing asphaltum, the method herein described, which consists in heating crude petroleum or residuum thereof, charging vaporous sulphur therein, and maintaining the heat of the charge until the desired combination has been effected, substantially as set forth.

480,286. DOOR-LOCK. CHARLES F. GARLAND, Chelsea, Mass., assignor to Richard P. Elliott, Nashua, N. H. Filed Nov. 9, 1891. Serial No. 411,249. (No model.)



Claim.—1. The combination, with the bolt *c*, arranged in a hole formed in the door, and metal bearings *d f*, arranged in said hole to support and guide the bolt, of a casing secured to the outer surface of the door, a sliding frame arranged entirely in said casing and connected with the bolt by a pin operating in a slot formed in the door, and a knob-spindle and connections for operating the said frame, as set forth.

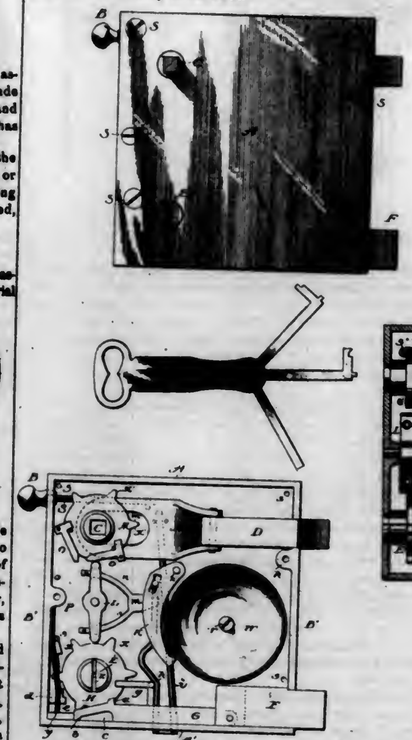
2. The combination, with a bolt *c*, arranged to slide in ways formed in a door, of a casing secured to the outer surface of the door, a sliding frame arranged entirely in said casing and connected with the bolt by a pin operating in a slot formed in the door, a latch or catch *g*, pivoted upon the sliding frame and arranged to engage the casing, and a knob-spindle and connections for operating the said frame, as set forth.

3. The combination, with a bolt *c*, arranged to slide in ways formed in a door, of a casing secured to the outer surface of the door, a sliding frame arranged entirely in said casing and connected with the bolt by a pin operating in a slot formed in the door, a knob-spindle and connections for operating the said frame, and a sliding bolt *l*, arranged to be operated by a key to engage the frame *h* and lock the same and the bolt *c* against movement, as set forth.

480,287. ALARM-LOCK. RALPH M. METCALF, Luton, assignor of one-half to Oromburg E. Adams, Holly Springs, Iowa. Filed May 4, 1891. Serial No. 391,594. (Model.)

Claim.—1. In a lock, the combination, with the case, of a latch-bolt D, a plate attachment N, riveted to the inner end of said bolt, a spur-wheel M, provided with spurs, as *x*, and the dogs *o o*, said spur-wheel being rigidly mounted horizontally on the core C, said core being vertically set in the case, the bell W, the hammer K, secured to posts *k* and spring *h* and connected with the plates *m m*, said plates being placed one above the other and each being provided with extension-arms *n n*, which in turn connect with the levers L L, also placed one above the other, the finger-knob B, attached to rod *s'*, said rod passing through the side of the case, and an eye formed on the under side of plate N, the dogs *o o*, provided on the spur-wheel M, being adapted to engage the pointed end of the upper lever L to operate to ring the bell W, all substantially as set forth.

2. In a lock, the combination, with the case, of a latch-bolt D, a plate attachment N, secured to said bolt, a spur-wheel M, provided with spurs, as *x'*, and the dogs *o o*, said spur-wheel being rigidly mounted on the core C, which is vertically set in the case, the bell W, the hammer K, secured to the posts *k* and *l* and spring *h* and connected with plates *m m*, each of which is provided with extension-arms *n n*, said arms in turn connecting with the levers L L, and the rod *s'*, provided with knob B, said knob adapted to move backward into a notch provided in the side of the case to receive it to disengage the knob from the latch or to move forward into a second notch provided in the side of the case, causing the plate N to be raised, so that the shoulder-piece *a'*, formed on the under side of spur-wheel M, engages a shoulder formed on the end of plate N to operate the common latch, all substantially as set forth.



3. In a lock, the combination, with the case, of the lock-bolt F, the slotted frame G, provided with the ear *a*, and the spur-wheel H, provided with spurs, as *x*, said wheel being rigidly set on the core E', which is vertically set in the case, the ends of said core being provided with a deep groove or slot and adapted to receive a flat key, as key A A, and to be turned by said key to operate the lock-bolt F, all as set forth.

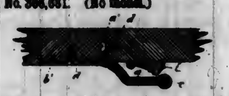
4. In a lock, the combination, with the case, of the lock-bolt F, the slotted frame G, provided with the ear *a*, the spur-wheel H, provided with spurs, as *x*, said wheel being rigidly set on the core E', which is set in a vertical position, the ends of said core being grooved to receive a key, the bell W, the hammer K, secured to post *k* and connected with spring *h*, and the plates *m m*, each provided with U-shaped arms *n n*, connected to the levers L L, the pointed ends of levers L L adapted to be engaged by the spurs of the wheel H to ring the bell W, all arranged and intended to operate substantially as set forth.

5. In a lock, the combination of the lock-bolt F, the slotted frame G, provided with the ear *a*, the spur-wheel H, rigidly set on the core E', which is vertically set in the case, the ends of said core being slotted to receive a key, the shoulder-plate *y*, formed in the corner of the case, and the plate *d*, held in place by the spring-wire *e*, all as set forth.

6. In a lock, the combination of the bolt F, the slotted frame G, provided with the ear *a*, the spur-wheel H, the core E', slotted at both ends, the shoulder-plate *y*, the plate *d*, held in place by the spring-wire *e*, and the plate *g*, all arranged as set forth.

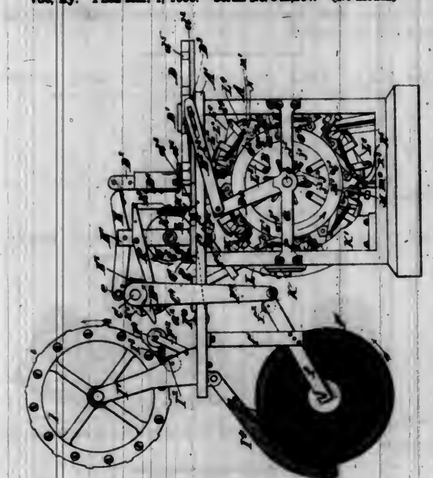
7. In a lock, the combination, with the case, of the following parts, viz: the bolt D, the plate N, provided with the shoulder *a'*, the spur-wheel M, provided with spurs, as *x'*, and dogs *o o*, and a shoulder on the under side, the core C, the rod *s'*, provided with knob B, the bell W, held in place by screw *r*, the hammer K, post *k*, springs *i* and *h*, plates *m m*, each provided with U-shaped arms *n n*, connecting with the levers L L, the bolt F, slotted frame G, provided with the ear *a*, the plate *g*, spur-wheel H, provided with spurs, as *x*, the slotted core E', shoulder *y*, plate *d*, and spring-wire *e*, all arranged and intended to operate substantially as set forth.

480,288. HINGE. FRANK X. RANKER, Pittsburg, Pa. Filed Sept. 30, 1890. Serial No. 366,651. (No model.)



Claim.—A door-hinge comprising two leaves, one fastened to the edge of the door-post and the other to the edge of the door and both extending freely from such points to a pivot which is out of the line of the doorway, substantially as described.

480,289. WRAPPING-MACHINE. CHARLES R. SCHILLING, Bellevue, Ky. Filed Mar. 1, 1890. Serial No. 342,237. (No model.)

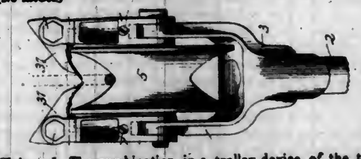


Claim.—1. In a wrapping-machine, the combination of a revolving folder-carrying wheel or cylinder mounted upon a shaft within a suitable frame, a feeding-table above said cylinder, a revolving feed-disk and ram on said table, paper-feeding mechanism on said table, a discharge or base plate below said cylinder, a receiving or holding pedestal and arms or jaws on said base-plate, and suitable cam and crank driving mechanism for actuating said parts, constructed, arranged, and adapted to operate substantially as herein set forth.

2. In a wrapping-machine, a revolving wheel or cylinder B, mounted on a rock-shaft, carried by a suitable frame and having radial recesses J in its periphery at suitable intervals apart, spring-jaws J', forming the opposite end walls of said recesses, yielding plungers J^3, forming the bottoms of the jaws for receiving and supporting the respective articles to be wrapped and their wrappers, pins or fingers j^7, projecting from the innermost ends of said plungers J^3 j through radial slots in said wheel, cam j^9 on said wheel-shaft, curved or bow spring j^{10} on said cam, and strike-pin j^7, also on said cam in rear of its projecting portion, and mechanism for intermittently revolving said wheel on said shaft, substantially as herein set forth.

3. In a wrapping-machine, the combination, with a revolving wheel or cylinder B, in whose periphery are constructed recesses J, having yielding holder-jaws which are self-conforming to ordinary irregularities in the articles to be wrapped, and means for operating the yielding bottoms of said self-conforming jaws, of peripheral folder-plates L^2 and L^4, side folder-fingers N N' and O O', rings L' L' on the opposite sides of said wheel, folding fingers or tuckers M on said rings in line with said recesses or jaws J, projecting rollers L^2 on said folders, and cam-tracks K K K' L, said folder-fingers, and also the tuckers, being suitably mounted on the wheel and rings, respectively, and all the parts being arranged, connected, and adapted to operate substantially as herein set forth.

480,240. TROLLEY FOR ELECTRIC CARS. GEORGE R. PURPLE and CHARLES W. PURPLE, Minneapolis, Minn.; said George R. Purple assignor to said Charles W. Purple. Filed Sept. 8, 1891. Serial No. 405,138. (No model.)



Claim.—1. The combination, in a trolley device, of the trolley-wheel and the supporting-fork thereof with a spring-controlled dog or bill arranged on each side thereof, said dogs extending across the top of the wheel and meeting over the middle thereof, said dogs being so pivoted and arranged that the inner ends thereof may yield backwardly and upwardly, substantially as described.

2. The combination, with a trolley-wheel and its supporting-yoke, of arms pivotally supported upon the axis of said wheel, a yielding device or devices connecting said arms with said yoke, and spring-controlled dogs carried by said arms, substantially as described.

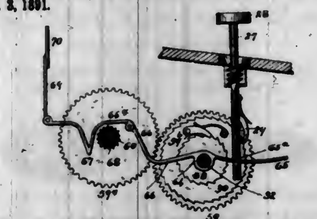
3. The combination, with the trolley-wheel and its yoke, of the spring-controlled arms mounted upon the axle of the trolley-wheel, spring-controlled posts mounted upon said arms, and spring-controlled dogs mounted upon said posts and projecting toward each other over said wheel.

4. The combination, with the trolley-wheel and its supporting-yoke, of the dogs provided with inclined upper surfaces and projecting over said wheel and means for supporting said dogs.

5. The combination, with the trolley-wheel and its supporting-yoke, of the arms pivoted upon the axis of said wheel, posts pivotally supported upon said arms, and the inclined dogs pivoted upon said posts and projecting over said wheel, substantially as described.

REISSUES.

11,256. CASH-REGISTER. HENRY A. BIERLEY, Lexington, Ky. Filed June 21, 1892. Serial No. 437,409. Original No. 462,615, dated Nov. 3, 1891.



Claim.—1. In a cash-register, the combination of the casing, the spring-barrels carrying tapes with indicating characters, the transverse shaft carrying loose ratchet-wheels, the hubs connected with said ratchet-wheels, the ratchet-wheels fixed on said shaft, the spring-pawls engaging therewith, the indicating-keys having spring-pawls, the transverse shaft, the cog-wheels carried by said shaft, the radial arms, the pivoted plates for retaining the cash in sight, and the pivoted arm adapted to be actuated by said radial arms, substantially as described.

2. In a cash-register, the combination of the casing, the spring-barrels, the registering-tapes, the transverse shafts 32 and 60, the loose ratchet-wheels 30 upon transverse shaft 32, the fixed ratchet-wheels 58 upon transverse shaft 32, abutting against ratchet-wheels 30, the spring-catches 37, the bar 38, and pin 38^a, having knob 39, substantially as described.

3. In a cash-register, the combination of the casing, the spring-barrels and tapes, the shafts 32 and 60, the loose ratchet-wheels 30, having pawls 59ª, the fixed ratchet-wheels 58, the spring-actuated indicating-keys, the cog-wheels 59 59ª, the radial arms 61, the lever 62, the arm 63, the plate 42, and the plate 52, connected therewith, substantially as described.

4. In a cash-register, the combination of the casing, the shafts 32 and 60, the spring-barrels 35, the tapes 33, the ratchet-wheels 30, the hubs 31, the pawls 59ª, the ratchet-wheels 58, the indicating-keys having pawls 29, the arms 66, pivoted in shaft 32 and having forwardly-extending arms 65, the arms 66ª, hinged to arm 66, the lug 67, adapted to engage with grooves in shaft 60, and the vertical bar hinged to arm 66ª and carrying a display-plate, substantially as described.

5. In a cash-register, in combination, the indicating-keys carrying pin 65ª, an arm engaging with said pin when the key is depressed, extending forwardly from a bar or rod pivoted upon a transverse shaft, and provided with a rearwardly-extending arm pivoted to an arm provided with a downward extension or lug intermediate of its ends, adapted to engage with the upper one of a series of longitudinal grooves in the transverse shaft 60, the vertical rod hinged to the rearwardly-extending arm, the display-plate attached to the vertical arm, and the transverse grooved shaft, substantially as described.

6. In a cash-register, in combination, the indicating-keys carrying pin 65ª, an arm engaging with said pin when the key is depressed, extending forwardly from a bar or rod pivoted upon a transverse shaft, and provided with a rearwardly-extending arm pivoted to an arm provided with a downward extension or lug intermediate of its ends, adapted to engage with the upper one of a series of longitudinal grooves in the transverse shaft 60, the vertical rod hinged to the rearwardly-extending arm, the display-plate attached to the vertical arm, the transverse grooved shaft, the cog-wheels whereby the transverse grooved shaft is rotated, and the mechanism for actuating transverse shaft 32 by depressing the indicating-keys, substantially as described.

DESIGNS.

21,738. SPOON. WILLIAM A. HENDERSON, Atlanta, Ga. Filed June 10, 1892. Serial No. 436,255. Term of patent 7 years.



Claim.—The design for a spoon, substantially as herein shown and described.

21,739. SPOON. BERTHA MEYER, Kansas City, Mo. Filed June 22, 1892. Serial No. 437,657. Term of patent 3½ years.



Claim.—The design for a spoon, substantially as set forth.

21,740. SPOON. OTTO SUPE, Sault Ste. Marie, Mich. Filed June 2, 1892. Serial No. 435,314. Term of patent 3½ years.



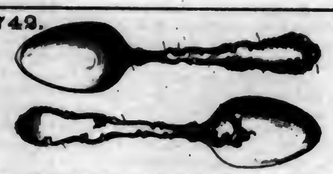
Claim.—The design for a spoon, as herein shown and described.

21,741. SPOON. HENRY L. WALLACE, Wallingford, Conn., assignor to the R. Wallace & Sons Manufacturing Company, same place. Filed June 13, 1892. Serial No. 436,589. Term of patent 3½ years.



Claim.—The design for a spoon, as herein shown and described.

21,742. SPOON. GEORGE P. TILTON, Newburyport, Mass., assignor to the Towle Manufacturing Company, same place. Filed Apr. 12, 1892. Serial No. 428,596. Term of patent 7 years.



Claim.—The design for a spoon, herein shown and described.

21,743. TRIMMING. FRIEDRICH O. HEINIG, Philadelphia, Pa. Filed May 28, 1892. Serial No. 434,800. Term of patent 3½ years.



Claim.—The design for trimming, substantially as shown and described.

21,744. BADGE OR SIMILAR ARTICLE. GEORGE H. REINHAGEN, Brooklyn, assignor to the Firemen's Publishing Company, New York, N. Y. Filed June 20, 1892. Serial No. 437,408. Term of patent 7 years.



Claim.—The design for a badge or similar article, substantially as shown and described.

21,745. BADGE. GUSTAVUS A. SCHLICHTER, Reading, Pa. Filed June 27, 1892. Serial No. 438,214. Term of patent 3½ years.



Claim.—The design for a badge, substantially as shown and described.

21,746. THIMBLE. EDWIN S. SIMONS, Philadelphia, Pa. Filed July 2, 1892. Serial No. 438,827. Term of patent 3½ years.



Claim.—The design for a thimble, substantially as shown in the accompanying drawings.

21,747. THIMBLE. HENRY A. WEINMAN, Philadelphia, Pa., assignor to Simons, Brother & Co., same place. Filed June 3, 1892. Serial No. 435,987. Term of patent 3½ years.



Claim.—The design for a thimble, comprising the upper roughened crown, the lower encircling band having the representation of the World's Fair buildings at Chicago, and an unornamented portion C thereon, bounded by the scroll outline D.

21,748. WATCH-CASE. HENRY HOFFA, Washington, D. C. Filed June 8, 1892. Serial No. 435,999. Term of patent 3½ years.

21,748.



Claim.—The design for a watch-case, substantially as herein described and shown.

21,749. WATCH-CHARM. FRANK P. SPARHAKER, Philadelphia, Pa. Filed July 2, 1892. Serial No. 438,309. Term of patent 3½ years.



Claim.—1. The design for a watch-charm, substantially as described, and as illustrated in the accompanying drawings.

2. In a design for a watch-charm, the design for the obverse, substantially as described and shown.

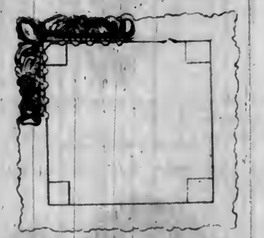
3. In a design for a watch-charm, the design for the reverse, substantially as described and shown.

21,750. TABLE-TOP. FRANZ YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed June 29, 1892. Serial No. 439,466. Term of patent 3½ years.



Claim.—The design for a table-top, as herein shown and described.

21,751. TABLE-TOP. FRANZ YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed June 29, 1892. Serial No. 439,467. Term of patent 3½ years.



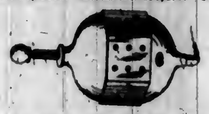
Claim.—The design for a table-top, as herein shown and described.

21,752. SHOE. NACHMAN LOWENTHAL, Chambersburg, Pa. Filed Apr. 23, 1892. Serial No. 430,418. Term of patent 7 years.

Claim.—The design for a shoe, substantially as shown and described.

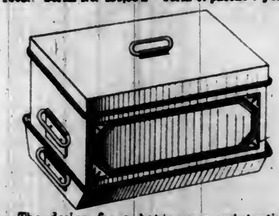


21,753. SPINNING TOP. ALBERT J. HUNTOON, Kansas City, Mo. Filed June 20, 1892. Serial No. 438,450. Term of patent 7 years.



Claim.—The design for a spinning top, herein shown and described.

21,754. BAKING-PAN. GEORGE R. GIFFORD, Albany, N. Y. Filed July 9, 1892. Serial No. 439,534. Term of patent 7 years.



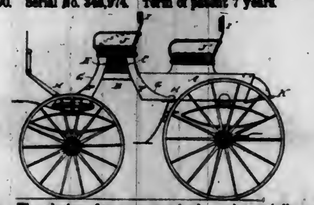
Claim.—The design for a baking-pan, substantially as herein shown and described.

21,755. BOWL. GEORGE WILKINSON, Providence, R. I., assignor to the Gorham Manufacturing Company, same place. Filed Mar. 28, 1892. Serial No. 426,534. Term of patent 7 years.



Claim.—The design for the bowl, herein shown and described.

21,756. WAGON-BODY. LUKE DOYLE, Boston, Mass. Filed Apr. 7, 1890. Serial No. 348,974. Term of patent 7 years.



Claim.—The design for a wagon-body, substantially as herein described and illustrated.

21,757. COFFIN-PEDESTAL. LOUIS G. KREBEL, St. Louis, Mo. Filed June 22, 1892. Serial No. 437,654. Term of patent 14 years.



Claim.—The design for a coffin-pedestal, substantially as herein described and shown.

TRADE-MARKS

REGISTERED AUGUST 2, 1892.

21,533. SUBSTITUTE FOR COD-LIVER OIL. DANBURY PHARMACAL ASSOCIATION, Danbury, Conn. Filed Feb. 18, 1892.

LINONINE

Essential feature.—The word "LINONINE." Used since December 18, 1891.

21,534. COAL-TAR OILS. GRIESHEIMER & Co., New York, N. Y. Filed June 7, 1892.



Essential feature.—The representation of a triangle with the rising sun on one side thereof, and the three letters "C G S," one within the triangle and the other two outside of it and on opposite sides of the apex. Used since May 25, 1892.

21,535. REMEDY FOR GENERAL DEBILITY AND FOR DISEASES OF THE GENITAL ORGANS. RICHARD HUDNUT, New York, N. Y. Filed May 9, 1892.



Essential feature.—The representation of a cupid with the word "PHOSPORINE" arranged above it. Used since April 15, 1892.

21,536. TOPICAL REMEDY. CHRISTIAN HESSE, Minonk, Ill. Filed June 18, 1892.



WONDER OIL

Essential feature.—The words "WONDER OIL" and the representation of a dog. Used since June 1, 1892.

21,537. WHISKY. W. H. JOHNS & Co., Boston, Mass. Filed July 5, 1892.

ELM HILL

Essential feature.—The words "ELM HILL." Used since August 4, 1891.

21,538. MACHINE-BELTING. F. REDDAWAY & Co., Manchester, England, and New York, N. Y. Filed May 18, 1892.



Essential feature.—The representation of a camel surrounded by an ellipse and the words "REDDAWAY'S PATENT EGYPTIAN COTTON BELTING." Used since January 1, 1876.

21,539. SPOOL-COTTON. THE WILLIAM CLARK COMPANY, Newark, N. J., and Stonington, Conn. Filed June 1, 1892.



Essential feature.—The letters "N," "E," and "W," arranged on a circular disk having lateral arms. Used since May 1, 1892.

21,540. SPOOL-COTTON. THE WILLIAM CLARK COMPANY, Newark, N. J., and Stonington, Conn. Filed June 1, 1892.



Essential feature.—A circular disk having lateral arms and bearing the word "BEST." Used since May 1, 1892.

21,541. DRESS FABRICS, SUCH AS PRINTS, CALICOES, POPLINS, AND ALPACAS. WINDSOR COMPANY, North Adams, Mass., and New York, N. Y. Filed June 25, 1892.



Essential feature.—The representation of a rooster and a flag. Used since November 19, 1891.

21,542. PERFUMERY. BEAN & VAIL BROTHERS, Philadelphia, Pa. Filed June 18, 1892.



Essential feature.—The representation of a balloon. Used since March 1, 1892.

21,543. TEA, COFFEE, AND SPICES. WILLIAM G. KIRK, Norfolk, Va. Filed May 26, 1892.

YU-NO

Essential feature.—The compound word "YU-NO." Used since 1888.

21,544. CERTAIN NAMED TOILET PREPARATIONS. JOSEPH S. LAURIE, Kansas City, Mo. Filed Apr. 21, 1892.

Almadino

Essential feature.—The word "ALMADINO." Used since May 1, 1890.

21,545. WHISKY. JOHN MILLER & Co., Boston, Mass. Filed July 5, 1892.

ELKWOOD

Essential feature.—The word "ELKWOOD." Used since May 13, 1890.

21,546. CLEANING AND DISINFECTING SOAP. HENRY C. STEWART, Cincinnati, Ohio. Filed July 5, 1892.

TONKA-TALPA

Essential feature.—The compound word "TONKA-TALPA." Used since July 1, 1890.

21,547. PRINTS AND REPRODUCTIONS BY PHOTO-MECHANICAL PROCESSES. CHARLES R. WOODWARD, St. Louis, Mo. Filed July 5, 1892.



Essential feature.—The word "CHEMIGRAPH." Used since June 25, 1892.

21,548. REMEDY FOR GONORRHŒA, GLEET, LEUCORRHŒA, AND THE LIKE. WILLIAM I. COCHRAN, Burlington, Iowa. Filed Mar. 29, 1892.

CINCH

Essential feature.—The word "CINCH." Used since March 1, 1891.

21,549. REMEDY FOR RHEUMATISM. PURITON MEDICINE CO., Detroit, Mich. Filed July 7, 1892.

TIKO

Essential feature.—The word "TIKO." Used since 1872.

21,550. NATURAL AND ARTIFICIAL FERTILIZERS. THE DURHAM FERTILIZER COMPANY, Durham, N. C., and Richmond, Va. Filed June 20, 1892.

Essential feature.—The full broadside representation of a bull. Used since 1883.



21,551. NATURAL AND ARTIFICIAL FERTILIZERS. THE DURHAM FERTILIZER COMPANY, Durham, N. C., and Richmond, Va. Filed June 20, 1892.

OFFICIAL

Essential feature.—The word "OFFICIAL." Used since December, 1889.

21,552. HOUSEHOLD, DRUGGISTS', AND BUTCHERS' HARDWARE. ENTERPRISE MANUFACTURING COMPANY OF PENNSYLVANIA, Philadelphia, Pa. Filed May 26, 1892.

ENTERPRISE

Essential feature.—The word "ENTERPRISE." Used since 1867.

21,553. LIQUID TONIC. MONRAD J. OLSEN, Des Moines, Iowa. Filed May 16, 1892.



Essential feature.—The representation of a crowing rooster standing upon a whipped prostrate rooster. Used since May 1, 1893.

21,554. MONUMENTS, ARCHITECTURAL TRIMMINGS, AND VARIOUS CUT STONE. WILLIAM H. PERRY, Concord, N. H. Filed Apr. 30, 1892.



Essential feature.—The representation of a block of stone bearing the words "CRYSTAL GRANITE." Used since 1889.

21,555. PARLOR GAMES. GEORGE R. SOVEREIGN, Pottersville, N. J. Filed July 1, 1892.

THE BLUE AND THE GRAY

Essential feature.—The words "THE BLUE AND THE GRAY." Used since June 16, 1892.

21,556. ALE, PORTER, AND STOUT. ANDERSON BREWING COMPANY, Beaver Falls, Pa. Filed June 27, 1892.



Essential feature.—The representation of a shield and three capital letter "A's" arranged in a monogram thereon. Used since November 15, 1891.

21,557. HORSE-COLLARS, RIDING-SADDLES, GIG-SADDLES, BACK-PADS, AND ALL PARTS OF HARNESS. CORK FACED COLLAR COMPANY, Lincoln, Ill. Filed June 16, 1892.



Essential feature.—The representation of a horse-collar, the portrait of Abraham Lincoln in the opening of the same, and a hand over the head over said portrait, pointing to a cut in the liner of the collar. Used since October 15, 1891.

21,558. ROASTED COFFEE. JOHN P. DIETER, Chillicothe, Ohio. Filed Mar. 26, 1892.



Essential feature.—The representation of a dining-car. Used since 1889.

21,559. REMEDY FOR DISEASES OF THE EYE. DR. DAVID KENNEDY CORPORATION, Kingston, N. Y. Filed June 20, 1892.

MAGIC

Essential feature.—The representation of an eye and the word "MAGIC." Used since 1870.

21,560. KNIVES, SCISSORS, AND FORKS. GRANT & SCHMIDT, New York, N. Y. Filed June 25, 1892.



Essential feature.—A representation of the head and shoulders of a man having a beard and wearing a hat with a backwardly-turned brim. Used since January 1, 1892.

21,561. LUBRICATING-OIL. ABRAM W. HARRIS, Providence, R. I. Filed June 25, 1892.



Essential feature.—The words "SUBMERGED SPINDLE OIL" and the representation of a spindle and its bearing. Used since January 1, 1892.

21,562. BOOTS AND SHOES AND LEATHER FOR THE SAME. RICE & HUTCHINS, Boston, Mass. Filed July 9, 1892.



Essential feature.—The word "CONTINENT." Used since May 1, 1891.

21,563. VEGETABLES AND GREEN AND DRIED FRUITS. RYAN & RICHARDSON, Leavenworth, Kans. Filed May 11, 1892.



Essential feature.—The representation of a star with a crescent resting across its upper three points and over an apple in the center of said star. Used since March 15, 1892.

21,564. COOKIES, WAFERS, AND SIMILAR ARTICLES, SUCH AS CAKES AND CRACKERS. THE S. H. CHILDS COMPANY, Rochester, N. Y. Filed June 30, 1892.



Essential feature.—The words "THE WAFERY." Used since November, 1891.

21,565. REMEDY FOR THE CROUP. CLINTON A. BELDIN, Jamaica, N. Y. Filed June 30, 1892.



Essential feature.—The fac-simile signature "C. A. BELDIN, M. D." Used since 1870.

21,566. ADHESIVE PLASTERS. ALVIN H. KELLER, Sioux Falls, S. D. Filed July 2, 1892.



Essential feature.—A circular disk superimposed upon the figure of a square and the words "MENTH-IOD-GOLD." Used since July, 1891.

21,567. HOSIERY. SIBLEY, LINDSAY & CURR, Rochester, N. Y. Filed May 26, 1892.



Essential feature.—The word "SUNRISE." Used since March 15, 1892.

21,568. MEDICINAL BEVERAGE AND SIRUPS AND EXTRACTS FOR FORMING THE SAME. FRED H. PERKINS, Shrewsbury, Mass. Filed July 1, 1892.

NERVO MATTE

Essential feature.—The words "NERVO MATTE." Used since May 23, 1892.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE STANLEY.

Decided July 22, 1892.

PRACTICE—REISSUE—ENLARGED CLAIM.

Where an applicant has by "inadvertence" claimed less than he was entitled to claim, he may have a reissue with enlarged claims. (Citing and quoting *Topliff* v. *Topliff et al.*, 59 O. G., 1237.)

APPEAL from Examiners-in-Chief.

TUNNELING-MACHINE.

Reissue application of Reginald Stanley filed September 8, 1890, No. 364,378.

Messrs. Doubleday & Bliss for the applicant.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief denying applicant's right to make claims 6, 7, 8, 10, 11, 12, and 14 in this reissue application. The original patent was granted November 12, 1889. The reissue application was filed September 8, 1890. Applicant began to take steps for the making of his reissue application May 19, 1890, and the time between that date and the filing of the reissue application is fully accounted for, applicant being meanwhile a resident of Great Britain.

The inadvertence upon which applicant relies is simply the taking of a claim of less breadth than he was entitled to in his original patent. The original patent makes a suitable disclosure on which these claims might be based, if no other objection existed. Neither of these claims was ever presented in the original application. There is not in the original patent any statement which distinctly negatives the idea that applicant has the right to make these claims. It does not appear that between the issue of the original patent and the filing of the reissue application any one other than the applicant began the manufacture, sale, or use of anything or took a patent for anything which would not infringe the original patent but would infringe the proposed reissue containing these claims.

The United States Supreme Court said, on May 2, 1892, the following with reference to reissues:

> It may be regarded as the settled rule of this Court that the power to reissue may be exercised when the patent is inoperative by reason of the fact that the specification as originally drawn was defective or insufficient, or the claims were narrower than the actual invention of the patentee, provided the error has arisen from inadvertence or mistake, and the patentee is guilty of no fraud or deception; but that such reissues are subject to the following qualifications:
>
> First. That it shall be for the same invention as the original patent, as such invention appears from the specification and claims of such original.
>
> Second. That due diligence must be exercised in discovering the mistake in the original patent, and that, if it be sought for the purpose of enlarging the claim, the lapse of two years will ordinarily, though not always, be treated as evidence of an abandonment of the new matter to the public to the same extent that a failure by the inventor to apply for a patent within two years from the public use or sale of his invention is regarded by the statute as conclusive evidence of an abandonment of the patent to the public.
>
> Third. That this Court will not review the decision of the Commissioner upon the question of inadvertence, accident, or mistake unless the matter is manifest from the record; but that the question whether the application was made within a reasonable time is, in most, if not in all, such cases, a question of law for the court.

To hold that a patent can never be reissued for an enlarged claim would be not only to override the obvious intent of the statute, but would operate in many cases with great hardship upon the patentee. The specification and claims of a patent, particularly if the invention be at all complicated, constitute one of the most difficult legal instruments to draw with accuracy; and, in view of the fact that valuable inventions are often placed in the hands of inexperienced persons to prepare such specifications and claims, it is no matter of surprise that the latter frequently fail to describe with requisite certainty the exact invention of the patentee, and err either in claiming that which the patentee had not in fact invented, or in omitting some element which was a valuable or essential part of his actual invention. Under such circumstances, it would be manifestly unjust to deny him the benefit of a reissue to secure to him his actual invention, provided it is evident that there has been a mistake, and he has been guilty of no want of reasonable diligence in discovering it, and no third persons have in the meantime acquired the right to manufacture or sell what he had failed to claim. The object of the patent law is to secure to inventors a monopoly of what they have actually invented or discovered, and it ought not to be defeated by a too strict and technical adherence to the letter of the statute, or by the application of artificial rules of interpretation. (*Topliff* v. *Topliff et al.*, 59 O. G., 1257; 12 Sup. Ct. Rep., 825.)

What is thus said applies to reissues with enlarged claims, among other things, and that clearly.

No attempt will be made in this case to lay down any principles governing reissues for obvious reasons; but applying the principles of that decision of the Supreme Court to this case, as the present trier understands those principles, this applicant has the right to have the said claims considered in the present reissue application upon the same basis on which they would have been considered if the application for the original patent were now made containing them.

The decision of the Examiners-in-Chief is reversed.

EX PARTE MCGOWAN.

Decided June 15, 1892.

PRACTICE UNDER RULE 139 (a).

A decision by the Examiners-in-Chief affirming a rejection by an Examiner, subject to certain recommendations made by them, is such an affirmance of the Examiner's decision that a petition to the Commissioner asking "that a record decision affirming the patentability of the invention in issue may be entered" will not lie.

ON petition.

VALVE-SEAT.

Application of John H. McGowan filed December 21, 1891, No. 415,786.

Mr. L. M. Hosea for the applicant.

SIMONDS, *Commissioner:*

This is a petition which refers to certain actions made by the Examiners-in-Chief, and its prayer is:

> I ask that such action may be taken as that a record decision

affirming the patentability of the invention in issue may be entered, reversing the Examiner's action, in accordance with the finding of the Board.

Under date of March 26, 1892, the Primary Examiner rendered the following decision by way of final rejection:

This application has been examined in view of the argument presented, and the claims are both rejected as presenting nothing patentable over Coude of record.

Thereupon applicant took an appeal to the Examiners-in-Chief as follows:

I have the honor to appeal from the decision of the Primary Examiner rejecting the applicant's claims herein, upon references, to the Board of Examiners-in-Chief, upon the ground that the references do not show the invention of applicant either directly or by inference, and applicant is entitled to the grant of a patent.

Under date of May 19, 1892, the Examiners-in-Chief rendered a decision, ending as follows:

Subject to such recommendation, the Examiner's decision is affirmed.

This was in affirmance of the final rejection made, as above quoted, by the Primary Examiner on March 26, 1892. It was not, as applicant puts it, a decision "reversing the Examiner's action." It was a decision affirming the Examiner's action, but making a certain recommendation in the premises under Rule 139 (*a*), which is as follows:

139 (*a*.) The Examiners-in-Chief in their decision will affirm or reverse the decision of the Primary Examiner only on the points on which appeal shall have been taken. (See Rule 133.) Should they discover any apparent grounds not involved in the appeal for granting or refusing Letters Patent in the form claimed, or any other form, they will annex to their decision a statement to that effect, with such recommendation as they shall deem proper.

As the present petition is based upon this material mistake of facts, it follows that it must be and it is dismissed.

HALL *v.* LATTA.

Decided July 23, 1892.

PRACTICE—TESTIMONY TAKEN ABROAD—RULE 158.

Where a party seeks to take testimony abroad under the provisions of Rule 158, a mere formal allegation in his affidavit that the testimony cannot be taken in this country without "injury to the moving party greatly exceeding that to which the opposite party will be exposed by the taking of such testimony abroad" is not sufficient to satisfy the requirements of the rule in that particular.

APPEAL on motion.

VELOCIPEDE.

Patent granted John W. Hall October 30, 1888, No 391,895. Application of Emmit G. Latta filed February 2, 1888, No. 262,707.

Mr. A. J. Todd and *Mr. J. L. Norris* for Hall.
Messrs. Foster & Freeman for Latta.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiner of Interferences granting a motion for a commission to take testimony abroad. This matter is governed by the following portion of Rule 158 of the Rules of Practice of the Patent Office.

158. By leave of the Commissioner, first obtained, testimony may be taken in foreign countries, upon complying with the following requirements:

(1) Such permission will be granted only upon motion duly made. (See Rule 155.) The motion must designate a place for the examination of the witnesses at which an officer duly qualified to take testimony under the laws of the United States in a foreign country shall reside, and it must be accompanied by a statement under oath that the motion is made in good faith, and not for purposes of delay or of vexing or harassing any party to the case; it must also set forth the names of the witnesses, the particular facts to which it is expected each will testify, and the grounds on which is based the belief that each will so testify.

(2) It must appear that the testimony desired is material and competent, and that it cannot be taken in this country at all, or cannot be taken here without hardship and injury to the moving party greatly exceeding that to which the opposite party will be exposed by the taking of such testimony abroad.

The following are the direct interrogatories proposed to be put by Hall, with comments thereon:

Interrogatory 1. State your name, age, residence, and occupation.

No comment is needed on this interrogatory.

Int. 2. Are you the same person as the John William Hall whose United States Letters Patent are in interference with Emmit G. Latta's application?

Latta is willing to admit that he is.

Int. 3. When did you first make the invention described in the first claim of said United States Letters Patent here in interference?

This interrogatory is immaterial, because it is conceded that the invention was made abroad. Latta is, however, willing to admit that Hall shall make any answer he chooses to this interrogatory, to have the same force and effect as if sworn to, subject to proper objection.

Int. 4. Was the invention referred to in said first claim of said United States Letters Patent ever patented in Great Britain? If so, in what year, and what is the number of the patent and what is the number of the claim in said British Letters Patent?

Int. 5. Please annex to this record a certified copy of the Blue Book of said British Letters Patent, numbered 13,191, of year 1887.

Int. 6. Is it or is it not the fact that so far as the invention covered by said British Letters Patent, numbered 13,191, of year 1887, is concerned it is your sole invention?

Interrogatories 4 and 5 are inadmissible until connected with interrogatory 6. Latta is willing to admit the affirmative of question 6, and also corresponding answers to questions 4 and 5.

Int. 7. State whether the invention covered by said British Letters Patent, numbered 13,191, of year 1887, was ever described in any printed public work in Great Britain prior to the date of your application for the United States Letters Patent here in interference. If so, annex a copy of each of such printed public work or works.

If this interrogatory is intended to relate to any other invention than that of Hall, it is immaterial. When confined to Hall's invention, his preliminary statement shows that such publications are subsequent to the British patent in date, and therefore merely cumulative and immaterial; but Latta is willing to admit them in evidence.

Int. 8. Have you any knowledge of tandem bicycles in the construction of which was contained the invention of British Letters Patent numbered 13,191, of year 1887, and having been exported to the United States of America prior to the 1st day of February, 1888; and, if so, when was the first of said tandem bicycles so sent to the United States of America?

This question obviously relates to acts occurring abroad, and is therefore immaterial; but Latta is willing that Hall should make what answer he chooses, to stand as his sworn testimony, subject to proper objection.

Int. 10. When was the application for your United States Letters Patent here in interference mailed to the United States of America and to whom?

This question is immaterial, for it relates to acts occurring abroad.

Int. 11. Have you examined a copy of the specification and drawings of the Latta application for Letters Patent of the United States here in interference, and do you thoroughly understand the contents of same, and please annex such copy you have so examined to this deposition as an exhibit?

Int. 12. State what are the differences in construction and principle between your tandem bicycle so patented in Great Britain, in 1887, numbered 13,191, and the United States Letters Patent here in interference and the said Latta's tandem tricycle as described and shown in said copy of his application.

Int. 13. Could the one construction be substituted for the other construction without exercising the inventive faculty; and, if you answer in the negative, give your reasons?

Int. 14. Is there anything in the said Latta copy, specification, and drawings which would enable a mechanic skilled in the art to change the said Latta tandem tricycle to a Hall tandem bicycle, unless he exercised the inventive faculty in so doing; or, in other words, would he not have to make an invention in so proceeding from the Latta construction to your construction?

Int. 15. What changes would be necessary to make a Latta tandem tricycle, as shown, into your tandem bicycle, and are they substantial changes and not merely formal ones?

These questions call for expert evidence and are immaterial on the question of priority of invention.

It only remains to consider interrogatory 9, which is as follows:

Int. 9. Did you ever meet Charles E. Pratt or any other person connected with the Pope Manufacturing Company of the United States of America prior to the 1st day of February, 1888; and, if so, what conversation, if any, was had between you relative to the invention and Hall patented machine here in controversy?

Latta is willing that Hall should make whatever answer he chooses to this question, to stand as his sworn testimony, subject to any proper objection. Hall contends that it is not enough to admit that he will so testify, but that the admission must go to the extent of admitting the truth of the testimony. However that may be, it does not satisfactorily appear that this testimony—

cannot be taken in this country at all, or cannot be taken here without hardship and injury to the moving party greatly exceeding that to which the opposite party will be exposed by the taking of such testimony abroad.

It is true that there is a formal allegation to that effect in the affidavit of Hall's attorney, which is filed with this motion. How the attorney has any knowledge of what degree of hardship and injury Latta will suffer by having this testimony taken abroad does not appear. Moreover, the motion does not propose to bring Pratt's knowledge home to Latta or to materially connect Latta with Pratt in the matter.

The motion to take testimony abroad is denied, conditioned that Latta shall within ten days make the stipulations hereinbefore indicated to the approval of the Examiner of Interferences, subject to a forthwith appeal to the Commissioner.

EX PARTE KINNEY.

Decided May 14, 1892.

SPECIFICATION—PROLIXITY OF DESCRIPTIVE MATTER.

A specification comprising two separate descriptions of the same subject-matter of invention that are substantially alike, except that one contains references to the drawings, is unnecessarily prolix.

ON petition.

METHOD OF DEVELOPING THERMAL ENERGY INTO MECHANICAL EFFECT.

Application of Robert D. Kinney filed September 22, 1891, No. 406,527.

Mr. R. D. Kinney pro se.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition taken from the action of the Examiner objecting to the specification as prolix and to certain portions of the same as indefinite and ambiguous, and requiring the applicant to—

curtail his descriptive matter and to rewrite the whole specification in order to overcome the above-named defects and to render the operation of the device capable of being understood.

It is not apparent from the Examiner's letter to the applicant just how much of the specification he requires to be canceled; but it would seem from his answer to the petition that pages 4, 5, 6, and 7 comprise the alleged surplus descriptive matter.

Upon inspection of the whole case it appears that the matter included between line 12 of page 4 and line 9 of page 8 consists, mainly, of a detailed description of the apparatus suitable for carrying out applicant's alleged method and the mode of operation and function of its several parts, while the succeeding descriptive matter consists, mainly, of an enumeration of the several parts of the apparatus shown in the drawings, together with statements respecting their relation to each other, such parts being identified by letters of reference. Furthermore, it appears that the said two portions of the specification relate to substantially the same subject-matter, although only the second is specifically directed to the apparatus illustrated.

It is obvious that two separate descriptions of the same apparatus are unnecessary and that the clearness and conciseness required by Rule 34 can best be secured by a judicious combination of the extended general description with that which consists of the enumeration of parts identified by means of letters of reference. If applicant has invented a method, it is permissible and proper for him to state in general terms what that method is, and it is necessary for him to describe the preferred means for carrying out that method in order that the patent, if granted, may fully and accurately disclose the invention in such a manner that it may be understood and practiced. Having described such means with reference to the drawings illustrating the same, it is obviously proper for him to state that other means may be employed for the same purpose, in order that the invention may not be construed as limited to the specific apparatus illustrated; but it is neither necessary nor advisable to present a separate detailed description of apparatus without reference to the drawings.

The Examiner's objection to the description of the operation of the apparatus found on pages 10, 11, and 12, in so far as it is made specific, is directed solely to the use of punctuation-marks and the absence of capital letters. These do not appear to be matters that demand a formal amendment by the applicant.

If the Examiner holds any part of the specification to be indefinite and ambiguous in other respects than those indicated, or objectionable for any other reason, he should point out the alleged defects specifically, in order that the applicant may understand just what is necessary to be done to overcome the objections made.

To the foregoing extent the petition is granted, and the case is remanded to the Examiner for action in conformity herewith.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Third Judicial District.

PAINE *v.* SNOWDEN.

Decided April 29, 1892.

DESIGN PATENTS—NOVELTY—CHAIR-BACKS.

Design Patent No. 13,405, issued November 14, 1882, to Henry H. Paine, for a Design for common round bow-back chairs, consisting in the upper part of the bow and rounds provided with a sheet of suitable material, as wood, bent to conform to the curvature of the bow-back and rounds, leaving the rounds between the sheet and seat exposed, is void for want of novelty. (Affirming 46 Fed. Rep., 189.)

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Suit by Henry H. Paine against William H. Snowden for infringement of a patent. The bill was dismissed below (46 Fed. Rep., 189) and complainant appeals. Affirmed.

Before ACHESON, *Cir. J.*, and WALES and GREEN, *Dis. J.*

Mr. Horace Pettit for the appellant.
Mr. H. T. Fenton for the appellee.

ACHESON, *J.:*

This was a suit in equity for the infringement of Letters Patent dated November 14, 1882, granted to Henry H Paine, the complainant below and appellant, for a Design for chairs.

The patent has four claims. The first and leading claim is as follows:

1. The improved design for common round bow-back chairs, consisting in the upper part of the bow and rounds provided with a sheet of suitable material, as wood, bent to conform to the curvature of said bow-back and rounds, leaving the rounds between said sheet and seat exposed, substantially as and for the purpose specified.

The second claim differs from the first only in providing that the back-piece or sheet shall be perforated wood.

The third claim is like the second, but calls for a perforated-wood seat also.

The fourth claim is the same as the first, with the addition of "ornamental nails" to secure the "curved perforated back-piece" to the bow and rounds.

In his specification the patentee states:

I prefer to curve the bottom of the plate E to improve the design; but, if desired, it may be made perfectly straight.

He further says:

The depth of the plate may be varied, and also its ornamentation, my invention comprehending, broadly, the Design when such a plate is arranged on the upper part of the bow and rounds, leaving the lower parts of the same exposed.

The plate E is the sheet or back-piece mentioned in the claims. The sheet or back-piece shown in the patent drawing has a scalloped lower edge and ornamentally-arranged perforations; but it is quite clear that the patent was not intended to be confined and is not confined to the configuration or ornamentation there shown. Moreover, as we have seen, the depth of the plate or back-piece "may be varied" at pleasure, and, indeed, under the terms of the claims, may be extended any distance down the back of the chair, provided only there is some exposure of the lower parts of the bow and rounds. Certainly as a patent for a Design—a production intended mainly to appeal to the eye—the patent in suit has a remarkable scope. But the court below having held that, in view of the prior state of the art, the patent was destitute of invention, we will confine ourselves to the single inquiry whether that conclusion was correct.

It appears that prior to 1882 Gardner & Co. manufactured and sold in the city of New York veneers, chairs, and settees. Their illustrative catalogue, issued and distributed in June, 1882, is an exhibit in the case, and it is shown that the cuts therein contained are true representations of the chairs which they manufactured and sold long before the date of Paine's alleged invention. Those chairs were of different forms, styles, and sizes. The variety was great. Some of the chairs had curved backs, to conform to the shape of the human body. The chairs were provided with perforated-veneer seats. They also had pieces of perforated veneer, of various shapes and of ornamental appearance, fastened by nails to the backs of the chairs, and in the instances where the backs were curved the back-pieces of veneer were fitted so as to conform to the curvatures. Sometimes the veneer back was continuous with the seat, an unbroken piece of perforated veneer being used for the purpose. In other instances the perforated-veneer back-piece and the seat-piece were separate.

Now, it is true that among the Gardner illustrations we do not find the common bow-backed chair; but everything else disclosed by Paine's patent is there to be seen. However, the bow-backed chair—that is, a chair having a continuous piece bent to form the sides and top of the back, both ends being fastened in the seat—was old. Did it, then, in view of what had already been done, require inventive genius of any order to apply to the curved back of such a chair a piece of perforated veneer or sheet of other flexible material? The court below ruled that it did not, and in that judgment we entirely concur.

But, besides the proofs already discussed, this record contains as an exhibit a patent, No. 179,721, granted on July 11, 1876, to Michael Ohmer, for an improvement in chairs. The illustrative drawing of that patent shows a common bow-backed chair with a wooden back-piece secured by screws against the front of the top of the bow and leaving the lower parts of the rounds exposed. Under the ruling in *Gorham Co.* v. *White* (14 Wall., 511) the conclusion, we think, is well warranted that Ohmer's chair-back and Paine's Design are substantially identical in appearance; but at any rate, when the Ohmer chair-back is added to the other proofs touching the prior state of the art, it becomes clear, beyond any sort of doubt, that Paine's Design possesses no patentable novelty. We are altogether satisfied with the result reached in the court below, and accordingly the decree dismissing the bill is affirmed.

U. S. Circuit Court of Appeals—Third Judicial District.

CONSUMERS' GAS COMPANY OF DANVILLE *v.* AMERICAN ELECTRIC CONSTRUCTION COMPANY, LIMITED.

Decided April 22, 1892.

PATENT—DAMAGES FOR INFRINGEMENT.

In an action to recover a balance alleged to be due on written contract whereby plaintiff agreed to furnish and set up certain machinery for defendant the latter sets up, among other defenses, that he had been served with notice by a certain patentee of a claim for damages for infringing Letters Patent by the use of the machinery furnished by plaintiff. *Held* that a purchaser of machinery who has had the full use and enjoyment and undisturbed possession of it cannot, in the absence of fraud, withhold the purchase-price because of an alleged liability on his part to a patentee for infringement in the use of the property.

IN error to the Circuit Court of the United States for the Western District of Pennsylvania.

Action by the American Electric Construction Company, Limited, against the Consumers' Gas Company of Danville. An affidavit of defense was adjudged insufficient, (47 Fed. Rep., 43,) and defendant brings error. Affirmed.

Before ACHESON, *Cir. J.*, and BUTLER and GREEN, *Dis. J.*

Mr. James Scarlett for the plaintiff in error.
Mr. C. E. Morgan for the defendant in error.

ACHESON, *J.:*

An affidavit of defense is insufficient to prevent judgment unless it sets forth all the facts necessary to constitute a substantial defense. Mere general averments amounting to legal conclusions will not do. The specific facts must be stated, so that the court may draw the proper conclusions. Nothing should be left to conjecture, for that which is not stated must be taken not to exist. These principles have been repeatedly declared and enforced. (*Bryar* v. *Harrison*, 37 Pa. St., 233; *Marsh* v. *Marshall*, 53 Pa. St., 396; *Peck* v. *Jones*, 70 Pa. St., 83; *Asay* v. *Lieber*, 92 Pa. St., 377.)

The action here was to recover a balance alleged to be due to the plaintiff below from the defendant upon a written contract dated July 6, 1888, whereby the plaintiff company agreed to furnish and set up at the works of the defendant company certain machinery and appliances for an electric-light plant, and also to construct certain circuits of poles and wires upon specified terms. A copy of the contract was attached to the affidavit of claim, and also a particular statement of the plaintiff's account, with the credits to which the defendant was entitled, and performance by the plaintiff was distinctly averred. The affidavit of claim was complete. It was then incumbent upon the defendant to file an affidavit setting forth specifically and with reasonable certainty the grounds of defense. The court below decided that the affidavit of defense filed was insufficient to prevent judgment, and after careful consideration we have reached the same conclusion.

As regards the Conard claim, it is quite evident that credit therefor was actually given to the defendant in the plaintiff's statement of account filed, with a slight error in amount, which the court below corrected. This was not seriously controverted upon the argument in this court.

No valid defense was disclosed by the allegations in the defendant's affidavit that at the time the written contract was entered into the plaintiff agreed with the defendant to fully indemnify and save it harmless as against any and all demands and claims under or growing out of Letters Patent of the United States, and against any and all suits for the infringement thereof by reason of its use of the electric-light plant or any of its parts erected by the plaintiff under said contract, and to give to the defendant on demand a good, sufficient, and satisfactory bond so to do; that the plaintiff, in recognition of this obligation, tendered to the defendant a bond, which was not acceptable to and was not accepted by the defendant, as it was neither good, sufficient, nor satisfactory to indemnify and save harmless the defendant, and that the plaintiff failed on demand to give to the defendant such a bond as it agreed to do. No provision whatever for indemnity is to be found in the written contract sued on, nor is it averred in the affidavit of defense that such provision was omitted therefrom by fraud, accident, or mistake. Now, as it is not alleged that the agreement with respect to indemnity was in writing it must be taken to have been by parol. A writing will not be assumed to exist in the absence of express averment of the fact. (*Marsh* v. *Marshall*, *supra*.) Moreover, if the alleged collateral agreement was in writing the defendant was bound to annex a copy to its affidavit. (*Erie City* v. *Butler*, 120 Pa. St., 374; 14 Atl. Rep., 153; *Willard* v. *Reed*, 132 Pa. St., 5; 18 Atl. Rep., 921.) It follows, therefore, that without any averment of fraud, accident, or mistake the defendant sought, by means of a parol agreement made contemporaneously with the written contract and as a part of the transaction, materially to vary the written contract and to introduce therein an entirely new stipulation, changing the plaintiff's liability under its implied warranty of title and imposing upon it an additional obligation. Plainly this defense would contravene the rule, so often enforced by the Supreme Court of the United States, that in the absence of fraud, accident, or mistake it must be conclusively presumed that the written contract contains the whole engagement of the parties. (*Brown* v. *Spofford*, 95 U. S., 474; *Bast* v. *Bank*, 101 U. S., 93; *Richardson* v. *Hardwick*, 106 U. S., 252, 254; 1 Sup. Ct. Rep., 213.) In Pennsylvania, although there has been some relaxation of this rule, it must, nevertheless, appear that the party who sets up the oral promise or undertaking was induced thereby to sign the written contract. (*Phillips* v. *Meily*, 106 Pa. St., 536; *Wanner* v. *Landis*, 137 Pa. St., 61; 20 Atl. Rep., 950; *Sidney School Furniture Co.* v. *Warsaw School Dist.*, 130 Pa. St., 76; 18 Atl. Rep., 604.) But the affidavit of defense here contains no allegation that the defendant was induced by reason of the alleged parol agreement to execute the written contract. Under the Pennsylvania decisions, then, the defense set up is clearly inadmissible.

Such being our conclusion, we need express no opinion upon the question whether under the collateral parol agreement stated it was enough for the defendant simply to allege that the tendered bond was not good, sufficient, or satisfactory, without assigning any specific reason why it was not. It may be here added that if the fact of tender could be regarded as an admission against the plaintiff it would be an admission merely that the defendant was entitled to such a bond as the plaintiff offered and the defendant declined.

That part of the defendant's affidavit which asserts that a certain named patentee has served the defendant with notice of a claim for damages for infringement of Letters Patent by the defendant's use of the machinery and appliances furnished to it by the plaintiff, and that by such use the defendant is also liable to another patentee, affords no ground of defense to this action. A purchaser of property who has had the full use and enjoyment of the same and is in the undisturbed possession thereof, in the absence of fraud, cannot withhold the purchase-price because a third person claims to have a superior title thereto or an adverse right therein and threatens to bring suit to enforce the same, or because of an alleged liability on the

part of the purchaser to a patentee for an infringement of Letters Patent by reason of the use of the property. (*Wanzer* v. *Truly*, 17 How., 584, 585; *Krumbhaar* v. *Birch*, 88 Pa. St., 426; *Geist* v. *Stier*, 134 Pa. St., 216; 19 Atl. Rep., 505.)

Finally, the general allegations, without further specification, that the plaintiff—

has not complied with its contract—

and that the defendant—

has already been put to great delay and exposure and damages to the amount of $10,000—

are altogether too vague, indefinite, and uncertain, as the authorities cited at the opening of this opinion demonstrate.

The court below was entirely right in holding that the affidavit of defense was insufficient and in entering judgment for the plaintiff.

Judgment affirmed.

U. S. Circuit Court of Appeals—Third Judicial District.

ANDERSON *v.* EILER *et al.*

Decided May 6, 1892.

DESIGN PATENT—LICENSE—WHAT CONSTITUTES.

Where a manufacturer of mantels purchased two mantels of a Design not then patented, for the usual price and for the avowed purpose of using them as copies in his business, *Held* equivalent to the consent on the part of the inventor that the manufacturer might use the Design and that, having subsequently obtained a patent therefor, he could not maintain a suit for infringement against the manufacturer.

APPEAL from the Circuit Court of the United States for the Western District of Pennsylvania.

Suit by William Anderson against Eiler, Breitwieser & Co. for infringement of a patent. The bill was dismissed, and complainant appeals. Affirmed.

Before ACHESON, *Cir. J.*, and BUTLER and GREEN, *Dis. J.*

Mr. W. L. Pierce for the appellant.

Mr. James Aylward Develin for the appellees.

BUTLER, *J.*:

The suit is for infringement of Letters Patent No. 19,837, granted to William Anderson June 23, 1890, for Designs for mantels. The mantels sold by the respondents are made after the complainant's design and are covered by his patent. They were purchased from Mershon, Brown & Co., who made them. Several defenses are set up, among them a license in Mershon, Brown & Co., and as we think this is sustained by the proofs we need not consider any other.

It appears that Mershon, Brown & Co., who are manufacturers of mantels, wishing to use this Design, (not then patented,) purchased from Mr. Anderson (through an agent) two of his mantels as samples for this purpose. The agent explicitly informed him of their object in the proposed purchase, as the proofs show and as he admits. He thus sold the mantels with knowledge that the only object in purchasing was to copy and use his Design, and did it without objecting to the use contemplated. The inference is, therefore, we think, irresistible that he consented to this use. Whether he actually consented or not, however, the circumstances estop his denial. His silence at the time closes his mouth. If he did not mean to consent, he should have said so. Such denial now and a recovery of damages for infringement would constitute a fraud. It is true that the sum paid for the mantels was not large; no more than the usual price for their common use. Whether it was disproportioned to the value of the special use mentioned depends upon the question whether a monopoly in the Design was then contemplated by either party. Clearly Mershon, Brown & Co. did not contemplate it. They supposed the Design was open to the public, and virtually declared so at the time. Whether Mr. Anderson then intended applying for a patent is not clear. He did subsequently, though somewhat tardily, apply. But whether the sum was disproportioned to the value of the special use is not important, in view of the fact that this use was distinctly in the minds of both parties and that the money was paid and received on the basis of it.

We do not see any force in the suggestion that Mr. Anderson was constrained to sell by reason of Mershon, Brown & Co.'s assertion that they could and would purchase elsewhere, for the purpose contemplated, if he refused. No deceit or force was employed. The assertion was true. Others were selling the mantels. He was left free to sell or refuse. It may be implied from the evidence that he hesitated and considered the consequences before deciding. He must have known that if he refused and the samples were obtained elsewhere and his rights violated the law would afford him protection; and the fact that he did so hesitate and consider before selling lends additional strength to the inference that he consented to the use contemplated, in consideration of the price received.

The decree of the circuit court is therefore affirmed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 60.---No. 6. TUESDAY, AUGUST 9, 1892. PRICE---$5 per year.

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Changes in Classification.

(ORDER No. 770.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 30, 1892.

The following sub-classes are hereby established in Class 73, Measuring-Instruments, Division XXIII:

Calipers, dial.	Spacing-instruments.
Calipers, stem.	Squares, bevel.
Gages, depth.	Squares, center.
Gages, thickness.	Squares, folding.
Pressure-gages, Bourdon.	Telemetry.
Pressure-gages, diaphragm.	Thermometers, metallic.
Pressure-gages, piston.	Thermometers, oven.
Spirometers.	Ullage-rods.

In the same division, in Class 33, Drafting, the sub-class T-squares is established.

Sub-class 34, Swings, is transferred from Class 46, Games and Toys, Division VII, to Class 155, Chairs, Division VIII.

Sub-class Lights, ceiling-block, is established in Class 176, Electric Lighting, Division XVI.

N. L. FROTHINGHAM,
Acting Commissioner.

(ORDER No. 771.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 5, 1892.

The sub-class Velocipedes in Class 21, Carriages and Wagons, Division X, is abolished and Class 208, Velocipedes, established.

Class 208, Velocipedes, is hereby transferred from Division X to Division VII.

N. L. FROTHINGHAM,
Acting Commissioner.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of August 9, 1892.

Patents	460—No.	480,241 to No. 480,700, inclusive.
Designs	19—No.	21,758 to No. 21,776, inclusive.
Trade-Marks	35—No.	21,569 to No. 21,603, inclusive.
Labels	None.	
Reissues	2—No.	11,257 to No. 11,258, inclusive.
Total issue	516	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nevada	1	
Arizona Territory			New Hampshire	4	
Arkansas	1		New Jersey	21	3
California	12		New Mexico Territ'y	1	
Colorado	2		New York	97	7
Connecticut	11		North Carolina	2	1
Delaware			North Dakota		
District of Columbia	5		Ohio	17	3
Florida	3		Oregon	4	
Georgia			Pennsylvania	47	6
Idaho			Rhode Island	7	4
Illinois	42	1	South Carolina		
Indian Territory			South Dakota	1	
Indiana	14		Tennessee	4	
Iowa	9		Texas	10	
Kansas	2		Utah Territory		
Kentucky	14		Vermont	2	
Louisiana	2		Virginia	1	
Maine	6	1	Washington	2	
Maryland	5		West Virginia	3	
Massachusetts	34	1	Wisconsin	3	2
Michigan	20	1	Wyoming		
Minnesota	10		U. S. Army		
Mississippi			U. S. Navy		
Missouri	17	1			
Montana	1		Total to citizens of the United States	440	32
Nebraska	3	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Austria-Hungary	4		Netherlands		
Barbadoes			Newfoundland		
Belgium			New South Wales		
Bermuda			New Zealand		
British Guiana	1		Norway	1	
Canada	10		Porto Rico		
Chile, Republic of			Queensland		
Cuba			Russia		
Denmark			Scotland		
Ecuador			South Australia		
England	9	3	Spain		
France	1		Sweden		
Germany	10		Switzerland		
Guatemala			Victoria		
Hawaii	2		West Australia		
Ireland					
Italy	1		Total to citizens of foreign countries	39	3
Luxemburg					

APPLICATIONS UNDER EXAMINATION.

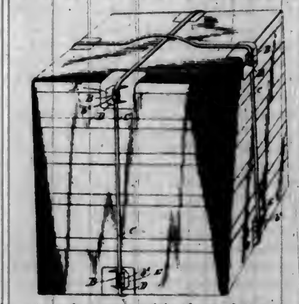
Condition at Close of Business August 9, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Between one and two months in arrears.			
7	Harvesters, Games and Toys	June 10	July 27	238
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	June 3	July 25	99
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	June 6	July 20	84
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	June 2	July 19	172
8	Furniture, Toilet, Umbrellas and Canes, etc.	June 4	July 18	248
5	Fine Arts, Stationery, Book-Binding, Music, etc.	June 27	July 1	184
	Between two and three months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	May 28	July 27	258
16	Telegraphy, Telephony, Electric Lighting and Signaling.	May 26	July 25	194
23	Instruments of Precision, Acoustics, Optics, etc.	May 16	July 20	274
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	May 12	July 20	253
21	Textiles, etc.	May 12	July 19	187
24	Sewing-Machines and Apparel	May 11	July 15	120
2	Farm Stock, Products, etc	May 14	July 13	245
12	Mechanical Engineering, Stores-Service, etc.	May 17	July 12	194
22	Fire-Arms, Navigation, Signals, etc.	May 11	July 8	226
17	Paper-Manufactures and Printing.	May 10	July 8	196
9	Hydraulics, Fire-Extinguishers, etc.	May 10	July 8	277
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	May 5	July 1	251
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	May 31	June 25	268
18	Steam-Engineering, etc	May 10	June 24	248
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	May 3	June 22	242
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 2	June 11	283
1	Tillage and Fences	May 2	June 11	294
	Between three and four months in arrears.			
10	Carriages and Wagons and Railway-Cars.	Apr. 11	July 12	733
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Apr. 5	July 11	434
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Apr. 21	July 2	428
4	Civil Engineering, etc	Apr. 8	June 8	450
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Apr. 8	May 24	335
	Between four and five months in arrears.			
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 31	June 6	500
19	Stoves and Furnaces	Mar. 31	May 20	479
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Mar. 1	June 21	430
26	Electricity, Generation, Distribution, etc.	Feb. 29	June 16	447
	Total number of applications awaiting action			9,271
	Under one month in arrears.			
	Designs	July 28	July 29	32
	Trade-Marks	July 30	July 30	15

PATENTS

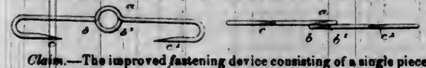
GRANTED AUGUST 9, 1892.

480,241. METALLIC EDGE-PROTECTOR. FRANCIS F. ATKINSON, New York, N. Y., assignor of one-third to Henry Ogden, same place. Filed Apr. 2, 1891. Serial No. 387,490. (No model.)



Claim.—As an improved article of manufacture, a metallic edge-protector for boxes and packages, comprising the rectangularly-bent edge portion adapted to fit the edge of the box or package, provided with the clip B and having the opening E, the bottom portions of the clip having depressions D D to receive the twine, and the cord or twine C, passed through the seat or sleeve in the clip B, substantially as specified.

480,242. FASTENING DEVICE. JOHN W. BARNES, New York, N. Y. Filed Nov. 29, 1890. Serial No. 372,998. (No model.)

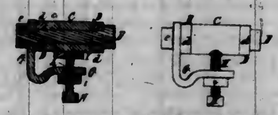


Claim.—The improved fastening device consisting of a single piece of metal having at each end inturned engaging points and provided at its center with a coil in a plane lengthwise of the body part of the device, whereby the points are forced toward each other by any strain brought to bear thereon, all substantially as described.

480,243. BINDER FOR ARTIFICIAL FUEL. EMILE K. BADTERLIN and FREDERICK H. HEINIE, Louisville, Ky.; said Badterlin assignor to said Heinie. Filed Nov. 25, 1891. Serial No. 413,140. (No specimens.)

Claim.—The herein-described composition of matter to be used as a binder in the manufacture of artificial fuel, consisting of vegetable pulp, Irish moss, calcined limestone, asbestus fiber, and water, substantially in the proportions stated.

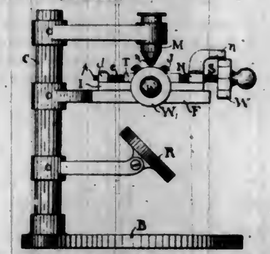
480,244. THILL-COUPLING. JOSEPH H. BERRY, Boston, Mass. Filed Feb. 23, 1892. Serial No. 422,478. (No model.)



Claim.—1. As an improvement in thill-couplings, the combination, with the thill-eye, axle-clip, and connecting-bolt, of a bent spring G, having its upper end attached to one side of the clip and its lower end located under but not in contact with the thill-eye, and an adjustable screw H, passing through the said lower end and bearing on the under side of the thill-iron, as set forth.

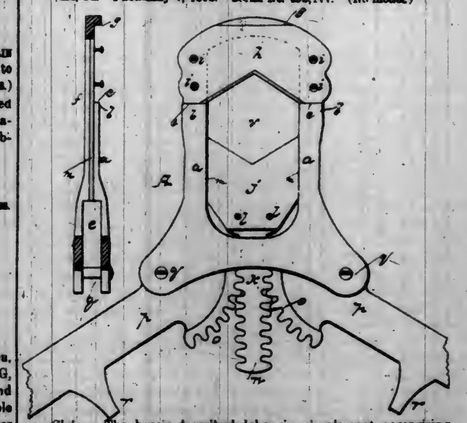
2. The bent spring G, with its screw-hole *h*, and having one end secured to one of the ears of the clip by the coupling-bolt D and its other end located in a vertical plane under the thill-eye and out of contact therewith, an adjustable screw H, passing through the hole *h* for regulating the tension of said spring, a concave plate I in contact with and kept in place against the outer surface of the thill-eye by the end of said adjusting-screw, and a check-nut *i* for preventing the screw H from accidentally turning when adjusted, combined and arranged as and for the purpose set forth.

480,245. INSTRUMENT FOR FACILITATING THE USE OF TABULATED DATA. ISRAEL D. BOYER, Dayton, Ohio. Filed Sept. 3, 1891. Serial No. 404,676. (No model.)



Claim.—In an instrument for facilitating the use of tabulated data, the combination, with a microscope, of a mounting-plate T, having motion in two directions, two graduated scales W W' for adjusting the plate in two directions, and a miniature table of data *g*, mounted on plate T and reduced to a scale corresponding to the graduations of the scales W W', the whole being arranged substantially in the manner and for the purpose specified.

480,246. DEHORNING IMPLEMENT. ALVA C. BRONSON, Cochranville, Pa. Filed May 7, 1892. Serial No. 432,177. (No model.)



Claim.—The herein-described dehorning implement, comprising the frame having the slot *e* and shoulders *e g*, the stationary knife *h*, provided with the V-shaped cutting-edge and secured to the frame

between the said shoulders, the movable knife having a corresponding V-shaped cutting-edge and adapted to slide in the grooves *m m*, the follower *k*, having the toothed stem *n*, and the handles *p p*, pivoted to the solid frame at *q q* and provided with the toothed segments *o o*, substantially as specified.

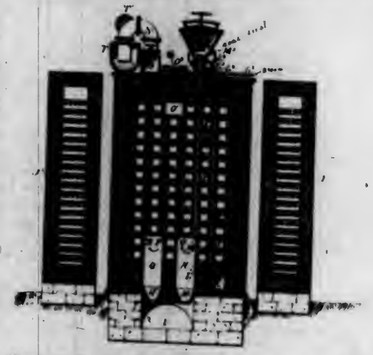
480,247. MODE OF ATTACHING TIPS TO FLEXIBLE TUBING FOR GAS. ALFRED CALDWELL, Providence, R. I. Filed Feb. 24, 1892. Serial No. 422,625. (No model.)



Claim.—1. The combination, with a flexible tube having a coiled-wire lining upon its interior, of a cap upon the end of the tube, the outer end of which is contracted and provided with a short cylindrical portion of a diameter slightly greater than the interior diameter of the lining of the tube, substantially as set forth.

2. The combination, with a tip or socket having a screw-threaded shank, of a tube having a coiled-wire lining upon its interior and a cap upon its exterior, the outer end of said cap being reduced and provided with a short cylindrical portion of a diameter slightly greater than the interior diameter of the lining and adapted to engage with the end of the wire lining at one end and with a shoulder upon the end of the tip at the other end, the exterior diameter of the shank of the tip being slightly greater than the interior diameter of the lining, substantially as set forth.

480,248. APPARATUS FOR MANUFACTURING GAS. JOSEPH H. COLLINS, Jr., Philadelphia, Pa., and ISAAC N. KNAPP, Greenwich, Conn.; Rebecca S. Collins and William J. Collins, administrators of said Joseph H. Collins, Jr., deceased, and said Knapp assignors, by mesne assignments, to the United Gas Improvement Company, Philadelphia, Pa. Filed May 5, 1888. Serial No. 272,964. (No model.)



Claim.—1. In a gas-producing apparatus, two sets of vertically-disposed combustion-flues, said sets being spaced at a distance apart substantially equal to the thickness of one of the flue-walls and forming a narrow vertical retort, a feeding device for supplying pulverized carbonaceous material in regulated quantity to the top of the narrow vertical retort thus formed, a receptacle for solid matter at the bottom of said narrow vertical retort, and a conduit for gas leading from near the bottom of the retort, substantially as described.

2. In a gas-producing apparatus, two sets of vertically-disposed combustion-flues, said sets being spaced at a distance apart substantially equal to the thickness of one of the flue-walls and forming a narrow vertical retort, a feeding device for supplying pulverized carbonaceous material in regulated quantity to the top of the narrow vertical retort thus formed, an enlarged chamber at the bottom of the narrow vertical retort, a receptacle for solid matter at the bottom of the enlarged chamber, and a conduit for gas, leading from near the bottom of the retort, substantially as described.

3. In a gas-producing apparatus, three sets of vertically-disposed combustion-flues, the proximate sets being spaced at a distance apart substantially equal to the thickness of one of the flue-walls and forming a narrow vertical retort, and the intermediate set being shorter than the other two, and thereby forming an enlarged chamber at the base of the intermediate set, said chamber connecting the narrow vertical spaces between the proximate sets, a feeding device for supplying pulverized carbonaceous material to the top of one of the narrow vertical spaces, and an exit-flue leading from the top of the other of the narrow vertical spaces, substantially as described.

4. In a gas-producing apparatus, a narrow vertical retort, in combination with combustion-flues surrounding said retort for heating the same externally, a feeding device for supplying pulverized carbonaceous material in regulated quantity to the top of the retort, an enlarged chamber having a receptacle for solid matter at the bottom of the retort, a steam-conduit opening into, and a condnit for gas leading from said enlarged chamber.

5. In a gas-producing apparatus, a narrow vertical retort, in combination with a feeding device for supplying pulverized carbonaceous material in regulated quantity to the top of the retort, an enlarged chamber having a receptacle for solid matter at the bottom of the retort, a narrow vertical retort provided with baffle-tiles opening at its bottom into the enlarged chamber aforesaid and having a steam-pipe entering its top, a gas-conduit leading from the enlarged chamber, and combustion-flues surrounding the retorts for heating them externally.

6. In a gas-producing apparatus, a narrow vertical retort, in combination with a feeding device for supplying pulverized carbonaceous material in regulated quantity to the top of the retort, an enlarged chamber having a receptacle for solid matter at the bottom of the retort, a narrow vertical retort provided with baffle-tiles opening at its bottom into the enlarged chamber aforesaid and having a steam-pipe entering its top, a narrow vertical retort leading upward from the enlarged chamber, a suitable gas-exit, and combustion-flues surrounding the retorts for heating them externally.

7. In a gas-producing apparatus, a narrow vertical retort, in combination with a feeding device for supplying pulverized carbonaceous material in regulated quantity to the top of the retort, an enlarged chamber having a receptacle for solid matter at the bottom of the retort, a steam-conduit leading into said enlarged chamber, a second narrow vertical retort leading upward from the enlarged chamber, a third narrow vertical retort connecting with the second at their tops and having a second enlarged chamber with an ash-receptacle at its bottom, an oil-injector leading into the retorts above the first enlarged chamber, a gas-conduit leading from the second enlarged chamber, and combustion-flues surrounding all of the retorts so as to heat them externally.

8. In a gas-producing apparatus, a narrow vertical retort, in combination with a feeding device for supplying pulverized carbonaceous material in regulated quantity to the top of the retort, an enlarged chamber having a receptacle for solid matter at the bottom of the retort, a narrow vertical retort provided with baffle-tiles opening at its bottom into the enlarged chamber aforesaid and having a steam-pipe entering its top, a third narrow vertical retort leading upward from the enlarged chamber, a fourth narrow vertical retort connecting with the third at their tops and having a second enlarged chamber with an ash-receptacle at its bottom, an oil-injector leading into the retorts above the first enlarged chamber, a gas-conduit leading from the second enlarged chamber, and combustion-flues surrounding all of the retorts, so as to heat them externally.

9. The gas-producer A, having a grate *a*, air-passages A' and A^2 above and below said grate, and gas-passages A^3 and A^4 below and above said grate, in combination with valves *a'* and a^3, situated in each gas-passage, a conduit connecting with both of said gas-passages, and an exhauster connected with said conduit and whereby the gas can be drawn from above or below the grate in the producer, according to the arrangement of the valves.

10. In combination with a series of externally-heated gas-retorts, combustion-flues surrounding said retorts, connecting-chambers uniting the combustion-flues, so as to form a continuous conduit passing backward and forward around the retorts, an air-conduit leading into the combustion-flue system at one end thereof, an exhauster arranged to connect with the combustion-flue system at the other end thereof, a gas-producer, a conduit leading from said gas-producer to the combustion-flue system and having gas-passages connected with two or more of the connecting-chambers, and valves whereby said passages are controlled and the gas delivered to the connected chambers at will and in regulated quantity.

11. In combination with a series of externally-heated gas-retorts, combustion-flues surrounding said retorts, connecting-chambers uniting the combustion-flues, so as to form a continuous conduit passing backward and forward around the retorts, two regenerators, each connected with one of the two connecting-chambers at the ends of the combustion-flue system, an exhauster, conduits leading from the regenerators, a four-way valve arranged to connect the exhauster, the regenerator-conduits, and a pipe-section leading to the open air, so that one regenerator will be connected with the exhauster whenever the other is connected to the open-pipe section, a gas-producer, a conduit leading from the producer to the combustion-flues and provided with independent branches connecting, respectively, with the end chambers of said combustion-flue system, and valves to control the flow of gas through said branches.

12. In combination with a series of externally-heated gas-retorts, combustion-flues surrounding said retorts, connecting-chambers uniting the combustion-flues, so as to form a continuous conduit passing backward and forward around the retorts, two regenerators, each connected with one of the two connecting-chambers at the ends of the combustion-flue system, an exhauster, conduits leading from the regenerators, a four-way valve arranged to connect the exhauster, the regenerator-conduits, and a pipe-section leading to the open air, so that one regenerator will be connected with the exhauster whenever the other is connected to the open pipe-section, a gas-producer having a grate, two air-inlet passages, and two gas-exit passages, one of each situated above the grate and one of each below said grate, valves arranged to close and regulate each of said gas-passages, a conduit leading from the producer, and connected with both gas-passages thereof, to the combustion-flues and provided with independent branches connecting, respectively, with the end chambers of said combustion-flue system, and valves to control the flow of gas through said branches.

13. In a gas-producing apparatus, the combination, with a system of narrow vertical retorts connected together and provided with devices for feeding in pulverized fuel and injecting steam, substantially as specified, of combustion-flues arranged in and forming the walls of the retorts, connecting-chambers at the ends of the retorts, arranged with the combustion-flues so as to form a continuous conduit passing around each retort in the system, an air-conduit leading into the combustion-flue system at one end thereof, an exhauster arranged to connect with the combustion-flue system at the end opposite to that at which the air-conduit enters it, a gas-producer, a conduit leading from the gas-producer to the combustion-flue system and having passages connecting with all the connecting-chambers on the side of the retorts where the air enters said system, and valves arranged in said passages, whereby the gas can be directed into any of the connecting-chambers at will and in regulated quantity.

14. In a gas-producing apparatus, the combination, with a system of narrow vertical retorts connected together and provided with devices for feeding in pulverized fuel and injecting steam, substantially as specified, of combustion-flues arranged in and forming the walls of the retorts, connecting-chambers at the ends of the retorts arranged with the combustion-flues so as to form a continuous conduit passing around each retort in the system, two regenerators connecting, respectively, with the chambers at the two ends of the combustion-flue system, an exhauster, a four-way valve having one port connected with the exhauster, one with the air, and its other two with the two regenerators, respectively, and all so arranged that one regenerator is connected with the exhauster and the other with the air alternately, a gas-producer, a conduit leading from the gas-producer to the combustion-flue system and having gas-passages connecting with the two ends of the combustion-flue system, and valves for controlling said passages.

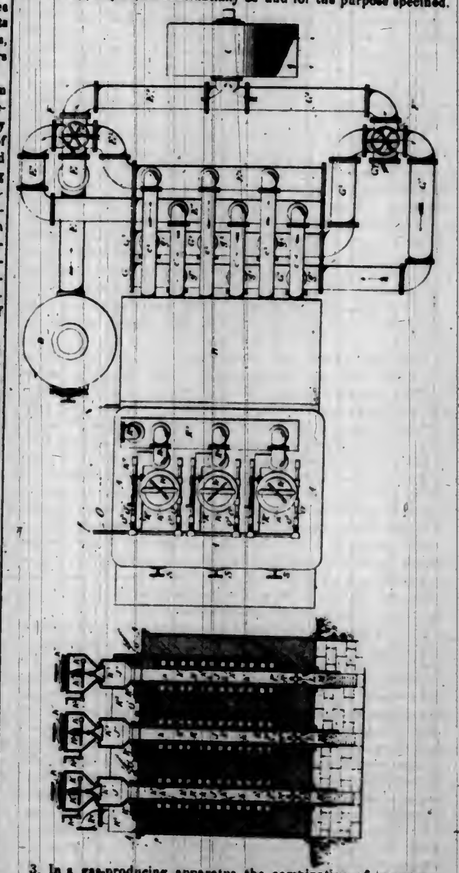
15. In a gas-producing apparatus, the combination, with a system of narrow vertical retorts connected together and provided with devices for feeding in pulverized fuel and injecting steam, substantially as specified, of combustion flues arranged in and forming the walls of the retorts, connecting-chambers at the ends of the retorts, arranged with the combustion-flues so as to form a continuous conduit passing around each retort in the system, two regenerators connecting, respectively, with the chambers at the two ends of the combustion-flue system, an exhauster, a four-way valve having one port connected with the exhauster, one with the air, and its other two with the two regenerators, respectively, and all so arranged that one regenerator is connected with the exhauster and the other with the air alternately, a gas-producer having two air-inlet passages, a grate, and two gas-exit passages, one of each situated above the grate and one of each below said grate, valves arranged to close and regulate each of said gas-passages, a conduit leading from the gas-producer, and connected with both gas-passages thereof, to the combustion-flue system and having gas-passages connecting with the two ends of the combustion-flue system, and valves for controlling said passages.

16. In a gas-producing apparatus, substantially as specified, the combination of the parallel vertical flue-rows E E', &c., made up of square flues *e e*, &c., and placed so as to form a series of narrow retort-chambers between adjacent flue-rows, connecting-chambers arranged to unite the flues into a continuous conduit, and one or more partition-walls separating the series of retorts into two or more independent series, so that the manufacture of gas can be stopped in the retort system on one side of said partition without interfering with the operation of the retort system on the other side thereof.

480,249. GAS-PRODUCING APPARATUS. JOSEPH H. COLLINS, Jr., Philadelphia, Pa., and ISAAC N. KNAPP, Paterson, N. J.; Rebecca S. Collins and William J. Collins, administrators of said Joseph H. Collins, Jr., deceased, and said Knapp assignors, by mesne assignments, to the United Gas Improvement Company, Philadelphia, Pa. Filed June 26, 1888. Serial No. 278,277. (No model.)

Claim.—1. In a gas-producing apparatus, the combination of an externally-heated retort made up of vertical side walls and end walls, the ends walls being narrow with respect to the side walls, (whereby a narrow vertical retort having broad side walls separated by a narrow intervening space is formed,) means for externally heating the retort, a hopper-box at the top of said retort, provided with appliances whereby coal can be introduced into the retort without opening it to the air, a grate at the bottom of the retort to sustain the charge therein, one or more steam-pipes entering the retort a little above the grate, and an ash-pit situated below the grate and constructed so that the ashes can be removed without opening the retort to the air, said retort being provided with a gas-exit passage leading from its upper part, all substantially as and for the purpose specified.

2. In a gas-producing apparatus, the combination of an externally-heated retort made up of vertical side walls and end walls, the end walls being narrow with respect to the side walls, (whereby a narrow vertical retort having broad side walls separated by a narrow intervening space is formed,) means for externally heating the retort, a hopper-box at the top of said retort, provided with appliances whereby coal can be introduced into the retort without opening it to the air, a grate at the bottom of the retort to sustain the charge therein, openings in the furnace-wall arranged one above the other along the edge of the retort and constructed with flaring mouths and contracted neck, as shown, one or more steam-pipes entering the retort a little above the grate, and an ash-pit situated below the grate and constructed so that the ashes can be removed without opening the retort to the air, said retort provided with a gas-exit passage leading from its upper part, all substantially as and for the purpose specified.



3. In a gas-producing apparatus, the combination of an externally-heated retort made up of vertical side walls and end walls, the end walls being narrow with respect to the side walls, (whereby a narrow vertical retort having broad side walls separated by a narrow intervening space is formed,) means for externally heating the retort, a hopper-box at the top of said retort, provided with appliances whereby

coal can be introduced into the retort without opening it to the air, a grate at the bottom of the retort to sustain the charge therein, one or more steam-pipes entering the retort a little above the grate, and an ash-pit situated below the grate and constructed so that the ashes can be removed without opening the retort to the air, said retort being provided with a gas-exit passage leading from its upper part at a point below the top of the charging-zone, and hence below the level of the fuel therein, all substantially as and for the purpose specified.

4. In a gas-producing apparatus, the combination of an externally-heated retort made up of vertical side walls and end walls, the end walls being narrow with respect to the side walls, (whereby a narrow vertical retort having broad side walls separated by a narrow intervening space is formed,) means for externally heating the retort, a hopper-box at the top of said retort, provided with appliances whereby coal can be introduced into the retort without opening it to the air, a grate at the bottom of the retort to sustain the charge therein, one or more steam-pipes entering the retort a little above the grate, and a water-bottom arranged to serve as an ash-pit to the retort, and said retort being provided with a gas-exit passage leading from its upper part, all substantially as and for the purpose specified.

5. In a gas-producing apparatus, the combination of an externally-heated retort made up of vertical side walls and end walls, the end walls being narrow with respect to the side walls, (whereby a narrow vertical retort having broad side walls separated by a narrow intervening space is formed,) means for externally heating the retort, a hopper-box at the top of said retort, provided with appliances whereby coal can be introduced into the retort without opening it to the air, a grate at the bottom of the retort to sustain the charge therein, one or more steam-pipes entering the retort a little above the grate, air-blast pipes entering the retort near its bottom, and an ash-pit situated below the grate and constructed so that the ashes can be removed without opening the retort to the air, said retort being provided with a gas-exit passage leading from its upper part, all substantially as and for the purpose specified.

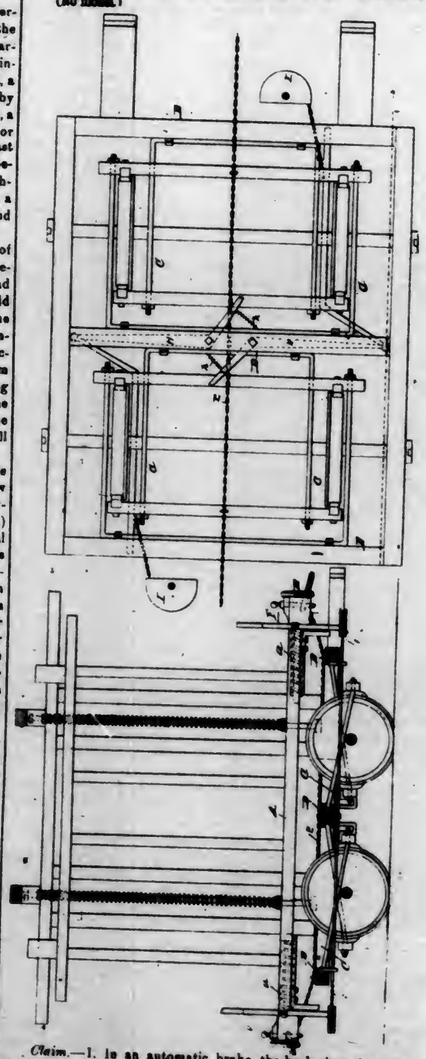
6. In a gas-producing apparatus, one or more retorts made up of vertical side walls and end walls, the end walls being narrow with respect to the side walls, (whereby narrow vertical retorts having broad side walls separated by a narrow intervening space are formed,) said walls being composed of hollow tiles united to form a combustion-flue system, means for supplying said hollow walls with products of combustion, a hopper-box secured to the top of each retort for introducing coal without opening the retort to the air, a grate at the bottom of the retort to support its charge, a closed ash-pit, said retorts being provided with a gas-exit passage leading from the upper part of the retort, and steam-passages formed alongside the hollow tiles from the top to near the bottom of the retort, where they enter the same, all substantially as and for the purpose specified.

7. In a gas-producing apparatus, an externally-heated retort made up of vertical side walls and end walls, the end walls being narrow with respect to the side walls, (whereby a narrow vertical retort having broad side walls separated by a narrow intervening space is formed,) said retort having a hopper-box at its upper end through which coal can be introduced without opening the retort to the air, a grate at its bottom to support its charge, a closed ash-pit, a steam-pipe for introducing steam, and a gas-exit passage, all substantially as specified, in combination with a system of combustion-flues formed in its side walls so as to form a continuous passage for burning gases extending over the whole of both sides of the retort, a gas-producer, a conduit or conduits leading from the producer to one end of the combustion flue passage, an air inlet or inlets leading into the said passage at the same point as the gas-conduit, an exhaust-fan, and a conduit or conduits leading from the fan to the combustion-flue passage at the other end from that connected with the gas-producer.

8. In a gas-producing apparatus, one or more narrow vertical retorts J, in combination with one or more sets of air and gas mixing chambers H H^4, a system of flues leading from each chamber H to each chamber H^4 and arranged to traverse the sides of the retort and heat the same throughout, two independent regenerators leading into each of chambers H and H^4, a gas-producer D, a suction-fan C, four conduits connected by a four-way valve F, one leading to the producer D, one to fan C, and two E' and E^3 connecting with independent regenerators leading to chambers H and H^4, four additional conduits united by a four-way valve F', one leading to fan C, one to the open air, and two G' G^2 connecting with the other two independent regenerators leading, respectively, to chambers H and H^4, all substantially as shown and described, and so that the producer gases and air can by changing the position of cocks F F' be made to pass at will through the regenerators heated by the escaping products of their combustion, while said gases are caused to pass through the passages formerly traversed by the entering gas and air.

9. In a gas-producing apparatus, one or more narrow vertical retorts J, in combination with one or more sets of air and gas mixing chambers H H^4, a system of flues leading from each chamber H to each chamber H^4 and arranged to traverse the sides of the retort and heat the same throughout, independent regenerators B^3 B^4, situated one above the other, leading into each chamber H, similar independent regenerators B' B^5, situated one above the other and alongside of regenerators B^3 B^4, leading into each regenerator H, a gas-producer B, a suction-fan C, four conduits connected by a four-way valve F, one leading to the producer D, one to fan C, and two E' and E^3 connecting with independent regenerators leading to chambers H and H^4, four additional conduits united by a four-way valve F', one leading to fan C, one to the open air, and two G' G^2 connecting with the other two independent regenerators leading, respectively, to chambers H and H^4, substantially as shown and described, and so that the producer gases and air can by changing the position of cocks F F' be made to pass at will through the regenerators heated by the escaping products of their combustion, while said gases are caused to pass through the regenerators formerly traversed by the entering gas and air.

480,250. AUTOMATIC CAR-BRAKE. RICHARD CONDON, Lyons, Iowa. Filed Jan. 29, 1889. Renewed Apr. 22, 1892. Serial No. 430,170. (No model.)

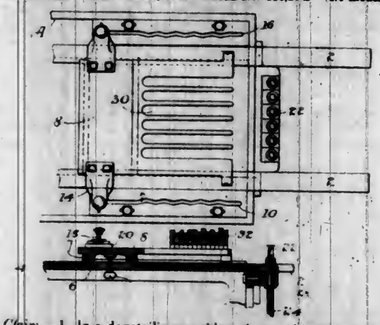


Claim.—1. In an automatic brake, the brake-bars hung above the wheels and chains connected with the brake-bars and with the sliding draw-head, substantially as described.

2. In an automatic brake, the brake-bars loosely hung above the wheels and the chain or rope connected to the rear end of the train and to the locomotive and attached to the brake-bars, substantially as described.

3. In an automatic brake, the brake-bars loosely hung above the wheels, the sliding draw-heads, the chain connected with the draw-heads and with the brake-bars, and the supplemental chain attached to the operating-chain and to the standards, substantially as described.

480,251. DOVETAILING-MACHINE. CHARLES CRISTADORO, St. Paul, Minn. Filed Jan. 16, 1892. Serial No. 418,274. (No model.)



Claim.—1. In a dovetailing-machine, the combination, with the series of cutters, of the table arranged at right angles with the plane of the cutters and slidable to and from them, the secondary table carried by it and slidable laterally thereon, and the regular angular zigzag guides for said second table, whereby said table is reciprocated upon the machine in exactly similar but oppositely-angled zigzag courses, substantially as described.

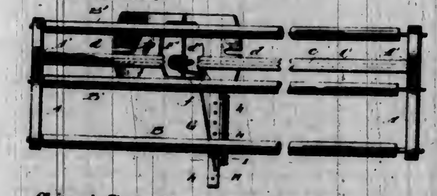
2. In a dovetailing-machine, the combination, with the series of cutters, of a table or carriage arranged in a plane at right angles to the plane of said cutters and adapted to be carried to and fro over the same, and automatic means for moving it laterally during its travel, so as to cause it to describe regular angular zigzag courses, the angles of one course being exactly the opposite of the angles of the other, substantially as described.

3. In a device of the class described, the combination, with the cutters, of the table or carriage slidable over the same, means for guiding said table in a regular angular zigzag course while traveling in one direction and in a similar but exactly oppositely-angled course while traveling in the opposite direction, substantially as described.

4. In a dovetailing-machine, the combination, with the series of cutters, of the main table slidable to and from said cutters, the secondary table carried thereby and slidable thereon at right angles to the path of its movement, oppositely-arranged angular zigzag guides for said secondary table, and means alternately connecting the same with said guides, whereby when reciprocated over the cutters the cutters are carried through the stock in intersecting zigzag paths, substantially as described.

5. The combination, with the cutters, of the table slidable in a right line to and from said cutters, the secondary table carried thereby and slidable thereon at right angles with its path of movement, the guides having regular reverse-angled grooves oppositely arranged, and the guide-pins carried by said secondary table and adapted to be alternately engaged with their respective guides, substantially as described.

480,252. QUILTING ATTACHMENT FOR SEWING-MACHINES. CHARLES W. DELANY, Columbus, Tex. Filed Mar. 21, 1892. Serial No. 425,678. (No model.)

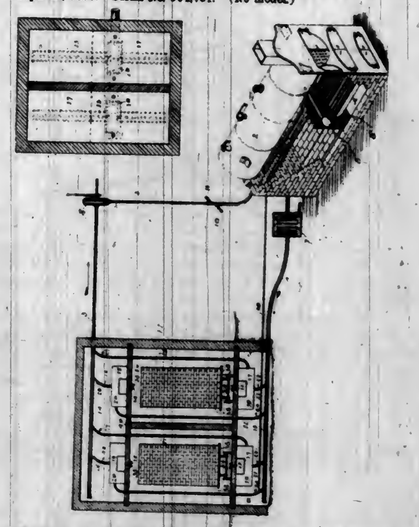


Claim.—1. The combination, with a quilting-frame, of a plate having a lateral arm with plurality of holes, an adjustable roller, and a wire having one end provided with means for detachably engaging said holes and its other adapted to move said roller on its support, as and for the purpose specified.

2. The combination, with a quilting-frame, of a plate having an opening and a lateral arm with holes, a rod across said opening, a gage-roller loosely sleeved on said rod, and a wire having one end bent at right angles to its length to engage said holes and its other end embracing the roller and loosely sleeved on its rod, as shown and described.

3. The combination, with a quilting frame, of a plate having an opening and a lateral arm with holes, a rod across said opening, a gage-roller loosely sleeved on said rod, a wire having one end bent at right angles to its length and its other end loosely sleeved upon said rod upon opposite sides of the gage-roller, and a short roller journaled on said arm parallel therewith, as set forth.

480,253. DRYING-KILN. CHARLES J. DION, St. Paul, Minn. Filed Sept. 12, 1890. Serial No. 364,761. (No model.)



Claim.—1. In a device of the class described, the combination of a drying-chamber having slotted openings in both its floor and ceiling, main inlet and main outlet pipes located one at the bottom and the other at the top of said chamber, valved connections between said slots and main pipes at both the ceiling and the bottom of the chamber, and valved pipes, one leading from the lower main pipe and having a connection with the slotted openings in the ceiling and the other leading from the upper main pipe downward and having a connection with the slotted openings in the floor of the chamber, whereby air may be introduced into said chamber at will from either the bottom or ceiling and caused to circulate, as set forth, substantially as and for the purposes described.

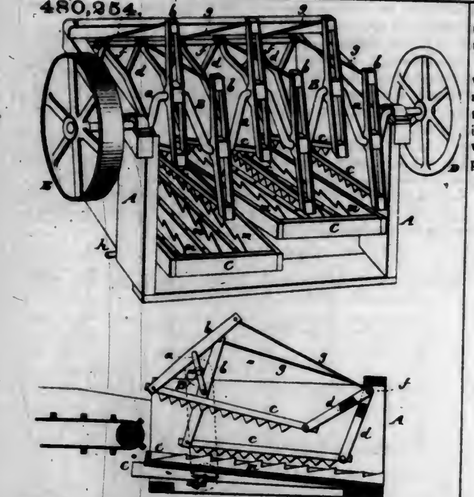
2. In a device of the class described, the combination, with the drying-chamber and the inlet and outlet air-pipes thereof located one at the top and the other at the bottom of the chamber, of narrow slotted openings extending substantially the entire width of both floor and ceiling, valve-controlled connections between said slotted openings and both inlet and outlet pipes, and curved deflectors arranged adjacent to said slots on the inside of said chamber in such manner as to divide and oppositely deflect the currents of air entering the same, substantially as and for the purposes set forth.

3. The combination, with the drying-kiln and its main air-pipes, of inlet and outlet valves in said pipes, a blower for forcing the air through said pipes, means for heating the air as it passes through said pipes to said kiln, slots extending substantially the width of the kiln through both floor and ceiling, branch pipes connecting said slots with both inlet and outlet main air-pipes, valves in said branch pipes, and valve-controlled steam-pipe connections with said branch pipes, substantially as and for the purposes set forth.

480,254. FEEDER AND CUTTER FOR THRASHING-MACHINES. FRED DWORSHAK, Beaver Falls, Minn. Filed Jan. 2, 1892. Serial No. 416,765. (No model.)

Claim.—1. In a feeding and cutting machine for thrashing-ma-

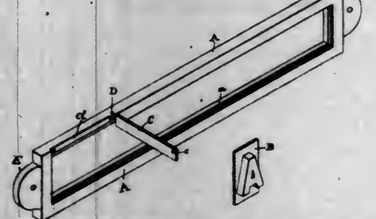
480,254.



chines, a rotative shaft provided with a series of cranks, a series of rocking levers pivotally connected with said cranks, a number of cutters connected at their forward ends with said levers, pivoted hangers with which the rear ends of said cutters are connected, rods connected with said levers and with a rear cross-bar, and operating mechanism, substantially as and for the purposes described.

2. The combination, with a main frame, of a shaft provided with a series of cranks, pivoted holders *b*, secured on said shaft, cutters *c*, connected at their forward ends with said holders, hangers *d*, connected with said cutters, rods connected with said holders and with a cross-bar, one or more vibrating tables mounted under said cutters, and driving mechanism, substantially as set forth and described.

480,255. **INTERCHANGEABLE SIGN-BOARD.** ISAAC ENNER, St. Louis, Mo. Filed Aug. 13, 1891. Serial No. 402,509. (No model.)



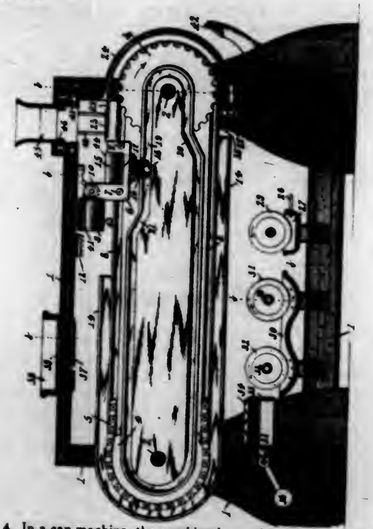
Claim.—A street-sign consisting of a frame A, pierced ears E, formed on the opposite ends of the said frame, a plate-gate *d*, formed in said frame and located at one end of the longitudinal portion of the same, a bar C, hinged at D to one end of the plate-gate, a hole *c*, formed in the said bar, through which a screw or other device is inserted and into the frame, and a continuous channel *a*, formed around the inner edges of the frame when the said bar is closed, said channel adapted to receive letter or figure plates in a manner herein shown and described.

480,256. **CAN-MACHINE.** JOHN B. FOOTE, Hamilton, Ohio, assignor to Edwin Norton and Oliver W. Norton, Chicago, Ill. Filed July 17, 1891. Serial No. 399,206. (No model.)

Claim.—1. In a can-machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, and a cylindrical horn mounted on said carriage with its axis parallel to the path of movement of the carriage and attached to said carriage by one end only and overhanging its attachment a distance equal to the length of the can-body.

2. In a can machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, and an overhanging cylindrical horn mounted on said carriage and supported by one end only, with its axis parallel to the path of movement of the carriage and provided with a longitudinal carbon rib.

3. In a can-machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, and an overhanging cylindrical horn mounted on said carriage with its axis parallel to the path of movement of the carriage and provided with a longitudinal peripheral groove adapted to receive a stripping-finger.



4. In a can-machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, and an overhanging cylindrical horn mounted on said carriage with its axis parallel to the path of movement of the carriage and connected with the carriage by a pivot at right angles to said line and path to permit the horn to reverse its position on the carriage.

5. In a can-machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, an overhanging cylindrical horn mounted on said carriage with its axis parallel to the path of movement of the carriage, and a pair of clamps pivoted to the carriage and adapted to open and close upon the horn and travel with the horn.

6. In a can-machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, a cylindrical overhanging traveling horn mounted on said carriage with its axis parallel to the path of horizontal movement of the carriage, and a pair of clamps pivoted to the carriage and adapted to open and close upon and travel with the horn and to present when open their edges in a common horizontal plane parallel to the axis of the horn.

7. In a can-machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, a cylindrical horn mounted on said carriage with its axis parallel to the path of horizontal movement of the carriage and pivoted to the carriage so as to be capable of reversing thereon, and a pair of clamps pivoted to the carriage and adapted to open and close upon the horn when the horn is in normal position.

8. In a can-machine, the combination, substantially as set forth, with a series of soldering appliances disposed in a line, of a carriage, mechanism for moving the carriage in a path parallel with said line, a cylindrical horn mounted on said carriage with its axis parallel to the path of movement of the carriage, and a pair of fixed blank-supporting ledges disposed one at each side of the machine and outwardly beyond the width of the carriage.

9. The combination, substantially as set forth, with an open-bottom box adapted to receive a pile of blanks, of a series of vertical screws disposed below the lower edge of the box and projecting their threaded peripheries inwardly beyond the wall of the box and arranged for rotation in unison.

10. In a can-machine, the combination, substantially as set forth, with appliances for moving a can-body in a path parallel to its longitudinal seam, of a rotary soldering-disk with its periphery in the line of movement of said seam, a solder-vessel below the disk, and a runner-ended soldering-rib arranged in said line beyond said disk and adapted to rub upon the solder deposited on the seam by said disk.

11. In a can-machine, the combination, substantially as set forth, with appliances for moving a can-body in a path parallel to its longitudinal seam, of a hollow rotary soldering-disk, with its periphery in the line of movement of said seam and provided with gas-ajutages in its surface and a gas-supply pipe communicating with said ajutages.

12. In a can-machine, the combination, substantially as set forth, with appliances for moving a can-body in a path parallel to its longitudinal seam, of a rotary soldering-disk with its periphery in the line of movement of said seam and a second soldering-disk in line with the first one, said two soldering-disks being arranged for rotation in opposite directions.

13. In a can-machine, the combination, substantially as set forth, with appliances for moving a can-body in a path parallel to its longitudinal seam, of a rotary soldering-disk with its periphery in the line of movement of said seam and a soldering-vessel below the disk and provided with a perforated partition dividing said vessel into two compartments, one of which is dipped into by said disk.

14. In a can-machine, the combination, substantially as set forth, of a carriage, an endless guide therefor, mechanism for moving the carriage thereon in a circuit, a traveling overhanging horn carried by the carriage with its axis parallel to the path of carriage movement, clamps pivoted to the carriage, and blank-feeding and blank-beveling and seam-soldering appliances disposed along said circuit and adapted to be engaged successively by said carriage.

15. In a can-machine, the combination, substantially as set forth, of two shafts, chains thereon, a carriage moved by said chains in a continuous path partly straight and partly curved, an overhanging cylindrical horn mounted on the carriage with its axis parallel to the path of movement of the carriage, and soldering appliances arranged at the straight part of said continuous path.

480,257. **CLEANING ATTACHMENT FOR TYPE-WRITING MACHINES.** SUMNERFIELD FORD, Chicago, Ill. Filed July 16, 1890. Serial No. 358,965. (No model.)



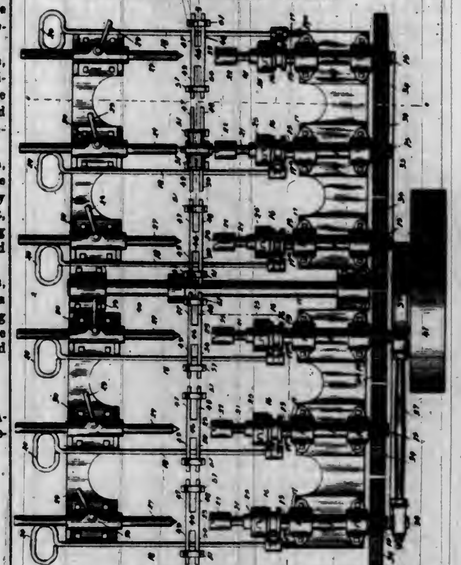
Claim.—1. The combination, with the printing-types of a type-writing machine arranged in a circle and the frame of said machine provided at its top with a circular opening through which the types operate, of an attachment for cleaning the types, consisting of a frame adapted to be secured to the top of the machine frame, a shaft mounted on said attachment-frame and supported at its inner end by said overhanging arm, a revolving brush mounted on the shaft at the center of the said circular opening, and means located at the outer end of the shaft for giving rotary or oscillating motion thereto, consisting of a crank-shaft mounted upon said attachment-frame and gearing connecting the crank-shaft with the brush-shaft, substantially as described.

2. The combination, with the printing-types of a type-writing machine arranged in a circle and the frame of said machine provided at its top with a circular opening through which the types operate, of an attachment for cleaning the types, consisting of a frame adapted to be secured to the top of the machine-frame and having a rigid arm which overhangs the central opening of said machine-frame, a shaft mounted in the attachment-frame and supported at its inner end by said overhanging arm, a revolving brush mounted on the shaft at the center of the said opening in the machine-frame, and means located at the outer end of the shaft for giving rotary or oscillatory motion thereto, substantially as described.

3. The combination, with the printing-types of a type-writing machine arranged in a circle and the frame of said machine provided at its top with a circular opening through which the types operate, of an attachment for cleaning the types, consisting of a frame having a rigid arm which overhangs the central opening of the machine-frame, a shaft mounted in the attachment-frame and supported at its inner end by said overhanging arm, a revolving brush mounted on the shaft at the center of said opening in the machine-frame, means for giving rotary or oscillatory motion to the shaft, and a clamp upon the attachment-frame adapted to engage the machine-frame, substantially as described.

4. An attachment for cleaning the type of type-writing-machines, comprising the base B and set-screw B', the arms C and C', the spindle C², mounted in said arms, a brush E, mounted upon the other end of said spindle, a wheel D', supported upon the arm C, larger than and in engagement with the pinion D, and means for imparting a rotary or oscillatory movement to said wheel D', substantially as described.

480,258. **MACHINE FOR GRINDING COCKS.** PAUL GEMSTERLORN, Milwaukee, Wis., assignor to himself, and Otto Budde, Chicago, Ill. Filed Feb. 6, 1892. Serial No. 420,595. (No model.)



Claim.—1. The combination, with a number of seat-supporting devices, of a corresponding number of shafts adapted to support keys in the seats, a sleeve carried upon each of said shafts, mechanism for operating said shafts from said sleeves, pinions carried by said sleeves, segmental rack-plates intermeshing with said pinions and adapted to be oscillated to operate said pinions, a connecting-rod connecting said rack-plates, and means for reciprocating said connecting-rod, substantially as and for the purpose specified.

2. The combination, with a number of seat-supporting devices, of a corresponding number of shafts adapted to support keys in the seats, a sleeve carried upon each of said shafts, mechanism for operating said shafts from said sleeves, pinions carried by said sleeves, segmental rack-plates intermeshing with said pinions and adapted to be oscillated to operate said pinions, connecting-rod connecting said rack-plates, pitman 37, eccentric 39, and band-wheel 41, substantially as and for the purpose specified.

3. The combination, with a key-holder, means for oscillating the same, and a seat-holder for holding a cock-seat upon a key, of a lever-and-cam mechanism which intermittently vibrates the seat holder and moves the seat off of and upon the key at regular intervals during the grinding operation to present fresh surfaces of the seat to the action of the oscillating key, substantially as described.

4. The combination, with a key-holder, means for oscillating the same, and a seat-holder for holding a cock-seat upon a key, of automatically-operating mechanism which vibrates the seat-holder and moves the seat off of and upon the key at regular intervals during the grinding operation to present fresh surfaces of the seat to the action of the oscillating key, substantially as described.

5. The combination, with a key-holder and means for oscillating the same, of a laterally-adjustable shaft 43, a lever 42, mounted on the shaft and provided with a cock-seat holder, a cam operating upon the lever to intermittently vibrate the same and thereby move the cock-seat off of and upon the key at regular intervals during the grinding operation to present fresh surfaces of the cock-seat to the action of the oscillating key, and devices for adjusting the lever-supporting shaft for the purpose of varying the lateral throw of the lever at will, substantially as described.

6. The combination, with a supporting-frame having a plate 31 and slot 45 in said plate, shaft 43, mounted in said slot, lever 42, mounted upon said shaft, nuts 44 for securing said shaft in said slot, and seat-holding devices carried by said lever, of key-holding devices carried by said frame and means for rotating said key-holding devices alternately in opposite directions, substantially as and for the purpose specified.

7. The combination, with a series of cock-seat holders, of a corresponding number of shafts for supporting keys in the cock-seats, a sleeve carried upon each shaft, means for operating the shafts from the sleeves, pinions mounted on the sleeves, oscillating segmental rack-plates engaging the pinions, a rod connecting the rack-plates, means for operating the rod to simultaneously oscillate the rack-plates, and a lever-and-cam mechanism which intermittently vibrates the cock-seat holders to move the cock-seats off of and upon the keys at regular intervals during the grinding operation to present fresh surfaces of the seats to the action of the oscillating keys, substantially as described.

8. The combination, with key-holding devices and means for rotating them alternately in opposite directions, of a transversely-swinging lever, means for transversely swinging said lever, seat-holding brackets carried by said lever, and means for adjusting said brackets with relation to each other, substantially as and for the purpose specified.

9. The combination, with key-holding devices and means for rotating them alternately in opposite directions, of a transversely-swinging lever, means for transversely swinging said lever, cross-head carried by said lever, brackets 51, carried by said cross-head, and means for adjusting said brackets with relation to each other, substantially as and for the purpose specified.

10. The combination, with key-holding devices and means for rotating them alternately in opposite directions, of a transversely-swinging lever, means for transversely swinging said lever, cross-head 46, carried by said lever, said cross-head having arms 47 48 49 50, brackets 51, carried by said cross-head, and nuts 52 and 53 upon said brackets, substantially as and for the purpose specified.

11. The combination, with a supporting-frame and seat-holding devices mounted therein, of a sleeve mounted transversely upon said frame, means for rotating said sleeve alternately in opposite directions, a shaft mounted in said sleeve, means for operating said shaft from said sleeve, and key-holding devices carried by said shaft, substantially as described.

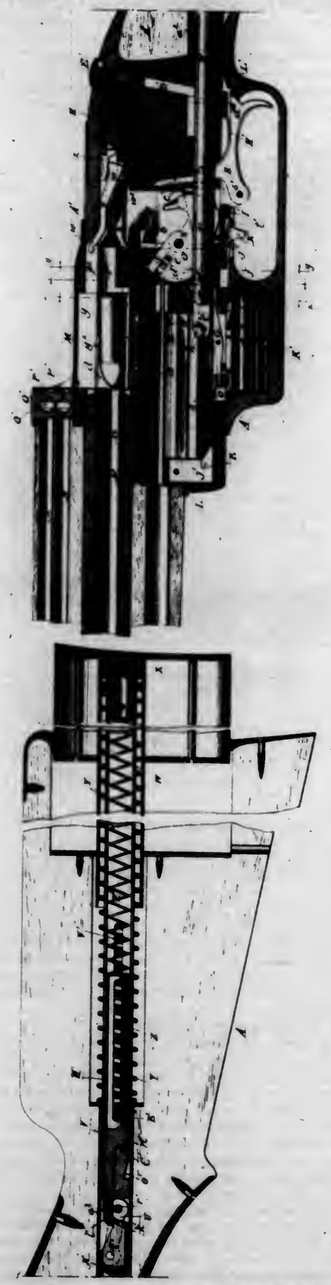
12. The combination, with a supporting-frame and seat-holding devices carried thereby, of a sleeve 13, means for rotating said sleeve alternately in opposite directions, a half-clutch 16, mounted upon said sleeve, means for operating said half-clutch 16, a shaft 21, mounted in said sleeve, a half-clutch 25, carried thereby, means for rigidly securing said half-clutch 25 thereupon, and key-holding devices, substantially as and for the purpose specified.

13. The combination, with a supporting-frame and seat-holding devices carried thereby, of a sleeve 13, means for rotating said sleeve alternately in opposite directions, a half-clutch 16, mounted upon said sleeve, means for operating said half-clutch 16, a shaft 21, mounted in said sleeve, a half-clutch 25, carried thereby, means for rigidly securing said half-clutch 25 thereupon, block 22, mounted upon the end of said shaft, slot 23 in said block, and shaft 27, adjustably mounted in the frame of the machine opposite said shaft 21, substantially as and for the purpose specified.

14. The combination, with a supporting-frame and seat-holding devices carried thereby, of a sleeve 13, means for rotating said sleeve alternately in opposite directions, a half-clutch 16, mounted upon said sleeve, rod 17ª, connected to said half-clutch 16, rod 18, suitably mounted in the frame of the machine, a shaft 21, mounted in said sleeve, a half-clutch 25, carried thereby, means for rigidly securing said half-clutch 25 thereupon, block 22, mounted upon the end of said shaft, slot 23 in said block, and shaft 27, adjustably mounted in the frame of the machine opposite said shaft 21, substantially as and for the purpose specified.

15. The combination, with a supporting-frame, of a transversely-swinging lever 42, seat-holding devices carried by said lever, tappet 54 on the lower end of said lever, shaft 56, cam 58, mounted thereupon and adapted to engage the tappet 54, means for rotating said shaft 56, counterpoise 59, pulley 61, cord 60, passing over said pulley and connected to the lower portion of the lever 42, a sleeve 13, having a gear-wheel 15, segmental rack-plate adapted to be oscillated to rotate said sleeve alternately in opposite directions, means for oscillating said rack-plate, half-clutch 16, carried by said sleeve and movable longitudinally thereupon, means for moving said half-clutch, shaft 21, mounted in said sleeve, half-clutch 25, carried thereby and adapted to be engaged by the half-clutch 16, and a shaft 27, mounted in the frame of the machine opposite and parallel to the shaft 21, substantially as and for the purpose specified.

480,259. BREECH-LOADING GUN. DUNCAN E. GRANT, Quebec, Canada, assignor of one-third to Annie Ritchie, same place. Filed June 24, 1891. Serial No. 397,315. (No model.)



Claim.—1. In a gun, the combination, with a longitudinally-reciprocating breech-bolt and means for reciprocating the same, of a vertically-reciprocating locking-block carrying the hammer, means for raising and lowering the block, and ways or guides formed in the casing, said block being adapted to move upward behind the rear end of the breech-bolt, so as to lock the breech-bolt and at the same time bring the hammer in line with the firing-pin.

2. In a gun, the combination, with the longitudinally-reciprocating breech-bolt, of a carriage or carrier for said breech-bolt, comprising two separated plates *q q*, means for moving the said carrier and breech-bolt longitudinally, a vertically-reciprocating locking block provided with a hammer and adapted to move between the plates of the breech-bolt carriage, and means for raising and lowering the block.

3. In a gun, the combination, with the reciprocating breech-bolt, of the carriage or carrier for said breech-bolt, comprising two separated plates *q q*, guides or ways *a' a'*, formed in the sides of the shell or casing of the gun to permit the longitudinal movement therethrough of the bolt-carriage, a vertically-reciprocating locking-block P, mounted in the ways or guides *a' a'* of the frame between the plates *q q* of the carriage, a hammer carried by said block, and means, substantially such as shown and described, for raising and lowering the block.

4. In a gun, the combination, with the longitudinally-reciprocating breech-bolt, the vertically-reciprocating locking-block provided with a hammer, and means for reciprocating the block and the breech-bolt, of a mainspring connected with the hammer, substantially as shown and described, whereby when the block is lowered the mainspring will rock the hammer backward and when the block is raised the mainspring will serve to cock the hammer.

5. In a gun, the combination, with the longitudinally-reciprocating breech-bolt, the vertically-reciprocating locking-block provided with a hammer, and means for reciprocating the block and the breech-bolt, of a mainspring affixed at one end to the main frame of the gun and having a sliding connection at its opposite end with a hammer, the attachment of the mainspring to the frame of the gun being at a point between the limits of the vertical movement of the pivot of the hammer.

6. In a gun, the combination, with a locking-block P, having a shoulder *c'*, of a hammer O, pivoted in the block and provided with a spring-actuated pin Q, adapted to engage the said shoulder *c'*, a mainspring connected with the hammer, means for raising and lowering the block, and a trigger having an arm G', adapted to act upon the exposed end of the pin Q, all substantially as shown.

7. In a gun, the combination, with the hollow block P, of a hammer O, mounted therein and having the separated slotted arms *d'*, a mainspring affixed rigidly at one end to the frame of the gun and provided at its opposite end with a pin *f'* to project into the slots formed in the arms *d'* of the hammer, and means for raising and lowering the block.

8. In a gun, the combination, with the vertically-moving block P, having a shoulder *c'* and a pin T, of a hammer O, pivoted in the block, a mainspring connected with the hammer, and means for raising and lowering the block.

9. In a gun, the combination, with the longitudinally-reciprocating breech-bolt having a carriage composed of two separated plates, of a block P, provided with a hammer and adapted to work vertically through the carriage of the breech-bolt, and a lever connected at its forward end with the carriage and passing therethrough and also through the block P, and means for reciprocating the bar or lever and also for raising and lowering the same.

10. In a gun, the combination, with the reciprocating breech-bolt provided with a carriage, of a bar or lever N, pivoted at its forward end to the forward end of the carriage, a lug *j'*, adapted to engage the lever and to hold the same against longitudinal rearward movement while being raised and lowered, a vertically-sliding block provided with a hammer and adapted to be raised and lowered by the bar or lever, and means, substantially such as shown and described, for raising and lowering the rear end of the bar or lever and also for reciprocating the said bar or lever longitudinally.

11. In a gun, the combination, with the longitudinally-reciprocating breech-bolt provided with a carriage, of a vertically-reciprocating locking-block provided with a hammer, a lever pivoted near its forward end to the carriage and provided with laterally-extending lugs *h'* and a flattened neck *i'* in rear of said lugs, and lugs *j'*, formed in the frame of the gun and having their upper faces on the level of the lower faces of the lugs *h'* and their front faces curved on the arc of the circle concentric with the pivot of said bar or lever N, whereby when the rear end of said bar or lever is raised the engagement of the lugs will prevent rearward longitudinal movement of the lever.

12. In a gun, the combination, with a rotatable magazine, of a longitudinally-reciprocating breech-bolt provided with a carriage, means, substantially such as shown and described, for causing the rotation of the magazine at the backward movement of the carriage, a bar or lever N, pivoted to the carriage and adapted to move the latter lengthwise, and a lever G, adapted to automatically engage the bar or lever N when the magazine is exhausted and prevent the forward movement of said lever.

13. In a gun, the combination, with a rotatable magazine, of a longitudinally-reciprocating breech bolt having a carriage which is adapted to cause the rotation of the magazine by its reciprocation, and means for reciprocating said carriage and breech-bolt.

14. In a gun, the combination, with a rotatable magazine having chambers or seats in its periphery for the reception of the cartridges, of a hollow core upon which said magazine is adapted to turn or rotate, a series of slots, substantially as shown and described, formed on the inner face of the cylinder or magazine, a longitudinally-reciprocating breech-bolt having a carriage which slides within the hollow core, a pin projecting from the carriage and adapted to engage the slots formed in the magazine, and means for reciprocating the said carriage and breech-bolt longitudinally.

15. In a gun, the combination, with a rotatable magazine provided with a series of chambers or seats in its periphery to receive the cartridges and with a series of slots corresponding in number to the seats or chambers in its periphery, one of which slots is wider at one portion of its length than the others, of a longitudinally-reciprocating breech-bolt provided with a carriage having a pin to engage the slots in the magazine, a bar or lever N, adapted to reciprocate the carriage and breech-bolt and thereby cause the rotation of the cylinder or magazine, a V-shaped block or pawl F, adapted to enter each slot in succession as they pass under it, a pivoted lever G, which rests with its forward end on the block F and the rear end of which is adapted when sufficiently raised to engage the lever N, and a spring which presses the lever G and block F downward, as shown and described, so that as the deepest slot passes under the pawl F the said pawl and the forward end of lever G shall descend farther than when the other slots pass under them, while the rear end of the lever is correspondingly raised into engagement with the lever N, and thereby prevents the forward movement of the same.

16. In a gun, the combination, with the rotatable magazine provided with a series of seats or chambers *d* in its periphery open at both ends and on the outer side and with an additional seat or opening *e*, open at both ends, but closed on its outer side, of a stud or projection S', secured to the casing and adapted to project into a peripheral slot cut partially around the magazine for the purpose of limiting the backward movement of the magazine, and means for rotating the magazine.

17. In a gun, the combination, with a rotatable magazine provided with a series of notches or openings *f* in its rear face, of a vertically-reciprocating plate A, provided with a thumb-piece i and with a pawl *g*, the said pawl projecting through a slot *j*, formed in the casing of the gun and adapted to engage the notches or openings *f* for the purpose of revolving the magazine by hand, all substantially as shown and described.

18. In combination with a rotatable magazine provided with the slots E, the breech-bolt provided with a carriage adapted to slide through the center of the magazine, a spring-actuated pin J, carried by the carriage and adapted to engage the slots, and a shaft journaled in the frame of the gun and adapted to retract the said pin and to hold the same retracted, as and for the purpose set forth.

19. In combination with a rotatable magazine provided with the slots E, the breech-bolt provided with a carriage, a pin J, mounted in the carriage and provided with a lug or shoulder *u*, and a shaft L, journaled in the frame and provided with a feather or lateral projection K, adapted to bear against the lug *u* and to thereby retract the pin and to hold the same out of the slots E.

20. In combination with the hollow core B, the rotatable magazine mounted thereon and means, substantially such as shown, working through the hollow core and adapted to rotate the magazine.

21. In combination with the reciprocating breech-bolt and its carriage, the pin J, mounted upon the carriage, and a rotatable cylinder provided with a series of grooves E, said grooves comprising a long straight portion *k*, a short oblique portion *l*, and a short straight section *m* in line with the straight section *k*, and a straight section *l*', having an inclined bottom.

22. In combination with the reciprocating breech-bolt and carriage having the pin J, the rotatable magazine provided with a series of slots E, with which the pin is adapted to engage, each of the said slots comprising two straight portions *k* and *m*, an intermediate oblique portion *l*, and a straight portion *l*', formed between the slots *l* and *m* and inclined upward, as shown.

23. In combination with the rotatable magazine or cylinder having a series of straight slots *m*, a series of diagonal slots *l*, and short straight slots *l*', the floors of which incline upward, as shown, a longitudinally-reciprocating carriage and breech bolt, and a pin carried by the carriage to engage the slots.

24. In combination with the reciprocating bolt H, the extracting-lever *w*, pivoted thereto, and a spring w^2, attached to the forward end of the breech-bolt in the opposite side from the lever and bearing with its rear end on the rear end of the lever.

25. In combination with a reciprocating breech-bolt, the extracting-lever *w*, the spring w^2, and the longitudinally-moving firing-pin *v*, a retracting-lever *x*, pivoted in the breech-bolt and having its forward

arm projecting over the rear end of the extracting-lever *w*, so that when in the course of the rearward movement of the breech-bolt the forward arm of the retractor is depressed by contact with the casing it bears down the rear end of the extracting-lever *w*, tilting its forward end or head, and releases the flange of the cartridge from its grasp at the same time that the vertical arm withdraws the firing-pin *v*, and when on the forward movement of the breech-bolt the retractor passes clear of the casing, the spring w^2, acting on the rear end of the extractor-lever *w*, bears it and the forward arm of the retractor *x* upward and moves the vertical arm clear of the course of the firing-pin.

26. In a gun, the combination of the reciprocating breech-bolt moving in a bore *p'* in the shell or casing of the gun and the carriage I of the breech-bolt with an ejector T', moving in a chamber U', parallel with the bore *p'* and connected with the carriage I by the lug or projection t^2, substantially as shown.

27. In combination with the trigger R, the sliding plate J', provided with a spring-pawl K', adapted to engage the recesses *t'*, and the bar L', carried by said plate J' and adapted to move inward over the rear end of the trigger and under the rear end of latch D, as and for the purpose set forth.

28. In a gun, the combination, with the reciprocating breech-bolt, the lever N for actuating the same, the hollow rod or tube W, connected with the lever for actuating the latter and provided with a notch or recess *c'* on its lower face, of a latch D', provided on its lower end with a cross-bar d^2, adapted to engage the notch or recess *c'* and having its upper end projecting through the rear end of the casing in such a position as to allow of its being conveniently depressed by the thumb of the right hand without shifting the grip of the hand on the gun when it is necessary to release tube *w* from engagement with the cross-bar d^2.

29. In a gun, the combination, with a longitudinally-reciprocating breech-bolt, of the lever N, the link U, a tube or rod W, connected with the lever by said link U, a movable heel-plate X, connected with the rear end of the tube W and adapted to slide within the stock, as shown and described, a spring Y, surrounding tube W and serving to urge said tube rearwardly, a rod V, mounted within the tube and having a nose *l'* to engage the rear end of the lever N, and a spring E', serving to maintain the rod V in engagement with the lever N.

30. In a gun, the combination, with the reciprocating breech-bolt and its actuating-lever N, of the tube or rod W, connected at its forward end with the rear end of the lever by a link U and at its rear end with the heel-plate X and provided with a locking-rod V, the forward pivot of the link U being located above the axis of the tube W, whereby when the tube is moved forward longitudinally and the rear end of the lever N released from the locking-rod V the said rear end of the lever will be raised or elevated, substantially as and for the purpose set forth.

31. In combination with the reciprocating breech-bolt, the lever N for actuating the same, the rod or tube W, connected with the lever by a link U and provided with a shoulder C' and also with a longitudinal slot Z, the rod or locking-rod V, provided with a similar but shorter slot Z and with a shoulder *n'*, and a nose *l'*, projecting over the rear end of lever N, of a pin B', passing transversely through the slots Z in the rod V and tube W and the stock of the gun for the purpose of limiting the movement of locking-rod V, and thereby releasing lever N, substantially as shown and described.

32. In a gun of the class described, the combination, with the trigger R and the latch D', of the single spring H', adapted to hold the trigger and the latch in their proper positions.

33. In a gun, the combination, with a reciprocating breech-bolt and its carriage, of a rotatable magazine actuated by the carriage as the latter reciprocates, a movable heel-plate, and intermediate connections, substantially such as shown and described, between the heel-plate and the bolt-carriage.

34. In a gun, the combination, with a reciprocating breech-bolt and its carriage, of a vertically-moving locking-block carrying the hammer, a movable heel-plate, and intermediate connections, substantially such as shown and described, between the heel-plate and the breech-bolt carriage and hammer-block.

35. In a gun, the combination, with a reciprocating breech-bolt and its carriage, of a vertically-moving locking-block carrying a hammer, a movable heel-plate, intermediate connections between the heel-plate and the bolt-carriage and hammer-block, and a locking device which when the heel-plate or the main body of the gun move one with reference to the other a predetermined distance shall automatically release the said intermediate connections and permit the raising of the hammer-block and hammer.

480,260. PLAITING ATTACHMENT FOR SEWING-MACHINES.

James G. Grewe, Elizabeth, N. J., assignor to The Singer Manufacturing Company of New Jersey. Filed Apr. 18, 1892. Serial No. 429,616. (No model.)

Claim.—1. In a plaiting attachment for sewing-machines, the combination, with a stationary guide arranged centrally in front of the needles and having vertical guiding-faces on its opposite sides and overhanging edges projecting laterally from the sides of said guide beyond said vertical guiding faces, of two swinging plaiting-blades placed on opposite sides of said guide and normally extending beneath said overhanging edges and pivoted arms by which said blades are carried.

2. In a plaiting attachment for sewing-machines, the combination, with a central guide having overhanging edges, of two swinging plaiting-blades and two connected pivoted arms by which said blades are carried, said arms having intermeshing portions, so that a movement of one will cause a simultaneous movement of the other.



3. In a plaiting attachment for sewing-machines, the combination, with a stationary guide arranged centrally in front of the needles and having overhanging edges, of two swinging plaiting-blades on opposite sides of said guide and normally extending beneath said overhanging edges, pivoted arms by which said blades are carried, a spring for forcing said arms toward each other, and a stop device for limiting their inward movements.

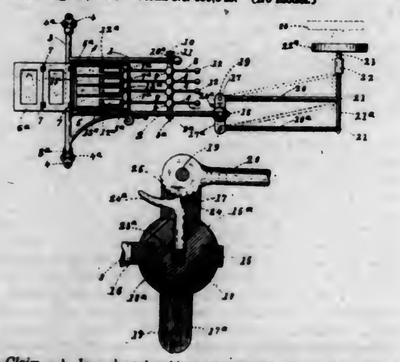
4. In a plaiting attachment for sewing-machines, the combination, with a central guide having overhanging edges, of two swinging plaiting-blades arranged to enter beneath said overhanging edges, two pivoted arms by which said blades are carried, a spring for forcing said arms toward each other, and adjustable stops for limiting their inward movements and for determining the positions of the plaiting-blades relative to the overhanging edges of the said guides.

5. In a plaiting attachment for sewing-machines, the combination, with a stationary guide arranged centrally in front of the needles and having vertical guiding-faces on its opposite sides and overhanging edges projecting laterally from the sides of said guide beyond said vertical guiding-faces, of two connected swinging arms carrying plaiting-blades arranged on opposite sides of said guide and normally entering beneath said overhanging edges and a retaining device to hold said plaiting-blades separated when they are swung outward from said guide for the insertion of the work.

6. The combination, with the central guide K, having overhanging edges, of the pivoted arms C, carrying the plaiting-blades *c*, arranged to enter beneath said edges, said arms having the intermeshing teeth *d*, and the stop-screws or projections *g*, the stop-bar or projection *f*, interposed between said arms, and the spring *e*, serving to force said arms toward each other.

480,261. DENTAL CABINET.

Christian A. Herr, Osborn, Ohio. Filed Aug. 24, 1891. Serial No. 403,545. (No model.)



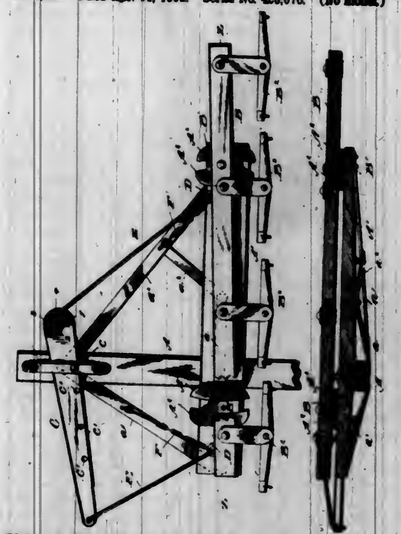
Claim.—1. In a dental cabinet, the combination of a series of trays provided with handles or arms extending outward, each having an enlarged portion 9 at its pivotal center and adapted to lie in a line one above the other, a pin or bolt 8, passing down through the portions 9, and upper and lower supports 1 and 2, to which the whole

are secured together, substantially as above described, a case provided with openings 7 for allowing room for the arms as the trays are swung into it, and a hinged door for inclosing the trays when in place within the case, whereby either one or more or all of the trays may be conveniently turned outward when required, as above set forth.

2. In a dental bracket consisting of a pivoted main bracket carrying an inclosing case and a series of pivoted horizontally-swinging trays, the combination therewith of a universal joint consisting of a ring projecting from the main bracket, an upper portion having a shank adapted to fit and turn in the ring and having two upwardly-projecting portions 17, a lower portion constructed to screw onto the upper portion and inclose the ring and having two downwardly-projecting portions 17a, an upper supplementary bracket-arm pivoted between the upper portions 17, having ratchet-teeth on its pivoted end, a spring-actuated pawl for holding it in its upward adjustment, a means for releasing the pawl from its engagement with the teeth and having its opposite end pivoted to a vertical bar 21a, carrying a tray, and a lower supplementary bracket-arm pivoted between the lower portions 17a and having its opposite end pivoted to the bar 21a, so as to be parallel with the upper supplementary arm, for the purpose set forth.

480,262. DRAFT-EQUALIZER.

Jeremiah L. Hoover, Fishertown, Pa. Filed Apr. 11, 1892. Serial No. 428,670. (No model.)

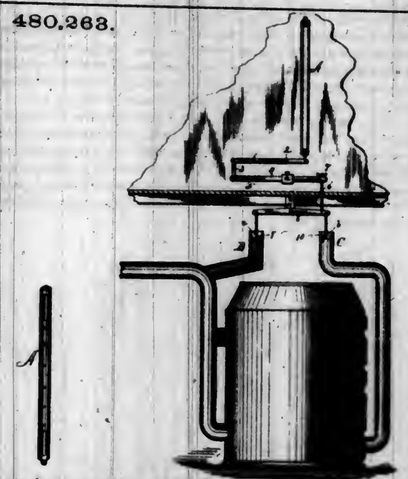


Claim.—1. The combination, with the pole and the cross-plate thereon, provided with curved dovetail guides, of the doubletree having curved dovetail shoes to slide in said guides, the singletrees on the doubletree, the pivoted lever with adjustable pivot, and the adjustable rod connecting the doubletree and lever, as and for the purpose specified.

2. The combination, with the pole and the transverse plate thereon, provided with guides, of the doubletree disconnected from the pole or plate and provided upon its under face with curved shoes fitted to the guides, the adjustable pivoted lever, the adjustable connection between one end of the lever and the doubletree, and the rod connecting the other end of the lever with the other end of the doubletree, as set forth.

3. The draft-equalizer described, consisting of the pole, the transverse plate thereon with curved guides, the doubletree having shoes to slide in said guides, the lever pivoted to the rear end of the pole on an adjustable pivot and provided with a plurality of holes at its inner end, the rods connecting the lever with the doubletree, one adjustably, the braces for the plate, and the stay-chains connecting said braces with the doubletree, substantially as and for the purpose specified.

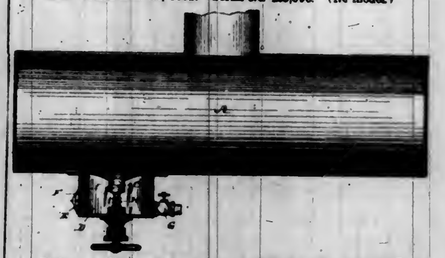
480,263.



lower lever 4, having a fixed pivot 5, the vertical link 3, pivoted to said lever, the adjustable weight *a* on the lower lever, the adjustable vertical rod 6, nut 7, by means of which the rod is raised or lowered on the outer end of the lower lever, the balance-lever 8, having a fixed pivot and connected to the rod at one end, the rods suspended from the ends of the balance-lever, having pistons 9 10, and the vertical check and draft pipes within which the pistons play, substantially as described and shown.

480,264. BOILER ATTACHMENT.

Gustof F. Johnson, Milan, Minn. Filed Mar. 19, 1892. Serial No. 425,590. (No model.)



Claim.—1. The combination of a boiler having a depressed sink or trap in the bottom thereof and converging to a central discharge-opening, and a mud-drum secured to the bottom of said boiler and over said discharge opening, substantially as set forth.

2. The combination of a boiler having a depressed sink or trap in the bottom thereof and converging to a central discharge-pipe, a mud-drum secured to the bottom of said boiler over said discharge-pipe, and a reciprocating valve working through the mud-drum into said discharge-pipe, substantially as set forth.

3. The combination of a boiler having a converging depressed sink or trap in the bottom thereof and terminating in a short projecting discharge-pipe, a mud-drum secured to the bottom of said boiler over said discharge-pipe and provided with a cleaning-hole and a discharge-cock, and a reciprocating valve-stem working through the bottom of the drum and carrying a plug-valve at one end adapted to enter said short discharge-pipe, substantially as set forth.

480,265. VALVE FOR OIL-WELLS.

Horace D. Jones, Knapp's Creek, N. Y. Filed Oct. 26, 1891. Serial No. 410,097. (No model.)

Claim.—1. A standing valve consisting of a tube provided with a valve-seat and valve at one end, the other end of the tube being enlarged to form a valve, a sleeve surrounding the lower end of the said tube and closed by the enlarged end of the tube, a means for holding the enlarged end of the tube against the lower end of the sleeve, and a working valve adapted to force the said tube down, as and for the purpose shown.

2. A standing valve consisting of a tube having a valve-seat and a valve therefor at its upper end, the lower end of the tube being en-

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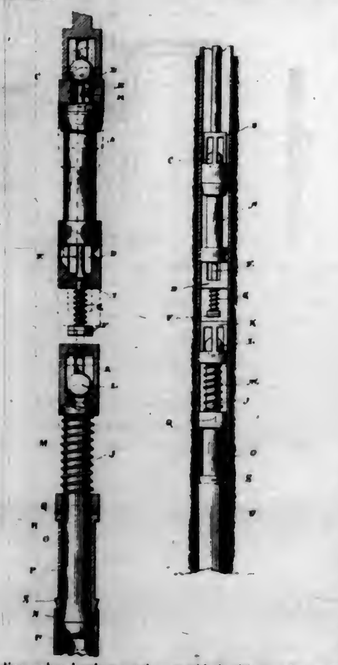
480,268. AUTOMATIC DAMPER.

Charles D. Howard, Syracuse, N. Y., assignor to the Howard Thermostat Company. Filed Feb. 5, 1891. Serial No. 380,333. (No model.)

Claim.—The combination of a suspended thermostatic bar A, the horizontal upper lever 1, having a fixed pivot 2 and connected at its outer end to the lower end of the thermostatic bar, the horizontal

larged to form a valve, a sleeve surrounding the lower end of the said tube, the lower end of the valve being shaped to close the upper end of an anchor-tube, and a means for holding the enlarged lower end of the tube against the lower end of the sleeve, combined with a working valve having a means for opening its valve when it is forced downward upon the said standing valve, substantially as set forth.

3. A standing valve having a tube carrying a valve at its upper end and a spring closed valve below the said valve, combined with a working valve having a tube carrying a valve and a spring-actuated rod which engages its valve when it is forced downward against the standing valve, whereby the working valve is opened and the spring-actuated valve of standing valve also opened, substantially as and for the purpose described.

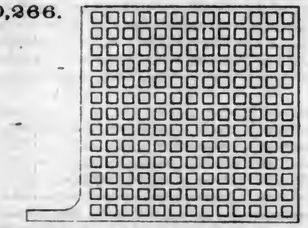


4. A standing valve having a tube provided with a valve at its upper end, its lower end enlarged and made cone-shaped externally, a sliding sleeve placed around the tube loosely and having its inner surface fitting tightly the said cone-shaped portion of the tube, and a means for normally holding the sleeve down, the lower end of the sleeve having an enlargement of greater diameter than the diameter of the said cone-shaped portion of the lower end of the tube, combined with a working valve carrying a means for opening the same when it is forced upon the upper end of the standing valve, substantially as described.

5. A standing valve having a valve at its upper end, an enlarged cone-shaped lower end, a sliding sleeve fitting loosely the said tube between its ends and fitting tightly the said cone-shaped lower end of the tube, the said sleeve having an enlargement at its ends to form a packing-space between them, the lower enlargement adapted to fit the upper end of an anchor or other pipe, and the upper enlargement having one or more perforations, and a spring for holding the said sleeve down, combined with a working valve-tube carrying a valve, and a means for automatically opening the said valve when it is forced downward upon the upper end of the standing valve, substantially as specified.

6. A standing valve having a tube provided with a valve at its upper end, a cone-shaped external seat at its lower end, a sliding sleeve which fits loosely around the said tube between its ends and its lower end fitting the said seat, a means for holding the sleeve against the seat, and a working valve having a tube provided with a valve at its upper end, a vertically-moving rod passing through the said tube under the said valve, a yoke at the lower end of the tube, a nut or projection on the lower end of the rod, and a spring between the said yoke and nut, all the parts combined substantially as specified.

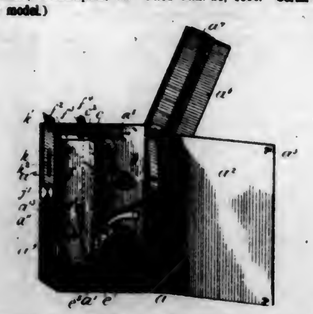
480,266. SECONDARY-BATTERY PLATE. EDWARD R. KNOWLES, Brooklyn, N. Y. Filed Oct. 10, 1891. Serial No. 408,320. (No specimens.)



Claim.—1. A battery-plate composed of an alloy of lead, tin, antimony, and arsenic, substantially as set forth.

2. A plate for electric batteries, composed of an alloy of about eighty-two parts lead, sixteen parts tin, 1.9 parts antimony, and 0.1 part arsenic.

480,267. POCKET LAMP OR LIGHTING DEVICE. EDWARD KRONENBERG, Philadelphia, Pa. Filed Mar. 28, 1891. Serial No. 386,514. (No model.)



Claim.—1. A pocket lamp or lighting device comprising a two-part housing having a spring-actuated hinged cover, a movable reservoir having a wick protuding through the same, a stud-pin extending through the slotted side wall of the housing and through the reservoir into a slotted internal partition provided in said housing, a movable catch connected with said stud-pin and adapted to engage the cover of said housing by the shifting of the reservoir, an ignitor or scratcher, a feeding appliance adapted to advance a fulminating or igniting tape to said ignitor or scratcher, and means for operating said feeding appliance by the shifting of said reservoir, substantially as and for the purposes set forth.

2. A pocket lamp or lighting device comprising a housing provided with a slotted partition and a slotted side wall forming ways, a movable oil-reservoir adapted to be shifted in said ways, and lugs or pins connected with said oil-reservoir and working in the slots of said partition and side wall, substantially as and for the purposes set forth.

3. A pocket lamp or lighting device comprising a housing provided with a slotted partition and a slotted side wall forming ways, a movable oil-reservoir adapted to be shifted in said ways, and a pin passing through said oil-reservoir and working in the slots in said partition and side wall, substantially as and for the purposes set forth.

4. A pocket lamp or lighting device comprising a stretcher or ignitor for contacting with the igniting pellets, fulminates, or ignitible material, a movable oil-reservoir, a feeding appliance for advancing said pellets, fulminates, or ignitible material to said scratcher or ignitor, and pawl-and ratchet connections between said oil-reservoir and feeding device for operating the latter by the shifting of the oil-reservoir, substantially as set forth.

5. A pocket lamp or lighting device comprising a scratcher or ignitor, a strip, tape, or ribbon provided with pellets, fulminates, or ignitible material, a movable oil-reservoir, a feeding appliance for winding upon itself the tape, strip, or ribbon, and pawl-and-ratchet connections between said oil-reservoir and feeding device for operating the latter by the shifting of the oil-reservoir, substantially as and for the purposes set forth.

6. A pocket lamp or lighting device comprising a scratcher or ignitor for contacting with and igniting pellets, fulminates, or ignitible material, a support or carrier, a movable oil-reservoir, a feeding appliance for advancing said pellets, fulminates, or ignitible material into contact with said support or carrier and scratcher or ignitor, and pawl-and-ratchet connections between said oil-reservoir and feeding device, substantially as and for the purposes set forth.

7. A pocket lamp or lighting device comprising a scratcher or ignitor, a strip, tape, or ribbon provided with pellets, fulminates, or ignitible material, a support or carrier, a movable oil-reservoir, a feeding appliance for winding upon itself the tape, strip, or ribbon, and pawl-and-ratchet connections between said oil-reservoir and feeding device for operating the latter, substantially as and for the purposes set forth.

8. A pocket lamp or lighting device comprising a scratcher or ignitor, a retaining stud or pin, a tape, strip, or ribbon provided with pellets, fulminates, or ignitible material, a scratcher or ignitor, a carrier or support, a movable oil-reservoir, a feeding appliance for winding upon itself the tape, strip, or ribbon, and pawl-and-ratchet connections between said oil-reservoir and feeding device for operating the latter, substantially as and for the purposes set forth.

9. A pocket lamp or lighting device comprising a housing provided with a hinged cover, a scratcher or ignitor, pellets, fulminates, or ignitible material, a movable oil-reservoir, a feeding appliance for advancing said pellets, fulminates, or ignitible material, pawl-and-ratchet connections between said oil-reservoir and feeding appliance, a knob accessible from the exterior of the housing and connected with said oil-reservoir, and a catch attached to said knob for fastening and releasing said lid or cover by the shifting of the oil-reservoir, substantially as and for the purposes set forth.

10. A pocket lamp or lighting device comprising a housing provided with a hinged cover, a scratcher or ignitor, a strip, tape, or ribbon provided with pellets, fulminates, or ignitible material, a movable oil-reservoir, a feeding appliance for winding upon itself the tape, strip, or ribbon, pawl-and-ratchet connections between said oil-reservoir and feeding device, a hand-knob connected with said oil-reservoir, and a catch attached to said hand-knob for fastening and releasing said lid or cover, substantially as and for the purposes set forth.

11. A pocket lamp or lighting device comprising a housing and cover, a scratcher or ignitor, a support or carrier, pellets, fulminates, or ignitible material, a movable oil-reservoir, a feeding appliance for advancing said pellets, fulminates, or ignitible material, pawl-and-ratchet connections between said oil-reservoir and feeding appliance, a hand-knob connected with said oil-reservoir, and a catch attached to said hand-knob for fastening and releasing said lid or cover, substantially as and for the purposes set forth.

12. A pocket lamp or lighting device comprising a housing provided with a hinged cover, a scratcher or ignitor, a retaining stud or pin, a strip, tape, or ribbon provided with pellets, fulminates, or ignitible material, a movable oil-reservoir, a feeding appliance for winding upon itself the tape, strip, or ribbon, pawl-and-ratchet connections between said oil-reservoir and feeding device, a hand-knob connected with said oil-reservoir and a catch attached to said hand-knob for fastening and releasing said lid or cover, substantially as and for the purposes set forth.

13. In a pocket lamp or lighting device, the combination of an ignitor or scratcher and an adjustable support or carrier for guiding a tape, strip, or ribbon, substantially as and for the purposes set forth.

14. In a pocket lamp or lighting device, the combination of a slotted housing, an ignitor or scratcher, a carrier or support provided with a threaded stud working in the slot of the housing, and a set-screw engaging said stud, substantially as and for the purposes set forth.

15. In a pocket lamp or lighting device, the combination, with a housing provided with a loop, an ignitor or scratcher having a shank mounted in said loop, of an adjustable support or carrier mounted in a slot in the wall of said housing for guiding a tape, strip, or ribbon, and means for feeding and drawing the tape, strip, or ribbon over said carrier or support into contact with and from said ignitor or scratcher, substantially as and for the purposes set forth.

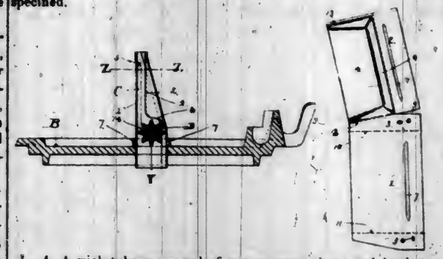
16. A pocket lamp or lighting device provided with a housing having a hinged cover or lid, a feeding device having a ratchet-wheel and a detent, and a spring secured at or near the center thereof to said housing and having one extremity in engagement with said lid or cover and the other extremity in engagement with said detent, substantially as and for the purposes set forth.

480,268. WICK-TUBE FOR OIL-STOVES. ROBERT Z. LIDDLE, Albany, N. Y. Filed Apr. 22, 1892. Serial No. 430,196. (No model.)

Claim.—1. A wick-tube having one of its principal sides formed by a vertical plane, the opposite side having at its lower part a short vertical plane followed by a depressed portion which forms a contracted passage for containing a wick, the lower part of said depression containing a wick-raiser and the extremities of the last-named side being bent at an obtuse angle to said vertical plane, and ends having an approximated trapezoidal form corresponding to the extremities of said sides, as herein specified.

2. A wick-tube comprising a large open passage below the wick-raiser and a contracted passage above said wick-raiser, one side of both of said passages being formed on the same vertical plane and the other side of both of said passages being parallel to said plane, but at different distances therefrom, the upper passage being adapted to easily inclose the wick and the lower passage forming an open communication from the lower side of the wick-raiser into the oil-reservoir, the ends of said tube having an approximated trapezoidal form and the back of said tube being impressed to form the contracted upper passage for the wick, as and for the purpose specified.

3. A wick-tube having a large open passage of uniform size from the lower side of the wick-raiser to the lower end of said tube and a contracted passage of uniform size from the upper side of the wick-raiser to the upper end of said tube, one side of both of said passages being formed on the same vertical plane, as and for the purpose specified.



4. A wick-tube composed of one or more pieces and having an upper passage of uniform size adapted to inclose the wick and a lower passage of uniform size, but of greater area than said upper passage, one side of both of said passages being formed on the same vertical plane, in combination with a revoluble wick-raiser arranged at the junction of said passages and fitted to discharge the débris from the wick into the oil-reservoir, as and for the purpose herein specified.

480,269. HAY-LOADER. PIERRE D. MILLER and WILLIAM N. DE VAULT, Peoria, Ill. Filed Jan. 30, 1892. Serial No. 419,755. (No model.)



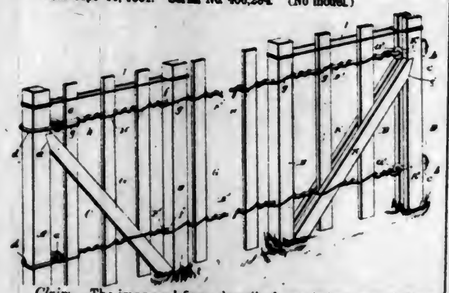
Claim.—1. In a hay-loader, the bent arms E E, pivoted at or near the middle of their length on the axles C C, the upper extremities of said arms being surmounted by the cross-piece F, and near the lower extremities of which arms is adjustably secured by bolts or the like the rake-head G, substantially as set forth and described.

2. In a hay-loader, the bent arms E E, pivoted at or near the center of their length on the axles C C and carrying between their upper extremities the cross-piece F for the purposes set forth and also carrying the slotted blocks V and carrying between their lower extremities the shaft H, said extremities being provided with the adjustable rake-head G and pivotally supporting the lower end of said elevating-frame in the manner and for the purposes set forth, in combination with the main frame pivoted on the said axles C C and comprising the side beams B B and cross-pieces D D, said frame being provided with the

notched supports S S, substantially in the manner and for the purposes set forth and described.

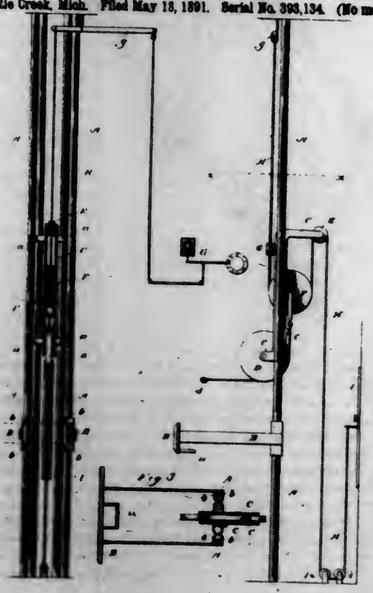
3. In a hay-loader, the bent arms E E, pivoted at or near the center of their length on the axle C C, the upper extremities of said arms being surmounted by the cross-piece F and slotted blocks V, and near the lower extremity of which arms is adjustably secured by bolts or the like the rake-head G, and the rods U, pivoted on the main frame composed of the side beams B B and cross-pieces D D, in combination with an elevating mechanism of the form herein set forth and described.

480,270. PICKET FENCE. NATHAN W. MINTON, Lebanon, Ky. Filed Sept. 19, 1891. Serial No. 406,284. (No model.)



Claim.—The improved fence described, consisting, essentially, of the post at one end, having a notch or under-cut on its inside adjacent to its upper end, intermediate posts arranged at intervals and having horizontal eyes near their upper and lower ends, the double post at the opposite end of the fence, having a notch or under-cut in its inside adjacent to its upper end, the diagonal braces having their upper ends beveled to take into the notches or under-cuts of the end posts and bearing at their opposite ends against the adjacent intermediate posts, the brace-wires I, connecting the upper ends of the end posts and the adjacent intermediate post, the main or line wires passing through the eyes in the intermediate posts and secured at one end to one of the end posts, the threaded eyebolts receiving the opposite ends of said wires and arranged between the members of the double post, the adjusting-nuts on the ends of the said bolts, and the securing and spacing wires embracing the pickets on one side and at opposite edges and wrapping the main wires between the pickets, the said securing and spacing wires being secured at one end to one post and at their opposite ends to the adjusting-bolts, substantially as specified.

480,271. EXERCISING APPARATUS. MILON W. NEWTON, Battle Creek, Mich. Filed May 18, 1891. Serial No. 393,134. (No model.)



Claim.—1. The combination of upright supports or standards, a vertically-adjustable limb or body rest, and a vertically-adjustable pull and frame carrying pull-guide, substantially as described.

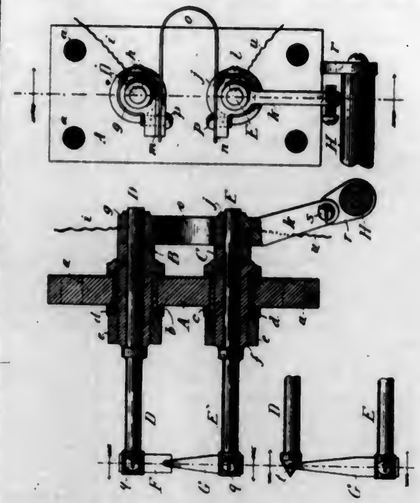
2. The combination of a weighing device, a cord connected with a balance-beam of said weighing device, means for taking up and extending the outer extremity of the cord, a pull device, and an adjustable pull-guide, substantially as described.

3. The combination of upright supports or standards, a vertically adjustable rest, a vertically-adjustable pull and pull-guide, and means, as an adjustable clutch, for taking up slack and paying out rope, substantially as described.

4. The combination of standards, a body or limb rest adjustable on said standards, a fixed weighing device, a movable clutch-frame, a floating pulley, a pull-strap connected with said pulley, a suspended pulley and guide-pulley, and a rope extending from the weighing device around said pulleys to the movable clutch-frame, substantially as described.

5. The combination, in an exercising-machine, of an adjustable body or limb rest, an adjustable frame carrying guide-pulleys, a fixed weighing device, a rope or cord, a pull-strap operatively connected with said rope, and means for paying out or taking in the rope for adjusting the pull strap to the desired position, substantially as described.

480,272. IGNITOR FOR GAS-ENGINES. EMORY I. NICHOLS, San Francisco, Cal. Filed May 26, 1891. Serial No. 394,190. (No model.)



Claim.—1. In combination, the igniter-stems insulated from their support, the contacts on the stems, the means for operating one of the stems to bring the contacts together, and the spring O in connection with both stems for keeping the contacts normally apart, substantially as described.

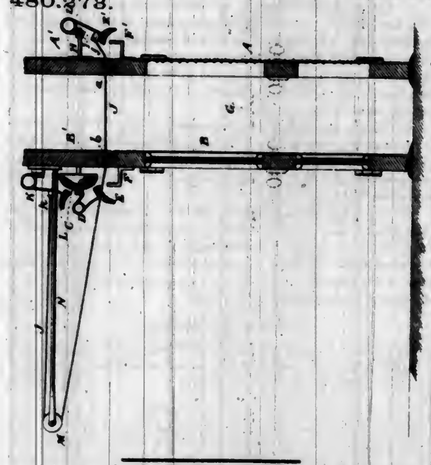
2. In combination, the plate A, the plugs B C, extending through the same, the insulating-collars *b c*, the igniter-stems extending through the plugs and carrying the contact-points, the arm *k*, extending from one of the stems and carrying an adjustable stud *s*, and the sliding shaft H, carrying a projection *r* to engage said stud, and the means for returning the stem to normal position, substantially as described.

3. In combination, the igniter-stems with means for operating one of them, one of said stems having a conical end *t*, and the contact G, secured to the other stem and extending transversely of the stems to contact with the conical end *t*, substantially as described.

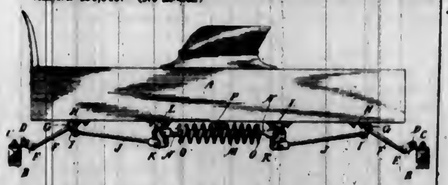
480,273. ALARM. DAVID P. MORGROS, Wilton, N. J. Filed Dec. 19, 1891. Serial No. 415,650. (No model.)

Claim.—The doors A B, opening in opposite directions and carrying near the top of their outside and inside, respectively, the angle-studs F F', in combination with the frame A', carrying on the outside the pin H with the spring D' and hammer E', and the frame B', carrying on the inside the bell C, with spring D and hammer E, the spring K, with hammer L, and the arm N, with end pulley M, the said springs D' K being connected by a wire or cord J, passing through said frames, as shown and described.

480,273.



480,274. BUGGY SPRING-GEARING. STEPHEN E. O'DELL and CORNELIUS VAN LIEW, Cedar Springs, Mich. Filed Apr. 23, 1892. Serial No. 430,313. (No model.)

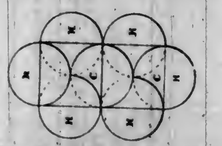


Claim.—1. In combination with the body and bolsters of a vehicle, rock-shafts journaled upon said body, levers rigidly attached to said shafts and shackled to said bolsters, arms also attached to said rock-shafts, rocker-arms pivoted to said body, connecting-rods pivoted to the arms on the rock-shaft and adjustably pivoted to said rocker-arms, a coiled spring between said rocker-arms, and rods pivoted to said rocker-arms at their outer ends and having their inner ends overlapping and connected to the opposite ends of said coiled spring, substantially as described.

2. In combination with the body and bolsters of a vehicle, eyes secured to said bolsters and overhanging the same at their adjacent sides, rods parallel to said bolsters and supported by said eyes, shackles pivoted to said rods, transverse rock-shafts journaled on the body, levers rigidly attached to said shafts and pivoted to said shackles, arms attached to said rock-shaft, a coiled spring arranged longitudinally between said arms, disks engaging the ends of said spring, and rods pivotally connected to said arms extending through said spring and attached to said disks, substantially as described.

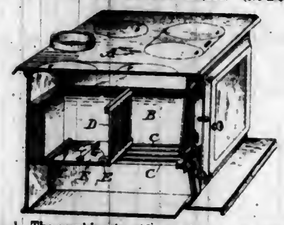
3. In a spring-gearing for vehicles, in combination with rock-shafts having rigid levers shackled to the bolsters and arms substantially at right angles to said levers, and a coiled spring arranged longitudinally between said arms, rocker-arms near each end of said spring, rods pivoted to said arms on the rock-shafts at one end and adjustably pivoted to said rocker-arm at the other end, and rods also adjustably pivoted to said rocker-arm and passing through said spring and connected to its opposite ends, substantially as described.

480,275. APPLIANCE FOR TEACHING CHEMISTRY. JOSTO OSCANIS, Brooklyn, N. Y. Filed Nov. 5, 1891. Serial No. 411,006. (No model.)



Claim.—An appliance for teaching chemistry, consisting of a number of semicircular parts made of pasteboard or similar material colored, and provided with symbols and printing to indicate various elements, the parts representing each element being hinged together, all being adapted to illustrate molecules of single elements and of combinations, substantially as described.

480,276. FIRE-BOX DIVIDER. SOLOMON L. PAKAS, New York, N. Y. Filed Nov. 9, 1891. Serial No. 411,259. (No model.)



Claim.—1. The combination of a vertical grated partition having horizontal and upwardly-turned fingers and a solid horizontal plate having horizontal and downwardly-turned fingers interlocking with the fingers on the grated partition, substantially as shown and described.

2. The combination of a vertical grated partition, a solid horizontal plate, said grated partition and plate having interlocking fingers, and a second plate connected to the first by a hinge-joint, substantially as shown and described.

480,277. IRONING-MACHINE. WILLIAM PHILLIPS, Northville, Mich. Filed June 1, 1891. Serial No. 394,712. (No model.)



Claim.—1. The combination, with a frame provided with horizontal ways, of an ironing-board mounted in said ways, the latter being provided with depressions between their extremities, a polishing-iron in position over said board, and mechanism for reciprocating said ironing-board, substantially as set forth and described.

2. The combination, with a frame provided with vertical guides, of a movable ironing-board, a polishing-iron in position over said board, squared heads adjustably secured to the ends of said polishing-iron, the said heads being provided with openings and inward-bearing points to receive the extremities of said iron, and securing-screws whereby the iron may be set with any part of its face downward, substantially as set forth and described.

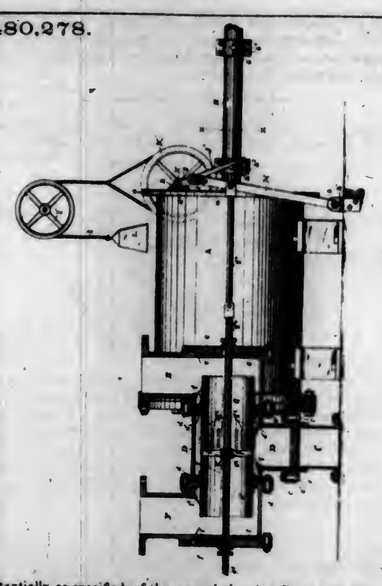
480,278. AUTOMATIC STOP-VALVE FOR ELEVATORS. HENRY J. REEDY, Cincinnati, Ohio. Filed Feb. 6, 1889. Serial No. 299,159. (No model.)

Claim.—1. The combination, as hereinbefore set forth, of the water-cylinder A and plunger B, the connected chambers D E F, located at the side of said cylinder, the pipe connecting the central chamber D and the cylinder, the tubular valve G, open at the ends and having the openings g^4, the seats d' f' for said valve, the valve-rod extending through the head *e* and connected to tripping mechanism, such as shown, and the straps b^1 b^2, having pins *b' b'*, carried by the plunger B to seat said valve and automatically cut off the supply or exhaust when the platform or cage has reached either the upper or lower limit of its travel.

2. A safety-cut-off valve for hydraulic elevators, consisting of the three chambers D E F, the open-ended tubular valve G, having opposite ends in communication with the opposite supply and exhaust chambers E and F and the central portion of its shell perforated to communicate with the chamber D, which chamber has a port to connect with the water-cylinder of the elevator, packings for said valve between the chamber D and the supply and exhaust chambers E F, the seats d' f' for the tubular valve, and the valve-rod extending outside of the valve-chambers for connection to a movable part of the elevator mechanism, whereby the valve may be brought against either seat d' or f' to cut off the supply or exhaust, substantially as hereinbefore set forth.

3. In a valve mechanism for hydraulic elevators, the combination,

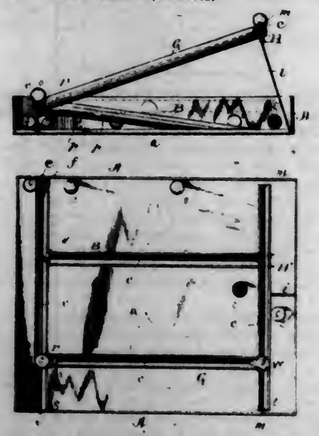
480,278.



substantially as specified, of the central chamber D, having a port for connection to the cylinder of a hydraulic elevator, and interior flanges d' and exterior perforated flanges at each end, the supply and exhaust ports E F, having flanges corresponding to the flanges upon the chamber D, the packings g, held between the said interior flanges, the valve G, open at both ends, centrally perforated and fitted to slide longitudinally in said flanges and packings, the valve-rod g^4, and seats e' f' at onter ends of chambers E F, substantially as and for the purpose set forth.

4. The combination, substantially as specified, with cylinder A, plunger B, and supply and exhaust valves for said cylinder, of an intermediate valve between the supply and exhaust valves, and the cylinder arranged to automatically control the supply to and exhaust from said cylinder independent of the customary valves, with the rock-shaft K, wheel K', chain secured to said wheel, pulley and weight, rod g^6, and arms H and J for returning said automatic valve to its normal position.

480,279. TOY. ALFRED A. ROBINSON, Lowell, Mass. Filed Feb. 11, 1892. Serial No. 421,104. (No model.)



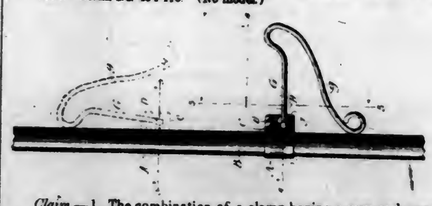
Claim.—1. The toy or puzzle consisting of a box with a flat floor, a grooved inclined bar rising from said floor, a grooved bar extending across the box in close proximity to the upper end of said inclined bar and further grooved bars connected to the latter, and a number of balls for use in said box, substantially as described.

2. The toy puzzle consisting, essentially, of a rectangular box with a flat floor, an inclined grooved bar rising from said floor, a grooved transverse bar at the upper end of said inclined bar, and a second grooved inclined bar projecting from said transverse bar and connected to a second grooved transverse bar at a different elevation, constituting a box to be used as a toy puzzle, with balls to move along the grooves, substantially as described.

3. The toy puzzle consisting, essentially, of a box with a grooved bar pivotally supported therein, a second bar connected to the pivoted bar and having a supporting bar or roost connected thereto, and means for supporting the latter in a plane above the pivoted bar, substantially as described.

4. The box A, having the inclined bar B secured to its floor, the transverse bar D, pivoted to the box in proximity to the upper end of bar B, the bar or trough G, connected at a right angle to bar D and connected to bar H, which is parallel to bar D, all of said bars being grooved, as described, and the leg i for supporting said bar H at an elevation, all substantially as described.

480,280. REST OR BRACKET FOR RABBLS. WILLIAM ROCKLITZ, Chicago, Ill., assignor to Edward Roos, same place. Filed May 26, 1892. Serial No. 434,410. (No model.)



Claim.—1. The combination of a clamp having a cam and a rest pivoted to said clamp and adapted to engage said cam for closing the clamp, substantially as set forth.

2. The combination of a split collar having a cam and a rest pivoted to said collar and adapted to engage said cam for contracting the collar, substantially as set forth.

3. The combination of a split collar provided with lips or extensions having cams or wedges and a bifurcated rest pivoted thereto and adapted to engage over said cams or wedges, substantially as set forth.

4. The combination of a split spring-collar whose extremities terminate in extensions or lips provided with cams or wedges and a bifurcated rest pivoted to said extensions and adapted to engage over said cams, substantially as set forth.

5. The combination of a split collar having the extensions or lips C, provided with cams, a pintle passing through said extensions, and a rest having spring extremities secured to said pintle, substantially as set forth.

6. The combination of a split collar having the extensions C and a cam D, provided with the seat or notch I, and a bifurcated rest pivoted to said extensions and adapted to engage over said cam, substantially as set forth.

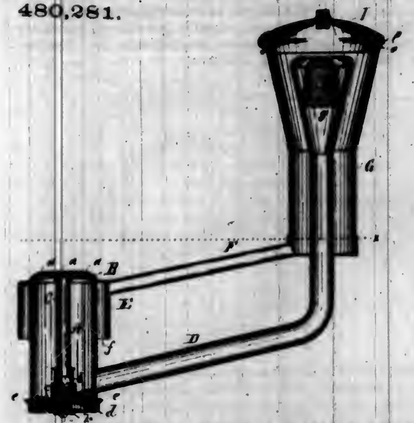
7. The combination of a split collar having the extensions C and a cam or wedge D, provided with a stop J, and a bifurcated rest pivoted to said extensions and adapted to engage over said cam or wedge, substantially as set forth

8. The combination of a split collar having its extremities formed with the lips or extensions C, terminating with the wedges or cams D, having stops J and seats I, a pintle passing through said extensions C, and a rest having the spring extremities F pivoted on said pintle and adapted to engage over said cams or wedges D, substantially as set forth.

480,281. VAPOR-STOVE. HENRY RUPPEL, Cleveland, Ohio, assignor to the Dangler Stove and Manufacturing Company. Filed Sept. 23, 1891. Serial No. 406,592. (No model.)

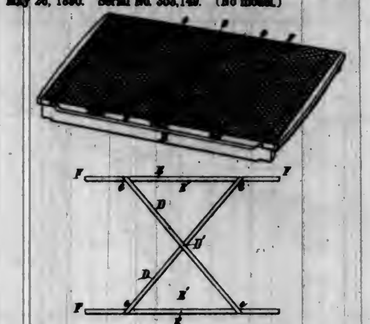


480,281.



Claim.—A vapor-burner composed of a cylinder having a sawed cap thereon, with a hole in the center thereof, and a tube C, in open relation to said hole and passing down through the center of said cylinder, in conjoint operation with a rectangular sawed chamber b and tube c, in combination with the generating tube D, generator g, and the tank, arranged substantially as and for the purpose specified.

480,282. BED-BOTTOM. JAMES B. RYAN, New York, N. Y. Filed May 26, 1890. Serial No. 353,149. (No model.)



Claim.—1. In a bed-bottom consisting of a main frame with woven-wire or other fabric stretched between its ends and supported by one or more rows of springs, the diagonally-placed bars D, extending across the woven-wire or other fabric and under the same and between the fabric and the terminal coil of the central spiral spring, as herein described and set forth.

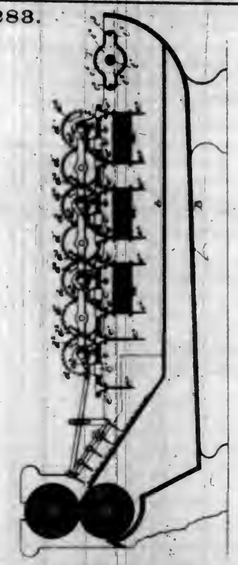
2. In a bed-bottom consisting of a main frame with woven-wire or other fabric stretched between its ends and supported by one or more rows of springs, the combination of the diagonally-placed bars D, extending across the woven-wire or other fabric and under the same between the fabric and the top of the terminal coil of the central spiral spring, and the bar E, extending along the selvage of the woven-wire fabric and under the same, connected with the diagonally-placed bars, as herein described and set forth.

480,283. WOOL-WASHING MACHINE. FREDERICK G. SARGENT and ALLAN G. SARGENT, Grantsville, Mass. Filed Jan. 17, 1887. Serial No. 224,647. (No model.)

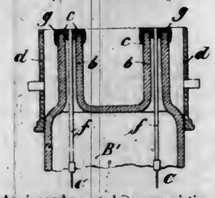
Claim.—1. The combination, with the bowl B, of the tumbler T, formed with longitudinal flutings t^6 t^6, such flutings being perforated and provided with cavities extending across through the body of the flutings from one flating to another, whereby the fluid may flow through the same from one side to the other, substantially as described.

2. In combination with two rake-heads d, provided with teeth d^3, projecting downward into the liquid, the perforated basket m, connected thereto and passing below the surface of the washing fluid therewith at each movement of the rake-head, substantially as described.

480,283.



480,284. INCANDESCENT ELECTRIC LAMP. PAUL SCHARF, Vienna, Austria-Hungary, assignor of one-fourth to Rudolf Latako, same place. Filed Aug. 7, 1891. Renewed July 1, 1892. Serial No. 438,707. (No model.)



Claim.—1. An incandescent lamp consisting of a bulb B, provided with a neck B', having two tubular bearings b, metallized, as set forth, an incandescible body, and supporting and conducting wires therefor, soldered to the metallized surfaces of the said bearings, as and for the purpose set forth.

2. An incandescent lamp consisting of a bulb B, provided with a neck B', having two tubular bearings b, metallized, as set forth, an incandescible body, supporting and conducting wires therefor, soldered to the inner metallized surfaces of said bearings, and the metallic cap c, soldered to the outer metallized surface of the bearings, as and for the purpose set forth.

3. An incandescent lamp consisting of a bulb B, provided with a neck B', having two tubular bearings b, metallized, as set forth, an incandescible body, supporting and conducting wires therefor, said wires being made of a base metal, such as copper, iron, &c., and soldered to the inner metallized surfaces of said bearings, and the metallic cap c, soldered to the outer metallized surface of the bearings, as and for the purpose set forth.

480,285. ARC LAMP. CHARLES SCHEID, Chicago, Ill., assignor of two-thirds to Henry Schuettler and Pancratius Friedrich, same place. Filed Dec. 7, 1888. Renewed Apr. 30, 1892. Serial No. 431,364. (No model.)

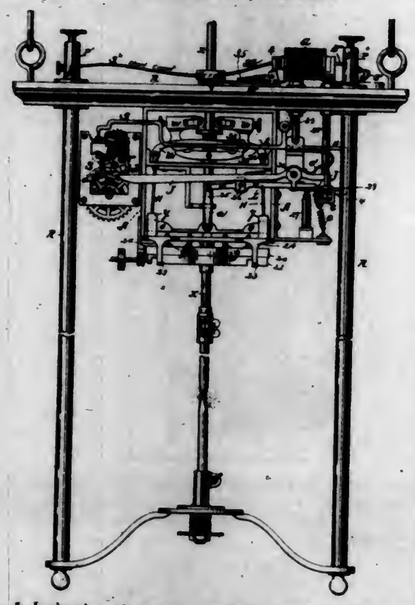
Claim.—1. In electric-arc lamps, the combination, with the carbon-holder, of the mechanically-suspended retaining-clamp and the trip-feed coacting mechanically at determined intervals to release said clamp, substantially as described

2. In electric-arc lamps, the combination, with the carbon-holder and with its retaining-clamp, of the mechanical suspender for said clamp and the trip-feed coacting mechanically at regular intervals to shift said suspender and release the clamp, substantially as described.

3. In electric-arc lamps, the combination, with the carbon-holder, of the retaining-clamp therefor, the lever suspending said clamp, and the trip-feed device coacting mechanically therewith at predetermined

intervals to impart a quick impulsive shift to said lever, substantially as described.

4. In electric-arc lamps, the combination, with the carbon-holder, of the retaining-clamp, the lever-suspender therefor, the trip-hammer to shift said suspender, and the release mechanism to actuate said hammer at definite intervals, substantially as described.



5. In electric-arc lamps, the combination, with the carbon-holder, of the suspended retaining-clamp and the trip-hammer coacting mechanically at definite intervals to shift said suspended clamp, substantially as described.

6. In electric-arc lamps, the combination, with the carbon-holder, of the retaining-clamp therefor, the suspending-lever, the trip-hammer, and the clock mechanism to actuate said hammer at definite intervals, whereby the lever is shifted and the clamp released, substantially as described.

7. In electric-arc lamps, the combination, with the carbon-holder, of the jointed clamp retaining said holder between the sections thereof, the connecting-link secured to the hinged joint of the clamp-sections, the suspending-lever, the pivot-hammer to shift said lever at intervals, mechanism for actuating said hammer intermittently, and stops to determine the drop movement of the jointed clamp, substantially as described.

8. In electric-arc lamps, the combination, with the carbon-holder, of the jointed clamp retaining said holder between the sections thereof, stops to determine the drop movement of said clamp, the connecting-link secured to the hinged joint of the clamp-sections, the suspending-lever, the pivot-hammer to strike said lever at intervals, the reaction-springs to restore the lever and hammer to position, and the intermittent mechanism to operate said hammer, substantially as described.

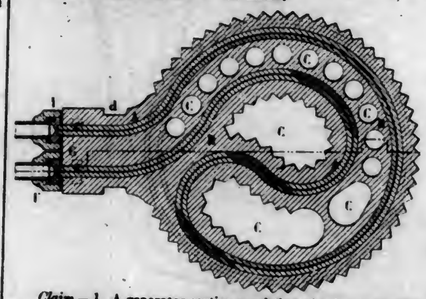
9. In electric-arc lamps, the combination, with the carbon-holder, of the jointed clamp retaining said holder between the sections thereof, the suspending-lever for said clamp, the intermediate lever, the striking hammer, and intermittent mechanism to actuate the same at intervals, substantially as described.

10. In electric-arc lamps, the combination, with the carbon-holder and with the retaining-clamp therefor, of the suspension device to maintain said clamp, the trip mechanism coacting at regular intervals to shift the suspension device, an electro-magnet energized from the lamp-current, and an armature therefor having movable arms to control said suspension device and trip mechanism, respectively, substantially as described.

11. In electric-arc lamps, the combination, with the carbon-holder, of the clamp to retain the same, the lever suspending said clamp, the clock mechanism to intermittently actuate said lever, an electro-magnet energized from the lamp-current, and an armature therefor, having movable arms to control the action of said suspending-lever and clock mechanism, respectively, substantially as described.

480,286. GENERATOR FOR THE VAPORIZATION OF LIQUIDS.

LÉON SERPOLLET, Paris, France, assignor to La Société des Générateurs à Vaporisation Instantanée, (Système Serpollet,) same place. Filed Nov. 20, 1890. Serial No. 372,083. (No model.)



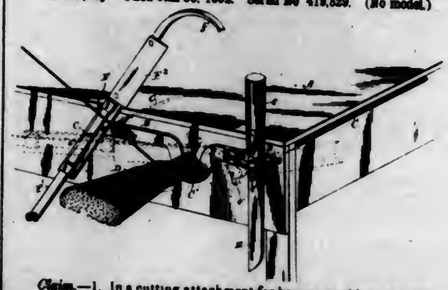
Claim.—1. A generator-section consisting of a sinuous metal tube A and a surrounding casing of metal cast around the same, provided with a series of openings or spaces intermediate of the circuitous lines of sinuous tube A, substantially as described.

2. A generator-section consisting of a flattened tube A, having an elongated flattened interior passage and an inclosing casing of metal cast around the same, substantially as described.

3. A generator-section consisting of a sinuous tube A, a surrounding casing of metal cast around the same, and braces or supports interposed between the parts of the casing, substantially as described.

480,287. BROOM-SHOULDER CUTTER.

WILLIAM F. SETTLE, Russellville, Ky. Filed Jan. 30, 1892. Serial No. 419,829. (No model.)



Claim.—1. In a cutting attachment for broom-machines, the combination, with the machine frame or table, of a sliding laterally-adjustable knife rod or shaft mounted in said frame and a separate swinging movable knife removably connected to the outer end of said rod, substantially as set forth.

2. In a cutting attachment for broom-machines, the combination, with the machine frame or table, of laterally adjustable and swinging over and under cutting knives connected with said frame and adapted to be thrown against the broom-stock during rotation, substantially as set forth.

3. In a cutting attachment for broom-machines, the combination, with the machine frame or table, of a plate secured to one side of said table and provided with a central U-shaped portion encircling the revolving broom-handle and an opening adjacent to said U-shaped portion and above the plane of the handle revolving therein, a sliding knife-rod laterally adjustable in said opening and the machine-frame, and a movable cutting-knife removably connected to one end of said rod and adapted to be swung against the broom-stock during rotation, substantially as set forth.

4. In a cutting attachment for broom-machines, the combination, with the machine frame or table, of a plate secured to one side of said table and provided with a central U-shaped portion encircling the revolving broom-handle and an opening adjacent to said U-shaped portion, a sliding knife-rod laterally adjustable through said opening and said frame, a binding-screw working through said plate and said opening, a knife-guide connected with said rod, and a cutting-knife working in said guide, substantially as set forth.

5. In a cutting attachment for broom-machines, the combination, with the frame or table, of a sliding laterally-adjustable knife-rod mounted in said frame, a guide-head pivoted to one end of said rod, and a cutting-knife working through said guide head, substantially as set forth.

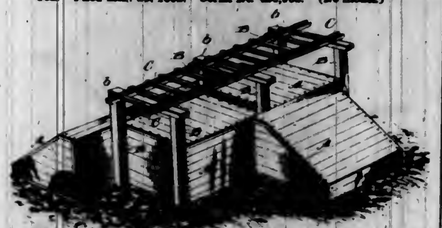
6. In a cutting attachment for broom-machines, the combination of a sliding laterally-adjustable knife-rod, a guide-head adjustably pivoted to one end of said rod, an overcutting saw-knife working through said guide-head, and an undercutting-knife member pivoted to said guide-head, substantially as set forth.

7. In a cutting attachment for broom-machines, the combination of a sliding laterally-adjustable knife-rod terminating in a securing-head, a guide-head having an offstanding securing-arm adjustably pivoted to said securing head and provided with a stop-lug engaging the top of said knife-rod, and an overcutting sliding knife working through said guide-head, substantially as set forth.

8. In a cutting attachment for broom-machines, the combination of a sliding laterally-adjustable knife-rod, a guide-head comprising opposite parallel spaced plates clamped together at each end, an offstanding securing-arm connected with said guide-head and adjustably pivoted to one end of said knife-rod and provided with a stop-lug engaging the top of the same, an overcutting sliding knife working through said guide-head, and an undercutting-knife pivoted to said guide-head, substantially as set forth.

480,288. BREAKWATER, &c.

ALEX. M. SHANNON, Galveston, Tex. Filed Mar. 29, 1892. Serial No. 426,902. (No model.)

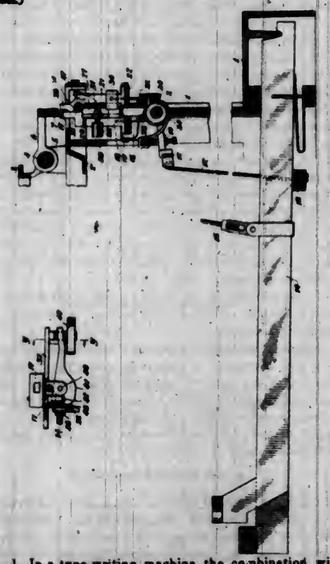


Claim.—1. A wall formed of receptacles set with spaces between them and to break joint and filled with sand, gravel, or the like, substantially as specified.

2. The combination, with the receptacles set with spaces between them and to break joints and filled with sand, gravel, or the like, of the piles set to hold said receptacles, the concrete filling in the spaces and binding the piles and receptacles together, and the cross-timbers secured to the upper ends of the piles, as set forth.

480,289. TYPE-WRITING MACHINE.

CHARLES H. SHEPARD, Brooklyn, assignor to the Remington Standard Type Writer Manufacturing Company, New York, N. Y. Filed Jan. 28, 1892. Serial No. 419,551. (No model.)



Claim.—1. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs and a weight adapted to automatically remove said stop.

2. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a weight for vibrating said lever automatically by inertia.

3. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a pivoted weight.

4. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, a weight, and a returning spring.

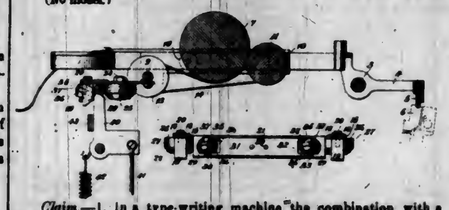
5. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a pivoted weight loosely connected to said lever.

6. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and a pair of spacing-dogs, of a stop for one of said dogs, a lever carrying said stop, and a pivoted slotted weight embracing one arm of said lever.

7. In a type-writing machine, the combination of a power-driven paper-carriage, a feed-rack, a spring-actuated spacing-rocker having a limited forward motion, a dog-holder, a pair of pivoted spring-actuated spacing-dogs, a vibratory stop for one of said dogs, and a weight for automatically moving said stop out of the path of vibration of said dog.

480,290. TYPE-WRITING MACHINE.

CHARLES H. SHEPARD, Brooklyn, assignor to the Remington Standard Type Writer Manufacturing Company, New York, N. Y. Filed Jan. 28, 1892. Serial No. 419,552. (No model.)



Claim.—1. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of rollers engaging diametrically-opposite sides of said rail and having their working faces arranged in parallel planes.

2. In a type-writing machine, the combination, with a shifting platen-carrier, a shift-rail, and means for moving the same, of a rigidly-mounted roller engaging the back of said rail and an elastically-mounted roller engaging the front of said rail.

3. In a type-writing machine, the combination, with a shifting platen-carrier, a shift-rail, and means for moving the same, of a pair of rigidly-mounted rollers engaging the back of said rail and a pair of spring-mounted rollers engaging the front of said rail.

4. In a type-writing machine, the combination, with a shifting platen-carrier, a shift-rail, and means for shifting the same, of wedge-pieces and a set of rollers engaging opposite sides of said rail, one of said rollers being elastically mounted.

5. In a type-writing machine, the combination, with a shifting platen-carrier, a shift-rail, and means for moving the same, of a pair of wedge-pieces, a pair of rigidly-mounted rollers for engaging the back of said rail, and a pair of spring-mounted rollers for engaging the front of said rail.

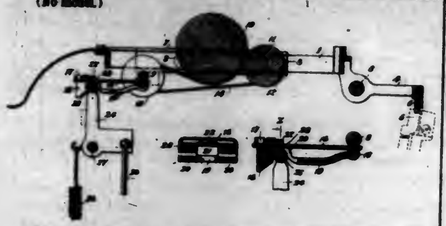
6. In a type-writing machine, the combination, with a shifting platen-carrier, a shift-rail, and means for moving the same, of means for engaging the back of said rail and elastically-mounted rollers for engaging the front of said rail.

7. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of a back roller having a cylindrical face to engage said rail and a front elastically-mounted roller having tapering ends.

8. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of the back rollers, their supporting-arms attached to the platen-carrier, a connecting-bar attached to said arms, and an elastically-mounted roller connected to said bar.

9. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of the back rollers, their supporting-arms attached to the platen-carrier and slotted at their forward ends, a bar connected to said arms and provided with slots, attaching-screws, an inclined support depending from said bar, and an elastically-mounted roller attached thereto.

480,291. TYPE-WRITING MACHINE. CHARLES H. SHEPARD, Brooklyn, assignor to the Remington Standard Type Writer Manufacturing Company, New York, N. Y. Filed Jan. 28, 1892. Serial No. 419,553. (No model.)



Claim.—1. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of a pivotally-mounted hook connected to rise and fall with said rail and to adjust itself thereto as wear takes place.

2. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of a hook to engage said rail, provided at its upper side interiorly with a groove or cut-away.

3. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of a gravity hook having a notch or cut-away interiorly at its upper side.

4. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of a pivoted hook provided interiorly with a groove or cut-away and means for limiting its downward movement.

5. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of an arm and a bifurcated pivoted hook having a groove or cut-away interiorly at its upper side.

6. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of an arm and a bifurcated gravity-hook having a loop and provided interiorly at its upper side with a groove or cut-away.

7. In a type-writing machine, the combination, with a shifting platen-carrier and a shift-rail, of an arm carrying a wedge-piece and a gravity-hook having at its top interiorly a groove or cut-away.

480,292. WATER-CLOSET SEAT AND COVER. HENRY H. SIEVERT, Chicago, Ill., assignor to the L. Wolff Manufacturing Company same place. Filed Feb. 15, 1892. Serial No. 421,492. (No model.)



Claim.—1. The combination, with the frame A, of hinge-lids B C, turning on a common center, and a split hinge having one strap secured to said stationary part A, a strap d', fitting on and secured to the upper side of said seat B, and a strap d^3, fitting on and secured to the under side of said cover C, substantially as specified.

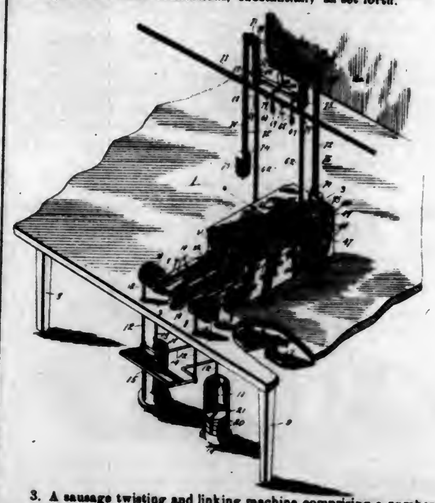
2. The combination, with the frame A, of hinge-lids B C, turning on a common center, and a split hinge having one strap secured to said stationary part A, a strap d', fitting on and secured to the upper side of said seat B, and a strap d^3, fitting on and secured to the under side of said cover C, said straps d and d' being secured in place by metal screws inserted from below and entering threaded holes or bosses on the under side of said straps $d\,d'$ and said strap d^3 being secured to said cover C by wood screws, substantially as specified.

3. The split hinge comprising straps d, d', and d^3, and a common pivot b, pivoting said straps together, substantially as specified.

480,293. SAUSAGE TWISTING AND LINKING MACHINE. HENRY A. SMALLFIELD, Kansas City, Mo., and HARRY EDWARDS, Kansas City, Kans. Filed Apr. 4, 1892. Serial No. 427,742. (No model.)

Claim.—1. A sausage twisting and linking machine comprising an oscillating counterweighted power crank-shaft, a number of lower oppositely-reciprocating twisting-slides operatively connected to the crank-shaft, a number of upper oppositely-reciprocating twisting-slides, and a number of gear-wheels interposed between the lower and upper slides and operating to reciprocate each upper slide oppositely from the reciprocation of the companion lower slide, substantially as set forth.

2. A sausage twisting and linking machine comprising an oscillating power crank-shaft, a number of grooved pulleys mounted upon said shaft, a treadle, flexible connections from the treadle wound upon the pulleys, counter-weights, and flexible connections from said counter-weights wound oppositely upon the pulleys from the direction of winding of the treadle connections, substantially as set forth.



3. A sausage twisting and linking machine comprising a number of lower oppositely-reciprocatory twisting-slides, an oscillating power crank-shaft operatively connected to said slides, a number of gear-wheels operated by said lower slides, and a number of vertically-adjustable upper slides operated by the said gear-wheels and carried by the top of the machine, substantially as set forth.

4. A sausage twisting and linking machine comprising a number of oppositely-reciprocatory twisting-slides, and yielding supporting-springs carried by the slides and working in guides in the machine, substantially as set forth.

5. A sausage twisting and linking machine comprising a number of oppositely-reciprocaitng twisting-slides, a hinged top or cover carrying said slides, and a retracting-pin connected at one end to the top or cover and at its opposite end to the slide, substantially as set forth.

6. A sausage twisting and linking machine comprising a suitable framework, a cover hinged upon said framework, a number of creasing-blades carried by the cover and pendent therefrom, and a number of longitudinally-divided receivers for said blades carried by the framework of the machine, and each located directly beneath one of the creasing-blades, substantially as set forth.

7. A sausage twisting and linking machine comprising a suitable framework, a cover hinged upon said framework, a number of creasing-blades carried by the cover and pendent therefrom, a number of longitudinally-divided receivers for said blades carried by the framework of the machine and each located directly beneath one of the creasing-blades, and openings through the top and frame of the machine for affording access to opposite sides of the creasing-blades, substantially as set forth.

8. A sausage twisting and linking machine comprising a number of vertically-movable scorchers, each having a bifurcated lower end, substantially as set forth.

9. A sausage twisting and linking machine comprising a suitable machine-frame, a number of standards extending vertically upward from said frame, a number of slides movable upon said standards, a cross-bar connecting said slides, a number of scorchers carried by said cross-piece, counter-weights, and flexible connections for attaching the weights to the slides, and brackets and pulleys carried by the standards, substantially as set forth.

480,294. FOUNTAIN-PEN. WILLIAM W. STEWART, Brooklyn, N. Y. Filed Feb. 26, 1890. Serial No. 341,822. (No model.)

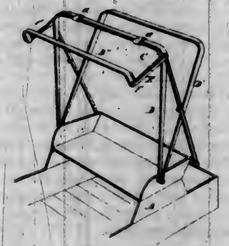
Claim.—1. In a fountain-pen, the combination, with the ink-reservoir and a condensing-chamber connecting therewith and in communication with the pen, of a valve between said reservoir and chamber constructed to close communication between the latter when seated and to open communication between the latter when unseated, and a strand or irritant within said reservoir, said strand constructed with one of its ends free and in proximity to said valve, whereby it can vibrate relatively thereto, and extending thence upwardly within said reservoir substantially parallel with its axis.

2. In a fountain-pen, the combination, with the holder constructed with an ink-reservoir and a condensing-chamber in connection therewith and with the pen, said chamber constructed with capillary conduits and conductors for effecting a passage of ink and air therein and with a valve-seat in its upper portion, of a valve within said reservoir for controlling communication between the latter and said chamber and constructed with a stem extending longitudinally of said reservoir and projecting through the upper end thereof, a handle secured to the outer end of said stem, a screw connection between said handle and holder, and a strand or irritant H within said reservoir projecting longitudinally of said reservoir and terminating in proximity to said valve and constructed with its end in proximity to said valve free to vibrate.



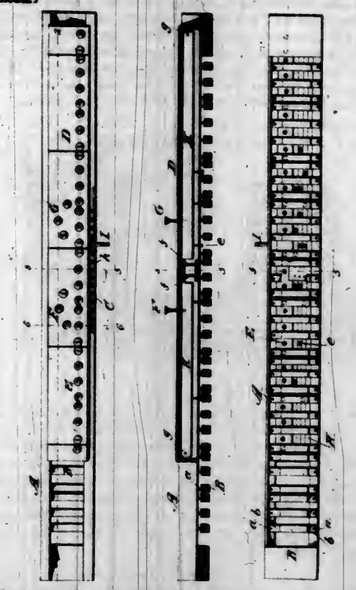
3. In a fountain-pen, the combination, with the holder constructed with an ink-reservoir and a condensing-chamber in connection therewith and with the pen, said chamber constructed with capillary conduits and conductors for effecting a passage of ink and air therein and with a valve-seat in its upper portion, of a valve within said reservoir for controlling communication between the latter and said chamber and constructed with a stem extending longitudinally of said reservoir and projecting through the upper end thereof, a handle secured to the outer end of said stem, a screw connection between said handle and holder, and a strand or irritant within said reservoir and connected at its upper end to said stem and projecting thence longitudinally of said reservoir and terminating in proximity to said valve and so constructed that its end in proximity to said valve is free to vibrate whereby when said valve is moved by rotating its handle said irritant is moved therewith, thereby maintaining its relative position thereto.

480,295. CARRIAGE-TOP. GARLAND R. ST. JOHN, Kalamazoo, Mich. Filed Jan. 31, 1891. Serial No. 379,556. (No model.)



Claim.—In a carriage-top, the combination, with the bows B B' and their connecting-braces, substantially as described, of an interposed spring-bail rigidly secured to the bow B' and hinged to the bow B, substantially as and for the purpose set forth.

480,296. ATTACHMENT FOR PIANOS OR ORGANS. JOHN M. STUKES, San Marcos, Tex. Filed Apr. 25, 1892. Serial No. 430,587. (No model.)

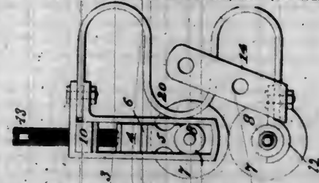


Claim.—1. In an attachment for pianos or organs, the rectangular frame A, having vertically-movable transverse spacing-blocks B and the guide-pins a therefor, in combination with the movable keyboard D, substantially as and for the purpose set forth.

2. In an attachment for pianos or organs, the rectangular frame A, having vertically-movable transverse spacing-blocks B and the indicator-plate C, provided with notches A, in combination with the movable keyboard D, having the hinged locking-lever I to engage with the notches, and the supplemental keys to operate the keys of the instrument, substantially as and for the purpose specified.

3. In an attachment for pianos or organs, the rectangular frame A, having the movable spacing-blocks B, in combination with the movable keyboard D, carrying the pivoted pressure-arms H, which are provided with the push-keys, as shown, and upon the under side having push-pins e and the springs f, substantially as and for the purpose described.

480,297. CLOTHES-WRINGER. WILLIAM THORNTON, Chattanooga, Tenn. Filed Oct. 3, 1891. Serial No. 407,619. (No model.)

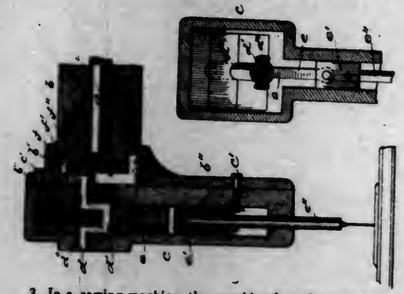


Claim.—The combination, in a clothes-wringer, of two rollers, two housings connected at the top to springs having several beads, the middle bead of each spring resting against the lower end of a housing and having the bearings for the journals of the lower roller bolted to the ends of the springs, substantially as herein shown and described.

480,298. SEWING-MACHINE. JASPER VANHETTE, Tiffin, Ohio, assignor, by direct and mesne assignments, to The Singer Manufacturing Company of New Jersey. Filed Sept. 1, 1891. Serial No. 404,669. (No model.)

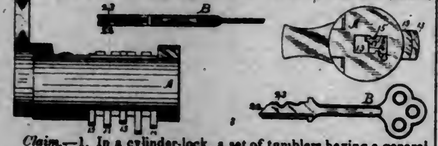
Claim.—1. The combination of an arm *a'* a sewing-machine, provided with a cavity, a shaft journaled therein and carrying a cam at its end, said cam working in said cavity, a frame or casing *c*, secured on the end of the arm, removable journal-blocks *d''* *d''*, secured in an opening in the casing *c* adjacent to the cavity, a crank-shaft journaled between said journal-blocks and carrying an arm engaging the cam, and means connecting the needle-bar to the crank shaft, substantially as described.

2. The combination of an arm *b*, a hollow frame or casing *c*, secured on the end of the arm, a crank-shaft removably inclosed in the upper end of the casing and having its ends journaled in opposite sides thereof, means for operating this crank-shaft, a cross-head *d'*, sliding in the hollow casing, a pitman *e*, connecting the cross-head to the crank-arm between its ends, and a removable needle-bar secured to said cross-head in line with the pitman, substantially as described.



3. In a sewing-machine, the combination of the arm thereof, a driving-shaft mounted in said arm, a hollow frame or casing *c* on the arm, a cross-head sliding in said hollow casing, the walls of the cavity entirely surrounding the cross-head and bearing on all its vertical sides, means for connecting the cross-head to the driving-shaft to cause said cross-head to have a reciprocating motion, and a needle-bar connected to the lower end of the cross-head and projecting through the casing and carrying needle-holding devices at its lower end, substantially as described.

480,299. CYLINDER LOCKS AND KEYS. HENRY G VOIGHT, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed Sept. 15, 1891. Serial No. 405,786. (Model.)



Claim.—1. In a cylinder-lock, a set of tumblers having a general keyway and a plurality of sub-keyways, substantially as described, and for the purpose specified.

2. A key for cylinder-locks, having two blades arranged side by side, with their bitted edges facing in the same general direction, one of which is bitted to fit one lock and the other of which is bitted to fit a different lock, substantially as described, and for the purpose specified.

3. The improvement in cylinder locks and keys, which consists of a set of locks, a set of keys, each of which is fitted to one lock in said set without fitting the other lock thereof, and a main door-lock common to all of said keys, substantially as described, and for the purpose specified.

4. The improvement in cylinder locks and keys, which consists of a set of locks and a main door-lock, the tumblers of which are provided with sub-keyways on two different lines, and a set of two-bladed keys, one of which is bitted to act in common on one line of said sub-keyways in said set of locks and in the main door-lock and the other blade of which is bitted to the different locks on the other line of sub-keyways, substantially as described, and for the purpose specified.

5. The improvement in cylinder locks and keys, which consists of a main door-lock and set of room-locks, the tumblers of which have three sub-keyways, a set of two-bladed keys, one blade of which is bitted to fit the main door-lock and the other to fit one room-lock in said set, and a master key common to all of said room-locks and main door-lock, substantially as described, and for the purpose specified.

480,300. WEED-EXTERMINATOR. WARREN VREELAND, Nutley, N. J. Filed Apr. 6, 1892. Serial No. 428,026. (No model.)

Claim.—1. The combination, with the draft-bars *b* and spacing-blocks *c*, of the plates *a* and *a'*, secured, respectively, above and below the draft-bars and blocks, the handles *d*, the brace *e*, and the teeth inserted through the plates *a* and *a'*, substantially as herein set forth.

2. The combination, with the draft-bars *b* and spacing-blocks *c*, of the plates *a* and *a'*, secured, respectively, above and below the draft-bars and blocks, the handles *d*, the brace *e*, and the teeth bent backwardly and provided with the heads *f'* and fitted removably in the plates *a* and *a'*, with a cap held over the heads of the teeth to permit their rotations in the plates, as and for the purpose set forth.

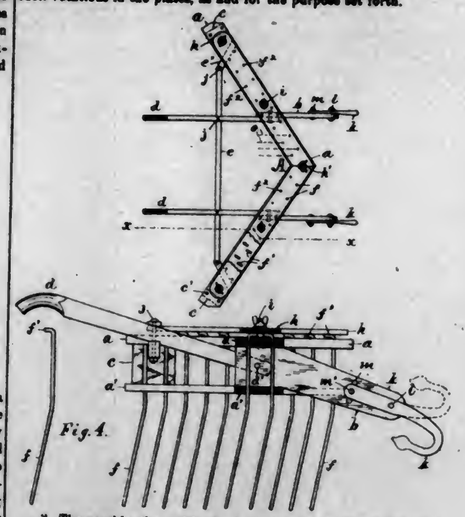
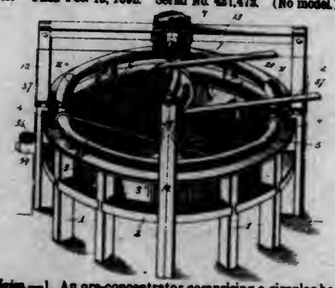


Fig. 4.

3. The combination, with the draft-bars *b* and spacing-blocks *c*, of the plates *a* and *a'*, secured, respectively, above and below the draft-bars and blocks, the handles *d*, the brace *e*, the teeth bent backwardly and provided with the heads *f'* and fitted removably in the plates *a* and *a'*, and the cap secured detachably over the heads of the teeth to permit the removal of the latter.

4. The combination, with the draft-bars *b* and spacing-blocks *c*, of the plates *a* and *a'*, secured, respectively, above and below the draft-bars and blocks, the handles *d*, the brace *e*, the teeth inserted through the plates *a* and *a'*, and the hooks *k*, provided with reversible shanks and secured adjustably to the draft-bars, as and for the purpose set forth.

480,301. ORE-CONCENTRATOR. CHARLES R. WALKER, Trinidad, Colo. Filed Feb. 13, 1892. Serial No. 421,472. (No model.)



Claim.—1. An ore-concentrator comprising a circular bed or base, a circular perforated discharge-pipe located above the bed or base, and a curved feed-pipe communicating with the discharge-pipe, substantially as set forth.

2. An ore-concentrator comprising a circular bed or base, a circular perforated discharge-pipe located above the said bed or base, a semicircular feed-pipe located above the discharge-pipe and communicating at its ends with said pipe, and a hopper mounted upon and communicating with the feed-pipe, substantially as set forth.

3. An ore-concentrator comprising a circular bed or base having a bottom provided with a central outlet-opening, a concave pocket secured beneath said opening, and an outlet-pipe leading from said pocket, substantially as set forth.

480,302. DETACHABLE SLEIGH-RUNNER. CHARLES G. WARNER, Syracuse, N. Y. Filed Sept. 19, 1891. Serial No. 406,209. (No model.)



Claim.—1. The herein-described detachable sleigh, comprising runners, beams mounted substantially centrally upon the cross-rod between the axle and runners and adjustable laterally thereon and having their lower ends loosely secured to the runners and their upper ends provided with heads loosely secured thereto for the purpose of receiving the axle, and means for detachably securing said head to the axle, as set forth.

2. The herein-described sleigh, comprising runners, beams loosely secured thereto and secured together substantially centrally upon the cross rod, heads loosely secured thereto at the upper ends of the beams, a rod having recesses in one side loosely secured to the forward beam, and a slidingly-mounted head adapted to be secured to the rear axle, as set forth.

3. The herein-described detachable sleigh, comprising runners, beams loosely secured together at their lower ends and provided at their upper ends with loosely-secured heads for the purpose of receiving the axle, the detachable head C, adapted to be secured to the rear axle and having an opening in its lower side, the inner face of which is provided with a strap-spring 10 and the inwardly-projecting lug, and a rod loosely secured to the forward beam, thence extending rearwardly through the opening in the head C and provided with recesses for the purpose of engaging with the lugs in the opening therein.

4. The herein-described detachable sleigh, comprising runners, beams mounted upon the rod centrally and adjustably and having their lower ends loosely secured to the runners and their upper ends provided with heads loosely secured thereto for the purpose of receiving the axle, and means for detachably securing said heads to the axle, as set forth.

480,303. COMBINED MOP-TUB AND MOP-WRINGER. BENJAMIN F. WARNER, Blair, Nebr. Filed Dec. 12, 1891. Serial No. 414,847. (No model.)

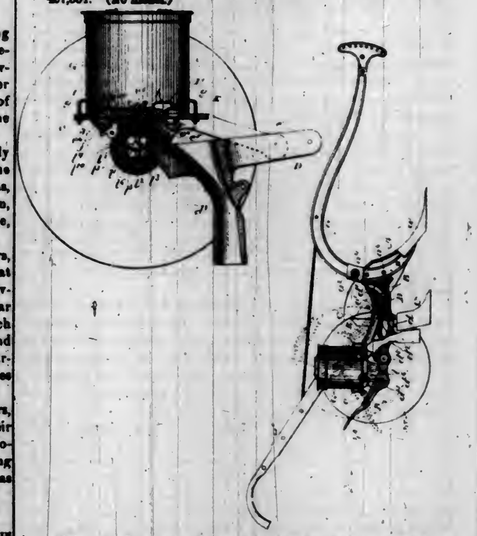


Claim.—1. In a combined mop-tub and mop-wringer, the combination of the tub 1, having the horizontal stationary roller 2, journaled between the upper ends of ears attached to the inside of tub at top and nearer one side, also having the gatherer 7, made of a single piece of wire curved to fit and attached to the inner surface of the tub a distance below the roller 2 with its ends toward the opposite side of tub, a portion near the center of each half bent in a reverse curve arching toward center of tub, the bifurcate bell crank having the U-shaped arm 3', with treadle 5, and the integral end arms 3 and 3, with the roller 2' journaled between their upper ends, the lower ends or angles pivoted to the sides of tub at such points as to swing roller 2' in contact with roller 2 and suspend the tub nearly upright when raised by roller 2', substantially as shown and described.

2. In a combination mop-tub and mop-wringer, the tube 1, having the roller 2, the gatherer 7, consisting of a single piece of wire curved to fit and attached to the inner surface of the tub a distance below the roller 2, the ends toward the opposite side of tub, and a portion near the center of each half bent in a reverse curve arching toward the center of the tub, the pivots 4, and the brackets 8, in combination with the bifurcate bell-crank 3 3 3', seated at its angles on the pivots 4 and having the roller 2' journaled between its ends 3 3 and the treadle 5, and the C-spring 6, one end attached to the tub, the free end bent to form a hook adapted to engage and actuate the bell-crank or to be disengaged from same, the pivots 4 so placed that when the machine is suspended by the roller 2' the stationary roller 2 will bear against roller 2', substantially as described.

3. The gatherer 7, consisting of a single piece of ductile wire bent in a general curve to fit and attached at its ends and center to the inner surface a distance below the rollers of a combined mop-tub and mop-wringer, portions near the center of each of the halves of the wire bent in reverse curves adapted to be adjusted toward or from each other by bending, substantially as shown and described.

480,304. PLANTER. LEWIS R. WATERMAN, Moline, Ill., assignor to the Deere & Company, same place. Filed Apr. 2, 1892. Serial No. 427,551. (No model.)



Claim.—1. In a corn-planter, the combination, substantially as hereinbefore described, of a seed-box, mechanism for measuring and delivering seed from the box, co-operating disks on either side of the box, which disks carry or support the seed-box and the measuring and delivering mechanism and which actuate the latter, and means for adjusting the disks, so as to vary their covering capacity.

2. In a corn-planter, and in combination, substantially as hereinbefore described, a seed-box, mechanism for measuring and delivering seed from the seed-box to the seed-tube, disks on either side of the box, adapted to support said box and the measuring and delivering mechanism, a divided axle to which said disks are fixed to rotate therewith and the two parts of which are coupled to rotate with each other, and a pinion fixed to one of said parts and geared with and to operate the seed measuring and delivering mechanism in the seed-box.

3. In a corn-planter, and in combination, substantially as hereinbefore described, a seed-box, mechanism for measuring and delivering seed from the seed-box to the seed-tube, disks on either side of the box, adapted to support said box and measuring and delivering mechanism, said disks being fixed to a divided axle the two parts of which are coupled to each other and which are adjustable to change the angle of the disks to the line of travel of the planter, and a pinion fixed to one of the parts of the axle and geared with to operate the seed measuring and delivering mechanism in the seed-box.

4. In a corn-planter, and in combination, substantially as hereinbefore described, a seed-box, mechanism for measuring and delivering seed from the seed-box to the seed-tube, disks on either side of and adapted to support said box and measuring and delivering mechanism; said disks being fixed to a divided axle the two parts of which are coupled to each other, a pinion carried on one of said parts of the axle, and means for adjusting the two parts of the axle to adjust the angle of the disks to the line of travel of the planter and in such manner as to adjust the pinion concentrically with the circular series of counterpart cogs with which it gears to actuate said seed-measuring mechanism.

5. In a corn-planter, and in combination, substantially as herein-

before described, a seed-box, mechanism for measuring and delivering seed from the seed-box to the seed-tube, disks on either side of the box, adapted to support said box and measuring and delivering mechanism, an axle in two parts, each part of which has one of said disks fixed thereto, a pinion on one of the parts of the axle, which pinion gears with and actuates the seeding mechanism referred to, and means for adjusting said disks at different angles to the line of travel of the planter.

6. In a corn-planter, in combination with a lister-plow, a drag-bar, as B, fixed to and in rear thereof and provided with a furrow-opener, another drag-bar, as D, fixed thereto and provided with a seed-tube, and a frame or bar, as E, hinged to the bar D at one end and provided with a seed-box having seed measuring and delivering mechanism supported by disks, as M, with an axle fixed thereto and provided with a pinion which gears with said seed measuring and delivering mechanism, substantially as described.

7. In a corn-planter, in combination with a lister-plow, a drag-bar B, removably fixed thereto and provided with a furrow-opener, another drag-bar D, removably fixed to the bar B and provided with a seed-tube, whereby said bar B may be substituted by another not fixed to a lister-plow, a seed-box provided with seed measuring and delivering mechanism and mounted on an arm E, hinged to the bar D, and disks, as M, fixed to a divided axle to support said seed-box, which axle gears with and operates the seed mechanism referred to, substantially as described.

8. In a corn-planter, in combination with a drag-bar, a seed-box having seed measuring and delivering mechanism carried on a bar hinged to said drag-bar, and a lever, as R, pivoted between its ends to the drag-bar and having a link connection therewith, whereby the box may be raised and lowered, substantially as described.

9. In a corn-planter, in combination with a drag-bar, as D, and bar, as E, hinged thereto and having a seed-box mounted thereon and provided with seed measuring and delivering mechanism, a lever R, hinged to the rear end of bar D, link r, and detent-lug r^4, substantially as described.

10. In a corn-planter, in combination with a lister-plow and drag-bars in rear thereof, a frame hinged to said drag-bars and provided with a seed-box at its free end having seed measuring and delivering mechanism, a lever R, hinged to said drag-bars, a link r, pivotally connected with said lever and with a lug on the swinging bar, and a detent for locking said lever when turned to elevate the seed-box, substantially as described.

11. In a corn-planter, in combination with a drag-bar, a frame hinged to said bar and carrying a seed-box at its rear, said box having seed measuring and delivering mechanism, a two-part axle journaled in said frame and carrying supporting, pulverizing, and covering disks, a pinion fixed to said axle and geared with and to operate said seed measuring and delivering mechanism, and means for independently adjusting the parts of the axle, substantially as described.

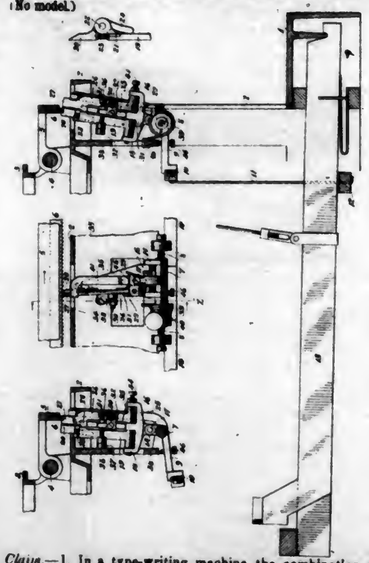
12. In a corn-planter, in combination with a lister-plow, drag-bars in rear thereof, a frame or bar hinged to said drag-bars, a seed-box mounted on said swinging frame and provided with a seed measuring and delivering mechanism, disks fixed to a divided axle to support said seed-box and its contained mechanism and adjustable to change their angle to the line of travel of the planter, and a pinion fixed to said axle and geared with to operate said seeding mechanism, substantially as described.

13. In a corn-planter, in combination with a lister-plow, drag-bars in rear thereof, a frame or bar hinged to said drag-bars, a seed-box mounted on said swinging frame and provided with a seed measuring and delivering mechanism, disks fixed to a divided axle to support said seed-box and its contained mechanism and adjustable to change their angle to the line of travel of the planter, and a pinion fixed to said axle and geared with to operate said seeding mechanism, and a lever, as R, for raising and lowering said seed-box and disks, substantially as described.

14. In a corn-planter, the combination of a main frame, a supplemental frame pivoted thereto and carrying a seed box or receptacle and seed measuring and delivering mechanism, a two-part axle journaled in the supplemental frame and carrying disks acting to support the box and its contained mechanism on either side of the same and to pulverize the soil and cover the seed, and means for adjusting the parts of the axle so as to set the disks to throw more or less of the soil onto the seed.

15. In a corn-planter, the combination of a drag-bar, as B, a supplemental drag-bar, as D, secured thereto, a furrow-opener carried by the main drag-bar, a spout or tube carried by the supplemental drag-bar, a pivoted frame carrying a seed-box and measuring and delivering mechanism, an axle journaled in the pivoted frame and carrying wheels or disks for supporting the box and its contained mechanism and pulverizing the soil and covering the seed, and mechanism between the axle and the measuring and delivering mechanism for actuating the same.

480,305. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to the Remington Standard Type Writer Manufacturing Company, same place. Filed Jan. 23, 1892. Serial No. 419,006. (No model.)



Claim.—1. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and letter-spacing dogs, of a detent or stop to prevent any feed of the carriage until after the finger of the operator has been removed from the type-actuating key.

2. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and letter-spacing dogs, of a rocking detent or stop arranged to hold one of said dogs and prevent the feed of the carriage as long as the type-actuating key is held depressed by the finger of the operator.

3. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a feeding-dog, a detaining-dog, a vibratory dog-holder, a spring-actuated spacing-rocker, and a detent connected to said spacing-rocker and adapted to co-operate with the feeding-dog, substantially in the manner described.

4. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a spring-actuated spacing rocker, a vibratory dog-holder pivotally connected to said rocker, a spring-actuated detaining-dog, a spring-actuated feeding-dog, and a detent or stop for the latter to prevent any feed of the carriage until the finger has been removed from the type-actuating key.

5. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a spring-actuated spacing-rocker having an arm provided with a detent, a vibratory dog-holder pivotally connected to said rocker and provided with letter-spacing dogs, and a stop or abutment on the dog-holder, whereby the said arm may vibrate the dog-holder in both directions.

6. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a spring-actuated spacing-rocker having an arm provided with a shoulder, and a dog-holder carrying a detaining-dog and a feeding-dog, the latter adapted to be engaged by said shoulder.

480,306. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to the Remington Standard Type Writer Manufacturing Company, same place. Filed Mar. 1, 1892. Serial No. 423,328. (No model.)

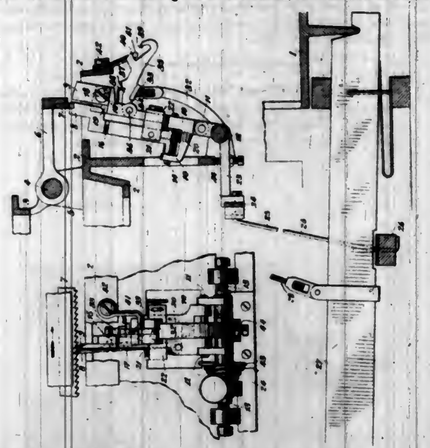
Claim.—1. In a type-writing machine, as an improvement in the carriage-escapement mechanism, the combination, with a spacing rocker or frame, of a spacing member frictionally connected thereto, substantially as and for the purpose set forth.

2. In a type-writing machine, as an improvement in the carriage-escapement mechanism, a dog-holder frictionally connected to the spacing rocker or frame, substantially as and for the purpose set forth.

3. In a type-writing machine, as an improvement in the carriage-escapement mechanism, the combination of a spacing rocker or frame provided with a friction pad or block and a dog-holder provided with a seat or bearing for said pad or block.

4. In a type-writing machine, as an improvement in the carriage-escapement mechanism, the combination of a spacing rocker or frame provided with a friction-pad or block and a dog holder provided with a pressure arm or lever provided with a seat or bearing for said pad or block.

5. In a type-writing machine, as an improvement in the carriage-escapement mechanism, the combination of a spacing-rocker provided with a pad or block and a dog-holder provided with a pivoted spring-pressed arm or lever having a seat or bearing for said pad or block.



6. In a type-writing machine, as an improvement in the carriage-escapement mechanism, the combination of a spacing rocker or frame having a friction pad or block, a dog-holder provided with a pressure arm or lever having a seat or bearing for said pad or block and having two cams or inclined faces, and an arm or projection to co-operate with said cams or inclined faces.

7. In a type-writing machine, as an improvement in the carriage-escapement mechanism, the combination of a spacing rocker or frame having a friction pad or block, a dog-holder pivoted independently of said spacing rocker or frame, a spring-pressed arm or lever pivoted to said pivoted dog-holder and provided with a seat or bearing for the pad or block and with two cams or inclined faces, and an arm or projection to co-operate with said cams or inclined faces.

8. In a type-writing machine, the combination, with a paper-carriage having a feed-rack, type-bars, and key-levers, of a spacing rocker or frame, a feed-dog frictionally connected to the same, means for reducing the force of the frictional contact or connection when the dog is moved the proper distance to escape from the rack, so that the spacing rocker or frame may continue its movement to permit the type to strike, and means for also reducing the force of the frictional contact or connection when the dog is returned to its initial or normal position, so that the spacing rocker or frame and the type may be allowed to continue to move back to their initial or normal positions, substantially as described.

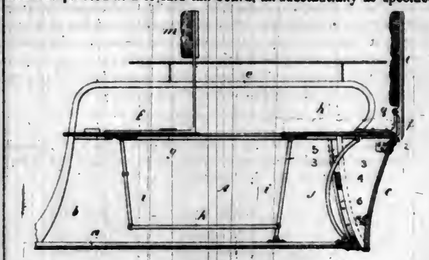
9. In a type-writing machine, the combination, with a paper-carriage having a feed-rack, type-bars, and key-levers, of a spacing rocker or frame carrying a friction pad or block, a dog-holder pivoted to said spacing rocker or frame, a rigid dog and a yielding dog mounted on said dog-holder, and a spring-pressed arm or lever pivoted to said dog holder and provided with a seat or bearing for said pad or block and with two cams or inclined faces to co-operate with an arm or projection fixed on the framework.

480,307. CARRIAGE. HARLAN P. WELLS, Amesbury, Mass., assignor of one-half to Osgood Morrill, same place. Filed Feb. 29, 1892. Serial No. 423,118. (No model.)

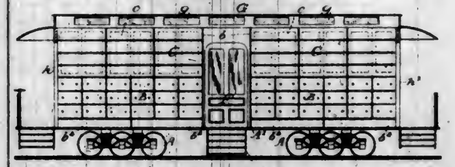
Claim.—1. In a two-seat vehicle, the combination of a rising and falling seat, a hinged tail-board, and a seat-back formed to also serve as a deck-panel and hinged both to the seat and tail-board in manner to be closed down as a deck-panel by the closing of the tail-board and to be raised into position as a seat-back by the opening of the tail-board, substantially as specified.

2. In a two-seat vehicle, the combination of tail-board c, pivoted to the body, back t, pivoted to said tail-board, and the rising and falling seat h, pivoted to back t by the rigid angle-iron p, whereby the opening and closing of the tail-board will automatically raise and lower said seat-back and will raise and lower said seat, substantially as specified.

3. The combination of seat A, supported by irons i j, pivoted to said seat and to the body, tail-board c, pivoted at its lower edge to the body, and back t, connected with said seat by pivot q in seat-iron p and also pivoted at 2 to said tail-board, all substantially as specified.

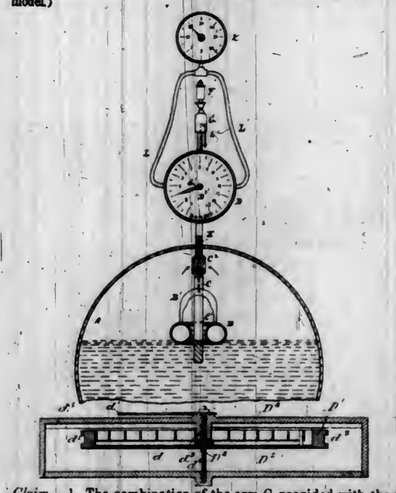


480,308. MERCHANDISING-CAR. RUFUS A. WILDER, Cressona, Pa. Filed Apr 9, 1892. Serial No. 428,455. (No model.)



Claim.—A merchandising-car comprising the body, drawers arranged on both sides of the car, package-spaces under the drawers, living-apartments at the ends of the car, shelves above the drawers, vertical openings in the sides of the car between the drawers and shelves, doors to close the openings, and steps hinged to the bottom of the openings and adapted to fold up and turn within the car, substantially as and for the purpose specified.

480,309. COMBINED WATER AND STEAM GAGE. ISAAC WILLAN, Detroit, Mich. Filed Feb. 12, 1892. Serial No. 421,346. (No model.)



Claim.—1. The combination of the arm C, provided with the slot C', the float provided with the yoke B', passed through said slot, a water-gage provided with a rotatable spring-case carrying an index-finger, and a flexible connection connecting said case and yoke, substantially as described.

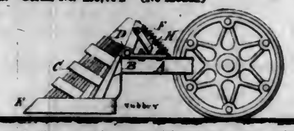
2. The combination of the float, the water-gage, a steam-gage communicating with the water-gage, the arm C, communicating with the interior of the water-gage, whereby steam may pass to said gage, a rotatable spring-case located in the water-gage case, carrying an index-finger, and a flexible connection connected with the spring-case and float, substantially as described.

3. The combination of the float, the arm C, made tubular at its

upper end, the water-gage provided with a rotatable spring-case, connected with the float, alarm mechanism communicating with the interior of said gage, and a controlling-valve operated by the movement of the spring-case, substantially as described.

4. The combination of the float, the arm C, made tubular at its upper end, the water-gage provided with a rotatable spring-case, connected with the float, alarm mechanism communicating with the interior of said gage, and a self-closing controlling-valve arranged to be opened by the movement of said case, said valve provided with a valve-stem projecting to the exterior, substantially as described.

480,310. TRAM-CAR. ADOLF WÖRNER, Buda-Pesth, Austria-Hungary, assignor to Siemens & Halske, Berlin, Germany. Filed Feb. 8, 1892. Serial No. 420,794. (No model.)

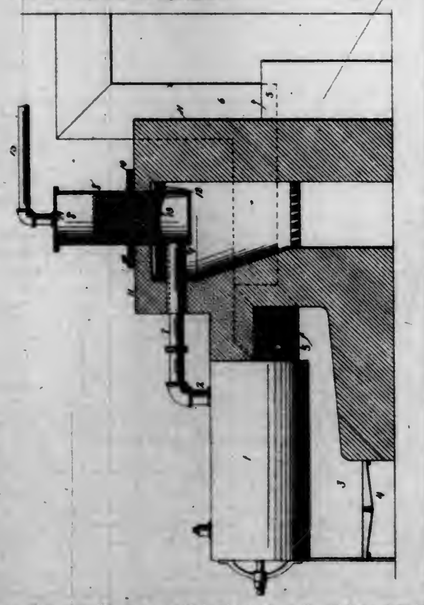


Claim.—1. The combination, with a tram-car or with the trucks thereof, of a safety device pivoted on the ends of said car or trucks, a spring connected at one end with the safety device above its pivotal point and at its other end with the car body or trucks for normally holding the said safety device above the level of the ground, and a stop for limiting the upward motion of the safety device connected thereto above its pivotal point.

2. The combination, with a tram-car or with the trucks thereof, of a safety device pivoted on the ends of said car or trucks, a rubber covering carried over the lower edge of said safety device, and a retractile spring connected to said safety device above its pivotal point, substantially as described.

3. The combination, with a tram-car or with the trucks thereof, of a safety device pivoted on the ends of said car or trucks, a retractile spring connected to said safety device above its pivotal point, a device for limiting the upward motion of the safety device connected thereto above its pivotal point, and an elastic covering for the lower edge of the safety device.

480,311. PROCESS OF DESULPHURIZING OILS. OTTO P. AMEND, New York, and JOSIAH H. MACY, Harrison, N. Y. Filed Feb. 18, 1892. Serial No. 421,919. (No specimens.)

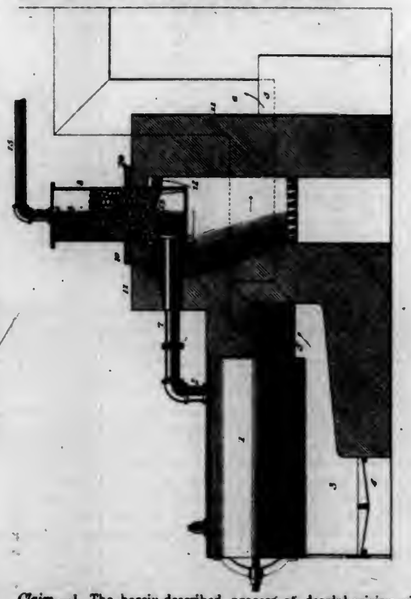


Claim.—1. The process of desulphurizing oil, which consists in vaporizing the oil containing the sulphur and heating the oil-vapor to a degree of heat at or above the boiling-point of sulphur, exposing the oil-vapor so heated to the action of one or more chemical reagents that will combine with sulphur or sulphur compounds, and then condensing the oil-vapor.

2. The process of desulphurizing oil, which consists in vaporizing the oil containing sulphur and heating the oil-vapor to a degree of heat at or above the boiling-point of sulphur, exposing the oil-vapor so heated to the action of an oxidizing agent capable of combining with sulphur or sulphur compounds, and then condensing the oil-vapor.

3. The process of desulphurizing oil, which consists in vaporizing the oil containing the sulphur and heating the oil-vapor to a degree of heat at or above the boiling-point of sulphur, exposing the oil-vapor so heated to the action of an oxidizing agent and a caustic alkali, and then condensing the oil-vapor.

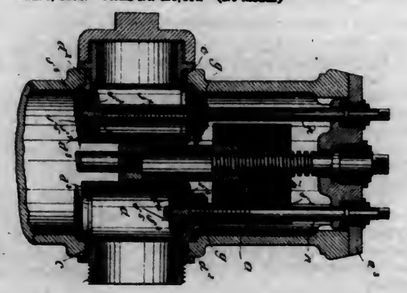
480,312. PROCESS OF DESULPHURIZING OILS. OTTO P. AMEND, New York, and JOSIAH H. MACY, Harrison, N. Y. Original application filed Feb. 18, 1892, Serial No. 421,919. Divided and this application filed June 10, 1892. Serial No. 436,216. (No specimens.)



Claim.—1. The herein-described process of desulphurizing oil, which consists in vaporizing the oil containing sulphur or sulphur compounds and heating the vaporized oil to a degree of heat at or above the boiling-point of sulphur and then exposing the vaporized oil so heated to the action of one or more alkalies and then condensing the oil.

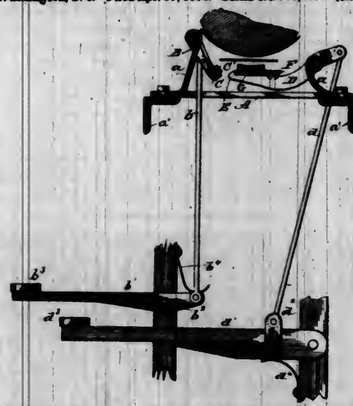
2. The process of desulphurizing oil, which consists in vaporizing the oil containing sulphur or sulphur compounds and heating the vaporized oil to a degree of heat at or above the boiling-point of sulphur and exposing the vaporized oil so heated to the action of a hydrated (caustic) alkali and then condensing the oil-vapor.

480,313. HYDRANT. EDWARD J. BACHELDER, Boston, Mass. Filed Mar. 2, 1892. Serial No. 423,444. (No model.)



Claim.—The combination, with the main body of a fire-plug having a removable cap or bonnet, of internal valve-chambers separable from said body and introduced therein, and hose-connecting nozzles *d*, connected with said internal valve-chambers through the said openings in the body of the plug, said internal valve-chambers having valve-seat openings at one end communicating with the interior of the plug, and lateral openings communicating with the hose-connecting nozzles and being otherwise closed, and a valve working in each of said chambers, and an operating-rod therefor accessible outside of the body of the plug, substantially as described.

480,314. TYPE-WRITING MACHINE. GEORGE M. BEEBOWER, Washington, D. C. Filed Apr. 13, 1891. Serial No. 388,795. (No model.)



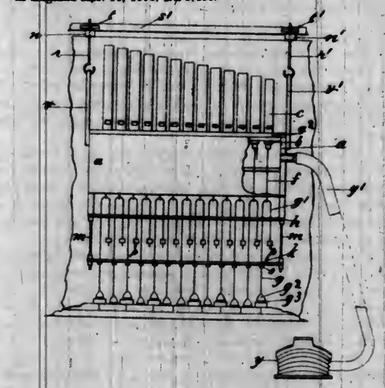
Claim.—1. In a type-writing machine, the combination, with a type lever or bar formed with a flange at its free end, of a plate and a binding-screw, substantially as shown and described.

2. In a type-writing machine, the combination, with a supplemental rectangular open frame adapted to be attached to the main frame of the machine, of a type-bar pivoted thereto and type or types arranged at the end of the said bar, substantially as shown and described.

3. In a type-writing machine, the combination, with a supplemental open frame attached to the end of the main frame of the machine, having upwardly and inwardly curved arms integral with the frame, of the type bar or lever pivoted between the arms, the free end of said bar having a mortise, and type or types adapted to be inserted in the mortise, substantially as shown and described.

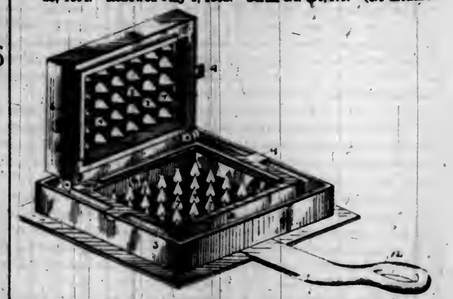
4. The combination, with the supplemental open frame attached to the end of the main frame of the machine, provided with arms, of the type bar pivoted between the arms and provided with a mortise at its free end, the pitman connected to the type-bar, the key-lever pivoted to the frame and connected with the pitman, and the removable type or types arranged in the mortise, substantially as shown and described.

480,315. MUSICAL INSTRUMENT. CARLO BOSSA, London, England. Filed Nov. 30, 1891. Serial No. 413,499. (No model.) Patented in England Apr. 10, 1890. No. 5,466.



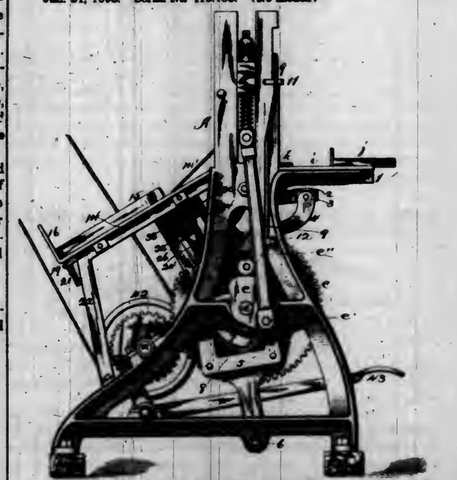
Claim.—In an instrument adapted to be attached to and operated by the keys of a piano or such like instrument, the links *g*, having weights, one end terminating in a rest g^2 and supported upon the key-board of the piano, the other end of said links connected to the pallets controlled by a spring *b'*, which closes the communication to the pipes *c*, supplied with wind from the bellows *y* through pipe *y'* to the wind-chamber *a*.

480,316. BROILER. JAMES W. BRADY, Bartow, Fla. Filed July 23, 1891. Renewed July 9, 1892. Serial No. 439,479. (No model.)



Claim.—A broiler comprising the rectangular dish-shaped sections hinged together and provided with side pivots and having thin walls 3 and 5 and thick walls 4 and 6, the thin walls of one section being arranged opposite the thick walls of the other section, the conical hollow teeth extending inward from the bottom of the sections, the L-shaped flanges 8, arranged in the faces of the thick walls and adapted when the sections are closed to fit against the inner faces of the thin walls, whereby a continuous tight joint is effected, and the rectangular frame provided with bearings to receive the said pivots, substantially as described.

480,317. SOLE-MACHINE. FRED A. BOEBER, Auburn, N. Y. Filed Jan. 21, 1892. Serial No. 418,755. (No model.)



Claim.—1. The combination, with a vertically-operated male die, of the horizontally-reciprocated female-die holder, the female die mounted therein, and the apron hinged to said holder.

2. The combination, with the main frame, the table mounted thereon, and the reciprocating die-holder mounted upon the table, of the female die mounted in said holder, the apron hinged to said holder, and means to reciprocate them upon said table.

3. The combination, with the main frame and the male die operated vertically therein, of the table in said frame, the die-holder supported thereon, the apron hinged to said holder, the female die mounted in said holder, and means to reciprocate said holder and die to and from the operative position below the male die.

4. The combination, with the female die and means to reciprocate it horizontally, of a stripper and means to operate it vertically simultaneously with the reciprocation of said die.

5. The combination, with the female die and means to reciprocate it horizontally, of a stripper adapted to be raised clear of the die as it travels forward and to be lowered into contact with it when the die travels backward and a cam operatively engaging with the said stripper.

6. The combination, with the main frame, the table thereon, and the male die operative vertically above the table, of the female die and its holder and the apron hinged thereto, the rock-frame and its operating-cam actuating the female die and its holder and the apron across said table, the inclined receiving-table, and the stripper operative vertically simultaneously with the travel of said die and holder.

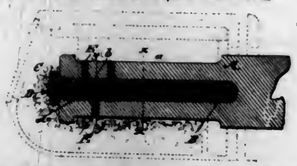
7. The combination, with the horizontally-reciprocating female die, the apron connected thereto, and the inclined table in extension of said apron, slotted as shown, of piling-fingers adapted to project above said table and to be withdrawn below it through the slots, a cam mechanism operating said fingers, and a stop upon the table.

8. The combination, with the horizontally-reciprocating female die, the apron connected thereto, and the inclined table in extension of said apron, slotted as shown and provided with a stop, of piling-fingers mounted in a rocking frame, a vibratory cam engaging with said frame, and means to operate it.

9. The combination, with the main frame and the table thereon, of a female die adapted to be reciprocated upon said table, arms upon said die, and a stripper adapted to be lowered into contact with said arms and to remain in that plane while said die is moving forward and to be raised above the die and its arms when they are moved backward.

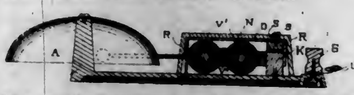
10. In a sole forming machine, the combination, with the reciprocating female die, of the vertically-reciprocating strippers and the fingers supporting them adjacent to the front of the die.

480,318. AXLE-LUBRICATOR. JAMES T. CONNELLY, Milton, Pa. Filed Jan. 23, 1892. Serial No. 419,058. (No model.)



Claim.—The combination, with a journal provided with a central longitudinal bore and with one or more transverse bores extending from said longitudinal bore to the periphery of the journal, of a plug secured in the open end of the longitudinal bore and provided with a central longitudinal bore of less diameter than the main bore of the journal and with one or more transverse bores coinciding with the corresponding bores of the journal, substantially as and for the purpose set forth.

480,319. ELECTRIC BELL. GEORGE W. CONOVER, Chicago, Ill. Filed Oct. 31, 1891. Serial No. 410,550. (No model.)



Claim.—1. The combination of a base with two contact-points thereon, with a cover containing the operative portions of the bell or buzzer and two contact-points thereon, and means for securing the cover to the base.

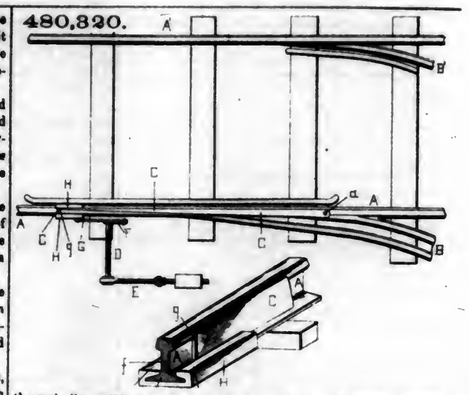
2. The combination of a base with circuit-terminals and two contact-points, with a cover containing the operative portions of the bell or buzzer and two contact-points thereon, and means for securing the cover on the base so that the contact-points all engage and the operative portions are brought in circuit with the terminals.

3. The combination of a base with contact-points thereon, and a cover containing the operative portions of the bell or buzzer, with opposite contact-points, one set of contact-points consisting of a spring-clamp and a part to be received thereby.

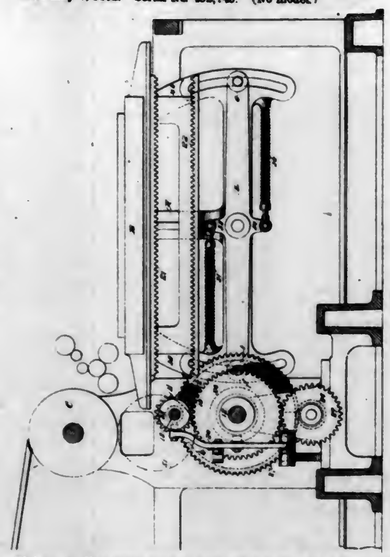
4. The combination of a base with contact-points thereon, and a cover containing the operative portions of the bell or buzzer, with opposite contact-points, one set of contacts consisting of a hook and an engaging part therefor.

480,320. RAILWAY-SWITCH FASTENING. SAMUEL H. CORSON, Cape May, N. J. Filed Dec. 14, 1891. Serial No. 415,051. (No model.)

Claim.—The combination, with a main-line and switch rail, of a reciprocating clamp which is slotted for embracing and sliding over the main-line-rail bottom flange and web, and actuating means whereby said clamp clasps the main-line-rail and switch free end and binds them in intimate contact, for the purpose shown and described.



480,321. BED-MOTION FOR CYLINDER PRINTING-MACHINES. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed May 7, 1892. Serial No. 432,145. (No model.)



Claim.—1. The combination, with the moving bed, of a swinging lever hung to the bed, a revolving disk having a pocket, and a revolving guard co-operating with said pocket to engage the end of said lever and reverse the movement of the bed by retarding, stopping, starting, and accelerating the same by a crank-like motion, substantially as described.

2. The combination, with the reciprocating bed, of a swinging lever hung to the bed, a revolving disk having a pocket, and two revolving guards co-operating with said pocket to alternately engage opposite ends of said lever and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same by a crank-like motion, substantially as described.

3. The combination, with the moving bed, of a swinging lever hung to the bed, a revolving disk having a pocket, a revolving guard coacting with said pocket to engage the end of said lever, and a curved guide in which said lever end travels, whereby the travel of the bed is reversed by retarding, stopping, starting, and accelerating the same through a compound movement, substantially as described.

4. The combination, with the reciprocating bed, of a swinging lever hung to the bed, a revolving disk having a pocket, two revolving

guards coacting with said pocket to alternately engage opposite ends of said lever, and a curved guide at each end of the bed in which the opposite ends of the lever travel, whereby the motion of the bed is reversed at each end of its run by retarding, stopping, starting, and accelerating the same through compound movements, substantially as described.

5. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its run in either direction, of a swinging lever hung to the bed, a revolving disk having a pocket, and a revolving guard co-operating with said pocket to engage the end of said lever and reverse the movement of the bed by retarding, stopping, starting, and accelerating the same by a crank-like motion, substantially as described.

6. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of a swinging lever hung to the bed, a revolving disk having a pocket, and two revolving guards co-operating with said pocket to alternately engage opposite ends of said lever and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same by a crank-like motion, substantially as described.

7. The combination, with the bed and a rack-and-pinion mechanism for driving it in either direction, of a swinging lever hung to the bed, a revolving disk having a pocket, a revolving guard coacting with said pocket to engage the end of said lever, and a curved guide in which said lever end travels, whereby the travel of the bed is reversed by retarding, stopping, starting, and accelerating the same through a compound movement, substantially as described.

8. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of a swinging lever hung to the bed, a revolving disk having a pocket, two revolving guards coacting with said pocket to alternately engage opposite ends of said lever, and a curved guide at each end of the bed in which the opposite ends of the lever travel, whereby the travel of the bed is reversed at each end of its run by retarding, stopping, starting, and accelerating the same through compound movements, substantially as described.

9. The combination, with the revolving pocket-disk P and revolving guards 2 4, of the bed B, rocking lever L, and spring-rods 31 32, substantially as described.

10. The combination, with the pinion, racks 21 22, pinion 11, revolving pocket-disk P, and cam 26, of means coupling said cam and pinion and gearing connecting the said pinion and disk, whereby timely relative co-operation is accomplished, substantially as described.

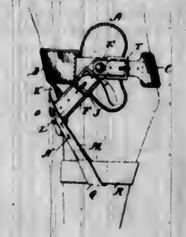
11. The combination, with the pocket-disk, guard-disk, pinion 10, and shaft 12, of gearing connecting the two and proportioned to impart to said disks differential rotative movements, substantially as described.

480,322. BACK OR LINING FOR FIREPLACES. WILLIAM E. FITCH, Louisville, Ky. Filed Feb. 24, 1892. Serial No. 422,670. (No model.)



Claim.—A back or lining for fireplaces, composed of rear and side walls and a removable top, which comprises a frame adapted to be bolted to the walls of the back or lining, a cross piece detachably secured to the frame, and dampers also detachably connected with said frame, substantially as described.

480,323. VETERINARY TRUSS. HERMANN HAUSSMANN, Chicago, Ill. Filed Apr. 19, 1892. Serial No. 429,727. (No model.)



Claim.—1. In a truss, the combination, with a band or belt adapted to encircle the animal's leg, of an arm pivoted to the side of said band and provided with a truss-pad arranged at an angle thereto and adapted to impinge the animal's leg, substantially as set forth.

2. In a truss, the combination, with a band or belt adapted to encircle the animal's leg, of an arm pivoted to said band and provided with a truss-pad arranged at an angle thereto and garter connected to said pad and adapted to encircle the leg below said pad, substantially as set forth.

3. In a truss, the combination, with a band or belt adapted to encircle the animal's leg, of a depending arm secured to said band or belt and being provided with an angular portion, a truss-pad secured to said angular portion, and a garter or second belt adapted to encircle the animal's leg, said band and garter being connected together and to said pad, substantially as set forth.

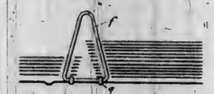
4. In a truss, the combination, with the band or belt adapted to encircle the animal's leg, of a depending arm pivoted to said belt, a truss-pad secured to said arm, a garter adapted to surround the leg below said pad, and crossed straps secured at their ends, respectively, to said garter and belt and being adjustably secured at their intersection to said pad, substantially as set forth.

5. In a truss, the combination, with the band or belt adapted to encircle the animal's leg, of a depending arm adjustably secured to said band, a truss-pad adjustably secured to said arm, a garter adapted to encircle the leg, and straps adjustably secured to said pad and to said garter and band, substantially as set forth.

6. In a truss, the combination, with a band or belt adapted to encircle the animal's leg, of the pads A and B, pins E, by which said pads are secured to said band, a spring-arm secured to one of said pins E and having a perforated foot or supplemental arm, a pad K, the headed pin I, securing said pad K and supplemental arm together, buckles secured to said pins E, crossed straps secured at their upper ends to said buckles, respectively, and having buttonholes through which said pin I passes, and a garter to which the lower ends of said straps are connected, substantially as set forth.

7. In a truss, the combination, with a band adapted to encircle the animal's leg, of thorough-pin truss-pads secured on each side of said band, a flexible arm pivoted to one of said pads, and a bog-spavin truss-pad secured to said arm, substantially as set forth.

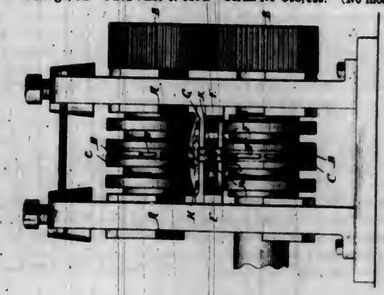
480,324. TEMPORARY BINDER. FRIEDRICH VON HEFNER ALTENECK, Berlin, Germany. Filed May 2, 1892. Serial No. 431,468. (No model.) Patented in Germany Mar. 16, 1890, No. 54,107; in England May 22, 1890, No. 7,979; in France May 29, 1890, No. 205,958; in Belgium June 4, 1890, No. 90,784; in Italy Aug. 21, 1890, XXIV, 27,982, and LV, 60, and in Austria-Hungary Nov. 14, 1890, No. 29,534 and No. 52,270.



Claim.—1. In a temporary binder, the combination, with an outer wrapper or cover, of a series of fasteners pivotally connected to the said wrapper upon one side of its central fold, said fasteners being adapted to have the loose papers strung upon them and to fold over, substantially as set forth.

2. In a temporary binder, the combination, with an outer wrapper or cover, of a series of divided fastening-loops adapted to be sprung open to have loose papers strung upon them, and the eyes pivotally connecting the said loops to the said wrapper upon one side of its central fold, whereby the said loops are free to fold over, substantially as set forth.

480,325. ROLLING-MACHINE FOR CUTLERY. ISAAC HIRSCH, Chicago, Ill. Filed June 8, 1891. Serial No. 395,449. (No model.)



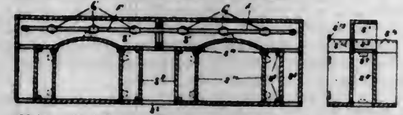
Claim.—In rolls for making cutlery and the like, the combination of two engaging die-carrying rolls, with a guide to deliver the metal thereto, and cleaning tongs or clamps adapted to entirely surround the rod and engage the same at the point of its entry into the guide, so that the rod is scraped and cleaned by the action of the rolls pulling it through the guide.

480,326. DIAZO DYE. MEINHARD HOFFMANN, Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., same place. Filed Dec. 12, 1891. Serial No. 414,636. (Specimens.) Patented in France Sept. 11, 1891, No. 201,770.

Claim.—1. The new process of producing diazo coloring-matters from the amidonaphtholdisulpho-acid H, which consists in the following steps: One molecule of the acid H is introduced into the solution of one molecule of a diazo body in presence of a mineral acid; the solution is made alkaline and a second molecule of a diazo body is added; the separation of the dye-stuff is completed by means of common salt, all substantially as herein described.

2. The new coloring-matter hereinbefore described, composed of two molecules of diazo bodies, such as diazo nitro-benzole, diazo-benzole, and one molecule of amidonaphtholdisulpho-acid H, forming a greenish-black powder, easily soluble in water, with a blue color, more difficultly soluble in spirit, dissolving in concentrated sulphuric acid with a dark green shade; on addition of water the color of this solution is changed into blue and a dark-blue precipitate is formed.

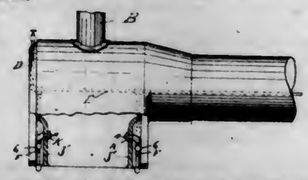
480,327. FURNACE. WILLIAM S. HUTCHINSON, Chicago, Ill. Filed June 5, 1891. Serial No. 396,221. (No model.)



Claim.—1. A furnace-front consisting of upper transverse long boxes with connecting-apertures, vertically-separating plates, and boxes on which such boxes rest and whereby the door-spaces are formed, as also air-spaces from the ash-pit to the boxes and surrounding masonry, whereby a hollow front furnace is formed, substantially as shown and described.

2. A furnace-front consisting of upper transverse long boxes with connecting-apertures, vertically-separating plates, and boxes on which such boxes rest and whereby the door spaces are formed, as also air-spaces from the ash-pit to the boxes and surrounding masonry, whereby a hollow-front furnace is formed, and a transverse steam-pipe through such transverse boxes, with forwardly-projecting steam-nozzles, and a series of air-discharging and injector nozzles about and upon such steam-pipe nozzles and projecting through such boxes into the furnace, substantially as shown and described.

480,328. FURNACE AND ATTACHMENT THEREFOR. WILLIAM S. HUTCHINSON, Chicago, Ill. Filed Sept. 9, 1891. Serial No. 405,173. (No model.)



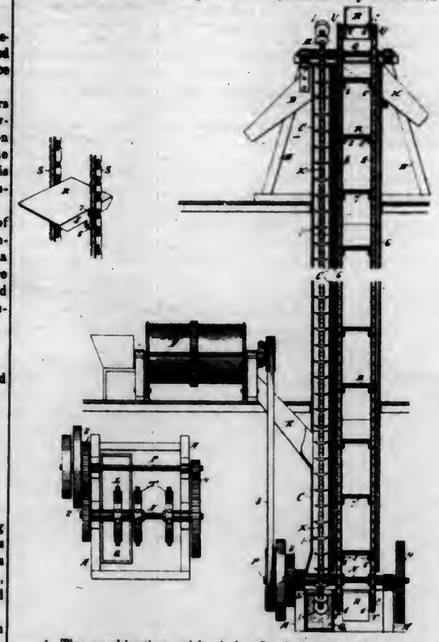
Claim.—In a furnace for locomotive and marine boilers or the like, the combination of interior vertical plates with injectors located in the space between such plate and the furnace-wall, a pipe leading from such injectors, passing through the plates, and opening into the furnace, and a steam-pipe passing down the outside of the boiler and furnace and up between such plate and the inner wall of the furnace to the injector, substantially as shown and described.

480,329. BUILDING-MATERIAL ELEVATOR. JOHN J. KIERST, New York, N. Y. Filed Aug. 3, 1891. Serial No. 401,446. (No model.)

Claim.—1. The combination, with a mortar-mixer, of a casing, a chute through which the mortar is delivered from the mixer to the casing, an endless carrier and series of buckets moving in said casing, and a water-tank through which the buckets pass before receiving the mortar, substantially as described.

2. The combination of a casing, a chute through which mortar is delivered to the casing, an endless carrier and series of buckets moving in said casing, and a water-tank through which the buckets pass before reaching the chute, substantially as described.

3. The combination, with a mortar-elevator having an endless carrier and series of buckets, of a water-tank through which the buckets pass before receiving the mortar, substantially as described.



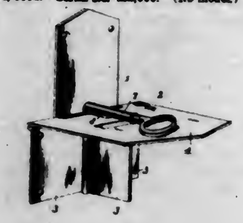
4. The combination, with chains S, of platforms R, pivoted on said chains outside their centers of gravity and having lugs 6, engaging the chains to support the platforms during their upward movement, substantially as described.

5. The combination, with a mortar-elevator consisting of a casing, a chute through which mortar is delivered to the casing, and an endless carrier and series of buckets moving in said casing, of a brick-elevator consisting of a casing having a loading-opening, and an endless carrier and series of platforms moving in said casing, and driving mechanism by which the brick-elevator is driven at a lower speed than the mortar-elevator, substantially as described.

6. The combination, with a mortar-mixer, of a casing, a chute through which the mortar is delivered from the mixer to the casing, an endless carrier and buckets moving in said casing, a brick-elevator consisting of a casing having a loading-opening, and an endless carrier and a series of platforms moving in said casing, and driving mechanism for the brick and mortar elevators, substantially as described.

7. The combination, with a mortar-mixer, of a casing, a chute through which the mortar is delivered from the mixer to the casing, an endless carrier and series of buckets moving in said casing, a water-tank through which the buckets pass before receiving the mortar, a brick-elevator consisting of a casing having a loading-opening, and an endless carrier and series of platforms moving in said casing, and driving mechanism for the brick and mortar elevators, substantially as described.

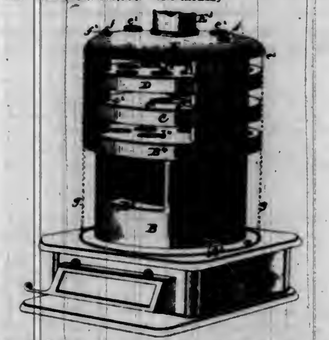
480,330. KEY-FASTENER. ANDREW C. MACK, Portland, Oreg. Filed Feb. 24, 1892. Serial No. 422,660. (No model.)



Claim.—1. A key guard or fastener comprising a folding bracket consisting of a horizontal shelf hinged at its inner end and a hinged brace arranged to support the shelf in a horizontal position, substantially as described.

2. A key guard or fastener consisting of a bracket comprising a back plate provided with a slot to register with a keyhole-slot of a lock, a horizontal shelf hinged at its inner end to the back plate and provided with a slot arranged adjacent to the slot of the back plate, said shelf having a notched flange, and a brace hinged to the back plate and arranged to engage the notched flange to support the shelf in a horizontal position, substantially as described.

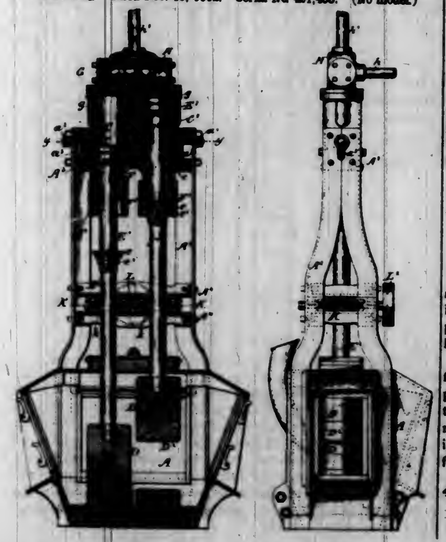
480,331. BOILER. MICHAEL MAHONY, Troy, N. Y. Filed Mar. 24, 1892. Serial No. 426,300. (No model.)



Claim.—1. In a sectional boiler, the combination of a double-wall cylindrical fire-pot having integral therewith an overhanging section provided with a series of vertical flues therethrough and segmental tubes projecting above it, with a series of sections having vertical flues therethrough and segmental tubes projecting above them, and a steam-dome having segmental openings in the bottom thereof, substantially as described.

2. A sectional boiler consisting of a double-wall cylindrical fire-pot having an overhanging section provided with vertical flues therethrough and segmental tubes projecting above it, with a series of substantially similarly-constructed sections resting upon the fire-pot section, and a steam-dome having segmental openings in the bottom thereof, bolts passing through said openings, and a jacket bearing against the overhanging sections, substantially as described.

480,332. STEAM-POWER STAMP. CHARLES A. MARLITT, Portland, Oreg. Filed Feb. 13, 1892. Serial No. 421,405. (No model.)



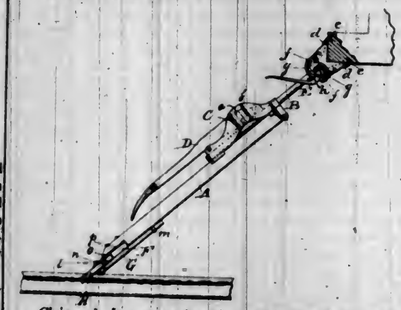
Claim.—1. The combination of two stamps, their stems, and pistons upon the latter, two cylinders having passages leading thereto and therefrom, as described, with a valve-chamber on top of said cylinders and a recessed steam-actuated cylindrical valve therein controlled by the piston, whereby the same steam used to raise the piston is transferred to the top thereof to force the piston down, substantially as described.

2. The combination of two stamps, their stems, and pistons upon said stems, two cylinders having stuffing-boxes and inverted cylindrical cups upon said boxes, with the piston-rods and collars screwed upon said rods, substantially as described.

3. The combination of two stamps, their grooved stems, and pistons upon said stems, two worm-wheels having keys within their hub, and a worm between the two worm-wheels and in gear with both wheels, substantially as described.

4. The combination of a stamp-box, angle-iron frames attached thereto, grooved and slotted blocks A^4, attached to the upper end of said frames, the frame of the two cylinders having dovetails fitting within the grooved blocks, and stud-bolts passing through the slots of the blocks and secured to the frame of the cylinders, substantially as described.

480,333. CAR-MOVER. NATHANIEL B. MARSTON, Lebanon, N. H., and WILLIAM M. KIMBALL, Barre, Vt. Filed Apr. 23, 1892. Serial No. 430,344. (No model.)



Claim.—1. In a car pusher, the combination of the main beam, having the spring-actuated gripping-jaws at one end and the bracket at the opposite end, the operating-lever, the sliding bar working in said bracket, a head on said bar, and dogs pivoted to said head, and the cam-lever for operating the said dogs, substantially as described.

2. In a car-pusher, the combination of the beam, the rail clutch attached to the lower end, the base-piece having beveled shoulders and a slot, a slidable bar provided with a pin engaging said slot, the gripping-jaws, the pins on said jaws, and the spring for bearing on said pins and operating said jaws, substantially as described.

3. In a car-pusher, the main beam, the bracket rigidly mounted on said beam and provided with vertical slots, the operating-lever having pins to engage and slide in said slots by which a sliding fulcrum is provided for the said operating-lever, and the sliding bar attached to the operating-lever, substantially as described.

4. The combination of a slidable bar, a head, a pair of holding-jaws pivoted to said head and provided with pins, the lever for operating the jaws, said lever having eccentric slots therein to engage the pins on the jaws, substantially as described.

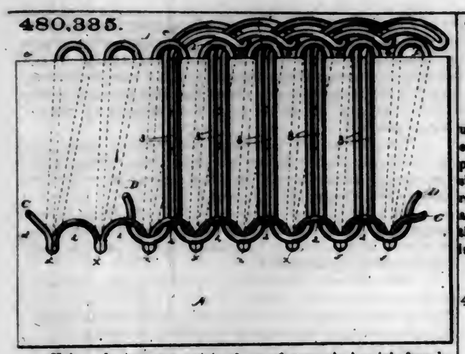
480,334. PROCESS OF PREPARING CELLULOSE FROM WOOD. HERMANN A. A. MAETZ, Arnsberg, assignor to the Vereinäfte Zellstoffindustrie Actiengesellschaft, Dresden, Germany. Filed July 13, 1891. Serial No. 399,405. (No specimens.)

Claim.—1. The process of making sulphite cellulose, which consists in first softening the ligneous material by steam heat, then forcing a sulphite solution into the material under repeated variations of pressure, and finally decomposing the intercellular substance by steam heat, substantially as set forth.

2. The process of making sulphite cellulose, which consists in first softening the ligneous material by steam heat, then reducing the pressure in the vessel below that of the atmosphere to free the material from steam and air, then forcing a sulphite solution into the material under repeated variation of pressure, and finally decomposing the intercellular substances by steam heat, substantially as set forth.

480,335. FINISH OR BORDER FOR THE EDGES OF FABRICS. JOSEPH M. MERROW, Merrow, Conn. Filed May 31, 1892. Serial No. 436,016. (No model.)

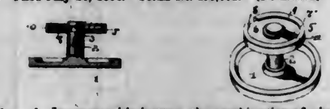
480,335.



Claim.—1. As a new article of manufacture, the hereinbefore-described improved border or finish, the same consisting of a base or fabric and two threads applied to opposite faces and united on two lines of connection, the one beyond the edge of the fabric and the other within the edge of the fabric, one of said threads extending back and forth through the fabric at points removed from the edge to form two series of loops, the one series being located on the lower face of the fabric and extending from the points of insertion beyond the edge, while the other series of loops is located on the upper face of the fabric, the other thread extending in bights or loops through the upper series of loops to form the inner line of connection, and thence across the fabric to the edge, where they enter the lower series of loops to form the outer line of connections, the outer ends of said bights being interlooped one with another beyond said outer line of connections, substantially as and for the purpose set forth.

2. The combination, to form an elastic ornamental finish such as described, of the base or fabric A, the thread C, extending back and forth through the fabric at points equidistant apart and lying in a plane parallel with the edge *a* of the fabric to produce two series of loops, one below and the other above the fabric, the loops of the lower series each extending from a point of insertion beyond the edge of the fabric, while the loops of the other series are shorter and extend from one point of insertion to the next, and the thread D, formed into a series of loops or bights 3, each of the latter engaging one of the shorter upper loops of thread C, and extending thence to the edge of the fabric, where it passes through one of the lower loops of the thread C and is held by engagement with the loop of the next succeeding bight 3 of thread D.

480,336. SEPARABLE BUTTON. ROBERT MONDAY, Lampasas, assignor to Wm. C. Price, same place, and Lewis J. Wertheimer, Dallas, Tex. Filed July 20, 1891. Serial No. 400,092. (No model.)



Claim.—1. In a separable button, the combination of a back composed of two disks permanently connected together and rotatively mounted on each other and provided with radial openings extending from the periphery to the center, a front, and a stem secured to the front and arranged in said openings and engaging one of the disks and holding the same against rotation, the other disk being free to turn, substantially as described.

2. In a separable button, the combination of a front, a stem provided with an annular groove and having a lug arranged in the groove, and a back composed of two disks rotatively mounted on each other and provided with radial openings extending from the periphery to the center to receive the stem, one of the disks being arranged to be engaged by said lug, substantially as described.

480,337. SASH-HOLDER. ROBERT MONDAY, Lampasas, assignor of one-half to Lewis J. Samuels and Emanuel Domnau, Dallas, Tex. Filed Oct. 14, 1891. Serial No. 408,690. (No model.)

Claim.—1. The combination, with the upper sash, the window-casing, the perforated guide-block having a set-screw secured to the casing, and the L-shaped bracket projecting from the casing below the guide-block, of the post extending from the sash and the cylindrical rod depending from the post, passed through the guide-block, laterally disposed below the block to form a handle, and adapted to be swung over the bracket, substantially as specified.

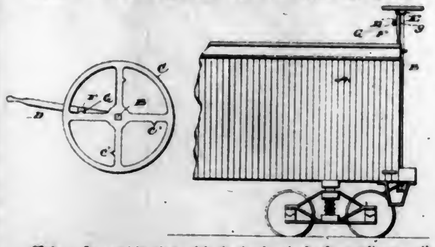
2. The combination, with the lower sash, the window-casing, the

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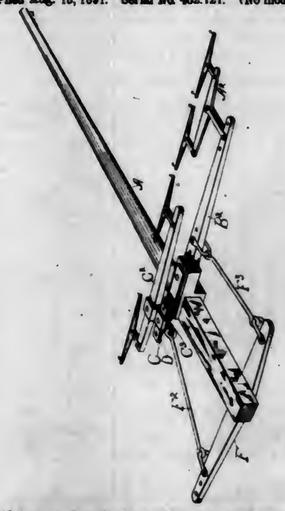
upper and lower brackets, and the vertical guide-rod connected at its ends to the brackets, of the guide-block secured to the window-casing, provided with a vertical perforation for the reception of the rod at one side of the perforation, with a wedge-shaped recess, and in rear of the recess with a slot, a wedge-shaped locking-block mounted in the recess and provided with a shoulder or pin extending from its rear side through the slot, and the set-screw passing through the guide-block and bearing on the locking-block, substantially as specified.

480,338. BRAKE FOR RAILROAD-CARS. GEORGE L. MCCALLUM, Costello, Pa. Filed Dec. 30, 1891. Serial No. 416,575. (No model.)



Claim.—In combination with the brake-shaft of an ordinary railroad-car, a wheel C, having triangular projections C' on each of the spokes thereof, collar E, encircling said shaft just below said wheel, and the lever D, pivotally suspended in said collar, slotted longitudinally to provide a variable location for the recessed projection F by the nut *g*, whereby pressure applied upon the said lever during horizontal adjustment of the projection will supplement the pressure applied to the wheel by reason of the said projection F engaging the projection C' on the wheel, for the purpose set forth.

480,339. DRAFT-EQUALIZER. ALEXANDER MCKEE, Stuart, Iowa. Filed Aug. 15, 1891. Serial No. 402,721. (No model.)

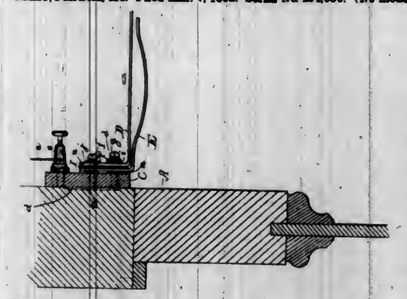


Claim.—1. In a draft-equalizer, the combination of a metal frame having its one end bifurcated, a wagon-tongue placed in the said bifurcated end, a pin or bolt extended through the said metal frame and tongue to connect them, an angular hollow formation on the other end of the said metal frame, an arm inserted in the said opening and extended at right angles from the tongue, a whiffletree on the outer end of the said arm, and a whiffletree connected with an extension from the other side of the tongue, to operate substantially in the manner set forth, for the purposes stated.

2. In a draft-equalizer, the combination of a metal clevis formed complete in one piece, the central portion being adapted to admit and retain an angular bar, its forward ends bent outward at right angles thereto and vertically perforated and its rear end provided with a perforated extension, a bar fixed to the wagon-tongue and inserted in the central portion of the clevis, a doubletree pivoted in its forward end, and a rod fixed to the rear end and connected with an evener pivoted to the tongue, a bar connected with the other end of the said evener and extended forward therefrom, and a whiffletree connected with the forward end of the said bar, to operate substantially in the manner set forth, for the purposes stated.

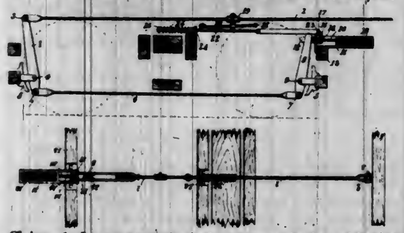
3. A transformable draft-equalizer for two, three, or four draft-animals, comprising a wagon-tongue, a socket fixed to the said tongue, which socket has its one end bifurcated and placed on the tongue and its other end formed into a socket adapted to admit and retain an angular arm, the said arm fixed in the said socket, a whiffletree connected with the outer end of the said arm, a bar pivotally connected with the said socket, a clevis on its outer end, which clevis is formed complete from one piece of metal, its rear end formed into a perforated extension and its forward end bent outward at right angles thereto and adapted to admit a doubletree, a doubletree pivoted in the forward end thereof, an evener pivoted to the tongue in the rear of the said socket, connected by means of bars with said perforated end of the clevis, and the said arm fixed in the socket, constructed and combined substantially in the manner set forth, for the purposes stated.

480,340. BURGLAR-ALARM. FRED H. NEAL and JOHN R. DONNELLY, Fairfield, Me. Filed Mar. 7, 1892. Serial No. 424,090. (No model.)



Claim.—The herein-described electric alarm, consisting of an elliptical spring and an arm held adjacent to each other, each having its end turned up at right angles to form a flange, the arm and spring being secured to the base-board by two screws passing through said flanges, the flange of said arm being superposed on the flange of said spring, each of said screws being in electrical connection with one of said flanges and an insulting-plate held between said flanges, the said screws being connected with the wires of an alarm-circuit, substantially as described.

480,341. SLACK-ADJUSTER FOR CAR-BRAKES. ROBERT A. PARKE, New York, N. Y., assignor of one-half to H. H. Westinghouse, Pittsburg, Pa. Filed Feb. 13, 1892. Serial No. 421,334. (No model.)



Claim.—1. In an automatic slack-adjuster, a brake-rod having a definite normal movement for setting the brake-shoes, in combination with one of the brake-levers and an axially-movable abutment actuated through intermediate mechanism, substantially as described, by the abnormal movement of the brake-rod caused by the slack produced by the wearing of the brake-shoes, substantially as and for the purposes described.

2. In an automatic slack-adjuster, the brake-rod having a definite normal movement for setting the brake-shoes, in combination with one of the brake-levers, an axially-movable abutment, mechanism arranged between the brake-rod and the abutment and operated in one direction by an abnormal movement of the brake rod and in the opposite direction by a retracting-spring, whereby the abutment is automatically advanced and forces the brake-lever forward to take up the slack of the brake apparatus caused by the wear of the brake-shoes, and a locking device for holding the abutment in its advanced position, substantially as and for the purposes described.

3. The combination of the brake-rod having a definite normal movement for setting the brake-shoes with an abutment having an axially-movable stem, a clutch device capable of a free backward motion on the stem of the abutment, a loose connection between the brake-rod and the clutch device, and a retracting-spring for actuating the clutch device and causing it to move the abutment forward to a new position, substantially as and for the purposes described.

4. The combination of the brake-rod with the loose connection, the abutment 12, having a stem 10, a clutch device capable of moving freely in one direction on the stem, a spring for moving the clutch device and stem in the opposite direction, and a locking device for holding the abutment in its adjusted position, substantially as and for the purposes described.

5. The combination of the brake-rod with the carrier or collar 19, the loose connection 22, the abutment-stem 10, and the clutch device mounted on the rod 10 and moved by the connection 22 in one direction and a spring 26 in the other direction, substantially as and for the purposes described.

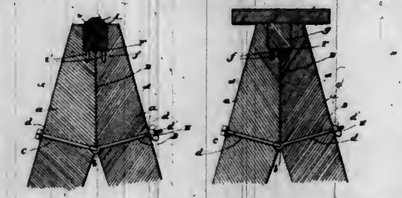
6. In an automatic slack-adjuster, an abutment having a stem by which it is supported on the truck-frame, in combination with a casing containing washers, which, when the abutment is adjusted forward to take up the slack of the brake-lever, fall one by one back of the end of the stem for the purpose of holding the abutment in its adjusted position, substantially as and for the purposes described.

7. The combination of the abutment 12, stem 10, casing 11, and washers 18, substantially as and for the purposes described.

8. The combination of the abutment 12, stem 10, and washers 18 with the casing 11 for containing and holding the washers, provided with a narrow slot 30 for the insertion of an instrument to raise the washers in the casing, substantially as and for the purposes described.

9. The combination of the brake-lever, abutment 12, and stem 10 with the sliding box or sleeve 14 and pawl 15, substantially as and for the purposes described.

480,342. COMBINATION STEP-LADDER. CHARLES A. POLAND, Ann Arbor, Mich. Filed Nov. 4, 1891. Serial No. 410,862. (No model.)



Claim.—1. The combination, with opposing clamping-sections hinged near their upper ends and provided with clamping-jaws, of a support adapted to be clamped between said clamping-jaws and a spreader hinged to said clamping-sections, substantially as set forth.

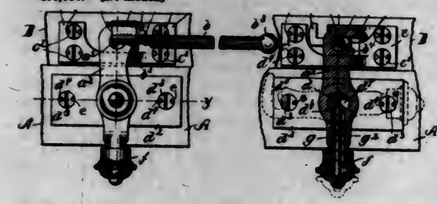
2. In a combination step-ladder, the combination, with the opposing ladder members hinged near their upper ends and provided with clamping-jaws, of supplemental saw-clamping jaws adapted to be operated by and between the ladder-jaws, substantially as set forth.

3. In a combination step-ladder, the combination, with the opposing ladder members hinged at their upper ends and provided with squared notches, of opposing members of a saw-clamp carried in each pair of notches of the opposing ladder members and operated thereby and a locking-spreader hinged to each ladder, substantially as set forth.

4. In a combination step-ladder, the combination, with the opposing ladder members provided at their upper ends with squared notches having circular recesses therein, of eyebolts hinging the ladder members together near their upper ends and transversely adjustable opposing jaws of a saw-clamp, each provided with depending pins engaging the circular recesses of each ladder member and carried thereby, and a locking-spreader having opposite sections hinged together upon their under sides and to the bottom step of each opposing member, substantially as set forth.

5. In a combination step-ladder, the combination, with the opposing ladder members hinged at their upper ends and provided with squared notches adapted to receive either the two jaws of a saw-clamp or the top support of a step-ladder, of a locking-spreader hinged to each ladder, substantially as set forth.

480,343. FASTENER FOR THE MEETING-RAILS OF SASHES. FRANCIS J. RABBITT, Boston, Mass. Filed Oct. 14, 1891. Serial No. 408,667. (No model.)

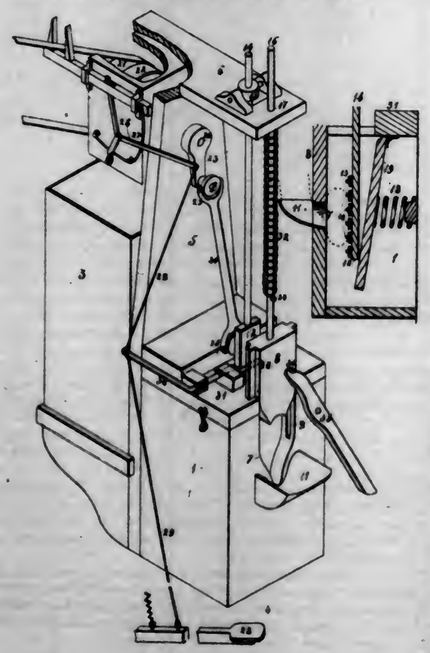


Claim.—1. A fastener one member of which comprises a bar connected at one end with one of the parts to be fastened and provided with a notch or reduced portion near said end and with a head or enlargement at its other end, combined with the other fastening member comprising a jaw having a recess to receive said bar and a throat or passage into said recess corresponding to the notched or reduced portion of the bar, whereby said bar and jaw can be engaged with and disengaged from one another only at the said reduced portion of the bar, the said members being retained in engagement while the jaw is traversing the length of the bar, substantially as and for the purpose described.

2. The combination of the pivoted bar provided with a notch or reduced portion near its pivoted end and an enlargement or head at its farther end and an engaging hook or shoulder, as A, connected with the said bar, with the co-operating fastening member having a movable jaw adapted to be engaged with said bar or hook, substantially as and for the purpose described.

3. A fastener comprising two members, one connected with each of the members to be fastened together, one of said members comprising a jaw and the other a bar pivotally connected at one end with the member to be fastened and having a pivotal movement from a position substantially at right angles to the line of movement of the parts to be fastened, carrying the jaw member, to the position in engagement with the said jaw member and substantially in line with the path of movement thereof, said pivotal movement of the bar being in a plane at right angles to the path of movement of the jaw member, substantially as described.

480,344. STARCHING-MACHINE. CHAUNCEY T. RAY, Rockford, Ill. Filed Aug. 7, 1891. Serial No. 402,045. (No model.)



Claim.—1. A starching-machine comprising a starch-box having an opening therein, a closure for the opening, a rubber, and means for imparting a vertically-reciprocating motion to said rubber.

2. A starching-machine comprising a box having an opening therein, a vertically-sliding closure for the opening, a vertically-moving rubber, a shaft, a crank thereon, and connection between the crank and the rubber.

3. A starching-machine comprising a starch-box having an opening therein, a sliding spring-actuated closure for the opening, a lever for moving the closure, a rubbing-block, a crank, and a connecting-rod between the crank and the rubbing-block.

4. A starching-machine comprising a starch-box having an opening therein, a sliding spring-actuated closure for the opening, a crank, a yielding rubbing-block, a connecting-rod between the crank and the rubbing-block, and a starch-reservoir holding a supply of starch.

5. A starching-machine comprising a starch-box having an opening therein, a closure for the opening, a lever for moving the closure, a shaft, a tight pulley, a loose pulley, and a crank on the shaft, a belt for the pulleys, a yielding rubbing-block, a connecting-rod between the crank and the rubbing-block, a lever for moving the rubber-block back, and a spring for holding it forward.

6. A starching-machine comprising a starch-box, a frame arising therefrom, a shaft journaled in the frame, a crank, a tight pulley and a loose pulley on the shaft, a belt connecting said pulleys with a prime mover, a belt-shifter, a spring for holding the belt on the tight pulley, a rubber in the box, the rubber capable of a twisting, a rearwardly-yielding, and a vertically-reciprocating movement, a connecting-rod between the crank and the rubber, said connecting-rod being capable of a bodily-reciprocating movement, and also of a greater or less inclination from the perpendicular, a spring for holding the rubber in contact with the garment, an opening in the side of the starch-box, a vertically-sliding closure for said opening, and a spring for forcibly sliding said closure.

7. A starching-machine comprising a starch-box, a reservoir for supplying starch thereto, a frame arising from the box, a shaft journaled in the frame, a crank, a tight pulley and a loose pulley on the shaft, a belt connecting said pulleys with a prime mover, a spring for shifting the belt to the tight pulley, a lever for holding the belt on the loose pulley, a rubber in the box, the rubber having an upwardly-extending shank bearing in a swinging collar in the frame, a spring for pushing the rubber against the garment, a lever for holding the rubber away from the garment, a connecting-rod between the crank and the rubber, an opening in the side of the box, a starch-guide before the opening, a vertically-sliding closure for the opening, ways in which said closure slides, the closure having an upwardly-extending shank-bearing in the frame, and a lever for operating said closure.

480,345. BOLTING-REEL. BENJAMIN F. REINBOLD, Lickdale, Pa. Filed Feb. 20, 1892. Serial No. 422,284. (No model.)



Claim.—1. In a bolting-reel, the combination of the opposite receiving and discharging polygonal reel-heads, a series of inwardly-opening buckets connecting the opposite reel-heads at their angles and slightly below the bolting cloth, and regulating devices in each bucket, substantially as set forth.

2. In a bolting-reel, the combination of the opposite polygonal reel-heads, the bolting-cloth covering the space between said heads, a series of inclined connecting-ribs connecting said heads at their angles to form a peripheral series of receptacles between the ribs and the bolting-cloth, a series of inclined bucket-boards meeting the inner edges of said ribs and extending therefrom at an angle to form a series of inwardly-opening buckets, and feed-regulating devices in each bucket, substantially as set forth.

3. In a bolting-reel, the combination of the opposite polygonal reel-heads, the bolting-cloth covering the space between said heads, a series of inwardly-opening buckets connecting the opposite reel-heads at their angles and projecting inwardly at an angle to form an opposite peripheral series of receptacles between the same and the bolting-cloth, and regulating devices in each bucket, substantially as set forth.

4. In a bolting-reel, the combination of the opposite polygonal reel-heads, a series of inwardly-opening buckets connecting the opposite reel-heads at their angles and opening below the bolting-cloth, a series of regularly-spaced draft or feed regulating wings pivoted in each bucket, and means for adjusting said wings in said buckets, substantially as set forth.

5. In a bolting-reel, the combination of the opposite polygonal reel-heads, a series of inwardly-opening buckets connecting the opposite reel-heads at their angles, a series of regularly-spaced draft or feed regulating wings pivoted in each bucket, longitudinally-movable operating-rods working in the apices of the buckets and connecting the wings in series, operating-levers connected to the ends of said rods, and means for operating said levers, substantially as set forth.

6. In a bolting-reel, the combination of the main horizontal shaft having an interiorly-threaded hollow end and a longitudinally-disposed slot, the opposite reel-heads, inwardly-opening buckets connecting the opposite reel-heads at their angles, a series of draft or feed regulating wings pivoted in said buckets, operating-rods connected to the inner ends of said wings, a radial series of levers pivoted upon one of said heads and connected with said operating-rods, a longitudinally-movable sleeve working over one end of said shaft and receiving the other ends of said levers, a sliding block working in the hollow end of said shaft, a bolt passing through the slot in said shaft and connecting the sleeve with said block, and an adjusting screw-threaded collar loosely connected with said block and engaging the threaded end of said shaft, substantially as set forth.

7. In a bolting-reel, the combination, with the shaft, of a series of opposite polygonal reel-heads, a series of inwardly-opening buckets connecting the opposite reel-heads at their angles and provided at one end with discharge-openings, a radial series of discharge-chutes secured to one of said heads beneath said discharge-openings, a longitudinally-movable sleeve working over said shaft and carrying a conical discharging-flange working through the head and beyond the ends of said chutes, regulating devices in each bucket, connected to said sleeves, and means for adjusting said sleeve, substantially as set forth.

8. In a bolting-reel, a series of inwardly-opening buckets opening below the bolting-cloth, a series of regularly-spaced draft or feed regulating wings pivoted in each bucket, and means for adjusting said wings in said buckets, substantially as set forth.

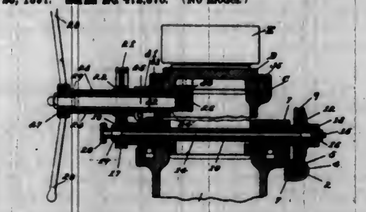
480,346. FOLDING BASE FOR STANDS. SAMUEL K REUTTER, Titusville, Pa. Filed Apr. 5, 1892. Serial No. 428,376. (No model.)



Claim.—1. A folding base for the support of a stand or camp-stool, consisting of three or more tines or feet, each tine being a flat piece of metal with square projection *c* upon each side, in combination with a socket having slots cut in the lower corner equal in number to the number of tines and equal in width to the body of the tine, the tines being inserted in the slots from within and supported by the projections *c*, resting on the bottom and sides of the slots, said socket being adapted to receive a center support or standard, the tines when extended being held as a support by the upper edge bearing against the upper edge of the slot and the projection *c*, bearing on the bottom, substantially as shown and described.

2. A folding base for the support of a single stem, consisting of the socket B, adapted to receive the lower end of the stem, said socket having the slots *a* cut therein, the tines C, having the shoulders *c c* thereon inserted in the slots *a*, the rubber follower D, adapted to be compressed between the end of the stem A and the tines C, all constructed as shown and working in combination, substantially as shown and described.

480,347. SLIDE FEED MECHANISM. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,870. (No model.)



Claim.—1. In a feed mechanism of the class specified, the combination, with the slide having the rack thereon, of the eccentric sleeve, the shaft journaled in said sleeve and having a pinion engaging the slide-rack, means for revolving the shaft by hand, and means for holding the sleeve in place by the eccentric portion thereof, substantially as described, and for the purpose specified.

2. In a feed mechanism of the class specified, the combination, with the slide having the rack thereon, of the sleeve 24, formed eccentric at one end thereof and supported by its eccentric portion adjacent to the slide, the shaft journaled in said sleeve and having a pinion engaging the slide-rack, means for revolving said shaft by hand, and the sleeve 23, revolably supported on the concentric portion of the sleeve 24 and connecting with said pinion-shaft, and means for revolving said sleeve 23 by power, substantially as described, and for the purpose specified.

3. In a feed mechanism of the class specified, the combination, with the bed of the machine, of the slide-block on said bed, the slide on said block and having a rack, the shaft 2, parallel with the line of movement of the slide-block, the intermediate shaft carried by the slide-block, feed-gearing intermediate to the shaft 2 and said intermediate shaft and provided with a clutch and means for engaging and disengaging the same, the sleeve carried in the block and carrying a shaft journaled therein and provided with a pinion engaging the slide-rack, and gearing actuating said pinion-shaft from the intermediate shaft, substantially as set forth.

4. In a feed mechanism of the class specified, the combination, with the slide-block having the clamp-bearing 31, of the slide supported on said block and having a rack thereon, the sleeve 24, having one end formed eccentrically to its bore and supported by said eccentric portion in said clamp-bearing, the shaft 25, journaled in said sleeve and having a pinion engaging the slide rack, the gear 21, supported on the concentric projecting portion of the sleeve 24 and connected with the shaft within said sleeve, and the pinion 17, meshing with said gear 21 and set in the normal plane of the axes of said eccentric and said shaft 25, substantially as described, and for the purpose specified.

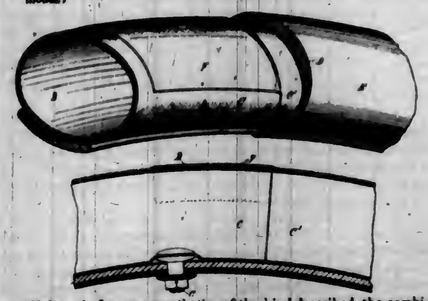
480,348. LEGGIN. MAX SCHEUER, New York, N. Y. Filed Feb. 11, 1892. Serial No. 421,106. (No model.)



Claim.—1. The combination of a leggin with divided foot-strap *d*, clip d^2 for attaching the foot-strap to the leggin at one end buckle d^3 for attaching the foot-strap to the leggin at the other end, and with an inner concealed elastic section d^3, substantially as specified.

2. The combination of a leggin with a protecting-tip consisting of boot plate *f*, having prongs f^1 and perforations f^2 and lapped over the lower edge of the leggin to cover the front and rear sutures at the bottom, substantially as specified

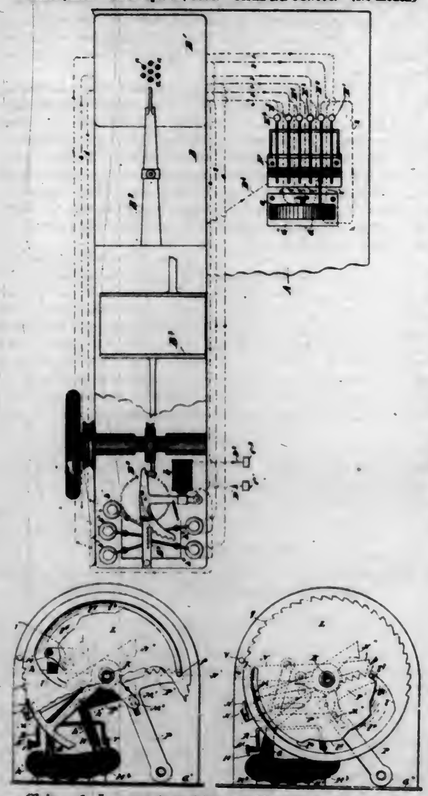
480,349. PNEUMATIC TIRE. FINLAY SINCLAIR, Coventry, England, assignor to the Pneumatic Tyre and Booth's Cycle Agency, Limited, Dublin, Ireland. Filed Feb. 15, 1892. Serial No. 421,491. (No model.)



Claim.—1. In a pneumatic tire of the kind described, the combination, with an inner expansible or inflatable tube, of a tubular non-expansible confining jacket of canvas, the ends of which are secured together by a flap or tongue from one overlapping and secured to the other, as set forth.

2. The combination, with a felly A, of a rubber inflatable tube B, and a tubular canvas jacket the contiguous ends of which are united by a flap or tongue F, extending from the outer or tread portion of one and overlying and connected to the other, as described.

480,350. JUSTIFYING ATTACHMENT FOR MATRIX-MAKING MACHINES. WILLOUGHBY W. STREET and CHARLES L. TRAVIS, Minneapolis, Minn., assignors to the Minneapolis Electro-Matrix Company, same place. Filed Apr. 12, 1890. Serial No. 347,696. (No model.)



Claim.—1. In a matrix-making machine of the class described, the combination, with the differential electric feed devices and the space-key, of an electric switch adjustable to close a circuit through any one of said feed devices at will and operated from the space-key to distribute the spaces as may be required to justify the line.

2. In a matrix-making machine of the class described, the combination, with the differential electric feed devices and the normal space-key, of an electric switch capable of closing a circuit through one or another of said feed devices and a cam-plate for operating said switch to shift the connection from said normal space-key to some other than the normal space-feed device.

3. In a matrix-making machine of the class described, the combination, with the differential electric feed devices, of an electric switch adapted to close a circuit through one or another of the feed devices, a normal space-key in circuit with the switch, and an adjustable cam-plate for controlling the switch to vary the space-feed movement as required to justify the line.

4. In a matrix-making machine of the class described, the combination, with the differential electric feed devices, of an electric switch shiftable into circuit with one or another of said devices, an adjustable cam-plate having different cam-surfaces, adapted to be moved from normal to set the switch and returnable to normal by a step-by-step motion, and a normal space-key in circuit with the switch and having a connection with the cam-plate for operating the same to return it to normal position.

5. An electric switch comprising a pivoted contact, a series of relatively fixed contacts, a movable cam-plate having different cam-surfaces and ratchet-teeth, adjustable from normal position to shift the pivoted contact, and a pivoted pawl-carrying lever engageable with said teeth for returning said plate and pivoted contact to normal position.

6. The combination, with the pivoted contact, of the fixed contacts, the adjustable movable cam-plate with different cam-surfaces and ratchet-teeth, the pivoted pawl-carrying lever engageable with said teeth, and a shield or cut-off also operated from said cam-plate to vary the effective throw of the pawl-lever.

7. The combination, with the pivoted contact, of the fixed contacts, the cam-plate with different cam-surfaces and ratchet-teeth, the pivoted pawl-carrying lever, the tooth-shield or cut-off, the operating-key, and the connecting-rod to said pawl-lever, substantially as described.

8. The combination, with the pivoted contact under tension to hold it in its normal position, of the fixed contacts, the adjustable cam-plate with different cam-surfaces, as described, the pawl-lever, the pivoted shield or cut-off provided with angularly-extended arms, the pivoted lever provided with cam-stud co-operating with said cam-surfaces and slotted to receive a stud from said extended arm, and a pivoted bar attached at one end to said cam-stud lever and provided with a slot to receive stud of the pivoted contact, substantially as described.

9. The combination, with the pivoted contact under tension, of the fixed contacts, the adjustable cam-plate with different cam-surfaces, the pawl-lever, and a tension device controlled by the pawl-lever to hold the pivoted contact at the end of the pawl-lever stroke.

10. In a matrix-making machine of the class described, the combination, with the differential feed devices and the normal space-key, of an automatic switch adjustable to shift the connection from the said space-key to some other than the normal feed device for a certain number of throws and then return to normal for distributing the extra spaces, a dial-plate, and a pointer with a connection to the switch for setting the same at the beginning of the line, substantially as described.

11. The combination, with the pivoted contact, of the fixed contacts, the adjustable cam-plate with cam-surfaces and ratchet-teeth, the pawl-lever, the dial, and the pointer attached to the cam-plate, substantially as described.

480,351. LINE-HOLDER. DANIEL SWEINEY, Newark, N. J. Filed Feb. 18, 1891. Renewed Jan. 20, 1892. Serial No. 418,629. (No model.)



Claim.—1. A holding device provided with means for securing one end of a line or cable thereto, a hole a^3 in the body portion of said device, through which the other end of the line is passed, and a longitudinally-extending arm provided with a groove, said groove being spirally formed and winding around the body of said arm, as and for the purposes set forth.

2. A holding device provided with means for securing one end of a line or cable thereto, a hole a^3 in the body portion of said device, through which the other end of the line is passed, and a longitudinally-extending arm provided with a groove, said groove being spirally formed and winding around the body of said arm, and a hook on the free end of said arm, substantially as and for the purposes set forth.

3. A holding device consisting of the main or body portion a, provided with arms a' and a^2, said arm a^2 having a hole for securing the end of a line therein, and said arm a' having a hole a^3, in which is loosely arranged the other end of the line, and said arm a' being provided with a spirally-formed groove winding from said hole a^3 around the body of the arm to its free end, as and for the purposes set forth.

4. A holding device consisting of a main or body portion a, provided with arms a' and a^2, said arm a^2 having a hole for securing the end of a line therein, and said arm a' having a hole a^3, in which is loosely arranged the other end of the line, and said arm a' being provided with a spirally-formed groove winding from said hole a^3 around the body of the arm to its free end and a hook on said end, as and for the purposes set forth.

480,352. SEPARABLE BUTTON. WILLIAM A. TURNER, Worcester, Mass. Filed Dec. 17, 1891. Serial No. 415,381. (No model.)

Claim.—1. In a separable button, the combination of the shoe A, post B, extending from said shoe, said post being provided with a shoulder B^2, by which the entrance of the post into the crown of the button is limited and having its end reduced in diameter, forming a shank B', pins B^3 B^3, extending radially from said shank the width of said shoulder, so the distance between the ends of said pins will equal the diameter of the post B, plate D, forming a portion of the crown of the button and provided with a central hole D^2, and openings D^4 D^4, extending radially from said central hole and said plate having upon its outer face an annular countersunk recess D', concentric with said central hole and having its diameter equal to the diameter of said post to receive the end of the shank B' and radial pins B^3 B^3 and hold the post concentrically with the central hole D^2 while the post and crown are being rotated upon each other in order to bring the pins B^3 B^3 into alignment with the notches D^4 D^4, and a spring held in the crown of the button and acting against the end of said post to resist its entrance into the hole D^2, substantially as described.



2. In a separable button, the combination, with a crown comprising an annular band C, provided with an internal shoulder C^3, and a plate D, held in said band and provided with a central hole D^2 to receive the post, of a shoe A, having a post B extending from said shoe with its free end entering said hole D^2, and a blade-spring C^3 with its ends resting upon the shoulder C^3 and extending diametrically across the hole D^2, so as to act against the end of the post B as it is pushed into the crown, whereby the strain exerted by said spring will be received upon the shoulder C^3, substantially as described.

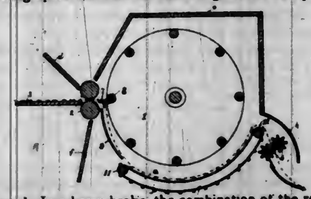
480,353. UMBRELLA-RIB. WILLIAM L. UHLENHART, Astoria, Oreg. Filed Nov. 28, 1891. Serial No. 413,455. (No model.)



Claim.—In an umbrella or parasol, the combination of the top notch with a rib composed of a socket-piece connected to said notch and a rib-iron inserted loosely in the socket of said piece, the parts of the ribs so formed being held in place by the connections therewith of the notch and cover, all substantially as set forth.

480,354. HEMP-BRAKE. JOSIAH O. WARD, Orange, N. J. Filed Jan. 12, 1892. Serial No. 417,822. (No model.)

Brief.—The machine includes a rotary riddle-beater, feed-rolls, break-bar, fenders for supporting the material while being treated, and a traveling apron and rolls for delivering the finished product.



Claim.—1. In a hemp-brake, the combination of the rotary riddle-breaker having separate revolving arms 8, feed-rolls, and stationary breaker-bar 7, arranged between the feed-rolls and riddle-breaker, an open endless carrier arranged below the riddle-breaker, and the delivery device at the rear end of said endless carrier, substantially as specified.

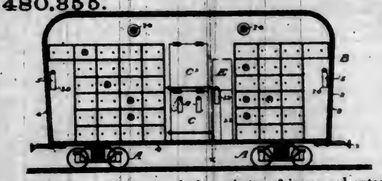
2. In a hemp-brake, the combination of a rotary riddle-breaker having separated arms 8, a pair of feed-rolls 2, a stationary break-bar 7, arranged between the feed-rolls and the rotary riddle-breaker, an endless traveling carrier 10, arranged below the rotary riddle-breaker, a pair of delivery-rolls 5, arranged at one end of the endless carrier, and a series of fenders interposed between the other end of the endless carrier and the stationary break-bar, substantially as described.

480,355. RAILWAY-CAR. ROYAL A. WILDER, Cresaptown, Pa. Filed Apr. 25, 1892. Serial No. 430,589. (No model.)

Claim.—1. A safety-car composed of outer and inner metal shells, loop-holes through the shells of the car, upper and lower doors at the sides of the car, loop-holes in the doors, and movable covers over all the loop-holes, substantially as described.

2. A safety-car composed of inner and outer metal shells, metal side doors in the car, safety boxes or turrets secured within the car, and doors and loop-holes in the turrets, substantially as described.

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3. A safety-car composed throughout of inner and outer metal shells arranged with a space between them, loop-holes having movable covers through the shells, compartments in the sides of the car, side doors with loop-holes in them, and safety boxes or tunnels in the car, having doors and loop-holes, as set forth.

480,356. WHIP-HOLDER. JAMES E. WOODWARD, Yardville, N. J. Filed Apr. 6, 1892. Serial No. 428,008. (No model.)



Claim.—1. In a holder for whips or other articles, the combination of jaws, a plate to which said jaws are pivoted, a cam adapted to slide on said plate and between said jaws, and means to retain said jaws normally closed.

2. In a holder for whips or other articles, the combination of jaws, a plate to which said jaws are pivoted, a groove in said plate, a cam adapted to work in said groove and rest between said jaws, and means to retain said jaws normally closed.

3. In a holder for whips or other articles, the combination of jaws, a plate to which said jaws are pivoted, a cam adapted to slide in said plate between said jaws, said cam being provided with projections to limit its movement, and means to retain said jaws normally closed.

480,357. DENTAL JAW-BRACE. ARTHUR E. WORTHEN, Melrose, Mass., assignor of one-half to Charles L. Sprague, same place. Filed Apr. 12, 1892. Serial No. 428,840. (No model.)



Claim.—1. A mouth-prop for dental operations, comprising a pair of pivotally-connected jaws, as A B, an adjusting-screw C, and troughs, as D H, permanently pivotally secured to said jaws, substantially as set forth.

2. The hereinbefore-described mouth-prop for dental operations, consisting, essentially, of the pivotally-connected jaws A B, adjusting-screws C C' C'', spring E, and troughs H D, permanently pivoted, respectively, to said spring and jaw B, substantially as set forth.

480,358. JAIL-BAR. LEVI D. YORK, Portsmouth, Ohio. Filed Mar. 17, 1892. Serial No. 425,361. (No model.)



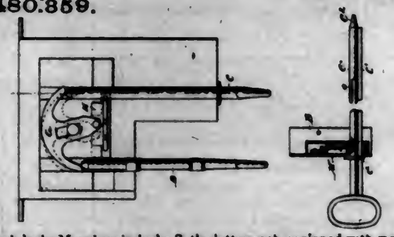
Claim.—A bar composed of a center stratum of soft metal, two embracing or overlapping strata of hard steel provided with longitudinal ribs, one at the center and another between the center rib and each edge, and outer strata or layers of soft metal in which the longitudinal ribs are embedded, substantially as specified.

480,359. LOCK. PETER EISENMANN, Jr., New York, N. Y. Filed Dec. 17, 1891. Serial No. 415,344. (No model.)

Claim.—1. The locking means described, comprising a series of thin locks or sub-locks M and main locks S, the latter each equipped with means P for retaining a sub-lock in a main lock, and with means I J, carried in the sub-lock, for retaining it at another period upon a pin C, the whole adapted to serve in securing water, gas, windows, &c., in an apartment or building, as herein specified.

2. The locking means described, comprising a series of thin locks

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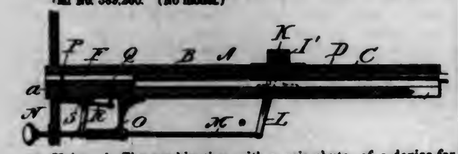


or sub-locks M and main locks S, the latter each equipped with means P for retaining a sub-lock in a main lock, and with means I J, carried in the sub-lock, for retaining it at another period upon a pin C, in combination with the means K L in the main lock for effecting the liberation of the sub-lock from such pin when desired, arranged for joint operation as herein specified.

3. In a locking system, the holder E, having two holes adapted to receive the pin C and key D, and means, as the lever G and locking-slide H, for engaging and liberating each, one at a time, as herein specified.

4. In a locking system, the pin C, having the wing C' extending along one side and holes *c* and *c'*, and having a taper end C^3, adapted to serve with the levers G and slide H of a series of sub-locks M, and with a holder E and key D, substantially as herein specified.

480,360. COIN-CHUTE. RUSSELL F. AVERY, Spokane Falls, Wash., assignor to Jacob Goetz, trustee, same place. Filed Apr. 16, 1891. Serial No. 389,200. (No model.)



Claim.—1. The combination, with a coin-chute, of a device for automatically allowing the passage of a coin of determined thickness, a device for automatically allowing the passage of a coin of determined diameter, and mechanism actuated from the exterior of the coin-chute for releasing a coin of undue thickness arrested in the thickness-determining device, substantially as described.

2. The combination, with a coin-chute, of devices for automatically determining the passage of a coin therein in respect to its two dimensions, mechanism actuated from the exterior of the coin-chute to release and automatically reset said measuring devices, and gates for inserting and retaining the coin introduced into the slot of the coin-chute during the releasing of the dimension-measuring devices and automatically delivering the coin from the slot and closing the same when the measuring mechanism is reset, substantially as described.

3. The combination of the case having a slot therein and a movable lid to said case having secured thereto a longitudinal rib adapted to divide the case into two parallel channels, with a longitudinal passage between said channels and beneath said rib when said lid is closed, substantially as described.

4. The combination of the case having a slot therein, a lid to said case having secured thereto a longitudinal rib adapted to divide said case into two channels, with a longitudinal passage between said channels and beneath said rib when said lid is closed, and suitable connections between the case and the lid, whereby the lid can be opened and closed, substantially as described.

5. The combination of the case, a slot therein, an upper and lower gate located in said slot, a lid to said case, a longitudinal rib dividing said case into two channels, and suitable connection between the case, the lid, and the two gates, whereby when the upper gate is opened the lid is also opened and the lower gate closed, and vice versa, substantially as described.

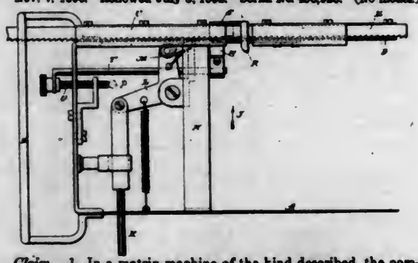
6. The combination of the case having the apertures *d* and *e*, a slot in said case, an upper and a lower gate located in said slot, a lid to said case, a longitudinal rib in said case, and suitable connections between the case, the lid, and the two gates, substantially as described.

7. The combination of the case having the slot therein, a lid to said case, a longitudinal rib forming when closed two channels in said case, a slide connected with one of said channels, and a balance in said slide, substantially as set forth.

8. The combination of the case having the apertures *d* and *e*, a slot in said case, an upper and a lower gate located in said slot, a lid to said case, a longitudinal rib forming two channels, as described, a slide connected with one of said channels, a balance in said slide, and suitable connections between the case, the lid, and the two gates, substantially as described.

9. The combination of the case A, having the apertures *d e* at the open end of the case, the slot F at the other end of the case, the gates P and Q, located in the slot, the bar R, hinged to the gates, the shaft S, pivoted to the bar R, the lever-arm T, connected to the shaft S, the lid B, closing the case and having the rib C, the keeper I', secured to the lid, the eccentric shaft K, loosely retained by the keeper and mounted in bearings in the case, the lever-arm L, connected to the shaft K, the actuating-rod M, connected to the levers T and L, the spring O, connected to the actuating-rod M, the slide G at the open end of the case, the guide I, connecting said slide and case, and the balance H, located in the slide, substantially as described, and for the purpose set forth.

480,361. MATRIX-MAKING MACHINE. SHERWIN C. BECKWITH, New York, N. Y., and WILLOUGHBY W. STREET, Springfield, Mass., assignors to the Matrix Manufacturing Company, New York, N. Y. Filed Nov. 7, 1890. Renewed July 5, 1892. Serial No. 438,925. (No model.)



Claim.—1. In a matrix-machine of the kind described, the combination, with a traveling carriage and feed mechanism, of a matrix-material support or carrier adjustable with respect to said carriage in a direction transverse to the lines or rows of impressions, and line-spacing rack-bars having teeth of different widths, as herein set forth.

2. The combination, with the main carriage, of a support or carrier for a matrix board, a screw set therein, and a stop or fixed point on the main or feed carriage, the said screw being in position to encounter the stop for adjusting the position of the matrix-board with respect to the impression-point and in a direction at right angles to the lines of impression.

3. The combination, with the detachable matrix-support of a machine of the kind described, of a device of the kind described (the screw O) for adjusting the said support with respect to the main carriage in a direction transverse to the lines of impressions, and a pointer or gage movable over the matrix material and connected with the adjusting device, as set forth.

4. The combination, with the frame A, of the adjusting-screw O, the rack bar or bars E, and the pointer or gage R, connected and movable with the screw, as set forth.

480,362. MOTOR-TRUCK. JOHN A. BRILL, Philadelphia, Pa. Filed Mar. 1, 1892. Serial No. 423,342. (No model.)

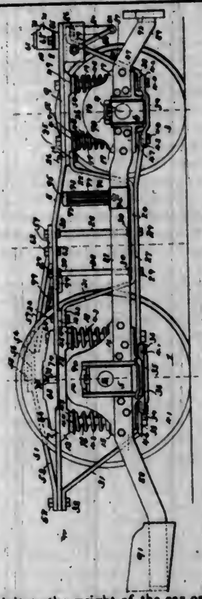
Claim.—1. A truck having wheels and running-gear, a frame for the same, springs for supporting the frame on the running-gear, side bearings secured to the truck-frame, and a truck center bearing located approximately over an axle at one end of the truck, the side bearings and center bearing being arranged to precipitate the weight of the car directly upon the springs above said axle, substantially as described.

2. A truck having wheels and running-gear, a frame for the same, side bearings secured to the truck-frame, and a truck center bearing located approximately over the axle at one end of the truck, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, substantially as described.

3. A truck having wheels and running-gear, a frame for the same, side bearings secured to the truck-frame, a truck center bearing located approximately over the axle at one end of the truck, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, and a rub-plate on the end of the truck-frame farthest removed from the center bearing, substantially as described.

4. The combination of a car-body and a truck, the truck having wheels and running-gear, a frame for the same, side bearings secured to the truck-frame, coacting bearings on the car-body, a truck center bearing located approximately over the axle at one end of the truck, and a coacting center bearing on the car-body, the car and truck side bearings and center bearing being so disposed in relation to the

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said axle as to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, substantially as described.

5. The combination, with a car and truck, the truck having wheels and running-gear, a frame for the same, side bearings secured to the truck-frame, a truck center bearing located approximately over the axle at one end of the truck, a rub-plate on the end of the truck-frame farthest removed from the center bearing, coacting side bearings, and a center bearing and rub-plate on the car-body, the truck and car side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, the end rub-plates being adapted to prevent that end of the truck-frame being lifted by such preponderance, substantially as described.

6. A truck having wheels and running-gear, a frame for the same, a truck center bearing located approximately over the axle at one end of the truck, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, and springs of different capacity for supporting the truck-frame on the running-gear, the springs of greater capacity supporting that part of the truck-frame upon which the side bearings are secured, substantially as described.

7. A truck having wheels and running-gear, a frame for the same, springs of different capacity for supporting the frame on the running-gear, side bearings secured to the truck-frame, the springs of greater capacity supporting that part of the truck-frame to which the side bearings are secured, a truck-bolster secured to the truck-frame, one member of which is disposed approximately over the wheel-base center of the truck, and a center bearing supported upon the truck-bolster approximately over the axle at one end of the truck, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, substantially as described.

8. A truck having wheels and running-gear, a frame for the same, side bearings secured to the truck-frame, a truck center bearing located approximately over the axle at one end of the truck, a rub-plate on the end of the frame opposite the center bearing, and a brace secured to the truck-frame beneath the rub-plate for supporting the same, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, substantially as described.

9. A truck having wheels and running-gear, a frame for the same, springs of varying capacity for supporting the truck-frame on the running-gear, side bearings secured to the truck-frame, a truck center bearing located approximately over the axle at one end of the truck, a rub-plate secured to the truck-frame at the opposite end, a brace for supporting the truck-frame on which the end rub-plate is located, springs of greater capacity for supporting the truck-frame over which the side bearings are located, and springs of lesser capacity for supporting the end of the frame upon which the rub-plate is located, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of the axle over which the center bearing is located, substantially as described.

10. A truck having wheels and running-gear, a frame for the same, springs of varying capacity for supporting the truck-frame on the running-gear, side bearings on the truck-frame, a truck-bolster having a member thereof secured to the truck-frame approximately over the wheel-base center of the truck, a truck center bearing thereon set approximately over the axle at one end of the truck, a rub-plate on the end of the truck-frame opposite the center bearing, a brace under the rub-plate for supporting that end of the truck, springs of greater carrying capacity between the side bearings and running-gear, and springs of lesser capacity for supporting the end of the truck upon which the end rub-plate is located, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of the axle over which the center bearing is located, substantially as described.

11. A truck having a frame, running-gear, wheels of varying diameter with accompanying axles supported in the running-gear, side bearings secured to the truck-frame over the axle of the larger wheels, and a truck center bearing located approximately over that axle, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck about the perpendicular axis of the axle of the large wheels, substantially as described.

12. A truck having a frame, running-gear, wheels of varying diameter with accompanying axles supported in the running-gear, side bearings secured to the truck-frame over the axle of the larger wheels, a truck center bearing located approximately over that axle, and a rub-plate on the end of the truck-frame in which the smaller wheels are located, the side bearings and center bearing being arranged to precipitate the weight of the car on the truck-frame about the perpendicular axis of said axle, the end rub-plate being adapted to prevent the small wheels leaving the track, substantially as described.

13. A truck having a frame, running-gear, wheels of varying diameter with accompanying axles supported in the running-gear, springs of varying capacity for supporting the truck-frame on the running-gear, side bearings secured to the truck-frame over the axles of the larger wheels, springs of greater carrying capacity between the side bearings and the running-gear, and springs of lesser capacity for supporting the truck-frame about the smaller wheels, the side bearings and center bearing being arranged to precipitate the weight of the car-body on the truck-frame about the perpendicular axis of said axle, substantially as described.

14. A truck having a frame, wheels, and running-gear, pedestals and springs about the axle-boxes, side rub-plates for supporting the car-body on the truck, located over the axle box pedestals at one end of the truck, and a center bearing supported on the truck approximately over the axle at that end, substantially as described.

15. A truck-frame having axle box pedestals, a center bearing located approximately over the axle at one end, and side bearings secured to the truck-frame over the pedestals at that end, the center of said side bearings being in line with the perpendicular axis over which said bearing is located, substantially as described.

16. The combination, with a truck, of a car-body, the truck having a frame, wheels, and running-gear, pedestals and springs surrounding the axle-boxes, side rub-plates located over the axle-box pedestals at one end of the truck, a center bearing supported on the truck approximately over the axle at that end, coacting rub-plates secured to the car-body, and a center bearing on the car-body adapted to coact with the truck center bearing, the position of the car and truck center bearings and side bearings being such as to preponderate the weight of the car on the axle over which the side bearings are located, substantially as described.

17. A truck having a frame, wheels, axles, and running-gear for the same, and springs of varying capacity for supporting the truck-frame on the running-gear, the springs of greater carrying capacity supporting the truck-frame at one end thereof and springs of lesser carrying capacity supporting the springs at the opposite ends thereof, substantially as described.

18. A truck having wheels, axles, and running-gear, a frame for supporting the same, a truck center bearing located approximately over one of the axles, springs for supporting the truck-frame on the running-gear, side bearings secured to the truck-frame over the said axle, a rub-plate secured to the end of the truck-frame opposite to the center bearing, and a brace for reinforcing the said frame under the rub-plate, substantially as described.

19. A truck having wheels, axles, and running-gear, a truck-frame for carrying the running-gear, springs for supporting the truck-frame on the running-gear, a truck-bolster having a transverse member secured to the truck-frame approximately over the wheel-base center of the truck, another member spanning one of the axles and secured to the truck-frame, and a center bearing on the bolster located approximately over said axle, substantially as described.

20. A truck having wheels, axles, and running-gear, a truck-frame, springs for supporting the truck-frame on the running-gear, a truck-bolster secured to the truck-frame, having a longitudinal member spanning one of the axles, a transverse member secured upon the truck-frame approximately over the wheel-base center thereof, a center bearing on the bolster located approximately over said axle, and side bearings secured to the truck-frame over the truck-springs encompassed by the said bolster, substantially as described.

21. A truck having wheels, axles, and running-gear, a truck-frame, springs for supporting the truck-frame on the running-gear, and a truck-bolster secured to said frame and spanning one of the axles of the truck, the said bolster having a transverse member extending from its point of attachment to the truck-frame toward the said axle, and a center bearing on the bolster located approximately over said axle, substantially as described.

22. A truck having wheels, axles, and running-gear, a truck-frame, springs for supporting the truck-frame on the running-gear, a bolster secured to the truck-frame and spanning the axle at one end thereof, said bolster having a transverse member secured to the truck-frame approximately over the wheel-base center of the truck and arched therefrom toward said axle, and a center bearing on the bolster approximately over said axle, substantially as described.

23. A truck having an upper chord and an added member secured thereto and made integral therewith, substantially as described.

24. A truck having an upper chord and an added member made integral therewith, said added member following the outline of a portion of said upper chord and adapted to strengthen said upper chord at its place of attachment thereto, substantially as described.

25. An upper chord having longitudinal and transverse sections, the longitudinal sections being adapted to carry the running-gear of the truck, and an added member secured to the transverse sections for the purpose of strengthening the same, substantially as described.

26. A truck having an upper chord, an added member for strengthening the upper chord at its place of attachment thereto, and a brace secured to the added member and adapted to co-operate with said member to strengthen the upper chord at the point of attachment thereof, substantially as described.

27. In a side bearing, the combination of a friction-plate secured thereto, a reservoir for a lubricant, and means for conducting said lubricant to the surface of the friction-plate, substantially as described.

28. In a side bearing, the combination, with the body of the bearing, with an added friction-plate secured thereto, of an oil-reservoir within the body thereof, a duct leading from the reservoir to the surface of the friction-plate, and a conducting medium leading from said reservoir to the surface of said friction-plate, substantially as described.

29. In a truck, the combination, with a truck-frame, of large wheels 1, axle 2, and axle-boxes 5 at one end thereof, smaller wheels 3, axle 4, and axle-boxes 6 at the other end thereof, axle-box saddle 14 with ears 15, supported on the axle-boxes 5; axle-box 16 with ears 17, supported on the axle-boxes 6, spring-plates 12, secured to the upper chord of the frame over the axle of the large wheels, spring-plates 10, secured to said upper chord over the axle of the smaller wheels, spring-posts 18, secured to the truck-frame and passing through the ears 15 of the saddle 14, spring posts 19, secured to the truck-frame and passing through the ears 17 of the saddle 16, and springs of varying carrying capacity for supporting the truck-frame on the saddles, the springs 43 between the saddle on the axle of the large wheels and the truck-frame being of greater carrying capacity than the springs 48 between the saddle of the axle of the smaller wheels and the truck-frame, substantially as described.

30. The combination, with the truck-frame, of wheels and axles, axle-boxes on the axles, saddles supported on the axle-boxes, spring-posts about one of the axles, passing through the saddles and secured to the truck-frame, springs surrounding the spring-posts between the saddles and the frame, and side bearings secured to the truck-frame over one of the said axles, substantially as described.

31. The wheels 1, axle 2, axle-boxes 5 on the axle 2, saddles 14 with ears 15, supported on the axle boxes, the upper chord of the truck-frame, side bearings 63 on the upper chord of the truck-frame, the center of which is directly over the axle 2, spring-posts 18, secured to the side bearings 63, passing through the upper chord and ears 15 of the axle-box saddles 14, spring plates 12, secured to the upper chord, and springs 43, surrounding the spring-posts 18 between the spring-plate 12 and ears 15 of the saddles, substantially as described.

32. The combination, with a truck having running-gear, a frame, springs for supporting the frame on the running-gear, pillars 28 between the upper and lower members of the truck-frame, a truck-bolster having a transverse member 59 secured to the upper chord of the frame between the pillars 28, and the longitudinal member 51, secured to the upper chord and to the transverse member 59, and a center bearing 55, secured to the member 51, substantially as described.

33. The combination, with the wheels and running-gear, a truck-frame, springs for supporting the truck-frame on the running gear, and a truck-bolster secured to the upper member of said frame and spanning one of the axles thereof, said bolster comprising the transverse member 59, arched inwardly and upwardly toward the said axle, substantially as described.

34. A truck-bolster comprising a longitudinal member 51, secured to the upper chord of the frame at one end, extending upwardly and spanning the axle and secured upon the transverse member 59 at the other end, both members of the bolster forming an arch over one of the axles, and a center bearing on said bolster approximately over said axle, substantially as described.

35. The upper chord 9, having the added member 78 secured thereto, and a supplemental brace secured to the added member, said brace comprising the strut 83 and truss 80, substantially as described.

36. The upper chord 9, the angle-iron 78, secured to the upper chord and having the end sections 79 disposed at an angle thereto, the strut 83, having arms 84 secured to the angle-iron 78, an eye 82 on the strut, and a truss 80, passing through said eye and secured to the end sections 79 on the angle-iron 78, substantially as described.

37. In a side bearing, the well 65 therein, the slots 66 and central web 67 over the well, the friction-plate 69, having the opening 70 over said slots and central web and an oil-conductor 71, of felt or like material, extending from the well through the slots 66 and over the central web 67, substantially as described.

38. The side bearings 63, having the oil-well 65 in the body thereof, an outwardly-extending lug 72, and a duct 73, leading from the top of said lug downwardly into said well, substantially as described.

39. The side bearings 63, having an enlarged central section 64, the oil-well 65 in said central section, slots 66 over the well, a central web 67 between the slots, a boss 68 on the said enlarged section, and a friction-plate 69, having the opening 70 above the slots 66 and web 67, seated within said boss, substantially as described.

40. The side bearings having the central enlarged sections 64, the end sections 75 of reduced thickness, countersinks 77 therein, and bolt-holes 76 within the countersinks, substantially as described.

41. The combination, with the upper-chord section 7, of the side bearing 63, bolt-holes 76 therein, an outwardly-extending lug 74 on the side bearings, adapted to bear against the upper chord, and bolts for securing the side bearings to the upper chord, substantially as described.

42. The truck-frame comprising the upper chord, the spring-posts 18 19, the lower chord 27, secured to the inner spring-posts, the angle-braces 31 37, uniting the outer spring posts with the upper chord, the reversed arch-brace 20, attached to the upper and lower chords between the inner spring-posts, and the pillars 28, extending between the brace 20 and lower chord 27 and the upper chord, and the cross-bars 35 39, extending between the spring-posts, substantially as described.

43. The bolster member 59, having the downwardly-extending link 99 secured thereto, and a brake-rod 101, supported by said link, in combination with a braking system to which both ends of the rod 101 are secured, substantially as described.

480,363. BOOT. GEORGE A. BROWN, Bristol, Tenn. Filed Mar. 31, 1892. Serial No. 427,248. (No model.)

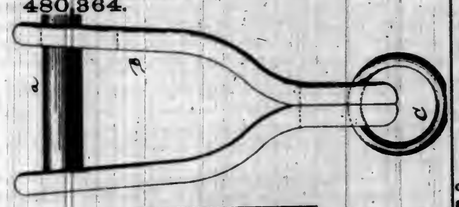


Claim.—The herein-described boot, consisting of a leg portion and a counter and vamp portion having an angular end, said leg portion having a slit or cut in the lower part of one side extending into the adjacent upper rear portion of the counter and terminating at said angular end of the counter above the sole, the angular end of the counter extending forwardly of said slit or cut and then downwardly to said sole, and a shield or flap secured against the inner side of the leg or boot on all sides thereof around said slit or cut and of loose form to permit the expansion of the boot at the point where it is applied and a lace adapted to draw the walls of said slit or cut together or loosen the same, substantially as described.

480,364. CLEVIS. OLE GABUTSON, Leland, Ill. Filed Aug. 25, 1891. Serial No. 403,731. (No model.)

Claim.—A clevis consisting of two side pieces having at their draft ends elongated beveled slots and a ring passing through the slots and at the opposite end of one of the side pieces a stud or bolt *a*, having the head *a'*, and in the corresponding end of the other side piece the elongated socket *b*, in the manner and for the purposes described.

480,364.



480,365. STEAM-GENERATOR. HENRY G. FISK, Worcester, Mass. Filed Nov. 22, 1883. Serial No. 291,534. (No model.)



Claim.—1. In a steam-generator, the combination, with a fire-pot, of a boiler placed over and above the fire-pot, said boiler being provided with lugs extending radially from its sides and beyond the walls of the fire-pot, and boiler-supports beneath said lugs and disconnected with said fire-pot, whereby said boiler is supported independently of said fire-pot, substantially as described.

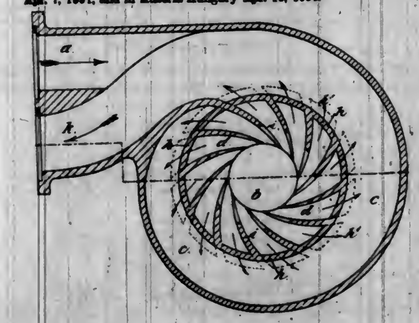
2. In a steam-generator, the combination, with an ash-box and a fire-pot resting upon said ash-box, of a water receptacle or boiler, a series of lugs attached to said boiler and extending radially outside of said boiler, and legs extending downward from said lugs to said ash-box and supporting said boiler, substantially as described.

3. In a steam-generator, the combination, with an ash-box and a fire-pot resting upon said ash-box, of a boiler provided with a crown-sheet placed in a horizontal plane over said fire-pot and having a radius greater than the radius of said fire-pot, said boiler being supported at the outer edges of said crown-sheet and independently of said fire-pot, so as to leave a continuous space around the entire upper edge of said fire-pot, through which the products of combustion may pass, substantially as described.

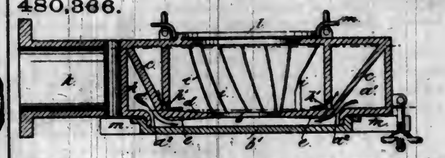
4. In a steam-generator, the combination of an ash-box, a fire-pot resting upon said ash-box, a hemispherical water receptacle or boiler having a horizontal crown-sheet next the fire-pot, radial lugs projecting outwardly from the edge of said boiler, legs supporting said boiler and resting upon the ash-box, and adjusting-nuts upon said legs by which the vertical height of the boiler is adjusted, substantially as described.

5. The combination of ash-box A, fire-pot B, hemispherical boiler E, provided with a flange F, crown sheet G, lugs H, legs J, having a screw-threaded section, and adjusting-nuts K, all arranged substantially as described.

480,366. AMALGAMATING APPARATUS FOR CRUSHED ORES AND LIKE REDUCED BODIES. WILLIAM W. FYFE, London, England. Filed Sept. 17, 1891. Serial No. 405,867. (No model.) Patented in England June 3, 1890, No. 8,609; in France Mar. 26, 1891, No. 212,419; in Belgium Apr. 1, 1891, No. 94,369; in Germany Mar. 31, 1891, No. 59,901; in Italy Mar. 31, 1891, XXV, 29,706, and LIX, 41; in Spain Apr. 7, 1891, and in Austria-Hungary Apr. 10, 1891.



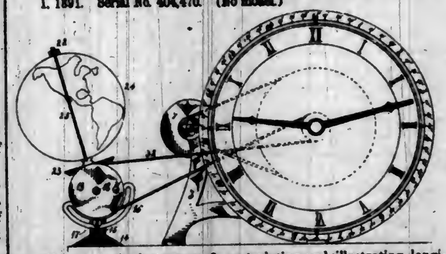
480,366.



Claim.—1. In amalgamator apparatus, the pulp-supply chamber or casing *a a'*, having the ports a^3, leading the pulp down into, under, and through the mercury stratum, together with the well *b'*, and plate *d e*, and central opening *b* thereof, as and for the purpose herein set forth.

2. In amalgamator apparatus, the combination of the passage *a a'*, with ports a^3, plate C, mercury-well, and central space *b' b*, the mid-feathers and under plate *d e i*, dividing-plate A, and ports *k'*, distributing the tailings to the outflow-way *k*, as and for the purpose herein set forth.

480,367. MACHINE FOR CALCULATING AND ILLUSTRATING LONGITUDE AND TIME. WILLIAM W. HALLETT, Lee, Ill. Filed Sept. 1, 1891. Serial No. 404,470. (No model.)



Claim.—1. An instrument for calculating and illustrating longitude and time, comprising a dial marked with divisions of time and divisions of longitude, a globe capable of rotation, hands for the dial, and means for rotating the globe and moving the hands at fixed relative speeds.

2. An instrument for calculating and illustrating longitude and time, comprising a dial marked with divisions of time and divisions of longitude, a globe capable of rotation, two hands for the dial, and a crank for turning the hands and rotating the globe at fixed relative speeds.

3. An instrument for calculating and illustrating longitude and time, comprising a dial marked with divisions of time and divisions of longitude, a globe capable of rotation and of an adjustment of the inclination of its axis, hands for the dial, and means for rotating the globe and moving the hands at fixed relative speeds.

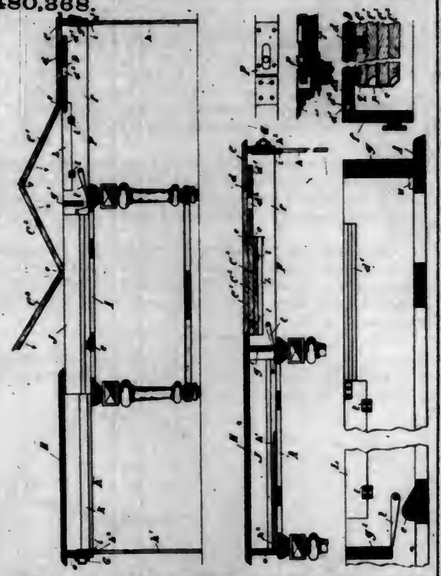
4. An instrument for calculating and illustrating longitude and time, comprising a frame, two shafts journaled therein, a crank and a pulley loosely affixed to and a pulley mounted on one shaft, two pulleys on the other shaft, belts for the pulleys, a dial marked with divisions of time and divisions of longitude, a hand for the dial, affixed to the crank-bearing shaft, and a hand affixed to the loose pulley.

5. An instrument for calculating and illustrating longitude and time, comprising a frame, two shafts journaled therein, a crank and a pulley affixed to one of the shafts and two pulleys secured together loosely mounted thereon, two pulleys rigidly secured to the other shaft, belts for the pulleys, a dial marked with divisions of time and divisions of longitude, a hand secured to the crank-bearing shaft, a hand affixed to the loose pulleys, a globe capable of rotation, a pulley for rotating the globe, and a belt from one loose pulley to the pulley of the globe.

6. An instrument for calculating and illustrating longitude and time, comprising a frame, two shafts journaled therein, a crank and a pulley affixed to one of the shafts and two loose pulleys secured together mounted thereon, two pulleys rigidly secured to the other shaft, belts for the pulleys, a dial marked with hours and minutes of time and degrees and minutes of longitude, a hand secured to the crank-bearing shaft, a hand affixed to the loose pulleys, a globe capable of rotation and an adjustment of the inclination of its axis, a stationary ring about the globe, a miter-gear affixed to the globe, a gear meshing therewith, a pulley affixed to the gear, and a belt from the loose pulley for driving the gear.

480,368. TELESCOPE TABLE. CARL JONAS and ISIDOR RAGUS, Vienna, Austria-Hungary. Filed Aug. 17, 1891. Serial No. 402,961. (No model.)

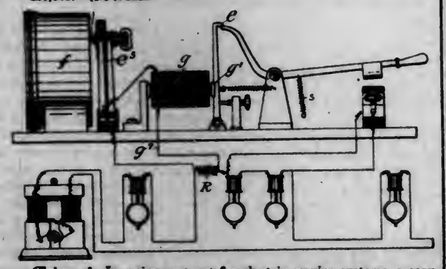
480,368.



Claim.—An extension-table composed of folding plates $C C' C^2 C^3$, turning on a pivot d of a cross-beam D, the latter being arranged to swing around pivots d^2 d^3, and the plates being held together by leather straps p p of an inner frame F, provided with guides d' d' for the slide-blocks d^2 d^3 of the cross-beam D, of the hinged flaps L L in the frame F for the reception of the non-folded out plates C^2 C^3, and of the hinged supplementary supports h h and h' h', arranged to be set fast by keys G, substantially as described, and for the purpose set forth.

480,369. TIME CUT-OUT FOR ELECTRIC-SERVICE SYSTEMS.

SAMUEL R. LINVILLE, Philadelphia, Pa. Filed Mar. 29, 1892. Serial No. 426,873. (No model.)



Claim.—1. In a time cut-out for electric-service systems, a service-circuit, a supply-circuit for energizing the service-circuit, terminals interposed in the supply and service circuits, a lever provided with an insulated conducting extremity adapted to engage said terminals and constitute a bridge for conveying the current between said terminals, a trigger normally restraining the lever from cutting out the service-circuit, and clock-work mechanism for tripping the trigger, substantially as and for the purposes set forth.

2. In a time cut-out for electric-service systems, a trigger, clock-work for tripping the same, a switch for cutting out the service-circuit, and a bell-crank lever connected with said switch and controlled by said trigger, substantially as and for the purposes set forth.

3. In a time cut-out for electric-service systems, a trigger, clock mechanism for tripping the same, a rocker-arm for operating a switch, and a bell-crank lever controlled by said trigger and operating said rocker-arm, substantially as and for the purposes set forth.

4. In a time cut-out for electric-service systems, a service-circuit, terminals, a lever provided with an insulated conducting bridge-piece tending to cut out the service-circuit, a trigger for engaging and restraining said lever, a clock-spindle and its complemental mechanism, and means interposed between said spindle and trigger for releasing the trigger, substantially as and for the purposes set forth.

5. In a time cut out for electric-service systems, a circuit provided with terminals, a switch, as shown, for bridging the current across said terminals, a trigger for engaging said switch, and time mechanism for controlling said trigger and releasing said switch, substantially as and for the purposes set forth.

6. In a time cut-out for electric-service systems, a switch tending to cut out a circuit, a trigger for restraining said switch, a threaded clock-spindle and its complemental mechanism, a nut on said clock-spindle, and a feather engaging said nut, substantially as and for the purposes set forth.

7. In a time cut-out for electric-service systems, a clock provided with escapement mechanism, gears actuated by the clock and adapted to release the escapement mechanism, a service-circuit, and a switch controlled by the escapement mechanism and adapted to cut out the service-circuit, substantially as and for the purposes set forth.

8. In a time cut-out for electric-service systems, a switch provided with a bridge-piece, as shown, a service-circuit, terminals, a source of electric energy, a trigger for engaging said switch, and time-registering mechanism for controlling said trigger and releasing the switch, substantially as and for the purposes set forth.

9. In a time cut-out for electric-service systems, a circuit and a generator, a switch tending to cut out the circuit, a trigger for restraining said switch, a time mechanism provided with a spindle and nut, and a feather for engaging said nut for releasing said trigger, substantially as and for the purposes set forth.

10. In a time cut-out for electric-service systems, a generator and service-circuit, a clock mechanism provided with an escapement, devices actuated by the clock mechanism and adapted to release said escapement, and a switch controlled by said escapement and adapted to close a shunt-circuit and interrupt said service-circuit, substantially as and for the purposes set forth.

11. In a time cut-out for electric-service systems, a time-controlled lever provided with an insulated conducting bridge-piece for breaking the circuit through a lamp, motor, or other translating device, a trigger engaging the lever, and clock mechanism for releasing the trigger, substantially as and for the purposes set forth.

12. A time cut-out for electric-service systems, comprising a time-registering apparatus, a cut-out-releasing device controlled by suitable power and adapted to be released at a determinate period by said time-registering apparatus, a trigger released by said releasing device, and a lever released by said trigger and provided with an insulated conducting bridge-piece, adapted to be included in and withdrawn from a circuit to make and break the same, substantially as and for the purposes set forth.

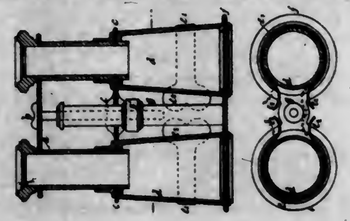
13. A time cut-out for electric service systems, comprising electric generators, main and service circuits, a time-registering mechanism, a shunt-circuit around a resistance in the main circuit, magnetic devices, circuit-closing devices in said shunt-circuit released at a determinate period by the time mechanism, and a lever controlled by said magnetic devices and provided with a short-circuiting bridge-piece, substantially as and for the purposes set forth.

14. In a time cut-out for electric-service systems, a source of electric energy, a main circuit with translating devices included therein, a time-registering apparatus, a releasing mechanism controlled by suitable power and adapted to be set and to be released at a specific time by said time mechanism, in combination with a spring-actuated short-circuiting switch, a trigger normally restraining said switch, and devices actuated by said releasing mechanism adapted to release said trigger, substantially as and for the purposes set forth.

15. In a time cut-out for electric-service systems, a time-registering apparatus, a main dynamo-circuit, service-circuits, translating devices, a shunt-circuit around a resistance in the main circuit, a magnet included in said shunt, an armature and detent for said magnet, in combination with a spring-actuated switch restrained by said detent and a power-impelled mechanism operating to close said shunt-circuit upon being released by said time-registering apparatus, substantially as and for the purposes set forth.

480,370. OPERA OR FIELD GLASS.

ERNST LÖDDIGKEIMS, Liegnitz, Germany. Filed Oct. 20, 1891. Serial No. 409,203. (No model.)



Claim.—1. The combination of an opera or field glass with rings d surrounding its tubes and having outwardly-turned ends d^2, substantially as specified.

2. The combination of an opera or field glass with nose-rest b and with rings d, having outwardly-turned ends d^2, substantially as specified.

480,371. SIGN HAVING ORNAMENTAL LETTERS OR DESIGNS IN RELIEF, FORMED OF A COMPOSITE MATERIAL, AND METHOD OF MAKING THE SAME.

HENRY H. M. MANDOSE, Newton, N. H. Filed Mar. 26, 1892. Serial No. 426,417. (No specimens.)

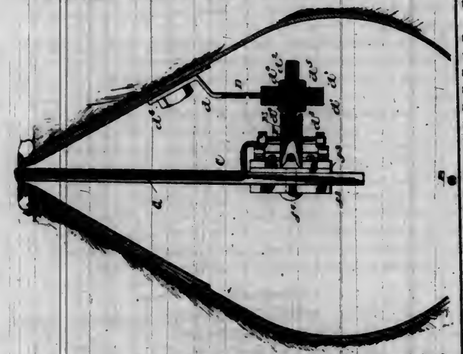


Claim.—1. As a new article of manufacture, raised letters, ornaments, and the like formed on a base of a composite material consisting of whiting, varnish, glue, and spirits of turpentine, substantially as herein described.

2. The method herein described of making raised composite letters and ornaments on signs, cards, or other base, consisting in providing a flowing composite material which will harden under exposure to the atmosphere and admit of beading without liability of cracking, placing this material in a compressible bulb having a conducting and discharging tube, preparing a design of the letters and ornaments upon the base, following the outline with the tube, compressing the bulb, and thereby continuously forcing out the fluid material through the tube upon the design and allowing the finished letters and ornaments to harden and become set, substantially as described.

480,372. SYSTEM OF ELECTRIC LIGHTING.

GEORGE F. MYERS, Pittsburg, Pa. Filed Dec. 15, 1891. Serial No. 415,192. (No model.)



Claim.—1. The combination, with a cable-railway conduit, its cable, and a moving vehicle having a grip-arm extending within the conduit, of an electric conductor extending through the conduit, a contact device for making connections with the electric conductor, and circuit connections therefrom, with translating devices located within the vehicle and a yielding support whereby the contact device is secured to the grip-arm and insulating-plates, a support for the conductor held in position by said insulating-plates, and a rigid support carrying said insulated plates, substantially as described.

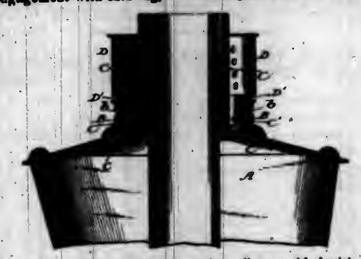
2. The combination of a trolley or contact wheel for electric conductors, two flexible supporting-arms carrying the contact-wheel, a support to which the other ends of the flexible supporting-arms are attached, and latches carried by said support for engaging said flexible supporting-arms and holding said contact-wheel in an inoperative position.

480,373. ARGAND LAMP.

FRANK REHM, Meriden, Conn. Filed Oct. 21, 1891. Serial No. 408,891. (No model.)

Claim.—1. In a lamp, the combination of a collar provided with a lug or projection, a removable burner-slip adapted to vertical movement within said collar and restrained by said lug from rotary movement, and a removable burner-skirt adapted to rotary movement within said first-named removable burner-slip and to engage with said lug, substantially as described.

2. In a lamp, the combination of a collar, a lug or projection on said collar, a removable burner-slip, a vertical slot in said removable slip, a removable burner-skirt, and a catch in said second removable burner portion, said slot and said catch being adapted to simultaneous engagement with said lug, substantially as described.



3. In a lamp, the combination of a collar provided with a lug or projection, a removable burner-slip adapted to fit said collar and provided with a vertical slot adapted to embrace said projection, and a removable burner-skirt adapted to fit said first-named removable burner-slip and provided with means for engaging said projection, so as to secure both said removable burner portions to said collar, substantially as described.

4. In a lamp, the combination of a collar provided with a lug or projection, a removable burner-slip adapted to fit said collar and provided at its lower edge with a vertical slot, and a removable burner-skirt provided with a bayonet-catch, said projection being adapted to pass through said slot and to engage said catch, so as to lock said removable burner portions to said collar, substantially as described.

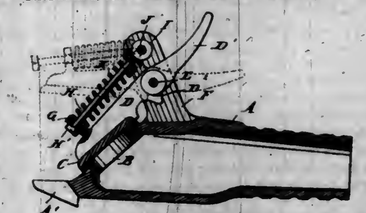
5. In a lamp, the combination of a collar provided with an internal projection, a removable burner portion consisting of an outer wick-tube and a flange adapted to fit within said collar, a second removable burner portion consisting of a foraminous skirt of greater diameter and a flange of less diameter than said first-named flange, and a catch on said inner flange adapted to engage with said internal projection, substantially as described.

6. In a lamp, the combination of a collar provided with an internal projection, a removable burner portion consisting of an outer wick-tube, a depressed annular perforated portion, and a flange adapted to fit within said collar, a vertical slot in said flange, a second removable burner portion consisting of a foraminous skirt and a flange adapted to fit within said first-named flange, and a catch on said inner flange adapted to engage with said internal projection, substantially as described.

7. In a lamp, the combination of a collar, an internal projection in said collar, an outer wick-tube, a flange connected with said wick-tube and adapted to seat within said collar, a vertical slot in said flange, an outturned rim on said flange, a foraminous skirt, a flange at the lower edge of and of less diameter than said skirt, said last-named flange being adapted to seat within said first-named flange, and a catch in said inner flange adapted to detachable engagement with said internal projection in said collar, substantially as described.

480,374. PIPE-COUPLING.

GEORGE W. SERRACK, New York, N. Y. Filed June 1, 1892. Serial No. 435,186. (No model.)



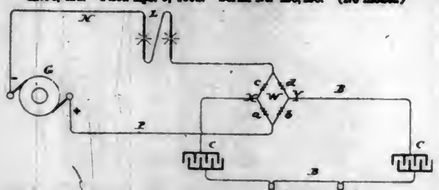
Claim.—1. A device of the class described, comprising a valve held on a pivoted arm, a spring pressing on the free end of the said pivoted arm, and a rod mounted to swing and loosely connected with the said arm to swing with the latter, the said spring being coiled on the said rod, substantially as shown and described.

2. In a device of the class described, the combination, with a pivoted arm carrying a lug adapted to engage a lug on the other coupling member, of a pivoted rod loosely engaging with its free end the

free end of the said pivoted arm to swing with the latter and a spring coiled on the said rod, substantially as shown and described.

3. In a device of the class described, the combination, with a pivoted arm carrying a disk valve and provided with a lug adapted to engage a lug on the other coupling member, a collar mounted to turn above the pivot of the said arm, a rod fastened to the said collar and loosely engaging the outer end of the said arm, and a spring coiled on the said rod and pressing with one end on the said arm and resting with its other end on the said collar, substantially as shown and described.

480,875. ELECTRIC-LIGHTING SYSTEM. CHARLES SELDEN, Baltimore, Md. Filed Apr. 9, 1892. Serial No. 428,490. (No model.)



Claim.—1. In a system of electrical distribution, the combination, with the main-line wire, of a Wheatstone bridge interposed in said main-line wire arranged to supply a definite current to the translating devices connected in the bridge-wire thereof, substantially as described.

2. In a system of electrical distribution, the combination, with the main-line wire, of a Wheatstone bridge interposed therein and translating devices connected in the bridge-wire, the resistances of the various arms of the bridge being so proportioned as to furnish the desired current to the translating devices in the bridge-wire, substantially as described.

3. In a system of electrical distribution, the combination, with the main-line wire, of a Wheatstone bridge connected thereto arranged to supply a definite current to the bridge-wire, translating devices arranged in said bridge-wire, and inductive devices interposed between the translating devices and the terminals of the bridge-wire, substantially as described.

4. In a system of electrical distribution, the combination, with the main-line wire carrying currents of high potential and translating devices connected to said main-line wire, of a Wheatstone bridge connected to said main wire and arranged to supply the bridge-wire thereof with an inductive current of lower potential and translating devices arranged in said bridge-wire, substantially as described.

5. In a system of electrical distribution, the combination, with the main-line wire, of a Wheatstone bridge interposed in said main-line wire arranged to supply current to the bridge-wire thereof, and a second bridge connected in said first bridge-wire, and translating devices connected to the second bridge-wire, substantially as described.

6. In a system of electrical distribution, the combination, with the main-line wire, of a Wheatstone bridge interposed therein and arranged to supply current to the translating devices in the bridge-wire, and automatic means controlled by the current arranged to vary the relative resistances of the bridge to compensate for changes of potential in the main-line circuit, substantially as described.

7. In a system of electrical distribution, the combination, with the main-line wire, of a Wheatstone bridge interposed in said main-line wire and arranged to supply current in the bridge-wire containing the translating devices, of an electro-magnet connected in the circuit and arranged to automatically compensate for variations of changes of potential in said circuit, substantially as described.

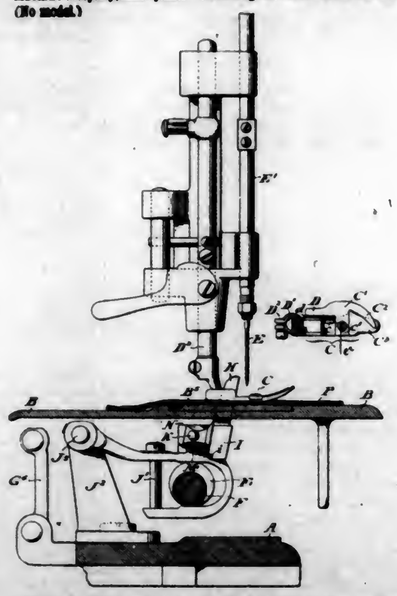
8. In a system of electrical distribution, the combination, with the main-line wire, of a Wheatstone bridge interposed therein, a second bridge interposed in the bridge-wire of the first bridge, and electro-magnetic devices arranged to automatically vary the resistances of the branches of said second bridge to compensate for variations in the potential of the current, substantially as described.

9. In a system of electrical distribution, the combination, with the main-line wire divided into branches, of a Wheatstone bridge interposed in one of said branches and arranged to supply current to the bridge-wire containing the translating devices, substantially as described.

480,876. PROCESS OF MAKING TANNING-EXTRACTS. WALTON G. TIFFANY, New York, N. Y., assignor of one-half to Brewster Cisneros, Tucson, Ariz. Filed Sept. 2, 1891. Serial No. 404,556. (No specimens.)

Claim.—The process of obtaining a dry tanning-extract from cascigra-root, which consists in comminuting or macerating the root, subjecting it to a bath of water at about 140° Fahrenheit or less, and reducing the liquid extract so obtained to a commercially-dry state by vacuo or otherwise, substantially as set forth.

480,877. SEWING-MACHINE TRIMMER. RUSSEL G. WOODWARD and CHARLES TIBBS, Chicago, Ill., assignors to The Union Special Sewing Machine Company, same place. Filed Aug. 19, 1890. Serial No. 362,363. (No model.)

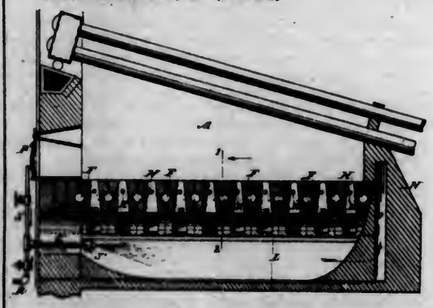


Claim.—1. The combination, with the stitch-forming mechanism, of the slotted work-plate, the oscillating trimmer-frame located below the work-plate, the laterally-adjustable arm carried by said frame, the socket-piece mounted upon said arm, and the trimmer-blade rigidly but removably secured beneath the work-plate in said socket-piece and projecting at its upper end above the work-plate, substantially as set forth.

2. The combination, with the oscillating trimmer-frame and its laterally-projecting arm, of the slotted socket-piece having a beveled recess on its rear side, the trimmer-blade fitting freely in said socket-piece, and the screw and beveled nut adapted to enter said recess and to bear against the back of the blade, substantially as set forth.

3. The combination, with the stitch-forming mechanism, the oscillating trimmer-frame mounted beneath the work-plate, and the trimmer-blade rigidly mounted in said frame but laterally adjustable with relation to the needle, of a strip mounted in the work-plate and laterally adjustable with relation to the needle, said strip being provided with a trimmer-slot and a feed-slot immediately alongside thereof, each of said slots being entirely inclosed by the metal of the strip, and a feed-dog having a laterally-adjustable supplemental feed-surface fitting in said feed-slot, substantially as set forth.

480,878. FURNACE. ROBERT R. ZELL, Baltimore, Md. Filed Feb. 15, 1892. Serial No. 421,541. (No model.)



Claim.—1. In a furnace, a fire-arch having flues for the products of combustion, transverse and longitudinal air-passages, and connections between both sets of said air-passages and the said flues, substantially as set forth.

2. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body for the products of combustion, and transverse and longitudinal air-passages, said air-passages being in communication with one another and with the said flues, substantially as set forth.

3. In a furnace, a fire-arch consisting of a number of abutting blocks, each having a flue through its body for the products of combustion, air-passages surrounding each block and formed by recesses in the sides of the abutting blocks, and air-openings from the said passages to the flue of each block, the said blocks having two opposite converging sides and two opposite parallel sides, substantially as set forth.

4. In a furnace, a fire-arch consisting of a number of abutting blocks, each having a flue, the sides of which upwardly converge, through its body for the products of combustion, air-passages surrounding each block, and air-openings from said passages to the flue of each block, substantially as set forth.

5. In a furnace, a fire-arch consisting of a number of abutting blocks, each having a flue, the sides of which upwardly converge, through its body for the products of combustion, air-passages surrounding each block, and air-openings from the said passages to the flue of each block, each of the said blocks having two opposite converging sides and two opposite parallel sides, substantially as set forth.

6. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body for the products of combustion, transverse and longitudinal air-passages, said air-passages being in communication with one another, and means for admitting air to said flues, so as to cause complete combustion, substantially as set forth.

7. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body, air-passages surrounding each block, and air-openings from the said passages to the flue of each block, substantially as set forth.

8. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body, air-passages surrounding each block, and air-openings from the said passages to the flue of each block, said air-passages being formed by recesses in the sides of the abutting blocks, substantially as set forth.

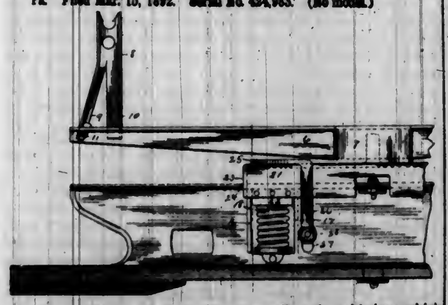
9. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body, air-passages surrounding each block, and air-openings from the said passages to the flue of each block, said air-passages being formed of recesses in the sides of the abutting blocks and one series of said air-passages extending transversely of and another series extending longitudinally with the furnace, substantially as set forth.

10. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body, air-passages surrounding each block, and air-openings from the said passages to the flue of each block and being in open communication with each other, substantially as set forth.

11. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body, air-passages surrounding each block, and air-openings from said passages to the flue of each block, the said air passages being in open communication with each other and being formed by recesses in the sides of the abutting blocks, one series of the said air-passages extending transversely of and another series extending longitudinally with the furnace, substantially as set forth.

12. In a furnace, a fire-arch consisting of a number of blocks, each having a flue through its body, air-passages surrounding each block, and oblique air-openings from the said passages to the flue of each block, substantially as set forth.

480,879. WAGON RUNNING-GEAR. JAMES H. BAKER, Allegheny, Pa. Filed Mar. 15, 1892. Serial No. 424,963. (No model.)



Claim.—1. A method of making a metallic axle and bolster, which consists in making the bolster portion in one piece and the axle portion in another and welding the two together, substantially as set forth.

2. A metallic axle and bolster in one piece for wagons, with a heavier cross-section at the point where the arms leave and lose the support of the metal connecting the axle and bolster, substantially as set forth.

3. A metallic axle and bolster in one piece for wagons, the axle having a cross-section substantially of a half-circle, substantially as set forth.

4. A metallic axle and bolster in one piece for wagons, the axle having a cross section substantially of a half-circle and the axle-arms being formed by welding thereto pieces of metal substantially, also, of a half-circle in cross-section, substantially as set forth.

5. A metallic axle and bolster in one piece for wagons, in which the lower half of the arms is of hard steel welded to a softer upper part, substantially as set forth.

6. A metallic rock-bolster for wagons, with cross-section in the T form and with a center bottom bearing of a channel-section having its sides fastened to the upper part of the bolster, substantially as set forth.

7. A metallic stake for wagons, made of I-shaped sections divided at the lower end and locked in place by wedges, substantially as set forth.

8. A metallic stake for wagons, divided at its lower end and having self-contained tension when put in position, substantially as set forth.

9. A metallic brace for wagons, having a head adapted to be locked in an opening of another metallic piece, substantially as set forth.

10. A metallic axle and bolster for wagons, having springs between the axle and the top of the bolster, with a cap or spring-bar to vertically slide, substantially as set forth.

11. A metallic axle and bolster for wagons, having guides for a spring-cap made integral with the axle and bolster, substantially as set forth.

12. A metallic axle and sand-board for wagons, having springs fastened between the axle and the top of the sand-board, substantially as set forth.

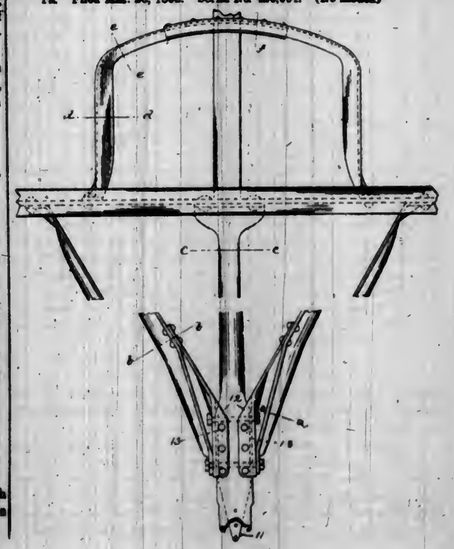
13. A metallic axle and sand-board for wagons, with a rock-bolster bearing hung over them, substantially as set forth.

14. A metallic axle and sand-board for wagons, having a rock-bolster bearing resting on springs having slide-arms fastened thereto, substantially as set forth.

15. A metallic rock-bolster bearing having slide-arms fastened thereto, with slide-arm braces extending downward to and arranged to slide vertically on the sides of the lower part of the structure, substantially as set forth.

16. A metallic axle and sand-board in one piece in gear, having a reach forked at the front end, with one part fastened to the axle and the other part fastened to the sand-board at or near the top of the sand-board, substantially as set forth.

480,880. WAGON RUNNING-GEAR. JAMES H. BAKER, Allegheny, Pa. Filed Mar. 28, 1892. Serial No. 426,651. (No model.)



Claim.—1. In a wagon, a metallic axle and bolster in one piece having the arms made heavier than the balance of the axle and provided with reinforcements extending to the web, substantially as set forth.

2. In a wagon, a metallic axle and bolster in one piece having the web connecting them thicker next the axle than in the balance of the web, substantially as set forth.

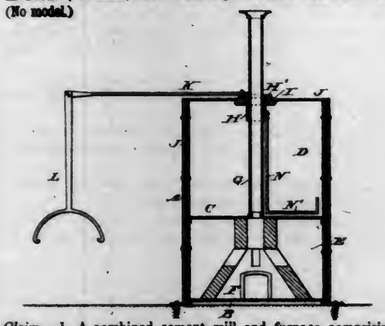
3. Pressed metallic bounds for a wagon, having increased strength imparted to them in a vertical direction at the point where they join the axle and bolster by increasing there the vertical depth of the section of said bounds.

4. Pressed metallic bounds for a wagon, having increased strength imparted to them in a horizontal plane at the point where they join each other by increasing their horizontal section there.

5. In a wagon, pressed metallic combined bounds and slider having increased thickness at the place where the reach works upon the slider, substantially as set forth.

6. A pressed metallic tongue for a wagon, the cross-section of which at the rear end is shallow vertically and wide horizontally, said section gradually changing into a circle at the front end, said tongue also having a longitudinal tapering corrugation extending from the rear end nearly to the front end.

480,381. COMBINED CEMENT MILL AND FURNACE. HENRY H. BOURNE, Trinidad, Colo. Filed Sept. 15, 1891. Serial No. 405,764. (No model.)



Claim.—1. A combined cement mill and furnace comprising a casing, a transverse partition forming a mill-compartment and a furnace-compartment in the said casing, a furnace located in the said furnace-compartment to heat the latter and also the mill-compartment, a smoke-stack extending centrally from the said partition to connect with the outlet of the said furnace, and an agitator held in the said mill-compartment and mounted to turn on the said smoke-stack, substantially as shown and described.

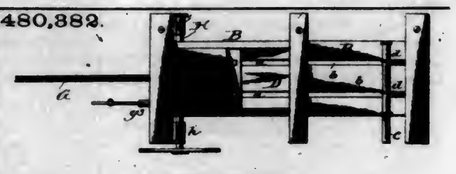
2. In a combined cement mill and furnace, the combination, with a casing formed with a transverse partition dividing the casing into an upper and lower compartment, of a furnace located in the said lower compartment, a bearing held in the upper end of the uppermost compartment, rods for supporting the said bearing and attached to the said casing, a sleeve held in the said bearing and mounted to turn, an agitator secured to the said sleeve and extending in the uppermost compartment, and a smoke-stack extending from the said furnace through the uppermost compartment and through the said sleeve, substantially as shown and described.

3. In a combined cement mill and furnace, the combination, with a casing formed with a transverse partition dividing the casing into an upper and lower compartment, of a furnace located in the said lower compartment, a bearing held in the upper end of the uppermost compartment, rods for supporting the said bearing and attached to the said casing, a sleeve held in the said bearing and mounted to turn, an agitator secured to the said sleeve and extending in the uppermost compartment, a smoke-stack extending from the said furnace through the uppermost compartment and through the said sleeve, and means, substantially as described, for revolving the said sleeve on the said smoke-stack and the said bearing, as set forth.

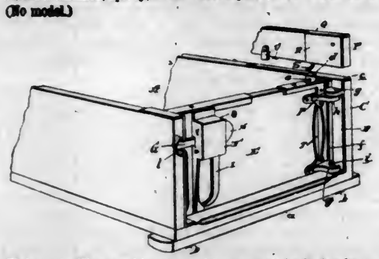
480,382. HAND HAY-PRESS. WILLIAM H. CARR, WILLIAM T. BLACKBURN, and ROBERT P. OWEN, Rogers, Ark. Filed Mar. 17, 1892. Serial No. 425,243. (No model.)

Claim.—The combination of the frames A A, clamp C, box B, having the top opening D, bottom slots *a a*, top slots *b b*, and side slots *e e*, rod *d'*, passing across said bottom slots near their rear ends, crank-axle *c*, having secured to it catches *d d*, working in the upper slots *b b*, follow-blocks E, having the pins *f f f' f'* and grooves *g g*, and plunger F, operated by mechanism substantially as shown and described.

480,382.



480,383. WAGON END-GATE. BENJAMIN F. CLARK, Harper, and JAMES C. CARRICK, Spivey, Kans. Filed Sept. 10, 1890. Serial No. 364,579. (No model.)



Claim.—1. The combination, with a wagon-body having a plate on the inner side of one of its side walls provided with a notch, of a removably-hinged end-gate carrying a latch-casing, as described, a pivoted latch arranged in said casing and having a hook to engage the notched plate in the side wall, and the operating-lever having the double cams at one end to bear in the walls of said latch-casing and pivotally connected with the latch, substantially as specified.

2. A wagon end-gate having a latch-casing secured thereto, in combination with the lever having the double cam at one end, arranged to bear in the walls of the casing, and the hooked latch pivotally connected with said lever and adapted to receive a vertical and lateral oscillating motion, substantially as specified.

3. The combination, with a wagon-body, of the plate B, having the vertically-disposed flange on its inner side, the flanges at its upper and lower ends and also the studs or pintles at opposite ends, the plate D, having the vertical flange on its inner side, the beveled lug and the flanges at opposite ends and also provided with the notch, the end-gate having the lug-eye and hook near one end and the latch-casing near its opposite end, and the pivoted oscillating latch having the hook at one end and the lever pivoted to said latch and having the double cam at said pivoted end, substantially as specified.

480,384. GALVANIC BATTERY. HERBERT H. DOW, Midland, Mich., assignor of two-thirds to Albert H. Smith and John C. Hale, Cleveland, Ohio. Filed Apr. 4, 1892. Serial No. 427,589. (No model.)



Claim.—1. In an electro-galvanic battery, the combination, with couples of zinc and bibulous carbon elements having a non-liquid electrolyte between them, of a layer of a granular conductor arranged between the zinc of one couple and the carbon of another couple, substantially as set forth.

2. In an electro-galvanic battery, the combination of a zinc element, a bibulous sheet moistened with the electrolyte, and a layer of finely-pulverized carbon, substantially as set forth.

3. In an electro-galvanic battery, the combination, with a positive and a negative element and an interposed sheet of bibulous substance moistened with a deliquescent salt, of a porous and non-conducting box inclosing said elements and sheet, substantially as set forth.

4. In an electro-galvanic battery, the combination of couples of zinc and carbon elements having a deliquescent electrolyte between them, layers of granular coke between said couples, and a porous and non-conducting box inclosing said couples, substantially as set forth.

5. In an electro-galvanic battery, the combination of couples of zinc and carbon elements having a deliquescent electrolyte between them, layers of granular coke between said couples, and a non-conducting box inclosing said couples and layers and having air-holes registering with said layers, substantially as set forth.

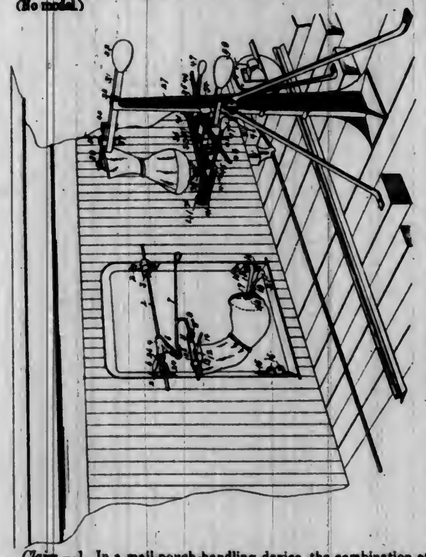
6. In an electro-galvanic battery, a central positive element, pairs of bibulous sheets containing the electrolyte, and pairs of negative elements arranged in opposite order at opposite sides of the central element, substantially as set forth.

7. In an electro-galvanic battery, couples having their elements facing in opposite directions and arranged in opposite order from a central positive element, and layers of a granular conducting material between said couples, substantially as set forth.

8. In an electro-galvanic battery, an inclosing-box of non-conducting material having openings for the admission of atmospheric air into its interior, a positive element arranged in the middle of the box and having a binding-post connection upon the exterior of the box, sheets of bibulous non-conducting material placed against the faces of said element and moistened with a solution of a deliquescent salt, negative elements of porous and bibulous material placed against said sheets, layers of granular conducting material placed against said negative elements, positive elements placed against said layers, sheets of bibulous non-conducting material placed against said positive elements and moistened with a solution of deliquescent salt, negative elements of porous and bibulous material placed against said sheets, layers of granular conducting material placed against said negative elements, and metallic conducting-sheets placed against said layers and having united binding-post connection upon the outside of the box, substantially as set forth.

9. In an electro-galvanic battery, the combination, with couples of zinc and bibulous carbon elements having between them a solid non-conducting substance moistened with a solution of a deliquescent salt, of a layer composed of a granular conductor which is arranged between the zinc of one couple and the carbon of another, substantially as set forth.

480,385. MAIL-BAG CATCHER AND DELIVERER. AUGUSTUS P. HAINS, New Albany, Ind. Filed Nov. 3, 1891. Serial No. 410,735. (No model.)



Claim.—1. In a mail-pouch-handling device, the combination of the horizontal bar, the casting mounted thereon and having the operating-handle, the catcher-arm 7, mounted in said casting, the curved delivery-arm 9, and the spring-clamp consisting of the tubular body 10, fitting the end of the delivery-arm, means for retaining the said body in position on the arm end, and the pivoted spring-actuated clamping-finger 13, mounted on the tubular body, substantially as set forth.

2. The combination, with an end clasp arranged at the lower part of the car-door and the reversible horizontal bar 1, of the casting mounted on said bar and having the operating-handle and the catching and delivering arms 7 and 9, and the spring-clamp mounted on the end of the delivering-arm, consisting of the tubular body 10 and the pivoted spring-actuated clamping-finger 13, substantially as set forth.

3. The combination, with the crane-arms, of the pivots 36, formed at their outer ends with the recessed heads 38, the finger 39, pivoted in said recessed heads, and the hooks 40, adapted to engage the inner ends of the fingers when the latter are "set," substantially as set forth

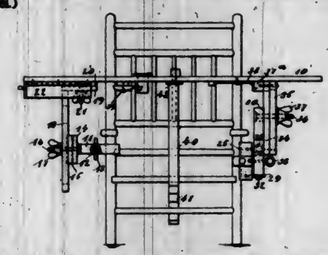
4. The combination, with a crane-post, of a block secured thereto and a mail-bag receiver secured to said block, said receiver consisting of a flat metallic band, the ends of which are bolted to the flat sides of the block and which band is doubled upon itself to form the broad semicircular receiving ends, substantially as set forth.

5. The combination, with a pivoted crane-arm, of the double collector and receiver consisting of a band of metal curved upon itself to form the long outer arms 41, having the broad semicircular ends $41^{\times}$ curved at the points 41^{a}, and the short inner arms 42, substantially as set forth.

6. The combination, with the pivoted lower crane-arm, of the automatic double receiver consisting of the body-piece bent to form the long outer arms 41, curved at the points 41^{a}, and the short inner arms 42, recessed at their ends to form the lugs 43, and the automatic guards pivoted in the said recessed ends and formed with the inner arms, the middle arms 46, and the weighted outer arms 47, substantially as and for the purpose set forth.

7. A mail-bag receiver consisting of a single piece of material, the intermediate portion of which upon each side of the center is doubled upon itself to form a receiving-arm, the doubled portion being formed into substantially a semicircle at the outer end of the arm and extended nearly to the center of the main portion of the material and then bent at an angle thereto and extended parallel with the similarly-bent portion of the other arm to form a point of attachment to the crane-post, and each end being then bent outwardly in the same plane with the arm upon that side to form a receptacle for the mail-bag, substantially as set forth.

480,386. DESK ATTACHMENT FOR CHAIRS. MILTON C. HUTTON, Georgetown, Tex. Filed Oct. 28, 1891. Serial No. 410,082. (No model.)



Claim.—1. In a desk attachment for chairs, &c., the combination, with a board, of a slotted bar having its upper end pivotally and adjustably secured to the board, a clamp toothed disk between the clamp and slotted bar and engaging each other, a bolt passing through the clamp, the toothed disks, and the slotted bar, and a nut on said bolt, substantially as described.

2. In a device of the character described, the combination, with a clamp, disks carried by the clamp, having their opposed surfaces toothed, and a board or table located above the clamp and disks, of a bar adjustably connected with the disks, a tension device controlling the bar and the disks, a platform connected with the bar and provided with a slot, and an adjusting-screw connected with the table and passed downward through the slot in the platform, as and for the purpose specified.

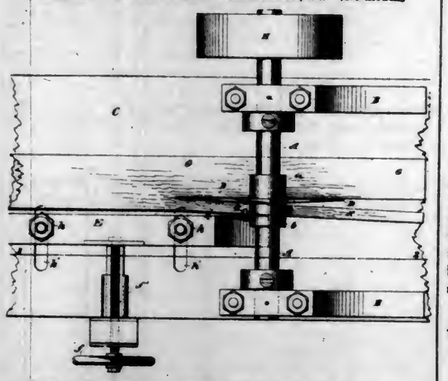
3. In a desk attachment for chairs, &c., the combination, with a board, a slotted bar having its upper end pivotally and adjustably secured to the board, and a clamp to which the said bar is adjustably secured, of a second clamp, a bar detachably connected to the clamp, and links pivotally connected to the board and adjustably secured to the said bar, substantially as described.

4. In a device of the character described, the combination, with a board or table, a bar having a pivotal and adjustable connection with the table, a clamp, disks carried by the clamp, having their engaging surfaces toothed, and an adjusting-screw carried by the clamp, controlling the disks and the bar, of a second clamp provided with a socket and a guide device, a bar slotted to receive the guide device and fitted into the socket of the clamp, and links adjustably secured to the upper end of the bar, the said links being pivotally connected with the board or table, as and for the purpose specified.

5. In a device of the character described, the combination, with a board or table, a bar having a pivotal and adjustable connection with the table, a clamp, disks carried by the clamp, having their engaging surfaces toothed, and an adjusting-screw carried by the clamp, controlling the disks and the bar, of a second clamp provided with a socket and a guide device, a bar slotted to receive the guide device and fitted into the socket of the clamp, links adjustably secured to the upper end of the bar, the said links having an adjustable hinged connection with the board or table, and means, substantially as described, for locking the links, as and for the purpose specified.

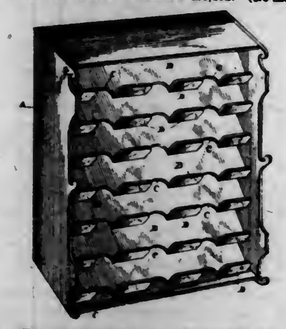
6. In a device of the character described, the combination, with a board or table, a bar having a pivotal and adjustable connection with the table, a clamp, disks carried by the clamp, having their engaging surfaces toothed, and an adjusting-screw carried by the clamp, controlling the disks and the bar, of a second clamp provided with a socket and a guide device, a bar slotted to receive the guide device and fitted into the socket of the clamp, links adjustably secured to the upper end of the bar, the said links having an adjustable hinged connection with the board or table, means, substantially as described, for locking the links, a stop-bar attached to the under face of the table, a rest-bar pivotally connected with the top of the table, and a supporting-bar provided with a toothed or notched lower end and adapted for engagement with the stop-bar, as and for the purpose specified.

480,887. ROTARY-BLADE CUTTING-MACHINE. FREDERICK KIRCHER, New York, N. Y., assignor of one-half to Ludwig Gloeckner, same place. Filed Oct 5, 1891. Serial No. 407,762. (No model.)



Claim.—The combination of the rotary cutter D, mounted upon a shaft A and having one or more beveled knife-blades *d*, with the gage E facing the bevel of the blade and having that portion which is nearest the blade parallel with the bevel thereof, substantially as and for the purpose described.

480,888. BOOK OR BLANK CASE. ROY MILLER, Alma Centre, Wis. Filed Feb. 3, 1892. Serial No. 420,192. (No model.)



Claim.—The combination, with an inclosing case, of a series of forwardly-inclined shelves fixedly secured at an angle within said case parallel with and in close proximity to each other, the same inclining downwardly from their rear edges at the back of the case to the front thereof and provided at their front lower edges with upwardly-extending right-angularly-disposed retaining-flanges and a series of finger-notches interrupting said flanges at regular intervals, substantially as set forth.

480,889. DUST-BEATER. JEREMIAH J. SLATTERY, Lansingburg, N. Y. Filed Oct. 8, 1891. Serial No. 408,300. (No model.)



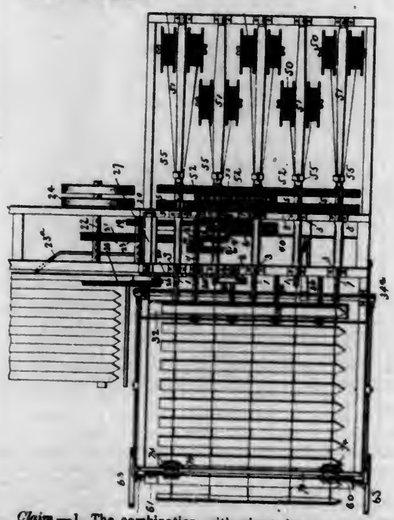
Claim.—In a dust-beater, the combination, with a handle made with the holder B, having forked arms G G, of the loop of helically-coiled wire D at its ends, each arranged to encircle and to be secured to one of the forked arms of the said holder, substantially in the manner as and for the purposes set forth.

480,890. SPARK-ARRESTER. EDGAR W. SMITH and CONSTANTINE SAX, Morris, Minn. Filed Feb. 3, 1892. Serial No. 420,206. (No model.)



Claim.—A spark-arrester comprising an outer foraminous casing forming the upper portion of a smoke-stack and consisting of a lower conical portion and an upper conical portion having a truncated top forming an opening, and an inverted foraminous cone supported within the casing and arranged concentric with the lower portion of the same and having its upper end or base of greater diameter than the opening of the top of the casing, substantially as and for the purpose described.

480,891. SLAT-AND-WIRE-FENCING MACHINE. JACOB B. SOLT and JAMES B. SOLT, Northbrook, Pa. Filed Aug. 26, 1891. Serial No. 403,826. (No model.)



Claim.—1. The combination, with wire-twisters, one of which is provided with different-sized gear-wheels, of a shaft in proximity to said twister having different-sized gear-wheels thereon, said wheels adapted to be shifted, whereby to change the speed and number of rotations of the twisters, substantially as set forth.

2. The combination, with twisters, one of which is provided with gear-wheels of different sizes, of a shaft having different-sized gear-wheels adapted to be shifted to change the speed of the twisters, and means for locking the twisters temporarily when they have made the requisite number of revolutions, substantially as set forth.

3. The combination, with twisters and means for regulating the number of their revolutions, of a pawl for automatically locking the twisters when they have made the required number of revolutions, and means for automatically unlocking the twisters, substantially as set forth.

4. The combination, with a series of twisters, of a constantly-rotating gear-wheel having a portion of its teeth widened, and a gear-wheel arranged to communicate motion to the twisters, said wheel located in position to be operated periodically by the widened teeth of the large gear-wheel, substantially as set forth.

5. The combination, with the main frame and a sliding table, of a rocking shaft having crank arm thereon, a toggle-joint extending from the main frame to the sliding table, and a link extending from the crank-arm to the toggle-joint, substantially as set forth.

6. The combination, with a frame and table constructed to slide thereon, of a rocking shaft having arms thereon, means for rocking the shaft, toggle-joints connecting the sliding table and the frame, and links extending from the toggle joints to the arms on the rocking shaft, substantially as set forth.

7. The combination, with a sliding table and gearing, of a rocking shaft connected with the table and adapted to slide the latter, a lever connected with the shaft, and means on the gearing for swinging the lever whereby the shaft is rocked, substantially as set forth.

8. The combination, with a sliding table and means for sliding it outward and locking it, of independent lever mechanism for swinging the shaft in the opposite direction at a predetermined interval, whereby the table is returned to its normal position, substantially as set forth.

9. The combination, with a sliding table, means for sliding same outward, of a rocking shaft, a bell-crank lever connected therewith, and independent lever mechanism for swinging the latter, whereby the shaft is rocked to its normal position, substantially as set forth.

10. A fence-making machine, a tension device consisting of a support, a plate secured thereto and provided with outwardly-projecting ends, said ends having upturned flanges at their edges, a spring-plate having ends adapted to lie between the upturned flanges of the ends, and a screw swiveled in the support and passing through a threaded hole in the spring-plate, substantially as set forth.

11. The combination, with a reel, levers, pitmen having sliding connection with the levers, and a shaft for automatically sliding the pitmen with the increased size of the roll, said shaft having rollers thereon, of rocking levers with which the pitmen are adjustably connected, a rocking shaft, and pitmen connecting the latter with the rocking levers, substantially as set forth.

480,892. METHOD OF ELECTRIC SOLDERING. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson Electric Welding Company, of Maine. Filed Aug. 22, 1887. Serial No. 247,507. (No specimens.)



Claim.—1. The herein-described improvement in soldering or brazing, which consists in generating heat in the body of the piece or pieces of metal to be united through the resistance of the material to the passage of an electric current through it, such current being of volume sufficient to develop the determinate or required soldering or brazing temperature.

2. The herein-described improvement in soldering or brazing, which consists in generating heat in the body of the pieces to be joined through the resistance to the passage of an electric current through the pieces and from one to the other across the point of junction, as and for the purpose described.

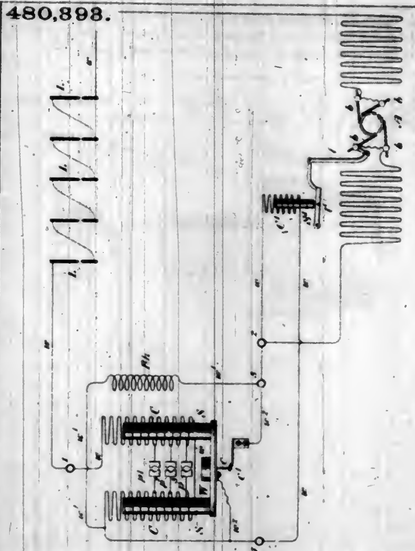
480,893. METHOD OF ELECTRICAL REGULATION. HENRY E. VINNING, Roseville, N. J., assignor to the Electric Secret Service Company, New York, N. Y. Filed Feb. 23, 1892. Serial No. 422,535. (No model.)

Claim.—1. A series of arc lights adapted to operate effectually between specified current-limits, a dynamo electric machine in circuit therewith, a primary electro-magnetic regulator therefor, and a supplemental electro-magnetic regulator provided with adjustable means in the nature of sectional coils for varying the current-supply which actuates the primary regulator, substantially as described.

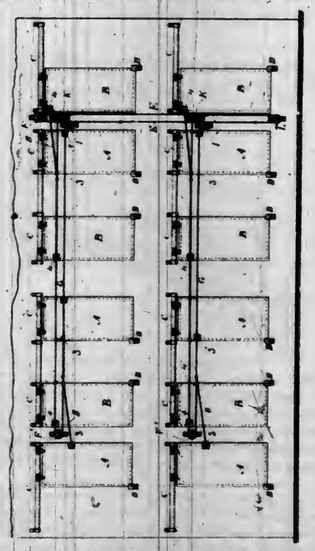
2. One or more electric translating devices adapted to operate effectually between specified current-limits, a dynamo-electric machine in circuit therewith, and a primary electro-magnetic regulator, in combination with a supplemental electro-magnetic regulator having sectional coils and means for throwing more or less of the coils into and out of circuit, whereby the current-supply may be maintained at a fixed quantity within the limits specified, substantially as described.

3. Two or more electric lamps located in series with a dynamo-electric machine and adapted to work effectually between specified current-limits, a current-regulator for regulating the supply of current to the lamps, and a supplemental regulator provided with sectional coils, and means for varying the number of such coils in circuit, substantially as described.

480,898.



480,894. FIRE PROTECTING-SHUTTER. WILLIAM H. BRODER, Plainfield, N. J. Filed Oct. 19, 1891. Serial No. 409,090. (No model.)

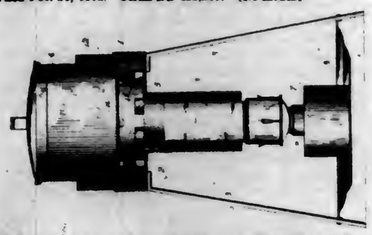


Claim.—1. The combination, with two or more horizontally-moving shutters for a building, of a rope or chain around a pulley, with the two portions of such rope or chain passing horizontally and adjacent to the shutters, and a connection from one part of such rope or chain to one shutter and from the other part to the other shutter for giving the shutter a positive motion in opposite directions in opening and closing the same, and a winch or other suitable connection for giving motion to such rope or chain, substantially as set forth.

2. The combination, with the fire-shutters and the tracks or supports for the same, of halyards passing up the building and over a sheave, a winch or other suitable mechanism for moving the same, one or more lateral ropes or chains with the ends connected to the hal-

yards, pulleys for such lateral rope or chain, and connections from one portion or the other to the shutters, whereby such shutters can be opened or closed in opposite directions, substantially as set forth.

480,395. LAMP-STOVE. BENJAMIN F. BROWN, Blackstone, Kans. Filed Feb. 20, 1892. Serial No. 422,283. (No model.)

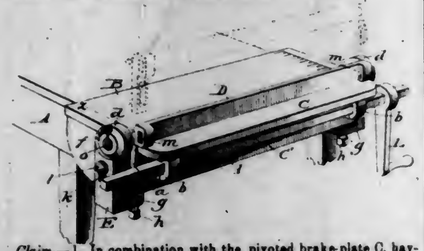


Claim.—1. A lamp-stove comprising a cylindrical body having a flat bottom with a hole therein, legs supporting the body, a cylindrical support arranged within the body and having a cylindrical extension arranged within the hole of the body and depending therefrom, and a lamp supported beneath the body and having its chimney arranged within the extension, substantially as described.

2. A lamp-stove comprising a cylindrical body having a flat bottom with a hole therein, legs supporting the body, a cylindrical support arranged within the body and provided with a depending extension arranged within the hole and consisting of concentric tubes, and a lamp supported beneath the body and having its chimney arranged within the extension, substantially as described.

3. A lamp-stove comprising a cylindrical body provided with a removable upper section and having a flat bottom with a hole therein, legs supporting the body, a cylindrical support arranged within the body and having a depending cylindrical extension arranged in said hole, a supplemental support arranged within the cylindrical support and consisting of a strip of metal successively doubled on itself, and a lamp supported beneath the body and having its chimney arranged within the extension, substantially as described.

480,396. SHEET-METAL-BENDING MACHINE. JASPER CLARK, Elmira, N. Y., assignor to T. C. Northcott and Cynthia J. Clark, same place. Filed Apr. 2, 1892. Serial No. 427,497. (Model.)



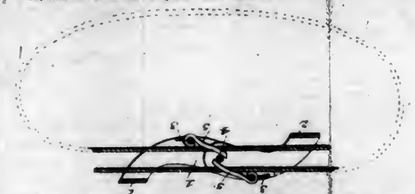
Claim.—1. In combination with the pivoted brake-plate C, having the shaft I mounted in bearings secured to or formed thereon, the detachable brake-bar D, mounted on said plate and provided with pendants or arms *a*, arranged to engage with projections on the shaft I when the latter is turned to swing the brake-plate, whereby the brake-bar is caused to automatically clamp the sheet of metal fast on the brake-plate before the latter begins its movement, substantially as set forth.

2. In combination with the stationary bed-plate B, the swinging or pivoted brake-plate C, with the brake-bar D held normally rigid when in use, but detachably connected to said brake-plate, substantially as described, whereby when the sheet has been bent into the form of a tube the brake-bar can be lifted from its seat and withdrawn from the tube, as set forth.

3. In combination with the movable brake-bar provided with the depending arms *a*, the levers *r*, provided with eccentrics arranged to bear against said arms and thereby raise the bar, the arrangement being substantially as shown and described.

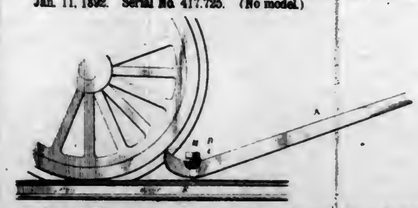
4. In a machine for bending sheet metal, comprising a stationary bed and a pivoted brake-plate, and a pointer or index *o*, secured to the journal of the brake-plate and arranged to move therewith, in combination with the circular head or bearing *d*, provided with marks to indicate the various points at which the brake-plate is to be stopped in order to bend the sheet at a predetermined angle or angles, as set forth.

480,397. BUCKLE. THOMAS J. CLARK, Gila, N. Mex. Filed Apr. 29, 1892. Serial No. 431,140. (No model.)



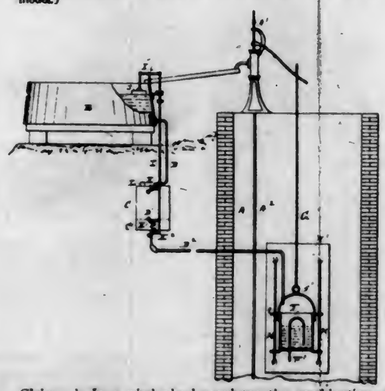
Claim.—In a buckle, the combination of the side bars connected at their ends by cross bars 2, the intermediate cross bars having pivoted thereto the inwardly-extending tongues, and the central cross-bar intermediate of the free ends of the tongues, the said side bars being formed in sections and hinged to the central cross-bar, substantially as described.

480,398. PINCH-BAR. AUSTIN M. COLLETT, Omaha, Nebr. Filed Jan. 11, 1892. Serial No. 417,725. (No model.)



Claim.—The combination, with a pinch-bar having a threaded perforation in rear of the pinch end thereof, of an adjustable fulcrum-screw passed vertically through the perforation and provided at its upper end with a squared head and terminating below the bar in a conical heel or fulcrum-point, substantially as set forth.

480,399. AUTOMATIC WINDMILL-REGULATOR. EUGENE T. CROWE, Delray, Mich. Filed Jan. 25, 1892. Serial No. 419,113. (No model.)



Claim.—1. In a wind-wheel regulator, the combination of the movable counterbalance-bucket, reservoirs communicating one with another and with said bucket, means to control said communications, and a wheel-operating connection G, by which said bucket is suspended, substantially as described.

2. In a wind-wheel regulator, the combination of the counterbalance-bucket, a wheel connection suspending said bucket, an auxiliary reservoir communicating with said bucket, a main reservoir communicating with the auxiliary reservoir, a water-inlet pipe leading into the main reservoir, valves controlling said communications, and the valve controlling the communication between the reservoirs, arranged to close when the other valves are open, and vice versa, substantially as described.

3. In a wind-wheel regulator, the combination of the siphon-bucket, a wheel connection suspending the bucket, an auxiliary reservoir, a pipe D^4, leading from said reservoir to said bucket, a main reservoir communicating with the auxiliary reservoir, a water-inlet pipe leading into the main reservoir, valves to control the communication through the water-inlet pipe and between said reservoirs, the pipe D^3, provided with a pipe-arm D^5, projecting upward toward the top of the auxiliary reservoir, and a pipe-arm D^6, provided with a controlling-valve, and means for operating said valves, substantially as described.

4. In a wind-wheel regulator, the combination of the suspended bucket, an auxiliary reservoir communicating with the bucket, a main reservoir communicating with the auxiliary reservoir, and simultaneously-operated valves to control said communication, substantially as and in the manner described.

5. In a wind-wheel regulator, the combination of the suspended bucket, the auxiliary reservoir communicating therewith, the main reservoir communicating with the auxiliary reservoir, a stock-tank communicating with the main reservoir, and valves controlling said communications, said valves automatically operated by the quantity of water in the stock-tank, substantially as and in the manner described.

480,400. VALVE FOR PNEUMATIC TIRES. EDWARD R. DE WOLFE, New York, N. Y. Filed Apr. 18, 1892. Serial No. 429,523. (No model.)

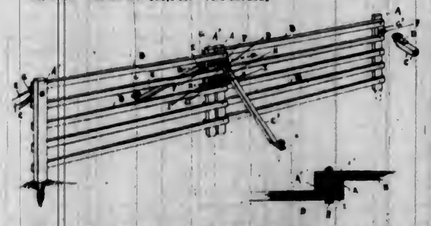
Claim.—1. The herein-described air-valve, consisting, essentially, of a tubular cylindrical case with a flat seat at the upper end, a perforated cylindrical head screwing upon the said case with a flat inner portion forming a seat, and an air-retaining device for permitting the entrance of air but closing automatically to prevent its escape and having a ring or flange held between the seats of the respective parts where an air-tight joint is formed, substantially as set forth.

2. The herein-described air-valve, consisting, essentially, of a tubular cylindrical case *b*, a disk *b'*, connected to one end thereof and the other end threaded and having a seat at the upper end, a perforated cylindrical head *c*, having a tubular portion adapted to screw upon the case *b* and having an internal seat, an imperforate cap or cover *d* for closing the opening in the head *c*, and an elastic air-retaining device for permitting the entrance of air but closing automatically to prevent its escape, having a ring or flange held by the clamping action between the seats, where an air-tight joint is formed, substantially as set forth.

3. The combination, with the inflatable or hollow expansible tube *a*, of the tubular cylindrical case *b*, its disk *b'* molded into the tube *a*, its square shoulder b^3 and having its upper end reduced and threaded, the perforated and tubular cylindrical head *c*, having a knurled surface and screwing upon the case *b* and having a reduced and threaded portion, the imperforate cap or cover *d*, also having a knurled surface and closing the opening in the head *c*, the perforated plug *f* and head *f'* of hard rubber, and the soft-rubber sleeve *h* with a thickened end *h'*, substantially as set forth.

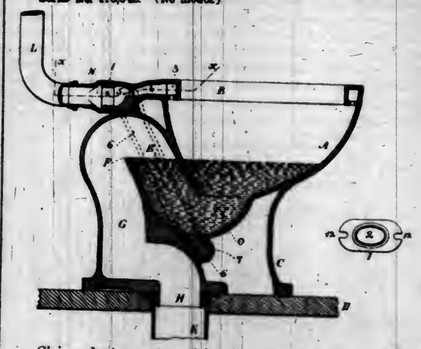
4. The herein-described air-valve, consisting, essentially, of a tubular cylindrical case *b*, a perforated cylindrical head *c*, screwing upon said case, and the longitudinally perforated hard-rubber plug *f*, having a head *f'* and rounded end, the soft-rubber sleeve *h* with a thickened end *h'*, and a closed end covering the opening in the plug and perforated at 20, substantially as specified.

480,401. FENCE. WILLIAM H. GASKILL, Canton, Ill. Filed July 24, 1891. Serial No. 400,546. (No model.)



Claim.—The herein-described fence, consisting of the following elements: the overlapping sections B B, provided with eyebolts F in the perpendicular end pieces, the blocks I I' and bolt H for connecting the panels, the side braces C C', having the hooks D E and perforated foot-plates, and the pins *c* for securing the braces to the ground, all substantially as described and shown.

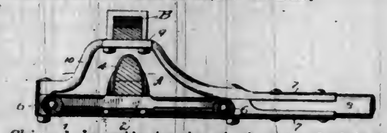
480,402. WATER-CLOSET. EDWARD HANMANN, Brooklyn, assignor to The J. L. Mott Iron Works, New York, N. Y. Filed Dec. 30, 1891. Serial No. 416,542. (No model.)



Claim.—1. As a new article of manufacture, a water-closet, of porcelain or similar vitrified material in one piece, having a bowl A, a trap with an uptake E, downtake G, escape-pipe H and dam F, and a connection for the flushing-pipe, having a water-way 2, a branch connection 4 to the hollow flushing-rim, with an opening 5 in the deflecting-wall of the water-way 2, and a descending pipe or water-way 6 to the upward jet-pipe 7 at the bottom of the trap, the water-way 2 being in a vertical plane passing through the center of the bowl and the trap, substantially as set forth.

2. As a new article of manufacture, a water-closet, of porcelain or similar vitrified material in one piece, having a bowl A, a base or support C, a trap with an uptake E, downtake G, escape-pipe H and dam F, and a connection for the flushing-pipe, having a water-way 2, a branch connection 4 to the hollow flushing-rim, with an opening 5 in the deflecting-wall of the water-way 2, and a descending pipe or water-way 6 to the upward jet-pipe 7 at the bottom of the trap, the water-way 2 being elliptical, substantially as set forth.

480,403. FIFTH-WHEEL. ADOLPH E. HERMAN, Terre Haute, Ind. Filed Oct. 21, 1891. Serial No. 409,427. (No model.)



Claim.—1. In combination, the axle, the section I of the fifth-wheel secured thereto, a second section 6, supported by the first, and the arched brace extending over the sections and connected to the second section 6, and the spring carried by said arch, substantially as described.

2. In combination, the axle, the fifth-wheel comprising the two sections beneath the axle, one section being secured thereto, the arched brace extending from side to side of the second section 6, said arch extending over the axle and being free therefrom, and a spring supported thereon, substantially as described.

3. In combination, the two sections arranged in the same horizontal plane with their vertical faces adjacent to each other, means for holding the sections together, means for supporting the inner section to the axle and beneath the same, the arched brace extending over the axle and connected to the outer section, and the spring supported upon said arched brace, substantially as described.

4. In combination, the fifth-wheel comprising the first section secured to the axle, the second section supported by the first, the reach connected to the second section and converging into a plate 9 above the axle, and an extension 10, curving downwardly and connected with the second section 6 at the front side thereof, substantially as described.

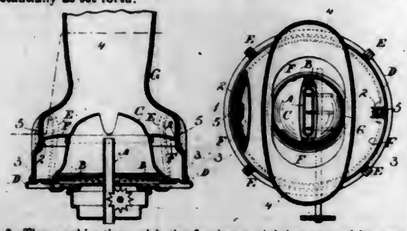
5. In combination, the two sections, one secured to the axle and the other to the frame, the said sections having their meeting faces inclined and grooved at the connecting means between the sections in the grooves.

480,404. LAMP-BURNER. THOMAS HIPWELL, Long Island City, assignor to the Manhattan Brass Company, New York, N. Y. Filed Feb. 25, 1892. Serial No. 422,755. (No model.)

Claim.—1. The combination, with the lamp-burner having a flat wick-tube and a cone or deflector, of an annular flange around such

cone or deflector, having notches at opposite edges thereof, and the flattened-bulb glass chimney having a nearly-cylindrical base and inwardly-pressed guides at opposite sides thereof to pass into the notches of the annular deflector, substantially as set forth.

2. The combination, with the flat wick-burner having a perforated air-distributer, chimney-rest, and springs, of a cone or deflector, an annular flange around such cone or deflector and attached thereto and having notches in the opposite edges, and a flattened-bulb glass chimney having inwardly-pressed guides at opposite sides to the base thereof, adapted to be received into the notches of the annular flange substantially as set forth.



3. The combination, with the flat lamp-wick burner and its cone or deflector, of an annular flange fastened to such cone and having a notch in the edge thereof and a chimney having a flattened bulb and an inwardly-pressed guide adapted to be received into the notch of the annular flange, substantially as set forth.

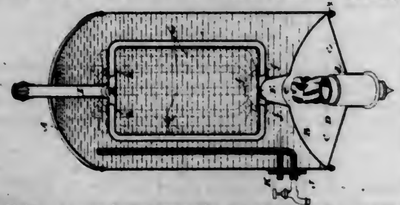
480,405. PROCESS OF TREATING ORES CONTAINING HYDRATED SESQUIOXIDE OF IRON. CLEMENS JOHNS, Easton, Pa. Filed May 23, 1892. Serial No. 434,055. (No specimens.)

Claim.—1. The process of treating iron ore containing hydrated sesquioxide of iron, which consists in converting the hydrated sesquioxide of iron into an anhydrous and magnetic sesquioxide of iron by roasting the ore without fusion and then subjecting the roasted ore to the action of magnets to separate the magnetized oxide of iron from the non-magnetic portion of the ore, substantially as described.

2. The process of extracting iron from low-grade ore containing hydrated sesquioxide of iron, which consists in converting the hydrated sesquioxide of iron into an anhydrous and magnetic sesquioxide of iron by roasting the ore without fusion, subjecting the roasted ore to the action of magnets to separate the magnetized oxide of iron from the non-magnetic portion of the ore, and reducing the metal from the magnetic concentrates, substantially as described.

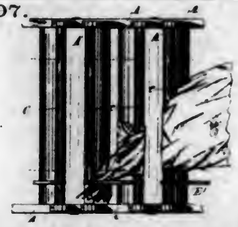
3. The process of treating the run of the mine of brown ore, which consists in screening to separate the lumps of ore from the fine material, roasting the fine material without fusion to convert the hydrated sesquioxide of iron contained therein into an anhydrous and magnetic sesquioxide of iron, and separating the magnetized oxide of iron from the non-magnetic material by the action of magnets, substantially as described.

480,406. HOT-WATER HEATER. WILLIAM KENNEDY, Newmarket, Canada. Filed Apr. 11, 1891. Serial No. 388,446. (No model.)



Claim.—A water-heater comprising an outer casing, a concave piece extending entirely across the casing and constituting the bottom of the same, and a supplemental bottom, also extending entirely across the casing, both secured to the said casing at its lower end and forming a fire-box permanently carried thereby and constituting the bottom closure for the casing, the collar F, forming a supplemental fire-box within the casing and above the main fire-box, a pipe E, connecting the main and supplemental fire-box, and the circulating pipes leading from the supplemental fire-box F, the said supplemental bottom having an opening adapted to fit over a burner, substantially as described.

480,407. DRIER FOR PAPER-MACHINES. THOMAS LINDSAY, Brookville, Ind. Filed Feb. 14, 1891. Serial No. 381,416. (No model.)

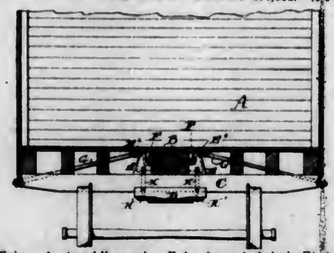


Claim.—1. In a drier for paper-machines, the combination of the drying-rolls, the felt-carrying rolls and paper-carrying rolls, an endless carrier for conveying the leading end of the paper web when started through the drier, said carrier being arranged around the faces of the drying-rolls and web-carrying rolls to follow the travel of said web outside of and parallel to its edge, substantially as hereinbefore set forth.

2. In a drier for paper-making machines, substantially as described, the combination of a pair of tapes arranged one above the other and passing around the drying-rolls and paper-carrying rolls alongside of and parallel to the paper web to grasp the leading end of the paper web upon starting it through the drier and to assist in revolving the paper-carrying rolls and releasing the web from strain.

3. In a drier for paper-machines, the combination, substantially as hereinbefore set forth, of the drying rolls, the felt carrying rolls and paper-carrying rolls, and the web-carrying felt, with the tape E, carried with the felt around the bottom and side of the rolls and over the paper carrying rolls, and the endless tape E', passing over the pulleys F and F', thence under and around the drying-rolls with the felt and over the paper-rolls with the tape E, said tapes being arranged to travel outside of and parallel to the edge of the paper web for the purpose of carrying the leading end of said web through the driers, substantially as shown as described.

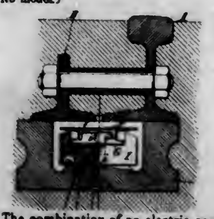
480,408. CENTER-PLATE FASTENING. CHARLES LINDSTROM, Altoona, Pa. Filed May 5, 1892. Serial No. 431,852. (No model.)



Claim.—1. A saddle-casting E, having a bolt-hole E^4 through its bottom and a key-seat E^5 at the top of said hole, substantially as shown and described.

2. In combination, the body-bolster C, a saddle casting or castings secured above the body-bolster and having bolt-holes E^4 and key-seats E^5, as described, a center plate D, bolts H, arranged to hold the center plate and having slotted ends H^3, extending through the holes E^4 of the saddle-castings, and keys I, adapted to enter the slotted bolt ends and rest in seats E^5.

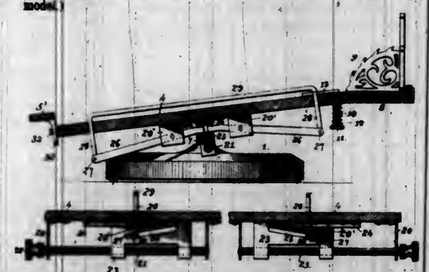
480,409. CLOSED CONDUIT FOR ELECTRIC RAILWAYS. ALEXANDER L. LINEFF, London, England. Filed June 30, 1891. Serial No. 397,969. (No model.)



Claim.—1. The combination of an electric conductor and a series of separate supports therefor, provided with downwardly-projecting annular lips, and a continuous series of tiles serving as a base for said supports and provided with oil-troughs into which said annular lips enter, substantially as herein set forth.

2. The combination of the copper conductor G, of trough-like section, and the flexible iron conductor F, having junction-pieces *f* entering between the trough-like sides of the said conductor G for the purpose of preventing the said conductor F from moving otherwise than in a vertical direction, all substantially as herein set forth.

480,410. BOOK-HOLDER. CHARLES D. MERRIMAN and FRANK W. TILDEN, Hinsdale, N. H. Filed Nov. 14, 1891. Serial No. 411,899. (No model.)



Claim.—1. In a book-holder, the combination, with a stand and spring actuated leaf-clamping devices, substantially as described, near the upper corners thereof, of book-raising devices located near the side edges of the stand and each comprising a bar having downturned ends passing loosely through the stand and means for positively adjusting such ends through the stand, as and for the purpose set forth.

2. In a book-holder, the combination, with a stand, spring-actuated leaf-clamping devices near the upper corners thereof, and an adjustable bead, substantially as described, across each half of the lower edge of the stand, of book-raising devices located near the side edges of the stand and each comprising a bar having downturned ends passing loosely through the stand and means for positively adjusting such ends through the stand, as and for the purpose set forth.

3. In a book-holder, the combination, with a stand, spring-actuated leaf-clamping devices near the upper corners thereof, and positively-actuated book-raising devices near the side edges of the stand, of an adjustable bead in two sections across the lower edge of the stand, each section comprising a body having depending and longitudinally-slotted brackets, and set-screws passing through said brackets into the lower edges of the stand, as and for the purpose set forth.

4. In a book-holder, the combination, with a stand, positively-actuated book-raising devices near the side edges thereof, and an adjustable bead, substantially as described, across the lower edge of the stand, of leaf-clamping devices located near the upper corners of said stand, each of said devices consisting of a rod passing loosely through the hole in the stand, with its upper end bent at a right angle, a head at the lower end of the rod, and an expansive spring coiled on the rod between its head and the lower face of the stand, as and for the purpose set forth.

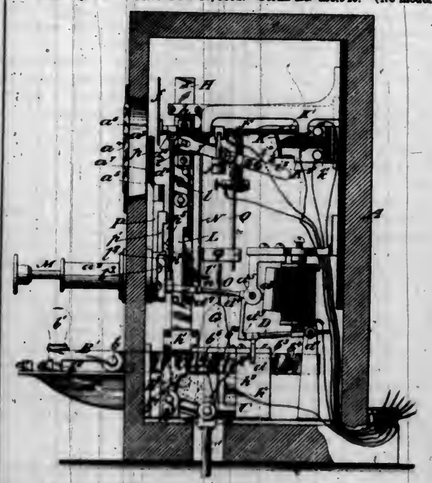
5. In a book-holder, the combination, with a stand and positively-actuated book-raising devices near the side edges thereof, of an adjustable bead in two sections across the lower edge of the stand, each section comprising a body having depending and longitudinally-slotted brackets, and set-screws passing through said brackets into the lower edge of the stand, as and for the purpose set forth.

6. In a book-holder, the combination, with the stand and a bead in two sections across the lower edge of the stand, each section being vertically adjustable, of book-raising devices located near the side edges of the stand, and each comprising a bar having downturned ends passing loosely through the stand, and means for positively adjusting such ends through the stand, as and for the purpose set forth.

7. In a book-holder, the combination, with a stand and a bead in two sections across the lower edge of the stand, each section being adjustable at right angles to the face of the stand, of book-raising devices, substantially as described, located near the side edges of the stand, and positive means for adjusting them independently, as and for the purpose set forth.

8. In a book-holder, the combination, with a stand having holes through its body near its side edges and a support for said stand, of book-raising devices located near the side edges of the stand and each comprising a bar standing over the face of the stand and having downturned ends passing loosely through said holes, levers pivoted to said ends, brackets carried by the stand and pivotally supporting the levers between their ends, a nut having an oblique slot loosely embracing the inner ends of said levers, and a threaded shaft journaled in bearings passing through said nut and having a milled knob on one end, as and for the purpose hereinafter set forth.

480,411. BLOCK-SIGNAL APPARATUS. THOMAS H. PATTERSON, Rahway, N. J. Filed Feb. 10, 1892. Serial No. 420,949. (No model.)



Claim.—1. The combination, with signal-operating mechanism and means for locking and releasing it independent of the signal operating mechanism, of means for controlling the unlocking of said mechanism from a remote point along the line, and means for controlling the locking of said mechanism from another remote point along the line, the said signal-operating mechanism when once unlocked being free to be repeatedly manipulated to denote "safety" or "danger" at pleasure until again locked, substantially as set forth.

2. The combination, with a plurality of signal operating mechanisms, of instruments for controlling the locking and unlocking of said operating mechanisms, one of the instruments being under the control of a succeeding instrument to unlock it, and hence the signal-operating mechanism connected therewith, and under the control of the passing train to permit the locking of the said signal-operating mechanism, and a movable stop under the control of the locking mechanism for preventing the unlocking of a preceding instrument while the signal-operating mechanism at the succeeding instrument remains unlocked, substantially as set forth.

3. The combination, with a sliding bar under the control of the operator, a movable part under the control of the sliding bar, and means for locking and releasing the signal-operating mechanism, also under the control of the sliding bar, of a latch for locking and releasing the sliding bar, means for operating the latch, a plunger, an electric circuit adapted to be closed by the plunger to unlock a remote instrument, and a plunger-locking device under the control of the aforesaid movable part to prevent the second operation of the plunger until the said sliding bar is returned to its normal position, substantially as set forth.

4. The combination, with the signal locking and releasing mechanism, of the normally twice-broken electric circuit for plunging to a preceding station and means for positively closing said circuit at the station to be plunged to for securing a release of the signal-locking mechanism, substantially as set forth.

5. The combination, with the signal locking and releasing mechanism, of the normally twice-broken electric-plunging and track-treadle circuits, a circuit-closer, and means for moving the circuit-closer successively into position to close the plunging-circuit and then in position to break the plunging-circuit and close the track-treadle circuit, substantially as set forth.

6. The combination, with the bar for mechanically unlocking and locking the signal-operating mechanism, of a gravity-latch for locking the said bar in position to lock the signal-operating mechanism and

in position to release the signal-operating mechanism and an electro-magnet for releasing the latch, the said latch being under the control of the said bar to allow it to fall into engagement with the bar, substantially as set forth.

7. The combination, with the bar for unlocking and locking the signal-operating mechanism, of a gravity-latch for locking said bar in its positions to lock and unlock the signal-operating mechanism, an electro-magnet for withdrawing the latch, and an indicator under the control of the latch to indicate "locked" or "unlocked," the said latch being under the control of the said bar to allow it to fall into engagement with the bar, substantially as set forth.

8. The combination, with the plunger and the plunger electric circuit, of the drop-plate through which the plunger passes to plunge and the movable section on the drop-plate, the latter having a sliding movement independently of the drop-plate in a direction transverse to the plunger, substantially as set forth.

9. The combination, with the plunger, the electric plunger-circuit, and the swinging contact-piece provided with a nose, of a drop-plate through which the plunger passes to plunge and a movable section carried by the drop-plate and provided with a nose adapted to interlock with the nose on the contact-piece, the said movable section having an extended dropping movement while the plunger is thrust in to carry its nose past the nose on the contact-piece, substantially as set forth.

10. The combination, with separate instruments at a station for controlling the movements of trains in opposite directions, of electric plunging-circuits, one in connection with each instrument, each circuit comprising a portion of the plunger-actuated circuit-closing mechanism of the other instrument to complete the plunging-circuit through its own electro-magnet, substantially as set forth.

11. The combination, with the means for connecting the sliding bar with the device for unlocking and locking the signal operating levers, of the sliding bar having a predetermined movement relatively to said connecting means without effecting the unlocking or locking, the latch for locking the bar and at the same time permitting said predetermined movement, the circuit-closer under the control of the said bar, and the normally twice-broken electric circuit adapted to be closed as to one of the breaks by said circuit-closer, substantially as set forth.

480,412. LAMP. JOHN C. PATTERSON and JOHN KIRBY, Jr., Dayton, Ohio, assignors, by mesne assignments, to Oliver Kinsey, trustee. Filed July 6, 1891. Serial No. 398,468. (No model.)



Claim.—1. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame being provided with outwardly-extending arms rigidly secured thereto and carrying shade-holders at their outer ends, which sustain shades over the burners, in combination with a dependent rotatable reservoir-support centrally pivoted to said hanger or frame and adapted to carry a plurality of reservoirs detachably connected therewith, and a fastening device for preventing undue rotation of said reservoir-support.

2. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame being provided with outwardly-extending arms rigidly secured thereto and carrying shade-holders at their outer ends, which sustain shades over the burners, in combination with a dependent rotatable reservoir-support centrally pivoted to said hanger or frame and adapted to carry a plurality of reservoirs detachably connected therewith, a fastening device for preventing undue rotation of said reservoir-support, and a stop for controlling the latter.

3. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame being provided with outwardly-extending arms rigidly secured thereto and carrying shade-holders at their outer ends, which sustain shades over the burners, in combination with a dependent rotatable reservoir-support centrally pivoted to said hanger or frame and adapted to carry a plurality of reservoirs detachably connected therewith, a fastening device for preventing undue rotation of said reservoir-support, a stop for controlling the latter, and means intermediate said hanger or frame and the reservoir-support, whereby a steady movement is imparted to the latter.

4. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame carrying shade-holder arms, to the ends of which are attached shade-holders sustaining shades over the burners, in combination with a dependent rotatable reservoir-support, a plurality of reservoirs detachably connected therewith, and a fastening device for locking said rotatable reservoir-support to said shade-holder arms.

5. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame carrying shade-holder arms, to the ends of which are attached shade-holders sustaining shades over the burners, in combination with a dependent rotatable reservoir-support, a plurality of reservoirs detachably connected therewith, a fastening device for locking said rotatable reservoir-support to said shade-holder arms, and a stop for controlling the movement of said reservoir-support.

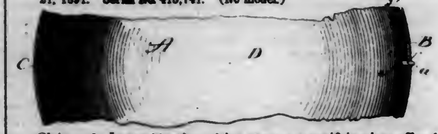
6. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger carrying shade-holder arms, to the ends of which are attached shade-holders sustaining shades over the burners, in combination with a dependent rotatable reservoir-support, a plurality of reservoirs detachably connected therewith, a fastening device for locking said rotatable reservoir-support to said shade-holder arms, a stop for controlling the movement of the latter, and means intermediate said hanger or frame and said reservoir-support, whereby a steady movement is imparted to the latter.

7. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame carrying shade-holder arms, to the ends of which are attached shade-holders sustaining shades over the burners, in combination with a dependent rotatable reservoir-support, a plurality of reservoirs detachably connected therewith, and means for preventing undue rotation of said reservoir-support and for steadying said reservoirs in place, substantially as described.

8. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame carrying shade-holder arms, to the ends of which are attached shade-holders sustaining shades over the burners, in combination with a dependent rotatable reservoir-support, a plurality of reservoirs detachably connected therewith, means for steadying said reservoirs in place, and a stop for controlling the movement of said reservoir-support, substantially as described.

9. In a lamp, a main hanger or frame adapted to be rigidly suspended from a car-ceiling or other overhead support, said hanger or frame carrying shade-holder arms, to the ends of which are attached shade-holders sustaining shades over the burners, in combination with a dependent rotatable reservoir support, a plurality of reservoirs detachably connected therewith, means for steadying said reservoirs in place, a stop for controlling the movement of said reservoir-support, and means intermediate said hanger or frame and said reservoir-support, whereby a steady movement is imparted to the latter, substantially as described.

480,413. CHART. JONATHAN D. PRICE, Chicago, Ill. Filed Dec. 21, 1891. Serial No. 415,741. (No model.)



Claim.—1. In combination with a chart, a magnifying-lens affixed thereto at a desired point and a representation visible through said lens and in some way associated with the locality represented at the point of application of the lens, substantially as described.

2. In combination with a chart, a magnifying-lens affixed thereto at a desired point and a view upon the lens in some way associated with the locality represented at the point of application of the lens to the chart, substantially as described.

3. In combination with a globe A, a lens B, secured in an opening therein at a desired point, a suitable view observable through the lens in its position on the globe, and means for illuminating the interior of the globe, substantially as described.

4. In combination with a globe A, a lens B, secured in an opening therein at a desired point, a suitable view observable through the lens in its position on the globe, and an artificial light inside the globe, substantially as described.

5. In combination with a globe A, a lens B, secured in an opening therein at a desired point and provided with a view in some way associated with the locality represented at the point of application of the lens, and an artificial light inside the globe, substantially as described.

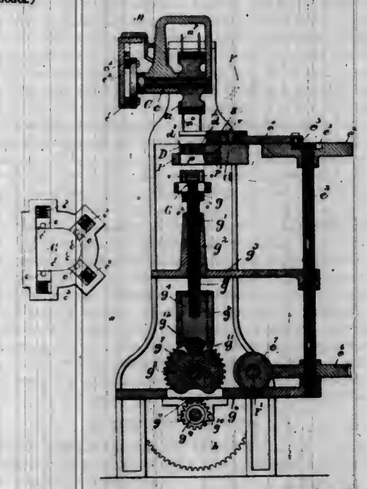
480,414. STOPPER-EXTRACTOR. RODOLO PUCCINI, Chicago, Ill. Filed Mar. 29, 1892. Serial No. 426,967. (No model.)



Claim.—1. In a stopper-extractor, the combination of a shank, a hook upon the end of the shank, a guard for the hook, and a cushion upon the shank adjacent to the hook, substantially as and for the purpose set forth.

2. A stopper-extractor comprising, in combination, a shank B, having a threaded extension *f* at one end and provided at its opposite end with a hook A, a guard C for the said hook, and a cushion D upon the shank adjacent to the hook, substantially as and for the purpose set forth.

480,415. HEEL-LOADING MACHINE. FREEMAN P. RAYMOND, 2d, Newton, Mass. Filed Feb. 11, 1889. Serial No. 299,517. (No model.)



Claim.—1. In a heel-loading machine, the combination of a cross-head, a rotary head supported thereby and carrying two gangs or groups of awls and two gangs or groups of drivers in the order named, each of the two groups of awls and two groups of drivers being of the same arrangement and adapted for use with the same templet, with the said single templet having holes d' and a heel-support having independent vertically and united horizontally operating adjusting devices in connection therewith, substantially as described.

2. In a heel-loading machine, the combination of a cross-head, a rotary head supported thereby and carrying two gangs or groups of awls and two gangs or groups of drivers in the order named, each of the two groups of awls and two groups of drivers being of the same arrangement and adapted for use with the same templet, with the said single templet having holes d' and a heel-support or former having independent vertically and united horizontally operating adjusting devices in connection therewith, and a single nail-carrier E to feed nails in successive order for each group of drivers, substantially as described.

3. In a heel-loading machine, the combination of a cross-head, a rotary head supported thereby and carrying two gangs or groups of awls and two gangs or groups of drivers in the order named, each of the two groups of awls and two groups of drivers being of the same arrangement and adapted for use with the same templet, with the said single templet having holes d' and a heel support or former having independent vertically and united horizontally operating adjusting devices in connection therewith, and a heel-blank carrier for moving heel-blanks in successive order between the templet and support, substantially as described.

4. In a heel-loading machine, the combination of a cross-head, a rotary head supported thereby and carrying two gangs or groups of awls and two gangs or groups of drivers in the order specified, each of the two groups of awls and two groups of drivers being of the same arrangement and adapted for use with the same templet, with the said single templet having holes d' and a heel-support having independent vertically and united horizontally operating adjusting devices in connection therewith, and the heel-side compressing or forming die, substantially as described.

5. The combination of a reciprocating cross-head, a rotary head supporting two gangs or groups of awls and two gangs or groups of drivers of the same arrangement and adapted for use with the same templet and alternated upon the head, as specified, and adapted to be automatically turned or rotated, the single templet D, having holes d', the single nail-carrier E, the cam e^4, having the cam-groove ℓ to operate the nail-carrier, as specified, and the heel-support G, having independent vertically and united horizontally operating adjusting devices in connection therewith, the cam g^7, constructed as specified, and intermediate connecting mechanism, substantially as described.

6. The combination, in a heel-loading machine, of the heel-support G with the heel-centering pins or arms o and coacting mechanism, substantially as described.

7. The combination, in a heel-loading machine, of the heel-support G with the pins or arms o, extending above the same and independently horizontally and vertically movable in relation to the support, and coacting mechanism, substantially as described.

8. The combination, in a heel-loading machine, of the die, the heel-support G, movable in relation thereto, and the vertical yielding arms or pins o and coacting mechanism, substantially as described.

9. The combination, in a heel-loading machine, of the templet D, the heel-support G, the spindle g', the post g^3, the slide-head g^4, and its adjustable head g^{12} and cam g^7, and coacting mechanism, substantially as described.

10. The combination, in a heel-loading machine, of the templet having a hole d' with a projecting spring-actuated pin M, carried by the rotary head a, and coacting mechanism, substantially as described.

11. The combination, in an organized heel-loading machine, of a reciprocating cross-head adapted to be continuously reciprocated, a head carried thereby supporting heel-pricking and nail-driving devices adapted to have continuous movement imparted to them to bring them automatically and successively into operative position, a single continuously-operated nail-carrier E, the single templet D, and the continuously-operated heel-support and pressure-block G, having independent vertically and united horizontally operating adjusting devices in connection therewith, the heel-blank carrier for feeding heels between the templet and heel-support and pressure-block, and an automatic nail-supplying machine for automatically supplying nails to the single nail carrier, substantially as described.

12. The combination of the reciprocating cross-head A, the cranks B, connecting-rods b', the gears b, shaft g^9, pinions f, and pulley-shaft F', the rotary head a, carried by the cross-head, the gangs or groups a^1 a^7 of awls and the gangs or groups a^4 a^{10} of drivers, the head-turning mechanism, templet D, having holes d', the nail-carrier E, having the holes e, the vertical shaft e^3, connected with the pulley-shaft by the worm-wheel e^5 and worm e^7, the cam e^4, having the cam-groove ℓ to engage the cam-pin of the nail-carrier, the pressure-head and heel-support G, spindle g', slide-head g^4, operating-cam g^7 on the shaft g^8, the gears g^{11} on said shaft, and the pinion g^{10} on the shaft g^9, which mesh with the gear g^{11}, substantially as described.

13. In a heel-loading machine, the combination of the templet D, the die, the heel support or former mounted upon a slide, the said slide, and a rotary cam g^7, constructed to operate the slide, as specified, substantially as described.

480,416. ART OF DESILVERIZING ARGENTIFEROUS LEAD. HEINRICH ROESSLER, Frankfort-on-the-Main, Germany, assignor of one-half to Bernhard Edelmann, same place. Filed June 13, 1891. Serial No. 396,186. (No specimens.) Patented in Germany June 20, 1890, No. 56,271.

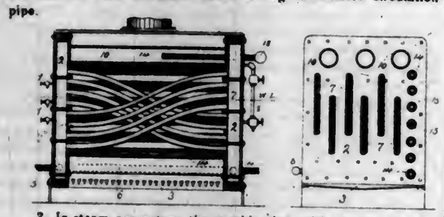
Claim.—The within-described improvement in the process of desilverization of argentiferous lead, consisting in fusing the lead with an alloy of zinc and aluminium in the proportions of not more than one-half of one per cent. of aluminium to the zinc.

480,417. STEAM-GENERATOR. THOMAS L. STURTEVANT and THOMAS J. STURTEVANT, Framingham, Mass. Filed Jan. 16, 1892. Serial No. 418,324. (No model.)

Claim.—1. In a steam-generator, the combination, with opposite headers constructed to form water-tight receptacles, of groups of in-

clined tubes arranged in series and communicating at their lower ends with the lower part of one header and at their upper ends with the upper part of the opposite header, and horizontal cross-tubes arranged in vertical series at the rear of the said inclined tubes, substantially as set forth.

2. In a steam-generator, the combination, with opposite headers, of oppositely-inclined groups of cross-tubes communicating at their lower ends with the lower part of one header and at their upper ends with the upper part of the opposite header, and a series of horizontal cross tubes forming transverse communications between said headers, each of said horizontal tubes having an interior circulation-pipe.

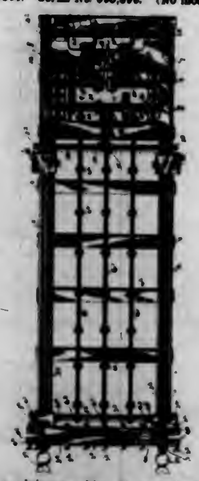


3. In steam-generators, the combination, with opposite headers and the oppositely inclined alternate groups of crossed tubes, of a series of horizontal cross-tubes uniting the headers and an interior circulating-pipe formed with an opening midway of its length and located within each horizontal tube, substantially as explained.

4. In a steam-generator, the water-tight headers, the oppositely-inclined alternate groups of curved steam-generating tubes, and one or more steam-collecting tubes which interconnect said headers, combined with a series of horizontal cross-tubes likewise uniting opposite headers and interior circulating-pipes apertured midway of their length and contained one within each cross-tube, substantially as set forth.

5 In a steam-generator, the opposite water-tight headers formed with their corresponding ends bent toward each other, combined with one or more groups of straight crossed tubes alternately oppositely inclined, which unite said headers, the exterior circulating-pipe 6, one or more steam-collecting pipes, and a series of cross-tubes, each adapted to contain a circulating-pipe formed with a lateral aperture, about midway of its length, all operating substantially as explained.

480,418. MINING-MACHINE. FRANK W. SYLER, Columbus, Ohio. Filed June 6, 1891. Serial No. 395,998. (No model.)

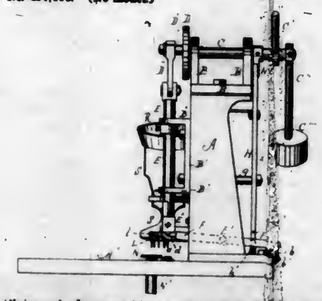


Claim.—1. In a mining-machine, the combination, with a moving frame and rotating shafts carried thereby, of sprocket-wheels on the forward portions of said shafts and a series of projecting cutters on the front faces of said sprocket-wheels, substantially as specified.

2. In a mining-machine, the combination, with a movable frame and rotating shafts carried thereby, of sprocket-wheels on said shafts, cutters 44, supported from the forward faces of said sprocket-wheels, cutting-chain 46, connecting said sprocket-wheels, as described, and cutters 44, supported and projecting from the forward faces of the links of said chain, substantially as specified.

3. In a mining-machine, the combination, with a movable frame and rotating shafts carried thereby, of sprocket-wheels on said shafts, cutting-tools 44, projecting from the forward faces of said wheels, drilling-tools supported in the forward ends of said shafts in front of said sprocket-wheels, and an endless chain connecting said wheels, as described, and having cutting-tools projecting forwardly from the forward face thereof, substantially as specified.

480,419. MACHINE FOR PUNCHING LEATHER LOOM-PICKERS. WILLIAM WADSWORTH, Fall River, Mass. Filed Apr. 29, 1892. Serial No. 431,188. (No model.)

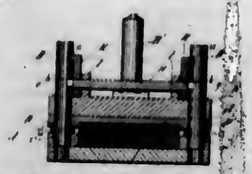


Claim.—1. In a punching-machine, in combination, the punching-head E', provided with the awl *e*, said punching-head being rigidly secured to the plunger E, to which vertical reciprocating motion is imparted by a crank actuated by the driving-shaft, the lever F, provided with the clearing-fingers *d* and held normally up by the spring *b*, the notched lever H H', held normally in engagement with the lever F by the spring *h*, and the cam H", fast on the shaft C, substantially as set forth.

2. In a punching-machine, the mechanism for inserting the rivets in the picker, comprising the polygonal disk K and disk L, the latter having openings, as L', for holding rivets, said openings corresponding or coinciding with the sides of the disk K and both said disks being adapted to be rotated simultaneously, mechanism for feeding rivets into said openings, and mechanism, as the bed-plate N and vertically-reciprocating rod N', for pressing said rivets into previously-prepared perforations in the picker, substantially as described.

3. In a punching-machine, the mechanism for inserting the rivets in the picker, comprising the polygonal disk K and disk L, the latter having openings, as L', for holding rivets, said openings corresponding or coinciding with the sides of the disk K and both said disks being adapted to be rotated simultaneously, a spring secured to the frame and bearing against one of the flat surfaces of the disk K, mechanism for feeding rivets into said openings, and mechanism, as the bed-plate N and vertically-reciprocating rod N', for pressing said rivets into previously-prepared perforations in the picker, substantially as set forth.

480,420. APPARATUS FOR MAKING RUBBER STAMPS. JOSIAH C. BARTON, Brooklyn, N. Y. Filed June 22, 1891. Serial No. 397,010. (No model.)



Claim.—1. The combination of a base A, standards B, having shoulders *a*, removable chase C, removable cope D, removable follower E, connected levers F, and cams K, substantially as and for the purpose herein set forth.

2. The combination of a base A, standards B, having shoulders *a*, reversible cope D, removable chase C, removable follower E, and levers F, provided with cams K, the whole constructed and arranged for joint use and operation, substantially as and for the purpose herein set forth.

3. The combination of a base A, the standards constructed with shoulders *a b* at different distances from the base A, the removable chase C, removable and reversible cope D, follower E, connected levers F, and cams K, all substantially as and for the purpose herein set forth.

4. The combination of a base A, standards B, having shoulders *a*, springs G, removable chase C, removable cope D, removable follower E, connected levers F, and cams K, substantially as and for the purpose herein set forth.

5. The combination of a base A, standards B, having shoulders *a*, springs G, reversible cope D, removable chase C, and removable follower interchangeable with said cope upon said base and standards and having levers F, provided with cams K, the whole constructed and arranged for joint use and operation, substantially as and for the purpose herein set forth.

6. The combination of the base A, springs G, the standards constructed with shoulders *a b* at different distances from the base A, the removable chase C, removable and reversible cope D, follower E, connected levers F, and cams K, all substantially as and for the purpose herein set forth.

7. The combination of a base A, standards B, having shoulders *a*, reversible cope D, having opening *f*, removable chase C, having stud-stop I', and removable follower E, having levers F, provided with cams K, the whole constructed and arranged for joint use and operation, substantially as and for the purpose herein set forth.

480,421. VEHICLE. CHARLES COMSTOCK, Indianapolis, Ind. Filed May 11, 1891. Serial No. 392,266. (No model.)



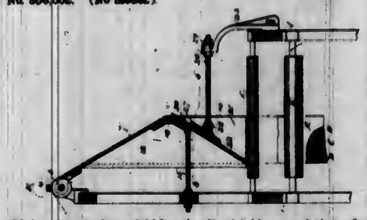
Claim.—1. The combination of the body, the fixed front seat, the inclined strips secured to the inside of the body sides and extending under the fixed front seat to furnish supports for a rear seat under the front seat, the rear seat resting upon said strips, and means for locking it in either its upper or lower position.

2. The combination, substantially as specified, of the body A, the fixed front seat, the angle iron bars B, secured in an inclined position to its inner side walls and extending under the front seat, the sliding seat C, supported upon said bars and adapted to slide to either its elevated position at the rear of the body or to its lower position under the seat, and means to retain the seat in its elevated position, whereby the vehicle is changed from a single-seat to a double-seat wagon, and vice versa.

3. The combination of the body having a front seat, inclined ways for a sliding rear seat, the rear seat adapted to slide upon said ways, and the reversible back for the rear seat, substantially as shown and described.

4. The combination of the body, the front seat, the inclined angle-iron ways for the rear seat, extending under the front seat and having its horizontal web notched, the sliding rear seat, and the catch D, pivoted to rear seat, having its end hooked to engage under the angle-ways and its edge adapted to enter the notch in said way to retain the seat in its upper position, substantially as shown and described.

480,422. FOLDING-MACHINE. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed June 10, 1890. Serial No. 354,902. (No model.)



Claim.—1. A three-fold longitudinal folder consisting of a pair of internal side guides converging from points on each side of the central-fold line of the unfolded web to the front edge of the folded web, and a pair of external guides converging from the same points to the rear edge of the folded web, substantially as described.

2. A three fold longitudinal folder consisting of a pair of internal guides converging toward the central-fold line of the web, but terminating at points on each side of the central-fold line, a pair of internal side guides placed at an angle to the first pair and converging from said points to the front edge of the folded web, and a pair of external guides converging from the same points to the rear edge of the folded web, substantially as described.

3. The combination, with a fold-laying device, of a three fold longitudinal folder consisting of a pair of internal side guides converging from points on each side of the central-fold line of the unfolded web to the fold-laying device at the front edge of the folded web and a pair of external guides converging from the same points to the fold-laying device at the rear edge of the folded web, substantially as described.

4. The combination, with a fold-laying device and feeding mechanism, of a three-fold longitudinal folder consisting of a pair of internal side guides converging from points on each side of the central-fold line of the unfolded web to the fold-laying device at the front edge of the folded web and a pair of external guides converging from the same points to the fold-laying device at the rear edge of the folded web, substantially as described.

5. In a longitudinal folder, the combination, with internal side guides 13 14, of external guides 23 24, extending between said guides, said internal and external guides converging from a point on each side between the central-fold line and side lines of the unfolded web, the internal lines converging to the front edge and the external guides to the rear edge of the folded web, substantially as described.

6. In a longitudinal folder, the combination, with internal side guides 13 14, of external guides 23 24 between said guides, said internal and external guides converging from a point on each side between the central-fold line and side lines of the unfolded web, the internal guides converging to the front edge and the external guides to the rear edge of the folded web, and internal converging guides 8 9, over which the web is led to the side and external guides, substantially as described.

7. In a longitudinal folder, the combination of the internal converging guides 8 9, transverse guide 10, the internal converging side guides 13 14, and the external converging guides 23 24, inclined rearward between the side guides, substantially as described.

8. In a longitudinal folder, the combination of internal converging side guides 13 14 and the external converging guides 23 24, inclined rearward between the side guides, and means for adjustably supporting said external guides, substantially as described.

9. In a longitudinal folder, the combination, with the fixed body 7 and fixed side guides 13 14, of interchangeable nose-pieces 17 22, whereby the folder may be capacitated to impart either one or a plurality of folds to the material, substantially as described.

10. The combination, with the fixed body 7 and side guides 13 14, of the removable nose-piece 22, carrying external guides 23 24, substantially as described.

11. The combination, with longitudinally-adjustable supporting-rod 26, of the nose-piece 22, having an adjustable swinging connection with rod 26, and the side guides 13 14, substantially as described.

480,423. METHOD OF PREVENTING FRAUD IN THE SALE OF NEWSPAPERS AND OTHER PUBLICATIONS. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Feb. 5, 1891. Serial No. 380,894. (No model.)



Claim.—1. The method of preventing fraud in the sale of newspapers and other publications, which consists of applying to a page of the publication a seal partly attached to the page, so as to cover and conceal a part of the matter on the page until the seal is broken or removed, substantially as described.

2. The method of preventing fraud in the sale of newspapers and other publications, which consists of applying to a page of the publications a seal having matter on its under side and partly attached to the page, so as to cover and conceal a part of the matter on the page until it is broken or detached, substantially as described.

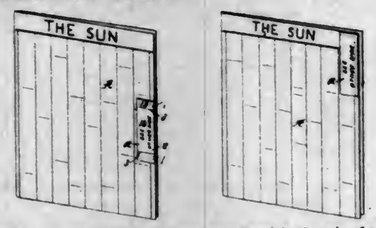
3. A paper or other publication having upon one of its pages a partly-attached seal, covering and concealing a part of the matter on the page until it is broken or detached, substantially as described.

4. A paper or other publication having on one of its pages a partly-attached seal having matter on its under side and covering and concealing a part of the matter on the page until it is broken or detached, substantially as described.

5. A paper or other publication having upon one of its pages and concealing a part of the matter upon the page a seal consisting of the

middle detachable portion 2 and the end portions 1, secured to the page, substantially as described.

480,424. METHOD OF PREVENTING FRAUD IN THE SALE OF NEWSPAPERS AND OTHER PUBLICATIONS. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Dec. 22, 1891. Serial No. 415,872. (No model.)



Claim.—1. The method of preventing fraud in the sale of newspapers and other publications, which consists of applying to a page of the publication a seal having matter on its under side and partly attached to the paper, so as to be broken or detached for access to said matter, substantially as described.

2. A paper or other publication having upon one of its pages a partly-attached seal having matter on its under side, substantially as described.

480,425. SHADE-HOLDER. EMIL F. GENNERT and JAMES F. CUNNINGHAM, New York, N. Y. Filed Jan. 14, 1892. Serial No. 418,015. (No model.)



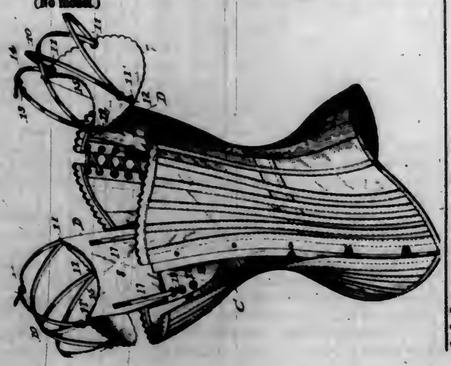
Claim.—1. In a shade-holder, an attaching-collar formed of two pieces which are counterparts of each other, substantially as specified.

2. In a shade-holder, a shade-holding ring, in combination with an adjustable collar composed of two parts that are counterparts of each other, each part being connected with the ring at one end and connected by means of screws at the other end, substantially as specified.

3. A shade-holder composed of a shade-holding ring and collar, the collar consisting of two pieces that are counterparts of each other, united by means of two screws for adjusting the size of the ring, substantially as specified.

4. In a shade-holder, an attaching-collar capable of being adjusted to several sizes of lamps or fixtures, consisting of two pieces that are counterparts of each other, whereby the shade-holding ring is maintained concentric with the fixture, substantially as specified.

480,426. COMBINED CORSET AND DRESS-SHIELD. JOHN S. GOLDSMITH, New York, N. Y. Filed May 25, 1892. Serial No. 434,269. (No model.)

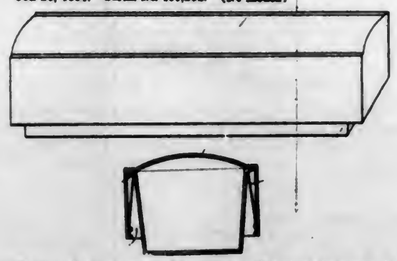


Claim.—1. A combined corset and dress-shield in which the body-flaps of a pair of armpit-shields are provided with the flexible downwardly-extending connection portions secured at bottom to the corset, and the dress-shields are further provided with means for attaching the armpit-shields to the arms of the wearer, and means for adjusting said connecting portions for the required height of each armpit-shield above the waist of the corset, substantially as hereinbefore specified.

2. A combined corset and dress-shield in which a pair of armpit-shields are provided with eyelets 11 11′ at their back and front edges respectively, and with elastic straps 10, looped to said eyelets 11 at back, and having hooks 12 for attaching and detaching the strap at said eyelets 11′ in front, substantially as hereinbefore specified.

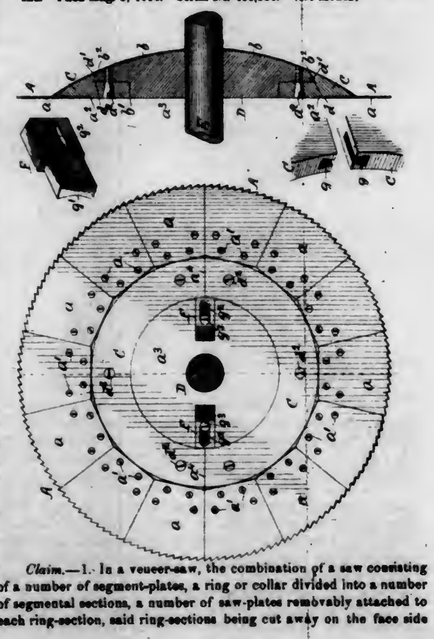
3. A combined corset and dress-shield in which the body-flaps of a pair of armpit-shields have flexible downwardly-extending connecting portions, and the corset is further provided with body-shields secured thereto, said connecting portions and said body-shields being provided, respectively, with elastic tapes 17, having hooks 18 at their free ends, and with vertical series of eyelets 19 to coact with said hooks, substantially as hereinbefore specified.

480,427. BURIAL-CASE. JOHN G. GRAY, Connersville, Ind. Filed Oct. 20, 1891. Serial No. 409,292. (No model.)



Claim.—In a waterproof burial-case, the air-tight cover A, the case B, made impervious to water, arranged to leave an air-space C between their vertical sides, the flange D, and the spring locking-lever E, constructed and operating substantially in the manner and for the purpose as set forth and described.

480,428. VENEER-SAW. ANDREW E. HOFFMAN, Fort Wayne, Ind. Filed Aug. 3, 1891. Serial No. 401,536. (No model.)



Claim.—1. In a veneer-saw, the combination of a saw consisting of a number of segment-plates, a ring or collar divided into a number of segmental sections, a number of saw-plates removably attached to each ring-section, said ring-sections being cut away on the face side to a depth corresponding to the thickness of the saw-plates, and the fastening-screws securing said plates to said ring, whereby the saw may be separated into as many parts as there are ring-sections without detaching the segmental plates, substantially as set forth.

2. In a veneer-saw, the combination of a saw consisting of a number of segment-plates, a supporting-ring provided with a groove or recess and divided into a number of segmental sections, a number of the saw-plates being removably attached to each ring-section, and a solid disk-collar having a beveled edge adapted to engage with said groove or recess in the supporting-ring, and the driving-shaft upon which said disk-collar is rigidly mounted, substantially as set forth.

3. In a veneer-saw, the combination of a saw-ring constructed in two or more sections and cut away on its rear side to form a V-groove and a disk-wheel correspondingly cut away on its meeting surface to provide a shoulder-bearing for said ring-sections and having its edge beveled to form a V-point to fit into said groove, substantially as set forth.

4. In a veneer-saw, the combination of the saw-ring constructed in sections and provided in its meeting ends with dovetailed recesses, the disk-wheel, the double dovetail pins or keys set into said disk and adapted to engage with said recesses, and the fastening-screws inserted through said ring-sections into said disk, substantially as set forth.

480,429. CAPOTASTO. VOLKMAR T. JOHNSEN, Chicago, Ill. Filed Sept. 7, 1891. Serial No. 405,085. (No model.)



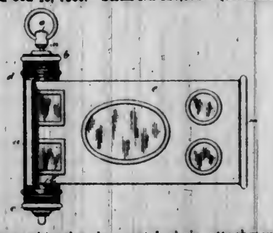
Claim.—1. In a capotasto, the bar A, having a slot *a*, and countersunk hole *b*, as and for the purpose specified.

2. In a capotasto, the bow B, being screw-headed and having a thumb-nut *c*, with conical base, as and for the purpose specified.

3. In a capotasto, the bow B, having a globular head *d*, as and for the purpose specified.

4. The combination, in a capotasto, of the bar A, the bow B, and the tubes *f*, all substantially as set forth.

480,430. WATCH-CHAIN ATTACHMENT. JOHN C. KOCH, Berlin, Germany. Filed Oct. 15, 1889. Serial No. 327,092. (No model.)



Claim.—1. The combination, in a watch-chain attachment, of a slotted cylinder, a suspending device at one end thereof, a web passing through the slot of the cylinder, a roller to which the inner end of the web is connected, a spring for rotating the roller, a ratchet device for holding the roller, and a connection therefrom to the suspending device for liberating the ratchet by a movement of the suspending device, substantially as specified.

2. The slotted case *a* and the web *c*, in combination with the roller *g*, to one end of which the web is attached, the heads *b* and *c* to the case *a*, there being ratchet-teeth on the inner end of the head *b*, the disk *d*, having corresponding ratchet-teeth and the extension *h*, passing into the roller *g*, and a pin *k*, passing through the slot in the roller *g* for connecting the parts together to insure their rotation at the same time that an end movement is allowed to the disk *d* for separating the ratchet-teeth, substantially as set forth.

3. The slotted case *a*, in combination with the web *c*, a roller *g*, to which one end of the web is attached, a spring *f* for rotating the roller, a head *b*, having ratchet-teeth upon its inner face, the disk *d*, having corresponding ratchet-teeth, the extension *h*, passing from the disk *d* into the roller *g*, and a slot and pin for connecting the parts, the stem *n* and head *o* for moving the disk *d* and separating the ratchet-teeth, substantially as set forth.

4. The slotted case *a*, and web *c*, in combination with the tubular roller *g*, to which one end of the web is attached, the helical spring *f* within the tubular roller, the head *b*, to which one end of the spring is connected, and the extension *h*, passing into the roller *g*, the end *b*, having ratchet-teeth, the stem *n* and head *o* for acting upon the disk *d* to separate the ratchet-teeth and permit the spring *f* to rotate the roller and wind the web upon it, substantially as set forth.

5. The slotted case *a* and web *c*, in combination with the tubular roller *g*, to which one end of the web is attached, the helical spring *f*, the head to which one end of the spring is connected, the end *b*, and the suspending-stem *n*, substantially as set forth.

6. The combination, with a slotted case, of a web passing through the slot, a roller to which one end of the web is connected, a spring within the roller for actuating the same, a ratchet device for holding the roller, and a disconnecting device projecting axially from one end of the case, substantially as specified.

480,431. COIN-OPERATED MACHINE. AUGUST LARSEN, Syracuse, assignor of one-half to Henry C. Nye, Whitehall, N. Y. Filed Nov. 2, 1891. Serial No. 410,593. (No model.)



Claim.—1. The combination, with the inclosing case provided with a coin-slot, of a partition extending from the top of the case part way toward the bottom, an oscillatory hanger on the back of the said partition, a shelf attached to said hanger and passing under the partition, a spring holding the said shelf in front of the partition, a lever adapted to carry the shelf out of said partition, a coin-carrier communicating normally with the slot of the case, a drag adapted to engage the coin on the carrier and connected with the aforesaid lever, and a handle on the coin-carrier, as set forth.

2. The combination of the case C, provided with the slot *g*, the box *b*, having a transverse slot in range with slot *a*, the coin-holder *b″ b″*, the drag *c*, carrying the catch *c′* in proximity to the path of said coin-holders, the coin-thrower *d* at the side of the coin-carrier, a coin-receptacle under the opposite side of said carrier, and a movable shelf in the case actuated by the drag, as set forth.

3. The combination of the case C, provided with the slot *a*, the vertical partition P, extending from the top part way the depth of the case, the stationary shelf *o* beneath the partition, the horizontal shaft *f* at the back of the partition, the hanger *g*, fixed to said shaft, the shelf *e*, carried on the hanger beneath the partition, the lever *l*, fastened to the shaft, the spring D, holding the hanger in its normal position, the box *b*, provided with a slot in range with slot *a*, the coin-carrier *b′*, provided with coin-holders *b″ b″* and with the handle *h*, the spring *i*, retracting the said carrier, the coin-thrower *d* at one side of the carrier, the coin-receptacle R under the opposite side of the coin-carrier, the drag *c*, provided with the catch *c′* in proximity to the path of the coin-holders, and the lever *l′* and rod *l″*, connecting the drag to the lever *l*, all combined to operate substantially as described, for the purpose set forth.

480,432. INGOT-EXTRACTOR. JOHN F. LEWIS, Turtle Creek, Pa. Filed Nov. 5, 1891. Serial No. 410,926. (No model.)

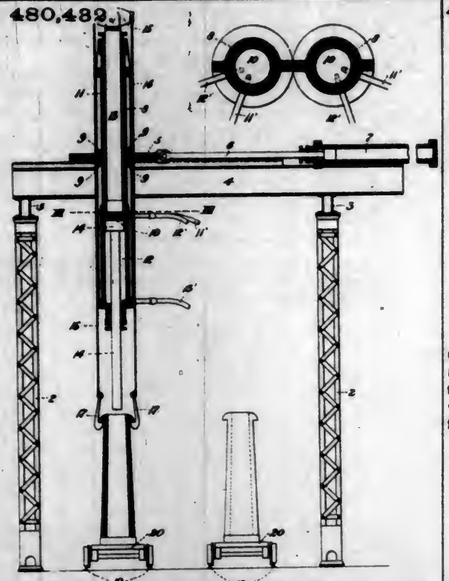
Claim.—1. An ingot-extractor comprising two independent vertically-movable plungers in vertical alignment with each other, the upper plunger being provided with means for engagement with the mold, and means for reciprocating the plungers, substantially as and for the purposes described.

2. An ingot-extractor comprising two independently-movable plungers in vertical alignment with each other, a cross-head swiveled to the upper plunger, hooked rods depending from said cross-head and arranged to engage the mold, and means for reciprocating the plungers, substantially as and for the purposes described.

3. An ingot-extractor comprising a movable slide carrying a cylinder divided into two chambers by a diaphragm, plungers movable in said chambers, the upper plunger being provided with depending rods arranged to engage the mold, and fluid-supply pipes for the cylinder substantially as and for the purposes described.

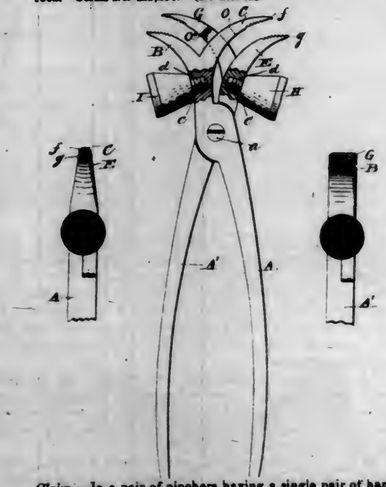
4. An ingot-extractor comprising a framework carrying an elevated slide, two vertical plunger-cylinders, one above the other, supported thereby, the lower plunger arranged to bear on the ingot, hooked rods depending from the upper plunger, fluid-supply pipes for the cylinder, and a car movable beneath the slide and arranged to support the molds, substantially as and for the purposes described.

480,482.



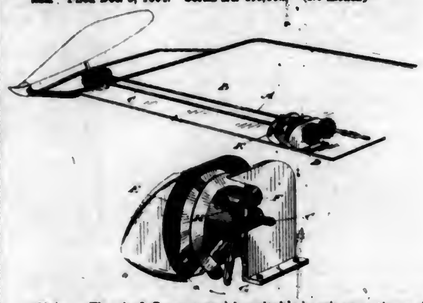
5. An ingot-extractor comprising a framework, an elevated slide carried thereon, two plunger-cylinders, one above the other, supported upon the slide, hooked rods depending from the upper plunger, the lower plunger arranged to bear on the ingot, fluid-supply pipes for the cylinders, two tracks passing beneath the slide, and cars movable thereon, substantially as and for the purposes described.

480,483. LASTING-PINCHERS. GEORGE W. MORRILL, Alton, N. H., assignor of one-half to Ellsworth H. Rollins, same place, and Sylvester A. Edgerly and Charles F. Piper, Wolfborough, N. H. Filed Apr. 15, 1892. Serial No. 429,250. (No model.)



Claim.—In a pair of pinchers having a single pair of handles, the combination of the handle A, provided with two integral outwardly-curving oppositely-inclined jaws B C, the jaw C being narrow at its end *f* and having a shoulder O and the jaw B wide, and a detachable hammer-head I, provided with a screw-threaded shank *c*, adapted to engage the screw-threaded hole *d*, with the handle A', provided with two integral oppositely-inclined jaws E G, the jaw E being narrow at its end *g* and the jaw G wide and provided with a shoulder O', and a detachable hammer-head H, provided with a shank *c*, engaging with screw-threaded hole *d*, substantially as described.

480,484. FLAX-HARVESTER. WESLEY MORROW, Millbrook, Canada. Filed Dec. 3, 1891. Serial No. 413,892. (No model.)



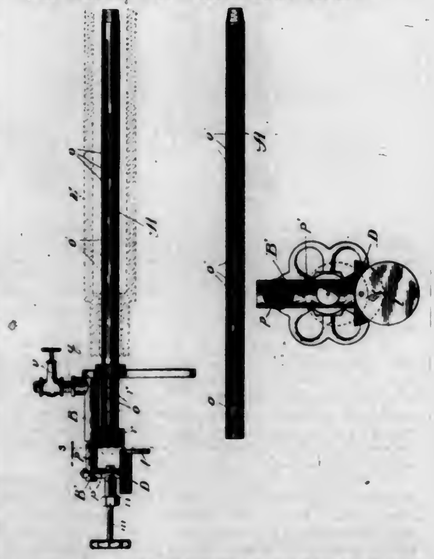
Claim.—The shaft C, supported in suitable bearings on the grain-table B and geared to the driving mechanism of the harvester so as to derive a rotary movement, the fingers G, pivoted in pairs around the shaft C, each finger being actuated by a spring H, in combination with the brackets D, noses *b*, and spring-plates E, substantially as and for the purpose specified.

480,485. LATHE-MANDREL. JOHN H. MCGRAW, Oswego, N. Y. Filed Aug. 31, 1891. Serial No. 404,176. (No model.)



Claim.—The combination, with the tapering spindle P, shaped angular in cross-section, of the sectors *a a a*, provided with longitudinal grooves *c* and riding thereby on the angles of the spindle and formed with steps *d* and circumferential groove *e*, and the elastic band *b*, seated in said groove and holding the sectors yieldingly upon the spindle, substantially as described and shown.

480,486. COMBINED GAS GENERATOR AND HEATER. PETER H. NELSON, Chicago, Ill., assignor to the S. H. Sinclair Company, same place. Filed Mar. 1, 1892. Serial No. 423,358. (No model.)



Claim.—1. In a combined hydrocarbon-gas generating and heating apparatus, the combination of a tube forming toward one end the heating-burner and toward its opposite end the generating-burner, a generator surmounting the tube at the end thereof, forming the generating-burner and having its discharge-opening in line with the open end

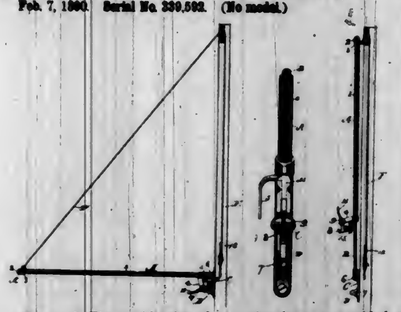
of the said tube, and a valve for controlling the discharge from the said opening, substantially as described.

2. In a combined hydrocarbon-gas generating and heating apparatus, the combination of a tube forming toward one end the heating-burner and toward its opposite end the generating-burner, a generator surmounting the tube at the end thereof, forming the generating-burner and having its discharge-opening in line with the open end of said tube, a valve for controlling the discharge from the said opening, and a kindling-cup supported underneath the valve, substantially as and for the purpose set forth.

3. In a combined hydrocarbon-gas generating and heating apparatus, the combination of a tube A, closed at one end and open at its opposite end, a series of burner-openings *o* in the tube toward its open end and a series of burner-openings *o'* therein toward its closed end a generator B, supported on the tube A over the openings *o* and having an elbow-extension B', provided with the generator discharge-opening in line with the open end of the tube A, a needle-valve *m* for the said discharge-opening, and a kindling-cup D on the lower end of the said extension below the point of the valve, substantially as and for the purpose set forth.

4. A combined hydrocarbon-gas generating and heating apparatus comprising, in combination, a tube A, closed at one end and open at its opposite end, a series of burner-openings *o* in the tube toward its open end and a series of burner-openings *o'* therein toward its closed end, a generator B, into which leads the supply-pipe *q* and supported in bearings *r* and *r'* on the tube A over the series of openings *o* and having an elbow extension B', formed with the branch *p* and depending branch *p'*, having the generator discharge-opening in line with the open end of the tube A, and a nipple *n*, containing a needle-valve *m*, controlling the said discharge-opening, and a kindling-cup D, supported on the lower end of the branch *p'* and provided with an adjustable deflecting-plate *l*, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

480,487. AWNING-FRAME. JAMES PETTIT, Albany, N. Y. Filed Feb. 7, 1890. Serial No. 339,592. (No model.)



Claim.—1. The combination of an awning-frame A, provided with tubular end pieces 4, side bars B, fitted to slide telescopically in said end pieces and provided with pivots 6, which allow said awning-frame to swing in a vertical plane, stationary hinge-brackets C, to which said side bars are jointed to form fixed hinge-joints, and a locking mechanism, substantially as described, attached to the inner end of said tubular end pieces and fitted to engage with said hinge-brackets, whereby the awning fabric may be automatically strained, as and for the purpose specified.

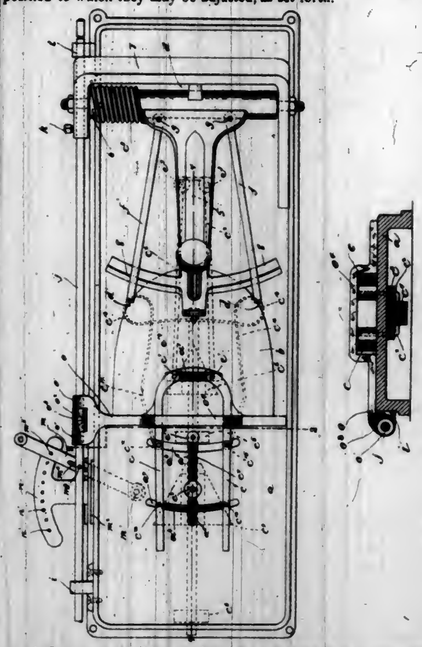
2. In an awning-frame and in combination therewith, a locking mechanism for retaining said awning-frame in its extended position, said locking mechanism consisting of a stationary bracket, which forms part of the hinge-joint of said awning-frame and is provided with a catch 7, an arm 4, attached to the awning-frame adjacently to said hinge-joint, and a weighted latch 9, pivoted to said arm and fitted to engage with said catch, as and for the purpose herein specified.

480,488. VAMP-MARKING MACHINE. JOHN F. ROGERS, Belfast, Me. Filed Dec. 8, 1891. Serial No. 414,382. (No model.)

Claim.—1. In a vamp-marking machine, the combination, with a work-supporting bed, of vamp-gages on said bed having their forward ends connected to pivots which are movable crosswise of the bed and a rod movable lengthwise of the bed and provided with wedges against which projections engaged with said gages are yieldingly held, as set forth.

2. In a vamp-marking machine, the combination, with a work-supporting bed, of vamp-gages on said bed having their forward ends connected to pivots which are movable crosswise of the bed, springs arranged to exert an inward pressure on said gages, a rod movable lengthwise of the bed and provided with a wedge interposed between the pivots of the gages, and an independently-adjustable wedge mounted on said rod and interposed between studs projecting from the gages, as set forth.

3. In a vamp-marking machine, the combination of a work-supporting bed, vamp-gages mounted at their forward ends on pivots movable crosswise of the bed, springs arranged to exert an inward pressure on said gages, a rod movable lengthwise of the bed and provided with a wedge interposed between the pivots of the gages and with another wedge interposed between studs projecting from the rear portions of the gages, and a locking device, such as the set-screw e^{15}, whereby the rod and its wedges may be positively secured in any position to which they may be adjusted, as set forth.



4. In a vamp-marking machine, the combination of a work-supporting bed, a marker-carrier movable lengthwise of said bed and provided with marking devices, a rod or slide engaged with said carrier and fitted to move in guides on the supporting-bed, a vamp-gage secured to said slide and movable therewith, and a lever pivoted to the bed and engaged with the slide, said slide, marker-carrier, and gage being movable simultaneously by said lever, as set forth.

5. In a vamp-marking machine, the combination of a work-supporting bed, a marker-carrier movable lengthwise of said bed and provided with marking devices, a rod or slide engaged with said carrier and fitted to move in guides on the supporting-bed, a vamp-gage loosely mounted at one end on said slide and adapted to oscillate or swing thereon, and an adjustable collar or stop on said rod, whereby the gage may be secured at any desired point on the slide without interference with its swinging movements, as set forth.

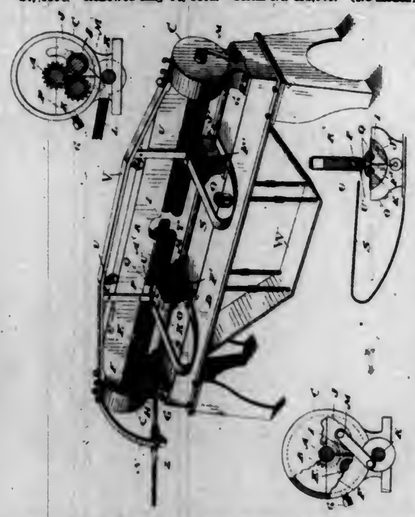
480,489. YIELDABLE GEAR-WHEEL. BENJAMIN C. BRATON, Nashville, Tenn. Filed Nov. 17, 1891. Serial No. 412,128. (No model.)



Claim.—A yieldable gear-wheel comprising two disks of unequal sizes, the larger provided with an overhanging rim toothed on its pe-

riphery and with two oppositely-projecting flaring lugs extending toward the center of the disk and offset to form seats for springs, the smaller disk being inclosed within the rim of the larger and having an overhanging flange extending toward the larger disk and lugs corresponding with and adapted to fit between the lugs of the first-mentioned disk, and a series of springs, one of each being seated between and bearing against the sides of the opposing lugs of the two disks.

480,440. SHEET-METAL-ROLLING MACHINE. WALTER S. SHIPE, Toronto, Canada, assignor to James Morrison, same place. Filed Feb. 27, 1891. Renewed May 14, 1892. Serial No. 432,975. (No model.)



Claim.—1. A sheet-metal rolling machine having three rolls geared together, one roll having fixed bearings in a bracket C, having a recess *c*, and a second one set in a quadrant arranged to slide in said recess *c* and constructed to be adjusted away from or nearer to the third roll in a curve concentric with the roller having the fixed bearings, substantially as described.

2. A sheet-metal-rolling machine having three rolls geared together, the main driving-roller having a fixed bearing, another of the said rollers having movable bearings at each end and intermediate thereof, a rod running parallel with said rollers and connected to said movable bearings, and means for moving the same, substantially as described.

3. A sheet-metal-rolling machine having three rolls geared together, the main driving-roller having a fixed bearing, another of the rollers having movable bearings at each end and intermediate thereof, a rod running parallel with said rollers, connected to said movable bearings, a lever attached to said rod for moving the same, and a locking device for securing said rod in position, substantially as described.

4. In a sheet-metal-rolling machine, a feed-roll having a series of lifting-pins sliding through it, substantially as described.

5. In a sheet-metal-rolling machine, the main roll A, journaled in the stationary bearing-boxes B, which are supported in the end brackets C, the roll E, geared to the roll A and supported in the adjustable bearing-boxes F, the roll I, journaled in the bearing-boxes J and geared to the roll A, in combination with the links M, connected to boxes J, rod K, connected to the links M, and lever L, attached to rod K and provided with suitable locking mechanism, substantially as and for the purpose specified.

6. In a sheet-metal-rolling machine, the combination, with the rolls thereof, of the springs S, arranged to support the sheets about to be rolled, and a stop-plate U, having its acting or foot end slightly below the normal surface of the supporting-springs, substantially as and for the purpose specified.

480,441. BICYCLE-SUPPORT. WILLIAM SIAR and CHARLES H. DUNN, Seneca, Pa. Filed Mar. 17, 1892. Serial No. 425,246. (No model.)

Claim.—1. In a bicycle-support to be carried on the frame of the bicycle, a bar or rod having a combined rectilinear and rotary movement, whereby it may be extended and moved crosswise of the bicycle-frame, and a step or support pivotally secured to the lower portion of the bar or rod and automatically adjusting itself to the ground, substantially as herein described.

2. A bicycle support to be carried on the frame of the bicycle and comprising a pivotally-secured support or step forming a broad bearing, and a means by which said support may be turned from a position parallel with the frame to one at right angles thereto.



3. A bicycle-support to be carried on the frame of the bicycle, comprising a detachable tube or socket to be secured to said frame, an extensible bar within said tube or socket, a support or step pivotally secured to said bar, whereby it automatically adjusts itself to the condition of the ground, and means for converting the rectilinear movement of the bar into a rotary movement, whereby the support or step may lie parallel with the frame of the bicycle or at right angles thereto.

4. A bicycle-support comprising an extensible bar which has a combined rectilinear and rotary movement, a holder for the bar, and a pivotally-secured support or step carried by the bar and automatically adjusting itself to the condition of the ground.

5. A bicycle-support comprising a tube or socket to be fitted to the frame of the bicycle and having a square opening in one end, a spirally twisted or turned bar within said tube and projecting through said opening, a support or rest pivotally secured to the projected end of the bar and having a movement about its pivot to conform to the condition of the ground, a means for locking the support or step after its adjustment, a spring-actuated pawl for holding the bar extended, and a spring for returning the bar when the pawl is released, substantially as herein described.

6. A bicycle-support comprising a tube or socket to be fitted to the frame of the bicycle and having end caps, one of which has a square opening, a rod or bar mounted within the tube with its lower end projecting through said opening, said rod having a square form in cross-section and having a spiral twist imparted to it, a ratchet on the bar, and a spring-actuated pawl on the tube passing through a hole therein and engaging and holding the bar when the latter is extended, an enlarged head on the lower end of the bar having a series of holes, a support or step pivotally secured to said head, whereby it may adjust itself to the condition of the ground, a pivoted spring-actuated lever on the support, having a pin passing through a hole in the support and entering one of the holes in the head of the bar to lock the support in its adjusted position, said lever having a foot portion by which it is operated to project the bar and disengage the pin from the head, and a spring for returning the bar and support to their normal positions.

7. A bicycle-support comprising a bar having a combined rectilinear and rotary movement, a holder therefor, a support or step pivotally secured to said bar, and a means for locking the support or step to the head, consisting of a pivoted lever having one end engaging the head and its opposite end forming a foot-piece, whereby the bar is extended and support unlocked from the head simultaneously, and a means for returning the bar within the holder, substantially as herein described.

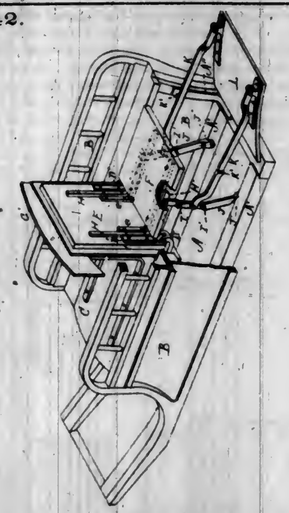
480,442. VEHICLE. JASON SPOFFORD, Jr., Amesbury, Mass., assignor of one-half to Perrin W. Nichols, same place. Filed Apr. 8, 1891. Serial No. 388,077. (No model.)

Claim.—1. In a two-seated carriage, the combination of a front seat, a rearward-facing rear seat, and an adjustable back for said rearward-facing seat arranged to constitute a deck-panel when lowered over the rear seat, substantially as set forth.

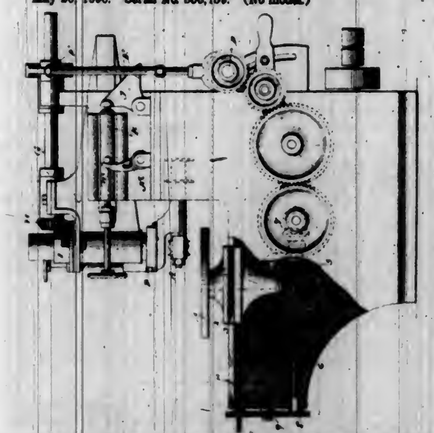
2. The combination of a seat constructed to be raised and lowered, a deck-panel arranged to be raised to serve as the back of said seat when in position for use, and a hinged tail-board connected with said seat and panel, whereby the opening and closing of the tail-board will actuate the seat and will raise and lower said panel, substantially has described.

3. In a vehicle of the character described, the combination of the carriage-body and cross-piece D, the latter provided with the hinges D', the lazy-back E, hinged to said cross-piece, the rear seat F, hinged to the lazy-back, the bars H H', secured to the under or rear side of the lazy-back and bent at right angles, as shown, to form supports for the seat, the jointed levers I J, connecting said bars with the carriage-body, as shown, and the tail-gate L, hinged to the carriage-body and connected with said levers by means of the rods or bars K, whereby the rear seat and lazy-back are automatically raised and lowered by lowering and raising the tail-gate, substantially as set forth.

480,442.



480,443. WOOD-MOLDING MACHINE. FRANK H. VAN HOUTEN, Matteawan, N. Y., assignor to Charles L. Goehring, Allegheny, Pa. Filed May 26, 1890. Serial No. 353,159. (No model.)



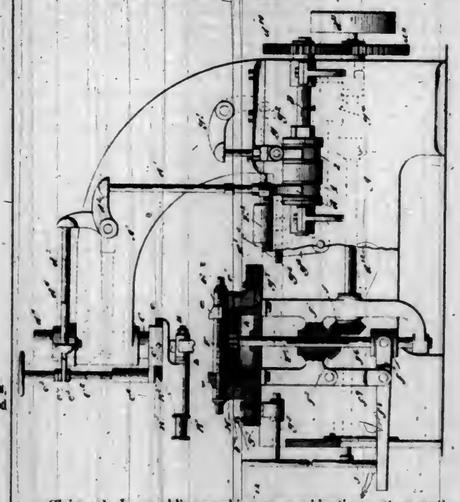
Claim.—1. In a machine such as described, the combination, with an oscillatory reciprocating cutter-head whose arbor or axis of rotation is transverse to its axis of oscillation and in a plane substantially parallel with the plane of reciprocation, of a work-support or table pivotally supported to turn about an axis substantially parallel with the axis of oscillation of the cutter-head, said table being mounted upon a base or support guided to travel in a plane substantially parallel with the plane of reciprocation of the cutter-head, substantially as described.

2. In a machine such as described, the combination, with an oscillatory reciprocating cutter-head, of a work support or table pivotally supported to turn about an axis parallel with the axis of oscillation of the cutter-head but to one side thereof, a support for said table, guided to move in a plane substantially parallel with the plane of reciprocation of the cutter-head and actuating devices or driving mechanism common to the cutter-head, and a table for controlling the oscillatory and reciprocating motions of each and preserving the proper relations the one to the other, substantially as described.

3. In a machine such as described, the combination, with an oscillatory reciprocating cutter, of a table or work support extending beneath the cutter and pivotally supported upon a laterally-movable carriage, with devices for automatically rotating the table and moving the carriage, substantially as described.

4. In a machine such as described, the combination, with the oscillatory reciprocating cutter, of the traveling carriage, the table pivotally supported upon said carriage, the screw engaging said carriage, the driving-shaft and gearing intermediate the driving-shaft and table, and the driving-shaft and adjusting-screw for simultaneously rotating the table and shifting the carriage, substantially as described.

480,444. MOLDING-MACHINE. FRANK H. VAN HOUTEN, Matteawan, N. Y., assignor to Charles L. Goehring, Allegheny, Pa. Filed Dec. 23, 1890. Serial No. 375,611. (No model.)



Claim.—1. In a molding-machine, the combination, with an oscillating cutter-head, of a feeding mechanism for advancing the material beneath the cutter-head and a work-support reciprocated laterally of the line of feed motion, substantially as described.

2. In a molding-machine, the combination, with the oscillating cutter-head, of a longitudinally-movable and laterally-reciprocating work-support, substantially as described.

3. In a molding-machine, wherein the material is fed at predetermined speed past a rotating cutter-head oscillating about an axis perpendicular to the direction of the feed motion of the material, and in combination with the feeding devices and oscillating cutter-head thereof, a support for the material, and actuating devices engaging said support and operating to reciprocate the material on a line transverse to the direction of feed motion and in direction and degree proportional to the oscillations of the cutter-head, substantially as described.

4. In a molding-machine, the combination, with the rotating cutter-head mounted to oscillate about an axis perpendicular to the axis of rotation, of a longitudinally movable and laterally-reciprocating work-support or carriage, substantially as described.

5. In a molding-machine, the combination, with an oscillating cutter-head and a carriage movable in a plane substantially perpendicular to the axis about which the cutter-head oscillates, said carriage being connected to a movable frame or support reciprocating in a direction transverse to the feed motion, substantially as described.

6. In a molding-machine, and in combination with the oscillating cutter-head thereof, a movable carriage supported in reversible guides, substantially as described.

7. In a molding-machine, and in combination with the rotating cutter-head thereof, a traveling carriage or work-support movable in guides on a reversible plate or turret, substantially as described.

8. In a molding-machine, and in combination with the cutter-head thereof, a reciprocating support or frame carrying a reversible plate or turret and a work-support or carriage mounted in guides on said reversible plate or turret, substantially as described.

9. In a molding-machine, and in combination with the oscillating cutter-head thereof, a reciprocating frame or support, a plate or turret pivotally mounted upon said reciprocating support, a work-support or carriage mounted upon said turret, and actuating devices for reciprocating said support and feeding devices for advancing the carriage, substantially as described.

10. In a machine, the combination, with a feeding mechanism, a work-support reciprocating laterally of the direction of feed, and a rotating cutter-head mounted to oscillate about an axis intersecting the cutters and the material, substantially as described.

11. In a machine, the combination, with a frame or support mov-

able in guides on the main frame, a plate or turret pivotally attached to said support and provided with means for locking it in position, and a work-support or carriage movable in guides on said rotary turret, substantially as described.

12. In a machine, the combination, with the supporting-frame and the plate or turret pivotally mounted thereon, the work-support or carriage movable on the turret and provided with two racks, and the driving-gear mounted upon a shaft set eccentrically to the axis of the turret, substantially as described.

13. In a machine, and in combination with the work-support or carriage movable in guides on the reversible turret or plate and provided with two racks, the support or frame to which said turret is attached and the movable driving-gear set eccentrically to the axis of the turret, substantially as described.

14. In a machine, and in combination with the oscillating cutter-head, a work-support or carriage movable in guides and supported upon a plate or turret, the latter pivotally supported to move about an axis parallel with but to one side of the axis about which the cutter-head oscillates, substantially as described.

15. In a machine, and in combination with the oscillating cutter-head, a plate or turret movable about an axis parallel with the axis about which the cutter-head oscillates, a support for said turret movable in guides, and a work-support or carriage mounted on the turret and movable in a plane transverse to the direction of motion of the supporting frame on which the turret is mounted, substantially as described.

16. In a machine, the combination, with a reversible work-support or carriage provided with two racks, of a driving-gear rotating in one direction and adapted to alternately engage the racks for reversing the motion of the carriage, substantially as described.

17. In a machine, and in combination with the carriage, its pivoted supporting plate or turret, and the movable frame or support therefor, the feed-operating devices mounted upon said movable frame and actuating the carriage, the same comprising the longitudinally-movable shaft carrying the gear for engaging the carriage, the gears for transmitting motion from the driving-shaft to the said movable shaft, and the devices for reciprocating said last-named shaft to start or stop the carriage, substantially as described.

18. In a machine, and in combination with the oscillating cutter-head, laterally-reciprocating work-support, and feeding devices for advancing the material, a gear-train and actuating devices controlling the oscillation of the cutter-head, the feed motion, and the lateral reciprocations of the material, substantially as described.

19. In a machine, and in combination with the oscillating cutter-head and longitudinally-movable carriage or work-support, the frame or support reciprocating laterally of the feed motion, and a reversible plate or turret interposed between the said carriage and reciprocating frame, actuating devices for reciprocating said frame, and actuating devices for feeding the carriage, provided with means for interrupting the feed, substantially as described.

20. In a machine, and in combination with the longitudinally-movable work-support or carriage, the laterally-reciprocating support or frame on which said carriage is mounted, actuating devices for reciprocating said frame, and an extensible connection interposed in the line of said actuating devices and operating to adjust the position of the carriage and its line of motion with respect to the axis about which the cutter-head oscillates, substantially as described.

480,445. ALUMINIUM ALLOY. CHRISTOPHER P. WHITNEY, Newton, Mass. Filed Apr. 21, 1892. Serial No. 430,121. (No specimens.)

Claim.—A metal alloy consisting of aluminium, a malleable metal, and a metal of high fusing-point in proportions as follows: aluminium, eighty per cent. or more; a malleable metal, such as copper, twelve per cent. or less; a metal of high fusing-point, such as nickel, eight per cent. or less, for the purpose described.

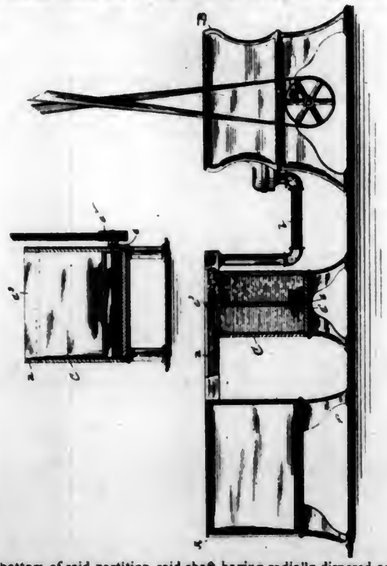
480,446. MEANS FOR PREVENTING SPOTS IN PAPER. ROBERT W. ALLAN, Fairfield, assignor of one-half to Roswell M. Fairfield, Holyoke, Mass. Filed Nov. 12, 1889. Renewed Dec. 31, 1891. Serial No. 416,730. (No model.)

Claim.—1. The combination, with a paper-machine and a screen for screening the stuff prior to its delivery to said machine, of an agitator located between said screen and said machine and means, substantially as described, for compelling the stuff to pass through said agitator in its passage from the former to the latter, substantially as and for the purpose set forth.

2. The combination, with a stuff-screen and a paper-machine, of a conduit leading from the former to the latter and an agitator located in said conduit, substantially as and for the purpose described.

3. The combination, with a stuff-screen and a paper-machine, of a conduit leading from the former to the latter and an agitator located in said conduit, said agitator being composed of a box having a passage-way leading therethrough, which passage-way is in open communication at each end with said conduit, and having located within said passage-way a revoluble shaft provided with radially-disposed arms or paddles, substantially as and for the purpose described.

4. The combination, with a stuff-screen and a paper-machine, of a conduit leading from the former to the latter, a box located beneath said conduit and having its top in open communication with the latter, said box having a centrally-disposed partition extending from a point above the bottom thereof to and within said conduit, and a revoluble shaft located within said box between the bottom of the latter and



the bottom of said partition, said shaft having radially-disposed arms or paddles, arranged and operating substantially as described.

5. The combination, with a paper-machine and a stuff-screen, of a conduit, as *a*, leading to said machine, a pipe, as *b*, leading from said screen into said conduit, box C, located beneath said conduit and having open communication at its upper end with the interior of the latter, said box having partition c^2 centrally located therein and extending upwardly from a point near the bottom thereof to the top of said conduit, and shaft *c*, provided with paddles *c'* and carrying band-pulley c^3, located within said box between the lower end of said partition and the bottom of the box and having its bearings in the ends of said box, arranged and operating substantially as and for the purpose described.

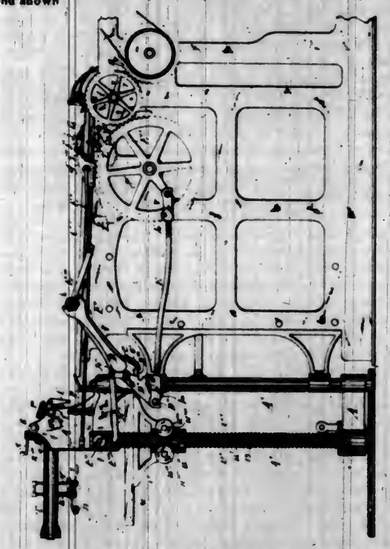
480,447. PAPER-FEEDING MACHINE. THOMAS A. BRIGGS, Arlington, Mass. Filed Nov. 24, 1891. Serial No. 413,989. (No model.)

Claim.—1. In combination with the feed-table of a printing-machine, longitudinal guides on opposite sides of the machine, slides mounted on said guides, a transverse shaft connected to said slides, grippers on said shaft, rock-arms on opposite sides of the machine, stationary segmental gears fixed to the frame concentric to the axis of the rock-arms, shafts journaled on the rock-arms lengthwise thereof, pinions on both ends of said shafts and receiving motion from the stationary gear, shafts journaled transversely to the free ends of the rock-arms, pinions on said transverse shafts meshing with the outer pinions on the rock-arms, pitmen attached to the aforesaid slides, and arms fixed to the transverse shafts on the rock-arms and connected to the pitmen, substantially as described and shown.

2. In combination with the feed-table of a printing-machine, longitudinally-reciprocating slides on opposite sides of said table, a transverse shaft journaled on said slides, a stationary bar at the side of and parallel with the shaft, gripper-hooks mounted on the shaft and sustained in their position by the stationary bar, gripper-tongues fixed to the shaft, and a crank fixed to the end of the shaft for turning the same and opening the grippers, as set forth.

3. In combination with the feed-table of a printing-machine, longitudinally reciprocating slides on opposite sides of said table, a transverse shaft journaled on said slides, a stationary bar by the side of and parallel with the said shaft, gripper-hooks hung loosely on the shaft and sustained in this position by the stationary bar, gripper-tongues fixed to the shaft, a crank on one end of the shaft, a finger pivoted to the slide and connected with the crank, and a stationary stop actuating said finger to open the grippers, as set forth.

4. In combination with the shaft *f*, the stationary bar H, the gripper-hook G, formed with perforated ears G' G' and mounted thereby on said shaft and having shoulders G'' G'', abutting against the stationary bar, and the tongue H, formed with the eye H' and clamped on the aforesaid shaft between the ears G' G', substantially as described and shown.



5. In combination with the feed table of a printing-machine, longitudinal slides on opposite sides of the machine, a gripper-shaft journaled on said slides, a crank on one end of said shaft, a finger pivoted to one of the slides and connected with the crank, and a tripper hung on the frame back of the feed-table in the path of the finger and movable forward and restrained from rearward movement, substantially as described and shown.

6. In a paper-feeding machine, the combination of a transverse shaft provided with a longitudinal groove and the paper-pusher formed with a hook and hung thereby on said shaft and provided with a longitudinal channel in its pendent portion, a spiral spring in the bottom of said channel, and a bolt seated on said spring and forced thereby into engagement with the groove of the shaft, substantially as described and shown.

7. In combination with the rock-shaft *m*, provided with a longitudinal groove, the paper-pushing arm J, formed with a hook J'' and provided with a channel *n*, recess 14, and a slot in its side, a sliding bolt *n'*, and a spring *n''* in said channel, and a set-screw *n'''*, passing through the bolt, substantially as described and shown.

8. In combination with the paper-supporting table and rock-shaft, a transverse shaft over said table, a lever fixed to the rock-shaft, a bell-crank fixed to the transverse shaft and connected at its lower end to the aforesaid lever, arms secured to the transverse shaft, fingers hinged to said arms and inclined forward therefrom, rods attached to the fingers and extending upward therefrom, disks on the said rods, a plate pivoted to the upper end of the bell crank and having its front edge under the disks, a cam pivoted to the frame, an arm attached to the end of said plate, a roller pivoted to the front end of said arm and traveling on said cam, a lug on the end of said arm, and an inclined cam on the frame for engaging the lug and thereby lifting the arm and carrying the roller to the top of the cam, as set forth.

9. The combination of the frame-posts formed with vertical racks, brackets sliding vertically on said posts, the paper-supporting table mounted on the brackets, horizontal shafts extending across the machine and journaled on the brackets, pinions on said shafts, engaging the racks, worm-gears on the shafts, a vertical shaft journaled to the frame, a worm-gear movable vertically on the latter shaft and locked from rotation thereon, a miter-pinion fixed to the end of the vertical shaft, an actuating miter-pinion pivoted to the frame, and a crank turning the latter pinion, as set forth.

10. In combination with the vertically-movable table, vertical racks, pinions engaging the racks and carrying the table, a vertical shaft, gears transmitting motion from said shaft to the pinion, a miter-pinion fastened to the vertical shaft, a similar pinion meshing therewith, a ratchet-wheel fixed to the latter pinion, a pawl engaging said ratchet-wheel, and a rock arm actuating the pawl, as set forth.

11. In combination with the vertically-movable table, vertical racks, pinions engaging said racks and carrying the table, a vertical shaft, gears transmitting motion from said shaft to the pinions, a miter-pinion fixed to the vertical shaft, a stud-pin projecting horizontally from the frame, a miter-pinion mounted loosely on said stud-pin and engaging the miter-pinion of the vertical shaft, a ratchet-wheel fixed to the miter-pinion on the stud-pin, a hanger mounted loosely on the hub of said pinion, a pawl pivoted to said hanger and engaging the ratchet-wheel, a rod connected to the hanger, and a rock-arm connected to said rod, as set forth and shown.

12. In combination with the loosely-mounted pinion, a ratchet-wheel fixed to said pinion, a hanger mounted loosely on the hub of the pinion, a pawl pivoted to the hanger and projecting over the side of the ratchet-wheel, a rod connected to the hanger, a rock-arm connected to said rod, pins projecting from the side of the ratchet-wheel, and a hand-crank provided with a head of greater diameter than the ratchet-wheel and provided in said head with holes for the reception of the aforesaid pins, substantially as and for the purpose described.

13. In combination with the loosely-mounted pinion and ratchet-wheel fixed thereto, a hanger loosely mounted on the hub of said pinion, a pawl pivoted to said hanger, a rock-arm, a crank hung loosely on the shaft of said rock-arm, projections on the adjacent sides of the rock-arm and crank transmitting intermittent motion to the crank, and a rod connecting the crank with the aforesaid hanger, and a lever actuated by the paper-feeding mechanism and returning the pawl to its normal position for re-engaging the ratchet-wheel, as set forth.

14. In combination with the paper-feeding fingers, the vertically-movable table and mechanism for raising and lowering said table, a vertical shaft transmitting motion to said mechanism, a miter-pinion fixed to said shaft, a stud-pin projecting horizontally from the frame, a miter-pinion mounted loosely on said stud-pin, a ratchet-wheel fixed to the latter pinion, a hanger loosely mounted on the hub of said pinion, a pawl pivoted to said hanger, a rock-arm, a crank hung loosely on the shaft of the rock-arm, projections on the adjacent sides of the rock-arm and crank with a partial play between said projections, a rod connecting the crank with the aforesaid hanger, and thereby cause the pawl to actuate the aforesaid ratchet-wheel, a crank-shaft engaging the said rod to return it to its position of rest, a lever adapted to actuate said crank-shaft, an oscillatory lever connected with said lever and lifted by the paper-feeding fingers, and a cam traversed by said oscillating lever, and thereby raising said oscillatory lever, as set forth.

15. In combination with the table-raising mechanism, a loosely-mounted pinion for actuating said mechanism, a ratchet-wheel fixed to said pinion, a pawl connected to an oscillatory support, a rock-arm transmitting motion to said support, a crank-shaft engaging said support, oscillatory paper-feeding fingers, an oscillatory plate lifting said fingers, a cam pivoted to the frame, an oscillatory lever traveling on said cam and actuating the lifting-plate, an oscillatory lever controlled by the oscillating feed-fingers, and a lever connected with said oscillatory lever and adapted to actuate the aforesaid crank-shaft, as set forth.

16. In combination with the rock-shaft *a*, the lever M', shaft *m*, bell-cranks L, L, pitman L', the plate *o* and arm *o'*, both attached to one and the same shaft pivoted to the upper end of the bell cranks, the roller *o''* on the free end of said arm, the pivoted cam *p'*, provided with the weighted arm *p''*, the lug *o'''* and cam *o''''*, attached, respectively, to the arm *o'* and frame, the plate *p* and lever *g*, pivoted to rock simultaneously, the lever *r'*, pivoted to the bell-crank and connected to the lever *g*, the arms J, attached to the shaft *m*, the paper-pushing fingers J', hinged to said arms, rods K, attached to said fingers and having their free ends under the plate *p*, disks K', connected to the rods and lifted by the plate *o*, the crank-shaft *s'*, having the arm *s* in the path of the lever *r'*, the loosely-mounted pinion *t'*, ratchet-wheel *t''*, fixed to said pinion, hanger *t'''*, mounted loosely on the hub of the pinion, the pawl *t''''*, connected to said hanger, the rock-arm D', crank N, actuated by said rock-arm in one direction, and the rod N', connecting said crank with the aforesaid hanger and moving the same in said direction and engaged with the crank *s''* of the aforesaid crank-shaft and moved thereby in the opposite direction, substantially as described and shown.

17. In combination with the frame and paper-supporting table, the vertical flange P' on the base of the frame, the stays P, resting against said flange, the cross bar P'', attached to the frame-heads and formed with a longitudinal T-shaped groove, and the plates Q, secured to the stays and provided with T-heads inserted in the groove of the cross-bar, as set forth.

18. In combination with the stay P and the cross-bar P'', provided with a longitudinal T-shaped groove, the plate Q, formed with a T head, the attaching-bolt passing through said plate and head, and the spring Q', interposed between the head of the bolt and head of the plate, substantially as described and shown.

19. The combination, with the frame and paper-supporting table,

of cross-bars secured to the top and bottom of the frame and paper-sustaining bars supported in vertical positions on said cross-bars and adjustably lengthwise of the latter to allow said vertical bars to be set closely against opposite sides of the pile of paper on the supporting-table, as set forth.

20. The combination, with the frame and paper-supporting table, of horizontal rack-bars extending across the frame, sleeves mounted loosely on said bars, paper-sustaining bars secured to said sleeves, vertical shafts journaled on said bars, and pinions on said shafts engaging the rack-bars, as set forth.

21. In combination with the horizontal rack-bars extending across the machine, sleeves mounted loosely on said bars, vertical journal-boxes on the sleeves split longitudinally, clamping-screws connected to said journal-boxes, vertical shafts in said boxes, pinions on said shafts engaging the rack-bars, and paper-sustaining bars attached vertically to said sleeves, as set forth and shown.

22. In combination with the frame and paper supporting table, laterally-adjustable paper-sustaining bars for engaging the side edges of the paper piled on the table, and paper-separating mechanism carried by said bars to a corresponding position in relation to the pile of paper, as set forth.

23. In combination with the frame and paper-supporting table, cross-bars secured to the frame, vertical bars connected to the cross-bars adjustably lengthwise of the latter, arms extending from the vertical bars, and paper-separating mechanism connected to said arms, as set forth.

24. In combination with the frame and paper-supporting table, cross-bars attached to said frame, sleeves mounted movable laterally on said bars, clamping-screws confining the sleeves on said bars, paper-sustaining bars attached vertically to the said sleeves, arms extending rigidly rearward from said vertical bars, and paper-separating mechanism connected to said arms, all combined to simultaneously adjust said paper-sustaining bars and paper-separating mechanism laterally in their positions in relation to the width of the pile of paper, substantially as set forth.

25. In combination with the frame and paper-supporting table, rack-bars extending across the frame, sleeves mounted loosely on said bars, vertical paper-sustaining bars attached to said sleeves, vertical journal-boxes on said bars split longitudinally, clamping-screws on said boxes, vertical shafts passing through the boxes, pinions on said shafts engaging the rack-bars, cranks on the shafts, arms extending from the vertical bars, and paper-separating mechanism connected to said arms, as set forth.

26. In combination with the frame and paper-supporting table, brackets supported adjustably in their positions in relation to the width of the paper piled on the table, and paper-separating mechanism sliding vertically on said brackets and comprising a finger bearing upon the paper, a finger buckling the paper, and a rotary foot separating the paper, substantially as set forth.

27. In combination with the frame and paper-supporting table, cross-bars attached to said frame, vertical paper-sustaining bars connected to the cross-bars, adjustable lengthwise of the latter, arms extending from said vertical bars, brackets carried on said arms, adjustable lengthwise thereof, and paper-separating mechanism connected to said brackets, as set forth.

28. In combination with the frame and paper-supporting table, laterally-adjustable vertical bars, arms extending horizontally rearward from said bars, oscillatory shafts extending lengthwise of said arms, brackets hung on said shafts, and paper-separating mechanisms connected movable vertically to said brackets and actuated by the aforesaid shaft, as specified.

29. In combination with the frame and paper-supporting table, a rock-shaft, a gear on said shaft, a horizontal shaft parallel with the line of feed, a gear on the latter shaft meshing with that of the rock-shaft, a bracket hung on said horizontal shaft, and paper-separating mechanism connected to said bracket and actuated by the said horizontal shaft, and a paper-buckling finger moving in the direction of the feed of the paper, as set forth.

30. In combination with the frame and paper supporting table, laterally adjustable paper-sustaining bars, arms extending horizontally from said bars, a rock-shaft pivoted to the frame, gears on said shaft, shafts extending lengthwise of said arms, gears on the latter shaft meshing with those of the rock-shaft, brackets hung on the shafts of the arms, and paper-separating mechanisms connected movable vertically to said brackets and actuated by the latter shafts, as set forth.

31. In combination with the frame and paper-supporting table, a rock-shaft extending across the frame, paper-feeding devices connected to said rock-shaft, a horizontal shaft at right angles to the rock-shaft, gears transmitting motion from the said rock-shaft to the said horizontal shaft, a bracket hung on the latter shaft, and paper-separating mechanisms connected to the brackets and actuated by the aforesaid horizontal shaft and movable in the direction of the feed of the paper, as set forth.

32. In combination with the frame and paper-supporting table, laterally-adjustable paper-sustaining bars, arms extending rearward from said bars, shafts extending lengthwise of said arms and pivoted thereto, brackets hung on said shafts, a rock-shaft and gears actuating the aforesaid shafts, paper-feeding devices connected to said rock-shaft, and paper-separating mechanisms connected movable vertically to the brackets and actuated by the shafts of the aforesaid arms, substantially as set forth.

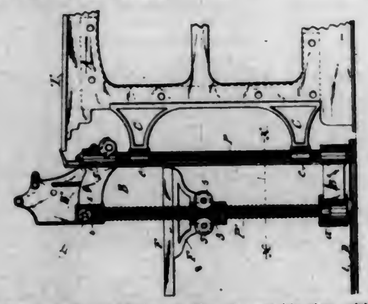
33. In a paper-separating mechanism, the combination of a paper-buckling finger, an arm bearing on the top of the paper in front of said finger, a revoluble foot entering between the buckled top sheet of the said paper between said finger and arm, and frictional rubber bearings secured to the top of said foot, as set forth.

34. In a paper-separating mechanism, the combination, with a paper-buckling finger held in contact with the top of the paper, a friction-block on the bearing end of said finger, a spring-finger bearing on the paper in front of the paper-buckling finger, a vertical revoluble shaft provided with a foot entering beneath the paper buckled between the aforesaid fingers, a lever connected to the paper-buckling finger, and a cam attached to the aforesaid shaft and engaging the said lever and thereby actuating the paper-buckling finger, as set forth.

35. In combination with the paper-supporting table, a horizontal rock-shaft parallel with the line of feed, a bracket connected to said shaft, a vertical shaft sustained movable vertically in the bracket, gears transmitting motion from the horizontal shaft to the vertical shaft, a foot extending from the vertical shaft, a cam affixed to the latter shaft, an oscillatory paper-buckling finger held in contact with the paper back of said foot, a lever extending from the buckling-finger and actuated by the aforesaid cam, and a finger bearing on the paper in front of the aforesaid foot, substantially as set forth and shown.

36. In combination with the paper-supporting table, the rock-shaft *x*, the bracket *y*, provided with ears receiving through them the rock-shaft and provided at the opposite side with vertically-perforated ears *y'* *y''* and vertical guide *y'*, the gear *y'''*, mounted loosely on the shaft between the ears of the bracket, the clutch-collar *x'''*, connected to the shaft, movable longitudinally, and locked to rotate with the shaft, spurs *x*, projecting from the side of said gear and beveled on one side, the spring-bolt *x'* in the adjacent end of the clutch-collar, the rod U, sliding in the vertical guide *y'*, the gear U', journaled in the ears *y''*, the shaft V, passing freely vertically through said gear and locked to rotate with the same, a collar connected in a like manner to said shaft and provided with the finger V'', the cam-ring V', attached to the top of the upper ear *y''*, the cross-bars W W, fixed to the ends of the rods U and provided with journal-bearings for the vertical shaft V, the duplex cam 4 and foot W'', fastened to the said shaft, rubber faces W''', secured to the top of the foot, the lever X, swiveled on the rod, the spring X', holding the said lever in contact with the cam, the sleeve 5, extending from the hub of said lever, the arm 6, secured revolubly in said sleeve, a spring pressing said arm upon the paper, a rubber block fixed to the free end of said arm, the spring-finger 7, pivoted to the cross-bar W, and the lever 7*, extending from said lever and under the cam 4, all combined to operate substantially as described and shown.

480,448. **FEED-MACHINE ATTACHMENT FOR PRINTING-PRESSES.** THOMAS A. BRIGGS, Arlington, Mass. Filed Nov. 24, 1891. Serial No. 412,990. (No model.)

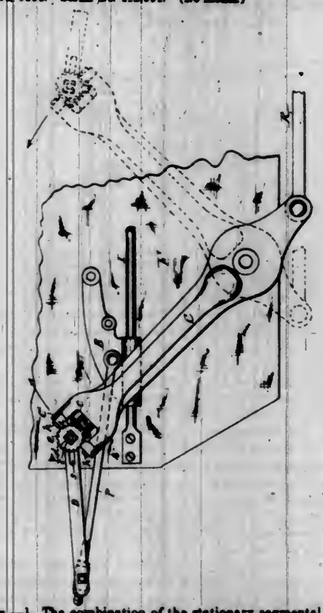


Claim.—1. On a printing-machine, the combination, with the main frame, of a supplemental frame hinged to one side of the feeding end of said main frame, a paper-supporting table carried on said supplemental frame, a segmental track under the latter frame and concentric to the hinge thereof, and a roller connected to the supplemental frame and traversing on the aforesaid track, as set forth and shown.

2. On a printing-machine, the combination, with the main frame A, of the supplemental frame B, hinged to one side of the feeding end of the main frame and formed with a cross-bar B' and with the socket *a* in the under side of said cross-bar and having vertical grooves *a' a'* in opposite sides of said socket, the yoke *b*, seated movable vertically in said grooves, the roller *c*, pivoted to said yoke, and the set-screw *d*, passing through the top of the cross-bar and bearing on top of the yoke, substantially as described and shown.

3. The combination, with the main frame A, of the brackets C C, attached to one side of the feeding end of said frame and provided with the vertical sleeves *e e*, the supplemental frame B, provided with sleeves *e' e'*, the post P, passing through the aforesaid sleeves and hinging the supplemental frame to the main frame, the base-plate D, provided with the socket *f*, having stepped therein the post P and formed with the track *f'* concentric to said socket, the roller *c*, mounted on said track and supporting the central portion of the supplemental frame, and the table F, connected to the post P' adjustably in its elevation, substantially as described and shown.

480,449. **DEVICE FOR CONVERTING OSCILLATORY INTO RECIPROCATING MOTION.** THOMAS A. BRIGGS, Arlington, Mass. Filed Nov. 24, 1891. Serial No. 412,991. (No model.)



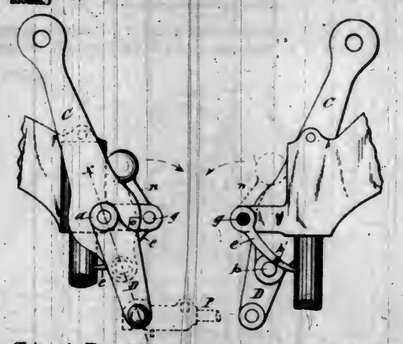
Claim.—1. The combination of the stationary segmental gear A, the rock-arm C, pivoted to the center of said gear, the shaft *a*, extending lengthwise of said arm and journaled thereon, the pinion *b*, fixed to one end of said shaft and engaging the gear A, the miter-pinion *c* on the opposite end of said shaft, the shaft *d*, journaled to the free end of the rock-arm at right angles to the shaft *a*, the pinion *e*, fixed to the shaft *d* and meshing with the pinion *c*, and the arm D, also fixed to the latter shaft to move therewith, as set forth.

2. In combination with the stationary gear A, the rock-arm C, pivoted to the center of said gear, the shaft *a*, extending lengthwise of said rock-arm and journaled thereon, the pinion *b*, fixed to one end of said shaft and engaging the gear A, the miter-pinion *c*, fixed to the opposite end of said shaft, the cap C', attached to the free end of the rock-arm and provided with the journal-bearing *d'* at right angles to the shaft *a*, the shaft *d*, extending through said journal-bearing, the pinion *e*, fixed to one end of the latter shaft and meshing with the pinion *c*, and the arm D, fixed to the opposite end of the shaft *d*, substantially as described and shown.

3. In combination with the guide I and slide B, mounted thereon, the stationary gear A, the rock-arm C, pivoted to the center of said gear, the shaft *a*, journaled on said arm lengthwise thereof, the pinion *b*, fixed to said shaft and engaging the gear A, the pinion *c*, fixed to the opposite end of said shaft, the shaft *d*, journaled to the free end of the rock-arm at right angles to the shaft *a*, the pinion *e*, fixed to one end of shaft *d* and meshing with the pinion *c*, the arm D, fixed to the opposite end of the shaft *d*, and the pitman P, pivotally connected to the free end of the arm D and to the slide B, substantially as described and shown.

4. In combination with the rock-arm C, longitudinal shaft *a*, transverse shaft *d*, and pinions transmitting motion from the longitudinal shaft to the transverse shaft, the arm D, connected longitudinally adjustable to the transverse shaft to regulate the throw of said arm, as set forth.

480,450. **COMPOUND LEVER.** THOMAS A. BRIGGS, Arlington, Mass. Original application filed Nov. 24, 1891, Serial No. 412,989. Divided and this application filed Mar. 5, 1892. Serial No. 423,815. (No model.)



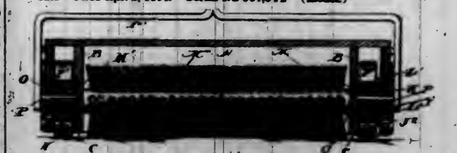
Claim.—1. The combination, with a pivoted lever, of an arm pivoted to said lever, a bolt movably connected to one of said parts and adapted to engage and release the other of said parts, and a gravity-lever actuating the bolt, as set forth.

2. The combination of the pivoted lever C, provided with the eye *c*, the arm D, pivoted to said lever and provided with the socket *d*, the bolt *b*, sliding in the aforesaid eye and adapted to enter the socket, the lug *b'*, projecting laterally from the bolt, and the cam *e*, adapted to be thrown in the path of the lug to automatically unlock the bolt during the movement of the lever, as set forth.

3. In combination with the pivoted lever C, provided with the eye *c*, and the arm D, pivoted to said lever and provided with the socket *d*, the bolt *b*, sliding in the aforesaid eye, a spring forcing said bolt toward the socket *d*, a lug *b'*, projecting laterally from the bolt, a revoluble shaft parallel with the axis of the lever, the cam *e* on said shaft, adapted to fall into the path of the aforesaid lug, and a gravity lever attached to the aforesaid shaft to hold the cam in its requisite position in relation to the lug *b'*, substantially as described and shown.

4. In combination with the lever C, provided with the eye *c*, and the arm D, pivoted to said lever and provided with the socket *d*, the bolt *b*, sliding in said eye and adapted to enter the socket, and the abutment *o*, projecting from the lever and in position to arrest the movement of the arm in one direction and at a point to bring the socket *d* in line with the bolt, substantially as and for the purpose set forth.

480,451. **CARPET-SWEEPER.** HOWARD CADWALADER, Richmond, Ind. Filed Apr. 2, 1891. Serial No. 387,344. (Model.)



Claim.—1. In a carpet-sweeper, the combination of the casing, the adjustable plates secured to the end of the casing, the elastic bearings carried by said plates, the brush arranged in the casing, and the handle bearing in the said elastic bearings and the ends of the brush.

2. In a carpet-sweeper, the combination of a casing having a partition in each end, supporting-rollers mounted in the ends of the casing and having flanged metal hubs and elastic bodies, a brush-shaft mounted in the casing and having elastic rollers engaging the supporting-rollers, plates adjustably secured to the casing and having flanged cups, elastic bearings in said cups, plates having hubs in said bearings, and a bail having studs passing through the bearings into the ends of the brush-shaft.

3. In a carpet-sweeper, the combination of the casing, the adjustable plates secured to the ends of the casing, the elastic bearings carried by said plates, the brush arranged in the casing and carrying elastic rollers, the elastic supporting-rollers engaging said rollers, and the handle bearing in the ends of the brush and the elastic bearings of the plates, substantially as described.

of cross-bars secured to the top and bottom of the frame and paper-sustaining bars supported in vertical positions on said cross-bars and adjustably lengthwise of the latter to allow said vertical bars to be set closely against opposite sides of the pile of paper on the supporting-table, as set forth.

20. The combination, with the frame and paper-supporting table, of horizontal rack-bars extending across the frame, sleeves mounted loosely on said bars, paper-sustaining bars secured to said sleeves, vertical shafts journaled on said bars, and pinions on said shafts engaging the rack-bars, as set forth.

21. In combination with the horizontal rack-bars extending across the machine, sleeves mounted loosely on said bars, vertical journal-boxes on the sleeves split longitudinally, clamping-screws connected to said journal-boxes, vertical shafts in said boxes, pinions on said shafts engaging the rack-bars, and paper-sustaining bars attached vertically to said sleeves, as set forth and shown.

22. In combination with the frame and paper supporting table, laterally-adjustable paper-sustaining bars for engaging the side edges of the paper piled on the table, and paper-separating mechanism carried by said bars to a corresponding position in relation to the pile of paper, as set forth.

23. In combination with the frame and paper-supporting table, cross-bars secured to the frame, vertical bars connected to the cross-bars adjustably lengthwise of the latter, arms extending from the vertical bars, and paper-separating mechanism connected to said arms, as set forth.

24. In combination with the frame and paper-supporting table, cross-bars attached to said frame, sleeves mounted movable laterally on said bars, clamping-screws confining the sleeves on said bars, paper-sustaining bars attached vertically to the said sleeves, arms extending rigidly rearward from said vertical bars, and paper-separating mechanism connected to said arms, all combined to simultaneously adjust said paper-sustaining bars and paper-separating mechanism laterally in their positions in relation to the width of the pile of paper, substantially as set forth.

25. In combination with the frame and paper-supporting table, rack-bars extending across the frame, sleeves mounted loosely on said bars, vertical paper-sustaining bars attached to said sleeves, vertical journal-boxes on said bars split longitudinally, clamping-screws on said boxes, vertical shafts passing through the boxes, pinions on said shafts engaging the rack-bars, cranks on the shafts, arms extending from the vertical bars, and paper-separating mechanism connected to said arms, as set forth.

26. In combination with the frame and paper-supporting table, brackets supported adjustably in their positions in relation to the width of the paper piled on the table, and paper-separating mechanism sliding vertically on said brackets and comprising a finger bearing upon the paper, a finger buckling the paper, and a rotary foot separating the paper, substantially as set forth.

27. In combination with the frame and paper-supporting table, cross-bars attached to said frame, vertical paper-sustaining bars connected to the cross-bars, adjustable lengthwise of the latter, arms extending from said vertical bars, brackets carried on said arms, adjustable lengthwise thereof, and paper-separating mechanism connected to said brackets, as set forth.

28. In combination with the frame and paper-supporting table, laterally-adjustable vertical bars, arms extending horizontally rearward from said bars, oscillatory shafts extending lengthwise of said arms, brackets hung on said shafts, and paper-separating mechanisms connected movable vertically to said brackets and actuated by the aforesaid shaft, as specified.

29. In combination with the frame and paper-supporting table, a rock-shaft, a gear on said shaft, a horizontal shaft parallel with the line of feed, a gear on the latter shaft meshing with that of the rock-shaft, a bracket hung on said horizontal shaft, and paper-separating mechanism connected to said bracket and actuated by the said horizontal shaft, and a paper-buckling finger moving in the direction of the feed of the paper, as set forth.

30. In combination with the frame and paper supporting table, laterally adjustable paper-sustaining bars, arms extending horizontally from said bars, a rock shaft pivoted to the frame, gears on said shaft, shafts extending lengthwise of said arms, gears on the latter shaft meshing with those of the rock-shaft, brackets hung on the shafts of the arms, and paper-separating mechanisms connected movable vertically to said brackets and actuated by the latter shafts, as set forth.

31. In combination with the frame and paper-supporting table, a rock-shaft extending across the frame, paper-feeding devices connected to said rock-shaft, a horizontal shaft at right angles to the rock-shaft, gears transmitting motion from the said rock-shaft to the said horizontal shaft, a bracket hung on the latter shaft, and paper-separating mechanisms connected to the brackets and actuated by the aforesaid horizontal shaft and movable in the direction of the feed of the paper, as set forth.

32. In combination with the frame and paper-supporting table, laterally-adjustable paper-sustaining bars, arms extending rearward from said bars, shafts extending lengthwise of said arms and pivoted thereto, brackets hung on said shafts, a rock-shaft and gears actuating the aforesaid shafts, paper-feeding devices connected to said rock-shaft, and paper-separating mechanisms connected movable vertically to the brackets and actuated by the shafts of the aforesaid arms, substantially as set forth.

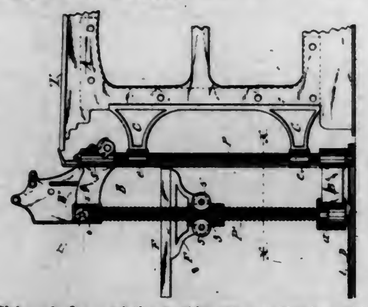
33. In a paper-separating mechanism, the combination of a paper-buckling finger, an arm bearing on the top of the paper in front of said finger, a revoluble foot entering between the buckled top sheet of the said paper between said finger and arm, and frictional rubber bearings secured to the top of said foot, as set forth.

34. In a paper-separating mechanism, the combination, with a paper-buckling finger held in contact with the top of the paper, a friction-block on the bearing end of said finger, a spring-finger bearing on the paper in front of the paper-buckling finger, a vertical revoluble shaft provided with a foot entering beneath the paper buckled between the aforesaid fingers, a lever connected to the paper-buckling finger, and a cam attached to the aforesaid shaft and engaging the said lever and thereby actuating the paper-buckling finger, as set forth.

35. In combination with the paper-supporting table, a horizontal rock-shaft parallel with the line of feed, a bracket connected to said shaft, a vertical shaft sustained movable vertically in the bracket, gears transmitting motion from the horizontal shaft to the vertical shaft, a foot extending from the vertical shaft, a cam affixed to the latter shaft, an oscillatory paper-buckling finger held in contact with the paper back of said foot, a lever extending from the buckling-finger and actuated by the aforesaid cam, and a finger bearing on the paper in front of the aforesaid foot, substantially as set forth and shown.

36. In combination with the paper-supporting table, the rock-shaft x, the bracket y, provided with ears receiving through them the rock-shaft and provided at the opposite side with vertically-perforated ears y'' y'' and vertical guide y', the gear y''', mounted loosely on the shaft between the ears of the bracket, the clutch-collar y''', connected to the shaft, movable longitudinally, and locked to rotate with the shaft, spurs z, projecting from the side of said gear and beveled on one side, the spring-bolt x' in the adjacent end of the clutch-collar, the rod U, sliding in the vertical guide y', the gear U', journaled in the ears y'', the shaft V, passing freely vertically through said gear and locked to rotate with the same, a collar connected in a like manner to said shaft and provided with the finger V'', the cam-ring V', attached to the top of the upper ear y'', the cross-bars W W, fixed to the ends of the rods U and provided with journal-bearings for the vertical shaft V, the duplex cam 4 and foot W'', fastened to the said shaft, rubber faces W''', secured to the top of the foot, the lever X, swiveled on the rod, the spring X', holding the said lever in contact with the cam, the sleeve 5, extending from the hub of said lever, the arm 6, secured revolubly in said sleeve, a spring pressing said arm upon the paper, a rubber block fixed to the free end of said arm, the spring-finger 7, pivoted to the cross-bar W, and the lever 7*, extending from said lever and under the cam 4, all combined to operate substantially as described and shown.

480,448. **FEED-MACHINE ATTACHMENT FOR PRINTING-PRESSES.** THOMAS A. BRIGGS, Arlington, Mass. Filed Nov. 24, 1891. Serial No. 412,990. (No model.)

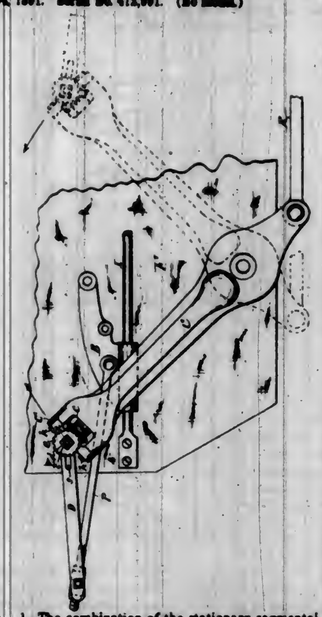


Claim.—1. On a printing-machine, the combination, with the main frame, of a supplemental frame hinged to one side of the feeding end of said main frame, a paper-supporting table carried on said supplemental frame, a segmental track under the latter frame and concentric to the hinge thereof, and a roller connected to the supplemental frame and traversing on the aforesaid track, as set forth and shown.

2. On a printing-machine, the combination, with the main frame A, of the supplemental frame B, hinged to one side of the feeding end of the main frame and formed with a cross-bar B' and with the socket a in the under side of said cross-bar and having vertical grooves a' a' in opposite sides of said socket, the yoke b, seated movable vertically in said grooves, the roller c, pivoted to said yoke, and the set-screw d, passing through the top of the cross-bar and bearing on top of the yoke, substantially as described and shown.

3. The combination, with the main frame A, of the brackets C C, attached to one side of the feeding end of said frame and provided with the vertical sleeves e e, the supplemental frame B, provided with sleeves e d, the post F, passing through the aforesaid sleeves and hinging the supplemental frame to the main frame, the base-plate D, provided with the socket f, having stepped therein the post F' and formed with the track t concentric to said socket, the roller c, mounted on said track and supporting the central portion of the supplemental frame, and the table F, connected to the post F' adjustably in its elevation, substantially as described and shown.

480,449. **DEVICE FOR CONVERTING OSCILLATORY INTO RECIPROCATING MOTION.** THOMAS A. BRIGGS, Arlington, Mass. Filed Nov. 24, 1891. Serial No. 412,991. (No model.)



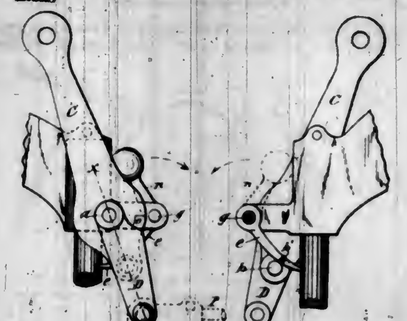
Claim.—1. The combination of the stationary segmental gear A, the rock-arm C, pivoted to the center of said gear, the shaft a, extending lengthwise of said arm and journaled thereon, the pinion b, fixed to one end of said shaft and engaging the gear A, the miter-pinion c on the opposite end of said shaft, the shaft d, journaled to the free end of the rock-arm at right angles to the shaft a, the pinion e, fixed to the shaft d and meshing with the pinion c, and the arm D, also fixed to the latter shaft to move therewith, as set forth.

2. In combination with the stationary gear A, the rock-arm C, pivoted to the center of said gear, the shaft a, extending lengthwise of said rock-arm and journaled thereon, the pinion b, fixed to one end of said shaft and engaging the gear A, the miter-pinion c, fixed to the opposite end of said shaft, the cap C', attached to the free end of the rock-arm and provided with the journal-bearing d' at right angles to the shaft a, the shaft d, extending through said journal-bearing, the pinion e, fixed to one end of the latter shaft and meshing with the pinion c, and the arm D, fixed to the opposite end of the shaft d, substantially as described and shown.

3. In combination with the guide I and slide B, mounted thereon, the stationary gear A, the rock-arm C, pivoted to the center of said gear, the shaft a, journaled on said arm lengthwise thereof, the pinion b, fixed to said shaft and engaging the gear A, the pinion c, fixed to the opposite end of said shaft, the shaft d, journaled to the free end of the rock-arm at right angles to the shaft a, the pinion e, fixed to one end of shaft d and meshing with the pinion c, the arm D, fixed to the opposite end of the shaft d, and the pitman P, pivotally connected to the free end of the arm D and to the slide B, substantially as described and shown.

4. In combination with the rock-arm C, longitudinal shaft a, transverse shaft d, and pinions transmitting motion from the longitudinal shaft to the transverse shaft, the arm D, connected longitudinally adjustable to the transverse shaft to regulate the thrust of said arm, as set forth.

480,450. **COMPOUND LEVER.** THOMAS A. BRIGGS, Arlington, Mass. Original application filed Nov. 24, 1891, Serial No. 412,989. Divided and this application filed Mar. 5, 1892. Serial No. 423,616. (No model.)



Claim.—1. The combination, with a pivoted lever, of an arm pivoted to said lever, a bolt movably connected to one of said parts and adapted to engage and release the other of said parts, and a gravity-lever actuating the bolt, as set forth.

2. The combination of the pivoted lever C, provided with the eye c, the arm D, pivoted to said lever and provided with the socket d, the bolt b, sliding in the aforesaid eye and adapted to enter the socket, the lug b', projecting laterally from the bolt, and the cam e, adapted to be thrown in the path of the lug to automatically unlock the bolt during the movement of the lever, as set forth.

3. In combination with the pivoted lever C, provided with the eye c, and the arm D, pivoted to said lever and provided with the socket d, the bolt b, sliding in the aforesaid eye, a spring forcing said bolt toward the socket d, a lug b', projecting laterally from the bolt, a revoluble shaft parallel with the axis of the lever, the cam e on said shaft, adapted to fall into the path of the aforesaid lug, and a gravity lever attached to the aforesaid shaft to hold the cam in its requisite position in relation to the lug b', substantially as described and shown.

4. In combination with the lever C, provided with the eye c, and the arm D, pivoted to said lever and provided with the socket d, the bolt b, sliding in said eye and adapted to enter the socket, and the abutment o, projecting from the lever and in position to arrest the movement of the arm in one direction and at a point to bring the socket d in line with the bolt, substantially as and for the purpose set forth.

480,451. **CARPET-SWEEPER.** HOWARD CADWALADER, Richmond, Ind. Filed Apr. 2, 1891. Serial No. 387,344. (Model.)



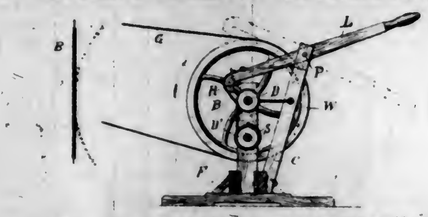
Claim.—1. In a carpet-sweeper, the combination of the casing, the adjustable plates secured to the end of the casing, the elastic bearings carried by said plates, the brush arranged in the casing, and the handle bearing in the said elastic bearings and the ends of the brush.

2. In a carpet-sweeper, the combination of a casing having a partition in each end, supporting-rollers mounted in the ends of the casing and having flanged metal hubs and elastic bodies, a brush-shaft mounted in the casing and having elastic rollers engaging the supporting-rollers, plates adjustably secured to the casing and having flanged caps, elastic bearings in said caps, plates having hubs in said bearings, and a bail having studs passing through the bearings into the ends of the brush-shaft.

3. In a carpet-sweeper, the combination of the casing, the adjustable plates secured to the ends of the casing, the elastic bearings carried by said plates, the brush arranged in the casing and carrying elastic rollers, the elastic supporting-rollers engaging said rollers, and the handle bearing in the ends of the brush and the elastic bearings of the plates, substantially as described.

4. In a carpet-sweeper, the combination of a casing, yielding or elastic supporting-rollers having flanged metal hubs mounted in the casing, a brush having elastic or yielding rollers engaging the supporting-rollers, adjustable plates connected to the ends of the casing and having flanges forming bearing-boxes, elastic or yielding bearings arranged in said boxes, plates having hubs fitting into said yielding bearings, a bail having studs bearing in the brush and the adjustable bearings, and a handle.

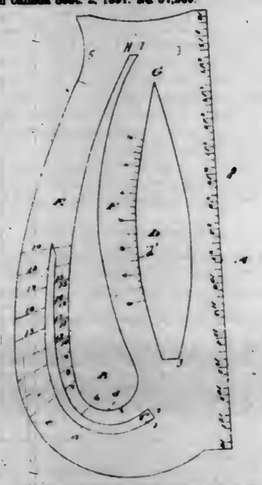
480,452. MANUAL-POWER MACHINE. WARREN K. CROFFORD, New York, N. Y. Filed Aug. 31, 1891. Serial No. 404,362. (No model.)



Claim.—1. The combination, in a manual-power machine, of a lever, a continuous driving-belt fastened to said lever and wound spirally one or more times around a drum on the driving-shaft and one or more times around a take-up drum and fastened to the latter, and said drums, substantially as set forth.

2. The combination, in a manual-power machine, of a lever, the driving flexible connection, the drum and balance-wheel rigid with each other and with the shaft, and an automatic take-up for said flexible connection, said flexible connection being spirally wound around said drum and being thence directly connected at one end with said lever and at the other end to said automatic take-up, substantially as set forth.

480,453. CHART FOR DRAFTING GARMENTS. SAMUEL G. CROW, Toronto, Canada. Filed Dec. 3, 1891. Serial No. 413,894. (No model.) Patented in Canada Sept. 2, 1891. No. 37,289.

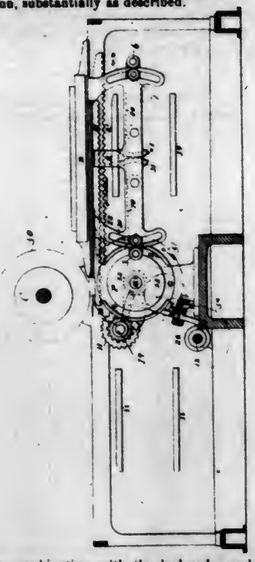


Claim.—The chart herein described, having a straight-edge A with a scale thereon and its opposite edge curved and having three openings B, C, and D, forming the curved edges *a b c d* E F, the edges *a b d* being adapted for grading the arm-scye for the different sizes of garments, the edge *d* for marking the shoulder and darts, the edge E for marking the under arm-seam, and the edge F for marking the side form, all substantially as shown and described.

480,454. BED-MOTION FOR CYLINDER PRINTING-MACHINES. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed May 9, 1892. Serial No. 432,362. (No model.)

Claim.—1. The combination, with the reciprocating bed, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, and two revolving guards co-operating with said pocket to alternately engage the outer ends of said levers and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same, substantially as described.

2. The combination, with the reciprocating bed, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, two revolving guards co-operating with said pocket to alternately engage the outer ends of said levers, and a curved guide at each end of the bed, in which the outer ends of said levers travel, whereby the motion of the bed is reversed at each end of its run, substantially as described.



3. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, and two revolving guards co-operating with said pocket to alternately engage the outer ends of said levers and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same, substantially as described.

4. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, two revolving guards co-operating with said pocket to alternately engage the outer ends of said levers, and a curved guide at each end of the bed, in which the outer ends of said levers travel, whereby the motion of the bed is reversed at each end of its run, substantially as described.

5. The combination, with the moving bed, the two levers pivoted thereto and connected so as to conjointly swing in opposite directions, a revolving pocket, and a revolving guard co-operating therewith, of guide-rails, as 31 32 or 33 34, for supporting said levers in the upper or lower positions to which they are moved by the pocket and guard substantially as described.

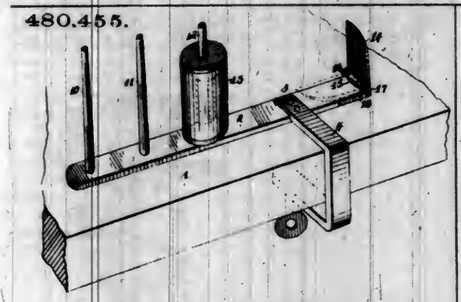
6. The combination, with the reciprocating bed, two levers pivoted thereto and connected so as to conjointly swing in opposite directions, a revolving pocket, and two revolving guards co-operating therewith, of guide-rails 31, 32, 33, and 34 for supporting said levers in the upper and lower positions to which they are moved by the pocket and guards, substantially as described.

7. The combination of the pocket-disk, shaft 12, pinions 10 11, shaft 13, pinion 28, and movable guard-disks, substantially as described.

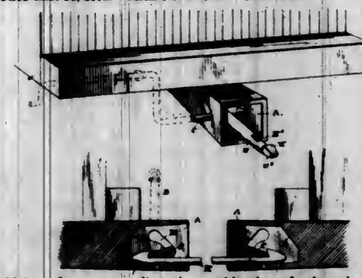
480,455. COMBINED SPOOL-HOLDER AND THREAD-CUTTER. ANDREAS BICHSORN, St. Louis, Mo., assignor of one-half to Andrew Frank, same place. Filed May 30, 1892. Serial No. 433,715. (No model.)

Claim.—As an improvement in combined spool-holders and thread-cutters, the combination, with a horizontal base-plate provided with spindles secured thereto and with a clamp, of a folding cutting-blade hinged to one end of said base-plate and adapted when opened to occupy a vertical position, substantially as and for the purpose set forth.

480,455.

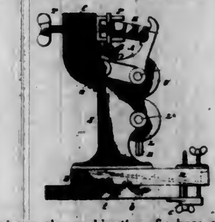


480,456. CAR-COUPLING. THOMAS W. FELTON, San Gabriel, Tex. Filed Mar. 31, 1892. Serial No. 427,308. (No model.)



Claim.—In a car-coupling, the combination of a draw-head having slots in the sides thereof arranged at an angle of inclination, a dog of wedge shape mounted in said draw-head and having arms loosely bearing in said slots and normally seated in the lowermost or front portion of said slots to thereby hold the dog in locking position, and a coupling-link having shouldered heads at opposite ends thereof adapted to be engaged by said dog, substantially as described.

480,457. WRINGING-MACHINE. JOHN W. FINDLAY, Lowell, Mass. Filed Aug. 7, 1891. Serial No. 401,996. (No model.)



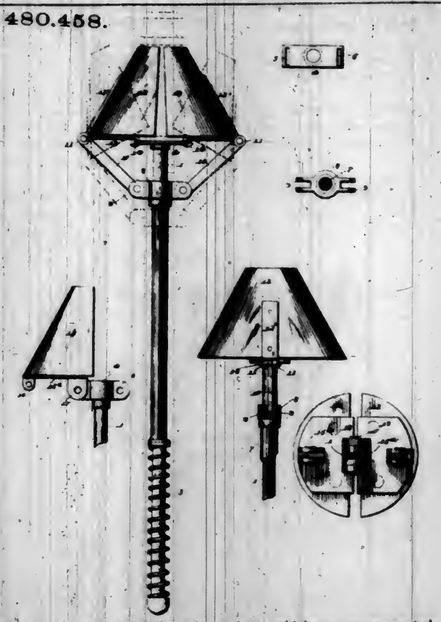
Claim.—In a wringer, the combination of a base, standards rising therefrom, a roller journaled in said standards, a crank-handle on the shaft of said roller, L-shaped arms pivoted at one end to said standards and their other ends connected by a bar extending transversely across the machine, an upper roller journaled in the elbows of said arms, a cross-bar connecting the top of the standards, a set-screw extending horizontally through said cross-bar, a leaf-spring having its ends freely engaging the said bar, extending transversely across the machine, and arranged in a substantially horizontal position to thereby normally force the roller carried by the said L-shaped arms downward against the roller journaled in the standards, a plate bearing against the central portion of said spring and having the tip of the screw bearing against its face, and means for causing the upper roller to rotate simultaneously with and opposite to the direction of rotation of the lower roller, substantially as described.

480,458. BOTTLE-SNAP. JONATHAN FITHIAN, Bridgeton, N. J. Filed Jan. 23, 1892. Serial No. 419,554. (No model.)

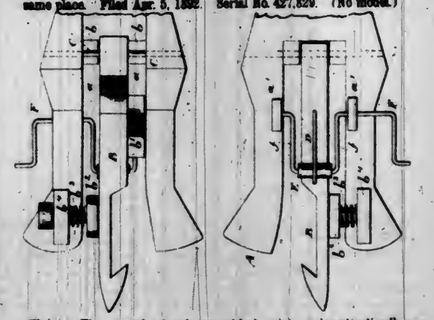
Claim.—1. A bottle snap or holder comprising suitably-shaped jaws hinged at or near their inner lower adjacent edges to a suitable rigid cap or ears on the handle, a sliding sleeve or tube on the handle, held by a spring normally in elevated position, and suitable ears upon the upper end of said sliding tube or sleeve, which ears are connected directly to the outer lower edges of the jaws by single bars or links pivoted at each end, substantially as set forth.

2. In a bottle-snap, suitably-shaped holding jaws having their inner lower adjacent edges hinged directly to the end of the handle by a single common pivot-bolt or rivet and their outer lower edges directly connected to a sliding tube or sleeve on said handle by single bars or links pivoted at each end, substantially as set forth.

480,458.



480,459. CAR-COUPLING. WASHINGTON H. FOSTER, Concord, N. C., assignor of one-half to Hampton C. Howell and William H. Bradford, same place. Filed Apr. 5, 1892. Serial No. 427,829. (No model.)

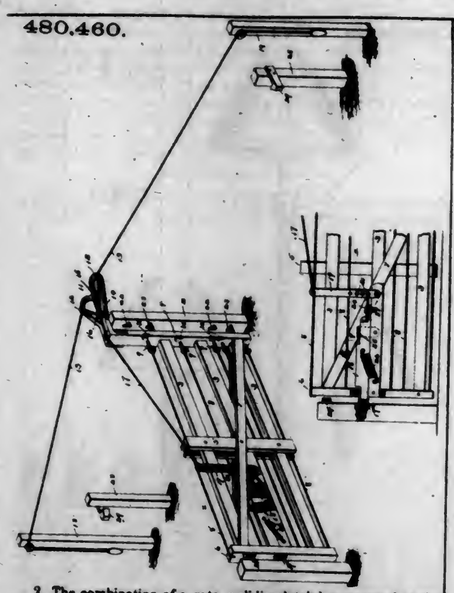


Claim.—The coupler-hook provided with a longitudinally-arranged keeper on its bottom, in combination with a hand-crank shaft arranged in bearings on and under the draw-head, whereby the uncoupling may be done in the manner set forth.

480,460. GATE. JASPER M. FROST, Sheeth, Ind. Filed Apr. 5, 1892. Serial No. 427,862. (No model.)

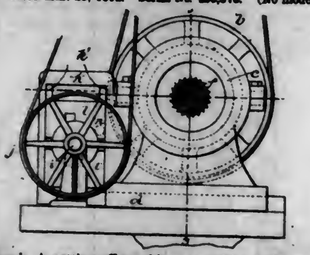
Claim.—1. The combination, with a gate provided with a latch, of an approximately triangular frame constructed of metal and secured to the gate and having an inwardly-extending angular base 11, pulleys mounted on the frame at the ends of the base, a latch-wire connected with the latch and provided at its rear end with a block arranged within the frame, and the operating-ropes having their inner adjacent ends secured to the frame at the angle of the base and passing through the block and around the pulleys and extending from the gate in opposite directions, substantially as described.

480,460.



2. The combination of a gate, a sliding latch-bar mounted on the gate, a vertically-disposed lever provided with a series of perforations and fulcrumed on the gate, a wire connecting the latch-bar with the lever and composed of two sections having their outer ends connected to the latch-bar and to the lever and having their adjacent ends provided with enlarged eyes linked into each other and having a limited movement on each other to permit the latch-bar to move independently of the lever, a spring holding the latch-bar normally extended, and operating-ropes connected with the lever, substantially as described.

480,461. CUTTING-OFF MACHINE. JOHN A. GILMORE, Boston, Mass. Filed Mar. 25, 1892. Serial No. 426,373. (No model.)



Claim.—1. A cutting-off machine comprising in its construction a cutter consisting of a disk having a central aperture or opening and provided on the edge of this opening with cutting-teeth, as set forth.

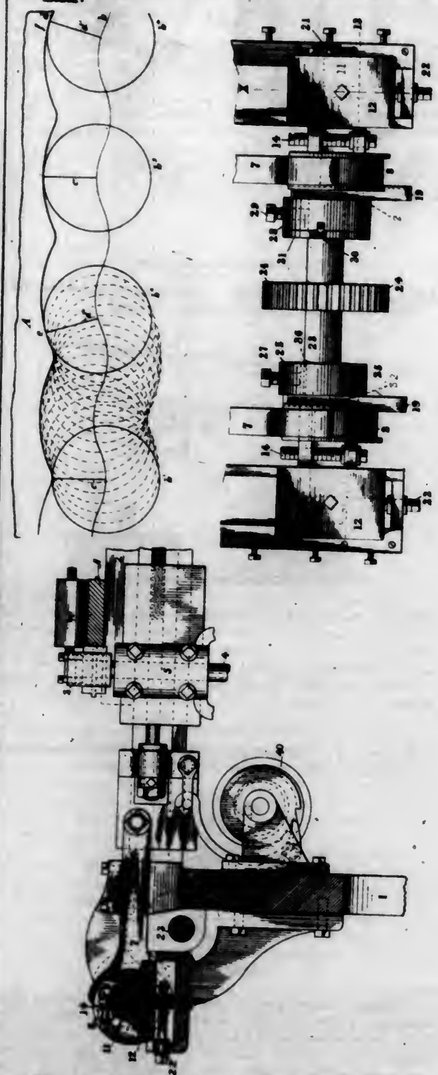
2. A cutting-off machine comprising in its construction a cutter consisting of a disk provided centrally with an opening and having cutting-teeth on the edge of this opening and a movable support for the cutter, as set forth.

3. A cutting-off machine comprising in its construction a pulley and a cutter consisting of a disk supported at its periphery in said pulley and provided centrally with an opening and having cutting-teeth on the edge of this opening, as set forth.

4. A cutting-off machine comprising in its construction a cutter consisting of a disk provided centrally with an opening and having cutting-teeth on the edge of this opening, a movable support for the cutter, adapted to be reciprocated, and means, substantially as described, for reciprocating the said support, as set forth.

5. In a cutting-off machine, a cutter consisting of a disk having a central opening and provided with cutting-teeth on the edge of this opening, said cutter mounted on a support adapted to reciprocate, and means, substantially as herein shown and described, whereby the cutter may enter the material at a speed which slackens as the cutter proceeds.

480,462. MEANS FOR ORNAMENTING WOOD. CHARLES L. GOEHRING, Allegheny, Pa. Filed Sept. 6, 1890. Serial No. 364,163. (No model.)



Claim.—1. In a wood-working machine, the combination, with feeding mechanism for advancing the material, of a rotary cutter-head, a rotary eccentric or crank for operating the cutter toward and from or over the material at an angle to the line of feed, and mechanism for varying the speed of the eccentric during its rotation, substantially as described.

2. In a wood-working machine, the combination, with feeding mechanism for advancing the material, of a rotary cutter-head, a rotary eccentric or crank of determined throw for operating the cutter toward and from the center line of the material at an angle to the line of feed, and mechanism for varying the speed of the eccentric during its rotation, substantially as described.

3. The combination, with a movable frame, a cutter-head mounted thereon, and an eccentric cam reciprocating said frame, of a shaft, a crank-pin thereon engaging with and rotating the eccentric, and means for adjusting the crank and cam relative to the rotary center of the latter, substantially as described.

4. The combination, with a movable frame, a cutter-head mounted thereon, and an eccentric cam for reciprocating said frame, of a shaft, a crank-pin thereon engaging with and operating the eccentric, said eccentric and shaft being adjustable relative to each other in a plane parallel with the movement of the movable frame, whereby the position of the pin relative to the center of rotation of the cam may be changed, substantially as described.

5. The combination, with a movable frame, a cutter-head mounted thereon, a movable block, and a rotary eccentric cam mounted upon the block and connected to the frame for reciprocating it, of a rotary shaft mounted in stationary bearings and having a crank-pin for rotating the cam, substantially as described.

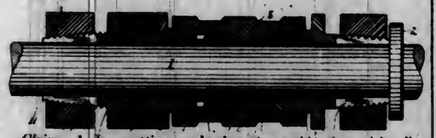
6. The combination, with a movable frame, a cutter-head mounted thereon, a movable block, and a rotary eccentric cam mounted on it having the groove in its face and connected to the frame for reciprocating it, of a rotary shaft and a crank-pin thereon operating in the groove in the cam, substantially as described.

7. The combination, with the movable frame, a cutter-head thereon, an adjustable eccentric cam, of a rotary shaft having a crank-pin co-operating with the cam and rotating it, said cam and shaft being adjustable relative to each other, whereby the position of the pin relative to the center of rotation of the cam can be adjusted, substantially as described.

8. The combination, with the rotary shaft having the two crank-pins thereon adjustable relative to each other, of two movable frames, each carrying a cutter-head, two eccentric cams, one connected to each head and each cam operated upon by one of the crank-pins and adjustable relative to the shaft, whereby the position of the pins relative to the center of rotation of the cams can be adjusted, substantially as described.

9. The combination, with the rotary shaft having the crank-pin and sliding block thereon, of the cam having the slot or way for said block, the movable block in which the cam is mounted, the movable frame and the cutter-head thereon, and connections between said frame and the cam for causing the reciprocation of the former by the rotation of the latter, substantially as described.

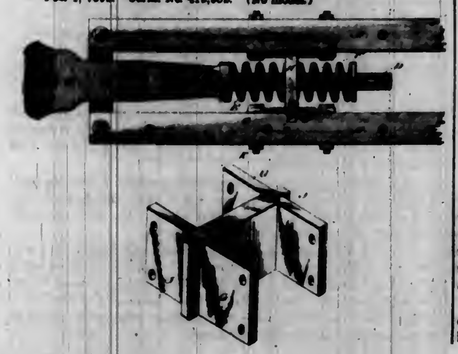
480,463. CUTTER-HEAD. CHARLES L. GOEHRING, Allegheny, Pa. Filed Jan. 5, 1891. Renewed July 6, 1892. Serial No. 439,153. (No model.)



Claim.—1. In a cutting mechanism, the combination, with a live spindle or shaft, of a cutter-head comprising bit-holding devices and a supporting-sleeve or tubular portion encircling the shaft, said sleeve being slotted at points on opposite sides of the cutters or bits and provided with compressing or wedging devices, such as nuts 12, operating to compress the slotted sections of said sleeve and cause it to firmly bind upon the spindle, substantially as described.

2. The combination of the live spindle, the sleeve with split externally-tapered ends, the conical nuts engaging the tapered sections, the bit-clamping sections formed upon the sleeve, and the co-operating bit-clamping section adjustably mounted upon the sleeve, substantially as described.

480,464. DRAW-BAR GUIDE FOR CARS. JOHN L. GUINN, Somerset, Ky., assignor of one-half to John R. Thornton, same place. Filed Feb. 1, 1892. Serial No. 419,962. (No model.)



Claim.—1. The combination, with the longitudinal bars, of the guide consisting of the long side plates, central web and ribs secured to the bars, the draw-bar bearing in the central web and having the shoulders on each side of the web and the round coiled springs around the bar bearing against the shoulders.

2. The combination of the bars having the recesses, the plates unconnected at their ends and secured to the bars and engaging the recesses, the central web having an opening, and the draw-bar bearing in the opening and having the springs around the same.

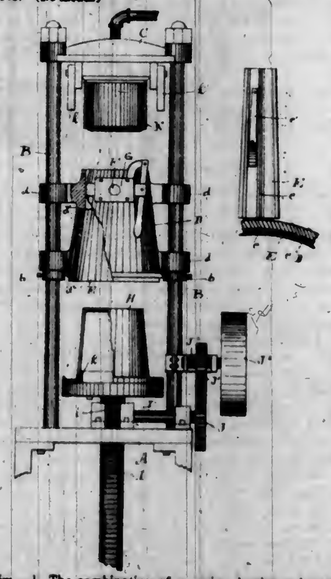
3. The guide or bearing consisting of the longitudinal plates, the thick central web, and the central exterior ribs of less thickness than the central rib or web, and the plates being unconnected at their ends, whereby the casting is easily and cheaply made and may be quickly applied and removed.

480,465. WHIFFLETREE-HOOK. HENRY E. HARRIS, Triumph, Minn. Filed Mar. 30, 1892. Serial No. 427,063. (No model.)



Claim.—The herein-described improvement in whiffletree-hooks, the same comprising a casting adapted to be fitted over the end of the whiffletree and having upon its rear edge an inwardly-extended arm C and upon its opposite side a hook, the semi-annular flange E, extending beyond the end of the whiffletree, and the gravity-latch pivoted to the end of the whiffletree within the flange E and adapted to normally close the space between the end of the hook and the whiffletree, substantially as shown and described, and for the purpose specified.

480,466. PRESS FOR FORMING HOLLOW ARTICLES FROM PULP. EBER HUBBARD, Chicago, Ill. Filed July 15, 1891. Serial No. 399,575. (No model.)



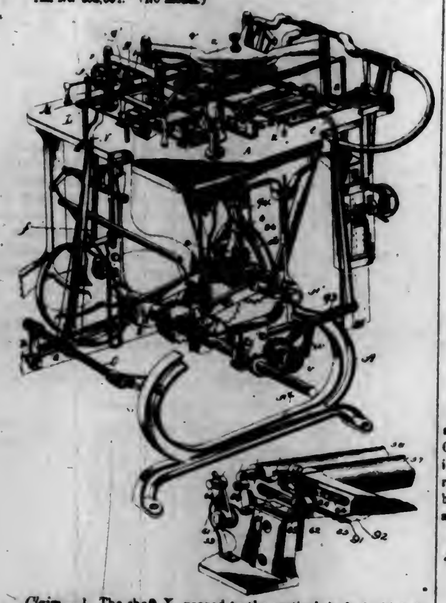
Claim.—1. The combination of a casing having a lower flaring portion and an upper cylindrical portion, overlapping staves or sections lining the inside of said flaring portion and having a longitudinal motion whereby they are expanded and contracted, a former adapted to enter the flaring end of said casing and to move said sections longitudinally as it enters said casing, and a plunger working in the cylindrical portion of said casing, substantially as described.

2. A casing having an upper cylindrical portion, a plunger moving therein, and a lower flaring portion, overlapping staves or sections lining said flaring portion in such a manner as to have a longitudinal

movement, the upper ends of said staves or sections forming when in their highest position a continuation of said cylindrical portion, combined with a former adapted to be inserted into the flaring end of said casing, and a shoulder on said former, adapted to impinge against the lower ends of said staves and to force them upward and contract them about said former, substantially as described.

3. The combination of a casing having a cylindrical upper and a conical lower portion, vertical guides in which said casing is adapted to slide, a plunger fixed above said casing and adapted to enter its upper portion, a sectional lining for the lower portion of said casing, said lining having a longitudinal motion within the casing, whereby it is expanded and contracted, a former below said casing and adapted to enter its lower end, and means for raising and lowering said former, substantially as described.

480,467. **PRINTING APPARATUS.** JAMES W. HUTT and ARTHUR J. PHILLIPS, Toronto, Canada. Original application filed Jan. 2, 1891, Serial No. 376,608. Divided and this application filed Aug. 7, 1891. Serial No. 402,061. (No model.)



Claim.—1. The shaft X, geared to the vertical shaft *f*, which derives its motion from the main shaft A, and a shaft A, geared to the shaft X and to the shaft *i*, in combination with the fount-roller 57, the inking-rollers J, geared to and deriving motion from the shaft *i*, and a cam-disk 60, fixed to the shaft *i* and operating the roller 58, substantially as and for the purpose specified.

2. The roller 58, journaled at each end on a crank-arm 78, and the crank-arm 79, fixed to the shaft of the crank-arm 78 and having a projecting friction-roller 80, in combination with the revolving cam 60 and spring 61, substantially as and for the purpose specified.

3. A ratchet-wheel 64, fixed to the spindle 81 of the roller 57, and a pawl 63, pivoted on the slide 62 and engaging with the ratchet-wheel 64, in combination with the cam-disk 60 and spring 65, arranged substantially as and for the purpose specified.

4. The combination, with the roller 57, ratchet-wheel 64 on the shaft of said roller 57, the slide 62, carrying a pawl, the spring 65, and means for giving said slide motion in opposition to the spring, of an adjustable stop 66, arranged and operating substantially as described.

5. The combination, with the platen Z and means for feeding the blanks under the same, of an upwardly-curved guard 89, arranged substantially as and for the purpose specified.

480,468. **SHEAF-CARRIER FOR HARVESTER-BINDERS.** LYMAN M. JONES and JAMES K. WEDLAKE, Toronto, Canada, assignors to the Massey-Harris Company, Limited, same place. Filed Dec. 10, 1891. Serial No. 414,622. (No model.)

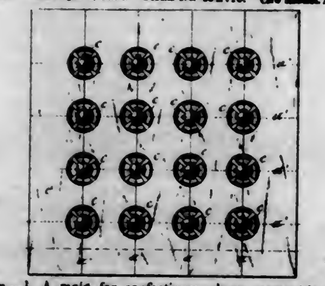
Claim.—1. In a sheaf-carrier, a series of fingers located at the discharge side of the binder-table, each finger independently carried on a horizontal journal-box provided with a vertical stud fitted into a suitable bearing-box on a rocking bar H, in combination with the arm O, reciprocating slotted bar P, and mechanism for giving the desired motion to said rocking bar H and the arm O, substantially as and for the purpose specified.

2. A rolling rod E, suitably journaled to the frame of the machine and having a double crank F formed at its lower end, and a bracket G, fixed to a journaled rock-shaft H and connected to the crank F, in combination with a series of fingers J, independently journaled in journal-boxes M, each journal-box having a vertical stud N, which is journaled in a bracket fixed to the rock-shaft H, and intermediate connection between said boxes M and the double crank, substantially as and for the purpose specified.



3. In a sheaf-carrier, a series of fingers J, each finger carried in a pivoted journal-box M, mounted on a rock-shaft H, having a bracket G, and each journal-box connected to a bar P, having a slot R made in it, in combination with the rod Q, working in said slot, crank F, rock-shaft E, carrying said crank, and connections between said bracket G and crank F, all arranged and operating substantially as and for the purpose specified.

480,469. **CANDY-MOLD.** MARCUS M. JUNE, Syracuse, N. Y., assignor of two-thirds to Orson Coville and Truman H. Whitcomb, same place. Filed Sept. 4, 1891. Serial No. 404,713. (No model.)



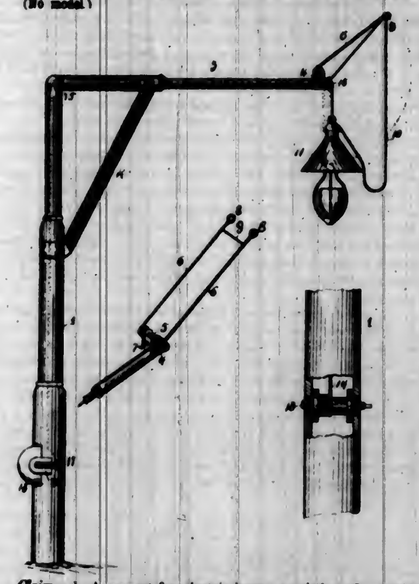
Claim.—1. A mold for confectionery-drops, comprising a bed formed with matrices in its surface and slitted to render it flexible across the said matrices and ties yieldingly holding the bed in its normal position, as set forth.

2. A confection-drop mold composed of a bed of hard material formed with matrices in its surface and divided into separable sections on lines passing through the matrices and ties yieldingly holding the bed in its normal position, as set forth.

3. A confection-drop mold composed of a bed formed with matrices in its surface and divided into separable sections on lines passing through the matrices and having channels extending through it parallel with the plane of the said bed and at right angles to the lines of its separations and spring-ties in said channels holding the bed in its normal position, as described and shown.

4. A confection-drop mold composed of a bed of hard material formed with matrices in its surface and divided into separable sections on lines passing through the matrices, elastic ties holding the bed in its normal position, and facings of rubber in the matrices, substantially as described and shown.

480,470. **SUPPORTING DEVICE FOR ELECTRIC-ARC LAMPS.** JOHN MAIER, St. Louis, Mo. Filed Dec. 11, 1891. Serial No. 414,698. (No model.)



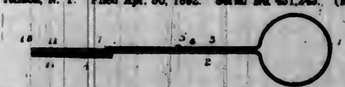
Claim.—1. A support for electric lamps, consisting of a vertical post, supports, such as 2, and horizontal supports, such as 3, an operating-rope attached to the lamp and passed through said horizontal support and post and connected to a suitable reel, and a suitable device secured to the free end of said support for elevating or raising the line-wires leading to the said lamp, substantially as set forth.

2. A support for lamps of the class described, consisting of a hollow support or post 1, support 3, and brace 2, line-wires passing through the said posts, brace, and support and connected to a lamp, and a reel mounted in the lower end of the said post, around which a rope is adapted to be wound, said rope passing over a suitable pulley and through said support 3 to the lamp for raising and lowering the same, substantially as set forth.

3. A support for electric lamps, consisting of a hollow post 1, brace 2, and support 3, a clip secured to the free end of the said support, spring arms, such as 6, secured to the said clip for suspending the line-wires leading to the lamp, and a rope attached to the said lamp and passing through said support and post and attached to a suitable reel mounted near the base of the said post, substantially as set forth.

4. A support for electric-arc lamps, consisting of a hollow post 1, brace 2, and a support 3, a reel mounted in the lower end of the said post, a rope connected to the said reel and adapted to be wound thereon and the opposite end of said rope passing up the post 1 and through the support 3 and attached to the lamp, a clip, such as 7, secured to one end of the said support 3, and a shaft, such as 5, passing through the said clip, arms, such as 6, having coiled ends and in suitable connection with the said clip, and eyes, such as 8, formed in the upper ends of the said arms, through which eyes the line-wires are adapted to pass for supporting the same, substantially as set forth.

480,471. **DENTAL MOISTENING-PAD.** GEORGE W. MELOTTE, Ithaca, N. Y. Filed Apr. 30, 1892. Serial No. 431,243. (No model.)

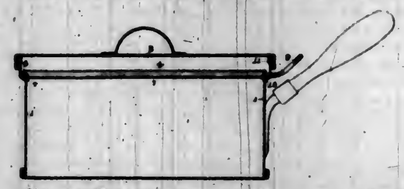


Claim.—1. A dental device consisting of a flat moistening and particle-receiving pad made of parallel layers of porous material secured together, combined with a detachable holder having a widened end fitting between the layers to keep the pad expanded, said pad being adapted to be entirely exposed to the mouth, substantially as set forth.

2. A dental device consisting of a holder having two members and a porous pad consisting of layers and open at one edge to receive one of said members, the opposite one being provided with a holding-tooth, substantially as set forth.

3. In combination with a porous pad adapted to act as a sponge and receive filings, a holder consisting of two members 2 and 3, connected by a spring-bow, one member being slotted and the other provided with a hook, the construction being such that a member can be moved lengthwise by compress in the spring to engage the hook with or disengage it from the slot and thereby hold or release the pad, substantially as set forth.

480,472. **STEAM RUBBER-HEATER.** GEORGE W. MELOTTE, Ithaca, N. Y. Filed May 7, 1892. Serial No. 432,186. (No model.)



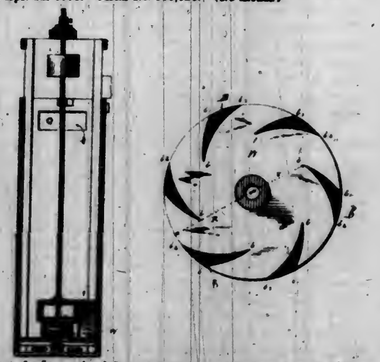
Claim.—1. For use in heating rubber over a water-vessel, a frame provided with a horizontal diaphragm in combination with said vessel and a cover, the frame fitting the vessel and the cover fitting the frame, the diaphragm being situated at the top of the water-vessel immediately below the cover, and the vessel provided with means for supporting the frame and diaphragm in such situation, substantially as set forth.

2. In combination with a water-vessel, the frame covered with a strained textile fabric, said frame consisting of exterior and interior rings adapted to embrace the fabric between them and situated at the top of the vessel, the rings and fabric filling the same horizontally immediately below the cover, substantially as set forth.

3. For use in heating rubber over or in a water-vessel, a frame consisting of two rings fitting one within the other, one of said rings being made of elastic material and having an open joint and a perforated or porous diaphragm held by said rings, substantially as set forth.

4. In combination, the vessel having a flared edge about its open top and a ring fitting said flared edge and provided with a handle and with a reticulated diaphragm, the edge being cut away to receive the handle, substantially as set forth.

480,478. **ROTARY PUMP.** JOSEPH MENGE, New Orleans, La. Filed Apr. 22, 1891. Serial No. 390,028. (No model.)



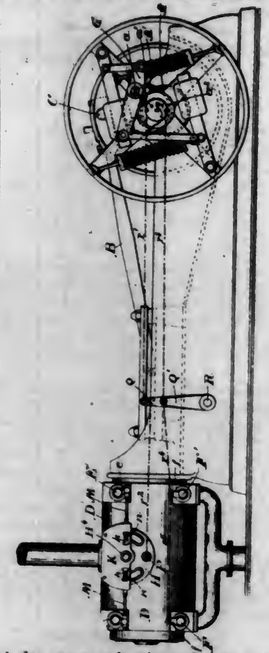
Claim.—1. In a wheel for a rotary pump, the combination, with a disk, of a plurality of flat blades open axially and radially mounted near the periphery and on each side of said disk, the sides of said blades forming curved channels of practically uniform cross-section, substantially as described.

2. In a wheel for a rotary pump, the combination, with a disk W^2, of a plurality of flat blades B, open axially and bounded by three curved surfaces and mounted on the said disk, said blades having the distance between the cutting-edges *b* equal to the distance between the discharge-edges b' and b^2, the sides of said blades forming curved chan-

nels for the water practically uniform in cross-section, substantially as described.

3. In a wheel for a rotary pump, the combination, with a disk W^3, of a plurality of flat blades B, open axially and bounded by three curved surfaces and mounted on each side of the said disk, said blades having the distance between the cutting-edges b' equal to the distance between the discharge-edges b' and b^2, the sides of said blades forming curved channels for the water practically uniform in cross-section, substantially as described.

480,474. VALVE-GEAR. WILLIAM H. VON MEGERINGHAUSEN, Chester, Pa. Filed Apr. 11, 1892. Serial No. 428,736. (No model.)



Claim.—1. In a steam-engine, the combination, with the cylinder and induction-valves, with crank-arms on said valves, of rods connected to said crank-arms and having a roller on the inner end thereof, an oscillating wrist-plate having two symmetrical irregular grooves adapted to engage said rollers, the exterior portions of each of said grooves being of longer and shorter radius and concentric with the axis of oscillation, the said concentric portions being connected by an intermediate eccentric portion, and means for moving said wrist-plate synchronously with the motion of the piston, substantially as described.

2. In a steam-engine, the combination, with the cylinder and induction-valves, with crank-arms on said valves, of rods connected to said crank-arms and having a roller on the inner end thereof, an oscillating wrist-plate having two symmetrical irregular grooves adapted to engage said rollers, the exterior portions of each of said grooves being of longer and shorter radius and concentric with the axis of oscillation, the said concentric portions being connected by an intermediate eccentric portion, a shifting eccentric mounted on the engine-shaft, with a suitable governor regulating said eccentric, and rods connecting said shifting eccentric to said wrist-plate, substantially as and for the purposes described.

3. In a steam-engine, the combination, with the cylinder D and induction-valves E and E', having the crank-arms *e*, of the rods M, having the stub end M^3 connected to said crank-arms, and the fork ends M', carrying a pin N and roller O, of an oscillating wrist-plate attached to said cylinder and having two symmetrical irregular grooves adapted to engage said rollers, the two exterior portions of each of said grooves being of longer and shorter radius and concentric with the axis of oscillation, the said concentric portions being connected by an intermediate eccentric portion, a shifting eccentric mounted on the engine-shaft, with a suitable governor regulating said eccentric, and rods connecting said shifting eccentric to said wrist-plate, substantially as described.

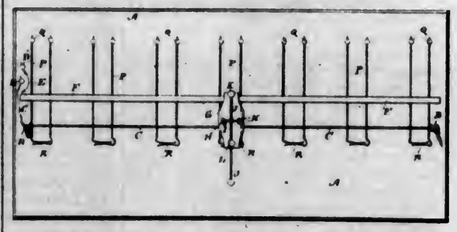
5. In a steam-engine, the combination, with the cylinder and the induction-valves, with crank-arms attached to the said valves, of rods connected at one end to said crank-arms and having a roller at the other end, an oscillating wrist-plate having grooves adapted to engage each of said rollers, a spring bearing against a portion of said rod and adapted to keep said rollers normally pressed against one side of said groove, and means for vibrating said wrist-plate synchronously with the piston, substantially as and for the purposes described.

6. In a steam engine, the combination, with the cylinder and the induction-valves, with crank-arms attached to the said valves, of rods connected at one end to said crank-arms and having a roller at the other end, an oscillating wrist-plate having grooves adapted to engage each of said rollers, a spring bearing against a portion of said rod and adapted to keep said rollers normally pressed against one side of said groove, and a shifting eccentric mounted on the engine-shaft, with a suitable governor regulating said eccentric, and rods connecting said shifting eccentric to said wrist-plate, substantially as and for the purposes described.

7. In a steam-engine, the combination, with the cylinder and the induction-valves, with crank-arms attached to the said valves, of rods connected at one end to said crank-arms and having a roller at the other end, an oscillating wrist-plate having grooves adapted to engage each of said rollers, said grooves being of three portions, the upper and lower portions being arcs of circles of longer and shorter radius concentric with the axis of vibration, and the central portion being a curve connecting the said circular portions, a spring bearing against a portion of said rod and adapted to keep said rollers normally pressed against one side of said groove, and means for vibrating said wrist-plate synchronously with the piston, substantially as and for the purposes described.

8. In a steam-engine, the combination, with the cylinder and the induction-valves, with crank-arms attached to the said valves, of rods connected at one end to said crank-arms and having a roller at the other end, an oscillating wrist-plate having grooves adapted to engage each of said rollers, said grooves being of three portions, the upper and lower portions being arcs of circles of longer and shorter radius concentric with the axis of vibration, and the central portion being a curve connecting said circular portions, a spring bearing against a portion of said rod and adapted to keep said rollers normally pressed against one side of said groove, and a shifting eccentric mounted on the engine-shaft, with a suitable governor regulating said eccentric, and rods connecting said shifting eccentric to said wrist-plate, substantially as and for the purposes described.

480,475. TELEGRAPH-KEY. ALFRED E. MCCLAREN, Joplin, Mo. Filed Apr. 9, 1892. Serial No. 428,510. (No model.)



Claim.—1. In a telegraph-key, a key base or board, the series of line-wires terminating upon said base or board and arranged in a line thereon, and a shifting key mounted to slide over said base or board from end to end thereof and adapted to be pressed directly in circuit independently with any of the line-wires terminating thereon, substantially as set forth.

2. In a telegraph-key, a key base or board receiving the line-wires, a supporting-rod mounted horizontally upon and over said board, and a telegraph-key mounted to slide and rock upon said rod, said key being in circuit with and carrying the termini of the relay to be thrown in circuit with any of the line wires upon said base or board, substantially as set forth.

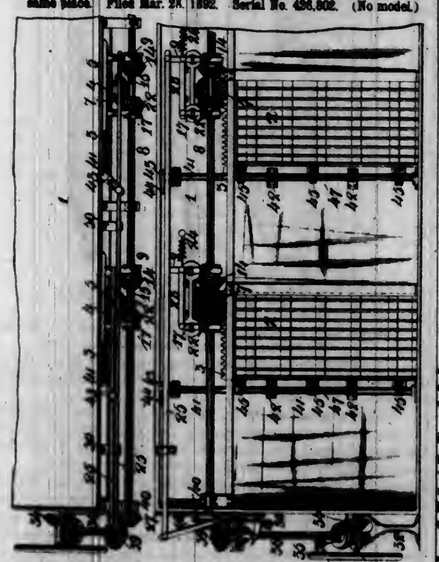
3. In a telegraph-key, a key base or board receiving the line-wires, a metallic supporting-rod mounted horizontally upon and over said board, a horizontal contact plate or strip mounted upon said board parallel with said rod, wires connecting said contact-plate and said rod with the relay, and a shifting key loosely mounted upon said rod and carrying the termini of the wires connected with said plate and rod, which termini are adapted to be thrown in connection with any of the line-wires upon the base, substantially as set forth.

4. In a telegraph-key, the combination, with the separate line-wires, of a metallic supporting-rod connected with one wire of the relay, an adjacent parallel contact-plate connected with the other relay-wire, a metallic key-plate mounted to slide upon said rod, the key or lever mounted upon said plate and insulated therefrom, said key being normally in electrical connection with said contact-plate and the wire terminals or legs depending from said key-plate and in circuit with the key-plate and key, respectively, substantially as set forth.

5. In a telegraph-key, the base or board, the line-wires connected with said board and having contact ends, a horizontal supporting-rod mounted upon said board, an adjacent parallel contact-plate, wires connecting said contact-plate and rod with the relay, a sliding and rocking key-plate mounted upon said rod, the key supports insulated from said key-plate, a contact-spring connected with said supports and normally contacting with said contact-plate, the key or lever mounted in said supports and having the contact-screw, and the depending connecting terminals or legs connected with said key-plate, one of said legs or terminals being insulated from said plate and having a projecting contact-point directly under said contact-screw, said legs or terminals being designed to be pressed in connection with the contact ends of the line-wires, substantially as set forth.

6. In a telegraph-key, the base or board, the line-wires connected with said base or board and provided with bared contact ends normally sprung together and arranged in a line upon said base, and a shifting-key mounted to slide over said base or board and provided with the relay termini or connecting-legs adapted to be forced between said bared contact ends, substantially as set forth.

480,476. MECHANISM FOR OPENING, CLOSING, AND LOCKING JAIL-DOORS. PETER J. PAULY, Sr., and PETER J. PAULY, Jr., St. Louis, Mo., assignors to the Pauly Jail Building and Manufacturing Company, same place. Filed Mar. 28, 1892. Serial No. 426,802. (No model.)



Claim.—1. The herein-described mechanism for operating cell-doors, comprising a longitudinal operating-shaft, beveled gear-wheels loosely mounted upon the same, a rack-bar fixed to the said door and adapted to be moved by the said mechanism, and a bar, such as 25, for simultaneously operating said beveled gear-wheels, substantially as described.

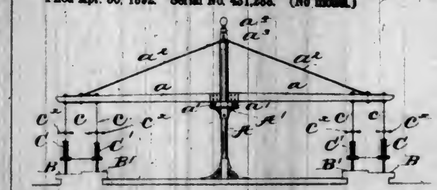
2. The herein-described mechanism for operating cell-doors, comprising a horizontal operating-shaft 8, bevel-gears, such as 14 and 22, adapted to be simultaneously operated, a gear-wheel 4, fixed to a beveled gear-wheel 7, a rack-bar fixed to the upper edge of said door and in engagement with the said gear-wheel 4, levers in movable connection with the said gear-wheels 22 and 14, and a bar, such as 25, movably attached to one of the said levers, substantially as described.

3. The herein-described mechanism for operating cell-doors, comprising an operating-shaft 8 and means for operating same, beveled gear-wheels loosely mounted upon same, one of which is fixed against rotation and the other adapted to be rotated by said shaft, suitable mechanism of gearing located between said wheels and the cell-door for sliding same in either direction, levers in movable connection with said gear-wheels, causing the same to be simultaneously operated, an operating-bar, such as 25, in connection with the said levers, means for operating said bar, an operating-shaft, such as 41, fixed to the cell and located to one side of the door, cams 45, located upon said shaft, a slotted arm 43, also fixed to said shaft, and a bolt or other like device passed through the slot and into said bar 25 for movably attaching the same, whereby the said levers and the said shaft 41 are operated simultaneously, substantially as described.

4. The herein-described mechanism for operating cell-doors, comprising an operating-shaft 8 and means for operating same, beveled gear-wheels loosely mounted upon same, one of which is fixed against rotation and the other adapted to be rotated by said shaft, suitable mechanism of gearing located between said wheels and the cell-door for sliding same in either direction, levers in movable connection with said gear-wheels, causing same to be simultaneously operated, an operating-bar, such as 25, in connection with the said levers means for operating said bar, an operating-shaft, such as 41, fixed to the cell and located to one side of the door, cams 45, located upon said shaft, and means attached to the upper end of the said shaft for movably uniting the said bar 25 to the same, substantially as described.

5. The herein-described mechanism for operating cell-doors, comprising a rack-bar 3, fixed to the upper end of said door, a spindle 6, rigidly secured to the front of the cell above said door, a gear-wheel 4, loosely mounted upon said spindle and in engagement with the said rack-bar, a bevel gear-wheel 7, fixed to the said gear-wheel 4, an operating-shaft 8, adapted to be rotated by suitable mechanism, beveled gear-wheels 14 and 22, adapted to be moved upon said shaft, one of which is locked against rotation and the other adapted to be rotated by said shaft, levers fixed to the front of the cell and in engagement with the said beveled gear-wheels and adapted to move the same simultaneously, an operating-bar in movable connection with the said levers, a vertical operating-shaft 41, cams 45, fixed to the same and adapted to receive suitable devices carried by the door, a slotted arm 43, fixed to the upper end of the said shafts and adapted to be movably attached to the said operating-bar 25, and a lever, such as 26, for operating the said bar, causing the said shaft 41 and the said beveled gear-wheels 14 and 22 to be operated simultaneously, substantially as described.

480,477. ROUNDABOUT. WILHELM SCHÄFER, Wheeling, W. Va. Filed Apr. 30, 1892. Serial No. 431,288. (No model.)



Claim.—1. In a roundabout, the combination, with the inner and outer track, of bicycles adapted to engage the same, having the peripheries of their wheels similarly proportioned to the distance they respectively traverse, substantially as described.

2. In a roundabout, the combination, with the outer track and the inner track in a higher plane than the outer track, of bicycles for engaging said inner and outer tracks, having the axles of their adjacent wheels in line with each other and radially disposed with respect to said tracks, the peripheries of the wheels of each bicycle being similarly proportioned to the distance they respectively traverse, substantially as described.

3. In a roundabout, the combination, with the central supporting-standard and the radial revolving arms, of the outer supporting-track and the inner supporting-track in a higher plane than the outer track, a pair of bicycles secured to each arm, engaging said supporting-tracks, the axles of the adjacent wheels of said bicycles being coincident and the peripheries of the wheels of both machines bearing the same relation to the distances they respectively traverse, substantially as described.

480,478. GLOVE. ROMER H. SMITH and WILLIAM L. SMITH, Gloversville, N. Y. Filed Feb. 1, 1892. Serial No. 419,994. (No model.)

Claim.—1. A glove comprising a thumb made of a single piece, divided at its base into two lateral expansion-pieces and having a seamless palm side, a gashed palm having an integral expansion-piece projecting from the wrist portion toward the fingers, and a connecting-

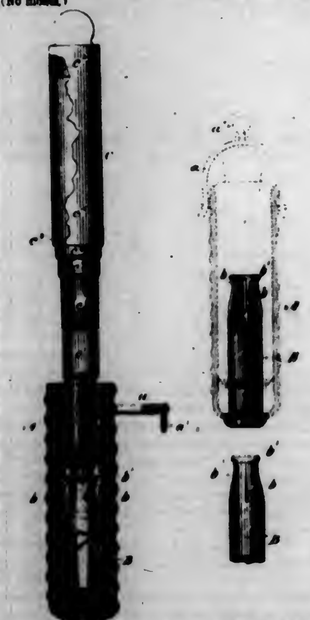
seam extending from the tip of the thumb along its back and interrupted at the base of the back of the thumb by the expansion-piece of the palm, whereby the thumb may expand in all directions to insure fitting of the glove, substantially as described.

2. A glove having a gashed palm portion and a V-shaped expansion-piece integral with the palm portion and projecting from the wrist toward the fingers, and a thumb having lateral expansion-pieces between which the V-shaped expansion-piece is fitted, the connecting-seam extending from the tip of the thumb along its back and dividing at the base of the back of the thumb along the lines of the V-shaped expansion-piece and continuing around the palm side of the thumb, substantially as described.



3. A glove comprising a thumb made of a single piece, divided at its base into two lateral expansion-pieces, a gashed palm having an integral expansion-piece projecting from the wrist portion toward the fingers, and a connecting-seam which is interrupted at the base of the back of the thumb by means of the expansion-piece of the palm, whereby the thumb may expand in all directions to insure fitting of the glove, substantially as described.

480,479. **PENCIL-CASE.** JAMES B. SMITH, Brooklyn, assignor to Edward Todd & Co., New York, N. Y. Filed Apr. 23, 1892. Serial No. 430,396. (No model.)



Claim.—1. A case for telescopic pencils and the like, consisting of a body containing a clamp for the tip portion of the pencil, said clamp being secured in the center of the body so as to leave around it an annular space for the joints of the pencil, substantially as described.

2. A case for telescopic pencils, consisting of a body containing a clamp for the tip portion of the pencil, said clamp consisting of a tube having resilient sides arranged centrally in the body with an annular space around it to receive the other portions of the pencil, substantially as described.

3. The combination, with the body A, of a clamp B, consisting of a tube secured centrally in the body at one end and having its other end slotted longitudinally and slightly contracted, said tube having an annular space around it, substantially as described.

4. The combination, with the body A, of the tube B, secured concentrically therein, having at one end the slots *b* and the collar *b'*, the material between the slots being slightly contracted, said tube having an annular space around it, substantially as described.

5. An extensible pencil composed solely of several telescopic joints, substantially as described.

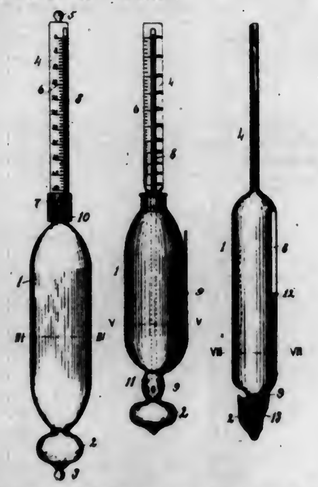
6. An extensible pencil composed solely of the several telescopic joints *c c' c²*, &c., sliding stiffly on each other, the tip portion being provided with lead-propelling devices, substantially as described.

7. An extensible pencil comprising the telescopic joints *c c' c²*, &c., provided with internal collars *c⁴* and external collars *c³*, substantially as described.

8. The combination, with an extensible pencil composed of telescopic joints, of a clamp adapted to engage with the tip portion of said pencil, whereby the pencil will be extended before the clamp releases said portion, substantially as described.

9. The combination, with an extensible pencil composed of telescopic joints, of a case for receiving said joints and a clamp attached to said case for engaging the tip portion of said pencil, substantially as described.

480,480. **HYDROMETER.** WALTON C. TIFFANY, New York, N. Y., assignor to the Tiffany Chemical Company, of New York. Filed June 1, 1891. Serial No. 394,738. (No model.)



Claim.—1. In a hydrometer, the float-bulb or other submerged part having a flattened cross-section, substantially as set forth.

2. In a hydrometer, the combination of a hollow stem a removable scale within the stem, and a stopper by which the stem is closed, substantially as set forth.

3. In a hydrometer, the combination of the hollow stem having an open bottom and adapted to carry a scale, the float-bulb, and the thermometer passing through the float-bulb and through the open bottom and detachable from the stem, substantially as set forth.

4. In a hydrometer, the combination of the float-bulb, the stem having a scale, the thermometer in said stem, and the base of said thermometer's stem located above the float-bulb and perforated or so fixed as to allow temperature influence or access of liquid to said bulb, substantially as set forth.

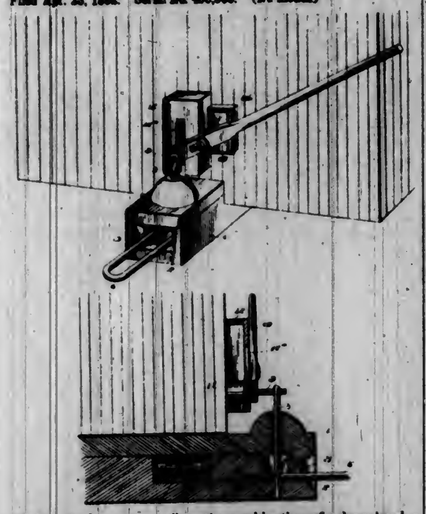
5. In a hydrometer, the combination of a scale-bearing float-bulb, a weight-bulb adapted to receive removable weights, one or both of said parts being flattened, and an open-top closable scale-bearing stem, substantially as set forth.

6. In a hydrometer, the combination of a float-bulb, a weight-bulb adapted to receive removable weights, a closable open-top stem, and suitable thermometer and correction scales, substantially as set forth.

7. In a hydrometer partially or wholly of metal, the combination of the scale-bearing float-bulb, a weight-bulb, one or both of said parts being flattened, as described, and open closable stems having temperature-indicator attachments, substantially as set forth.

8. In a hydrometer wholly or partly of glass or metal, a weight and arranged for easy adjustment and confinement of weights, combined with a scale-bearing flattened or cylindrical float-bulb and an open-top stem, substantially as set forth and shown.

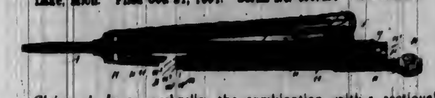
480,481. **CAR-COUPLING.** DAVID G. TURNER, Underwood, Mebr. Filed Apr. 23, 1892. Serial No. 430,363. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head, a spring-actuated pin-support arranged therein, a coupling-pin adapted to be held elevated by the pin-support, a casing designed to be mounted upon a car and arranged above the draw-head, and an uncoupling-lever connected with the coupling-pin and provided with a weighted roller arranged within the casing, substantially as and for the purpose described.

2. In a car-coupling, the combination of a draw-head, a pin-support arranged within the same, a coupling-pin, a casing arranged above the draw-head and provided with a longitudinal slot, an uncoupling-lever provided at its inner end with a pin extending from opposite sides thereof and having its outer portion connected with the coupling-pin and having its inner portion forming a spindle and arranged within the slot, and a weighted roller journaled on the spindle and arranged within the casing, substantially as described.

480,482. **FOLDING UMBRELLA.** HENRY C. WARD, Chippewa Lake, Mich. Filed Oct. 21, 1891. Serial No. 409,481. (No model.)

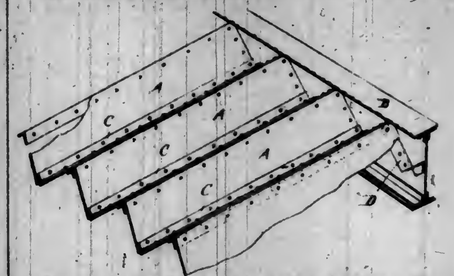


Claim.—1. In an umbrella, the combination, with a sectional stick, of the ribs made in two parts and hinged together by an inwardly-breaking lock-hinge and the radial braces fixedly pivoted to said hinges and to the sliding runner, the outer portions of said ribs and the umbrella-cover being adapted to be folded under and within the inner portion, substantially as set forth.

2. In an umbrella, the combination, of a sectional stick adapted to be folded up and within the umbrella-frame, the ribs made in two parts, inwardly-breaking lock-hinges coupling the rib-sections together and adapted to lock the same in their open position and to allow the outer rib-sections to be folded only up and under the inner portion of the cover and the ribs, and the radial stretchers fixedly pivoted to the inner portions of said hinges and to the sliding runner, substantially as set forth.

3. In an umbrella, the combination, with a sectional stick, of the ribs made in two parts, inwardly-breaking lock-hinges joining the rib-sections together, said hinges comprising the opposite members, one member of which is provided with parallel lugs and the other member with a projecting tongue having a slot near its outer end and adapted to work within the lugs of the opposite member and over a pivot bolt or pin passing through said lugs and said slot, and the radial braces pivoted to the inner members of said hinges and to the sliding runner, substantially as set forth.

480,483. **BRIDGE-FLOORING.** JOSEPH R. WORCESTER, Waltham, assignor of one-half to David H. Andrews, Boston, Mass. Filed Oct. 26, 1891. Serial No. 409,851. (No model.)

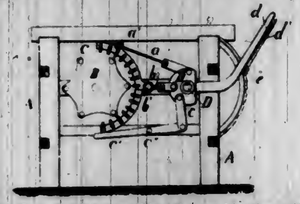


Claim.—1. A bridge-flooring composed of a metallic web and having a cross-section composed of a series of triangles with one side missing, each triangle connected to its neighbor at the apices of the missing side, substantially as described.

2. A bridge-flooring composed of a metallic web so arranged as to form a series of alternate triangular prisms having an open side, substantially as described.

3. A bridge-flooring composed of plain strips of plate metal, as A A, connected at their edges by angles, as C C, so as to form alternate triangular prisms having an open side, substantially as described.

480,484. **THRASHING-MACHINE.** WILHELM ALPERT, Brandenburg-on-the-Havel, Germany. Filed Aug. 15, 1891. Serial No. 402,791. (No model.)



Claim.—In a thrashing-machine, the combination, with a thrashing-cylinder, of a semicircular grating, a shaft, disks mounted on said shaft, two arms pivoted eccentrically to each disk and connected with the grating at the top and center, pivoted arms on which the grating rests, and pivoted links connecting said arms with the disks on the shafts, a handle for turning said shaft, and means for locking the handle and shaft in place, substantially as set forth.

480,485. **MUD-GUARD FOR CARRIAGES.** JOSAFHES ANDERSSEN, Christiania, Norway. Filed Nov. 26, 1891. Serial No. 413,148. (No model.) Patented in Norway July 1, 1891, No. 2,160, and in Great Britain July 11, 1891, No. 9,566.



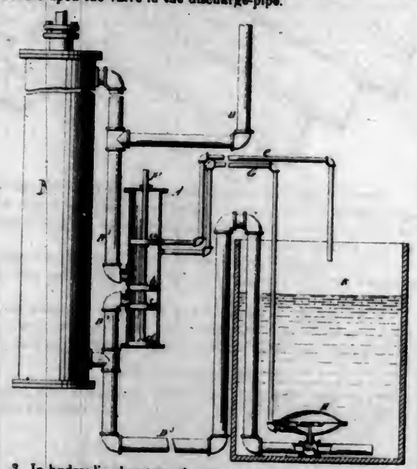
Claim.—The herein-described splasher or mud-guard, consisting of the semicircular cover *a*, having its end bent outward, radial arms *c*, connected at one end to said cover and forming at their other ends a case *d*, embracing the wheel-axle, screws *d'*, passing through said case and into the axle, and a resilient knife-scraper secured to the inner surface of said cover at one of the ends thereof and adapted to bear against the tire of the wheel, substantially as set forth.

480,486. **HYDRAULIC ELEVATOR.** JOSEPH E. BARRY, New York, N. Y. Filed Apr. 10, 1891. Serial No. 388,410. (No model.)

Claim.—1. In hydraulic elevators, the combination of an operat-

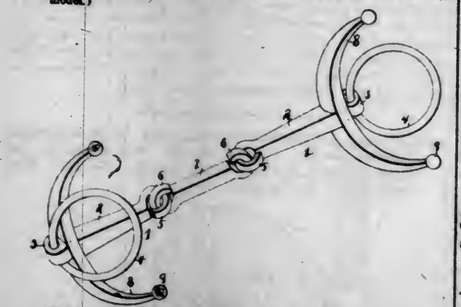
ing-valve, a separate valve in the discharge-pipe, and means, substantially as described, whereby the valve is controlled by the fluid under pressure from the primary source of supply.

2. In hydraulic elevators, the combination of an operating-valve and a separate positively-operated valve in the discharge-pipe, a pipe connecting such valve in the discharge-pipe with the operating-valve, through which the water-pressure is applied to operate such valve, and a relief-pipe connected with the operating-valve to relieve the pressure upon the valve in the discharge-pipe.



3. In hydraulic elevators, the combination of an operating-valve having four disks or pistons and having no discharge-pipe directly connected therewith, a separate positively-operated valve in the discharge-pipe, a pipe leading from the operating-valve to the valve in the discharge-pipe to operate such valve by the main water-pressure, and a relief-pipe connected with the operating-valve to relieve the pressure upon the valve in the discharge-pipe.

480,487. BRIDLE-BIT. JOHN U. BECKERMAN and DAVID W. LOEBB, St. Louis, Mo. Filed Nov. 30, 1891. Serial No. 413,537. (No model.)



Claim.—1. A bridle-bit consisting of bars 2, eyes 3 and 5, formed on each end of the same, U-shaped bars formed integrally with the said bars 2, a link connecting the eyes 5 of the said bars 2, and bit-rings 4, carried by the eyes 3, substantially as set forth.

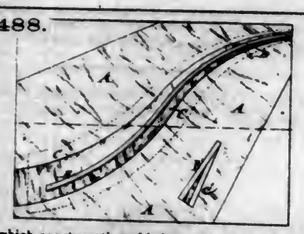
2. A bridle-bit consisting of bars 2, eyes 3 and 5, formed on each end of the same, U-shaped bars formed integrally with the said bars 2, a link, such as 7, passing through the eyes 5 of the said bars 2, and bit-rings 4, carried by the eyes 3, substantially as set forth.

480,488. SOUNDING-BOARD FOR PIANO-FORTES. CARL BRANDAGH, New York, N. Y. Filed Apr. 13, 1892. Serial No. 429,014. (No model.)

Claim.—1. A sounding-board for piano-fortes, the bridge of which is supported by a foundation of greater width arranged below the bridge and the ribs of which are strengthened below said foundation by means of reinforcing-pieces, substantially as set forth.

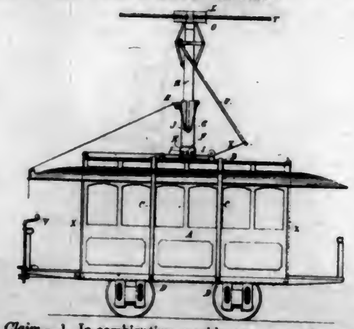
2. A sounding-board for piano-fortes, the bridge of which is supported by a foundation of greater width arranged below the bridge and

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the ribs of which are strengthened below said foundation by means of reinforcing-pieces and by diagonal braces connecting said ribs at the back of the sounding-board, substantially as set forth.

480,489. CABLE-GRIPPER. WILLIAM A. BUTLER, New York, N. Y., assignor to John H. Haar and Joseph A. Cassidy, same place. Filed Mar. 7, 1892. Serial No. 424,008. (No model.)



Claim.—1. In combination, a cable car, an overhead cable-grip mechanism composed of the base B, pivotally attached to the sleeve G, and the grip-carrying arm H, adjustable in and along the said sleeve, and the bars C C, attached to the base B of the grip mechanism and running down the sides of the car and being attached to the floor or base thereof, substantially as and for the purpose set forth.

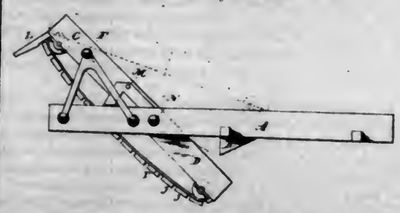
2. In a cable-grip, the combination of a fixed jaw, a movable jaw, and the toggle mechanism R and S, attached to and for operating the movable jaw.

3. In a cable-grip mechanism, the combination of a fixed and a movable jaw, the toggle mechanism R S, attached to and reciprocating the movable jaw, and a grip-operating lever mechanism attached to the arms S of the toggle mechanism and arranged to raise and depress the said arms at their junction ends.

4. In combination, in a grip-supporting mechanism, the base B, pivotally attached to the sleeve G and having the retaining stop-pins I, and the grip-carrying arm H, adjustable in and along the said sleeve, as and for the purpose set forth.

5. In combination, in a cable-grip, the fixed jaw L, secured to the grip-supporting arm H by the yoke M, the movable jaw O, the guide Q to said jaw, and the toggle mechanism R S for operating said movable jaw, as and for the purpose set forth.

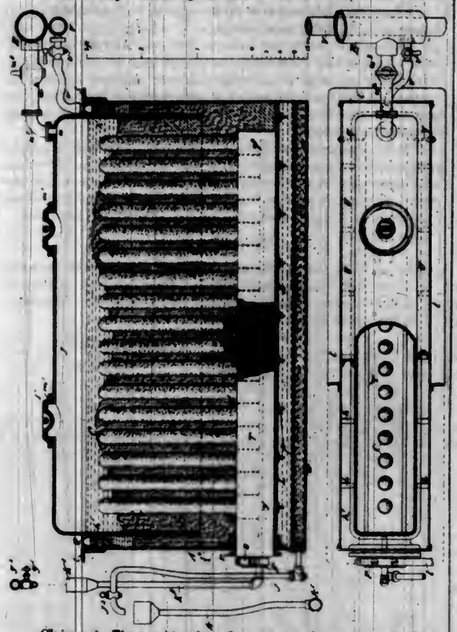
480,490. ELEVATOR FOR STONE-CRUSHERS. IRA P. CRIBB, Canandaigua, N. Y., assignor to the Robinson Rea Manufacturing Company, Pittsburg, Pa., and Theodore A. Blake, New Haven, Conn. Filed Nov. 9, 1891. Serial No. 411,346. (No model.)



Claim.—The combination of the sills or bed A A, adapted to receive a stone-crusher, a chute B between said sills, through which the crusher may discharge, an elevator-frame composed of two parts C D, the one part C hung upon an axis above the said sills or bed and dis-

tant from the chute, the said part C also carrying a drum G at its upper end, the part D hinged to the lower end of the part C and carrying a drum H at its lower end, the said frame adapted to fold up and down between the said sills, and an endless band through said frame and around the said drums, the said band carrying buckets, and the frame in its down position presenting the buckets to the chute, substantially as and for the purpose described.

480,491. ELECTROLYTIC CELL. ELISHA R. CUTTER, New York, N. Y., assignor, by mesne assignments, to the Union Chemical Company, of New Jersey. Filed Aug. 19, 1891. Serial No. 403,080. (No model.)



Claim.—1. The combination of an outer tank and an anode therein, consisting of carbon pencils projecting vertically from a carbon bar, the bar extending horizontally within said tank and passing out through the wall thereof and insulated therefrom to constitute one of the electric terminals of the tank.

2. The combination of an outer tank, an anode therein, consisting of carbon pencils projecting from a carbon bar and a protecting-trough inclosing said bar.

3. The combination of an outer tank, an anode therein, consisting of carbon pencils, a horizontal carbon bar, to which said pencils are fixed, formed with a longitudinal duct through it, and branch discharge-ducts leading therefrom to the exterior of the bar and discharging adjacent to the carbon pencils, and a liquid-inlet pipe communicating with the duct in said carbon bar.

4. The combination, with an electrolytic cell, of means for discharging a liquid therefrom, consisting of an outlet constructed to cause the liquid to fall in drops instead of a continuous stream, and a discharge-pipe to convey away the liquid, whereby the short-circuiting of the electric current through the discharge-pipe is prevented.

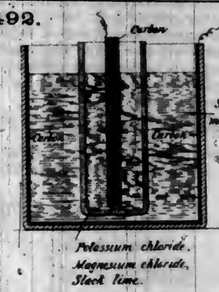
480,492. METHOD OF ELECTROLYTICALLY PRODUCING POTASSIUM CHLORATE. ELISHA R. CUTTER, New York, N. Y. Filed Apr. 11, 1892. Serial No. 428,736. (No specimens.)

Claim.—1. The method of electrolytically producing potassium chlorate, substantially as hereinbefore described, which consists in electrolyzing magnesium chloride in the presence of potassium chloride and slaked lime.

2. The method of electrolytically producing potassium chlorate, substantially as hereinbefore described, which consists in electrolyzing magnesium chloride in the presence of potassium chloride and slaked lime and agitating the electrolyte pending electrolysis.

3. The method of electrolytically producing and collecting magnesia and potassium chlorate, substantially as hereinbefore described, which consists in placing a solution of magnesium chloride in contact with the cathode and potassium chloride, magnesium chloride, and

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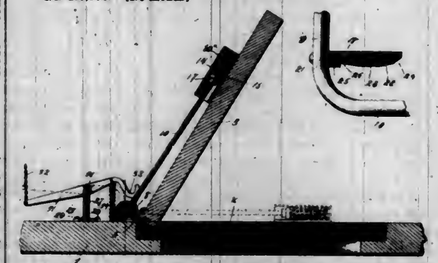
slaked lime in contact with the anode, the said magnesium chloride being separated from said potassium chloride, magnesium chloride, and slaked lime by a porous partition, and then electrolyzing, whereby potassium chlorate is produced at the anode and magnesia at the cathode.

480,493. METHOD OF ELECTROLYTICALLY PRODUCING POTASSIUM CHLORATE. ELISHA R. CUTTER, New York, N. Y. Filed Apr. 11, 1892. Serial No. 428,739. (No specimens.)

Claim.—1. The method of electrolytically producing potassium chlorate as hereinbefore described, which consists in electrolyzing magnesium chloride in the presence of potassium chloride and magnesium oxide.

2. The method of electrolytically producing potassium chlorate substantially as hereinbefore described, which consists in electrolyzing magnesium chloride in the presence of potassium chloride and magnesium oxide and agitating the electrolyte during the electrolysis.

480,494. AUTOMATIC VALVE-OPERATOR FOR WATER-CLOSETS. JOSEPH S. DANIEL, Kansas City, Mo. Filed Mar. 1, 1892. Serial No. 423,396. (No model.)



Claim.—1. In a valve-operating mechanism for water-closets, an L-shaped main operating-rod, a torsion-spring secured at one end to and surrounding one arm of said rod and also engaging the frame of the closet and operating to raise the rod, a casing surrounding the free end of the rod, and a cushion-spring inclosed within said casing and also surrounding the free end of the rod, substantially as set forth.

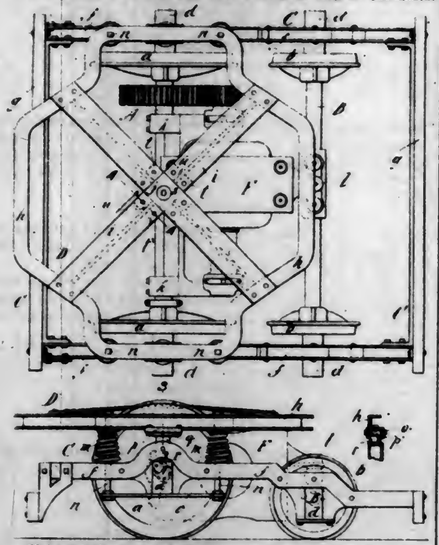
2. In a valve-operating mechanism for water-closets, a main operating-rod of L form, a bearing-plate having vertical standards, through which one arm of the operating-rod passes, a torsion-spring interposed between the standards of the bearing-plate and surrounding said arm of the rod and connecting at one end to the rod and at the other end to the closet-seat and serving to raise the rod, a casing surrounding the free end of the rod, a shoulder upon said free end of the rod, and a spring surrounding the free end of the rod and located within the casing and also interposed between the closed end of the casing and the said shoulder, substantially as set forth.

3. In a valve-operating mechanism for water-closets, a tilting lever designed to be connected at one end to the pull-down connection of a flushing-tank and an oscillating rod carrying an arm provided on its upper side with a longitudinal guide-groove for engaging the opposite end of the said tilting lever and located below the end of said lever, substantially as set forth.

4. In a valve-operating mechanism for water-closets, an oscillating rod operated by the closet-seat, a tilting lever connected to the pull-down connection of a flushing-tank, and an arm carried by the oscillating rod and having a longitudinal guide-groove provided with a flange beveled at its inner and outer ends and a shoulder for engaging the tilting lever, said shoulder being located adjacent to the inner end of the arm, substantially as set forth.

5. In a valve-operating mechanism for water-closets, an oscillating rod, a tilting lever connected to the pull-down of the flushing-tank, a spring connected to the tilting lever and serving to return said lever to normal position, and an arm carried by the oscillating rod and engaging the tilting lever to move the same against the action of its spring, substantially as set forth.

480,495. TRUCK FOR RAILWAY-CARS. ERNEST D. DORGEMUS, Malden, Mass. Filed Dec. 3, 1891. Serial No. 413,893. (No model.)



Claim.—1. In a truck for railway-cars, an axle having a pair of driving-wheels thereon, and a pair of guide-wheels, and a saddle or truck frame supported by said two pairs of wheels, springs supported on the truck-frame near the journals of the driving-wheels only, a body bolster-frame supported entirely by said so-located springs, and the car-body pivotally mounted on the said bolster-frame directly over the axle of said driving-wheels, substantially as and for the purpose set forth.

2. In a truck for railway-cars, an axle having a pair of driving-wheels thereon, and a pair of guide-wheels which are of less diameter than the driving-wheels, and a saddle or truck frame supported by said two pairs of wheels, springs supported on the truck-frame near the journals of the driving-wheels only, a body bolster-frame supported entirely by said so-located springs, and the car-body pivotally mounted on the said bolster-frame directly over the axle of said driving-wheels, substantially as and for the purpose set forth.

3. In a truck for railway-cars, an axle having a pair of driving-wheels thereon, and an axle having a pair of guide-wheels, and a saddle or truck-frame supported by said two pairs of wheels, springs supported on the truck-frame near the journals or the driving-wheels only, a body bolster-frame supported entirely by said so-located springs, the car-body pivotally mounted on the said bolster-frame directly over the axle of said driving-wheels, and a motor having its weight supported by and distributed between said axles and operating to drive the wheels which sustain the weight of the car-body, substantially as and for the purpose set forth.

4. In a truck for railway-cars, the combination, with the lower frame or truck-frame proper and two pairs of supporting-wheels therefor, of a body bolster-frame supported above the truck-frame proper through the medium of springs which rest on the truck-frame closely to and forward and rearward of the journal-bearings of but one of said pairs of wheels, and posts rigidly secured to and pending from the bolster-frame and passing through the supporting-spring and the truck-frame at different points in the length thereof, there being between the bolster and truck-frame proper and directly over the journals bone-and-socket engaging portions, the one of which may play vertically relative to the other, substantially as and for the purpose described.

5. The combination, with the truck-frame proper, of the bolster-frame spring supported thereby, which consists of a border-frame *A* and intersecting ribbed cross braces or trusses and the central swivel-block having recessed portions with which the ribs of the said braces engage and to and through which portions the inner ends of the said braces are bolted, substantially as described.

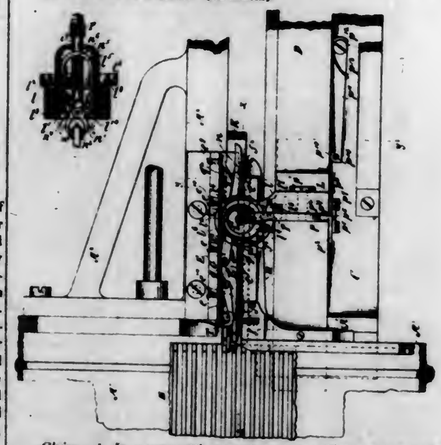
480,496. CONVEYER FOR HANDLING LUMBER, &c. MICHAEL GARLAND, Bay City, Mich. Filed Apr. 16, 1892. Serial No. 429,512. (No model.)



Claim.—1. In a conveyer of the type shown and described, the combination, with the usual pair or set of running strips *c*, the series of carrier-slats C, which rest and travel thereon, and the usual drive-cable *c*, located beneath the series of carrier-slats, of duplex clamping metallic devices, each one of which is secured, as shown, to one of the carrier-slats and has its depending or lower portions clamped onto the said drive-cable, all substantially in the manner and for the purposes hereinbefore set forth.

2. In a conveyer of the type shown and described, a metallic sprocket-like attachment device, formed, substantially as described, with proper seating-surfaces for the lower side of a carrier-slat, and with a vertically-projecting flange-like part *i* for securement of the carrier-slat to said part *i*, all substantially as hereinbefore set forth.

480,497. TYPE-SETTING MACHINE. WALTER W. HASTINGS, Jersey City, N. J., and FRED D. FOSTER, New York, N. Y., assignors to the Lagerman Typotheter Company, New York, N. Y. Filed Dec. 1, 1891. Serial No. 413,740. (No model.)



Claim.—1. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby they are reciprocated to and from the galley, and mechanism whereby they are rotated on the axis of the type as they advance toward the galley, substantially as described.

2. In a type-setting machine, in combination, type-gripping jaws adapted to grip the type at one end and maintain its longitudinal position, a carriage whereon the jaws are reciprocated to and from the galley, means whereby the jaws are caused to grip the type on their forward movement toward the galley, and means whereby they are caused to release the type at the end of their forward movement, substantially as described.

3. In a type-setting machine, in combination, type-gripping jaws adapted to grip the type at one end and maintain its longitudinal position, mechanism whereby they are reciprocated to and from the galley, a spring by the reciprocation of which the jaws are held closed or open, and mechanism whereby said spring is reciprocated at each end of the path of the jaws, substantially as described.

4. In combination with type-feeding mechanism, jaws whereby the type is gripped, rotatable mechanism whereby said jaws are carried, and means whereby said last-named mechanism is actuated to rotate the type on its longitudinal axis, substantially as described.

5. The combination, with type-feeding mechanism, of a rotatable type-holder, a tripper movable into and out of the path of a member on said holder, and a controller for regulating the position of said tripper as said holder passes, substantially as described.

6. The combination, with type-feeding mechanism, of a rotatable type-holder provided with radial projections, a tripper movable into and out of the path of said projections, and a controller for regulating

the position of said tripper as said holder passes, substantially as described.

7. In a type-setting machine, in combination, jaws whereby the type is grasped at or near the head, mechanism whereby said jaws are reciprocated to and from the galley, a sill, and a yielding plate opposed thereto between which the type is held while being carried forward in the jaws, substantially as described.

8. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby said jaws are reciprocated to and from the galley, a sill, an oppositely-arranged yielding plate between which the type is slid forward, trippers and controllers connected with said sill, and members connected with said jaws, adapted to engage with the trippers in their forward position, substantially as described.

9. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby they are moved toward the galley, a rotary head upon which they are mounted, a spring acting in antagonism to the rotation of said head, radial members projecting from said head, a sill along which said radial members slide to prevent the backward movement thereof, trippers whereby said radial members are moved in antagonism to said spring, said sill being recessed at each tripper to receive the radial member as the same is being moved by the tripper, substantially as described.

10. In a type-setting machine, in combination, a type-guideway leading to the galley, a carriage, mechanism whereby said carriage is reciprocated parallel with said guideway toward the galley, a type-pusher mounted upon said carriage, type-grippers also mounted upon said carriage, and mechanism whereby said grippers may be moved to rotate the type upon its longitudinal axis, substantially as described.

11. In a type-setting machine, in combination, a stationary sill, a spring-pressed plate arranged oppositely thereto and retreating at the receiving end from the sill, a yielding lever projecting beyond said sill at the receiving end, and means whereby the type is fed forward between said lever sill and said plate, substantially as described.

12. In a type-setting machine, in combination, type-gripping jaws, mechanism whereby they are moved toward the galley, guideways between which the type is moved, and a pusher whereby the type is thrust longitudinally between said jaws, substantially as described.

13. In a type-setting machine, in combination, type-gripping jaws, guideways between which the type is carried while engaged in said jaws, a pusher whereby the type is thrust longitudinally between said jaws, and centering mechanism adapted to act upon the sides of the type as it is being shoved between said jaws by said pusher, substantially as described.

14. In a type-setting machine, in combination, guideways between which the type is conveyed to the galley, type-gripping jaws adapted to grip the type at one end and maintain its longitudinal position, means whereby said jaws are moved toward the galley, and a spring whereby said jaws are held closed with a yielding pressure to adapt itself to varying thicknesses of type, substantially as described.

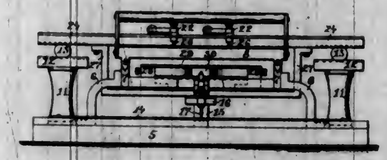
15. In a type-setting machine, in combination, guideways between which the type is conveyed to the galley, type-gripping jaws, means whereby said jaws are moved toward the galley, a spring whereby said jaws are held closed with a yielding pressure to adapt itself to varying thicknesses of type, and articulated shoes upon the extremities of said jaws, whereby the gripping surfaces adjust themselves to varying thicknesses of type substantially as described.

480,498. RULING-MACHINE. JOHN HOPE, Providence, R. I. Filed July 31, 1891. Serial No. 401,291. (No model.)

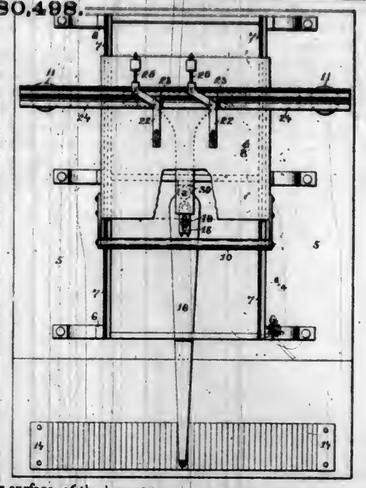
Claim.—1. In a line-engraving machine, the combination, with a frame carrying engraving-tools and a tongue pivoted in such frame provided at its forward under surface with a V-shaped slot, of a lever pivoted at the rear end and provided at the free end with a pointer and carrying an adjustable plate supporting a post adapted to engage with the pivoted tongue of the tool-carriage, as described.

2. The combination, with the base 5, supporting the frame 6, having the V-shaped slides 7 7, adapted to receive the ways 9 9 of the table 8, of the posts 11 11, supporting the rolls 13 13, carrying the cross-beam 24, to which the engraving-tool arms 22 22 are secured, and means for moving said beam transversely, as described.

3. The combination, with the cross-beam 24, supported on the rolls 13 13 and carrying the pendent frame 27, on which is pivoted the forwardly-extending tongue 30, having a V-shaped groove cut in its



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under surface, of the lever 16, pivoted in the bracket 15 and provided with the slotted plate 18, secured by the screw 19 and carrying the post 20, having the head 21, adapted to engage with the V-shaped groove of the tongue 30, as described.

4. In a line-engraving machine, as herein described, the combination, with the transversely-movable beam 24, having a longitudinal reversed T-shaped slot, of the arms 22 22, secured to clamps movable in said slot and carrying engraving-points, as described.

480,499. ATTACHMENT TO ROLL-CARRYING SPINDLES FOR WEB-PRINTING PRESSES. ALFRED A. HOUGHTLIN, Brooklyn, N. Y. Filed Apr. 8, 1892. Serial No. 428,310. (No model.)



Claim.—1. The combination, with the roll-carrying spindle of a web-printing press, of a tapering collar secured to one end of the spindle, a locking-key guided in a longitudinal recess of said collar and adapted to engage a recess at the end of the core or shell of the roll of paper, a loose conical collar adapted to engage the opposite end of the core or shell, and means for clamping said collar to the end of the core or shell, substantially as set forth.

2. The combination, with a roll-carrying spindle of a web-printing press, of a tapering collar secured to one end of the spindle, said collar being provided with a longitudinal recess, an adjustable key carrying a projecting pin or screw guided in said recess and adapted to engage a recess in the end of the core or shell, a tapering collar placed loosely on the other end of the spindle, a threaded sleeve attached to the shaft near said collar, and a screw-nut applied to the threaded sleeve, so as to clamp the tapering collar to the other end of the core or shell, substantially as set forth.

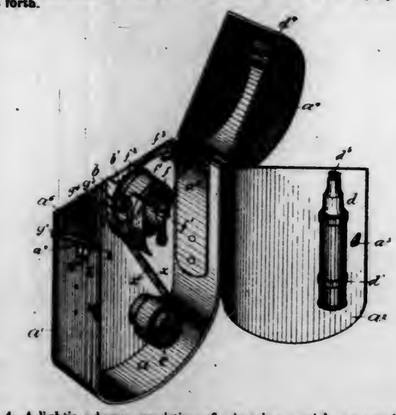
480,500. LIGHTING DEVICE. EDWARD KRONENBERG, Philadelphia, Pa. Filed Mar. 6, 1891. Serial No. 384,085. (No model.)

Claim.—1. A lighting device consisting of a two-part housing provided with a hinged cover, an adjustable oil and wick reservoir, a reciprocating ignitor or scratcher, a rotatable feeding appliance winding upon itself a fulminating tape, strip, or ribbon, and pawl-and-ratchet connections adapted to automatically actuate said feed appliance in the closing of said cover, substantially as and for the purposes set forth.

2. A lighting device consisting of a two-part housing having a spring-actuated hinged cover, a vertically-adjustable oil and wick reservoir, an oscillating scratcher or igniter, a rotatable feeding appliance winding upon itself a fulminating or igniting tape, strip, or ribbon, means for retaining said appliance normally in position, and

devices between said cover and feeding appliance adapted to rotate the latter by the closing of said cover, substantially as and for the purposes set forth.

3. A lighting device consisting of a two-part housing provided with a spring-actuated hinged cover, an adjustable oil and wick reservoir, a scratcher or igniter reciprocated by means adapted to open said cover, a rotatable feeding appliance winding upon itself a tape, strip, or ribbon, means for preventing retrograde movement of said feeding appliance, a ratchet-wheel attached to said feeding appliance, a pawl provided with a slot and a pin engaging in said slot for preventing displacement of the pawl, substantially as and for the purposes set forth.



4. A lighting device consisting of a housing, a wick, a rotatable feeding appliance for winding upon itself a tape, strip, or ribbon having pellets, fulminates, or ignitible material applied thereto, means for rotating the same, a hand-knob outside said housing, a scratcher or ignitor connected therewith and adapted to contact with and ignite said pellets, fulminates, or ignitible material, substantially as and for the purposes set forth.

5. A lighting device consisting of a two-part housing, a wick, a rotatable feeding appliance for winding upon itself a tape, strip, or ribbon having pellets, fulminates, or ignitible material applied thereto, means for rotating the same, a guide-plate for directing said tape, strip, or ribbon, a hand-knob outside of said housing, a scratcher or ignitor connected with said hand-knob and adapted to contact with and ignite said pellets, fulminates, or ignitible material, substantially as set forth.

6. A lighting device consisting of a housing, a wick, a rotatable feeding appliance for winding upon itself a tape, strip, or ribbon having pellets, fulminates, or ignitible material applied thereto, means for rotating the same, a guide-plate for directing said tape, strip, or ribbon, a spindle journaled in said guide-plate and housing, a scratcher or igniter, and a hand-knob attached to said spindle, substantially as and for the purposes set forth.

7. A lighting device provided with a housing, a spring-actuated cover, a catch for maintaining the same in a closed position, a scratcher for igniting a pellet, fulminate, or ignitible material, an arm connected with said scratcher and adapted to release said catch, and a hand-knob for actuating said arm, substantially as and for the purposes set forth.

8. A lighting device provided with a housing, a spring-actuated cover, a catch for maintaining the same in a closed position and provided with a lug projecting through the housing, a scratcher for igniting a pellet, fulminate, or ignitible material, a spindle connected with said scratcher, an arm provided with a hand-knob and adapted to actuate said scratcher and to contact with said lug, substantially as and for the purposes set forth.

9. A lighting device provided with a housing, a spring-actuated cover, a catch for maintaining the same in a closed position, a scratcher for igniting a pellet, fulminate, or ignitible material, an arm connected with said scratcher and adapted to release said catch, a spring for normally maintaining said arm out of contact with said catch, and a hand-knob for actuating said arm, substantially as and for the purposes set forth.

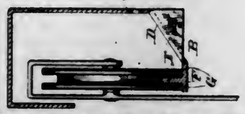
10. A lighting device comprising a housing, a hinged cover, a spring-catch accessible from the exterior of the housing and adapted to engage said cover, a wick, an appliance for feeding and winding upon itself a tape, strip, or ribbon having pellets, fulminates, or ignitible material applied thereto, pawl-and-ratchet connections between said cover and feeding appliance, an igniter or scratcher, a hand-knob outside said housing for actuating said scratcher or igniter and spring-catch, substantially as and for the purposes set forth.

11. A lighting device comprising a housing, a spring-actuated cover hinged thereto, a spring-catch provided with a lug accessible from the exterior of the housing and adapted to engage said cover, a wick, an appliance for feeding and winding upon itself a tape, strip, or ribbon having pellets, fulminates, or ignitible material applied thereto, pawl-and-ratchet connections between said cover and feeding appliances, a guide-plate, a spring-controlled spindle journaled in said housing and guide-plate, a scratcher or igniter attached to said spindle, an arm connected with said spindle and adapted to contact with said lug, substantially as and for the purposes set forth.

12. A lighting device provided with a two-part housing having a hinged cover, an adjustable oil and wick reservoir, an appliance for feeding and winding upon itself a fulminating tape, strip, or ribbon, pawl-and-ratchet connections between said cover and feeding appliances, a movable scratcher or igniter, and an extinguisher adapted upon the closing of said cover to envelop the wick of said reservoir, substantially as and for the purposes set forth.

13. A lighting device provided with a housing having a hinged cover and an extinguisher, an oil and wick reservoir, a feeding appliance winding and holding upon itself a tape, strip, or ribbon containing fulminates or pellets of ignitible material, an igniter or scratcher, and means for actuating said igniter or scratcher and for causing said feeding appliance to be rotated, substantially as and for the purposes set forth.

480,501. TRACK FOR BARN-DOORS. JOHN H. LAWRENCE, Sterling, Ill., assignor of one-half to Edwin F. Lawrence, same place. Filed Jan. 16, 1892. Serial No. 418,290. (No model.)



Claim.—1. In a track for supporting barn-door rollers, a continuous bracket B, provided with the upper vertical portion C, adapted to be attached to the building, the intermediate diagonal portion D, the track E, and the triangular braces H, cut from the portion D, with their upper sides integral with the latter and their residue turned downward into a vertical position, with the inner ends of their severed portion in the vertical plane of the rear face of the portion C, whereby said bracket is adapted to hang in proper position from the mere attachment, as aforesaid, of its portion C, for the purpose specified.

2. In a track for supporting barn-door rollers, the combination of a vertical portion C, adapted to be attached to the building and extended upward and outward from the building to form a cover for the door-rollers, an intermediate diagonal portion D, a horizontal portion F, the track E, formed thereon, and triangular braces H, formed at suitable intervals in the diagonal portion D, with their several hypotenuses integral with the portion D and their residue turned downward therefrom into a vertical position, with their short vertical rear ends in substantially the same vertical plane with the back side of the portion C and adapted to rest against the building when the portion C is attached to the latter, and thereby support the track E a sufficient distance from said building, substantially as shown, and for the purpose described.

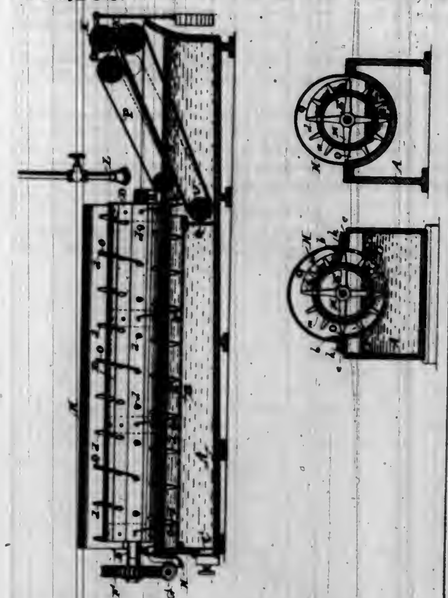
480,502. DYEING OR SCOURING MACHINE. JOHN H. LORIMER, Philadelphia, Pa. Filed June 20, 1891. Serial No. 396,904. (No model.)

Claim.—1. In a dyeing, washing, or scouring machine, the combination of a liquor vat or tank, a diaphragm in said liquor-tank below the level of the liquor therein, and a rotary drum or cylinder of substantial diameter journaled immediately above the diaphragm in the liquor-tank and having its periphery provided with a series of short projecting pins, the ends of which are immediately adjacent to the surface of the diaphragm, arranged in a spiral about the periphery of the drum or cylinder.

2. In a dyeing, washing, or scouring machine, the combination of a liquor vat or tank, a diaphragm in said liquor-tank below the level of the liquor therein, a rotary drum or cylinder of substantial diameter journaled immediately above the diaphragm in the liquor-tank and having its periphery provided with a series of short projecting pins, the ends of which are immediately adjacent to the surface of the diaphragm arranged in a spiral about the periphery of the drum or cylinder, and a series of projecting wings carried by the drum or cylinder to assist the pins in moving the material over the diaphragm.

3. In a dyeing, washing, or scouring apparatus, the combination of a liquor-tank, a perforated diaphragm supported therein below the liquor-level, and a rotary drum or cylinder journaled above said perforated diaphragm and having its periphery provided with a series of short pins or projections arranged about it in a spiral manner and immediately adjacent to the surface of the perforated diaphragm.

480,502.



4. In a dyeing, washing, or scouring machine, the combination of a liquor vat or tank having a diaphragm or surface to support the material to be treated, and a rotary drum or cylinder of substantial diameter journaled above the diaphragm and having its periphery provided with a series of projecting wings O, arranged at intervals about the periphery in a spiral line, each of the wings having a substantial breadth, so as to extend over a portion of the periphery of the drum or cylinder.

5. In a dyeing, washing, or scouring machine, the combination of a liquor tank or vat having a diaphragm or surface to support the material to be treated, located below the level of the liquor and having a length shorter than the length of the vat, and a rotary drum or cylinder journaled over said diaphragm or supporting-surface and having its periphery provided with a series of short projecting pins.

6. In a dyeing, washing, or scouring apparatus, the combination of a liquor-tank, a rotary drum or cylinder journaled therein and having its periphery provided with a series of spirally-arranged pins or projections and a movable hood or cover arranged over said drum or cylinder and separate from the liquor-tank, so as to be moved therefrom to expose the rotary drum or cylinder.

7. In a dyeing, washing, or scouring apparatus, the combination of a liquor-tank, a drum or cylinder journaled therein and having its periphery provided with a series of spirally-arranged pins or projections and a barrier arranged adjacent to the forward end of said drum below the normal level of the liquor in the tank and extending up above said normal liquor-level.

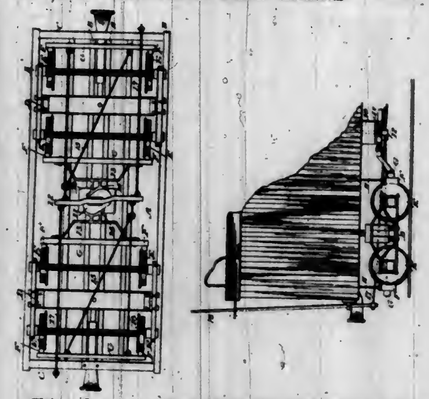
8. In a dyeing, washing, or scouring apparatus, the combination of a liquor vat or tank, a curved perforated diaphragm arranged therein and having its surface below the normal level of the liquor and provided with a longitudinal protecting ledge or rim extending above the upper surface of the tank, and a rotary drum or cylinder journaled above said diaphragm, provided upon its periphery with a series of projections or pins.

9. In a dyeing, washing, or scouring apparatus, the combination of the vat A, the perforated diaphragm B, supported therein, having the lateral flange *c* resting upon the top of the vat A, and the upwardly-projecting flange *b*, and the removable hood or cover H, having the flange *h*, adapted to rest upon the flange *c*.

10. In a dyeing, washing, or scouring machine, the combination of a liquor vat or tank, and a rotary drum or cylinder journaled therein and having its periphery provided with a series of spirally-arranged pins or projections and with a number of projecting wings.

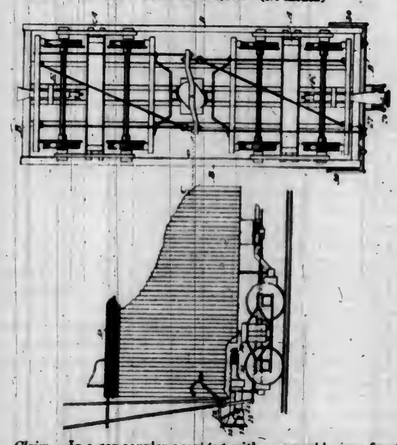
11. In a dyeing, washing, or scouring machine, the combination of a liquor-vat, a rotary drum or cylinder journaled therein and having a large diameter, and a series of wings carried by the periphery of the drum and projecting therefrom and arranged at a distance one from another and in a spiral direction about the periphery of the drum.

480,503. CAR-BRAKE. JAMES B. MEADLEY, Davenport, Iowa. Filed Aug. 29, 1891. Serial No. 404,171. (No model.)



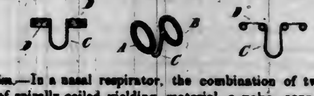
Claim.—In a device for applying brakes to the wheels of cars, in combination with the wheels and hanging horizontal cross-beams carrying brake-shoes in line with the rims of the wheels, the pivoted cam, the lever attached thereto, the frame carrying the circular straps to be operated against by the cam and connected with a horizontal cross-beam carrying brake-shoes, the rods connected with one end of the lever attached to the cam, the other end attached to the opposite horizontal cross-beam carrying brake-shoes, and means for rotating such cam, substantially as described.

480,504. CAR-COUPLING. JAMES B. MEADLEY, Davenport, Iowa. Filed Sept. 1, 1891. Serial No. 404,453. (No model.)



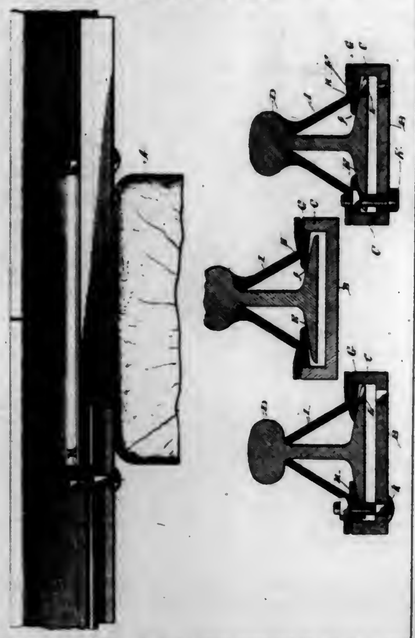
Claim.—In a car-coupler provided with a movable jaw for the reception of the coupling-link, and also provided with a pin for retaining the link within the jaw, the combination of the pivoted cams on the exterior sides of the stationary jaw, the pins or projections on the exterior sides of the movable jaw, arranged to be operated against by the rotation of the cams, and mechanism for rotating such cams, substantially as described.

480,505. NASAL RESPIRATOR. JOSEPH R. MIDDLEY and DORSEY D. CASE, Detroit, Mich. Filed Oct. 3, 1891. Serial No. 407,596. (No model.)



Claim.—In a nasal respirator, the combination of two frames formed of spirally-coiled yielding material, a yoke connecting the frames, and reticulated material across the frames, substantially as described.

480,506. RAIL-JOINT. MILTON C. NILES, Oak Park, Ill. Filed Aug. 28, 1891. Serial No. 403,945. (No model.)



Claim.—1. A rail-joint having a lever supported on the rail at one end and having a fixed support at its other end, and a separate brace between the rail and said lever, substantially as set forth.

2. In a rail-joint, the combination of a lever having a fixed support at one end and fulcrumed upon the rail at its other end, and a brace arranged between the head of the rail and said lever between its said fixed end and point of fulcrum, substantially as set forth.

3. In a rail-joint, the combination, with the base-plate, of a lever supported on said base-plate at one end and fulcrumed on the foot-flange of the rail at its other end, and an inclined support engaging the rail and impinging said lever between its fixed end and point of fulcrum, substantially as set forth.

4. In a rail-joint, the combination of the base-plate, a lever having a shoulder engaging said plate at one end and being fulcrumed upon the rail at its other end, and a support engaging the rail and resting upon said lever between said shoulder and said point of fulcrum, substantially as set forth.

5. In a rail-joint, the combination, with a base-plate, of a lever having a fixed support at one end and a separate brace resting upon said lever between its ends and supporting the rail at a distance above said base-plate, substantially as set forth.

6. In a rail-joint, the combination of levers each having a fixed support at one end and resting upon the rail at the other end, said levers having shoulders, and brace-plates engaging said shoulders and the rail, substantially as set forth.

7. In a rail joint, the combination of levers each having a shoulder on its under side at its outer end, the base-plate having flanges with which said shoulders engage, the rail arranged between the said flanges and supporting the inner ends of said levers, said levers having shoulders on their upper sides, and brace-plates engaging the shoulders on the upper sides of said levers and impinging the rail, substantially as set forth.

8. In a rail-joint, the combination, with the base-plate having side flanges, of levers having shoulders engaging said flanges and resting upon the foot-flange of the rail, and inclined brace-plates impinging said levers near their inner ends and engaging with the rail, substantially as set forth.

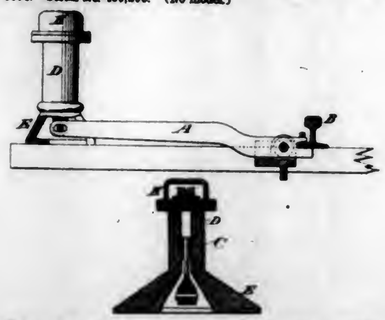
9. In a rail-joint, the combination, with the base-plate, of levers having fixed supports at their outer ends and resting upon the rail at their inner ends, and inclined brace-plates abutting against said levers and against the under side of the rail-head and being separate from said levers, substantially as set forth.

10. In a rail-joint, the combination, with the base-plate, of levers having fixed supports on said base-plate and resting upon the rail, supports between said levers and the rail, and bolts passing through a portion of the rail and the base-plate, substantially as set forth.

11. In a rail-joint, the combination of the levers having fixed supports at their outer ends and being fulcrumed upon the rail at their inner ends, and brace-plates impinging said levers between their fixed supports and their fulcrums and supporting the rail, substantially as set forth.

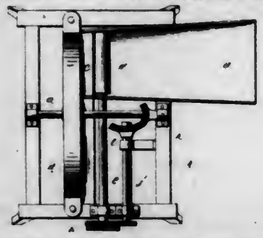
12. In a rail-joint, the combination, with the base-plate, of levers having fixed supports on said base-plate and resting upon the rail, brace-plates supporting the rail upon said levers, bolts passing through the base plate and foot-flange of the rail, and leveling-washers on said bolts, substantially as set forth.

480,507. CIRCUIT CLOSING AND BREAKING DEVICE FOR RAILWAY-TRACKS. THOMAS H. PATENALL, Rahway, N. J. Filed Oct. 20, 1891. Serial No. 409,296. (No model.)



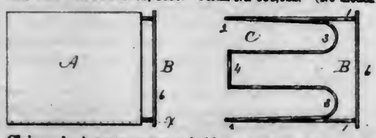
Claim.—The combination, with a cylinder, and a plunger for compressing the air within the cylinder, of a movable piece seated in an opening in the end of the cylinder opposite the plunger, a pair of contact-plates with which the said movable piece is normally in engagement, and a pair of contact-plates with which the said movable piece is adapted to be thrown into engagement under the impulse of the compressed air within the cylinder, substantially as set forth.

480,508. STRAW OR ENSILAGE CUTTER. CHARLES A. PETTET, Belleville, Canada. Filed Mar. 26, 1890. Renewed Apr. 7, 1892. Serial No. 428,160. (No model.) Patented in Canada Mar. 1, 1889, No. 30,876.



Claim.—In a straw or ensilage cutter, the combination, with the knife-wheel and its shaft, the feed-box, and the feed-rollers, of the ellipsoidal concave gearing between said knife-wheel shaft and a shaft geared to said feed-roller shaft, substantially as set forth.

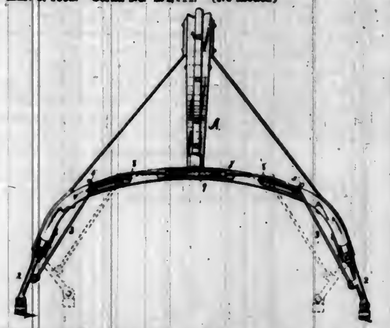
480,509. POSTAL-STAMP HOLDER. BARTON PICKERING, Dayton, Ohio. Filed Jan. 30, 1890. Serial No. 338,622. (No model.)



Claim.—1. A postage-stamp holder comprising the open-ended case A, the closing-plate B, the supporting wire frame C, having a vertical bend at its center, bent to form parallel bends 3 3, thence back in parallel lines to vertical bends 2 2, thence to bends 1 1, and joined to said closing-plate, substantially as shown and described.

2. A postage stamp holder comprising the open ended case A and the spring-carrier B, provided with plate 4, on which the stamps are held, substantially as set forth.

480,510. VEHICLE-POLE. WILLIAM I. PIKE, Groton, N. Y. Filed Mar. 8, 1892. Serial No. 424,111. (No model.)

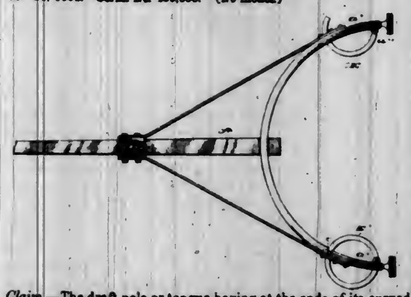


Claim.—1. The combination, with the cross-bar of a pole, of arms loosely secured thereto, and rods secured to said arms at a point between their ends, and means for securing its opposite end adjustably upon the cross-bar.

2. The combination, with the cross-bar of the pole, of the arms loosely secured thereto, eyes loosely secured to said arms, and rods secured to said arms at a point between their ends, and means for securing its opposite end adjustably upon the cross-bar.

3. The combination, with the shaft or pole, of the pivoted arms 2, secured thereto, rods 3 and 8, secured upon the bolt 4, the bolt 4 having a head 6 traveling in the slotway 7, and the coupler 9, receiving the inner ends of the rod 8, as set forth.

480,511. VEHICLE-POLE. WILLIAM I. PIKE, Groton, N. Y. Filed Oct 24, 1891. Serial No. 409,855. (No model.)



Claim.—The draft pole or tongue having at the ends of its curved bar pivoted sections or arms, in combination with the circular levers pivoted to said sections or arms near their rear or inner ends and adapted to be clamped or held to said curved bar, substantially as set forth.

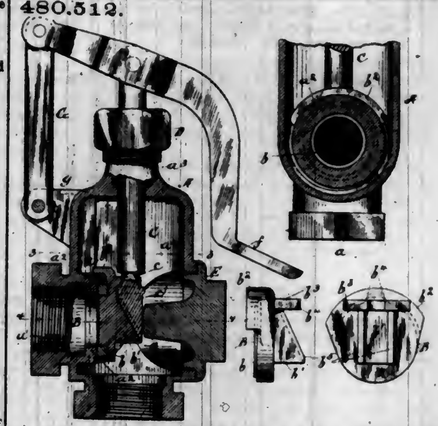
480,512. VALVE MECHANISM FOR STEAM-RADIATORS. LEON H. PRENTICE, Waukegan, and PETER R. MCLEOD, RICHARD T. CRANE, and LAWRENCE PILKINGTON, Chicago, assignors to the Crane Company, Chicago, Ill. Filed June 14, 1890. Serial No. 355,466. (No model.)

Claim.—1. The valve-case A, provided with the outlet-port a', in combination with the sliding-valve B, provided with a flange b^3 at its upper end adapted to fit upon and cover the metal at the upper part of the port, substantially as shown and described.

2. The valve-stem C, provided with a wedge-shaped lower end c' and an annular groove c just above the latter, in combination with the valve B, provided with the inclined back b' and forked lug b^4 of

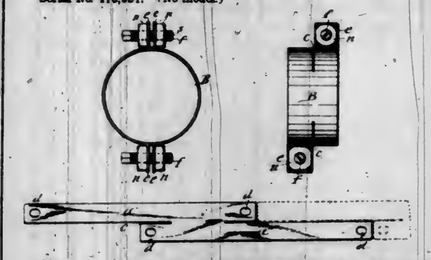


480,512.



less thickness than the width of the said groove, and the block E, fitted to the opening in the back of the case and having a projecting lug e extending within the case to the back of the valve, substantially as and for the purposes specified.

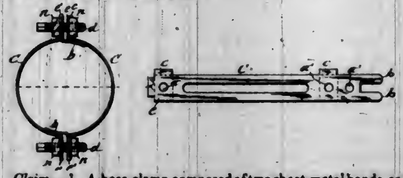
480,513. HOSE-CLAMP. LEWIS H. REDFIELD, Syracuse, N. Y., assignor of one-half to J. Richard Clancy, same place. Filed Jan. 4, 1892. Serial No. 416,921. (No model.)



Claim.—1. A multiplex hose-clamp consisting of a metal band formed in one piece with a plurality of clamping-ears at different points of its periphery, as set forth.

2. A hose-clamp band formed in one piece of sheet metal and of elongated sections united side by side and each extending with one and beyond that of the other and provided with bolt-holes in the two extremities of each section and slitted longitudinally at the junction of the sections part way from the ends thereof, substantially as described and shown.

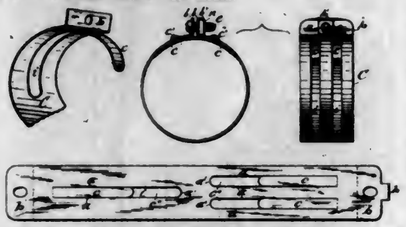
480,514. HOSE-CLAMP. LEWIS H. REDFIELD, Syracuse, N. Y., assignor of one-half to J. Richard Clancy, same place. Filed Jan. 4, 1892. Serial No. 416,922. (No model.)



Claim.—1. A hose-clamp composed of two sheet-metal bands, each bent into semicircular shape, with a perforated outwardly-bent ear at one end and having the opposite end portion folded upon itself and terminated with forwardly-extending fingers and perforated in said folded position and two sets of clamping bolts and nuts uniting said bands at the aforesaid ears, substantially as described and shown.

2. The within-described blanks for hose-clamp, consisting of the sheet-metal bands C C, each provided with the perforation a in one end, perforations a' a' in the opposite end and disposed in the longitudinal central line of the band, fingers b b, extending from said end, and flanges c c on the edges of the end portions of the band, substantially as described and shown.

480,515. HOSE-CLAMP. LEWIS H. REDFIELD, SYRACUSE, N. Y., assignor of one-half to J. Richard Clancy, same place. Filed Jan. 16, 1892. Serial No. 418,373. (No model.)



Claim.—1. As an improved article of manufacture, a hose-clamp band formed in one piece of sheet metal, perforated in its ends, and having longitudinal slits extending from a point some distance from the end of the band toward the center of its length and meeting in a transverse slit, the main portion of said band being bent circular shape, the perforated end portions being bent radially outward, and the free end of the slitted portion being bent back and lapped onto the inner side of the opposite end of the main portion, substantially as described and shown.

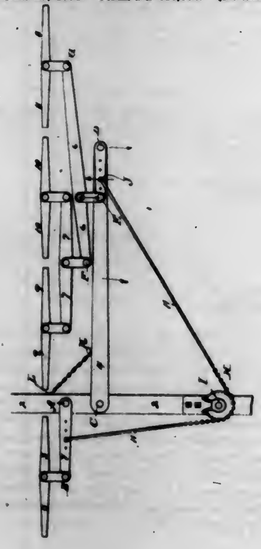
2. The band C, composed of sheet metal and having the finger c formed integral therewith and bent into the outwardly-projecting loop c' and folded with its free end back onto the inner side of the band and lapped onto the opposite end of the main portion of the band, substantially as described and shown.

480,516. STRAIGHT-EDGE. CHARLES T. RIDGELY and MARK A. SMITH, Springfield, Ohio. Filed Apr. 15, 1892. Serial No. 429,267. (No model.)



Claim.—A straight-edge consisting of a main bar and an auxiliary bar, said bars being connected together by adjustable fastening devices and interposed cushions, substantially as specified.

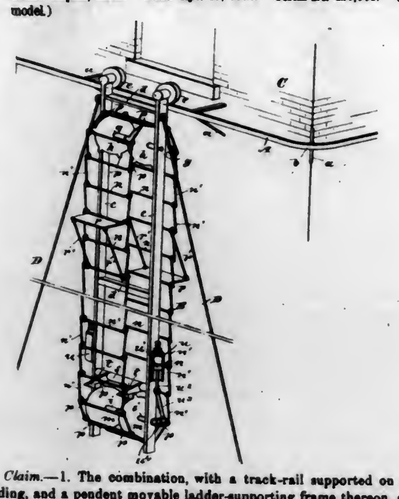
480,517. DRAFT-EQUALIZER. ERASTUS ROADIFER, Carpenter, Ind. Filed Nov. 23, 1891. Serial No. 412,896. (No model.)



Claim.—1. The combination of the tongue having a chain or flexible connection 11, a short lever 1, and long lever 4 upon the opposite side anchored to the tongue, so that it cannot move rearwardly, a short lever 5, pivoted at its outer end to the long lever 4 and connected to the team at its inner end and at an intermediate point to the chain or flexible connection, which extends to the lever 1 upon the opposite side of the tongue, whereby the larger team is made to tread outwardly and side draft on the tongue is avoided, as described.

2. The combination, with the tongue having the right-angular levers 1 and 4 and pulley I, of the flexible connection 11, passing around the pulley and adjustably connected to lever 1, and the lever 5, adjustably connected to the other end of connection 11 and in turn pivoted at its outer end to long lever 4 and at its inner end to the team, as described.

480,518. FIRE-ESCAPE FOR BUILDINGS. GEORGE I. ROBERTS, Grand Rapids, Mich. Filed Apr. 15, 1892. Serial No. 429,313. (No model.)



Claim.—1. The combination, with a track-rail supported on a building, and a pendent movable ladder-supporting frame thereon, of spaced transverse shafts rotatable in the frame, having sprocket-wheels thereon, an endless ladder on the sprocket-wheels, a rock-shaft journaled in the ladder-frame above the lower pair of sprocket-wheels, detent-dogs thereon projected to engage the teeth of said wheels, and a pneumatic speed-check device connected to the lower shaft and actuated by its rotation, substantially as described.

2. The combination, with a horizontal track-rail supported on a building, a ladder-supporting frame hung from the track-rail and adapted to travel thereon, transverse shafts rotatable on the frame, and spaced sprocket-wheels on said shafts of an endless ladder comprising transverse stretcher-bars having integral depending link-rods, a rock-shaft journaled in the ladder-frame above the lower pair of sprocket-wheels, and detent-dogs projected from the rock-shaft and adapted to engage with and lock the wheels from rotation in one direction, substantially as described.

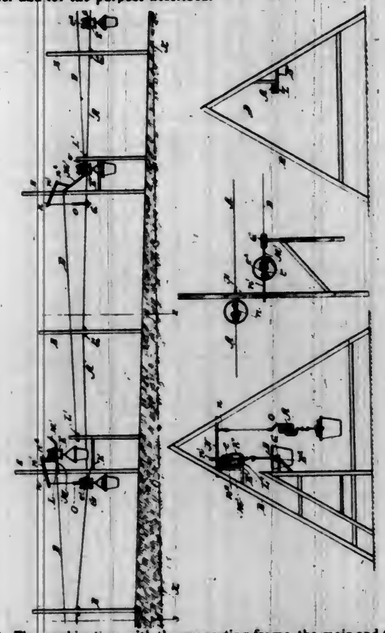
3. The combination, with a horizontal track-rail, bracket-arms projecting from a house wall and supporting the track-rail, and a pendent ladder-supporting frame having rollers adapted to travel on the track-rail, of transverse shafts rotatable in the said frame at its ends, sprocket-wheels on each of said shafts, an endless ladder on said wheels, a transverse rock-shaft on the ladder-frame above the lower pair of sprocket-wheels, and detent-dogs projected from the rock-shaft and adapted to engage with and lock the lower sprocket-wheels and prevent a progressive movement of the ladder in one direction, substantially as described.

480,519. CABLE RAILWAY. SAMUEL D. ROOT and GORDON C. VINEYARD, Anaconda, Mont. Filed Mar. 2, 1892. Serial No. 423,554. (No model.)

Claim.—1. A cable railway comprising a main downgrade-cable, a series of supplemental downgrade-cable sections inclined in a reverse direction to the main cable, lifting mechanism connecting the lower end of one section of the supplemental cables with the upper end of the next succeeding supplemental cable-section, and means for operating each lifting mechanism, substantially as shown and described.

2. A cable railway comprising a main stationary downgrade cable, a series of supplemental downgrade-cable sections, each inclined in a reverse direction to the main cable, lifting mechanism connecting the lower end of one reverse-cable section with the upper end of the next succeeding reverse-cable section, and connections between such lifting mechanism and the main cable, whereby when the main cable is gagged at each connection points it will operate to lift the said mechanism, substantially as and for the purposes described.

3. In a cable railway, the combination, with the supporting-frames and the main stationary downgrade cable, of a series of downgrade cables disposed above and to one side of the main cable, said sections being inclined in a reverse direction to the main cable and adapted to receive the empty cars, and means operated by the passage of the loaded cars on the main cable for elevating the empty cars from one reverse-cable section to the next succeeding section, whereby such car will be carried up the grade, substantially in the manner and for the purpose described.



4. The combination, with the supporting-frame, the main and the reverse downgrade cables arranged relatively to each other, as shown, and held stationary on the supporting-frame, of the lifting mechanism consisting of a swinging arm hinged to the upper end of one reverse section and formed with a seat portion normally in engagement with the lower end of the preceding section, the rock-shaft N, having oppositely-projecting lever-arms n n', connected, respectively, with the main cable and the swinging arm, all arranged substantially as shown, and for the purposes described.

5. In a cable railway of the kind described, the combination, with the supporting-frame timber B' and the cable A, of the shoe G, having side guides and a longitudinal slot, and means for drawing the cable into the slot and securing it to the shoe and the shoe to the timber B', substantially as shown and described.

6. In a cable railway of the kind described, the combination, with the supporting frame and the cables, of a cable-holding shoe having side guides, a longitudinal slot adapted to receive the depressed portion of the cable, and a central curved guide member forming a track-rail, and the notted hook-bolt for holding the cable down into the slot of the shoe and the shoe to the frame, substantially as and for the purpose described.

7. In a cable railway of the kind described, the combination, with the supporting-frame, the cable, and a curved cable-holding shoe having side guides projecting vertically, forming cam projections, of a car having two carrier-wheels independently journaled, mechanism for locking each wheels normally in a fixed alignment, and unlocking devices mounted on the car adapted to engage the cams on the curved shoe and operated thereby to unlock the said locking mechanism, whereby the wheels will be capable of independent adjustment as they engage the curved shoe, substantially as and for the purpose described.

8. In a cable railway of the kind described, the combination, with the supporting-frame and the cable formed of two sections, of a cable-holding shoe having oppositely and downwardly-slotted portions to receive the opposite ends of the cables, and the clamp-nuts J, secured to the outer projected ends of such cables, substantially as and for the purposes described.

9. The combination, with the cable-sections D and the swinging arm, having a seat member at its lower end and hinged at its upper end to one of the sections D, of a cable-holding shoe secured to the lower end of the preceding cable-section, said shoe formed with a socket portion to receive the seat portion of the swinging arm, substantially as shown and described.

10. The combination of the supporting-frame, the cable-section D, the cable-shoe L, slotted diagonally downward and rearward, said slot adapted to secure the upper end of the cable-section D, the clamp J for holding such section to the shoe L, the lifting-arm M, hinged in the rear end of such shoe, and the rail-section Z, disposed between the hinged end of the shoe and the cable-receiving end thereof, substantially as and for the purpose described.

480,520. TORPEDO CLIP-FASTENING. WILL C. SCHOOLEY, Braddock, Pa. Filed Nov. 9, 1891. Serial No. 411,255. (No model.)

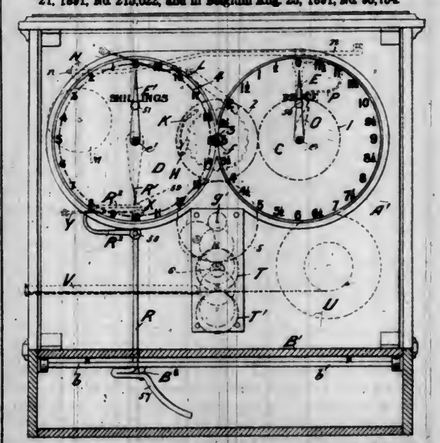


Claim.—1. A torpedo-fastening comprising a clip-fastening formed of an oblong wire loop adapted at its ends to be bent downward at opposite sides of the torpedo-case and a flexible clip held in the clip-fastening and adapted to be doubled upon a rail, substantially as described.

2. The combination, with a torpedo, of a flexible clip-fastening adapted to extend across one part of the torpedo and be bent or turned over the opposite part and a flexible clip held in the clip-fastening, substantially as described.

3. The combination, with the torpedo having slots in opposite sides of its case, of a flexible clip-fastening adapted to be bent or turned around the torpedo and through the slots and a flexible clip held by the clip-fastening, substantially as described.

480,521. CASH REGISTER AND INDICATOR. JOHN SHAKESPEARE, Dudley, England. Filed Apr. 20, 1892. Serial No. 429,950. (No model.) Patented in England Dec. 17, 1890, No. 20,581; in France Aug. 21, 1891, No. 215,022, and in Belgium Aug. 23, 1891, No. 95,734.



Claim.—1. In a cash-register, the combination, with the two indicating-dials C and D at the opposite sides of the case, the indicating-pointers, and the toothed wheels positively connecting the shafts of the said pointers, of a ratchet-wheel, a spring-pressed pawl pivoted to one of the said wheels and adapted to turn the ratchet-wheel in one direction, a pivoted check-pawl, the registering-dials provided with pointers, and toothed wheels operatively connecting the registering-pointers with the said ratchet-wheel, substantially as set forth.

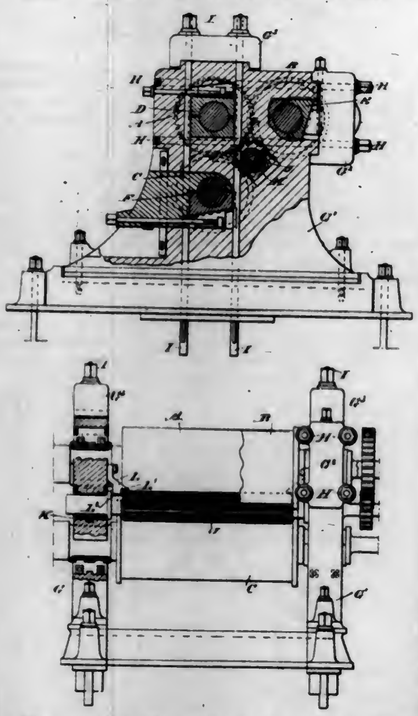
2. In a cash-register, the combination, with an indicating-pointer and its shaft, of a trip-lever secured on the said shaft, a bell, a pivoted spring-lever provided with a hammer for striking the bell, a stop for the spring-lever above its pivot and between the said stop and hammer, and a bent spring secured to the spring-lever and adapted to be actuated to cause the hammer to ring the bell each time the said pointer

is moved from its zero position, the said trip-lever being adapted to pass under and re-engage with the said spring without ringing the bell when restored to its zero position, substantially as set forth.

3. In a cash-register, the combination, with an indicating-pointer and its shaft, of a pivoted locking-lever provided at its upper end with a bent spring and a detent and having a bent lower end 57, a trip-lever secured to the said shaft and adapted to engage with the said detent, a cash-receptacle provided with a pivoted lid, and a weighted lever normally resting on the said end 57 and adapted to open the lid each time the said pointer is moved forward, substantially as set forth.

4. In a cash-register, the combination, with the shaft *f*, positively connected with the indicating-pointers, of a series of ratchet-wheels secured on the said shaft and provided with teeth of different pitch, a series of pivoted finger-levers provided with spring-pressed pawls and adapted to operate the ratchet-wheels, and stops for limiting the movements of the said levers, substantially as set forth.

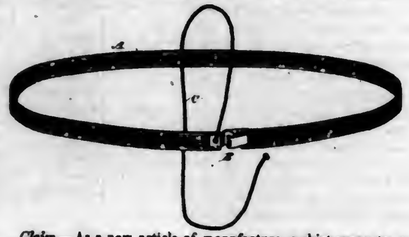
480,522. CANE-MILL. DONALD SKEKEL, Georgetown, British Guiana. Filed Sept. 18, 1891. Serial No. 406,068. (No model.)



Claim.—1. A cane-mill provided with three crushing-rollers, of which two are the top rollers and are arranged in a horizontal plane, while the third is located under the first top roller and forms with the latter the front or entrance rollers for the cane to be crushed, a corrugated tarsing-roller arranged in the rear of the front or entrance rollers and below the top rollers, and the guides L, formed with upward and outward inclined integral projections L′, extending over the ends of the corrugated roller, and with semicircular offsets L^3, projecting between the ends of said roller and its bearings, substantially as shown and described.

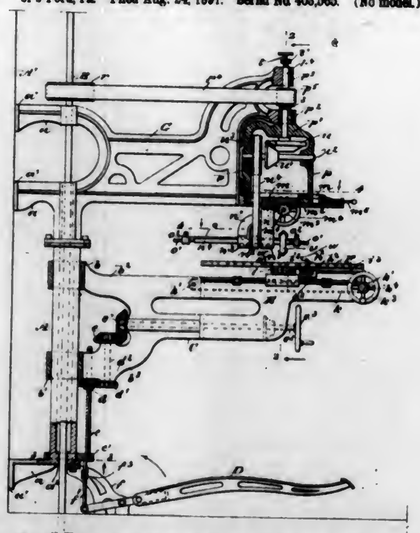
2. In a cane-mill, the combination, with the head stocks, of three crushing-rollers journaled in the said head-stocks and of which two are the top rollers arranged in a horizontal plane, while the third is located under the first top roller and forms with the latter the front or entrance rollers, sets of U-shaped bolts H H, extending horizontally above and below the bearings for the top rollers, the caps G^2, through which the ends of bolts pass, and a second set of bolts arranged vertically at the sides of the bearings for the front or entrance roller, and the caps G^2 on top of the head-stocks over the upper forward roller bearings, substantially as shown and described.

480,523. SKIRT-SUPPORTER. GEORGIA V. SMITH, Princeton, Ill. Filed Apr. 13, 1892. Serial No. 429,044. (No specimens.)



Claim.—As a new article of manufacture, a skirt-supporter consisting of the elastic band A, provided with the lever-like spring-clasp B at one end for engaging the other end of the band, and the cord C, secured to the clasp for supporting and holding the band in position on the wearer, as specified.

480,524. WOOD-CARVING MACHINE. WILLIAM R. SNYDER, Royer's Ford, Pa. Filed Aug. 24, 1891. Serial No. 403,565. (No model.)



Claim.—1. In a carving-machine, the combination, with a platen that is rotatably and reciprocally adjustable on a frame, of a horizontal rotatable arbor on a sliding frame, a cutter on the arbor, means to axially rotate the arbor, and means to move it orbitally around the platen, substantially as described.

2. In a carving-machine, the combination, with a platen that is supported on a laterally-movable frame and is adjustable to incline it from a horizontal plane and also rotatably and reciprocally adjustable, of an arbor rotatably supported above the platen and adapted to swing orbitally, a cutter adjustable thereon, a turn-table support for the arbor, means to move the turn-table, and mechanism to effect the rotation and longitudinal adjustment of said arbor and secure said adjustment, substantially as described.

3. In a carving-machine, the combination, with a platen that may be adjustably rocked, rotated, and moved reciprocally on a frame and means to adjust the platen vertically, of an axially-rotatable arbor, a cutter thereon above the platen, a rocking frame that is longitudinally movable and that engages the arbor at its ends, a rotatable turn-table from which the arbor is hung, and mechanism which will transmit rotary motion to the arbor, substantially as described.

4. In a carving-machine, the combination, with a swinging frame laterally movable on an upright fixed column, a device to vertically adjust the swing-frame and support it where adjusted, a treadle connected to the swing-frame supports, and a platen on the swing-frame which is reciprocally and rotatably adjustable and adapted to be inclined from a horizontal plane, of a rotatable arbor, a cutter thereon, a rotary adjustable turn-table from which the arbor is hung, and means to rotate the arbor axially, substantially as described.

5. In a carving-machine, the combination, with a supported bracket-frame, a turn-table rotatable thereon, a circular toothed rack below on the turn-table, a pinion meshing with the rack, a hand-wheel controlling the pinion, and a device to lock the turn-table from rotation, of an axially-rotatable arbor below the turn-table suspended therefrom, a transverse cutter thereon, and a longitudinally movable and securable frame whereon the arbor rotates, substantially as described.

6. In a carving-machine, the combination, with a supported bracket-frame, a horizontal circular turn-table thereon, a circular rack on the table below near its edge, a pinion and hand-wheel on a shaft journaled on the turn-table and adapted to rotate the table when manipulated, and a locking-bar that will interlock with holes in the periphery of the turn-table, of a horizontal arbor on a depending frame axially rotatable thereon, and a cutter on the arbor, substantially as described.

7. In a carving-machine, the combination, with a supported bracket-frame, a turn-table thereon, gearing on the table, and a device to secure the table from rotation, of an arbor below hung from the turn-table and rotatable and longitudinally adjustable and a rocking frame adapted to be slid endwise and held at any point of such adjustment and engaging the ends of the arbor and controlling its longitudinal movement, substantially as described.

8. In a carving-machine, the combination, with a column, a bracket-frame laterally extended therefrom, a main shaft in the column, and a rotatable turn-table on the bracket-frame, of friction-gearing on the turn-table, adapted to move an arbor below the table, a horizontal axially-rotatable arbor on an arm depending from the table, and a rocking longitudinally-movable frame engaging the ends of the arbor, substantially as described.

9. In a carving-machine, the combination, with a swinging frame on an upright column, of a platen which is rotatable, a device that secures the platen from rotation, a sliding carriage on the swing-frame, a rocking adjustable table thereon, a rotatable platen on the table, and a sprocket chain and gearing to move the sliding carriage, substantially as described.

10. In a carving-machine, the combination, with a supported bracket-frame, a turn-table rotatable thereon, gearing to revolve the table, an adjustable locking-bar that will enter one of a series of holes in the rim of the turn-table, a frame on the turn-table which rotatably supports two engaging bevel-faced friction-wheels, and shafts whereon the wheels are affixed, of a rotary arbor revoluble on a depending bifurcated arm, adjustable cutters thereon, a longitudinally movable and securable rocking frame having its bent ends pivotally engaged with the ends of the arbor, a pulley mounted to slide on the arbor and adapted to rotate it, and a connection from a source of power to the friction-gear and from the friction-gear to the pulley on the arbor, substantially as described.

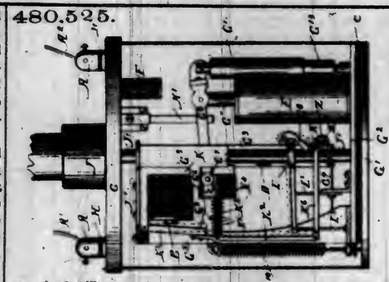
11. In a carving-machine, the combination, with a fixed upright column, a laterally-movable swing-frame thereon, a mechanism that will raise, lower, and support the swing-frame, a vibratable treadle-lever, and a post jointed at its lower end to an end of the treadle-lever and loosely engaging its upper end with the swing-frame support, of a sliding carriage gibbed on a bed-plate of the swing-frame, a rocking table thereon which is adjustable from a horizontal plane, a rotatable platen on the table, a locking-bolt adapted to engage any of a series of radial holes in the periphery of a hub on the platen, a doubled sprocket-chain attached by its ends to the sliding carriage, sprocket-wheels engaging the bights of the chain, and a hand-wheel on the end of one journal-shaft that supports a sprocket-wheel, substantially as described.

12. In a carving-machine, the following elements, in combination, viz: an upright tubular column, a main shaft therein adapted to rotate, a swing-frame laterally movable on the column, mechanism which will adjust the swing-frame and retain it at a desired height, a treadle-lever connected to the frame-support, a platen on the swing-frame which may be adjustably rocked, rotated, and reciprocated, a bracket-frame above the platen, a turn-table thereon, means to rotate the turn-table, a locking device for the turn-table, an axially-rotatable and longitudinally adjustable arbor hung from the turn-table, cutters thereon, and a friction-gearing connected with the main shaft and also with the arbor, so as to transmit rotary motion from the shaft to the arbor, substantially as described.

480,525. ELECTRIC-ARC LAMP. ELMER A. SPERRY, Chicago, Ill., assignor to the Sperry Electric Company, same place. Filed June 7, 1890. Serial No. 354,604. (No model.)

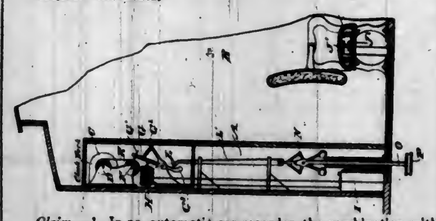
Claim.—In an arc lamp, the combination of a vertically-movable frame with a carbon-separating mechanism thereon, containing a clutch supported at one end by toggle-bars with a spring from the other end of such clutch to the fixed frame, an intermediate adjustable stop, a main-circuit magnet fixed in position, provided with an armature connected with such toggle-bars, so that the main-circuit magnet when

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energized will cause the carbons to separate, and a fixed shunt-magnet provided with an armature on which the frame is suspended, so that by the action of the shunt-magnet the frame is moved to disconnect the clutch and permit the upper carbon to fall upon the lower.

480,526. AUTOMATIC MILEAGE-RECORDER FOR CAR-SEATS. HARRY S. SQUIRES, New York, N. Y. Filed Dec. 8, 1891. Serial No. 414,385. (No model.)



Claim.—1. In an automatic car-recorder, the combination, with electro-magnets controlled from the seats in a car, of a series of levers, each carrying a point and actuated from the said electro-magnets, a traveling sheet adapted to be marked on by the points of the said levers, and a governor actuated from the axle and adapted to lock the said levers in place, substantially as shown and described.

2. In an automatic car-recorder, the combination, with a traveling sheet and a clock-work for imparting a traveling motion to the said sheet, of a series of levers carrying points indicating on the said traveling sheet, magnets for controlling the said levers, circuit-closers arranged on the car-seats and connected with the said electro-magnets, flexible car-seats controlling the circuit-closers, and a governor from the car-axle and adapted to lock the said levers, substantially as shown and described.

3. In an automatic car-recorder, the combination, with electro-magnets controlled from the seats in the car, of a series of levers, each carrying a point and actuated from the said electro-magnets, a traveling sheet adapted to be marked on by the points of the said levers, and means, substantially as described, for locking the said levers in place to hold their points off the said traveling sheet at a time when the car is at a standstill, as set forth.

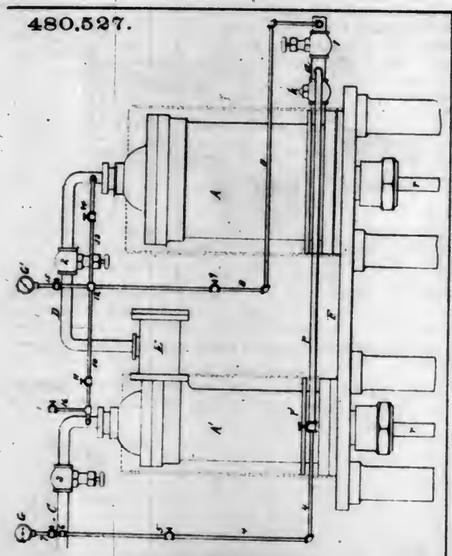
4. In an automatic car-recorder, the combination, with a traveling sheet and a clock-work for imparting a traveling motion to the said sheet, of a series of levers carrying points indicating on the said traveling sheet, magnets for controlling the said levers, circuit-closers arranged on the car-seats and connected with the said electro-magnets, and a governor actuated from the car-axle and adapted to lock the said levers, substantially as shown and described.

480,527. COMPOUND COMPRESSING-ENGINE. STUART ST. CLAIR, York, Pa., assignor to the York Manufacturing Company, Limited, same place. Filed Dec. 29, 1890. Serial No. 376,062. (No model.)

Claim.—1. The combination of the low-pressure cylinder and piston of a compound compressor with an inlet, a high-pressure cylinder having a solid piston, a pipe connecting the discharge from the low-pressure cylinder with the inlet to the high-pressure cylinder, and a pipe connecting the space back of the high-pressure piston with the supply to the low-pressure cylinder, and a check-valve between said connection and the low-pressure cylinder, substantially as described.

2. The cylinders of a compressor, having a valved inlet-pipe and valved delivery pipe, in combination with valved piping connecting the delivery-pipe beyond its valve with the inlet-pipe between the valve of the latter and the cylinders, and in combination with valved piping connecting the delivery-pipe between its valve and the cylinders with the inlet-pipe in front of the valve of the latter, substantially as described.

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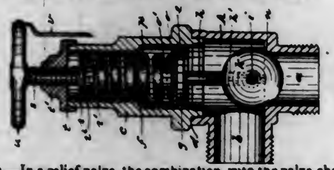
necting the two, an adjusting-yoke, a bolt passed through the members of the yoke, through the members of the bifurcated end of the shank, and through the slot in the beam, and adjusting-screws located at the front and back portions of the yoke, both engaging with the beam, substantially as described, whereby the lower end of the shank may be raised or lowered, as required.

2. In a cultivator, the combination, with a shank and an essentially-V-shaped cultivator-blade secured thereon, of a reversible point removably connected with the blade and a drag pivoted to the shank at the rear of the blade, as and for the purpose set forth.

3. In a cultivator, the combination, with the beam, the shank of the blade, and a yoke for connecting the shank adjustably to the beam, of an angle-bracket secured to the yoke, a second bracket adjustably secured to the first bracket and provided with a spindle, and a colter-wheel mounted on the said spindle, substantially as described.

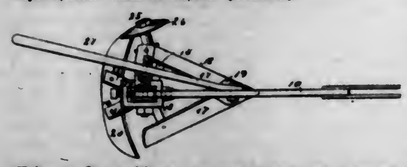
4. A cultivator comprising a beam, a shank adjustably secured to the beam, a V-shaped blade on the shank and having reversible point, a drag pivoted to the shank, and a colter-wheel adjustably supported from the shank, substantially as herein shown and described.

480,528. RELIEF-VALVE. ALEXANDER S. THOMS, Paterson, N. J. Filed Mar. 18, 1892. Serial No. 425,490. (No model.)



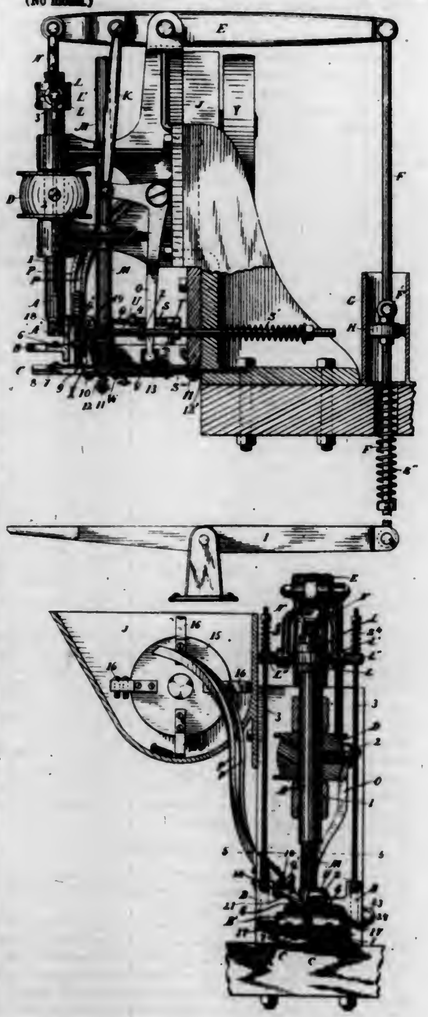
Claim.—In a relief-valve, the combination, with the valve-chamber A, provided with inlet *b* and outlet *a*, arranged at right angles to each other, a valve-seat arranged in the valve-chamber and surrounding the inner opening of outlet *a*, a shell *c*, secured to the top of said valve-chamber and opposite to the outlet-pipe *a* and provided with an inner annular shoulder *f*, a cap *t*, secured to the top of said shell, a plunger *e*, adapted to be operated in said shell by the pressure of the inflowing water and limited in its up motion by said annular shoulder, a stem *h*, secured to the said plunger and provided at its lower end with a fork or yoke *h'*, guiding-lugs on the prongs of said fork, recesses *m m*, arranged on the inside of valve-chamber A, integral therewith and parallel to the motion of the stem *h*, a ball-valve, of considerably larger diameter than the valve-seat, pivotally secured to the fork *h* and adapted to rest on said valve-seat, thus closing close the outlet *a*, and when in operation to revolve in said fork, a spiral spring arranged in shell *c* and adapted to control the said ball-valve, and a screw provided at its outer end with a hand-wheel and at its lower or inner end with a disk pressing on said spiral spring, said screw being adapted to control said spiral spring, all said parts being arranged and combined to operate substantially as described, and for the purposes set forth.

480,529. CULTIVATOR. AUGUSTUS TINDALL, Brenton, Ill. Filed Sept. 26, 1891. Serial No. 406,914. (No model.)



Claim.—1. In a cultivator, the combination, with a beam provided with an aperture near its lower end and a transverse slot, of a shank to which the cultivator-blade is attached, bifurcated at its upper end to receive the lower portion of the beam, a bolt passed through the upper aperture in the beam and through the shank, pivotally con-

480,530. SCREW-DRIVING AND WASHER-FEEDING MACHINE. FRED W. TOBEY, Grand Rapids, Mich., assignor to the Grand Rapids Brass Company, same place. Filed Dec. 5, 1891. Serial No. 414,099. (No model.)



Claim.—1. In combination with a spindle provided with mechanism for simultaneously rotating and longitudinally moving the same, a screw-driver attached to said spindle, grippers for holding a screw in line with the axis of said spindle and movable in line with the same, and mechanism for automatically feeding screws to said grippers, substantially as described.

2. In combination with a spindle provided with mechanism for simultaneously rotating and longitudinally moving the same, a screw-driver attached to said spindle, grippers for holding a screw in line with the axis of said spindle and movable in line with the same, and mechanism for automatically feeding screws to said grippers, grippers for holding washers in line with the axis of said spindle, and mechanism for automatically feeding washers to said grippers, substantially as described.

3. In a screw-driving machine, a hopper to contain screws, a rotative disk in said hopper, U-shaped arms attached to said disk with their open end toward the axis of the same, and parallel ways located to receive the screws as they are discharged from said arms, substantially as described.

4. The combination, with a longitudinally-movable spindle having a screw-driver at one end, a lever E connected to said spindle, a treadle, a rod connecting said lever and treadle, and a spring encircling said rod, of parallel ways, pins passing through said ways, one a short distance above the other and longitudinally movable therein, a yoke embracing said ways to which said pins are attached, a rod attached to said yoke, a spring on said rod to move the same in one direction, an arm, also attached to said rod, and a bell-crank lever O, connected at its upper end with said lever E and at its lower end engaging said arm on the rod for moving said rod in the other direction.

5. In a machine for driving screws and feeding washers, the combination, with a longitudinally-movable spindle having a screw-driver at one end, ways having mechanism for discharging one screw at a time, grippers for holding said screws in line with said spindle, and means for feeding the washers, of a reciprocative rod having a head adapted to engage said screws and force them between said grippers, said rod also having a sleeve adapted to engage the under side of a screw, substantially as described, and for the purposes specified.

6. In combination with ways provided with mechanism for singly discharging screws therefrom, a forked and pivoted arm normally opposite said ways, and a reciprocative rod having a head engaging said screws and forcing the same out of said forked arm and into grippers arranged to receive said screws, substantially as described.

7. In combination with mechanism for automatically feeding and driving screws, substantially as described, a vertical tube to contain washers, a reciprocative slide beneath said tube, and grippers in line with the axis of the screw-driving mechanism to hold said washers, substantially as described.

8. The combination, with screw feeding and driving mechanism, substantially as described, of a vertical tube, a stop, as 23, near the bottom of the same, a gate opposite the end of the same, a reciprocating slide between said gate and tube, and grippers in line with said slide, the axis of said grippers also in line with the axis of the screw-driving mechanism, substantially as described.

9. In a washer-feed, a fixed vertical tube M, a horizontal bed-plate B', means for flexibly supporting said bed-plate, a plate 13, a gate V, having spring S', a slide W, means for reciprocating said slide, and grippers 7 7, said parts being arranged, combined, and operating substantially as shown and described.

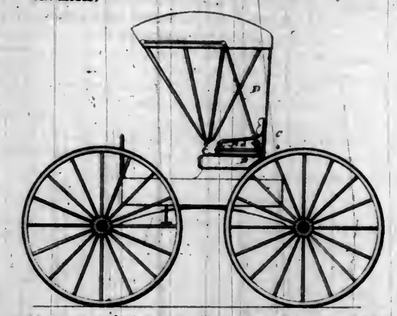
10. In combination with a longitudinally-movable spindle having a loose collar and a tight collar at each side of the same, a vertically-movable angle-plate having grippers to hold a screw in line with the axis of said spindle, rods connecting said angle-plate with said loose collar, and springs on said rods, substantially as described.

11. The combination of a longitudinally-movable spindle having a screw-driver attached, grippers in line with the axis of said spindle, parallel inclined ways having mechanism for discharging screws one at a time, a reciprocating rod to move the screws into said grippers, a lever connected to said spindle, a treadle connected to said lever, and a bell-crank lever, also connected to said lever and operating said rod, substantially as described.

12. The combination of a longitudinally-movable spindle having a screw-driver, grippers in line with the axis of said spindle, parallel inclined ways having mechanism for discharging screws one at a time, a reciprocative rod to move the screws into said grippers, a treadle connected to said lever, and a bell-crank lever also connected to said lever and operating said rod, with a vertical tube to contain washers, washer-grippers in line with the axis of said spindle, and a reciprocative slide beneath said tube to move said washers from said tube to said grippers, said slide also being operated by said bell-crank lever, substantially as described.

13. In combination with grippers to hold screws and grippers beneath the same to hold washers, and a reciprocating slide to move the washers into said grippers, a reciprocating head to move the screw into said grippers, and a shoe on the bottom of said head to hold the washer down while being moved forward by said slide, substantially as described.

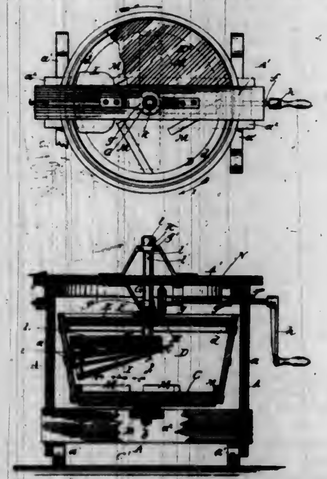
480,531. LEVER FOR RAISING AND LOWERING BUGGY-TOPS. HANS TORRESEN, Yankton, S. D. Filed Feb. 3, 1892. Serial No. 420,238. (No model.)



Claim.—1. A device for raising and lowering carriage-tops, comprising a lever A, having a handle portion *a* at one end, a projecting barrel or eye *b* at the other end, adapted to loosely engage the iron or stud forming the support for the top when down, and the upwardly-projecting arm C, designed to be connected to or form a part of the joint-brace, substantially as specified.

2. The combination, with a carriage-top, of the device for raising and lowering said top, said device comprising a lever A, an eye or barrel *b* on one end of said lever and projecting outwardly therefrom, said eye or barrel being loosely sleeved on the stud or iron *b'* of the carriage-frame, and an upwardly-projecting arm C, having an angular portion arranged to detachably engage said eye or barrel, said arm having means whereby it is secured to a joint-brace of the top, substantially as specified.

480,532. WASHING-MACHINE. CORNELIUS VAN DERSER, Albany, N. Y., assignor of two-thirds to David H. Mathias and James H. Simonson, same place. Filed Nov. 23, 1891. Serial No. 412,887. (No model.)



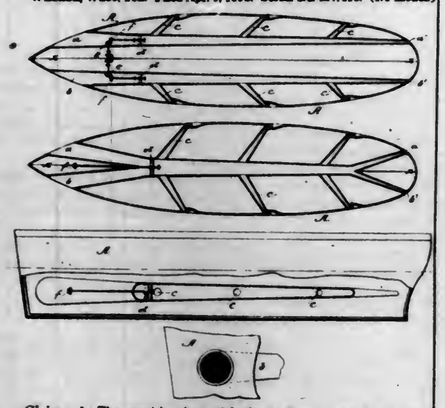
Claim.—1. In a washing-machine, the combination, with a stationary frame and a tub supported by a vertical pivot from said frame, of the tub-turning bar E, provided with the central gear F, driven by a gear carried by the drive-shaft *f*, vertical shaft G, conical fluted roller I, guard L, carried by the lower end of said vertical shaft, and the bar A', supporting said shaft, all substantially as and for the purposes set forth.

2. In a washing-machine, the combination, with the frame A, supporting the central step-bearing *b*, and a horizontally-revolving tub, of the platform C, supported by a vertical shaft from the said step-

bearing and received between the circle of the chine of the lower or bottom end of the said tub, gear-bar A', hinged by one of its ends to the upper end of the frame with provision for securing at will its opposite end also with said frame, of the tub-turning bar E, secured with the upper end of the tub, a vertical shaft G, supported centrally in said tub-turning bar, horizontal arm I', conical fluted roller I, and water-guard L, and the gear mechanism F and H, actuated by a drive-shaft, all substantially as and for the purposes set forth.

3. In a washing-machine, the combination, with a frame, a horizontally-revolving tub supported from said frame, the removable gear-bar A', vertical shaft G, which is fixed from moving endwise, tub-turning bar E, engaging with the side walls of the tub, radial arm I', fixed to the lower end of the said vertical shaft, and the conical fluted roller I, which is supported from the said radial arm, of the gear F, secured to the said tub-turning bar and concentric with the said vertical shaft, drive-gear H, and drive-shaft *f*, supported in bearings secured to the said gear-bar with provision for revolving the same, substantially as and for the purposes set forth.

480,533. HYDRAULIC PROPULSION OF VESSELS. JAMES C. WALKER, Waco, Tex. Filed Apr. 1, 1892. Serial No. 427,416. (No model.)



Claim.—1. The combination, with the hull of a vessel, of a longitudinal trunk-tube made of tapering shape in cross-section, largest at its front end, and opening at the bow and provided along its sides with a series of lateral branches terminating in nozzles, and means for establishing a high-pressure current within the tube, substantially as shown and described.

2. The combination, with the hull of a vessel, of a longitudinal trunk-tube made of tapering cross-section, largest at its front end, and opening at the bow and provided along its sides with a series of lateral branches terminating in nozzles, a propeller-wheel arranged in the front end of said trunk-tube, and gears for rotating it, substantially as shown and described.

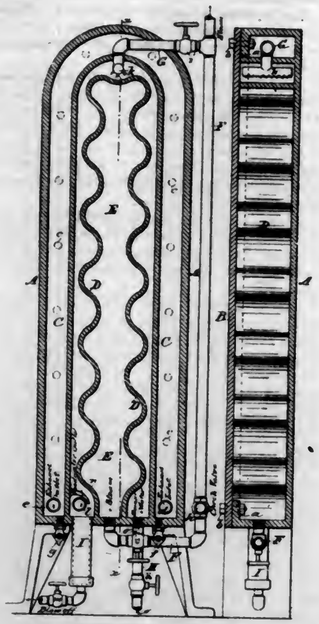
3. The combination, with the hull of a vessel, of the two tapering trunk-tubes *a a'* and *b b'*, made largest at the front end and opening at the bow, said tubes being arranged upon opposite sides of the center line and having lateral branches terminating in nozzles, the suction and propeller wheels *d d*, arranged in the larger front ends of said tubes, and gears *e f* for rotating them, substantially as shown and described.

480,534. HEATER AND PURIFIER FOR FEED-WATER. JOHN P. WARNER, Washington, D. C., assignor to A. F. Navarre, same place. Filed Nov. 14, 1891. Serial No. 411,891. (No model.)

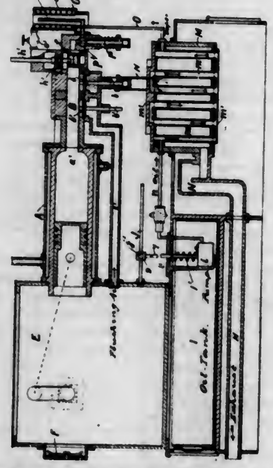
Claim.—1. In heaters and purifiers for feed-water, the combination of the main body A, provided with the partition C and corrugated partition D, forming the space E for live steam in the center and on the outside of said partition C for exhaust-steam, with the steam and water inlet and outlet pipes and arranged substantially as set forth.

2. A heater and purifier for feed-water, consisting of the shell A, provided with the partition C and the corrugated partition D, in combination with the steam-pipe F, having branch pipe G, having perforated T-piece *k*, the water-pipe H, provided with a steam-jet *o*, and the mud-drum I and the exhaust-pipes, all arranged as shown, and for the purpose specified.

3. The combination of the main body A, provided with the partition C and corrugated pipe D, constructed as shown, with the steam-pipe F, having branch pipe G and T-pipe *k* at the upper end and entering into the central space E at the lower end, the exhaust inlet and outlet pipe, and the water inlet and outlet pipe, all arranged as shown and specified.



480,535. PETROLEUM OR SIMILAR ENGINE. GEORGE W. WEATHERHOGG, Birmingham, England. Filed Aug. 15, 1891. Serial No. 402,701. (No model.) Patented in England May 14, 1889, No. 8,013, and in Germany June 1, 1890, No. 62,137.



Claim.—1. In a petroleum-engine, the combination, with the oil-pump provided with a spring for raising its plunger automatically, of a pivoted lever for depressing the pump-plunger, a reciprocating tappet connected with the driving mechanism of the engine and adapted to depress the said lever at appropriate intervals, and means, such as a screw, for moving the tappet longitudinally of the said lever, whereby the length of the stroke of the pump-plunger may be varied, substantially as set forth.

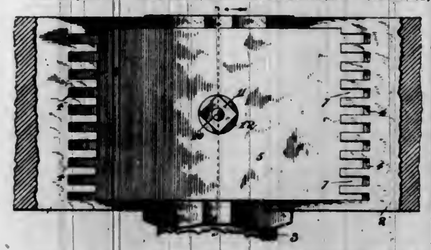
2. In a petroleum-engine, the combination, with the oil-pump provided with a spring for raising its plunger automatically, of a pivoted lever for depressing the pump-plunger, a second pivoted lever provided with an adjustable tappet and arranged over the first said lever, and a rod connecting the second lever with the driving mechanism of the engine, substantially as and for the purpose set forth.

3. In a petroleum-engine, the combination, with the evaporator provided with an outer case adapted to receive exhaust-steam for vaporizing the oil, a series of pipes passing through the said case, and a hollow bottom casting connecting the lower ends of the said pipes and adapted to be heated by an external flame to vaporize sufficient oil to start the engine, of a pump for forcing the oil through the said tubes and casting, substantially as set forth.

4. In a petroleum-engine, the combination, with the automatic air-inlet valve, of the vapor-valve provided with a perforated seat, the perforated casting in the mixing-chamber under the said vapor-valve, and the admission-valve provided with perforated disks on its stem, whereby the air and vapor may be intermixed, substantially as set forth.

5. In a petroleum-engine, the combination, with the admission-valve provided with perforated disks on its stem for breaking up globules of oil, of the perforated casting secured in the combustion-chamber under the said valve and adapted to evaporate the particles of oil, substantially as set forth.

480,536. FASTENING FOR TABLE-LEGS. LOUIS WELKER, Williamsport, Pa. Filed Dec. 2, 1891. Serial No. 413,812. (No model.)

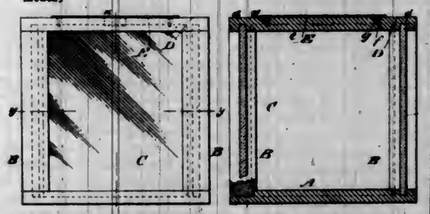


Claim.—1. In a knockdown table, the frame having its side pieces provided on the inner faces thereof with the series of segmental kerfs or grooves extending longitudinally of the same and terminating within the ends of the side pieces and the diagonal corner-piece provided at its ends with the series of tenons, an adhesive substance being applied and the corner-piece or brace forced into position with its tenons in the kerfs or grooves and allowed to set, substantially as described.

2. In a knockdown table, the frame having its side pieces provided with a series of longitudinal segmental kerfs or grooves, the diagonal corner-piece or brace provided at its ends with the series of tenons which are secured in the kerfs or grooves, the leg, and the angular reinforce-blocks secured between the corner-piece, the side pieces, and the leg, substantially as described.

3. In a knockdown table, the combination of the frame having its side pieces provided with the longitudinal segmental kerfs or grooves, arranged as described, the corner-piece or brace having its chamfered ends provided with the tenons secured in the grooves or kerfs, the solid head-leg fitted against the imperforate ends of the side pieces, and the screw-bolt secured in the head of the leg and having a nut bearing against the corner-piece or brace, substantially as described.

480,537. FRUIT-JAR. CHARLES L. WIGHT, Mahukona, Hawaii. Filed Aug. 1, 1891. Renewed July 11, 1892. Serial No. 439,567. (No model.)

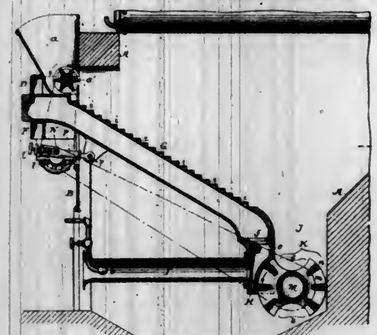


Claim.—1. A knockdown jar or receptacle comprising a bottom having marginal grooves in its upper face and sockets or holes intersecting said grooves, a cover having similar grooves and holes, corner-posts each having two longitudinal grooves and end tenons to enter the base and cover sockets, and the side panels, the longitudinal edges of which fit the base and cover grooves and the vertical edges the post-grooves, substantially as set forth.

2. A jar formed of the grooved base-board A, provided with holes *a*, the corner-posts B, grooved longitudinally and provided with tenons at opposite ends, the sides C, the cover D, furnished with grooves for receiving the sides and holes for receiving the tenons of the corner-posts and provided with the central opening *e* and groove *f*, and the cap E, furnished with downwardly-projecting ears *g*, substantially as specified.

3. In a vessel of the character described, the cover having an annular groove *f* in its upper face to define its place of opening and a closure of greater diameter than the groove and having downward-projecting ears entering the groove, substantially as set forth.

480,538. FURNACE-GRATE. ALFRED WILKINSON, Philadelphia, Pa. Filed Feb. 29, 1892. Serial No. 423,257. (No model.)



Claim.—1. The within-described grate for furnaces, said grate consisting of hollow inclined bars, each of which has a series of tuyere-openings in the inclined fuel-supporting face of the bar, and means for supplying air to said hollow grate-bars, substantially as specified.

2. The within-described grate for furnaces, said grate consisting of a series of hollow inclined bars, in combination with means for supplying air to said bars, each of the bars being stepped on the fuel-supporting face and said steps having in the fronts of the same tuyere-openings for the discharge of air into the bed of the fuel, substantially as specified.

3. The within-described grate for furnaces, said grate consisting of a series of hollow inclined bars, some of which are movable to and fro past the others, the bars having tuyere-openings in their fuel-supporting faces, in combination with means for supporting the grate-bars at top and bottom, means for moving the movable bars of the grate, and means for forcing air into the bars, substantially as specified.

4. The combination, in a grate for furnaces, of the hollow inclined grate-bars having tuyere-openings in their fuel-supporting faces, a hollow transverse beam or girder supporting said bars and communicating with the interior of the same, and means for forcing air into said hollow beam or girder, substantially as specified.

5. The combination, in a grate for furnaces, of the hollow inclined grate-bars having tuyere-openings in their fuel-supporting faces, a hollow transverse beam or girder supporting said bars and communicating with the interiors of the same, an air-inlet pipe communicating with said hollow beam or girder, and a steam jet or injector for causing a flow of air and steam into and through said pipe and into the girder, substantially as specified.

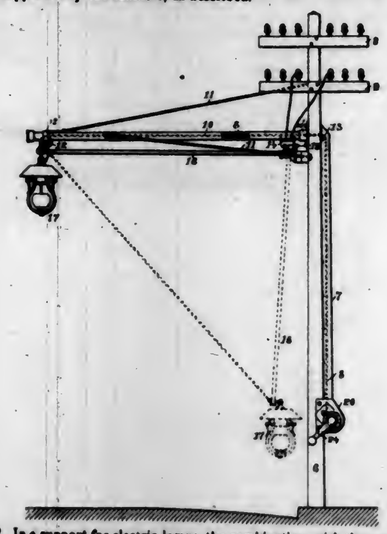
6. The combination, in a grate for furnaces, of the hollow inclined grate-bars having tuyere-openings in their fuel-supporting faces, the hollow beam or girder serving as a support for said bars and communicating with the interiors of the same, means for forcing air into said hollow beam or girder, and a perforated air-distributer in front of said girder, substantially as specified.

7. The within-described grate for furnaces, said grate consisting of hollow inclined bars, each of which has a series of tuyere-openings in the inclined fuel-supporting face of the bar, and an automatic ash-discharger located adjacent to the bases of said hollow inclined bars, substantially as specified.

480,539. SUPPORT FOR ELECTRIC-ARC LAMPS. AUGUSTUS WRIGHT, Providence, R. I., assignor to the Hope Electric Appliance Company, same place. Filed Apr. 27, 1891. Serial No. 390,562. (No model.)

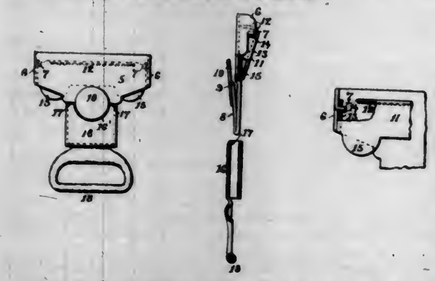
Claim.—1. The combination, with the mast 6, having the capstan-case 20 and a capstan journaled therein and operated by the crank 24, the tackle 8, provided with the stop 30 and weight 29, adapted to be wound on and unwound from said capstan and a tubular

mast-arm 10, rigidly secured to said mast and provided at its outer end with a pulley 12 to support the tackle 8, of the rigid tubular lamp-stay 16, pivotally secured to the mast 6, the local conductor-wires contained therein, and the lamp 17, secured to the outer end of said stay and supported by the tackle 8, as described.



2. In a support for electric lamps, the combination, with the mast 6 and the tubular mast-arm 10, secured thereto by means of the socketed bracket 10', the guy-rods 11 11, secured at their outer ends to the mast arm and at their inner ends to the mast 6 or to cross-arms on said mast and adapted to hold the mast-arm in place, the pulley 12, journaled between the ends of the strap 12', near the outer end of the mast-arm, and the insulated ears 14 14, secured to the base portion of said mast-arm and connected in the main circuit, of the rigid tubular stay 16, pivotally secured to the mast 6 at its base and carrying contact-blocks 19 19, engaging the ears 14 14 on the mast-arm 10 and connected in the local lamp-circuit contained within said stay, the lamp 17, secured to the outer end of the stay, and the tackle 8, secured to said outer end of the stay 16 and passing over the pulley 12 and through the tubular mast-arm, and adapted to be operated as described.

480,540. BUCKLE. GEORGE R. ADAMS, Providence, R. I. Filed Nov. 17, 1891. Serial No. 412,165. (No model.)



Claim.—The combination, with the front plate 5, having the bent ends 6 6, carrying the pivots 7 7, bent therefrom, and the back plate 11, having the serrated edge 12 and the bent ends 13 13, provided with perforations 14 14, adapted to receive said pivots 7 7, of the spring-tongue 8, formed integrally with the front plate and having the shoulders 9 9 and thumb-plate 10, and a cast-off 16, formed from sheet metal in the shape of a flat box, having the cut-out portion 16', lips 17 17, adapted to receive the shoulders 9 9, and the round guide-bar 18, as and for the purpose described.

480,541. DRAWING-PEN. FERDINAND A. ALTENDER, Philadelphia, Pa. Filed May 16, 1892. Serial No. 433,136. (No model.)

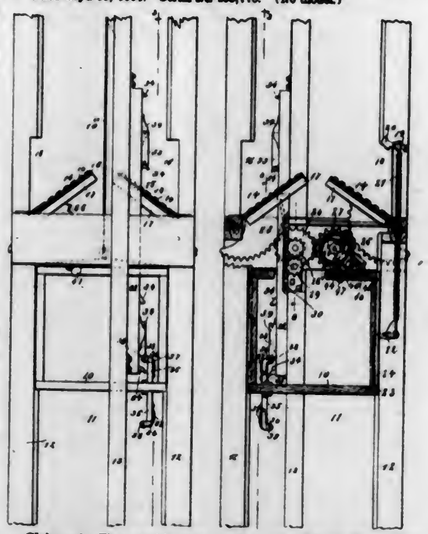


Claim.—1. A drawing-pen having a pivoted blade acted upon by a spring tending to cause said pivoted blade to approach the other blade, but permitting the free separation of the blades, and a set-screw carried by one blade and having a bearing upon the other for limiting the approach of the blades, substantially as specified.

2. A drawing-pen having a fixed blade and a pivoted blade free to move away from the fixed blade, a spring acting upon said pivoted blade at a point beyond the fulcrum, so as to tend to move the point of the blade toward that of the fixed blade, and a set-screw carried by one blade and having a bearing upon the other for limiting such approach, substantially as specified.

3. A drawing-pen having a fixed blade with longitudinal slot, a pivoted blade free to move away from the fixed blade, a spring carried by said fixed blade, adapted to the slot of the same and acting upon the pivoted blade so as to close the same, and a set-screw carried by one blade and having a bearing upon the other, so as to limit the approach of the blades, substantially as specified.

480,542. ELEVATOR. WILLIAM H. ANDERSON, San Rafael, Cal. Filed Sept. 15, 1891. Serial No. 405,773. (No model.)



Claim.—1. The combination, with a vertically-swinging door adapted to swing across an elevator-well and having a segmental rack, of vertically-sliding rack-bars extending above and below the door at its hinged edge and both geared to its segmental rack, a block projecting from one rack-bar above the door, a block projecting from the other rack below the door, and a latch for each rack-block, both mounted at the same side of the elevator-cage, whereby one rack will open the door when the cage ascends and the other open it as the cage descends, substantially as set forth.

2. The combination, with a vertically-swinging door adapted to swing across an elevator-shaft and having a segmental rack, of vertically-sliding rack-bars extending in the raceway above and below the hinged edge of the door and both geared to its segmental rack, blocks projecting, respectively, from the upper end of one rack and from the lower end of the other rack, a latch for each rack-bar, both mounted on the same side of the cage, and rounded steps on the raceway to release the latches from the block, substantially as set forth.

3. An apparatus of the character described, comprising vertically-swinging doors adapted to close the elevator-well and having segmental racks on the under side, sliding racks held to move in a vertical raceway in the elevator-well and connected by a gear mechanism with the door-racks, said sliding racks having projecting blocks, as described, bent arms secured to the elevator-cage and provided with spring-pressed latches arranged in the path of the blocks on the sliding racks, said latches having rollers on one side, and rounded steps secured to the raceway in the path of the rollers, substantially as described.

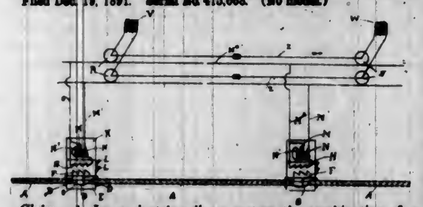
4. The combination, with the sliding racks connected with the doors, as described, and provided with projecting blocks, of cam-hooks

pivoted adjacent to the blocks and adapted to engage pins thereon, and latches secured to the elevator-cage and arranged in the path of the hooks, substantially as described.

5. The combination, with the swinging doors and the vertically-moving cage having a spring-pressed block thereon, of a spring-pressed catch pivoted on the side of the well and adapted to engage an open door, and a latch having a spring connection with the catch and arranged to project into the path of the spring-pressed block on the cage, substantially as described.

6. The combination, with the swinging doors having segmental racks thereon and the gear-wheels connecting the racks, of a drum loosely mounted on one of the gear-wheels, a pawl-and-ratchet-wheel connection between the drum and the gear-wheel, and an adjustable friction-strap mounted on the drum, substantially as described.

480,543. ELECTRIC RAILWAY. FRANCIS B. BADT, Chicago, Ill., assignor of two-fifths to Lester B. Hills and A. M. Searles, same place. Filed Dec. 19, 1891. Serial No. 415,668. (No model.)



Claim.—1. In an electric-railway system, the combination of exposed conductor-rails arranged in sections and adapted to be brought into circuit with the moving motor with insulated main conductors, a series of converters, each having a primary coil permanent in the main circuit and a secondary coil having a part circuit terminating at each end in one exposed rail said part circuit normally open, and devices to close the same on the approach of the car, said devices including a permanently-closed conductor between the rails with which the ends of such part circuits are connected.

2. In an electric railway system, the combination of exposed conductor-rails arranged in sections and adapted to be brought into circuit with the moving motor with insulated main conductors, a series of converters, each having a primary coil permanently in the main circuit and a secondary coil having a part circuit terminating at each end in one exposed rail, said part circuit normally open and devices to close the same on the approach of the car, said devices comprising a permanently-closed conductor between the rails with which the ends of such part circuits are connected, and an electro-magnet or solenoid about which such conductor passes.

3. In an electric-railway system, the combination of exposed conductor-rails arranged in sections and adapted to be brought into circuit with a moving motor with insulated main conductors, and a series of converters, each having a primary coil permanently in the main circuit and a secondary coil having a part circuit terminating at each end in one exposed rail, said circuit normally open and devices to close the same on the approach of the car, and fore-and-aft trolleys in multiple and adapted one set to furnish the current which operates such devices associated with the other set.

4. In an electric-railway system, the combination of exposed conductor-rails arranged in section and adapted to be brought into circuit with a moving motor with insulated main conductors, and a series of converters, each having a primary coil permanently in the main circuit and a secondary coil having a part circuit terminating at each end in one exposed rail, said circuit normally open and devices to close the same on the approach of the car, and fore-and-aft trolleys in multiple and adapted the one set to furnish the current which operates such devices associated with the other set, said devices including each a permanently-closed conductor between the two rails with which the ends of the open part circuit are to be controlled are connected.

5. In an electric-railway system, the combination of exposed conductor-rails arranged in sections and adapted to be brought into circuit with a moving motor with insulated main conductors, and a series of converters, each having a primary coil permanently in the main circuit and a secondary coil having a part circuit terminating at each end in one exposed rail, said circuit normally open and devices to close the same on the approach of the car, and fore-and-aft trolleys in multiple and adapted one set to furnish the current which operates such devices associated with the other set, the shortest distance between the fore-and aft trolleys being greater than the length of the rail-sections.

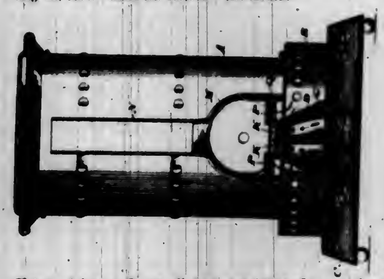
6. In an electric-railway system, the combination of an insulating high-tension-current system permanently including the primary coils of successive converters, with local low-tension part circuits normally open and including each the secondary of one converter and terminating in the partially-insulated but exposed sectional conductors from which the moving motor derives its current and a switch in each of such local circuits, and fore and aft trolleys arranged in sets, each set adapted to supply current to close the switch and thus close the local circuit for the time being, associated with the other set and also to supply current to the motor to run the car.

7. In an electric-railway system, the combination of high-tension-current mains with converters whose primary coils are permanently in circuit, exposed sectional conductors with which the motor on the car is adapted to be connected, local part circuits whose terminals are opposite rails, one of such local circuits normally broken and containing the converter secondary coil and the other permanently closed, and means connected with the latter to close the former responsive to a current delivered from the car.

8. In an electric-railway system, the combination of high-tension-current mains with a series of primary converter-coils in multiple therewith, a series of exposed sectional conductors arranged in sets, the secondary coil of each converter connected in multiple with one set of rails by a normally-broken local part circuit, a motor on the moving car, trolleys on such car in multiple and adapted to simultaneously engage the rails of a set, and means operated from the car to close such local circuit.

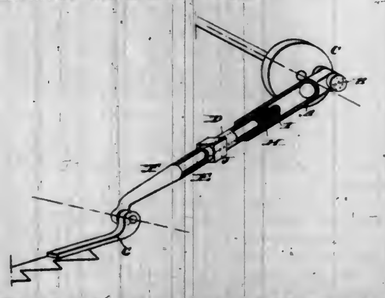
9. In an electric-railway system, underground insulated high-tension mains, a triple compartment-box through one compartment of which said mains pass, converter-coils in the second compartment, and a local circuit-switch mechanism in the third compartment, suitable conductors connecting the elements in the various compartments, and two conductors leading, respectively, to the conductors from which the motor on the car receives its current.

480,544. OIL-STOVE. DAVID BAILEY, Philadelphia, Pa. Filed Aug. 22, 1891. Serial No. 403,363. (No model.)



Claim.—A burner for an oil-stove, consisting of a central vertical wick-tube, side wick-tubes converging toward said central tube, perforated diaphragms interposed between the upper portions of said wick-tubes, said wick-tubes having vertical deflectors L projecting above the sides thereof, a chamber closing over said burner, horizontally-disposed deflectors P at the base of and projecting inwardly from the sides of said chamber, and perforated plates Q directly below and separated from said deflectors P, said parts being combined substantially as described.

480,545. PITMAN. PHILIP Y. BARBER, Sharp's Wharf, Va. Filed Apr. 23, 1892. Serial No. 430,349. (No model.)

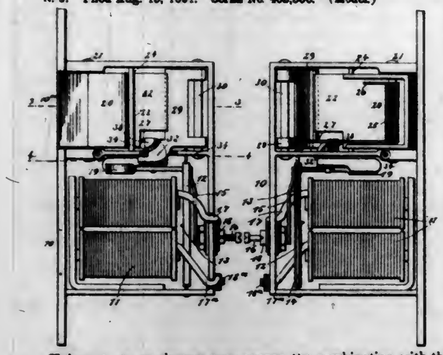


Claim.—1. A pitman comprising a head pivotally connected with the actuating crank-disk, a sleeve or tube screwing in the free end of the said head, a rod pivotally connected with the device to be driven and formed with a reduced part extending through the said sleeve, and a nut engaging the outer end of the said reduced part and abutting

against the said sleeve to hold the rod in position on the sleeve, but permit of its turning thereon, substantially as shown and described.

2. A pitman comprising a head pivotally connected with the actuating crank-disk, a sleeve or tube screwing in the free end of the said head, a rod pivotally connected with the device to be driven and formed with a reduced part extending through the said sleeve, a nut engaging the outer end of the said reduced part and abutting against the said sleeve to hold the rod in position on the sleeve, but permit of its turning thereon, and a key for locking the said nut in position, substantially as shown and described.

480,546. ELECTRIC DOOR-OPENER. LOUIS BATES, Jersey City, N. J. Filed Aug. 13, 1891. Serial No. 402,530. (Model.)



Claim.—1. In an electric door-opener, the combination, with the spring-pressed main latch, a spring-pressed locking-pawl arranged to engage a notch in the inner end of the latch, the electro-magnets, the vibratory armature, and the hammer secured thereto, of a bent releasing latch pivoted in the case, said latch having one end arranged in the path of the hammer and the opposite end adapted to release the locking-pawl and hold it out of engagement with the main latch, substantially as described.

2. The combination, with the spring-pressed main latch, the spring-pressed locking-pawl adapted to engage the inner end of the same, said pawl having a projecting arm with an inclined end, the electro magnets, the vibratory armature, and the hammer secured to the armature, of the releasing latch pivoted in the case, said latch having one arm extending into the path of the hammer and the opposite arm provided with a shoulder arranged to engage the inclined end of the locking-pawl arm and hold said pawl out of engagement, substantially as described.

3. The combination, with the main latch having an extended end with a notch therein and a locking-pawl adapted to engage the notched end of the main latch, of a spring coiled around the main latch-pivot, one end of the spring pressing against the main latch and the opposite end engaging a lug on the locking-pawl, substantially as described.

480,547. COMBINED PENCIL SHARPENER AND HOLDER. JOSEPH W. BATTELLE, Worcester, Mass. Filed Apr. 8, 1892. Serial No. 428,299. (No model.)



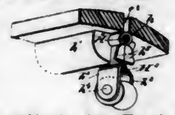
Claim.—1. The pencil-supporter consisting of the parts A and B, fastened together, the part A having the rims a, a', and a^2, and the part B having the rims b, b', and b^2, whereby two cups or receptacles and holes D and D' will be left in the completed structure, substantially as described.

2. The combination of a pencil supporter or holder and a pencil-sharpener housed and protected therein, substantially as described.

3. The combination of a suitable casing and a pencil-sharpener housed therein, said sharpener having a knife, as H, the cutting-edge of which is circular, as at h, whereby a clear space, as h^2, will be left for the leads, substantially as described.

4. The combination of a suitable casing and a pencil-sharpener housed therein, said sharpener having a knife H, having slots h', screws m, and washers n, holding the said knife in place, said knife having a circular cutting-edge h, whereby a space h^2 will be left for the leads, substantially as described.

480,548. VENETIAN BLIND. JAMES K. BENWAY, Albany, N. Y., assignor to the Albany Venetian Blind Company, same place. Filed Nov. 24, 1891. Serial No. 412,975. (No model.)



Claim.—1. The combination, in a Venetian blind, of a top bar, slats suspended from said bar and operating-cords for the slats, the bar being formed with recesses in its under side, and pulleys for the operating-cords, the hangers of the pulleys being pivotally suspended from the bar within the recesses therein and having its shank provided with wings projecting at right angles thereto, substantially as described.

2. The combination, in a Venetian blind, of a top bar, slats suspended therefrom and operating-cords for the slats, the said bar having transverse recesses in its under side and intersecting longitudinal recesses in its upper side, hangers carrying pulleys for the operating-cords, the hangers having wings thereon for the purpose specified, and securing devices for said hangers, substantially as described.

3. As a new article of manufacture, a pulley for the cords of Venetian blinds, the hanger of the pulley having an eye at its upper end adapted to receive a pivot-pin for pivotally suspending the pulley, and a guard-wing below the eye, said wing ranging at right angles to the axis of the eye, substantially as and for the purpose specified.

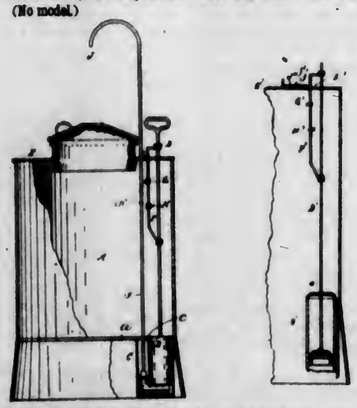
480,549. PHOSPHATE-SEPARATOR AND SCREEN-WASHER. GEORGE R. BOAR, Tampa, Fla. Filed Aug. 25, 1891. Serial No. 403,700. (No model.)



Claim.—1. In a phosphate-separator and washer, the primary screen G at the receiving end of the screen E and the closed chute F', surrounding said screen G, said chute F' and said screen G being conical in reverse order, in combination with the converging buckets H, with the hood H' thereover at the discharge end of said screen E, substantially as described.

2. A phosphate-separator and washer consisting of the screen E, the water-tank A, into which it dips, and the conveyer M in said tank, the primary screen G at the receiving end of the screen E, and the closed chute F', surrounding said screen G, said chute F' and said screen G being conical in reverse order, and the converging buckets H, with the hood H' thereover at the discharge end of said screen E, said parts being combined substantially as described.

480,550. MEASURING-PUMP. SYLVANUS F. BOWSER and AUGUSTUS BOWSER, Fort Wayne, Ind. Filed May 2, 1892. Serial No. 431,416. (No model.)



Claim.—1. In a measuring-pump, the combination, with a tank, a

pump therein whose rod passes through the tank, and a delivery-spout, of a gage-rod also passing through the tank, its body standing parallel with the pump-rod and its ends being cranked and connected with said pump-rod, and adjustable collars on the pump-rod against the ends of the gage-rod, substantially as and for the purpose set forth.

2. In a measuring-pump, the combination, with a tank, a pump therein whose rod passes through the top of the tank, and a delivery spout, of a gage-rod whose body stands parallel with the pump-rod and passes through a hole in said top and whose ends are connected with said pump-rod, and stops on said gage-rod respectively adapted to pass through the gage-rod hole and to strike under said top, as and for the purpose set forth.

3. In a measuring-pump, the combination, with a tank, a pump communicating therewith and whose rod passes through the top of the tank, and a delivery-spout, of a gage-rod secured to said pump-rod parallel therewith, an upper stop on said gage-rod, the top of the tank having a hole through which this rod and stop may move, means, substantially as described, for preventing the passage of this stop therethrough, and a lower stop arranged so as not to pass through said hole, as and for the purpose set forth.

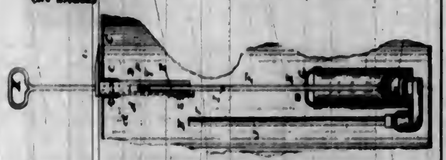
4. In a measuring-pump, the combination, with a tank having in its top a hole and adjacent thereto a curved slot struck around said hole and having a radial extension at one extremity, a pump communicating with said tank and whose rod passes through said hole, and a delivery-spout, of a gage-rod secured to said pump-rod and moving longitudinally through said slot and two stops on said gage-rod, the uppermost being radial to the pump-rod and adapted to pass through the extension, as and for the purpose set forth.

5. In a measuring pump, the combination, with a tank having in its top a hole and adjacent thereto a curved slot struck around said hole and having a radial extension at one extremity, a pump communicating with said tank and whose rod is square and passes loosely through said hole, and a delivery-spout, of a gage-rod having cranked ends secured to the pump-rod so as not to turn thereon, its body being parallel with said pump rod and moving through said slot, and two stops on the gage-rod, the uppermost being adapted and the lowermost not adapted to pass through said extension, as and for the purpose set forth.

6. In a measuring-pump, the combination, with the tank having in its top two holes, a slide mounted on said top and adapted to partially close one hole, a pump communicating with the tank and having a delivery-spout, and a pump-rod passing through the unimpeded hole, of a gage-rod connected with the pump rod and passing through the remaining hole, and two stops thereon, the uppermost one being adapted to pass through the gage-rod hole when the slide is retracted, but the lowermost one not being adapted to pass through said hole, as and for the purpose set forth.

7. In a measuring-pump, the combination, with a tank having in its top a hole and adjacent thereto a curved slot struck around the hole and having an extension at one extremity, a pump communicating with the tank and whose rod passes loosely through said hole, and a delivery-spout, of a gage-rod secured at its ends to the pump-rod, so as to turn therewith, its body moving in said slot, two stops on said gage-rod, and means, substantially as described, for preventing the uppermost stop from passing through said extension, as and for the purpose hereinbefore set forth.

480,551. MEASURING-PUMP. SYLVANUS F. BOWSER and AUGUSTUS BOWSER, Fort Wayne, Ind. Filed May 2, 1892. Serial No. 431,417. (No model.)



Claim.—1. The combination, with a pump having a stop on its pump-rod, of a tube surrounding said rod and having a recess adapted to receive said stop and means, substantially as described, for adjusting the rod and tube relatively, as and for the purpose set forth.

2. The combination, with a reciprocating pump having a stop on its pump-rod, of a tube surrounding said rod and having a slot in one side open at its lower end and adapted to receive said stop and means, substantially as described, for adjusting the rod and tube relatively and axially to each other, as and for the purpose set forth.

3. In a measuring-pump, the combination, with a tank having a scale on its top, a pump within said tank, having a delivery-spout, the pump-rod leading through said top, and a stop on said rod, of a tube carried by the top and surrounding the rod, the tube being slotted at its lower end to receive the stop, means, substantially as described, for adjusting the rod and tube relatively and axially to each other, and an index carried by the moving part and operating in conjunction with said scale, as and for the purpose set forth.

4. The combination, with a reciprocating pump having a stop on its rod, of a tube surrounding said rod and having a slot in one side open at its lower end and adapted to receive said stop, an angle-iron secured at the upper end of said slot, a set-screw therethrough, a second set-screw in the side of the tube, and a second angle-iron having a slot taking under the head of this set-screw, all as and for the purpose set forth.

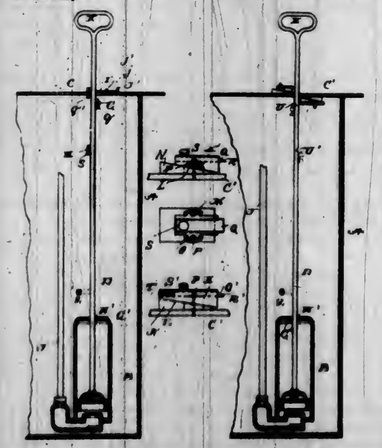
5. The combination, with a reciprocating rod having a stop, of a tube having a slot in which said stop may pass or against whose lower end it may strike, means, substantially as described, for turning the rod and tube relatively and axially, and set-screws and angle-irons at the upper end of the slot and at the lower end of the tube, as and for the purpose set forth.

6. In a measuring pump, the combination, with a tank having a collar depending from its top and a scale marked on said top, a tube supported and turning in said collar and having a slot in its lower end, and an index secured to said tube and moving over the scale, of a pump within the tank, having a delivery-spout, the pump-rod passing through said tube, means for preventing the turning of the rod, and a stop secured to said rod, as and for purpose set forth.

7. In a measuring-pump, the combination, with a tank having a collar depending from its top and a scale marked on said top, a set-screw through said collar, a tube swiveled in the collar and having an exterior groove engaged by the tip of said set-screw, the body of the tube being slotted at its lower end, and an index secured to the tube and moving over said scale, of a pump within the tank, having a delivery-spout, the pump-rod passing through the tube, means for preventing the turning of said rod, and a stop on the rod, as and for the purpose set forth.

8. In a measuring-pump, the combination, with a tank having a scale marked on its top, a tube swiveled in said top and having a slot in its lower end, and an index secured to the tube and moving over said scale, of a pump within the tank, having an angular pump-rod moving through said tube, a stop on said rod, and a cross-bar on the pump-cylinder, having a hole closely fitting said rod, all as and for the purpose hereinbefore set forth.

480,552. MEASURING-PUMP. SYLVANUS F. BOWSER and AUGUSTUS BOWSER, Fort Wayne, Ind. Filed May 2, 1892. Serial No. 431,418. (No model.)



Claim.—1. The combination, with a pump having a reciprocating pump-rod, a lug on the rod, and a set-screw through the lug, of a contact in the path of said screw, as and for the purpose set forth.

2. The combination, with a pump having a reciprocating pump-rod, a lug on the rod, and a set-screw through the lug, of a contact in the path of the screw, and means, substantially as described, for adjusting said contact longitudinally of the rod, as and for the purpose set forth.

3. The combination, with a tank-top, a pump whose rod reciprocates through said top, a stop at one side of the rod, and a slide on the exterior of the top adapted to engage said stop or not at will, of a lug on the opposite side of said rod, a set-screw therethrough, a

contact in the path of this screw, and means, substantially as described, for adjusting said contact longitudinally of the rod, as and for the purpose set forth.

4. The combination, with a reciprocating rod having a stop and a plate through which said rod moves, of a contact carried by said plate, and means, substantially as described, for adjusting said contact longitudinally of the rod, as and for the purpose set forth.

5. The combination, with a reciprocating rod having a stop and a plate through which said rod moves, of a slide carried by the plate, and independent means, substantially as described, for adjusting said slide longitudinally of the rod and for moving it at right angles thereto, as and for the purposes set forth.

6. The combination, with a reciprocating rod having a stop and a plate through which said rod moves, of a casing, a spring-actuated slide therein normally engaging said stop, and means, substantially as described, for adjusting the casing on the plate longitudinally of the rod, as and for the purpose set forth.

7. The combination of a reciprocating rod having a stop and a plate through which said rod moves, with a casing having a beveled lower face, a wedge between the said face and the plate, means, substantially as described, for detachably securing the casing to the plate, and a slide in the casing adapted to engage said stop, as and for the purpose set forth.

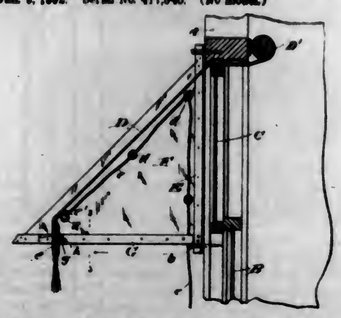
8. The combination, with a reciprocating rod having a stop and a stationary support, of a casing having a beveled lower face and perforated ears at its sides, a slide moving in the casing at right angles to the rod and adapted to engage said stop, a wedge between the support and said lower face of the casing, said wedge having slots aligning with the perforations in the ears, and screws through the ears and perforations and into the support, as and for the purpose set forth.

9. The combination, with a reciprocating rod having stops on opposite sides at different points, and a plate through which said rod moves, of a casing above said plate, a slide therein adapted to be moved to engage the uppermost stop, a casing below said plate, a spring-actuated slide therein adapted to engage the lowermost stop, and means, substantially as described, for adjusting each of said casings longitudinally of the rod, as and for the purpose set forth.

10. In a measuring-pump, the combination, with a tank having a hole in its top, a pump within said tank having a delivery-spout and whose pump-rod passes through said hole, a lug on said rod, and an upwardly-facing set-screw through said lug, of a casing within said tank, a spring-actuated slide in the casing standing normally in the path of said screw, and means, substantially as described, for detachably connecting said casing to the top of the tank and for permitting its adjustment longitudinally of the rod, as and for the purpose set forth.

11. In a measuring-pump, the combination, with a tank having a hole in its top, a pump within said tank having a delivery-spout and whose pump-rod passes through said hole, a lug on said rod, and an upwardly-facing set-screw through said lug, of a casing within the tank having a beveled face, a spring-actuated slide within said casing standing normally in the path of said screw, a wedge between said face and the under side of said top, and screws detachably connecting said casing with the top, all as and for the purposes hereinbefore set forth.

480,553. AWNING. BERNARD BRANNER, New York, N. Y. Filed Jan. 6, 1892. Serial No. 417,840. (No model.)



Claim.—1. The combination, with a window shade or awning, of two triangular wings of flexible material, each provided with a stretcher-rod secured to the lower edge of the wings, means to connect the upright edges of the wings to the window-casement, and a hook extended from each stretcher-rod at its outer end and adapted to interlock with a staple or screw-eye projected from the lower part of the awning, substantially as described.

2. The combination, with a shade or awning, of two wing-supporting frames, each comprising an upright stay-rod, and a stretcher-rod hinged by one end to the stay-rod, said rods being each composed of two strips secured together longitudinally with the flexible wing material between them, substantially as described.

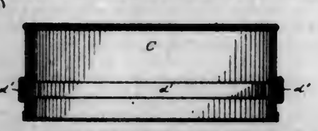
3. The combination, with a shade or awning, of two wing-pieces, each triangular in form, supported on a frame comprising an upright stay-rod, and a stretcher-rod secured by a rule-hinge joint to the stay-rod, said rods being each composed of two strips which embrace the folded edges of the fibrous wing material, which edges have each a cord laid in the fold that engages with the exterior sides of the composite rods, substantially as described.

4. The combination, in an awning, of a top shade or awning, separate side wings, stretcher-bars secured to the lower ends of the separate side wings and adapted to fold upwardly and raise the wings, and means for engaging the stretcher-bars with the top shade when the said bars and shade are in the lowered position, substantially as described.

480,554. BLEACHING COMPOUND. WILLIAM R. BRITTINGHAM, New York, N. Y. Filed Apr. 27, 1892. Serial No. 430,889. (No specimens.) Patented in Belgium May 11, 1892, No. 75,304.

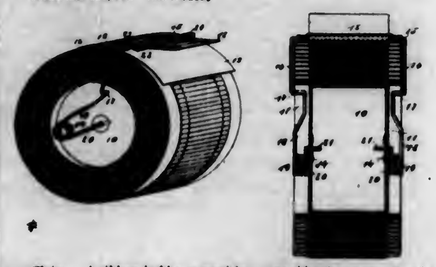
Claim.—A bleaching compound consisting of the tungstate of an alkali combined with a hypochlorite.

480,555. PAIL, PAN, WASH-BOILER, &c. TRISTRAM D. BROWN, Clifton Springs, N. Y. Filed Feb. 27, 1890. Serial No. 342,010. (No model.)



Claim.—As an improved article of manufacture, a pan or other vessel having its perpendicular sides provided with a continuous loop or made full and bent to form continuous parallel flanges or creased edges all in one perpendicular piece and an intermediate continuous zinc plate or strip in said groove or recess and having its edges secured by said flanged or creased edges, whereby it is held rigid in said groove or recess, substantially as set forth.

480,556. RIBBON-HOLDER. GEORGE H. BROWN, Long Island City, N. Y., assignor to James H. Tibbits, same place. Filed Nov. 6, 1891. Serial No. 411,082. (No model.)



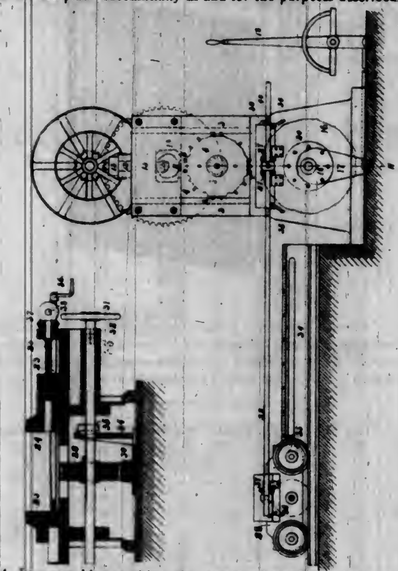
Claim.—A ribbon-holder comprising a spool having recessed ends, a main keeper extending across the face of the spool, the said keeper having arms extending across the ends of the spool, which arms are formed into spiral springs and having bent ends pivoted in the spool ends, and a guide-keeper secured to the main keeper opposite the face of the spool substantially as described.

480,557. MULTIPLE-PUNCH AND LAYING-OUT MACHINE. CYRUS E. BROWN, Homestead, Pa. Filed Apr. 7, 1892. Serial No. 428,129. (No model.)

Claim.—1. In a punching-machine, a reciprocatory pivoted wheel carrying a series of punches upon its periphery, a second reciprocatory wheel having a corresponding peripheral series of apertures, and means for turning the apertured wheel to any desired position and retaining it in such position while the punch-wheel reciprocates, substantially as and for the purposes described.

2. In a punching-machine, a reciprocating pivoted wheel carrying the punches, a vertically movable wheel having an apertured periphery, means for retaining said wheel in the different positions to which it may be turned, and a bed-plate having a vise mounted thereon, substantially as and for the purposes described.

3. In a punching-machine, a reciprocating wheel carrying punches, a bed-plate, a wheel having apertures in its periphery, movable in a slot in the bed-plate, and a movable carriage carrying a vise in line with the bed-plate substantially as and for the purposes described.



4. In a punching-machine, the combination of a reciprocating punch or punches, a pivoted wheel having a series of apertures in its periphery, means for retaining said wheel in the various positions to which it may be turned, and a cam-shaft arranged to raise and lower said wheel, substantially as and for the purposes described.

5. The combination, with a punching-machine, of two carriages in line with the bed-plate of the machine, a vise upon the bed-plate, vises upon the carriages, and means for adjusting the vises in the direction of their length, substantially as described.

6. The combination, with a punching-machine, of a movable carriage in line with the bed-plate of the machine, a vise upon the carriage, and a stationary scale along which the carriage moves, substantially as described.

7. The combination, with a punching machine whose bed-plate is provided with a vise, of a movable carriage carrying a vise in line with the bed-plate of the machine and a rack-and-pinion connection for moving the same, substantially as and for the purposes described.

8. The combination, with the plate having a rigid vise-jaw therein, of a jaw movably mounted thereon and a head-wheel arranged to cause the vise to reciprocate as a whole, substantially as and for the purposes described.

9. The combination, with the bed-plate provided with a movable vise, of a movable carriage provided with a similar vise and a shaft arranged to reciprocate both vises simultaneously, substantially as and for the purposes described.
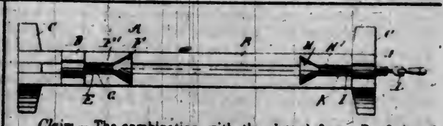
10. The combination, with the bed-plate and movable vise thereon of a pointer attached to the vise and movable over a scale upon the bed-plate, substantially as described.

11. The combination, with the movable carriage, of a pointer mounted thereon, a scale arranged to be traversed by the pointer, a rack-and-pinion connection for the carriage, and a strap arranged to secure the carriage in its adjusted positions, substantially as and for purposes described.

12. The combination, with a punching-machine, of two carriages in line with its bed-plate, vises upon the carriages, and means for simultaneously adjusting said vises in the direction of their length substantially as and for the purposes described.

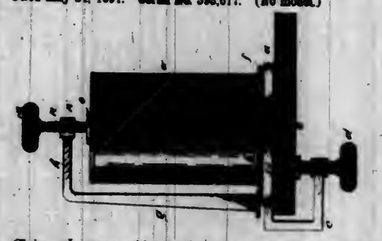
13. The combination, with a punching-machine, of two carriages in line with its bed-plate, vises upon the carriages and bed-plate, and means for simultaneously adjusting said vises in the direction of their length, substantially as and for the purposes described.

480,558. CENTERING DEVICE. FREDRICK L. CARHAM, Lisbon Falls, Me. Filed Dec. 14, 1891. Serial No. 414,965. (No model.)



Claim.—The combination, with the slotted frame B, of the adjustable head D, mounted thereon, the center E, fixed in said head, the spring G, coiled on the center, and the funnel F, adapted to slide on the latter, the fixed head J, the center I, sliding through it, the lever L, pivoted to the outer end of the center I, the spring K, and the sliding funnel H, mounted on such sliding center, all as shown and described, to operate as and for the purpose specified.

480,559. CAN-SOLDERING CLAMP. ROLLIN CLARK, Keokuk, Iowa. Filed May 21, 1891. Serial No. 393,617. (No model.)



Claim.—In a can-soldering device, a can-holder provided with a disk at its lower end and a clamping-screw at its upper end, said disk being provided with a recess in its bottom, in combination with a clamp provided with a pivot adapted to enter said recess, substantially as described.

480,560. TICKET-PUNCH. ARTHUR W. COFFIN, San Francisco, Cal. Filed Apr. 19, 1892. Serial No. 429,784. (No model.)



Claim.—1. In a ticket-punch, an exterior case adapted to contain tickets which are coiled therein, a horizontal rotating carrier contained within the case, punches the shanks of which pass through the upper disk of the carrier, said shanks projecting above the upper disk, and a segmental housing E, inclosing the rear portion of the carrier, projecting above the surface of the cover, and exposing the punch-shanks at the front, substantially as herein described.

2. In a ticket-punch, the exterior casing, with its hinged cover, a revolving carrier rotatable within the casing, the punches carried thereby, a toothed flange around the periphery of the carrier, a shaft journaled in the side of the case, having the pinion engaging the teeth of the carrier, and a milled head F upon the outer end, whereby the carrier is rotated to bring either of the punches into position, substantially as herein described.

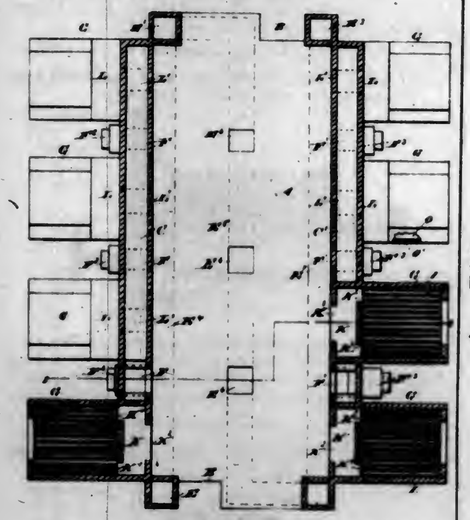
3. In a ticket-punch, the exterior case and hinged cover, a carrier rotatable within the case and provided with punches, projecting jaws extending outwardly from the front end of the punch-case, and the cover between which the tickets pass from the punches, and an opening I through the jaws by which the tickets may be grasped by the thumb and finger and drawn forward from the case through the jaws, substantially as herein described.

4. In a ticket-punch, the case, the rotatary carrier provided with punches, the jaws between which the tickets pass after leaving the punches, consisting of the movable portion projecting from the hinged cover of the box and the stationary portion fixed to the body of the box having the opening I through the two parts for the purpose of grasping and moving the tickets, and the channels K in the lower jaw, whereby the figures imprinted upon the tickets are protected from injury while the ticket is being drawn out of the case, substantially as herein described.

5. In a ticket-punch, the case, the revolving carrier provided with punches, a chamber within which tickets are contained, a hinged cover by which the case may be closed, an inclosed registering-dial, a ratchet connected therewith, an arm projecting so as to be depressed by the cover when the latter is closed and carrying a pawl which engages the teeth of the ratchet so as to revolve the dial one point at each time the cover is closed, substantially as herein described.

6. In a ticket-punch, an exterior case for containing tickets, a rotary carrier beneath which the tickets are advanced to be punched, the punches, a hinged cover to the case, an inclosed registering-dial with a ratchet and pawl, a spring-arm by which the pawl is depressed and the dial is moved forward one point at each closing of the box-cover, in combination with a stop, whereby the dial is prevented from making more than a single rotation, substantially as herein described.

480,561. BRICK-KILN. SIMON DEWHIRST, St. Joseph, Mo. Filed Mar. 16, 1892. Serial No. 425,156. (No model.)



Claim.—1. A brick-kiln provided in its side walls with a series of combustion-chambers opening into the interior of the kiln above the floor thereof, in combination with a series of furnaces located on the outside of the kiln, each furnace being connected with one of the said combustion-chambers and provided with a second combustion-chamber opening into the interior of the kiln above the first-named combustion-chambers, substantially as shown and described.

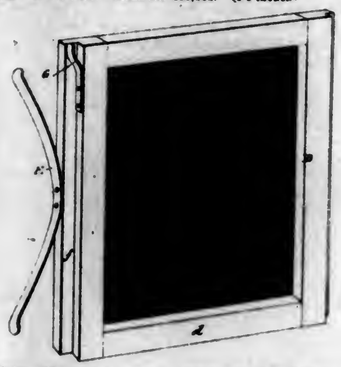
2. A brick-kiln provided in its side walls with combustion-chambers opening into the interior of the kiln above the floor thereof and a series of chimneys connected with each other by longitudinal channels opening into the interior of the kiln-building, in combination with a series of furnaces located on the sides of the kiln and each connected with one of the said combustion-chambers and each provided with a second combustion-chamber opening into the interior of the kiln above the first-named combustion-chambers, substantially as shown and described.

3. A brick-kiln provided in its side walls with combustion-chambers opening into the kiln above the floor thereof, in combination with a series of chimneys arranged at the ends of the said kiln and longitudinal channels connecting the said chimneys with each other and located under the floor of the kiln, each of the said channels being connected with the interior of the kiln, substantially as shown and described.

4. A brick-kiln provided with a furnace comprising a fire-box connecting at its inner end with a combustion-chamber, a second combustion-chamber connected with the upper end of the said fire-box and connected near its upper end with the interior of the kiln, compartments arranged on the sides of the said second combustion-chamber and connected with the interior thereof by openings, and transversely-extending channels connected with the outer air and with the said compartments and the fire-box, substantially as shown and described.

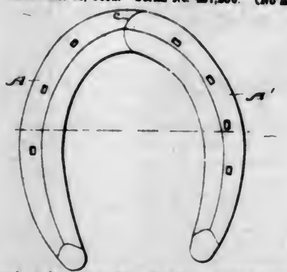
5. A brick-kiln provided with a furnace comprising a fire-box connecting at its inner end with a combustion-chamber, a second combustion-chamber connected with the upper end of the said fire-box and connected near its upper end with the interior of the kiln, compartments arranged on the sides of the said second combustion-chamber and connected with the interior thereof by openings, and transversely-extending channels connected with the outer air and with the said compartments and the fire-box, the said transverse channels being also connected with the first-named combustion-chambers, substantially as shown and described.

480,562. WINDOW-SCREEN. HENRY B. DODGE, Chicago, Ill., assignor to the Monroe Manufacturing and Lumber Company, Lima, Ohio. Filed Oct. 19, 1891. Serial No. 409,162. (No model.)



Claim.—The sliding screen D, constructed with vertical rabbets *f* on its opposite sides and inner face and provided with a spring-guard G on the base of the rabbet, and a friction-spring E on the outer or projecting portion of the rabbet, substantially as specified.

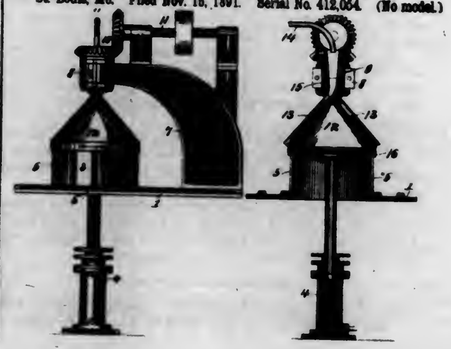
480,563. SECTIONAL HORSESHOE. CHARLES H. DORAN, Ocean, N. Y. Filed Mar. 31, 1892. Serial No. 427,236. (No model.)



Claim.—1. A horseshoe formed in two independent sections, the toe end of one section having an arcuate convexity therein and the corresponding end of the other section having an arcuate concavity fitting said convexity, the meeting faces of said sections being also oppositely beveled or inclined, the said sections being free to move upon one another at their point of engagement, substantially as specified.

2. A horseshoe comprising two sections A A', the toe end of one of the sections having an arcuate concavity *c*, the wall of which is inclined from top to bottom, the opposing section terminating at its toe end in an arcuate convexity of the same radius as the concavity, but reversely inclined on its face, said sections being free to move upon one another at their point of engagement, substantially as specified.

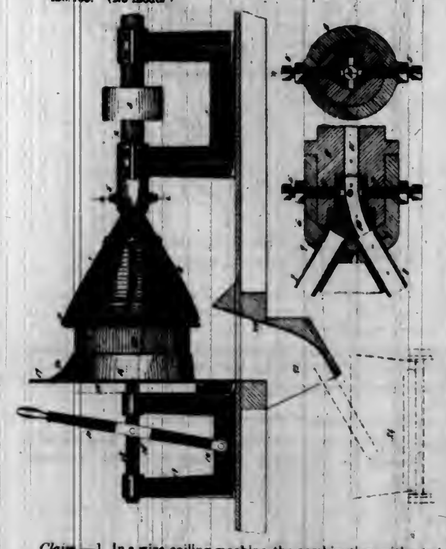
480,564. MACHINE FOR COILING WIRE. WILLIAM EDENBORN, St. Louis, Mo. Filed Nov. 16, 1891. Serial No. 412,054. (No model.)



Claim.—1. In a machine for coiling wire, the combination of a cylinder having a closed upper head, a winding-cone supported above the cylinder and fitting over the upper end of the cylinder, and means for moving the cylinder away from the cone, substantially as and for the purpose set forth.

2. In a machine for coiling wire, the combination of a cylinder having a closed upper head, a winding-cone supported above said cylinder and having a depending flange 16, inclosing the upper end of the cylinder, and means for moving the cylinder away from the winding-cone, substantially as and for the purpose explained.

480,565. MACHINE FOR COILING WIRE. WILLIAM EDENBORN, St. Louis, Mo. Filed Dec. 8, 1890. Renewed Feb. 3, 1892. Serial No. 420,183. (No model.)



Claim.—1. In a wire-coiling machine, the combination, with a hollow spindle and the adjustable bushing mounted therein and having an opening for the passage of the wire, of a cap fitting over the end of said spindle and bushing and having the sockets 9 and the removable tubes 8 fitting in said sockets, substantially as set forth.

2. In a wire-coiling machine, the combination, with a hollow spindle and the adjustable bushing mounted in the end thereof and having the opening 10, of the cap 6, fitting over the end of said spindle and bushing and having the sockets 9, the removable tubes 8, fitting in said sockets, and screws passing through said cap and spindle and into said bushing, substantially as set forth.

3. In a wire-coiling machine, the combination, with a hollow spindle and an adjustable perforated bushing mounted therein, of the cap 6, secured to the end of said spindle over said bushing and having the sockets 9, a cone projecting from the end of said cap, and the tubes 8, seated in said sockets 9 and removably secured to said cone, substantially as set forth.

4. In a wire-coiling machine, the combination of a spindle having the passage or bore 11 and a socket in its extreme end of larger diameter than said bore 11, an adjustable bushing fitting in said socket and having the passage 10, and a cap fitting over said bushing and the end of said spindle and carrying the tubes 8, substantially as set forth.

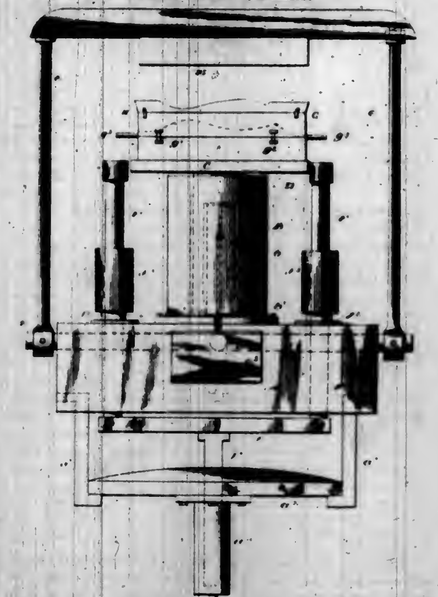
5. In a wire-coiling machine, the combination of a hollow spindle, an adjustable bushing located in the end of the spindle and having an opening for the passage of the wire, screws 5 for holding the bushing to its adjustment, a cone, tubes carried by the cone and through which the wire passes from the bushing, a shiftable cylinder, upon which the wire is coiled, and a stop arranged to crowd the coil from the cylinder, substantially as and for the purpose set forth.

6. In a wire-coiling machine, the combination of a hollow spindle, tubes communicating with the spindle and through which the wires pass, a cone to which the tubes are secured, and brackets 21, secured to the cone at its large end, substantially as and for the purpose set forth.

7. In a wire-coiling machine, the combination of a revolubly-supported hollow spindle, a cone carried by the spindle, and short brackets 21, secured to the periphery of the base of the cone, substantially as and for the purpose set forth.

8. In a wire-coiling machine, the combination of a hollow spindle, a cone carried by the spindle, tubes 8 on the periphery of the cone leading from the hollow spindle, and short brackets 21, adjacent to the ends of the tubes 8 at the large end of the cone, substantially as set forth.

480,566. MOLDING-MACHINE. WILLIAM EDGAR, Sanford, Fla., assignor to the Sanford Foundry and Machine Works, same place. Filed Aug. 22, 1891. Serial No. 403,451. (No model.)



Claim.—1. As an improvement in molding-machines, a box or flask having a central horizontal partition carrying the mold-pattern and a sand-box removably secured to said box or flask, the edges of said sand-box having an outline the converse of that of the mold-pattern, substantially as set forth.

2. As an improvement in molding-machines, a two-part box or flask having a central horizontal partition carrying the mold-pattern and a sand-box having lugs or plates hugging the sides of said box or flask, the edges of said sand-box having an outline the converse of that of the mold-pattern, substantially as set forth.

3. As an improvement in molding-machines, a box or flask, a mold-pattern, and a sand-box the upper edges of which have an outline the converse of that of such mold-pattern, substantially as set forth.

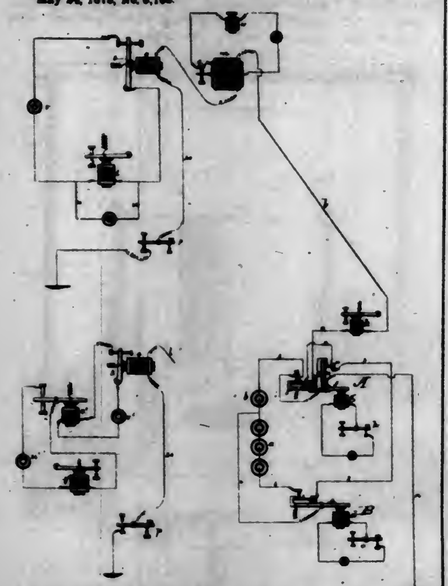
4. The herein-described improved molding-machine, comprising a hydraulic cylinder, a piston moving therein, having a base-plate or platform for the mold box or flask, the head-plate, the arms connected thereto, the rock-shaft to which said arms are attached, and the weighted arm or lever secured to said rock-shaft and also connected to and arranged to be operated by a hydraulic piston, substantially as set forth.

5. In a molding machine, the combination, with a base or platform, of the hydraulic cylinder, the piston moving therein, the base-plate or platform connected to said piston, the box or flask designed to rest on said base-plate and having short rods projecting from its ends, the vertically-moving rods for engaging said short rods and elevating the mold box or casing, the boxes or casings secured to said base or platform and inclosing said vertically-movable rods, the sleeves secured to or made with said rods and fitting down over and inclosing said boxes or casings, and means for operating said vertically-movable rods, substantially as set forth.

6. The combination, with a base or platform, of the hydraulic cylinder secured thereto, having a cylindrical piston moving therein, the base-plate or platform connected to said cylindrical piston, the rock-shaft mounted in said base or platform, the head-plate having arms connected to said rock-shaft, the weighted lever rigidly secured to said rock-shaft, the piston connected at one end to said weighted lever, the vertically-movable rods connected at their lower ends by a

cross-bar, and the piston connected to said cross-bar, substantially as set forth.

480,567. DUPLEX TELEGRAPH. THOMAS A. EDISON, Newark, N. J., assignor, by mesne assignments, to The Western Union Telegraph Company. Patented in England Feb 5, 1875, No. 384; in France Apr. 28, 1875, No. 107,859; in Italy Apr. 30, 1875, Nos. 2,940 and 7,808; in Austria-Hungary June 28, 1875, No. 2,936 and No. 14,584, and in Russia May 24, 1878, No. 2,163.



Claim.—1. The method herein described of transmitting two distinct messages by separate operators over one wire in the same direction and at the same time, one being transmitted by reversal of the battery-current and the other by increasing or decreasing the current from the battery, substantially as described.

2. A receiving instrument or relay *o* in the main-line circuit, in combination with a local relay *o'*, whose electro-magnet is brought into action through the back contact-stop of the main-line relay, and a sounder or other instrument whose electro-magnet is brought into action by means of the local relay *o'*, substantially as and for the purposes set forth.

3. The receiving instrument or sounder *t* in the constant battery-circuit *u u*, in combination with the balancing local battery *v*, circuit and circuit-closing armature *s*, and electro-magnet *o*, substantially as set forth.

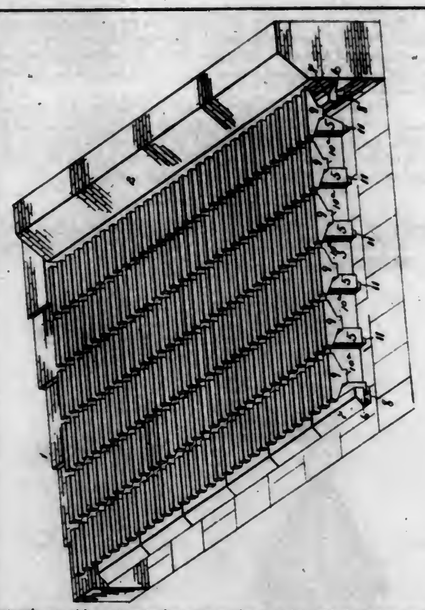
4. In the duplex telegraph arranged for sending two separate messages simultaneously in the same direction and from the same end, the circuit-breaking key *p* at the receiving end and the tell-tale magnet *k* in the line at the transmitting end, as and for the purposes set forth.

5. In a single-line telegraphic system for the transmission of two independent messages, the combination at one station, substantially as specified, of two independent electrically-connected keys, one for each operator, one of which keys when operated reverses the polarity of the electric current independently of the position and action of the second key, which second key controls the strength of current, substantially as set forth.

480,568. SECTIONAL GRATE-BAR. BYRON A. ELLIOTT, Kansas City, Mo. Filed Apr. 11, 1891. Serial No. 388,566. (No model.)

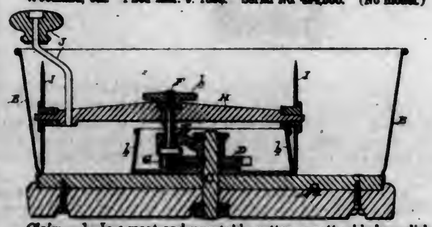
Claim.—As a new article of manufacture, an adjusting-bar and a series of sections of grates supported by said bar, said sections being





interchangeable and each alternate section capable of being connected with said bar, so that the grates will extend at right angles with the adjoining section, substantially as described, and for the purpose set forth.

480,569. MEAT AND VEGETABLE CUTTER. WILSON R. ELLIS, Woodland, Cal. Filed Mar. 9, 1892. Serial No. 424,336. (No model.)



Claim.—1. In a meat and vegetable cutter, a cutter blade or disk having a revolution about an axis located eccentrically of the block over which the blade or disk travels, said axis itself having an independent movement in a circular path about the block-center, substantially as herein described.

2. In a meat and vegetable cutter, a cutter blade or disk having a revolution about an axis located eccentrically of the block over which the blade or disk travels, said axis itself moving intermittently in a circular path about the block-center, substantially as herein described.

3. In a meat and vegetable cutter, the combination of a block, a cutter blade or disk traveling over said block, an axis located eccentrically of the block and about which the cutter blade or disk revolves, and means for effecting the intermittent travel of said axis in a circular path about the block-center, substantially as herein described.

4. In a meat and vegetable cutter, the combination of a block, a cutter blade or disk traveling over said block, a shaft located eccentrically of the block and to which the cutter blade or disk is connected and about which it revolves, a pinion on the shaft, and a fixed gear in the block-center and with which the pinion engages, whereby the shaft travels around said gear, substantially as herein described.

5. In a meat and vegetable cutter, the combination of a block, a cutter blade or disk traveling over said block, a shaft located eccentrically of the block and to which the cutter blade or disk is connected and about which it revolves, a mutilated pinion on the shaft, and a fixed gear in the block-center with which the mutilated pinion engages, whereby the shaft travels intermittently around said gear, substantially as herein described.

6. In a meat and vegetable cutter, the combination of a block, a cutter blade or disk traveling over the block, a shaft located eccentrically of the block, an arm connecting the shaft with the cutter blade or disk, whereby the latter revolves with the shaft as a center, a fixed gear in the block-center, and a two-toothed pinion on the shaft engaging the gear, said pinion having its teeth extending in line with the arm connecting the cutter blade or disk with the shaft, substantially as herein described.

7. In a meat and vegetable cutter, the combination of a block having a central fixed standard with a gear, a bracket pivoted on said standard, a shaft journaled in the bracket and having a pinion engaging the gear, a cutter blade or disk traveling over the block, and an arm connecting the blade or disk with the shaft, substantially as herein described.

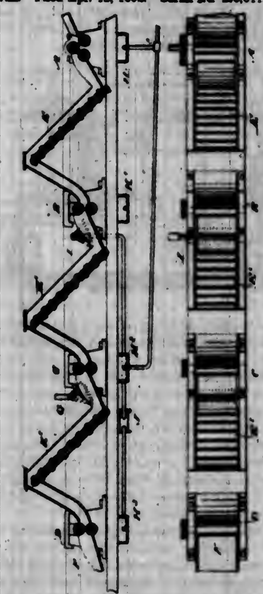
8. In a meat and vegetable cutter, the combination of a block having a central fixed standard with a gear, a bracket pivoted on said standard, a shaft journaled in the bracket, a cutter blade or disk, an arm connecting it with the shaft, and a two-toothed pinion on the shaft engaging the gear, said pinion having its teeth in line with the arm carrying the cutter blade or disk, substantially as herein described.

480,570. TOBACCO-PIPE. THOMAS T. ELY, West Paris, Me. Filed July 15, 1891. Serial No. 399,625. (No model.)



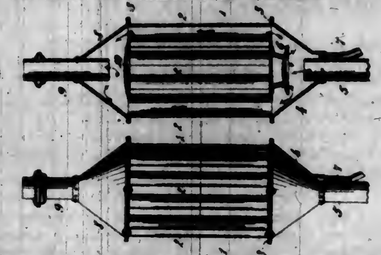
Claim.—As an improved article of manufacture, a tobacco-holder for pipes, having a series of internal struck-up projections near its outer end, apertures being formed through the holder by thus striking up said projections, and a spring-pressed follower within the holder and limited in its outward movement by said projections, substantially as set forth.

480,571. DIFFUSION APPARATUS. SAMUEL FARGO, Pahala, Kau, Hawaii. Filed Apr. 12, 1892. Serial No. 428,811. (No model.)



Claim.—In a cane-juice-extracting apparatus of the character hereinbefore described, the combination, with the series of mills A B C D and elevators and troughs arranged between them for transferring the bagasse from one to another, of the juice receivers and outlets H H' H^2 H^3, the horizontal pipes connecting all said outlets, a pump J, attached to one of said pipes at a point between the last two outlets H^2 and H^3 of the series and leading thence directly to the mill B, as shown and described.

480,572. STEAM-CONDENSER. JOSEPH P. FETTERS, Dayton, Ohio. Filed Apr. 21, 1892. Serial No. 430,099. (No model.)



Claim.—1. A steam-condenser for steam-engines, comprising a series of condensing-tubes exposed to the atmosphere, inlet and outlet chambers inclosed by end caps into which said tubes open, inlet and outlet pipes projecting into said chambers, and a stationary deflector-plate suspended between the open ends of the condensing-pipes and the inlet-pipe to baffle and break the direct current of steam escape, substantially as described.

2. In a steam-condenser, the combination, with a series of tubes separated to allow the free passage of the atmosphere, of inlet and outlet chambers inclosed by end caps into which said tubes open, an inlet-pipe entering and projecting within the inlet-chamber above the lowest point thereof, a discharge-pipe for the water of condensation, a deflector in the inlet-chamber between the open end of the inlet-pipe and the receiving ends of the condensing-pipes, and an outlet-pipe entering the outlet-chamber and having its open end projecting within the same to form a pocket around said pipe, whereby the uncondensed residue of the steam will be a second time baffled after emerging from the condensing-tubes, substantially as described.

3. In a steam-condenser, the combination, with a series of pipes exposed to the atmosphere and having their ends opening through heads, of caps mounted thereon and having the form, substantially, of truncated cones, an inlet and outlet pipe entering the lower and upper caps, respectively, and projecting above and below the truncated ends of said caps, in which they lie, a discharge-pipe leading directly from the lowest point of the inlet-chamber, and a stationary concave deflector-plate arranged in said chamber between the open end of the inlet-pipe and the condensing-tubes, leaving an annular passage between its edge and the conical wall for the passage of steam, whereby the exhaust-steam is baffled and its direct current broken up before entering the condensing-tubes, substantially as described.

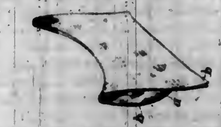
480,573. CONDUIT FOR ELECTRIC WIRES. SAMUEL H. FLAGG, Providence, R. I. Filed Jan. 26, 1889. Serial No. 297,663. (No model.)



Claim.—1. A conduit for electric wires, consisting of a metal pipe A and a glass pipe B of a diameter to exactly fit said metal pipe and somewhat longer than said pipe, in combination with a coupling the interior portion of which forms a continuation of the pipe A, substantially as set forth.

2. A conduit for electric wires, consisting of a metal pipe A and a glass tube B of a size to exactly fit the metal pipe and having partitions *b*, whereby the glass tube is divided into three or more compartments, substantially as shown and described.

480,574. DRESS-SHIELD. ELLA N. GAILLARD, New York, N. Y. Filed May 10, 1892. Serial No. 432,436. (No model.)



Claim.—1. In a dress-shield, a supporter and gold-beater's skin attached thereto with the resisting side outward, substantially as described.

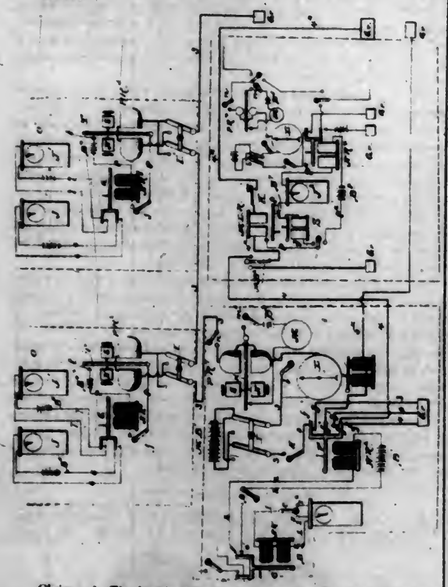
2. In a dress-shield, a supporter and gold-beater's skin attached thereto with the resisting side outward, and a cushion of absorbent material on the outer face of the skin, substantially as described.

480,575. ELECTRIC ACCUMULATOR. GIOVANNI GARDINI, Lodi, Italy. Filed Apr. 18, 1891. Serial No. 389,227. (No model.) Patented in Italy Feb. 14, 1891, LVII, 37.



Claim.—An electric accumulator comprising electrodes formed of a mixture of lead oxide and small pieces of carbon having a thin top layer of lead oxide, a porous partition separating said electrodes, and conductors immersed in the mixture constituting said electrodes, substantially as described.

480,576. METHOD OF AND APPARATUS FOR TESTING CIRCUITS FOR ELECTRIC TIME SYSTEMS. WILLIAM F. GARDNER, Washington, D. C. Filed Jan. 7, 1891. Renewed July 8, 1892. Serial No. 439,416. (No model.) Patented in France Dec. 10, 1889, No. 201,080.



Claim.—1. The herein described improvement in the method of operating and testing the electric circuits of a time-signaling system, it consisting in imparting electric impulses by a current of given polarity to a main line for operating time-signal-receiving devices and causing said impulses to close local circuits each through a polarized relay and imparting thereto a current of opposite polarity in testing such main line and reversing the direction in which the last said current traverses the magnets of the polarized relay, substantially as set forth.

2. In a time-signal-transmitting system, a transmitting-station, an electric circuit extending therefrom to one or more time-signal-receiving stations, and a time-signal-transmitting apparatus in said transmitting-station, said apparatus including a polarized relay, a main-line battery, and a pole-changer, substantially as set forth.

3. In a time-signal-transmitting system, a transmitting-station, an electric circuit extending therefrom to a time-signal-receiving station, a polarized relay at said receiving-station, and means for reversing the direction of the current through the said relay without affecting the direction of the current over the main line, substantially as set forth.

4. In a time-signaling system, an automatic signaling mechanism in a transmitting-station, an electric circuit extending therefrom to one or more time-signal-receiving stations, said circuit including (permanently, or possibly by means of switches) a polarized relay at the transmitting-station, a battery, and pole-changing switches, and a galvanometer, substantially as set forth.

5. In a time-signaling system, a time-signal-receiving station, a signal-receiving device in said station, a local circuit including said signal-receiving devices, and a relay or repeater at said receiving-station opening and closing said circuit, and a polar relay in the main-line circuit supplemental to the aforesaid relay or repeater and adapted to open and close the circuit through it, substantially as set forth.

6. In a time signaling system, a main-line circuit, a polarized relay, a local circuit opened and closed by the said polarized relay, a secondary relay or repeater in said local circuit, a clock or time-signal-receiving device, and an electric circuit including the said clock or signal-receiving device and opened and closed by the said secondary relay or repeater, substantially as set forth.

7. The combination, with a series of clocks, as at J J', and one or more electric circuits extending through said clocks, of the electro-magnetically-actuated contacts for closing the said circuits, a supplemental circuit, as at 8 8, for actuating the contacts, and the polar relay for opening and closing the supplemental circuit, substantially as set forth.

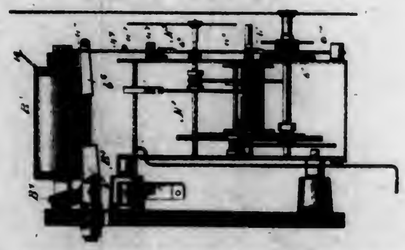
8. In a time-signal-receiving station, the combination of the polarized relay, the local circuit, as at 8 8, opened and closed by said polarized relay, and the clocks or time-signal-receiving devices actuated by said circuit, the switch *j*, or equivalent.

9. The combination of the clock J, the electric circuit through the clock, a relay or repeater, as at NR^3, which opens and closes the said circuit, a main line, as at 3 3, and a polarized relay, as at PR^3, which opens and closes the circuit through the relay or repeater and which is adapted to have the current from the main line passed through it in either direction without change in said line 3 3, substantially as set forth.

10. The combination of the means for transmitting time-signals, the battery, the pole-changer, and the polarized relay, all in the observatory or transmitting-station, the electric circuit, as at 3 3, the clock-station, the local electric circuit in said clock-station, the clock in said circuit, and the polarized relay PR^3, adapted to have the current from the line 3 3 passed through it in either direction independently of the pole-changer at the observatory or transmitting-station, substantially as set forth.

11. The herein-described method of testing electric circuits including relays or repeaters used for the transmission of time-signals, which consists in causing a current to flow along said circuit of a polarity opposite to that used in transmitting time-signals and, while said current is on said circuit breaking the connection of said circuit at one or more places, with time-signal-receiving devices, and then reversing the direction of the current through the relays or repeaters at said places to ascertain the movement of their armatures, substantially as set forth.

480,577. CLOCK-SYNCHRONIZING DEVICE AND SYSTEM. WILLIAM F. GARDNER, Washington, D. C. Filed Dec. 13, 1888. Renewed July 8, 1892. Serial No. 439,421. (No model.)



Claim.—1. In a time-signaling system, signal-transmitting devices in an observatory or transmitting station, a telegraphic or telephonic main-line circuit, a branch circuit adapted to intermittingly connect the said signal-transmitting devices with the main-line circuit, a receiving-station, a main-line relay or repeater in said main-line circuit at said receiving-station, a local circuit opened and closed by said relay or repeater, said local circuit having two loops or branches with a battery in each loop, a sounder or equivalent receiving mechanism in one of said loops, a clock or time signal-receiving apparatus in the other of said loops, and a hand-switch whereby the local circuit can be closed at will either through the said clock or through the said sounder, substantially as set forth.

2. In a time-signaling system, signal-transmitting devices in an observatory or transmitting station, a telegraphic or telephonic main-line circuit, a branch circuit adapted to intermittingly connect the said signal-transmitting devices with the main-line circuit, a receiving station, a main-line relay or repeater in said main-line circuit at said receiving-station, a local circuit opened and closed by said relay or repeater and having two loops or branches, a sounder or equivalent receiving apparatus in one of said loops, a clock or time-signal-receiving apparatus in the other of said loops, a hand-switch whereby the local circuit can be closed at will either through the said clock or through the said sounder, and a switch or equivalent in the said main-line circuit and distant from the observatory or transmitting station for disconnecting said main line from the aforesaid branch, which extends to the observatory or signal-transmitting station, substantially as set forth.

3. In a time-signaling system, a telegraphic or telephonic main-line circuit, devices for automatically transmitting time-signals adapted to be connected therewith, a series of main-line relays or repeaters all in said circuit, a series of telegraph or telephone stations respectively containing said relays or repeaters, telegraph-signal-receiving devices in said station, a primary local electric circuit at each of said stations opened and closed by one of said relays or repeaters, a second repeater in said primary local circuit, one or more secondary local circuits extending out from the said secondary repeater, and one or more clocks or equivalents in said secondary circuits, substantially as set forth.

4. In a time-signaling system, the telegraphic or telephonic main-line circuit, devices for transmitting time-signals adapted to be connected therewith, a series of main-line relays or repeaters in said circuit, a series of telegraph or telephone stations respectively containing said relays or repeaters, a primary local circuit closed and opened by each of said relays or repeaters, a second repeater in said primary local circuit, a series of two or more successively-arranged secondary local electric circuits extending from the aforesaid secondary repeater, and each secondary circuit, except the last, being arranged to open and close a succeeding circuit, and one or more clocks or equivalents in the said series of secondary circuits, substantially as set forth.

5. In a time-distributing system, a receiving-station having a series of two or more electric circuits, as at 10 10 10^a 10^b, one or more clocks or signal-receiving devices in each of said circuits, a multiple relay or repeater opening and closing all of said circuits simultaneously, and an electric circuit, including said multiple relay or repeater and independent of the aforesaid circuit, a main electric circuit, as at 5 5, electro-magnetic devices in said main circuit for opening and closing the aforesaid relay or repeater circuit, and automatic time-signal-transmitting devices at a transmitting-station and which open and close the aforesaid main line, substantially as set forth.

6. In an observatory or time-signal-transmitting station, an automatic time-signal transmitter, a primary local electric circuit opened and closed by said transmitter, a repeater in said circuit, a secondary local electric circuit opened and closed by the said repeater, a second multiple repeater in said secondary circuit, and a series of several outgoing main lines adapted to be simultaneously opened and closed by said multiple repeater, substantially as set forth.

7. In a time-signaling system, an automatic signal-transmitting apparatus in an observatory or central transmitting station, a series of two or more main lines extending out from the said station and adapted to transmit time-signals therefrom, an electro-magnetic indicator, as at N^2, in the observatory or central station, adapted to be connected to said circuits, whereby the observatory-attendant is informed of the transmission of the signals over said circuits, substantially as set forth.

8. The combination of the clock Q, the electric circuit 12 12^a, the sounder R^2 or equivalent instrument in the said circuit or a part thereof, a main line, as at 6 6, the relay or repeater I' in said main line, and the time-signal-transmitting apparatus at a transmitting-station, adapted to be connected by the main line with the relay or repeater I', substantially as set forth.

9. The combination of the clock Q, the circuit 12^a 12^b and 12 12, the sounder R^2, the battery R', the battery R^2, the switch *r*, a main line, as at 6 6, adapted to receive time-signals, and the relay or repeater I' in the main line, substantially as set forth.

10. The combination of the clock Q, the circuits 12 and 12^b, the sounder R^2, the switch *r*, a main line, as at 6 6, the relay or repeater I', and the telegraphing-key in the said main-line circuit, substantially as set forth.

11. The combination of the clock Q, the sounder R^2, the circuit 12^a 12^b through the clock, the relay or repeater I', having its armature adapted to open and close the circuit through the clock, a main-line circuit through the relay or repeater, and the switch for opening the circuit through the clock, substantially as set forth.

12. The combination of the clock Q, the sounder R^2 or equivalent instrument, an electric circuit through the clock, a battery R^2 therein, the electric circuit through the sounder, a main line, as at 6 6, a relay or repeater, as at I', in said main line, having an armature adapted to open and close the circuit through the clock, and the switch for cutting out the clock, substantially as set forth.

13. The combination of the clock Q, the sounder R^2, an electric circuit through the clock, an electric circuit through the sounder, a main-line circuit, as at 6 6, and a relay or repeater I' in said circuit, adapted to open and close the circuits through the clock and the circuit through the sounder, substantially as set forth.

14. The combination of the clock Q, the sounder R^2, the electric circuit through the clock, the electric circuit through the sounder, the relay or repeater I', adapted to open and close either or both of the aforesaid circuits, the switch *r* for opening the clock-circuit, the time-signal-transmitting devices at the transmitting-station, a main line, as at 6 6, running through the said relay or repeater I' and having two earth connections, one at the transmitting station and one outside thereof, and a switch, as at r^4, for joining the main line to either of said earth connections, substantially as set forth.

15. The combination of the time-signal-transmitting apparatus in the observatory or central station, including a multiple-pointed relay or repeater I, a series of two or more main electric circuits, as at 5 5, 6 6, 7 7, extending from said multiple-pointed relay or repeater I out from the observatory or transmitting station, a time-signal-receiving station, as at 8^4, a local electric circuit at the said station, a multiple-pointed relay or repeater in the said local circuit, and a series of two or more electric circuits extending out from the last said multiple-pointed relay or repeater to a series of clock-stations, as at O^4 O^5, substantially as set forth.

480,578. MUTE FOR MUSICAL INSTRUMENTS. DAVID GEHRS, Baltimore, Md. Filed Apr. 30, 1892. Serial No. 431,290. (No model.)



Claim.—1. A tubular mute for stringed instruments, substantially as described.

2. A mute composed of connected tubes adapted to engage the bridge of a musical instrument, substantially as described.

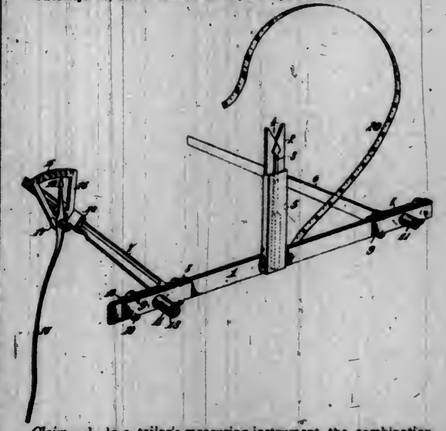
3. A mute for a stringed musical instrument, composed of a sound-distributing tube and sound-conducting tubes connected therewith, substantially as described.

4. A mute for a stringed musical instrument, composed of a sound-distributing-tube and pairs of sound-conducting tubes secured to opposite sides of the sound-distributing tube and adapted to be applied to a bridge, substantially as described.

5. A mute for a stringed musical instrument, composed of a sound-distributing tube, sound-conducting tubes, and a cross-piece interposed between the sound-conducting tubes, substantially as described.

6. A mute for a stringed musical instrument, composed of a sound-distributing tube, sound-conducting tubes connected therewith, and a tubular cross-piece interposed between the sound-conducting tubes, substantially as described.

480,579. TAILOR'S MEASURE. IGNATIUS GRAGG, Baltimore, Md. Filed Apr. 26, 1892. Serial No. 431,016. (No model.)



Claim.—1. In a tailor's measuring-instrument, the combination, with a side bar provided with a plumb, of a front bar supported in a horizontal position on the side bar, a slide mounted on the front bar and carrying a scale-plate, and a pivotally-supported swinging gage-arm having a pointer or index-finger, substantially as described.

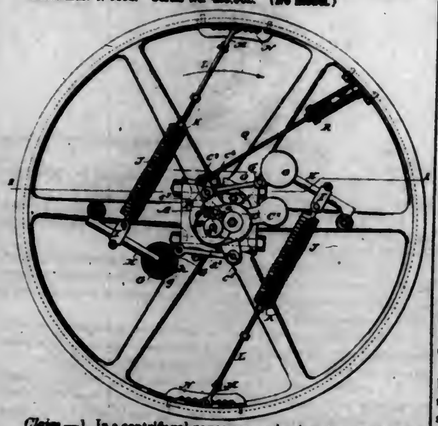
2. In a tailor's measuring-instrument, the combination, with a side bar provided with a plumb, of an adjustable rear bar, an adjustable front bar, and an adjustable swinging gage-arm supported on the front bar and provided with a scale and index-finger, substantially as described.

3. A tailor's measuring-instrument consisting of a supporting side bar provided with a plumb, an adjustable rear bar supported on the side bar, a front bar adjustably mounted on the side bar, a swinging gage-arm carried by a slide on the front bar and provided with a scale and pointer, and a measuring-tape attached to the side bar, substantially as described.

4. A tailor's measuring-instrument comprising a supporting side bar provided with a plumb, front and rear bars provided with slides for adjustable connection with the side bar, and adjustable friction devices carried by said slides, substantially as described.

5. A tailor's measuring-instrument comprising a supporting side bar, a plumb, front and rear bars adjustably mounted on the side bar, an adjustable gage-arm carried by the front bar and provided with a scale and index-finger, and a measuring-tape attached to one of the bars, substantially as described.

480,580. ENGINE-GOVERNOR. MARTIN A. GREEN, Altoona, Pa. Filed Mar. 1, 1892. Serial No. 423,362. (No model.)



Claim.—1. In a centrifugal governor mechanism, the combination, with the shaft and the governor-wheel, a pivot-pin projected from the hub of the wheel eccentric to its axis, a rocker-plate journaled on such pin and connected with the pivotal governor-arms, the valve-pin D, eccentrically journaled on the rocker-plate, such journal being normally over the axis of the wheel when the governor-balls are at their normal innermost position, all arranged substantially as shown, and for the purposes described.

2. The combination, with the supporting-wheel, the rocker-plate C, journaled thereon near the center of the main shaft, said plate having a counterpoise at one end and carrying the eccentric-pin D at its other end and formed with opposite lateral extensions c^4 c^5, and a cushion device, substantially as shown, mounted on the wheel and having its plunger-rod connected with the rocker-plate, of the pivotal arms H, carrying the balls G, the springs J, and the arms O, pivotally connected at their opposite ends to the balls G and the extensions c^4 c^5, all arranged as shown, and for the purpose described.

3. The combination, with the wheel, the governor-arms H and balls G, and means for imparting a centripetal action thereto, of the plate A, having stops P P', the rocker-plate journaled thereon near the center of the main shaft, having a stop-lug, the eccentric-pin mounted on said rocker-plate, and the oppositely-disposed connecting-arms O, pivotally connected to the rocker-plate and the balls G, substantially as and for the purpose described.

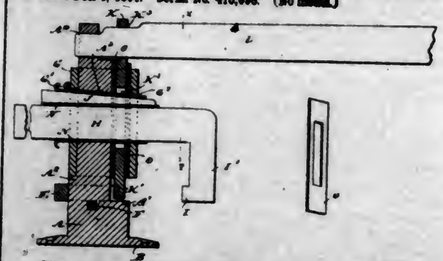
4. In a governor mechanism, substantially as described, the combination, with the wheel-hub, the eccentric rocker-plate C, pivoted thereon, of the pivoted arms H, having their outer ends reduced and threaded, as at A, the balls G, having an enlarged bore adapted to receive the lower portion of the arms H, and a reduced threaded portion adapted to receive the threaded ends of said arms, and the arms O, pivotally connected at their ends with the balls and with the rocker-plate, all substantially as and for the purpose described.

5. In a governor mechanism, substantially as described, the combination, with the wheel and the centrifugal governing mechanism, including the hinged arms H, of the adjustable clamps I, the double-wound springs J, connected at their free ends to the clamps I and at their looped ends to screw-nuts K, and the adjusting-rods L, connected with the nuts K and the wheel-rim, substantially as and for the purpose described.

6. In a governor mechanism, essentially as described, the combination, with the wheel and the combined centripetal and centrifugal acting weighted arms H, pivoted thereto, of the plate A, having journal B, the rocking plate C, mounted thereon, having a lubricating-reservoir 10, and a channel 11, communicating therewith, the eccentric-pin D, journaled on such plate, formed with a lubricant-receiving channel 12, communicating with the channel 11, the cap-plate E, held on the pin D, and the arms O, connecting the rocker-plate and the balls G on the arms H, all arranged substantially as and for the purpose described.

7. In a centrifugal governor, the combination, with the wheel rocker-plate C, eccentrically journaled on the hub thereof, the swinging balls G, the arms O, connecting the balls and the rocker-plate, said rocker-plate having an extension c^5, of the cylinder S, secured to the wheel, the piston R, working therein, and the rod Q, connecting the piston and the rocker-arm extension c^5, substantially as and for the purpose described.

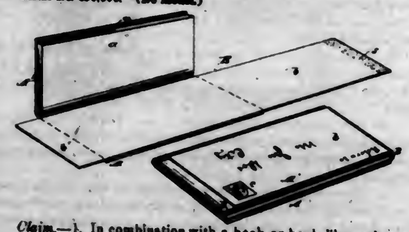
480,581. SAW-SET. WILLIAM M. GRELLICK, Sutton's Bay, Mich. Filed Dec. 1, 1891. Serial No. 413,698. (No model.)



Claim.—1. In a saw-set, the combination, with a frame formed with a set-block, of a sleeve held on the said frame, an arm held in the said sleeve and provided with a lug arranged opposite the said set-block, plates adapted to engage the said arm and sleeve to raise or lower the said arm, and a key for locking the said arm in place, substantially as shown and described.

2. In a saw-set, the combination, with a frame formed with a set-block and a gage held horizontally adjustable on the said frame, of a sleeve seated on the said frame, a horizontal arm held in the said sleeve and provided with a lug arranged opposite the said set-block, a key and plates for adjusting the said arm vertically, a punch fitted to slide vertically in the said sleeve above the said set-block, and plates for adjusting the said punch laterally, substantially as shown and described.

480,582. MAILING ATTACHMENT FOR BOOKS AND LIKE ARTICLES. CHARLES S. HARDY, San Diego, Cal. Filed Apr. 27, 1892. Serial No. 430,896. (No model.)

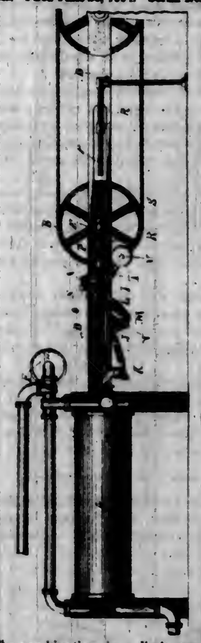


Claim.—1. In combination with a book or book-like package, a mailing device therefor, consisting of a permanently-attached address fly-leaf adapted to be folded within the book or package on the inner side of its cover and of being turned over or outside of the cover, substantially as and for the purpose herein set forth.

2. In combination with a book or other like package, a mailing device therefor, consisting of a permanently-attached fly-leaf having the name and address of the owner of the package and a postage-stamp on it, said leaf being adapted to be folded within the book or package on the inner side of its cover and of being turned over or outside of the cover and of there being secured or sealed, substantially as specified.

3. The combination, with a book or book-like package having half-covers A A', of the address fly-leaf B, permanently attached to the inside of the one half-cover and capable of being turned or folded within the book and composed of a long portion *b* and a short portion *b'*, both capable of being turned over or outside of the cover and provided with adhesive material adapted to seal said portions together when so turned, substantially as described.

480,583. LIMIT-STOP FOR ELEVATORS. THADDEUS W. HERRMANN, Chicago, Ill., assignor, by mesne assignments, to the National Company, of Illinois. Filed June 26, 1891. Serial No. 397,057. (No model.)



Claim.—1. The combination, in a limit-stop for elevators, of a valve in the passage between the control-valve and the cylinder, a lever connected to said valve, having arms projecting each side of the fulcrum, a slide having projections engaging with said arms on their opposite sides, and a rod connected to said slide, having stops thereon engaging with a moving part connected to the elevator-piston, substantially as described.

2. The combination, in a limit-stop for elevators, of a valve in the passage between the control-valve and the cylinder, a lever connected to said valve, having arms projecting each side of the fulcrum, a slide having projections engaging with said arms on their opposite sides, a rod connected to said slide, having stops thereon engaging with a moving part connected to the elevator-piston, and a weight or its equivalent connected to said lever, adapted to move said first-named valve to its open position, substantially as described.

3. The combination, in a limit-stop for elevators, of a valve H in the passage between the control-valve and the cylinder, a lever I, mounted upon a stud L and provided with oppositely-projecting arms M N, a slide O, supported upon said stud L and having projections V V' engaging with opposite sides of the arms M N, respectively, a rod P, having stops R R thereon and connected to the slide O and the arm S, secured to the cross-head E and operating between said stops R R, and the weight U, adapted to maintain the arms M N in contact with the studs V V', respectively, substantially as described.

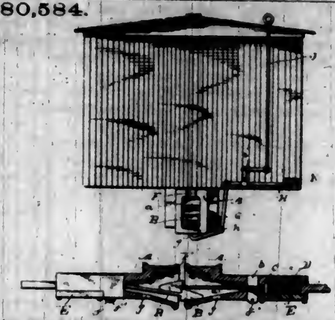
480,584. CAR-COUPLING. FRANCIS A. HOTCHKISS, Cedar Falls, Iowa. Filed Nov. 30, 1891. Serial No. 413,570. (No model.)

Claim.—1. In a car-coupling, the combination, with the draw-bar having the chamber therein, of a headed coupling-bar secured in a throat portion of said chamber by a removable pin passing loosely through an oblong slot in said coupling-bar and through the walls of said chamber, the buffer-plate at the rear of said coupling-bar, the spring therefor, and the removable wall of the spring-chamber, substantially as specified.

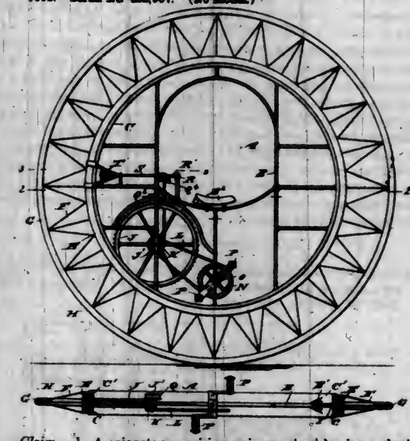
2. The combination, with the draw-bar having the loosely-held coupling-bar therein and the slot in the wall of the chamber thereof, of the pivoted angular lever having an arm adapted to project through said slot into engagement with said coupling-bar and means for operating said lever to effect such engagement, substantially as specified.

3. The combination, with the draw-bar having the coupling-bar loosely held therein, said bar having a slot through its wall, of the angular lever having an arm adapted to project through said slot into engagement with said coupling-bar and the pull-rods connected to said lever, substantially as specified.

480,584.



480,585. UNICYCLE. JAMES INLAN, Barre, Vt. Filed Feb. 26, 1892. Serial No. 422,907. (No model.)



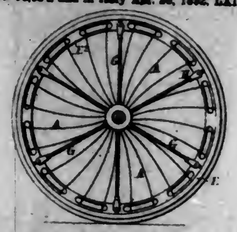
Claim.—1. A unicycle comprising an inner wheel having a double rim and a framework carrying the seat, an exterior wheel formed with an annular flange connected by spokes with a tire, ball-bearings arranged in the said annular flange and engaged by the double rim of the inner wheel, and a propelling mechanism supported in the said framework and provided with a large gear-wheel in mesh with an internal gear on the said rim, substantially as shown and described.

2. A unicycle comprising an inner wheel having a double rim and a framework carrying the seat, an exterior wheel formed with an annular flange connected by spokes with a tire, ball-bearings arranged in the said annular flange and engaged by the double rim of the inner wheel, a propelling mechanism supported in the said framework and provided with a large gear-wheel in mesh with an internal gear on the said rim, and a treadle mechanism adapted to be actuated by the rider seated on the said seat and connected with the said large gear-wheel, substantially as shown and described.

3. A unicycle comprising an inner wheel having a double rim and a framework carrying the seat, an exterior wheel formed with an annular flange connected by spokes with a tire, ball-bearings arranged in the said annular flange and engaged by the double rim of the inner wheel, a propelling mechanism supported in the said framework and provided with a large gear-wheel in mesh with an internal gear on the said rim, and a brake mechanism under control of the operator, substantially as shown and described.

4. A unicycle comprising an inner wheel having a double rim and a framework carrying the seat, an exterior wheel formed with an annular flange connected by spokes with a tire, ball-bearings arranged in the said annular flange and engaged by the double rim of the inner wheel, a propelling mechanism supported in the said frame-work and provided with a large gear-wheel in mesh with an internal gear on the said rim, and a steering mechanism, substantially as described.

480,586. WHEEL. ROBERT JEWELL, London, England. Filed Mar. 29, 1892. Serial No. 426,995. (No model.) Patented in England Apr. 29, 1891, No. 7,410, and Jan. 26, 1892, No. 1,733; in Belgium Mar. 25, 1892, No. 96,954, and in Italy Apr. 30, 1892, LXII. 158.

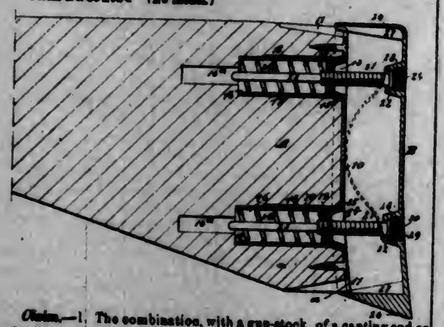


Claim.—1. A bicycle, tricycle, and similar road-wheel having spring-spokes made with an arc-shaped curvature in the plane of the wheel, the inner ends of said spring-spokes being formed with hooks or heads fitting grooves of the boss, in which they are secured by an inner plate C, having lateral ribs C' entering into the grooves, and an outer plate D, secured by screwing, substantially as described.

2. In a bicycle, tricycle, and similar road-wheel, the combination of a metal tire or rim E with flange E^2, spring-spokes A, made with an arc-shaped curvature in the plane of the wheel, and rigid stay-spokes G, the inner ends of which are secured to the boss or nave of the wheel, while the outer ends are connected to the flange E^2 by a slotted connection that will allow of the requisite vertical play of the boss or nave in the plane of the wheel, substantially as described.

3. In a bicycle, tricycle, and similar road-wheel, the combination of a metal tire or rim E with flanges E^2 E^4, hoop E^3, packing N, and caoutchouc band M, spring-spokes A, made with an arc-shaped curvature in the plane of the wheel, and rigid stay-spokes G, the inner ends of which are secured to the boss or nave of the wheel, while the outer ends are connected to the flange E^2 by a slotted connection that will allow of the requisite vertical play of the boss or nave in the plane of the wheel, substantially as described.

480,587. EXTENSION GUN-STOCK AND CUSHION-PLATE. ERASTUS JONES and RALPH TOWNSEND, New York, N. Y. Filed June 3, 1891. Serial No. 394,934. (No model.)



Claim.—1. The combination, with a gun-stock, of a casting end or back plate movable to and from the end of the stock, whereby the stock may be lengthened and accommodated to the shoulder of a marksman, as set forth.

2. In a gun-stock, an extension-plate provided with an adjusting mechanism for regulating the length of the stock, and a cushion in engagement therewith, said cushion being unaffected by the adjustment of said mechanism, as and for the purpose set forth.

3. The combination, with a gun-stock having channels formed at top and bottom of its end surfaces, of an end or back plate held to slide upon the end portion of the stock, provided with tongues entering grooves in the stock, adjusting-screws carried by the stock and having their heads seated in the end or back plate, said heads having a rocking connection with said plate, and springs intervening the end or back plate and the stock engaging with the adjusting-screws, yet independent of the same in their action, substantially as shown and described.

4. The combination, with a gun-stock provided with longitudinal bores containing casings, said casings being provided with longitudinal slots, a plate secured to the end of the stock having openings therein over the bores, and annular flanges surrounding said openings and extending downward over the mouths of the bores, nuts located in the casings provided with feathers held to travel in the casing-slots, and springs located in the casing below the nuts, of an end plate held to slide upon the stock over its attached plate, the said end plate being provided with apertured wells or sockets interiorly threaded, screws having their heads seated in the wells or sockets of the end plate, the said heads being circular, the body of the screw being passed through the nuts in the casings in the stock and through the springs, and plugs screwed in the wells or sockets to an engagement with the heads of the screws, as and for the purpose specified.

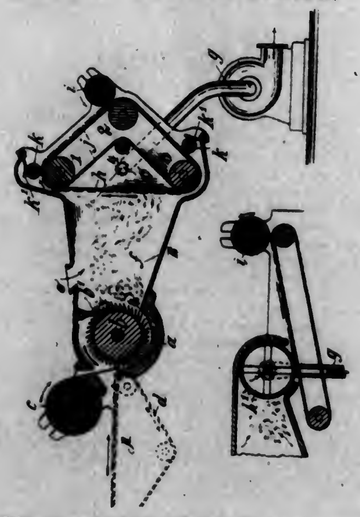
5. The combination, with the stock having longitudinal bores in its butt, sliding nuts in the bores, and springs pressing the nuts outward, of the extensible plate having screws swiveled to it and extending through the nuts, whereby the plate may be adjusted in or out by turning the screws without changing the tension of the springs, substantially as set forth.

6. The combination, with the stock having longitudinal bores in its butt, sliding nuts in the bores, and springs pressing the nuts outwardly, of the extensible plate having two threaded wells, two screws passed loosely through apertures in the bases of the wells and through said nuts, and threaded plugs closing the wells, substantially as set forth.

7. The combination, with the gun-stock and the nuts in its butt, of an extensible back plate having two threaded wells, two adjusting-screws extended freely through apertures in the bases of the wells and through the nuts, and plugs screwed into the wells and concealing the screw-heads.

8. The combination, with the stock, its heel-plate 10, provided, respectively, with slots 11 11 and 12 12 in the stock and plate, of the cushion back plate B, inclosing the butt of the stock and provided at its ends with internal ribs or flanges 27 27, sliding in the ways formed by the said slots, substantially as set forth.

480,588. ART OF PREPARING SHORT FIBERS FOR SPINNING AND OTHER PURPOSES. CARL KELLNER, Vienna, Austria-Hungary. Filed Dec. 10, 1891. Serial No. 414,690. (No specimens.)

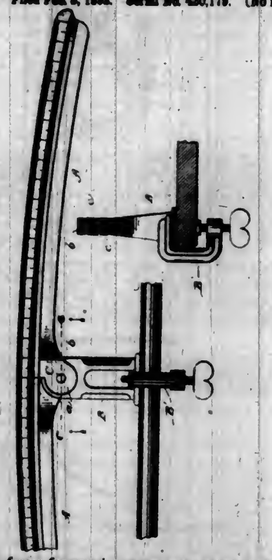


Claim.—1. In the art of preparing short fibers for spinning and other purposes, the process which consists in suspending the fibrous material in a liquid, condensing the fibers into a sliver, sheet, or lap, disintegrating the said sliver, sheet, or lap, and recondensing the same into a loose sliver, sheet, or lap, for the purpose set forth.

2. In the art of preparing short fibers for spinning and other purposes, the process which consists in suspending the short fibers in a solution of an antiseptic or disinfectant, condensing the fiber into a sliver, lap, or sheet, disintegrating the said sliver, lap, or sheet, and recondensing the same into a loose sliver, sheet, or lap, for the purpose set forth.

3. In the art of preparing short fibers for spinning and other purposes, the process which consists in suspending the fibrous material in a liquid, condensing the fibers into a sliver, lap, or sheet, compressing and drying the same, disintegrating the compressed and dried sliver, lap, or sheet, and recondensing the same into a loose sliver, lap, or sheet, for the purpose set forth.

480,589. SEAM-PRESSING FRAME. FRANK J. KELLOGG, Battle Creek, Mich. Filed Feb. 8, 1892. Serial No. 420,179. (No model.)

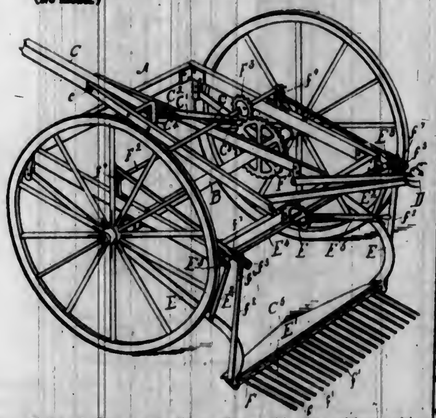


Claim.—1. A frame for pressing seams on, consisting of a standard, a pair of arms pivotally connected to said standard at their inner ends, together constituting a pressing-surface, and means for locking said arms in any position, substantially as specified.

2. The combination, with the standard, a pair of bow-shaped arms having ears at one end, and a set-screw passing through said ears and the upper end of said standard, thereby pivoting and locking the arms thereon, substantially as set forth.

3. The combination, with the standard, the bow-shaped arms pivotally connected to said standard at their inner ends, the rounded wood-facing strips on said arms, and the felt covering-strip, and the devices for locking said arms to the standard, substantially as and for the purpose described.

480,590. POTATO-DIGGER. JOHN E. KELLY and FREEMAN R. HOWELL, Highland Station, Mich. Filed May 25, 1891. Serial No. 393,999. (No model.)



Claim.—1. In a potato-digger, the combination, with a rocking digger-blade provided at its rear with a series of fingers, of a rocking finger or grate bar provided with fingers adapted to interact between the fingers of the said blade, substantially as described.

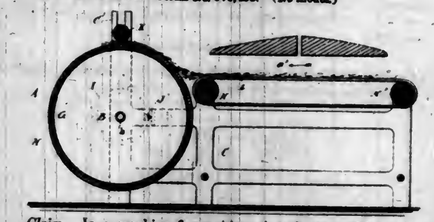
2. In a potato-digger, the combination, with a balance rocking digger-blade provided at its rear with a series of fingers, of a rocking finger or grate bar provided with fingers adapted to interact between the fingers of the said blade, substantially as described.

480,591. COMPOSITION OF MATTER FOR THE MANUFACTURE OF ARTIFICIAL STONE. JOSEPH R. KEMBLING and CHARLES PUGSLEY, Jr., New York, N. Y., assignors to the Pyrolith Company, of New Jersey. Filed Apr. 30, 1892. Serial No. 431,340. (No specimens.)

Claim.—1. A composition of matter for the manufacture of artificial stone, which consists of a basic cement of oxide of magnesium and neutral chloride of magnesium, asphaltum, and sand or analogous material.

2. The process of manufacturing artificial stone, which consists in first obtaining a basic cement of oxide and neutral chloride of magnesium, then adding sand and asphaltum, then drying the resultant stone, and then subjecting such stone to a hot-water bath to drive off the chloride.

480,592. FELTING-MACHINE. JULIUS KITTEL, Cranford, N. J. Filed Jan. 30, 1891. Serial No. 378,455. (No model.)



Claim.—In a machine for making piano-hammer felt, a drum having a perforated rim and provided with a perforated shaft for connection with a pipe for supplying the interior of the drum with steam, mechanism, substantially as described, for imparting simultaneously a rotary and endwise motion to the said drum, and a burlap covering held on the outer surface of the perforated drum-rim and covering the perforations therein, in combination with a roller arranged in line with and journaled loosely above the said drum and resting by its weight on the felt material passing along under the roller and an endless traveling feed-belt discharging layers of felt material onto the said burlap at one of the said drum sides and below the said roller to heat the felt material previous to its passing under the said roller to be acted on in a diagonal direction by the forward revolving and transverse sliding motion of the said drum under the said roller, substantially as described.

480,593. ANIMAL-TRAP. EDWIN R. KNIGHT and CHARLES W. KNIGHT, Shelbyville, Ill. Filed Jan. 5, 1892. Serial No. 417,105. (No model.)



Claim.—1. In a trap, the combination, with a chambered body portion provided with openings at its ends, of a horizontally-located partition extending within the body of the trap from end to end and terminating at the openings, the said partition being provided with openings normally closed by counterbalanced trap-doors, and cover-doors for bridging over the trap-doors, substantially as shown and described.

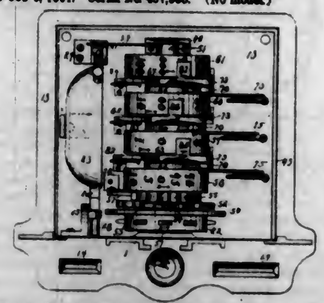
2. In a trap, the combination, with a body having tapering ends and an opening at each end, of a partition extending through the trap from side to side and from end to end, the extremities of the partition resting upon the base-wall of the body, counterpoised trap-doors, normally closing openings in the partition, said trap-doors opening downward, stops limiting the downward movement of the trap-doors, cover-doors capable of bridging the trap-doors, and means, substantially as described, for holding the cover-doors in an elevated position, as and for the purpose set forth.

3. In a trap, the combination, with a body portion the extremities of which are beveled downward and each provided with an opening, of a partition dividing the body into an upper and lower compartment, the partition extending downward to the base-wall of the body, a runway or arch located upon a portion of the partition, baffle-partitions located at the sides of the arch and extending above it, counterpoised trap-doors normally covering the openings in that portion of the partition within the arch, said trap-doors being adapted to open downward, cover-doors pivoted between the trap-doors within the arch and capable of bridging said doors, and devices for maintaining

the cover-doors in an elevated position, substantially as and for the purpose set forth.

4. In a trap, the combination, with a body constructed of reticulated or perforated material having tapering ends and an opening at each end, of a partition of a reticulated or perforated material dividing the interior of the trap into two main compartments, an upper and a lower, a runway or arch of reticulated or perforated material located upon the partition at a point in its length, counterpoised trap-doors covering openings produced in the partition within the runway, stops adapted for engagement with the trap-doors, baffle-partitions of reticulated or perforated material located at the sides of the arch or runway and extending above it, cover-doors pivoted between the trap-doors, curved upward and outward in opposite directions, the said cover-doors being constructed of a reticulated or perforated material, and devices for maintaining the cover-doors in an elevated position, whereby that portion of the arch or runway inclosed by the cover-doors may be maintained as a bait-chamber, rendering the said bait non-accessible and yet visible from all points, substantially as described.

480,594. CASH-REGISTER. HERMANN H. KOELLER, Quincy, Ill. Filed Oct. 6, 1891. Serial No. 407,863. (No model.)



Claim.—1. In a cash-register, the combination, with registering mechanism, an indicator-plate, a bell adapted to be sounded when the latter is operated, and a sliding drawer, of auxiliary alarm mechanism comprising a lever 30, projecting into said drawer and provided with a shoulder 38, a lever 36, actuated by said shoulder and carrying a hammer 37, a spring-held lever 31, pivotally mounted on the lever 30, a stop-pin 33, and a spring 39, located behind lever 36 and adapted to throw the hammer 37 toward the bell, substantially as and for the purpose set forth.

2. In a cash-register, an alarm mechanism adapted to be sounded when the money-drawer is opened, comprising an alarm-bell 23, secured to the base-plate of said register, a lever 30, provided with a shoulder 38 and carrying a spring 42, said lever being pivotally mounted on said base-plate and projecting downwardly through a perforation formed in the same, a lever 36, actuated by the shoulder of said lever 30 and carrying a hammer 37, a pin 33, projecting from lever 30, a lever 31, pivotally mounted on lever 30 and adapted to engage pin 33 to actuate the lever 30 when lever 31 is struck by the drawer as the same is pulled outwardly or withdrawn, and a spring 39, located behind lever 36, for throwing the same, and consequently hammer 37, toward bell 23, and causing the latter to strike the same, substantially as set forth.

3. In a cash-register, the combination, with the registering mechanism, a vertically-moving indicator-plate carrying a horizontal bar 17, and with an alarm-bell, of a lever 24, provided with a weighted end carrying a hammer 27, and an arm 28 at the opposite side of the lever-fulcrum and in the path of the bar 17, substantially as and for the purpose set forth.

4. In a cash-register, the combination, with a series of registering-wheels provided upon their periphery with graduations, of a plate projecting over the periphery of each registering-wheel except the units-wheel and normally concealing the uppermost graduation, and means for actuating said plates to expose the concealed graduation when the preceding wheel has completed one revolution, substantially as and for the purpose set forth.

480,595. PNEUMATIC WHEEL-TIRE. KARL LEHMANN, Berlin, Germany. Filed Jan. 9, 1892. Serial No. 417,518. (No model.)

Claim.—1. The herein-described non-circular tire, comprising the inner air-tube *d*, having the re-entering sides, and a heavier tread portion *b*, embracing the outer portion and sides of the tube, and having inwardly-projecting edges to enter the sides of the tube, and shoulders adapted to bear upon the rim, all substantially as shown and described.

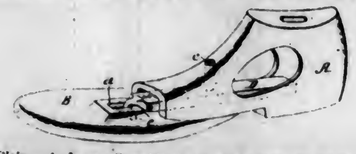
480,595.



2. In combination with the rim having the curved seat, the inwardly-projecting parts a' and the outwardly-projecting parts a^3, the tire provided with the side grooves k' to receive the inwardly-projecting parts of the rim, and a shoulder upon which the outwardly-projecting parts of the rim rest, all substantially as shown and described.

3. In combination with the rim having the curved seat and the inwardly and outwardly projecting portions, the air-tube *d*, having re-entering sides and seated in the rim, and the tread portion *b*, covering the exposed part of the air-tube and provided with side grooves k', all substantially as shown and described.

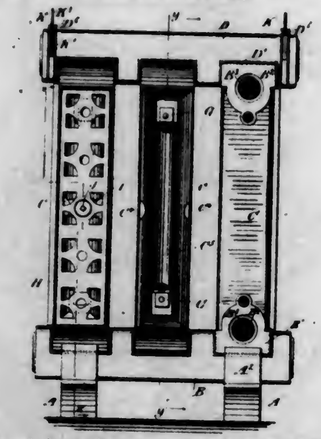
480,596. EXTENSION SHOE-LAST. JAMES H. LIVERMORE, Port Townsend, Wash. Filed July 13, 1891. Serial No. 399,413. (No model.)



Claim.—1. In an adjustable shoe-last, the combination of the reversible toe-section B, having an elongated slot *d*, with raised edges, and the connecting-bar D, having an offsetting or downwardly-extended T-shaped head *e*, adapted to be passed through the slot *d* when turned at right angles and to lock under the same when turned into alignment, substantially as shown and described.

2. The connecting-bar D, having the T-shaped head *e*, graduations *g*, and screw-seats *f*, in combination with the heel portion A, having cross-bar *a* and set-screw *c*, and the reversible toe portion B, having the slot *d*, substantially as shown and described.

480,597. RADIATOR. GEORGE R. LOVEGARD, Halifax, Canada. Filed May 27, 1891. Serial No. 394,241. (No model.)



Claim.—1. In a radiator, the combination, with the upper and lower headers having recesses in their outer sides, of pipes the ends of which enter said recesses, lateral communicating openings being formed in the ends of the pipes and sides of the headers within the said recesses, transverse annular registering offsets in the pipes and headers, and bolts passing through said offsets without entering the water or steam space, substantially as set forth.

2. The combination, with the header having a lateral socket flanged at its inner end and a pipe having a similar registering socket and flange, of the copper or like nipple compressed longitudinally and

expanded laterally in the said two sockets between their flanges to form a tight joint, substantially as set forth.

3. A radiator comprising upper and lower headers formed in their sides with lateral sockets, flanges at their inner ends, and with transverse annular offsets, the pipes formed with similar lateral sockets and annular offsets registering with those of the headers, nipples compressed in said sockets between their flanges, and the bolts passed through said offsets and securing the parts together, substantially as set forth.

4. In a radiator, the combination, with pipes, of a top and a bottom header connected and in communication with the said pipes and forming girders for the same, bolts passing through the said headers and pipes to fasten the several parts together, and nipples fitted in recesses in the said pipes and headers to establish communication between the same, the ends of the said nipples abutting against annular flanges in the said headers and pipes, substantially as shown and described.

5. A radiator provided with parallel disconnected spaced pipes having external longitudinal depressions and a screen secured to each pipe over its recess, the spaces between the pipes being open from one side of the radiator to the other to permit of free circulation of air, substantially as set forth.

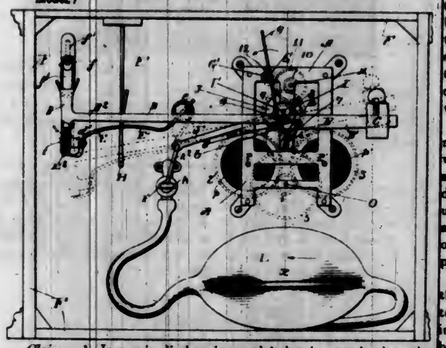
6. The combination, with a radiator-pipe having a longitudinal recess or depression and two inward-projecting lugs, of a screen covering said recess and provided on its inner side with a button, the ends of which are adapted to be passed behind said lugs from the outside substantially as set forth.

7. In a radiator, the combination, with headers formed on their sides with sockets, of pipes engaging with their ends the sockets of the said headers, nipples held in sockets in the said pipes and headers and abutting against flanges thereon, and bolts for fastening the said pipes to the said headers, substantially as shown and described.

8. In a radiator, the combination, with headers formed on their sides with sockets, of pipes engaging with their ends the sockets of the said headers, nipples held in sockets in the said pipes and headers and abutting against flanges thereon, bolts for fastening the said pipes to the said headers, and legs bolted to the bottom header and having side extensions engaging the sides of the said bottom header, substantially as shown and described.

9. In a radiator, the combination, with a top header formed at or near its ends with vertical guideways, of brackets engaging the said guideways and adapted to support a shelf, substantially as shown and described.

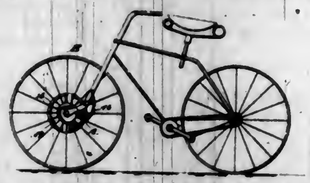
480,598. AUTOMATIC LIQUID-DISTRIBUTING MACHINE. EVERETT B. LUNDY, Boston, Mass. Filed Jan. 7, 1892. Serial No. 417,316. (No model.)



Claim.—1. In a coin discharging and balancing mechanism, the combination, with an ordinary clock-work mechanism, of the rotary escapement or blade on its highest-speed spindle and the cam and crank-disk secured to the spindle I', the latter being connected to the arm of the valve by a connecting-rod and the former being engaged with a horizontal projection at right angles with the balance-lever and a part thereof, said lever being fulcrumed to the framework of the mechanism and provided with a similar horizontal projection to engage with the escapement and having one arm provided with a counterbalance-weight and the other with a suitable coin-pocket at its end, that is provided with lugs that fulcrum the coin-discharging lever, which has one of its arms provided with a counterbalance-weight and the other covering the under part of the coin-pocket, which said coin-discharging lever is actuated by the movement of the balance-lever and by the rigid arm H, all substantially as set forth.

2. A suitable cabinet provided with a coin aperture and chute and with a figure-head provided with a liquid-passage that is directly communicated with a liquid-receptacle, said passage provided with a valve that has an arm vertically projecting from the stem thereof, in combination with a coin discharging and balancing mechanism consisting of an ordinary clock-work mechanism provided with a rotary escapement or blade on its highest-speed spindle and with a cam and crank-disk secured to the spindle I', the latter being connected to the arm of the valve by a connecting-rod and the former being engaged with a horizontal projection at right angles with the balance-lever and a part thereof, said lever being fulcrumed to the framework of the mechanism and provided with a similar horizontal projection to engage with the escapement and having one arm provided with a counterbalance-weight and the other with a suitable coin-pocket at its end, that is provided with lugs that fulcrum the coin-discharging lever, which has one of its arms provided with a counterbalance-weight and the other covering the under part of the coin-pocket, which said coin-discharging lever is actuated by the movement of the balance-lever and by the rigid arm H, all substantially as and for the purpose set forth.

480,599. MOTOR SPRING-FORK FOR BICYCLES. WILLIAM LYNCH and EUGENE TREMPER, Wallkill, New York. Filed Nov. 20, 1891. Serial No. 412,846. (No model.)



Claim.—1. A spring-fork for bicycles, constructed in pivoted spring-connected sections, and a pawl-and-ratchet mechanism connecting the lower section of the fork with the wheel, substantially as set forth.

2. A spring-fork and motors for bicycles and like machines, constructed in two sections, the upper section being yoke-shaped and the lower section comprising two bars pivoted to the members of the yoke and adapted for attachment to the axle, power connections between said lower section and the wheel, stop devices located at the junction of the two sections, and a spring attached to the lower section, coiled over the same, and secured to the upper section, as and for the purpose set forth.

3. In a bicycle or like machine, the combination, with the axle of the machine, of a fork constructed in two sections, a bow-section, and bars pivoted to the bow-section, the said bars being adapted for attachment to the axle and having power connections with the wheel, stop devices, substantially as described, located at the junction of the two sections of the fork, and springs attached to the bars of the fork, curved forwardly and over said bars and inwardly to an engagement with the yoke-section of the fork, as and for the purpose specified.

4. In a bicycle, the combination, with the axle and a wheel mounted upon said axle, having a casing attached thereto provided with an inner ratchet-face, of a spring-fork attached to the axle, the said fork being constructed in two pivotally-connected sections, stop devices located at the junction of the sections, springs exerting tension upon the sections of the fork in the direction of the stop devices, an arm attached to the axle, and a pawl carried by said arm and capable of engagement with the ratchet-teeth of the wheel, as and for the purpose set forth.

5. In a bicycle or like device, the combination, with the axle thereof, the wheel loosely mounted upon the axle, and a casing secured to the hub of the wheel and having ratchet-teeth produced upon its inner peripheral surface, of a fork consisting of a yoke section and bars pivotally attached to the members of the yoke-section, the said bars and members being provided with stop devices and the bars being adapted for rigid attachment to the axle, one at each side of the wheel-hub, springs attached to the bars at their upper forward edges, which springs are curved over the ends of the bars downward and upward to an engagement with the sides of the members of the yoke-section of the fork, an arm secured to the axle and located within the casing, and a pawl pivoted upon the said arm and adapted for engagement with the ratchet-surface of the casing, as and for the purpose specified.

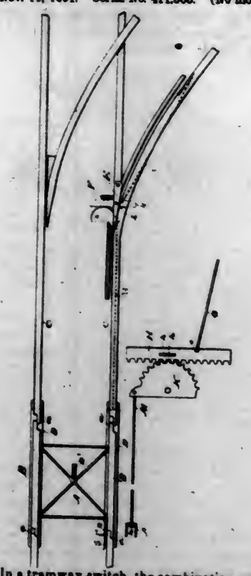
480,600. VELOCIPEDE DRIVING-GEAR. JOHN MACKENZIE, Liverpool, England. Filed Mar. 21, 1892. Serial No. 425,778. (No model.)

Claim.—In a velocipede driving-gear, the combination of the common axle F, the wheels A and E, fixed thereon, either one or both of which may be sprocket-wheels, and pedals C C, attached to the rims of said wheels, substantially as set forth.

480,600.



480,601. RAILROAD-SWITCH. LOUIS MARCHAND, Jr., Allegheny, Pa. Filed Nov. 11, 1891. Serial No. 411,583. (No model.)



Claim.—1. In a tramway-switch, the combination, with the movable switch-point, of a longitudinally-movable track-rail section, with intermediate connections between said track-rail section and switch-point, substantially as described.

2. In a tramway-switch, the combination, with a movable switch-point, of a longitudinally-movable track-rail section mounted on anti-friction bearings and intermediate connections between said longitudinally-movable section and switch-point, substantially as described.

3. In a tramway-switch, the combination, with a movable switch-point and the track-rails, of the longitudinally-movable track-rail sections having its ends overlapping the stationary track-rails and intermediate connections between the switch-point and movable track-rail section, substantially as described.

4. In a tramway-switch, the combination, with the movable switch-point, of the longitudinally-movable rail-section interposed in each of the track-rails and rigidly connected together and intermediate connections between the movable track-rail section and switch-point, substantially as described.

5. In a tramway-switch, the combination, with the movable switch-point and longitudinally-movable track-rail section for moving the same, of the catch for holding said switch-point in open position and the releasing-lever for said catch located on the branch line, substantially as described.

6. In a tramway-switch, the combination, with the spring-pressed switch-point and catch having the releasing-lever on the branch line for holding said switch in open position, of the longitudinally-movable track-rail section in the main line and intermediate connections between said longitudinally-movable track-rail section and switch-point, substantially as described.

7. In a tramway-switch, the combination, with the movable switch-point, of the longitudinally-movable track-rail section mounted on a base-piece having recesses in its end face, the rollers in said recesses resting on a bearing in the track-bed, and intermediate connections between the switch-point and movable rail-section, substantially as described.

8. In a tramway-switch, the combination, with the movable switch-point, of the longitudinally-movable track-section, the spring for moving said track-section in one direction, and intermediate connections between said track-section and switch-point, substantially as described.

9. In a tramway-switch, the combination, with the spring-pressed switch-point, of the spring-pressed longitudinally-movable track-section and intermediate connections between said track-section and switch-point, substantially as described.

10. In a tramway-switch, the combination, with the movable switch-point and longitudinally-movable track-rail section, of the segment moved by said track-rail section and connections between the segment and switch-point, substantially as described.

11. In a tramway-switch, the combination, with the switch-point and longitudinally-movable track-rail section, of the segment moved by the track-rail section, the slotted bar moved by said segment, and the pin on the switch-point entering said slot, substantially as described.

12. In a tramway-switch, the combination, with the switch-point, the slotted bar and pin, the segment engaging the bar, and the longitudinally-movable track-rail section for moving the segment, of the catch engaging said bar and the releasing-lever for said catch, substantially as described.

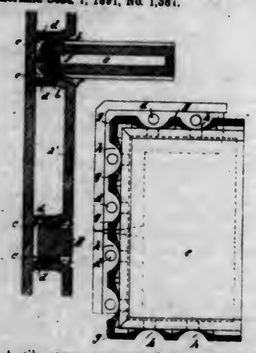
13. In a tramway-switch, the combination, with the movable switch-point and the longitudinally-movable track-rail section having the end overlapping the stationary track-rail, of the bolt passing through said overlapping ends and the plate or bar lying along the inner side of the rail in position to engage the car-wheel flange, said plate or bar being connected with the bolt, substantially as described.

480,602. GUTTER OR VALLEY ON ROOFS. CHARLES C. MEADER, Montpelier, Vt. Filed Oct. 23, 1891. Serial No. 409,640. (No model.)



Claim.—The board or metal strip covering the gutter or valley laid over whatever forms the roof, thereby creating a cold-air space between the bottom of board or metal strip B and gutter or valley A, said board or metal strip being fastened by hook C and clamp E, substantially as set forth above.

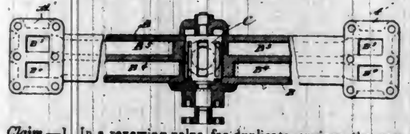
480,608. TILE STOVE. REINHOLD MEYER, Wildburgstetten, Germany. Filed Nov. 13, 1891. Serial No. 411,968. (No model.) Patented in Austria-Hungary Oct. 8, 1889, No. 16,316 and No. 44,852; in Germany Jan. 24, 1890, No. 50,514; in Norway Mar. 12, 1890, No. 1,558; in Denmark Mar. 15, 1890, No. 642; in Sweden Oct. 23, 1890, No. 2,622, and in Switzerland Sept. 7, 1891, No. 1,387.



Claim.—1. A tile stove constructed of superimposed layers of hollow intercommunicating tiles to form the outer walls, in combination with hollow flue-plates, as *c*, communicating with the hollow tiles at their points of connection, substantially as set forth.

2. In a tile-stove, the combination of superimposed layers of hollow tiles provided with rabbets, as *a*, ribs, as *b*, and throats, as *c*, with hollow flue-plates, as *e*, arranged between the hollow tiles, and strips, as B, arranged between the said hollow tiles at the points where no flue-plates are arranged, the flue-plates being provided with mortises and the hollow tiles with openings at their tops and bottoms to permit the circulation of air, as described.

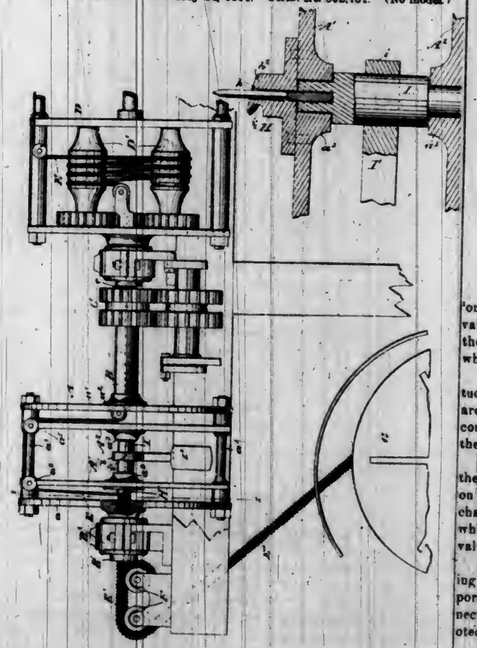
480,604. REVERSING-VALVE. WALTER MILLER, Cleveland, Ohio. Filed Apr. 13, 1892. Serial No. 429,064. (No model.)



Claim.—1. In a reversing-valve for duplicate engines, the combination of a pipe B, provided with continuous passages B^4 and B^5, connecting, respectively, the live and exhaust steam passages of the engine, a cylindrical central chamber B^6, arranged transversely of the pipe B and opening at one extremity into the live-steam-admission chamber B^3, live-steam ports *b* and *b'*, piercing the lower wall of the chamber and registering with the passages B^4 and B^5, into which, respectively, they open by upwardly-turned passages, and a centrally-located exhaust-port B^2 between the ports *b* and *b'*, with a valve composed of a central body, and two wings so arranged as to connect alternately one of the live steam passages with the exhaust-port, the said connecting-space being inclosed at either end, substantially as described.

2. The combination, with a pipe provided with duplicate passages connecting the live and exhaust steam ports of duplicate engines, of a central cylindrical chamber opening at one end into a live-steam passage and provided with three port-openings at its lower side, one being central for the purpose described, with a valve located in said chamber, provided with wings and end bearings and adapted to connect the central port with either of the other ports when rotated, substantially as described.

480,605. HAIR-CURLING MACHINE. JUNIUS A. MURPHY, New Orleans, La. Filed May 14, 1891. Serial No. 392,731. (No model.)



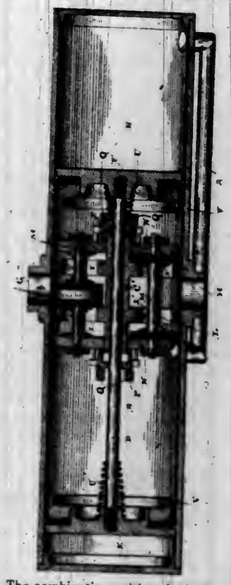
Claim.—1. In a hair-curling machine, the axially-bored cylindrical curling-head H, having its front end formed into a spiral face A^6 and having a cast-off point A^3 at the forward terminal of said spiral face, and a spiral groove *h'* between the said point A^3 and the spiral face A^6, substantially as set forth.

2. The combination, with a flier, of an axially-bored curling-head mounted centrally within the flier to rotate therewith and terminating in a spiral cam on its outer extremity or face having a point A^3, and a stationary spindle also supported centrally within the flier and projecting through the curling-head, and the guide pulleys or idlers mounted on the flier to guide the material to the curling-head, substantially as set forth.

3. The combination, with the flier A, having tubular journals B B', of the parallel cross-bars A' A^5, mounted in the flier and having bearings a^2 a^2 in line with the flier-journals, an arbor mounted in the bearings a^4, held against rotation and having a spindle J, projecting into the journal B', the axially-bored curling-head H on the front face of the bar A', concentric with the spindle and terminating in a spiral cam having a point A^3, and the guide-pulleys a^4 a^5, mounted on the flier, substantially as set forth.

4. In a machine for curling hair yarn, a flier, an axially-bored curling-head carried thereby and formed with a spiral groove which terminates in a cam face, and a spindle fitting and projecting from the bore of the curling-head, the arbor of the spindle being weighted, substantially as described.

480,606. PISTON METER. JOHN A. MYERS, Louisville, Ky. Filed Mar. 25, 1892. Serial No. 426,435. (No model.)



Claim.—1. The combination, with a double head provided with longitudinal ports, valves therefor, and valve-stems upon which the said valves are mounted, of plates on opposite sides of the head to which the said stems are connected, and guides projecting from the head on which the said plates move, substantially as shown and described.

2. The combination, with the double head provided with longitudinal ports, valves therefor, and valve-stems upon which the valves are mounted, of plates to which the said valve-stems are connected and concentric and eccentric guides projecting from the head upon which the said plates move, substantially as shown and described.

3. The combination, with a double cylinder and a double head therein having inlet and outlet chambers, which are provided with ports on their opposite sides, of a double valve arranged within one of the chambers, two valves for the opposite chamber, a valve-carriage to which the said valves are secured, and a means for throwing the said valves, substantially as shown and described.

4. The combination, with a cylinder, a double head therefor having inlet and outlet chambers which are provided with longitudinal ports, valves for said ports, and a valve-carriage, of arms pivotally connected to the head and which bear against the said carriage, trips pivoted to the free ends of said arms having vertical and horizontal exten-

sions, the latter of which normally engage the head, but which are adapted to be thrown upward when their vertical arms are pushed inward, and longitudinally-movable connecting pistons on opposite sides of the head, which engage the tripe and throw their vertical extensions inward, substantially as shown and described.

5. The combination, with a cylinder, a double head therefor having inlet and outlet chambers which are provided with longitudinal ports, the heads being provided with exterior grooves, valves for the said ports, and a valve-carriage, of arms pivotally connected to the heads and which bear upon the said carriage, angular spring-actuated tripe pivoted to the outer ends of said arms, the horizontal arms of the said tripe resting normally to one side of the grooves in the head, but which when turned outward enter said grooves, and longitudinally-movable connected pistons on opposite sides of the said double head, which engage the tripe and throw their horizontal arms outward, substantially as shown and described.

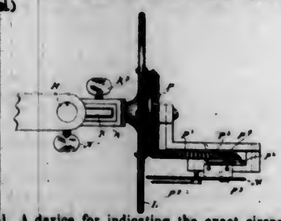
6. The combination, with a cylinder, a double head therein having inlet and outlet chambers which are provided with longitudinal ports, the head being provided with exterior grooves, valves for the ports, and a valve-carriage, of slotted arms pivotally connected to the head and which engage the said carriage, angular slotted tripe pivoted to the outer ends of the arms, the horizontal arms of the tripe being adapted to enter the grooves in the heads when turned outward, a longitudinally-movable rod extending through the said head, the slotted arms and the tripe, and pistons on the opposite ends of the rod, which are adapted to turn the said tripe upon their pivots, substantially as shown and described.

7. The combination, with a double cylinder having a double head therein, the latter being provided with longitudinal ports, the head being provided with exterior grooves, valves for the ports, and a valve-carriage, of slotted arms pivotally connected to the head, angular slotted tripe pivoted to the outer ends of the arms, the horizontal arms of the tripe being adapted to enter the grooves when turned outward, a longitudinally-movable rod extending through the head, the slotted arms and the tripe, pistons on the opposite ends of the arms, which are adapted to turn the said tripe upon their pivots, and springs on said rod between the tripping mechanisms and the pistons, substantially as shown and described.

8. The combination, with a cylinder, a double head therein having inlet and outlet chambers which are provided with longitudinal ports, the head being provided with exterior grooves, valves for the ports, and a valve-carriage, of posts projecting from the head, slotted arms pivoted thereto which engage the said carriage, angular-slotted spring-actuated tripe pivoted to the free ends of the said arms, the horizontal arms of the tripe being adapted to enter the grooves in the head when turned outward, a longitudinally-movable rod extending through the head, the slotted arms, and the tripe, flanged pistons secured to the ends of the rods, which are adapted to turn the said tripe upon their pivots, and springs interposed between the pistons and the said slotted arms, substantially as shown and described.

9. The combination, with a meter of the character described, having a reciprocating piston, of a registering mechanism, a shaft projecting therefrom carrying a ratchet-wheel, and a longitudinally-movable spring-actuated rod which engages the said wheel at its inner end and which is engaged by the said piston at its outer end, substantially as shown and described.

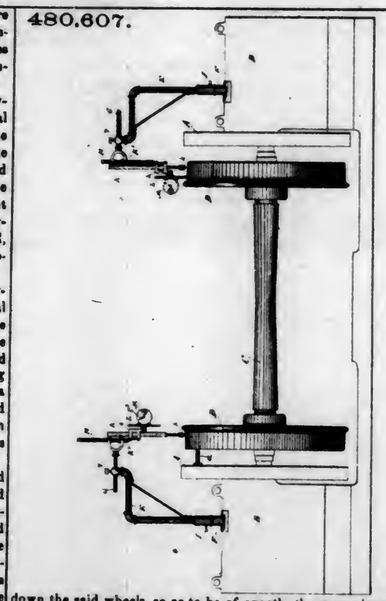
480,607. CIRCUMFERENCE-INDICATOR AND TIRE-GAGE. PETER MCCALLUM, St. Paul, Minn. Filed Feb. 8, 1892. Serial No. 420,636. (No model.)



Claim.—1. A device for indicating the exact circumference of wheels and other circular bodies, the same consisting of a support adapted to be brought into radial line with the wheel, and a rotary measuring-disk adjustably mounted on said support, adapted to traverse the periphery of the wheel, and a registering device operated by the said disk to indicate its travel, substantially as described.

2. A pair of circumference-indicators for use in conjunction to indicate the absolute and relative circumferences of wheels mounted on a common axle when being turned town by a lathe-tool, the same consisting of a pair of measuring-disks adapted to traverse the corresponding wheels and provided each with a registering device to indicate the amount of its travel, thereby enabling the operator to turn

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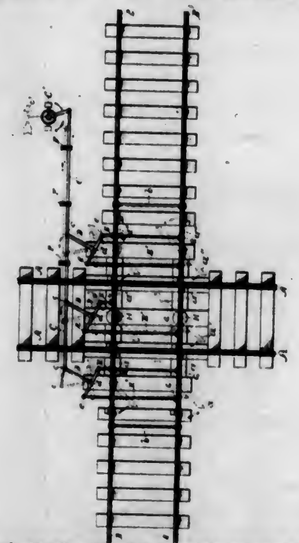


down the said wheels, so as to be of exactly the same circumference.

3. As a new article of manufacture, an instrument for insuring accuracy in turning down car-wheels, the same consisting of a support adapted to be brought into radial line with the wheel to be turned, a tire-gage, and a circumference-indicator provided with a registering device mounted for independent adjustment on said support, substantially as and for the purpose set forth

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480,608. ADJUSTABLE RAILROAD-CROSSING. DANIEL MCNAMARA, Kansas City, Mo. Filed Oct. 7, 1891. Serial No. 408,006. (No model.)

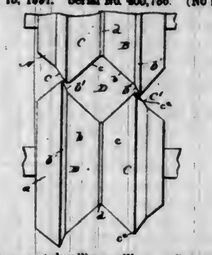


Claim.—1. An adjustable railroad-crossing constructed in sections which are pivoted at their centers and operated by draw-arms E and E', which are secured to equalizers D, these being operated by a draw-rod C, as fully set forth and described.

2. An adjustable railroad-crossing consisting of the sections *a*, *a'*, and *a''*, the ratchet-plates H and H', the hinged draw-arms E and E', and the equalizers D, substantially as set forth and described.

3. In an adjustable crossing, the sections *a*, *a'*, and *a''*, with diagonal joints operating above the main track, substantially as specified.

480,609. METAL-ROLLING MILL. FRED NEVBOLD, Columbia, Pa. Filed Sept. 15, 1891. Serial No. 405,786. (No model.)



Claim.—1. For a metal-rolling mill, a roll having an annular groove, a fillet at the bottom thereof and a fillet-rib at the outer edge of one side of the groove, substantially as described.

2. The combination of a pair of opposed metal-working rolls, each having an annular groove, angular in cross-section and together forming the pass, fillets at the bottoms of said grooves, and fillets at the corners of the pass at the meeting-line of the rolls adapted to prevent crowding of the metal between the rolls and to reduce the corners of the ingot or bar, substantially as specified.

3. The combination of the opposite endwise-adjustable rolls having opposed annular grooves forming the pass, and each having a fillet-rib at one side of its groove, substantially as and for the purpose set forth.

4. A roll for metal-rolling mills, having a pair of collars B C double-beveled on their peripheries, the former having a fillet-rib *b'* at its apex and the latter a beveled or rounded edge c^3 at its apex, substantially as and for the purpose described.

480,610. SKATE. WALTER NIELSON, New York, N. Y. Filed Apr. 7, 1892. Serial No. 428,171. (No model.)



Claim.—1. A skate having a double hanger provided with detachable fastenings or bearings, each consisting of a screw and a sleeve, and a bar or runner secured by said fastenings, substantially as described.

2. A skate having a double hanger provided with detachable fastenings or bearings, each consisting of a screw and a sleeve, and a runner secured by said fastenings, said hangers being recessed or depressed for receiving the heads of the screws and sleeves, substantially as described

3. A skate having a double hanger provided with eyes, detachable fastenings in said eyes, and a bar or runner having eyes or perforations corresponding to the eyes in the hanger and held in place by the fastenings, substantially as described.

4. A skate having its hanger composed of two separated parts provided with countersunk orifices, in combination with the sleeves E, having heads located in the countersinks of one hanger part, and screws D, engaging the sleeves and having heads located in the countersinks of the other hanger part, substantially as described.

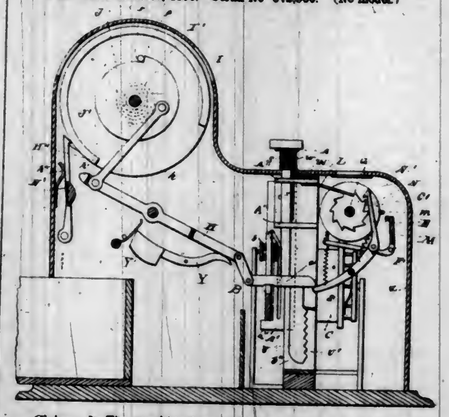
480,611. PLUG-CALK FOR HORSESHOES. EDWARD P. NOYES, Boston, Mass. Filed Sept. 2, 1887. Serial No. 248,509. (No model.)



Claim.—1. A device for use as a plug-calk, consisting of a plug made tapering or conical and provided with a thread which from a point near the outer larger end of the plug runs out or diminishes in depth as it approaches said end, substantially as and for the purpose specified.

2. In combination with the shoe having the threaded cylindrical opening, the plug-calk made tapering or conical and provided with a screw-thread which begins to diminish in depth from a point near its outer end on the larger end of the plug-calk, substantially as and for the purpose shown.

480,612. CASH REGISTER AND INDICATOR. HENRY C. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 22, 1890. Serial No. 372,386. (No model.)



Claim.—1. The combination, with a series of vertically-movable keys, of a series of rotary indicators mounted independently upon a common shaft, one indicator for each key, a link-and lever connection between each key and its indicator, operated by the depression of the key to rotate said indicator to its indicating position, a continuous pawl-bar adjacent to the series of indicators and carrying a series of pawls adapted each to engage a shoulder on its respective indicator, a spring for throwing each pawl into engagement, a pawl carried by each link-and-lever connection and acting upon said continuous pawl-bar when the key is depressed to release the indicator operated by the previous transaction, and a returning-spring in connection with each indicator, substantially as specified.

2. The combination, with a series of vertically-reciprocating keys having engagement shoulders or projections thereon, of a series of sets of individual rotary registering-wheels having gear-wheels fast therewith and a series of swinging forked pawls operated by said engagement shoulders or projections upon the depression of the respective keys, substantially as specified.

3. The combination of a series of vertically-reciprocating keys, an arm on each projecting at right angles thereto, an oscillating bar or lever common to the entire series and operated by the impingment thereon of the said arm of any key, indicating mechanism for each key operated by a connection with said arm, devices in connection with each key for insuring their complete stroke and for properly limiting their stroke, and adding mechanism geared to said bar, substantially as specified.

4. In an accounting-machine, the combination, with a series of vertically-sliding keys, of a bar or lever acted upon by said keys and common to the entire series, a slotted stop-plate attachment to each key and adapted to be thrown into such position by the depression of said key as to serve as a stop for said bar or lever, adding mechanism operated by a segment-gear on the end of said bar, devices for resetting said adding mechanism to "0," and indicators having a connection with the keys in such a manner as to be rotated to indicating position by the operation thereof, substantially as specified.

5. In an accounting-machine, adding mechanism comprising a first wheel marked around its periphery with the numbers "0" and "5" alternately, a disk fast thereto and carrying a series of spur-teeth, one between each "0" and the succeeding "5" and gear for actuating said first wheel, and a series of succeeding wheels arranged periphery to periphery and having each a disk in connection therewith having one spur-tooth, and an intermediate wheel between the main wheel and the spurred tooth, said intermediate wheel having gear thereon operated by the spur-tooth of the preceding wheel and having its periphery subdivided into concave arcs, and resetting-gear in connection with the shaft of each wheel, substantially as specified.

6. In an accounting and indicating machine, the combination, with a series of sliding reciprocating keys, their guides, and returning-springs, of pawl-and-ratchet mechanism for insuring full stroke, and the continuous pivoted bar or lever underlying said series of keys and

common thereto, adding mechanism operated by said bar, a set of parallel registering-wheels in connection with each key, a series of swinging pawls normally disconnected from the keys, but operated by a shoulder or projection thereon when the respective key is depressed, said pawls engaging gear fast to said registering wheels, each of said wheels having a stop-pin projecting at right angles thereto, a swinging stop-bar normally out of engagement with said pins, and means for bringing it into engagement, substantially as specified.

7. In an accounting-machine, the combination, with a series of keys and their necessary connections, springs for taking them back to their normal position, of a lever common to all of said keys and actuated by any of them, slotted swinging stops adapted to be operated by said keys and thrown into such position by each key as to prevent the momentum of said stroke from causing the lever to be depressed beyond the desired distance indicated by said key, and adding mechanism and its necessary gearing, said mechanism consisting of a series of digit-wheels arranged periphery to periphery, as shown, the first wheel of the series being divided around its periphery into "0" and "5" at equal intervals alternately, a wheel parallel thereto and journaled on the same axis, said wheel containing a spurred projection between each 0-mark and its succeeding 5-mark on the side of said wheel and extending beyond its periphery, a succession of other digit-wheels succeeding each other periphery to periphery, each having around said periphery the digits "1" to "9" and "0," inclusive, said other wheels having parallel carrying-wheels and the friction-springs between the parallel wheels, indicating mechanism operated by said keys, and numbering-wheels actuated by said keys, substantially as specified.

8. In an accounting-machine, the combination, with a series of vertically-sliding keys, their guides, and retracting-springs, of a lever or bar underneath said keys and actuated by any of them, a slotted swinging stop carried by each key and operated thereby in such a manner as to be thrown into position to serve as a stop for said common bar or lever, adding mechanism operated from said bar or lever, said adding mechanism comprising a series of digit-wheels arranged periphery to periphery and parallel with said bar, spur-gear in connection with each of said wheels to effect the carrying from one to the other, resetting-gearing in connection with each and intergearing, and rotary indicators operated by the depression of said keys, substantially as specified.

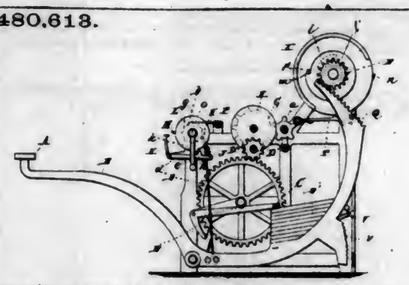
9. In an accounting-machine, the combination, with a series of vertically-sliding keys and their returning-springs, of a lever or bar arranged below said series and actuated by any key, a slotted swinging stop carried by each key and thrown by the operation thereof in position to arrest the downward movement of said bar, said stops being so arranged that each key moves said bar through a different arc, adding mechanism operated by a toothed segment on the end of said bar, said adding mechanism consisting of a series of digit-wheels arranged periphery to periphery, the first of the series of wheels having a series of toothed projections, the second of the series having spurred projections corresponding in number to the teeth upon the wheel attached to the first of the series that is actuated by said lever, and each succeeding wheel having spurs arranged to carry its succeeding wheel, rotary indicators operated directly by said key, a series of sets of numbering-wheels operated by each of said keys, and a series of pawls for holding said wheels in proper position until it shall be their turn to move, substantially as specified.

10. In an accounting and indicating machine, the combination of a series of vertically-reciprocating sliding keys, their guides, devices for preventing more than one key being depressed at a time, mechanism for insuring each key its full stroke, a bar or lever common to and arranged underneath all said keys and actuated by any of them, a spring for returning said bar or lever to its normal position, a slotted swinging stop carried by each key and projected by the operation thereof into such position as to limit the downward stroke of said bar, adding mechanism operated from said bar, and indicating and individual registering-wheels operated by said keys, substantially as specified.

11. In an accounting machine, the combination of a series of vertically-reciprocating sliding keys, their retracting-springs, guides, devices for insuring their full stroke and for preventing the simultaneous operation of the two adjacent keys, a single key bar or lever arranged below said series and common thereto, each key by its impingement with said bar moving it through a different arc, stops projected by the operation of each key underneath said bar, total adding mechanism geared thereto, a series of indicators operated directly by each key, and a set of individual registering-wheels moved by pawls operated by the depression of each key, substantially as specified.

480,613. CASH REGISTER AND INDICATOR. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 23, 1890. Serial No. 372,357. (No model.)

Claim.—1. The combination, with a series of pivoted key-levers having near their rear extremities a graduated series of lugs, of a continuous bar arranged above said lugs and common to the entire series and a series of adding-wheels operated by the movements of said bar under the depression of a key, each key-lever also having a toothed arm thereon operating a rotary indicator, substantially as specified.



2. The combination of a series of pivoted key-levers having thereon a graduated series of lugs, a continuous bar arranged above said lugs and common to the entire series, a series of adding-wheels operated by the movements of said bar, an upwardly-extending curved arm on each key at the rear of the lug and having a toothed extremity, and a series of rotary indicators having each a gear-wheel engaged by said toothed extremity, the parts being so arranged that the depression of any key simultaneously operates the adding and indicating mechanism to effect the proper indication and registration, substantially as specified.

3. The combination of the key-levers having upward toothed extensions, a series of rotary indicators, a gear-wheel connected to each indicator and actuated by the respective toothed extremity of the key, a spring connecting the gear-wheel and indicator, said spring being inclosed in a box fast to the gear-wheel, a stop-shoulder on said box, having engagement with a projection on the indicator, and the pawl mechanism for said indicator, substantially as specified.

4. In an indicating and accounting machine, the combination, with the series of key-levers, the individual itemizing-wheels operated thereby, and the adding mechanism and its gearing, of the rotary indicators having marked on their peripheries numbers corresponding to the value of the respective keys, said indicators being mounted loosely upon a common shaft, a series of pawls arranged to hold said indicators at their indicative position, releasing devices for releasing said pawls at the proper time, retracting-springs connected therewith, and a gear-wheel carried by each and engaged by a toothed arm of the respective key-lever, substantially as specified.

5. The combination, with the key-levers, of a series of sets of itemizing-wheels for registering the individual movements of the keys, one set for each lever, and operated thereby, said wheels being mounted upon a common shaft and held in engagement therewith by means of a spring bearing within the hollowed wall thereof and connected to a collar fast to the shaft, whereby said wheels are capable of an independent forward movement, but will move simultaneously in the opposite direction with the shaft, and a gear-wheel fast to each for engagement with the operating mechanism, substantially as specified.

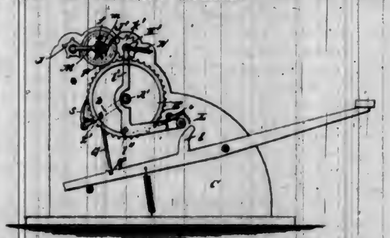
6. The combination, with a series of key-levers, of a series of sets of individual itemizing-wheels operated thereby, one set for each lever, said wheels being mounted upon a common shaft and arranged to have an independent forward movement under the action of their respective operating devices, but to move simultaneously with their shaft in a reverse direction, a shouldered disk on one end of said shaft, a swinging stop-bar adjacent to the series of wheels and adapted to be moved into position to be engaged by stop-pins thereon, and a projection on an arm of said bar, adapted to be engaged by said disk when the shaft is turned to throw said bar into its stopping position, substantially as specified.

7. The combination of a series of sets of itemizing-wheels mounted upon a common shaft and arranged to have an independent forward movement thereon and a simultaneous reverse movement therewith and a stop-shoulder on each said wheel, a swinging stop-bar adjacent to said wheels and common to the series, and means whereby when said shaft is turned in a reverse direction said bar will be thrown into position to be engaged by said stop-pins when the wheels have been carried by the shaft to the proper position, substantially as specified.

8. The combination of a series of key-levers carrying a series of lugs, a common bar above said key-levers and acted upon by said lugs under the operation of the keys, a gear-wheel actuated by the movements of said bar, a series of adding-wheels operated from said gear-wheel, a series of sets of individual registering-wheels, one set for each key and operated upon by forked pawls connected to the key-levers, and a series of indicators operated by toothed extensions of said levers, substantially as specified.

9. The combination of a series of pivoted key-levers having thereon a graduated series of lugs, a continuous bar operated by the impingement therewith of any one of said lugs, a series of adding-wheels operated by the movements of said bar and provided with carrying-pinions and resetting devices, a series of rotary indicators having each a gear-wheel connected thereto, an integral upwardly-extending segment-arm on each lever at the rear of its lug engaging and operating said indicator-gear, a series of sets of itemizing-wheels, one set for each key and operated by an arm connected with the key-lever and carrying forked pawls having engagement with gear on said itemizing-wheels, and devices for resetting simultaneously the entire series of said itemizing-wheels to the zero position, substantially as specified.

480,614. CASH-REGISTER. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Oct. 30, 1891. Serial No. 410,333. (No model.)



Claim.—1. In a cash-register, the combination, with a series of key-levers and a series of laterally-arranged adding-wheels having two wheels in the cent portion of the series, of a bail-lever and its pawl, a toothed wheel and pinion, and downward projections or arms of said bail-lever graduated in length to correspond with the values of the respective keys whereby they are engaged, substantially as specified.

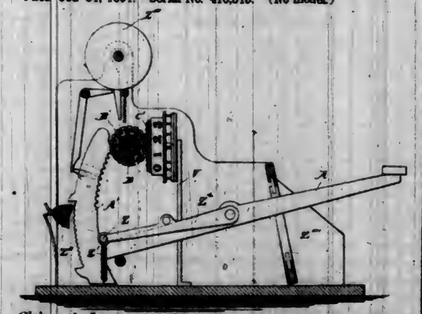
2. In a cash-register, the combination, with a series of key-levers and adding-wheels arranged side by side and turning in planes transverse to their shafts, of independent bail-levers for the cent series of keys and the dollar series of keys, their pawls and toothed wheels, the pivoted bail-frame carrying the dollar-pinion, and the lugs of the dollar-key levers adapted to engage said bail-frame, substantially as specified.

3. In a cash-register, the combination, with a series of key-levers and the laterally-arranged adding-wheels, of the bail-lever and its pawl, the adding-gearing engaged by said pawl, the stop-pins of the adding-wheels, and the adjustable stop-slide bearing the carrying-pinions of the adding-wheels, substantially as specified.

4. In a cash-register, the combination, with adding-wheels and gearing in connection therewith, of a bail-lever carrying a pawl, the graduated downward projections pivoted to said bail-lever, and the stop-shoulders and springs for said projections, substantially as specified.

5. In a cash-register, the combination, with parallel shafting and adding-wheels and gearing, all turning in parallel planes, of a bail-lever having graduated downward projections and a series of key-levers respectively under said projections and adapted in operation to run through similar arcs, but to do work through arcs of different extent corresponding to the lengths of the respective projections of the bail-lever, substantially as specified.

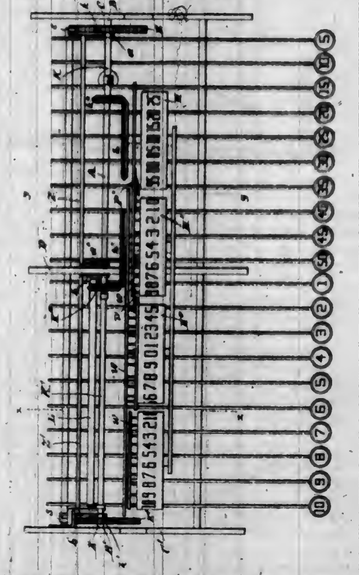
480,615. CASH REGISTER AND INDICATOR. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Oct. 31, 1891. Serial No. 410,515. (No model.)



Claim.—1. In an accounting-machine, the combination, with a series of key-levers, their arc racks, and a transverse fluted shaft operated upon by said racks and common to all the key-levers, of a series of adding-wheels turning in planes at right angles to that of said shaft and normally disconnected therefrom and a bevel toothed wheel loosely mounted upon one end of said shaft and having a ratchet-and-pawl connection therewith, whereby said wheel is carried with the shaft upon the forward revolution or movement of the latter, but is disconnected therefrom during its backward revolution or movement, said bevel-wheel gearing with a toothed wheel of the adding-gear, substantially as specified.

2. In an accounting-machine, the combination, with the key-levers, their arc racks having teeth corresponding in number, respectively, to the value of the respective keys, of a revoluble fluted shaft common to all of the keys and engaging said arc racks, a bevel toothed wheel loosely journaled at one end of said shaft, its ratchet-and-pawl connection therewith, a series of adding-wheels turning in planes at right angles to that of said shaft and carrying gear actuated by said bevel toothed wheel, the spring-actuated bail-lever for returning the key-levers to their normal position, means for insuring the full stroke of each key, and suitable indicating mechanism, substantially as specified.

480,616. CASH-REGISTER. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 2, 1891. Serial No. 410,566. (No model.)



Claim.—1. The combination, with a series of key-levers having numbered finger-pieces, of a bail-bar extending transversely over said levers and carrying a graduated series of downward projections designed to be engaged by said keys, a pawl connected to said bar, a toothed wheel operated thereby, a pinion engaging said toothed wheel, and a series of adding-wheels facing periphery to periphery and turning at right angles to the pinion on said shaft and actuated thereby, substantially as specified.

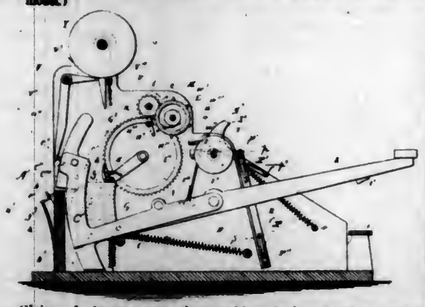
2. In an accounting-machine, the combination, with a series of key-levers, of a transverse movable bar common to all the dollar-keys, another transverse movable bar common to the cent-keys, said bars extending over the respective sets of key-levers and having each a graduated series of downward projections, a pawl carried by each said bar, a toothed wheel operated by each said pawl, the pinion-carrying shafts having gear actuated by said toothed wheels, the series of adding-wheels arranged periphery to periphery, and a pinion on said shafts arranged to operate gear on said adding-wheels, which turn at right angles thereto, the pinion-shaft of the dollar adding wheels carrying its pinion normally out of engagement with the gear-wheel of said adding mechanism, and bail mechanism operated by a projection on the key-levers for effecting the engagement when a dollar-key is operated, substantially as specified.

3. In an accounting-machine, the combination, with a key-lever and graduated transverse movable bars, respectively, common to all the dollar-keys and common to all the cent-keys and their pawls, of toothed wheels operated thereby, their pinion-carrying shafts, the

pinion-shaft for the dollar series having its pinion normally out of engagement with the gear of the dollar-adding wheels, the ball device actuated by lugs on the dollar key-levers for effecting the engagement, and the series of adding-wheels facing periphery to periphery, substantially as specified.

4. In an accounting-machine, the combination, with a series of dollar-adding wheels arranged periphery to periphery and actuated by a pinion at right angles thereto and key-levers, of a transverse ball-bar and pawl, the toothed wheels engaging said pawl, a normally-disengaged pinion, and a ball-lever device whereby said pinion is brought into engagement upon depressing any key of said series, substantially as specified.

480,617. CASH REGISTER, INDICATOR, AND CHECK-PRINTER. HENRY G. O'NEILL, Louisville, Ky., assignor to the Standard Register Company, Boston, Mass. Filed Nov. 6, 1891. Serial No. 411,083. (No model.)



Claim.—1. In an accounting-machine, the combination, with a series of key-levers, each having an arc ratchet and a trip at each end of said ratchet and an upwardly-extending spring-actuated forked pawl, of a series of double pawls and a series of springs acting, respectively, upon said pawls, a series of itemizing numeral-wheels and their connections, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly extending arm and a holding-tooth, the common pawl bar, and a releasing-trip to disengage the same, substantially as specified.

2. In an accounting-machine, the combination, with a series of key-levers having each an upwardly-extending spring actuated pawl and an arc ratchet provided with a trip at each extremity of said ratchet, of a series of triangular double pawls, each having a double-acting spring engaging its apex, itemizing numeral-wheels and their connections, a stop-bar for limiting the downward stroke common to all of said key-levers, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a trip to disengage the same, substantially as specified.

3. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet provided with a trip at each extremity, of a series of double pawls, double-acting springs therefor, a series of sets of itemizing numeral-wheels and their connections, a spring-actuated bar common to all and engaging all said key-levers for bringing the same back to their normal position, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, a common pawl-bar, a trip to disengage the same, and a returning device, substantially as specified.

4. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, each having a double-acting spring engaging its apex, a series of sets of itemizing numeral-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting-arm at each end, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, a common pawl-bar, a releasing-trip to disengage the same, and a returning device, substantially as specified.

5. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging the same, a series of sets of itemizing numeral-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting-arm at each end, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

6. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging the same, a series of sets of itemizing numeral-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting-arm at each end, with a stop-bar for limiting the downward stroke common to all of said keys, a spring-actuated bar common to and engaging all said keys for bringing the same back to their normal position, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

7. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging the same, a toothed wheel and transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels, the toothed gearing attached thereto, their spur-like projections, the carrying-pinions, and a stop-bar adapted to engage with said adding-wheels, a series of indicating-disks, each loosely mounted on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

8. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging said pawls, a series of sets of itemizing numeral-wheels and their connections, a toothed wheel, transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions, stop mechanism for said adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

9. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging the same, a series of sets of itemizing numeral-wheels and their connections, a toothed wheel, transverse bail-lever, and a pawl attached thereto actuating said wheel, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions, and a stop device for said adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and the releasing-trip to disengage the same, substantially as specified.

10. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging the same, a series of sets of itemizing numeral-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting arm or bar at each end, a toothed wheel and transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions, and a stop device adapted to engage with the adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

11. In an accounting-machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging the same, a series of sets of itemizing numeral-wheels and their connections, a series of vertical slides having rollers at their upper and lower ends between two grooved bars connected by a supporting-arm at each end, a stop-bar for regulating the extent of the downward stroke common to all of said keys, a toothed wheel and transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions and stop mechanism adapted to engage with said adding-wheel, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

12. In an accounting machine, the combination, with a series of key-levers, each having a finger-piece, an upwardly-extending spring-actuated forked pawl, and an arc ratchet having a trip at each extremity, of a series of double pawls, a series of double-acting springs engaging the same, a series of sets of itemizing numeral-wheels and their connections, a series of vertical slides, each having a roller at each extremity, said slides being located between two grooved bars connected by a supporting-arm at each end, with a spring-actuated bar common to and engaging all said keys for bringing same back to their normal position, of a toothed wheel, transverse bail-lever and pawl common to all said key-levers, a series of adding-wheels and toothed gearing attached thereto, a series of carrying-pinions, and stop mechanism adapted to engage with said adding-wheels, a series of indicating-disks, each mounted loosely on a shaft and having a downwardly-extending arm and a holding-tooth, the common pawl-bar, and a releasing-trip to disengage the same, substantially as specified.

13. In an accounting-machine, the combination, with the key-levers and their sets of itemizing-wheels and spring-pawls, of the pivoted frame carrying the stop bar for said itemizing-wheels, and the vertical slides for preventing the operation of more than one key at a time, substantially as specified.

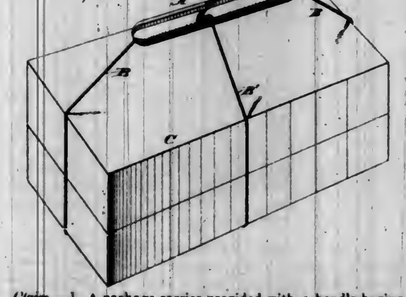
14. In an accounting-machine, the combination, with the key-levers, the common trip-frame resting thereon, said frame having the angular arms, and the vibratory trip-bars carried by said arms, of the indicator-disks, their downward-extending arms, their holding-teeth, and the common pawl-bar, and a type-plate on each key-lever, substantially as specified.

15. In an accounting-machine, the combination, with the adding mechanism, the indicator-disks, and the sets of numbering-wheels, of the key-levers, the trip-frame resting thereon, the triangular double pawls, their double-acting springs, the common pawl-bar, and the pivoted frame carrying the vertical slides for preventing more than one key from being operated at a time, substantially as specified.

16. In an accounting-machine, a key-lever having an upwardly-extending arc-shaped arm having an arc ratchet thereon, a trip-shoulder at each extremity of said ratchet, an upward oblique extension on said arm above said ratchet, a horizontal cam-shoulder, and a forked pawl connected to said lever, in combination with devices actuated by said lever for adding, numbering, and indicating the operations of the key, substantially as specified.

17. In an accounting-machine, a key-lever having an upwardly-extending arc-shaped arm having an arc ratchet thereon, a trip-shoulder at each extremity of said ratchet, an upward oblique extension on said arm above said ratchet, a horizontal cam-shoulder on the lever, a forked pawl connected to said lever, and a type bar thereon, in combination with the stop-bar, and the adding, indicating, and itemizing devices operated by said lever, substantially as specified.

480,618. PACKAGE-CARRIER. FRANK H. PALMER, Brooklyn, N. Y. Filed Nov. 23, 1891. Serial No. 412,727. (No model.)



Claim.—1. A package-carrier provided with a handle having a longitudinal groove on top for the longitudinal package-string and provided with under-cuts on the sides to engage and lock the transverse package-string in place, substantially as shown and described.

2. A package-carrier provided with a handle having a longitudinal groove and under-cuts arranged at the sides of the said groove near the middle of the handle, substantially as shown and described.

3. A package-carrier provided with a handle having a longitudinal groove and under-cuts arranged at the sides of the said groove near the middle of the handle, the said under-cuts opening into a groove extending diagonally across the said longitudinal groove, substantially as shown and described.

480,619. TOY. WILLIAM R. PARK, Philadelphia, Pa. Filed May 12, 1892. Serial No. 432,783. (No model.)

Claim.—1. The combination, in a wheeled toy, of a handle and a

480,619.



wheel, said wheel having on its face one or more channels with balls adapted to said channels, substantially as described.

2. The combination of the wheel, the handle, a stud on said handle upon which revolves the wheel, and sectional grooves in the face of said wheel with balls adapted to said grooves, substantially as described.

3. The combination of the wheel, the handle, a stud upon said handle upon which the wheel revolves, an annular groove formed in the face of the wheel, a disk having an undercut periphery forming with the groove in the wheel a ballway, and balls adapted to said way with one or more partitions forming compartments for said balls, substantially as described.

4. The combination of the wheel, a handle, a stud on said handle upon which the wheel revolves, an annular groove on each side of said wheel, and undercut disks secured to each side of the wheel, the undercut portions meshing with the grooves and forming a channel or way, balls adapted to said way, and stops in said way to limit the movements of said balls, substantially as described.

480,620. SCHOOL-DESK. ROBERT PARKER and SANFORD W. LE NEVE, Ludlow, Ill. Filed Mar. 5, 1892. Serial No. 423,911. (No model.)



Claim.—1. In a desk, the combination, with the top and the end pieces, a board secured between the end pieces beneath the top, and a hinged strip at the rear edge of said board, of blocks passing through said end pieces and having their upper ends beveled, the lower ends of the blocks standing above the cleats and their upper ends below the top a sufficient distance to permit the blocks to hold said strip in either raised or lowered position, and leaf-springs throwing said blocks normally inward, as and for the purpose set forth.

2. In a desk, the combination, with foot-plates secured to the floor and pins rising therefrom and having beveled upper ends and notches in their front faces, of the desk proper, hinges between the forward feet of its end pieces and the floor, its rearward feet having holes adapted to pass over said pins, and spring-actuated catches carried by said end pieces and extending into said holes transversely, as and for the purpose set forth.

3. The combination, with foot-plates secured to a floor and pins rising therefrom and having notches in their front faces, of a desk whose end pieces have their forward feet hinged to the floor and their rearward feet provided with holes adapted to pass over said pins, a hollow rung connecting said end pieces, a rock-shaft extending therethrough, L-shaped rods secured to the ends of said shaft, and a bolt linked to the depending arm of each rod and extending into the rearward foot at that end of the desk and intersecting the hole therein, as and for the purpose set forth.

4. In a desk, the combination, with foot-plates secured to the floor, lugs rising from the forward plates, having eyes, the desk proper, and

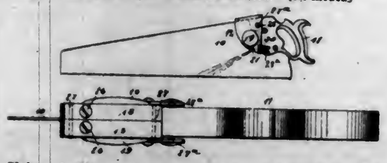
laterally-projecting pins on the front feet of the end pieces of said desk, of pins rising from the rearward foot-plates and having notches, sockets or holes in the rear feet of the end pieces, into which said pins are adapted to pass when the front pins and eyes engage, and bolts mounted on the end pieces with their tips entering said holes transversely, as and for the purpose set forth.

5. The combination, with foot-plates secured to a floor and pins rising therefrom and having notches in their side faces, of a desk having sockets or holes in its feet, adapted to pass over said pins, and bolts carried by the desk and adapted to enter said notches, as and for the purpose set forth.

6. The combination, with foot-plates secured to a floor and pins rising therefrom and having beveled upper ends and notches in their side faces, of a desk having sockets or holes in its feet adapted to pass over said pins, a hollow rung connecting the end pieces of the desk, a rock-shaft therein, rods secured to the ends of said shaft and having eyes, bolts having eyes at one end linked into the eyes of the rods, their other ends entering the feet and transversely intersecting said holes, and springs bearing said bolts toward the holes, as and for the purpose set forth.

7. In a desk, the combination, with the top and the end pieces, a board secured between the end pieces beneath the top, and a hinged strip at the rear edge of said board, of blocks passing through said end pieces and having their upper ends beveled, and leaf-springs throwing said blocks normally inward, as and for the purpose set forth.

480,621. OILER FOR HANDSAWS. SETH PARMELE, Portland Oreg. Filed Apr. 5, 1892. Serial No. 427,853. (No model.)



Claim.—1. The combination, with a saw, of oilers held to the saw-blade adjacent to the handle, said oilers having ejecting nozzles adapted to deliver upon the saw-blade and flexible diaphragms in their outer faces, substantially as described.

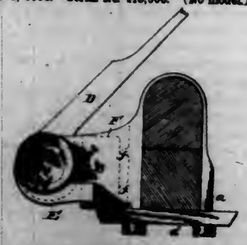
2. The combination, with a saw, of oilers secured to the blade adjacent to the handle, said oilers having ejecting-nozzles to deliver upon the saw-blade and automatic valves adapted to open and close the nozzles, substantially as described.

3. The combination, with a saw, of oilers secured to the saw-blade on opposite sides thereof and adjacent to the handle, said oilers having flexible diaphragms on their outer sides, ejecting-nozzles adapted to deliver upon the saw-blade, valves to open and close the nozzles, and means for operating the valves by the movements of the diaphragms, substantially as described.

4. The combination, with the saw-blade, of an oiler having a rearward extension 27, secured at its upper end to the upper saw-rivet 28, and having a nozzle to deliver upon the handle, and a rearwardly-extending fork on the lower portion of the said extension and embracing the lower rivet 28 for adjusting the oiler in relation to the handle, substantially as described.

5. The combination, with the oiler and its ejection-nozzle, of a flexible diaphragm arranged on one side of the oiler and a spring-valve held to swing over the nozzle, said valve having its upper end doubled upon itself and held to press against the wall of the oiler, substantially as described.

480,622. THILL-COUPLING. RUFUS D. PATTON, Kansas City, Mo. Filed Dec. 2, 1891. Serial No. 413,906. (No model.)



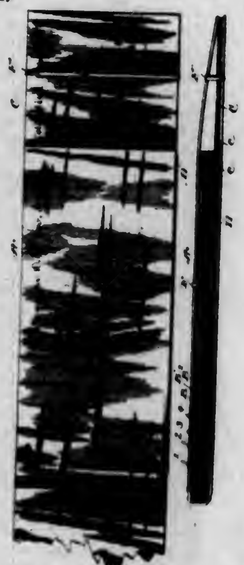
Claim.—1. In a thill-coupling, the combination, with the clip having the ears and pin-openings, of the thill-iron having an elliptical pin-opening and a cam-surface on one side thereof, the coupling-pin adapted to pass through the openings in the thill-iron and clip-ears and having an enlarged central portion elliptical in cross-section to fit in the thill-iron opening, and the eccentric head of said coupling-pin adapted to impinge against the cam-surface on the clip-ear, substantially as described.

2. In a thill-coupling, the clip having the forwardly-extending ears and the projection on the outer face of the ear, combined with a coupling-pin having an enlarged eccentric head adapted to impinge against said projection, substantially as described.

3. In a thill-coupling, a coupling-pin having the enlarged central portion elliptical in cross-section, the log at the end thereof, and the enlarged head eccentrically arranged on the pin and adapted to impinge against a cam-surface on the clip, in combination with a clip, a thill-iron, and a cushion, substantially as described.

4. In a thill-coupling, a clip having the forwardly-extending ears, the yoke, the elliptical opening in one ear and the pin-opening in the other ear, having a slot communicating therewith, combined with the thill-iron having an elliptical pin-opening and a cam-surface, the coupling-pin having an enlarged central portion adapted to fit tightly in the pin-opening in said thill-iron and arranged to operate in the openings in the clip-ears, the projection on the face of the ear, and enlarged head on the coupling-pin adapted to impinge against said projection, the spurs on the front face of the clip, and the elastic block fitted between the clip and thill-iron and adapted to be forced against the spurs by the cam-surface on said thill-iron, substantially as described.

480,623. RECEIPT AND COLLECTION-REPORT BOOK. JOHN H. PETTIBONE, Burlington, Iowa. Filed Dec. 5, 1891. Serial No. 414,135. (No model.)



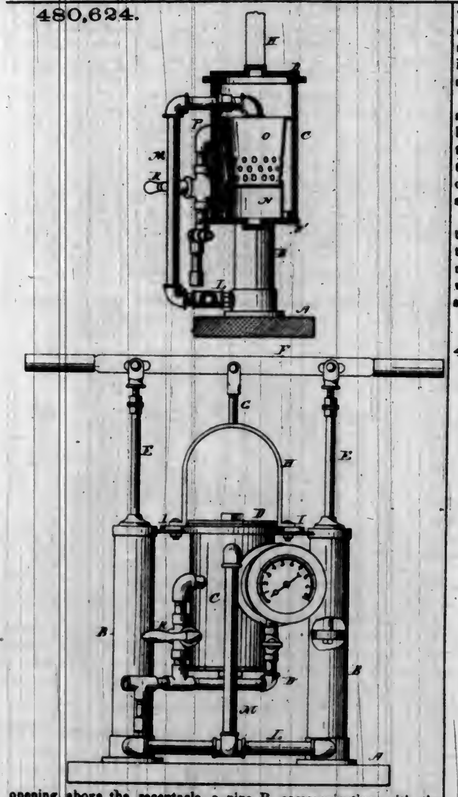
Claim.—1. In a receipt and record book, the combination of the following elements, namely: a suitable cover, blanks for receipts in triplicate, each set having the same number, said blanks perforated at the inner edge for easy detachment from the book, at the back of the book forms in duplicate of statement of account separable from each other, and leaves on the inside of the back cover to form, in fact, a writing-pad on which the receipts and accounts can be made, and means for holding the cover closed and the blanks in place.

2. A memorandum-book having blank leaves for receipt arranged in triplicate, two of each set being of thin paper and one of thick paper, combined with the carbon-sheets attached to said book and a pocket for holding said sheets when not in use.

480,624. FUMIGATOR. JOHN T. PERLAN, Cambridge, Mass. Filed July 3, 1891. Serial No. 398,359. (No model.)

Claim.—1. The combination, substantially as and for the purpose set forth, of the chamber C, removable plates D D' for sealing the chamber C air-tight at top and bottom, the conical receptacle O, fitting tightly at its top into the chamber, but below separated from the walls of the chamber by a space, perforations in said receptacle, a pipe M,

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opening above the receptacle, a pipe P, communicating with the space between the receptacle and the walls of the chamber C and provided with a stop-cock, an air-pump, or any other device for supplying air under pressure and connected to the pipe M, and a chamber N for receiving the bottom of the receptacle and secured to the removable plate D'.

2. The combination, substantially as and for the purpose set forth, of the base-plate A, the vertical air-pumps B B, supported upon the same, the chamber C, supported between the air-pumps, the arch H, secured at each end, respectively, to opposite sides of the chamber C, the handle F, pivoted to the arch H and attached to the rods E E, the cross-pipe L, connecting the pumps B B at the bottom, the vertical pipe B, extending into the chamber C and opening above the receptacle O, the pipe P, extending from the chamber C and opening into the space between the receptacle and the chamber, and the stop-cock R in the said pipe.

480,625. LEG-SPREADER FOR HORSES. JAMES R. PHELPS, Sacramento, Cal. Filed Aug. 1, 1891. Serial No. 401,402. (No model.)

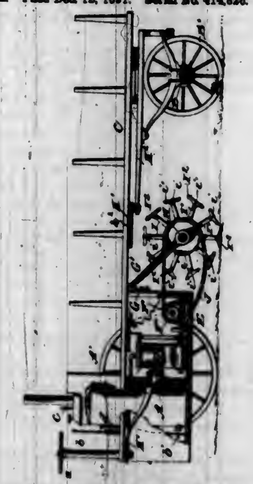


Claim.—1. In a spreader for horses, journal-boxes fixed to the vehicle-shafts in a normally-horizontal axial line, spring-actuated arms with journals turning in said boxes, straps connecting the lower ends of the arms with the horse's legs, said arms laterally adjustable with relation to the shafts, whereby the outward pull or tension of the arms is regulated without changing the axis of rotation of the journals, substantially as herein described.

2. In a spreader for horses, journal boxes fixed to the vehicle-shafts, spring-actuated arms with journals turning in the boxes and having a horizontal axial line of rotation, leg attachments and connections between the lower ends of the arms and the horse's legs, and a traveler connected with the leg attachments to compensate for the difference between the movements of the leg and swinging arm, substantially as herein described.

3. In a spreader for horses, spring-actuated swinging arms attached to the vehicle-shafts in pairs upon each side, straps connecting the arms upon each side with one front and one hind leg, and intermediate horizontal connecting-bars uniting the arms upon each side, whereby both legs upon either side are caused to move in unison, substantially as herein described.

480,626. TRACTION-ENGINE. WILBUR F. RICHARDSON, Milwaukee, Wis. Filed Dec. 12, 1891. Serial No. 414,826. (No model.)



Claim.—1. The combination, with the platform, of the independently-pivoted arms extending at an angle therefrom and having shaft-bearings, and the rotatable traction-wheels carried by a shaft held in said arms, as set forth.

2. The combination, with the platform and the independently-pivoted arms, of the rotatable traction-wheels carried by a shaft held in said arms, a sprocket-wheel on said shaft, and means for imparting motion thereto, as set forth.

3. The combination, with the motive power, of a worm-shaft operated therefrom, a worm-gear engaging the worm-shaft, the independently-pivoted inclined arms, the traction-wheels carried by a shaft journaled in bearings in said arms, and mechanism intermediate the worm-gear and shaft of said wheels for imparting motion thereto, as set forth.

4. The combination, with the engine, of the worm-shaft operated therefrom, the worm-gear meshing with the worm-shaft, the pivoted arms carrying the traction-wheels, the sprocket-wheel on the shaft of the wheels, the sprocket-wheel on the shaft of the worm-gear, and the connecting-chain, as set forth.

480,627. BREECH-LOADING FIREARM. CARL RÖSTEL, Magdeburg, Germany, assignor to Grusonwerk, same place. Filed May 23, 1889. Serial No. 311,870. (No model.) Patented in Germany Nov. 11, 1888, No. 47,222; in Belgium Nov. 29, 1888, No. 84,117, and in France Nov. 29, 1888, No. 194,420.

Claim.—1. In a breech-loading gun, the combination of the breech, the breech-block working on the breech, the percussive device, and a locking device for preventing the movement of the block, controlled by the percussive device, substantially in the manner and for the purposes set forth.

2. In a breech-loading gun, the combination, with the breech and the breech-block, of the locking device carried by one and engaging in the other and the percussive device engaging the locking device

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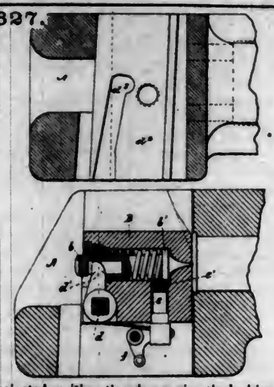
shoulders *d*, which extend obliquely from the front to the rear side of said tug, the rear half *d'* of the opening being larger than the front half and having its rear wall beveled to approximately the pitch of the shoulders *d*, the front half of said openings D having the front wall beveled in each direction, and a trace-hook having an engaging portion *f*, which is provided with beveled flanges *f'* on its front and two sides to co-operate with the said openings D, substantially in the manner shown and described.

2. In a hame-tug, the combination, with a clip having hook G and having a lateral undercut recess in one face, of latch *g*, pivotally attached to hook G and having projection *g'* at one end, the free

Claim.—1. In a car-coupling, the combination of a movable roller retained within the draw-head and adapted to engage with an open link of ordinary construction, and a rock-shaft secured to the under side of the draw-head and having a forwardly-projecting portion adapted to raise the roller out of engagement with the link, said draw-head having concave portions *c* and *d*, against which the roller bears, and a transverse recess C', into which the link passes, substantially as shown, and for the purpose set forth.

2. In a car-coupling, a draw-head having a cavity C and transverse chamber C', rollers G and G', journaled in the chamber, and a

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when in its projected position, thereby causing the locking of the block, substantially as set forth.

3. The combination of the breech, the breech-block, the percussive device, the lowering mechanism, the crank-arm adapted to rotate with the movement of the block and engaging the percussive device to cock it, and means controlled by the percussive device for opposing the movement of the cocking-arm, substantially as set forth.

4. The combination of the firing-pin or other percussive device, the pin for retaining the percussive device in cocked position and also adapted to lock it when in contact with the cartridge, and the breech-lowering mechanism having working connection with the percussive device, substantially as and for the purpose set forth.

5. In a breech-loading gun, the combination, with the breech, breech-block, and lever for operating the breech-block, of the percussive device, the pin for retaining said percussive device, said pin being adapted to engage the percussive device when in contact with the cartridge, and a spring-arm engaging the lowering mechanism and controlled by the retaining-pin, for the purpose and in the manner explained.

6. In a breech-loading gun, the combination, with the breech-block, of the lowering mechanism engaging the breech-block and having an arm which engages the percussive device to cock it, said arm and percussive device having a corresponding hook and recess which engage to prevent the movement of the block until the percussive device is repelled by the force of explosion, substantially as explained.

7. In a breech-loading gun, the combination, with the breech and block, of a retaining-pin engaging the block and controlled by the percussive device, whereby the block is prevented from moving until the percussive device is repelled by the force of explosion, substantially as set forth.

8. In a breech-loading gun, the combination of the breech, the breech-block, and the device for locking the block in the breech, constructed and arranged to be unlocked by the recoil of the cap of the cartridge, substantially as shown and set forth.

480,628. CAR-COUPLING. JAMES E. SAGUR, Brooklyn, N. Y. Filed Oct. 14, 1891. Serial No. 408,689. (No model.)

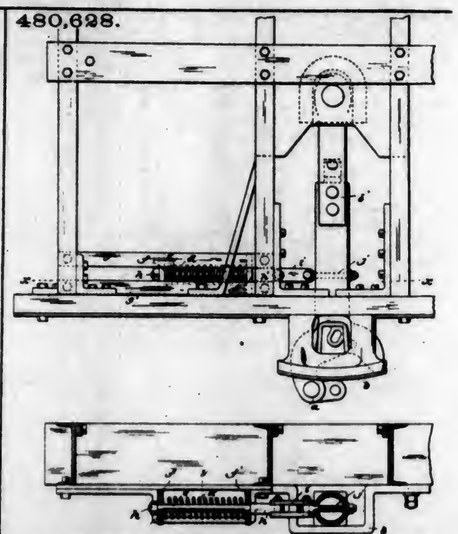
Claim.—1. A rod attached to the car-coupler and projecting laterally between shouldered or flanged guides or carrier-irons and a spring coiled about said rod and confined between two movable plates working within the guides or carrier-irons, substantially as described.

2. The combination, with a car-coupler, of a carrier-iron supporting the same and having a breadth sufficient to permit an extended lateral motion of said coupler in either direction and a lateral spring attached to the said coupler and tending to draw the same to its normal central position when forced to either side thereof, substantially as described.

3. The combination, with a car-coupler, of a carrier iron supporting the same and having a breadth sufficient to permit an extended lateral motion of said coupler in either direction and a spring coiled about a rod attached to said coupler for the purpose of drawing the same to its normal central position and confined between movable plates mounted on said rod and working in guides provided with stops, substantially as described, for the purposes set forth.

4. Parallel shouldered guides beneath the car placed laterally to the car-coupler, two movable plates working in said guides, and a spring confined between said guides and coiled about a rod passing through the plates, said rod having a head or nut on its free end and a stop or shoulder on its inner end and attached to the car-coupler to maintain the same in a central position, all combined and arranged to operate substantially as described.

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5. A rod attached to the car coupler through a link and having near one end a stop or shoulder and a head or nut at the opposite end, movable plates mounted on said rod and normally held against the head and shoulders thereof, respectively, by a spring coiled about said rod, and parallel shouldered guides within which the plates travel, substantially as described, for the purposes set forth.

6. In a device for retaining car-couplers in a coupling position, two movable plates working in parallel shouldered guides or carrier-irons and each provided with a depending finger of a size to enter and fit the space between the parallel guides, substantially as described.

480,629. HAME-TUG. NELSON SIGLIN, Aurelia, Iowa. Filed Sept. 5, 1891. Serial No. 404,863. (No model.)



Claim.—1. The herein-described hame-tug, having raised loop *a* and lateral loops *b* and *b'* at one end, and clip C, pivotally connected with the other end and comprising hook G and pivoted latch *g* and having a series of openings D, each opening having diametrically-opposite shoulders *d*, which extend obliquely from the front to the rear side of said tug, the rear half *d'* of the opening being larger than the front half and having its rear wall beveled to approximately the pitch of the shoulders *d*, the front half of said openings D having the front wall beveled in each direction, and a trace-hook having an engaging portion *f*, which is provided with beveled flanges *f'* on its front and two sides to co-operate with the said openings D, substantially in the manner shown and described.

2. In a hame-tug, the combination, with a clip having hook G and having a lateral undercut recess in one face, of latch *g*, pivotally attached to hook G and having projection *g'* at one end, the free portion and projection *g'* of the latch adapted to enter a seat in the said clip, the plate H, adapted to slide in said undercut recess over the free end of said latch, and a fastening *h* to prevent the withdrawal of said plate H, substantially as set forth.

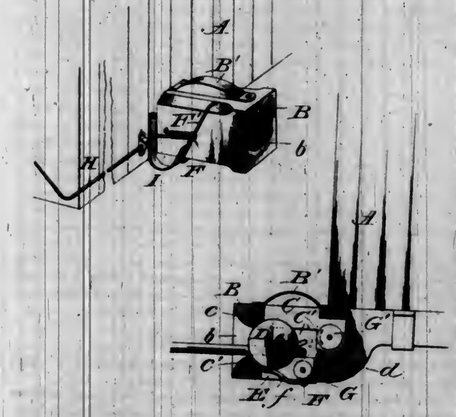
480,630. SMOKE-PREVENTER. CHARLES SMITH, Chicago, Ill., assignor of one-half to William R. Mills, same place. Filed July 2, 1891. Serial No. 398,267. (No model.)



Claim.—1. In a smoke-preventer, a furnace-door comprising a frame part and a valve-door inclosed within the frame and closely fitting its interior, said door being hinged at its upper edge to the door-frame and opening inwardly at the bottom and provided with means for locking its lower edge in any desired position, substantially as described.

2. In a smoke-preventer, a furnace-door comprising a frame part having a bead on its inner surface and a valve-door inclosed within the frame and closely fitting its interior and adapted to shut tightly against the bead, said door being hinged at its upper edge to the door-frame and opening inwardly at the bottom and provided with means for locking its lower edge in any desired position, substantially as described.

480,631. CAR-COUPLING. GEORGE K. SMITH, Chipman, Tenn. Filed Apr. 14, 1892. Serial No. 429,188. (No model.)



Claim.—1. In a car-coupling, the combination of a movable roller retained within the draw-head and adapted to engage with an open link of ordinary construction, and a rock-shaft secured to the under side of the draw-head and having a forwardly-projecting portion adapted to raise the roller out of engagement with the link, said draw-head having concave portions *c* and *c'*, against which the roller bears, and a transverse recess C', into which the link passes, substantially as shown, and for the purpose set forth.

2. In a car-coupling, a draw-head having a cavity C and transverse chamber C', rollers G and G', journaled in the chamber, and a coupling-roller D of greater diameter than the depth of the transverse chamber C', substantially as shown, and for the purpose set forth.

3. In a car-coupling, the combination of a draw-head having a cavity C and a transverse chamber C' back of the link-opening, lugs *e e*, projecting toward each other from the sides of said chamber, and a coupling-roller D, substantially as shown, and for the purpose set forth.

4. In a car-coupling, the combination of a movable roller which is adapted to engage with an open link and retain said link in the link-chamber, of inwardly-projecting lugs *e e*, and concave recess *d* at the rear end of the chamber, and concaves *c* and *c'* at the forward portion of the draw-head, above and below the chamber C', substantially as shown, and for the purpose set forth.

5. In a car-coupling, the combination of a draw-head constructed substantially as shown and provided with a cavity containing a coupling roller D, of rollers G and G', journaled in the draw-head, with which the coupling-roller is adapted to contact, substantially as shown, and for the purpose set forth.

6. In a car-coupling having a draw-head constructed substantially as shown, of a roller D, an open link adapted to engage therewith, and a rock-shaft having a forwardly-projecting portion which is adapted to engage with the under side of the roller and lift the same out of positive engagement with the link, and a spring for normally holding the forwardly-projecting members of the rock-shaft depressed, for the purpose set forth.

7. In a car-coupling, the combination of a coupling-roller, a rock-shaft having a forwardly-projecting portion which is adapted to engage with said roller, a spring for normally holding the forwardly-projecting portion of said rock-shaft depressed, and means for operating the rock-shaft from either the top or side of the car, substantially as shown, and for the purpose set forth.

480,632. PICTURE-HANGER. ELWIN A. SHOW, Jacksonville, N. Y. Filed Nov. 17, 1891. Serial No. 412,154. (No model.)



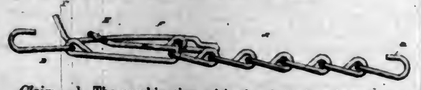
Claim.—1. A picture-hanger comprising an approximately U-shaped frame designed to have its lower end attached to the bottom of a picture, a bail connected to the top of the frame and designed to be fastened to the top of a picture, and an adjustable bail having its ends connected with and sliding on the sides of the frame and provided with means for securing it in its adjustment, substantially as described.

2. A picture-hanger comprising an approximately U-shaped frame adapted to be attached to the bottom of a picture and having sides and a transverse portion, a bail connected to the top of the frame and adapted to be fastened to the top of the picture, and an adjustable bail adapted to be suspended from a hook and having sides provided with eyes to receive the sides of the frame and to slide thereon and provided with a series of hooks adapted to engage the transverse portion of the frame, substantially as described.

3. A picture-hanger comprising an approximately U-shaped

frame having a transverse portion and adapted to have its lower end attached to the bottom of a picture, a V-shaped bail hinged to the transverse portion and provided at its apex with a U-shaped bend to be fastened to the top of a picture, an adjustable bail having the upper ends of the sides converging and having its sides bent to form a series of hooks and provided with eyes to receive the sides of the frame and to slide thereon, and a transverse brace connecting the sides of the adjustable bail, substantially as described.

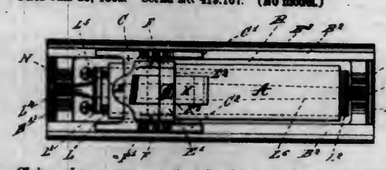
480,633. HAME-FASTENER. JOHN H. SNYDER, Fruitport, Mich. Filed Nov. 18, 1891. Serial No. 412,342. (No model.)



Claim.—1. The combination, with the chain A and hooks *a* and B, of the elongated link-shaped supports C, having one end bent at an angle to provide the fulcrum D, the lever E, having eye *e'* and slot *e*, and the tongue F, having handle F' and bent end F^2, which enters slot *e*, substantially as described.

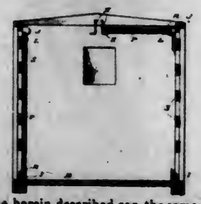
2. In a hame-fastener, the strap A, having hook *a*, the hook B, the link D, having the right-angled end D engaged by one of the links of strap A, said supporting-links C being engaged with the hook B, the lever E, having eye *e'* and slot *e* and mounted on fulcrum-support D, and the tongue F, carried in eye *e'*, and having its end bent to embrace the fulcrum D, substantially as described.

480,634. APPARATUS FOR WHETTING AND SHARPENING THE EDGES OF EDGED TOOLS. CHARLES SPRUCK, Paterson, N. J. Filed Jan. 25, 1892. Serial No. 419,167. (No model.)



Claim.—In an apparatus for whetting and sharpening the edges of edged tools, a tool-holder mounted in bearings formed in a sliding carriage, and a sliding carriage for tool-holder provided with runners, in combination with a frame or box provided with slides, in which said runners reciprocate or are moved longitudinally, an adjustable rocking frame or cradle within and near the bottom of said box, and an oil or whetstone secured in said rocking frame or cradle, adapted to rock laterally and permit the stone to accommodate itself to the transverse angle of cutting-face of the tool to be operated upon, constructed substantially as shown and described, and for the purposes specified.

480,635. COMBINED FREIGHT AND STOCK CAR. EDWARD R. STEINHILBER, Galesburg, Ill. Filed Mar. 23, 1891. Serial No. 386,089. (No model.)



Claim.—1. The herein described car, the same comprising a body having slatted sides, hooks depending from the roof, solid side walls, each comprising members connected by hinges, and sliding hinges at the upper ends of said side walls, said hooks holding the side pieces in folded and raised position, as and for the purpose set forth

2. The herein-described car, the same comprising a body having slatted sides with outwardly-inclined sills, vertical strips secured to the uprights of the car-body and projecting inwardly past the slats, solid side members mounted in sliding hinges inside and at the top of the car, said members comprising two strips, the inner with horizontal grains and the outer with vertical, and the lower edge of the side members being beveled and engaging said sills, and vertical grooves in the outer faces of said members engaging said metallic strips, all substantially as and for the purpose hereinbefore set forth.

3. The herein-described car, the same comprising a body having

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slatted sides with outwardly-inclined sills, vertical strips secured to the uprights of the car-body and projecting inwardly past the slats, solid side walls mounted in sliding hinges inside and at the top of the car, and the lower edge of the side walls being beveled and engaging said sills, and vertical grooves in the outer faces of said walls engaging said metallic strips, all substantially as and for the purpose set forth.

480,636. CONVERTIBLE CHAIR. ASHER B. STEVENS, Brooklyn, N. Y.; Moses N. Baker, administrator of said Asher B. Stevens, deceased, assignor to Gilman Waite, Baldwinville, Mass. Filed Sept. 6, 1888. Renewed Apr. 1, 1892. Serial No. 427,393. (No model.)



Claim.—1. A chair comprising a seat, one pair of rigid legs and one pair of hinged legs, jointed rockers pivoted to said pairs of legs, and a rocker-operating device consisting, essentially, of segmental pieces pivoted to the jointed rockers at their points of juncture, provided with a connecting cross-bar and adapted to engage fixed portions of the chair for converting the chair into a sewing-chair or a rolling chair or rocking-chair at pleasure, substantially as described.

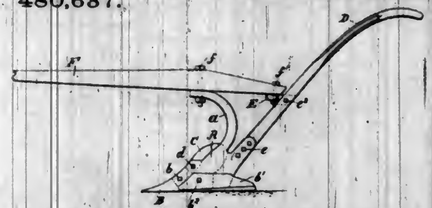
2. A chair comprising a seat, one pair of rigid legs and one pair of hinged legs, jointed rockers pivoted to said pairs of legs, and a rocker-operating device consisting, essentially, of segmental pieces pivoted to the jointed rockers at their points of juncture, provided with a connecting cross-bar and adapted to engage fixed portions of the chair, and pairs of rollers or wheels journaled to the legs to admit of the conversion of the chair into a sewing-chair, a rocking-chair, or a rolling or invalid chair, substantially as set forth.

3. A convertible chair comprising a seat provided with pins on its side edges, a pair of legs rigidly secured to the seat, and a pair of legs hinged to the seat, jointed rockers pivoted to the legs, and a rocker-operating device pivoted to the rockers at their junction and extending rearwardly of the chair and notched to engage the said pins on the seat and provided with a cross-bar for connecting their ends in the rear of the chair, substantially as described.

480,637. PLOW. GEORGE W. SWINSON, Magnolia, N. C. Filed Dec. 17, 1891. Serial No. 415,401. (No model.)

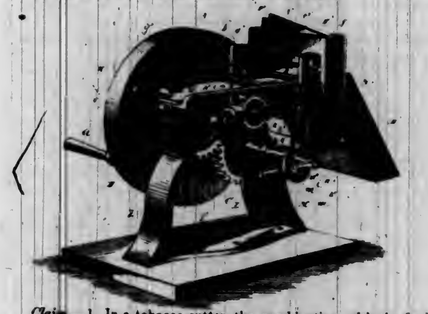
Claim.—1. The herein-described improvement in plows, comprising the standard having the beam pivoted to the upper end of its forward arm, the handles connected to a short arm of said standard and the plate having a rear dovetail portion received between the handles and having a transverse hole therethrough to receive the securing-bolt from the handles, said plate also having a slot in its front portion, the upper edges of which are provided with series of grooves or cut-outs adapted to engage an adjusting-bolt passing through the rear end of the beam and said slot, substantially as set forth.

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2. The herein-described improved plow, consisting of the standard having a forwardly-curved arm and a rear short arm, the handles having their lower converged ends secured to said short arm, the plate held between said handles having a slot and grooves or cut-outs in its upper face, the beam pivoted on said forward curved arm, the nutted bolt passed through the rear end of said beam and also through said slotted plate, the plow-point, the landside, and the mold-board, each secured by a single nutted bolt passed through holes or apertures in said plow-standard, substantially as set forth.

480,638. TOBACCO-SHAVER. JOHN B. TABB, New Bedford, Mass. Filed Dec. 23, 1890. Serial No. 375,614. (No model.)



Claim.—1. In a tobacco-cutter, the combination, with the feed-gear, of the cutter-operating mechanism having a projection intermittently engaging and operating said feed-gear when the cutter is operated, said projection being so arranged that the feed-gear will be operated when the cutter is at its highest point, and means for automatically returning the feed-plate of the feed-gear, substantially as specified.

2. In a tobacco-cutter, the combination, with the disk having a cam projection thereon and means for operating said disk, of the double concave arm engaged intermittently by said cam, a sleeve operated by said arm, a second arm connected to said sleeve, a collar adjustably held on said latter arm, a feed-plate, a rack connected to said feed-plate, and a connection between said adjustable collar and the rack whereby the feed-plate is operated, substantially as specified.

3. The combination, with the feed-plate and means for its forward intermittent movement, of the lever having a projection engaged by said feed-plate when the latter is at the limit of its forward movement, a fork carried by said lever, a movable clutch engaged by said fork and mounted on the actuating pinion-shaft, means carried by said clutch for throwing the feed-plate mechanism out of gear, an automatic catch for retaining it in such position, means for returning said feed-plate, and means for releasing said catch and returning said parts to their normal position as said feed-plate is returned, substantially as specified.

4. The combination, with the feed-trough and the feed-plate arranged to reciprocate therein, of the mechanism for actuating said feed plate, comprising the rack-and-pinion and the cam-and-lever devices, the clutch-and-lever mechanism operated by said plate to release it when it has reached the limit of its feed, and means for returning said feed-plate to its normal position when so released, substantially as specified.

5. In a tobacco-cutter, the combination, with the feed-trough and the feed-plate working therein, of the vertically-slotted parallel arms secured to said trough, a horizontal frictional guard-plate working between said arms, and a rod held in the slots of said arms and provided with clamps for securing said plate at the desired adjustment, substantially as specified.

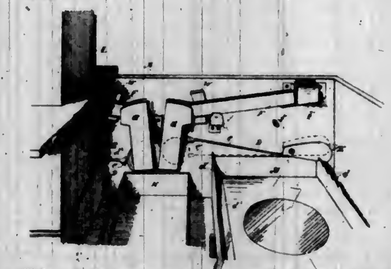
6. In a tobacco-cutting machine, the disk E, the cutter-reciprocating pitman connected thereto, the vertically-reciprocating cutter, and the cam projection located on said disk and intermittently engaging and actuating the feed mechanism when the cutter is operated, and means for operating said disk, in combination with the feed mechanism and means for automatically releasing and returning the feed-plate of said feed mechanism when it has reached the limit of its forward movement, substantially as specified.

7. The tobacco-cutter having the horizontal feed-trough, the feed-plate working in said trough at right angles to the plane of the path of the cutter, its rack-bar, the pinion and ratchet, and the cam-and-lever mechanism actuated by the cutter-actuating gear for operating said ratchet, rack, and pinion, in combination with the lever, clutch-and-stop mechanism for releasing said feed-plate when it has reached the limit of its feed and throwing it out of gear with its actuating mechanism, and means for returning said plate when so released, substantially as specified.

8. In a tobacco-cutting machine, the combination, with the disk E, having the cutter-reciprocating pitman connected therewith, and the cam projection thereon, arranged to engage the feed mechanism when the cutter is at its highest point, of the double-concave cam-lever operated by said projection, the feed mechanism operated by said lever, and the clutch-and-lever mechanism operated by the feed-slide plate to release it when it has reached the limit of its movement, and means for returning said plate to its normal position, substantially as specified.

9. A crank-driven tobacco-cutting machine having an intermittent and automatically-reversing adjustable feed, a disk carrying a cam arranged to operate said feed, said disk also having a wrist-and-pitman connection with a reciprocating-cutter carrier, substantially as specified.

480,639. COIN-ACTUATED VENDING-MACHINE. WILLIAM S. VAN SANT, Auburn, Cal. Filed May 2, 1892. Serial No. 431,544. (No model.)



Claim.—1. In a coin-actuated vending-machine having a coin-passage, a sliding drawer having a ratchet-surface at one side, a pawl normally engaging the ratchet-surface of the drawer and released from contact therewith by the passage of the coin, and an inclined plane on the drawer, upon which the stem of the pawl is held by the weight of the coin to hold the pawl out of contact with the ratchet-surface while the drawer is being pulled out, substantially as herein described.

2. In a coin-actuated vending-machine having a coin-passage, a drawer having a ratchet-surface at one side and an inclined plane at the opposite side, and a pivotally-secured pawl normally engaging said ratchet-surface and having its stem in the path of the coin, said stem adapted to be held against the inclined plane on the drawer by the weight of the coin to hold the pawl elevated and to ride down said inclined plane as the drawer is pulled out, whereby the coin is released from the stem, substantially as herein described.

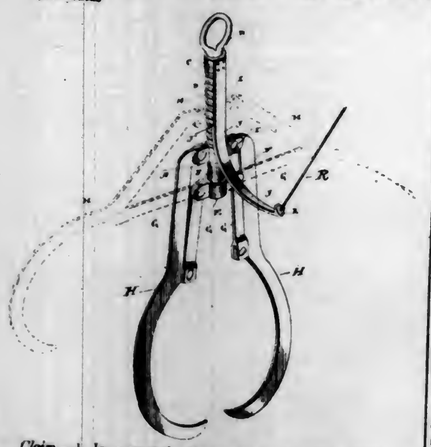
3. In a coin-actuated vending-machine, the combination of the sliding drawer having on one side a ratchet and on its other side an inclined plane, the gravity-pawl engaging the ratchet of said drawer for locking it, the stem or shank of said pawl passing over the other side of the drawer and controlled by its inclined plane, the contact-plate of said stem or shank, and a suitable coin-passage to direct the coin to said contact-plate, substantially as herein described.

4. In a coin-actuated vending-machine, the combination of the sliding drawer having the ratchet-teeth on one side and the inclined plane on the other, the gravity-pawl engaging the ratchet-teeth for locking the drawer, the stem or shank of said pawl passing over the inclined plane side of the drawer, the contact-plate of said stem or shank, the opposing vertical passage for the coin, and a suitable runway to direct the coin to said vertical passage, substantially as herein described.

5. In a coin-actuated vending-machine, the combination of the sliding drawer having the ratchet-teeth on one side and the inclined plane on the other, the gravity-pawl engaging the ratchet-teeth for locking the drawer, the stem or shank of said pawl passing over the inclined plane side of the drawer, the contact-plate of said stem or shank, the opposing vertical passage for the coin, and the weighted tilting runway communicating with the vertical passage, substantially as herein described.

6. In a coin-actuated vending-machine, the combination of the vertical chamber containing the articles to be vended, a drawer underlying said chamber, the drop-plate containing the inscription of the articles to be vended and adapted to cover and expose another inscription, and the arm of said drop-plate passing down in the chamber and held in place by the contents thereof, substantially as herein described.

480,640. SUBMARINE GRAPPLE. WILLIAM D. WALSH and JOHN A. DOWLING, Duluth, Minn. Filed Apr. 11, 1892. Serial No. 428,703. (No model.)



Claim.—1. In a grapple, the combination, with a stem and a spring-actuated head moving thereon, of grapples pivoted at their upper ends to the said head and arms pivotally secured at their inner ends to the stem and at their outer ends to the said grapples between their ends, substantially as shown and described.

2. In a grapple, the combination, with a stem, a collar secured thereto, a spring secured at its upper end to said collar and depending around said stem, a vertically-moving head, grapples pivoted at their upper ends thereto, and arms pivotally connected at their inner ends to the stem and at their outer ends to the said grapples, of a depending plate-spring secured at its upper end to the collar and provided with a notch between its ends where it engages said head, substantially as shown and described.

3. In a grapple, the combination, with a stem, a head adapted to move vertically thereon, grapples pivotally connected to said head, and means for spreading or opening said grapples, of a spring which depends from the upper end of the stem for the purpose of holding the said head in a raised position, substantially as shown and described.

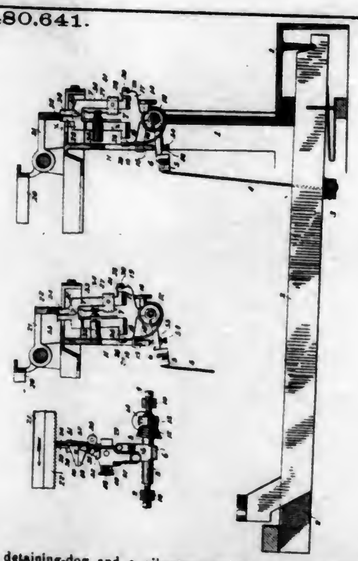
4. In a grapple, the combination, with a stem, a vertically-moving head thereon, grapple-arms pivotally secured thereto, and a means for spreading the said arms, of a spring depending from the upper end of the stem, which spring is notched, so as to engage the said head when in a raised position, the lower end of the said spring being curved outward, and an operating-line secured thereto, substantially as shown and described.

480,641. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to the Remington Standard Type Writer Manufacturing Company, same place. Filed Sept. 28, 1891. Serial No. 406,997. (No model.)

Claim.—1. In a type-writing machine, the combination, with a paper-carriage and a rack, of an independently-movable detaining-dog and an independently-movable spacing-dog, the detaining-dog being arranged to travel and stop in line with the spacing-dog during and at the cessation of the letter-space movement of the carriage, substantially as described.

2. In a type-writing machine, the combination, with a paper carriage, a rack, and a vibratory dog-holder, of a vibratory spring-actuated detaining-dog and a vibratory spring-actuated spacing-dog, substantially as described.

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3. In a type-writing machine, the combination, with a paper-carriage, a rack, and a vibratory dog-holder, of a vibratory spring-actuated detaining-dog and a vibratory spring-actuated spacing-dog overlapping the detaining dog on the right-hand side, so as to carry the same in the feeding operation of the carriage, substantially as described.

4. In a type-writing machine, the combination, with a paper-carriage, a rack, and a vibratory dog-holder, of a vibratory spring-actuated detaining-dog, a stop in front thereof, an overlapping vibratory spring-actuated spacing-dog, and a stop arranged in rear thereof, substantially as described.

5. In a type-writing machine, the combination, with a paper-carriage, a rack, and a vibratory dog-holder, of a vibratory spring-actuated detaining-dog, a stop in front and a stop in rear thereof, an overlapping vibratory spring actuated spacing-dog, and a stop arranged in rear thereof, substantially as described.

6. In a type-writing machine, the combination, with a paper-carriage a rack, and a vibratory dog-holder, of a vibratory spring actuated spacing dog connected to move the detaining dog toward the left and means for limiting the vibration in both directions of both said dogs, substantially as described.

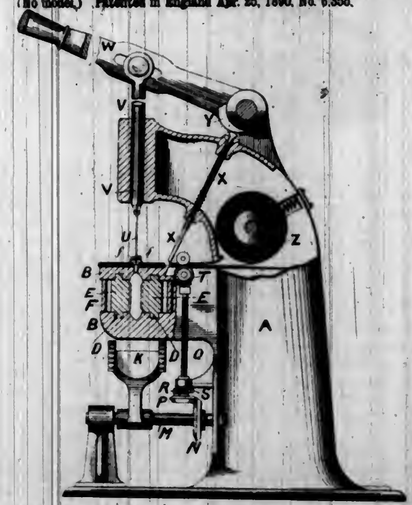
7. In a type-writing machine, the combination, with a paper carriage, a rack, and a vibratory dog-holder, of a detaining-dog pivoted on one side of said dog-holder, a spacing-dog pivoted on the other side of said dog-holder and overlapping the detaining-dog, a stop back of the spacing-dog, a stop in front of both said dogs, and a spring for each dog, having a tension toward the right, substantially as described.

8. In a type-writing machine, the combination, with a paper-carriage, a rack, and a vibratory dog-holder, of a pivoted spring-actuated detaining-dog having a pivotal joint and spring intermediate its ends and a pivoted spring-actuated overlapping spacing-dog, substantially as described.

9. In a type-writing machine, the combination, with a paper-carriage, a rack, and a vibratory dog-holder, of a vibratory spring-actuated detaining-dog normally in engagement with the rack and against a front stop and a vibratory spring-actuated spacing-dog normally out of the rack and out of line with the detaining-dog and against a back stop, the construction and arrangement being such that when the detaining-dog is rocked out of the rack the spacing-dog is rocked in, then the detaining-dog moves at first toward the right, then the carriage feeds, the spacing-dog and the detaining-dog traveling together in line toward the left with the feed of the carriage, and finally both dogs stop in line and with the spacing-dog in engagement with the rack, so that when the finger-key is released the spacing-dog shall rock out of the rack and the detaining-dog in and into the space just occupied by the spacing-dog, substantially as described.

10. In a type-writing machine, the combination, with the framework, of a vibratory dog-holder and an adjustable stop carried by the dog-holder to limit the forward movement of the dog-holder, substantially as described.

480,642. MACHINE FOR INSERTING LABELS IN SOAP CAKES. ALFRED E. WEBB, London, England, assignor to the Economic Advertising Company, Limited, same place. Filed July 5, 1890. Serial No. 357,843. (No model.) Patented in England Apr. 25, 1890, No. 6,355.

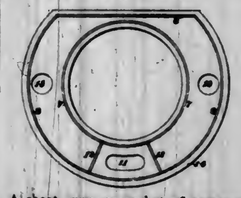


Claim.—1. The combination of a reservoir or holder for soap cakes or tablets, a paper-carrier, a table having a pair of laterally-movable dies between which the soap cake or tablet is received, means for moving the half dies toward and from each other, and a reciprocating pressing-blade for forcing the paper into the body of the soap cake or tablet while the latter is confined between the dies, substantially as described.

2. The combination of a reservoir or holder for soap cakes or tablets, a paper-carrier, a table having a pair of laterally-movable half-dies between which a soap tablet is received, mechanism for reciprocating the table, means for moving the half-dies toward and from each other as the table reciprocates, and a vertically-movable pressing-blade for forcing the paper into the body of a soap cake or tablet while the latter is confined between the half-dies, substantially as described.

2. The combination of a reservoir for holding soap cakes or tablets, a paper-carrying reel, a table having a pair of laterally-movable half-dies between which a soap cake or tablet is received, mechanism for reciprocating the table, means for moving the half-dies toward and from each other, a cutter for severing the paper to form a label, a reciprocating pressing-blade for forcing the label into the body of a soap cake or tablet while the latter is confined between the half-dies, and devices for operating the cutter and the pressing-blade, substantially as described.

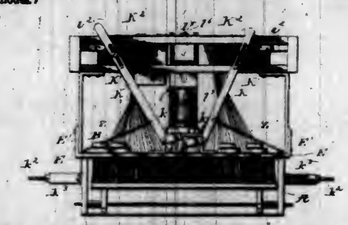
480,643. PACKING. THOMAS W. WELSH, Wilmerding, Pa. Filed June 16, 1892. Serial No. 436,948. (No model.)



Claim.—1. A sheet, ring, or gasket of compressible or elastic packing material, having inner and outer ridges formed on its surface near the edges, a flat surface between the ridges, an opening or port through said flat part of the gasket, and inclosing ridges between the inner and outer ridges, which, with portions of the inner and outer ridges, form a complete inclosure for the port and prevent leakage from it to the space between the inner and outer ridges or to the atmosphere, substantially as set forth.

2. A ring, sheet, or gasket of compressible or elastic packing material for packing a compound joint consisting of at least two joints which open one into the other, said packing being adapted to be placed in the main joint or between the surfaces which form the main joint and having a ridge formed on it near its outer edge and two ridges formed on it adjacent to its inner edge, which inclose between them the other joint or joints, substantially as set forth.

480,644. TELEGRAPH-TRANSMITTER. CHARLES WILLOUGHBY, San Francisco, Cal. Filed June 30, 1891. Serial No. 398,056. (No model.)



Claim.—1. The combination, with a transmitter of the character described, of the spring-stops *p* and *p'* and means for connecting said stops, respectively, to the respective letter-bars, substantially as and for the purpose specified.

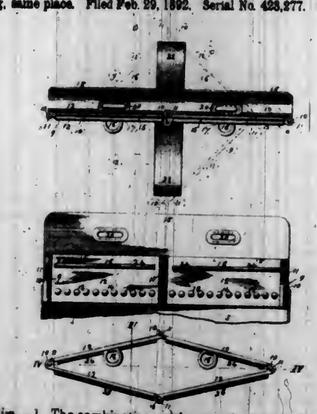
2. In a transmitter, substantially as herein described, the combination, with character-plates adapted to move horizontally and levers pivoted to said plates, of spring-stops *p* and *p'*, said levers and spring-stops adapted to be operated by the finger-bars B, substantially as and for the purposes specified.

3. In a transmitter, substantially as herein described, having horizontally-sliding character-plates, an adjustable reciprocating block or carriage, and a contact-spring located in said block, said spring adapted to engage the character-plates, substantially as and for the purpose specified.

4. In a transmitter, substantially as herein described, the combination, with an adjustable reciprocating block or carriage having a contact-spring and pointa³ and *n*⁴ and a roller loosely mounted thereon, of a cylinder and piston and means for reciprocating said carriage, said piston being connected with the block or carriage, substantially as and for the purposes specified.

5. In a transmitter, substantially as herein described, the combination, with an adjustable block or carriage having a contact-spring and loosely-mounted roller and a piston connected with said block or carriage, of a lever pivoted to the frame of the transmitter and provided with a slip-catch and connected with a lever immediately below and operated by the letter or finger bars B, substantially as and for the purposes specified

480,645. EXPANSIBLE HINGED-MOUTH MAIL-POUCH. GEORGE F. WINDFELDER, St. Louis, Mo., assignor of one-half to Hugo R. Riebeling, same place. Filed Feb. 29, 1892. Serial No. 423,277. (No model.)



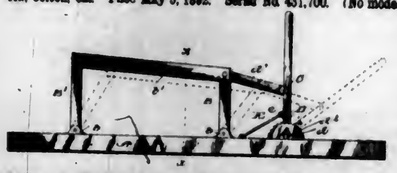
Claim.—1. The combination, with a pouch, of an endless hinge 9, consisting of two sections 12 having loops 10 and staples 16, two sections 12 having loops 10 and staple-eyes 17, and the pivot-pins 11, by which the loops are hinged together, means by which the hinge is secured to the pouch, and a folding flap, 18, secured to the outside of

the staple-sections, having staple-eyes 20, substantially as described.

2. The combination, with a pouch, of an endless hinge 9, consisting of two sections 12 having loops 10 and internal ridges 24, formed with staples 16, two sections 12 having loops 10 and internal grooves 25, providing projections 26 and formed with staple-eyes 17, and the pivot-pins 11, by which the loops are hinged together, and means by which the hinge is secured to the pouch, substantially as described.

3. The combination, with a pouch, of an endless hinge 9, consisting of two sections 12 having loops 10 and internal ridges 24, formed with staples 16, two sections 12 having loops 10 and internal grooves 25, providing projections 26 and formed with staple-eyes 17, and the pivot-pins 11, by which the loops are hinged together, means by which the hinge is secured to the pouch, and a folding flap 18, secured to the outside of the staple-sections, having staple-eyes 20, substantially as described.

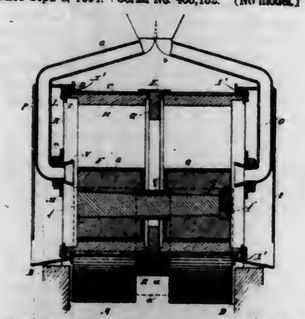
480,646. LIFTING-JACK. HENRY YORK and FREDRICK W. AUSTIN, Colton, Cal. Filed May 3, 1892. Serial No. 431,700. (No model.)



Claim.—1. The herein-described improved lifting-jack, comprising the base-board, the posts pivotally secured thereto at their lower ends and having upper parallel connecting cross-bars, the pitman, the lever for raising and lowering said posts, and having a pawl, a ratchet-plate engaged by said pawl, and means for holding said lever stationary, as set forth.

2. The herein-described improved lifting-jack, comprising the base-board, the posts pivotally secured thereto, the inclined cross-bars connected to said posts, the operating-lever connected to said posts, a pawl, and an eye or staple, the ratchet-plate engaged by said pawl, and the pivoted hook designed to engage said eye or staple, substantially as set forth.

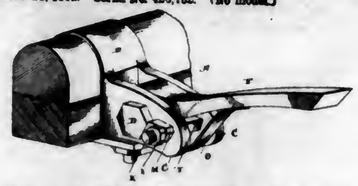
480,647. QUARTZ-CRUSHER. ANDREAS P. ANDERSON, Oriental, Nev. Filed Sept. 8, 1891. Serial No. 405,132. (No model.)



Claim.—1. A hollow rotary drum mounted upon horizontally-journaled supporting-rollers and having a belt by which it is rotated, a centrally located interior ring or flange by which the drum is divided into two parts, dies fitted around the periphery of the drum having the inner ends abutting against this ring and the outer ends against a corresponding outer ring, against which discharge-screens are fixed, crushing-rollers fitting each of the compartments of the drum and secured to a common shaft which extends through the rollers from end to end, hollow cylindrical shoes fitting upon said rollers, having their inner ends formed with closed heads through which the shaft passes, and a sleeve fitting the shaft between said heads, whereby the latter are kept in place upon the rollers, substantially as herein described.

2. The horizontal hollow rotating drum supported upon rollers having an interior ring or flange dividing it into two compartments, rollers fitting the compartments upon each side of the ring, having a common shaft extending through them, whereby the ring serves as a guide to keep the rollers in place, screen fitting the ends of the drum having rings around the periphery by which they are clamped or secured to corresponding rings or flanges upon the ends of the drum, a bar extending transversely across each end of the drum, feed-funnels fitted in the centers of said bars extending through the screens with the larger ends on the inside, and nuts by which they are secured in place, and a double feed-chute by which material to be crushed is delivered through the funnels in each end of the drum, substantially as herein described.

480,648. THILL-COUPLING. JOHN C. BAILEY, Ford City, Pa. Filed Mar. 28, 1892. Serial No. 426,782. (No model.)

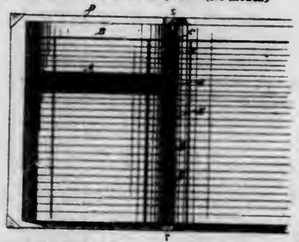


Claim.—1. A thill-coupling comprising a clip having ears provided with screw-threaded apertures, a thill-iron having cavities in opposite sides thereof, screw-threaded pivotal bolts which pass through the said screw-threaded apertures and have their inner ends engage the said thill-cavities, the outer ends of the said bolts being made angular, and a locking-bolt which passes through the said ears and engages the said angular heads of the pivotal bolts and locks them against unscrewing, substantially as set forth.

2. A thill-coupling comprising a clip having ears, screw-threaded pivotal bolts, which pass through said ears from opposite sides, a thill-iron having cavities in opposite sides thereof, which the inner ends of the said pivotal bolts enter, the said ears having transverse angular openings outside of the pivotal bolts, an angular locking-bolt passing therethrough, the said locking-bolt having angular portions which engage the said headed ends of the pivotal bolts, substantially as described.

3. A thill-coupling comprising a clip, ears extending therefrom, carrying a pivotal bolt, a thill-iron pivoted thereby, a transverse bolt in front of the said pivotal bolt, and a loop having opposite ends secured to the said thill and passing around the said transverse bolt, substantially as and for the purpose specified.

480,649. BOOK-INDICATOR. MAHLON G. BAILEY and HENRY T. WELCH, San José, assignors to James G. Spaulding, San Francisco, Cal. Filed Apr. 6, 1892. Serial No. 428,053. (No model.)



Claim.—1. A book-indicator consisting of a cord or support to be secured to and lie in the back of a book and an indicating-strip of non-absorbent material having a bearing at its inner end of equal width with the strip and adapted to have a close sliding connection with the cord or support, whereby the strip may be truly aligned with the lines of the book, substantially as herein described.

2. A book-indicator consisting of a cord or support to be secured to the ends of the book and to lie in the back or bend thereof, an indicating-strip to extend transversely over the surface of the book-page, a sleeve mounted and adapted to slide on the cord or support, and a bearing secured to the inner end of the indicating-strip and mounted and adapted to slide on the sleeve, substantially as herein described.

3. A book-indicator consisting of a cord or support to be secured to the ends of the book and to lie in the back or bend thereof, a sleeve mounted and adapted to slide upon said cord or support and having end stops, an indicating-strip to extend transversely over the surface of the book-page, and a bearing connected with the inner end of said strip and mounted and sliding upon the sleeve between its stops, whereby by contact therewith said bearing and sleeve move together, substantially as herein described.

4. A book-indicator consisting of a cord or support to lie in the back or bend of the book and provided with end fastenings for securing it to the ends of the book, a sleeve having end stops and mounted and sliding upon said cord or support, an indicating-strip to extend transversely over the surface of the book-page and made of a flexible or pliant sheet of celluloid, and a bearing secured to the inner end of the indicating-strip and having a length equal to the full width of said strip, said bearing being mounted and adapted to slide on the sleeve between its stops and to carry it with it, substantially as herein described.

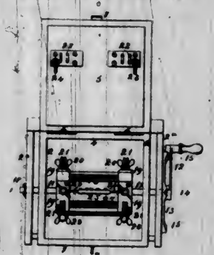
5. In a shifting line-indicator for books, having an elastic guide-cord provided with a slidable sleeve or cover and means for attaching said cord to a book, a pliable sheet of non-absorbent material having a clasp slidable on said sleeve and limited in its movement by the latter, substantially as herein described.

480,650. SUSPENDER-BUCKLE. BYRON J. BALLIETT, Mansfield, Ohio. Filed Feb. 23, 1892. Serial No. 422,453. (No model.)



Claim.—A buckle consisting of the lower part comprising a rectangular portion with teeth and loop, and an upper part pivotally connected with the lower part and having hook below its pivot, and a toothed portion above the pivot, substantially as specified.

480,651. ELECTRIC-FUSE BOX. GEORGE W. BAUMHOFF, St. Louis, Mo., assignor of one-half to George D. Capen, same place. Filed Dec. 16, 1891. Serial No. 415,269. (No model.)



Claim.—1. A fuse-box having inner perforate sides, as 2, protected by outer imperforate sides, as 2*, set a distance asunder, allowing the escape of heat and smoke through the inner sides and between the inner and outer sides, as shown and described.

2. The combination, in a fuse-box, of a revoluble drum or block with attachments for two or more fuses, tongues in electric connection with the ends of the fuses, and a door to the box, having contact-clips brought in contact with the tongues by the closing of the door, substantially as and for the purpose set forth.

3. The combination, in a fuse-box, of a longitudinally-recessed revoluble block having a shaft journaled in the sides of the box, whereby it may be turned, contacts at the ends of the block, and conducting-wires connected with the contacts and running along the recesses and provided with fuses, substantially as shown and described.

4. The combination, in a fuse-box, of a revoluble drum or block carrying two or more fuses, with connections insulated from each other and each adapted to be brought into the electric current singly by turning the block, the block-shaft 11, a handle 12, and a ring or plate 13, having notches 14 to arrest the motion of the block, for the purpose set forth.

5. The described combination, in a fuse-box, of a hinged lid, the contact-clips 22, attached to the lid, the wires 23 24, connected to the clips, the revoluble fuse block or drum carrying fuses connected to brackets 19, carrying contact-tongues, the shaft carrying the fuse-block, a handle 12 on the shaft, and the ring or plate 13, having notches engaging the handle, for the purpose set forth.

480,652. THILL-SUPPORT. JOSEPH A. BEAN, Suffern, N. Y., assignor of one-half to Robert Barioch, same place. Filed Apr. 7, 1892. Serial No. 428,167. (No model.)



Claim.—1. In a shaft-holder, the combination of a pivoted arm carried by a rigid support, the free end of said arm being bifurcated and provided with inwardly-projecting pawls formed integral with the arm, said pawls being adapted to engage with a fixture attached to the thills having a ratchet-plate, substantially as shown, and for the purpose set forth.

2. In a shaft support or holder, the combination of a rearwardly-extending bracket attached to the axle, an arm pivoted to said bracket and provided at its free end with a bifurcated portion having pawls on the inner sides, a fixture D, carried by the thills and provided with a web, side flanges, and ratchet-teeth, with which the pawl of the arm C engages, substantially as shown, and for the purpose set forth.

3. In a shaft-holder, the combination of a fixture carried by the shafts, consisting of a plate *c*, from which extends a web *f*, having laterally-extending flanges provided with ratchet-teeth, an arm C, pivotally connected to a rearwardly-projecting bracket carried by the axle, the upper end of said arm being provided with pawls and recessed or cut away beyond said pawls, and a spring *d*, adapted to contact with the arm C and bracket B, adjacent to the pivotal connection of the parts, substantially as shown, and for the purpose set forth.

480,653. FLUE-CLEANER. ENOS T. BELL, Dublin, Ind. Filed Nov. 30, 1891. Serial No. 413,590. (No model.)



Claim.—1. In a flue-cleaner, a brush-wheel comprising the parallel flanges having a plurality of sections secured therein, said sections having obliquely disposed wings or vanes thereon, and means whereby said sections are thrown outwardly or expanded when the wheels are in operation, substantially as specified.

2. In a flue-cleaner, a brush-wheel comprising the parallel flanges having a plurality of brush-carrying sections pivotally and loosely held therein, said sections having obliquely-disposed wings or flanges thereon, substantially as specified.

3. In a flue-cleaner, a brush-wheel formed in a plurality of sections arranged to be thrown outwardly by the revolution of said wheel, said sections having obliquely-disposed wings or vanes thereon provided with cutting or scraping edges, substantially as specified.

4. In a flue-cleaner, a brush-wheel formed in a plurality of sections

arranged to be expanded or thrown outwardly by the revolution of said wheel, said sections carrying obliquely-disposed wings or vanes having cutting or scraping edges, and also brushes, substantially as specified.

5. In a flue-cleaner, the combination, with the rod having the rotary brush-wheels thereon adapted to be driven in opposite directions and formed in expansible sections, of the piston-disk on said rod having the perforations therein adapted to direct jets of steam against said wheels and provided with a wiping-ring, substantially as specified.

6. In a flue-cleaner, the combination, with the steam-actuated rod carrying the perforated piston-disk and the oppositely-driven brush-wheels, of the pipe or tube, the reel connected thereto, but outside thereof, and independent of the steam-supply, the ribbon carried by said reel and passing through said tube, and the slack connection between said ribbon and rod, substantially as specified.

7. In a flue-cleaner, the combination, with the pipe or tube having the gasketed nozzle adapted to form a steam-tight joint with the mouth of the flue, of the coupling to which said pipe is connected, said coupling having the steam-inlet, and the stuffing-box comprising the case or shell held in the end of said coupling and having a saturated filling, and a flexible disk held between the end of said shell and an interior wall of the coupling, substantially as specified.

8. In a steam-actuated flue-cleaner, the combination, with the pipe or tube having the nozzle adapted to form a steam-tight joint with the mouth of a flue, the coupling connected to said pipe and provided with the steam-inlet and the stuffing-box, of the reel or spool connected to said coupling, the flexible ribbon or cable carried thereby and passing through said stuffing-box, coupling, and pipe, the rod having a slack connection with said ribbon, and the rotary cleaners carried by said rod and operated by jets of steam from said pipe, substantially as specified.

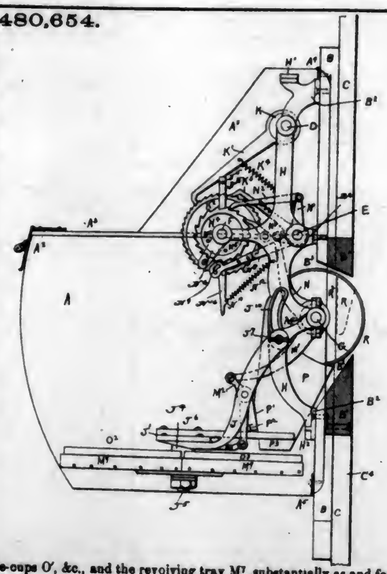
9. In a steam-operated cleaner, the combination, with the pipe or tube having the nozzle thereon, the coupling connected to said pipe and having the steam-inlet, and the stuffing-box, of the reel connected to said coupling, the crank therefor, the guard for the ribbon, the pawl-and-ratchet devices for normally holding said reel, and the spring-stop adapted to automatically engage said reel when the ribbon has been unwound, substantially as specified.

10. In a flue-cleaner, the combination, with the ribbon or cable and the cleaning device connected thereto, of the reel carrying said ribbon and having the guard, the crank, the pawl, and the spring-actuated stop adapted to come into engagement with a notch or shoulder on the periphery of the reel when the ribbon is unwound therefrom substantially as specified.

11. The combination, with the pipe or tube having the gasketed nozzle at one end and connected at the opposite end to a coupling provided with a steam-inlet, of the stuffing-box in said coupling, said box comprising the case or shell having a saturated filling, substantially as specified.

12. A flue-cleaner comprising the pipe or tube having the gasketed nozzle at one end and adapted to form a steam-tight joint with a flue-mouth, the coupling connected to said pipe and provided with a steam-inlet and with a stuffing-box, a reel or spool carried by said coupling, a ribbon or cable carried by said spool or reel and passing through said stuffing-box, coupling, and pipe, the rod connected to said ribbon or cable, the perforated piston-disk on said rod and provided with a wiping-ring, and the rotary brush-wheels adapted to be driven in opposite directions by steam admitted into said pipe, substantially as specified.

480,654. GRAIN-SAMPLING MACHINE. JOHN BIGELOW, Minneapolis, Minn. Filed Apr. 13, 1891. Serial No. 388,747. (No model.)



Claim.—1. An organized machine in which are combined the following elements, viz: the spout through which the stream flows, and a cup or like article adapted to be moved in and filled by said stream, and a receptacle to receive the contents of said cup, whereby the machine can take periodically a sample from a stream flowing in a spout and place it in a receptacle by itself, substantially as described.

2. An organized machine in which are combined the following elements, viz: a conveying-spout and a receptacle or cup adapted to be moved in the stream flowing in said spout, and a series of other movable receptacles to receive in order the contents of the first cup or receptacle, and suitable stop mechanism whereby automatically the machine is stopped when any desired number of the last-named receptacles have been filled.

3. The combination of a conveying-spout with an organized machine for taking samples from the stream flowing in said spout, having a sampling-cup R projecting within the interior of said spout and set segmentally with the arc of its own (cup R) revolution, substantially as and for the purpose set forth.

4. The combination of the sampling-cup R, means to impart a jog or shake to the same when it is being emptied, the conductor P, and receptacle-cups O', &c., substantially as and for the purpose described.

5. The combination of the sampling-cup R, conductor P, receptacle-cups O', &c., and the revolving tray M', substantially as and for the purpose described.

6. A sample-taking mechanism attachable to the bottom of a spout, set at an angle, combined with a tray having automatic adjustable connection with the operating mechanism and capable of an adjustment to compensate for the angle of the spout, so that it may hold its receptacle-cups approximately horizontal, substantially as shown and described.

7. In a sampling-machine, substantially as described, a stationary vertical shaft carrying a horizontal receptacle-cup-bearing tray and a ratchet-wheel with a holding-pawl and an operating-pawl to give a periodical revolving movement to said tray around said shaft, substantially as and for the purpose described.

8. In a sampling-machine, substantially as described, a stationary vertical shaft carrying a horizontal revolving cup-bearing tray and removable receptacle-cups constructed so as to be set around said shaft and to be carried in suitable divisions by said tray, substantially as and for the purpose described.

9. In a sampling-machine, the combination, with a chute or passage for the material to be sampled, of a movable support or carrier, a number of receptacles removably secured to said carrier, each receptacle having a distinguishing character, and means for intermittingly removing a portion of the material from the chute and depositing it in one of the receptacles, substantially as set forth.

10. In a sampling-machine, the combination, with a chute or passage for the material to be sampled, of a movable support or carrier adjacent to the chute, a number of receptacles arranged in series in the carrier, each series being removable from the carrier and provided with distinguishing characters, and means for intermittingly removing a portion of the material from the chute and depositing it in one of the receptacles, substantially as set forth.

11. A sampling-machine for the purpose set forth, having an automatic stopping device arranged to act after any desired number of its receptacle-cups within the maximum number shall have been presented to the mouth of its conductor-spout and filled, whereby whatever may be the motive power applied to the machine, and notwithstanding inattention on the part of the person having the machine in charge, only such cups as may be desired will be filled and the contents of the receptacle-cups will not be duplicated, substantially as shown and described.

12. The combination of the ratchet-wheel N^4, the swinging piece N^6, and its pin N^7 with the ratchet-pawl K', stripper-lever N^{16}, and the holding-piece N^5, having an inclined plane N^5, the rotating pin N^7 engaging piece N^5, all as and for the purposes set forth.

13. The combination of the driving-shaft D, eccentric K, eccentric-rod pawl K', ratchet-wheel K^2, shaft F, eccentric L, eccentric-rod pawl L', ratchet-wheel L^2, and shaft G, and the segmentally-arranged cup, constructed and adapted to operate substantially as and for the purpose set forth.

14. The combination of the shaft G, sleeve R^4, disk R^3, cover R', and segmentally-arranged cup R, substantially as and for the purpose set forth.

15. The combination of the shaft G, the spring R^5, arranged to exert pressure, as shown, cup R, and disk R^3, having a slot-and-pin connection R^7 with said shaft, and a toothed connection with the stationary tooth-piece S, substantially as and for the purpose described.

16. In a sampling-machine, the combination, with a chute, of a shaft G, journaled adjacent thereto, swinging arms J, secured at their upper ends to said shaft, a movable carrier secured to the lower end of said arms and provided with receptacles, a cupped sleeve secured to the shaft G and adapted to be rotated within the chute and to intermittingly remove a portion of the material therefrom and deposit it in one of the receptacles of the carrier, a sleeve S, encircling the shaft and provided with an arm S', said sleeve S engaging with said cupped sleeve and adapted to give it a jog, and a bolt or screw J^9 for engaging with the arm of the sleeve and varying the time that the cupped sleeve is jogged by the sleeve S, substantially as set forth.

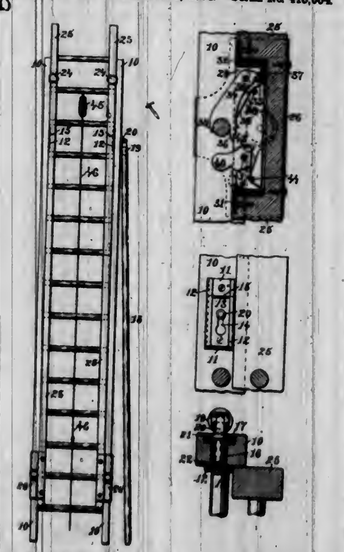
17. The combination of the shaft G, eccentric M, eccentric-rod M', lever M^3, pawl-carrying piece M^2, spring-pawl M^4, and ratchet-wheel M^5, substantially as and for the purpose set forth.

18. In a sampling-machine, the combination, with a shaft F, two ratchet-wheels K^2 and N^4, mounted thereon, the wheel N^4 being provided with pins N^8, an armed sleeve N^6, loosely mounted on the shaft and provided with a pin N^7, a piece N^5, having a slot and also an inclined portion against which the pin N^7 engages, a lever N^{16}, having a pin N^{10} in the slot of the piece N^5, a pin N^{15} at the opposite end of said lever, and an arm K', engaging with the ratchet-wheel K^2, the pin N^{15} being adapted to engage with the arm K' and disengage it from the wheel K^2, and thereby stop the rotation of the wheel N^4 and arrest the movement of the receptacle-carrier, substantially as set forth.

19. The combination of the shaft F, ratchet-wheel N^4 and pins N^8, piece N^6 and pin N^7, shaft E and piece N^5, with inclined plane N^5 and slot N^{11}, and the shipper-lever N^{16}, with pins N^{10} and N^{15}, substantially as and for the purpose set forth.

20. In a sampling-machine for the purpose described, the combination of an inclosing case, a periodically-acting sampling-cup, a horizontal cup-bearing tray, and mechanism for actuating said sampling-cup and said tray, substantially as described.

480,655. COMBINATION EXTENSION-LADDER. CYRUS P. BUSHNELL, Providence, R. I. Filed Dec. 1, 1891. Serial No. 413,634. (No model.)



Claim.—1. The combination, with a ladder provided with metal sockets extending through the side frames and having an outer enlarged portion, of studs or shanks pivotally secured to side poles adapted to extend through said sockets and furnished with enlargements adapted to rotate in the enlarged portions thereof, and means for pivotally securing said studs in the sockets, as described.

2. The combination, with the ladder 10, provided with the perforated or slotted plates 11 and the latch-plates 13, having the slots 14 movable therein, the sockets 16, extending through the side frames of said ladder opposite said plates 11, and having the enlarged portions 17 of the studs 20 pivotally secured to the side poles, and having the enlarged shoulders 21, adapted to rotate in the enlargements 17 of said sockets, and the contracted necks 22, to be engaged by the slots 14 of the latch-plates to pivotally secure said studs in place, as and for the purpose described.

3. The combination, with the ladder 10, provided at the upper portion with the roller-bearings 23, journaled on a shaft secured to the side frames, and the clamping-irons 24, also secured thereto, of the ladder 25, provided with the casings 26, having the clamping-arms 27 and the roller-bearings 28, journaled on shafts secured in said casings, and means for automatically locking said ladders together, as described.

4. An automatic locking device for extension-ladders, consisting of a spring-operated locking-arm journaled in a casing adapted to be secured to one section of the ladder, and having a jaw formed between two downwardly-extending lips, and a spring-operated key also journaled in said casing and adapted to enter the jaw of the locking-arm to depress said arm, as described.

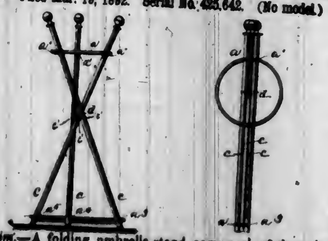
5. In a locking device for extension-ladders, the combination, with the casing 29, having the stop 33 formed on one end thereof, of the locking-arm 34, journaled on a shaft secured in said casing and having the stop 37, and lips 35 and 36, and operated by the spring 38, secured as described, and the key 40, journaled on the shaft 41, secured in said casing, and having the cam-shoulder 42, and a spring 43 bearing against said shoulder, as and for the purpose described.

480,656. TELEPHONE. JAMES A. CHRISTY, San Francisco, Cal., assignor, by direct and mesne assignments, to Thomas W. Cosgrove, Bernard Shraft, Frona Eunice Wait, and E. J. Baldwin, same place. Filed Dec. 1, 1890. Renewed Oct. 5, 1891. Serial No. 407,674. (No model.)



Claim.—In a transmitter, a case having a wire-gauze screen over the mouth, an insulating-washer resting on the screen, a diaphragm resting on the washer, a metal washer set upon the diaphragm having electrical connections to the exterior of the case and insulating-washer set upon the metal washer, an insulating-ring surrounding the metal and insulating-washers, and an electrode having a disk in close proximity to the diaphragm, a perforated dome on which the disk is supported, and a washer in contact with the walls of the case, as set forth.

480,657. UMBRELLA-STAND. GEORGE R. DAVIS, St. John, Canada. Filed Mar. 19, 1892. Serial No. 425,642. (No model.)

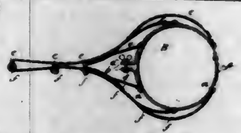


Claim.—A folding umbrella-stand composed of three legs *a a a*, united at about their center by a ball-joint *d*, each of the legs having a notch on its inner edge near the lower end and a notch on its outer edge above the ball-joint, a drip-pan provided with a flange to engage the lower notches of the legs, and a ring to spring into engagement with the upper notches to hold the stand together and to form a support for the upper ends of umbrellas placed in the stand, substantially as described.

480,658. STOVEPIPE DRYING-RACK. LESSIE M. DOWLER, Tyler, Tex., assignor of one-third to Charlie M. Dowler. Filed Apr. 25, 1892. Serial No. 430,552. (No model.)

Claim.—1. The combination of band A, having the sockets *a* and lips *b*, bolt *d*, passing through said lips and secured by the thumb-screw *d'*, and bent arms *e* and *f*, working in said sockets and adapted to be gathered in a bundle, the hooks *e'* interlocking with the eyes *f'* in the arms *f*, as shown and described.

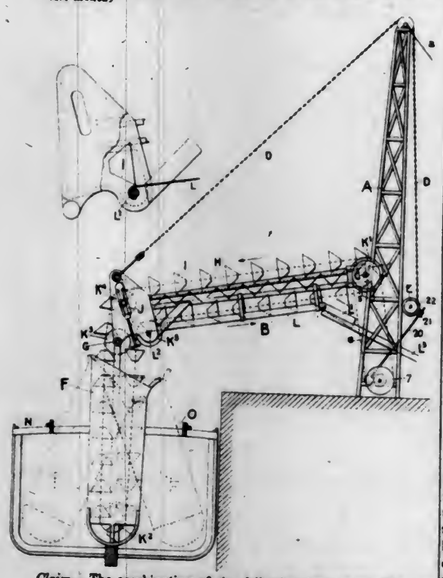
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2. The combination of the band A, having the sockets *a*, lips *b*, and spring *c*, said lips adapted to be secured by proper bolt, bent arms *e* and *f*, arms *e*, having the hooks *e'*, and arms *f*, having the eyes *f'*, said arms adapted to be gathered in a bundle, the hooks *e'* interlocking with the eyes *f'* in the arms *f*, as shown and described.

3. The combination, with a stove or steam pipe B, of a band A, having the sockets *a*, lips *b*, and springs *c*, said lips adapted to be secured by proper bolt, bent arms *e* and *f*, arms *e*, having the hooks *e'*, and arms *f*, having the eyes *f'*, said arms adapted to fit around the said band and be gathered in a bundle, the hooks *e'* interlocking with the eyes *f'* of the arms *f*, as shown and described.

480,659. ELEVATOR. WILLIAM D. EWART, Chicago, Ill., and JAMES M. DODGE, Philadelphia, Pa., assignors to the Link-Belt Engineering Company, Philadelphia, Pa. Filed Nov. 24, 1890. Serial No. 372,419. (No model.)



Claim.—The combination of the following instrumentalities arranged and operating together in substantially the manner hereinbefore described, viz: a framework serving as a boom, provided with a conveyer-trough bottom, an elevator-leg pivotally suspended from said boom, and a continuous double-strand bucket-carrier running over suitable wheels mounted in the framework of said boom and elevator-leg, the buckets of which carrier lift the material bodily in the elevator-leg and then push or scrape it along the trough-bottom of the boom to a suitable place of discharge.

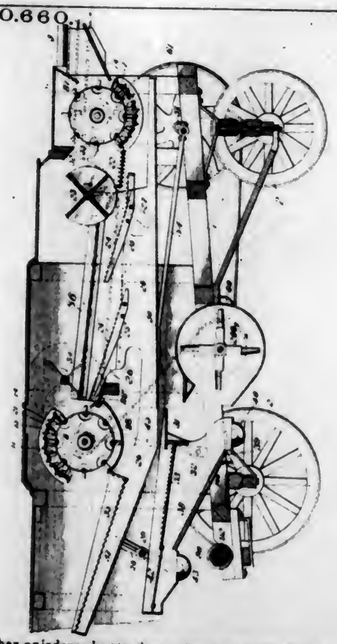
480,660. MACHINE FOR THRASHING AND SEPARATING GRAIN. ARTHUR B. FARQUHAR, HENRY W. EISENHART, and SAMUEL S. MORTON, York, Pa. Filed Nov. 14, 1891. Serial No. 411,873. (No model.)

Claim.—1. The combination of the cylinder having its head provided with a projecting annular flange, and the bearing in which the cylinder-shaft turns having a reduced portion, over which the said flange projects, and thereby constitutes a sand-band or dust-guard for the bearing, substantially as described.

2. In combination with a cylinder, a concave having a section carrying a transversely-arranged set of teeth mounted on pivotal supports in the side pieces of the concave, a breakable support which holds the said section in working position, and a stop which limits the movement of the said section after the said breakable support is broken, substantially as described.

3. In a thrashing-machine, the combination, with a cylinder, of a

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concave having independent teeth-carrying sections, each having pivotal supports and breakable supporting-pins, the said pivotal supports being arranged in front of the said pins, substantially as described.

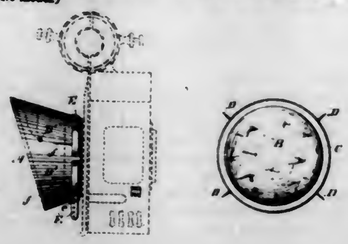
4. In a thrashing-machine, the combination, with a cylinder, of a concave arranged above the cylinder and having a series of teeth-carrying sections, the rods 21, upon which the sections are pivotally supported, the breakable pins 14, and the stops 19, which limit the movement of the teeth-sections toward the cylinder in the event of a pin 14 breaking, substantially as described.

5. In a separating-machine, the combination, with the screen having a journal projecting therefrom, of a rock-arm provided with a bearing 48 for the journal and with an oil-chamber 46, which is separated from the bearing by a perforated partition, substantially as described.

6. In a grain thrashing and separating machine, the combination of the first cylinder and concave, the rear cylinder and concave, the upper screen situated between the said two cylinders, the screen 35 in rear of the rear cylinder, and the bottom boards 30 and 37 under these said screens, respectively, and inclining toward each other, the lower screen-carrying frame arranged to receive the materials delivered upon the bottom boards 30 and 37, the blast-fan 260, which directs a blast of air to the material upon the lower frame and against the material as it falls from the boards 30 and 37, and means for vibrating the said screens, substantially as described.

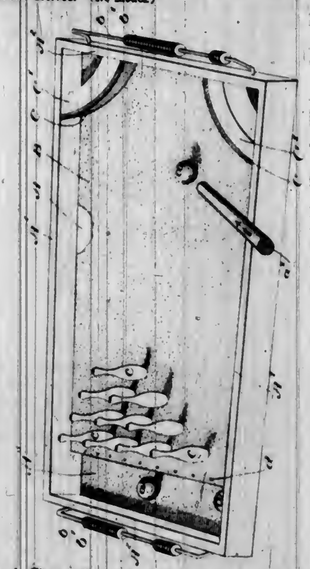
7. In a thrashing-machine, the combination, with a cylinder and concave, of a blast-fan and a deflecting board which directs and concentrates the blast caused by the fan to the operative portion of the cylinder, substantially as described.

480,661. SUPPLEMENTARY LENS FOR BICYCLE AND CARRIAGE LAMPS. ALBERT L. FRANCE, Milldale, assignor to the Kenton Can Company, Covington, Ky. Filed May 26, 1891. Serial No. 394,187. (No model.)



Claim.—The combination of the following elements: the detachable leather lens-holding bonnet A, having the pin holes *D'* and slits *f*, the strap E, with its buckle *e*, the lens B, having the circumscribing band C, and pins D, clinched to the bonnet, substantially as shown and described.

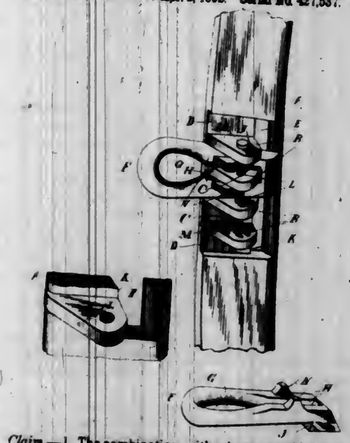
480,662. GAME APPARATUS. MARTIN H. GLEASON, Fitchburg, Mass., assignor to John K. Gleason, same place. Filed Apr. 12, 1892. Serial No. 428,788. (No model.)



Claim.—1. The combination, with the board having straight side and end guards, of a convexed cushion in one corner of the board and adapted to be struck by a ball, substantially as described.

2. A board having straight side and end guards and a convexed corner cushion at one end, of a transverse pocket at the other end of the board, substantially as described.

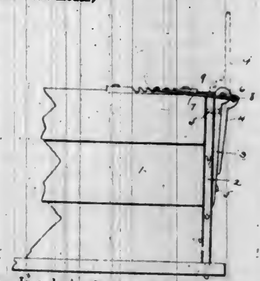
480,663. HAME. WILLIAM H. JOHNSON and ORSON J. SMITH, Farmer City, Ill. Filed Apr. 2, 1892. Serial No. 427,537. (No model.)



Claim.—1. The combination, with a hame provided upon its outer surface with a series of laterally-projecting perforated ears and having a vertical slot in front of said ears, of a tug-clip adapted to be removably secured upon any one of said ears, said clip being provided with an opening at the rear end for the reception of the tug, and the front end being provided with a slot for engaging with the ears of the hame, and also provided with a hook upon its under surface for engaging with the rear wall of the slot in the hame, and means for preventing the forward movement of the clip, and a cotter through the perforations of the ears outside of the clip, substantially as set forth.

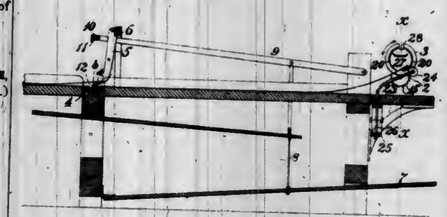
2. The combination, with a hame provided upon its outer surface with a series of laterally-projecting perforated ears and having a vertical slot in front of the ears, a tug-clip adapted to be removably secured upon any one of said ears, said clip being provided at its front end with a slot for engaging with the ears, and with a hook upon its under surface for engaging with the rear wall of the slot in the hame, and having an upwardly projecting lug upon each side of the slot upon the front end of the clip, and the rear portion of the clip being provided with an opening for the reception of the tug, and a cotter through the perforations in the ears in front of the outwardly-projecting lugs of the clip, substantially as set forth.

480,664. END-GATE TIGHTENER FOR CARS AND WAGONS. ANDREW E. S. LINDSEY, Imperial, Pa. Filed Feb. 19, 1892. Serial No. 422,112. (No model.)



Claim.—In a device for the purpose described, the combination consisting of the hinge-pieces 3, secured to the end-gate 1, the rack-bars attached to the cars, the levers 4, pivoted to the said hinge-pieces 3, and the clevises 7, pivoted to the levers 4, all arranged and combined for service substantially as and for the purpose described.

480,665. MACHINE FOR JOINING AND ROLLING SHEETS FOR ROOFING. WILLIAM A. LEET, Wheeling, West Va. Filed Aug. 31, 1891. Serial No. 404,223. (No model.)



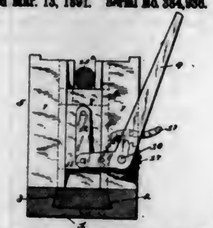
Claim.—1. In a machine for rolling metal sheets for roofing, the combination of independent disks provided with hooks for engaging the end of a strip of metal, means for moving one of said disks toward and from the other, and mechanism for transmitting a rotary movement from one disk to the other, substantially as set forth.

2. In a machine for rolling metal sheets for roofing, the combination of two independent disks revoluble in unison and one movable toward and from the other, a supporting-flange, and a hook for engaging the sheets formed on the inner face of each disk, substantially as set forth.

3. In a machine for rolling metal sheets for roofing, the combination of two independent disks revoluble in unison and one movable toward and from the other, and a spring actuated roller for holding the coils of the sheet-metal strip during the winding operation, substantially as set forth.

4. In a machine for rolling metal sheets, two independent disks revoluble in unison and one movable toward and from the other, and provided with supporting-flanges, and a hook formed on the inner faces of the disks, in combination with ledges for supporting the ends of a bundle of trimmings, the edges of the disks being notched for the reception of the projecting ends of the tie strip or trimming, substantially as set forth.

480,666. ADJUSTABLE BIT-HOLDER. GEORGE W. LOUDEN, Pittsburg, Pa. Filed Mar. 13, 1891. Serial No. 384,936. (No model.)



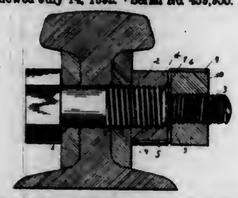
Claim.—1. In a device of the character set forth, a frame having an opening, a vertically-adjustable plate fitted in suitable ways in said frame, a lever connected with the plate for adjusting the same, a pawl-and-ratchet mechanism for holding the lever and consequently the plate in adjusted position, and a liner or liners for reducing the width of the opening in said frame.

2. In a device of the character set forth, the combination of a base, a frame adjustable longitudinally in said base and having an opening, a plate in said frame, means for adjusting said plate vertically, and liners for reducing the width of the opening in said frame, substantially as shown and described.

3. In a device of the character set forth, a frame having an opening, a vertically-adjustable plate fitted in suitable ways in said frame, means for adjusting said plate, and liners for reducing the width of the opening in said frame, substantially as shown and described.

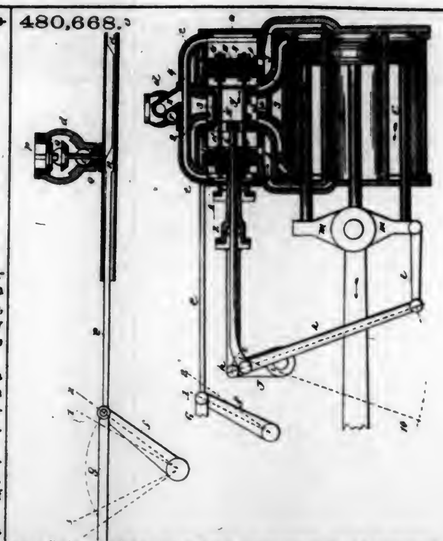
4. In a device of the character set forth, the combination of a frame, a vertically-adjustable plate fitted in suitable ways in said frame, a bell-crank lever, a link connecting the inner end of said lever to said plate, a shaft borne by said frame and forming the fulcrum for said lever, a ratchet on said shaft, and a pawl pivoted to said frame, adapted to engage said ratchet and serving to hold it and consequently the plate in adjusted position, substantially as shown and described.

480,667. NUT-LOCK. GEORGE A. MILLER, Butler, Pa. Filed Oct. 3, 1891. Renewed July 14, 1892. Serial No. 439,955. (No model.)



Claim.—The combination, with the bolt having the right-hand thread formed thereon for a portion of its length and at its extremity a reduced end provided with a left-hand thread, of the securing-nut threaded with right-hand thread and having one of its faces provided with a dovetailed recess, the locking device consisting of the annular plate perforated to fit over the bolt and having radially opposite ears inwardly and outwardly bent at a right angle to the said plate, the former ear having its opposite edges beveled or dovetailed and fitted within the dovetailed recess of the securing-nut, and the jam-nut threaded on the left-hand threaded outer end of the bolt and embraced by the outer angular portion of the locking device, substantially as specified.

480,668. COMPOUND LOCOMOTIVE STEAM-ENGINE. HENRY MOSE, Keokuk, Ill. Filed Oct. 30, 1890. Serial No. 369,864. (No model.)



Claim.—1. In a compound locomotive and other compound engines having the single steam or valve chest, the valves comprising two independent valve-sections, one of said sections controlling the admission and exhaust of steam to and from a high-pressure cylinder and the other section controlling the admission of steam from the high-pressure cylinder to a low-pressure cylinder, and the exhaust from the low-pressure cylinder, in combination with any means for operating the said valves independently of each other, substantially for the purpose as shown and described.

2. In a compound locomotive steam-engine having the single steam-chest and a valve composed of two independent valve-sections, the valve for the low-pressure cylinder having a reduced degree of external lap in comparison to the high-pressure valve, in combination with means for obtaining a simultaneous lead, substantially as set forth.

3. In a compound locomotive having the single valve-chest and a valve composed of two independent valve-sections, the outer section for the high-pressure cylinder and the inner section for the low-pressure cylinder, the inner low-pressure valve-section having connection to an independent valve stem or spindle, in combination with any means for operating said valves independently of each other, substantially for the purpose set forth.

4. In a compound engine having the two independent valve-sections, the fulcrum or compensating rod *k* and the hollow valve-rod *h*, in combination with the said valves and cross-head *m*, substantially for the purpose set forth.

5. In a compound locomotive-engine having the single steam or valve chest, the steam and relief port *x* in valve E and the passage *v*, in combination with the auxiliary steam and relief valves *q* and *p*, substantially for the purpose as set forth.

6. In a compound locomotive having the single valve-chest, the combination of the auxiliary steam-valve *q* and the atmospheric relief-valve *p*, in combination with means for operating valve *q*, substantially for the purpose as set forth and described.

7. In a compound locomotive having the auxiliary steam or starting valve *q*, the rod *c* or wedge-rod *n n*, having connection to the reversing-gear or shaft-arm for the purpose of operating auxiliary steam-valve *q*, substantially for the purpose as set forth.

8. In a compound locomotive having the wedge-rod *n n*, the tube or guard *o*, in combination with the auxiliary steam-valve *q*, substantially for the purpose as set forth.

9. In a compound locomotive having the single steam or valve chest, the combination of the relief-valve *p*, and the auxiliary valve *q*, placed in one valve case or box and acting in combination with each other, substantially for the purpose as shown and described.

10. In a compound locomotive having the single steam or valve chest, the combination of the high-pressure cylinder placed within the low-pressure cylinder, steam-passages leading from opposite ends of each of said cylinders to a valve-seat face, an exhaust-passage leading from said valve-seat face, and a distribution-valve composed of two independent valve-sections and controlling the valve-seat ports, said valve providing a passage for steam between the sections from the high to the low pressure cylinder, the low-pressure-valve section having a less degree of lap and a shorter range of traverse than the high pressure valve, and the fulcrum or compensating rod *k*, acting in combination with the cross-head and other valve-motion to retard and accelerate the action of the low-pressure-valve section, substantially as set forth.

480,669. PERFUMED STARCH AND PROCESS OF MAKING THE SAME. FREDERICK C. NORFOLK, Des Moines, assignor to the Norfolk Manufacturing Company, Ottumwa, Iowa. Filed Oct. 24, 1891. Serial No. 409,715. (No specimens.)

Claim.—1. As a new article of manufacture, perfumed starch consisting of ordinary dry powdered starch mixed with paraffine saturated with a perfume, said paraffine and perfume being intimately ground into and combined with the starch, substantially as and for the purpose described.

2. A perfumed starch comprising ordinary dry powdered starch, borax, and paraffine saturated with perfume and ground into the starch and borax, substantially as described.

3. The method of producing perfumed starch, which consists in mixing paraffine and a perfume with powdered starch and then heating the mass and reducing the same to a very fine powder by grinding the whole until its temperature rises to a point where the perfume is dried and caused to thoroughly permeate the mass, for the purpose described, substantially as set forth.

4. The method of producing perfumed starch, which consists in reducing solidified paraffine to a fine comminuted state, as by grating, moistening the same with a liquid perfume, mixing the moistened paraffine with powdered starch, and finally grinding the whole mass to reduce it to very fine particles and thereby raise the temperature of the mass to a point where the perfume becomes dry and thoroughly permeates the whole mass, substantially as described.

480,670. HAND-CART. WILLIAM RADLEY and THOMAS W. BEAL, Sandwich, Ill., assignors to the Sandwich Enterprise Company, same place. Filed Nov. 30, 1891. Serial No. 413,506. (No model.)

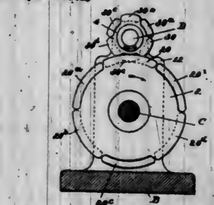


Claim.—1. The combination, with a suitable frame and body, of a pivotal and also a sliding means of connection between the two, arranged one above the other and detachable by movement in the same direction, substantially as described.

2. The combination, with a suitable frame, of a body pivoted thereon and suitable means of engagement arranged at a distance vertically from the pivotal connection and adapted to permit of movement upon the pivot, but not otherwise, such engagement, as well as the engagement at the pivot, being in the proper direction to sustain the body, but not in a direction to prevent the body from being lifted from the frame, substantially as described.

3. The combination, with a suitable frame and body, of castings C upon the frame, having the open bearings *c* and hooks *c'*, and castings G upon the body, having the trunnions *g* and the feet *g'*, substantially as described.

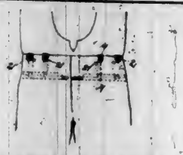
480,671. GEARING. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Mar. 24, 1892. Serial No. 426,211. (No model.)



Claim.—1. The improved gearing herein described, consisting in the combination, with the driving-wheel having two series of alternating cogs and spaces set with the cogs of one series opposite the spaces of the other series, of a driven wheel having corresponding cogs and spaces and meshing with the driving-wheel, substantially as set forth.

2. The improved bevel-gearing herein described, consisting in the combination, with a bevel driving-wheel having two series of alternating cogs and spaces, the cogs of one series being set opposite the spaces of the other series, of the bevel driven wheel having two corresponding series of cogs and spaces, the cogs of one series being set opposite the spaces of the other series and meshing with the bevel driving-wheel, substantially as set forth.

480,672. SUPPORTER FOR TROUSERS AND SIMILAR GARMENTS. CHARLES S. ROGERS, San Antonio, Tex., assignor of one-half to Luther J. Overcash, New York, N. Y. Filed Nov. 16, 1891. Serial No. 412,070. (No model.)



Claim.—1. A supporter for trousers and similar garments, comprising an extensible belt formed solely of two semicircular half-sections and upwardly-extending rigid supports connected directly to said belt and designed to be attached to the trousers or similar garment substantially as set forth.

2. A supporter for trousers and similar garments, comprising an extensible belt formed of two semicircular half-sections and upwardly-extending rigid and extensible supports connected to said belt and designed to be attached to the trousers or similar garment, substantially as set forth.

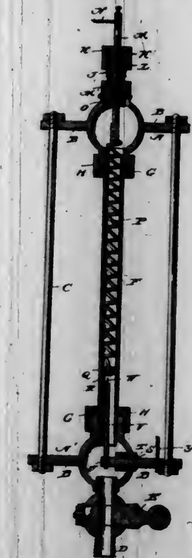
3. A supporter for trousers and similar garments, comprising an extensible belt, a band surrounding said belt, and rigid upwardly-extending supports connected to said belt and designed to be attached to the trousers or similar garment, substantially as set forth.

4. A supporter for trousers and similar garments formed in two semicircular half-sections, an elastic or extensible section connecting two of the adjacent ends of said sections, a hook and a ring carried each by one of the opposite ends of said sections, and upwardly-extending supports connected to the belt and designed to be attached to the trousers or similar garment, substantially as set forth.

5. A supporter for trousers and similar garments, comprising a belt, a number of upwardly-extending rigid supporting-standards connected to said belt and each provided with a pivoted clamping-lever, and a number of rigid upwardly-extending extension-supports working telescopically in said standards and held in position by said clamping-levers, said extension-supports being designed for attachment to the trousers or similar garment, substantially as set forth.

6. A supporter for trousers and similar garments, comprising a belt composed of two sections, an elastic or extensible section connecting the two belt-sections, an eye carried by the opposite end of one of the belt-sections, a hook carried by the corresponding end of the opposite belt-section, a band having its margin embracing the belt-sections, a number of guide-standards surrounding the belt-sections at their lower ends and having longitudinal guide-flanges upon their body portions, pivoted clamping-levers carried by said standards and having clamping-tongues, and extensible supports provided with button-loops and working in said guide-standards and also engaged by the clamping-tongues, substantially as set forth.

480,673. ELECTRIC LOW-WATER ALARM. ERNESTE ROTHLISBERGER, Lima, Ohio. Filed Apr. 18, 1892. Serial No. 429,587. (No model.)

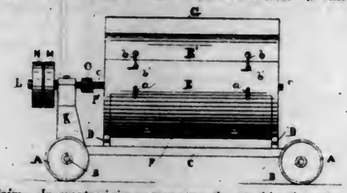


Claim.—1. An electric low-water alarm consisting of an upper and lower case, rods or posts connecting said cases, a pipe leading from

the boiler to the lower case and having a cock, a sight-tube communicating with the cases, a spiral electric conductor arranged in the tube and having a contact-point, and a stationary conductor having a contact-point, the action of the steam or heat expanding the spiral conductor and bringing the points in contact, for the purpose described.

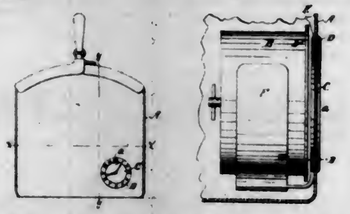
2. An electric low-water alarm consisting of an upper and lower case, a sight-tube communicating with said cases, an adjustable electric conductor, a spiral conductor connected thereto and having a contact-point, a guide for said spiral conductor, and a stationary electric conductor having an adjustable contact-point, all arranged and adapted to operate for the purpose described.

480,674. MEAT-MIXING APPARATUS. JOHN H. SCHAEFER, Baltimore, Md., assignor to John H. Schaefer, Jr., and George N. Schaefer, same place. Filed Mar. 5, 1892. Serial No. 423,938. (No model.)



Claim.—In meat-mixing apparatus, the combination of a truck, a box or casing mounted on said truck, a shaft in open bearings on the ends of said casing and having shoulders to prevent endwise movement in said bearings, and a squared end projecting from the casing, a movable lid for the casing, comprising coverings for the shaft-bearings and driving mechanism having a rotary head which is provided with a squared socket in one side face to removably receive the squared end of the shaft, substantially as and for the purpose described.

480,675. SATCHEL OR OTHER RECEPTACLE. CHARLES H. SHAW, Brooklyn, assignor to Robert H. Thompson, New York, and Henry D. Norris, Brooklyn, N. Y. Filed Jan. 5, 1892. Serial No. 417,065. (No model.)



Claim.—1. A satchel or similar receptacle having an opening and a holder arranged adjacent said opening for supporting a timepiece, substantially as specified.

2. The combination, with a satchel or similar device having an opening, of a holder for a timepiece, arranged within the satchel adjacent the opening, and a ring-shaped dial surrounding said opening on the outer side, substantially as specified.

3. The combination, with a satchel or similar receptacle having an opening, of a support for a timepiece, arranged adjacent said opening and consisting of arc-shaped strips of metal, substantially as specified.

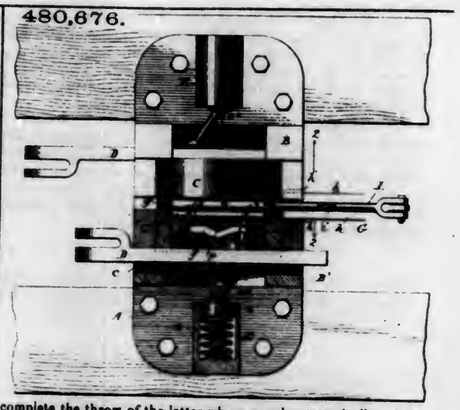
4. The combination, with a satchel or similar receptacle having an opening, of a timepiece having its hands disclosed through said opening, the said satchel or similar receptacle having a space in the rear of and surrounding said timepiece, adapted for the reception of wearing-apparel, substantially as specified.

480,676. SWITCH-STAND. FRED. W. SNOW, Hilburn, assignor to the Standard Equipment Company, New York, N. Y. Filed Dec. 17, 1891. Serial No. 415,413. (No model.)

Claim.—1. In a switch-stand comprising a switch-operating rod and an engaging device normally out of engagement therewith, a projection on the engaging device in the path of the switch-operating rod, arranged to complete the throw of said rod, substantially in the manner and for the purposes hereinbefore set forth.

2. In a switch-stand comprising a switch-operating rod and an engaging device for the rod normally out of engagement therewith, a switch-operating lever arranged to move the engaging device, and the switch-rod to operate the same by hand, and a projection on said engaging device in the path of the switch-operating rod, arranged to

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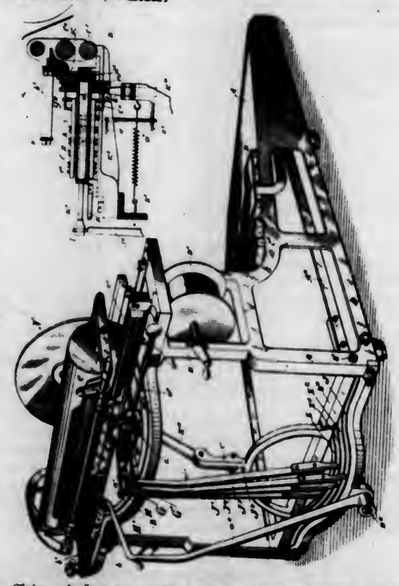
complete the throw of the latter when moved automatically, substantially as described.

3. The combination of the engaging device having a slot in its side, with the switch-rod having a projecting pin co-operating with said engaging device and a projection arranged in the slot in the path of the pin, substantially as described.

4. In a switch-stand, the combination, with the switch-operating rod provided with a pin having a rounded end, of an engaging device normally out of engagement with said rod and having a slot in its side and a projection arranged in said slot to co-operate with the rounded end of the pin to complete the movement of the switch-operating rod, substantially as described.

5. The combination, with the switch-operating rod having a pin projecting therefrom, of an engaging device normally out of engagement with said rod and having a slot in its side, a projection arranged in a central position in said slot, and ribs projecting from said slot, substantially as described.

480,677. TYPE-WRITING MACHINE. WILLOUGHBY W. STREET, Springfield, Mass. Filed Oct. 8, 1890. Renewed July 5, 1892. Serial No. 439,051. (No model.)



Claim.—1. In a type-writing machine, the combination, with the key-levers and a movable carriage under tension provided with a rack, of a shaft and pinion engaging with said rack, two ratchet-wheels, one fixed and the other loose on said shaft, a spring connecting said wheels, a pawl adapted to engage with the two wheels alternately, a lever carrying said pawl and worked or moved by the depression and

elevation of any one of the key-levers, bars or stops arranged to slide through the loose ratchet-wheel and to enter slots of different lengths in the other, and levers for moving said stops and causing them to engage with the slots, each of said levers being adapted to be moved or operated by certain key-levers only, according to the space required by the characters to which said levers correspond, as set forth.

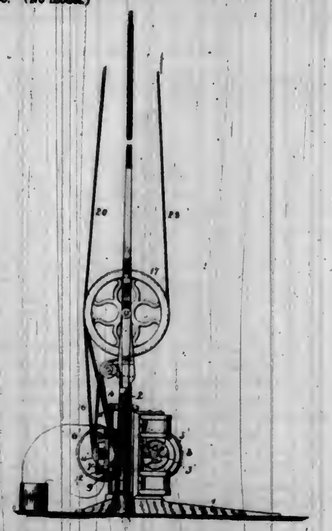
2. In a type-writing machine, the combination, with the key-lever, a carriage under tension, and feed-controlling levers or frames adapted to be depressed or moved by said key-levers, one by all of said key-levers and the others by groups of the same classified according to the spaces required by the characters to which they correspond, of a shaft and pinion engaging with the carriage or a rack therein, two ratchet-wheels, one fast and the other loose thereon, a spring connection between the two wheels, a series of bars or stops adapted to slide through the loose wheel and to enter slots of different lengths in the other, a pawl or detent adapted to engage with the ratchet-wheels alternately, connections between said pawl and feed-controlling lever or frame common to all the other keys, and independent connections between the sliding rods or pins and the other feed-controlling levers, respectively, substantially as and for the purpose set forth.

3. In a type-writing machine of the kind described, the feed-controlling mechanism for the movable carriage, consisting in the combination of a pinion-shaft engaging with the rack-bar of the carriage, a ratchet-wheel containing slots of unequal lengths and fixed to the pinion-shaft, a sleeve turning loosely on the same, a plurality of grooved disks mounted loosely on the sleeve, a ratchet-wheel fixed thereto, a spring connection between the two ratchet-wheels, a series of sliding rods or stops, each fast to one of the grooved disks and passing freely through the others, a series of sliding bars in fixed bearings and connected with the spacing-levers, and pins projecting from the said bars and engaging with the grooved disks, respectively, whereby the movement of any one of the sliding bars carries the corresponding stop through an opening in the ratchet-wheel on the sleeve into one of the slots in the ratchet-wheel on the pinion-shaft and determines the extent of the movement of one ratchet relatively to the other.

4. In the type-writing machine herein described, the combination, with the carriage and rack under tension, and the feed-escapement for such carriage, comprising the pinion-shaft and the fixed and loose ratchet-wheels thereon and a spring connecting the same, of a pawl R' in position to engage with a notch or step in the said loose ratchet-wheel when the carriage has been moved to its starting-point, as set forth.

5. The combination, with the loose ratchet-wheel F', of the feed-escapement and the carriage the feed of which is controlled by said escapement, and the pawl R', having a spring R" connected therewith, the said arm being adapted to enter a recess in the carriage when the same is in its starting position and turn the pawl into engagement with a notch or step in the ratchet-wheel F', as and for the purpose set forth.

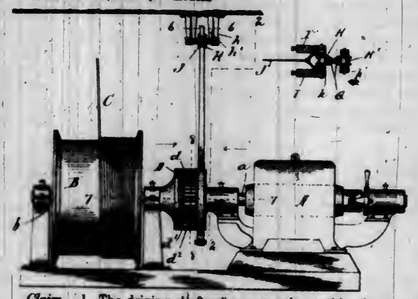
480,678. DENTAL ENGINE. CHARLES W. THOMAS, Jersey City, N. J., assignor of five-sixths to Philip Van Volkenburgh, New York, and John H. Pendleton, Brooklyn, N. Y. Filed Oct. 21, 1890. Serial No. 368,885. (No model.)



Claim.—1. In a dental engine, the combination of a drill and its supporting-holder, an electric motor for driving the same, connections between the motor and the drill, two independent friction-gears, and independent connections between said friction-gear and a common driving-sheave, whereby the direction of the drill can be altered, substantially as shown and described.

2. In a dental engine, the combination of a drill and its supporting-holder, the normally-open contact-springs arranged in said holder, an electric motor for operating the drill, a tilting frame and friction-gear 5 6 5' 6' and connections between said friction-gear and the drill, a supplementary battery, and means, substantially as shown and described, under the control of the contact-springs for tilting the gear-carrying frame and stopping, starting, or reversing the direction of the drill, as set forth.

480,679. REDUCTION-GEAR. WILLIAM M. THOMAS, Detroit, Mich., assignor to Louis Warfield, same place. Filed Mar. 31, 1892. Serial No. 427,144. (No model.)



Claim.—1. The driving-shaft of a motor, in combination with a driven shaft in line therewith, an internal gear mounted on the latter, an eccentric fixed on the end of the motor-shaft, a gear-wheel mounted loosely on said eccentric and of less diameter than the said internal gear within which it is arranged, and a stop device adapted at will to stop the said gear-wheel from rotary movement about the eccentric while at the same time permitting lateral movement thereof, substantially as described.

2. In a reduction-gear device, a driving-shaft *a*, in combination with a driven shaft *b*, arranged in line therewith, an internal gear-wheel D, mounted on the driven shaft, an eccentric E on the driving-shaft and arranged within the circumference of said internal gear, a spur-gear F, mounted loosely on said eccentric and of less diameter than the internal gear, and a brake D, adapted to be applied to the wheel F to hold it from rotation, but free to move with said wheel in its lateral movement caused by the rotation of the eccentric, substantially as described.

3. A motor-driving shaft *a*, in combination with a driven shaft *b*, arranged in line therewith, the internal gear D, mounted on the latter, the eccentric E, fixed on the end of the former shaft, the spur-gear F, mounted loosely on the eccentric, arranged within the internal gear and provided with a hub F', the brake-arms *g*, hinged together at one end and adapted to clasp the hub F', and guide-rollers H H', arranged to hold the outer or free ends of said arms in proper position to clamp the wheel F, while at the same time they are free to move lengthwise between said rollers, substantially as described.

4. The guide-rollers H H', the former mounted in adjustable bearings, in combination with springs I, arranged behind said bearings, the gear-wheel F, mounted loosely on a rotating eccentric E, a brake G, consisting of hinged arms *g*, adapted to embrace and clamp the said gear-wheel, and with their free ends arranged to slide between said rollers, an internal gear D, surrounding the gear F and of greater diameter, and a cord or other device attached to the movable roller, whereby the brake may be released at will, substantially as described.

480,680. SUSPENDER-BUCKLE. JOSIUS A. TRAUT, New Britain, Conn. Filed Apr. 4, 1892. Serial No. 427,599. (No model.)



Claim.—1. In a buckle of the class specified, the combination, with the box and its catch, of a strap-carrying slide consisting of two

parts pivotally connected and having a spring constructed to engage the slide-box catch, substantially as set forth.

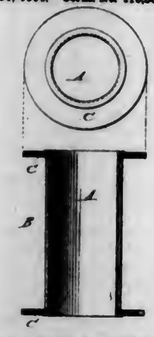
2. In a buckle of the class specified, the combination, with the box and its catch, of a strap-carrying slide consisting of two parts pivotally connected, one of said parts having a spring constructed to engage the slide-box catch and the other part having a catch engaging the box for detaching the slide on the closing of the spring, substantially as set forth.

3. In a buckle of the class specified, the combination, with a slide-box substantially as described, of the buckle-slide consisting of the part *e*, having a box-engaging spring, and the part *f*, swiveled upon the part *e* and having a strap-carrying loop, substantially as set forth.

4. In a buckle of the class specified, the combination, with the slide-box, of the buckle-slide consisting of the two parts *e* and *f*, the one folded upon the other, the part *e* having the buckle-spring fixed thereto and constructed to engage a catch on the slide-box and the other part having a strap-carrying loop supported in the folded lower end thereof and having the projecting lip for engaging the back plate of the slide-box, substantially as set forth.

5. The combination, with the box and with the catch on the front plate of the box, of the strap-carrying slide having a spring adapted to engage said catch and having on the strap-carrying end thereof the upturned lip constructed to engage the back plate of the box, whereby to withdraw the front plate from the catch on the closing of the spring, substantially as described.

480,681. ELECTRICAL SPOOL. SCHUYLER S. WHEELER, New York, N. Y., assignor to the Crocker-Wheeler Electric Company, same place. Filed Dec. 30, 1891. Serial No. 416,531. (No model.)



Claim.—1. A sleeve or spool for an electro-magnet, consisting of a tube of insulating material having its ends dressed or trimmed to absolute parallelism, a pair of insulating-washers resting thereon, and an interior tube the outer ends of which are secured to the washers, whereby said parts are held firmly together, substantially as described.

2. A sleeve or spool for an electro-magnet, consisting of a metallic cylinder or tube surrounded by a non-conducting cylinder or tube held in place by a pair of non-conducting washers, the ends of the inner tube being turned down against the outer faces of the washers, substantially as described.

3. A sleeve or spool for an electro-magnet, consisting of a metallic cylinder or tube, a surrounding non-conducting cylinder or tube having its opposite ends cut or trimmed to absolute parallelism, and a pair of non-conducting washers resting one on each end of said non-conducting sleeve and held in place by the turned-down ends or edges of the inner sleeve, substantially as described.

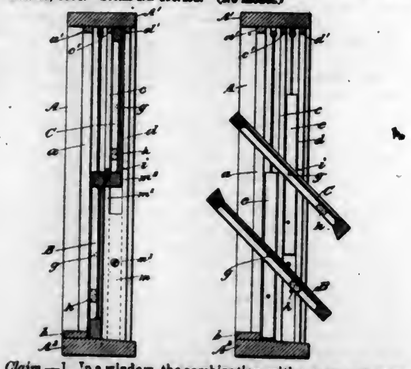
4. A spool for an electro-magnet, consisting of a pair of concentric sleeves or tubes, the inner tube being of metal and the outer of non-conducting material, but of less length, a pair of insulating washers or heads resting on opposite ends of the outer sleeve and held in place by the turned-down ends of the inner sleeve, substantially as described.

5. A spool for an electro-magnet, consisting of a non-conducting cylinder or tube having its opposite ends cut or trimmed to absolute parallelism, a pair of non-conducting washers or heads resting one on each end of said tube and held firmly in place by an internal metallic tube having its opposite ends turned down or riveted, substantially as described.

6. A spool for an electro-magnet, consisting of two or more non-conducting tubes having their ends cut or trimmed to absolute parallelism, in combination with three or more heads or washers of insulating material and an internal metallic tube having its opposite ends riveted or turned down against the outer faces of the end washers, so as to hold all of the parts together, substantially as described.

7. A spool for an electro-magnet, consisting of two concentric tubes, the inner tube being of metal and the outer of non-conducting material, but slightly shorter, in combination with a pair of non-conducting heads or washers resting on the ends of the non-conducting tube and held in place by the end flanged or outwardly-curved edges of the inner tube, substantially as described.

480,682. WINDOW. ROBERT H. WHITE, Madison, Ind. Filed Dec. 29, 1891. Serial No. 416,432. (No model.)



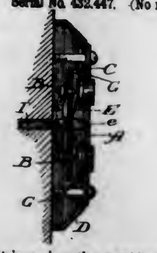
Claim.—1. In a window, the combination, with a casement, an upper and lower sash, and guiding strips on the casement, of slide-blocks pivoted on the side edges of the sashes, closing-strips slotted to embrace the upper sash, and means for removably securing the closing-strips against the guiding-strips, substantially as described.

2. In a window, the combination, with a casement, guiding-strips on each side of the inner walls of the casement, and sliding blocks for each side of the casement and lying within the spaces between the guiding-strips and flush with their outer edges, of a spring-pressed locking-bolt on each side rail of the sashes, adapted to lock the sashes to the slide-blocks and the slide-blocks to the casement, closing-strips slotted to embrace the upper sash, and means for securing the closing-strips on the guiding-strips and to the casement, substantially as described.

3. In a window having an upper and a lower sash adapted to slide vertically and rock in the casement by a pivoted engagement with slide-blocks traversing channels between guiding-strips on the sides of the casement, and closing-strips embracing the upper sash and having slotted upper portions and removably secured to the sides of the casement on the guiding-strips, substantially as described.

4. In a window having an upper and lower sash held to slide and adapted to rock on slide-blocks movable between guiding-strips on the casement, and closing-strips secured to the casement imposed on the guiding-strips and slotted to embrace the upper sash and adapted to permit said sash to be lowered to a limited degree, substantially as described.

480,683. ELECTRIC PUSH. JOHN F. WOLLENSAK, Chicago, Ill. Filed May 10, 1892. Serial No. 432,447. (No model.)

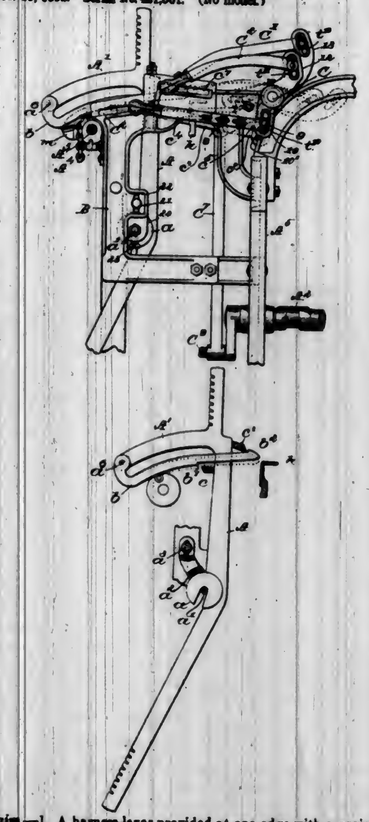


Claim.—1. In electric pushes, the combination of a plate of insulating material, binding-screws for holding the ends of the circuit-wires, arranged on the plate and extending through to the inside, a face-plate having push-buttons, and flat springs loosely and removably arranged in the framework for holding the buttons in place and adapted to be pressed into position by the buttons to complete the circuit, substantially as described.

2. In electric pushes, the combination of a plate of insulating material, binding-screws for holding the ends of the circuit-wires, arranged on the plate and extending through to the inside, a face-plate having push-buttons, and flat springs crimped or bent at their middles to rest against the face-plate and adapted to be pressed into position by the buttons to complete the circuit, substantially as described.

3. In electric pushes, the combination of a plate of insulating material, binding-screws for holding the ends of the circuit-wires, arranged on the plate and extending through to the inside, a face-plate having push-buttons, flat springs crimped or bent at their middles to rest against the face-plate and adapted to be pressed into position by the buttons to complete the circuit, and a rod lying in the crimp or bend of the spring and transverse thereto, substantially as described.

480,684. LOOM. HORACE WYMAN and JOHN A. CLARK, Worcester, Mass., assignors to the Crompton Loom Works, same place. Filed Feb. 13, 1892. Serial No. 421,331. (No model.)



Claim.—1. A harness-lever provided at one edge with a projecting arm, a jack pivotally mounted on said arm and provided at its under side nearest its pivot with a notch and at its upper side yet farther from its pivot with a second notch, combined with actuating-bars acting as a lifter and a depressor, respectively, and a pattern-surface to affect positively the raising of the jack to place its notch farthest from the pivotal point in position to be engaged by the actuating-bar acting as a depressor, substantially as described.

2. A harness-lever provided at one edge with a projecting arm, a jack pivotally mounted on said arm and provided at its under side nearest its pivot with a notch and at its upper side yet farther from its pivot with a second notch, combined with actuating-bars acting as a lifter and a depressor, and a pattern-surface, the raising of the jack to place its notch farthest from the pivotal point in position to be engaged by the actuating-bar acting as a depressor, being effected positively by the pattern-surface, and a jack safety-bar to insure the continuous engagement of the jacks with the depressor during the opening and closing of the shed, substantially as described.

3. In a loom, a harness-lever provided at one edge with a projecting side arm, a jack pivoted upon one end of said projection and extended toward and across the said lever and provided at its under side at one side of said lever with a lifting-notch and at its upper side at the opposite side of said lever with a depressing-notch, a pattern-surface, a lifter located below the said notched jack and at the side of the lever having the pivot of the jack, and a depressor located above said notched jack at that side of the said lever beyond which the free end of the said jack is extended, whereby the jack may be removed without detaching the lifter, substantially as described.

4. In a loom, a harness-lever provided at one edge with a projecting side arm, a jack pivoted upon one end of said projection and extended toward and across the said lever and provided at its under side at one side of said lever with a lifting-notch near the pivot of the jack and its upper side at the opposite side of said lever with a depressing-notch farther from the pivot of the jack, a pattern-surface, a lifter located below the said notched jack and a depressor located above said notched jack at that side of the said lever beyond which the free end of the said jack is extended, a rock-shaft having upwardly and downwardly extended arms, connections between said arms and the lifter and depressor, and guides for said lifter and depressor, substantially as described.

5. In a loom, a harness-lever provided at one edge with a projecting side arm, a jack pivoted upon one end of said projection and extended toward and across the said lever and provided at its under side at one side of said lever with a lifting-notch near the pivot of the jack and at its upper side at the opposite side of said lever with a depressing-notch farther from the pivot of the jack, a pattern-surface, a lifter located below the said notched jack and projecting side arm, and a depressor located above said notched jack at that side of the said lever beyond which the free end of the said jack is extended, a rock-shaft having upwardly and downwardly extended arms, connections between said arms and the lifter and depressor, guides for the lifter and depressor, and devices to impart to the said rock-shaft a movement to carry the arms from a substantially vertical into a substantially horizontal position, substantially as described.

6. In a loom, a harness-lever provided at one edge with a projecting side arm, a jack pivoted upon one end of said projection and extended toward and across the said lever and provided at its under side at one side of said lever with a lifting-notch near the pivot of the jack and at its upper side at the opposite side of said lever with a depressing-notch farther from the pivot of the jack, a pattern-surface to positively raise the jack to place its depressing-notch in engagement with the depressor, a lifter located below the said notched jack and projecting side arm, and a depressor located above said notched jack at that side of the said lever beyond which the free end of the said jack is extended, a rock-shaft having upwardly and downwardly extended arms, connections between said arms and the lifter and depressor, guides for said lifter and depressor, the connections between the lifter and the arms of the rock-shaft being adjustable in the direction of their length, substantially as described.

7. In a loom, a harness-lever provided at one edge with a projecting arm, a jack pivoted upon one end of said arm and extended toward and across the said lever and provided at its under side at one side of said lever with a lifting-notch near the pivot of the jack and at its upper side at the opposite side of said lever with a depressing-notch farther from the pivot of the jack, a pattern-surface to positively raise the jack to place its depressing-notch in engagement with the depressor, a lifter located below the said notched jack and projecting side arm, a depressor located above said notched jack at that side of the said lever beyond which the free end of the said jack is extended, and a rock-shaft having upwardly and downwardly extended arms, the said arms at opposite sides of the longitudinal center of the rock-shaft being of different lengths, substantially as described.

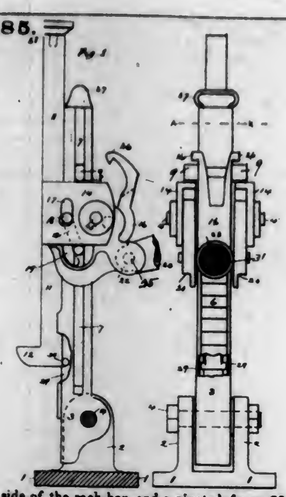
8. The harness-levers having slotted hubs, the loom-frame, the stands to support the fulcrum-rod for the said levers, the fulcrum-rod, and adjusting-screws 23, combined with set-screws 21, to operate substantially as described.

480,685. LIFTING-JACK. ALMON P. AIKEN, Port Perry, Pa. Filed June 11, 1891. Serial No. 396,926. (No model.)

Claim.—1. In a lifting-jack, the combination, with a double-faced rack-bar having grooves formed on two of its sides, slidable bars fitted in said grooves and having angular projections, and a lifting-bar arranged at one side of said rack-bar and having teeth adapted to engage those on the adjacent side thereof, of pawls or levers 19, adapted to engage the angular projections of said slidable bars, and operating-pawl 16 for engaging the teeth on one side of the rack-bar, and a means for operating said pawls 16 and 19, substantially as described, and for the purposes specified.

2. In a lifting-jack, the combination, with a double-faced rack-bar having grooves formed on two of its sides, slidable bars fitted in said grooves and provided with angular projections at points intermediate of their lengths, and a lifting-bar arranged at one side of said rack-bar and having teeth adapted to engage those of the adjacent side thereof, of pawls or levers 19, adapted to engage the angular projections of said slidable bars, an operating-pawl 16 for engaging the

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teeth on one side of the rack-bar, and a pivoted frame 22, having a lever attached thereto and formed with recessed curved arms 20, adapted to engage said pawls 19, substantially as described, and for the purposes specified.

3. In a lifting-jack, the combination, with a pivoted double-faced rack-bar having grooves formed on two of its sides, slidable bars fitted in said grooves and provided with outwardly-extending projections at their upper ends, and a lifting-bar arranged at one side of said rack-bar and having teeth adapted to engage those on the adjacent side thereof, of pawls 16, adapted to engage the teeth on the opposite side of said rack-bar and provided with hooks for engaging the projections of the slidable bars, all substantially as shown and described.

4. In a lifting-jack, the combination, with a double-faced rack-bar pivoted at its lower end and having grooves formed in the other sides of said rack-bar, slidable bars fitted in said grooves and provided with outwardly-extending lugs at their upper ends and angular projections at intermediate points of their lengths, of a lifting-bar arranged at one side of the rack-bar, flanges carried by said lifting-bar and inclosing the rack-bar, and an operating-pawl pivoted to said flanges, and provided with hooks adapted to be engaged with the lugs on the upper ends of the sliding bars on the rack-bar, substantially as shown and described, for the purpose specified.

5. The combination, with a double faced rack-bar, and a lifting-bar provided with a series of teeth which engage with one set of teeth on the rack-bar, of slidable bars fitted in grooves in the sides of the rack-bar and provided with intermediate angular portions and outwardly-extending projections at their upper ends, flanges attached to the lifting-bar and surrounding the rack-bar, the pawls fulcrumed between said flanges and lying in rear of the angular projections on the slidable bars, a pawl also fulcrumed between said flanges and engaging with the rack-bar, hooks carried by said latter pawl and adapted to take over the projection at the upper ends of the slidable bars, and curved hooks 20, arranged below the main pawl, substantially as shown and described, for the purpose specified.

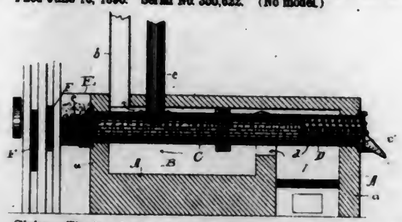
6. In a lifting-jack, the combination, with the double-faced rack-bar having grooves on two of its sides, a lifting-bar arranged at one side of said rack-bar and having teeth adapted to engage the teeth on the adjacent side thereof, flanges projecting from said lifting-bar and inclosing the rack-bar, slidable bars fitted in the grooves in the rack-bar, and having angular projections and pawls or levers adjacent to said angular projections, of a frame 22, pivoted to said casting and having curved recessed arms adapted to engage said pawls or levers, said frame also being adapted to have an operating-lever secured to it, and a pawl pivoted to said frame and adapted to engage the teeth on the adjacent side of the rack-bar.

7. The combination, in a lifting-jack, of the base-piece, a rack-bar pivoted thereto at its lower end and having guide-strips, a lifting-bar having at its lower end a pin engaging said guide-strips, so as to hold the lower end of the lifting-bar to the rock-bar while permitting said lifting-bar to be raised or lowered, said lifting-bar also having intermediate of its length teeth engaging those of the rack-bar, and means for separating the teeth of the rack-bar and lifting-bar and for raising and lowering the latter, substantially as described.

8. The combination, in a lifting-jack, of a base-piece, a rack-bar pivoted at its lower end thereto, a lifting-bar loosely connected at its lower end to said rack-bar, so as to be held in engagement therewith, but permitted to move up and down thereon, said lifting-bar also having intermediate of its length teeth engaging those of the rack-bar, and means for separating the teeth of the rack-bar and lifting-bar and for raising and lowering the latter, substantially as described.

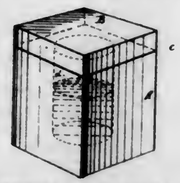
9. The combination, in a lifting-jack, of a base-piece, a double-faced rack-bar pivoted at its lower end thereto, a lifting-bar loosely connected at its lower end to said rack-bar, so as to be held in engagement therewith, but permitted to move up and down thereon, said lifting-bar also having intermediate of its length teeth engaging those on one side of the rack-bar, a pawl engaging the teeth on the adjacent side of the rack-bar, and a means for forcing the teeth of the lifting-bar out of engagement with those of the rack-bar, so as to permit said lifting-bar to be raised or lowered.

480,686. PROCESS OF REFINING FUME. FRANK L. BARTLETT, Portland, Me., assignor to the American Zinc Lead Company, same place. Filed June 16, 1890. Serial No. 355,622. (No model.)



Claim.—The herein-described process of refining fume, which consists in passing it through an externally-heated tube or chamber in the presence of an atmosphere of sulphurous gas, stirring said fume and scraping it from the walls of said tube or chamber during its passage through the same, the air being excluded from said tube, substantially as described.

480,687. GELATINOUS FOOD PRODUCT. RICHARD B. BEAUMONT, Rutherford, N. J. Filed Apr. 11, 1892. Serial No. 428,723. (No specimens.)



Claim.—As an improved article of manufacture, a gelatinous food product and its flavoring material, made substantially as herein shown and described, consisting of a prepared gelatinous food compound or mass carrying its flavoring materials wholly or in part within a sealed cavity or chamber formed within the food mass and the whole adapted to be made ready for eating by dissolving and cooling, all as set forth.

480,688. FASTENER FOR THE MEETING-RAILS OF SASHES. EDWIN S. BENNETT, Boston, Mass. Filed Dec. 7, 1891. Serial No. 414,835. (No model.)



Claim.—1. In a sash-fast, the combination of a base-piece A A', having notches *a a'*, the latch C, having a bolt adapted to engage with the notches *a a'*, and the catch member B, having a spring B', adapted to engage with the latch C and to form with it a drawing contact-lock, substantially as and for the purpose set forth.

2. In a sash-fast, the combination of the latch C, having a forked end provided with projections H H', adapted to engage with the recesses L L', formed in the base-piece A A', as described, the recessed base-piece A A', sliding bolt D D', and a catch member B, substantially as and for the purpose set forth.

480,689. AUTOMATIC CIRCUIT-CLOSER FOR TELEGRAPH-KEYS. CHARLES W. BRADFORD, Clinton, Me., assignor of one-half to Forest J. Martin, same place. Filed May 31, 1892. Serial No. 434,994. (No model.)

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Claim.—1. In a telegraph-key, the combination, with the lower contact and the key-lever, of a pivoted lever carried by the key-lever, a spring for maintaining the pivoted lever in contact with the lower contact of the key to normally close the circuit, a set-screw passing through the key-lever and bearing on said spring, whereby to regulate its tension, and means for moving the pivoted lever out of contact with the lower contact of the key, substantially as and for the purpose set forth.

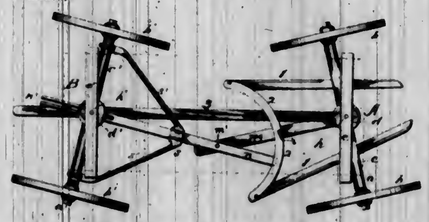
2. In a telegraph-key, the combination, with the lower contact and the key-lever, of a pivoted lever carried by the key-lever, a spring bearing on the pivoted lever to force it into contact with the lower contact of the key to normally close the circuit through the key, a set-screw passing through the key-lever and bearing on the spring for regulating the tension thereof, a button carried by the key-lever and having a perforation and a recess therein, a pin passing through said perforation and bearing on said pivoted lever, and a disk carried by said pin and adapted to enter the recess in the button when the key is operated, substantially as set forth.

480,690. VEHICLE-HUB. ABSA G. BURROWS, Dunmore, W. Va., assignor of one-half to Levi Gay, same place. Filed Nov. 5, 1891. Serial No. 410,996. (No model.)



Claim.—The combination, with a hub provided at its outer end with a recess and having at its inner end oppositely-disposed sockets, an axle-box arranged within the hub and having its outer end threaded and provided at its inner end with an annular enlargement 7, forming a shoulder 8, and spring-actuated pins arranged within the sockets, of a spindle adapted to fit into the axle-box and provided with a cylindrical enlargement or flange closing the inner end of the axle-box and having an annular groove arranged to be engaged by said pins, and a cap closing the outer end of the axle-box, substantially as described.

480,691. VEHICLE-GEAR. THOMAS R. CAPWELL and WILLIAM C. FULLER, Dunkirk, N. Y. Filed Jan. 15, 1892. Serial No. 418,179. (No model.)



Claim.—1. In a vehicle-gear, the combination, with the axles and hounds, the reach connecting them, one of said reaches consisting of sections pivotally connected together, the forward section being secured to the axle and to the rear bars of the hounds, and the other section being provided with a slot, through which the king-bolt passes and having its front end extended forward and engaging with said hound-bars.

2. In a vehicle-gear, the combination, with the axles and hounds, the reach connecting them, one of said reaches consisting of sections pivotally connected together, the forward section being secured to the forward axle and the rear bar of the hound, said hound-bar having a groove in its rear edge, and the other section being provided with a slot, through which the rear king-bolt passes and having its front end extended forward and engage with the groove in said hound-bar.

480,692. WASTE AND OVERFLOW CONNECTION FOR CEMENT LAUNDRY-TUBS. JOHN CLIFFORD and JOHN H. GAVIN, Chicago, Ill., assignors to the L. Wolff Manufacturing Company, same place. Filed Sept. 5, 1891. Serial No. 404,897. (No model.)

Claim.—1. The combination, with a common waste connection B,

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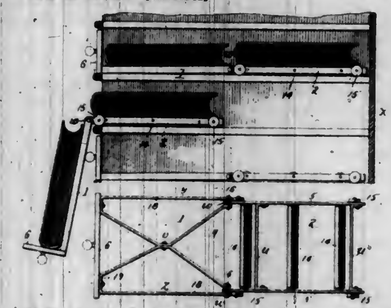
of a set of tubs or vessels A, cast upon or about said waste connection, said waste connection being a straight pipe secured on the outside of said tubs at the bottom thereof, having outlets connecting with each of said tubs and a single outlet connecting with the waste or drain pipe, and being provided at each end with a removable screw-threaded plug or trap, so that said waste connection may be rodded from end to end, substantially as specified.

2. The combination, with a set of tubs or vessels A, of a common waste connection B, secured exteriorly thereto along the bottom of the same and provided with integral tubular outlets *b*, one for each tub, having collars or flanges b^3, said tubs being molded or cast around said tubular projections or bushings *b* to secure said waste connection in place, substantially as specified.

3. The combination, with a set of cement tubs A, of a common exterior waste connection B, having tubular outlets *b*, one for each tub, on its upper side and a single waste-pipe connection outlet *b'* on its under side, said waste connection B being also provided with hollow arms b^4, cast integral therewith, to receive the overflow-pipes D, said tubular outlets *b* having collars b^3 and said waste connection B having trap-screws b^4, one at each end, substantially as specified.

4. The combination, with a set of cement or composition washtubs or vessels A, of a common waste connection B, secured to the bottom or under side of the tubs upon the outside thereof and provided with a flat upper side fitting directly against the bottom or under side of the tubs, said tubs being molded or cast to or about said waste connection and the waste connection being furnished with tubular projections or bushings, one connecting with and constituting the outlet for each of said tubs, substantially as specified.

480,693. CASE FOR BOOKS. CHARLES E. FOSTER, Washington, D. C., and JAMES W. HINE, Jamestown, N. Y., assignors to the Fenton Metallic Manufacturing Company, Jamestown, N. Y. Filed Feb. 24, 1891. Serial No. 382,466. (No model.)



Claim.—1. A book-case provided with a horizontal book-supporting shelf divided between its ends into two sections which are hinged together to permit the forward section to swing at an angle to the inner one in order to expose the book upon the inner section when it is drawn out from the case, each section being adapted to receive and support a book, substantially as described.

2. A book-case provided with horizontal sliding shelves, each in two sections hinged together end to end to permit the forward section to swing down when withdrawn and with a support 6 for a book when the section is in its outer position upon the forward section, substantially as set forth.

3. A book-case provided with horizontal sliding shelves, each in two sections hinged together end to end, the rear section provided with roller-supports for a book, substantially as set forth.

4. A book-case provided with horizontal shelves, each in two sections hinged end to end, the rear sections having anti-friction rollers resting upon horizontal guides, substantially as described.

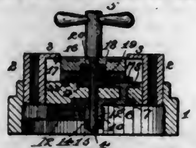
5. A shelf for a book-case, in two sections hinged together end to end to afford independent supports for two books, one in front of the other, substantially as set forth.

6. A shelf for a book-case, consisting of two sections hinged together end to end, the rear section provided with roller-bearings, substantially as described.

7. A shelf for books, consisting of two sections hinged together, the front section consisting of a front plate 6, and two parts *y z*, formed by bending the bars to form side pieces 18, front bearings 19, and to

receive between their ends the bars of the rear section, substantially as described.

480,694. ELECTRIC SWITCH. JACOB S. GIBBS, Hartford, Conn., assignor to the Perkins Electric Switch and Manufacturing Company, same place. Filed Feb. 27, 1892. Serial No. 423,005. (No model.)



Claim.—1. A switch consisting of a base, fixed and movable poles supported thereon, a handle connected with the movable poles, and a train of multiplying-gears interposed between the handle and movable poles, substantially as specified.

2. A switch consisting of a base, fixed and movable poles supported thereon, a handle connected with the movable poles, a train of multiplying-gears interposed between the handle and movable poles, and a spring actuated by the movement of the handle, substantially as specified.

3. A switch consisting of a base, fixed and movable poles supported thereon, a handle, multiple gearing, one of which is loosely attached to said handle, and a spring between the arms of which a projection on the handle is arranged to move, as and for the purposes specified.

4. A switch consisting of a base, fixed and movable poles supported thereon, a handle, and multiple gearing, one of which is loosely connected with said handle and another of which is loosely connected with the movable poles, substantially as specified.

5. A switch consisting of a base, fixed and movable poles supported thereon, a movable bed formed of two movable spring-pressed pieces tenoned together bearing poles, and a handle connected with the bed by gearing, substantially as specified.

6. A switch consisting of a base, fixed and movable poles supported thereon, a movable bed bearing poles, and a handle and gears, said handle connected by means of a pin that projects into an enlarged socket in a spring-controlled hub on one of the gears, another of said gears being connected with the bed by means of a hub projecting into an enlarged socket in the bed, substantially as specified.

480,695. CAR-VESTIBULE. GEORGE HANCOCK, Providence, R. I., assignor to himself and Sheffield Smith, same place. Filed Mar. 24, 1892. Serial No. 426,267. (No model.)



Claim.—The combination, with the platform B, provided with the slot *e*, and the top plate D, provided with the slot *i*, the bar C, provided with the pivot-stud *b*, having the head *f* and adapted to move back and forth in the slot *e*, and the bar G, provided with the pivot-stud *h*, having the head *j* and adapted to move back and forth in the slot *i*, of the frame A, pivoted to the bars C and G by means of the pins *g* and *h*, the springs *m m* at the side of the bars C and G, the springs *n* at the rear of the said bars, and the flexible connection H, substantially as described.

480,696. PEDAL-FOOT FOR PIANOS. ASARIAH H. HASTINGS, New York, N. Y. Filed Mar. 24, 1892. Serial No. 426,173. (No model.)

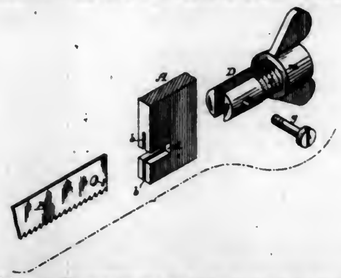


Claim.—1. In a piano or similar instrument, the pedal-foot A, in combination with the latch-lever C, applied under the pedal-foot A and arranged to lock by direct spring-pressure, substantially as set forth.

2. The pedal-foot A, in combination with the latch-lever C, applied under the pedal-foot A, having its front end I projecting upward through an opening in the front end of the pedal-foot A and adapted to be operated by the toe of the performer, substantially as set forth.

3. The pedal-foot A, in combination with the latch-lever C, applied under the pedal-foot A, having the rear end passing upward through the pedal-foot, pivotally attached thereto, and adapted to lock by direct spring-pressure upon the bottom rail of the case or its equivalent, substantially as set forth.

480,697. BUTCHER'S OR BOW SAW. HENRY HOEFER, Philadelphia, Pa. Filed Oct. 6, 1891. Serial No. 407,870. (No model.)

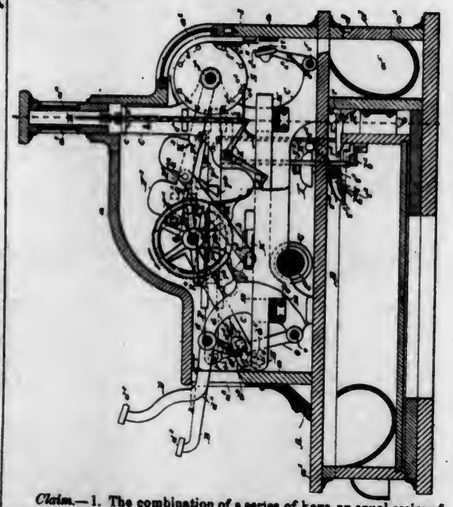


Claim.—1. The combination of the frame and blade of a butcher's or bow saw, with a slotted screw-bolt embracing said frame and connected to the blade, and a nut adapted to said bolt and bearing upon the outer face of the frame, substantially as specified.

2. The combination of the frame of a butcher's or bow saw, having vertical and transverse slots at its lower end, with the blade guided in said vertical slot, a slotted screw-bolt embracing the frame and having a transverse pin adapted to the transverse slot of the frame and engaging with the blade, and a nut adapted to said bolt and bearing upon the outer face of the frame, substantially as specified.

3. The combination of the frame of the saw, the blade, a slotted screw-bolt embracing the frame, a screw-pin passing through said bolt and through an opening in the blade of the saw, and a nut adapted to the bolt and bearing against the outer face of the frame, substantially as specified.

480,698. CASH INDICATOR, REGISTER, AND CHECK-PRINTER. JAMES JACQUES, Chelmsford, Mass. Filed Jan. 9, 1891. Serial No. 377,244. (No model.)



Claim.—1. The combination of a series of keys, an equal series of sliding horizontal stop-rods, each moved backward by the depression of one of said keys and each provided with a downward projection, a series of movable stops arranged below said stop-rods and adapted to be pushed aside by said projections when said rods are pushed backward, fixed stops arranged one at each end of said series of movable stops, the distance between said fixed stops being greater than the length of said series of movable stops by the width of one of said projections, to prevent the simultaneous backward movement of two or more stop-rods and thereby to prevent the simultaneous depression of two or more keys, as and for the purpose specified.

2. The combination of a series of keys, an equal series of sliding horizontal rods, each operated by one of said keys, an equal series of bell-crank levers, each operated by one of said rods, and an equal series of signals, each mounted upon a vertically-sliding signal-rod and each raised by one of said levers, as and for the purpose specified.

3. The combination of a series of numbered keys, an equal series of sliding horizontal rods, each operated by the depression of one of said keys, and an equal series of type-levers, each arranged to be moved by the movement of one of said rods and each provided with a type corresponding to the number on the key by which such type-bar is actuated, as and for the purpose specified.

4. The combination of a series of numbered keys, an equal series of sliding horizontal rods, each operated by the depression of one of said keys, an equal series of type-levers, each arranged to be moved by the movement of one of said rods and each provided with a type corresponding to the number on the key by which such type-lever is operated to print a number corresponding to the number of the key depressed upon a strip of paper, and a knife secured to said type-lever to cut a ticket so printed from said strip, as and for the purpose specified.

5. The combination of a series of numbered keys, an equal series of sliding horizontal rods, each operated by the depression of one of said keys, an equal series of type-levers, each arranged to be moved by the movement of one of said rods and each provided with a type corresponding to the number on the key by which such type-lever is actuated, and an equal series of paper-reels, each adapted to be partially rotated at each return movement of one of said rods, to unwind a strip of paper carried on such reel and to bring the end portion of such strip into a position to be printed by the type of the corresponding type-lever, as and for the purpose specified.

6. The combination of a series of numbered keys, an equal series of sliding horizontal rods, each operated by the depression of one of said keys, an equal series of type-levers, each arranged to be moved by the movement of one of said rods and each provided with a type corresponding to the number on the key by which said type-lever is actuated, an equal series of paper-reels, each provided with a ratchet concentric therewith, an equal series of pawls, each secured to one of said rods and adapted to engage one of said ratchets and to give a partial rotation to the corresponding reel at each return movement of the rod to which said pawl is secured, to unwind a strip of paper carried by such reel and to bring the end portion of such strip into a position to be printed by the type of the corresponding type-lever, as and for the purpose specified.

7. The combination of a series of numbered keys, an equal series of sliding horizontal rods, each operated by the depression of one of said keys, an equal series of type-levers, each arranged to be moved by the movement of one of said rods and each provided with a type corresponding to the number on the key by which such type-lever is actuated, an equal series of paper-reels, each provided with a ratchet concentric therewith, an equal series of pawls, each secured to one of said rods and adapted to engage one of said ratchets and to give a partial rotation to the corresponding reel at each return movement of the rod to which such pawl is secured, to unwind a strip of paper carried by such reel and to bring the end portion of such strip into a position to be printed by the type of the corresponding type-lever, and retaining-pawls adapted to engage said ratchets and to prevent a reverse movement of said paper-reels, as and for the purpose specified.

8. The combination of a series of numbered keys, an equal series of sliding horizontal rods, each operated by the depression of one of said keys, an equal series of type-levers, each arranged to be moved by the movement of one of said rods and each provided with a type corresponding to the number on the key by which such type-lever is actuated, an equal series of paper-reels, each adapted to be partially rotated at each return movement of one of said rods, to unwind a strip of paper carried on such reel and to bring the end portion of such strip into a position to be printed by the type of the corresponding type-lever, and a knife secured to said type-lever to cut a ticket so printed from said strip, as and for the purpose specified.

9. The combination of a case, a drawer sliding therein, a series of keys, an equal series of signals and signal-rods, each carrying one of said signals and adapted to be raised by the depression of a corresponding key, a locking-piece adapted to hold up any raised signal-rod, and a lever operating said locking-piece and actuated by the opening of said drawer to release a raised signal-rod and to allow said signal-rod and its signal to fall, as and for the purpose specified.

10. The combination of a case, a drawer sliding therein, a series of keys, an equal series of signals and signal-rods, each carrying one of said signals, a locking-piece adapted to engage and hold up any raised signal-rod, a lever, one end of which engages said locking-piece, and an incline or cam secured on said drawer and adapted to strike and turn said lever when said drawer is opened and to disengage said locking-piece from such raised signal-rod and to allow said rod to fall, as and for the purpose specified.

11. The combination of a key, a horizontal rod having a rack and adapted to be moved longitudinally in one direction by the depression of said key and in the other direction by the return of said key to its normal position, two pawls each adapted to engage said rack-rod and to prevent, each in the opposite direction from the other, the longitudinal movement of said rack-rod, said rack-rod having two projections, each adapted to strike one of said pawls and to throw the same out of engagement with said rack-rod at the completion of the movement of said rack-rod in one direction, and a lever arranged to be struck by either of said pawls when said pawl is thrown out of such engagement and simultaneously to strike the other of said pawls and to throw said last-named pawl into such engagement, as and for the purpose specified.

12. The combination of a key, a horizontal rod having a rack and adapted to be moved longitudinally in one direction by the depression of said key and in the other direction by the return of said key to its normal position, two pawls, each adapted to engage said rack-rod and to prevent each in the opposite direction from the other, the longitudinal movement of said rack-rod, said rack-rod having two projections, each adapted to strike one of said pawls and to throw the same out of engagement with said rack-rod at the completion of the movement of said rack-rod in one direction, a lever arranged to be struck by either of said pawls when said pawl is thrown out of such engagement and simultaneously to strike the other of said pawls and to throw said last-named pawl into such engagement, and spring-pressers, each adapted to hold one of said pawls out of engagement with said rack-rod, as and for the purpose specified.

13. The combination of a series of keys, an equal series of hooks, each pivoted on one of said keys, a lever, a horizontal bar rigidly secured to said lever and adapted to be moved in one direction by the depression of any key and to be engaged by any hook upon the depression of the corresponding key and to prevent a return movement of said key until the return movement of said bar and lever, a rack-rod connected to said lever and moved thereby, two pawls, each adapted to prevent, each in the opposite direction from the other, the longitudinal movement of said rack-rod, said rack-rod having two projections, each adapted to strike one of said pawls and to throw the same out of engagement with said rack-rod at the completion of the movement of said rack-rod in one direction, and a lever arranged to be struck by either of said pawls when said pawl is thrown out of engagement and simultaneously to strike the other of said pawls and to throw said last-named pawl into such engagement, as and for the purpose specified.

14. The combination of a series of keys, an equal series of hooks, each pivoted to one of said keys, a lever, a horizontal bar rigidly secured to said lever and adapted to be moved in one direction by the depression of any key and to be engaged by any hook upon the depression of the corresponding key and to prevent a return movement of said key until the return movement of said bar and lever, a rack-rod connected to said lever and moved thereby, two pawls, each adapted to prevent, each in the opposite direction from the other, the longitudinal movement of said rack-rod, said rack-rod having two projections each adapted to strike one of said pawls and to throw the same out of engagement with said rack-rod at the completion of the movement of said rack-rod in one direction, a lever arranged to be struck by either of said pawls when said pawl is thrown out of engagement and simultaneously to strike the other of said pawls and to throw said last-named pawl into such engagement, and an incline adapted to be struck upon the return to position of any depressed key by a forwardly-extending arm with which each hook is provided to disengage the hook on such key from said horizontal bar and to allow each key to be operated independently of the others, as and for the purpose specified.

15. The combination of a key and weighted toggle-levers adapted to be bent by the depression of said key and by their extension to restore said key to its normal position, as and for the purpose specified.

16. The combination of a series of keys and weighted toggle-levers adapted to be bent by the depression of any of said keys and by their extension to restore any depressed key to position, as and for the purpose specified.

17. The combination of a series of keys, a registering-lever actuated by any of said keys, registering devices actuated by the movement of said registering-lever, and toggle-levers adapted to be bent by the movement of said registering-lever upon the depression of any key and by their extension to restore said registering-lever to position when such key is released, as and for the purpose specified.

18. The combination of the case, a drawer sliding therein, a series of keys, a sliding rod having a backward longitudinal movement upon the depression of any of said keys, a finger supported upon said rod, an unlatching-rod adapted to be raised by said finger upon the backward movement of the same, and a latch to engage said drawer and retain the same in said case and adapted to be disengaged from said drawer by the raising of said unlatching-rod, as and for the purpose specified.

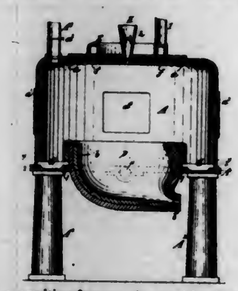
19. The combination of the case, a drawer sliding therein, a series

of keys, a sliding rod having a backward longitudinal movement upon the depression of any of said keys, a finger supported upon said rod, an unlatching-rod adapted to be raised by said finger upon the backward movement of the same, and a latch-shaft having a latch to engage said drawer and retain the same in said case and adapted to be rocked by the raising of said unlatching-rod to release said drawer, as and for the purpose specified.

20. The combination of the case, a drawer sliding therein, a series of keys, a sliding rod having a backward longitudinal movement upon the depression of any of said keys, a finger pivoted upon said rod and having an offset, an unlatching-rod bent laterally at its upper end and adapted to be raised by said finger running under said bent upper end and to fall when said offset passes said bent upper end, and a latch-shaft having a latch to engage said drawer and retain the same in said case and adapted to be rocked by the raising of said unlatching-rod to release said drawer, as and for the purpose specified.

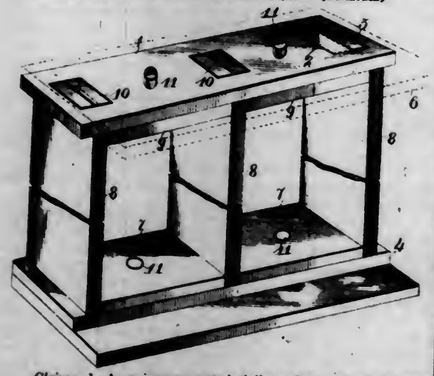
21. The combination of the case, the drawer sliding therein, a bell supported on said case, and a pivoted bell-lever having at its lower end a lateral projection, a spring secured to said drawer and arranged to pass over said projection when said drawer is being closed and to run under said lateral projection when said drawer is opened to turn said bell-lever away from said bell, and another spring arranged to throw said bell-lever toward said bell when said first-named spring passes said projection and releases said bell-lever, as and for the purpose specified.

480,699. SMELTING-FURNACE JOHN S. OLIVER, Brooklyn, N. Y., assignor to John Brooks, Boston, Mass., and the Oliver Aluminum Company, of West Virginia. Filed June 15, 1891. Serial No. 396,363. (No model.)



Claim.—In a smelting-furnace, the combination of a chamber, grate-bars in the lower part of the chamber, a pot at the lower part of the chamber and having its bottom below the grate-bars provided with a discharge-outlet, and apertures or tuyeres for admitting gas through the top of the chamber to the pot, substantially as specified.

480,700. JAIL-GRATING. PETER J. PAULY, Sr., of St. Louis, Mo., assignor to the Pauly Jail Building and Manufacturing Company, same place. Filed Mar. 15, 1892. Serial No. 425,059. (No model.)



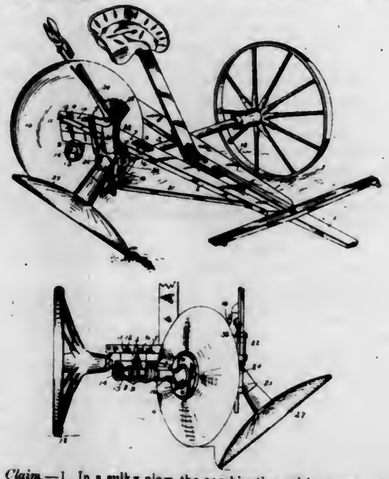
Claim.—1. As an improvement in jail or other gratings, the combination, with the horizontal grate-bars provided with holes divided into rectangular and dovetailed portions, said rectangular portions being of a length equal to the greatest length of said dovetailed portions, of vertical grate-bars provided at their ends with dovetailed tenons corresponding to the dovetailed portions of the holes, and rectangular blocks corresponding to and adapted to be disposed in said rectangular portion of the holes, substantially as and for the purpose set forth.

2. The combination of horizontal grate-bars 1 and 4, holes formed therein composed of rectangular portions 2 and dovetailed portions 3, vertical grate-bars 8, provided with dovetailed tenons 12, adapted to fit in said dovetailed portions, blocks 10, adapted to fit in said rectangular portions, a ceiling-plate 6, a floor-plate 5, plates 7 and 9, adapted to be interposed between said vertical grate-bars, and means for securing said plates 7 and 9 to the floor-plate 5 and ceiling-plate 6, respectively, substantially as set forth.

3. The combination of horizontal grate-bars 1 and 4, holes formed therein composed of rectangular portions 2 and dovetailed portions 3, vertical grate-bars 8, provided with dovetailed tenons 12, adapted to fit in said dovetailed portions, blocks 10, adapted to fit in said rectangular portions, a ceiling-plate 6, a floor-plate 5, plates 7 and 9, adapted to be interposed between said vertical grate-bars and countersunk bolts or rivets 11, for securing said plates 7 and 9 to the floor-plate 5 and ceiling-plate 6, respectively, substantially as set forth.

REISSUES.

11,257. ROTARY PLOW. MILTON T. HANCOCK, Shreveport, La. Filed July 6, 1892. Serial No. 439,181. Original No. 463,047, dated Nov. 10, 1891.



Claim.—1. In a sulky-plow, the combination, with a rotary plow or cutting-wheel and its supporting-frame, of an axle having a land-wheel at one end and a staggered dished guide-wheel mounted at the other end of said axle and having a solid and unbroken convex surface in proximity to said plow to receive the soil thrown onto it by the plow and discharge it at the rear, substantially as described.

2. The combination, with a diagonally-arranged rotary plow or cutting-wheel and its supporting-frame, of an axle on which said frame is laterally adjustable, a land-wheel at one end of said axle, and a staggered and dished guide-wheel mounted at the other end of the axle in proximity to the rotary plow and having a solid and unbroken convex surface presented toward said plow, substantially as described.

3. The combination, with an adjustable diagonally-arranged rotary plow or cutting-wheel and an adjustable frame on which said plow is mounted, of a solid and dished guide-wheel mounted in a staggered position adjacent to and outside the plow slightly in advance thereof and having a solid convex surface presented toward the plow to receive the soil and discharge it at the rear, substantially as described.

4. The combination of an axle having a land-wheel at one end and a staggered solid and dished guide-wheel at its other end, a frame laterally and longitudinally adjustable on said axle, and an adjustable and diagonally-arranged rotary plow mounted on said frame in rear of the axle, substantially as described.

5. The combination of an axle having a land-wheel at one end, a vertical bracket or plate secured to the other end of said axle and provided with a segmental rack, a plate or casting having guides engaged with said bracket and provided with a downward-inclined spindle, a solid dished and staggered guide-wheel mounted on said spindle, a lifting-lever and its pawl pivoted to the bracket and connected by a link to the guide-wheel plate, a frame mounted on the axle, and a diagonally-arranged rotary plow mounted at the rear end of said frame, substantially as described.

6. The combination of an axle having a land-wheel at one end, a vertically-adjustable bracket secured to the other end of said axle, a guide-plate in which said bracket is supported and provided with a downward-inclined spindle, a solid dished and staggered guide-wheel mounted on said spindle, a frame laterally adjustable on the machine-axle, and a diagonally-arranged rotary plow adjustably mounted at the rear end of said frame, substantially as described.

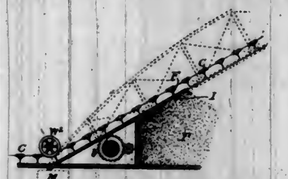
7. The combination of an axle having at one end a land-wheel and at the other end a solid dished and staggered guide-wheel, means for raising and lowering the last-named end of the axle with relation to the said guide-wheel, a frame adjustably mounted on the machine-axle, and a diagonally-arranged rotary plow mounted in adjustable obliquely-arranged boxes at the rear end of said frame, substantially as described.

8. In a rotary plow, the combination of the axle having an ordinary carrying-wheel on one end and a staggered wheel at the other end, a framework secured to said axle, and a plowing-disk mounted on said framework in the rear of said axle and faced toward said staggered wheel, whereby the sidewise pressure occasioned by the operation of said plowing-disk is counteracted by the substantially direct resistance of said staggered wheel.

9. In a rotary plow, the combination of an axle having an ordinary carrying-wheel upon one end and a smooth convex-surfaced and staggered guide-wheel at the other end, a framework supported by said axle, and a plowing-disk supported by said framework and arranged, as shown, to throw its furrow onto the convex surface of said staggered guide-wheel, said plowing-disk and said guide-wheel being positioned as shown and the sidewise pressure occasioned by the plowing thus effectually counteracted, while the earth of the furrow is discharged to the rear from the adjacent surfaces of said disk and wheel.

10. In a rotary plow, the combination of the axle having an ordinary carrying-wheel at one end and a staggered guide-wheel at the other end having an approximately sharp edge which rests in the bottom of the last preceding furrow which has been plowed, a framework secured to the axle, and the plowing-disk mounted on the framework in the rear of the axle diagonally to the line of draft, with its axis substantially coincident to a line extending therefrom across the bearing of said staggered wheel, substantially as and for the purposes set forth.

11,258. MACHINERY FOR HANDLING COAL. JAMES M. DODGE, Philadelphia, Pa., assignor to the Dodge Coal Storage Company, Nangatuck, Conn. Filed Feb. 2, 1892. Serial No. 420,125. Original No. 446,814, dated Feb. 17, 1891.



Claim.—1. In an apparatus for piling coal or analogous material, a sheer structure composed of legs arranged in respect to each other at or about the angle of repose of the material to be piled, and also arranged to span the pile to be formed, with a continuous forward-feed conveyer carried by said sheer structure and adapted to form the pile under the sheers, substantially as described.

2. In an apparatus for piling coal or analogous material, a stationary sheer structure composed of legs fixed in respect to each other at or about the angle of repose of the material to be piled, and also arranged to span the pile to be formed, masonry supports upon which the lower ends of the legs are fixed, and a continuous forward-feed conveyer carried by said sheer structure and adapted to form the pile under the sheers, substantially as described.

3. The combination of a sheer structure composed of members upwardly inclined toward each other and connected at the top, so as to form a mutual support and leave a free and unencumbered space between said members, and a continuous forward-feed conveyer supported throughout the length of its elevating portion by one of said members, the latter being open at the bottom to allow of the discharge of material from the elevating portion of the conveyer at advancing points beneath said supporting members, substantially as described.

4. The combination of the sheers composed of legs inclined at or about the natural angle of repose of the material to be piled and joined at their upper ends with a conveyer arranged to carry the material to be piled up one of said legs and means for connecting the lower parts of the legs together, substantially as set forth.

5. The combination of the sheers having legs inclined at or about the natural angle of repose of the material to be piled and joined at their upper ends, an inclined plane on one of said legs, and a continuous forward-feed conveyer for carrying the material on this inclined plane to a point of discharge, substantially as set forth.

DESIGNS.

21,758. BADGE. EDGAR GANS, Macomb, Ill. Filed June 13, 1892. Serial No. 436,583. Term of patent 7 years.



Claim.—The design for a badge, as herein described and shown.

21,759. BROOCH-PIN. THOMAS TOOBY, Niagara Falls, N. Y. Filed June 21, 1892. Serial No. 437,525. Term of patent 7 years.



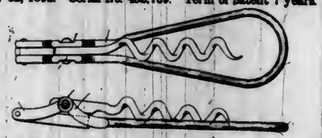
Claim.—The design for a brooch-pin, herein shown and described.

21,760. CONFECTION. DILLON E. MAPOTHER, Louisville, Ky. Filed Mar. 7, 1892. Serial No. 424,091. Term of patent 14 years.



Claim.—The design for a confection, herein described and shown.

21,761. CORKSCREW. CHARLES PUDDEFOOT, Detroit, Mich. Filed May 12, 1892. Serial No. 432,789. Term of patent 7 years.



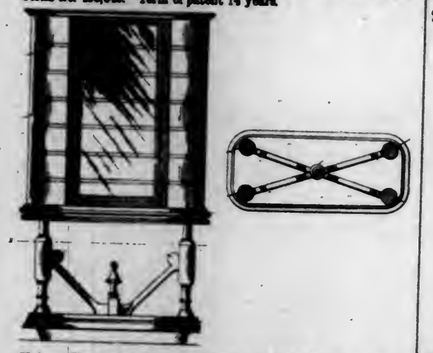
Claim.—The design for a corkscrew, as herein shown and described.

21,762. BOX. WEBSTER C. BEERS, Flatbush, N. Y. Filed June 27, 1892. Serial No. 438,212. Term of patent 7 years.



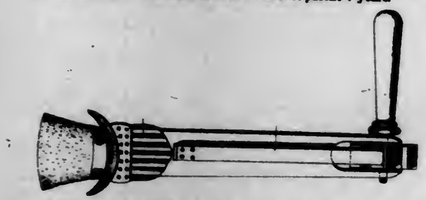
Claim.—The design for a box, substantially as described and represented.

21,763. SHOW-CASE. FRED R. BALDWIN, Muskegon, Mich., assignor of one-half to Henry L. Young, Chicago, Ill. Filed June 25, 1892. Serial No. 438,049. Term of patent 14 years.



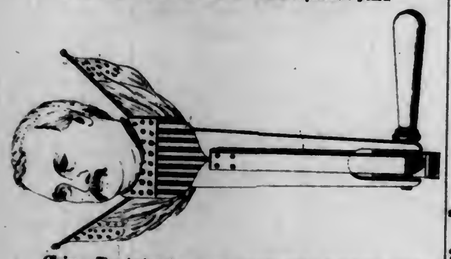
Claim.—The design for a show-case, substantially as herein described and shown.

21,764. TOY RATTLE. JESSE A. CRANDALL, Brooklyn, N. Y. Filed June 28, 1892. Serial No. 438,328. Term of patent 7 years.



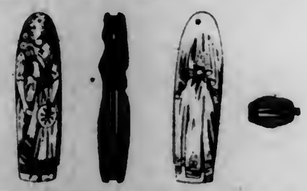
Claim.—The design for a rattle, substantially as herein shown and described.

21,765. TOY RATTLE. JESSE A. CRANDALL, Brooklyn, N. Y. Filed June 28, 1892. Serial No. 438,329. Term of patent 7 years.



Claim.—The design for a rattle, substantially as herein described.

21,766. KNIFE-HANDLE. GEORGE W. KOBB, Chicago, Ill. Filed Feb. 26, 1891. Serial No. 383,013. Term of patent 7 years. Patented in Germany Apr. 14, 1890, No. 848.

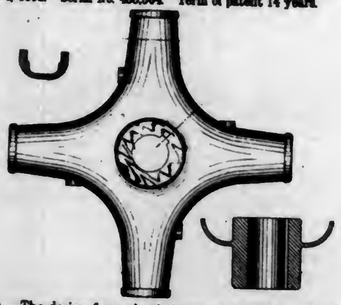


Claim.—1. The design for a knife-handle, consisting of the sides A and B, ornamented as herein shown and described.

2. In a design for a knife-handle, the side A, ornamented substantially as herein shown and described.

3. In a design for a knife-handle, the side B, ornamented substantially as herein shown and described.

21,767. CLUTCH-FRAME. HARRY W. HILL, Cleveland, Ohio. Filed June 4, 1892. Serial No. 435,564. Term of patent 14 years.



Claim.—The design for a clutch-frame, as herein shown and described.

21,768. MATCH-BOX. CHARLES OSBORNE, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed May 27, 1892. Serial No. 434,676. Term of patent 3½ years.



Claim.—The design for a match-box, substantially as herein shown and described.

21,769. DOOR-KNOB. RUDOLPH W. R. CHRISTMEN, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, same place. Filed May 31, 1892. Serial No. 435,060. Term of patent 14 years.



Claim.—The design for a door-knob, as herein shown and described.

21,770. LAMP-BURNER. FRANK REIND, Meriden, Conn. Filed June 11, 1892. Serial No. 436,391. Term of patent 14 years.



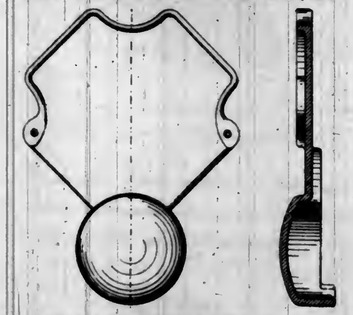
Claim.—The design for a lamp-burner, as herein shown and described.

21,771. DENTAL PUNCH. CHARLES R. BLAKE, Sr., San Francisco, Cal. Filed June 27, 1892. Serial No. 438,309. Term of patent 14 years.



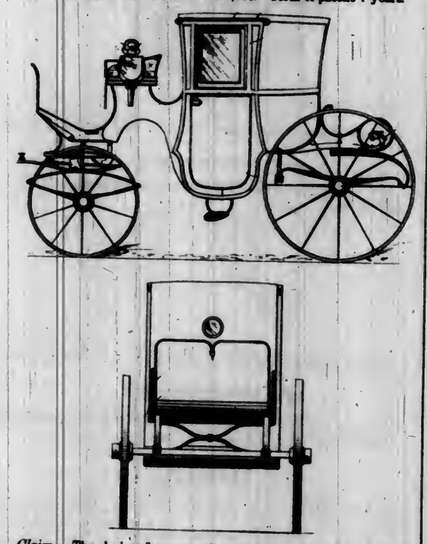
Claim.—The design for a dental punch, substantially as herein shown and described.

21,772. ROOFING-TILE. GEORGE H. BABCOCK, Plainfield, N. J. Filed Apr. 21, 1892. Serial No. 430,120. Term of patent 14 years.



Claim.—The design for a sheathing or roofing tile, as herein shown and described.

21,773. CARRIAGE-BODY. AARON T. DEHARBE, New York, N. Y. Filed June 23, 1892. Serial No. 437,773. Term of patent 7 years.



Claim.—The design for a carriage-body, herein shown and described.

21,774. COFFIN-PLATE. OLIVER MCCARTHY, Meriden, Conn., assignor to the Meriden Britannia Company, same place. Filed July 11, 1892. Serial No. 439,706. Term of patent 7 years.



Claim.—The design for coffin-plates, as herein described, and shown in the accompanying illustration.

21,775. COFFIN-HANDLE. OLIVER MCCARTHY, Meriden, Conn., assignor to the Meriden Britannia Company, same place. Filed July 11, 1892. Serial No. 439,707. Term of patent 7 years.



Claim.—The design for a coffin-handle, as described, and shown in the accompanying illustration.

21,776. SINK-TRAP. HARRY C. MONTGOMERY, Cleveland, Ohio. Filed June 30, 1892. Serial No. 438,622. Term of patent 7 years.



Claim.—The design for a sink-trap, as herein shown and described.

TRADE-MARKS

REGISTERED AUGUST 9, 1892.

21,569. LINEN SHIRTS. NORMAN HANNAGH, Pittsburg, Pa. Filed July 5, 1892.

Industry

Essential feature.—The word "INDUSTRY." Used since 1886.

21,570. MISSES' AND CHILDREN'S OUTER AND UNDER GARMENTS. IDA D. JAYNES, Milwaukee, Wis. Filed July 5, 1892.

Liliputian Parlors.

Essential feature.—The words "LILIPUTIAN PARLORS." Used since September, 1888.

21,571. ALL SPIRITUOUS AND FERMENTED LIQUORS EXCEPT BRANDY. J. W. NICHOLSON & Co., London, England. Filed July 11, 1892.



Essential feature.—The representation of a lion's head supported by or resting on a crown. Used since July 1, 1850.

21,572. PHOTOGRAPHIC PAPER, PLATES, AND CHEMICALS. ARTHUR SCHWARZ, New York, N. Y. Filed July 2, 1892.



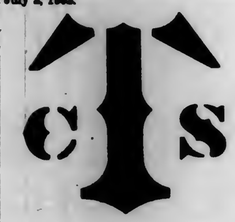
Essential feature.—The representation of a star. Used since April 1, 1892.

21,573. WATERPROOF COLLARS AND CUFFS. THE CELLULOID COMPANY, Newark, N. J. Filed July 12, 1892.

VICTOR

Essential feature.—The word "VICTOR." Used since May 1, 1892.

21,574. AMMONIA-ALUM. NATHANIEL WATERBURY, New York, N. Y. Filed July 2, 1892.



Essential feature.—The letters "CTS." Used since February 1, 1891.

21,575. BICARBONATE OF SODA. NATHANIEL WATERBURY, New York, N. Y. Filed July 2, 1892.



Essential feature.—The letters "BCS." Used since February 1, 1891.

21,576. BAKING-POWDER. CLEMENS AHAUS, Sidney, Ohio. Filed July 14, 1892.



Essential feature.—The words "POND LILY." Used since February 26, 1891.

21,577. ABSORBENT PADS. ISAAC D. ALLEN & Co., Boston, Mass. Filed July 15, 1892.

FLORETTA

Essential feature.—The word "FLORETTA." Used since July 1, 1892.

21,578. SMOKING-PIPES. HIRSCHL & BENDHEIM, St. Louis, Mo. Filed July 5, 1892.

COLUMBUS.

Essential feature.—The word "COLUMBUS." Used since June 10, 1892.

21,579. ARTIFICIAL STONE AND ITS COMPOSITIONS. PYROLITH COMPANY, Jersey City, N. J., and New York, N. Y. Filed July 16, 1892.

PYROLITH

Essential feature.—The word "PYROLITH." Used since June 1, 1892.

21,580. BAKING-POWDER. THE POTTER PARLIN COMPANY, Cincinnati, Ohio, and New York, N. Y. Filed July 16, 1892.



Essential feature.—The representation of a peacock. Used since October 15, 1888.

21,581. GLOVES. DUNHAM, BUCKLEY & Co., New York, N. Y. Filed Apr. 13, 1892.

Trévoux

Essential feature.—The word "TRÉVOUX." Used since January 15, 1892.

21,582. WHEAT-FLOUR. I. A. GRAVES & Co., Watertown, N. Y. Filed Apr. 6, 1892.



Essential feature.—The representation of a white eagle on a black disk. Used since September 15, 1891.

21,583. REMEDY FOR NERVOUS DISORDERS. WILLIAM H. GARDNER, Augusta, Me. Filed June 20, 1892.



Essential feature.—A symbolical figure representing a giant having the head of an ox and wielding a club. Used since January 10, 1888.

21,584. VARNISHES, PAINTS, JAPANS, AND ANALOGOUS MATERIALS OR COMPOUNDS. H. Z. GRAVES & COMPANY, Philadelphia, Pa. Filed July 8, 1892.

MIRROR-STONE

Essential feature.—The compound word "MIRROR-STONE." Used since July 1, 1889.

21,585. LIQUID PREPARATION FOR CLEANING GLOVES. GLOVINE MANUFACTURING Co., Ashley, Pa. Filed July 6, 1892.

GLOVINE.

Essential feature.—The word "GLOVINE." Used since May 18, 1892.

21,586. VETERINARY MEDICINES AND PREPARATIONS. STEPHEN PFEIFFER & SON, Cricklewell, near Malmesbury, England. Filed May 23, 1892.



Essential feature.—The representation of a Roman shepherd carrying a lamb on his shoulders, with ewes following. Used since February 14, 1892.

21,587. HOOKS AND EYES. REMARDSON & DE LONG BROS., Philadelphia, Pa. Filed May 4, 1892.

21,587.



Essential feature.—The pictorial representation of an eclipse in connection with the representation of a book. Used since February 9, 1892.

21,588. PICTURE-VARNISH. GEORGE H. STORY, New York, N. Y. Filed June 9, 1892.



Essential feature.—The words "THE BRILLIANT" and the figure of a crescent. Used since March 1, 1892.

21,589. CATARRH REMEDIES. ORRIN P. SMITH, Auburn, Nebr. Filed June 23, 1892.



Essential feature.—The representation of a pond-lily in full bloom and a cupid sitting upon a lily-pad beside it. Used since June 1, 1890.

21,590. WRINGERS. THE AMERICAN WRINGER COMPANY, Providence, R. I., and New York and Auburn, N. Y. Filed July 15, 1892.

MASCOTTE

Essential feature.—The word "MASCOTTE." Used since July 1, 1887.

21,591. WRINGERS. THE AMERICAN WRINGER COMPANY, Providence, R. I., and New York and Auburn, N. Y. Filed July 15, 1892.

RELIEF

Essential feature.—The word "RELIEF." Used since January 1, 1887.

21,592. WRINGERS. THE AMERICAN WRINGER COMPANY, Providence, R. I., and New York and Auburn, N. Y. Filed July 15, 1892.

IDEAL

Essential feature.—The word "IDEAL." Used since January 1, 1887.

21,593. WRINGERS. THE AMERICAN WRINGER COMPANY, Providence, R. I., and New York and Auburn, N. Y. Filed July 5, 1892.

BANNER

Essential feature.—The word "BANNER." Used since January 1, 1887.

21,594. WHISKY. THE WM. BERGENTHAL COMPANY, Milwaukee, Wis. Filed June 12, 1891.



Essential feature.—The words "OLD LEXINGTON." Used since January, 1884.

21,595. A COMPLEXION CREAM. MARTIN VAN BUREN, Philadelphia, Pa. Filed Sept. 7, 1891.



Essential feature.—The words "MADAM MAURICE'S CREAM" and the representation of a woman's head. Used since August 14, 1891.

21,596. PHOTOGRAPHIC DRY-PLATES. LEO H. BAEKELAND, New York, N. Y. Filed July 15, 1892.

Luxotype.

Essential feature.—The word "LUXOTYPE." Used since April 15, 1892.

21,597. REMEDY FOR DOG DISTEMPER. TAYLOR & SEVERANCE, Middleville, Mich. Filed June 16, 1892.



Essential feature.—The representation of an English pointer dog, the capital letters "A. K. C. S. B.," the number "24,000," and the word "VANQUISH." Used since May 1, 1892.

21,598. A NATURAL AND ARTIFICIAL FERTILIZER. DURHAM FERTILIZER COMPANY, Durham, N. C., and Richmond, Va. Filed June 30, 1892.



Essential feature.—The representation of a sulky-cultivator hitched to a team of horses and having a rider in its seat. Used since December, 1889.

21,599. MEAT CHOPPERS AND PRESSES. ENTERPRISE MANUFACTURING COMPANY OF PENNSYLVANIA, Philadelphia, Pa. Filed June 11, 1892.

TINNED

Essential feature.—The representation of two hands pointing toward the word "TINNED." Used since May 1, 1891.

21,600. CHLORIDE OF SODIUM OR COMMON SALT. THOMAS HIGGIN & Co., Liverpool, England. Filed Apr. 18, 1892.

WINNINGTON

Essential feature.—The word "WINNINGTON." Used since 1887.

21,601. PAPER, ENVELOPES, CARDS, BLANK BOOKS, AND PAPER BADGES. BOLIVE A. JOHNSON, Chicago, Ill. Filed July 7, 1892.

HOO-HOO.



Essential feature.—The representation of a cat and the word "Hoo-Hoo." Used since January 21, 1892.

21,602. METALLIC WHEELBARROWS. THE J. C. MCNEIL COMPANY, Akron, Ohio. Filed May 7, 1892.



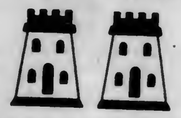
McNeil Steel

Essential feature.—The representation of a wheelbarrow and the words "MCNEIL STEEL." Used since March 19, 1892.

21,603. LARD AND ITS SUBSTITUTES. THE W. J. WILCOX LARD AND REFINING COMPANY, Guttenberg, N. J., and New York, N. Y. Filed July 18, 1892.



LOS TRES CASTILLOS



Essential feature.—The words "LOS TRES CASTILLOS" and the representation of three castles. Used since July 1, 1892.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

GARFORD *v.* EDWARDS.

Decided July 29, 1892.

PRACTICE—INTERFERENCE—ISSUE.

In an interference where the senior party claimed "a curved-spring seat-support" and his application disclosed a spring-support curved at both ends, *Held* that the junior party, showing a spring-support curved at one end only, was properly within the issue and satisfied its requirements.

APPEAL from Examiners-in-Chief.

BICYCLE-SADDLE.

Application of Arthur L. Garford filed January 2, 1891, No. 376,461. Application of William J. Edwards filed December 14, 1889; renewed July 13, 1891, No. 399,278.

Mr. E. L. Thurston for Garford.

Mr. Charles G. Page and *Messrs. Pennie & Goldsborough* for Edwards.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority to Garford upon the following interference issue:

The combination, in a velocipede, with a U shaped spring and a clip for adjustably securing the lower leg thereof to the saddle-support, of a curved-spring seat-support and a clip for adjustably securing the seat-support to the upper leg of the U-shaped spring, whereby the U-shaped spring may be adjusted back and forth with reference to both the saddle-support and the spring-seat support and whereby the seat-spring and saddle support may each be independently adjusted on the U-shaped spring.

Edwards shows "a curved-spring seat-support," in one figure of his drawings curved only at one end and in the other figure curved at both ends. If Garford is to prevail, it must be held that the issue covers the case where the spring-support is curved at one end only, and Edwards contends that such is not the meaning of the issue. The issue specifies in this regard simply "a curved-spring seat-support," and the curve at one end satisfies the requirement of the language used on the face of things. Edwards contends that, although this may be so, yet the real purpose of the curved-spring seat-support is to attain a certain tilting of the seat, and that no tilting of the seat was within Garford's original idea as disclosed by his specification. In this contention Edwards is mistaken, for the Garford specification does describe the tilting of the seat when the support is curved at one end only, and although curving that support at both ends may give added advantages it still must be held that the support curved at one end comes within the fair meaning of the words "a curved-spring seat-support" as those words are used in the issue.

Garford reduced the invention to practice in public some months before Edwards had his conception thereof, and he did not subsequently lose his rights by abandonment or two years' public use. Therefore priority of invention must be awarded to Garford, and the decision of the Examiners-in-Chief is affirmed.

EX PARTE NATIONAL UNITED STATES STAMP DELIVERY COMPANY.

Decided July 29, 1892

PRACTICE—TRADE-MARK AND LABEL.

"The arrangement of two panels, one in red and one in blue, each bearing a shield," etc., is proper subject-matter for a trade-mark rather than a Label.

APPEAL from Examiner of Trade-Marks.

LABEL.

Application filed May 7, 1892.

Mr. A. W. Harrison for the applicant.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register a Label on the ground that it presents trade-mark matter, the Examiner saying:

The arrangement of two panels, one in red and one in blue, each bearing a shield and other symbolical figures, is certainly not descriptive either of applicants's merchandise or of any other. It is as fanciful and arbitrary as any trade-mark and its attachment to the merchandise will serve, as it appears designed to serve, the purposes of a trade-mark, and for this reason its registration as a Label must be denied.

Without passing upon all of the objections urged, it is enough to say that the figures of the shields are just such figures as are well recognized trade-mark subject-matter, and the decision of the Examiner is affirmed.

EX PARTE VAN SLYKE.

Decided June 6, 1892.

DESIGNS—WORDS AND FIGURES (NUMERALS) APPEARING THEREON.

Where certain words and figures (numerals) appeared on the illustration of a Design, *Held* that they should be erased if they form no part of the Design. *Held*, further, that the Examiner should reject if such words, etc., are a part of the Design, provided he is of the opinion that words and figures (numerals) may not form part of the subject-matter of a Design patent.

ON petition,

DESIGN.

Application of James M. Van Slyke filed April 2, 1892, No. 427,546.

Messrs. Munn & Co. for the applicant.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition taken from the action of the Examiner refusing to allow the above-entitled applica-

tion until certain alleged matter should be erased from the drawing and specification, as hereinafter set forth.

The application relates to a Design for the handle of a spoon.

The applicant states as follows:

The Design embraces features commemorative of the eagle "Old Abe," which accompanied a Wisconsin regiment through the War of the Rebellion.

The Design consists in the ornamentation of the handle of a spoon, the essential feature of which is the figure of an eagle. * * * On one side of the handle, near the top, appears a second trunk or growth c', and on one limb thereof appears the name "Old Abe," and on the block on which the eagle is perched appear the figures "1861-65." On the handle below the said name appears the word "Wisconsin."

I claim—

The Design for a spoon, herein shown and described.

The Examiner required that the words "Old Abe," "Wisconsin," and the figures "1861-65" should be removed from the face of the drawing and the statement of the specification be modified in accordance with such removal. It is from this action that the present petition is taken.

The Examiner states in his answer that the applicant—

makes a case which can be allowed, the objectionable and redundant words and figures being removed; but with these words and figures retained it cannot be allowed.

If it is a fact that the words, etc., objected to are not a part of applicant's Design, (and the bringing of this petition to the Commissioner would indicate that applicant does not consider them as a part thereof,) it follows that the action of the Examiner should be affirmed, without prejudice, however, to the right of applicant to make said words, etc., a part of his Design. If, on the other hand, the said words, etc., are a part of his Design, or the applicant should hereafter make them a part thereof, it is clear that the objection in the present case should take the form of a rejection provided the Examiner is still of the opinion that words and figures may never form a part of a Design. It is stated incidentally, however, that I am at present inclined to the view that it would not be advisable to lay down as a general proposition of law that words and figures (numerals) may never form part of the subject-matter of a Design patent.

The petition is denied, but without prejudice to the applicant to revise his specification, if desired.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

CAMPBELL PRINTING-PRESS & MANUFACTURING COMPANY *v.* MANHATTAN RAILWAY COMPANY.

Decided March 9, 1892.

1. PATENTS FOR INVENTIONS—INFRINGEMENT—ACCOUNTING.
Where infringement is admitted, damage is presumed, and the owner of the patent is entitled to a reference for accounting without giving specific evidence of damage.

2. SAME—INJUNCTION.
Where in a suit against a railroad company for infringement the answer admits the validity of the patent, complainant's title thereto, and the infringement, the company cannot avoid an absolute injunction by averring that the invention is of trifling value and offering to submit to a decree for nominal past damages and to an injunction against the adoption of any more of the patented articles on condition of the undisturbed use of those already upon its trains.

3. SAME.
On the question as to whether an injunction should issue it is immaterial that the owner of the patent has never made, used, or sold any of the patented articles or licensed any one to do so, especially when it appears that he has not done so because defendant and other railroad companies, being unwilling to pay the price asked by him, adopted his invention without leave, expecting to pay a less sum by way of damages for infringement.

4. SAME—HARDSHIP.
Defendant cannot escape the injunction on the ground of hardship to itself or to the public, since the decree may provide for a gradual removal from its cars of the patented article, so as not to cause the withdrawal from service of a large amount of rolling-stock at any one time, and for that purpose the amount of rolling-stock required and available for its business may be proved by affidavits or the oral examination of its superintendent or master mechanic.

SUIT by the Campbell Printing-Press & Manufacturing Company against the Manhattan Railway Company for infringement of a patent. Decree for injunction and an accounting.

Mr. Charles De Hart Brower for the complainant.
Messrs. Davies, Short & Townsend for the defendant.

LACOMBE, *J.:*

The complainant is the owner of Letters Patent No. 401,680, granted April 16, 1889, to Edward S. Boynton for a new and useful improvement in valves for pneumatic pipes or tubes.

The second claim of the patent is:

2. In combination with an external pivoted valve, a self-closing device consisting of a compressive helical spring held within a tubular guide formed upon or attached to said valve between one end of said guide and a stop at the pivotal point of the valve, substantially as and for the purposes set forth.

This claim was sustained by Judge Coxe in *Campbell Printing-Press & Manufg. Co.* v. *Eames Vacuum Co.*, (44 Fed. Rep., 64,) and disclaimer as to the first claim was duly entered in the Patent Office prior to the bringing of this suit. The bill charges infringement of this second claim, prays injunction and accounting, and expressly waives answer under oath. A preliminary injunction was refused. (*Campbell Printing-Press & Manufg. Co.* v. *Manhattan Ry. Co.*, 47 Fed. Rep., 663.) The case now comes up for final hearing upon bill, answer, and replication. The answer (unverified) admits the grant of the Letters Patent and complainant's title thereto and that they are good and valid as to the second claim thereof. It further admits that since April 16, 1889, (the date of the issue of the patent,) defendant has used couplings embodying the invention covered by the second claim, and that the number so used is 2,678, on 1,017 cars and 322 locomotives, some of said couplings having been applied before April 16, 1889, and others from time to time since. It further avers that the invention is of trifling, if any, pecuniary value; that complainant has never made, used, or sold the patented invention and has never licensed any one to make, use, or sell the same; that the defendant uses it upon cars constantly employed by it in the transportation of passengers, and that an injunction would be a hardship to defendant, would seriously inconvenience it in its passenger-carrying service, and would be of no benefit to complainant. It offers to submit to a final decree for injunction against the use of any additional infringing couplings. For the past and future undisturbed use of those which it has it placed upon

its cars without leave or license of the owner of the patent, and in admitted violation of the rights secured to such owner thereby, it also offers to submit to a judgment for nominal damages.

To the complainant's application for an accounting before a master it is objected that it has not given specific evidence of damages sustained; but under the pleadings it is not necessary for the complainant to give such proof. Infringement is admitted, and from infringement damage and deprivation of profits are presumed. (*Wooster* v. *Muser*, 20 Fed. Rep., 162.) To what extent and whether nominal or substantial is a matter to be settled on the accounting. Complainant has shown all that is necessary to entitle it to a decree sending the case to a master when it has shown infringement of a valid patent owned by itself. (*Brickill* v. *Mayor*, 7 Fed. Rep., 479.) The decision of Judge Brown in the case at bar (48 Fed. Rep., 314) did not pass upon this point. It only settled a question of practice, holding that a motion at chambers was not proper procedure.

The contention of the defendant that, because it is willing to pay nominal damages for past infringement, an injunction to restrain future infringement should not issue is unsound.

In *Birdsell* v. *Shaliol* (112 U. S., 487; 5 Sup. Ct. Rep., 244) the Supreme Court held that—

an infringer does not, by paying damages for making and using a machine in infringement of a patent, acquire any right himself to the future use of the machine. On the contrary, he may, in addition to the payment of damages for past infringement, be restrained by injunction from further use, [citing authorities.]

(See, also, *Matthews* v. *Spangenberg*, 15 Fed. Rep., 813; *Bragg* v. *City of Stockton*, 27 Fed. Rep., 509.)

The proposition advanced by the defendant is practically this: If an inventor, whose patented improvement in locomotive machinery, although valid, is of but trifling value to a common carrier, himself thinks it valuable, and therefore demands a license-fee for its use higher than such common carriers as would like to use it are willing to pay, they may, nevertheless, appropriate his invention to their use, may place it on their cars and locomotives without his permission, and may continue to use it till it wears out, without interference, on the ground that to remove it would inconvenience the public, and that for such enforced license they should be made to pay not the fee the inventor asks, but such sum as a master of the court may think the invention is worth. Baldly stated, the contention is that when a patentee asks a price for the use of his patent higher than users wish to pay and refuses to license its use except at such price it may be confiscated and sold to whoever wants it at a price to be fixed by a United States circuit court. Whether or not such a qualification of the monopoly secured by Letters Patent would be desirable legislation is immaterial. It is not now on the statute book, nor is there found controlling authority in its support among the cases cited by the defendant's counsel.

In *Barnard* v. *Gibson* (7 How., 657) the parties claimed conflicting interests as assignees of a patent, and there was thus an issue raised in the case which the circuit court had determined adversely to the defendant; but his right to review that decision by appeal from final decree, whenever it might be entered, still remained. The Supreme Court declared that it was a "hardship" sufficient to have deterred the circuit court from granting an injunction that the case was not ended in that court, so that there might be a final decree for the defendant to appeal from and perhaps secure a reversal of the finding that complainant's title was good. Here no such issue is raised. Title, validity of the patent, and infringement are established not by the decision of this court, but by defendant's own admissions on the record, and no appeal could possibly result in a different conclusion. In *Pullman* v. *Railroad Co.* (5 Fed. Rep., 72) defendants were strenuously asserting prior use and non-infringement. In *Hoe* v. *Advertiser Co.* (14 Fed. Rep., 914) it was apparent that to make a change in the printing-press on which the daily newspaper of the defendant was printed would greatly embarrass the usual course of its business. Moreover, the defendant was contesting the validity of the patent, and, though the circuit court sustained it, there was a possibility of reversal. In *Howe* v. *Morton* (1 Fish. Pat. Cas., 601) the validity of the patent was vigorously assailed. In *Stainthorp* v. *Humiston* (2 Fish. Pat. Cas., 311) the fact of infringement was contested. In *Morris* v. *Manufacturing Co.* (3 Fish. Pat. Cas., 67) the court did not—

think that complainant's title was entirely clear.

The patent had only six months to run, and injunction would close defendant's mill for that whole period, throwing many hands out of employment. In *Wells* v. *Gill* (6 Fish. Pat. Cas., 89) the decree (in another case) which sustained the validity of the patent was before the Supreme Court on appeal. Judge Strong, though refusing an injunction, expressly stated that had that decree been acquiesced in or affirmed by the Supreme Court he would have awarded one. All of these cases (except *Barnard* v. *Gibson*, *supra*) were applications for preliminary injunctions, as were also *Colgate* v. *Telegraph Co.* (4 Ban. & A., 415) and *New York Grape Sugar Co.* v. *American Grape Sugar Co.*, (10 Fed. Rep., 837.) *Lowell Manufg. Co.* v. *Hartford Carpet Co.* (2 Fish. Pat. Cas., 475) is plainly an authority only under the facts of that particular case, which are stated too briefly in the report to afford much information as to what the court did decide. In *Forbush* v. *Bradford* (1 Fish. Pat. Cas., 318) Judge Curtis refused a temporary injunction where the same issues had been tried at law between the same parties, such trial resulting in a verdict for the plaintiff; but he did so on the express ground that a bill of exceptions had been taken upon points which involved the validity of the patent, and that, as the bill of exceptions was not frivolous, the litigation as to complainant's title was not, in fact, terminated, and it was necessary, in weighing the relative hardship of granting or refusing an injunction, to contemplate a decision adverse to complainant's title as a possible result; but the learned judge expressly added that, even though the effect of an injunction would be to stop all the defendant's looms till the patented improvement could be removed, that would not prevent the court from granting an injunction if the right had been finally established at law. In the case at bar, where neither validity, title, nor

infringement is questioned, the complainant's right to its monopoly is finally established. In *McCrary* v. *Canal Co.* (5 Fed. Rep., 367) injunction was refused where defendants were using complainant's improvement in coupling and steering canal-boats on the ground that the—

allowance of an injunction would cause much greater injury to the respondent than benefit to the complainant.

Defendants were contending that the patent was an invalid reissue. Although the circuit court did not sustain that or the other defenses, the defendants still had their appeal, and it could not be held that all questions of validity, title, and infringement had been finally determined. As no facts are stated in the report of the case, it does not appear what was the respective injury or benefit. In the case at bar the only injury to the defendant is the cost of substituting some other coupling. It expressly repudiated (on the former motion) any benefit from the improvement, insisting that other couplings which it was free to use were better than complainant's. By refusing an injunction the court practically informs the complainant and all who may wish to use its couplings that because it asks more for the improvement than they are willing to pay it must, nevertheless, be content to see them appropriate it at a price to be fixed hereafter by this court. On which side the balance of hardship in this case inclines seems not difficult to determine.

The remarks of Judge Grier in *Sanders* v. *Logan* (2 Fish. Pat. Cas., 167) are purely *obiter*, the bill in that case being dismissed on the ground that prior use was shown. Besides, the learned judge evidently assumed that the license-fee, payment of which would be full compensation to the complainant for future as well as past trespasses, was a "fixed sum." Undoubtedly, where there is a given license-fee which is paid by others for the use of an improvement in some mill, manufactory, locomotive, or steam-engine, equity will not lend its aid to enable a patentee, by an injunction practically against the whole apparatus, to extort a larger sum from some particular infringer who is prepared to pay the "given sum" for the privilege of using the improvement; but that is not this case. There is no fixed sum, for there have as yet been no actual sales of licenses, other railroads (as was stated on the argument) having followed defendant's example and appropriated the new coupling without payment or permission, expecting, apparently, by that means to be able to compel the complainant to accept much less than he would sell his license for, except under some such constraint, perhaps a merely nominal sum, for although it seems to have kept putting his couplings on its cars even after it had tested it by use defendant yet insists that it is a wholly valueless improvement.

The decision of Judge Blodgett in *Hoe* v. *Knap* (27 Fed. Rep., 204) fully sustains the defendant's contention. In that case the owner of the patent was a large manufacturer of printing-presses, which he did not keep in stock, but made to order. The patented device was a small part of the entire machine. As matter of fact, complainant had not up to that time sold any press embodying the improvement, because none had been ordered. Apparently he thought it for his best business interest to hold the patent and use it exclusively in presses of his own make, and hence had no regular license-fee for its use. Judge Blodgett, however, at final hearing, refused an injunction against an infringer, holding that—

under a patent which gives a patentee a monopoly he is bound either to use the patent himself or allow others to use it on reasonable terms.

No authorities for this proposition, however, are cited in the opinion, nor is such a construction of the statute which provides that a patentee shall receive a grant of the exclusive right to make, use, and vend his invention supported by argument. Although great weight is always to be given to decisions of the circuit courts, they are not controlling authority when the same question is presented in another circuit. I do not therefore feel constrained by this decision to refuse the complainant its injunction because it asks more for a license than defendant cares to pay.

Defendant also insists that injunction should not issue because the infringing couplings now in use by it are used in the service of the public, and to enjoin would be to work great hardship to the public. In *Bliss* v. *Brooklyn* (4 Fish. Pat. Cas., 596) injunction was refused because the hose-couplings complained of were necessary for the daily use of the city in the prevention of fires, and there is a long line of authorities to the same effect. There is, however, nothing in the case at bar, beyond the bare assertion of the defendant, to show that an injunction properly regulated as to time may not be obeyed without in any way interfering with the service which defendant renders to the public as a common carrier of passengers. It seems to have experienced no difficulty at all in temporarily withdrawing its locomotives and cars from such service at suitable seasons for a sufficient length of time to affix the complainant's couplings. Why it may not in like manner remove them does not appear. Complainant may take decree for account and injunction. The terms of the injunction, providing from how many cars and locomotives the infringing couplings shall be removed each week, may be settled on notice, and if defendant will at that time present affidavits showing the character of the work required, the amount of its rolling-stock in use and reserve, and its shop facilities there need be no difficulty about arranging the terms of the decree; or, if it be preferred, defendant, instead of affidavits, may present its superintendent or master mechanic for examination to aid the court in settling the terms.

U. S. Circuit Court—District of Massachusetts.

INDURATED FIBRE INDUSTRIES COMPANY *et al.* *v.* GRACE *et al.*

Decided July 28, 1892.

1. PATENTS—INFRINGEMENT—PLEADING.
   Where there are joint defendants to a bill for infringement, it is sufficient if the bill contains a general allegation of infringement, and it need not in terms allege a joint infringement.
2. DEMURRERS TO THE VALIDITY OF PATENTS.
   The practice of permitting demurrers on the merits of the invention involved discussed and discouraged.

ON demurrer.

PUTNAM, *J.*:

One ground of demurrer assigned is that the bill is defective because it does not in terms allege a joint infringement, or at least set out sufficient facts from which a joint infringement can be gathered.

Neither party has furnished me any decision of any court, or any observation of any text-writer, or referred me to any approved forms directly touching this proposition, unless *Robinson on Patents* (sec. 1104) and *Shickle* v. *South St. Louis Foundry Co.*. (22 Fed. Rep., 105.) What is said in *Robinson on Patents* rests entirely on *Shickle* v. *South St. Louis Foundry Co.*, and this case was an oral ruling, made apparently conversationally, without any citation of authorities or expression of well-considered reasons, and under such circumstances that the court may very likely have gathered from other parts of the bill that, *prima facie*, the defendants were, in fact, several infringers. This case is not sufficient to satisfy me that for this matter there is any special rule applicable to bills for infringement of patents not found elsewhere.

The cases and text-books are full of expressions that in bills of this nature a general allegation of infringement is sufficient, thus conforming to the common practice in other suits, and giving the impression that there is no special rule to be observed by patentees in framing pleadings at law or in equity.

In actions at common law, whether on torts or in contract, in bills in equity for waste or nuisance, and even in pleadings of so high a character as indictments for murder and piracy, a general allegation charging those named as defendants or those indicted, without the interpolation of the word "jointly" or its equivalent, is sufficient; and I can see no reason why it is not sufficient in bills like this, in which the act charged does not in law necessarily involve a conspiracy, but, as with ordinary torts, is proven by showing common wrong doing without alleging or especially proving a common intent.

The rules of the Supreme Court have stricken from bills in equity the common confederacy clause; but for all ordinary bills this was long since recognized as of no intrinsic value, and its omission can hardly require the interposition of new allegations.

I know of no more approved forms than those given in *Curtis's Equity Precedents*, where I find the frame of a bill in behalf of the owners of a patent against two defendants. This nowhere alleges that defendants jointly infringed; nor does it contain an equivalent therefor. It is true that the form uses the common confederacy clause in the following words, namely:

that the said defendants have confederated to use the said improvement;

but the portions which properly constitute the statement of the infringement conform literally to the bill in the case at bar.

In the absence of any sufficient authority shown me to the contrary, I shall therefore apply the rule of pleading usual everywhere else, and hold that the bill sufficiently alleges a common infringement.

The principal ground of the defendants' demurrer is that the patent sued on appears on its face void for want of invention. This proposition was stated at the oral argument to have reference to the state of the art, but it was not claimed that, independently of what is set out in the specifications, the court could take judicial knowledge thereof. Reference was made especially to those portions which state that, prior to the alleged invention sought to be covered by the patent, the insulating properties of paper were known, and also that in some positions for small spaces or for temporary uses sheet-paper had been wrapped about the conductor, and that it had been suggested that paper-pulp be coated upon the latter. It may be that other portions of the specifications, more or less relevant, were referred to on this point.

It was also claimed that by making profert of the Letters Patent these specifications were made a part of the bill. This is undoubtedly correct. Nevertheless, they were not thus made a part of it more effectually or for any different purpose than if set out in the bill at length.

A bill in equity does not necessarily make all the statements of fact contained in a contract or Letters Patent or other instrument proper parts of its pleadings, either by referring to them, or by annexing as an exhibit, or by making profert, or by reciting the tenor at length. With reference to Letters Patent, the claim or claims become, of course, a fundamental portion of the allegations of the bill, so far as any of them—in case there are more than one—are relied on by the complainant. So everything in the specifications which must be resorted to by the court in construing the claims might be considered as part of the complainants' pleadings. But all portions which merely set out the state of the art are like recitals of facts in contracts or other instruments, more or less conclusive on the party who sets them up, yet in the eyes of the law explainable, and not absolutely presumed to have been so alleged as to become the subject of demurrer. Especially must this be so with specifications in patents, in which many statements are necessarily complex, relate to unfamiliar topics, and are not easily understood without extrinsic evidence.

It is true that, so far as the specifications contain any representations which, if erroneous, may be presumed to have misled the Patent Office to the detriment of the public, the patentee may be estopped. On the other hand, I do not understand the law has gone so far as to forfeit a valuable patent because the patentee has inaptly or somewhat inaccurately described the state of the art, or that it conclusively prohibits him from showing such inaptitude or inaccuracy if it also appears that the public has not been prejudiced thereby, and in the case at bar, where the state of the art has been set out, not so positively or categorically as the respondents seem to assume, but somewhat confusedly and with qualifications, I should be unwilling to hold on a demurrer that there was no possibility that the complainants might introduce evidence placing their alleged invention in a more favorable position than the respondents assign for it.

I am not aware that in this circuit the practice of demurring on the ground of the want of invention has obtained a footing. The mischief of permitting it unnecessarily is well pointed out by the reference of

Judge Blodgett to the crop of demurrers which one of his decisions occasioned in the Northern District of Illinois. (*Eclipse Manufg. Co.* v. *Adkins*, 36 Fed. Rep., 554.)

I am not able to ascertain that the practice of this character which exists in some of the districts has ever had the direct approval of the Supreme Court. The expressions in *Brown* v. *Piper*, (91 U. S., 37,) frequently referred to, do not seem to go to that extent, as in that case there was a bill, answer, and proofs, so that the complainant had had full opportunity, and all possible facts were before the court. On such a record the court might with safety say that there was nothing on the face of the patent itself which could require its attention.

In *New York Belting Co.* v. *New Jersey Rubber Co.*, (137 U. S., 445,) where the subject-matter was that of a design, the court overruled the demurrer on the merits, without either expressly condemning or approving the practice on this point.

It is true, nevertheless, that in several districts this practice is sustained, and it is also approved by *Robinson on Patents* (sec. 1110) and by Mr. Gould's notes to *Story's Equity Pleadings*, (10th edition, sec. 452.)

In *Blessing* v. *John Tregerser Steam Copper Works* (34 Fed. Rep., 753) Judge Shipman uses the following language:

> To decide, in advance of an opportunity to give evidence, that no evidence can possibly be given upon the question of invention which would permit the case to be submitted to the jury, seems to me to be ill-advised except in an unusual case.

This would seem especially so if the questions, not only of value and usefulness, but of novelty, are to be in any degree determined by what transpires subsequent to the issue of the patent, as was suggested in *Magowan* v. *New York Belting Co.* (141 U. S., 332-343) and *Barbed Wire Patent*, (143 U. S., 275,) even with such qualifications as appear in *McClain* v. *Ortmayer* (141 U. S., 419) and *Adams* v. *Bellaire Stamping Co.*, (141 U. S., 539.)

However, without undertaking to settle whether in any case a demurrer can be allowed for want of invention appearing on the face of the patent, or whether in this particular case the state of the art would be, with the aid of the recitals in the specifications, a matter of judicial knowledge, I hold that the recitals relied on by the respondents are not made by the profert a part of the complainants' allegations in any technical or proper sense, so that they can be considered on demurrer, and that, aside from such recitals, the court cannot take cognizance of the state of the art to which this particular patent relates.

I am aware that in *Fougeres* v. *Murbarger* (44 Fed. Rep., 292) and in *Studebaker Bros. Manufg. Co.* v. *Illinois Iron & Bolt Co.*, (42 Fed. Rep., 52,) in each of which cases the demurrer was sustained, the court read into the bill statements of facts found in the specifications; but I do not perceive that the propriety of doing so was considered, and the practice seems so clearly violative of fundamental principles of correct pleading that I am compelled to follow my own conclusions.

I believe that of all the cases properly in point which have been cited in the briefs or otherwise found the demurrer was sustained in only three.

Demurrer overruled, with costs for complainants to the time of filing respondents' answer, respondents to answer on or before rule day in October next

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 10, 1892.

SIR: The Secretary of the Interior has ordered that Wilbur C. Benton, Sr., and Wilbur C. Benton, Jr., composing firm of Wilbur C. Benton & Co., of Cincinnati, Ohio, be not recognized after this date as agents or attorneys in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully, WM. H. DE LACY,
Acting Chief Clerk.

The Commissioner of Patents.

World's Columbian Exposition—Protection of Foreign Exhibitors.

DEPARTMENT OF STATE,
Washington, D. C., July 30, 1892.

To the Diplomatic and Consular Officers of the United States:

GENTLEMEN: I subjoin a transcript of the act of Congress approved April 6, 1892, Public No. 29, entitled "An act to protect foreign exhibitors from prosecution for exhibiting wares protected by American patents and trade-marks," which reads as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That no citizen of any other country shall be held liable for the infringement of any patent granted by the United States, or of any trade-mark or label registered in the United States, where the act complained of is or shall be performed in connection with the exhibition of any article or thing at the World's Columbian Exposition at Chicago.

You will transmit copies of this circular to the government of the country to which you are accredited, and ask that it be given the widest possible circulation for the information of those directly concerned.

I am, gentlemen, your obedient servant,

JOHN W. FOSTER,
Secretary of State.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 4, 1892.

Official copy to the Commissioner of Patents for his information and guidance.

E. M. DAWSON,
Chief Clerk.

Changes in Classification.

(ORDER NO. 772.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 11, 1892.

Sub-class Coiling and Bending Pipe, of Class 134, Metal-Tubing and Wire, is hereby transferred from Division III to Division XIV to become a part of Class 153, Metal-Bending.

The title of Class 134, Metal-Tubing and Wire, is hereby changed to Metal-Tube Manufacture, the present sub-classes of said class are abolished, and the following new sub-classes are established:

1. Straight weld.
2. Spiral weld.
3. Cross weld.
4. Seamless—
5. Rolling, longitudinal,
6. spiral,
7. cross.
8. Bent seam.
9. Lining.
10. Mandrels.
11. Tubes.

Sub-class 8, Wire, Covering, is hereby established in Class 205, Metal-drawing.

N. L. FROTHINGHAM,
Acting Commissioner.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885 One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

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Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of August 16, 1892.

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Designs	4	No. 21,777 to No. 21,780, inclusive.
Trade-Marks	46	No. 21,604 to No. 21,649, inclusive.
Labels	None.	
Reissue	6	No. 11,259 to No. 11,264, inclusive.
Total issue	511	

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APPLICATIONS UNDER EXAMINATION.

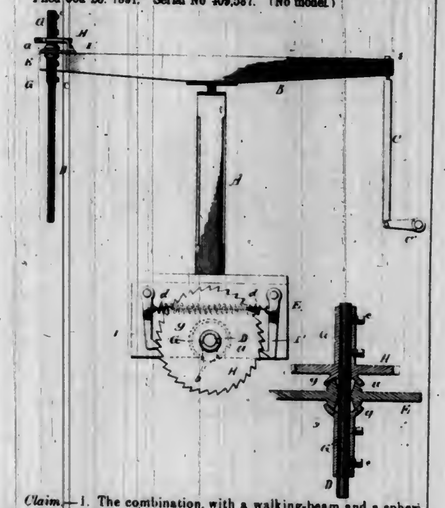
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18	Steam-Engineering, etc	May 10	July 5	251
17	Paper-Manufactures and Printing.	May 11	July 2	187
5	Fine Arts, Stationery, Book-Binding, Music, etc.	May 28	July 1	202
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	May 31	June 25	259
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	June 1	June 28	210
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	May 28	June 11	254
	Between three and four months in arrears.			
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Apr. 29	July 13	352
10	Carriages and Wagons and Railway-Cars.	May 3	July 12	584
1	Tillage and Fences	May 2	June 11	360
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Apr. 13	May 31	363
	Between four and five months in arrears.			
7	Harvesters, Games and Toys	Apr. 4	July 27	402
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Apr. 5	July 18	441
4	Civil Engineering, etc.	Apr. 8	June 23	424
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Mar. 31	June 6	502
19	Stoves and Furnaces	Mar. 31	May 20	474
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Mar. 1	July 5	418
26	Electricity, Generation, Distribution, etc.	Mar. 2	June 27	442
	Total number of applications awaiting action			9,207
	Under one month in arrears.			
	Designs	Aug. 4	Aug. 4	37
	Trade-Marks	Aug. 6	Aug. 8	8

PATENTS

GRANTED AUGUST 16, 1892.

480,701. PUMP FOR OIL-WELLS. GEORGE ALLEN, Franklin, Pa. Filed Oct. 23, 1891. Serial No. 409,587. (No model.)



Claim.—1. The combination, with a walking-beam and a spherical bearing thereon having a double conical opening formed therein, of a polish-rod and sleeves secured on the rod above and below the spherical bearing, said sleeves provided with concave bearings adapted to receive and form sockets for the spherical bearing, substantially as set forth.

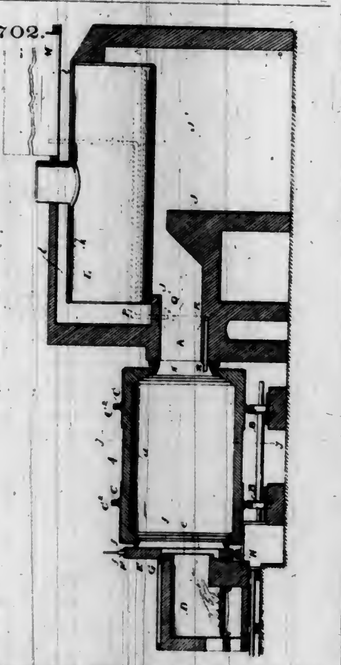
2. The combination, with a walking-beam, a polish rod, and a spherical bearing on the beam, of concaved sockets on the rod on each side of the spherical bearing, adapted to receive the latter, a ratchet-toothed wheel integral with one of the sockets, and a pawl or pawls on the beam in position to engage the toothed wheel, substantially as set forth.

3. The combination, with a walking-beam, a plate thereon, a rod, and sleeves secured to the rod and engaging the plate, of a toothed wheel secured to the rod and a pawl carried by the beam and engaging the wheel.

4. The combination, with a walking-beam, a plate thereon having a slotted spherical bearing, a rod passing through the slot, and sleeves secured to the rod, each having a curved or saucer-shaped end for engaging said spherical bearing, one of said sleeves having a toothed wheel rigid thereon, of pawls carried by the walking-beam and engaging said wheel, substantially as set forth.

480,702. APPARATUS FOR RECLAIMING SODA-ASH. LEWIS D. ARMSTRONG, Lock Haven, Pa.; Meylert M. Armstrong, administrator of Lewis D. Armstrong, deceased, assignor to the New York and Pennsylvania Company, of Pennsylvania. Filed June 20, 1891. Serial No. 396,886. (No model.)

480,702.



Claim.—1. A rotary incinerator having one or more driving-rings about its outer surface, provided with a separate rim fastened thereto with slight freedom of circular movement upon the body of said ring.

2. A rotary incinerator having a metal driving-rim C, consisting of the body portion C', fastened to the outer surface of the incinerator and provided with slots *b* in its upper surface and the lateral slots *c'* in its sides, the rim C², the bolts *c*, passing through the rim C² into the slots *b*, and the pins *d*, passing through the lateral slots *c'* into the bolt *c*.

3. In apparatus for reclaiming soda-ash, the combination, with a rotary incinerating-furnace, of a stationary outwardly-flaring mouthpiece projecting into the rotary incinerator and having its diameter within the incinerator larger than the diameter of the opening thereof through which it projects.

4. The combination, with a rotary incinerator, of a stationary flue adjacent to the neck thereof and an outwardly-flaring bell-mouthpiece about said stationary flue, projecting into said incinerator and formed in segments.

5. The combination of a rotary incinerator, of a bell-shaped mouthpiece N, consisting of the segmental outwardly flaring pieces N' and the segmental plate O, to which said segmental pieces N' are detachably connected.

6. In an apparatus for reclaiming soda-ash, the combination of the fire-box D, rotary cylinder A, having the mouthpiece I projecting beyond the end of the cylinder, and the shield E, having a central opening *e*, arranged between the fire-box and mouthpiece I.

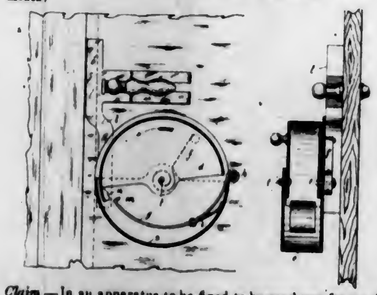
7. In an apparatus for reclaiming soda-ash, the combination of a stationary part having an outlet-flue, a rotary incinerator, a mouthpiece carried by said stationary part about the flue and projecting into the rotary incinerator, an outwardly-projecting mouthpiece carried by the opposite end of the rotary incinerator, a fire-box, and a shield having a central opening and arranged between the fire-box incinerator.

480,703. DRESS-FORM. HERMINE BAER, San Francisco, Cal. Filed Feb. 18, 1892. Serial No. 421,968. (No model.)



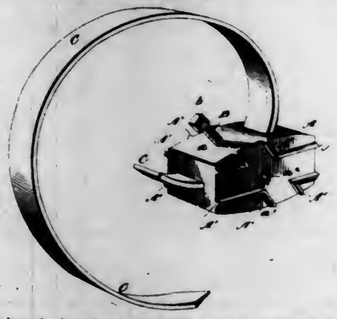
Claim.—A nest or series of sectional dress-forms of different sizes contained one within the other, each of said forms being composed of two sections hinged together, substantially as described.

480,704. HOUSE-DOOR PARCEL-BOX. GEORGE BENICKE, Neuminster, Germany. Filed Feb. 19, 1892. Serial No. 422,165. (No model.)



Claim.—In an apparatus to be fixed to house-doors for receiving and retaining goods, the combination of the semi-cylindrical box *c*, attached by the bracket *l* to the door-handle, with the cover *d* oscillating round the pivots *l' l'*, the spring *f*, and the false bottom *g*, pressed upward by spring *i* and having a projection *m* catching the shoulder *n*, as and for the purpose set forth.

480,705. SPRING-TOOTH HARROW. JOHN W. BRANT, York, Pa., assignor of one-third to Charles W. Brant, same place. Filed Apr. 19, 1892. Serial No. 429,708. (No model.)



Claim.—1. A spring-tooth holder consisting of a block having longitudinal side lugs, a transverse bolt-hole, and openings in its top and rear walls on the arc of a circle, substantially as shown and described.

2. A spring-tooth holder consisting of a hollow block having transverse bolt-openings and in its upper and rear walls openings on the arc of a circle for the reception of the tooth, as set forth.

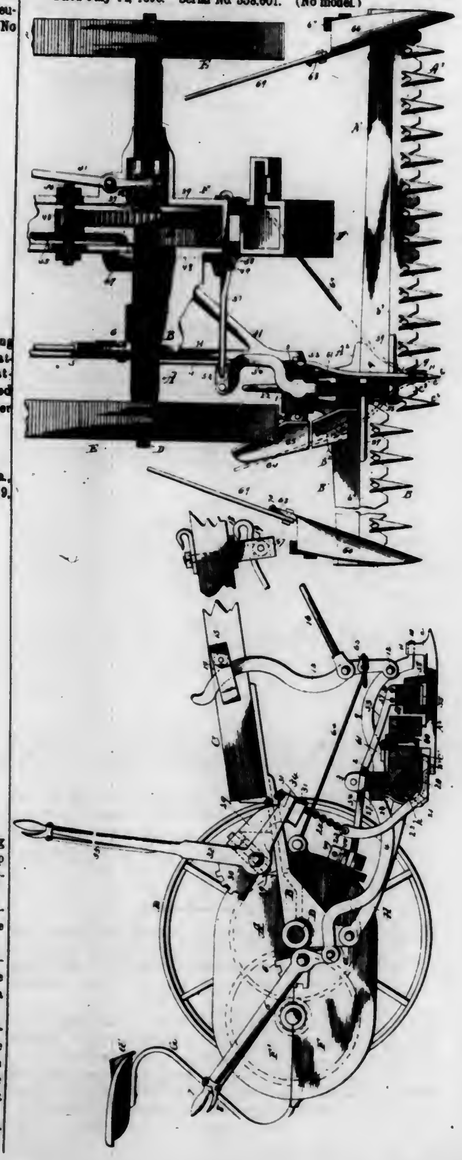
3. A spring-harrow-tooth holder consisting of a hollow rectangular block with convex upper and lower walls, side ribs, a transverse bolt-opening, and openings in its top and rear walls upon the arc of a circle, as set forth.

4. A spring-harrow-tooth holder consisting of a hollow rectangular block with convex upper and lower walls, side ribs, a transverse bolt-opening, and openings in its top and rear walls upon the arc of a circle, and an interior enlargement on the upper wall to the rear of the opening therein and provided with a screw-threaded opening, as set forth.

5. The combination, with a hollow block having convex upper and lower walls, a transverse bolt opening, openings in the upper and rear walls at substantially right angles to each other upon the arc of a circle, and an interior enlargement of the upper wall to the rear of said opening therein and provided with inclined screw-threaded openings, of a spring harrow-tooth having its rear end passed through said openings in the upper and rear walls, and a set-screw passed through said inclined screw-threaded opening and adapted to bear upon said tooth, as set forth.

6. A spring-tooth holder consisting of the block having openings for the reception of a tooth and upon its sides frame-embracing ribs arranged to receive the frame in either of two positions, each of which is at right angles to the other, whereby additional adjustment is provided for the purpose of increasing the life of the tooth, substantially as specified.

480,706. MOWING-MACHINE. CHARLES M. BROWN, Chicago, Ill. Filed July 14, 1890. Serial No. 358,601. (No model.)



Claim.—1. In a mowing-machine, the combination, with a push-bar which terminates in advance of one of the drive-wheels, of two cutting mechanisms connected to said push-bar, a fender secured to one of said cutting mechanisms and a fender secured to the push-bar, whereby a track will be cleared for said drive-wheels, substantially as set forth.

2. In a mowing-machine, the combination, with a push-bar having a pintle which terminates at a point in advance of one of the drive-wheels, of two cutting mechanisms hinged to said pintle, a fender secured to one of the cutting mechanisms in close proximity to the hinged connection thereof, and a fender secured to said pintle, substantially as set forth.

3. In a mowing-machine, the combination, with the cutting mechanism and the tongue, of an arm pivotally connected with the cutting mechanism and having loose sliding connection with the tongue and a draw-bar pivotally connected to said arm and having loose sliding connection with the tongue, substantially as set forth.

4. In a mowing-machine, the combination, with the cutting mechanism and the tongue, of a substantially S-shaped arm pivotally connected with the cutting mechanism and passing through a guide on the tongue and a draw-bar pivotally connected to the S-shaped arm, substantially as set forth.

5. In a mowing-machine, the combination, with the cutting mechanism and the tongue, of a substantially S-shaped arm pivotally connected with the cutting mechanism, a guide on the tongue through which said lever passes, a roller in said guide, and a draw-bar connected to said S-shaped arm, substantially as set forth.

6. The combination, with a push-bar and connected cutting mechanism, of a lever fulcrumed on the cutting mechanism approximately over the point of connection between the cutting mechanism and the push-bar and rearward of the cutter-bar, said lever connected at one end with the cutter-bar, a pitman, and a link connecting one end of the lever with the pitman, substantially as set forth.

7. The combination, with the main frame, a push-bar, and cutting mechanism, of an arm pivotally connected with the push-bar, a bail extending from said arm to the forward end of the cutting mechanism, a link pivotally connected with the arm, an operating-lever connected with the link, and a draft attachment extending forward from the bail, substantially as set forth.

8. In a mowing-machine, the combination, with a main frame, push-bar, and cutting mechanism, of an arm pivotally connected with the push-bar, a link connected pivotally with the arm and extending rearwardly therefrom, an operating-lever connected to the rear end of the said rearwardly-extending link, a bail connecting the pivoted arm with the cutting mechanism, and a draw-bar connected with the cutting mechanism, substantially as set forth.

9. In a mowing-machine, the combination, with a main frame, a push-bar, and cutting mechanism, of an arm pivotally connected with the push-bar, a rearwardly-extending link connected at its forward end to the pivoted arm, an operating-lever connected to the rear end of said rearwardly-extending link, a bail connected at one end to the pivoted arm and at its forward end to the cutting mechanism, an arm pivotally connected to this bail and extending through a guide on the tongue, and a draw-bar pivotally connected to the last-mentioned arm, substantially as set forth.

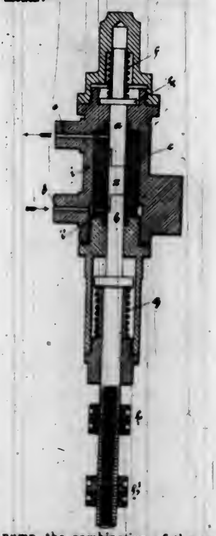
10. In a mowing-machine, the combination, with a main frame, a push-bar, and a sleeve loosely mounted on the push-bar, of shoes hinged to the sleeve, finger-bars and knife-bars supported by said shoes, a collar loosely mounted on the forward end of the push-bar, a gag-lever pivotally connected to said collar and adapted to enter between the inner edges of the shoes, means for operating said gag-lever, and a spring connected with the loose sleeve and terminating in the space between the shoes and bearing at its respective ends against said shoes, substantially as set forth.

11. In a mowing-machine, the combination, with a main frame, a push-bar, cutting mechanism hinged to the push-bar, and a gag-lever, of a toothed segment hinged to the main frame, a perforated arm projecting from said segment, an operating-lever pivoted to one face of the quadrant, and a flexible connection between the short arm of the operating-lever and the gag-lever, said connection passing through the perforated arm on the quadrant, substantially as set forth.

12. In a mowing-machine, the combination, with a main frame, a push-bar, cutting mechanism hinged to the push-bar, and a pivoted gag-lever, of a quadrant hinged to main frame, the axis of said hinged connection being disposed obliquely to the line of draft, a perforated arm projecting from said quadrant, an operating-lever pivotally connected to one face of the quadrant, a finger-bar connected with the lever and adapted to engage the quadrant, and a flexible connection between the short arm of the operating-lever and the rear end of the gag-lever, said flexible connection passing through the arm on the quadrant, substantially as set forth.

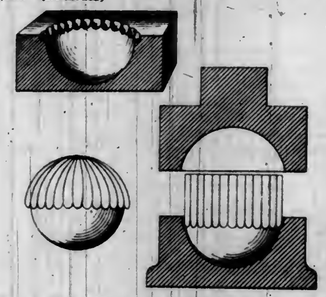
13. In a mowing-machine, the combination, with the main frame, driving mechanism, a push-bar, two finger-bars hinged to the push-bar, and a knife-bar on each finger-bar, of an arm pivotally connected with the push-bar, a gag-lever, a horizontally-vibrating lever pivotally connected at its center to said arm and connected at its forward end to the knife-bars by a swivel connection, the rear end of said lever being carried around the gag-lever and having a link pivotally connected to its rear end, and a pitman connecting said link with the driving mechanism, substantially as set forth.

480,707. PUMP. OSCAR BRÜHLER, Rhenburg, assignor to I. M. Grob & Co., Rutritzsch-Leipsic, Germany. Filed May 10, 1892. Serial No. 432,696. (No model.)



Claim.—In a pump, the combination of the operated piston *b*, having a notch *b'*, with the piston *a* provided with a notch *i* and being under the action of the spring *f*, and with the chamber *c*, having an inlet-channel *d* and an outlet-channel *e*, as and for the purpose set forth.

480,708. METHOD OF FORMING HOLLOW BALLS, &c., FROM SHEET METAL. JOHN BURKHARDT, New York, N. Y., assignor to William H. Jackson & Co., same place. Filed Apr. 21, 1892. Serial No. 430,142. (No model.)

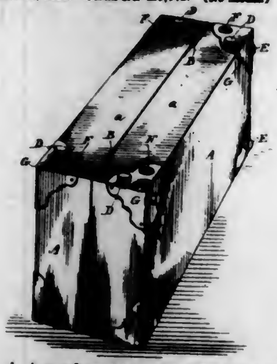


Claim.—1. The process herein set forth of forming hollow ornamental bodies of sheet metal by successive compressions of the metal between series of dies of different configuration corresponding with the shapes described and in the regular order specified—namely, first forming the metal into cup shape, then enlarging the upper or cylindrical half of the cup and contracting the lower or closed half of the cup, reducing it to hemispherical shape, forming a central girdle of beads around its perimeter, then forming ribs or flutings upon the upper or cylindrical part of the cup corresponding with and terminating in the circle of beads, and then reducing the cup to a spheroidal shape, being ribbed upon one half, as described.

2. The process herein described of forming ornamental hollow bodies of sheet metal, consisting in forming the metal into a cup by compressing the same between dies, then compressing the cup between dies which will enlarge the diameter of a part of the cup, then compressing the cup between dies which will form a row of beads around

its middle part, then compressing the beaded cup between dies which form ribs upon part of the cup terminating in the beads at the middle of the cup, then compressing the cup between dies which will form ornamental figures upon the closed hemispherical portion of the cup, then revolving the cup on a mandrel and impressing ornamental figures thereon around its perimeter by the action of a rotary engraved tool, and then compressing the article or cup between plain dies which will reduce it to an oval or spheroidal shape.

480,709. MEDICINE-CASE. HENRY D. CAPITAIN, Chicago, Ill. Filed Feb. 20, 1892. Serial No. 422,172. (No model.)



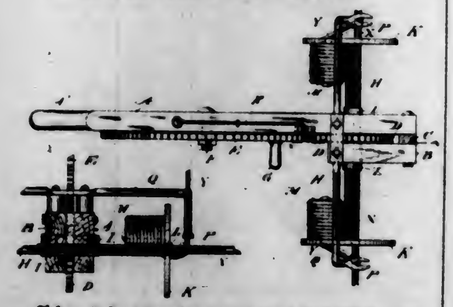
Claim.—1. A case formed in sections hinged together and having feet, each section having, also, sockets for receiving the feet of the other section, substantially as set forth.

2. A case having its bottom formed in two similar sections *a*, hinged together, each of said sections being provided with feet D and sockets F, the sockets of one section being situated so as to be directly opposite and receive the feet of the other section, substantially as set forth.

3. As a new article of manufacture, a corner-piece for cases having a foot D and a socket F, substantially as set forth.

4. As a new article of manufacture, a corner-piece having a foot formed by forcing outward a portion of the metal of which it is formed and a socket formed by forcing inward a portion of said metal, substantially as set forth.

480,710. MACHINE FOR ATTACHING VERTICAL WIRES IN WIRE FENCES. ELMER E. COLE and OSDEN COLE, Hudson, Mich. Filed Jan. 23, 1892. Serial No. 418,961. (No model.)



Claim.—1. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the outer ends of such extensions, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided each with a slot for the vertical or woof wires, and means to rotate such needle-shaft to attach the woof-wires to said horizontal wire.

2. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the outer ends of such extensions, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided each with a slot for the vertical or woof wires, clips for holding such woof-wires in starting to wind them, and means to rotate such needle-shaft.

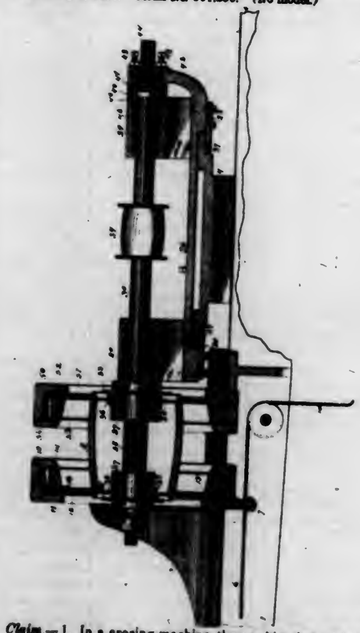
3. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the ends of such extensions and provided each with two slots, one for the admission of the horizontal fence-wire and the other for the passage of the vertical or woof wire, clips to hold such woof-wire in starting to wind, and means to rotate such needle-shaft.

4. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the outer ends of such extensions, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided each with a slot for the vertical or woof wires, a projection or reel adjacent to the eye of each needle and adapted to deliver the transverse wire thereto, and means to rotate the needle-shaft and needles to wind the transverse wires on the horizontal wire.

5. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the outer ends of each extension, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided each with a slot for the vertical or woof wire to constitute the eye therefor, projections or reels, each mounted on said needle-pieces adjacent to the eye thereof to deliver the transverse wire thereto, clips carried by the frame adjacent to said needles and adapted to engage the free ends of the transverse wires to draw them through the needle-eyes in starting to wind said wires, and means to rotate such needle-shaft.

6. In a wire fence machine for constructing wire fences, the combination, with a supporting-frame, a needle-shaft, and means to rotate it, of a plurality of double-slotted needles, said slots being adapted to receive the transverse and longitudinal wires, respectively, and open to admit of placing the respective wires sidewise therein, clips for the free ends of the transverse wires from said needles and carried by said frame, and projections or reels carried by said needles adjacent to the eyes, adapted to carry and deliver suitable coils of transverse wire to form the pickets for said fence.

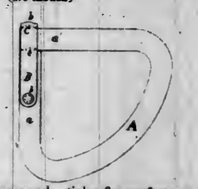
480,711. CROZING-MACHINE. THEODORE A. COOK, Calicoon Depot, assignor to James Mathison and Walter Mathison, Brooklyn, N. Y. Filed May 1, 1891. Serial No. 391,258. (No model.)



Claim.—1. In a crozing-machine, the combination, with the main frame provided with a way at its upper surface, of the laterally and longitudinally reciprocable tables, a spindle held in bearings supported by the laterally reciprocable table and projecting at one end beyond its bearings at the center of the machine, two circular saws and two sets of cutters secured on said projecting end of the spindle, an annular rotary holder for one end of the barrel, held at the center of the machine in front of the laterally and longitudinally reciprocable tables, and another annular and rotary holder for the opposite end of the barrel, fitted to slide on the way of main frame, substantially as and for the purposes set forth.

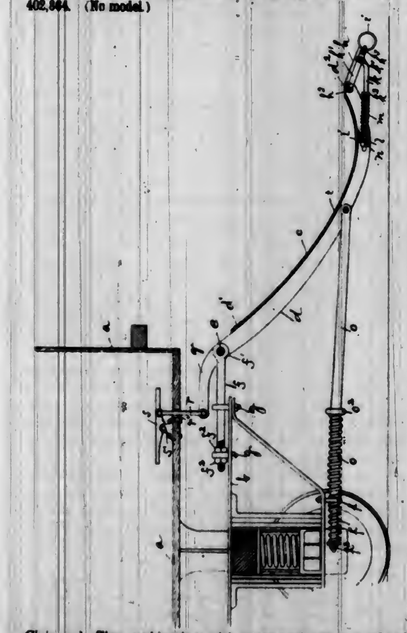
2. The spindle mounted on a longitudinally and laterally reciprocable table and projected at one end beyond its bearing and provided at said projecting end with two saws and cutters, in combination with a rotating holding-ring for one end of the barrel, held in a casing fixed in the frame in line with the spindle, and another rotating holding-ring for the barrel, held in a casing mounted upon a reciprocable table in line with the spindle, substantially as described.

480,712. KEY-HOLDER. NATHAN W. CRANDALL, Meriden, Conn., assignor to George W. Jopson, same place. Filed Apr. 28, 1891. Serial No. 390,867. (No model.)



Claim.—As an improved article of manufacture, a key-holder consisting of a spring-metal body having an arm *a* formed upon its end with a lug or stud, an arm *a'*, having its free end projecting over the end of the arm *a* and normally removed therefrom, said arm *a'* being formed with a depression *c*, adapted to receive said lug or stud, and with a lug or stud C at the outer side of said arm, and an approximately-U shaped locking-loop B, pivoted at its ends to the arm *a* and provided in its connecting portion with a depression *b'*, adapted to receive the lug or stud C, substantially as and for the purpose set forth.

480,718. PILOT OR GUARD FOR LOCOMOTIVES AND CARS. ROBERT A. CRAWFORD, Allegheny, Pa. Filed Aug. 17, 1891. Serial No. 402,864. (No model.)



Claim.—1. The combination, with a locomotive or car, of a pilot or guard pivoted thereto, rods pivoted at their forward ends to said pilot or guard, the rear ends of said rods resting in suitable supports, and springs encircling said rods, said springs being interposed between shoulders on said rods and said supports, substantially as and for the purposes set forth.

2. The combination, with a pilot or guard, of a supplementary pilot or guard pivoted thereto, rods pivoted to said supplementary pilot or guard and resting in suitable supports on said main pilot or guard, and springs interposed between shoulders on said rods and said supports, and nuts engaging the inner ends of said rods, substantially as and for the purposes set forth.

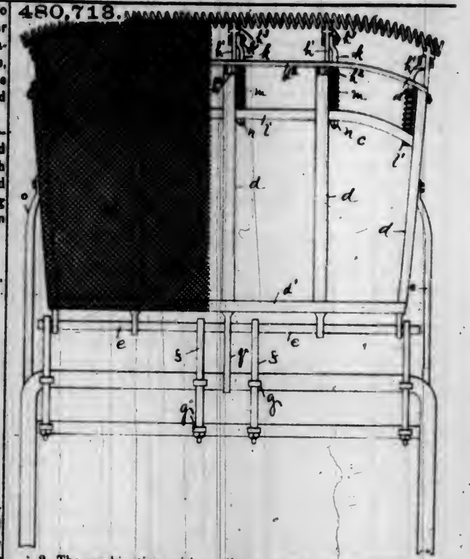
3. A pilot or guard for locomotives or cars, consisting of a series of parallel bars having their inner ends pivoted to a suitable support, the outer ends of said bars engaging with a spiral coil extending across the front of said pilot, substantially as and for the purposes set forth.

4. A pilot or guard for locomotives or cars, consisting of a series of parallel rods having their inner ends pivoted to a suitable support, the outer ends of said bars having notches formed therein adapted to engage a spiral coil extending across the front of said pilot or guard, substantially as and for the purposes set forth.

5. The combination, with a locomotive or car, of a pilot pivoted thereto, rods pivoted to said pilot and extending rearwardly through suitable supports on the truck of the car or car-body, and springs interposed between shoulders on said rods and the said supports and also between said supports and nuts engaging the inner ends of said rods, substantially as and for the purposes set forth.

6. The combination, with a locomotive or car, of a pilot pivoted thereto, rods pivoted to said pilot and extending rearwardly through suitable supports on the truck or car-body, springs interposed between shoulders on said rods and said supports and also between said supports and nuts engaging the inner ends of said rods, and lever connections between said pilot and a lever in the car for lowering and raising said pilot, substantially as and for the purposes set forth.

7. In combination with a locomotive or car, a main pilot pivoted thereto, rods pivoted to said pilot and extending back through supports on the truck or car-body, springs interposed between shoulders on said rods and said supports and also between said supports and nuts engaging the inner ends of said rods, and a supplementary pilot or guard pivoted to said main pilot, said supplementary guard having rods pivoted thereto and said rods extending back through supports on said main pilot, and springs interposed between shoulders on said rods and said supports, and connections between said main pilot and a lever within the car for lowering and raising said main pilot and supplementary pilot, substantially as and for the purposes set forth.

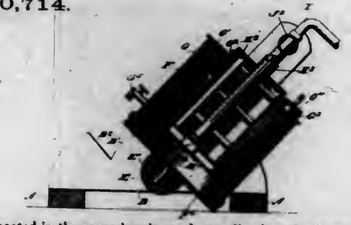


480,714. ICE-CREAM FREEZER. THOMAS W. CROMER, Roanoke, Va. Filed May 31, 1890. Serial No. 354,165. (No model.)

Claim.—1. The combination, with the framework and a swinging frame having bearings, of the cylinder journaled for rotation therein, the inner freezing-cylinder, and an agitator mounted therein, substantially as specified.

2. The combination, with the rectangular base, and the opposite uprights pivoted at their lower ends thereto, and connecting cross-pieces at the upper and lower ends of the uprights and provided with bearings, of a cylinder having a lower bearing-lug journaled in the lower cross-piece, a freezing-cylinder therein, and a cranked agitator-

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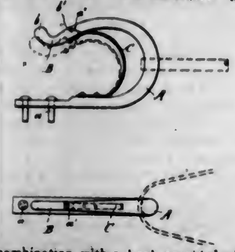
shaft located in the upper bearing and extending into the freezing cylinder, substantially as specified.

3. The combination, with the framework having the opposite bearings, of the outer cylinder having a central bearing upon its under side, the inner conical vessel depending within the cylinder and combining with the latter to form a space for the reception of non-conducting material, the inner freezing-cylinder having the countersunk socket, the cover for the inner cylinder and having the circular flange for the outer cylinder and provided at one side with the opening, the cap for the opening, the shaft extending through the bearing of the framework, through the cover of the freezing-cylinder, and into the latter and terminating in a square end taking into the socket of said cylinder, a handle, the sleeve mounted upon the shaft within the freezing-cylinder, the arms extending from the sleeve, and the blades mounted on the arms, substantially as specified.

4. The combination, with the framework, the opposite side bars of which are provided with the curved edges B' and provided with bearings, of the freezer-carrying frame supported pivotally in the bearings and devices mounted on the pivoted frame and adapted to bind upon the edges B', whereby the freezer-carrying frame may be held in any position, substantially as specified.

5. The combination, with the base, the two pivoted uprights having opposite openings, and the lower cross-bar having the bearing, of the freezer having the bearing-lug taking in the bearing, the inner casing mounted therein and provided with a head having a central opening, the freezing-cylinder mounted in the opening, the cover therefor having an opening, a T-shaped tube depending into the opening, pins passing removably through the openings in the uprights, provided with perforations, and taking into the opposite ends of the tube, short transverse pins passed therethrough for locking the pins, agitators carried by the tube within the freezing-cylinder, and a crank-shaft located in the tube and terminating at its lower end in a square head fitting removably in a socket formed in the bottom of the freezing-cylinder, substantially as specified.

480,715. HOOK FOR CHECKREINS. CHARLES R. CURTIS, Fairland, Mich. Filed Mar. 5, 1892. Serial No. 423,855. (No model.)



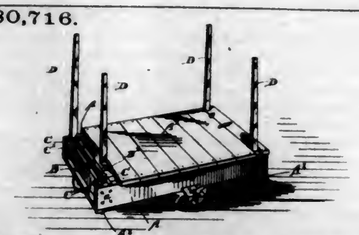
Claim.—The combination, with a hook provided with a beveled end, of an extension-piece provided with a beveled end and a projecting lobe and a spring secured to the extension-piece and to the shank of the hook and curved in the same direction as the hook, substantially as set forth, whereby the rein may be slipped between the two beveled ends after pressing it against the said lobe.

480,716. CORNER STRUCTURE FOR TRUCKS. EMIL DIETZ, Indianapolis, Ind. Filed Apr. 9, 1892. Serial No. 428,438. (No model.)

Claim.—1. A truck-frame consisting of sides having gains or grooves therein, ends constructed of two parts entering said gains or grooves, and cross-pieces extending between the two parts of the ends, the whole forming mortise-like recesses for the lower ends of the stakes or posts, substantially as shown and described.

2. The combination, in a truck-frame, of sides having gains or grooves therein, double end pieces entering said grooves or gains and themselves provided with corresponding grooves or gains, and the end

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pieces and bolts C passing through them and by which they are secured together, substantially as shown and described.

3. The combination, in a truck-frame having the ends each constructed of two parts, whereby a space is provided to receive the lower ends of the stakes or posts, of an opening through the outer part large enough to receive the head of the bolt, and bolts E, passing through the lower ends of the stakes and the inner parts of the ends, and thus holding said stakes to said parts, substantially as shown and described.

480,717. BLOWPIPE-LAMP. ERASTUS W. ELLSWORTH, East Windsor Hill, assignor of one-half to Charles W. Vibert, South Windsor, Conn. Filed Oct. 5, 1891. Serial No. 407,684. (No model.)



Claim.—1. The combination, in a blowpipe-lamp, of a fuel-chamber, a wick-tube connecting therewith, a moisture-trap, an inlet-opening and an exit-opening in said moisture-trap, and a blowpipe-tube vertically adjustable in the exit-opening, substantially as and for the purpose specified.

2. The combination, in a blowpipe-lamp, of a fuel-chamber, a blowpipe-tube carried by the lamp, a cylindrical casing opening into the fuel-chamber, a wick-tube taking therethrough, and an expanding ring adapted to hold the wick-tube in position, substantially as and for the purpose specified.

3. The combination, in a blowpipe-lamp, of a fuel-chamber, one or more blowpipe-tubes carried by the lamp, a cylindrical casing opening into the fuel-chamber, a wick-tube taking therethrough, and a tube adapted to slide upon the wick-tube, substantially as and for the purpose specified.

4. The combination, in a blowpipe-lamp, of the fuel-chamber A, the adjustable tube C, carried by the lamp and provided with an air-inlet, one or more blowpipe-tubes *c*, carried by the adjustable tube, the casing D, opening into the fuel-chamber, the wick-tube E, taking into the casing, and the expanding ring F within the casing, substantially as and for the purpose specified.

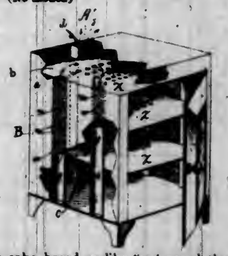
5. The combination, in a blowpipe-lamp, of the fuel-chamber A, the adjustable tube C, carried by the lamp and provided with an air-inlet, one or more blowpipe-tubes *c*, carried by the adjustable tube, the casing D, opening into the fuel-chamber, the wick-tube E, taking into the casing, and the tube G, sliding thereon, substantially as and for the purpose specified.

6. The combination, in a blowpipe-lamp, of the fuel-chamber A, the air-chamber B, having air-inlet *b*, the adjustable tube C, taking into the air-chamber, the casing D, opening into the fuel-chamber, the wick-tube E, taking into said casing, the expanding ring F within the casing, and the adjustable tube G, adapted to slide relatively to the wick-tube, substantially as and for the purpose specified.

7. The combination, in a blowpipe-lamp, of the fuel-chamber A, the tube C, having an air-inlet and adjustable on said lamp, one or more blowpipe-tubes *c*, carried thereby, the casing D, opening into the fuel-chamber, the wick-tube E, taking into said casing, the expanding ring F within said casing, and the tube G, adapted to slide upon the wick-tube, substantially as and for the purpose specified.

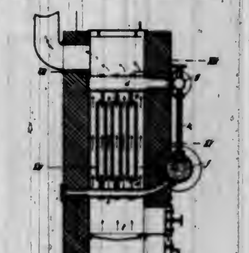
8. The combination, in a blowpipe-lamp, of the fuel-chamber A, the casing D, opening into the fuel-chamber, the wick-tube E, taking into the casing and having radial projections *e* and *e'*, and the expanding ring F within the casing and between the projections, substantially as and for the purpose specified.

480,718. CAKE OR BREAD BOX. GEORGE H. ENNIS, Troy, N. Y., assignor to Jessie D. Ennis, same place. Filed June 18, 1890. Serial No. 355,901. (No model.)



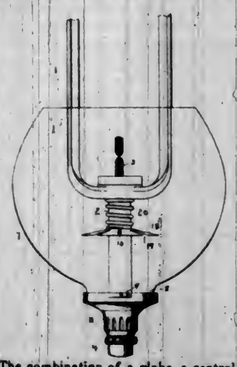
Claim.—In a cake, bread, or like food vessel, the combination of the casing, flues A at the sides of the casing, having numerous air-inlets at its side and opening at the top into the interior of the casing, flue A', open at the bottom and passing through the top of the casing, and a perforated diaphragm *x*, located sufficiently far below the top of the casing to leave an ample air-circulating chamber between them, substantially as set forth.

480,719. STEAM-GENERATOR. HERMANN GOERING, Birkenfeld-on-the-Nahe, Germany. Filed Jan. 20, 1892. Serial No. 418,677. (No model.)



Claim.—In a steam-generator, the combination of concentric tubes united at the ends by rings *a* with sleeves *b* and *c*, the horizontal tubes *d r*, the steam-accumulator *g*, the tube *k*, the water-reservoir *f*, and the feeding-valve *p*, as and for the purpose set forth.

480,720. HOLDER FOR ARC LAMPS AND SIMILAR GLOBES. FREDERICK D'A. GOOLD, New York, N. Y., assignor to the Edison General Electric Company, same place. Filed Dec. 5, 1891. Serial No. 414,165. (No model.)



Claim.—1. The combination of a globe, a central rod or tube, a collar connected to the globe and movable on said rod or tube, and a plate-spring, also on the rod or tube, said globe being held between the collar and plate-spring, substantially as described.

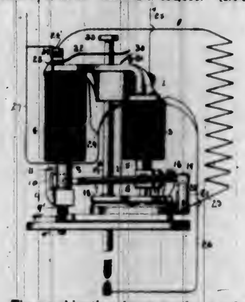
2. The combination of a globe, a central rod or tube, a collar connected to the globe by a spring-clamp and movable on said rod or tube, and a plate-spring, also on said rod or tube, said globe being held between the collar and plate-spring, substantially as described.

3. The combination of a globe, a central rod or tube, a collar connected to the globe and movable on said rod or tube, a bayonet-joint for holding the collar in its raised position, and a plate-spring, also on the rod or tube, said globe being held between the collar and plate-spring, substantially as described.

4. The combination of a globe, a central rod or tube, a collar connected to the globe and movable on said rod or tube, a plate adapted to press against the globe, and a spiral spring on the tube above the plate and adapted to press against it, substantially as described.

5. The combination of the lamp-frame, the projecting tube, the spiral spring thereon, the ring-plate spring, the pin or pins projecting from the tube, the globe, and the collar holding the same and adapted to slide on the tube, said collar having a notch or notches to allow the passing of said pin or pins, whereby when the globe is raised and turned it is clamped in a yielding spring-clamp and held up in place, substantially as described.

480,721. ELECTRIC-ARC LAMP. FREDERICK D'A. GOOLD, New York, N. Y., assignor to the Edison General Electric Company, same place. Filed Dec. 5, 1891. Serial No. 414,166. (No model.)



Claim.—1. The combination, in an arc lamp, of stationary main and shunt coils, armatures therefor, a tilting arm or frame having a fulcrum on or connected to each armature, one of said fulcrums consisting of a wheel or other bearing adapted to move longitudinally on its seat, and a clutch-plate or other carbon-controlling device connected to said tilting arm or frame, substantially as described.

2. The combination, in an arc lamp, of the stationary main and shunt coils or magnets and armatures therefor, the tilting frame supported and operated thereby and having a fulcrum on each armature and projecting beyond the fulcrum on the armature of the main coil, and a carbon clutch connected to said projecting part, substantially as described.

3. The combination, in an arc lamp, of stationary main and shunt coils, armatures therefor, a tilting arm or frame supported by said armature and having a fulcrum on or connected to each armature, a clutch connected to said tilting arm or frame, a cut-out circuit and circuit-controllers, and a counterbalance-weight on said tilting arm or frame and adapted to move the same when the cut-out circuit is closed, substantially as described.

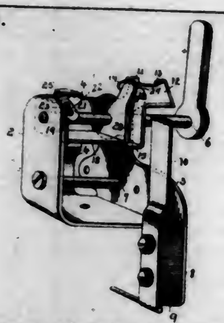
4. The combination of the main and shunt coils and armatures, the tilting frame supported by the armatures and having two fulcrums, the carbon-clutch, the resistance-shunt circuit, and the circuit controller therefor, closed by an abnormal movement of the armature of the shunt-magnet or by an abnormal movement of the main magnet-armature, and a short circuit closed when the carbons are consumed between the lamp-terminals around the magnets and said resistance-shunts circuit, substantially as described.

5. The combination of the main and shunt coils and armatures, the tilting frame supported by the armatures and having two fulcrums, the carbon-clutch, the resistance-shunt circuit, and the circuit-controller therefor, one member of the circuit-controller being carried by a part of said tilting frame projecting beyond one of said fulcrums, substantially as described.

480,722. SNAP-SWITCH. FREDERICK D'A. GOOLD, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Mar 26, 1892. Serial No. 426,669. (No model.)

Claim.—1. The combination, in a switch, of a sheet-metal body or frame having two substantially parallel sides and a spring forming a third side, said parts being formed of one piece of metal, a contact adapted to be connected to one wire of the circuit and insulated from the switch-body, a spindle having bearings in the first-mentioned sides of the switch-body, a switch-arm on said spindle and in position to co-

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operate with said contact, and a body also on and moved by said spindle, but having a connection therewith, allowing lost or independent motion and co-operating with the switch-arm to move it, substantially as described.

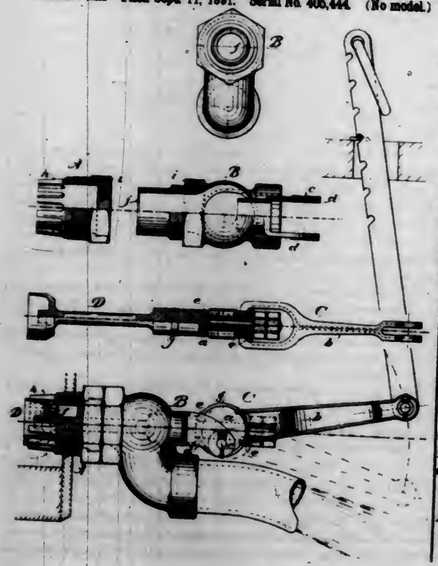
2. The combination, in a snap-switch, of a body having two sides with holes adapted to receive a spindle, a third side bent to form a spring, a spindle in said holes, a switch-arm on said spindle, a body also on the spindle and having a slot in it adapted to receive the pin or screw, a pin or screw projecting from the spindle through said slot, an arm or lug carried by the body, and ears or projections on the switch-arm in position to be struck by said lug, and a stationary spring or contact, substantially as described.

3. The combination, in a snap-switch, of the main body, the spindle, the movable switch-body on the spindle, and the spring forming a part of said main body and bearing against the body on the spindle and adapted to throw it to change the circuit instantaneously, substantially as described.

4. The combination, in a snap-switch, of the main body, the spindle supported thereby, the movable body having sides at an angle with each other, and a switch-arm centered on said spindle, the arm having stops on opposite edges and at a suitable distance apart, the body having an arm or lug projecting between said stops, and the spring resting against one of the sides of the movable body and adapted to throw it, substantially as described.

5. The combination, in a snap-switch, of the main body, the spindle, the movable body, and the switch-arm on said spindle, and the single screw 23, projecting from the spindle and engaging the movable body and through which motion is conveyed from the spindle to the body and switch-arm and which forms the sole device for securing said parts together, substantially as described.

480,723. BOILER-BLOW-OFF VALVE. CHARLES J. GUSTAFSON, Mobile, Ala. Filed Sept. 11, 1891. Serial No. 405,444. (No model.)

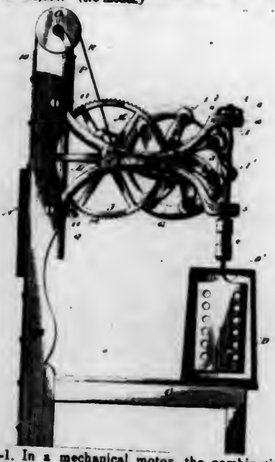


Claim.—1. In a boiler-blow-off valve seating with the pressure, the eccentric-lever C, mounted on its fulcrum *e* in the brackets *d* of the body B, operating the valve D positively in both directions—opening and closing—applied in combination with the independent valve-seat *f* and the sleeve or combination valve-guide and strainer A.

2. In a boiler-blow-off valve seating with the pressure, the sleeve or combination strainer A, applied in combination with the body B, having the independent valve-seat *f*, and the eccentric-lever C, operating the valve D, all combined and arranged substantially as shown and described in this specification.

3. In a valve closing with the pressure, the independent valve-seat *f*, forming one piece with the body B and applied in combination with the independent valve-guide and strainer or sleeve A, the eccentric-lever C, and the valve D, all combined and operated as described in this specification.

480,724. MECHANICAL MOTOR. SHELBY HICKS, Providence, Ky., assignor of one-half to John W. Givens, same place. Filed Apr. 28, 1892. Serial No. 431,007. (No model.)



Claim.—1. In a mechanical motor, the combination, with the frame, of a star-wheel bearing an anti-friction roller on each arm, a shaft revolubly mounted in the frame and carrying the star-wheel, an operating-shaft at a right angle to the star-wheel shaft, said operating-shaft having a spiral flange with which the anti-friction rollers engage and a curvature corresponding with the inclination of the flange, and means for driving the star-wheel shaft.

2. In a mechanical motor, the combination, with the frame, of a star-wheel each arm of which carries at its outer end an anti-friction roller in line with its longitudinal center, a shaft revolubly mounted in the frame and carrying the star-wheel, an operating-shaft mounted in the frame at right angles to the star-wheel shaft, said operating-shaft having a spiral flange with which the anti-friction rollers successively engage and a curvature corresponding with the inclination of said flange, and mechanism for driving the star-wheel shaft.

3. In a mechanical motor, the combination, with the frame, of a star-wheel each arm of which carries at its outer end an anti-friction roller in line with its longitudinal center, a shaft revolubly mounted in the frame and carrying the star-wheel, an operating-shaft mounted in the frame at a right angle to the star wheel shaft, said operating-shaft having a spiral flange with which the anti-friction rollers successively engage, and a curvature corresponding with the inclination of said flange, a collar fixed on the operating-shaft and carrying anti-friction rollers which bear on the frame, and mechanism for driving the star-wheel shaft.

4. A mechanical motor comprising frame A, driving-shaft K, ratchet-wheel L, fixed on said shaft, gear-wheel J, loose on said shaft and carrying spring-actuated pawl M, means for actuating said shaft, star-wheel shaft F, star-wheel E, carried by said shaft F, pinion H, and balance-wheel G, said star-wheel being provided with anti-friction rollers 3, operating-shaft I, having spiral flange I' and a curve corresponding to the inclination of the flanges, and collar *i*, fixed on shaft I and carrying anti-friction rollers 6, all constructed and arranged substantially as described.

480,725. TOY GAME APPARATUS. GEORGE HILL, Lombard, Ill. Filed Apr. 14, 1892. Serial No. 429,095. (No model.)

Claim.—1. The game apparatus adapted to be used upon a table,

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floor, or other surface suitable for the rolling of marbles, consisting of the folding frame A B B, the part A having openings for the marbles, substantially as specified.

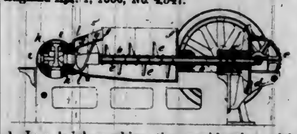
2. The game apparatus adapted to be used upon a table, floor, or other surface suitable for the rolling of marbles, consisting of the folding frame A B B C, the parts A and C having openings for the marbles, substantially as specified.

3. A game apparatus consisting of a front board A, having openings *a*, in combination with pieces B, adapted to form a receptacle at the rear of said board and support the same, said side pieces being pivotally joined to the front board by means of the eyes and staples and fastened at the rear by a suitable device, substantially as specified.

4. A game apparatus consisting of a front board A, having openings *a*, in combination with pieces B, adapted to form a receptacle at the rear of said board and support the same, said side pieces being pivotally joined to the front board by means of the eyes and staples and fastened at the rear by a suitable device, said pieces being provided with grooves for retaining the rear arch board C in place, substantially as specified.

5. The game apparatus adapted to be used upon a table, floor, or other surface suitable for the rolling of marbles, consisting of the folding frame A B B, the part A having openings for the marbles and one part B being hinged to board A by a pivot which permits it to slide to a position alongside of the other part B when folded, substantially as specified.

480,726. BRICK-MACHINE. WILLIAM JOHNSON, Armly, Leeds, England. Filed Mar. 13, 1890. Serial No. 343,814. (No model.) Patented in England Apr. 1, 1886, No. 4,547.



Claim.—1. In a brick-machine, the combination, with the pug-mill portion and the mold-cylinder *h*, of the means for driving said pug-mill portion and pulling over the mold-cylinder and the groove for carrying the surplus clay back to the pug-mill from the mold-cylinder, substantially as set forth.

2. In combination with the pug-mill casing, the removable section *g*, constituting the cover, and the nose *l*, having a return-opening for the excess of the material fed, said cover being formed with a passage *s'*, substantially as described.

3. The aperture or groove *s*, leading back to the hopper or pug-mill, whereby the surplus clay from the brick making or molding part of the machine is automatically carried back to the pug-mill, substantially as herein set forth.

480,727. ARMATURE-CONDUCTOR AND MEANS FOR INSULATING THE SAME. EMIL KOLBEN, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Feb. 8, 1892. Serial No. 420,784. (No model.)

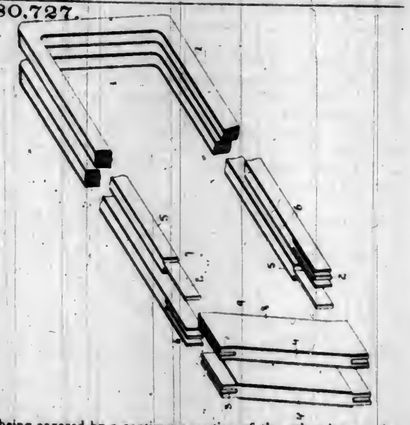
Claim.—1. The combination, with a conductor forming an armature-coil, of strips of insulation on the sides of each convolution, the strips on one face of a convolution breaking joints with the strips on an adjacent face of the next convolution, whereby said convolutions are separated by two thicknesses of insulation and no complete break in said insulation occurs, substantially as described.

2. The combination, with several U-shaped conductors and several cross-conductors connected to form an armature-coil, of insulating-layers on both sides of each U-shaped bar and on both sides of each cross-bar, said insulation being arranged so that the layers overlap each other, substantially as described.

3. The combination, with several U-shaped conductors and cross-conductors connected to form an armature-coil, of U-shaped strips of insulation placed on each side of each U-shaped conductor and insulating material on the sides of the cross-conductors, the connected ends of the U-shaped bars and the cross-bars having, respectively, long and short or short and long insulation, substantially as described.

4. An armature-coil composed of bars connected end to end to form a continuous conductor, the turns of the coil being separated throughout by two layers or sheets of insulating material, joints in one

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layer being covered by a continuous section of the other layer, substantially as described.

5. The combination of several U-shaped conductors having tongues at the ends and cross-conductors formed to fit the same, said conductors forming an armature-coil, the cross-bars having continuous insulating-layers on their sides and rear edges, and the outer edges of said cross-bars being finished off, whereby the edge of the armature serves as a commutator-surface, substantially as described.

6. The combination, with a conducting-bar serving or adapted to serve as a commutator-bar, of a continuous sheet of insulation on its two sides and rear edge, substantially as described.

7. The combination, with adjacent bars serving or adapted to serve as commutator-bars, of continuous sheets of insulation on their sides and rear edges, whereby the several bars will be separated by two sheets and whereby all danger of said sheets working or being pulled out is avoided, substantially as described.

480,728. RING-ARMATURE. EMIL KOLBEN, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Feb. 8, 1892. Serial No. 420,786. (No model.)



Claim.—1. The combination, in a ring-armature, of an iron core having two series of holes through it near the inner and outer peripheries, respectively, and in the direction of its axis, and insulated conductors in said holes, the ends of the several conductors being connected to form the armature-coil, substantially as described.

2. The combination, in a ring-armature, of an iron core having two series of holes through it near the inner and outer peripheries, respectively, and in the direction of its axis, and insulated conductors in said holes, the ends of the several conductors being connected to form the armature-coil by cross bars or plates forming or adapted to form commutator-segments, substantially as described.

3. The combination, in an armature, of an iron core and insulating-washers at both sides thereof, the core and washers having two series of holes through them near their inner and outer peripheries, respectively, and in the direction of the axis of the armature, conductors in said holes, and insulation between the conductors and the core, the ends of the several conductors being connected across the faces of the core to form the armature-coil, substantially as described.

4. The combination, in an armature, of an iron core and insulating-washers at both sides thereof, the core and washers having two series of holes through them near their inner and outer peripheries, respectively, and in the direction of the axis of the armature, conductors in said holes, the ends of the several conductors being connected to form the armature-coil, and insulating-tubes on the conductors and extending into the washers, substantially as described.

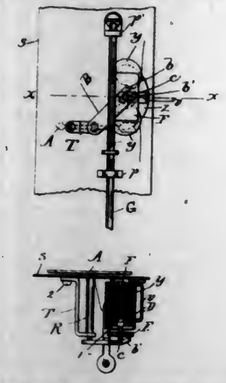
5. The combination, in a ring-armature, of a core, transverse conductors, and cross or connecting conductors at both sides of the arma-

ture, said cross-conductors at both sides being finished or adapted to be finished to form commutator-surfaces, substantially as described.

6. An armature having the conductor comprising its coil bars on two opposite sides of the armature, whereby either side may be employed as a commutator-surface, substantially as described.

7. A symmetrical reversible armature having the conductor comprising its coil bars on two opposite sides of the armature, said sides forming or adapted to form commutator-surfaces, whereby when the conductors at one side become worn the armature may be reversed, so that the commutator-brushes will bear on the opposite side, substantially as described.

480,729. ELECTRICAL DROP-ANNUNCIATOR. THOMAS W. LANE, Boston, Mass., assignor to the Electric Gas Lighting Company, Portland, Me. Filed Dec. 19, 1891. Serial No. 415,621. (No model.)



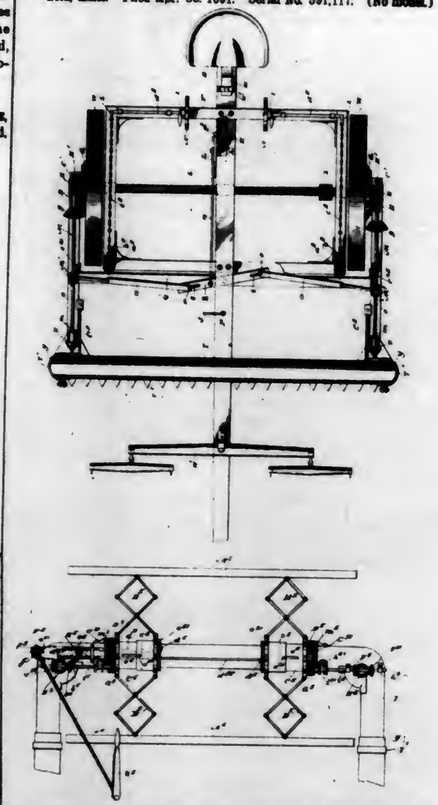
Claim.—1. In an electro-magnet annunciator, the combination of two magnets mounted upon a common base with a guide-piece, substantially as described, and adapted to carry a rod, a rod supported and retained by the guide-piece and extending beyond the same, an armature rigidly attached to the extension of said rod, a lug or projection beyond the armature, and a helical spring about said rod between the extremities of the guide, adapted to hold the armature in a normal position, all so combined that upon the magnet being energized the armature will be attracted and repress the rod and upon the magnet being de-energized the armature will be repulsed by the operation of the helical spring, substantially as described.

2. In an electro-magnetic annunciator, the combination of a double magnet upon a base affixed to an annunciator face-plate, a guide-piece perforated at its extremities, a rod passing through and adapted not to turn in the perforations of the guide-piece and extending beyond the same, a helical spring about the rod between the extremities of the guide-piece, an armature rigidly fixed to the extremity of said rod, a projection upon or beyond said armature, a standard adapted to be rigidly fixed to an armature-plate face at one end and to offer support for a rod by its other end, a rod supported by this standard, and an index-pointer at one end and a lever-arm at the other end of said rod, which is adapted to swing loosely in the standard aforesaid, all so combined and arranged that upon the magnet being energized the armature will be attracted and withdraw the projection on its face from the support of the lever-arm, allowing it to fall, and upon the magnet being de-energized the armature will move back by force of the helical spring, all substantially as described.

3. The combination, upon an annunciator-plate face, of devices, substantially as described, for moving a pointer-hand, each consisting of a double magnet, support, guide, rod, armature, projection, standard, rod, pointer-arm, and lever-arm, in combination with a lifting device adapted to restore the lever arm or arms to the lug upon the armature after operation of the apparatus, substantially as described.

4. In an electrical annunciator having a finger-index movable upon the face-plate, the combination of a magnet with two helices mounted upon a common base-plate, a support or guide-piece properly located between the said helices, adapted to carry a rod, a rod supported in said support or guide-piece and projecting beyond the same, an armature connected with the projecting end of said rod, a spiral spring surrounding said rod and adapted to normally hold the same in a given position, a standard properly fixed to the annunciator face-plate, and a two-armed lever, its two arms being properly arranged in different planes—viz., one arm the index-pointer, the other the lever-arm—supported or carried by said standard and having its lever-arm properly forked to allow the armature projection or lug to sustain the same, together with a lifting device adapted to the purpose of restoring said lever-arm of said rod to its normal position after each retraction of the armature, all substantially as described and shown.

480,730. MOWER AND HEADER. ALBERT D. MARBLE, Winfield, Kans. Filed Apr. 30, 1891. Serial No. 391,117. (No model.)



Claim.—1. In a mowing-machine, the combination, with the oppositely-rotating main shafts M, means for moving said shafts longitudinally, and the gears F^6 on the shafts, of the rollers D^4, having gears E^4 adapted to be engaged alternately by those on the main shafts, and an endless apron passing around said rollers, as and for the purpose set forth.

2. In a mowing-machine, the combination, with a yoke, inner collars thereon, means for turning said collars by the movement of the cutting apparatus, outer collars sliding on said inner collars and turning therewith, and means for adjusting the outer collars longitudinally, of toggle-levers whose feet are connected to the different collars and reel-bars carried by the outer ends of the toggle-levers, as and for the purpose set forth.

3. In a mowing-machine, the combination, with an endless cutting apparatus moving in a yoke over wheels in its corners, a bevel-gear H^5 on the shaft of one of said wheels, a bevel-gear intermeshing therewith, and a collar C^9, surrounding one side of the yoke and rotated by said intermeshing bevel-gear, of a reel connected with said collar, as and for the purpose set forth.

4. In a mowing-machine, the combination, with an endless cutting apparatus moving in a yoke, means for driving it in either direction through said yoke, a bevel-gear driven by said apparatus, a longitudinally-movable shaft i^3, having smaller gears alternately engaging said bevel gear, and a gear G^3 on said shaft, of a gear D^3, intermeshing with said gear G^3, a collar C^3, connected to said gear D^3 and surrounding one side of the yoke, and a reel carried by said collar as and for the purpose set forth.

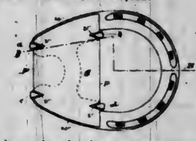
5. In a mowing-machine, the combination, with an endless cutting apparatus, a large bevel-gear driven thereby, a shaft i^3, having smaller gears alternately engaging said larger gear, a collar i^5 on said shaft, a bearing k^3, embracing said collar, a spring-tongue k^{31} therein, and a gear G^3 on said shaft, of a gear D^3, intermeshing with said gear G^3, a collar C^3, connected thereto, and a reel carried by said collars, as and for the purpose set forth.

6. In a mowing-machine, the combination, with a cutting apparatus, an inner collar C^3, driven thereby and having a slot, an outer collar c^3, sliding on the inner collar and having a pin engaging the slot therein, and means for adjusting the outer collar longitudinally, of a toggle-lever connected to the collars and a reel-bar carried by the outer end of the toggle-lever, as and for the purpose set forth.

7. In a mowing-machine, the combination, with a rotating inner collar, an outer collar sliding thereon and turning therewith, a toggle-lever connected to said collars, and a reel-bar carried by said toggle-lever, of a flange c^{31} on the sliding collar, a tongue c^3, loosely embracing said flange, a rod leading from said tongue and having teeth, a gear E^3, engaging said teeth and connected to a sprocket-wheel e^3, a chain leading therefrom to another sprocket f^3, mounted on a shaft F^3, leading to the operator, and having a handle u^3, a universal joint U^3 in said shaft, and means for raising and lowering the collars bodily, as and for the purpose set forth.

8. In a mowing-machine, the combination, with the yoke Y, two inner collars C^3, turning thereon, outer collars c^3 on said inner collars, toggle-levers extending outwardly from the pairs of collars, and reel-bars connected to the toggle-levers, of flanges c^{31} on the outer collars, tongues c^3, loosely embracing said flanges and mounted on independent rods d^{30} and d^{30}, each of which is toothed, as at d^{31}, a single gear E^3 between these teeth and simultaneously engaging both, and means for turning said gear from the driver's seat, as and for the purpose hereinbefore set forth.

480,731. HORSESHOE. GEORG MARTIN, Berlin, Germany. Filed Jan. 9, 1892. Serial No. 417,482. (No model.) Patented in Germany Mar. 10, 1891, No. 59,311; in Austria-Hungary June 22, 1891, No. 13,850, and in England Nov. 28, 1891, No. 20,782.

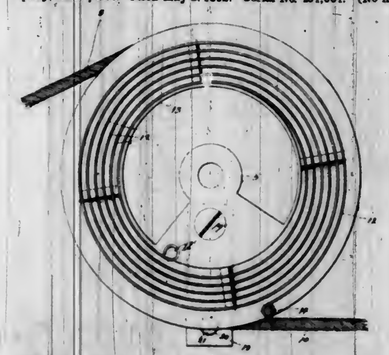


Claim.—1. A horseshoe having vertical walls *w w* and a horizontal plate *g*, extending between the walls, said walls and plate forming a depression across the frog part, and a pad held in said depression, substantially as described.

2. A horseshoe having vertical walls *w w* and a horizontal plate *g*, extending between the walls, said walls and plate forming a recess, a pad, and retaining means for said pad, consisting of vertical extensions on each side of the depression, substantially as described.

3. A horseshoe having depressions extending across the frog part thereof, a flexible pad, and retaining means therefor, consisting of the overhanging walls *e f* on each side of the depression, substantially as described.

480,732. OPERATING DEVICE FOR FARE-REGISTERS. JOHN W. MEAKER, Chicago, Ill., assignor to the Meaker Manufacturing Company, same place. Filed May 2, 1892. Serial No. 431,601. (No model.)

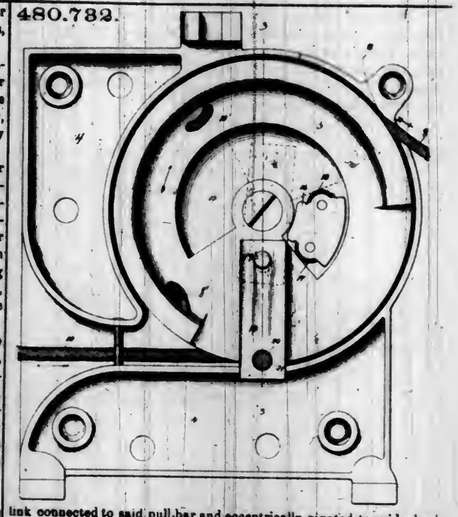


Claim.—1. The combination, with the pull-bar of a register, of a wheel, means for rotating said wheel, devices eccentrically connecting said wheel to said pull-bar, whereby the pull-bar may be reciprocated by rotating said wheel, and devices for returning the wheel to its normal position, substantially as described.

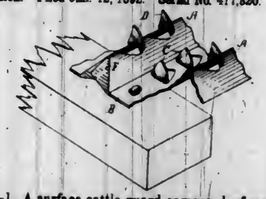
2. The combination, with the pull-bar of a register, of a wheel, a link connected to said pull-bar and eccentrically pivoted to said wheel in such position that its pivot will be over and in line with the pivot of the wheel when the pull-bar is at its highest position, and devices for operating said wheel, substantially as described.

3. The combination, with the wheel 5 and devices for rotating said wheel, of the pull-bar of a register, a stop adapted to limit the rotation of said wheel, and devices eccentrically connecting said wheel to the pull-bar of the register, substantially as described.

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480,733. SURFACE CATTLE-GUARD. GEORGE W. MILLER, Kalamazoo, Mich. Filed Jan. 12, 1892. Serial No. 417,820. (No model.)



Claim.—1. A surface cattle-guard composed of sections formed from a single plate of metal bent to form upwardly-projecting ribs alternating with depressed surfaces, the apex or upper portion of said ribs being provided with upwardly-projecting tongues cut and thrown upward from the metal forming said ribs, substantially as set forth.

2. A surface cattle-guard composed of inverted-V-shaped ribs or bars provided with upwardly-extending tongues cut and thrown upward from the metal forming said bars or ribs, substantially as set forth.

3. A surface cattle-guard composed of inverted V-shaped ribs or bars provided with upwardly-extending tongues cut and thrown upward from the metal forming said bars or ribs and strips of wood filling the hollow spaces beneath said bars or ribs, substantially as set forth.

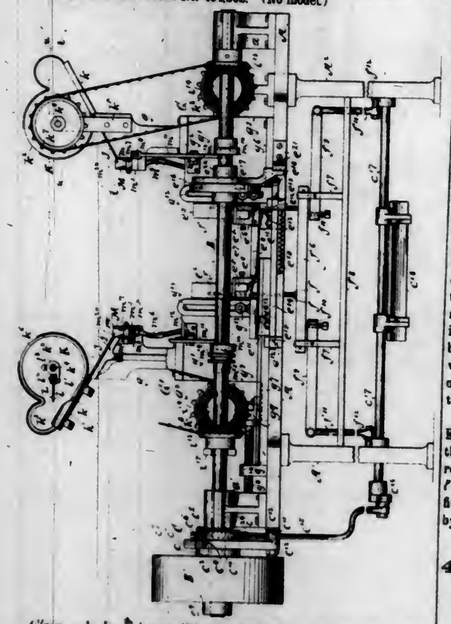
4. A surface cattle-guard composed of sections formed from a single plate of metal bent to form upwardly-projecting ribs alternating with depressed surfaces, the apex of said ribs and the alternating depressed portions being provided with upwardly-projecting tongues cut and thrown upward from the metal forming the guard-sections, substantially as set forth.

480,734. LANTERN. CHARLIE I. MITCHELL, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Dec. 24, 1891. Serial No. 416,071. (No model.)



Claim.—The combination, in a lantern-frame, of a bottom ring of sheet metal and flat vertical ribs disposed edgewise to the burner and having a quarter-twist at their lower ends, so that the latter project downward parallel with the bottom ring, said ring having a bead provided with a series of slots for the reception of the twisted ends of said vertical ribs, substantially as described.

480,735. BOX-NAILING MACHINE. BERNHARD MULLER, New York, N. Y., assignor of one-half to Bertha Strauss, same place. Filed Aug. 31, 1891. Serial No. 404,262. (No model.)



Claim.—1. In a box-nailing machine, the combination, with a bed-plate, means for holding thereon a box-frame to be nailed, and a stationary and a movable frame, each supporting nail-feeding mechanism and having slotted rails g^{15} adjustably secured thereto for supporting nail-chucks, of reciprocating cross-heads i^6, each provided with a right and left handed screw, engaging with rails i' i^5, resting against the cross-heads, and fitted to slide thereon and having hammers h^5 adjustably secured thereto, substantially as described.

2. In a box-nailing machine, the combination, with nail-driving mechanism, of horizontally-adjustable gages having lugs for supporting the work vertically and sliding arms adjustably secured in boxes connected adjustably to ways attached to the bed-plate, substantially as described.

3. In a box-nailing machine, the combination, with nail-driving mechanism, of a stationary slideway secured to the bed-plate for supporting gages sustaining the work on one side, a movable slideway secured in ways on the bed-plate for supporting gages sustaining the work on its other side, a toggle device for moving the latter gages against the work and comprising a sliding bar pivotally connected by links to the movable slideway, and suitable mechanism operated by the main shaft for reciprocating the sliding bar, substantially as described.

4. In a box-nailing machine, the combination, with gages for supporting a box-frame to be nailed, of clamping-bars fulcrumed between their ends to yielding lugs attached to the gages and arranged to press against the inside surfaces of the side pieces of the box-frame and hold the same securely against the gages and suitable mechanism for operating the clamping-bars, substantially as described.

5. In a box-nailing machine, the combination, with gage bars for supporting a box-frame to be nailed, of clamping-bars pivotally connected to yielding lugs attached to the gage-bars and having bottom portions bent inwardly to rest on a cross-bar and means to impart a vertical and parallel motion to the said cross-bar to rock the clamping-bars simultaneously, substantially as described.

6. In a box-nailing machine, the combination of mechanism for operating both the clutch C and the clamping-bars f from a treadle simultaneously, consisting of a shaft c^{17}, journaled in the legs A' A^3 and provided with the crank-arms f^{14} and c^{16}, the arms f^{13} being connected by rods to levers fulcrumed in stationary supports and provided with adjusting screws bearing against the cross-bar f^6, to which a parallel motion upward, varying in extent, may be imparted, while the crank-arm c^{15} is connected to the rod c^{16} for operating the clutch, being held normally down against a stop-plate c^{22} by a coil-spring c^{23}, substantially as described.

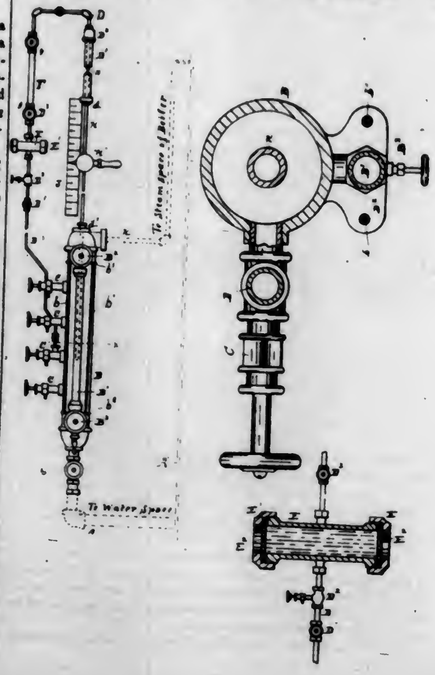
7. In a box-nailing machine, the combination, with an inclined slideway for nails contained in a table, as J, of a picker comprising a tube arranged against the front of the slideway and forming a stop for nails therein, the tube being mounted to oscillate about a vertical axis in line with the slideway and having its annular top surface provided with a notched inclined slideway coinciding with and forming a continuation of that of the table when oscillated in line therewith, a stop-plate adjustably secured to the table and arranged above the tube to admit and suspend a single nail within the notch thereof, and means for oscillating the tube, substantially as described.

8. In a box-nailing machine, the combination of a number of tubular pickers working in conjunction with stop-plates arranged above the same and mounted to oscillate in a cross-bar secured to the framework of the machine, yokes or annular rings adjustably secured to the said tubular pickers and having bifurcated extensions engaging with pins attached to a reciprocating bar, and suitable mechanism for operating the same, substantially as described.

9. In a box-nailing machine, a hopper for feeding nails and mounted to rock on standards secured to the framework of the machine, the hopper comprising a bottom portion adapted to cause nails to arrange themselves in grooves therein, a partially cylindrical shell arranged above the front portion of the bottom thereof and opening into a covered space above the rear grooved portion thereof, and a brush composed of thin metallic and resilient fingers mounted to turn within the cylindrical portion and come in contact with the surface of the bottom of the hopper at its front end and throw nails toward the rear end thereof, substantially as described.

10. In a box-nailing machine, the combination, with the hopper K, of a brush adjustably secured to a shaft mounted to turn therein, the brush consisting of a row of thin metallic and resilient fingers l, resting on a layer of fibrous material contained in a groove in a bar l' and having their ends bent to enter another groove in the bar l', the fingers being held together by shellac or other adhesive material and by a bar l^3, clamped to the bar l', substantially as described.

480,736. LIQUID-LEVEL-INDICATOR SYSTEM. HENRY A. MCGHEE, Detroit, Mich. Filed Aug. 17, 1891. Serial No. 402,877. (No model.)



Claim.—1. In an indicator system for steam-boilers, &c., the combination, with a reservoir of a pipe communicating therewith and led to a distance therefrom, an indicator in said pipe distant from the reservoir, said pipe having a return communication with the reservoir, and the extremities of said pipe normally communicating with said reservoir below the water-line to provide for circulation through said pipe, substantially as described.

2. In a water-indicator system for steam-boilers, the combination, with a water-pipe to communicate with the boiler, of a water-column communicating with said pipe, a steam-pipe communicating with the boiler and with the water-column, a series of gage-cocks C, communicating with said column, and an additional water-pipe provided with a water-indicator and communicating with said column, said latter pipe having a return communication with the water-column, the extremities of said additional pipe normally communicating with said column below the water-line, substantially as described.

3. In a water-indicator system for steam-boilers, the combination, with a water-pipe leading from the boiler, of a water-column communicating with said pipe, a steam-pipe communicating with the boiler and water-column, an additional water-pipe leading from said column and having a return communication therewith, and a water-indicator located in said latter pipe, the extremities of said additional pipe normally communicating with the water-column below the water-line therein, substantially as described.

4. In a water-indicator system for steam-boilers, the combination, with a water-pipe leading from the boiler, of a water-column communicating therewith, a steam-pipe communicating with the boiler and water-column, an additional water-pipe leading from said column and provided with a water-indicator, and a pipe H, having a movable connection with said additional pipe and with said column, substantially as described.

5. In a water-indicator system for steam-boilers, the combination, with a water-pipe leading from the boiler, of a water-column, a steam-pipe communicating with the boiler and with the water-column, an additional water-pipe leading from said column provided with a water-indicator, a pipe H, having a movable connection with said pipe and with the said column, and means for moving said pipe H, substantially as described.

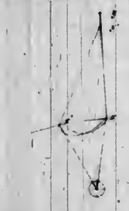
6. In a water-indicator system for steam-boilers, the combination, with a pipe leading from the boiler, of a water-column connected with said pipe, an additional water-pipe leading from said column provided with a water-indicator, a pipe H, having an adjustable connection with said additional pipe and with said column, and a scale to indicate the adjustment of said pipe H, substantially as described.

7. In a water-indicator system for steam-boilers, the combination, with a pipe leading from the boiler, of a water-column connected with said pipe, an additional pipe leading from said column having a water-indicator located therein, a pipe H, having telescopic connection with said additional pipe and with said column, means to adjust the pipe H, and a pipe leading from the upper end of said column to the boiler, substantially as described.

8. In a water-indicator system for steam-boilers, the combination, with a water-pipe leading from the boiler and having return communication therewith, of a water-indicator located at a point distant from the boiler-room, having communication with said water-pipe, and cocks to control the communication of said gage with said pipe located at each side of said gage, the extremities of said pipe normally communicating with the boiler below the water-line to provide for water-circulation therethrough, substantially as described.

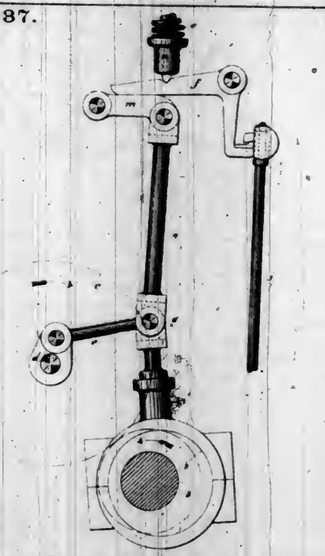
9. The combination, with a pipe having normal communication with a boiler or reservoir below the water-level thereon to provide for circulation therethrough, of the gage E, located therein, said gage consisting of a horizontal tube provided with end fittings, and observation-glasses located at the extremities of said tube and held in place by said fittings, substantially as described.

480,737. GAS OR PETROLEUM MOTOR. ANTON NIEMCZYK, Leipsic, Germany. Filed Sept. 12, 1891. Serial No. 405,561. (No model.)



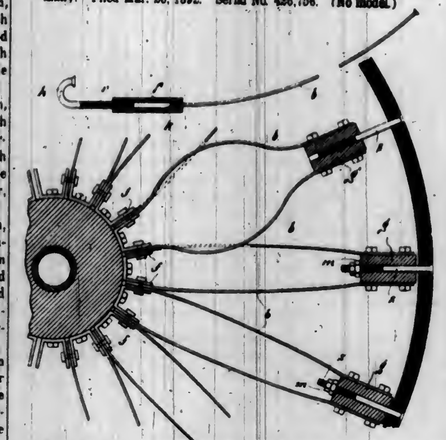
Claim.—In a gas or petroleum motor, the combination of the small toothed wheel *a*, connected with an eccentric *b*, and the large

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toothed wheel *c*, connected with a crank *d*, with a link *e*, a pivot *g*, an eccentric-rod *h'*, a connecting-rod *h*, a valve-lever *f*, and a valve *n*, as set forth.

480,738. ELASTIC WHEEL. JULIUS VON OLIVIER, Munich, Germany. Filed Mar. 28, 1892. Serial No. 426,756. (No model.)



Claim.—1. In a wheel, the combination of the spokes and the outer portion consisting of a continuous band superimposed upon itself in layers, substantially as described.

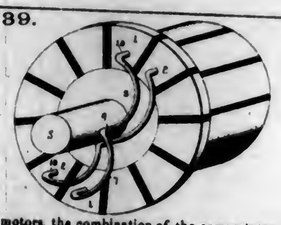
2. In combination, the hub, the rim, the block *g*, the two spokes *b b*, secured to said block, one on each side, and secured, also, to the hub, the bolt S, passing through the said block and connected with the rim, and means for adjusting the bolt, substantially as described.

480,739. COMMUTATOR FOR ELECTRO-MAGNETIC MACHINES. HORACE F. PARSHALL, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Dec. 11, 1891. Serial No. 414,718. (No model.)

Claim.—1. The combination of a commutator-cylinder having several segments or bars and several conductors joining the same in groups, said conductors crossing each other without metallic contact and occupying parallel planes fewer in number than the number of conductors, whereby the space occupied thereby in the direction of the length of the armature-shaft is reduced, substantially as described.

2. In a commutator-cylinder adapted for use with multipolar

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dynamos or motors, the combination of the commutator segments or bars and conductors connecting separate segments, each of said conductors having sections in separate and substantially parallel planes, each conductor having sections substantially at right angles to the parallel sections, substantially as described.

3. In a commutator-cylinder adapted for use with multipolar dynamos or motors, the combination of the commutator segments or bars and conductors connecting separate segments, said conductors having sections one-half of which lie in one plane and one-half of which in another plane, whereby the conductors can be crossed without contact, substantially as described.

4. The combination, with the segments of a commutator-cylinder, of conductors for connecting them in pairs, each of said conductors having two bent sections in different planes, a section connecting the same, and bent ends or extensions connected to the segments, substantially as described.

480,740. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. HORACE F. PARSHALL, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Dec. 11, 1891. Serial No. 414,719. (No model.)



Claim.—1. A toothed or grooved armature-core with one or more perforated sections interposed between grooved sections, said perforations coming in line with the grooves, substantially as described.

2. An armature-core built up of alternating sections of notched and perforated plates, substantially as described.

3. The combination of several notched iron plates placed together so that the notches are in line with each other, forming grooves, and plates having perforations, said plates being interposed at one or more points between the notched plates, the perforations coming in line with the notches, substantially as described.

4. An armature-core built up of sections, a part of the sections being perforated and having their peripheries entire, and the other sections being open in line with said perforations, substantially as described.

480,741. JACK FOR HEEL-NAILING MACHINES. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed June 15, 1889. Serial No. 314,463. (No model.)

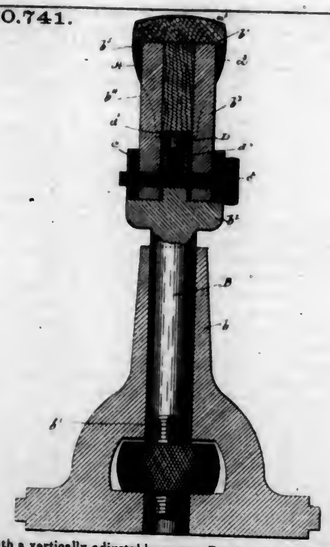


Claim.—1. The improved last for use in connection with a jack having the construction specified and in combination with said jack, comprising a body having its bottom at the heel end formed by the metal plate a' and also having the side recesses a^3, substantially as and for the purposes described.

2. The last A, the metal bottom plate a' for the heel end thereof, having the cross-bar a^3 upon its inner side, and the side recesses a^3, in combination with a supporting-jack, substantially as described.

3. The jack for use in connection with a last having the construction specified having arms b^3 b^4, adapted to enter the side recesses a^3 of the last and to provide supports for the heel-plate a' thereof, combined with a vertically-adjustable support B, substantially as described.

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4. The jack for use in connection with a last of the character specified, having arms b^3 b^4, and the support B, substantially as described.

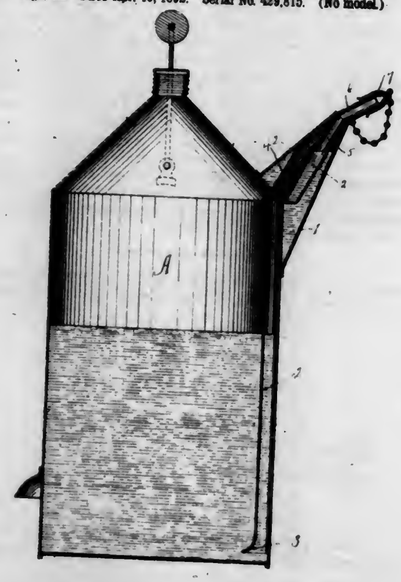
5. A jack for use in connection with the last specified, having the arms b^3 b^4, the adjustable support D, and the adjustable support B, substantially as described.

6. The jack for use in connection with the last of the character specified, having the arms b^3 b^4, horizontally adjustable to and from each other, substantially as described.

7. The jack for use in connection with a last of the character specified, having the arms b^3 b^4, the base b^5, and the spindle-hole b^7, combined with the support D, substantially as described.

8. The combination of a jack having the arms b^3 b^4, with a last having the metal nailing-plate a' at the heel end, and the side recesses a^3 to receive the said arms b^3 b^4, and the support B, substantially as described.

480,742. OIL-CAN. ULRICH REIFFER and JOHN F. STAUFFER, Chicago, Ill. Filed Apr. 19, 1892. Serial No. 429,815. (No model.)

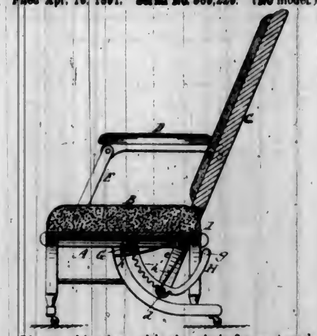


Claim.—1. A can having a spout 1, a tube 2, leading from the interior of said can into said spout, and an outlet-tube 5, leading from the said spout below the upper end of said tube 2.

2. A can having a spout 1, a tube 2, leading from the lower end portion of said can into said spout, and an outlet-tube 5, leading from said spout below the upper end of said tube 2.

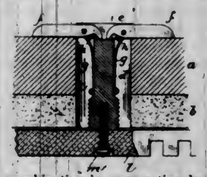
3. A can having a spout 1, a tube 2, having a flared lower end 3, located at the lower end portion of said can and having its upper end leading into said spout, and an outlet-tube 5, leading from said spout below the upper end of said tube 2.

480,743. ADJUSTABLE CHAIR. WILLIAM RICHARDS, Rochester, N. Y. Filed Apr. 16, 1891. Serial No. 389,239. (No model.)



Claim.—The combination, with the chair-frame A and pivoted back C, provided with the cross-rod d, of the ratchet-bar G, pivoted to the frame, the ratchets H H, attached thereto, engaging with the cross-rod, the cross-round I, attached to the frame and lying in axial line with the pivots on which the chair-back turns, and the coiled springs K K, resting on the cross-round and provided each with two projecting ends A A', one operating the ratchet-bar and the other the chair-back, as shown and described, and for the purpose specified.

480,744. DEVICE FOR SUPPORTING FIXTURES. JAMES T. ROSS, Mount Vernon, assignor to Bergmann & Company, New York, N. Y. Filed Dec. 20, 1889. Serial No. 334,439. (No model.)



Claim.—1. The combination, in a supporting device of the character described, of a stem, arms pivoted thereto at its upper end, springs secured to the body of the stem and holding said arms at approximately right angles to the stem, and means to prevent further movement of said arms, substantially as described.

2. A device for suspending electric-light fixtures from hollow ceilings, having, in combination, a stem or shank, two arms pivoted thereto, springs for keeping said arms extended, means for preventing said arms from rising above a horizontal point, and a screw-threaded opening at the lower end of said stem, substantially as set forth.

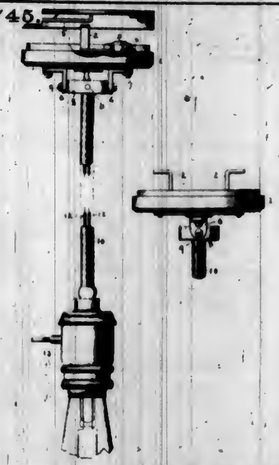
3. In a device for supporting fixtures from hollow ceilings, the combination of the stem or shank d, pivoted arms f, springs g for keeping said arms at right angles to the stem, fingers i, preventing said arms from rising above the horizontal point, and screw-threaded opening k at the lower end of stem d, substantially as set forth.

480,745. ELECTRIC-LIGHT FIXTURE. JAMES T. ROSS, Mount Vernon, assignor to the Edison General Electric Company, New York, N. Y. Filed Aug. 31, 1891. Serial No. 404,229. (No model.)

Claim.—1. The combination of a block or cover carrying terminals on one side, a pipe inclosing or adapted to inclose conductors and adapted to support an electrical device, brackets fixed to the opposite side of said block or cover, and a gimbal-joint between said brackets and pipe, substantially as described.

2. The combination, in an electric-light fixture, of a ceiling block or box carrying within it circuit-terminals, a block carrying hook-shaped terminals adapted to engage the first-mentioned terminals to complete the circuit, conductors from the terminals on the block to an electrical device, and a pipe inclosing the conductors and supporting said device and supported from the block by a gimbal-joint having brackets secured to the lower face of the block, substantially as described.

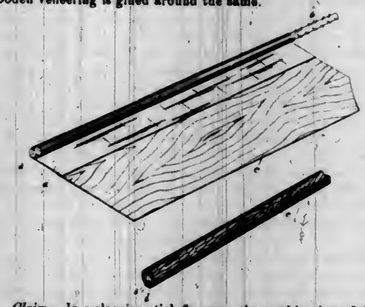
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3. The combination of a block or cover, metal pieces on one side thereof, to which circuit-wires may be connected, brackets on the opposite side of said block or cover, said metal pieces and brackets being secured to the block by screws, each passing through a bracket and one of said pieces, a pipe adapted to support an electrical device, and a gimbal-joint between said pipe and said brackets, substantially as described.

480,746. VENEERED GUN-ROD. ALBERT SANDBERG, Freystadt, Germany. Filed Feb. 5, 1892. Serial No. 420,457. (No model.) Patented in Germany Aug. 22, 1891; in France Aug. 27, 1891, No. 215,764; in Switzerland Aug. 28, 1891, No. 3,933; in England Sept. 5, 1891, No. 15,185; in Belgium Sept. 7, 1891, No. 96,301, and in Italy Sept. 19, 1891, VIII, 283.

Brief.—A steel rod is covered with a strip of linen and then a wooden veneering is glued around the same.



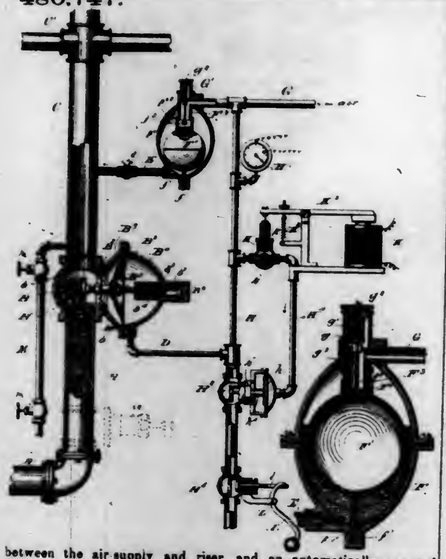
Claim.—In a cleaning-stick for guns, the combination of the steel rod a, the linen strip d, and the veneer c, as and for the purpose described.

480,747. SPRINKLER SYSTEM. WILLIAM C. SHAFFER, Milwaukee, Wis. Filed Sept. 18, 1891. Serial No. 406,137. (No model.)

Claim.—1. In a sprinkler system, the combination, with the main water-supply pipe, of a valve for closing the same, a diaphragm on the valve, a compressed-air-supply pipe leading into the rear of the diaphragm, and two or more automatically-operated independent means in operative connection with the system for releasing the diaphragm from the air-pressure upon the presence of abnormal heat, substantially as described.

2. In a sprinkler system, the combination, with the main water-supply pipe, the riser, and branch pipes, of a compressed-air-supply pipe, a branch pipe forming communication between the air-supply and riser, a valve actuated by the compressed air to cut off the water-supply, and a valve actuated by the water to close communication

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between the air-supply and riser, and an automatically-operated escape-valve in the air-pipe, substantially as described.

3. In an automatic sprinkler system, the combination, with the main supply-pipe, the riser, and branch pipes, of a valve located between the riser and main supply pipe, a stem on the valve, a diaphragm on the stem, a compressed-air-supply pipe leading into the rear of the diaphragm, a valve in the air pipe, a magnet for unseating the valve, a branch pipe forming communication between the riser and air-pipes, and a valve in the branch pipe for closing the communication upon the pressure of water in the branch pipe, substantially as described.

4. In a sprinkler system for automatic fire-extinguishers, the combination, with the water-supply pipe, riser, and branch pipes, of an air-supply pipe, a valve actuated by the air-supply to close the water-supply, a communicating passage between the air-supply and riser, a valve in the passage for closing the same, and an escape-valve actuated by the said valve, substantially as described.

5. In a sprinkler system, the combination, with the water-supply pipe, riser, and branch pipes, of a compressed-air-supply pipe communicating with the riser, a valve between the riser and water-supply, a diaphragm against which the compressed air impinges for closing the valve, a float-valve between the riser and air-supply, and an escape-valve actuated by the float, substantially as described.

6. In a sprinkler system for fire-extinguishers, the combination, with a supply, riser, and branch pipes, of a compressed-air supply, a communicating passage between the same and riser, a float-valve in the passage, a perforated sleeve on the float, a nipple with which said sleeve engages, and an air-discharge valve actuated by the float, substantially as described.

7. In a sprinkler system for automatic fire-extinguishers, the combination, with the supply and riser pipes, of a valve between the same, a diaphragm-chamber in which the valve-stem works, a diaphragm on the valve, means for introducing compressed air in the rear of the diaphragm, and a yielding partition between the diaphragm and valve, substantially as described.

8. In a sprinkler system, the combination, with a water-supply pipe and riser-pipe, of a valve-coupling between, a casing on the coupling, a valve in the coupling, a diaphragm on the valve, and a yielding partition secured to the valve between the casing and coupling, substantially as described.

9. In a sprinkler system, a diaphragm-valve for closing the water-supplying pipe, pipes for supplying compressed air for actuating the diaphragm, valves for releasing the diaphragm from said air-pressure, a valve in the air-pipes, and a weighted lever for normally opening the same, substantially as described.

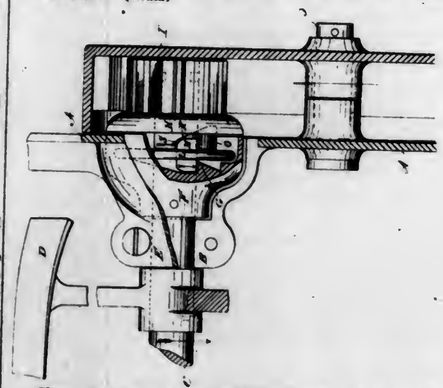
10. In a sprinkler system, the combination, with the riser, air, and water-supply pipes, and a diaphragm-valve for closing the water-supply, of a communicating pipe between the air-supply and riser pipes, a float-valve in said communicating pipe, an air-discharge valve, and a stem on the air-discharge valve extending down into the path of the float, substantially as described.

11. In a sprinkler system, a float-valve having a perforated collar, a hollow nipple fitting within the collar, and a guide-pin on the float, substantially as described.

12. In a sprinkler system, the combination, with the main supply-pipe, riser, and branch pipes, of a valve between the supply and riser pipes, a stem on the valve, a diaphragm on the stem, a casing surrounding the diaphragm, an air-supply pipe leading into the casing and riser, and a valve in the air-pipe, actuated by the water to close communication between the riser and air pipes, substantially as described.

13. In a sprinkler system, the combination, with the water, riser, branch, and air pipes, of a diaphragm-valve for closing the water-pipe, a diaphragm-valve for closing the air-pipe, an air-exit valve, a plunger for opening and closing the same, an electro-magnet for normally holding the plunger to close the exit-valve, a float-valve, and an exit-valve actuated by the float to prevent the escape of the air from the air-pipe upon the pressure of water in the riser-pipe, substantially as described.

480,748. CLUTCH. ALBERT L. SLAGER, Springfield, Ohio, assignor to the G. S. Foos Company, same place. Filed June 22, 1891. Serial No. 397,127. (Model.)



Claim.—1. In a clutch, the combination, with a head having ratchet-teeth on one end and having a housing extending out beyond said teeth, of a dog consisting of an annulus provided with teeth symmetrically located on each side thereof, so that both sides are alike and matching said ratchet-teeth of the head, and a closing disk or piece adjacent to said housing and having teeth opposite to said ratchet-teeth and matching with the teeth of said dog, and a support for said pieces, whereby the dog constitutes a symmetrical clutching connection between said head and disk and is adapted to be used with right or left hand inclosing members.

2. In a clutch, the herein-described dog, the same consisting of an annulus of comparatively small thickness to take up as little room axially as possible and provided with teeth or lugs extending out substantially the same from both sides, whereby the dog is symmetrical and adapted to be reversed, the said lugs or teeth being open through the sides of the annulus to allow the operative teeth engaging therewith to extend into or beyond the annulus.

480,749. STANDARD. LUCIUS T. STANLEY, Brooklyn, N. Y. Filed May 15, 1891. Serial No. 392,939. (No model.)



Claim.—1. In combination, a base, a rod or tube, of flexible metal, secured to said base, so as to be adapted to have a revoluble movement in said base, a spiral spring surrounding said rod or tube and connected to said rod or tube, and a socket connected to the upper end of said spring.

2. In combination, a base, a rod or tube, of flexible metal, secured to said base, a sleeve, as H, which surrounds the upper end of said rod or tube, a socket, as J, in said sleeve, and a spiral spring surrounding and connected to said rod or tube, the upper end of said spring being connected to said sleeve H.

3. In combination, a base, a rod or tube, of flexible metal, secured to said base, so as to be adapted to have revoluble movement in said base, a sleeve, as H, which surrounds the upper end of said tube or rod, a socket, as J, in said sleeve, and a spiral spring surrounding and connected to said rod or tube, the upper end of said spring being connected to said sleeve H.

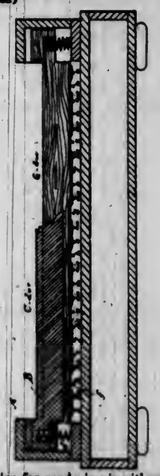
4. In combination, a base, a rod or rods, as A, of flexible metal, secured to said base, a tube formed of flexible metal surrounding said rod or rods, a sleeve, as H, which surrounds the upper end of said tube and rod, a socket in said sleeve, and a spiral spring which surrounds and is connected to said tube, the upper end of said spring being connected to said sleeve H.

5. In combination, a base, a rod or rods, as A, of flexible material, secured to said base, a tube formed of flexible material surrounding said rod and secured to said base, so as to be adapted to have a revoluble movement upon said base, a sleeve, as H, surrounding the upper end of said rod and tube, a socket in said sleeve, and a spiral spring surrounding and connected to said tube, the upper end of said spring being connected to said sleeve.

6. In combination, a base, a rod or rods formed of copper or other flexible electric conducting material secured to said base, a tube formed of flexible material surrounding said rod or rods, a sleeve, as H, which surrounds the upper end of said tube and rod, a socket in said sleeve, and a spiral spring which surrounds and is connected to said tube, the upper end of said spring being connected to said sleeve H.

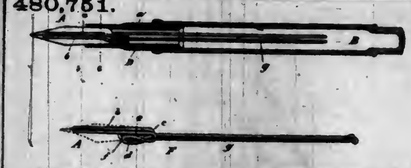
7. In combination, a base, a rod or rods formed of copper or other flexible electric conducting material secured to said base, a tube formed of flexible material surrounding said rod or rods and secured to said base, so as to be adapted to have a revoluble movement upon said base, a sleeve, as H, which surrounds the upper end of said tube and rod, a socket in said sleeve, and a spiral spring which surrounds and is connected to said tube, the upper end of said spring being connected to said sleeve H.

480,750. ATTACHMENT TO ZITHERS. PAUL STARK and KARL A. GÜRTLER, Markneukirchen, Germany. Filed Nov. 12, 1891. Serial No. 411,756. (No model.)



Claim.—In a device for rendering in zithers only certain groups of strings adapted to be sounded, the combination of the frame A, having notches *d*, with the guide-pins C, bearing click-springs *c*, and the bars B, raised by springs *d* and provided with cloth plates *f*, as and for the purpose set forth.

480,751. FOUNTAIN-PEN. WILLIAM W. STEWART, Brooklyn, N. Y. Filed Jan. 20, 1890. Serial No. 337,406. (No model.)



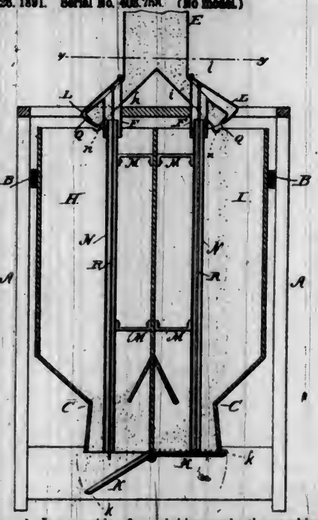
Claim.—1. In a fountain-pen, a wire extending longitudinally against the pen, bent upon itself beneath the heel of the pen, and extending thence upwardly into the reservoir.

2. In a fountain-pen, a double wire extending longitudinally against the pen, bent upon itself beneath the heel of the pen, and extending thence upwardly into the reservoir.

3. In a fountain-pen, a wire doubled upon itself, with its fold adjacent to the slit in the pen, extending thence upwardly along the pen, bent downwardly and forwardly beneath the heel of the pen, and bent backwardly and its end portions extending upwardly into the reservoir.

4. In a fountain-pen, a wire or strand extending upwardly, bent upon itself, and extending downwardly, the two portions having an elastic tendency to press together, whereby on inserting the pen between them it will be clamped in place.

480,752. AUTOMATIC WEIGHING-MACHINE. JOHN R. STOKER, New York, N. Y., assignor to Frances J. Hasbrouck, same place. Filed Aug. 26, 1891. Serial No. 403,758. (No model.)

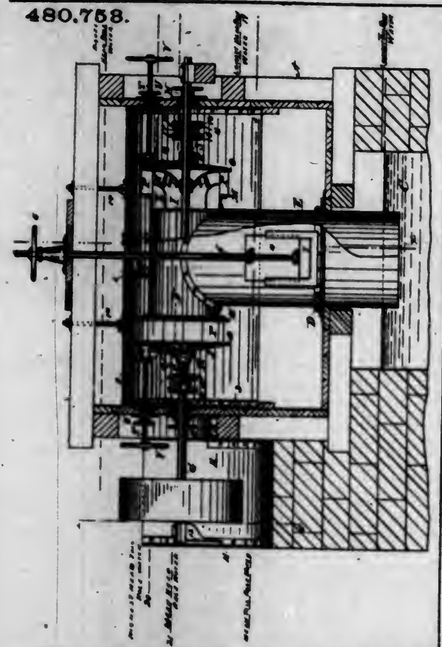


Claim.—1. In a machine for weighing grain, the combination of, first, a balance-beam bearing on one of its lever-arms a hopper having two compartments, each provided with a door at the bottom for delivering the grain, the door of one compartment adapted to be shut by opening the door of the other; second, a chute having two branches adapted to deliver grain into said compartments, respectively, and, third, a device for operating the cut-offs of said branches, which consists of a rod inclosed from the grain and dirt and adapted to be raised by the shutting of said door, substantially as described.

2. In an automatic machine for weighing grain, the combination of, first, a balance-beam having the hopper for the grain supported on a knife-edge on one arm thereof higher than the fulcrum of said beam on the frame of the machine and the weight supported on a knife-edge on the other arm thereof higher than the said first-mentioned knife-edge and said fulcrum-point; second, a hopper having two compartments adapted to receive and deliver grain alternately from a chute having two branches; third, bottom doors for said compartments having flanges; fourth, cut-offs for said branches, consisting of a plate movable transverse to the opening of said chute, and a plate rigid on the wall of said chute toward which said movable plate is moved when said chute is opened, and, fifth, means of automatically opening said bottom door of one compartment and shutting the branch chute feeding the same and shutting said bottom door of the other compartment and opening the branch chute feeding the same, alternately, as the hopper receives the amount of grain to be weighed and drops, substantially as described.

480,758. WATER-WHEEL. WILLIAM W. TYLER, Springfield, Ohio, assignor to the James Leffel & Company, same place. Filed Dec. 4, 1891. Serial No. 414,082. (No model.)

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Claim.—1. In a water-wheel, the combination, with a wheel proper and its adjuncts and a discharge flume or passage, of an inclosing flume or structure within which such wheel is located and a valvular device mounted on the top of said hood to admit water into such flume or discharge-passage initially and shut off said water therefrom after the preliminary operation of the wheel, whereby the air is drawn from the chamber within such hood or inclosing structure and the water is raised about and above the wheel and above the head.

2. In a water-wheel, the combination, with a wheel proper and its adjuncts and a discharge flume or passage having an opening in the discharge-flume below the wheel to admit water into the flume or passage, of an air-discharge pipe or passage leading from the upper part of the chamber within such hood or structure into such flume or discharge-passage, for the purpose set forth.

3. In a water-wheel, the combination, with a hood, of a discharge-flume, an air-discharge pipe bent reversely in a hook shape and connecting the upper part of the hood and the flume, and a float adjacent to said pipe adapted to close the same automatically, as and for the purpose described.

4. In a water-wheel, the combination, with a wheel proper and its adjuncts and a discharge flume or passage, of a hood or inclosing structure within which such wheel is located and an air pipe or passage leading from the chamber formed within such hood or structure to the flume or discharge-passage, whereby the air in such chamber may be exhausted as the water passes down said flume or discharge-passage and whereby vacuum-space is formed to permit the water to rise in such hood or structure.

5. In a water wheel, the combination, with a wheel-case and wheel proper at either end thereof, independent gate-operating devices for each wheel proper, and a discharge-flume connected to such case, of a hood or inclosing structure within which the case and wheels proper are located and a controlled water-opening leading to such flume below the wheels, whereby water may discharge through it and produce vacuum conditions in the chamber within such hood or structure to effect the elevation of the water therein to an altitude above the head.

6. In a water-wheel, the combination, with a case, a wheel proper at each end thereof, independent gate-operating mechanism for such wheels, and a discharge-flume connected to such case, of a controlled opening in the flume for the purpose described and a hood or inclosing structure within which the case and wheels are located, and an air-discharge pipe or passage leading from the chamber within the hood or structure to the flume, for the purpose described.

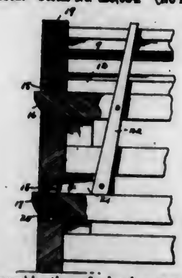
7. In a water-wheel, the combination, with a case, two wheels proper, and a discharge flume or passage, of a hood or inclosing structure within which such case and wheels proper are located and a controlled water-opening in the flume or passage, for the purpose described.

480,754. NECKTIE-FASTENER. LUDWIG UHDENING, Berlin, Germany. Filed Apr. 11, 1892. Serial No. 428,695. (No model.)



Claim.—In a necktie-lock, the combination, with the housing adapted for attachment to the scarf-shield and containing pins *a b*, of a spring-fork having the central loop and spread ends and adapted for connection to a neckband, substantially as set forth.

480,755. SLIDING GATE. MARTIN L. WALTERS, Findlay, Ohio. Filed Mar. 3, 1892. Serial No. 423,634. (No model.)



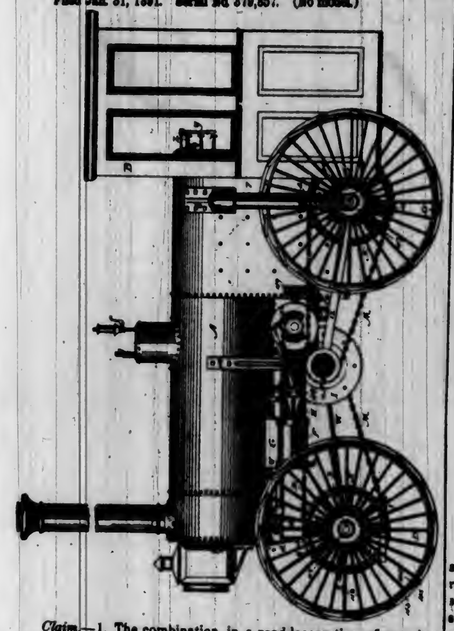
Claim.—The combination of a latch-post provided with openings and having a transverse pin arranged in one of the openings, a sliding gate provided with projections 16 and 17, the latter being shouldered and adapted to engage the pin, a sliding wedge arranged above the projection 17 to force the latter into engagement with the pin, and a lever fulcrumed on the gate and connected to the wedge, substantially as described.

480,756. ELASTIC PUMP-ROD. WALTER C. WESTAWAY, Decorah, Iowa. Filed Dec. 14, 1891. Serial No. 415,028. (No model.)



Claim.— In an elastic pump-rod, the combination of the pump-rod sections A F, the spring E, the fixed block D', the movable block D, and the connecting members *g'*, with two flat flexible metal straps K K, fastened to the lower block D', serving as guides for the upper movable block D, above which block said straps are secured to an interposed strut G for the purpose of holding them parallel to each other between the blocks D D', said straps extending upward from the strut G to the upper section F and attached to the sides of the latter section at a sufficient distance above the strut G to enable them to be flexed to conform to rod-sections of various sizes, substantially as and for the purpose set forth.

480,757. ROAD-LOCOMOTIVE. HENRY WHITE, Bellville, Ohio. Filed Jan. 31, 1891. Serial No. 379,857. (No model.)



Claim.—1. The combination, in a road-locomotive, of sprocket-wheel L with coupling-joint on ball *k*, all substantially as set forth.

2. In a road-locomotive, the combination of boiler A on shifting-block *c* with spiral screw *b*, around which bevel-gear *d* is made to rotate by steam-power for the purpose of steering, substantially as set forth, for the purpose specified.

3. The wheel D, having the tire 44, provided with rim 43, and spur 45, all as set forth.

4. The combination, in a road-locomotive, of cushion-wheel E with rubber cushions *o* on drive-wheel axles, substantially as set forth, for the purpose specified.

5. In a road-locomotive, the combined hand and foot lever provided with cross-bars and capable of rotary motion about an axis, in combination with gear-shifting devices for directing the course of the locomotive, as set forth.

480,758. NUT-LOCK. WILLIAM H. WILLS, Buena Vista, Va., assignor of four-fifths to A. Seddon Jones, Julius Graham, Roland F. Hill, Burns Osborne, and Jesse H. Clore, same place. Filed Dec. 10, 1891. Serial No. 414,560. (No model.)



Claim.—1. In a nut-lock, a notched plate having a slideway entering the notch, the slideway having in it a rod free to slide in the direction of its length and also to turn on its axis and lugged at the end with lug in notch, substantially as described.

2. In a nut-lock, a plate provided with a cross-notch having a keeper projecting into it laterally at the top, said plate being also provided with a longitudinal slideway entering the cross-notch and containing a lugged rod with the lug in the cross-notch, substantially as and for the purpose described.

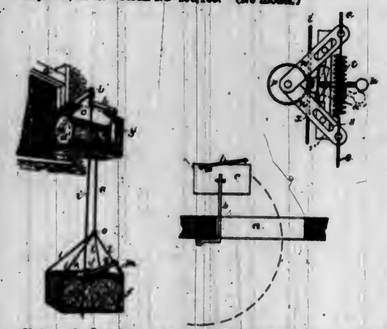
3. In a nut-lock, a plate provided with a longitudinal slideway, and a cross-notch recessed laterally above and below the slideway, in combination with a rod free to slide and also to turn in the slideway and having a lug at an end, the lug being in the cross-notch, all substantially as and for the purpose set forth.

4. The combination, with the plate A, having cross-notches *a*, provided with keepers a^2 in the sides and having a longitudinal slideway a^3 between the notches containing rod B, provided with lugs *b*, adapted to lie in said notches, of a bolt and nut, substantially as described.

5. The combination, with the plate A, having cross-notches *a*, provided with recesses a^5 in the sides at the bottom and having the longitudinal slideway a^3 between the notches containing the rod B, provided with lugs *b*, adapted to lie in the notches, of bolts and nuts, substantially as and for the purpose set forth.

6. The combination, with the plate A, having cross-notches *a*, provided with keepers a^2 in one side and recesses a^5 in the sides at the bottom and having a longitudinal slideway a^3 between the notches containing a rod B, provided with lugs *b*, of a bolt and nut, the whole operating as described.

480,759. FIRE-ESCAPE. CHARLES H. BAKER, Portland, Me. Filed Sept. 19, 1891. Serial No. 406,165. (No model.)



Claim.—1. In a fire-escape, a windlass journaled in a suitable box, a friction-band, a lever attached to one end of said band, and a brake-rope attached to said lever, in combination with a carriage having a supporting-cable adapted to be wound around said windlass and a spring-actuated clutch adapted to clasp the brake-rope with a force proportional to the weight in the carriage, substantially as and for the purposes set forth.

2. In a fire-escape, a windlass journaled in a suitable box, a friction-band, a lever to operate said band, and a brake-rope attached to the end of said lever, in combination with a carriage having a supporting-cable adapted to be wound around said windlass, said cable having a section composed of a V-shaped jointed lever having its ends connected by a spring and a clutch adapted to engage the brake-rope, substantially as and for the purposes set forth.

3. In a fire-escape, a windlass journaled in a suitable box, a coil-spring in one end of said windlass adapted to constantly tend to wind up said windlass, a friction-band, a lever adapted to operate said band, and a brake-rope, in combination with a carriage having a supporting-cable adapted to be wound around said windlass and a spring-actuated clutch adapted to clasp the brake-rope with a force proportional to the weight in the carriage, substantially as and for the purposes set forth.

480,760. SEAT ATTACHMENT FOR BICYCLES. MAURICE R. BLOOD, Kalamazoo, Mich., assignor to the Kalamazoo Cycle Company, same place. Filed Nov. 2, 1891. Serial No. 410,568. (No model.)

Claim.—1. In combination with the handle-bar of a bicycle, a second handle-bar F and seat or saddle G, suspended between the two handle-bars and connecting them together, substantially as and for the purposes specified.

2. In combination with the handle-bar of a bicycle, the second handles *a a*, braces or guards E E, and seat or saddle G, all arranged substantially as and for the purposes specified.

3. In combination with the front fork of a bicycle, a second fork attached thereto, which is bowed or curved at its lower end to make the two said forks together U-shaped and a seat or saddle suspended across the opening of said U-shaped forks, substantially as and for the purposes specified.

4. In combination with the front fork of a bicycle, a second fork attached thereto that is formed of spring metal and bowed down at its lower part, and the upper part of said second fork projecting up-

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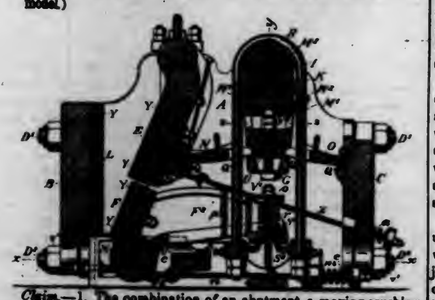
ward to support on its vertical part the foot-rests r r, seat or saddle G, and handles a a, substantially as and for the purposes set forth.

5. The combination and arrangement of the front fork A, handle-bar C, second fork and support D D, and handles a a, substantially as and for the purposes specified.

6. In combination with a seat or saddle G and the handle-bar C, the wire or spring support H H, having the part m to rest on the handle-bar post, the parts n n, curved to hook over the handle-bar, the side wires then doubling back on themselves to form larger hooks H H, and terminating in the small hooks v v to hang the saddle on, substantially as specified.

7. The seat or saddle G and braces or guards E E, having their forward ends connected to the support D D and the handle-bar F, and secured in place by means of the bolt t, substantially as set forth.

480,761. STONE AND ORE CRUSHING MACHINE. EDGAR H. BOOTH, San Francisco, Cal., assignor to the Risdon Iron and Locomotive Works, of California. Filed Oct. 21, 1891. Serial No. 409,357. (No model.)



Claim.—1. The combination of an abutment, a moving crushing-jaw, a central oscillating pitman, toggle-jointed plates between the abutment, the pitman, and the crushing-jaw, a wedge fitted within said pitman between the toggle-seats therein, and adjusting means for said wedge, substantially as set forth.

2. In a stone or ore crushing-machine, a breaking or safety plate resting upon the pitman and connected to a wedge within the pitman, so as to receive the strain coming upon the wedge, substantially as and for the purpose herein described.

3. In a stone or ore crushing-machine, having two movable jaws, both driven from the same shaft, a connecting-rod or U-bolt passing over the pitman-head on the shaft and connected to the lower jaw by means of a ball-and-socket joint, substantially as and for the purpose herein described.

4. In a stone and ore crushing-machine, the combination, with the moving crushing-jaw F, pivoted below its crushing-face, of side bolts D^2, passing outside of the ends of the pivot-shaft or pin H, and the nuts upon the bolts D^2, between the end frames B C, for receiving the thrust of the pivot shaft-bearings v v, through the sliding bar c substantially as and for the purpose herein described.

5. In a stone or ore crushing-machine, the combination, with the moving crushing-jaw, pivoted below its crushing-face, with side bolts having adjusting-nuts, the sliding bar, and pivot shaft-bearings, substantially as and for the purposes herein described.

6. In a stone or ore crushing-machine, the combination, with the moving crushing-jaw F, pivoted below its crushing-face, the ball-and-socket joint S^2 S^3, bolt R, and pitman-head M^2, of the spring r, a rod e, secured at one end to side frames A A of the machine, and at the other bearing upon the spring r, so as to be held in tension for the purpose of preventing lost motion between the bolt R and the head M^2 as well as between the ball bearing connection and the end of bolt R, all substantially as and for the purpose herein described.

480,762. VENTILATED BRUSH FOR DYNAMOS. HOWARD H CHERRY and SEWARD D. YOUNGLOVE, Syracuse, N. Y. Filed Oct. 2, 1891. Serial No. 407,575. (No model.)



Claim.—1. A ventilated brush for dynamos, consisting of a perforated core or interior portion, a perforated wrapper inclosing the core, and a clasp engagingly connected to the perforated brush-body and adapted to longitudinal movement therewith, substantially as described.

2. In a ventilated brush for dynamos, in combination, a perforated core or interior portion, a perforated wrapper surrounding said core, and a perforated clasp or guide attached to the core's wrapper and adapted to be moved longitudinally thereon, substantially as described.

3. The combination, in a ventilated brush for dynamos, of a perforated core or internal portion composed of folded woven-wire fabric, a perforated wrapper or jacket inclosing same, and a perforated clasp or holder partially encompassing the wrapper portion of the brush in such manner as to adapt the movement of the clasp longitudinally with the brush-body, or vice versa, substantially as described.

4. A ventilated brush for dynamos, consisting of a perforated core or interior portion formed of folds or layers of woven-wire cloth lying contiguous one to the other, a perforated wrapper of woven-wire cloth binding the folds or layers together, and a perforated clasp or plate secured longitudinally movable upon the wrapper of the core by means of lateral guideways or hooks, all combined and operating substantially as described.

5. The combination, in a brush for dynamos, of the perforated core or interior formed of a single strip of woven-wire fabric folded back and forth to create layers of equal width, a perforated wrapper of woven-wire fabric immovably inclosing same and having its edges coupled together by a lap-joint, and a loosely-attached clasp-plate provided with perforations connected to the wrapper portion of the brush and adapted to longitudinal adjustment thereon, substantially as described, and for the purposes set forth.

6. The combination, in a ventilated brush for dynamos, of the uniformly-perforated core or central portion composed of a sheet of woven-wire cloth alternately folded back and forth and forming adjacent perforated layers of similar width, a perforated wrapper or band of woven-wire cloth inclosing the said core and of corresponding length longitudinally, the meeting side extremities of the wrapper being coupled together by a lap-joint extending longitudinally with the immovably-inclosed core portion, and a perforated clasp-plate secured to a face of the wrapper portion by lateral hook-shaped projections loosely engaging the opposite face of the wrapper and adapted to desired longitudinal adjustment upon the perforated woven-wire body of the brush, substantially as described, and for the purposes specified.

7. In a ventilated brush for dynamos, the core or central portion composed of contiguous folds of equal width formed of a single sheet of woven-wire fabric folded back and forth, square and uniform-sized ventilating-apertures throughout the said core portion created in the weaving of the wire fabric, a wrapper of woven-wire fabric snugly encompassing the perforated core and secured together at its edges by a lap-joint lying parallel with the brush's length, square and uniform-sized ventilating-openings in the wrapper created in the weaving of the fabric, and a clasp formed of a metallic blank bent to shape contiguous to the external face of the wrapper and secured longitudinally adjustable thereon by integral L-shaped guides loosely embracing the lateral edges of the wrapper immovably attached to the core, all combined and operating substantially as described, and for the purposes set forth.

8. In a ventilated brush for dynamos, in combination, the ventilated core or interior portion composed of folds or layers of woven-wire fabric whose spaces are square and of uniform size, one or more raw edges to the combined folds or layers comprising the core portion which terminate in line with the evened longitudinal edges of the aggregated folds or layers, a ventilated wrapper or binder of woven-wire fabric having square and uniform-sized apertures inclosing said core and retaining the folds or layers thereof together and held longitudinally immovable thereon by the contact of the raw edge or edges of the core with the contiguous interstices of the wrapper, the parallel edges of the wrapper fabric being united together and firmly inclosing the core by a lap-joint connection, and a metallic clasp or shield secured longitudinally movable upon the wrapper of the core, substantially as described, and for the objects specified.

9. A ventilated brush for dynamos, comprising a ventilated core or body portion composed of perforated metallic folds or layers disposed together and a ventilated wrapper or band composed of a perforated metallic covering encircling said core and retaining the same stationary within its wrapper, substantially as described.

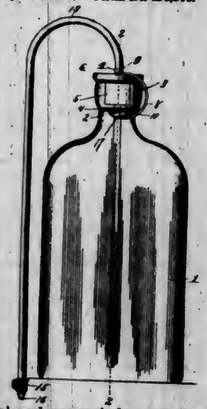
10. In a ventilated brush for dynamos, a perforated laminated core or body portion formed of suitable electric conducting material, a perforated wrapper or band circumferentially inclosing the said core and retaining it immovably within its wrapper, the contacting ends of the wrapping-band being connected together by a lapped joint, and a perforated clasp-shield movably secured to the wrapper of the core, in combination, substantially as described, and for the purposes specified.

11. The combination, in a brush for dynamos, of the perforated laminated core having a circumferentially inclosing perforated wrapper retaining its parts in place, said core portion and its wrapper being coincidently beveled at one end, and a metallic plate or clasp provided with perforations adjustably secured to the wrapper of the core, substantially as described.

12. A ventilated brush for dynamos, made of perforated metallic layers retained together by a perforated metallic band or wrapper extending the length of the said layers, substantially as described.

13. A ventilated brush for dynamos, formed of layers of wire fabric wherein the individual wires in one direction are parallel to the axis of the commutator and the other individual wires transversely to said axis, substantially as described.

480,768. SIPHON-BOTTLE. PHILO M. CLARK, Bonner Springs, Kans. Filed Apr. 30, 1892. Serial No. 431,313. (No model.)



Claim.—A siphoned receptacle for aerated liquids, &c., comprising a suitable body portion having a neck, head, and mouth, the head forming a shoulder at its point of juncture with the neck, a stopper inserted into the neck of the receptacle, an elastic cap located above the stopper, a siphon-tube composed of a shorter inner leg extending through the cap and stopper and rigidly secured thereto, a longer outer leg united at its upper part by a bend to the upper part of the inner leg, a valve located near the lower end of the outer leg, a pair of oppositely-disposed cross-bars extending from the siphon-tube and lying immediately upon the cap, and a bail pivoted upon the outer ends of the cross-bars and engaging the shoulder of the receptacle, substantially as set forth.

480,764. VEHICLE-BOX. DANIEL R. COOCH, Canandaigua, N. Y. Filed Apr. 18, 1892. Serial No. 429,577. (No model.)



Claim.—1. The combination, with a wagon-box, of an upper removable side section and a hinge having one leaf secured to the removable side section and the other leaf removably engaged with the corresponding side of the box, substantially as and for the purpose described.

2. The combination, with a wagon-box, of an upper removable side section, a loop secured to the corresponding side of the wagon-box, and a hinge having one leaf secured to the movable side section and the other leaf registered with said loop, substantially as and for the purpose specified.

3. The combination, with a wagon-box, of an upper removable side section, a hinge having one leaf secured to the removable side section and the other leaf removably engaged with the corresponding side of the box, and a movable stop-shoulder for securing the latter spring-leaf to the side of the wagon-box, substantially as and for the purpose set forth.

4. The combination, with a wagon-box, of an upper removable side section, a loop secured to the corresponding side of the wagon-box, a hinge having one leaf secured to the movable side section and the other leaf registered with said loop, and a movable stop-shoulder secured to the latter spring-leaf for engaging the loop and securing the removable side section to the wagon-box, substantially as and for the purpose described.

5. The combination, with a wagon-box, of an upper removable side section, a loop secured to the corresponding side of the wagon-box, and a hinge having one leaf secured to the movable side section and the other leaf provided with an arm registered with said loop and with a movable frame having one end formed with a projecting stop-shoulder adapted to engage the lower edge of the loop, substantially as and for the purpose specified.

6. The combination, with a wagon-box, of a pair of removable upper side sections hinged to the corresponding sides of the wagon-box and a rear side section hinged to the rear side of the wagon-box, substantially as and for the purpose described.

7. The combination, with a wagon-box, of a pair of removable upper side sections hinged to the corresponding sides of the wagon-box, a rear side section hinged to the rear side of the wagon-box, and ties between the ends of the rear side section and the adjacent ends of the former side sections, substantially as and for the purpose specified.

8. The combination, with a wagon-box having upright slots in the rear ends of its longitudinal sides and a rear side having its ends removably mounted in said slots, of removable upper side sections hinged to the corresponding sides of the wagon-box and formed of less length than said sides, whereby the upper side sections swing within the vertical planes of the front and rear sides of the wagon-box, and a rear removable upper section hinged to the rear side of the wagon-box and formed of less length than the rear side, whereby said rear upper section swings between the vertical planes of the longitudinal sides of the wagon-box, substantially as set forth.

9. The combination, with a wagon-box, of a pair of removable upper side sections hinged to the corresponding sides of the wagon-box and supporting-legs movably secured to the upper portion of the inner sides of the removable side sections for supporting said sections when swung inwardly into a substantially horizontal plane, substantially as specified.

10. The combination, with a wagon-box, of a pair of removable upper side sections hinged to the corresponding sides of the wagon-box, supporting-legs movably secured to the upper portion of the inner sides of the removable side sections for supporting said sections when swung inwardly into a substantially horizontal plane, and a movable stop for retaining said legs in their cooperative position, substantially as set forth.

480,765. AXLE-LUBRICATOR. PETER DENNAU, Sr., Montague, Mich. Filed Nov. 17, 1890. Renewed June 25, 1892. Serial No. 438,047. (No model.)



Claim.—1. The combination, with an axle-spindle having longitudinal webs with notches in the edges thereof, of a perforated sleeve and axle-box, substantially as and for the purpose described.

2. The combination, with an axle-spindle having screw-threaded ends and intermediate notched webs, of the perforated sleeve and axle-box, said sleeve having interior screw-threads at its ends to engage with the screw-threads on the spindle, substantially as and for the purpose specified.

3. An axle-spindle having screw-threaded ends and screw-threaded

nipple and longitudinal webs, notched as shown, in combination with a perforated and screw-threaded sleeve, a box having an annular shoulder at its outer end, and a flanged washer and nut, substantially as and for the purpose set forth.

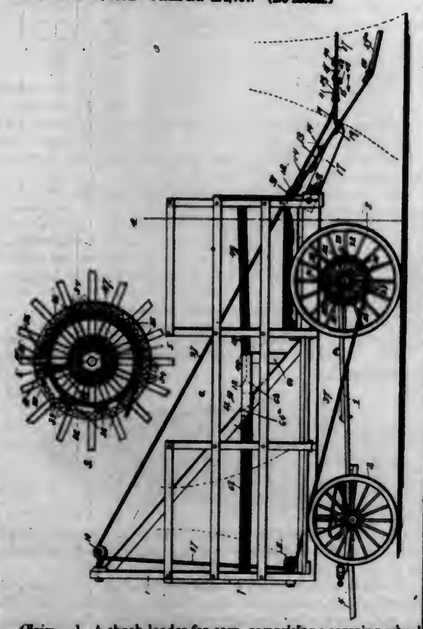
480,766. GUIDE FOR REPLACING ELECTRIC TROLLEYS. CHARLES FORTIN, Florissant, Mo. Filed Apr. 11, 1892. Serial No. 428,607. (No model.)



Claim.—1. In combination with a trolley-pole and trolley secured in the end of same, the herein-described replacing device pivotally secured to the trolley-pole, consisting in bifurcated lever-arm, the lower depending member of which is closed and provided with means of attachment for a rope to operate the same, and the upwardly-extending members of which are inclined outwardly, forming a V-shaped opening between the same at right angles to the line of the trolley-wire, substantially as described, and for the purposes specified.

2. The herein-described device for replacing trolleys, consisting in the combination, with the trolley-pole 5, of a bifurcated lever-arm composed of the inclined arms 7 and 8 and loop 10, by which the arms 7 and 8 are made integral with each other and are operated together, the said bifurcated lever-arm being pivotally secured to the trolley-pole 5 by the axial bolt 11 of the trolley 4, and the operating-rope 9, combined and operating substantially in the manner and for the purposes specified.

480,767. CORN-SHOCK LOADER. DAVID H. GOOD, Canada, Kans. Filed Mar. 14, 1892. Serial No. 424,737. (No model.)



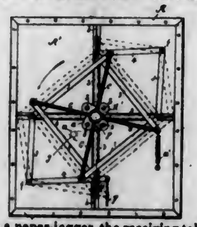
Claim.—1. A shock-loader for corn, comprising a carrying-wheel for a suitable vehicle, a number of brackets embracing the spokes of the wheel, an annulus having a grooved periphery and mounted upon the brackets, and a lever pivoted upon one of the brackets and carrying a bolt for engaging the openings in the annulus and compelling the latter to turn with the wheel and for disengaging the openings and permitting the wheel to turn independently of the annulus, substantially as set forth.

2. A shock-loader for corn, comprising a suitable wheeled vehicle, a number of brackets embracing the spokes of one of the vehicle-wheels and extending outwardly therefrom, an annulus mounted upon the outer portions of said brackets and provided with peripheral flanges having openings or holes, and a lever pivoted upon one of the brackets and carrying at its upper end a bolt or pin for engaging the holes or openings, and thus compelling the annulus to turn with the wheel, and also for disengaging the holes, and thus permitting the wheel and annulus to revolve independently of each other, substantially as set forth.

3. A shock-loader for corn, comprising a suitable wheeled vehicle having at its front end a vertical standard, a pulley mounted upon the upper end of said standard, a brace for said standard extending rearwardly and downwardly therefrom and secured at its lower end to the bottom of the vehicle-body, a pulley mounted upon the front end of the vehicle-body at one side of the standard, a second pulley mounted upon the rear end of the vehicle-body near the corresponding side of the same, a number of brackets embracing one of the rear wheels of the vehicle, an annulus mounted upon said brackets and having a pair of peripheral flanges provided with openings, a lever pivoted upon one of the brackets and carrying at its upper end a bolt for engaging the flange-openings, and a flexible connection attached at one end to the annulus and extending through the rear and front pulleys and also through the pulley of the standard, substantially as set forth.

4. A shock-loader for corn, comprising a suitable wheeled vehicle, a vertical standard provided at its upper end with oppositely disposed oblique horizontal sockets and located in the middle of the bottom of the vehicle-body, a pair of standards located at opposite sides of the rear end of the vehicle-body, a bracket secured to the inner side of each of said standards, and a movable deflecting bar having at one side of its forward end an arm to enter one or the other of the oblique sockets and disposed horizontally in the vehicle-body, the rear end of the bar being engaged with and supported by one or another of the brackets of the rear standards, and said bar serving to direct the incoming shocks to one or another side of the front end of the vehicle-body, substantially as set forth.

480,768. PAPER-JOGGER. RUSSELL A. HART, Battle Creek, Mich. Filed Jan. 23, 1892. Serial No. 419,094. (No model.)



Claim.—1. In a paper-jogger, the receiving table or platform having longitudinal and transverse channels, rods reciprocating in said channels and carrying the supporting-uprights of the jogger-wings, and a fixed support sustaining the outer end of each of the rods and so limiting the range of reciprocation thereof that they shall not travel beyond the table, substantially as described, and for the purpose set forth.

2. In a paper-jogger of the class described, a receiving-table provided with four radial channels, fixed rods therein, chambered rods sliding telescopically on said fixed rods, uprights on said sliding rods removably secured to the jogger-wings, fixed lugs on said sliding rods, links and levers engaging with said fixed lugs, and means, substantially as shown, illustrated, and described, for operating the same.

3. In a paper-jogger, a receiving table or platform having longitudinal and transverse channels, chambered rods reciprocating in said channels and carrying the supporting-uprights of the jogger-wings, and fixed supports projecting from the ends of the table or frame, on which said chambered rods slide telescopically, said supports sustaining the outer ends of said rods and limiting the reciprocation thereof to within the area of the table or frame, substantially as specified.

4. In a paper-jogger, the receiving table or platform provided with longitudinal and transverse channels, rods reciprocating in said channels, adjustable uprights on said reciprocating rods, paper-evener wings on said adjustable uprights, and reducing or sub wings detachably secured to said evener-wings, substantially as described.

5. In a paper-jogger, the receiving-platform provided with radiating channels, a hub pivoted contiguous to the adjacent inner ends of said channels and provided with radial arms or spokes, and rods in said channels respectively connected to and reciprocated by said arms or spokes, said rods carrying the supporting-uprights of the jogger-wings, substantially as shown and described.

6. In a paper-jogger, the receiving table or platform provided with channels radiating from a point near the center thereof, a hub pivoted to said table or platform contiguous to the adjacent inner ends of said channels and provided with radiating spokes or arms, rods in said channels, said rods being connected to and reciprocated by said spokes or arms and carrying the supporting-uprights of the jogger-wings, and fixed supports projecting horizontally from the sides of said table or platform and having telescopic engagement with the outer ends of said rods, said supports serving to also limit the outward movement of said rods to within the area of the table or platform, substantially as specified.

7. In a paper-jogger, the table or platform divided into four approximately equal parts so located with respect to each other as to form transverse and longitudinal channels at the center of said platform, a fixed central plate secured to each of said adjacent corners, a pivotal hub provided with arms or spokes engaging in said plate, and links and levers pivotally connecting said arms or spokes with rods reciprocating in said transverse and longitudinal channels, whereby motion is communicated to the paper-jogger wings carried by said reciprocating rods, substantially in the manner and for the purposes set forth.

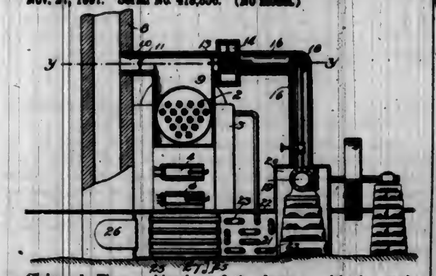
8. In a paper-jogger, the table consisting of four approximately equal parts so located with respect to each other as to form longitudinal and transverse channels of said table at its center, a central plate attached to each of the inner corners thereof, a pivotal hub situated centrally of said plate having a vertical axis and provided with radial arms or spokes, links and levers pivotally engaging with said arms or spokes, and stay-rods or oscillating braces, one end of which swings on a fixed point or fulcrum of said table, and the opposite ends of said braces having pivotal connection with the adjacent reciprocating-rod and its radial parallel link and operating-levers, the whole arranged substantially as shown and described.

9. In a paper-jogger, a table provided with longitudinal and transverse channels, rods reciprocating and confined therein, adjustable uprights on said rods provided with vertically-attachable and detachable paper-evener wings, sub-wings adapted to be detachably secured to said first-mentioned wings, suitable lugs fixed on said rods, and means connected to said lugs for operating said rods, substantially as shown, illustrated, and described.

10. The combination, with the reciprocatory rods of a table-jogger, of an upright *c*, adjustably secured on each of said rods, each of said uprights having channels on opposite sides of one of its ends, plates D^2, each having depending legs and formed with shoulders at the tops of said legs, said legs being received by said channels and said shoulders engaging the tops of the uprights adjacent to said channels, and evener-wings secured to the upper portion of said plates, substantially as shown.

11. In a paper-jogger, the receiving-table A, divided into four approximately equal parts A', longitudinal and transverse channels provided with the reciprocating rods B, carrying the paper-evener-supporting uprights provided with lateral vertical lugs *h h*, adapted to receive the vertical legs *N N* of the paper-evener wings D, and sub-wings D', provided with spring-clasp *w*, the whole arranged in the manner and for the purpose substantially as shown and described.

480,769. FURNACE. ANTON I. HOVLAND, Faribault, Minn. Filed Nov. 27, 1891. Serial No. 413,356. (No model.)



Claim.—1. The combination of the furnace, with the smoke-chimney, the furnace-room floor, said chimney extending to a point beneath the same, the ash-pit and fire-box of said furnace, a box arranged beneath said floor, a duct leading from one side of said box into said ash-box, a fresh air-duct leading into the opposite side of said box, a chamber arranged at each end of said box, horizontal flues 24, passing from chamber to chamber and through said box, a smoke-pipe leading from the top of the furnace down to the chamber, surrounding one end of said box, a duct leading from the chamber at the other end to the base of said chimney, and a direct connection 10, having a damper 11, all substantially as described, and for the purpose set forth.

2. The combination, with the furnace, and boiler, of the smoke-flue, the smoke-pipe, one of said smoke-pipes surrounding the live-steam pipe, the engine, a jacket about the same, a feed-water coil, a chamber for the same, a connection therefrom to the smoke-flue, and means for injecting the water from said coil into the boiler, as and for the purpose specified.

3. The combination, with the furnace and the boiler, of a smoke-flue, a smoke-box of said boiler, a direct connection 10 therefrom to the smoke-flue, the engine, the steam-dome of the boiler, the steam-pipe extending therefrom to said engine, a smoke-pipe inclosing said steam-pipe, a jacket about said cylinder of said engine and connected to said smoke-pipe, a suction-pan within said smoke box and pipe, a feed-water coil, a containing-chamber therefor, a radiator, longitudinal flues therein for the passage of the smoke into the lower end of the chimney, openings into said radiator for the air, and an opening therefrom into the ash-pit of the furnace, said radiator and feed-water chamber being arranged below the grate-line of the furnace.

4. The combination, with the furnace, of the air-radiator having horizontal flues 24 and arranged immediately in front of the furnace and beneath the floor, the air-duct 31 to lead the air into the same, a raised valve-grating covering the mouth of the said duct, whereby the supply of air may be regulated, and a smoke-pipe passing into a chamber surrounding the end of the radiator, the smoke passing thence through the flues 24 and thence to the smoke stack, substantially as described.

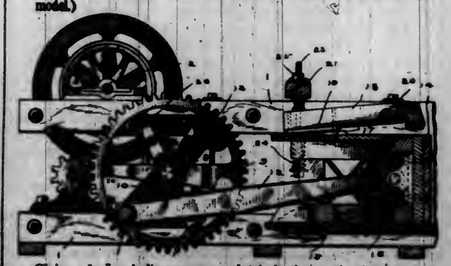
480,770. PAPER-MAKING MACHINE. EDWARD E. JOHNSON, Seneca Falls, N. Y. Filed Mar. 7, 1891. Serial No. 384,169. (No model.)



Claim.—1. In combination, the suction-roll having a perforated periphery and being divided by radial partitions into longitudinal compartments, the sub-partitions extending transversely between the outer ends of the radial partitions to form ways, the adjusting-heads adapted to be slid in said ways, means for sliding said heads in their ways, and the suction-valve connected and successively registering with said compartments as the suction-roll is revolved, substantially as and for the purpose specified.

2. In combination, the suction-roll having a perforated periphery, being divided by radial partitions into longitudinal compartments and being provided with an interior centrally-located chamber to diminish the capacity of the same, the horizontal sub-partitions extending transversely between the outer ends of the radial partitions to form ways, the adjusting-heads adapted to be slidden in said ways, the screws for actuating the adjusting-heads, and the suction-valve connected and successively registering with said compartments as the suction-roll is revolved, substantially as and for the purpose specified.

480,771. BALING-PRESS. JESSE S. JOHNSON and JOSEPH R. JOHNSON, Indianapolis, Ind. Filed Nov. 16, 1891. Serial No. 412,100. (No model.)



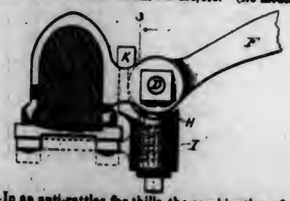
Claim.—1. In a baling-press, an elastic-brake mechanism consisting of brake-blocks pivotally connected to the framework above the

plunger, the outer ends of such blocks connected to a cross-bar through whose outer ends and the framework pass bolts with springs coiled on their lower ends, and nuts for retaining the same, whereby the tension of the springs is exerted to hold the blocks in contact with the plunger as it rebounds, substantially as shown and described.

2. In a baling-press, a rebounding plunger, means for actuating the same, a supporting framework, brake-blocks pivoted to such frame above the plunger and contacting therewith as the latter rebounds, the bearing parts protected by metal friction-plates so set as to present inclined faces, the outer ends of the brake-blocks connected to a cross-bar, the ends of such cross-bar connected to the framework by suitable bolts, on the lower end of which springs are coiled and adapted to be tensioned by nuts on the ends of such bolts, substantially as shown and described.

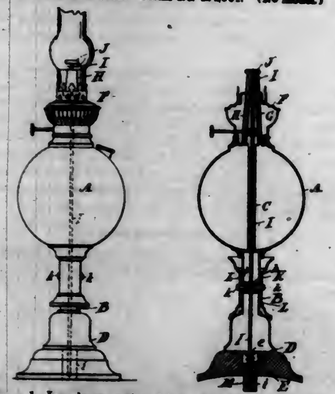
3. In a baling-press, a framework, a rebounding plunger, operating connections thereto, the cranks provided with counter-weights upon their free ends for balancing the weight of the cranks and plunger-bar, and an adjustable friction-brake mechanism pivotally connected to the framework above the plunger, all combined substantially as shown and described.

480,772. THILL-COUPLING. JAMES A. KIRBY, Chicago, Ill., assignor of two-thirds to George B. Jenkins and Charles F. Burns, same place. Filed Feb. 18, 1892. Serial No. 421,415. (No model.)



Claim.—In an anti-rattler for thills, the combination of the coiled spring G, the housing I, containing said spring, said housing being open at both ends and provided at its lower end with internal screw-threads, the screw-plug L, closing the lower end of the housing and squared for the reception of a wrench, the follower H, fitting in the upper end of said housing, resting upon the spring, and having its upper face hollowed out to fit the thill-iron, and an arm J, extending upward from the back of the housing and having the cross-head K, adapted to rest on top of the arms of the thill-coupler and support the anti-rattler, substantially as set forth.

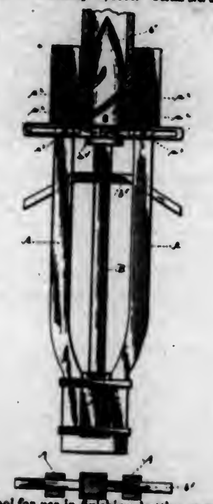
480,773. LAMP-EXTINGUISHER. MIHAEL LAJOIE, Montreal, Canada. Filed Mar. 10 1892. Serial No. 424,331. (No model.)



Claim.—1. In a lamp-extinguisher, the combination, with a lamp provided with an Argand burner, of the cap J, secured on the top of the rod I, a sleeve L, sliding on the slotted standard B of the lamp, the collar K, and screws *k*, whereby the said rod I is connected to the sleeve L, the said screws *k* passing through the slots in the said standard B, substantially as set forth.

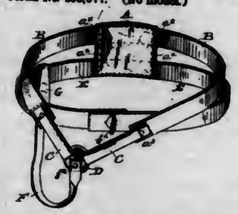
2. In a lamp-extinguisher, the combination, with a lamp provided with an Argand burner, of a slotted tube B, secured to the lower part of the body of the lamp, the tube C, communicating with the said tube B, the chamber E, formed in the base of the said lamp, the rod I, having the cap J and the cylindrical cup *i*, the spring M on the rod in the said chamber, and the sleeve L, secured by set-screws to the said rod, substantially as set forth.

480,774. IMPLEMENT FOR FINISHING THE NECKS OF BOTTLES. CHARLES LEES, Pittsburg, Pa., assignor to Eugene M. Sanger, New York, N. Y. Filed Sept. 6, 1890. Serial No. 364,196. (No model.)



Claim.—A tool for use in finishing bottles, comprising clamping-jaws designed to inclose the interior of the neck of a bottle, a spindle designed to enter the neck of the bottle and having a portion of its length square in cross section, a sliding bar having a square opening receiving the spindle and provided with bent ends, and openings in the jaws receiving the bent ends, substantially as described.

480,775. TRUSS. JOHN A. MARVIN, Lansing, Mich. Filed Oct. 14, 1891. Serial No. 408,677. (No model.)



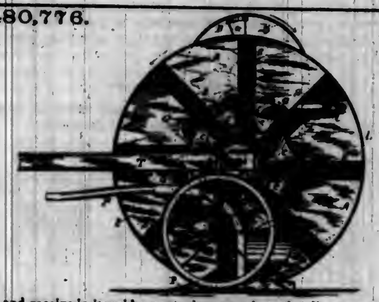
Claim.—In combination with a truss-pad, a central back flexible support or bearing, a single lower body-belt rigidly secured to said bearing and passed entirely around the lower part of the abdomen, unconnected with the truss-pad, with its two ends hooked in front, two upper body-straps secured to the upper part of said back support and to the truss-pad, and a perineal strap, one end movably secured to said lower body-belt and the opposite end to the truss-pad, the truss-pad thus held below the body belt, substantially as described.

480,776. POTATO-HARVESTER. PAUL H. MUNROE, Plainfield, Ill. Filed Mar. 14, 1892. Serial No. 424,768. (No model.)

Claim.—1. The combination, with the disk A, having the discharge-openings G and annular gear F, of the rim L, formed of rods or slats having open spaces between them, radial partitions S, formed of rods or slats having open spaces between them, curved inclined bottoms *c*, rotating sifter B, having the pinion E, and inclined bars D, tongue T, traveling wheel W, bent axle H, and plow P, all arranged to operate substantially as and for the purpose set forth.

2. In a potato-harvesting machine, the disk A, having the discharge-openings G, and having a series of radial receptacles or pockets arranged on its side formed of the rim L, made of rods having spaces between them, and the radial diagonally-arranged partitions S, made of rods having spaces between them, and the curved inclined bottoms *c* for conducting material to said discharge-openings, the said disk and its rim being arranged to roll on the ground at the side of a

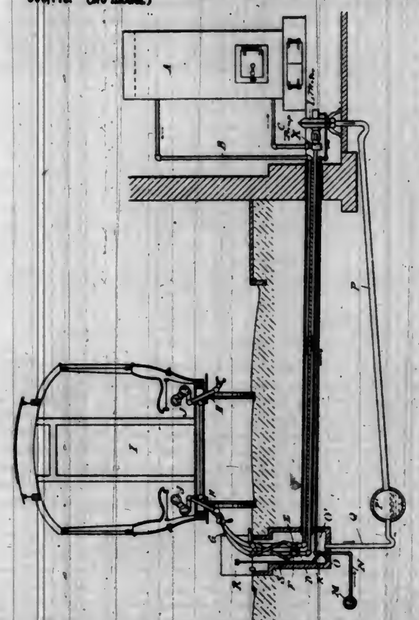
480,776.



plow and receive in its said receptacles or pockets the slice turned by the plow containing the potatoes, substantially as and for the purpose set forth.

3. In a potato-harvester, a wheel or disk adapted to roll on the ground and having radially-arranged sifting receptacles or pockets on its side for receiving the slice containing the potatoes from the plow, and having apertures leading from said receptacles to the opposite side of said disk for discharging the potatoes and unsifted material from said receptacles, in combination with a sifter for receiving the potatoes and unsifted material from said receptacles and discharging the potatoes sifted free from said material, substantially as and for the purpose set forth.

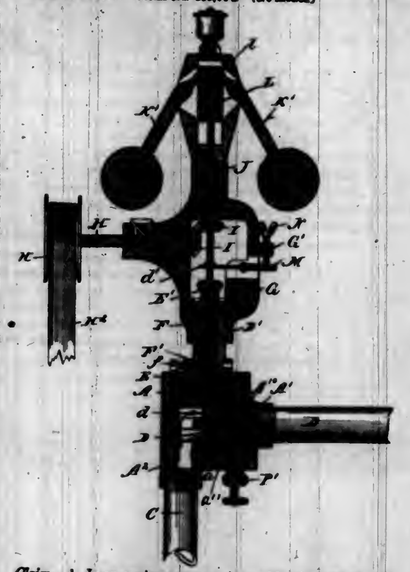
480,777. SUPPLY-STATION FOR CAR-HEATING SYSTEMS. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car-Heating Company, Wheeling, W. Va. Filed June 13, 1891. Serial No. 396,773. (No model.)



Claim.—1. A supply-station for a car-heating system, in which a receptacle on the car is periodically supplied with a heating medium, said station comprising a fluid heater, a circulating system of piping extending to within proximity of the track, a pump in said circulating system, valves for connecting the outgoing and return pipe of said system with the car, a well in which said valves are located, and a cover for said well controlling the action of the pump, substantially as described.

2. In a supply-station for car-heating systems, the combination, with a heater, of outgoing and return pipes communicating therewith, means for connecting said pipes to tanks on a car, a pump in the return-pipe, a pipe leading from a water-supply to the pump, a valve located in said pipe, an arm on the valve, a casing for the outer ends of the outgoing and return pipes, means for gaining access to said casing, and a connection between said means and arm on the valve in the water-supply pipe, substantially as described.

480,778. ENGINE-GOVERNOR. THOMAS H. MACE, Chicago, Ill. Filed Dec. 4, 1891. Serial No. 413,904. (No model.)



Claim.—1. In an engine-governor, in combination with the valve-body, the governor-frame connected thereto by a joint adapted to permit only substantially helical movement of the frame with respect to the valve-body about a vertical axis, the governor-valve having its stem extending vertically into the frame and connected to the governing devices on said frame, the governor-driving shaft journaled in the frame and extending horizontally, and the driving-pulley thereon, substantially as and for the purpose set forth.

2. In an engine-governor, in combination with the valve-body and the governor-frame connected thereto by a joint adapted to permit only substantially helical movement of the frame with respect to the body about a vertical axis, the valve which controls the steam-passages through the valve-body having its stem extending vertically into the frame and connected to the governing devices thereon, whereby it is adapted to be actuated longitudinally by said governing devices and also by the vertical movement of the frame, the governor-driving shaft extending horizontally and the pulley thereon, the valve-body having two ports, one above the other, connecting the steam-induction passage to the steam-eduction passage, and the valve having one port adapted to register with one of said ports at its highest position and with the other at its lowest and in each position to close the port with which it does not register, the lower port being provided with a cut-off valve or gate adjustable at will to limit the access of steam to such port, substantially as and for the purpose set forth.

3. In a governor, the valve-body provided at its upper end with a rigid cylinder through which the valve-stem emerges, the governor-frame terminating at the lower end in a hub having a cylindrical aperture which fits said cylindrical terminal of the body, said hub being obliquely slotted and the cylindrical terminal being provided with a rigid stud taking into said slot, the valve-stem extending up into the frame and connected to the governing devices, whereby it is adapted to be actuated longitudinally both by said devices and by vertical movement of the frame, the governor-driving shaft journaled horizontally in the frame and protruding therefrom, and the driving-pulley thereon, all combined and operating substantially as and for the purpose set forth.

4. In combination with the valve-body and the sliding valve therein, the plug E, through which the stem of the valve emerges, the sleeve F, encircling said plug and rotatably adjustable thereabout and provided with means for securing it as adjusted, the governor-frame swiveled on said sleeve and having the horizontal governor-driving shaft journaled in it, the hub of said frame having the oblique slot f^2, and the sleeve being provided with the rigid stud f^3, taking into said slot, substantially as set forth.

480,779. CORN-POPPING APPARATUS. NELSON B. OLSON, Kansas City, Mo., assignor to Charles O. Olson, Savenburg, Kans. Filed Mar. 4, 1892. Serial No. 423,736. (No model.)

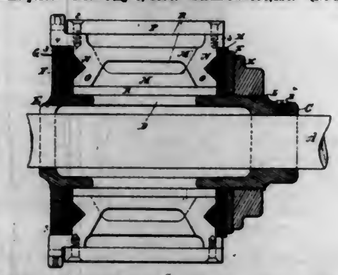


Claim.—1. In a rotary corn-popping case having exterior perforated sides and suitable discharge-openings and an interior convoluted perforate conveyer, a scattering-plate uniting said conveyer with the inner sides of said case, substantially as and for the purpose described.

2. In a rotary corn-popping case having exterior perforated sides and transverse discharge-openings in said sides, an interior convoluted perforate conveyer and an intermediate scattering-plate within said case, extending over one of said openings and connected with the inner side of said case and the said conveyer, for the purpose described.

3. In a rotary popping-case having ends and exterior perforated sides and transverse openings in said sides, a scattering-plate extending over one of said openings, a convoluted perforate conveyer connected with said scattering-plate, and a valve in said transverse opening beneath said scattering-plate, for the purpose described.

480,780. COMMUTATOR FOR RING-ARMATURES. GUSTAV FRANKENDER, Cleveland, Ohio, assignor to the Brush Electric Company, same place. Filed July 3, 1890. Serial No. 358,120. (No model.)



Claim.—1. A commutator having the sections provided with transverse recesses and arranged so that said recesses in adjacent sections overlap, substantially as described.

2. A commutator having sections with flat ends and connecting members of less depth arranged so that said connecting members in one section are opposite vacant spaces in an adjacent section, substantially as described.

3. The commutator-sections recessed or cut away behind the periphery and separated at the periphery by slots or slits, in combination with a perforate mounting giving access from the vicinity of the axis to the spaces formed by said recesses or cut-away portions, which spaces extend to terminate in said slots or slits, and facing-plates located on said cut-away or recessed sections so as to leave an air-space beneath them, substantially as described.

4. In a commutator, the combination, with a hollow bearing, of two series of commutator-sections, each having transverse recesses, the sections of one series being disposed so that their recesses will overlap the recesses of the sections of the other series, the sections of the commutator being separated from each other by slits which communicate at the periphery of the commutator with air-spaces, said hollow bearing having an opening for the passage of air between the commutator-sections, substantially as set forth.

5. The combination of the recessed or cut-away bases of the commutator-sections, the facings for said bases, and the perforate mounting, substantially as described.

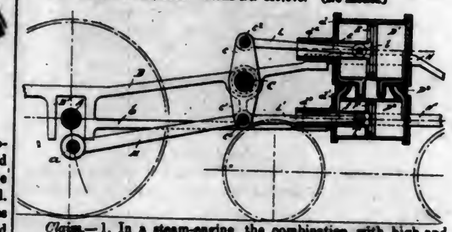
6. The combination of the transversely-recessed bases of the commutator-sections, the facings for said bases, and the perforate mounting, substantially as described.

7. The combination, with a perforate sleeve having heads, of a transversely-recessed sectional base and facing-plates over the recesses in said sectional base, substantially as set forth.

8. A plate or section for a commutator, having a transverse recess therein for producing an air-space, substantially as set forth.

9. The combination, with a commutator plate or section having a recess or cut-away portion in its outer edge, of a plate on said outer edge, adapted to cover said recess or cut-away portion to produce an air-space, substantially as set forth.

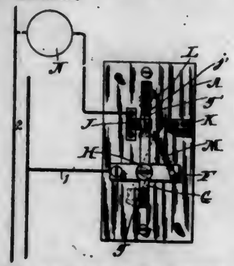
480,781. COMPOUND ENGINE. SAMUEL F. PRINCE, Jr., Reading, Pa. Filed Nov. 25, 1891. Serial No. 413,073. (No model.)



Claim.—1. In a steam-engine, the combination, with high and low pressure cylinders and valve mechanism therefor, of oppositely-moving pistons having hollow trunks extended through the cylinder-heads, piston-rods connecting said pistons directly to opposite ends of a rocking arm mounted on the engine-frame, and a connecting-rod between one arm of said rocking shaft and the crank-pin, all substantially as set forth.

2. A steam-engine having the cylinder-casting thereof fastened to the engine-frame by means of cylindrical frame-sections H H', passing through and firmly fitted in corresponding cylindrical openings g g' in said casting, the extended ends of said sections being connected with the main portion of the frame, substantially as described, whereby said cylinder is firmly secured to a continuous frame without being bolted thereto, substantially as set forth.

480,782. ELECTRIC-LIGHTING SYSTEM. MICHAEL J. GUREK and CHRISTOPH BACH, Jr., Milwaukee, Wis. Filed Oct. 29, 1891. Serial No. 410,192. (No model.)
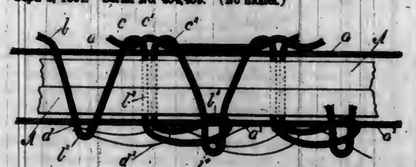


Claim.—1. In an electric-light system, the combination of a switch-lever swinging laterally upon a pivot at right angles thereto, a switch-pole arranged to one side of the lever and adapted to engage said lever when the same is swung laterally thereagainst, a stop arranged upon the opposite side of the lever, a spring plate engaging the switch-pole, push-buttons, one of which is adapted to engage directly the end of the lever to throw it laterally into contact with the switch-pole and the other constructed to engage the spring-plate to release the lever from said switch-pole, and electric lights within the circuit, substantially as set forth.

2. In an electric-light system, the combination of a switch-lever having its opposite ends beveled, a stop, a switch-pole having an angular end over which one of the beveled extremities of the lever is adapted to ride, a spring-plate having its free end bearing upon the switch-pole, a push-button adapted to exert a downward pressure upon the spring-plate, a push-button having the extremity of its shank beveled to register with the corresponding beveled end of the lever, a retractile spring, wires leading, respectively, to the lever and switch-pole, and electric lights within the circuit, substantially as set forth.

3. In an electric-light system, the combination of a base-plate, a switch-lever pivoted thereon, contact-points engaged by said switch-lever, an angular cover for inclosing the operating mechanism, provided with apertures and push-button cases having registering apertures, plates upon the inner surface of the cover, push-buttons within their cases, having their shanks projecting through the apertures and through the inner plates, and springs confined between said inner plates and the heads of the buttons, substantially as set forth.

4. In an electric-light system, the combination of duplicate devices located in different portions of the building, each consisting of a casing having thereon a pivoted switch-lever, a switch-pole arranged to one side of the lever and adapted to hold said lever in contact therewith as the lever is swung thereagainst, a spring-plate engaging the switch-pole, a contact arranged upon the opposite side of the lever, push-buttons, one of which is adapted to engage directly the end of the lever to throw it laterally into contact with the switch-pole and the other constructed to engage the spring-plate and cause the lever to be thrown against the opposite contact, connecting-wires leading to the switch-levers at each point, one of said wires having electric lights in its circuits, and wires connecting, respectively, the switch-poles and contacts of each of the duplicate devices, substantially as set forth.

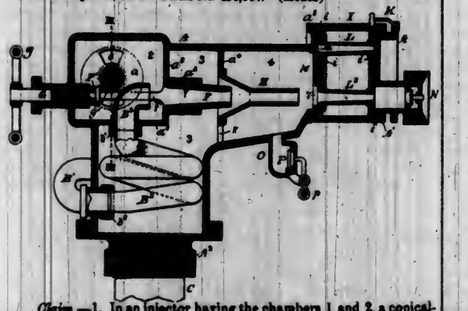
480,788. OVERSEAM. WILLIAM RAEUCHLE, Boston, Mass. Filed Sept. 1, 1891. Serial No. 404,439. (No model.)



Claim.—1. The herein-described overseam, which comprises a series of single needle-thread alternating overedge and depth stitches across the edge of and in the material adjacent to the edge, respectively, the overedge and depth stitch loops of said single thread being interlocked one with the other below the material between the adjacent depth stitches to form a purl contiguous to and in the direction of the lower edge, and an upper purl-thread extending in one direction around adjacent parts of the overedge stitch and in the opposite direction around adjacent parts of the depth stitch at the upper side of the material, an upper purl being thereby formed on and along the edge of the material and parallel thereto above and substantially in line with the lower purl, substantially as described.

2. The herein-described overseam, which comprises a series of alternating overedge and depth stitches across the edge of and in the material adjacent to the edge, respectively, a loop of looper-thread being passed through the overedge-stitch loop, the adjacent depth-stitch loop passing through the loop of looper-thread, the succeeding overedge-edge stitch loop passing through the said depth-stitch loop between adjacent depth stitches, a purl on the under side of the material being formed thereby, and an upper purl-thread extending in one direction around the overedge stitch and in the opposite direction around the depth stitch at the upper side of the material along its edge and parallel thereto, an upper purl being thereby formed, substantially as described.

480,784. INJECTOR. HARRY C. REAGAN, Jr., Philadelphia, Pa. Filed Apr. 28, 1892. Serial No. 430,907. (Model.)



Claim.—1. In an injector having the chambers 1 and 2, a conical-ported seat *a* between the chambers 1 and 2, a conical steam-valve D, fitting said seat and having ports, a stem for rotating said valve, and a sleeve *a'*, extending across the chamber 2 and inclosing said stem, substantially as described.

2. The combination, with the body A, having the partition a^2 and neck a^3, of the sliding nozzle F, having a packing-ring *f* and arms *f'*, a yoke F', a screw-stem G, swiveled to said yoke, a steam-supply pipe located between the arms *f'*, and a combining-tube having a flaring mouth receiving the end of the nozzle, substantially as described.

3. In an injector, the barrel V, containing several combining-tubes *v* of different sizes, all opening into an annular groove *v'*, which receives the end of the steam-nozzle, substantially as described.

4. In an injector, the combination, with the body having a beveled flange a^3, of a rotatable barrel having beveled flanges *i*, an adjustable beveled ring A' for taking up the wear on said flanges, and a plurality of delivery-tubes of different sizes carried by said barrel, substantially as described.

5. In an injector, the body A, cut away at one end to leave the wings A^3, and a rotatable barrel carrying delivery-tubes of different sizes, mounted between said wings A^3, substantially as described.

6. In an injector, the combination, with the body A, of the rotatable barrel carrying a plurality of delivery-tubes, a detent for holding said barrel when adjusted, and a dash-plate covering the inner ends of all of said tubes except the one in line with the combining-tube, substantially as described.

7. In an injector, the combination, with the body A, of the stationary dash-plate M, having an aperture 7, and the rotatable barrel I, carrying the removable delivery-tubes I, substantially as described.

8. An injector for forcing hot water, having its steam-pipe exposed for a portion of its length to the incoming water, whereby the temperature of the steam is lowered, substantially as described.

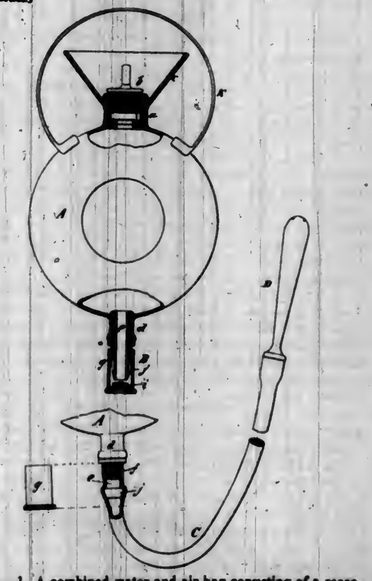
9. An injector for forcing hot water, having a part of its steam-pipe coiled in the water-chamber, substantially as described.

10. The combination, with the body A, having the chambers 1, 2, and 3, of a steam pipe entering the chamber 1 and an auxiliary steam-pipe connected with said chamber and passing through the chamber 3 into the chamber 2, substantially as described.

11. The combination, with the body A, having the chambers 2 and 3, of a steam-pipe coiled in the chamber 3 and entering the chamber 2, said coiled portion being removable, substantially as described.

12. The combination, with the body A, having the chambers 1, 2, and 3, of the steam-pipe B, entering the chamber 1, the steam-valve D between the chambers 1 and 2, the auxiliary steam-pipe B', containing the removable coil B^2, arranged in the chamber 3, and the cap A^4 for giving access to the coil B^2, substantially as described.

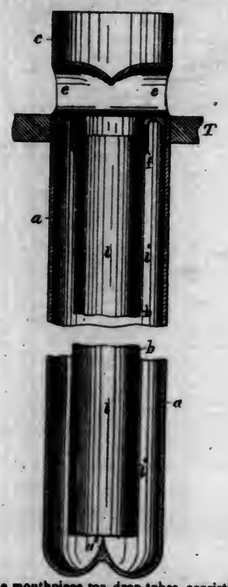
480,785. COMBINED FOUNTAIN-SYRINGE AND AIR-CUSHION. JOHN P. SCHAN, Brooklyn, N. Y. Filed Nov. 27, 1891. Serial No. 413,182. (No model.)



Claim.—1. A combined water and air bag consisting of a receptacle of flexible rubber having a stoppered filling-orifice and a separate opening provided with an air-valve, whereby by closing the air-valve the bag may be filled with water as a water-bag or by closing the stopper it may be inflated with air through said air-valve as an air-bag, substantially as specified.

2. A combined water-bag, air-bag, and fountain-syringe reservoir consisting of a receptacle of flexible rubber, a filling-stopper applied thereto, and an outlet therefrom fitted with an air-valve consisting of a thimble, a screw-cap applied thereto, and a flap-valve in said cap, whereby by closing said valved outlet the receptacle may be used as a water-bag, by closing the stopper it may be inflated with air through said air-valve, or by removing said cap and attaching a syringe-tube to the thimble it may be used as the fountain of a syringe.

480,786. DROP-TUBE FOR STEAM OR HOT-WATER BOILERS. JOHN A. SOLLAY, Brooklyn, N. Y. Filed Feb. 5, 1892. Serial No. 420,427. (No model.)



Claim.—1. The mouthpiece for drop-tubes, consisting in the upright cast-metal cylinder *c*, adapted to rest upon the top of the tube and provided with a collar *d*, adapted to fit therein and having nozzle *f* threaded to receive a division-tube, the nozzle being closed at the top by an arch and being connected with the walls of the cylinder by means of the inlets *e*, extending from the arch through the sides of the cylinder, as and for the purpose set forth.

2. The mouthpiece for drop-tubes, consisting in the upright cast-metal cylinder *c*, adapted to rest upon the top of the tube and provided with the collar *d*, adapted to fit therein and having a nozzle *f* threaded to receive a division-tube, the nozzle being closed by the forked arch *d'* and being connected with the walls of the cylinder by means of the inlets *e*, extending from the arch through the sides of the cylinder, combined with the wrought-metal division-tube *l*, secured within the nozzle, as and for the purpose set forth.

3. The combination, with the drop-tube, of a cylinder *c*, extended above the tube-plate in which the tube is secured, the inlets *e* in opposite sides of the cylinder, united by the nozzle *f* and forming the vertical passages *g*, connecting the drop-tube with the top of the cylinder, and the nozzle being provided with the division-tube *l*, connected internally with the inlets *e*, as and for the purpose set forth.

480,787. INJECTOR OR INSUFFLATOR FOR THE LARYNX, &c. WILLIAM SCOTT, Leavenworth, Kans. Filed Mar. 14, 1892. Serial No. 424,797. (No model.)



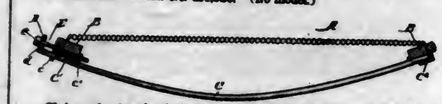
Claim.—1. An injector for the throat, larynx, &c., comprising a bulb of elongated and flattened form, substantially as set forth.

2. An injector for the throat, larynx, &c., comprising a bulb, a plug having enlarged inner and outer ends and inserted into said bulb, and a rigid tube surrounding at its inner end the outer end of the plug and having a laterally-curved outer end, substantially as set forth.

3. An injector for the throat, larynx, &c., comprising a casing for surrounding the tube of the instrument, a mirror pivotally attached to said casing, guides located at the sides of said casing, a rod running through one set of said guides and connected to the mirror, and also having a projecting inner end, an incandescent light carried by the outer end of the casing, conducting-wires leading from said light and through the opposite guides upon the casing, and a hollow handle carried by the casing and designed to contain a battery for connection to the wires, substantially as set forth.

4. An injector for the throat, larynx, &c., comprising a casing for surrounding the injector-tube, a hollow battery-holding handle having its top secured to the under side of the injector-tube casing, and a projection of the top of the casing extending downwardly, forwardly, and laterally and forming a tongue-rest, substantially as set forth.

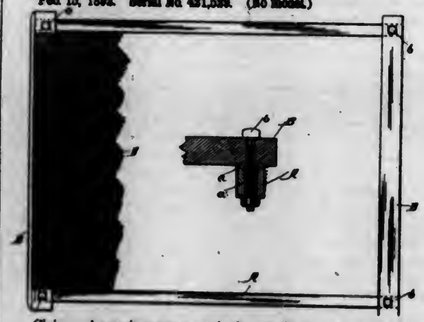
480,788. BED-BOTTOM. CHARLES T. SEGAR, Chicago, Ill. Filed Feb. 15, 1892. Serial No. 421,523. (No model.)



Claim.—1. An elastic bed-bottom composed of an elastic fabric attached to end rails, as B, one of said rails being provided with a casting, as C, and the other of said rails being provided with a socket C^3, in combination with a rod C, adapted to slide through an opening in said casting C and enter the socket C^3, and a screw-bolt E, engaging the rod C, and the casting C for stretching the fabric, as specified.

2. In a bed-bottom of the class described, and in combination with a longitudinal bar, the casting C, adapted to be secured to the end rail, having a projection, as *c*, provided with an opening sufficient to pass the longitudinal bar, and a threaded opening for a screw-bolt E, engaging a projecting part of said bar, as and for the purpose specified.

480,789. BED-BOTTOM. CHARLES T. SEGAR, Chicago, Ill. Filed Feb. 15, 1892. Serial No. 421,532. (No model.)



Claim.—As an improvement in frames for woven-wire bed-bottoms, the side rails and superimposed end rails having their impinging surfaces formed on a curve transversely of the side rails and secured by a bolt passing through a hole in the end rail of greater diameter than that of the bolt, allowing play of the bolt, for the purpose specified.

480,790. HINGE. THOMAS TARGHEY, South Superior, Wis. Filed Nov. 28, 1891. Serial No. 413,390. (No model.)



Claim.—1. In a hinge, the jamb-plate A, having the casing A', said casing being provided with an inwardly-beveled slot a^2 in one of the sides thereof, and an inwardly-curved and outwardly-projecting wall a^3 adjacent said slot, in combination with the plate B, having the concaved portion *b*, and the curved or V-shaped arm B', the end *b'* of said arm being adapted to be journaled in the inwardly-beveled slot a^2, whereby when the said plate B is swung outwardly the curved portion b^2 thereof will rest on the outwardly-projecting wall a^3 of the casing, substantially as and for the purpose shown and described.

2. In a hinge, the combination, with a plate having upon one side thereof a curved or V-shaped arm, the jamb-plate A, having the casing A', said casing being provided with an inwardly-beveled slot a^2 in one of the sides thereof, and an inwardly-curved and outwardly-projecting wall a^3 adjacent said slot, substantially as described, and for the purpose set forth.

480,791. CAST-OFF BUCKLE. JOSIUS A. TRAUT, New Britain, Conn. Filed May 17, 1892. Serial No. 433,330. (No model.)



Claim.—1. The combination, with the web-engaging members, of the socket and detachable spring-slide having the semicircular flange and semicircular opening, respectively, co-operating to unite the socket and slide, substantially as described.

2. The combination, with the web-engaging members, of the socket having the inwardly-curved semicircular flange at the lower edge and the spring-slide narrowed toward the upper end and having a semicircular opening for the reception of the flange, the projecting finger-piece, and the loop for the attachment of the co-operating end of the web, substantially as described.

3. The combination, with the web-engaging members, of the socket having the semicircular concavity in the lower edge of the inwardly-curved flange around said concavity, and the spring-slide having a semicircular opening therein for the reception of the flange, the tongue projecting into the said concavity in the socket and having the raised portion thereon, and the finger-piece, substantially as described.

480,792. SNAP-HOOK. JOSIUS A. TRAUT, New Britain, Conn. Filed May 16, 1892. Serial No. 433,209. (No model.)



Claim.—1. In a snap-hook formed of sheet metal, the combination, with the hook, hook-shank, and loop, of the tongue formed of sheet metal, engaging the hook at one end, passing through the loop, and having the ears at the opposite end embracing the shank and seating in recesses therein, substantially as described.

2. In a snap-hook formed of sheet-metal, the combination, with the hook, hook-shank having the bead *b* therein, and the loop, of the tongue having the ears embracing the shank below the bead, passing through the loop, and engaging the end of the hook, substantially as described.

3. In a snap-hook formed of sheet metal, the combination, with the hook, hook-shank having the bifurcated ends, and the loop around which said bifurcated ends are bent, of the tongue united to the shank on the under side, passing between the ends of the shank, and co-operating with the end of the hook, substantially as described.

480,793. SCREW-TOP FOR CANS. CHARLES H. TYLER, Buffalo, N. Y. Filed June 24, 1891. Serial No. 397,233. (No model.)



Claim.—1. A can or similar vessel having a projecting portion forming a valve-seat, said projection having an end opening and one or more side openings, which together constitute a vent, substantially as and for the purpose set forth.

2. A can or similar vessel having a portion struck up to form a projection 5 and having an end opening 3, formed through such projection, the end of the projection around the opening constituting a valve-seat and said opening 3 having branches 4, extending down the sides of the projection, substantially as and for the purpose set forth.

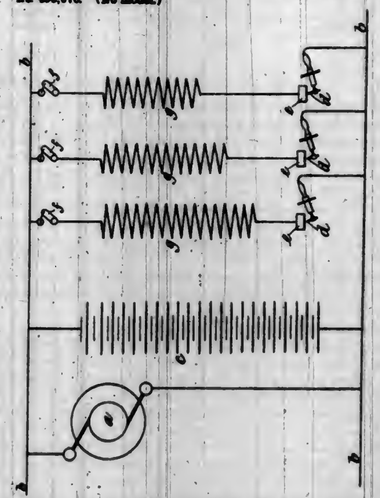
3. A can or similar vessel having a vent-opening adapted to be controlled by an elastic valve, in combination with another valve arranged to regulate the normal flow through such opening, substantially as and for the purpose set forth.

4. A can or similar vessel having a projection provided with a vent-opening partially in the end and partially in the side thereof and adapted to be closed more or less by the finger of the user, and also having a regulating-valve situated inside the can and arranged to regulate the normal flow through the vent, substantially as and for the purpose set forth.

5. A can or similar vessel having a removable cap or cover with a raised portion 5, through which is formed a vent-opening 3, having lateral branches 4, a screw-threaded socket situated on the inside of the cover opposite the said opening, and a screw valve-stem working in such socket and arranged to regulate the amount of normal flow through the said vent-opening, substantially as and for the purpose set forth.

6. As a new article of manufacture, a screw-cap for a can or similar vessel, having its top formed with a raised portion 5 and having formed through this portion 5 an opening 3, with lateral branches 4, extending down the sides of the raised portion, and having a valve-seat 6 around the central portion of the opening 5, substantially as and for the purpose set forth.

480,794. ARC WELDING AND HEATING APPARATUS. PHILIP I. URWIN and HENRY HOWARD, Halesowen, near Birmingham, England, assignors to Lloyd & Lloyd, same place. Filed June 14, 1892. Serial No. 436,670. (No model.)



Claim.—1. In heating and welding by the electric arc, the combination of a continuous-current dynamo, mains connected to the two poles of the dynamo, an accumulator or secondary battery having its poles connected to the mains in parallel with the dynamo, two or more conductors, each having one end connected to one main and the other end to a pencil, two or more conductors, each having one end connected to the other main and the other end to the work or the support of the work, and two or more resistances, each interposed between one of the mains and the pencil or work.

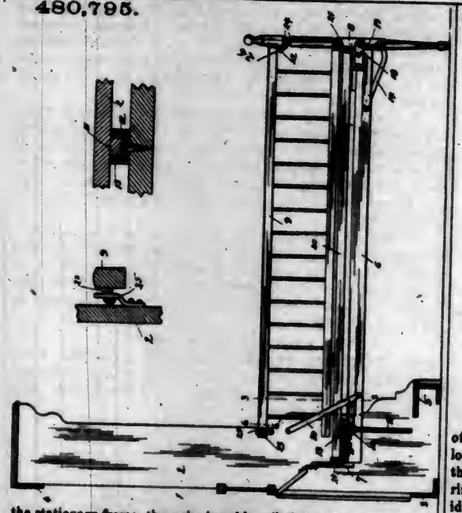
2. In heating and welding by the electric arc, the combination of a continuous-current dynamo, mains connected to the two poles of the dynamo, an accumulator or secondary battery having its poles connected to the mains in parallel with the dynamo, two or more conductors, each having one end connected to one main and the other end to a pencil, two or more conductors, each having one end connected to the other main and the other end to the work or the support of the work, and two or more resistances differing in resistance from each other and interposed between one of the mains and the pencil or work.

480,795. FOLDING BED. CASPER M. WAGNER, Chicago, Ill. Filed Mar. 4, 1892. Serial No. 424,336. (No model.)

Claim.—1. The combination, with a stationary frame, a folding frame having side pieces 6, and straps 10, pivoted to the side pieces and to the stationary frame, of guide-blocks 12, swiveled to the said side pieces and each having a groove 13, and guide-strips 11, rigidly secured to the stationary frame and extending through the grooves in the guide-blocks, substantially as and for the purposes described.

2. The combination, with a stationary frame, of a folding frame having side pieces 6, the straps 10, pivoted to the side pieces and to

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the stationary frame, the swinging side rails 9, having pivotal connections with the folding frame, the guide-blocks 12, swiveled to the side pieces of the folding frame and each having a groove 13, and the guide-strips 11, rigidly secured to the stationary frame and extending through the grooves in the guide-blocks, substantially as and for the purposes described.

3. The combination, with a stationary frame, of a folding frame having side pieces 6, the straps 10, pivoted to the side pieces and to the stationary frame, the longitudinal strips 20, having end straps 21 pivoted to the folding frame so that the strips can rise and fall, the side rails 9, hinged to the longitudinal strips, and the posts 8, pivotally connected with the side pieces of the folding frame, substantially as and for the purposes described.

4. The combination, with a stationary frame, of a folding frame having side pieces 6, the straps 10, pivoted to the side pieces and to the stationary frame, the guide-blocks 12, swiveled to the side pieces and each having a groove 13, the guide-strips 11, rigidly secured to the stationary frame and extending through the grooves in the guide-blocks, the longitudinal strips 20, having straps 21, pivoted to the folding frame so that the strips can rise and fall, the side rails 9, hinged to the longitudinal strips, and the posts 8, pivotally connected with the side pieces of the folding frame, substantially as and for the purposes described.

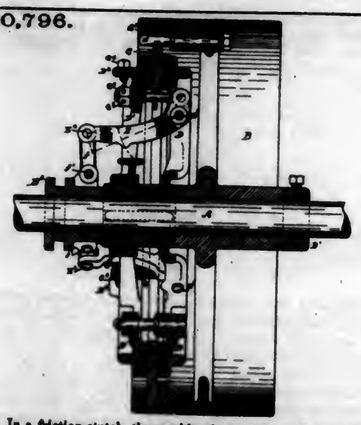
5. The combination, with a stationary frame, of a folding frame having side pieces 6, the straps 10, pivoted to the side pieces and to the stationary frame, the guide-blocks 12, swiveled to the side pieces and each having a groove 13, the guide-strips 11, rigidly secured to the stationary frame and extending through the grooves in the guide-blocks, the longitudinal strips 20, having straps 21 pivoted to the folding frame so that the strips can rise and fall, the side rails 9, hinged to the longitudinal strips, the posts 8, pivotally connected with the side pieces of the folding frame and having hooks 22 to engage the side rails, the hooks 23, secured to the stationary frame, and the pins 23, secured to the inner ends of the side rails and detachably engaging the hooks on the stationary frame, substantially as and for the purposes described.

6. The combination, with the side pieces 6, of the end posts 8, provided with laterally-projecting pins 17, and the straps 14, pivoted at one end to the side pieces and at the opposite end pivoted to the posts directly below said laterally-projecting pins and extending past the pivoted points to form the projecting shoulders 16, which strike the pins on the posts when the latter are adjusted to a position at right angles to the side pieces, substantially as and for the purposes described.

480,796. CLUTCH. EDWARD WALDRON, Philadelphia, Pa. Filed June 28, 1890. Renewed May 11, 1892. Serial No. 432,673. (No model.)

Claim.—1. In a friction-clutch, the combination of a shaft, a sleeve movable lengthwise on said shaft, a ring, clutch members for grasping the opposite sides of the ring, lateral pins for loosely supporting said ring, the outer edge or periphery of said ring being rounded, substantially as shown, and for the purpose set forth, and lever mechanism connected with said sleeve and clutch members to cause the latter to clamp or release said ring.

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2. In a friction-clutch, the combination, substantially as set forth, of a shaft, a sleeve movable lengthwise on said shaft, a clutch-ring loosely supported by connection at its outer edge to another part of the device, and clutch members for gripping the opposite sides of said ring, the clutch member extending farthest from the sleeve being rigidly fastened to the shaft, and levers fulcrumed to said member, having their long arms linked to the sleeve and their short arms attached to an adjusting-piece connected to the opposite clutch member, substantially as set forth.

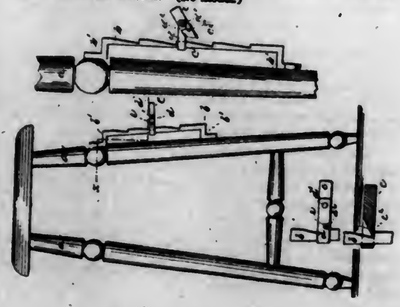
3. In a friction-clutch, the combination of a shaft, a sleeve movable lengthwise on said shaft, a ring C, clutch members D and D′ for gripping the opposite sides of the ring, said ring being flexibly connected at its outer edge to another part of the device, the clutch member D extending farthest from the sleeve being rigidly fastened to the shaft, levers E, fulcrumed to member D and connected to the opposite member D′ and to sleeve B³, and pins *d*, secured in the pulley B and extending through the ring C at or near the outer edge of said ring, substantially as and for the purposes set forth.

4. In a friction clutch, the combination of a shaft, a sleeve movable lengthwise on said shaft, a ring, clutch members for grasping the opposite sides of the ring, said ring being loosely connected at or near its outer edge to another part of the device, pins *d*, secured, substantially as shown, to one of said members and passing through the opposite member for the purpose set forth, and lever mechanism connected with said sleeve and clutch members to cause the latter to clamp or release said ring, substantially as set forth.

5. In a friction-clutch, the combination of a shaft, a sleeve movable lengthwise on said shaft, a ring, clutch members for grasping the opposite sides of the ring, said ring being loosely connected at or near its outer edge to another part of the device and having at or near its outer edge holes or openings flared toward the said opposite sides of the ring, and projections from said other part of the device entering said holes, substantially as shown, and for the purpose set forth, and lever mechanism connected with said sleeve and clutch members to cause the latter to clamp or release said ring.

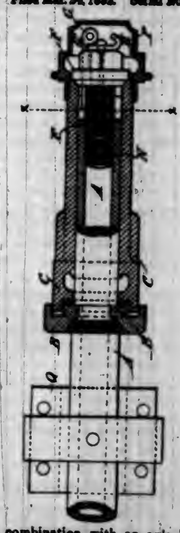
6. In a friction-clutch, the combination of a shaft, a sleeve movable lengthwise on said shaft, the ring C, clutch members D and D′, levers E, adjusting-pieces G, lugs D³, nuts G³, and screws G⁴, which have contact with said nuts, substantially as and for the purpose set forth.

480,797. FOOT-REST. PETER WARD, Rye, N. Y. Filed Sept. 15, 1891. Serial No. 405,801. (No model.)



Claim.—The combination of a chair with a pair of bent racks *b*, secured to the chair-legs, a foot-board *c*, having beveled edge *c′*, supported upon the teeth of the rack, hooks *d*, pivoted to the ends of the board and embracing the racks, and with pins *e*, secured to the foot-board below the hooks, substantially as specified.

480,798. CARRIAGE-AXLE. HENRY WENKER, Offenbach-on-the-Main, Germany. Filed Mar. 24, 1892. Serial No. 426,295. (No model.)



Claim.—1. The combination, with an axle having a collar and having its outer end extending beyond the outer end of the spindle mounted thereon, and having an internally-screw-threaded spindle, of an axle-box mounted on the spindle and abutting at its inner end against the collar, and a screw-threaded pin engaging the internally-screw-threaded spindle and having a head bearing against the outer end of the axle-box, substantially as described.

2. The combination, with an axle having a collar mounted thereon and having an internally-screw-threaded spindle, of an axle-box mounted on the spindle and abutting at its inner end against the collar, and a screw-threaded pin engaging the internally-screw-threaded spindle and having a head bearing against the outer end of the axle box, and means for locking the screw-threaded pin against disengagement, substantially as described.

3. The combination, with an axle having a collar mounted thereon and having an internally-screw-threaded spindle, of an axle-box mounted on the spindle and abutting at its inner end against the collar, and a screw-threaded pin engaging the internally-screw-threaded spindle, and having a beveled head bearing against the beveled outer end of the axle-box, substantially as described.

4. The combination, with an axle having its spindle tubular and screw-threaded in the interior and provided with slots D, of a locking-bolt F, having a feather or key G, with lateral recess G′, and a pivoted locking-plate H, with lateral recess K, for the purposes set forth.

5. The combination, with an axle having a hollow spindle, of an axle-box, a retaining-pin engaging within the hollow spindle, and a filling-nut beyond the pin for preventing the passage of dirt, &c., into the axle beyond, substantially as described.

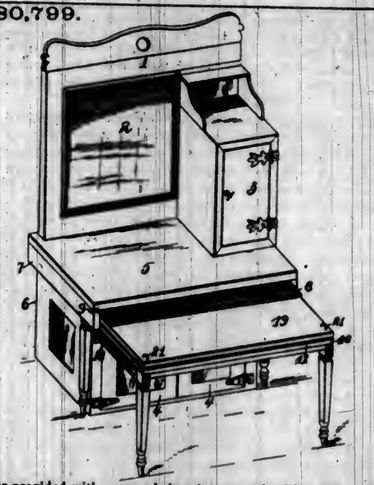
6. The combination, with an axle, of springs resting thereon, a base and cap-piece through which the axle passes, a bolt passing through the springs, base, and cap-piece, and axle, and a nut for drawing up the bolt, so as to clamp all the parts together, substantially as described.

480,799. COMBINED DRESSER AND TABLE. BERNADINE WILES, St. Louis, Mo. Filed Mar. 15, 1892. Serial No. 425,043. (No model.)

Claim.—1. In a combined dresser and table, the combination, with the dresser provided with a top extending beyond the ends thereof and depending strips secured to said extended ends and forming grooves between the strips and the ends of the dresser, of a table comprising legs and side pieces connecting the pairs of the latter and adapted to be received by said grooves, substantially as and for the purpose set forth.

2. In a combined dresser and table, the combination, with the

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dresser provided with a space below its top and with grooves at its sides and a door for closing the front of said space and having pivots at its upper end, whereby said door closes by its own gravity, of a table adapted to be received by said space and grooves and having its top concealed by said door, substantially as and for the purpose set forth.

480,800. FOUNTAIN-PEN. LUCIEN B. WOOLFOLK, Cincinnati, Ohio. Filed May 21, 1892. Serial No. 433,898. (No model.)



Claim.—1. In a fountain-pen, the combination of a barrel with a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, and a separate back-stay back of the pen provided with a lip integral therewith, and a stopper-check upon the lip to prevent it from entering the traversing-hole, and ducts and passages whereby air may enter the barrel and ink may flow out of the barrel to the point of the pen.

2. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, and a separate back-stay back of the pen provided with a lip integral with the back-stay, and an air-inlet in the back-stay and lip having the mouth thereof open to the air on the top side of the lip below the lower end of the point-section, and means to allow the outflow of ink from the barrel to the point of the pen.

3. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, a back-stay located back of the pen provided with a groove in the lower part thereof next the pen, a back-strip held in said groove, and ducts and passages to allow the entrance of air into the barrel and the outflow of ink from the barrel to the point of the pen.

4. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end thereof and provided with a traversing-hole, a pen secured in said point-section, so as to partition the traversing-hole and form a sub-chamber below the pen, a separate back-stay to hold the pen in said point-section by its pressure upon the back thereof, and means to allow air to enter the barrel and ink to flow from the barrel to the point of the pen.

5. In a fountain-pen, the combination of a barrel, with a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole having the sides of the heel thereof in contact with the inner wall of the traversing-hole below the center thereof, a sub-chamber beneath the pen formed between the heel of the pen in contact with the wall of the traversing-hole and that part of the wall of the traversing-hole below the pen, a feed-rod held in said sub-chamber having the under side of the lower end thereof cut away to form a feed-tongue, a back-stay back of the pen, and means to allow the inflow of air into the barrel.

6. In a fountain-pen, the combination of a barrel, a point-section

joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in the traversing-hole, a sub-chamber beneath the pen, a feed-rod held in said sub-chamber, and a back-stay back of the pen provided with a groove in the under side thereof next the pen, and a back-strip held in said groove in the back-stay, substantially as described.

7. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole provided with an ink-aperture in the heel thereof, a feed-tongue below the pen, and a separate back-stay back of the pen provided with an air-inlet therein communicating with the ink-aperture in the heel of the pen.

8. In a fountain-pen, the combination, with a barrel, a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, and a sub-chamber in the point-section underneath the pen, of a feed-rod having a portion cut away from the under side of the lower end of the rod to form a feed-tongue, a finger below the feed-tongue integral with the under side of the feed-rod, and a slot between the feed-tongue and finger, substantially as described.

9. In a fountain-pen, the combination of an ink-holder consisting of a barrel and a point-section joined to the lower end thereof, said point-section provided with a traversing-hole therein, a pen held in said traversing-hole, and a sub-chamber in the point-section underneath the pen, with a feed-rod held in said sub-chamber having a portion cut away from the under side of the lower end of the rod to form a feed-tongue, a finger below the feed-tongue integral with the under side of the feed-rod, a slot between the feed-tongue and finger, and an ink-passage communicating between the ink-holder and the sub-chamber below the feed-tongue, substantially as described.

10. In a fountain-pen, the combination, with a barrel, a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, and a separate back-stay back of the pen, of a feed-tongue below the pen provided with ink-spaces cut away on each side thereof, substantially as and for the purpose set forth.

11. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, a separate back-stay back of the pen, a feed-rod below the pen provided with a feed-tongue integral therewith, a finger integral with the under side of the feed-rod located below the feed-tongue, an ink-cup below the pen, and means to allow the inflow of air into the barrel.

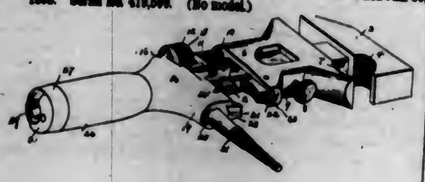
12. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, a separate back-stay back of the pen provided with a groove in the lower part thereof next the pen, and means whereby ink may flow out from the barrel to the point of the pen.

13. In a fountain-pen, the combination, with a barrel, and a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in the traversing-hole, and a sub-chamber below the pen, of a feed-rod held in the sub-chamber having a portion cut away from the under side of the lower end of the rod to form a feed-tongue and provided with an ink-passage communicating between the barrel and the sub-chamber below the feed-tongue, and means to allow the entrance of air into the barrel.

14. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in the traversing-hole, a sub-chamber below the pen, a feed-rod held in said sub-chamber having a portion cut away from the under side of the lower end of the rod to form a feed-tongue, said cut-away portion of the feed-rod extending up into the sub-chamber, thereby lengthening the feed-tongue, and means whereby air may enter the barrel.

15. In a fountain-pen, the combination, with a barrel, of a point-section joined to the lower end of the barrel provided with a traversing-hole therein, a pen held in said traversing-hole, a sub-chamber below the pen, a feed-rod held in said sub-chamber having a portion cut away from the under side of the lower end of the rod to form a feed-tongue, and means whereby air may enter the barrel.

480,801. WRENCH. ROLAND BELLIS, Moosic, Pa. Filed Jan. 28, 1892. Serial No. 419,569. (No model.)



Claim.—1. A wrench for the purpose described, comprising a shank terminating at its lower extremity in a tapered tang, a foot having an opening for the reception of the said tang and provided laterally with an annular socket, a handle mounted on the said tang and provided at opposite sides of its center with longitudinal bores, one of which receives the tang, means for securing the handle in position on the tang, and a thread-cutting tap removably insertible in the other bore and terminating at its base in a tenon fitting the socket of the foot, and above the latter fitting threads formed in the lower ends or base of the cap-receiving bore, substantially as set forth.

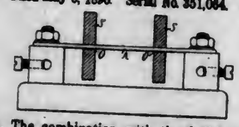
2. A wrench for the purpose described, comprising a rectangular shank, a metal foot having an opening for the reception of the shank and below the same opposite the tang portion of the shank merging into an annular bore, a handle bored to receive the tang and at one side of the same provided with a cap-receiving bore, a cap fitting the lower reduced end of the handle and provided with bores agreeing with those of the handle, and a crescent-shaped nut threaded on the end of the tang below the cap and adapted to cover the cap-receiving bore, substantially as described.

3. In a wrench, the combination, with the shank terminating at its lower end in a handle, a metal foot at the upper end of the handle, and a sliding jaw above the foot, the two being provided at their adjacent faces with recesses, of dies mounted in the recesses and means for adjusting the sliding jaw with relation to the foot, substantially as specified.

4. The combination, with the shank terminating at its lower end in a handle, the metal foot at the upper end of the handle, the sliding jaw above the foot, said jaw and foot being provided at their adjacent faces with dovetailed recesses, of dovetailed dies inserted in the recesses and means for adjusting the jaw, substantially as specified.

5. In a wrench, the combination, with the shank provided upon its rear side with a groove, a metal foot secured to the shank, and a sliding jaw mounted upon the shank, the jaw and foot being provided with recesses, of means for adjusting the jaw and dies inserted in the recesses and having their rear ends tenoned to take within the groove of the shank and the transverse pins passed through the walls of the recesses and the dies, substantially as specified.

480,802. ELECTRIC FUSE. OTTO T. BLATHY, Buda-Pesth, Austria-Hungary. Filed May 8, 1890. Serial No. 351,064. (No model.)

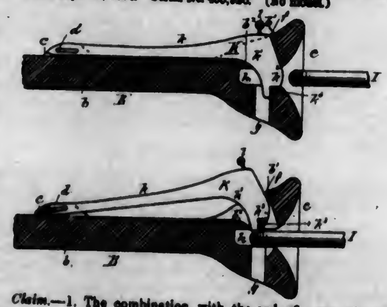


Claim.—1. The combination, with the fusible wire of a safety-fuse, of one or more movable disks threading said wire, the openings in said disks being approximately of the size of the wire.

2. In a safety-fuse, in combination with the supporting-block of a fusible wire and one or more movable disks threading said fusible wire, the openings in said disks being approximately of the size of the wire.

3. In a safety-fuse, the combination, with a cylindrical casing therefor, of one or more partitions located within said casing and provided with a circular opening or openings approximately of the size of the fuse, wire and a fusible wire passing through or threading said opening in said partition or partitions.

480,803. CAR-COUPLING. JOHAN H. BROWER, Salem, Mass. Filed Sept. 16, 1891. Serial No. 405,990. (No model.)

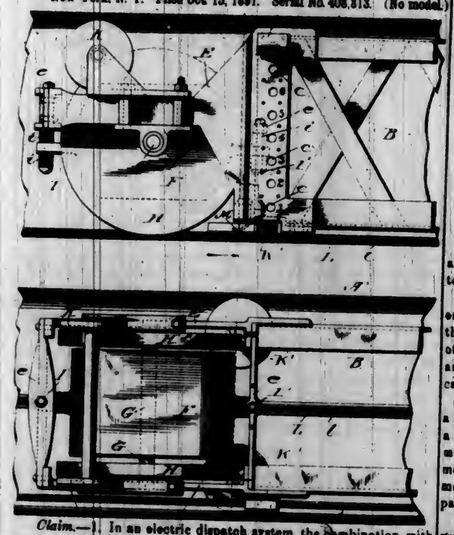


Claim.—1. The combination, with the end of a car, of a rock-shaft *n*, an arm *m*, having a boss at its butt *d* round the rock-shaft, the curved periphery of which boss is partly cut away and flattened, as shown at *m'*, and a spring, all operating together, substantially as and for the purpose described.

2. The combination of the draw-bar and the draw-head B, having the incline b^3 upon the front face of the rear part of the hook-cavity, in combination with the hook K, provided with the forwardly-presented convexity k^3, and the backwardly-sloping incline *k'*, which hook is combined with the draw-head by a slotted connection at the rear end of its horizontal arm, substantially as and for the purpose described.

3. The combination of a draw-head B, provided in its hook-cavity with the backwardly-sloping incline b^3 in the rear of the hook-cavity and *b'* in the front of the hook-cavity with the hook K, provided with the counterpart inclines to engage said inclines in the draw-head, and with the convexity k^3, and increasing slope below the same, and having a slotted connection between the horizontal arm of said hook and the draw-head, substantially as and for the purposes described.

480,804. ELECTRIC DISPATCH SYSTEM. ANDREW BRYSON, Jr. New York, N. Y. Filed Oct. 15, 1891. Serial No. 408,813. (No model.)



Claim.—1. In an electric dispatch system, the combination, with a way and its branches, of an electric motor, a carrier, a guide located at each of said branches, means on the carrier adjustable at the option of the sender to engage automatically with a predetermined guide, and a continuous conductor for supplying a current to the motor, substantially as described.

2. In an electric dispatch system, the combination, with a way and its branches, of a carrier, an electric motor, a continuous conductor located in the main way for supplying a current to the motor, and mutually-engaging guides fixed to the carrier and the way for automatically and mechanically changing the path of the carrier at said branches and breaking the contact between the motor and the conductor, substantially as described.

3. The combination of the tube A, provided with the guides D, the carrier B, provided with the hooks C, the frame E, secured to the carrier, the motor F, having its armature keyed to the axle G and suspended by bolts I I' and collars *i i'* from the frame, the contact M, the conductor L, the wheels H H, and the wheel K, substantially as described.

4. In an electric dispatch system, the combination, with a way and its branches, of a carrier, an electric motor, a continuous conductor located in the main way and in the branches for supplying a current to the motor, and mutually-engaging guides fixed to the carrier, and the way for automatically and mechanically changing the path of the carrier at said branches without interrupting the circuit between the motor and the conductor, substantially as described.

480,805. AUTOMATIC RECEIVER FOR PNEUMATIC OR OTHER DISPATCH SYSTEMS. ANDREW BRYSON, Jr., New York, N. Y. Filed Oct. 15, 1891. Serial No. 408,814. (No model.)

Claim.—1. The combination, with a way and carrier, of a pivoted lever, a gate suspended from one arm of the lever, a lifting-cam mounted on a shaft and engaging with the other arm of the lever, and mechanism automatically actuated by the passage of the carrier to rotate the cam, substantially as described.



2. The combination, with a way and a carrier, of two independently-pivoted levers, each having a gate suspended from one arm thereof, lifting-cams mounted on a shaft engaging with the other arms of the levers in such relation as to alternately raise and depress said arms, and mechanism automatically actuated by the passage of the carrier to rotate the cams, substantially as described.

3. The combination, with a way and a carrier, of a pivoted lever, a gate suspended from one arm of the lever, a lifting-cam mounted on a shaft and engaging with the other arm of the lever, an electric motor, a circuit to operate the motor, suitable gearing between the motor and cam for revolving the cam, and a circuit-breaker automatically operated to make and break the circuit of the motor by the passage of the carrier, substantially as described.

4. The combination, with a way and a carrier, of two independently-pivoted levers, each having a gate suspended from one arm thereof, lifting-cams mounted on a shaft and engaging with the other arms of the levers, an electric motor, a circuit to operate the motor, suitable gearing between the motor and cams for revolving the latter, and a circuit-breaker automatically actuated to make and break the circuit of the motor by the passage of the carrier, substantially as described.

5. The combination, with a way and a carrier, of the lever-arms M'' and M, having the friction-roller *m*, both keyed to the shaft M', rocking in bearings *c'*, the gate Y, suspended from the arm M'', the lever G, keyed to the shaft G', rocking in bearings *c*, the gate X, suspended from the lever G, the lifting-cams L F, mounted on the shaft D, turning in bearings *c*, the gear-wheel C, the electric motor B, having the gear-wheel *b*, its circuit P Q, and a contact-breaker automatically actuated by the passage of the carrier to make and break the circuit, substantially as described.

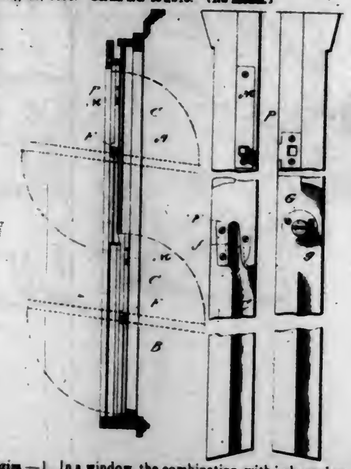
6. The combination, with a way and a carrier, of the lever-arm G, mounted on the shaft G', the gate X, suspended from one arm of the lever G, the lifting-cam F, engaging with the other arm of the lever G and mounted on the shaft D, turning in bearings *c*, the gear-wheel C, mounted on the shaft D, the electric motor having the gear-wheel *b*, its circuit P Q, and a contact-breaker automatically actuated by the passage of the carrier to make and break the circuit, substantially as described.

7. The combination, with a way and a carrier, of the lever-arm G, mounted on the shaft G', the gate X, suspended from one arm of the lever G, the lifting-cam F, having the lug *f* engaging with the other arm of the lever G and mounted on the shaft D, turning in the bearings *c*, the gear-wheel C, mounted on the shaft D, the electric motor having the gear-wheel *b*, its circuit P Q, the plate S in the path of the carrier, the lever T, the contact R, located in the circuit between the plate and one arm of the lever T, and the rod U, actuated by the other arm of the lever T to engage the lug *f* on cam F, substantially as described.

8. The combination, with a way and a carrier, of an electric motor, a cam rotated by said motor, a circuit to operate the motor, a log

on said cam, the plate S in the path of the carrier, the lever T, the contact R, located in the circuit between the plate and one arm of the lever, and the rod U, actuated by the other arm of the lever to engage the lug on the cam, substantially as described.

480,806. WINDOW. JOHN W. COOPER, New York, N. Y. Filed Aug. 31, 1891. Serial No. 404,313. (No model.)



Claim.—1. In a window, the combination, with independent counterbalanced slides and pivots projected from the opposing sides of the said slides midway of the ends thereof, of a sash and plates F, secured to the sides of the sash and having slots *f* opening downward through the lower ends of the said plates, substantially as set forth, whereby the sash is pivotally supported and adapted to be removably connected with the said slides.

2. In a window, the combination, with a sash and independent counterbalanced slides, of plates F, secured to the sides of the sash and having slots *f* opening downward, and pivots secured to the said slides and adapted to enter the said slots *f* and having heads to overlap the sides of the slots to lock the sash and slides together, substantially as described.

3. In a window, the combination, with the independent counterbalanced slides and the sash pivotally connected together midway of their ends, the meeting edges of the said slides and the side stiles of the sash being rabbeted on opposite edges from a point near the pivotal connection between the said slides and sash, of plates F, secured to the sash and having slots *f* opening downward, headed pivots G, adjustably connected with the said slides, and plates *g* to brace the said pivots, substantially as set forth.

480,807. CAR-COUPLING. RENSSELAER A. COWELL, Cleveland, Ohio. Filed Apr. 21, 1892. Serial No. 430,022. (No model.)

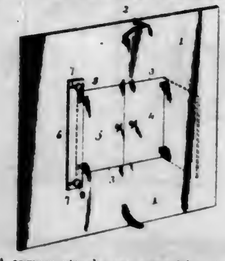


Claim.—1. In a hook car-coupler, a draw-head, a knuckle pivotally connected with said draw-head, and a tilting block located within the draw-head, said tilting block being adapted to retain the knuckle in its open position preparatory to coupling and being operatively connected with the knuckle in such a manner that the elevation of the free end of said tilting block will unlock or open the knuckle, substantially as set forth.

2. In a hook car-coupler, a draw-head, a knuckle pivotally connected with said draw-head, the draw-head being chambered to receive said knuckle, a tilting block located within the chamber of the draw-head, a chain operatively connecting the knuckle with said tilting block, and suitable means connected with said tilting block and extending outside the draw-head, whereby the elevation of the free end of said block will unlock or open the knuckle, substantially as and for the purpose set forth.

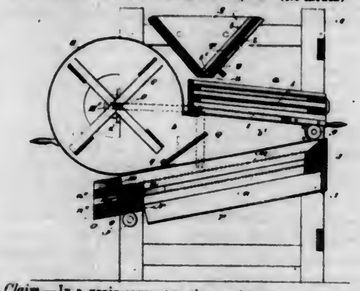
3. In a hook car-coupler, a draw-head, a knuckle pivotally connected with said draw-head, the draw-head being chambered to receive said knuckle, a tilting gravity-block located within the chamber of the draw-head, a chain operatively connecting the knuckle with said tilting gravity-block, and a chain connected with said tilting block and leading outward through the top of the draw-head, substantially as and for the purpose set forth.

480,808. CAMERA ATTACHMENT. EDMUND DE MOULIN, Greenville, Ill. Filed Mar. 30, 1892. Serial No. 427,039. (No model.)



Claim.—A camera attachment comprising the plate 1, designed to be secured to the back of a camera and provided with an opening, an adjustable plate provided with slots and arranged at one side of the opening, set-screws arranged in the slots and securing the adjustable plate in its adjustment, and doors hinged at opposite sides of the opening, one of the doors being hinged to and carried by the adjustable plate, substantially as described.

480,809. FANNING-MILL. GILBERT D. DICKEY, Mountain Grove, Mo. Filed Jan. 30, 1892. Serial No. 419,770. (No model.)



Claim.—In a grain-separator, the combination, with the fan-casing and the upper separating-shoe located in the rear of said casing, of a lower grading-shoe extending the full length of the machine and receiving the grain from said upper shoe, opposite pairs of supporting-rollers taking under opposite sides of said lower shoe, said lower shoe having an angular bottom pan and an outer connecting-board arranged above the delivering end of said pan and having a locking-notch, a grading-sieve removably placed within said shoe and having a locking-lug adapted to drop into said notch and an inclined deflecting-strip located at its outer end to form a discharging-mouth, a superposed screen placed above the lowermost sieve and provided with a securing-lug adapted to drop back of said deflecting-strip, and a similar but oppositely-disposed deflecting-strip, and means for moving said shoes, substantially as set forth.

480,810. ROPE-CLAMP. ROBERT M. DOWNIE, New Brighton, assignor to the Keystone Driller Company, Beaver Falls, Pa. Filed Nov. 9, 1891. Serial No. 411,306. (No model.)

480,810.



Claim.—1. In a temper-screw clamp, opposing clamping-jaws loosely suspended from the lower end of a temper-screw, a yoke or shackle rigidly secured to one of said clamping-jaws, leaving the other jaw entirely free, the two arms of the yoke projecting from the rigid jaw on opposite sides of the movable jaw, a straight swinging clamping-arm pivoted at one end to one arm of said yoke and adapted to removably engage the other arm thereof, and a clamping-screw mounted at or about the center of the arm and adapted to bear against the movable jaw, substantially as set forth.

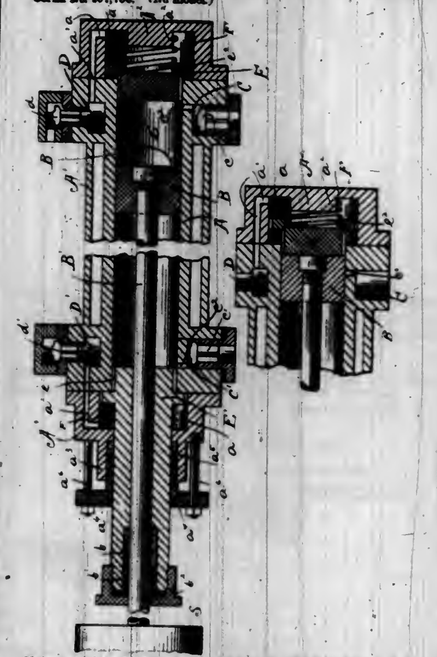
2. In a temper-screw clamp, independent opposing clamping-jaws, a yoke or shackle rigidly secured to one of said clamping-jaws and projecting beyond the same, a straight swinging clamping-arm pivoted to one of the arms of said pivoted yoke and adapted to removably engage over the other arm, and a clamping-screw passing centrally through said clamping-arm intermediate of its pivotal connection and its locking end and having the threads thereof so disposed with relation to the free swinging end of the same that the tightening of the screw will tend to keep it in locking engagement with the yoke-arm and the loosening thereof will unlock and throw the said arm out of engagement with the locking-arm of said yoke, substantially as set forth.

3. In a temper-screw clamp, elongated semi-cylindrical clamping-jaws loosely connected to the lower end of the temper-screw, a U-shaped yoke or shackle having a rounded seat within which is rigidly secured one of said clamping-jaws and terminating at the end of one arm in a reduced locking-shank having a flanged head, the other clamping-jaw being entirely free to move within said yoke, a swinging clamping-arm pivoted to the opposite arm of said yoke and provided with a notch adapted to engage said shank behind said head and with a centrally-located threaded perforation, and a clamping-screw engaging said threaded perforation and bearing directly against the movable clamping-jaw inclosed within the yoke, substantially as set forth.

4. In a temper-screw clamp, opposing elongated semi-cylindrical clamping-jaws loosely connected to the lower end of a temper-screw, a bearing-plate raised from the outer face of one of said jaws and provided with a conical socket, a U-shaped yoke or shackle having a rounded seat within which is rigidly secured the other clamping-jaw, said yoke terminating at the end of one arm in a reduced locking-shank having a flanged head, a swinging clamping-arm pivoted at one end to the opposite arm of said yoke and provided at its other end with a notch adapted to engage said locking-shank behind said head and with a centrally-located threaded perforation, and a clamping-screw engaging said threaded perforation and provided with a tapered or conical end adapted to bear directly in the conical socket of the jaw inclosed within the yoke, substantially as set forth.

5. In a temper-screw clamp, the opposing clamping-jaws loosely suspended from a temper-screw, an approximately-U-shaped yoke or shackle made of a single piece arranged horizontally and secured rigidly to one of the jaws, leaving the other jaw free and movable, a swinging clamping-arm pivoted at one end to one arm of the yoke and adapted to have its other end removably engage the other arm of the yoke, so as to bridge the space between the two arms of the same, and a single clamping-screw mounted in the arm intermediate of its ends and adapted to engage and bear against the movable jaw of the clamp, substantially as set forth.

480,811. FLUID-PUMP OR COMPRESSOR. JOHN J. DUFFY, Cleveland, Ohio, assignor to Edward P. Bates, same place. Filed Oct 5, 1891. Serial No. 407,736. (No model.)



Claim.—1. In a fluid pump or compressor, the combination, with a fluid-cylinder having outlets at its extreme ends, a piston, and valves constructed to move in the ends of the cylinder and having air-passages formed between them and the wall of the cylinder, of air-chambers formed outside of the valves and in communication with the air-passages, valves in the passage-ways constructed to permit the fluid to flow outward, and suction-valves in the cylinder, substantially as set forth.

2. The combination, with a cylinder open at one or both ends and piston, of a delivery-valve seated at the open end or ends of the cylinder and having a reduced section extending into the said cylinder and having alternating depressions and elevations on its periphery, substantially as set forth.

3. In a double-acting fluid pump or compressor, a delivery-valve seated at each end of the fluid-cylinder of the pump or compressor, said valves being adapted to be engaged when having been removed from their respective seats by the piston of the fluid-cylinder, one of said valves having a spring connected therewith and the other delivery-valve being perforated for the passage of the piston-rod and extending outside the adjacent head of the fluid-cylinder and terminating in a stuffing-box for the piston-rod, said adjacent head of the fluid-cylinder also terminating in a stuffing-box for said last-mentioned valve, substantially as set forth.

4. In a fluid pump or compressor, a delivery-valve seated at the end of the fluid-cylinder and having a reduced section extending into said cylinder and having alternating depressions and elevations on its periphery, substantially as and for the purpose set forth.

480,812. DIFFUSION APPARATUS. EDWARD F. DYER and HAROLD F. DYER, Cleveland, Ohio. Filed Apr. 28, 1892. Serial No. 430,964. (No model.)

Claim.—In a diffusion-cell, a central or cylindrical section, as at A, an inverted conically-shaped bottom or lower section B, embracing the lower end of and secured to said central or cylindrical section, said bottom or lower section at one side having a flanged pulp-discharge opening, substantially as indicated, a strainer located within and con-

480,812.



forming to the shape of said lower section, the latter having an internal rim, as at b', a shoulder, as at b^2, and one or more lugs, as at B^4, for supporting said strainer, substantially as set forth.

480,813. COMBINED GAS AND ELECTRIC-LIGHT FIXTURE. ALANSON T. ENGS, New York, N. Y. Filed Oct. 31, 1889. Serial No. 328,872. (No model.)



Claim.—1. The combination, with two gas-pipes pivoted together, of semi-cylindrical pipes having their open sides resting against the gas-pipes, forming conduits carrying an electric conductor, and a joint exterior to the gas-pipe joint and between the gas-pipes connecting with said semi-cylindrical pipes, through which the continuous wires of the conductors pass, substantially as described.

2. The combination, with two gas-pipes pivoted together, of the semi-cylindrical pipes having their open sides resting against the gas-pipes, forming closed conduits, carrying a double electric conductor, and the cylindrical pieces connected to said semi-cylindrical pipes and surrounding the gas-joint, through which pieces the electric wires pass on either side of the gas-joint, substantially as described.

480,814. STEM-WINDING WATCH. FRIEDRICH FREY, Stuttgart, Germany. Filed Apr. 7, 1891. Serial No. 388,053. (No model.)



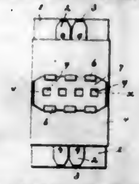
Claim.—1. In a watch, the combination of a pendant provided with grooves and a spring, as R, attached to the watch-plate and adapted to engage one or the other of said grooves, substantially as set forth.

2. In a watch, the combination of a pendant provided with grooves, a spring, as R, adapted to engage the grooves and provided with a toe, as R^1, and a screw provided with a conical end bearing against the toe, substantially as set forth.

3. In a watch, the combination of a pendant or stem, as W, provided with two notches, of a spring, as R, having a tooth, as R', engaging with one or the other of the notches, and a screw provided with a conical end bearing against the spring R, substantially as set forth.

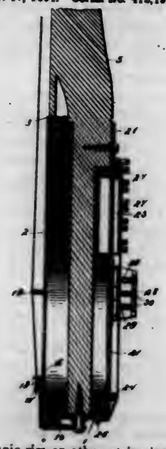
4. In a watch, the combination, with the time mechanism comprising a pendant or stem, as W, a pinion, as C, thereon, and gears, as A and Z, of a barrel consisting of a click-wheel, as S, having an annular flange, an arbor, as *b*, and a spring-wheel, as F, integral therewith, and a removable bridge, as B, having a depending flange, as *a*, upon which the click-wheel S is journaled, substantially as set forth.

480,815. GAME-COUNTER. PHILIP HALE, Jr., Denver, Colo. Filed Apr. 29, 1892. Serial No. 431,147. (No model.)



Claim.—In a game-counter, the combination of a back or support having slide-strips therein bearing numerals thereon, a front plate over said strips having openings therein, and a transversely-adjustable slide carried by said front plate and provided with a series of openings to align with the aforesaid openings, substantially as described.

480,816. MUSICAL INSTRUMENT. FRED G. HANEY, Findlay, Ohio. Filed Nov. 17, 1891. Serial No. 412,198. (No model.)



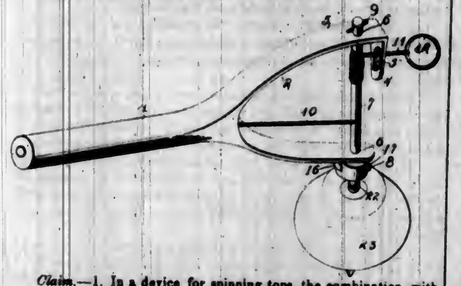
Claim.—1. A banjo-rim or other string-instrument body having a sounding-board secured to its rear side and an auto-harp mounted thereon, substantially as specified.

2. A banjo rim or body portion having a sounding-board mounted on its rear side, provided with sound-openings, bridges secured to the sounding board at opposite sides of the opening, tuning-pegs located in the sounding-board outside of one of the bridges, studs secured to the rear side of the rim beyond the bridge, strings passed over the bridges and connected at their ends to the studs and pegs, and a series of mutes, and the banjo head and neck, the latter provided with a transverse nut-receiving recess, combined with the notched tail-piece, the pegs, and the reversible nut mounted in the recess and having its opposite edges notched to receive the strings of a guitar or banjo, substantially as specified.

3. The combination, with the head, notched tail-piece, and neck provided with keys and with a transverse nut-receiving recess, of the strings connected with the tail-piece, passing over the nut-receiving recess and secured to the keys, a nut having its opposite edges differently notched, removably mounted in the nut-receiving recess, and the key having the flat blade adapted to be inserted under the strings and to raise the same from the nut, substantially as specified.

4. The combined guitar and banjo, the neck of which is provided with the opposite L-shaped studs opposite those keys adapted for the reception of the second and third bass strings, substantially as specified.

480,817. SPINNING-TOP. FRANCIS M. IDLE, St. Louis, Mo. Filed Feb. 27, 1892. Serial No. 423,090. (No model.)



Claim.—1. In a device for spinning tops, the combination, with a revoluble operating-shaft, of a block carried thereon having a socket to receive the shaft of the top, a spring-actuated dog adapted to hold the top-shaft in the block and release the same when the shaft is revolved, substantially as shown and described.

2. In a device for spinning tops, the combination, with a revoluble operating-shaft and cord attached, of a block fixed upon said shaft and having a socket, a dog pivoted to the block and forming a side of the socket, said dog having a shoulder, the top-shaft having depressions therein, and the spring for holding the dog in contact with the top-shaft, substantially as shown and described.

3. In a device for spinning tops, the combination, with a handle having a forked end, of the revoluble operating shaft, the cord attached thereto, the elastic cord connecting the shaft and handle, the socket-block having a yielding retaining-arm which forms a part of the socket, and the top having a shaft adapted to enter the socket of said block and be released therefrom by the retaining-arm being thrown outward, substantially as shown and described.

4. The combination, with a revoluble shaft and cord for operating the same, of a block having a socket, a supplemental block pivoted within the socket-block and providing a side to the socket, and a spring-band for holding the said supplemental block in its normal position, substantially as and for the purpose described.

480,818. HYDRAULIC BRICK-PRESS. JULIUS J. KOCH, St. Louis, Mo. Filed June 1, 1891. Serial No. 394,749. (No model.)

Claim.—1. In a hydraulic brick-press, the combination of the upper and lower rams and their respective cylinders, a connecting-pipe 16, and an independently-moving loaded controlling-valve 20, operating automatically to admit pressure to the upper ram-cylinder when a predetermined pressure is attained in the lower ram-cylinder, substantially as set forth.

2. In a hydraulic brick-press, the combination of the upper and lower rams and their respective cylinders, a connecting-pipe 16 between said cylinders, an independently-moving loaded controlling-valve 20, and a loading and unloading attachment for said valve, adapted to automatically change the amount of load upon said valve while the same is held closed, substantially as set forth.

3. In a hydraulic brick-press, the combination of the upper and lower rams and their respective cylinders, a connecting-pipe 16, with the relief-valve 18 and controlling-valve 20, arranged independent of each other, and weighted connections adapted to pull the relief-valve 18 open and hold the controlling valve 20 closed, substantially as set forth.

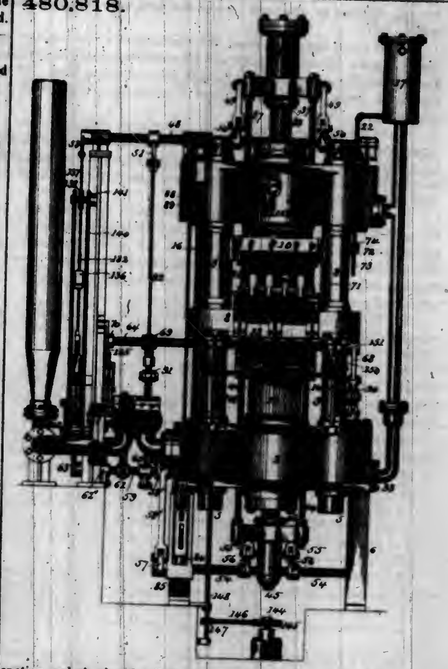
4. In a hydraulic brick-press, the combination of the upper and lower rams and their respective cylinders, a connecting-pipe 16, relief-valves 18, controlling-valve 20, said valves being arranged independent of each other, weighted connections to the valves, and a hydraulic cylinder and plunger 84 85, adapted to push the weighted connections upward to close the relief-valve 18 and reduce the maximum load by which the controlling-valve 20 is held closed, substantially as set forth.

5. In a hydraulic brick-press, the combination, with the upper ram and ram-cylinder, passages 15 and 21, of the combined inlet and outlet valve 23, having an intermittent operative connection with the upper ram, substantially as set forth.

6. In a hydraulic brick-press, the combination, with the upper ram and ram-cylinder, passage 15, and storage-tank 17, of the independently-arranged combined suction and check valve 24, substantially as set forth.

7. In a hydraulic brick-press, the combination of the upper ram and ram-cylinder, the combined inlet and outlet valve 23, combined

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suction and check-valve 24 in the passage 15, and the valve 23, having an intermittent operative connection with the upper ram, substantially as set forth.

8. In a hydraulic brick-press, the combination of the upper ram and ram-cylinder, passages 15 21, combined inlet and outlet valve 23, stem 73, collar 74, and arm 72, carried by the upper ram, substantially as set forth.

9. In a hydraulic brick-press, the combination of the upper ram-plunger 10, auxiliary raising-cylinder 38, and tie-rods 37, connecting the two together, essentially as set forth.

10. In a hydraulic brick-press, the combination of the upper ram-plunger 10, auxiliary raising-cylinder having its lower annular chamber in constant communication with low-pressure accumulator, and tie-rods connecting the auxiliary cylinder and plunger 10 together, essentially as set forth.

11. In a hydraulic brick-press, the combination of the upper ram-plunger, the auxiliary raising-cylinder 38, the upper chamber 42 of which is in communication, through its hollow piston, with a valve-chamber 115, a pair of valves 121 122 in said chamber, controlling the pressure-supply to the upper chamber of the auxiliary cylinder, and tie-rods 37, connecting the auxiliary cylinder 38 and upper ram-plunger 10 together, substantially as set forth.

12. In a hydraulic brick-press, the combination of the upper ram-plunger 10, auxiliary raising-cylinder 38, stationary piston 39, having ports 40 and 41, connected, respectively, with chambers 42 and 43, substantially as set forth.

13. In a hydraulic brick-press, the combination, with the auxiliary raising-cylinder 38, for the upper ram or plunger 10, of the valve-casing 115, valves 121 and 122, connected together by a valve-lever 123, and a slotted link 124 for operating the same, substantially as set forth.

14. In a hydraulic brick-press, the combination, with the auxiliary raising-cylinder 38 for the upper ram or plunger 10, of the valve-casing 115, valves 121 and 122, connected together by a valve-lever 123, slotted link 124, actuating-arm 62', operated by lower ram connections, substantially as set forth.

15. In a hydraulic brick-press, the combination, with the auxiliary raising-cylinder 38 for the upper ram or plunger 10, of the valve-casing 115, valves 121 and 122, connected together by a weighted lever 123, spring-latch 125, and operating-tappet 70, substantially as set forth.

16. In a hydraulic brick-press, the combination, with the auxiliary raising-cylinder 38 for the upper ram or plunger 10, of the valve-casing 115, valves 121 and 122, connected together by a weighted lever 123, spring-latch 125, operating-tappet 70, slotted link 124, and actuating-

arm 62', operated by the lower ram connections, substantially as set forth.

17. In a hydraulic brick-press, the combination of the auxiliary raising-cylinder 38, rock-shaft 48, arm 50, connected to and receiving motion from the cylinder 38, arm 52, link 113, and sliding block 114, adapted to release the valve mechanism of the charger, substantially as set forth.

18. In a hydraulic brick-press, the combination of the auxiliary raising-cylinder 38, rock-shaft 48, arm 50, connected to and receiving motion from the cylinder 38, arm 51, and link 92, adapted to operate the lever 91 of the inlet-valve 32 of the lower ram-cylinder, substantially as set forth.

19. In a hydraulic brick-press, the combination of the auxiliary raising-cylinder 38, rock-shaft 48, arm 50, connected to and receiving motion from the cylinder 38, arm 53, chain and pulley connections 137 138, rod 132, and drop-weight 130, adapted to operate the valve mechanism for controlling and relief valves of the upper ram-cylinder, substantially as set forth.

20. The combination, with a hydraulic brick-press, of the pressure-chamber 152, plunger 153, cushion 154, pointer 155, adjustable fulcrum 156, and an electric alarm, substantially as set forth.

21. The combination, with a hydraulic brick-press, of the pressure-chamber 152, plunger 153, cushion 154, pointer 155, adjustable fulcrum 156, and a series of electric alarms 157, 158, and 159, substantially as set forth.

22. In a hydraulic brick-press, the combination of the reciprocating clay-charger 100, imparting intermittent motion to the rock-shaft 64, arm 67, cam 68, and weighted lever adapted to operate the outlet-valve 34 of the lower ram-chamber, substantially as set forth.

23. In a hydraulic brick-press, the combination of the reciprocating clay-charger 100, imparting intermittent motion to the rock-shaft 64, arm 67, cam 69, adapted to operate the valve-lever 91 of the inlet-valve 32 of lower ram-chamber, substantially as set forth.

24. In a hydraulic brick-press, the combination of the reciprocating clay-charger 100, imparting intermittent motion to the rock-shaft 64, arm 67, and tappet 70, adapted to release the spring-latch 125 of the valve mechanism of the auxiliary cylinder 38, substantially as set forth.

25. In a hydraulic brick-press, the combination, with the vertically-adjustable stop 144 of the chain-and-pulley connections 145, 146, and 147, and the vertical hand-wheel shaft 148, substantially as set forth.

26. In a hydraulic brick-press, the combination, with the vertically-adjustable stop 144, of the chain-pulley and shaft connections 145, 146, 147, 148, 149, the traveling pointer 150, and scale 151, substantially as set forth.

27. In a hydraulic brick-press, the combination of the rock-shaft receiving motion from the lower ram and carrying an arm 60, and slotted link 94, adapted to operate the arm 91 of the inlet-valve 32 to lower ram-chamber.

28. In a hydraulic brick-press, the combination, with the lower ram-cylinder and its high and low pressure inlets 27 and 28 and the inlet-valve 32, of the pressure-dividing valve 31, arranged between the high and low pressure inlets and receiving its opening movement from the lower ram, and a holding-latch for retaining said valve in a raised condition independent of the lower ram, substantially as set forth.

29. In a hydraulic brick-press, the combination, with the lower ram-cylinder and its high and low pressure inlets 27 and 28 and the inlet-valve 32, of the pressure-dividing valve 31, arranged between the high and low pressure inlets, a rock-shaft 59, receiving motion from the lower ram and carrying an arm 61, adapted to raise the pressure-dividing valve, and a holding-latch for retaining said valve in a raised condition independent of the lower ram, substantially as set forth.

30. In a hydraulic brick-press, the combination of the rock-shaft 59, receiving motion from the lower ram and carrying an arm 62', a slotted link 124, adapted to operate the valve mechanism of the auxiliary cylinder 30, so that the same will lift the upper ram, and a latch, as 135, to lock the valve mechanism in such condition, substantially as set forth.

31. In a hydraulic brick-press, the combination of the rock-shaft receiving motion from the lower ram and carrying a sector 63, with the pinion 143, chain-and-pulley connections 140, 141, and 142, and the wedge 139, adapted to release the weight 130 that operates the mechanism of valves 128 and 129, substantially as set forth.

32. In a hydraulic brick-press, the combination of the rock-shaft receiving motion from the lower ram and carrying an arm 62, and slotted link 109, adapted to operate the valve of the charger-cylinder, substantially as set forth.

33. In a hydraulic brick-press, the combination, with the charger-cylinder and its valve 103, of the link 111 and shifting overbalancing device 110, substantially as set forth.

34. In a hydraulic brick-press, the combination, with the charger-cylinder and its valve 103, of the valve-lever 108 and latch 112.

35. In a hydraulic brick-press, the combination of the pressure-dividing valve 31, the arm 61, receiving motion from the lower ram and adapted to raise the pressure-dividing valve, and a spring-latch 96, adapted to hold said valve open, substantially as set forth.

36. In a hydraulic brick-press, the combination of the pressure-dividing valve 31, spring-latch 96, and arm 99, and adjustable link 98, connected to valve-lever 91, substantially as set forth.

37. In a hydraulic brick-press, the combination of the lower ram-plunger 11, the tie-rods 44, and pulling-down cylinder 45 in constant communication with the low-pressure accumulator, for the purpose set forth.

38. In a hydraulic brick-press, the combination, with the mechanism of controlling-valve 20, of a suspended weight 130 and a releasing device adapted to move toward each other and controlled in their movements by the upper and lower rams, substantially as set forth.

39. In a hydraulic brick-press, the combination, with the mechanism of the controlling-valve 20 and relief-valve 18, of a suspended weight 130 and a releasing device adapted to move toward each other and controlled in their movements by the upper and lower rams, substantially as set forth.

40. In a hydraulic brick-press, the combination, with the relief-valve 18, of the upper ram-cylinder and its operating-lever 88, a weight 130, a coupling device, as 133 134, and releasing devices, as 139, such devices being controlled in their movements by the movement of the upper and lower rams, substantially as set forth.

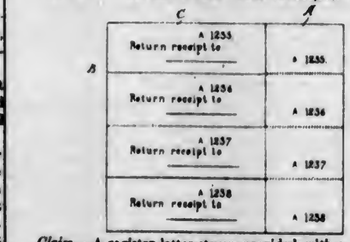
41. In a hydraulic brick-press, the combination of the controlling-valve 20 and controlling-weight 75, holding the valve closed, the weighted lever 78, and rod 79, substantially as set forth.

42. In a hydraulic brick-press, the combination of the controlling-valve 20 and controlling-weight 75, holding the valve closed, the weighted lever 78, rod 79, and hydraulic cylinder and plunger 84 and 85, substantially as set forth.

43. In a hydraulic brick-press, the combination of the relief-valve 18, valve-lever 88, and hydraulic cylinder and plunger 84 85, substantially as set forth.

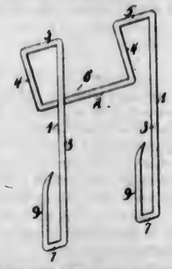
44. In a hydraulic brick-press, the combination of the relief-valve 18, valve-lever 88, connecting-link 87, and weighted lever 86, substantially as set forth.

480,819. REGISTRY-STAMP. FREDERICK A. LOVEGRAFT, New York, N. Y. Filed May 2, 1891. Serial No. 391,378. (No specimens.)



Claim.—A registry-letter stamp provided with a number or indicator and detachably connected with a stub, bound together with others, and having a like number or indicator and a space for the name of the purchaser, substantially as described.

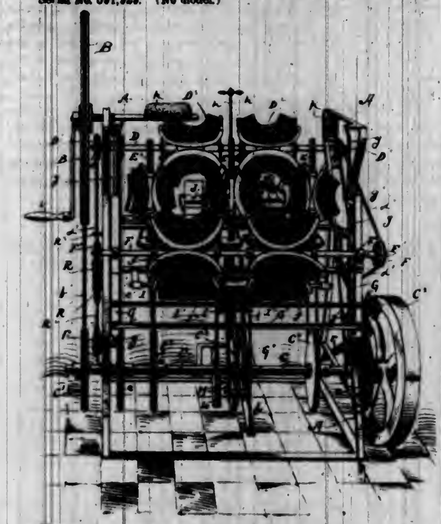
480,820. GARMENT-SUPPORTER. THOMAS MANNING, Denver, Colo. Filed Apr. 19, 1892. Serial No. 429,806. (No model.)



Claim.—1. An improved garment-supporter formed of a single piece of wire and comprising the straight central portion, the upwardly-bent portions 4, the rearwardly-bent portions 5, the depending portions 3, the forwardly-bent portion 7, and the upwardly-bent pin portions 9, all arranged substantially as shown and described.

2. A device for holding up undergarments, consisting of a length of wire, a straight portion 2, formed in the same intermediate of its ends, bends 4, formed at a suitable distance from said straight portion, and bends 5, forming a hook 6, the depending portions 3, straight upwardly-bent pin portions 9, formed by the ends 7, providing hooks for attaching the device to the undergarment, and the terminal ends of said wire bent inwardly and pointed, substantially as described.

480,821. MACHINE FOR CLEANING AND POLISHING BOOTS OR SHOES. JOHN W. MASON, Cleveland, Ohio. Filed May 7, 1891. Serial No. 391,929. (No model.)



Claim.—1. A polishing-machine for boots or shoes, such machine having reciprocating slides for the shoes, means for clamping shoes thereon, a rocking shaft, means connecting the latter with the slides, and treadles connected to the rocking shaft for rocking the latter back and forth, substantially as set forth.

2. A polishing-machine for boots or shoes, substantially as indicated, such machine having non-rotary slides and clamps for fastening the boots or shoes upon the slides and cams and attached handles for operating the clamps, substantially as set forth.

3. The combination, with non-rotary slides bearing clamps, substantially as indicated, of revolving brushes operating, respectively, between and outside the slides for engaging the sides of the boots or shoes, substantially as set forth.

4. In a polishing-machine, revolving brushes mounted on a horizontal spindle, the spindle being mounted on a vertically-reciprocating frame, and suitable connecting mechanism for reciprocating the frame by hand, substantially as set forth.

5. The combination, with a horizontal spindle bearing brushes and mounted on a vertically-reciprocating frame, of belts for driving such spindle, each belt having a movable spring-actuated tightening-pulley, substantially as set forth.

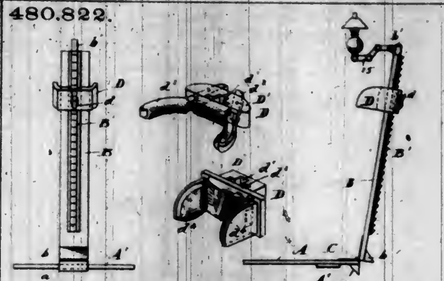
6. The combination, with non-rotary reciprocating slides and clamps, substantially as indicated, of revolving brushes in position for engaging the tops of the boots or shoes from the toe rearward, substantially as set forth.

7. In a polishing-machine for boots or shoes, revolving brushes, each brush comprising a central sleeve or hub bearing a series of curved arms, such arms having the bristles attached to the concave edges thereof, and set-screws for adjustably securing the sleeve to the supporting spindle or shaft, substantially as set forth.

8. In a polishing-machine of the class indicated, a shelf for the blacking and a stationary bracket for supporting the chamois-skin, cloth, or cloths, substantially as set forth.

480,822. FOLDING SUPPORT FOR HEAD-RESTS AND THE LIKE. THOMAS MAYER, Albany, N. Y.; David Muhlfelder administrator of said Mayer, deceased. Filed Jan. 21, 1891. Serial No. 378,508. (No model.)

Claim.—1. The combination, with the bar B to rest against the back of a car-seat and having a vertical rack B' on its rear face and the lower horizontal member adapted to rest on a car-seat under the occupant and hinged at its rear edge to the lower end of the rear bar



B to fold against the front face thereof, of the head-rest D, having a vertical opening through which bar B and its rack passes, and a pawl *d* on the rear of the head-rest, engaging the said rack, substantially as set forth.

2. The combination, with the bar B to rest against the back of a car-seat and having a vertical rack on its rear face, the lower horizontal member A to rest on a car-seat under the occupant and hinged at its rear edge to the lower end of the bar B to fold against the front face thereof, and the blocks *a b* on the backs of member A and bar B at the hinged edges thereof to pass behind the upholstery on the car-seat and under the upholstery on the seat-back, respectively, of the head-rest provided with a vertical opening through which passes the bar B and its rack and provided with a pawl to engage the rack, substantially as set forth.

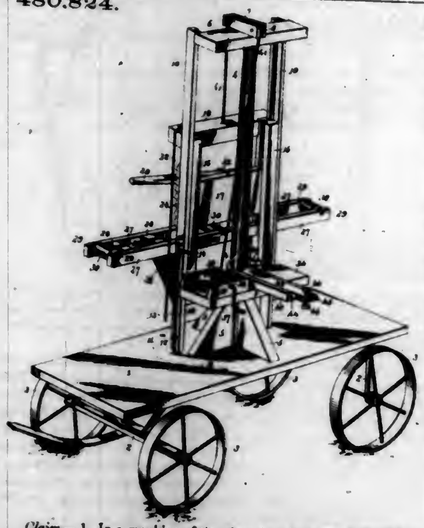
3. The combination, with the bar B to rest against a car-seat back and provided with a rack on its rear side and a reduced upper end or bracket-receiving projection *b'*, the lower hinged member A, hinged to bar B to fold against the front face thereof, and the blocks *b a* on the adjacent ends of the bar B and member A to enter the space between the car-seat and its back, of the head-rest D, having a vertical opening *d'* for the bar B and its rack, and a pawl *d* to engage the rack.

480,823. COVERING FOR FALSE BOTTOMS OF VESSELS. ALEXANDER MCDOUGALL, Duluth, Minn. Filed Sept. 17, 1891. Serial No. 406,014. (No model.)

Claim.—An improved false bottom for vessels, consisting of a metallic floor 13, bilges or gutters on each side thereof, strengthening gusset-plates 17, perforated and arranged as described, planks 19 19, laid on said floor 13, having passages 20 20 between them, and breaks 21 extending fore and aft, planks 23 23 extending over said bilges or gutters, planks 24 above said planks 23 and secured to the ribs of the vessel, and cement or similar material between said planks 24 and the outer plates of the vessel, substantially as described.

480,824. LUMBER-ELEVATOR. BEATON MCKINNON, Eureka, Cal. Filed May 19, 1892. Serial No. 433,590. (No model.)

480,824.



Claim.—1. In a machine of the class described, the combination, with a base, a mast rising therefrom, a guide-frame swiveled for rotation upon the mast, an elevating-frame mounted for movement in the guide-frame, and means for raising and lowering the elevating-frame, substantially as specified.

2. In a machine of the class described, a base, a mast rising therefrom, a rotatably-mounted guide-frame, an elevating-frame mounted for movement in the guide-frame, means for raising and lowering the elevating-frame for locking the same at any point of elevation, and means for locking the guide-frame at any point of its circle, substantially as specified.

3. In a machine of the class described, a base, a mast rising therefrom, a guide-frame swiveled for rotation upon the mast, in combination with an elevating-frame mounted for vertical reciprocation upon the guide-frame, means for locking the guide-frame, and means for raising and lowering the elevating-frame, substantially as specified.

4. In a machine of the class described, the combination, with the base, the mast rising therefrom, the swiveled guide-frame, and the vertically-movable elevator-frame, of a horizontal frame supported upon the elevating-frame and means for raising and lowering the elevating-frame and for locking it, substantially as specified.

5. In a machine of the class described, the base, the mast rising therefrom, the swiveled guide-frame, the elevating-frame mounted therein, and means for raising and lowering the same, of a horizontal plank-supporting frame supported by the elevating-frame and provided with a series of transverse rollers, substantially as specified.

6. In a machine of the class described, the base, the mast rising therefrom, the swiveled guide-frame, the elevating-frame mounted therein and means for raising and lowering the same, of a horizontal plank-supporting frame comprising opposite parallel bars having pairs of opposite open bearings, rollers having trunnions removably mounted in the bearings, and cross-bars having openings for removably receiving the trunnions of one of the rollers, substantially as specified.

7. In a machine of the class described, the combination, with the base, the mast rising therefrom, the swiveled guide-frame, and means for locking the same, of an elevating-frame mounted for movement in the guide-frame and having a horizontal plank or board support, and a board-clamp mounted over the same, substantially as specified.

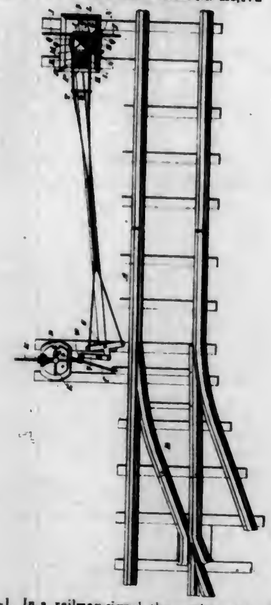
8. In a machine of the class described, the combination, with the base, the mast rising therefrom, the swiveled frame having opposite guide-bars and the elevating-frame having opposite guide-bars mounted for vertical movement in the guide-bars of the swiveled frame, of a horizontal plank-supporting-frame secured to the side bars of the elevating-frame, a plunger-block mounted for vertical movement in the ways of the side bars of the elevating-frame, a clamping-block secured to the front face of the same, a lever pivoted to one of the side bars, a keeper connecting the lever with the blocks, a plate upon the lever, and a toothed rack-bar projecting from one of the side bars and adapted to engage the plate, substantially as specified.

9. In a machine of the class described, the combination, with the base, the mast, the cross-bar swiveled thereon, the vertical guide-bars depending from the cross-bar, the rabbeted side bars mounted for movement in the guide-bars and having their upper ends connected by the cross-bar, of the brackets extending from the side bars, the plank-supporting frame mounted on the brackets, the rack-bar extending from one of the side bars and having its upper end bent to form an arm and carrying a pulley, the lever fulcrumed to the other and having a plate for engaging the rack-bar, a rope extending from the lever over the pulley on the arm of the rack-bar and depending from the same, a plunger-block mounted in the rabbets of the side bars and carrying a clamping-block and a keeper connecting the clamping-block and lever, and means for elevating and lowering the side bars and transporting-frame, substantially as specified.

10. In a machine of the class described, the combination, with the base, the mast rising therefrom, and an annular series of concentric perforations formed in the base, of the elevator-frame carrying guide-frames swiveled on the mast and provided with vertically-opposite keepers and a pin and an inverted-L-shaped bolt mounted in the keepers, adapted at its lower end to engage the perforations of the base and at its upper end to be swung over and under the pin, substantially as specified.

11. In a machine of the class described, the combination, with the base, mast, swiveled guide-frame, elevating-frame, and means for operating the same, of the stay consisting of two telescopic sections adjustably connected, the inner section being swiveled on the mast and the outer section terminating in plank-engaging jaws having a clamping-screw, substantially as specified.

480,825. RAILWAY-SWITCH SIGNAL. FREEMAN M. NYE, Bellevue, Ohio. Filed Feb. 29, 1892. Serial No. 423,174. (No model.)



Claim.—1. In a railway-signal, the combination, with a pole or tower and a signal-lantern secured to one face of said pole near its upper end, of a semaphore pivotally secured to said post and having opposite right-angularly-disposed signal-blades and a U-shaped lens-frame at its upper end working over said post and provided with opposite colored lenses adapted to be thrown into alignment with the opposite lenses of said lamp or lantern, and means for swinging said semaphore, substantially as set forth.

2. In a railway-signal, the combination, with a pole or tower having a strike-plate upon one face near its upper end and a signal-lantern secured to said pole directly opposite said plate, of a semaphore pivoted at its lower end to said pole and provided with opposite right-angularly-disposed signal-blades and a U-shaped lens-frame at its upper end, said lens-frame comprising opposite parallel arms having colored lenses at their outer ends, and a connecting-strap or cross-arm connecting the inner ends of said arms and adapted to be thrown against said strike-plate to limit the movement of the semaphore, and means for swinging said semaphore, substantially as set forth.

3. In a switch-signal, the combination, with a switch-stand, the switch-rod connected to said stand, a pole or tower located at a distance from said stand, and a signal-lantern secured to said tower, of a semaphore pivotally secured to said post and provided with a U-shaped lens-frame working over said post in conjunction with the lantern, guide-pulleys secured to opposite sides of said pole near its lower end, a supplemental offstanding guide-pulley secured to the track side of said pole above one of said guide-pulleys, a T-shaped spreading bracket, a horizontal T-lever adjacent to said switch-stand and connected with the switch-rod, and operating-wires connected at one end to opposite ends of said T-lever, passing through said spreading bracket, under the opposite guide-pulleys, and connected to opposite sides of said semaphore, the wire adjacent to the track passing over said offstanding guide-pulley, substantially as and for the purpose specified.

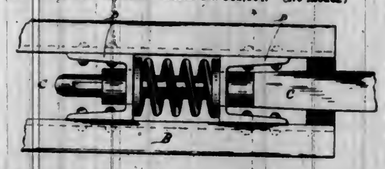
4. In a switch-signal, the combination of a switch-lever, the semaphore-pole having opposite guide-pulleys near its lower end, a swinging semaphore pivoted to said pole, a wire-spreading bracket located adjacent to the pole, a single horizontal T-lever located adjacent to said switch-lever and connected therewith, and operating-wires connected to opposite ends of said T-lever, passing through said bracket and under the opposite guide-pulleys and connected to opposite sides of the swinging semaphore, substantially as set forth.

480,826. LAMP-BURNER. ENOCH OBMSTRAND, Jamestown, N. Y. Filed June 10, 1891. Serial No. 395,781. (No model.)



Claim.—A lamp-burner having an air-tube provided with an integral extension forming a continuation of one side and being bent over the tube and downward to form a continuation of the other side and providing side openings, substantially as and for the purpose described.

480,827. DRAW-GEAR FOR CARS. WILLARD PENROCK, Minerva, Ohio. Filed Feb. 16, 1891. Serial No. 382,061. (No model.)



Claim.—1. The combination, with the center or draft sills of a car and filling-block located between these sills, of a plate or plates B, secured to the sills, and U-shaped irons secured between the latter, the upper ends of the U-irons projecting above the lower edges of the filling-block, substantially as set forth.

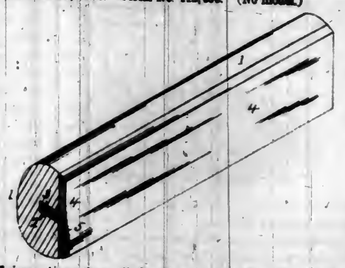
2. The combination, with center or draft sills, of plate or plates secured to said beams, filling-block located between the sills, and draw-bar apparatus connected with the plates, substantially as set forth.

480,828. ATTACHMENT FOR STOVES. WILLIAM PRICE, Mendota, Ill. Filed Apr. 28, 1891. Serial No. 390,782. (No model.)



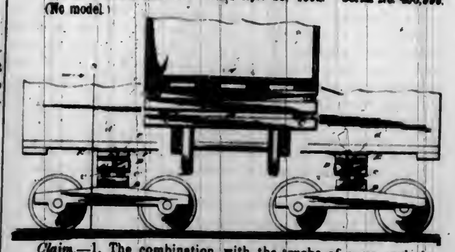
Claim.—An improved attachment for stoves, consisting of a tube closed at both ends, curved in the form of a circle or a part of a circle, and perforated on the inside of said bent portion of said tube and so arranged as to force the air in a downward direction and which is adapted to be placed above the grate and a part adapted to be placed outside of the stove and arranged in a perpendicular position and perforated near its lower extremity, in combination with a sleeve adapted to slide upon said perpendicular part of the tube, substantially as and for the purposes described.

480,829. PIANO-ACTION RAIL. JOHN W. REED, Chicago, Ill. Filed Nov. 20, 1891. Serial No. 412,486. (No model.)



Claim.—An action-rail for pianos, consisting of a wood body or backing 1, having a plane forward face formed with a longitudinal groove or channel 2, and a T-shaped metal section the rib or web 3 of which is fitted into the channel 2, with the plate portion 5 in close contact with the plane face of the body or backing 1, as herein described, and for the purpose set forth.

480,830. MEANS FOR RADIATING CAR-TRUCKS. HORACE RESLEY, Cumberland, Md. Filed Apr. 28, 1892. Serial No. 430,999. (No model.)



Claim.—1. The combination, with the trucks of a car and the body mounted thereon, of the swinging posts hinged to the car-body and arranged to bear against the truck-bolster and adjust the trucks to a curve of the track, substantially as described.

2. The combination, with the trucks of a car and the body mounted thereon, of the bearing-plates on the lower bolster and the swinging-posts hinged at one end to the car-body and adapted to bear at their free ends against said plates, substantially as and for the purpose described.

3. The combination, with the the trucks of a car and the body mounted thereon, of the bearing-plates secured on the lower bolsters and having depressed seats and the posts depending from the body and fitted in said seats and adapted when rounding a curve to adjust the trucks so that the axles thereof will be in the radial lines of the curve, substantially as described.

4. The combination, with the trucks of a car and the body mounted thereon, of the swinging posts pivotally secured to the car-body or upper bolsters and the bearing-plates on the lower bolsters, having seats to receive the free ends of said posts, substantially as and for the purpose described.

5. The combination, with the trucks of a car and the body mounted thereon, of the swinging posts pivotally hung from the upper bolsters and the bearing-plates secured on the lower bolsters beneath said posts and having seats to receive the free ends of the posts and also provided with the shoulders to sustain the car-body, substantially as described.

6. The combination, with the trucks of a car and the body mounted thereon, of the lower bolsters on the trucks and the upper bolsters on the body of the car, the bearing-plates secured on the lower bolsters, and the shoulders on said plates to receive the weight of the car, substantially as described.

7. The combination, with the trucks of a car and its body mounted thereon, of the bearing-plates secured on the lower bolsters and having depressed seats therein, the plates secured to the upper bolsters, and the swinging posts pivoted or hinged to said plates and having their free ends fitted in said seats in the bearing-plates, substantially as described.

480,831. HORSE-POWER LAWN-MOWER. ANDREW B. ROBBINS, Minneapolis, Minn., assignor of one-half to Edward W. Loose, same place. Filed Oct. 15, 1891. Serial No. 408,796. (No model.)



Claim.—1. The combination, in a horse-power lawn-mower, of two or more hand lawn-mowers, with flexible connecting bars or straps for the same, the yokes of said mower and draft-rods extending forward from the centers thereof, substantially as described.

2. The combination, in a horse-power lawn-mower, of two or more hand-mowers provided with yokes and handles, a hinged strap between each two mowers and secured at the bases of said handles, and draft-rods having their forward ends fastened at substantially the same points, as set forth.

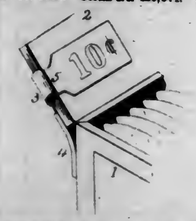
3. The combination, in a horse-power lawn-mower, of two or more hand lawn-mowers having the usual yokes, with curved and hinged connecting and brace straps therefor, draft connections, and means whereby said mowers are held against independent forward movement, but allowed a degree of vertical play, substantially as described.

4. The combination, in a horse-power lawn-mower, of two or more hand lawn-mowers provided with handles, with a curved adjustable hinged strap extending between each two mowers to hold the same laterally and longitudinally separate, and an adjustable link or links arranged between the upper portions of each pair of said handles, substantially as described.

5. The combination, in a horse-power lawn-mower, of two or more hand lawn-mowers, with the curved straps secured upon the handles thereof and extending between the same, a hinge adjustably connecting said parts, legs or straps 27, draft-rods hooked therein, means for attaching the forward ends of the same to the whiffletree, and a tie or truss bar 28, extending between the handle of the forward machine and said forward ends, substantially as described.

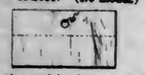
6. The combination, in a horse-power lawn-mower, of two or more small mowers with handles therefor, the backwardly and laterally curved connecting strap or bar, a hinge adjustably arranged therein, the adjustable tie-link between the upper parts of the handles and composed of the rods 18 and 19, provided with a locking device, the straps 27, the draft-rods 26, the hook 24, secured thereto, and a supporting-bar 28, fastened to the forward mower, said mowers being arranged to lap with respect to the cut, substantially as described.

480,832. BOX-LID SUPPORT. CHRISTIAN H. SCHAEFFER, Chicago, Ill. Filed Apr. 18, 1892. Serial No. 429,671. (No model.)



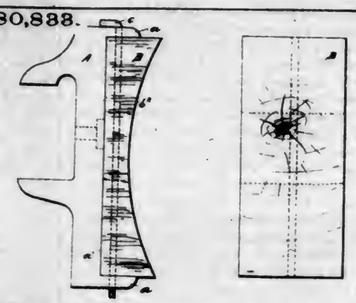
Claim.—The box-cover support consisting of an upper portion 3, provided with a clip 5 for engaging the box-cover, and a lower portion 4, adapted to rest against the back of the box-body, the two portions 3 and 4 being bent at an angle to each other, substantially as herein described.

480,833. BRAKE-SHOE. JACOB SHAARER, Reading, Pa. Filed Dec. 12, 1891. Serial No. 414,835. (No model.)



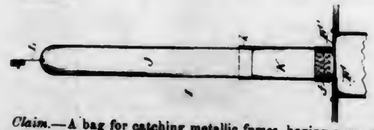
Claim.—The combination, with the metal shoe having top and bottom flanges *a a*, of the friction-block B, fitted to said shoe between

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the flanges, and the retaining-wire *c*, passed through said flanges and longitudinally through the block, substantially as and for the purpose set forth.

480,834. BAG FOR CATCHING METALLIC FUMES. DENNIS SHEEDY, Denver, Colo. Filed Dec. 3, 1891. Serial No. 414,418. (No specimens.)



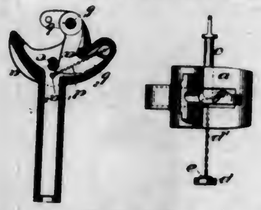
Claim.—A bag for catching metallic fumes, having a mouth-section of strong fabric, such as wool, in combination with a body-section of lighter and less durable material, substantially as and for the purpose specified.

480,835. TOOL FOR EXTRACTING BUNGS. WILLIAM H. STANTON, Anderson, Ind. Filed Dec. 19, 1891. Serial No. 415,591. (No model.)



Claim.—In combination, a rod having two oppositely-flattened sides, a cutting-edge at one end of said rod, said cutting-edge projecting from the rod so as to form flanges, a head of larger diameter than the rod at the other end of the rod, and a hollow weighted handle C, closed at one end and provided with the pins c at the other end, forming guides in which said rod is adapted to slide, substantially as described.

480,836. CAR-COUPLING. CHARLES H. TAYLOR, South Orange, N. J. Filed Nov. 23, 1891. Serial No. 412,763. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw head provided with a rotating hook or knuckle hinged thereto, of a weight having a flexible connection with said rotating hook or knuckle in a manner to draw the same to an open or extended position, substantially as described, and for the purpose set forth.

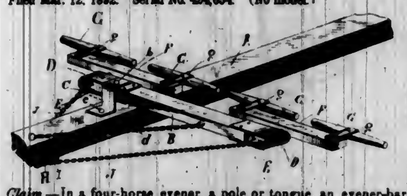
2. In a car coupling, the combination, with the draw-head provided with a rotating hook or knuckle hinged thereto and a device for locking said hook or knuckle in a closed position, of a weight having connection with the inner arm of said hook or knuckle through the medium of a flexible connection and adapted to draw the same to an open position when released by said locking device, substantially as described, and for the purpose set forth.

3. In a car-coupling, the combination, with the draw-head provided with a rotating hook or knuckle hinged to said draw-head and

a locking device for engaging said hook or knuckle, of a weight supported by and operating through a section of said draw-head connected with the arm of said hook or knuckle through the medium of a flexible connection, substantially as described, and for the purpose set forth.

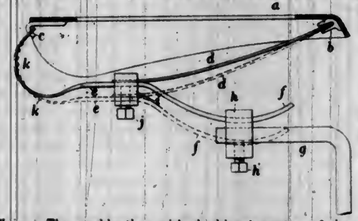
4. In a car-coupling, the combination, with the draw-head provided with a hinged hook or knuckle, of a weight having connection with the rear arm of said hook or knuckle through the medium of suitable flexible connection and a buffer for receiving the blow of said weight when contacting with the draw-head, substantially as described, and for the purpose set forth.

480,837. DRAFT-EQUALIZER. GOODMAN WING, Kamrar, Iowa. Filed Mar. 12, 1892. Serial No. 424,654. (No model.)



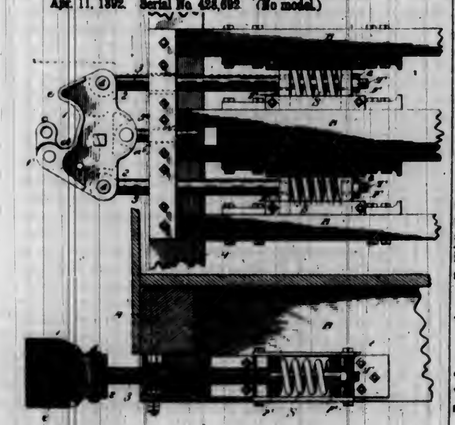
Claim.—In a four-horse evener, a pole or tongue, an evener-bar pivoted near one of its ends to the tongue and the other end having a stay to limit its forward movement, and pulleys journaled in bearings at each end of the said bar, combined with a pulley journaled on the under side of the tongue in rear of the pivoted evener-bar, a cable or chain passing round the pulley on the tongue and the pulleys at the ends of the said bar, a doubletree attached to each end of the chain, and two singletrees attached to each doubletree, substantially as described.

480,838. SPRING FOR BICYCLE-SADDLES. HENRY BERGFELD, Newark, N. J. Filed Apr. 28, 1892. Serial No. 431,075. (No model.)



Claim.—The combination, with the bicycle-seat *a*, of the spring formed of the flat leaves *d* and *e*, clamped together adjustably, as set forth, the leaf *e* being extended downward and backward from the clamp and terminated in a spring-arm *f*, and the forward end of the leaf *e* being reduced in thickness and bent into the reflex curve *k* and engaged with the forward end of the seat, as set forth.

480,839. CAR-COUPLING. HARRY C. BUHOUP, Chicago, Ill. Filed Apr. 11, 1892. Serial No. 428,692. (No model.)



Claim.—1. The combination, with a coupler-head, of two or more stems pivotally attached to the head, substantially as and for the purposes specified.

2. The combination, with a coupler-head, of two or more pivotally-attached stems and a spring or springs actuated thereby, substantially as and for the purposes specified.

3. In a twin-jaw coupler, the combination, with the coupler-head, of one or more pivoted stems and springs arranged with relation to the guard-arm and ears of said head to cause the deflection of buffing force, substantially as and for the purposes specified.

4. The combination, with a coupler-head, of three pivotally-attached stems, one of which is a draft-stem, and balance-springs, substantially as and for the purposes specified.

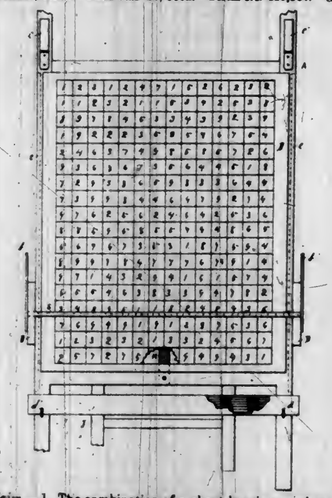
5. The combination, with a coupler-head, of a draft and buffer stem and a safety stem or stems, substantially as and for the purposes specified.

480,840. SOAP. HENRY J. ECKER and GEORGE F. ECKER, Philadelphia, Pa. Filed Sept. 18, 1891. Serial No. 406,127. (No specimens.)

Claim.—1. In a soap, the combination of quartz soap and oxide of iron, substantially as described, and for the purpose specified.

2. A soap composed of water, white commercial soap, oxide of iron, and pulverized quartz in about the proportions specified.

480,841. ADJUSTABLE-NUMBER DEVICE. JOHN F. EVERY, Mendon, Mich. Filed Jan. 27, 1892. Serial No. 419,387. (No model.)



Claim.—1. The combination of a chart bearing numbers, the vertically-adjustable carriage comprising a transverse bar in front of said chart, said bar having adjustable bearings on the sides of the chart-frame and slotted plates at its ends and a longitudinal groove in the upper side of said bar, slides bearing numbers and adapted to be inserted in the end slotted plates of said bar, and a series of individual checks for bearing numbers and to be placed in the groove of the bar of the carriage to show results, substantially as set forth.

2. The combination of a chart bearing numbers, a vertically-adjustable carriage comprising a transverse bar having adjustable bearings on the sides of the chart-frame and slotted plates at the ends of said bar, and slides bearing numbers and adapted to be adjustably inserted in said slots, substantially as set forth.

3. The combination of a frame bearing a figured chart, the transverse bars in front and back of the chart, blocks having sliding bearings on the sides of the chart-frame and attached to the ends of said bars, slotted plates attached to said blocks, slides adapted to be adjustably inserted in said slots, and a spring on the back bar for holding the transverse bars in different vertical positions, substantially as set forth.

480,842. DISTILLING APPARATUS. ALFRED FELDMANN, Bremen, Germany. Filed Nov. 17, 1891. Serial No. 412,120. (No model.)

Claim.—1. The combination of a lime-chamber D with a series of annular surrounding evaporating-cells that communicate therewith, bells *d*, and steam-pipes *f*, entering such cells, substantially as specified.

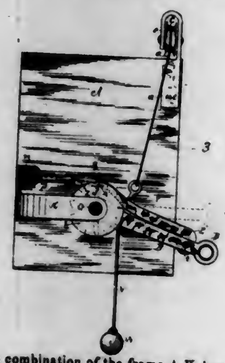
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2. The combination of a central lime-chamber D with a series of annular surrounding evaporating-cells connected with said chamber, tubes A, connecting the cells, steam-pipes *f*, entering the cells, and bells *a* above the steam-pipes, substantially as specified.

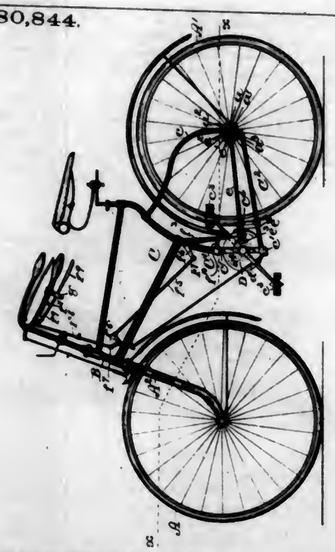
3. The combination, in a distilling apparatus, of the following elements: a lime-chamber, a series of annular distilling-cells, steam-pipes and bells within the cells, an accumulator C, an inlet, an exit-pipe connecting the lime-chamber and the cells, and an exit-pipe *n*, substantially as specified.

480,843. MINER'S REGISTER. BARNA GATELY and DAVID SKINNER, Braidwood, Ill. Filed Apr. 29, 1892. Serial No. 431,114. (No model.)



Claim.—The combination of the frame A K, having dial D, shaft O, hand H, ratchet-wheel L, grooved wheel J, cord and weight V W, arm B, having the pawl E, pawl P, and cord and pulley *a c*, all arranged to operate substantially as and for the purpose set forth.

480,844. BICYCLE. GEORGE F. HALL, Newark, N. J., assignor to the Schrade & Hall Novelty Manufacturing Company, of West Virginia. Filed Dec. 4, 1891. Serial No. 413,978. (No model.)



Claim.—1. In a differential-speed mechanism for a velocipede or other like motor, the combination of the frame, an axle, a speed or drive wheel provided with two sets of concentrically-arranged gear-teeth, a shaft *e*, supported in bearings in the frame and provided with means for actuating the rear axle of the velocipede, two miter-wheels loosely revoluble on said shaft and both in normal inoperative engagement with the concentrically-arranged teeth on the speed or drive wheel, collars e^9 and e^{14}, secured on said shaft, and plates e^{10} and e^{15} for holding said miter-wheels in the same position on said shaft, but allowing them to rotate each independent from the shaft *e* at different speeds, and a shifter or clutch sliding freely on said shaft for causing the operative engagement of the one miter-wheel with said shaft and with the speed or drive wheel and the inoperative engagement of the other miter-wheel, and a system of levers or arms secured to said frame and operated from one of the handle-bars of the machine, substantially as and for the purposes set forth.

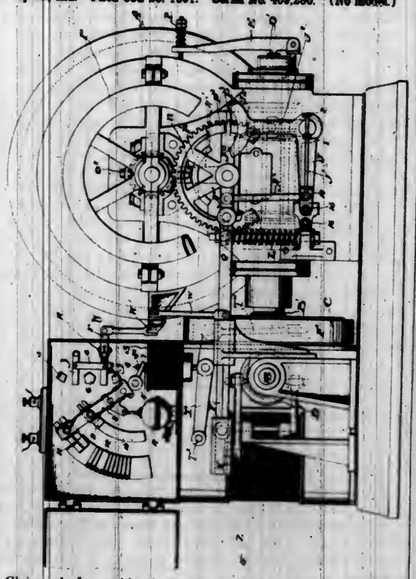
2. In a differential-speed mechanism for a velocipede or other like motor, the combination of the frame, an axle, a speed or drive wheel provided with two sets of concentrically-arranged gear-teeth, a shaft *e*, supported in bearings in the frame and provided with means for actuating the rear axle of the velocipede, two miter-wheels loosely revoluble on said shaft and both in normal inoperative engagement with the concentrically-arranged teeth on the speed or drive wheel, collars e^9 and e^{14}, secured on said shaft, and plates e^{10} and e^{15} for holding said miter-wheels in the same position on said shaft, but allowing them to rotate each independent from the shaft *e* at different speeds, and a shifter or clutch sliding freely on said shaft for causing the operative engagement of the one miter-wheel with said shaft and with the speed or drive wheel and the inoperative engagement of the other miter-wheel, and a system of levers or arms secured to said frame and operated from one of the handle-bars of the machine, and means on the handle-bar for holding the hand-lever of the clutch-operating levers in certain locked positions, consisting, essentially, of spring-arms g^2 and g^3, screw g', spring-actuated screw g^5, and notches g^4 and g^7 in one of said spring-arms, as g^3, substantially as and for the purposes set forth.

3. In a differential-speed mechanism for a velocipede or other like motor, the combination of the frame, an axle, a speed or drive wheel provided with two sets of concentrically-arranged gear-teeth, a shaft *e*, supported in bearings in the frame and provided with means for actuating the rear axle of the velocipede, two miter-wheels loosely revoluble on said shaft and both in normal inoperative engagement with the concentrically-arranged teeth on the speed or drive wheel, collars e^9 and e^{14}, secured on said shaft, and plates e^{10} and e^{15} for holding said miter-wheels in the same position on said shaft, but allowing them to rotate each independent from the shaft *e* at different speeds, and a shifter or clutch sliding freely on said shaft for causing the operative engagement of the one miter-wheel with said shaft and with the speed or drive wheel and the inoperative engagement of the other miter-wheel, and a system of levers or arms secured on said frame and operated from one of the handle-bars of the machine, substantially as and for the purposes set forth.

4. In a velocipede or other like motor, a differential-speed mechanism comprising therein an axle, a speed or drive wheel, a pair of actuating mechanisms, each capable of receiving a different revoluble motion from said drive-wheel, a shifter or clutch mechanism for causing the operative engagement of one actuating mechanism and preventing the operation of the other, and said shifter also being capable of disengagement with both actuating mechanisms at the same time, whereby the axle can be held in an inoperative position while "coasting" with the velocipede, and means on the handle-bar for holding said shifter or clutch in its several engaged and disengaged positions, consisting, essentially, of spring-arms g^2 and g^3, screw g', spring-actuated screw g^5, and notches g^4 and g^7 in one of said spring-arms, as g^3, substantially as and for the purposes set forth.

5. The herein-described velocipede, comprising therein the frame C, having reaches *c*, arm C', bifurcated, as at *c'*, and connecting-arms C^2, an axle c^3, a differential-speed or drive wheel having the concentrically-arranged gear-teeth d^2 and d^3, a shaft *e* in engagement with the rear axle of the machine and rotating in bearings c^4 and c^4 on said frame, miter-gears e^9 and e^{14}, loosely revoluble on said shaft *e* and normally in inoperative engagement with the gear-teeth d^2 and d^3 on said speed or drive wheel, and a shifter or clutch sliding on said shaft *e* for causing the operative engagement of said miter-gear e^9 and the inoperative engagement of the miter-gear e^{14}, or vice versa, and means connected with the handle-bar of the machine for shifting said clutch, all arranged substantially as and for the purposes set forth.

480,845. ELECTRIC ELEVATOR. FRANK R. HERDMAN, Indianapolis, Ind. Filed Oct. 30, 1891. Serial No. 409,280. (No model.)



Claim.—1. In combination, a power-shaft, a friction-wheel upon said shaft, an elevator driving-shaft, a friction-wheel upon said shaft, said friction-wheels being in contact with each other, a driving-worm adapted to have a lateral movement upon its shaft, a lever, a resistance device connected to said lever, intermediate connection, substantially as described, between said lever and worm and between said lever and the friction-wheels, whereby the movement of the worm upon the shaft varies the extent of movement of the friction-wheels upon each other.

2. In an elevator, in combination, an operating-sheave, a gear operating with said sheave, an operating-bar, a segmental gear connected with said bar, lugs, as J^3, upon said gear, a power-shaft, a friction-wheel upon said shaft, an elevator-driving shaft, a friction-wheel upon said shaft, said friction-wheels being in contact with each other, and connection, substantially as described, between said bar and the friction-wheels, a driving-worm adapted to have a lateral movement upon its shaft, a lever, a resistance device connected to said lever, connection between said lever and the worm, substantially as described, a bell-crank, connection between said lever and bell-crank, and a projection upon the bell-crank in line with the projection upon the segmental gear.

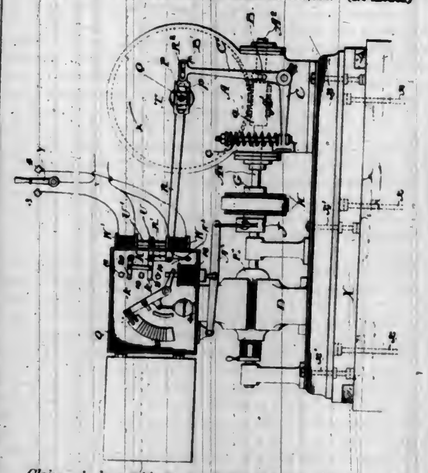
3. In combination, an operating-sheave, a gear operating with said sheave, an operating-bar, a segmental gear connected with said bar, lugs, as J^3, upon said gear, a driving-worm adapted to have a lateral movement upon its shaft, a lever, a resistance device connected to said lever, connection between said lever and the worm, an arm connected to said lever, and lugs, as J^3, upon said arm, whereby when the worm moves laterally a distance sufficient to move the lugs J^3 upon the arm in line with lugs the segmental gear is locked.

4. In an elevating mechanism, in combination, a driving-worm, a lever, a resistance device connected to said lever, connection, substantially as described, between said lever and worm, a binding-post connected to said lever, and a contact-point, a spring strip, as J', a binding-post on said strip, a brush on said strip, an electric motor, a source of current-supply, a wire connecting binding-post on the lever with source of current-supply, and a wire connecting strip J' with motor or motor-switch.

5. In combination, an electric motor, an electric switch, means to operate said switch, brushes upon said switch, an insulated strip connecting said brushes, contact-points in electrical connection with the source of current-supply, a solenoid, a rod connected to core of solenoid, a lever operated by said rod, a brush, as 9, adapted to be moved by said lever, a brush, as 11, adapted to be moved by said lever, a contact-point, as 10, in electrical connection with field and in path of brush 9, resistances, as 12, in line of travel of said brush 11, and a contact-point, as 13, in electrical connection with resistances and armature of motor and in path of movement of brush 11, direct electrical connection between one pole of the current-supply and field of motor, direct electrical connection from pole of current-supply to brush 9, electrical connection between solenoid and brushes 3 3, direct electrical connection between one of the brushes 3 3 and the armature, and direct connection between the other of brushes 3 3 and the brush 11.

6. In an elevator, in combination, a power-shaft, a friction-disk upon said shaft, an elevator-driving shaft, a friction-disk upon said shaft, said friction-wheels being in contact with each other, an operating-bar, means to operate said bar, a sliding piece, as X, connected to said bar, a bell-crank, as Z, connected to said sliding piece, and connection between said bell-crank and one of the friction-disks.

480,846. ELECTRIC ELEVATOR. FRANK R. HERDMAN, Indianapolis, Ind. Filed Dec. 22, 1891. Serial No. 415,881. (No model.)



Claim.—1. In combination, a drum-shaft, a threaded screw connected to said drum-shaft, a shoulder threaded as described upon said drum-shaft, a nut adapted to travel on said threaded screw, a connecting-rod slotted as described to receive said nut, mechanism, substantially as described, connected to said rod adapted to travel on the threaded end of said drum-shaft, and intermediate connection, substantially as described, between said connecting-rod and the source of power.

2. In combination, a drum-shaft, a threaded screw connected to said drum-shaft, a shoulder threaded as described upon said drum-shaft, a nut adapted to travel on said threaded screw, a connecting-rod slotted as described and surrounding said nut, projections from said rod, said projections being adapted to travel on the threaded shoulders, and connection, substantially as described, between said connecting-rod and the source of power.

3. In combination, a drum-shaft, threaded screw connected to said drum-shaft, a shoulder threaded as described upon said drum-shaft, a nut threaded on the exterior, adapted to be placed at varying distances upon said threaded screw, a nut adapted to travel on said threaded screw, a connecting-rod slotted as described and surrounding said nut, projections from said rod, said projections being adapted to travel on the threaded shoulders, and connection, substantially as described, between said connecting-rod and the source of power.

4. In combination, a drum shaft, a threaded screw connected to said drum-shaft, a shoulder threaded as described upon said drum-shaft, a nut adapted to travel on said threaded screw, a connecting-rod slotted as described to receive said nut, said rod being adapted to be moved on the threaded end of said drum-shaft, a switch connected with the source of current-supply, and electrical connection between said switch and the motor and connection between said switch and connecting-rod.

5. In combination, a drum-shaft, a threaded screw connected to said drum-shaft, a shoulder threaded as described upon said drum-shaft, a nut adapted to travel on said threaded screw, a connecting-rod slotted as described and surrounding said nut, projections from said rod, said projections being adapted to travel on the threaded shoulders, and connection, substantially as described, between said connecting-rod and the source of power, a switch connected with the source of current-supply, electrical connection between said switch and the motor, and connection between said switch and connecting-rod.

6. In combination, a drum shaft, a threaded screw connected to said drum shaft, a shoulder threaded as described upon said drum-shaft, a nut threaded on the exterior, adapted to be placed at varying distances upon said threaded screw, a nut adapted to travel on said threaded screw, a connecting-rod slotted as described and surrounding said nut, projections from said rod, said projections being adapted to travel on the threaded shoulders, connection, substantially as described, between said connecting-rod and the source of power, a switch connection with the source of current-supply, and electrical connected between said switch and the motor and connection between said switch and connecting-rod.

7. In combination, a worm-shaft, a worm upon said shaft, a lever adapted to be operated by said worm, a tension device on said lever, a connecting-rod, connection, substantially as described, between said lever and said connecting-rod, and connection between said rod and the source of power, whereby when the movement of the worm exceeds the tension on the lever the connecting-rod is moved.

8. In combination, a worm-shaft, a worm upon said shaft, a lever connected to said worm, a tension device connected to said lever, a slotted arm connected to said lever, a connecting-rod provided with a pin and connection between said rod and the source of power, the said pin resting in the slot in the arm, whereby when the lateral movement of the worm exceeds the tension on the lever the lever operates.

9. In an electric elevator, in combination, an electric switch, solenoids, a core common to both magnets, connection between said switch and the core, electric connection between one pole of the source of current-supply and each of the electro-magnets, a lever carried by the car, electric connection between the other pole of the electric-current supply and the lever, contact-points carried by said car, said lever being adapted to be brought in contact with either contact-point, and electric connection between said contact-points and the electro-magnets, respectively.

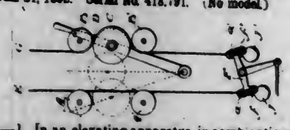
10. In combination, an electric switch, solenoids, a core common to both solenoids, connection between said switch and the core, electric connection between one pole of the source of current-supply and each of the electro-magnets, a lever carried by the car, electric connection between the other pole of the electric-current supply and said lever, contact-points carried by said car, said lever being adapted to be brought in contact with each contact-point, a secondary switch, contact-points, electrical connection between said contact-points and the contact-points carried by the car, contacts in electrical connection with each of the electro-magnets, a connecting-rod, connection between said switch and connecting-rod, and means, substantially as described, to move said rod laterally, whereby connection can be broken between either contact-point carried by the car and its corresponding electro-magnet.

11. The hereinbefore-described method of securing an electric motor to its supporting-foundation, which consists in interposing a wooden frame between the motor and foundation, securing said frame to foundation by bolts passing through said frame and into said foundation, and securing the base-plate of the motor to the frame by bolts passing through said plate and frame, but not projecting into said foundation.

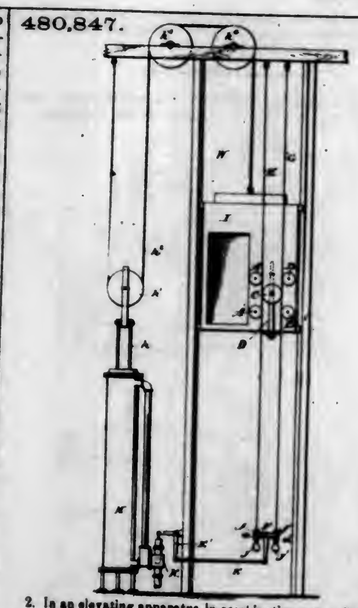
12. In an elevating apparatus, in combination, a connecting-rod slotted as described, a nut in said slot, a drum-shaft, a threaded end connected to said drum-shaft, passing through said nut, devices attached to said connecting-rod, and devices attached to said threaded end of the drum-shaft in line of travel of devices attached to said rod and adapted to give said rod a movement, as described.

13. In an elevating apparatus, in combination, a connecting rod, intermediate connection between said rod and the source of power, a drum-shaft provided with an extension adapted to travel through said rod, devices attached to said rod, and adjustable devices attached to said extension of drum-shaft in line of travel of devices attached to said rod and adapted to give said rod a movement, as described.

480,847. ELEVATOR. FRANK E. HERDMAN, Indianapolis, Ind. Filed Jan. 21, 1892. Serial No. 418,791. (No model.)

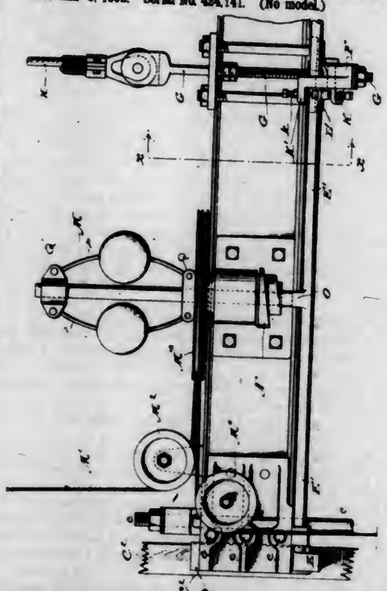


Claim.—1. In an elevating apparatus, in combination, a traveling car, shipper-ropes, sheaves, as A A', in proximity to one of the shipper-ropes, sheaves, as B B', in proximity to the other shipper-rope, a lever, as D, a sheave, as C, carried by said lever and adapted to be forced against either shipper-rope, a weight at the end of each shipper-rope, a lever, as F, provided with slotted ends, pins on the said shipper-ropes which rest in said slots, and intermediate mechanism between said lever and the operating mechanism.



2. In an elevating apparatus, in combination, a traveling car, shipper-ropes, means on the car for drawing up either shipper-rope, a weight at the end of each shipper-rope, a lever, as F, provided with slotted ends, pins on the said shipper-ropes which rest in said slots, and intermediate mechanism between said lever and the operating mechanism.

480,848. ELEVATOR. FRANK E. HERDMAN, Indianapolis, Ind. Filed Mar. 8, 1892. Serial No. 424,141. (No model.)



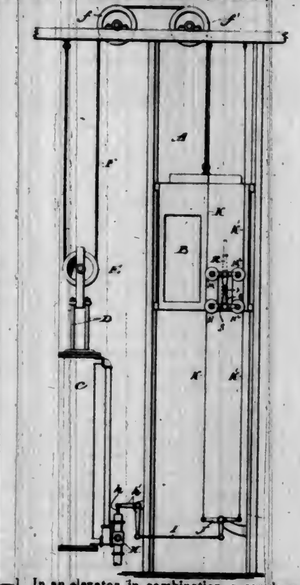
Claim.—1. In an elevator, in combination, an elevator-car, guides upon which said car travels, a beam secured to the top of said car, jaws secured to said beam, wedges between said jaws and the guides, a shaft adapted to rock extending along said beam, fingers attached to said shaft in line of movement with said wedges, a rocker secured to said beam at or near its center, lifting-cables connected to said rocker, said rocker being provided with lugs, and fingers attached to said shaft in line of movement of the lugs.

2. In an elevator, in combination, an elevator-car, guides upon which said car travels, a beam secured to the top of said car, jaws secured to said beam, wedges between said jaws and the guides, a shaft adapted to rock extending along said beam, fingers attached to said shaft in line of movement with said wedges, a rocker secured to said beam at or near its center, lifting-cables connected to said rocker, said rocker being provided with adjustable lugs, and fingers attached to said shaft in line of movement of the lugs.

3. In an elevator, in combination, an elevator-car, guides upon which said car travels, a beam secured to the top of said car, jaws secured to said beam, wedges between said jaws and the guides, a shaft adapted to rock extending along said beam, fingers attached to said shaft in line of movement with said wedges, a rocker secured to said beam at or near its center, lifting-cables connected to said rocker, said rocker being provided with lugs, set-screws passing through said lugs, and fingers attached to said shaft in line of movement of the lugs.

4. In an elevator, in combination, an elevator-car, guides upon which said car travels, a beam secured to the top of said car, jaws secured to said beam, wedges between said jaws and the guides, a shaft adapted to rock extending along said beam, fingers attached to said shaft in line of movement with said wedges, a governor connected to said beam, a cam on the shaft of said governor, a finger attached to the same shaft to which the wedge-operating finger is attached, said finger being in line of movement of said cam, and means, substantially as described, to rotate said governor.

480,849. ELEVATOR. FRANK E. HERDMAN, Indianapolis, Ind. Filed Apr. 13, 1892. Serial No. 428,948. (No model.)



Claim.—1. In an elevator, in combination, a car, levers pivoted to said car, intermediate connection between said levers, whereby when one lever is tipped in one direction the other lever will be tipped in an opposite direction, and intermediate connection between said levers and the elevator-operating mechanism.

2. In an elevator, in combination, a car, levers pivoted to said car, sheaves pivoted to the opposite ends of each of said levers, intermediate connection between said levers, whereby when one lever is tipped in one direction the other lever will be tipped in an opposite direction, and intermediate connection between said levers and the elevator-operating mechanism.

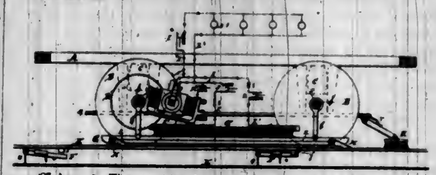
3. In an elevator, in combination, a car, levers pivoted to said car, shipper-cables connected to the upper portion of the elevator-shaft and adapted to be operated by said levers, intermediate connection between said levers, whereby when one lever is tipped in one direction the other lever will be tipped in an opposite direction, and connection between the lower ends of said cables and the elevator-operating mechanism.

4. In an elevator, in combination, a car, levers pivoted to said car, sheaves pivoted to opposite ends of each of said levers, shipper-cables connected to the upper portion of the elevator-shaft, one cable passing to and around one sheave of each lever and the other cable passing to and around the other sheave of each lever, intermediate connection between said levers, whereby when one lever is tipped in one direction the other lever will be tipped in an opposite direction, and connection between the lower ends of said cables and the elevator-operating mechanism.

5. In an elevator, in combination, a car, levers pivoted to said car, connecting-rods connected to said levers and extending toward each other, one connecting-rod being provided with a slot and the other connecting-rod with a pin adapted to rest in and slide in said slot, and intermediate connection between said levers and the elevator-operating mechanism.

6. In an elevator, in combination, a car, levers pivoted to said car, sheaves mounted at the opposite ends of said levers, shipper-cables connected to the upper portion of the elevator-shaft, one cable passing to and around one sheave of each lever and the other cable passing to and around the other sheave of each lever, connecting-rods connected to said levers and extending toward each other, one rod being provided with a slot and the other rod with a pin adapted to rest and slide in said slot, and connection between the lower ends of said cables and the elevator-operating mechanism.

480,850. ELECTRIC RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor, by mesne assignments, to the Thomson-Houston Electric Company, Boston, Mass. Filed May 28, 1887. Serial No. 239,021. (No model.)



Claim.—1. The combination of a working conductor arranged parallel to the railway, a supply-conductor, a magnetically-actuated switch to connect or disconnect said supply and working conductor, a traveling vehicle, a motor to propel said vehicle, receiving electricity from said working conductor, and a magnet carried by said vehicle, having its north and south poles brought close together in close proximity to the magnetically-actuated switch.

2. The combination of a working conductor arranged parallel to the railway and made of magnetic material, a supply-conductor, a magnetically-actuated switch to connect or disconnect said supply and working conductor, arranged close to said working conductor, a traveling vehicle, a motor to propel said vehicle, receiving electricity from said working conductor, and a magnet carried by said vehicle, having its north and south poles brought close together in close proximity to the working conductor magnetically-actuated switch.

3. The combination of a working conductor arranged parallel to the railway, a supply-conductor, a magnetically-actuated switch to connect or disconnect said supply and working conductor, a traveling vehicle, a motor to propel said vehicle, receiving electricity from said working conductor, and an electro magnet carried by said vehicle, having its north and south poles brought close together in close proximity to the magnetically-actuated switch.

4. The combination of a working conductor arranged parallel to the railway, a supply-conductor, a magnetically-actuated switch to connect or disconnect said supply and working conductor, a traveling vehicle, a motor to propel said vehicle, receiving electricity from said working conductor, an electro-magnet carried by said vehicle, having its north and south poles brought close together in close proximity to the magnetically-actuated switch, and means to vary the power of said electro-magnet.

5. In an electric railway, a working conductor arranged along the railway, a supply-conductor parallel thereto, magnetic switches to connect and disconnect said working conductor with the supply conductor, a traveling vehicle, a magnet on said vehicle to automatically operate said switches as a vehicle passes over them, and a connection between said magnet and axle or axles of the vehicle, capable of longitudinal movement, whereby the magnet will remain at a substantially fixed distance from the ground, but may easily ride over an obstruction.

6. The combination of a vehicle, a longitudinal collector-frame hung by parallel links from the axles and capable of longitudinal motion, current-collecting devices carried by said frame, and a working conductor over which said collecting devices travel.

7. In an electric railway, a working conductor arranged along the railway, a supply-conductor parallel thereto, magnetic switches to connect and disconnect said working conductor with the supply-con-

ductor, a traveling vehicle, a magnet on said vehicle to automatically operate said switches as a vehicle passes over them, and a cleaning-brush resting upon the working conductor and connected to the vehicle.

8. In an electric railway, a working conductor arranged along the railway, a supply-conductor parallel thereto, magnetic switches to connect and disconnect said working conductor with the supply-conductor, a traveling vehicle, a magnet on said vehicle to automatically operate said switches as a vehicle passes over them, and a hinged cleaning-brush resting upon the working conductor and connected to the vehicle, and means to press it upon said working conductor.

9. The combination of a sectional working conductor, a supply-conductor, magnetically-actuated switches connecting said supply and working conductor sections, an electrically-propelled vehicle receiving current from said working conductor, means, substantially as described, carried by the vehicle to actuate said switches when the vehicle passes above them, the return-conductor, and an electric generator having its poles connected, respectively, to the supply and return conductor, but to opposite ends thereof, whereby the resistance from the generator through the motor and return is substantially the same for all positions of the motor on the line.

10. The combination of an exposed sectional working conductor, an insulated supply-conductor, magnetically-actuated switches to intermittently connect the supply-conductor with the sections of the working conductor, an electrically-propelled vehicle receiving current from said working conductor, a magnetizing helix carried by the vehicle and arranged within magnetizing distance of the switches, and a collecting device carried by the vehicle and making contact with the working conductor within the range of influence of the helix.

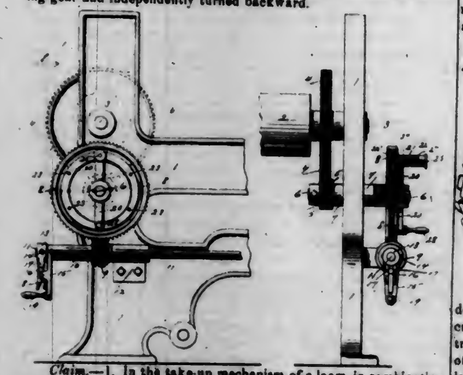
11. The combination of positive and negative line or supply conductors, a branch circuit between them, a switch to break said circuit, an electro magnet in said circuit, a working conductor, a switch actuated by said magnet to connect or disconnect said working conductor with one of the line or supply conductors, a magnetically-actuated switch to close said branch circuit, a traveling vehicle, and means, substantially as described, carried by said vehicle to operate said magnetically-operated switch.

12. The combination of positive and negative line or supply conductors, a branch circuit between them, a switch to break said circuit, an electro-magnet in said circuit, a working conductor, a switch actuated by said magnet to connect or disconnect said working conductor with one of the line or supply conductors, a magnetically-actuated switch to close said branch circuit, a closed circuit including a helix to keep said switch magnetized, a traveling vehicle, and means, substantially as described, carried by said vehicle to operate said magnetically-operated switch.

13. The combination of a vehicle, an electric motor to propel the same, the line-switch-actuating electro-magnet, a source of electric supply, a motor-circuit, a shunt-circuit around the motor and including the switch-actuating electro-magnet, an electric-light circuit in shunt relation with the motor, and independent means to regulate the current passing to the motor and switch-actuating electro-magnet and also to the electric-light circuit.

480,851. TAKE-UP MECHANISM FOR LOOMS. GEORGE F. HUTCHINS, Worcester, Mass., assignor to the Knowles Loom Works, same place. Filed Mar. 18, 1892. Serial No. 425,408. (No model.)

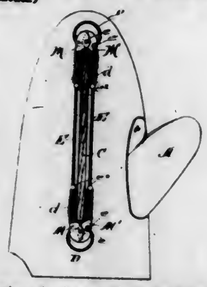
Brief.—The invention consists of mechanism so arranged that the take-up roll may, when desired, be quickly disconnected from its driving-gear and independently turned backward.



Claim.—1. In the take-up mechanism of a loom, in combination, the take-up roll, intervening gearing between the take-up roll and the worm-gear shaft, and said worm-gear shaft, and the worm-gear loose on said shaft, the worm loose on the worm-shaft, and said worm-shaft, and means for connecting the worm to the worm-shaft and for disconnecting it therefrom, and means for connecting the worm-gear to the worm-shaft and for disconnecting it therefrom, and means for turning the worm-gear shaft to cause the take-up roll to be turned independently of the worm-driving mechanism, for the purpose stated, substantially as set forth.

2. In the take-up mechanism of a loom, the combination, with the worm-shaft, the worm fast on a sleeve mounted loose on said worm-shaft, and means for connecting said sleeve with said shaft and for disconnecting it therefrom to allow the worm to be turned independently of the worm-shaft, the said means consisting of a handle-arm fast on the sleeve, carrying a spring-actuated latch which is adapted to engage lugs on a collar fast on the worm-shaft, and said collar, of the worm-gear driven by the worm and loose on the worm-gear shaft, and said worm-gear shaft, and means for connecting said worm-gear to the worm-gear shaft and for disconnecting it therefrom, such means consisting of a handle-arm fast on the worm-gear shaft and provided with a spring-actuated plunger adapted to engage sockets in the worm-gear to lock the gear to said handle-arm and cause it to be revolved therewith and with the worm-gear shaft or to be disengaged from said sockets to allow the worm-gear shaft to be turned by the handle-arm independently of the worm-gear to turn the take-up roll through the intervening gearing, and said take-up roll and intervening gearing between said roll and worm-gear shaft, substantially as set forth.

480,852. MITTEN. FERDINAND J. KAHN, St. Paul, Minn., assignor to Clarence Kahn, Sioux City, Iowa. Filed May 20, 1892. Serial No. 433,738. (No model.)



Claim.—1. A mitten having an elongated opening C, located on the body of the mitten, extending from the point of the index-finger along the side thereof to a point near the wrist, provided with springs D D, to the ends of which are attached by hinged joints d' d' thin plates M M', hinged at e and at their outer ends connected by hinged joints with side pieces E E at e' e^2, by means of which springs and side pieces aperture C may be opened, the free use of the entire hand procured, and the aperture again closed, all as set forth.

2. A mitten with the thumb portion enlarged where it joins the body of the mitten, so as to permit the thumb to be freely removed, having an elongated opening on the side of the mitten, extending from the point of the index-finger along the side thereof to a point near the wrist, said opening being provided with end springs and side pieces by means of which the aperture may be opened and closed, substantially as set forth.

480,853. DRIVE-CHAIN. CHARLES P. MARS, Rockford, Ill., assignor of one-half to James P. Edie, same place. Filed Jan. 18, 1892. Serial No. 418,442. (No model.)



Claim.—A link for link belting having a frame, a hook extending downwardly and forwardly from one end thereof, said hook having curved wings from its sides, giving to it a U shape or semi-tubular transverse section, a tongue extending rearwardly from the upper end of the hook, and a rearwardly-inclined depression in the upper and lower faces of one side of the link.

480,854. ACTION FOR MECHANICAL MUSICAL INSTRUMENTS. JOHANN L. MÜLLER, Leipsic, Germany. Filed Dec. 23, 1891. Serial No. 415,990. (No model.)



Claim.—1. The combination of lever a, having nose n and disk s, with ring r, having nose i, and with reed z, substantially as specified.

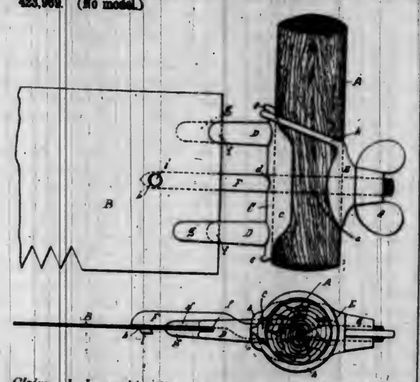
2. The combination of lever a, having nose n and disk s, with ring r, having nose i, and with the reed z, springs f f', and damper s, substantially as specified.

480,855. WOVEN FABRIC. IRVINE MCCALLUM, Philadelphia, Pa. Filed Feb. 26, 1892. Serial No. 422,850. (Specimens.)



Claim.—A homogeneous unmottled figured fabric having rows of picks comprising ground or concealed figuring wefts and a single figuring-weft, with substantially one-half of the warps in four divisions, whereof two lie crosswise between the single figuring-weft and the ground-wefts of every alternate row of picks and at the respective faces of every intervening row of picks, and whereof the other two lie in a similar manner, but at the respective faces of said alternate rows of picks and crosswise between the single figuring-wefts and ground-wefts of said intervening rows of picks, and with substantially the other half of the warps always between the concealed figuring and figuring-wefts, for the purposes set forth.

480,856. SAW-HANDLE. JOHN NEIMEYER, Hamilton, Ohio, assignor to Daniel Shafer, same place. Filed Mar. 7, 1892. Serial No. 423,909. (No model.)



Claim.—1. In combination, a support adapted to intervene between a saw-handle and the end of a saw, a washer, and a ring integral therewith and adapted to encircle a saw-handle and to detachably engage with said support.

2. In combination, a mechanism adapted to intervene between a saw-handle and the end of a saw, a washer, and means adapted to encircle the handle and to detachably engage said mechanism with said washer.

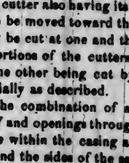
3. In combination, a base-plate, arms projecting therefrom, a groove in the end of said arms, and a lip on each of said arms, extending beyond one side of said groove therein, said lips on the respective arms being adapted to rest against the opposite sides of a saw.

4. In combination, a curved base-plate, parallel arms projecting vertically from the convex face thereof, a groove in the end of each of said arms in line with each other, and a lip on each of said arms, extending beyond one side of said groove on opposite sides of said line, respectively.

5. In combination, a cylindrical handle, an intervening mechanism adapted to engage with said handle and the end of a saw, a washer, a ring adapted to encircle said handle and to detachably engage said intervening mechanism and said washer together, and a bolt adapted to secure said parts together and to the end of a saw.

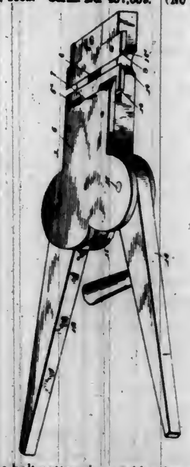
6. In combination, a mechanism adapted to intervene between a saw-handle and the end of a saw, integral parallel lips thereon, adapted to extend along and rest against the respective sides of the saw, a washer, and a ring adapted to encircle the saw-handle and to detachably engage said washer with said mechanism.

480,857. LABEL-HOLDER. GUSTAV NEUHACK, Obernigk, near Breslau, Germany. Filed Nov. 18, 1891. Serial No. 412,253. (No model.)



Claim.—The combination of a bottle C with an elastic band encircling its neck, a bail having a rigid cross-arm A' and suspended below the band, and with a flexible label folded around the cross-arm, substantially as specified.

480,858. BOLT-CUTTER. WILLIAM H. RANSOM, Kirksville, Mo. Filed June 24, 1892. Serial No. 437,859. (No model.)



Claim.—1. In a bolt-cutter, the combination of a casing having an opening extending through the same and slots in the opposite edges thereof, a stationary cutter having its end projecting through said slots, and a reciprocating cutter also having its ends projecting through said slots and adapted to be moved toward the said stationary cutter, whereby three bolts may be cut at one and the same time, two of the same being cut by the portions of the cutters projecting beyond the sides of the casing and the other being cut by the central portion of the said cutters, substantially as described.

2. In a bolt-cutter, the combination of a casing having slots in the opposite sides thereof and openings through the said casing, a stationary cutter of T shape within the casing and having its ends projecting through and beyond the sides of the said casing, a reciprocating cutter having a T-shaped head laterally projecting through said slots and adapted to contact with the said stationary cutter and provided with a toothed shank, and handles pivoted in said casing and having toothed sectors engaging the said toothed shank of the cutter set forth, the said casing adjacent to the slots therein being depressed or recessed, substantially as described.

480,859. PORTABLE ROOF. JOHN H. RICE, Henderson County, Ill. Filed Mar. 11, 1890. Serial No. 343,563. (No model.)



Claim.—1. A roof-supporting chain comprising a series of links having holders formed integral therewith and provided at their upper and lower ends with rings for securely connecting the links, substantially as shown and described.

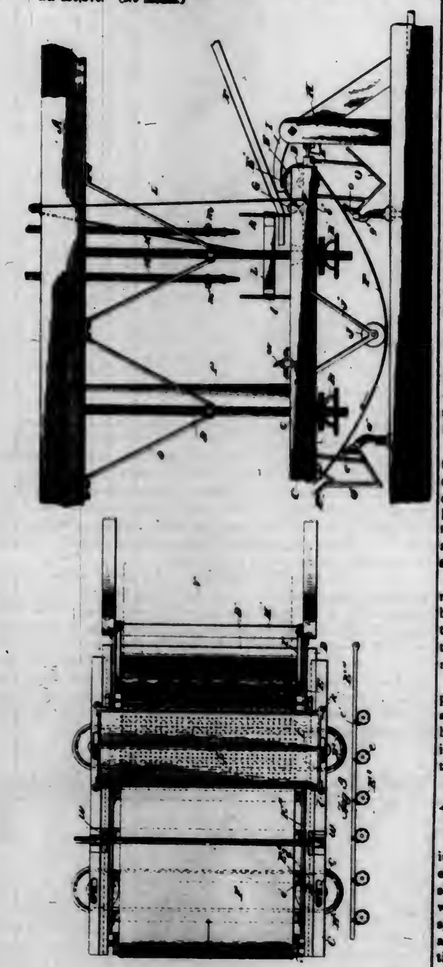
2. An improved chain for connecting and supporting the boards of a portable roof, said chain comprising the links B and B', said links having holders formed thereon and rings formed on their lower ends, the upper ends of the links B having hooks and the links B' having rings whereby the different links are flexibly united, substantially as shown and described.

3. An improved supporting device consisting of a chain composed of a series of link-bars, said link-bars being formed with rings at their upper ends, hooks at their lower ends, and openings below the hooks, adapted to receive the ring upon the upper end of the adjacent lower link, substantially as shown and described.

4. An improved roof-supporting chain consisting of a series of securely-connected links, each link carrying a stationary holder adapted to receive and support the roof-boards, substantially as shown and described.

5. An improved roof-supporting chain consisting of a series of links having stationary holders thereon and provided at their upper and lower ends with rings for securely connecting the links, substantially as shown and described.

480,860. ORE-CONCENTRATOR. PHILIP B. STANROPE, Dumont, Colo., and FRANK. WOOD, Brooklyn, N. Y. Filed Feb. 4, 1892. Serial No. 420,876. (No model.)



Claim.—1. In an ore-concentrator, the combination, with the stationary track, of a reciprocating table mounted thereon, means for reciprocating the table, a stationary bumper at one end of the table, having a cross-bar thereon of a length equal to the width of the table, a cross-bar on the end of the table in direct alignment with the said other cross-bar and arranged to impinge against the same throughout its entire length, carrying-rolls on the table, an endless belt on the rolls, and means for moving the belt, actuated by the movement of the table, substantially as described.

2. In an ore-concentrator, the combination, with a stationary track, of a drum mounted on the track at the forward end thereof, a roll at the rear of the track, a series of intermediate carrying-rolls, means for positively and simultaneously actuating the intermediate rolls and drum upon the vibration of the table, means for vibrating the table, an endless belt on the rolls, and a stationary bumper with which the table engages, substantially as described.

3. In an ore-concentrator, the combination, with a stationary track, of a drum mounted on the track at the forward end thereof, a roll at the rear of the track, a series of intermediate carrying-rolls, means for positively and simultaneously actuating the intermediate rolls and drum upon the vibration of the table, an endless belt on the rolls, a roll above the belt adjacent to the drum, and a stationary bumper with which the table engages, substantially as described.

4. In an ore-concentrator, the combination, with a stationary track, of supports for the track, hand-nuts secured on the support, against which the track rests, sprocket-wheels on the hand-nuts, and chains connecting the sprocket-wheels of the opposite supports, substantially as described.

5. In an ore-concentrator, the combination, with a stationary track, of a reciprocating table on the track, means for reciprocating the table, an endless belt on the table, means for rotating the belt, a bumper, a feed-trough, and a vertically-adjustable water-receptacle on the track, having a perforated bottom, substantially as described.

6. In an ore-concentrator, the combination, with a stationary track, of supports for the track, a reciprocating table on the track, an endless belt carried by the table, means for moving the belt, a bumper, a water-distributing receptacle above the belt, and an unobstructed feed-trough or conveyer extending down to a point adjacent to the belt beneath the water-receptacle and formed with a horizontal discharge end and of a width substantially equal to the width of the belt, substantially as described.

7. In an ore-concentrator, the combination, with a stationary track, of a reciprocating table mounted thereon and a traveling belt on the table and a vertically-adjustable water-receptacle mounted on the track above the table and formed with a perforated bottom, substantially as described.

8. In an ore-concentrator, the combination, with a stationary track, a reciprocating table thereon and means for reciprocating the table, of a drum mounted on the table and extending above the same, a carrying-roll on the table in the rear of and below the plane of the upper surface of the drum, an endless belt on the rolls and drum, a stationary bumper with which the table engages, and means on the bumper for rotating the drum, substantially as described.

9. In an ore-concentrator, the combination, with a stationary track, of a reciprocating table mounted thereon, means for reciprocating the table, an endless belt carried on the table, launders or discharge-troughs supported by and arranged below the ends of the table, having their inner walls carried up into close proximity to the belt, nozzles extending through the trough at an inclination, a water-supply, and a flexible connection between the water-supply and the nozzles, substantially as described.

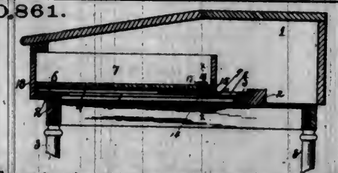
10. In an ore-concentrator, the combination, with a support, a reciprocating table, and the endless belt, of discharge-troughs arranged below the ends of the table, having their inner walls up to and within the path of the belt, nozzles passing through the walls at an inclination and terminating at points slightly in advance of the walls, and means for supplying the nozzles with water, substantially as described.

11. In an ore-concentrator, the combination, with a stationary support, reciprocating table, and endless belt, of a series of nozzles arranged at an incline slightly less than the inclination of the under surface of the belt, means for supplying the nozzles with water, and a dam located in the rear of the nozzles and in close proximity to the belt, substantially as described.

480,861. DRAWER STOP AND GUIDE. HENRY R. SPAUNHORST, St. Louis, Mo. Filed Dec. 21, 1891. Serial No. 415,732. (No model.)

Claim.—1. The herein-described drawer stop and guide, consisting of a guide-plate provided with a longitudinal slot 10, closed at its ends, a guide working in said guide-plate, and an attaching pin or screw 16, adapted to pass through the guide and engage the slot 10, whereby said projecting end of the pin or screw contacts with the respective closed ends of the slot when the drawer is open and closed and acts as a stop for limiting the movement of the drawer, substantially as and for the purpose set forth.

480,861.



2. The combination, with a receptacle and a drawer sliding therein of a fixed guide plate provided with a longitudinal slot 10, a guide working in said guide-plate, and a pin or screw 16, securing said guide to the bottom of the drawer and projecting downwardly into the slot 10, for the purpose described.

3. The combination, with a receptacle provided with the front and rear cross-pieces 2, the latter cross-piece having a recessed block 5 secured at its front edge, and a drawer sliding within said receptacle, of a guide-plate 4, secured at its rear end to the block 5 and having at its forward end projections 6 6, overlapping the front cross-piece 2, said guide-plate being provided with a longitudinal slot 10, closed at its ends, a slide 9, working in the guide-plate, a metallic plate 12, countersunk in the under side of said slide, and a pin or screw 16 passed through the bottom of the drawer and secured within the plate 12, substantially as and for the purpose set forth.

480,862. BILL OR LETTER FILE. JACOB H. STULL, Fremont, Ohio. Filed May 13, 1892. Serial No. 432,897. (No model.)



Claim.—1. A bill or letter file provided with a part mounted on crank-arms and carrying the arched wires and having extensions to guide said part, as set forth.

2. A bill or letter file provided with receiving-wires and a block mounted on crank-arms within a rectangular frame and carrying the arched wires, as set forth.

3. A bill or letter file provided with receiving-wires, a block carrying the arched wires and mounted on crank-arms, a rectangular frame within which the said block is movable, guides for the block, and a catch to hold it in its closed position, as set forth.

4. A bill or letter file provided with a block mounted on crank-arms and carrying a standard provided with a catch, and a rectangular frame in which the crank-arms are mounted and within which the block is movable, as set forth.

5. A bill or letter file provided with a block mounted on crank-arms and carrying the arched wires, a rectangular frame in which the crank-arms are mounted and within which the block is movable, and a standard provided with a spring-actuated catch, as set forth.

6. In a bill or letter file, the combination, with a base and a frame thereon, of a block arranged within the frame and carrying the arched wires, crank-arms mounted in the frame and carrying the block, and extensions on the block guided in the frame, as set forth.

7. In a bill or letter file, the combination, with a base and a frame thereon, of a block mounted on crank-arms held in the frame and arched wires carried by the block, a standard on the block, a spring-actuated catch on the standard, and a spring arranged beneath the block, as and for the purpose specified.

8. In a bill or letter file, a perforator consisting of a bed-plate with its front end turned down to provide room for the cores, as set forth.

9. In a bill or letter file, a perforator consisting of a bed-plate with its sides turned up and cut away, and a lever and punches, the latter working through holes in the bed-plate, as set forth.

10. A perforator consisting of a bed-plate with perforations, a spring having its ends passed upward into the perforations, and a lever and punches, as set forth.

11. A perforator consisting of a bed-plate with upturned sides cut away, a rod held in said sides, and a combined lever, journal-boxes, and punches journaled on said rod, as set forth.

12. A perforator having perforations for the punches and ridges in proximity to the perforations, as set forth.

13. A perforator consisting of a bed-plate with perforations and ridges in proximity to the ridges, and a combined lever and punches, the latter working through the perforations, as set forth.

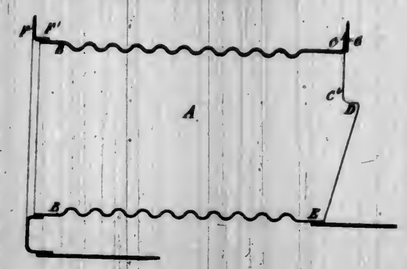
14. A punch the cutting part of which is at right angles to the punches or downward-bent wire, of which the same is formed, and beveled, as and for the purpose specified.

480,868. HINGED EXPANSION-GEAR FOR BRIDGES. CHARLES J. WESTWOOD and HARRY RIGBY, Millwall, England. Filed July 23, 1891. Renewed June 4, 1892. Serial No. 435,503. (No model.) Patented in England Nov. 12, 1890, No. 18,054.



Claim.—The herein-described gear for use as described, consisting in the combination, with the lower and upper saddle-plates *a a'*, provided in their opposing faces with curved or semicircular machined bearing-recesses, as described, of the link *b*, located intermediate to the saddle-plates and provided with rounded or semicircular machined ends *b'*, fitting within the bearing-recesses of the saddle-plates and adapted to have a rocking movement therein, as and for the purpose specified.

480,864. STEAM-BOILER FURNACE. HENRY C. ASHLIN, London, England. Filed Nov. 16, 1891. Serial No. 412,388. (No model.) Patented in England May 1, 1890, No. 6,718.



Claim.—1. A furnace tube having no flange at one end and partly flanged and partly cut away at the opposite end in a direction toward the body of said tube, for the purpose specified.

2. A furnace tube having no flange at one end and provided at its opposite end with a flange C, extending partially around the circumference of the tube, and having the remainder of said circumference cut away obliquely in a direction toward the body of the tube, as at D E, for the purpose specified.

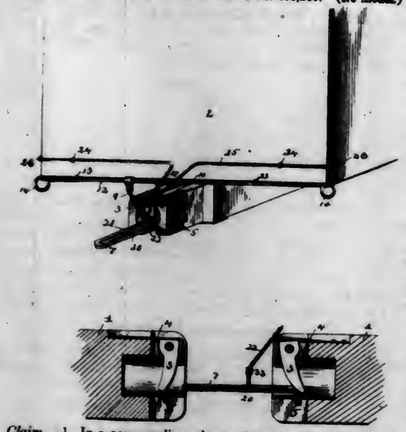
3. The combination, with the front plate F, flanged, as at F', and the back plate G, having no flange, of the furnace-tube, one end having no flange and fitting within the said plate F and the opposite end of the tube being provided with a flange C, fitting against the exterior of the plate G and being cut away, as at D E, for the purpose specified.

480,865. CHECKREIN. SIDNEY R. BROOKS, Uniontown, Pa., assignor of one-half to Park C. Sheldon, Allegany, N. Y. Filed Apr. 25, 1892. Serial No. 430,516. (No model.)



Claim.—The herein described checkrein attachment, consisting of the outer case having an extension, the spring-drum within the case, the spring, the strap wound around the spring-drum, with one end extended through the case, the ratchet-wheel on the drum, the spring-arm secured to the case and having its free end formed into a fork, and a pawl carried by the spring-arm, with its free end extended into the case and turned at right angles to its length to engage the ratchet-wheel, substantially as specified.

480,866. CAR-COUPLING. WILLIAM H. DAVIS, Chapel Hill, Tex., assignor of one-half to William T. Armstrong and Miller F. Armstrong, same place. Filed Oct. 10, 1891. Serial No. 408,289. (No model.)



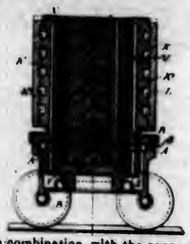
Claim.—1. In a car-coupling, the combination of a draw head, a depending hook pivotally mounted therein, a transverse pin arranged on the bottom of the mouth of the draw-head and provided intermediate its ends with a notch to permit the passage of the lower end of the hook, a spring for holding the notch away from the hook, and means for sliding the pin to bring the notch opposite the hook, substantially as described.

2. In a car-coupling, the combination, with the draw-head, a hook mounted on a transverse pivot in the upper part of the mouth of said draw-head, and a spring holding said hook normally vertical, of a transverse pin moving across the bottom of said mouth and having a notch in its body adapted to permit the outward passage of the tip of the hook, a slide-rod guided in eyes in the end of the car, an eye in the side of the draw-head, and a rod connected at its ends to said pin and rod and passing intermediately through said eye.

3. In a car-coupling, the combination, with the draw head, a hook mounted on a transverse pivot in the upper part of the mouth of said draw-head, and a spring holding said hook normally vertical, of a transverse pin moving across the bottom of said mouth and having a notch in its body adapted to permit the outward passage of the tip of the hook, a coiled spring drawing said pin to bring its notch normally out of the line of said tip, a link having a bar across its center carrying an eye, a chain having a snap-hook detachably engaging said eye, a link-lifter, to which said chain is connected at its upper end, and means for drawing the pin against the force of said coiled spring.

4. In a car-coupling, the combination, with the draw head, a hook mounted on a transverse pivot in the upper part of the mouth of said draw-head, and a spring holding said hook normally vertical, of a transverse pin moving across the bottom of said mouth and having a notch in its body adapted to permit the outward passage of the tip of the hook, a coiled spring drawing said pin to bring its notch normally out of the line of said tip, a link having a bar across its center carrying an eye, a chain having a snap-hook detachably engaging said eye, a link-lifter, to which said chain is connected at its upper end, a slide-rod guided in eyes in the end of the car, an eye in the side of the draw-head, and a rod connected at its ends to said pin and rod and passing intermediately through said eye.

480,867. OIL-PRESS. AUGUSTIN ESTRAYER, Marseilles, France. Filed Sept. 28, 1891. Serial No. 407,008. (No model.) Patented in France Feb. 22, 1889, No. 196,157.



Claim.—1. The combination, with the cage or frame, of plates U and of oblique channels T, terminating in vertical grooves R, for facilitating the discharge of the oil.

2. In an oil-press frame or cage, the combination, with the frame or cage consisting of a series of circumferentially-arranged sections adapted to be adjusted toward and from each other, as described, and an incline upon the outer surface of each of said sections, of a casing surrounding the said movable sections and adapted for vertical movement thereupon, inclines upon the inner surfaces of said casing adapted to bear upon the inclines of the frame-sections when the casing is moved, and means for operating the said casing, for the purpose specified.

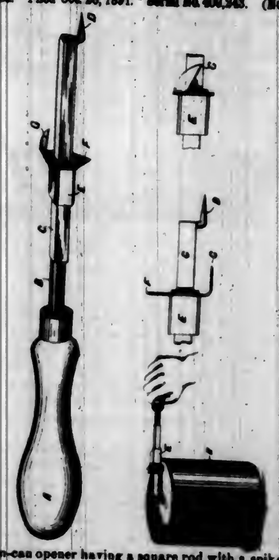
3. In an oil-press frame or cage, the combination, with a base mounted upon supporting-wheels, of the frame or cage mounted upon said base, consisting of a series of circumferentially-arranged sections adapted to be adjusted toward and from each other, as described, an incline upon the outer surface of each of said sections, a casing surrounding said movable sections and adapted for vertical movement thereupon, inclines upon the inner surface of said casing, adapted to bear upon the inclines of the frame-sections, and means carried by the base for operating the said casing, for the purpose specified.

4. In an oil-press frame or cage, the combination, with a base mounted upon supporting-wheels, of the frame or cage consisting of a series of circumferentially-arranged sections adapted to be adjusted toward and from each other, as described, an incline upon the outer surface of each of said sections, a casing surrounding said movable sections and adapted for vertical movement thereupon, inclines upon the inner surface of said casing, adapted to bear upon the inclines of the frame-sections, and means carried by the base for operating the said casing, consisting of screws carried by the casing and extending through the base, toothed nuts working upon said screws, a toothed wheel engaging the nuts, a worm engaging said toothed wheel, and a lever for operating said worm, as described.

5. In an oil-press frame or cage, the combination, with a base mounted upon wheels and a reservoir in said base, of the frame or cage mounted upon said base and consisting of a series of circumferentially-arranged sections adapted to be adjusted toward and from each other, as described, and provided with a series of vertical grooves R, communicating with reservoir S, inclines upon the outer surfaces of said sections, a casing surrounding the latter and adapted for vertical movement thereupon and provided with inclines upon its inner surface adapted to bear upon the inclines of the frame-sections when the casing is moved, and means for operating said casing, for the purpose specified.

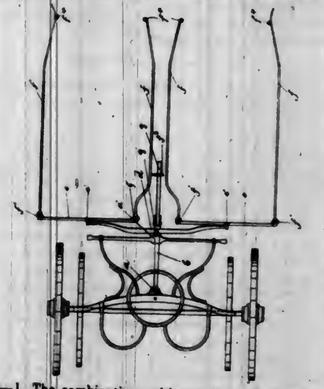
6. In an oil-press frame or cage, the combination, with a base mounted upon wheels and a reservoir S in said base, of the frame or cage mounted upon said base and consisting of a series of circumferentially-arranged sections adapted to be adjusted toward and from each other, as described, and provided with a series of vertical grooves R, communicating with reservoir S, inclined channels T in said sections and communicating with the grooves R, inclines upon the outer surfaces of said sections, a casing surrounding the latter and adapted for vertical movement thereupon and provided with inclines upon its inner surface, adapted to bear upon the inclines of the frame-sections when the casing is moved, and means for operating said casing, for the purpose specified.

480,868. CAN-OPENER. ALFRED PRESTON and JOHN BARRIE, London, England. Filed Oct. 20, 1891. Serial No. 408,943. (No model.)



Claim.—A tin-can opener having a square rod with a spike at end with bend in same, and blades carried on a sleeve arranged to slide on rod, and a rounded part at bottom of rod to enable the sleeve to be turned round to bring either blade underneath, as set forth.

480,869. VEHICLE-SHAFT. GUSTAV A. FRAAS, Dresden, Germany. Filed July 3, 1891. Serial No. 398,356. (No model.)



Claim.—1. The combination, with a vehicle, of a longitudinal spindle *b*, pivoted to the vehicle, a whiffletree *d*, pivoted to said spindle, a rod *g*, pivoted to the latter, as described, trees *c*, pivoted to the ends of the whiffletree, shafts pivoted to said trees *c*, and an eye f^3, secured to one of the sections of the shafts and sliding upon the rod *g*, all arranged and combined for co-operation, substantially as and for the purpose specified.

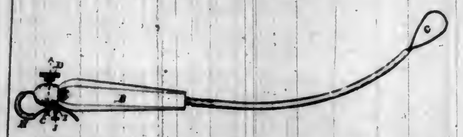
2. The combination, with the trees *c*, of the shafts *f*, provided with eyes f^4, and the fitting *h*, secured to a portion of the harness and provided with lugs h^4, between which fit the eyes f^4, all arranged and combined for co-operation, substantially as and for the purpose specified.

3. In apparatus such as described, the combination, with a forecarriage, of a shaft capable of rotating on a horizontal axis, another shaft jointed to it, so that it may rock in a vertical plane, and a whiffletree jointed to it, so that it may rock in a horizontal plane, substantially as described, and illustrated in the accompany drawings.

4. In apparatus such as described, the combination, with a forecarriage, of a horizontal revoluble shaft, vertically-movable shaft pivoted to its front end, a whiffletree, two pairs of limbers or shafts, and an eye sliding on the vertically-movable shaft, substantially as described, and illustrated in the accompanying drawings.

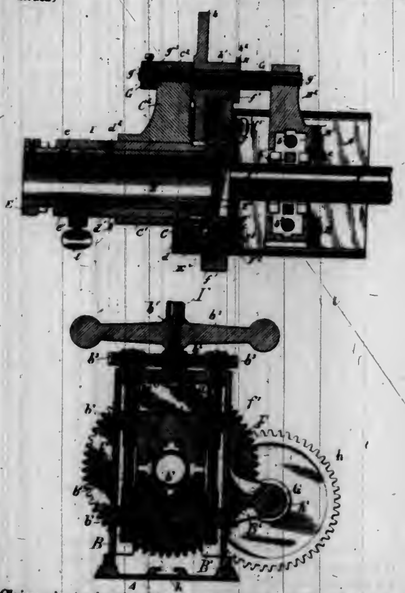
5. In apparatus such as described, the combination, with a forecarriage, of a horizontal revoluble shaft and a spring to bear frictionally against it, substantially as and for the purpose described, and illustrated in the accompanying drawings.

480,870. SCRASEUR. CHARLES H. HARRIS, Cedartown, Ga. Filed Dec. 21, 1891. Serial No. 415,723. (No model.)



Claim.—In an scraseur, substantially as described, the combination, with the sheath, the hand-grasp thereon having a threaded bore at right angles to the bore of the sheath, the strip or wire lapped to form a protruding loop at the forward end of the sheath and passed through the same, and the elastic sleeve mounted on the strip or wire in rear of the hand-grasp, of the binding-screw seated in the threaded bore of the handle and adapted to bind upon the lapped strip or wire, the loop on the hand-grasp at a diametrically-opposite point to the binding-screw, adapted to receive the free ends of the wire, and a set-screw taking through said loop and fixing the wire or strip with respect thereto, substantially as specified.

480,871. PIPE-THREADING MACHINE. DAVID O. JAMES, Chicago, Ill., assignor, by direct and mesne assignments, to himself and John Grant, same place. Filed Nov. 10, 1891. Serial No. 411,499. (No model.)



Claim.—1. A pipe-threading machine comprising a pipe-clamp, a revoluble sleeve supported opposite said clamp and carrying a die-stock, a cam-track secured to said sleeve, and a roller arranged to travel upon said cam-track, substantially as described.

2. A pipe-threading machine comprising a pipe-clamp, a revoluble sleeve supported opposite said clamp and carrying a die-stock, two oppositely-arranged cam-tracks secured to said sleeve, and a roller arranged to travel upon each of said cam-tracks, substantially as described.

3. A pipe-threading machine comprising a pipe clamp, a revoluble sleeve supported opposite said clamp and carrying a die-stock, two oppositely-arranged cam-tracks secured to said sleeve, a fixed roll arranged to travel upon one of said cam-tracks, and an adjustable

roll adapted to be projected beyond the fixed roll and travel upon the other cam-track, substantially as described.

4. A pipe-threading machine comprising a pipe-clamp, two revoluble sleeves supported one within the other opposite said clamp and each provided at its inner end with a gear, a shaft arranged parallel with said sleeves and having thereon a hub provided with gears adapted to mesh with the gears of said sleeves, and a die-stock secured to the inner sleeve opposite the pipe-clamp, substantially as described.

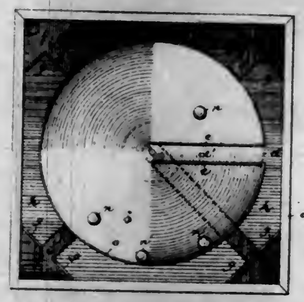
5. A pipe-threading machine comprising a pipe-clamp, two revoluble sleeves supported one within the other opposite said clamp and each provided at its inner end with a gear, a laterally-movable shaft arranged parallel with said sleeves and having thereon a hub provided with gears adapted to mesh with the gears of said sleeves, and a die-stock secured to the inner sleeve opposite the pipe-clamp, substantially as described.

6. A pipe-threading machine comprising a pipe-clamp, two revoluble sleeves supported one within the other opposite said clamp and each provided at its inner end with a gear, a laterally-movable shaft arranged parallel with said sleeves and having thereon a hub provided with gears adapted to mesh with the gears of the said sleeves, an adjustable clutch-collar mounted on the inner sleeve, clutch members carried by each of said sleeves, a die-stock secured to the inner sleeve opposite the pipe-clamp, and means for adjusting the shaft, substantially as described.

7. A pipe-threading machine embodying two standards, one of which is provided with a pipe-clamp, a sleeve journaled in the other standard and provided at its inner and outer ends with a gear and clutch member, respectively, another sleeve of greater length journaled within the first-named sleeve and provided at its inner end with a die-stock having a peripheral gear and at its outer end with a clutch member, a clutch collar mounted on the outer end of the inner sleeve, a laterally-adjustable shaft journaled in arms projecting from the standards, a hub on said shaft provided with gears adapted to mesh with the gears of the sleeves, and a means for adjusting the shaft, substantially as described.

8. A pipe-threading machine comprising a pipe-clamp, two revoluble sleeves supported one within the other opposite said clamp and each provided at its inner end with a gear, a laterally-adjustable shaft arranged parallel with said sleeves and having thereon a hub provided with gears adapted to mesh with the gears of the sleeves, clutch members carried by each of said sleeves, a clutch-collar mounted on the inner sleeve between the clutch members, a die stock secured to the inner sleeve opposite the pipe-clamp, and means for advancing the inner sleeve toward the pipe-clamp as said sleeve is rotated, substantially as described.

480,872. GAME OR PUZZLE. EDMUND KEMBLE, East Orange, N. J. Filed Apr. 9, 1892. Serial No. 428,437. (No model.)



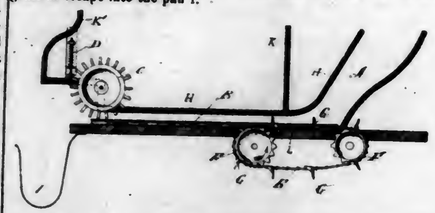
Claim.—1. The combination, with a box *a*, having cribs with ways or openings thereto, of a turn-table having a peripheral rim to retain the balls on the surface thereof, and a path or way *d'*, leading to an opening in said rim, the said path or way *d'* being adapted to coincide with the ways or openings in said crib and said balls, all substantially as set forth.

2. The improved puzzle or game herein described, in which is combined a box *a*, cribs *f*, with ways *j*, leading thereto, a turn-table *b*, having rim *c* and fences *e e* extending toward the center of said turn-table, and balls adapted to roll between said fences and over the ways *j* to said cribs, substantially as set forth.

3. In combination with cribs *f*, having fences *g g* and openings *i*, ways *j*, unguarded, as described, and extending to the periphery of the turn-table, and said turn-table having the opening *d*, substantially as set forth.

480,878. AUTOMATIC FEEDER FOR TWINE-MAKING MACHINES. GEORGE A. LOWRY, Chicago, Ill. Filed June 4, 1891. Serial No. 395,016. (No model.)

Brief.—The grass is fed forward by the endless chain somewhat faster than used, and when it becomes too great the resistance of the spring-bolt pressing the spider C is overcome, allowing the surplus grass to escape into the pan I.



Claim.—1. In an automatic feeder for a twine-machine, the combination of a feeding mechanism with a revoluble wheel or spider located in the path of the material being fed and normally stopping the passage of the same so as to form a pile, and a yielding stop for normally limiting the revolution of such wheel or spider and periodically releasing the same when the excess of material in the pile or bundle overcomes the action of such stop, substantially as and for the purpose set forth.

2. In an automatic feeder, the combination of mechanism for regularly feeding forward the material with a revoluble wheel or spider arranged in the path of such material and at a suitable distance from the feeding mechanism and a spring-acted bolt resting normally against one of the spokes of the spider and tending normally to limit its revolution, whereby the material will be fed forward into a bundle or pile against the wheel, and when such bundle or pile becomes too large the excess of pressure will overcome the spring-acted bolt, and the wheel or spider will then revolve and carry off a portion of the accumulated material, substantially as and for the purpose set forth.

3. In an automatic feeder, the combination of a feeding-platform and endless chain provided with plates projecting through such platform near one end thereof, a wheel or spider mounted adjacent to the other end of such platform, and a spring-acted bolt resting against one of the spokes of such wheel or spider and acting to restrain the revolution of the latter, except under the accumulation of pressure, substantially as and for the purpose set forth.

480,874. GLOVE-FASTENER. FRIEDRICH MAISCH, Naples, Italy. Filed Apr. 9, 1892. Serial No. 428,444. (No model.)



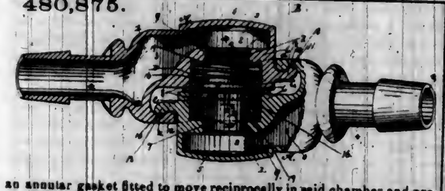
Claim.—1. A fastener comprising an oval stud or pin adapted for attachment to one edge of an article, a revoluble cap adapted to cover said pin or stud and provided with a flange, a locking-plate rigidly secured to the cap, and an eyelet adapted for attachment to the other edge of the article and provided with a lip engaging said flange and constituting a seat for revolubly supporting said cap, substantially as and for the purposes set forth.

2. A fastener comprising an oval stud provided with a flange, an eyelet adapted for attachment to one edge of an article and provided with a lip clamping said flange, a revoluble cap adapted to cover said stud and provided with a flange, a locking-plate rigidly connected with said cap, and an eyelet adapted for attachment to the other edge of the article and provided with a lip engaging the flange of the cap to form a seat for revolubly supporting the latter, substantially as and for the purposes set forth.

480,875. COUPLING FOR FLEXIBLE STEAM-PIPES. JAMES R. MARBLE, Albany, N. Y., assignor, by mesne assignments, of one-half to Joseph Wiltsie Fuller, same place. Filed May 11, 1892. Serial No. 432,599. (No model.)

Claim.—1. A coupling for flexible steam-pipes, the same consisting of two like sections fitted to interlock and having a longitudinal joint between them, each of said sections comprising a chambered head having a tubular neck leading laterally therefrom, a central opening formed in the inner face of said head and having the outer end of its bore enlarged, a sleeve provided with an outer circumferential flange and secured in said opening, so as to form an annular chamber therein,

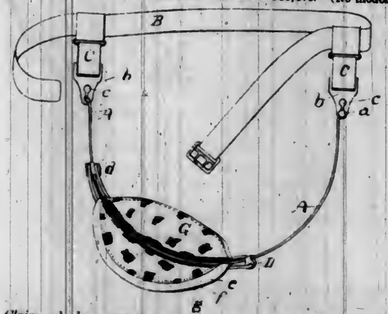
480,875.



an annular gasket fitted to move reciprocally in said chamber and provided with an inner circumferential flange fitted to engage with the flange of said sleeve, and a spring interposed between the inner face of said gasket and the bottom of said annular chamber, as and for the purpose herein specified.

2. In a coupling for flexible steam-pipes, the combination of a hollow head having a central opening whose outer end is enlarged in diameter, a sleeve provided with an outer circumferential flange and fitted to secure in said central opening, so as to form an annular chamber in the latter, said sleeve having a series of steam-openings forming communications from the bore of said sleeve and the annular chamber, an annular gasket fitted to reciprocate in said annular chamber and having an inner circumferential flange that is fitted to engage with the flange of said sleeve, and a spring interposed between said gasket and the bottom of said annular chamber, as and for the purpose herein specified.

480,876. CATAMENIAL APPLIANCE. WILLIAM H. MARSH, Los Angeles, Cal. Filed May 11, 1889. Serial No. 310,478. (No model.)

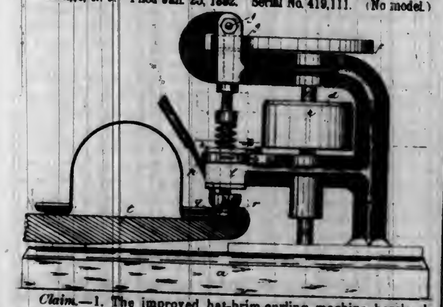


Claim.—1. In a catamenial appliance, the combination of the approximately semicircular frame, the two arms hinged thereto, and the clamp for securing the free ends of the arms to the frame.

2. In a catamenial appliance, the combination of the approximately semicircular wire frame having on its outer under side the downwardly-projecting laterally-perforated hinge lug, the two arms formed of one piece of wire bent at the middle to form a loop, the two members of which form the arms, and the clamp for securing the free ends of such arms to the frame.

3. In a catamenial appliance, the combination of the slotted suspending clasps and the approximately semicircular pad-sustaining frame formed of a wire bent outwardly at its ends and provided with the projecting buttons.

480,877. HAT-CURLING MACHINE. WILLIAM J. MCGALL, West Orange, N. J. Filed Jan. 25, 1892. Serial No. 419,111. (No model.)



Claim.—1. The improved hat-brim-curling machine herein described, comprising a frame, a vertical tool-shaft having bearings in said frame and having a flanged and heated ironing-tool rotating with said shaft, means for rotating said shaft and tool, and means for heating said tool, and a table having a raised and inwardly-turned flange at the edge thereof, which overlaps the flange of the tool and holds the curled brim while the heated ironing-tool is pressing and rapidly rotating against the concaved side of the brim, substantially as set forth.

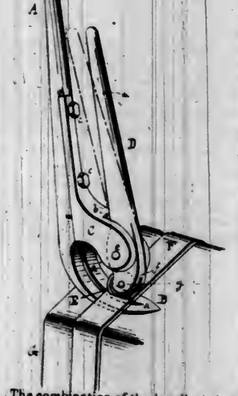
2. The improved hat-brim-curling machine, comprising a heated rotary tool having a cup at the upper part to receive a gas-jet and a flange at the lower part, means for rotating said tool, a gas-jet for heating the said tool, and a turn-table having a flange or bearing at the edge thereof, which extends inwardly over the flange of the heated tool, substantially as set forth.

3. The improved hat-brim-curling machine herein described, comprising a rotary table having at its peripheral edge a raised and inwardly-extending flange and a frame having arms *b' b³*, providing bearings for a vertical tool-shaft *A*, said vertical shaft, a gear-wheel at its upper end and a heated and flanged ironing-tool *A* at its lower end, the flange of which underlies the flange of the turn-table and is adapted to present its heated and rapidly-rotating surface to the concave side of the curled brim, means for heating said rotary tool, and a spring to for raising the flange of the rotary tool against or toward the raised and inwardly-extending flange of the rotary table, and gearing for transmitting power to the gear-wheel or shaft *A*, all said parts being arranged and combined substantially as set forth.

4. The improved hat-brim-curling machine herein described, comprising a table having a raised and inwardly-turned flange at its edge and a frame having arms *b' b³*, providing bearings for a vertical shaft *A*, said vertical shaft, means for transmitting rotary motion thereto and at its lower end having a cup-shaped and flanged ironing-tool adapted to extend under the flange of the table and present its heated ironing-surface to the concave side of the curled brim, means for heating said tool, a sliding shaft-bearing, and an eccentric or cam for throwing the shaft and rotary tool laterally away from the flange of the table, substantially as set forth.

5. In combination with the frame *a b*, a pivoted bearing *i*, sliding bearing *k*, shaft *A* in said bearings, means for rotating said shaft, and means for lifting the same upward, a tool *A'*, arranged on said shaft, means for heating said tool, and a guide to co-operate with the heated tool in giving shape to the fabric, substantially as set forth.

480,878. BALE-TIE CUTTER. GEORGE M. ROUNDS, Taunton, Mass. Filed Apr. 2, 1892. Serial No. 427,444. (No model.)

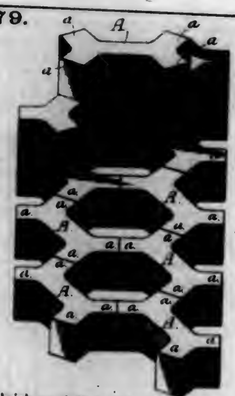


Claim.—1. The combination of the handle A, having the flat elongated and curved tip B and the extension C, the lever D, bifurcated at its end and mounted on said extension, and the rotary cutter E, mounted in the bifurcation of the lever D, substantially as specified.

2. The combination of the handle A, having the tip B grooved at *a*, the detachable extension C, mounted on said handle by the screws *c*, the lever D, pivotally mounted on said extension and provided with the rotary cutter E, substantially as described.

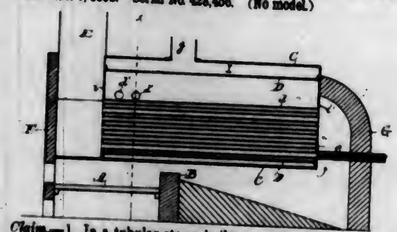
480,879. BRICK. JOHN L. STEVENSON, Chicago, Ill., assignor of one-half to James E. York, same place. Filed Dec. 12, 1891. Serial No. 414,804. (No model.)

480,879.



Claim.—A brick consisting of a central longitudinal part and obliquely-arranged lateral projections at each end thereof, the projections at either end of said longitudinal part being arranged at equal angles with each other and with the said longitudinal part and being equal in thickness to the longitudinal part, whereby a structure may be formed consisting of flues separated by walls of equal thickness, substantially as described.

480,880. STEAM-BOILER. FRED T. STEVENS, Bryant's Pond, Me. Filed Apr. 9, 1892. Serial No. 428,456. (No model.)

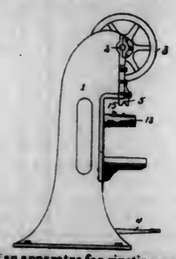


Claim.—1. In a tubular steam-boiler, an inner shell inclosing the tubes, an outer shell surrounding said inner shell, said inner shell having an opening for the flow of water from within to the space between the shells, substantially as described.

2. In a tubular steam-boiler, an inner shell inclosing the tubes, an outer shell surrounding the said inner shell, the center of said inner shell being below that of the outer shell, the said inner shell having one or more openings through its walls, substantially as described.

3. In a tubular steam-boiler, an inner shell inclosing the tubes, an outer shell surrounding the said inner shell, the said inner shell having one or more openings immediately above the tube-level, substantially as described.

480,881. APPARATUS FOR RIVETING EARS UPON BUCKETS. CHARLES STOLLBERG, Toledo, Ohio, assignor to the Toledo Tin-Ware Manufacturing Company, same place. Filed Feb. 8, 1892. Serial No. 420,663. (No model.)



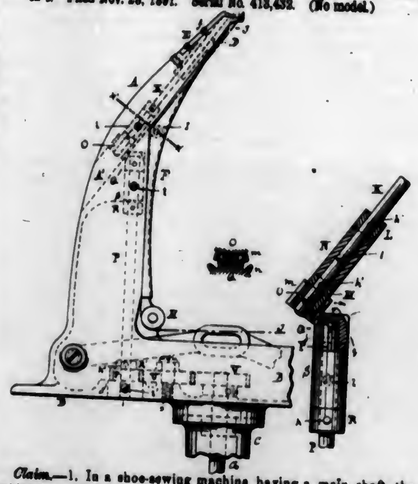
Claim.—1. In an apparatus for riveting ears upon buckets, an anvil or support having recesses to receive the rivet-heads, spring-pressed projections thereon to limit the movement of the bucket, and a reciprocating die formed with openings upon its face, registering with the recesses in the anvil.

2. In an apparatus for riveting ears upon buckets, an anvil or support for the bucket having a projection to limit the movement of the bucket, a reciprocating die formed with openings upon one end to admit the ends of rivets when forced through the metal, an upsetting device upon the opposite end, and a vertically-movable stop upon the anvil in position when raised to limit the movement of the bucket to cause the rivets to align with the riveter.

3. In an apparatus for riveting ears upon buckets, an anvil formed with recesses to receive the rivet-heads, a gage or stop to limit the movement of the bucket, a projection having a recess to receive and limit the movement of the ear, and a die having means for forcing the rivet through the metal and riveting the same.

4. In an apparatus for riveting the ears upon buckets, an anvil or support having recesses to receive the rivet-heads and a projection to limit the major movement of the bucket, a spring-pressed stop to limit the minor movement of the bucket, and a die having recesses registering with those in the anvil.

480,882. SHOE-SEWING MACHINE. JAMES A. TRUE, Pawtucket, R. I. Filed Nov. 28, 1891. Serial No. 413,432. (No model.)



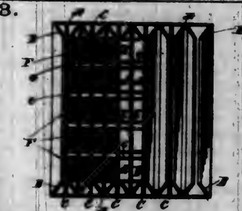
Claim.—1. In a shoe-sewing machine having a main shaft, the combination of a hollow horn having its upper portion bent and provided with an angular aperture near the bend on the outer curve thereof, a thread-carrier rotatably mounted at the top of the horn, a shaft detachably mounted in the upper or bent portion of the horn and having at its top a pinion to engage and operate the thread-carrier and at its bottom a cylindrical gear with straight longitudinal cogs, and a shaft mounted in the lower portion of the horn at an angle with the shaft last aforesaid and deriving motion from the main shaft by a train of gearing and having at its top a gear adapted to engage in an angular direction with the lower gear of the upper shaft, such engagement being on that side of said upper gear of the lower shaft which is nearest the outer curve of the horn, so as to allow the disengagement of said gears of the upper and lower shafts from each other and the outward withdrawal of the upper shaft and its gears from the horn through said aperture, substantially as specified

2. In a shoe-sewing machine having a horn and a thread-carrier mounted at the tip thereon, the combination of the perpendicular shaft P, having the gears Q T, the bushing S', in which said shaft is mounted and which has the conical recess *r*, the conical pointed screw W, passing through the side of the horn and adapted to enter and engage with said recess, and the shaft K, having the gears and pinion O *d*, all arranged and operating substantially as and for the purpose specified.

3. In a shoe-sewing machine, the combination of the horn A, having the aperture A', the tubular tip D, having the thread-carrier *b*, the cap-piece E, secured to the tip and horn by screws or pins, the shaft K, mounted in the tubular tip D and having at its upper end the pinion *d*, engageable with the carrier *b*, and also having at its lower end the gear O, with straight cogs *m*, and the shaft P, having the bevel-gear Q *n*, upon which said gear O *m* can slide while the shaft K is moved longitudinally in the tip D for the purpose of adjusting the pinion *d* to the carrier *b*, substantially as specified.

480,883. STORAGE-BATTERY. EDWARD P. USHER, Grafton, Mass., assignor to the Hopedale Electric Company, of West Virginia. Filed Aug. 22, 1891. Serial No. 403,427. (No model.)

480,883.



Claim.—1. In a storage-battery, a flexible wrapper for the series of plates, such wrapper having inwardly-projecting inclined lips to hold the separator sheets and lead plates in proper alternate position, substantially as set forth.

2. In a storage-battery, the flexible wrapper of rubber compound with yielding inclined lips thereon, in combination with the positive and negative plates and the separators thereby held in position, substantially as set forth.

3. The receptacle lined with rubber, having yielding lips with inclined surfaces, in combination with the alternate plates and the interposed separators, substantially as set forth.

4. The flexible wrapper having yielding inclined lips in parallel rows and the separator-sheets held thereby, in combination with the leaden plate or frame formed with projecting ribs or flanges and with active material introduced into the space between said flanged frame and separators, substantially as set forth.

5. In a storage-battery, flanged plates or frames combined with active material in tablet form and with interposed separators, substantially as set forth.

6. In a storage-battery, a tablet of active material enveloped in lead-foil, substantially as set forth.

7. In a storage-battery, a tablet of active material enveloped in lead-foil finely perforated, substantially as set forth.

8. In a storage-battery, the flanged leaden plate D E, having lateral spaces for active material, and open vertical wells separating the same, substantially as set forth.

9. A storage-battery cell comprising the following detachable parts, viz: a flexible wrapper having yielding lips, separators held by such lips, flanged plates alternating with said separators, tablets of active material between such plates and separators, all adapted to be placed within the receptacle inclosing such parts with the electrolytic liquid, substantially as set forth.

480,884. BATTERY-CELL. EDWARD P. USHER, Grafton, Mass., assignor to the Hopedale Electric Company, of West Virginia. Filed Feb. 19, 1892. Serial No. 422,093. (No model.)



Claim.—The improved cell or acid-jar described, consisting of an outer wall or receptacle A, a lining of acid-proof gum B applied thereto, and a thin shell C, embedded in said gum lining and coated externally and internally therewith, the parts being permanently united by the hardening of the gum, substantially as set forth.

480,885. STORAGE-BATTERY. EDWARD P. USHER, Grafton, Mass., assignor to the Hopedale Electric Company, of West Virginia. Filed Feb. 19, 1892. Serial No. 422,094. (No model.)



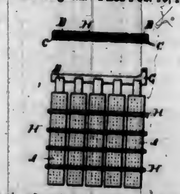
Claim.—1. In combination with the plates of a secondary cell, two wooden separator-plates applied closely on each side of each positive plate, two or more rubber bands or their equivalent interposed between each negative plate and the adjacent separator, leaving an open space on each side of said negative plate, substantially as described.

2. A battery-cell composed of alternate positive and negative plates with interposed separator-plates, in combination with a sealing substance or compound in which the lower edges only of said plates are embedded, such substance or compound not adhering to the jar, substantially as set forth.

3. A battery-cell composed of alternate positive and negative plates and interposed separator-plates, in combination with sealing-strips applied to the vertical edges of the several plates along the lower portion thereof, substantially as set forth.

4. The described method of sealing and uniting the several plates and interposed separators of a battery, consisting in erecting such plates and separators in a shallow mass of hot viscous gum and allowing said gum to cool and harden around the base of the plates and separators, and finally applying a strip of similar material to the lower vertical edges of said parts, substantially as set forth.

480,886. BATTERY-PLATE. EDWARD P. USHER, Grafton, and WILLIAM F. DRAPER, Hopedale, Mass., assignors to the Hopedale Electric Company, of West Virginia. Filed Feb. 19, 1892. Serial No. 422,072. (No model.)



Claim.—1. A unit of active material for battery-plates, consisting of a tablet of lead oxide or its equivalent formed of a wrapper of lead-foil and a filling of dry powder, with a conducting-strip embedded therein and protruding therefrom, substantially as set forth.

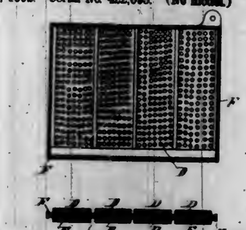
2. A battery-plate consisting of a series of connected tablets A, each composed of a wrapper of lead-foil and a filling of oxide of lead as active material and each having a protruding conducting-strip B, united to a transverse strip or bar G, substantially as set forth.

3. A battery-plate having a series of tablets, each composed of a wrapper of lead-foil and a filling of oxide of lead as active material and each furnished with a protruding conducting-strip B, united to a transverse bar G, such tablets having the transverse binders or spacing-strips H, substantially as set forth.

4. A battery-plate composed of a series of parallel tablets of active material inclosed in a wrapper of perforated lead-foil, with a conducting-strip protruding from each tablet, and a transverse connecting-bar, in combination with wooden separators at each side of the series of tablets and a marginal frame, substantially as set forth.

5. A battery-plate composed of a series of parallel tablets, each composed of a wrapper of lead-foil and a filling of oxide of lead as active material and each having a protruding conducting-strip, said tablets being firmly held with an open space between each tablet and the next one on said plate, substantially as set forth.

480,887. BATTERY-PLATE. EDWARD P. USHER, Grafton, Mass., assignor to the Hopedale Electric Company, of West Virginia. Filed Feb. 19, 1892. Serial No. 422,095. (No model.)

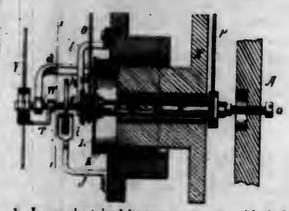


Claim.—1. The battery-plate described, consisting of the marginal frame with open interior spaces and one or more cross-bars, the perforated lead-foil wrapper as distinguished from ordinary sheet-lead adhering to said frame and bars, and the filling of active material within said spaces and inclosed by said perforated foil, the edges of said plate being sealed by an acid-proof gum, substantially as set forth.

2. The method of making battery-plates, which consists in casting a marginal frame with one or more cross-bars joined thereto and with open spaces between said bars and frame, coating one side of said frame

and bars with an adhesive substance and applying a leaf of lead-foil thereto, then filling the open spaces of the frame with a powdered oxide of lead, then applying over the same another leaf of lead-foil similarly caused to adhere to the frame and bars, and then sealing the edges of the plate with an acid-proof gum and perforating such foil, substantially as set forth.

480,888. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Mar. 11, 1891. Serial No. 384,651. (No model.)



Claim.—1. In an electrical instrument, a movable index-arm, and a body of diamagnetic material in plate or disk form disposed transversely the lines of a field of force and connected to and operating to retard or oppose the oscillatory motion of said index.

2. In an electrical instrument, a movable conductor in coil or loop form, a shaft or arbor free to oscillate and turned by the motion of said conductor, and on said shaft an index-arm and a disk or plate of diamagnetic material disposed in a plane transversely the lines of a field of force, the said disk operating to retard the oscillatory movement of said index-arm.

3. In an electrical instrument, a conductor in coil or loop form bodily movable in an axial direction, and a body of diamagnetic material actuated by said conductor and disposed and moving transversely the lines of a field of force.

4. In an electrical instrument, a movable body, an index, an elastic or resilient transmitting device for conveying motion from said body to said index and disposed in a plane transversely the lines of a field of force, and a body of diamagnetic material connected to and operating to retard or oppose the motion of said index.

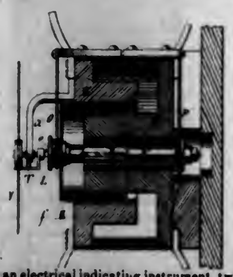
5. In an electrical instrument, the combination of the shaft *e*, index-arm V, disk A, of diamagnetic material, on said shaft *e*, and a magnet in the field of force, of which magnet said disk is disposed, substantially as described.

6. In an electrical instrument, the combination of the magnet H F, movable coil K, supported in the field of force of said magnet shaft *e*, vibrated by said coil, index V, and disk A, of diamagnetic material, on said shaft *e*, and pole-pieces *i' i''* of said magnet H F disposed in inductive proximity to opposite sides of said disk A.

7. In an electrical instrument, the vibrating cylinder L, the fixed bracket *l*, and the set-screw *n*, supported by said bracket and constructed to enter a wall of said cylinder.

8. In an electrical instrument, the vibrating cylinder L, support N therefor, fixed bracket *l*, a set-screw *n*, supported by said bracket and bearing upon said cylinder L, and the set-screw *o*, bearing upon said support N, the said screws *n* and *o* operating to clamp and rigidly hold said cylinder.

480,889. APPARATUS FOR RETARDING OR DAMPENING THE MOTION OF MOVING BODIES IN ELECTRICAL INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Mar. 11, 1891. Serial No. 384,652. (No model.)



Claim.—1. In an electrical indicating instrument, two conductors, in coil or loop form, mechanically connected and bodily movable in an axial direction in a field of force, one of said conductors being in electrical circuit and the other short-circuited or closed on itself.

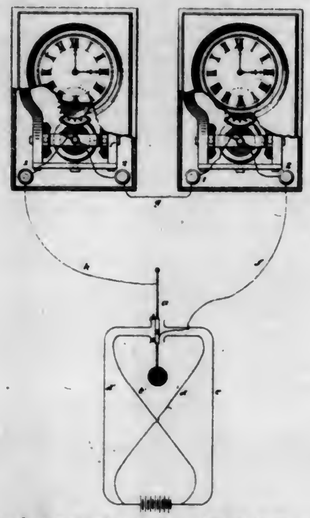
2. In an electrical indicating instrument, an annular field of force, two concentric conductors mechanically connected and supported therein and movable in an axial direction, one of said conductors being in electrical circuit and the other short-circuited or closed on itself.

3. In an electrical indicating instrument, an annular field of force, a movable cylinder concentrically disposed therein, and on the periphery of said cylinder two conductors, one of said conductors being in electrical circuit and the other short-circuited or closed on itself.

4. In an electrical indicating instrument, an annular field of force, a movable cylinder concentrically disposed therein, and on the periphery of said cylinder two coils, one superposed on the other, one of said coils being in electrical circuit and the other short-circuited or closed on itself.

5. In an electrical indicating instrument, an annular field of force, a movable support of paper concentrically disposed therein, and on the periphery of said support two conductors, one of said conductors being in electrical circuit and the other short-circuited or closed on itself.

480,890. ELECTRIC TIME-INDICATING APPARATUS. EDWARD WESTON, Newark, N. J. Filed June 4, 1891. Serial No. 395,132. (No model.)



Claim.—1. A means of producing a field of force, a loop-conductor vibrating therein on the passage of a current, and a device actuated by said conductor for showing the number of its vibrations.

2. A means of producing a field of force, a loop-conductor vibrating therein, a means of causing an electric impulse to traverse said conductor at intervals, and an indicating device actuated by said conductor.

3. Transmitting time electrically by causing an electric impulse at predetermined time-intervals to traverse a loop-conductor disposed in a magnetic field, and thereby effecting a series of movements of said conductor and the consequent operation thereby of a time-indicating device.

4. Transmitting time electrically to separated stations by causing from a central station an electric impulse to traverse at predetermined intervals a series of loop-conductors disposed in magnetic fields connected in electrical circuit and located at said separated stations, and thereby effecting a series of simultaneous movements of said conductors and the consequent operation thereby of time-indicating devices.

5. Transmitting time electrically by causing alternately-reversed electric impulses at predetermined intervals to traverse a loop-conductor vibrating or oscillating in a magnetic field, and thereby causing said conductor to vibrate or oscillate in alternately opposite directions, and thus to actuate a time-indicating device.

6. A means of producing a field of force, a loop-conductor vibrating therein on the passage of a current, and a time-train actuated by the movement of said conductor.

7. A means of producing a field of force, a loop-conductor vibrating therein, and a time-train intermittently operated by the movement of said conductor due to the passage of a current.

8. A means of producing a field of force, a loop-conductor vibrating therein, a time-train, and a step-by-step transmitting mechanism actuated by said conductor and operating said time-train.

9. A means of producing a field of force, a loop-conductor vibrating therein, a controlling chronometric device for causing an electric impulse to traverse said conductor at definite intervals, and an indicating device controlled by the vibrations of said conductor.

10. At each of a series of separated stations a means of producing a field of force, a loop-conductor vibrating therein, and an indicating device controlled by the vibrations of said conductor, and at a central or transmitting station a chronometric device for causing electrical impulses to pass at definite intervals over a circuit including said loop-conductors.

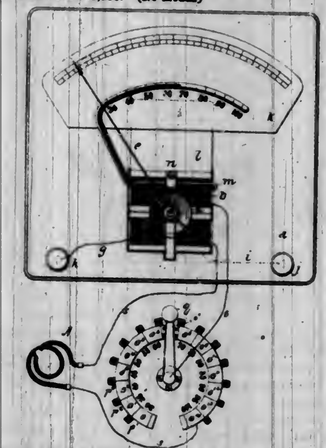
11. The combination, with a time-train, index, and dial, of a magnet, a coil vibratory in the field of force thereof, and transmitting mechanism between said train and said coil, whereby the motion of said coil is caused to actuate said time-train.

12. The combination, with a time-train, index, and dial, of a magnet, a coil vibratory in the field of force thereof, springs for balancing and adjusting the extent of motion of said coil, and transmitting mechanism between said train and said coil, whereby the motion of said coil is caused to actuate said time-train.

13. The combination, with a time-train, index, and dial, of a magnet, a coil vibratory in the field of force thereof, transmitting mechanism between said train and said coil, whereby the motion of said coil is caused to actuate said time-train, and a chronometric device for establishing alternately-reversed currents in a circuit including said coil.

14. The combination, with a time-train, index, and dial, a magnet A, and coil H, vibrating on an axial pivot in the field of said magnet, of a toothed wheel O, geared with said time-train, and an anchor N on said coil pivot-shaft and engaging with said wheel O.

480,891. TEMPERATURE-REGULATING DEVICE FOR ELECTRICAL CIRCUITS. EDWARD WESTON, Newark, N. J. Filed June 4, 1891. Serial No. 395,135. (No model.)



Claim.—1. In an electrical measuring-instrument, a coil producing a field of force in said instrument and formed of an electrical conductor the resistance of which increases with augmented temperature and connected in series with said coil, a conductor the resistance of which decreases with augmented temperature, the said coil and circuit connections and the said last-named conductor being relatively proportioned and arranged to render their combined resistance substantially constant despite temperature changes.

2. In an electrical measuring-instrument, a coil producing a field of force in said instrument and formed of an electrical conductor the resistance of which increases with augmented temperature, and a strip of carbon connected in series with said coil, the said coil and circuit connections and the said carbon being relatively proportioned and arranged to render their combined resistance constant despite temperature changes.

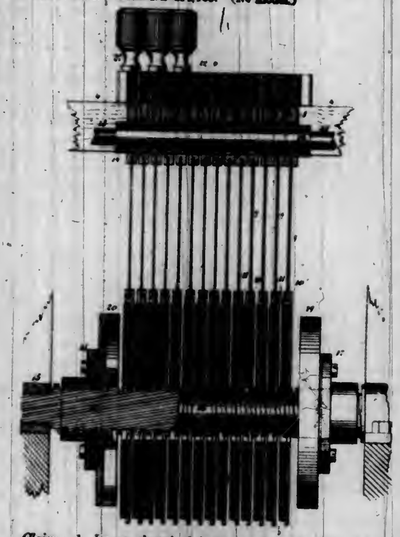
3. In an electrical measuring-instrument, a metallic coil producing a field of force in said instrument and in series connection therewith, an electrical conductor the resistance of which decreases with augmented temperature, the said conductor being freely exposed to the atmosphere and the said coil and circuit connections and conductor being relatively proportioned and arranged to render their combined resistance constant despite changes in atmospheric temperature.

4. In combination with an electrical measuring-instrument containing in circuit a fixed coil and a movable coil moving in the field of said fixed coil, both of said coils being made of an electrical conductor the resistance of which increases with augmented temperature, an electrical conductor the resistance of which decreases with augmented temperature connected in series with said coils, the said coils and circuit connections and the said last-named conductor being relatively proportioned and arranged to render their combined resistance substantially constant despite temperature changes.

5. In an electrical measuring-instrument, a means of indicating changes in temperature occurring in the instrument-circuit and connected in said circuit, a resistance, and a means of varying the same conformably to the indications of said heat-indicating apparatus, in combination with an electrical conductor interposed in said circuit, the electrical resistance of which conductor decreases with augmented temperature, whereby the resistance of the whole circuit may be maintained constant despite both internal and external temperature variations.

6. In an electrical measuring-instrument, a coil, a means of indicating variations in the temperature of said coil and in circuit with said coil, a variable resistance, and an electrical conductor the resistance of which decreases with augmented temperature.

480,892. RHEOSTAT. EDWARD WESTON, Newark, N. J. Filed Dec. 5, 1891. Serial No. 414,103. (No model.)



Claim.—1. In an electrical instrument and in circuit, two suspended bodies of conducting material in juxtaposition and a means positively acting upon both of said bodies to force them into more or less close contact.

2. In an electrical instrument and in circuit, a body of conducting material having an elastic or resilient support, a movable body of conducting material, and means positively acting upon both of said bodies to force them into more or less close contact against the elastic or resilient resistance of said support.

3. In an electrical instrument and in circuit, two bodies of conducting material in juxtaposition and each provided with an elastic or resilient support and means positively acting upon both of said bodies to force them into more or less close contact against the elastic or resilient resistance of said support.

4. In an electrical instrument and in circuit, two bodies of conducting material, elastic or resilient supports for said bodies, whereby they are held out of contact with one another, and means for positively acting upon both of said bodies to force them into contact against the elastic or resilient resistance of said support.

5. In an electrical instrument and in circuit, a body of high resisting material, a metallic body, elastic or resilient supports for said bodies, and means for positively acting upon both of said bodies to force them into more or less close contact against the elastic or resilient resistance of said supports.

6. In an electrical instrument and in circuit, two bodies of conducting material, elastic or resilient supports for said bodies, whereby they are held out of contact with one another, and screws acting upon both of said bodies to force them into more or less close contact against the elastic or resilient resistance of said supports.

7. In an electrical instrument and in circuit, a body of high resisting material, an elastic or resilient support therefor, an abutment, and a screw operating to force said body of high resisting material against said abutment and in opposition to the elasticity or resiliency of said support.

8. In an electrical instrument and in circuit, two conducting-bodies, one being of high resisting material, elastic or resilient supports for said bodies, and screws acting upon both of said bodies to force them into more or less close contact against the resilient or elastic resistance of said supports.

9. In an electrical instrument and in circuit, two bodies of conducting material, elastic or resilient supports for said bodies, an independently-supported screw passing loosely through said bodies and having reverse threads, and nuts on said screw outside of said bodies, the aforesaid parts being constructed and arranged so that when said screw is rotated said nuts shall force said bodies into more or less close contact against the elastic or resilient resistance of said supports.

10. In an electrical instrument and in circuit, two conducting-bodies, one being of high resisting material, each of said bodies being disposed at the free end of a leaf-spring, by means of which springs they are normally held out of contact, and means positively acting upon said bodies to force them into contact and to vary their mutual pressure.

11. In an electrical instrument and in circuit, a body of high resisting material, a body of condensing material, each of said bodies being disposed at the free end of a rigidly-held leaf-spring, by means of which spring they are normally held out of contact, an independently-supported screw having reverse threads passing loosely through said bodies, and nuts on said screw outside of said bodies, the aforesaid parts being constructed and arranged so that when said screw is rotated said nuts shall force said bodies into more or less close contact against the elasticity of said springs.

12. The combination, in an electrical instrument and in circuit, of the annular disks 10, the carbon plates 11 thereon, leaf-spring supports 9 for said disks rigidly fastened at their extremities, the independently-supported screw 16, having reverse threads passing through said disks, and nuts 17 18 on said screw outside of said disks and bearing thereon.

13. The combination, in an electrical measuring-instrument and in circuit, of the rigidly-supported arms 6 and 12, blocks 8, carried by said arms, springs 9, carried by said blocks, annular disks 10 11, supported on said springs, independently-supported screw 16, passing through said disks and having reverse threads, and nuts 17 18 on said screw and outside of and bearing upon said disks.

480,893. RHEOSTAT. EDWARD WESTON, Newark, N. J. Filed Dec. 10, 1891. Serial No. 414,569. (No model.)



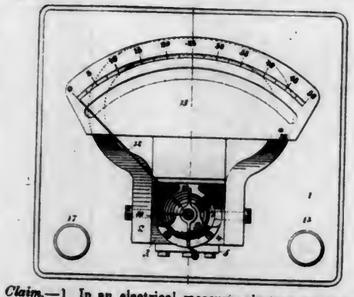
Claim.—1. The combination of a series of contact-plates and a series of resistances interposed between said plates, a second series of contact-plates and a series of resistances interposed between said plates, two arms of conducting material insulated from one another, and means for moving said arms, respectively, in contact with each of said series, the aforesaid parts being constructed and operating in circuit, so that when one arm cuts out a given resistance of one series the other arm simultaneously puts into circuit an equal resistance of the other series.

2. The combination of two series of contact-plates disposed substantially on the circumference of a circle and opposite to one another, resistances interposed between said contact-plates, and pivoted contact-arms relatively insulated from and disposed diametrically opposite one another.

3. The combination of, first, two series of contact-plates, as c^1 d^1, and interposed resistances, pivoted arms g^1 h^1, relatively insulated from one another and constructed to move over and make contact with said contact-plates c^1 d^1; second, two series of contact-plates, as c^2 d^2, and interposed resistances, pivoted arms g^2 h^2, relatively insulated from one another and constructed to move over and make contact with said contact-plates c^2 d^2, and circuit connections whereby circuit may be established through either of said series of contact-plates, substantially as described.

4. The combination of the several series of contact-plates c^1 c^2 d^1 d^2 and interposed resistances, the pivoted arms g^1 h^1, constructed to move over and make contact with the plates c^1 d^1, the pivoted arms g^2 h^2, constructed to move over and make contact with the plates c^2 d^2, circuit connections, and means for breaking or establishing circuit through either pair of arms g^1 h^1 or g^2 h^2 and their associated contact-plates and resistances, substantially as described.

480,894. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Jan. 8, 1892. Serial No. 417,415. (No model.)



Claim.—1. In an electrical measuring-instrument, in which for equally-applied force increment an index or pointer normally moves over equal scale-divisions, and a means of opposing a gradually-decreasing mechanical resistance to the forward movement of said index, and thereby allowing said index to move over gradually-increasing scale-divisions.

2. In an electrical measuring-instrument, a vibrating or rotating coil, a scale, an index or pointer actuated by said coil to move over said scale, and a means of opposing a gradually-decreasing mechanical resistance to the forward movement of said index.

3. In an electrical measuring-instrument, a vertically-disposed scale, a pivoted index or pointer moving over said scale, and an arm or lever rigidly connected to said index and extending at an angle thereto, the said arm and index being constructed and arranged so that said arm shall tend to assume a more nearly vertical position as said pointer moves forward over the scale.

4. In an electrical measuring-instrument, a vibrating or rotating coil, a vertically-disposed scale, a pivoted index or pointer actuated by said coil to move over said scale, and an arm or lever rigidly connected to said index and extending at an angle thereto, the said arm and index being constructed and arranged so that said arm shall tend to assume a more nearly vertical position as said pointer moves forward over the scale.

5. In an electrical measuring-instrument, a pivoted coil, a vertically-disposed scale, an index or pointer on said coil-pivot and moving over said scale, and an arm or lever rigidly connected to said coil-pivot and extending at an angle to said index, the said arm and index being constructed and arranged so that said arm shall tend to assume a more nearly vertical position as said pointer moves forward over the scale.

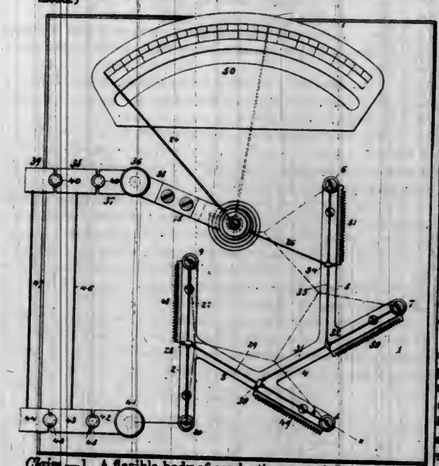
6. In an electrical measuring-instrument, a vibrating or rotating coil, a spring uniformly opposing the motion of said coil, a vertically-disposed scale, an index or pointer actuated by said coil to move over said scale, and an arm or lever rigidly connected to said index and extending at an angle thereto, the said arm and index being constructed and arranged so that said arm shall tend to assume a more nearly vertical position as said pointer moves forward over the scale.

7. In an electrical measuring-instrument, a vertically-disposed scale, a pivoted index or pointer moving over said scale, an arm or lever rigidly connected to said index and extending in a horizontal direction, and a stop whereon said arm normally rests, the said arm and index being constructed and arranged so that said arm shall tend to assume a more nearly vertical position as said pointer moves forward over the scale.

8. In an electrical measuring-instrument, a vertically-disposed scale, a pivoted index or pointer moving over said scale, an arm or lever rigidly connected to said index and extending at an angle thereto, and a stop for preventing said arm being carried past a vertical position, the said arm and index being constructed and arranged so that said arm shall become more nearly vertical as said pointer moves over the scale.

9. In an electrical measuring-instrument, the combination of the magnet 2, pivoted coil 7 in the field of said magnet, scale 13, index 12, and arm 19, extending at an angle to one another from said coil-pivot, and stops 21 22, limiting the movement of said index.

480,895. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Jan. 14, 1892. Serial No. 418,099. (No model.)



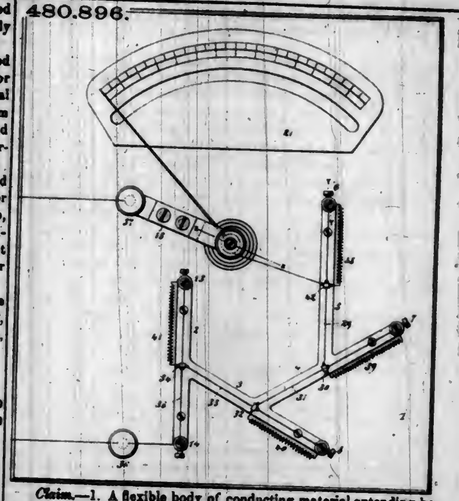
Claim.—1. A flexible body of conducting material extending between abutments and in electrical main circuit, a means of applying strain at an angle to said body at a point thereon between said abutments, and an index or pointer and scale, the said index being controlled by the displacement of said point, due to said strain when said body is traversed by an electric current, in combination with a shunt between the terminals of said main circuit.

2. A flexible body of conducting material extending between abutments and in electrical main circuit, a means of applying strain at an angle to said body at a point thereon between said abutments, and an index or pointer and scale, the said index being controlled by the displacement of said point, due to said strain when said body is traversed by an electric current, in combination with a variable shunt between the terminals of said main circuit.

3. A strip or band of conducting material extending between abutments, a means of applying strain at an angle to said body at a point thereon between said abutments, and an index or pointer and a scale, the said index being controlled by the displacement of said point, due to said strain when said body is traversed by an electric current, in combination with a variable resistance in multiple-arc connection with said strip or band.

4. In an electrical measuring-instrument containing a series of flexible conductors in circuit and connected one to the other, substantially as herein described, a series of plates, as 37 38 39 and 42 43 44, connecting with the circuit-terminals, conductors, as 46 and 47, extending between plates, as 38 and 43 and 39 and 44, and plugs, as 40 and 45, for establishing electrical connection between said plates.

480,896. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Jan. 14, 1892. Serial No. 418,100. (No model.)



Claim.—1. A flexible body of conducting material extending between abutments, a second flexible body connected to a point on said first body and to an abutment and disposed at an angle to said first body, a means of applying strain at an angle to said second body to a point thereon between its abutment and its place of connection to said first body, and an indicating device showing the displacement of said point on said second body due to said strain when said first body is subjected to the action of electricity.

2. A flexible body of conducting material extending between abutments, a second flexible body of conducting material connected to a point on said first body and to an abutment and disposed at an angle to said first body, a means of applying strain at an angle to said second body to a point thereon between its abutment and its place of connection to said first body, and an indicating device showing the displacement of said point on said second body due to said strain when both of said bodies are subjected to the action of electricity.

3. A flexible body of conducting material extending between abutments, a second flexible body of conducting material connected to a point on said first body and to an abutment and disposed at an angle to said first body, the said bodies being in electrical circuit, a means of applying strain at an angle to said second body to a point thereon between its abutment and its place of connection to said first body, and an indicating device showing the displacement of said point on said second body due to said strain when said bodies are traversed by an electric current.

4. A flexible body of conducting material extending between abutments, a means of applying strain at an angle to said body to a point thereon between said abutments, a means of electrically moving one of said abutments, and an indicating device showing the displacement of said point due to said strain when the distance between said abutments is varied.

5. The combination, in an electrical measuring-instrument, of a wire filament or strip, as 35, extended between abutments, a support upon said wire and insulated therefrom, an extensible conductor 41, extended from one end of said filament to said support, and a circuit-conductor connected to said extensible conductor 41.

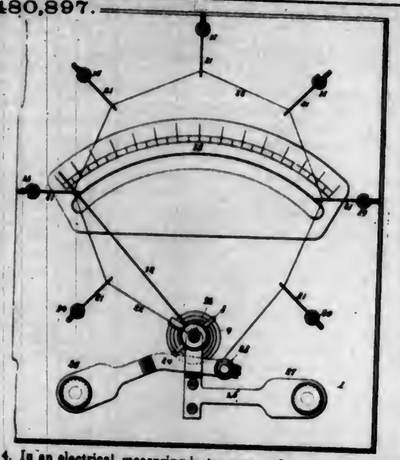
480,897. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Jan. 14, 1892. Serial No. 418,101. (No model.)

Claim.—1. In an electrical measuring-instrument, a flexible expansible body in open-loop form extending between abutments and two or more flexible and practically frictionless supports sustaining said body, the said supports permitting of the longitudinal movement of said body due to variations in the length thereof.

2. In an electrical measuring-instrument, a flexible expansible body in open-loop form extending between abutments, one of said abutments being fixed and the other adjustable, and two or more flexible and practically frictionless supports sustaining said body, the said supports permitting of the longitudinal movement of said body due to variations in the length thereof.

3. In an electrical measuring-instrument operated by the expansion or contraction of an elongated conducting-body in circuit and extending between abutments, a spring-arm supporting said body at its free extremity.

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4. In an electrical measuring-instrument, a fine wire or filament in open-loop form and in circuit and having its extremities connected to abutments and two or more elastic frictionless supports vibrating in substantially the same plane as and sustaining said loop.

5. In an electrical measuring-instrument, two or more spring-arms extending from fixed supports and capable of vibrating in substantially the same plane and a fine wire or filament of conducting material received by the free ends of said springs and connected at its extremities to abutments.

6. In an electrical measuring-instrument, a flexible expansible body in substantially circular form and extending between abutments and a series of radially-projecting, flexible, and practically frictionless supports sustaining said body, the said supports permitting of the longitudinal movement of said body due to the variation in the length thereof.

7. In an electrical measuring-instrument, a shaft, a means for rotating said shaft, a fine filament or wire in loop form connected at one end to said shaft and at the other end to an abutment, and an elastic support for said loop yielding to the expansion of said wire.

8. In an electrical measuring-instrument, a shaft, an index or pointer on said shaft, a scale over which said index moves, a means for rotating said shaft, a fine filament or wire in loop form connected at one end to said shaft and at the other end to an abutment, and an elastic support for said loop yielding to the expansion of said wire.

9. In an electrical measuring-instrument, a shaft, a spring connected to said shaft and to an abutment and normally tending to rotate said shaft, a fine filament or wire in loop form connected at one end to said shaft and at the other end to an abutment, and an elastic support for said loop yielding to the expansion of said wire.

10. In an electrical measuring-instrument, a shaft, a spring connected to said shaft and to an abutment and normally tending to rotate said shaft, a fine filament or wire in loop form connected at one end to said shaft and at the other end to an abutment, an elastic support for said loop yielding to the expansion of said wire, and circuit connections whereby said spring and said filament are connected in circuit.

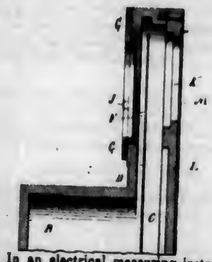
11. In an electrical measuring-instrument, a shaft, supports of insulating material in which said shaft is pivoted, an adjustable coiled spring of conducting material connected at one end to said shaft and at the other end to an abutment and normally tending to rotate said shaft, a fine filament or wire in loop form connected at one end to said shaft and at the other end to an abutment, an elastic support for said loop yielding to the expansion of said wire, and circuit connections whereby said spring and said filament are connected in circuit.

12. In an electrical measuring-instrument, a series of fixed supports disposed around the circumference of a circle, a spring-arm carried by each of said supports and extending in the direction of a radius of said circumference toward the center thereof, a shaft, a means for rotating said shaft, and a fine filament or wire connected to said shaft and to an abutment and supported by said springs.

13. In an electrical measuring-instrument, the combination of the base 1, bracket 2, shaft 10, supported by said bracket, spring 9, connected at one end to said shaft and at the other end to an abutment and normally tending to rotate said shaft, the fine filament or wire 22, connected at one end to said shaft and at the other end to an abutment 23 and in loop form, and a series of spring-supports 21, arranged upon said base and receiving the loop of said wire.

14. In an electrical measuring-instrument, the combination of the base 1, fixed supports 15 16, &c., disposed thereon, leaf-springs 21, carried by said supports, bracket 2, shaft 10, supported by said bracket, spring 9, connected at one end to said shaft, adjusting-arm 8, to which the other end of said spring is fastened, a fixed abutment 23, and a fine filament or wire 22, connected at its extremities to said shaft and said abutment and supported by said leaf-springs 21.

480,898. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Feb. 17, 1892. Serial No. 421,900. (No model.)



Claim.—1. In an electrical measuring-instrument, an inclosing case having a portion of one of its walls detachable and a scale upon said portion.

2. In an electrical measuring-instrument, an inclosing case having an opening in one of its walls, a plate constructed to fit in said opening, and a scale upon said plate.

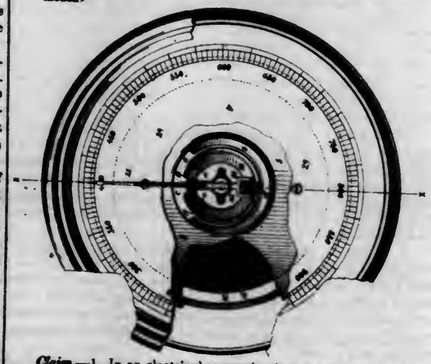
3. In an electrical measuring-instrument, an inclosing case having an opening in one of its walls, a plate constructed to be received in said opening, a scale upon said plate, and guides whereby said plate may be adjusted in definite position in said opening.

4. In an electrical measuring-instrument, an inclosing case A, having an opening E in one of its walls, a flanged plate, as F, constructed to be received in said opening, and a scale upon said plate.

5. In an electrical measuring-instrument, an inclosing case A, having an opening E in one of its walls, a plate F, constructed to be received in said opening, a scale upon said plate, and fixed pins J on said wall entering apertures in said plate.

6. In an electrical measuring-instrument, an inclosing case having an opening in one of its walls, a flanged frame constructed to be received in said opening, and a plate of translucent material supported in said frame and inscribed with a scale-marking.

480,899. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Feb. 19, 1892. Serial No. 422,062. (No model.)



Claim.—1. In an electrical measuring-instrument, a magnet having concentric poles, the inner pole being substantially tubular or ring-shaped, and the outer pole curved around the periphery of the inner pole, and a movable coil extending through said inner pole and through the space between said poles.

2. In an electrical measuring-instrument, a magnet having concentric poles, the inner pole being substantially tubular or ring-shaped and the outer pole curved around the periphery of the inner pole, a shaft or arbor supported within said inner pole, and a coil carried by said shaft and extending through the space between said poles.

3. In an electrical measuring-instrument, a magnet having concentric poles, the inner pole being substantially tubular or ring-shaped and the outer pole curved around the periphery of the inner pole, a movable coil extending through said inner pole and through the space between said poles, and an index or pointer carried by said coil.

4. In an electrical measuring-instrument, a magnet having concentric poles, the inner pole being substantially tubular and the outer pole curved around the periphery of the inner pole, bearings secured within said tubular pole, a shaft or arbor journaled in said bearings, and a coil carried by said shaft and extending through the space between said poles.

5. In an electrical measuring-instrument, a magnet having concentric poles, the inner pole being substantially tubular and the outer pole curved around the periphery of the inner pole, bearings secured within said tubular pole, a shaft journaled in said bearings, a coil carried by said shaft and extending through the space between said poles, a fixed scale, and an index or pointer carried by said coil and extending over said scale.

6. In an electrical measuring-instrument, a magnet having concentric poles, the inner pole being substantially tubular or ring-shaped, and the outer pole curved around the periphery of the inner pole, a movable coil extending through said inner pole and through the space between said poles, and a spring opposing the movement of said coil.

7. In an electrical measuring-instrument, a movable coil, a magnet, and a detachable curved pole-piece for said magnet, upon which pole-piece said coil is received and freely moves.

8. In an electrical measuring-instrument, a movable coil, a magnet, and a detachable curved pole-piece, the extremities of said pole-piece being separated for a space sufficient to allow said coil to pass upon the body of said pole-piece.

9. In an electrical measuring-instrument, a movable coil, a magnet having a fixed projecting pole-piece, and a detachable curved pole-piece, upon which said movable coil is received, the said fixed pole-piece entering and closing the opening between the extremities of said curved pole-piece.

10. The combination, with the curved extremity 15, of a magnet pole-piece, and the cylinder 16, having a longitudinal slot or opening receiving said extremity 15.

11. The combination, with the curved extremity 15, of a magnet pole-piece, the cylinder 16, having a longitudinal slot or opening receiving said extremity 15, and the exterior slotted cylinder 17, surrounding said extremity 15 and cylinder 16.

12. In an electrical measuring-instrument, a magnet having a curved pole-piece 15, the cylinder 16, having a longitudinal slot or opening receiving said pole-piece, and a coil 27, received and movable around said cylinder 16.

13. In an electrical measuring-instrument, a magnet having a curved pole-piece 15, the cylinder 16, having a longitudinal slot or opening receiving said pole-piece, the inclosing slotted cylinder 17, and a coil 27, received and movable upon said cylinders 16 and 17.

480,900. ADAPTER OR PLUG FOR INCANDESCENT-LAMP CIRCUITS. EDWARD WESTON, Newark, N. J. Filed Mar. 21, 1892. Serial No. 425,706. (No model.)



Claim.—1. An adapter constructed detachably to engage with the fixed or stationary portion of an electric-lamp socket and provided with two circuit-conductors having their inner extremities disposed to make electrical connection with the circuit-terminals in said stationary socket, in combination with a plug or holding device also provided with circuit-terminals and constructed to engage detachably with said adapter, so that the terminals in said holding device shall make electrical contact with the conductors in said adapter.

2. An adapter constructed detachably to engage the stationary or fixed portion of an electric-lamp socket and provided with two circuit-conductors having their inner extremities disposed to make electrical connection with circuit-terminals in said stationary socket and their outer extremities arranged in an opening or recess, in combination with a plug or holding device provided with circuit-terminals and adapted to enter said recess, the circuit-terminals on said plug then making electric contact with the circuit-terminals in said recess.

3. An adapter constructed detachably to engage the stationary or fixed portion of an electric-lamp socket and provided with two circuit-conductors having their inner extremities disposed to make electrical connection with the circuit-terminals in said socket and their outer extremities in the form of springs placed in proximity one to the other, in combination with a plug or holding device provided with circuit-terminals and adapted to enter between said springs, the circuit-terminals on said plug then making electrical contact with said springs.

4. An adapter constructed detachably to engage the stationary or fixed portion of an electric-lamp socket and provided with two circuit-conductors having their inner extremities disposed to make electrical connection with the circuit-terminals in said stationary socket and their outer extremities, in the form of leaf-springs, placed in proximity one to the other, in combination with a plug or holding device provided with circuit-terminals and adapted to enter between said springs, the circuit-terminals on said plug then making electrical contact with said springs, in combination with a means of detachably connecting said plug and said springs.

5. As a new article of manufacture, an adapter of insulating material containing two circuit-conductors with exposed terminals, one pair of said terminals being disposed in a recess in said adapter, and a plug of insulating material carrying exposed circuit-terminals and adapted to enter said recess.

6. As a new article of manufacture, the adapter A, of insulating material, having a recess B and containing two circuit-conductors having terminals C D arranged in said recess B, in combination with the plug F, having the fixed circuit-terminals G H and adapted to enter said recess B.

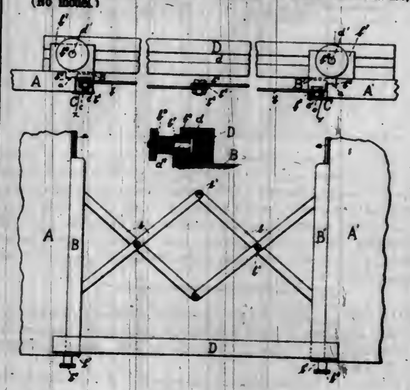
7. As a new article of manufacture, the adapter A, of insulating material, having the recess B and containing two circuit-conductors having the terminals C D in said recess B and provided with projecting ribs or corrugations *o p*, in combination with the plug F, of insulating material, adapted to enter said recess B, and provided with circuit-terminals G H, having the indentations *m n*, adapted to receive said corrugations or projections *o p*.

480,901. FIFTH-WHEEL. PETER ANDERSEN, Fort Wayne, Ind., assignor to Henry G. Olds, same place. Filed Dec. 4, 1891. Serial No. 413,992. (No model.)



Claim.—In a fifth-wheel, the combination, with separate bearing-plates, one on the upper surface of the bolster and the other on the lower surface of the axle and formed with an annular flange to fit a corresponding groove in the lower bearing-plate and provided with oil-openings and clips to bind said parts together, of corresponding bearing-plates having bracket-arms integral therewith, bolts to secure the same rigidly to the reach, clips or equivalent devices to secure the upper of said plates to the vehicle-body, and bolts, one in front and the other in the rear of said axle, connecting said plates together, whereby free rotation of the axle may be obtained without the use of a king-bolt, substantially as shown and described.

480,902. FENCE FOR WOOD-WORKING MACHINES. GEORGE W. BOOBER, Delhi, and FREDERICK DANNER, Home City, assignor to the Egan Company, Cincinnati, Ohio. Filed Mar. 26, 1892. Serial No. 426,496. (No model.)



Claim.—1. In a fence for wood-working machines, the combination of a pair of independent slides, a series of pivotally-connected bars, a pivotal and a sliding connection between the bars at each end of the series and one of the slides, a cross-tie between the slides, and a hand-nut or similar means for clamping the cross-tie and the slides together, substantially as and for the purpose specified.

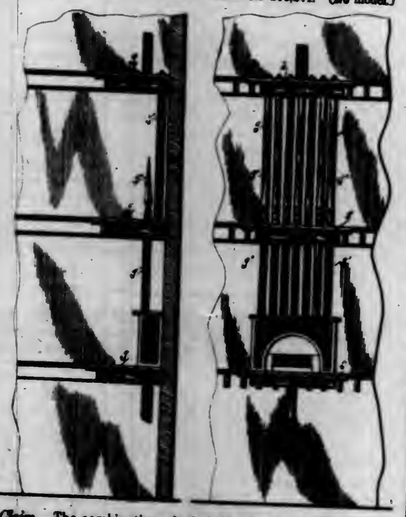
2. In a fence for wood-working machines, the combination of a pair of slides, a pair of supports for the slides, adjustable to vary the distance between them, with grooves and projections between the slides and supports, arranged to carry the slides with the supports in their adjustment, a series of pivotally-connected bars, a pivotal and a sliding connection between the bars at each end of the series and one of the slides, and a cross-tie between the slides, substantially as and for the purpose specified.

3. The combination of the supports A A', adjustable to vary the distance between them, the slides B B', grooves and projections between the slides and supports, the bars *b*, a pivotal and a sliding connection between the bars *b* and each of the slides, the lugs *x x*, taking under the supports, and the cross-tie D, substantially as and for the purpose specified.

4. The combination of the slides B B', the bars *b*, pivotally connected, as described, a pivotal and a sliding connection between the bars *b* and the slides B B', the ears b^1 on each of the slides B B', the apertures b^2, the cross-tie D, adapted to span the distance between the slides, the groove *d* in the cross-tie, the bolts *d'*, taking into the groove and through the apertures, and the hand-nuts b^3, combined and arranged to permit an adjustment of the distance between the slides and secure the latter in their new relation, substantially as and for the purpose specified.

5. In a fence for wood-working machines, the combination of a pair of slides, grooves therein, buttons in the grooves, a series of pivotally-connected bars, a connection between one bar at each end of the series and one of the slides, a connection between the other bar at each end of the series and one of the buttons, and a projection for the material to be fed to the machine, substantially as and for the purpose specified.

480,903. SYSTEM OF HEATING. DAVID H. BURRELL, Little Falls, N. Y. Filed Mar. 5, 1888. Serial No. 266,271. (No model.)



Claim.—The combination of a building having rooms one above the other, a heater, a pipe for conducting the products of combustion from said heater, a heating-chamber connected to said pipe and supported between said rooms and above the ceiling of the lower room, an outlet-pipe leading from said chamber and out of line with said former pipe, and a radiating-cap removably secured to said chamber above and in line with said former pipe, substantially as and for the purpose specified.

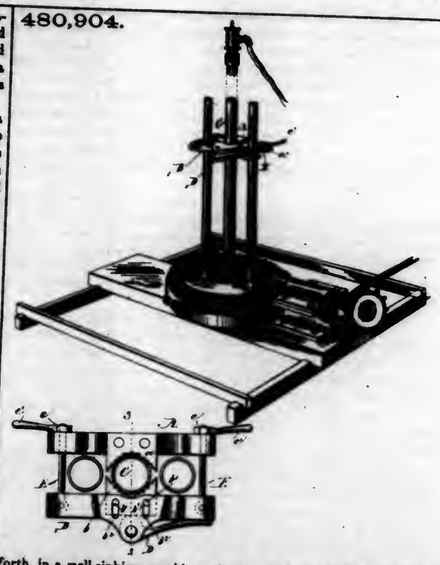
480,904. WELL-SINKING MACHINE. THOMAS G. CHAPMAN, Chicago, and JAMES W. HUNT, Sandwich, Ill., assignors, by mesne assignments, to Anna B. Austin. Filed Oct. 21, 1889. Serial No. 327,662. (No model.)

Claim.—1. The combination, substantially as hereinbefore set forth, in a well sinking machine, of a pair of standards F, arranged to rise from a rotary support, and a vertically-movable clamp arranged to slide upon but revolve with the standards and constructed with a pair of oppositely-arranged jaw-holders connected together so as to provide between them a space in which the standards are received, said jaws positioned upon said jaw-holders so as to grip the well-tube or drill-holder at a point between the standards, one of said jaws being adjustable upon its allotted holder, so that the well-tube can be clamped tightly between the jaws without clamping the jaw-holders upon the standards.

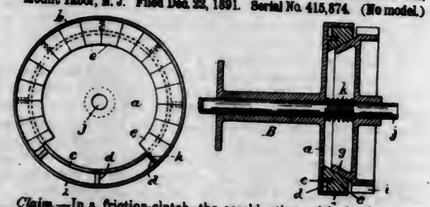
2. The combination, substantially as hereinbefore set forth, of the jaw-holders connected together and adapted to provide between them a space for the herein-described standards in a well-sinking machine, a divided jaw *a a*, rigidly secured to one of said holders, and a jaw *b*, adjustable upon the remaining one of said holders and arranged opposite the space between the divisions of the other jaw.

3. The combination, substantially as hereinbefore set forth, of jaw-holders A and B, respectively provided with fixed and movable jaws and connected together to form a clamp having at opposite sides of its jaws suitable space for the herein-described standards in a well-sinking machine, and a cam-lever D for adjusting the movable jaw.

4. The combination, in a well-sinking machine, of a pair of standards F, arranged to rise from a rotary support, and a vertically-movable clamp arranged to slide upon but revolve with the standards and constructed with a pair of oppositely-arranged jaw-holders provided with jaws adapted to grip and hold the well-tube or drill-holder at a point between the standards, rods E, hinged to one jaw-holder and arranged to engage in notches *d'* in the ends of the opposite jaw-holder, and nuts *e*, applied to the free ends of the rods so as to engage said last-specified jaw-holder, substantially as described.

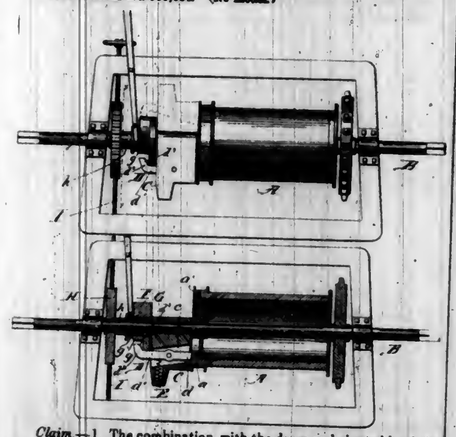


480,905. FRICTIONAL HOISTING-WHEEL. ALBERT J. DAVIS, Mount Tabor, N. J. Filed Dec. 22, 1891. Serial No. 415,574. (No model.)



Claim.—In a friction-clutch, the combination, with the flange *a*, having the rim *b* and the ring *c*, connected with the rim by ribs *d*, of the blocks *e*, provided with notches *f* to fit the ring *c* and fitted between the ribs *d*, as set forth, and the metallic cone *g*, fitted within the blocks, as and for the purpose set forth.

480,906. WELL-DRILLING MACHINE. JOHN GARDNER, Bloomingdale, assignor to Frederick G. Austin, Chicago, Ill. Filed July 17, 1891. Serial No. 399,881. (No model.)

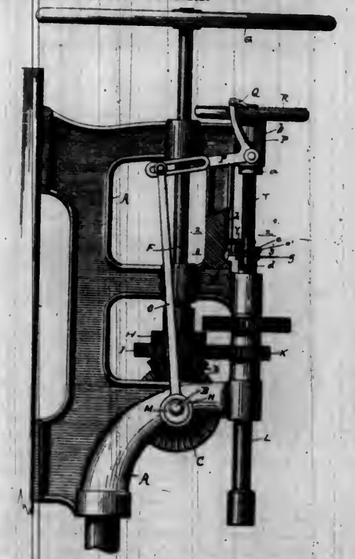


Claim.—1. The combination, with the drum and pivoted latch for engaging and releasing the same and cam for operating the latch, of the adjustable dog, adapted and arranged for engaging and holding the pivoted latch out of position for engaging the cam and the drum, substantially as described.

2. The combination, with the drum, of the pivoted latch provided with an incline, and the adjustable annular dog G for engaging said incline on the latch, for the purpose set forth.

3. The combination, with the drum and latch for engaging and releasing the same, of the cam F and dog G, for the purpose set forth, arranged upon a hub or sleeve which is applied to slide along a bearing formed by the hollow journal A of a worm-gear, substantially as described.

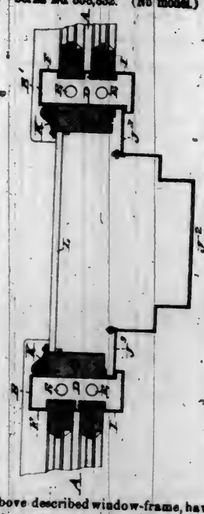
480,907. DRILLING-MACHINE. JAMES KINDRED, Worcester, Mass., assignor to Boynton & Plummer, same place. Filed Feb. 27, 1892. Serial No. 422,962. (No model.)



Claim.—1. In a drilling-machine, the combination of the framing, the drill-spindle mounted therein, and means for revolving the same, of a feeding mechanism consisting of a nut, means for turning the nut, and a screw loosely connected to the spindle, said screw having a projection adapted to engage the framing, and thereby keep the feeding-screw from turning, said framing being cut away, so that the said projection will be free from the framing as the spindle reaches the limit of its downward travel, substantially as described.

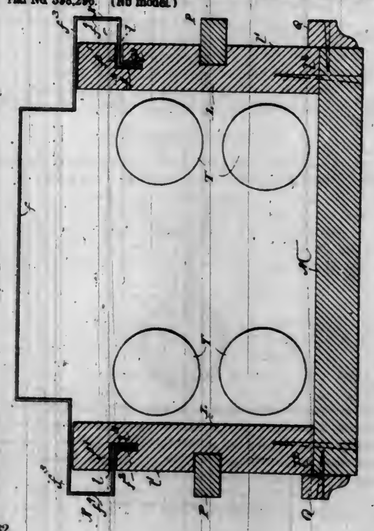
2. In a drilling-machine, the combination of the framing, the drill-spindle, and means for revolving the same, of a feeding mechanism consisting of a nut, means for revolving the same, and a screw connected to the spindle, and means for holding said screw from turning until the drill-spindle reaches the limits of its downward movement, consisting of the screw or pin Y, passing through the feed-screw, and a slot, as *k*, formed in the framing, but cut away, as at *k*, so that the feeding mechanism will be automatically rendered inoperative as the drill-spindle reaches the limits of its downward movement, substantially as described.

480,908. WINDOW-FRAME. FRANK MEEKER and THOMAS O. ARBOGUST, St. Louis, Mo., assignors to Meeker & Bro., same place. Filed July 15, 1890. Serial No. 358,632. (No model.)



Claim.—The above described window-frame, having formed therewith the parting strips and stops and having connected thereto a sub-column-forming sheet and the latter connected to a column-forming sheet, substantially as set forth.

480,909. BUILDING-FRONT. CHARLES T. RICHARDS, St. Louis, Mo., assignor to Meeker & Bro., same place. Filed July 2, 1891. Serial No. 398,296. (No model.)



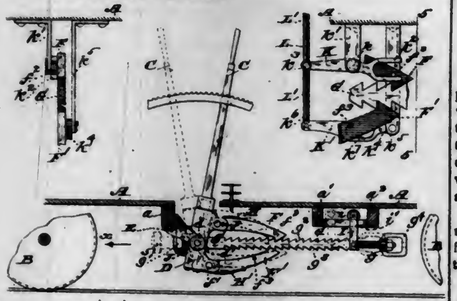
Claim.—1. A building-front comprising a metal facing, in combination with the stiles, said metal facing having its inner side edges slipped upon and interlocking with right-angled slots in the stiles, substantially as set forth.

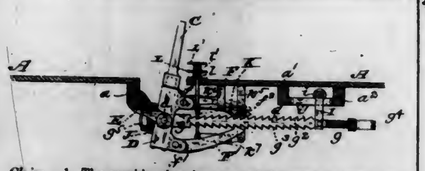
2. A building-front having a metal facing, in combination with the stiles, said facing being extended laterally to form the sash-stops and having its inner side edges slipped upon and interlocking with right-angled slots in the stiles, substantially as specified.

3. A building-front having a metal facing, in combination with the wooden box-frames, said metal facing forming columns and sub-columns and interlocked with right-angled slots in the stiles formed by the sides of said frames, substantially as specified.

4. A building-front having a metal facing, in combination with the stiles having right-angled slots in their sides, said facing having its inner side edges provided with right-angled flanges to engage and interlock with said slots as said facing is slipped vertically upon said stiles, substantially as set forth.

480,910. CAR-BRAKE. JAMES H. TONE, St. Louis, Mo., assignor of seven-fifteenths to John F. De Lassus, same place. Filed Dec. 26, 1891. Serial No. 416,205. (No model.)





Claim.—1. The combination, in a car, of the ratchet-bar, the two pawls, the pivoted pawl-block, the pedals, and the levers connecting said pedals and pawls, substantially as described.

2. The combination of the car, the double ratchet, the pawls, the pivoted pawl-block, and the brake-lever, said ratchet-bar being upheld at or toward both ends thereof, substantially as described.

3. The combination of the car, the ratchet-bar, the pawl F, the tilting pawl-block, and the pedal L, substantially as described.

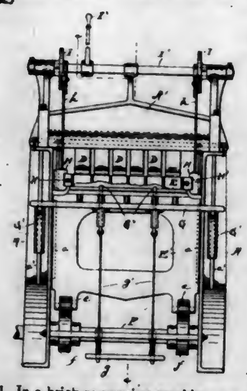
4. The combination of the car, the ratchet-bar, the pawl-block, and the buffer, said ratchet-bar having the shoulder, substantially as described.

480,911. SURGICAL APPLIANCE. JOSEPH A. VANCE, Plymouth, Ohio. Filed Jan. 15, 1892. Serial No. 418,144. (No model.)



Claim.—The within-described safeguard for receiving and retaining venereal discharges, consisting of the semispherical cap, the spherical receptacle made in two parts connected together by means of screw-threads at their edges, and the tube connecting said cap and receptacle, substantially as set forth.

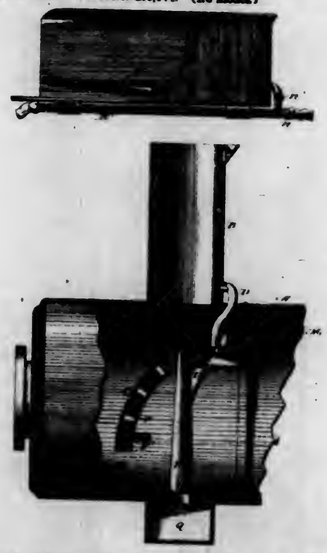
480,912. MACHINE FOR RE-PRESSING BRICKS. WILLIAM W. WALLACE and RAYMOND C. PENFIELD, Willoughby, Ohio, assignors to J. W. Penfield & Son, same place. Filed Aug. 22, 1891. Serial No. 403,470 (No model.)



Claim.—1. In a brick-re-pressing machine, a series of stationary plungers, an opposing moving table adapted to receive the mold filled with brick and the bottom board or pallet thereof as they come from the brick-machine, spring-actuated stops, and a treadle for depressing the stops against the action of the springs, combined with a stripping device, substantially as indicated, for stripping the mold from the brick while the latter remain upon the bottom board or pallet, substantially as set forth.

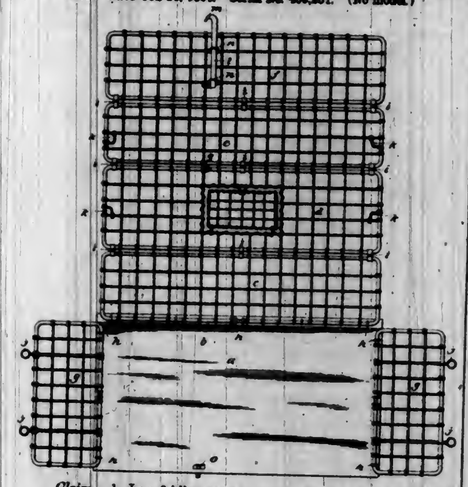
2. In a brick-re-pressing machine, a series of stationary plungers, and an opposing movable table, spring-actuated stops, and a treadle for depressing the stops against the action of their springs, substantially as set forth.

480,913. WATER-HEATER. ROBERT F. WALSH, Peoria, Ill. Filed Feb. 10, 1892. Serial No. 420,971. (No model.)



Claim.—The water-box C, located in front of the boiler-flues, a jacketed smoke-stack over said box, and a pipe connecting the box and jacketed smoke-stack, in combination with the pipe E, leading from the smoke-stack to the tender, and the pipes E' E², leading to the tender and train for the circulation of the heated water, and the coil G within the tender, and the cocks *n n'*, by which the water is cut off from the train and made to circulate through the coil, substantially as described, and for the purpose set forth.

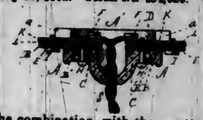
480,914. FOLDING COOP OR CRATE. GEORGE BENDER, Keokuk, Iowa. Filed Oct. 30, 1891. Serial No. 409,951. (No model.)



Claim.—1. In a folding coop or crate, the base *a*, provided with a raised portion *b* of the same vertical height as the thickness of the folded ends *g*, in combination with the sides, ends, and cover, the ends having rings or loops *j*, and the cover openings *k*, substantially as described, and for the purpose specified.

2. In a folding coop or crate, the top frames provided with openings *k k* and the front frame having the hook *m*, in combination with the end frames provided with loops *j j* and the base having the opening *o* to register with said hook, and a latch for securing the same, substantially as described, and for the purpose specified.

480,915. ROSETTE FOR ELECTRIC LIGHTING. ELISHA W. BUFFINGTON, Fall River, Mass., assignor of one-half to Albert F. Dow, same place. Filed May 27, 1892. Serial No. 434,629. (No model.)

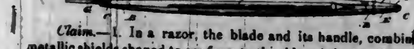


Claim.—1. The combination, with the rosette provided with the grooves or passages *a*, of the two plates or jaws B K, the plate B lying on the bottom of the groove and the plate K lying next above the plate B and rocking on a fulcrum, as B', intermediate with said plates, the outer ends of said plates being adapted to be moved toward and from each other by suitable screws, whereby an electric wire may be grasped and firmly held between them, substantially as described.

2. The combination, with the rosette provided with the grooves or passages *a*, of the two plates or jaws B K, the plate B lying on the bottom of the groove and the plate K lying next above the plate B and rocking on a fulcrum, as B', intermediate with said plates, the outer ends of said plates being grooved at B" and adapted to be moved toward and from each other by suitable screws, whereby an electric wire may be grasped and firmly held between them, substantially as set forth.

3. The combination, with the rosette provided with the grooves or passages *a*, of the plate B, lying on the bottom of the groove and provided with the perforations C D E and protuberances B', and the plate K, resting on said plate B and provided with screw-threaded holes to receive the binding-screw F and adjusting-screws H I, said plates being grooved at B" to receive the electric-light wire, substantially as described.

480,916. RAZOR. FREDERICK A. CLAUSSEN, Jersey City, N. J. Filed Jan. 13, 1892. Serial No. 417,972. (No model.)



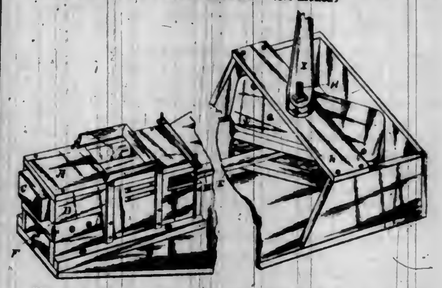
Claim.—1. In a razor, the blade and its handle, combined with metallic shields shaped to conform to the sides of the handle and rivets for uniting the blade and handle, passed transversely through and having their ends anchored in said shields, substantially as described.

480,916.



2. A razor-handle having the shell-like shields B, curved longitudinally and transversely to conform to the ends of the sides of such handle and applied exterorally to and inclosing said ends, combined with rivets for uniting the shields and the sides of the handle and other rivets anchored in said shields for uniting the sides of the handle at one end and connecting the sides of the handle and the blade at the other end, substantially as described.

480,917. HAY-PRESS. HENRY COPELAND, Chattanooga, Tenn. Filed Feb. 25, 1892. Serial No. 422,816. (No model.)



Claim.—1. The baling-box having a longitudinal slot in its bottom at one end thereof, a plunger in said box, arranged over said slot, and a retaining-bar for limiting the movement of said plunger, in combination with a rotating cam-block having a cam-groove therein and a pulling pitman having one end engaged with the groove of said block and the other end extending under the pressing-chamber of the baling-box and connected to the plunger through said slot, substantially as described.

2. The combination, with the baling-box and plunger, of a rotating block having a diamond-shaped cam-groove G', rounded at the acute angles and formed with catch-recesses G^2 G^2 at the obtuse angles, and a pitman-rod connecting said plunger and block, substantially as described.

3. The combination, with a block having an approximately-diamond-shaped cam-groove rounded at its acute angles and provided with lateral recesses at its obtuse angles and mechanism for rotating said block, of the baling-box and plunger, the pitman connected to said plunger at one end, and the friction-rollers on the other end of said pitman engaging the cam-groove of the block, substantially as described.

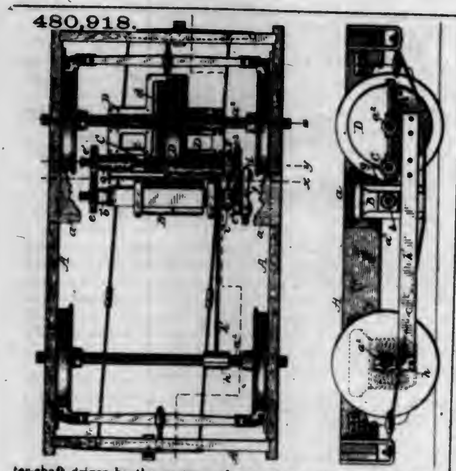
4. The combination of the baling-box having a slotted bottom, the plunger, the pitman-rod connected to said plunger through the slot in the bottom, and a spring for retracting said pitman and plunger, with the rotating cam-block formed of an upper and lower part, each having an approximately-diamond-shaped cam-groove, rounded at the acute angles and recessed at the obtuse angles, substantially as described, and the friction-rollers secured to the end of the pitman-rod and respectively engaging the grooves of the parts, substantially as described.

480,918. ELECTRIC LOCOMOTIVE. RUDOLF EICKEMEYER, Yonkers, N. Y., assignor to the Eickemeyer Field Company, of New York. Filed Dec. 21, 1889. Serial No. 334,487. (No model.)

Claim.—1. In an electric locomotive or car, the combination, substantially as hereinbefore described, of a car-axle, an electric motor secured to and pendent from the truck-frame or bottom of the car and having its armature shaft substantially in the horizontal plane occupied by the axle, a counter-shaft driven by said motor and carried by the axle in the same plane and between the axle and motor, and gearing connecting the counter-shaft and axle.

2. In an electric locomotive or car, the combination of an electric motor secured to and pendent from the truck-frame, an axle, a coun-

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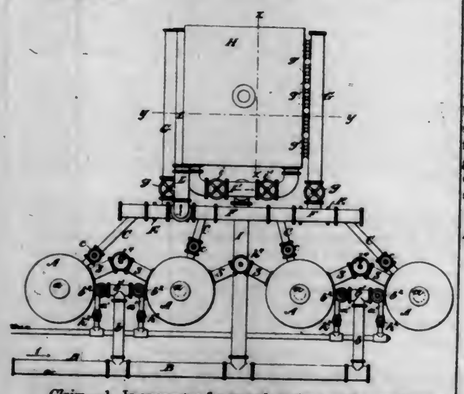


ter-shaft driven by the motor and geared to said axle, a gear-frame which is carried by the axle and supports the counter-shaft and maintains it in the same horizontal plane and parallel with said axle, and hinged arms for flexibly bracing the motor from the gear-frame.

3. In an electric locomotive or car, the combination, substantially as hereinbefore described, of a truck-frame, a motor suspended from said truck-frame between the axles, a counter-shaft driven by the electric motor and geared to one of a pair of car-axles, and a gear-frame which is carried wholly by the geared axle and braced against rotation thereon by means of a brace extending to and connected with the second axle.

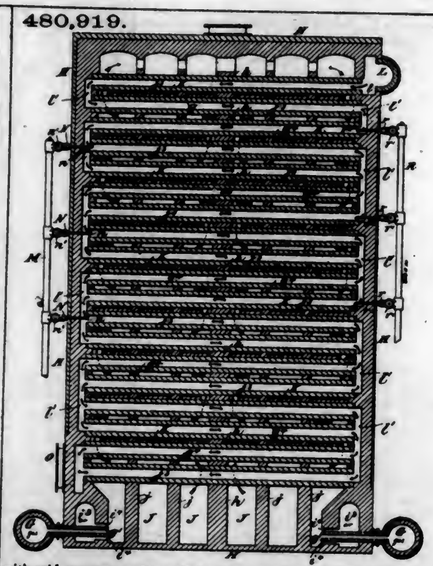
4. In an electric locomotive or car, the combination of a counter-shaft geared to an axle, supported thereon and provided with a crank, an electric motor supported by a spring-mounted frame and having on its armature-shaft a crank, and a connecting-link having at one end a ball-bearing sleeved upon the crank-pin of the armature-shaft and at the other end a cylindrical bearing for the crank-pin of the counter-shaft, substantially as described.

480,919. APPARATUS FOR MANUFACTURING GAS. WALTER P. ELLIOTT, New York, N. Y. Filed Jan. 13, 1890. Serial No. 336,733. (No model.)



Claim.—1. In apparatus for manufacturing gas, the combination, with a generator in which carbonaceous material is burned, of a pipe or passage for the introduction of aeriform fluid containing oxygen thereto, a fixing retort-chamber, a pipe or passage from said generator to the said chamber for conveying to the latter the gaseous products resulting from the introduction of said aeriform fluid to the generator, fixing tubes or retorts arranged in said chamber and externally heated by said gaseous products, a pipe or passage from the generator to and communicating with said tubes or retorts for conveying gaseous products from the generator to said tubes or retorts, and pipes for introducing steam into said tubes or retorts, there to mingle

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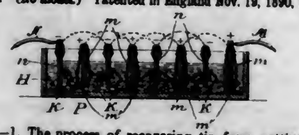


with said gaseous products during their passage through said tubes or retorts, substantially as specified.

2. In apparatus for manufacturing gas, the combination, with a generator in which carbonaceous material is burned, of a pipe or passage for the introduction of aeriform fluid containing oxygen thereto, a fixing retort-chamber, a pipe or passage from said generator to said chamber, having branch pipes for conveying to said chamber gaseous products resulting from the introduction of said aeriform fluid to the generator, fixing tubes or retorts arranged in said chamber and externally heated by said gaseous products, and pipes or passages from the generator to the tubes or retorts for conveying gaseous products from the generator to said tubes or retorts, the said fixing-chamber being divided into separate compartments, through both of which said fixing tubes or retorts extend and into either or both of which compartments the gaseous products first referred to may be introduced for the purpose of heating said tubes or retorts, substantially as specified.

3. In apparatus for manufacturing gas, the combination, with two or more generators in which carbonaceous material is burned, of pipes or passages for the introduction of aeriform fluid containing oxygen thereto, a fixing retort chamber, pipes or passages from the said generators to the said chamber for conveying to the latter gaseous products resulting from the introduction of said aeriform fluid to the generators, fixing tubes or retorts arranged in said chamber and heated by said gaseous products, pipes or passages from the generators to the said chamber for conveying to the tubes or retorts gaseous products from the generators, and intercommunicating passages between said generators, whereby the gaseous products from one generator may be discharged into another near the lower end thereof, substantially as specified.

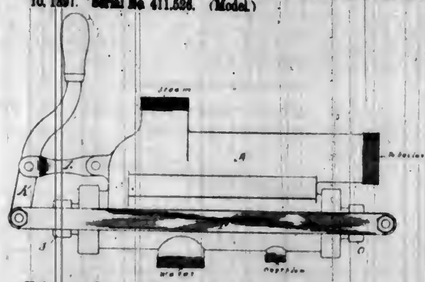
480,920. PROCESS OF RECOVERING TIN FROM TIN-PLATE. MANUEL R. GARCIA, London, England. Filed Dec. 24, 1890. Serial No. 375,732. (No model.) Patented in England Nov. 19, 1890, No. 18,736.



Claim.—1. The process of recovering tin from cuttings of tin-plate, &c., the same consisting in first subjecting the cuttings and the like to a bath of perchloride of iron to remove the tin, then passing the liquid bath through any suitable filtering substance, then subjecting the same in a suitable apparatus to an electric current to reduce the tin, then subjecting the recovered tin to a suitable bath for washing, and finally drying the same, substantially as set forth.

2. The process of recovering the tin from old articles of tinware, the same comprising the following steps: first, subjecting said articles to the action of fire or heat to unsolder the parts and remove therefrom the grease, &c.; second, subjecting said articles to a bath of perchloride of iron to remove the tin; third, passing the liquid bath containing the tin through a filtering substance; fourth, subjecting the liquid bath to an electric current to reduce the tin, and, fifth, subjecting the recovered and reduced tin to a suitable bath to wash and dry the same, substantially as set forth.

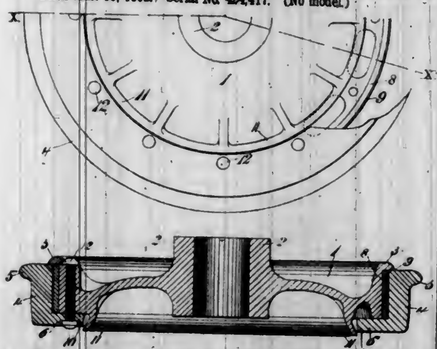
480,921. INJECTOR. ROBERT HARRISON, Erie, Pa. Filed Nov. 10, 1891. Serial No. 411,536. (Model.)



Claim.—1. The combination, in an injector, of a combined piston and disk steam-inlet valve with a combined piston and disk overflow-valve, a bar connecting said two valves together, so that they will move in unison, and a lever pivoted thereto for operating said valves, substantially as and for the purpose set forth.

2. The combination, in a combined ejector and injector, of a combined piston and disk steam-inlet valve adapted to admit the steam into the ejector first and afterward into the injector, with a combined piston and disk overflow-valve adapted to control the overflows of both the ejector and injector, a bar connecting said valves together, and an operating-lever connected therewith, whereby both of said valves are moved simultaneously, substantially as and for the purpose set forth.

480,922. CAR-WHEEL. BENJAMIN F. HAUGH, Indianapolis, Ind. Filed Mar. 10, 1892. Serial No. 424,417. (No model.)

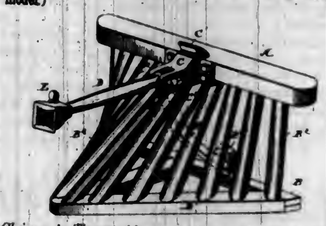


Claim.—1. In a cushioned car-wheel, the combination, with the center and the tire thereof having an interposing elastic cushion, of an inwardly-projecting flange formed on said tire and adapted to contact with the outer face of said center, an annular outwardly-flaring flange or shield projecting over the inner edge of said flange of tire, and suitable means for securing said tire to said center, substantially as set forth.

2. In a cushioned car-wheel, the combination, with the center and the tire thereof having an interposing elastic cushion, of an inwardly-projecting flange formed on said tire and adapted to contact with the outer face of said center, said flange having its inner edge flaring slightly outwardly, as described, an annular outwardly-flaring flange or shield projecting over and beyond the outer face of the flange of said tire, and suitable means for securing said tire and center, substantially as described.

3. In a cushioned car-wheel, the combination, with the tire and the center thereof having an inwardly-projecting peripheral thrust-flange formed on the inner face of said center and an inwardly-projecting flange formed on the outer face of said tire, of an interposing elastic cushion extending along the face of the bearing-periphery of said center and between said thrust-flange of center and flange of tire, an annular outwardly-flaring flange formed on the outer face of said center and projecting slightly over the outer face of the flange of said tire, and suitable securing-bolts passing through said flange and periphery of the wheel center, all substantially as and for the purpose described.

480,923. DRAW-BAR FOR LOCOMOTIVES. SAMUEL R. HEIDELBERG, Palestine, Tex. Filed Apr. 20, 1892. Serial No. 429,936. (No model.)



Claim.—1. The combination, with the frame of the locomotive, of the counterbalanced draw-bar mounted thereon, substantially as described.

2. The combination, with the frame of the locomotive and pilot, of a draw-bar mounted on the frame above the pilot, the draw-bar being provided with a counter-weight, substantially as described.

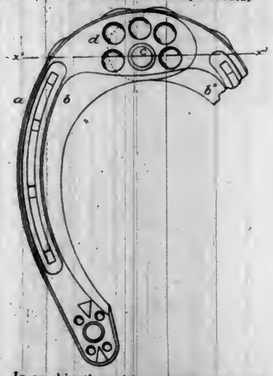
3. The combination, with the frame of the locomotive and pilot mounted thereon, of the draw-bar connected to the frame, devices for locking and holding the draw-bar on the pilot, and a counter-weight for automatically elevating the draw-bar when released, substantially as described.

4. The combination, with the locomotive-frame having a bumper-head provided with elongated slots, of a counterbalanced draw-bar having knife-edge bearings fitting said elongated slots, substantially as described.

5. The combination, with the frame, the pilot, and counterweighted draw-bar, of the automatic locking devices for holding the draw-bar in its normal position and means for releasing the locking device from the outside of the frame, substantially as described.

6. The combination, with the frame and pilot, of the cross-bar of the pilot having downwardly-extending projections forming guides, substantially as described.

480,924. HORSESHOE. EDWIN A. HILLS, Wethersfield, Conn. Filed Oct. 17, 1889. Serial No. 327,356. (No model.)



Claim.—1. In combination with a sectional horseshoe provided with a calk-socket, a calk having a central stem fitting such socket, and cone-shaped projections on said calk fitting corresponding recesses in the surface of the shoe and the cone-shaped recesses, all substantially as described.

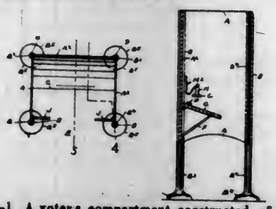
2. In combination, in a sectional horseshoe composed of two sections, an integral pivot located on one of the sections eccentrically thereof and taking into a socket on the other section, the two sections being halved together and having their meeting faces provided with intermeshing tongues and grooves, and an integral toe-weight located on the shoe adjacent to the pivot, all substantially as described.

3. In combination, in a sectional horseshoe, the two sections halved together and provided with pivot-holes and a renewable calk having its wearing-face formed of a number of thin edges disposed at an angle with each other and provided with a projecting stem fitting the pivot-holes in the two sections and forming a pivot, all substantially as described.

4. In combination, in a sectional horseshoe the two sections of which are halved together and having their meeting faces provided with intermeshing tongues and grooves, the pivot-holes formed in each section in line with each other and a renewable calk having its wearing-face formed of a number of thin edges disposed at an angle with each other and having an integral stem adapted to fit the pivot-holes in each section of the shoe, thereby forming the pivot, all substantially as described.

5. In combination, in a sectional horseshoe halved together and having the meeting faces of the sections provided with intermeshing grooves and tongues, an integral hollow pivot of one of the sections taking into a corresponding pivot-hole in the opposite section, and a renewable calk provided with a projecting stem taking into the hole in the hollow pivot, whereby the calk is secured to the shoe, all substantially as described.

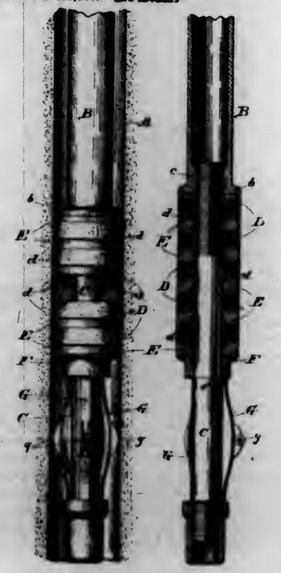
480,925. VOTER'S COMPARTMENT AND SHELF. AARON A. HINKLEY, Lakeville, and JOHN S. WELCH, Lynn, Mass. Filed Apr. 3, 1890. Serial No. 346,445. (No model.)



Claim.—1. A voter's compartment constructed of partitions or walls and open at one side and corner-posts on which said partitions are hung and each having a foot or base and severally adapted to be folded together and opened from each other, in combination with a shelf within and a guard or guards at the open side of and held on the compartment and severally adapted to be placed into and out of position for use, substantially as described, for the purposes specified.

2. A series of voters' compartments constructed of partitions or walls and each open at one side and corner-posts on which said partitions are hung and each having a foot or base and said partitions and posts of the series of compartments adapted to be folded together and opened from each other, in combination with a shelf within and a guard or guards at the open side of and held on each of said compartments and severally adapted to be placed into and out of position for use, substantially as described, for the purposes specified.

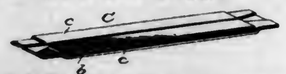
480,926. WELL-PACKER. ISAAC N. HOADLEY, Bradford, Pa., assignor to the Monitor Packer Company, same place. Filed Nov. 2, 1891. Serial No. 410,577. (No model.)



Claim.—1. In an oil-well, a gas-well, or an Artesian well, the combination, with the well-tubes, of a packer composed, essentially, of alternate inverted-cup-shaped washers of rubber or other elastic material and flat rings of wood or metal, the said rubber washers being pressed between the said rings and expanding beyond the edges thereof, substantially as and for the purposes described.

2. In a packer for oil, gas, and Artesian wells, the combination, with the tube-section C, having screw-thread *c* and shoulder *c'* thereon, of the ring F, bearing against said shoulder, the rubber cups D and disks E, slipped on said tube-section over said ring, and the tube-section B, adapted to screw down on said screw *c* and compress said rubber cups between said disks, substantially as described.

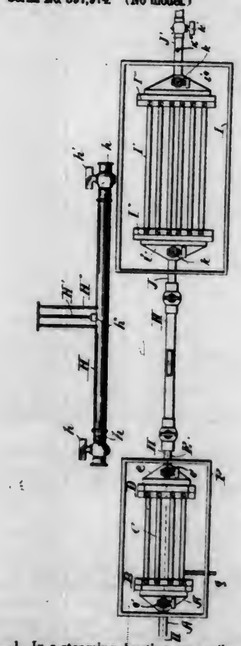
480,927. CEILING. ANDREW KAISER, Columbus, Ohio. Filed Mar. 2, 1892. Serial No. 423,506. (No model.)



Claim.—1. In metal ceilings, &c., the combination, with grooved moldings, panels supported in the moldings, of strips between the contiguous edges of the panels, produced from sheet metal, the same being folded to form channels or grooves in opposite edges and having reduced ends to fit in the grooves of said moldings, substantially as described.

2. A strip for uniting the contiguous edges of panels, produced from sheet metal, the same being folded to form channels or grooves in opposite edges and having one of the walls of the grooves cut away to reduce the ends of the strip, substantially as and for the purpose described.

480,928. HEATER AND COOLER FOR FERMENTED MALT LIQUORS. JOHN H. KERSENBROCK, Columbus, Nebr. Filed June 30, 1891. Serial No. 397,974. (No model.)

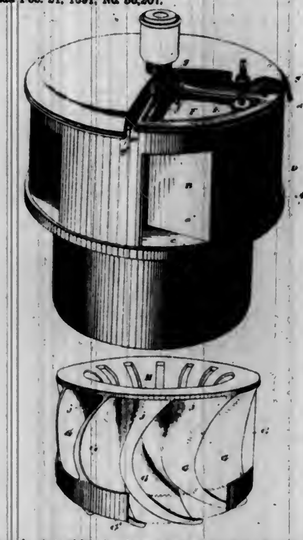


Claim.—1. In a steaming, heating, or cooling apparatus for beer or other malt liquors, the combination of a vat, a single inlet-pipe, and a single outlet-pipe, located, respectively, at opposite ends of and projecting into the vat, funnel-shaped or flared portions at the inner ends of the pipes, a series of circulating-pipes located wholly within the vat, heads at the ends of the pipes secured to the funnel-shaped or flared portions and provided with openings receiving the ends of the pipes, set-screws for securing the heads to the pipes, and means, located between the ends of the vat, for supporting the heads directly from the bottom of the vat, substantially as set forth.

2. In a steaming, heating, or cooling apparatus for beer or other malt liquors, the combination of a vat, inlet and outlet pipes at the ends of the vats, respectively, provided with funnel-shaped or flared portions at their inner ends, a series of circulating-pipes, located within the vat-heads at the ends of said series of pipes, having openings to receive the ends of the latter, and flanges projecting from the heads and surrounding the openings, over which said funnel-shaped or flared portions fit, substantially as set forth.

3. The combination of a vat, a series of parallel circulating-pipes contained therein and arranged in a horizontal plane, outlet and inlet pipes communicating with the ends of the circulating-pipes at each end of and projecting through the ends of the vat, and a series of parallel steam-pipes parallel with and situated below the circulating-pipes and provided with perforations, whereby the circulating-pipes will be uniformly heated throughout, substantially as set forth.

480,929. TURBINE WHEEL. JOHN C. LADUKE, Shelbourne, Canada. Filed Nov. 23, 1891. Serial No. 412,826. (Model.) Patented in Canada Feb. 21, 1891, No. 36,207.



Claim.—1. A turbine having a wheel contained within the casing provided with a series of buckets, the lower portion of each bucket of which extends from outside to inside back from the radial line, passing through the outer end of the bucket in the opposite direction to that in which the wheel revolves, the top, however, being flared in the direction in which the wheel revolves, substantially as specified.

2. A turbine having a wheel contained within the casing provided with a series of buckets, the lower portion of each bucket of which extends from outside to inside back from the radial line, passing through the outer end of the bucket in the opposite direction to that in which the wheel revolves, the top, however, being flared in the direction in which the wheel revolves, and the bucket being also constructed lengthwise, with the upper portion curved downwardly and inwardly, so as to recede in the direction in which the wheel revolves and the lower portion continuing the curve in the opposite direction, the cross-section of the bucket at the top being slightly concaved and the concavity and width gradually increased from top to bottom, substantially as and for the purpose specified.

3. A turbine having a wheel contained within the casing A, provided with a series of buckets G, having the upper portion curved downward and inward, so as to recede in the direction in which the wheel revolves and the lower portion continuing the curve in the opposite direction, in combination with the chutes *a*, designed to direct the water against the upper receding portion of the buckets G, from which it sweeps down and is carried through the wheel, substantially as and for the purpose specified.

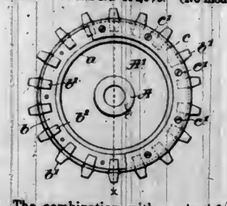
4. In combination, the casing, the wheel thereon having a series of buckets G, the guides B of the casing with spaces between them forming the chutes *a*, said guides having curved sides *d* and the sides *f''* and *f'*, converging at the edge of the wheel-space, the ring-gate D, and the gates C, carried thereby, said gates having the curved wings *d'*, adapted to the face of the guide, and the wings *f'*, adapted to bear alternately on the sides *f''* and *f'* of the guides, the inner ends of the wings *f'* bearing against the side *f''*, substantially as described.

5. In combination, the casing, the wheel therein having a series of buckets G, the guides B of the casing with spaces between them forming the chutes *a*, said guides having the curved side *d* and the sides *f''*, with a curved portion *e'*, the ring-gate D, provided with the gates C, said gates having the curved wings *d'*, adapted to the face *d* of the guides, and the wings *f'*, adapted to sides *f''* and bearing against the curved part thereof, substantially as described.

6. In a turbine, the casing, the wheel therein, the shaft I therefor, the ring-gate D for controlling the openings of the chutes, the toothed quadrant F, the lugs *g'* on the ring-gate for holding the quadrant in place, and the pinion engaging the quadrant, substantially as described.

7. In a turbine, the casing, the wheel, the shaft therefor, the covering or dome J, the standards K, and the bolts for supporting and holding the dome, the top ring *d*, and the top L, held thereto by the bolts *l*, substantially as described.

480,930. TOOTHED WHEEL. JOHN LINDSAY, Millbury, Mass. Filed Sept. 7, 1891. Serial No. 404,978. (No model.)

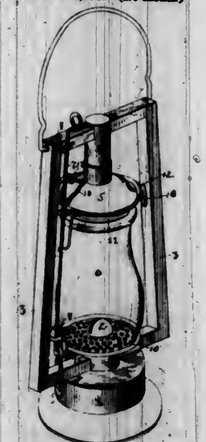


Claim.—1. The combination, with a wheel-frame, of a recessed tooth-carrying ring carried thereby, a series of independent teeth inserted in said recesses, a clamping-plate bearing against said teeth, and fastenings extended through the said plate, ring, and frame, substantially as described.

2. A wheel-frame, a tooth-carrying ring, and a series of teeth carried thereby of greater thickness than said ring, combined with a clamping-plate adapted to bear against said teeth, and means to clamp the plate in position, substantially as described.

3. A wheel-frame, a tooth-carrying ring, and a series of teeth carried thereby of greater thickness than the thickness of the said ring, and provided with grooves, combined with a clamping-plate having an annular projection to enter the grooves in said teeth, substantially as described.

480,931. LANTERN. HUGH P. MERRIMAN, Morris, N. Y. Filed May 7, 1891. Serial No. 391,938. (No model.)



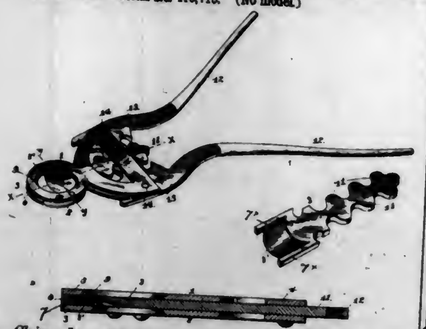
Claim.—1. The combination of the lantern-frame having vertical air-tubes, the U-shaped keeper arranged on one of the air-tubes, the vertically-movable rod 7, journaled on the other air-tube and carrying the chimney, and the clamping-ring receiving the upper end of the chimney and secured to the rod 7 and provided with a projection arranged diametrically opposite the rod 7 and adapted to engage the U-shaped keeper, substantially as described.

2. In a lantern, the combination, with the oil-reservoir, burner, and air-tubes, of the eyes 8 and 9, arranged on the air-tubes at one

side of the lantern, the U shaped keeper constructed of wire and arranged at the opposite side of the lantern, the rod journaled in the eyes and provided at its upper end with a handle, the globe-seat attached to the lower end of the rod, the globe-cap attached to the rod near the upper end thereof, and the clamping-ring secured to the rod and arranged below the globe cap and provided with a projection arranged diametrically opposite the rod and adapted to engage the keeper when the parts are in operative position, substantially as described.

3. The combination, with a lantern provided with the vertical depending tube 4, of the vertical rod 7, secured to the lantern, the globe-cap sliding on the tube 4, and the V-shaped wire provided at its ends with eyes to receive the rod and having its lower arm secured to the globe-cap and provided in its upper arm with a bend forming a thumb-piece 17, whereby the globe-cap can be raised to extinguish the light, substantially as described.

480,932. DEHORNER. JAMES M. MILLS, Modesto, Ill. Filed Dec. 31, 1891. Serial No. 416,718. (No model.)



Claim.—In a dehorner, the combination of oppositely-situated semicircular plates with integral rings projecting from the central front portions thereof, space-blocks inserted between and secured to the said rings and having outer curved edges conformed to the shape of the rings and inner straight edges to form parallel guides, a rubber block interposed between the front portions of said rings and resting against said space-blocks to shield the cutting-edge of the knife, handles with toothed heads pivotally mounted in the corners of the aforesaid semicircular plates, and a cutting-blade having parallel guide-bars at the front thereof of rectangular form and embracing the opposite sides of an inclined or beveled knife, and a rear toothed shank to be engaged by the aforesaid toothed heads of the handles, the said parallel guide-bars having the front ends thereof extending beyond the front end of the cutting-blade and adapted to move against the inner straight edges of the said space-blocks, substantially as described.

480,933. TYPE-PLATE AND BLANK FOR THE SAME. GEORGE D. MORSE and MILTON CHASE, Haverhill, Mass. Filed July 30, 1891. Serial No. 400,052. (No model.)



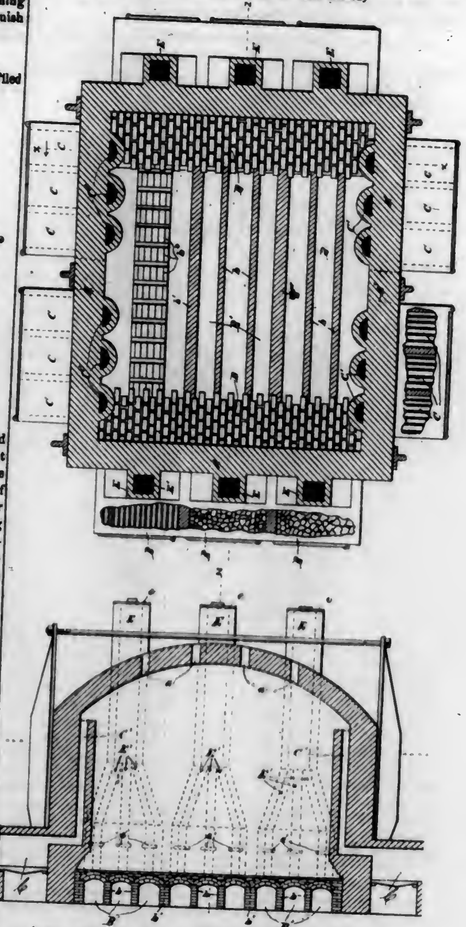
Claim.—A type-plate blank consisting of a plate having a smooth surface *a* to receive the imprint from a die or matrix and the under side having a series of recesses *c*, whereby the superfluous material is taken up when an imprint is made upon the face *a*, substantially as set forth.

480,934. ACID-RESISTING COMPOSITION FOR LINING TANKS. JOSHUA NORTON, Jr., Chatham, Canada. Filed Nov. 22, 1890. Serial No. 372,368. (No specimens.)

Claim.—1. In an acid-resisting lining of a wood-pulp digester, a first or preparatory coating or layer composed of asbestus fiber, sulphate of baryta, and hydraulic cement and having a thickness of not more than about one-sixteenth of an inch, a second layer consisting of the same ingredients mixed with pulverized fire-brick, seggar, stoneware, and glass or glass-sand, and a third layer consisting of asbestus fiber, sulphate of baryta, and hydraulic cement, each layer containing silicate of soda, substantially as set forth.

2. A lining of a digester, composed of three superimposed layers or coats, the first consisting of hydraulic cement and other refractory material applied to the metal of the digester, the second containing hydraulic cement mingled with pulverized fire-brick and other refractory material and imposed upon the first, and the third containing hydraulic cement and refractory materials imposed upon the second, substantially as set forth.

480,935. BRICK-KILN. JAMES W. PENFIELD, Willoughby, Ohio. Filed May 10, 1890. Serial No. 351,314. (No model.)



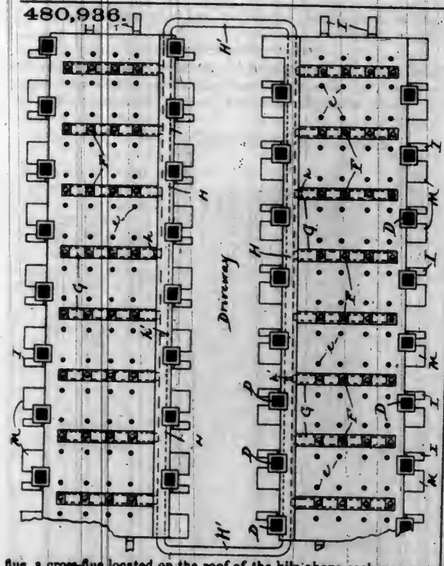
Claim.—In a brick-kiln, the combination of two series of furnaces, one series provided with flues discharging under the dome of the kiln and the dome having openings for regulating the updraft inside the kiln, the other series provided with flues leading under the floor of the kiln, said flues having chimneys with dampers for regulating the draft therein, whereby the latter or updraft furnaces may be utilized in discharging the products of combustion from the downdraft-furnaces, substantially as set forth.

480,936. BRICK-KILN. JAMES W. PENFIELD, Willoughby, Ohio. Filed Aug. 18, 1891. Serial No. 403,034. (No model.)

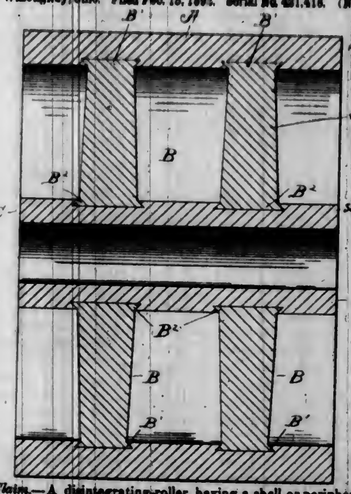
Claim.—1. A brick-kiln comprising two opposing series of compartments and corresponding series of furnaces and co-operating flues arranged substantially as indicated, whereby communication may be had between next adjacent compartments by means of a furnace and flue, a cross-flue located on the roof of the kiln above each compartment, such cross-flues discharging in common into a longitudinal flue, and means, substantially as shown, for opening and closing communication between each cross-flue and the compartment below it and between each cross-flue and the longitudinal flue, substantially as set forth.

2. A brick-kiln comprising two opposing series of compartments with furnaces and flues below the floor furnishing communication from one compartment to another, substantially as indicated, and a series of cross-flues and a longitudinal flue located on the roof of each section of the kiln and arranged substantially as indicated, whereby communication may be had between different compartments of the same section, the two series of furnaces and flues below the floor being connected at their extremes to form an endless series and the two series of flues on the roof being connected at their extremes to constitute an endless series, substantially as set forth.

480,936.

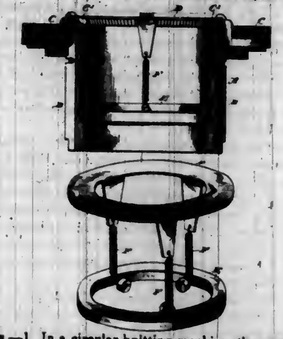


480,937. DISINTEGRATING-ROLLER. RAYMOND C. PENFIELD Willoughby, Ohio. Filed Feb. 13, 1892. Serial No. 421,416. (No model.)



Claim.—A disintegrating-roller having a shell or periphery cast of hard metal, a hub cast of comparatively soft metal, and wrought-metal arms firmly united to the shell and hub in the operation of casting said hub and shell, substantially as and for the purpose set forth.

480,938. KNITTING-MACHINE. EDSON E. RANDALL, West Winsted, Conn. Filed Mar. 19, 1892. Serial No. 425,613. (No model.)



Claim.—1. In a circular-knitting machine, the combination of a cylinder having jack-sinkers or loop-holders thereon and a disk or ring bearing on parts of said jack-sinkers or loop-holders and located over the opening through said cylinder, substantially as described.

2. The combination of a knitting-machine cylinder having jack-sinkers or loop-holders in connection therewith and a ring or disk loosely and removably engaging said jack-sinkers or loop-holders, substantially as described.

3. In a circular-knitting machine, the combination of a cylinder having jack-sinkers or loop-holders thereon, a disk or ring loosely bearing on parts of said jack-sinkers or loop-holders, and springs for holding said disk or ring in proper position, substantially as described.

4. In a circular-knitting machine, the combination of a needle-cylinder having jack-sinkers or loop-holders thereon, a disk or ring loosely and removably engaging said jack-sinkers or loop-holders, a rib or ring within the said cylinder, and springs connecting said disk or ring with said rib or ring, substantially as described.

480,939. CONVEYER. JOHN H. SHULL and GEORGE S. DORNEY, Findlay, Ohio. Filed July 29, 1891. Serial No. 401,078. (No model.)



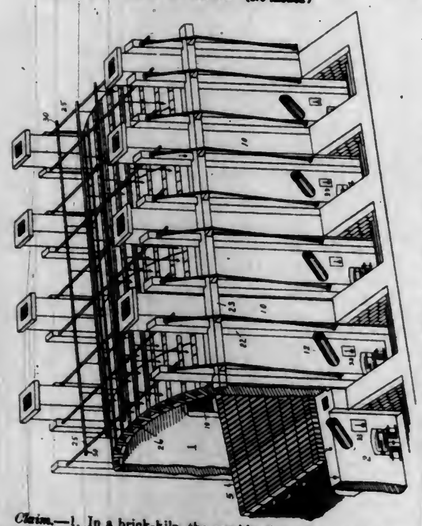
Claim.—1. The combination of supporting-frames, the vertical shafts, a pair of horizontal sprocket-wheels on each of the shafts, a conveyer-belt consisting of two endless chains connecting the sprocket-wheels, a horizontal shaft and gear-wheels connecting the vertical shafts, driving mechanism connected with one of the shafts, the tracks located above the conveyer-belt, and the pallets having stems secured to the chains of the conveyer-belt and provided with hangers having rollers running on the tracks, substantially as described.

2. The combination of supporting-frames, the vertical shafts, a pair of horizontal sprocket-wheels on each of the shafts, a conveyer-belt consisting of two endless chains, connecting the sprocket-wheels, a horizontal shaft and gear-wheels connecting the vertical shafts, driving mechanism connected with one of the shafts, the outer broad track, the inner narrow track, and the pallets having stems secured to the chains of the conveyer-belt and provided with outer hangers having rollers formed with broad treads, and inner hangers projecting downward for engaging the narrow track, having rollers formed with narrow treads, substantially as described.

3. The combination of supporting-frames, the vertical shafts, a pair of horizontal sprocket-wheels on each of the shafts, a conveyer-belt consisting of two endless chains, connecting the sprocket-wheels, a horizontal shaft and gear-wheels connecting the vertical shafts, driving mechanism connected with one of the shafts, the outer and inner tracks, and the pallets having stems secured to the chains of the conveyer-belt and provided with hangers having rollers running on the tracks and with scrapers located at diagonally-opposite corners of the pallets, substantially as described.

4. The combination, with the belt of a conveyer, of a pallet having a pendent stem secured to the belt, a hanger having a broad roller, a hanger having a narrow roller and having its ends extending beneath the roller, and the scrapers located at diagonally-opposite corners of the pallets, substantially as described.

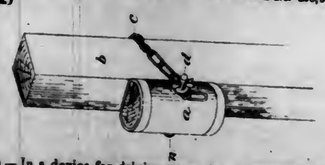
480,940. BRICK-KILN. WILLIAM H. B. STOUT, Chicago, Ill. Filed Aug. 15, 1891. Serial No. 402,764. (No model.)



Claim.—1. In a brick-kiln, the combination, with a suitable furnace or other heat-supplying means, of an open floor having a converging bottom heat-chamber underneath into which the heat is led and disseminated, said floor being supported by a series of open walls running lengthwise of the kiln, substantially as set forth.

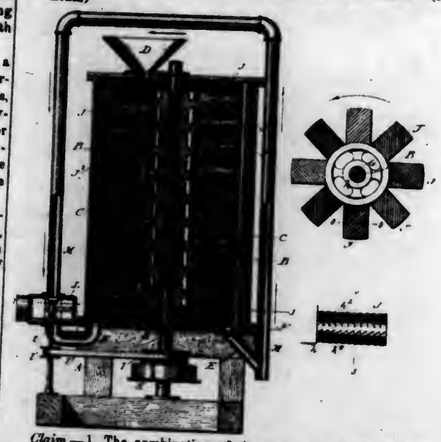
2. In a brick-kiln, the combination, with a suitable heat-supplying means, of an open floor having a converging bottom heat-chamber underneath into which the heat is led at the lowest point, substantially as shown and described.

480,941. DEVICE FOR DRIVING FENCE-POSTS, &c. FRANKLIN STOW, Kirkwood, N. Y. Filed Apr. 11, 1892. Serial No. 428,656. (No model.)



Claim.—In a device for driving posts, &c., the combination of a block adapted to bear against the side of the post, a transverse bolt passing through the block, a chain attached to said bolt and adapted to embrace the object to be driven, and a removable key, substantially as described.

480,942. GRAIN-SCOURING MACHINE. ROSLA W. WELOH, Baltimore, Md., assignor of two-thirds to William A. Dunn and Louis D. Passano, same place. Filed Nov. 13, 1891. Serial No. 411,833. (No model.)

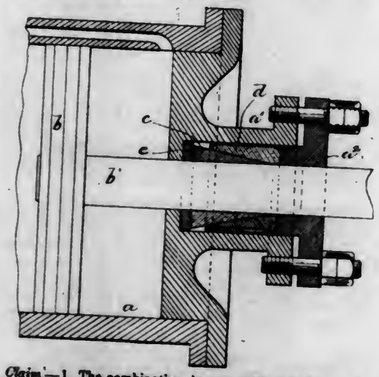


Claim.—1. The combination of the pervious cylinder, the surrounding casing, and the fan arranged to exhaust the casing, in combination with the central shaft, and the scourer-blades having obliquely and reversely arranged teeth, as described, the forward or working faces of the teeth standing at a greater angle to the plane of the blades than the rear faces, whereby the grain is caused, in addition to its other movements, to flow inward and outward to carry the free foreign matters to the pervious cylinder that they may speedily escape.

2. In a grain-scouring machine, the pervious cylinder, the jacket, the exhaust-fan, and the delivery-controlling gate, in combination with the central shaft and the hubs, each having at different levels blades constructed of increasing thickness from front to rear with reversely-arranged oblique teeth on their upper and under sides, the forward or working faces of the teeth standing at a greater angle to the plane of the blade than the rear faces.

3. In a grain-scourer, and in combination with a surrounding cylinder, rotary blades each having obliquely-arranged teeth, those on one face with vertical front walls or surfaces and those on the other face with backwardly-inclined front surfaces.

480,943. METALLIC PACKING. WILLIAM H. BODFISH, Everett, assignor of one-half to Roswell Carleton, Boston, Mass. Filed Oct. 26, 1891. Serial No. 409,570. (No model.)



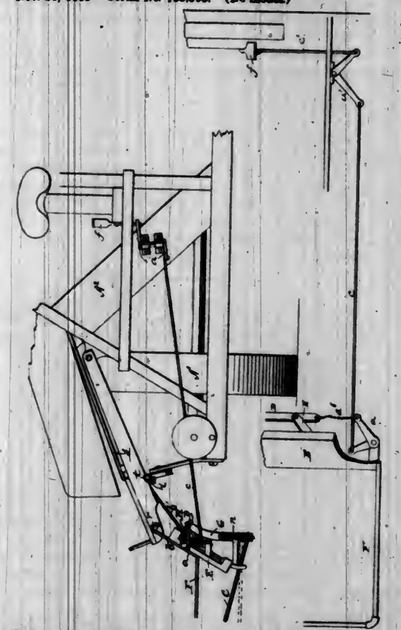
Claim.—1. The combination, in a metallic packing, of an externally-tapered compressible metal sleeve formed internally to fit a piston-rod, a collar of rigid construction having an internally-tapered surface fitting the exterior of the sleeve, and a ring or gasket having an annular rib formed to bear against the larger end of the sleeve, said parts being formed for insertion in the cavity of a stuffing-box, as set forth.

2. A metallic packing composed of an externally-tapered compressible metal sleeve made in separable longitudinal sections having tongue-and-grooved joints, the larger ends of said sections being provided with grooves, a ring adapted to bear against the inner end of the cavity of the stuffing-box and provided with an annular rib adapted to enter the grooves in the sleeve-sections, and a collar of rigid construction internally tapered to fit the exterior of the sleeve and arranged to bear against the gland of the stuffing-box, as set forth.

3. The collar composed of two separable sections collectively forming an internally-tapered ring adapted to surround an externally-tapered sleeve, and a binding or locking section formed to unite said sections and cover the joints thereof, said locking section being fitted in recesses formed for it in the other sections, the whole forming a rigid or unyielding divisible collar presenting a cylindrical exterior combined with an externally-tapered sleeve formed to fit the tapered interior of the collar, said sleeve being composed of separable sections, as set forth.

4. The sleeve-compressing collar composed of the semicircular section 5, externally reduced at its ends to form shoulders 7 7 and flanges 8 8, the reduced portions having slots 10 10, the semicircular section 6, externally reduced from end to end and having a flange 9, constituting a continuation of the flanges 8 8, and the segmental section 4, formed to fit the reduced portions of the sections 5 6, and provided with tongues 12 12, formed to engage the slots 10 10, the ends of said segmental section being separated by a space wider than the diameter of the piston-rod, as set forth.

480,944. BUNDLE-CARRIER FOR HARVESTERS. LUCIEN W. ELLIS, Anamosa, Iowa, assignor to William Deering, Chicago, Ill. Filed Nov. 20, 1885. Serial No. 183,395. (No model.)



Claim.—1. A sheaf-carrier consisting of fingers that form a platform upon which sheaves are discharged, each finger being secured to a support by means of a joint having an axis obliquely inclined relative to the length of the body or supporting portion of the finger to cause it to move downwardly, backwardly, and sidewardly toward its support, and means for preventing the movement of the sheaves sideward off from the said supporting-fingers.

2. A sheaf-carrier consisting of fingers and a support for each finger adapted to form a bottom to support sheaves and sides to prevent their escape in lateral directions, said fingers being connected to the framework by means of joints having inclined axes, whereby they are adapted to move downwardly, rearwardly, and sidewardly toward their supports to draw from beneath the load.

3. A sheaf-carrier having side limits that prevent the bundles from escaping, fingers adapted to lie beneath the sheaves and sustain the load, said fingers secured to the framework of the machine by means of joints having axes inclined, whereby the weight of said sheaves is instrumental in turning the fingers downward and sideward to permit the discharge of the load.

4. A sheaf-carrier for self-binding harvesters, consisting of a receptacle having a bottom for sustaining the weight of the sheaves and sides to prevent the escape of the sheaves in lateral directions, said bottom consisting of fingers connected to the framework of the machine by joints having inclined axes, whereby they are permitted to swing rearwardly, downwardly, and sidewardly to draw from beneath the load.

5. In a sheaf-carrier for harvesters, a series of laterally-extending carrier-fingers, each mounted at one end of an axis inclined from the vertical in position to allow them to swing rearward and downward in an oblique path sideward toward their support, and a guard or side limit to retain the sheaves on the carrier-fingers until discharged.

6. In a sheaf-carrier, the combination of a bar E, lying in a fore-and-aft direction, a series of sheaf-receiving fingers, each having a journal or pivot mounted on the bar at an inclination from the vertical in position to allow the finger to swing rearward and downward sideward toward its support and each having a crank-arm, a connection between said crank-arms, and an operating device extending thence to a point adjacent to the driver's seat, and a guard or side limit to retain the sheaves on the carrier-fingers until discharged.

7. In a sheaf-carrier, the combination of a sustaining-bar, a series of sheaf-receiving fingers extending normally in a lateral direction therefrom and each sustained at the inner end by an axis obliquely inclined relative to the length of the body or supporting portion of the finger, around which it may swing rearwardly, backwardly, and sidewardly toward its support, a bar connecting said fingers to compel their movement in unison, operating devices extending from the bar to a point adjacent to the driver's seat, and a latch or lock to hold such bar, and thus the fingers, in the receiving position, and a guard or side limit to retain the sheaves on the carrier-fingers until discharged, substantially as described.

8. The combination, with a grain harvester and binder, of a supporting board or bar extending in a fore-and-aft direction, a series of outreaching sheaf-carrying fingers, each having at the inner end a supporting journal or axis inclined, as shown and described, in relation to the body of the finger and to the vertical in a plane at right angles to the line in which the machine advances, whereby the fingers are permitted to swing rearward, downward, and inward toward their support and toward each other, and a guard or side limit to retain the sheaves on the carrier-fingers until discharged.

9. In a sheaf-carrier, a fore-and-aft board or bar E, in combination with a series of laterally-projecting sheaf-receiving fingers, each having at its inner end a sustaining-journal inclined, as described and shown, in relation to the body of the finger and also inclined in the direction of the length of the board.

10. In a sheaf-carrier, and in combination with a sustaining-bar, a series of laterally-extending sheaf-receiving fingers, inclined journals or axes by which said fingers are sustained and around which they swing with a rearward, downward, and sideward movement toward their support, a bar connecting said fingers to compel their movement in unison, and a spring tending to hold the fingers in their normal or receiving position, and a guard or side limit to retain the sheaves on the carrier-fingers until discharged.

11. In combination with a sheaf-carrier composed of fingers individually pivoted to swing rearward, the stationary guard F, extending over the end and along the outer side of the carrier to prevent the accidental escape of the sheaves therefrom.

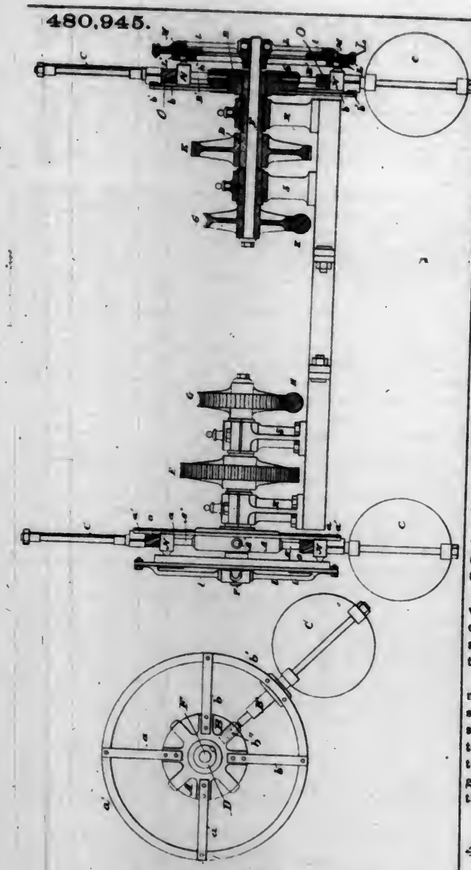
12. In a sheaf-carrier, a series of sheaf-receiving fingers pivoted upon approximately vertical axes to swing rearwardly and each provided with a crank, in combination with an operating-bar D, provided with latches *v* and pins *e* to operate the respective cranks.

480,945. PROPELLER. LEON GAYON, Paris, France. Filed Aug. 14, 1891. Serial No. 402,614. (No model.)

Claim.—1. In combination, the wheel carrying the radial shaft with the blades at the ends thereof, the cam arranged with its face adjacent to the said wheel and having a cam-groove in the said face, the nut N, in connection with the said cam-groove, whereby it is moved toward and from the center of the wheel, and the threaded connection between the said nut and the radial shafts, whereby the said shafts are given a rotary reciprocation and the blades are feathered, substantially as described.

2. In combination, the wheel carrying the radial shafts and the blades at the ends thereof, the cam arranged with its face adjacent to the side of the wheel, the connection between the radial shafts and the cam, and the means for rotating the wheel and cam independently of each other, said means consisting of the hollow sleeve D, carrying the wheel, the means for rotating said sleeve, the shaft extending through the sleeve and carrying at its outer end the cam, and the means at the inner end of the shaft for rotating it and turning the cam about the axial line of the wheel, substantially as described.

480,945.



Claim.—1. The combination of a speed-governor, a valve the operation of which is controlled by said governor, and means for transferring motion from the governor to the valve mechanism, said means having a pivoted arm adapted to be tilted by the governor, two rods or connecting devices extending from the arm on opposite sides of its pivot, whereby one acts as a pull-rod and the other as a push-rod, a second pivoted arm, to which the two rods are connected on opposite sides of its pivot, and a working connection between the same and the valve mechanism, substantially as described.

2. The combination of a speed-governor, one or more valves the operations of which are controlled by said governor, and means for transferring motion from the governor to the valve mechanism, said means having a pivoted arm adapted to be tilted by the governor, the two rods extending from the arm on opposite sides of its pivot and one or more other pivoted arms, to which the two rods are connected, and working connections between said arm or arms and valve mechanism, substantially as described.

3. The combination of a steam-valve mechanism, a speed-governor, and means for transferring motion from the governor to the valve mechanism, said means having two pivoted arms connected by rods on opposite sides of the pivots, one of the arms being provided with two angular extensions, rods connected thereto and to a T-shaped lever, one arm of which is connected to the movable part of the governor, the other pivoted arm having an extension, and a rod connected thereto and to the controlling device of the valve mechanism, substantially as described.

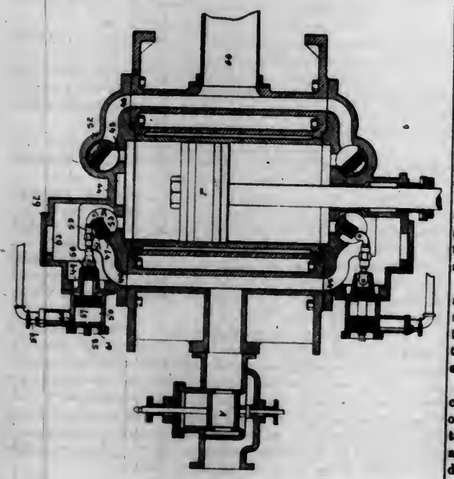
4. The combination of a cylinder, a head therefor having in it a valve port and seat, a valve in said seat, and a dash-pot, also on the cylinder-head, connected to the valve, substantially as described.

5. The combination of a cylinder, a head therefor having in it a valve port and seat, a rotary valve in said seat, and a steam-operated dash-pot, also on the cylinder-head, connected to the valve, substantially as described.

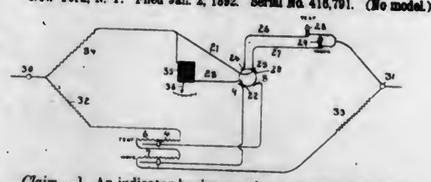
6. The combination of a cylinder, a head therefor having in it a valve port and seat, a valve in said seat, and a dash-pot, also on the cylinder-head, connected to the valve, said cover being provided with a hand-hole, and a cover therefor, whereby access may be obtained to the valve and dash-pot connection, substantially as described.

7. The combination of a valve and stem, a pawl operatively connected to said stem, a sleeve on the stem, a connecting-rod for moving said sleeve, pawl, and valve in one direction, a second sleeve on the stem operatively connected to the governor, a cam on said sleeve, a trip-toe adjacent to said sleeve and adapted to be moved by the cam, the toe and pawl being connected by a shaft 35, so as to move together, and means for reversing movement of the valve when said trip is operated, substantially as described.

480,946. STEAM-ENGINE. JOHN C. HENDERSON, New York, and FREDERICK A. PHELPS, Jr., Schenectady, assignors to the Edison General Electric Company, New York, N. Y. Filed Oct. 26, 1891. Serial No. 409,905. (No model.)



480,947. ELECTRICAL PRESSURE-INDICATOR. JOHN W. HOWELL, Newark, N. J., assignor to the Edison General Electric Company, New York, N. Y. Filed Jan. 2, 1892. Serial No. 416,791. (No model.)



Claim.—1. An indicator having a resistance sensitive to changes of current and having another such resistance normally not in use, but reserved as a test-resistance, and a switch constructed to throw either one of these resistances in circuit and at the same time to change the galvanometer-contact from one point of connection to another, as described.

2. The combination, in an indicator of the character described, of a galvanometer, two adjustable galvanometer-contacts making contact at different points, and a work and a test resistance, one of said contacts being for the work-resistance circuit and one for the test-resistance circuit, substantially as described.

3. In an indicator of the character described, having two resistances sensitive to current changes, the combination, with said resistances, of a galvanometer and a switch constructed to throw one or the other resistance in circuit and at the same time to open and close the galvanometer-circuit, the changes being made in the order described.

4. The combination, in an indicator, of a conductor subject to changes of resistance and a practically constant resistance in one side of a Wheatstone bridge, two constant resistances in the other side of the bridge, a current-indicator connected between the two sides, an adjustable galvanometer-contact in use with the first-mentioned conductor, a constant test-conductor, means for substituting it for the changeable conductor, and an adjustable contact device in use with the test-conductor, substantially as described.

5. The combination, in an indicator having resistances sensitive to changes of current, of a work-lamp forming one of said resistances, a test-lamp normally out of use forming a second resistance, and two sockets for said lamps, each adapted to receive its lamp, but not to receive the other, substantially as described.

480,948. SNAP-SWITCH. JOSEPH HUTCHINSON, New York, N. Y., assignor to the Edison General Electric Company, same place. Filed Jan. 12, 1891. Serial No. 377,408. (No model.)

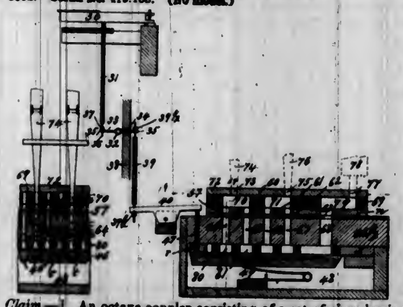


Claim.—1. A circuit making and breaking switch having a circular track with a series of double inclines, contacts in the alternate depressions, and one end of each contact being in the form of a free spring formed by the inclines, said contacts being fitted onto the two inclined faces of the depressions, and a rotary cross-arm movable over the inclines for connecting said contacts, substantially as described.

2. The combination, in a circuit making and breaking switch, of a circular track having a series of double inclines and contacts in the alternate depressions formed by said inclines, said contacts covering a portion of one incline and one end of each contact being in the form of a free spring and all of the opposite inclines, substantially as described.

3. The combination, in a circuit making and breaking switch, of a circular track for a switch-arm, having a series of double inclines, and contact-plates in the alternate depressions formed by said inclines, one end of each of said contact-plates being in the form of a spring, substantially as described.

480,949. PIPE-ORGAN. RICHARD W. JACKSON, Chester, Ill., assignor to the Jackson Pipe Organ Company, same place. Filed Jan. 25, 1892. Serial No. 419,163. (No model.)



Claim.—1. An octave-coupler consisting of a set of pipes having the octaves of any pipe grouped together, with air communication between the adjoining octaves, whereby when any pipe is caused to speak its octave or octaves also will respond.

2. An octave-coupler consisting of a set of pipes having air communication between the adjoining octaves and partitions for preventing any other pipes than the said octaves from responding.

3. An octave-coupler consisting of a set of pipes having the octaves of any pipe grouped together, with diagonal grooves between the adjoining octaves, whereby when any pipe is caused to speak its octave will respond.

4. An octave-coupler consisting of a set of pipes having the octaves of any pipe grouped together, with diagonal grooves between the adjoining octaves, and means for preventing any other pipes than the said octaves from responding.

5. An octave-coupler consisting of a set of pipes having the octaves of any pipe grouped together, with diagonal grooves between the adjoining octaves, and partitions for preventing any other pipe than the said octaves from responding.

6. A pipe-organ having a set of pipes common to two stops or slides representing different qualities of tones of the organ and means for affording air communication between the octaves of one stop and the octaves of another stop.

7. A pipe-organ having a set of pipes common to two stops or slides representing different qualities of tones of the organ, the pipe or pipes of any note and its octaves being grouped together, and means for affording communication between the octaves of one stop and the octaves of another stop.

8. A pipe-organ having a set of pipes common to two stops or slides representing different qualities of tones of the organ, the pipe or pipes of any note and its octaves being grouped together, and diagonal grooves for affording communication between the octaves of one stop and the octaves of another stop.

9. A pipe-organ having a set of pipes common to two stops or slides, with air communication between the octaves of one stop or slide and the adjoining octaves of another slide, valves operated by the keys, controlling the admission of air to the pipes, and means for preventing the indiscriminate speaking of the pipes when the keys are actuated.

10. A pipe-organ having a set of pipes common to two stops or slides, means for affording air communication between the octaves of one stop and the octaves of another stop, valves operated by the keys, controlling the admission of air to the pipes, and longitudinal partitions interposed between the said valves and slides.

11. A pipe-organ having a set of pipes common to two stops or slides, the pipe or pipes of any note and its octaves being grouped together, means for affording communication between the octaves of one stop and the octaves of another stop, valves operated by the keys, controlling the admission of air to the pipes, and longitudinal partitions interposed between the said valves and slats.

12. A pipe-organ having a set of pipes common to two stops or slides, diagonal grooves affording communication between the octaves of one stop and the octaves of another stop, valves operated by the keys, permitting the admission of air to the pipes, and longitudinal partitions interposed between the said valves and slides.

13. In a pipe-organ, a partitioned valve-seat, substantially as and for the purpose described.

14. An organ having the octaves of the pipe or pipes of the different qualities of tones and notes arranged in groups, those of the same pipe and its octaves being arranged in the same group, whereby economy of space is secured.

15. An organ having the pipe or pipes of the different qualities of tones and notes and their octaves of the chromatic scale arranged in groups alternately at opposite sides of the organ, whereby economy of space is secured.

16. An organ having the rollers or rock-shafts of the roller-board corresponding to the different keys arranged to bring the valves corresponding to the octaves of any note together in groups.

17. An organ having the rollers or rock-shafts of the roller-board corresponding to the different qualities of tones and notes and their octaves of the chromatic scale arranged to bring the valves corresponding to the octaves of any notes together in groups alternately on opposite sides of the organ.

18. An organ having the rollers or rock-shafts of its roller-board composed of metal tubes, with a plug in the ends thereof and a journal-pin extending from said plug, substantially as and for the purpose set forth.

19. In a pipe-organ, a rotary valve 82, having suitable perforations, substantially as and for the purpose described.

20. The combination, with the slides of an organ, of two stops for each slide, each of which stops is positively connected together and is pushed in or out by operating the other and left in whatever position it is placed by the operation of the other, and connections intermediate the stops and slides, for the purpose described.

21. The combination, with the slides of an organ, of two stops for each slide, a T-lever for each set of stops, to an arm of which T-lever each of the stops is respectively connected, and connections from the third arm of the T-lever to the slides, substantially as and for the purpose set forth.

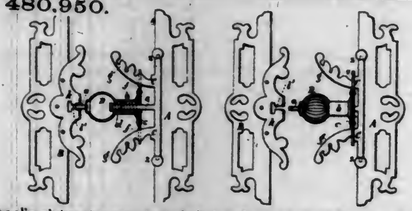
22. In an organ, the combination of a bellows, means for actuating the same, an inflatable storage-reservoir, and a plurality of pipes connecting the storage-reservoir with the bellows at different points, whereby vibration of the storage-reservoir is prevented.

23. In an organ, the combination of a bellows and foot means or treadles for actuating the same by suitable connections, an inflatable storage-reservoir at the bottom of the organ beneath the bellows, and means for affording air communication between the said bellows and reservoir and between the latter and the wind chest.

480,950. ALBUM-CLASP. JOHN C. KOCH, Berlin, Germany. Filed Oct. 14, 1889. Serial No. 326,939. (No model.) Patented in Germany May 3, 1889, No. 49,743

Claim.—1. The combination, in a clasp for albums, books, &c., of two clip plates, one of which is provided with locking projections, a swinging clasp, hinges by which the swinging clasp is connected to the other clip-plate, a rotary locking bolt wider in one direction than the other and connected to the swinging clasp, and a thumb-piece by which the locking-bolt can be partially rotated to engage the projections on

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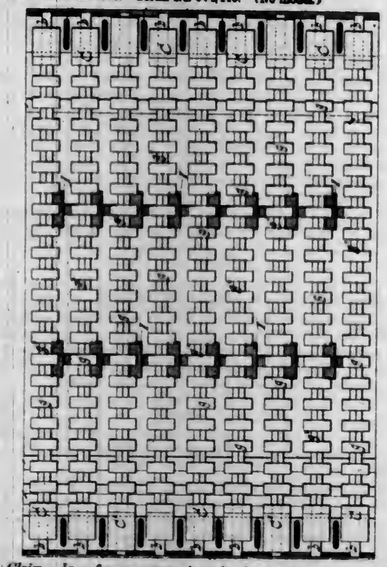


the clip-plate or to separate the bolt therefrom, substantially as specified.

2. The combination, in a clasp for albums, books, &c., of clip-plates, one of which is provided with locking projections, a swinging clasp in the form of an open bow, guide-cylinders for the ends of the swinging clasp, springs within the same, and two hinges for connecting the parts to the other clip-plate, a locking-bolt passing through a cylindrical opening in the swinging clasp, a thumb-piece at one end of the locking-bolt by which it may be partially revolved, said locking-bolt being wider in one direction than the other for engaging the projections upon the clip-plate, and a spring to act on the locking device and draw the covers toward each other, substantially as set forth.

3. The combination, in a clasp for albums, books, &c., of the clip-plates, one of which is provided with locking projections, a swinging clasp hinged to the other clip-plate, a locking device movable toward and from the hinge and having interlocking parts that are wider in one direction than the other, a thumb-piece connected with the locking device for partially rotating the same to engage or disengage the locking devices, a cylinder supporting the locking device, and a spring to act on the locking device and draw the covers toward each other, substantially as specified.

480,951. FURNACE-GRATE. JOHN L. MASON, Brooklyn, N. Y. Filed Dec. 12, 1890. Serial No. 374,440. (No model.)

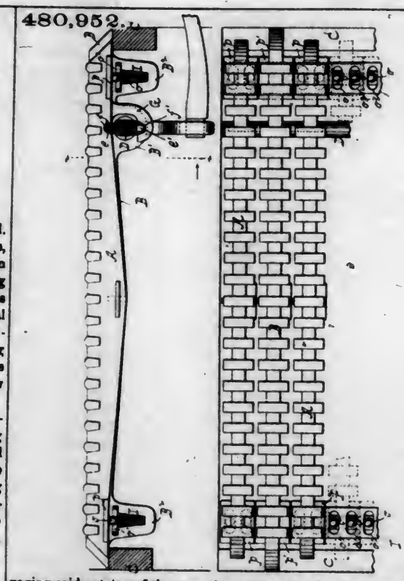


Claim.—In a furnace-grate, bars having on their upper edges a series of transverse teeth projecting beyond the sides thereof and at a point below said teeth blades or wings with beveled upper edges, said blades or wings upon one bar being horizontal and on the next bar vertical, with their contiguous edges in close proximity, thereby forming spacing-lugs, substantially as set forth.

480,952. FURNACE-GRATE. JOHN L. MASON, Brooklyn, N. Y. Filed Aug. 7, 1891. Serial No. 401,965. (No model.)

Claim.—1. In a furnace-grate, the combination of longitudinally-movable grate-bars having alternately a notch in the lower edge thereof and a pendent hook-shaped arm with a notch in its upper edge, the rocking cross-bar having upwardly and downwardly projecting lugs, the former engaging said notches of the grate-bars and the latter engaging said notches of the arms thereof, the fixed grate-bars supporting the rocking cross-bar and also the stationary cross-bars, and the laterally-contacting base-plates of the movable and fixed grate-bars, said plates of the movable grate-bars resting on said balls of the stationary cross-bars, substantially as herein described.

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3. In a furnace-grate, the combination of longitudinally-movable grate-bars having alternately a notch in the lower edge thereof and a pendent hook-shaped arm with a notch in its upper edge, the rocking cross-bar having upwardly and downwardly projecting lugs, the former engaging said notches of the movable grate-bars and the latter engaging said notches of the arms thereof, the two stationary cross-bars, each having on its upper part the transverse grooves, the balls fitted loosely in said grooves of the stationary bars, the fixed grate-bars supporting the rocking cross-bar and also the stationary cross-bars, and the laterally-contacting base-plates of the movable and fixed grate-bars, said plates of the movable grate-bars resting on said balls of the stationary cross-bars, substantially as herein described.

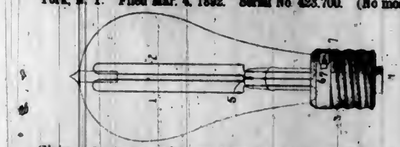
480,958. PICTURE-FRAME. JOHN MAURHOFER, New York, N. Y. Filed Mar. 1, 1892. Serial No. 423,391. (No model.)



Claim.—1. A picture-frame composed of an exterior molding having an overlapping flange, an interior molding, and a panel clamped between said moldings and provided with an overlapping flange, said panel being covered with a suitable fabric.

2. A picture-frame composed of an exterior molding having an overlapping flange, an interior molding, and a panel clamped between said moldings and provided with an overlapping flange, said panel being covered with a suitable fabric overlapping the edges of the panel and being retained by the moldings.

480,954. INCANDESCENT ELECTRIC LAMP. GEORGE F. MELIOR, Metuchen, N. J., assignor to the Edison General Electric Company, New York, N. Y. Filed Mar. 4, 1892. Serial No. 423,700. (No model.)



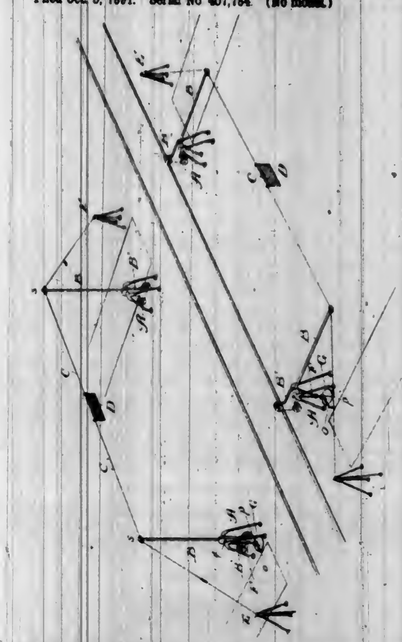
Claim.—1. An incandescent lamp having several filaments connected in series, the two ends of the connected filaments being permanently connected to the lamp-terminals, and a short-circuiting switch for one of said filaments, substantially as described.

2. An incandescent lamp having several filaments connected in series and a short-circuiting switch mounted on a metal sleeve on the base of the lamp, substantially as described.

3. An incandescent lamp having several filaments connected in the same circuit, one of said filaments being connected to a metal sleeve on the base of the lamp, the opposite terminal being connected to an insulated contact, and a switch device adapted to connect said contact with the sleeve, thereby short-circuiting said filament, substantially as described.

4. An incandescent lamp having two filaments in series, one end of one filament being connected to a metal sleeve on the base of the lamp, forming one lamp-terminal, one end of the other filament being connected to a lamp terminal or contact, the other two limbs of the filaments being connected to an insulated contact, and a switch device adapted to connect said contact with one of the lamp-terminals, substantially as described.

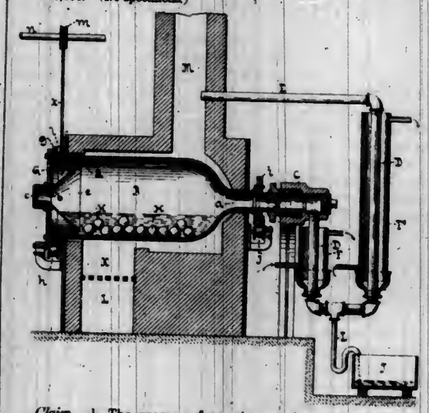
480,955. RAILWAY-GATE. MORTIMER B. MILLS, Chicago, Ill. Filed Oct. 5, 1891. Serial No. 407,784. (No model.)



Claim.—1. A railway-gate comprising standards on opposite sides of the roadway, arms connected with each other and pivoted in the standards, respectively, to rise and fall parallel with each other, and cables extending from each arm laterally to a point beyond the standard, substantially as described.

2. A railway-gate comprising, in combination, the standards A located, respectively, on opposite sides of the roadway, the standards E, adjacent to standards A, gate-arms B, pivoted in the standards A, respectively, and having the weighted lower ends B', cable C, carrying the sign D and connecting the extremities of the arms B, the cables C', connecting the extremities of each arm with the standards E, and gate-arm-operating mechanism, such as the pneumatic pump K, rod F, connected to the arm, and intermediate mechanism, substantially as described.

480,956. PROCESS OF TREATING BASE-BULLION AMALGAM. BERNARD MOSHUS, New York, N. Y. Filed Dec. 31, 1891. Serial No. 416,663. (No specimens.)

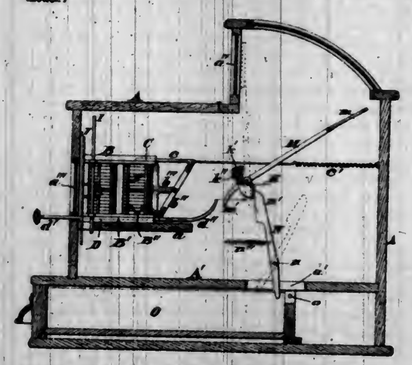


Claim.—1. The process of treating amalgam of the character specified, which consists in charging the same into an apparatus for distilling off and collecting the mercury and subjecting the heated charge to a comminuting action, while at the same time oxidizing the base metals by a current of air.

2. The process of treating amalgam of the character specified, which consists in charging the same into an apparatus for distilling off and collecting the mercury, subjecting the heated charge to a comminuting action, while at the same time oxidizing the base metals by a current of air, and leaching the finely-divided residue substantially as specified.

3. The process of treating amalgam of the character specified, which consists in charging the same into an apparatus for distilling off and collecting the mercury, subjecting the heated charge to a comminuting action, while at the same time oxidizing the base metals by a current of air, and leaching the finely-divided residue by sulphuric acid, substantially as specified.

480,957. CASH REGISTER AND INDICATOR. EDWIN H. MURDOCK, Cincinnati, Ohio. Filed Apr. 23, 1892. Serial No. 430,311. (No model.)



Claim.—1. The within-described method of counting, which method consists in inserting two independent columns of caged and numbered checks side by side within a housing and simultaneously shifting the end check of each column laterally and in opposite directions, whereby the checks are continuously moved forward in an endless circuit and without removing either of them bodily from said housing, substantially as herein described.

2. The within-described method of counting, which method consists in inserting two independent columns of caged checks within a housing, providing a special check, and shifting the checks from one column to another, whereby said special check is caused to indicate its movements on a numbered strip, substantially as set forth.

3. The within-described method of counting, which method consists in inserting two independent columns of caged checks within a housing, providing a special check capable of operating a registering device, and shifting the checks from one column to another, whereby the same pieces are used continuously without removal and the special check is caused to make a record every time it traverses said columns, substantially as set forth.

4. The within-described method of counting, which method consists in inserting two independent columns of caged checks within a housing, providing a special check capable of operating an escapement and registering-bar, and shifting the checks from one column to another, whereby the same pieces are used continuously without removal, and the special check is caused to shift said bar a certain distance every time it traverses the ascending or descending column, substantially as set forth.

5. The combination, in a counting and registering apparatus, of a housing inclosing two independent columns of caged checks, a special notched check F f', inserted in each column, an adjustable escapement G g g', operated by said notched checks, a toothed and numbered registering-bar I i, supported by said escapement, a rigid strip J, carried by a slide, to which said escapement is pivoted, and a pair of reversely-acting coupled slides C D for shifting the upper and lower checks in the manner described, said strip J being provided with a double set of numbers, arranged as herein stated.

6. The combination, in a counting and registering apparatus, of an upper head B and lower head B', united by suitable connections, slides C D, fitted within said heads and so coupled together as to act reversely, and a spring *e*, attached to said lower head and adapted to elevate a column of checks or counters, as herein described.

7. The combination, in a cash indicator and register, of the cage B B' B", two independent columns of counters inserted within said cage, slides C D, fitted within the heads B B' thereof and so coupled together as to act reversely, a projection *d"* at the rear end of the slide D, and a swinging tablet-stem M, having a short arm *m'*, adapted to be struck by said projection *d"*, for the purpose described.

8. The combination, in a cash indicator and register, of a rocking bar K, journaled in the sides of the case and having pivoted to it the tablet-stems M, said bar being provided with a bearing *l'* for each stem, as herein described.

9. The combination, in a cash indicator and register, of a column of shiftable counters, a special check inserted in said column, and an adjustable numbered slip, said numbers being in duplicate and each of them occupying the space of one counter, for the purpose described.

10. A registering apparatus provided with two independent columns of checks or counters and devices that shift them in such a manner as to compel one column to ascend and the other to descend, substantially as described.

11. A registering apparatus provided with two independent columns of checks or counters, devices that shift them in such a manner as to compel one column to ascend and the other to descend, and a registering appliance automatically operated at regular intervals, substantially as described.

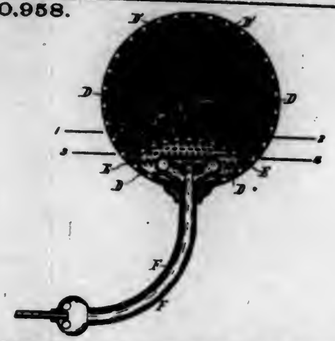
12. A registering apparatus provided with two independent columns of checks or counters, devices that shift them in such a manner as to compel one column to ascend and the other to descend, a registering appliance automatically operated at regular intervals, and an adjustable strip provided with a duplicate set of numbers, substantially as herein described.

480,958. APPLIANCE FOR VENTILATING SEWERS, &c. ROBERT MCKENZIE, Sydney, New South Wales. Filed Mar. 26, 1892. Serial No. 426,517. (No model.) Patented in New South Wales Mar. 21, 1891, No. 2,873; in Victoria Apr. 15, 1891, No. 3,656; in Queensland July 31, 1891, No. 1,815, and in South Australia Aug. 4, 1891, No. 2,001.

Claim.—1. In combination with an uptake-shaft from a sewer, a globular perforated shell located in said uptake-shaft and provided with a perforated partition to form a chamber between said partition and the wall of the shell, an incombustible filling for said shell above said partition, and a burner located in said chamber, formed between the perforated partition and the shell, substantially as and for the purpose described

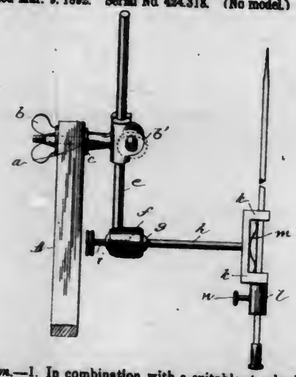
2. In combination with an uptake-shaft from the sewer, a perforated shell located in said uptake-shaft and provided with a perforated partition to form a chamber between said partition and the wall of the shell, an incombustible filling to said shell above said partition, a removable lid to said shell, constituting a part of the wall thereof, and a burner located in the chamber, formed between the perforated partition and the wall of the shell, substantially as and for the purposes described.

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3. In combination with the take-up shaft having an enlargement C and an opening in one side of said enlargement for the introduction of a combustion-shell, a perforated shell located in said enlargement and having an incombustible filling and a chamber for a burner, a burner located in said chamber, and means for closing the opening in the side of the enlargement to the take-up shaft, substantially as and for the purposes described.

480,959. SURFACE-GAGE. CONTENTO NERI, Friendship, Me. Filed Mar. 9, 1892. Serial No. 424,318. (No model.)



Claim.—1. In combination with a suitable standard, a socket, a stem having a ball connection therewith, a holder carried by the stem, and a needle or pointer carried by the holder, substantially as described

2. In combination, a standard, a socket, a stem having a ball connection therewith, a holder carried by said stem, and a needle adjustably supported by said holder, substantially as described.

3. In combination with a standard, a holder, universally-adjustable connections between said standard and the holder, and a needle carried by said holder adjustable therein, substantially as described.

4. In combination with a standard, a holder, a needle adjustably held therein, a stem carrying said holder, a clamp carried by the standard, and a ball-and-socket connection between said clamp and stem adjustably supported by the clamp, substantially as described.

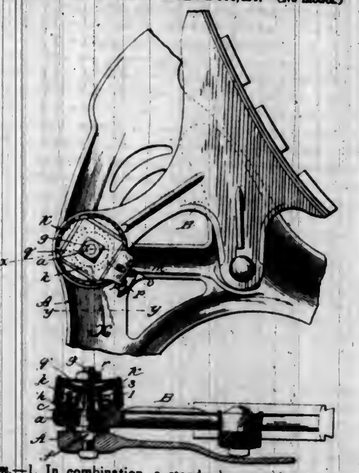
480,960. COIN-HOLDER. GERALD DE C. O'GRADY and JOHN R. COLLINS, Toronto, Canada. Filed Dec. 9, 1891. Serial No. 414,463. (No model.) Patented in Canada Nov. 26, 1891. No. 37,851.



Claim.—1. A coin-holder formed of sheet metal having curved sides and flat ends, with a tongue on one end, a bent-over portion A on the upper end of one of the sides, and with a slit in the end of the side adjacent to the tongue beneath the bent-over portion, fitted to receive said tongue, substantially as described.

2. A coin-holder formed of sheet metal having curved sides and flat countersunk ends and with a connecting device, substantially as described.

480,961. TILTING SEAT. SEYMOUR W. PERRIGINE, Grand Rapids, Mich. Filed Apr. 25, 1891. Serial No. 390,459. (No model.)



Claim.—1. In combination, a standard, a seat-bracket hinged thereto, a coiled spring surrounding the bolt of said hinge, and a cap inclosing the spring and connected to the standard independently of the pivotal bolt, one end of said spring being connected to the seat-bracket and the other end to the cap, substantially as described.

2. In combination, a standard, a seat-bracket hinged thereto, a coiled spring surrounding the bolt of said hinge, and a cap inclosing the spring and adjustably secured to the standard independently of the pivotal bolt, one end of the spring being connected to the seat-bracket and the other to the cap, substantially as described.

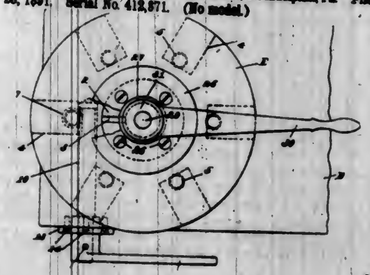
3. In combination, a standard, a seat-bracket hinged thereto, a coiled spring surrounding the pivot, a cap inclosing said spring and having slight lateral movement, and a loose connection between the cap and standard permitting lateral movement of said cap without disengaging its connection with the standard, the spring being connected to the seat-bracket at one end and to the cap at the other, substantially as described.

4. In combination, a standard, a seat-bracket hinged thereto, a coiled spring surrounding the pivot, a cap inclosing said spring, one end of the spring being connected to the seat-bracket and the other to the cap, an extension on the cap having its end toothed, and a notch in the standard adapted to be engaged by said teeth, substantially as described.

5. In combination with the standard, a seat-bracket pivoted upon a stud supported from the standard, a pivotal bolt passing through said standard and stud, a cap inclosing the end of said pivot-bolt, a spring between said cap and the seat-bracket, and means for securing said cap to the bolt, said cap and spring being located between the seat-bracket and the end of the bolt and removable without displacing the connections between the seat-bracket and standard, substantially as described.

6. In combination with the standard and seat-bracket, a pivotal bolt, a cap having a hollow stud, through which the pivot-bolt is passed, a spring at the hinge, inclosed within the cap between its outer wall and its hollow stud, and means for securing the cap, substantially as described.

480,962. TURRET-CLAMPING DEVICE. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,871. (No model.)



Claim.—1. In a turret mechanism, the combination, with an expansible column fitted to receive the lock-bolt, of the turret revolubly mounted on said column and having a key, substantially as described, the lock-bolt constructed to engage said key and to be expanded thereby, and means for forcing the lock-bolt upon the key to expand the bolt within the expansible column, whereby the turret is simultaneously locked and clamped, substantially as described.

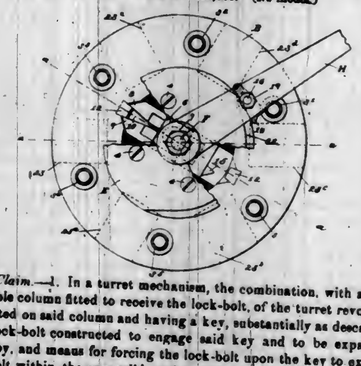
2. In a turret mechanism, the combination, with the expansible column constructed to receive the lock-bolt, of the turret revolubly mounted on said column and having a lock-bolt-expanding key, the lock-bolt constructed to engage said key and be expanded thereby, a shaft having a crank engaging the lock-bolt and standing adjacent to the dead-center when the turret is locked, and means for turning said shaft to engage and disengage the lock-bolt with and from said key, whereby the turret is simultaneously locked and clamped and the lock-bolt frictionally held from retraction, substantially as described.

3. In a turret mechanism, the combination, with the expansible column fitted to receive the lock-bolt, of the turret revolubly mounted on said column and having a series of wedge-shaped keys, the expansible lock-bolt constructed at one end to engage said key and at the other end having a stop, substantially as described, and means for first actuating said bolt to withdraw the same from one of said keys and afterward to turn forward the turret and bring said stop into engagement with another of said keys, substantially as described.

4. In a turret mechanism, the combination, with the expansible column constructed to receive the lock-bolt, of the turret revolubly mounted on said column and having a lock-bolt-expanding key, the lock-bolt fitted to slide in said column to engage said key and be expanded thereby, the cap fixed to the column for retaining the turret thereon, and the crank-shaft journaled in said cap and having a crank-pin engaging the lock-bolt to slide the same from and into engagement with said key, and means for turning said shaft, substantially as described.

5. In a turret mechanism, the combination, with the expansible column constructed to receive the lock-bolt, of the turret revolubly mounted on said column and having keys, substantially as described, the lock-bolt fitted to slide in said column from and into engagement with said keys, a series of studs on the turret corresponding to said keys, the lever carrying a pawl adapted to engage said studs for turning the turret, and means, substantially as described, intermediate to the lever and lock-bolt and constructed to withdraw said bolt from the

480,963. TURRET MECHANISM FOR LATHES. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,866. (No model.)



Claim.—1. In a turret mechanism, the combination, with an expansible column fitted to receive the lock-bolt, of the turret revolubly mounted on said column and having a key, substantially as described, the lock-bolt constructed to engage said key and to be expanded thereby, and means for forcing the wedge to expand the column within the turret, whereby the turret may be clamped and unclamped, substantially as described.

2. The combination, with an expansible column, substantially as described, of the turret mounted on said column to normally turn freely thereon, a column-expanding wedge fitting in the column radially thereof, and means for forcing the wedge outwardly to expand the column within the turret, whereby the turret may be clamped and unclamped, substantially as described.

3. The combination, with an expansible turret-carrying column slotted on one side thereof and constructed to carry the wedge 33, of the turret mounted on said column to normally turn freely thereon, the wedge 33, fitting in the column and constructed to expand the column on the outward movement thereof, a cam bearing against said wedge, and means for operating the cam to actuate the wedge, substantially as described.

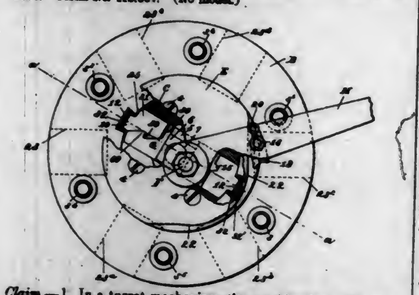
4. The combination, with an expansible turret-carrying column, of the turret mounted on said column to normally turn freely thereon and column-expanding means for expanding the column within the turret, whereby the turret may be clamped, substantially as described.

key prior to the engagement of the pawl with a turret-stop, substantially as described.

6. In a turret mechanism, the combination, with the expansible column constructed to receive the lock-bolt, of the turret revolubly mounted on said column and a column-expanding lock-bolt engaging the turret to lock the same from rotation, substantially as described.

7. In a turret mechanism, the combination, with the revoluble turret having a series of studs, substantially as described, of the cap having the cam-face, the lever, the pawl carried on said lever and adapted to engage said studs, and means for swinging the pawl into working position against said cam-face, substantially as shown and described.

480,964. TURRET MECHANISM. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,867. (No model.)



Claim.—1. In a turret mechanism, the combination, with an expansible column fitted to receive the lock-bolt and its slide, of the turret revolubly mounted on said column and having lock-bolt notches, the lock-bolt constructed to engage said turret-notches and having an incline, the slide engaging the lock-bolt by said incline, and means actuating the slide to force the lock-bolt into engagement with the turret and expand the column, whereby the turret is simultaneously locked and clamped, substantially as described.

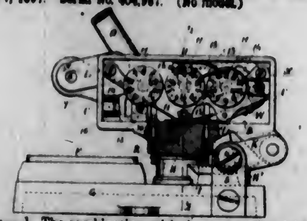
2. In a turret mechanism, the combination, with the expansible column fitted to receive the lock-bolt and lock-bolt slide, of the turret revolubly mounted on said column and having the lock-bolt notches, the lock-bolt slide supported in the column and having an incline and a hook, substantially as described, the lock-bolt having a corresponding incline and a hook engaging the hook of the slide, and means actuating the slide to force the lock-bolt into engagement with the turret and expand the column and to retract the slide for withdrawing the lock-bolt by the engagement of said hooks, substantially as described.

3. In a turret mechanism, the combination, with the expansible column C and the turret revolubly mounted thereon, of the lock-bolt having the incline and the hook 50 and the slide having the corresponding incline, and the hook 60, engaging said lock-bolt hook, substantially as described.

4. In a turret mechanism, the combination, with the expansible column fitted to receive a lock-bolt and with a turret revolubly on said column, of a lock-bolt consisting of two parts and expansible within the column by the movement of one part relatively to the other part, substantially as described

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480,965. REGISTERING-STAMP. HENRY W. ROSENBAUM and ERNST NEUBERT, New York, N. Y., assignors to said Rosenbaum. Filed Sept. 7, 1891. Serial No. 404,967. (No model.)



Claim.—1. The combination, with the stamp, of a yielding guard, means for projecting the guard beyond the face of the stamp, a registering apparatus, and mechanism for giving motion to the registering apparatus by the movement of the guard, substantially as set forth.

2. A box and a stamp permanently connected thereto, a tubular guard surrounding the stamp and having pushers passing into the box, springs for projecting the tubular guard, registering mechanism within the box, and a rocker or pawl for giving motion to the registering mechanism, such rocker being moved by the action of the tubular guard when the stamp is impressed, substantially as set forth.

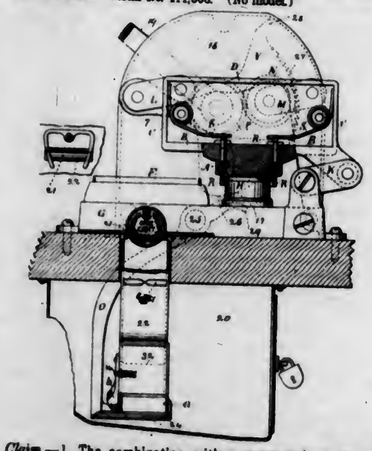
3. The combination, with the stamp and the box with which it is connected, of a registering mechanism within the box, a yielding guard and means for projecting the same beyond the face of the stamp and a connection from the guard to the registering mechanism, and a locking mechanism brought into action by the registering mechanism for holding the guard in a projected condition, substantially as specified.

4. The combination, with the stamp and the box to which the stamp is connected and the registering mechanism within the box, of a tubular guard surrounding the stamp and a connection therefrom to the registering mechanism for giving motion to the same when an impression is made, a bed and projections therewith connected, an inking-pad and an impression-pad, toggle-links pivoted at their ends, respectively, to the box and to the projections of the bed, a lever for giving motion to the toggle-links, and a spring for returning the parts to their normal positions, substantially as set forth.

5. The combination, with the stamp, of a guard and means for projecting the guard beyond the face of the stamp, a registering apparatus and mechanism for giving motion to the registering apparatus by the movement of the guard, and a locking device brought into action by the registering mechanism for holding the guard, substantially as specified.

6. The combination, with the stamp, of a box with which the stamp is connected, a registering mechanism within the box and mechanism for moving the register each impression of the stamp, and a lock brought into action by the register for holding the parts that are moved by the impression of the stamp so as to prevent the use of the stamp after a designated number of impressions, substantially as specified.

480,966. COIN-ACTUATED STAMP. HENRY W. ROSENBAUM and ERNST NEUBERT, New York, N. Y., assignors to said Rosenbaum. Filed Nov. 14, 1891. Serial No. 411,863. (No model.)



Claim.—1. The combination, with a stamp and mechanism for moving and impressing the same, of a coin-actuated lever and a segmental cam-rack acted upon by the coin-lever for holding the parts in position and preventing the impression of the stamp until the lever is acted upon by a coin, substantially as set forth.

2. The combination, with a stamp, the inking-pad, and the impression-pad, of a tubular guard around the stamp, springs for moving the same downwardly, toggle-links, and an actuating-lever for moving the stamp, a segmental cam having rack-teeth and a finger, a coin-slide and a coin-lever having a pan for the reception of the coin, and a pawl acting in connection with the segmental cam and rack, substantially as and for the purposes set forth.

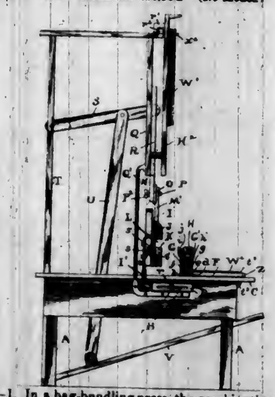
3. The combination, in a coin-actuated machine, of a coin-receiving slide, a coin-lever, with a pan for the reception of the coin, and a stationary projection at a slight distance above the coin-pan and beneath which the pan is free to swing when empty or with but one coin, so that the coin-lever is not stopped in its free movement until a second coin is received upon the first coin, substantially as set forth.

4. The combination, in a coin-actuated mechanism, of a coin-lever having a pan upon which the coin or coins fall flatwise, a coin-slide, with a slot for the reception of the coin, and a fixed discharge-finger over the pan and at one side of the coins for holding the same as the pan is swung from beneath it, substantially as set forth.

5. The combination, in a coin actuated mechanism, of a stamp, a

lever and connections for moving the same, a segmental cam-rack connected to and moving with the actuating-lever, a coin-lever and pan or receiver for the coin, and a pawl at the upper end of such coin-lever acting in conjunction with the segmental cam and rack, substantially as set forth.

480,967. BAG-BUNDLING PRESS. JOHN SABOLD, Boyertown, Pa. Filed Feb. 4, 1892. Serial No. 420,304. (No model.)



Claim.—1. In a bag-bundling press, the combination of a suitable stand, a movable carriage on which the bags are placed, a back board, side boards, a plunger to press the bags, and standards on the carriage, adjustable by means of a cross-groove in said carriage and suitable locking mechanism and having adjustable extensions with sliding plates to take over the bags and hold them compressed after the plunger has acted.

2. In a bag-bundling press, the combination of a suitable stand, a vertically-reciprocating plunger for pressing the bags, a sliding carriage which takes the bags in and out from under the plunger, a vertical back board having a cross-groove in its front side, and suitable side boards having means of engagement with said cross-groove, and devices for locking them at different adjustments.

3. In a bag-bundling press, the combination of a suitable stand, a movable carriage on which the bags are placed, a back board, side boards, a plunger-head or follower fitting between the side boards and having a stem, a plunger-bar, a flanged plate between the stem and bar, and a bolt passing through the stem, plate, and bar and securing them together.

4. In a bag-bundling press, the combination of a suitable stand, a movable carriage on which the bags are placed, a back board, side boards, a plunger for pressing the bags, a holder for the bundle-wrapper, hinged to the sliding carriage, and means for throwing said holder to a vertical position upon the sliding outward of the carriage.

5. In a bag-bundling press, the combination of a suitable stand, a movable carriage on which the bags are placed, a back board, side boards, a plunger for pressing the bags, a frame hinged to the sliding carriage and supporting the bundle-wrapper, said frame having a projecting arm, and a stationary cam-block in the path of said arm, operating substantially as described.

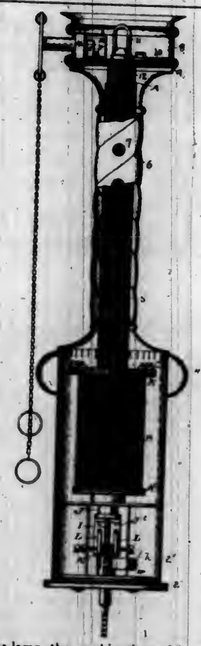
6. In a bag-bundling machine, the combination of a suitable stand, a movable carriage on which the bags are placed, a back board, side boards, a plunger for pressing the bags, a frame hinged to the movable carriage and supporting the bundle-wrapper and tying-twine, said frame having a projecting arm and notches in its outer edge to receive the ends of the twine, and a stationary cam-block in the path of said projecting arm, operating substantially as described.

480,968. ELECTRIC-ARC LAMP. RUPERT SCHNEBAUER, Paterson, N. J., assignor to the Edison General Electric Company, New York, N. Y. Filed Nov. 24, 1891. Serial No. 412,969. (No model.)

Claim.—1. An electric-arc lamp constructed with a differential solenoid and a suction-core in the same, a carbon-carrying rod passing into said core, and a magnetic friction device, one part of which is connected to the core and one part of which is geared to the carbon-carrying rod for raising the upper carbon and retarding the descent of the same, substantially as set forth.

2. In an electric lamp, the combination, with a differential solenoid, of a suction-core in the same, a carbon-holding rack passed into said core, one or more iron disks on which the core or part of the same can act frictionally, and a pinion connected with said disk, which pinion engages the carbon-holding rack, substantially as set forth.

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3. In an electric lamp, the combination, with a differential solenoid, of a suction-core in the same, an extension on the lower end of the said core, which extension is covered with non-magnetic material, a rotative iron disk with which said extension can come in frictional contact, a pinion connected with said disk, and a carbon-holding rack engaged with said pinion and passing into said core, substantially as set forth.

4. In an electric-arc lamp, the combination, with a central tube, of a differential solenoid formed on the lower part of said tube, a resistance-coil formed on the upper part of said tube, and a second resistance-wire connected with the main wire of the solenoid and wound on said tube, substantially as set forth.

5. The combination, in an arc lamp, of gear for controlling the movable carbon, a solenoid and core for moving the same, a tube above the solenoid, a wire coiled thereon, and a casing for the lamp mechanism, consisting of a large metal tube around the lower part of the mechanism, an enlarged sheet-metal head resting directly on said large tube, the upper end of the head being made approximately the diameter of the tube above the solenoid, a tube fitting the end of the head, a cap fitting the upper end of the last-mentioned tube and containing a suitable disk or cross-piece, and a single screw in said piece and extending into the upper tube of the lamp-body for securing all parts of said casing together, substantially as set forth.

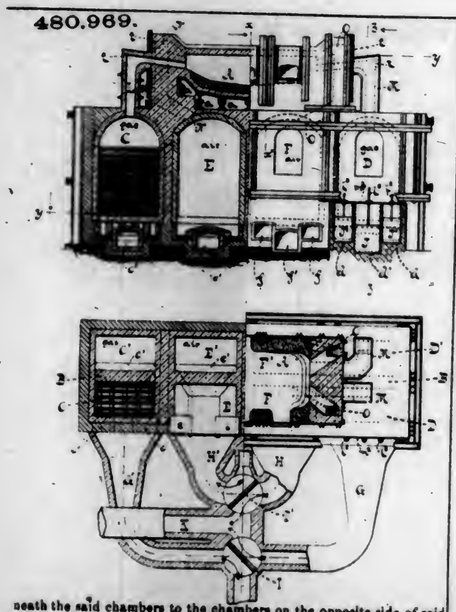
6. In an electric lamp, a carbon-clamp formed of two segmental stamped and punched sheet-metal pieces, of which one is provided with an aperture and the other of which is provided with two apertures, a screw-bolt passed through said two pieces, a nut on said screw, and a body-piece having a hook that is passed through one of the apertures in one of the said segmental pieces, substantially as set forth.

480,969. FURNACE. HEINRICH SCHOENWALDER, Friedenshütte, Germany. Filed Nov. 30, 1891. Serial No. 413,561. (No model.)

Claim.—1. In a regenerative furnace, the combination, with the regenerator-chambers and their roof arches, of a central longitudinal wall subdividing the regenerator-chambers into separate air and gas chambers C C', D D', &c., and centrally supporting the hearth to relieve the arches, a separate flue leading from each of the said chambers to the furnace, and flues G G' and H H', having entrance-ports into the chambers on one side of the partition-wall, and channels leading beneath the said chambers to the chambers on the opposite side of the wall, substantially as described.

2. In a regenerative furnace, a central longitudinal wall subdividing the regenerator-chambers into separate air and gas chambers C C', D D', &c., a separate flue leading from each of said chambers to the furnace, and the flues G G' and H H', having entrance-ports into the chambers on one side of the partition-wall, and channels leading be-

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neath the said chambers to the chambers on the opposite side of said wall, substantially as and for the purpose set forth.

3. In a regenerative furnace, a central longitudinal wall subdividing the regenerator-chambers into separate air and gas chambers C C', D D', &c., a separate flue leading from each of said chambers to the furnace, and the flues G G' and H H', having entrance-ports into the chambers on one side of the partition-wall, and channels leading beneath said chambers to the chambers on the opposite side of said wall, the ports and channels from the flues G G' and H H' being diagonally opposite the exit-ports of the flues to the furnace, substantially as described.

4. In a regenerative furnace, the combination of separate air and gas chambers C C', D D', &c., a separate flue leading from each of said chambers to the furnace, flues G G' and H H', having entrance-ports into the chambers on one side of the partition-wall, and channels leading beneath said chambers to the chambers on the opposite side of said wall, air-flues built in the ends of the furnace and leading from the regenerator-chambers to the furnace, and gas-flues built up separate and independent of the furnace, all substantially as described.

5. In a regenerative furnace, a central longitudinal wall subdividing the regenerator-chambers into separate air and gas chambers C C', D D', &c., a separate flue leading from each of said chambers to the furnace, flues G G' and H H', having entrance-ports into the chambers on one side of the partition-wall, and channels leading beneath the said chambers to the chambers on the opposite side of said wall, and a separate damper for each port and channel, substantially as described.

480,970. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Feb. 10, 1891. Serial No. 380,991. (No model.)

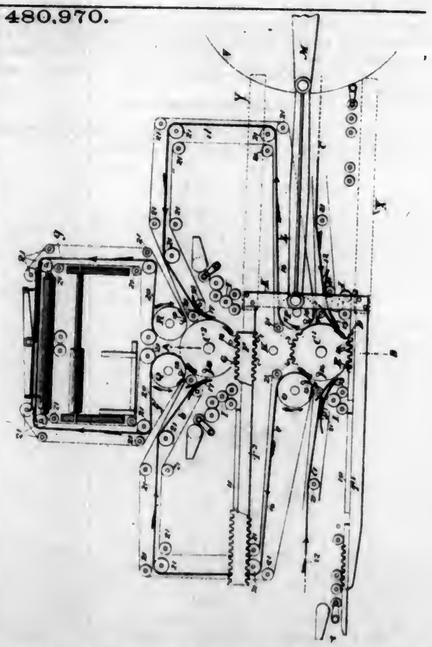
Claim.—1. In a printing-machine, the combination of two reciprocating type-beds, two oscillating impression-cylinders, a sheet-feeding appliance for each cylinder, a sheet-delivery device for the cylinder taking the first impression, and a sheet-carrier between the delivery of the first and the feed of the second impression-cylinder, substantially as described.

2. In a printing-machine, the combination of two reciprocating type-beds, two oscillating impression-cylinders, two sheet-feeding appliances for each impression-cylinder, two sheet-delivery devices for the cylinder taking the first impression, and two sets of sheet-carriers connecting the delivery devices of the first cylinder with the feeding appliances of the second cylinders in pairs, substantially as described.

3. In a printing-machine, the combination of two reciprocating type-beds, two oscillating impression-cylinders, two sheet-feeding appliances, and two sheet-delivery devices for each cylinder, and two sets of sheet-carriers, connecting the delivery devices of the first cylinder and the feeding appliances of the second cylinder in pairs, substantially as and for the purposes described.

4. In a printing-machine, the combination of two reciprocating

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type-beds, two impression-cylinders, two feeding appliances for each cylinder, a pair of delivery-cylinders for each impression-cylinder, and sheet-carriers connecting the delivery-cylinders of the first and the feeding appliances of the second impression-cylinders in pairs, substantially as described.

5. In a printing-machine, the combination of two reciprocating type-beds, two oscillating impression-cylinders, these parts being in pairs one above the other, two feeding appliances and two delivery devices for each cylinder, and two sets of sheet-carriers connecting the delivery devices of the first and the feeding appliances of the second impression cylinder, substantially as and for the purposes described.

6. In a printing-machine, the combination of two reciprocating type-beds, two oscillating impression-cylinders, two feeding appliances, and two delivery devices for each cylinder, two sets of sheet-carriers connecting the delivery devices of the first and the feeding appliances of the second cylinder in pairs, and gearing between one of the type-beds and both the cylinders, substantially as described.

7. In a printing-machine, the combination of two reciprocating type-beds, two oscillating impression-cylinders, their sheet feeding and delivering means, the sheet-carriers, the driving-crank, connecting-rod, and frame connecting the beds together, substantially as described.

8. In a printing-machine, the combination of two reciprocating type-beds, each carrying a printing-surface, an oscillating impression-cylinder coacting with each bed, appliances for supplying sheets to one of the impression-cylinders, and means for carrying the sheets printed on one side to the second impression-cylinder to print the other side, substantially as and for the purposes described.

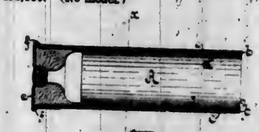
9. In a printing-machine, the combination of two reciprocating type-beds simultaneously moving in one direction, an oscillating impression-cylinder coacting with each bed, appliances for supplying sheets to one of the impression-cylinders, and means for carrying the sheets printed upon one side to the second cylinder, substantially as described.

10. In a printing-machine, the combination of a reciprocating type-bed carrying an inner and an outer form, an oscillating impression-cylinder, devices for delivering the sheets at two points, and sheet-carrying means connected with each delivery and to opposite sides of a folder, whereby the perfected sheets from one delivery enter at one side of the folder and the perfected sheets from the other delivery enter the folder at its other side, both sheets being folded with the same printed side out, substantially as described.

11. In a printing-machine, the combination of two reciprocating type-beds, an oscillating impression-cylinder coacting with each bed, appliances for supplying sheets to one of the cylinders, means for carrying the sheets printed upon one side from the first to the second cylinder, devices for delivering the perfected sheets from the second cylinder, and sheet-carrying means connecting the delivery and a folder whereby the sheets are delivered to the folder, substantially as described.

12. In a printing-machine, the combination of two reciprocating type-beds, an oscillating impression-cylinder coacting with each bed and taking an impression as it moves in each direction, appliances for supplying sheets to one of the cylinders at two points, means for carrying the sheets from the first cylinder and delivering them to the second cylinder at two points, sheet-carrying means connecting from the deliveries of the second cylinder to the opposite sides of a folder, whereby the perfected sheets are folded with the same printed side out, substantially as described.

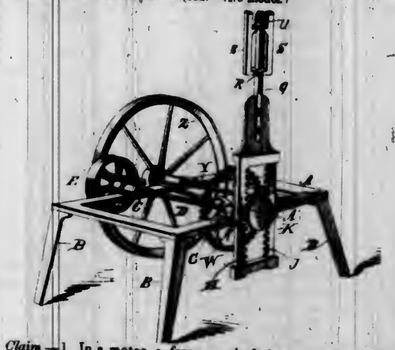
480,971. CARTRIDGE-SHELL. OTTO F. SEIBOLD, Mount Vernon, N. Y., assignor to Henry Hoyt, New York, N. Y. Filed May 7, 1892. Serial No. 432,160. (No model.)



Claim.—1. As a new article of manufacture, a cartridge-shell embodying a foraminous metallic cylinder and an external and internal covering of paper, substantially as described.

2. As a new article of manufacture, a cartridge shell embodying a cylinder of wire-gauze and an internal and external covering of paper, substantially as described.

480,972. MOTOR. GEORGE B. SELLERS, Marshalltown, Iowa. Filed Jan. 26, 1892. Serial No. 419,132. (No model.)



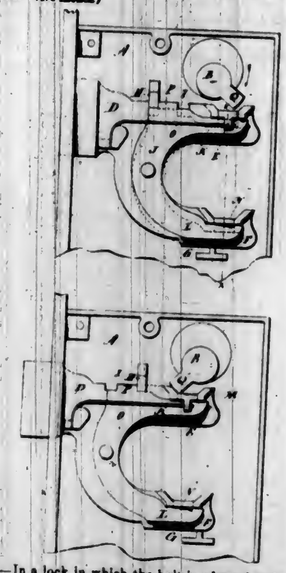
Claim.—1. In a motor, a frame, a shaft journaled thereon, two wheels mounted on said shaft to rotate therewith, each having ratchet-teeth on one side thereof, said teeth being reversed on the different wheels, two gear-wheels loosely mounted on said shaft, each having recesses in their sides, with pawls loosely inserted thereon and adapted to engage said ratchet-teeth, and a frame with racks on opposite sides engaging said gear-wheels, said parts being combined substantially as described.

2. A motor consisting of a frame, a shaft suitably journaled on said frame, ratchet-wheels keyed on said shaft, cog-wheels freely mounted on said shaft and having pawls engaging said ratchet-wheels, a frame with racks on its opposite interior faces engaging said cog-wheels, respectively, a staff connected with said rack-frame, and a governor loosely mounted on said staff and adapted to support a wind-wheel, said parts being combined substantially as described.

3. A motor consisting of a frame, a shaft journaled thereon, two ratchet-wheels keyed to said shaft and having their teeth in opposite directions, cog-wheels loosely mounted on said shaft, with pawls adapted to engage said ratchet-wheels, a frame with racks on its opposite interior faces engaging said cog-wheels, respectively, a staff connected with said rack-frame and adapted to support a wind-wheel, a second shaft journaled in the frame and having a pinion meshing with a cog-wheel mounted on the first-mentioned shaft so as to rotate therewith, and a balance-wheel on the last-mentioned shaft, said parts being combined substantially as described.

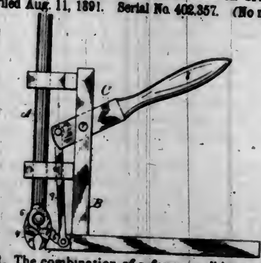
4. A motor consisting of a frame, a shaft journaled thereon, two ratchet-wheels having teeth in opposite directions keyed on said shaft, two cog-wheels loosely mounted on said shaft and having pawls fitted in recesses in their faces engaging said ratchet-wheels, a rising frame with racks on its interior faces engaging said cog-wheels, respectively, a staff connected with said rack-frame, and a rising and falling governor rotatably mounted on said staff and adapted to support the axle of a wind-wheel, said parts being combined substantially as described.

480,973. LOCK. WILLIAM E. SPARKS, New Haven, Conn., assignor to the Sargent & Company, same place. Filed May 2, 1892. Serial No. 431,558. (No model.)



Claim.—In a lock in which the bolt is adapted to be thrown by a cylinder having a talon upon its inner end to engage the bolt, the combination of the bolt constructed with two rearwardly-projecting arms E F, one above the other, and each arm constructed with a transverse recess, a stationary stump in the case, the bolt constructed with a recess I, the ends of which are adapted to engage the corresponding sides of said stump, with a tumbler J constructed with two arms K L, the said arms being an integral part of the tumbler and corresponding to the two arms E F of the bolt and arranged thereon, the two arms of the tumbler each constructed with a projection, respectively, M N, extending into the recesses in the arms of the bolt, one or both of said projections on the arms of the tumbler being adapted for the operation of the talon of the cylinder, while they serve as guides for the vertical movement of the tumbler, and the tumbler constructed with a projection P upon its upper side and in front of the recess I of the tumbler, but the said projection shorter than the said recess, so as to form notches in the bolt forward of and in rear of said projection, substantially as and for the purpose described.

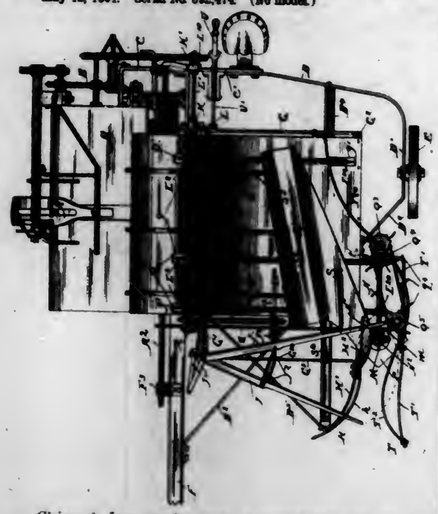
480,974. NAIL-PULLER. CHRISTOPHER M. SPENCER, Windsor, Conn. Filed Aug. 11, 1891. Serial No. 402,357. (No model.)



Claim.—1. The combination of a frame, a slide mounted thereon, a pair of jaws mounted to move with said slide, one of which is provided with a rigid shank, and a lever connected with said shank for operating said jaws, substantially as described, and for the purpose specified.

2. The combination of a frame, a slide mounted thereon, a pair of jaws mounted to move with said slide, a jaw-operating device, and a combined lever and link connected with said jaw-operating device, substantially as described, and for the purpose specified.

480,975. CORN-HARVESTER. ANDREW STARK, Chicago, Ill. Filed May 12, 1891. Serial No. 392,474. (No model.)



Claim.—1. In a corn-harvester, in combination with the main frame and rear-driven binder mounted thereon at the stubbleward side of the drive-wheel, a frame supported on the main frame and movable backward and forward thereon at the grainward side of the drive-wheel, and cutting mechanism mounted on such movable frame, substantially as set forth.

2. In a corn-harvester, in combination with a main frame and a rear-driven binder mounted thereon at the stubbleward side of the drive-wheel, a frame supported on the main frame at the grainward side of the drive-wheel and movable backward and forward with respect to the main frame, and cutting and elevating mechanisms mounted on such movable frame, substantially as set forth.

3. In a corn-harvester, in combination with the main frame and the binder adjustable fore and aft thereon, a frame supported and adjustable fore and aft on the main frame and carrying the cutting mechanism, substantially as set forth.

4. In a corn-harvester, in combination with the cutting mechanism, a stalk-gathering arm projecting forward from the stubbleward side of the cutting mechanism and diverging stubbleward from the line of the cut and open or in skeleton, and a stalk-lifting arm oscillating and reciprocating through the gathering-arm in a plane inclined obliquely rearward and upward from the point of the stalk-gathering arm to the vertical plane of the cutter, substantially as set forth.

5. In a corn-harvester, in combination with the stalk-cutting mechanism, a stalk-gathering arm which projects forward of the same, a pair of stalk-lifting arms pivoted to the frame which carries the cutting mechanism at a point stubblewardly remote from the stalk-gathering arms, and mechanism which operates said stalk-lifting arms with an oscillating and reciprocating movement to thrust them grainwardly past the vertical plane of the gatherer at the forward part thereof and with an upwardly and rearwardly sweeping movement thence to the vertical plane of the cutter and withdraw them thence stubblewardly at the rearward limit of such rearward movement, whereby such stalk-lifting arms each traverse substantially the fore-and-aft space between the stalk-gathering arms, substantially as set forth.

6. In a corn-harvester, in combination with the stalk-cutter, the inclined elevator located rearward from the cutter, and the stalk-guide arm T^9, extending in an oblique direction from a point above the foot of the elevator rearward and stubbleward to guide the heads of the stalks toward the upper end of the elevator as they fall rearward, substantially as set forth.

7. In a corn-harvester, in combination with the cutter and an inclined elevator in the rear thereof, a prostrating mechanism overhanging the lower portion of the elevator and operating obliquely rearward and stubbleward, and the stalk-guiding arm T^9, overhanging the rear portion of the elevator and extending obliquely rearward and stubbleward from the rear end of the prostating mechanism, substantially as and for the purpose set forth.

8. In a corn-harvester, in combination with the stalk-cutter and an elevator located rearward therefrom and inclined stubbleward and upward at right angles to the direction of travel, stalk-prostrating mechanism comprising an endless toothed chain located rearward from the vertical plane of the cutter and at the grainward side of the path of the stalks, and having its stalk-actuating movement in a direction obliquely rearward and stubbleward and at its discharge end overhanging the elevator, substantially as set forth.

480,976. DEVICE FOR SHARPENING RAZORS. EDWARD A. SUTPHEN, Aurora, assignor to himself and Herbert T. Windsor, Chicago, Ill. Filed Aug. 24, 1891. Serial No. 403,629. (No model.)



Claim.—1. The combination, with a rectangular frame 2, having a rod 3, of a flexible wire handle inclosing the rod, rigidly secured to the outer end thereof and movable laterally in relation to the rectangular frame, a razor-support journaled in the flexible handle and adapted to rest upon the rectangular frame, and devices for turning the razor-support by the lateral movements of the handle, substantially as described.

2. The combination, with an angular frame 2, having a rod 3, of flexible-wire handle inclosing the rod, rigidly secured to the outer end thereof and movable laterally in relation to the rectangular frame, a razor-support journaled in the handle and adapted to rest upon the rectangular frame, and a cord 12, extending horizontally across the handle near its inner end and wound on a part of the razor-support for turning the latter alternately in opposite directions, substantially as described.

3. The combination, with a frame 2, rod 3, extending centrally from one end of said frame, and an elastic handle rigidly secured at its outer end to the outer end of the rod 3, of a razor-supporting frame, the outer end of which is adapted to rest upon the frame 2 and being pivoted at its inner end within the handle, and a cord 12, extending horizontally across the handle near its inner end, said cord being wound around the inner end of the razor-supporting frame in such manner that as the frame 2 is moved back and forth upon the razor strop by means of the handle the razor-supporting frame will be partially rotated alternately in opposite directions to cause the razor carried thereby to rest upon the razor-strop, substantially as described.

4. The combination, with a frame 2, rod 3, extending centrally from one end of said frame, a coil 4, rigidly secured at its outer end to the outer end of the rod 3 and extending toward the frame 2 around said rod, and a cord 12, extending horizontally across the inner end of said coil, of a razor-supporting frame 6, having a shaft 10 on its inner end, brackets 11, secured to said rod 3 and depending therefrom in such position that they will be adapted to support the shaft 10, said cord 12 being wound around said shaft, substantially as and for the purpose specified.

5. A razor-sharpener consisting of a rectangular frame 2, a rod 3, and a flexible-handle coil 4, all formed of a single continuous piece of wire, with the rod extending through the handle-coil, a razor-support adapted to rest upon the said frame, and devices for turning the razor-support when the said frame is moved upon a razor-strop by means of the handle-coil, substantially as described.

6. In a razor-sharpening device, the combination, with a handle and a frame secured thereto and projecting therefrom, of a razor-supporting frame carried thereby, and a cord secured to said handle and wound around a portion of said razor-supporting frame, the arrangement being such that the razor-supporting frame will be partially rotated alternately in opposite directions by the movement of the handle, substantially as and for the purpose specified.

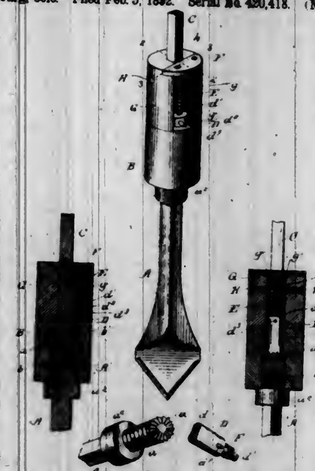
480,977. DETACHABLE STEP FOR POLES. VAN A. THOMAS, Providence, R. I. Filed Nov. 9, 1891. Serial No. 411,320. (No model.)



Claim.—1. The combination of the base-plate arranged to be permanently secured to a pole provided with a single socket located at the upper portion of the base-plate and having side ribs, as c^3, extending downwardly therefrom, and the detachable step or bracket a, having an end thereof arranged to enter and interlock with said socket, the side ribs c^3 at the same time serving as a lateral guide for the step, substantially as described.

2. The detachable pole-step, substantially as hereinbefore described, the same consisting of the base b, having a protected top socket, the front or outer wall of which is provided with an inwardly-extending projection, as c', and the detachable step or bracket a, having an end thereof provided with an upwardly-bent hook h, arranged to enter the base-socket and rest upon and be supported by the said projection c'.

480,978. DRILL. ALONZO G. TURNER, Durango, Colo., assignor of two-thirds to Frank A. Kimball, same place, and Alexander Levy, Walsenburg, Colo. Filed Feb. 5, 1892. Serial No. 420,418. (No model.)



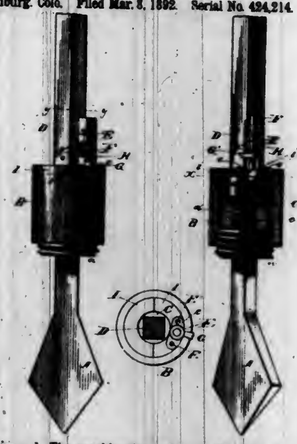
Claim.—1. The combination, with a drill-holder and a drill having a serrated upper surface, of a spring-actuated locking-bolt provided with serrations working through the holder and engaging the drill, and a casing supported on the holder and protecting the bolt and its spring, substantially as described.

2. The combination, with a drill-holder and a drill having a serrated upper surface, said serrations being radially disposed, of a spring-actuated locking-bolt provided with serrations working through the holder and engaging the drill and a casing supported on the holder and protecting the bolt and its spring, substantially as described.

3. The combination, with a drill and its holder having a rigid shank, of a sliding locking-bolt and a casing supported on the holder and having passage for the shank and open upon one side and a removable cap-piece to said casing, as set forth.

4. The combination, with a drill-holder having a rigid shank and a drill having a serrated upper surface, of a spring-actuated locking-bolt working through the holder and engaging the drill and a casing supported on the holder and having passage for the shank and open upon one side and a removable cap-piece to said casing, substantially as described.

480,979. DRILL. ALONZO G. TURNER, Durango, Colo., assignor of two-thirds to Frank A. Kimball, same place, and Alexander Levy, Walsenburg, Colo. Filed Mar. 3, 1892. Serial No. 424,214. (No model.)

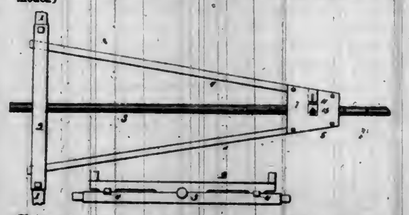


Claim.—1. The combination, with a drill-rod having an interiorly-threaded boss, of an interiorly-threaded sleeve surrounding said boss, a drill having oppositely-threaded portions to engage with said boss and said sleeve, and a detachable sectional collar within the upper end of said sleeve, substantially as described.

2. The combination, with a drill-rod having an interiorly-threaded boss having notches in its upper surface, and an interiorly-threaded sleeve surrounding said boss and provided with a detachable sectional collar, of a spring-actuated pawl mounted on the upper end of the sleeve and working through an opening in the collar, and a drill having a shank provided with oppositely-threaded portions, substantially as described.

3. The combination, with a drill-rod having an interiorly-threaded boss having notches in its upper surface, and an interiorly-threaded sleeve surrounding said boss, of a spring-actuated pawl mounted on the upper end of said sleeve, a casing surrounding and supporting said pawl, and a drill provided with oppositely-threaded portions, substantially as described.

480,980. WAGON-FRAME. ALONZO G. TURNER, Durango, Colo., assignor of two-thirds to Frank A. Kimball, same place, and Alexander Levy, Walsenburg, Colo. Filed Mar. 3, 1892. Serial No. 424,215. (No model.)



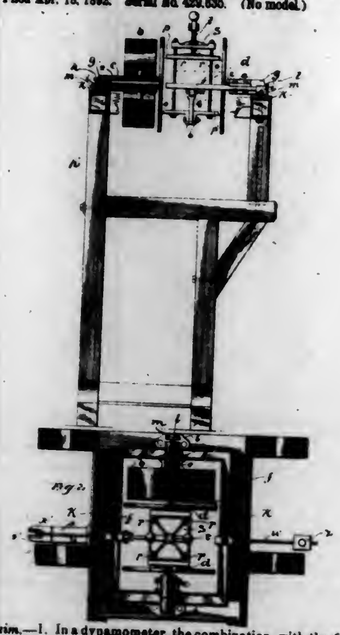
Claim.—1. In a wagon body or frame, the combination, with the hounds and reach, of a two-part box having a longitudinal and cylindrical opening therethrough, the upper part of said box having a rectangular slot therein for the reception of a removable cover held in place by a spring-pressed pin, the lower part of said box being provided with an opening for drawing out the securing-pin, substantially as described.

2. In a wagon body or frame, the combination, with the reach provided with an adjustable encircling band, of a two-part box with a

cylindrical opening therethrough secured to the bounds and having in its upper part a rectangular slot adapted to secure a removable cover therein, held in place by a spring-pressed pin, and a bolt or pin passing through the band encircling the reach, whereby the wagon-body may be lengthened or shortened, substantially as described.

3. In a wagon body or frame, a box for connecting the reach and bounds, formed in two parts, having flanges for the reception of the bounds, and registering semicircular and longitudinal recesses forming a cylindrical aperture for the reception of the reach, said aperture having a transverse groove midway of its length, and a band secured to the reach and fitting into said groove for transmitting the pull from the reach to the bounds, substantially as described.

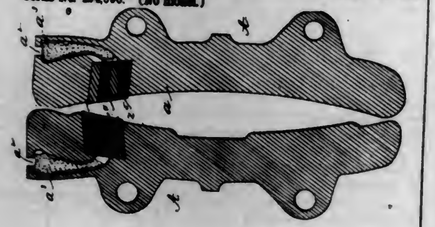
480,981. **DYNAMOMETER.** HENRY F. WARNER, Chicago, Ill. Filed Apr. 18, 1892. Serial No. 429,635. (No model.)



Claim.—1. In a dynamometer, the combination, with the friction-drum and its friction-blocks, of a shaft carrying said friction-drum and journaled in bearings supported upon knife-edges placed in alignment with the center of said shaft and means whereby the friction of said shaft-journals in their bearings is joined in effect to that given by the friction drum and blocks.

2. In a dynamometer, the combination, with the pulley *b*, the friction-drum *d*, and its blocks *o o*, of the shaft *c*, journaled in bearings *e e* upon the frame *f*, the knife-edge bearings supported upon blocks *i i*, said knife-edge bearings being in alignment with the center of said shaft *c*, and the link *g*, connecting the friction-blocks with the frame *f*, whereby the friction of the friction-blocks *o o* upon drum *d* and the friction of the shaft-journals in bearings *e e* communicate their added torque to the frame *f*, substantially as and for the purpose specified.

480,982. **BRAKE-SHOE.** CHARLES F. WOHLFARTH, Norwich, Conn., assignor to Thomas Milburn, Toronto, Canada. Filed Mar. 14, 1892. Serial No. 424,896. (No model.)



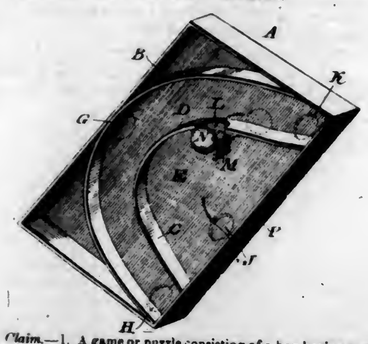
Claim.—1. A brake-shoe having a recess in its face and a moist packing in said recess.

2. A brake-shoe having a recess in its face, a packing in the recess, and a chamber connected with said recess.

3. A brake-shoe having a recess in its face, a packing made of rubber belting, and a chamber connected with said recess.

4. A brake-shoe having a recess in its face, a packing in the recess, a chamber connected with said recess, and oil in said chamber for keeping the packing moist.

480,983. **PUZZLE.** CLARENCE WOLF, Philadelphia, Pa. Filed Apr. 11, 1892. Serial No. 428,624. (No model.)

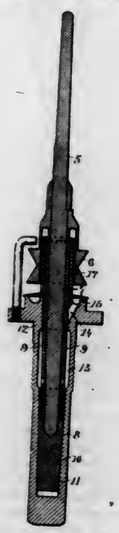


Claim.—1. A game or puzzle consisting of a box having a passage and a chamber therein, with a valve opening into said chamber from said passage, said chamber and passage having openings in the lid of the box, said parts being combined substantially as described.

2. A game or puzzle consisting of a box with the walls B and C therein forming the passage D and the chamber E, said passage D having openings at its crown and ends and the chamber having an opening in its wall, the division-wall of the passage and chamber having a valve opening into the chamber, said parts being combined substantially as described.

480,984. **SPINNING AND TWISTING MACHINE SPINDLE.** HENRY F. WOODHAUCT, Whitinsville, Mass. Filed Nov. 4, 1891. Serial No. 410,818. (No model.)

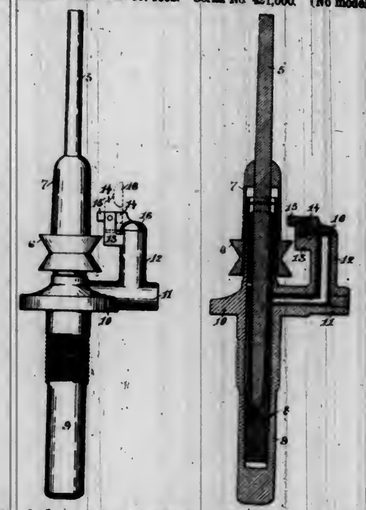
Brief.—To provide a rigid support for the spindle, the bolster-case has a long conical socket into which the combined bolster and step-tube closely fits, and extends above the bolster whose upper end fits therein closely, being grooved, however, for the passage of oil. The bolster-case is provided near the foot of the spindle with an oil-chamber.



Claim.—1. A spindle-support consisting of the rigid bolster-case 12, having the long conical socket 11; the upwardly-extending tube 17, and the enlargement 13, forming the oil-reservoir, and the combined bolster and step-tube 9, having the conical pin 10 at its lower end, held in the socket 11 with a rigid fit, the upper end of the bolster fitting the bolster-case with a close sliding fit, the bolster-case extending above the bolster-tube and provided with a groove or channel forming a passage for the return of the oil, the whole adapted to form a rigid support for the spindle, as described.

2. The combination, with the spindle-support consisting of the rigid bolster-case 12, provided with the long conical socket 11, the tube 17, extending upward above the bolster-tube and having the oil-chamber 13, and the combined bolster and step-tube 9, rigidly secured in the conical socket by the pin 10 and closely fitting the upper part of the bolster, of the spindle 5, provided with the sleeve-whirl 6, extending down over and surrounding the upper extension of the bolster-case, the whole adapted to support the spindle and hold the same against lateral or oscillating motion, as described.

480,985. **SPINDLE-SUPPORT.** HENRY F. WOODHAUCT, Whitinsville, Mass. Filed Feb. 10, 1892. Serial No. 421,000. (No model.)



Claim.—1. In a support for spindles, a doffer-guard consisting of a lever, the outer end of which is weighted, pivoted on a rigid post, the whole adapted to support the pivoted lever in the horizontal position in its normal condition and permit the tilting of the lever, as described.
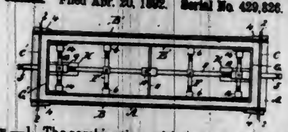
2. A spindle-support having a rigid vertical post on one side beyond the driving-whirl, a bracket extending from the post toward the spindle, and a hinged lever pivoted near its inner end, having the outer end weighted, the whole adapted to form a stop for the whirl in its normal position and open a passage for the whirl when the weighted end of the lever is raised, as described.

3. In a support for spindles, consisting of the bolster case 9, having the usual oil-chamber, the laterally extending hollow arm 11, and vertical hollow post 12, forming a communication with the interior of the bolster case, the combination therewith of a doffer-guard pivoted to the upper portion of said post, as described.

4. In a support for spindles, consisting of the bolster-case 9, having the usual oil-chamber, the laterally-extending hollow arm 11, and vertical hollow post 12, forming extensions of the oil-chamber, the combination therewith of a doffer-guard pivoted to the upper end of said post 12 and having a counter-weight adapted to serve as a cover for the open end of the post, as described.

5. The combination, with a spindle, a sleeve-whirl secured to the spindle, and a bolster-case closed at the bottom, adapted to be secured to a bolster-rail provided with a tube extending upward within the sleeve-whirl and having an interior oil-chamber, of the hollow arm 11, extending laterally beyond the whirl, the vertical hollow post 12, forming with the hollow arm an inlet to the oil-chamber in the bolster-case, the bracket 13, extending inward toward the spindle above the whirl when the same is in its normal position, and the arm 14, pivoted to said bracket and having the doffer-guard 15 and counter-weight 16, as and for the purpose described.

480,986. **COFFIN-SHELL MOLD.** WILLIAM J. APTHORPE, London, Canada. Filed Apr. 20, 1892. Serial No. 429,826. (No model.)

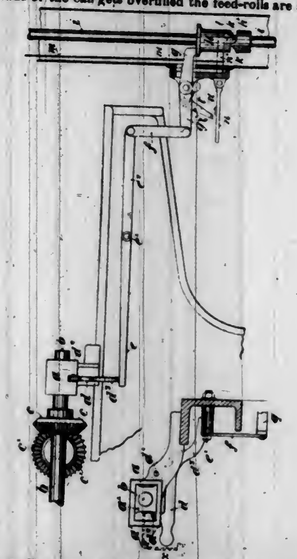


Claim.—1. The combination, with the mold-flask or exterior shell, of the inner core having sides E E', provided with nuts 6 and connected by rods F F', provided with right and left threads screwing into said nuts, and the extensible ends G G', having side flanges provided with nuts 14 and connected by a rod 13, provided with right and left threads screwing into said nuts, said ends provided with a nut 9 and connected by a rod 8, provided with right and left threads screwing into said nuts to elongate, widen, and contract said core, as set forth.

2. The combination, with the shell or flask having a removable bottom A and slotted sides B B', ends C C', having arms 2, said sides and ends connected by keys 4, as set forth, of the inner core having a bottom and sides, the sides having nuts 6, connected by screw-rods F F', the ends G G', having flanges telescoping against said sides and bottom, said ends having nuts 9 and connected by a screw-rod 8, and said side flanges having nuts 14, connected by a screw-rod 13, the lid M, fitting upon said shell and core, and the clamps fastening said lid and base or bottom A removably, as set forth.

480,987. **STOPPING MECHANISM FOR CARDING-ENGINES.** ELIJAH ASHWORTH, Manchester, England. Filed Sept. 2, 1891. Serial No. 404,506. (No model.) Patented in England Aug. 17, 1889, No. 12,968.

Brief.—The invention comprises mechanism whereby when the silver breaks or the can gets overfilled the feed-rolls are stopped.

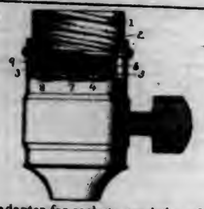


Claim.—1. The combination of the side shaft *b* of a carding-engine having a laterally-movable bearing and provided with a bevel-pinion *c* and a driving bevel-pinion therefor, with a locking-detent *d* for the laterally-movable bearing, and mechanism, substantially as described, whereby the said bearing is released automatically to allow the said side shaft to move laterally, substantially as set forth.

2. The side shaft *b* of a carding-engine having a laterally-movable bearing for one end of the said shaft, and bevel-gears *c d*, in combination with a detent *d* for the laterally-movable bearing, the lever *e* to act upon the detent, a pivoted lever *g*, having a link *f*, connecting it with the said lever *e*, and mechanism, substantially as described, to act upon the lever *g* to automatically free the detent, all substantially as set forth.

480,988. **ADAPTER FOR INCANDESCENT-LAMP SOCKETS.** HENRY P. BALL, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed May 7, 1892. Serial No. 432,196. (No model.)

480,988.



Claim.—1. An adapter for sockets, consisting of a sleeve suitable to receive the base of a lamp or other electrical device, the sleeve having an inwardly-exteading flange or part at its base, an insulating or insulated disk in said end of the sleeve and having a central screw-threaded hole, substantially as described.

2. An adapter for sockets, consisting of a sleeve suitable to receive the base of a lamp or other electrical device, the sleeve having an inwardly-turned flange or part at its base, an insulating or insulated disk in said end of the sleeve and having a central screw-threaded hole, and means for insulating the upper end of said sleeve, substantially as described.

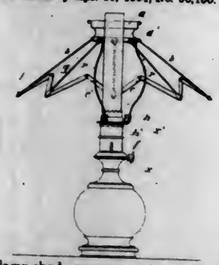
3. The combination, with a socket having two terminals adapted to make contact with two terminals of a lamp or other device, of an adapter having but one terminal and utilizing one terminal of said socket, whereby the socket can be used for lamps of different characters, substantially as described.

4. The combination, with a socket having a central terminal and an edge or side terminal and adapted to receive a lamp or other device, of an adapter having a sleeve-terminal only, said adapter being held in the socket, but not entirely covering the central socket-terminal, whereby by adding a single terminal and by employing one of the socket-terminals the same socket can be used for different characters of lamps or devices, substantially as described.

5. The combination, with a socket having a central screw and an edge or side terminal, of an adapter having a sleeve to receive a lamp or other electrical device, and a base, the latter adapted to screw onto the central screw, substantially as described.

6. The combination, with a socket having a central screw and an edge or side terminal, of an adapter having a sleeve to receive a lamp or other electrical device, an outer insulating sleeve or coating, and a base, the latter adapted to screw onto the central screw, substantially as described.

480,989. LAMP-SHADE SUPPORT. CHARLES BERTHELEMY, Paris, France. Filed Sept. 28, 1891. Serial No. 406,974. (No model.) Patented in France Feb. 28, 1891, No. 211,775; in England Mar. 3, 1891, No. 3,784, and in Germany Apr. 11, 1891, No. 60,155.



Claim.—1. A lamp-shade support consisting of a collar, a number of branches jointed to said collar, and a set of jointed connecting-pieces arranged between and jointed to each two adjacent branches, substantially as described.

2. A lamp-shade support consisting of a collar, a number of springs arranged to press inwardly and attached at their upper ends to said collar, their lower ends being free, provided each with seating means, and extended downward sufficiently to find a seat on the lamp below the chimney, the force exerted by the springs keeping said free ends in contact with the lamp, substantially as described.

480,990. LAMP-BLACK MACHINE. ERASTUS R. BLOOD, Kane, Pa., assignor to Martha P. Blood, same place. Filed Oct. 28, 1891. Serial No. 410,116. (No model.)

Claim.—1. In a lamp-black machine, the combination, with the plates A and A', arranged substantially as shown, with an opening *a* between their contiguous edges, and a gas-burner arranged to impinge its flame upon said plates on opposite sides of said opening, of means

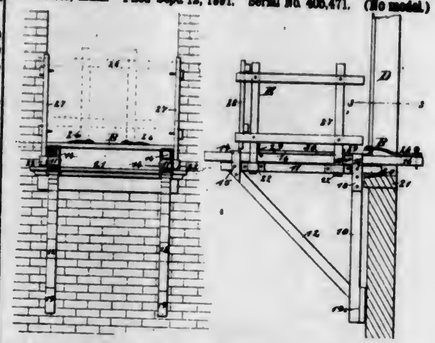


substantially as shown, for moving said plates in a common horizontal plane over said flame differentially, whereby the said opening will be kept clear of lamp-black, as set forth.

2. In a lamp-black machine, the combination, with the circular concentric plates A and A', arranged substantially as shown, with an opening *a* between their contiguous edges, and a gas-burner arranged to impinge its flame upon said plates on opposite sides of said opening, of means, substantially as shown, for moving said plates in a common horizontal plane over said flame differentially, whereby the said opening will be kept clear of lamp-black, as set forth.

3. In a lamp-black machine, the combination of the burners *e*, the circular concentric plates A A', arranged in a common horizontal plane and having an opening *a* between them directly over said burners, and the gearing C D and C' D' for moving said plates rotatively and differentially, substantially as set forth.

480,991. WINDOW-CHAIR. ADOLPH BOETTCHER, South Stillwater, Minn. Filed Sept. 12, 1891. Serial No. 405,471. (No model.)

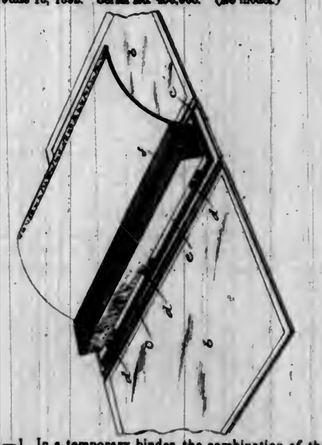


Claim.—1. A window chair or scaffold consisting of two essentially triangular base-sections, straps projected upward from the base-sections above the upper edge thereof, beams passed through said straps and provided with clamping-blocks at their inner ends, a cross-bar adjustably connecting the clamp-beams of the two sections, and brace-beams uniting the connecting-bar and base-sections, as and for the purpose specified.

2. In a window chair or scaffold, the combination, with base frames essentially triangular in general contour, straps projected beyond the tops of the base-frames, and beams engaging with the tops of the said base-frames, passed through the straps thereof, and provided with stop-pins, of blocks secured to the inner ends of the upper beams, adapted for engagement with the inner face of a window-frame, a connecting-bar adjustably uniting the base-frames, and a flooring and guard-rail removably secured upon the frames, as and for the purpose specified.

3. In a window chair or scaffold, the combination, with two essentially triangular base-frames provided with sockets upon their side faces and straps projected upward near the ends beyond the upper edge of said base-frames, of beams passed through the straps, stop-pins carried by said beams, clamping-blocks attached to the inner ends of the beams and adapted for engagement with the inner face of the window-frame, and a connecting-bar adjustably uniting the clamping-beams, braces connected with the clamping-bar and the connecting-bar, a sectional guard-rail fitted in the sockets of the base-frames, locking devices locking the guard-rail and the clamp-beams, and a removable flooring crossing the clamping-beams within the space surrounded by the guard-rails, as and for the purpose specified.

480,992. TEMPORARY BINDER. FRANK BOWMAN, Brooklyn, N. Y. Filed June 16, 1892. Serial No. 436,963. (No model.)



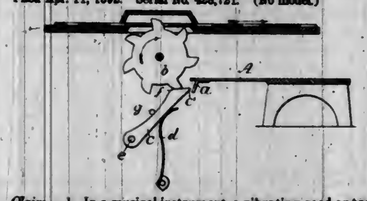
Claim.—1. In a temporary binder, the combination of the outer back and covers, malleable fastening-prongs secured permanently to the inner side of the outer back, and a book removably clamped to the outer back by said malleable fastenings, the fastenings being bent down upon the stub-book back, so as to removably clamp the same, substantially as described.

2. In a temporary binder for files, consisting of an outer back and covers flexibly secured thereto, a removable book provided with back, and metal fastenings secured to the inner side of the outer back and detachably securing the book to the outer back, substantially as described.

3. A temporary binder or holder for files, consisting of a rigid outer back, covers flexibly secured thereto, a removable book having a rigid back provided with perforations, and malleable metal fastenings secured to the inner side and projecting through the perforations in the back of the book, the upper ends of the fastenings being bent down to removably secure the book to the outer back, substantially as described.

4. A temporary binder for files, consisting of an outer back, covers flexibly secured thereto, an inner back rigidly and permanently secured to the outer back, a removable book consisting of a rigid back and leaves rigidly secured thereto, and malleable metal staples or fastenings secured between the outer and inner backs, their prongs projecting upwardly through the inner back and through perforations in the back of the book and their upper ends being turned or bent down upon the removable book-back to removably secure the book to the inner back, substantially as described.

480,993. DAMPING DEVICE FOR MUSIC-BOXES. GUSTAV A. BRACKHAUEN and PAUL RIEBNER, Entritzsch, near Leipsic, Germany. Filed Apr. 11, 1892. Serial No. 428,731. (No model.)

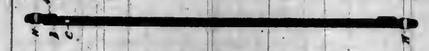


Claim.—1. In a musical instrument, a vibrating reed or tooth and its complemental pin-barrel and a damping-lever provided with a curved free extremity interposed in the path of a pin as it escapes from the reed or tooth, substantially as and for the purposes set forth.

2. In a musical instrument, a vibrating reed or tooth and its complemental pin-barrel, a finger applied to said tooth, a pivotal damping-lever provided with a curved free extremity disposed in range of the pin that previously actuated the reed or tooth, substantially as and for the purposes set forth.

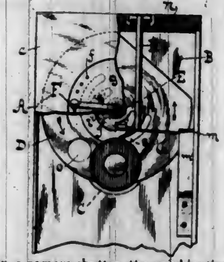
480,994. DRESS-STAY. ISABELLA BRAY, New York, N. Y. Filed Apr. 11, 1892. Serial No. 428,604. (No model.)

Claim.—The herein-described dress-stay, consisting of two flat



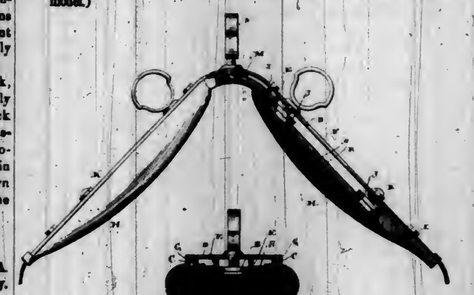
thin springs A B, placed one upon the other and secured together at one end, the springs of a length to give a projection of single thickness at each end, the projecting ends of the springs pierced, combined with a fabric pocket longer than the springs and so as to project beyond each end of the springs, the projecting ends of the pockets turned over onto the face, and with eyelets through the projecting ends and the pierced ends of the springs, substantially as described.

480,995. CAMERA-SHUTTER. WILLIAM H. BRISTOL, Hoboken, N. J. Filed June 17, 1892. Serial No. 437,029. (No model.)



Claim.—In a camera-shutter, the combination of a shutter provided with a shoulder and with an inclined surface, means for propelling the shutter, a detent arranged to engage with the shoulder, and means for effecting the disengagement of the detent from the shoulder and throwing the same under applied pressure into the range of the inclined surface, substantially as described.

480,996. HARNESS-SADDLE. JOHN G. BRUGGEMAN and HERMAN BRUGGEMAN, Clyde, Ohio. Filed Apr. 16, 1892. Serial No. 429,451. (No model.)



Claim.—The combination, in a harness saddle, of a bottom plate having a longitudinal downward bulge, pins projecting upward from the edge of the plate, a top plate, a flange depending therefrom which has the same outline as the bulge in the bottom plate into which it extends, parallel flanges G on the under edges of the plate and between which the pins of the bottom plate project, a pad-covering which is confined between the said last-named flanges and pins, and screws for holding together the plates, substantially as shown and described.

480,997. ANIMAL-SHEARS. CHARLES BURGON and HARRY BURGON, Malin Bridge, near Sheffield, England. Filed Mar. 5, 1892. Serial No. 423,941. (No model.)



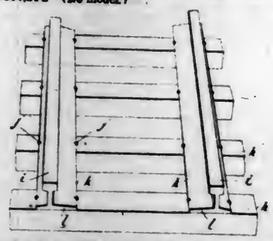
Claim.—1. In the herein-described shearing or clipping machine, the combination, with the vibrating lever C and with the rocking base-

plate E, carrying the lever-axis D, of spring-plate *k*, forked adjusting-screw *l l*, and nut *m*, taking a bearing on the top of casing *n* for regulating the pressure of the cutters, substantially as specified.

2. In the herein-described shearing or clipping machine, the combination, with the vibrating lever C and with the rocking base-plate E, carrying the lever-axis D, of spring-plate *k*, forked adjusting-screw *l l*, and nut *m*, taking a bearing on the top of casing *n*, and of the means for locking the adjusting nut, consisting of the spring-pin *o p*, mounted in casing *n* and adapted to engage with a circle of holes *m'* in the head of the nut *m*, the end of the pin being rounded, so as to be easily forced out of engagement, as specified.

3. In the herein-described shearing or clipping machine, the combination, with the vibrating lever C and with the rocking base-plate E, carrying the lever-axis D, and with the mechanism for adjusting the pressure of said lever, as described, of the conical friction-roller *i*, mounted in the tail end of lever C and bearing on the tail end of plate E for transferring the upward pressure directly from E to C without causing a bending strain of the axis D, as specified.

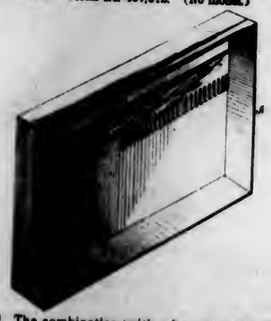
480,998. DEVICE FOR PREVENTING RAILROAD-RAILS FROM SPREADING. JAMES H. BURNS, Spokane, Wash. Filed June 23, 1891. Serial No. 397,264. (No model.)



Claim.—1. A railway-rail having its base expanded or extended on its inner side, substantially as and for the purpose specified.

2. A railway comprising cross-ties and rails secured thereto, said rails having broadened bases extending toward each other, substantially as and for the purpose specified.

480,999. BOX ATTACHMENT. EDWARD BUYER, New York, N. Y. Filed Oct. 3, 1891. Serial No. 407,612. (No model.)

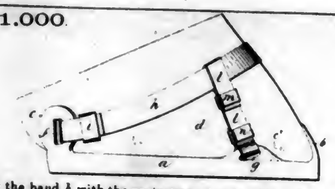


Claim.—1. The combination, with a box, of a flat plate or strip of thin metal fastened in the box and slotted at its edge to form a series of teeth, which are turned outward and upward, forming a series of hooks which stand out from the bottom of the box in front of the plane of the plate or strip, substantially as described.

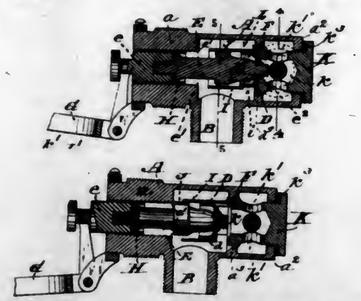
2. As a new and improved article of manufacture, a suspending-strip for the interior of boxes, formed of a flat plate or strip of metal having a series of small hooks at its edge projecting in front of the plane of the plate or strip and formed with integral clutching-points, substantially as described.

481,000. HORSESHOE-FASTENING. GEORGE CALLS and FREDERICK J. TEFLEY, London, England. Filed Feb. 3, 1892. Serial No. 420,177. (No model.)

Claim.—The combination, with a horseshoe provided with projections *b*, *c*, *d*, and *e* for engaging the hoof of the animal, of the flat band A, passing over the hoof and bent back upon itself after passing through the projections *c*, the loops *i*, securing the ends of the band A, the flat bands *l*, having their ends bent back upon themselves and connecting the band *h* with the projections *c'* at the sides of the shoe, and the loops *m* and *n*, securing the ends of the bands *l*, substantially as and for the purpose set forth.



481,001. VALVE. JAMES R. CARR, Webster Groves, and WILLIAM H. HENDRICK, St. Louis, assignors to the N. O. Nelson Manufacturing Company, St. Louis, Mo. Filed Aug. 1, 1891. Serial No. 401,412. (No model.)



Claim.—1. The combination of a casing provided with an inlet and an outlet and having each end provided with an opening, a detachable plug in each opening, one of which is recessed at its inner end, the walls of the recessed portion being provided with two series of perforations, one communicating with the inlet and the other series with the outlet, and an interior valve-seat between the series of openings and the plug in the opening at the other end of the casing being provided with a valve which fits within the recess of the first-mentioned plug and is adapted to be seated upon the valve-seat end, closing the opening between the inlet and the outlet, substantially as set forth.

2. The combination of a casing provided with an inlet and an outlet chamber and an opening at each end, the partition between the two chambers being screw-threaded, a plug in each end of the casing, one of which is provided with a tubular and a recessed portion at its inner end and is provided with an external screw-thread to engage with the screw-threaded partition, the walls of the tubular and of the recessed portions of the plug being each provided with perforations and with an interior valve-seat between the two series of perforations, and a plug in the opening in the opposite end of the casing, provided with a valve which fits the tubular portion of the other plug, substantially as set forth.

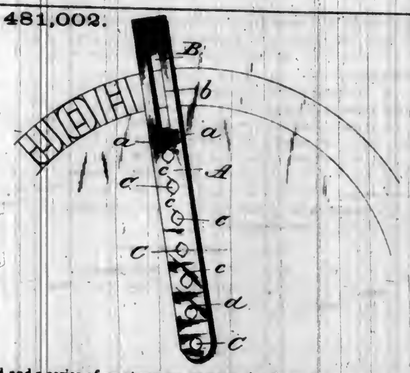
3. The combination of a casing provided with an inlet and an outlet and an opening at each end, a detachable plug in each opening, one of which is provided with a tubular and a recessed portion at its inner end, the walls of which are provided with two series of perforations and having an interior valve-seat between said series of perforations, and the plug in the other opening is provided with a valve, the middle portion of which is provided with projections to fit the bore of the tubular portion of the other plug, said projections being larger than the opening in the casing at that end, whereby the accidental removal of the valve is prevented, substantially as set forth.

4. The combination of the casing having the inlet and outlet chambers, as described, the detachable plug chambered and perforated and having the valve-seat and perforated tube, as described, the valve-stem, the main cup-leather valve, the cup leather H, the projections J, and the float-lever G, the flange of said main cup-leather valve fitting said tube and extending past the perforations therein when said valve is seated, said tube normally opening into the inlet-chamber and said chambered plug opening into the outlet-chamber and having its screw-threaded connection with the casing adapted to form said inlet and outlet chambers, substantially as described.

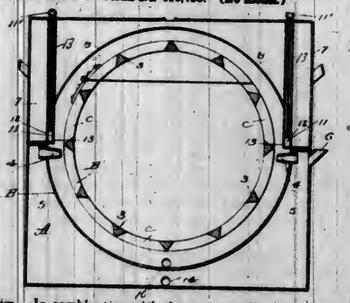
481,002. LETTERING-TABLET. ABRAHAM CLARK, Greenville, S. C. Filed Apr. 14, 1892. Serial No. 429,155. (No model.)

Claim.—1. A device for laying off letters, consisting of a plate or bar A, having an aperture B with parallel side walls adjacent to one end and a series of apertures *c c*, commencing from the opposite end, substantially as shown, and for the purpose set forth.

2. In a device for laying off letters, the combination of a plate or bar A, having parallel edges *a a*, a series of apertures C C with notches, and an aperture B with parallel side walls, the width of said aperture being greater than the portions of the implement on each side thereof, substantially as shown.



481,003. WASHING-MACHINE. GEORGE A. COFFEE, Dalton, Ga. Filed Jan. 2, 1892. Serial No. 416,753. (No model.)



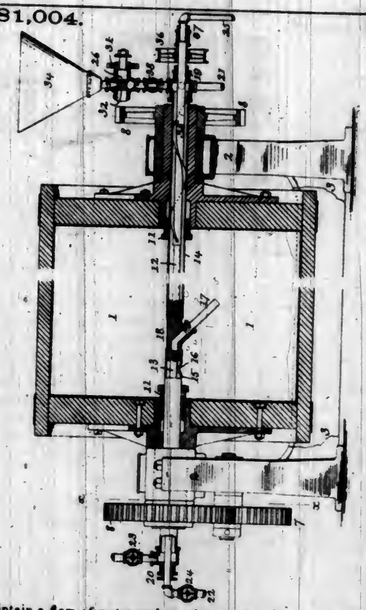
Claim.—In combination with the steam-tank and cylinder-chamber, the nozzles leading from the steam-tank into the cylinder-chamber, a cylinder within said chamber, and the cover having the water-space, said water-space comprising the two depending portions extending downward to the cylinder and steam-space on each side of the cylinder, the said water-space being formed by the curved inner wall attached to the cover, each of the depending portions of the water-chamber being contracted toward the lower end and the valves in said contracted portions leading into the cylinder-chamber, substantially as described.

481,004. APPARATUS FOR CORRODING LEAD. GEORGE D. COLEMAN, Chicago, Ill. Filed Aug. 17, 1891. Serial No. 402,921. (No model.)

Claim.—1. In a lead-corroding apparatus, the combination, with the horizontally-arranged revolving cylinder, of a water-induction pipe extending in through the trunnion or axis of the cylinder, and a water-eduction pipe extending out through the trunnion or axis of such cylinder and having its inner end extending downwardly from the center of the cylinder, such pipes being adapted to maintain a flow of water through the cylinder, for the purpose set forth.

2. In a lead-corroding apparatus, the combination, with the horizontally-arranged revolving cylinder, of water and gas induction pipes extending in through the trunnion or axis of the cylinder, and water-eduction pipes extending out through the trunnion or axis of such cylinder and having its inner end extending downwardly from the center of the cylinder, such pipes being adapted to maintain a flow of water through the cylinder, for the purpose set forth.

3. In a lead-corroding apparatus, the combination, with the horizontally-arranged revolving cylinder, of water and gas induction pipes extending in through the trunnion or axis of the cylinder and water and gas eduction pipes extending out through the trunnion or axis of the cylinder, the inner end of the water-eduction pipe being extended downwardly from the center of the cylinder, such pipes being adapted to maintain a flow of water and gas through the cylinder, for the purpose set forth.



4. In a lead-corroding apparatus, the horizontally-arranged revolving cylinder provided with ribs on its inner periphery of an oblong square form arranged a distance apart, so as to form spaces or cavities of a width nearly equal to that of the face of the ribs, as described, and for the purpose set forth.

5. In a lead-corroding apparatus, the combination, with the horizontally-arranged revolving cylinder, of water and gas induction pipes extending in through the trunnion or axis of the cylinder and water and gas eduction pipes extending out through the trunnion or axis of the cylinder, the downwardly-extending branch pipe 17, and a Y-shaped plug 18, connecting the inner ends of said pipes together, for the purpose set forth.

6. In a lead-corroding apparatus, the combination, with the horizontally-arranged revolving cylinder, of an induction pipe or passage extending in through the axis or trunnion of the cylinder, a rotatable cylinder 26, having peripheral pockets 32, and a casing inclosing said cylinder and having communication with the supply-hopper and the axial induction-pipe of the main cylinder, for the purpose set forth.

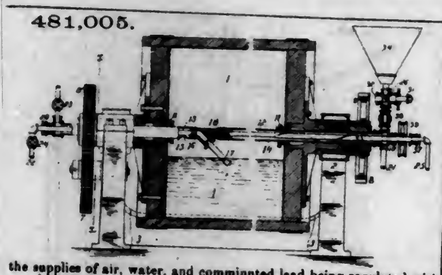
7. In a lead-corroding apparatus, the combination, with the horizontally-arranged revolving cylinder, of an induction pipe or passage extending in through the axis or trunnion of the cylinder, a rotatable cylinder 26, having peripheral feed-pockets 32, a casing inclosing said cylinder and having communication with the supply-hopper and the axial induction-pipe of the main cylinder, and a means for imparting intermittent rotation to the feeding-cylinder, consisting of the ratchet-wheel 31, pawl 30, arm 29, eccentric-rod 28, and eccentric 27, for the purpose set forth.

8. In a lead-corroding apparatus, the combination, with the horizontally-arranged revolving cylinder, of an induction pipe or passage extending in through the axis or trunnion of the cylinder, a spiral conveyer arranged to rotate in said induction pipe or passage, a rotatable cylinder 26, having peripheral pockets 32, and a casing inclosing said cylinder and having communication with the supply-hopper, and the axial induction-pipe of the main cylinder, for the purpose set forth.

481,005. ART OF MAKING LEAD PROTOXIDE. GEORGE D. COLEMAN, Chicago, Ill. Filed Aug. 17, 1891. Serial No. 402,923. (No specimens.)

Claim.—1. The herein-described improvement in the art of making lead protoxide, which consists, first, in subjecting a body of comminuted lead in a state of agitation within a suitable vessel to the action of atmospheric air and water; secondly, removing the oxide as fast as formed and controlling the temperature during the process by a regulated inflow and outflow of water through the corroding-vessel and its contents, and, thirdly, replacing the lead removed during the process in the form of oxide by a regulated supply of comminuted lead,

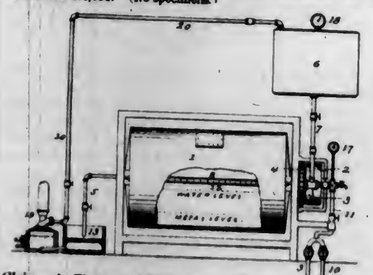
481,005.



the supplies of air, water, and comminuted lead being regulated with regard to each other.

2. The herein-described improvement in the art of making lead protoxide, which consists, first, in subjecting a body of comminuted lead in a state of agitation and at a temperature between 75° and 150° Fahrenheit within a suitable vessel to the action of atmospheric air and water; secondly, removing the oxide as fast as formed and controlling the temperature during the process by a regulated inflow and outflow of water through the corroding vessel and its contents, and, thirdly, replacing the lead removed during the process in the form of oxide by a regulated supply of comminuted lead, the supplies of air, water, and comminuted lead being regulated with regard to each other.

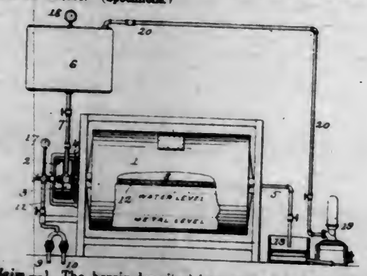
481,006. PROCESS OF MANUFACTURING WHITE LEAD. GEORGE D. COLEMAN, Chicago, Ill. Filed May 20, 1891. Renewed Feb. 10, 1892. Serial No. 421,033. (No specimens.)



Claim.—1. The herein-described improvement in the art of making white lead by the agitation of lead in a comminuted state in the presence of water, air, and carbonic acid, the same consisting in carrying on the process at a regulated temperature of from 75° to 150° Fahrenheit and under a pressure of from fifteen to thirty pounds, substantially as herein described.

2. The herein-described improvement in the art of making white lead by the agitation of lead in a comminuted state in the presence of water, air, and carbonic acid, the same consisting in carrying on the process at a regulated temperature of from 75° to 150° Fahrenheit and under a pressure of from fifteen to thirty pounds and preventing by a flow of water an abnormal rise in such temperature due to physical and chemical reactions in the apparatus, substantially as herein described.

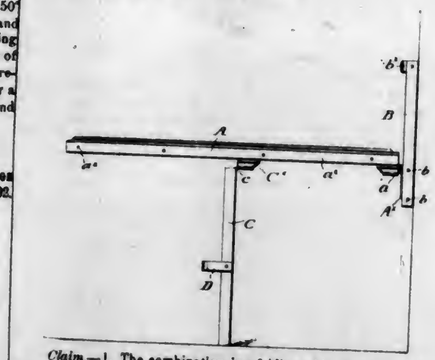
481,007. ART OF MAKING WHITE LEAD. GEORGE D. COLEMAN, Chicago, Ill. Filed Aug. 12, 1890. Renewed May 23, 1892. Serial No. 434,105. (Specimens.)



Claim.—1. The herein-described improvement in the art of corroding lead in the presence of water and a suitable corroding-gas, the same consisting in preserving the surface of the lead particles in a clean condition best adapted for corrosive action by a flow of water that acts to remove the corroded lead as fast as formed, substantially as herein described.

2. The herein-described improvement in the art of corroding lead in the presence of water and a suitable corroding-gas, the same consisting in conducting the corroding process under definite and controllable degrees of pressure and temperature and at the same time preserving the surfaces of the lead particles in a clean condition best adapted for corrosive action by a flow of water that acts to remove the corroded lead as fast as formed as well as to carry off the surplus heat generated by the physical and chemical reactions in the process, substantially as herein described.

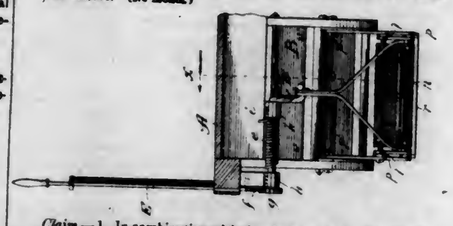
481,008. WALL-TABLE. GEORGE W. CURTIS, New York, N. Y., assignor to the Unique Table Company, same place. Filed Mar. 28, 1892. Serial No. 426,852. (No model.)



Claim.—1. The combination, in a folding table, of a table body or frame, a retaining-strip hinged to said body and adapted to be permanently secured against a wall or other fixed surface, and a spring-keeper fixedly attached at its lower extremity to said retaining-strip and at its free upper extremity provided with an inturned clip adapted for engagement with the edge of the body or frame, substantially as set forth.

2. The combination, in a folding table, of a table body or frame, a retaining-strip hinged to said body and adapted to be permanently secured against a wall or other fixed surface, a spring-keeper fixedly attached at its lower extremity to said retaining-strip and at its free upper extremity provided with an inturned clip adapted for engagement with the edge of the body or frame, and a folding leg hinged to the body of the frame and provided with a spring-clip adapted to engage with the edge of said body or frame, substantially as set forth.

481,009. CAR-STEP EXTENSION. WILLIAM DALENBERG and CORNELIUS VERDUIN, South Holland, Ill. Filed Apr. 18, 1892. Serial No. 429,670. (No model.)



Claim.—1. In combination with the platform and a stairway of a car, a folding extension for the stairway, having a toggle-lever support carrying a step and operating when folded to raise and support the step behind the stairway and when extended to protrude the said step beyond the lowermost step of the stairway, and means for operating the folding extension from the platform, substantially as described.

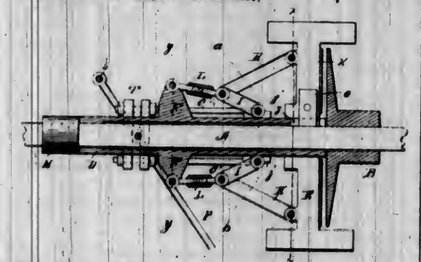
2. In combination with the platform and stairway of a car, a folding extension for the stairway, having a toggle-lever support carrying a step and operating when folded to raise and support the step behind the stairway and when extended to protrude the said step beyond the lowermost step of the stairway, and means for operating the folding extension from the platform, substantially as described.

3. In combination with the platform and stairway of a car, a folding extension for the stairway, having a toggle-lever support carrying a step and operating when folded to raise and support the step behind the stairway and when extended to protrude the said step beyond the lowermost step of the stairway, a crank journaled on the platform, an operating-lever connected with the crank, and a locking-brace connecting the crank with the said toggle-lever support, substantially as described.

4. In combination with the platform and stairway of a car, a folding extension C for the stairway, formed with pivotal arms *p* and *p'* depending from the stairway, pivotal cross-bars *l*, links *o*, and a step *r*, having arms *q* at its opposite ends pivotally connected with the links *o* and arms *p*, whereby the said extension may be folded behind the stairway and extended to protrude the step *r* beyond the lowermost step of the stairway, and means for operating the folding extension from the platform, substantially as described.

5. In combination with the platform and stairway of a car, a folding extension C for the stairway, formed with pivotal arms *p* and *p'* depending from the stairway, pivotal cross-bars *l*, connected links *o*, and a step *r*, having arms *q* at its opposite ends pivotally connected with the links *o* and arms *p*, whereby the said extension may be folded behind the stairway and extended to protrude the step *r* beyond the lowermost step of the stairway, a crank D', journaled on the platform, and operating-lever E, connected with the crank, and a brace D, connecting the crank with the links *o*, the whole being constructed and arranged to operate substantially as described.

481,010. CLUTCH. DANIEL T. DENTON, Duluth, Minn. Filed Nov. 7, 1891. Serial No. 411,229. (No model.)



Claim.—1. In combination, the shaft, a friction-disk rigid therewith, a sleeve between said disk and a stop, in which sleeve the shaft is free to turn, a pulley rotating with and capable of a limited longitudinal movement on the end of the sleeve into and out of contact with the disk, toggle-links and their supports, and operating means carried by said sleeve for moving said pulley, whereby the pulley, sleeve, and operating means remain at rest when the pulley is disengaged from the disk, as described.

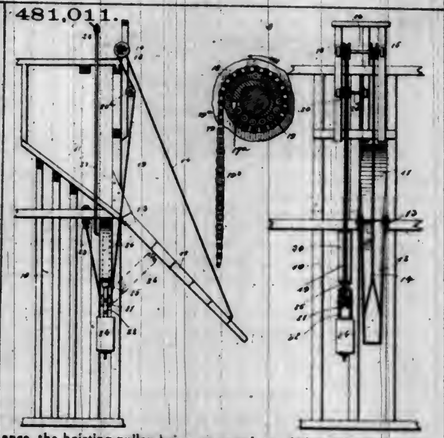
2. In combination, a shaft, the rigid friction-disk thereon, a sleeve on the shaft in which the same can freely turn and hold against longitudinal movement on the shaft, said sleeve provided with a longitudinal slot at the inner end, a pulley mounted on said inner end of the sleeve and provided with a key extending into said slot, whereby the pulley rotates with the sleeve and has a limited longitudinal movement toward or from the friction-disk, and the operative parts of the clutch carried by said sleeve and connected to throw the pulley, substantially as described.

3. In a friction-clutch, the combination of the shaft, the friction-disk rigid thereon, a sleeve loosely mounted on the shaft, a split pulley on one end of the sleeve mounted to turn with the sleeve and having limited longitudinal movement on the sleeve toward or from said disk, toggle-links connected to the pulley and to the loose ring on said sleeve, fulcrum-arms rigid with the sleeve and connected to the joints of the links, and the shifting hub connected to said ring, the sleeve and arms being formed in sections, so that they can be secured on the shaft with the split pulley, in the manner and for the purposes described.

481,011. COUNTERBALANCING MECHANISM FOR CHUTES. DANIEL T. DENTON, Lake View, Minn. Filed May 3, 1892. Serial No. 431,543. (No model.)

Claim.—1. The combination of the swinging chute, the shaft journaled above the chute, the hoisting-cable connected with the chute and with a pulley on the shaft, and the chain thickened or thinned at intervals, connected with a pulley on the shaft and with a counter-balance, the hoisting-pulley being arranged to wind up the cable when the counterbalancing-chain is unwound, substantially as shown and described.

481,011.

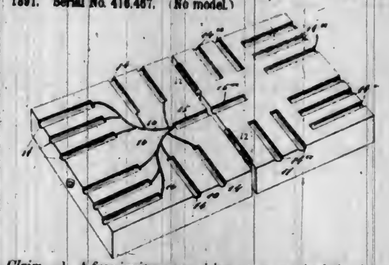


2. The combination of the swinging chute, the shaft journaled above the chute and carrying two pulleys, a cable secured to the chute and to one of the pulleys, a chain secured to the other pulley and winding in opposite direction to the cable, a counter-balance for the chain, and a power-cylinder and piston operatively connected with the chute, substantially as described.

3. The combination of the swinging chute, the shaft journaled above the chute and carrying two pulleys, the cable secured to the chute and to one of the pulleys, a chain secured to the other pulley and winding in opposite direction to the cable, and a power-cylinder having a piston-rod attached to the chain, substantially as described.

4. The combination of the swinging chute, the shaft journaled above the chute and carrying flanged pulleys, the cable secured to the chute and to one of the pulleys, a power-cylinder arranged adjacent to the chute and having a depending piston-rod provided with a counter-balance at its lower end, a pulley carried by the piston rod, and a chain secured to one of the pulleys above the chute and extending beneath the piston-rod pulley, the lower end of the chain being fixed to a support, substantially as described.

481,012. FUSE-IGNITOR. WILLIAM J. C. DOYLE, Aspen, Colo., assignor of one-half to Timothy Buckley, same place. Filed Dec. 29, 1891. Serial No. 416,467. (No model.)



Claim.—1. A fuse-ignitor comprising a two-part body having registering grooves therein adapted to hold fuses, branch grooves connecting the fuse holding grooves, and a fastening device to hold the parts of the body together, substantially as described.

2. A fuse-ignitor comprising a two-part body, the members of which are hinged together and provided with a suitable fastening, a series of fuse-holding grooves produced in the body and extending to the sides thereof, and branch grooves connecting the fuse-holding grooves, substantially as described.

481,013. SLIDE-VALVE. ALBERT T. DOYLE, Pendleton, Oreg. Filed Apr. 20, 1892. Serial No. 429,908. (No model.)

Claim.—1. The combination, with the slide-valve of an engine, of a plate secured to the upper face of the valve by suitable standards and having a recessed upper face and a bearing-plate fitted within the valve-chest above the valve, the plate having an opening over the re-

481,018.

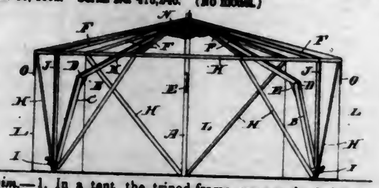


cess in the plate and adapted to hold the valve positively against its seat, substantially as specified.

2. The combination, with the slide-valve and the plate D, secured thereto by suitable standards, of the rabbeted plate G, having an upwardly-extending flange, and the downwardly-extended flange on the chest-cover surrounding the flange on the bearing-plate for the purpose of holding packing, substantially as and for the purpose described.

3. The combination, with the slide-valve, of the plate D, recessed on its upper face, and the bearing-plate provided with a central opening, the chest-cover provided with a coincident opening, and the packing-flanges on the cover and bearing-plate, substantially as and for the purpose specified.

481,014. TENT. GEORGE N. DUNCAN, Greenwich, Mass. Filed Jan. 16, 1892. Serial No. 418,246. (No model.)

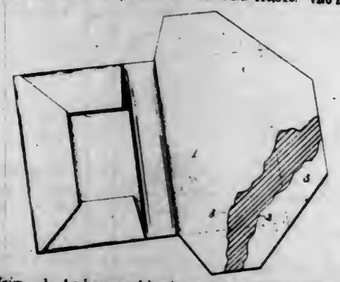


Claim.—1. In a tent, the tripod-frame composed of the three bars A B C, joined together at the apex, spread triangularly and secured to the earth at the foot, in combination with the canopy-top, the ribs or stretchers radiating from the apex of the frame-bars, and the braces extending from the foot of the spread frame-bars to the outer ends of the stretchers or ribs, substantially as set forth.

2. In a tent, the tripod-frame bars A B C, united at top by the socket-plate G, in combination with the ribs or stretchers F, connected to and radiating from said plate, and with the supporting and stiffening braces H secured to said ribs and to the foot of the frame-bars, substantially as set forth.

3. In a tent, the radiating ribs and marginal braces described, in combination with the tripod-frame bars A B C, connected at top to said ribs and at bottom to said braces and each made in two connected parts, deflected upwardly and secured firmly at the joint, whereby increased height is insured beneath the central portion of said bars, substantially as set forth.

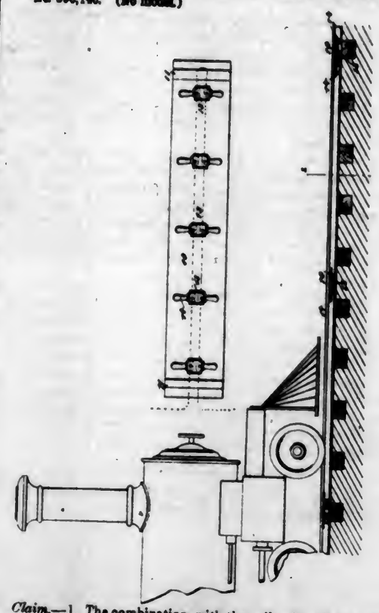
481,015. BOOK-COVER PROTECTOR. HELEN M. ENOS, Millersburg, Ohio. Filed Oct. 31, 1891. Serial No. 410,516. (No model.)



Claim.—1. An improved book-cover protector consisting of two plies of fibrous material, as paper, and a lining of flexible sheet metal, said cover being arranged to inclose the book and fold over the edges of the covers, substantially as shown and described.

2. In a book-cover protector, the combination, with a cover of fibrous material adapted to inclose the back and covers of the book, of a reinforcing ply of flexible sheet metal, connected with said cover by cement, and arranged to be bent over and inclose the edges of the book-covers, substantially as shown and described.

481,016. DEVICE FOR ILLUMINATING RAILROAD-TRACKS. WILLIAM E. FERGUSON, Montclair, N. J. Filed June 18, 1891. Serial No. 396,146. (No model.)



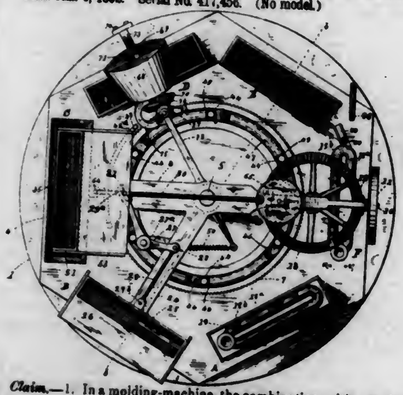
Claim.—1. The combination, with the rails of a railroad-track, of lights located adjacent thereto and below the treads of the rails, as and for the purpose specified.

2. The combination, with the rails of a railroad-track, of a light located between the rails and below the plane of the treads of the rails, as and for the purpose specified.

3. In a railroad, one or more lights placed between the rails and arranged to admit of trains passing over them, as and for the purpose specified.

4. The combination, with a railway-track, of lights located between the rails in a manner to admit of trains passing over them, and a shield located above the lights and also below the treads of the rails, as and for the purpose set forth.

481,017. MOLDING-MACHINE. JESSE A. FIELD, Buffalo, N. Y. Filed Jan. 9, 1892. Serial No. 417,456. (No model.)



Claim.—1. In a molding-machine, the combination, with a stationary supporting-table provided with a vertical central shaft, of a movable table carrying the patterns mounted thereon and resting on friction-rollers, so as to turn easily on the stationary table, a combined sand receptacle and peening device for guiding the sand into the flask and peening it around the inner edges of the flask near the pattern as the rotating table brings it in the proper position, mechanism, substantially as above described, for giving it its peening movement, and a means consisting of a roller under which the flask passes for compressing the sand in the flask after the peening device has done its work, substantially as described.

2. In a molding-machine, the combination, with a stationary table provided with a series of supporting-rollers, of a rotating table mounted on said rollers, a series of patterns secured to said rotating table at a substantially equal distance apart, a vertical shaft rigidly secured to the stationary table and around which the movable table rotates, a combined sand and peening device, mechanism, substantially as above described, for giving it its intermittent swinging and up-and-down movements for peening the sand around the edge of the pattern, a roller for smoothing down the sand after it has been fed into the mold, pins passing down through the rotating table and provided with rollers at their lower ends, inclined upward projections located on the stationary table over which said rollers pass and lift the mold and flask up from the pattern, and mechanism, substantially as above described, for giving the moving table its required rotating movements, as herein set forth.

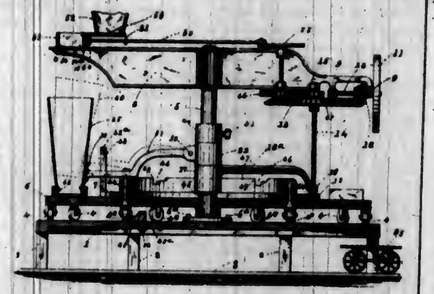
3. In a molding-machine, the combination of a stationary table provided with wheels, upon which is mounted a movable table, a vertical shaft rigidly secured to the stationary table, so as to pass up through the center of the rotating table, a riddle secured to an arm attached to a collar on the stationary shaft at an incline to receive the facing material and sift it on the pattern when it comes around to that point, a combined sand receiving and peening device, mechanism, substantially as hereinbefore set forth, for giving the required peening movements, a smoothing-roller and gearing operated by a horizontal gear on the rotating table for giving it its proper rotating movements as the molds pass under it, a means consisting of pins passing through the rotating table and having friction-rollers at their lower ends adapted to roll up the inclines on the projections on the lower table for lifting the mold from the pattern, and gearing, substantially as described, for giving the movable table its rotating movements.

4. In a molding-machine, a stationary supporting-table provided with rollers 4 and stationary inclined projections 83 83ª, in combination with an adjustable inclined projecting portion 84, and a continuously-rotating table mounted on a central pivotal shaft so as to rest on the stationary-table rollers and provided with pins mounted in vertical bearings in said movable table, having friction-rollers at their lower ends, so as to be moved easily by the inclined projecting portions, and a means, substantially as above described, for giving the rotating platform a continuously-rotating movement, whereby the flask or mold may be lifted up from the pattern during the continuous rotation of the table, substantially as described.

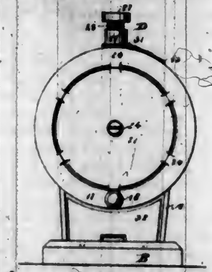
5. In a molding-machine, the combination, with a stationary supporting-table provided with a series of rollers and a vertical central shaft, of a movable table mounted thereon, a combined sand receptacle and peening device secured to an arm 37, pivoted to a collar adapted to be moved laterally one way on the stationary vertical shaft, a spring for bringing it back to its normal position an upwardly-projecting rim on the rotating table, provided with a series of depressions, each having a vertical pin fitted loosely therein and provided with a friction-roller at the bottom, and inclined projections on the lower stationary table for lifting said pins as they successively pass over them, whereby the peening device is lifted and dropped every time a flask comes below it, substantially as described.

6. In a molding-machine, the combination, with the sliding box for feeding sand, of two doors 54 54ª, pivoted at the bottom and geared so that both move together, a weighted arm projecting out from the gear 55ª, a weighted holding and releasing arm pivoted to an arm connected with the sliding box, and a stationary pin 62 for releasing the arm and pivoted doors, for the purposes described.

481,017.



481,018. PENCIL-POINTER. FRANK H. FLAGG, New York, N. Y., assignor of one-half to Andrew Dow, same place. Filed May 10, 1892. Serial No. 432,409. (No model.)

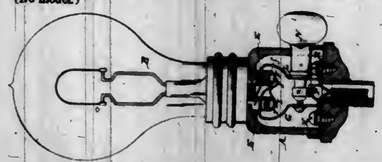


Claim.—1. In a pencil-pointer, the combination, with a casing provided with a socket-plate having a conical bore to receive a pencil, which bore extends through one face of the plate, that face being beveled, of a disk having a beveled inner face and provided with an attached abrading material, the beveled abrading-face of the disk being held to revolve in close proximity to the beveled face of the socket-plate, a clamp adapted to hold a pencil and loosely mounted in the casing above the socket-plate, and a driving mechanism connected with the disk and with the clamp, whereby both are revolved in unison, as and for the purpose specified.

2. In a pencil-pointer, the combination, with a casing provided with an opening in its top, a socket-plate attached to the casing below the opening and having a beveled outer face, and a central vertical tapering opening extending through its beveled face, of a drive-wheel journaled in the casing, a disk connected with the drive-wheel and having a beveled inner face, the beveled surface of the disk being provided with an abrading material and the beveled face of the disk practically engaging with the beveled surface of the socket-plate, a clamp capable of holding a pencil and loosely fitted in the casing, and a driving connection, substantially as shown and described, between the drive-wheel and the clamp, whereby the latter is revolved, as and for the purpose set forth.

3. In a pencil-pointer, the combination, with a casing provided with an opening in its upper end, a pinion adjacent to the opening, and a socket-plate attached within the casing beneath its upper opening, the forward face of the socket-plate being beveled and provided with a vertical tapering bore extending through the beveled surface, and clearance-channels leading from the bore, of a drive-wheel held to revolve in the casing, a disk connected with the drive-wheel, the inner face of which is beveled and provided with an abrading material, the said inner face of the disk revolving in close proximity to the beveled surface of the socket-plate, a clamp comprising a tubular section, provided with a head at its upper end and provided with jaws at its lower end and a thread between the jaws and the head, a sleeve screwed upon the tube-section and capable of closing the jaws of the latter and provided with an exterior gear, the lower end of the sleeve being adapted to enter the upper opening in the casing and its gear to mesh with the pinion of the casing, and a driving connection between the drive-wheel and pinion, as and for the purpose specified.

481,019. INCANDESCENT ELECTRIC LAMP AND LAMP-SOCKET. BRUCE FORD, Gloucester, N. J. Filed Nov. 27, 1891. Serial No. 413,201. (No model.)



Claim.—1. An electric lamp having two terminals, one of which is provided with a high-resistance substance capable of destruction upon the passage of an excessive current, in combination with a lamp-socket provided with a spring-contact adapted to electrical contact with one of the terminals of the electric lamp and pressing upon the high-resistance substance of the other terminal.

2. As an article of manufacture, an incandescent lamp having its base part provided with two terminals and a high-resistance substance in electrical connection with one of said terminals and capable of destruction upon the passage of an excessive current through it, in combination with a lamp-socket provided with a spring-contact adapted to electrical contact with one of the terminals of the electric lamp and

pressing upon the high-resistance substance of the other terminal.

3. An incandescent lamp having its base provided with two terminals, one of which projects downward, is adapted to extend within the socket-piece, is recessed upon its end, and contains a high-resistance fusible or destructible substance.

4. As an article of manufacture, an incandescent lamp having its base part provided with two terminals and a high-resistance substance mechanically supported by and in electrical connection with one of said terminals, capable of destruction upon the passage of an excessive current through it, in combination with a socket-piece having contacts for connection with the contacts of the lamp when fitted to the socket-piece and in which one of said contacts is provided with a spring-extension or lip adapted to press upon the high-resistance material for the purpose of forming metallic contact about the lamp upon the destruction of the said high-resistance material.

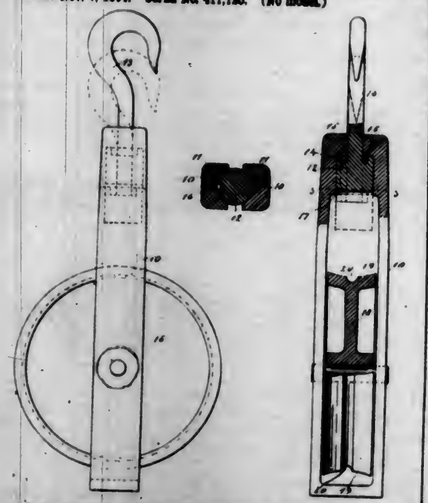
5. The combination of an incandescent lamp having two terminals, high-resistance substance capable of destruction or fusion, mechanically supported by and electrically connected with one terminal of the lamp, and a socket-piece adapted to receive the lamp and provided with contacts connecting, respectively, with the terminals of the line-circuit and the terminals of the lamp and in which one of said contacts has a spring-extension on one of the contacts of the socket-piece, resting normally against the high-resistance substance of the lamp.

6. The combination of an incandescent lamp having two terminals, a high-resistance substance capable of destruction or fusion, mechanically supported by and electrically connected with one terminal of the lamp, a socket-piece adapted to receive the lamp and provided with contacts connecting, respectively, with the terminals of the line-circuit and the terminals of the lamp, one of said contacts having a spring-extension resting normally against the high-resistance substance of the lamp, and a cut-out switch arranged within the socket-piece for shunting the lamp without the destruction of its filament.

7. An electric lamp having terminals C and D, formed with grooves E, combined with a support, spring-contacts G and L, connecting with the terminals of the line, the former being provided with the edge K, the finger I, and lip J and the latter with the curved edge M, and a high-resistance destructible substance arranged between the lip J and the terminal C of the lamp.

8. An electric lamp having terminals C and D, formed with grooves E, combined with a socket-casing, spring-contacts G and L, connecting with the terminals of the line, the former being provided with the edge K, finger I, and lip J and the latter with the curved edge M, a high-resistance destructible substance arranged between the lip J and the terminal C of the lamp, and means for adjusting the pressure of the contacts G and L against the contacts C and D of the lamp.

481,020. SNATCH-BLOCK. ADAMS C. FRENCH, Seattle, Wash. Filed Nov. 7, 1891. Serial No. 411,195. (No model.)



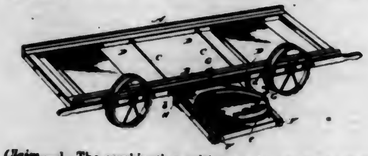
Claim.—1. A scatch-block comprising a frame having its sides or arms separated at their upper ends and concaved on their inner faces to form an enlarged socket and a removable hook having a head fitting within said socket of greater diameter than the space separating the sides or arms above it and of less diameter than the space below the same, the hook being thus adapted to be removed or inserted by passing its shank laterally between the separated or spaced upper ends of the frame when its head is in the space below its socket, substantially as set forth.

2. A snatch-block comprising a frame having its sides or arms separated at their upper ends and concaved on their inner faces to form an enlarged socket, and a removable hook having a head turning freely within said socket of greater diameter than the space above the socket and of less diameter than the space below it, the hook being thus adapted to be removed or inserted by passing its shank laterally between the spaced or separated upper ends of the frame when the head is within the space below its socket, and a fastening device securing the head against accidental displacement from its socket, substantially as described.

3. The combination, with the block-frame having its side arms separated and concaved at the top, one of said side arms having a projecting lug at the bottom of the concaved portion, of a hook having a cylindrical head to fit the concaved portions of the arm and having a keyway in the head adapted to pass over the lug on the frame, substantially as described.

4. The combination, with the frame having separated concaved upper ends, said ends having depending spurs near the top and one of them having a projecting lug at the bottom of the concaved portion, of a detachable hook having a cylindrical head to fit the concaved portions of the arms, said head having an annular groove at the top to receive the spurs of the frame, and a longitudinal keyway adapted to register with the lug on the frame, substantially as described.

481,021. CARRYING ATTACHMENT FOR HAND-CARS. JAMES W. GREENE, White City, Kans. Filed July 22, 1891. Serial No. 400,326. (No model.)

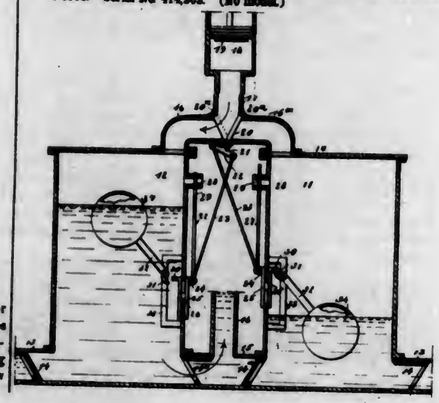


Claim.—1. The combination, with a car having hook-ended rods projecting therefrom, of a frame or support adapted to receive a keg or like receptacle and having means for the proper retention of said keg or receptacle in position thereon, said frame or support having straps adapted to engage said hook-ended rods, substantially as set forth.

2. The combination, with a car having hook-ended rods projecting therefrom, of a frame or support having a circular base thereon and hooks to secure a keg or like receptacle in proper position upon said base, and upturned eye-ended straps adapted to engage said rods, and angle-irons having said rods passing therefrom, substantially as set forth.

3. The combination, with a railway hand-car, of a frame for holding a water-keg, detachably secured to the hand-car by bars that extend through the sill of the car-frame, and to which bars the keg-carrier is secured, for the purposes specified.

481,022. PUMP. MELCHI M. GROVE, Garfield, Wash. Filed Dec. 7, 1891. Serial No. 414,962. (No model.)



Claim.—1. A pump comprising chambers having valved inlets and outlets at their lower ends and an air-pipe having branches connected with the upper ends of the chambers, of an air-inlet valve at the juncture of the two branches to divert the air into either chamber, floats pivoted within the said chambers, slide-blocks connected with the valve for operating it and in turn operated by said floats, and air exhaust-valves in the upper parts of said chambers and also connected with the slide-blocks, substantially as set forth.

2. A pump comprising similar chambers, each having a valve-controlled inlet-pipe at its lower end and each having a common valve-controlled outlet, a pipe having two branches connecting it with the upper ends of the chambers and said pipe connecting, also, with an air-pump, a valve arranged in the air-pipe at the juncture of its two branches and adapted to divert the water to either chamber, a walking-beam connected with the crank of the valve, slide-blocks held to move vertically in the walls of the chambers, connections between the slide-blocks and the ends of the walking-beam, and floats suspended in the chambers and adapted to operate the slide-blocks, substantially as described.

3. The combination, with the two chambers having suitable water inlets and outlets, as described, and having air-pipes opening from their upper portions, of a pipe connecting the upper ends of the chambers and connected, also, with an air-pump, a valve mounted in the air-pipe and adapted to divert the air to either chamber, slide-blocks held to move vertically in the chamber-walls, said slide-blocks being connected by rods with opposite ends of a walking-beam secured to the air-valve, plates connected with the slide-blocks and extending through the air-outlet pipes, said plates having suitable openings therein, and floats suspended in the chambers and adapted to operate the slide-blocks, substantially as described.

4. The combination, with the chambers having suitable water inlets and outlets and having air inlets and outlets at their upper ends, an air-pipe having two branches leading to said inlets, and a pivoted valve at the juncture of said branches, of the slide-blocks held to move vertically in the walls of the chambers and having operative connection with valves controlling the air-outlets and with the single pivoted air-inlet valve, and levers pivoted within the chambers and having at their inner ends toes to strike the flanges on the slide-blocks and at their outer ends floats, substantially as described.

481,023. TRANSPARENT TOY OR PUZZLE-PICTURE AND MODE OF PRODUCING THE SAME. WILHELM GRÜNE, Sr., Berlin, Germany. Filed Mar 14, 1892. Serial No. 424,882. (No specimens.)

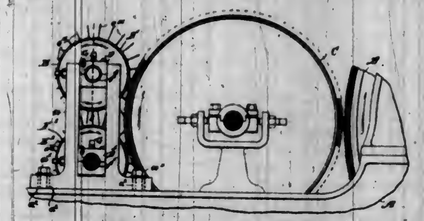
Claim.—1. The method of making transparent toys or puzzle-pictures, which consists in producing the picture upon the article by means of a protecting substance or material, as varnish, then etching the unprotected parts of the article by means of powdered silicate of magnesium, and then removing the protecting material from the article by means of a solvent, as benzine, substantially as and for the purposes set forth

2. A transparent toy or puzzle-picture consisting of two similar glass-plates adapted to be maintained in contact with each other and provided upon their adjacent faces with different vapor-controlled apparition and occultation pictures, the construction being such that by the application of heat to one plate and consequent deposition on the other the second picture is rendered visible, substantially as set forth.

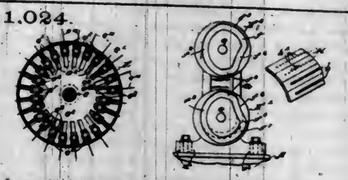
481,024. FEED-ROLL FOR CARDING-MACHINES, &c. AARON B. HARRISON, North Andover, Mass. Filed Apr. 8, 1891. Serial No. 388,165. (No model.)

Brief.—The feed-rolls are armed with teeth that are caused at different times to project to varying distances from the surface of the feed-rolls.

Claim.—1. The combination of a cylindrical feed-roll having longitudinally-movable teeth, another roll adapted to receive fibers from said teeth, and means of causing the points of said teeth at the side of said feed-roll adjacent to said receiving-roll to lie in a curved surface concentric with the axis of said receiving-roll, as and for the purpose specified.



481,024.



2. In combination with a receiving-roll, as a licker-in or burr-cylinder, of two rotary feed-rolls parallel with said receiving-roll, each of said feed-rolls having bars arranged to move radially therein, outwardly-projecting teeth carried by said bars, and stationary cams engaging said bars to vary the distance of said bars from the centers of said feed-rolls and to move said bars during a portion of each revolution of said feed-rolls in a curved path concentric with said receiving-roll and in proximity thereto, as and for the purpose specified.

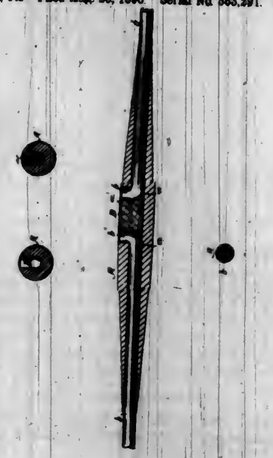
3. The combination of two parallel rotary feed-rolls, each having bars arranged to move radially therein, outwardly-projecting teeth carried by said bars, stationary cams having cam-grooves to engage said bars, to vary the distance of said bars from the centers of said feed-rolls, portions of said cam-grooves on the receiving sides of said rolls having an increasing radius to cause the teeth of each feed-roll in approaching the teeth of the other to enter the stock gradually and to attain their greatest projection when opposite the shaft of the other feed-roll, as and for the purpose specified.

4. The combination of a shaft, radially slotted disks fast on said shaft, bars movable in the slots of said disks toward and from said shaft and projecting through said slots, lags secured to the peripheries of said disks, teeth carried by said bars and projecting outwardly through openings with which said lags are provided, and stationary cams engaging the ends of said bars to vary the distance of said bars from said shaft when said shaft is rotated, as and for the purpose specified.

5. The combination of a shaft, radially-slotted disks fast on said shaft, bars movable in the slots of said disks toward and from said shaft and projecting through said slots, outwardly-projecting teeth carried by said bars, journal-boxes and cams having hollow cylindrical stems arranged in said journal-boxes and surrounding the journals of said shaft, and having cam-grooves to enable said cam-grooves to be brought into parallelism with each other by the rotation of said cams, as and for the purpose specified.

6. The combination of a shaft, radially-slotted disks fast on said shaft, bars movable in the slots of said disks toward and from said shaft and projecting through said slots, outwardly-projecting teeth carried by said bars, journal-boxes, cams having cam-grooves and having hollow cylindrical stems arranged to turn in said journal-boxes and surrounding the journals of said shaft to enable said cam-grooves to be brought into parallelism with each other by the rotation of said cams, and set-screws turning in said journal-boxes and thrusting against said stems to prevent the rotation of said cams, as and for the purpose specified.

481,025. JOINT FOR ELECTRIC WIRES. WALTER E. HARRINGTON, Atlantic City, N. J., assignor of one-half to Leonard Atwood, Philadelphia, Pa. Filed Aug. 28, 1890. Serial No. 363,291. (No model.)

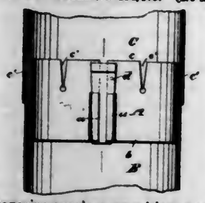


Claim.—1. The improvement in the art of connecting wires, which consists in forming a sleeve with a longitudinal passage and a transverse opening communicating therewith, inserting the ends of the wires into the passage, bending the ends of the wires, and introducing a material which afterward hardens around the bent ends of the wires, substantially as described.

2. A joint for wires, consisting of a sleeve having a longitudinal passage and a transverse opening communicating therewith, wires in the longitudinal passage, the ends of the wires being bent in the transverse opening, and a filling of cast material embedding the ends of the wires substantially as described.

3. A coupling for electric trolley-wires, consisting of a shell made from a single piece of metal having an orifice extending throughout its length and a transverse slot at the center, opening into said orifice, said shell being tapered to a feather-edge at both ends, wires passed through the orifice and having their ends turned up into the slot, and solder filling the slot and embedding the ends of the wires, substantially as set forth.

481,026. STOVEPIPE-COUPLING. FRANCIS P. HART, Strasburg, Pa. Filed Dec. 9, 1891. Serial No. 414,473. (No model.)

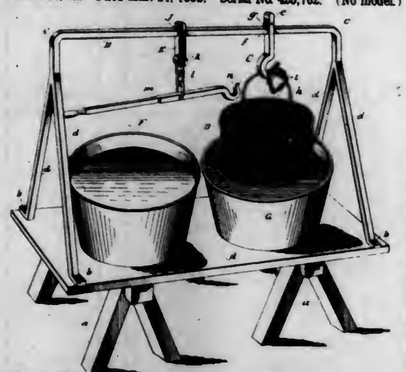


Claim.—1. A stovepipe-coupling comprising an open sleeve having one end notched to permit the said end to be contracted or expanded and provided with means for bodily expanding the sleeve, substantially as described.

2. A stovepipe-coupling comprising an open sleeve having one end notched and provided along its inner longitudinal edges with hooks and a wedge or key fitting in and between said hooks, substantially as described.

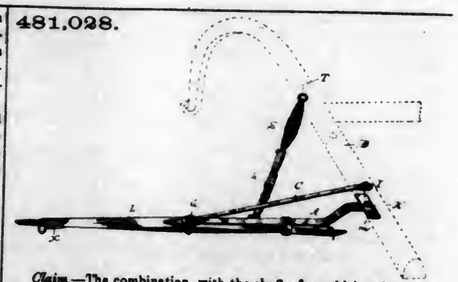
3. A stovepipe-coupling comprising a sleeve-piece having one end portion folded to double its thickness and longitudinally notched V-shaped, and at intervals the unjoined longitudinal edges of said sleeves being provided with hooks folded internally, and a thin wedge or key insertible between and within said hooks, substantially as described.

481,027. DISH-WASHING MACHINE. ANDERSON W. HEINLY, Danville, Ill. Filed Mar. 21, 1892. Serial No. 425,762. (No model.)



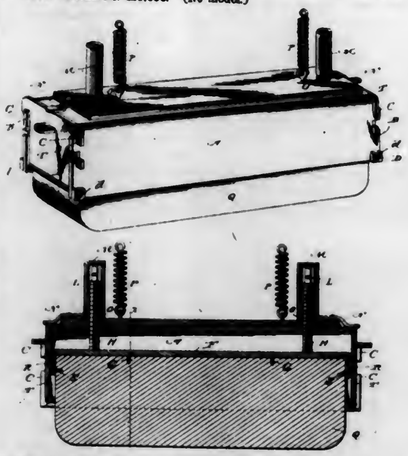
Claim.—The combination, in a dish-washing machine, of a frame consisting of a horizontal bar bent downwardly at right angles at a suitable distance from its ends and said ends being divided longitudinally and extending divergingly downward, a hook having a slot in its shank, a roller mounted in said slot, a wire basket, a chain connecting said basket and said hook, and means adjustably mounted on said horizontal rod for moving said basket, substantially as described.

481,028. WHIFFLETREE. WILLIAM F. HENRY, WILLIAM P. BOLLES, and ALFRED MCKEE, Bloomington, Ill. Filed Apr. 1, 1892. Serial No. 427,490. (No model.)



Claim.—The combination, with the shaft of a vehicle, of an arm A, pivoted at one end to the shaft and having pivoted to its other end a whiffletree L, a brace C, pivotally connected at one end to the free end of said arm and its other end pivotally connected to the shaft, and an elastic connection between the shaft and the said arm, substantially as and for the purpose described.

481,029. RAIL-BRAKE. CHARLES W. HOWLETT, Kansas City, Mo., assignor of one-third to Daniel S. Gerber, same place. Filed Feb. 27, 1892. Serial No. 423,038. (No model.)



Claim.—1. A rail-brake shoe consisting of an inclosing case or shell, a movable plate arranged in said shell, a brake-sole connected to said plate, and means for moving said plate and sole vertically within the inclosing shell, substantially as described.

2. A rail-brake shoe consisting of an inclosing case or shell, a horizontal movable plate arranged within the shell, a brake-sole connected to said plate, and adjusting-screws supported in the shell and adapted to move the plate and sole vertically therein, substantially as described.

3. A rail-brake shoe consisting of an inclosing case or shell, a horizontal movable plate arranged within the shell, a brake-sole fitted in the inclosing shell, the dogs pivotally connected to the movable plate and engaging with the ends of the sole, and means for adjusting the plate and sole vertically within the shell, substantially as described.

4. In a rail-brake shoe, the combination of the inclosing shell open at its lower end, a brake-sole fitted within and extending below said shell, a horizontal plate fitted in the shell above the sole and provided on its under surface with a series of spurs, which engage with the brake-sole, the dogs pivoted to the plate and engaging with the ends of the brake-sole, and the operating-screws connected to the movable plate and extending through the inclosing shell, substantially as and for the purpose described.

5. The combination of an inclosing shell open at its lower side and at its ends, bolts connecting the sides and extending across the open ends, the end plates arranged to close the ends of the shell, the coiled springs connected to said shell and adapted to be connected to the trucks of the car, a brake-sole fitted within the shell, and means for adjusting said sole vertically within the shell, substantially as described.

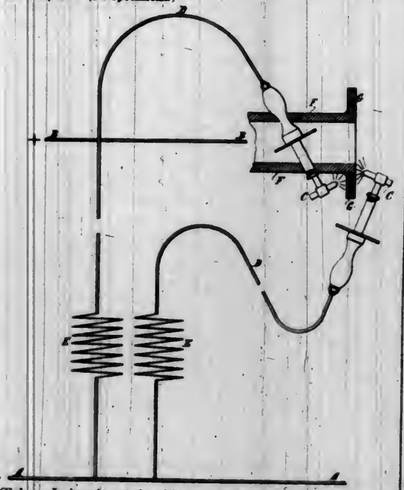
6. The combination of the inclosing shell open at its ends and lower side, the bolts connecting the sides and extending across the open ends,

the removable plates adapted to close the ends, a brake-sole fitted within and extending below the inclosing shell, a plate arranged within the shell and detachably connected to the sole, adjusting-screws connected to said plate and extending above the inclosing shell, removable caps fitted over the exposed portions of the adjusting-screws, and the levers or catches pivoted on the inclosing shell and operating to confine the removable caps and the detachable end plates in place, substantially as described.

7. The combination, with a shell or case and a brake-sole, of an adjustable plate within the shell and engaging the sole along its upper side and at its ends, and means for adjusting the plate, substantially as described.

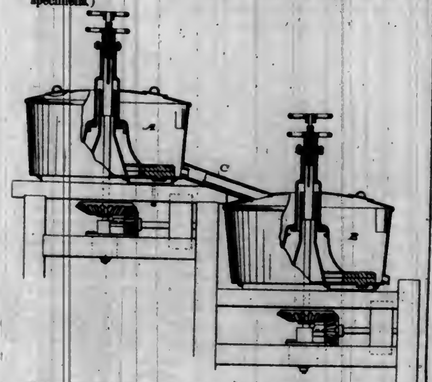
8. The combination, with a shell, a sole, and an adjusting-screw of a protection-case fitted on the screw, an end plate fitted to the open end of the case, and a latch arranged to engage both the protection-case and the end plate, substantially as described.

481,030. METHOD OF ELECTRIC WELDING. HENRY HOWARD, Halesowen, near Birmingham, England. Filed May 31, 1892. Serial No. 434,948. (No specimens.)



Claim.—In heating and welding with the electric arc, the combination of a main connected to one pole of the source of electricity, two or more pencils connected to the said main, two or more resistances each interposed between one of the pencils and the said main, and a second main connected at one end to the work to be heated or welded and at the other end to the other pole of the source of electricity.

481,031. ART OF AMALGAMATING SILVER ORE. ALEXIS JANIN, San Francisco, Cal. Filed May 6, 1892. Serial No. 432,042. (No specimens.)

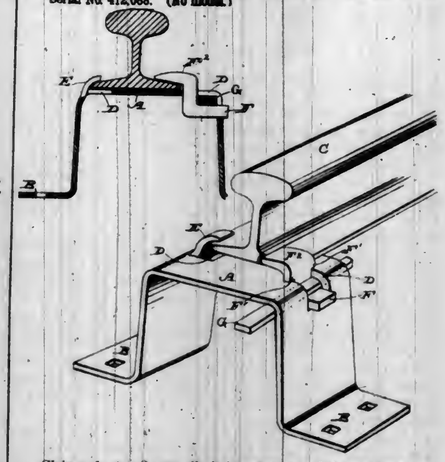


Claim.—1. The improvement in the art of amalgamating silver ores, which consists in adding to the ore precipitated metallic copper and an acid salt, heating and stirring the pulp until the silver minerals are desulphurized, then adding mercury, and concluding the amalgamation in the usual manner.

2. The improvement in the art of amalgamating silver ores, which consists in subjecting the ore in a preparatory pan or mixing-tub to the action of precipitated metallic copper and an acid salt, heating and stirring the pulp until the silver minerals are desulphurized, then discharging the pulp into an amalgamating-pan, adding mercury, and concluding the amalgamation in the usual manner.

3. The improvement in the art of amalgamating silver ores, which consists in adding to the ore in a preparatory or mixing tub sulphate of copper and salt, together with finely-divided metallic iron or zinc, heating and stirring the pulp until the silver minerals are desulphurized, then discharging the pulp into an amalgamating-pan, adding mercury, and concluding the amalgamation in the usual way.

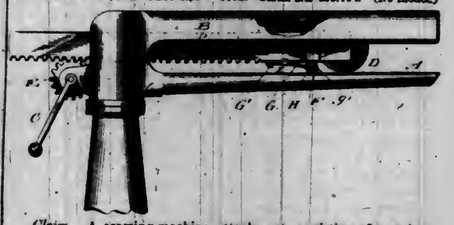
481,032. RAILWAY-RAIL CHAIR. BYRON JENNINGS, San José, assignor of one-half to James Bruce, Oakland, Cal. Filed Nov. 16, 1891. Serial No. 412,068. (No model.)



Claim.—1. A railway-rail chair consisting of the angular metal plate adapted to be secured to the tie, having a slot extending part way across the top and down upon one side, a fixed tongue projecting upward from one side of the chair, adapted to clasp and hold one flange of the rail, a bent yoke having a hook-shaped head, which presses upon the opposite flange of the rail, and a key introduced between the angle of the yoke and the inner angle of the chair, substantially as herein described.

2. A railway-chair consisting of the bent angular plate having a means by which it is secured to the tie, a slot extending part way across the top and part way down one side of the chair, a fixed hook-shaped clamp upon one side, beneath which one flange of the rail is secured, an angular piece F, bent to fit into the open slot and against the web upon the opposite side, having the hook shaped head extending over the flange of the rail, the shoulders F', resting upon the top of the chair at each side of the slot, and a locking-key passing inside of the angle of the chair and exterior to the angle of the locking-piece F, whereby the latter is locked securely to the chair, substantially as herein described.

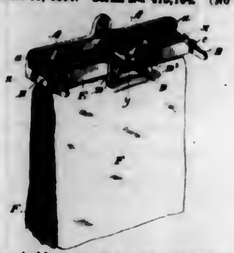
481,033. SEAMING-MACHINE. GOTTHILF F. E. KAESLEITER, Terre Haute, Ind. Filed Apr. 7, 1892. Serial No. 428,194. (No model.)



Claim.—A seaming-machine attachment consisting of a spring-

arm having one end cut away with the side portions turned up and curved to form upper bearings for the pintles of a roller, a roller having pintles held in said bearings, springs secured to the under face of the spring-arm and receiving the pintles, and a plate with ribs upon the upper face of the said arm to prevent lateral movement thereof, in combination with the co-operating parts, as set forth.

481,084. TOILET-PAPER HOLDER. JAMES M. KEEP, New York, N. Y. Filed Dec. 18, 1891. Serial No. 415,164. (No model.)



Claim.—1. In a holder for toilet and other paper in sheets, in combination with the main or back plate having guiding posts or arms at its ends, the longitudinal movable bar having its ends close to the inner sides of the guiding posts or arms, provided with projecting guide-lugs overlapping the latter, and means for forcing the same toward the main plate, substantially as and for the purpose specified.

2. In a holder for toilet and other paper in sheets, in combination with the main plate having a groove in its front face, the bar having a rib opposite such groove and means for forcing such rib toward the plate, substantially as and for the purpose specified.

3. In a holder for toilet and other paper in sheets, in combination with the main plate having a groove, the bar having a rib opposite such groove, provided with teeth, and means for forcing and holding such bar as forced toward the plate, substantially as and for the purpose shown.

4. In a holder for toilet and other paper in sheets, in combination with the main plate having its front face provided with two projecting ribs arranged to leave a groove or channel between them, the bar carrying a longitudinal series of teeth opposite such groove and means for forcing the bar toward the plate, substantially as and for the purpose set forth.

5. In a holder for toilet and other paper in sheets, in combination with the main plate provided with the two longitudinal ribs on its front face and the two arms, the movable bar having the serrated rib and provided with suitable guide-lugs to engage the arms on the main plate and a screw device to force the bar toward the plate, so as to clamp a bundle or mass of sheets of paper between the toothed rib on the bar and the ribs on the plate, substantially as and for the purpose described.

481,085. MUSICAL INSTRUMENT. DWIGHT KEMPTON, Summerland, Cal. Filed Feb. 3, 1892. Serial No. 420,160. (No model.)

Claim.—1. A musical instrument provided with a series of harmonic sections, each comprising a bar, pins held on the said bar and carrying the strings, and a bridge held on the said bar and over which pass the strings, substantially as shown and described.

2. In a musical instrument, a harmonic section having an independent bridge over which pass the strings, substantially as shown and described.

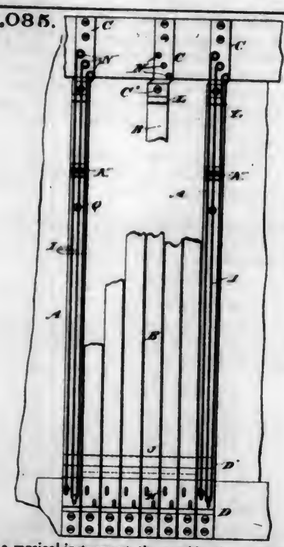
3. A musical instrument provided with a series of harmonic sections arranged alongside each other, but independent one of the other, each section supporting its strings or group of strings for the respective note, substantially as shown and described.

4. A musical instrument provided with a series of harmonic sections arranged alongside each other, but independent one of the other, each section supporting its strings or group of strings for the respective note, and a bridge held on each of the said sections to permit of giving the string or group of strings the desired tones, substantially as shown and described.

5. In a musical instrument, the combination, with a frame and a sounding-board secured thereto, of a series of harmonic sections secured to the said frame in front of the sounding-board, the said sections being arranged alongside each other, but independent one from the other, substantially as shown and described.

6. In a musical instrument, the combination, with a frame and a sounding-board secured to the back thereof, of a series of harmonic sections secured to the front of the said frame, each section supporting a string or group of strings forming one tone, the said sections being arranged alongside each other, but independent one from the other, substantially as described.

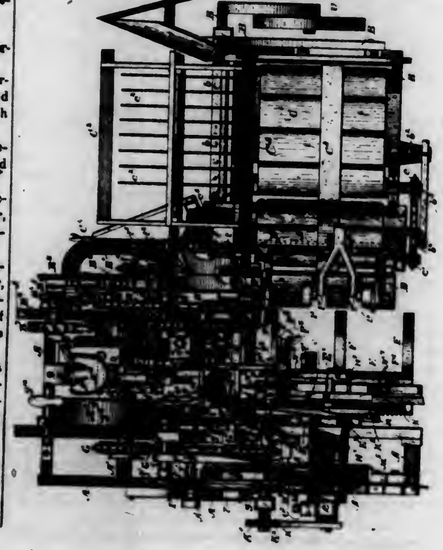
481,085.



7. In a musical instrument, the combination, with a frame and a sounding-board secured to the back thereof, of a series of harmonic sections secured to the front of the said frame, each section supporting a string or group of strings forming one tone, the said sections being arranged alongside each other, but independent one from the other, and a post extending from each section to the said sounding-board, substantially as shown and described.

8. In a musical instrument, the combination, with a frame and a sounding-board secured to the back thereof, of a series of harmonic sections secured to the front of the said frame, each section supporting a string or group of strings forming one tone, the said sections being arranged alongside each other, but independent one from the other, a post extending from each section to the said sounding-board, and means, substantially as described, for adjusting the said post, as set forth.

481,086. CORN HARVESTER AND SHOCKER. GRANGER G. KINNELL, Farmer, assignor of one-fourth to Wilber W. Kinnell, Bryan, Ohio. Filed Oct. 30, 1890. Serial No. 369,835. (No model.)



Claim.—1. In a corn-harvester, the combination, with the bundling or shocking mechanism, substantially as described, and the cutter, of the conveyer for transferring the corn from the cutter to the bundling mechanism and a flexible band of sheet metal overlying said conveyer, resting thereon and forming a smooth way along which the corn travels, substantially as described.

2. In a corn-harvester, the combination, with the pivoted bundling and shocking mechanism, substantially as described, the intermittingly-operated wheel co-operating with the arms when in a horizontal position to open or close the barrel, and the cutter and conveyer for transferring the corn from the cutter to the bundling and shocking mechanism, of the feed-table over which the corn passes, the movable arms adapted to project above the feed-table to interrupt the feed, and connections between said arms and the intermittingly-operated wheel, whereby the feed is arrested when the barrel is closed, substantially as described.

3. In a corn-harvester, the combination, with the main drive-shaft, bundling or shocking mechanism, cutter, conveyer, and feed-table, of the feed-fingers connected to a crank-shaft carrying a cam and pawl, a constantly-moving ratchet-wheel driven from the main drive-shaft and with which the pawl engages, and the pivoted arm carrying the anti-friction roller riding on the cam for releasing the pawl, said arm being released by the bundling or shocking mechanism, whereby the movements of the feed-fingers may be arrested when the bundling and shocking mechanism is not in position, substantially as described.

4. In a corn-harvester, the combination, with the main drive-shaft, bundling or shocking mechanism, cutter, conveyer, feed-table, feed-fingers, crank-shaft to which the fingers are connected, and pawl and cam on said shaft, of the constantly-moving ratchet-wheel with which the pawl engages driven from the main shaft, the spring pressed arm for throwing the pawl out of engagement, the spring for holding said arm in operative position, and the catch controlled by the bundling or shocking mechanism for maintaining the tension on said spring, substantially as described.

5. In a corn-harvester, the combination, with the main drive-shaft, bundling or shocking mechanism, cutter, conveyer, feed-table, feed-fingers, crank-shaft to which the fingers are connected, and pawl and cam on said shaft, of the constantly-moving ratchet-wheel driven from the main drive-shaft, with which the pawl engages, the pivoted spring-pressed arm carrying the anti-friction roller for throwing the pawl out of engagement, the spring for holding the said arm in operative position, the pivoted block on which said spring is mounted, and the catch controlled by the bundling and shocking mechanism for holding said block in with the tension on the spring, substantially as described.

6. In a corn-harvester, the combination, with the main drive-shaft, bundling or shocking mechanism, cutter, conveyer, feed-table, feed-fingers, pivoted links on which the fingers are mounted and crank-shaft to which said fingers are connected, and pawl, of the constantly-moving ratchet-wheel driven from the main drive-shaft, with which the pawl engages, the pivoted spring-pressed arm carrying the anti-friction roller for throwing the pawl out of engagement, the spring for holding the arm in operative position, the pivoted block on which the spring is mounted, the catch engaging said block moved by the bundling and shocking mechanism, and the cam on the crank-shaft having the recess and depressed portions, as described, and forming the track for the anti-friction roller, substantially as described.

7. In a corn-harvester, the combination, with the main drive-shaft and bundling or shocking mechanism, of the main operating-wheel for said mechanism, having connections with the drive-shaft, a clutch interposed in said connections, an arm for disengaging the clutch and then holding it disengaged, said arm adapted to be released by the driver, a second arm or lever for disengaging said clutch at a different point in the revolution of said operating-wheel and holding it disengaged, and a lever interposed in the path of the discharged shock at the rear of the machine for releasing said second arm or lever, substantially as set forth.

8. In a corn-harvester, the combination, with the main drive-shaft and bundling and shocking mechanism, of the main operating-wheel for said mechanism, having connections with the drive-shaft, a clutch interposed in said connections, a yoke rigidly secured to the main frame, having a shaft to which is pivoted an arm for disengaging said clutch and then holding it disengaged, a depending bracket secured to said shaft and provided with a lug through which passes a rod having a spring connection with the bracket and connected to said clutch-releasing arm, and a catch whereby said bracket is locked, said catch being released by the driver, substantially as described.

9. In a corn-harvester, the combination, with the main drive-shaft and the bundling or shocking mechanism, of the main operating-wheel for said mechanism, carrying a cam having a recess, a clutch interposed between the drive-shaft and said main operating-wheel, and an arm for disengaging said clutch, having an anti friction roller running on the cam, a spring for pressing the roller into the recess for releasing the clutch, and a latch under the control of the driver for holding the spring compressed, substantially as described.

10. In a corn-harvester, the combination, with the cutting and conveying mechanism and drive-shaft, of the barrel formed by the oppositely-arranged clamping-arms mounted on a common base pivoted at the center on a horizontal pivot at one side of the plane of movement of the barrel, and connections, substantially as described, between said barrel and drive-shaft for turning the same on its center, substantially as described.

11. In a corn-harvester, the combination, with the cutting and conveying mechanism and drive-shaft, of the barrel formed by the oppositely-arranged clamping-arms mounted on a common base pivoted at the center, a vertically-movable bar carrying said pivot, and connections, substantially as described, between the barrel and drive-shaft for turning the same on its center, as and for the purpose set forth.

12. In a corn-harvester, the combination, with the cutting and conveying mechanism and drive-shaft, of the barrel formed by the oppositely-arranged clamping-arms mounted on a common base pivoted at the center, connections between said barrel and drive-shaft for turning the same on its center, a vertically-movable bar or frame carrying the pivot for the barrel, a lock for holding the bar elevated, and connections, substantially as described, between the bar and drive-shaft for elevating the same, as and for the purpose set forth.

13. In a corn-harvester, the combination, with the cutting and conveying mechanism, drive-shaft, and centrally-pivoted barrel, of the vertically-movable bar or frame carrying the pivot for the barrel, the lock for holding the bar or frame elevated, the shaft driven from the main drive-shaft, having the crank-pin thereon, the link on the bar engaging the pin to elevate the bar during one part of the revolution of the shaft, and a lever tripped by an arm on the shaft to release the lock during another part of the revolution, substantially as described.

14. In a corn-harvester, the combination, with the cutting and conveying mechanism, drive-shaft, and centrally-pivoted barrel, of the shaft driven from the main drive-shaft and the crank-arm and link moved thereby to rotate the barrel on its center, substantially as described.

15. In a corn-harvester, the combination, with the cutting and conveying mechanism, drive-shaft, and centrally-pivoted barrel, of the shaft driven from the main drive-shaft, the rock-shaft connected to said shaft by the double crank and link $K K^1 K'$, respectively, whereby the rock-shaft is oscillated, a crank-arm on said rock-shaft, and a link connecting said arm and barrel, whereby the latter is moved from a horizontal to a vertical position and back again, substantially as described.

16. In a corn-harvesting machine, the combination, with the cutting and conveying mechanism, drive-shaft, centrally-pivoted barrel, and main drive-wheel for the bundling mechanism of the shaft, having a gear thereon meshing with said drive-wheel, of the vertically-movable bar or frame carrying the pivot of the barrel, the link connected to said bar and engaging a crank-pin moved by the shaft, an oscillating shaft and double-crank and link connection between said shafts, and a crank-arm and link connecting the rock-shaft and barrel, substantially as and for the purpose set forth.

17. In a corn-harvester, the combination, with the centrally-pivoted barrel, main operating-wheel for turning the same on its pivot, main drive-shaft from which said wheel is driven, a clutch for transmitting motion from the drive-shaft to the operating-wheel, an arm g^2 for releasing said clutch and holding it disengaged while the barrel is in a horizontal position, a catch g^3 for said arm, a lever M' for automatically releasing the clutch and then holding it disengaged when the barrel has turned to vertical position, and an arm M^3, projecting into the path of the discharged bundle for withdrawing said clutch-releasing lever, substantially as described.

18. In a corn-harvester, the combination, with the drive-shaft, cutter, and conveyer, of the barrel for receiving the corn, having the oppositely-arranged clamping-arms pivotally mounted on their base, the lock for the lower arm, and the spring for holding the upper arm down, substantially as described.

19. In a corn-harvester, the combination, with the drive shaft, cutter, and conveyer, of the barrel for receiving the corn, having the oppositely-arranged clamping-arms pivotally mounted on their frame, the lock for the lower arm, the spring for holding the upper arm down, and the latch for holding said spring compressed, substantially as described.

20. In a corn-harvester, the combination, with the drive-shaft, cutter, and conveyer, of the barrel for receiving the corn, having the oppositely-arranged clamping-arms, the lower arms being pivotally mounted on the supporting-frame, a shaft interposed between the upper arms and said frame, a spring between said shaft and arms for holding the arms down, and a latch for holding the shaft in said last-named position, substantially as described.

21. In a corn-harvester, the combination, with the drive-shaft, cutter, conveyer, and pivoted barrel for receiving and standing the corn on end, of the shaft controlling the upper arms of said barrel, the stud having the slot therein, with which said shaft engages, and the cam on the said operating-wheel for turning said stud, substantially as described.

22. In a corn-harvester, the combination, with the drive-shaft, cutter, conveyer, and pivoted barrel having the oppositely-arranged pivoted arms, of the gear on the lower arms, the bell-crank lever connected to the main frame for closing the arms when in horizontal position, and the gear N⁵ and link N⁶, connecting said lever and gear, substantially as described.

23. In a corn-harvester, the combination, with the drive-shaft, cutter, conveyer, and pivoted barrel having the oppositely-arranged pivoted arms, of the gear on the lower arms, gear N⁴, meshing therewith, the bell-crank lever N⁷, connected to said gear N⁶, link N⁸, connected thereto, lever pivoted on the main frame and connected to the link, and the lever driven from the main shaft for opening the arms when in vertical position, substantially as described.

24. In a corn-harvester, the combination, with the drive-shaft, cutter, conveyer, and pivoted barrel having oppositely-arranged pivoted arms, of the catch for holding the upper arms depressed, and the lever controlling said catch lying within the barrel, whereby the corn within the barrel throws the catch into operative position, substantially as described.

481,037. CASH INDICATOR AND REGISTER. GARDNER KNAPP, Somerville, and CHARLES H. LITTLE, Chelsea, Mass., assignors, by mesne assignments, to the Boston Cash Register Company, Portland, Me. Filed Nov. 20, 1888. Serial No. 291,412. (No model.)



Claim.—1. In a register, the combination, with two adjacent movable parts, as keys, of an arrester consisting of a rolling piece or body of a diameter greater than the space in the parts between the keys and a channel or holder for receiving and guiding such rolling arrester-body, substantially as described.

2. The combination of a series of keys, a tube or stop-case arranged at right angles with said keys and provided with a number of slots equal to the number of said keys, and a series of stops capable of rolling in said stop-case and arranged side by side within the same, the length of the combined diameters of said stops being less than the interior length of said case by the transverse thickness of said key when the same in being depressed strikes said stops, substantially as described.

3. The combination of a series of keys, each provided with a stop-separator having a uniform thickness laterally, a tube or stop-case arranged at right angles with said keys and provided with a number of slots equal to the number of said keys, each of said slots being adapted to admit one of said keys, and a series of stops capable of rolling in said stop-case and arranged side by side within the same, the length of the combined diameters of said stops being less than the interior length of said case by an amount as great as the transverse thickness of a stop-separator, substantially as described.

4. In a cash register and indicator, the combination of the operating-keys and the stops made in the form of balls and arranged to operate substantially as described.

5. In a cash register and indicator, the combination of the operating-keys provided with extensions and the stops made in the form of balls, substantially as described.

481,038. BICYCLE-TIRE. ARTHUR A. KUPPER and HERMAN C. KUPPER, Providence, R. I. Filed Mar. 8, 1892. Serial No. 424,196. (No model.)

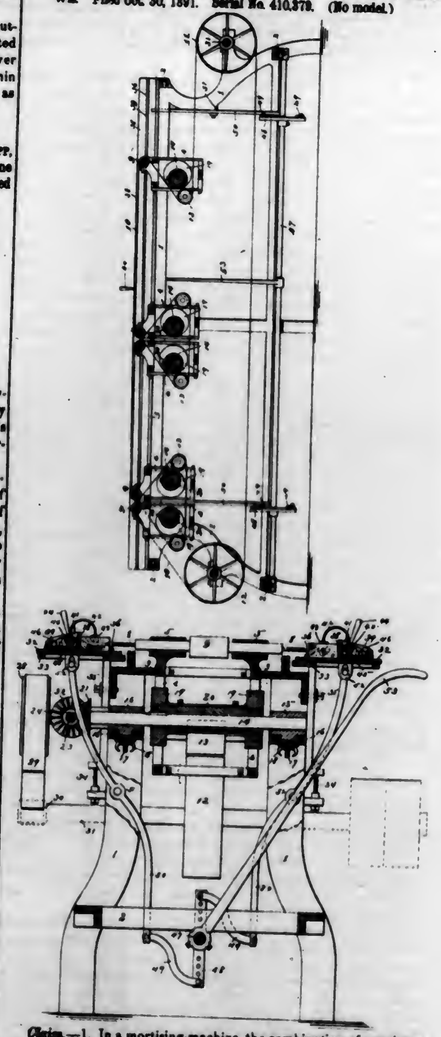


Claim.—1. In a pneumatic tire, the combination therewith of an endless expansible tube secured to the upper inner portion thereof and collapsed against this portion of the tire when not in use and independent means for expanding the same, as described.

2. In a pneumatic tire having an inner expansible tube secured to and normally collapsed against the upper inner portion thereof, the combination therewith of a narrow reinforce-strip formed of crossed wires secured between layers of cloth or rubber and located in the tread of the tire, as described.

3. The combination, with a pneumatic tire provided with a valve and an inner expansible tube 13, secured to and normally collapsed against the upper inner portion of the tire, of the reinforce-strip 9, consisting of the layers 11 11 of cloth or rubber, and the crossed wires 10, secured between said layers, secured in the tread of the tire and extending for but a portion of its circumference, as and for the purpose described.

481,039. MORTISING-MACHINE. WILBUR F. LARISH, Oshkosh, Wis. Filed Oct. 30, 1891. Serial No. 410,378. (No model.)



Claim.—1. In a mortising-machine, the combination of a series or gang of mortising-tools, independent reciprocating carriages for the same, transverse shafts movable with and having adjustable means for reciprocating the carriages, a power mechanism and adjustable connections between the same and said shafts for actuating the latter, and means for rotating said tools, substantially as set forth.

2. In a mortising-machine, the combination of guides 3, a series of frames adjustable on and adapted to be reciprocated on said guides, a shaft and mortising-tool mounted on each frame, means for rotating said shafts, a common power mechanism for reciprocating the said frames, and power devices for reciprocating the frames movable with said frames and having adjustable connections with said common power mechanism, substantially as set forth.

3. In a mortising-machine, the combination, with suitable guides, of a series of frames adjustable on and adapted to be reciprocated on said guides, a shaft and mortising-tool mounted on each frame, means for rotating said shafts, transverse adjustable shafts connected and movable with said frames and having devices for reciprocating the latter, and means for actuating the latter shafts, substantially as set forth.

4. In a mortising-machine, the combination, with a main frame having suitable guides, of a series of frames adjustable on and adapted to be reciprocated on said guides, a shaft and mortising-tool mounted on each frame, means for rotating said shafts, transverse shafts 14, connected with and adapted to reciprocate the said frames, bearings 15 for the latter shafts adjustable on the main frame, and a power mechanism having adjustable connections with the latter shafts, substantially as set forth.

5. In a mortising-machine, the combination of a series or gang of mortising-tools, independent reciprocating carriages for the same, actuating mechanism for the tools, comprising a series of transverse shafts and eccentrics and a longitudinal driving-shaft connected therewith, and means for regulating the length of reciprocation of the carriages independently from each other, substantially as set forth.

6. The combination of a series of frames or carriages adapted to support the mortising-tools, shafts connected with and adapted by suitable means to reciprocate said carriages and having gear-wheels, adjustable bearings for said shafts, whereby said tools may be located at any desired point in the length of the work, a longitudinal shaft having gear-wheels adjustable thereon and adapted to engage said first-mentioned wheels, substantially as set forth.

7. The combination of a series of carriages 4, adapted to support the mortising-tools, transverse shafts 14, having means for reciprocating said carriages and provided with miter-wheels 21, adjustable bearings for said shafts, the longitudinal shaft 23, adjustable miter-wheels 22 on the latter shaft, and means for rotating the longitudinal shaft and the mortising-tools, substantially as set forth.

8. The combination of a series of reciprocating frames or carriages, transverse shafts mounted thereon and adapted to carry a mortising-tool, a single belt connected with said shafts for rotating them, transverse shafts having eccentrics adapted to reciprocate said frames or carriages, and means for actuating the latter shafts and said belt, substantially as set forth.

9. The combination, with the frames or carriages 4, having tool holding and actuating devices, of the shafts 14, having the internal eccentrics 20 and external eccentrics 19, adjustable upon the eccentrics 20 and adapted to reciprocate said carriages, substantially as set forth.

10. The combination, with the mortising-augers and reciprocating holders therefor and the rail 59, of the stationary chisels 56 and clamps for holding the same longitudinally adjustable upon said rail, substantially as set forth.

11. The combination, with the reciprocating frames or carriages 4 and the shafts 6, adapted to carry a mortising-tool, of the slotting-chisels 56, mounted on said carriages and extending in the direction of movement of the latter, substantially as set forth.

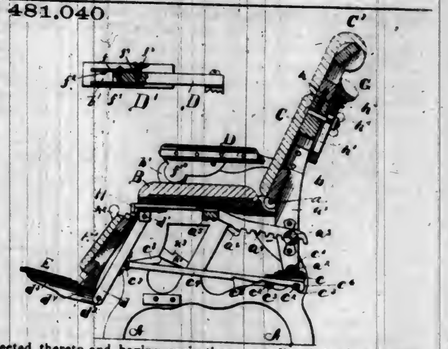
12. The combination, with the duplicate oppositely-directed reciprocating mortising devices, of the work-carriages 32 32, situated upon opposite sides of said devices, and an actuating mechanism connected with both of said carriages and adapted to move them toward and from the mortising-tools, substantially as set forth.

13. The combination, with the mortising devices, of the carriage 32, the levers 50, the links 49, the rock-shaft 47, connected with said links, and means for operating said shaft, substantially as set forth.

14. The combination, with the carriage 32 and the mortising devices, of the vertically-adjustable table 33, the levers 50, having a slotted connection with the carriage, and means for oscillating said levers and reciprocating said carriage thereon toward and from the mortising devices, substantially as described.

15. The combination, with the mortising devices, of the work-holding clamps comprising the rock-shaft 40, spring-clamps 42, mounted thereon, the ratchet-wheel 45 on the shaft, the pawl 46, engaging said ratchet, and means for turning said shaft, substantially as set forth.

481,040. PHYSICIAN'S OPERATING-CHAIR. SAMUEL LOSEBECKER, Troy, Ohio. Filed Oct. 19, 1891. Serial No. 409,182. (No model.)



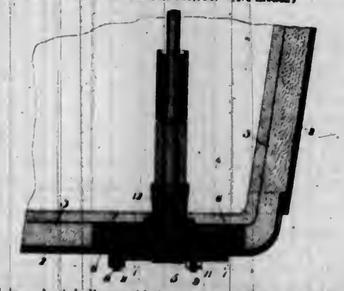
Claim.—1. In a chair, a base or frame surmounted by a seat, a back pivoted to the rear of said base and having projections which extend below the pivotal point, a trough-shaped connecting-piece *c*, pivotally connected to the lower extremities of said projections, a leg-rest pivoted to the front of said base, and a foot-rest pivoted to said leg-rest and through the medium of bars *d* to said base, and a connecting-bar c^4, hinged to the rear of the bars *d* and provided with notches c^5, adapted to engage with rods c^3 on said trough-shaped connecting-piece *c*, substantially as and for the purpose specified.

2. In a chair, a base surmounted by a seat, a back pivotally connected thereto and having projections extending below the pivotal point and connected to a cross-bar, a connecting-piece *c*, pivoted to said cross-bar, a locking-lever pivoted to said frame and provided with notches adapted to engage with a stud on one of said projections, a handle connected to said locking-lever, leg and foot rests pivoted to the front of said frame, and a connecting-bar c^4, pivoted at one end to the bars *d* and at the other adapted to engage with the connecting-piece *c*, said connecting-bar being provided with a handle c^6 for adjusting the same, substantially as specified.

3. In a chair, the combination, with the base and pivoted back, of the arms pivoted to said back and the arm-supports pivoted to said base, a detachable pivot connection between the front ends of said arms and the top of the pivoted arm-supports, and stop projections to limit the movement of said arms with relation to said back, substantially as and for the purpose specified.

4. In an adjustable chair having a base and seat and a pivoted back connected to said base, hinged arms and arm-supports, each pivoted at one end to the back and base, respectively, and at their opposite ends connected together by a detachable pivot connection, stop-projections on said arms and back to limit the movement of said arms with relation to said back, and a side support or table on said base adjacent to said seat and normally divided therefrom by said arm and arm-support, said table being adapted to form substantially a continuation of said seat when the arm and arm-support are detached and adjusted about their pivotal connection, substantially as specified.

481,041. LADLE-NOZZLE. CAMILLE MERCADER, Braddock, Pa. Filed Feb. 10, 1892. Serial No. 420,950. (No model.)



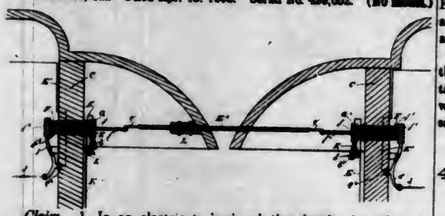
Claim.—1. A ladle provided with a hole for the insertion of a nozzle, a nozzle arranged to be removed outwardly through said hole, and means for holding said nozzle in place, in combination with an interior vertically-movable stopper, substantially as and for the purposes described.

2. A ladle provided with an inwardly-tapering nozzle set in a hole, from which it is removable outwardly, and means for removably holding said nozzle in place, in combination with an interior vertically-movable stopper, substantially as and for the purposes described.

3. A ladle provided with an annular ring and having interior inwardly-tapering sides, a nozzle having corresponding inwardly-tapering sides set in said ring, from which it is removable outwardly, and means for holding the nozzle in said ring, in combination with an interior vertically-movable stopper, substantially as and for the purposes described.

4. A ladle having a nozzle with inwardly-tapering sides and an external apertured plate bearing upon said nozzle and removably held in place, in combination with an interior vertically-movable stopper, substantially as and for the purposes described.

481,042. ELECTRIC TRAIN-SIGNAL. GEORGE MERRITT, San Francisco, Cal. Filed Apr. 13, 1892. Serial No. 429,052. (No model.)



Claim.—1. In an electric train-signal, the circuit-wires thereof extending throughout the train, in combination with a metallic rod passing through the car end and forming part of the circuit, a contact-piece also led into the circuit, and a pivoted lever electrically connected with the metallic rod and adapted to be moved into and out of electric connection with said contact-piece to close and open the circuit, substantially as herein described.

2. In an electric train-signal, the circuit-wires thereof extending throughout the train, in combination with a metallic rod passing through the car end and forming part of the circuit, a contact-piece within the car and also let into the circuit, a pivoted lever electrically connected with the metallic rod and adapted to make and break electrical connection with the contact-piece, and a cord extending within the car and connected with said lever, whereby it is operated, substantially as herein described.

3. In an electric train-signal, the circuit-wires thereof extending throughout the train, in combination with the sliding spring-controlled metallic rod passing through the end of the car and forming part of the circuit, the contact-piece within the car also let into the circuit, the pivoted lever electrically connected with the metallic rod and adapted to be thrown into and out of connection with the contact-piece, and connections between the cars for pulling the metallic rod outwardly to operate the lever, substantially as herein described.

4. In an electric train-signal, the circuit-wires thereof extending throughout the train, in combination with the sliding spring-controlled metallic rod passing through the end of the car and forming part of the circuit, the contact piece within the car also let into the circuit, the pivoted lever electrically connected with the metallic rod and normally in contact with the contact-piece, the cord within the car for operating said lever to break connection with the contact-piece, and connections between the cars for pulling the metallic rod outwardly to throw its lever out of contact with said contact-piece, substantially as herein described.

5. In an electric train-signal, the combination of the circuit-wires, the sliding rods passing through the ends of the cars and having contact levers, and the contact-pieces within the cars, with which the levers make and break electrical contact, and the flexible cables for carrying the circuit between the cars and electrically connecting one of the circuit-wires with the sliding rods, substantially as herein described

6. In an electric train-signal, the spring-controlled sliding rods in the ends of the cars, said rods having on their outer ends the bands G, insulated therefrom, and on their inner ends the swinging contact-levers, the contact-pieces within the cars, the arms carried at the outer end of the rods, one in electrical connection with the rods and the other with the bands G, the circuit-wire E, connected with bands G, the circuit-wire E', connected with the contact-pieces within the cars, and the flexible cables between the cars, having hooks electrically connecting the bands and the rods of adjacent cars, respectively, substantially as herein described.

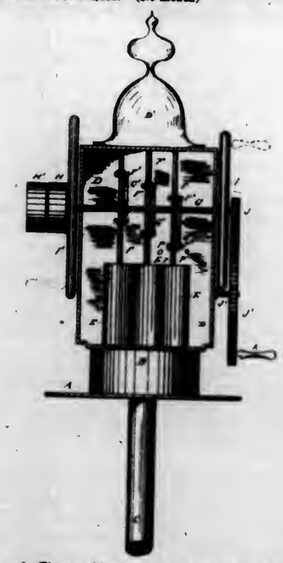
7. In an electric train-signal, the combination of circuit-wires, the sliding spring-controlled rods F in the car ends, provided with contact-levers on their inner ends for making and breaking the circuit, and the contact-pieces within the cars, upon which the levers operate, the swinging arm f'', pivoted to the outer end of said rod, the swinging arm g' on the outer end of said rod and insulated therefrom, the cams on the rod for separating the ends of said arms and permitting their contact, and the flexible cables with hooks connecting the circuit-wires between the cars with the arms f' and g', respectively, substantially as herein described.

8. In an electric train-signal, the combination of the circuit-wires E and E', the sliding spring-controlled metallic rods F in the end walls of the cars, the pivoted arm f' on the outer end of the rod, the band G on said outer end and insulated therefrom, the pivoted arm g' of said band, the cams for throwing said arms into and out of contact, the flexible cable E^3, with hooks e and e', connecting the circuit-wires E and E' with the arms g' and f', respectively, the contact-pieces e^2, with which the wires E' within the cars connect, the contact-levers I, carried by the sliding rods and adapted to make and break contact with the pieces e^2, and the bell-cords J within the cars and connected with said levers, substantially as herein described.

9. In an electric train-signal, the combination of the sliding rod F of the circuit-breaker, having the arm f' and the insulated arm g' and the chain K, with its cord-coupling k and hooks k', substantially as herein described.

10. In an electric train-signal, the flexible cables E^3, connecting the circuit-wires between the cars, in combination with the means for taking up the slack of said cables, consisting of the guides through which the bight of the cable passes, and the spring connected with said bight, substantially as herein described.

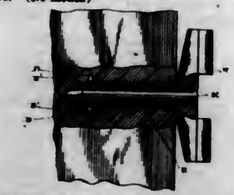
481,043. PUMP. ELLSWORTH D. MIDDLEKAUFF, Stockton, assignor of one-half to John M. McKiernan, Portersville, Cal. Filed Mar. 10, 1892. Serial No. 424,412. (No model.)



Claim.—1. The combination, in a force-pump, of the three cylinders E within the casing D, the piston-rods F, the stationary grooved collars P upon such rods, engaging with the hooks O of the revolving collars F', the cam-wheels G', their faces impinging on the faces of the collars F', the shaft G of the cam-wheels G', suitable means for turning the shaft G, and the discharge-pipes L and L', with the air-chamber M M' at the end of the pipe L, all substantially as described.

2. The herein-described force-pump, consisting of the well-pipe C, the chamber B, the casing D, the cylinders E, supplied with the discharge-pipes L, the piston-rods F, supplied with the stationary collars P and with the turning-collars F', the cam-wheels G', the shaft G of such cam-wheels, the piston J on the end of the shaft G, engaging with the gear-wheel J', supplied with the turning-handle K and having its center bearing upon the pin J^3, secured to the side of the casing D, and the cap D' above the casing D, all arranged and operating substantially as described.

481,044. HINGE. NOAH W. MOTTINGER, Akron, Ohio, assignor of one-half to Simon Mottinger, Suffolk, Va. Filed Dec. 19, 1891. Serial No. 415,593. (No model.)



Claim.—The hinge leaf having a strong extended non-slitted tubular shank B integral with said leaf and provided at its inner extremity with the short pliable projecting arms B' B', extending inwardly and longitudinally, as described, and having the spurs on their outer sides,

and means, substantially as shown, to bend said arms out straight when the shank has been inserted and to close the outer end of the shank, substantially as shown and described.

481,045. EASEL ATTACHMENT FOR CHAIRS AND OTHER SUPPORTS. HENRY J. MUHLFELD and FRANK J. SPILLANE, New York, N. Y. Filed Nov. 3, 1891. Serial No. 410,740. (Model.)



Claim.—1. An easel attachment for chairs or other supports, comprising two vertical sections, each section comprising a vertical rod or bar, and a reversible supporting portion for the picture or other article, mounted on said vertical rods or bars, substantially as set forth.

2. An easel attachment for chairs or other supports, comprising two vertical sections, each section comprising a vertical rod or bar, and a vertically-adjustable reversible supporting portion for the picture or other article, substantially as set forth.

3. An easel attachment for chairs or other supports, consisting of two sections, each section comprising a body portion and a supporting portion, the supporting portion being adjustable upon the body portion, and shaped when in use as a figure 4, comprising a vertical bar, a horizontal bar having a sliding and adjustable connection with the vertical bar, and a connecting-bar pivotally connecting the horizontal with the vertical bar, as and for the purpose specified.

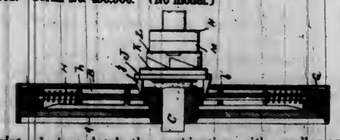
4. The combination, with a chair-back and sockets carried thereby, of an easel consisting of two sections, each section comprising a body portion adjustably supported by the sockets and a supporting portion vertically adjustable upon the body portion, the supporting portion of each section consisting of a horizontal rod or bar capable of vertical movement at one end, and a connecting-rod pivotally connecting the horizontal rod or bar with a vertical support, as and for the purpose specified, whereby the supporting-section may be made to assume the shape of a figure 4 either in front or at the rear of the chair-back.

5. An easel attachment for chairs or other supports, comprising vertical supporting-rods adjustable toward and from each other, supports with which said rods are connected for said adjustment, and picture or other supports mounted on the upper portions of the said rods or bars, substantially as set forth.

6. An easel attachment for chairs or other supports, comprising vertical rods adjustable toward and from each other and provided with suitable supporting devices, and picture or other supports reversibly secured to the upper ends of said bars or rods to face in either direction, substantially as set forth.

7. An easel attachment for chairs or other supports, consisting in two separate and independent vertically and laterally adjustable sections provided with suitable supporting devices, substantially as set forth.

481,046. CLUTCH. ALVIE MYERS, Melmore, Ohio. Filed Apr. 23, 1892. Serial No. 430,306. (No model.)



Claim.—1. In a clutch, the combination, with a pulley and arms concentrically mounted with the pulley, of rods carrying shoes at their outer ends, supported by the said arms, a collar having wedge-shaped projections to engage with the said rods, and two collars concentric with the pulley and having cam-faces on their meeting sides, and means for rotating the said cam-faced collars relatively to each other to separate them and force the wedge-shaped projections against the rods to press the shoes outward against the band of the pulley, substantially as described.

2. In a clutch, the combination, with a pulley and arms B, having cross-heads b at their outer ends, of rods carried by the said arms, seats F, adapted to be supported by the said cross-heads and having mutually-interlocking tongues and grooves between the end portions of the said seats and cross-heads, and shoes carried by the said seats, substantially as described.

3. The combination, with a pulley and arms B, having sleeve D, of rods E, carried by the arms and provided with shoes at their outer ends to bear against the inner side of the band of the pulley, springs for holding the shoes out of engagement with the pulley, collar J, having wedge-shaped projections j to engage with the rods E, collars K and L, having their meeting sides provided with cam-faces, means for actuating the said collars to separate them, and a spring to press collar J away from the pulley, substantially as described, for the purpose specified.

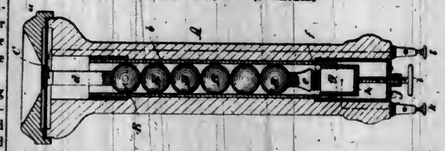
481,047. INCANDESCENT ELECTRIC LIGHT. EUGENE MCQUAT, Boston, Mass. Filed July 9, 1891. Serial No. 398,940. (No model.)



Claim.—1. The above-described method of making an incandescent electric lamp, consisting of the following steps: first, uniting to the interior of an adhesively hot glass tube two platinum wires; second, causing the said tube to collapse by heat, so that the edges of the tube shall seam together and form a globular mass around the wires; third, drawing the wires away from each other and outwardly, dragging the adhering glass with them, so as to insure better contact and to leave the glass in better form for resisting fracture, substantially as described.

2. In an incandescent electric lamp, the method of manufacture, consisting of the following steps: first, placing the prepared tubular mount with attached filament loosely into the open-neck lamp-bulb; second, drawing down the neck of the bulb while the mount is within it and cutting off the former at a point where it is at least as small as the end of the mount-tube; third, melting together the unexpanded open end of the mount-tube and the drawn-out neck of the lamp-bulb; fourth, pushing the mount and adjacent parts inward until the filament is properly located and the end of the neck of the bulb assumes the form of an inwardly-projecting cone, substantially as described.

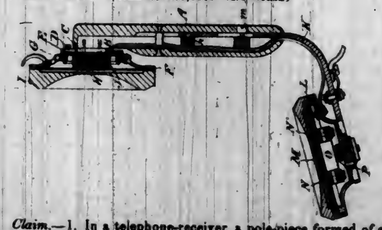
481,048. MICROPHONE. ELOY NORIEGA, Mexico, Mexico. Filed June 11, 1891. Serial No. 396,887. (No model.)



Claim.—1. A carbon for microphones, formed of charcoal, graphite, boric acid, and water in about the proportions stated.

2. A carbon for microphones, formed of charcoal, boric acid, and water in about the proportions stated.

481,049. TELEPHONE. ELOY NORIEGA, Mexico, Mexico. Filed June 11, 1891. Serial No. 396,888. (No model.)



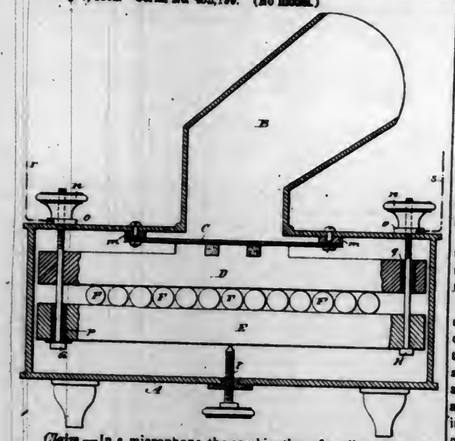
Claim.—1. In a telephone-receiver, a pole-piece formed of series of round rods or wires of different diameters attached to the pole of a permanent magnet and forming an oblong core adapted to receive the bobbins, substantially as specified.

2. In a combined telephone transmitter and receiver, the combination of the tubular insulating-handle A, the U-magnet B, having the lateral pole-pieces C, the bobbins J, placed on the pole-pieces, the

diaphragm-cell F, the diaphragm H, and adjustable curved arm K, the diaphragm-cell L, the diaphragm M, the perforated carbon bars N N', the carbon-rods O, and the cushion P, substantially as specified.

3. In a combined telephone transmitter and receiver, the combination of the tubular insulating-handle A, the U-magnet B, having the lateral pole-pieces C, the screw-threaded ring D, the screw-threaded collar E, fitted to the ring D, the diaphragm-cell F, hinged to the collar E, the diaphragm H, and curved arm K, the bobbins J, placed on the pole-pieces C, the diaphragm-cell L, the diaphragm M, the perforated carbon bars N N', the carbon-rods O, and the cushion P, substantially as specified.

481,050. MICROPHONE. ELOY NORIEGA, Mexico, Mexico. Filed May 7, 1892. Serial No. 432,199. (No model.)



Claim.—In a microphone, the combination of a vibratory carbon plate, a fixed carbon plate, and a mass of carbon filaments placed between the fixed and vibratory carbon plates, substantially as specified.

481,051. TELEPHONE. ELOY NORIEGA, Mexico, Mexico. Filed May 7, 1892. Serial No. 432,200. (No model.)



Claim.—In a microphone, the combination of the diaphragm A, formed of wood or analogous material, the perforated carbon blocks C C, attached to the diaphragm, the carbon cylinders D, having their ends inserted in the perforated carbon blocks, the adjustable spring *g*, the cup *h*, attached to the spring, and a body *i*, of fibrous material, inserted in the cup *h* and bearing against the carbon cylinders D, substantially as specified.

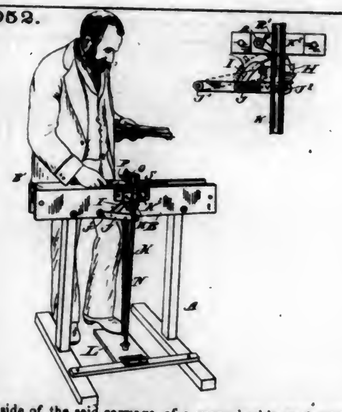
481,052. ADDRESSING-MACHINE. JOHN P. O'MALLEY, Manistee, Mich. Filed Nov. 7, 1891. Serial No. 411,152. (No model.)

Claim.—1. An addressing-machine comprising a carriage mounted to slide, a type-galley held on the said carriage, a rack arranged on the under side of the said carriage, an impression-block mounted to slide toward and from the face of the said galley, a rod carrying the said impression-block, a spring-pressed treadle connected with the said rod, and a gear-wheel in mesh with the said rack and operated from the said rod to impart a sliding motion to the said carriage on the upward motion of the said rod, substantially as shown and described.

2. In an addressing-machine, the combination, with a carriage mounted to slide and adapted to support a type-galley and a rack held on the under side of the said carriage, of a gear-wheel in mesh with the said rack, a rod mounted to slide vertically, an intermediate mechanism, substantially as described, to connect the said rod with the said gear-wheel to rotate the latter on the upward movement of the rod, and an impression-block held on the upper end of the said rod and adapted to be moved toward the type-galley on the downward stroke of the rod, as set forth.

3. In an addressing-machine, the combination, with a carriage mounted to slide and adapted to support a type-galley and a rack held

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on the under side of the said carriage, of a gear-wheel in mesh with the said rack, a rod mounted to slide vertically, an intermediate mechanism, substantially as described, to connect the said rod with the said gear-wheel to rotate the latter on the upward movement of the rod, an impression-block held on the upper end of the said rod and adapted to be moved toward the type-galley on the downward stroke of the rod, and a spring-pressed treadle connected with the said rod, as set forth.

4. In an addressing-machine, the combination, with a carriage mounted to slide and adapted to support a type-galley and a rack held on the under side of the said carriage, of a gear-wheel in mesh with the said rack, a ratchet-wheel held on the shaft of the said gear-wheel, a pawl engaging the said ratchet-wheel, a lever carrying the said pawl and having an upward and downward swinging motion, a rod having a pin engaging a slotted free end of the said lever to impart a swinging motion to the same, and a spring-pressed treadle pivotally connected with the said rod, substantially as shown and described.

5. In an addressing-machine, the combination, with a carriage mounted to slide and adapted to support a type-galley and a rack held on the under side of the said carriage, of a gear-wheel in mesh with the said rack, a ratchet-wheel held on the shaft of the said gear-wheel, a pawl engaging the said ratchet-wheel, a lever carrying the said pawl and having an upward and downward swinging motion, a rod having a pin engaging a slotted free end of the said lever to impart a swinging motion to the same, a spring-pressed treadle pivotally connected with the said rod, and a dog engaging the said ratchet-wheel to prevent a return movement, substantially as shown and described.

6. In an addressing-machine, the combination, with a carriage mounted to slide and adapted to support a type-galley and a rack held on the under side of the said carriage, of a gear wheel in mesh with the said rack, a ratchet wheel held on the shaft of the said gear-wheel, a pawl engaging the said ratchet-wheel, a lever carrying the said pawl and having an upward and downward swinging motion, a rod having a pin engaging a slotted free end of the said lever to impart a swinging motion to the same, a spring-pressed treadle pivotally connected with the said rod, and an impression-block held on the upper end of the said rod and adapted to move toward and from the face of the galley supported on the carriage, substantially as shown and described.

7. In an addressing-machine, the combination, with a guideway having part of its top covered by a cover-plate, of a carriage mounted to slide longitudinally in the said guideway, a type-galley supported on the said carriage, a rack secured to the under side of the said carriage, a gear-wheel in mesh with the said rack, a rod mounted to slide vertically and connected with the said gear-wheel to impart a rotary motion to the latter on the upward movement of the said rod, a spring-pressed treadle connected with the said rod, and an impression-block held on the upper end of the said rod and adapted to move toward the said galley at the front end of the said cover-plate, substantially as shown and described.

8. In an addressing-machine, the combination, with a guideway having part of its top covered by a cover-plate, of a carriage mounted to slide longitudinally in the said guideway, a type-galley supported on the said carriage, a rack secured to the under side of the said carriage, a gear-wheel in mesh with the said rack, a rod mounted to slide vertically and connected with the said gear-wheel to impart a rotary motion to the latter on the upward movement of the said rod, a spring-pressed treadle connected with the said rod, and an impression-block held on the upper end of the said rod and adapted to move toward the said galley at the front end of the said cover-plate, and a stop-block for limiting the downward motion of the said rod and impression-block, substantially as shown and described.

481,053. VELOCIPEDE. HERBERT S. OWEN, Washington, D. C. Filed Feb. 3, 1892. Serial No. 420,185. (No model.)



Claim.—1. A frame for bicycles and other vehicles, constructed wholly of sheet material bent to form and disposed, substantially as shown and described, to receive the strains from edge to edge or in the directions of the length and width of the material throughout all portions of said frame.

2. A frame for bicycles, tricycles, and other vehicles, consisting of sheet material fashioned to the required form and folded along the lines of special strain, substantially as set forth.

3. The herein-described main frame for a bicycle, consisting of sides *a b*, of sheet material, fashioned to the required form and joined along the upper side to form a backbone or reach, substantially as set forth.

4. The herein-described main frame A, consisting of side sheets or plates *a b*, extending from the head of the machine to a point over the back wheel and joined along its upper side, substantially as shown, whereby it is adapted to form a connection between the front fork or frame and the rear wheel and to cover and inclose the latter.

5. The frame A, consisting of sides *a b*, of sheet material, joined at their forward ends and provided at such point with a neck or head for connection with the forward fork or frame.

6. A main frame for bicycles and like vehicles, composed of sides *a b*, of sheet material, formed from one piece, connected by intermediate braces, substantially as shown and described, whereby the sheets are maintained in proper position to receive the strains edgewise or in the directions of their length and width.

7. A main frame for bicycles and the like, consisting of side plates *a b*, of thin material, rolled at their forward ends to form a tubular head.

8. A main frame for bicycles and the like, consisting of side plates *a b*, united at their edges through a portion of their length, and an intermediate partition or brace *h*, extending from a point near the saddle-post neck downward toward the lower side of the frame to distribute the strain throughout the latter.

9. In combination with a frame composed of side sheets or plates *a b*, united throughout a portion of their length, a transverse partition *h*, closing the space between the sheets, and an opening in one of the sheets *a b*.

10. A frame for bicycles and other vehicles, composed of sheet material fashioned to the required form and provided with reinforces at the points where the shafts are required to pass through the same.

11. In combination with frame A, brace or yoke C to receive the crank-shaft bearings.

12. In combination with a frame consisting of sheet material fashioned to form and provided with slots or openings *c*, an axle D, having its ends seated in said slots, substantially as and for the purpose set forth.

13. In combination with frame A, provided with slots or openings *c*, reinforces or strengthening-plates *f*, surrounding said openings, substantially as and for the purpose set forth.

14. In a frame for bicycles and the like, formed of sheet material, a step consisting of a prong or ear of the sheet material cut from the body and bent outward, substantially as set forth.

15. In combination with frame A, having tubular neck or saddle-post support E, a reinforce-tube applied to said neck, substantially as shown.

16. A frame for bicycles and the like, composed of sheets *a b* of thin material and a brace cut from and integral with one of said sheets, extending to the other of said sheets and secured thereto.

17. In a frame composed of sheet material, a brace or stiffening-rib formed of an integral portion of the sheet, rolled, bent, or folded laterally.

18. A main frame for bicycles and the like, formed of a single piece of sheet material cut to proper form and bent to the required shape, the meeting edges being joined together, substantially as and for the purpose set forth.

19. A front fork or shell for bicycles, tricycles, and the like, consisting of sheet material cut to the required form and rolled upon itself to produce a tubular brace or post.

20. A bicycle fork or shell composed of sheet material, having its forward edge rolled upon itself to form a tubular post or brace, one portion of the tube having a larger number of convolutions than another, substantially as and for the purpose set forth.

21. The blank for the production of a side plate of a bicycle fork or shell, provided with the widened portion *m*, adapted to be rolled upon itself previous to the rolling of the entire forward edge of the blank, whereby the tubular front edge is formed of greater thickness in its upper than in its lower part.

22. A bicycle fork or shell composed of sheet material folded or bent through its middle on a curved line, whereby it is adapted to constitute a combined fork and guard, each serving to brace and stiffen the other.

23. In combination with shell or fork J, reinforce or neck M, applied thereto.

24. A bicycle fork or shell J, provided with "boasters" or foot-rests O, cut from the body of the shell and turned outward, substantially as described.

25. In combination with a frame for bicycles and like vehicles formed of sheet material, an adjustable sleeve or block applied thereto and adapted to support a shaft or axle.

26. A bicycle-frame constructed of sheet material and having an opening through its side for the passage of the driving-chain, the material removed from the opening being bent laterally to form a guard for the driving-chain.

27. The herein-described fork or shell J, consisting of side plates *l*, joined at their rear edges and provided at their forward edges with integral tubular posts *n*.

28. In combination with shell J, having tubular posts *n*, slotted cross-heads L, applied to said tubes, and clamping bolts *o*, applied to the slotted ends of the cross-heads, whereby said cross-heads are secured in place upon the tubes.

29. In combination with coiled tubes *n* and with handle-rods K inserted in said tubes, clamping devices applied to the exterior of the tubes and adapted to compress them upon the rods, substantially as and for the purpose set forth.

30. In combination with a front fork or shell of sheet material, a tubular neck or reinforce applied thereto, substantially as and for the purpose set forth.

31. A frame for bicycles, tricycles, and like vehicles, composed of sheet material and having within its walls a luggage-chamber, substantially as set forth.

481,054. STREET-SWEEPER. HENRY P. PALMER, Norwich, Conn. Filed Feb. 1, 1892. Serial No. 419,908. (No model.)

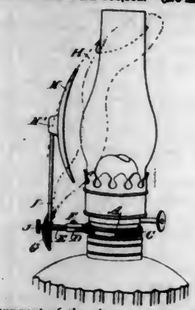


Claim.—1. In combination with a dirt receptacle of box form, a brush journaled in a shield hinged to said receptacle, bars *o*, secured to said receptacle, as set forth, and springs connecting the ends of said bars with said shield, as and for the purpose specified.

2. In a street-sweeper, in combination with a box-shaped receptacle on wheels, a brush journaled in a shield hinged to said receptacle, said shield being supported by springs *p* and bars *o*, as set forth, sprocket-wheels mounted upon the brush-shaft, and mechanism consisting of chains, sprocket-wheels, and gearing, as herein described,

connecting the sprocket-wheel of the brush-shaft with the rear wheels of the sweeper, for the purposes specified.

481,055. SIDE REFLECTOR. CHARLES H. PLOUTHER, Spokane Falls, Wash., assignor of one-half to Alfred W. Crittenden, same place. Filed June 17, 1891. Serial No. 396,552. (No model.)

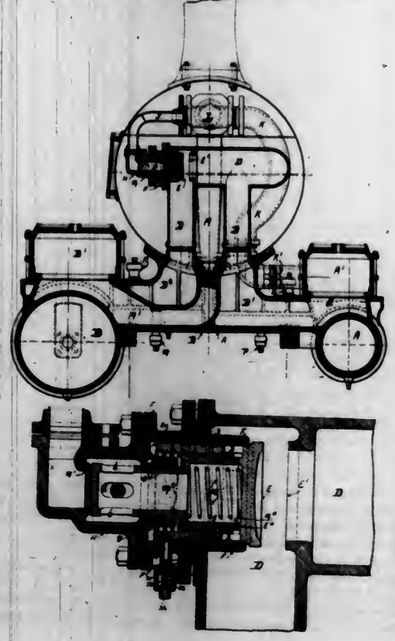


Claim.—1. A support of the character described, comprising an exteriorly-grooved collar provided with a set-screw exteeding through it at the base of the groove, and the ring turning in the said groove, provided with a transverse aperture to give access to said screw and with a socket or holder to receive a reflector-support, substantially as set forth.

2. In a reflector-support, the combination, with a collar adapted to be secured to a lamp and formed with an annular groove in its periphery, of a ring fitted in the said groove to revolve on the said collar, a socket formed on the said ring, a bar adapted to be secured in the said socket, and a grooved segmental bar secured on the said socket-bar, substantially as shown and described.

3. A reflector support comprising a socketed ring, a bar adjustable in said socket and provided at its outer end with a transverse bar grooved along its upper face, a vertical transverse aperture at the juncture of said two bars, and a set-screw intersecting said aperture, substantially as set forth.

481,056. COMPOUND ENGINE. JOHN PLAYER, Dunkirk, N. Y., assignor to the Brooks Locomotive Works, same place. Filed Feb. 24, 1892. Serial No. 422,630. (No model.)



Claim.—1. In a combined admission and intercepting valve for compound engines, the combination of a receiver-casing forming a communication between the high and the low pressure cylinders, an intercepting-valve therefor, a live-steam passage communicating with the low-pressure end of the receiver, and an admission-valve therefor capable of movement independently of the intercepting-valve, but arranged in such relation to the intercepting-valve that said admission-valve will be opened and the intercepting-valve will be closed by the live steam and the admission-valve will be acted upon and closed by the intercepting-valve when the pressure against the latter has reached the proper point, substantially as described.

2. In a combined intercepting and reducing valve for compound engines, the combination of the two valves movable independently of each other as regards the closing of the intercepting-valve and the governing movement of the reducing-valve, but so combined that as the intercepting-valve is opened by the high-pressure exhaust-steam it will act upon and close the reducing-valve, substantially as specified.

3. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the intercepting-valve having an annular balancing device and steam-passages, and the intercepting-valve casing having its chamber connected to the atmosphere, and the pressure-regulating valve having an enlarged end and working within the annular part of the intercepting-valve and its small or high-pressure end working within its own casing, to which is attached the live-steam-pressure pipe, substantially as set forth.

4. In a combined intercepting and reducing valve for compound engines, the combination of the two valves movable independently of each other as regards the closing of the intercepting-valve and the governing movement of the reducing-valve, but so combined that the opening of the intercepting-valve causes the reducing-valve to close, and a stop for limiting the opening movement of the reducing-valve, substantially as specified.

5. The combination, in a compound engine, of the intercepting-valve and the reducing-valve working within said intercepting-valve, said intercepting-valve being of a greater area and having a greater stroke than the reducing-valve, whereby it allows the reducing-valve to have free movement when it (the intercepting-valve) is closed, but will close the reducing-valve when it opens, substantially as set forth.

6. The combination of the high and low pressure cylinders, the passage from the high-pressure cylinder to the low-pressure cylinder, an intercepting-valve for closing said passage, a live-steam inlet to said passage, and a reducing-valve for controlling the flow of steam from said live-steam inlet, said reducing-valve being on a line with and acted upon by the intercepting-valve, the said reducing-valve having a limited movement from its seat independent of the intercepting-valve, substantially as described.

7. The combination, in a compound engine, of the passage from the high to the low pressure cylinder, a live-steam inlet, and a reducing-valve adapted to close said inlet, the back of said valve being greater in area than the face of the valve, with an intercepting-valve for closing the passage between the high and low pressure cylinders, said intercepting-valve acting upon the reducing-valve and having a greater area than said valve, whereby the reducing-valve is held closed by the reduced pressure in the passage, substantially as described.

8. The combination of the passages between the high and low pressure cylinders, the live-steam-inlet pipe to said passage, a reducing-valve adapted to close said pipe, the back of said valve being of greater area than its face, a stop to limit the outward movement of said valve, and an intercepting-valve adapted to close the passage between the high and low pressure cylinders and adapted to a projection on the reducing-valve, the movement of the intercepting-valve being greater than that of the reducing-valve, so that steam can pass around and through the reducing-valve and between it and the intercepting-valve, substantially as described.

9. The combination of the valve-casing, the reducing-valve adapted thereto, a spring acting to keep the reducing-valve off its seat, and an intercepting-valve also guided in the valve-casing, with a spring of less strength than the reducing-valve spring, said spring being situated between the back of the reducing-valve and the intercepting-valve, so that when the engine is at rest the intercepting-valve will close the passage between the high and low-pressure cylinders and the reducing-valve will be opened to allow the live steam to act upon the low-pressure piston, substantially as described.

10. The combination, in a compound engine, of the high and low pressure cylinders, a passage between the two, an intercepting-valve for closing said passage, a live-steam inlet to the low-pressure valve-chest, a valve regulating the flow of steam through said inlet, and valves situated in the passage, one valve on each side of the intercepting-valve, with mechanism for operating said valves, substantially as described.

11. The combination of the high and low pressure cylinders, a passage between the two cylinders, an intercepting valve in said passage, a controlled live-steam inlet to the low-pressure valve-chest, and valves in the passage, one on each side of the intercepting-valve, with mechanism for operating said valves, said mechanism being so arranged as to first open the valve on the high-pressure side and then open the valve on the low-pressure side, substantially as described.

12. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the pressure-regulating valve, the regulating-valve casing having its chamber connected to the atmosphere, the connecting-pipe, the regulating-valve stop limiting the travel of the valve, the steam-passages in said valve connecting with its hollow chamber, and the annular balancing device of the intercepting-valve working upon said pressure-regulating valve and equalized to the atmosphere, as and for the purpose set forth.

13. The combination, with the receiver-pipe of a compound locomotive or other engine, of the pressure-regulating valve working within its chamber, regulated in travel by its stop, and working within the annular balancing device attached to the intercepting-valve, said pressure-regulating valve having a seat on its small end closing against the live-steam pressure, and another seat at its large end closing against the intercepting-valve, as and for the purpose set forth.

14. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the live-steam pipe connecting with the pressure-regulating-valve casing, the regulating-valve casing, the regulating-valve, its seat, its stop, its hollow steam-passages, the intercepting-valve casing having its balancing-chamber connected to the atmosphere, and the intercepting-valve with its annular balancing device and steam-passages working outside the pressure-regulating valve and within its own casing and having one seat to close the opening in the receiver-pipe and another seat to close against the regulating-valve, with the spring for holding the regulating-valve off its seat and a spring of lighter capacity for closing the intercepting-valve against its seat, as and for the purpose set forth.

15. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the live-steam pipe connecting with the pressure-regulating-valve casing, the regulating-valve casing, the regulating-valve, its seat, its stop, its hollow steam-passages, the intercepting-valve casing having its balancing-chamber connected to the atmosphere, and the intercepting-valve with its annular balancing device and steam-passages working outside the pressure regulating valve and within its own casing and having one seat to close the opening in the receiver-pipe and another seat to close against the regulating-valve, with the cut-off plunger attached to the intercepting-valve, working within the cut-off chamber in the regulating-valve, as and for the purpose set forth.

16. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the intercepting-valve having an annular balancing device and steam-passages and interior seat, with a pressure-regulating valve working within and seating itself against said valve at its larger extremity and having its smaller extremity seating itself in its casing against the high-pressure steam and its travel regulated by a stop, said high-pressure end of this valve working within a dash-pot, as and for the purpose set forth.

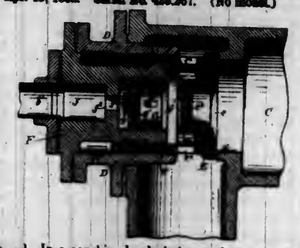
17. The combination, in a compound engine, of the valve-casing, a chamber for exhaust-steam from the high-pressure cylinder, a passage communicating with the said chamber and with the low-pressure steam-chest, a live-steam passage communicating with the valve-casing, and a reducing-valve and an intercepting-valve movable independently of each other as regards the closing of the intercepting-valve and governing the movement of the reducing-valve, the valves being automatically operated on starting by steam acting directly upon the reducing-valve, the said steam holding the intercepting-valve to its seat until the time when steam in the high-pressure chamber overcomes the pressure of the reduced steam in the low-pressure passage, when the intercepting-valve automatically opens and closes the live-steam passage, substantially as specified.

18. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the controlling-valves attached to the receiver and operated by a suitable lever and so arranged that the steam collected in both the high and low pressure ends of the receiver may be permitted to escape independently or simultaneously when desired, as and for the purpose set forth.

19. The combination of an intercepting-valve and the casing forming an intercepting-valve balancing-chamber with a check-valve arranged to prevent or retard the admission of air to said chamber and at the same time allow it to exhaust freely and also permit any leakage to escape to the atmosphere, as and for the purpose set forth.

20. The combination, in a compound engine, of a valve-casing, a chamber for exhaust-steam from the high-pressure cylinder, a passage communicating with the said chamber and with the low-pressure steam-chest, a live-steam passage communicating with the valve-casing, and a reducing-valve and an intercepting-valve movable independently of each other as regards the closing of the intercepting-valve and governing the movement of the reducing-valve, the valves being automatically operated on starting by steam acting directly upon the reducing-valve, the said steam holding the intercepting-valve to its seat until the time when steam in the high-pressure chamber overcomes the pressure of the reduced steam in the low-pressure passage, when the intercepting-valve automatically opens and closes the live-steam passage, substantially as specified.

481,057. VALVE FOR COMPOUND ENGINES. JOHN PLAYER, Dunkirk, N. Y., assignor to the Brooks Locomotive Works, same place. Filed Apr. 15, 1892. Serial No. 429,267. (No model.)



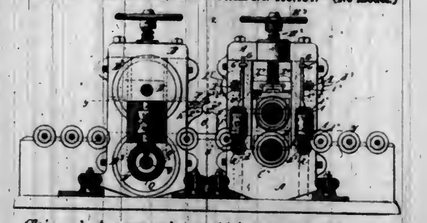
Claim.—1. In a combined admission and intercepting valve for compound engines, the combination of the receiver-casing forming a communication between the high and the low pressure cylinders, an intercepting-valve therefor, a live-steam passage communicating with the low-pressure end of the receiver, and admission-valve therefor, capable of movement independently of the intercepting-valve, but arranged in such relation to the intercepting-valve that the said admission-valve will be opened and the intercepting-valve will be closed by the live steam, said admission-valve having openings through which the steam is wire-drawn, substantially as described.

2. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the intercepting-valve having an annular balancing device working within its casing and having one seat to cut off the high-pressure steam from the receiver and having a projection on its back, with the admission-valve working within its casing and being caused to close by the operation of the projection or stop on the back of the intercepting-valve, said admission-valve casing forming the interior of the balancing-chamber for the intercepting-valve, said balancing-chamber being connected to the atmosphere, as and for the purpose set forth.

3. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the live-steam pipe connecting with the admission-valve chamber, the admission-valve chamber, the admission-valve, its seat, its stop, its steam passages and extension, with the projection on the back of the intercepting-valve, having the annular balancing device and steam-passages, said intercepting-valve working within its casing externally and outside of the projection on the admission-valve chamber, said projection forming the balancing-chamber for said intercepting-valve, which is connected to the atmosphere, as and for the purpose set forth.

4. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the intercepting-valve chamber formed externally by its own casing and internally by the admission-valve chamber and being connected to the atmosphere, the intercepting-valve having the annular balancing device working within said chamber, its steam-passages, its seat closing against the receiver, with the projection on the back end of the intercepting-valve, arranged to close the admission-valve against its seat and the admission-valve closing against its seat, working within its chamber and regulated in travel by its stop, as and for the purpose set forth.

481,058. UNIVERSAL ROLLING-MILL. ABRAM REESE, Pittsburg, Pa. Filed Nov. 20, 1891. Serial No. 413,151. (No model.)



Claim.—1. A compound or multiple universal rolling-mill comprising two sets of universal rolls, one set consisting of a pair of horizontal rolls and a pair of vertical rolls arranged out of alignment with the axis of the horizontal rolls, being constructed and adapted to roll and reduce the web and flanges of an L-beam or channel-bar in a vertical direction only, and the other set consisting of a pair of horizontal rolls and a pair of vertical rolls in alignment with the axis of the horizontal rolls, being constructed and adapted to roll the bar or beam in a lateral direction only, the vertical rolls of both sets being combined with mechanism for positively driving them, substantially as described.

2. In a compound universal rolling-mill, the combination of two distinct sets of universal rolls arranged in proximity to each other and with their respective passes in horizontal alignment, one set comprising horizontal rolls and laterally-adjustable vertical rolls out of axial alignment with the horizontal rolls and the other set comprising horizontal rolls and laterally-adjustable vertical rolls in axial alignment therewith, substantially as described.

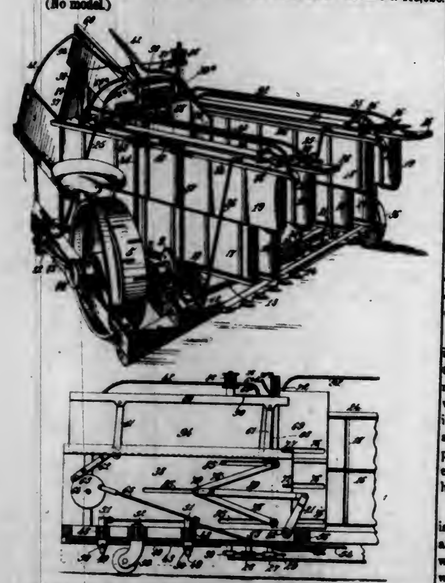
3. The method of rolling I-beams or channel-bars, which consists in first reducing the web and flanges by pressure normal to the plane of the web, and, second, in simultaneously supporting the web and inner faces of the flanges and rolling the parallel outer faces of the flanges, substantially as described.

4. In universal mills for rolling I-beams or channel-bars, the combination, with horizontal rolls one of which has a central enlargement or collar to roll and reduce the web of a beam, of horizontally-adjustable vertical rolls mounted in sliding boxes, slotted guide bars supporting said boxes and provided each with two wedges, one at the top and the other at the bottom of the vertical roll, wedge-slides bearing upon said boxes, and means for moving all said wedge-slides and thereby adjusting said vertical rolls simultaneously, substantially as described.

5. In universal mills for rolling I-beams or channel-bars, the combination, with the horizontal rolls constructed and adapted to roll the web and flanges of an I-beam or channel-bar, of the laterally-adjustable vertical rolls arranged out of alignment with the horizontal rolls, the journal-boxes and supporting-bars of said vertical rolls, the wedge-slides impinging against said boxes, the pinions engaging with racks on said wedge-slides, the pinion-shafts supporting said pinions, and the gearing coupled to said shafts, through which the slides are moved and the vertical rolls thereby adjusted, substantially as described.

6. In rolls for rolling I-beams or channel-bars, the combination, of the horizontal rolls, a sliding pinion on the shaft of one of said horizontal rolls, a pair of vertical rolls located between the shafts of the horizontal rolls, pinions on the shafts of the vertical rolls engaging with said sliding pinions, sliding bearings in which said vertical rolls are mounted, having beveled rear faces, frames mounted on the housings in which said bearing-pieces slide, and wedge-slides passing through the housings in the rear of the bearing-slides, with racks formed on their upper edges and pinions engaging with said racks, substantially as described.

481,059. CORN-HARVESTER. ROBERT S. RINKER, Rinkerton, Va., assignor of two-thirds to Philip S. Riddelle, Washington, D. C., and Munroe Funkhouser, Rinkerton, Va. Filed Jan. 22, 1892. Serial No. 418,926. (No model.)



Claim.—1. In a corn-harvester, the combination of a main frame having stalk-cutters, shock-forming chambers separated by a partition comprising a pair of separated walls, a rising and falling ridge-pole, movable supports for the ridge-pole located between the separated walls, movable doors or platforms for supporting the stalks, devices for operating the movable supports between the separated walls to raise and lower the ridge-pole, and means for opening and closing the doors or platforms, substantially as described.

2. In a corn-harvester, the combination, with shock-forming chambers and endless carrying-aprons for delivering stalks thereinto, of a ridge-pole interposed between the shock-forming chamber and against the opposite sides of which the cornstalks rest in reverse inclined planes while a shock is being formed, mechanism for moving the ridge-pole lengthwise from its stalk-supporting position to permit the shock to drop vertically, and movable doors or platforms for sustaining the stalks while a shock is being formed, substantially as described.

3. In a corn-harvester, the combination of shock-forming chambers, mechanism for delivering the stalks thereinto, movable doors which support the butt-ends of the stalks, a ridge-pole movable to different heights and against opposite sides of which the stalks rest in reverse inclined planes while a shock is being formed and tied above the ridge-pole, and means for opening the doors and simultaneously therewith moving the ridge-pole downward, substantially as described.

4. In a corn-harvester, the combination, with suitable cutting devices, shock-forming chambers, and stalk-carrying mechanism for delivering the stalks into the shock-forming chambers, of movable doors which support the butt-ends of the stalks in the shock-forming chambers, a movable ridge-pole, against opposite sides of which the stalks rest while a shock is being formed and tied above the ridge-pole, mechanism for moving the ridge pole downward from its stalk-sustaining position, and means for opening the doors to drop the tied shock in an upright position on the surface traversed, substantially as described.

5. In a corn-harvester, the combination, with stalk-cutting mechanism and stalk-carriers, of shock-forming chambers into which the severed stalks are delivered from the stalk-carriers, a partition which separates the said chambers one from the other, a movable ridge-pole pivotally connected with the partition, doors which sustain the stalks while a shock is being formed, levers for opening and closing the doors, connections between the levers and the pivotal supports of the ridge-pole whereby the latter is moved downward as the doors are opened, and means for operating the said door opening and closing levers, substantially as described.

6. In a corn-harvester, the combination, with suitable cutting mechanism and stalk-carriers, of shock-forming chambers separated from each other by a partition, a ridge-pole pivotally supported from the partition, a crank-wheel connected with the ridge-pole supports, doors which support the stalks while a shock is being formed, spindles or shafts having door opening and closing levers, connections between the spindles and the crank-wheel, and means for operating the spindles to open and close the doors and simultaneously therewith lower and raise the ridge-pole, substantially as described.

7. In a corn-harvester, the combination, with stalk-collecting or shock-forming chambers and opening and closing doors for sustaining the stalks while a shock is being formed, of a ridge-pole movable rearward and downward and provided with a head for acting on the shock to counteract the forward motion of the machine on the shock, substantially as described.

8. The combination, with the shock-forming chambers of a corn-harvester, separated by a partition, of a rising and falling ridge-pole provided with attached aprons for covering the space between the upper edge of the partition and the ridge-pole when the latter is elevated, substantially as described.

9. In a corn-harvester, the combination, with a cutting mechanism and stalk-carriers, of shock-forming chambers, movable doors which support the stalks while a shock is being formed, and platforms elevated above the doors and arranged at the rear end portions of the carriers so that the stalks drop vertically from the platform upon the doors, substantially as described.

10. In a corn-harvester, the combination, with a main frame having a cutting mechanism for severing the stalks, means for moving the severed stalks rearward, and shock-forming chambers having movable doors or platforms and separated by a partition composed of walls which converge toward their upper portions, of a rising and falling ridge-pole located above the inclined walls composing the partition and against opposite sides of which the stalks rest in reverse inclined positions while a shock is being formed and tied, and means for lowering the ridge-pole from its stalk-supporting position after the shock has been tied, substantially as described.

11. In a corn-harvester, the combination, with a cutting mechanism, endless carrying aprons, and shock-forming chambers, of a movable packer having a vertical rear wall and a movable side wall or wing provided with an attached segmental rod and a guide through which the rod passes for swinging the wall or wing laterally toward the longitudinal center of the machine on the back-stroke of the packer, substantially as described.

12. In a corn-harvester, the combination, with a cutting mechanism, stalk-carriers, and shock-forming chambers, of a reciprocating packer having side walls provided with slots and laterally-projecting teeth, and stationary arms protruding through the slots of the side walls for holding the stalks against following the motion of the back-stroke of the packer, substantially as described.

13. In a corn-harvester, the combination, with a cutting mechanism, of a pair of co-operating endless carrier-aprons having their adjacent traveling portions acting to move the stalks rearward, a shock-forming chamber, and a rotating vertical cylinder located in a space between the rear ends of the two carrier-aprons and the shock-forming chamber and provided with projections or teeth, and a reciprocating packer having a part co-operating with the toothed cylinder to force the stalks from the rear ends of the two carrier-aprons toward the shock-forming chamber, substantially as described.

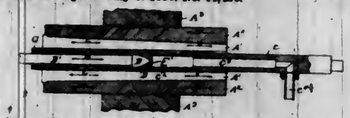
14. In a corn-harvester, the combination, with cutting devices and stalk-carriers, of a shock-forming chamber having opening and closing bottom doors and a divergent rear exit to facilitate the discharge of an upright shock as the machine advances, substantially as described.

15. In a corn-harvester, the combination, with cutting devices and stalk-carriers, of shock-forming chambers separated by a partition comprising inclined walls which converge toward their rear extremities to provide widened or divergent exits, substantially as described.

16. In a corn-harvester, the combination, with cutting devices and stalk-carriers, of shock-forming chambers having widened or divergent rear extremities and opening and closing doors constituting the bottoms of the shock-forming chambers for dropping a shock on the surface traversed, substantially as described.

17. In a corn-harvester, the combination, with stalk-carriers, and the shock-forming chambers separated by a partition, comprising inclined walls, of the guard-rails 64^a and the guard rails 42, secured at their rear ends to the outer walls of the shock-forming chambers and having their forward ends extended substantially parallel with the guard-rails 64^a, said guard-rails 42 acting to force the stalks toward each other and cause them to assume inclined positions at opposite sides of the partition which separates the shock-forming chambers, substantially as described.

481,060. SHAPING METAL TUBES. JAMES ROBERTSON, Birmingham, England. Filed Mar. 18, 1892. Serial No. 425,429. (No model.) Patented in England July 6, 1891. No. 11,436.



Claim.—1. That improvement in the art of making metal articles which consists in giving a blank piece of metal softened by heat the desired form in a die by pressure and then introducing a relatively-cold fluid, such as water, under pressure into the die, said fluid operating to cool and contract the formed article as well as to eject it from the die, as set forth.

2. That improvement in the art of making seamless metal tubes and tubular articles which consists in placing a blank or billet softened by heat in a die, forcing a piercing-mandrel lengthwise into and through the billet, thus converting it into a tube, and then introducing a fluid, such as water, under pressure into the die, and thereby ejecting both the tube and mandrel from the die, as set forth.

3. The combination of a hollow die, a mandrel or pressure device movable lengthwise within the die, and means for introducing water under pressure into the interior of the die, whereby the formed article and the mandrel or pressure device may be ejected from the die, as set forth.

4. The combination of a fixed guide, a die adapted to slide lengthwise therein, a pressure device movable lengthwise within the die, and a fixed stem-rod entering the rear end of the die and provided with a conduit adapted to deliver a fluid, such as water, under pressure to the interior of the die, as set forth.

5. The combination of a fixed guide, a die adapted to slide lengthwise therein, a mandrel adapted to move lengthwise into the die, and a fixed stem-rod entering the rear end of the die as a means for supporting a billet or blank of metal therein against the piercing pressure of the mandrel, said stem-rod having a water channel or conduit adapted to introduce a fluid, such as water, under pressure into the rear portion of the die, as set forth.

6. That improvement in the art of making seamless metal tubes and hollow articles which consists in placing a blank or billet softened by heat in a die, forcing a piercing-mandrel lengthwise into and through the billet, and thereby causing the metal of the billet to exude in tube form between the die and mandrel in a direction opposite the movement of the mandrel, rigidly holding the rear end of the billet against the piercing pressure of the mandrel by a rigid support while the mandrel is piercing the billet, and thereby preventing the mandrel from breaking the billet during the piercing operation, and displacing or removing the rigid support by the direct or unrelieved pressure of the mandrel at the end of the piercing operation, whereby injury to the mandrel is prevented, as set forth.

7. That improvement in the art of making seamless metal tubes and hollow articles which consists in placing a blank or billet softened by heat in a die, rigidly supporting the rear end of the billet, forcing a piercing-mandrel lengthwise into and through the rigidly-supported billet, and thereby causing the metal of the billet to exude in tube form between the die and mandrel in a direction opposite the movement of the mandrel, and displacing the support at the rear end of the billet after the mandrel has passed substantially through the billet, whereby the mandrel is permitted to emerge unobstructed from the rear end of the tube without injury.

8. That improvement in the art of making seamless metal tubes and hollow articles which consists in placing a blank or billet softened by heat in a die, rigidly supporting the rear end of the billet, forcing a piercing-mandrel lengthwise into and through the rigidly-supported billet, displacing the support from its operative position at the rear end of the billet after the mandrel has passed substantially through the billet, and thereby permitting said support to slide in the die, and finally introducing a fluid, such as water, under pressure into the rear end of the die, and thereby ejecting the mandrel, the billet, and the displacing billet-support, as set forth.

9. As a fixed improvement in apparatus for making seamless metal tubes and hollow articles, the combination of a die, a piercing-mandrel movable lengthwise in the die, and an abutment for the rear end of the billet, adapted to sustain the billet rigidly against the relieved pressure of the mandrel and to give way to the direct or unrelieved pressure of the mandrel, whereby the mandrel is permitted to emerge from the rear end of the tube without injury, as set forth.

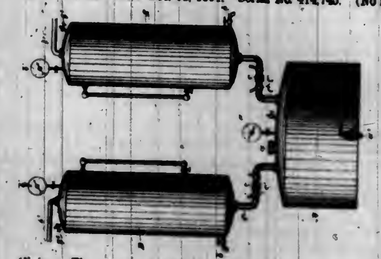
10. As an improvement in apparatus for making seamless metal tubes and hollow articles, the combination of a die, a piercing-mandrel movable lengthwise in the die, a recessed support at the rear portion of the die, adapted to resist the pressure of the mandrel against the billet, and a fixed abutment for the rear end of the billet, adapted to sustain the billet rigidly against the relieved pressure of the mandrel and to give way to the direct or unrelieved pressure of the mandrel and retreat before the mandrel into the recessed support, as set forth.

11. As an improvement in apparatus for making seamless metal tubes and hollow articles, the combination of a die, a piercing-mandrel movable lengthwise in the die, a recessed support at the rear portion of the die, adapted to resist the pressure of the mandrel against the billet, an abutment for the rear end of the billet, and a locking device or key securing the abutment to the support and adapted to resist the relieved pressure of the mandrel through the billet against the abutment and to be ruptured or shorn by the direct or unrelieved pressure of the mandrel, as set forth.

12. As an improvement in apparatus for making seamless metal tubes and hollow articles, the combination of a die, a piercing-mandrel movable lengthwise in the die, a recessed support at the rear portion of the die, adapted to resist the pressure of the mandrel against the billet, and a service-plate of rupturable metal covering the forward end of the recessed support, said plate serving as an abutment for the rear end of the billet, while its margin constitutes a locking device or key engaging the abutment with the recessed support and adapted to be ruptured or shorn by the direct pressure of the mandrel, as set forth.

13. The combination of a hollow die, a mandrel or pressure device movable lengthwise within the die, a support or abutment for the rear end of the billet, adapted to sustain the billet rigidly against the pressure of the mandrel when said pressure is relieved by the exudation of the metal between the die and mandrel and to give way or become loosened by the direct pressure of the mandrel, and means for introducing a fluid under pressure, such as water, into the rear end of the die to eject the mandrel, the formed tube, and the loosened support from the die, as set forth.

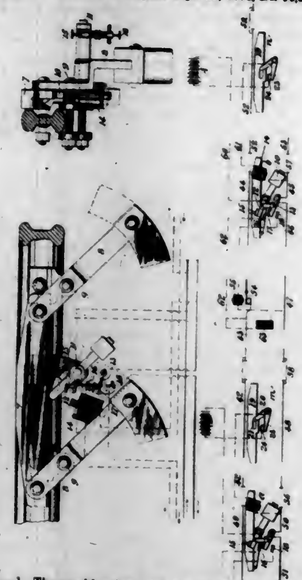
481,061. FERMENTING PROCESS. FREDERICK W. RUEFF, San Francisco, Cal. Filed Dec. 11, 1891. Serial No. 414,745. (No model.)



Claim.—The process herein described, which consists in first ex-

posing the liquid to the action of fermenting germs contained in a separate vessel, whereby fermentation sets in; second, stopping the fermentation short of completeness by cutting off the liquid from exposure to the fermenting germs and cooling the same, whereby it still contains sugar and is clarified, and, finally, subjecting the liquid during cooling and bottling to a pressure of carbonic-acid gas, substantially as herein described.

481,062. ELECTRIC CONTROL OF RAILWAY-TRAINS. ROBERT C. DAVIS, Bristol, England. Filed Mar. 10, 1892. Serial No. 424,382. (No model.) Patented in Belgium Sept. 23, 1891, No. 96,506.



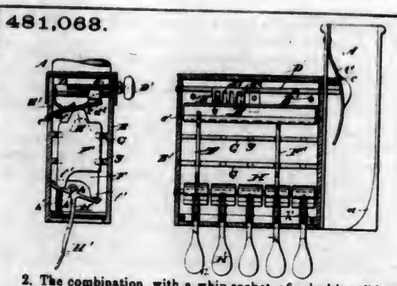
Claim.—1. The combination, with two conductors arranged in sections parallel with the rails and a separate current-generator connected to each section, of a blocking-switch provided with a magnet and arranged at the rear end of each section, an unblocking-switch arranged in advance of each blocking switch, an electric switch provided with a magnet and arranged between each said blocking and unblocking switch, an automatic lever for controlling the motor on the train, a magnet carried by the train and normally arranged in circuit with the said conductors and adapted to hold the said lever in a position to permit the said motor to work, and intermediate conductors arranged substantially as set forth, whereby the front train actuates each said blocking-switch and shunts the current through the said electric switch of the same section and subsequently restores the original circuit by actuating the unblocking-switch of the next section over which it passes, substantially as set forth.

2. The combination, with the two main-line conductors 28 and 29 and the two branch-line conductors 39 and 40, connected to them, of the blocks of insulating material 30, 31, and 32, inserted in the conductors 29 and 40 substantially as shown, the switches 26 and 27, operatively connected with the points, the intermediate conductors 34 and 35, connecting the switch 26 with the conductor 29 on opposite sides of the block 30, the intermediate conductor connecting the switch 27 with the conductor 40, the intermediate conductor connecting the switch 27 with the conductor 29 between the blocks 30 and 32, and the intermediate conductor 38, connecting the switch 27 with that part of the conductor 40 between the block 31 and the conductor 29, substantially as described and shown.

481,063. WHIP-SOCKET. HENRY E. SCHRADER, Manteno, Ill. Filed Jan. 23, 1892. Serial No. 418,900. (No model.)

Claim.—1. A whip-socket having a lock-case at one side, a transverse slide-rack therein provided with an external operating-handle, a whip-retainer in the socket at the inner end of the slide-rack, a toothed latch in the case for engaging the said rack, a series of sliding tumblers engaging the said latch, and keys pivoted in the case in engagement with the tumblers and having finger-pieces projecting through the casing, substantially as described.

481,068.

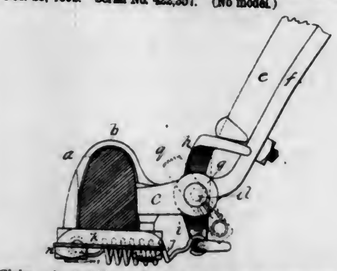


2. The combination, with a whip-socket, of a locking-slide movable into said socket, a latch-bar adapted to engage said slide, a series of tumblers movable toward and from said latch-bar, and separate keys for actuating said tumblers to throw them against the latch-bar and cause it to move into engagement with the said slide, substantially as described.

3. The combination, with a whip-socket, of a lock in which is comprised a slide movable into the socket and formed with a rack, a whip-retainer at the inner end of the slide, a rocking latch-bar having a bit adapted to engage said rack, a series of reversible tumblers below said latch-bar, and separate trips for each of said tumblers, the trips being provided with operating-keys, substantially as described.

4. The combination, with a whip-socket, of a whip-retaining plate therein and a lock comprising a slide movable against said retainer-plate and formed with a rack, a latch-plate for the slide, pivoted to rock toward and from the same and having a bit adapted to engage the rack thereon, a series of tumblers below the latch-bar, said tumblers being loosely held by recessed guide-flanges on the interior of the case, actuating-trips for the tumblers, having T-heads extending at both sides of the pivot thereof and provided with keys, and the tumblers having each at one end a ward for contacting with the latch-bar and at the opposite end a toe resting on the T-head of the trip, substantially as described.

481,064. THILL-COUPLING. HENRY A. SEVIGNE, Boston, Mass., assignor to the Sevigne Manufacturing Company, same place. Filed Feb. 23, 1892. Serial No. 422,357. (No model.)



Claim.—1. A thill-coupling comprising in its construction the thill and thill-iron, the clip, the coupling bolt or pin provided with arms, one of which extends upward and over the thill upon which it bears and the other extending downward, and an adjustable spring connected with the latter arm, as set forth.

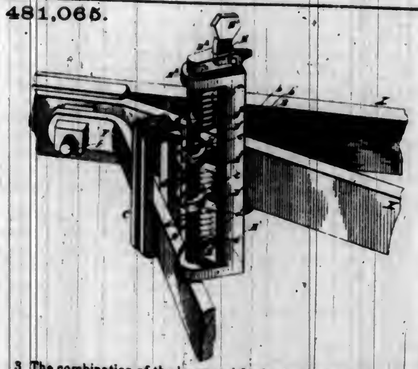
2. A thill-coupling comprising in its construction the thill and thill-iron, the clip, the coupling bolt or pin provided with arms, one of which extends upward and over the thill upon which it bears and the other extending downward, the adjustable plate *k* and the spring connected at one end to the last mentioned arm, and at the other end to the said plate, substantially as set forth.

481,065. FENDER. CORNELIUS C. SHANBROK, Pettit, Ind. Filed Mar. 21, 1892. Serial No. 425,750. (No model.)

Claim.—1. The combination of the beam and fender-bar and the supporter adjustably attached to the beam, with the lugged shaft attached to said supporter and the fender-regulator adjustably mounted on said shaft, all constructed and arranged to operate substantially as and for the purpose set forth.

2. The combination of the supporter having parallel toothed side bars with the securing-bolts having toothed heads adapted to engage the teeth of said bars, substantially as described, and a fender-regulator attached to said supporter, substantially as and for the purpose described.

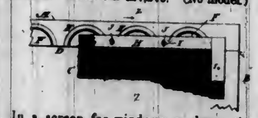
481,065.



3. The combination of the beam and fender-bar and the supporter having parallel side bars provided with oppositely-pointing ratchet-teeth above and below their centers, respectively, on their inner opposed faces, with the wedge-headed bolts having notches or teeth in their heads to engage the teeth of the said bars, the clip-plate, and securing-nuts, and the fender-regulator attached to said supporter, substantially as described.

4. The combination of the beam and fender-bar, the supporter attached to beam, and the lugged shaft removably journaled in said supporter, and its locking-dog, with the slotted fender-regulator plate having lateral perforated and slotted ears engaging said shaft and adjustable thereon, substantially as and for the purpose described.

481,066. WINDOW OR DOOR SCREEN. CHARLES J. SHIBREFF, Brockville, Canada, assignor to himself and John Macleod Gill, same place. Filed Mar. 31, 1892. Serial No. 427,270. (No model.)



Claim.—1. In a screen for windows or doors, the combination, with the netting or wire-cloth and a frame the top rail of which is formed with a series of separated channels opening above the said netting or wire-cloth, of a ribbon located in front of the said channels, concealing the edge of the netting or wire-cloth and adjustable to enlarge or diminish the openings above said netting or wire-cloth, substantially as described.

2. In a screen for windows or doors, the combination, with the netting or wire-cloth and a frame the top rail of which is formed with a series of separated channels E, each of which is provided with a sunken channel F, of a ribbon located in front of the said channels, concealing the edge of the netting or wire-cloth and adjustable to enlarge or diminish the openings above said netting or wire-cloth, substantially as described.

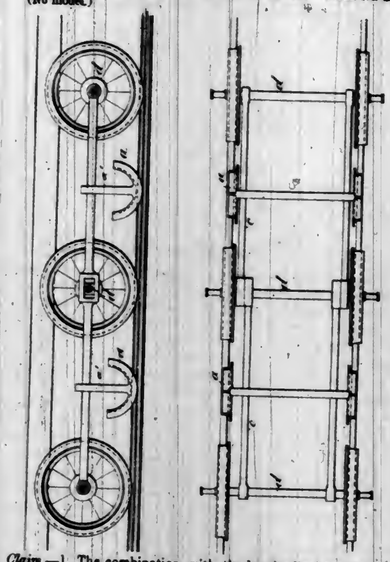
3. In screens for windows or doors, the combination, with a frame B, having its top rail A formed with a series of piers D, connected by arched channels E and sunken channels F, a screen C, secured to the frame and having its upper edge terminating below the crowns of the arched channels, the ribbon H, applied to the upper edge of the screen and provided with a series of vertical slots J, and screws I, extending through the slots and engaging the frame for the purpose of vertically adjusting the ribbon on the screen, substantially as described.

481,067. MANUFACTURE OF SCREEN-DOORS. CHARLES J. SHIBREFF, Brockville, Canada, assignor to himself and John Macleod Gill, same place. Filed Mar. 31, 1892. Serial No. 427,271. (No model.)



Claim.—The improvement in the art of constructing screen-doors, which consists in providing the door-frame with incisions extending from its inner edges in a direction approximately parallel with its face and with other incisions at a distance from its inner edges and approximately at right angles to the first incisions, then removing the strips bordered by the two sets of incisions, so as to form recesses in the frame, then adjusting the screen in said recesses, and, finally, securing the strips over the edges of the screen, substantially as described.

481,068. GUARD-SHOE FOR RAILWAY-VEHICLES. HENRY L. SIMMONS, St. Day, England. Filed Feb. 20, 1892. Serial No. 422,337. (No model.)

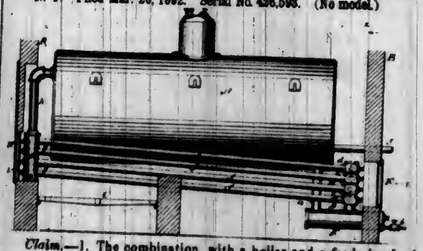


Claim.—1. The combination, with the longitudinal bars carried by the axles, of the rail-guard shoes provided with central stems connected to the said bars and depending from them, substantially as set forth.

2. The combination, with a longitudinal bar carried by the axles, of a rail-guard shoe provided with a central stem and a spring connecting the said stem with the said bar, substantially as set forth.

3. The combination, with the stationary tube *c*, carried by the car and provided with a guide at its lower end, of a rail-guard shoe provided with a central stem sliding in the said guide and a spring inclosed within the said tube and adapted to support the said shoe and permit it to rise, substantially as set forth.

481,069. STEAM-GENERATOR. GEORGE W. SLOANE, Brooklyn, N. Y. Filed Mar. 26, 1892. Serial No. 426,093. (No model.)

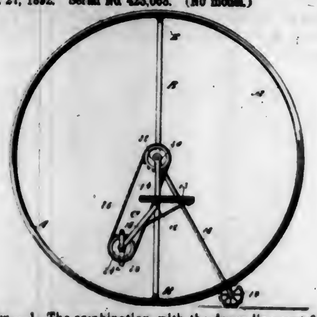


Claim.—1. The combination, with a boiler and a feed-pipe leading directly thereinto, of a mud-drum E, having a pipe *e* extending into the boiler, a drum D, rising from the mud-drum, and pipe connections between the drum and the steam-space of the boiler, substantially as described.

2. A steam-generator consisting of a furnace structure, a boiler A, a mud-drum E, situated beneath the boiler and connected to the same by a pipe *a*, a drum D, connected to the mud-drum and extending up between the boiler and the rear wall of the furnace structure, pipes

c c', extending from the drum D in opposite directions, heads *d d'*, connected to the ends of the pipes *c c'* and provided with hand-holes *e e'*, doors F F' opposite said hand-holes, drums G G' between the front end of the boiler and the front wall of the furnace structure, pipes *f f'*, extending from the heads *d d'* into the drums G G', hand-holes *g g'* in the drums G G', doors H H' opposite said hand-holes, and pipes *h h'*, leading from the drums G G' into the boiler, substantially as described.

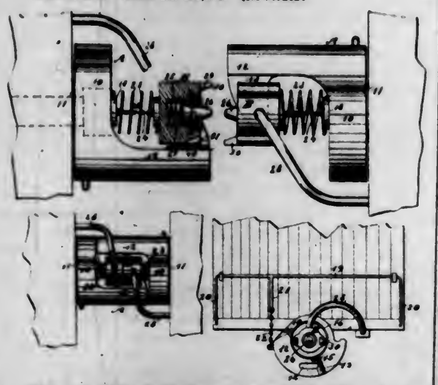
481,070. VELOCIPEDE. MARTHA E. SLOCUM, Meadville, Pa. Filed Feb. 27, 1892. Serial No. 423,063. (No model.)



Claim.—1. The combination, with the depending seat-frame having outwardly-projecting arms at its upper end, on which the wheel-hubs are journaled, and the operating mechanism, of the arm or arms 18, rigidly mounted at their upper ends on said outwardly-projecting arms and inclined rearward and downward to a point adjacent to the ground-line, substantially as set forth.

2. The combination, in a velocipede, with the seat-frame having a horizontal seat, vertical arms at the ends thereof, horizontal arms projecting outward from the upper ends of said vertical arms through wheel-hubs, sprocket-wheels on the wheel-hubs, arms 15, projecting downward and forward from the seat-frame and carrying the treadles provided with sprocket-wheels, and chains connecting the wheel and treadle sprockets, of the rods or bars rigidly secured to the said horizontal arms and extending downward and rearward therefrom and provided with wheels at the ground-line, substantially as set forth.

481,071. CAR-COUPLING. HAMPTON K. SMITH, Union, S. C. Filed Oct. 17, 1891. Serial No. 409,078. (No model.)



Claim.—1. The combination, with a car-coupler, of a valve-head containing a chamber having a conical outer end and an aperture leading into said chamber and adapted to receive a steam or air pipe, a spring-controlled conical valve located in the chamber, a cushion or washer surrounding the chamber and extending beyond its forward end, and guide devices attached to the outer faces of the valve-heads as and for the purpose specified.

2. In a car-coupling, the combination, with a draw-bar and a coupling-hook mounted to rock thereon, of a valve-head yieldingly connected to the draw-bar and adapted for connection with a steam or air pipe and a valve in said head, substantially as described.

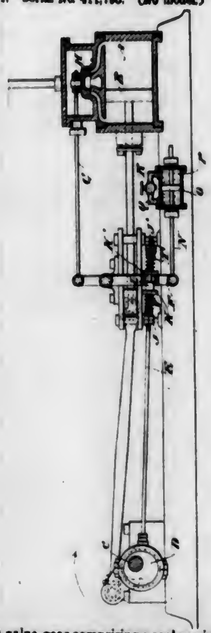
3. In a car-coupling, the combination, with a draw-bar and a coupling-hook mounted to rock thereon, of a valve-head, a valve in said head, a flexible connection connecting the valve-head to the draw-bar, and a spring interposed between the valve-head and the draw-bar, substantially as described.

4. In a car-coupling, the combination, with a draw-bar and a coupling-hook mounted to rock thereon, of a valve-head provided with a guide-lug, a flexible connection between the valve-head and draw-bar, and a conical and spring-pressed valve in the valve-head and projecting beyond the outer face of the same, substantially as described.

5. In a car-coupler, the combination, with a draw-bar, of a draw-head consisting of a body-section having a hub, the said body-section being provided with an eccentrically-located bore extending through the hub, and a wing extending from one side of the body, terminating in a hook the direction of which is diametrically across the front face of the body, substantially as shown and described.

6. In a car-coupler, the combination, with a draw-bar having a head at its outer end, of a draw-head provided with a hub at one end and an eccentrically-located bore extending in reduced form through the hub, the said head through the medium of the said bore being loosely mounted upon the draw-bar, and a wing extending horizontally over the outer face of the body at one side, terminating in a hook the direction of which is diametrically of the body of the draw-head and the outer end of which wing and hook is beveled or inclined, as and for the purpose specified.

481,072. VALVE-GEAR. FRED. E. SMITH, Boston, Mass. Filed Nov. 13, 1891. Serial No. 411,780. (No model.)



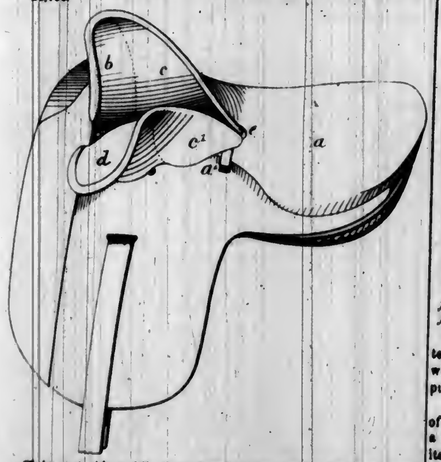
Claim.—1. A valve-gear comprising a rocker yieldingly connected with its eccentric-rod, and a stationary auxiliary fluid-cylinder having connected ends, and a piston operating in said cylinder and connected with the valve-stem, substantially as set forth.

2. In a valve-gear, the combination, with an eccentric and its rod, of a fixed collar held on the said rod, springs coiled on the said rod and pressing against washers adapted to be engaged by the said collar, and a rocker connected with the main valve and adapted to be engaged at opposite sides by the said washers, substantially as shown and described.

3. In a valve-gear, the combination, with a valve-stem, of a cylinder containing a piston connected with the said valve-stem, a fluid contained in the said cylinder, a pipe connecting the ends of the cylinder with each other, and a regulating-valve in the said pipe, substantially as shown and described.

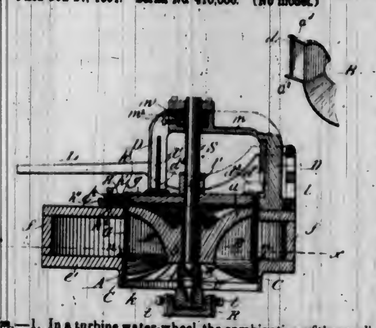
4. In a valve-gear, the combination, with an eccentric and a rocker yieldingly connected with the said eccentric, of a cylinder having connected ends and filled with a fluid, a piston mounted to travel in the said cylinder and connected with the said rocker, and a valve arranged in the pipe for connecting the ends of the cylinder, substantially as shown and described.

481,073. SIDE SADDLE. THOMAS G. SMITH, Malmesbury, and FREDERICK W. MATHEW, London, England. Filed May 11, 1892. Serial No. 432,589. (No model.) Patented in England Dec. 12, 1891, No. 21,796.



Claim.—A side saddle for a female rider, having its upper pommel *b* provided with an extension *c*, which is curved backward, and its lower pommel *d* provided with an extension *c'*, which is curved upward and backward, said curved extensions constituting an extended bearing approximately from the knee to the groin of the rider for the purpose of obtaining steadiness and firmness of seat, substantially as described.

481,074. WATER-WHEEL. WILLIAM G. SPENCER, Dahlonega, Ga. Filed Oct. 27, 1891. Serial No. 410,006. (No model.)

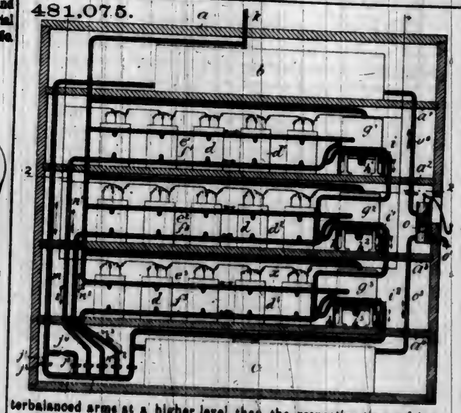


Claim.—1. In a turbine water-wheel, the combination of the scroll, the wheel proper consisting of the crown-plate having an inwardly-projecting hub, the buckets secured thereto, the band surrounding the lower outer edges of the buckets, and the supplementary sides secured to the outer edges of the buckets between the crown-plate and the said band, the lower end of each side being turned to form a guide, substantially as described.

2. In a turbine water-wheel, the combination of the scroll, the wheel, the gate, the casing secured to the top of the scroll and surrounding the gate, the band and packing carried within the said casing, and the adjusting-screws passing through the casing and impinging upon the said band, substantially as described.

481,075. ELECTRIC BATTERY. PETER STIEBS, Charlottenburg, Germany. Filed Apr. 20, 1892. Serial No. 429,846. (No model.)

Claim.—1. The combination, in an electric battery, of one or more tiers of closed battery-cells, a supply-tank located above the battery-cells, a receiving-tank located beneath the battery-cells, a feed-pipe communicating with the supply-tank and with the upper tier of cells, air-pipes communicating with all the cells of the respective tiers and serving as overflow-pipes, connecting-tubes between the respective tiers of cells and the receiving-tank, counterbalanced arms normally closing said connecting-tubes, and regulating-vessels supported by said counterbalanced arms at a higher level than the respective tiers of jars with which they are in communication, substantially as and for the purposes set forth.



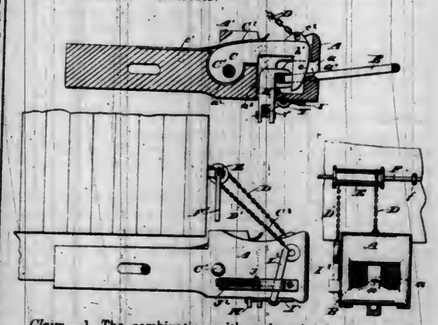
2. The combination, in an electric battery, of one or more tiers of closed battery-cells, a supply-tank located above the battery-cells, a receiving-tank located beneath the battery-cells, a force-pump and its complemental connections for emptying the contents of the receiving-tank into the supply-tank, a feed-pipe communicating with the supply-tank and with the upper tier of cells, air-pipes communicating with all the cells of the respective tiers and serving as overflow-pipes, connecting-tubes between the respective tiers of cells and the receiving-tank, counterbalanced arms normally closing said connecting-tubes, and regulating-vessels supported by said counterbalanced arms at a higher level than the respective tiers of jars with which they are in communication, substantially as and for the purposes set forth.

3. The combination, in an electric battery, of one or more tiers of closed battery-cells and their complemental regulating devices and overflow connections, an elevated supply-tank, a feed-pipe communicating with the supply-tank and the upper tier of cells and bifurcated to form branch tubes, whereof one is restricted in cross-section, and pinch-cocks or valves for opening and closing said branch tubes, substantially as and for the purposes set forth.

4. In an electric battery, a tier of closed battery-cells, a pipe for supplying electrolyte thereto, a connecting or overflow tube, a counterbalanced pivotal arm normally closing said connecting-tube, a covered regulating-vessel supported by said arm at a higher level than the cells, and tubes communicating with said cells and regulating-vessel, substantially as and for the purposes set forth.

5. The combination, in an electric battery, of one or more tiers of closed cells and their complemental filling and discharging apparatus and a series of air-tubes discharging into the atmosphere and communicating with said cells and with the tanks and vessels of the filling and discharging apparatus, substantially as and for the purposes set forth.

481,076. CAR-COUPLING. CHARLES W. STILLIANS, Pueblo, Colo., assignor of one-half to Isaac Freund, same place. Filed Nov. 11, 1891. Serial No. 411,538. (No model.)



Claim.—1. The combination, with a draw-head, of a coupling hook or arm, a normally-elevated vertically-sliding link-tilter in rear of the link-engaging portion of the hook or arm, and mechanism for

raising the coupling hook or arm and depressing the link-tilter, substantially as set forth.

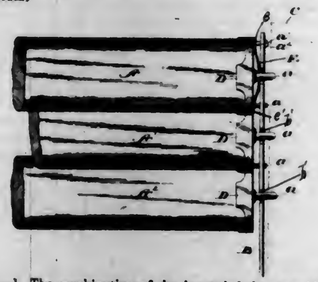
2. In a car-coupling, the combination, with a draw-head, of a vertically-movable hook extending therein from the under side, its hook proper projecting forwardly over the position occupied by the ordinary coupling-link, a cranked rock-shaft held to said hook at its lower end, and an arm for rocking said shaft, substantially as described.

3. In a car-coupling, the combination, with the draw-head, of link-controlling devices comprising a hook fitted to slide vertically in said draw-head, its hook proper lying normally within the draw-head over the position occupied by the usual link, a cranked rock-shaft for operating said hook, an arm for rocking said shaft, and a spring for returning the said arm and connected devices to the normal position, substantially as described.

4. In a car-coupling, the combination, with the draw-head, of link-controlling devices consisting of a hook held to a cranked rock-shaft and fitted to slide vertically in the draw-head, its hook proper lying therein and extending forwardly over the position occupied by the usual coupling-link, an operating-arm on the rock-shaft, a sliding rod bearing at one end against said arm, a spring on said rod for holding it against the said arm, and a chain and winding-drum for throwing the arm, substantially as shown and described.

5. In a car-coupling, the combination, with the draw-head, of link-controlling devices comprising a vertically-sliding hook in the draw-head, a rock-shaft to which said hook is connected, said shaft having an operating-arm, and a chain and winding-drum therefor, the chain being connected with the arm of the rock-shaft for throwing the same, substantially as described.

481,077. WINDOW-BLIND. EDWARD STOEPPELWERTH and CHARLES H. KNEFELKAMP, St. Louis, Mo. Filed Nov. 27, 1891. Serial No. 413,271. (No model.)



Claim.—1. The combination of the journaled slats provided, respectively, with the pins, the slat-rod jointed to said pins, and the friction-plate E, attached to the pins of adjoining slats and bearing against said slat-rod, substantially as described.

2. The combination of the slats, the caps attached, respectively, to said slats, and each provided with a journal and pin, the slat-rod jointed to said slat-pins, and the friction-plate attached to the pins of the slats and bearing against the slat-rod, substantially as described.

481,078. GATE. COLEMAN TALBOT, Santa Rosa, Cal., assignor of one-half to Joseph M. Talbot, same place. Filed Apr. 6, 1892. Serial No. 428,093. (No model.)

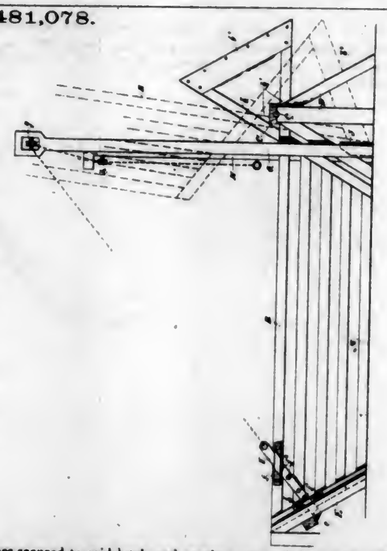
Claim.—1. The vertically-swinging gate pivoted horizontally at its inner end and having the inclined end bar, with an extension, a top rail or bar with an extension, and a weight-box connecting the ends of said extensions beyond the line of pivot of the gate, substantially as herein described.

2. The gate having the upwardly-diverging end bars, the inner one of which has an extension, the top rail or bar, with an extension, the weight-box connecting the ends of said extensions, and a horizontal pivot-bar at the inner end of the gate-top, in combination with the standards upon which said bar is pivoted, the inclined guides for the outer end of the gate, and the fixed stop for its weight-frame at the inner end, substantially as herein described.

3. The vertically-swinging gate pivoted horizontally at its inner end and having the inclined bar at its outer end, in combination with the corresponding inclined guide E, with latch-stop *e*, and the inclined gravity-latch on the gate, adapted to pass its lower end under said stop, substantially as herein described.

4. The vertically-swinging gate pivoted horizontally at its inner end and having the inclined bar at its outer end, in combination with the corresponding inclined guide E, with latch-stop *e*, the inclined gravity-latch on the gate, adapted to pass its lower end under said stop, said latch having a stop for limiting its movement, and the operating-

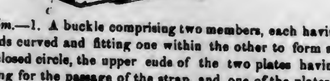
481,078.



ropes secured to said latch and passing over suitable guide-pulleys, substantially as herein described.

5. The vertically-swinging gate pivoted horizontally at its inner end, said gate having the upwardly-divergent end bars, the inner one of which has an extension, a top rail or bar with an extension, and a weight-box connecting the ends of said extension beyond the line of pivot of the gate, in combination with the inclined guide E for the outer end of the gate, the latch-stop *e* thereon, the sliding inclined gravity-latch on the gate, having suitable stops, and the operating-ropes I, secured to the latch and passing over suitable guide-pulleys, substantially as herein described.

481,079. BUCKLE. JOHN G. TAYLOR, Keene, Tex. Filed Mar. 28, 1892. Serial No. 426,811. (No model.)



Claim.—1. A buckle comprising two members, each having their lower ends curved and fitting one within the other to form substantially a closed circle, the upper ends of the two plates having each an opening for the passage of the strap, and one of the plates having a tongue which passes through the strap, substantially as set forth.

2. A buckle comprising two members, each having curved lower ends, the curved portion of one having a tongue or projection and a curved portion of the other having an opening to receive the said tongue, substantially as described.

481,080. GRAIN CUT-OFF. PHILANDER D. THOMPSON, Neligh, Nebr. Filed Mar. 12, 1892. Serial No. 424,730. (No model.)



Claim.—The combination, with an outer stationary cylinder having a series of discharge-openings in its sides, a centrally-apertured conical bottom, and a delivery-spout at each opening, of an inner revoluble cylinder having a centrally-apertured conical bottom and a single discharge opening in its side, a funnel-shaped hopper rigidly secured within the inner cylinder, the overlapping flanges secured to the

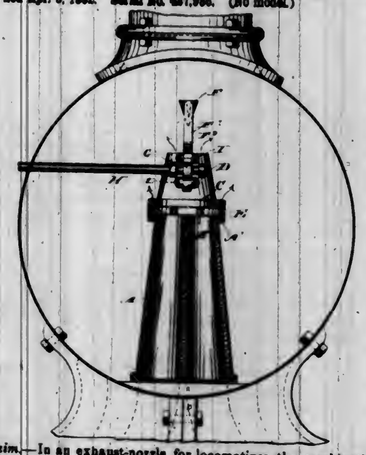
outer cylinder and adapted to overlap the upper edge of the inner cylinder, the tube passed through the outer bottom and secured in the aperture of the inner bottom, the operating-shaft passed through the tube, and the nuts secured upon the shaft above and below the tube and adapted to bear upon the ends of tube, substantially as shown and described.

481,081. COMPOUND PROJECTILE FOR SMALL ARMS. MICHAEL TWOMEY, Billingshurst, assignor to Edgar Ray, London, England. Filed Feb. 23, 1892. Serial No. 422,574. (No model.) Patented in England Dec. 18, 1891, No. 22,173; in France Feb. 5, 1892, No. 219,181; in Belgium Feb. 6, 1892, No. 96,343, and in Italy Mar. 2, 1892, LXI, 359.



Claim.—As an improved article of manufacture, a compound projectile constructed to flatten out at the front end when striking the object aimed at and composed of a hard-metal case closed at the rear end and open at the front end and a soft-metal core introduced at the front end of the case, substantially as described.

481,082. EXHAUST-NOZZLE. CHARLES W. UMBOLTS, Bristol, Va. Filed Apr. 6, 1892. Serial No. 427,996. (No model.)



Claim.—In an exhaust-nozzle for locomotives, the combination, with the stand-pipe A, having the lateral top flange A', provided with the pins B, and a vertical flange E, secured to the top flange, of the detachable nozzle D, having a flanged base C, which is supported in fixed position upon said pins and surrounded by the said vertical flange, between which latter and said nozzle is an annular space serving as a supplemental steam-passage, and the inverted cone F, the rack-bar, and toothed segment for adjusting it, as shown and described.

481,083. HORSESHOEING-RACK. JOHN WAGNER and GEORGE B. SUNDERLAND, Marietta, Ohio. Filed Feb. 12, 1892. Serial No. 421,325. (No model.)

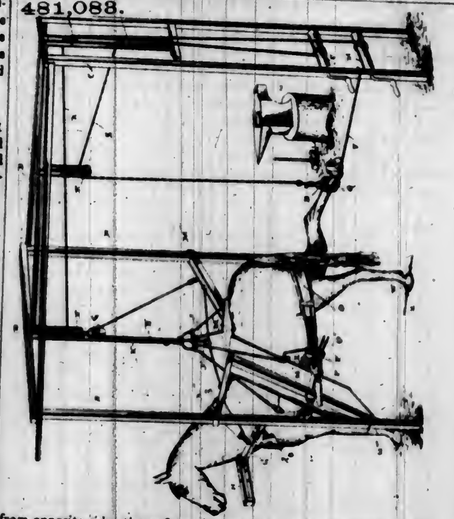
Claim.—1. The combination, with a frame in which the animal is placed and a band for preventing him from moving rearward therein, of loops through which the ends of the said band pass and dogs which are pivoted in the said loops and which bear against the said band ends, the outer ends of the dogs being secured to the frame, substantially as shown and described.

2. In a device of the character described, the combination, with a boxing provided with an opening in its upper side and a post within the box below the opening, of rods arranged around the post, and diverging downward from the upper end thereof and a rope which is looped around the said rods, for the purpose substantially as shown and described.

3. The combination, with the uprights A and upwardly-converging braces M', of loops at the lower end of said braces and loop-arms M'', projecting from the upper ends of the braces, all of said loops encircling the uprights and adapted to move vertically thereon, substantially as shown and described.

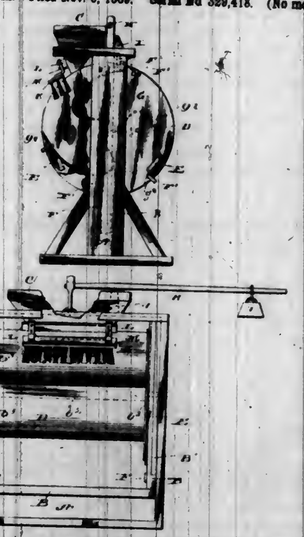
4. The combination of a frame, movable braces projecting inward

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from opposite sides thereof, an elevating-line, diverging ropes at the lower end of said line, which are secured at their respective outer ends to the adjustable braces, and means for elevating the line, substantially as shown and described.

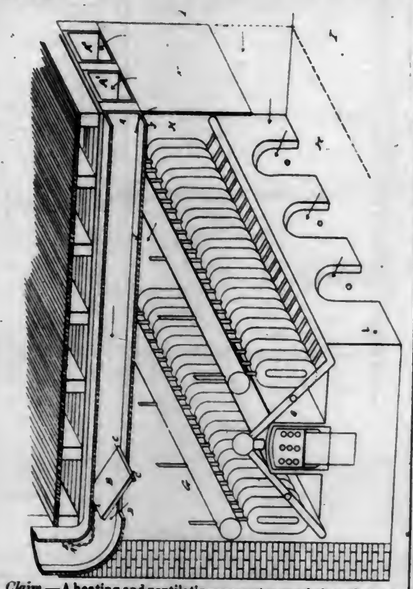
481,084. GRAIN-WEIGHING MACHINE. GEORGE W. WAKEFIELD, Waterman, Ill. Filed Nov. 6, 1889. Serial No. 329,418. (No model.)



Claim.—1. In an automatic grain-weighing machine having a revoluble bucket-cylinder on a horizontal axis and operated by the weight of the grain falling into the buckets, a flexible brush projecting downward into the bucket and serving to brush from a portion of its bed or bottom the excess of grain, if any, beyond the predetermined weight and to carry it over into the next bucket, all as set forth.

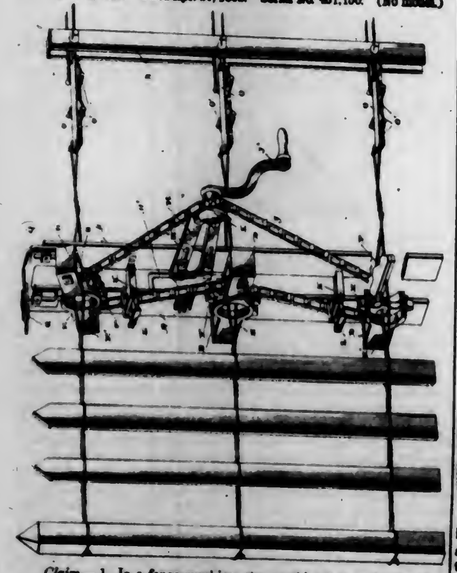
2. In a grain-weigher adapted to be supplied by a continuous stream of grain, the combination, with a revoluble cylinder having a series of buckets whose shallower portion has substantially the curved form shown, of an adjustable flexible brush projecting into the inside of the buckets, as shown and described, and serving when the cylinder commences to revolve to hold back and sweep over the excess of grain, if any, from the shallower part of the bed of the bucket into the next adjacent bucket, all as set forth.

481,085. HEATING AND VENTILATING APPARATUS. SAMUEL W. WATSON, Detroit, Mich., assignor to the Detroit Plumbers' Supply Company, same place. Filed Sept. 10, 1891. Serial No. 405,296. (No model.)



Claim.—A heating and ventilating apparatus consisting of a heater inclosed in a heating-chamber, a cold-air room or supply, an air-flue A, extending over the heater, having communication with the heating-chamber and with the cold-air room or supply and comprising a heat-radiating surface which constitutes the top wall of the heating-chamber above the heater, and a damper controlling said air-flue, substantially as described.

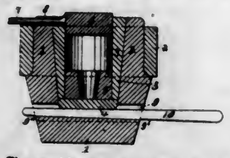
481,086. PICKET-WIRING FENCE-MACHINE. ALMOND R. WELTY, Shreve, Ohio. Filed Apr. 29, 1892. Serial No. 431,160. (No model.)



Claim.—1. In a fence-machine, the combination, with a vertical support, frames secured thereto, sprocket-wheels journaled in said frames, and a means for operating said wheels, of brackets projecting from said support and which are recessed on one of their sides, and stops which are adapted to be inserted in the said recesses, and laterally-projecting shoulders on the sides thereof, which are engaged by the ends of the brackets, substantially as shown and described.

2. In a fence-machine, in combination, a vertical support consisting of two members, castings secured across them, having central openings and flanges around the openings, lugs projecting from the castings, plates having central openings and which are secured against the said lugs, flanges on the inner sides of the plates around their openings, sprocket-wheels between the said plates and castings, which revolve on the flanges of the said members, a laterally-adjustable arm secured to the vertical support, a sprocket-wheel journaled thereto, a drive-chain which moves around said sprocket-wheels, a spreader on the wires which pass through the machine and which is adjacent thereto, a post, and a tension device secured thereto, consisting of a center bar and laterally-projecting arms thereon, over which the wires pass, substantially as shown and described.

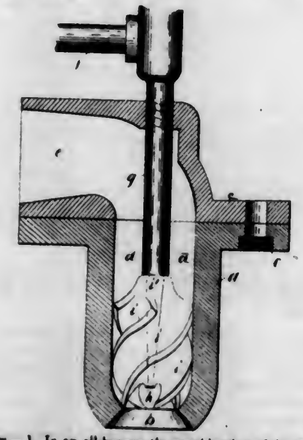
481,087. DIE-HOLDER AND DIE FOR MAKING STAMP-SHOES. JOHN WILSON, Sr., East St. Louis, Ill. Filed Oct. 22, 1891. Serial No. 409,526. (No model.)



Claim.—1. The combination of a sectional tapering die, a slotted holder for the die, a wedge fitting in the slot of the holder for removing the die, a plate resting against the under side of the die, a block within the die, and a follower adapted to fit in the upper end of the die, substantially as and for the purpose set forth.

2. The combination of a sectional tapering die, a slotted holder for the die, a wedge for removing the die from the holder, a block within the die, and a follower adapted to fit in the die, substantially as and for the purpose set forth.

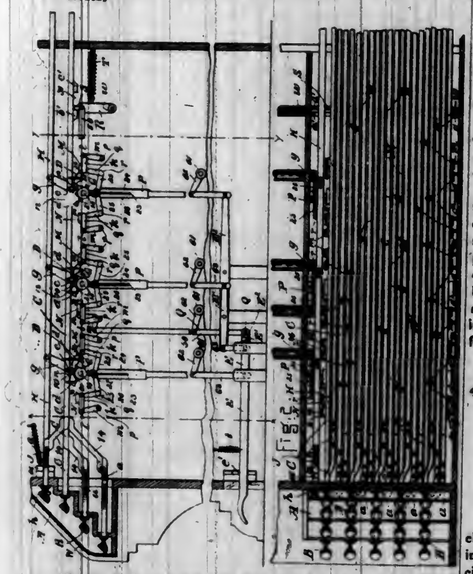
481,088. HYDROCARBON-BURNER. AMBROSE CHANEY and EDWARD T. WIRBE, Terre Haute, Ind. Filed Jan. 12, 1892. Serial No. 417,864. (No model.)



Claim.—1. In an oil-burner, the combination of the shell, the oil-passage in the shell having its open discharge end in rear of the open end of the shell, and the series of separate spiral webs extending completely across the open space in the shell around said passage and projecting beyond the open end of the passage, so as to direct the air across said open end, as described.

2. In an oil-burner, the combination of the shell having an end opening, a core centrally in the shell having a longitudinal oil-passage with an oil-discharge end in rear of said end opening, an oil-supply pipe entering the opposite end of said core, and the spiral ribs integral with said core and extending across the space within the shell around the core and projecting forwardly beyond said oil-discharge end, and thereby forming spiral passages discharging in different directions across said oil-discharge end, substantially as described.

481,089. COMBINATION ORGAN STOP-ACTION. JESSE WOODBERRY, Boston, Mass. Filed May 31, 1892. Serial No. 435,054. (No model.)



Claim.—1. In an organ stop-action, the combination, with the adjustable register or stop-rods C, each provided on its under side with a series of centrally-pivoted rocker-levers D, of a setting mechanism consisting of the rocker-bars G, located beneath the levers D and adapted to depress or raise the same at either end by the contact of their edges therewith, said bars being provided with arms or levers *g*, and the sliding rod H, located above the register-rods and connected with and adapted to actuate the arms *g* and bars G to rock the levers D and set the same in different positions to be acted upon by pushing devices connected with the combination pedals, substantially as and for the purpose set forth.

2. In an organ stop-action, the combination, with the register-rods provided on the under side with rocker-levers D, of the pusher-bars M N, mounted upon horizontal rods *k*, the rollers or rocker-shafts *r*, provided with lateral arms 25 and with arms *q*, connected with said rods *k* and adapted to move the same simultaneously in opposite directions to contact with the ends of the levers D, the vertical rod P, connected with a pedal and having the outer ends of the arms 25 of the rocker-shafts *r* pivoted thereto, and the links *m*, pivoted at their upper ends to the rods *k*, whereby the pusher-bars are kept in parallelism with the register-rods as they are moved back and forth in opposite directions by the mechanism connected therewith, substantially as set forth.

3. In an organ stop-action, the combination, with the adjustable register-rods C, each provided on its under side with a series of centrally-pivoted rocker-levers D, of the pivoted rocker-bars G, located beneath the levers D and adapted to depress or raise the same at either end, said bars being provided with arms *g*, the sliding setting-rod H, located above the register-rods and connected with and adapted to actuate the arms *g* and bars G to rock the levers D, the pusher-bars M N, mounted upon the horizontal rods *k*, the rocker-shafts *r*, with their arms *q* 25, said arms *q* connected with the rods *k*, the vertical rod P, connected with a pedal and having the arms 25 of the rocker-shafts *r* pivoted to its upper end, and the pivoted links *m*, connected at their upper ends to the rods *k*, whereby the bars M N are kept in parallelism with the register-rods C as they are moved back and forth in opposite directions by the mechanism connected therewith, all operating substantially as set forth.

4. In an organ stop-action, the combination, with the register-rods C, provided on the under side with the rocker-levers D, of the pusher-bars M N, mounted upon horizontal rods *k*, the rocker-shafts *r*, with their arms *q* 25, and the vertical connecting-rod P, split or divided at its upper end to form two separate portions, and having one of said arms 25 pivoted to each portion, substantially as and for the purpose set forth.

5. In an organ stop-action, the combination, with the register-rods provided with the rocker-levers D, the pusher-bars M N, mounted upon the rods *k*, and the mechanism for actuating the same, of the full-organ-lever mechanism consisting of the arm R, roller or rocker shaft *w*, arms *d'*, bars S S, extending beneath the register-rods, said rods being each provided on the under side with blocks *b' c'*, having a suitable space between them, the pedal Q and suitable connections between said pedal and the arm R, and the spring T, connected with said lever mechanism and adapted to retract the same on the release of the pedal to simultaneously draw in the entire series of stops, substantially as set forth.

6. In an organ stop-action, the register-rods C, having their front ends provided with portions *a* 14, curved or inclined in horizontal and vertical planes to connect them in groups or series, with their knobs or handles arranged in a vertical plane, substantially as set forth.

7. In an organ stop-action, the combination, with the adjustable register or stop rods C, each provided on its under side with a series of centrally-pivoted rocker-levers D, of the rocker-bars G, located beneath the levers D and each provided at each end with two fulcrum-pins 16 17, the supporting-blocks 19, having slots 18 for the reception of the said fulcrum-pins 16 17, the arms or levers *g*, secured to the bars G, and the sliding-rod H, connected with said arms *g*, whereby said bars G are rocked in one direction upon the fulcrum-pins 16 and in the opposite direction upon the fulcrum-pins 17, substantially as and for the purpose set forth.

481,090. FOUNTAIN-PEN. LOUIS B. WOOLFOLK, Cincinnati, Ohio. Filed May 6, 1892. Serial No. 432,064. (No model.)



Claim.—1. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, provided with a transverse slot constructed entirely within a circumference thereof and extending entirely through said stopper, a pen held in said transverse slot, a feed-tongue below the pen, and ducts and passages for permitting an outflow of ink from the ink-holder to the point of the pen and an inflow of air into the ink-holder.

2. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, adapted to hold a pen and provided with a rigid lip integral therewith, located back of the pen, extending beyond the end of the stopper and a portion thereof in contact with the inner wall of the ink-holder, and ducts and passages whereby air may enter the ink-holder and ink may flow out of the ink-holder to the point of the pen.

3. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, provided with a transverse slot constructed entirely within the circumference thereof and extending entirely through said stopper, a pen held in said slot, a feed-tongue below the pen and a longitudinal groove back of the pen, and means whereby air may enter the ink-holder and ink may flow out of the ink-holder to the point of the pen.

4. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, a pen held in the stopper, said stopper provided with an ink-hole, a wide groove or passage extending from the ink-holder to the ink-hole, and a narrow ink duct or passage from the ink-hole to conduct ink to the pen, all substantially as described.

5. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, adapted to hold a pen and provided with a rigid lip integral therewith, located back of the pen, and an ink way constructed in the lip, substantially as and for the purpose set forth.

6. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, a pen held in the stopper, said stopper provided with a lip integral therewith, located back of the pen, and an air-inlet back of the pen, constructed partly in the periphery of the stopper and partly in the periphery of the lip, substantially as described.

7. In a fountain-pen, the combination of an ink-holder closed at the upper end, with a stopper in the open lower end of the ink-holder, a pen held in the stopper, said stopper provided with a longitudinal hole, located entirely beneath the pen, a feed-rod held in said longitudinal hole, provided with a feed-tongue integral therewith adjacent to the pen, and a projection extending downward below the pen, substantially as described.

8. In a fountain-pen, the combination of an ink-holder closed at the upper end, a stopper in the open lower end of the ink-holder, adapted to hold a pen and provided with a longitudinal hole therein, located entirely beneath the pen, a feed-rod held in said longitudinal hole, having a feed-tongue integral therewith, a projection integral with the stopper below the pen, and an ink-cup below the normal lower end of the stopper and located between the pen, the feed-tongue, the inner wall of the ink-holder, and said projection, substantially as described.

9. In a fountain-pen, a stopper adapted to hold a pen and provided with a rigid lip located back of the pen, said lip having a stop-per-check, substantially as and for the purpose set forth.

10. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, provided with a longitudinal hole below the pen, a feed-rod held in the longitudinal hole, having the under side of its lower end cut away to form a feed-tongue, said cut-away portion of the feed-rod extending up into the longitudinal hole, thereby lengthening the feed-tongue, and ducts and passages whereby air may enter the ink-holder and ink may flow from the ink-holder to the point of the pen.

11. In a fountain-pen, the combination, with an ink-holder, of a stopper in the lower end of the ink-holder and a pen held in the stop-per, said stopper provided with a longitudinal hole located entirely beneath the pen, a feed-rod held in said longitudinal hole and having the under side of its lower end cut away to form a feed-tongue, and ducts and passages for the inflow of air into the ink-holder and the outflow of ink to the point of the pen.

12. In a fountain-pen, the combination, with a stopper having a pen-holding slot and provided with a longitudinal hole below the pen-slot, of a feed-rod adapted to be held in the longitudinal hole, said feed-rod having the under side of its lower end cut away to form a feed-tongue, the cut-away portion of the rod extending up into the longitudinal hole, whereby the feed-tongue is lengthened and a cavity is formed in the stopper beneath the feed-tongue, substantially as de-scribed.

13. In a fountain-pen, a feed-rod having a portion cut away from the under side of its lower end to form a feed-tongue, a finger below said feed-tongue integral with the under portion of said feed-rod, and a slot between the feed-tongue and finger, substantially as described.

14. In a fountain-pen, the combination of a stopper having a slot to hold a pen and provided with a longitudinal hole beneath the pen-slot, with a feed-rod held in said longitudinal hole, provided with a feed-tongue integral therewith, the under side of the lower end of said feed-rod being cut away to form an elongated feed-tongue and to form a cavity in the stopper beneath the feed-tongue, and a finger integral with the under side of the feed-rod, extending down into the cavity beneath the feed-tongue, substantially as and for the purpose set forth.

15. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, holding a pen and provided with a longitudinal hole below the pen, a feed-rod held in the longitudinal hole, a feed-tongue, and an ink-pas-sage communicating between the ink-holder and the longitudinal hole beneath the feed-tongue, substantially as and for the purpose set forth.

16. In a fountain-pen, the combination, with a stopper holding a pen and provided with a longitudinal hole beneath the pen, of a feed-rod adapted to be held in said longitudinal hole, having the under side of its lower end cut away to form a feed-tongue, said feed-tongue cut away on each side to form ink-spaces between the feed-tongue and the wall of the longitudinal hole, substantially as described.

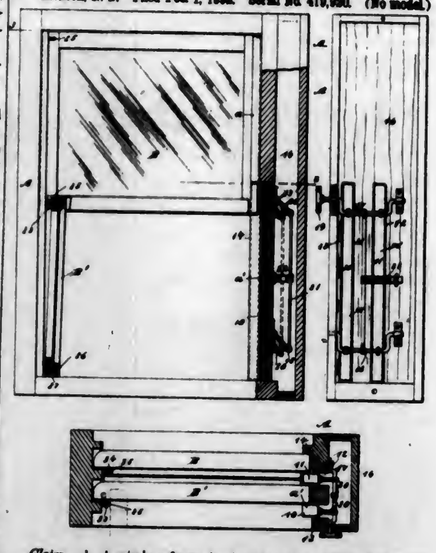
17. In a fountain-pen, the combination of an ink-holder closed at the upper end, with a stopper in the open lower end of the ink-holder, a pen held in the stopper, said stopper provided with a lip integral therewith, located back of the pen, and an air-inlet in the periphery of the stopper and lip, the inlet having its mouth open to the air on the upper side of the lip below the lower end of the ink-holder, and ducts and passages for conducting air from the air-inlet into the ink-holder and ink from the ink-holder to the point of the pen.

18. In a fountain-pen, the combination of a stopper provided with a transverse slot constructed entirely within the circumference thereof, a pen held in the transverse slot, an ink-duct back of the pen, and a feed-tongue below the pen, substantially as described.

19. In a fountain-pen, the combination, with an ink-holder closed at the upper end, of a stopper in the open lower end of the ink-holder, provided with a pen having an ink-aperture in the heel thereof, a feed-tongue below the pen, and ducts and passages whereby air may enter the ink-holder and ink may flow from the ink-holder to the top side of the ink-aperture in the pen and passing thence through said aper-ture to the feed-tongue below the pen flow onto the point of the pen.

20. In a fountain-pen, the combination of an ink-holder closed at the upper end, with a stopper in the open lower end of the ink-holder, having a prolongation extending within said ink-holder and provided with a transverse slot constructed entirely within the circumference of the stopper and traversing said prolongation, a pen having the heel thereof held in said transverse slot in said prolongation, and ink and air ducts for permitting the inflow of air into the ink-holder and the outflow of ink from the ink-holder to the point of the pen.

481,091. WINDOW FRAME AND SASH. JOHN ANDERSON, Hickson, N. D. Filed Feb. 1, 1892. Serial No. 419,930. (No model.)



Claim.—1. A window-frame having one of its parting beads and one of its inner beads provided with a movable section, connected crank-shafts mounted in the frame and connected with the said mov-able beads to move them to and from the sashes to permit the sashes to swing outward, and means for operating said crank-shafts, substan-tially as set forth.

2. A window-frame provided with vertical slots in one face and having one of its parting-beads and one of its inner beads provided with a movable section mounted in said slots to move toward and from the sashes, connected spring-pressed crank-shafts connected with said movable sections, and means for operating said shafts, substan-tially as shown and described.

481,092. SHAFT-COUPLING. CHARLES W. BARNABY, St. Louis, Mo. Filed Jan. 4, 1890. Serial No. 336,983. (No model.)



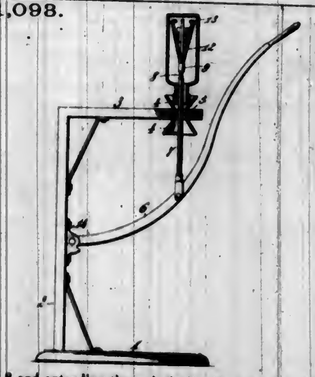
Claim.—1. The combination, in a shaft-coupling, of a longitudi-nally-divided clamping-sleeve provided with a flange on each side of the dividing-slot and one or more clamping-blocks dovetailed onto said flanges, each block provided with one or more screws, by which the clamping-blocks may be forced radially from the center of the coup-ling to close the clamping-sleeve upon the shafts, substantially as set forth.

2. The combination, in a shaft-coupling, of a clamping-sleeve di-vided longitudinally by one or more slots and provided with a flange on each side of each slot, and a clamping-block dovetailed or hooked over each pair of flanges, and device for operating said block so that the flanges will be forced toward each other when the clamping-block is forced or sprung radially from the center of the coupling, substan-tially as set forth.

481,098. CORK-EXTRACTOR. JOHN M. BARNES, North Adams, Mass. Filed Apr. 9, 1892. Serial No. 428,496. (No model.)

Claim.—The combination, with a base 1, standard 2, overhang-ing arm 3, double conoidal guide 4, and lever 6, pivoted to the stand-ard, of a rigid rod 7, pivoted to the lever, having a screw-threaded

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upper end S and extending through the double conoidal guide into a bottle when the lever is raised, a series of diverging elastic hooked arms 12, rigidly secured to the rigid rod, and a screw-threaded sleeve 9, adjustable on the threaded part of the rod and circling and mov-able on the exterior of the elastic arms to press them toward each other when the sleeve is adjusted upward, substantially as described.

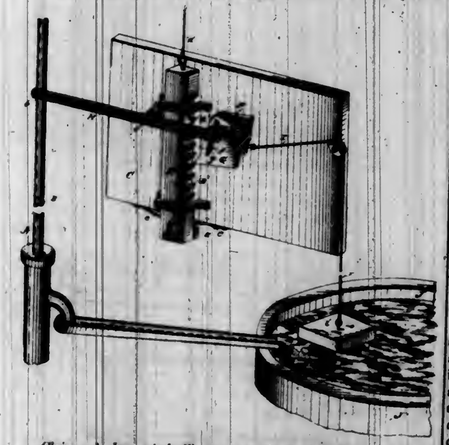
481,094. BILLIARD-CUSHION. MOSES BEMINGER, Chicago, Ill., assignor to the Brunswick-Balke-Collender Company, same place. Filed Apr. 27, 1892. Serial No. 430,867. (No model.)



Claim.—1. In a billiard-cushion strip, the combination, with the usual rubber body portion A, of a face-hardening strip composed of the material or substance known as "vulcanized fiber," the said strip being arranged substantially as hereinbefore set forth.

2. In a cushion-strip provided with a face-hardening strip of vul-canized fiber, the combination of the body portion A, the strip of vulcanized fiber *f*, and a strip of canvas or other suitable textile fabric, which envelops the strip *f*, all substantially as and for the purposes set forth.

481,095. AUTOMATIC GOVERNOR FOR WIND-WHEELS. JACOB H. BERRY, Mishawaka, Ind. Filed Aug. 18, 1891. Renewed June 24, 1892. Serial No. 437,842. (No model.)

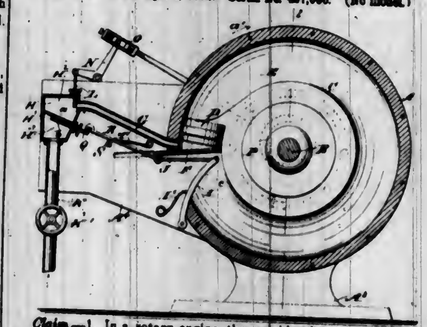


Claim.—1. In a windmill-governor, the combination of the mov-able toothed bar and the locking-pawl pivoted on a fixed support be-side and engaging said bar, a float and connections between the same and said locking-pawl, an oscillating lever connected by one end to and reciprocated by the pitman-rod, a working pawl suspended from the free end of said lever and lying beside said locking-pawl, and a pin or stud on one pawl loosely engaging the other, whereby the work-ing pawl is thrown into or out of engagement with the bar by and with the locking-pawl, substantially as described.

2. The combination of the movable toothed bar, the locking-pawl engaging the same, the reciprocating pawl beside the locking-pawl, the float and connections for disengaging said pawl from the bar and the oscillating lever connected to the pitman-rod at one end and car-rying said reciprocating pawl at the other end, and the buffer adjust-ably secured to said bar for limiting its upward movement, substan-tially as and for the purpose described.

3. The combination of the pump and reciprocating pitman, the vertically-movable toothed bar adapted to be connected to the vane-operating chain of a windmill, the pivoted pawl engaging said bar, the float and cord for controlling said pawl, the oscillating lever actuated by the pitman, and the pawl suspended from the inner end of said lever beside the aforesaid pawl, and having a slot engaged by a pin on said pawl, so that the suspended pawl can reciprocate independ-ently of the other and both be disengaged simultaneously from the bar when the float drops, and the buffer on said toothed bar, all sub-stantially as and for the purposes specified.

481,096. ROTARY ENGINE. HERMANN BETTEN, Hagenendorf, Germany. Filed Apr. 4, 1892. Serial No. 427,686. (No model.)



Claim.—1. In a rotary engine, the combination, with a cylinder having an annular steam-space and a piston mounted to turn in the cylinder and provided with a head traveling in the steam-space of the cylinder, of a gate fitted to slide in and out of the steam-space of the cylinder and actuated by the piston, a steam-chest provided with an apertured partition, a valve for opening and closing the aperture of the partition and operated by the sliding gate, an inlet leading from the steam-chest to the steam-space of the cylinder above the gate, and a valve for opening and closing said inlet and operated from the shaft of the piston, substantially as described.

2. In a rotary engine, the combination, with a cylinder having an annular steam-space, of a piston mounted to turn in the said cylinder and having a head fitting the said steam-space, a gate fitted to slide in the said cylinder to and from the said steam-space, and a spring-pressed arm pivotally connected with the said gate and projecting into the said steam-space to be actuated by the head of the said piston, substantially as shown and described.

3. In a rotary engine, the combination, with a cylinder having an annular steam-space, of a piston mounted to turn in the said cylinder and having a head fitting the said steam-space, a gate fitted to slide in the said cylinder to and from the said steam-space, a spring-pressed arm pivotally connected with the said gate and projecting into the said steam-space to be actuated by the head of the said piston, a steam-chest provided with a partition having a port, said steam-chest being connected with the said steam-space of the cylinder, and a valve con-trolling the connection between the said steam-chest and steam-space of the cylinder, substantially as shown and described.

4. In a rotary engine, the combination, with a cylinder having an annular steam-space, of a piston mounted to turn in the said cylinder and having a head fitting the said steam-space, a gate fitted to slide in the said cylinder to and from the said steam-space, a spring-pressed arm pivotally connected with the said gate and projecting into the said steam-space to be actuated by the head of the said piston, a steam-chest provided with a partition having a port, said steam-chest being connected with the said steam-space of the cylinder, a valve control-ling the connection between the said steam-chest and steam-space of the cylinder, and a second valve adapted to open and close the aper-tured partition of the steam-chest and actuated from the said gate, substantially as shown and described.

5. In a rotary engine, the combination, with a cylinder having an annular steam-space, a piston-head in said steam-space, and a gate fit-ted to slide in and out of the steam-space and operated by the piston, of a steam-chest provided with an apertured partition dividing the steam-chest into two compartments, one of which is connected with the steam-space of the cylinder and the other with the steam-supply, a valve for opening and closing the aperture of the partition, and a connection between the valve and gate, substantially as described.

481,097. PENCIL-SHARPENER FOR SCHOOL-SLATES. WILLIAM D. BLACK, Port Perry, Pa. Filed Sept. 10, 1891. Serial No. 405,337. (No model.)

481,099.

Claim.—1. In an ore-concentrator, the concentrating-table hav-ing a flexible bottom and a flexible beam to which the bottom is se-cured, arranged between the sides of the table, means for vibrating the table, and a bumper-block against which the said beam strikes as the table is vibrated, substantially as described.

2. In an ore-concentrator, a table having a bumper-beam formed with one of its ends gradually diminishing in thickness as the center is approached, substantially as set forth.

3. In an ore-concentrator, the combination of a table having a central bumper beam composed of two longitudinal parts, the lower part gradually decreasing in thickness as the center is approached and the upper part gradually increasing in thickness as the center is ap-proached, substantially as set forth.

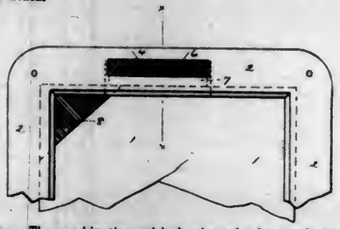
17. In an ore-concentrator, the concentrating-table consisting of the flexible bottom and the side pieces to which the bottom is secured, in combination with packing-strips O² placed between the bottom and the side pieces and rigid strips secured to the edges of the side pieces below the bottom, substantially as set forth.

18. In an ore-concentrator, the concentrating-table consisting of the flexible bottom, the side pieces, and the central flexible bumper-beam, in combination with the rigid strips O', secured to the edges of the side pieces below the bottom, substantially as described.

19. In an ore-concentrator, a table having a bumper-beam with a rigid fore end, a flexible intermediate part, and a rear end of less flexi-bility, substantially as shown, and for the purposes set forth.

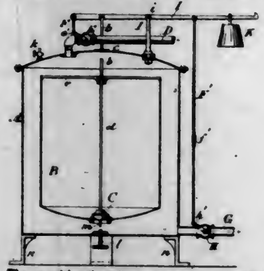
5. In a rotary engine, the combination, with a cylinder having an annular steam-space, a piston-head in said steam-space, and a gate fitted to slide in and out of the steam-space and operated by the piston, of a steam-chest provided with an apertured partition dividing the steam-chest into two compartments, one of which is connected with the steam-space of the cylinder and the other with the steam-supply, a valve for opening and closing the aperture of the partition, and a connection between the valve and gate, substantially as described.

481,097. PENCIL-SHARPENER FOR SCHOOL-SLATES. WILLIAM D. BLACK, Port Perry, Pa. Filed Sept. 10, 1891. Serial No. 405,337. (No model.)



Claim.—The combination, with the slate, the frame of which has a deep groove in line with the groove receiving the edge of the slate proper, said frame also having an opening leading from its face to said groove, of a file set in said deep groove and having its upper roughened surface exposed through said opening, said file being of greater length and width than said groove, and a sound-deadening substance interposed between said file and slate proper, substantially as shown and described.

481,098. STEAM-TRAP. WILLIAM C. BAKER, Baltimore, Md. Filed Apr. 11, 1892. Serial No. 428,636. (No model.)



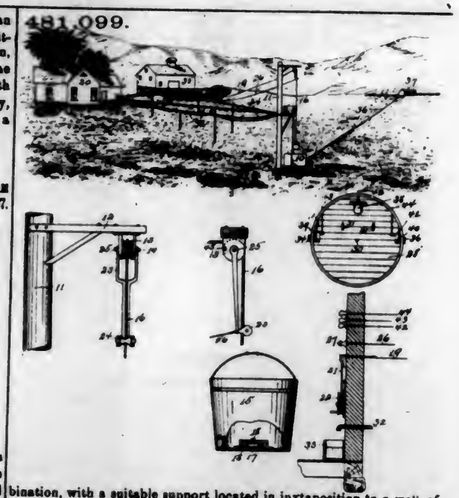
Claim.—1. The combination, in a steam-trap, of the cylinder A, containing a central bucket B, provided with a valve C and connected by guide-rods *b* to a weighted lever I, fulcrumed at *i*, and operating rotating valves E and H positively and alternately, in the manner shown and set forth.

2. The combination of the cylinder A, containing the bucket B, provided with the valve C, acted on by the adjusting-screw *l*, in combination with the guide-rod *b*, connected to the fulcrumed lever I, operating the rotating valves E and H by means of the rods F and the rod F', provided with the turnbuckle *f*, all arranged as and for the purpose set forth.

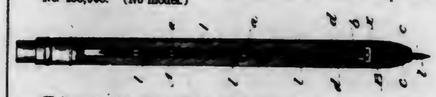
481,099. APPARATUS FOR ELEVATING AND CONVEYING WATER. VALENTINE BOATWRIGHT, Adel, Iowa. Filed Jan. 14, 1892. Serial No. 418,032. (No model.)

Claim.—1. In an apparatus for elevating and conveying water, the combination, with a suitable support located in juxtaposition to a well and a tank mounted on said support, of a clip secured to and pending from said support at a point above the tank, a sheave mounted in said clip, a bifurcated hanger pivoted on said clip and depending therefrom, the lower portion of which hanger is bifurcated and bent at right angles to the main portion thereof, an anti-friction pulley mounted in said lower portion of the hanger, a rope extending over the sheave and downward through the bifurcated lower end of said hanger, and a pail secured to the end of said rope below said hanger, together with means for moving said hanger out of the normal position, whereby the said pail is brought into the vertical plane of the said tank.

2. In an apparatus for elevating and conveying water, the combination, with a suitable support located in juxtaposition to a well, of a tank mounted upon said support and provided with valves and conduits leading therefrom, wires leading from said valves to a common point outside of said tank, vertical stops or guides fixed within said tank, a bifurcated hanger pivoted to a clip mounted on said support, a rope run over a sheave pivoted in said clip, a pail suspended by said rope, a valve in the bottom of said pail, and an anti-friction roller in the bifurcated lower end of said hanger, together with means for moving said hanger out of its normal position, whereby said pail is brought into the vertical plane of said tank and caused to engage the said stops.



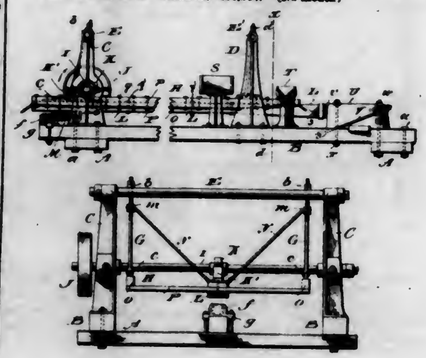
481,100. PENCIL. CLARK W. BOMAR, New York, N. Y., assignor to the Eagle Pencil Company, same place. Filed June 6, 1892. Serial No. 435,695. (No model.)



Claim.—1. A lead-pencil provided with a lead receptacle or magazine having a self-closing mouth and a tip adapted to open the magazine and to receive therefrom one of the lead-points contained therein, substantially as hereinbefore set forth.

2. A lead-pencil provided with a self-closing lead receptacle or magazine, in combination with a removable and reversible tip adapted to open with its lead-holding end the self-closing mouth of the magazine and to take and withdraw therefrom one of the lead-points contained therein, substantially as and for the purposes hereinbefore set forth.

481,101. ORE-CONCENTRATOR. WILLIAM H. H. BOWERS, Denver, Colo., assignor of one-half to the Colorado Iron Works, same place. Filed Feb. 12, 1892. Serial No. 421,287. (No model.)



Claim.—1. In an ore-concentrator, the concentrating-table having a flexible bottom and a flexible beam to which the bottom is secured, arranged between the sides of the table, means for vibrating the table, and a bumper-block against which the said beam strikes as the table is vibrated, substantially as described.

2. In an ore-concentrator, a table having a bumper-beam formed with one of its ends gradually diminishing in thickness as the center is approached, substantially as set forth.

3. In an ore-concentrator, the combination of a table having a central bumper beam composed of two longitudinal parts, the lower part gradually decreasing in thickness as the center is approached and the upper part gradually increasing in thickness as the center is approached, substantially as set forth.

4. In an ore-concentrator, the combination of a table having a central beam composed of two parts, the lower part gradually decreasing in thickness as it nears the center, the upper part gradually increasing in thickness as it nears the center, a bottom of suitable thin metal secured between the said two parts forming the bumper-beam, and side pieces which correspond to the incline of the said bumper-beam, substantially as set forth.

5. In an ore-concentrator, the combination of a longitudinally-reciprocating table or concentrator, a retracting-spring therefor adapted to accelerate the forward movement of the table by its expansive force and to assist the return thereof by its retractive force, an ore-supply trough, and a washing-water-supply trough, substantially as described.

6. In an ore-concentrator, a table having a central beam composed of two parts between which the bottom is secured, one or more of the said parts being cut away at the center, whereby increased flexibility is secured, as set forth.

7. In an ore-concentrator, the combination of a longitudinally-reciprocating table having a central bumper-beam gradually decreasing in thickness as its center is approached, side pieces curved to correspond with said bumper-beam, a bottom secured to said beam and side pieces, means for reciprocating said table, and a spring secured to said table, substantially as described.

8. In an ore-concentrator, the combination of a longitudinally-reciprocating table having a bumper-beam composed of two parts, substantially as described, side pieces curved underneath to correspond with the cut in the bumper-beam, a bottom secured between the parts of the said beam and to the sides of the table, means for reciprocating said table, and a retracting-spring secured at one end to the said beam, substantially as described.

9. In an ore-concentrator, the combination of a longitudinally-reciprocating table or concentrator having a bottom of thin sheet metal, a flexible central beam, a bumper against which said table comes into contact, and an ore and water supply trough, substantially as described.

10. In an ore-concentrator, the combination of a longitudinally-reciprocating table or concentrator having a bottom of thin sheet metal, a retracting-spring therefor at one end adapted to accelerate the forward movement of the table by its expansive force and to assist the return thereof by its retractive force, a bumper at the other end, and an ore and water supply trough, substantially as described.

11. In an ore-concentrator, the combination of the two sets of vertical supports, a longitudinally-reciprocating table or concentrator suspended between said supports, a retracting-spring located at one end beneath the table, a bumper located at the other end, and an ore and water supply trough, substantially as described.

12. In an ore-concentrator, the combination of the longitudinally-reciprocating table having the central flexible beam, a tappet arranged on one end of said beam, and the drive-shaft provided with the cam for striking said tappet, substantially as described.

13. In an ore-concentrator, the combination, with a longitudinally-reciprocating table or concentrator having a central beam thinner at its intermediate portion than at its ends, of the vertical supports, the rock-shafts held by said supports, and the vertically-adjustable hangers or rods passing through said rock-shafts and secured to the sides of the table, substantially as described.

14. In an ore-concentrator, the combination of a longitudinally-reciprocating table or concentrator, the vertical supports, the rock-shafts, the vertical hangers, and the diagonal hangers adjustable with respect to said vertical hangers, connected with the bottom of the table between its sides, substantially as described.

15. In an ore-concentrator, the combination of a longitudinally-reciprocating table or concentrator, the rock-shafts, the vertical supports, the vertical hangers adjustable vertically in said rock-shafts, and the diagonal hangers independently adjustable with respect to said vertical hangers, connected with the table or concentrator between its sides, substantially as described.

16. In an ore-concentrator, the concentrating-table consisting of a flexible bottom, a flexible central beam, and side pieces to which the bottom is secured, in combination with rigid stripe secured to the said side pieces outside of or below the bottom, substantially as set forth.

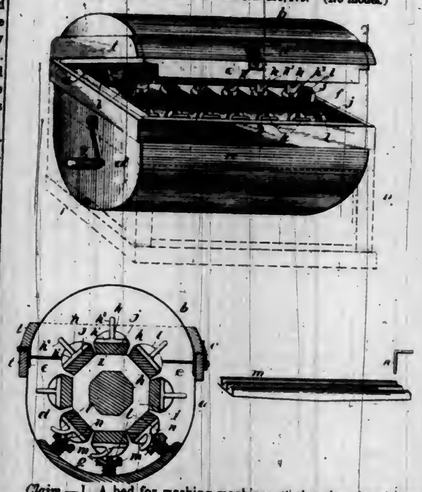
17. In an ore-concentrator, the concentrating-table consisting of the flexible bottom and the side pieces to which the bottom is secured, in combination with packing-stripe O[a] placed between the bottom and the side pieces and rigid stripe secured to the edges of the side pieces below the bottom, substantially as set forth.

18. In an ore-concentrator, the concentrating-table consisting of the flexible bottom, the side pieces, and the central flexible bumper-beam, in combination with the rigid stripe O', secured to the edges of the side pieces below the bottom, substantially as described.

19. In an ore-concentrator, a table having a bumper-beam with a rigid fore end, a flexible intermediate part, and a rear end of less flexibility, substantially as shown, and for the purposes set forth.

20. In an ore-concentrator, the concentrating-table having a flexible bottom, a flexible beam decreasing in thickness inwardly from its end or ends and arranged between the sides of the table, means for vibrating the table, and a bumper-block against which the said beam strikes as the table is vibrated, as described.

481,102. WASHING-MACHINE. MELANCTHON BURGESS, St. George, Utah. Filed Mar. 2, 1892. Serial No. 423,479. (No model.)



Claim.—1. A bed for washing-machines of the class herein described, consisting of a series of independent slats, L-shaped guides passing through their ends, secured to circular base-pieces in the bottom of the body, and coil-springs interposed between the slats and the said circular base-pieces and embracing the guides, in the manner substantially as described.

2. A washing-machine having a bed and a roller, in combination with flexible scrubbers secured to the roller, said scrubbers consisting of a circular base-piece having a fan-shaped arm formed integral therewith, in the manner substantially as set forth.

3. In a washing-machine, the combination of a series of independent spring-actuated slats secured to the bottom of the body portion and forming the bed of the machine, a revoluble roller having a number of flexible scrubbers secured to its periphery and operating in conjunction with the said bed, and a series of semicircular cams secured to the roller and adapted to engage the seats of the bed, whereby said slats are given an intermediate reciprocating or jumping motion, substantially as described.

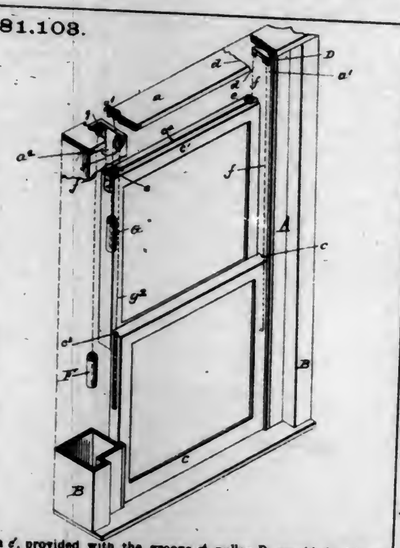
4. A washing-machine having a bed consisting of two or more circular base-pieces, a number of corrugated slats, L-shaped guides passing through the ends of said slats and secured to the base-pieces, and springs interposed between the said base-pieces and slats, in combination with a revoluble roller having a series of flexible scrubbers and cams secured thereto and adapted to engage the slats, substantially as described.

5. In a washing-machine, the combination of a bed composed of a number of independent spring-actuated slats, a revoluble roller operating with the bed, and a series of cams secured to the roller and adapted to actuate the slats, substantially as described.

481,108. SASH-BALANCE. HENRY P. CATCH, McGregor, Tex. Filed Nov. 24, 1891. Serial No. 412,930. (No model.)

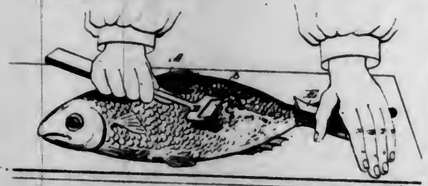
Claim.—The combination of the frame A, sash c, having the grooves

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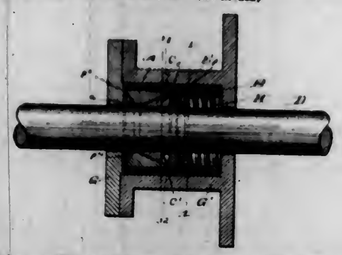
d^3, sash d', provided with the groove d^4, pulley D, provided with the vertical pulley d and horizontal pulley d', secured in the upper end of lintel a', pulleys e e, one attached to each end of the sash d', pulley g, secured in lintel a^3, cord f, one end attached to the sash c, the other traversing the pulleys D and e e and g, and weight F, running in the weight-box B and secured to the free end of said cord, substantially as shown and described.

481,104. FISH-SCALER. WILLIAM CLOW, Toronto, Canada, assignor of three-fourths to Wesley George Reed, George Clow, and James Munroe Sinclair, same place. Filed Apr. 27, 1891. Serial No. 390,621. (No model.)



Claim.—A scraper comprising a handle, a bar B at the forward end carrying an inclined scraper-blade, the shank of the handle and the said bar B inclining downwardly and meeting in a rounded bearing-point x in the rear of the scraper-blade, substantially as described.

481,105. ROD-PACKING. CHARLES L. COOK, Louisville, Ky. Filed Feb. 16, 1892. Serial No. 421,743. (No model.)

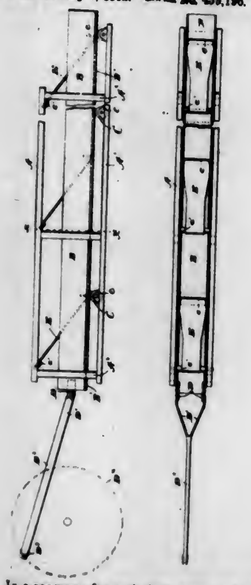


Claim.—1. The combination, with the casing having the ball-and-socket bearing connection with the gland and formed with an interior conically-beveled chamber, of the conical ring in said chamber, said ring being formed in segments, the ring closing the joints formed by said segments, and also formed in segments held in place by a lug or projection on the conical ring, said lap-jointed ring having a rounded or convex face, a concaved follower bearing against said ring, and a spring pressing said follower, substantially as specified.

2. In a rod-packing, the combination, with the shell or casing having its inner end spherically concaved and formed with an interior chamber having its side walls conically tapered inwardly, said taper commencing a short distance inward from the outer end of said chamber, of the ring having a spherically-beveled surface fitting the spherical concavity of the inner end of the shell or casing, the segmental conical ring seating in the inner end of said chamber around the rod, the lap-joint segmental ring seating in said conical ring and having a convex outer surface, the follower having a concave inner face fitting said convex surface, and the spring pressing said follower, substantially as specified.

3. The combination, with the stuffing-box and its gland, of the floating packing therein, said packing comprising the cylindric shell or casing of a less diameter than the interior chamber of the stuffing-box, said shell having a spherically-concaved socket in its inner end, and an interior conical and straight-walled chamber, the ring having the spherical surface fitting said socket and seating against said gland, the inner segmental conical packing-ring seating in the conical portion of said chamber, the outer lap-joint packing-ring arranged to seat partially in the concaved portion of said chamber and partially in the straight-walled portion thereof, said outer ring having a convex outer face, a follower concaved on its inner face to fit said ring, said follower being arranged to enter said casing to take up the wear of the rings, and a spring pressing said follower, substantially as specified.

481,106. CONVEYER. ROXLEY B. COXE, Drifton, Pa. Filed Mar. 7, 1891. Renewed July 7, 1892. Serial No. 439,196. (No model.)

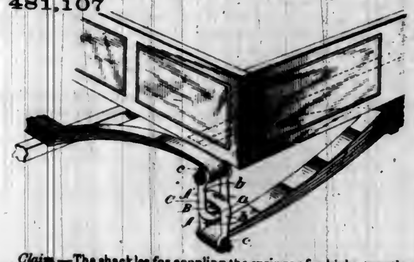


Claim.—1. In a conveyer for coal, slate, stone, and other material, in combination with the two principal parts, consisting of a trough and a longitudinal series of pushers hinged to a suitable support and extending downward and forward from the same into the trough and having their lower ends adapted to rest upon the trough-bottom, so that the latter forms the stop to limit the swing of the pushers upon their pivots, and means for reciprocating one of said parts with reference to the other, substantially as and for the purpose specified.

2. In a conveyer for coal, slate, stone, and other material, in combination with the movable trough and means for reciprocating it, a series of pushers hinged to a suitable support extending at an angle forward and downward into the trough and having their lower ends adapted to rest upon the trough-bottom, so that the latter acts as a stop to limit their swing upon their pivots, said ends being provided with upturned portions presenting abrupt faces toward the discharge end of the trough, substantially as and for the purpose described.

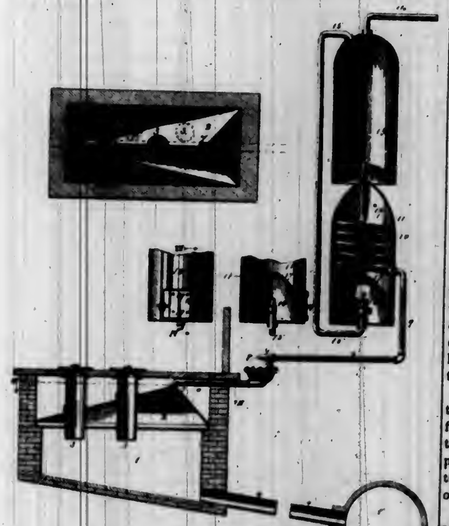
481,107. SHACKLE FOR COUPLING SPRINGS. CHARLES H. DOBBINS, Chicago, Ill. Filed Apr. 28, 1892. Serial No. 431,028. (No model.)

481,107



Claim.—The shackles for coupling the springs of vehicles together, consisting of two clips made in U form and one of which having walls forming free open spaces with a socket formed in the bend of its walls, and a clip with corresponding shaped walls having a ball formed in the bend of its walls to engage in the socket of the first-named clip, whereby both of said clips are adapted to have vertical play within each other without obstruction, substantially as and for the purposes specified.

481,108. APPARATUS FOR CONSUMPTION OF SEWER-GAS. JACOB EICHARDT, St. Louis, Mo. Filed Mar. 9, 1892. Serial No. 424,315. (No model.)



Claim.—1. The combination, with the vault having receiving-ducts and gas discharging duct, of a cover closing the top of the vault, excepting the space occupied by the ducts, a coil in the gas-discharging duct, a burner beneath the coil and fed by escaping gases, and a discharge-duct communicating with said coil, all substantially as set forth.

2. The combination of the vault having a cover, a tank, a pipe communicating between the vault and the tank, a coil in the pipe between said vault and tank, a burner located near the coil, and a pipe communicating between the burner and tank, all substantially as set forth.

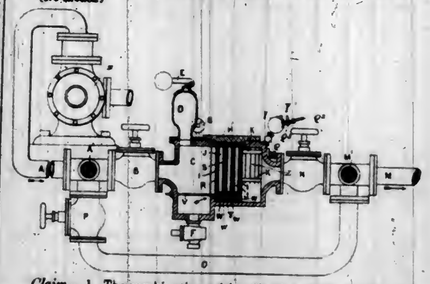
3. The combination, with the vault, of the tank, the heating-chamber, the gas-discharging pipe communicating between the vault and the tank and having formed in it a coil located in the heating-chamber, a burner located in the heating-chamber beneath the coil, and a pipe feeding the burner from the tank, all substantially as set forth.

4. The combination of the vault having a cover, the tank, the heating-chamber, the pipe leading from the vault through the heating-chamber and to the tank, the burner in the heating-chamber fed from the tank, and the condensing-chamber in the pipe between the vault and the heating-chamber, all substantially as set forth.

5. The combination, with the vault having the cover, of a tank, a gas-outlet pipe communicating between the cover and the tank, the heating-chamber surrounding a portion of said gas-outlet pipe and having a hood therein, and a burner located beneath said hood and fed from the tank, all substantially as set forth.

6. In an apparatus for the consumption of sewer-gas, the combination of the vault having the arched cover in the upper part thereof, the gas-tank connected by a pipe with the upper portion of said cover, the condenser and heating-coil interposed in the pipe between the vault and the tank, a heating-chamber surrounding the coil and having a hood beneath said coil, a burner located beneath the hood, a pipe leading from the tank to the burner, and an outlet-pipe for permitting the discharge of the gas from the tank to any desired point, all substantially as and for the purposes herein specified.

481,109. FILTERING OR PURIFYING FEED-WATER. JAMES B EDMISTON, Liverpool, England. Filed May 20, 1891. Serial No. 393,455. (No model.)



Claim.—1. The combination, with a filtering-chamber and a pump passing liquid through the chamber, of a series of flexible filtering-diaphragms placed across the water-way in said chamber at suitable distances apart and supported in such manner as to be free to pulsate with the strokes of the said pump, which passes the liquid successively through them, and means whereby the impurities may be discharged from the spaces between the diaphragms from time to time, as required, substantially as described.

2. The combination of the filtering-chamber C, the filter-cloths S, placed across the chamber between the inlet and outlet thereof, perforated partitions I, supporting the cloths, frames J, alternating with the partitions I, steam-cock Q on the outlet end of the chamber, blow-off cock F on the inlet end thereof, passage T, running through the entire series of partitions and frames and communicating with the latter, and the valve or valves W, controlling said passage, substantially as and for the purpose described.

3. The combination of the filtering-chamber C, perforated partitions I, supporting filter-cloths S within said chamber, as described, frames J, alternating with said partitions, passage T, running through the entire series of partitions and frames, passages U, leading from passage T to the interior of the frames, valve or valves W, controlling the passage T, and a device for regulating the valve from the exterior of the chamber, substantially as described.

4. The combination of the chamber C, filtering-diaphragms S, placed across the water-way through the chamber, cock Q on the discharge end of said chamber, cup Y, opening into cock Q, steam-cock Q^2, leading to cup Y, and blow-off cock F on the supply end of the chamber, substantially as and for the purpose described.

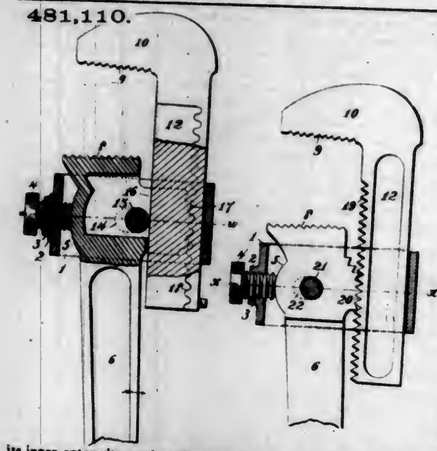
481,110. WRENCH. RICHARD S. GILLESPIE and HARRY JAMES, New York, N. Y. Filed Nov. 12, 1891. Renewed July 16, 1892. Serial No. 440,221. (No model.)

Claim.—1. The combination of a slotted box or frame, a screw or set bolt adjustable in a part of the box or frame, a sliding bar or shank having a jaw, and an oscillatory handle or lever arranged in toothed engagement with the bar or shank and having a pin which is capable of working back and forth in the slotted portion of the box or frame, substantially as described.

2. The combination of a box or frame having slotted side walls, a screw or set bolt adjustable in a part of the box or frame between the slotted side walls, a sliding bar or shank having a jaw, and an oscillatory handle or lever arranged in toothed engagement with the bar or shank and provided with a transverse pivot-pin, the end portions of which are capable of working back and forth in the slotted side walls of the box or frame, substantially as described.

3. The combination of a slotted box or frame, an oscillating handle or lever having a convex projection and a pin which is adapted to work back and forth in the slotted portion of the box or frame, a screw or set bolt adjustable in a part of the box or frame and bearing at

481,110.



its inner extremity against the convex projection of the handle or lever, and a sliding bar or shank having a jaw and arranged in toothed engagement with the handle or lever, substantially as described.

481,111. SHUTTER-FASTENER. GORGE H. GLAD, Boston, Mass. Filed Sept. 16, 1891. Serial No. 405,918. (No model.)



Claim.—1. In combination with the clamping-bar of a shutter-bower, a shutter-locking device attached thereto, consisting of a plate with two spring-actuated latches pivoted thereon, substantially as and for the purpose specified.

2. In combination with the clamping-bar of a shutter-bower, a shutter-locking device attached thereto in a space or cavity, so as to be inclosed, substantially as and for the purpose shown.

3. In combination with the hollow clamping-bar of a shutter-bower having provision for engagement of two clamping devices, a shutter-lock secured in said bar between the latter, substantially as and for the purpose described.

4. In combination with the clamping-bar of a shutter-bower having a cavity with converging sides, a plate carrying shutter-locking means in said cavity and conforming in shape thereto, substantially as and for the purpose set forth.

5. In combination, two oppositely-rocking pivoted latches rocking on a common horizontal pivot and having adjoining edges vertically to one side of said pivot, and a key adapted to rock said latches by engagement with said edges, substantially as and for the purpose specified.

6. In combination, two oppositely-rocking pivoted latches rocking on a common horizontal pivot and having adjoining edges above said pivot, between which is a space narrower than long, formed by notching each latch edge, and a key conforming in shape to said space to rock the latches, substantially as and for the purpose shown.

7. In combination, a supporting-plate, a latch pivoted thereon having a cavity, a spring in the latter engaging a wall thereof, and a projection or lug on said plate also engaged by said spring and fitting and closing the end of said cavity, substantially as and for the purpose set forth.

8. In combination, a supporting-plate, a hollow boss projecting therefrom, a latch extending into said boss, adapted to be engaged by a projection on a shutter, and a spring in said boss, substantially as and for the purpose shown and described.

9. In combination with the clamping-bar of a shutter-bower, the arm or bar for connection with a shutter, and the device to clamp the latter to the former, consisting of a bolt and a nut thereon, said bolt passing entirely through the nut and having a screw with a portion projecting beyond its periphery to limit the movement of said nut along it by engagement with the upper side of the nut, substantially as and for the purpose shown.

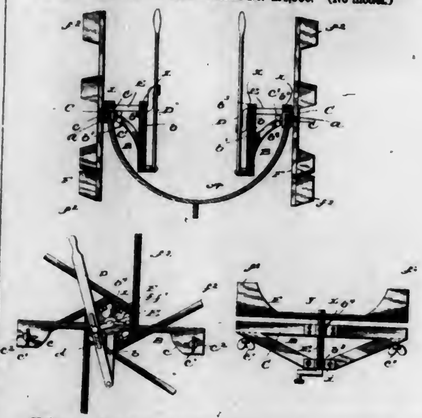
481,112. JAR-CLOSURE. FRANZ GUILLEAUME and EWALD GOLTSTEIN, Bonn, Germany. Filed May 21, 1892. Serial No. 433,672. (No model.)



Claim.—1. A jar-closure consisting in the combination, with a jar having inside a peripheral shoulder and above the same a number of superposed grooves, of a lid resting on said shoulder and a resilient cross-bar longer than the inner diameter of the jar and which on being bent down in the middle and forced into the jar engages with its ends in the said grooves and ultimately presses upon the lid, substantially as described.

2. A jar-closure consisting in the combination, with a jar having inside a peripheral shoulder and above the same a number of superposed grooves, of a lid resting on said shoulder and provided with a perforation, a resilient cross-bar longer than the inner diameter of the jar and which on being bent down in the middle and forced into the jar engages with its ends in the said grooves and ultimately presses upon the lid, the said cross-bar carrying a resilient tongue adapted to press on the perforation of the lid, and an india-rubber washer placed between the tongue and the perforation, substantially as specified.

481,113. MEANS FOR PROPELLING BOATS. ALANSON M. HASWELL, Springfield, Mo., assignor of one-half to Joseph C. Plumb, same place. Filed Feb. 12, 1892. Serial No. 421,306. (No model.)



Claim.—1. In a boat-propelling apparatus, the combination, with the paddle-shaft and means for operating it, of the frame B, consisting of the vertical part b, the inclined part b', and angle parts b^3, connected to and combined with the gunwale-strip C, having means for horizontally adjusting it upon the boat, substantially as set forth.

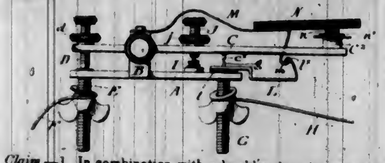
2. In combination with the frame B, made as described, and the gunwale strip C, bearing said frame, the lever D, pivoted to part b of the frame and slotted at d, the crank-arm E, passed through the slot d', and paddle-wheel connected to said arm, substantially as and for the purpose set forth.

3. The frame B, bearing the gunwale-strip C and having oppositely-inclined portions secured to the ends of said gunwale-strip at their divergent ends, and the aligned bearings or boxes, one secured upon said strip and the other secured to the converging ends of said inclined portions, in combination with the crank-shaft E, bearing the paddle-wheel, and means for operating said shaft, said frame with the shaft and wheel all being horizontally adjustable upon the boat, substantially as and for the purpose set forth.

4. The combination of the gunwale-strip having means for its horizontal adjustment upon the vessel and the frame carried by said gunwale-strip and adapted to bear the paddle-wheel shaft and comprising a central pendent bar having an outward and upward inclined bar or arm connected to said gunwale-strip, substantially as set forth.

5. The gunwale-strip having pendent screw-clamps for adjustably connecting it to the vessel, and the frame having its inclined portions connecting with said gunwale-strip, and a central pendent bar at the converging ends of said inclined portions, provided with an upward and outward inclined bar or arm connecting with said gunwale, in combination with the paddle-wheel shaft and means for operating said shaft, substantially as set forth.

481,114. COMBINED TELEGRAPH-KEY AND CIRCUIT-CLOSER. WILLIAM F. LOTT, Philadelphia, Pa., assignor of one-half to Romuald T. McDonnel, same place. Filed Apr. 26, 1892. Serial No. 430,772. (No model.)



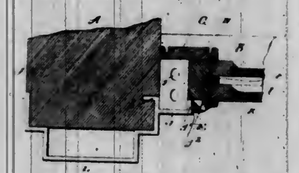
Claim.—1. In combination with a knobless key, its supports, the binding-posts, and the contact-posts, a switch-finger in circuit with one binding-post, a switch-band in circuit with the other binding-post and extending into such relation with the switch-finger as to be normally held in contact therewith by its own resilience, and an operating-knob, independent of the key, mounted on said band, depression of which knob brings it into contact with the key and carries the switch-band out of contact with the switch-finger, substantially as set forth.

2. In combination with a key, its supports, the binding-posts, and the contacts, a switch-finger, a switch-band provided with a hook engaged behind said finger and normally retained in such position by the resilience of the band, and an operating-knob mounted on said band, substantially as set forth.

3. In combination with a knobless key, its supports, the binding-posts and the contacts, a switch-finger, a switch-band secured to the rear part of the instrument, extending to the front part thereof and provided with a lateral extension engaged behind said finger, and an operating-knob, independent of the key, mounted on said band and provided with a depending stud working in an opening in the key, substantially as set forth.

4. In combination with a key, its supports, the binding-posts and the contacts, a hooked switch-finger, a switch-band secured to the rear part of the instrument, extending to the front thereof and provided with a depending hooked extension which passes through an opening in the key and engages with the hook of the finger, and an operating-knob mounted on said band, substantially as set forth.

481,115. BUILDING-FRONT. FRANK MESKER and THOMAS O. ARBOGAST, St. Louis, Mo., assignors to Mesker & Bro., same place. Filed July 15, 1890. Serial No. 358,831. (No model.)



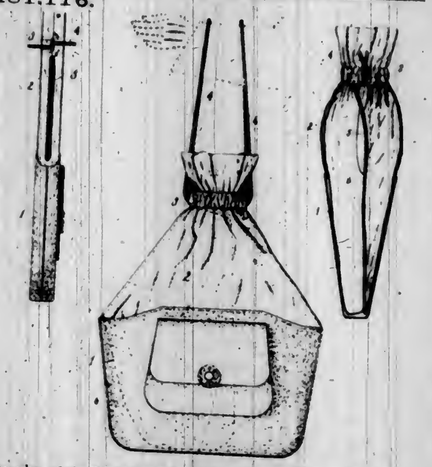
Claim.—The building-front having the wall A and the window-frame provided with the stiles having set therein the parting-strips and the metal sheets, each having an outwardly-extended offset terminating in flanges, one secured to the stile and the other entering the wall, said metal sheets also having series of offsets integral therewith and forming columns, substantially as set forth.

481,116. LADY'S SHOPPING-BAG. HENRY C. MILLIGAN, South Orange, N. J., assignor to Rudolph Wolff & Co., New York, N. Y. Filed Feb. 25, 1892. Serial No. 422,806. (No model.)

Claim.—1. A lady's shopping-bag having the lower leather part 1, the upper fabric part 2, the drawing and carrying cords or handles 4, and an independent side opening in the edge of the fabric part of the bag above the leather and below the drawing-cords, substantially as and for the purpose set forth.

2. A lady's shopping-bag having the lower leather part 1, the upper fabric part 2, the drawing and carrying cords or handles 4, a side pocket, and an independent side opening 5 to the side pocket, located in the edge of the fabric part of the bag above the leather part and below the drawing and carrying cords, substantially as described.

481,116.



481,117. FASTENER FOR PICTURE-FRAMES. CHARLES F. NABERLE, New York, N. Y. Filed Apr. 6, 1891. Serial No. 387,733. (No model.)



Claim.—1. A fastener for use in picture-frames and the like, composed of elastic material and having a holding or fastening end adapted to penetrate or partly penetrate and be secured in the frame, inside, or stretcher and a loop adapted to bear with a spring pressure on the other of the parts to be held together, substantially as set forth.

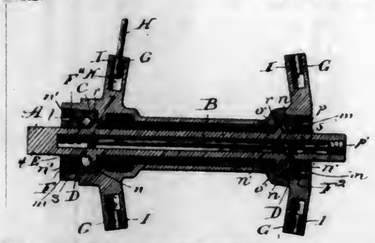
2. The combination of two parts comprising a picture-frame or inside and the inside or stretcher with a fastener composed of elastic material and having a holding or fastening end penetrating or partly penetrating and secured in one of said parts and a loop adapted to bear with a spring pressure upon another of said parts and a holding-point arranged to slightly penetrate such other part and in connection with said loop to hold the said parts together and prevent displacement thereof, substantially as set forth.

3. A fastener for use in picture-frames and the like, composed of elastic material and having a holding or fastening end adapted to penetrate or partly penetrate and be secured in the frame, inside, or stretcher, a holding-point adapted to slightly penetrate another of such parts, and a loop connecting such end and point and adapted to bear with a spring pressure on the other of the parts to be held together, substantially as set forth.

4. The combination of a picture-frame, a suitable inside, and a stretcher bearing the canvas with two or more fasteners, each composed of elastic material and having a holding or fastening end penetrating or partly penetrating and secured in one of said parts, a holding-point slightly penetrating another of such parts, and a loop connecting such end and point and adapted to bear with a spring pressure on the other of the parts to be held together, substantially as set forth.

5. A fastening for use in picture-frames and the like, composed of elastic material and having a fastening end *a*, a pressure or holding end *c*, having an eye and holding-point thereon, and a loop *b*, connecting such end and point, substantially a set forth.

481,118. VELOCIPEDE. MICHAEL J. O'DONNELL, Chicago, Ill., assignor of three-fourths to George G. Brandenburg and George R. Walker, same place. Filed Dec. 1, 1891. Serial No. 413,693. (No model.)



Claim.—1. The lubricating mechanism for bicycle-bearings and similar purposes, comprising a hollow shaft perforated to produce the oil-expelling passage leading to the bearing, and a valve-stem having a piston-valve adapted to open and close said passage, said valve-stem being secured in the hollow shaft, substantially as described.

2. A lubricating device for bicycle and other bearings, comprising, in combination, a hollow shaft provided with two or more passages extending from the inside of the shaft to the bearings, a piston-valve stem carrying piston-heads and introduced into said shaft so as to adapt the piston-head to open and close the passages at will, and a recessed screw-threaded plug at the end of said stem, engaging internal screw-threads on the shaft, whereby turning of the stem manipulates the piston-valves to open and close the passages, substantially as described.

3. In a bicycle or similar vehicle, the ball-bearing-retaining device comprising, in combination, a hub having an internal shoulder, a shaft within the hub provided with an external shoulder having a concave outer face, and a ring introduced into the hub around the shaft and presenting on its inner face an annular surface affording a bearing for the balls opposite to that afforded by the shoulder on the shaft, substantially as described.

4. In a bicycle or similar vehicle, the ball-bearing-retaining device comprising a hub having an internal shoulder, rings introduced into said hub, each having a concave annular recess, and means, substantially as described, for holding said rings in place, as and for the purpose set forth.

5. In a bicycle or similar device, the ball-bearing-retaining mechanism comprising a shaft having a shoulder concaved on its outer side, a hub having an internal annular shoulder presenting an internal diameter to permit it to pass over the shoulder on the shaft, separable rings fitting closely in said hub and out of contact with the axle and shoulder thereon, each ring presenting in its face a concavity approximating the arc of a circle, and a locking device adapted to enter said hub and retain the rings against displacement, substantially as described.

6. In combination with a hub provided with an internal shoulder and an axle within the hub, the ball-bearing-retaining rings C and D, having on their contiguous faces annular concavities approximating the arc of a circle, a locking-nut having peripheral screw-threads to engage internal screw-threads on the hub and provided with apertures for the reception of wrench-prongs, the parts being arranged to operate substantially as described.

7. In a ball-bearing device, the combination, with the ball-retaining rings presenting concavities to embrace the balls, a locking device comprising two rings, one of which is provided with perforations *l* and the other of which is provided with recesses *m*, extending part way through the body, and a yielding material, such as paper, introduced between the rings and provided with perforations to coincide with the apertures *l*, and recesses *m*, said parts being peripherally screw-threaded to engage internal screw-threads on the hub, the whole being arranged to operate substantially as described.

8. In a ball-bearing device, the combination, with the hub, of a ball retaining and locking device comprising, in combination, rings C D, introduced into the hub and embracing the ball, the outer of said rings having recesses to receive the point of wrench-prongs and peripherally screw-threaded to engage screw-threads on the interior of the hub, a ring F, constituting a nut and provided with perforations *l* to receive the prongs of a wrench and peripherally screw-threaded to engage the screw-threads on the interior of the hub, and a disk of yielding material, such as paper, provided with perforations, as shown, to coincide with the perforations *l*, the parts being arranged to operate substantially as described.

9. In a bicycle or similar vehicle provided with annular ball-bearings, the means for preventing the access of dust to the bearings, comprising, in combination with the outer ring holding the ball-bearing in place, provided with an annular notch or groove at a point adjacent to the shaft, a shaft provided with an annular flange E, entering and moving freely in said notch or groove, substantially as described.

481,119. STEAMER, LAWN, OR INVALID CHAIR. DANA PARKS, Boston, Mass., assignor of four-fifths to Mark Stone, Charles H. Schofield, Harris Goldberg, and Brainard A. Andrews, same place. Filed Sept. 19, 1891. Serial No. 406,238. (No model.)



Claim.—In the herein-described chair, the combination of the supporting-frame E, the swinging hangers pivoted thereto, seat A, suspended by said hangers, back B, hinged to the seat, arms C, hinged to the frame E independently of the hangers and seat and each having a groove *c*, provided with a toothed rack, a pivoted pawl in the back B, adapted to engage said rack, and a spring arranged between the frame E and arms C, whereby the seat and arms will be held in substantially a horizontal position when the chair is unoccupied, substantially as shown and described.

481,120. ELECTRIC ANNUNCIATOR. FRANK A. PICKERNELL, Newark, N. J., assignor to the American Telephone and Telegraph Company, of New York. Filed Apr. 16, 1892. Serial No. 429,459. (No model.)



Claim.—1. A self-setting annunciator having an electro-magnet organized when excited to release the single drop or shutter and an auxiliary electro-magnet organized to reset or restore the said shutter by shortening or reducing the resistance of a magnetic circuit, including the core and armature of said electro-magnet, substantially as described.

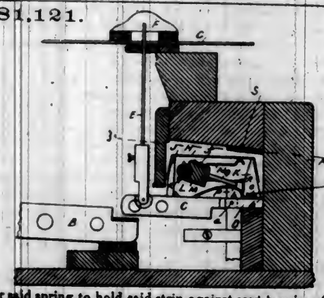
2. The combination of an electro-maguet, an armature therefor, a latch controlled thereby, and a signal-shutter engaged by said latch, of a second electro-magnet provided with an iron base extending from its heel-piece, and a core having a curved projection, the said signal-shutter constituting the armature of the said second electro magnet and the magnetic circuit of said second electro-magnet being through the said core, shutter, iron base, and heel-piece, substantially as described.

481,121. DAMPER-ACTION FOR PIANOFORTES. JOHN P. RICHARDSON and GEORGE F. DYER, Cambridge, assignors to the Mason & Hamlin Organ and Piano Company, Boston, Mass. Filed Oct. 13, 1890. Serial No. 367,992. (No model.)

Claim.—1. In combination, a damper-lever, a flexible or yielding strip attached thereto by one end, a spring-arm having the strip secured thereto by its other end, a bearing or stop, and mechanism for holding said flexible or yielding strip against said bearing.

2. In combination, a damper-lever, a flexible or yielding strip attached thereto by one end, a spring-arm having the strip secured thereto by its other end, a bearing or stop above said strip, and a spring attached to a suitable support adapted to be moved into position for said spring to hold said strip against said bearing, for the purpose specified.

481,121.



3. In combination, a damper-lever, a flexible or yielding strip attached thereto by one end, a spring-arm having the strip secured by its other end, a bearing or stop above said strip, and a spring attached to an arm pivoted to a suitable support, for the purpose specified.

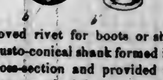
4. In combination, a damper-lever, a flexible or yielding strip attached thereto by one end, a spring-arm having the strip secured by its other end, a bearing or stop above said strip, and a spring attached to an arm pivoted to a suitable support, and mechanism for operating said pivoted arm.

481,122. RAILWAY JOINT-CHAIR. TOM SAYERS, Bombay, India. Filed Aug. 25, 1891. Serial No. 403,740. (No model.)



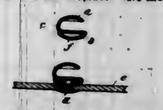
Claim.—The combination, in a railway, of a joint-chair having the usual flanges and provided with a longitudinal groove or channel corresponding to the cross-section of the feet and webs of the rails, a rail located in said groove or channel having its base resting upon the bottom of the chair, and wedges for insertion from each end thereof between said chair and web of the rail, substantially as described.

481,123. RIVET. JUDSON L. THOMSON, Waltham, Mass., assignor to the Judson L. Thomson Manufacturing Company, same place. Filed Jan. 18, 1892. Serial No. 418,385. (No model.)



Claim.—The improved rivet for boots or shoes, composed of a head and a tapered or frusto-conical shank formed in one piece with the head and circular in cross-section and provided with a tapered slot which is widest at the outer end of the shank and has a flat surface at its inner end, each prong formed by the slot having a curved or substantially semicircular outer surface and a flat inner surface, the inner and outer tapered surfaces of the rivet being substantially equal in angle, whereby the points of the prongs are located centrally above the bases thereof, as and for the purposes set forth.

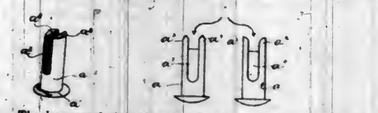
481,124. LACING-STUD. JUDSON L. THOMSON, Waltham, Mass., assignor to the Judson L. Thomson Manufacturing Company, same place. Filed Mar. 17, 1892. Serial No. 425,229. (No model.)



Claim.—1. A sheet-metal lacing hook or stud comprising a head, a foot, and a neck uniting the head and foot, the said foot having an upper and a lower plate, the lower plate having an orifice for engagement with an attaching-rivet and the upper plate covering said orifice.

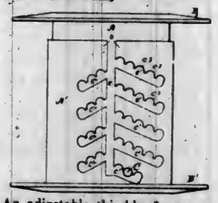
2. The combination, with a sheet-metal lacing-hook comprising a foot bent or doubled upon itself, a head, and a neck, of a rivet having a head adapted to bear on the under side of the article to which the hook is applied and a shank adapted to be engaged with the said foot, the end of said shank entering the space between the two parts of the foot, as set forth.

481,125. RIVET. JACOB J. UNBEHEND, Waltham, Mass., assignor to the Judson L. Thomson Manufacturing Company, same place. Filed Jan. 18, 1892. Serial No. 418,437. (No model.)



Claim.—The improved rivet hereinbefore described, composed of the shank and the head, the shank being slotted entirely across its outer end to form clinching-prongs and cut away lengthwise at opposite points on its periphery to form a wedge, with an elongated cutting-edge connecting the bases of the prongs and adapted to penetrate and cut the material into which the rivet is inserted, the sides of said wedge being of uniform width, as set forth.

481,126. PROTECTING-THIMBLE FOR STEAM OR HEATING PIPES. SAMUEL VANSTONE, Providence, R. I. Filed Aug. 25, 1890. Serial No. 363,031. (No model.)

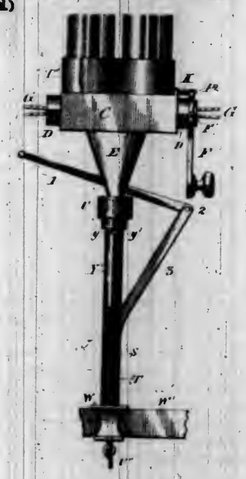


Claim.—1. An adjustable thimble for steam or heating pipes, comprising the flanged inner and outer telescoping portions, one of said portions being provided with the longitudinal slot and the lateral engaging recesses arranged alternately at opposite sides of the same, and the other with an engaging lug adapted to enter the longitudinal slot and the lateral engaging recesses, substantially as described.

2. An adjustable thimble for steam or heating pipes, comprising the flanged inner and outer telescoping portions, one of said portions being provided with the longitudinal slot and the inclined engaging recesses extending laterally from the same, and the other with a lug adapted to enter the longitudinal slot and the lateral inclined recesses, whereby the said portions may be readily and closely adjusted in position, substantially as described.

3. An adjustable thimble for steam or heating pipes, comprising the flanged inner and outer telescoping portions, one of said portions being provided with the longitudinal slot, and the inclined engaging recesses provided with the notches, and the other with a lug adapted to enter the longitudinal slot and the lateral inclined recesses and the notches, substantially as described.

481,127. APPARATUS FOR LOADING CARTRIDGES. WILLIAM WAGNER, Washington, D. C. Filed June 2, 1892. Serial No. 435,298. (No model.)



Claim.—1. A cartridge-loading machine having magazines mounted thereon, an oscillating cylinder having horizontal chambers connected therewith, provided with horizontal adjustable heads therein, and a hopper with which said chambers communicate.

2. A cartridge-loading machine having magazines thereon, an oscillating cylinder having adjustable horizontal chambers communicating therewith, and a hopper with which said chambers also communicate.

3. A cartridge-loading machine having magazines thereon, an oscillating cylinder provided with horizontal chambers connected therewith, horizontal adjustable blocks in said chambers, having stems projecting through the heads of said cylinders, and means thereon for indicating the capacity of the charge chambers.

4. A cartridge-loader provided with ammunition-magazines, an oscillating cylinder having horizontal chambers communicating therewith, blocks horizontally adjustable in said chambers, provided with bifurcated stems projecting from each head, and means thereon for locking the respective tines to the cylinder-heads.

5. A cartridge-loader provided with ammunition-magazines, a rotary cylinder beneath the same provided with chambers communicating with the hopper, adjustable heads or blocks therein, bifurcated stems projecting from each head, and notches thereon for engagement with lugs on the cylinder-heads.

6. A cartridge-loader magazine having a spring-actuated reciprocating agitator therein and having a stem protruding therefrom and projected in the path of a cam or projection and acting in a direction transversely to the line of feed of the ammunition, and means for actuating the same.

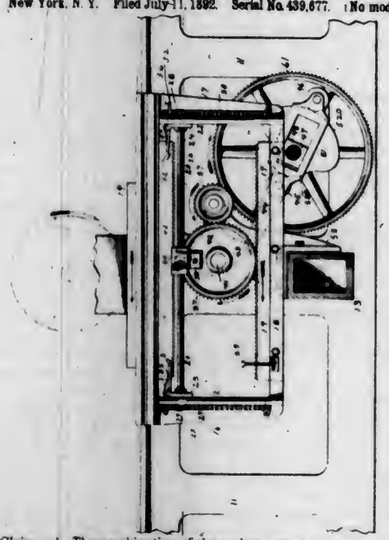
7. A cartridge-loader magazine having a reciprocating agitator transverse to the bottom thereof and a projection on the operating-crank of said loader for imparting a reciprocating motion to said agitator.

8. A cartridge-loader magazine having a reciprocating agitator within the same, the protruding end of said agitator being beveled to afford sliding contact with a projection for the operating-crank.

9. A cartridge-loader having a standard, a magazine thereon, a sliding collar on said standard having an orifice which serves as a conveyer from the hopper to the plunger, a plunger thereon, and mechanism for imparting a reciprocating motion to said plunger

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481,128. MECHANICAL MOVEMENT. HENRY A. W. WOOD, New York, N. Y. Filed July 11, 1892. Serial No. 439,677. (No model.)



Claim.—1. The combination of the reciprocating member or bed with mechanism for reciprocating the same, and a reversing mechanism comprising a crank element, and a vertically-moving guide for said element mounted on the bed, substantially as described.

2. The combination of the reciprocating member or bed with mechanism for reciprocating the same, and a reversing mechanism comprising a crank element, and a guide in constant engagement with said element, said guide being mounted on the bed, substantially as described.

3. The combination of the reciprocating member or bed with mechanism for reciprocating the same, and a reversing mechanism comprising a crank pin or block, a vertically-moving guide for said crank pin or block mounted on the bed, and means for bringing said crank pin or block into operative connection with the bed to reverse its movement, substantially as described.

4. The combination, with the reciprocating member or bed and mechanism for reciprocating the same, of a reversing mechanism comprising a crank pin or block, a guide mounted on the bed in constant engagement with said crank pin or block, and means for bringing said crank pin or block into operative connection with the bed to reverse its movement, substantially as described.

5. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank pin or block, a moving guide for said crank pin or block mounted on the bed, and means for locking said crank pin or block to said bed, so that said crank pin or block will reverse the movement of said bed, substantially as described.

6. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a revolving crank-arm, a block mounted so as to revolve in said crank-arm, and a moving guide mounted on the bed in constant engagement with said block, whereby said block will be kept from turning on its axis, substantially as described.

7. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a revolving crank-arm or member, a block mounted so as to revolve or turn in said crank-arm, a moving guide mounted on the bed in constant engagement with said crank-block, whereby said crank-block will be kept from turning on its own axis, and means for bringing said crank-block into operative connection with the bed to reverse its movement, substantially as described.

8. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank pin or block, a guide mounted on the bed so as to be vertically movable thereon, said crank pin or block being in constant engagement with said guide, and abutments against which said pin or block is adapted to bear to reverse the movement of the bed, substantially as described.

9. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank-pin, a vertically-movable guide in constant engagement with said pin, and abutments in said guide for said crank-pin, said guide being connected to move vertically on the bed, but so that any horizontal movement transmitted to said guide or to its abutments will be transmitted to said bed, substantially as described.

10. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank pin or block, a guide for said crank pin or block mounted so as to be vertically movable on the bed, and means whereby the vertical movement transmitted from the crank pin or block to said guide will be transmitted to a plurality of points, so that the guide will always be kept in a substantially horizontal line, substantially as described.

11. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank-pin and a guide for said crank-pin, said guide being mounted in boxes or journals which are mounted on the bed so as to be capable of vertical motion, said bearings thereby forming abutments for the crank-pin, whereby said crank-pin will reverse the movement of the bed, substantially as described.

12. The combination, with the reciprocating member or bed and mechanism for reciprocating the same, of a reversing mechanism comprising a crank pin or block, a shaft which said crank pin or block constantly engages, which shaft thereby forms a guide for the crank-block, and bearings carrying said shaft and mounted so as to be vertically movable on the bed, said bearings also forming abutments against which the crank-block is adapted to bear to reverse the movement of the bed, substantially as described.

13. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank pin or block, a guide mounted on said bed so as to be capable of vertical movement thereon, said guide having abutments against which the crank-block is adapted to bear, and also means for locking the crank-block in engagement with the abutment-block, substantially as described.

14. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism consisting of a crank pin or block, and a shaft 20, with which said crank pin or block is in constant engagement and which forms a guide for said crank-pin, and abutment-blocks or bearings mounted on the bed so as to have a vertical movement thereon, said abutment-blocks carrying means whereby the crank-block may be locked in engagement with the same, substantially as described.

15. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a guide mounted so as to be vertically movable on the bed, a crank-pin in engagement with said guide, and abutments against which the crank-pin is adapted to bear to reverse the movement of the bed, and latches for holding the crank-pin in engagement with the abutment-blocks, and means whereby the vertical movement of said guide will release said latches at the proper time, substantially as described.

16. The combination, with the reciprocating bed or member and a mechanism for reciprocating the same, of a reversing mechanism comprising a crank pin or block, a shaft 20, which said crank pin or block constantly engages, abutment-blocks mounted vertically movable on the bed, against which the crank-block is adapted to bear, latches carried by said abutment-blocks, and pins or projections mounted on the bed, adapted to release said latches, substantially as described.

17. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising the crank-block 39 and shaft 20, which said crank-block engages, the abutment-blocks in which said shaft 20 is journaled, said blocks being mounted vertically movable on the bed, the racks 29 and 30, also mounted on the bed, and pinions 27 and 28, mounted on said shaft and engaging said racks, substantially as described.

18. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism consisting of the crank-block 39, the shaft 20 in constant engagement with said crank-block, the abutment-blocks in which said shaft 20 is journaled, said blocks being mounted vertically movable on the bed, the racks 29 and 30, also mounted on the bed, pinions 27 and 28 on said shaft, engaging said racks, and latches 31 and 32, also carried by said blocks 23 and 24, substantially as described.

19. The combination, with the reciprocating bed or member, of the main driving mechanism consisting of two racks, a pinion arranged so as to alternately engage said racks, a reversing mechanism comprising a crank-block mounted on said pinion, a moving guide mounted on the bed, which said crank-block constantly engages, and abutments formed with said guide against which said crank-block is adapted to bear to reverse the movement of the reciprocating member, substantially as described.

20. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank element, and an abutment-block mounted in bearings on the bed so as to be capable of a vertical movement, and means for raising and lowering the abutment-block, so that the crank element may properly connect to the same to reverse the movement of the bed, substantially as described.

21. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank element, and abutment-blocks mounted in bearings on the bed so as to be capable of a vertical movement, and means operated from the reversing mechanism acting to raise and lower said abutment-blocks, substantially as described.

22. The combination, with the reciprocating bed or member and mechanism for reciprocating the same, of a reversing mechanism comprising a crank element, and abutment-blocks mounted in bearings on the bed so as to be capable of a vertical movement, and connections from the crank-pin adapted to raise and lower said abutment-blocks, whereby the crank-block will properly engage the abutment-blocks to reverse the movement of the bed, substantially as described.

481,129. CULTIVATOR-TOOTH. JAMES S. WORCESTER, Hackensack, N. J. Filed June 9, 1892. Serial No. 436,123. (No model.)



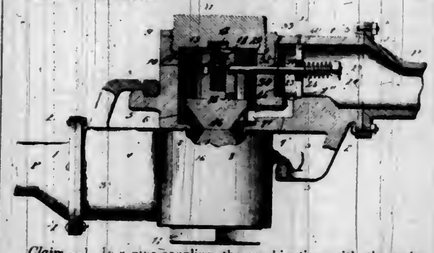
Claim.—1. The combination, with a frame or support, of a tooth movably secured to said support, said tooth being made to consist of a share or runner provided with plates or tongues having an upward inclination toward the rear, substantially as described.

2. The combination, with a frame or support, of a tooth movably secured to said support, said tooth being made to consist of a share or runner provided with plates or tongues having an upward inclination toward the rear, said share being constructed with an upper shield or guard to prevent excessive penetration of the share, substantially as described.

3. The combination, with a frame or support, of a swinging tooth swiveled to said support, so as to have a vertical and lateral motion, said tooth being provided with laterally-projecting plates or tongues, substantially as described.

4. The combination, with a frame or support, of a tooth movably connected to said support and provided with lateral plates or tongues and with an upper guard and an elastic rest for the tooth when in its elevated position, substantially as described.

481,130. VALVED PIPE-COUPLING. ELLIS BARTHOLOMEW, Lima, Ohio, assignor of four-fifths to Oscar W. Bell, same place, and Oliver Jay and Daniel W. Jay, St. Mary's, Ohio. Filed Apr. 18, 1892. Serial No. 429,614. (No model.)



Claim.—1. In a pipe-coupling, the combination, with the casing provided with a bore having a valve-seat, a passage connecting this bore with the train-pipe, a valve in the bore, and a spring holding its head normally against said seat, of a pressure-actuated catch adapted to hold the valve open and a spring normally disconnecting this catch from the valve, as and for the purpose set forth.

2. In a pipe-coupling, the combination, with the casing provided with a transverse bore reduced at one end to form a valve-seat and enlarged at its other end, a rubber gasket on said seat, a sleeve in said bore bearing on the gasket, a nut in said larger end bearing on the sleeve, a valve whose head moves within the sleeve and is adapted to close against said seat and whose stem is reduced, a passage leading from above the seat to the train-pipe, a collar detachably secured within the sleeve and through which collar said stem slides, and a spring between the valve and nut, of a pressure-actuated pin passing through the side of the sleeve under the collar and into the valve-stem and adapted to hold the valve open, and a spring normally disconnecting this catch from the valve, as and for the purpose set forth.

3. In a pipe-coupling, the combination, with the casing provided with a transverse bore having a reduced seat at one end, a sleeve in said bore, a nut holding the sleeve in place, a valve whose head moves within the sleeve and is adapted to close against said seat, the stem of the valve being reduced and socketed, a passage leading from above said seat to the train-pipe, a collar screwed into the sleeve and through which said stem slides, and an expansive spring within said socketed stem bearing against the nut, of a pressure-actuated catch adapted to hold the valve open and a spring normally disconnecting this catch from the valve, as and for the purpose set forth.

4. In a pipe-coupling, the combination, with the casing having a transverse bore provided with a seat at one end and closed at its opposite end and a spring-actuated valve in said bore having a groove in its stem, of a passage leading over above said seat to the longitudinal opening in said casing, a disk closely fitting this opening, a pin secured to said disk and adapted to engage said groove under pressure, and a spring for disengaging the pin and groove, as and for the purpose set forth.

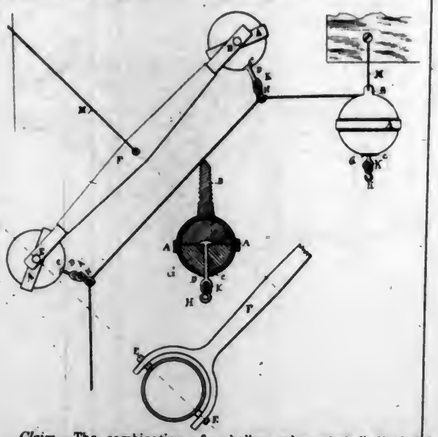
5. In a pipe-coupling, the combination, with the casing having a transverse bore provided with a seat at one end and closed at its opposite end and a spring-actuated valve in said bore having a groove in its stem, of a passage leading from above said seat to the longitudinal opening in said casing, a spider secured in this opening, a pin sliding through the spider and having a head at its inner end, its outer end being adapted to engage said groove, a spring between the spider and head for disengaging said outer end and groove, and a disk secured to the pin, moving over the transverse opening from said passage and adapted by pressure to engage said outer end of the pin with said groove in the stem, as and for the purpose hereinbefore described.

481,131. RING-TRAVELER. ALBERT F. BENTLEY, New Bedford, Mass., assignor to the American Ring Traveler Company, Providence, R. I. Filed Mar. 23, 1892. Serial No. 426,058. (No model.)



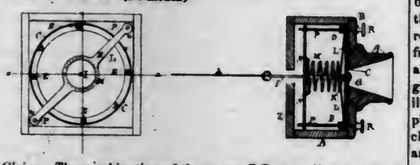
Claim.—A ring-traveler having hooks *a b c* and *d e f*, and the connecting-piece bent inward to form a single bearing-piece 6, which contacts with the ring to reduce the friction, as and for the purpose described.

481,132. INSULATOR. WILLIAM J. BOWEN, Norwalk, Ohio, assignor to William Hubbard, Elgin, Ill. Filed May 2, 1891. Serial No. 391,437. (No model.)



Claim.—The combination of a hollow spherical shell divided through the middle, having screw-threads on each half for attaching them together, the top half provided with means for fastening the same to any support, an insulating material within the shell, having embedded within it a headed pin passing through the same and provided at its outer end with an eye to which the conductor is connected and supported, substantially as described.

481,133. MECHANICAL TELEPHONE. WILLIAM J. BOWEN, Norwalk, Ohio, assignor to William Hubbard, Elgin, Ill. Filed May 2, 1891. Serial No. 391,438. (No model.)



Claim.—The combination of the screws P P, extending outside of the case B, bar N, spiral spring M, disk L, air-tube K, diaphragm G, case B, and mouthpiece A.

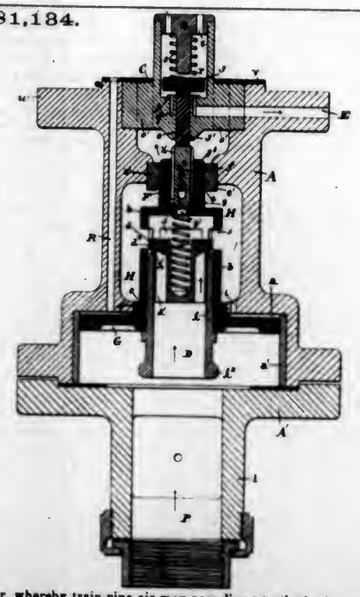
481,134. VALVE FOR AIR-BRAKES. GEORGE A. BOYDEN, Baltimore, Md., assignor to the Boyden Brake Company of Baltimore City, of Maryland. Filed Sept. 30, 1889. Serial No. 325,474. (No model.)

Claim.—1. In triple-valve mechanism for automatic air-brakes, the combination of a passage from the train-pipe, a passage from the auxiliary reservoir, which is smaller or more restricted than said train-pipe passage, and a single valve coacting with both of said passages and controlling communication between them and the brake-cylinder, whereby when an emergency application of the brakes is desired the train-pipe air and auxiliary-reservoir air, the former at lower pressure than the latter, will both pass to the brake-cylinder through the triple valve.

2. In valve mechanism for automatic air-brakes, the combination of a communication with the brake-cylinder from both the auxiliary reservoir and train-pipe, a single valve controlling said communication, and means to retard or restrict the flow thereto of the auxiliary-reservoir air when applying the brakes in comparison with the flow of train-pipe air, whereby train-pipe air at lower pressure than said auxiliary-reservoir air will pass said valve when making an emergency application of the brakes.

3. In a triple valve, the combination, with a suitable chamber, of a port therefrom to the brake-cylinder, a valve controlling said port, and passages to the said chamber from the train-pipe and from the auxiliary reservoir, the latter passage being of less capacity than the

481,134.



former, whereby train-pipe air may pass direct to the brake-cylinder through the triple valve to effect a quick action of the brakes for emergency stops.

4. In a valve for automatic air-brakes, the combination of a communication with the brake-cylinder, a suitable valve controlling said communication, two air-passages coacting with said valve and relatively proportioned as to their capacity to allow the flow of both train-pipe air and auxiliary-reservoir air each at a different pressure to pass said valve when open, and a check-valve to prevent the return of air to the train-pipe.

5. A valve for controlling automatic air-brakes, having, in combination, a piston which is moved in one direction by pressure from the train-pipe and in the other direction by pressure from the auxiliary reservoir, a valve-chamber which has a check-valved communication from the train-pipe, a communication with the auxiliary reservoir, and a port communicating with the brake-cylinder, said port being of greater area or capacity than the said communication with the auxiliary reservoir, and a valve controlling said port and moved by the piston, whereby when the said port is opened the pressure in the valve-chamber will be reduced momentarily below that in the train-pipe, and air from the latter will thereupon pass to the brake-cylinder.

6. In a triple valve for automatic air-brakes, the combination of a chamber having a port leading to a brake-cylinder, a passage opening into said chamber and which supplies auxiliary-reservoir air thereto, a piston-chamber and piston, a valve controlling said port and operated by the piston, and a passage from the auxiliary reservoir direct to said piston-chamber and avoiding the chamber first mentioned and which is larger or of greater capacity than the said passage which supplies auxiliary-reservoir air.

7. In valve mechanism for automatic air-brakes, the combination of a piston-chamber, a piston, a valve-chamber having a brake-cylinder port, a passage for supplying auxiliary-reservoir air when applying the brakes, which passage is smaller or of less capacity than said port, a passage to supply train-pipe air when applying the brakes, a valve in the valve-chamber coacting with said port and controlling the flow of air to a brake-cylinder from both a train-pipe and an auxiliary reservoir, and a passage from the auxiliary reservoir to the said piston-chamber and which in its course avoids the said valve chamber.

8. In a triple valve for automatic air-brakes, the combination of a valve-chamber having a port leading to the brake-cylinder, a piston-chamber and piston, a passage from the auxiliary reservoir direct to the piston-chamber and which avoids the said valve-chamber, a passage which is smaller or more restricted than either the said port or the said direct passage to the piston-chamber, this small passage opening into the valve-chamber, and a valve controlling said port and operated by the piston.

9. In a triple valve for automatic air-brakes, the combination of a chamber having a port communicating with the brake-cylinder, a piston-chamber and piston, a passage from the train-pipe to the ported chamber, a partition provided with a passage which is smaller or more

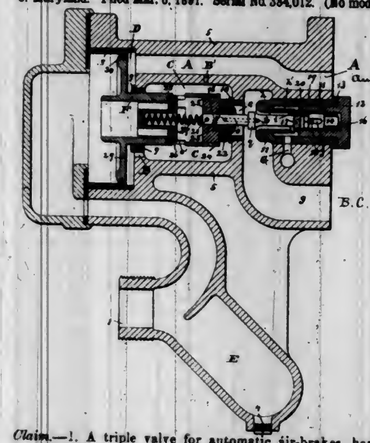
restricted than either the said port or the train pipe passage, said partition serving to partially separate the ported chamber from the said piston-chamber, and a valve moved by said piston and controlling said port, whereby both train-pipe air and auxiliary-reservoir air may pass the same valve-port for an emergency stop.

10. The combination, in valve mechanism for air-brakes, of a piston, a valve-chamber having a communication with a brake-cylinder, one from the train-pipe and another through a throttled or more restricted passage from the auxiliary reservoir, a valve to govern the communication leading to the brake-cylinder, a tubular extension of the piston entering the valve chamber and moving the valve and containing a passage which forms the said communication between the train-pipe and valve-chamber, and a check-valve controlling said last-named passage.

11. In valve mechanism for automatic air-brakes, the combination of a main port communicating with a brake-cylinder from both the train-pipe and the auxiliary reservoir, a suitable valve controlling said main port, a graduating-valve which admits air-pressure in small volume to the brake-cylinder, and air-passages coacting with said main port and relatively proportioned as to their capacity to allow both train-pipe air and auxiliary-reservoir air, each at a different pressure, to pass to said main port when the latter is open.

12. In valve mechanism for automatic air-brakes, the combination of a chamber having a main port leading to the brake-cylinder, a reciprocating valve of plug form coacting with said main port and capable of a certain extent of movement without opening the said port, a graduating-valve A, fitting loosely in said plug-valve, and a release-valve unconnected with the said main valve and controlling an air-escape port.

481,135. FLUID-PRESSURE BRAKE. GEORGE A. BOYDEN, Baltimore, Md., assignor to the Boyden Brake Company of Baltimore City, of Maryland. Filed Mar. 6, 1891. Serial No. 384,012. (No model.)



Claim.—1. A triple valve for automatic air-brakes, having, in combination, a port c, leading to the brake-cylinder, a main valve 22, which closes and opens said port, a valve to release the air from the brake-cylinder, a piston actuated by air-pressure, and a stem having one end suitably connected with the piston and which passes loosely through the main valve and also through the said port leading to the brake-cylinder and imparts movement to the said release-valve.

2. A triple valve for automatic air-brakes, having, in combination, a port c, leading to the brake-cylinder, a main valve 22, which closes and opens said port, a valve to release the air from the brake-cylinder, a piston actuated by air-pressure, a stem having one end suitably connected with the piston and which passes loosely through the main valve and also through the said port leading to the brake-cylinder and imparts movement to the said release-valve, and a stop-shoulder on the said stem between the main valve and release-valve.

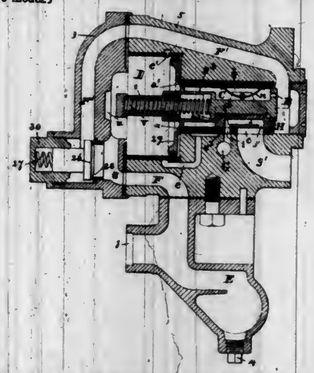
3. A triple valve for automatic air-brakes, having, in combination, a port c, leading to the brake-cylinder, a piston actuated by air-pressure, a stem having one end suitably connected with the piston constructed to act as a graduating-valve, a main valve 22, loose on said stem and which rides or floats lengthwise thereof and is wholly supported thereby and opens and closes the said port leading to the brake-cylinder, and a stop-shoulder on the stem to come in contact with the said main valve, whereby when the brakes are being applied by the graduating-valve the main valve remains immovable and the stop-shoulder coming in contact with it arrests the movement of the said piston.

4. A triple valve for automatic air-brakes, having, in combination, a passage from the train-pipe, a passage from the auxiliary reservoir, which is smaller or more restricted than said train-pipe passage, a main port coacting with both of said passages and communicating between them and the brake-cylinder, a piston actuated by air-pressure, a stem having one end suitably connected with the piston, and a valve loose on said stem and which rides or floats lengthwise thereof and is wholly supported thereby and opens and closes the said main port communicating to the brake-cylinder.

5. A triple valve for automatic air-brakes, having, in combination, a valve to release the air from the brake-cylinder, a piston actuated by air-pressure, a main port c, leading to the brake-cylinder and located between the said release-valve and piston, a stem having one end suitably connected with the piston and which passes through said port and imparts movement to the said release-valve, and said stem provided with a passage having a lateral port for the flow of a small volume of air to apply the brakes by graduation, and a main valve 22, which is free to ride or float lengthwise on said stem and opens and closes the said lateral graduation-port and which also opens and closes the main port leading to the brake-cylinder.

6. A triple valve for automatic air-brakes, having, in combination, a port communicating with the brake-cylinder from both the auxiliary reservoir and the train-pipe, means for restricting the flow to the said port of auxiliary-reservoir air when applying the brakes for an emergency stop as compared with the flow of train-pipe air, a piston actuated by air-pressure, a stem having one end suitably connected with the piston and which is provided with a small passage for the flow of auxiliary-reservoir air to apply the brakes by graduation, and a main valve 22, which rides or floats loosely on said stem and is wholly supported thereby and opens and closes the said port communicating with the brake-cylinder and also controls the said small graduation-passage.

481,136. VALVE FOR AUTOMATIC AIR-BRAKES. GEORGE A. BOYDEN, Baltimore, Md., assignor to the Boyden Brake Company of Baltimore City, of Maryland. Filed Feb. 12, 1892. Serial No. 421,237. (No model.)



Claim.—1. The combination, in valve mechanism for automatic air-brakes, of a port through which air passes to the brake-cylinder from both the train-pipe and auxiliary reservoir to produce quick action, a port leading to the atmosphere to exhaust the air from the brake-cylinder, a single slide-valve to control the said ports, and a piston which actuates the slide-valve and is moved in one direction by auxiliary-reservoir pressure and in the opposite direction by train-pipe pressure.

2. The combination, in valve mechanism for automatic air-brakes, of a piston actuated in one direction by auxiliary-reservoir pressure and in the opposite direction by train-pipe pressure, and a single slide-valve controlling the passage of air to the brake-cylinder from both the train-pipe and auxiliary reservoir for an emergency application of the brake.

3. The combination, in valve mechanism for automatic air-brakes, of a piston-chamber, a piston, a valve-chamber having a port through which air passes to the brake-cylinder from both the auxiliary reservoir and train-pipe, a slide-valve controlling said port, and a partition which at the time of applying the brakes separates the auxiliary-reservoir-air pressure that is on the said piston from the pressure in that part of the valve chamber that is adjacent to the said port.

4. The combination, in valve mechanism for automatic air-brakes, of a valve chamber, a slide-valve therein controlling the exhaust of air from the brake-cylinder to the atmosphere, and also the passage of air to the brake-cylinder from both the train-pipe and the auxiliary

reservoir, a piston-chamber, and a piston to actuate the said slide-valve and carrying a partition arranged to retard or restrict the auxiliary-reservoir air in its transmission to the port of the said slide-valve.

5. The combination, in valve mechanism for automatic air-brakes, of a port through which air passes from both the auxiliary reservoir and train-pipe to the brake-cylinder, a port leading to the atmosphere, a passage for auxiliary-reservoir air to pass to said brake-cylinder port, a passage having a greater area than the first-mentioned passage to admit train-pipe air to said brake-cylinder port, a slide-valve to control said ports, and a check-valve located in the said train-pipe passage.

6. The combination, in valve mechanism for automatic air-brakes, of a piston-chamber, a piston, a valve-chamber having a port leading to the atmosphere and also a port leading to the brake-cylinder, a slide-valve controlling the said ports, a communication for auxiliary-reservoir air direct to one side of the said piston without passing through the valve-chamber, and a restricted communication for auxiliary-reservoir air to pass to said brake-cylinder port.

7. The combination, in valve mechanism for automatic air-brakes, of a valve-port through which air passes to the brake-cylinder from both the auxiliary reservoir and direct from the train-pipe, an exhaust-port, a slide-valve to control the said port, a piston, and communications relatively proportioned to produce on the auxiliary-reservoir side of the piston a greater pressure than that of the said air passing through the brake-cylinder port.

8. The combination in valve mechanism for automatic air-brakes, of a slide-valve seat having a port which is in communication with the brake-cylinder, a passage through which train-pipe pressure is transmitted to the said brake-cylinder port when applying the brakes for emergency stops, a passage of more restricted capacity than said train-pipe passage and through which auxiliary-reservoir pressure also is transmitted to the said brake-cylinder port when applying the brakes for emergency stops, and a slide-valve resting on said seat and coacting with said port and controlling the passage to the brake-cylinder of both the train-pipe and auxiliary-reservoir pressure, as set forth.

9. The combination, in valve mechanism for automatic air-brakes, of a slide-valve, a piston which actuates the said slide-valve, and a graduating-passage for auxiliary-reservoir pressure to preliminarily apply the brakes, the exit from which passage is controlled by the said slide-valve and the inlet thereto by the said piston and which passage admits auxiliary-reservoir pressure to the brake-cylinder when open at both of said controlled places.

10. The combination, in valve mechanism for automatic air-brakes, of a slide-valve seat having a port which is in communication with the brake-cylinder, a passage leading to the said slide-valve seat and through which auxiliary-reservoir pressure is transmitted for graduating the brakes, a passage through which train-pipe pressure is transmitted to the said brake-cylinder port when applying the brakes for emergency stops, a passage of more restricted capacity than said train-pipe passage and through which auxiliary-reservoir pressure also is transmitted to the said brake-cylinder port when applying the brakes for emergency stops, and a slide valve traversing said seat and controlling the air passing through all three of said passages.

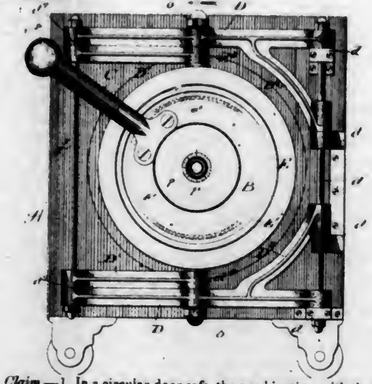
11. The combination, in valve mechanism for automatic air-brakes, of a slide valve seat having a port which is in communication with the brake-cylinder, a passage leading to the said slide-valve seat and through which auxiliary-reservoir pressure is transmitted for graduating the brakes, a passage through which train-pipe pressure is transmitted to the said brake-cylinder port when applying the brakes for emergency stops, and a single slide-valve traversing the said valve-seat and controlling the said passages, for the purpose set forth.

12. The combination, in valve mechanism for automatic air-brakes, of a slide-valve seat having three ports, the first of which is in communication with the brake-cylinder and the second with the atmosphere, a graduating-passage leading to the third valve-seat port and through which auxiliary-reservoir air is transmitted to preliminarily apply the brakes, a single slide-valve traversing the said seat and controlling the graduating or preliminary application of the brakes and the release of the same, and a piston to actuate the said slide-valve and having a limited movement independent thereof.

481,137. SAFE. THOMAS M. BRINTNALL, Chicago, Ill. Filed Feb. 16, 1891. Renewed Jan. 16, 1892. Serial No. 418,327. (No model.)



481,137.



Claim.—1. In a circular-door safe, the combination, with the door, its locking-bolts carried by the door, and the adjacent frame or jamb, of mechanism permanently connecting the door and bolts, whereby the revolution of the door after it is closed will always operate to shoot the bolts, substantially as described.

2. In a circular-door safe, the combination, with the door, the adjacent frame or jamb, the locking-bolts, and permanent intermediate connecting mechanism, of a stationary stop carried by the frame, which engages and holds a stop carried by the door when the latter is closed, whereby the revolution of the door acts to shoot the bolts, substantially as described.

3. In a circular-door safe, the combination, with the door and the adjacent frame or jamb, of the locking-bolts carried by the door, intermediate mechanism connecting the door and bolts, and a stationary stop on the frame for engaging a stop carried by the door when the latter is closed, whereby the revolution of the door always operates to shoot the bolts, substantially as described.

4. In a circular-door safe, the combination, with the door, its locking-bolts carried by the door and the frame or jamb, of cam mechanism permanently connected with the door for operating the bolts, whereby the revolution of the door causes the cam mechanism to positively operate the bolts, substantially as described.

5. In a circular-door safe, the combination, with the door and the adjacent frame or jamb, of the locking-bolts carried by the door, cam mechanism engaging the bolts, and stop mechanism permanently connecting the frame or jamb and the cam mechanism when the door is closed, whereby the revolution of the door when it is closed causes the cam mechanism to operate the bolts, substantially as described.

6. In a circular-door safe, the combination, with the door and the adjacent frame or jamb, of the locking-bolts carried by a ring or plate portion of said door movable with respect thereto, mechanism rigidly connected with the door which engages the bolts, and a stop on the frame for engaging the movable ring, substantially as described.

7. In a circular-door safe, the combination, with the door and the adjacent frame or jamb, of the locking-bolts carried by a ring or plate on the door and movable with respect thereto, cam mechanism rigidly connected with the door which engages the bolts, and a stop on the frame for engaging the movable ring, substantially as described.

8. In a circular-door safe, the combination, with the door and the adjacent frame or jamb, of the locking-bolts carried by a ring or plate on the door, said ring or plate engaged to the door by a threaded engagement, cam mechanism rigidly engaged to the door for operating the bolts, and a stop on the frame which engages the bolt-ring, substantially as described.

9. In a circular-door safe, the combination, with the door and the adjacent frame or jamb, of the locking-bolts carried by a ring or plate on the door and movable with respect thereto, a plate rigidly engaged to the door having cam slots which engage the bolts, and a stop on the frame which engages the movable ring, substantially as described.

10. In a circular-door safe, the combination, with the door and the adjacent frame or jamb, of the locking-bolts carried by a ring or plate which is engaged to the door by a screw-threaded engagement, a plate rigidly engaged to the door having cam-slots which engage and operate the bolts, and a stop on the frame which engages the bolt-ring, substantially as described.

11. In a circular-door safe, the combination, with the door, the adjacent frame or jamb, the locking-bolts carried by said circular door, and mechanism for invariably locking the bolts by the revolution of the door when the latter is closed, of time-lock mechanism for dogging the door in its locked position until intentionally released, substantially as described.

12. In a circular-door safe, the combination, with the door, its frame or jamb, locking-bolts carried by said circular door, and mechanism for invariably operating the bolts by the revolution of the door when the latter is closed, of a combination-lock located on the exterior of the door for dogging the same in its locked position, substantially as described.

13. In a circular-door safe, the combination, with the door, its frame or jamb, and the locking-bolts carried by a ring or plate on the door and movable with respect thereto, of mechanism for dogging the door and the movable ring together until intentionally released, substantially as described.

14. In a circular-door safe, the combination, with the door, of a lever for operating the same, one end of said lever being permanently engaged to the door, while the body of the lever is made extensible substantially as described.

15. In a circular-door safe, the combination, with the door, of a lever for operating the same, said lever consisting of two parts, one telescoping within the other, thus making it extensible, one of said parts being permanently engaged to the door, substantially as described.

16. In a safe, the combination, with the door, of mechanism for supporting same, consisting of a pair of long arms pivoted to the body of the safe and extending beyond the center of the door and a pair of returning short arms pivoted to the long arms and to the door, substantially as described.

17. In a safe, the combination, with the door, of mechanism for supporting the same, consisting of the arms D D', pivoted to each other, and the pins *b*, extending through the ends of the arms D' and entering slots in the arms D, substantially as described.

18. In a circular-door safe, the combination, with the door and its supporting hinge-ring, of set-screws between the hinge-ring and adjacent stationary door-ring and bearing upon the latter, whereby the door may be adjusted in any direction to center it, substantially as described.

19. In a circular-door safe, the combination, with the door and its supporting hinge-ring, of set-screws journaled in said hinge-ring and having a ball-and-socket bearing in the door-ring, substantially as described.

20. In a circular door safe, the combination, with the stationary ring E and adjacent door, of anti-friction rollers between the ring and door, substantially as described.

21. In a safe, the combination, with the door and its locking-bolts, of the frame or jamb having a ring or bearing against which the bolts shoot, said bearing being adjustable toward or from the frame, substantially as described.

22. In a circular-door safe, the combination, with the door and its locking-bolts, of the frame or jamb having a ring or bearing against which the bolts shoot, said ring made adjustable by the bolts *i* and set-screws *i'*, substantially as described.

23. In a circular-door safe, a time-lock mechanism for dogging the door in its locked position, consisting of a latch or dog on a movable part of the door, an adjacent stationary portion provided with a notch or recess into which the dog rides, and a spring for forcing the dog into the recess, said spring held normally out of contact with the dog but arranged to be brought into contact with it when it is desired to lock the door, substantially as described.

24. In a circular-door safe, a time-lock mechanism for dogging the door, consisting of a latch or dog adapted to enter a recess in a stationary part, a movable plate adjacent to the dog, carrying a spring adapted to force the dog into the said recess, and a stop adapted to force the dog out of the recess, the construction being such that a revolution of the plate in one direction will bring the spring to bear on the dog, and a revolution in the opposite direction will bring the stop to bear on the dog, substantially as described.

25. In a circular-door safe, a time-lock mechanism for dogging the door, consisting of the latch or dog, the adjacent stationary portion provided with a notch or recess, the spring for throwing the latch or dog into the notch, the stop for forcing it out, means for holding the latch-spring abnormally in contact with the latch, and a supplemental spring for carrying the latch-spring out of contact with the latch when released, substantially as described.

26. In a circular-door safe, a time-lock mechanism for dogging the door, consisting of a latch or dog, an adjacent stationary portion provided with a notch or recess, a movable plate carrying a spring for throwing the latch or dog into the notch, and a stop for throwing it out, a spring for holding the plate normally in such a position that the latch-spring exerts no pressure on the latch, and means for holding the plate so that the latch-spring bears on the latch until released, substantially as described.

27. In a circular-door safe, the combination, with the dogging-latch and latch-spring mounted on a movable plate held normally so that the latch-spring exerts no pressure on the latch, of means for holding the latch-spring in contact with the latch, consisting of the supplemental latch H', adapted to engage and hold a pin on the movable plate, substantially as described.

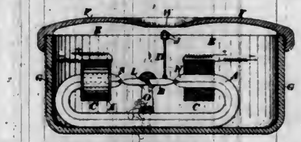
28. In a circular-door safe, the combination, with the dogging-latch and latch-spring mounted on a movable plate, of the latch H' for holding the latch-spring in contact with the dogging latch, said latch H' having the lip or toat H^4, adapted to engage and hold a pin on the movable plate, substantially as described.

29. In a circular-door safe, the combination, with the door, of a combination-lock for dogging the same in its locked position, said combination-lock housed within a cap or cup screwed into the outer face of the door, substantially as described.

30. In a circular-door safe, the combination, with the door, of a bolt housed therein adjacent to the edge and adapted to enter a notch or recess in the adjacent frame, a spring for holding said bolt normally within the confines of the door, and a combination-lock upon the exterior of the door, adapted to force the dogging-bolt out into the frame, substantially as described.

31. In a circular-door safe, the combination, with the door, of the rings upon the exterior thereof, said rings rabbeted into each other, and the bolts or screws which secure the inner plate or ring to the door being covered by a screw-cap, the latter being dogged against revolution when the door is closed, substantially as described.

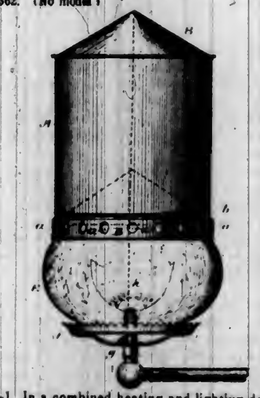
481,138. TELEPHONE. FREDERICK H. BROWN, Chicago, Ill., assignor of one-half to Sidney F. Andrews. Filed Mar. 23, 1891. Serial No. 386,094. (No model.)



Claim.—1. In an apparatus for transmitting articulate sounds telephonically, the combination of a permanent magnet, one pole of which is movable in close proximity to the other pole, a diaphragm, and a connection between the diaphragm and the movable pole of the magnet, substantially as set forth.

2. In an apparatus for transmitting articulate sounds telephonically, the combination, with one or more permanent magnets with magnetic fields of dissimilar polarity, of an inductive body within the said field and movable transversely thereto, a diaphragm, and a connection between the diaphragm and the inductive body, substantially as set forth.

481,139. COMBINED GAS HEATING AND LIGHTING DEVICE. OLIVER H. P. CORNELL, Albany, assignor, by mesne assignments, to the Caloric Cone Company, New York, N. Y. Filed Dec. 20, 1890. Serial No. 375,362. (No model.)



Claim.—1. In a combined heating and lighting device, the combination, with a globe, of a closed drum containing a volume of atmospheric air and having an upwardly-depressed conical bottom and means for supporting the same centrally, so as to extend laterally all around beyond the upper edge of the globe and leave a radially-inclined space between them, substantially as and for the purposes shown and described.

2. In a combined heating and lighting device, the combination, with a closed drum containing a volume of atmospheric air, of a globe having an inwardly-curved upper edge and means of supporting the

former, so that the periphery of its lower end will extend beyond and overhang the sloping outer surface of the latter and leave a space between them, substantially as and for the purposes shown and described.

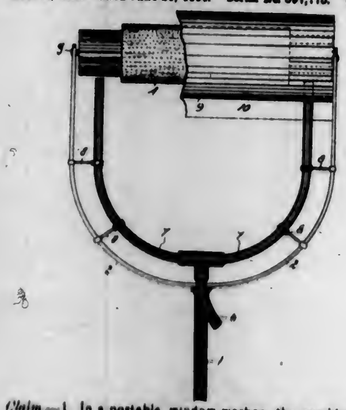
3. In a combined heating and lighting device, the combination, with a hollow globe, of a closed drum containing atmospheric air, having an upwardly-depressed or conical bottom with its apex above and its periphery about on or slightly below the level of the upper edge of the globe, the former so located above the latter as to leave a space between them, substantially as and for the purposes shown and described.

4. In a combined heating and lighting device, the combination of a hollow globe, with a drum or chamber above provided with the herein-described conical or upwardly-depressed bottom, substantially as and for the purposes shown and described.

5. In a combined heating and lighting device, the herein-described combustion-chamber, consisting of the inwardly-curved upper edge of a hollow globe, an apex of the conical or upwardly-depressed bottom of a closed drum arranged to leave a radially-sloping space between the said conical bottom near its periphery and the said upper edge of the globe, in combination with a closed drum and a globe, and to operate substantially as and for the purposes shown and described.

6. As a new article of manufacture, the herein-described device, consisting of a drum with cylindrical sides A, closed upper end B, conical bottom C, with inwardly-depressed apex *i*, flexible metallic strips *d*, downwardly-extending rim D, and perforations *a*, the whole constructed and to operate substantially as and for the purposes shown and described.

481,140. ROTATING WINDOW-WASHER. HIRAM B. DAVIS, Denver, Colo. Filed June 20, 1891. Serial No. 397,773. (No model.)



Claim.—1. In a portable window-washer, the combination of a cylindrical brush carrying cups or paddles adapted to utilize the force of the water carried to the brush, causing the same to rotate, a bifurcated frame having the brush journaled in its arms, and a rigid tubular handle attached to said frame and adapted to carry the water to the brush through the medium of suitable attachments or extensions, substantially as described.

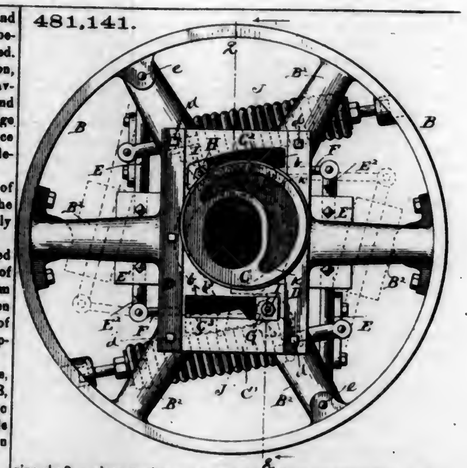
2. In a window-washer, the combination, with a cylindrical brush adapted to be rotated by water carried thereto under pressure, of a bifurcated frame having the brush journaled in the extremities of its arms, a rigid tubular handle attached to said frame and adapted to carry the water to the brush through the medium of suitable attachments or connections, and a shield mounted upon the frame and partially surrounding the brush, substantially as described.

481,141. GOVERNOR FOR STEAM-ENGINES. FREDERICK C. DIETZ, Zanesville, Ohio, assignor to the Blandy Machine Company, same place. Filed May 3, 1892. Serial No. 431,717. (No model.)

Claim.—1. In a governor for steam-engines, the combination, with the engine-shaft, a plate stationary upon said shaft, an eccentric for the purpose indicated loose upon said shaft, and a sliding plate rigid with said eccentric, said plates being slotted at diametrically-opposite sides of the engine-shaft, of blocks or suitable devices adapted to operate in said slots, the arrangement of the latter relative to each other being such that upon the movement of said blocks or other devices endwise of said slots the sliding plate aforesaid is moved upon the stationary plate and the eccentric is thrown across the engine-shaft, as required, substantially as and for the purpose set forth.

2. In a governor for steam engines, the combination, with the engine-shaft, a plate stationary upon said shaft, an eccentric for the purpose indicated loose upon said shaft, and a sliding plate rigid with said eccentric, said plates being slotted at diametrically-opposite sides of the engine-shaft, of blocks or suitable devices adapted to operate in said slots, the arrangement of the latter relative to each other being such that upon the movement of said blocks or other devices endwise of said slots the sliding plate aforesaid shall be moved upon the stationary plate and the eccentric thrown across the engine-shaft, as required, substantially as and for the purpose set forth.

481,141.



3. In a governor for steam-engines, the combination, with the engine-shaft, a plate stationary upon said shaft, an eccentric for the purpose indicated loose upon said shaft, and a sliding plate rigid with said eccentric, the stationary plate being provided with guides for the sliding plates and both plates being slotted at diametrically-opposite sides of the engine-shaft, of blocks or suitable device adapted to operate in said slots, the arrangement of the latter relative to each other being such that upon the movement of said blocks or other devices endwise of said slots the sliding plate aforesaid shall be moved upon the stationary plate and the eccentric thrown across the engine-shaft, as required, substantially as and for the purpose set forth.

4. In a governor for steam-engines, the combination, with the engine-shaft, a plate stationary upon said shaft, an eccentric for the purpose indicated loose upon said shaft, and a sliding plate rigid with said eccentric, the stationary plate being provided with guides for the sliding plate, both plates being slotted at diametrically-opposite sides of the engine-shaft, of blocks or suitable devices adapted to operate in said slots, the arrangement of the latter relative to each other being such that upon the movement of said blocks or other devices endwise of said slots the sliding plate aforesaid shall be moved upon the stationary plate and the eccentric thrown across the engine-shaft, as required, substantially as and for the purpose set forth.

5. In a governor for steam-engines, the combination, with the engine-shaft, a plate stationary upon said shaft, an eccentric for the purpose indicated loose upon said shaft, and a sliding plate rigid with said eccentric, the stationary plate being provided with guides for the sliding plate, both plates being slotted at diametrically-opposite sides of the engine-shaft, of blocks or suitable devices adapted to operate in said slots, the arrangement of the latter relative to each other being such that upon the movement of said blocks or other devices endwise of said slots the sliding plate aforesaid shall be moved upon the stationary plate and the eccentric thrown across the engine-shaft, as required, one of said plates upon the side opposing the other plate being cut away to reduce the friction between the plates, substantially as set forth.

6. In a governor for steam-engines, the combination, with the engine-shaft, a plate stationary upon said shaft, an eccentric for the purpose indicated loose upon said shaft, and a sliding plate rigid with said eccentric, the stationary plate being provided with guides for the sliding plate, both plates being slotted at diametrically-opposite sides of the engine-shaft, of blocks or suitable devices adapted to operate in said slots, the arrangement of the latter relative to each other being

such that upon the movement of said blocks or other devices endwise of said slots the sliding plate aforesaid shall be moved upon the stationary plate and the eccentric thrown across the engine-shaft, as required, and a yoke adapted to insure the simultaneous operation of the sliding blocks or their equivalent in the slots of the plates aforesaid, substantially as set forth.

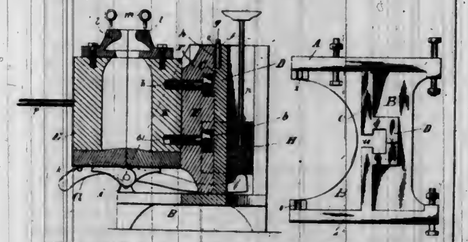
7. In a governor for steam-engines, the combination, with the engine-shaft and an eccentric for the purpose indicated loose upon the shaft, of weighted levers, as at E, mechanism operatively connecting said levers with said eccentric and adapted to throw the latter across the engine-shaft, as required, and a yoke mounted on the engine-shaft, said yoke loosely connected with and adapted to insure the simultaneous action of said weighted levers, substantially as and for the purpose set forth.

8. The combination, with the main or driving shaft of a steam-engine, of governing mechanism comprising a wheel, as at B, fast upon said shaft, a plate, as at *b*, rigid with the hub of said wheel, an eccentric for the purpose indicated loose upon said shaft, a sliding plate rigid with said eccentric, both of said plates being slotted at diametrically-opposite sides of the engine-shaft, blocks or suitable devices adapted to operate endwise of said slots, substantially as indicated, weighted levers, as at E, and links or rods operatively connected with said blocks or their equivalents and with said weighted levers, the arrangement of the slots in the plates aforesaid being such that upon the movement of said blocks or their equivalents endwise of said slots the sliding plate aforesaid is moved upon the stationary plate and the eccentric thrown across the engine-shaft, as required, and a yoke adapted to insure the simultaneous action of said weighted levers, substantially as and for the purpose set forth.

9. The combination, with the main or driving-shaft of a steam-engine, of governing mechanism comprising a wheel B, fast upon said shaft, a plate *b*, rigid with said wheel, an eccentric for the purpose indicated loose upon said shaft, sliding plate C, rigid with said eccentric, both of said plates being slotted, substantially as shown and described, pins or bolts I, weighted levers E, links or rods operatively connecting pins or bolts I with said weighted levers, blocks or suitable devices loosely mounted upon said pins or bolts and adapted to operate endwise of the slots in the plates aforesaid, a yoke adapted to insure simultaneous action of said weighted levers, and springs J, the sliding plate and eccentric being located at one side of the arms of wheel B, and weighted levers E, connecting-rods F, and springs J being located at the opposite side of said arms, all substantially as and for the purpose set forth.

10. The combination, with the main or driving shaft of a steam-engine, of governing mechanism comprising a wheel B, fast upon said shaft, a plate *b*, rigid with said wheel, an eccentric for the purpose indicated loose upon said shaft, sliding plate C, rigid with said eccentric, both of said plates being slotted, substantially as shown and described, pins or bolts I, weighted levers E, links or rods operatively connecting pins or bolts I with said weighted levers, blocks or suitable devices loosely mounted upon said pins or bolts and adapted to operate endwise of the slots in the plates aforesaid, the arrangement and construction of weighted levers E relative to pins or bolts I and connecting-rods F being such as to bring the draft or pull upon pins or bolts I centrally of the latter, substantially as set forth.

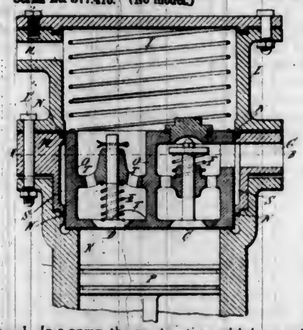
481,142. SUPPORTING-HOLDER FOR GLASS-MOLDS. ULYSSES S. HUGGINS, Washington, Pa., assignor to Charles N. Brady and Blancher D. Northrop, same place. Filed Sept. 10, 1890. Renewed May 16, 1892. Serial No. 433,214. (No model.)



Claim.—1. The combination of a supporting frame having a number of mortises therein, one or more molds each provided with a tenon F, engaging with each mortise, and a cam-bolt *g* for locking said tenon in place in said mortise, substantially as set forth.

2. The combination of a supporting-frame having a number of mortises therein, one or more molds each provided with a tenon F, engaging with each mortise, a cam-bolt *g* for locking said tenon in place in said mortise, a counterbalancing-weight H for each mold, and a lever G, upon which bear the said counterbalancing-weight and the moving part of each mold.

481,143. AIR-COMPRESSOR. ARTHUR H. HUTCHINSON, Kansas City, Mo., assignor to Laura M. Hutchinson, same place. Filed Jan. 12, 1891. Serial No. 377,413. (No model.)



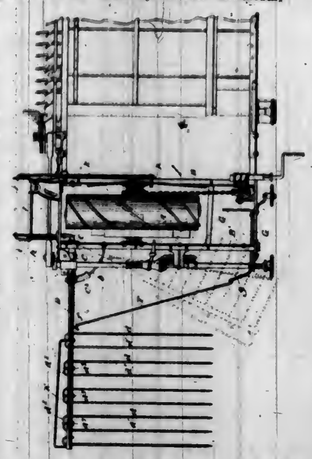
Claim.—1. In a pump, the combination, with loose valve-case O, carrying an inlet-valve C and an outlet-valve D, of the packings N, substantially as set forth.

2. In a pump, the combination of the cylinder and piston, the movable valve-case arranged in the cylinder and having an inlet and outlet, the spring for holding the valve-case, the spring-controlled valves in the case, and the guide surrounding the valve-case, substantially as described.

3. In a pump, the combination of the cylinder and piston therein, the guide above the cylinder, the movable valve-case having the chambers, the inlet and outlet valves in said chambers, the chamber above the valve-case having an outlet, and the by-pass pipe leading from the valve-case to the cylinder, as described.

4. In a pump, the combination of the cylinder and piston therein, the guide above the cylinder having an inlet, the movable valve-case fitting the guide and having an inlet, the by-pass pipe, the chamber around the valve-case, the inlet and outlet valves in the case, and the case or chamber above the cylinder having the outlet, all arranged as described.

481,144. SHEAF-CARRIER. WILLIAM A. KIRBY, Auburn, N. Y. Filed Sept. 30, 1891. Serial No. 407,310. (No model.)



Claim.—1. In a sheaf-carrier for harvesters, the carrier-head or rock-shaft pivoted to the machine-frame and provided with the rearwardly-extending arm or shoe rigid thereon, in combination with a suitable support for said shoe, whereby an angular tilt is given to the carrier in discharging its load, substantially as described.

2. The carrier rock-shaft pivoted to the machine-frame and provided with the rearwardly-extending arm or shoe rigid thereon, in combination with the curved track or way for said shoe and the tilting fingers rigidly secured to said head, substantially as described.

3. In a sheaf-carrier, the carrier-head or rock-shaft pivoted to the machine-frame and having rigid fingers, in combination with a rock-shaft G, connected to said carrier by means of link F for swinging it to and from its folded position, substantially as described.

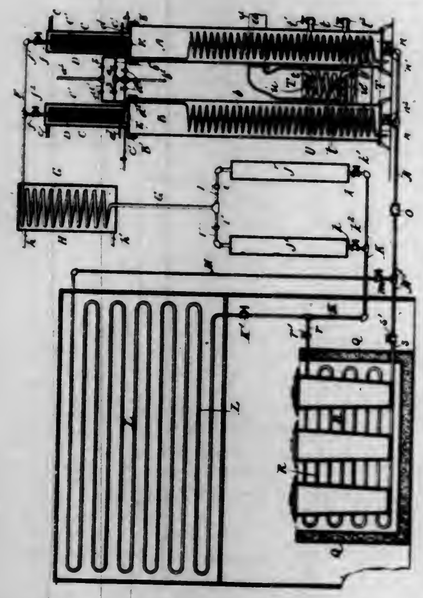
4. In a sheaf-carrier, the carrier rock-shaft or head-casting provided with the socket for the carrier rock-shaft, the rearwardly-projecting shoe rigid thereon, and the crank-arm for actuating said head, in combination with the universal joint connection between said head or casting and the machine-frame, and the track or support on which said shoe travels, substantially as described.

481,145. SASH-BALANCE. JOSEPH P. MAGNEY, Oakland, assignor to the Magney Sash Balance Company, San Francisco, Cal. Filed Aug. 28, 1891. Serial No. 403,976. (No model.)



Claim.—In a sash-lock, and in combination with the rack and pinion, the box in which the pinion is held, having in its corner and at one side of the pinion a guiding-block, a triangular locking-piece having a stem projecting from its side into the guiding-block and having its right-angular edges fitting in the corner of the box to be guided by the walls thereof and the spur on its free side, the spring for forcing the locking-piece into engagement with the pinion, and the stem projecting through the casing, substantially as described.

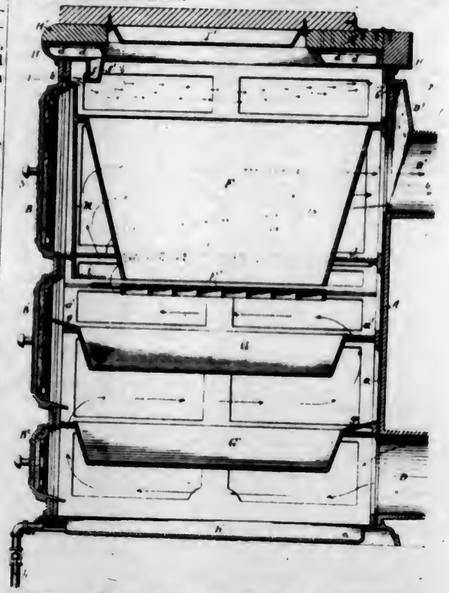
481,146. REFRIGERATING-MACHINE. CHARLES F. MILLER, Lancaster, Pa. Filed Jan. 9, 1892. Serial No. 417,520. (No model.)



Claim.—1. In combination with a generator of volatile refrigerant, a cooling-coil and a cooling-jacket exterior to said coil, the two cooling devices being arranged to allow the gas to flow out between them, while the steam accompanying it will be condensed and precipitated, substantially as set forth.

2. In a refrigerating-machine, a generator provided with an extension C of lesser diameter, in combination with a cooling-jacket C', applied to this extension only, an inlet and outlet for water to circulate through the said jacket, and a coil for cooling-water arranged within the said extension only, this extension communicating at bottom with the interior of the said generator and having in its top an outlet for gas, substantially as set forth.

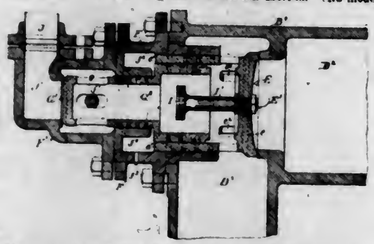
481,147. APPARATUS FOR DRYING OR CREMATING GARBAGE AND FECAL MATTER. JOHN H. PARKE, Philadelphia, Pa., assignor of one-half to Oscar D. McClellan, same place. Filed Sept. 29, 1891. Serial No. 407,135. (No model.)



Claim.—1. The within-described apparatus for cremating or drying garbage or fecal matter, the same consisting of a casing having an inlet and outlet for hot air or products of combustion, a grated hopper for receiving the garbage or fecal matter, and one or more trays or pans beneath said hopper, said hopper and trays being interposed in the path of the hot air or products of combustion in its passage through the casing, substantially as specified.

2. The within-described dry closet, the same consisting of a casing having inlet and outlet for hot air or products of combustion, a grated hopper contained within said casing, means for causing the hot air or products of combustion to circulate around said hopper, and a seat containing a chamber for disinfecting material, substantially as specified.

481,148. COMBINED INTERCEPTING AND REDUCING VALVE. JOHN PLAYER, Dunkirk, N. Y., assignor to the Brooks Locomotive Works, same place. Filed Apr. 14, 1892. Serial No. 429,145. (No model.)



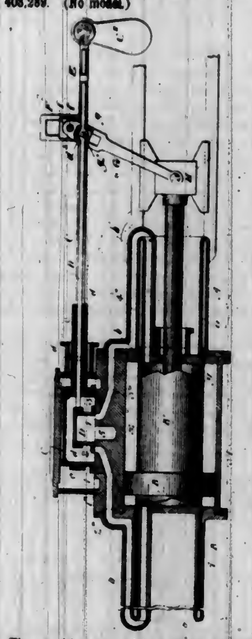
Claim.—1. A combined intercepting and reducing valve structure having a passage from the high to the low pressure cylinder, and a live-steam inlet to the low-pressure cylinder, in combination with a reducing-valve having a passage therethrough, and an intercepting-valve in line with the reducing-valve and having on its back a plunger adapted to the passage in the intercepting-valve, substantially as set forth.

2. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the live-steam pipe connecting with the pressure-regulating-valve casing, the regulating-valve casing, the regulating-valve, its seat, its stop, its hollow steam-passages, the intercepting-valve casing having its balancing-chamber connected to the atmosphere, the intercepting-valve with its annular balancing device, and steam-passages working outside the pressure-regulating

valve and within its own casing and having one seat close to the opening in the receiver-pipe, with another seat closing against the regulating-valve and working within a cut-off chamber in said valve, as and for the purpose set forth.

3. The combination, with the receiver pipe or passages of a compound locomotive or other engine, of the intercepting-valve having an annular balancing device, steam-passages, and interior seat, with a pressure-regulating valve working within and seating itself against said valve at its larger extremity and having its smaller extremity seating itself in its casing against the high-pressure steam and its travel regulated by a stop, said high-pressure end of this stop being connected to a piston working in a suitable dash-pot attached to the exterior of its casing, substantially as and for the purpose set forth.

481,149. COMPOUND LOCOMOTIVE. HARRY C. REAGAN, Jr., Philadelphia, Pa., assignor of two-thirds to Edward F. Peacock, same place, and Thomas Pray, Jr., New York, N. Y. Filed Aug. 21, 1891. Serial No. 403,289. (No model.)



Claim.—1. The combination, with a main admission-valve controlled by the eccentric, of an auxiliary exhaust-valve actuated by a varying connection between the cross-head and the valve-rod, whereby the movement of the auxiliary valve is delayed during the first part of the stroke of the eccentric in order to hold open the exhaust, substantially as described.

2. The combination, with a main admission-valve controlled by the eccentric, of an auxiliary exhaust-valve actuated by a lever connected with the cross-head and having a varying leverage on the auxiliary-valve rod, substantially as described.

3. The combination, with an engine-cylinder having a main valve controlling the admission of live steam and an auxiliary valve controlling the exhaust, of a rocker-arm, a rod connecting said arm with the main valve, a rod attached to the auxiliary valve, and a lever having a vertically-movable fulcrum connected with the main-valve rod, said lever being also connected with the auxiliary-valve rod and actuated by the cross-head, substantially as described.

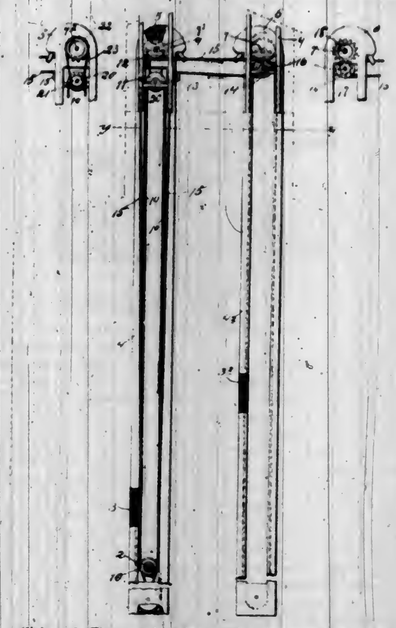
4. The combination, with a main admission-valve and an auxiliary exhaust-valve, of a main-valve rod connected with the eccentric and having a slotted lug F, an auxiliary valve rod, a slotted lever fulcrumed on a block sliding in the lug F and connected with the cross-head, and a block sliding in the slot in the lever and coupled to the auxiliary-valve rod, substantially as described.

5. The combination, with two independent valves, one of which has a valve-rod driven by the eccentric, of a lever pivoted to the cross-head at one end and having its other end connected with the valve-rod by a vertically-movable fulcrum and a second valve-rod attached to the other valve and connected with the lever by a sliding joint maintained at a constant level, whereby the distance of said joint from the fulcrum of the lever is constantly changing throughout the stroke, substantially as described.

6. The combination, with the main valve, of the rod C, having the slotted leg F, containing the sliding block *f*, the slotted lever G, carrying the sliding block *g*, one end of the lever being fulcrumed on the block *f* and the other end jointed to the cross-head H, the auxiliary valve, and the valve-rod D', connected with the block *g*, substantially as described.

7. The combination, with the cylinder A, having high-pressure steam-passages 1 3 and low-pressure steam-passages 2 4, of pipes I, joining said passages, stop-valves *i* in said pipes, a rod I', adapted to operate both valves simultaneously, substantially as described.

481,150. ELEVATOR-BELT DRIVE. DIGHTON A. ROBINSON, Minneapolis, Minn. Filed June 26, 1891. Serial No. 397,624. (No model.)



Claim.—1. The combination, with elevator-belts occupying transversely-opposite positions one to the other, of head and boot pulleys therefor, said boot-pulleys for said belts arranged in the lower part of the building, a main longitudinal shaft arranged in the lower part of the building, means for driving the same, short counter-shafts arranged in connection with said head-pulleys, drive-pulleys arranged on each counter-shaft, corresponding drive-pulleys arranged on said main shaft, said boot and drive pulleys being secured on separate shafts, separate drive-belts passing from the latter to each counter-shaft drive-pulley, and means for reversing the operating direction of one of said belts, whereby said elevator-belts are caused to run in opposite directions, substantially as described.

2. The combination, with elevator-belts, of head and boot pulleys therefor, counter-shafts in connection with said head-pulleys, a main shaft located in the lower part of the building and in closer proximity to one of said belts than to the other, drive-pulleys on said shafts, drive-belts passing over the same, one of said belts operating over idlers adapting the same to be carried across the building at an angle to the main portion of the belt, and means for reversing the direction of rotation of one of said belts with respect to its elevator-belt, whereby said elevator belts are operated in opposite directions, substantially as described.

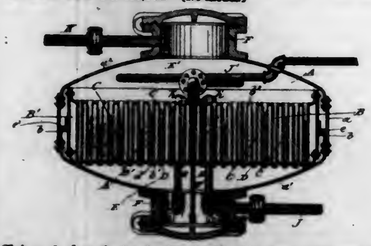
3. The combination, with two elevator-belts arranged transversely opposite one another, head and boot pulleys therefor, a main shaft passing between the legs of one of said elevator-belts, counter-shafts arranged between the same and in proximity to said head-pulleys, drive-pulleys on said counter-shafts and said main shafts, drive-belts passing over corresponding sets of said pulleys, one of said drive-belts passing up between the legs of the elevator-belt, embracing said main

shaft and connected to the head-pulley of said elevator by a sprocket-wheel and chain-belt device, and a gear-and-pinion connection with the other elevator-belt head-pulley for the other drive-pulley, substantially as described.

4. The combination, with the elevator-belts, of head and boot pulleys therefor, counter-shafts in connection with said head-pulleys, a main-line shaft arranged in the lower story of the building and embraced between the sides or legs of one of said elevator-belts, idlers arranged in the top of the building, and rope drive-belts passing over the same and grooved pulleys arranged on said main and counter shafts, substantially as and for the purpose specified.

5. The combination, with the main shaft, of drive-pulleys thereon, clutches for connecting the same, elevator-belts, head and boot pulleys therefor, the pulleys 11 and 14, arranged on the shafts 20 and 16, the idlers 12 and 13, the sprockets 21 and 22, the sprocket-chain 23, passing over the same, the pinion 17 and gear-wheel 18, arranged as described, and the rope drive-belts 15 and 19, substantially as and for the purpose specified.

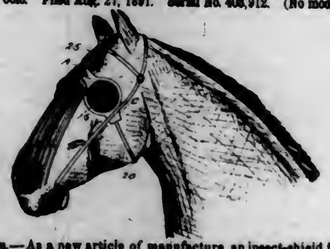
481,151. DEVICE FOR HEATING LIQUIDS. ALEXANDER SELKIRK, Albany, assignor, by mesne assignments, to Robert Whitehill and Daniel Waring, Newburg, N. Y. Filed May 31, 1889. Renewed Jan. 28, 1892. Serial No. 419,544. (No model.)



Claim.—1. In a device for heating liquids, the combination, with a receptacle or vessel for containing steam or other known heating agent, of two or more tubes or pipes contained within the chamber of said steam-receptacle and connecting with oppositely-located liquor-chambers, which are situated exterior to said receptacle and provided with inlet and outlet pipes or openings, and the plugs D, provided each with perforations *d* and secured in said tubes, substantially as and for the purposes set forth.

2. In a device for heating liquids, the combination, with the heads a' and b', having a liquor-chamber between, heads a^2 and b^2, also having between them a liquor-chamber, a cylinder which, together with heads b' and b^2, forms a steam-chamber which has provision for receiving steam, and a series of tubes contained within the said steam-chamber and having their opposite ends communicating with said liquor-chambers, of the plugs D, having in them perforations *d* and secured within said tubes, and provision for the inlet and discharge of liquor, substantially as and for the purpose set forth.

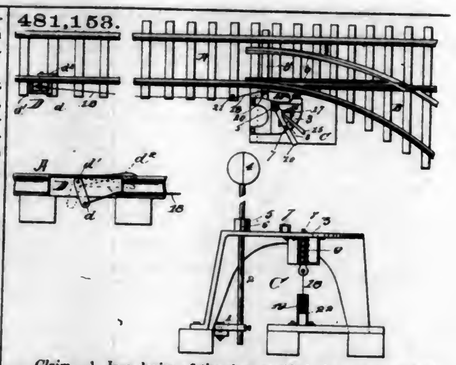
481,152. EYE-PROTECTOR FOR HORSES. JOHN STEELE, Denver, Colo. Filed Aug. 27, 1891. Serial No. 403,912. (No model.)



Claim.—As a new article of manufacture, an insect-shield for animals, consisting of a strip 10, of flexible material, provided with apertures having perforated or foraminated concavo-convex coverings, and a downwardly-extending flexible piece 30, formed integral with or attached to part 10 and consisting of strings adapted to protect the nose of the animal, and suitable means for attaching the device to the head, substantially as described.

481,153. SAFETY-SWITCH. MCDONALD M. TURNER and IRBY H. CRAFT, Atlanta, Ga. Filed Aug. 17, 1891. Serial No. 402,989. (No model.)

481,153.

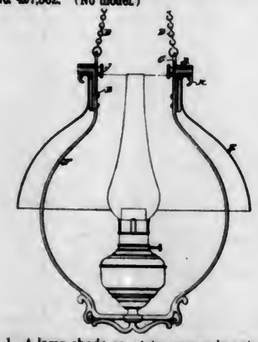


Claim.—1. In a device of the class specified, the combination of the upright crank-shaft, an operating-lever pivoted thereon and having a sliding bolt engaging said shaft on bringing it into forcible contact therewith, a lever pivoted on said operating-lever having its short arm bearing on said sliding bolt when depressed, and means for holding said lever depressed when the switch is set, for the purpose specified.

2. In a device of the class specified, the combination of the gate-rails held normally closed to the main track, the crank-shaft connected therewith, a main lever loosely pivoted upon said shaft, a pin set in said lever and adapted to forcibly contact with said shaft but held normally out of contact therewith, a lever pivoted to said main lever and connected with said pin and operating to press said pin into engagement with the shaft, a segment carried on the frame, a projection adapted to engage the main lever, and a spring-pressed latch adapted to engage and hold said lever stationary relative to the main lever and to disengage same on its depression, substantially as and for the purpose specified.

3. In a device of the class specified, the gate-rail and a tie-bar connecting same, a pulley secured to each of the two adjacent ties, a pulley on said tie-bar offset from between said pulleys on the ties, a rope passing in contact with said pulleys, and a depression-lever connected to said rope and operating to strengthen same upon its depression by increasing its tension, substantially as and for the purpose specified.

481,154. LAMP-SHADE SUPPORT. JOSEPH E. BONNER, Ansonia, Conn., assignor to Wallace & Sons, same place. Filed Apr. 2, 1892. Serial No. 427,562. (No model.)

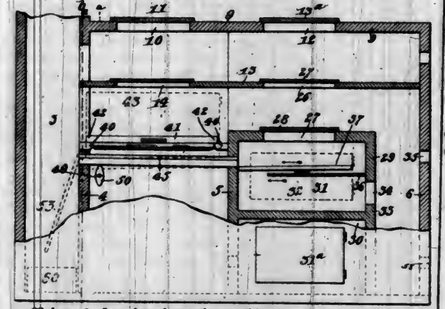


Claim.—1. A lamp shade or globe supporting clamp device consisting of a body-piece adapted in construction and provided with means for attachment to a lamp-harp and to suspension connections, as shank B and eye C, and a jaw adjustable on the body of the clamp and adapted to engage and support a lamp shade or globe, substantially as and for the purpose set forth.

2. In combination in a clamp for supporting a lamp-shade, a body-piece provided with means of attachment to a lamp-harp and to suspension connections, as by shank B and eye C, a jaw movably mounted on the head of the clamp and adapted to engage and support a lamp-shade, and a screw rotatably fixed on the clamp and engaging the said jaw and adapted to adjust the same, substantially as and for the purpose set forth.

3. In combination in a clamp for supporting a lamp-shade, the recessed head A, the adjustable shade-engaging jaw-block and jaw H L, the shank B, adapted to be secured to a lamp-harp, and a suspension attachment, as eye C, constructed and operating substantially as and for the purpose set forth.

481,155. DRY CLOSET. JOHN S. ROSS, Denver, Colo. Filed Dec. 13, 1890. Serial No. 374,642. (No model.)



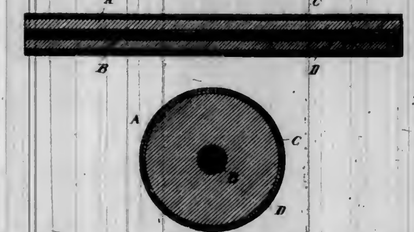
Claim.—1. In a dry closet, the combination, with walls forming a vault, of an apertured cover therefor, a perforated removable pan contained in the said vault below the aperture in the said cover, a furnace contained in one end of the said vault and a stack connected with the other, a combined smoke and urine trough located below the said perforations in the pan and having its opposite ends above the base of the stack and furnace, respectively, and means whereby the elevation of one of the ends of the trough may be changed, substantially as described.

2. In a dry closet, the combination, with a stack, of a furnace connected therewith, a urine-trough having its opposite ends located above the base of the said stack and above the furnace, and means whereby either of the said ends may be caused to be the higher, as may be desired.

3. In a dry closet, the combination, with a removable perforated pan, of a combined smoke and urine trough located below the perforations in the said pan, a stack and a furnace contiguous to the opposite ends of the said trough, evaporating-pans located in the said stack and furnace below the ends of the trough, and a rod having an enlargement thereon below the said trough and adapted to alter the inclination thereof, as described.

REISSUES.

11,259. LEAD PENCIL OR OTHER ARTICLE OF FIBROUS MATERIAL. BYRON B. GOLDSMITH, New York, N. Y. Filed May 27, 1892. Serial No. 433,389. Original No. 447,310, dated Mar. 3, 1891.



Claim.—1. As an improved manufacture, an article having a wooden or other fibrous absorbent surface provided with a coat or coats of pyroxyline varnish and a superimposed coat or coats of ordinary gloss-varnish, substantially as described.

2. As an improved manufacture, an article of wood or of other fibrous absorbent material provided with a tinted coat or coats of pyroxyline varnish and a superimposed coat or coats of ordinary varnish, substantially as described.

3. As an improved manufacture, an article of wood or of other fibrous absorbent material having a polished and tinted coat or coats of pyroxyline varnish upon its exposed surface and a superimposed coat or coats of ordinary varnish upon the pyroxyline, substantially as described.

4. As an improved manufacture, an article of wood or of other fibrous absorbent material having a polished coat or coats of pyroxyline upon its exposed surface and a polished coat or coats of ordinary varnish upon the pyroxyline, substantially as described.

5. As an article of manufacture, a lead-pencil having a coat of pyroxyline upon its exposed surface and a coat of ordinary varnish upon the pyroxyline, substantially as described.

6. As an article of manufacture, a lead-pencil having a tinted coat of pyroxyline upon its exposed surface and a protective coating of ordinary varnish upon the pyroxyline, substantially as described.

7. As an article of manufacture, a lead-pencil having a polished and tinted coat of pyroxyline upon its exposed surface and a protective coating of ordinary varnish upon the pyroxyline, substantially as described.

8. As an article of manufacture, a lead-pencil having a polished coat of pyroxyline upon its exposed surface and a polished coating of ordinary varnish upon the pyroxyline, substantially as described.

11,260. THILL-COUPLING. WILLIAM H. HANNAN, Syracuse, N. Y., assignor to William Herbert Hannan, same place. Filed Sept. 2, 1891. Serial No. 404,565. Original No. 456,117, dated July 14, 1891.



Claim.—1. The combination, with the draft-eye composed of a fixed section and a movable section, of a spring-arm secured at one end and free at the other, a cam-lever pivoted to the free end of said spring-arm, and a tie attached to the cam-lever outside of its fulcrum and connecting the cam-lever with the movable section of the draft-eye, whereby the spring-arm exerts a constant pressure upon the movable section and also holds the cam-lever yieldingly in a locked position, substantially as set forth.

2. The combination, with the axle, of a draft-eye composed of a forwardly-projecting fixed section and a movable section hinged to the front end of the fixed section, a spring-arm secured to the axle and projecting forwardly therefrom, a cam-lever hinged to the free front end of the spring-arm, and a tie attached to the cam-lever outside of its fulcrum and connecting the cam-lever with the hinged section of the draft-eye, substantially as set forth.

3. In combination with the axle-clip, coupling-pin, fixed lower draft-eye section *b*, and the upper eye-section *b'*, hinged to the front of the fixed section, the spring-arm *c*, secured at one end to the clip-tie and extending from the rear thereof forward underneath the same, the cam-lever *d*, hinged to the free end of said spring-arm, and the bail *e*, connected to the cam-lever and adapted to engage the rear end of the hinged eye-section, substantially as set forth.

4. The combination, with the front axle and thill-iron, of the clip-tie C, elongated in the direction lengthwise of the axle and formed at the center of its length with the draft-eye section *b*, axle-clips C C, secured to the two ends of said clip-tie, the draft-eye section *b'*, hinged to the eye-section *b*, the spring-arm clamped between the central portion of the clip-tie and extending from the rear of the clip-tie underneath the same and forward therefrom, the cam-lever *d*, hinged to the free end of said spring-arm, and the bail *e*, connected to said cam-lever and adapted to bear on top of the rear end of the hinged draft-eye section, substantially as described and shown.

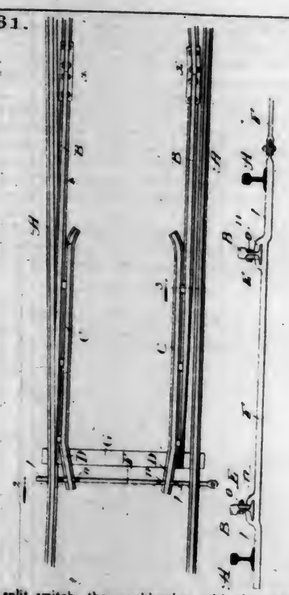
11,261. RAILWAY-SWITCH. AXEL A. STROM, Austin, assignor to the Strom Manufacturing Company, Chicago, Ill. Filed July 22, 1892. Serial No. 440,940. Original No. 457,904, dated Aug. 18, 1891.

Claim.—1. In a split-switch, the combination, with the point-rails, of reinforcing-bars secured to and extending along their inner sides and having their bearing-bases laterally beyond those of the point-rails, substantially as and for the purpose set forth.

2. In a split switch, the combination, with the point-rails, of gage-adjusting horizontally-inward-projecting sections inclining inward from the point-rails and a tie-bar connecting the point-rails at and adjustable on the said sections lengthwise thereof, substantially as and for the purpose set forth.

3. In a split switch, the combination, with the point-rails, of gage-adjusting horizontally-inward-projecting sections inclining toward each other from the point-rails and provided with bolt-holes, perforated plates fitting against the sides of the said sections and bolted thereto, and a tie-bar connecting the point-rails at the said sections and held by the said plates, substantially as and for the purpose set forth.

11,261.

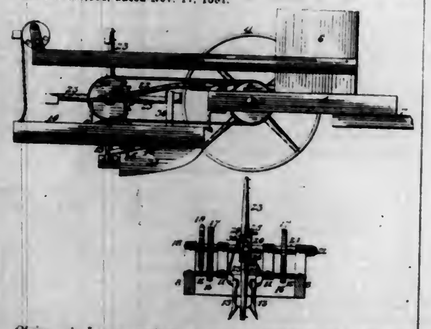


4. In a split switch, the combination, with the point-rails, of guard-rail-shaped reinforcing-rails bolted to and extending along the inner sides of the point-rails and spacers interposed between the point-rails and reinforcing-rails, substantially as and for the purpose set forth.

5. In a split switch, the combination, with the point-rails, of reinforcing-bars secured to the inner sides of said rails and extending beyond the points thereof and a tie-bar connecting the point-rails at the said extensions, substantially as described.

6. In a split switch, the combination, with the point-rails B, of guard-rail-shaped reinforcing-rails C, bolted to and extending along the inner sides and beyond the points of the rails B, bent sections D at the ends of the reinforcing-rails, having holes *q*, perforated plates E, bolted to the said sections through holes *q*, and a tie-bar F, connecting the point-rails at the sections D and engaged by the adjustable plates, substantially as and for the purpose set forth.

11,262. PLANT-TRANSPLANTING MACHINE. GILBERT S. GUNDERSEN, Beloit, Wis. Filed May 21, 1892. Serial No. 433,927. Original No. 463,190, dated Nov. 17, 1891.



Claim.—1. In a transplanting-machine consisting of a rear and front section having a hinge-joint connection, the front section supported upon carrying-wheels and carrying a water-tank, the rear section carrying a furrow-opener, and the plant carrying and watering devices, and a connection between the water-tank and watering device.

2. In a transplanting-machine, the combination of a shaft, a crank on one end thereof, an arm working on a crank-pin at the end of said crank, and an oblique packer-plate at the end of said arm, substantially as described.

3. In a transplanting-machine, the combination, with a packer-arm, of a yielding and resilient connection between said packer-arm and the frame of the machine, substantially as described.

4. In a transplanting-machine, the combination, with a packer-arm, of a two-part arm, one end whereof is pivotally connected to the packer-arm and the other to the frame of the machine, and a spring or yielding connection between the two parts of said arm, substantially as described.

5. In a transplanting-machine, the combination of a revolving tubular arm, jaws at the end of said arm adapted to hold the plant, and a spring adapted to close said jaws upon the plant, substantially as described.

6. In a transplanting-machine, the combination of a revolving tubular arm, jaws at the end of said arm adapted to hold the plant, a spring adapted to close said jaws upon the plant, and means for automatically opening said jaws at the proper position of the revolving arm, substantially as described.

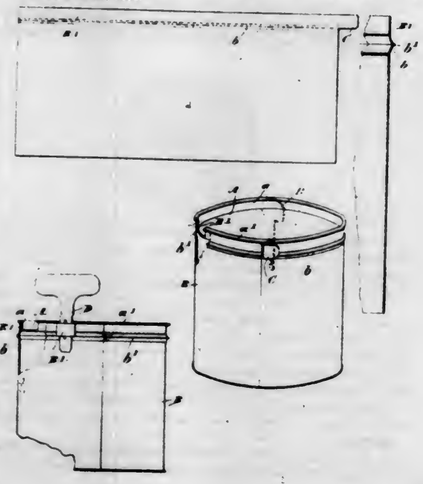
7. In a transplanting machine, the combination, with the tank and hollow hub and water-pipe connection, of a revolving tubular arm adapted to convey water to the plant, a spring-operated device for closing the supply of water, and means for automatically opening said supply against said spring at the proper position of the revolving arm, substantially as described.

11,263. IRIDESCENT STONE OR BODY. JOHN JACOBSON, Boston, Mass. Filed Mar. 31, 1892. Serial No. 427,302. Original No. 467,579, dated Jan. 26, 1892.



Claim.—As a new article of manufacture, the herein-described stone or body having its surface composed of facets, and one or more of said facets being provided with lines equidistant, of uniform thickness, and of sufficient number to the inch to produce iridescence, substantially as described.

11,264. TIN CAN OR RECEPTACLE. WILLIAM PRATT, Montreal, Canada. Filed July 11, 1892. Serial No. 439,732. Original No. 471,736, dated Mar. 29, 1892.



Claim.—1. A tin can or receptacle the cover of which is formed with a peripheral rim shaped in part to fit within the body and to rest upon the edge of same, and the body having an integral detachable connecting strip, to which the inserted portion of such cover is soldered, and means for detaching said strip, as set forth.

2. A tin can or receptacle the cover of which is formed with an upwardly-projecting peripheral rim shaped in part to fit within the body and to rest upon the edge of same, the body having an integral detachable connecting strip, to which the inserted portion of such cover is soldered, and said strip having an extended free end to furnish a holdfast for its removal.

3. A tin can or receptacle the cover of which is formed with a peripheral rim shaped in part to fit within the body and to rest upon the edge of same, and after being soldered to the body is removable therefrom and capable of reuse by the removal from cover and body of a detachable connecting strip provided by an outwardly-pressed V-shaped beading or depression in such body near its upper edge, adapted to be severed at its apex to allow the removal of said strip and present an outwardly-flaring edge for the easy reinsertion of said cover, as set forth.

4. A tin can or receptacle having upon its perimeter a beading, the cross-section of which is of an obtuse or wide V-shaped form in the main with an extended acute apex, for the purposes set forth.

DESIGNS.

21,777. SPOON. JAMES C. BADGER, Concord, N. H. Filed June 10, 1892. Serial No. 436,271. Term of patent 3½ years.

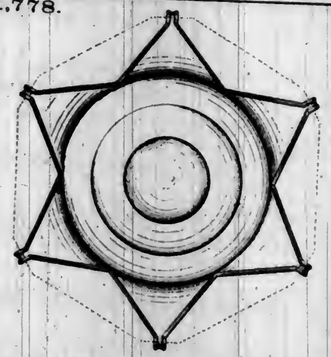


Claim.—The design for a spoon, substantially as shown and described.

21,778. CARRIAGE-LAMP. MARCUS L. DE VOURNEY, Newark, N. J. Filed Feb. 11, 1892. Serial No. 421,111. Term of patent 7 years.



21,778.



Claim.—The design for a carriage-lamp, substantially as shown and described.

21,779. BADGE. LOUIS REICHERT, Scranton, Pa. Filed July 2, 1892. Serial No. 438,830. Term of patent 3½ years.



Claim.—The design for a badge, substantially as described and shown.

21,780. CARRIAGE-STEP. WILLIAM R. WILSON, Columbus, Ohio. Filed June 4, 1892. Serial No. 435,581. Term of patent 3½ years.



Claim.—The design for a carriage-step, as herein shown and described.

TRADE-MARKS

REGISTERED AUGUST 16, 1892.

21,604. SNUFF. BRUTON & CONDON, Nashville, Tenn. Filed June 20, 1892.



Essential feature.—The representation of a growing plant surmounted by a sailing-vessel, a plow, and a sheaf of grain inclosed within the outline of a shield, above which is festooned a spray of vine hanging low on either side and surrounding the letters "B S S." Used since July, 1891.

21,605. FLANGE-PACKINGS. ALFRED WELLS CASE, Highland Park, Conn. Filed June 20, 1892.

ASTAFALTA

Essential feature.—The word "ASTAFALTA." Used since June 20, 1892.

21,606. CIGARS AND CIGARETTES. FOSTER HILSON COMPANY, New York, N. Y. Filed July 8, 1892.



The Hoffman House Bouquet

Essential feature.—The words "THE HOFFMAN HOUSE BOUQUET" and the representation of a satyr surrounded by nymphs. Used since June, 1885.

21,607. PREPARATION FOR SODA-WATER. WILLIAM A. HEINSEIMER, Havana, Ill. Filed June 10, 1892.

LA

Essential feature.—The word "LA." Used since May 1, 1892.

21,608. BISCUITS, CRACKERS, WAFERS, CAKES, AND SIMILAR ARTICLES. HITCHCOCK & Co., Pittston, Pa. Filed May 26, 1892.

21,608.

TID-BIT

Essential feature.—The words "TID-BIT." Used since April 14, 1891.

21,609. BITTER WINE. JOSEPH KOLIN, Chicago, Ill. Filed May 2, 1892.



HOŘKÉ VÍNO

Essential feature.—The representation of a bunch of grapes bearing the monogram of the letters "T K" and the words "HOŘKÉ VÍNO." Used since October 1, 1891.

21,610. VARNISHES AND JAPANS. THE NATIONAL VARNISH COMPANY, New Haven, Conn. Filed June 28, 1892.

National

Essential feature.—The word "NATIONAL." Used since December 16, 1891.

21,611. BATTERY COMPOUNDS. THE WRIGHT UNIVERSAL ELECTRIC COMPANY, New York, N. Y. Filed June 30, 1892.

21,611.

ELECTRIC SAND

Essential feature.—The words "ELECTRIC SAND." Used since June 1, 1892.

21,612. BLOTTING-PAPER. EATON, DIKEMAN & Co., Lee, Mass. Filed July 20, 1892.

COLUMBIAN

Essential feature.—The word "COLUMBIAN." Used since December, 1891.

21,613. BLOTTING-PAPER. EATON, DIKEMAN & Co., Lee, Mass. Filed July 20, 1892.

MAGNET

Essential feature.—The word "MAGNET." Used since December, 1891.

21,614. OIL FABRICS. LYON, HALL & Co., Baltimore, Md. Filed July 14, 1892.



LANCASTER.

Essential feature.—The word "LANCASTER" and the representation of a shield bearing the figures of three lions, a crown surmounting the shield, and a branch on each side. Used since May, 1889.

21,615. LAXATIVE. PHILIP STEINHART, Los Angeles, Cal. Filed Mar. 20, 1891.



Essential feature.—The words "CALIFORNIA FRUIT SYRUP" and the pictorial representation of a cluster or collection of fruit, consisting of dates, grapes, peaches, and prunes, together with a cactus branch and palm. Used since July 1, 1890.

21,616. REMEDY FOR RHEUMATISM. HERMAN SCOTT SEARLE, Tacoma, Wash. Filed Jan. 29, 1891.

S. I. R. C.

Essential feature.—The letters "S. I. R. C." Used since July 1, 1890.

21,617. LOTION FOR THE COMPLEXION. SYLVAN TOILET CO., Port Huron, Mich. Filed Apr. 13, 1892.

BALM OF LILYS

Essential feature.—The words "BALM OF LILYS." Used since September, 1888.

21,618. TOILET SOAP. SYLVAN TOILET CO., Port Huron, Mich. July 18, 1892.

SATIN-SKIN

Essential feature.—The compound word "SATIN-SKIN." Used since April 1, 1891.

21,619. WATERPROOF COLLARS AND CUFFS. THE CELLULOID COMPANY, Newark, N. J. Filed July 12, 1892.

WORLD'S FAIR

Essential feature.—The words "WORLD'S FAIR." Used since May 1, 1892.

21,620. LAGER-BEER. FRED KRUG BREWING COMPANY, Omaha, Nebr. Filed Mar. 15, 1892.



Essential feature.—The representation of a plain glass of beer grasped by a left hand and all inclosed in a circle. Used since November 15, 1880.

21,621. CHEESE. MCCORD, BRADY COMPANY, Omaha, Nebr. Filed July 18, 1892.

PLYMOUTH

Essential feature.—The word "PLYMOUTH" and a monogram composed of the letters "H S C." Used since June 1, 1892.

21,622. EDGE TOOLS. HARRY C. MARSHALL, New York, N. Y. Filed July 21, 1892.

RIVERSIDE TOOL CO.

Essential feature.—The words "RIVERSIDE TOOL CO." Used since November 1, 1891.

21,623. SAWS OF ALL KINDS. E. C. ATKINS & COMPANY, Indianapolis, Ind., Memphis and Chattanooga, Tenn., and Minneapolis, Minn. Filed Dec. 12, 1891.

NEEDLE

Essential feature.—The word "NEEDLE." Used since May, 1890.

21,624. ENAMELED SHEET-METAL WARE. HERMAN AICH, New York, N. Y. Filed July 21, 1892.

ONYX

Essential feature.—The word "ONYX." Used since May 1, 1892.

21,625. WATCHES AND PORTABLE CLOCKS. WEBSTER C. BALL, Cleveland, Ohio. Filed July 22, 1892.

B OF LF

Essential feature.—The letters and word "B OF L F." Used since July 1, 1892.

21,626. WATCHES AND PORTABLE CLOCKS. WEBSTER C. BALL, Cleveland, Ohio. Filed July 22, 1892.

B OF RT

Essential feature.—The letters and word "B OF R T." Used since July 1, 1892.

21,627. VEGETABLE FERMENT FOR THE MANUFACTURE OF WINES. FRANÇOIS CHAVAUTY, Paris, France. Filed June 18, 1892.



Essential feature.—The representation of an anchor. Used since June 1, 1892.

21,628. NOSE AND THROAT DOUCHE. W. C. DOWNEY & CO., Washington, D. C. Filed July 22, 1892.

FIRNOL

Essential feature.—The word "FIRNOL." Used since August 1, 1891.

21,629. MEDICATED COTTON. JAMES W. JOHNSON, New Brunswick, N. J., and New York, N. Y. Filed July 16, 1892.

21,629. LINTINE

Essential feature.—The word "LINTINE." Used since April 1, 1891.

21,630. MEDICATED COTTON. JAMES W. JOHNSON, New Brunswick, N. J., and New York, N. Y. Filed July 16, 1892.

-:-COTTONOID-:-

Essential feature.—The word "COTTONOID." Used since April 1, 1891.

21,631. COMPOUND FOR THE CURE OF RHEUMATISM AND RHEUMATIC GOUT. RICHARD T. LASHTER, New York, N. Y. Filed June 17, 1892.

Rheuma.

Essential feature.—The word "RHEUMA." Used since May 1, 1886.

21,632. PREPARED FOOD FOR ANIMALS. PRATT FOOD COMPANY, Philadelphia, Pa. Filed June 24, 1892.



Essential feature.—A seal bearing the picture in the foreground of a horse leaping a fence with cows and fowls standing about. Used since June, 1887.

21,633. PREPARED FOOD FOR POULTRY. PRATT FOOD COMPANY, Philadelphia, Pa. Filed June 24, 1892.



Essential feature.—The representation of a serrated seal bearing the words "PRATTS POULTRY FOOD." Used since June, 1887.

21,634. PREPARED POULTRY-FOOD. PRATT FOOD COMPANY, Philadelphia, Pa. Filed July 8, 1892.



Essential feature.—The representation of a rooster drawing a cart loaded with eggs upon which a hen is seated. Used since June, 1888.

21,635. DISINFECTING-PAPER. AUGUSTE PONSOT, Paris, France. Filed July 15, 1892.

A. Ponsot

Essential feature.—The fac-simile signature "ATE. PONSOT." Used since July, 1888.

21,636. BOOTS AND SHOES OF ALL KINDS. CHARLES A. RAYMOND, Boston, Mass., and New York, N. Y. Filed July 7, 1892.

21,636. Kumfurt

Essential feature.—The word "KUMFURT." Used since July 1, 1890.

21,637. BITTERS. ROBERT PICKETT BURWELL, Richmond, Va. Filed July 5, 1892.

BURGUNDY  BITTERS

Essential feature.—The representation of a square shield bearing three fleurs-de-lis associated with the words "BURGUNDY BITTERS." Used since June 15, 1892.

21,638. BEER. CONRAD SEIPP BREWING COMPANY, Chicago, Ill. Filed June 30, 1892.



Essential feature.—A circular disk bearing the device of a pair of scales placed upon and across a capital letter "S," formed of barley-heads and hop-leaves. Used since May 17, 1892.

21,639. WEARING-APPAREL, OUTER AND UNDER WEAR, BEDDING, AND THE MATERIALS OF WHICH THEY ARE MADE. DR. JAEGER'S SANITARY WOOLEN SYSTEM COMPANY, New York, N. Y. Filed July 21, 1892.

JAEGER SYSTEM

Essential feature.—The words "JAEGER SYSTEM." Used since April 19, 1887.

21,640. MEDICAL COMPOUND FOR EXTERNAL AND INTERNAL USE FOR SKIN AND BLOOD DISEASES. ELEANOR MCFARLAND, Columbus, Ohio. Filed May 27, 1892.

SAVED.

Essential feature.—The word "SAVED." Used since 1890.

21,641. LIVER-TONIC. HARVEY M. HENDERSON, Chicago, Ill. Filed June 20, 1892.



Essential feature.—The words "HENDERSON'S CALIFORNIA LIVER TONIC," with a disk bearing the words "HENDERSON'S STANDARD PREPARATIONS" and a monogram of the letters "H D H." Used since October 1, 1889.

21,642. SKIRT-FACINGS. MEYERHOF, MARX & SIMONSEN, Manchester, England. Filed July 22, 1892.

Amazon

Essential feature.—The word "AMAZON." Used since December 1, 1876.

21,643. UMBRELLAS AND PARTS THEREOF. SAMUEL FOX & COMPANY, Limited, Sheffield, England. Filed June 2, 1892.

CRUSADE

Essential feature.—The word "CRUSADE." Used since February, 1888.

21,644. TONICS. EUGENE SALBEY, Milwaukee, Wis. Filed June 30, 1892.



Essential feature.—The words "FRED MILLER'S MALTO-CREAM" and the representation of a fan like device formed of barley-heads joined at their bases by a hop-blossom. Used since May 14, 1892.

21,645. LEATHER BOOTS AND SHOES. SOLID OAK SHOE CO., Worcester, Mass. Filed Apr. 11, 1892.

Solid Oak

Essential feature.—The words "SOLID OAK" in script above an extended flourish. Used since January 10, 1892.

21,646. SHOES. CHARLES TREADWELL, St. Paul, Minneapolis, and Duluth, Minn., and West Superior and Ashland, Wis. Filed July 12, 1892.

Tread-Well

Essential feature.—The words "TREAD" and "WELL" separated by a hyphen. Used since March 27, 1885.

21,647. MEDICAL COMPOUNDS FOR THE CURE OF LUNG AND THROAT DISEASES. THE VAPO-CRESOLENE COMPANY, Stanley, N. J., and New York, N. Y. Filed July 23, 1892.

Vapo-Cresolene.

Essential feature.—The words "VAPO-CRESOLENE." Used since April 1, 1879.

21,648. LAMPS AND ACCESSORIES PERTAINING THERETO. THE CLARK BROS. LAMP, BRASS, AND COPPER COMPANY, New York, N. Y. Filed Apr. 30, 1892.

21,648.

U-TRENTON-S

Essential feature.—The word and letters "U-TRENTON-S." Used since July 24, 1891.

21,649. MEDICINAL SIRUP. WILLIAM H. WINSLOW, Pittsburg, Pa. Filed June 30, 1892.

SEMINOLE

Essential feature.—The word "SEMINOLE." Used since January 15, 1892.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE CHAMPNEY.

Decided June 13, 1892.

PATENTABLE IMPROVEMENT—WHAT IS.

Whenever in an art, machine, manufacture, or composition of matter a change, however apparently minute, is made which is not obvious and results in marked advantages, a patentable invention has been produced; and when such a change has remained unmade for a considerable time, in spite of inducements to make it by reason of its value, that is evidence approaching the conclusive that change was not obvious.

APPEAL from Examiners-in-Chief.

ART OF MAKING DIES.

Application of George F. Champney filed December 4, 1889, No. 332,533.

Messrs. Philipp, Munson & Phelps for the applicant.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief denying patentable novelty to the following claims:

1. The process of manufacturing dies, which consists in causing the patrix to move at a high degree of speed and while so moving to strike the die-block, substantially as described.

2. The process of manufacturing dies, which consists in causing the patrix to move at a rate of twenty-five or more feet per second and while moving at such rate to strike the die-block, substantially as described.

3. The process of manufacturing dies, which consists in heating the die-block, protecting the heated die-block from the oxygen of the air, causing the patrix to move toward the die-block at the rate of twenty-five or more feet per second, and exposing the die-block to the patrix at or about the moment of impact, substantially as described.

4. The method of manufacturing dies, which consists in heating a die-block and forming an impression in the heated die-block by the impact of a patrix moving at a high degree of speed, substantially as described.

5. The method of manufacturing dies, which consists in heating a steel or iron and steel die-block and forming an impression in the heated die-block by the impact of a patrix moving at the rate of twenty-five or more feet per second, substantially as described.

6. The method of manufacturing dies, which consists in preparing a suitable die-block, placing the same under a hammer to which the patrix is attached, and dropping the hammer upon the die from an elevation of ten or more feet, substantially as described.

7. The method of manufacturing dies, which consists in heating the die-block, placing it under a hammer to which the patrix is attached, securing it against distortion under the blow of the hammer, and dropping the hammer upon the die-block from such an elevation that when the patrix strikes the die-block it is moving at a high degree of speed, substantially as described.

8. The method of manufacturing dies, which consists in casting the patrix in a suitable mold, constructing of suitable metal, as steel, a solid die-block to receive the impression of the patrix, heating the die-block, causing the patrix to move at a high rate of speed, and while so moving to strike the die block, substantially as described.

9. The method of manufacturing dies, which consists in casting the patrix in a suitable mold, constructing of suitable metal, as steel, a solid die-block to receive the impression of the patrix, heating the die-block, causing the patrix to move at the rate of twenty-five or more feet per second, and while so moving to strike the die-block, substantially as described.

10. The method of manufacturing dies, which consists in casting the patrix in a suitable mold from iron, (including therein steel and iron mixed with steel,) constructing a solid die-block of suitable metal or steel to receive the impression of the patrix, heating the die-block, protecting the surface of the die-block from oxidation while hot, causing the patrix to move at the rate of twenty-five or more feet per second, and while so moving to strike the die-block, substantially as described.

11. The method of manufacturing dies, which consists in preparing a suitable die-block, placing the same under a hammer to which the patrix is attached, dropping the hammer upon the die from such an elevation that when the patrix strikes the die-block it is moving at a high rate of speed, and arresting the descent of the hammer after its rebound, substantially as set forth.

12. The method of manufacturing dies, which consists in preparing a die-block of suitable metal, as steel, heating it, placing it under a hammer, affixing the patrix to the hammer detachably, as by cement, causing the hammer to drive the patrix into the die-block, the connection between the patrix and the hammer being broken by the shock of impact, and permitting the patrix to remain in the die, so as to prevent access of air to the heated surface, substantially as described.

13. The method of manufacturing dies, which consists in preparing a die-block of suitable metal, as steel, heating it, placing it under a hammer, affixing the patrix to the hammer detachably, as by plaster-of-paris, causing the hammer to drive the patrix into the die-block, the connection between the patrix and the hammer being broken by the shock of impact, and permitting the patrix to remain in the die, so as to prevent access of air to the heated surface, substantially as described.

14. The method of manufacturing steel dies, which consists in heating a steel die-block, protecting the heated die-block from the oxygen of the air, causing the patrix to move toward the die-block at a high rate of speed, and exposing the die-block to the patrix at or about the moment of impact, substantially as described.

15. The method of manufacturing dies, which consists in heating a steel die-block, preparing a patrix of a metal which is comparatively soft and easily worked, and causing the patrix to move at a high rate of speed and while so moving to strike the die block, substantially as described.

Applicant has a prior patent disclosing a process much the same as this, except that the patrix has not the "high degree of speed" specified in the claims. That prior patent mentions the use of a "drop-hammer," and as a drop-hammer was used in this art the patrix lacked the high degree of speed which is material to the practice of this process. Other references show drop-hammers having the high degree of speed mentioned; but they were not used, so far as the references show, for the practice of this process. When a process is under consideration, it is not necessarily or generally material that devices may have existed in the prior art by which the process could be practiced. (*Corning* v. *Burden*, 15 How., 252; *Cochrane* v. *Deener*, 11 O. G., 687; 94 U. S , 780.)

Whenever in an art, machine, manufacture, or composition of matter a change, however apparently minute, is made which is not obvious and which results in marked advantages the rule is that a patentable invention has been produced, and when the history of the art is such that the inducement to make the change is very great, by reason of its value, and the change remains unmade for a considerable time that is evidence approaching the conclusive that the change is not obvious. Applicant's improvement answers these t sts.

The decision of the Examiners-in-Chief is reversed, subject to the substitution of the claims which applicant presents by proposed amendment at the hearing,

together with an amendment to the specification, satisfactory to the Examiner in charge, which makes the minimum speed of the patrix not less than twenty-five feet per second.

EX PARTE WOODWARD.

Decided May 12, 1892.

PRACTICE—COURSE OF APPEALS.

Where an applicant who has been in interference seeks, after a decision of priority in his favor, to amend his claims, and the Examiner rejects his amendment as covering matter which applicant has claimed too late, *Held* that the question thus raised is one which should be decided by the Examiners-in-Chief on appeal before it comes to the Commissioner.

ON petition.

LAMP.

Application of George W. Woodward filed September 7, 1889, No. 323,273.

Messrs. Gifford & Broun for the applicant.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition taken from the action of the Examiner holding that—

claims 4, 5, 6, and 7 * * * cannot be entered, as they are made too late. If applicant had desired an interference on the subject-matter of these claims, he should have proceeded under Rule 109.

The petitioner requests that the Examiner be directed—

to enter said claims and pass upon them.

Upon examination of the record it appears that the above-entitled application has been involved in interference with the application of another person, which interference was decided in favor of the present applicant. In the letter declaring the interference it was stated that the issue involved the applicant's claims and—

the claims and case of Charles S. Upton, of New York.

After the decision on the question of priority applicant filed an amendment containing certain claims, numbered 3, 4, 5, 6, and 7.

It appears that claim 3 is substantially the issue of the said interference and that the other claims above mentioned are substantially the claims of Upton involved in said interference.

The Examiner refused to enter claims 4, 5, 6, and 7 for substantially the reason that applicant is estopped by reason of certain proceedings in the interference from inserting or prosecuting in this application any claim to the subject-matter as more broadly stated by Upton. The Examiner's action is therefore in effect a refusal to enter claims which were presumably considered patentable at the time the interference was instituted on the ground that applicant has now no right to make them.

Under all the facts in the case I am of the opinion that the question thus raised is one which should be decided by the Examiners-in-Chief on appeal before a decision is rendered thereon by the Commissioner. The Examiner is therefore directed to enter the claims and reject them for all reasons which in his opinion are grounds for rejection, if he is still of the opinion that Woodward is not entitled to them.

To the foregoing extent the petition is granted, and the case is remanded to the Examiner for action in conformity herewith.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Massachusetts.

HEAD *v.* PORTER.

Decided December 3, 1891.

PATENT—INFRINGEMENT BY A PUBLIC OFFICER IN COURSE OF OFFICIAL DUTY.

Where an officer of the Government, having been sued for the infringement of patents in his official employment, pleads to the jurisdiction and alleges that the Government, being the real defendant, is a necessary party, *Held* that the plea must be overruled and that public employment is not a sufficient defense.

NATURE OF A PATENT RIGHT.

The rights secured to a patentee under his grant from the Government are a form of property in the enjoyment of which he is entitled to protection against all trespassers, including the Government.

Mr. William A. Hayes, 2d, for the complainant.
Mr. Frank D. Allen for the defendant.

COLT, *J.:*

The plea in this case raises the single question of jurisdiction. The suit was originally brought by William S. Smoot, the complainant's intestate, against James G. Benton, an officer of the United States Army, in command of the National Armory at Springfield, Mass., charging him with infringement of two patents, dated, respectively, January 1, 1867, and August 27, 1867, for improvements in cartridge-retractors for breech-loading firearms. Subsequently the defendant died, and thereupon the complainant moved to amend his bill by substituting the present defendant, Porter, master armorer at the Springfield Armory. The amendment was allowed, reserving the right of the defendant to object.

The defendant appeared and without objections filed an answer in the case. The United States attorney, on behalf of Porter, urges this circumstance as tending to show that this suit is in substance, though not in form, against the United States; but I fail to see the force of this argument. The complainant on the death of Benton might have proceeded against his representatives; but he chose to sue the present defendant, who consents to be substituted for Benton. The suit therefore stands as if originally brought against Porter.

The defendant admits that since the date of the patents and before the filing of the bill he has superintended and still superintends the making of breech-loading firearms at the Springfield Armory, as the master armorer; but he alleges that all his acts in relation thereto have been done in obedience to specific orders from the Secretary of War and his superior officers, directing the construction thereof, and in no other way. In other words, his defense is that he has acted only as the agent of the Government and under its authority.

The subject-matter of this suit is a patent issued by the United States, and it became important at the outset to determine the nature of this grant. It has been authoritatively declared by the Supreme Court that the right of a patentee under Letters Patent was exclusive of the United States and that it stands on the same footing as other property. (*James* v. *Campbell*, 21 O. G., 337; 104 U. S., 356; *Hollister* v. *Benedict Manufacturing Co.*, 113 U. S., 59.) Assuming the allegations of the bill to be true, this is a suit where the property rights of an individual have been invaded by an officer or agent of the United States, acting under its direction, and the question is whether this court has jurisdiction in such a suit.

In cases where this general subject has come before the Supreme Court the proposition is admitted that the United States, as the sovereign power, cannot be sued without its consent. I need only cite on this point *United States* v. *Lee*, (106 U. S., 196;) but it is not to be inferred from this that this court has not jurisdiction in an action where an officer or agent of the United States is sued for property in his possession as such officer or agent or for injury to the person or property of another where the defense is that he acted under the orders of the Government.

In *United States* v. *Peters* (5 Cranch, 115) the United States District Court of Pennsylvania in an admiralty proceeding decided that the libelants were entitled to the proceeds of the sale of a vessel condemned as prize of war, which had come into the hands of David Rittenhouse as Treasurer of Pennsylvania. The district judge declined to enforce the decree against the representatives of Rittenhouse on the ground that the funds were held as the property of that State, and that as she could not be subjected to judicial process neither could the officer who held the money in her right. An application for a writ of mandamus to compel the district judge to enfore the decree was granted.

In *Meigs et al.* v. *McClung's Lessee* (9 Cranch, 11) the suit was for land on which the United States had a garrison and had erected a fort. The defendants were military officers in possession, and they insisted that no action could be brought against them because the land was occupied by the United States for the benefit of the United States and by their direction. The court held that the title being in the plaintiff, he might sustain his action.

Wilcox v. *Jackson* (13 Pet., 498) was a suit against officers of the United States to recover possession of land which had been in the possession of the Government for over thirty years. The Court do not consider the question whether such an action could be maintained, but proceed to decide the question of the plaintiff's title.

In *Osborn et al.* v. *Bank of the United States* (9 Wheat., 738) the State of Ohio had levied a tax upon a branch of the bank located in Ohio. One hundred thousand dollars was seized by Osborn, the Auditor of the State, and delivered to the Treasurer of the State. In a suit by the bank both were made parties defendant. Objections were raised to the jurisdiction of the court on the ground that the State of Ohio was the real party in interest; that the parties defendant were her officers, and that they were sued for acts done in their official capacity and in obedience to her laws. These objections were overruled.

Chief-Justice Marshall says, on page 842:

If the State of Ohio could have been made a party defendant, it can scarcely be denied, that this would be a strong case for an injunction. The objection is, that, as the real party cannot be brought before the court, a suit cannot be sustained against the agents of that party; and cases have been cited, to show that a court of chancery will not make a decree, unless all those who are substantially interested, be made parties to the suit. This is certainly true, where it is in the power of the plaintiff to make them parties; but if the person who is the real principal, the person who is the true source of the mischief, by whose power and for whose advantage it is done, be himself above the law, be exempt from all judicial process, it would be subversive of the best established principles to say that the laws could not afford the same remedies against the agent employed in doing the wrong, which they would afford against him could his principal be joined in the suit.

Again, he says:

The process is substantially, though not in form, against the State. * * * and the direct interest of the State in the suit as brought is admitted; and had it been in the power of the bank to make it a party, perhaps no decree ought to have been pronounced in the cause, until the State was before the court. But this was not in the power of the bank. * * * A denial of jurisdiction forbids all inquiry into the nature of the case. * * * It asserts that the agents of a State, alleging the authority of a law void in itself, because repugnant to the Constitution, may arrest the execution of any law in the United States.

Grisar v. *McDowell* (6 Wall., 363) was an action to recover possession of land brought against General McDowell as an officer of the United States. The land had been reserved for military purposes by the Government. The objection that this suit was brought against a military officer of the United States for property belonging to the United States and set apart for public use, and that therefore it was substantially a suit against the Government, was not passed upon by the court; but the court proceeded to determine the question of title as between the plaintiff and the Government.

Brown et al. v. *Huger* (21 How., 305) is a similar case.

In *Davis* v. *Gray* (16 Wall., 203) the State of Texas having made a grant of alternate sections of land along which a railroad should thereafter be located and the railroad having been located through it, a suit was brought against the Governor of the State and Commissioner of the Land Office, and they were enjoined from delivering patents of the sections of land which belonged to the railroad company. The objection to the jurisdiction of the court was disposed of on the authority of *Osborn* v. *Bank of United States.*

The court says:

Where the State is concerned, the State should be made a party if it could be done. That it cannot be done is a sufficient reason for the omission to do it, and the court may proceed to decree against the officers of the State in all respects as if the State were a party to the record. In deciding who are parties to the suit the court will not look beyond the record. Making a State officer a party does not make the State a party, although her law may have prompted his action and the State may stand behind him as the real party in interest. A State can be made a party only by shaping the bill expressly with that view, as where individuals or corporations are intended to be put in that relation to the case.

While this language is cited in support of the majority opinion of the Court in *United States* v. *Lee*, Mr. Justice Miller in that case says he is not prepared to admit that—

the Court can proceed against the officer in all respects as if the State were a party.

And in *Cunningham* v. *Macon & Brunswick R. R. Co.* (109 U. S., 446) the same eminent judge, speaking for a majority of the Court, declares that while the action of the court in *Davis* v. *Gray* has not been overruled—

it is clear that in enjoining the Governor of the State in the performance of one of his executive functions the case goes to the verge of sound doctrine, if not beyond it, and that the principle should be extended no further.

In the leading case of *United States* v. *Lee* (106 U. S., 196) the action was ejectment to recover the possession of lands to which the plaintiff, Lee, claimed title.

The defendants were in possession as officers of the Government. The Attorney-General suggested to the Court, without making the United States a party, that the property in controversy, known as "Arlington Cemetery," had been for more than ten years and now is held, occupied, and possessed by the Government, through its officers and agents, who are in the actual possession thereof as public property of the United States.

To sustain this defense, the Court held that it was necessary to show that the defendants were in possession under the United States by virtue of some valid authority, and the contrary appearing judgment was awarded to the plaintiff.

After reviewing the authorities Mr. Justice Miller says:

> This examination of the cases in this Court establishes clearly this result: that the proposition that when an individual is sued in regard to property which he holds as officer or agent of the United States, his possession cannot be disturbed when that fact is brought to the attention of the Court, has been overruled and denied in every case where it has been necessary to decide it, and that in many others where the record shows that the case as tried below, actually and clearly presented that defense, it was neither urged by counsel nor considered by the Court here. though, if it had been a good defense, it would have avoided the necessity of a long inquiry into plaintiff's title and of other perplexing questions, and have quickly disposed of the case.

Mr. Justice Miller then proceeds to discuss certain expressions in the opinion of the Court in *Carr* v. *United States*, (98 U. S., 433,) and he says:

> As these remarks were not necessary to the decision of the point then in question, as the action was equally inconclusive against the United States, whether the persons sued were officers of the Government or not, these remarks, if they have the meaning which counsel attribute to them, must rest for their weight as authority on the high character of the judge who delivered them, and not on that of the court which decided the case. That the United States are not bound by a judgment to which they are not parties, and that no officer of the Government can, by defending a suit against private persons, conclude the United States by the judgment, was sufficient to decide that case, and was all that was decided.

Looking at the question upon principle, he continues:

> It seems to be opposed to all the principles upon which the rights of the citizen, when brought in collision with the acts of the Government, must be determined. In such cases there is no safety for the citizen, except in the protection of the judicial tribunals, for rights which have been invaded by the officers of the Government, professing to act in its name. * * * The position assumed here is that, however clear his rights, no remedy can be afforded to him when it is seen that his opponent is an officer of the United States, claiming to act under its authority; for, as Mr. Chief-Justice Marshall says, "to examine whether this authority is rightfully assumed is the exercise of jurisdiction, and must lead to the decision of the merits of the question." * * * The defense stands here solely upon the absolute immunity from judicial inquiry of every one who asserts authority from the executive branch of the Government, however clear it may be made that the Executive possessed no such power. Not only no such power is given, but it is absolutely prohibited, both to the executive and the legislative, to deprive any one of life, liberty, or property, without due process of law, or to take private property without just compensation.

Poindexter v. *Greenhow*, one of the Virginia coupon cases, (114 U. S., 270,) was an action of detinue for personal property distrained by the defendant, as Treasurer of the State of Virginia, for delinquent taxes, in payment of which the plaintiff had tendered coupons cut from bonds issued by the State under the funding act of March 30, 1871. By the terms of that act the coupons after maturity were receivable for all taxes and debts due the State. It was held that this created a contract between the coupon-holder and the State, and that any subsequent act of the State which forbids the receipt of these coupons is in violation of the contract and void as against coupon-holders. Upon the question now under consideration Mr. Justice Matthews, speaking for the majority of the Court, says:

> It is next objected, that the suit of the plaintiff below could not be maintained, because it is substantially an action against the State of Virginia, to which it has not assented. It is said that the tax-collector, who is sued, was an officer and agent of the State, engaged in collecting its revenue, under a valid law, and that the tax he sought to collect from the plaintiff was lawfully due; that, consequently, he was guilty of no personal wrong, but acted only in an official capacity, representing the State, and, in refusing to receive the coupons tendered, simply obeyed the commands of his principal, whom he was lawfully bound to obey; and that if any wrong has been done, it has been done by the State in refusing to perform its contract, and for that wrong the State is also reliable, but is exempted from suit by the eleventh article of amendment to the Constitution of the United States.

The opinion then proceeds to answer these objections in the light of the adjudged cases in the Supreme Court, reliance being placed especially on *United States* v. *Lee* and *Osborn* v. *Bank of United States*. In the course of this discussion it is said:

> A defendant sued as a wrong-doer, who seeks to substitute the State in his place, or to justify by the authority of the State, or to defend on the ground that the State had adopted his act and exonerated him, cannot rest on the bare assertion of his defense. He is bound to establish it. The State is a political corporate body, can act only through agents, and can command only by laws. It is necessary, therefore, for such a defendant, in order to complete his defense, to produce a law of the State which constitutes his commission as its agent, and a warrant for his act. This the defendant, in the present case, undertook to do. He relied on the act of January 26, 1882, requiring him to collect taxes in gold, silver, United States treasury notes, national-bank currency, and nothing else, and thus forbidding his receipt of coupons in lieu of money. That, it is true, is a legislative act of the government of Virginia, but it is not a law of the State of Virginia. The State has passed no such law, for it cannot; and what it cannot do, it certainly, in contemplation of law, has not done. The Constitution of the United States, and its own contract, both irrepealable by any act on its part, are the law of Virginia; and that law made it the duty of the defendant to receive the coupons tendered in payment of taxes, and declared every step to enforce the tax, thereafter taken, to be without warrant of law, and therefore a wrong. He stands, then, stripped of his official character, and, confessing a personal violation of the plaintiff's rights for which he must personally answer, he is without defense.

It was accordingly directed that judgment be rendered for the plaintiff.

In *Cunningham* v. *Macon & Brunswick R. R. Co.* (109 U. S., 446) this general question was discussed and the cases in which the court had taken jurisdiction, where the objection was interposed that the suit was substantially against the State, and that therefore the State was a necessary party, were examined and classified. The second class of cases is stated by Mr. Justice Miller as follows:

> Another class of cases is where an individual is sued in tort for some act injurious to another in regard to person or property, to which his defense is that he has acted under the orders of the Government. In these cases he is not sued as, or because he is, the officer of the Government, but as an individual, and the court is not ousted of jurisdiction because he asserts authority as such officer. To make out his defense he must show that his authority was sufficient in law to protect him. (*Mitchell* v. *Harmony*, 13 How., 115; *Bates* v. *Clark*, 95 U. S., 204; *Meigs* v. *McClung*, 9 Cranch, 11; *Wilcox* v. *Jackson*, 13 Pet., 498; *Brown* v. *Huger*, 21 How., 305; *Grisar* v. *McDowell*, 6 Wall., 363; *United States* v. *Lee*, 106 U. S., 196.)

This language is cited with approval in *Poindexter* v. *Greenhow*.

In reviewing the cases involving the general principle now under consideration the fact should not escape observation that the judges of the Supreme Court have been much divided in opinion. The leading cases of *United States* v. *Lee* and the Virginia coupon cases were decided by a bare majority of the Court, four of the judges dissenting in each case. But, notwithstanding this diversity of opinion, I think it is not going too far to say that the doctrine enunciated by Mr. Justice Miller, under the second head of his classification in *Cunningham* v. *Macon & Brunswick R. R. Co.*, has become the established law of the Supreme Court, and it is under this head the present case falls. It cannot be said that the Supreme Court have authoritatively decided the identical question raised in this case, of the

right of a patentee to maintain a suit in tort for the infringement of a patent right against an individual whose defense is that all his acts in relation thereto were done as an officer or agent of the Government and in obedience to its orders.

Cammeyer v. *Newton* (11 O. G. 287; 94 U. S., 225) was an action brought for the infringement of a patent, and one of the defenses set up was that of use, if any, which the defendant had made of the patented improvement was done under the direction of the United States and as its agent or officer. Mr. Justice Clifford, speaking for the Court, says on this point:

> Public employment is no defense to the employé for having converted the private property of another to the public use without his consent and without just compensation.

After reference to the clause in the Constitution which provides that private property shall not be taken for public use without just compensation and to the section of the patent act giving the patentee the exclusive right to make, use, and vend to others his invention or discovery for a certain term of years he then proceeds:

> Agents of the public have no more right to take such private property than other individuals under that provision, as it contains no exception warranting any such invasion of the private rights of individuals. Conclusive support to that proposition is found in a recent decision of this Court, in which it is held that the Government cannot, after the patent is issued, make use of the improvement any more than a private individual, without license of the inventor or making him compensation (*United States* v. *Burns*, 12 Wall., 246.)

The question of infringement is then considered and determined against the patentee. This opinion does not discuss the objection which has been raised in this class of cases to the jurisdiction of the Court, and in view of the subsequent expressions of the Court in *James* v. *Campbell* (21 O. G., 337; 104 U. S., 356) and *Hollister* v. *Benedict Manufacturing Co.* (113 U. S., 59) it can hardly be deemed conclusive of the question.

James v. *Campbell* was a suit brought upon a patent against James, a public officer, to respond for the use of the patented machine. The circuit court rendered a decree in favor of the complainant. (*Campbell* v. *James*, 18 O. G., 979; 17 Blatchf., 42.)

After admitting the exclusive right of the patentee in the invention, which the Government itself cannot use without just compensation, unless by consent, the opinion then proceeds:

> But the mode of obtaining compensation from the United States for the use of an invention, where such use has not been by the consent of the patentee, has never been specifically provided for by any statute. The most proper forum for such a claim is the Court of Claims, if that court has the requisite jurisdiction. As its jurisdiction does not extend to torts, there might be some difficulty, as the law now stands, in prosecuting in that court a claim for the unauthorized use of a patented invention; although where the tort is waived, and the claim is placed upon the footing of an implied contract, we understand that the court has, in several recent instances, entertained the jurisdiction. * * * If the jurisdiction of the Court of Claims should not be finally sustained, the only remedy against the United States, until Congress enlarges the jurisdiction of that court, would be to apply to Congress itself. The course adopted in the present case, of instituting an action against a public officer, who acts only for and in behalf of the Government, is open to serious objections. We doubt very much whether such an action can be sustained. It is substantially a suit against the United States itself, which cannot be maintained under the guise of a suit against its officers and agents, except in the manner provided by law. We have heretofore expressed our views on this subject in *Carr* v. *United States*, (98 U. S., 433,) where a judgment in ejectment against a Government agent was held to be no estoppel against the Government itself; but as the conclusion which we have reached in this case does not render it necessary to decide this question, we reserve our judgment upon it for a more fitting occasion.

The Court then proceeds to discuss the patent and to decide the case upon its merits against the patentee.

It is to be noticed that this case is prior to *United States* v. *Lee* and the Virginia coupon cases; also, that the foregoing remarks of Mr. Justice Bradley concerning the jurisdiction of the Court are based upon *Carr* v. *United States*. In *United States* v. *Lee* the language of the Court in *Carr* v. *United States* is commented upon, and it is said that the decision in that case did not properly extend to certain remarks of the Court. It may also be observed that Mr. Justice Bradley was among those members of the Court who dissented in *United States* v. *Lee* and that he wrote the dissenting opinion in the Virginia coupon cases.

The more recent case of *Hollister* v. *Benedict Manufacturing Co.* (113 U. S., 59) was a suit to enjoin the infringement of a patent, and one of the defenses relied upon was that all the acts of the defendant complained of in the bill were done by him in the discharge of his duties as collector of internal revenue of the United States and by direction of the Commissioner of Internal Revenue and that he had acted as collector by virtue of legal appointment by the President of the United States.

Mr. Justice Matthews, speaking for the Court, refers to the doubts expressed in *Campbell* v. *James* whether such a suit against public officers could be sustained or whether a suit upon an implied promise of indemnity might not be prosecuted against the United States in the Court of Claims, and then says:

> If the right of the patentee was acknowledged, and, without his consent, an officer of the Government, acting under legislative authority, made use of the invention in the discharge of his official duties, it would seem to be a clear case of the exercise of the right of eminent domain, upon which the law would imply a promise of compensation, an action on which would lie, within the jurisdiction of the Court of Claims such as was entertained and sanctioned in the case of *United States* v. *Great Falls Manufacturing Co.*, (112 U. S., 645.) And it may be, that, even if the exclusive right of the patentee were contested, such an action might be brought in that court, involving all questions relating to the validity of the patent; but, as we have concluded to dispose of the present appeal upon other grounds, it becomes unnecessary to decide the question arising upon this defense.

The opinion then proceeds to discuss the patent and to dispose of the case against the contention of the patentee.

It is at least doubtful whether the present action could be brought in the Court of Claims. In its present form it is an action in tort and not upon any contract, express or implied, and, as was said by Mr. Justice Bradley in *James* v. *Campbell*, the jurisdiction of that court does not extend to torts. While the Supreme Court have declined to pass upon the question of jurisdiction in these cases, they have assumed jurisdiction and disposed of each case on its merits. In other words, no case can be found where the Court has dismissed the suit for want of jurisdiction, and this would seem to be sufficient ground in this case to overrule the plea and allow the case to be heard upon bill, answer, and proofs. If, however, the principle established in the cases we have reviewed and the rule laid down by Mr. Justice Miller in *Cunningham* v. *Macon & Brunswick R. R. Co.* is sound, it is difficult to see why the court has not jurisdiction in the present case.

This is an action of tort for the infringement of a patent brought against an individual who is an officer or agent of the United States and whose defense is that he acted under orders of the Government. That this is no defense in actions of this general character has, as we have seen, been repeatedly held by

the Supreme Court, and the objection interposed that these suits are substantially against the Government, and that therefore it is a necessary party to enable the court to grant relief, has been many times urged without avail. The rights secured to a patentee under his grant from the Government are a form of property in the enjoyment of which he is entitled to protection against all trespassers, including the Government. To deprive him of the full enjoyment of these rights by using his invention without his consent is to deprive him of his property without just compensation or due process of law, and therefore in conflict with those provisions of the Constitution which secure this protection to the citizen.

I am of the opinion, therefore, that the plea in this case should be overruled.

Plea overruled.

U. S. Circuit Court—Eastern District of Missouri, Eastern Division.

MARSH *v.* QUICK MEAL STOVE COMPANY.

Decided April 25, 1892.

1. PATENT—INFRINGEMENT—ACTIONS AT LAW—JURY TRIALS.
The question of the construction of the claims of a patent is the province of the court and does not rest with the jury.
2. CONSTRUCTION OF CLAIMS.
Where a claim of a patent reads "In a gasoline-stove, etc.," and then enumerates a number of other elements, the words "In a gasoline-stove" will be understood as including the well-known essential elements of such stoves, and to enable the plaintiff to recover the other elements of the claim or their substantial equivalents must be all found in the defendant's stove.
3. SAME.
Where the claim of a patent contains as an element a commingling-chamber capable of accomplishing two purposes, which are fully set forth in the patent, (such chamber being in addition to the commingling-chambers common to all gasoline-stoves,) and the defendant's stoves have only the ordinary commingling-chambers, *Held* that the combination of the claim is not present in defendant's stove.
4. LICENSEE—COVENANT.
A licensee who covenants not to dispute the validity of a patent under which he is licensed will not be permitted to do so; but the burden is nevertheless on the licensor to show that the licensee has operated under his license, and in the absence of such proof the licensor cannot recover.

STATEMENT OF THE CASE.

Letters Patent of the United States were issued to James A. Marsh, February 22, 1887, No. 358,284. On the 10th day of March, 1887, the Quick Meal Stove Company took a license under the patent, agreeing to pay a stipulated royalty on all stoves made by the company under the Marsh patent. An action at law under the license was brought by Marsh to recover royalties upon certain stoves made by the Quick Meal Company, which Marsh maintained came under his patent, while the Quick Meal Company contended they did not.

The claim of the patent involved reads as follows:

1. In a gasoline-stove, a retort, a commingling-chamber, and a duct connecting said retort and said chamber, in combination with a side burner and a communicating pipe between the said chamber and the side burner, whereby ignited gas may be carried from one to the other, as and for the purpose set forth.

The defendant's stove contained only the ordinary commingling-chambers, with a tube between the burners, which communicated with one of the commingling-chambers and which served as an automatic lighting device between the burners.

At the close of plaintiff's evidence defendant asked the court to direct the jury to find for the defendant on the ground that the plaintiff had not made out a *prima facie* case.

Messrs. Fisk & Allen and *Mr. Edward J. O'Brien* for the complainant.

Mr. George H. Lothrop, Mr. George H. Knight, and *Messrs. Lubke & Muench* for the defendant.

THAYER, *J.*:

I have given this case such an examination as I have been able to in the short time that has elapsed since the plaintiff closed his case, and I have come to the following conclusion:

It is the province of the court to construe the claims of the patent that has been offered in evidence. That construction of course is to be made in the light of such expert testimony as has been offered. In the Marsh patent the commingling-chamber D is both described and claimed as a distinct and independent part (having special functions) of the combination covered by the first claim of the Marsh patent. The commingling-chamber is provided with a separate needle-valve (marked on the drawing C) to operate it, and both the commingling-chamber and the accompanying needle-valve seem to be necessary to enable the automatic lighting-tube F to perform one of the functions that the inventor had in view—that is to say, the function of heating the side burner K for initial lighting purposes. Now, it may be true, and and I think it is true, that the commingling-chamber in the Marsh patent, with its valve C, is a useless device; but the fact remains that it has been described with great detail and is clearly claimed as an integral part of the Marsh combination or invention. His patent must, accordingly, be limited to a combination containing that part—that is to say, to a combination containing a commingling-chamber in addition to the ordinary commingling chamber or chambers attached to the burners. In the Quick Meal stove this separate and independent commingling-chamber is wanting. It is obvious that the relighting-tube in both modes of construction acts upon the same principle and subserves the same purpose. In the Quick Meal stove the tube is continuous from one light to the other, while in the Marsh stove it is broken and passes the flame through the commingling-chamber and out through the small orifice that is marked "*b*" on the drawing; but this concession does not alter the fact that Marsh has described and claimed a part not found in the "Quick Meal" mode of construction. Having so described and claimed it, it becomes one of the necessary elements of his combination, though it is practically useless. The licensee, the defendant in this case, is not here alleging that the Marsh patent is void. That he could not do under his license. He simply says:

I have not used the patented device covered by my license;

and there is no evidence, in the opinion of the court, to show that he has used it.

The result is that you gentlemen of the jury, will be directed to return a verdict in favor of defendant.

Plaintiff thereupon took a non-suit, with leave.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 60.---No. 8. TUESDAY, AUGUST 23, 1892. PRICE---$5 per year.

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World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Protection of Foreign Exhibitors.

DEPARTMENT OF STATE,
Washington, D. C., July 30, 1892.

To the Diplomatic and Consular Officers of the United States:

GENTLEMEN: I subjoin a transcript of the act of Congress approved April 6, 1892, Public No. 29, entitled "An act to protect foreign exhibitors from prosecution for exhibiting wares protected by American patents and trade-marks," which reads as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That no citizen of any other country shall be held liable for the infringement of any patent granted by the United States, or of any trade-mark or label registered in the United States, where the act complained of is or shall be performed in connection with the exhibition of any article or thing at the World's Columbian Exposition at Chicago.

You will transmit copies of this circular to the government of the country to which you are accredited, and ask that it be given the widest possible circulation for the information of those directly concerned.

I am, gentlemen, your obedient servant,

JOHN W. FOSTER,
Secretary of State.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 4, 1892.

Official copy to the Commissioner of Patents for his information and guidance.

E. M. DAWSON,
Chief Clerk.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

This order does not include the written statements of the grounds of decisions made by Examiners to the appellate tribunal in *ex parte* cases.

Issue of August 23, 1892.

Patents	386	No. 481,156 to No. 481,541, inclusive.
Designs	21	No. 21,781 to No. 21,801, inclusive.
Trade-Marks	42	No. 21,650 to No. 21,691, inclusive.
Labels	None.	
Reissues	1	No. 11,265.
Total issue	450	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Nevada	1	.....
Arizona Territory	.....	.....	New Hampshire	1	.....
Arkansas	1	.....	New Jersey	21	7
California	11	.....	New Mexico Territ'y	.....	.....
Colorado	4	.....	New York	65	10
Connecticut	14	.....	North Carolina	2	.....
Delaware	.....	.....	North Dakota	.....	.....
District of Columbia	2	1	Ohio	26	2
Florida	2	.....	Oregon	1	.....
Georgia	2	.....	Pennsylvania	36	5
Idaho	.....	.....	Rhode Island	5	.....
Illinois	42	4	South Carolina	2	.....
Indian Territory	.....	.....	South Dakota	1	.....
Indiana	10	..	Tennessee	3	1
Iowa	8	.....	Texas	7	.....
Kansas	8	.....	Utah Territory	1	.....
Kentucky	4	.....	Vermont	3	.....
Louisiana	3	.....	Virginia	5	.....
Maine	3	1	Washington	1	.....
Maryland	5	.....	West Virginia	.....	.....
Massachusetts	30	3	Wisconsin	8	.....
Michigan	14	.....	Wyoming	.....	.....
Minnesota	3	.....	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	19	1			
Montana	.....	.....	Total to citizens of the United States	371	35
Nebraska	2	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Austria-Hungary	.....	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	.....	.....
Bermuda	.....	.....	New Zealand	.....	.....
British Guiana	.....	.....	Norway	1	.....
Canada	7	4	Porto Rico	.....	.....
Chile, Republic of	.....	.....	Queensland	.....	.....
Cuba	.....	3	Russia	.....	.....
Denmark	.....	.....	Scotland	1	.....
Ecuador	.....	.....	South Australia	.....	.....
England	11	.....	Spain	.....	.....
France	3	.....	Sweden	.....	.....
Germany	10	.....	Switzerland	.....	.....
Guatemala	.....	.....	Victoria	1	.....
Hawaii	.....	.....	West Indies	1	.....
Ireland	.....	.....			
Italy	.....	.....	Total to citizens of foreign countries	36	7
Mexico	1	.....			

APPLICATIONS UNDER EXAMINATION.

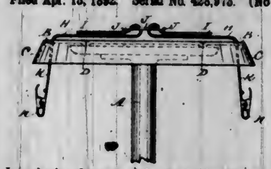
Condition at Close of Business August 16, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	June 16	Aug. 10	65
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	June 23	Aug. 5	126
8	Furniture, Toilet, Umbrellas and Canes, etc.	June 23	Aug. 3	214
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	June 18	July 26	184
	Between two and three months in arrears.			
16	Telegraphy, Telephony, Electric Lighting and Signaling.	June 7	Aug. 9	185
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	June 3	Aug. 6	296
21	Textiles, etc.	May 26	Aug. 5	179
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	May 23	Aug. 4	268
23	Instruments of Precision, Acoustics, Optics, etc.	May 20	Aug. 1	284
2	Farm Stock, Products, etc	May 23	July 26	303
12	Mechanical Engineering, Store-Service, etc.	May 26	July 22	206
24	Sewing-Machines and Apparel	May 21	July 19	119
22	Fire-Arms, Navigation, Signals, etc.	May 18	July 18	232
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 1	July 13	236
32	Advertising, Baggage, Packing and Storing Vessels, etc.	May 17	July 13	332
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	June 3	July 8	190
18	Steam-Engineering, etc	May 26	July 5	228
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	June 2	July 2	287
5	Fine Arts, Stationery, Book-Binding, Music, etc.	May 28	July 1	223
	Between three and four months in arrears.			
10	Carriages and Wagons and Railway-Cars.	May 5	July 20	552
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	May 10	July 19	302
9	Hydraulics, Fire-Extinguishers, etc.	May 13	July 15	360
17	Paper-Manufactures and Printing.	May 11	July 8	195
4	Civil Engineering, etc.	Apr. 22	July 1	428
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Apr. 18	June 25	335
1	Tillage and Fences	May 2	June 11	277
	Between four and five months in arrears.			
7	Harvesters, Games and Toys	Apr. 4	July 27	472
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Apr. 5	July 18	409
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 8	June 6	514
19	Stoves and Furnaces	Apr. 1	May 20	461
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Mar. 4	Aug. 11	380
26	Electricity, Generation, Distribution, etc.	Mar. 8	July 11	418
	Total number of applications awaiting action			9,910
	Under one month in arrears.			
	Designs	Aug. 9	Aug. 9	28
	Trade-Marks	Aug. 16	Aug. 12	3

PATENTS

GRANTED AUGUST 23, 1892.

481,156. HAT-SUPPORTER. WILLIAM APPLEGATH, Hamilton, Canada. Filed Apr. 13, 1892. Serial No. 428,973. (No model.)



Claim.—In a device for suspending hats, the thin circular metallic plate B, with flange C and one or more circular indentations D and elongated slots E, diametrically opposite to each other, in combination with the suspension-bands H, with buckle J for lengthening or shortening purposes, and clips K to attach to the inner or sweat band of hats, substantially as specified and set forth.

481,157. SUSPENSION DEVICE. GEORGE W. BALDWIN, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed May 6, 1892. Serial No. 432,060. (No model.)



Claim.—1. In a suspension device, in combination, an arbor, a spring-actuated drum on said arbor, a chain on said drum, a loop on said arbor and capable of vertical motion in relation thereto, and a brake-lever, one end of which engages with said loop, its other end acting upon said drum, substantially as described.

2. In a suspension device, in combination, an arbor, a spring-actuated drum on said arbor, a chain on said drum, a loop on said arbor and capable of vertical motion in relation thereto, a brake-lever, one end of which engages with said loop, its other end acting upon said drum, and means, as a nut, for regulating the motion of said brake-lever, substantially as described.

3. In a suspension device, in combination, an arbor, a spring-actuated drum on said arbor, a chain on said drum, a loop on said arbor and capable of vertical motion in relation thereto, a brake-lever, one end of which engages with said loop, its other end acting upon said drum, and a disk interposed between said brake-lever and said drum, substantially as described.

4. In a suspension device, in combination, an arbor, a spring-actuated drum upon said arbor, a chain on said drum, a loop on said arbor and capable of vertical motion in relation thereto, a brake-lever, one end of which engages with said loop, its other end acting upon said drum, a disk interposed between said brake-lever and said drum, and a washer interposed between said disk and said drum, substantially as described.

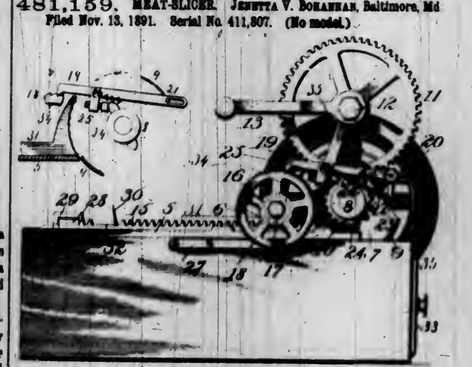
481,158. PENHOLDER. WILLIAM B. BLALOCK and JAMES A. MUIR, Huntsville, Tex. Filed Jan. 26, 1892. Serial No. 419,367. (No model.)

Claim.—The combination, in a penholder, of a staff with tenoned end, a portion of which is cut out of its upper surface with a downward bevel to its lower end, a beveled slide adapted to fit and slide upon the beveled cut in the staff, said slide being provided with a slight



shoulder upon its upper side and a hole through the same for a screw or pin, a tube longitudinally slotted inclosing said staff and slide, a tube of such inner circumference as to inclose the slotted tube end of staff and slide, said outer tube provided with a hole adapted to receive a screw or pin, said screw or pin passing through the hole in the outer tube, through the slot in the inner tube, and into the hole in the slide all substantially as set forth.

481,159. MEAT-SLICER. JENETTA V. BONAHAN, Baltimore, Md. Filed Nov. 13, 1891. Serial No. 411,807. (No model.)



Claim.—1. The combination, in meat-slicers, of one or more blades set spirally upon heads fixed to a rotary shaft and a table located with its forward end close to the cylinder of rotation of the knives and having a narrow guide rising from that side at its front end which is the base of a wedge formed between one of the said spiral knives and the table, substantially as described.

2. The combination of a table having a narrow guide standing at one side of the forward edge, one or more knives fixed spirally upon heads journaled to revolve across the said forward end of the table, and an automatically-propelled meat-carriage upon the table having a transverse arm and a spur-armed head-block fitted to slide freely upon the said arm, substantially as described, whereby meat upon the said head-block will be held from twisting on the table and yet be free to adjust itself transversely for its side irregularities to follow the said guide.

3. The combination, in meat-slicers, of a shaft provided with cutting-blades and fitted to revolve in bearings, and further provided with a number of wipers corresponding to the number of blades, a table and a meat-carriage thereon, the carriage being provided with a feed-rack, a pinion journaled upon the frame to engage the said rack and provided with a ratchet-wheel, a pawl slotted and thereby mounted upon a stud of the frame and adapted to engage the ratchet-wheel, a

tappet upon the pawl in the path of the said wipers, and a spring connecting the pawl with a fixture of the frame to act with an impulse oblique to the line of the pawl, the wipers bearing such relation to the knives as to advance the meat between the knives and not against their faces.

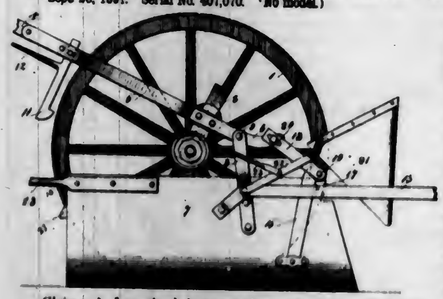
4. The combination, in meat-slicers, of a table, a shaft provided with spiral knives at the end of the table and with a series of wipers corresponding to the knives in number, a carriage fitted to slide upon the table and provided with a feed-rack, a pinion-wheel to engage the rack and provided with a ratchet-wheel, a pawl to engage the ratchet-wheel and mounted for longitudinal motion upon the frame, a tappet longitudinally adjustable on the pawl in the path of the said wipers, and a spring for retracting the pawl, substantially as described.

5. The combination of a table, a meat-carriage mounted to slide thereon and provided with a feed-rack, a pinion to engage the said rack, knives mounted upon a shaft at the end of the table, and mechanism communicating feed motion between the said shaft and pinion, a space being left at the end of the said rack in which the pinion revolves freely when the carriage reaches the forward end of its path, substantially as described.

6. The combination, in meat-slicers, of a table, a carriage thereon, a ratchet and pinion for feeding the carriage, a pawl to propel the ratchet, and a frictional detent acting against the ratchet, substantially as described.

7. The combination, in meat-slicers, of a table, a cutter-blade hung to move past the end of the table with its edge carried at an angle to the plane thereof, and a horn fixed to the table at the base of a wedge formed by the angle of the blade and table and curved in the form of a segmental arc nearly parallel with the cylinder of revolution of the blade and slanted inward, substantially as described.

481,160. ROAD-SCRAPER. JAMES M. BROOKS, Molena, Ga. Filed Sept. 28, 1891. Serial No. 407,070. (No model.)



Claim.—1. In a wheeled scraper, the combination, with a carriage having an arched axle and a lever adapted to tilt said arched axle, of a scraper-pan suspended from said lever, a hood adapted to fit over the front end of the scraper-pan, hood-supports pivotally connected with the scraper-pan, and devices connecting the hood to the arched axle, whereby the hood will be operated by the tilting of the arched axle to cover or uncover the front of the scraper-pan, substantially as and for the purpose specified.

2. In a wheeled scraper, the combination, with a carriage having an arched axle and a lever adapted to tilt said arched axle, of a scraper-pan suspended from said lever, a hood adapted to fit over the front end of the scraper-pan, hood-supports pivotally connected to the scraper-pan, and devices connecting the hood to the arched axle, whereby said hood will be automatically lifted from the scraper-pan when the arched axle is tilted forward and lowered in front of the pan when the axle is moved to an approximately perpendicular position, substantially as described.

3. The combination, with a carriage having an arched axle and a lever rigidly secured to the downwardly-extending portion of the arched axle, of a scraper-pan swung from said lever and adapted to be lowered to rest upon the ground by elevating the lever and to be lifted from the ground by the depressing of the lever, a hood adapted to fit over the forward portion of the scraper-pan, straps pivotally connecting the hood to the scraper-pan, and devices connecting the hood to the arched axle, whereby said hood will be automatically lifted from the scraper-pan when the lever is elevated and to be lowered to its position over the front of the scraper-pan when the lever is depressed, substantially as and for the purpose specified.

4. The combination, with a carriage having an arched axle and a lever 4, having arms 5, rigidly secured to the downward-extending portion of said arched axle, said arms having forward extensions, of a scraper-pan pivotally swung from said extensions, a hood adapted to fit over the forward end of said scraper-pan, straps pivotally connecting said hood with the sides of the scraper-pan, and means for connecting said straps to the arched axle, whereby the hood will be lifted when the lever 4 is elevated and will be lowered when the lever 4 is depressed, substantially as described.

5. The combination, with a carriage having an arched axle and a lever rigidly secured to the downward-extending portion of said arched axle, of a scraper-pan pivotally swung from said lever, a hood adapted to fit over the forward end of said scraper-pan, straps pivotally connecting said hood with the sides of the scraper-pan, and rods connected at one end to said straps and at the other end movably connected to said arched axle, the arrangement being such that when the lever is elevated the hood will be raised and when the lever is depressed the hood will be lowered to its position over the front of the scraper-pan, substantially as described.

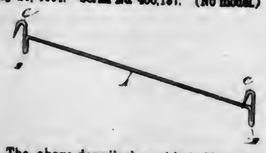
6. The combination, with a carriage having an arched axle and a lever secured to said arched axle, of a scraper-pan pivotally swung from said lever, draft-bail connected to the sides of said scraper pan, a hood adapted to fit over the front portion of the scraper-pan, straps pivotally connecting said hood with the sides of the scraper-pan, said straps being of such shape that the forward portions will rest upon the draft-bail, whereby the weight of the hood will be supported by the draft-bail, and devices for raising and lowering said hood, substantially as described.

7. The combination, with a carriage having an arched axle and a lever 4, having arms 5, rigidly secured to the downwardly-extending portion of said arched axle, said arms having forward extensions 6, of a scraper-pan 7, pivotally swung from said extensions 6, a hood 21, adapted to fit over the forward end of said scraper-pan, straps 22, pivotally connecting said hood with the sides of the scraper-pan, rods 23, connected at one end to the straps 22 and at the other end passing through holes in lugs 24 upon the arched axle, said rods being adapted to move freely in said holes, and nut 25 upon the ends of said rods to prevent the rods moving out of said holes, substantially as and for the purpose specified.

8. The combination, with a carriage having an arched axle and a lever secured to said arched axle, of a scraper-pan pivotally swung from said lever, straps 15, pivotally secured at their lower ends to the sides of the scraper-pan and having hooks 16 at their upper ends, a draft-bail having lugs 17 thereupon adapted to be engaged by the hooks 16, and straps 18, connecting the upper ends of the straps 15 with said lever and so adjusted that when the lever is raised the hooks 16 will engage the lugs 17 and when the lever is depressed the hooks will be withdrawn from engagement with the lugs, substantially as and for the purpose specified.

9. The combination, with a carriage having an arched axle and a lever 4, having arms 5, secured to said arched axle, each of said arms having a forward extension 6, of a scraper-pan, standards 8, secured at their lower ends to said pan and at their upper ends pivotally secured to the extensions 6, straps 15, pivotally secured at their lower ends to the sides of the scraper-pan and having hooks at their upper ends, a draft-bail 13, having lugs 17, adapted to be engaged by the hooks 16, and straps 18, connecting the upper ends of the straps 15 with the extension 6, said straps 18 being so adjusted that when the lever 4 is raised the hooks 16 will engage the lugs 17 and when said lever is depressed the hooks 16 will be withdrawn from engagement with the lugs 17, substantially as and for the purpose specified.

481,161. NAPKIN-HOLDER. ISAAC T. BROWN, Columbus, Ind. Filed July 20, 1891. Serial No. 400,187. (No model.)

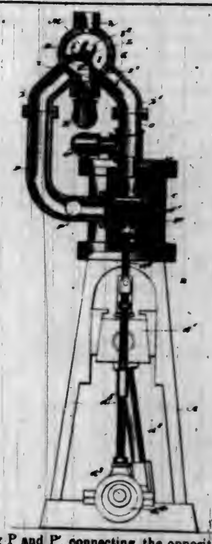


Claim.—The above-described napkin-holder, consisting of the straight bar A, bent downward at each end at right angles, then doubled upon itself in parallel planes, so as to form the pair of short handles B B, and then bent in planes at right angles to the handles to form a pair of pointed hooks C C, all as shown and described.

481,162. REVERSING-VALVE. JAMES CLARK, Medina, N. Y. Filed Dec. 31, 1891. Serial No. 416,696. (No model.)

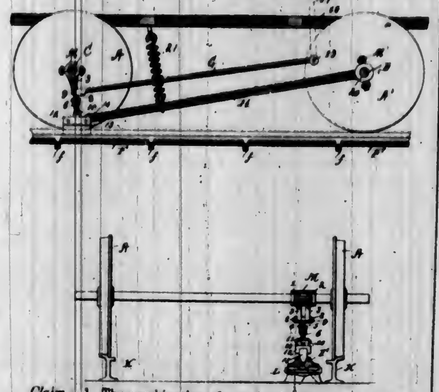
Claim.—In a reversing-valve, the combination, with opposite steam-chests having central and end steam-ports and hollow annularly-grooved valves moving in said chests, of a cylindrical valve-casing supported above and away from said steam-chests and having opposite bottom alternating exhaust and steam ports, and a central piped exhaust-port between said opposite alternating ports, piping O and O', connecting one of said alternating ports with the end ports of both

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steam-chests, piping P and P', connecting the opposite port with the central ports of said steam-chests, an oscillating two-way plug mounted within said casing and provided with concaved sides and bottom forming opposite regulating-wings moving over said alternating ports to connect either one of the same with the piped exhaust, and an upper squared seat or recess intermediate of said wings, an operating-shaft journaled in said casing and having a squared portion resting in said seat, and a lever connected to said shaft, substantially as set forth.

481,168. CAR-BRAKE. CHARLES A. DAHLSTROM, Chicago, Ill. Filed Dec. 23, 1891. Serial No. 415,965. (No model.)



Claim.—1. The combination of a car having two or more trucks, a toggle-joint the upper arm of which is pivotally connected with said car and the lower arm thereof provided with a shoe adapted to engage in a longitudinal slot or groove of a railway-rail, a rigid bar or rod pivotally attached at one end to said shoe and at the other end pivotally attached to said car, a rigid bar or rod pivotally connected at one end to said toggle-joint and at the other end to an operative lever, an operative lever pivotally attached to said car, a railway-track having rails for the wheels of said car, and a third rail provided with a longitudinal slot or groove in its upper face, adapted to engage with said shoe, whereby by means of said lever said shoe may be lowered and elevated into and from engagement with said slot or groove in said third rail, all substantially as shown.

2. The combination of a car having two or more trucks, a toggle-joint the upper arm of which is pivotally connected with said car and the lower arm thereof provided with a shoe having a truncate V-shaped face adapted to engage in a longitudinal slot or groove of a railway-rail, a rigid bar or rod pivotally attached at one end to said shoe and at the other end to said car, a second rigid bar or rod pivotally connected at one end to said toggle-joint and at the other end to an operative lever, an operative lever pivotally connected to said car and also to said second bar or rod, a railway-track having rails for the wheels of said car, and a third rail provided with a longitudinal slot or groove with inclined surfaces adapted to engage with said shoe, all substantially as shown.

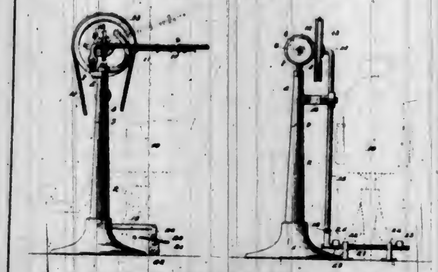
3. The combination of a car having two or more trucks, a toggle-joint the upper arm of which is provided with a collar connected with and carried loosely upon one of the axles of said car and the lower arm thereof provided with a shoe adapted to engage in a longitudinal slot or groove of a railway-rail, a rigid bar or rod pivotally attached at one end to said shoe and at the other provided with a collar which connects with and is carried loosely upon an axle of said car, a second rigid bar or rod pivotally connected at one end to said toggle-joint and at the other end to an operative lever, an operative lever pivotally connected to said car and also to said second bar or rod, a railway-track having rails for the wheels of said trucks, and a third rail provided with a longitudinal slot or groove adapted to engage with said shoe, all substantially as shown.

4. In a car brake employing a shoe and a third rail with a longitudinal slot or groove adapted to engage with said shoe, a toggle joint the upper arm of which is provided with a collar M, having the depending lugs 3, and the piece 4, having a tongue connecting with the lugs 3 by a bolt 9, the shank 7 being screw-threaded to engage with the screw-threaded bore of part 6 and being provided with a screw threaded nut 5 to retain the adjustment between parts 4 and 6, 6 being provided with a tongue to engage with the lugs 10 of the clamp 12, which carries the shoe 13, all substantially as shown.

5. In a car-brake, the toggle-joint the upper arm of which is pivotally connected with the car and the lower arm provided with a shoe adapted to engage with a longitudinal slot or groove in a third rail, a rigid bar or rod connected pivotally at its respective ends with said shoe and with said car, a second bar or rod pivotally connected at its respective ends with said toggle-joint and with an operative lever attached to said car, an operative lever, a third rail provided with a longitudinal slot or groove adapted to engage with said shoe, and a spring connected with said first-mentioned bar or rod and with said car, all substantially as shown.

6. In a car-brake, a shoe supported by a toggle-joint attached to the car, in combination with a rail having a slot or groove in its upper surface capable of engaging with said shoe, and means for operating said toggle-joint and engaging and disengaging said shoe with said rail, all substantially as shown.

481,164. DENTAL ENGINE. FRANK A. DAMON, Fitchburg, Mass. Filed July 16, 1891. Serial No. 399,708. (No model.)



Claim.—1. A dental engine provided with a tool-shaft, a friction driven wheel thereon, a pivoted arm, and a driving friction-wheel arranged on one end of said arm and by it adjustable with relation to the driven wheel to bring the point of contact between the two wheels to opposite sides of the center of the driving-wheel to change the direction of motion and capable of having its center brought opposite the driven wheel to stop the tool-shaft, the parts being combined and operating as set forth.

2. The combination, in a dental engine, of the tool-shaft, a friction-wheel mounted thereon, a second friction-wheel having a depressed center, a pivoted arm carrying the second friction-wheel, the frictional contact being between the circumference of the first and the side surface of the second wheel, and means to vibrate said arm, as set forth.

3. The combination, in a dental engine, of a tool-shaft, a friction-wheel thereon, a second friction-wheel, with whose side surface the circumference of the first wheel engages, a pivoted arm upon which the second wheel is mounted, a treadle, and connections between the pivoted arm and the treadle, whereby the position of the second wheel

with relation to the first is controlled from the treadle, as and for the purpose set forth.

4. In combination, the column consisting of the upper and lower parts connected by a swivel-joint, the friction-wheel carrying the tool-shaft and pivotally mounted on the upper part of the column, the side friction-wheel driven from a suitable motor, the lever upon which said wheel is mounted, also pivoted to the upper part of the column, the horizontal bar connected to the pivoted arm at one end, and the treadle-shaft having crank-arm, to which said horizontal bar is connected at its opposite end, as and for the purpose set forth.

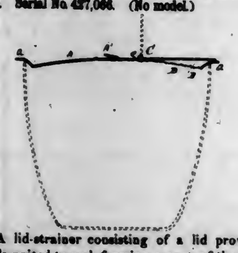
481,165. DEEP-WATER FISHING-TACKLE. SAMUEL C. DARROW, Traverse City, Mich. Filed Mar. 2, 1891. Serial No. 383,996. (No model.)



Claim.—1. In a fishing-reel, the combination of a frame, a line-spool mounted in said frame, a guide-spool rotatably mounted in vertically-movable supports, and a spring for maintaining said guide-spool in an elevated position, substantially as described.

2. In a fishing-tackle, the combination of a frame, a line-spool mounted on said frame, means for rotating said spool, a catch upon said spool, a spring adapted to engage in said catch, and a guide-spool adapted to engage in said catch, and a guide-spool adapted to engage the line rotatably mounted in vertically-movable supports, and a spring for maintaining said guide-spool in an elevated position against the strain on the line, substantially as described.

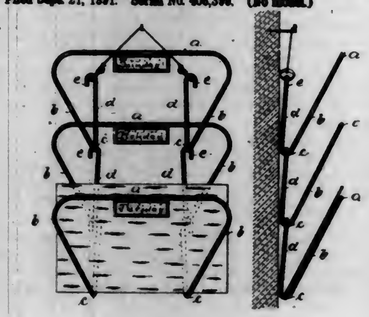
481,166. LID-STRAINER. HANNAH S. DIACK, Detroit, Mich. Filed Mar. 30, 1892. Serial No. 427,066. (No model.)



Claim.—1. A lid-strainer consisting of a lid provided with a strainer, side walls united to and forming a part of the lid, bounding the strainer laterally, and a hinged cover located over the strainer and closing down upon said side walls, substantially as set forth.

2. A lid-strainer consisting of a lid formed with a raised rim at its periphery and provided with a strainer located within said rim, walls D D', united to and forming a part of the lid, located at the sides of the strainer, and a hinged lid closing down at its sides upon said walls and at its front edge upon said rim and forming a chamber between the lid and the underlying walls, rim, and strainer, substantially as described.

481,167. PAPER-HOLDER. LEOPOLD ELIAS, Kosten, Germany. Filed Sept. 21, 1891. Serial No. 406,390. (No model.)



Claim.—1. A paper-holder consisting of single pieces which are bent to a U shape and the ends whereof are provided with hooks *e e* and which are connected one with another by means of the hooks *e e* and of the bends *e e*, for the purpose described.

2. A paper-holder consisting of single pieces of wire which are bent to a U shape and the ends whereof are provided with hooks *e e* and which are connected one with another by means of the hooks *e e* and of the bends *e e*, for the purpose described.

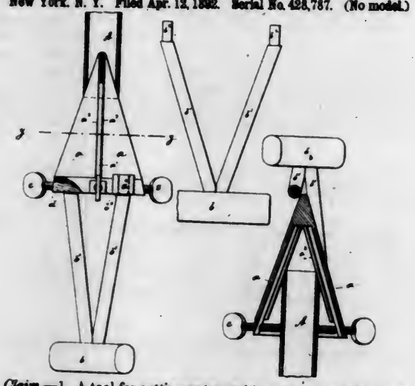
3. A paper-holder consisting of single pieces of wire which are bent to a U shape and the ends whereof are provided with hooks *e e* and with tablets in the middle part of the cross-bar *a* and which are connected one with another by means of the hooks *e e* and of the bends *e e*, for the purpose described.

481,168. COMBINED VISE, PIPE-TONGS, AND CUTTER. JOHN ELLIS, Stockton, Cal. Filed Dec. 11, 1891. Serial No. 414,771. (No model.)



Claim.—A combined vise, pipe-tongs, and cutter consisting, essentially, of the threaded handle B, the threaded nut A^2, the serrated curved jaw E, the guide-bar A^4, secured to the nut A^2, the sliding clutch A', the convex block G, and the block H, supplied with the revolving cutter I, and with the pin *k*, substantially as specified.

481,169. TAPERING-TOOL FOR LEAD PIPES. MAX FRITSCHE, New York, N. Y. Filed Apr. 12, 1892. Serial No. 428,787. (No model.)



Claim.—1. A tool for cutting outer and inner tapers on pipes and consisting of a slotted cone having both outwardly and inwardly operating cutting-edges, substantially as specified.

2. The combination of a slotted cone *a*, having outwardly and inwardly operating cutting-edges a^3 a^4, and lugs a^4, with a reversible handle adapted to be engaged by said lugs, substantially as specified.

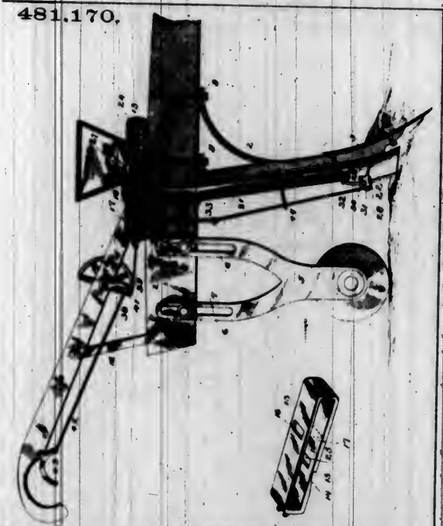
3. The combination of a slotted cone *a*, having outwardly and inwardly operating cutting-edges with a reversible handle and with centering-screws *c*, substantially as specified.

481,170. CORN AND SEED PLANTER. ADAM GRIESENER, Pueblo, Colo. Filed Dec. 2, 1891. Serial No. 413,792. (No model.)

Claim.—1. In a corn and seed planter, the combination, with a suitable seed-hopper, of a seed-slide consisting of an open frame arranged longitudinally beneath the hopper and provided with a seed-opening in its upper member and an independent seed-opening in its lower and parallel member, a rigid block arranged in the frame and having a vertical seed-opening coinciding with a passage in the plow-beam, a spring arranged between the end of said block and the end of the frame and normally drawing said frame in one direction, and means for moving it in an opposite direction to cause the seed-opening in its upper member to coincide alternately with the opening in the hopper-bottom and with the vertical opening in the block and to cause the opening in the lower member to coincide with the passage in the block, and a passage in the beam at the moment the hopper or seed-opening coincides with the opening in the upper bottom, substantially as specified.

2. In a corn and seed planter, the combination, with a rigid hopper having a discharge-opening in its bottom, of a seed-slide consisting of

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an open frame arranged to slide upon one of its sides upon the plow-beam, its lower side being provided with an under-cut and a seed-opening, and its upper side with a seed-opening, a rigid block filling a portion of said frame and having a seed-passage with which the openings in the frames alternately coincide, a seed-valve arranged in a seed-tube which communicates with a passage in the beam, a spring-actuated rod connected to the valve-lever, and having a friction-wheel riding on the frame and upon the inclined face of the under-cut therein, a spring moving the frame in one direction, and means for giving longitudinal movement thereto in an opposite direction, substantially as and for the purposes specified.

3. In a corn and seed planter, the combination, with a stationary hopper having a discharge-opening, of a seed-slide consisting of an open rectangular frame sliding upon one of its sides on the beam and directly beneath the hopper, a rigid block partly filling said open frame and having a vertical opening wherewith openings in the upper and lower members of the frame coincide alternately by the longitudinal movement of the frame, a spring arranged between the end of said block and the end of the frame, a seed-valve pivoted in a seed-tube communicating with a passage in the beam and with that in the block, a rod or bar lying in a seat in the beam and connected to the valve-lever, its head rising into a chamber in the beam beneath the frame, a friction-wheel journaled on said rod and bearing on the lower face of the frame, which is provided with an under cut, a spring raising said rod, a lever pivoted on one of the handles and connected to an arm on a shaft behind the hopper, and a segment-pulley on said shaft having a flexible connection to the frame, substantially as and for the purposes specified.

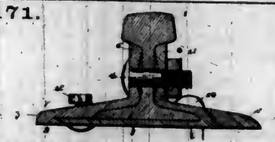
4. In a corn and seed planter, the combination, with a seed-hopper, of a seed-slide consisting of two parallel connected parts sliding between the hopper and the beam, a block lying between said parts and having a passage which is caused by the longitudinal movement of the said parts to alternately coincide with the openings in the upper and lower parallel parts, respectively, a spring arranged between the end of said block and the end of the frame and moving said parts in one direction, and a hand-lever connected to said parts for imparting movement in the opposite direction, substantially as and for the purposes specified.

481,171. RAILROAD-JOINT. URBAN H. HANE, Lakeland, Fla. Filed Apr. 14, 1892. Serial No. 429,132. (No model.)



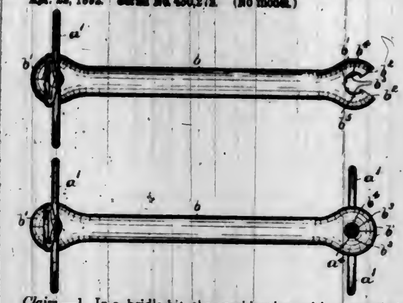
Claim.—In a rail-joint, the combination, with the rails, of an outer angular fish-plate provided with an integral bottom plate extending entirely across the lower faces of the rails and beyond the same and forming a solid seat and having its outer edge beveled, the inner fish-plate provided on its lower face with a beveled flange receiving the

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beveled edge of the bottom plate and securely locking the parts, horizontal bolts passing through the fish-plates and the webs of the rails, spikes passing through the fish-plates and securing the same to cross-ties, those spikes adjacent to the nuts of said bolts preventing the nuts from turning, and vertical bolts passing through the inner fish-plate and the bottom plate and securing the parts together, substantially as described.

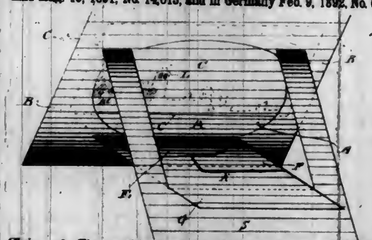
481,172. BRIDLE-BIT. CHARLES E. HEINER, Newark, N. J. Filed Apr. 22, 1892. Serial No. 430,272. (No model.)



Claim.—1. In a bridle-bit, the combination, with a mouthpiece having jaws *b'* and ribs b^3, of a cheek-piece and a mouthpiece-bar a^3, provided with a narrower portion a^4, forming shoulders or offsets a^5, and said jaws on said mouthpiece being closed down about said narrower portion a^4, and said shoulders or offsets a^5 engaging with the flat surfaces b^4 of said ribs b^3, all of said parts being arranged and combined substantially as and for the purposes set forth.

2. In a bridle-bit, the combination, with a mouthpiece having jaws *b'* and ribs b^3, said ribs being adapted when said jaws are closed down upon each other to form an open square and a circular recessed portion b^5 on each side of said square, of a cheek-piece and a mouthpiece-bar a^3, provided with a narrower portion a^4, which is square in cross-section, forming shoulders or offsets a^5, and said jaws on said mouthpiece being closed down about said narrower portion a^4, and said shoulders or offsets a^5 engaging with the flat surfaces b^4 of said ribs b^3, and said circular recesses b^5 encircling the portions of the mouthpiece-bar a^3 adjacent to said narrower portion a^4, all of said parts being arranged and combined substantially as and for the purposes set forth.

481,173. CHRISTMAS-CARD. CARL HEYMANN, Berlin, Germany. Filed Mar. 22, 1892. Serial No. 426,025. (No model.) Patented in England Aug. 19, 1891, No. 14,013, and in Germany Feb. 9, 1892, No. 61,857.



Claim.—1. The combination, in a Christmas greeting-card or the like, of a picture having different parts of different degrees of transparency with a reflecting-card hinged to reflect light on the back of said picture, the said card having on its face pieces of colored foil adapted to reflect light upon the back of said picture for the production of effects of lighting appropriate to the subject of said picture, substantially as described.

2. In a Christmas greeting-card or the like, the combination of a slightly-translucent paper A, having a picture and having part thereof cut away, a non-translucent card B, a very translucent paper C, filling the cut-away parts of the picture, certain non-covered puncture or

punctures L, permitting direct view of the reflecting-back through paper A, and a reflecting-back G, having colored foils thereon, as and for the purpose specified.

481,174. HYDRAULIC FEED FOR WOOD-PULP MACHINES.

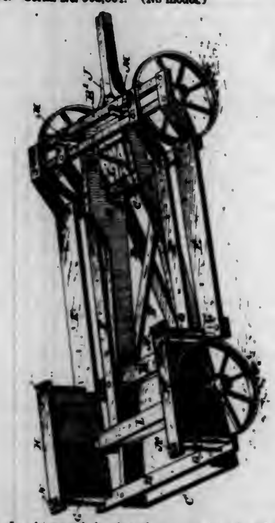
JOHN T. HORTON, Lowville, N. Y. Filed Apr. 24, 1890. Renewed Feb. 15, 1892. Serial No. 421,634. (No model.)



Claim.—In a hydraulic feed for wood-pulp grinders, the combination, with a pressure-cylinder having passages connected with the opposite ends, of two independent water-supply pipes, a single water-discharge pipe, and an interposed four-way valve adapted to connect one of the passages with the proper supply-pipe and the remaining passage with the discharge-pipe, substantially as and for the purpose set forth.

481,175. HAY-RACK.

HENRY S. HOY, Louisville, N. Y. Filed May 8, 1891. Serial No. 392,001. (No model.)



Claim.—1. In a hay-rack having the rear axles placed above the longitudinal frame-timbers of said rack and the forward end of said rack adapted to fit over and be used with the forward running-gear of an ordinary farm-wagon, the combination of converging framing-planks having a vertical offset near the forward end of each, cross-bars fastening in position said framing-planks, longitudinal boarding for supporting the load, and a short reach for attaching the framework to the axle.

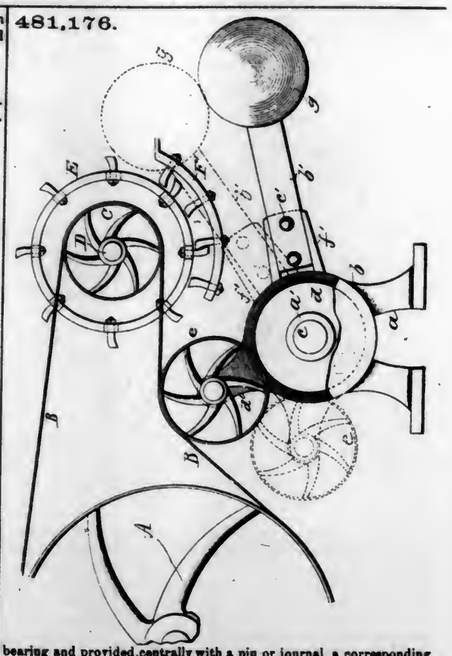
2. In a hay-rack, the combination of the converging framing-planks A A, having a vertical offset near the forward end of each, the upper cross-bars B B' B' B³ B³, and the lower cross-bars O O O, the axle-tree I, hung over the framing-planks A A, as shown, the braces D D, the longitudinal boarding E E E E, the short reach K, and the wheel-guards O O, all arranged substantially as shown and described.

481,176. BELT-TIGHTENER FOR THRASHING-MACHINES.

EDWARD HUBER, Marion, Ohio. Filed Feb. 1, 1892. Serial No. 419,961. (No model.)

Claim.—A belt-tightener consisting, essentially, of a stationary plate or disk having a flat inner face adapted to form an extended

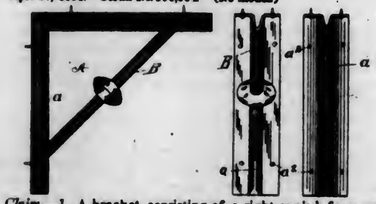
481,176.



bearing and provided centrally with a pin or journal, a corresponding movable plate or disk provided, also, with a flat inner face adapted to engage and have an extended bearing upon the inner face of the stationary plate or disk, said movable plate or disk having an opening which receives the pin or journal of the stationary plate or disk, whereby the movable plate or disk has an axial bearing and a bearing at right angles to the axis, an arm on the movable plate or disk, supporting an idle pulley or wheel adapted to bear on the belt, a weight-arm approximately at right angles to the wheel or pulley-supporting arm, and a weight having a shank secured to the weight-arm, substantially as set forth.

481,177. BRACKET.

DAVID M. IRELAND, Detroit, Mich. Filed Apr. 27, 1891. Serial No. 390,534. (No model.)



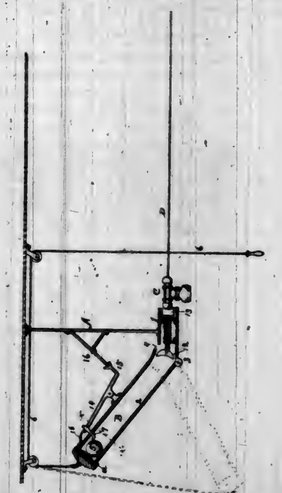
Claim.—1. A bracket consisting of a right-angled frame made from a strip of sheet metal or equivalent material, having a continuous hollow rib stamped from the sheet metal and terminating short of the ends of the arms and leaving a continuous flange along the sides and around the ends of said rib, said sheet-metal strip being cut away at the point of forming the angle to form the miter of the said ribbed portion, substantially as described.

2. In a thin sheet-metal bracket having two branches, the combination of two strengthening hollow ribs struck up from the metal sheet, meeting at a miter-joint at the angle of the branches and terminating at the outer ends in a boss, and a continuous flange extending on both sides of and around the ends of said ribs, substantially as described.

3. In a thin sheet-metal bracket having two branches, the combination of two strengthening hollow ribs struck up from the metal sheet, meeting at a miter-joint at the angle of the branches and terminating at the outer ends in a boss, a continuous flange extending on both sides of and around the ends of said ribs, and a brace supporting the branches of said bracket, substantially as described.

481,178. CASH-CARRIER.

GEORGE P. KNUBEY, Watertown, N. Y. Filed Dec. 17, 1891. Serial No. 415,369. (No model.)



Claim.—1. In a cash-carrier apparatus, the combination, with the cylinder 1, having a shaft mounted therein, of the cylinder 2, loosely secured to the aforesaid cylinder, means for raising the free end thereof, and the ball adapted to travel therein, as set forth.

2. In a cash-carrier apparatus, the combination, with the cylinder 1, having a shaft mounted thereon, said shaft being provided with heads upon its ends, of the cylinder 2, loosely secured to the aforesaid cylinder, means for raising the free end thereof, and the ball adapted to travel freely within said cylinder, as set forth.

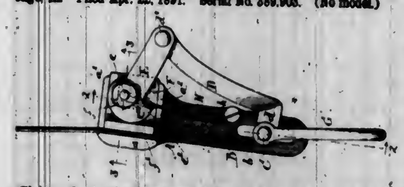
3. In a cash-carrier apparatus, the combination, with the cylinder having a shaft mounted therein, said shaft being provided with heads upon its ends, a coil-spring surrounding said shaft and anchored between brackets, of the cylinder 2, loosely secured to the aforesaid cylinder, means for raising the free end thereof, and a ball adapted to travel freely therein, as set forth.

4. In a cash-carrier apparatus, the combination, with the cylinder 1, having a shaft mounted therein, of the cylinder 2, loosely secured thereto, means for raising the free end thereof, a ball adapted to travel freely therein, means for raising the free end of said cylinder, and means for holding the ball at the outer end during its upward travel, and means for releasing said ball, as set forth.

5. In a cash-carrier apparatus, the combination, with the cylinder 1, having a shaft mounted therein, of the cylinder 2, loosely secured to the aforesaid cylinder, means for raising the free end thereof, a ball adapted to travel freely therein, means for holding and releasing said ball, the cash-car C, adapted to travel upon the wire D, and the wire D, substantially as described, for the purposes set forth.

481,179. WIRE STRETCHER OR CLAMP.

JOHN M. KLEIN, Chicago, Ill. Filed Apr. 22, 1891. Serial No. 389,903. (No model.)



Claim.—1. A wire-clamp comprising a body A, provided at one end with a projecting arm B, having a long slot therein, and at the opposite end with a stationary jaw *a*, a movable jaw E, eccentrically pivoted to said body, a pitman or operating-bar D, pivoted at one end to the said movable jaw, and a bolt passing through the slotted end of the projecting arm B and connecting the pitman therewith, substantially as described.

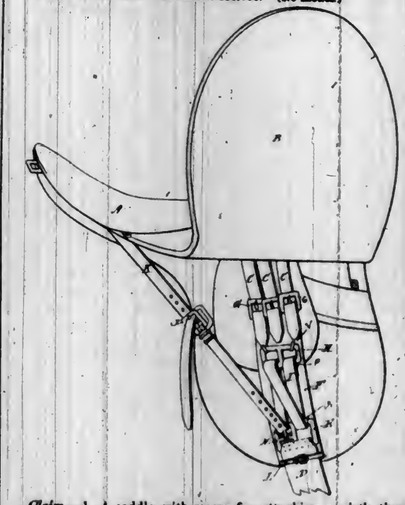
2. A wire-clamp comprising a body A, provided at one end with a projecting arm B, having a long slot therein and at the opposite end with a stationary jaw *a*, a movable jaw E, eccentrically pivoted to said body, a pitman or operating-bar D, pivoted at one end to the said movable jaw, a bolt passing through the slotted end of the projecting arm B and connecting the pitman therewith, and a link or coupling G, connected to said bolt and adapted to swing in the plane of the movement of the clamping-jaws, substantially as described.

3. A wire-clamp comprising a body A, having a suitable offset *a*, a movable jaw E, eccentrically pivoted with respect to the body A, a suitable operating bar or pitman for shifting said movable jaw, and a clamping-plate interposed between the movable jaw E and the stationary jaw, said clamping-plate being slotted to admit the pivot-pin of the movable jaw, substantially as described.

4. A wire-clamp comprising a body A, having suitable stationary jaw or offset *a*, and having transverse ribs *a'* and *a²*, a movable jaw E, eccentrically pivoted with respect to the body A, an operating bar or pitman for shifting said movable jaw, a clamping-plate F, having an offset *f'*, interposed between the movable jaw E and the stationary jaw or offset *a*, the body of said clamping-plate extending between the movable jaw E and the body A of the clamp.

481,180. SADDLE-GIRTH.

RUFUS A. LANE, New York, N. Y. Filed Nov. 12, 1891. Serial No. 411,706. (No model.)



Claim.—1. A saddle with means for attaching a girth thereto, combined with a girth, one end being provided with buckles or other suitable adjustable attaching means, said girth being comprised of two parts and provided with a take-up device between them, consisting of loops and a strap or cord passing through the loops, leaving them at an angle with the girth and attached to the saddle within easy reach of the rider for adjustment when mounted.

2. A saddle with means for attaching a girth, combined with a girth attached thereto, one end being provided with buckles or other suitable adjustable attaching means, said girth being comprised of two parts and provided with a take-up device between them, consisting of a loop on one section and a loop and buckle on the other and a strap or cord passing through the loops and buckle, leaving them at an angle with the girth and attached to the saddle within easy reach of the rider for adjustment when mounted.

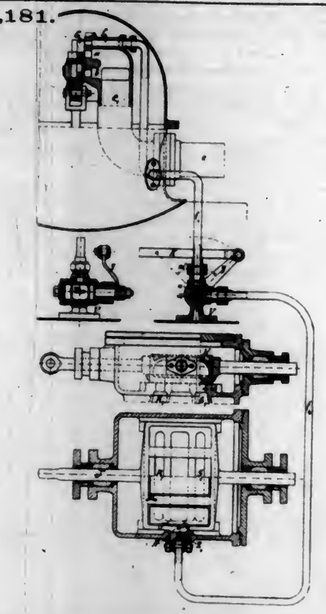
3. A saddle-girth comprising two sections provided with a device for adjustably attaching it to the saddle and a take-up device between said sections, consisting of a strap or cord connecting them, said strap or cord being adjustably attached to the saddle, and an automatic device for holding the slack taken up.

481,181. STARTING-GEAR FOR COMPOUND LOCOMOTIVES.

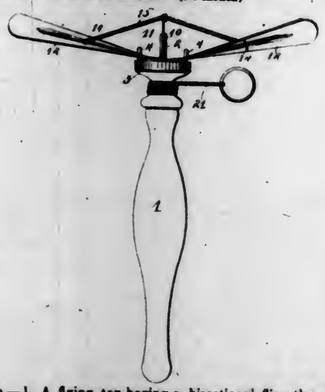
ROBERT LINDNER, Chemnitz, Germany. Filed June 15, 1891. Serial No. 396,532. (No model.) Patented in England Mar. 6, 1890, No. 3,853, and in Germany Nov. 26, 1890, No. 57,044.

Claim.—In a starting-gear for compound engines, the slide H, fitted to the valve-buckle N of the low-pressure valve, in combination with the pipe f^4 for the auxiliary steam, provided with a suitable valve V, and the high-pressure cylinder A, the receiver-pipe C, and the low-pressure cylinder B, having a port Z', fed by the steam-pipe f^4 and regulated by the slide H, for the purpose set forth.

481,181.



481,182. FLYING TOY. EMIL R. LOORMANN, St. Louis, Mo. Filed Apr. 12, 1892. Serial No. 428,814. (No model.)



Claim.—1. A flying toy having a bisectional flier the sections whereof are hinged together and means for imparting to said flier a rotating and consequent sailing motion, substantially as set forth.

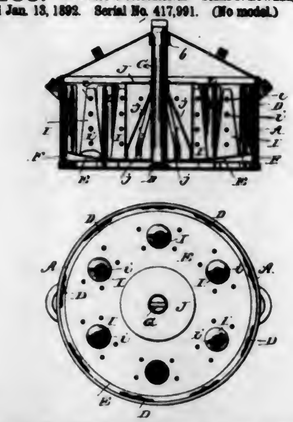
2. A flying toy having a bisectional flier the sections whereof are hinged together, a rotating spool for imparting to said flier a sailing motion, and means for communicating a rotary motion to said spool, substantially as set forth.

3. A flying toy having a bisectional flier the sections whereof are hinged together, an elastic cord passing from section to section and secured to the same, a rotating spool for imparting to said flier a sailing motion, and a cord for rotating said spool, substantially as set forth.

4. A flying toy comprising a manipulating-handle, a pin or stud firmly secured in one end of the handle and projecting from the same, a spool revolubly mounted on said pin or stud and fixed against detachment therefrom, and a bisectional flier loosely mounted on said spool, the sections of said flier being hinged together, substantially as and for the purpose set forth.

5. A flying toy comprising a manipulating-handle, a pin or stud firmly secured in one end of the handle and projecting from the same, a rotating spool mounted on said pin or stud and non-detachable therefrom, a bisectional flier mounted on said spool, the sections of said flier being hinged together, a pivoted triangular standard carried by said flier, and an elastic cord supported by said standard and secured to said flier for drawing the sections of the same together to facilitate the rapid descent of the same, substantially as set forth.

481,188. WASHING-MACHINE. SILAS P. LOWELL, Eugene, Oreg. Filed Jan. 13, 1892. Serial No. 417,991. (No model.)



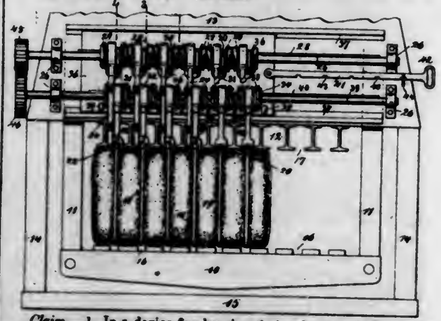
Claim.—1. In a washing-machine, an agitator comprising a perforated disk or plate dished or concaved on its upper side, provided at its edge with a rim-flange, and the upright tubes on said disk or plate, such tubes being perforated, all substantially as set forth.

2. An improved agitator for washing-machines, comprising the plate or disk, the cylinder or turret mounted centrally on said plate or disk, a number of tubes on said disk, surrounding the central turret, said tubes being tapered toward their upper ends, whereby the clothes wrapped thereon may be readily lifted off and being hollow for the circulation of the water and steam, and the disk or plate having openings communicating with said tubes for the passage of water and steam into the latter, all substantially as and for the purposes set forth.

3. In a washing-machine, an agitator comprising a disk provided with openings, hollow upright tubes secured on said disk over the said openings, whereby water and steam may pass into their lower ends, the said tubes being perforated for the exit of the steam, and the central cylinder or turret perforated for the circulation of water and steam and adapted to keep the clothing from the center of the agitator, substantially as and for the purposes set forth.

4. In a washing-machine, substantially as described, the combination of the suds-box or body and the agitator journaled to revolve therein, formed with a perforated base-plate, and perforated upright tubes thereon, said tubes being arranged off the center of the disk, whereby they will move in a circular line as distinguished from being rotated axially when the disk is turned and being conical or tapered toward their upper ends, all substantially as set forth.

481,184. DEVICE FOR DRAWING TIE-BANDS AROUND BALES. JOSEPH J. MARTIN, Bellevue, and WILLIAM H. BROWNFIELD, Dayton, assignors of one-third to Louis K. Marty, Newport, Ky. Filed Feb. 27, 1892. Serial No. 423,025. (No model.)



Claim.—1. In a device for drawing tie-bands around bales, arms capable of engaging with the ends of a tie-band for the purpose of pulling the same close around the bale, a pivot upon which these arms, preferably arranged in series, are hung, tension devices, one for each arm and secured to this pivot, which latter is common to all arms and by which the rotary motion of this pivot is transmitted to said arms, and means to actuate the pivot, all as substantially shown and described.

2. In a device for drawing tie-bands around bales, an arm capable of gripping the free end of a tie-band for the purpose of pulling it closely around the bale, an elastic tension device connected to this arm and operating it in a manner to cause it to move away from the bale, and mechanism actuating this tension device, which latter by reason of its elasticity yields sufficiently to permit the mechanism actuating it to finish its movement in cases where the operation of the arm stops before that time, all as substantially shown and described.

3. In a device for drawing tie-bands around bales, two pivoted arms preferably arranged in series and adapted to engage with their outer free ends with the ends of a tie band, tension devices which engage with each one of these arms and cause them to rotate on their pivots, and mechanism which actuates these tension devices in a manner to cause the arms of one series to rotate in a direction opposite to one of the arms of the other series, said tension devices by reason of their elasticity yielding sufficiently to permit any of the arms to stop at any time prior to the time when the mechanism actuating them stops, all as substantially shown and described.

4. In a device for drawing tie-bands around bales, arms preferably arranged in series and capable of engaging with the ends of the tie-bands, a shaft upon which the whole series of arms is hung, and elastic devices secured to this shaft and connected to the arms thereon, whereby the shaft when rotating is enabled to impart a swinging motion to said arms, which motion, however, as to its duration is independent from the rotary motion of the shafts and by reason of the yielding connection between them and the arms allows these latter to stop at any time previous to the termination of the rotation of the shafts, all as substantially shown and described.

5. In a device for drawing tie-bands around bales, two series of arms, the ends of one of these series provided with forks, the other with movable jaws, whereby they are enabled to act upon the ends of the said tie-bands, shafts upon which these arms are hung, means secured to said shafts and engaging with the arms for the purpose of imparting the motion of the shafts to the arms, said means being sufficiently elastic to permit the shafts to continue their rotation should any or all of the arms hung on them stop, and stationary cams located within the paths of the arms having the jaws, whereby these latter are closed upon coming in contact with said cams, all as substantially shown and described.

6. In a device for drawing tie-bands around bales, a series of arms capable of grasping and acting upon the ends of the said tie-bands for the purpose of pulling them closely around the bale, shafts upon which they are supported, collars secured to either side of said arms on the shafts and operatively connected with said shafts, and elastic or yielding means connecting said collars with said arms for the purpose of operating them, which means permit each one of the arms to stop independently and be not affected by the rotary movement of the shafts should the same continue, all as substantially shown and described.

7. In a device for drawing tie-bands around bales, arms preferably arranged in series and capable of engaging with the ends of the tie-bands, a shaft upon which the whole series of arms is hung, elastic devices secured to this shaft and connected to the arms thereon, whereby the shaft when rotating is enabled to impart its motion to said arms, which motion as to its duration, however, is independent from the rotary motion of the shaft, and means to rotate the shaft, all as substantially shown and described.

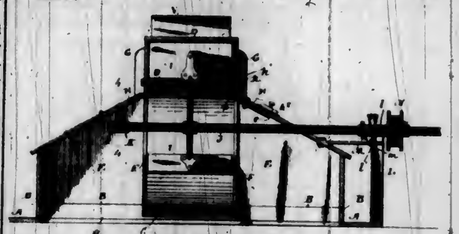
8. In a device for drawing tie-bands around bales, a series of arms capable of acting upon the ends of the bands for the purpose of pulling them closely around the bales, shafts upon which said arms are supported, elastic means secured to said shafts and engaging with the arms for the purpose of actuating them, means whereby the shafts are rotated, and means whereby all said arms are adjusted laterally to suit the position of the bale, and means to lock said arms in their adjusted position, all as substantially shown and described.

9. In a device for drawing tie-bands around bales, an arm for pulling the free end of a tie-band through the loop to which the other end of said band is secured, jaws connected to this arm for gripping the tie-band, a cam acting upon the movable jaw and closing the same, a spring 29, operatively connected to this arm, collars to which the ends of this spring are secured, a shaft upon which said collars are operatively affixed, and means for rotating the shaft, all as substantially shown and described.

10. In a device for drawing tie-bands around bales, an arm for pushing the loop to which one end of a band is secured close against the bale, the free end of this arm constructed and shaped to be capable of engaging with and acting upon said loop, a spring 35, operatively connected to this arm, collars to which the ends of this spring are affixed, a shaft upon which said collars are operatively secured, and means for rotating the shaft, all as substantially shown and described.

11. In a device for drawing tie-bands around bales, series of arms capable of engaging with the ends of the tie-bands, shafts upon which these arms are hung, and tension devices secured to said shafts and engaging with said arms, these latter provided with cut-outs 47 to permit the shafts to rotate without affecting the arms in cases where these latter stop, all as substantially shown and described.

481,185. DUST COLLECTOR AND CONVEYER. BENJAMIN F. MOHR, Mifflinburg, Pa. Filed Feb. 26, 1892. Serial No. 422,884. (No model.)



Claim.—1. In a dust collector and conveyer, the combination, with a base having an opening, of a fan-casing supported centrally upon said base above the plane of the same and provided with side receiving ports or openings and upper opposite inclined discharge-openings, a revolving fan, opposite bottomless collecting-compartments mounted upon said base and inclosing the side ports of said fan-casing and provided with top openings, detachable lids inclosing said openings, and clearing arms secured to said lids and projecting within the fan-casing, substantially as set forth.

2. In a dust collector and conveyer, the combination of a fan casing, opposite bottomless collecting-compartments upon each side of said fan casing, a bearing-casting adjustably secured within one of said compartments, a bearing-bracket located adjacent to the opposite collecting-compartment, an adjusting-rod connected with said bracket, and a fan-shaft mounted in said bearings, substantially as set forth.

3. In a machine of the class described, the combination, with the opposite compartments, the intermediate fan-casing, and the revolving fan-shaft, of a bearing-casting located in one of said compartments to receive the inner end of said shaft and provided with opposite slotted ends adjusting-bolts engaging said slotted ends and the sides of said compartment, a bearing-bracket receiving the outer end of said shaft and located adjacent to said opposite compartment, an adjusting-rod secured to said opposite compartment and engaging said bearing-bracket, and adjusting-nuts engaging said rod on both sides of said bracket, substantially as set forth.

4. In a dust collector and conveyer, the combination of an intermediate fan-casing having opposite side ports, upper inclined discharge-openings, flanged casting secured to the lower edges of said discharge-openings, the flexible discharge-tubes engaging under said castings and over the top of the fan-casing, and opposite bottomless collecting-compartments inclosing the side ports of said fan-casing, substantially as set forth.

5. In a dust collector and conveyer, the combination of an intermediate fan-casing having opposite side ports, upper inclined discharge-openings, top securing-grooves and inclined side grooves in rear of said openings, semi-elliptical flanged or grooved securing-castings secured to the lower edges of said discharge-openings, the flexible discharge-tubes adapted to be secured under said flanged or grooved castings and into said top securing-grooves, removable cut-off gates working in said inclined grooves, a revolving fan, and the opposite bottomless collecting-compartments inclosing the side ports of said fan-casing substantially as set forth.

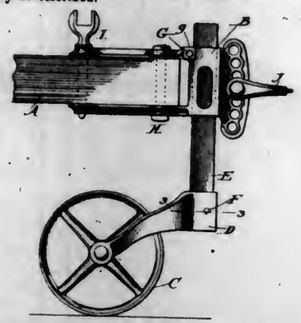
6. In a machine of the class described, the combination of a fan-casing having opposite side receiving-ports, upper inclined discharge-openings, top securing-grooves and inclined side grooves in rear of said openings, semi-elliptical flanged or grooved securing-castings secured at the lower edges of said discharge-openings, the flexible discharge-tubes adapted to be secured to said flanged or grooved castings and into said top securing-grooves, and removable cut off gates working in said inclined grooves, substantially as set forth.

481,186. COMBINED CLEVIS AND GAGE-WHEEL. GILPIN MOORE, Moline, Ill., assignor to the Deere & Company, same place. Filed Jan 3, 1891. Serial No. 376,663. (No model.)

Claim.—1. The combination, with a plow-beam, of a draft-clevis rigidly secured to the plow-beam and having an angular slot therein, a gage-wheel shank angular in cross-section and movable vertically in the slot, a transverse wedge-shaped bolt passing through the draft-

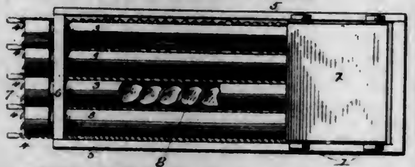
clevis and bearing against one edge of the angular shank to hold the latter in different positions of vertical adjustment, and a gage-wheel having a yoke formed with a socket of greater size than the shank and engaged therewith, so that the gage-wheel can trail the plow-beam without turning the shank, substantially as described.

2. The combination, with a plow-beam, of a draft-clevis rigidly secured to the plow-beam and having a vertical angular slot therein, a gage-wheel shank angular in cross-section and movable vertically in the slot of the clevis, means for holding the shank in different positions of vertical adjustment in the slot of the clevis, a gage-wheel yoke having a socket widened at its forward portion and in which the shank is arranged, and a pin passing through the shank and socket to permit the gage-wheel to trail the plow-beam without turning the shank, substantially as described.



3. The combination, with a draft-clevis, of a non-rotary shank vertically adjustable in the clevis, and a gage-wheel having a shank D, provided with a socket *d*, which is widened at its forward portion to enable the gage-wheel to trail the plow-beam without turning the shank, substantially as described.

481,187. MINING-MACHINE. George F. Myers, Pittsburg, Pa. Filed Oct. 5, 1891. Serial No. 407,741. (No model.)



Claim.—1. A mining-machine comprising a plurality of hollow rotatory cutters arranged adjacent to each other and auxiliary rotatory drills located in the angles between said hollow cutters, substantially as described.

2. A mining-machine comprising a plurality of hollow rotatory cutters arranged adjacent to each other and auxiliary rotatory drills located in the angles between said hollow cutters, the said auxiliary drills having external conveying-spirals, substantially as described.

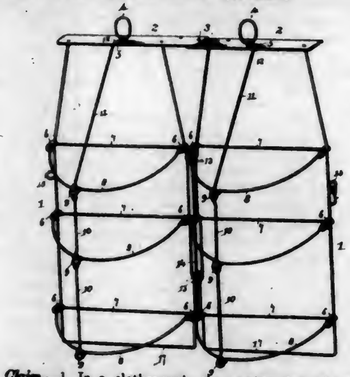
3. A mining-machine comprising a plurality of hollow rotatory cutters arranged adjacent to each other and containing interior conveyers and auxiliary rotatory drills located in the angles between said hollow cutters, the said auxiliary drills having external conveying-spirals, substantially as described.

481,188. YARD-STICK HOLDER. Edgar R. Northam, Raleigh, N. C. Filed Sept. 5, 1891. Serial No. 404,872. (No model.)



Claim.—As a new article of manufacture, a holder for yard-sticks, designed to be attached to a series of shelves and comprising a cup adapted to receive and support the lower ends of a number of yard-sticks and provided at its inner side with an opening to receive a securing-screw, and a spring having a circular form and provided at its middle with a screw-opening and having its ends in contact and curved outward to provide a flaring mouth and presenting convex faces to each other, said spring being adapted to receive within it and support the yard-sticks near their upper ends, substantially as described.

481,189. CLOTHES-DRIER. Elgamah Powell, Kokomo, Ind. Filed Mar. 21, 1892. Serial No. 425,775. (No model.)



Claim.—1. In a clothes-rack, the combination of two frames hingedly connected, bows movably attached to said frames and having eyes or loops at or about the central portions, links connecting said eyes or loops, supporting-rods connected to the uppermost of said eyes or loops, and cross-stays secured to said frames, substantially as described.

2. In a clothes-rack, the combination of two frames hinged together, heads secured to said frames having supporting-rings thereon, bows movably attached to said frames, links connecting said bows, cross-stays secured to the opposite sides of said frames, supporting-rods connected to the uppermost of said bows and having hooked ends to engage the heads, and means for locking said frames together, substantially as described.

3. In a clothes-rack, the combination of two frames hinged together and formed with eyes in parallel planes, cross-stays secured in said eyes, bows connected with said eyes and having of themselves eyes in the central portions thereof, links connecting said bows by engagement with said eyes thereof, supporting-rods connected to the uppermost bow of each frame, a removable rod hingedly connecting the said frames, and means for locking the frames together, substantially as described.

481,190. AUTOMATIC BRAKE. John H. Priestley, Meriden, Iowa. Filed Mar. 31, 1892. Serial No. 427,280. (No model.)



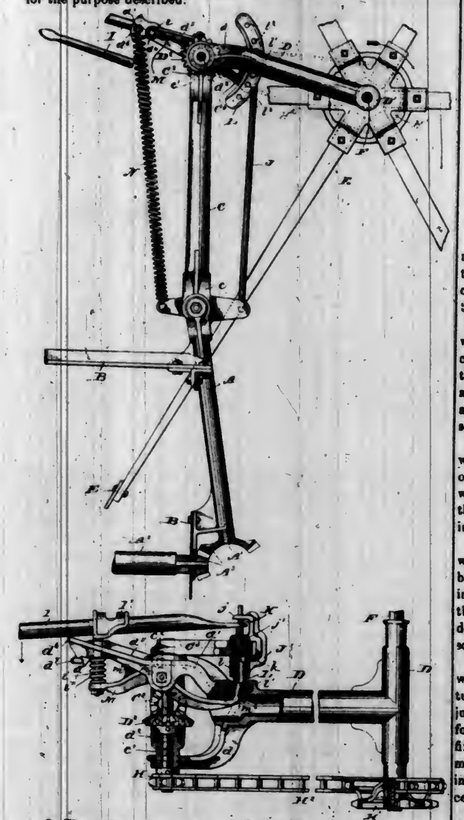
Claim.—1. The combination, with a running-gear having the rear bounds loosely connected with the reach and capable of a limited movement thereon, of a stationary brake-bar secured to the reach and provided at its ends with brake-shoes arranged to be engaged by the hind wheels, and a rock-shaft mounted on the brake-bar and carrying a stop-pin adapted to hold the rear bound against movement on the reach to prevent the brake being applied, substantially as described.

2. The combination of a running-gear having the rear bounds loosely connected with the main reach, a supplemental reach mounted on the main reach and connected with the rear bounds, a stationary brake-bar secured to the main reach and carrying brake-shoes arranged to be engaged by the hind wheels, a rock-shaft mounted on the brake-bar and provided intermediate its ends with a crank-loop and having an arm, and a pin connected with and carried by the crank-loop and arranged in an opening of the main reach and adapted to be projected above the latter to form a stop to be engaged by the supplemental reach, substantially as described.

481,191. HARVESTER-REEL SUPPORT. Charles A. A. Rand, Chicago, Ill., assignor to the William Deering & Company, same place. Filed Mar. 14, 1892. Serial No. 424,762. (No model.)

Claim.—1. The combination, with the reel-standard carrying a quadrant, of a reel-supporting bracket pivoted to said standard at its upper end, a hand-lever, a latch controlled by said lever, and a radius-bar pivoted a convenient distance from the lower end of said standard and terminating at its upper end in a piece which carries said latch and slides in said quadrant, substantially as and for the purpose described.

2. The combination, with the reel-standard carrying a quadrant, of a reel-supporting bracket pivoted to said standard, a hand-lever supported in said bracket, a latch controlled by said lever and adapted to engage said quadrant, and a radius-rod having its upper end adapted to carry said latch and to slide in said quadrant, substantially as and for the purpose described.



3. The combination, with a reel-standard and bracket, of the quadrants C^3 and L, the latches K and M, a hand-lever controlling said bracket and latches, and a radius-bar having its upper end adapted to sustain both latching devices, substantially as and for the purpose described.

4. The combination, with the reel-standard having the quadrant C^3 and the reel-bracket carrying the latch M jointed together, of the radius-bar J, carrying a bracket adapted to support and guide the latch-pin *k*, that by engaging the quadrant on the reel-standard controls the fore-and-aft adjustment of the said standard, and to sustain a second quadrant that engaged by the latch M controls the position of vertical adjustment of the reel-bracket, and suitable means for controlling the said latches, all combined substantially as described.

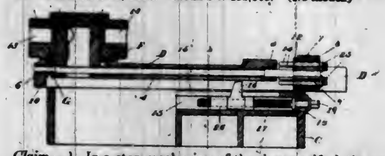
5. The combination of the reel-standard having the quadrant C^3 and the reel-bracket jointed thereto and having the latch M with the radius-bar J, having the bracket J', adapted to sustain and guide the latch that engages the quadrant C^3 and to sustain the quadrant L that is engaged by the latch M, and a lever pivoted to said bracket J' in such a manner as to slide the latch that engages the said quadrant C^3 and supported in the slide-bolt that controls the latch M, whereby the movement of the lever sidewise in one direction releases the latch from the quadrant C^3 and in the other direction releases the latch M, substantially as described.

6. The combination, with a reel standard carrying the quadrant C^3, of a reel-bracket, a radius-bar carrying the latch K, that engages said quadrant and the quadrant L, the latch M, that engages the said quadrant L, and the hand-lever I, substantially as and for the purpose described.

7. The combination, with a reel-standard carrying a quadrant and a reel-bracket, of the radius-bar J, carrying the piece J', the latches K and M, the quadrant L, and the lever I, substantially as and for the purpose described.

8. The combination, with a reel-standard carrying a quadrant and a reel-bracket, of a radius-bar J, carrying the piece J', the latches K and M, the quadrant L, the lever I, and the spring-controlled sleeve I', substantially as and for the purpose described.

481,192. STOP MECHANISM FOR TURRET-LATHES. Francis H. Richards, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,865. (No model.)



Claim.—1. In a stop mechanism of the class specified, the combination, with the turret-slide and with the turret revolubly mounted thereon, of an independent stop-carrier, adjustable stops carried by said carrier, and means actuating the stop-carrier with the turret, substantially as described.

2. In a stop mechanism of the class specified, the combination, with the slide-block, of the stop 16 adjustable thereon, the turret-slide carried on the slide-block and carrying the turret revolubly mounted thereon, the stop carrier furnished with adjustable stops, and a shaft and gearing actuating the stop-carrier with the turret to bring said adjustable stops successively into working position, substantially as described.

3. In a stop mechanism of the class specified, the combination, with the slide-block having the bore 15 and the slot above said bore, of the stop-slide fitting in said bore and having the stop extending upwardly through said slot, a screw engaging said stop-slide for moving the same in the slide-block, and the turret-slide having a stop engaging the stop 16, substantially as described.

4. In a stop mechanism of the class specified, the combination, with the slide-block having a stop, of the turret-slide supported on said block and having the turret revolubly mounted thereon, the stop-cylinder journaled in the turret-slide and carrying the adjustable stops, the shaft for rotating the stop-cylinder, and gearing, substantially as described, actuating said shaft from the turret, substantially as described.

5. In a stop mechanism of the class specified, the combination, with a slide-block and a stop thereon, of the turret-slide having the turret revolubly mounted thereon, a stop-cylinder furnished with adjustable stops and revolubly supported on the turret-slide in position for one of its stops to engage said slide block stop, the turret-gear F, fixed to the turret, the pinion G, meshing with said turret-gear, and means connecting said pinion and stop-cylinder, whereby the stop cylinder is intermittently revolved to bring the turret-slide stops successively into working position, substantially as described.

6. In a stop mechanism, the combination, with the turret slide, of the turret and the independent stop-carrier, both supported on the slide and operatively connected for corresponding movements, and adjustable stops carried by the stop-carrier, substantially as described.

7. In a stop mechanism, the combination, with the turret-slide, of the turret revolubly mounted thereon and having its axis crosswise to the direction of the slide movement, a stop-cylinder revolubly mounted on the turret-slide and having its axis longitudinal of the slide movement, and stop-cylinder actuating devices operatively connecting the turret and said cylinder, substantially as described.

8. In a stop mechanism, the combination, with the slide having the bearing 7, of the cylinder journaled in said bearing and a series of stops adjustably fixed in said cylinder, substantially as described.

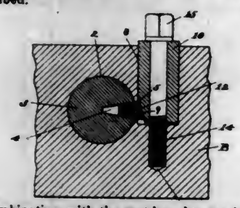
9. In a stop mechanism, the combination, with the slide-block having a stop, of the turret-slide supported on said block and having the turret revolubly mounted thereon, the stop-cylinder journaled in the turret-slide and carrying adjustable stops, and means operatively connecting the turret and stop-cylinder to have corresponding movements, substantially as described.

481,193. TOOL-HOLDING DEVICE. Francis H. Richards, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,868. (No model.)

Claim.—1. The combination, with the part bored to receive and carry the shank and with the shank fitting said bore and having a tapered keyway, of the key fitting said keyway and means, substantially as described, carried by the shank-receiving part 4 forcing the key to expand the shank within the bore, substantially as described.

2. The combination, with the part bored to receive the shank and with the shank fitting said bore and having a tapered keyway, of the key fitting said keyway in the shank and projecting into a corresponding keyway in the said bored part and means forcing the key to expand the shank within the bore, whereby the key serves to expand the shank and to prevent the rotation thereof, substantially as described.

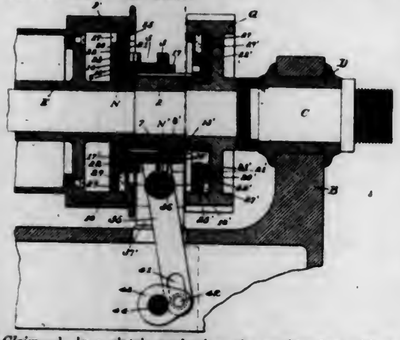
3. The combination, with the part bored to receive the shank and with the shank fitting said bore and having a tapered keyway, of the key fitting said keyway, a key-actuating wedge, and means operating said wedge to force the key into the keyway of the shank, substantially as described.



4. The combination, with the part bored to receive the shank and with the shank fitting said bore and having a tapered keyway, of the key fitting said keyway, the key-actuating wedge fitted to turn and slide in said shank-carrying part, and a screw for actuating the key through said wedge, substantially as described.

5. The combination, with the part bored to receive and carry the shank, of a shank fitting said bore and having in one side and longitudinally thereof a recess, substantially as described, a shank-expander in said recess, and means carried by the shank-receiving part and acting upon the shank-expander in a direction crosswise to the shank, whereby the shank is expanded at one side thereof within said bore, substantially as described.

481,194. FRICTION-CLUTCH. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,869. (No model.)



Claim.—1. In a clutch mechanism, the combination, with the friction-ring and its expanding-wedge, of the sliding clutch-ring, an adjustable wedge-actuating cam carried by the clutch-ring, and means for adjusting the cam to regulate the expansion of the friction-ring, substantially as described.

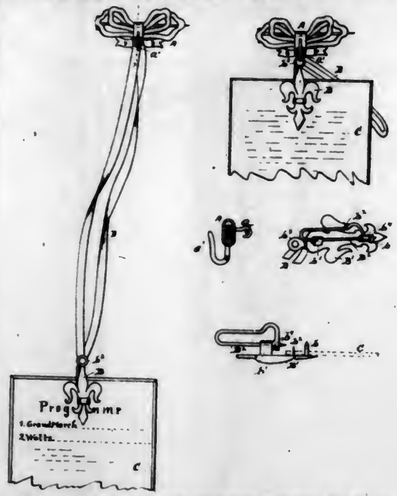
2. In a clutch mechanism, the combination, with the friction-ring carrier and the friction-ring thereon, of the friction-ring expanding wedge, the sliding clutch-ring, and a cam carried by the clutch-ring and constructed, substantially as described, to be expansible by a wedge therein, and means carried by the clutch-ring for adjusting the cam-wedge, substantially as described.

3. In a clutch mechanism, the combination, with the friction-ring carrier 22, having the groove 21 radially thereof, of the friction-ring on said carrier, means for holding said ring from rotation thereon, the friction-ring-expanding wedge fitted to slide in said groove, the cam actuating said wedge, and means for sliding said cam under and from under the wedge, substantially as described.

4. In a clutch mechanism, the improved cam, comprising the lower cam-plate, the upper cam-plate, and the cam-adjusting wedge intermediate to said plates and connecting the plates together by a sliding engagement therewith, substantially as described.

5. In a clutch mechanism, the combination, with the sliding clutch-ring having the cam-engaging slot, of the cam consisting of the plates engaging in said slot and having the wedge intermediate to said plates and the screw 17, carried in the ring and bearing against the wedge for adjusting the cam by the sliding of the wedge therein, substantially as described.

481,195. PROGRAM AND SCORE-CARD CHATELETTE. EDWARD R. ROEHM, Detroit, Mich., assignor to Roehm & Son, same place. Filed Feb. 23, 1892. Serial No. 422,450. (No model.)



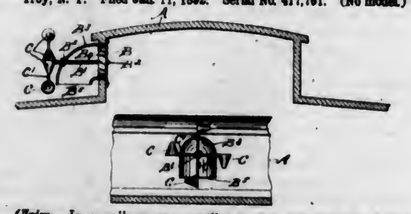
Claim.—1. A program and score-card chatelette having, in combination, a fastening device to engage the person, an attaching device to engage the program or card, consisting of a face-plate B', provided with means of attachment, whereby it may be secured to the program or card, and a suspending flexible connection secured to said fastening device and to said attaching device, said means of attaching said face-plate being invisible from the face of the program or score-card when in engagement therewith, substantially as described.

2. A program and score-card chatelette having, in combination, a fastening device A, provided with a hook and pin, an attaching device constructed to engage the program or card and to engage said hook, and a suspending flexible connection D, secured to both of said devices, substantially as described.

3. The fastening device B, constructed with a face-plate B', an eye *b*, and a reciprocating pin B^3 to engage said eye, substantially as described.

4. The fastening device B, constructed with a face plate B', an eye b^2 at its upper end, an eye *b* on its under side, a reciprocatory and rotatable pin B^3 to engage said eye *b*, and a prong b^3, arranged as set forth, substantially as described.

481,196. RAILWAY-CAR VENTILATOR. WINFIELD S. ROGERS, Troy, N. Y. Filed Jan. 11, 1892. Serial No. 417,761. (No model.)

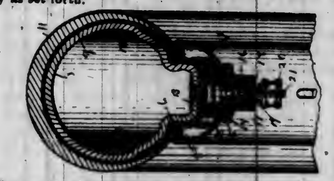


Claim.—In a railway-car ventilator, the combination, substantially as set forth, of a car-wall provided with an opening leading sidewise horizontally from the interior of the car, a curved conduit covered exterior to said wall and forming a protecting-hood at said opening and having a downward discharge, an air-propelling wheel housed within said conduit and having a spindle projecting outwardly through the wall of said conduit, and a wind-driven wheel secured to said spindle exterior to the car and hood and separated from said air-propelling wheel by the wall of said conduit.

481,197. PNEUMATIC TIRE. CHARLES H. ROTH, Cincinnati, Ohio. Filed Nov. 14, 1891. Serial No. 411,869. (No model.)

Claim.—1. The combination of a wheel-tire inflated with air and a valve consisting of a chamber secured to a wheel-tire in a suitable manner, a valve, a stem, a spring, and a nut on the stem capable of clamping the valve permanently in place, substantially as set forth.

2. The combination of a wheel-tire inflated with air, a valve consisting of a chamber secured to the rim by a shoulder on the chamber within the rim and a nut exterior to the rim, a spring-case screwed to the chamber, having a valve-seat on its inner end, a valve, a stem, and a nut on the stem capable of drawing the valve against its seat, substantially as set forth.



3. The combination of a wheel-tire inflated with air, a valve consisting of a chamber secured to the rim by a shoulder on the chamber within the rim and a nut exterior to the rim, a spring-case screwed to the chamber, having a valve-seat on its inner end, a valve, a stem, a spring, and a nut on the stem cut away at its sides for the passage of air and capable of drawing the valve against its seat, substantially as set forth.

4. The combination of a wheel-tire inflated with air, a valve consisting of a chamber secured to the rim by a shoulder on the chamber within the rim and a nut exterior to the rim, a spring-case screwed to the chamber, having a valve-seat on its inner end, a valve, a stem, and a nut on the stem arranged to clamp the valve to its seat permanently and securely, substantially as set forth.

481,198. MACHINE FOR SCORING AND MARKING SHINGLES. JOHN T. ROSE, Tyrone, Pa., assignor of seven-eighths to John G. McCamant and George W. Friedly, same place. Filed Sept. 30, 1891. Serial No. 407,340. (No model.)



Claim.—A portable machine for scoring or marking shingles, comprising the base 3, the uprights 4 4, the bridge-piece 5, parallel with the base, the gage-board 13, the spring-arm 6, arranged parallel with the base and provided with a vertically-disposed and horizontally-slotted adjusting-plate 7, the rotary marking-wheel carried by the free end of the spring-arm and disposed parallel with and opposite the gage-board, and adjusting-screws passing through the slots in the adjusting-plate and secured in the bridge-piece, substantially as described.

481,199. FIRE-LADDER. ISAAC W. SALYERDS and LAWRENCE SHADBOLT, Scottsville, N. Y. Filed June 20, 1891. Serial No. 396,964. (No model.)

Claim.—1. In a fire-ladder, the combination of a truck, an elevatable ladder-support, a jib or yoke pivoted to said support by a vertical pivot, and means whereby the ladder is by gravity detachably fixed in horizontal bearings to said jib.

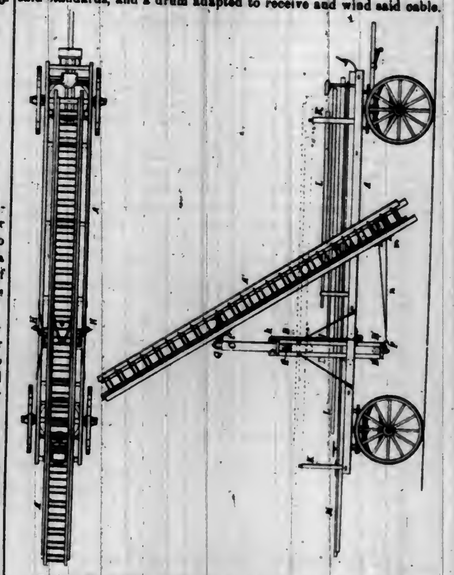
2. In a fire-ladder, the combination of a truck, an elevatable ladder-support, a jib or yoke pivoted to said support by a vertical pivot and provided with forks, as *r*, and a ladder having a horizontal shaft, as *o*, adapted to rest removably in said forks.

3. In a fire-ladder, the combination of a truck, standards having vertical guides, a slide moving in said guides, a ladder pivoted to said slide by a universal joint, and means for elevating said slide and for fastening said slide at any point of its path.

4. In a fire-ladder, the combination of a truck, standards having vertical guides, a slide moving in said guides, a ladder pivoted to said slide by a universal joint, means for elevating said slide and for fastening said slide at any point of its path, and means for adjusting and setting the ladder at different angles of elevation.

5. In a fire-ladder, the combination of a truck, standards having vertical guides, a slide moving in said guides, a jib or yoke pivoted to said slide by a vertical pivot, a ladder journaled to said jib or yoke by horizontal bearings, means for elevating said slide and for fastening said slide at any point of its path, and means for adjusting and setting said ladder at different angles of elevation.

6. In a fire-ladder, the combination of a truck, standards having vertical guides, a slide moving in said guides, a jib or yoke pivoted to said slide by a vertical pivot, a ladder journaled to said jib or yoke by horizontal bearings, pulleys attached to the outside of said slide, and pulleys attached to the upper part of said standards on either side, a rope, cable, or chain attached on either side to one of said standards near the top thereof, passing downward under the pulley attached to said slide, and thence upward over the pulley attached to said standards, and a drum adapted to receive and wind said cable.



7. In a fire-ladder, the combination of a truck, standards having vertical guides, a slide moving in said guides, a jib or yoke pivoted to said slide by a vertical pivot, a ladder journaled to said jib or yoke by horizontal bearings, pulleys attached to the outside of said slide, and pulleys attached to the upper part of said standards on either side, a rope, cable, or chain attached on either side to one of said standards near the top thereof, passing downward under the pulleys attached to said slide and thence upward over the pulleys attached to said standards, and a drum adapted to receive and wind said cable, a swivel-hook fastened directly beneath said vertical pivot, and a pivot attached to said hook and winding upon the drum fixed to said ladder.

481,200. SHEARS. EDWARD A. SANDERS, Chicago, Ill. Filed May 26, 1891. Serial No. 394,137. (No model.)



Claim.—1. In a pair of shears, the combination of a pair of shear-blades A and A', means connecting the blades and holding them against endwise displacement, mechanism having connection with the blades for opening and closing them, said mechanism including an eccentric adapted to bear in opposite directions against one of said blades for moving it in opposite directions, and means through which it bears indirectly against the other blade, and a pair of handles suitably connected with the other parts, substantially as set forth.

2. In a pair of shears, the combination, with the shear-blade A, having the handle C rigid therewith, of the shear-blade A', means connecting said blades and holding them against relative endwise movement, the handle C, movable independently of both blades, and mechanism having connection with said blades for opening and closing them, said mechanism including an eccentric adapted to bear in opposite directions against one of said blades for moving it in either direction, and means through which it bears indirectly against the other blade, substantially as set forth.

3. The combination, with a pair of relatively-movable blades and

means connecting them, of a pair of eccentrics each having a bearing against one of said blades and means for operating said eccentrics, substantially as set forth.

4. The combination, with a pair of blades and means connecting them, of a pair of handles, a pair of eccentrics each bearing against one of said blades, and means connecting said eccentrics with one of said handles, substantially as set forth.

5. The combination, with the relatively-movable blades A A', having openings D D', and means connecting said blades, of the eccentrics E E', occupying said openings, respectively, the stud F, connecting said eccentrics, and the handle G, having suitable connection with said stud, substantially as set forth.

6. The combination, with the blades A A', having openings D D', and means connecting said blades, of the eccentrics E E', occupying said openings, respectively, the stud F, connecting said eccentrics, the plates H H', engaging said stud, and the handle G, to which said plates are connected, substantially as set forth.

7. The combination of the blades A A', having openings D D', arranged with respect to each other, so that each of said openings is partly overlapped by the blade in which the other is formed, producing shoulders a and a', means connecting said blades, the eccentrics E E', situated in said openings, respectively, and means for operating said eccentrics, substantially as set forth.

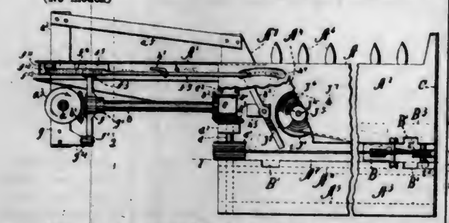
481,201. SAW. DANIEL C. SCHLABACH, Farmerstown, Ohio. Filed Dec. 8, 1891. Serial No. 414,378. (No model.)



Claim.—1. A circular saw comprising a blade provided with triangular teeth whose backs or upper edges form chords of a circle touching the points of all the teeth, the upper edge or back of the main portion or body which supports the tooth proper extending in a gentle curve from the heel of the tooth to the return bend of the gullet, substantially as described, and for the purpose set forth.

2. A saw-blade having its teeth formed integrally therewith, each tooth being provided with a main portion or body whose rear curved edge or back extends in a gradual curve from the heel of the point to the base of the gullet of the next tooth in rear thereof, and terminating in a triangular point whose back or upper edge forms the chord of a circle touching the extreme ends or points of the teeth in the circle, whereby the metal forming the tooth is distributed so as to afford the greatest strength where required to resist strains tending to warp the blade, while the point is provided with the desired thickness of metal between the heel thereof and the gullet, substantially as described.

481,202. GEAR-SHIFTING MECHANISM FOR HARVESTERS. GEORGE SCHUBERT, Walnut, Tex. Filed Aug. 3, 1891. Serial No. 401,612. (No model.)

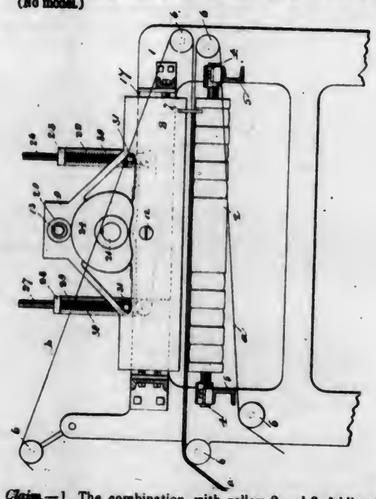


Claim.—1. In a gear-shifting mechanism for harvesters, the combination, with a bar f^5, provided with a guide f^6, having a slot f^7 and a depression f^8 in said slot f^7, an antifriction roller f^{11} on said guide, a block or track f^9, having a recess f^{10}, a movable bearing f, pivoted to the harvester-frame with one end and extending with its other end to the guide f^6, and provided with an antifriction roller f^5 to operate in the guide f^6, a draw-rod h', a shaft a, and a shaft b, bevel-pinions a^3 and b', as shown, and for the purpose described.

2. In a gear-shifting mechanism for harvesters, the combination, with a bar f^5, provided with a guide f^6, having a slot f^7 and a depression f^8 in said slot f^7, an antifriction roller f^{11} on said guide, a block or track f^9, having a recess f^{10}, a movable bearing f, pivoted with one end to the harvester-frame and extending with its other end in the slot f^7, substantially as shown, and for the purpose described, shaft a and shaft b, bevel-pinions a^3 and b', a shaft d, a drum d' on said shaft d, bevel-pinions b^3 and b^3 on the shafts b and d, a pivoted bearing e, a cord i, secured to the drum d' and to a spring-drum J^3, and attached to a conveyer to operate in the platform and connected to the rod f^5, a lever h^3, pivoted in the platform, as shown, and for the purpose described.

3. In a gear-shifting mechanism for harvesters, the combination, with a bar f^5, provided with a guide f^6, having a slot f^7 and a depression f^8 in said slot f^7, an antifriction-roller f^{11} on said guide, a block or track f^9, having a recess f^{10}, a movable bearing f, pivoted with one end to the harvester-frame and having an antifriction-roller on its other end to engage with the slot f^7, shaft a, and shaft b, bevel-pinion a^3 and bevel-pinion b', bevel-pinions b^3 and b^3 on shaft b and d, a pivoted bearing e, a drum d' on shaft d, a spring-drum J^3, pivoted in the platform, a sheave j', a cord i, passing over the sheave and having one end attached to the drum d' and the other end attached to the drum J^3, a conveyer attached to the said cord for operating in the platform, and a lever h^3, pivoted in the platform connected at one end to the bar f^5 and having its other end in the path of the conveyer, substantially as described.

481,203. FOLDING ATTACHMENT FOR PRINTING-PRESSES. RALPH C. SEYMOUR, Chicago, Ill. Filed Nov. 13, 1891. Serial No. 411,736. (No model.)



Claim.—1. The combination, with rollers 2 and 3, folding-blade 8, having an upward extension 9, an antifriction roller 20, journaled upon said extension, and a sliding block 10, secured to said folding-blade, of a guideway 15, adapted to receive said sliding block, shaft 21, cam 24, mounted upon said shaft and adapted to engage the roller 20, bar 25, secured to said folding blade, perpendicular rods 26 and 27, carried by said bar, standards 29, supporting the upper ends of said rods, and springs 30 upon said rods, substantially as described.

2. The combination, with folding-rollers, of a vertically-movable folding-blade, vertical guides on which the blade moves, a cam for elevating the blade, springs for depressing the blade, and means for adjusting the tension of the springs, substantially as described.

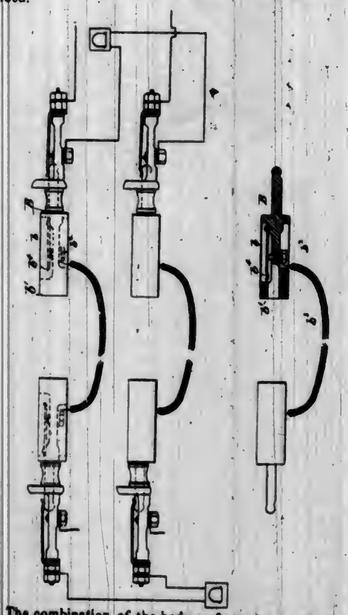
3. The combination, with a vertically-reciprocating folding-blade, of mechanism for raising said blade and folding-rollers, bar 25, rods 26 and 27, carried thereby, springs 30 on said rods, and nuts 31 for adjusting the tension of said springs, substantially as described.

481,204. PLUG SPRING-JACK. CHRISTOPHER A. SHEA, Boston, Mass. Filed Apr. 23, 1892. Serial No. 430,316. (No model.)

Claim.—1. The terminal or line connector herein described, the same consisting of two engaging circuit breaking and holding devices, each comprising a plug or terminal engaging device, a circuit-breaker, and a support or holder for a supplemental or additional testing-plug or circuit-breaker, and a flexible conductor connecting the insulated contact-points of the two devices, as and for the purposes described.

2. In a portable device for connecting or engaging electrically-charged line-terminals, a plug or terminal-engaging device, a flexible conductor, a circuit-breaker between the conductor and the engaging device, and a support or holder for a supplemental or additional testing-plug or circuit-breaker.

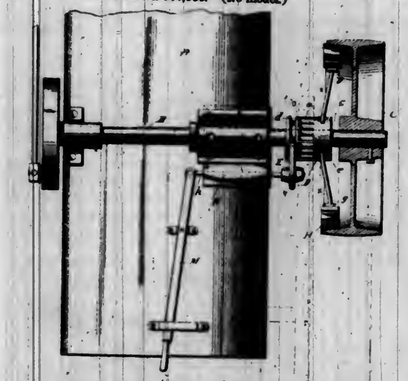
3. In a portable device of the character specified, a body or frame having at one end the terminal engaging or connecting piece and at the other end a support or hole for receiving and holding the end of a testing plug or instrument; a spring circuit-breaker carried by said body or frame, an insulated contact-point with which the spring is normally in contact, and a flexible conductor connected with the contact-point upon the side of the frame or body, as and for the purposes described.



4. The combination of the body or frame having the tongue or plug B, the extension b, the spring b^4, contact b^3, the extension having the plug hole b', as and for the purposes described.

5. The combination of the rigid spring-jack switch A, having the contact-breaker a^3 and plug-hole a^4, with the portable connecting device comprising the plug B, the contact-breaker b^4, the contact-point b^3, the conductor b^2, and plug-hole b', substantially as and for the purposes described.

481,205. CLUTCH. REUBEN SHETTLER, Port Huron, Mich. Filed Oct. 13, 1890. Serial No. 367,980. (No model.)



Claim.—1. In a friction-clutch, the combination of a clutched wheel flared or coned interiorly, a hub sliding on the same shaft therewith, sectional brake-shoes, and elastic spokes connecting said hub to the said sectional shoe, said spokes being connected to the hub at an angle oblique to the axis of the shaft, whereby the perimeter of the sectional brake-shoe is increased as the angle between the spoke and the hub approaches a right angle.

2. In a friction-clutch, the combination, with a sliding pinion and a fly-wheel, of rods fixed to the pinion and curved outwardly therefrom and carrying on their outer ends friction-shoes adapted to engage the fly-wheel, whereby when said pinion has been moved toward the fly-wheel the rods carrying the friction-shoes will be somewhat straightened, so as to increase the frictional contact between the shoes and their connection with the fly-wheel.

3. In a friction-clutch, the combination, with a sliding sleeve, of a rod or rods secured about midway of their length thereto and curved therefrom and carrying friction-shoes at their ends, substantially as specified.

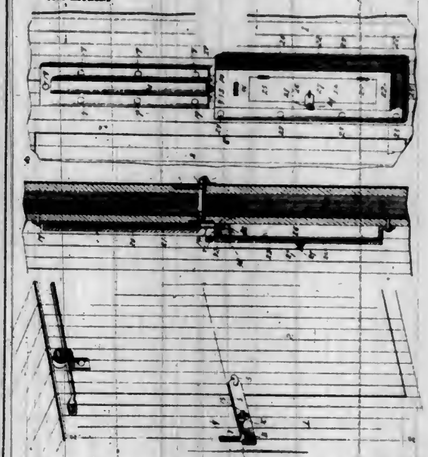
4. In a friction-clutch, the combination, with a sliding sleeve, of rods secured thereto about midway of their length and curved therefrom and also having their ends threaded, the shoe-irons perforated to receive the threaded ends of the rods, and jam-nuts for adjustably securing the irons to the rod, substantially as specified.

5. The sliding sleeve having the pinion-teeth formed therein and a wall or flange at the opposite end of said teeth, said sleeve also having an annular groove to receive the arm of the shifting lever and the rods carrying the shoes, which rods are curved or inclined outwardly, so that when their outer ends are met with resistance and their inner portions moved outwardly they will be somewhat straightened out, substantially as specified.

6. A friction-clutch having a sliding toothed sleeve adapted to mesh with a gear-wheel, in combination with yielding rods or bars carrying friction-shoes and having their ends bent outwardly and their inner portions fixed to the sleeve, substantially as specified.

7. The combination, with a power-shaft and fly-wheel thereon, of a sliding sleeve having a pinion and an annular groove formed therein, rods secured to said sleeve and curved therefrom, friction-shoes adjustably secured to said rods, the transversely-movable rod, the forked arm secured to one end of said shaft, and the hand-lever secured to the opposite end of the shaft, substantially as specified.

481,206. SEAL-LOCK. WASHINGTON SIMPSON, Argentine, Kans., and JOHN GEORGE, St. Joseph, Mo. Filed Feb. 8, 1892. Serial No. 420,776. (No model.)



Claim.—1. A car-seal register comprising a car-body and a car-door mounted movably upon said car-body, a hasp for retaining the door in closed position, and an oscillatory and longitudinally-movable bar, the outer end of said bar serving to retain the door in locked position and the inner end of the bar serving to sever an indicating-strip, substantially as set forth.

2. A car-seal indicator comprising a bar movable axially to unlock the car-door and also movable longitudinally to sever an indicating-strip and a guide-casing for the indicating-strip located above the severing end of the bar and located also within the car-body, substantially as set forth.

3. A car-seal indicator comprising a movable locking and severing bar working in the car-body, a guide-casing for the indicating-strips secured to the car-body above the severing end of the bar, and a receptacle for the severed strip-sections separate from the guide-casing and secured to the car-body below the severing end of the bar and below the guide-casing, the unlocking movement of the bar serving to sever the strip, substantially as set forth.

4. A car-seal indicator comprising a tubular sleeve located in the

car body and having an angular slot, a locking and severing bar of L form having its body portion provided with a radial stud to work in said slot, a guide-casing for an indicating-strip, and a receptacle for severed portions of said strip separate from the guide-casing and located oppositely from the point of location of said casing relative to the severing end of the bar, substantially as set forth.

5. A car-seal register comprising a hasp having a keyhole-slot, an L-shaped severing and locking bar working in the car-body and engaging a recess in the hasp, and a bolt having a flattened portion and an annular shoulder and designed to be connected at its outer end to the outer end of the locking and severing bar by a suitable seal, substantially as set forth.

6. A car-seal register comprising a receptacle for the severed indicating-strip sections, said receptacle being provided at its upper part with an internal movable partition for closing and opening said upper part of the receptacle, substantially as set forth.

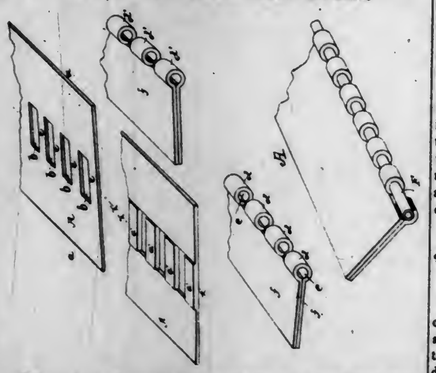
7. A car-seal register comprising a receptacle for the severed indicating-strip sections, said receptacle being provided at its upper part with a sliding partition for opening and closing said upper part of the receptacle and provided, also, at its front with a door which when closed comes into contact with the outer margin of the partition and retains said partition in closed position, substantially as set forth.

8. A car-seal register comprising a receptacle for severed indicating-strip sections, a movable partition mounted in the upper part of the receptacle and arranged to open and close said part of the receptacle, and a slot formed in the upper part of the receptacle and below the partition, substantially as set forth.

9. A car-seal register comprising a vertical guide-casing for the indicating-strips, said casing being secured to the inner surface of the car and being also closed at its top and open at its bottom, and a longitudinally-movable severing-bar mounted in the car-body and working below the open bottom of the casing, substantially as set forth.

10. A car-seal indicator comprising a locking and severing arm of L shape and having its inner end provided with a knife-edge, a hasp-pin, and a seal connected to the pin and to the outer end of the severing arm, substantially as set forth.

481,207. STRUCTURAL BLANK. EUGENE C. SMITH, New York, N. Y. Filed Dec. 16, 1891. Serial No. 415,321. (No model.)



Claim.—1. A structural blank consisting of a folded sheet-metal strip having a series of knuckles along one edge of the strip and an eye in each knuckle.

2. A structural blank formed of folded sheet metal and having a series of knuckles along one edge of the strip, an eye in each knuckle, and a continuous reinforcement through all the eyes.

3. A structural blank formed of folded sheet metal and having a series of knuckles along one edge of the strip, an eye in each knuckle, and a continuous tube through said eyes.

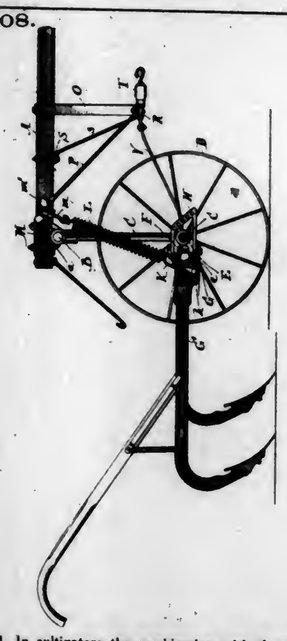
4. A reinforcement for the knuckles of hinge-butts, consisting of a continuous tube inserted through the eyes of said knuckles.

5. The combination of a continuous-folded sheet-metal blank having a rib with an eye in the rib and a continuous tube through said eye.

6. The combination of a continuous sheet-metal blank having a continuous rib with a continuous eye through said rib and a continuous reinforcement through said eye.

481,208. CULTIVATOR. WILLIAM SOBEY, Racine, Wis., assignor to the J. I. Case Plow Works, same place. Filed June 8, 1891. Serial No. 396,511. (No model.)

481,208.



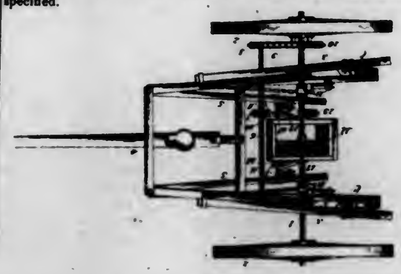
Claim.—1. In cultivators, the combination, with the team-pole and with the beam-arms dependent therefrom, of the plow-beams in swivel connection with said arms, the bracket O, extending laterally from the team-pole, the singletree-levers pivoted to said bracket, the draft-rods joined to the singletree-levers R near their pivot-points and in suitable connection with the plow-beams, the links *s*, connected to the ends of the singletree-levers, and a lever S, pivoted to the pole and having its ends connected to the link *s*, substantially as described.

2. In cultivators of the class described, the combination, with the team-pole and the swinging radius arms or bars, and the plow-beams in swivel connection with said arms or bars, of the lateral bracket O, the singletree-levers pivoted to said bracket, the draft-rods connected with the singletree-levers R near their pivot-points and in suitable connection with the plow-beams, the links *s*, connected to the ends of the singletree-levers, and a lever S, pivoted to the tongue and having its ends connected to the link *s*, substantially as described.

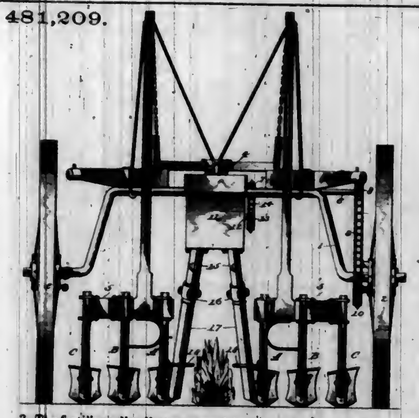
481,209. FERTILIZER-DISTRIBUTER. HARLOW C. STAHL, Bellevue, Ohio, and WILLIAM P. JOHNSTON, Monroe, La. Filed Mar. 5, 1892. Serial No. 424,185. (No model.)

Claim.—1. A fertilizer-distributer constructed to form a furrow on each side of the growing plants, deposit fertilizer in the furrow, and cover the same by one continuous operation, consisting, essentially, of the framework carrying the furrow-openers, the fertilizer-discharge tubes terminating in the rear of the furrow-openers, and the covering-shovels, as set forth.

2. The fertilizer-distributer comprising the axle, the opposite ground-wheels, and the converging shovel-carrying beams adapted to straddle a row, the hopper located thereabove, and the diverging distributing tubes or drills leading from the hopper and terminating directly in the rear of the inner shovels by the beams, substantially as specified.



481,209.



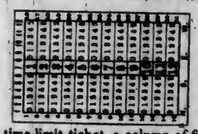
3. The fertilizer-distributer comprising the axle, the ground-wheels, the side bars, the opposite beams, and the series of shovel-carrying beams adapted to straddle a row, the superimposed centrally-located hopper, the agitating-shaft, means for communicating motion from the ground-wheels to the agitating-shaft, and the fertilizer-distributing tubes or drills depending from the hopper and terminating directly in rear of the inner shovels of the two series, substantially as specified.

4. The fertilizer-distributer comprising the axle, the ground-wheels, the side bars, the converging beams, and the series of shovels depending therefrom, the master-sprocket secured to the axle, the counter-shaft journaled in the side bars and carrying an inner and an outer sprocket, a chain connecting the latter with the sprocket of the ground-wheel, the hopper, the agitator-shaft therein, the sprocket-wheel on the outer end of the same, a chain connecting the inner sprocket of the shaft and the sprocket of the hopper, and fertilizer tubes or drills depending from the hopper and terminating in rear of the inner shovels or series, substantially as specified.

5. The fertilizer-distributer consisting of the straddle-row cultivator, a superimposed hopper, and distributing drills or tubes depending from the hopper and terminating in rear of the shovels, substantially as specified.

6. The fertilizer-distributer consisting of the straddle-row cultivator having the opposite series of shovels and their converging supporting-beams, the inner shovels being outwardly disposed and the outer shovels inwardly disposed, the superimposed centrally-located hopper, and the distributing tubes or drills depending from the hopper and terminating in rear of the outwardly-disposed shovels and in advance of the inwardly-disposed shovels, substantially as specified.

481,210. TIME-LIMIT TICKET. JOHN H. STEDMAN, Rochester, N. Y. Filed July 9, 1891. Serial No. 398,922. (No model.)



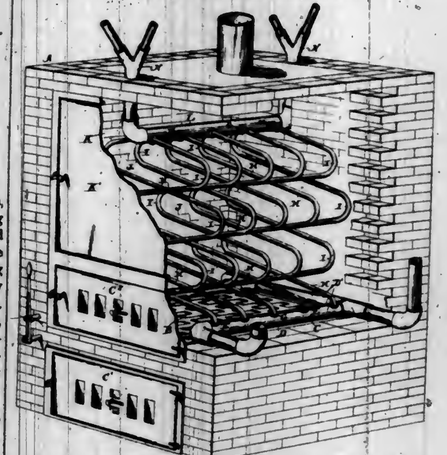
Claim.—1. In a time-limit ticket, a column of figures or characters denoting the hours of the day and figures or characters denoting fractional parts of the hours, said last-named figures or characters being arranged in lines or rows transverse to the column and opposite the figures or characters therein, substantially as described.

2. In a time-limit ticket, a central column of figures denoting the hours of the day and figures denoting fractional parts of the hours, arranged in lines or rows transverse to the column, and on each side thereof opposite the figures or characters denoting the hours, substantially as described.

3. In a time-limit ticket, a column of figures or characters indicating the hours of the day and transverse lines of figures or characters denoting fractional parts of said hours, arranged on each side of the column opposite to the figures or characters therein, those on one side of said column denoting fractions of the hours of a. m. and those on the opposite side fractions of the hours of p. m., substantially as described.

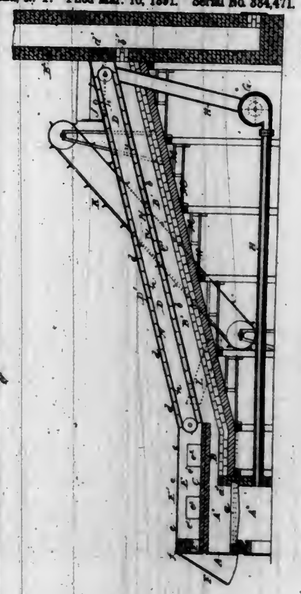
481,211. WATER-HEATER. CLARENCE STEES and GEORGE GRAUFFENBERGER, Altoona, Pa. Filed Mar. 22, 1892. Serial No. 425,896. (No model.)

Claim.—1. The combination, with the furnace having an enlarged cleaning-opening, of the hollow rectangular water-base of connected piping supported directly over the fire-grate, an upper horizontal distributing-pipe, and a series of vertically-arranged sinuous unbroken circulating pipes side by side with each other and removably connected to opposite side pipes of the hollow water-base and opposite sides of said distributing-pipe, said circulating-pipes being gently bent upon themselves at opposite sides of the furnace and passing to and from said opposite sides of the furnace to said distributing-pipe and intersecting centrally to form an interlaced pipe crown sheet for the fire-box, and a series of longitudinal open passages communicated with said cleaning-opening, substantially as set forth.



2. In a device of the class described, the combination, with the water-base, and the distributing-pipe having threaded perforations, and the circulating-pipes having screw-threaded ends, of the hollow securing-bushings provided with exteriorly-threaded shanks engaging the threaded perforations of the water-base and distributing pipes, and interiorly and reversely threaded flange sockets receiving the threaded ends of the circulating-pipes, substantially as set forth.

481,212. DRYING APPARATUS. WILLIAM D. SUNDERLIN, Green Island, N. Y. Filed Mar. 10, 1891. Serial No. 384,471. (No model.)



Claim.—1. In a drying apparatus, the combination, with a furnace, flue B, and inclined flue B', leading from the flue B, a smoke-stack with which the said flues communicate, covered delivery-chamber E and covered drying-chamber D, delivering to chamber E, a brick bed separating the delivery-chamber from the fire-chamber of the furnace, and an inclined metallic floor separating the said drying-chamber from the said inclined flue, of an air-inlet which communicates from the outside to the said delivery-chamber and an air-outlet for ventilating the said drying-chamber from its upper end, substantially as and for the purposes set forth.

2. In a drying apparatus, the combination, with a furnace, flue B, and an inclined flue B', leading from flue B and to a suitable smoke-stack, covered delivery-chamber E and inclined drying-chamber D, delivering into said chamber E, a brick bed between the delivery-chamber and the fire-chamber of the furnace, a metallic floor between the drying-chamber and the inclined flue, an air-inlet to the delivery-chamber, and an air-outlet from the upper end of the drying-chamber, of discharge openings provided with doors in the walls of the delivery-chamber, and an endless carrier moving through said drying-chamber in direction from the air-outlet toward the delivery-chamber, substantially as and for the purposes set forth.

3. In a drying apparatus, the combination, with a furnace, flue B, and an inclined flue B', leading from flue B and thence to a smoke-stack, covered delivery-chamber E and drying-chamber D, communicating with each other, a brick bed separating the delivery-chamber from the fire-chamber of the furnace, a metallic floor separating the drying-chamber from the said inclined flue, and an air-inlet opening from without to the said delivery-chamber, of an endless carrier working in the said drying-chamber in direction toward the delivery-chamber, an air-conduit leading from the upper end of the drying-chamber, and a ventilating-fan in the course of the said air-conduit, substantially as and for the purpose set forth.

4. In a drying apparatus, the combination, with a furnace, a delivery-chamber E, having in its wall an air-inlet opening, an inclined drying-chamber communicating with said delivery-chamber, and an endless carrier working in said drying-chamber in direction from its upper end toward the said delivery-chamber, of the adjustable hood F, capable of being heated by heat from the furnace and having its chamber communicating with the said air-inlet, an air-conduit leading from the upper end of the drying-chamber, a ventilating-fan having its inlet communicating with said air conduit, and a discharge-pipe leading from the ventilating-fan to the draft-chamber of the furnace, substantially as and for the purposes set forth.

481,218. BUCKLE. JUSTUS A. TRAUT, New Britain, Conn. Filed May 3, 1892. Serial No. 431,680. (No model.)



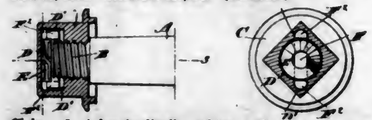
Claim.—1. In a buckle such as described, the combination, with the sheet-metal cross-piece and locking-lever, of the wire frame bent to form the side bars on which the sheet-metal cross-piece is clamped, the portion of said frame above the cross-piece being elevated and having the lever pivoted thereon and the portion below the cross-piece being depressed below the plane of the cross-piece, forming a cross-bar for the attachment of the web, whereby a clear straight passage is left for the co-operating web beneath the locking-lever and over the cross-piece and cross-bar, substantially as described.

2. In a buckle such as described, the combination, with the locking-lever and cross-piece, of the wire frame having the side bars to which the cross-piece is clamped, said frame below said cross-piece formed with bent-over loops to form ears for embracing the edges of the web, substantially as described.

3. In a buckle, the combination, with the wire frame bent to form the bottom cross-piece for the attachment of the suspender-end, the laterally-extending ears bent up over to embrace the edges of the web, the side bars, and the elevated pivoted bar extending across the buckle, of the sheet-metal cross-piece clamped on the side bars and the locking-lever having ears at each side embracing the pivot bar, substantially as described.

4. In a buckle, the combination, with the wire frame having its ends turned inwardly at the bottom to form a cross-bar, the locking-lever, and cross-piece, of the sheet-metal coupling bent around the ends of the frame forming the cross-bar to unite the same and having the extended ends with teeth i thereon, and the web passing between and clamped by the ends of the coupling, whereby the buckle is secured to the web without having the web passed around the cross-bar, substantially as described.

481,214. NUT-LOCK. AXEL WARNERJOLD, San Diego, Cal. Filed Nov. 25, 1891. Serial No. 413,036. (No model.)



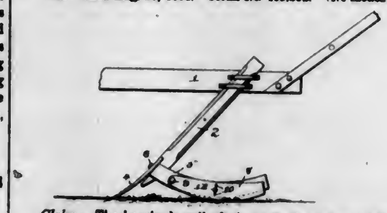
Claim.—1. A longitudinally and internally grooved nut provided with a longitudinally-sliding spring-pressed key crossing the bore of the nut, the said spring pressing the key toward that end of the bore which receives the bolt, substantially as set forth.

2. The combination, with a bolt formed transversely across the face of its threaded end with a recess, of a nut screwing on the said bolt, a key fitted to slide longitudinally in the said nut in the rear of its threaded opening, the said key being adapted to engage the recess in the end of the said bolt, and a spring held in said nut and pressing the said key toward the end face of the bolt, substantially as shown and described.

3. In a nut-lock, the combination, with a nut, of a key fitted to slide in the said nut in the rear of its threaded opening, the said key having a wedge-shaped shank and heads, the said nut having longitudinally-extending grooves in rear of its threaded opening and receiving said heads, substantially as shown and described.

4. In a nut-lock, the combination, with a nut, of a key fitted to slide in the said nut in the rear of its threaded opening, the said key having a V or wedge shaped shank and heads, the said nut having longitudinally-extending grooves in rear of its threaded opening and receiving said heads, and a spring pressing on the said key to engage its V-shaped shank with a recess in the end of the bolt, substantially as shown and described.

481,215. PLOW ATTACHMENT. GEORGE WATSON, Culpepper, Ala. Filed Aug. 20, 1891. Serial No. 403,232. (No model.)



Claim.—The herein-described plow attachment, consisting of the main curved bar adapted at its front end for detachable engagement with the lower end of the standard and the supplemental curved bar pivoted to the main bar and disposed along the side of the same and provided with a series of perforations concentric with the pivot, any of which may be thrown into register with an opening in the main bar, and a removable bolt for passing through the perforations of the two bars and thus adjusting the bars with relation to each other, substantially as specified.

481,216. APPARATUS FOR HEATING. GEORGE A. WATSON, Toronto, Canada, assignor of fifty-one one-hundredths to William Henry Laird, New York, N. Y. Filed Aug. 27, 1891. Serial No. 403,856. (No model.)

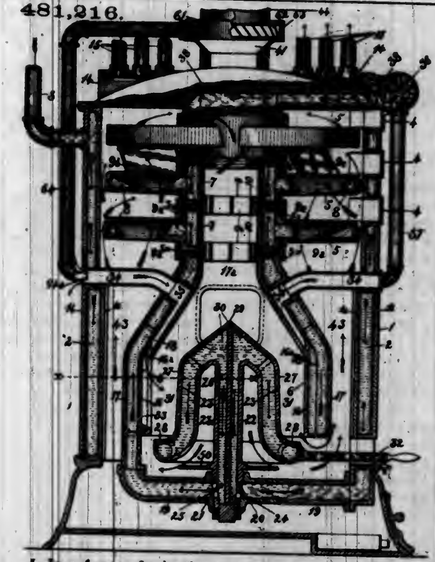
Claim.—1. In a furnace, the combination of a hollow conical grate forming a water-section, a water-section forming a fire pot surrounding the grate and in circulation therewith, and a series of circular water-sections in the upper portion of the furnace in circulation with the fire-pot.

2. In a furnace, the combination of a casing forming a water-section, a hollow fire-pot arranged concentrically therein and forming a water-section in circulation therewith, and a hollow grate arranged concentrically within the fire-pot and in circulation therewith and with the casing.

3. In a furnace for heating purposes, a fire-grate consisting of any suitable number of upright tubular bars tapering to a common apex at their upper ends, the lower ends of said bars connected together by a rim, and suitable means for supporting said grate within the fire-box, substantially as described.

4. In a furnace for heating purposes, a grate consisting of any suitable number of upright tubular bars, the upper ends of which taper to a common apex and form thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between the chamber at the top and the hollow rim, and suitable means for supporting said grate and providing means for circulation of water through the water-chambers in said grate, substantially as described.

481,216.



5. In a furnace for heating purposes, a grate consisting of any suitable number of tubular bars tapering on their upper ends to a common apex and forming thereon a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between the chamber at the top and said hollow rim, said upright grate provided with a spindle, the lower end of which is journaled in bearings formed in a water-leg passing across the base of the fire-box and in circulation with one or more water-sections of the furnace, substantially as described.

6. In a furnace for heating purposes, a grate consisting of any suitable number of upright tubular bars, the upper ends of which taper to a common apex and the lower ends of which are connected together by means of a rim, and a chamber formed between the inner sides of said tubular bars serving as a combustion-chamber, said grate suitably supported in the fire box, substantially as described.

7. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form a chamber thereat suitable as a water-space, the lower ends of said bars connected together by a hollow rim, said bars connecting the water-space at top of said grate with said hollow rim and serving as water-ways between them, and a chamber formed between the inner sides of said bars, which chamber is utilized as a combustion-chamber, said grate suitably supported within said fire-box, substantially as described.

8. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between said water-space and hollow rim, said upright grate suitably supported within the fire-box, a water-way connecting said grate with one or more of the water-sections of said furnace, substantially as described.

9. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which bars taper to a common apex and form thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between said chamber and said hollow rim, said upright grate supported by a hollow spindle, the lower end of which is journaled in suitable bearings, said grate being divided into two sections by a diaphragm, said grate in circulation with one or more water-sections of the furnace, said diaphragm diverting the course of the flow of water through said grate, substantially as described.

10. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said grate supported by a hollow spindle, said grate and spindle divided into two sections by a diaphragm, the lower end of said spindle journaled in bearings formed in the water-way passing across the fire-box, said diaphragm diverting the flow of water from said water-way through said upright grate, substantially as described.

11. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form thereat a chamber suitable as a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between said chamber and said hollow rim, and a chamber formed between the inner sides of the upright bars and used as a combustion-chamber, said grate supported by a spindle, the lower end of which is journaled in suitable bearings, said grate and spindle divided by a diaphragm, said grate and spindle being in circulation with one or more water-sections of the furnace, substantially as described.

12. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between said chamber and hollow rim, said grate supported by a hollow spindle, the lower end of which spindle is journaled in bearings formed in the water-way passing across the base of fire-box, said water-way connecting the water-space in the casing of the furnace with the water-space in the fire-pot walls, said spindle fitted with an ingress-port and an egress-port in that portion of it in said water-way, said grate and spindle divided by a diaphragm to divert the flow of the water from the water-space in the casing of the furnace across said water-way through said grate to the water-space in the fire-pot walls, substantially as described.

13. In a furnace for heating purposes, a grate consisting of any suitable number of tubular bars tapering on their inner ends to a common apex and forming thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between the chamber at the top and said hollow rim, said upright grate provided with a spindle, the lower end of which is journaled in bearings formed in a water-leg passing across the base of the fire-box and in circulation with one or more water-sections of the furnace, said spindle fitted with a baffle-plate to protect the bearings and heated products of combustion from the fire above, substantially as described.

14. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and the lower ends forming thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between said chamber and said hollow rim, said upright grate supported by a hollow spindle, the lower end of which is journaled in suitable bearings, said grate being divided into two sections by a diaphragm, said grate in circulation with one or more water-sections of the furnace, said diaphragm diverting the course of the flow of water through said grate, said spindle fitted with a baffle-plate to protect the bearings and lower end of said spindle against the action of the heated air and products of combustion from the fire above, substantially as described.

15. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form thereat a chamber suitable for a water-space, the lower ends of said bars connected together by means of a hollow rim, said grate supported by a hollow spindle divided into two sections by a diaphragm, the lower end of said spindle journaled in bearings formed in the water-way passing across the fire-box, said diaphragm diverting the flow of water from said water-way through said upright grate, said spindle fitted with a baffle-plate to protect the bearings and lower end of said spindle against the action of the heated air and heated products of combustion from the fire above, substantially as described.

16. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form thereat a chamber suitable as a water-space, the lower ends of said bars connected together by means of a hollow rim, said bars serving as water-ways between said chamber and said hollow rim, and a chamber formed between the inner sides of the upright bars and used as a combustion-chamber, said grate supported by a spindle, the lower end of which is journaled in suitable bearings, said grate and spindle being in circulation with one or more water-sections of the furnace, said spindle provided with a baffle-plate to protect the bearings and lower end of said spindle against the action of the heated air and heated products of combustion from the fire above, substantially as described.

17. In a furnace for heating purposes, a grate consisting of any suitable number of upright bars, the upper ends of which taper to a common apex and form thereat a chamber suitable for a water-space, the lower ends of said bars connected together by a hollow rim, said bars serving as water-ways between said chamber and hollow rim, said grate supported by a hollow spindle, the lower end of which spindle is journaled in bearings formed in the water-way connecting the water-space in the casing of the furnace with the water-space in the fire-pot walls, said spindle fitted with an ingress-port and an egress-port in that portion of it in said water-way, said grate and spindle di-

vided by a diaphragm to divert the flow of the water from the water-space in the casing of the furnace across said water-way through said grate to the water-space in the fire-pot walls, said spindle fitted with a baffle-plate to protect the bearings and lower end of said spindle against the action of the heated air and heated products of combustion from the fire above, substantially as described.

18. In a furnace for heating purposes, a water-section consisting of a hub, a series of tubular water-arms radiating outwardly from said hub, the water-space in said hub and water-arms divided into any number of chambers, which chambers radiate outwardly from the inner wall of said hub, ingress-ports located on the under side of said hub in each alternate chamber, and an egress-port located on the upper side of said hub in the remaining chambers, substantially as described.

19. In a furnace for heating purposes, a water-section consisting of a hub and any suitable number of water-arms radiating outwardly from said hub, the water-space formed by said arms and hub divided into any number of chambers, and an ingress-port entering into each alternate chamber from the under side of said hub, and an egress-port entering out of the remaining chambers on the upper side of said hub, said water-arms consisting of a tubular pipe triangular-shaped in cross-section, substantially as described.

20. In a furnace for heating purposes, a water-section consisting of a hub from which radiates a series of water arms, each of which water-arms consists of a tubular pipe triangular-shaped in cross-section, said hub and water-arms being hollow and the space between them divided into any number of water-chambers by diaphragms radiating from the inner wall of said hub, each alternate chamber provided with an ingress-port and the remaining chambers provided with egress-ports, each of said water-arms consisting of two outwardly-radiating water-ways connected together at their outer ends, said ingress-ports so arranged that the water entering the chamber between two diaphragms flows outwardly through two adjacent water-ways of two adjacent water-arms and inward again to the hub through two remote water-ways of said water-arms, substantially as described.

21. In a furnace for heating purposes, a fire-pot consisting of double walls vertical from the base to a point level with the top of the fire-pot, from which point they taper inwardly to the coal-magazine, the space between said walls utilized as a water-space and connected to the water-space in the casing of the furnace by means of a water-leg passing across the base of the fire-box, said water-leg supporting the fire-grate, which fire-grate is hollow and forms one of the water-sections of said furnace, said fire-pot water-section in circulation with the remaining water-sections in the furnace, substantially as described.

22. In a furnace for heating purposes, the combination of a fire-pot, the walls of which taper to form a funnel-shaped mouth on the lower end of the coal-magazine, and a series of water-sections, each of which consists of a hub and any suitable number of water-arms radiating from said hub, said hubs and upper end of funnel-shaped mouth of coal-magazine screw-threaded on their inner faces to receive a coupling-nipple, said coupling-nipple provided on its inner face with a holding-surface for the coupling tool or wrench, said sections and fire-pot coupled by means of said nipples, substantially as described.

23. A furnace for heating purposes, consisting of a casing composed of an inner shell and an outer shell, a water-space between said shells, a fire-grate having a water-chamber formed therein, a water-chamber in said fire-grate connected with water-chamber in the casing of the furnace by means of a water-leg, a fire-pot consisting of double walls with a water-space between them, the water-space in said fire-pot in circulation with water-space in fire-grate, and a series of water-sections in circulation with the fire-pot water-section and with each other and with a water-head, to which are connected the flow-pipes leading to their respective destinations, and the return-pipes connected to water-chamber in said casing, substantially as described.

24. A furnace for heating purposes, consisting of an outer and inner shell having a water-space between them, a hollow fire-grate having formed therein a water-chamber, which water-chamber is connected to the water-space in casing of said furnace by means of a suitable water-leg, a fire-pot having a water chamber formed therein, which water-chamber is connected to a water-chamber in the fire-pot by means of the water-leg, a series of water sections located above the fire-pot, each of which consists of a hub and any suitable number of water-arms radiating from said hub, said sections suitably connected together and in circulation with the other water-sections of the furnace and with a water-head, to which water-head are connected the flow-pipes of the furnace, leading to their respective destinations, and the return-pipes entering said water-chamber in the casing of the furnace, substantially as described.

25. In a furnace for heating purposes, consisting of an outer and inner shell with a water-chamber between them, a fire-grate having a water-chamber formed therein, which water-chamber in the fire-grate being in circulation with the water-chamber in the casing of the furnace, a fire-pot consisting of two walls with a water-space between them, which water-space is in circulation with the water-space in the fire-grate, a series of water-sections located above the fire-pot, each of which water-sections consists of a hub and any suitable number of water-arms radiating from said hub, the chamber formed in said hub and water-arms divided into any number of sub-chambers by diaphragms, an ingress-port entering into each alternate sub chamber, and an egress-port entering out of the remaining chambers, substantially as described.

26. A furnace for heating purposes, consisting of a casing composed of an inner and outer shell, a water-space between said shells, a fire-pot having formed therein a water-space, which water-space is connected with a water-space in the casing of the furnace, a fire-pot having formed therein a water-chamber, which water-chamber is in circulation with the water-space in the fire-grate, the walls of which fire-pot taper inward at their upper ends and form a funnel-shaped mouth for the coal-magazine, a series of water-sections located above said fire-pot, each of which water-sections consists of a hub and any suitable number of water-arms radiating outward from the inner wall of said hub, said hubs and upper end of fire-pot screw-threaded on their inner faces to receive the coupling-nipple, which coupling-nipple is provided on its inner face with a holding-surface for the coupling tool or wrench, and a water-head in circulation with said water-sections, to which water-head are connected the flow-pipes leading to their respective destinations, return-pipes being connected to the water-chamber in the casing of the furnace, substantially as described.

27. A furnace for heating purposes, provided with a fire-box consisting of a fire-pot, the inner walls of which are corrugated and the inner ends of said corrugations enlarged, a grate consisting of upright tubular bars connected together at the top and bottom, a fuel-space between the bars of said upright grate and the inner walls of said fire-pot, and a combustion-chamber between the inner sides of said grate-bars, substantially as described.

28. A furnace for heating purposes, provided with a fire-box, which fire-box consists of a fire-pot, the walls of which fire-pot are upright to a certain point, then taper inwardly and form a funnel-shaped mouth for the coal-magazine, the inner walls of said fire-pot corrugated to the top of the vertical level, said corrugations enlarged to their inner ends, a grate consisting of upright bars connected together at their base by a rim and their upper ends tapered inwardly to a common apex, and a combustion-chamber formed on the inner side of the grate-bars, said grate suitably supported in said fire-box, substantially as described.

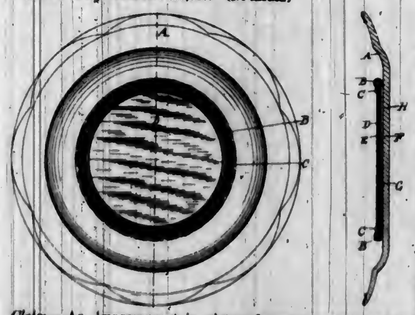
29. A furnace for heating purposes, provided with a fire-box consisting of a fire-pot, the walls of which are vertical to a certain point and taper from said point inwardly, forming a funnel-shaped mouth for the coal-magazine, the inner walls of said fire-pot corrugated, the inner ends of which corrugations are enlarged, a fire-grate consisting of upright bars vertical to a point level with the top of the vertical part of fire-pot walls and tapering from said point to a common apex, a combustion-chamber formed on the inner sides of said grate-bars, and a fuel-space between said space and fire-pot walls, substantially as described.

30. A furnace for heating purposes, provided with a fire-box consisting of a fire-pot, the walls of which fire-pot are vertical to a certain point and taper from such point inwardly and upwardly, forming a funnel-shaped mouth for the coal-magazine, the inner walls of said fire-pot being corrugated on the vertical portions, said corrugations enlarged on their inner ends, a water-chamber formed in the said fire pot walls, a fire-grate consisting of upright tubular grate-bars, the upper ends of which taper inward to a common apex, forming at the top a water-chamber, a hollow rim connecting the lower ends of said grate-bars, said grate-bars serving as water-ways between said chamber at the top and said hollow rim, said grate supported by a spindle journaled in bearings formed in the water-way passing across the base of said fire-box from the water-chamber in the casing of furnace to water-chamber in the fire-pot walls, the water-space in said fire-grate being in circulation with water-space in the casing of the furnace and with fire-pot water-space, the casing of the furnace consisting of an inner and outer shell with water-space between them, which water-space is in circulation with the water-space in fire-grate and fire-pot, a series of water-sections located above said fire-pot, each of which water-sections consists of a hub and any suitable number of water-arms radiating outward from said hub, and a water-head located above said water-sections, the return-pipes entering water-section in the casing of the furnace, and flow-pipes leading from the water-head, the fire-grate being provided with a hollow shaker fitted with a faucet, substantially as described.

31. A furnace for heating purposes, consisting of a series of water-sections, which water-sections are composed of a hub and any suitable number of water-arms radiating outward from said hub, said hubs screw-threaded on their inner faces and coupled by means of a nipple having a right and left thread cut on its outer face and fitted on its inner face with a holding-surface for the coupling-tool or wrench, and a circular baffle-plate surrounding each of the joints formed by the union of the hubs of said sections, substantially as described.

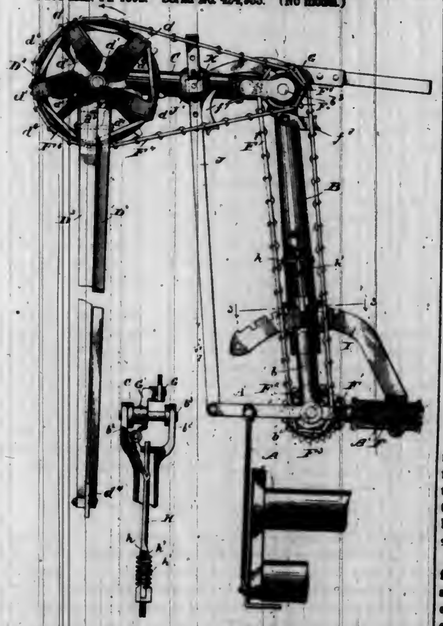
32. A furnace for heating purposes, consisting of a series of water-sections, each of which is composed of a hub and any suitable number of water-arms radiating from said hub, said hubs screw-threaded on their inner faces and coupled together by means of a nipple having a right and left screw-thread cut on its outer face and fitted on its inner face with a holding-surface for the tool or wrench, a baffle-plate surrounding each of the joints formed by the union of said water-sections, and suitable packing between said baffle-plate and hub, substantially as described.

481,217. PICTURE-FRAME. PAUL WIENER, Chicago, Ill. Filed Apr. 23, 1892. Serial No. 430,319. (No model.)



Claim.—An improvement in picture-frames, consisting of the metal band I J, provided with an internal flange at one edge and the portion J reduced in width to form a space for inserting a glass, picture-card, and a paper-board back, in combination with a semicircular plate G, provided with an internal flange inserted within and secured to the rim portion I, the dish-shaped back A, and a border B, placed around the rim I J, as and for the purpose specified.

481,218. HARVESTER-REEL SUPPORT. JOHN F. APPLEBY, Chicago, Ill., assignor to the William Deering & Company, same place. Filed Mar. 14, 1892. Serial No. 424,983. (No model.)



Claim.—1. The combination, with a reel-standard pivoted at its base, of a quadrant secured to the harvester-frame, a latch, a hand-lever having the horizontally-sliding fulcrum, and mechanism connecting said latch with said fulcrum, whereby lateral movement of the lever-fulcrum produces a disengaging movement of the latch, substantially as and for the purpose set forth.

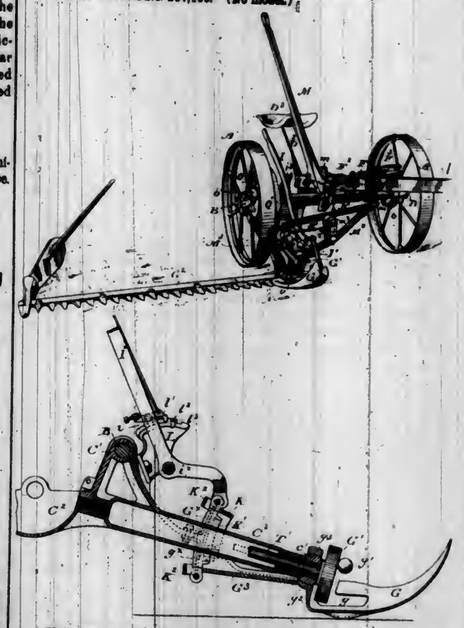
2. The combination, with a reel-standard pivoted at its base, of a quadrant secured to the harvester-frame, a latch-rod, a hand-lever having a sliding fulcrum, and a bell-crank connecting said latch-rod to said fulcrum, substantially as and for the purpose set forth.

3. The combination, with a hollow reel-standard pivoted at its base, of a latch-rod within said standard, a quadrant with which the said latch engages, secured to the harvester-frame, a hand-lever having the horizontally-sliding fulcrum, and a bell-crank pivoted below the fulcrum-pin, having an arm reaching substantially to the center of the standard and to a rod connecting said latch to said fulcrum-piece, substantially as and for the purpose set forth.

4. The combination, with the pivoted standard B, of the quadrant I, the arm C, pivotally connected to the standard B, the bar J, and the locking-pins K and H, the former adapted to engage the said bar J and the latter the quadrant I and both connected to the lever G in such a manner that the latter may operate either of the latching devices at will, substantially as and for the purpose set forth.

5. The reel-spider, the reel-arms seated therein, the seats for the said arms, having a flange at one side and a single bolt passing through the said flange and through both of said arms, one of which arms passes behind the connecting-bar d^9, and a reel-fan secured to the ends of the said arms and adapted to draw them nearer together, thus forcing one of the arms against the outer walls of its socket and the other arm against the connecting-bar d^9, substantially as described.

481,219. MOWER. WILLIAM R. BAKER, Chicago, Ill., assignor to the McCormick Harvesting Machine Company, same place. Filed Oct. 4, 1888. Serial No. 287,168. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the main axle, the two carrying-wheels, the floating gear-frame having gear-case and forwardly-extending crank-shaft sleeve at the grass side of the machine, the finger-bar ball jointed directly to the end of said sleeve, and the vertical guide-brace connected with the heel extension of said finger-bar and arranged to play against said sleeve in rear of the shoe.

2. The combination, substantially as hereinbefore set forth, of the floating gear-frame, the finger-bar directly hinged to the crank-shaft sleeve at the grass side of the machine by a universal joint, the heel extension from the inner shoe, the guide-loop from said heel extension embracing said sleeve, and the tilting or rocking lever.

3. The combination, substantially as hereinbefore set forth, of the floating gear-frame having the crank-shaft sleeve at the grass side, the finger-bar directly hinged to said sleeve by a universal joint, the heel extension from the inner shoe beneath said sleeve, the annular bearing for said extension embracing the sleeve, and the guide-loop having an annular journal entering said bearing.

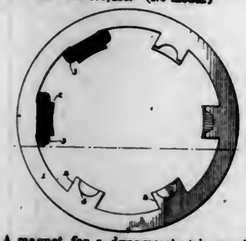
4. The combination, substantially as hereinbefore set forth, of the

floating gear-frame having the crank-shaft sleeve at the gram side, the finger bar directly hinged to said sleeve by a universal joint, the heel extension from the inner shoe beneath said sleeve, the annular bearing from the extension embracing the sleeve, the guide loop having an annular journal entering said bearing, and the keepers from the floating gear-frame retaining said loop and its journal in position.

5. The combination, substantially as hereinbefore set forth, of the floating gear-frame having a crank-shaft sleeve at the gram side, the finger-bar directly hinged to said sleeve by a universal joint, the heel extension from the inner shoe beneath said sleeve, the annular bearing from said heel extension embracing the sleeve, the guide-loop having an annular journal entering said bearing, and the tilting lever pivoted to the frame and also the guide-loop.

6. The combination, substantially as hereinbefore set forth, in a side-cut mower, of the floating gear-frame, the finger-bar hinged directly thereto at the gram side of the machine, the standard from the heel of the finger-bar, the coiled spring connecting said standard with the floating frame, and the lifting-lever connected with said standard.

481,220. ELECTRIC MOTOR AND GENERATOR. CHARLES S. BRADLEY, Avon, N. Y., and JAMES J. WOOD, Fort Wayne, Ind. Filed Aug. 22, 1891. Serial No. 403,413. (No model.)



Claim.—1. A magnet for a dynamo-electric machine or motor comprising a laminated core, the side plates of the core having their polar projections bent over the end of the magnetizing-coils to retain them in position.

2. A multipolar magnet for a dynamo-electric machine or motor, comprising a series of laminated rings having projecting pole-pieces, the outer layers of the ring having their polar projections bent outwardly, so as to retain the magnetizing-coils in position.

3. A magnet for a multipolar machine comprising a series of laminated iron plates having projecting pole-pieces, auxiliary plates with similarly-located projections superposed upon the iron plates, each projection being provided with a recess, so as to form two tongues to each set of coils, and polarizing-coils anchored by the said tongues when bent.

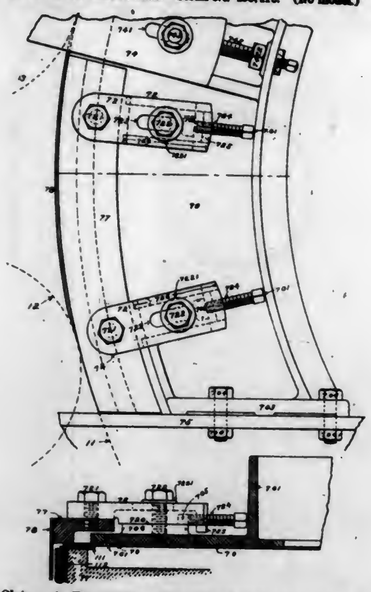
481,221. SAW-SET. SAMUEL W. BUENOS, Argentine, and AMBROSE BASH, Turner, Kans.; said Buenos assignor to George A. Taylor, Argentine, Kans. Filed Feb. 1, 1892. Serial No. 419,863. (No model.)



Claim.—1. A hand saw-setting implement comprising a pair of pivotal movable handles or arms having each a setting spur or jaw, a pivot bolt or pin extending through said arms, a pair of clamping-yoke sections pivoted upon the bolt or pin and provided with a separating-spring, and a stirrup adjustably connected to said yoke members and having eccentric portions for engaging one of the said members and drawing said members toward each other, substantially as set forth.

2. A hand saw-setting implement comprising a pair of pivotally-connected handles or arms, each having a setting jaw or spur, a pivot pin or bolt passing through said arms, a pair of clamping-yoke members pivotally connected to said bolt or pin, a spring for separating said yoke members, a pair of bolts passing transversely through said yoke members, and a stirrup connected to the heads of said bolts and having eccentric ends for engaging one of the yoke members and drawing said members toward each other, substantially as set forth.

481,222. DEVICE FOR SUPPORTING AND ADJUSTING THE FRONT AND BACK COVERS OF CARDING-ENGINES. WILLIAM P. CANNING, Lowell, Mass., assignor to the Lowell Machine Shop, same place. Filed June 3, 1892. Serial No. 435,418. (No model.)



Claim.—1. The combination, with a main bend or arch of a carding-engine, a cover, and a plate-bend to which the cover is secured, of supporting-brackets which, respectively, are connected with the plate-bend near the opposite ends of the plate-bend and means for adjustably securing the said brackets to the main bend or arch, substantially as described.

2. The combination, with the main bend or arch of a carding-engine provided with plane-surfaced spots 706, a cover, and a plate-bend to which the cover is secured, of supporting-brackets which, respectively, are connected with the plate-bend near the opposite ends of the plate-bend and each of which brackets is provided with a plane face 726, fitted to move upon the plane surface of the corresponding spot 706, means for holding the said brackets to the main bend or arch, and means for adjusting the said brackets with relation to the main bend or arch, substantially as described.

3. The combination, with the main bend or arch of a carding-engine provided with plane-surfaced spots 706, a cover, and a plate-bend to which the cover is secured, of supporting brackets 72 72, which, respectively, are connected with the plate bend near the opposite ends of the plate-bend and each of which brackets is provided with a plane face 726, fitted to move upon the plane surface of the corresponding spot 706, and also is formed with a slot 723 and a flange 725, a bolt 722, passing through the slot 723 and into the main bend or arch, and a set-screw 724, fitted to a threaded hole in the flange 725 and taking bearings at its ends against projections on the main bend or arch, substantially as described.

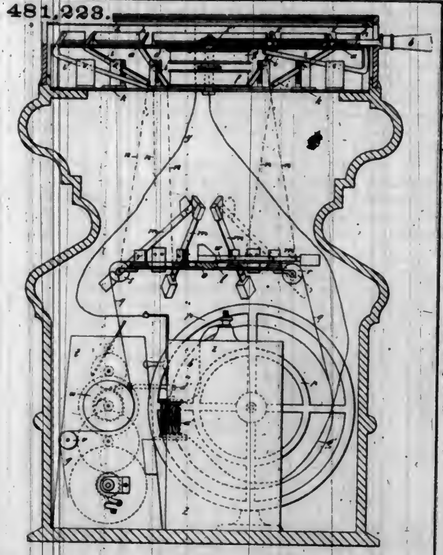
481,223. SHIP'S TELEGRAPH. ALBERT R. W. H. CORDS, Hamburg, Germany. Filed Jan. 14, 1892. Serial No. 418,006. (No model.)

Claim.—1. The combination of a transmitting-lever *c*, adapted to operate the pointer of the receiving-instrument, with a series of levers *i*, vibrated by lever *c*, and with a set of recording-levers *m*, connected to levers *i*, substantially as specified.

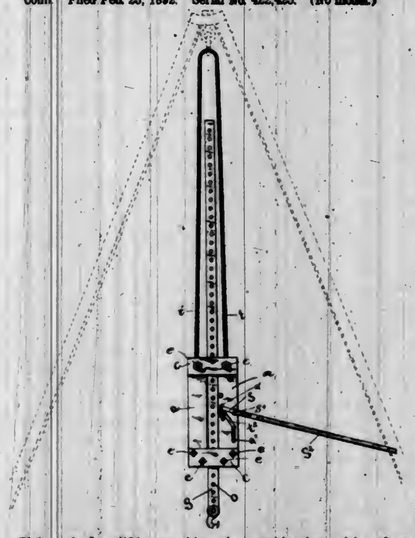
2. The combination of a ship's dial with a notched ring *h*, transmitting-lever *c*, adapted to move over the dial, levers *i*, engaging the notched disk and vibrated by the lever *c*, and with recording-levers *m*, connected to levers *i*, substantially as specified.

3. The combination of a ship's dial with the transmitting-lever *c*, intervening levers *i*, recording-lever *m*, a paper-feeding clock-work having a ratchet-wheel *f'*, a detent armature engaging the same, and with the ring *x*, adapted to make contact with the lever *c* and to close the circuit for intermittently releasing the clock-work, substantially as specified.

481,228.



481,224. LIFTING-MACHINE. JOSEPH S. CROUCH, Centre Groton, Conn. Filed Feb. 23, 1892. Serial No. 422,425. (No model.)



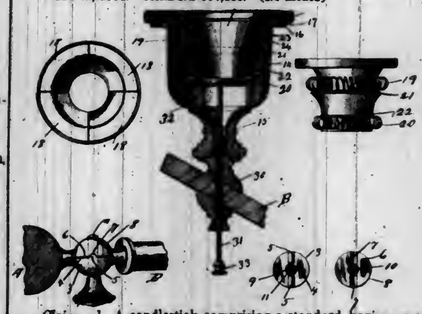
Claim.—1. In a lifting-machine, the combination, with a frame the upper portion of which is provided with two bolts, and the side plates each provided with a hole adjacent to each of the bolts, said holes being covered by the cross-pieces of the frame, of a supporting-rod doubled upon itself and the ends formed into eyes which surround the bolts and each eye having its outer surface provided with a notch near the end, and a locking-pin through each hole of the plates and through each notch of the eyes, substantially as set forth.

2. In a lifting-machine, the combination, with a frame comprising front and rear side pieces, top and bottom cross-pieces, and interposed plates at the bottom of the side pieces, whereby a space is formed between the opposite cross-pieces and the top and rear side pieces, respectively, of a rack within said space, comprising two perforated bars, the inner faces of which are even with the inner faces of the side pieces, a series of cross-bars secured in the perforations of the perforated bars, an operating and a retaining pawl pivotally secured between the front side pieces, the free ends of which are adapted to pass the joint between the edges of the rack and the side pieces and engage with the cross-pieces of the rack, and a lever for moving the operating-pawl, substantially as set forth.

3. In a lifting-machine, the combination, with the frame, each side of which is provided with two slots, one of which is curved, of a vertically-movable rack within the frame, a bifurcated lever pivotally secured to the side of the frame, the inner ends of said bifurcation being connected by means of a bolt through the curved slot, a hook pivotally secured upon the bolt within the frame, two arms or links pivotally secured to the bolt upon the outside of the frame, the free ends of which are connected by means of a bolt through the other slot, a spring upon said last-mentioned bolt, the free end of which engages with the pawl upon the first-mentioned bolt, and a retaining-bolt within the frame for engaging with the rack, substantially as set forth.

4. In a lifting-machine, the combination, with a frame, of a rack therein, a lever pivotally secured to the frame, the inner end of which is provided with a bolt, a retaining-pawl within the frame, and an arm secured to each pawl, said arms extending toward the outer end of the lever, whereby they may be operated and the pawls withdrawn from the rack and the rack be permitted to descend, substantially as set forth.

481,225. CANDLESTICK. JOHN P. DALKIDEN, Chicago, Ill. Filed June 22, 1891. Serial No. 397,108. (No model.)



Claim.—1. A candlestick comprising a standard having smooth faces, arms having smooth faces, a pivot-pin passing through those portions of the standard and arms having said smooth faces and having screw-threaded connection with one of said parts, and interfitting grooves and ribs on said smooth faces.

2. A candle-holding cup having an inward and downward projecting rim at its upper end portion and a plurality of curved spring-plates located within said cup and provided with upwardly and outwardly projecting flanges located beneath and surrounding said rim.

3. A candle-holding cup provided with a cap having an inwardly and downwardly projecting rim and a plurality of curved spring-plates located within said cup and provided with upwardly and outwardly projecting flanges located beneath and surrounding said rim.

4. A candle-holding cup provided with a plurality of curved plates and a spring surrounding and retained upon said plates.

5. A candle-holding cup provided with a plurality of curved plates provided on their rear faces with shoulders located near their upper and lower ends and springs surrounding said plates and located adjacent said shoulders.

6. A candle-holding cup provided with a plurality of curved spring-plates provided on their rear face with shoulders located in horizontal alignment to form a continuous annular shoulder and a spring surrounding said plates and located adjacent to said shoulder.

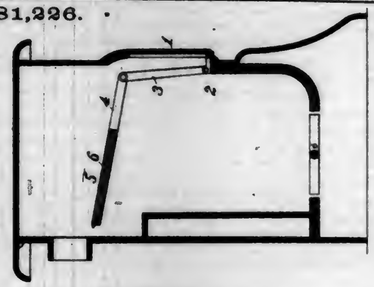
7. A candle-holding cup having a downwardly-projecting rim at its upper end portion, a ring supported upon shoulders on said cup and a plurality of curved spring-plates located within said cup and provided with outwardly-bent flat portions resting on said ring and upwardly-projecting flanges surrounding said rim.

481,226. STOVE. ISAAC DE HAVEN, Allegheny, Pa. Filed Mar. 18, 1892. Serial No. 425,412. (No model.)

Claim.—1. In a stove, the combination of a vertically-moving door and a movable deflecting-plate connected thereto and adapted to serve as a counter-balance for the door, substantially as set forth.

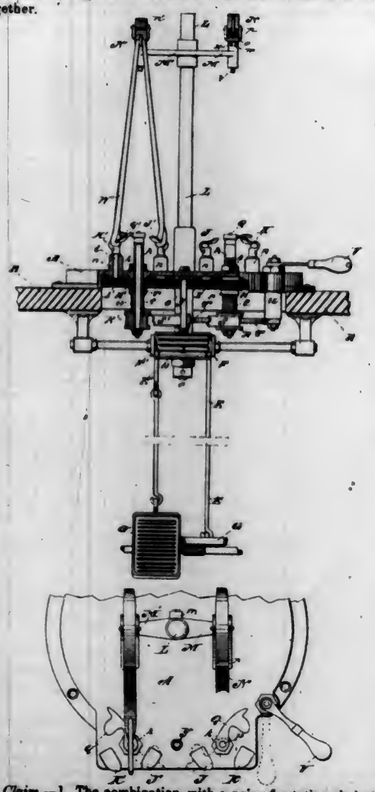
2. In a stove, the combination of a vertically-movable door and a pivoted deflecting-plate provided with forwardly-projecting arms connected to the door, whereby the latter is adapted to serve as a counter-balance for the door, substantially as set forth.

481,226.



481,227. SKEIN-TWISTING MACHINE. LUCIUS DINOCK, Leeds, Mass. Filed Feb. 13, 1892. Serial No. 421,433. (No model.)

Brief.—The middle of the skein is thrown over the finger N and an end placed on each of the hooks J K. By means of the treadle G the hooks are rotated to twist each half of the skein. Then by means of the lever V the switch-carrier Q carries the loop end of the skein from the hook K to the hook J. Then by the treadle G' the hook J is rotated in the opposite direction to twist the two halves of the skein together.



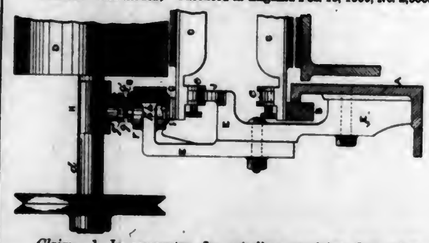
Claim.—1. The combination, with a pair of rotating skein-twisting hooks and with mechanism for rotating and stopping them in a determined position, of a switch-carrier adapted to enter the loop of a skein upon one hook from the rear of said hook when the two hooks are at rest with their mouths opposite and transfer said loop to the other hook and means, substantially as shown and described, for reciprocating the switch-carrier.

2. The combination, with a pair of rotating skein-twisting hooks and with mechanism for rotating and stopping them in a determined position, of a switch-carrier device consisting of a rotating carrier pivoted, as shown and described, to rotate over the hooks and transfer the loop of the skein from one hook to the other, and a rock-shaft journaled in its frame and provided with a handle and lever-arm, and belt and pulley connecting the arm with the spindle of the switch-carrier, whereby the reciprocation of the carrier is effected upon the rotation of the handle.

3. The combination of a pair of skein-twisting hooks adapted to distend the loop end of a skein, leaving them for the purpose described, means for rotating and stopping them in the required position, and a reciprocating switch-carrier for transferring a loop end of the skein from one hook to the other.

4. The combination, with skein-twisting hooks of the character described, of a switch-carrier having its end in the form, as shown and described, of a wedge or cone provided with shoulders at its base and adapted thereby to enter a loop upon a hook and take said loop therefrom.

481,228. CARDING-ENGINE FOR GRINDING REVOLVING FLATS WHEN IN SITU. JAMES EDGE, Gorton, England, assignor of one-half to Samuel Herbert Brooks, same place. Filed Dec. 31, 1890. Serial No. 376,405. (No model.) Patented in England Feb. 18, 1889, No. 2,535.



Claim.—1. In apparatus for grinding revolving flats when *in situ*, the combination, with an upright supporting-bracket having a socket at the upper end, of a slide or stud moving therein, fitted with a journal for the grinding-roller at one end and at the other with a guide-surface for the flats, substantially as described.

2. In apparatus for grinding revolving flats of carding-engines, the combination, with the upright supporting-bracket, of the sliding stud G, having a bearing-surface at its lower end for the flats, stud *g*, screwed therein, and journal for axle of grinding-roller pivoted thereto, substantially as described.

3. In apparatus for grinding the revolving flats of carding-engines, the bearing-surface inclined in opposite directions, forming an angle of about one hundred and seventy-six degrees or thereabout, against which the working surfaces of the flats bear while being ground, substantially as described and shown.

4. In apparatus for grinding the revolving flats of carding engines, the combination, with the supporting-bracket E, of the socket F, sliding stud G, journal H, and plate I, substantially as described.

5. In apparatus for grinding the revolving flats of carding-engines, the combination, with the supporting-bracket E E and socket F, of the sliding piece G, the journal H for the grinding-roller, the adjusting-screw *g*, and the plate I, against the under side of which the working surface of each flat bears, substantially as described.

6. In apparatus for grinding the revolving flats of carding-engines, the combination, with the double supporting-bracket E E and socket F, of the sliding piece G, the journal H for the grinding-roller, the plate I, against the under side of which the working surface of each flat bears, and the lifting plate or guide J, formed in one piece with or affixed to the lower bracket E, substantially as described.

7. In apparatus for grinding the revolving flats of carding-engines, the combination, with the supporting-bracket E, socket F, end sliding piece or stud G, and plate I, of the adjusting-screw *g*, nut *g'*, and journal H, substantially as described.

8. In apparatus for grinding the revolving flats of carding-engines, the combination, with the supporting-bracket E, socket F, sliding piece or stud G, journal H, and plate I, of the slot *h'* and pin *h*, substantially as and for the purpose described.

9. In apparatus for grinding the revolving flats of carding-engines, the combination, with the supporting-bracket E, socket F, stud G, journal H, and plate I, of the bracket E', lever K, carrying the lifting-plate J, bracket *k*, pin *k'*, and knife-edge *c*, substantially as described.

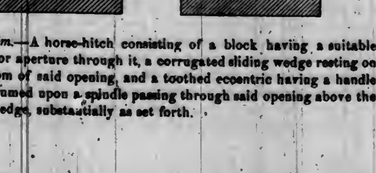
10. In apparatus for grinding the revolving flats of carding-engines, the combination, with the grinding-roller D, flat C, and curved projecting piece *c* thereon, of the supporting-bracket E, the socket F, the sliding piece or stud G, adjusting-screw *g*, socket H, inclined surface plate I, and lifting-plate J, substantially as described and shown.

481,229. WEATHER-STRIP. AMBON M. EWERS, Edison, Ohio. Filed Jan. 2, 1892. Serial No. 416,594. (No model.)

Claim.—1. In a weather-strip, the combination, with the inclined section *c*, adapted to be rigidly connected with the door, as described, a lip c^4 on said section *c* and slotted openings *d* therein, of the lower strip-section *f*, having an upturned lip on its rear portion adapted when its body is inclined to meet the under side of the plate *c*, said plate *f* having its rear portion doubled, as described, and hinge-tongues *g*, formed integral with said doubled portion and engaging with said slotted openings *d* of the section *c*, substantially as and for the purpose specified.

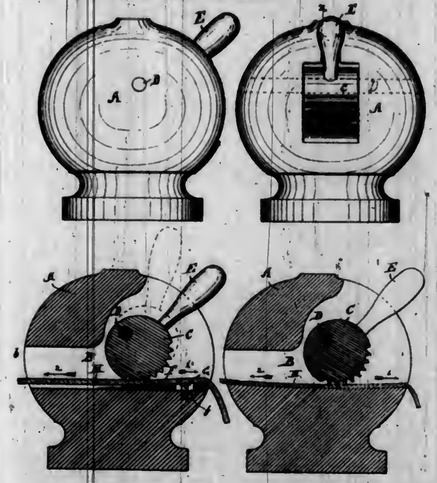
2. In a weather-strip, the combination, with the inclined section *c*, adapted to be rigidly connected with the door, as described, a lip c^4 on said section *c* and slotted openings *d* therein, of the lower strip-section *f*, having an upturned lip on its rear portion, adapted when its body is inclined to meet the under side of the plate *c*, said plate *f* having its rear portion doubled, as described, one or more stop-pins *f'*, adapted to form a rest for the rear portion of said plate *f*, and hinge-tongues *g*, formed integral with said double portion and engaging with the slotted openings *d* of the section *c*, substantially as and for the purpose specified.

481,230. NUT AND BOLT WRENCH. JOHN HOVAL, Stafford, Tex. Filed Feb. 9, 1892. Serial No. 420,570. (No model.)



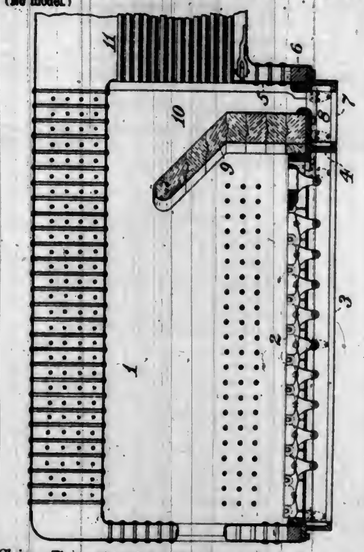
Claim.—A wrench-head having a handle and a longitudinal slot through the wrench-head, a slidable bar having a jaw moving in said slot, a rack upon said bar, a worm-wheel in the wrench-head, meshing with the rack, and a jaw upon the wrench-head, jointly with a screw-driver inserted in the end of the slidable bar, said wrench-head having a plane outer surrounding surface in proximity to the longitudinal slot, substantially as and for the purpose herein specified.

481,231. HORSE-HITCH. ALBERT JOHNSON, Haverhill, Mass., assignor of one-half to Frank H. Dunmore, same place. Filed Mar. 8, 1892. Serial No. 424,182. (No model.)



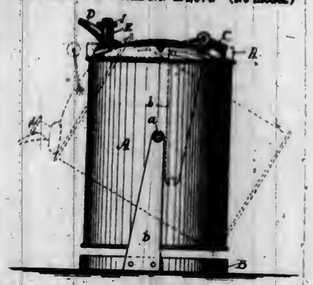
Claim.—A horse-hitch consisting of a block having a suitable opening or aperture through it, a corrugated sliding wedge resting on the bottom of said opening, and a toothed eccentric having a handle and fulcrumed upon a spindle passing through said opening above the sliding wedge, substantially as set forth.

481,232. BRICK ARCH FOR LOCOMOTIVE FIRE-BOXES. FRANCH W. JOHNSTON, Mexico, Mexico. Filed Feb. 13, 1892. Serial No. 421,404. (No model.)



Claim.—The combination, with a locomotive fire-box, of a transverse girder or support fixed below the bottom of the fire-box and independently of the side sheets thereof, as by connections to the mud-ring, and a brick arch built upon and supported by said girder independently of the fire-box sheets and extending across the fire-box, substantially as set forth.

481,233. CAN FOR OIL, &c. ARTHUR E. KUHN, Chicago, Ill. Filed Mar. 12, 1892. Serial No. 424,674. (No model.)



Claim.—1. The combination, with a can, of a removable stand having standards *b*, to which the can is pivoted, and a base-ring B, consisting of a band or hoop of less diameter than the top of the can, which when packed for shipping rests upon the top of the can and projects upward therefrom, whereby it protects the parts attached thereto, substantially as set forth.

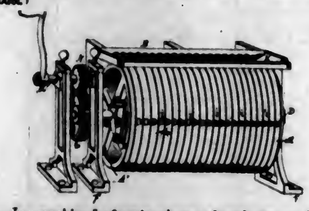
2. The combination, with a can, of the tube E, communicating with the interior thereof and having a bearing *e'* for the valve-seat, the spout D, communicating with said tube, a cap closing the outer end of said tube, a removable valve-seat, means for holding it against the bearing *e'*, a valve-stem passing through the cap and valve-seat, a valve secured to said stem and adapted to seat outward, and a spring engaging the stem and holding the valve normally seated, substantially as set forth.

3. The combination, with a can, of the tube E, communicating with the interior thereof and having a bearing *e'* for a valve-seat, the spout D, communicating with said tube, the screw-cap H, closing the outer end of said tube, the valve-seat F, means connecting the valve-seat and screw-cap, whereby the seat is forced against its bearing by the screwing on of the cap, a valve-stem passing through the cap and valve-seat, an outward seating-valve secured to said stem, and a spring holding said valve normally seated, substantially as set forth.

4. The combination, with a can, of the tube E, communicating

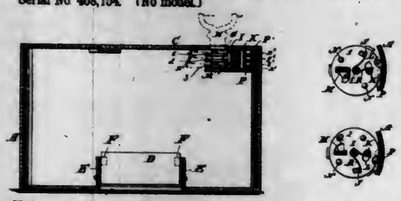
with the interior thereof, the spout D, communicating with said tube, the bearing *d'* in said tube, the screw-cap H, closing the outer end of the tube, the valve-seat F, a strut rigidly connecting the cap and valve-seat, so that when the former is screwed in the latter is forced against the bearing *d'*, a valve-rod extending through the screw-cap and valve-seat, an outward seating-valve secured to the valve-stem, and a spring for holding said valve normally seated, substantially as set forth.

481,234. MACHINE FOR FORMING SHAPES OF CANDY. CHARLES M. KURTZ, Allegheny, Pa. Filed Aug. 14, 1891. Serial No. 402,677. (No model.)



Claim.—In a machine for forming shapes of candy, the combination, with the frame, of a revoluble cylinder mounted therein provided with corrugations on its periphery and a series of openings in said corrugations, a shell similarly corrugated and mounted on the frame, means for revolving the cylinder, levers pivoted on the heads of said cylinder, a rod connecting said levers, a series of teeth or projections mounted on the rod registering with and projecting through the openings in the cylinder, and handles on the levers, substantially as and for the purposes described.

481,235. LOCK. JOSEPH LOCK, Brooklyn, N. Y. Filed Oct. 8, 1891. Serial No. 408,154. (No model.)

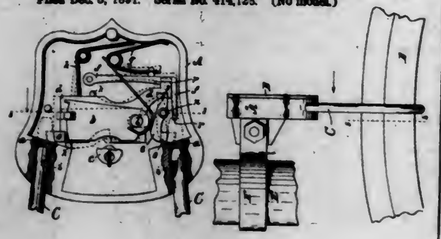


Claim.—1. The combination, with a box having internal projections P, of a cover having a keyhole G and a pin I, the tumblers journaled on the pin and having depressions O in their peripheries, and a key H, which stands transversely to the keyhole in the cover when rotated to turn the tumblers and register their depressions with the internal projections of the box, substantially as described.

2. The combination, with a box having internal projections P, of a cover having a keyhole G and a pin I, the tumblers journaled on the said pin and having reversely-arranged keyholes G and slots L, and provided with peripheral depressions O, a pin K, secured to the cover and extending through the slots in the tumblers, and a key H, which by its single movement to unlock the lock turns the tumblers in reverse directions, substantially as described.

3. The combination, in a tumbler-lock, of the pin I, the tumblers journaled on the pin and provided with keyholes G, slots L, and studs *s*, the pin K, extending through the slots in the tumblers, and the springs R, engaged with the pivot-pin of the tumblers and bearing against the studs of the latter, and the pin which extends through the slots thereof, substantially as described.

481,236. BICYCLE-LOCK. EDWIN W. MACAULEY, Rochester, N. Y. Filed Dec. 5, 1891. Serial No. 414,128. (No model.)
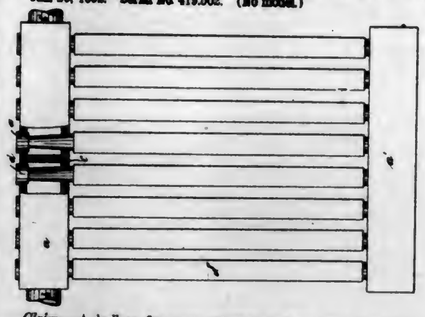


Claim.—1. A lock having, in combination with tumblers, a sliding bolt and a pivoted or lever bolt joined to each other to move in opposite directions, substantially as shown and described.

2. A lock having tumblers, in combination with a sliding bolt and a pivoted or lever bolt joined to the sliding bolt to move oppositely to the latter and an actuating-spring and a detent for the sliding bolt, substantially as shown.

3. A lock having tumblers, in combination with a sliding bolt and a pivoted bolt to move simultaneously with the sliding bolt, the latter being joined to the pivoted bolt to move it toward the right when the sliding bolt moves toward the left or toward the left when the sliding bolt moves toward the right, and a hasp formed with openings or rests to receive the bolts, substantially as shown and described.

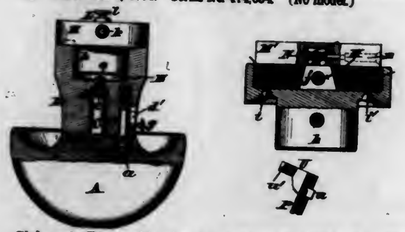
4. A lock having tumblers, in combination with a sliding bolt and a pivoted bolt joined to the sliding bolt to move oppositely to the latter, a spring to actuate the sliding bolt, and a detent for the sliding bolt, and a removable hasp formed with rests to receive the respective bolts, the detent being in position to be encountered by the hasp to be thrown off the sliding bolt to release the latter, substantially as described.

481,237. FIRE-GRATE. JOHN H. MEERTENS, Harkorten, near Haspe, Germany, assignor to Ernst Joseph Koster, same place. Filed Jan. 28, 1892. Serial No. 419,502. (No model.)



Claim.—A hollow fire-grate adapted to have water circulated through it to prevent the burning on of slag, characterized by the combination of hollow grate-bars *d'*, having reduced perforated ends, with the hollow side bars receiving such ends and with nuts *d* for attaching the grate bars to the side bars, substantially as specified.

481,238. ENGRAVER'S BLOCK. ADOLPH MUEHLMATT, Newport, Ky. Filed Dec. 4, 1891. Serial No. 414,034. (No model.)



Claim.—1. The combination, in an engraver's block, of a base, an unshiftable spindle projecting therefrom, and a bodily-detachable standard having an axial bore traversed by said spindle, the upper end of said standard being provided with a cylindrical socket to receive the neck of a work-holder, substantially as herein described.

2. The combination, in an engraver's block, of a detachable head carrying a reversely-threaded screw, a pair of nut slides engaged with said screw, and an unshiftable stud projecting from each slide, each stud being provided with a circumferential groove having an annular collar at top, and each collar having a break or interruption in it, for the purpose described.

3. The combination, in an engraver's block, of a base, an unshiftable spindle projecting therefrom, a center in the upper end of said spindle, a bodily-detachable standard having an axial bore traversed by said spindle, a cylindrical socket in the upper end of said standard, and a concealed screw engaged with the bottom of said socket, which screw can be brought to bear against said center for the purpose of elevating said standard, as herein described.

4. The combination, in an engraver's block, of the base A, having a flat bearing B, provided with an unshiftable spindle C and a pit *a* at

one side of said spindle, and the bodily-detachable standard D, having an axial bore *d*, traversed by said spindle, a secondary bore F, and a spring-bolt G, fitted within this bore F, all as herein described.

5. The combination, in an engraver's block, of a jaw having a socket N and a screw-point *n*, entering at one side of said socket, for the purpose described.

6. The combination, in an engraver's block, of a jaw having a hinged leaf P and adjusting-screw R, for the purpose described.

7. The combination, in an engraver's block, of a jaw having an adjustable hinged leaf P, with a slot *p'* near its top, for the purpose described.

8. The combination, in an engraver's block, of a jaw having an adjustable hinged leaf P, provided with a pair of undercut side flanges *p''*, for the purpose described.

9. The combination, in an engraver's block, of a base, an unshiftable spindle projecting therefrom, a center in the upper end of said spindle, a bodily-detachable standard having an axial bore traversed by said spindle, a concealed screw fitted within said standard and adapted to bear against said center, and a locking device wherewith the standard can be temporarily fastened to said base, substantially as herein described, and for the purpose set forth.

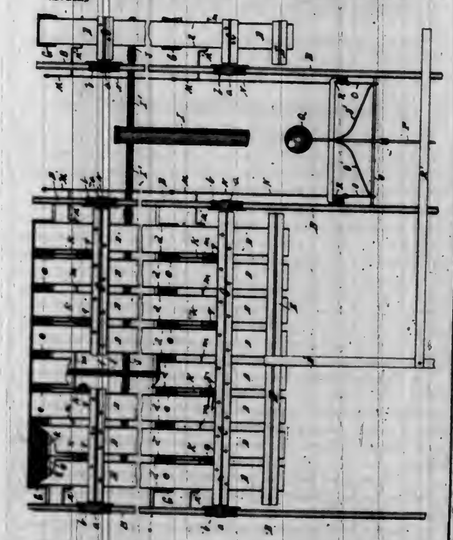
10. The combination, in an engraver's block, of a detachable head carrying a reversely-threaded screw, a pair of nut-slides engaged with said screw, an unshiftable stud projecting from each slide, a circumferential groove in each stud, an annular collar at the top of the groove, a break or interruption in the collar, a jaw having the socket to surround either stud, and a screw tapped in said jaw, the point of said screw being adapted to engage with said groove, in the manner described, and for the purpose stated.

481,239. MANUFACTURE OF PAPER-BOARD TUBS. WILLIAM W. MCEWAN, Belvidere, N. J. Filed Nov. 27, 1891. Serial No. 413,211. (No model.)



Claim.—The herein-described method of making hollow ware from paper-board and the like, which consists in drawing or manipulating the material substantially into the desired shape, encircling the article with a hoop, expanding the article against the hoop to embed the same, and finishing or drying the article, substantially as shown and described.

481,240. HYDROCARBON-GAS-BLACK MACHINE. LESTER J. MCNUTT, Warren, Pa. Filed May 17, 1892. Serial No. 433,361. (No model.)



Claim.—1. The combination, in a hydrocarbon-gas-black machine, with a series of plates and driving mechanism operating to move the said plates back and forth over a series of gas-jets, of a series of scrapers engaging with the under surfaces of the said plates when the plates are moving in one direction and weight-and-lever mechanism operating to disengage the said scrapers from the plates when the plates are moving in the reverse direction, substantially as and for the purpose set forth.

2. The combination, in a hydrocarbon-gas-black machine, with a series of plates and driving mechanism operating to move the said plates back and forth over a series of gas-jets, of scrapers engaging with the edges of the said plates, substantially as and for the purpose set forth.

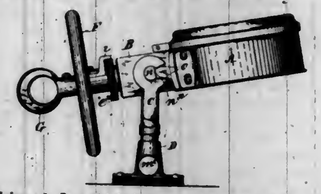
3. The combination, in a hydrocarbon-gas-black machine, of a series of narrow parallel longitudinal plates having a reciprocal motion forward and back with scrapers having weighted levers thereon for holding them up into contact with the under surfaces of said plates and bell-crank-lever mechanism for automatically withdrawing the scrapers from the under surfaces of said plates, substantially as and for the purpose set forth.

4. The combination, in a hydrocarbon-gas-black machine, of a series of narrow parallel longitudinal plates having a reciprocal motion forward and back over a series of gas-jets with a series of scrapers engaging with the under surfaces of said plates as they move in one direction and disengaged therefrom when the plates move in the opposite direction and another series of scrapers engaging with the edges of said plates during their traverse in one or both directions, substantially as and for the purpose set forth.

5. The combination, in a hydrocarbon-gas-black machine, of a series of narrow parallel longitudinal plates having a reciprocal motion forward and back over a series of gas-jets, a series of hoppers located apart from each other and under said plates substantially the distance of the traverse of the plates, and an endless conveyer for removing the accumulated black from the bases of said hoppers, with scrapers located under said plates and over said hoppers, adapted to remove the black from the plates and into said hoppers during the traverse of the plates in one direction and be disengaged from said plates when they move in the opposite direction.

6. The combination, in a hydrocarbon-gas-black machine, of a series of scrapers operating under reciprocating plates with bell-crank levers, stops on the frame, and weights operating said levers to automatically withdraw the scrapers from the plates during their traverse in one direction, and lever-and-catch mechanism and stops on the frame for raising and retaining said weights in a raised position, so as to allow the scrapers to operate during the traverse of the plates in the other direction, substantially as and for the purpose set forth.

481,241. SHIP'S LOG. JOHN S. NEGUS, Brooklyn, N. Y. Filed Apr. 22, 1892. Serial No. 430,151. (No model.)



Claim.—1. In a ship's log, the combination, with a registering mechanism, its case provided with trunnions and the support in which said trunnions find a bearing, of the rotative operating-spindle E, provided near its inner end with a driver for said mechanism, and an antifriction-bearing to reduce the friction arising from the longitudinal strain or pull, and with a ball-bearing near its outer end to reduce the friction due to lateral and oblique strains, substantially as set forth.

2. A ship's log having its rotating spindle E provided with an antifriction-bearing near its inner end to reduce the friction arising from the longitudinal strain or pull, a ball-bearing near its outer end to reduce the friction due to lateral and oblique strains, and a balance-wheel fixed concentrically thereon.

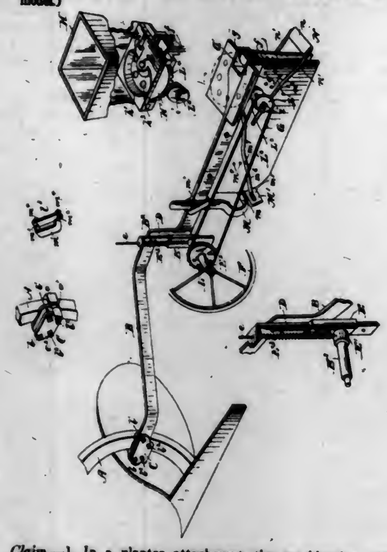
3. The combination, with the rotator and rotator-line of a ship's log, of the block B, mounted to rock on trunnions, the register mechanism and its case, and the register-operating spindle rotatively mounted in said block and attached to the rotator-line, said spindle being provided with an antifriction-bearing near its inner end to reduce the friction arising from the longitudinal strain or pull, and a ball-bearing near its outer end to reduce the friction due to lateral and oblique strains, substantially as set forth.

4. In a ship's log, the combination, with the socketed support C, provided with trunnion-bearings having narrow openings *o* in their

sides, of the block B, provided with trunnions *n*, having reduced flattened faces $n^{\times}$ substantially at right angles to the bore of said lock, and the spindle E, rotatively mounted in said bore, substantially as and for the purposes set forth.

5. In a ship's log, the combination, with the socketed support C, provided with trunnion-bearings having narrow openings *o* in their sides, the block B, provided with trunnions *n*, having reduced flattened faces $n^{\times}$ substantially at right angles to the bore of said block, and the spindle E, rotatively mounted in said block, of the balance-wheel F, concentrically mounted on said spindle, substantially as and for the purposes set forth.

481,242. PLANTER ATTACHMENT FOR PLOWS. JOHN P. HUSERT, Dubuque, Iowa. Filed Apr. 16, 1891. Serial No. 389,142. (No model.)



Claim.—1. In a planter attachment, the combination, with a planter beam, of the standard D, provided with the lip or bent upper end, the sliding plate E, mounted upon the standard and having the sleeve E', a coiled spring located intermediate the latter and the said lip and encircling the rod *e*, and the traction-wheel shaft mounted in the sleeve and carrying the traction-wheel, as and for the purpose specified.

2. In a planter attachment, the combination, with the plow-beam, of a planter-beam secured at one end thereto, a ground-wheel carried by said planter-beam, the furrow-opener secured to the planter-beam in rear of the ground-wheel and provided at its rear end with a chamber, as described, the flanges on said furrow-opener, the seed-box supported on said flanges above the chamber and having a slotted bottom, a revoluble seed plate having seed-openings adapted to register with the opening in the bottom of the seed-box, and suitable devices for turning the said seed-plate, as and for the purpose specified.

3. In a planter attachment, the combination, with the plow-beam, of a planter-beam secured thereto, a ground-wheel carried by said planter-beam, the furrow-opener secured to the planter-beam in rear of the ground-wheel and provided at its rear end with the chamber described, the flanges on said furrow-opener, a seed-box supported on said flanges above the chamber and having a slotted bottom, a revoluble seed-plate having seed-openings adapted to register with the opening in the bottom of the seed-box, suitable devices for turning said seed-plate, and hoes M' N, carried by the furrow-opener and occupying positions respectively in front and in rear of the same, as described, for the purpose specified.

4. The combination, with the planter-beam, of a ground-wheel supported thereby, the furrow-opener secured to the beam in rear of the ground-wheel and provided at its rear end with a chamber G', a seed-box mounted upon the furrow-opener above the chamber, a seed-plate revolubly mounted within the seed-box and having seed-openings and teeth A^3, as described, a horizontally-arranged vibrating arm provided with a dog engaging the teeth of the seed-plate, a second vibrating arm arranged above the other arm and provided with a dog engaging with the teeth of the seed-plate, gearing between the said arms for vibrating them simultaneously in opposite directions, and a rod secured at one end to the ground-wheel and at the other end to the lower arm, for the purpose specified.

5. The combination, with the planter-beam, of a ground-wheel supported thereby, the furrow-opener secured to the beam in rear of the ground-wheel and provided at its rear end with a chamber, as G', a seed-box mounted upon the furrow-opener above the chamber, a seed-plate revolubly mounted within the seed-box and having seed-openings and teeth A^3, a horizontally-arranged vibrating arm provided with a dog engaging with the teeth of the seed-plate and having a fluted upper face, a second vibrating arm arranged above the other arm and provided with a dog, also engaging with the teeth of the seed-plate and having a fluted lower face, and a fluted roller located intermediate the fluted portions of the arms and engaging the same, whereby said arms may be vibrated simultaneously in opposite directions, for the purpose specified.

6. In a planter attachment, the combination, with the planter-beam provided with the plate G, of the hoes M' and N, the rods m^3, to the ends of which are pivotally secured the said hoes and springs secured to the rods m^3 and the hoes, openings in the plate G, and bolts passing through the rods and entering said openings, as and for the purpose specified.

7. In a planter attachment, the combination, with the planter-beam, of the vertically-arranged furrow-opener G, the colter M, adjustably secured to said beam in front of the furrow-opener, the smoothing-hoe adjustably carried by the furrow-opener and occupying a position intermediate the forward end of the same and the colter, and the covering-hoe, also adjustably carried by the furrow-opener and occupying a position in rear of the same, all arranged for co-operation, substantially as described.

8. In a planter attachment, the combination, with the planter-beam, of a traction-wheel carried thereby, a vertically-arranged blade secured to said beam in rear of the traction-wheel and provided with a chamber, as described, a seed-box mounted upon said blade and provided with a revoluble seed-plate having opening adapted to coincide with said chamber when the plate is revolved, and means located intermediate the traction-wheel and the seed-plate for imparting rotation to the latter from the traction-wheel, as and for the purpose specified.

9. In a planter attachment, the combination, with the planter-beam provided with a plate G, of the hoes M' N, pivotally secured to the ends of the rods m^3, openings in said plate G, and bolts passing through said arms or rods m^3 into said openings, as and for the purpose specified.

481,248. FIREPROOF-FLOOR CONSTRUCTION. WILLIAM ORR, Trenton, N. J. Filed Dec. 21, 1891. Serial No. 415,710. (No model.)



Claim.—1. The combination, with the beams, of a series of suspenders supported by said beams and extending from beam to beam and a hollow tile-filling laid on and supported by said suspenders and forming a flooring or floor-support, substantially as described.

2. The combination, with the beams, of a series of suspenders supported by the tops of the beams and extending downward near the beams and then from beam to beam and a hollow tile-filling laid on and supported by said suspenders and forming a flooring or floor-support, substantially as described.

3. The combination, with the beams, of a series of suspenders supported by said beams and extending from beam to beam, a hollow tile-filling laid on and supported by said suspenders and forming a flooring or floor-support, and a ceiling of fireproof material supported by said suspenders and closing the bases of said tile, substantially as described.

4. The combination, with the beams, of a series of suspenders supported by said beams and extending from beam to beam and a hollow tile-filling forming a top web extending from beam to beam and forming a flooring or floor-support and supporting-ribs extending downward from the web and resting on said suspenders, substantially as described.

5. The combination, with the beams, of a series of suspenders supported by the beams and extending from beam to beam, a hollow tile-filling forming a top web extending from beam to beam and forming a flooring or floor-support, and supporting-rib extending downward from the web and resting on said suspenders and a ceiling of fireproof material supported by said suspenders, substantially as described.

6. The combination, with the beams, of a series of suspenders supported by the beams and extending from beam to beam and a hollow tile-filling forming a top web extending from beam to beam and forming a flooring or floor support and a series of supporting-ribs extending downward from the web and from beam to beam and resting on said suspenders, substantially as described.

7. The combination, with the beams, of a series of suspenders supported by the tops of the beams and extending downward and then from beam to beam and a hollow tile-filling supported by said suspenders and filling the space between the webs of the beams, substantially as described.

8. The combination, with the beams, of a series of suspenders supported by the tops of the beams and extending downward and then from beam to beam and a hollow tile-filling supported by the suspenders and filling the space between the webs of the beams, the tile being grooved to receive and fireproof the lower flanges of the beams, substantially as described.

9. The combination, with the beams, of a series of suspenders supported by said beams and extending from beam to beam and a tile-filling consisting of a series of tile supported by said suspenders and having their tops constructed to receive and support the free edge of the next tile, so as to form a level surface, substantially as described.

10. The combination, with the beams, of a series of suspenders supported by said beams and extending from beam to beam and a tile-filling consisting of a series of tile, each extending the full depth of the filling and having one side supported on the suspenders and the free edge of the top block supported on the next tile, so as to form a level surface, substantially as described.

11. The combination, with the beams, of a series of suspenders supported by said beams and extending from beam to beam and a tile-filling consisting of a series of tile, each extending the full depth of the filling and having one side supported on the suspenders and extending transversely to the beams, and the free edge of the top block supported in a recess on the next tile, so as to form a level surface, substantially as described.

12. The combination, with the beams, of a series of suspenders supported by said beams and extending from beam to beam and a tile-filling supported by said suspenders, consisting of a series of tile, each extending the full depth of the filling and forming a flooring or floor-support, substantially as described.

13. The combination, with the beams A and suspenders B, supported thereby and extending from beam to beam, of vertical tile-blocks resting on said suspenders and forming a support for the flooring, substantially as described.

14. The combination, with the beams A, of suspenders B, supported by said beams and extending from beam to beam, and vertical tile-blocks resting on said suspenders and forming a support for the floor and having horizontally-projecting ribs 11 and blocks 12, supported on said ribs, substantially as described.

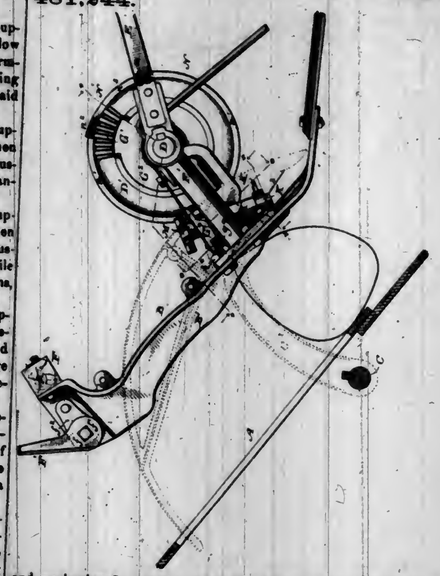
481,244. GRAIN-BINDER. HENRY H. PRIDMORE, Chicago, Ill., assignor to the McCormick Harvesting Machine Company. Filed Oct. 17, 1887. Serial No. 252,535. (No model.) Patented in England Apr. 30, 1887. No. 6,326.

Claim.—1. The combination, substantially as hereinbefore set forth, with the tying-bill and mechanism which gives it a single revolution and stops it with its jaws trending outward in the direction of the cord slot, of the finger projecting from one side of the cord-slot beneath and slightly in advance of the tying-bill and the pocket on the other side, into which the end of said finger enters, having a continuous bottom merging into the flange beneath the cord-slot, whereby the cord-strands are bent over said flange in order to pass the end of the finger.

2. The combination, substantially as hereinbefore set forth, with the tying-bill and mechanism which gives it a single complete revolution and stops it with its jaws trending outward in the direction of the extended cord-slot, of a rotary cord-holder on the outer side of said tying-bill, and actuating mechanism giving the holder-disk a partial turn to carry the cord-strands transverse to the tyer-spindle, then stopping it temporarily while the tying jaws come around, and then moving it onward again to complete the fraction of a revolution due to each binding operation.

3. The combination, substantially as hereinbefore set forth, with the tying-bill and mechanism which stops it at the end of its knotting revolution with its jaws trending outward in the direction of the extended slot in the breast-plate, of a rotary holder-disk outside of the tying-bill, in a plane transverse to that in which the cord is laid and rising from the breast-plate, a holder shoe extending from the opposite side of the cord-slot and bent down to pass beneath the under edge of the disk, whereby a mouth is formed to receive and direct the cord,

481,244.



and mechanism for rotating the holder-disk to carry the cord along the shoe and away from the slot toward or past the knotter-spindle, bending or wrapping the strands thereover to meet the tying-jaws as they come around.

4. The combination, substantially as hereinbefore set forth, with the tying-bill, of a flat holder-disk outside thereof and practically vertical to the breast-plate, a shoe coacting with said disk, a holder-spindle directed inward beneath the tyer-cam and past the tyer-spindle, and actuating mechanism on said tyer-cam for rotating the holder-spindle at each tying operation.

5. The combination, substantially as hereinbefore set forth, with the tying-bill and tyer-cam, of the flat holder-disk outside of the tying-bill, its coacting shoe, the holder-spindle directed obliquely inward and upward beneath the tyer-cam and having a pinion at its inner end, and oblique teeth on the tyer-cam, whereby said pinion is rotated.

6. The combination, substantially as hereinbefore set forth, with the tying-bill and tyer-cam, of the holder-disk outside of the tying-bill, its coacting shoe, the holder-spindle directed obliquely inward and upward beneath the tyer-cam and having a pinion at its inner end, oblique teeth on the tyer-cam, whereby said pinion is rotated, and delay-flanges between said oblique teeth.

7. The combination, substantially as hereinbefore set forth, with the tying-bill and tyer-cam, of the inclined holder-spindle directed from the outer side of the tyer-spindle inward past it beneath the tyer-cam, the pinion at the inner end of said spindle, the holder-disk at the outer end thereof, the shoe coacting with said disk, and the delay-ledges and oblique teeth on the periphery of the tyer-cam engaging with the pinion, whereby said holder-spindle is rotated.

8. The combination, substantially as hereinbefore set forth, with the tyer-cam and its peripheral flanges, having oblique reaches succeeded by straight or delay reaches, of the holder-pinion having its teeth formed with straight faces and flanks to about half their thickness and with oblique faces and flanks to the other half, arranged alternately to one side and the other, whereby wear is reduced.

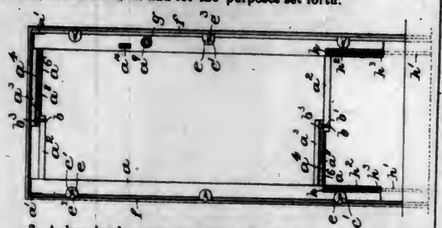
9. The combination, substantially as hereinbefore set forth, with the holder and its spindle, of a wheel D', having a peripheral flange or flanges with straight and oblique reaches, and a pinion M, having its teeth formed with alternate straight faces *o* and *o'* to about half their thickness, and with oblique faces o^2 o^3 to about the other half of their thickness.

10. The combination, substantially as hereinbefore set forth, with the breast-plate, of the metal bridge-arm F' at its inner end, the bolt *f*, whereby it is secured to a flange from said breast-plate, and the serrated disks f' f^3, whereby said bridge-arm is held in any desired adjustment upon the axis of its securing-bolt.

481,245. DOOR-JAMB SETTER. JACOB RITTERBUSH, Newark, N. J. Filed Nov. 27, 1891. Serial No. 413,196. (No model.)

Claim.—1. A door-jamb setter consisting of side pieces connected with each other by cross-arms arranged in pairs and capable of adjustment sidewise, and a scale on one of said arms, clamping-plates on said side pieces, and means for adjusting said clamping-plates toward or from the edges of a door-jamb frame, substantially as and for the purposes set forth.

2. A door-jamb setter consisting of side pieces, connecting arms or guides between said side pieces, and means for adjusting the same and holding them locked in such adjustment, and a scale on one of said arms, clamping-plates on said side pieces, and means for adjusting said clamping-plates toward or from the edges of a door-jamb frame, substantially as and for the purposes set forth.



3. A door-jamb setter consisting of side pieces connected with each other, perforated plates c^4 and c^5, secured to said side pieces, rods c', extending through said plates and side pieces and secured thereto, a clamping-plate d on the one threaded end of each of said rods, a clamping-plate e on the opposite end of each rod, provided with means for adjustably securing said plates e upon the rod, and adjusting-screws in each of said plates d and e, all arranged substantially as and for the purposes set forth.

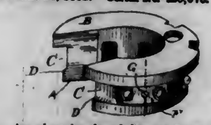
4. A door-jamb setter consisting of side pieces provided with perforated plates c^4 and c^5, secured to said side pieces, rods c', extending through said plates and side pieces and secured thereto, a clamping-plate d on the one threaded end of each of said rods, a clamping-plate e on the opposite end of each rod, provided with means for adjustably securing said plates e upon the rod, adjusting-screws in each of said plates d and e, and adjustably-arranged sliding arms connecting said side pieces, said arms being provided with a yoke, and adjusting-screws for securing said arms in their adjusted positions, all arranged substantially as and for the purposes set forth.

5. A door-jamb setter consisting of side pieces a a, connected with each other by cross-arms arranged in pairs and capable of adjustment sidewise and a scale on one of said arms, clamping-plates on said side pieces, means for adjusting said side pieces toward or from the edges of a door-jamb frame, and adjustable slides in the lower ends of said side pieces, provided with scales, substantially as and for the purposes set forth.

6. A door-jamb setter consisting of side pieces a a, connected with each other by cross-arms adapted to slide upon each other, and a scale on one of said arms, perforated plates c^4 and c^5, secured to said side pieces, rods c', extending through said plates and side pieces and secured thereto, a clamping-plate on the one threaded end of each of said rods, a clamping-plate e on the opposite end of each rod, provided with means for adjustably securing said plates e upon the rods, and adjusting-screws in said plates d and e, substantially as and for the purposes set forth.

7. A door-jamb setter consisting of side pieces a a, connected with each other by cross-arms adapted to slide upon each other, and a scale on one of said arms, perforated plates c^4 and c^5, secured to said side pieces, rods c', extending through said plates and side pieces and secured thereto, a clamping-plate on the one threaded end of each of said rods, a clamping-plate e on the opposite end of each rod provided with means for adjustably securing said plates e upon the rods, adjusting-screws in said plates d and e, and adjustable slides in the lower ends of said side pieces, provided with scales, substantially as and for the purposes set forth.

481,246. THERMAL CUT-OUT. ALBERT P. SEYMOUR, SYRACUSE, N. Y. Filed Mar. 21, 1892. Serial No. 425,673. (No model.)



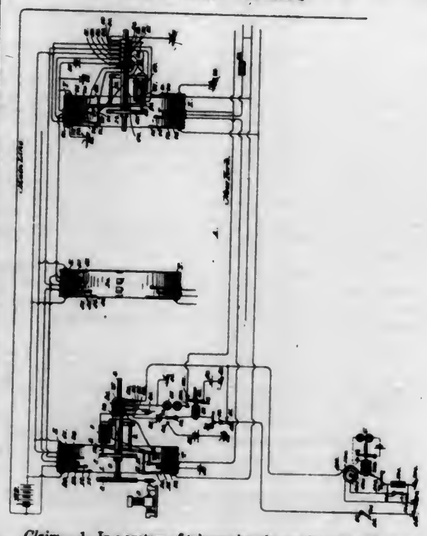
Claim.—1. An electric chandelier or fixture cut-out or junction-block having body A and head B, provided with a flange or rim extending over the body and formed, as described, to permit it to be molded in a single piece and provided with attached metal-work secured in place upon its side by screws passing through the flange or rim of the head parallel with the axis of the block through ears or projections from such metal-work.

2. In a chandelier or fixture cut-out substantially such as described, a block A, of porcelain or similar vitreous substance, having the recesses I and metal angle-pieces fastened to the side of the block over said recesses by screws passing through the head of the block instead of laterally through the body of the block, as and for the purpose described.

3. In a chandelier or fixture cut-out or junction device, a curved block of porcelain or similar insulating substance formed, as described, to permit it to be struck up or molded by a single operation and having recesses I for the metal-work, and openings into said recesses from the head of the block for the reception of fastening screws or bolts.

4. The combination, substantially as described, with the porcelain or similar block of insulating material having recesses on its side, of metal angle-pieces slightly springy, provided with binding-screws, and fastening-screws passing through one angle from the end or head of the block, as and for the purpose described.

481,247. TELEGRAPHY. JAMES G. SMITH, New York, N. Y. Filed Nov. 2, 1889. Serial No. 329,067. (No model.)



Claim.—1. In a system of telegraphy, the combination of a transmitting local-subscribers' circuit, a main line, a receiving local-subscribers' circuit having a number of subscribers' stations arranged thereupon in series and having apparatus and connections by means of which any particular subscriber called may cut out all other subscribers on the same local-subscribers' circuit, an automatic switch actuated from the transmitting local-subscribers' circuit, and controlling circuit connections between said transmitting local circuit and main line, and a second automatic switch actuated by current on the main line and controlling circuit connections between the main line and the receiving local-subscribers' circuit, substantially as described.

2. In a system of telegraphy, the combination of a transmitting local-subscribers' circuit, a main line, a series of receiving local-subscribers' circuits, an automatic switch actuated from the transmitting local-subscribers' circuit, and controlling circuit connections between said transmitting local circuit and the main line, and a second automatic switch actuated by current on the main line and controlling circuit connection between the main line, a local auxiliary circuit, and an auxiliary automatic switch actuated by current on said auxiliary circuit, and controlling circuit connections between the auxiliary circuit and the receiving local-subscribers' circuit, substantially as described.

3. In a system of telegraphy, the combination of a transmitting local-subscribers' circuit, a main line, a series of receiving local-subscribers' circuits, an automatic switch actuated from the transmitting local-subscribers' circuit, and controlling circuit connections between said transmitting local-subscribers' circuit and the main line, a second automatic switch actuated by current on the main line, and controlling circuit connections between the main line and a series of local auxiliary circuits, and an auxiliary automatic switch for each auxiliary circuit actuated by current on the latter, and controlling circuit connections between the auxiliary circuit with which it is connected and the appropriate local-subscribers' circuit, substantially as described.

4. In a system of telegraphy, the combination of a series of transmitting local-subscribers' circuits, a receiving local-subscribers' circuit a main line common to all local-subscribers' circuits, a series of automatic switches, one for each transmitting local-subscribers' circuit, each actuated from its appropriate transmitting local-subscribers' circuit, and controlling circuit connections between said transmitting local circuit and the main line and cutting out all other transmitting local-subscribers' circuits from said main line, and a second automatic switch actuated by impulses transmitted over the main line from a distant transmitting local circuit, and controlling circuit connections between the main line and the receiving local-subscribers' circuit, substantially as described.

5. In a system of telegraphy, the combination of a transmitting local-subscribers' circuit, a series of main lines, a receiving local-subscribers' circuit, an automatic switch actuated from the transmitting local-subscribers' circuit, and controlling circuit connections between the transmitting local-subscribers' circuit and any one of the main lines that happens to be idle and in order, a second automatic switch actuated by impulses transmitted over the automatically selected main line from the distant transmitting-subscribers' circuits, and controlling circuit connections between said main line and the receiving local-subscribers' circuit, substantially as described.

6. In a system of telegraphy, the combination of a series of transmitting local-subscribers' circuits, a receiving local-subscribers' circuit, a series of main lines common to all the local-subscribers' circuits, an automatic switch for each transmitting local-subscribers' circuit actuated from said circuit, and controlling circuit connections between the same and one or the other of the main lines and cutting out all other transmitting local-subscribers' circuits from said selected main line, a second automatic switch actuated by impulses transmitted from the distant transmitting local-subscribers' circuit over the particular main line being at the time utilized, and controlling circuit connections between said main line and the receiving local-subscribers' circuit, substantially as described.

7. In a system of telegraphy, the combination of a transmitting local-subscribers' circuit, a series of receiving local-subscribers' circuits, a series of main lines common to all the local-subscribers' circuits, an automatic switch actuated from the transmitting local-subscribers' circuit, and controlling circuit connections between said transmitting local circuit and one or the other of the main lines, and a second automatic switch actuated by impulses transmitted from the distant transmitting local-subscribers' circuit over the selected main line, and controlling circuit connections between the particular main line being at the time utilized and one or the other of the series of receiving local-subscribers' circuits, substantially as described.

8. In a system of telegraphy, the combination of a series of transmitting local-subscribers' circuits, a series of receiving local-subscribers' circuits, a series of main lines common to all the local-subscribers' circuits, an automatic switch apparatus for each transmitting local-subscribers' circuit actuated from said circuit, and controlling circuit connections between the same and one or the other of the series of main lines and cutting out all other transmitting local-subscribers' circuits from said selected main line, and a second automatic switch apparatus actuated by impulses transmitted from a distant transmitting local-subscribers' circuit over the particular main line being at the time utilized, and controlling circuit connections between said main line and one or the other of the receiving local-subscribers' circuits, substantially as described.

9. In a system of telegraphy, a series of transmitting local-subscribers' circuits, a series of main lines, a series of receiving local-subscribers' circuits, an automatic switching apparatus for each transmitting local-subscribers' circuit, operating upon a signal from a subscriber on its particular local circuit to connect the said circuit with one of the main lines that happens at the time to be idle and cutting out all other transmitting local-subscribers' circuits from said selected main line, a second automatic switching apparatus operated by the current on the main line to connect said main line with any predetermined receiving local-subscribers' circuit, and an apparatus at the transmitting local-subscribers' station for automatically arresting said second switching apparatus to make connection with said predetermined receiving local-subscribers' circuit, so that communication between the distant local subscribers may be carried on, substantially as described.

10. In a system of telegraphy, a series of transmitting local-subscribers' circuits, a series of main lines, a series of receiving local-subscribers' circuits, an automatic switch apparatus for each transmitting local-subscribers' circuit, operating upon a signal from any subscriber on said transmitting local-subscribers' circuit to connect said last-mentioned circuit with one of the main lines which happens at the time to be idle and to cut out all other transmitting local-subscribers' circuits from the main line so selected, a second automatic switching apparatus operated by the current on the main line, having a series of movable contacts and a series of stationary sets of contacts corresponding in number to the number of receiving local-subscribers' circuits, said series of movable contacts operating to cause an electrical impulse to be sent back to the transmitting local-subscribers' station each time a set of contacts belonging to a receiving local-subscribers' circuit is touched and passed, and an apparatus at the transmitting local-subscribers' station actuated by the impulses aforesaid and operating to arrest said second automatic switching apparatus when at the point for connection with the predetermined local-subscribers' circuit, so as to enable communication to be had between the transmitting local subscriber and the said predetermined remote receiving subscriber, substantially as described.

11. In a system of telegraphy, a transmitting local-subscribers' circuit, a main line, a series of receiving local-subscribers' circuits, an automatic switching apparatus for the transmitting local-subscribers' circuit, operating upon a signal from a subscriber on said local circuit to connect said circuit with the main line and throw a current-generator on said main line, a second automatic switching apparatus connected to the main line and operated by the current thereon and having a movable set of contacts and a series of sets of stationary contacts corresponding in number to the number of receiving local-subscribers' circuits, said movable set of contacts operating as it touches and passes each successive set of stationary contacts to ground the main line and send an electrical impulse over the same to the distant-transmitting local-subscribers' station, and an electro-mechanical apparatus at the transmitting local-subscribers' station, adapted to advance step by step under the aforesaid impulses and when the stationary set of contacts belonging to the predetermined receiving local-subscribers' circuit desired to be connected is reached by the movable set of contacts to afford a new path for the main-line current, which changes the electrical condition of the main circuit and causes the switching apparatus to be arrested while communication is being had between the distant local-subscribers' station.

12. In a system of telegraphy, a series of transmitting local-subscribers' circuits, a series of main lines, a series of receiving local-subscribers' circuits, an automatic switch apparatus for each transmitting local subscribers' circuit, operating upon a signal from any subscriber on said local transmitting-subscribers' circuit to connect said last-mentioned circuit with one of the main lines which happens at the time to be idle and to cut out all other transmitting local-subscribers' circuits from the main line so selected, a second automatic switching apparatus connected to and operated from the main line and having a movable set of contacts, and a series of sets of stationary contacts corresponding in number to the number of receiving local-subscribers' circuits, said movable set of contacts operating as it touches and passes each successive set of stationary contacts to ground the main line and send an impulse to the transmitting local-subscribers' station, and an electro-mechanical apparatus at the last-named station, which advances step by step in response to the aforesaid electrical impulses until the set of contacts of the predetermined receiving local-subscribers' circuit is reached, whereupon a new path for the main-line current is afforded, which changes the condition of said main-line circuit and causes the arrest of the movable set of contacts of the switching apparatus, substantially as described.

13. In the herein-described system of telegraphy, the combination of a main line, a transmitting local-subscribers' circuit, an automatic switching apparatus by which said transmitting local-subscribers' circuit is connected to the main line, consisting, essentially, of the frame bearing the sets of stationary contacts, the continuously-rotating shaft having the perforated disk secured thereto, the sleeve mounted upon said shaft, carrying the armature-bar provided with contacts, as described, the electro-magnet, the spring and the commutators, the battery and circuit connections for holding the armature-lever normally disengaged from the rotating disk, the battery and circuit connections for disengaging the armature-lever from the disk when in position for connection with the main line, and the hand-switches and connections under control of the operator at the transmitting local-subscribers' station, all arranged and operating substantially as described.

14. In the herein-described system of telegraphy, the combination of a series of main lines, a transmitting local-subscribers' circuit, and automatically switching apparatus by which said transmitting local-subscribers' circuit is connected to one or the other of the main lines, said switching apparatus consisting, essentially, of the frame bearing the sets of stationary contacts, a continuously-rotating shaft having the perforated disks secured thereto, the sleeve mounted upon said shaft, carrying the armature-bar provided with contacts, as described, the electro-magnet, the spring and the commutators, the battery and connections for holding the armature-lever normally disengaged from the rotating disks, the battery and connections for disengaging the armature-lever from the disk when in position for connection with one or the other of the main lines, and the hand-switches and connections under control of the operator at the transmitting local-subscribers' station, all arranged and operating substantially as described.

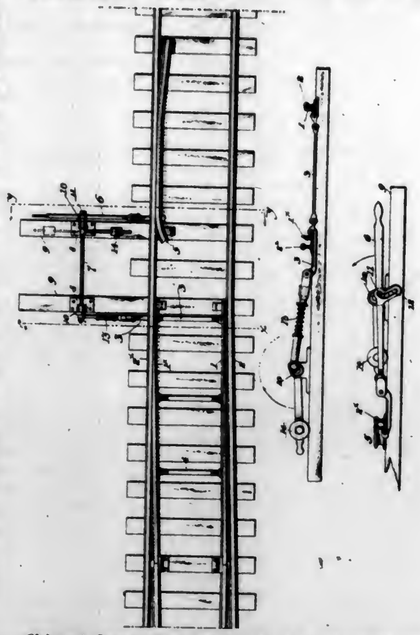
15. In the herein-described system of telegraphy, the combination of a series of main lines, a series of transmitting local-subscribers' circuits, and a series of automatic switching apparatus, one for each transmitting-subscribers' circuit, each consisting, essentially, of a frame bearing the sets of stationary contacts, a continuously-rotating shaft having the perforated disks secured thereto, the sleeve mounted upon said shaft, carrying the armature-bar provided with contacts, as described, the electro-magnet, the spring and the commutators, the battery and connections for holding the armature-lever normally disengaged from the rotating disks, the battery and connections for disengaging the armature-lever from the disk when in position for connection with one or the other of the main lines, and the hand-switches and connections under control of the operator at the transmitting local-subscribers' station, all arranged and operating substantially as described.

16. In the herein-described system of telegraphy, the combination, with the main line and its battery, of the series of receiving local-subscribers' circuits and the automatic switching apparatus for establishing connection between said main line and one or the other of the receiving local-subscribers' circuits, said switching apparatus consisting, essentially, of the frame, with its series of sets of contacts corresponding to the number of receiving local-subscribers' circuits, the constantly-rotating shaft bearing the perforated disk, the sleeve mounted upon said shaft, carrying the armature-lever provided with contacts, as described, the electro-magnets, one of which is energized by the current of the main line and the other by the current of a local battery, the retracting-spring, and the commutators, with the commutator-brushes and circuit connections arranged and operating substantially as described.

17. In the herein-described system of telegraphy, the combination, with a main line, of a transmitting local-subscribers circuit and automatic switching apparatus, by which said transmitting local-subscribers' circuit is connected to the main line, consisting of the frame with its sets of stationary contacts, the continuously-rotating shaft having the perforated disk secured thereto, the sleeve mounted upon said shaft, carrying the armature-bar provided with contacts, as described, the electro-magnet, the spring and the commutators, the battery and circuit connections for holding the armature-lever normally disengaged from the rotating disk, the battery and circuit connections for disengaging the armature-lever from the disk when in position for connection with the main lines, and the hand-switches and connections under the control of the operator at the transmitting local-subscribers' station, the battery on the main line, the series of receiving local-subscribers' circuit, the automatic swinging apparatus for establishing connection between the main line and one or the other of the receiving local-subscribers' circuits, said switching apparatus consisting, essentially, of the frame with its series of sets of contacts corresponding to the number of receiving local-subscribers' circuits, the constantly-rotating shaft bearing the perforated disk, the sleeve mounted upon said shaft, carrying the armature-lever provided with contacts, as described, the electro-magnets, one of which is energized by the current of the main line and the other by the current of a local battery, as described, the retracting-spring and the commutators with commutator-brushes and circuit connections, as described, and the apparatus at the transmitting local-subscribers' station for effecting the arrest of the switching apparatus and establishing connection with the desired receiving local-subscribers' circuit, consisting of the perforated dial, the metallic stud, the movable arm, the electro-magnet, and means for advancing the arm step by step by impulses sent over the main line, as described, and the rheostat and switches and circuit connections, substantially as set forth.

18. In the herein-described system of telegraphy, the combination, with the series of main lines, of the series of transmitting local-subscribers' circuits, the series of receiving local subscribers' circuits, a series of automatic switching apparatus, one for each transmitting local-subscribers' circuit, by which any one of said transmitting local-subscribers' circuits may be connected to an idle main line, said automatic switching apparatus consisting of the frame and sets of stationary contacts, the continuously-rotating shaft having the perforated disk secured thereto, the sleeve mounted upon said shaft, carrying the armature-bar provided with contacts, as described, the electro-magnet, the spring and the commutators, the batteries and circuit connections, as described, means such as described for cutting out all the other transmitting local-subscribers' circuits from said selected main line, the automatic switching apparatus for establishing connection between the main line and one or the other of the receiving local-subscribers' circuits, said switching apparatus consisting, essentially, of the frame with the series of sets of contacts corresponding to the number of the receiving local-subscribers' circuits, a constantly-rotating shaft bearing the perforated disk, the sleeve mounted loosely upon said shaft, carrying the armature-lever and provided with contacts, as described, the electro-magnets and retractile spring for operating said armature-lever and the commutator-brushes and circuit connections, as described, and the apparatus at the transmitting local-subscribers' station for effecting the arrest of the distant switching apparatus and establishing connections between the main line and the desired receiving local-subscribers' circuit, consisting of the perforated dial, metallic stud, movable arm, the electro-magnet, and means for advancing the arm step by step by impulses sent over the main line, as described, and the rheostat, hand-switches, and circuit connection, substantially as set forth.

481,248. AUTOMATIC RAILROAD-SWITCH. William Spielman, Camden, N. J., assignor to Ambrose Dalley, Willoughby K. Butterworth, and Joseph L. Dalley, Philadelphia, Pa. Filed Apr. 14, 1891. Serial No. 388,910. (No model.)

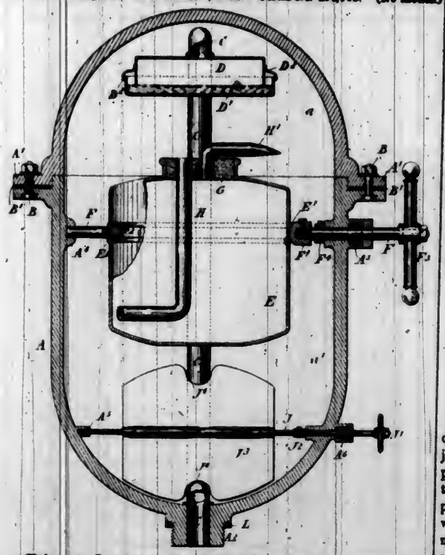


Claim.—1. In an automatic railroad-switch, the combination, with the main rails, of a pair of point-rails, a movable guard-rail normally operative to provide a continuous main line connected to a shaft suitably journaled adjacent to said main rails, a switch-rod mounted on said shaft and connected to the point-rails, a spring on said rod, and a weighted switch-lever on said shaft to retain said rails in normally operative combination with the main rails in the manner described, whereby a misplaced switch will be automatically opened by the operation of the mechanism described upon the passing of the flange of a car-wheel between the point-rails and main rails when the train is traveling in one direction and between the guard-rail and main rail when the train is traveling in the opposite direction, as set forth.

2. In an automatic railroad switch, the combination, with the main rails, of a pair of point-rails, a movable guard-rail normally operative to provide a continuous main line connected to a shaft suitably journaled adjacent to said main rails, a switch-rod mounted on said shaft and connected to the point-rails, a spring on said rod, and a weighted switch-lever on said shaft to retain said rails in normally operative combination with the main rails in the manner described, whereby a misplaced switch will be automatically opened by the operation of the mechanism described upon the passing of the flange of a car-wheel between the point-rails and main rails when the train is traveling in one direction and between the guard-rail and main rail when the train is traveling in the opposite direction, and a second switch-lever mounted on said shaft, attached to the movable guard-rail and adapted to move said guard-rail away from the main rail and free of passing car-wheels to permit the switching of a train from the main line onto a branch line, as described.

3. In an automatic railroad-switch, the combination, with the main rails and point-rails, of a movable guard-rail, a shaft suitably journaled adjacent to said main rails and switch-rod connection between said shaft and point-rails, and a slotted switch-lever attached to said guard-rail, mounted on said shaft and working thereon by means of said slot, said guard-rail normally operative to provide a continuous main track in the manner described and adapted to be moved apart from said main rails free of passing car-wheels by the raising of said lever to permit the switching of a train from the main line onto a branch line, as described.

481,249. AERATION OF LIQUIDS. Edward Williams, Aberayron, England. Filed Mar. 7, 1892. Serial No. 424,062. (No model.)



Claim.—1. In an apparatus such as described, the combination, with the outer vessel and the invertible vessel mounted within it, of the washer at the top of the outer vessel and the tube leading from the washer to the outlet-opening at the bottom of the outer vessel, substantially as described.

2. In an apparatus such as described, the combination, with the outer vessel having the discharge-opening at the bottom and the acid-receptacle within said outer vessel, of the gas-washer also within the outer vessel and at the top of the same and the tube leading from said washer down to the discharge-opening at the bottom, whereby the device is adapted to be applied directly in upright position to the vessel containing the liquid to be aerated, substantially as described.

3. In an apparatus such as described, the combination, with a gas-generating vessel, of an invertible vessel located within it and having two tubes, one forming the discharge-opening and the other extending to the bottom and forming the passage for the entrance of air as the vessel is inverted, and means for inserting said vessel from the exterior, substantially as described.

481,250. PIPE-COUPLING. Dana A. Barnes, Syracuse, N. Y. Filed July 6, 1891. Serial No. 398,472. (No model.)



Claim.—1. In a coupling of the class described, the combination, with the heads having cam-faced flanges, of cam-rings having oscillatory bearings directly on the heads and formed to connect with each other, as set forth.

2. The combination, with the heads, of the cam-rings, each provided with a tongue, and a yoke projecting from diametrically-opposite sides and at right angles to each other, the tongue of one constructed and arranged to pass into the yoke of the other, as set forth.

3. The combination, with the heads, of the cam-rings, each provided with stop-shoulders diametrically arranged, and a tongue and a yoke projecting from diametrically-opposite sides and at right angles to each other, the tongue of one arranged to enter and engage the walls of the other, as set forth.

4. The combination, with the heads formed with overhanging annuli, of the cam-rings embracing the heads and formed with tongues and yokes, the tongues being formed with cam depressions on their acting faces and the yokes with projections constructed to ride into and engage said depressions, as set forth.

5. In a coupling of the class described, a ring formed with opposite cam-surfaces, a tongue, and a yoke, said tongue and yoke projecting from diametrically-opposite sides and the yoke having an opening inclosed on three of its sides, as set forth.

6. In a coupling of the class described, a ring having oppositely-extended cam-surfaces, stop-shoulders upon substantially diametrically-opposite sides, a tongue, and a yoke, said tongue and yoke projecting from diametrically-opposite sides, as set forth.

7. In a coupling of the class described, a ring having oppositely-extending cam-surfaces, stop-shoulders, a lip or tongue with a depression on its acting face and a beveled end, and a diametrically-opposite yoke having a cross-bar with cam end face combined with a like ring and body portion for each ring, as and for the purpose specified.

481,251. PAPER-HANGING MACHINE. Lyman D. Barton, Kilbourn City, Wis. Filed May 14, 1892. Serial No. 433,018. (No model.)

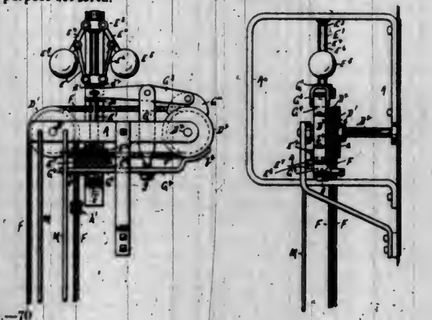


Claim.—1. The combination of an annular shell or case, a paste-distributing cylinder journaled within said case, a paper shaft or roller journaled in supports on the shell, a pressure-roller journaled above the paste-distributing cylinder and held in place by spring-controlled detents pivoted on the case or shell, another roller journaled above the paste-cylinder and adapted to force the sheet of paper against the wall, a brush, and a trough supported on the case below the last-mentioned-roller and having its bottom perforated, substantially as described.

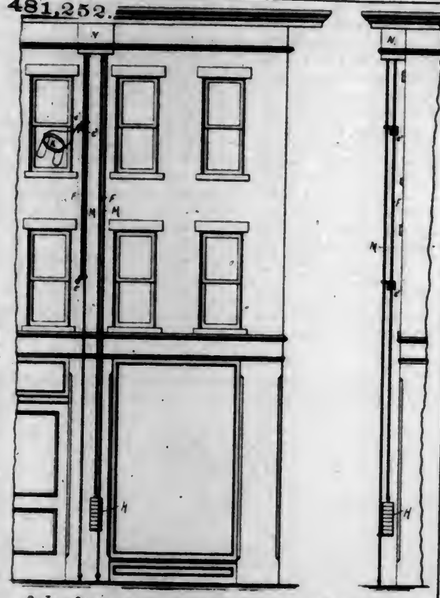
2. In a paper-hanging machine, the combination, with a shell or case provided with means for supporting a roll of paper, of a perforated cylinder journaled within said case, a roller journaled in slots in the end walls of the case or shell, pivoted detents connected to the end walls of the shell and extending across the slots therein, coiled springs attached to said detent and to the shell or casing, a brush carried by the shell or case, and a roller journaled in arms attached to the shell or case and adapted to press the paper carried by said case against the wall, substantially as shown and described.

481,252. FIRE-ESCAPE. Julius D. Brainard, St. Paul, Minn. Filed Apr. 25, 1891. Serial No. 390,476. (No model.)

Claim.—1. In a fire-escape apparatus, two sheaves or pulleys D' D^2, capable of passing around said sheaves or pulleys and with its ends hanging therefrom, a counter-weight upon one of said pendent ends, means whereby the person desiring to use the apparatus can be attached to the other pendent end, guide rods or wires M, to which said counter-weight and the suspension apparatus of the person using the apparatus is loosely connected, a brake adapted to act upon said sheaves or pulleys, and a governor connected to said brake and adapted to be actuated by said cable, so that the speed of the descent of the person using the apparatus will be regulated and the counter-weight and descending person guided during the trip, substantially as and for the purpose set forth.



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2. In a fire-escape apparatus, two sheaves or pulleys D' D^2, a cable passing around said sheaves or pulleys and with its ends hanging therefrom, a counter-weight upon one of said pendent ends, means whereby the person desiring to use the apparatus can be attached to the other pendent end, a brake adapted to act upon said sheaves or pulley, and a governor connected to said brake and adapted to be actuated by said cable, so that the speed of the descent of the person using the apparatus will be regulated, in combination with a pivoted lever G^3, supporting said brake and through which said cable passes, whereby when the weight of the person using the apparatus is removed from the cable an enlargement upon the cable will actuate said lever and set the brake, so as to check the movement of the cable and prevent the cable running off the sheaves, substantially as and for the purpose set forth.

481,253. SHOE-HORN. DAVID CADY, Indianapolis, Ind. Filed Apr. 12, 1892. Serial No. 428,837. (No model.)



Claim.—1. A shoe-horn having its upper end curved or bent backward and adapted to extend between the fingers of the user, whereby it is enabled to be handled in the manner herein shown and described.

2. A shoe-horn having its upper end flattened and formed into a curve, which curve starts forward at the initial point, forming a projection or offset above the dished portion thereof, substantially as shown and described, and for the purpose set forth.

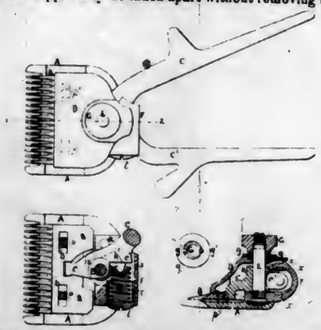
481,254. HAIR-CLIPPER. CYRUS CARLETON, Providence, R. I., assignor to the Brown & Sharpe Manufacturing Company, same place. Filed Sept. 29, 1891. Serial No. 407,157. (No model.)

Claim.—1. A hair-clipper having a movable cutter and a pivoted operating-lever therefor, with a push spiral spring within the cover or frame close to the pivot to act on the said lever.

2. A hair-clipper having a frame, movable cutter, and operating-lever, with a pocket in the frame containing a push spiral spring to act upon the operating-lever.

3. A hair-clipper having a movable cutter and an operating-lever therefor, a push spiral spring within the frame or cover close to the pivot, and means for retaining the spring in place when the clipper is taken apart and the operating-lever is removed.

4. A hair-clipper having a frame, a movable cutter, and an operating-lever therefor, in combination with a push spiral spring, the frame having a pocket with removable cover or thimble to retain the spring, the inner end of the pocket being provided with shoulders, whereby the clipper may be taken apart without removing the spring.

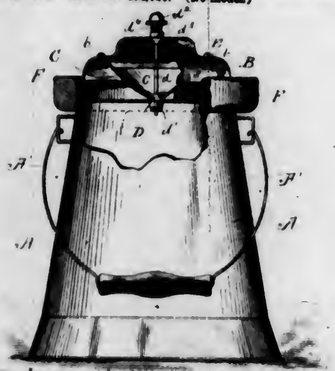


5. A hair-clipper having a frame, a movable cutter, and an operating-lever, with a push spiral spring to act on the lever, and a pocket with a beveled bottom for the reception of the spring.

6. A hair-clipper having a securing-nut with a tubular extension carrying a spring-washer secured thereto by forced-up lips or projections on the extension.

7. A hair-clipper having a frame, movable cutter, and a pivoted operating-lever therefor, a cap, securing-bolt, and retaining-nut for the cap, the hub of the operating-lever being out of contact with the cap and having a shoulder to take under an overhanging part of the frame.

481,255. COMMODE. JOHN W. CLERKE, Cleveland, Ohio. Filed Sept. 3, 1891. Serial No. 404,626. (No model.)



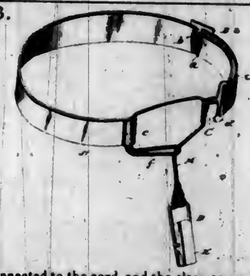
Claim.—In a commode, the combination, with a tapering receptacle and a cover fitted to its upper end, of a seat-ring larger in its internal diameter than the external diameter of the cover and adapted to pass over the latter and rest on the tapering exterior of the receptacle, substantially as set forth.

481,256. GARMENT-SUPPORTER. GEORGE J. CLINE, Goshen, Ind. Filed May 31, 1892. Serial No. 435,025. (No model.)

Claim.—1. As an improved article of manufacture, the garment-supporter described, comprising the limb-encircling band, the hook secured to one end thereof, the cord passing through the hook and also connected with the opposite end of the limb-encircling band and provided with loop *f*, the buckle mounted on said band, the loop *c*, formed by connecting one end of the band to the buckle, the clamp on the free end of the cord comprising the two members, the loop connecting said clamp to said cord, and a spring also mounted upon the free end of the loop and pressing against the members of the clamp, all adapted to operate substantially as specified.

2. In a garment-supporter substantially as described, the combination, with the cord, of the loop of a general rectangular form having

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one of its ends connected to the cord, and the clasp comprising the two members pivotally mounted upon the free end of the loop and adapted to turn within said loop, and the spring also mounted on the free end of the loop, substantially as specified.

3. In a garment-supporter substantially as described, the combination, with the clasp and the loop formed from a piece of wire and carrying the clasp and having its free ends formed into the eyes *m*, of the cord having its ends passed through the eyes of the loop to form the loop *i* and then passed through the said loop *i*, substantially as and for the purpose set forth.

481,257. PIPE-WRENCH. WILLIAM H. DECHANT, Reading, Pa. Filed Dec. 12, 1891. Serial No. 414,866. (No model.)



Claim.—1. The herein-described wrench, consisting of a frame or lever and a band of flexible material secured to said frame or lever, adapted to partially encircle a pipe and extending thence through an opening in said frame or lever, the free end of said band on its way from the pipe to the frame extending between said pipe and the lower end of said frame and adapted to be held in close contact with the pipe by said lower end of the frame.

2. The herein-described wrench, consisting of a frame or lever having horizontal rods *e*, *f*, and *g*, and a band of flexible material, as of cloth, secured to said rod *e*, adapted to partially encircle a pipe and extending thence through an opening between said rods *f* and *g*, said rod *g* serving to hold the adjacent portion of the fabric in close contact with the pipe, substantially as described.

3. The herein-described wrench, consisting of a frame or lever having a horizontal bar *e*, and a band of flexible material doubled upon itself engaging said bar at its upper end, adapted to partially encircle a pipe and extending thence through an opening in said frame or lever, the free end of said band on its way from the pipe to the frame extending between said pipe and the lower end of said frame and adapted to be held in close contact with said pipe by said lower end of the frame, substantially as described.

4. The herein-described wrench, consisting of a frame or lever having horizontal bars *e*, *f*, and *g* and opening *h*, and a band of flexible material, as of cloth, doubled upon itself, engaging said bar *e* at its upper end, extending from opposite sides of the same parallel with each other to and through said opening and adapted to partially encircle a pipe in its passage from the bar *e* to the opening, and bar *g* serving to hold the adjacent portion of the band in close contact with the pipe, substantially as described.

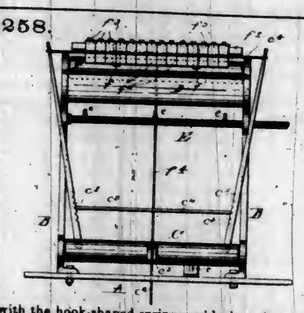
481,258. BINDERY PASTING-MACHINE. JOSEPH L. DENNIS, Atlanta, Ga., assignor of one-half to Tomlinson F. Brewster, same place. Filed Mar. 19, 1891. Renewed May 31, 1892. Serial No. 435,069. (No model.)

Claim.—1. In a device of the class specified, the combination of the shaft C, carrying-arms projecting therefrom; a cord secured at each end to one of said arms at its distal extremity, means for forcing said arms apart for the purpose of tightening said cord, and means for supplying said cord with paste, for the purpose specified.

2. The combination of a binding cord, supporting-arms therefor, a rock-shaft to which said arms are secured, a glue-pot, a dipping-plate *e*, means to swing the dipping-plate from the glue-pot into the path of the binding-cord, consisting of a rock-shaft and suitable plate-supporting arms secured thereto, and means to operate said shaft, all substantially as described.

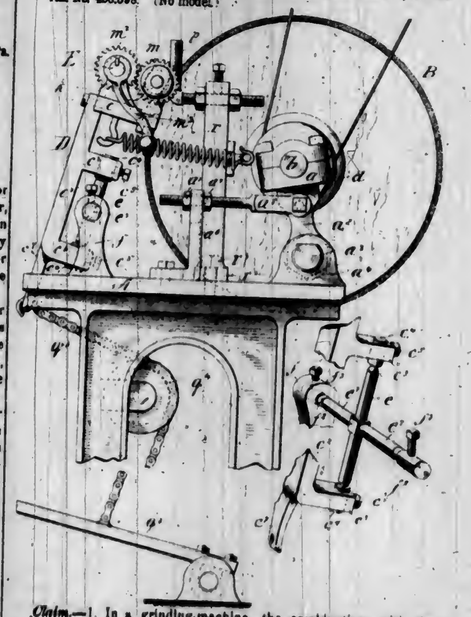
3. In a device of the class specified, the combination of the rock-shaft F, the carrying-arms *f*, secured to said rock-shaft, the connecting cross-bar on the free ends of the carrying-arms, and the movable plates

481,258.



provided with the hook-shaped springs, said plates being adapted to be removably attached to the cross-bar, all substantially as described.

481,259. MACHINE FOR GRINDING CUTLERY AND OTHER HANDLES. FREDRICK C. FRICKER, Northampton, Mass., assignor to the Northampton Cutlery Company, same place. Filed Feb. 6, 1892. Serial No. 420,598. (No model.)



Claim.—1. In a grinding-machine, the combination, with the grinding-wheel, of a work-holder support pivotally mounted to have a swinging movement toward and from the face of the grinding-wheel, the work-holder rotatably mounted thereon and means for imparting rotation thereto, a spring for forcing the said support toward the wheel, and a treadle having a flexible connection extended therefrom to an engagement with the support for withdrawing the latter from the grinding-wheel, substantially as described.

2. In a grinding-machine, the combination, with a table having supports for the grinding-wheel and a pair of separated uprights, of a work-holder support having parallel separated brackets, a bar or member having its extremities in engagement with said brackets, whereby there may be a rotational movement of the bracketed holder relative to the bar and said bar being provided with rigid members extended therefrom at right angles to its length and mounted for a rocking movement in said separated uprights, and the work-holder mounted on the said support, substantially as described.

3. In a machine for grinding cutlery and other handles, the combination, with a grinding-wheel and a work-holder support which is movable toward and from the face of the grinding-wheel, of separated work-holders mounted on said support thereof, comprising a bearing or journal, a sleeve therein constrained against endwise movement, a screw-shaft through the sleeve, having one extremity adapted to engage the article to be worked upon and free for an endwise movement

relative to the sleeve, but constrained against rotation, a nut-screw engaging the said screw-shaft and having an engagement with said sleeve, whereby there may be no movement axially of the one relative to the other, but whereby they may independently rotate, and means for imparting rotation to the sleeve, substantially as described.

4. In a machine for grinding cutlery and other handles, the combination, with a grinding-wheel and a moveble support, of separated work-holders on said support, one comprising a journal-bearing, a sleeve rotatable thereon, having a shoulder at one end of the bearing and a gear-wheel at the other, and the sleeve also having the peripherally-grooved extremity, the splice-grooved and screw-threaded shaft passed through the sleeve and having at its one end a handle-engaging member, the nut engaging the shaft and provided with the annular flange the pin j^3, and the pin j^3, all arranged as and for the purpose set forth.

481,260. APPARATUS FOR STARTING RACERS. EDWIN FORBES, Flatbush, N. Y. Filed Dec. 30, 1891. Serial No. 416,514. (No model.)



Claim.—1. The combination, in an apparatus for starting races, of a swinging carrier and standards containing bearings therefor, a gate suspended from said carrier, an automatic lifting device applied to said carrier for lifting said gate, and a controlling device applied to said carrier for controlling the operation of the lifting device, substantially as herein set forth.

2. The combination of the posts or standards A, the swinging carrier consisting of the shaft B, arms C C, and pivot D, the gate E, suspended from said pivot, the pulley F on said shaft, the cord or rope *b*, the weight G, and the windlass H, all substantially as herein set forth.

481,261. LATCH AND LOCK COMBINED. JAMES A. GIBBS, Chicago, Ill., assignor to the Adams & Westlake Company, same place. Filed Mar. 14, 1892. Serial No. 424,742. (No model.)

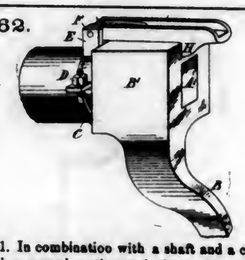


Claim.—1. The combination, in a door-latch, of plates adapted to be secured to the opposite sides of the door, hollow spindles journaled in each of said plates and provided with lugs on their inner ends and with knobs secured to their outer ends, whereby they are secured in said plates independent of each other, a square spindle connecting said hollow spindles, and latch-operating devices connected to said spindles, substantially as described.

2. The combination, in a door-latch, of a casing secured to the edge of the door and containing the catch and latch-rod, the inner end of said rod projecting into a recess which extends through the door and is adapted to receive the plates forming the casing for the operating mechanism, a yoke forming a part of the operating mechanism and extending beyond the inner plate inclosing said operating mechanism, means of attaching the projecting portion of said yoke to the latch-rod, plates adapted to be secured to opposite sides of the door and connected by clamping-screws, hollow spindles journaled in each of said plates, and a square spindle connecting said hollow spindles, substantially as described.

3. The combination, in a door-latch having the operating mechanism and the latch proper in separate cases, of a latch-rod connecting the latch and operating mechanism and having a head C, to which it is adjustably connected by a screw, a yoke adapted to receive the inner end of the latch-rod, and a fastening connecting said latch-rod and yoke, which prevents the turning of said rod, substantially as and for the purpose specified.

481,262. CRANK-HANDLE FASTENING. THOMAS H. HEARD and WILLIAM K. BERRISHAW, Derby, England. Filed Oct. 30, 1891. Serial No. 409,351. (No model.) Patented in England Feb. 6, 1890, No. 1,975.

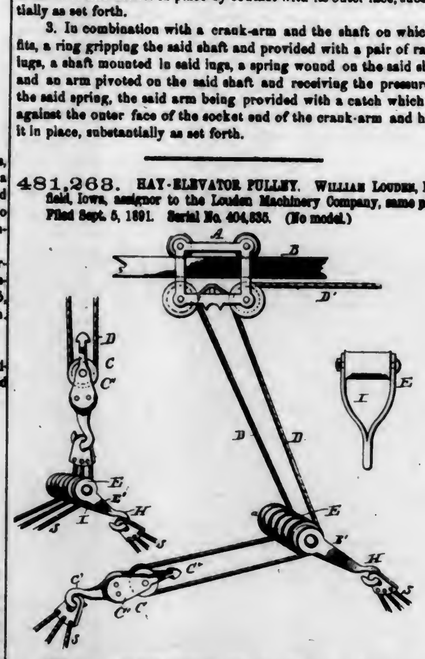


Claim.—1. In combination with a shaft and a crank-arm fitting thereon, a spring-pressed catch attached to said shaft and taking position outside of the said crank-arm to prevent the separation of the latter from the shaft, substantially as set forth.

2. In combination with a crank-arm and the shaft on which it fits, a ring gripping the said shaft and a spring-pressed catch attached to the said ring and arranged to overlap the socket end of the said crank-arm and hold it in place by contact with its outer face, substantially as set forth.

3. In combination with a crank-arm and the shaft on which it fits, a ring gripping the said shaft and provided with a pair of raised lugs, a shaft mounted in said lugs, a spring wound on the said shaft, and an arm pivoted on the said shaft and receiving the pressure of the said spring, the said arm being provided with a catch which fits against the outer face of the socket end of the crank-arm and holds it in place, substantially as set forth.

481,263. HAY-ELEVATOR PULLEY. WILLIAM LOUDEN, Fairfield, Iowa, assignor to the Louden Machinery Company, same place. Filed Sept. 5, 1891. Serial No. 404,835. (No model.)



Claim.—1. The combination, with a hoisting-rope, of an elevator-pulley and a binding-pulley, the frame of the binding-pulley being adapted to permit the passage therethrough of the elevating-pulley, substantially as set forth.

2. The combination, with a hay-carrier and a hoisting-rope, of an elevator-pulley and pulley-frame and a binding-pulley, said binding-pulley being adapted to permit the elevating-pulley to pass therethrough and engage the carrier, substantially as set forth.

3. The combination, with a hoisting-rope, of two pulleys, sling-ropes connected with the frames of said pulleys and adapted to embrace a bundle or load of hay, the frame of one of said pulleys being of sufficient size to permit the passage through it of the other pulley and its frame and the sling-ropes, substantially as set forth.

4. The combination, with a hay-carrier, of a binding-pulley having a loop and an elevating-pulley adapted to pass through said loop, substantially as set forth.

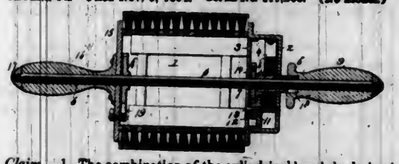
5. The combination, with a hay-carrier, of two pulleys, each connected to sling-ropes, the supporting-frame of one of said pulleys being of a size sufficient to permit the passage of the other pulley, substantially as set forth.

6. The combination, with a hay-carrier, of two pulleys, one of said pulleys being made of a series of sheaves and having an open supporting-frame adapted to permit the passage through it of the other pulley, substantially as set forth.

7. The combination, with a hay carrier, of two pulleys, one of said pulleys being made up of a series of sheaves or rollers the sheaves or rollers being smaller at the center of the pulley than at the edges, said pulley having an open frame adapted to permit the passage of the other pulley, substantially as set forth.

8. The combination, with a hay-carrier, of two pulleys and an open frame for one of said pulleys, adapted to permit the passage therethrough of the other pulley, said frame being made with a flaring mouth, substantially as set forth.

481,264. REVOLVING HAIR-BRUSH. WESLEY J. MILLER, Harrisburg, Pa. Filed Nov. 9, 1891. Serial No. 411,263. (No model.)



Claim.—1. The combination of the cylindrical brush-body having the end cap 2, the end plate 15, and the handle 16, secured on said end plate, the rod 6, having the ratchet-wheel 18 secured upon it, the pawl adapted to be thrown into engagement with said ratchet-wheel, the sleeve 5, having the squared outer end, the coiled spring 4, arranged as specified, and the sliding handle 9, formed with the squared socket at its inner end, substantially as set forth.

2. The combination of the cylindrical brush-body having the end cap 2, the end plate 15, and the handle 16, secured on said end plate, the rod 6, having the ratchet-wheel 18 and the gear-wheel 14 secured upon it, the pawl adapted to be thrown into engagement with said ratchet-wheel, the sleeve 5, arranged as specified, formed with the squared outer end, and having the small gear-wheel 8 at its inner end, the gear-wheels 11 and 12, secured together and mounted on the spindle 13, the coiled spring 4, secured at its inner end to the sleeve 5 and at its outer end to the end cap 2, and the sliding handle 9, formed with the squared socket in its inner end, substantially as set forth.

481,265. SHOE-BLACKING HOLDER AND REST. ROBERT D. MCMANUS, Hartford, Conn. Filed June 22, 1887. Serial No. 242,106. (No model.)



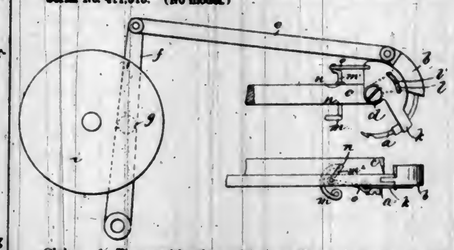
Claim.—1. The improved blacking-holder and rest comprising a base-plate adapted to be fixed in a vertical position and having a blacking-receptacle and a foot rest attached to said base-plate and having a swinging movement in a plane at right angles to the plane of the base-plate, all substantially as described.

2. The improved blacking-holder and rest comprising a base-plate adapted to be fixed in a vertical position and having a blacking-receptacle, a swinging foot-rest connected with the base-plate and having a swinging movement in a plane at right angles to the plane of the base-plate, and the stop that limits the swinging movement of said foot-rest, all substantially as described.

3. In a blacking-holder, in combination, a base-plate adapted to be fixed in a vertical position and having a blacking-receptacle, and a swinging foot-rest connected with the base-plate in such manner that it shall have a swinging movement in two directions in planes at right angles to the plane of the base-plate, all substantially as described.

4. In combination, in a blacking-holder, a base-plate adapted to be fixed in a vertical position and having a blacking-receptacle, an arm connected with said base-plate and having a swinging movement in a plane at right angles to said base plate, the stop that limits the swinging movement of said arm, and the swinging foot-rest having a swinging movement in a plane at right angles to the arm, all substantially as described.

481,266. SEWING-MACHINE. ENOS PATTEN, Lynn, Mass., assignor to the Lynn Lasting Machine Company, same place. Filed Nov. 13, 1891. Serial No. 411,813. (No model.)

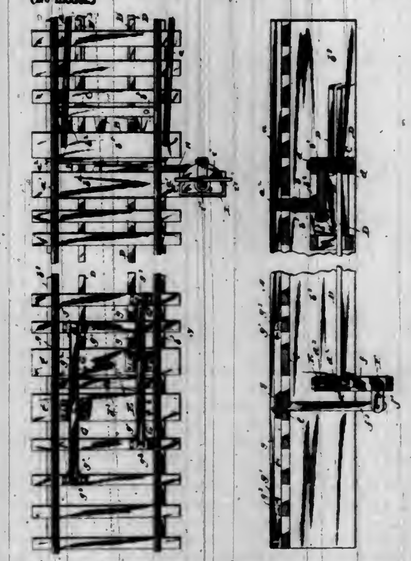


Claim.—1. The combination, with a needle-carrier, of a cast-off operated therefrom and a thread guide or looper operatively connected with the cast-off and actuated therefrom, substantially as described.

2. The combination, with a pivoted needle-carrier and a pivoted cast-off operated from the needle-carrier, of a pivoted thread guide or looper operatively connected with the cast-off and actuated therefrom, substantially as described.

3. The combination, with the pivoted needle carrier and the pivoted cast-off operated therefrom, of the thread guide or looper, a pinion connected therewith, and a rack in engagement with the said pinion and operatively connected with the cast-off, substantially as described.

481,267. RAILWAY-SWITCH. SIVERT PETERSON and AUGUST BALAND, Menominee, Wis. Filed Aug. 26, 1891. Serial No. 403,801. (No model.)



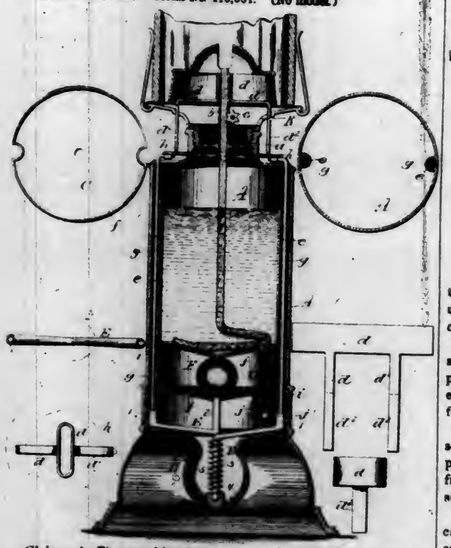
Claim.—1. The herein-described railroad-switch, comprising the switch-rails, the sliding cross head connected thereto, the corresponding locking-arms pivoted to said cross-head, the pivoted head or block having an arm engaging said cross-head, and the operating-bars connected to said head or block, substantially as set forth.

2. The herein-described railroad switch, comprising the switch rails, the sliding cross-head connected thereto, the corresponding locking-arms, the pivoted head or block having an arm engaging said cross-head, the operating bars connected thereto, the pivoted cross-head to which said bars are also connected, the rock-shaft for operating said latter cross-head, and the depressible bars for effecting the rocking of said shaft, substantially as set forth.

3. The herein-described railroad-switch, comprising the switch-rails, the cross-head connected thereto, the pivoted head or block having an arm engaging said cross-head, the operating-bars connected thereto, the pivoted cross-head to which said bars are also connected, the rock-shaft having an upwardly-projecting arm engaging a stud of said pivoted cross-head and also having opposite lateral arms at its ends, the vertical bars connected to said lateral arms, and the depressible bars for effecting the lowering of said vertical bars, substantially as set forth.

4. The combination, with the switch-rails, of the sliding cross-head connected thereto, the arm having a pivoted bearing or support and engaging said sliding cross-head, the link-bar or pitman connected to said arm, the vertical rod or shaft to the lower end of which said pitman is connected, the stand or frame through which said rod or shaft is extended, the block on said rod or shaft having a hole or opening and an elongated slot corresponding with said shaft, and also having an outer slotted or grooved end, the arm pivoted in said slotted or grooved end, and means for locking said arm, substantially as set forth.

481,268. LAMP-EXTINGUISHER. JOHN B. PRICE, Wollaston, Mass. Filed Nov. 2, 1891. Serial No. 410,681. (No model.)



Claim.—1. The combination, with a lamp, of an extinguisher adapted to embrace the wick-tube, rods extending parallel with the body of the lamp and adapted to engage the extinguisher, a bracket connected with said rod, a spring adapted to normally force said bracket and rods upwardly, and a weight adapted to automatically maintain said rods normally out of contact with the extinguisher against the tension of said spring and automatically release said bracket and rods when the lamp is jarred or overturned and cause the extinguisher to be elevated to extinguish the light, substantially as set forth.

2. The combination, with a wick-tube, an extinguisher embracing this tube, and devices projecting outwardly from this extinguisher, of a ring surrounding a portion of the burner and adapted to move up and draw thereon and located in position to strike these projecting devices when it moves out of its normal position and means for locking the ring, said means being located and arranged to automatically unlock the ring when the lamp is suddenly jarred or tilted out of its perpendicular position, substantially as set forth.

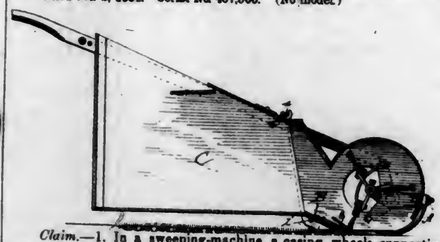
3. The combination, with a lamp and an extinguisher adapted to embrace the wick-tube, of rods adapted to run parallel with the lamp-body and engage said extinguisher, a receptacle having a conical bottom located near the lower end of the body of the lamp and adapted to produce the bottom of the oil-receptacle, a spherical weight within said receptacle, a bracket connected with said rods and having an arm adapted to project through an opening in the conical bottom of the receptacle and be engaged by the weight, a casing at the bottom of the lamp-body, into which one arm of said bracket projects, and a spring encircling said last-mentioned arm and adapted to force the bracket upwardly against the weight, substantially as set forth.

4. The combination, with a lamp and an extinguisher adapted to embrace the wick-tube, of rods adapted to engage said extinguisher, a bracket attached to said rods, a chamber having a conical bottom and adapted to receive one arm of said bracket in the bottom thereof, a spherical weight in said receptacle, a casing removably attached to the bottom of the lamp-body, and a spring in said casing adapted to force the bracket and attached rods upwardly, said spring being of a tension less than the force exerted by the spherical weight, substantially as set forth.

5. The combination, with a lamp and an extinguisher adapted to embrace the wick-tube, of rods adapted to engage the extinguisher, a bracket having arms provided with sockets for the reception of the lower ends of said rods, a sphere for normally holding the bracket in its depressed position, and a yielding device for elevating said rods when the sphere is moved from its normal position, substantially as set forth.

6. The combination, with an extinguisher, rods connected thereto, and a spring or springs for elevating said rods, of a chamber having a sloping bottom and a sphere fitting snugly between the top and bottom walls of said chamber and adapted when in its lowest position to rest on a projection from the rods and hold said rods depressed, substantially as set forth.

481,269. LAWN-SWEEPER. OTIS D. THOMPSON, Elkhart, Ind. Filed Oct. 2, 1891. Serial No. 407,500. (No model.)



Claim.—1. In a sweeping-machine, a casing, wheels supporting the same, a frame pivotally supported, and the brush-shaft supported upon said frame, said frame passing around the front and sides of the casing outside thereof, substantially as described.

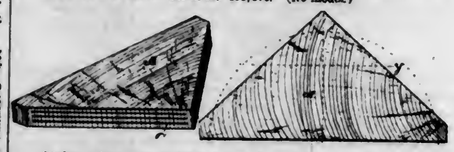
2. In a sweeper, a casing, a pivotally-supported frame passing across the front and around the sides of said casing, a sweeper supported upon said frame, a spring connecting said frame at its front end with the casing, and means for limiting the movement of said frame.

3. In a sweeper, a casing, wheels supporting said casing, castings secured to said casing and providing journals for the wheels, a frame pivoted on said journals, with a brush carried on the arms of said frame, and a cross bar on said frame extending in front of said casing, substantially as described.

4. In combination with a casing, a brush shaft suitably supported, castings secured to each end of the casing, having radial arms, and a central journal and wheels on said journals, substantially as described.

5. A shoe for a sweeper, having fingers made of wire pivoted at their rear ends, with parallel forward extensions and turned-up rear extensions, substantially as described.

481,270. BEDBUG-TRAP. FREDERIK F. BAGGESEN, Brooklyn, N. Y. Filed Oct. 12, 1891. Serial No. 408,476. (No model.)



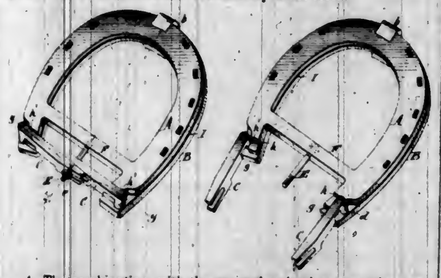
Claim.—As a new article of manufacture, a bedbug-trap consisting of a block of wood triangular, or approximately so, in shape, sawed across the grain and having parallel saw-kerfs therein extending in the same direction, the corners of said block being left uncut.

481,271. HORSESHOE. OSCAR E. BROWN, Buffalo, N. Y. Filed Nov. 14, 1891. Serial No. 411,931. (No model.)

Claim.—1. The combination, with the upper shoe, of the lower shoe provided at its toe portion with a hook interlocking with the adjacent portion of the upper shoe and at its rear end with a lever engaging with the rear end of the upper shoe, and a retaining device for locking the lever in place, whereby the two parts of the shoe are securely fastened together, substantially as set forth.

2. The combination, with the upper shoe, of the lower shoe provided at its toe portion with a hook interlocking with the toe of the upper shoe and at its heel portions with locking-levers which overlap the heels of the upper shoe, and a retaining device whereby the levers are held in their locked position, substantially as set forth.

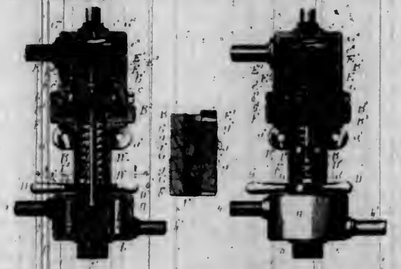
3. The combination, with the upper shoe provided at its heel with shoulders, of the lower shoe provided at its toe portion with a hook interlocking with the toe of the upper shoe and at its rear portions with locking-levers which overlap the heels of the upper shoe and bear against the shoulders thereof, substantially as set forth.



4. The combination, with the upper shoe having a cross-bar connecting its rear portions, of a lower shoe provided with a locking-lever engaging with a heel of the upper shoe, and a retaining-bolt attached to said connecting-bar and having a nut whereby the locking-lever is held upon the bolt, substantially as set forth.

5. The combination, with the upper shoe having its heels provided with shoulders, of the lower shoe provided at its front portion with a hook engaging with the toe of the upper shoe and at its rear portions with locking-levers overlapping the rear portions of the upper shoe and abutting against said shoulders, and a tightening-bolt arranged on the upper shoe and whereby the levers are held in their locked positions, substantially as set forth.

481,272. PRESSURE-REGULATING DEVICE. CHARLES F. A. CONVERT, Chicago, Ill., assignor to the Liquid Carbonic Acid Manufacturing Company, same place. Filed Feb. 18, 1891. Serial No. 381,781. (No model.)



Claim.—1. The combination, with a tubular casing and a stationary tube in the casing, of a piston sliding in the casing and surrounding the tube, said piston having a cylindric recess at its outer or upper end and holes leading from said recess outwardly to the interior of the casing, a packing in said recess opposite the open end of the tube, a screw-plug closing the recess and holding the packing within the same, a spring for actuating the piston, a packing-ring located in said recess of the piston and surrounding the tube, and a second spring located within said recess and bearing against said packing-ring, substantially as described.

2. The combination, with a slotted tubular casing and a stationary tube within the casing, of a piston sliding in the casing and surrounding the tube, said piston being provided with holes extending outwardly from the recess and with a packing located opposite the open end of the tube, a spring for actuating said piston, located within the casing, a follower sliding in the casing and provided with arms extending outwardly through the slots in the same, and a nut having a screw-threaded engagement with the casing and adapted to engage said arms for moving the follower, substantially as described.

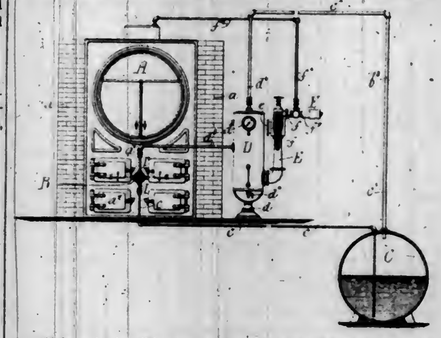
3. A regulating-valve comprising a tubular casing, consisting of a cylinder, a tubular frame attached thereto, and a plug closing the end of the tubular frame and screw-threaded on its outer surface, said casing being provided with a longitudinal passage for the liquid or gas and a spring-actuated valve controlling the same, and a hollow annular drum or chamber surrounding the tubular frame and attached to the latter by screw-threaded attachment to the said plug, substantially as described.

4. The combination, with a tubular casing consisting of a cylinder and a tubular frame having screw-threaded connection with the cylinder, of a stationary tube secured within the tubular frame, a piston smaller than the cylinder and surrounding the tube, said cylinder having a packing located opposite the open end of the tube, a plurality of laterally-expansible packing-rings located within and filling the space between the cylinder and piston, and a spring also located in said space and acting upon said packing-rings, substantially as described.

5. The combination, with the tubular casing consisting of a cylinder and a tubular frame, the cylinder being larger than the frame and connected with the same by a screw-joint, of a stationary tube secured within the tubular frame, a piston smaller than the cylinder surrounding the tube, said cylinder having a packing located opposite the open end of the tube, an annular guide for the piston, located in the cylinder in contact with a shoulder on the frame, packing-rings located in the space between the piston and cylinder and in contact with said guide, and a spring also located in said space and acting on the packing-rings, substantially as described.

6. The combination, with a casing consisting of a cylinder, a tubular frame attached thereto, and a screw-plug closing the end of the frame, of a tube secured in the plug, a piston in the cylinder surrounding the tube and provided with a packing opposite the open end of the same, a spring within the frame acting on the piston, and a tubular guide rigidly secured in the plug and extending into the frame, substantially as described.

481,273. HYDROCARBON-BURNER AND DEVICE FOR AUTOMATICALLY FEEDING THE SAME. CHARLES F. A. CONVERT, Chicago, Ill., assignor to the Liquid Carbonic Acid Manufacturing Company, same place. Filed June 30, 1891. Serial No. 398,007. (No model.)



Claim.—1. An oil-burner regulating device consisting of an automatically-operated valve communicating at one end with a source of steam or gas supply and communicating at the other end with a suitable reservoir, of suitable pipes connecting said reservoir with the source of fuel-supply and with an oil-burner, and a pipe or pipes connecting said oil-burner with said source of fuel-supply, substantially as specified.

2. In an oil-burning device, the combination of a burner connected with a suitable source of oil-supply, a reservoir connected at one end with an air and steam inlet blower and at its other end with the said burner and the oil-supply tank, a blower for supplying steam and air to the said reservoir, and an automatic regulating device controlling the inlet of steam to said blower, substantially as specified.

3. The combination of the housing provided with an air-inlet and a discharge-nozzle and adapted for rigid attachment to a furnace-front, the steam and air tube H, adjustably secured therein and projecting beyond the outer end of the housing, said tube terminating at its inner end in a flaring discharge-nozzle, an oil-tube H', adjustably secured in tube H and projecting beyond the outer end thereof, and a rod adjustably secured within the oil-tube and having its exposed inner end shaped to receive an adjusting-tool, substantially as described.

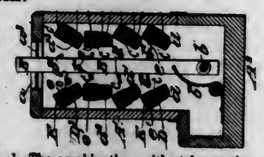
4. The combination of the housing provided at its inner end with a discharge-opening and at its outer end with an air-inlet and a tapped hole, the steam and air tube H, threaded between its ends to engage said tapped hole, said tube terminating at its inner end within the housing in a flaring discharge-nozzle and having at its outer end a female thread, the oil-tube H', threaded between its ends to engage the female thread of tube H, and provided at its closed outer end with a threaded socket and a rod threaded at its outer end to engage said

sockets, and provided at its inner end with an enlarged head slotted to receive a screw-driver, substantially as described.

5. In an oil-burning apparatus, the combination of the boiler A and burner B, reservoir D, blower E, regulator F, and oil-supply tank G, the pipe a^3, connecting the burner with the reservoir, the pipes d^3 d, connecting the latter with the tank G, the pipe c, connecting the tank with the burner, the pipe f, connecting the regulator with the boiler, all operating substantially as and for the purpose specified.

6. A device for regulating oil burners, comprising a burner, a supply-tank connected therewith, a reservoir, also connected with said burner, a steam-supply pipe provided with an automatically-regulating valve and leading to a blower having an air-inlet, said blower being connected with said reservoir, and suitable connections whereby the several parts operate, as described, to feed steam and air under pressure to the burner and to feed air under a lesser pressure to the supply-tank, substantially as specified.

481,274. WORKMAN'S CHECKING AND RECORDING APPARATUS. CHARLES P. COTTRELL, Stonington, Conn., assignor to C. B. Cottrell & Sons, Westerly, R. I. Filed Apr. 25, 1892. Serial No. 430,472. (No model.)



Claim.—1. The combination, with strips or sheets provided with series of characters corresponding to a number of workmen and means for presenting any one of the series at pleasure in a predetermined position, of a series of checking devices corresponding to a series of the characters and under the control of the operator to check one or more of the characters at pleasure, substantially as set forth.

2. The combination, with a plurality of movable supports for sustaining record-receiving strips and means for operating said movable supports, of a series of vibrating levers, each provided with a plurality of impression-making devices and free to move to bring the impression-making devices into engagement with one or another of the record-receiving strips upon the movable supports, substantially as set forth.

3. The combination, with movable supports for sustaining record-receiving strips or sheets and means for operating them, of a series of vibrating levers located between the said supports and provided with record-making devices, said levers being free to swing in opposite directions into engagement with the impression-receiving strips carried by the supports, substantially as set forth.

4. The combination, with movable supports for the impression-receiving material arranged in series and means for operating them, of a series of vibrating levers arranged between two series of supports and provided with impression-making devices, said levers having free swinging movements back and forth into positions to engage the impression-receiving material upon the supports, substantially as set forth.

5. The combination, with swinging supports connected in pairs, means for simultaneously swinging the members of a pair, and means for securing record-receiving sheets or strips to the supports, of vibrating levers provided with impression-making devices and located between the members of the pairs of supports, the said members being free to move toward the opposite members of the pairs, substantially as set forth.

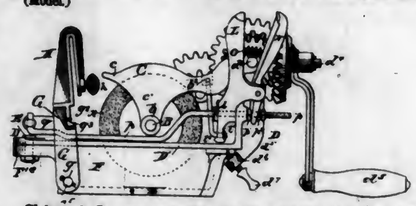
6. In combination, a plurality of series of rocking supports, toggle-lever connections for uniting them in pairs, keys or pedals connected with the toggle-levers for operating the supports in pairs, retracting-springs in connection with the supports, means for securing the material to receive the impression to the supports, record-making devices located between the series of supports, and means for operating the record-making devices, substantially as set forth.

7. In combination, rollers for supporting record-receiving material, means for swinging the rollers bodily toward and away from each other, means for rotating the rollers about their own axes, and vibrating levers carrying impression-making devices and located between the rollers for impressing the material carried by them, substantially as set forth.

8. In combination, supply-rollers for supporting record-receiving material, rollers for receiving the material from the supply-rollers, a rest intermediate of the supply and receiving rollers, over which the material may be drawn, a rocking support, in which one of the supply-rollers and one of the receiving-rollers are mounted and to which the rest is secured, a series of vibrating levers carrying impression-making devices, and means for bringing the rocking supports into position to present the material to be impressed to the action of the impression-making devices, substantially as set forth.

9. The combination, with a pair of supports adapted to hold record-receiving material upon them, of a series of vibrating levers supported to rock back and forth between said supports toward one or the other at pleasure, substantially as set forth.

481,275. MACHINE FOR GRINDING MOWER-KNIVES. RUFUS DUTTON, New York, N. Y. Filed Dec. 16, 1890. Serial No. 374,943. (Model.)



Claim.—1. In a mower-knife-grinding machine, a frame for holding a mower-knife and a frame supporting a grinding-wheel, and the said frames swiveled with respect to each other, so that the grinding-wheel grinds in succession the two opposite beveled edges of the same knife-section, as herein described.

2. In machines for grinding mower-knives, a knife-clamp and its frame, a grinding-wheel and its frame, and the said frames swiveled with respect to each other by a pivot which is placed at the intersection of the perpendiculars drawn from the lines of the two opposite beveled edges of the same knife-section and from points on said lines which are each distant inwardly from the extreme edges of the said knife-section one half the width of the face of the grinding-wheel, as described.

3. In a mower-knife-grinding machine, the combination of a knife-clamp and its frame, a grinding-wheel and its frame, a pivot swiveling the two frames with respect to each other and the said pivot placed in front of the grinding-wheel a greater distance than is the knife-clamp, and stops for restricting the lateral oscillations of the grinding-wheel to such an arc that the grinding-wheel will grind in succession the two opposite beveled edges of the same knife-section, as described.

4. In a mower-knife-grinding-machine, the combination of a knife-clamp and its frame, a grinding-wheel and its frame, a pivot swiveling the said frames with respect to each other and the said pivot placed in front of the grinding-wheel a greater distance than is the knife-clamp, stops for restricting the lateral oscillations of the grinding-wheel to such an arc that the grinding-wheel will grind in succession the two opposite beveled edges of the same knife-section, and means for locking the grinding-wheel frame in any lateral position, as described.

5. In a mower-knife-grinding machine, the combination of a knife-clamp adapted to hold a knife substantially vertical and a knife-clamp frame, a grinding-wheel mounted in a wheel-arm which is hinged parallel to the axis of the grinding-wheel on a wheel-frame, a pivot swiveling the knife-clamp frame and the wheel-frame with respect to each other and placed at a greater distance in front of the grinding-wheel than is the knife-clamp, a lever pivoted on the wheel-frame, and a link connecting an arm of the lever with the wheel-arm at a point between the wheel-arm hinge and the axis of the grinding-wheel, as described.

6. In mower-knife-grinding machines having an oscillating and reciprocating grinding-wheel and a reciprocating knife-clamp, the means organized into a single lever controlled by one hand of the operator for reciprocating and oscillating the grinding-wheel and for reciprocating the knife-clamp, herein described.

7. The combination, in a mower-knife-grinding machine, of a grinding-wheel mounted in a frame, a knife-clamp frame hinged parallel to the axis of the grinding-wheel, a compressible thumb-lever pivoted on the wheel frame, a connecting-rod connecting an arm of the thumb-lever with the knife-clamp frame, and a spring in the thumb-lever adapted to throw the knife-clamp frame away from the face of the grinding-wheel, as described.

8. The combination, in a mower-knife-grinding machine, of a grinding-wheel and its frame, a knife-clamp frame hinged parallel with the axis of the grinding-wheel, a pivot swiveling the said frames with respect to each other, a compressible thumb-lever pivoted on the wheel-frame, a connecting rod having one of its ends pivotally connected with the knife-clamp frame at a point substantially on line with the aforesaid swiveling-pivot and its other end connected with the thumb-lever, and a spring in the thumb-lever adapted to throw the knife-clamp frame away from the grinding-wheel, as described.

9. In mower-knife-grinding machines having hinged and swiveled knife-clamp frames and wheel-frames, the means for reciprocating the knife-clamp frame and for reciprocating and swiveling the wheel-frame herein described, to wit: a hand-lever pivoted on the wheel-frame by a hollow pivot, a compressible thumb-lever pivoted on the hand-lever, a rod passing through the hollow pivot and connecting the thumb-lever with the knife-clamp frame at a point which is substantially in line with the swiveling-point of the wheel-frame, and a spring in the thumb-lever for throwing the knife-clamp frame away from the grinding-wheel, as described.

10. In mower-knife-grinding machines, a vibratory knife-clamp having the frame, the pivotal supports, the guide seat for the knife, and a jaw or jaws, all in one integral piece, as described.

11. In mower-knife-grinding machines, a knife-clamp frame, knife-clamp jaws, a flange across the face of the knife-clamp frame for guiding the upper edge of a knife-back, and brackets on the face of the knife-clamp frame for supporting the lower edge of a knife-back, all formed in one integral piece, as described.

12. In a mower-knife-grinding machine, a knife-clamp and its frame, a grinding-wheel mounted on a reciprocating arm, and a water-trough, and the whole so organized that the grinding-wheel dips into the water in the trough when at rest and is raised above the water in the trough during grinding, as described.

13. In a mower-knife-grinding machine, the grinding-wheel mounted in a frame which is pivoted to oscillate laterally over the front end of a water-trough, and the rear end of said water-trough shaped as an arc of a circle struck from the pivot as a center, and stops on the rear end of a water-trough to limit the oscillations of the wheel-frame, as described.

14. In mower-knife-grinding machines, a grinding-wheel swiveled to oscillate laterally on a pivot near the front end of a water-trough, and the rear end of the water-trough shaped as an arc of a circle struck from the pivot as a center, and adjustable stops on the rear end of the trough to vary the arc through which the wheel-frame oscillates, as described.

15. In mower-knife-grinding machines, the combination of a knife-clamp and its frame, a grinding-wheel and its frame, a pivot swiveling the two frames with respect to each other, and means for varying the distance between the pivot and the face of the grinding-wheel, as described.

16. In mower-knife-grinding machines, a knife-clamp mounted on a frame which is hinged to a base, a grinding-wheel mounted in a wheel frame on an axis parallel to knife-clamp-frame hinge, and the wheel-frame swiveled on the base by a shiftable pivot, a slot in which the pivot plays, formed in the base perpendicular to the axis of the wheel, and means for locking the pivot in the slot, as described.

17. In mower-knife-grinding machines having a grinding-wheel frame and a knife-clamp frame swiveled with respect to each other, a shiftable swiveling-pivot consisting of a swiveling-bolt passed with a working fit through the head of an eyebolt, the said eyebolt threading in the grinding-wheel frame and the said swiveling-bolt passing through a slot in the base of a machine, a pinion with a working fit on the swiveling-bolt and meshing with a rack on the base of the machine, and a lock-nut on the swiveling-bolt to lock the pinion, as described.

481,276. TUBULAR LANTERN. JOHN S. GALL, Rochester, N. Y., assignor to the Steam Gauge and Lantern Company, same place, and The R. E. Dietz Company, New York, N. Y. Filed Oct. 5, 1888. Serial No. 287,841. (No model.)



Claim.—1. The combination, with the lantern-frame provided with a depending central tube, of a vertically-movable globe-frame provided with a bell which slides on said central tube, an eye secured to said bell, and a lifting-lever pivoted to the lantern-frame near one side thereof and passing through the eye of the bell to the opposite side of the lantern-frame, substantially as set forth.

2. The combination, with the lantern-frame provided with a depending central tube and the vertically-movable globe-frame provided with a bell which slides on said tube, of a lifting-lever pivoted to the lantern-frame at one side thereof and extending across the lantern-frame to the opposite side and connected between its fulcrum and its free end with the upper portion of the globe-frame and an upright catch secured to the lantern-frame adjacent to the free end of the lifting-lever and provided with an upper and a lower stop, with either of which the lifting-lever can be engaged, substantially as set forth.

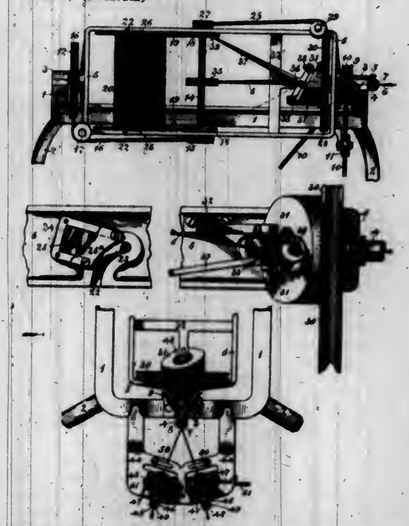
481,277. GRASS-RECEIVER FOR LAWN-MOWERS. FRANCIS L. GOLBRANT, Indianapolis, Ind. Filed May 7, 1892. Serial No. 432,114. (No model.)



Claim.—1. In a grass-receiver for lawn-mowers, brackets secured to the forward ends of the sides of such receiver by screw-bolts and a slot in each of such brackets through which one of such screw-bolts works, the forward ends of such brackets divided into two flanges which are adapted to fit over the arms of a lawn-mower handle, the lower ends of such flanges to be clamped together by a suitable screw-bolt, whereby such receiver may be attached to different kinds of lawn-mowers, substantially as shown and described.

2. A grass-receiver for lawn-mowers, consisting of a bottom piece, two side wings connected thereto, a removable cross-piece connecting the rear of such side wings, such cross-piece centrally attached by a bolt to the handle of the lawn-mower, brackets secured to the forward ends of such side wings by screw-bolts, and a slot on each of such brackets through which one of such screw-bolts works, the other ends of such brackets provided with two flanges adapted to fit over the arms of the lawn-mower handle and to be clamped to the same by screw-bolts, substantially as shown and described.

481,278. SPINNING-MACHINE. WILLIAM S. HUNTER, Belleville, and WALTER H. AVIS, Toronto, Canada. Filed Dec. 30, 1890. Serial No. 376,296. (No model.)



Claim.—1. In a twine-spinning machine, the combination of the fixed main frame having a flier-frame journaled to revolve therein, the hollow axis in one of the trunnions being provided with a tubing device, as described, the pulley fixed on the hollow trunnion as a means by which the flier-frame is revolved, the fixed pulley at the other end of the flier-frame and secured to the main frame, the belt passing over said fixed pulley on the main frame and over a pulley on a transverse shaft carried near the center of the flier-frame, the transverse shaft belted to said fixed pulley, and the friction-wheels carried on said transverse shaft to revolve the bobbin-spool, substantially as shown and described.

2. In a twine-spinning machine, the combination of the fixed main frame having a flier-frame journaled to revolve therein, the hollow axis of one of the trunnions being provided with a tubing device, as described, the pulley fixed on the hollow trunnion as a means by which the flier-frame is revolved, the fixed pulley at the other end of the flier-frame and secured to the main frame, the belt passing over said fixed

pulley on the main frame and over a pulley on a transverse shaft, the transverse shaft belted to said fixed pulley, the friction-wheels carried on said transverse shaft to revolve the bobbin-spool, and the grooved wheel on the center of the transverse shaft to draw the twine, substantially as shown and described.

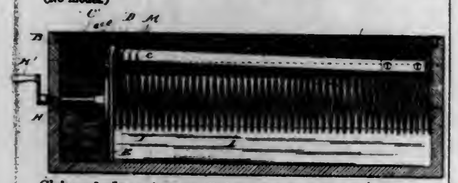
3. In a twine-spinning machine, the combination of the fixed main frame having a flier-frame journaled to revolve therein, the hollow axis in one of the trunnions being provided with a tubing device, as described, the pulley fixed on the hollow trunnion as a means by which the flier-frame is revolved, the fixed pulley at the other end of the flier-frame and secured to the main frame, the belt passing over said fixed pulley on the main frame and over a pulley on a transverse shaft, the transverse shaft belted to said fixed pulley, the friction-wheels carried on said transverse shaft to revolve the bobbin-spool, the grooved wheel on the center of the transverse shaft to draw the twine, the pulley on the opposite end of the transverse shaft, the belt passing over said pulley and a pulley having a cam thereon, the pulley having a cam on its side, said cam on said pulley to operate a laying-arm, and the laying-arm supported in the flier-frame and vibrated by said cam on the pulley, substantially as shown and described.

4. In a twine-spinning machine, the removable platform on the front of the main frame, having a number of hollow axes journaled to revolve therein, each provided with a tubing, a pulley on each hollow axis, by which it is revolved, and a nipper-spring on the platform in the rear of each axis to maintain the twist imparted by said axis, substantially as shown and described.

481,279. COMPOSITION OF MATTER FOR THE MANUFACTURE OF ARTIFICIAL STONE. JOSEPH E. KESSLING and CHARLES FUCHS, Jr., New York, N. Y., assignors to the Pyrolith Company, of New Jersey. Filed May 2, 1892. Serial No. 431,474. (No specimens.)

Claim.—A composition of matter for artificial stone, consisting of a basic cement of oxide and neutral chloride of magnesium, sand, or analogous material, asphaltum, and a solution of albumen.

481,280. COIN-CONTROLLED VENDING APPARATUS. ALEXANDER S. KIDBY, Chicago, Ill. Filed May 7, 1892. Serial No. 432,154. (No model.)



Claim.—1. In a coin-controlled vending-machine, the combination of the box A, having the slots D and L' and the partition E, with a spiral carrier and ejector secured at one end to the rear end of the box and its other end secured to the shaft H, by which it is adapted to be rotated, the shaft H, having the handle H', the disk G, mounted on the said shaft, having the annular flange b and the lugs b' b^3, and the bolt c, adapted to engage the disk G and to be disengaged therefrom by a coin, substantially as described.

2. In a coin-controlled vending-machine, the combination of the box A, having the slots D and L', with the partition E, having the lugs c', c^3, c^4, and c^5, a spiral carrier and ejector, the shaft H, having the handle H', the disk G, mounted on the said shaft and having the cam H^3, annular flange b, the lugs b' b^3, and recessed or cut-away portion g g', the plate c^6, secured over the lugs c' c^3, the spring-actuated bolt c, adapted to operate between the lugs c^3 and c^4 and to engage the disk G and to be disengaged therefrom by a coin, and the lever K, pivotally secured at one end and having at its other end the spring k, all constructed, arranged, and operating substantially as and for the purpose set forth.

3. In a coin-controlled vending-machine, the combination of the box A, having the slots D and L', with the partition E, having the lugs c', c^3, c^4, and c^5, the spiral spring carrier and ejector I, the shaft H, having the handle H', the disk G, mounted on said shaft and having the annular flange b, the lugs b' b^3 and recessed portion g g', the plate c^6, secured over the lugs c', c^3, and c^4, and the spring-actuated bolt c, adapted to operate between the lugs c^3 and c^4 and to engage the disk G and to be disengaged therefrom by a coin, substantially as described.

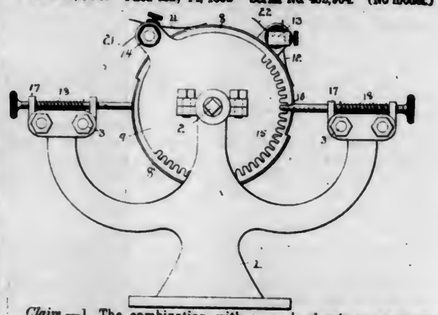
4. In a coin-controlled vending-machine, the combination of the box A, having the glass top C and slots D and L', with the partition E, having the enlargement e, lugs c', c^3, and c^4, the spiral spring carrier and ejector I, having the disk or plate I', the shaft H, having the handle H', the disk G, mounted on said shaft and having the annular flange b, the lugs b' b^3, having the bevels b^2 and b^4, respectively, and recessed portion g g', the plate c^6, secured over the lugs c', c^3, and c^4, and the spring-actuated bolt c, adapted to operate between the lugs c^3 and c^4 and to engage the disk G and to be disengaged therefrom by a coin, substantially as described.

5. In a coin-controlled vending-machine, the combination of the box A, having a hinged lid B, glass cover C, and slots D and L', with the partition E, having the enlargement e, lugs c', c^3, c^4, and c^5, a spiral carrier and ejector, the shaft H, having the handle H', the disk G, mounted on said shaft and having the cam H^3, annular flange b, the lugs b' b^3, having the bevels b^2 and b^4, respectively, and recessed portion g g', the plate c^6, secured over the lugs c', c^3, and c^4, the spring-actuated bolt c, adapted to operate between the lugs c^3 and c^4 and to engage the disk G and to be disengaged therefrom by a coin, and the lever K, fulcrumed at one end to the partition and having at its other end the spring k to press it against the cam H^3, all constructed, arranged, and operating substantially as and for the purpose set forth.

6. In a coin-controlled vending-machine, the combination of the box A, having the slots D and L', with the partition E, having the lugs c', c^3, c^4, and c^5, the spiral spring carrier and ejector I, the shaft H, having the handle H', the disk G, mounted on said shaft and having the cam H^3, lugs b' b^3, and recessed portion g g', the bolt c, adapted to operate between the lugs c^3 and c^4 and to engage the disk G and to be disengaged therefrom by a coin, and the lever K, fulcrumed at one end to the partition E and having at its other end the spring k to press it against the cam H^3, all constructed, arranged, and operating substantially as set forth.

7. In a coin-controlled vending-machine, the combination of the box A, having the slots D and L', the piece m, and adjustable guide N, with the partition E, having the enlargement e, lugs c', c^3, c^4, and c^5, the spiral spring carrier and ejector I, the shaft H, having the handle H', the disk G, mounted on said shaft and having the annular flange b, the lugs b' and b^3, having the recessed portion g and g', the plate c^6, secured over the lugs c' c^3 c^4, and the spring-actuated bolt c, adapted to operate between the lugs c^3 and c^4 and to engage the disk G and to be disengaged therefrom by a coin, substantially as described.

481,281. CIRCUIT-CHANGING APPARATUS. ALMON D. PAGE, Newark, N. J. Filed May 14, 1892. Serial No. 432,964. (No model.)



Claim.—1. The combination, with a supply-circuit or source of electric current, of translating devices the circuit of which is to be changed periodically, and a circuit-changer having contact devices the distance between which can be varied at will, a body having a conducting-section against which said contact devices are adapted to bear, and means for producing relative motion between said contact devices and said body, whereby the circuit can be changed and the frequency of the changes can be varied, substantially as described.

2. A circuit-changing apparatus having, in combination, contact devices the distance between which can be varied at will, a body having a conducting-section against which said contact devices are adapted to bear simultaneously, and means for producing relative motion between said contact devices and body, substantially as described

3. A circuit-changing apparatus having, in combination, contact devices carried by adjustable disks or plates, whereby the distance between the contact devices can be varied at will, a disk or body having conducting-sections against which said contact devices are adapted to bear, and means for moving said body, substantially as described.

4. The combination, in a circuit-changing apparatus, of a rotatable body on which is a conducting-section, and contact devices, each bearing or adapted to bear thereon, such contact devices being adjustable toward and from each other, whereby the duration of closure of the circuit may be varied, substantially as described.

5. The combination, in a circuit-changing apparatus, of a body having one or more conducting-sections, contact devices bearing or adapted to bear thereon, said contact devices being adjustable with relation to each other to vary the intervals at which the changes are made, and means for moving the body relatively to the contact devices, substantially as described.

6. The combination, in a circuit-changing apparatus, of a disk on the periphery of which are one or more conducting-sections, means for rotating said disk, contact devices bearing or adapted to bear on the conducting section or sections, said contact devices or either of them being carried on a disk or plate loosely mounted on the axis of the first-mentioned disk and having a stop or detent-pawl for holding it in the position to which it is adjusted, whereby the distance between the contact devices can be adjusted and maintained, and thereby the duration of closure of the circuit varied at will, substantially as described.

7. The combination, in a circuit-changing apparatus, of a stepped disk having two conducting-sections, each substantially one hundred and eighty degrees in extent, a rotatable shaft on which said disk is fixed, contact devices bearing or adapted to bear on said sections, and means for varying the distance between said contact devices, substantially as described.

8. The combination, in a circuit changing apparatus, of a rotatable shaft, several disks secured thereto and carrying conducting-sections, and contact devices adapted to bear on said sections at each disk, the distance between the contact devices at the several disks being independently adjustable, substantially as described.

9. The combination, in a circuit-changing apparatus, of standards, a rotatable shaft supported thereby, a circuit-changer having a disk with conducting-sections on the shaft and an adjustable contact device, rods supported by said standards, a yoke on said rods, and a detent-pawl for securing the adjustable contact device in the position in which it is set, mounted in said yoke, substantially as described.

481,282. ART OF PAINTING WITH DISTEMPER AND OTHER COLORS. ALFONS PERELA, Stuttgart, Germany. Filed Nov. 14, 1891. Renewed July 5, 1892. Serial No. 439,419. (No specimens.)

Claim.—The improvement in the art of painting in distemper and majolica colors, which consists in laying on colors ground with a mixture of glycerine, honey, and palm-oil and thinned with a solution of a gelatinous body in water and acetic acid, and finally covering the painting after the above-mentioned colors are dry with pure gum-colors dissolved in a mixture of copaiba balsam, essence of lavender, mastic, and Damarra gum, substantially as set forth.

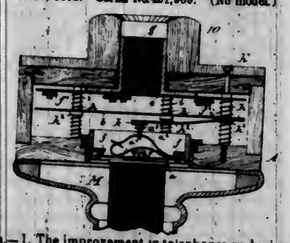
481,283. GUIDE FOR UMBRELLA RIBS AND STRETCHERS. HERMAN G. PRAETORIUS, Dayton, Ohio. Filed Feb. 1, 1892. Serial No. 419,907. (No model.)



Claim.—1. The combination of the paragon stretcher F, the runner C, and the guide G, comprising the ears 4 and embracing parts 1 and 3 and the binding-wire 9, substantially as set forth.

2. The combination of the paragon rib D, the top notch B, and guide H, comprising the ears 7, the embracing parts 8 and 5, and binding-wire 9, substantially as set forth.

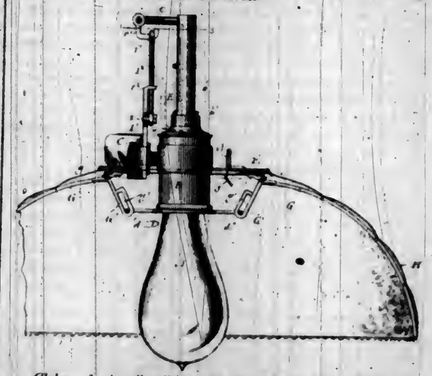
481,284. TELEPHONE. ADOLF RETTIG, Saarbrücken, Germany. Filed Feb 17, 1892. Serial No. 421,909. (No model.)



Claim.—1. The improvement in telephones and microphones, consisting in the combination, with a wooden case or head, of a plurality of diaphragms of different area, lever and spring devices connecting the said diaphragms with each other, and screw-studs and spiral springs thereon connecting the said diaphragms with each other and with the wooden case, substantially as and for the purpose herein set forth.

2. The construction of the wooden head of a telephone or microphone transmitter with the grain of the wood running across the back, substantially as and for the purpose herein specified.

481,285. SHADE FOR INCANDESCENT ELECTRIC LAMPS. CHARLES J. SALICK and EDWARD SIPP, Watertown, Wis. Filed Apr. 10, 1891. Serial No. 388,406. (No model.)

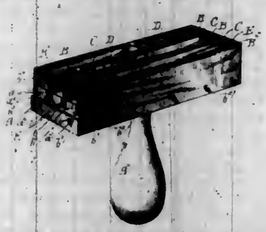


Claim.—1. A collapsible shade for incandescent electric lamps, comprising a stationary ring adapted for engagement with the lower end of the lamp-socket, a movable ring located around the outside of said lamp-socket, a yoke or frame extending upwardly from said latter ring and having a sliding engagement with a stationary bracket, a plurality of arms or bows pivotally engaged with the under side of said movable ring, extensions upon the inner ends of said arms or bows engaging the outer periphery of said stationary ring, and means for raising and lowering said movable ring, substantially as and for the purpose described.

2. A collapsible shade for incandescent electric lamps, comprising a stationary ring adapted to engage the lower end of the lamp socket, a movable ring located outside of said socket, a plurality of arms or bows pivotally engaged with the said movable ring and provided with slotted extensions upon their inner ends, said slotted inner ends having engagement with the outer periphery of said stationary ring, a movable yoke or frame for supporting said movable ring, a clip adapted to engage the lamp key or lever, and connections between said movable frame or yoke for giving a vertical movement to said frame by the rotary movement of said key, substantially as set forth.

3. The herein-described improvement in shades for incandescent electric lamps, comprising a stationary ring adapted to be secured upon the lower end of the lamp-socket, a vertically-adjustable ring supported upon arms or brackets upon said lamp-socket, a plurality of arms or bows pivotally secured to the under side of said adjustable ring, slotted extensions upon the inner ends of said pivoted arms operatively engaged with the said stationary ring, and springs upon the inner periphery of said adjustable ring adapted to engage the outer margin of said stationary ring when said adjustable ring is partially lowered, substantially as and for the purposes described.

481,286. TYPE-HOLDER. LOUIS K. SCOTFORD, Chicago, Ill. Filed June 10, 1891. Serial No. 395,776. (No model.)



Claim.—1. A holder for rubber type, comprising a block or support provided with one or more type-grooves the side walls of which are composed of doubled or folded sheets of metal, said grooves being made wider at their inner than at their outer parts by the converging of said folded or doubled side walls, substantially as described.

2. A holder for rubber type, comprising a block provided with grooves and strips of metal doubled or folded and having their edges inserted and secured in said grooves in the block, substantially as described.

3. A holder for rubber type, comprising a block or support with dovetail grooves and metal strips doubled or folded and having out-

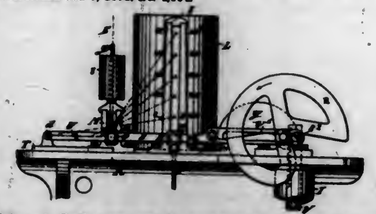
wardly flaring or flanged margins engaging said dovetail grooves, substantially as described.

4. A holder for rubber type, comprising a block or support and metal strips doubled or folded and secured to said block to form type-grooves, those strips which are adjacent to the side edges of the block being extended over said side edges and secured to the latter, substantially as described.

5. A holder for rubber type, comprising a block or support and doubled or folded sheet-metal strips attached to the block to form type-grooves, those strips adjacent to the side edges of the block being extended over and secured to the same and the said block being provided with grooves between its side edges into which the intermediate metal strips are inserted, substantially as described.

6. A holder for rubber type, comprising a block having intermediate and marginal grooves and sheet-metal strips doubled or folded and secured to the block to form type-grooves, the external strips adjacent to the side edges of the block being extended over and secured to the latter and having their inner edges engaged with said grooves and the intermediate strips having their free edges engaged and held within the intermediate grooves, substantially as described.

481,287. APPARATUS FOR RECORDING AND REGISTERING QUANTITIES OF STEAM, &c. FRANZ SEILER, Mannheim, Germany. Filed Mar. 30, 1892. Serial No. 427,043. (No model.) Patented in Switzerland Oct. 9, 1891. No. 4,184.



Claim.—1. In an apparatus for measuring the quantity of steam passing through a conduit in a given time, the combination, with a valve in the conduit through which the steam to be measured passes, of a swinging and lateral-movable lever connected with said valve, a marker on said lever, a movable sheet on which the lever can trace marks, a steam-pressure indicator, and means for shifting the pivotal support of the above-mentioned lever carrying the marker from said pressure-indicator, substantially as set forth.

2. In an apparatus for measuring the quantity of steam passing through a conduit in a given time, the combination, with a valve in the conduit through which the steam to be measured passes, of a reciprocating support, a lever pivoted to said reciprocating support and carrying a marker, means for raising or lowering said lever from the valve in the above-mentioned conduit, a rod connected with said reciprocating support, cams acting on said rod, and a steam-pressure indicator actuating said cams, substantially as set forth.

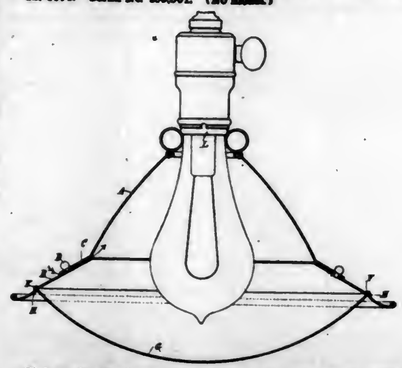
3. In an apparatus for measuring the quantity of steam passing through a conduit in a given time, the combination, with a valve in the conduit through which the steam to be measured passes, of a sliding support, a lever pivoted on said sliding support and operated from the valve, a marker on said lever, a sheet upon which the marker can trace the lines, a reciprocating rod connected with the movable support for said lever, two opposite cams acting on said rod, a pinion on the shaft of said cams, a rack engaging said pinion, and a steam-pressure indicator for actuating said rack, substantially as set forth.

4. In an apparatus for measuring the quantity of steam passing through a conduit in a given time, the combination, with a valve in the conduit through which the steam to be measured passes, a reciprocating support, a lever pivoted to said support, means for raising and lowering said lever from the above-mentioned valve, a steam-pressure indicator, and means on the same for reciprocating the support, a marker on said lever, and adding mechanism connected with and operated from said marker, substantially as set forth.

5. In an apparatus for measuring the quantity of steam passing through a conduit in a given time, the combination, with a valve in the conduit, through which the steam to be measured passes, of a swinging and sliding lever, a marker on said lever, a sliding carriage connected with said swinging and sliding lever, a counting mechanism on said carriage, a wheel for operating said counting mechanism, a disk in contact with said wheel for operating the counting mechanism, and means for rotating said disk, substantially as set forth.

6. In an apparatus for measuring the quantity of steam passing through a conduit at a given time, the combination, with a sliding support, a swinging lever pivoted on the same, which lever carries a marker, a sheet on which the marker can act, a rod connected with the sliding support, cams acting on said rod, a steam-pressure indicator for operating the cams, and means controlled by the steam to be measured for moving said swinging lever that carries the marker up or down, substantially as set forth.

481,288. REFLECTING-SHADE FOR INCANDESCENT ELECTRIC LAMPS. LOUIS T. STANLEY, Brooklyn, N. Y., assignor to the Cutter Electrical and Manufacturing Company, Philadelphia, Pa. Filed Oct 22, 1891. Serial No. 409,561. (No model.)

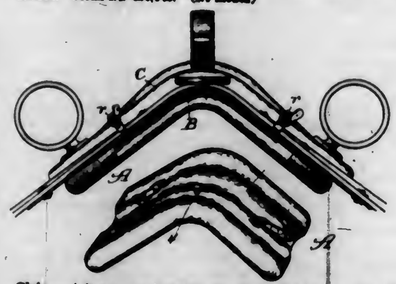


Claim.—1. A reflecting-shade for incandescent lamps, consisting in the combination of a parabolic reflecting portion provided with a contracted opening for the reception of the lamp neck or socket and of such depth as to permit the incandescent conductor or light-giving portion of a lamp when in position in the shade to extend or project out beyond the edge of the said parabolic portion, a conical or outwardly-flaring rim or portion extending from the parabolic part below the incandescent conductor, whereby both portions will receive directly the lateral rays of light, and a diffusing or translucent plate covering the open end of the shade, as set forth.

2. The combination, with a reflecting-shade for incandescent lamps having a contracted opening for the passage of the lamp neck or socket, of three spiral springs around the opening and above or outside the shade and having their ends secured or connected to the shade at points around the edge of the opening, as set forth.

3. The combination, with the parabolic reflecting-shade A, having a flange C, of an annular reflecting-apron B, secured to said flange, with an intermediate air-space, and a diffusion-glass closing the lower opening of the shade, as set forth.

481,289. HARNESS-PAD. WILLIAM D. UNDERWOOD, Chicago, Ill., assignor of two-fifths to William H. Partridge, same place. Filed Feb. 2, 1892. Serial No. 420,048. (No model.)

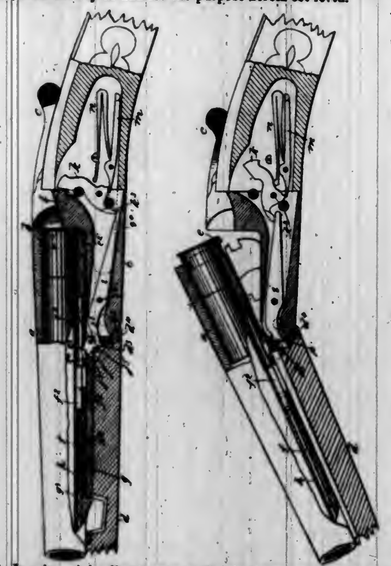


Claim.—A harness-pad comprising an inflated sack A of flexible material substantially impervious to air, conforming at its under surface to the shape of the animal's back and presenting an unobstructed chamber, a layer B of stiffening material on the upper inner surface of the sack, the layer and upper surface of the sack being formed with a permanent depression *s*, extending entirely across the pad to receive the superimposed harness, and means upon the pad for holding the harness in the said depressed portion comprising straps r, secured to the stiffening layer, substantially as described.

481,290. BREAKDOWN GUN. THOMAS WOODWARD, Derby, England. Filed Sept. 19, 1891. Serial No. 406,923. (No model.) Patented in England Mar. 26, 1889, No. 5,159.

Claim.—1. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod c^4, constructed with a shoulder c^5, of a sear *j*, constructed with a shoulder j^3, and a fixed removable stop *p*, arranged to withdraw shoulder j^3 of the sear from shoulder c^5 of the ejector-rod to release the latter for the sudden ejectment of the cartridge shells, and capable of detachment to permit, as an alternative, the limited extraction of said shells when desired, all substantially as and for the purpose herein set forth.

2. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod c^4, constructed with a shoulder c^5, of a sear *j*, constructed with a shoulder j^3, and a fixed stop *p*, arranged to withdraw shoulder j^3 of the sear from shoulder c^5 of the ejector, and adjustable to insure the movement of the ejector to a predetermined degree, substantially as and for the purpose herein set forth.



3. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod c^4, constructed with a shoulder c^5, of a sear *j*, constructed with a shoulder j^3, and a fixed stop *p*, constructed and arranged to be adjusted with reference to and removed from the ejector mechanism, all substantially as and for the purpose herein set forth.

4. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod c^4, constructed with a shoulder c^5, and a sear *j*, constructed with a shoulder j^3, of an incased ejector-striker *f*, substantially as and for the purpose herein set forth.

5. In a breech-loading firearm of the class mentioned, the combination, with the hammer mechanism, of an ejector-rod c^4, constructed with shoulder c^5, of the sear *j*, constructed with the shoulder j^3, the parts being constructed and arranged to cause the shoulder j^3 to act upon the shoulder c^5 only after the hammer has been raised or raised and lowered, substantially as and for the purpose herein set forth.

6. In a breech-loading firearm of the class mentioned, the combination of a sear *j*, constructed with a horn j^2 and a shoulder j^3, a lever *i*, a hammer K, having a lip or edge K^2, an ejector-rod c^4, having a shoulder c^5, and the pivoted levers c^6, the whole constructed and arranged to enable the lever to engage with the horn j^2 to bring shoulder j^3 into position to engage shoulder c^5 when the ejector-rod is pushed rearward by the pivoted levers, all substantially as and for the purpose herein set forth.

7. In a breech-loading firearm of the class mentioned, a hammer having a lip or ledge K^2, an ejector-rod c^4, constructed with shoulder c^5, and a sear *j*, constructed with the horn j^2 and shoulder j^3, arranged to cause the shoulder j^3 to act upon the shoulder c^5 only after the hammer has been raised or raised and lowered, in combination with a lever *i* and pivoted levers c^6, arranged to enable said lever *i* to engage with the horn j^2 to bring the shoulder j^3 into position to engage shoulder c^5 when the ejector-rod is pushed rearward by the pivoted levers, all substantially as and for the purpose herein set forth.

481,291. ELECTRIC WATER-HEATER. THOMAS AHEARN, Ottawa, Canada. Filed Apr. 9, 1892. Serial No. 428,425. (No model.)

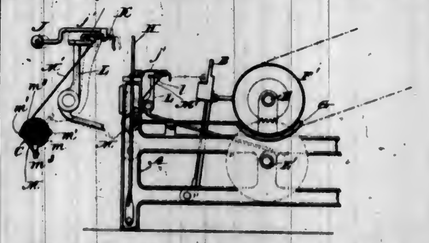
Claim.—1. In an electric water-heater, the combination of an insulated open water-tight vessel A, a coil of refractory wire or strip C, of low electric conductivity, having its terminals connected by leads passing through insulators, a containing vessel D, lined internally with a layer of non-heat-conducting material and large enough to form an annular space around said inner vessel and affording space for a thick layer of non-conducting material at the bottom, a covering G on the annular space containing insulators to pass the leads of the circuit, a removable hollow cover H, a draw-off pipe I, with faucet, and a filling of powdered whiting, fire-clay, or other refractory material in the space between the inner and outer vessel and in the cover, substantially as set forth.



2. In an electric water-heater, the combination of an open water-tight vessel A, insulating-strips B, laid upon the exterior of said vessel, a coil C, wound upon said insulating-strips and connected with a circuit, a hollow cover H, filled with non-conductors of heat and provided with an opening *h'*, a water-tight vessel H', connected to the bottom of said cover and smaller than the vessel A, a draw-off pipe I, secured in the bottom of the vessel A and provided with faucet, a branch I' on said pipe, and a gage-glass I", secured to said branch, substantially as set forth.

481,292. STOP-MOTION FOR LOOMS. WILLIAM M. AIKLEY, Lenni Mills, Pa. Filed Oct. 15, 1891. Serial No. 408,755. (No model.)

Brief.—The weft-fork is connected to the take-up roller by a cord, so that when a certain amount of cloth has been woven—that is, sufficient to nearly exhaust the shuttle—the weft-fork is held down in the path of the vibrator-lever and the loom stopped, whereby a new shuttle can be substituted for the nearly exhausted one, to thereby overcome the defects in the fabric incident to connecting the ends of wefts in the fabric body.



Claim.—1. In a loom, the combination, with the weft-fork lever and its supporting parts, the vibrating lever and its shouldered head-piece, the shipping-lever, and the connections intermediate the same and the driving mechanism, of a revoluble shaft and a flexible connection between said shaft and the weft-fork lever, substantially as described.

2. In a loom, the combination, with the driving mechanism, weft-fork lever and its supporting parts, the vibrating lever and its shouldered head-piece, the shipping-lever, and the connections intermediate the same and the driving mechanism, of the take-up roller and its shaft, the yoke mounted thereon, the strap connecting the ends of said yoke, and the cord or flexible connection between said yoke and the weft-fork lever, substantially as described.

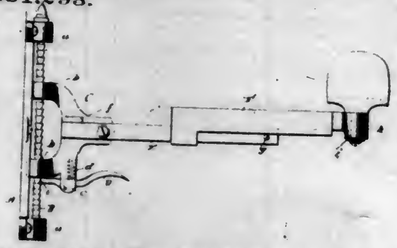
3. In a loom, the combination, with the weft-fork and its supporting and operating devices, the shipping-lever, and the connections intermediate the same and the driving mechanism, of a revoluble shaft and a flexible connection between said shaft and the weft-fork, substantially as described.

481,298. ARM-REST FOR TELEPHONES. JOSEPH R. BAILEY and LEVI C. LINCOLN, Woonsocket, R. I., assignors to the Woonsocket Edge Tool Company, same place. Filed Jan. 26, 1892. Serial No. 419,149. (No model.)

Claim.—1. In an arm-support for telephone-operators, the combination, with the shouldered rod, of a vertically-movable bracket journaled thereon and carrying a ratchet-lever adapted to engage the shoulders of the rod and a suitable rest secured to the bracket, substantially as specified.

2. In an arm-rest for telephone-operators, the combination, with a fixed rod having shoulders, each of which is of a circular form in

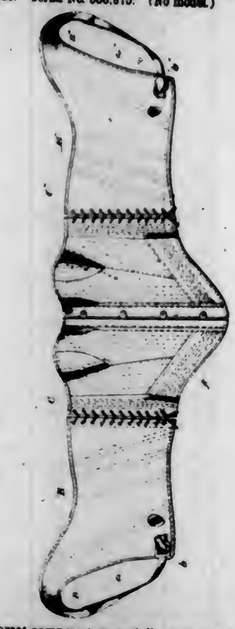
481,293.



cross-section and is tapered externally from its top down to the top of the next succeeding shoulder below, of a bracket journaled on the said rod, a spring-pressed ratchet-lever carried by the bracket and having the inner beveled end *e* adapted to engage the shoulders of the rod, and a suitable rest secured to the bracket, substantially as and for the purpose set forth.

3. The improved arm-rest for telephone-operators, consisting, essentially, of the plate having the vertically-disposed lug-eyes at opposite ends, the shouldered rod bearing in said eyes, the bracket journaled on said rod and having a stop, as described, the ratchet-lever journaled in the bracket and the spring bearing upon said lever, the bar pivoted to the bracket and adapted to engage the stop at one end, the extensible bar arranged to slide on said pivoted bar, and the arm-rest or socket journaled at the outer end of the extensible bar, substantially as specified.

481,294. CORSET. WILLIAM P. BIGELOW, Natick, Mass. Filed May 31, 1890. Serial No. 353,875. (No model.)

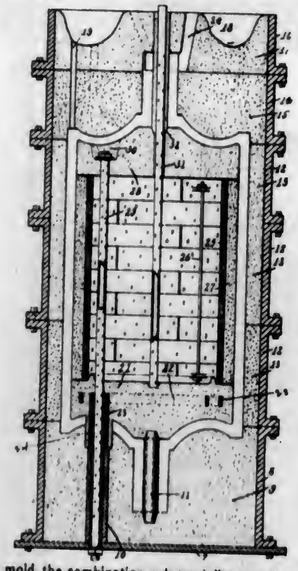


Claim.—A corset composed, essentially, of two front portions and a brace adjustably connected at its inner end to the under-arm side edge of each front portion and provided at its outer or free end with an arm-size, each brace being of sufficient length to extend from one side edge across the back from the waist to the shoulder line, in order that its attached arm size may be entered by the arm at the opposite side of the body, whereby entire freedom is given the waist, and the front portions are normally drawn up, substantially as described.

481,295. MOLD FOR CLOSED CYLINDERS. FRANK X. BLACK, Hamilton, Ohio, assignor to the Black & Clawson Company, same place. Filed Mar. 22, 1892. Serial No. 425,945. (No model.)

Claim.—1. In a mold, the combination, substantially as set forth, of a base-plate, a drag thereon containing vertical tubes standing on the base-plate, a core having core-bosses, a spider in said core, having bosses projecting through said core-bosses into contact with the upper ends of said tubes, and tube-bolts anchored in said core and passing through said spider-bosses and tubes and base-plate and clamping the core to the base-plate.

2. In a mold, the combination, substantially as set forth, of a disk-like core-base, a disk-like core-top section, an annular shell-like core-body section, and an annular series of bolts uniting the three core-sections and clamping the annular section endwise between the base and top sections.



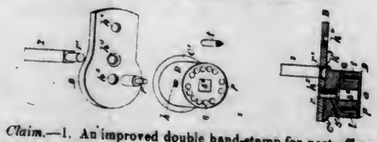
3. In a mold, the combination, substantially as set forth, of a sectional metallic core-barrel, an annular body-core thereon, a core-base, a core-top section, and bolts clamping the base and top sections endwise to the core-barrel.

4. In a mold, the combination, substantially as set forth, of a hollow cylindrical core, a perforated tube disposed centrally in said core and projecting out of the top of the mold and perforated tubes disposed eccentrically in said core and projecting out of the bottom of the mold.

5. In a mold, the combination, substantially as set forth, of a vertical series of interlocking core-barrel segments, an annular series of bolts uniting the top and bottom members of the series and clamping the intermediate members of the series between them, and a core surrounding said segments and supported by them.

6. In a mold, the combination, substantially as set forth, of a drag, a cope, an intermediate mold portion formed of a vertical series of separate sections, a core-base, a core-top section, and an intermediate body-core having a barrel formed of a vertical series of barrel-sections.

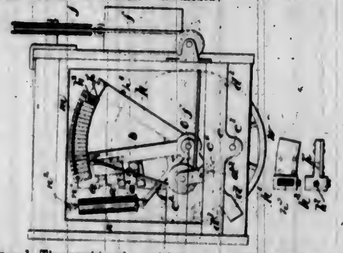
481,296. POST-OFFICE HAND-STAMP. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed July 24, 1891. Serial No. 400,614. (No model.)



Claim.—1. An improved double hand-stamp for post-offices having a handle A, the within-described handle-tang *x*, the cross-bar B, having the countersunk holes A^2 A^3 A^4, a canceler C, attached to said cross-bar at A^4, the double-ended rivet *r*, attached to said cross-bar at A^2, and a dater D, having the countersunk neck-socket *s'* filled by the lower end of said rivet *r*, the socket s^2 for movable type, and the socket-enlargement *e*, substantially as hereinbefore specified.

2. The improved double hand-stamp for post-offices, composed of the handle A, the handle-tang *x*, the cross bar B, having the countersunk holes A^2 A^3 A^4, a canceler C, attached to said cross-bar at A^4, the double-ended rivet *r*, attached to said cross-bar at A^2, and the dater D, having the countersunk neck-socket *s'* filled by the lower end of said rivet *r*, the socket s^2 for movable type, and the socket enlargement *e*, provided with permanent type *t*, having cylindrical bodies immovably held within sockets in the dater-body perpendicular to its face, substantially as hereinbefore specified.

481,297. ELECTRIC SWITCH. JOHN H. CLARK, Boston, Mass., assignor to the Whittier Machine Company, same place. Filed Sept. 29, 1891. Serial No. 407,102. (No model.)



Claim.—1. The combination, with the movable member of a switch device, of a freely-suspended weight, a connection between it and said movable member, and a movable pulling-point intermediate said weight and movable switch member and through which said connection acts to operate, substantially as described.

2. The combination, with the movable member of a switch device, of a freely-suspended weight connected therewith by a flexible connection and a movable pulling-point intermediate said weight and movable switch member and about which said connection is passed, substantially as described.

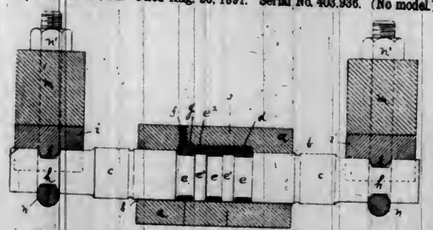
3. The combination, with the movable member of a switch device, of a freely-suspended weight connected therewith by a flexible connection, a reversing-lever carrying thereon a pulling-point about which said connection is passed, and means to move said reversing-lever and the pulling-point thereon, the weight exerting a constant pull on said movable switch member, substantially as described.

4. The combination, with the movable member of a switch device, of a weight connected therewith by a flexible connection, a slotted reversing-lever carrying a pulling-point about which said connection is passed, and a pivoted operating-lever having a projection to enter the slot in said reversing-lever, to operate substantially as described.

5. The combination, with the shipper-wheel of an elevator mechanism, of a weight, a switch device, a connection between its movable member and said weight, and a pulling-point through which said connection acts and made movable by said shipper-wheel, substantially as described.

6. The combination, with the shipper-wheel of an elevator mechanism and a shaft therefor having an arm, of a reversing-lever moved by said arm, a switch device having its movable member journaled on said shaft, a weight, and a connection between said weight and movable member controlled by said reversing-arm, substantially as described.

481,298. BARROW-WHEEL. MCLAIN CROSSLAND and DAVID LONG, New Haven, Pa. Filed Aug. 28, 1891. Serial No. 403,936. (No model.)



Claim.—1. In a barrow-wheel, the combination, with a spindle having grooves formed therein at or about the middle thereof and the rings formed by said grooves having flattened faces, of a hub having a seat or recess in its interior face, and Babbitt or like metal contained within said grooves and said seat or recess, substantially as and for the purposes set forth.

2. The combination, with a barrow-wheel, of a spindle secured thereto, bearing-blocks engaging the ends of said spindle, the bearing-faces of said bearing-blocks having lugs formed thereon adapted to enter annular grooves at the ends of said spindles, and means for holding said bearing-blocks in position on said spindle, substantially as and for the purposes set forth.

3. The combination, with a barrow-wheel, of a spindle secured thereto, bearing-blocks engaging the upper portions of the ends of said spindle, lugs on the bearing-faces of said bearing-blocks adapted to enter annular grooves at the ends of said spindle, recesses formed in the sides of said bearing-blocks, and bolts secured to the barrow-frame, adapted to enter said recesses and the annular grooves on the ends of said spindle, substantially as and for the purposes set forth.

4. The combination, with a barrow-wheel, of a spindle secured thereto, bearing-blocks engaging the ends of said spindle, the bearing-faces of said bearing-blocks having lugs formed thereon beyond the mid-point of said bearing-faces, said lugs being adapted to enter grooves at the ends of said spindle, and means for holding said bearing-blocks in position on said spindle, substantially as and for the purposes set forth.

5. The combination of a spindle *c*, secured to the hub *n*, the bearing-blocks *i*, bearing-faces *j*, lugs *k*, fitting in annular grooves *h* of the spindle *c*, the recesses *l* in said blocks, and the bolts *n*, secured to the shafts *m*, said bolts fitting in the recesses *l* and annular grooves *h*, substantially as and for the purposes set forth.

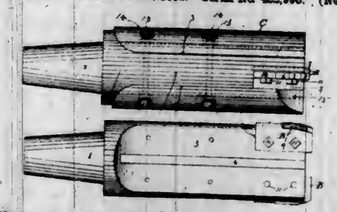
481,299. SHOE-UPPER. JOHN C. DAGGETT, Boston, Mass. Filed Apr. 14, 1892. Serial No. 429,090. (No model.)



Claim.—1. In a shoe, a seamless quarter having two slits made therein from its upper edge and a staying-tongue intermediate said slits, combined with a gusset composed of pieces *b*, having each a concaved edge and having said concaved edges stitched together to give the requisite spring to the top of the shoe, said gusset being stitched at its outer edges to the quarter, the tongue being stitched upon the central portion of the gusset to cover the seam uniting the two parts of the gusset, said tongue also constituting an outside stay, substantially as described.

2. A seamless quarter slitted from its upper toward its lower edge, a staying-tongue extended upwardly from the lower end of the slit, and a stiffening-counter for said quarter, combined with a gusset stitched to said quarter and extended down below the end of the said slit and tongue and between the quarter and the upper edge of the counter to constitute an inside stay and to protect the quarter between the top of the counter and the slitted part above, substantially as described.

481,300. TOOL FOR BORING BREECH-LOADING ORDNANCE. GREGORY GERDOM, West Troy, assignor of one-half to John H. Reynolds, Troy, N. Y. Filed Feb. 27, 1892. Serial No. 422,993. (No model.)



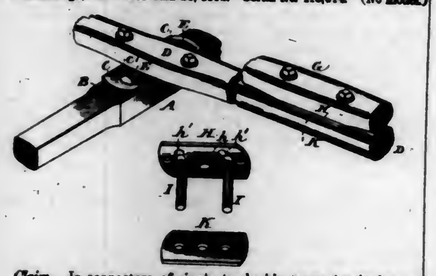
Claim.—1. In a tool for boring ordnance, a cutter having a cutting-edge which at its foremost end is formed at an inclination to the central axis of said tool, a succeeding cutting-edge of slighter angularity to said axis, and a final or finishing cutting-edge which is parallel to said axis, all of said cutting-edges being connected continuously, as and for the purpose herein specified.

2. In a tool for boring ordnance, a cutter having a cutting-edge which at its foremost end is formed at an inclination to the central axie of said tool, a succeeding cutting-edge of slighter angularity to said axis, and a final or finishing cutting-edge which is parallel to said axis, all of said cutting-edges being connected continuously and having the form of a sharp lip, which is produced by a groove or gutter formed in the face of the cutter, as and for the purpose herein specified.

3. In a tool for boring ordnance, the combination of a cutter-head provided with a flattened member 3, provided with a longitudinal tongue 4 on each of its plane faces and recesses 5 for receiving removable cutters, said recesses being formed in opposite faces of said

flattened member at diametrically-opposite edges of the same, removable cutters B, secured in said recesses, and segmental cheek-blocks C, secured to opposite faces of said flattened member and forming complementary additions thereto that will exactly fit into the finished bore of the cannon to retain the boring-tool in a true position in said bore, the foremost end of each cheek-block being beveled rearwardly, as at 15, for the purpose of displacing the chips of metal from the path of said boring-tool, as herein specified.

481,801. WHIFFLETREE CONNECTION. ALONSO HAGGERTY, Cambridge, Pa. Filed Jan. 21, 1892. Serial No. 418,814. (No model.)



Claim.—In connectors of single to double trees, the singletree-plate constructed with a central stud and an arc slot on each side thereof, in combination with two headed and end-threaded bolts passing through said arc slots and carrying end nuts below the doubletree, whereby the plates are held at each end to one another and not at the center, thereby dispensing with the ordinary central king-bolt and preventing the ends of singletree from rising up.

481,802. SASH-BALANCE. NOAH HAMLET, Little Rock, Ark. Filed Mar. 25, 1892. Serial No. 426,452. (No model.)



Claim.—1. The combination, with a window frame and sash, the frame H, having rear, end, and side walls, and front opening in its front, and square depressions G^3 in one of its side walls, lock L, adapted to hold the lower end of said frame, shaft D', journaled in said frame having rubber bearings D^4 D^5, rubber rollers R' R^3, and between said rollers drum D^6 and plates D^7 D^8, shaft G, also journaled in said frame, having rigidly secured to it a square G^4, adapted to fit in depression G^3, spring S', one end secured to drum D^6, and the other to said shaft G, spiral spring S^3, working around said shaft G between said spring S' and one wall of the said frame, substantially as shown and described, and for the purposes set forth.

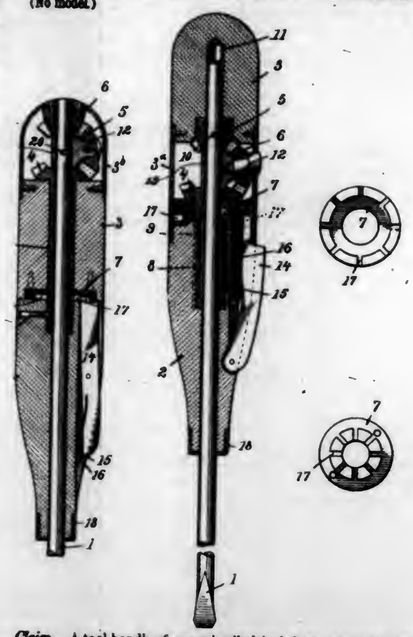
2. The combination, with a window frame and sash, the frame H, having rear, end, and side walls, and opening in its front, and square depressions G^3 in one of its side walls, lock L, adapted to hold the lower end of said frame, shaft D', journaled in said frame, having rubber bearings D^4 D^5, rubber rollers R' R^3, and between said rollers drum D^6 and plates D^7 D^8, shaft G, also journaled in said frame, having rigidly secured to it a square G^4, adapted to fit in depression G^3, spring S', one end secured to drum D^6, and the other to said shaft G, spiral spring S^3, working around said shaft G between said spring S' and one wall of the said frame, strikers F, secured on one end of the shaft D', and bell E, secured to said frame in such a position that said strikers will strike against the same, substantially as shown and described, and for the purposes set forth.

481,803. VEHICLE-SPRING. DEWITT C. HARLIN, Great Bend, Pa. Filed Nov. 9, 1891. Serial No. 411,307. (No model.)



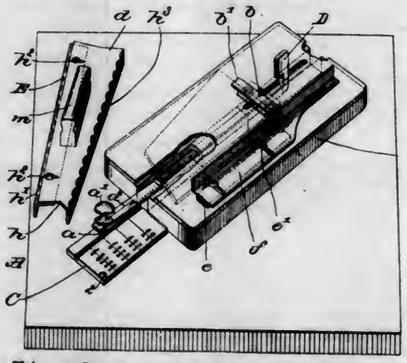
Claim.—In a vehicle, a spring having substantially horizontal upper arms attachable to the under side of the vehicle-body, said arms extending outwardly, in combination with coils and downwardly and upwardly extending portions adapted to pass astride the axle, said upwardly-extending portions forming a yoke pivoted on the top of the axle, in the manner and for the purpose substantially as described.

481,804. CHANGEABLE-SPEED SCREW-DRIVER. HARVEY HUSSELL, Bridgeport, Conn. Filed Apr. 3, 1891. Serial No. 388,169. (No model.)



Claim.—A tool-handle of general cylindrical shape, comprising the following elements: two parts, one part of which is stationary relative to the tool when the speed is changed and the other part rotary, a sleeve 13, through which the tool passes and which carries a bevel-gear, two other bevel-gears meshing therewith and attached one to each of the two parts of the handle, and a locking-plate and latch for holding the two parts of the handle and the tool stationary relative to each other.

481,805. GORE-MARKER. WILLIAM B. KINSLEY, Melrose, Mass. Filed Feb. 15, 1892. Serial No. 421,563. (No model.)



Claim.—1. In apparatus for marking gores, a bed-plate having a fixed gage thereon for one edge of the gore and a swiveled gage for one end of the gore, combined with a superimposed adjustable gage parallel to said fixed gage for one side of a removable marker and a sliding gage movable longitudinally with relation to the fixed gage to position the marker longitudinally with relation to the length of the gore, substantially as described.

2. In an apparatus for marking gores, a bed-plate having a sliding gage to position one end of a removable marker with relation to the length of the gore, a scale indicating sizes to co-operate with said sliding gage, and a gage for one end of the gore, combined with a removable marker, a gage on the bed-plate for one side of the gore, and a superimposed adjustable gage for one side of the marker, to operate substantially as described.

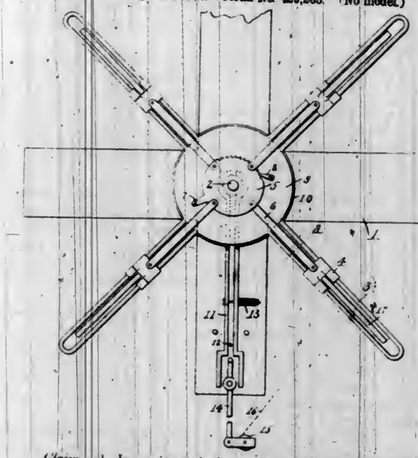
3. In an apparatus for marking gores, a swiveling gage for one end of the gore-piece, a movable rod to which it is pivoted, a scale indicating sizes to co-operate therewith, and a locking device to hold said rod in fixed position, combined with a fixed side gage for one edge of the gore-piece, substantially as described.

4. In an apparatus for marking gores, a marker having two downturned marking or impression flanges arranged at an inclination one to the other, said flanges being made adjustable one from the other, substantially as described.

5. In an apparatus for marking gores, a marker composed of flanged plates having their flanges covered each with an independent fibrous body adapted to retain chalk or equivalent and adjustable connections for said plates, substantially as described.

6. In an apparatus for marking gores, a marker composed of a flanged body cut away at intervals or provided with holes, combined with a fibrous covering applied to the flanged and perforated portion of the marker and connected through the said perforations, substantially as described.

481,806. WIRE-REEL. RILEY E. MILLER and JAMES D. BOWMAN, College Corner, Ohio; said Bowman assignor to Morton A. Miller, same place. Filed Apr. 15, 1892. Serial No. 429,263. (No model.)



Claim.—1. In a wire-reel, the combination, substantially as set forth, of a base-piece, a reel journaled thereon, a brake-wheel attached to the reel, a brake mounted on the base-piece and adapted to engage the brake-wheel, a spring arranged to draw the brake forcibly into engagement with the brake-wheel, a lever pivoted to the base-piece and connected with the brake, and an eye in the outer end of said lever for the passage of the wire and so located that the strain of wire passing from the reel through the eye will move said lever against the strain of said spring and hold the brake away from the brake-wheel.

2. In a wire-reel, the combination, substantially as set forth, of a base-piece, a reel journaled thereon, a brake-wheel on the reel, a brake mounted on the base-piece and arranged for engagement with the brake-wheel, a spring urging said brake forcibly into engagement with the brake-wheel, a lever pivoted upon said base-piece and provided with an eye for the passage of wire on its way from the reel, and a pair of levers forming connections between said first-mentioned lever and said brake and serving, as said first-mentioned lever is brought in either direction from the neutral point, to release the brake from the brake-wheel.

3. In a wire reel, the combination, substantially as set forth, of a base-piece, a reel journaled thereto, a brake-wheel on the reel, a brake arranged to engage with the brake-wheel, a pair of levers arranged for opening and closing motion to release and apply the brake, a spring to hold the levers closed, a third lever pivoted to the base-piece and provided with an eye for the passage of wire leaving the reel, and projections on said third lever adapted, as the [illegible] moves in either direction from the neutral point, to open said first-mentioned levers and release the brake.

4. In a wire-reel, the combination, substantially as set forth, of a swiveled spider for the support of a coil of wire, studs projecting from the base thereof, and double-armed keepers pivoted to said studs and presenting arms within and over a coil of wire on the reel.

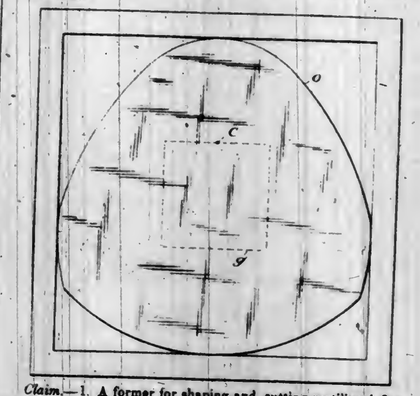
5. In a wire-reel, the combination, substantially as set forth, of a swiveled spider for the support of a coil of wire, studs projecting from the face thereof at some distance inwardly from the ends of the spider-arms and radially adjustable upon the spider, and mechanism, substantially as described, for simultaneously adjusting all of the studs.

6. In a wire-reel, the combination, substantially as set forth, of a swiveled spider, studs projecting from the face thereof and adjustable radially upon the spider, and double-armed keepers pivoted to the studs and adapted to present arms within and over a coil of wire upon the reel.

7. In a wire-reel, the combination, substantially as set forth, of a spider, an annular series of studs projecting from the face of the spider and radially adjustable thereon, a multiple of cranks mounted at the center of the spider, links connecting the crank-pins of said crank with said studs, and means, substantially as set forth, for moving and securing said multiple crank

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481,807. BORING AND SHAPING MECHANISM. AUGUSTUS K. PHILLIPS, St. Louis, Mo. Filed Oct. 27, 1891. Serial No. 410,008. (No model.)

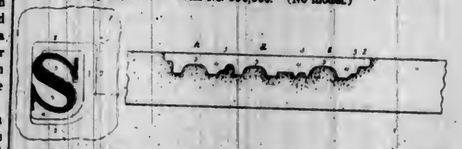


Claim.—1. A former for shaping and cutting rectilineal figures, consisting of a block or cam constructed, as herein described, to revolve in a guide having the same number of sides as the figure to be cut and provided with means for supporting a tool at a point that travels in a path coinciding at all parts with the outline of the rectilineal figure to be shaped or cut, substantially as set forth.

2. The combination of a guide having the same number of sides as a rectilineal figure to be cut or shaped, and a former constructed, as herein described, to revolve without lost motion in said guide and provided with a tool arranged at a point traveling in a path corresponding at all parts with the rectilineal figure to be cut, substantially as set forth.

3. The combination of the guide, former constructed as herein set forth, and tool connected with the former at a point of the latter that travels in a rectilineal path, the end face of said tool inclined toward a point lower than the remaining parts of the face, substantially as described.

481,808. METHOD OF FORMING MATRICES. CASPER L. REDFIELD, Chicago, Ill., assignor to the Chicago Matrix Machine Company. Filed July 14, 1890. Serial No. 358,668. (No model.)



Claim.—1. The method of forming stereotype-matrices, which consists in making the impressions successively, forming offsets in the walls of the impressions, and rounding the edges of the offsets, substantially as set forth.

2. The method of forming matrices for stereotyping, which consists in producing type-face impressions by successively-impressed dies and forming retreating offsets in the walls around the portions of the character-faces that are not adjacent to preceding impressions, substantially as set forth.

3. The method for forming matrices for stereotype-plates, which consists in forming the impressions by type-dies impressed in sequence

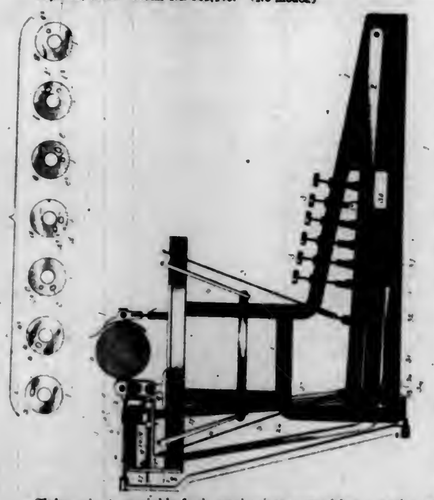
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and compressing the adjacent material and forming an offset partially surrounding each character and an intermediate offset surrounding a less portion of the character, substantially as set forth.

4. The method of forming matrices for stereotyping, which consists in impressing dies successively in a matrix-body, forming small offsets close to the portions of the character-faces requiring most protection and larger offsets embracing the smaller and farther removed from the face and extending around those portions requiring least protection, substantially as set forth.

5. The method of forming stereotype-matrices, which consists in making the impression successively, forming offsets in portions of the walls thereof, and rounding the edges of the offsets and also the material intervening the separate stems of each character, substantially as set forth.

481,309. TYPE-WRITING MACHINE. CASPER L. REDFIELD, Chicago, Ill., assignor to the Chicago Matrix Machine Company. Filed Sept. 16, 1890. Serial No. 365,175. (No model.)



Claim.—1. A variable-feed mechanism comprising a series of ratchet-wheels on a common axis, each wheel being capable of limited rotation independent of the others, a spring holding them in frictional contact and tending to rotate them, a gear connected to the last wheel of the series, and a rack engaged thereby.

2. In a variable-feed mechanism, a rack and gear under tension, a fixed shaft and a sleeve thereon to which the gear is fast, a series of ratchet-wheels carried by the sleeve and connected to the gear and to one another by devices permitting each wheel partial rotation independent of the others, a motor-spring on the sleeve tending to hold the wheels in frictional contact and to rotate them in the same direction as the rack-tension, a pawl engaging the wheels, and means for shifting it from one wheel to another to vary the feed, substantially as set forth.

3. An escapement mechanism comprising a rack under tension, a gear meshing therewith, a series of ratchet-wheels loosely held on the shaft of the gear and having slots and pins, permitting partial rotation of each wheel relative to the next, a spring on the same shaft tending to hold the wheels in contact and to rotate them in the same direction as the rack-tension, a dog for holding the wheels, and means for shifting it from one wheel to another.

4. In a variable-feed mechanism, a rack under tension, a gear in mesh therewith, a series of ratchet-wheels loosely held on the axis of the gear, one of them being fast to the axis, means for permitting the partial rotation of each of the wheels independently of the others, a motor-spring tending to hold the wheels of the series in frictional contact and to turn them in the same direction as the rack-tension, and a shifting detent for engaging the wheels, substantially as set forth.

5. A variable-feed escapement comprising a rack and gear under tension, a series of ratchet-wheels having coinciding teeth, one of said wheels being fast to the axis of the gear and the others loose thereon, a spring having a tension to move the loose wheels toward the fast one and to turn them in the same direction as the gear-tension, and a movable detent for successively engaging different wheels of the series, substantially as set forth.

6. In a typographic machine having the faces of its type multiples of a selected space-unit, a feed mechanism for producing feed movements proportioned to the requirements of such type and comprising a series of ratchet-wheels, one of which is attached to an axis and the others loose on the same axis and having suitable slots and pins for connecting them to permit partial independent rotations, a motor for turning the axis, a motor-spring of less force tending to turn the wheels in the same direction and to hold them in frictional contact, and means for stopping any wheel of the series to permit partial rotation of other wheels between it and said motor-spring, whereby variable-feed movements are caused to follow the release of the engaged wheel.

7. A variable-feed mechanism comprising a series of ratchet-wheels, one of which is attached to an axis and the others loose on the same axis and having suitable slots and pins for connecting them to permit partial independent rotations, a motor for turning the axis, a motor-spring of less force tending to turn the wheels in the same direction and to hold them in frictional contact, and means for stopping any wheel of the series to permit partial rotation of other wheels between it and said motor-spring, whereby variable-feed movements are caused to follow the release of the engaged wheel.

8. A variable-feed mechanism comprising a series of toothed wheels and a gear on a common axis, a motor tending to turn the gear and its axis, a spring holding the wheels in frictional contact and tending to turn them in the direction of the gear movement, connections between the wheels permitting them to rotate with respect to one another limited distances, a movable pawl, and means for shifting it to engagement with any one of the series of wheels to vary the feed movements.

9. In a variable-feed mechanism, a rack and pinion under tension, a series of co-operating ratchet-wheels, all but one of which are loose on the axis of the pinion and under tension of a spring to hold them in frictional contact and to turn them in the same direction as the pinion movement, connections between them for limiting the extent of rotation, and a shifting device for engaging the teeth of a selected wheel to determine the aggregate rotations and resultant feed movements.

10. In a variable-feed mechanism, a series of co-operating ratchet-wheels, an axis on which one of them is fast and on which all others are loose, a spring holding them in frictional contact and tending to rotate them, connections between them for limiting their independent rotations, and a shifting pawl for selecting and holding any wheel of the series to permit others to rotate to determine the aggregate advance movement.

11. In a variable-feed mechanism, a rack, a gear, a ratchet-wheel movable with the gear, a series of other ratchet-wheels loose on the gear-axis, a spring on said axis holding the wheels in frictional contact with one another and tending to turn them independently of the gear-tension, but in the same direction, and a shifting device for holding any selected wheel of the series to permit others to rotate, substantially as set forth.

12. The combination, with a rack and gear under tension for forward movement, of a series of co-operating ratchet-wheels, one of which is fast to and the others loose on the gear-axis, a spring holding the wheels in frictional contact and tending to turn them, a pawl adapted to engage the wheels successively, a guided sliding carrier for the pawl, means for sliding the carrier, a series of stops, and means for projecting them separately into the path of the carrier to limit its movement and determine the resultant feed movement, substantially as set forth.

13. In a variable-feed mechanism, a rack, a gear, a series of ratchet-wheels on the gear-axis, the wheel next the gear being fast and the other loose on the axis, a motor for moving the rack and gear, and an independent spring for holding the wheels in frictional contact and turning them in the same direction, slots and pins in the wheels for limiting rotations with respect to one another, a pawl co-operating with the wheels, a lever for moving it from wheel to wheel, stops for limiting its travel, and key-levers and connections for controlling said pawl-operating lever and said stops, for the purpose set forth.

14. The combination, with a rack and gear under tension for forward movement, of a series of co-operating ratchet-wheels, one of which is fast to and the others loose on the gear-axis, a spring holding the wheels in frictional contact and tending to turn them, a pawl adapted to engage the wheels successively, a guided sliding carrier for the pawl, a lever for operating it, a series of bails carrying rods and adapted to tilt independently to project their respective rods into the path of the pawl-carrier to stop it, and key-levers arranged to operate said lever for actuating the pawl-carrier and to tilt said bails, substantially as set forth

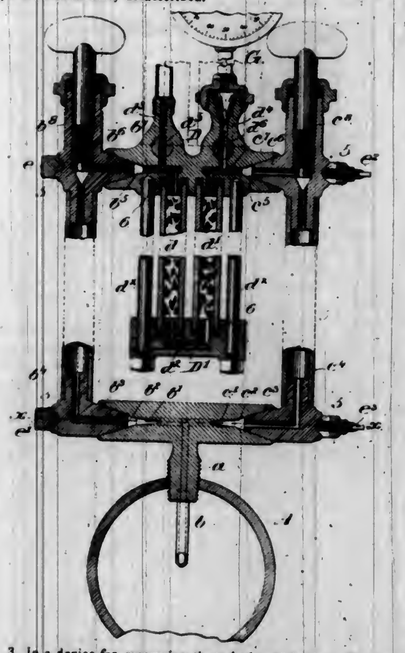
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481,310. GAGE FOR MEASURING THE VELOCITY OF FLUIDS. STILLMAN W. ROBINSON, Columbus, Ohio. Filed Sept. 15, 1891. Serial No. 405,762. (No model.)

Claim.—1. In a device for measuring the velocity of fluids, the combination of a Pitot tube presenting an open mouth to the current, a static tube having a closed end and diametrically-opposite openings

in its parallel sides, and an indicating device connected upon said tubes, substantially as described.

2. In a device for measuring the velocity of fluids, the combination, with a Pitot tube presenting an open mouth to the current, a static tube having a closed end and provided with a lateral opening extending through its parallel sides, and an indicating device connected with said tubes, of a pressure-gage in connection with one of said tubes, to operate substantially as described.



3. In a device for measuring the velocity of fluids, a Pitot tube presenting an open mouth to the current, and a static tube having a closed end and its parallel sides provided with a transverse opening extending through the tube combined with an indicating device connected with said tubes and made movable with relation thereto to permit the device to be used in connection with conduits standing in different angle and also to measure gases and liquids, all substantially as described.

4. In a device for measuring the velocity of fluids, a Pitot tube presenting an open mouth to the current, and a static tube having a closed end and provided with a transverse opening extending completely through the parallel sides of the tube, combined with two indicating-tubes in communication with each other at one of their ends and having their opposite ends connected, respectively, with said Pitot and static tubes, to operate substantially as described.

5. In a device for measuring the velocity of fluids, the combination, with a plug adapted to be screwed into a conduit, of a Pitot tube and a static tube carried by said plug, the static tube having a closed end and a transverse opening extending through its parallel sides, and an indicating device connected with said tubes and carried by said plug, substantially as described.

6. In a device for measuring the velocity of fluids, the combination, with a T-shaped threaded plug adapted to be screwed into a conduit and carrying Pitot and static tubes, of two tubes joined to the opposite ends of the T-head of said plug, said tubes having their free ends in communication with each other, to operate substantially as described.

7. In a device for measuring the velocity of fluids, a T-shaped threaded plug adapted to be screwed into a conduit, and Pitot and static tubes carried by said plug, combined with two supporting-tubes joined to the opposite ends of the T-head of said plug and two indicating-tubes joined to said supporting-tubes, whereby the said supporting and indicating tubes may be rotated with relation to the plug and to each other, to operate substantially as described.

8. The plug *a* and the tubes *b* and *c*, combined with the supporting-tubes b^4 c^4, jointed to said plug, and the head D, pivotally held between said supporting-tubes b^4 c^4, to operate substantially as described.

9. The plug *a*, having the flaring mouths b^3 c^3 and the tubes *b* *c*, connected therewith, combined with the supporting-tubes b^4 c^4, their conical-shaped fittings, the head D, indicating-tubes *d* *d'*, and end piece D', all to operate substantially as described.

10. The combination, with a conduit and a plug having a T-shaped head and carrying two tubes, one of which has its mouth turned toward the current in the conduit, of two supporting-tubes jointed to the opposite ends of said T-shaped heads and two indicating-tubes jointed to said supporting-tubes, and the straps *e* *e'*, to operate substantially as described.

11. The combination, with a conduit and a threaded plug having a T-shaped head and carrying two tubes, one of which has its mouth turned toward the current in the conduit, of two supporting-tubes jointed to the opposite ends of said T-shaped head, valves therefor, and two indicating-tubes carried by said supporting-tubes, substantially as described.

12. The plug *a* and tubes *b* and *c*, combined with the supporting-tubes b^4 c^4, jointed to said plug, valves therefor, the head D, indicating-tubes *d* *d'*, the nozzles d^3 d^3, and valves therefor, to operate substantially as described.

13. The plug *a* and tubes *b* and *c*, combined with the supporting-tubes b^4 c^4, jointed to said plug, valves therefor, the head D, indicating-tubes *d* *d'*, the nozzles d^3 d^3, valves therefor, and a pressure-gage connected with one of said nozzles, substantially as described.

14. In a device for measuring the velocity of fluids, the combination, with a Pitot tube and a static tube, the latter having a closed end and a transverse opening through its parallel sides, of indicating-tubes connected with said Pitot and static tubes and a graduated indicating-plate adjacent to said indicating-tubes, substantially as described.

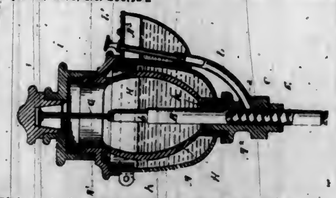
15. The combination, with a conduit containing moving fluid, of two tubes inserted therein, one of which has its mouth turned toward the current, indicating-tubes connected with said tubes, the plate *s*, binding-screws *s'*, and plate s^3, substantially as described.

481,311. FRUIT-TREE PROTECTOR. ABIA B. SMITH, Pittsburg, Pa. Filed Jan. 7, 1891. Serial No. 377,081. (No model.)



Claim.—The herein-described tree-protector, comprising the sections *a*, each consisting of the inner vertical piece *a'*, extending from top to bottom of the device, the outwardly and upwardly extending pieces a^3, the inner edge of the horizontal portion of which is secured to the lower edge of said part *a'*, thereby forming an outwardly-extending trough surrounding the lower end of said part *a'*, a horizontal water-shed *c*, extending from the top of said part *a'* over the trough *b* and terminating above said trough, and the vertical pieces *f*, secured to each end of each section and extending vertically above and horizontally beyond the same, the horizontally-projecting portions on one section being of greater length than those on the other and bent to inclose the ends of the same, all substantially as described, and for the purposes set forth.

481,312. OIL-CUP. JOHN T. SMITH, San Francisco, Cal. Filed Sept. 30, 1891. Serial No. 407,306. (No model.) Patented in France Sept. 15, 1891, No. 216,154.



Claim.—1. In an oiler, the combination of an oil-vessel, a siphon within said oil-vessel and passing through the lower end of the same, a metallic core within said siphon, a permeable packing twisted around or intertwined with said core, running the length of the siphon and contacting with the part to be lubricated, a wire wound about the surface of said packing, and an outer closely-coiled wire around the lower end of said first-named wire, substantially as set forth.

2. In an oiler, the combination of a glass oil-vessel A, upper and lower castings A' A^2 at each end of said oil-vessel, a yoke or link H connecting the same, a nut I, adapted, in connection with said yoke, to bind the said vessel and castings together, a siphon within the oil-vessel and passing through the lower casting, and an oil-conductor in said siphon, running the length thereof and contacting with the part to be lubricated, substantially as set forth.

481,313. PROCESS OF MAKING MALLEABLE-IRON CASTINGS. BENJAMIN TALBOT, Chattanooga, Tenn., assignor of one-fourth to James Meehan, Covington, Ky. Filed Feb. 12, 1892. Serial No. 421,327. (No specimens.)

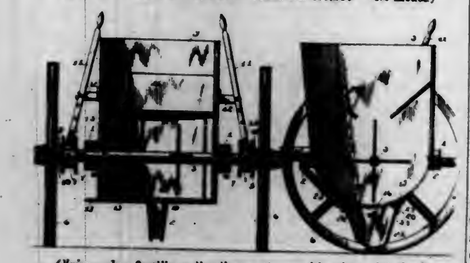
Claim.—That improvement in the art of making iron for malleable-iron castings which consists in melting metal deficient in carbon, together with added ferro-silicon, in the presence of and by means of solid carbonaceous fuel, and subsequently sufficiently oxidizing the silicon to properly change the graphitic carbon to combined carbon.

481,314. LOG-CARRIER. ROBERT E. TERRY, Mobile, Ala., assignor of one-half to Thomas H. Jordan, same place. Filed Jan. 26, 1892. Serial No. 419,349. (No model.)



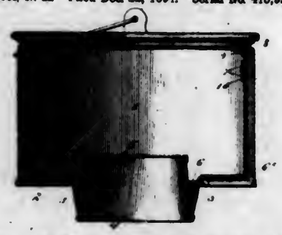
Claim.—The combination of an axle, a frame mounted on the axle, the pivoted block mounted on the frame and having a rearwardly-projecting extension and a forwardly-projecting socket, a lever stepped in the socket, a stop-block mounted on the frame and arranged in advance of the pivoted block, a pawl adapted to engage the block and pivotally connected to the lever, a tongue secured to the frame and having on its lower face a sliding section provided at the inner end with a bail encircling the tongue, said tongue having a series of perforations and the section having a perforation, a pin adapted to enter the perforation and securing the tongue in its adjustment, and chains for securing a log to the block and for connecting the lever with said bail, substantially as described.

481,315. FERTILIZER-DISTRIBUTER. ROBERT B. THOMAS, Blackburn, La. Filed Mar. 16, 1892. Serial No. 425,206. (No model.)



Claim.—In a fertilizer-distributer, the combination, with the framework, the hopper having the curved bottom provided with a discharge-opening, a downwardly-tapered drill hinged at its rear edge to the hopper-bottom in rear of the opening, having a lower rounded end, and a spring connecting the front end of the drill with the fixed part of the frame, of an axle having rounded bearing portions located in openings formed in the opposite sides of the hopper and at its opposite ends provided with reduced bearings and between the reduced bearings and rounded portions squared, the ground-wheels mounted on the reduced bearings and having their hubs notched or toothed at their inner sides, the toothed clutch-sleeves adapted to engage therewith and mounted on the squared portions of the axle, brackets extending from the opposite walls of the hopper, and hand-levers fulcrumed on the bracket, which at their lower ends terminate in lugs loosely embracing the sleeves.

481,316. CULINARY VESSEL. HARRISON F. THURSTON, Centre Bartlett, N. H. Filed Dec. 22, 1891. Serial No. 415,923. (No model.)



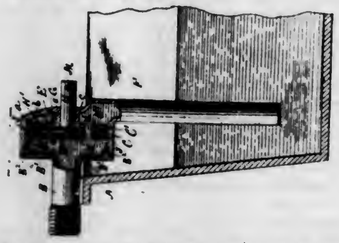
Claim.—The combination of a vessel provided in its bottom with a central opening and having a flange depending therefrom, a hot-air chamber secured to the flange and extending upward within the vessel, and an L-shaped tube extending along the bottom and one side of the vessel and provided at its upper end with a discharge-opening, substantially as described.

2. The combination of a vessel provided in its bottom with a circular opening and having a circular flange depending therefrom and tapering toward the lower end, an approximately cylindrical chamber having an open bottom and closed top and tapering sides and secured to the lower edge of the flange and forming a narrow annular V-shaped groove, and an L-shaped tube extending from the V-shaped groove along the bottom and side of the vessel to the top of the same and provided at its upper end with a discharge-opening, substantially as described.

3. The combination of a vessel provided in its bottom with a circular opening and having a circular flange depending therefrom and tapering toward the lower end and an approximately cylindrical chamber having an open bottom and closed top and tapering sides and secured to the lower edge of the flange and forming a narrow annular V-shaped groove, substantially as described.

4. The combination of a vessel provided in its bottom with an annular groove, an L-shaped tube arranged inside the vessel and extending vertically along one side of the same and across the bottom from that side to the annular groove, a cap closing the upper end of the tube, and a button pivoted intermediate its ends to the tube, the latter being provided with discharge openings arranged to be closed by the button, substantially as described.

481,317. BALL-COCK VALVE. WILLIAM A. TURNER, Worcester, Mass., assignor to Edmund Converse, same place. Filed Dec. 28, 1889. Serial No. 335,278. (No model.)



Claim.—1. The combination, with a supply-pipe having a transverse partition closing the passage-way and provided with an opening through said partition, of a spindle journaled in said partition, a disk attached to said spindle and provided with an opening which is brought coincident with the opening in said partition by the rotation of said spindle, an annular ring inclosing said rotating disk, and a metallic disk covering said annular ring, said ring and said metallic disk being attached to said transverse partition and forming a chamber for said rotating disk, substantially as described.

2. The combination of the water-supply pipe B, having a radial flange B' and a concentric screw-threaded flange B², a cylinder C, held upon said screw-threaded flange and provided with a transverse partition dividing said cylinder into the chambers D and E, delivery-pipe F, annular ring J, and metallic disk L, forming a chamber for a rotating disk, rotating disk H', inclosed in said chamber, and attached spindle H, journaled concentrically with said transverse partition, said transverse partition and said rotating disk being provided with openings which are brought coincident by the rotation of said disk, substantially as described.

3. In a ball-cock valve, the combination, with the water-supply pipe provided with a partition having one or more holes, forming water-ways, of a semi-elastic washer resting against the side of said partition, an annular metallic ring inclosing a chamber for a rotating disk, a rotating disk provided with one or more holes corresponding with said water-ways and operatively connected with a float which is raised by the water in the tank, a semi-elastic washer resting against said disk, and a metallic disk covering said elastic washer, said metallic disk and said interposed elastic washers being attached to said partition, substantially as described.

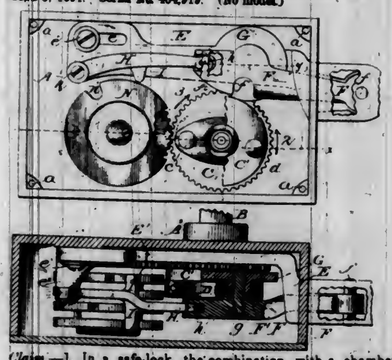
481,318. CUTTER-BAR. GEORGE A. VANDAMENT, Ruark, assignor of one-third to P. O. French, S. W. Morgan, and J. M. Freese, Sumner, Ill. Filed Feb. 20, 1892. Serial No. 422,289. (No model.)



Claim.—1. The herein-described cutter-bar, the same having recesses in its upper face, provided with lugs rising from center of the bottom thereof, knives having reduced shanks fitting in said recesses and removable vertically therefrom and having holes therein for fitting over and through which said lugs pass and are flush with the upper surfaces of the said knives, the shoulders at the front ends of said shanks resting against the front edge of the body of the bar, and a fastening-slide passing over said shanks and detachably connected with the bar, as set forth.

2. The herein-described cutter-bar, the same having recesses in its upper face, provided with lugs rising from the bottom thereof, knives having reduced shanks fitting in said recesses and removable vertically therefrom and also provided with holes to engage said lugs, the shoulders at the front ends of said shanks resting against the front edge of the body of the bar, the upper side of the bar having a longitudinal groove open at its outer ends and with undercut edges, a slide having beveled edges removably inserted in said groove, the outer end of said slide being turned down, and a thumb-screw passing through said turned-down end into the end of the cutter-bar, as hereinbefore set forth.

481,319. SAFE-LOCK. JAMES WHITE, Cleveland, Ohio. Filed Sept. 5, 1891. Serial No. 404,919. (No model.)



Claim.—1. In a safe-lock, the combination, with a chambered bolt, of a drag-bar having its outer end connected to the bolt within the chamber and means for moving the drag bar and bolt endwise, substantially as set forth.

2. In a safe-lock, the combination, with the bolt, of a drag-bar connected at its front end with the bolt, means for moving the drag-bar and bolt endwise, and a fence-lever connected at its front end to the rear end of the drag-bar and having its rear end pivoted to the bolt, substantially as set forth.

3. In a safe-lock, the combination, with the spindle, of a toothed wheel, a cam, a drag-bar engaging with the cam, a connecting-wheel mounted loosely on the spindle, and means for alternately engaging the drag-bar with the connecting-wheel and detaching the drag-bar from the connecting-wheel, substantially as set forth.

4. In a safe-lock, the combination, with the spindle, of a toothed wheel, a series of tumblers, and a toothed wheel mounted by the side of the toothed wheel of the spindle, a fence engaging with the tumblers, a drag-bar pivoted to the bolt of the lock, and a cam mounted on and operated by the spindle to lift the drag-bar, substantially as set forth.

5. In a safe-lock, the combination, with the spindle, of the bolt, a drag-bar pivoted to the bolt, a cam on the spindle, a connecting-wheel mounted on the spindle, and having a circular track open toward the cam, and a pin carried by the spindle and traversing the track, substantially as set forth.

6. In a safe-lock, a bolt having that portion which projects through the wall of the lock lying in a plane parallel with the plane of another portion which lies in close proximity to the front of the lock and having at its rear end a bracket-like projection, a fence-lever supported at one end on the bracket, and a drag-bar connected at its front end to that part of the bolt which projects through the casing, in combination with an antifriction-wheel mounted on the drag-bar between the drag-bar and the bolt and a cam adapted to engage with the antifriction-wheel for lifting the inner end of the drag-bar and fence, substantially as set forth.

7. In a safe-lock, a bolt having that portion which projects through the wall of the lock lying in a plane parallel with the plane of another portion which lies in close proximity to the front of the lock and having at its rear end a bracket-like projection, in combination with a drag-bar connected at its front end to that part of the bolt which projects through the casing, a spindle, a gear-wheel on the spindle below the bolt, a cam on the spindle inside of the gear-wheel, an antifriction-wheel mounted on the drag-bar between the drag-bar and the bolt to engage with the cam for lifting the inner end of the drag bar, and a fence-lever connected at one end to the drag-bar and at its opposite end to the bracket-like projection of the bolt, substantially as set forth.

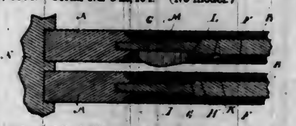
8. In a safe-lock, the combination of a spindle, a gear-wheel mounted on the spindle in close proximity to the front wall of the lock, a pin mounted upon and driven by the spindle for moving the bolt, an other gear mounted upon a pivot other than the spindle and meshing with the first-named gear-wheel, and a series of tumblers mounted upon and rotating about the pivot inside of the gear-wheel and separable therefrom, substantially as set forth.

9. In a safe-lock, the combination of a spindle, a gear-wheel mounted on the spindle in close proximity to the front wall of the lock, a pin mounted upon and driven by the spindle for moving the bolt, another gear mounted upon a pivot other than the spindle and meshing with the first-named gear wheel, a series of tumblers surrounding the pivot, and the rosette between the pivot and the tumblers to facilitate the removal of the tumblers without disturbing the gear-wheel, substantially as set forth.

10. In a safe-lock, the combination of a spindle which rotates, a non-rotating pivot parallel with the spindle, a gear-wheel mounted upon the spindle and fixed thereto, a gear-wheel mounted on the pivot and meshing with the gear-wheel of the spindle, a series of tumblers mounted on and rotating about the pivot, and a clamp interposed between the tumblers and the gear-wheel on the pivot to retain the gear-wheels in mesh when the tumblers are removed, substantially as set forth.

11. In a safe-lock, a non-rotating pivot, in combination with a series of tumblers, a rosette interposed between the tumblers and the pivot, and fastening devices carried by the rosette and the pivot for securing those parts to each other, substantially as set forth.

481,320. SASH-LIFT. HENRY R. WILLER, Milwaukee, Wis. Filed Mar. 3, 1890. Serial No. 342,404. (No model.)



Claim.—1. A blind-lift constructed of metal having a plate H, provided with a flat inner surface and with apertures K K, and an arm I, integral with the plate H, having a shoulder L and an inner edge M, inclined to the flat inner surface of the plate H, substantially as described.

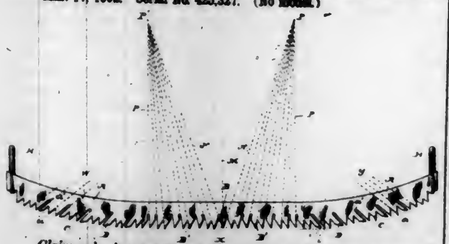
2. The combination, with a sliding blind having a frame containing a panel provided with a centrally-raised part, as F, and a beveled margin, as G, of a metal lift having a plate H, provided with a flat inner surface fitted and secured to the surface of the raised central part of the panel and having a shoulder L fitted to the edge of

the centrally-raised part of the panel, and an inclined edge M fitted to the surface of the beveled margin G of the panel and extending from the centrally-raised part of the panel to the edge of the stile, substantially as described.

3. In a blind constructed for vertical movement, the combination, with a frame and a panel fixed in the frame, of a metal blind-lift one part of which has a flat inner surface placed against the surface of the panel and secured thereto by screws or equivalent device and another part of which projects laterally along the panel from the flat-surfaced part, the projecting part being of sufficient width outwardly from the panel to form a catch or handle to be caught by the fingers of a person, substantially as described

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481,321. CROSSCUT-SAW. ISAAC S. WILSON, Cedar Gap, Mo. Filed Mar. 17, 1892. Serial No. 425,327. (No model.)



Claim.—1. A crosscut-saw having a central straight portion and curved end portions, substantially as described.

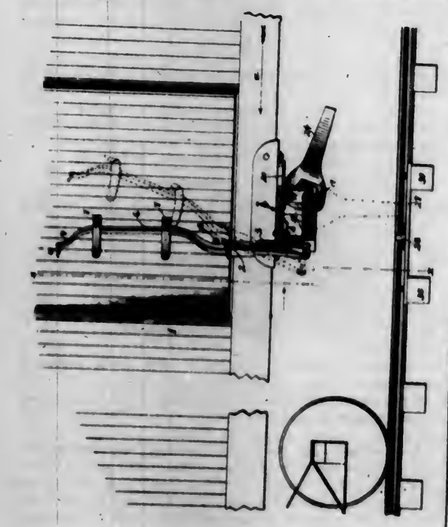
2. A crosscut-saw having a central straight portion with teeth projecting inward toward a central straight tooth and curved end portions with outwardly-projecting teeth, substantially as described.

3. A crosscut-saw having the teeth of the central part thereof projecting inward in reverse directions to a central tooth, substantially as described.

4. In a crosscut-saw, a middle portion with sets of cross-cut or scoring teeth arranged in even number, in combination with a clearing-tooth having a throat on either side thereof, said cross-cut or scoring teeth gradually assuming an erect position as they approach a central pyramidal tooth, substantially as described.

5. In a crosscut-saw, a central pyramidal tooth having cross-cut and clearing teeth projecting obliquely in reverse directions and outer cross-cut and clearing teeth projecting in reverse directions and obliquely to the said central cross-cut and clearing teeth, the central portion of said saw being straight and the end portions thereof curved, substantially as described.

481,322. MAIL-BAG THROWER. CLINTON B. WILSON and GEORGE W. CUMMINGS, Jamestown, N. Y. Filed Oct. 2, 1891. Serial No. 407,526. (No model.)



Claim.—1. A mail-bag deliverer comprising a pivoted support on the car, a receptacle for the bag at the upper end of the said support, and means on the car connected with the lower end of the support for operating the thrower to deliver the bag.

2. A mail-bag deliverer comprising a pivoted support on the car, a receptacle for the bag at the upper end of the said support, and a spring-actuated rod connected with the lower end of the said support.

3. A mail-bag deliverer comprising a pivoted support on the car, a receptacle for the bag at the upper end of the said support, and means on the car connected with the lower end of the support, said means including a trip-arm adapted to contact with the stop located alongside a track-rail.

4. A mail-bag thrower pivotally mounted on the car and comprising a box-like frame on the under side of the car, a spring-actuated rod connected to the lower end of the support and passing through said frame, and a trip-arm connected with the inner end of said rod, adapted to contact with the trip on the track.

5. A mail-bag thrower pivotally mounted on the car and comprising a box-like frame, a way on the under side of the car upon which said box-frame is adapted to move, and means connected with the lower end of the pivot-support for operating the thrower.

6. A mail-bag deliverer comprising a pivoted support having a receptacle for the bag at its upper end and means whereby said thrower may be reversed in position, substantially as set forth.

7. A mail-bag deliverer comprising a pivoted support having a receptacle for the bag at its upper end and means whereby said thrower may be reversed in position, said means including a curved way, a pivoted box-frame, and a stop for securing the latter in adjusted position.

8. A mail-bag deliverer comprising a pivoted support for the bag, an operating-rod connected to the lower end of said pivoted support, and a shell-headed trip-arm adapted to be engaged by said rod.

9. A mail-bag deliverer comprising a pivoted support for the bag, an operating-rod connected to the lower end of said pivoted support, and a slotted dish-headed trip-arm adapted to be engaged by said rod.

10. A mail-bag thrower provided with a trip-arm having a slotted dish-shaped head.

11. A mail-bag thrower provided with a trip-arm having a slotted dish-shaped head and a yoke extending from the rear of said head.

12. A mail-bag thrower provided with a receptacle and pivoted on the car, a rod connected to the lower end of said receptacle-support, and a coiled spring and buffer on said rod.

13. A mail-bag thrower pivoted on a car, a frame on the under side of the car adapted to oscillate, a rod connected to the support of the receptacle, passing through said frame, and a slotted dish-headed trip-arm.

14. A mail-bag deliverer comprising a socketed support and a separable bag-receptacle, whose lower end is adapted to fit in the socket of said support, and means whereby said receptacle may be instantly locked in position or released.

15. A mail-bag deliverer comprising a socketed support and a separable bag-receptacle, whose lower end is adapted to fit in the socket of said support, and means whereby said receptacle may be instantly locked in position or released, said means including a shoulder in the socket and a spring-catch adapted to engage said shoulder.

16. A mail-bag deliverer comprising a socketed support and a separable bag-receptacle, the latter provided with skeleton spring-arms adapted to receive the bag.

481,323. PNEUMATIC TIRE. ADOLPHUS F. WYMAN, New Bedford, Mass. Filed June 3, 1892. Serial No. 435,378. (No model.)



Claim.—A pneumatic tire having its interior provided with a number of thin pieces of rubber adapted to have free movement within said interior as the wheel revolves, as and for the purpose shown and described.

481,324. HEEL-PLATE. EDWARD F. AYERS and TIMOTHY H. FOSTER, Danbury, Conn. Filed Nov. 5, 1891. Serial No. 410,975. (No model.)

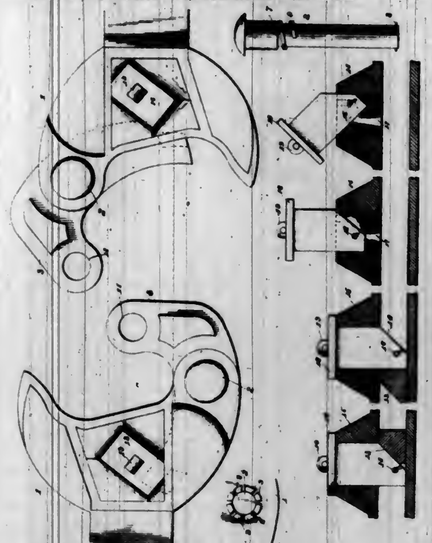
Claim.—In a heel-protector adapted to be contained within the heel of a rubber boot or shoe, comprising an approximately-V-shaped plate, such as 1, provided with perforations and depending studs or wearing-points 5 and having the ends connected by a bar 3, provided with dovetailed grooves 4, adapted to act in the capacity of retaining-

481,324.



points, and a spider or Y-bridge formed of ribs 6, which rise from approximately equidistant points on the upper surface of said plate and unite at the center, substantially as and for the purpose described.

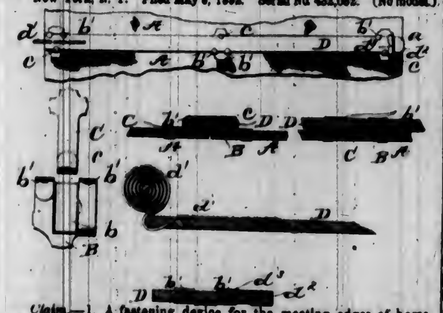
481,325. CAR-COUPLING. WALTER B. CLARK, Woodlawn Park Ill. Filed Apr. 7, 1892. Serial No. 428,145. (No model.)



Claim.—1. The combination of a draw-head provided on its lower face with a series of projections, a knuckle arranged in the draw-head and provided in the walls of its knuckle-pin perforation with a spiral groove, a knuckle-pin having a spiral flange arranged to engage the groove, and a key passing through the lower end of the knuckle-pin and arranged between said projections, substantially as described.

2. The combination of a draw-head, a knuckle arranged therein and having its inner end beveled, an enlargement mounted in the draw-head and provided in opposite walls with bayonet-grooves and a beveled gravity-catch provided on opposite sides with lugs arranged in the bayonet-grooves, substantially as described.

481,326. HORSE-BLANKET FASTENER. CHARLES A. HARVEY, New York, N. Y. Filed May 6, 1892. Serial No. 432,092. (No model.)



Claim.—1. A fastening device for the meeting edges of horse-blankets, consisting of two or more series of securing devices located at intervals along the edges, each series comprising two hooks secured to one edge and a single hook secured to the opposite edge intermediate the hooks of the first-named edge and adapted to pass between and beyond said first-named hooks to leave a space between them, and a movable tongue for passing through the said space and engaging all the hooks of the said securing devices, said tongue being capable of yielding in a direction transversely of said hooks but incapable of yielding laterally in the plane of said hooks, substantially as described.

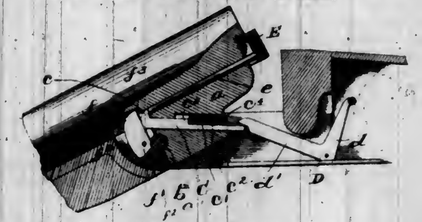
2. A fastening device for the meeting edges of a horse-blanket, consisting of a series of securing devices located at intervals along said edges, consisting each of a plate secured to one edge and provided with a pair of hooks and an arm secured to the other edge, having a hook alternating with the hooks of the other edge, said plate being recessed to receive said arm, and the tongue for engaging the hooks of all said devices, said tongue being incapable of yielding laterally in the plane of said hooks, substantially as described.

3. In a fastening device for the meeting edges of horse-blankets, the combination, with the securing-tongue provided with a stop, of a series of securing devices located at intervals along said edges, consisting each of the recessed plate provided with a pair of tongue-engaging hooks and an arm provided with a hook adapted to engage the recess of said plate, one of the hooks of the plate adjacent to one end of said edges being continued to the opposite side of said plate to form a cross-plate adapted to be engaged by the stop on said tongue, substantially as described.

4. In a fastening device for horse-blankets, the combination, with hooks secured to opposing edges of said blanket, of the securing-tongue for engaging said hooks, provided with a stiffening-strip attached to the upper end of the said tongue, a part of said strip forming a hand piece for moving said tongue, substantially as described.

5. In a fastening device for the meeting edges of a horse-blanket, the combination, with the tongue provided at one end with a stiffening-strip, a portion of said strip forming a hand-piece, and a stop-plate provided with a projecting stop secured to the other end of a series of plates located at intervals along said edges and provided with tongue-engaging hooks, and a series of arms provided with hooks adapted to engage said plates, one of said plates being provided with a cross-plate adapted to be engaged by said stop and having a notch or recess adapted to be engaged by said hand-piece, substantially as described.

481,327. BREAKDOWN GUN. FRANK A. HOLLENBECK, Batavia, N. Y., assignor to the Baker Gun and Forging Company, same place. Filed Feb. 16, 1892. Serial No. 421,716. (No model.)



Claim.—1. In a firearm, the combination, with the cocking-lever and the shell-extractor, of a cocking-bolt operatively connected with the said cocking-lever and extractor, substantially as described.

2. In a firearm, the combination, with the cocking-lever and the extractor, of the longitudinally-movable cocking-bolt engaging said extractor and the ejector engaging the said cocking-bolt, substantially as described.

3. In a firearm, the combination, with the extractor and cocking-lever, of the longitudinally-movable cocking-bolt engaging the said extractor, the spring engaging and moving the cocking-bolt in one direction, and the ejector engaging and moving the said cocking-bolt in the opposite direction, substantially as described.

4. In a firearm, the combination, with the cocking-lever pivotally secured to the stock portion of the arm, of the cocking-bolt movably mounted in the barrel portion of the arm, a spring for moving said bolt out of engagement with said lever, and the fore-end provided with means for retaining the cocking-bolt in constant engagement with the cocking-lever when said fore-end is placed in proper position upon the barrel portion of the firearm, substantially as described.

5. In a firearm, the combination, with the cocking-lever, of the longitudinally-movable cocking-bolt secured to and moving with the barrels, a spring engaging said cocking-bolt and adapted to move it in a direction to disengage it from the cocking-lever, and the fore-end provided with a construction to engage said bolt when the fore-end is attached to the gun and hold the cocking-bolt in constant engagement with the cocking-lever against the force of said spring, substantially as described.

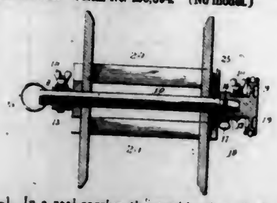
6. In a firearm, the combination, with the cocking-lever and extractor, of the longitudinally-movable cocking-bolt secured to and moving with the barrels, having a portion operatively engaging the cocking-lever and a portion operatively engaging a part connected with the

extractor, and means for positively moving said cocking-bolt longitudinally, substantially as described.

7. In a firearm, the combination, with the cocking-lever and the extractor, of the longitudinally-movable cocking-bolt secured to and adapted to move with the barrels, having a part operatively engaging the cocking-lever and a portion operatively engaging a part connected with the extractor, and the ejector for moving said cocking-bolt longitudinally when the gun is broken to effect the operation of the extractor, substantially as described.

8. In a firearm, the combination, with the cocking-lever pivoted in the stock and the extractor, of the cocking-bolt adapted to engage said cocking-lever and extractor, the spring operatively engaging the said cocking-bolt, the fore-end, the ejector pivoted to the fore-end and having a part adapted to engage a rigid portion connected with the stock, substantially as described.

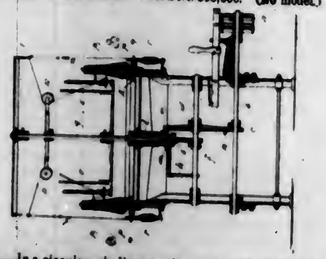
481,328. REEL-CARRIER. EVEN E. KITTLESON, Albany, Wis. Filed Feb. 9, 1892. Serial No. 420,894. (No model.)



Claim.—1. In a reel-carrier, the combination of a frame mounted on wheels and provided at its front end with the bearing-plates 8 and 9, a sleeve journaled in the bearing-plate 9 and provided with a socket and having a set-screw 17, and a removable shaft 10, adapted to carry the spool and provided at one end with a handle and having its other end arranged in the socket of the sleeve and provided with a groove to receive a set-screw 17, whereby the shaft is made rigid with the sleeve, substantially as described.

2. In a reel-carrier, the combination of a frame mounted on wheels, a spool-shaft journaled on the frame, a spool arranged on the shaft, and a guide comprising the side bars secured to the frame and having their front ends curved inward, a horizontal roller connecting the front ends of the side bars and journaled therein, a cross-bar elevated above the side bars and provided with depending L-shaped portions forming brackets and secured to the side bars, and the vertical rollers arranged within the side bars and journaled on the cross-bar, substantially as described.

481,329. DRIVING MECHANISM FOR THE SPINDLES OF CIRCULAR WINDING-MACHINES. FRIEDRICH A. LUDWIG, Chemnitz, Germany. Filed June 10, 1891. Serial No. 396,800. (No model.)

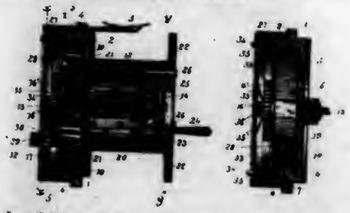


Claim.—In a circular winding-machine, the combination of a horizontal driving-cog K and sleeve *l*, carrying the same, with the bobbin-supporters *g'*, arranged around said cog, bevel-gears *p*, engaging in the same and disengaging switches *g*, a vertically-movable bar *g*, whirls *u*, thread-cleaner *v*, and adjustable guide-hooks *w*, all mounted on said bar *g*, as specified, and a guide-fork *h*, having a horizontal arm keyed to said bar *g*, said fork embracing the shaft *d*, and the shaft *d*, operated from a driving-shaft by means of intermediate gearing *m e n c*, arranged substantially as and for the purpose set forth.

481,330. FISHING-REEL. GRANVILLE E. MEDLEY, Hopkinsville, Ky. Filed May 3, 1892. Serial No. 431,685. (No model.)

Claim.—1. In a fishing-reel, the combination of a spool on which the line is wound, a body having a tubular spindle on which said spool is rotatably mounted, said body and spool being independent, a spring secured within said body, a drum or casing surrounding said spring and body, and a shaft carrying an eccentric or clutch in said spool adapted to bear against one of the connecting-screws of the parts and control the movements of the said spool, said eccentric or clutch consisting of a crescent-shaped plate pivoted at one point only and extended from said shaft, substantially as described.

2. In a fishing-reel, the combination of a spool, a body having a tubular spindle extending therefrom, a spring having its outer end connected with said body, a winding-drum having the inner end of the spring secured thereto, a shaft fitted in said tubular spindle, an eccentric or clutch secured on one end of said shaft and engaging one of the connecting-screws of the said spool, an oblong nut secured to said shaft and to which said eccentric or clutch is pivotally connected and extends therefrom, and a spring connected to and extending transversely across the opposite end of said shaft and adapted to hold the eccentric in position, substantially as described.



3. In a fishing-reel, the combination of a spool, a body having a tubular spindle extending therefrom and on which said spool has rotatable bearing and also provided with an outer covering-plate, a spring in connection with the said body, the said body having a series of holes therein, and pins or posts on the free ends of a transversely-arranged spring movably connected to the inner surface of the said outer plate and adapted to engage the said holes of the body, a shaft extending through said spindle into said spool, and an eccentric or clutch pivotally supported by said shaft in said spool, the said clutch or eccentric being free to move and connected at its inner end portion only, substantially as described.

4. In a fishing-reel, the combination of a spool, a body having a hollow spindle projecting therefrom and provided with a series of holes, as set forth, a spring connected to said body and located in a counter-sink therein, a winding-drum secured to said spring, a shaft extending through said tubular spindle and having an eccentric or clutch on one end thereof in the said spool and adapted to bear against one of the connecting-screws of said parts, a pinion on the opposite end of the same, a spring extending transversely through the end of the shaft, an idler-wheel, and an outer plate fitted over the drum, having a spring secured thereto carrying pins or posts at the ends thereof to engage the holes in said body and lock the drum against movement, and said eccentric or clutch being freely movable and pivoted at one point only, substantially as and for the purpose set forth.

481,331. COIN-CONTROLLED VENDING-MACHINE. EDWARD L. PICKARD, Chelsea, assignor, by mesne assignments, to the United States Postage Stamp Delivery Company, Boston, Mass. Filed May 10, 1892. Serial No. 432,537. (No model.)

Claim.—1. In a vending-machine, the combination, with a coin tube or chute, of a laterally-movable section of coin-chute at the upper end thereof and having an opening in one side adapted to eject a small-sized disk, and a stop for holding a coin in said section until the latter is moved, substantially as described.

2. In a vending-machine, the combination, with a front plate having a coin-slot, of a bodily-movable section of coin-chute having an opening in one side adapted to eject a small-sized disk, said section being located behind and registering with said coin-slot when in one position and registering with a stationary coin-chute and out of register with the coin-slot when in the other position, and means for moving said section, substantially as described.

3. In a vending-machine, the combination, with a movable section of coin-chute for interrupting the passage of a coin, of a bell, a bell-hammer, connections between said bell-hammer and movable section, a single spring for holding them in one position, and means within reach of the operator for moving said section and hammer.

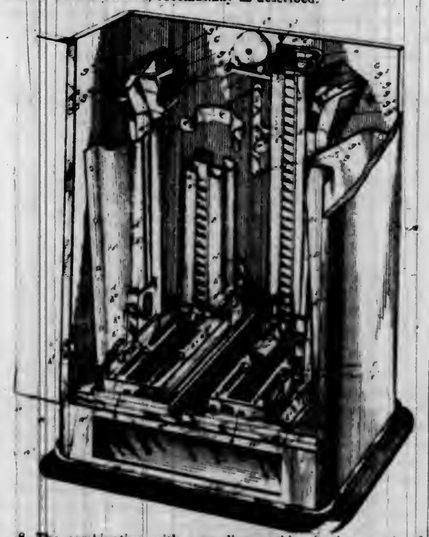
4. In a vending-machine, the combination, with a plurality of movable sections of coin-chutes for interrupting the passage of coins, of a pivoted arm, an alarm or signal device, flexible connections between said arm and signal and between said arm and movable sections, and a single spring for operating the signal and exerting tension on said pivoted arm, substantially as described.

5. In a vending-machine, the combination, with the frame or casing, of a removable magazine having a slide for temporarily closing one end thereof, said slide being fitted to guides secured to the end of

the magazine, whereby said slide may be operated to close the magazine at any time when the latter is to be removed, substantially as described.

6. A magazine for vending-machines, consisting of a plurality of pockets for the articles to be sold, said pockets communicating with each other at their lower ends, and means carried by the lower end of the magazine for temporarily closing the outlet for said articles.

7. A magazine for vending-machines, consisting of a pair of pockets divided by a vertically-slotted partition and having also vertical openings at the front and back, the said partition being cut away at its lower end to an extent somewhat greater than the diameter of one of the articles to be sold, substantially as described.



8. The combination, with a vending-machine having a pair of pockets divided by a vertically-slotted partition, of a weight having two parts adapted to fit said pockets and a connecting-web passing through the slot of the partition, substantially as described.

9. In a vending-machine, the combination, with a delivery-slide and a stationary lug on each side thereof, of a magazine having a pair of trunnion-pins adapted to rest on said lugs and a slide for closing the lower end of the magazine, said closing-slide having a downwardly-inclined end under the magazine, substantially as described.

10. In a vending-machine, the combination, with a delivery-slide, of a pair of fixed teeth on one side thereof, a fixed coin-chute, a trip-lever pivoted to one side of the slide and having a hook to engage the teeth and a heel portion extending into the path of a coin in the coin-chute, and a fixed guard adapted to prevent the lever from releasing the coin until the hook has passed both teeth, substantially as described.

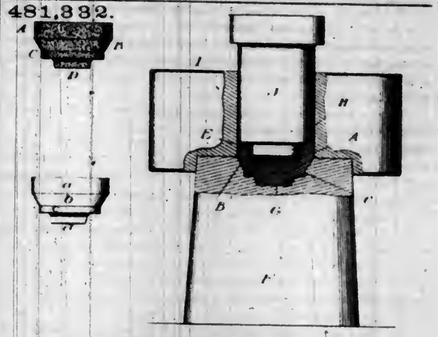
11. In a vending-machine, the combination, with a delivery-slide, of a pair of fixed teeth on one side thereof, a fixed coin-chute, a trip-lever pivoted to one side of the slide and having a hook to engage the teeth and a heel portion extending into the path of a coin in the coin-chute, and a fixed guard located over the hook portion of the lever and consisting of two parts at different elevations connected by an inclined surface, substantially as and for the purpose set forth.

12. In a vending-machine, the combination, with a delivery-slide, of a pair of fixed teeth on one side thereof, a fixed coin-chute, and a trip-lever pivoted to one side of the slide and having a hook to engage the teeth and a heel portion extending into the path of a coin in the coin-chute, said trip-lever having a cam-surface adapted to strike the front surface of the first tooth and carry the hook down behind the second tooth, substantially as described.

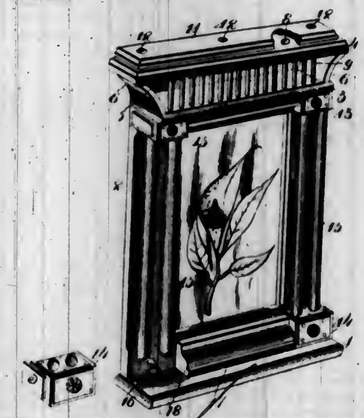
481,332. PROCESS OF HARDENING SEATS AND VALVES. JAMES POWELL, Cincinnati, Ohio. Filed Oct. 13, 1888. Serial No. 288,041. (No model.)

Claim.—The process, substantially as described, of imparting a smooth, hardened, and condensed surface to cast blanks for valves and valve-seats, which process consists in confining said blanks within suitable dies and then subjecting the blanks to the percussive action of punches or their equivalents, whereby said castings are hardened, condensed, and finished without further manipulation, as set forth.

481,332.



481,333. FRAME FOR PICTURES AND SIMILAR PURPOSES. MAYER REINFELD, St. Louis, Mo. Filed June 2, 1892. Serial No. 435,260. (No model.)



Claim.—1. A frame having stationary sockets fixed rigidly to the same near the top thereof, poles 15, the upper ends of which are adapted to be received by said sockets, and sockets 14, adapted to be removably secured to the frame at the opposite lower end of the frame for receiving the lower ends of said poles for locking the same in place, substantially as described.

2. A frame consisting of a base and back, transverse pieces 3 and 4, forming a stationary part of said frame and providing a space 7, openings 8, formed in the said transverse pieces registering with one another, short rods or poles 9, inserted within said openings, and a removable strip 11, adapted to be secured to the upper transverse piece 4 and cover the openings formed in said strip for preventing the said rods from passing out of said openings formed for their reception, substantially as described.

3. A frame having stationary sockets fixed rigidly to the top thereof, poles 15, removable sockets 14 to receive the lower ends of said poles and locking the same, transverse pieces 3 and 4, forming the stationary part of said frame and separated by the space 7 and having openings 8 therein registering with one another, short removable rods inserted in said openings, and a removable strip 11, secured to the upper transverse piece 4 and cover the openings formed in said strip and retaining said rods 9 in place, substantially as described.

481,334. EXHAUST-NOZZLE. PAUL SWENSON, Minneapolis, Minn. Filed Feb. 13, 1892. Serial No. 421,448. (No model.)



Claim.—1. In an exhaust-nozzle constructed with a primary and a supplemental discharge-orifice, the supplemental discharge-orifice

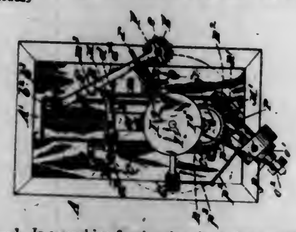
having an annular form and surrounding the primary discharge-orifice, and a valve located in said nozzle normally closing the said supplemental discharge-orifice to the said nozzle and adapted to be actuated to open the said supplemental discharge-orifice to the said nozzle under the action of an excessive pressure in the said nozzle, substantially as described.

2. An exhaust-nozzle constructed with a primary and a supplemental discharge-orifice, the supplemental discharge-orifice having an annular form and surrounding the primary discharge-orifice, and a valve located in one side of the nozzle for opening and closing the supplemental discharge-orifice to the said nozzle, the said supplemental discharge-orifice being widest at a point diametrically opposite the valve, substantially as and for the purpose set forth.

3. The combination, with the nozzle E, having the primary and supplemental discharge-orifices F and G, respectively, of the valve I, fulcrumed at its lower edge and moving at its upper edge with steam-tight engagement against the abutment K and provided near its fulcrumed edge with the slot-and-pin engagement K', substantially as and for the purpose set forth.

4. The combination, with the nozzle E, having the primary and supplemental discharge-passages F and G, respectively, of the valve I, located in one side thereof, and a valve-controlling device connecting the valve with the exterior of the stack comprising the telescoping sections L L', the hand-nut M, the spring N, and the telescoping portions *g*, the sections L L' being provided with the perforation P, through which a pin may be inserted to secure the said sections together, substantially as described, and for the purpose set forth.

481,385. MACHINE FOR BEVELING BARREL-HEADS. HENRY THEIS, Lawrenceburg, Ind. Filed Sept. 26, 1891. Serial No. 406,912. (No model.)



Claim.—1. In a machine for dressing the peripheral edges of barrel-headings, a blank-holding clamp composed of the lower live-disk H', upper vertically-movable disk H, arbor A, at the lower end of which said upper disk is mounted, block or head *i*, having laterally-projecting lugs *l l'* and receiving the said arbor A, compressible retractile spring J, depressing hand-lever K *k'*, pivoted to the outer end of the pillar-arm *a* on the main frame, and split foot or cam L, hinged to said pillar-arm and engaging said lugs *l l'* on the head-block *i*, said depressing-lever K engaging said foot or cam L for the downward or closing movement of the upper disk H and when raised allowing spring J to retract or withdraw said upper disk from the blank, and thereby automatically open the clamp for the release of said blank, substantially as herein set forth.

2. In a machine for dressing the peripheral edges of barrel-headings, the combination, with the head-blank clamp, of the upright standards M M', mounted on a horizontal rod or shaft *m*, the latter being suitably mounted in a bracket-bearing *m'*, projecting from the pillar-arm *a'* of the main frame, a pendent arm m^2, projecting from standard M, said standards M and M' forming gages or stops whereby the said head-blank is readily and properly centered in said clamp, and suitable stop arms or brackets m^3 and N on the swinging arm B and pillar-arm *a'*, respectively, whereby said standards are held in proper relation to the head-blank both for setting and revolving it, substantially as herein set forth.

3. In a machine for dressing the peripheral edges of barrel-headings, the combination, with a frame the standard of which is provided with two shafts, one of which is movable longitudinally relatively to the other one and each of which is provided upon its inner end with a clamping-disk, of two lugs upon the frame, each provided with an adjusting-screw the axis of which is parallel with the axis of said shafts, an arm adjustably secured to the frame by means of said screws, and a revolving cutter in the outer end of said arm, the axis of which is also parallel with the shafts and the periphery of which is provided with a V-shaped groove, substantially as set forth.

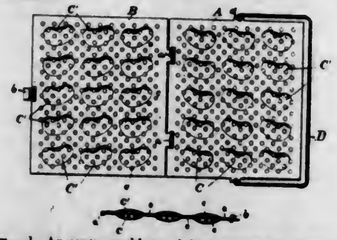
4. In a machine for dressing the peripheral edges of barrel-headings, the combination, in a revolving cutter-head F, having a V-concave face and one or more cutters or blades *f f'*, mounted therein, of a cutting tool or tools G G, mounted in one half of the hub of said cutter-head and adjustably held in place, with their inner ends or cutting-edges g^6 entering or occupying a recess or chamber g^5 in the other half of the hub at the angle of said V-concave, whereby both the beading or dressing and beveling on the edge of the blank are performed, substantially as herein set forth.

481,386. TOE-CALK FOR HORSESHOES. THEODORE S. VERY, Boston, Mass. Filed May 8, 1891. Serial No. 392,016. (No model.)



Claim.—The improved calk for horseshoes, having a hole formed part way therein and a spur made in a separate piece from said calk and having one end permanently and rigidly secured in said hole, as set forth.

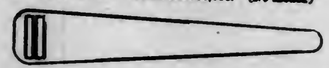
481,387. APPARATUS FOR MAKING FRIED OYSTERS. FRANKLIN F. WARTHEN, Baltimore, Md. Filed Dec. 17, 1891. Serial No. 415,346. (No model.)



Claim.—1. An oyster padder and frier consisting of two sheet-metal pieces hinged together at one side and having a connecting-fastener at the opposite side, one of said pieces being formed with perforated molds for receiving the oyster and the material for padding it and the other formed with perforated covers for said molds, the portions of the two sheets between the molds fitting close against each other, as described.

2. An apparatus for frying oysters, comprising a perforated mold made up of two sections hinged together at one side and having a connecting-fastener at the opposite side and provided with ears at two opposite sides, a swinging bail pivoted in said ears, a receptacle for containing the frying substance, in which the perforated mold is placed, and an overhanging hook fastened to the said receptacle and arranged to receive the bail of the mold and hold the latter suspended while it is turned over in the bail, in the manner described.

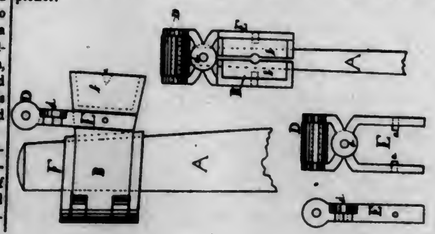
481,388. RIBBON-NEEDLE. GUSTAVUS G. WEIGAND, Des Moines, Iowa. Filed Feb. 9, 1891. Serial No. 380,683. (No model.)



Claim.—As a new article of manufacture, a ribbon-needle consisting of a flat plate that is wider at one end than the other and has straight smooth edges and two parallel slots extending transversely to the longitudinal axis of the needle at its wide end adapted to admit a ribbon in the manner set forth, for the purposes stated.

481,389. LOOM-PICKER. RICHARD WHARTON, Philadelphia, Pa., assignor of two-thirds to George F. Patterson and James B. Patterson, same place. Filed Dec. 19, 1891. Serial No. 415,690. (No model.)

Brief.—The picker is hinged in the back, and the two parts being held together by the spring-clamp allows the parts to slightly separate when the point of the shuttle strikes the recess in the end of the picker.



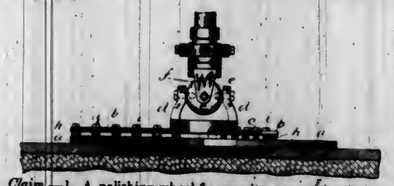
Claim.—A loom-picker in two parts hinged together at the back, said parts projecting to the front, and a spring-clamp embracing said parts and holding them together, substantially as described.

481,840. RIM AND TIRE FOR WHEELS. CHARLES R. W. WOODWARD, Chicopee, Mass., assignor to the Overman Wheel Company, same place. Filed Feb. 16, 1891. Serial No. 381,701. (No model.)



Claim.—The combination, with an arch-shaped rubber wheel-tire having the edges of its side walls made flat in cross-section and beveled or inclined toward each other at an angle of about forty-five degrees, of a wheel-rim having its bed constructed with two annular seats made flat in cross-section and inclined toward each other in conformity with the inclination of the edges of the tire, substantially as described.

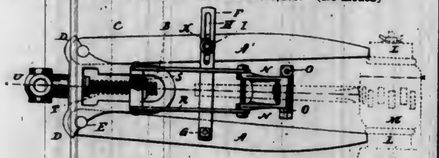
481,841. DEVICE FOR POLISHING GRANITE, &c. GEORGE L. BADGER, West Quincy, Mass. Filed Dec. 21, 1891. Serial No. 415,889. (No model.)



Claim.—1. A polishing-wheel for granite, comprising in its construction a plurality of rings, tie-bars connecting the rings, and springs interposed between the rings and tie-bars, as set forth.

2. A polishing-wheel for granite, consisting of a plurality of rings, a hub *c*, tie-bars connected with said hub and radiating therefrom, springs interposed between the rings and tie-bars, and bolts for connecting the tie-bars to the rings, as set forth.

481,842. SPOKE-EXTRACTOR. WALLACE F. BOWE, Meriden, Conn. Filed July 23, 1891. Serial No. 400,470. (No model.)



Claim.—1. In a spoke-extractor, the combination, with a frame consisting of a head and two legs, one of which is adjustable toward and from the other, of pulling mechanism mounted in the said frame between the legs thereof and means for positively varying the separation between the ends of the said legs, substantially as described.

2. In a spoke-extractor, the combination, with a frame consisting of a head and two legs pivoted to the said head which extends between them, of pulling mechanism mounted in the said frame between the legs thereof and means for positively varying the separation of the free ends of the legs, substantially as described.

3. In a spoke-extractor, the combination, with a frame consisting of a head and two legs connected therewith and one being movable toward and away from the other, of pulling mechanism located between the said legs and including two jaws pivotally connected at their forward ends, a screw mounted in the said head, and connections between the rear ends of the jaws and the screw, substantially as described.

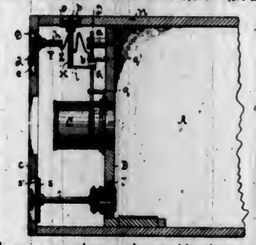
4. In a spoke-extractor, the combination, with a frame consisting of a head having a longitudinal opening and two parallel legs connected therewith, one being movable toward and away from the other, of pulling mechanism including two jaws pivotally connected at their forward ends, a screw mounted in the outer end of the said head, a nut mounted in the opening of the head, and connections between the inner ends of the jaws and the nut, substantially as described.

5. In a spoke-extractor, the combination, with a frame consisting of a head and two parallel legs connected therewith, one being movable toward and away from the other, of a pulling mechanism consisting of two jaws pivotally connected at their forward ends, which are separated, a screw mounted in the outer end of the head, a nut located in the opening of the head, and two pairs of bars respectively connecting the inner ends of the jaws with the projecting opposite ends of the nut, substantially as described.

6. In a spoke-extractor, the combination, with a frame consisting of a head having a longitudinal opening and enlarged at its outer end to form two sockets and of two parallel legs respectively pivoted in the said sockets, of a pulling mechanism consisting of two jaws pivotally connected at their forward ends, which are separated, a screw mounted in the outer end of the head, a nut located in the opening of the head, and connections between the rear ends of the jaws and the said nut, substantially as described.

7. In a spoke-extractor, the combination, with a frame consisting of a head and two parallel legs, one of which is movable toward and away from the other, of a pulling mechanism consisting of two jaws pivotally and adjustably connected together at their forward ends, a screw mounted in the head, and connections between the rear ends of the jaws and the said screw, substantially as described.

481,848. CAMERA-SHUTTER. WILLIAM H. BRISTOL, Hoboken, N. J. Filed Mar. 2, 1892. Serial No. 423,473. (No model.)



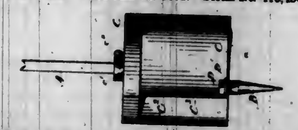
Claim.—In a camera-shutter, the combination of a pivoted shutter, a movable support therefor, a spring made fast at one end to the shutter, an energizing-key arranged in line with the spring and having the end opposite the spring slotted to receive the free end of the spring, and a detent and releasing device, substantially as described.

481,844. NUT-LOCK. JOSEPH BROADLEY, Elkhorn, Canada. Filed June 10, 1892. Serial No. 436,184. (No model.)



Claim.—The combination, with a screw threaded bolt A, having a reduced cam-surface *a*, of the nut B, having one or more grooves *b*, and the locking-strip or key C, composed of relatively-soft metal, insertible into the keyway formed by said cam-surface *a* and one of said grooves *b* when in registration, whereby on turning the nut in the tightening action the said strip will be carried laterally over the said cam-surface on the bolt and be thereby compressed between threads of the bolt, becoming a positive friction-lock to the nut, substantially as described.

481,845. EARTH-AUGER. FREDRICK W. BROCKNEPER, New Haven, Conn. Filed Jan. 18, 1892. Serial No. 418,490. (No model.)



Claim.—1. In an earth-auger, the combination, with the shank thereof, of a substantially cylindrical earth-chamber having a discharge-opening in its side and having its upper end, to which its shank is attached, closed and its lower end constructed with a downwardly-projecting lip, and an adjustable centering-point mounted in the said lower end of the chamber, substantially as described.

2. In an earth-auger, the combination, with the shank thereof, of a substantially cylindrical earth-chamber having its lower end broken away on one edge, a portion of which is bent downward to

form a lip and having its shell made with a discharge-opening, the rear edge of the said shell with reference to the rotation of the device in use being bent inwardly to form a packing-abutment, and a centering-point mounted in the lower end of the earth-chamber, substantially as described.

481,346. **STORE-SERVICE APPARATUS.** JOHN J. CRIST, Wichita, Kans. Filed Oct. 19, 1891. Serial No. 409,146. (No model.)



Claim.—1. In the cash and parcel carrier apparatus described, the combination of the depending bars, the horizontally-extending and vertically-adjustable arms supported by said bars at opposite stations, the weighted track supporting and tilting arms pivotally connected with said former arms, the track-wire pivotally connected to and supported by said pivoted arms, and the cords and pulley mechanism for operating said pivoted track-supporting arms simultaneously for inclining the track in either direction, substantially as set forth.

2. In the carrier apparatus described, the combination, with the depending bars fixed to the wall or other support and the adjustable braces thereof, of the horizontally-extending arms respectively provided with upright portions having boxes sleeved upon the bars and adjustably held thereon by means of set-screws, the weighted track supporting and tilting arms respectively pivoted to said horizontal arms, the track-wire provided at its terminals with jointed sections pivotally connected to the swinging end of said pivoted arms, the cord-pulleys provided with supporting-frames adjustably attached to said bars above said arms, the cords attached to said track-joint sections, arranged about said pulleys, and depending therefrom for operating said pivoted arms to incline the track at each station, and the cords connecting said pivoted arms, passing about pulleys, and extending to the opposite station from such connection for reversing the inclination of the track by means of reversing the position of said pivoted arms, substantially as and for the purpose set forth.

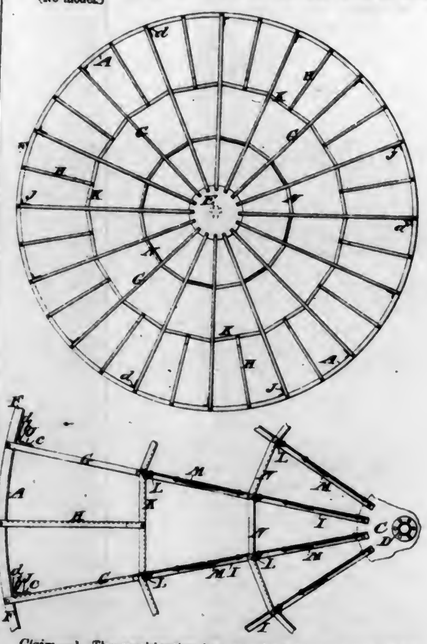
3. In store-service apparatus, the combination of depending hangers or supports at the stations, oppositely-arranged bell-crank levers pivotally connected to said supports, said levers being provided with laterally-projecting studs or pins on their forwardly-extending arms, stop-lugs adjacent to their pivots adapted to engage stops on the supports and weights on their rearward arms, jointed arms pivoted on the laterally-extending pins, a track-wire attached to the jointed arms, cords connected to the levers to reversely incline the track-wire, and pulleys over which the operating-cords are passed, all substantially as described.

4. In the carrier-apparatus system described, the combination, with the cord for operating the pivoted track supporting and tilting arms and for lowering and raising a carriage, of the cord-winding apparatus consisting of a frame, a pair of winding-drums geared together, a crank for rotating the drums, whereby a cord connected therewith is adapted to be wound upon one of said drums when raising a carriage, and a counter-weight connected by means of a winding-cord with the fellow drum, said weight-cord being arranged to wind on its drum reversely from the former cord, substantially as and for the purpose set forth.

5. In store-service apparatus, the combination of the oppositely-arranged bell-crank levers pivoted to suitable supports, jointed arms *a* and *a'*, pivoted to said bell-crank levers and provided with longitudinally-extending bores, a track-wire secured in the bores to the arms *a*, and the operating-cords similarly secured in the bores to the arms *a'*, all substantially as described.

6. In the carrier apparatus described, the carriage thereof provided with two upright side portions respectively having vertical slots, in combination with a secondary frame arranged between said upright parts, provided with side studs extending, respectively, into said slots, a downwardly-extending shank projecting into a hole in the carriage-frame, a wheel or roller, and a coiled spring surrounding said shank for yieldingly supporting said secondary frame within the carriage-frame, substantially as and for the purpose set forth.

481,347. **CIRCULAR-ROOFED STRUCTURE.** CHRISTOPHER CUNNINGHAM, Jr., Brooklyn, N. Y. Filed Mar. 30, 1892. Serial No. 427,029. (No model.)



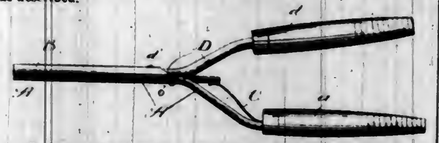
Claim.—1. The combination, in a circular tank or roofed structure, of a central roof-supporting post B, a central king-post D, erected above said post B, a crown-plate E, concentric with said posts, supported on said king-post, a concentric tie-beam plate C between said central supporting-post, a flanged wall-plate F, surrounding the side walls of the structure, inclined radial rafters G G, supported by said crown-plate and wall-plate, and radial tie-beams I, connecting the walls of the structure with said concentric tie-beam plate C, substantially as herein set forth.

2. The combination of the central post B, the side walls A, the central king-post D, the concentric crown-plate E, and tie-beam plate C, the flanged wall-plate F, the radial inclined main rafters G, connected with the concentric crown-plate E, the radial tie-beams connected with the concentric plate C, the flanged gusset-plates J, connecting both the rafters G and the tie beams C with the side walls A, the purlins K, connecting the main rafters G, and the intermediate or radial rafters H, connecting the purlins K with the flanged wall-plate, all substantially as herein set forth.

481,348. **CURLING-IRON.** FREDERICK H DEKNATEL, Evanston, Ill. Filed Aug. 24, 1891. Serial No. 403,524. (No model.)

Claim.—1. In a curling-iron, the combination of a clamping-jaw and a sleeve pivoted thereto, the pivot passing through the sleeve and jaw in a plane substantially parallel to that of the handles, a removable core adapted to be inserted into such sleeve at the end thereof adjacent to and forward of the handles, and handles for the clamping-jaw and core, substantially as described.

2. In a curling-iron, the combination of a clamping-jaw and a sleeve pivotally secured thereto by a pivot passing through the sleeve and jaw in a plane substantially parallel to that of the handles, such sleeve and jaw normally contacting throughout substantially their entire length, a separate core adapted to be inserted into the sleeve through the end thereof adjacent to the handles and forward of such handles, such core and jaw being provided with suitable handles, substantially as described.



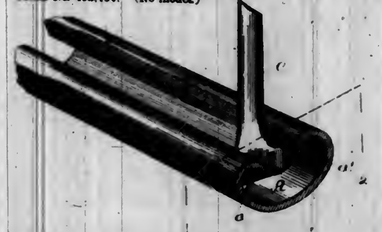
3. In a curling-iron, the combination of a sleeve, a core separate from such sleeve and adapted to be inserted into the same through the end thereof adjacent to the handles and forward of such handles, and means for securing the core in place, the iron being provided with suitable handles, substantially as described.

4. In a curling-iron, the combination of a clamping-jaw, a sleeve pivoted thereto, said sleeve being formed by rolling a piece of sheet metal upon a substantially cylindrical mandrel and leaving the adjacent edges thereto unattached to each other, forming an opening adjacent to the jaw, and a core adapted to be inserted into such sleeve, substantially as described.

5. In a curling-iron, the combination of a clamping-jaw, a sleeve pivotally secured thereto and provided with a slot, and a core separate from such sleeve adapted to be inserted into the end of the stem adjacent to the handles and forward of such handles and provided with a lug adapted to engage with the slot in the sleeve to hold the core in place, substantially as described.

6. In a curling-iron, the combination of a clamping jaw, a sleeve, a spring normally holding the jaw and spring in contact, a core separate from such sleeve and adapted to be inserted into the same through the end thereof adjacent to the handles and forward of such handles, and handles for the jaw and core, substantially as described.

481,349. **HAY-CARRIER TRACK.** HENRY L. FERRIS, Harvard, Ill., assignor to Hunt, Helm & Ferris, same place. Filed May 12, 1892. Serial No. 432,759. (No model.)

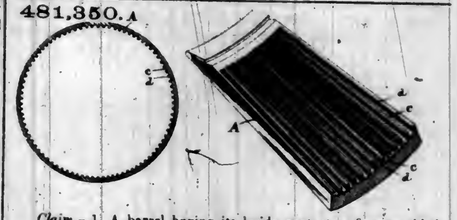


Claim.—1. A track having two parallel convex portions separated by a practically-continuous slot and a depending portion uniting the outer edges of the convex portions, in combination with the hanger having a shank adapted to slide back and forth in the slot, and a head sliding loosely within the track and adapted for engagement therewith, substantially as described.

2. A track having two convex parallel treads separated by a slot and a depending portion uniting the outer edges of the treads, in combination with a hanger having a shank adapted to slide back and forth in the slot, and an anchor shaped head adapted to engage with the concave under surfaces of the treads, substantially as described.

3. A track formed of a thin piece of metal in the shape of the letter U, with the edges curved inward and downward to form two convex treads, in combination with hangers having anchor-shaped heads, and a carrier having wheels with concave peripheries, whereby the wheels, the track, and the hangers are all locked together against independent lateral movement, substantially as described.

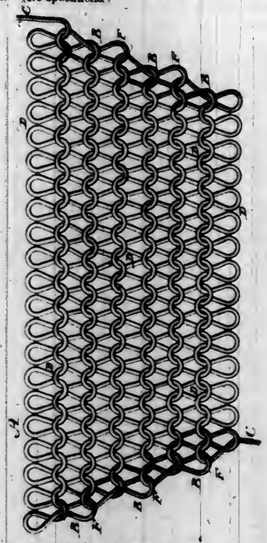
481,350. **BARREL.** GEORGE H. FORSTER, Baltimore, Md. Filed Nov. 16, 1891. Serial No. 412,024. (No model.)



Claim.—1. A barrel having its inside contact-surface provided with indentations so formed as to leave between them thin projecting wood parts, for the purpose described.

2. A barrel having its inner surface provided with alternating tongues and grooves, for the purpose set forth.

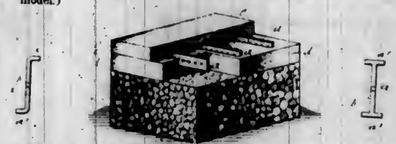
481,351. **KNIT FABRIC.** JOSEPH F. GEE, Philadelphia, Pa., assignor to Edward H. Godshalk, same place. Filed Oct. 3, 1891. Serial No. 407,597. (No specimens.)



Claim.—1. A widened knitted fabric having a selvage formed of twisted loops, substantially as described.

2. A widened knitted fabric having a selvage formed of its body-thread twisted so as to consist of tight loops, substantially as described.

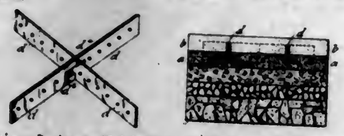
481,352. **ARTIFICIAL-STONE PAVING-BLOCK.** FRANKLIN HAINES, Yonkers, N. Y. Filed Aug. 3, 1891. Serial No. 401,559. (No model.)



Claim.—1. An artificial-stone paving-block formed of two layers or courses and having embedded therein metallic binder bars or plates which are set on edge and provided with bent-over flanges at the upper and lower edges, said plates being completely embedded and inclosed in said block, one flange in one layer thereof and the other flange in the other layer thereof, substantially as described.

2. An artificial-stone paving-block formed of two layers or courses having embedded therein metallic binder bars or plates set on edge and provided with openings in the body along the middle thereof, the material of the adjacent layers uniting at the openings and flowing therethrough, and with flanges at the upper and lower edges, said binder-bars extending from the base-layer into the top layer or course of the block, substantially as described.

481,353. ARTIFICIAL-STONE PAVING-BLOCK. FRANKLIN HAINES, Yonkers, N. Y. Filed Aug. 3, 1891. Serial No. 401,560. (No model.)



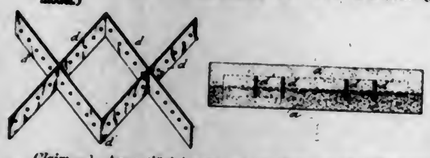
Claim.—1. An artificial-stone paving-block having embedded therein two intersecting flat metallic binder bars or plates set on edge, both of said plates being provided at or near their centers with interlocking slots, substantially as described.

2. An artificial-stone paving-block having embedded therein two perforated intersecting flat metallic binding bars or plates set on edge, both of said plates being provided at or near their centers with interlocking slots.

3. An artificial-stone paving-block formed of two layers or courses, having embedded therein metallic binder bars or plates set on edge and provided with interlocking slots at or near the center of said bars and with openings along the middle thereof, the material forming the pavement uniting at said openings and flowing therethrough.

4. An artificial-stone paving-block having embedded therein interlocking metallic binding bars or plates set on edge, one of said bars being provided with a longitudinal closed central slot and the other with lateral open slots, whereby the interlocking of the bars is effected.

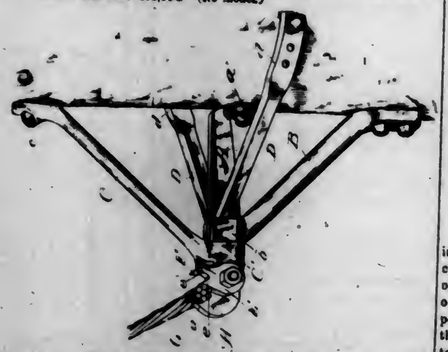
481,354. ARTIFICIAL-STONE PAVING-BLOCK. FRANKLIN HAINES, New York, N. Y. Filed June 22, 1892. Serial No. 437,630. (No model.)



Claim.—1. An artificial-stone paving-block having embedded therein metallic V-shaped binder bars or plates set on edge and provided with interlocking recesses at or near their end centers, said V-shaped bars being disposed in opposite direction, substantially as described.

2. An artificial-stone paving-block having embedded therein metallic V-shaped binder bars or plates set on edge and provided with interlocking recesses at or near their end centers, said V-shaped bars being disposed in opposite direction and provided with openings along the center thereof, so that the material forming the block flows through said openings and unites on both sides of the binder-bars, substantially as set forth.

481,355. HANGER FOR LUMBER-CARRIERS. JAMES E. HARDER, Chicago, Ill., assignor to George W. Cole, same place. Filed Aug. 11, 1891. Serial No. 402,364. (No model.)



Claim.—1. A rail-support comprising a central bar provided with a fixed jaw, a movable jaw connected to such bar, and means whereby the movable jaw is advanced toward the fixed jaw to engage the track, substantially as described.

2. The combination of a center bar provided with a stationary jaw, a brace connected with such bar, a movable jaw attached to such bar, and a set-screw passing through the brace and engaging with the movable jaw, substantially as described.

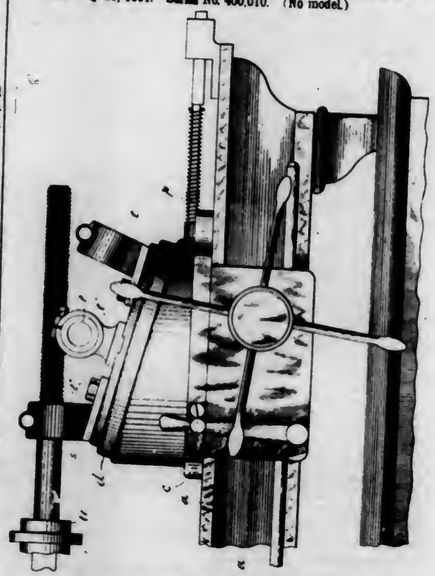
3. In a hanger, the combination of a center bar for supporting the track and side braces, such braces being independent of the center bar, abutting at one end against the same and having at the other end means for fastening the same to a tree, whereby the braces may be adjusted to permit the hanger to be attached to trees of varying sizes, substantially as described.

4. The combination of a center bar provided with a fixed jaw, a movable jaw secured thereto, means for operating the movable jaw, braces for preventing the vertical movement of the center bar, such bar and braces lying in substantially the same plane, and adjustable side braces secured to the tree and engaging with the center bar or vertical braces, substantially as described.

5. A hanger comprising a center bar having a stationary and a movable jaw, means for operating such movable jaw, braces for preventing any movement of the bar in a vertical plane, and side braces abutting at one end against the center bar or vertical braces and secured at the other end to the tree, such side braces being separate from the center bar, with their outer ends free to move, as desired, and provided with means for fastening, whereby they may be adjusted to permit the hanger to be attached to trees of varying diameters, substantially as described.

6. The combination of a center bar to support the track, a brace placed beneath such bar and provided with forks to receive and hold the same, a brace placed above the bar and provided with a slot to receive and hold the same, and side braces separate from the bar abutting at one end against the bar or other braces, provided at their outer ends with means for fastening and free to move at their outer ends, whereby the center bar is held from moving in all directions, while the braces may be so adjusted as to allow the hanger to be attached to trees of varying sizes, substantially as described.

481,356. TURRET-LATHE. JAMES HARTNESS, Springfield, Vt. Filed July 20, 1891. Serial No. 400,010. (No model.)

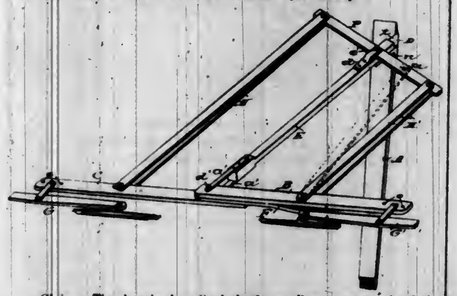


Claim.—1. In a turret-lathe or screw-machine of the class hereinbefore described, the combination, with the bed, the work-holding chuck, and other essential parts, of an inclined turret having a series of operating-tools projecting above its upper surface, the inclination of the turret being such as to elevate the tool which is in operative position or nearest the chuck and depress the opposite tool, whereby the work is enabled to project across the turret from the operating-tool without contact with the opposite tool, as set forth.

2. The combination, with the bed, the work-holding chuck and other essential parts, of a carrier having an inclined seat and an inclined bearing at its central portion, the highest part of said seat being nearest said chuck, and a turret formed to rest in an inclined position on said seat and having a shaft journaled in said bearing, said turret having operating-tools projecting above its upper surface, as set forth.

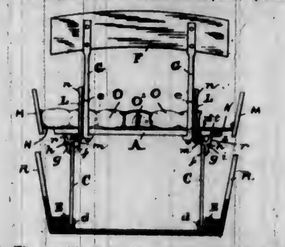
3. A lathe provided with a work-holding chuck and a tool-carrying turret inclined downward from the said chuck and provided with a series of operating-tools, the highest part of the turret being nearest the chuck, so that the operating-tool at the front of the turret is raised above the opposite tool, as set forth.

481,357. DRAFT-EQUALIZER. ALSON HUNT, Atlantic, Iowa. Filed Sept. 25, 1891. Serial No. 406,849. (No model.)



Claim.—The herein-described draft-equalizer, composed of the tongue A, the bar E, secured to the tongue, the spring-support F, secured to the tongue, the levers B and C, pivoted at their inner ends to the outer ends of the bar E and support F by a common pivot, the lever P, pivoted to the bar E, the parallel bars H, pivoted at their forward ends to the lever C and at their rear ends to the lever P, and the parallel bars A', pivoted at their forward ends to the lever B and at their rear ends to the lever P, all combined substantially as described.

481,358. JUMP-SEAT FOR VEHICLES. GEORGE H. HUTTON, Baltimore, Md. Filed Apr. 23, 1892. Serial No. 430,327. (No model.)



Claim.—1. The combination of the seat, movable sides therefor supported by sliding arms N, which rest on the seat, pivoted legs supporting the seat, swinging irons I under the seat for locking the said pivoted legs and located on the outer sides of the latter, said irons provided with prongs r, projecting upward beyond the pivots of said swinging irons and loosely engaging the slide-arms which support the seat sides, and also having lateral arms m, a seat-back, jointed irons connecting said back with the seat, and rods connecting said jointed irons and the lateral arms of the swinging leg-locking irons.

2. A jump-seat for vehicles having extensible sides and extensible cushions connected to said sides.

3. The combination of the seat, extensible sides therefor supported by slide-arms resting on the seat, and an extensible cushion connected to said slide-arms.

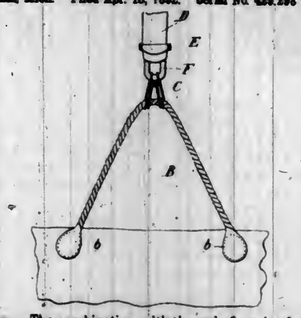
4. The combination of the seat, extensible sides therefor having slide-arms connected to them and resting on the upper side of the seat, said arms having hooks formed at the ends, and cushion-pieces joined by a flexible web and engaged by said hooks, substantially in the manner and for the purpose described.

481,359. MASSAGE APPARATUS. ARTHUR KARN, New York, N. Y. Filed Dec. 28, 1891. Serial No. 416,340. (No model.)



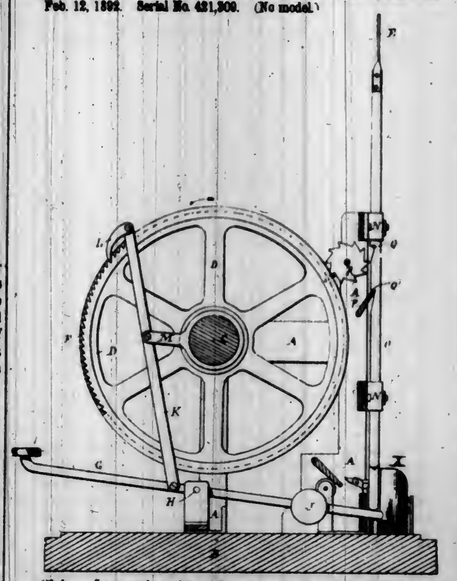
Claim.—A massage apparatus consisting of a reservoir the head of which is perforated and is provided with a number of warts, substantially as specified.

481,360. SUSPENDER-END ATTACHMENT. JOHN LEES, Jr., Adrian, Mich. Filed Apr. 15, 1892. Serial No. 429,296. (No model.)



Claim.—The combination, with the end of a pair of suspenders, of loops formed of curved braided strips having flat securing portions at their lower ends to be permanently secured to trousers, a spring-hook formed of a single piece of wire bent at its middle to form a hook c, the shanks of which are bent, respectively, into coils constituting registering eyes through which the strip passes, the ends of the wire terminating in spring-arms and carried up and engaging below the hook portion, and an eye F on the end of the suspenders with which the hook engages, substantially as described.

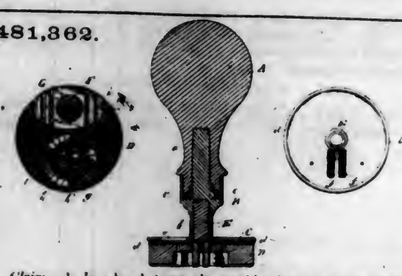
481,361. CASH-REGISTER. CHARLES LENZ, Acton, England. Filed Feb. 12, 1892. Serial No. 421,309. (No model.)



Claim.—In a cash-register, the combination, with a plurality of independent drums or wheels, a shaft on which said drums or wheels are revolubly, a portion of the peripheries of said drums having teeth, bars K, having pawls L secured at their upper ends, said bars being secured to levers G, loose collars mounted on said shaft, each carrying a projecting arm M, pivoted at its outer end to bar K, weights J, attached to levers G, and vertically-movable disk-rods resting upon the inner ends of said levers G, substantially as set forth.

481,362. HAND-STAMP. FREDERICK C. LIDER, New York, N. Y. Filed May 15, 1889. Renewed Oct. 6, 1891. Serial No. 407,908. (No model.)

481,362.

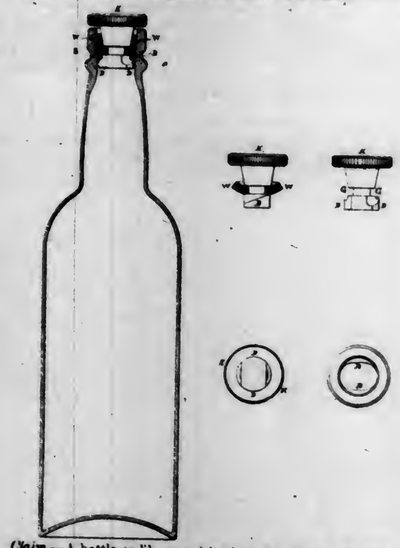


Claim.—1. In a hand-stamp, the combination, with a stock provided with a socket and a circumferential groove surrounding the same, of types provided with projections and an expansion-ring, as set forth.

2. In a hand-stamp, the combination, with a stock provided with a socket, of a series of sets of type and expansion-rings, as set forth.

3. In a hand-stamp, a stock provided with a socket, in combination with removable type located in said socket and a spring-ring pressing against the type and holding them in place.

481,363. BOTTLE-STOPPERING DEVICE. MATTHEW L. MACAULEY, Glasgow, Scotland. Filed Mar. 16, 1891. Serial No. 385,463. (No model.) Patented in England Sept. 24, 1887, No. 12,938.



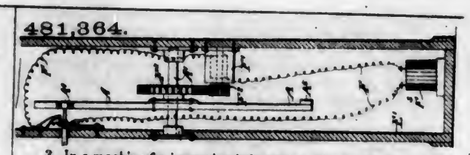
Claim.—A bottle or like vessel having ribs within the neck on opposite sides in a plane at right angles to the passage in the neck, in combination with a stopper provided at its inner end with projections having inclined or screw-like upper surfaces and adapted to pass down between the bottle-neck ribs and turn under them when the stopper is fully in and also provided with a groove immediately above the projections, and an elastic washer held in said groove and adapted to bear upon the internal ribs when the stopper is in place, all substantially as described.

481,364. TRAIN-INDICATOR. HERBERT L. MANTON, Melbourne, Victoria. Filed Dec. 1, 1891. Serial No. 413,752. (No model.)

Claim.—1. In a machine for imparting information, the combination, with a casing having a reading-opening, of a dial carrying a series of tabulated statements and having a corresponding number of holes at different distances from its axis, a series of press-button plugs mounted in bearings in the casing and corresponding in number with the holes in dial, and means for rotating the dial, for the purpose set forth.

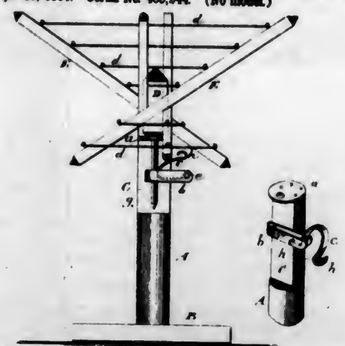
2. In a machine for imparting information, the combination, with a dial having a series of holes at different distances from its axis, of a series of spring-retracted press-button plugs having reduced ends, forming shoulders to limit the entry of the plugs into the said holes, substantially as described.

481,364.



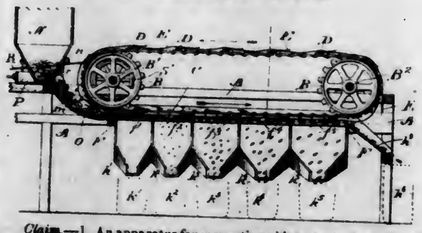
3. In a machine for imparting information, the combination, with a casing having a suitable reading-opening, of a dial carrying a series of tabulated statements and having a corresponding number of holes at different distances from its axis, a series of press-button plugs mounted in a row of bearings formed in the casing and having springs to normally keep them out of engagement with the holes in the dial, and means for rotating the dial, substantially as described.

481,365. CLOTHES-DRIER. JOHN L. MATHER, Lanark, Ill. Filed Sept. 10, 1891. Serial No. 405,244. (No model.)



Claim.—The stock A, having at the upper end a rabbet with the perforated plate *a* above it, and below said plate the band *b*, attached to the flat face C, said plate carrying a pivoted spring-latch *c*, in combination with the reel-head D, having a bottom bolt *g*, whereby the reel may be conveniently held in the positions specified.

481,366. GRAIN-SEPARATOR. JOSEPH MENGE, New Orleans, La. Filed Apr. 8, 1892. Serial No. 428,390. (No model.)



Claim.—1. An apparatus for separating oblong grains from shorter grains or smaller particles of foreign matter, comprising a fixed screen having holes of less diameter than the length of the oblong grains and moving flaps adapted to lie upon and drag the mixed grain over said screen, substantially as described.

2. An apparatus for separating oblong grains from shorter grains or small particles of foreign matter, comprising a graded fixed screen having a number of small holes at one end and a number of holes increasing in diameter toward the other end, with suitable receptacles under said holes, and moving flaps adapted to lie upon said grain and to drag it along over said screen, substantially as and for the purposes described.

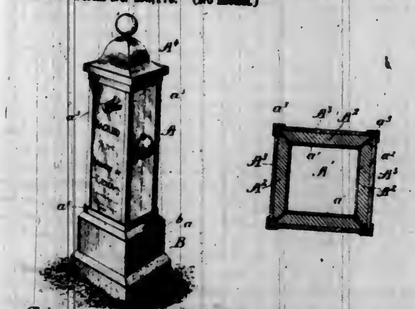
3. An apparatus for separating oblong grains from shorter grains or small particles of foreign matter, comprising a fixed screen having holes of less diameter than the length of the oblong grains, and an endless drag of the character described, with flaps adapted to lie upon the mixed grain and to drag it over said screen, substantially as described.

4. In an apparatus of the character described, the combination, with two pairs of sprocket-wheels and means for driving the same, of endless chains meshing in said sprocket-wheels, slats spanning said chains and secured thereto, and pads attached at one end to said slats and free at the other, a screen beneath said pads and adapted to be swept thereby, and means for feeding the grain onto said screen, substantially as described.

5. In an apparatus of the character described, the combination, with two pairs of sprocket-wheels and means for driving the same, of endless chains meshing in said sprocket-wheels, slats spanning said chains and secured thereto, and pads attached at one end to said slats and free at the other, a screen with holes less in diameter than the length of a whole grain beneath said pads and adapted to be swept thereby, and means for feeding the grain onto said screen, substantially as described.

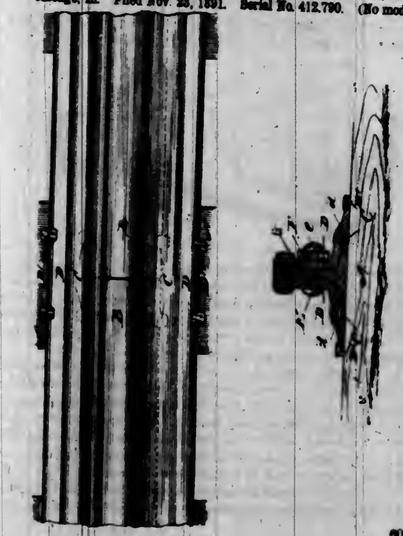
6. In an apparatus of the character described, the combination, with two pairs of sprocket-wheels and means for driving the same, of endless chains meshing in said sprocket-wheels, slats spanning said chains and secured thereto, and pads attached at one end to said slats and free at the other, a graduated screen having fine holes toward one end thereof and coarser holes toward the other end thereof, the said holes being all less in diameter than the length of the longest grains to be separated, the said screen being placed beneath the said pads and being swept by them, and means for feeding the grain onto said screen, substantially as described.

481,367. MEMORIAL MONUMENT. JOSEPH MITCHELL, Cayuga, Ind., assignor of one-fourth to Milton James, same place. Filed May 7, 1892. Serial No. 432,176. (No model.)



Claim.—A monument consisting of a base-piece of stone or other suitable material, a polygonal hollow metallic frame mounted upon said base-piece with radial ribs terminated by arrow-head angle-flanges at the edges of said polygon, panels of plaster-of-paris or stone placed between said radial ribs, and glass plates covering said panels, the edges of said glass plates and panels being covered by the said arrow-head angle-posts, substantially as described.

481,368. RAILWAY CONSTRUCTION. WILLIAM J. MORDEN, Chicago, Ill. Filed Nov. 23, 1891. Serial No. 412,790. (No model.)



Claim.—1. In means for securing track-rails, the combination, with the rail, of continuous brace-bars having one member thereof secured with the web of the track-rail and the other member thereof provided with seats to receive the heads of the track-rail spikes, substantially as described.

2. In means for securing railway-rails, the combination, with said rails, of continuous bars joined end to end and having members fitted beneath the head of the track-rail, against the web, and upon the foot thereof, grooves in the lower members of said bars to receive the heads of the track-spikes, and bolts or rivets for securing the bars and rails together, substantially as described.

3. In means for securing railway-rails, the combination, with rails having perforations through their webs, of angle-bars joined end to end and having elongated apertures registering with the said perforations, and horizontal members overlapping the track-rail spikes and secured to the ties, and bolts or rivets passed through said apertures and perforations to secure the bars and rails together, substantially as described.

4. In means for securing railway-rails, the combination, with said rails having perforations therein, of angle-bars having in their upright members elongated apertures registering with said perforations, the horizontal members of the bars provided with seats for and overlapping the rail-spikes, rivets having their shanks passed through said perforations and apertures, washers applied to the ends of said rivets, and the rivets headed over said washers, substantially as described.

5. The combination, with railway-rails, of continuous angle-bars secured therewith, substantially as described, whereby said bars serve as fish-bars to maintain the rails in alignment, and said bars having their lower members overlapping the rail-spikes, substantially as described.

6. In combination with railway-rails, continuous angle-bars secured therewith, substantially as described, such bars having upright members provided with grooves on their inner faces and metallic conductors inserted in said grooves, and means for securing the bars to the rails, whereby to clamp and protect the conductors, substantially as described.

481,369. CONDUCTOR'S TRIP-SLIP. EDWIN H. MURDOCK, Cincinnati, Ohio. Filed Dec. 26, 1891. Serial No. 416,135. (No model.)

Claim.—1. The within-described method of protecting railway-tickets, &c., from being used a second time, which method comprises a conductor's trip-slip having the names of the various stations arranged on it in regular order and numbered consecutively, and a cancelling device wherewith is applied to said slip opposite a passenger's destination two numbers that indicate the station where he got on, said device being then used to mutilate the slip by cutting therefrom a piece containing a number for each of said stations, which severed piece is retained within said cancelling device, substantially as herein described.

2. A conductor's trip-slip consisting of the head A and foot C of the same color or design and inscribed with the names of the stations, their numbers and spaces *a c*, the body B, inscribed with the names of the stations, and the columns D E, of different colors or designs, ar-

ranged on opposite sides of said body inscribed with the numbers of said stations and having spaces *d e*, for the purpose stated.

3. A conductor's trip-slip consisting of the head A *a*, body B, foot C *c*, and columns D *d* E *e*, arranged and inscribed as herein set forth, said head and foot being of the same colors or designs, the columns being of different colors or designs and said colored or designed portions being duplicated on the back of said slip, as at A', C', D', and E', as described.

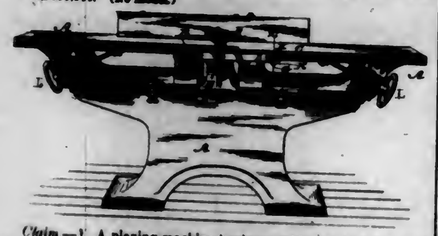
4. A conductor's trip-slip, including the head A, body B, foot C, and columns D E, of different colors or designs, inscribed and numbered, as herein set forth, and for the purpose stated.

481,370. BURIAL-CASKET. JOHN N. PRUSER, Union Hill, N. J. Filed Feb. 15, 1892. Serial No. 421,578. (No model.)



Claim.—A burial-casket of earthy material constructed of the body A, having a continuous metallic rim embedded around its upper edge flush with the outer surface thereof, the edges of said frame being bent or turned inwardly to enter the material, nuts also embedded in the material beneath the frame, and the lid having a similar rim around its edge and provided with fastening-screws for entering the nuts of the body, substantially as described and shown.

481,371. PLANING-MACHINE. LOUIS T. PYOTT, Philadelphia, Pa., assignor to L. Power & Co., same place. Filed June 13, 1890. Serial No. 355,311. (No model.)



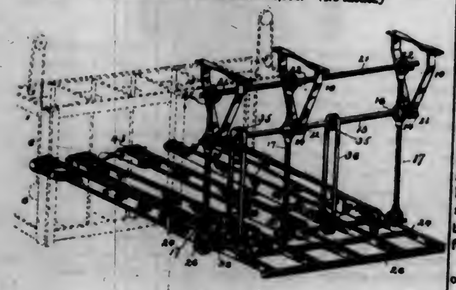
Claim.—1. A planing-machine having a table capable of vertical adjustment and an extension or rest detachably connected to the edge of one part thereof, substantially as described.

2. A planing-machine having a table capable of vertical adjustment and an extension or rest adjustable to and from one edge of said table, substantially as described.

3. A planing-machine having a table capable of vertical adjustment with a slot in the edge thereof and an extension or rest having a headed bolt to adjustably engage said slot of the table, substantially as described.

4. A planing-machine having a table capable of vertical adjustment, an extension or rest with a flange attachable to said table, and means for connecting said parts, substantially as described.

481,372. CARVING-MACHINE. JOHN K. REBEL, Hughesville, Pa. Filed Nov. 11, 1891. Serial No. 411,556. (No model.)



Claim.—1. The combination of a series of horizontally-disposed carving-arms adapted to oscillate in vertical planes, a counterbalancing-rod connecting said arms, a counter-shaft, means for suspending the carving-arms beneath the counter-shaft, a cutting or operating tool on the extremity of each carving-arm, and means for operating the counter-shaft and transferring its motion to the cutting-tools.

2. The combination of a counter-shaft, supporting-arms mounted thereon and adapted to oscillate thereon both from side to side and forward and backward, carving-arms carried by said supporting-arms, cutters on the ends of the carving-arms, and means for operating the counter-shaft and the cutters.

3. The combination of carving-arms, a counter-balance therefor, a shaft connecting said arms, supporting-arms having an eye or loop through which the counter-shaft passes and another loop or eye at their lower extremities wherein the shaft connecting the carving-arms is supported, cutters on the ends of the carving-arms, and means for operating the counter-shaft and the cutters.

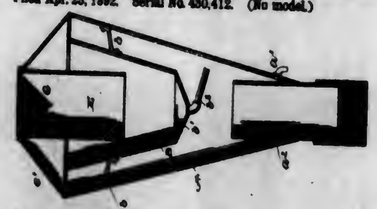
4. The combination of counterbalanced carving-arms having their inner ends provided with cutters, a shaft connecting the carving-arms, arms for suspending the carving arms, provided at their ends and intermediate said ends with eyes or loops, a counterbalance-rod secured in the upper eyes by set-screws, sleeves secured centrally in the intermediate eyes or loops and supporting the arms, sleeves secured centrally in the lower eyes or loops and in which lateral extensions from the carving-arms are journaled, and means for operating the cutters.

5. The combination of a shaft or shafts, means for rotating the same, carving-arms provided with fixed bearings for the journals of the shafts so as to have a pivotal movement independent thereof, sleeves loosely mounted on said bearings, and supporting-arms having eyes or loops in which said sleeves are pivotally secured.

6. In a carving-machine, the combination of carving-arms and an intermediate guiding-arm, socketed bearings passing through the carving-arms, said bearings upon the two outer arms and one of the intermediate arms being extended laterally, shafts having their ends journaled in said bearings and passing through the guiding-arm, sleeves loosely mounted upon the extended bearings, a counter-shaft above the carving-arms, supporting-arms provided with eyes or loops to receive the loose sleeves, and means for transferring the rotary movement of the counter-shaft to the shafts of the carving-arms and from the latter to the cutting-tools, substantially as set forth.

7. In a carving-machine, the combination of brackets provided at their lower ends with square or rectangular frames, journal-boxes having square or rectangular portions registering therewith, a counter-shaft provided with pulleys and having its ends bearing in the journal-boxes, sleeves loosely mounted upon the cylindrical portions of the journal-boxes, counterbalanced supporting-arms provided with eyes or loops, one set of eyes or loops being secured to the loose sleeves by set-screws, sleeves fitting and secured within the lower eyes of the series, carving-arms provided with lateral extensions turning in the sleeves, a shaft or shafts journaled in said carving-arms and carrying pulleys to receive one belt from the pulley of the counter-shaft, and also a belt connecting with the pulley of the cutting-tool, substantially as set forth.

481,373. EXHAUST-HEAD. JAMES L. ROBERTSON, New York, N. Y. Filed Apr. 23, 1892. Serial No. 430,412. (No model.)



Claim.—1. The herein-described improved exhaust-head, comprising the outer casing having the lower inlet and upper outlet pipes, the inner casing located within and secured to said outer casing, forming a passage-way between itself and said outer casing, and the foraminous plate or screen located in said passage-way at right angles to the line of passage of the steam, substantially as set forth.

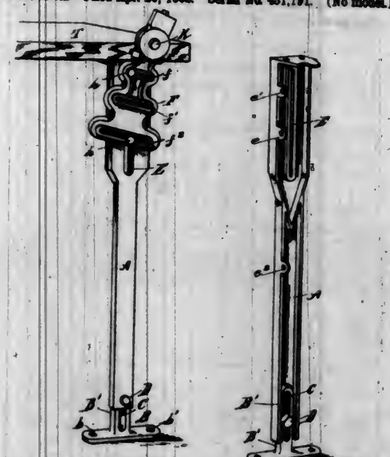
2. The herein-described improved exhaust-head, comprising the outer casing having the lower inlet-pipe, the inner casing located within and secured to said outer casing, the foraminous plate or screen located in the passage-way between said outer and inner casings and at right angles to the passage of the steam, and the outlet-pipe depending from the top of said outer casing down into said inner casing and having a foraminous plate or screen located therein, substantially as set forth.

3. The herein-described improved exhaust-head, comprising the outer casing, the inner casing located within said outer casing, the

arms supporting the same, the foraminous plate or screen secured to the upper end of said inner casing and also to said outer casing, the outlet-pipe depending from the top of said outer casing down into said inner casing, and the cone-shaped foraminous plate or screen secured to the upper end of said outlet-pipe, substantially as set forth.

4. An exhaust-head having its outer casing provided with a beveled or inclined inner flange or lower thickened end and the outlet-tube extending from said casing at the lowest point of said flange or thickened end, in combination with the inner casing and the inlet and outlet pipes, substantially as set forth.

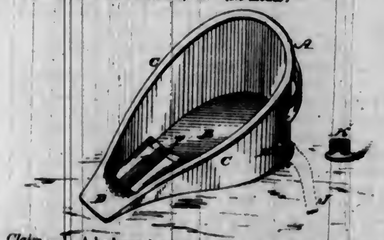
481,374. PEGGING-JACK SUPPORT. WILLIAM M. SAWYER, Detroit, Mich. Filed Apr. 20, 1892. Serial No. 431,191. (No model.)



Claim.—1. In a pegging-jack, an adjustable support consisting of a standard provided with a vertical slot at its upper end, combined with a swinging last-support provided with two or more horizontal slots of different lengths and bolts adapted to secure the parts adjustably together, substantially as and for the purposes described.

2. In a pegging-jack, the combination of a foot-piece, a standard secured thereto and vertically adjustable thereon, a swinging last-support provided with horizontal adjusting-slots, and holding-bolts passing through the horizontal slots and through a vertical slot in the standard and securing the standard and last-support together, substantially as and for the purposes described.

481,375. BED-PAN. SARAH A. SMITH, Philadelphia, Pa. Filed Aug. 13, 1891. Serial No. 402,501. (No model.)



Claim.—1. A bed-pan having a body with a chamber in the front part thereof, an inclined gutter in the rear of said chamber, and a discharge-nozzle on said body, said parts being combined substantially as described.

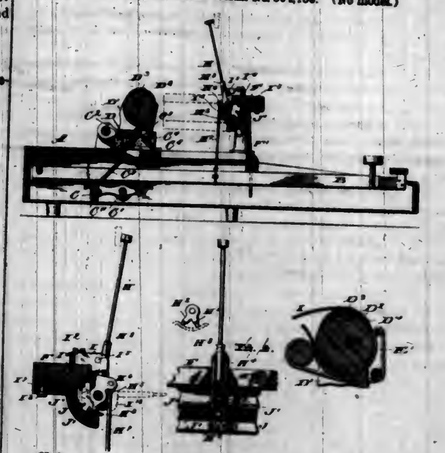
2. A bed-pan having a gutter E in the body thereof at or near the front thereof, said gutter being raised above the bottom, bearing the shoulder F, substantially as described.

3. A bed-pan having a body with sides ascending from front to rear, a raised gutter on the bottom of said body, and a discharge-nozzle, substantially as described.

4. A bed-pan having a body with a front portion D, a guard G in said portion, and a gutter E at the rear of said portion, said gutter being raised, forming the shoulder F, substantially as described.

5. A bed pan having an advanced portion with an under-cut at its inner end, forming a guard, and a gutter inclined from front to rear and raised above the bottom of the pan, terminating in a shoulder, said guard rising above said gutter, said parts being combined substantially as described.

481,376. TYPE-WRITING MACHINE. CHARLES SPIRO, New York, N. Y. Filed May 26, 1891. Serial No. 394,159. (No model.)



Claim.—1. A crescent-shaped grooved impression-bar and a rubber or other material arranged in the groove of the bar, in combination with and placed over a cylindrical rotary platen, substantially as specified.

2. The combination of the rotary platen E, bar D^3, bands E', and impression-strip D^2, placed over the platen and terminating at one side near the feed-bands, substantially as specified.

3. The combination, with the platen E and risers D', of the crescent-shaped bar D^3, strip D^2, and pins D^4, substantially as specified.

4. A spring-drum having a removable cap, a centrally screw-threaded spindle, and an interiorly-threaded collar having a lug, substantially as specified.

5. In a spring-drum of the character described, a spindle having an enlarged body portion, a reduced adjacent screw-threaded portion, and an interiorly-threaded collar having a lug, substantially as specified.

6. The combination, with a spring-drum, of a spindle having a disk at its lower end, a stationary pin, a base supporting the pin and spindle, an interposed spring, and a movable device for insertion beneath the drum, substantially as specified.

7. The combination, with the rack-bar of a platen-carriage, of two pawls arranged in a common vertical plane, one longer than the other and each connected at different points with relation to their pivots with a universal ball, substantially as specified.

8. An escapement for a carriage-feed, comprising a pawl fixedly connected with the universal ball and a companion pawl movably connected with said ball by a single link, substantially as specified.

9. The combination, with a ball, of two pawls, one connected with the ball at a point beyond its pivot and the other connected with the ball at a point between its pivot and its free end, substantially as specified.

10. The combination of two pawls and a ball to which both are directly connected at points at opposite sides of their pivots, and a spring interposed between the pawls, substantially as specified.

11. The combination, with two pawls operating with a common rack-bar, of two links, the one fixedly connecting one of the pawls with the ball and the other adjustably connecting the other pawl with the ball, substantially as specified.

12. The combination, with the carriage feed-rack of a type-writing machine, of a pawl pivotally mounted on a fixed part of the machine, a link extending from the point on the pawl beyond its pivot to a ball, and means for fixedly connecting said link to the ball, substantially as specified.

13. The combination, with the carriage feed-rack of a type-writing machine, of a pawl pivotally mounted on a fixed part of the machine, a link pivotally connected with the pawl between its pivot and the free end and extending to a ball, and means for connecting the pawl to the ball, to permit of a slight relative independent movement of the link on the ball, substantially as specified.

14. The combination, with the universal ball of a type-writing machine, of two links and two pawls, the links extending directly from

the ball to the pawls, one of said links being fixedly connected with the ball and the other movably connected with the bail, substantially as specified.

15. A key-lever having a V-shaped bifurcated end, in combination with a key resting on the ends of the bifurcations, substantially as specified.

16. A key-lever having resilient bifurcations at its ends, substantially as specified.

17. The combination, with a bifurcated key-lever, of a key having a recess adapted to receive the ends of the bifurcations, substantially as specified.

18. A type-bar provided with a pinion at one end, in combination with relatively-fixed means in the path of the bar for rotating or partially rotating said bar, substantially as specified.

19. A type-bar having a pinion at its end, in combination with relatively-fixed means in the path of the bar for rotating or partially rotating the pinion and bar in opposite directions, substantially as specified.

20. A type-bar having a pinion at its end and relatively-fixed means in the path of the bar for rotating or partially rotating the said pinion in either direction, substantially as specified.

21. A type-bar having a pinion at its end and means for rotating the pinion, located on opposite sides of the pinion and capable of moving into and out of mesh therewith.

22. A type-bar having a pinion at one end, a printing character at the other end, and an intermediate pivot, whereby a pivotal movement of the type-bar moves the pinion bodily and renders it capable of rotation by contact with a fixed pinion-rotating mechanism arranged in the path of said bar, substantially as specified.

23. A type-bar carrying a printing character at one end, a rotating mechanism at the other and intermediately pivoted, in combination with a relatively-fixed pinion-rotating mechanism arranged in the path of the bar, whereby the printing character at one end of the bar is bodily rotated to be presented at one end of the movement of the bar to an inking-pad and at the opposite end to a printing-point, substantially as specified.

24. The combination, with a rotatable type-bar and means for partly rotating the same, of a movable pinion-rotating mechanism arranged in the path of said bar and on opposite sides of its pinion, substantially as specified.

25. The combination, with a rotatable type-bar and with movable mechanism arranged in the path of said bar and on opposite sides of its pinion for rotating the same, of locking devices for maintaining the movable rotating mechanism in a shifted position, substantially as specified.

26. The combination, with a rotatable type-bar and its rotating mechanism arranged in the path of said bar and on opposite sides of its pinion, of a locking mechanism for preventing the rotation of the type-bar at the end of its movement, substantially as specified.

27. The combination, with a rotatable type-bar and its pinion and with the pinion-rotating mechanism arranged in the path of said bar and on opposite sides of its pinion, of locking mechanism for preventing the rotation of the bar as and after it leaves its rotating mechanism, substantially as specified.

28. A type-bar bracket consisting of a bent plate riveted together at its ends, having an adjusting-screw connecting the sides, and intermediate type-bar bearings, substantially as specified.

29. A type-bar bracket connected at its ends by a rivet provided with type-bar bearings and with an adjusting-screw, said bearings being between the rivet and the adjusting-screw, substantially as specified.

30. The combination, with a rotatable type-bar and with the mechanism arranged in the path of said bar, comprising a pinion and pins arranged at opposite sides thereof for causing its rotation, of a lever connected with the rotating mechanism and a locking device for securing the lever in a desired position, substantially as specified.

31. The combination, with a key-lever and the type-bar rotating mechanism, which is movable, of a lever actuated by the movement of said mechanism for the purpose of producing a locking of said mechanism against return movement, substantially as specified.

32. The combination, with a rotatable type-bar, of mechanism for rotating the same in opposite directions and a lever for locking the rotating mechanism, substantially as specified.

33. The combination, with a rotatable type-bar, movable rotating mechanism arranged to be projected into the path of the bar at either side thereof, and mechanism for locking the rotating mechanism operatively connected with the key-levers of the machine, substantially as specified.

34. The combination, with a rotary type-bar and with means arranged in the path of said bar for rotating the same, of locking mechanism controlled by a key-lever, substantially as specified.

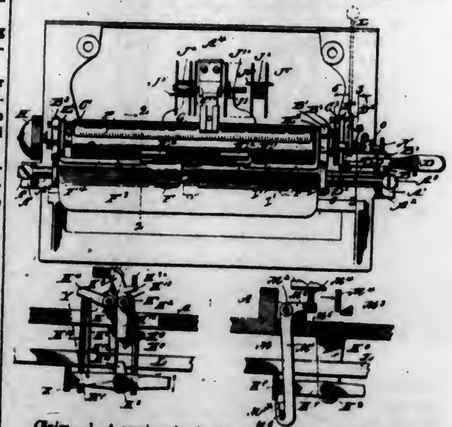
35. The combination, with a rotary type-bar and with the mechanism for rotating the same, of locking devices operatively connected with the universal bail of the machine, substantially as specified.

36. The combination, with a bar-rotating mechanism, of a lever mounted on an adjacent fixed part of the machine and adapted to lock said movable mechanism against movement, substantially as specified.

37. The combination, with the movable character-selecting and bar-rotating mechanism, of a lever pivoted to an adjacent fixed part of the machine, the key-bars, and intermediate connecting devices, which, through the operation of the key-bars, serve to lock movable mechanism against movement, substantially as specified.

38. The combination, with a rotatable type-bar having a pinion, positively-arranged pinion-operating devices mounted on a movable part, of an adjacent fixed part having a toothed locking-lever carried by the movable part and provided with a pawl, a universal bail, and a device connecting the bail with the pawl, substantially as specified.

481,877. TYPE-WRITING MACHINE. CHARLES SPIRO, New York, N. Y. Filed Jan. 5, 1892. Serial No. 417,100. (No model.)



Claim.—1. A carriage having forwardly-inclined open bearings in its risers and having upon each riser a pivoted hook, the free end of which is extended to form a rearwardly-inclined edge, in combination with a platen the journals of which are extended beyond said bearings and adapted to force said hooks away from said open bearings, and springs for forcing said hooks over said journals, substantially as specified.

2. The combination, with a platen, line-spacing gears, and pawl, of a pawl-arm having steps and a lever mounted for projection into the path of the different steps of the pawl-lever, substantially as specified.

3. The combination, with the line-spacing gear of a platen and its pawl, of a pawl-arm and a detent mounted to operate in a plane parallel with the gear on a common pivot independently of each other, and a spring for operating the detent, arranged independent of the pawl-arm, substantially as specified.

4. The combination, with a line-spacing gear and its pawl-arm, of a detent mounted for independent movement on the pawl-arm pivot and carrying a pawl-arm-obstructing device, substantially as specified.

5. The combination of a line-spacing pawl, its lever and its arm, a detent mounted on the pivot of the pawl-arm, and a pawl-arm-limiting device pivoted on the detent and capable of springing into and out of contact with the pawl-arm, substantially as specified.

6. The combination, with a line-spacing pawl, its arm, and a detent, and with the line-spacing gear, of a lever pivoted on the detent, a secondary detent for said lever fixed to the primary detent, and means for oscillating the secondary lever on its pivot, substantially as specified.

7. The combination, with the carriage and its platen, of a bell-crank lever pivoted to the carriage, an interposed spring for raising one arm of the lever, a pawl-arm and pawl operatively connected with the lever, and a detent carrying a pawl-arm-limiting device, substantially as specified.

8. The combination, with a platen, of a pressure-roller carried by a support mounted on a pivot located at a point between the ends of the roller, substantially as specified.

9. The combination, with a platen, of a pressure-roller carried by a pivoted spring-pressed yoke, the pivot of which is located at a point between the ends of the roller, substantially as specified.

10. The combination, with a platen, of a bail carrying a pressure-roller in a yoke pivoted to the bail, the pivot of which is located at a point between the ends of the roller, substantially as specified.

11. The combination, with a platen, of a shelf or plate pivotally mounted on the carriage and extended along the platen and a roller carried by the shelf or plate and mounted on a pivot located between the ends of the roller for alignment with the platen, substantially as specified.

12. The combination, with a platen, of two or more rollers arranged adjacent to and to bear upon the platen and each mounted on a pivot located between the ends of the roller, whereby said rollers are free to align themselves with and to the surface of the platen, substantially as specified.

13. The combination, with a platen, of two bails mounted for movement in opposite directions away from the platen and each carrying pivoted yokes and pressure-rollers mounted therein and a pivoted guard-plate, said plate being provided with an eye for connection with a hook upon the carriage, substantially as specified.

14. The combination, with the spring-drum and its spindle having portions thereof removed, of a sleeve adapted for connection with the spring and with the spindle, substantially as specified.

15. The combination, with a spring-drum of a type-writing machine and the tape thereof, of a stud or projection fixed upon the machine adjacent to the drum and a plate secured to the tape and projecting from the surface thereof, said plate being provided with an eye for connection with a hook upon the carriage, substantially as specified.

16. The combination, with the spring-drum, of its spindle passing through the base of the machine, a gear of the character described secured to the spindle at the lower side of the base, and a gear-operating disk arranged to mesh with the gear and mounted upon an adjacent spindle passing up through the base of the machine and having a slotted head, substantially as specified.

17. A ribbon-spool having oppositely-projecting circumferentially-grooved pins, in combination with a spool-gear having a circumferentially-grooved hub and a pin-retaining spring, substantially as specified.

18. The combination, with a hub and a ribbon-spool adapted to be connected therewith, of a spring ring lying in the plane of an aperture in the hub, substantially as specified.

19. A spool-gear having a circumferentially-grooved and perforated hub, a ribbon-spool adapted to be connected therewith, and a ring arranged within the groove and having its ends bent, substantially as specified.

20. The combination, with a carriage and its rack, of independently-pivoted spring-pressed pawls and means for alternately storing tension in said springs, which springs are put under tension to throw the pawls into mesh with the rack, substantially as specified.

21. The combination, with the feed-rack, of independently-pivoted pawls, a universal bail, springs extending from each pawl to the bail, and means mounted on the bail for operating the pawls, substantially as specified.

22. The combination of a feed-rack, independently-pivoted pawls, a universal bail, and a yielding and rigid device connecting the bail with each of the pawls, substantially as specified.

23. The combination of a feed-rack, two pawls, and yielding and rigid devices for operating each pawl, said devices being arranged at different points on the universal bail, substantially as specified.

24. The combination, with a feed-rack, of two pawls, a universal bail, springs extending from each pawl to the bail, and rigid devices for operating the pawls, projecting from the bail and from points on opposite sides of its shaft, substantially as specified.

25. The combination, with a bail, of a movable yielding abutment and means mounted upon the carriage for rendering said abutment operative, as set forth.

26. The combination, with the carriage, of a fixed rack-bar, a rotatable shaft, and a movable section of a rack-bar mounted on said shaft, substantially as specified.

27. The combination, with a carriage, a fixed rack-bar, and a movable section of a rack-bar, of a shaft for carrying the section, mounted for rotation to disconnect the section from the rack-bar, substantially as specified.

28. The combination, with a fixed rack-bar and a movable section of a rack-bar, of a shaft, and a sliding member carrying the section, and means for rotating the shaft, substantially as specified.

29. The combination of a carriage having a projection which is beveled, a fixed rack-bar, and a section of a rack-bar which is movable and provided with a bevel, and a rotatable shaft for carrying the movable section of a rack-bar, substantially as specified.

30. The combination, with the universal bail and the carriage of a type-writing machine, of interposed yielding bail-locking mechanism, substantially as specified.

31. The combination, with the universal bail and the carriage of a type-writing machine, of a bail-locking device and a yielding obstruction or abutment, substantially as specified.

32. The combination, with a bail, of a movable rod, a spring interposed between the rod and bail, and a spring for moving the rod in one direction, and devices operatively connected with the carriage for moving the rod in the opposite direction, substantially as specified.

33. The combination, with a carriage having a bell-trip mounted thereon, of a bell-trip pin, a block adjustable with relation to the bell-trip pin on a sliding rod, a bail, and means for yieldingly connecting the rod with the bail, substantially as specified.

34. The combination, with a margin-gage, of a key-lever and an interposed disconnected pin, substantially as specified.

35. The combination, with the margin-gage comprising a fixed and an adjustable rack, of a rotatable bar carrying the adjustable rack, a key-lever, and connections between the lever and the rotatable bar, substantially as specified.

36. The combination, with a carriage and its spring-drum and feeding-tape, of a gear secured to the spring-drum spindle and a gear rotating and locking disk secured to a spindle arranged adjacent to the spring-drum and accessible for purposes of adjustment from adjacent to or at the upper surface of the base of the machine, substantially as specified.

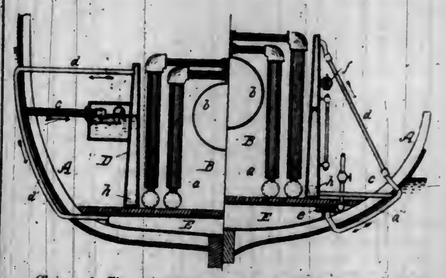
481,878. REFLECTING-SHADE FOR INCANDESCENT LAMPS. LOCRUS T. STANLEY, Brooklyn, N. Y., assignor to the Cutter Electrical and Manufacturing Company, Philadelphia, Pa. Filed Feb. 29, 1892. Serial No. 423,236. (No model.)



Claim.—1. In a reflecting-shade, the combination, with the metallic or reflecting portion inclosing the lamp, of spiral springs, one end of each being secured to the inner surface of the reflector and provided at their ends with catches, and a glass plate over the opening of the reflector and held in position by engagement therewith of the springs, as set forth.

2. The combination, with the reflecting-shade having an upper portion parabolic and a lower portion conical in cross-section, of spiral springs secured at one end to the inner surface of the reflector and having their free ends bent to form lugs or engaging catches, and a glass plate held up against the inner surface of the conical part by engagement therewith of the springs and so that an annular space will be left between the edge of the glass plate and the inner surface of the reflector, as set forth.

481,879. WATER-JACKET AND CONDENSING APPARATUS FOR MARINE BOILERS. THOMAS L. STURTEVANT and THOMAS J. STURTEVANT, Framingham, Mass. Filed Aug. 21, 1891. Serial No. 403,309. (No model.)



Claim.—1. The combination, with a marine boiler, of a water-jacket placed closely adjacent thereto and between said boiler and the shell of the vessel, said water jacket being provided with a feed pipe passing from said jacket all the way to and through the shell of the vessel below the load water-line for the free passage of water in and out and with a suitable steam-discharge.

2. The combination, with a marine-boiler, of a water jacket placed closely adjacent thereto and between said boiler and the shell of the vessel, said water-jacket being provided with a feed-pipe passing from said jacket all the way to and through the shell of the vessel below the load water-line for the free passage of water in and out, a water-storage reservoir, and a steam pipe and condenser forming a communication between said jacket and said reservoir.

3. The combination, with a marine boiler, of a water-jacket placed closely adjacent thereto and between said boiler and the shell of the vessel, said water-jacket being provided with a feed-pipe passing from said jacket all the way to and through the shell of the vessel below the load water-line for the free passage of water in and out, a water-storage reservoir, and a steam pipe and condenser forming a communication between said water-jacket and said reservoir, said condenser being arranged exteriorly of the shell of the vessel.

4. The combination, with a marine boiler, of a water-jacket placed closely adjacent thereto and between the said boiler and the shell of the vessel, said water-jacket being provided with a feed-pipe opening through the shell of the vessel, a water-storage reservoir, a vacuum-forming apparatus, a steam pipe and condenser forming a communication between said water-jacket and said reservoir, and a relief-valve to regulate the passage of steam through said steam-pipe.

5. The combination, with a marine boiler, of a water-jacket placed closely adjacent thereto and between said boiler and the shell of the vessel and provided with a feed-pipe opening through the shell of the vessel, a water-storage reservoir, a steam pipe and condenser forming a communication between said water-jacket and said reservoir, and an injector for producing a partial vacuum in said water-jacket.

481,380. GRINDING-MACHINE. OAKLEY S. WALKER, Worcester, Mass. Filed June 4, 1891. Serial No. 395,063. (No model.)



Claim.—1. In a grinding-machine, a suitable grinding-wheel arbor, a supporting column, a tool-holding support arranged to swing about said column and to be vertically adjusted thereon and clamped at any point of its adjustment, combined with a clamping-collar mounted on the said column adjacent to the tool-holding support, and an angular nut fitted to recesses in both tool-holding support and clamping-collar to prevent a swinging movement of either except in unison with the other, but allowing a separate vertical adjustment of the tool-holding support, substantially as shown and described.

2. In a grinding-machine, the combination of interchangeable grinding-wheel collets and a grinding-wheel arbor suitably arranged and mounted in journal-boxes, with a vertically-swinging tool-holding support swinging around and upon one of the journal-boxes and arranged to be fixedly clamped at any point, for the purpose set forth.

3. The combination of a suitable supporting-column and a grinding-wheel arbor mounted thereon, with interchangeable grinding-wheel collets provided with internally-tapered recesses at one end and internally-threaded recesses at the other end for the reception of a central fastening-screw, as fully set forth.

481,381. MAST-ARM. AUGUSTUS WRIGHT, Providence, R. I., assignor to the Hope Electric Appliance Company, same place. Filed Oct. 14, 1891. Serial No. 408,668. (No model.)

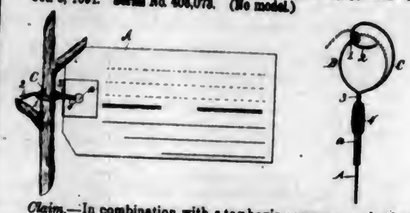


Claim.—1. In a mast-arm, the combination, with a tubular frame formed by the fitting 9 and the side stays 6 and 7 and a cross-arm 8, secured to the butt-ends of said stays, of an upper stay 11, secured to the outer end of said frame and supporting the same, a tension-trolley stay 12 for depressing the outer end of the mast-arm, adapted to support a lamp-carriage, and means for operating said carriage, as described.

2. In a mast-arm, the combination, with a tubular frame formed by the fitting 9 and the side stays 6 and 7, a cross-arm 8, secured to the butt-ends of said stays, an upper stay 11, secured to the outer end of said frame and supporting the same, and a trolley-stay 12, carrying the lamp support or carriage 22, and means for operating said carriage, of a switch secured to the outer end of said tubular frame, adapted to be operated by said carriage to cut the lamp into and out of circuit, as described.

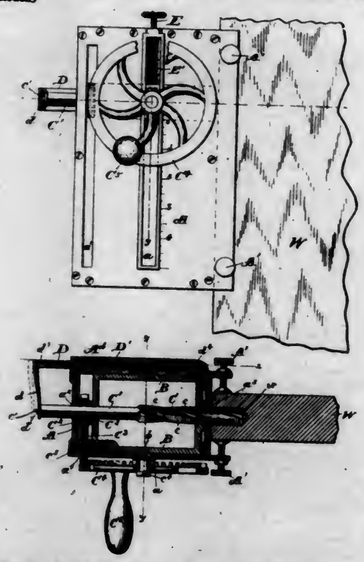
3. In a mast-arm, the combination, with a tubular frame formed by the tubular stays 6 and 7 and the fitting 9, suitably supported and containing electric conductors, the insulating-blocks 25 and 26, secured to said stays and provided with spring contact-plates connected with said conductors, and a spring-operated circuit-closing device also connected with said conductors, of a lamp-carriage 22, moving on a trolley-stay 12 and provided with the contact-plates 24 24, connected with opposite poles of the lamp, and a forwardly-extending bent arm 23, adapted to operate said circuit-closing device, as described.

481,382. TAG-FASTENER. ORRA R. ABBEY, Dalley, Mich. Filed Oct. 8, 1891. Serial No. 408,073. (No model.)



Claim.—In combination with a tag having an eye *a*, a wire fastening device made up of a single piece, which is bent upon itself to form a closed eye 1, the members 3, which extend from the eye 1, being passed through the eye of the tag so as to form a double loop, which engages with the members beyond the edge of the tag, the terminal members 2 being adapted to be passed through the eye 1 and bent to be held in engagement therewith to secure the tag to an object, substantially as shown.

481,383. BORING AND MORTISING MACHINE. GEORGE A. ADAMS, Santa Clara, Cal. Filed Nov. 2, 1891. Serial No. 410,572. (No model.)



Claim.—1. In a combined boring and mortising machine, the combination, with a bit and means for revolving the same, of a spring adapted to press said bit in the direction of its length and a spring adapted to press said bit transversely, substantially as described.

2. In a combined boring and mortising machine, the combination, with a revoluble bit moving in suitable guides, and means for revolving said bit, of a detachable spring adapted to press said bit in the direction of its length and an adjustable spring adapted to press said bit transversely, substantially as described.

3. In a combined boring and mortising machine, the combination, with a guide-frame and means of attaching said frame to the wooden piece to be cut, of an inner frame sliding in said guide-frame, a bit mounted transversely in said inner frame and means for revolving the said bit also mounted on the said inner frame and adapted to slide with the said bit and said inner frame along said outer guide-frame, a detachable spring adapted to press said bit in the line of its axis, and

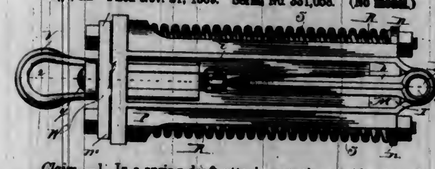
a spring adapted to press said bit transversely to its axis, with means of withholding said latter spring, substantially as described.

4. In a combined boring and mortising machine, the combination, with a guide-frame and means of attaching said frame to the wooden piece to be cut, of an inner frame sliding in said guide-frame, a bit mounted transversely in said inner frame and means for revolving the said bit also mounted on the said inner frame and adapted to slide with the said bit and said inner frame along said outer guide-frame, a detachable spring-operated frame attached to said guide-frame and adapted to press said bit in the line of its axis, and a spring adapted to press said bit transversely to its axis, with means of withholding said spring, substantially as described.

5. In a combined boring and mortising machine, the combination, with a guide-frame and means for attaching said frame to the wooden piece to be cut, of an inner frame sliding in said guide-frame, a bit mounted transversely in said inner frame and means for revolving the said bit also mounted on the said inner frame and adapted to slide with the said bit and said inner frame along said outer guide-frame, a detachable spring-operated frame attached to said guide-frame and adapted to press said bit in the line of its axis and a spring normally compressed between said guide-frame and said inner frame adapted to press said bit transversely to its axis, and a screw adapted to clamp said inner frame in said guide-frame, substantially as described.

6. In a combined boring and mortising machine, the combination, with a slotted guide-frame and means for attaching the said guide-frame to the article to be cut, of an inner frame traveling in said guide-frame and carrying a bit free to revolve and to move transversely to the line of its axis, with means attached to said inner frame for revolving said bit, a spring set between said inner and outer frames, and a clamp-screw for clamping said inner frame in said outer frame against the normal pressure of said spring, substantially as described.

481,384. SPRING DRAFT ATTACHMENT. HIRAM BARBER, Chicago, Ill. Filed Nov. 21, 1889. Serial No. 331,058. (No model.)



Claim.—1. In a spring draft attachment, the combination of the draw-plate P, the draw-bar B, the rods R R, the coil-springs S S, the swivel V, attached to the cross-piece W, the bolt T, and hammer-strap A, hinged to the outer surface of the plate P, all constructed and arranged substantially as and for the purposes herein described.

2. In a spring draft attachment, the combination of the slotted draw-plate P, the draw-bar B, the rods R R, the coil-springs S S, the swivel V, attached to the cross-piece W, the bolt T, the hammer-strap A, hinged to the plate P, the evener E, and the bolt K, all arranged and constructed substantially as and for the purposes herein described.

481,385. COMBINED FOLDING BED, BILLIARD-TABLE, &c. ROBERT H. BARBER, Hopedale, Ill. Filed Mar. 30, 1892. Serial No. 427,095. (No model.)

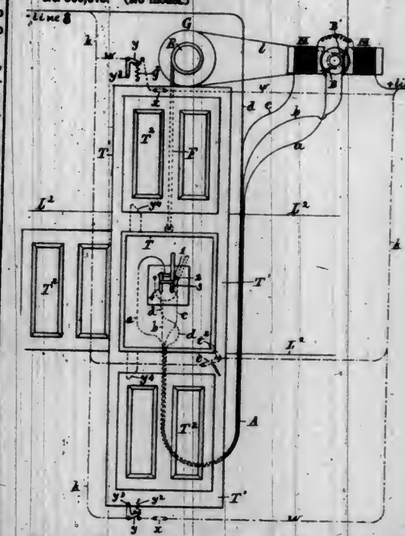


Claim.—1. A combination article of furniture comprising in its organization a main frame or supports intersected by longitudinal strips constructed to hold billiard balls or cues and formed with notches *b b* therein, the bed pivoted to and folding within or between said supports, a table having pendent portions embracing the outer sides of said supports and movably connected thereto by the same pivot which holds the bed, and the settee hinged to the under side of the bed and constructed with the central rest and the two end rests, each of the said end rests being provided with hinged arms, which may be turned upwardly or downwardly, substantially as shown and described, and for the purpose set forth.

2. A combination article of furniture comprising the main frame having the notches or recesses therein, the bed folding within the main frame, and the settee hinged or pivoted to the under side of the bed, the said settee being constituted of the central rest and the two end rests, each of the latter being provided with hinged arms which fold downwardly and fit within the notches of the main frame, substantially as described.

3. A combination article of furniture comprising the main frame, the table, the bed, and the settee, the latter having the hinged arms for resting upon the floor when either the table or bed is lowered into position for use, substantially as described.

481,386. ELECTRIC ELEVATOR. WILLIAM BAXTER, Jr., Baltimore County, Md. Filed July 19, 1888. Renewed Oct. 31, 1890. Serial No. 369,873. (No model.)



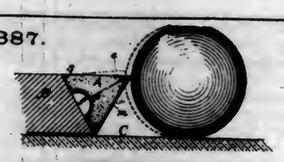
Claim.—1. In an electric-elevator system adapted to a current of constant strength, the combination, with the moving car, of an electric motor wound in series, four insulated electric conductors inclosed in a flexible cable, having one end attached to the car, a switch upon the car, having contacts connected, respectively, with the commutator-brushes of the motor, one of the terminals of the field-coils, and one pole of the generator, and a movable connector in the said switch adapted to vary the course of the current through the motor and to thereby vary the movements of the hoisting mechanism, as and for the purpose set forth.

2. In an electric-elevator system in which a car or platform hoisting device is operated by a stationary electric motor, the combination, with the electric motor and the car or platform moved thereby, of an operative electric circuit adapted for a current of constant strength, a switch in said circuit adapted to vary the course of the current in the motor to vary the movement of the hoisting mechanism, one or more shunt-circuits around the motor, normally-open switches placed in such shunt-circuits, suitable mechanism actuated by the car at the end of its travel to move such switches and thereby short-circuit the motor, and hand-switches adapted to reopen such shunt circuit or circuits to restore the current to the operative circuits, substantially as herein set forth.

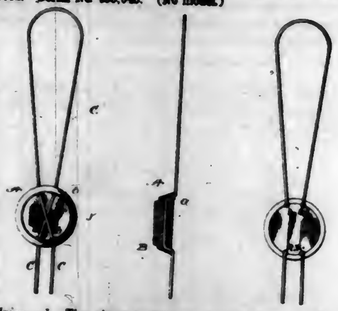
481,387. BILLIARD-CUSHION. MOSES BENSINGER, Chicago, Ill., assignor to the Brunswick-Balke-Collender Company, same place. Filed Apr. 27, 1892. Serial No. 430,868. (No model.)

Claim.—A billiard cushion strip composed of the usual rubber compound, provided with a suitable face-hardening device and formed with a comparatively large recess *f*, located about centrally of the back side of the strip, the flat and recessed portions of said back side of the strip being backed with canvas or its equivalent, all substantially as and for the purposes set forth.

481,887.



481,888. CAR-SEAL. FRANKLIN W. BROOKS, New York, N. Y., assignor of one-half to William C. Rogers, same place. Filed May 11, 1892. Serial No. 433,645. (No model.)



Claim.—1. The sheet metal cup A, with converging wall and threading-holes *b*, located in the bottom at the point of juncture between said bottom and the converging wall, in combination with the bail-wire C, threaded as described, and the soft-metal plug B, compressed and expanded within the wall of the cup, substantially as and for the purpose hereinbefore set forth.

2. The sheet-metal cup A, with converging wall and formed with the exterior depression or shoulder *a* and threading-holes *b*, located in the angle formed between the shoulder *a* and the bottom of the cup, in combination with the bail-wire C and soft-metal plug B, substantially as and for the purpose set forth.

481,889. WRENCH. EDWARD A. COCHRAN, Oak Park, Ill. Filed Nov. 5, 1891. Serial No. 410,709. (No model.)



Claim.—The combination, in a wrench, of a fixed jaw, a rack-bar permanently fastened to the fixed jaw and a handle at the end thereof, a moving jaw sliding upon the rack-bar and having teeth that engage the teeth of the rack-bar and a strap 3 passing around the rack-bar, and a spring fastened at one end to the strap and pressing at the other end against the back edge of the rack-bar, the strap having a bearing at 6 against the back of the rack-bar and in line, or nearly so, with the face of the moving jaw and the mortise of the strap diverging from the bearing to allow the jaw to be rocked on the bearing 6 to disconnect the teeth, substantially as set forth.

481,890. BICYCLE-LOCK. FREDERICK EGGE, Bridgeport, Conn., assignor of two-thirds to Charles R. Smith and Oliver C. Smith, same place. Filed June 18, 1892. Serial No. 437,184. (No model.)



Claim.—1. In a lock for bicycles, the combination of the casing having a block extending laterally therefrom, the clamps secured thereto, the hub within said casing and adapted to turn freely therein, the turn-button rigid with said hub, and locking-pins within said hub and casing, which pins operate to establish a rigidity between the hub and casing when the button is turned to a horisontal position, substantially as set forth.

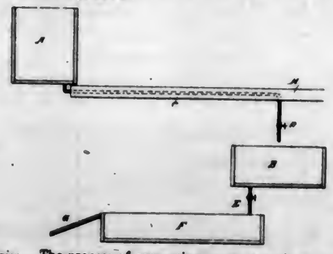
2. The combination of the casing, the rotary hub therein, the button rigid on the end of said hub, sectional screw-operated clamping devices attached to said casing, whereby the latter may be secured to the fork of a bicycle, and means for locking said hub when the button is in a horizontal position, substantially as shown and set forth.

3. The combination of the casing having perforations, the rotary hub therein provided with a key-slot and perforations leading within said slot and having a shoulder and recess, as described, the turn-button secured to said hub, spring-actuated pins within the perforations in the casing, and pins within the perforations in the hub, both series of perforations being adapted to register in alignment when said button is turned to a horizontal position, substantially as and for the purposes hereinbefore set forth.

4. The combination of the hub provided with a key-slot and the casing surrounding the hub and having a slot which registers laterally with the key-slot when the hub is in normal position, substantially as set forth.

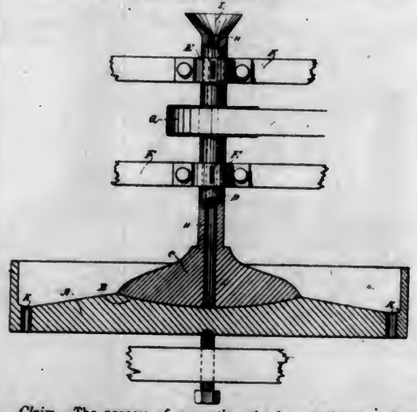
5. The combination of the casing having the block extending laterally therefrom, the clamps guided on said block, the screw extending through said clamps and block, the rotary hub within the casing, and the turn-button secured to said hub without the casing and having a heel which overhangs the head of said screw when the button is in its horizontal or locked position, substantially as shown and set forth.

481,891. RECOVERING WASTE PRODUCTS OF PETROLEUM. JACOB P. ENGLE, San Francisco, Cal. Filed Dec. 11, 1891. Serial No. 414,740. (No specimens.)



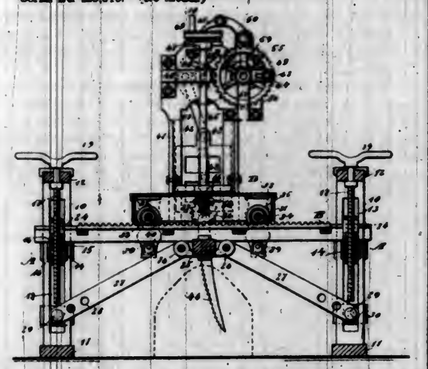
Claim.—The process of separating waste petroleum products in which the water globules are covered with petroleum-oil, consisting in mixing and agitating with such combined products a dry material which breaks up the globules by absorbing the lighter oil and spirit, then discharging the heavy oil or residue and water into a tank to enable the said heavy oil or residue to settle, and finally separating the water from the heavy oil or residue, substantially as herein described.

481,892. SEPARATION OF WASTE PRODUCTS OF PETROLEUM DISTILLATION. JACOB P. ENGLE, San Francisco, Cal. Filed Dec. 11, 1891. Serial No. 414,741. (No specimens.)



Claim.—The process of separating the heavy oil arising from petroleum distillation from the water with which it is mixed, consisting, essentially, in imparting to the material a rubbing action to break up the globules and separate the water from the oil, substantially as herein described.

481,893. MACHINE FOR CUTTING HAY-STACKS. JOHN T. EVANS and JOSEPH H. DOUGLASS, Adamsville, Utah. Filed Mar. 19, 1892. Serial No. 425,513. (No model.)



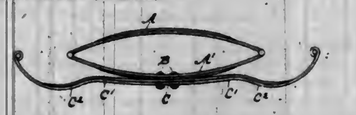
Claim.—1. A machine for cutting hay from stacks, comprising trestles, a bed vertically adjustable on the trestles, a carriage mounted to travel on the bed, a vertically-reciprocating cross-head carried by the carriage, a knife secured to the cross-head and projecting below the bed, and means for simultaneously moving the carriage and reciprocating the cross-head, substantially as described.

2. In a machine for cutting hay from stacks and for like purposes, the combination, with trestles and a bed adjustably carried by the trestles, the said bed being provided with a rack and tracks, of a carriage held to travel upon the bed and provided with wheels engaging with the track and a shaft carrying a pinion engaging with the rack, a standard projected from the carriage, a cross-head having movement in the standard and adapted to receive a knife, a driving mechanism journaled upon the standard of the carriage, and a driving connection between the pinion-shaft of the carriage and the driving mechanism, substantially as and for the purpose set forth.

3. In a machine for cutting hay from stacks and for like uses, the combination, with trestles and a bed carried by the trestles and provided with tracks and a rack, of a carriage provided with wheels engaging with the track, a shaft journaled in the carriage and carrying a pinion engaging with the rack of the bed, a standard projected upward from the carriage, a cross-head held to slide in said standard, a drive-shaft, a driven shaft located adjacent to the drive shaft and driven therefrom, a disk secured to the driven shaft and provided with an adjustable wrist-pin, a pitman connection between the cross-head and the wrist-pin, and a driving connection between the drive-shaft and the pinion-shaft of the carriage, as and for the purpose specified.

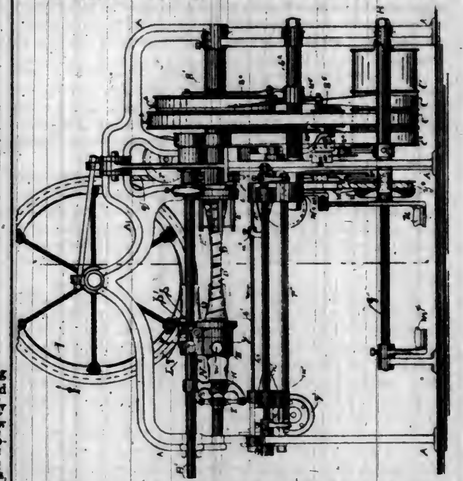
4. In a machine for cutting hay from stacks and for like uses, the combination, with trestles and a bed adjustably supported by the trestles, the said bed being provided with tracks and a rack between the tracks, of a carriage held to travel upon the bed and provided with wheels engaging with the tracks above and below, and a shaft carrying a pinion engaging with the rack of the bed, a standard projected upward from one portion of the carriage, a cross-head having movement in the standard and adapted to carry a knife or like cutting implement, a drive-shaft carried by the carriage-standard, a parallel shaft driven from the drive-shaft, a disk secured to the driven shaft and provided with an adjustable wrist-pin, which is connected by a pitman with the cross-head, a vertical shaft having a driving connection with the pinion-shaft of the carriage, and a pawl-and-ratchet mechanism imparting movement to the vertical shaft from the drive-shaft, substantially as and for the purpose specified.

481,894. VEHICLE-SPRING. GEORGE W. FARRELL, Au Sable Forks, assignor to Ignatius Wiley, Albany, N. Y. Filed Nov. 9, 1891. Serial No. 411,253. (No model.)



Claim.—As an improved article of manufacture, a vehicle-spring comprising an elliptic spring adapted to be secured to the vehicle body by its upper half and a triple sweep-spring secured at its middle part to the lower half of the elliptic spring and adapted to be secured at its ends to the side bars of the vehicle, substantially as described.

481,895. MACHINE FOR MAKING SPIRAL SPRINGS. PETER FRASER, Plymouth, Mass., assignor to the Atlas Tack Corporation, of Massachusetts. Filed Aug. 7, 1891. Serial No. 402,053. (No model.)



Claim.—1. In a machine for forming spiral springs, the combination, with the rotary longitudinally-movable forming-head held advanced by yielding pressure, of the power-shaft and gearing connecting said head and power-shaft to retract the head and a shifting connection in said gearing under the control of the operator, whereby the head may be moved back at the will of the operator, substantially as described.

2. In a machine for forming spiral springs, the combination, with the rotary longitudinally-movable spring-pressed forming-head, of the power-shaft, gearing connecting the head and power-shaft, and a clutch under the control of the operator interposed in said gearing, whereby the head may be moved back against the tension of its spring, substantially as described.

3. In a machine for forming spiral springs, the combination, with the rotary longitudinally-movable spring-pressed forming-head, of a drum and flexible connection for moving the head against the tension of its spring, a power-shaft, and a clutch under the control of the operator interposed between the power-shaft and drum, whereby it may be rotated and the head moved, substantially as described.

4. In a machine for forming spiral springs, the combination, with the rotary longitudinally-movable spring-pressed forming-head and the pulley having a lever-arm connected with said head, of the flexible connection passing around said pulley, the drum to which said flexible connection is secured, a power-shaft, and a clutch interposed between said power-shaft and drum, whereby the head may be moved against the tension of its spring, substantially as described.

5. In a machine for forming spiral springs, the combination, with the rotary longitudinally-movable forming-head and the pulley having the lever-arm connected with said head, of the flexible connection passing around said pulley, the spring-drum, to which one end of said connection is secured, the loose drum, to which the opposite end of said connection is secured, a power-shaft, and a clutch under control of the operator interposed between said last-mentioned drum and power-shaft, substantially as described.

6. In a machine for forming spiral springs, the combination, with the hanger or head, of the rotary forming-cone carried thereby and having a limited longitudinal movement and wire-gripping jaws at the base of said cone adapted to be opened by the longitudinal movement of the cone, substantially as described.

7. In a machine for forming spiral springs, the combination, with the hanger or head and the rotary forming-cone carried thereby and having a limited independent longitudinal movement, of a wire-gripping jaw at the base of said cone movable independently of the cone and adapted to co-operate with a jaw on the base of the cone, substantially as described.

8. In a machine for forming spiral springs, the combination with the hanger or head and the rotary forming-cone carried thereby and having a limited independent longitudinal movement, of a wire-gripping jaw mounted in the hanger or head, movable independently of the cone and co-operating with a jaw on the base of the cone, and a spring for holding said movable jaw projected, substantially as described.

9. In a machine for forming spiral springs, the combination, with the hanger or head, the rotary forming-cone carried thereby and having a limited longitudinal movement, and the spring for holding said cone outward, of a movable wire-gripping jaw mounted in the hanger or head, movable independently of the cone, a spring for advancing said jaw, and a hand-lever for retracting the same, substantially as described.

10. In a machine for forming spiral springs, the combination, with the longitudinally-movable hanger or head, the rotary forming-cone carried thereby, the gripping-jaw rotating with said cone, and the shaft lying parallel with said head, of the collar mounted on said shaft for operating the gripping-jaw, whereby the gripping-jaw may be operated, substantially as described.

11. In a machine for forming spiral springs, the combination, with the longitudinally-movable hanger or head, the rotary forming-cone carried thereby, the gripping-jaw rotating with said cone, and the shaft lying parallel with said head, of the longitudinally-movable collar mounted on said shaft for operating the gripping-jaw and the hand-lever for moving said collar into operative position, substantially as described.

12. In a machine for forming spiral springs, the combination, with the oppositely-arranged rotary heads having a relative longitudinal movement and the wire gripping-jaws carried by one head, of the co-operating cutting-jaws mounted directly on and rotating with the opposite head, and the movable force-bar mounted in stationary bearings co-operating with the cutting-jaws to close the same and sever the wire, and mechanism under control of the operator for moving said bar, substantially as described.

13. In a machine for forming spiral springs, the combination, with the rotary forming-head having the pair of co-operating cutting-jaws mounted on and rotating with the said head, of the movable force-bar mounted in stationary bearings co-operating with the jaws to close the jaws, the bar g, and the crank-shaft and crank controlled by the operator for operating said bar g, substantially as described.

14. In a machine for forming spiral springs, the combination, with the longitudinally-movable hanger or head, the rotary-forming-cone carried thereby, and the wire-gripping jaw at the base of the cone, of the rod n, connected with the jaw, the lever T, co-operating with the rod, the bar s, engaging the lever, the collar q^x, having the incline engaging the bar, and the rotary shaft B^3, carrying the collar, substantially as described.

15. In a machine for forming spiral springs, the combination, with the longitudinally-movable head carrying the forming-cone with the gear-wheel for rotating the cone journaled in the head, of the counter-shaft and the gear rotating with but longitudinally movable on said shaft and in mesh with the cone-driving gear, substantially as described.

16. In a machine for forming wire springs, the combination, with the counter shaft and forming-cones, of the gears for driving the cones from the counter-shaft cored out on one side, the friction-cone keyed to the shaft and fitting in said gear, and the collar fitting on the opposite side of the gear, substantially as described.

17. In a machine for forming wire springs, the combination, with the forming-cones and driving mechanism, of a controlling mechanism consisting of the clutch-surfaces and the longitudinally-movable collar for moving said clutch-surfaces, a rotary collar having cam-surfaces co-operating with the surfaces of the longitudinally-movable collar, and an operating-handle for moving said rotary collar, substantially as described.

18. In a spring-machine, the combination, with the forming-cones and drive-shaft, of a reversing-gear interposed between the cones and drive-shaft, consisting of the fast and loose pulleys, the belts passing from the drive-shaft around said pulleys, one being crossed to drive its pulley in the opposite direction, a clutch-operating mechanism for moving said fast and loose pulleys into engagement, and a belt-tightener normally co-operating with the belt of the fast pulley and moving in unison with the clutch-operating mechanism, whereby the tension on said belt is released and the pulleys thrown into engagement simultaneously, substantially as described.

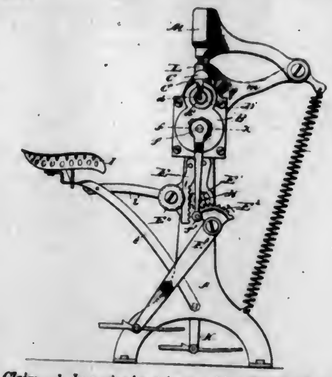
19. In a machine for making spiral springs, the combination, with the compressor-cradle formed by the three shafts and the compressor-head movable longitudinally on said shafts, of a drive-shaft gearing between said head and shaft and a clutch interposed in said gearing and under the control of the operator, substantially as described.

20. In a machine for forming spiral springs, the combination, with the cradle and movable compressor head, of the spring for retracting said head, the drive-shaft, a drum having a clutch connection with said shaft, and a flexible connection between the drum and compressor-head, substantially as described.

21. In a machine for forming spiral springs, the combination, with the cradle having the laterally-movable gate, with its operating-arm and the longitudinally-movable compressor-head, of the longitudinally-movable shaft having the incline controlling the operating-arm of the gate and having the projections thereon in the path of the movable head, whereby the movement of said head opens or closes the gate, substantially as described.

481,396. MACHINE FOR KNOTTING THE ENDS OF SPIRAL SPRINGS. PETER FRASER, Trenton, N. J., assignor to the Atlas Tack Corporation, of Massachusetts. Filed Jan. 19, 1892. Serial No. 418,553. (No model.)

Brief.—The rotary twister-head is movable up and down or transversely to the plane of the coils, while the two clamping-jaws both move simultaneously toward or from each other, both twister and clamp being reciprocated independently by treadles, and the twister being rotated by a hand-crank. The twister contains a removable steel wearing-face, and the knotted spring is set by a blow from the hammer.



Claim.—1. In a wire-knotting machine, the combination, with the clamp for holding the sections of wire to be united, of the rotary twister-head movable bodily with relation to the clamp, substantially as described.

2. In a wire-knotting machine, the combination, with the clamp for holding the sections of wire, of the twister-head mounted in a carriage movable toward and from the clamps and means for rotating said head, substantially as described.

3. In a wire-knotting machine, the combination, with the clamp for holding the sections of wire, of the twister-head, the carriage in which the twister-head is journaled movable toward and from the clamps, and the gear-wheel carried by the carriage for rotating said head, substantially as described.

4. In a wire-knotting machine, the combination, with the frame having the guideway thereon and the clamp for holding the sections of wire, of the carriage held by the guideway on the frame and movable toward and from the clamp and the rotary twister-head mounted in the carriage, substantially as described.

5. In a wire-knotting machine, the combination, with the frame having the guideway thereon and the clamp for holding the sections of wire, of the carriage held by the guideway on the frame and movable toward and from the clamp, the rotary twister-head journaled in the carriage and having the gear-wheel thereon, the gear-wheel meshing with the gear-wheel on the twister-head, and the crank-handle for rotating the same, substantially as described.

6. In a wire-knotting machine, the combination, with the frame having the guideway thereon and the clamp for holding the sections of wire, of the carriage held by the guideway on the frame and movable toward and from the clamp, the rotary twister-head journaled in the carriage and having the gear-wheel thereon, the gear-wheel of greater diameter also journaled in the carriage and meshing with the first-mentioned gear-wheel, and the crank-handle connected therewith for rotating the gears and twister-head, substantially as described.

7. In a wire-knotting machine, the combination, with the transversely-movable rotary twister-head having the central opening and a groove in its face leading into said central opening, of the relatively stationary clamp lying in proximity to the twister-head, whereby as the twister-head is moved one strand of the wire is bent at an angle in the groove and when rotated it is wrapped around the other strand of the wire, substantially as described.

8. In a wire-knotting machine, the combination, with the transversely movable rotary twister-head having the central opening, a slot from said opening to the exterior, and the groove in the face of the head merging into the central opening, of the relatively stationary clamp against which said twister-head works, whereby as the twister-head is moved one section of wire passes into the central opening through the slot and the other section of wire is bent at right angles and wrapped around the first-named section as the head rotates, substantially as described.

9. In a wire-knotting machine, the combination, with the transversely-movable rotary twister-head having the flat face, the central opening, a slot from said opening to the exterior, and the groove in the flat face separated from the slot at the periphery of the head and merging into the same at the central opening, of the clamping-jaws having the flat face against which the flat face of the twister-head works, substantially as described.

10. In a wire-knotting-machine, the combination, with the transversely-movable rotary twister-head, of the clamp in proximity to said head having the two movable jaws, with mechanism for opening and closing said jaws simultaneously, substantially as described.

11. In a wire-knotting machine, the combination, with the frame and the twister-head mounted thereon, of the clamp having the jaws formed on bars sliding in a recess in the frame adjacent to the twister-head, with means for moving said jaws simultaneously in opposite directions, substantially as described.

12. In a wire-knotting machine, the combination, with the twister-head, of the co-operating clamping-jaws, the bar carrying one of said jaws, the operating-shaft and treadle therefor, the crank-pin moved by the shaft, and the yoke connecting said pin with the bar carrying the clamping-jaw, substantially as described.

13. In a wire-knotting machine, the combination, with the twister-head, of the oppositely-arranged clamping-jaws and bars carrying the same, the operating-shaft therefor carrying the cam, and connections between the respective bars and cam on opposite sides of the shaft, whereby the jaws are moved in opposite directions as the shaft is rotated, substantially as described.

14. In a wire-knotting machine, the combination, with the twister-head, of the oppositely-arranged clamping-jaws and bars on which they are mounted, the operating-shaft therefor, the cam secured rigidly on said shaft, the yokes connected to one of said bars and to the cam at one side of the shaft, and the toggle-link connecting the other bar and the opposite side of the cam, substantially as described.

15. In a wire-knotting machine, the combination, with the twister-head, of the oppositely-arranged clamping-jaws and bars on which they are mounted, the operating-shaft therefor, the cam secured rigidly on said shaft, the toggle-link uniting the cam and one bar at one side of the shaft, and the yokes arranged on each side of the cam and toggle-link and connecting the other bar with the cam on the opposite side of the shaft, substantially as described.

16. In a wire-knotting machine, the combination, with the clamp and the twister-head journaled in a movable carriage, of the link connected to the carriage, the idler-wheel engaging said link, and the foot-treadle co-operating with the wheel to rotate the same, and move the carriage, substantially as described.

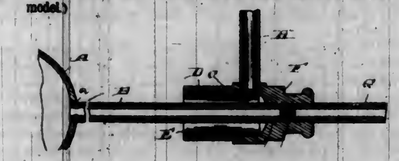
17. In a wire-knotting machine, the combination, with the clamp, the twister-head, and the movable carriage in which the twister-head is journaled, of the link connected to the carriage and having its lower portion formed into a rack-bar, the idler-wheel meshing with said rack-bar, the foot-lever having the segmental rack meshing with the idler, and the guide-roller for holding the link in gear, substantially as described.

18. In a wire-twisting machine, the combination, with the clamp, the rotary twister-head, and the movable carriage in which the twister-head is journaled, of the gage for determining the length of wire to be inserted, mounted on the movable carriage, substantially as described.

19. In a wire-twisting machine, the combination, with the clamp having the flat face, of the rotary twister-head movable transversely with relation to the clamp, having the groove in its face, journaled with said face in proximity to the flat face of the clamp, whereby by the transverse movement the wire held by the clamp may be bent at an angle in the groove, substantially as described.

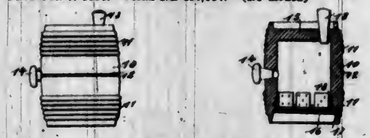
20. In a wire-twisting machine, the combination, with the clamp having the flat face, of the rotary twister head movable transversely with relation to the clamp, having the central opening and slot, and the groove in its face, said head being journaled with its face in proximity to the flat face of the clamp, whereby by the transverse movement the wire held by the clamp may be bent at an angle in the groove, substantially as described.

481,397. SAFETY-COUPLING FOR GAS-MAINS. AMOS GARRETSON, Fall Creek, Ind. Filed Mar. 31, 1892. Serial No. 427,211. (No model.)



Claim.—The combination, with a gas-main and a service-pipe leading therefrom, of a safety-coupling connected to said service-pipe, said coupling having in one end portion a chamber E, opening toward said main, said chamber surrounding a portion of said pipe, an escape-pipe communicating with the inner end of said chamber through the wall thereof, and the passage in said coupling in which the ends of the service-pipe sections are threaded, substantially as specified.

481,398. PUZZLE DICE-BOX. HIPPOLYTE GOUJON, Paris, France. Filed Oct. 6, 1891. Serial No. 407,837. (No model.)



Claim.—1. As a new article of manufacture, a dice-box having a tapering open end and provided with a removable head fitting in said open end and of less thickness than the taper of the said open end, as set forth.

2. As an improved article of manufacture, a puzzle dice-box of a barrel shape, said box having a tapering open end with a terminal shoulder, a removable head fitting in the tapering end and of less length than the taper of the said open end, a removable plug and bung, and a central circumferential groove, all substantially as described.

481,399. CAR-COUPLING. WILLIAM H. HARRIS, Newberry, S. C., assignor of one-half to Augustus P. Pifer, same place. Filed July 20, 1891. Serial No. 400,165. (No model.)



Claim.—1. The combination, with the car, of the longitudinally-movable rock-shaft journaled at the end of same, the laterally-projecting pin attached to said rock-shaft, the plate secured to the car, and the angular catch attached to the said plate, adapted to receive the pin on the shaft and thereby hold said shaft in a raised position, substantially as shown and described.

2. The combination, with the draw-head having a central cavity and side recess, of the coupling-jaw having a coupling and locking arm, the faces of said locking-arm being vertical, the latch-block pivoted near its lower rear end within the central cavity, the forward end of said block being wider than the rear end, the forward face being cut away adjacent to the side recess, the rock-shaft, upon which the block is mounted, and means for operating said shaft, substantially as shown and described.

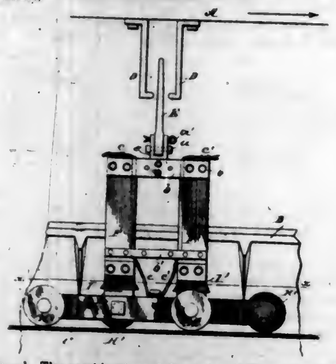
481,400. EYEGLASSES. ADOLPH H. HARTMANN, Brooklyn, N. Y. Filed Apr. 12, 1892. Serial No. 428,795. (No model.)



Claim.—In eyeglasses and spectacles, the combination, with the frame thereof, of bracket-like strips 10, detachably secured to the frame, each strip consisting of a vertical body portion 10^a and a horizontal foot-section 10^b, curved inwardly and then outwardly, said

bracket-like strips forming auxiliary clamps to engage the nose in advance of the ordinary clamps, substantially as herein shown and described.

481,401. TROLLEY FOR ELECTRIC RAILWAYS. WILTON F. JENKINS, Richmond, Va., assignor of five-sixteenths to Louis Euker and William E. Shelley, same place. Filed Sept. 5, 1891. Serial No. 404,810. (No model.)



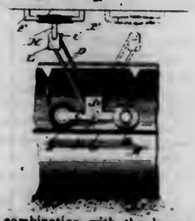
Claim.—1. The combination of the shanks F F', the cross-bar *b b'*, connecting their upper and lower ends in the same plane, the bent or offsetting bars I I', bolted to the lower ends of the shanks and having each a fulcrumed horizontal lever G and G', provided at their opposite ends with contact-wheels for the conductors, substantially as shown and described.

2. The combination of the trolley-shanks F and F', connected as described and provided each upon its inner edge with an open-sided groove, and the circuit-wires *c c'*, laid laterally in and protected by said open groove, substantially as shown and described.

3. The combination, with the car-body having forward and rearward bearing-surfaces for the trolley connection, of the trolley-carriage running upon conductors, a subjacent conduit, and a jointed arm E, connected to the trolley-carriage and arranged to move transversely to the car into or out of the space between the bearing-surfaces, substantially as shown and described.

4. The combination, with the car-body having the pendent parallel plates D D', of the trolley-carriage having the bifurcated lug *e*, the arm E, pivoted in the lug upon pin *a*, and the spring locking-key *a'* for holding the arm in erect position between the said plates, substantially as shown and described.

481,402. TROLLEY FOR ELECTRIC-RAILWAY CONDUITS. WILTON F. JENKINS, Richmond, Va., assignor of five-sixteenths to Louis Euker and William E. Shelley, same place. Filed Sept. 5, 1891. Serial No. 404,811. (No model.)



Claim.—1. The combination, with the lower portion of a car having the transverse parallel guide-rails F F, of the bail H, having grooved pulleys arranged horizontally between and supported by said guide-rails, and a trolley hung upon said bail, substantially as shown and described.

2. The slotted and reversible drag link or bar, combined with and hung to a trailing trolley, subjacent conductors supporting the trolley, and a transverse bail or axial connection passing through the opening of the drag-link and free to move vertically therein and connected to the car, substantially as shown and described.

3. The trolley-carriage having parallel insulated plates J^a J^a, combined with the drag-link D, hung upon a horizontal axis between said plates, substantially as shown and described.

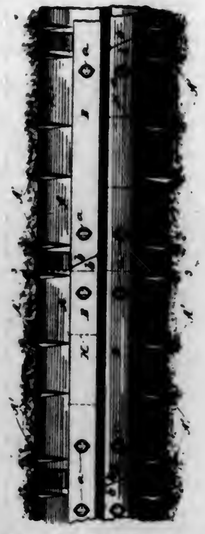
4. The combination, with the trolley and the lower part of a car having bearing-surfaces for the trolley and the bail H on the trolley, of the slotted drag link D and the adjustable plates L L, connected to the bail upon opposite sides of the drag link, substantially as and for the purpose described.

5. The combination of the lower portion of a car having parallel transverse guide-rails F F, the bail H, with horizontal grooved pulleys G G, fitting between the rails, the slotted link D, hung upon the bail, and the trolley-carriage having a pivoted or jointed connection with the link, substantially as shown and described.

6. The trolley-carriage C, having its trolley rollers or wheels arranged at opposite ends upon opposite sides and having upwardly-projecting plates J^a J^a, in combination with the drag-link jointed between said plates to the trolley-carriage, substantially as and for the purpose described.

7. The combination, with a portion of the car, a trailing trolley, and subjacent conductors supporting the trolley, of an open reversible drag-link or slotted bar connecting the car and trolley and adapted to take up vertical motion between the car and trolley and also permit of the reversal of the position of the trolley, substantially as shown and described.

481,403. CONDUIT FOR ELECTRIC RAILWAYS. WILTON F. JENKINS, Richmond, Va., assignor of five-sixteenths to Louis Euker and William E. Shelley, same place. Filed Sept. 5, 1891. Serial No. 404,812. (No model.)



Claim.—1. A tubular conduit formed with a longitudinal slot and provided along the length of each section with a series of transverse external reinforcing-ribs extending around the same, terminating on the external periphery some distance from the slot and reappearing internally and extending to a point immediately adjacent to the slot and supplementing the lack of the external ribs at this point, substantially as shown and described.

2. A tubular slotted conduit having a series of transverse reinforcing-ribs arranged internally near the slot and externally throughout the other portions of the conduit, in combination with slot-plates applied externally to the conduit upon each side of the slot, substantially as and for the purpose described.

3. The combination of a tubular and slotted conduit-section having a manhole opening into the slot and a slot-plate applied to the side of the conduit-slot and forming also the cover to the manhole, substantially as shown and described.

4. The combination, with the tubular and slotted conduit-sections, of removable slot-plates made longer than the conduit-section and overlapping the joints of the conduit-sections both at the middle of the slot-plates and at the ends of the slot-plates, substantially as shown and described.

5. The combination, with the tubular and slotted conduit-sections, of removable slot-plates applied to the edges of the slot and having their ends cut diagonally and fitting with an oblique joint across the joint of the conduit-section, substantially as shown and described.

6. The combination, with the tubular and slotted conduit-sections having external ribs near their ends, of a metallic collar applied between the ribs and overlapping the joint of the conduit-sections and a water-tight luting or packing retained between the collar and the ribs, substantially as shown and described.

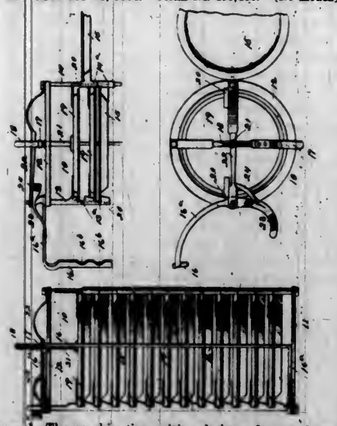
7. The combination, with a conduit, of a conductor-support having a collar or shoulder and a screw nut and insulated clamping-jaws arranged between them to clutch and hold the conductor, substantially as shown and described.

8. The combination, with a conductor, of insulated clamping-jaws having teeth or opposite binding-surfaces for the conductor arranged out of coincidence with each other, substantially as and for the purpose described.

9. The combination, with the bolt C, having shoulder c^3 and nut c^3 and squared or non-circular shank between, of the insulating-blocks D, with clamping-jaws having a perforation corresponding to the shank, substantially as shown and described.

10. The combination of the bolt C, having shoulder c^3 and screw-nut c^3, the insulating-blocks D D, with recessed face and grooves *d d*, and the detachable jaws *c*, with lugs c^3 and teeth *c'*, substantially as shown and described.

481,404. PORTABLE PASTRY-RACK. CHARLES F. JESSER, Staunton, Va. Filed Oct. 31, 1891. Serial No. 410,460. (No model.)



Claim.—1. The combination, with a skeleton frame, of a series of pans or receptacles pivoted thereto and adapted to swing horizontally into and out of said frame and a locking-arm attached also to said frame to secure the pans therein, substantially as shown and described.

2. The combination, with a frame composed of a base, a head, and vertical connections, of series of pans or receptacles hinged to one of said vertical connections and adapted to swing in and out of the frame and a locking-bar hinged to the opposite vertical connections, substantially as shown and described.

3. The combination, with the head and base portions, of the vertical connecting rod or bar, the pans or receptacles pivotally connected therewith, the notched vertical connecting rod or post, and the notched locking-bar and catch, all arranged substantially as shown and described.

4. The combination, with the head and base portions, of the rods or posts 13 and 14, the pans having collars arranged upon the rod or post 14, the notched locking-bar pivotally connected with the rod or post 13 opposite the rod or post 14, and the catch attached to the head portion and adapted to engage the locking bar, substantially as shown and described.

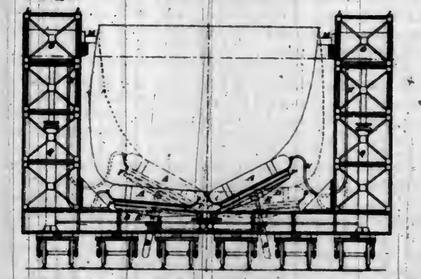
5. The combination, with a skeleton frame, of a series of horizontally movable pans or receptacles pivoted thereto and a series of vertically movable covers arranged within the frame, one above each pan, and the rods connecting the said covers, whereby they are held in place and adapted to be moved simultaneously, substantially as shown and described.

6. The combination, with a skeleton frame, of the horizontally-movable pans pivoted thereto, the locking-bar, the vertically-movable covers, and connections between the locking-bar and covers, substantially as shown and described.

7. The combination, with the skeleton frame of the horizontally-movable pans pivoted thereto, the vertically-movable covers arranged therein and connected with one another, the spring-bar to which the covers are connected, and the curved arm pivotally attached to the frame, arranged beneath the spring-bar, and adapted to raise the same, substantially as shown and described.

8. The combination, with a frame, of the horizontally-movable pans pivoted thereto, the series of vertically-movable covers arranged therein, one above each pan, the rods connecting the covers, the spring-bar attached to the frame, the connecting-post connecting the top cover and spring-bar, and the locking-bar pivoted to the frame and carrying a curved extension, which rests beneath the spring-bar, said extension being provided with an inclined wing, substantially as shown and described.

481,405. OVERLAND SHIP CONVEYANCE. WALTER R. KINIPPLE, London, England. Filed May 2, 1892. Serial No. 431,414. (No model.)



Claim.—1. In apparatus for conveying ships or large heavy bodies overland; the combination, with suitable supports, of a series of hydraulic cushions between the ship and supports, each cushion being provided with an independent pressure-regulating device, substantially as described.

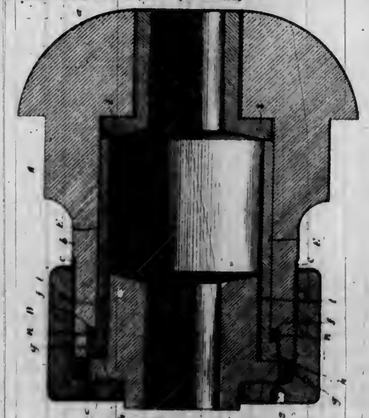
2. In apparatus of the kind and for the purpose referred to, the combination, with the hydraulic cushions, of tanks or reservoirs connected, respectively, with separate cushions and adjustable to vary the pressure in said cushions, substantially as described.

3. The combination, with suitable supports, of hydraulic cushions interposed between the ship and supports, supply-tanks connected, respectively, with different cushions or groups of cushions, and means for independently raising and lowering the respective tanks, substantially as described.

4. In apparatus of the kind and for the purpose referred to, the combination, with the hydraulic cushions, of movable carriers therefor and means for independently adjusting said carriers, substantially as described.

5. In apparatus of the kind described, the combination, with the framework and trucks, of carriers hinged at one end near the middle of the framework and extending in opposite directions, means for raising and lowering the free ends of the carriers, and hydraulic cushions on the respective carriers, substantially as described.

481,406. STUFFING-BOX. CHARLES E. LONGENECKER, Painted Post, N. Y., assignor to the Weston Engine Company, same place. Filed Apr. 2, 1892. Serial No. 427,509. (No model.)



Claim.—1. In a stuffing-box for piston-rods and the like, the combination of a bushing having a flanged end and an adjustable cylindrical sleeve arranged within said box and having one end bearing on

the flanged end of said bushing, whereby said bushing is rigidly held against longitudinal movement, substantially as described.

2. In a stuffing-box for piston rods and the like, the combination of a bushing arranged within and free of the walls of the opening of said box, a cylindrical sleeve for holding said bushing against longitudinal movement, a gland extending into and free of said sleeve, and means for adjusting said gland longitudinally, substantially as described.

3. In a stuffing-box for piston-rods and the like, the combination of a bushing arranged within and with its peripheral surface free of said box, a cylindrical sleeve adjustably secured within the box and having one end bearing against said bushing, a gland extending within and with its peripheral surface free of said sleeve, and an adjustable cap having a flange adapted to bear against said last-named gland, substantially as described.

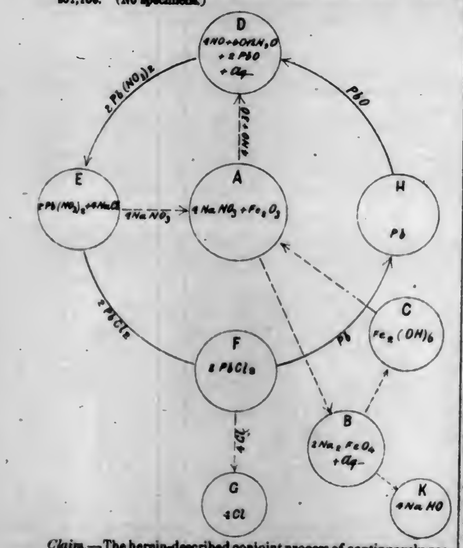
4. The combination, in a stuffing-box, of a gland and a bushing, each of which is formed with a flange, and an adjustable cylindrical sleeve arranged between and bearing against said flanges, whereby said gland and bushing are rigidly held against longitudinal movement and may be supported out of peripherical contact with said box, substantially as described.

5. The combination, in a stuffing-box for piston-rods and the like formed with an interior shoulder, and internal screw-threads adjacent said shoulder, of a cylindrical sleeve having a screw-threaded flange, pliable or flexible packing arranged between said shoulder and flange, and a bushing arranged within and peripherally free of said box and held against longitudinal movement by said sleeve, substantially as described.

6. The combination, in a stuffing-box for piston-rods and the like formed with external and internal screw-threads at one end, of a sleeve having a screw-threaded flange arranged within, a bushing supported within and peripherally free of said box by said sleeve, a gland arranged within and free of said sleeve, and an internally-screw-threaded gland for adjusting said last-named gland longitudinally, substantially as described.

481,407. PRODUCTION OF CAUSTIC ALKALIES AND CHLORINE.

FARNHAM M. LYTE, London, England. Filed July 30, 1891. Serial No. 401,139. (No specimens.)

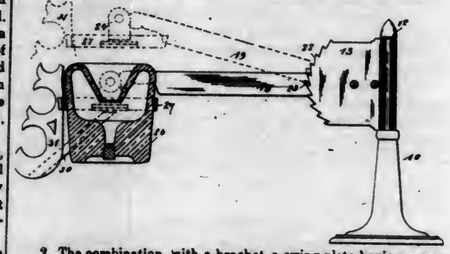


Claim.—The herein-described conjoint process of continuously producing caustic alkali and chlorine, which consists in decomposing an alkaline nitrate by heating it with ferric oxide to evolve nitrous fumes, decomposing the residue by boiling with water into caustic alkali free from iron and a precipitate of ferric hydrate, converting the nitrous fumes into aqueous nitric acid, dissolving plumbic oxide therein, precipitating plumbic chloride, fusing it, and decomposing it electrolytically into chlorine and metallic lead, and finally converting this (or any other) lead into plumbic oxide and the ferric hydrate into ferric oxide for recommencing the cycle, all as specified.

481,408. INKSTAND.

LINTON B. MANLEY, Duluth, Minn. Filed May 28, 1892. Serial No. 434,702. (No model.)

Claim.—1. The combination, with a supporting-bracket, a swing-plate held to turn upon the bracket, an arm having vertical movement in the swing plate, and a locking mechanism incident to both the swing-plate and the arm, of sockets for the reception of ink-wells pivotally connected with the arms, as and for the purpose specified.

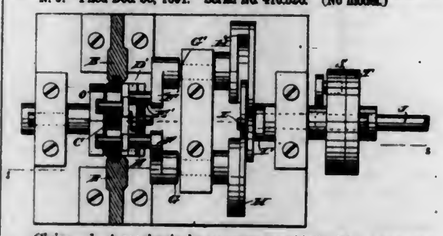


2. The combination, with a bracket, a swing-plate having movement around the bracket, an arm pivotally connected with the swing-plate and capable of vertical movement, and a locking device incident to both the plate and the arm, of an extension projected downward from the free end of the arm, sockets for the reception of ink-wells pivotally attached to the extension, and a rack carried by the sockets, as and for the purpose specified.

3. The combination, with a bracket, a swing-plate capable of turning laterally upon the bracket, the said plate being bent around a member of the bracket to form two parallel and spaced sections, an adjusting mechanism connecting the sections, the outer edges of the sections being provided with teeth, and an arm one end of which is provided with a diagonally-located slot, a pin passed through the sections of the plate and through the slot in the arm, the arm being capable of movement upon the pin, and lugs carried by the arm and adapted for engagement with the teeth of the swing-plate, of sockets for the reception of ink-wells and adjustable upon the arm near its free end, substantially as and for the purpose specified.

481,409. MECHANICAL MOVEMENT.

FELIX MEIY, Elizabeth, N. J. Filed Dec. 30, 1891. Serial No. 416,520. (No model.)



Claim.—1. A mechanical movement provided with a reciprocating cross-head, two rock-shafts controlled from the said reciprocating cross-head, and slotted arms held on the said shafts, of which one delivers the main crank-pin to the other to carry it around one-half revolution, substantially as shown and described.

2. A mechanical movement comprising a reciprocating cross-head having pivoted wings, crank-arms engaged by the said pivoted wings, and rock-shafts carrying the said crank-arms and receiving a rocking motion on the up-and-down movement of the said cross-head, substantially as shown and described.

3. In a mechanical movement, the combination, with a reciprocating cross-head provided with wings having slots, of rock-shafts provided with crank-arms, the pins of which pass between the said wings, and slotted arms held on the said rock shafts and arranged to deliver the main crank-pin from one to the other, so that each carries the crank-pin during one-half revolution, substantially as shown and described.

4. In a mechanical movement, the combination, with a reciprocating cross-head provided with wings having slots, of rock shafts provided with crank-arms, the pins of which pass between the said wings, slotted arms held on the said rock-shafts and arranged to deliver the main crank-pin from one to the other, so that each carries the crank-pin during one-half revolution, and means, substantially as described, for locking and unlocking the said wings on the cross-head, as set forth.

5. In a mechanical movement, the combination, with a reciprocating cross-head provided with wings having slots, of rock-shafts provided with crank-arms, the pins of which pass between the said wings, slotted arms held on the said rock-shafts and arranged to deliver the main crank-pin from one to the other, so that each carries the crank-pin during one-half revolution, the blocks mounted to slide on the said cross-head and adapted to engage the said pivoted wings, and a cam-plate controlled from the main driving-shaft, mounted to swing, and formed with slots engaged by pins on the said blocks, substantially as shown and described.

6. A mechanical movement provided with slotted driving-arms, and a main crank-arm having a wrist-pin adapted to be alternately engaged by the said slotted driving-arms, substantially as shown and described.

7. A mechanical movement comprising two swinging drive-arms, each formed with a radial slot, and a main crank-arm provided with a wrist-pin engaging the said radial slots of the drive-arms, the latter being arranged to lead one another in their up-and-down movement, substantially as shown and described.

481,410. HARVESTER.

JACOB T. MIDER, Wathena, Kans. Filed Mar. 15, 1892. Serial No. 425,001. (No model.)



Claim.—1. An improved harvester comprising a main supporting-frame, a casing or box frame held thereon, thrashing devices mounted in such casing, a conveyer mounted transversely therein over the thrashing devices, projected at its discharge end through one side of the casing, its receiving end extended through the opposite side of the said casing, a comb secured to the casing under the conveyer, and means for operating the conveyer and thrashing devices, substantially as shown and described.

2. In a harvester of the class described, the combination, with the thrashing mechanism, of a comb having its rear end concaved, the rear ends of its fingers curved down and merged into such concave portion, a screw conveyer operating in such concaved portion, and a cap-plate mounted over the conveyer and extended above the front end thereof, all arranged substantially as shown and described.

3. In a harvester of the class described, in combination, the thrashing mechanism, a comb having its rear end concaved, a screw conveyer mounted in said concaved end, its spirals projected over the inner ends of the comb-fingers, and a cap-plate secured to the rear edge of the comb-plate and projected over and beyond the front edges of the spirals of the conveyer, all substantially as and for the purpose described.

4. In a harvester of the class described, in combination with a box or casing, a separating-screen held therein, a comb, means for leading the headed grain from the comb to the screen, and a spiral beater mounted over the screen, adapted to lead the grain transversely over the screen and at the same time thrash it, as and for the purpose described.

5. In a harvester of the kind described, the combination, with the main frame, a box or casing held thereon, a separating-screen mounted longitudinally therein, a comb projected from one side, and means for leading the headed grain from the comb onto the screen in the casing, of a spiral conveyer having its peripheral edges roughened, arranged transversely over the screen, and adapted to convey the grain across the screen and thrash it as it is carried thereover, such conveyer projected over one side of the casing to discharge the husks, substantially as shown and described.

6. In a harvester of the kind described, the combination, with a casing, a separating-screen supported therein, and the combing-frame projected from one side of the casing, of a screw conveyer mounted transversely on the casing, its outer end held to rotate over the rear end of the combing-frame and adapted to lead the headed grain inward into the casing, its inner portion having the peripheral edges of its spirals widened and roughened and arranged to beat the grain against the screen, substantially as and for the purpose described.

7. In a harvester of the class described, the combination, with a thrashing-casing and a beater mounted transversely in such casing, of a screening-body mounted longitudinally in said casing under the beater, said body formed with an operating portion and a surplus or extended portion, means for shifting such body, whereby to change its rubbing or beating portion, and the comb and conveyer devices for heading and leading the grain to the screen, substantially as and for the purpose described.

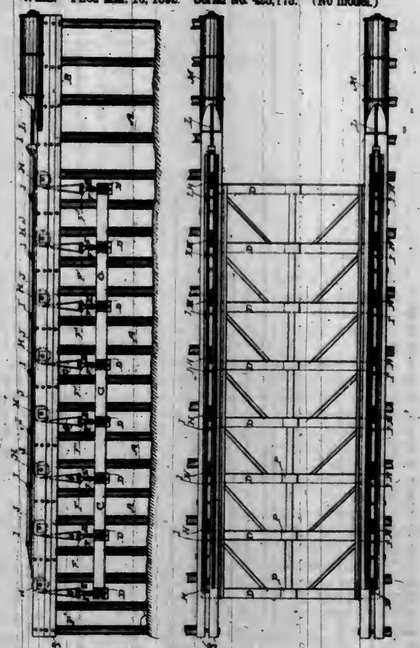
8. The combination, in a harvester of the class stated, with the casing, the comb, the conveyer, and the spiral beater, of a screen mounted longitudinally in the casing and extended under the beater and the tension devices for such screen, all arranged substantially as and for the purpose described.

9. The combination, with the thrashing-casing, the spiral beater, and the comb-frame held thereon, said frame having a portion extended into the casing and formed with prongs or fingers, of a separating-screen held for longitudinal movement in the casing under the beater, said screen arranged when adjusted to be engaged by the prongs on the comb-frame and held from movement, as and for the purpose described.

10. In a thrashing-machine essentially as described, the combination, with the main frame, the driver's seat, and the thrashing-box mounted thereon to one side of the seat, the thrashing devices carried by the box, and the elevating mechanism supported thereon and arranged to discharge the grain in advance of the driver's seat, of a rotatable storing-bin support mounted thereon having a turning shaft projected up therefrom and cut-off devices in the elevator discharge-chute, all substantially as shown and described, whereby the bin-holder can be rotated and the cut-off operated by the driver from his seat, as and for the purposes described.

481,411. HYDRAULIC LIFTING-DOCK.

ROBERT MORAN, Seattle, Wash. Filed Mar. 16, 1892. Serial No. 425,173. (No model.)

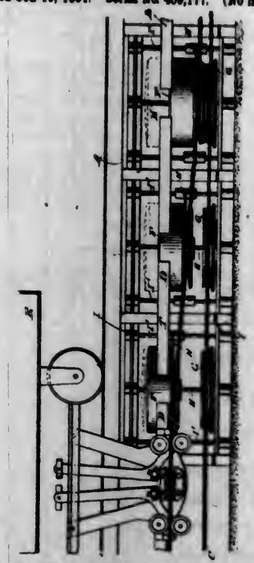


Claim.—1. In a lifting-dock, the combination of the horizontal cylinders having pistons reciprocating therein and mounted upon the

sides and at one end of the dock, the link-rods extending along the sides of the dock, the movable dock-platform adapted to be raised and depressed between the sides of the dock, the pins I of the link-rods, the equalizing-bars, the suspending ropes or chains connected in pairs with said pins and connected with opposite ends of the equalizing-bars, guide-pulleys over which the ropes or chains pass, and the turnbuckles connecting the equalizing-bars with the girders, substantially as herein described.

2. In a dock, the stationary sides, the movable platform adapted to be raised and depressed between the sides having transverse girders at equal intervals from one end to the other, suspending-rods connected with the opposite ends of each of the girders and turnbuckles by which the length is adjusted, horizontal equalizing-bars pivoted to the upper ends of said rods, suspending-ropes in pairs connected with the opposite ends of the equalizing-bars, guide-pulleys over which the ropes pass and by which their direction is changed from vertical to horizontal, link-bars each having a length equal to the distance between two adjacent girders of the platform, connected together in continuous line and adapted to travel upon the cap-timbers of the sides of the dock, and horizontal hydraulic cylinders fixed at one end having pistons and piston-rods connected with the link-bars, whereby motion is transmitted to lift all parts of the platform simultaneously, substantially as herein described.

481,412. CABLE-RAILWAY CURVE. GEORGE MULLER, Hoboken, N. J. Filed Oct. 19, 1891. Serial No. 409,177. (No model.)



Claim.—1. A cable-traction system provided with two sets of cable-supporting devices D and D', arranged on opposite sides of the cables, and each device of each set comprising a pulley and a retaining device located above the said pulley, substantially as shown and described.

2. In a cable-traction system, the combination, with two cables, of the two sets of cable-supporting devices D and D', located at opposite sides of the said cables, each device of the two sets being provided with a retaining device and a pulley located below the retaining device, the cables at the adjacent devices of the two sets of supporting devices passing and crossing from the retaining device of the one supporting device to the pulley of the other adjacent supporting device located at the opposite side of the cables, substantially as shown and described.

3. In a cable-traction system, a cable-supporting device comprising a pulley for one cable and a retaining and protecting device for the other cable, substantially as described.

4. A cable traction system provided with a retaining and protecting device to support the uppermost cable while the other cable is in use, substantially as shown and described.

5. A cable-traction system provided with a pulley for the lowermost cable and a retaining device arranged above the said pulley and adapted to support the uppermost cable to permit the lowermost cable to pass from its pulley up onto the said retaining device without striking the uppermost cable on the latter, substantially as shown and described.

6. A cable-traction system provided with a retaining device comprising a revoluble disk, a ball held on top of the said disk, and a bar formed with a recess containing the said ball, the latter permitting the cable to pass upon the said disk below the said bar, substantially as shown and described.

7. A cable-traction system provided with a retaining device comprising a revoluble disk, a ball held on top of the said disk, a bar formed with a recess containing the said ball, the latter permitting the cable to pass upon the said disk below the said bar, a lock for the said ball and also held in the said recess, and a pulley held on top of the said disk and on which butts the cable, substantially as described.

8. A cable traction system provided with a retaining device comprising a revoluble disk, a recessed bar arranged above the said disk, a ball held on top of the said disk in the said recess, and a pulley held above the said bar in axial line with the said disk, said pulley being formed with a flange extending over the ends of the said bar, substantially as shown and described.

9. A cable-traction system provided with a retaining device comprising a revoluble disk, a recessed bar arranged above the said disk, a ball held on top of the said disk in the said recess, a pulley held above the said bar in axial line with the said disk, said pulley being formed with a flange extending over the ends of the said bar, and locking-balls held in the said recess in the rear of the first-named ball, substantially as shown and described.

10. In a cable-traction system, the combination, with a grooved pulley for the lowermost cable, of a retaining device for the uppermost cable and arranged above and in line with the said pulley, substantially as shown and described.

11. In a cable-traction system, the combination, with a grooved pulley for the lowermost cable, of a retaining device for the uppermost cable and arranged above and in line with the said pulley, the said retaining device being mounted to slide vertically, substantially as shown and described.

12. In a cable-traction system, the combination, with a grooved pulley for the lowermost cable, of a retaining device for the uppermost cable and arranged above and in line with the said pulley, the said retaining device comprising a revoluble disk, a recessed bar fitted to slide vertically and adapted to carry along the said disk, and a ball held in the recess of the said bar and mounted on top of the said disk, and a lock, as described, for the said ball and arranged in the said recess, substantially as shown and described.

13. In a cable-traction system, the combination, with a grooved pulley for the lowermost cable, of a retaining device for the uppermost cable and arranged above and in line with the said pulley, the said retaining device comprising a revoluble disk, a recessed bar fitted to slide vertically and adapted to carry along the said disk, a ball held in the recess of the said bar and mounted on top of the said disk, and two smaller balls arranged in the said recess in the rear of the first-named larger ball, substantially as shown and described.

14. In a cable-traction system, the combination, with a grooved pulley for the lowermost cable, of a retaining device for the uppermost cable and arranged above and in line with the said pulley, the said retaining device comprising a revoluble disk, a recessed bar fitted to slide vertically and adapted to carry along the said disk, a ball held in the recess of the said bar and mounted on top of the said disk, two smaller balls arranged in the said recess in the rear of the first-named larger ball, and a second disk held on top of the first-named disk to form an abutment for the uppermost cable, substantially as shown and described.

15. In a cable-traction sytem, the combination, with a grooved pulley for the lowermost cable, of a retaining device for the uppermost cable and arranged above and in line with the said pulley, the said retaining device comprising a revoluble disk, a recessed bar fitted to slide vertically and adapted to carry along the said disk, a ball held in the recess of the said bar and mounted on top of the said disk, and a pulley mounted to turn loosely on top of the said bar and formed with a downwardly-extending flange passing over the ends of the said bar, and a lock, as described, for the said ball and arranged in the said recess, substantially as shown and described.

16. In a cable-traction system, the combination, with a grooved pulley for the lowermost cable, of a retaining device for the uppermost cable and arranged above and in line with the said pulley, the said retaining device comprising a revoluble disk, a recessed bar fitted to slide vertically and adapted to carry along said disk, a ball held in the recess of the said bar and mounted on top of the said disk, two smaller balls arranged in the said recess in the rear of the first-named larger ball, a second disk held on top of the said first-named disk to form an abutment for the uppermost cable, and a counterbalancing device for the said balls, substantially as shown and described.

481,418. CABLE-TRACTION SYSTEM. GEORGE MULLER, Hoboken, N. J. Filed Mar. 26, 1892. Serial No. 426,926. (No model.)



Claim.—1. A cable-traction system provided with two sets of pulleys D and D', arranged on opposite sides of the cables, each set comprising two pulleys, one for each cable, the cables crossing each other between the sets of pulleys D and D', so that the cable which was uppermost in one set of pulleys becomes lowermost on the other set of pulleys, and a yoke carrying the said pulleys and adapted to be tilted, substantially as shown and described.

2. In a cable-traction system, a cable-supporting device for two cables and comprising two pulleys located one above the other, a yoke carrying the said pulleys and mounted to swing upward by the action of the lowermost cable on the lowermost pulley, and an advance pulley journaled on the said yoke and engaged by the said lowermost cable to return the yoke to its normal position, substantially as shown and described.

3. In a cable-traction system, the combination, with a yoke mounted to tilt, of two pulleys journaled in the said yoke and one located above the other and an advance pulley supported on the said yoke and located in advance of the two other pulleys, substantially as shown and described.

4. In a cable-traction system, the combination, with a tilting yoke and two pulleys journaled therein, of an advance pulley supported by the said yoke and mounted to turn and to slide up and down, substantially as shown and described.

5. In a cable-traction system, the combination, with a tilting yoke and two pulleys journaled therein, of an advance pulley supported by the said yoke and mounted to turn and to slide up and down, the said advance pulley being also adapted to move forwardly while sliding upward, substantially as shown and described.

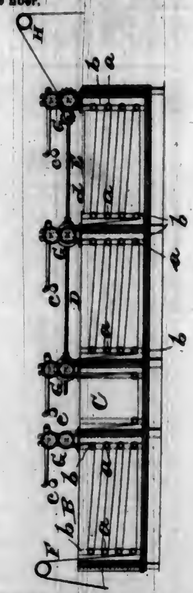
6. In a cable-traction system, an advance pulley provided with a spherical base, an inclined part extending from the said base, and a flange on top of the inclined part, substantially as shown and described.

7. In a cable-traction system, the combination, with a counterbalanced yoke mounted to tilt, of two pulleys journaled in the said yoke, one above the other and one in front of the other, an advance pulley mounted to turn adapted to slide up and down and to shift transversely, and means, substantially as described, for imparting the said movement to the advance pulley, as set forth.

8. In a cable-traction system, the combination, with a counterbalanced yoke mounted to tilt, of two pulleys mounted in the said yoke, one above the other and one in front of the other, an advance pulley mounted to turn, adapted to slide up and down and to shift transversely, a shaft secured in a frame and on which the said advance pulley is mounted to turn, an arm held on the said tilting yoke and pivotally connected with a link supporting the said advance pulley, and a fixed plate on which a bar of the said advance-pulley frame is mounted to slide, substantially as shown and described.

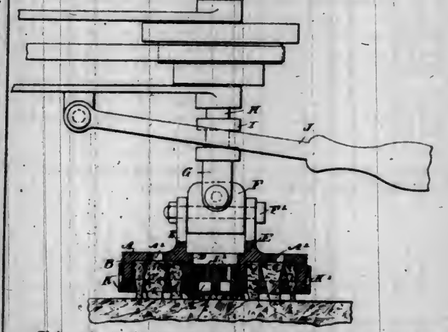
481,414. PROCESS OF BLEACHING. JOSEPH A. MYRICK, Salisbury, N. C. Filed Apr. 1, 1892. Serial No. 427,364. (No specimens.)

Claim.—1. The process of bleaching cotton-chain warp or analogous fiber, which consists in subjecting the fiber to a solution of chloride of lime, then to hot water, then to a solution of sulphurous acid, and finally rinsing the fiber.



2. The process of bleaching cotton-chain warp or analogous fiber, which consists in subjecting the fiber to a solution of chloride of lime, expressing the liquid from the fiber and exposing it to the atmosphere, then subjecting the fiber to hot water and expressing the water, then subjecting the fiber to a weak solution of sulphurous acid, expressing said acid and again subjecting the fiber to the atmosphere, and finally rinsing the fiber.

481,415. POLISHING-WHEEL. JOHN MCCLELLAN, Greenbush, N. Y. Filed Sept. 19, 1891. Serial No. 406,304. (No model.)



Claim.—1. A polishing-wheel comprising an inverted cup adapted to contain the polishing material held therein by a binding substance and an adjustable ring on the cup and adapted to engage the binding substance, substantially as and for the purpose set forth.

2. A polishing-wheel comprising an inverted revoluble cup adapted to support the polishing material, and a ring made adjustable on the said cup to hold the polishing material in place and to prevent the cup from striking the marble under treatment, and a plug held adjustably on the hub of the said cup and formed with apertures for the passage of water, substantially as shown and described.

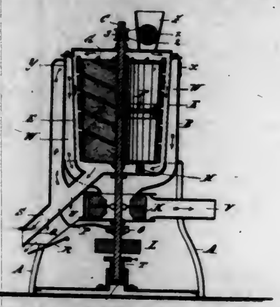
3. A polishing-wheel comprising an inverted cup having a threaded rim and a hub with an interior thread, a ring screwing on the threaded rim of the said hub, and an apertured plug screwing in the said hub, substantially as shown and described.

4. In a polishing-wheel, the combination, with an inverted cup

formed with a threaded rim, ribs, and a central threaded hub, of a ring screwing on the said rim, substantially as shown and described.

5. In a polishing-wheel, the combination, with an inverted cup formed with a threaded rim, ribs, and a central threaded hub, of a ring screwing on the said rim and an apertured plug screwing in the said hub, substantially as shown and described.

481,416. COTTON-SEED-DELINTING MACHINE. JOHN H. MCCONNICK, New Orleans, La. Filed Oct. 16, 1891. Serial No. 408,948. (No model.)



Claim.—1. In a cotton-seed delinter, the combination, with the frame B, of the indented and perforated casing arranged thereon and forming a lint-chamber, the brush-cylinder arranged within the indented casing, the vertically-adjustable shaft secured to said brush-cylinder, the fan-casing below the brush-cylinder, the fan arranged therein and secured to said shaft, the chute leading from the interior of the perforated casing and having a perforated shaker in its bottom, the dust-receiving chute below said shaker, the cam on the shaft, and an agitator for engaging the cam on the shaft for operating the shaker, substantially as specified.

2. In a cotton-seed delinter, the combination of the casing, the vertical shaft therein, the vertically-adjustable bearing for said shaft, the brush-cylinder secured to the shaft and provided with a spiral brush on the periphery, a brush on the bottom of the cylinder, the casing having a return-inlet for lint and a discharge-outlet for seed, a sieve arranged in the seed discharge or outlet, and an agitator for said sieve connected with the shaft, substantially as specified.

3. A cotton-seed delinter having the following instrumentalities in combination: a lint-chamber arranged upon a suitable frame, a fan-casing arranged below the lint-chamber and in communication therewith, a lint-discharge leading from said casing, a perforated casing arranged in the lint-chamber, a vertically-adjustable shaft passing through the respective chambers, the brush-cylinder secured to the shaft, a brush secured to the under side of the brush-cylinder, a fan also secured to said shaft, a grooved cam secured to the shaft below the fan-casing, a sieve arranged on the seed-discharge, a dust-chamber beneath the sieve, and an agitator connecting the sieve with the cam on the vertical shaft, all adapted to operate substantially as specified.

481,417. NUT-LOCK. JAMES C. MCGUILKIN, Industry, Pa. Filed Mar. 31, 1892. Serial No. 427,235. (No model.)

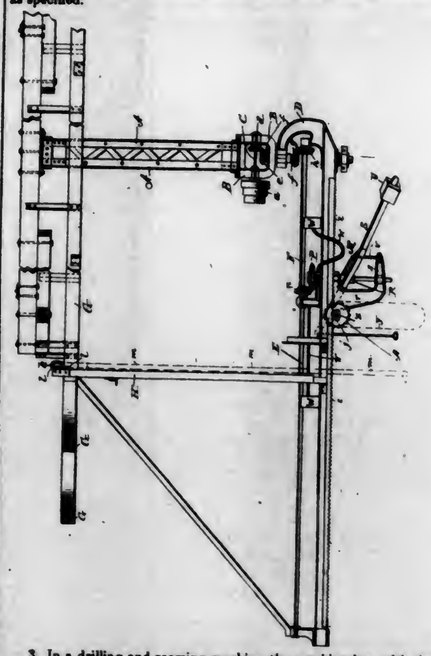


Claim.—In a nut-lock, the combination, with a washer having a central aperture, a diagonal recess, and a diagonal slot, of a key adapted to fit in said recess, having a projection at its outer end, adapted to fit in said slot, said projection having a wedge-shaped projection projecting beyond the face of the projection at the outer end and adapted to engage with a nut, substantially as described.

481,418. REAMING AND DRILLING MACHINE. OLE C. OPSHOL and JESSE V. HOOPER, Pittsburg, Pa. Filed Nov. 13, 1891. Serial No. 411,858. (No model.)

Claim.—1. In a drilling and reaming machine, the combination, with a pivot-hanger, the sweep pivotally connected thereto, and the carriage adjustably mounted on said sweep, of a series of approximate semicircular hanger-tracks arranged at various distances from the pivot-hanger and a hanger carrying a traveling wheel at its upper end, adapted to engage the hanger-tracks and adjustably connected at its lower end to the sweep, substantially as and for the purpose set forth.

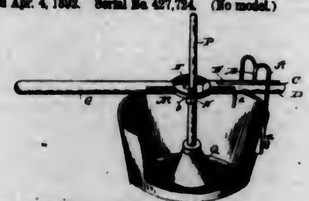
2. In a drilling and reaming machine, the combination, with a pivot-hanger, the sweep pivotally connected thereto, the carriage adjustably mounted on said sweep, and the series of approximate semicircular hanger-tracks arranged at various distances from the pivot-hanger, of a hanger adjustably connected to the sweep and carrying a traveling wheel adapted to engage the hanger-tracks, a sprocket-wheel connected with said traveling wheel, and an endless chain taking around said sprocket-wheel and depending therefrom, substantially as specified.



3. In a drilling and reaming machine, the combination, with the sweep, the longitudinal feathered shaft mounted thereon, and the bevel gear keyed on said shaft, of the drill-carriage loosely mounted on the shaft and loosely connected to the gear thereon, the tubular shaft journaled in the carriage-body and carrying a beveled gear at its upper end, meshing with the gear on the shaft, the spindle keyed or feathered in the tubular shaft and having a key-seat at its lower end, a suitable means for normally holding the spindle up out of an operative position, and a suitable means for throwing said spindle down into an operative position, substantially as specified.

4. In a drilling and reaming machine, the combination, with the sweep, the longitudinal shaft mounted thereon, and the movable drill-carriage loosely mounted on said longitudinal shaft, of the movable bearings mounted on the sweep and supporting the longitudinal shaft and ropes or chains connecting said bearings with the drill-carriage, substantially as specified.

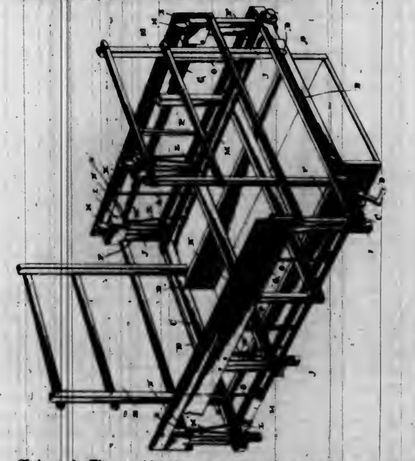
481,419. WASHING-MACHINE. IRA R. OWEN, Glen Elder, Kans. Filed Apr. 4, 1892. Serial No. 427,734. (No model.)



Claim.—1. In a washing-machine substantially as described, the combination, with a supporting-frame having a vertically-disposed shaft and a friction and fulcrum ball journaled on said shaft, of a reciprocatory lever embodying a tubular portion having a longitudinal slot in its upper side and adapted to receive the friction and fulcrum ball and a suitable means for connecting a rubber to said lever, substantially as and for the purpose specified.

2. In a washing-machine substantially as described, the combination, with a supporting-frame having a vertically-disposed shaft and a friction and fulcrum ball journaled on said shaft, of a reciprocatory lever comprising the tubular section having a longitudinal slot in its upper side and adapted to receive the friction and fulcrum ball, the handle-section, the curvilinear or bowed straps, and the set-screws taking through the bowed straps and adapted to engage the handle of a rubber, substantially as and for the purpose set forth.

481,420. HAY-RACK. SEVER H. FLOBERG, Leland, Iowa. Filed May 14, 1892. Serial No. 433,419. (No model.)



Claim.—1. The combination, with the sides of a hay-rack having vertical ways formed thereon, of vertically-adjustable racks having depending standards which move in said ways and a means for elevating the said adjustable racks, substantially as shown and described.

2. The combination, with the sides of a hay-rack having vertical ways formed thereon and side racks adapted to move in said ways, of a drum secured across the projecting portion of the side of the rack and ropes so connected to the drum and the adjustable racks that when the former is revolved the racks will be elevated, substantially as shown and described.

3. In a hay-body, the combination of a stationary vertical rack, a vertically-adjustable rack adapted to move thereon, ropes for elevating and separate ropes for lowering the rack, and a drum upon which the said ropes are adapted to be wound in opposite directions, substantially as shown and described.

4. The combination, with a hay-body having cross-pieces C, of sides projecting vertically from said cross-pieces having ways thereon, vertically-adjustable racks, standards depending therefrom which move in the ways of the said sides, a drum journaled to the under sides of the cross pieces C, and ropes secured to the said drum and lower ends of the said standards at their respective ends, the said ropes between their ends passing up over pulleys depending from the stationary vertical sides, substantially as shown and described.

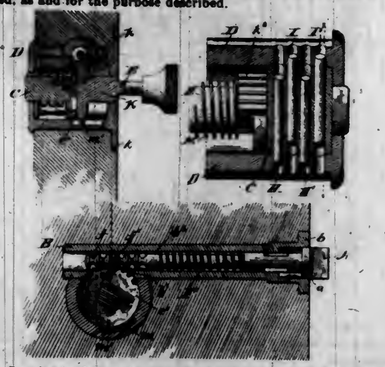
481,421. CYLINDER-LOCK. JOHN B. PRICE, Wolleston, Mass. Filed Mar. 30, 1892. Serial No. 427,106. (No model.)

Claim.—1. The combination, with a latch-bolt, of the key-actuated plug or barrel seated in a suitable fixed shell at right angles to said latch-bolt and an operating-spindle in line with the plug or barrel and connected to the latch-bolt, the adjacent ends of the plug and spindle being connected to permit said spindle to have a limited axial movement irrespective of the plug to retract or project the latch-bolt, as and for the purpose described.

2. In a latch, the combination of the spring-actuated bolt, an independent key-actuated turning plug or barrel at right angles to the bolt, and an endwise-adjustable spindle normally geared to the bolt and connected to the plug or barrel, said spindle adapted to be disconnected from the plug or barrel while still engaged with the bolt, as and for the purpose described.

3. In a latch, the combination, with a bolt and an axially-turning key-actuated plug or barrel, of an endwise-movable spindle arranged in axial alignment with said plug or barrel and connected normally to said plug and the bolt, said spindle being capable of endwise movement to disconnect the same from either the plug or the bolt, as and for the purpose described.

4. In a latch, the combination, with a bolt and a key-actuated plug or barrel, of the spindle geared to the bolt and having means to connect the same to the barrel or plug to turn axially therewith, said spindle adapted to be withdrawn from engagement with the plug or barrel while still connected to the bolt, and means for holding the connected bolt and spindle against movement when the bolt is retracted, as and for the purpose described.



5. In a latch, the combination, with a key-actuated plug or barrel, of an endwise-movable bolt and a spindle arranged in axial alignment with the plug or barrel and connected therewith, said bolt and spindle being coupled to permit of reversal of the bolt without disconnecting the parts, as and for the purpose described.

6. In a latch, the combination of an endwise-movable bolt having a rack at its inner end, a key-actuated plug or barrel, and a spindle in axial alignment with and connected to the barrel and having a gear which meshes with the rack of the bolt, as and for the purpose set forth.

7. In a latch, the combination of an endwise-movable bolt provided with a rack, the spindle geared to said rack and provided with the shoulders *e e* at its inner end, and the plug or barrel having the stud *e'* adapted to impinge against the shoulders *e* of said spindle, as and for the purpose described.

8. In a latch, the combination, with the fixed cylinder and the jacket arranged at right angles to each other, of the reciprocating bolt in the jacket, a key-actuated plug fitted in one end of the cylinder and having the tumbler-controlled plungers and the stud *e'*, and the spindle fitted in the opposite end of the cylinder in line with the plug and having shoulders in the path of the stud *e'* of said plug, said spindle and bolt being connected by means which retracts the bolt when the spindle is turned on its axis, as and for the purpose described.

9. In a latch, the combination, with a cylinder, of a key-actuated plug or barrel fitted in one end thereof, a reciprocating bolt at right angles to the cylinder and disconnected from the barrel or plug, and an endwise-adjustable and turning spindle geared to the bolt and normally connected to the plug or barrel to turn axially therewith, said spindle connecting the bolt and plug for simultaneous operation and adapted to be withdrawn from engagement with either or both of said parts, as and for the purpose described.

10. In a latch, the cylinder having the longitudinal and circumferential grooves *m n* connected together, combined with a spindle having the guide-pin fitted in the grooves and provided with the gear-pinion, the reciprocating bolt having the teeth meshing with the gear-pinion on the spindle, and the key-actuated plug or barrel in axial alignment with the spindle and connected thereto, substantially as described.

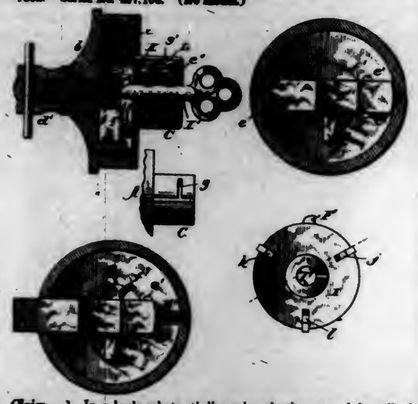
11. In a latch, the combination, with a cylinder, of the spring-impelled bolt provided with the concentric annular shoulders forming the rack, the spindle operating in one end of the cylinder and having the gear-pinion meshing with the rack and the shoulders *e e* on its inner end, and the plug or barrel having the stud fitted between the shoulders and the tumbler-controlled plungers, which engage with the cylinder, as set forth.

12. In a latch, the axially-turning plug or barrel having the slots and passages, the two sets of plungers fitted in passages and arranged so that adjacent plungers project beyond the plug in opposite directions, the tumblers pivoted in the slots and connected to the plungers, and the springs, substantially as described

13. In a latch, the combination, with a cylinder, of a plug or barrel having its V-shaped key passage or way and transverse passages

connected by the radial slots, the tumblers pivoted in said slots, the plungers in the passages connected to the tumblers, and the springs bearing on the tumblers, substantially as described.

481,422. LOCK. JOHN B. PRIME, Wellesley, Mass. Filed Mar. 30, 1892. Serial No. 427,108. (No model.)



Claim.—1. In a lock substantially as herein shown and described, the sectional casing comprising the two annular members A C, of which the smaller member C is arranged in axial alignment with the larger member and provided at its inner end with a radial flange or plate c, secured directly to said larger member, combined with a bolt guided in the member A and a key-actuated plug seated in the smaller member and having an arm F, which operates between suitable stops on the bolt, as and for the purpose described.

2. In a lock substantially as herein shown and described, the combination of an annular sectional casing having its aligned members connected rigidly and directly together and one member provided with a spindle-bearing, the latch-bolt F, guided in one member of the casing and recessed on both sides thereof to provide the two sets of shoulders f' f', an axially-turning plug seated in the other member of the casing and provided at its inner end with a radial arm F, which operates between the shoulders f' of the bolt, and a spindle journaled in the bearing of one member of the casing and also provided with a radial arm that fits between the shoulders f of the bolt, as and for the purpose described.

3. In a lock substantially as herein shown and described, the sectional annular casing adapted to be fitted in a door-stile by having two holes therein of different diameters, comprising an annular divided casing A C, in which the members are united rigidly and directly together at their inner meeting ends, combined with a latch-bolt guided in the member A, a spindle, and a turning plug seated in the member C and connected directly to the latch-bolt, as and for the purpose described.

4. The combination, with a fixed slotted casing, of the axially-turning plug or barrel seated therein and having the radial tumbler-recesses, the tumblers pivoted eccentrically in said recesses and normally projected by springs beyond the surface of the plug or barrel, and the plungers or pins bearing against the tumblers and normally forced thereby into a longitudinal key-passage in the center of the barrel or plug, substantially as described.

5. The combination, with a slotted casing, of the recessed axially-turning plug, the series of tumblers, each pivoted independently in the plug or barrel and projected at one end beyond the surface thereof by a separate pressure-spring, and a separate pin or plunger bearing against the heel of each tumbler and forced thereby into a key-opening in the barrel, substantially as described.

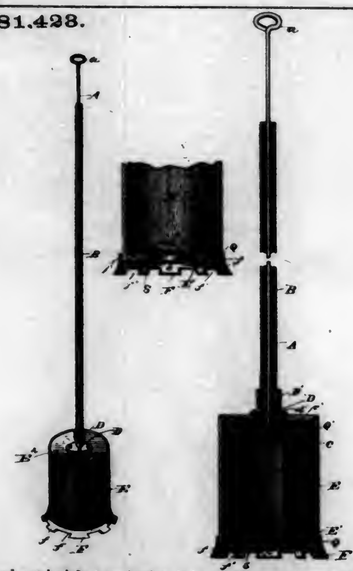
6. The combination, with a radially-slotted casing, of an axially-turning plug having the radial recesses in its surface and a central key-passage, the series of tumblers, each eccentrically pivoted in one of the recesses and having a heel, a spring for each tumbler, seated in a socket in the plug or barrel and bearing against the free end of the tumbler, and a radial pin or plunger operating in a seated radial opening in the plug and bearing against the heel of the tumbler, as and for the purpose described.

481,428. CISTERN-CLEANER. EVAN B. RAVENSCROFT, North Baltimore, Ohio, assignor of one-half to Thomas H. Carter, same place. Filed Feb. 13, 1892. Serial No. 421,368. (No model.)

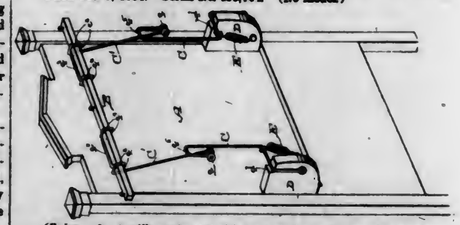
Claim.—1. A cistern-cleaner comprising a cylinder having a flaring and notched foot projecting below its lower end, a reciprocating piston in the cylinder, an apertured head in the lower end of the cylinder, an inwardly-opening flap-valve secured to said head and adapted to close the aperture therein, and a screw taking through this head from the exterior and adapted to sustain the free edge of said valve, as and for the purpose set forth.

2. A cistern-cleaner comprising a cylinder having a handle, a piston within said cylinder, means for operating the piston, an apertured head in the lower end of the cylinder, an inwardly-opening flap-valve secured to said head and adapted to close the aperture therein, and an adjustable support on this head adapted to sustain the free edge of said valve, as and for the purpose set forth.

481,428.



481,424. PILLOW-SHAM HOLDER. ALEXANDER J. ROBERSON, Napa, Cal., assignor of one-half to Joseph W. Hostetler, same place. Filed Oct. 8, 1891. Serial No. 408,164. (No model.)



Claim.—1. A pillow-sham holder consisting of a bar for supporting the shams and the supporting-arms each made in two sections pivoted together at their adjoining ends, the upper section forming a support for the bar, while the lower section is pivotally secured to a fixed part of the bed-frame, said sections having their points of pivotal movement in the plane of the width of the bed and one of the sections of each arm crossing the other section at one side of the pivotal center to form a limiting-stop, substantially as herein described.

2. A pillow-sham holder consisting of upper and lower arms pivotally secured to each other at the inner ends and with the lower portions of the lower arms pivotally secured to a fixed portion of the bed-frame, one of said arms being bent at right angles and across the other arm to form a limiting-stop, and a bar supported upon the upper ends of the upper arms.

3. A pillow-sham holder consisting of a bar for supporting the shams, jointed sectional arms carrying the supporting-bar at their upper ends, and brackets secured to the head-board and to which said arms are pivoted at their lower ends, said brackets having top shoulders forming stops and rests for the arms and bar, substantially as herein described.

4. A pillow-sham holder consisting of the bar for supporting the shams, the jointed sectional arms carrying said bar, the brackets fixed to the head-board and to which the lower ends of the arms are pivoted, said brackets having top shoulders or rests for said arms and for the bar when lowered, and the springs secured to said brackets and arms, substantially as herein described.

5. A pillow-sham holder consisting of the bar for supporting the shams and the pivoted arms carrying said bar, said arms being sectional with adjacent ends pivoted, the lower sections of the arms being bent at right angles across the lower ends of the upper arms to form stops c^3 for controlling the position of the upper sections and adjusting the supporting-bar to the moldings of the head-board, substantially as herein described.

6. A pillow-sham holder consisting of the bar for supporting the shams the fixed brackets on the head-board, the upper sections C' of the supporting-arms, secured to and carrying the bar, and the lower sections C of said arms pivoted to the brackets at their lower ends and pivoted at their upper ends to the lower ends of the upper sections, said lower sections being formed with the bendable stops c^3 in front of the upper sections for adjusting the position of said upper sections and of the supporting-bar, substantially as herein described.

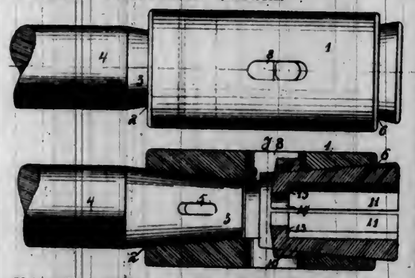
481,425. SHIRT-COLLAR HOLDER. FRANK L. ROBINSON, Hartland, Me. Filed Apr. 7, 1892. Serial No. 428,185. (No model.)



Claim.—1. A shirt-collar holder comprising a doubled tape having a clasp secured to each of its free ends and a clasp secured to its doubled portion and a device connecting the parts of the tape between its doubled portion and its free ends, substantially as described.

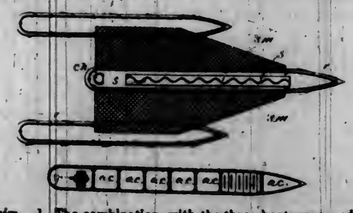
2. A shirt-collar stay comprising a doubled tape having a clasp adjustably secured to each of its ends and a clasp secured to the doubled portion of the tape and a sliding loop connecting the parts of the tape between its doubled portion and free ends, substantially as described.

481,426. CHUCK. WILLIAM F. SCHMIDT, St. Louis, Mo. Filed Jan. 25, 1892. Serial No. 419,181. (No model.)



Claim.—The combination, with a chuck provided with an inwardly-tapering conical socket, and with a transverse slot intersecting the latter, of two inwardly-tapering semi-conical jaws provided with opposing angular grooves and with lugs 10, normally seated in said transverse slot, the rear ends of the jaws being reversely beveled in line with the lugs, substantially as and for the purpose set forth.

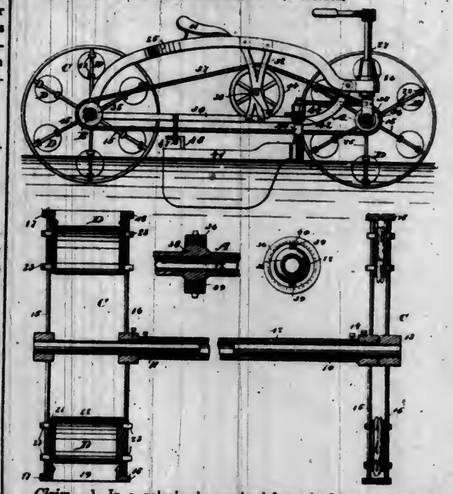
481,427. LIFE-SAVING AND PLEASURE CRAFT. ARTHUR B. SERARER, Reno, Nev. Filed Mar. 29, 1892. Serial No. 426,969. (No model.)



Claim.—1. The combination, with the three boats arranged parallel, but separated and rigidly connected, as specified, of batteries and motors arranged in pairs in each boat, a propeller connected with each boat and motor, a switchboard located in the central boat, and a series of conductors which connect each battery with the nearest motor and also with said switchboard, as shown and described.

2. The combination, with the three boats arranged parallel, but separated and rigidly connected, as specified, of batteries and motors arranged in pairs in each boat, a propeller connected with each boat and motor, a switchboard located in the central boat, and a series of conductors which connect each battery with the nearest motor and also with said switchboard, a cable-reel located in the central boat and adapted to revolve, a cable wound thereon and connected with the adjacent switchboard and with a shore-switchboard, as shown and described.

481,428. VELOCIPEDE. ABRAM C. SHELLEY, Rythebourne, N. Y. Filed Nov. 6, 1891. Serial No. 411,042. (No model.)



Claim.—1. In a velocipede, a wheel formed of two sections adjustable toward and from each other and a series of floats and paddles between the said sections, substantially as and for the purpose set forth.

2. In a velocipede, a wheel formed of two sections adjustable toward and from each other, floats secured between the sections of the wheel, and paddles detachably secured to and between the said sections, substantially as described.

3. In a velocipede, wheels constructed in two sections, one adjustable toward the other, detachable floats connecting the two wheel-sections, said floats comprising stiff heads and flexible bodies, and paddles intervening the sections of the wheels, said paddles being also removable, as and for the purpose specified.

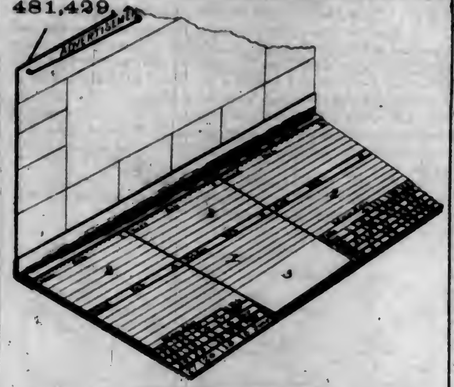
4. In a velocipede, the combination, with the axles and wheels mounted to turn therewith, the said wheels being constructed in two sections, one adjustable toward the other, and provided with floats and paddles removably attached to the sections and intervening them, of a pedal-shaft, a driving mechanism connecting the pedal-shaft and the axles, and a steering device connected with the forward axle, as and for the purpose set forth.

5. In a velocipede of the character described, the combination, with the axles and wheels secured to said axles, the said wheels being constructed in two adjustable sections and provided with removable floats and paddles intervening the sections, of a pedal-shaft, a driving mechanism connecting the pedal-shaft and the axles, a steering apparatus connected with the forward axle, a rudder suspended between the axles, and a connection between said rudder and the steering apparatus, as and for the purpose specified.

481,429. MEMORANDUM-TABLET. GEORGE H. SEYMOUR, Stanton, Tex., assignor of one-half to William H. Fusch, same place. Filed Mar. 18, 1892. Serial No. 425,468. (No model.)

Claim.—A memorandum-tablet or tickler consisting of fifty-two connected leaves, each divided into six spaces marked with the six business days of the week and the corresponding month and day thereof, and the index at the bottom having the name of the month and the date of the first business day of the week corresponding to the leaf printed thereon and said leaves cut away, so that all the names and numerals thereon will be visible, substantially as and for the purpose set forth.

481,429.

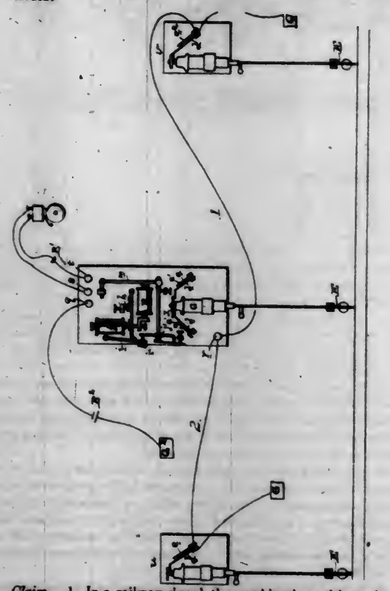


8. A pneumatic track-instrument actuated by passing trains, a chamber with a piston and rod, a pipe connecting the track-instrument with the chamber, whereby the vibration of a column of air is communicated from the track-instrument to the chamber to move the piston therein, and the locking and unlocking mechanism of an interlocking relay, mechanically actuated by the movement of the piston, substantially as herein described.

4. In a railway-signal, a track-instrument consisting of a vertical cylinder with piston, piston-rod, actuating-lever, and returning-spring, a pipe connecting the cylinder with a second cylinder upon a relay or contact instrument adjacent to the track-instrument, a piston moving loosely in the second cylinder so as to allow the air to gradually escape past it, while itself falls by gravitation when the air-supply ceases, elastic contact-arms situated above the cylinder, an attachment upon the upper end of the piston-rod to engage one of the arms and hold them out of contact when the piston is at the bottom of the cylinder and to allow contact to be made when the piston rises, an electro-magnet and mechanism whereby a local circuit is completed when these contacts are made and a signal or alarm is actuated, and a mechanism by which the local circuit is maintained and the signal continued during a period after the actuating force has ceased, substantially as herein described.

5. In a railway-signal, an apparatus consisting of the two connected air-cylinders, contact-arms, and mechanism whereby contact between said arms is produced, as shown, a local circuit and signal, with a mechanism by which the latter is actuated when the contact is made and the circuit is maintained and the signal continued after the actuating force has ceased, and a mechanism by which the circuit is automatically cut off at the end of the time and the parts returned to their normal position, substantially as herein described.

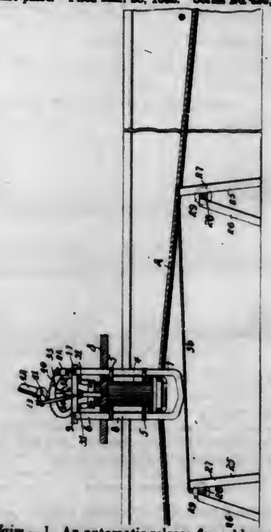
481,430. PNEUMATIC ELECTRIC-CIRCUIT-CONTROLLING AND INTERLOCKING APPARATUS. WILLIAM W. SLATER and HARRY C. BARNES, Oakland, Cal. Filed Oct. 24, 1891. Serial No. 409,742. (No model.)



Claim.—1. In a railway-signal, the combination, with an electro-pneumatic contact-instrument and actuating mechanism, as shown, of a track-instrument consisting of a vertical cylinder, a piston moving therein, a spring by which the piston is held normally in the upper part of the cylinder, a piston-rod extending through the top of the cylinder, a lever fulcrumed by the side of the track, resting upon the top of the piston-rod, with its movable end so disposed that it is depressed by the successive wheels of a passing train, and an inwardly-opening valve by which air is admitted into the pipe connecting with the lower part of the cylinder when the piston rises, said pipe leading from this track-cylinder to the cylinder of the electro-pneumatic contact-instrument, substantially as herein described.

2. In a railway-signal, the track-instrument consisting of a vertical cylinder with piston, piston-rod, actuating-lever, and returning-spring, a pipe connecting the cylinder with a second cylinder upon a relay or contact-instrument adjacent to the track-instrument, a piston moving in the second cylinder, the piston-rod of which extends through the top of the cylinder, elastic contact-arms *d* and *e*, which are normally separated by the position of the piston at the bottom of the cylinder and the contacts are made when the piston is raised, and an electro-magnet *f* and mechanism whereby a local circuit is completed and a bell or signal actuated, substantially as herein described.

481,431. AUTOMATIC RELEASE FOR CABLE-GRIPPERS. ANDREW J. SMITH, St. Louis, Mo., assignor of one-half to Charles Kroemke, same place. Filed Mar. 25, 1892. Serial No. 426,409. (No model.)

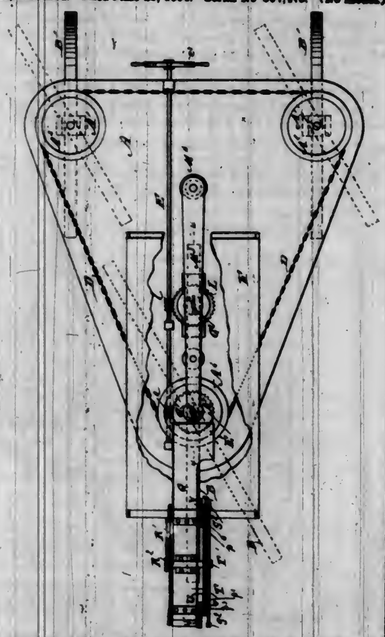


Claim.—1. An automatic release for cables, consisting of a movable frame, the lower end of which is forked and the same adapted to be attached to the grip, a loop attached to said frame and adapted to surround the upper portion of the grip, inclined tracks located within the subway upon which the forked ends of the said frame are adapted to come in contact, a connecting-rod carried by the said frame and in movable connection with the pawl carried by the grip-lever, and an alarm adapted to be sounded when the said frame is elevated and previous to disengaging the pawl, substantially as described.

2. An automatic release for cables, consisting of a movable frame, straps attached to the grip, forming loops through which the said frame is adapted to pass, a connecting-bar attached to the said frame, a slot formed in the upper end of the said bar through which a screw or other device is adapted to be passed for attaching the said bar to the pawl carried by the grip-lever, inclined tracks located within the subway and mounted upon suitable supports for elevating the said frame, and an electric bell fixed to the upper portion of the grip-frame and adapted to be sounded when the said frame is partially elevated, substantially as described.

3. An automatic release for cables, consisting of a movable frame 6, having a forked extension 7, a loop 9, forming the upper portion of the said frame, a connecting-rod 14, movably attached to the said loop, a slot 15, formed in the upper end of the said rod, a screw or other like device 16, passed through said slot and into the pawl 11 of the grip-lever, loops attached to the grip-frame for holding the said frame 6 to the said grip, a spring 23, attached to the said grip-lever, the free end of which is adapted to bear against a projection 32, fixed to the upper portion of the said grip-frame, an electric alarm or bell 22, fixed to the upper portion of the grip-frame, a yielding rod 19, carried by the upper portion of the frame 6 and adapted to sound an alarm when the same is elevated, supports located within the subway, and plates, such as 30, fixed to the upper end of the said supports and arranged at an incline, whereby the frame 6 is elevated when the same comes in contact with the said plate 30, first producing an alarm and afterward releasing the grip-lever, allowing the cable 2 to fall and assume its normal position, substantially as described.

481,432. SELF-RECORDING PLANOGRAPH. JUSTO SOLER, Yauco, Porto Rico, West Indies; Perry B. Turpin administrator of said Justo Soler, deceased. Filed June 26, 1891. Serial No. 397,473. (No model.)



Claim.—In a planograph, the combination, with the platform or frame having front and rear wheels geared together and tracking in unison and a steering-shaft forming part of said gearing, of the feed-wheels for the paper continuously rotated from the main axle and the pencil or marker supported in the path of the paper, substantially as set forth.

2. The standards A' A' and frame A^3, having wheels B B' journaled therein, in combination with the platform A, pulleys A^2 A^4, endless chain D, worm-wheel E', attached to the frame A^3, and the steering-shaft E, having worm *e* to engage with the worm-wheel E', substantially as described.

3. The combination, with the steering-shaft E and the standards for the wheels, the pulleys A^2 A^4, endless chain D, gear E', and worm *e*, of the worm-gear L, shafts H' J', feed-wheels G' G^4, and the gearing and shafts for revolving the said feed-wheels from the main axle B^3, substantially as described.

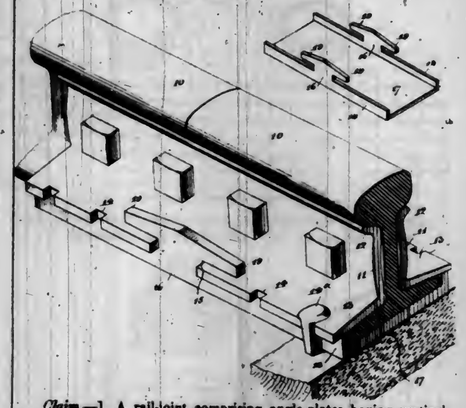
4. The combination, with the platform or frame having front and rear wheels and a steering-shaft geared to the said wheels and tracking them in unison, of the paper-feed wheels rotated from the main axle and having horizontally-turning bearings geared together and to said steering-shaft to track the feed-wheels in unison with platform-supporting wheels, substantially as set forth.

5. The combination, with the wheeled platform or frame and the paper-table, of feed-wheels driven from the main axle and projecting at their upper sides flush with the upper surface of the table, a pencil and a presser-foot or rod over the respective feed-wheels, and a spring pressing the pencil and presser-foot down to hold the paper to the feed-wheels, substantially as set forth.

6. The combination, with the wheeled platform or frame, the longitudinally-aligned feed-wheels rotated from the main shaft, and the vertical spring-pressed pencil and presser-foot or rod to hold the paper down upon the respective feed-wheels, of a transverse screw-shaft supported adjacent to the pencil and a nut traveling on said screw-shaft and also carrying a pencil and a pendulum mechanism and gearing for traversing said nut, substantially as set forth.

7. The combination, with the wheeled frame, the paper-feeding mechanism, and stationary pencil, of the transverse screw-shaft having a pencil-carrying nut, a shaft provided with a ratchet-wheel and geared to the screw-shaft, a horizontal bar T, pivoted between its ends on the ratchet-wheel shaft, pawls pivoted to the said bar at opposite sides of the ratchet-wheel and provided with oppositely-extending arms p^3 p^3, a spring throwing the pawls out of engagement with the ratchet-wheel, wheels V V' above said pawls and having projections *o o'* to engage the respective arms p^3 p^3 when the bar T is rocked, a lower bar S, pivoted between its ends, links S^2, pivotally connecting the ends of the bars S T, a pendulum S^3 for rocking the bar S, and gearing connecting the wheels V V' with the main axle, substantially as set forth.

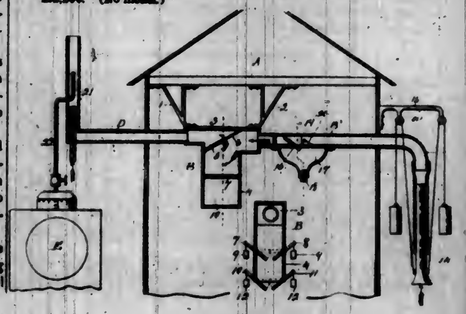
481,433. RAIL-JOINT. GEORGE G. STAGY, New York, N. Y. Filed Dec. 31, 1891. Serial No. 416,635. (No model.)



Claim.—1. A rail-joint comprising angle-plates having vertical portions to fit the rail-webs and outwardly-extending base-flanges with notches therein and a base-plate adapted to receive the rails, said plate having uprights on opposite sides to fit the notches in the angle-plate flanges, the uprights terminating at their upper ends in laterally-extending arms to overlap the flanges of the angle-plates, substantially as described.

2. The combination, with the base-plate adapted to receive the rails and having side flanges with vertical uprights terminating in laterally-extending arms, of the angle-plates adapted to be secured to the rails, said plates having outwardly-extending base-flanges with notches therein to receive the uprights, substantially as shown and described.

481,434. PNEUMATIC CONVEYER FOR UNLOADING COTTON. GEORGE A. STAFFORD, Montague, Tex. Filed Feb. 20, 1892. Serial No. 422,296. (No model.)



Claim.—1. In a pneumatic conveyer for unloading cotton, the combination, with the main feed pipe, of upwardly-inclined beaters fulcrumed in the pipe and a spring to hold the beaters, whereby they are given a yielding function, substantially as described.

2. In a pneumatic conveyer for unloading cotton, the combination of the main feed-pipe formed with a grating in the bottom, a dust-receptacle under and inclosing the grating, and beaters yieldingly fulcrumed in the bottom of the pipe and over the grating and dust-receptacle, substantially as described.

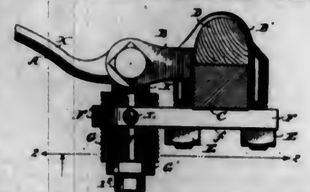
3. The herein-described pneumatic apparatus for handling cotton, comprising a feed-pipe B, having a grating in the bottom thereof, beaters yieldingly fulcrumed over the grating, and a dust-receptacle under the grating, a cotton box provided with a deflecting board and screen and formed with an extending lower portion 4, automatically-operating doors 7 8 midway in said portion 4, automatically-operating doors 10 11 to close the bottom of said portion 4, an exhaust-pipe D, leading from the cotton-box, and an exhaust mechanism, all combined substantially as and for the purpose specified.

481,435. TIRE FOR CYCLES. THOMAS H. STONE and HARVINGTON CORBER, Birmingham, England. Filed Feb. 2, 1892. Serial No. 420,119. (No model.) Patented in France Jan. 15, 1892, No. 218,743; in Germany Jan. 15, 1892, No. 67,720, and in Belgium Jan. 18, 1892, No. 97,966.



Claim.—The combination, with a felly *c*, having inwardly-turned edges, of an elastic tire formed with shoulders *e*, comprising a thickened solid portion *a* and the tubular portion *b*, said solid and tubular portions formed integral with each other, said tubular portion adapted to seat within the felly *c*, the inwardly turned edges of which engage the shoulders *e* of the tire, substantially as described.

481,436. THILL-COUPLING. ALGERNON L. STRAW, Marlborough, Mass. Filed Apr. 13, 1892. Serial No. 429,061. (No model.)



Claim.—1. In a thill-coupling, the combination, with the thill and coupling-pieces, of the elongated tie-piece, a hollow screw mounted therein, and an elastic block fitting the hollow screw and bearing against the thill, substantially as described.

2. In a thill-coupling, the combination, with the thill and lugs supporting the thill, of the elongated tie, a hollow screw mounted in the tie, an elastic block mounted in the hollow screw, and an adjusting-block also mounted in the hollow screw and arranged to regulate the pressure of the block on the thill, substantially as described.

3. In a thill-coupling, the combination, with the thill and lugs supporting the thill, of an elongated tie, a hollow screw having a slot in its outer surface and a set-screw for fitting the same, an elastic block mounted in the upper portion of said hollow screw, a block sliding in said hollow screw beneath the elastic block, and a screw for adjusting said block, the threads of which are in the opposite direction from the threads of the hollow screw, substantially as described.

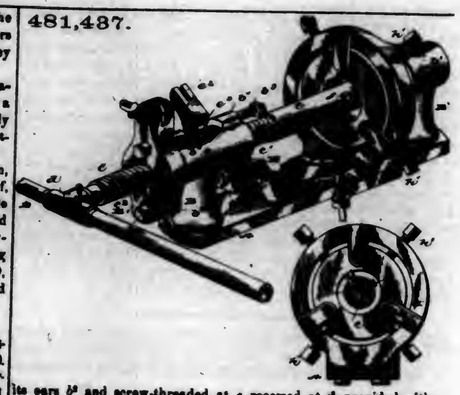
481,437. DEVICE FOR THREADING NUT-BLANKS. JOHN C. STOUMS, Indiana, Pa. Filed Nov. 13, 1891. Serial No. 411,761. (Model.)

Claim.—1. In a nut-threading device, a rod provided with a right and left hand screw and cutting-bit and combined with right and left hand screw-threaded split nuts and with a chuck for holding the nut, in the manner and for the purposes set forth.

2. In combination with the base A, having posts B B' at its respective ends, each provided with a sleeve at its upper end, the split nuts E E', pivoted on the former sleeve, screw-threaded, as set forth with the rod C, screw-threaded and otherwise, as described, and the chuck H.

3. In a machine or tool as set forth and in combination with the sleeve B, the split nuts E and E', respectively pivoted to the sleeve on

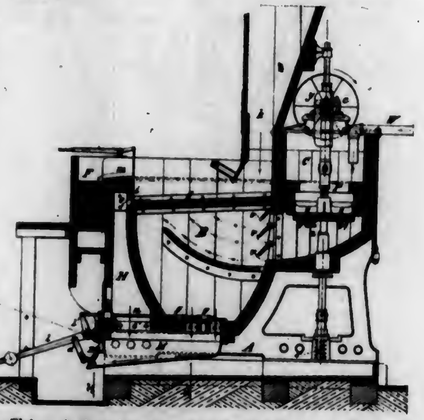
481,437.



its ears b^3 and screw-threaded at *c*, recessed at c^2, provided with a locking-latch *c'*, and adapted to be fixed firm in position by bolt b^3, all substantially as and for the purposes set forth.

4. The rod C, having smooth portions and screw-threaded portions, as set forth, and a cutting-bit F near its middle part, combined with the sleeves *b b'*, and means for causing it to cut a right or left hand screw-thread, and a centering-chuck, all as described.

481,438. COAL OR ORE JIGGER AND WASHER. SEBASTIAN STOUT, Pittsburg, Pa. Filed Mar. 29, 1892. Serial No. 426,911. (No model.)



Claim.—1. A coal or ore washer comprising a separating-chamber, a sieve or screen fitted into the chamber, a piston or plunger chamber adjacent to the separating-chamber, a piston or plunger adapted to reciprocate vertically in said chamber, a slate-chamber adjacent to the separating-chamber, and an auxiliary receiver arranged below the bottom of the washer and communicating with both the separating-chamber and the slate-chamber, substantially as described.

2. A coal or ore washer comprising a separating-chamber, a sieve or screen fitted into said chamber, a piston or plunger chamber adjacent to the separating-chamber, a piston or plunger adapted to reciprocate vertically in said chamber, a slate-chamber adjacent to the separating-chamber, an auxiliary receiver arranged below the bottom of the washer and communicating with both the separating-chamber and the slate-chamber, and mechanism for opening and closing the communication between the separating-chamber and the receiver, substantially as described.

3. A coal or ore washer comprising a separating-chamber, a plunger-chamber and a slate-chamber adjacent to and communicating with the separating-chamber, and an auxiliary receiver arranged beneath and communicating with the separating-chamber, substantially as described.

4. A coal or ore washer comprising a separating-chamber, a sieve or screen fitted therein, a piston or plunger chamber adjacent to the separating-chamber, a piston or plunger having a valve-controlled opening therein adapted to reciprocate vertically in said chamber, and

an auxiliary receiver arranged beneath the separating-chamber and communicating therewith, substantially as described.

5. A coal or ore washer comprising a separating-chamber, a sieve or screen fitted therein, a piston or plunger chamber adjacent to the separating-chamber, a piston or plunger having a valve-controlled opening therein adapted to reciprocate vertically in said chamber, a slate-chamber adjacent to the separating-chamber and communicating therewith, and an auxiliary receiver arranged beneath the separating-chamber and communicating therewith and with the slate-chamber, substantially as described.

6. A coal or ore washer comprising a separating-chamber, a piston or plunger chamber communicating therewith by means of an opening, valves for controlling said opening, a piston or plunger adapted to reciprocate vertically in the plunger-chamber having openings in the bottom thereof governed by a floating valve or valves, and an inflow-pipe arranged above the piston or plunger, substantially as described.

7. A coal or ore washer comprising a separating-chamber, a piston or plunger chamber adjacent thereto and communicating therewith by means of an opening, valves for controlling said opening, and an auxiliary receiver arranged beneath the separating-chamber and communicating therewith, substantially as described.

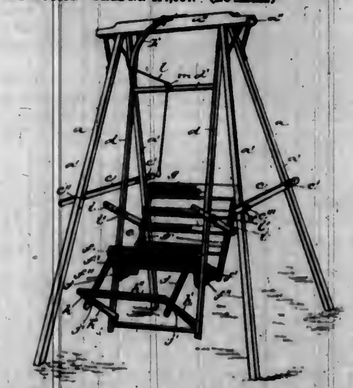
8. A coal or ore washer comprising a separating-chamber, a piston or plunger chamber adjacent thereto, an auxiliary receiver arranged beneath the separating-chamber and communicating therewith by means of openings, valves for controlling said openings, a slate-chamber adjacent to the separating-chamber and communicating therewith through an opening, and a gate for governing said opening, substantially as described.

9. A coal or ore washer comprising a separating-chamber, a piston or plunger chamber adjacent to the separating-chamber, and a piston or plunger adapted to reciprocate vertically in the chamber having openings in the bottom thereof, the floating valve or valves for governing said openings, the vertical guides for supporting said valves, and the inflow pipe arranged above the piston or plunger, substantially as described.

10. A coal or ore washer, in combination with a piston or plunger having openings in the bottom thereof, the floating valve or valves for governing said openings, the vertical guides for supporting said valves, and the inflow-pipe arranged above the piston or plunger, substantially as described.

11. A coal or ore washer comprising a separating-chamber, a sieve or screen fitted therein, a piston or plunger chamber adjacent thereto and communicating therewith, a piston or plunger adapted to reciprocate vertically in said chamber, a slate-chamber adjacent to the separating-chamber, an auxiliary receiver arranged beneath the separating-chamber and communicating therewith, and mechanism for governing the communication between the separating-chamber and plunger-chamber, the separating-chamber and auxiliary receiver, and separating-chamber and slate-chamber, substantially as described.

481,439. SWING. JEROME B. SWEETLAND, Pontiac, Mich. Filed Jan. 12, 1892. Serial No. 417,967. (No model.)



Claim.—1. The combination of a pair of foldable supports, a pair of swinging bars *d d*, pivotally depending therefrom and connected together, seat side bars *f f*, each provided with a closed vertical slot f^5 midway its ends, and an open notch or slot f^6 in its lower edge, bolts f^4 and f^5, passing through said slots and entering the bars *d*, thereby rendering the side bars vertically movable and capable of folding, seat-slats connecting these side bars, a pivoted back detachably and adjustably connected to the swinging bars *d* by arms *i*, a forwardly-projecting foot-rest, and bars *j*, depending from the seat side bars and detachably connected to the foot-rest, substantially as described.

2. The combination of a pair of supports hinged together and adapted to fold, a swing depending therefrom and adapted to fold, a bar projecting forwardly from the upper end of the support, this bar being pivotally connected to the support, so as to fold laterally, and an operating-cord connected to the end of this bar and carried down to within reach of the occupant, substantially as described.

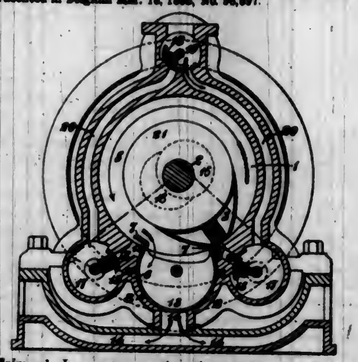
3. In a swing, the combination of an adjustable and folding supporting-frame constructed of two sections hinged together at their upper ends and held apart, as described, a swing supported in the upper end of one of said sections, an angle plate secured to the upper end of the rear section of the supporting-frame extending forwardly over the top of the sections and bearing on their upper edges, a spring-bar secured to the forward end of this plate, as described, and a cord attached to the free end of this bar and extending to the swing-seat in a position to be grasped by the occupant, substantially as described.

481,440. SASH-FASTENER. DAVID H. TAYLOR, Cincinnati, Ohio. Filed Apr. 18, 1892. Serial No. 429,650. (No model.)



Claim.—In a window sash fastener or lock, the combination of the rocking cam lever or dogs pivoted in a suitable casing and the main lever having the oppositely-curved semicircular slots respectively engaged by studs on the inner ends of said cam levers or dogs, the inner ends of said slots standing upon opposite sides of the main lever-pivot, substantially as set forth.

481,441. ROTARY FLUID-PRESSURE ENGINE. EDWARD TOWLSON, Norwich, England, assignor to the Rotary Engine Syndicate, Limited, same place. Filed Apr. 16, 1892. Serial No. 429,476. (No model.) Patented in Belgium Mar. 18, 1892, No. 96,897.

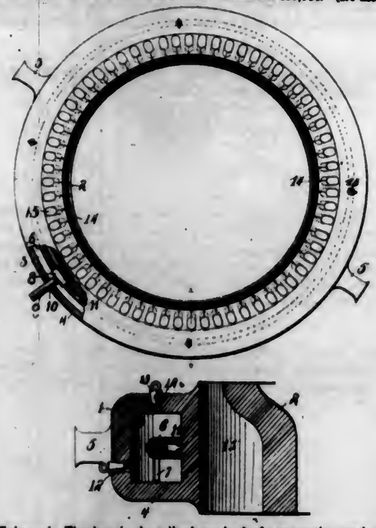


Claim.—1. In a rotary engine, the combination of a cylinder, bosses fixed centrally therein, a driving-shaft provided with a collar, extending between said bosses, a piston arranged to partly surround said bosses and carried by said collar, a hollow oscillating abutment formed with an exhaust-opening, cut off valves located in chambers, one at each side of said abutment, a hand-operated valve serving as a starting, stopping, and reversing valve, and fluid-supply passages for connecting the steam-chamber containing said starting, stopping, and reversing valve with each of the chambers containing said cut-off valves, substantially as described.

2. In a rotary engine, the combination of a cylinder, bosses fixed centrally therein, a driving-shaft provided with a collar, extending between said bosses, a piston arranged to partly surround said bosses and carried by said collar, a hollow oscillating cylindrical abutment formed with an exhaust-opening and with lips or projections, supply-passages having their inner ends each formed to receive one of said lips or projections, oscillating cut-off valves arranged one at each side of said abutment and adapted to control one of said supply-passages, eccentrics on said driving-shaft for actuating said cut-off valves, a hand-operated oscillating valve, and steam-supply passages formed in the wall of said cylinder and connecting the chamber containing the hand operated valve with each of the chambers containing said cut-off valves, substantially as described.

3. In a rotary motor, the combination of a cylinder, bosses fixed centrally therein, a piston 3, carried by a collar 21, arranged between said bosses and fixed to a driving-shaft extending through said bosses, a hollow cylindrical abutment 6, mounted to rock in a bearing 8, provided with lips or projections 7 and having an exhaust-opening 13, inlet-passages 12, oscillating cut-off valves 15, each mounted within a chamber 17 and arranged one at each side of said abutment, eccentrics fixed to said driving-shaft for operating said cut-off valves, an oscillating valve 18, mounted in a chamber 19, passages 20, connecting said chamber 19 with each of said chambers 17, and an exhaust-passage in communication with the interior of said abutment, substantially as herein described.

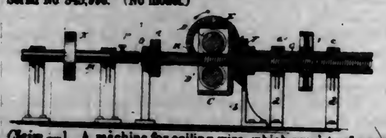
481,442. CHILL FOR CASTING CAR-WHEELS. CORNELIUS A. TREAT, Hannibal, Mo., assignor to the C. A. Treat Manufacturing Company, same place. Filed Feb. 1, 1892. Serial No. 419,911. (No model.)



Claim.—1. The herein-described method of contracting and ventilating chills, consisting in passing compressed air to the interior of the chill and allowing the same to escape through suitable openings formed in the pipe for conveying the same.

2. A contracting and ventilating chill consisting of an annular space 3, a pipe 11, located within the same and held by means of supports 7, a coupling 8 for uniting the ends of the said pipe, a pipe 9, leading from a suitable source of air-supply and also attached to the said coupling, conical-shaped openings 12, formed in the walls 4 of the chill for allowing the air to escape from the same, and plugs 13 for closing said opening for either holding the air within said space 3 or preventing dirt or other accumulation from gaining access to the said space, substantially as described.

481,443. SPIRAL-SPRING-COILING MACHINE. JOHN VERMEULEN, New York, N. Y., assignor, by mesne assignments, to the Oliver & Roberts Wire Company, Limited, Pittsburg, Pa. Filed Mar. 31, 1890. Serial No. 345,998. (No model.)

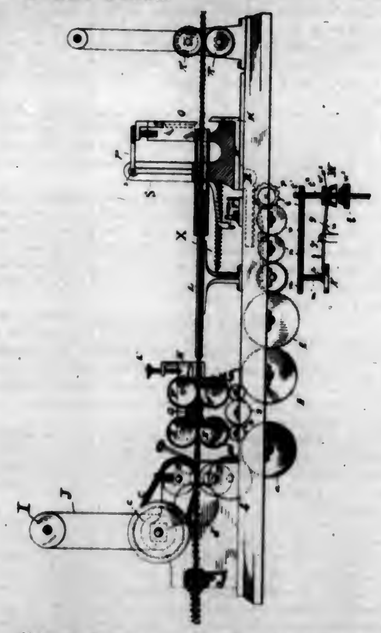


Claim.—1. A machine for coiling wire, which consists of a revolving mandrel for coiling a strand of wire and a pair of rollers which revolve at or about the same speed as the coiling-mandrel, said rollers feeding the coil onward from the mandrel, and means for imparting a positive motion of rotation to said rollers, substantially as described.

2. A machine for coiling wire, which consists of a coiling mandrel, forming-die, and a rotating head, rotating rollers for said head, means for rotating the head, and means for rotating the rollers upon their axes, substantially as set forth.

3. In a machine for coiling wire, the combination of a coiling-mandrel, a forming-die through which said mandrel passes, rollers geared together and having their axes transverse to the coiling-mandrel and arranged on opposite sides thereof, a bevel-wheel mounted upon one of the rollers, a revoluble head within which the rollers are mounted, a shaft for revolving said head, and a stationary gear-wheel, meshing with the bevel-wheel, substantially as described.

481,444. WIRE-BOX-STRAP MACHINE. JOHN VERMEULEN, New York, N. Y., assignor, by mesne assignments, to the Oliver & Roberts Wire Company, Limited, of Pittsburg, Pa. Filed Mar. 31, 1890. Serial No. 345,997. (No model.)



Claim.—1. In a wire-working machine, the combination, with the tension-drum, flattening-disks, measuring-rolls, and means for operating the same, of a cutting-off mechanism for cutting the wires in any desired length, all arranged for successive action, substantially as described.

2. In a wire-working machine, the combination, with the forming-die, tension-drum, flattening-disks, measuring-rolls, and means for operating the same, of a cutting-off mechanism for cutting the wires in any desired lengths, all arranged for successive action, substantially as described.

3. In a wire-working machine, the combination, with the forming-die, tension-drum, flattening-disks, measuring rolls, adjustable straightening device, and means for operating the same, of a cutting-off mechanism for cutting the wires in any desired lengths, all arranged for successive action substantially as described.

4. In a wire-working machine, the combination, with the forming-die, tension-drum, adjustable flattening-disks, measuring-rolls, guide, rolls, adjustable straightening device, and means for operating the same, of a cutting-off mechanism, which consists of a lever, rack, and knives, adapted to be thrown into operation by a traveling part of the machine, so as to cut off the wires in uniform lengths, all arranged for successive action, substantially as described.

5. In a wire-working machine, the combination, with the forming-die, tension-drum, adjustable flattening-disks, measuring-rolls, guide, rolls, adjustable straightening device, and means for operating the same, of a cutting-off mechanism, which consists of the lever, rack, and knives, adapted to be thrown into operation by a traveling part of the machine actuated by means of the disk and the lug thereon, divided check, and the lever, all constructed and arranged for successive action, substantially as described.

6. In a wire-working machine, the combination, with the forming-die A, tension-drum C, adjustable flattening-disks B B, measuring-rolls E E, guide G, rolls F F, adjustable straightening device H, tube L, and means for operating the same, of a cutting-off mechanism that is adapted to be thrown into operation by a traveling part of the machine, which consists of the lever P, standard S knives Q M, rack

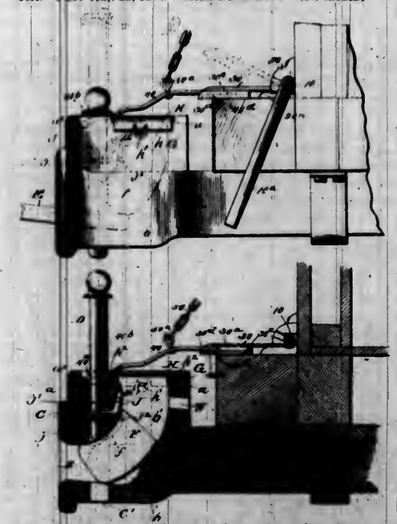
R, spring X, trip *g*, disk K and lug *r* thereon, lever *y*, spring *w*, and divided chuck W, all constructed and arranged for successive action, substantially as and for the purpose set forth.

481,445. SCREW. LEAVEN J. H. VINSON, Titusville, Fla. Filed Feb. 23, 1892. Serial No. 422,590. (No model.)



Claim.—A screw having a shank with continuous threads thereon, including the head, and oblique openings in opposite sides of the head, opening at their upper ends in the slot of the head, in combination with a locking-pin with limbs adapted to enter said opening and extend beyond the sides of the head, the bend of the locking-pin resting in the slot of the head, substantially as and for the purposes specified.

481,446. CAR-COUPLING. WILLIAM H. VIOLETT, Grand Junction, Colo. Filed Mar. 22, 1892. Serial No. 426,084. (No model.)



Claim.—1. An improved car-coupler having a draw-head, a coupling-pin, a main pin-support operating in the link-mortise, a gravity-pin holder operating in the upper pin-aperture, adapted to swing under the pin when elevated and arranged to be swung out of such position by the main support as it drops under such pin-aperture, substantially as and for the purpose described.

2. The combination of the draw-head, a gravity-pin support operating in the link-mortise, formed with a cam-groove, a pin-holder operating in the upper pin-aperture, having a projection fitting the groove in the main pin-support, the said holder adapted to swing under the pin when elevated, its projection adapted to be engaged by the main support when the said support drops to its lowermost position to support the pin, substantially as and for the purpose described.

3. In a car-coupling, the combination of the draw-head formed with the usual pin-apertures and with an upwardly-projecting portion forming an abutment, the link-mortise having an upwardly and rearwardly inclined portion opening through the top of the projecting portion of the draw-head, said portion having depressions in its sides, and a cover plate formed with lateral flanges having finger portions adapted to be bent into engagement with the said depressions, all arranged as shown, and for the purpose described.

4. The improved car-coupling herein described, comprising the draw-head, the coupling-pin, a main gravity-pin support, a supplemental gravity-pin holder arranged to drop by gravity in one direction and to be swung back by the main support as it drops by gravity, all substantially as and for the purpose described.

5. The improved car-coupling herein described, comprising a draw-head having the usual pin-apertures, the coupling-pin, and formed with a link-mortise having an upwardly and rearwardly extending portion, the main pin-support arranged to operate by gravity in said mortise and formed with a cam-groove, a swinging pin-holder having a body portion operating in said mortise transversely to the main pin-support, said holder having an arm projecting in the upper pin-aperture when down in its operative position, and with a projecting lug arranged for engagement with the cam-groove in the main support, substantially as and for the purpose described.

6. The combination of the draw-head, the coupling pin, and the pin-lifting mechanism, including a lifting-arm expansible longitudinally and movable laterally and vertically, substantially as shown and described.

7. In a car-coupling substantially as described, a pin-lifting arm expansible longitudinally, substantially as shown and described.

8. The combination, in a car-coupling, with the car-body, the draw-head movable longitudinally, and the coupling-pin, of a lifting-arm hinged to the car-body, its front end connected with the pin, said arm formed of a rigid rear member, and a front member movable longitudinally in the rear member, substantially as and for the purpose described.

9. The combination, with the car-body, the draw-head, and the coupling-pin, of a rock-shaft journaled on the car-body, a pin-lifting arm secured to such shaft, an abutment for limiting the upward movement of the lifting-arm, said arm having its front portion formed extensible and adapted to be moved laterally, substantially as and for the purpose described.

10. In a car-coupling substantially as described, the combination, with the car-body, the movable draw-head, and the coupling-pin, of a rock-shaft journaled on the car-body and movable sidewise in its bearings, one of such bearings formed with an abutment and an upwardly-inclined recess, said shaft having an outwardly-extending rigid arm formed with a socket portion at its end, a pin-lifting arm connected with the pin at its front end, its rear end fitting the socket of the rigid arm and having a pivotal bearing longitudinally movable in such socket, and means for rocking the shaft to lift the pin-arm, all arranged substantially as shown and described.

481,447. AUTOMATIC RAILWAY STOCK AND CATTLE GUARD. JAMES WALTON, La Plata, Mo., assignor of two-thirds to John F. Mitchell, same place, and George D. Hutchison, Fort Madison, Iowa. Filed Apr. 14, 1892. Serial No. 429,213. (No model.)

Claim.—1. In an automatic cattle-guard, side bars pivoted at one end, a rock-shaft having loose connection with the other end, plates on the bars near their pivot end, rods or pickets carried by the rock-shaft, and double-inclined blocks on the ties parallel therewith between the rails, as set forth.

2. The combination, with the pivoted side bars and the plates thereon and the gate actuated through connection with the side bars, of double-inclined blocks on the ties upon opposite sides of said plates parallel therewith between the rails and inclined upon the end and sides, as and for the purpose specified.

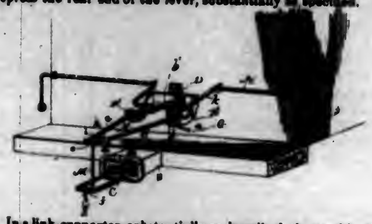
481,448. IDENTIFICATION DEVICE. BEN H. WEEKS, Chicago, Ill. Filed June 8, 1890. Serial No. 354,512. (No model.)



Claim.—The combination, with a hollow cylinder A, having screw-threads *a*, of a cap B, having screw-threads *b* and furnished with a pointed blade-shaped spindle C and scroll D, attached thereto, an eye-piece *a'* at the end of said tube A, and a similar eye-piece at the end of said cap B, substantially as specified.

481,449. CAR-COUPLING. EVERETT C. WELCH, Friedens, Pa. Filed Apr. 23, 1892. Serial No. 430,397. (No model.)

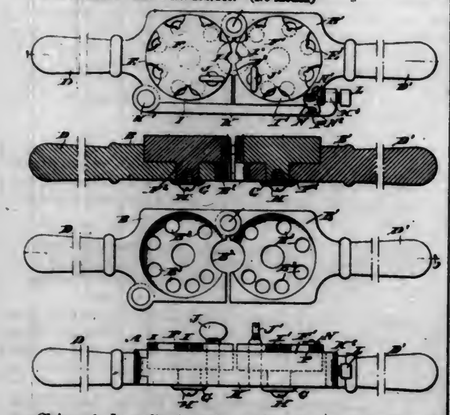
Claim.—1. In a link-supporter, substantially as described, the combination, with the lever fulcrumed at an intermediate point in its length, the hook pivotally connected to the forward end of said lever and adapted to engage a link, and the weight connected to the rear end of the lever, of the rock-shaft having angular branches at its ends and having a ball at an intermediate point in its length, adapted to engage and depress the rear end of the lever, substantially as specified.



2. In a link-supporter, substantially as described, the combination, with the lever, of the hook pivotally connected to said lever and bent adjacent to its free end to form the link-seat *f* and the depending branch *g*, substantially as and for the purpose specified.

3. In a link-supporter, substantially as described, the combination, with the lever comprising the arms having transverse apertures and the bridge-bar connecting said arms adjacent to the apertures therein, of the link-engaging hook having lateral trunnions adjacent to one end and having its portion above said trunnions bent at an angle to the main portion and adapted to engage the bridge-bar of the lever-arms, substantially as specified.

481,450. DIE-PLATE. LEWIS C. WESTEL, Scottdale, Pa. Filed Feb. 23, 1892. Serial No. 422,449. (No model.)

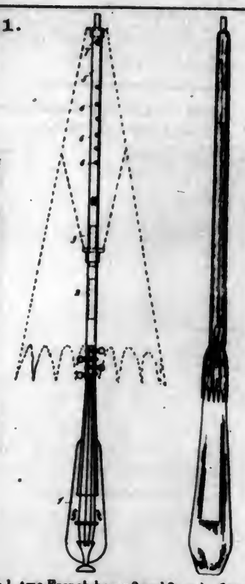


Claim.—1. In a die-plate, the combination, with the stock A, formed of two sections B B', hinged together at one side and provided with the circular recesses E E', handles D D', and opening B^3 in the adjacent edges of the sections, of the dies F F', fitting in the recesses E E' and provided with shafts F^2, mounted in bearings in the said sections, and with the threaded recesses I I' means for locking the dies in position in said recesses, and the bar K, hinged to one section and having its free end detachably secured to the other section, substantially as described.

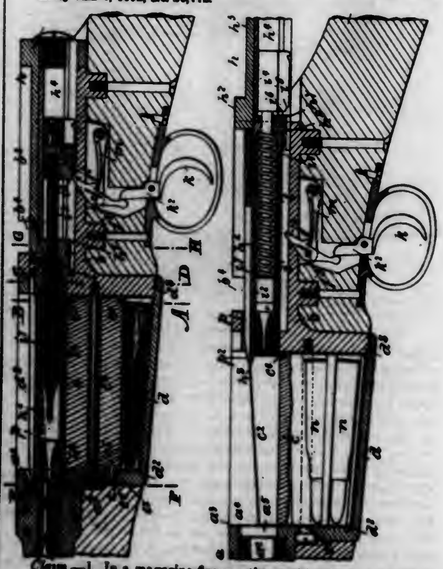
2. In a die-plate, the combination, with the stock A, formed of two sections B B', hinged together at one side and provided with the circular recesses E E', apertures B^3, handles D D', and opening B^3 in the adjacent edges of the sections, of the dies F F', fitting the recesses E E' and provided with shafts F^2, fitting in bearings in the said sections, and with the threaded recesses I I' in their peripheries, the pins J J', extending through the dies and engaging the apertures B^3 of the sections, the bar K, hinged to one section and provided with an inwardly-projecting lug, and a set-screw and catch for locking the free end of the bar to the other section, substantially as herein shown and described.

481,451. MULTIPLEX MUSICAL INSTRUMENT. JOHN H. WERNER, Saugatuck, Mich. Filed Apr. 16, 1892. Serial No. 429,058. (No model.)

Claim.—The herein-described multiplex musical instrument comprising the violin 1, two French harps 2 and 3, and a flute or flageolet 5, serially arranged, as shown, in combination with an umbrella and smoking-cap, substantially as and for the purposes herein set forth.



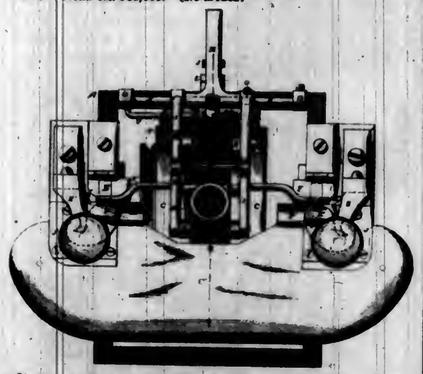
481,452. REVOLVING MAGAZINE-GUN. THOMAS WILSON, Birmingham, England. Filed Jan. 18, 1892. Serial No. 418,469. (No model.) Patented in England Dec. 30, 1890, No. 21,171; in France Oct. 27, 1891, No. 217,036; in Belgium Nov. 3, 1891, No. 97,042, and in Germany Jan. 7, 1892, No. 66,772.



Claim.—1. In a magazine-firearm, the combination, with the barrel and breech shoe, of a pivotally-mounted cartridge-cylinder having open-ended and open-sided cartridge-chambers and a casing or jacket inclosing said cylinder and provided with a side passage for the entrance and exit of cartridges and cartridge-shells and with a side opening for the working of said cylinder by hand, substantially as described.

2. In a magazine-firearm, the combination, with the cartridge-cylinder C, having open-sided chambers c^2 c^2, of the charging-bolt, the ejector-rod *p*, carried by said charging-bolt, and the tilting-pins c^4 c^4, arranged at the rear ends and bottoms of said chambers, substantially as described.

481,453. CIGAR-ROLLING MACHINE. JASPER S. WILDEY, Columbus, Ohio, assignor to Myron H. Scoville, same place. Filed Feb. 15, 1891. Serial No. 381,863. (No model.)



Claim.—1. In a cigar-bunch-rolling machine, a rotating drum, a laterally-adjustable frame having a bunching-roller in its free end, an endless apron which passes around the drum and the said roller, and a shaping-thimble at one end of the drum, all combined substantially as specified.

2. In a cigar-bunch-rolling machine, a rotating drum, a pivoted frame provided with a bunching-roller, an endless apron which passes around the drum and the said roller, and a supporting-frame carrying the said pivoted frame, which engages the said supporting-frame for adjusting the distance that the pivoted frame shall move forward, all combined substantially as described.

3. In a cigar-bunch-rolling machine, a main frame, a large rotating drum journaled therein, a pivoted supporting-frame mounted upon the main frame, and a regulating device which engages the main frame and the said pivoted supporting-frame and regulates the distance that the latter shall move forward, combined with the pivoted spring-actuated roller-frame which extends over the drum, a bunching-roller in the free ends of the roller-frame, which latter is supported by the said pivoted supporting-frame, and an endless apron which passes around the bunching-roller and the drum, substantially as shown and described.

4. In a cigar-bunch rolling machine, a main frame provided with a lug or projection, a rotating drum, a pivoted supporting-frame mounted upon the rear side of the main frame and provided with a plate M, and a regulating device which passes through the said lug or projection upon the frame and engages the said pivoted supporting-frame for regulating the movement thereof, combined with a pivoted and spring-actuated roller frame mounted upon the said pivoted supporting-frame, a regulating device located upon the roller-frame and engaging the plate M, a bunching-roller mounted in the free end of the roller-frame over the drum, and an endless apron which passes around the drum and roller, and a tension device, substantially as described.

5. In a cigar-bunch-rolling machine comprising a rotating drum, a laterally-adjustable frame carrying a bunching-roller, and a shaping-thimble at each side of the said drum a greater distance apart than the width of the said frame, whereby either right or left hand cigars can be made by moving the frame laterally, substantially as set forth.

6. In a cigar-bunch-rolling machine, a rotating drum, a frame carrying a bunching-roller, an apron which passes around the said drum and bunching-roller, and a horizontal spring-actuated rod adjustably connected with the said frame, one end of the said rod adapted to bear against the end of the cigar, and a thimble, the parts being combined and arranged to operate substantially as described.

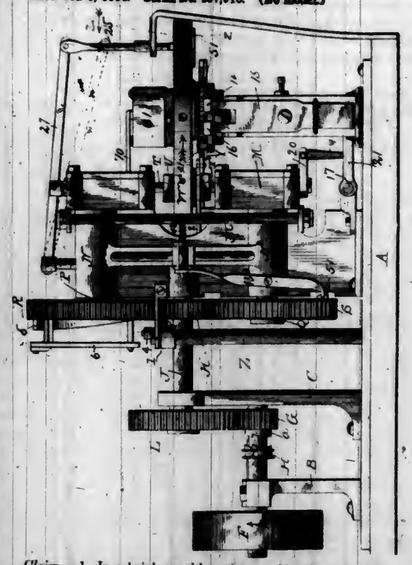
7. In a cigar bunch-rolling machine, a frame, a bunch-rolling mechanism, a thimble for shaping the end of the cigar, having a shoulder at its tapered end, combined with a vertically-moving die placed to one side of the tapered end of the said thimble, an opening in the frame below the die, and a spring-actuated plate in the said opening, the shape of the opening die and plate being the same, substantially as specified.

8. In a cigar-bunch-rolling machine comprising a rolling mechanism, a thimble at each side of the said mechanism for shaping the ends of cigars, and a right and left hand die, one at each side of the mechanism and placed adjacent to the tapered end of the said thimbles, whereby the machine is adapted to be used for forming right and left hand cigars, substantially as set forth.

9. In a cigar-bunch rolling machine, a rotating drum, a spring-actuated pivoted frame having a bunching-roller over the said drum, an endless apron passing around the said drum and roller, a stationary thimble having a hinged cover, and an arm or projection upon the said pivoted frame, which engages the hinged cover of the said thimble, substantially as described.

10. In a cigar-bunch-rolling machine, a rolling mechanism, a pivoted frame forming a part thereof, a stationary thimble, a hinged cover therefor, a spring for normally holding the cover open, and an extension upon the said pivoted frame, which engages the cover and forces it down when the frame is lowered, the parts combined substantially as specified.

481,454. BRICK MACHINE. THOMAS T. WOOD, St. Joseph, Mich. Filed Oct. 6, 1891. Serial No. 407,910. (No model.)



Claim.—1. In a brick-machine, the combination, with the revoluble table, of a wheel having an inclined plane and a curvilinear arm, a suitable means for revolving said wheel, and suitable mechanism intermediate the revolving wheel and the table adapted to revolve said table, substantially as specified.

2. In a brick-machine, the combination, with the revoluble table and a horizontal gear-wheel connected thereto, of the longitudinally-movable rack-bar engaging the teeth of said gear, the vertical rock-shaft, the lateral branch fixedly connected to said shaft and carrying a friction-roller, a link connecting the lateral branch of the rock-shaft and the rack-bar, and a suitable means for automatically engaging the friction-wheel and moving the lateral branch of the rock-shaft, substantially as and for the purpose set forth.

3. In a brick-machine, the combination, with the revoluble table, a horizontal cog-gear connected thereto, a movable rack-bar engaging said cog-gear, a laterally-swinging branch carrying a friction-wheel, and mechanism intermediate the said branch and the rack-bar, of a wheel having an inclined plane and a curvilinear arm adapted to engage the friction-wheel on the swinging branch, substantially as specified.

4. In a brick-machine, the combination, with the revoluble table, of the vertically-reciprocating pressure-plungers above and below the same, the vertically-reciprocating removing-plunger below the table, the transverse rock-shaft having an angular branch 18 and an angular branch 21, a link connecting the branch 18 and the lower pressure-plunger, a link connecting the branch 21 and the removing-plunger, and a suitable means for reciprocating the pressure-plungers, substantially as specified.

5. In a brick-machine, the combination, with the revoluble table, the molds carried thereby, the movable dies seated in said molds, the vertically-reciprocating pressure-plungers above and below the table, and the vertically-reciprocating removing-plunger below the table connected with and adapted to be operated simultaneously with the lower pressure plunger, of the beam pivotally connected at its rear end to

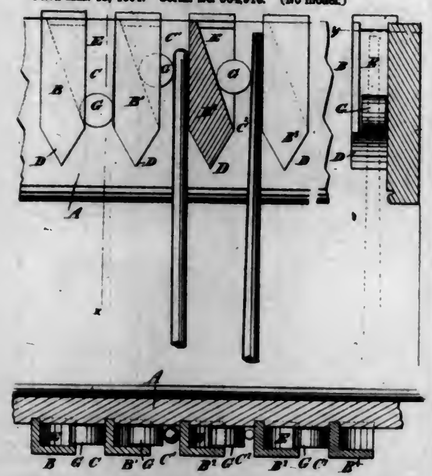
the guide-casting and at an intermediate point in its length to the upper plunger, and the plunger pivotally connected to the forward end of said beam and adapted to return the dies to their normal position, substantially as and for the purpose set forth.

6. In a brick-machine substantially as described, the combination, with the revolvable table, the vertically-disposed molds formed therein, and the supporting-ledges 10^a, arranged at the lower edges of the molds, of the movable dies normally resting on the ledges 10^a, and comprising a bottom section and an end section flexibly connected together, substantially as and for the purpose set forth.

7. In a brick-machine, the combination, with a feed box or hopper, of the lever having a depending branch at its forward end adapted to strike the walls of the box or hopper, a friction-wheel carried by the rear end of the lever, a gear-wheel engaging said friction-wheel, and a spring for holding the friction-wheel in engagement with the gear-wheel, substantially as specified.

8. In a brick-machine, the revolvable table having mold-boxes and movable die-plates seated in said mold-boxes, in combination with the feed box or hopper, the vertically-reciprocating pressor-plungers, the vertically-reciprocating removing-plunger, and the vertically-reciprocating die-returning plungers, substantially as specified.

481,455. HOLDER OR RACK. CHARLES WORDEN, Rye, N. Y. Filed Mar. 13, 1891. Serial No. 384,916. (No model.)



Claim.—In a holder or rack, the combination, with a wall-board, of a series of vertically arranged and spaced ribs or lugs secured to the wall-board, having pointed ends and provided in one side with recesses having inclined bottoms, and a roller in each recess, substantially as described, whereby a handle when inserted in the space between two ribs will be pressed by the roller against the side of the adjacent rib or lug and held thereby, substantially as herein shown and described.

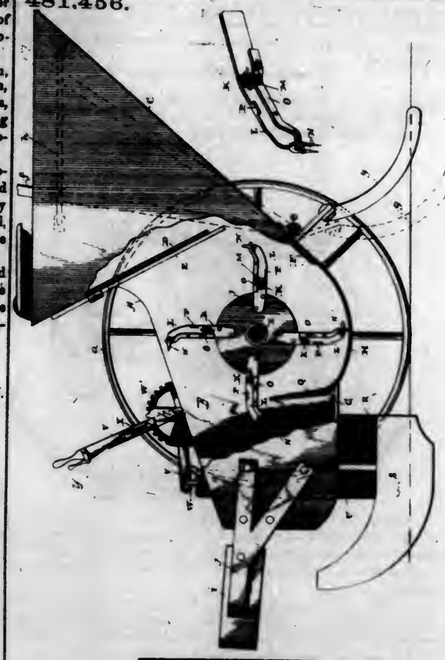
481,456. POTATO-PLANTER. CHESTER WRIGHT, Fairfield, Nebr. Filed Jan. 5, 1892. Serial No. 417,068. (No model.)

Claim.—1. In a potato-planter, a hopper, a shaft extending through it, a disk upon the shaft, picker-plates secured to and extending from the disk, having their outer portions alternately turned to one side, teeth at the outer ends of said plates, stripping-levers pivoted between their ends upon the plates, the outer ends of the levers projecting between the teeth, and trippers in the hopper which engage the inner ends of the stripping-levers, the parts being combined substantially as shown and described.

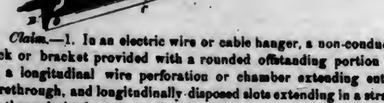
2. An automatic picker for a planter of the character described, comprising a plate having its outer end provided with laterally-extending prongs, a stripping-lever pivoted near one edge of the plate, which has its outer end between the said prongs, a tripper, and a stop at the opposite side of the plate, which engages the inner end of the said lever, substantially as described.

3. In a planter, a frame, a supporting-shaft, an opener at the front end of the frame, a shaft journaled at the rear end of the frame carrying coverers, a lever for operating the shaft for raising or lowering the coverers, and a means connected with the shaft for feeding potatoes, substantially as set forth.

481,456.



481,457. INSULATOR. ARTHUR J. WYLIE, Rome, N. Y. Filed Jan. 18, 1892. Serial No. 418,501. (No model.)



Claim.—1. In an electric wire or cable hanger, a non-conducting block or bracket provided with a rounded offstanding portion having a longitudinal wire perforation or chamber extending entirely therethrough, and longitudinally-disposed slots extending in a straight line through the front face thereof and opening into said wire chamber, substantially as set forth.

2. In an electric wire or cable hanger, a non-conducting block or bracket provided with a rounded offstanding portion, a longitudinal wire perforation or chamber extending through said offstanding portion, longitudinally-disposed slots extending in a straight line through the front face of said block or bracket and opening into said wire-chamber, and a tubular partition extension forming a continuation of the wire perforation or chamber, substantially as set forth.

481,458. PADLOCK. NICHOLAS J. ZELL, Reading, Pa. Filed Apr. 27, 1892. Serial No. 430,855. (No model.)

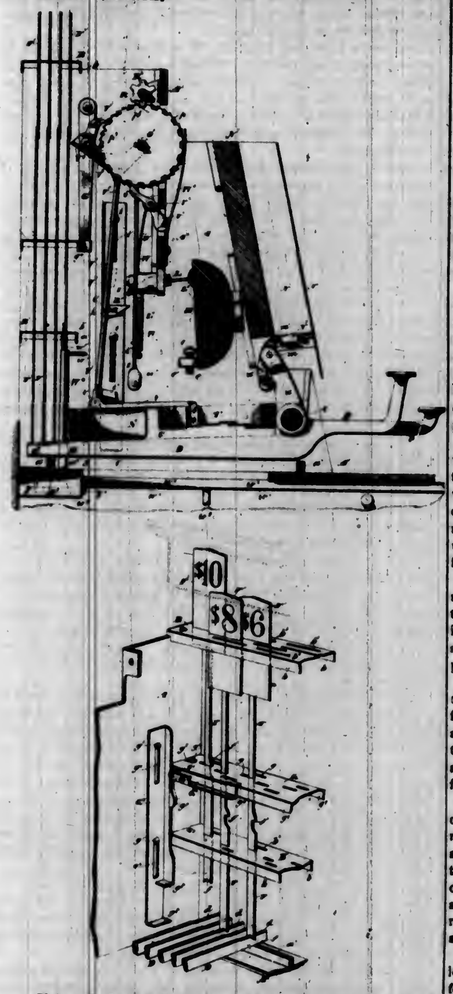


Claim.—1. The combination, with the barrel and the partially rotatable portion within the same, of the spring carried by the inner part and partially surrounding the same and designed to engage a shoulder on the barrel to prevent withdrawal of the parts, and means for preventing rotation of said parts, as set forth.

2. The combination, with the barrel having interior longitudinal and horizontal grooves and recess with shoulder, of the inner partially-rotatable part with cap-piece and ribs, and the spring partially surrounding the same and having a portion protruding to engage said shoulder, as and for the purpose specified.

3. The combination, with the barrel having grooves and recess with shoulder, of the inner, partially-rotatable part having ribs and a ferrule with horizontal slot, and a spring having a bend protruding through the slot to engage said shoulder and one end extended within the bore of the inner part, as set forth.

481,459. CASH REGISTER AND INDICATOR AND CHECK-MACHINE. WALES ALDRICH, Dayton, Ohio. Filed July 5, 1883. Serial No. 278,966. (No model.)



Claim.—1. In an indicator, in combination with the series of indicator-rods provided with projections having abrupt locking-shoulders and inclines on the lower and upper ends, respectively, the sliding locking-bar for engaging the shoulders on the rods as the latter are moved into indicating position, a spring tending to keep the bar in position to engage the shoulder on any moved rod, the series of keys for moving the rods, the swinging frame extending across the series of keys, and a tripping device actuated by such frame to trip and release the locking-bar as a rod is being moved by its key and before the projection on such rod reaches the bar, substantially as and for the purpose specified.

2. In combination with the series of indicator-rods provided with locking-shoulders, the rod-locking bar provided with portions to engage the shoulders on any indicator-rod moved into indicating position, the spring for moving and holding the bar in locking position the series of rod-moving levers, the swinging frame engaged by the levers, and the sliding piece engaged and moved by the frame, a cam on such piece, and the swinging pawl-piece on the locking-bar engaged by the cam, substantially as and for the purpose described.

3. In combination with the indicator-rods provided with projections having the abrupt shoulders and inclines, the reciprocating locking-bar provided with slots through which the indicator-rods pass, a spring holding such bar normally in locking position, the keys for moving the indicator-rods, the swinging frame engaged by the keys, and tripping mechanism actuated by the frame to move the locking-bar out of locking position and then let it fly into such position again as the frame is moved by a key bringing an indicator-rod into indicating position before the projection on the rod passes the bar, substantially as and for the purpose shown.

4. In an indicator, in combination with the reciprocating locking-bar for locking the indicator-rods, the spring for holding the bar in locking position, the pivoted piece on the bar, a stop for limiting the upward swing of the outer end of such piece, while allowing it to swing downward, and the sliding bar provided with the cam made inclined on its upper side and abrupt below, substantially as and for the purpose specified.

5. In combination with the reciprocating locking-bar, the spring forcing it in one direction, the pivoted piece on the bar having on one arm a lug to limit its swing and on the other arm a roller, and the movable bar or piece having a cam for engaging the roller, made inclined on one side and abrupt on the other, substantially as and for the purpose set forth.

6. In combination with the series of indicator-rods provided with locking-shoulders, the reciprocating locking-bar for engaging such shoulders, the spring engaging such bar, the pivoted piece on the bar having a stop on one arm to engage the bar and a roller on the other arm, the indicator-rod moving keys, the movable frame engaging such keys, and the sliding bar or plate connected with the frame so as to be moved thereby and provided with a cam-lug to engage the roller of the pivoted piece on the locking-bar, substantially as and for the purpose described.

7. In combination with registering mechanism and a series of devices for actuating such mechanism, each connected therewith so as to cause it to register different amounts, a series of check-feeding devices connected with the register-actuating devices, and a series of check-holders, each containing checks marked to indicate the amount registered by the movement of the register-actuating device connected with the respective feeder for such check-holder, substantially as and for the purpose specified.

8. In combination with a series of register-actuating devices and registering mechanism to register different amounts, connected with the several actuating devices, a check-holder for each register-actuating device, and a check-feeding mechanism connected with each of such devices, so as to be actuated thereby, substantially as and for the purpose shown.

9. In combination with a series of check holders, each containing checks marked or adapted to indicate a certain amount, a series of feed devices to feed out separately the checks in the different holders, a registering mechanism, and connections between such mechanism and the series of feed devices whereby the registering mechanism is operated to register the amount of each check fed out, substantially as and for the purpose set forth.

10. In combination with a series of check-holders for containing checks, the checks in the holders adapted to indicate certain amounts, registering mechanism, a series of devices for actuating it to register amounts corresponding with the marks or indications of the check in the different holders, and a series of devices, each connected with one of the different register-actuating devices and each adapted to engage and feed from its holder a check to indicate the amount caused to be registered by the respective register-actuating device, substantially as and for the purpose described.

11. In combination with the registering mechanism, the series of levers and connections between the levers, and registering mechanism for causing the latter to register different amounts, a series of check-holders, each containing checks marked to indicate the amount caused to be registered by the movement of one lever, and the series of feed devices, each connected with one of the levers and operating in connection with the respective check-holder of that lever, substantially as and for the purpose specified.

12. In combination with a check-holder containing checks, each marked with or adapted to indicate a certain amount, a key-lever, the check-feeding device operated thereby, and registering mechanism for registering the amounts indicated by the checks connected with the lever, so that each time the latter is moved to issue a check the amount indicated by that check will be added up by the register, substantially as and for the purpose shown.

13. In combination with a series of keys, registering mechanism connected with the several keys, so as to register different amounts as

the different keys are operated, a series of check-holders for containing checks adapted to indicate amounts corresponding with the different amounts registered, and the series of feed devices, each connected with a key, so as to be caused thereby to engage a check in the holder corresponding with that key, substantially as and for the purpose set forth.

14. In an indicating apparatus provided with a series of movable indicators, in combination with each indicating device, a check-holder, and a check issuing or feeding device connected with the indicating device, so as to be operated therewith, substantially as and for the purpose described.

15. In an indicating apparatus, in combination with the indicating mechanism for indicating different amounts, a series of check-holders containing checks marked with the different amounts to be indicated and means for feeding from such holders as different indications are made the checks corresponding with such indications, substantially as and for the purpose specified.

16. In an indicating apparatus, in combination with a series of check-holders and feed devices for issuing checks therefrom, the series of movable indicating devices and connections between the check feeding and indicating devices, adapted to cause a check-feeder to be operated each time that an indication is made, substantially as and for the purpose shown.

17. In an indicating apparatus, in combination with the series of movable indicating devices for indicating different amounts, suitable holders containing checks marked with the amount to be indicated and means adapted to be operated by the movement of any indicating device to feed from its holder a check marked with the amount indicated by such device, substantially as and for the purpose set forth.

18. In an apparatus for indicating, in combination with the series of movable devices for indicating various amounts, a series of check-holders, each containing checks marked to correspond with one of the possible indications of the apparatus, check feeding or delivering devices, one for each holder, each connected with and operated by the movement of the indicating mechanism, which causes the indication of the amount marked on the checks in the respective holder, substantially as and for the purpose described.

19. In combination with the series of indicator-rods provided with display plates or tablets marked with certain amounts, the series of keys for moving such rods, the series of check-holders, each containing checks marked with the same amount as one of the indicator-plates, the series of check feeding or issuing devices for the holders, each connected with and operated by the key which moves the indicator-rod marked to correspond with the checks in the respective holder, substantially as and for the purpose specified.

20. In an indicating apparatus, in combination with the series of indicating display devices, the series of key-levers for operating the display devices, a series of check-holders, arms on the key-levers, and check-feeding pawls on such arms, substantially as and for the purpose set forth.

21. In an indicating apparatus, in combination with the series of indicating display devices, a key-lever for operating a display device, a check-holder above the lever, provided with a suitable check-issue slot, an arm on the lever, and a pawl on such arm provided with a check-engaging shoulder, substantially as and for the purpose described.

22. In an indicating apparatus, in combination with the series of indicating display devices, the series of key-levers for operating the display devices, the series of check-holders, each provided with a check-issue slot and with an opening in its bottom to admit a check-feeding device, the arms on the levers, and the check-feeding pawls on such arms, substantially as and for the purpose specified.

23. In a cash registering and indicating apparatus, in combination with the series of indicating devices for indicating various amounts and the registering devices for registering the amounts indicated, a series of check-holders adapted to receive checks marked to correspond with the indications of the apparatus, and check-feeding devices connected with the indicating and registering devices, so as to be operated therewith, substantially as and for the purpose shown.

24. In a cash registering and indicating apparatus, in combination with the series of indicating devices for indicating different amounts and registering mechanism for registering the amounts indicated, the series of check-holders, one for each indicating device, and a check feeding or issuing mechanism for each holder, connected with the respective indicating device, so as to be operated therewith, substantially as and for the purpose set set forth.

25. In a cash register and indicator, in combination with the series of key-levers, the swinging frame having the cross-bar extending over the rear portions of the key-levers, a movable plate adapted to be engaged by the frame, a trip carried by the plate, a pivoted lever adapted to be engaged by the trip on the plate, a bell-striker operated by the lever, and a bell, substantially as and for the purpose shown.

26. In a cash register and indicator, in combination with the series of keys, the swinging frame extending across such keys, the sliding piece adapted to be moved by such frame, the swinging pawl on such piece, and the spring-actuating alarm-striking lever in position to be engaged and moved by the pawl as the sliding piece is raised by the swinging frame, substantially as and for the purpose shown.

27. In a registering apparatus, in combination with a series of keys of different denominations and the registering mechanism to be actuated therefrom, a swinging frame having a bar extending diagonally across the keys, so as to approach nearer and nearer to the pivotal points of the keys as it passes over the keys of lower denomination and having key-engaging surfaces arranged so that an equal movement of different keys will move the frame different distances, and connections between the frame and the registering mechanism, substantially as and for the purpose specified.

28. In a registering apparatus, in combination with a series of keys for causing registration of different amounts, a swinging frame having a bar extending diagonally across the keys, provided with bearing-surfaces for the different keys, arranged at different heights above such keys, and registering mechanism connected with and actuated by the movement of the frame, substantially as and for the purpose described.

29. In a registering apparatus, in combination with a series of key-levers having equal amounts of movement, a swinging frame having a bar extending diagonally across the key-levers and provided with bearing-surfaces to be engaged by such levers, each successive bearing-surface as the bar approaches nearer the pivotal point of the levers being placed a greater portion of the possible swing of the surface-engaging part of the respective key-lever away from such lever, substantially as and for the purpose specified.

30. In a registering apparatus, in combination with the series of key-levers having equal movements, a movable frame having a bar extending from a point over the outer end of the lever at one end of the series diagonally inward across the series of levers and provided with bearing-surfaces for the respective levers, set above the levers successively a greater portion of the possible movement of the engaging point on the respective lever, substantially as and for the purpose shown.

31. In a registering apparatus, in combination with the series of levers pivoted on a suitable shaft, a swinging frame having a bar extending diagonally across the lever series, provided with bearing-surfaces to be engaged by the respective levers, such bearing-surfaces being placed above the levers different fractions of the amounts of possible travel of the surface-engaging points on the lever, substantially as and for the purpose set forth.

32. In a registering apparatus, in combination with the series of levers, the swinging frame having the bar extending diagonally across the lever series, provided with a series of bearing-surfaces to be engaged by the levers so situated with reference to the levers that each successive surface will normally be above its respective lever a distance equal to a greater number of fractions of the possible movement of the engaging point on the lever, substantially as and for the purpose described.

33. In a registering apparatus, in combination with a series of key-levers and a swinging frame having the bar extending diagonally across the lever series so as to pass over points on the levers successively nearer and nearer to the lever-pivots and provided with bearing-surfaces for the levers, of which the outer one bears on the lever at that end of the series, the next stands above its respective lever a distance equal to a certain fraction of the possible movement of the surface-engaging point on the lever, and the succeeding surfaces are farther and farther above their levers by a greater and greater number of similar fractions of the possible travel of the respective lever-engaging points, substantially as specified.

34. In a registering apparatus, in combination with the series of key-levers, the swinging frame having the bar extending diagonally across the series of levers and having the bearing-points to be engaged by the levers, situated on a curved line at different heights along the bar, substantially as and for the purpose shown.

35. In combination with the series of key-levers and the swinging frame, the adjustable bar or bearing piece thereon extending diagonally across the series of levers and provided with bearing-surfaces at different heights from the respective levers to engage such surfaces, substantially as and for the purpose set forth.

36. In an indicating and registering machine, a series of keys, a movable frame to be moved by any key operated, the adjustable piece consisting of a plate having surfaces to be engaged by the keys pivoted to the frame, so that it can be swung up or down on the latter to adjust its angle with reference to the plane of the keys, and means for fixing it at any desired point of adjustment on the frame, substantially as and for the purpose specified.

37. In combination with a series of key-levers and a register-wheel, suitable connecting mechanism for turning the wheel as any key-lever is moved, a swinging frame resting on the key-levers, and brake mechanism for the register-wheel, actuated by the frame only after the latter has been moved a certain distance by the movement of a key, substantially as and for the purpose specified.

38. In combination with the series of key-levers and a register-wheel turned therefrom through any suitable connection, a brake-lever adapted to engage a brake-surface on the register-wheel, a swinging frame engaging the key-levers, and an arm on the frame adapted to engage the brake-lever only after the frame has moved some distance and then to move it to apply the brake-lever to the brake-surface as the limit of throw of a key is reached.

39. In combination with a series of key-levers, a register-wheel, and suitable connecting mechanism for turning the wheel as any key-lever is operated, ratchet-teeth on the wheel, the brake-lever adapted to engage such teeth, the frame engaged by the key-levers, and an arm on the frame adapted to engage and operate the lever only during the latter part of travel of the frame, substantially as and for the purpose set forth.

40. In combination with a wheel of the registering mechanism and the series of key-levers, the swinging frame provided with the cam-arm, and the brake-lever provided with the adjustable bearing to be engaged by the frame-arm, substantially as and for the purpose described.

41. In combination with the wheel of the registering mechanism provided with the ratchet-teeth, the brake-lever for engaging such teeth, the series of key-levers, and the frame with the brake-lever engaging and actuating arm adapted to engage and operate the brake-lever only as the frame approaches the limit of its travel, substantially as and for the purpose specified.

42. The combination of the registering-ratchet, a movable piece carrying a pawl to engage said ratchet, numbered key-levers arranged below said piece, adapted when moved to actuate the piece to rotate the registering-ratchet a distance corresponding with the number of said key, a stop-ratchet secured to said registering-ratchet concentrically therewith, a stop-lever, and means whereby the actuation of any key-lever causes such stop-lever to engage the stop ratchet to prevent over rotation of the registering apparatus, substantially as and for the purpose shown.

43. In a cash register and indicator, in combination with a registering-wheel provided with teeth, a series of keys for actuating such wheel, pivoted upon a shaft, a swinging frame pivoted upon the key-supporting shaft and actuated by the operation of any key, a swinging brake-arm having a portion to engage the teeth of the register-wheel to lock it from movement, and connecting mechanism between the swinging brake arm and the frame, whereby upon the operation of any key the arm is swung to cause it to engage the teeth of the register-wheel, substantially as and for the purpose shown.

44. In a cash register and indicator, in combination with a register-wheel provided with teeth; a series of keys for actuating the wheel through suitable connecting mechanism, a series of indicator-tablet-carrying rods actuated by the keys, a swinging frame actuated by any one of the keys, a brake for engaging the teeth of the wheel to stop the wheel from rotating, and means carried by the frame, adapted to actuate the brake device after the frame has traveled over part of its throw and cause it to engage the teeth of the wheel as the frame reaches the limit of its movement by any key, substantially as and for the purpose shown.

45. In a cash register and indicator, in combination with the series of key-levers and the swinging frame engaging the same, alarm mechanism actuated to sound an alarm as the frame nears the limit of its swing, the movable till lid or cover, and one or more latches for locking the same shut, adapted to be tripped by the frame after the latter has caused the alarm to be sounded, substantially as and for the purpose described.

46. In a cash register and indicator, the combination, with a series of key-levers, of a swinging frame pivoted on the same axis therewith, having a cross-bar to be engaged by the key-levers, and a till-locking latch provided with a portion extending over above a portion of the frame, so as to be moved by the frame, substantially as and for the purpose described.

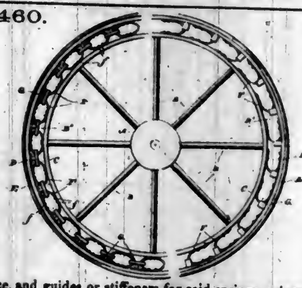
47. In combination with a series of keys pivoted on a shaft at the front of the machine, a series of tablet-carrying rods operated by the keys, a swinging frame pivoted on the same axis with the levers, having the bar extending across the tops of the keys to the rear of their pivotal support, and the till-locking and alarm-striking mechanisms operated by the swinging frame, so that the locking mechanism is tripped and the alarm mechanism is operated to sound an alarm as the frame is raised by the movement of any keys, substantially as and for the purpose described.

481,460. BICYCLE-WHEEL. FREDERICK ASHLEY, Brooklyn, N. Y. Filed Oct. 30, 1891. Serial No. 410,347. (No model.)

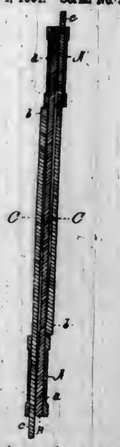
Claim.—1. A wheel having an inner and an outer felly separated from each other by an annular chamber or space, said outer felly being compressible under the tire, a series of springs located in said chamber or space, and guides or stiffeners for said springs, substantially as specified.

2. A wheel having a series of springs between the ends of its spokes and the felly, said springs being held between guides secured to the felly and limiting and stiffening their action, substantially as specified.

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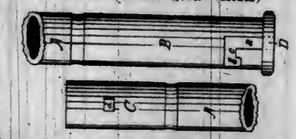


481,461. BOW OR HOOP FOR NETS. ALFRED G. BENSON, Camden, N. J. Filed June 1, 1891. Serial No. 394,620. (Model.)



Claim.—A telescoping bow or hoop consisting of sections composed of bars or rods having ferrules thereon, said ferrules having longitudinal wedge-shaped slots therein, and said sections having their extremities reversely wedge-shaped for locking engagement with the interior of the ferrules when the sections are extended, as set forth.

481,462. LOCKING-FERRULE. ALFRED G. BENSON, Camden, N. J. Filed June 1, 1891. Serial No. 394,621. (Model.)



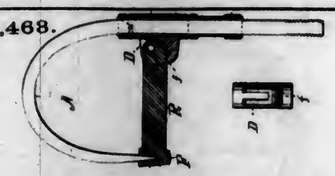
Claim.—A locking ferrule consisting of a male ferrule having a locking stud or boss thereon, and a female ferrule having an L-shaped slot therein for engagement with said stud, the terminal recess of the slot serving to engage the stud and thereby lock the female ferrule against tensional or torsional movement, as set forth.

481,463. GAFF-HOOK. ALBERT G. BENSON, Camden, N. J. Filed June 1, 1891. Serial No. 394,622. (Model.)

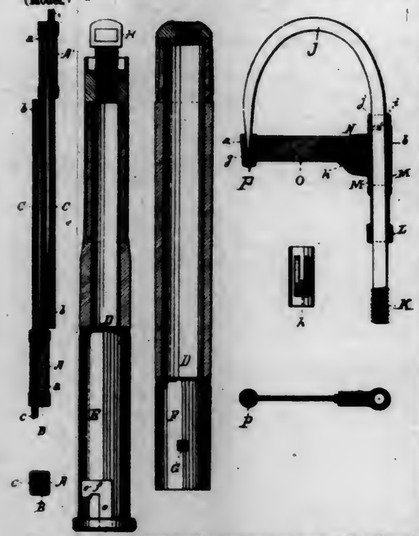
Claim.—The combination of a gaff-hook and its shank with a sliding and locking sleeve and suitable jaws, a vibrating arm pivoted therein and provided with a socket end for the reception of the end or point of the gaff-hook, for the purpose shown and described.



481,463.



481,464. COMBINED GAFF-HOOK AND LANDING-NET. ALFRED O. REMSON, Camden, N. J. Filed June 1, 1891. Serial No. 394,622. (Model.)



Claim.—1. A combined landing-net bow or hoop and gaff-hook, consisting of a rod having a bow or hoop on one end and a gaff-hook on the other end.

2. In combination, a protected gaff-hook, suitable couplings for securing the joints of the sectional rod, and attachment for the reception of the bow or hoop at one end of the rod and the gaff-hook at the other end, as set forth.

3. A combined sectional landing net bow or hoop, gaff-hook, and rod, the rod having attachments for the reception of the bow or hoop at one of its ends and the gaff hook at the other end, and suitable couplings for uniting two or more sections of the rod, if desired, as set forth.

481,465. INCLOSURE FOR PACKING AND CARRYING PRINTERS' ROLLERS. HERBERT M. DUNHAM, Avondale, N. J., and GUSTAVE RUNGE, Cleveland, Ohio. Filed Nov. 25, 1891. Serial No. 413,027. (No model.)

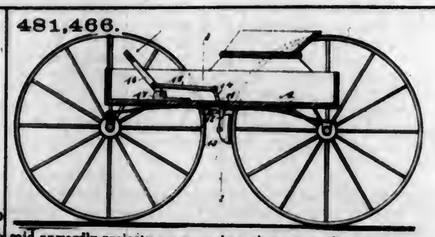


Claim.—The carrying-case for printers' rollers herein described, consisting of a cylindrical paper tube of greater diameter and length than the roller to be carried, wooden disks detachably fitted in the ends of the tube and formed with central apertures to take the journals of a roller and fastening-nails to hold the disks in the tube, as specified.

481,466. VEHICLE-BRAKE. REUBEN W. BROADHEAD, Dolores, Colo. Filed Mar. 28, 1892. Serial No. 426,676. (No model.)

Claim.—1. In a vehicle, the combination of a shaft having crank-arms at its ends carrying brake-shoes and provided with an upwardly-extending arm, a foot-lever, a link connecting the foot-lever with the

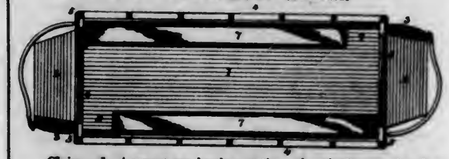
481,466.



said upwardly-projecting arm, and a spring surrounding the shaft and having one end secured to the bearing of the shaft and its other end secured to an adjustable collar on the said shaft, substantially as described.

2. In a vehicle-brake, the combination, with a shaft adapted to be journaled beneath a vehicle-body and provided with downwardly-extending crank-arms at its ends having brake-shoes applied thereto, the shaft being constructed in sections and connected by a coupling, and an arm extending upward from the shaft, of a foot-lever, a link connection between the foot-lever and the upwardly-extending arm of the shaft, and a spring encircling the shaft, having one end attached to the shaft-bearing and the other end secured to a collar adjustably fixed upon the shaft, whereby the tension of the spring may be increased or decreased, the said spring being adapted to normally maintain the brake-shoes out of engagement with the wheels, as and for the purpose set forth.

481,467. STREET-CAR. FREDERICK B. BROWNELL, St. Louis, Mo. Filed Nov. 30, 1891. Serial No. 413,503. (No model.)



Claim.—1. A street-car having at the end a platform and a door moving from one side of the car toward a fixed partition, pocket, or casing located at the other side, the said fixed partition, pocket or casing occupying substantially one-half of the full width of the car, the construction being such that when the door is opened ready ingress and egress are provided across that corner of the platform adjacent to the side of the car from which the door is moved, substantially as set forth.

2. A street-car having at the end a platform and a door moving from one side of the car toward a fixed partition, pocket, or casing and adapted when opened to provide means of ingress and egress across that corner of the platform adjacent to the side of the car from which it is moved, combined with seats constructed and arranged as described, whereby spaces are left between the seats adjacent to the door-opening and said opening, substantially as set forth.

481,468. STREET-CAR. FREDERICK B. BROWNELL, St. Louis, Mo. Filed Nov. 30, 1891. Serial No. 413,503. (No model.)



Claim.—A street-car having at its end a doorway situated at one side of the longitudinal center of the car, a door adapted to open and close said doorway, and a shortened seat adjacent thereto, combined with a seat-section for continuing or extending said shortened seat, thus making up for the deficiency in seating capacity consequent upon such shortening of the seat at or near the doorway not in use as an entrance, substantially as set forth.

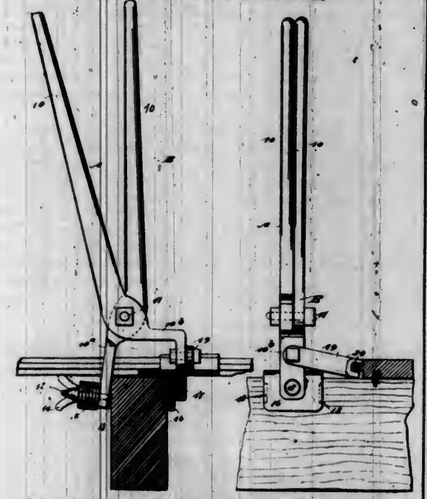
481,469. SPOKE-TENON CUTTER. ABSALOM BRUNER, Artoe, Mo. Filed Oct. 7, 1891. Serial No. 408,009. (No model.)

481,469.



Claim.—The combination of a longitudinally-slotted support, a projecting bearing formed by turning the rear end of the support outward, a clamp-section formed by turning the inner end of the support in the reverse direction, a movable post having a head which projects through the slot of the support, a shaft carrying a cutter head journaled in the said post and outturned bearing, being adapted to move with the former, a lever secured between its ends to the projecting head of the post, a link secured at one end to the outer end of the lever and its opposite end to the slotted support, a spoke-grasping member, and a projection thereon which is adapted to be secured to the said clamp-section on the slotted support, substantially as shown and described.

481,470. FLOOR-JACK. EDWARD A. BULLOCK, Bellefonte, Pa. Filed Mar. 18, 1892. Serial No. 425,574. (No model.)



Claim.—1. A floor-jack consisting of two sections pivotally connected, said sections comprising handles and jaws, the jaw of one section being practically straight and the jaw of the other section angular, an adjusting-pin carried by one of the jaws, a clamping-plate having a swivel connection with the opposite jaw, and a shoe pivotally connected with one of the jaws and adapted for engagement with the board to be operated upon, as and for the purpose set forth.

2. In a floor-jack, the combination, with a body comprising two pivotally-connected sections, each section consisting of a handle and an attached jaw, one jaw being practically straight and the other angular, whereby an essentially-rectangular opening is formed between them, of an adjusting-screw having a pointed inner end passed through the straight jaw and provided with a series of spacing-washers, an angled clamping-plate having a swivel connection with the angular jaw, and a shoe pivotally connected with the said angular jaw, the shoe being adapted to receive the board to be operated upon, as and for the purpose specified.

3. In a floor-jack, the combination, with two sections pivotally connected, each of said sections comprising a handle and a jaw, the jaw of one section being practically straight and that of the other section angular, of an adjusting-screw passed through the straight jaw, the inner end of which screw is formed as a head and is pointed, spacing-washers carried by the adjusting-screw, an angled plate having a swivel connection with the inner face of the angular jaw, said plate being provided with teeth, and a shoe comprising a shank and a head, the shank being pivotally connected with the angular jaw and the head being provided with a groove to receive the tongue of the board, substantially as and for the purpose specified.

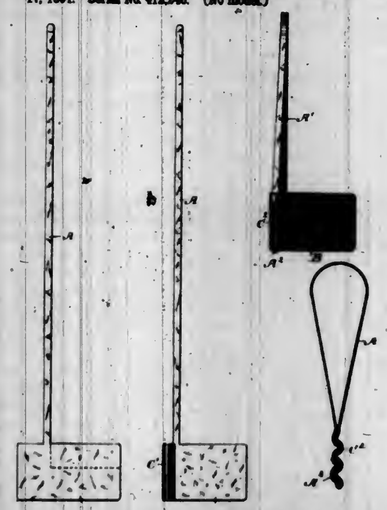
481,471. HARNESS-TUG. SAMUEL P. CHANDLER, Lake City, S. C. Filed Nov. 25, 1891. Serial No. 413,082. (No model.)



Claim.—1. A thill-tug, substantially as herein described, comprising a yielding loop portion C, having rigid end sections A and B, the section A, having apertured ears a^2 a^2, the buckle F, having a pivot-bar *f* journaled in such ears, and the section B, having a hook member *b'* arranged to lock over the pivot-bar *f*, such hook member adapted to extend under the bar *f* when the loop is distended and adapted to be detached when the members A and B are closed in, substantially as and for the purpose described.

2. In a thill-tug, the combination of the loop C, having a member A formed with apertured ears a^2 a^2, the buckle F, having a pivot-bar *f* held in said ears, and the rigid member B, having a hook member *b'* adapted to engage the bar *f* between the ears a^2 a^2 and be held in a locked engagement therewith and provided with a finger or lifting portion G, all arranged substantially as and for the purpose described.

481,472. SEAL. SAMUEL R. CHESSEMAN, Millsdale, Ky. Filed Nov. 17, 1891. Serial No. 412,246. (No model.)

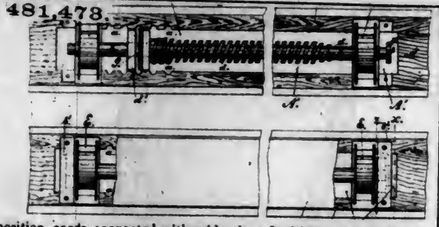


Claim.—A seal consisting of a sheet-metal blank, having a shackle integral therewith, a portion of said blank on one side of said shackle being formed into a hollow cylinder in which the free end of said shackle is adapted to be secured, the other side of said blank forming a tag, substantially as described and shown.

481,473. VENETIAN BLIND. CARL G. CHRISTENSEN, Christiania, Norway. Filed Nov. 9, 1891. Serial No. 411,271. (No model.)

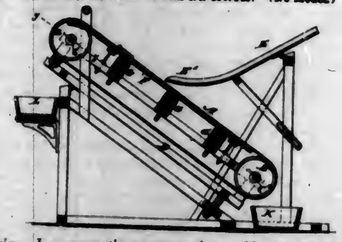
Claim.—In a Venetian blind, the combination, with the slats, the slat-supporting tapes, and a recessed top piece pivoted to oscillate in the frame to which the blind is applied, of an axle journaled in said top piece, a fastening-piece adjustable on said axle, a spring, one end of which is secured to said axle and the other end of which is secured to the fastening-piece, means for securing said fastening-piece in its adjusted

481,478.



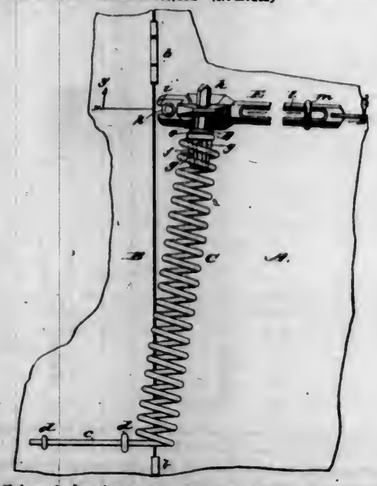
position, cords connected with said axis and with the slats, and cords connected with the recessed top plate for adjusting the position of the slats, substantially as described.

481,474. MAGNETIC SEPARATOR. GURDON CORNELIUS, Glens Falls, N. Y. Filed July 23, 1891. Serial No. 400,445. (No model.)



Claim.—In a magnetic separator, the combination of an inclined frame having two opposite drums, one of which is made in three sections b b' b^2, the endless belt passing around said drums, and the magnets supported by the frame within the belt and provided with recesses f to receive the rims of the sections b b' b^2 of the upper drum, substantially as described.

481,475. DOOR-SPRING. JOHN A COOPER, Nashville, Tenn. Filed Dec. 29, 1891. Serial No. 416,444. (No model.)



Claim.—1. In a door or gate spring attachment, the combination, with the spring proper having a terminal portion or limb at its fast end adapted to engage in a removable manner with fixed holders or staples, of a socket or shank piece adapted to enter within and engage with the opposite or free end of a spring and a removable wrench adapted to engage with said socket or shank piece and forming a part of the spring fixture, substantially as specified.

2. In combination with the coiled spring and socket or shank piece fitted within and engaging with the free end of said spring, the removable sliding wrench attachment constructed to engage with said shank-piece and provided with an open-ended slot at its inner end adapted to engage with a fixed pin or screw and a turn-button or device for holding said wrench in place and for releasing it when required, essentially as set forth.

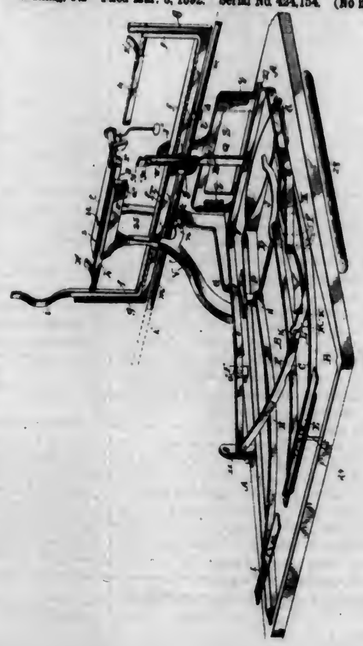
481,476. BICYCLE. WILLIAM S. CRANMER, Sonoma, Cal. Filed Feb. 12, 1892. Serial No. 421,304. (No model.)



Claim.—1. In a bicycle of the Safety type, the combination of a front steering-wheel, a rear driving wheel of larger diameter, a frame closely connecting the two wheels and consisting of the backbone A and bottom bar C, both forked over the rear driving-wheel, separate crank-axles journaled in the bottom bar C on each side of the driving-wheel back of its front, independent chain-gearing on each side of the driving-wheel for transmitting the motion of the cranks thereto, a seat carried by the backbone of the frame in the vertical plane of the crank-axles, and the vertical brace-bars F on each side of the driving-wheel in the perpendicular plane of the crank axles and seat and connecting the bottom bar and backbone of the frame, substantially as herein described.

2. In a bicycle of the Safety type, the combination of a front steering-wheel, a rear driving-wheel of larger diameter, a frame closely connecting the two wheels and consisting of backbone A and bottom bar C, the vertical brace-bars F on each side of the driving-wheel and connecting the backbone and bottom bar, the inner straps c' and f of the bottom bar and brace-bars, respectively, the independent crank-axles mounted in bearings formed by said bar and brace-bars with their straps, the independent chain-gearing from said crank-axles to the rear driving-wheel, and the seat supported by the backbone and lying in the perpendicular plane of the crank-axles and vertical brace-bars, substantially as herein described.

481,477. TYPE-WRITING MACHINE. JAMES D. DAUGHERTY, Kittanning, Pa. Filed Mar. 8, 1892. Serial No. 424,154. (No model.)



Claim.—1. A type-writer comprising a base, a printing mechanism, carriage-supporting standards having a vertical longitudinal slot, a carriage-track within the slot below its upper end, a carriage having a vertical portion moving in the said slot, and yokes secured to the carriage, which engage the said track, for holding the said vertical portion in position, substantially as specified.

2. A type-writer comprising a base, a printing mechanism, carriage-supporting standards having a vertical longitudinal slot, a track within the slot below its upper end, screws supported by the said standards, which secure the said track, a carriage having a vertical portion which moves in the said slot, and yokes upon the said vertical portion of the carriage, which have a slot or opening to allow them to pass the said track-securing screws, substantially as shown.

3. A type-writer comprising a base, a printing mechanism, carriage-supporting standards having a vertical longitudinal slot, a track within the said slot and below its upper end, a carriage substantially U-shaped, a platen supported between its upper end, yokes at the lower end of the carriage, which slide upon the said track, and a longitudinal bar connecting the vertical portions of the carriage below the said platen, which bar slides in the said vertical slot of the standards for supporting the carriage in an upright position, substantially as described.

4. A type-writer comprising a base, a printing mechanism, carriage-supporting standards having a vertical longitudinal slot, a track in the said slot below its upper end for supporting the lower end of a carriage, a carriage substantially U-shaped carrying a platen in its upper ends, a bar connecting the vertical portions of the carriage below the platen, a U-shaped rack having its ends pivoted upon the said rod, one end of the rack being extended to form a handle, substantially as specified.

5. A type-writer comprising a base, a printing mechanism, carriage-supporting standards having a vertical longitudinal slot, a carriage having a vertical portion, which slides in the said slot, and a laterally-adjustable plate at the upper end of the slot, for the purpose set forth.

6. An interchangeable-carriage type-writer comprising a base, a printing mechanism, and a track having screw-threaded openings in its ends and screw-threaded extensions to be screwed therein, whereby a long carriage can be accommodated, substantially as specified.

7. An interchangeable-carriage type-writer comprising a base, a printing mechanism, carriage-supporting standards having a vertical longitudinal slot from end to end, a carriage having a vertical portion sliding within the slot, and a track within the slot below its upper end constructed to have its ends extended, substantially as set forth.

8. An interchangeable-carriage type-writer comprising a base, a printing mechanism, carriage-supporting standards having vertical longitudinal slot, a track within the said slot below its upper end constructed to have its ends extended, and a carriage having a vertical portion sliding in the said slot and its lower end sliding upon the extensible track, substantially as described.

9. A type-writer carriage comprising a frame, a platen journaled therein, a rod extending longitudinally of the said frame below the said platen, a paper-guide in rear of the said platen, curved levers pivoted between their ends upon the said rod near the ends of the platen, a roller journaled between the said levers in front of the said platen, springs upon the paper-guide, which engage the opposite ends of the said levers for holding the roller in contact with the platen, and a bar which connects the said spring-pressed ends of the levers, whereby they can be operated to release the tension of the roller upon the platen.

10. A type-writer carriage comprising a frame, a platen journaled therein, a paper-guide curved and having at each end vertical lips or extensions at its lower edge and inwardly-projecting extensions at its upper portion, both of which are secured to the said frame, substantially as described.

11. A type-writer carriage comprising a vertical U-shaped frame, a platen journaled in its upper end, a curved paper guide provided with extensions or lips, which are secured to the vertical portions of the said U-shaped frame, substantially as set forth.

12. A type-writer carriage comprising a frame, a platen journaled therein, a paper guide secured to the said frame, a platen-operating lever, which has its inner end pivoted to the said paper-guide, and a pawl for operating the said platen, substantially as specified.

13. A type-writer carriage comprising a frame, a platen journaled therein, a paper-guide secured to the frame, having an opening with lips extending laterally therefrom, a platen-operating lever having its inner end passing through the opening and pivoted between the lips, a dog passing through said opening and pivoted between the said lips, and a spring upon the paper-guide, which engages the said dog for holding it in engagement with the platen, substantially as described.

14. A type-writer carriage comprising a vertical frame having slots in its upper end, a soft material placed in the said slots to deaden the sound, a boxing in the said material, a means for detachably securing the said material in the said slots, whereby the platen is made detachable, substantially as set forth.

15. A type-writer carriage comprising a vertical frame, a platen journaled therein, a paper-guide secured to the said frame, an operating-lever for the platen having a downwardly-curved portion, and a space-regulator above the lower edge of the paper-guide and under the said lever, which is adapted to be turned between the lever and the paper-guide to limit the downward movement of the said lever.

16. A type-writer comprising a base, a carriage carrying a feed-rack, a universal lever operating a feed-dog, the key-levers above the said universal lever, the type-bars, a spacing-lever below and out of engagement with the feed-lever, the spacing-lever pivoted inside of the outer end of the said feed-lever and having a vertical slot and a projection, which extends from the feed-lever into the said slot, whereby the feed-lever has a vertical movement independent of the spacing-lever, and the feed-lever depressed with the spacing-lever.

17. A type-writer comprising a base, a carriage carrying a rack, a universal feed-lever operating a feed-dog for the said rack, a rod or shaft below the said feed-lever or frame, a spacing-lever having its inner end loosely journaled upon the said rod, a connection between the feed and spacing levers, an upper-case lever connected at its inner end rigidly to the said rod, an inwardly-extending arm rigidly secured to the said rod, a type-bar and key-lever frame pivoted at its outer end and extending inward over the said inwardly-extending arm to be raised thereby, substantially as set forth.

18. A type-writer comprising an operating-base, a carriage carrying a platen, a printing mechanism, a feed-lever, a lever pivoted at one end and carrying a feed-dog, a rack upon the carriage, with which the dog engages, and a connection between the said feed-lever and the dog-carrying lever.

19. A type-writer comprising a base, a carriage carrying a platen and a feed-rack, a printing mechanism, a feed-lever pivoted between its ends, a horizontal dog-lever pivoted at its outer end, a dog at its inner end for engaging the said feed-rack, and a connection between the said dog-lever and the feed-lever.

20. A type-writer comprising a base, a carriage carrying a feed-rack, a universal feed-lever pivoted between its ends, a printing mechanism, a horizontal dog-lever, pivoted at one end inside of the feed-rack, a feed-dog at the inner side of the said lever, a connection between the dog-lever and the inner end of the said feed-lever, and a device for preventing the free end of the dog-lever from extending too near the feed-rack.

21. A type-writer comprising a base, a printing and feeding mechanisms, a carriage, a spring-drum for operating the carriage, a pivoted clapper, a bell, a pivoted lever, which engages the said clapper, and a trip upon the said spring-drum for operating the lever, substantially as specified.

22. A type-writer comprising a base, a printing and feeding mechanisms, a carriage, a spring-drum for operating the carriage, a bell, a pivoted clapper, a pivoted lever for operating the clapper, and an adjustable slotted trip upon the said drum for operating the said lever.

23. A type-writer comprising a feeding mechanism, a base, a carriage, a shifting frame carrying type-bars and key-levers, a standard at the rear end of the base having a vertical slot, a projection upon the inner end of the shifting frame, that engages the said slot, and the spring-drum journaled upon the said standard for operating the carriage.

24. A ribbon-feed mechanism for type-writing machines, comprising a tilting frame, a ribbon-spool, a lever pivoted at its outer end and having its inner end inside of the inner periphery of the said spool and engaging the said tilting frame, a pawl pivoted upon the lever inside of and engaging the inner periphery of the said ribbon-spool, and a stop for limiting the downward movement of the engaging end of the pawl.

25. A ribbon-feed mechanism comprising two ribbon-spools, a sliding frame or bar, a tilting frame, levers pivoted outside of the said spools and having their inner ends adapted to engage the said tilting frame alternately, stops upon the sliding bar for engaging and limiting the downward movement of the inner ends of the said levers, and pawls upon the levers inside of and engaging the inner periphery of the said spools, substantially as described.

26. A feed mechanism comprising ribbon-spools, a bar sliding transverse the spools, a tilting frame, levers pivoted outside of the spools and extending inward and adapted to engage alternately the said tilting frame, the sliding bar having a portion depending below the inner ends of the said levers, stops upon this depending portion to limit the downward movement of the inner ends of the levers, and pawls pivoted upon the lever inside of and engaging the said spools.

27. A type-bar and key-lever frame having an inner end formed of a portion of a vertical circle, which is provided with radiating slots to receive the type-bars and inner ends of the key-levers, a circular slot to receive the type-bar pivotal rod, the sides of the said frame being secured to the ends of the said inner end.

28. A type-bar and key-lever frame having an inner end formed of a block with radiating slots to receive the inner end of the type-bars and key-levers, and slots below these slots to receive the inner ends of division-plates, and division-plates which have their inner ends secured within the said slots.

29. A type-bar and key-lever frame having an inner end with radiating slots to receive the inner ends of type-bars and key-levers, and a horizontal slot to receive a pivotal rod for the type-bars, the inner end of the frame also having slots between the type-bar slots and below them for division-plates, and division-plates having their outer ends supported in an elevated position and their inner ends curved downward into the slots therefor and between the key-levers and type-bars.

30. A feed mechanism for type-writing machines, comprising a feed-rack, a universal feed-lever, a lever pivoted at one end, and dogs pivoted upon the other end of the said lever, and a connection between the free end of the said lever and the universal lever.

31. A feed mechanism for type-writing machines, comprising a universal feed-lever, a horizontal lever pivoted at one end, a feed-dog upon the free end of the said lever, a feed-rack, and a connection between the free end of the said dog-lever and the said universal feed-lever, substantially as specified.

32. A feed mechanism for type-writing machines, comprising a universal feed-lever, a horizontal lever pivoted at one end, a feed-rack, two pivoted dogs at the free end of the said horizontal lever, one above and one below the said rack, and a connection between the universal feed-lever and the free end of the horizontal pivoted lever.

33. A feed mechanism for type-writing machines, comprising a universal feed-lever, a lever pivoted at one end, a feed-rack, two dogs upon the free end of the said pivoted lever, the said dogs being pivoted at their outer ends and extending inward toward each other, stops for the said dogs, and springs for operating the dogs.

34. A feed mechanism for type-writing machines, comprising a feed-rack, a dog-carrying device which vibrates transverse the said rack, two dogs pivoted upon the said carrying device, respectively, above and below the said rack and extending inward toward each other and vibrating in a line with the travel of the said rack, stops for the said dogs to prevent them from moving with the travel of the machine, and springs for moving the said dogs in a direction opposite the travel of the said machine.

35. A type-writing machine comprising a printing mechanism, a universal feed-lever, a horizontal dog-carrying lever pivoted at one end and carrying dogs at its opposite end, a carriage, a feed-rack, ribbon spools, a ribbon tilting and guiding frame, a connection between the free end of the horizontal dog-carrying lever and the universal feed lever, and a connection between the free end of the dog-carrying lever and the said tilting frame for tilting the latter.

36. A type-bar for a type-writing machine having a type upon one side and a projection upon its opposite side, as and for the purpose specified.

37. In a type-writer, the combination, with a series of individual pivoted type-bars carrying two or more type, of a vertically-shifting frame for sustaining said bars and suitable means for shifting said frame to bring either of the type in proper position to make an impression.

38. In a type-writer, the combination, with a series of type-bars provided with two or more type, of a vertically-shifting frame for sustaining said type-bars concentrically, a series of key-levers connected with said type-bars, and a series of keys for operating said levers.

481,478. SOLE OR HEEL PLATE. GEORGE J. DAVISON, Richmond, Va. Filed Oct. 17, 1891. Serial No. 408,087. (No model.)



Claim.—A heel or sole plate consisting of a body portion A, provided with a barbed extension a^2 bent over the body and a barbed extension a^4, projected diagonally outward from such body, said extensions being disposed in a parallel plane and at approximately an angle of forty-five degrees from the body portion of the plate, substantially as and for the purpose described.

481,479. DENTAL CLAMP. JESSE S. DEARDORFF, Canal Dover, Ohio. Filed Mar. 28, 1892. Serial No. 426,780. (No model.)

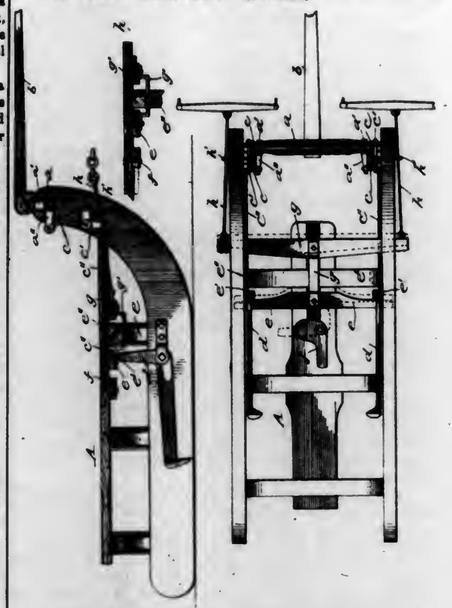
Claim.—1. In a dental clamping device, the combination, with



the pivoted arms, of the oval rims having the retaining claws or lugs, substantially as and for the purpose described.

2. In a dental clamping device, the combination, with the arms having lugs provided with a series of openings, of the oval rims having the retaining-lugs and the pivot-pins for adjustably and pivotally connecting said arms together, substantially as and for the purpose described.

481,480. SLED-BRAKE. PRESTON T. DEMO, Hyde Park, Vt. Filed Apr. 4, 1892. Serial No. 427,701. (No model.)

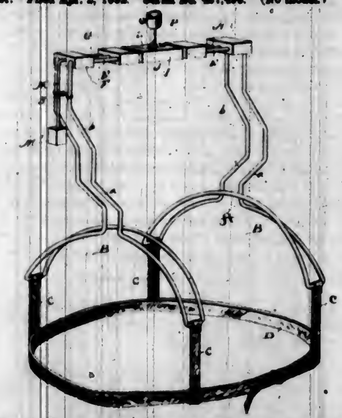


Claim.—1. The combination of a sled, a rock-shaft pivoted between the upwardly-turned ends of its runners and provided with vertically and rearwardly extending arms, a pole pivoted between the vertical arms, depending rods pivoted to the rearwardly-extending arms, angle-levers pivoted on the sled-runners, rearwardly-extending rods connected to these angle-levers, and brake-dogs pivoted on the runners and having their upper arms pivotally connected to the rearwardly-extending rods, substantially as described.

2. The combination of a sled, a rock-shaft pivoted between the forward ends of the runners and provided with two sets of arms, one set projecting upwardly and the other rearwardly, a pole pivoted between the upwardly-projecting arms, brake-dogs pivoted on the sled-runners, rods and levers pivotally connecting the upper ends of the brake dogs to the rearwardly-extending arms on the rock-shaft, a bar connecting the upper ends of the brake-dogs, a whiffletree pivotally connected about midway its ends to said bar, draft-rods connected to the whiffletree and extended forward beyond the runners, and single-trees on these draft-rods, substantially as described.

3. The combination of a sled, a pair of brake-dogs pivoted on the runners and having their upper ends connected by a movable cross-bar, means for operating these brake-dogs from the draft-pole, and a pivoted cam on the platform adapted to press the cross-bar forward and hold the brake-dogs out of engagement with the ground, substantially as described.

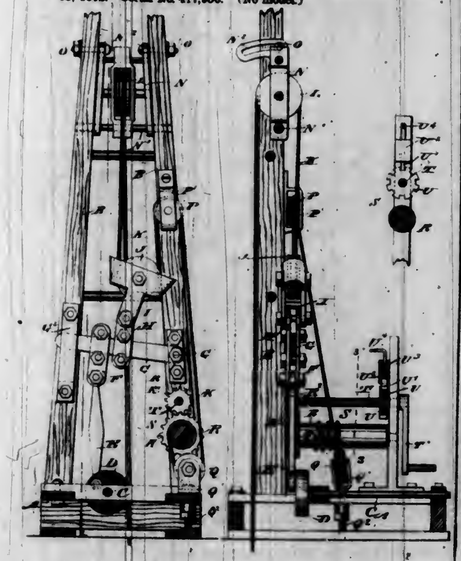
481,481. UMBRELLA-SUPPORTER. JOHN DEVEREAUX, Deniphan, Nebr. Filed Apr. 2, 1892. Serial No. 427,496. (No model.)



Claim.—1. In an umbrella-supporter substantially as described, the combination, with the standards, a rock-shaft having an angular arm, and a weight carried by the said arm, of a bearing-box comprising the section I, fixedly connected to the rock-shaft and having a hemispherical recess in its inner face, the section L, connected to the section I and having also a hemispherical recess in its inner face, a binding-screw taking through the section L and into the section I, and the ball seated in the spherical recess formed by the two sections and having a socket to seat an umbrella-handle, all substantially as specified.

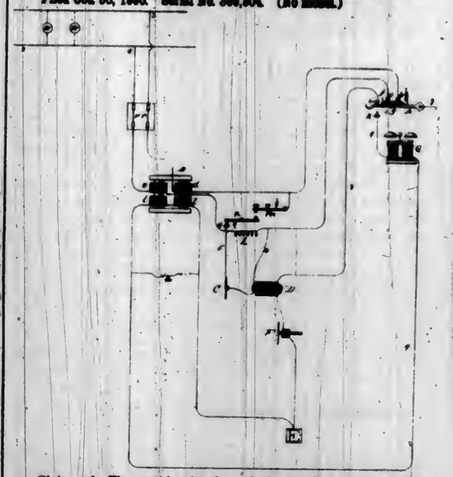
2. In an umbrella-supporter substantially as specified, the combination, with the standards having the arch-saddles B at their lower ends and the inwardly-directed angular branches at their upper ends, a suitable means for fastening said standards in position upon the shoulders, and the bearing-blocks fixedly mounted upon the inwardly-directed branches of the standards, of the rock-shafts journaled in the said bearing-blocks, the bearing-box fixedly connected to the inner ends of said rock-shafts, a suitable means for connecting an umbrella to the bearing-box, the angular arm extending from the end of one rock-shaft, and a weight carried by said arm, all substantially as specified.

481,482. WELL-DRILLING MACHINE. JAMES W. DRAPER, FREDERICK DRAPER, and WALTER ELLSWORTH, Alden, Iowa. Filed Jan. 13, 1892. Serial No. 417,956. (No model.)



Claim.—A well-drilling machine comprising a frame or base, a derrick projecting upwardly therefrom, a drive-shaft mounted on the frame, a vertically-rocking walking-beam mounted transversely on the derrick above the inner end of the drive-shaft and operated therefrom, a pulley J, adjustably connected with the walking-beam, a frame N, pivoted in the upper end of the derrick and having slotted arms through which pass adjusting-bolts, a pulley L, mounted in said frame, a pulley P, mounted on the derrick intermediate of pulleys J L, a winding-drum on the lower part of the derrick, and a rope extending upward over pulley P, thence under pulley J, and thence upward over the adjustable pulley L, and downward for connection with a drill, substantially as set forth.

481,483. TELEPHONE SYSTEM. RICHARD N. DYER, East Orange, N. J., assignor to the American Bell Telephone Company, Boston, Mass. Filed Oct. 30, 1890. Serial No. 369,904. (No model.)



Claim.—1. The combination, in a telephone sub-station apparatus, of a telephone-transmitter, a current-supplying circuit therefor, a normally-open loop from said supply-circuit to the said transmitter, a resistance in a shunt-circuit of the said loop around the transmitter, a circuit-closer controlled by the automatic telephone-switch and acting, as the telephone is removed from or replaced on its support, to close or open the loop-circuit through the transmitter, and an electro-magnetic resistance included directly in the loop-circuit and acting as its resistance and self-induction to control the strength and steady the current flowing through said loop and transmitter, substantially as described.

2. The combination, with the telephone-transmitter, of a current-supplying circuit therefor, a loop from said supply-circuit to the transmitter and including the same, an electro-magnetic resistance in the said loop, constituting, also, the primary helix or helices of an induction-coil for sending call-signals, and a circuit-controller for alternately making and breaking the circuit of the loop at a point between the transmitter and the said electro-magnetic resistance.

3. The combination, with a telephone-transmitter, of a current-supplying circuit, a branch or loop circuit therefrom extending to said transmitter, a controlling and steadying electro-magnetic or inductive resistance in said branch circuit the helices which also constitute the primary helix or helices of an induction-coil for sending call-signals, and a determining-resistance included in a shunt of said loop-circuit around the transmitter, substantially as set forth.

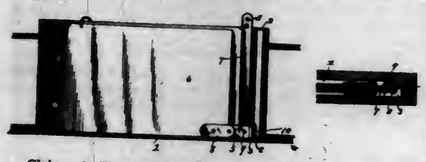
4. In combination with the mains of a constant-direction electric-light or power circuit, a telephone-transmitter, a loop from said mains to the said transmitter, a steadying and current-regulating electro-magnetic resistance included in said loop, a safety-catch interposed in said loop between the said resistance and the main-line junction, and a determining-resistance in a shunt of said loop uniting the transmitter-terminals, substantially as set forth.

5. The combination, with a telephone, of a current-supplying circuit, a branch therefrom supplying the transmitter, current-reducing magnet-coils located in said branch, secondary coils upon such magnet connected with the line through the bell-circuit, and a key closing the branch circuit through the magnet-coils and not through the transmitter, substantially as set forth.

6. The combination, with a telephone, of a current-supplying circuit, a branch therefrom supplying the transmitter, current-reducing

magnet-coils located in said branch, secondary coils upon such magnet-coils, connected with the line through the bell-circuit, a key closing the branch circuit through the magnet-coils and not through the transmitter, and the telephone-switch opening and closing the branch circuit without grounding the same, substantially as set forth.

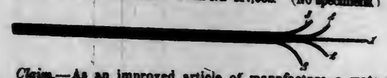
481,484. CENTER-BOARD FOR BOATS. FRANCIS M. EATON, West Tremont, Me. Filed May 24, 1892. Serial No. 434,123. (No model.)



Claim.—1. The combination, with a center-well, of a vertical rod rigidly mounted at one end of the well and having its lower end secured to the same, a center-board, a hinge having one leaf connected with the center-board and having its other leaf slidingly mounted on the rod, a vertical bar secured to the slidingly-mounted leaf, and means for securing the upper end of the bar to the well, substantially as and for the purpose described.

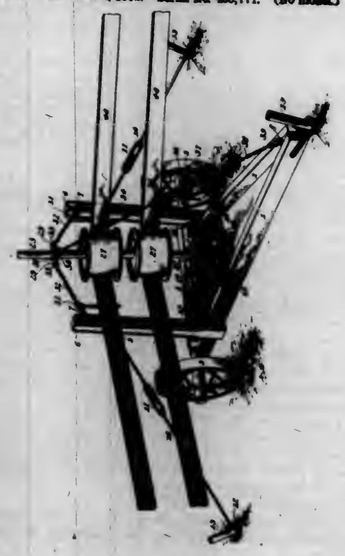
2. The combination, with a center-well, of a vertical rod rigidly mounted at one end of the well and having its lower end secured to the same, a center-board, a hinge having one leaf provided with an eye and slidingly mounted on the rod and having its other leaf secured to the center-board, a rod secured to the leaf, having the eye and provided at its upper end with an eye and with a perforation, and a transverse pin arranged in the perforation and securing the bar to the center-well, substantially as described.

481,485. WATERPROOF FABRIC. JOSEPH R. FRANCE, New York, N. Y. Filed Jan. 9, 1892. Serial No. 417,602. (No specimens.)



Claim.—As an improved article of manufacture, a waterproof fabric consisting of a sheet of rubber, a sheet of fibrous material—such as thin paper—attached to the sheet of rubber, and a covering of pyroxyline compound secured to the sheet of fibrous material, substantially as described.

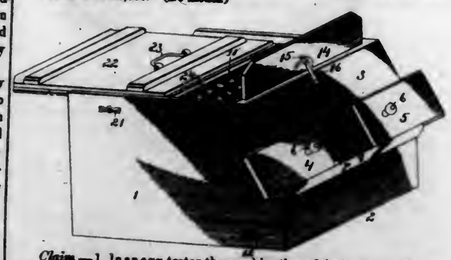
481,486. COUNTER-SHAFT-SUPPORTING JACK. HIRAM J. GARBUTT, Lexington, Mich., assignor of one-half to George Smith, same place. Filed Mar. 4, 1892. Serial No. 423,771. (No model.)



Claim.—1. In a device of the class described, the combination, with the truck comprising the opposite sills, the transverse rods mounted on the sills, the longitudinal bar adjustably connected with the rods, and a bearing-sleeve adjustably mounted on the bar, of a counter-shaft stepped in the bearing of the sleeve and adjustable connections between the truck or frame and the upper end of the counter-shaft, substantially as specified.

2. In a device of the class described, the combination, with the opposite side bars, the round rods mounted thereon and rigidly connected thereto, the longitudinal bar rectangular in cross-section, staples embracing the rods and passed through the bar, nuts on the staples, a rectangular sleeve mounted for movement on the bar and provided at one side with a binding-screw and upon its upper side with a tenon, a collar mounted on the tenon, a pin passed through the collar and tenon, a counter-shaft mounted in the collar, a pin passed through the collar and the lower end of the shaft, and pulleys mounted on the shaft, of means for supporting the shaft, substantially as specified.

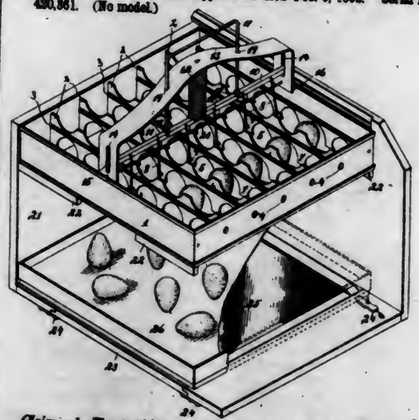
481,487. EGG-TESTER. JEREMIAH R. GARLAND, Osage City, assignor of one-half to John H. Craig, Coyville, Kans. Filed May 16, 1891. Serial No. 393,060. (No model.)



Claim.—1. In an egg-tester, the combination of the box 1, a reflector located therein, a beveled portion 3 in said box having an opening, means for the partial or entire closing of said opening, a guard 14, hinged to said box above said beveled portion, and means for securing said guard in an upright position, substantially as and for the purpose set forth.

2. In an egg-tester, the combination of the box 1, having a beveled end 3 opening therein, means for closing or partially closing said opening, means for supporting eggs in said box, a reflector 7, and a spring 13 for holding said reflector in position, substantially as described, and for the purpose set forth.

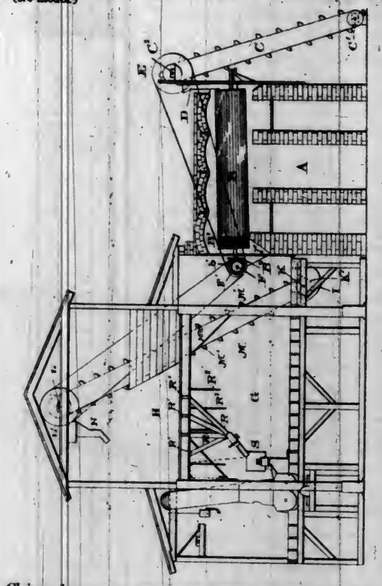
481,488. COMBINED DUMPING-TRAY AND EGG-TESTER. JEREMIAH R. GARLAND, Osage City, assignor of one-half to John H. Craig, Coyville, Kans. Original application filed May 16, 1891, Serial No. 393,060. Divided and this application filed Feb. 9, 1892. Serial No. 420,861. (No model.)



Claim.—1. The combination of the frame 1, slats 2, pivoted thereto and having openings therein for the reception of eggs, arched frame 13, having slots 14, a bar 10, having its ends working in said slots, rods 8 for connecting the bar 10 with the slats 2, and means for raising and lowering said bar in order to change the position of the slats substantially as and for the purpose set forth.

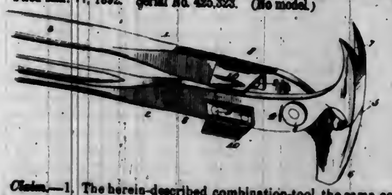
2. The combination of the frame 1, slats 2, pivoted thereto, having suitable openings for holding eggs, arched frame 13, having slots 14, bar 10, having its ends working in said slots, rods 8, connecting the bar 10 with the slats 2, brace-rod 20, a spring 12, connecting the bar 10 with the frame 13, and a bail 17, in connection with the bar 10 and extending up through the arched frame 13, substantially as and for the purpose set forth.

481,489. PLANT FOR HEATING AND CONTROLLING SAND. FRANCIS V. GREENE, New York, N. Y., assignor to the Barber Asphalt Paving Company, same place. Filed Mar. 24, 1892. Serial No. 426,315. (No model.)



Claim.—In an apparatus for heating and controlling sand in paving operations, a heating-drum arranged in a slightly-inclined position over furnaces for heating the same, provided with a hopper at its feed end and a chute at its delivery end, a conveyer arranged in close proximity to the feed end of the sand-heating drum, adapted to carry up the sand and deposit it in the feed-hopper, a main operating-platform located at one end of the sand-drum and below the same, to which the sand is conducted after leaving the heating-drum, a hot-sand platform arranged above the main platform, having its floor provided with a series of chutes leading down to the main platform and to a main or central chute, each chute being provided with an independent cut-off, and a conveyer running from the main platform to a point above the hot-sand platform, substantially as described, and for the purpose set forth.

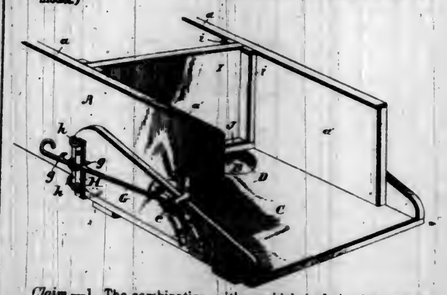
481,490. HORSESHOER'S TOOL. OLE HANDELAND, Webster, S. D. Filed Mar. 17, 1892. Serial No. 425,323. (No model.)



Claim.—1. The herein-described combination-tool, the same consisting of the opposite levers having their inner ends shaped to form handles and near their outer ends oppositely curved, crossed, and pivoted, each of said levers terminating at its inner edge at its outer end in a pincher-jaw, the outer edge of one of the jaws shaped to form a hammer-head and the corresponding edge of the companion jaw being bifurcated to form a claw, and the oppositely-disposed L-shaped plates secured to the levers in rear of the pivot and having their inner opposing faces roughened, substantially as specified.

2. The herein-described combination-tool, the same consisting of the opposite levers having their inner ends shaped to form handles and near their outer ends oppositely curved, crossed, and pivoted, each of said levers terminating at its inner edge at its outer end in a pincher-jaw, the outer edge of one of the jaws shaped to form a hammer-head and the corresponding edge of the companion jaw being bifurcated to form a claw, the oppositely-disposed L-shaped plates secured to the levers and having their inner opposing faces roughened and the outer edges of the levers in rear of their pivot roughened to form rasps, substantially as specified.

481,491. END-GATE. WALTER D. HAWK, Rock Island, and OELL S. FRENCH, Monmouth, Ill. Filed Mar. 4, 1892. Serial No. 423,759. (No model.)



Claim.—1. The combination, with a vehicle-body having an end-gate and having the sides projected a short distance in the rear of said end-gate and the vehicle-body and a scoop-board adapted to be supported at its inner end by a hinged joint to the vehicle-body about in line with the rear end of the vehicle-bottom, of a rod having connection at one end with the projected ends of said side pieces of the vehicle-body, and adapted to engage with a lateral projection on the side of and near the outer end of the scoop-board, and a plate H near the inner end of said scoop-board having projections at different levels to engage with the other end of said rod, substantially as described.

2. The combination, with a vehicle-body having its sides projected in the rear of the end-gate and the bottom of said vehicle-bottom and a scoop board adapted to be supported at its inner end by a hinged joint to the vehicle-body about in line with the rear end of the vehicle-bottom, of a rod having a series of projections at one end and connected at the other end with the side of the vehicle-body, a ring *e*, secured to the scoop-board and constructed to have the said rod pass therethrough and engage with one of the series of projections on said rod to support the scoop-board in the required position, and a plate H, secured to the said scoop-board near its inner ends, and having projections at different levels to be engaged by the said rod to support the scoop-board in a horizontal position, substantially as set forth.

3. The combination, with a vehicle body having its sides projected in the rear of the end-gate and the bottom thereof, a scoop-board, and the slotted right-angled brackets *d* and the hook-plates *b* to pivotally connect the scoop-board with the vehicle-bottom, of a strap-iron secured to the scoop board and having ring *e*, a bracket secured to the vehicle-body and having a vertical extension *f*, which is adapted to project into the said ring *e*, a notched rod connected with the said vertical extension *f*, and a plate H, attached to the inner end of the scoop-board and having lateral extensions at different levels, substantially as described, for the purpose specified.

481,492. HINGE. JOHN F. HIRST, Sabattus, Me. Filed Dec. 10, 1891. Serial No. 414,626. (No model.)

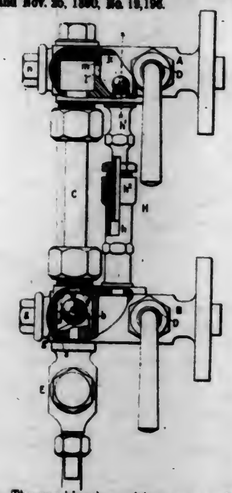


Claim.—1. A hinge, substantially as shown and described, comprising the hinged leaves, each provided on its rear face with the seats *b' c'*, one leaf having a transverse socket and the other leaf a longitudinal slot, the bail having its ends fitted in the socket and slot of the respective leaves, and the removable plates fitted in the seats of

the two leaves over the ends of the bail, as and for the purpose described.

2. The hinge herein shown and described, comprising the leaf A, having the socket *b* and the seats *b'* in rear of said socket, another leaf A', provided with the longitudinal slot and the seats *c'* in its rear side, the bail D, fitted at its ends in the socket and slot of the respective leaves, and the removable plates fitted tightly in the seats of said leaves and arranged flush with the rear faces thereof, as and for the purpose described.

481,498. WATER-GAGE. JOHN A. HOPKINSON and JOSEPH HOPKINSON, Huddersfield, England. Filed Dec. 3, 1891. Serial No. 414,421. (No model.) Patented in England Jan. 27, 1890, No. 1,435, Apr. 22, 1890, No. 6,141, and Nov. 26, 1890, No. 19,196.



Claim.—1. The combination, with a gage-cock and a spherical valve or ball for closing the water-orifice when the glass breaks, of an inclined floor for supporting said valve or ball when in its normal position and a screw-plug having an extension for maintaining the ball or valve in position on the said floor, said inclined floor being so arranged with relation to said screw-plug that upon the removal of said screw-plug the valve or ball drops out of the gage-cock, substantially as described.

2. In a water-gage, the combination, with a water-arm, of a try-cock having a portion thereof formed with an inclined elongated hole or aperture above the ordinary passage of the try-cock, a ball which rests on the edges of the said inclined elongated opening, and a screw-plug for maintaining said ball in position, said inclined floor being so arranged with relation to said screw-plug that upon the removal of said screw-plug the ball will drop out of the gage-cock, substantially as described.

3. In a water-gage, the combination, with a ball for closing the water-orifice when the glass breaks, of a grooved or like floor whereon the said ball rests, said floor being stationary or immovable with respect to the gage, and a lateral support for maintaining the ball in position, as set forth.

4. The combination, with the lower or water arm of a water-gage, of a ball-valve for closing the water-orifice when the glass breaks, said valve being of greater weight than that of a column of water of sectional area equal to that of the seat of the said valve and of a height equal to the length of the gage, substantially as described, for the purpose specified.

5. In a water-gage, the combination, with the gage-glass and the steam and water arms, of an extensible supplementary tube connecting said arms and located at a point between the gage-glass and the gage cocks, as set forth.

6. In a water-gage, the combination, with a gage-glass and the steam and water arms, of a tube connecting the said arms supplementary to the gage-glass and a ball-valve in the steam-arm, as set forth.

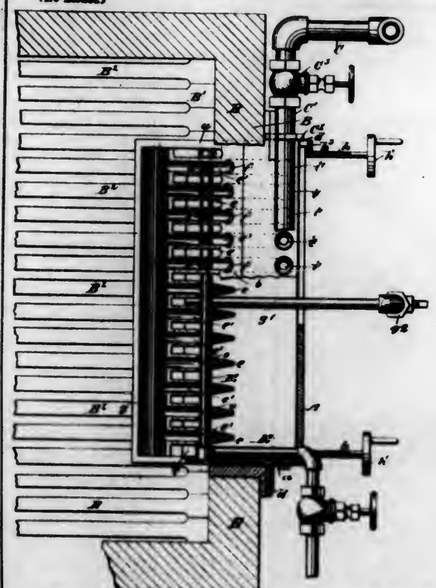
7. In a water-gage, the combination, with a gage-glass and the steam and water arms, of a tube connecting the said arms supplementary to the gage-glass and a ball-valve resting in a recess on the top of the said supplementary tube, as set forth.

8. In a water-gage, the combination, with a gage-glass and a tube connecting the steam and water arms, supplementary to the gage-glass, of a ball-valve resting on a seat on the top of the said tube and so arranged that it can be taken out of the gage, as set forth.

9. In a water gage, the combination, with a gage-glass, of a tube connecting the steam and water arms supplementary to the gage-glass, said tube being constructed in two parts, one adapted to slide within the other and having a stuffing-box and gland, as set forth.

10. In a water-gage, the combination, with a gage-glass and a tube connecting the steam and water arms supplementary to the gage-glass, of a ball resting on an inclined support formed on the upper end of the said tube, as set forth.

481,494. GASEOUS-FUEL GENERATOR AND BURNER. NORBERT HOER, New York, N. Y. Filed Aug. 22, 1891. Serial No. 403,405. (No model.)



Claim.—1. A gaseous-fuel generator and burner which embrace devices contained therein adapted to produce combustible vapor and burn it as evolved and integral means for regulating the ingress of air to the combustion-chamber of boiler or furnace, which generator is adapted to be inserted and held within the usual door-opening of the combustion-chamber to close the same and removable therefrom, substantially as described.

2. A vapor-fuel producer and burner comprising a metal frame having a series of spaced ribs that incline from a vertical plane, are grooved longitudinally on one face, and are transversely intersected by a steam-jet for each rib, and have a carbonaceous-liquid supply above each steam-jet, substantially as described.

3. In a vapor-fuel producer and burner, the combination, with a frame having channeled ribs that incline from a vertical plane, of a graduating carbonaceous-liquid-feeding device for each rib connected to a supply and a steam-jet for each rib intersecting its channel, substantially as described.

4. In a vapor-fuel producer and burner, the combination, with a frame that is insertible in the door-opening of a fire-chamber, having channeled ribs that incline from a vertical plane, each channel intersecting an inclined perforation or passage above in the frame, of a graduated carbonaceous-liquid-feeding device for each inclined passage, and a steam-conduit below on the frame, which supplies steam-jets that intersect the channels in the ribs, substantially as described.

5. In a vapor-fuel producer and burner, the combination, with a fire-chamber front wall that has a door-opening therein, of a vapor-fuel-generator frame which will enter and fill said opening, a series of spaced ribs thereon, each inclined from a horizontal plane and longitudinally channeled on its rear face, a carbonaceous-liquid-feed pipe for each rib, means to connect the feed-pipes with the channels, a transverse steam-conduit perforated at each rib to provide steam-jets therefor, a steam-supply, a carbonaceous-liquid supply, and controlling devices for said supplies, substantially as described.

6. In a vapor-fuel producer and burner, the combination, with a fire-chamber front wall provided with an opening, a boiler above, a vapor-fuel-generator frame in the front wall opening, a series of spaced channeled rib on the frame, which incline from a vertical plane and are intersected above by downwardly-inclined tubular carbonaceous-liquid passages formed in the top wall of the frame, a feed-pipe for each liquid-passage, a drip-pipe intersecting each liquid-passage below the feed-pipes, a valve for each feed-pipe, and a liquid-supply connected thereto, of a steam-conduit pipe extended from a steam-supply and entering the frame, having a transverse branch that is perforated opposite each channel in the ribs, and a valve for the steam-supply pipe, substantially as described.

7. A hydrocarbon-burner adapted to be inserted or removed from the door-opening of a furnace containing a series of open ribs and ducts thereon for conveying hydrocarbon oil from without the boiler to the point of combustion and devices for controlling the admission of air from without and through the openings in the ribs, said devices forming part of said burner, substantially as described.

8. A hydrocarbon-burner adapted to be inserted or removed from the door-opening of a furnace, a series of ribs on the furnace side of the burner, troughs on the ribs having openings between the ribs, a series of steam-jets opening into the troughs, an independent source of supply of combustible liquid, and means for connecting each troughed rib with the source of supply independently of the others, substantially as described.

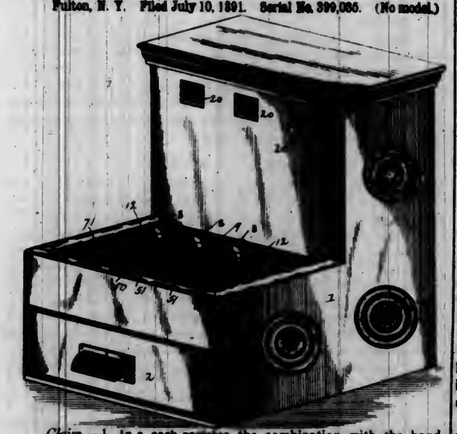
9. A hydrocarbon-burner adapted to be inserted or removed from the door-opening of a furnace, a series of ribs on the furnace side of the burner, troughs on the ribs, openings between the ribs, devices for controlling the admission of air from without and through the openings in the ribs, an independent source of supply of combustible liquid, and means for connecting each troughed rib with a source of supply independently of the others, substantially as described.

10. The combination, in a burner of the class described, having integral devices for producing combustion, comprising a series of independent ducts or troughs, a source of supply of combustible material, devices for connecting said independent ducts with the source of supply, devices for regulating admission of air forming part of the burner, and means for pivotally supporting said burner, substantially as described.

11. The combination, in a burner of the class described, having integral devices for producing combustion, said burner being pivoted at 1 upon uprights O^3, with fulcra C' for pivotally supporting the uprights, the frame A, and the uprights O^3, having holes 4 and 2, respectively, at points equidistant from the pivots 1, substantially as described.

12. A hydrocarbon-burner comprising a rectangular frame, having at one side a sloping wall, which wall is provided with a series of troughed ribs *e*, having slots or openings between the ribs, means for feeding a liquid to the ribs, and devices for controlling the passage of air through said slots, comprising the hinged door-sections *a' a'*, having connected nuts A^5, a screw-threaded rod *h*, passing through said nuts, provided at one end with a crank and secured at the other end to the wall of the burner by a movable block in which said rod can turn, substantially as described.

481,495. CASH REGISTER AND INDICATOR. GEORGE M. HOWE, Fulton, N. Y. Filed July 10, 1891. Serial No. 399,086. (No model.)



Claim.—1. In a cash-register, the combination, with the hand-actuated shafts, their pointers, and the dials, of the rack-bar connected with said shafts, the indicating shafts and wheels, and the display-openings, substantially as described.

2. In a cash-register, the combination, with the hand-actuated shafts, their pinions, and the dials, of the rack-bars, the indicating shafts and wheels, the shafts having pinions meshing with said rack-bars, the shafts having pointers, the connections between said shafts and rack-bars, whereby the former are rotated, substantially as described.

3. In a cash register, the combination, with the casing, the hand-actuated shafts having pointers adapted to be rotated when a sale is made, and the pinions secured to said shafts, of the rack-bars engaging with said pinions, the indicating-shafts having indicating-wheels thereon, and pinions adapted to engage said bars, the shafts having pointers and pinions, the latter adapted to engage with teeth on said rack-bars, substantially as described.

4. In a cash register, the combination, with the casing, the hand-actuated shafts provided with pointers, and the dials, of the reciprocating rack-bars, the vertical shafts with indicating or display wheels and pinions engaging with said bars, the ratchet-disks connected with said shafts, the pawls engaging with said ratchet-disks, and means, substantially as described, for disengaging said pawls from the ratchet-disk.

5. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pointers, and the dials, of the reciprocating rack-bars, the shafts provided with indicating-wheels and pinions adapted to engage with said bars, the ratchet-disks on the lower ends of said bars, and the locking-pawls adapted to engage with said disks, substantially as described.

6. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pointers, and the dials, of the reciprocating rack-bars, the shafts provided with indicating-wheels and pinions adapted to engage with said rack-bars, the ratchet-disks on the lower ends of said shafts, the pivoted pawls engaging with said disks, and the transverse bar or shaft having arms adapted to engage with said pawls, substantially as described.

7. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pointers, and the dials, and the reciprocating rack-bars, of the shafts provided with indicating-wheels and pinions adapted to engage with said rack-bars, the ratchet-disks on the lower ends of said shafts, the pivoted spring-pawls engaging with said disks, the transverse shaft having forwardly-projecting arms adapted to engage with said pawls, the disk having a projection or stud fixed to one end of said shaft, the loosely-pivoted gravity-lever, and the cash-drawer having a plate adapted to engage with said lever, substantially as described.

8. In a cash-register, the combination, with the casing, the hand-actuated shafts having pinions and pointers, and the dials, of the reciprocating rack-bars, the shafts in line with said hand-actuated shafts, having pinions engaging with said rack-bars, the pointers on the upper ends of said shafts, and the dials, substantially as described.

9. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pinions and pointers, and the dials, of the reciprocating rack-bars, the shafts, aligned with said hand-shafts having loose pinions engaging with said rack-bars, the disks having spring-pawls secured to the loose pinions, the ratchet-wheels fixed to the shafts, and the pointers and dials, substantially as described.

10. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pinions and pointers, and the dials, of the reciprocating rack-bars, the shafts aligned with said hand-shafts, having loose pinions engaging with said rack-bars, the indicator-shafts having indicating-wheels, and pinions engaging with said rack-bars, substantially as described.

11. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pinions and pointers, and the reciprocating rack-bars, of the shafts having pointers aligned with said hand-shafts and the dials, the loose pinions on said shafts, the disks fixed to said pinions and provided with spring-pawls, the ratchet-wheels fixed to said shaft, the indicator-shafts having indicating-wheels, and pinions engaging with said rack-bars, substantially as described.

12. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pinions and pointers, the dials, and the reciprocating rack-bars provided with springs, of the shafts provided with pointers, aligned with said hand-shafts, and the dials, the loose pinions on said shafts, the disks fixed to said pinions and provided with spring-pawls, the ratchet-wheels fixed to said shafts, the indicator-shafts having indicating-wheels, the pinions on said shafts engaging with the rack-bars, the ratchet-disks on the lower ends of said shafts, the pivoted pawls engaging with said ratchets, the transverse shaft having forwardly-projecting arms, the disk fixed to said shaft and having a projection or pin, the loose gravity-lever, and the cash-drawer and plate for tripping said lever, substantially as described.

13. In a cash-register, the combination, with the casing, the hand-actuated shafts provided with pointers and pinions, the dials, and the reciprocating rack-bars, of the shafts having pointers aligned with said hand-shafts, the loose pinions on said shafts, the disks secured to said pinions and provided with spring-pawls, the projecting arms secured to said shafts, the spring-actuated reciprocating bars having hooked ends with which said arms engage, the pivoted pawls to which said bars are

connected, and the ratchets on said shafts, with which said pawls engage, substantially as described.

481,496. SAW-STRAINING DEVICE. MELVIN JINKS, Cohocton, N. Y. Filed Mar. 18, 1892. Serial No. 425,464. (No model.)

seat A, and the seat-cover C, of a vertical slide F, connected with the seat-cover, the elevated cushioning-cylinder L, the piston K, arranged in the cylinder, the piston-rod J, connections between the piston-rod and the vertical slide, the supply-valve i^3, connected with and operated by the piston-rod, the flushing-valve i^2, the lever M, connected with the flushing-valve and operated by the piston-rod, the pivoted lever O, arranged beneath and exposed to the action of the pivoted seat, the bell-crank lever P Q, having one end connected with the lever, and the dog R, engaging the other end of the bell-crank lever and adapted to engage the vertical slide, substantially as described.

2. The combination, with a reel provided with rock-shafts carrying the teeth, of a shield over the shafts on which the teeth are supported, as set forth.

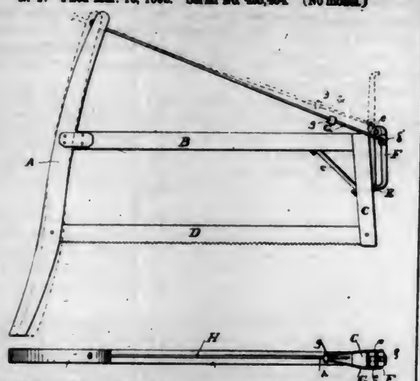
3. The combination, with a reel provided with shafts carrying the teeth, of a curved shield supported by the said shaft over the coils of the teeth, as set forth.

conductor, while the trolley moving in the opposite direction on the main line keeps the main conductor, substantially as described.

2. The combination, with the main and branch overhead conductors, of the trolley-switch consisting of the plate 5, suitably supported and provided with the stationary track-flanges, a movable piece 10, located in a slot formed in plate 5 and carrying the depending guide and track-flanges and provided with a lug projecting above the plate 5, and a spring connected at one extremity with said lug and at the opposite extremity with a suitable stationary stop secured to the top of the plate, substantially as described.

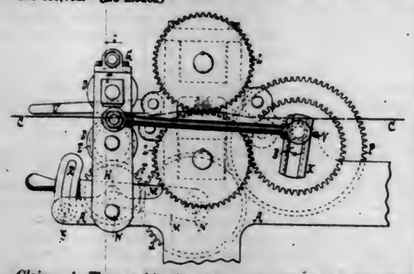
connected, and the ratchets on said shafts, with which said pawls engage, substantially as described.

481,496. SAW-STRAINING DEVICE. MELVIN JINKS, Cohocton, N. Y. Filed Mar. 14, 1892. Serial No. 425,464. (No model.)



Claim.—The combination of the saw-frame constructed substantially as described with the strap E, having forwardly-projecting eyes, the lever F, having a rearwardly-projecting eye pivoted between those of the strap, the stirrup G, connected to said lever, and the straining-rod H, all substantially as and for the purpose set forth.

481,497. MECHANISM FOR FEEDING AND CUTTING PAPER. ROBERT T. JOHNSTON, Scotch Plains, N. J. Filed Oct. 15, 1891. Serial No. 408,782. (No model.)



Claim.—1. The combination of a rotary cutter, an oscillating frame, feed-rollers acting to feed a sheet to the rotary cutter and journaled in the oscillating frame for neutralizing the feed action of the rollers on the sheet as the frame swings backward or away from the rotary cutter, and means for rotating the cutter, oscillating the frame, and rotating the feed-rollers, substantially as described.

2. The combination, with a cutter, of rotary oscillating feed-rollers, a removable gear, as E, connected to said rollers, and an adjustable gear, as F, for driving the removable gear, substantially as described.

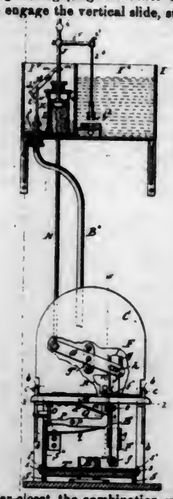
3. The combination, with a cutter, of rotary feed-rollers, an oscillating frame or arms for said rollers, and a pitman and crank for oscillating the arms, said pitman being adjustably connected to the crank, substantially as described.

4. The combination, with a cutter, of rotary oscillating feed-rollers, a removable gear, as E, connected to said rollers, a gear F for driving the removable gear, and an adjustable arm and set-screw for supporting the gear F, substantially as described.

481,498. WATER-CLOSET. GERTRUDE J. KREHLBAUM, New York, N. Y. Filed Nov. 13, 1891. Serial No. 411,738. (No model.)

Claim.—1. In a water-closet, the combination, with the pan, the seat, and the cover, of a cushioning-cylinder, a piston fitted into said cylinder, a piston-rod extending from said piston and constructed to actuate the water-supply valve and the flushing-valve, and means for locking the cover in its open position by the weight of the person occupying the closet and for releasing said cover when the weight is removed, substantially as described.

2. In a water-closet, the combination, with the pan B, the pivoted seat A, and the seat-cover C, of a vertical slide F, connected with the seat-cover, the elevated cushioning-cylinder L, the piston K, arranged in the cylinder, the piston-rod J, connections between the piston-rod and the vertical slide, the supply-valve i^3, connected with and operated by the piston-rod, the flushing-valve i^2, the lever M, connected with the flushing-valve and operated by the piston-rod, the pivoted lever O, arranged beneath and exposed to the action of the pivoted seat, the bell-crank lever P Q, having one end connected with the lever, and the dog R, engaging the other end of the bell-crank lever and adapted to engage the vertical slide, substantially as described.



3. In a water-closet, the combination, with the pan B, the seat A, and the seat-cover C, of the vertical slide F, connected with the seat-cover, the elevated cushioning-cylinder L, the piston K, arranged in the cylinder, the piston-rod J, connections between the piston-rod and the vertical slide, the supply-valve i^3, connected with and operated by the piston-rod, the flushing-valve i^2, the lever M, connected with the flushing-valve and operated by the piston-rod, the levers S, arranged below the seat and provided with a platform T, the arm S', connected to one of the levers S, the bell-crank lever P Q, adapted to engage the arm S', and the dog R, engaging the bell-crank lever and adapted to engage the vertical slide, substantially as described.

481,499. PROCESS OF TREATING SULPHIDE ORES OF ZINC AND LEAD. GEORGE T. LEWIS, Philadelphia, Pa., and CARL V. PETRASCH, Camden, N. J., assignors to the Western Patent Company, Denver, Colo. Filed July 8, 1889. Renewed Jan. 12, 1892. Serial No. 417,782. (No specimens.)

Claim.—The process of recovering lead and zinc from sulphureted lead and zinc lead ore, which consists in roasting the ore, then smelting the roasted mass and exposing the fumes or volatile matter produced by said smelting to the action of the gases which are volatilized in the roasting of said ore, together with water, and then separating the zinc solution from the insoluble lead compound and recovering the zinc and lead, substantially as described.

481,500. PROCESS OF TREATING SULPHIDE ORES. GEORGE T. LEWIS, Philadelphia, Pa., and CARL V. PETRASCH, Camden, N. J., assignors to the Western Patent Company, Denver, Colo. Filed June 27, 1889. Renewed Jan. 12, 1892. Serial No. 417,794. (No specimens.)

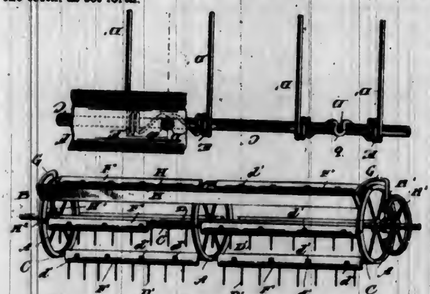
Claim.—The process of treating sulphide ores of lead and zinc, whether containing precious metals or not, which consists in driving off the volatile constituents of the ore and condensing the fumes by passing them through a stack or tower or a series of stacks or towers containing a material—such as coke—which is not acted upon by acid and upon which the fumes will condense and passing a shower of water through said stack and then separating the lead and zinc salts produced and treating each separately, substantially as and for the purpose described.

481,501. HORSE HAY-RAKE. WILLIAM R. MANN, Earlville, Ill. Filed Apr. 30, 1892. Serial No. 431,295. (No model.)

Claim.—1. The combination, with the reel having pivoted teeth and extensions, of a board arranged to the rear and above the center of the reel and forming a wind-breaker and tooth-folder fixed relatively to the said reel, as set forth.

2. The combination, with a reel provided with rock-shafts carrying the teeth, of a shield over the shafts on which the teeth are supported, as set forth.

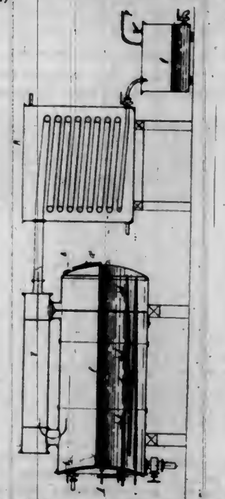
3. The combination, with a reel provided with shafts carrying the teeth, of a curved shield supported by the said shaft over the coils of the teeth, as set forth.



4. The combination, with a reel consisting of disks and shafts carrying the teeth, of a curved shield on the shaft over the coils of the teeth and held to the said shaft by the means which secures the teeth thereto, as set forth.

5. A reel provided with pivoted teeth, a shield over its tooth-shaft, and a board forming a combined wind-breaker and tooth-folder fixed relatively to the reel and to the rear and above the center thereof, as set forth.

481,502. PURIFICATION OF FATTY SUBSTANCES. JULES MASSENOT, Paris, France, assignor to the Société Anonyme des Parfums Naturels de Cannes, same place. Filed June 13, 1891. Serial No. 396,119. (No specimens.)

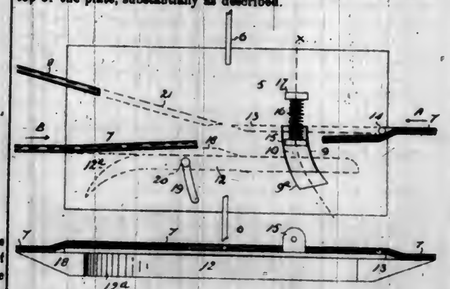


Claim.—The described process of separating volatile solvents from fatty substances by evaporating the solvent in a vacuum or rarefied medium until ebullition ceases, then injecting dry steam in jets into the body of the substance and maintaining the latter during the operation at a temperature above the boiling-point of water under the conditions present and above the temperature of the injected steam, as set forth.

481,503. TROLLEY-SWITCH. JACOB S. MERKINS, Highlands, Colo., assignor of one-third to Emery C. Dye, same place. Filed Oct. 17, 1891. Serial No. 409,069. (No model.)

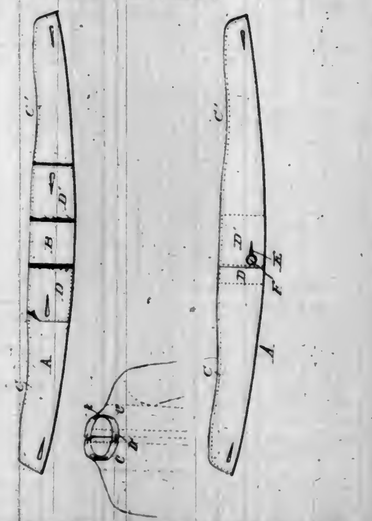
Claim.—1. The combination, with the main and branch overhead conductors, of the trolley-switch consisting of the plate 5, suitably supported and provided with two stationary track-flanges, a movable spring-actuated piece 10, located in a slot formed in plate 5 and carrying the depending guide and track-flanges rigidly secured thereto, said flanges being so arranged and connected on the plate that the trolley of a car moving in one direction passes to the side or branch conductor, while the trolley moving in the opposite direction on the main line keeps the main conductor, substantially as described.

2. The combination, with the main and branch overhead conductors, of the trolley-switch consisting of the plate 5, suitably supported and provided with the stationary track-flanges, a movable piece 10, located in a slot formed in plate 5 and carrying the depending guide and track-flanges and provided with a lug projecting above the plate 5, and a spring connected at one extremity with said lug and at the opposite extremity with a suitable stationary stop secured to the top of the plate, substantially as described.



3. The combination, with the overhead main and branch conductors, of a trolley-switch consisting of two plates 5, suitably supported and each provided with two stationary track-flanges, and a suitable spring-actuated piece located in a slot formed in each plate and carrying the depending guide and track-flanges, the flanges of each plate being so arranged and connected with each other and with the conductors that the trolley of the car moving in one direction keeps the main conductor after passing the plates, while the trolley moving in the opposite direction passes to the branch conductor after passing the first plate and back to the main conductor after passing the second plate, substantially as described.

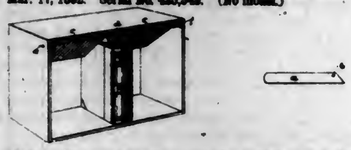
481,504. SHIRT. ARTHUR METZER, Nashville, Tenn. Filed Jan. 4, 1892. Serial No. 416,963. (No specimens.)



Claim.—1. A shirt having the neckband provided with two independent flaps secured on the outer portion thereof, adapted to be folded back on the neckband and to form when so folded an intervening space between the flaps, the said flaps being provided with registering buttonholes and adapted to be folded one on the other in the direction of the length of said neckband, substantially as described.

2. A shirt having the neckband formed of the inner strip B and the outer strips C and C', having their inner ends D and D' left free to form overlapping flaps, the said flaps having registering buttonholes on their ends and adapted to be folded back in opposite directions, substantially as described.

481,505. BOOK-SUPPORT. JAMES A. MUIR, Huntsville, Tex. Filed Mar. 17, 1892. Serial No. 425,249. (No model.)



Claim.—The combination, with the uprights and shelves of a book-stand, of a series of strips *a*, having beveled ends and perforations near their beveled ends, strung upon a wire between the shelves near the upper front part of the book-space, substantially as and for the purposes set forth.

481,506. WRENCH. BERNARD MCGILVRAY, Washington, D. C., assignor of one-half to Frederic W. Ritter, Jr., same place. Filed May 10, 1892. Serial No. 432,496. (No model.)



Claim.—1. The combination, with a monkey-wrench having parallel jaws, one of which is plain and the other serrated, of an interposed movable gripper-plate having parallel faces, one of which is plain and the other serrated, to correspond and coact with the respective plain and serrated faces of the parallel jaws of the monkey-wrench, substantially as and for the purposes specified.

2. The combination, with a monkey-wrench having parallel jaws, one of which is plain and the other serrated, said jaws provided with lateral indentations, of a movable gripper-plate having parallel faces, one of which is plain and the other serrated, to coact with the corresponding jaws of the monkey-wrench, and a spring-plate secured to the movable gripper-plate and adapted to engage the indentations in the jaws of said monkey-wrench, substantially as and for the purposes specified.

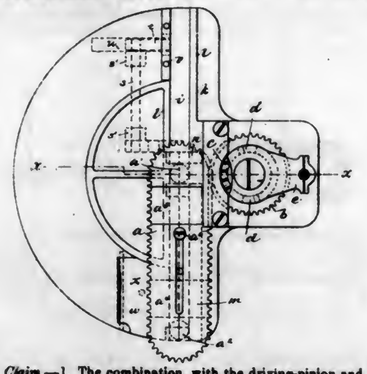
481,507. STEAM-TRAP. JOHN MCKELLAR, San Francisco, Cal. Filed Apr. 14, 1892. Serial No. 429,174. (No model.)



Claim.—1. In a steam-trap, the combination of the main vessel A, the open-top float-vessel F, located within the main vessel, the valve-stem H, attached at its lower end to the bottom of the float-vessel, a ball-pointed valve I, carried loosely upon the upper end of the valve-stem, an inlet-pipe C and outlet-pipe D, both connected to the wall of the main vessel, a central member M' between the outlet and inlet pipes, said central member being provided with a diaphragm *m* and a nipple M^3, in which is formed a seat for the spherical-pointed valve I, while at the sides below the valve-seats are diagonal inlet-holes *c c*, and the tube or vessel Q, attached to the nipple M^3 and surrounding the valve-stem H, substantially as described.

2. In a steam-trap, the combination of the main vessel A, provided with the detachable covering plate E and lateral bosses B B, the sections of pipe or nipples N' N^3, screwed into the inner ends of said bosses, a float-vessel F within the main vessel, carrying the valve-stem H, having at its upper end the ball-pointed valve I, a central hollow member M', into which the nipples N' N^3 are screwed, said member M' being provided with jam-nuts *r* at each end and also with a diaphragm *m* and a downwardly-extending nipple M^3, in which is formed a seat for the pointed valve I, while at the sides below the valve-seat are diagonal inlet-holes *c c*, an inlet-pipe C, entering one of the bosses B, the adjacent pipe N' being provided with holes *n* on its bottom side, an outlet-pipe D, screwed into the other boss B, and the tube or vessel Q, attached to the nipple M^3 and surrounding the valve-stem H, so as to prevent any water from reaching the valve except from the bottom of the vessel F, substantially as described.

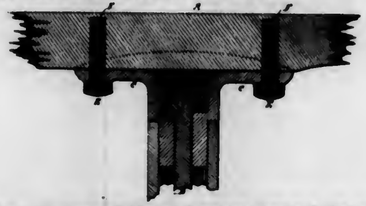
481,508. MECHANISM. ENOS PATTEN, Lynn, Mass., assignor to the Lynn Lasting Machine Company, same place. Filed Nov. 17, 1892. Serial No. 412,149. (No model.)



Claim.—1. The combination, with the driving-pinion and means for actuating the same, of an oblong gear having studs projecting therefrom adjacent to the opposite extremities thereof, a table formed with a channel in which the said studs may move lengthwise of the channel, and spring-pressed stops against which the studs act in succession to keep the channel clear, the said stops when projected into the channel passing in front of and behind one of the studs to hold the gear from further endwise movement and thereby cause it to turn upon the said stud as on a center, substantially as described.

2. The combination, with the driving-pinion and means for actuating the same, of an oblong gear having studs projecting therefrom adjacent to the opposite extremities thereof, a table formed with a channel in which the studs may move lengthwise of the channel, and the spring-actuated wing *m* and arm *n*, substantially as described.

481,509. PARALLEL BARS. THEODORE PETERSON, Akron, Ohio. Filed Oct. 22, 1890. Serial No. 368,894. (No model.)



Claim.—1. The parallel bars and supports, combined with vertical bolts to unite said supports and bars and horizontal keys to retain said bolts in the bars, substantially as shown and described.

2. The combination, with the parallel bars and the supports provided with clips, of vertical bolts arranged to pass through said clips and into said bars and keys arranged to pass through said bars and bolts, substantially as shown and described.

481,510. SASH-PULLEY. FRANCIS V. PHILLIPS, Chicago, Ill., assignor to the Smith & Phillips Manufacturing Company, same place. Filed Oct. 31, 1891. Serial No. 409,439. (No model.)

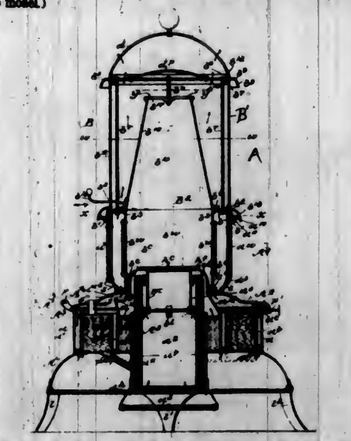


Claim.—1. A sash-pulley shell provided with an opening or recess A', extending both sides of a subjacent wall or cross-bar *a*, said recess terminating at a shoulder *a'* at its inner end and forming a through-passage outside said bar *a*, whereby a nail driven through the passage into the end of the mortise in the stile may be bent to bring its head opposite the shoulder or cross-bar *a'*, substantially as and for the purpose set forth.

2. A sash-pulley shell provided with a recess A', bounded at its inner and outer ends, respectively, by the cross-bars and extending both sides of a subjacent cross-bar *a*, exterior to which said recess forms a through-passage, substantially as and for the purpose set forth.

3. The combination, with a mortised window-stile and a pulley-shell having in its face a recess A', bounded at its inner and outer ends by cross-bars *a'* and a^3 and extending both sides of a subjacent cross-bar *a*, exterior to which it forms a nail-hole a^4, of a nail entering the end of the stile-mortise through the hole a^4 and bent over the cross-bar *a*, with its head in position to encounter the cross-bar *a'* in moving or tending to move outward in the direction of the unbent portion of its shank.

481,511. CULINARY AND HEATING OIL-STOVE. VICTOR R. RANDALL, Burlington, Mich. Filed Jan. 8, 1892. Serial No. 417,886. (No model.)



Claim.—1. An oil-stove in which the wick-tube in its upper portion incloses an annular air-induction passage and which in its lower portion is itself directly encircled by an air-induction passage, which in turn is in its upper portion directly encircled by a water-containing vessel or compartment.

2. An oil-stove in which a central wick-tube in its upper portion incloses an annular air-induction passage, in which such central wick-tube is in its lower portion directly encircled by an air-induction passage around the wick-tube, in which the encircling air-induction passage is directly encircled by a water-chamber, and in which the encircling water-chamber is itself in turn directly encircled by an air-induction passage.

3. An oil-stove in which a central wick-tube incloses an air-induction passage, in which such central wick-tube is directly encircled by an air-induction passage, in which such encircling air-induction passage is directly encircled by a water-chamber, in which such encircling water-chamber is itself directly encircled by an air-induction passage, and in which the air-induction passage which encircles such encircling water-chamber is itself directly encircled by an oil-reservoir.

4. An oil-stove which has a central wick-tube which incloses an air-induction passage, and which in turn is encircled in succession by an air-induction passage, a water-chamber, an air-induction passage, an oil-reservoir, and an air-induction passage which exteriorly is inclosed by the annular outer shell of the reservoir-section of the base of such stove.

5. An oil-stove which has a central wick-tube which in its upper portion incloses a supporting-cylinder, and an annular air-induction space between such cylinder and the body of the wick-tube, an annular air-induction passage which directly incloses the wick-tube, an annular water-chamber which incloses the annular air induction passage which incloses the wick-tube, and a deflecting plate or ring which rises from the upper extremity of the outer periphery of the annular water-chamber and extends upwardly and inwardly along the upper portion of the wick-tube to a point in a plane above and near to the upper extremity of such wick-tube, the water-chamber being open at its top, whereby currents of air moistened by vapor are supplied to the outer portion or surface of the flame.

6. An oil-stove which is provided with a central wick-tube, with an annular water-chamber which encircles the wick-tube, with an annular air-induction passage between the wick-tube and the water-reservoir, which discharges into the flame-space and combustion-chamber of the stove, and with an annular air-induction passage which directly encircles the annular water-chamber and which discharges only into the air-warming chamber of the stove.

7. An oil-stove in which are combined a central wick-tube and an annular water-chamber which encircles the wick-tube and which is surmounted by an upwardly-indrawn deflecting and separating ring which overhangs the area between the outer extremity of the water-chamber and the outer periphery of the wick-tube.

8. An oil-stove in which are combined an annular oil-reservoir, an annular water-chamber, and an annular wick-tube, each of which directly encircles and each of which is directly encircled by an annular air-induction passage, the water-chamber and the oil reservoir being in the same horizontal plane.

9. An oil-stove in which are combined a central annular wick-tube which is provided interiorly with a vertically-placed deflector-bearing cylinder which extends above the plane of the wick-tube, a water-chamber which encircles the wick-tube at a short distance therefrom, and an annular deflector which rises from the outer wall of the water-chamber and is upwardly indrawn from such wall toward and along the wick-tube to a point a short distance from the deflector which is borne upon the cylinder.

10. In an oil-stove, a central oil and wick chamber, an annular water-chamber which encircles the central oil and wick chamber at a short distance therefrom, an annular oil-reservoir outside the annular water-chamber, and a conduit which extends from the lower extremity of the annular oil-reservoir to a point near the lower extremity of the central oil and wick chamber, in combination.

11. In an oil-stove, a central annular wick-tube, an annular air-casing which encircles the central and lower portions of such wick-tube, and a horizontally-arranged floor-screen suitably suspended from the stove at a short distance below the lower extremity of the central wick-tube, in combination.

12. In an oil-stove, the exterior casing provided with the interior seat *s* and the interior deflector provided with the exterior seat *s'*, combined with the closing-ring *c r*, adapted to such seats, whereby when the combustion-chamber is removed the lower section of the stove is adapted to use for culinary purposes.

13. In an oil-stove, a central annular wick-tube in which in its upper portion is supported a capped and flanged cylinder which forms with the wick-tube an annular air-passage and a flame-deflector, an annular air-casing which encircles the central and lower portions of such wick-tube, and a horizontally-arranged floor-screen suitably suspended from the stove at a short distance below the lower extremity of the central wick-tube, in combination.

14. In an oil-stove, the exterior casing provided with the interior seat *s*, combined with the interior deflector provided with the exterior seat *s'*, substantially as set forth.

15. In an oil-stove, the exterior casing having vertical cylindrical drum, combined with the inclosed combustion-chamber having conical upper section provided with vertically-extending corrugations, for the purpose set forth.

16. In an oil-stove, the described exterior cylindrical radiating-casing, the inclosed upwardly-indrawn combustion-chamber, and the circular deflector suitably supported at a point above the combustion-chamber and in or near the horizontal plane of the upper extremity of the radiating-casing, in combination, substantially as and for the purpose specified.

17. In an oil-stove, the non-reciprocating exterior casing having a series of windows arranged in alternation with intermediate imperforate sections, combined with the interior reciprocating combustion-chamber which is provided with a series of windows which, like those in the outer casing, are arranged in alternation with intermediate imperforate sections, whereby the stove is made illuminating or non-illuminating, as may be desired.

481,512. GRIP FOR CABLE RAILWAYS. GEORGE SCHORFF and LOUIS SCHORFF, Philadelphia, Pa., assignors of one-third to Christian F. Mertz, same place. Filed Feb. 25, 1892. Serial No. 423,776. (No model.)

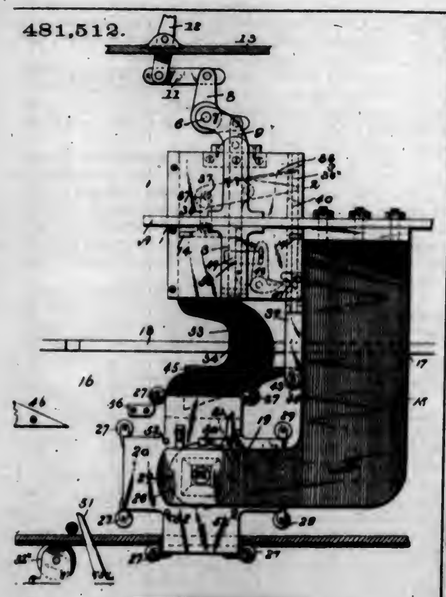
Claim.—1. The combination, with the truck, of a sliding box supported thereby, a vertically-movable wedge-bar, a revoluble grip provided with projecting pins, an arm to strike said pins, a shifting-rod, and cam-blocks arranged within the conduit to contact with said shifting-rod, substantially as described.

2. The combination, with the contact-blocks and rigid arm within the conduit, of a revoluble grip provided with pins to strike said arm, a shifting-rod to engage said blocks, a wedge-bar, and locking mechanism between the wedge-bar and shifting-rod, whereby the wedge-bar is raised as the shifting-rod is lowered, and vice versa, substantially as described.

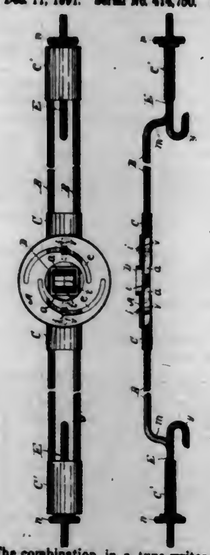
3. The combination, with the two-part revolving grip provided with projecting pins, of the rigid arm adapted to strike said pins, and pulleys or rollers arranged upon the grip sections oppositely in pairs to support the cable, substantially as described.

4. The combination, with the truck and sliding box, of a movable wedge-bar arranged in said box, a sliding shifting-rod arranged in said box, locking devices between the wedge-bar and shifting-rod, a frame depending from the truck and supporting a revolvable grip, and means, substantially as described, for automatically revolving said grip a partial revolution at cable-crossings, substantially as described.

481,512.



481,513. ALIGNER FOR TYPE-WRITING MACHINES. FRANK M. SPAULDING, Kalamazoo, Mich., assignor to Edward S. Mayfield, same place. Filed Dec. 11, 1891. Serial No. 414,760. (No model.)



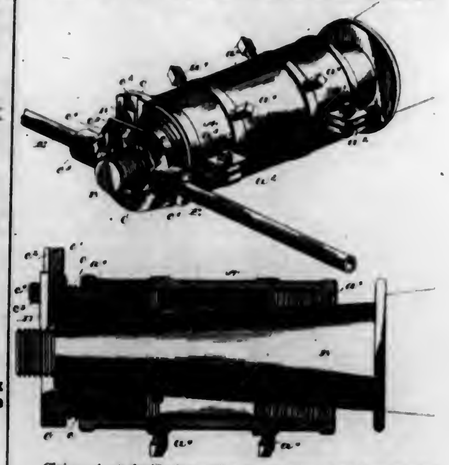
Claim.—1. The combination, in a type-writer aligner, of a plurality of clamp-plungers connected with the same cam or slotted disk, and by which they are given a movement away from or toward each other when the cam or slotted disk is operated, substantially as set forth.

2. The combination, in a type-writer aligner, of a plurality of clamp-plungers connected with the same cam or slotted disk, and by which they are given a movement away from or toward each other when the cam or slotted disk is operated, and means, substantially as described, whereby the clamp-plungers are guided back and forth, for the purpose set forth.

3. The combination, in a type-writer aligner, of a plurality of clamp-plungers connected with the same cam or disk, with two screws or pins by which they are given a movement away from or toward each other when the cam or slotted disk is operated, and means, substantially as set forth, whereby the clamp-plungers are guided back and forth and held in position, for the purpose set forth.

4. The combination, in a type-writer aligner, of clamp-plungers, a cam or slotted disk, guide and housing for the clamp-plungers, two rods or wires passing through the housing to form a frame and support for the device, and two hooked rods having knurled nuts for the purpose of fastening the frame and device to the type-writer, substantially as set forth.

481,514. TOOL FOR THREADING AXLES. JOHN C. STOCKEL, Indiana, Pa. Filed Nov. 12, 1891. Serial No. 411,762. (No model.)



Claim.—1. A device for cutting a screw-thread on the end of a vehicle axle or skein, consisting of a box or case having a sleeve movable in and out of its end and internally screw-threaded at its ends respectively, right and left, said sleeve carrying a cutting-die and having means for working or rotating it, and said box or case having means to secure it rigidly in position upon the axle, substantially as set forth.

2. A case or box A, split lengthwise at *a*, provided with means for closing this aperture and having center bolts a^4 at various points through its periphery, and screw-threaded internally at its ends, respectively, right and left, combined with the sleeve C, screw-threaded on the inner end and having in its front end an adjustable cutting-die, and means for rotation in or out of the sleeve.

3. The sleeve C, having attached to it suitable handles to move it and provided with a cutting-die D, adjustably fixed in its forward edge by means of the clamp and screw-threaded on the inner end of its periphery, and combined with the box A, screw-threaded inside at each end to receive a sleeve, all substantially as described.

481,515. MARKING-GAGE. JOSIAH A. TRAUT, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Dec. 22, 1891. Serial No. 415,867. (No model.)



Claim.—1. In a marking-gage, the combination, with the gage-bar having one laterally-projecting head fixed thereon and with a second head adjustable on said bar, of a cutter-carrier independent of the gage-bar and adjustable and movable longitudinally of the gage-bar to carry the marking-point to positions on either side of the fixed head, substantially as described.

2. In a marking-gage, the combination, with the gage-bar having the fixed laterally-projecting butt-gage head at one end and on one side thereof, of the sliding cutter-carrier having two points projecting in different directions and movable to positions on either side of said fixed head, substantially as described.

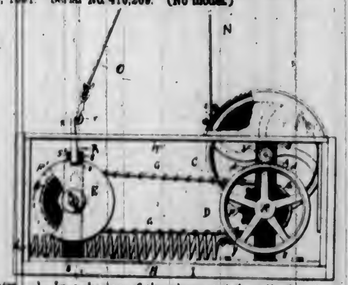
3. In a marking-gage, the combination, with the hollow gage-bar having the laterally-projecting butt-gage head at one end thereof and having the slots 20 and 22, of the cutter-carrier fitted to slide within the gage-bar and having two oppositely-disposed cutters fitted to slide within said slots, respectively, and means for sliding the carrier to carry said cutters within or beyond said head, substantially as described.

4. In a marking-gage, the combination, with a hollow gage-bar longitudinally slotted at one end thereof, of the head fixed in the slotted end of the bar and projecting on one side thereof, the cutter-carrier sliding in the bar and carrying cutters in the same transverse plane, and one projecting in the direction of said head and the other in an opposite direction thereto, said cutters being adapted to enter said slots, and means for sliding the cutter-carrier, whereby the gage is adapted for setting off distances varying by the thickness of said head, substantially as described.

481,516. COMPOSITION FOR SOFTENING ENAMELED LEATHER. ROBERT L. TUDOR, Cincinnati, Ohio, assignor of one-half to Geo. A. Springmeier, same place. Filed Dec. 18, 1891. Serial No. 415,638. (No specimens.)

Claim.—The herein-described composition of matter for softening enameled and patent leather or cloth, consisting of pure white soap, washing-powder, vinegar, and pure water combined in the proportions herein specified.

481,517. TROLLEY-PROTECTOR. JOHN WALSH, Cleveland, Ohio, assignor of one-half to Jacob Frederick Grether, same place. Filed Dec 23, 1891. Serial No. 416,269. (No model.)



Claim.—1. In a device of the character described, a drum and a sprocket mounted upon separate shafts, driving connection between said drum and sprocket, a sprocket and a disk having a notch cut in its periphery mounted upon another shaft, a link-chain around said sprockets, a spring having one end attached to said chain and the opposite end fixed to an immovable object, and a catch adapted to engage the notch in the disk, substantially as shown and described.

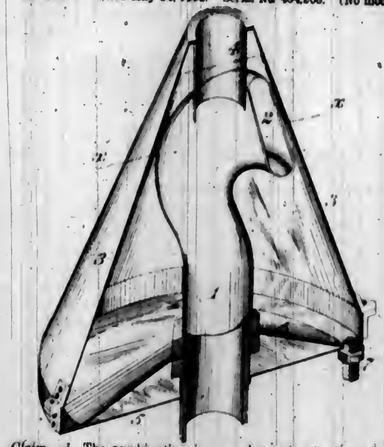
2. In a device of the character described, a support having a drum and a sprocket journaled therein, driving connection between said drum and sprocket, a support having journaled therein a shaft carrying a sprocket, and a disk having a notch in its periphery, driving connection between said sprockets, a spring having one end attached to the driving connection between the sprockets and its opposite end fixed to an immovable object, a catch, which normally engages the notch in the disk, and means for disengaging the catch from said notch, substantially as shown and described.

3. The combination, in a device of the character described, of a trolley, a winding drum or reel, flexible connection between the trolley and winding drum or reel, with means for turning the drum or reel to wind said flexible connection thereon, which means consists in a disk having a notch in its periphery, a catch, which normally engages said notch, an auxiliary check connection O between the catch and the trolley, driving connection between the disk and winding drum or reel, and a spring to actuate said driving mechanism when the catch is disengaged from the notch in the disk, substantially as shown and described.

4. The combination, in a device of the character described, of a winding drum or reel, a disk having a notch in its periphery, driving connection between the winding drum or reel and the disk, and an auxiliary check connection O, a catch to engage the notch in the disk, the catch being adapted to be disengaged from said notch by the action of the trolley and the check connection O, and a spring adapted to actuate the driving mechanism between the disk and the drum or reel when the catch shall have been disengaged from the notch in the disk, substantially as shown and described.

5. In a device for automatically lowering a disengaged trolley-wheel, the combination of a suitable support, as I, standards, as B and B', shafts A and A^3, journaled in the support B, and a shaft A', journaled in standard B', the shaft A, carrying a drum C, and a pinion V, shaft A^3, carrying a sprocket F and gear-wheel D, and the shaft A', carrying a notched disk E and sprocket F', a suitable driving mechanism between the sprocket-wheels F and F' for operating the drum C and the disk E, a catch R, connected with the trolley and adapted to be lowered into the notch in the disk E and prevent the disk from turning while the trolley is engaged with the wire, but which will become automatically disengaged therefrom the moment the trolley leaves the wire, and a spring, as H, connected to the drum in such a manner as to automatically wind up the operating-trolley rope onto the drum, and thereby lower the trolley, substantially as and for the purpose described.

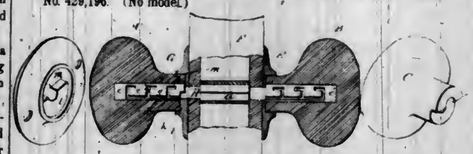
481,518. CONDENSER-HEAD. SAMUEL H. WOODBRIDGE, Boston, Mass., assignor to the Westinghouse, Church, Kerr & Company, New York, N. Y. Filed May 24, 1892. Serial No. 434,208. (No model.)



Claim.—1. The combination, in a condenser-head, of an exhaust-nozzle of approximately spiral form at and adjacent to its discharge end and having an inclined and elongated discharge-outlet thereat, truncated-cone casing inclosing the major portion of the nozzle with its smaller end above and adjacent to the discharge-outlet thereof, a steam-outlet pipe extending into the casing from its smaller end to a point below the adjacent end of the exhaust-nozzle discharge-outlet, a base-plate closing the larger end of the casing, and a drip-pipe leading out of the casing at or near its larger end, substantially as set forth.

2. The combination, in a condenser-head, of an exhaust-nozzle having a main body of substantially cylindrical form at and adjacent to a receiving end adapted to be connected to a steam-exhaust pipe and which is thereafter turned into approximately spiral form at and adjacent to an elongated discharge-outlet inclined relatively to the axis of the main body, a truncated-cone inclosing casing concentric with said main body and having its smaller end above and adjacent to the discharge-outlet of the nozzle, a steam-outlet pipe extending into the casing from its smaller end to a point below the adjacent end of the exhaust-nozzle discharge-outlet, a base-plate closing the larger end of the casing, and a drip-pipe leading out of the casing at or near its larger end, substantially as set forth.

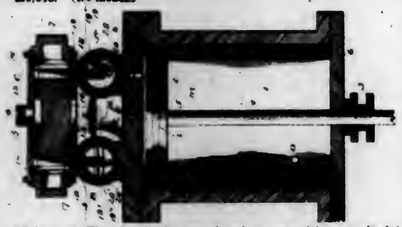
481,519. KNOB ATTACHMENT. WILLIAM A. G. ASHLEY, New Bedford, Mass., assignor of two-thirds to James M. Lawton, Jr., and Austin T. Howland, both of same place. Filed Apr. 14, 1892. Serial No. 429,196. (No model.)



Claim.—1. The knob-spindle having a stud or lug near opposite ends, in combination with knobs having the interior of their shanks provided with a longitudinal slot and a series of transverse slots communicating therewith, and the transverse slots each terminating in an offset, substantially as specified.

2. A knob-spindle provided with a stud or lug on one side, in combination with knobs having the interior of their shanks provided with a longitudinal slot and a series of transverse slots communicating therewith and each terminating in an offset, one of the said knobs having the end of its shank provided with a shoulder, and a rose provided with a shoulder adapted to engage the shoulder of the knob-shank, substantially as and for the purpose specified.

481,520. STEAM-ACTUATED VALVE. ELLIS BARTHOLOMEW, Lima, Ohio, assignor of four-fifths to Oscar W. Bell, same place, and Oliver Jay and Daniel W. Jay, St. Mary's, Ohio. Filed Apr. 18, 1892. Serial No. 429,613. (No model.)



Claim.—1. The herein-described valve, comprising a cylindrical casing having a supply-opening in its top, an exit-opening opposite thereto leading to the exhaust, and openings at the sides of the exit-openings, and a valve within said casing having near its ends heads provided with packing-rings and at its center a three-way shank, in combination with cylinders to which said side openings lead, reciprocating pistons in said cylinders, and connections, substantially as described, between said pistons and the valve for oscillating the latter, as set forth.

2. The herein-described valve, comprising a cylindrical casing having near its ends transverse slots and at its center a supply-opening in its top, an exit-opening opposite thereto leading to the exhaust, and openings at the sides of the exit-opening, and a valve within said casing having near its ends heads provided with packing-rings, at its ends depending arms passing through said slots, and at its center a three way shank, in combination with cylinders having longitudinally-slotted tops registering with the slots in said casing, passages connecting said side openings with the opposite ends of the two cylinders, openings leading from the other ends of the two cylinders, cylindrical pistons within said cylinders and having slots in their tops registering with those in the cylinders, said arms projecting through the three registering slots into the pistons, and transverse pins in said pistons at opposite sides of the two arms, as and for the purposes set forth.

3. The herein-described valve, comprising a cylindrical casing having near its ends transverse slots and at its center a supply-opening in its top, an exit-opening opposite thereto leading to the exhaust, and openings at the sides of the exit-opening, and a valve within said casing having near its ends heads provided with packing-rings, at its ends depending arms passing through said slots, and at its center a three-way shank, in combination with cylinders having longitudinally-slotted tops registering with the slots in said casing, passages connecting said side openings with the opposite ends of the two cylinders, reciprocating pistons within said cylinders, and pins on the pistons at opposite sides of said arms, as and for the purposes set forth.

4. The herein-described valve, comprising a cylindrical casing having near its ends transverse slots, and at its center a supply-opening in its top, an exit-opening opposite thereto, and openings at the sides of the exit-opening, and a valve within said casing having near its ends heads provided with packing-rings, at its ends depending arms passing through said slots, and at its center a three-way shank, in combination with cylinders standing beneath the ends of the casing at right angles thereto and having longitudinally-slotted tops registering with the slots in said casing, passages connecting said side openings with the opposite ends of the two cylinders, reciprocating pistons within said cylinders, pins on the pistons at opposite sides of said arms, a box between the cylinders communicating with said exit-opening, and an exhaust-pipe leading from said box, as and for the purpose set forth.

5. The combination, with a valve comprising a cylindrical casing having a supply-opening in its top, an exit-opening leading to the exhaust, and openings at the sides of the exit-opening, a valve within said casing having near its ends heads provided with packing-rings and at its center a three-way shank, auxiliary cylinders to which said side openings lead, reciprocating pistons in these cylinders, and connections, substantially as described, between said pistons, and the valve for operating the latter, of a main cylinder, a piston-head therein, and passages connecting this cylinder with the auxiliary cylinders, as and for the purpose set forth.

6. The combination, with a valve comprising a cylindrical casing having near its ends transverse slots and at its center a supply-opening in its top, an exit-opening opposite thereto leading to the exhaust, and openings at the sides of the exit-opening, a valve within said casing having near its ends heads provided with packing-rings, at its ends depending arms passing through said slots, and at its center a three-way shank, two auxiliary cylinders having longitudinal slots in their tops registering with those in the casing, passages connecting said side openings with the right end of the first and the left end of the second auxiliary cylinder, reciprocating pistons within these cylinders, and pins on the pistons at opposite sides of the arms, of a main cylinder, a piston-head therein, an upper end passage leading from near the right end of the first auxiliary cylinder to the top of the main cylinder, an upper side passage leading from the left end of the first auxiliary cylinder to the side of the main cylinder just below the upper limit of movement of the piston-head therein, a lower end passage leading from near the left end of the second auxiliary cylinder to the lower end of the main cylinder, and a lower side passage leading from the right end of the second auxiliary cylinder to the side of the main cylinder just above the lower limit of movement of the piston-head therein, as and for the purpose set forth.

7. The combination, with a valve comprising a cylindrical casing having a supply and exit openings and openings at the sides of the exit-opening, a valve within said casing having a three-way shank, two auxiliary cylinders to which said side openings lead, pistons in these cylinders, and connections, substantially as described, between said pistons and the valve for oscillating the latter, of a main cylinder, a piston-head therein, and passages connecting this cylinder with the auxiliary cylinders, as and for the purpose set forth.

8. The combination, with a valve comprising a casing having supply and exit openings and openings at the sides of the exit-openings, a valve within said casing having a three-way shank, two auxiliary cylinders to which said side openings lead, pistons in these cylinders, and connections, substantially as described, between said pistons and the valve for oscillating the latter, of a main cylinder, a piston-head therein, an upper end passage leading from near the right end of the first auxiliary cylinder to the top of the main cylinder, an upper side passage leading from the left end of the first auxiliary cylinder to the side of the main cylinder just below the upper limit of the movement of the piston-head therein, a lower end passage leading from near the left end of the second auxiliary cylinder to the lower end of the main cylinder, and a lower side passage leading from the right end of the second auxiliary cylinder to the side of the main cylinder just above the lower limit of movement of the piston-head therein, as and for the purpose set forth.

9. The combination, with a casing having a three-way valve therein, two auxiliary cylinders, passages for supplying steam from the casing alternately to opposite ends of these cylinders, pistons in the latter, and means, substantially as described, for shifting said valve, of a main cylinder, a piston-head therein, an upper end passage leading from near the right end of the first auxiliary cylinder to the top of the main cylinder, an upper side passage leading from the left end of the first auxiliary cylinder to the side of the main cylinder just below the upper limit of movement of the piston head therein, a lower end passage leading from near the left end of the second auxiliary cylinder to the lower end of the main cylinder, and a lower side passage leading from the right end of the second auxiliary cylinder to the side of the main cylinder just above the lower limit of movement of the piston-head therein, as and for the purpose set forth.

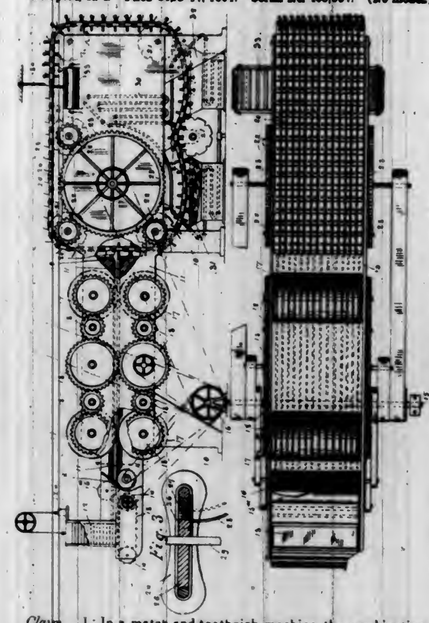
481,521. PACKAGE FOR PULVERIZED SUBSTANCES. JULIUS BINA, Furth, Germany. Filed Apr. 1, 1892. Serial No. 427,313. (No model.)



Claim.—1. A package for snuff or other pulverulent material, composed of a pyramidal body having a slotted opening at the apex, a spring-key inserted into the slotted apex, a base placed on the wider end of the body, and a wrapper of corresponding shape extending over the body, base, and key, substantially as set forth.

2. A package for snuff or other pulverulent articles, composed of a body of pyramidal shape having a slot in its apex, a spring-key inserted into the slot of the apex for closing the same, a base applied to the larger end of the body, and a wrapper made of a shape corresponding to the body and extending over the base-body and a spring-key, said wrapper being provided at some distance from its apex near the point where the spring-key is located with perforations for permitting the convenient detaching of the apex of the wrapper when opening the package, substantially as set forth.

481,522. MATCH AND TOOTHPICK MACHINE. JOSEPH BOULARD, Newport, R. I. Filed Sept. 17, 1891. Serial No. 406,087. (No model.)



Claim.—1. In a match and toothpick machine, the combination, with a series of saws and a carrier, of a printing mechanism between the saws and carrier, substantially as and for the purpose set forth.

2. In a match and toothpick machine, the combination, with a series of saws, of a printing mechanism in rear of the saws and a carrier in rear of the printing mechanism and provided with automatically-operated grippers for seizing the splints, substantially as described.

3. In a match and toothpick machine, the combination, with a series of saws and a feed mechanism for delivering the material to the saws, of printing-rollers in rear of the saws and an endless carrier in rear of the printing-rollers and provided with automatically-operated grippers for seizing the splints, substantially as described.

4. In a match and toothpick machine, the combination, with a series of saws and a printing mechanism in rear of the saws, of an endless carrier provided with automatically-operated grippers for seizing the splints as they are delivered from the printing mechanism and a heater within the frame, around which the endless carrier travels, substantially as described.

5. A match and toothpick machine comprising a bench, a feed mechanism arranged to deliver upon the bench, a series of saws arranged to project through the bench-top, a carrier held to move opposite the rear end of the bench, a series of catches carried by the carrier and adapted to receive articles from the bench, automatic means for operating the catches, and baths arranged beneath the carrier and adjacent thereto, substantially as described.

6. A match and toothpick machine comprising a bench, a feed mechanism adapted to deliver upon the bench, a series of saws mounted in the bench and projecting through the bench-top, a series of revoluble printing-rollers mounted upon the bench, a carrier adapted to move opposite the rear end of the bench, said carrier having a series of spring-catches therein, a carrier arranged beneath the top surface of the main carrier and adapted to deliver into a receptacle, and automatic means for operating the catches, substantially as described.

7. A match and toothpick machine comprising a bench, a feed-belt arranged to deliver upon the bench, a feed-box mounted above the feed-belt, a series of saws held to revolve in the bench-top, a series of printing-rollers mounted on the bench, a carrier held to move opposite the rear end of the bench, said carrier having a series of spring-catches therein adapted to receive articles from the bench, a laterally extending carrier arranged beneath the main carrier and adapted to receive articles therefrom, and means for operating the carrier-catches, substantially as described.

8. In a match and toothpick machine, the combination, with the bench and the mechanism for feeding articles longitudinally thereon, of a main carrier held to move opposite the end of the bench, said carrier having a series of spring-catches thereon, baths arranged in the path of the carrier, a laterally-extending carrier arranged beneath the main carrier, and means for operating the main carrier-catches, substantially as described.

9. In a match and toothpick machine, the combination, with the spring-pressed carrier-catches consisting of sliding spring-pressed jaws having projecting fingers, of tripping flanges and arms arranged in the paths of the catch-fingers, substantially as described.

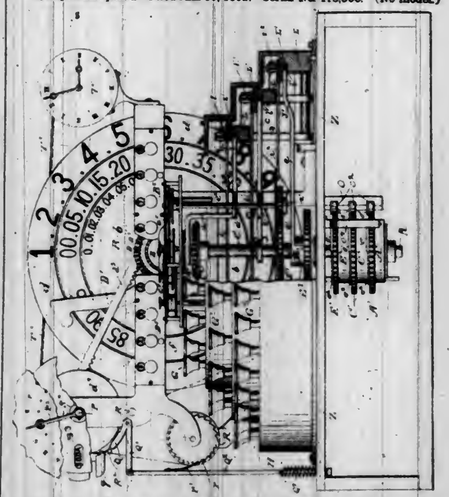
10. In a match and toothpick machine, an endless carrier formed of links provided with spring-pressed jaws, said jaws having curved fingers, substantially as described.

481,523. POCKET COIN-RECEPTACLE. FRED. H. BROWN, Chicago, Ill., assignor of one-half to Sidney F. Andrews, same place. Filed Mar. 26, 1891. Serial No. 386,486. (No model.)



Claim.—In a pocket coin-receptacle, the combination, with a series of tubes secured together longitudinally of each other by means of a strip of solder, each tube being open at one end and provided with an inwardly-projecting retaining-flange, of a spring-actuated follower in each tube, and a name-plate secured to the tubes at substantially right angles to their axes, whereby the tubes are firmly secured together and a means is afforded for marking or identifying the carrier, substantially as set forth.

481,524. CASH REGISTER, INDICATOR, AND RECORDER. CHARLES F. BROWN, Yonkers, N. Y., assignor to the Royal Machine Company, same place. Filed Jan. 19, 1892. Serial No. 418,560. (No model.)



Claim.—1. The combination of a vertical shaft, a gear and ratchet thereon, a sliding rack-bar meshing with said gear, a pawl engaging said ratchet, and a movable stud adapted to push said rack-bar in one direction, and mechanism for automatically disengaging the pawl and ratchet before the stud moves the rack-bar, substantially as specified.

2. The combination of a shaft, a gear and ratchet thereon, a sliding rack meshing with said gear, and a pawl engaging said ratchet with a strip connected to and movable with said rack-bar and laterally movable thereon, whereby when the strip and rack-bar are pushed inward the pawl is disengaged from the ratchet, substantially as described.

3. The combination of a spring-controlled shaft, a ratchet and gear thereon, a sliding rack-bar meshing with said gear, and a bell-crank pawl adapted to engage said ratchet with a spring-controlled strip loosely connected to said rack-bar and sliding therewith, but lat-

erally movable thereon, adapted to disengage said pawl from the ratchet when it and the rack-bar are pushed inward, and a sliding drawer having a stud adapted to engage and move the rack-bar and strip in one direction, substantially as specified.

4. The combination of a slotted key-stem, and an angularly-slotted pull-strap extending past the key-stem, and a pin in the slot of the stem engaging the slot in the strap, substantially as set forth.

5. The combination of a semicircular series of slotted key stems, and an angularly-slotted curved pull-strap extending along the series of key-stems, and pins in the slots of the stems engaging the slots in the straps, with a movable drawer, a locking device therefor, and connections between said locking device and pull-strap, substantially as and for the purpose set forth.

6. The combination of a slotted key-stem, and an angularly-slotted pull-strap extending through the key-stem, and a pin on the stem engaging a slot in the strap, with a movable drawer a locking device therefor, and connections between said locking device and pull-strap, whereby when the drawer is closed the pull-strap is brought back to normal position, substantially as described.

7. The combination of a drawer, vertically-movable bolt, a key-stem, and a pull-strap operated from said stem with a pivoted bell-crank lever interposed between the bolt and pull-strap for operating said bolt from said strap, substantially as specified.

8. The combination of the drawer and a pull-strap, a bolt, a hinged bar connected thereto, a bell-crank lever having one end underlying said bar and its other end connected to the pull-strap, and a depressing-spring, substantially as described.

9. The combination of a bolt, a hinged bar connected thereto, a bell-crank lever for lifting said bar, and a depressing-spring, and a dogging device for locking said lever when the bolt is raised, substantially as described.

10. The combination of a drawer-bolt, a key-stem, and a pull-strap operated from said stem with a bell-crank lever interposed between the bolt and pull-strap for operating said bolt from said strap and a sliding dogging-plate arranged to lock said lever when the bolt is lifted, substantially as set forth.

11. In a cash-register, the combination of a drawer, a locking-bolt therefor, a series of key-stems, mechanism for raising and locking said bolt upon the depression of a key-stem, and thereby releasing the drawer and locking the depressed key, and mechanism whereby the bolt and stem are released when the drawer is closed, substantially as described.

12. The combination of the drawer, a locking-bolt therefor, a bell-crank lever and connections for operating said bolt, and key-stems and connections for shifting said lever with a spring-controlled latch-plate adapted to lock said lever when the bolt is raised and mechanism operated by the drawer in closing for disengaging said latch-plate and lever, substantially as set forth.

13. The combination of a bolt, a hinged bar connected thereto a bell-crank lever for lifting said bar, and a depressing-spring and a dogging device for locking said lever when the bolt is raised, a pivoted arm for disengaging said dogging device, and a movable drawer adapted to shift said arm in closing, substantially as specified.

14. The combination of a drawer-bolt, a key-stem, and a pull-strap operated from said stem with a bell-crank lever interposed between the bolt and pull-strap for operating said bolt from said strap, and a sliding dogging-plate arranged to lock said lever when the bolt is lifted, and a swinging arm engaging said plate and connected to a crank-arm in the drawer space, arranged to be shifted by the drawer in closing, substantially as and for the purpose described.

15. In a cash-register, the combination of a drawer-bolt, a hinged presser-bar connected thereto, a pivoted bell-crank lever having an arm underlying said bar, the series of key-stems and connections between the same and upstanding arm of the bar, and a latch-plate underlying said bar and end of lever, and the spring and swinging arm for shifting said plate, substantially as described.

16. In a cash-register, the combination of a drawer, its locking-bolt, and a hinged presser-bar connected thereto with a series of key-stems, a pull-strap operated thereby, a pivoted bell-crank lever having one end linked to the end of the strap and the other underlying the bar, the latch-plate underlying said lever, the spring and swinging arm for shifting said plate, and the rock shaft and crank-arm therein adapted to be struck and shifted by a lug on the drawer, substantially as set forth.

17. In a cash-register, the combination of the drawer-bolt, a hinged bar connected thereto, a series of bell-crank levers adapted to independently lift said bar, and the row of key-stems, and connections between the respective rows of stems and levers, and the independent locking-plates for locking the levers when the bar is shifted so as to disengage the bolt, substantially as set forth.

18. The combination of the presser-bar, the series of bell-crank levers pivoted beside and adapted to lift the same when shifted, the rows of key-stems, the pull-straps operated therefrom, and the connections between the upper ends of the levers and the pull-straps with the dogging-plates for the levers and the springs and swinging arm for shifting said plates, substantially as and for the purpose specified.

19. The combination of the revoluble shaft, the arm connected thereto, and the bolt for locking said arm in normal position, and key-stems, pull-straps, and connected mechanism for shifting said bolt to release the arm, substantially as described.

20. The combination of a revoluble shaft, its stop-arm, and the bolt for locking said arm in normal position with the key-stems and mechanism operated therefrom, whereby the bolt is disengaged from the arm when a key is depressed, substantially as set forth.

21. The combination of the revoluble shaft, its stop-arm, and a locking-bolt therefor with a pivoted lever and connections for shifting said bolt and a key-stem and connections for shifting said lever, substantially as and for the purpose specified.

22. The combination of a movable drawer, a revoluble shaft, its arm, and a locking device engaging said arm to hold it in normal position with mechanism for releasing the arm and devices for keeping said bolt retracted while the drawer is open and for projecting it to lock the arm when the drawer closes, substantially as described.

23. The combination of the revoluble shaft, its stop-arm, and a locking-bolt therefor with a pivoted lever and connections for shifting said bolt, and a key-stem and connections for shifting said lever to release the bolt, a dogging device for locking said lever when shifted from the key-stem, and a movable drawer and mechanism whereby upon the closing of the drawer the lever is thrown back to normal position, substantially as described.

24. The combination of the vertical shaft, its locking-arm, the indicating-dial operated by said shaft, the bolt for locking said arm, and thereby the dial and shaft, in normal position, a series of key-stems and connections for shifting said bolt to release the arm, a movable drawer, and mechanism operated by said drawer whereby upon the closing of the drawer the shaft and dial and arm are brought back to normal position and the bolt caused to lock the arm, substantially as set forth.

25. The combination of a series of parallel key-stems arranged in a semicircular row, a curved pull-strap engaged by said stems, and a centrally-pivoted bar uniting the ends of said strap with a drawer-locking device connected to one end of said strap, substantially as described.

26. The combination of a movable drawer, a locking device therefor, an indicating-dial, a vertical shaft and gear for operating the same, a radial arm attached to said shaft, a series of key-stems adapted to arrest the movement of said arm, a locking device for holding said arm in normal position, a curved pull-strap engaged by said keys adapted to shift the said locking devices when a key is depressed to release the drawer and locking-arm, and a bar fulcrumed on said shaft and connecting the extremities of said pull-strap, substantially as and for the purpose specified.

27. The combination of a vertical shaft or sleeve, an indicating-dial driven therefrom, a horizontal set of registering-wheels above said shaft, a second vertical shaft connected to the first registering-wheel, and the pinion on the lower end of said shaft engaging a gear on the first shaft, substantially as described.

28. The combination, in a cash register, indicator, and recorder, of an indicating-dial, a type-wheel loosely journaled on a shaft beside the dial and driven by gearing therefrom, and a type-wheel fixed to said shaft, means for revolving said shaft by hand to shift said wheel, a sliding drawer and paper-feed devices, and a platen and a push-rod operated by the drawer for taking a record from the type on both wheels, substantially as described.

29. In a cash register, indicator, and recorder, the combination of an indicating mechanism, a shaft journaled beside the same, a type-wheel fixed thereon, and means for revolving said shaft by hand with a type-wheel loosely journaled on said shaft and operated from the indicating mechanism, and an endless belt running over a pulley loosely journaled on said shaft, driven by clockwork, and bearing a series of type time characters, and mechanism, substantially as described, for taking an impression from the type on the wheels and belt upon a record, substantially as described.

30. In a cash register, indicator, and recorder, the combination of mechanism for recording the amount of each sale with independent hand-operated devices, substantially as described, for simultaneously indicating on the record the person by whom the sale is made, and a type-bearing belt driven by a clock mechanism for recording the time of such sale, and means for recording also the kind of goods sold, substantially as and for the purpose set forth.

31. In a cash register, indicator, and recorder, the combination of indicating mechanism and type wheels driven therefrom by racks and pinions for recording the amount of each sale, independently-operated type-wheels for recording the number of the person making the sale and the kind of goods sold, and the type belt driven by clockwork for recording the time of each sale with a sliding drawer and mechanism, substantially as described, operated thereby for simultaneously producing an impression from the type on the several wheels and belt upon a record-strip, substantially as described.

32. In a cash-register, the combination of a pair of independent indicators, and independent rows of keys, and a pull-strap for each row of keys operated thereby and respectively connected to one of the indicators, and means, substantially as described, whereby when one pull-strap is shifted the other will be locked unless simultaneously moved, substantially as described.

33. In a cash-register, the combination of independent rows of keys, a pull-strap for each row, and the levers respectively connected to the straps, each adapted to release one of the indicating mechanisms when shifted, with a locking device operated by either lever, whereby when one pull-strap is shifted the other will be locked, yet is so arranged that both may be shifted together, substantially as specified.

34. The combination of the pull-straps and the key-stems for shifting them with the locking-rod, its arms underlying the ends of pull-straps and adapted to engage and lock the straps, and means for shifting said rods from the straps, so that when either pull-strap is shifted by the depression of one of its actuating-keys the other strap will be locked unless one of its keys be simultaneously depressed, substantially as described.

35. In a cash-register, the combination of a drawer-bolt, a hinged bar connected thereto, a series of bell-crank levers, each having one end underlying and adapted to independently lift said bar, the pull-straps connected thereto and to the rows of key-stems, and independent connections between the respective pull-straps and the respective levers, substantially as described.

36. The combination of a series of parallel key-stems arranged in a curved row with a slotted curved pull-strap set edgewise and having a series of upwardly-inclined slots respectively engaged by the several keys and its ends connected by a cross-bar, substantially as and for the purposes specified.

481,525. CAR-COUPLING. JAMES C. CARRICK, Spivey, Kans., assignor of one-third to E. R. Smalley, same place. Filed Apr. 20, 1892. Serial No. 429,893. (No model.)

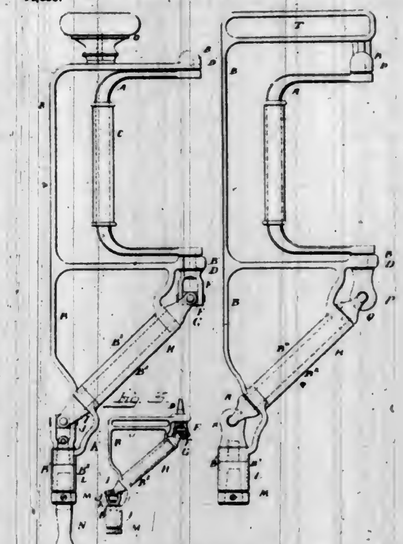


Claim.—1. In a car-coupling, the combination, with the draw-head A, having the longitudinally-extending slot *a* in its top, bottom, and rear walls, of the link-engaging hook mounted in said slot and comprising the body *d*, pivotally connected to the draw-head, the shank *e*, with head *f*, extending above and below the shank and having its forward edge convexly curved, and the bridge-bar *g*, spanning the slot *a* to limit the movement of said hook, substantially as and for the purposes specified.

2. In a car-coupler, substantially as described, the combination, with the draw-head, the transverse shaft *b*, taking through the draw-head and having the angular branch *c* at one end, and the link-engaging hook pivotally connected to said shaft, of the keeper C, connected to the draw-head and adapted to engage the branch *c* of the shaft *b*, so as to prevent a casual displacement of the same, substantially as and for the purpose set forth.

3. In a car-coupler, substantially as specified, the combination, with the draw-head and the link-engaging hook pivotally mounted therein, of the longitudinally-extending lever E, a link connecting the forward end of said lever with the link-engaging hook, the transverse rocking lever F, the angular arm connecting the inner portions of the levers E F, the upwardly-extending handle H, pivotally connected to the lever F adjacent to the free end thereof, and the laterally and downwardly extending handle also connected to the lever F adjacent to the free end thereof, substantially as specified.

481,526. UNIVERSAL-JOINTED BRACE. ARTHUR C. DERLOS, Paris, France, assignor, by mesne assignments, to the National Manufacturing Company, of Pennsylvania. Filed Jan. 18, 1892. Serial No. 418,520. (No model.) Patented in France Feb. 1, 1890, No. 203,484; in Belgium June 30, 1890, No. 91,065, and in England Sept. 20, 1889, No. 14,833.



Claim.—1. A brace consisting of a frame having a suitable holding and bearing handle, a continuously-revoluble crank-handle mounted in an offset in said frame, a spindle mounted at an angle in said frame and connected by means of a universal joint with said crank-handle, and the bit or drill receiving spindle mounted beneath the holding and bearing handle, with its axis parallel to that of the crank-handle and connected by a universal joint with the other end of the angularly-arranged spindle, substantially as hereinbefore described.

2. The combination, with a suitable frame having at one end a revoluble spindle adapted by a suitable socket to receive a bit or tool and at the other end a stationary holding and bearing handle, of an offset on the frame, a driving-spindle having means for rotating it mounted on said offset, with its axis parallel with the axis of the bit-spindle, and the angularly-arranged spindle located between the driving and bit spindles and having universal-joint connection therewith, substantially as and for the purpose set forth.

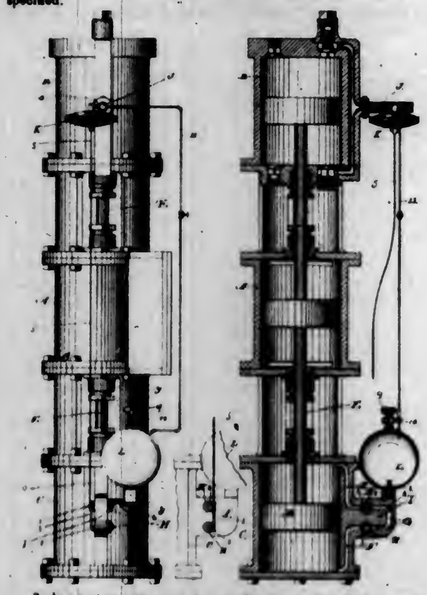
3. In a brace, the combination of a frame consisting of a longitudinal back, arms extending laterally from said back, a handle on one end of the frame, a longitudinal bit-spindle bearing on the other end of said frame, and an obliquely-arranged bearing supported by one end of the frame and the adjacent lateral arm, a crank-handle journaled in the respective ends of the lateral arms, a bit-spindle journaled in the bearing in the end of the frame, and a spindle in the obliquely-arranged bearing, having universal-joint connection at its respective ends with the crank-handle and the bit-spindle, all substantially as shown and described.

481,527. SPEED-REGULATOR FOR AIR-COMPRESSOR PISTONS. ERNEST C. FASOLDT, Albany, N. Y., assignor of one-half to John Boyd Thacher, same place. Filed Dec. 29, 1891. Serial No. 416,441. (No model.)

Claim.—1. In a steam-actuated air-compressor, and in combination therewith, a liquid-containing cylinder provided with a reciprocating piston which is connected with the air-compressing mechanism, a passage which forms a free communication between the opposite ends of the interior of said cylinder, a pair of retarding-cocks arranged transversely of said passage and fitted to partially rotate therein, and a diaphragm operated by compressed air and connected to said retarding-cocks for automatically operating the latter to vary the area of said passage, as and for the purpose herein specified.

2. In an air-compressor, the combination of a cylinder which is approximately filled with liquid, a piston fitted to reciprocate in said cylinder in such manner that the liquid will be alternately transferred to opposite ends of said cylinder, the latter having a passage which forms a communication between said opposite ends, retarding-cocks arranged in said passage for the purpose of regulating the area of the

opening therethrough, and mechanism, substantially as set forth, whereby said retarding-cock will be automatically controlled by the varying pressure of the compressed air, as and for the purpose herein specified.



3. In an air-compressor, the combination of a cylinder approximately or entirely filled with liquid and provided with a piston fitted to reciprocate therein, as herein described, a replenishing-chamber containing liquid and connected to said cylinder by a pipe connection, whereby the loss of liquid from said cylinder by reason of leakage therefrom will be compensated for, and a pipe for conveying compressed air from the eduction-pipe into said replenishing-chamber, substantially as specified.

481,528. PARER AND CORER. PHILEMON T. GATES, Brooklyn, N. Y. Filed Oct. 30, 1891. Serial No. 410,327. (No model.)



Claim.—1. A parer having, in combination with a stock composed of the metal tube, the raised knife-blade, which is bent to a concavo-convex shape in cross-section and with its convexity reverse to that of said tube for stiffening the blade and adapting it to conform with the outline of a vegetable, substantially as shown and described.

2. A parer and corer having a stock composed of the metal tube, which is of a tapering form cut obliquely at its smaller end to form the corer, cylindrical at such end, and elliptical at its larger end for producing an oblong core-escape way, in combination with the knife-blade joined to said tube, substantially as shown and described.

481,529. TELEPHONY. JOHN W. GIBBONEY, Lynn, Mass. Filed Feb. 8, 1892. Serial No. 420,626. (No model.)

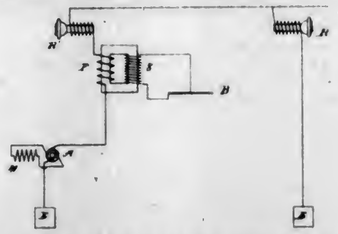
Claim.—1. The method of transmitting speech, consisting in passing over the line-waves of alternating current or varying current of slight audibility in the receivers and superposing thereon waves of current corresponding to vocal waves, substantially as described.

2. The method of transmitting speech, consisting in putting upon the line alternating or pulsating waves of current inaudible, or nearly so, in receivers and inductively superposing waves of current corresponding to the vocal waves received by a transmitter.

3. The method of transmitting speech, consisting in passing over a line or circuit, including the receivers and transmitting devices, waves of electric current incapable or nearly incapable of producing audible tones in the receivers, and modifying the induction between the line transmitter-coil and a local coil in inductive relation thereto through the agency of voice-waves.

4. The method of transmitting speech along a line having receivers and transmitters, consisting in producing induction between a pulsating or alternating current in the line of such rate as not to produce strongly-audible tones or sounds in the receiver and a local circuit in inductive relation to a coil in the line and modifying the resistance, capacity, or self-induction of such local circuit by the vocal waves received by the transmitter.

5. In combination with a telephone-line having receivers thereon of means for producing in said line varying or alternating current impulses of such period as not to produce strongly-audible tones or sounds in receivers, and means, such as a local coil in inductive relation to a coil in the line, for superimposing undulations inductively transferred from the local coil to the line-coil, the local coil being provided with a telephone-transmitter in its circuit, whereby the capacity or the resistance of its circuit may be varied by the waves of the voice communicated to said transmitter.



6. In a telephone system in which alternating or varying impulses are passed over the line, an induction-coil the primary of which is in the line and the secondary of which is local to the transmitter and connected to the said transmitter, whereby the variations of resistance, capacity, or self-induction set up in the transmitter by the voice-waves are inductively transferred to the primary coil in the line to vary its current or superimpose the vocal undulatory current on the alternating or varying line-current.

7. The combination, in a telephone system, of an induction-coil provided with a primary coil of many turns traversed by alternating or varying impulses of current, and also provided with a secondary coil of few turns locally connected through a transmitter, whereby the resistance of said local coil-circuit is varied, as described, and for the purpose specified.

8. The combination, in a telephone apparatus, of a source of alternating or varying electric current, a line-circuit connected to said current source, a transformer or inductorium the primary coil of which is in said line-circuit or inductively related thereto, and a secondary circuit for said transformer, whose resistance, capacity, or self-induction is adapted to be modified by sound waves, as set forth.

9. The method of telephoning, consisting in passing over a circuit an alternating current or a current periodically changing in value and inductively modifying said current in correspondence with sound vibrations.

10. The method of telephoning, consisting in passing over a circuit an alternating current or a current of changing value, passing said current through a coil of an inductorium, and varying the counter-induction of said inductorium by the agency of sound-vibrations.

11. The method of telephoning, consisting in feeding the line with an electric current of periodically rising and falling potential, passing said current through a counter-inductive device included in the line-circuit, and varying the counter-induction of said device by the agency of sound-vibrations, whereby the said current is made to flow over said line in impulses or waves corresponding to the sound-vibrations.

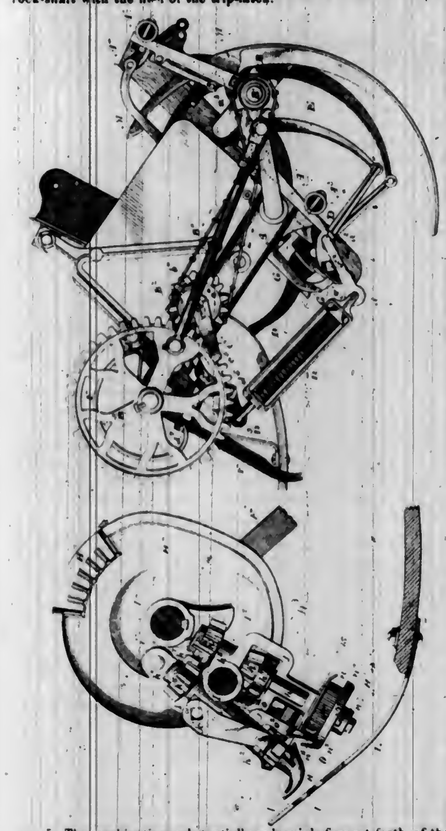
481,530. GRAIN-BINDER. HENRY R. PRIDMORE, Chicago, Ill. Filed Sept. 1, 1887. Serial No. 248,506. (No model.) Patented in England Aug. 10, 1886, No. 10,212.

Claim.—1. The combination, substantially as hereinbefore set forth, of the main gear, a sprocket-wheel on the constantly-driven packer-shaft, an opposing sprocket-wheel on a stub-axle adjacent to the main gear, a loose pinion mounted on said stub-axle and meshing with the main gear, a trip-clutch between said loose pinion and the adjacent sprocket-wheel, a trip-latch operating to hold the trip-dog out of engagement, the outside tripping and compressing finger mounted on a rock-shaft, and a link directly connecting a crank from said rock-shaft with the heel of the trip latch.

2. The combination, substantially as hereinbefore set forth, with the trip-clutch, of the pivoted trip-latch, the tripping and compressing finger closing the passage from the grain-receptacle, the rock-shaft on which it is mounted, and the yielding link connecting an arm from said rock-shaft with the heel of the trip-latch.

3. The combination, substantially as hereinbefore set forth, with a pinion meshing directly with the main gear, of a trip-dog carried by said pinion, a pivoted trip latch to disengage said trip-dog, an outside tripping and compressing finger mounted on a rock-shaft, and a yielding pitman connection between an arm of said rock-shaft and the heel of the trip-latch.

4. The combination, substantially as hereinbefore set forth, of the main gear, a pinion meshing therewith, a trip-dog carried by said pinion and engaging with lugs from a constantly-driven part of the gearing, a lever pivoted to the frame and vibrated by a cam on said main gear, a trip-latch pivoted to the outer end of said lever, a trip-finger mounted on a rock-shaft, and a pitman connecting an arm from this rock-shaft with the heel of the trip-latch.



5. The combination, substantially as hereinbefore set forth, of the main gear, a pinion meshing therewith and carrying a trip-dog, constantly-driven mechanism with which said dog engages, a lever pivoted to the frame and vibrated by a cam on said main gear, a trip-latch pivoted to the free end of said lever, a spring interposed between the trip-latch and the lever to press the nose of the trip-latch down into the path of the trip-dog, a trip-finger mounted on a rock-shaft, and a pitman connecting an arm from said rock-shaft with the heel of the trip-latch.

6. The combination, substantially as hereinbefore set forth, of the main gear, a pinion meshing therewith and carrying a trip-dog, a constantly-driven wheel having lugs with which said trip-dog engages, a lever pivoted to the frame and vibrated by a cam on the main gear, a trip-latch pivoted to the outer end of said lever, a spring to press said trip-latch down to bring its nose into the path of the trip-dog, and a stop on the lever to limit its downward movement, a trip-finger mounted on a rock-shaft, and an elastically-yielding link connecting an arm from said rock-shaft with the heel of the trip-latch.

7. The combination, substantially as hereinbefore set forth, with the main gear and its driving-pinion and the trip-dog carried by said pinion, of the lever pivoted to the frame and vibrated by a cam on said main gear, the trip-latch pivoted to the outer end of the lever and extending inward past the center of said lever, the spring pressing said trip latch down and the stop which limits its movement, the trip-finger and its rock-shaft and the spring-link connecting an arm from said rock-shaft with the heel of the trip-lever.

8. The combination, substantially as hereinbefore set forth, with the trip-finger and its rock-shaft and the arm from said rock-shaft, of the stop on the frame to limit the inward movement of the trip-finger, the trip-latch, the lever to which it is pivoted, the cam which vibrates said lever, having a slow upward incline or eccentric to lift the lever gradually until the close of the binding operation, and the spring-link connecting the arm from the compressor-shaft with the heel of the trip-latch, whereby the compressing-finger is first carried inward against the gavel until stopped by the contact of its arm with said stop and then the stress of the spring-pitman constantly increased to increase the resistance of the compressor.

9. The combination, substantially as hereinbefore set forth, of the trip-latch, the lever to which it is pivoted, the cam which actuates said lever, having first a concentric reach that the machine may start without moving the lever, then a quick outward incline, then a slow outward or eccentric reach, the tripping and compressing finger, the rock-shaft on which it is mounted, the arm from said rock-shaft, the stop on the frame, and the spring-link connecting the heel of the trip-latch with said arm, for the purpose described.

10. The combination, substantially as hereinbefore set forth, of the trip-latch, the lever to which it is pivoted, the cam which vibrates said lever, having, practically, the outline shown and described, the lug from said lever and the tappet revolving with the shaft which supports said cam, the tripping and compressing finger, the rock-shaft on which it is mounted, and the spring-link connecting an arm from said rock-shaft with the heel of the trip-finger.

11. The combination, substantially as hereinbefore set forth, with the trip-finger and its rock-shaft and the cam at the base of the trip-finger, of the table trip extended to rest on said cam and means for rocking said shaft to carry the trip-finger inward after the binder starts, whereby the table-trip is lifted against the gavel to serve as an under compressor.

12. The combination, substantially as hereinbefore set forth, with the outside trip-finger and its rock-shaft and the cam at the base of said finger, of the table trip extended to rest on said cam, the trip-latch link connected to an arm from said rock-shaft, and means whereby said trip-latch is raised after the binder starts to carry the trip finger inward, thereby lifting the table-trip to cause it to serve as an under compressor.

13. The combination, substantially as hereinbefore set forth, with the outside trip-finger and the rock shaft on which it is mounted, of the cam at the base of said finger, the table-trip extended to rest on said cam, the arm from said rock-shaft, and the stop on the frame against which said arm is carried, the spring-link connecting said arm with the heel of the trip-latch, and means whereby said trip-latch is lifted after the binder starts to carry the trip-finger forward to operate the table-trip to serve as an under compressor.

14. The combination, substantially as hereinbefore set forth, with the outside trip-finger, the rock-shaft on which it is mounted, and the cam at the base of the trip-finger, of the table trip extended to rest on said cam, the arm from the rock-shaft, the stop against which said arm is carried, the trip-latch, the lever to which it is pivoted, the cam which vibrates said lever upward after the binder starts, and the spring-link connecting the heel of the trip-latch with the rock-shaft.

15. The combination, substantially as hereinbefore set forth, of the tyer-cam having a segment-rack and delay-surface, the holder-spindle having a pinion and delay-shoe engaging with said rack and delay-surface, and the knotter-spindle engaged with said holder-spindle by intermeshing gears and driven therefrom.

16. The combination, substantially as hereinbefore set forth, of the tyer-cam having a segment-rack and delay-surface, the holder-spindle having a driving-pinion and delay-shoe engaging with said rack and delay surface, the knotter-spiodle arranged obliquely to the holder-spindle, the intermeshing bevel-gears at the head of each spindle and the binder-arm arranged to pass between the knotter-spindle and holder-spindle.

17. The combination, substantially as hereinbefore set forth, of the holder-spindle having a crown-disk holder at its foot and arranged on one side of the plane of movement of the binder-arm and the knotter-spindle having a tying-bill at its foot and arranged on the other side of said plane of movement.

18. The combination, substantially as hereinbefore set forth, to form a holder, of the crown-disk having a serrated peripheral flange, the shoe pressing against the serrated face of said flange, a notch at its rear to stop the cord from passing beneath, and the spring arranged to press said shoe against the flange.

19. The combination, substantially as hereinbefore set forth, with the crown-disk and its shoe pressing against the exterior of the flange, of the inclined ledge or shoulder at the rear of the advancing notch in said disk.

20. The combination, substantially as hereinbefore set forth, with the crown-disk and the shoe which presses against its periphery, of the web projecting out from the bottom of said disk and upturned into a concentric flange to prevent the strands of cord from falling below the proper level or from being displaced.

21. The combination, substantially as hereinbefore set forth, with the crown-disk and the shoe which presses upon its flange, of the knife revolving with said crown-disk exterior to the shoe.

22. The combination, substantially as hereinbefore set forth, with the crown-disk and its shoe, of the web extending out from the bottom of the disk and having an upturned concentric flange exteading up to about the level of the bottom of the notches in said crown-disk and cut away opposite and beneath the advancing notch to permit the fag ends to drop out.

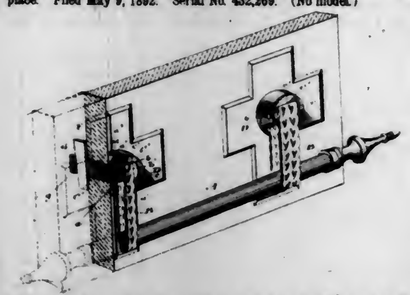
23. The combination, substantially as hereinbefore set forth, with the crown-disk and its shoe, of the plate attached to the bottom of said crown-disk and having an exterior concentric flange, the knife on said plate, and means whereby said plate may be adjusted axially about said disk to advance or retard the action of the knife.

24. The combination, substantially as hereinbefore set forth, with the crown-disk having two notches and a broad belay-tooth between them, of the shoe pressing upon the exterior of the flange and means for giving said crown-disk a complete revolution in each knotting operation.

25. The combination, substantially as hereinbefore set forth, with the crown-disk and its shoe, of the cap covering said crown-disk and slotted to direct the cord-strands into the proper notch, while preventing them from falling into the notch at any other place.

26. The combination, substantially as hereinbefore set forth, of the tyer-cam, the supporting-stock for the holder and knotter spindle pivoted upon the frame eccentrically to the tyer-shaft, means for giving the tying-bill a complete revolution and stopping it with its jaws pointing inward, the cam-groove in the face of the tyer-cam, and a roller from the heel of the swinging stock extended into said cam-groove, whereby the knotter and holder are swung outward after the knot has been laid to strip and tighten it.

481,531. CASKET-HANDLE. JOHN D. RIPSON, Thoroid, Canada, assignor of one half to John Joseph Franklin and Joseph Battle, same place. Filed May 9, 1892. Serial No. 432,269. (No model.)



Claim.—1. In combination with a casket, a handle having its shank passing through the wall of the casket and provided with an annular flange bearing against said wall and a thin plate of sheet metal having an opening to receive the flange and having its edges bent down a distance corresponding to the thickness of the flange, the said shank having an enlarged head overlapping the edge of the opening in the plate and adapted to rest against the face thereof, substantially as described.

2. In combination with a casket, a shank for supporting the link and handle, a thin plate of sheet metal having an opening therein with a notch in the edge thereof, and an annular flange on the shank adapted to fit the opening in the plate and provided with a projection adapted to engage the notch, substantially as and for the purpose set forth.

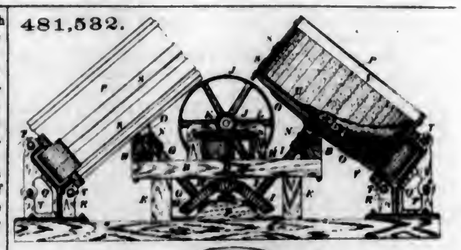
3. As a new article of manufacture, and in combination with the shank C, provided with jaws *c* and secured in position, as specified, the links B, made of braided endless woven wire formed rigid and having trunnions in the upper ends, as and for the purpose specified.

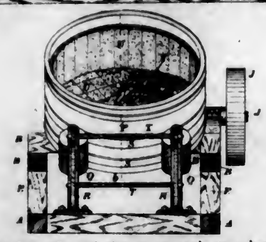
481,532. PULVERIZER. GEORGE H. SMITH, Chicago, Ill. Filed July 17, 1891. Serial No. 399,829. (No model.)

Claim.—1. In a pulverizer for reducing metals and minerals, a central motor, a multiple of vessels arranged around the motor and adapted to be operated thereby, each of said vessels having its plane of revolution at an angle to a horizontal and adapted to receive material to be operated upon and to carry it part way up the inclination formed by the sides and bottom of the vessel, substantially as set forth.

2. In a pulverizer for reducing metals and minerals, a base-frame, a rectangular frame mounted thereon, a support at each end of the base-frame, provided with rollers, two vessels mounted in the frames,

481,532.

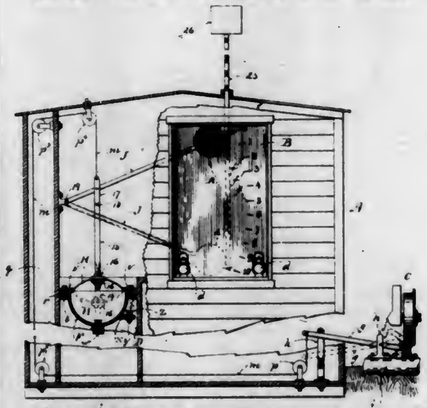




each having its plane of revolution at an angle to a horizontal and adapted to bear against the rollers of the support at its respective end of the frame, and a central motor for operating said vessels, substantially as set forth.

3. In a pulverizer for reducing metals and minerals, a base-frame, a rectangular frame mounted thereon, a block at the center of the base-frame, provided with three step-bearings, a shaft journaled in each bearing and in bearings upon the rectangular frame, a motor for the central shaft, and a vessel upon the upper end of each of the other shafts, the plane of revolution of which is at an angle to a horizontal, and a support for each vessel, substantially as set forth.

481,533. RAILWAY TIME-SIGNAL. SAMUEL SMITH, Lawrence, Mass., assignor of two-thirds to John T. McKone and Charles E. Hill same place. Filed Mar. 14, 1892. Serial No. 424,765. (No model.)



Claim.—1. A time-signal for railways, comprising a pivoted index, a spaced rod attached near the end thereof, a drum provided with valves, a diaphragm closing the mouth of said drum, a rod connected to said diaphragm and pivoted index, a lever actuated by the car-wheels, and mechanism connecting said rod and lever.

2. A time-signal for railways, comprising a drum provided with valves, a diaphragm in said drum, a rod connected to said diaphragm, provided with a pivoted extension, a lever actuated by the car-wheels, mechanism connecting said pivoted extension and lever, and a pivoted index connected to said pivoted extension.

3. A time signal for railways, comprising a closed dial, a pivoted index, a spaced rod attached thereto, a drum provided with valves, a diaphragm in said drum, a rod provided with a pivoted extension, connected to said diaphragm and to said pivoted index, a lever actuated by the car-wheels, and mechanism connecting said rod and pivoted extension.

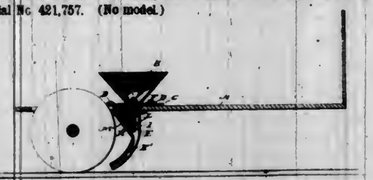
4. In a time-signal for railways, the closed dial B and pivoted index J, in combination with the drum F, provided with the valves *w y*, the diaphragm H, closing the mouth of said drum, the rod 15, connecting said diaphragm and index, the lever *g*, actuated by contact with the car-wheels, and a connection between said rod and lever, all being arranged to operate substantially as described.

481,534. PEN OR PENCIL HOLDER AND ART OF MAKING THE SAME. HENRY T. SMITH, Pawtucket, R. I. Filed May 10, 1892. Serial No. 432,510. (No model.)

Claim.—1. A tubular metallic pen or pencil holder having a tapered stem or shank and consisting of a single jointless piece of stock as described.

2. The art of forming pen or pencil holders, consisting in taking a piece of tubular stock, forming the bowl *b* in one end thereof, and subjecting the opposite end and stem portion to tapered hammering-dies, as set forth.

481,535. SANDING DEVICE FOR STREET-CARS. JOHN H. VOGAN and GEORGE L. VOGAN, New Castle, Pa. Filed Feb. 16, 1892. Serial No. 421,757. (No model.)



Claim.—1. The combination, with a main hopper provided at its lower end with a short tube, of an auxiliary hopper arranged below the main hopper and surrounding the lower end of the tube attached thereto, a valve arranged in the main hopper, a rock-shaft journaled in the walls of the auxiliary hopper and connected with the valve in the main hopper and with an operating-lever, a discharge-pipe connected to the auxiliary hopper, and means for holding the valve normally closed, substantially as described.

2. The combination, with a main hopper, of an auxiliary hopper arranged below and communicating with the main hopper, a discharge-pipe leading from the auxiliary hopper, a rock-shaft journaled in the walls of the auxiliary hopper and connected to an operating-lever, a valve arranged within the main hopper and having its stem extending into the auxiliary hopper and connected to the rock-shaft therein, and means for normally keeping said valve closed, substantially as described.

3. The combination, with a main hopper, of an auxiliary hopper arranged below and communicating with the main hopper, a rock-shaft journaled in the auxiliary hopper and connected with an operating-lever at one end, a valve arranged in the main hopper and having its stem extending into the auxiliary hopper and connected to an arm on the rock-shaft, a discharge-pipe connected to the lower end of the auxiliary hopper, and a flat spring-arm having one end secured in position and its free end bifurcated and bearing against an arm on the rock-shaft, substantially as described.

481,536. BICYCLE. ALEXANDER WINTON, Cleveland, Ohio. Filed Nov. 27, 1891. Serial No. 413,215. (No model.)



Claim.—1. An arm for supporting a wheel of a bicycle, pivoted on the fork and provided with a head having springs inclosed therein, substantially as described.

2. The fork of a bicycle, wheel-supporting arms pivoted on the said fork, and inclosed springs about said pivot-point, substantially as described.

3. In a bicycle, the fork having a spindle fixed on its lower end and lateral projections about the spindle, an arm having a hub adapted to turn on said spindle, the hub having lateral webs, and springs between the said webs and the projections about the spindle, substantially as described.

4. In a bicycle, the fork having a disk with lateral projections and a spindle rigid with its lower end, in combination with an arm pivoted on said spindle, having a rim and webbing within the rim about said spindle, and springs between the opposed parts of the arm and the fork, substantially as described.

5. In a bicycle, a fork having a spindle and a disk with lateral projections on opposite sides of the spindle, in combination with an arm having a head with a hub on said spindle and webs radiating from said hub, and rubber springs interposed between the said lateral projections on the fork and the webs of the said head, substantially as described.

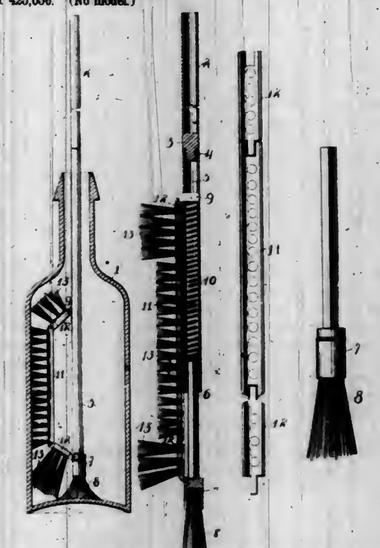
6. The fork with a lateral spindle and cone-bearings thereon, in combination with an arm having a hub adapted to said bearings and springs about said hub between parts of said head and parts of the said fork, substantially as described.

7. The fork having a disk with lateral projections and a spindle central with the disk at its lower end, in combination with an arm having a head pivoted on said spindle and provided with webbing-springs of different tension interposed between said webbing and the said lateral projections on opposite sides of the said webbing, substantially as described.

8. In a bicycle, a carrying-wheel, a shaft for said wheel, and arms rigidly connected with the ends of said shaft, in combination with the fork of the bicycle, on which said arms are pivoted, and inclosed springs at the pivot-points connecting said parts, substantially as described.

9. In a bicycle, the cone-bearings for the wheel, having flanges, and the axle on which said cones are adjustable, in combination with the arms fixed to the axle and locking mechanism between said arms and said cone flanges, substantially as described.

481,537. DEVICE FOR CLEANING BOTTLES OR SIMILAR RECEPTACLES. CHARLES F. WOERNER, St. Louis, Mo., assignor of one-half to Adelbert Schneider, same place. Filed Mar. 15, 1892. Serial No. 425,056. (No model.)



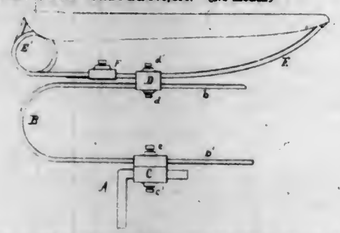
Claim.—1. In a bottle-washer, the combination, with a tubular standard and an outwardly-yielding shank movable longitudinally in said standard, but fixed against independent lateral movement, of a plate carrying tufts and consisting of three sections pivotally connected together, the free ends of said plate being respectively pivotally connected with the standard and shank, substantially as and for the purpose set forth.

2. A bottle-washer consisting of a tube, such as 5, adapted to be movably attached to a rotating tube or pipe 2, a shank, such as 6, adapted to be moved within said tube 5, a tuft carried by the lower end of the said shank and adapted to be brought in contact with the bottom of the bottle, a sectionalized plate, the sections of which are hinged together, one end of which is attached to the tube 5 and the other end attached to the socket carried by the shank 6, whereby the tufts carried by the said plates are brought in contact with the sides of the bottle when pressure is applied to the said tuft 8, substantially as described.

3. A bottle-washer consisting of a tube, such as 5, a plate 9, carried thereby, a square opening formed in the said tube, a square shank, such as 6, adapted to be located within said opening, a socket, such as 7, attached to one end of the said shank, a tuft secured within said socket, a sectionalized concave plate the sections of which are hinged together, one end of which is movably attached to the projecting end of the plate 9 and the opposite end movably attached to the said socket 7, and tufts carried by the said sectionalized plate and adapted to be brought in contact with the sides of the bottle when pressure is applied by the bottle to the said tuft 8, substantially as described.

4. A bottle-washer comprising a tube, such as 5, a plate, such as 9, attached thereto, a shank 6, adapted to be located within said tube, a tuft carried by the said shank, a coil-spring located between said plate and the upper end of the said shank, and a sectionalized plate, such as 11, the ends of which are movably attached to the plate 9 and the shank 6, respectively, whereby the tufts carried by the said sectionalized plate are brought in contact with the sides of the bottle when pressure is applied to the tuft carried by the said shank, substantially as described.

481,538. BICYCLE-SADDLE. ARTHUR L. GARFORD, Elyria, Ohio. Filed Jan. 2, 1891. Serial No. 376,461. (No model.)



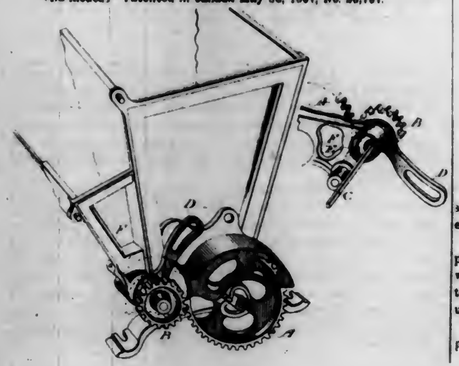
Claim.—1. The combination of a substantially-U-shaped spring B and a clip for adjustably securing the lower leg thereof to the saddle-support, a front seat-support, a rear seat-support, said supports being adjustably secured to the upper leg of said spring B, with the front seat-support adjacent to the bent part of said spring, substantially as and for the purpose specified.

2. The combination of a substantially-U-shaped spring B, a clip for adjustably securing the lower leg thereof to the saddle-support, a front seat-support, a rear seat-support, a clip adapted to be adjustably secured to the upper leg of said spring B, and means for adjustably securing the seat-supports to the said clip, with the front seat support adjacent to the bent part of the spring B, substantially as and for the purpose specified.

3. The combination of a bent spring B and a clip C for adjustably securing it to the saddle-support, a clip D, adjustably secured to the upper leg of said spring, a front seat-support and a rear seat-support, one of which is curved, and means for adjustably securing said curved support to the clip D, with the front seat-support adjacent to the bent part of the spring B, substantially as and for the purpose specified.

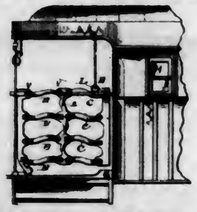
4. In a saddle for bicycles and like vehicles, the combination, with the seat-supporting spring E E' and clips D C, of the spring B, adjustable back and forth in said clips, substantially as shown, and for the purpose set forth.

481,539. DRIVING-GEAR FOR SEEDING-MACHINES. THOMAS H. NOXON, Ingersoll, Canada. Filed May 4, 1892. Serial No. 431,836. (No model.) Patented in Canada May 30, 1887, No. 26,767.



Claim.—A grain-seed feed-rod C, connected to the center of a gear-pinion, in combination with a handle having an eccentric hole for the rod and journaled in the frame F of the machine and the driving-gear A, whereby the pinion may be moved out of engagement with its driver by bending the rod, substantially as set forth.

481,540. RAILWAY-CAR GATE. LYNDON ARNOLD, St. Johnsbury, Vt. Filed May 1, 1891. Serial No. 391,290. (No model.)



Claim.—1. A railway-car gate comprising a stationary side piece and a horizontally-sliding side piece, each pivotally connected to a vertically-movable central piece, and means for raising and lowering the central piece to open and close the gate, substantially as specified.

2. In a car-gate, the combination of the vertically-movable center piece A, connected by parallel bars B and C to side pieces D and E, substantially as described.

3. The parallel bars B and C, hinged by joints V to center piece A and at the other end to side pieces D and E, as shown.

4. The combination, in a car-gate, of the starting-block G, grooved track, and flanged carrying-roller F, substantially as described.

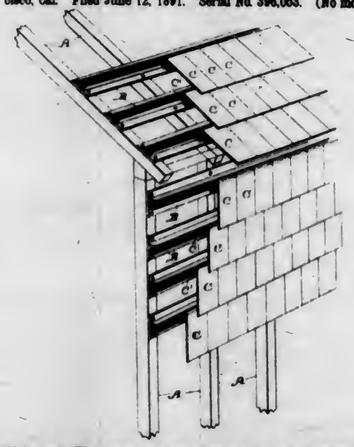
5. The lock-lever J, pivoted by joints V to center piece A and side piece D and engaging catch H at one end and catch I at the other, for the purpose specified.

6. The combination, in a car-gate, of the rollers N, cord M, loop L, eccentric-loop O, and lock-lever J, substantially as shown, and for the purpose specified.

7. Sliding sleeve R, movable vertically on rod Q and connected by eccentric P, loop O, cord M, and loop L to lock lever J, substantially described.

8. In a car-gate, the combination of eccentric P with sliding sleeve R, handle T, grip-lever S, connected by cord M to lock-lever J, all substantially as described, and for the purpose specified.

481,541. ROOFING AND SIDING. JAMES WINSLOW, San Francisco, Cal. Filed June 12, 1891. Serial No. 396,053. (No model.)



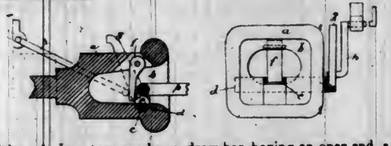
Claim.—1. The improvement in covering for walls and roofs, consisting of plates having flanges formed with double beads at their upper ends to form a lock for the plates, substantially as herein described.

2. The improvement in covering for walls and roofs, consisting of plates having flanges at their upper ends bent to form the double beads, which form a lock for the plates, said plates having raised portions on the faces, whereby they are stiffened and their overlapping edges fitted upon each other, substantially as herein described.

3. The improvement in covering for walls or roofs, consisting of plates or shingles of concavo-convex form having double bent flanges at their upper ends adapted to form a lock for the plates, said plates having raised portions at their overlapping edges, horizontal stripe having edges formed for engagement with the double bent portions and secured to the studding to lock the plates in position, substantially as herein described.

REISSUES.

11,265. CAR-COUPLING. CHARLES DESAURES, Portland, Me., assignor to Henry Soule, David W. Schwarz, and Charles S. Cook, same place. Filed Apr. 15, 1892. Serial No. 429,371. Original No. 466,713, dated Jan. 5, 1892.



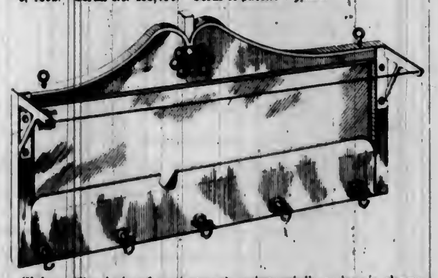
Claim.—1. In a car-coupler, a draw-bar having an open end, a cross-bar journaled in oval-shaped holes in the sides of the draw-bar and having a recess therein, said oval openings having cogs at the side and said cross-bar having cogs to mesh therewith, and a link-pin pivoted in the top of the draw-bar, substantially as and for the purposes set forth.

2. In a car-coupler, a draw-bar having an open end, a cross-bar having a recess therein journaled in holes in the sides of the draw-bar, and a link-pin pivoted in a slot in the top of the draw-bar, said pin having a dog projecting forward and having its point resting in a recess in the draw-bar, substantially as and for the purposes set forth.

3. In a car-coupler, a draw-bar having an open end, a cross-bar journaled in oval-shaped or vertically-elongated holes in the sides of said draw-bar, said oval holes having cogs at the side and said cross-bar having cogs to mesh therewith, and a link-pin pivoted at the top of said draw-bar, substantially as described.

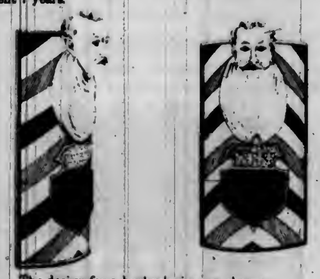
DESIGNS.

21,781. HAT-RACK. JOHN HONECKER, Cleveland, Ohio. Filed June 6, 1892. Serial No. 435,756. Term of patent 7 years.



Claim.—The design for a hat-rack, substantially as herein shown and described.

21,782. BARBER'S SIGN. FERDINAND SVOBODA and CHARLES HOFMANN, Chicago, Ill. Filed June 24, 1892. Serial No. 437,912. Term of patent 7 years.



Claim.—The design for a barber's sign, as shown.

21,783. SPOON. JOSEPH A. HUGHES, Corpus Christi, Tex. Filed May 2, 1892. Serial No. 431,572. Term of patent 3½ years.



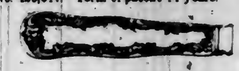
Claim.—The design for a spoon, herein shown and described.

21,784. CANE-HANDLE. FRENCH S EVANS, Washington, D. C. Filed July 25, 1892. Serial No. 441,208. Term of patent 3½ years.



Claim.—The design for a cane-handle, substantially as herein shown and described.

21,785. HANDLE FOR KNIVES. HENRY A. WEHMAN, Philadelphia, Pa., assignor to Simons Bro. & Co., same place. Filed Feb. 1, 1892. Serial No. 420,017. Term of patent 14 years.



Claim.—The design for handles of knives, substantially as shown and described.

21,786. CASING FOR COIN-ACTUATED VENDING-MACHINES. ROBERT H. LITTLE, Chicago, Ill., assignor to Everell D. Stiles, same place. Filed June 6, 1892. Serial No. 435,757. Term of patent 7 years.



Claim.—The design herein shown and described for a casing of a coin-actuated vending-machine.

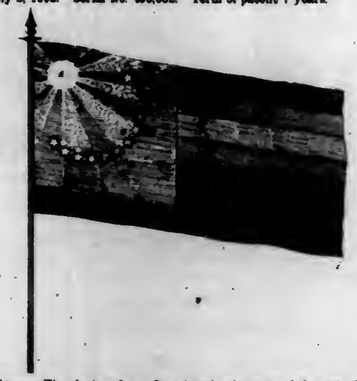
21,787. STATUE. CHARLES HOLLOWAY, Chicago, assignor to Louis H. Aymé, La Grange, Ill. Filed July 11, 1892. Serial No. 439,704. Term of patent 14 years.

Claim.—The design for the statue, herein shown and described.

21,787.



21,788. FLAG. JAMES W. MACNAMARA, Blairsville, Pa. Filed July 2, 1892. Serial No. 438,832. Term of patent 7 years.



Claim.—The design for a flag, herein shown and described.

21,789. CAMPAIGN HORN. HENRY L. MILLIS, Millis, Mass. Filed July 22, 1892. Serial No. 440,961. Term of patent 14 years.



Claim.—The design for a campaign horn, as herein shown and described.

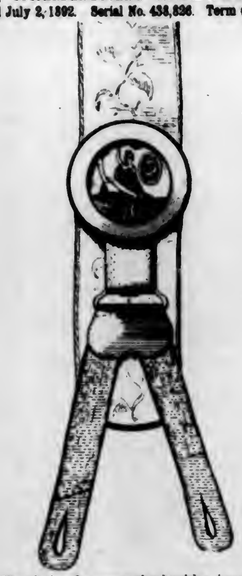
21,790. BADGE. GEORGE B. RAND, Dubuque, Iowa. Filed June 7, 1892. Serial No. 436,900. Term of patent 3½ years.

21,790.



Claim.—The design for a badge, as herein shown and described.

21,791. SUSPENDER-BUCKLE. CHARLES R. HARRIS, Williamsport, Pa. Filed July 2, 1892. Serial No. 438,836. Term of patent 14 years.



Claim.—The design for suspender-buckles, herein shown and described.

21,792. BUTTON-HOOK. CHARLES WEBSTER, New York, N. Y. Filed July 14, 1892. Serial No. 440,077. Term of patent 7 years.



Claim.—The design for a button-hook, herein shown and described.

21,793. TRIMMING. ADOLPH S. ELLISON, New York, N. Y. Filed July 14, 1892. Serial No. 440,076. Term of patent 3½ years.



Claim.—The design for trimmming, substantially as herein shown and described.

21,794. DRESS-TRIMMING. HENRY W. SCHLOSS, New York, N. Y. Filed Apr. 28, 1892. Serial No. 431,080. Term of patent 3½ years.



Claim.—The design for dress-trimming, substantially as described, and as shown in the accompanying drawing.

21,795. ORNAMENTATION OF FABRICS. HENRY STURM, Arlington, N. J. Filed June 21, 1892. Serial No. 437,523. Term of patent 3½ years.



Claim.—The design for the ornamentation of fabric, herein shown and described.

21,796. BOX. EUGENE L. BUTTON, Brooklyn, N. Y. Filed June 22, 1892. Serial No. 437,655. Term of patent 7 years.



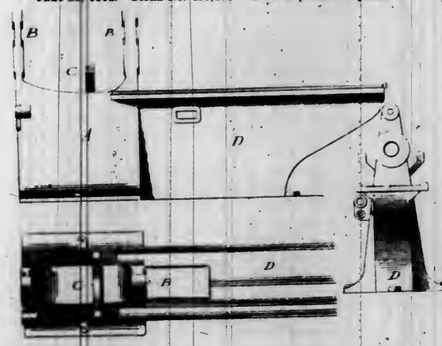
Claim.—The design for a box, as herein shown and described.

21,797. WATCH-CASE. JOHN C. DUEBER, Canton, Ohio. Filed July 28, 1892. Serial No. 441,536. Term of patent 14 years.



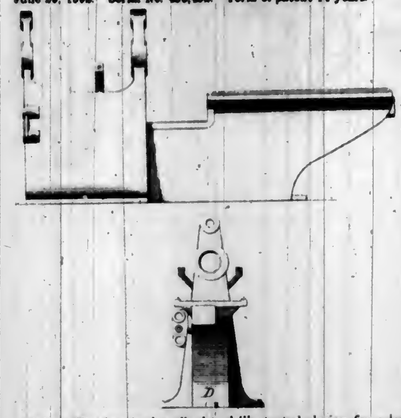
Claim.—The design for a watch-case, as herein described and shown.

21,798. LATHE-BED. CONRAD M. CONRADSON, Madison, Wis. Filed June 22, 1892. Serial No. 438,451. Term of patent 14 years.



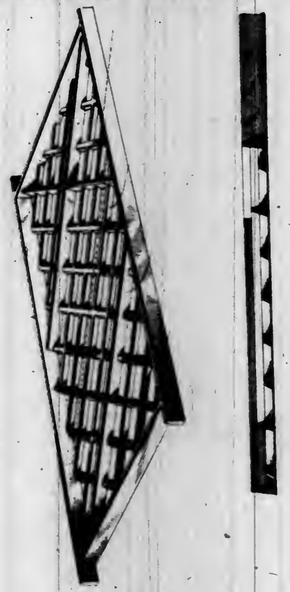
Claim.—The herein described and illustrated design for a lathe bed.

21,799. LATHE-BED. CONRAD M. CONRADSON, Madison, Wis. Filed June 29, 1892. Serial No. 438,452. Term of patent 14 years.



Claim.—The herein described and illustrated design for a lathe bed.

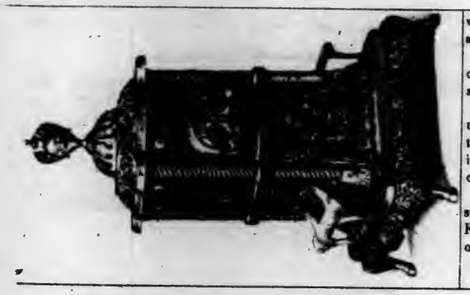
21,800. VENTILATOR-GRATE. GEORGE N. JOSS, Indianapolis, Ind., assignor to the Eagle Machine Company, Lancaster, Ohio. Filed July 19, 1892. Serial No. 440,532. Term of patent 7 years.



Claim.—The design for a ventilator-grate, substantially as shown and described.

21,801. HEATING-STOVE. WILLIAM N. MOORE, Joliet, Ill. Filed July 9, 1892. Serial No. 439,551. Term of patent 14 years.

Claim.—1. In a design for a heating-stove, the design for the lower section between the central belt F and the base G, embracing the three rosettes *a c c*, arranged in a horizontal line with each other in the central part of the panel, and the volutes *r*, springing from the sides of the central rosette *a* and extending both above and below the same and turned toward each other, and the volutes S, springing from the



volutes r and extending horizontally both above and below the rosettes c and turned toward the corners of the panel, as set forth.

2. In a design for a heating-stove, the design for the base-section, comprising the ornamentation of the lanceolate leaves pointed upward and arranged contiguous to each other, as set forth.

3. In a design for a heating-stove, the design for the upper section, comprising the rope molded margin having the arched top and the vertical central bar having the volutes springing from its sides near its upper part and turned downward at each side of said bar and incorporated with other vertical bars, as set forth.

4. In a design for a heating-stove, the design for the body of the stove, comprising the spiral columns H and the molded horizontal belt F and the ornamented panels between said columns and at either side of said belt, as set forth.

5. The design for a heating-stove, as herein shown and described.

TRADE-MARKS

REGISTERED AUGUST 23, 1892.

21,650. SEWING-MACHINES. CASH BUYERS' UNION, Chicago, Ill. Filed July 27, 1892.

KENWOOD

Essential feature.—The word "KENWOOD." Used since June 1, 1892.

21,651. HAND-POWER WASHING-MACHINES. BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio. Filed July 16, 1892.

BOSS

Essential feature.—The word "BOSS." Used since March 15, 1890.

21,652. PILLS. W. T. HANSON COMPANY, Schenectady, N. Y. Filed July 25, 1892.

PINK-IRON

Essential feature.—The word "PINK-IRON." Used since June 15, 1892.

21,653. CORN-FLOUR. ONTARIO ORIENTAL FLOUR COMPANY, St. Thomas, Canada, and Chicago, Ill. Filed July 18, 1892.



Essential feature.—The representation of a shield bearing upon its face a crescent and the three letters "H O F." Used since February 7, 1890.

21,654. SCALP-WASH. LEN A. SMITH, New York, N. Y. Filed July 19, 1892.



Essential feature.—The script signature "DR. L. A. SMITH & Co.," and the words "ANTI-DANDRUFF," all in white letters on a dark background. Used since December 15, 1891.

21,655. LUBRICATING COMPOUNDS, OILS, AND GREASE. LEWIS E. ATKINSON, Boston, Mass. Filed July 28, 1892.



Essential feature.—The words "WE LUBRICATE THE WORLD" in connection with the representation of a globe surrounded by brownies in the act of lubricating the same with lubricating devices. Used since June 2, 1892.

21,656. TIN AND ROOFING PLATES. CLEVELAND TIN PLATE CO., Cleveland, Ohio. Filed May 14, 1892.

BUCKEYE

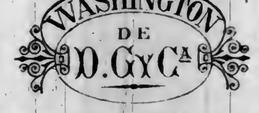
Essential feature.—The word "BUCKEYE," within a diamond border. Used since January 1, 1892.

21,657. WORM-SIRUP. DR. DAVID KENNEDY CORPORATION, Kingston, N. Y. Filed July 19, 1892.

WORM SYRUP

Essential feature.—The words "WORM SYRUP" and the facsimile signature "D. KENNEDY, M. D." Used since 1870.

21,658. CIGARS. DIAZ Y HERMANO, Havana, Cuba. Filed July 27, 1892.



Essential feature.—The name "WASHINGTON" and the letters "DE D. G. Y CA." Used since July 6, 1888

21,659. TOILET PREPARATIONS FOR BEAUTIFYING THE COMPLEXION. JOSEPH C. FLOWERS and CLEMENT S. WITWER, Joliet, Ill. Filed July 5, 1892.

DIAMOND DEW

Essential feature.—The words "DIAMOND DEW." Used since June 1, 1892

21,660. CONDENSED MILK. WILLIS JOHNSTON, Washington, D. C. Filed July 5, 1892.



Essential feature.—The words "BABY BRAND," with a full-length representation or figure of an infant clothed in a short slip only, sitting in an angle of a couch or sofa, having the right leg extended, the right hand resting upon the right leg. The left leg is bent inwardly

and upwardly and its great toe is held by the fingers of the left hand. Used since July 1, 1891.

21,661. CIGARS. RAMÓN LÓPEZ, Havana, Cuba. Filed July 27, 1892.

CELIA.

Essential feature.—The word "CELIA." Used since December 23, 1885.

21,662. WHISKY. REINAULD & NIEDERSTADT, New York, N. Y. Filed July 27, 1892.



Essential feature.—The representation of the head of a unicorn. Used since May 17, 1892.

21,663. WHISKY. REINAULD & NIEDERSTADT, New York, N. Y. Filed July 27, 1892.

UNICORN

Essential feature.—The word "UNICORN." Used since May 17, 1892.

21,664. THREAD OF COTTON, SILK, FLAX, AND OTHER FIBROUS MATERIALS FOR MACHINE AND HAND SEWING. THE KERR THREAD COMPANY, East Newark, N. J. Filed July 27, 1892.

HYDRA

Essential feature.—The word "HYDRA." Used since July 9, 1892.

21,665. THREAD OF COTTON, SILK, FLAX, AND OTHER FIBROUS MATERIALS FOR MACHINE AND HAND SEWING. THE KERR THREAD COMPANY, East Newark, N. J. Filed July 27, 1892.

LEADER

Essential feature.—The word "LEADER." Used since July 9, 1892

21,666. THREAD OF COTTON, SILK, FLAX, AND OTHER FIBROUS MATERIALS FOR MACHINE AND HAND SEWING. THE KERR THREAD COMPANY, East Newark, N. J. Filed July 27, 1892.

DIADEM

Essential feature.—The word "DIADEM." Used since July 9, 1892.

21,667. THREAD OF COTTON, SILK, FLAX, AND OTHER FIBROUS MATERIALS FOR MACHINE AND HAND SEWING. THE KERR THREAD COMPANY, East Newark, N. J. Filed July 27, 1892.



Essential feature.—The word "EYE" and the representation of a human eye. Used since July 9, 1892.

21,668. WHITE LEAD. MOSES L. WIRDER, St. Louis, Mo. Filed July 6, 1892.

21,668.



Essential feature.—The words "THE IVORY BRAND WHITE LEAD & METAL" and the pictorial representation of two tusks crossing each other and arranged within a circular border. Used since March, 1892.

21,669. LUBRICATING AND MACHINE OIL AND GREASE. CHARLES H. BEELY, Chicago, Ill. Filed Nov. 5, 1891.



Essential feature.—The representation of a helmet. Used since September 10, 1885.

21,670. POWDER FOR CAUSING THE SMOKING OUT OF RATS, RABBITS, &c. LOUIS BOEHLE, Philadelphia, Pa. Filed July 14, 1892.

BOLTING



Essential feature.—The word "BOLTING" and the representation of a man in the act of dropping powder into a burrow. Used since July 6, 1892.

21,671. LAUNDRY SOAP. BENJAMIN BROOKE AND COMPANY, Philadelphia, Pa. Filed July 6, 1892.

WORTH IT S WEIGHT IN GOLD

Essential feature.—The words "WORTH ITS WEIGHT IN GOLD." Used since May 15, 1892.

21,672. TOILET PREPARATIONS, NOT INCLUDING FACE-POWDER. MARGUERITE V. BOTTS, Philadelphia, Pa. Filed June 10, 1892.

MARGUERITE

Essential feature.—The word "MARGUERITE." Used since March 1, 1891.

21,673. METAL POLISH. SAMUEL KIDDER, Boston, Mass. Filed July 11, 1892.

STARINE

Essential feature.—The word "STARINE." Used since December, 1891.

21,674. SUPPORTER FOR LADIES' UNDERWEAR. LUTHER P. SIMMER, Ayer, Mass. Filed Nov. 3, 1891.

G. M. S.

Essential feature.—The letters "G. M. S." Used since 1888.

21,675. LARD AND ITS SUBSTITUTES. THE W. J. WILCOX LARD AND REFINING COMPANY, Guttenberg, N. J., and New York, N. Y. Filed July 30, 1892.

LA PUERTORIQUENA

Essential feature.—The words "LA PUERTORIQUEÑA." Used since July 1, 1892.

21,676. LAUNDRY SOAP. BENJAMIN BROOKE AND COMPANY, Philadelphia, Pa. Filed July 6, 1892.

NUGGET

Essential feature.—The word "NUGGET." Used since May 15, 1892.

21,677. COATS, PANTALOONS, OVERALLS, SHIRTS, AND GENTLEMEN'S FURNISHING GOODS. BEAN, LA DUE & CLAWSON, Buffalo, N. Y. Filed July 18, 1892.



Essential feature.—The representation of a buffalo. Used since December, 1888.

21,678. FLUID REMEDY FOR CONSTIPATION, DISEASES OF THE LIVER, KIDNEYS, BOWELS, SKIN, AND BLOOD. WILLIAM F. HARRIS, Adrian, Ill. Filed Mar. 24, 1892.



Essential feature.—The words "ELIXIR OF BANANAS," arranged on a curve, and the representation of a banana partly encompassed by said words. Used since July 10, 1891.

21,679. PILLS USED IN KIDNEY COMPLAINTS. JOHN ARNOLD McKAY, Toronto, Canada. Filed July 14, 1892.



Essential feature.—The words "DODD'S KIDNEY PILLS." Used since May 15, 1892.

21,680. LAGER-BEER. THE LONG ISLAND BREWERY, Brooklyn, N. Y. Filed Oct. 26, 1891.



Essential feature.—A design having the outline of a lozenge-shaped figure applied in white and with the letters "P. G. M." in the field of said design upon a black ground. Used since March 1, 1891.

21,681. LAGER-BEER. THE LONG ISLAND BREWERY, Brooklyn, N. Y. Filed Oct. 26, 1891.



Essential feature.—A black parallelogram having thereon the outline of a lozenge-shaped figure formed by white lines. Used since March 1, 1891.

21,682. PLASTIC MATERIAL COMPOSED IN PART OF PYROXYLINE. THE CELLULOID COMPANY, Newark, N. J. Filed July 12, 1892.

LITHOID

Essential feature.—The word "LITHOID." Used since August 8, 1888.

21,683. PLASTIC MATERIAL COMPOSED IN PART OF PYROXYLINE. THE CELLULOID COMPANY, Newark, N. J. Filed July 12, 1892.

SOLID FIBRE

Essential feature.—The words "SOLID FIBRE." Used since March, 1887.

21,684. TIME-KEEPING AND TIME-RECORDING INSTRUMENTS. SETH E. THOMAS, New York, N. Y. Filed July 2, 1892.



Essential feature.—The initials "S. E. T." inclosed within a circle. Used since May 26, 1892.

21,685. MEN'S PANTALOONS AND OVERALLS. COWAN, MAGILL & CO., Knoxville, Tenn. Filed Aug. 1, 1892.

21,685. MASTIFF

Essential feature.—The word "MASTIFF." Used since April 1, 1892.

21,686. HARNESS, SOLE, AND BELTING LEATHER. J. GROSTEIGER & Co., Allegheny, Pa. Filed July 30, 1892.

LA BELLE

Essential feature.—The words "LA BELLE." Used since 1882.

21,687. PHOSPHATED BEVERAGE. ROSE BROS., Camden, Me. Filed May 27, 1892.



Essential feature.—The representation of a cylindrical casket and the words "SYRUP OATMEAL PHOSPHATE" or "SYRUP OATMEAL" arranged upon the same. Used since June 10, 1891.

21,688. SAWS. SHURLY & DIETRICH, Galt, Canada. Filed Aug. 2, 1892.

SECRET

Essential feature.—The word "SECRET." Used since September 1, 1876.

21,689. SAWS. SHURLY & DIETRICH, Galt, Canada. Filed Aug. 2, 1892.

RAZOR

Essential feature.—The word "RAZOR." Used since June 1, 1889.

21,690. MEATS, SMOKED AND UNSMOKED, AND ALL KINDS USED FOR HUMAN FOOD. VOLUNTEER CHICAGO BEEF CO., New York, N. Y. Filed Feb. 12, 1892.

VOLUNTEER

Essential feature.—The word "VOLUNTEER." Used since July 1, 1889.

21,691. CIGARS. CASIMIRO ALVAREZ, Havana, Cuba. Filed July 27, 1892.



Essential feature.—The name "CARMENCITA" and the portrait of her. Used since January 26, 1892.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SANCHE *v.* ELECTROLIBRATION COMPANY.

TRADE-MARK—WHERE TITLE VESTS IN CERTAIN CASES.

Where one who claims to have invented or discovered a new means for treating disease transfers for a consideration all his rights therein to a corporation and afterward acquiesces in the use of a certain Trade-Mark thereon by the corporation, *Held* in a subsequent contest between himself and the corporation over title to the Trade-Mark that an absolute right is vested in the corporation.

Decided July 20, 1892.

APPEAL from Examiner of Interferences.

TRADE-MARK FOR CLINICAL INSTRUMENTS.

Trade-Mark of Hercules Sanche registered April 22, 1890, No 17,810. Application of Electrolibration Company filed November 16, 1889.

Mr. James L. Norris for Sanche.

Mr. R. G. Dyrenforth for Electrolibration Company.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiner of Interferences awarding the right to the Electrolibration Company to the word "Electropoise" as a Trade-Mark for instruments and appliances for the cure of disease. The status of the contestants is that of applicants for registration, with the burden of proof upon Sanche.

The oral testimony is contradictory to that degree that it is hardly possible that any trier basing his decision mainly thereupon could arrive at a decision wholly satisfactory to himself. It is a case where any settled landmark is of high value and where the ordinary laws governing human action must be taken into full account.

On the 14th day of July, 1887, Sanche entered into the following written agreement:

NEW ORLEANS, LA., *July* 14, 1887.

Whereas I, Hercules Sanche, M. D., of Port Gibson, county of Claiborne, State of Mississippi, having discovered a new means of preventing and curing diseases of human beings, animals, and plants, for which I have applied for Letters Patent in the United States; and

Whereas, it is desirable to form a stock company to patent in this and in foreign countries, and manufacture and sell the instruments and devices relating to said new means, and to push investigation to its further development, now

Therefore, in consideration of the premises and for the further consideration of twenty-five (25%) per centum of the capital stock of said company I hereby transfer all my right, title, and interest in and to all my patents pending and to be applied for, all manuscripts and drawings relating to said new means; and for the further consideration of twelve and a half (12½%) per centum of the net income from the operations of said company I bind myself, heirs, and executors to transfer to John N. Webb, Birmingham, Ala., Timothy Moroney, New Orleans, La., and Cornelius Doremus, New Orleans, La., as trustees for this proposed company, and to devote my time and attention to the investigation and improvement of said discovery; and for the further consideration of two thousand dollars, ($2,000.00,) to be paid to me during the first year and annually thereafter, until the said company pays a dividend of thirty per centum per annum, and thence such sum as the board of directors may deem proper, not exceeding five thousand dollars per annum. This assignment is conditional upon the opinion of Munn & Co. as to the patentability of the said new means. A favorable report from the said Munn & Co. shall be followed by an organization of a company within sixty days from the date of the receipt of said Munn & Co.'s report. The capital stock of said company shall be sufficient to secure and operate all desirable patents in this and other countries.

In testimony whereof I have hereunto set my hand and affixed my seal this 14th day of July, A. D. 1887.

HERCULES SANCHE, M. D.

Witness in presence of—
ISAAC GILLESPIE,
FERDINAND JOHNSON.

Messrs. Munn & Co. made two reports upon the matter, and within sixty days from the date of the receipt of said Munn & Co.'s report a corporation was organized under the laws of the State of Alabama, and the trustees named in the foregoing paper, on the 6th day of October, 1887, made the following written conveyance to that corporation:

In the State of Alabama, Jefferson county, *ss:*

This deed of conveyance made this 6th day of October, 1887, by and between Cornelius Doremus, Timothy Moroney, and John N. Webb, trustees for Dr. Hercules Sanche, and the subscribers to the electrolibration fund of the first part, and the Electrolibration Company, a corporation chartered under the general incorporation laws of the State of Alabama, party of the second part, witnesseth: That, whereas the said Dr. Hercules Sanche, a citizen of the State of Mississippi, has discovered a new means for the treatment of nervous and other diseases, is desirous to secure patents on the same in this and foreign countries, in order to secure the necessary means to carry out his purpose, has made a deed of conveyance to the said Cornelius Doremus, Timothy Moroney, and John N. Webb, as trustees, in trust for himself and the subscribers to the fund known as the electrolibration fund, of all his rights and interests in and to said patent pending and to be applied for, and all manuscripts, drawings, designs, of whatever nature relating to his new discovery, which deed is dated July the 14th, 1887, and is hereby expressly referred to and its conditions and contracts are to be ratified and renewed. Now, therefore, in consideration of the premises and the further consideration of 10,000 shares of the capital stock of said Electrolibration Company, fully paid up and non-assessable, and in order to carry out the expressed trust reposed in us, we, Cornelius Doremus, Timothy Moroney, and John N. Webb, trustees, do hereby sell, convey, assign, and transfer, and by these presents have hereby sold, conveyed, assigned, and transferred all our right, title, and interest in and to all patents pending and to be applied for, all manuscripts and drawings relating to the discoveries of Dr. Hercules Sanche and conveyed by him to us, as trustees, to the said Electrolibration Company, party of the second part, and its assigns forever.

Provided, however, in case of dissolution of this company and sale of its assets, such sale shall reserve to Dr. Sanche his fourth interest in such assets, and the purchaser of the company's assets shall be liable to Dr. Sanche to the same extent as this company is liable under its contract with him; the purpose of this proviso being to perpetuate Dr. Sanche's rights in his discoveries and patents the same as these rights exist in the company.

Witness our hands and seals this sixth day of October, 1887.

JOHN N. WEBB. [Seal.]
C. DOREMUS. [Seal.]
TIMOTHY MORONEY. [Seal.]

Witness:
JNO. MCNEESE,
WILL C. HAWLEY.

This corporation proceeded to—

manufacture and sell the instruments and devices—

referred to in the paper of July 14, 1887, and at first

called them "Electrolibrators." Then Sanche wrote this letter to the president of the company:

155 CALLIOPE STREET, NEW ORLEANS, LA.,
December 28, A. D. 1887.

JOHN N. WEBB, Esq.,
Birmingham, Ala.:

DEAR FRIEND: Pondering over what you said about the name "Electrolibrator," that it was too long, which I have often felt myself, wishing for a shorter word-equivalent, the word "Electropoise" suggests itself to my mind as still more appropriate for the instrument with which we are immediately concerned, while the former would be still desirable for some appliances to be brought out in the future. "Electropoise," under the fourth definition of Webster's Unabridged of "Poise," would make the latter much more significant. Messrs. Munn & Co. several times stated while we were in Washington that devices under the first application by me affected "electrolibration," but that those covered by the second did not, but were aimed at something more, which is strictly true, and hence the word in the latter case was not clearly expressive. The name of the company to remain the same, because of other devices named above for future, it is right. If you approve and advise the change, write me at once; and also advise Messrs. Munn & Co. that if necessary they *change the name* in our applications before too late. Believing that you and all concerned will approve, I begin to write using the new appellation until it is rejected. Our aim in treatment is to restore the normal electrical condition expressed by Mr. Byrn as fixing the molecular polarity of the body, which facts show to be a negative preponderant; yet equilibration is sometimes a necessary process and must in each case be first effected. The word Electropoise will express both, while the old name can express but one, and it will at the same time have the advantages of being shorter and of adding diversity and contradistinction to our nomenclature. Consult directors with you and I will see those here. Hoping this will overtake you I remain,

Yours respectfully, H. SANCHE.

P. S.—If you indorse, it will also be necessary to instruct the manufacturer to stamp accordingly. If a still greater improvement can be had on the name, I would be happy to accept it.

H. S.

Thereupon the instruments were afterward marked with and known by the name "Electropoise." On the 10th day of June, 1889, Sanche wrote a letter to Webb, president of the corporation, parts of which are as follows:

ROOM 221, WAYNE HOTEL, DETROIT, MICH.,
Monday, 6 P. M., June 10th, 1889.

J. N. WEBB, Esq.,
610 *E street, N. W., Washington, D. C.:*

DEAR FRIEND: I wrote you last night all I could find time to. Having ventured to go ahead, victory lies in undaunted and vigorous action, without repentance or looking back. * * * Several of the rich here want their houses furnished with electropoise, branching in every sleeping room. * * * I will also supply the houses mentioned at $100 for Poise, with Twigs at $20 to $30 each per annum. Also a refrigerating polarizer for high city buildings as before mentioned which is already on the way; and a portable Poise for Drs. which they will demand faster than we can furnish them. * * * We must take every step to secure everything the best we can, leaving no gap open for opposition. Therefore have Trade-Mark registered, and every new design and print copyrighted as it is produced. If it cannot be done in our corporate name, have it done in my name, and send me assignments to sign. * * *

It thus appears that at one time the Electrolibration Company enjoyed the exclusive possession of the word "Electropoise" as a Trade-Mark for instruments and appliances for the cure of disease, and that it enjoyed this possession with the assent and co-operation of Sanche. Upon such a state of facts the burden of proof is upon Sanche to divest the company of the right. He contends that before the company was formed he furnished to his patients some seven instruments, and that in thus furnishing some of these seven he wrapped them up in paper and wrote thereupon the word "Electropoise," not, however, upon all of the seven. Sanche and Doremus both testify that by verbal arrangement Sanche, in co-operating in the organization of the corporation, reserved as his personal property such Trade-Marks and Labels as might be used upon the instruments sold by the company.

There are certain things to be said in answer to these contentions: first, that Sanche's letter of December 28, 1887, speaks of the word "Electropoise" as a result-suggestion and makes no mention of any previous use thereof; second, that Sanche's letter of June 10, 1889, recognizes the company's ownership of Trade-Marks and in that connection specifies "assignments" and not licenses; third, that it would not be in accordance with ordinary human action for the company to establish and develop a Trade-Mark with the knowledge that Sanche might take it to himself at his will; fourth, that the reservation of certain rights to Sanche in the trustee's deed of October 6, 1887, excludes by inference the alleged reservation as to Trade-Marks, and, fifth, Webb, the president of the company, denies the existence of such reservation.

In view of these considerations the testimony of Sanche and Doremus does not suffice to establish the existence of the reservation as to Trade-Marks or to divest the company of the exclusive possession of the Trade-Mark.

It is contended by Sanche that the case of *Kidd* v. *Johnson* (100 U. S., 617) is determinative of Sanche's right here. In that case the Supreme Court says this:

It is admitted that Pike was the owner of the Trade-Mark when he took two of his clerks into partnership and formed the firm of S. N. Pike & Co. He did not place his interest in the Trade-Mark in the concern as a part of its capital stock. He allowed the use of it on packages containing the whisky manufactured by them; but it no more became partnership property from that fact than did the reality itself, which he also owned, and on which their business was conducted. He was engaged in the same business before the partnership as afterward, and taking his clerks into partnership changed in no respect, beyond its terms, their relation to his individual property. Their subsequent conduct, moreover, plainly showed that they claimed no interest in the Trade-Mark. They knew of his conveyance of its uses to Mills, Johnson & Co., on the 1st of October, 1868, when they removed their own business to New York, and made no objection to the transfer. Their subsequent correspondence discloses beyond question their knowledge of the transfer and recognition of his power to make it. That transfer was plainly designed to confer whatever right Pike possessed.

And this:

The claim of Kidd to the Trade-Mark as survivor of the partners in the firm of S. N. Pike & Co. is without any merit. Pike, in his life-time, repudiated any ownership in the Trade-Mark after his sale, and Kidd knew that fact, and never even pretended that the firm had any such right until after Pike's death.

The finding of the Supreme Court is practically to the effect that the partnership in question simply enjoyed a license from Pike to use the Trade-Mark while the partnership existed.

And, again, in that case Pike, as a member of the partnership, continued to use the Trade-Mark regularly and continuously, which is not the fact here. Grant that Sanche used the word "Electropoise" in the limited way claimed by him before the Electrolibration Company was formed, he ceased to use it personally while he was friendly to that corporation, and that corporation used it exclusively with his assent. There are broad distinctions between corporations and partnerships. A mere stockholder in a corporation can, as a rule, do nothing in its name and behalf that a stranger cannot do, while a member of a partnership can, as a rule, do anything that the entire partnership can do. That which is true of a partnership as to ownership and devolution of Trade-Mark property is not necessarily true of a corporation. And, as has already been remarked, the finding of the Supreme Court is practically to the effect that the partnership enjoyed a license from Pike to use his Trade-Mark while that partnership was in existence, and that finding is based not only upon what occurred during the existence of the partnership, but on subsequent acquiescence in Pike's doings after the partnership was terminated by those who had been Pike's partners.

The decision of the Examiner of Interferences awarding right to the Electrolibration Company is affirmed.

EX PARTE WEEDEN.

Decided June 18, 1892.

PRACTICE—INTERFERENCE.

Where an applicant appealed from the refusal of an Examiner to inform him of the subject-matter of the issue in a proposed interference in order that he might amend so as to include the issue in his claims, *Held* that it is not the practice of the Office to suggest claims to an applicant in order to create possible interferences.

ON petition.

HIGH-PRESSURE BALL-COCK.

Application of Henry C. Weeden filed June 26, 1890, No. 356,888.

Mr. Alexander P. Browne for the applicant.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition taken from the action of the Examiner amounting in substance to a refusal to inform the applicant of the subject-matter of the issue in a proposed interference, in order that he might amend so as to include it in his claims.

The petitioner requests that the Examiner be instructed to withdraw the other case from issue and that applicant be furnished with such information as will enable him to put his case into condition for an interference with it.

In the case of *McNeil* v. *Borton and Wilcox* (50 MS. Dec., 178) the converse of the present case arose In that case an appeal was taken from the action of the Examiner denying a motion brought on behalf of Borton and Wilcox to dismiss a motion to dissolve brought by McNeil, the principal object in taking the appeal having been to bring to the attention of the Commissioner the action of the Examiner in communicating to McNeil a certain claim that had been held allowable in Borton and Wilcox's application, and which might be made in McNeil's application.

The following language, found in said decision upon this point, is decisive of the present petition:

The only question now remaining for consideration is whether or not as a matter of practice the action of the Examiner was regular in suggesting the claim to McNeil, as above stated It is not the present practice of the Office to suggest claims to applicants in order to create an interference between the application of one person and that of another.

It is stated by the Examiner that he had the right and it was his duty to communicate the claim to McNeil in order that he might secure a patent for whatever patentable subject-matter was embraced in his application, and he relies upon the case of *ex parte Donovan* (44 O. G., 607) to sustain this position.

While it is undoubtedly true that it is the duty of the Office to place itself in the attitude of a friend, and not that of a litigant with the applicant, and while this doctrine is one that ought to be followed in cases similar to that of *ex parte Donovan*, *supra*, yet there is no such practice of the Office as warrants the extension of the doctrine for the purpose of creating interferences.

In the present case it need only be added that after the patent issues on the other application an interference may probably be instituted between the patent and the present application, provided a proper claim is made.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of Ohio, Western Division.

STILWELL & BIERCE MANUFACTURING COMPANY *v.* S. N. BROWN & Co.

Decided March 12, 1892.

1. PATENT—INFRINGEMENT—FEED-WATER HEATERS AND PURIFIERS.

Letters Patent No. 274,048, to Edwin R. Stilwell, dated March 18, 1883, for a feed-water heater and purifier, sustained and *Held* infringed by purifiers made under Letters Patent No. 318,112 to John J. Hoppes, dated May 19, 1885.

2. FACTS RATHER THAN THEORIES CONTROL IN THE CONSTRUCTION OF PATENTS.

In an action for infringing a patent demonstrable facts are the decisive factor in determining the actual bearing upon each other of the patents under consideration, and a defense which rests upon a mere theory as to the philosophy of operation of the complainant's device will not be considered by the court when this theory is negatived by the history of the art and by the practical working of the device in question.

ON feed-water heater and purifier patent.

Messrs. Wood & Boyd for the complainant.

Messrs. Staley & Shepherd for the defendants.

STATEMENT OF THE CASE.

This suit is brought to restrain the infringement of Letters Patent No. 274,048, granted March 18, 1883, to Edwin R. Stilwell, for feed-water heater and purifier, and by him assigned to the complainant company.

The patent relates to what is called a "live-steam purifier."

The object of the invention is to heat and purify the feed-water in a vessel separate from the boiler and so connected to it by pipes that live steam will enter the purifier from the boiler and heat the feed-water, removing its impurities and passing it into the boilers in a pure state.

The patent contains two claims, as follows:

1. A live steam feed-water purifying or heating apparatus D, connected to the boiler by means of water-pipe K, steam-feed pipes L, and gas escape pipe M, substantially as herein set forth.

2. A live steam heater or feed water purifier having a series of pans vertically above the filter, and a space or chamber above the pans, and water-inlet connected to the steam-dome by a pipe, so as to discharge the gases from the top of the purifier directly into the boiler, substantially as herein set forth.

The bill also charges the infringement of Letters Patent No. 434,324, granted August 12, 1890, to Ralph B. Day, for live-steam purifier, and assigned by him to the complainant; but this charge has been withdrawn and the bill as to this patent dismissed.

The patentee of No. 274,048 sets forth in the specification that the principal feature of this invention (which consists in connecting by a pipe the top of the heater with the steam-dome of the boiler and with the steam-space of the boiler) can be employed with a combined heater and purifier or with either a heater or purifier. This connection is by means of what is termed in the claim "gas-escape pipe M," passing from near the top of the purifier into the steam-dome of the boiler. The object of this pipe is to allow the direct escape of gases generated in the heater. The shell of the heater, which is circular, is constructed of boiler-iron adapted to resist the same pressure as the boiler. It is placed vertically at the side of the boiler and contains in its upper part a series of shelves or pans, over which the cold water, admitted at the top through a pipe, passes in the operation of heating and purification. The water is first admitted into an overflow-pan. This pan is placed opposite the upper steam-pipe L', which is supplied by live steam direct from the boiler, so that a current of steam will strike against the water as it passes from the overflow-pan onto the series of shelves or pans immediately below. At or

near the bottom of the series of shelves or pans a branch steam-pipe L from the boiler admits steam, which passes up over the pans as the water passes down. By employing steam-pipes from two to four inches in diameter the water in the purifier is kept at or near the same temperature as that in the boiler, and the space above the overflow-pan forms, in fact, a part of the steam-dome of the boiler. As a consequence, the inventor states, deleterious gases escaping from the water as it is being freed from impurities rise into that space and pass through the gas-escape pipe into the steam-dome of the boiler without passing through the boiler itself.

The inventor sets forth that another very important result is that by thus highly heating the water in the purifier a much more perfect purification is obtained than in purifiers which do not, in fact, form a part of the boiler by employing live-steam-pipe connections to heat and purify the feed-water. In the complainant's purifier the water, having been heated in passing over a series of shelves or pans, where the mineral impurities are mostly removed, is passed down through a passage on one side of the filter-chamber into a mud-well. This chamber and the mud-well, with a filtering-chamber, constitute the lower portion of the purifier, where the heavier substances settle and may be blown off from time to time through a pipe at the bottom of the purifier. The water passes from the mud-well into the filtering-chamber, thence up through any suitable filtering medium and through pipe K into the mud-drum, located immediately below the boiler, or pipe K may connect with the boiler direct.

The defendants' purifier was manufactured by the Hoppes Manufacturing Company, of Springfield, Ohio, which manufactures and sells the Hoppes feed-water heater and purifier under Letters Patent No. 318,112, granted May 19, 1885, to John J. Hoppes, of Springfield, Ohio. The defendants' purifier, as made and sent out by the manufacturers, was provided with but one flange for steam connection and the usual openings for the other pipe connections. The defendants' purifier was first connected up by a single pipe to the boiler-drum. Afterward two pipes were put in near one end of the purifier, and these not accomplishing the desired result, as there was no deposit on the rear end of the purifier, the defendant made a second pipe connection from the rear end of the purifier to the steam-pipe, and in this instance the steam-pipe ran the feed-pump. The purifier itself is placed longitudinally instead of vertically. It is a metallic cylinder constructed of boiler-iron and provided at each end with suitable covers or heads, which are removable. Extending longitudinally through the cylinder is a series of troughs arranged one above another and closed at each end by suitable end pieces, which extend above the side of the trough, each being provided at either side with a projection adapted to rest on supporting rods or ways, which extend longitudinally along each side of the interior of the cylinder and are secured to supporting-brackets, which are in turn secured to the cylinder. The troughs are adapted to slide on these rods or ways, and when one or both the heads of the cylinder are removed may be readily withdrawn from or slipped into the cylinder. Immediately above the upper trough is a perforated supply-pipe provided with a perforated bottom and extending longitudinally within the cylinder and near its top almost the entire length of the upper trough. This pipe is connected by a suitable inlet-pipe to the pump or other source of water-supply. Immediately under the lower trough is a removable horizontal plate, the edges of which are turned up, so as to form flanges, which rest on the lower curve of the cylinder, said plate thus forming, with the bottom of the cylinder, a compartment which closes at each end by vertical perforated plates. The removable horizontal plate is extended at its rear end beyond the troughs and is provided with a head or flange projecting upward beyond the bottom of the lower trough, the flange being considerably shorter than the trough. Its forward end does not extend out to the end of the troughs, but rests on the perforated vertical plate, thus forming a pocket or chamber in the forward part of the bottom of the cylinder. The vertical perforated plate which closes the rear end of the compartment in which the filtering material is placed extends back some distance, so as to form a chamber to the rear of the filtering-chamber and under the plate. From this chamber leads the water-exit pipe, which extends downward and out from some distance above the bottom of the chamber. When this heater is used as a live-steam heater, a connection from the steam-reservoir of the boiler is established by a pipe which leads into the top of the cylinder of the heater, the exit-pipe above described being connected to the water-inlet of the boiler. There is also a blow-off or discharge pipe which leads from the chamber above described, which is in front of the filtering-compartment. The plates above described are made removable for the purpose of removing or replacing the filtering substance and that they may be easily cleaned. When used as a live-steam heater, the bottom of the casing or cylinder is so placed as to be above the water-line of the boiler.

The operation is as follows: The water is pumped or otherwise forced into the supply-pipe and falls into the top trough. When that trough is filled, the water falls over the sides thereof and, following the outer surface of the bottom, which is curved, flows in a uniform sheet thereunder until it reaches the center, when it drops into the trough below, and so on through each successive trough until it falls on the horizontal plate and flows along the same into chamber C below. From that chamber it passes through the filtering-chamber into the exit-chamber, and thence through the exit-pipe into the boiler. As the water passes through the troughs it is brought into direct contact with the steam and becomes thoroughly heated. As each trough remains filled with water, the sediment or impurities fall to the bottom and are retained. The water, flowing in a uniform sheet under the bottom of the troughs and subjected to the direct action of the steam, parts with the lime or other incrustating substances which it contains, and these are deposited on the under side of the troughs. There are some other details of construction to which it is not necessary to refer. It is obvious from this description that the change from the vertical position of the purifier to the longitudinal is not material, and it is conceded that the purifier as it came from the manufacturer and as it was first set up for use by the defendants was not an infringement of the complainant's.

SAGE, *J.*, (after stating the case as above:)

It is conceded that the only real difference between the complainant's purifier and that patented to Edwin R. Stilwell July 23, 1867, No. 66,098, is by the addition of the gas-escape pipe M, as shown in the complainant's purifier. The purifier patented July 23, 1867, had but one pipe connecting with the boiler and supplying steam and one pipe connecting the water-well of the purifier to the boiler for supplying the boiler. That purifier was designed to do its work, so it is stated in the specification, by the action of live steam direct from the boiler. Prior to that is shown Patent No. 41,374, January 26, 1864, to A. M. Granger, wherein the steam-supply pipe connects with the main steam-pipe which supplied the engine, or, it is stated, may be connected to receive steam directly from the boiler.

On September 18, 1866, Patent No. 58,099 was issued to Hasecoster and Stephens, for a feed-water heater with an inlet and outlet steam-pipe corresponding to steam-pipes L′ and L″ in complainant's purifier. Steam was introduced into that heater from the exhaust-pipe of the engine through the lower steam-

pipe, and the upper pipe was provided for its escape at or near the upper end of the vertical sheet-iron cylinder or shell of the heater, which was intended to be also a purifier.

Patent No. 169,302, to Tellier, November 2, 1875, for water filter and purifier, shows at the top of the cover a gas-escape pipe provided with an automatic valve—a common instance of the use of valves or pipes to permit the escape of air or gas, in order that the live steam may enter, as in steam-radiators for heating purposes.

In Hayes, Jeffery, and Schlack's heater and purifier (Patent No. 226,068, March 30, 1880) the feed-water enters at the top of the dome of a steam-boiler and passes down through filtering material, and thence directly to the boiler. Two tubes, each two inches or more in diameter and extending from the boiler into the upper part of the dome, constitute the passage-way for live steam to heat the water and assist in the purification.

French's purifier, patented December 6, 1881, No. 250,519, upon an application filed August 23, 1880, has an outer drum or jacket surrounding the purifier and supplied with live steam from the boiler above the water-line, the object being to keep the inner drum, which is the purifier, hot. The bottom of this outer drum is connected by a pipe with the boiler, so that the steam which by condensation in the space between the two drums becomes water will run into the boiler by gravity. French subsequently made an improvement on this purifier, for which he obtained Patent No. 250,520, applied for September 5, 1881, and granted December 6, 1881. This improvement shows a pump in the dome of the boiler, which by pipe connection forces steam from the boiler through the purifier also, and this is suggested as an alternative device—a pump for exhausting the steam through the connecting-pipe from the purifier to the boiler. For this last pump, it is stated in the specification, an injector or siphon may be substituted. By changing the connection the operation of the first pump may be reversed—that is to say, it will exhaust the steam through the apparatus instead of forcing it into the apparatus, either way causing the desired circulation.

The above are the anticipating devices offered on behalf of the defendant. Without entering upon a detailed examination of them, it will be sufficient to say that if the earlier patent to Stilwell (No. 66,098, July 23, 1867) does not anticipate the complainant's patent none of the others do. The radical difference between that and the complainant's purifier is that the complainant's is provided with the gas-escape pipe M. The supply-pipes being of large capacity, the temperature of the water in the purifier and in the boiler is nearly the same. As a consequence deleterious gases and air are set free. These rise to the top of the purifier, where but for the escape-pipe M they would accumulate and prevent the contact of the steam with the cold water as it is introduced into the heater and retard the condensation of the steam, and thereby the heating of the water to be purified. The escape-pipe M, connecting the purifier with the dome of the boiler, causes a constant discharge of the gas and also a free and constant circulation, greatly facilitating the heating of the water in the purifier and increasing the deposit of impurities. This very desirable result had not been so well accomplished by any one of the previous devices. There is a conflict of views and theories, as it is disclosed by the testimony, with reference as to how and why the result is accomplished. I shall not stop to consider them.

I do not care to go into the discussion of the philosophy of the operation of the complainant's device. It is urged on behalf of the defendants that the escape-pipe is not necessary for the production of the desired result of circulation, and that the steam-pipe connecting with the boiler will, if made large enough, accomplish the same result by passing the steam in through the under part of the pipe and the gases out through the upper part of the pipe. That may be true, and that method was and is free to the defendants. If it would effect the purpose, they were and are at liberty to use it. The difficulty with theories is that they can be used to support either side of the case, and that is peculiarly true of this case. But what we have to deal with is facts, and, whatever may be said in support of this or that or the other theory, the record shows that the complainant's device is the result of a long-continued course of experiments, and that, in fact, it has proven to be more effective than any which preceded it. Even the defendants' record establishes that the escape-pipe which was attached to their purifier and connected it with the steam-pipe was applied because without it the operation of their purifier was not satisfactory and that it remedied the defects. It is contended for the defendants that the defect resulted from the faulty construction of the boiler and was not in the purifier or its connection; but the fact remains that the only thing that was found that would remedy it was the escape-pipe, and that did completely remedy it, and did at the same time conclusively prove the practical utility and value of the complainant's device. The testimony for the complainant proves that its purifier does its work successfully and keeps the boilers in good condition. The evidence satisfactorily establishes not only its utility, but its superiority. That it is novel is, I think, equally clear, and I am satisfied that it is an invention. Perhaps it might also be termed a "discovery," because it was the result of experiments which finally led to the construction that was patented. That the defendants infringed is, I think, also clear. It is true that the escape-pipe of its purifier is connected to the steam-pipe which supplied the steam to run the feed-pump and is not connected to the dome of the boiler; but the variation is not material and does not make the defendant any less an infringer.

The decree will be for the complainant for an injunction and account, with costs.

U. S. Circuit Court of Appeals—Second Circuit.

DEDERICK *v.* SEIGMUND.

Decided July 20, 1892.

1. PATENT-INFRINGEMENT—BALING-PRESSES.

The second claim of the Gehrt patent, No. 232,400, September 21, 1880, for improvement in baling-presses, covers, broadly, the application of a friction-brake to retard the backward movement of the plunger of the press. *Held* that the claim must be limited to the means shown and described in the patent—to wit, a set-screw for adjusting one side of the baling-chamber—and is not infringed by an eccentric upon the top of the press and upright rods which are connected to the eccentric and which bear against small hinged brakes.

2. GENERIC INVENTIONS.

A patent for a primary invention will not receive a liberal or broad construction where the invention is of a very low order.

3. SAME.

It is true that when the invention is of a primary character a larger latitude is given to the equivalents which the patent includes than if the invention was a modification of a well-explored art; but this doctrine cannot be applied to primary invention of low order.

4. PIONEER INVENTORS.

The patentee conceived the idea of gradually stopping the backward movement of the plunger in a rebound baling-press by applying a friction-brake. *Held* that as friction-brakes are very old it was a low order of invention to apply such a brake to a baling-press, and a patent which with difficulty maintains its right to patentability must receive a narrow construction.

APPEAL from the Circuit Court of the United States for the Northern District of New York.

Mr. Melville Church for the complainant.

Mr. George H. Knight for the defendant.

SHIPMAN, *J.*:

This is an appeal from the decree of the Circuit Court for the Northern District of New York, which dismissed the complainant's bill in equity, founded upon the alleged infringement of Letters Patent No. 232,400, dated September 21, 1880, to Albert A. Gehrt, for an improvement in presses for baling hay.

The portion of the patented improvement which is involved in the record of the case consists in the means which the patentee provided for resisting the backward movement of the traverser, so as to prevent a shock to the frame or other part of the machinery. The description of this portion of the invention which the patentee gave in his specification is as follows:

In presses of this class the traverser is reversed by the reaction or back expansion of the pressed material, and ordinarily with such force as to cause a severe shock to the frame and power connections. To remedy this defect I apply more or less friction to the traverser during its backward movement, and thus stop its motion gradually.

Various instrumentalities may be employed in carrying out this idea; but I prefer to adjust the lining or planking E by means of an adjusting screw or screws, S, so as to cause it to bear upon the top of the upper rear extension of the traverser, as shown in Fig. 1. By operating the screw the lining or planking can be made to bear more or less tightly, as will be readily understood. The lining or planking may be made permanently contracted, if desired, and the same result be produced.

The second and third claims relate to this portion of the device and are as follows:

2 In a baling-press in which the traverser is reversed in whole or in part by the reaction or back expansion of the pressed material, a friction plate or pressure contrivance for applying friction to the traverser to retard its backward movement and prevent shock, substantially as described.

3. The combination, with the traverser having the rearward extension, of the lining or planking and the set-screw for adjusting the same, substantially as described, for the purpose specified.

The second claim is the only one which is alleged to have been infringed.

The idea which the patentee wished to embody in wood and iron was the gradual stoppage of the motion of the traverser during its backward movement by means of the application of friction. The instrumentalities which he selected were, first, a brake, which consisted of a portion of the top planking of the press-box, made adjustable by means of a set-screw, so as to cause the planking to bear upon the top of the rear extension of the traverser during its backward movement. This combination is described and claimed in the third claim. The second instrumentality was the combination, with the traverser, of the press-planking made permanently contracted or narrowed, so that the same kind and amount of friction shall always be brought to bear upon the traverser.

The second claim can properly be construed to include, in a baling-press of the rebounding-traverser type, the described pressure contrivance consisting of the adjustable planking of the press-box or the permanently-contracted planking.

In the defendant's device an eccentric upon the top of the press regulates rods extending from the eccentric to upright rods on the sides of the press, which bear upon the ends of small brakes, which are hinged to the end of each side of the press.

Inasmuch as in this device friction is not applied by the use of the planking of the press-box as a brake, but by a contrivance of eccentric and rods, which rods bear upon brakes which are hinged to the sides of the press, the defendant does not infringe the second claim unless it should be considered so broad as to include a friction-plate or pressure contrivance, for the purpose named, in a baling-press of the described type, in which a part of the planking is not used as the instrumentality by which friction is applied. It is virtually claimed that any adjustable or non-adjustable pressure contrivance for applying friction to the traverser to retard its backward movement and prevent shock is an equivalent of the means specified in the patent. The complainant bases his contention that the claim should have a broad construction upon the fact that the patentee was a pioneer inventor of this part of a baling-press.

It is true that when the invention is of a primary character a larger latitude is given to the equivalents which the patent includes than if the invention was a modification of a well-explored art. In the former case devices which operate upon the same principle and perform the same functions by analogous means are held to be infringements, (*McCormick* v. *Talcott*, 20 How., 402,) and it is also true that when mechanical means are for the first time invented which enable a law of science or a force of nature to be used so as to accomplish a practical and beneficial result, such as the Bell telephone, or when an inventor invents mechanical means for carrying into effect a newly-discovered and useful principle of operation, like the double carbon of Brush, the inventor's properly-drawn patent will include a very wide scope of analogous mechanical means which accomplish the same result. But this invention, though it may be called a primary one, is not of the character to which any such latitude can be given.

The patentee sought to check the backward motion of the traverser. It naturally occurred to him that it could be done by applying some sort of a brake which would slowly and gradually arrest motion. A brake is an old and familiar mechanical appliance and is often applied in a very simple way. The patentee applied it with like simplicity by causing the top press-planking to be inwardly adjustable, so as to impinge upon the traverser and gradually check its motion. He also suggested the primitive idea of permanently narrowing the planking. The patentability of either of these devices is of a very low order. Having made this improvement, he broadly claims in his patent any friction-plate or pressure contrivance, and desires to include all the more elaborate and ingenious methods of constructing a brake which may be introduced. Such a construction is inadmissible, because a patented invention of this character, which with difficulty maintains its right to patentability, belongs to a different class from the one to which the doctrine in *McCormick* v. *Talcott*, *supra*, and kindred cases applies, and is to receive a narrow construction.

The decree of the circuit court is affirmed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

World's Columbian Exposition—Protection of Foreign Exhibitors.

DEPARTMENT OF STATE,
Washington, D. C., July 30, 1892.

To the Diplomatic and Consular Officers of the United States:

GENTLEMEN: I subjoin a transcript of the act of Congress approved April 6, 1892, Public No. 29, entitled "An act to protect foreign exhibitors from prosecution for exhibiting wares protected by American patents and trade-marks," which reads as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That no citizen of any other country shall be held liable for the infringement of any patent granted by the United States, or of any trade-mark or label registered in the United States, where the act complained of is or shall be performed in connection with the exhibition of any article or thing at the World's Columbian Exposition at Chicago.

You will transmit copies of this circular to the government of the country to which you are accredited, and ask that it be given the widest possible circulation for the information of those directly concerned.

I am, gentlemen, your obedient servant,

JOHN W. FOSTER,
Secretary of State.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 4, 1892.

Official copy to the Commissioner of Patents for his information and guidance.

E. M. DAWSON,
Chief Clerk.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

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Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

INDEX TO FRENCH PATENTS, 1791 to 1879, inclusive, (subject-matter,) one volume, 935 pages, bound in cloth $10 00

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Bound half-turkey	2 50
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Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of August 30, 1892.

Patents	379—No. 481,542 to No. 481,920, inclusive.
Designs	28—No. 21,802 to No. 21,829, inclusive.
Trade-Marks	24—No. 21,692 to No. 21,715, inclusive.
Labels	None.
Reissue	1—No. 11,266.
Total issue	432

TO CITIZENS OF THE UNITED STATES.

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Alabama			Nevada		
Arizona Territory	1		New Hampshire	1	
Arkansas			New Jersey	21	2
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Maine	4		Washington	1	
Maryland	4		West Virginia		
Massachusetts	36	4	Wisconsin	5	
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Minnesota	7		U. S. Army	1	
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Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
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Belgium			Newfoundland		
Bermuda			New South Wales		
Brazil			New Zealand		
Canada	5	1	Norway		
Cape Colony			Queensland		
Chile, Republic of			Russia	1	
Cuba			Scotland	1	
Ecuador			South Australia		
England	10	2	Spain		
France	3		Sweden	1	
Germany	6		Switzerland		
Hawaii	1		Victoria		
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Italy			Total to citizens of foreign countries	28	3
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APPLICATIONS UNDER EXAMINATION.

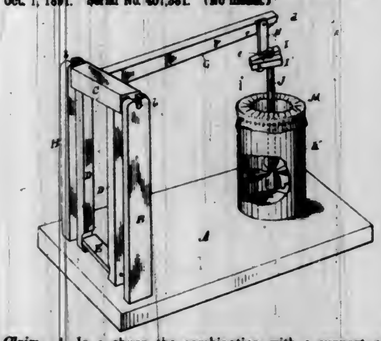
Condition at Close of Business August 23, 1892.

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31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	June 29	Aug. 18	61
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25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	May 26	Aug. 9	256
23	Instruments of Precision, Acoustics, Optics, etc.	May 26	Aug. 3	297
17	Paper-Manufactures and Printing.	May 28	July 27	222
2	Farm Stock, Products, etc	June 1	July 26	308
24	Sewing-Machines and Apparel	May 23	July 23	121
12	Mechanical Engineering, Stores-Service, etc.	June 13	July 22	200
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 7	July 20	233
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	June 3	July 15	196
5	Fine Arts, Stationery, Book-Binding, Music, etc.	June 7	July 11	216
18	Steam-Engineering, etc	June 6	July 9	211
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	June 2	July 2	275
	Between three and four months in arrears.			
32	Advertising, Baggage, Packing and Storing Vessels, etc.	May 19	Aug. 6	315
10	Carriages and Wagons and Railway-Cars.	May 11	July 25	533
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	May 10	July 23	222
22	Fire-Arms, Navigation, Signals, etc.	May 18	July 22	235
9	Hydraulics, Fire-Extinguishers, etc.	May 13	July 15	384
19	Stoves and Furnaces	Apr. 26	July 7	414
4	Civil Engineering, etc.	May 2	July 1	426
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Apr. 25	June 30	336
1	Tillage and Fences	May 2	June 23	257
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Apr. 18	July 29	455
7	Harvesters, Games and Toys	Apr. 4	July 27	522
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 12	June 18	481
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Mar. 9	Aug. 16	396
26	Electricity, Generation, Distribution, etc.	Mar. 3	July 18	405
	Total number of applications awaiting action			9,134
	Under one month in arrears.			
	Designs	Aug. 12	Aug. 12	31
	Trade-Marks	Aug. 20	Aug. 12	27

PATENTS

GRANTED AUGUST 30, 1892.

481,542. CHURN. GEORGE S. AGEE, Willow Springs, Mo. Filed Oct. 1, 1891. Serial No. 407,381. (No model.)

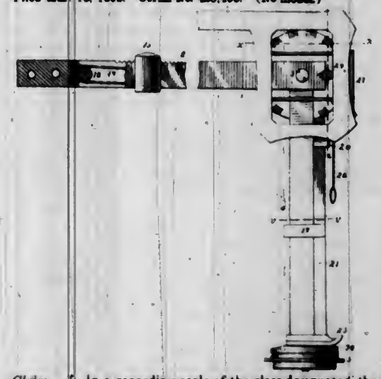


Claim.—1. In a churn, the combination, with a support, of an angular rocking frame pivoted at its angle to said support, a foot-treadle at the lower end of the vertical member of said rocking frame, and a dasher-shaft clamp on the outer end of the horizontal member, substantially as set forth.

2. In a churn, the combination, with the parallel uprights, of an angular frame pivoted at its angle between said supports, a dasher-shaft clamp suspended by a link H from the outer end of the horizontal member of said frame, the vertical member of the rocking frame being formed of parallel bars provided with a treadle or foot-piece between their lower ends, substantially as set forth.

3. A churn comprising the base A, vertical uprights B B, the angular rocking frame pivoted at its angle in the upper ends of said uprights, with its horizontal arm G overhanging the base and provided with a depending pivoted link carrying at its lower end the clamping-jaws I I', the vertical member of the rocking frame being formed of two parallel bars having a foot-piece pivoted between their lower ends, and a churn-body having a dasher provided with a shaft held between said clamping-jaws, substantially as set forth.

481,543. RECORDING-BALANCE. CLARENCE F. AMES, Akron, Ohio. Filed Mar. 18, 1892. Serial No. 425,408. (No model.)



Claim.—1. In a recording-scale of the class designated, the bifurcated scale-beam and the pendant pivotally connected with its free end and the two type-disks loosely mounted on a pivot in said free end, one having a toothed hub and a single lateral and the other having a series of lateral teeth, and a spur-wheel interposed between said type-disks arranged to be engaged by the single tooth of one disk at each revolution thereof and cause a partial revolution of the opposite disk, combined with an endless chain running on the hub of said single-toothed disk and a pulley at the opposite end of the scale-beam and attached to and arranged to move with a sliding weight on said beam, substantially as shown and described.

2. In a scale of the class designated, the combination, with the bifurcated scale-beam and the sliding weight, of the two parallel disks bearing radial type, one whereof has a toothed hub, and the intermediate spur-wheel, and the endless chain running on said hub, and a pulley at the opposite end of said beam and attached to and moved by said weight to cause revolutions of one disk and through said spur-wheel a partial revolution of the other and the rocking platen to force a paper against the type of said disks, substantially as shown and described.

3. In a scale of the class designated, the scale-beam bearing at its free end a pendant having a disk at its lower end and a disk bearing radial type and having a toothed hub loosely mounted on a pivot in the free end of said beam, combined with a bar arranged to slide lengthwise of said pendant, having a rack arranged to mesh in said toothed hub, and a shoe adjacent to the disk of said pendant, arranged to be raised by the interposition of weights between said shoe and disk, and cause a partial rotation of the type-bearing disk as each weight is interposed, substantially as shown and described.

4. The combination, with the scale-beam 2 and pendant 4, of the disks 10 11 12, each having the radial type, the first and last having toothed hubs, and the spur-wheel 14, arranged to engage lateral teeth in the disks 11 and 12, and the chain 17, roller 18, weight 15, attached to said chain, and the sliding bar 21, having the rack 22, meshing in the toothed hub of the disk 10 and arranged to be raised by the interposition of a weight beneath its lower end, all constructed and arranged substantially as shown and described, and for the purpose specified.

5. In a scale of the class designated, the scale-beam bearing at its free end a series of type-disks arranged to present radial type to indicate the load on the scale, combined with an ink-ribbon mounted on rollers opposite said disks, and a platen arranged to be rocked and force said ribbon against said type and to bear a paper to secure the impression therefrom, substantially as shown and described.

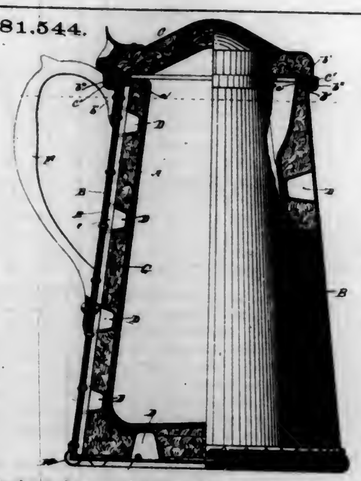
6. In a scale of the class designated, the scale-beam bearing at its free end a series of type-disks arranged to present figures to indicate the load on the scale and a device, as an ink-ribbon, to ink said figures, combined with a platen pivotally mounted in the beam-frame, arranged to bear a paper and to be rocked against said type-disks, and a projection connected with said platen and arranged to enter a recess or notch in the end of said scale-beam to retain it from movement during the contact of the platen and type-disks, substantially as shown and described.

481,544. ICE-PITCHER. RAWDON ARNOLD, Sacramento, Cal. Filed Sept. 4, 1891. Serial No. 404,755. (No model.)

Claim.—1. The combination, with an inner shell of porcelain or analogous material and an outer shell of papier-maché, to which the inner shell is flanged at the top, of a continuous space between said shells at sides and bottom, non-conducting projections or lugs on the outer shell, extending to the inner shell across the space at bottom and sides, and a packing of mineral wool filling the continuous space between the shells, as set forth.

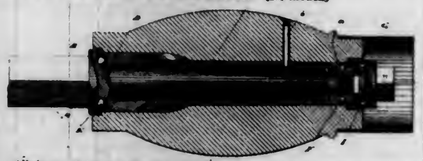
2. The combination of an interior shell or case, A, having an outwardly-projecting horizontal flange *a* at the top, with an outer shell B, having an inwardly-projecting horizontal double flange at the top, between the parts of which the flange *a* is held, and provided with a trough *b*° around its top, and a lid or cover hinged to the outward

481,544.



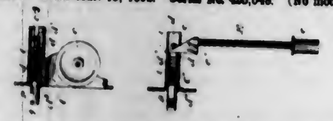
shell having a downward-projecting lip or edge C, fitting into the trough b^6, as set forth.

481,545. AXLE-BEARING. SAMUEL S. ARNOLD, Toronto, Canada. Filed Nov. 23, 1891. Serial No. 412,821. (No model.)



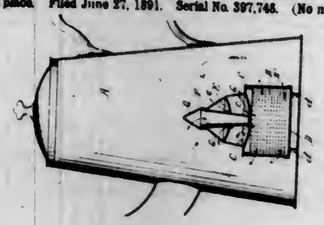
Claim.—A journal-box having its end cut, a nut screwed onto the axle of the said journal-box and cut to form with the cupped end of the journal-box an annular recess for the reception of hard balls by which the end of the journal-box is supported, a washer fitting onto the screwed end of the axle, so that it cannot revolve thereon, and a nut or cap designed to jam the washer against the inner cupped nut, substantially as and for the purpose specified.

481,546. SASH-FASTENER. CHARLES O. BIRNEY, Kansas City, Mo., assignor of nine-sixteenths to John Birney and Frank M. Bressler, same place. Filed Mar. 15, 1892. Serial No. 426,048. (No model.)



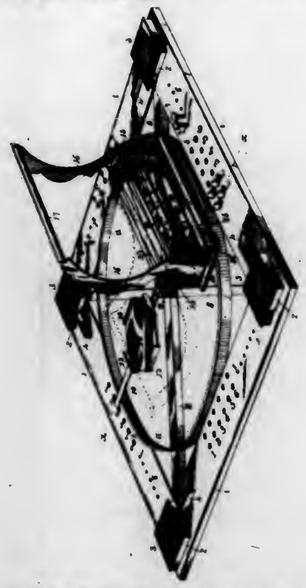
Claim.—In combination with a sash lock and fastener, the locking-bolt D, the slot D^x, the metallic locking-plate G, the coil-spring d^x, the casing C, the slot c', connected with the pulley c, the operating-key E, its beveled end e', its operating end e, secured in the keeper H by a flange, and the removable keeper H and its corresponding plate securely bolted or screwed to the jamb, substantially as set forth.

481,547. SEDIMENT-GATHERER FOR COFFEE-POTS, &c. JOSEPH C. W. BOICK, Bates City, Mo., assignor of one-third to William W. Bailey, same place. Filed June 27, 1891. Serial No. 397,746. (No model.)



Claim.—In combination with a perforated and cloth-covered cylinder, the concave open cover C, the supplemental concave cover E, funnel F, and the handle G G G, substantially as set forth.

481,548. GAME APPARATUS. JULIUS W. BOCK, Greenville, Pa., assignor of one-half to William R. Field, same place. Filed Apr. 14, 1892. Serial No. 429,118. (No model.)



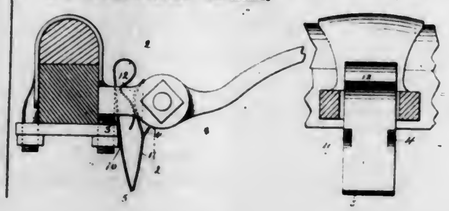
Claim.—1. In a game apparatus, the combination of a frame with openings therein and a horizontally-arranged rotatable carriage mounted in said frame, having a lamp-rest at one end thereof, a counting-board with openings therein at the other end of the same, and playing-pieces adapted to be used in connection with said frame and said counting-board, substantially as described.

2. In a game apparatus, the combination of a frame with openings therein, a carriage within said frame supporting the counting or working board with openings therein, and an arm or hand rest pivotally secured to said carriage, substantially as described.

3. In a game apparatus, the combination of a frame with openings therein, a carriage rotatably mounted in said frame and supporting a counting or working board with openings therein, guards arranged on opposite sides of said counting or working board, and arms pivotally connected to the carriage and supporting a hand or arm rest at their upper ends, substantially as described.

4. In a game apparatus, the combination of a frame, a carriage rotatably mounted in said frame, consisting of a bar supporting a lamp-rest at one end and a base at the other, to which is secured a counting or working board having a trough below the same, an arm or hand rest pivotally connected to the supports of said counting or working board, guards on opposite sides of said counting or working board, a circular track on which said carriage moves, a large playing ball or piece, and smaller balls or pieces, and game-tallying pegs, substantially as described.

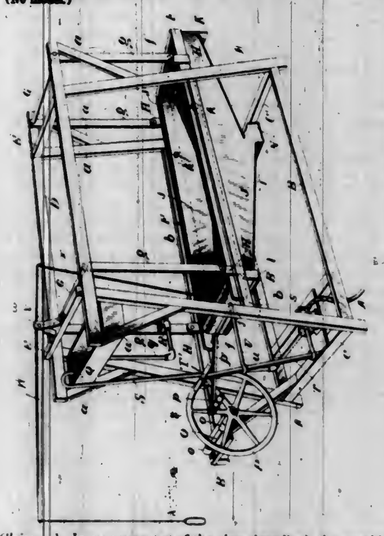
481,549. ANTI-RATTLER FOR THILL-COUPLINGS. CLARENCE A. CARMAN, Paterson, N. J. Filed June 11, 1891. Renewed June 8, 1892. Serial No. 435,924. (No model.)



Claim.—1. An anti-rattler for thill-couplings, formed with a body 10, a main spring-arm 11, there being a V-bend at the point where the arm leaves the body, an auxiliary or reinforcing spring arm which bears against the main arm, all parts being made from a single strip of metal, substantially as described.

2. An anti-rattler for thill-couplings, formed from a single strip of metal and with main and auxiliary spring-arms and with retaining-tongues, the upper end of the main spring-arm being bent outward, as and for the purpose stated.

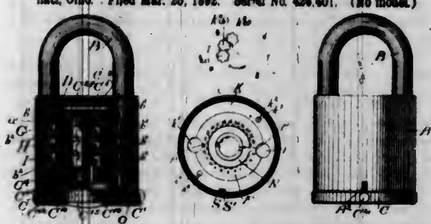
481,550. ORE WASHER AND CONCENTRATOR. ARTHUR L. DANA, Colorado Springs, Colo. Filed Dec. 28, 1891. Serial No. 416,286. (No model.)



Claim.—1. In an apparatus of the class described, the combination, with a swinging shoe having its bottom inclined from each end inwardly, but at different degrees of inclination, whereby a rearwardly-directed opening *m* is formed, of a trap N, encircling said opening, substantially as and for the purpose set forth.

2. In an apparatus of the class described, the combination, with an oscillating shoe having its bottom inclined from each end inwardly, but at different degrees of inclination, whereby a rearwardly-directed opening *m* is formed, of a trap N, inclosing said opening, and a false perforated bottom disposed in said shoe, substantially as and for the purpose set forth.

481,551. COMBINATION-PADLOCK. HENRY H. DANIELS, Cincinnati, Ohio. Filed Mar. 26, 1892. Serial No. 426,401. (No model.)



Claim.—1. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, the tumbler-support being provided with the pinion k^9, arranged to mesh with the notches or teeth f^2 of the tumbler, and the rod C^{16}, provided with the projecting teeth C^{20}, and mechanism, substantially as described, for enabling the rod C^{16} to be longitudinally reciprocated for bringing said teeth C^{20} into contact with their respective pinions k^9 and for rotating the rod C^{16}, substantially as and for the purposes specified.

2. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, and a tumbler-operating column having rod C^{16}, carrying teeth C^{20}, and the finger-disk C^{18}, arranged to move to and from the tumblers provided with mechanism for enabling the rotation of the said disk when at one end of its reciprocal movement to rotate a given tumbler, substantially as and for the purposes specified.

3. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, and tumbler-operating column having rod C^{16}, carrying teeth C^{20}, and the finger-disk C^{18}, arranged to move to and from the tumblers provided with mechanism for enabling the rotation of the said disk when at one end of its reciprocal movement to rotate a given tumbler and provided with means, substantially as described, for elastically returning the disk after a given tumbler has been returned to its first position, substantially as and for the purposes specified.

4. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, and a tumbler-operating column having rod C^{16}, carrying teeth C^{20}, and the finger-disk C^{18}, arranged to move to and from the tumblers provided with mechanism for enabling the rotation of the said disk when at one end of its reciprocal movement to rotate a given tumbler and provided with springs C^{30}, embracing the rod C^{16}, fastened substantially as described, substantially as and for the purposes specified.

5. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, and the rod C^{16}, provided with teeth C^{20}, engaging the pinions k^9, the rod C^{16}, reciprocating through the said shank and the disk C^{14}, connected to the rod, the disk C^{18} being capable of reciprocal movement to and from the tumblers, substantially as described, and spring for elastically returning finger-disk C^{18} to its first position, substantially as and for the purposes specified.

6. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, and rod C^{16}, provided with teeth C^{20}, engaging their respective adjacent pinions k^9, the rod C^{16}, reciprocating through the shank and the reciprocating disk C^{18}, and means, substantially as described, for enabling the reciprocatory movement of the disk to rotate the rod, substantially as and for the purposes specified.

7. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, and rod C^{16}, provided with teeth C^{20}, engaging their respective adjacent pinions k^9, the rod C^{16}, reciprocating in the shank C^4, and finger-disk C^{18}, located in the recess C^{14} at the end of the bed-foundation portion of the tumbler-operating column connected to the rod by mechanism, substantially as described, for enabling the said finger-disk C^{18}, when reciprocated and turned, to rotate the rod and move the teeth C^{20}, substantially as and for the purposes specified.

8. In a combination-lock, the combination of two or more tumblers, each tumbler consisting of tumbler-disk N, tumbler-ring F, and tumbler-support K, united together substantially as described, and rod C^{16}, provided with teeth engaging their respective adjacent pinions k^9, the rod C^{16}, reciprocating in the shank C^4, and the disk C^{18}, located in the recess C^{14} and rigidly connected to the said rod C^{16}, and provided with spring C^{30}, substantially as and for the purposes specified.

9. The series of tumblers having central openings through which passes an operating rotatable reciprocating shaft having projections, in combination with pinions for successively operating the tumblers, one of the said projections when the shaft has been reciprocated in one direction and rotated a given distance engaging with one of the said pinions, the said projections when the shaft has been reciprocated in the opposite direction being out of engagement with the said pinions, substantially as and for the purposes specified.

10. The combination of the catch C^{31}, and the disk C, and tumbler-operating column having shank C^4, having two or more projections C^5, and the tumblers having projections *n'*, and the shell having notches, as A^3 A^4 A^5, substantially as and for the purposes specified.

11. The combination of the catch C^{31}, and the disk C, and tumbler-operating column having shank C^4, having two or more projections C^5, and the tumblers having projections *n'*, and the shell having notches, as A^3 A^4 A^5, and the reciprocating rod C^{16}, having teeth C^{20}, and finger-disk C^{18}, and elastic mechanism for returning the spring to its first position after being operated, and pinions, as k^9, located substantially as described, substantially as and for the purposes specified.

12. The combination of the catch C^{31}, and the disk C, and tumbler-operating column, having shank C^4, having two or more projections C^5, and the tumblers having projections *n'*, and the shell having notches, as A^3 A^4 A^5, and the reciprocating rod C^{16}, having teeth C^{20},

and finger-disk C^{15}, and spring C^{20}, located in connection with rod C^{16} and pinions, as k^2, located substantially as described, substantially as and for the purposes set forth.

13. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, bearing against a fixed portion of the lock and against the bottom of the end tumbler-support, substantially as and for the purposes set forth.

14. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, compressed between a fixed portion of the shell and a part of the tumbler mechanism for creating frictional contact between the tumblers, substantially as and for the purposes set forth.

15. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, one end bearing against the end C of the shell and the other end of the spring pressing up the bottom side of the lower tumbler-support, substantially as and for the purposes set forth.

16. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, one end located in a depression C^{16} in the end C of the shell and pressing the tumbler devices together, substantially as and for the purposes set forth.

17. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, one end located in a depression C^{16} in the end C of the shell, and the washer O, against which the other end of the spring bears, this washer being below the lower tumbler-support, substantially as and for the purposes specified.

18. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, bearing against a fixed portion of the lock and against the bottom of the end tumbler-support, each tumbler having projections, as n', and the shank C^4, having projections C^9 for respectively engaging the projections, as n', of the tumblers, and the rotatable disk C, connected to the shank and having catch C^{21}, engaging a fixed portion of the lock, and mechanism for rotating each tumbler to a given number, substantially as and for the purposes specified.

19. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, bearing against a fixed portion of the lock and against the bottom of the end tumbler-support, each tumbler having projections, as n', and the shank C^4, having projections C^9 for respectively engaging the projections, as n', of the tumblers, and the rotatable disk C, connected to the shank and having catch C^{21}, and a fixed portion of the lock having as many notches as there are tumblers, the notches being adapted to receive the said catch, and mechanism for rotating each tumbler to a given number, substantially as and for the purposes specified.

20. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the thickness of its tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, bearing against a fixed portion of the lock and against the bottom of the end tumbler-support, each tumbler having projections, as n', and the shank C^4, having projections C^9 for respectively engaging the projections, as n', of the tumblers, and the rotatable disk C, connected to the shank and having catch C^{21}, and a fixed portion of the lock having as many notches as there are tumblers, the notches being adapted to receive the said catch, and rod C^{14}, having teeth C^{21} and connected to finger-disk and reciprocating with the length of the shank, and mechanism for enabling the movement of the teeth of the rod C^{14} to rotate the tumblers, substantially as and for the purposes specified.

21. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the thickness of its tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, bearing against a fixed portion of the lock and against the bottom of the end tumbler support, each tumbler having projections, as n', and the shank C^4, having projections C^9 for respectively engaging the projections, as n', of the tumblers, and the rotatable disk C, connected to the shank and having catch C^{21}, and a fixed portion of the lock having as many notches as there are tumblers, the notches being adapted to receive the said catch, and rod C^{14}, having teeth C^{21}, and connected to finger-disk and reciprocating with the length of the shank, and pinions, as k^2, for respectively operating the tumblers and for engagement with the teeth of rod C^{14}, substantially as and for the purposes specified.

22. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the thickness of its tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and the spring C^{16}, bearing against a fixed portion of the lock and against the bottom of the end tumbler-support, each tumbler having projections, as n', and the shank C^4, having projections C^9 for respectively engaging the projections, as n', of the tumblers, and the rotatable disk C, connected to the shank and having catch C^{21}, and a fixed portion of the lock having as many notches as there are tumblers, the notches being adapted to receive the said catch, and rod C^{14}, having teeth C^{21}, and connected to finger-disk and reciprocating with the length of the shank, and pinions, as k^2, for respectively operating the tumblers and for engagement with the teeth of rod C^{14}, substantially as and for the purposes specified, and mechanism for retracting the rod to its original position, substantially as and for the purposes specified.

23. The combination of the shank C^4, fixed to the rotatable disk C, and having notch or recess C^{24} and teeth C^8, and tumblers having projections, as n', for respective engagement with said teeth C^8 and rod C^{14}, reciprocating in the shank and having teeth C^{20} on blade C^{19}, and mechanism for enabling the said teeth C^{20} as rod C^{14} is turned to rotate the tumblers, substantially as and for the purposes specified.

24. The combination of the shank C^4, fixed to the rotatable disk C, and having notch or recess C^{24}, and teeth C^8, and tumblers having projections, as n', for respective engagement with said teeth C^8, and rod C^{14}, reciprocating in the shank and having teeth C^{20} on blade C^{19}, and pinions, as k^2, for engaging said tumblers, and also said teeth C^{20}, as rod C^{14} is rotated, the sides of notch C^{24} limiting the rotation of the blade C^{19}, and thereby limiting the rotation of the said teeth C^{20}, substantially as and for the purposes specified.

25. The combination of the tumbler-supports and the tumblers, each tumbler made thicker than the depth of its seat in the tumbler-support, and the envelope or shell in which said tumblers and their supports are contained, and elastic mechanism bearing against one portion of the lock, and arranged to press the tumbler devices against each other, substantially as and for the purposes specified.

481,552. SPECTACLES. MASON W. DAVIS, Southbridge, Mass. Filed May 17, 1892. Serial No. 433,379. (No model.)



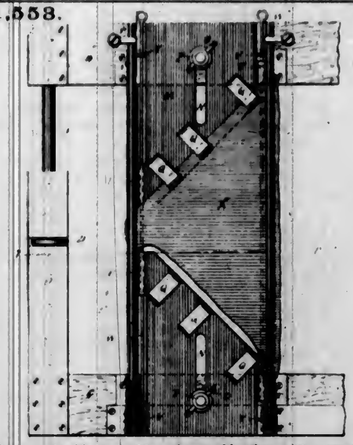
Claim.—In a spectacle-frame, the combination, with the glass rims or frames, of lugs formed with and extending at right angles across the inner central portions thereof and having recesses in their upper sides to form limiting-walls and also provided with vertical screw-openings extending centrally therethrough, a nose or bridge piece having the ends thereof bent back upon themselves to form laterally-extending depending guards and terminating in rearwardly-projecting horizontal arms at right angles to the said nose or bridge piece and formed with flattened ends with openings therethrough to fit the said lugs, and screws for connecting said parts, substantially as described.

481,553. FABRIC-HOLDER FOR EMBROIDERING-MACHINES. THEODOR D. EISNER, Boston, Mass. Filed Mar. 27, 1891. Serial No. 386,593. (No model.)

Claim.—1. In an embroidery-machine, the combination, with a tambour-frame, of rails fitting in the openings of the frame and means for moving them toward or from each other, U-shaped bars connecting the rails, clamping-bars fitting in said U-shaped bars, means for locking the free ends of the clamping-bars to one of the rails, and spring-clamps for holding part of the fabrics held between the clamping-bars, substantially as set forth.



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2. In an embroidery-machine, the combination, with a tambour-frame having openings, of two rails fitting in said openings, hollow arms projecting from the ends of one of the rails, a nut in each hollow arm, screw-rods projecting from the other rail into the said hollow arms and passing through the nuts, U-shaped bars connecting the rails, hinged clamping-bars adapted to be pressed into said bars, means for locking the free ends of the clamping-bars to one of the rails, and spring-clamps for holding part of the fabric held between the clamping-bars, substantially as set forth.

3. In an embroidery-machine, the combination, with a tambour-frame having openings, of rails fitting in said openings, means for adjusting the rails toward or from each other, U-shaped bars secured to the rails, hinged clamping bars adapted to be pressed into the U-shaped bars, adjustable plates held on the rails between the clamping-bars, which plates have their inner ends cut off diagonally, and spring-clamps on said plates at the diagonal edges thereof, substantially as set forth.

481,554. ROVING-CAN. ALVAN B. FISHER, Rutland, Mass. Filed Apr. 29, 1892. Serial No. 430,479. (No model.)



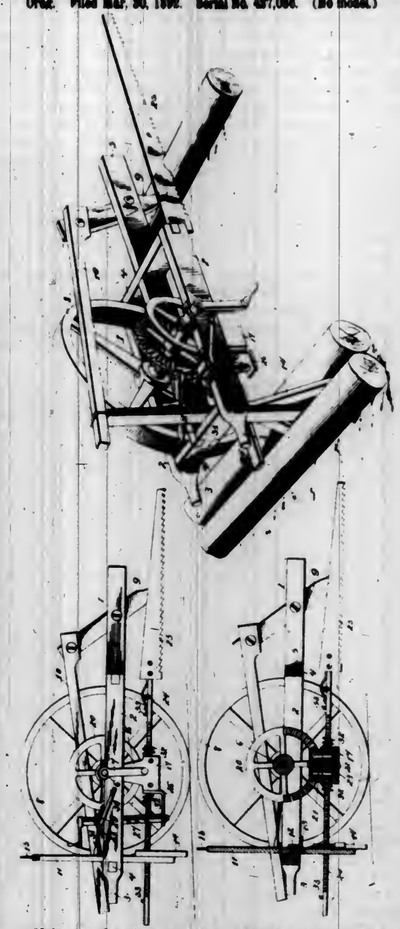
Claim.—1. A roving-can provided with a cylindrical body made of double cross-laid wood veneers and having a metal joint-connection overlying and binding the adjacent edges along the sides of the cylinder, with its outer edges riveted through the veneer fabric, its top end reinforced by an edge-protecting metal top border and its lower end protected by an underflanged metal foot-supporting rim, substantially as herein set forth.

2. The method of making double-ply wood veneer cylinders for roving-cans, which consists in gluing together a wet veneer and a dry veneer with their grain cross-laid, applying pressure to the same in substantially flat position until the glue has become set, and then removing the pressure and drying the product without confining it, and in a manner to facilitate the curling up of the edges, substantially as set forth.

3. The side-joint connection composed of a metal plate having its edges folded over upon itself, turned inward at their meeting line between the abutting edges of the cylinder and there bent back in opposite directions and pressed down upon the inner face of the respective edges of the cylindrical fabric, the outer folded parts of said joint-plate extending laterally beyond the width of its inner downpressed edges for supporting the cylindrical curve of the fabric, and connected through said fabric by rivets along the folded edges of the plate, in combination with the body-cylinder, substantially as shown and described.

4. The roving-can constructed as herein-described, its cylindrical body *a* formed of cross-laid plies of wood veneer, having their abutting edges 5 connected and protected by a joint-plate that embraces and compresses said edges and reinforced at the top by a metal border that covers and protects the edge of the wood to prevent slivering of the same, the bottom disk *i*, the reinforce-band *f*, and the metal foot-supporting rim A, surrounding the base of the body and extending beneath the same, all substantially as shown and described.

481,555. DRAG-SAWING MACHINE. LEONARD FOREMAN, Albion, Orez. Filed Mar. 30, 1892. Serial No. 427,086. (No model.)



Claim.—1. In a drag-sawing machine, the combination of a saw-blade secured to a rack-bar, double pinions, one of which engages said rack-bar, and oppositely-situated mutilated gears adapted to engage one of said pinions to impart reverse reciprocating movements to said rack-bar and the saw-blade carried thereby, substantially as described.

2. In a drag-sawing machine, the combination of a frame, a transverse shaft arranged thereon, a large wheel carried by said shaft, mutilated gears keyed to said shaft, pinions below said gears, and a rack-bar engaging one of said pinions and carrying a saw-blade, said large wheel being adapted to be thrown into and out of connection with the mutilated gears, the other of said pinions being in engagement alternately with said mutilated gears, substantially as described.

3. In a drag-sawing machine, the combination of a frame, a transverse shaft mounted thereon, hangers depending from said shaft, a box-frame connected to the lower portion of said hangers and having a rearward extension, pinions carried in said box-frame, a rack-bar extending through one side of said box-frame and having a saw-blade connected thereto, and a vertically-disposed screw-shaft connected to the said rearward extension of the box-frame and having a spring-actuated wedge engaging the same, substantially as described.

4. In a drag-sawing machine, the combination of a frame, a shaft transversely mounted thereon, mutilated gears on said shaft having the teeth thereof arranged opposite to the untoothed portion of each other, a pinion engaged by said mutilated gears alternately, another pinion below the first-named pinion, a rack-bar, and a saw-blade carried by said rack-bar, substantially as described.

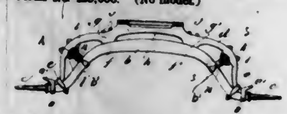
5. In a drag-sawing machine, the combination of a frame having the rear ends of the side bars thereof formed into handles and pro-

vided with an extension at the front end thereof, a dog pivotally connected to said extension, a lever attached to said dog and extending to the rear of the machine, an upright at the rear of the machine having legs at the lower end thereof and its upper end in engagement with the end of said lever, an adjustable saw carried by said frame, and an enlarged wheel secured to the frame and having a clutch mechanism in engagement therewith, whereby the same may be transported from one position to another, substantially as described.

6. In a drag-sawing machine, the combination of the frame, a shaft transversely mounted on said frame, mutilated gears on said shaft, a box frame suspended from said shaft and having an opening in the top thereof, and a slot extending longitudinally therethrough, a pinion mounted to project through the top opening of said frame and engaged by the mutilated gears, a second pinion in line with the longitudinal slot in said frame, a rack-bar movably mounted in said longitudinal slot, and a saw carried by said rack-bar, substantially as described.

7. In a drag-sawing machine, the combination of a frame, a shaft transversely extending across the same, a frame suspended from said shaft having a longitudinal opening therethrough, springs surrounding opposite sides of said opening, a rack-bar having stops to engage said spring and carrying a saw-blade, and means for operating said rack-bar, substantially as described.

481,556. SULKY. Edward S. Frasier, Aurora, Ill. Filed Mar. 19, 1892. Serial No. 425,633. (No model.)



Claim.—1. The combination, with a high-curved axle *b*, having the rising portions *b'*, of a truss-bar *d*, elevated above the axle and having projections *g g* on its under side which rest upon the upper side of the axle, said truss-bar having its ends connected with the axle adjacent to the spindles thereof and between the latter, and the said projections formed with a degree of curvature greater than that of the said rising portions of the axle, a seat-supporting frame *i*, mounted on the truss-bar, and the shaft *k*, secured to the truss bar above the axle, substantially as described.

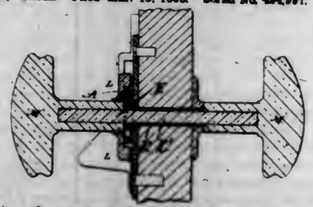
2. The combination, with an axle *b*, of a bent truss-bar *d*, secured to the axle near the ends thereof and rising over and resting upon the upper portion of said axle, and shaft *k*, extending between the rising portions of the truss-bar and the axle and secured to the truss-bar above the axle, substantially as described.

3. The combination, with a high curved axle *b*, having the rising portions *b'*, of the truss-bar *d*, mounted upon the upper side of the axle and extending over but elevated above the rising portions thereof, the degree of curvature of the truss-bar being greater than that of the said rising portions of the axle, the shafts *k*, secured to the said elevated portions of the truss-bar above the rising portions of the axle, and braces *m n*, connecting the shafts with the rising portions of the axle, substantially as described.

4. The combination, with an axle *b*, of a tie-bar *d*, resting upon said axle, the lower ends of the tie-bar being secured upon the lower ends of the axle, shafts *k*, secured to said tie-bar, and braces *m* and *n*, substantially as described.

5. The combination, with a curved axle *b*, of a tie-bar *d*, the ends of which are secured to the opposite ends of the axle *b* and the upper portion of which rests upon the axle, of tongues *p*, formed on the lower ends of said tie-bar, grooves *p'* in said axle, adapted to receive said tongues, and clips for securing the ends of said tie-bar upon the axle, substantially as described.

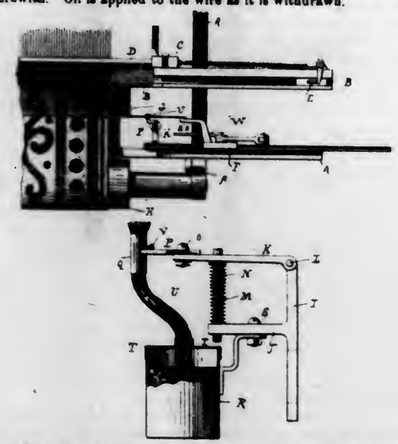
481,557. LATCH. Cyrille Gagnon and Louis Lefebvre, Montreal, Canada. Filed Mar. 15, 1892. Serial No. 424,991. (No model.)



Claim.—In combination, the plate B, the latch having an opening therein, the cam arranged entirely within the said opening and in the same plane with the latch, the cover-plate extending over the latch at its opening to cover the same and the cam, the said latch projecting at one side of the cover-plate to engage with the keeper and projecting on the other side of said plate, the latter projecting end being pivoted to the plate B, substantially as described.

481,558. OILING DEVICE FOR LOOMS. Joseph S. Gilbe, Worcester, Mass., assignor to Matthew J. Whittall, same place. Filed Mar. 14, 1892. Serial No. 424,754. (No model.)

Brief.—The wicking is carried by a hinged arm K and is moved from the path of the withdrawing-hook by a cam W mounted to move therewith. Oil is applied to the wire as it is withdrawn.



Claim.—1. The combination, in a loom, of the wires, the hook for catching and withdrawing the same, a wick interposed in the path traveled by said wires, means for supplying oil to said wicking, and means for moving the wick out of its normal position, so that the same will clear said hooks, substantially as described.

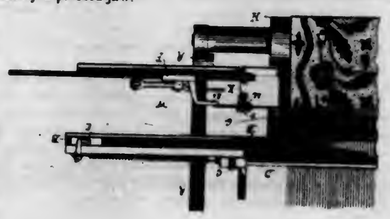
2. The combination, in a loom, of the wires, the hook for catching and withdrawing the same, the arm K, carrying at one end thereof the wicking and normally holding the wicking in the path traveled by the wires, so as to oil the same, and the cam moving with the hook and adapted to strike the arm K and move the wicking, so that the same will clear said hook, substantially as described.

3. The combination, in a loom, of the wires, the hook for catching the same and withdrawing the wires out of the fabric, the pivoted arm K, the screw M, the head of which limits the upward movement of the arm K, the spring N, holding said arm in its raised position, of a wicking carried by the end of said arm and interposed in the path traveled by the wires, and the cam moving with the hook, adapted to strike the arm K and depress the wicking, so that the same will clear the hook, substantially as described.

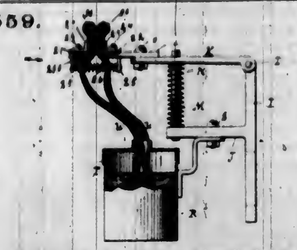
4. The combination, in a loom, of the wires, the hook for catching and withdrawing the same, the frame I, fastened to the loom-frame and having the extending arm J, the arm K, pivoted to the frame I, the tube Q, carried at the end thereof, means for adjusting the tube relatively to the arm K, the spring for holding the arm K normally elevated, the cam W, carried by the carriage of the loom, adapted to depress the arm K, the oil-cup R, and the wicking extending from the oil-cup to the tube Q, substantially as described.

481,559. OILING DEVICE FOR LOOMS. Joseph S. Gilbe, Worcester, Mass., assignor to Matthew J. Whittall, same place. Filed Mar. 14, 1892. Serial No. 424,755. (No model.)

Brief.—The wires are oiled or wiped by being passed between two opposed wicks. One of said wicks is fixed and the other is carried by a pivoted jaw.



481,559.



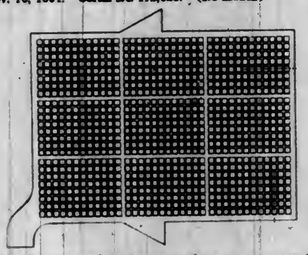
Claim.—1. In a loom of the character described, the combination of the wires, means for withdrawing and inserting the same, and two opposed wicks arranged in the path traveled by the wires and between which said wires are moved, substantially as described.

2. In a loom of the character described, the combination, with the wires, the hook for catching and withdrawing said wires, and two oppositely-disposed wicks normally arranged in the path traveled by said wires and through which the same are drawn, of means for moving said wicks out of this position, so that the wicks will clear the hook, substantially as described.

3. In a loom of the character described, the combination, with the wires and means for withdrawing and inserting the same, of the rigid jaw and the pivoted jaw, the spring acting to force the end of the pivoted jaw against the end of the rigid jaw, each jaw holding or having a facing of suitable material, and between which said wires are drawn, substantially as described.

4. In a loom of the character described, the combination, with the wires and means for withdrawing and inserting the same, of the two opposed plates 30, having holes 31, 32, and 33, the wicks passing through said holes, as described, and so arranged that the wires will be drawn between the said wicks, substantially as described.

481,560. SECONDARY BATTERY. William W. Gibbon, Haverford College, assignor to the Accumulator Company, Philadelphia, Pa. Filed Nov. 16, 1891. Serial No. 412,023. (No model.)



Claim.—1. In a secondary battery, plates or supports having a series of holes or perforations extending therethrough, each of said perforations having two opposite walls only concave, substantially as described.

2. In a secondary battery, plates or supports for the active material, having a series of holes or perforations extending therethrough, each of said perforations having its opposite walls only concave, the two complementary opposite walls having a suitable holding-surface, substantially as described.

3. A plate for use in a secondary battery, having a series of holes or perforations extending therethrough, said perforations having two opposite walls concave and two opposite walls substantially plane surfaces, with an inwardly-projecting rib, substantially as described.

4. A plate for use in a secondary battery, composed of lead and having a series of substantially equidistant uniformly arranged perforations, said perforations having four sides or walls, two opposite walls being concave and two opposite walls being substantially plane surfaces, with a diagonal inwardly-projecting rib or projection, substantially as described.

5. A plate for use in a secondary battery, having a series of holes or perforations extending therethrough, said perforations having two opposite walls concave and two opposite walls substantially plane surfaces, with an inwardly-projecting rib or extension, and finely-divided absorptive material packed in said perforations, substantially as and for the purpose set forth.

481,561. PUZZLE. James W. Hale, Newburyport, Mass. Filed May 27, 1892. Serial No. 434,628. (No model.)

481,561.

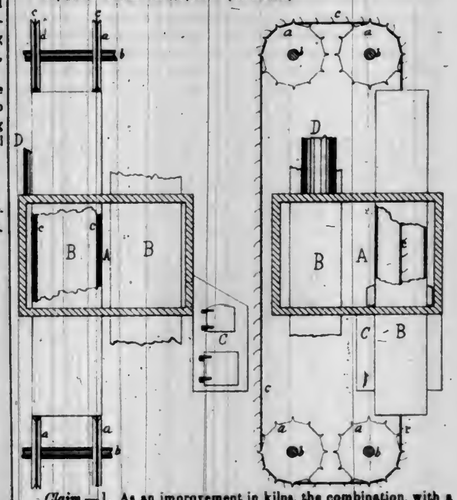


Claim.—1. A puzzle apparatus comprising a base, two rigid posts, as B B', extending from said base, and a strap adapted to be wound around said posts, substantially as described.

2. A puzzle apparatus comprising a base, two rigid posts, as B B', extending from said base, one of said posts being provided with a designating-mark, as *b'*, whereby it may be distinguished from the other, and a strap adapted to be wound around said posts, substantially as set forth.

3. A puzzle apparatus comprising a base, two rigid tubular posts, as B B', extending from said base, a pin, as C, of shape to be inserted in the opening of one of said posts, and a strap adapted to be wound around said posts, substantially as described.

481,562. KILN. Philip J. Handel, Meriden, Conn. Filed Nov. 18, 1891. Serial No. 412,277. (No model.)



Claim.—1. As an improvement in kilns, the combination, with a heating-chamber, of one or more vertical flues passing through said chamber and extended both above and below the same, for the purpose specified, said flues having no communication with the chamber, substantially as set forth.

2. As an improvement in kilns, the combination, with a heating-chamber, a fire box or boxes, and a stack communicating with the chamber, of one or more uninterrupted vertical flues passing through the chamber and extended above and below the same, forming a burning-passage, having its greatest temperature essentially at or near its center, and a continuous carrier adapted to pass entirely through said flue or flues, substantially as and for the purpose set forth.

481,563. CALENDAR. Charles H. Hoyt, Brooklyn, N. Y. Filed Jan. 27, 1892. Serial No. 419,434. (No model.)



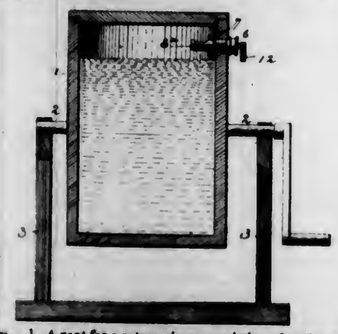
Claim.—1. A monthly calendar having the numbers of the days of the month in conspicuous numerals arranged in seven columns and forming cross rows reading from left to right and having, also, cross-rows *a* of time divisions in less-conspicuous characters extending across the calendar and alternating with the rows of conspicuous numerals of the monthly calendar, substantially as and for the purposes set forth.

2. A monthly calendar having the numbers of the days of the month in conspicuous numerals arranged in seven columns and forming cross-rows reading from left to right and having cross rows *a* of time divisions in less-conspicuous characters extending across the calendar and alternating with the rows of conspicuous numerals of the monthly calendar, and having, also, a column *c*, containing the number of the current year of the calendar, and the names of the months arranged opposite the respective rows *a*, substantially as and for the purposes set forth.

3. A monthly calendar consisting of the names of the current month and year, the names of the days of the week arranged in a row, and the numbers of the days of the month in conspicuous numerals arranged in columns and forming cross-rows, as set forth, said monthly calendar having cross-rows *a* alternating with the rows of day-of-the-month numerals of the calendar and consisting of groups, each comprising the name of a week-day and the name of one or more months, and having, also, printed in the blank spaces of the calendar the numbers of the years of the century arranged in groups, substantially as and for the purposes set forth.

4. A monthly calendar consisting of the names of the current month and year, the names of the days of the week arranged in a row, and the numbers of the days of the month in conspicuous numerals arranged in vertical columns and forming cross-rows, as set forth, said calendar having rows *a* alternating with the rows of conspicuous numerals of the monthly calendar, the rows *a* being composed of groups comprising each the name of a day of the week and the name of a month, and having, also, printed in the blank spaces of the monthly calendar the numbers of the years of the century arranged in their proper order and each having an index-number, substantially as and for the purposes set forth.

481,564. CHURN-VENT. FREDERICK E. HUGGINS, Clinton, Iowa, assignor to Edgar W. Conable, same place. Filed Nov. 9, 1891. Serial No. 411,396. (No model.)



Claim.—1. A vent for a rotary churn, consisting of a tube adapted to be inserted into a churn-body, provided at its inner end with a slot or opening, a tube fitting and rotatable within said tube, provided with a corresponding slot, and a weight connected with said last-mentioned tube and adapted to operate the same during rotation of the churn to prevent the discharge of the cream therefrom when the vent is below the surface of the fluid, substantially as described.

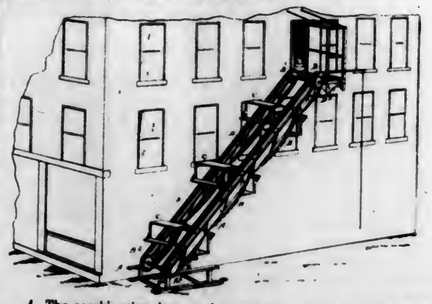
2. In a vent for churns, the combination, with the outer tube 3^a, closed at one end and provided with a slot 4 and having a flange 5 at its outer end, with screw-threads 4^a and 6 at each side of said flange, of the nut 7, adapted to engage with the screw-threads 4^a, the inner tube 8, having slot 9 and collar 14, the cross-piece 10, and pivoted weighted arm 12, substantially as described.

481,565. FIRE-ESCAPE. JOHN A. HUNT, Indianapolis, Ind. Filed Feb. 9, 1892. Serial No. 420,869. (No model.)

Claim.—1. The combination of traveling chains, angle-frames pivoted thereto and pivoted together, and seats or steps on said angle-frames, whereby a carrier is provided, and an appropriate device for checking and regulating the speed of said carrier, substantially as set foth.

2. The combination, in a chain-carrier, of frames composed of parts C' C^2, pivoted to the chains and pivoted together, and seats or steps C, secured to said frames, whereby the necessary movement is secured to permit the continuous motion of the carrier, substantially as shown and described

3. The combination, in a carrier, of a framework set at an angle, bearings on said framework, shafts carrying wheels mounted in said bearings, adjusting-screws A^4, whereby said bearings and the wheels carried thereby are adjusted to the proper position, chains running over said wheels, and seats or steps secured to said chains, whereby a safe gradual descent from an upper to a lower elevation may be secured, substantially as shown and described.

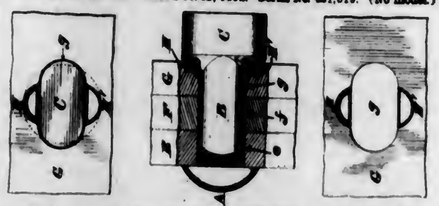


4. The combination, in a carrier, of a framework set at an angle, a traveling chain-carrier mounted thereon having seats or steps secured thereto extending out therefrom in a substantially horizontal direction, thus producing a substantially level platform for carrying the passengers.

5. The combination, in a carrier, of a framework set at an angle and frames secured thereto in such a position that the upper member thereof will be at substantially a level with a seat or step portion secured thereto, substantially as shown and described.

6. The combination, in a carrier, of traveling chains, frames pivoted thereto having two portions which extend out in a horizontal direction or on a level but at an angle with the chain and its direction of travel, the upper portion of which carries a seat part and the lower portion a foot-rest part, substantially as shown and described.

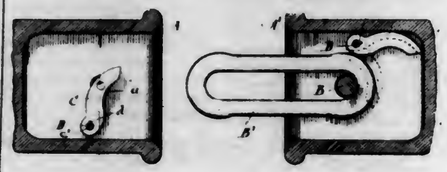
481,566. FASTENING FOR METAL PLATES. WILLIAM C. HUNTER, Newport, Ky. Filed Feb. 15, 1892. Serial No. 421,619. (No model.)



Claim.—1. As a new article of manufacture, a fastening device consisting of a shank B, having a head A at one end, an oblong butt C at its other end, and a pair of diametrically-opposite beveled shoulders D D′, which shoulders slope downward and inward from the extremities of said butt and connect it with said shank B, said parts A B C D D′ being formed of a single integral piece of metal, as herein described.

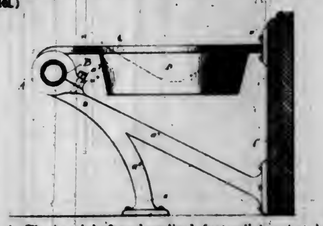
2. A fastening device consisting of the head A, shank B, butt C, and beveled shoulders D D′, all formed of a single integral piece of metal, in combination with the bar or plate G, to which said fastener is directly applied, said plate being slotted at *g* and having a socket, as H, on each side of said slot to admit said shoulders D D′, in the manner described, and for the purpose stated.

481,567. CAR-COUPLING. JACOB S. HUFFER, Dickerson, Kans. Filed Feb. 26, 1892. Serial No. 423,090. (No model.)



Claim.—1. The combination, with the draw-head having an opening to receive the coupling-link and a pin-hole, of a laterally-swinging curved gate C, said gate having formed upon its outer face a curved recess c^3 and an overhanging shoulder c^4, whereby said gate may partially encircle and overlap the end of the link, a shaft D, extending outside the draw-head, and a handle d^2 for operating said shaft and swinging gate, substantially as described.

481,568. COMBINED COUNTER-RAIL, FOOT-BRACKET, AND CUSPIDOR. WILLIAM C. HUSS, Cincinnati, Ohio, assignor to the Huss Brothers Company, same place. Filed May 6, 1892. Serial No. 431,960. (No model.)



Claim.—1. The hereinbefore-described foot-rail bracket having the boss A for the reception of the foot-rail, the arm *a*, and branches a' a^2 for securing the bracket in place, and the ring to receive and hold a cuspidor, as a new article of manufacture.

2. The combination, substantially as hereinbefore set forth, of the bracket having perforated boss A, ring A′, and attaching-supports, and the foot-rail B.

481,569. BICYCLE. FRANK JEWETT, New Haven, Conn. Filed Nov. 2, 1891. Serial No. 410,698. (No model.)



Claim.—1. The combination, with a sprocket having internal gear-teeth, of a pedal-shaft carrying a pinion having a less number of teeth than the sprocket, a movable box which carries the pedal-shaft, a clutch-gear adapted to engage the sprocket, and suitable mechanism for moving the clutch-gear into and out of operative position and for moving the box and pedal-shaft laterally to engage and disengage the pinion and sprocket, so that when the cam gear is disengaged and the pinion engaged with the sprocket a relatively slow speed is produced with corresponding increase of power and when neither clutch-gear nor pinion is engaged with the sprocket the latter is left wholly disconnected from the pedal-shaft.

2. The combination, with a sprocket having internal gear-teeth, of a pedal-shaft carrying a pinion having a less number of teeth than the sprocket, a movable box carrying the pedal-shaft, and suitable mechanism for moving the box and pedal-shaft laterally to engage and disengage the sprocket.

3. The combination, with a sprocket having internal gear-teeth, of a pedal-shaft carrying a pinion and having a square portion outside of the pinion, said square portion having a slot 31, a clutch-gear having an opening to receive said square portion, and a slot 31^a, a rod 33, and a cross-piece lying in slots 31 and 31^a and rigidly secured to the cross-piece and clutch-gear.

4. The combination, with the sprocket having internal gear-teeth and the pedal-shaft having a longitudinal recess, a square portion 30, and a slot 31, of clutch-gear 32, having an opening to receive the square portion of the shaft, and a slot 31^a, a cross-piece lying in said slot, said cross-piece and the ends of slot 31^a having threaded half-sockets, screws engaging said half-sockets, which connect the cross-piece and clutch-gear, and rod 33, lying in the recess in the pedal-shaft and engaging the cross-piece, by which the clutch-gear is moved into and out of operative position.

5. The sprocket, having internal gear-teeth and the pedal shaft, in combination with a clutch-gear adapted to engage the internal teeth of the sprocket, a sliding sleeve 39 on the pedal-shaft, having an internal groove 42 and rod 33, one end of which is attached to the clutch-gear and the other provided with a curved plate 43, engaging the groove, so that longitudinal movement of said sleeve will move the clutch-gear into and out of engagement with the sprocket.

6. The combination, with the sprocket having internal gear-teeth, the pedal-shaft, the clutch-gear, and rod 33, by which the clutch-gear is engaged and which is provided with a curved plate 43, of a sliding sleeve on the pedal-shaft, having an arm 40 and an internal groove 42, which receives the curved plate, and a cam which engages arm 40 to move the sleeve longitudinally on the pedal-shaft.

7. The combination, with the sprocket having internal gear-teeth and the pedal-shaft having a pinion with a less number of teeth than the sprocket, of a box by which the pedal-shaft is carried, arms 67, extending outward from the box and carrying studs 66, and cams engaging said studs, by which the box and pedal-shaft are moved laterally to engage and disengage the pinion and sprocket.

8. The combination, with the sprocket having internal gear-teeth, the pedal-shaft carrying pinion 29, the clutch-gear, rod 33, by which it is carried, sliding sleeve 39, which is engaged by rod 33 and is provided with an arm 40, a box carrying the pedal-shaft and sleeve and provided with arms 67, and a rock-shaft carrying cams 60 and 63, by which the sliding sleeve is moved on the pedal-shaft to engage and disengage the clutch-gear and sprocket and the box and pedal-shaft are moved laterally to engage and disengage the pinion and sprocket.

9. The combination, with the case having arms 48 and slot 41, of the pedal-shaft, sliding sleeve 39, having arm 40, the box having arm 67, carrying studs 66, a rock-shaft journaled in arms 48 and carrying cams 60 and 63, operating-arm 53, keyed to the rock-shaft, and rod 57, pivoted to the operating-arm by which the pedal-shaft is oscillated.

10. The combination, with the frame of a bicycle having a plate 59, the case, box, pedal-shaft, pinion, clutch-gear, rod 33, and sliding sleeve, substantially as described and shown, of a rock-shaft carrying cams 60 and 63 and arm 53, rod 57, pivoted to said arm and having notches 58, and intermediate connections, substantially as described and shown, between the cams and the sliding sleeve and box, so that when the lower notch is engaged with plate 59 the clutch-gear will be placed in engagement with the sprocket and when the upper notch is engaged with said plate the pinion will be placed in engagement with the sprocket and when the intermediate notch is engaged with said plate the pedal-shaft and sprocket will be wholly disconnected.

11. The combination, with the case, the pedal shaft, and the box, of suitable means for moving the box and pedal-shaft laterally in the case, and a key 46, engaging both case and box, whereby the latter is held against endwise movement but left free to be moved laterally.

12. The combination, with the case having disk 19, provided with flange 18, surface 17, and screw-threads 22, of the sprocket having V-shaped groove 16, ring 21, having surface 20, and screw-threads engaging threads 22, and balls between said surfaces.

13. The combination, with the case and disk 19, having slot 26 and threaded flange 18, and the sprocket having V-shaped groove 16, of ring 21, threaded to engage the flange and having teeth 24 and holes 25 for the purpose of adjustment, balls between said flange, ring, and sprocket, and a plate lying in slot 26 and engaging teeth 24, by which the ring is locked in place after the bearing has been adjusted.

14. The combination, with the case, the box, the pedal-shaft, and the sprocket, of cap 37, secured to the sprocket and having an opening through it, spring-washer 38, carried by the pedal-shaft and covering the opening, nut 8, engaging the pedal-shaft, and plate 10, through which the nut passes and which slides in ways in the case.

481,570. BAND-CUTTER AND FEEDER. MONROE R. JOHNSON, Pittsburg, Kans., and ARMITE M. PHILLIPS, Nashville, Mo. Filed Jan. 18, 1892. Serial No. 418,476. (No model.)



Claim.—1. In a band-cutter and feeder, the combination, with the feeder-box and the revolving cutter-cylinder, of a series of cutter or knife rollers journaled in opposite ends of said cylinder and carrying cutting-knives, means for turning said rollers in their bearings to adjust the knives, and operating mechanism, substantially as set forth.

2. The combination of the knife-cylinder having the opposite heads, knife or cutter rollers loosely mounted in said heads and provided with a series of curved cutting-knives, retaining-bands encircling opposite ends of the cylinder around said rollers, and adjusting-arms secured to the ends of said knife-rollers and circumferentially adjustable upon the opposite heads of said cylinder, substantially as set forth.

3. In a band-cutter and feeder, the combination of the feeder-box having opposite curved bearing and guide-slots at one end and at an intermediate point the revolving cutter-cylinder journaled in said slots and free to move in an arc therein, the main drive-shaft, swinging arms engaging over opposite ends of the drive-shaft and the opposite ends of the cylinder-shaft, a toothed feeder-roller journaled in the end slots and free to move therein, and suitable gearing connecting the cutter-cylinder and roller, so that the latter revolves slower than the former, substantially as set forth.

4. In a band-cutter and feeder, the combination, with the feeder-box and the knife-cylinder and feeder-roller journaled in said box, of the main drive-shaft K, journaled in said box, a speeding-shaft N, journaled in said box adjacent to said drive-shaft, reversely-arranged cone-pulleys keyed upon adjacent ends of said drive and speeding shafts, a belt connecting said pulleys, the top shaft O, a belt connecting the shafts N and O, and belting connecting the knife-cylinder with the drive-shaft and the feeder-roller with said top shaft, respectively, substantially as set forth.

5. In a band cutter and feeder, the combination, with the feeder-box, the knife-cylinder, and feeder roller, of the endless-apron rollers journaled at opposite ends of said box, one of said rollers carrying an operating-pinion *n'*, a main drive-shaft, a speeding-shaft adjacent to said drive-shaft N and provided with a pinion *n*, meshing with said roller-pinion, reversely-arranged cone-pulleys keyed upon adjacent ends of the speeding-shaft and drive shaft, a normally-loose belt *m*, connecting said cone-pulleys, an adjustable belt-tightener arranged over said belt, the top shaft O, a belt connecting the shafts N and O, and belting connecting the knife-cylinder with the drive-shaft and the feeder-roller with said top shaft, respectively, substantially as set forth.

6. In a band-cutter and feeder, the combination, with the endless-apron feeder-box and the knife cylinder and feeder-roller movably journaled in said box, of the main drive-shaft K, a speed-shaft N, adjacent to said drive-shaft, belting connecting the knife-cylinder with said drive-shaft, reversely-arranged cone-pulleys keyed upon adjacent ends of the drive-shaft and speed-shaft, a normally-loose belt *m*, connecting said cone pulleys, a vertical ratchet-bar supported from the ends of said feeding and drive shafts and between the same, an adjustable hinged belt-tightener hinged to the side of the feeder-box and adjustably engaging said ratchet-bar and said normally-loose belt, the top shaft O, a belt connecting the shafts N and O, and belting connecting said top shaft with the feeder-roller, substantially as set forth.

7. In a band-cutter and feeder, the combination, with the endless-apron feeder-box and the knife-cylinder and feeder-roller movably journaled in said box, of the main drive-shaft, a speeding-shaft N, adjacent to said drive-shaft below said feeder-box, belting connecting the cylinder with said drive-shaft, reversely-arranged cone-pulleys keyed upon adjacent ends of the drive and speeding shafts, a belt connecting said pulleys, a supplemental top shaft O, journaled upon said feeder-box, and belting connecting the speeding-shaft with said top shaft and the latter with the feeder-roller, substantially as set forth.

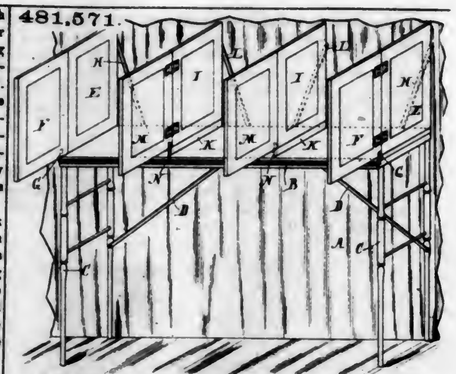
481,571. ELECTION-BOOTH. JACKSON JONES, Jefferson, Wis. Filed Sept. 28, 1891. Serial No. 407,020. (No model.)

Claim.—1. The portable compartment device for election purposes, consisting of a suitably-supported shelf or table, walls hinged thereto capable of being unfolded upright thereon, wings hinged to the walls capable of being swung forwardly and projecting therefrom in a plane therewith, and means for securing the wings in place and the end walls upright temporarily, substantially as described.

2. In a compartment device for election purposes, the combination, with a shelf, of walls hinged to the upper portion of the shelf, so as to fold thereon and to open uprightly, wings hinged to the walls, so as to swing forwardly therefrom to the plane of the walls, and detachable braces adapted to engage temporarily the rear edges of the walls and the rear edge of the table or shelf, substantially as described.

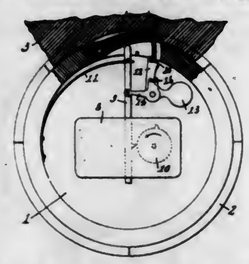
3. The combination, with a shelf or table and folding walls hinged thereto at distances apart and capable of being folded thereon and opened uprightly thereto, of folding legs hinged to the under part of the table or shelf and braces adapted to be temporarily secured to the legs and to the table, substantially as described.

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4. The combination, with a table or shelf having folding walls hinged to the upper surface thereof at a distance apart and means for securing the walls in position when unfolded from the table, of a wall or curtain at the rear of the table, the folding walls when opened forming with the table and rear wall or curtain a compartment hidden from observation, substantially as described.

481,572. TIME-LOCK ATTACHMENT. JOHN X. KAISER, Newport, Ky., assignor to the Mosler Safe and Lock Company, Cincinnati, Ohio. Filed Apr. 21, 1892. Serial No. 430,015. (No model.)

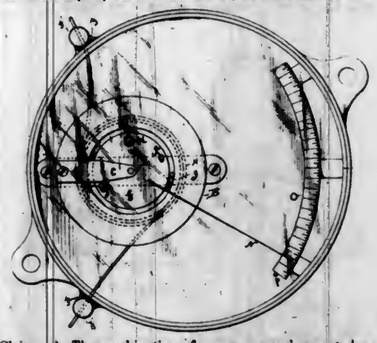


Claim.—1. In a time-lock attachment, the combination, substantially as set forth, with a safe-door, a latch therefor arranged to fall to unlatched position by gravity, a spring to force the latch to latched position, and a time-lock arranged to retract the spring and again to permit it to act at proper times, respectively, of a movable support arranged to normally engage below said latch and support it in latched position, a connection between said movable support and time-lock to cause the support to be moved to inactive position when the time-lock retracts said spring, and a weight connected with said movable support and tending to hold it in active position when the door is in position corresponding to the latched position and to move the support to inactive position when the door is reversed.

2. In a time-lock attachment, the combination, substantially as set forth, of a jamb-thread having a notch, a door having a thread to fit the jamb-thread, a pawl pivoted in said door and adapted to engage said notch when the door is screwed home, a spring to force said pawl into the notch, a time-lock arranged to retract said spring at proper time, a movable rigid support under said pawl, a weight connected with said movable support and tending to hold it in active position and to move it to inactive position as the door is turned, and connections between said spring and movable support and time-lock to cause the time-lock to retract said spring and lift said weight and move said support to inactive position.

3. In a time-lock attachment, the combination, substantially as set forth, of a threaded door-jamb having a notch, a circular-threaded door, a pawl pivoted to the door and adapted to engage the notch, a spring tending to force the pawl outwardly into the notch and permitting the pawl to yield inwardly, a pivoted lever with its end under and supporting the pawl in locked position, a weight on said lever to hold it in active position, a second lever engaging said supporting-lever by a fly connection and adapted when the second lever is rocked sufficiently to rock the first lever into inactive position, a bolt engaging said spring and second lever and serving when moved to retract the spring and move the support to inactive position, and a time-lock arranged to operate upon said bolt and move it at proper times.

481,573. VOLT-AMMETER. FREDERICK A. LA ROCHE, Philadelphia, Pa. Filed Sept. 1, 1891. Serial No. 404,463. (No model.)

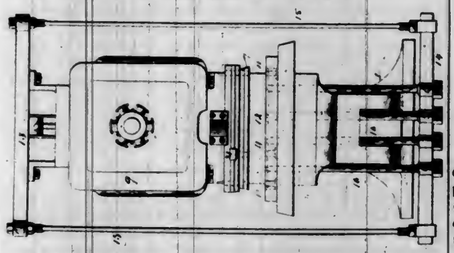


Claim.—1. The combination of a case, a spool mounted on said case, a scale secured to the sides of said case on a level with the top of the spool, a coil around said spool, a rod of magnetizable material secured to said spool in a direction transverse to said coil, a spindle held rotatably in the center of said coil and supports secured thereto, whereon is placed a rod of magnetizable material parallel to and in the neighborhood of said fixed plate, and a pointer extending over the top of said spool and scale, and means for moving said movable bar of magnetizable material toward the other, substantially as described.

2. The combination of the case, a spool secured to a piece of non-magnetizable material secured to the back plate of said case and having therein a bearing for a spindle, a support secured to the top of said spool and containing an adjustable bearing for said spindle, a coil surrounding said spool, a rotatable spindle mounted centrally in said spool between said bearings, a piece of magnetizable material secured transversely to said coil in the interior of said spool, supports attached to and revoluble with said spindle, a rod of magnetizable material placed parallel to and in the neighborhood of said fixed rod and supported from said supports, a pointer supported from said supports, devices for bringing said pieces of magnetizable metal toward each other, and a scale, all substantially as described.

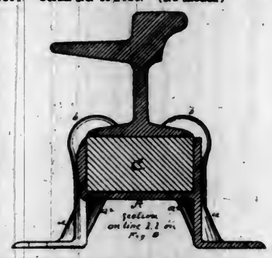
3. The combination of a circular casing, a bracket-supported scale at one side thereof, a spool holding a coil mounted on the back plate of said casing-supports containing bearings, between which is mounted a revoluble spindle, a rod of magnetizable material supported by and secured to the interior of said spool in a direction transverse to the direction of the wires of the coil thereon, a rod of magnetizable material supported substantially at its middle point parallel to said fixed piece of magnetizable material by supports connected to said spindle, a weight, and the curved pointer N, all substantially as described.

481,574. PUNCHING-MACHINE. JAMES LONG, Packerton, Pa. Filed Jan. 16, 1892. Serial No. 418,265. (No model.)



Claim.—The combination, with the supporting-frame having upper and lower jaws, of the punch-block having discharge-apertures for the wads, the cutting-plate provided with apertures registering with the apertures in the punch-block, the punch-die, and punches, the lifting plate and the movable bars 16, supporting the lifting-plate, the cross-bar 14, supporting the vertically-movable bars, and the cross-bar 13, secured to the reciprocating plunger, the connecting-bars between the cross-bars, and the weighted lever engaging the upper cross-bar, whereby the plate is operated to strip the article from the punches and the working parts of the machine restored to normal position, substantially as specified.

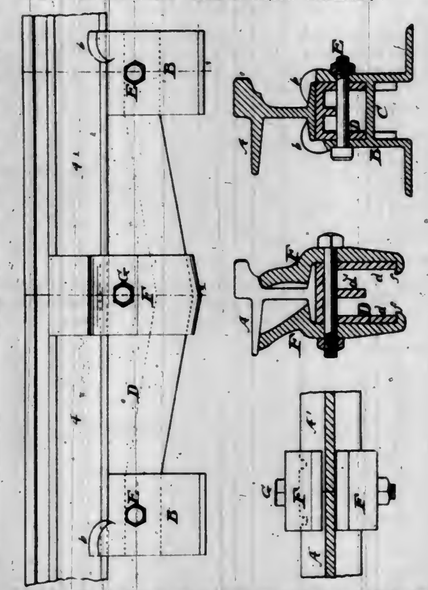
481,575. RAIL-CHAIR. CHARLES R. MARK, Cleveland, Ohio. Filed Aug. 31, 1891. Serial No. 404,180. (No model.)



Claim.—1. A rail-chair embodying in a single element a rectangular-chambered body having two opposite sides extended downward to form legs with flanges and exterior and interior strengthening-lugs and at diagonally-opposite upper corners lips *b*, joining the adjacent exterior lugs, substantially as shown and described.

2. The combination, with the rail-chair in the form of a rectangular box and having feet, lugs, and diagonally-oppositely-arranged lips at the upper corners, of the wood filling in said box, with its upper surface raised slightly above the top edges of the box, and a rail supported on said filling and held by its flanges, substantially as shown and described.

481,576. RAILWAY-RAIL JOINT. CHARLES R. MARK, Cleveland, Ohio. Filed Nov. 9, 1891. Serial No. 411,397. (No model.)



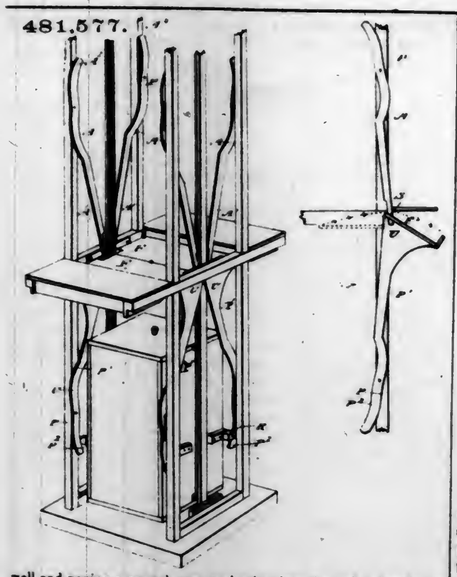
Claim.—In a rail-joint, the combination, with chairs B B, having diagonal lips *b b*, of the bridge-bar D, secured in said chairs, clamp-plates F F, embracing the middle part, said bridge-bar and abutting ends of the rails with their upper edges bearing under the upper flanges of the rails, and bolts G for securing said plates to the bridge-bar and the rails, substantially as described.

481,577. ELEVATOR. THOMAS MASON, Topeka, Kans. Filed July 17, 1891. Serial No. 399,587. (No model.)

Claim.—1. The combination of a lever pivoted to the side of an elevator-well and having a curved arm projecting into said well, a hatchway door rigidly secured to the lever and adapted to swing therewith in an arc of a circle, and an elevator-car provided with a projection adapted to engage the curved arm of the lever to rock the same and to swing the door out of the path of the car, all substantially as described.

2. The combination of a lever pivoted to the side of an elevator-

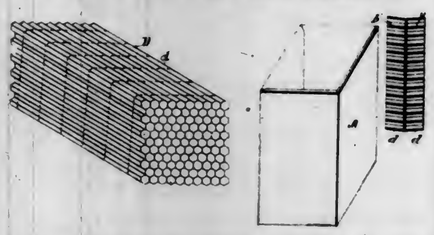
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well and having a curved arm projecting into the well, a hatchway-door rigidly secured to the lever, a lever located above the door and having its upper end projecting into the well and its lower end loosely connected to the door, and an elevator-car provided, with a projection to engage the levers to operate the door, all substantially as described.

3. The combination of two pairs of levers U, pivoted to the sides of an elevator-well and having their lower ends projecting into the well, doors F, rigidly secured to the top of each pair of levers, two pairs of levers A, pivoted above the doors and having their upper ends projecting into the well and their lower ends loosely connected to said doors, and an elevator-car provided with projections adapted to engage the levers to rock the same and to swing the doors out of the path of the car, all substantially as described.

481,578. ART OF MAKING ARTIFICIAL HONEY CELLS AND COMBS. EDGAR T. MASON and MAXIMILIAN H. MOSKOVITS, Kansas City, Mo. Filed Oct. 30, 1891. Serial No. 410,336. (No model.)

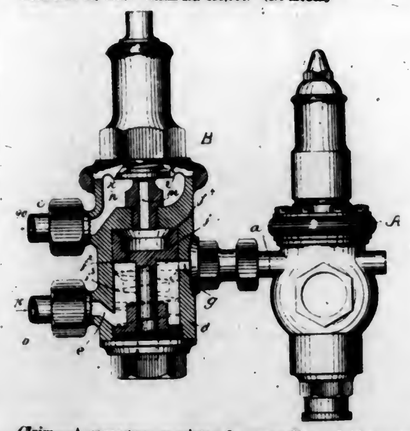


Claim.—1. The improved method of making sections for artificial honeycombs, consisting in molding wax into a cellular mass of the desired length and width and then separating the artificial cellular mass transversely into parts of the required thickness.

2. The improved method of making sections of artificial honeycombs, consisting in molding wax into a cellular mass of the desired length and width and then separating the artificial cellular mass transversely into parts or sections upon a line at an angle of inclination to the sides of said mass, for the purpose described.

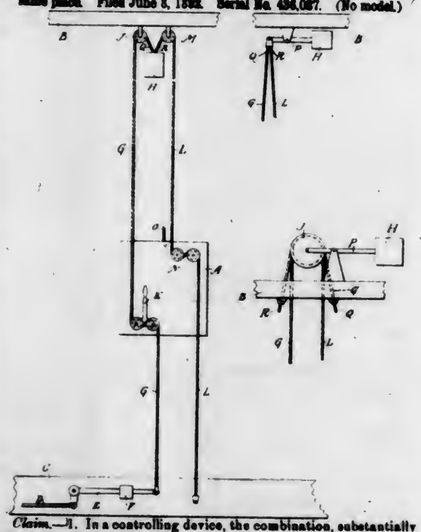
3. The improved method of making artificial honeycombs, consisting in molding wax into a cellular mass of the desired length and width and then separating the cellular mass transversely into parts of the requisite thickness, then making the edges of the cells on one side of one of said parts adhesive and spreading in a thin sheet plastic wax over said side and cells and then taking another part of the cellular mass and making the edges of the cells on one side of said part adhesive and uniting them to the other part of the cellular mass and to the side of said part over which the plastic wax is spread.

481,579. FLUID-PRESSURE REGULATOR. WILLIAM B. MASON, Boston, Mass., assignor to the Mason Regulator Company, same place. Filed Nov. 14, 1891. Serial No. 411,900. (No model.)



Claim.—A secondary regulator for controlling a fluid-pressure-regulating instrument, said secondary regulator comprising a valve-shell having passages communicating with different sources of fluid-pressure, and a main valve governing the communication between said passages, respectively, and the pressure-inlet to the main regulator, combined with a pressure-chamber and secondary valve therein controlled by pressure from one of said inlets and governing the operation of the said main valve, substantially as described.

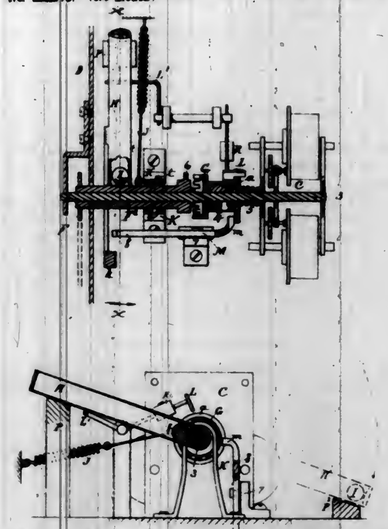
481,580. ELEVATOR-CONTROLLING MECHANISM. EDWIN S. MATTHEWS, Cincinnati, Ohio, assignor of one-half to James L. Haven, same place. Filed June 8, 1892. Serial No. 436,027. (No model.)



Claim.—1. In a controlling device, the combination, substantially as set forth, of a single standing control-rope, a take-up on the car, a separate weight connected to each end of and straining said rope, a control piece connected with one of said weights, and a check-rope secured to a fixed point and attached to the other weight and joining the control-rope in the support of that weight.

2. In a controlling device, the combination, substantially as set forth, of a single standing control-rope, a take up on the car involving sheaves engaging bends in said control-rope, a separate weight connected to each end of and straining said control-rope, a control-piece connected with one of said weights, a check-rope secured to a fixed point and attached to the other weight and joining the control-rope in the support of that weight, and a pair of sheaves in fixed relation to each other on the car and engaging bends in said check-rope.

481,581. RAILWAY TIME-SIGNAL. DANIEL W. MITCHELL and ELMER L. MITCHELL, Southborough, Mass. Filed Mar. 12, 1892. Serial No. 424,673. (No model.)



Claim.—1. The combination, with the graduated dial, index-hand, index arbor, and return-spring, of the radial arm or tube H, fixed at one end to said arbor, and the self-shifting-weight ball carried by said arm and movable from one end to the other thereof, substantially as and for the purposes set forth.

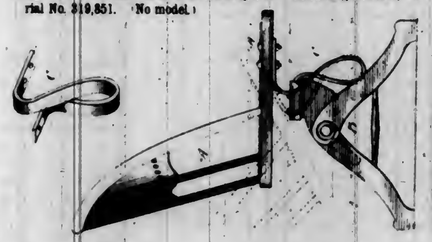
2. The combination of the graduated dial, the index and index-arbor, the radial tube fixed to said arbor and carrying the self-shifting weight, the clock or motor train, its time-shaft, a clutch connecting said index-arbor and time-shaft, the return-spring, and means for disengaging said clutch to effect the return of the index to zero, substantially as set forth.

3. The combination of the dial, the clock-operated time-shaft, the index and index-arbor, the sliding spring-pressed clutch connecting said arbor and time shaft, the radial tube carrying the shifting-weight, the return-spring, the throw-off guide, the clutch-holding dog, the tripping-lever having the arms that engage said clutch and tube, and the operating-slide having an incline for working said lever, all substantially as and for the purpose set forth.

4. A time-signal apparatus comprising, in combination, a graduated figured dial, an index or hand, a clock-train or time-regulated motor, clutch mechanism connecting the motor and index-arbors to advance the index over the dial, and a lever that disengages said clutch, having connections for its actuation by the passing of a railway-train, and means, substantially as described, that automatically return said index to normal or zero position, for the purpose set forth.

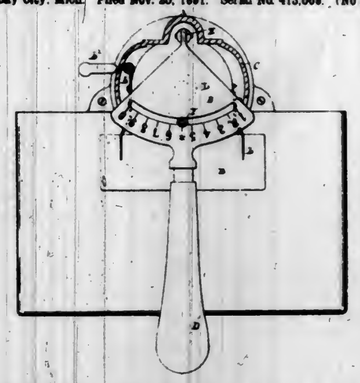
5. In a time-signal apparatus having an index and index-operating mechanism, the combination, with the operating-slides and the lever whereby the index-arbor clutch is disengaged, of the yielding relief-plate connected by a hinge to said lever and extending upward along the incline of said operating-slide, the curved arm fixed to said plate and passing through the lever, and an expanding-spring between said plate and said lever, substantially as and for the purpose set forth.

481,582. CHAIR. JAMES W. MCDONOUGH, New York, N. Y., assignor to Blackmer Bros. & Co., Chicago, Ill. Filed Aug. 5, 1889. Serial No. 319,851. (No model.)



Claim.—In an oscillating or tilting chair or like article of furniture, the combination, with a base and movable seat, of a pair of springs connecting the base and seat, said springs being substantially S shape in form and having their upper portions flattened and attached to the seat, and their lower portions bent to a plane parallel to but inside of the upper portion and attached to the base, whereby is provided a hanging loop, whose width is less than the height thereof, substantially as and for the purpose described

481,583. PERFORATING-PUNCH. HENRY H. NORRINGTON, West Bay City, Mich. Filed Nov. 25, 1891. Serial No. 413,069. (No model.)



Claim.—1. In a perforating-machine, the combination, with a bed-plate provided with a casing, of feeding mechanism within the bed-plate, and a post journaled in the casing, a broad flat dial-plate pivotally secured at one edge to the post and provided upon its opposite edge with a handle, a male and a female die plate, each rigidly secured to the post within the casing, vertically movable dies in the male-die plate, a spring-actuated plunger within the casing, the upper end of which is engaged by the dial and the lower end engages with the dies in the male die-plate, and means intermediate the post and the plunger for engaging with the dial and the feeding mechanism, whereby the feed is operated by the dial in any of its lateral positions, substantially as set forth.

2. In a perforating-machine, the combination, with a bed-plate provided with a casing, of a post journaled therein, a dial plate pivotally secured to the post at one end and provided with a handle at its opposite end and having a slot intermediate the ends and a male and a female die plate each rigidly secured to the post within the casing, vertically-movable dies in the male-die plate, and a vertically-movable spring-actuated plunger within the top of the casing, the upper end of which is shouldered and projects through the slot in the dial-plate and the lower end engages with the dies in the male-die plate, said dial-plate being provided with characters along the slot to correspond with the characters of the die-plates, substantially as set forth.

3. In a perforating-machine, the combination of a bed-plate provided with a casing, feeding mechanism within the bed-plate and post journaled in the casing, a dial hinged to the post above the casing, and a slotted male and a female die plate, each rigidly secured to the post within the casing, vertically-movable dies in the male-die plate, a plunger within the casing, the upper end of which is loosely secured in the top of the casing and the lower end passes through the slot in the die-plate and engages with the feeding mechanism, and means intermediate the dial and the male dies for operating said dies by means of the dial, substantially as set forth.

481,584. TRUSS. JOHN M. OAKEY, Salem, Va. Filed Feb. 3, 1892. Serial No. 420,191. (No model.)

Claim.—A truss for the purpose set forth, comprising a scrotum-bag having a central opening, a rear or back strap fastened to the bag from the opening to its rear edge, acting as a stay therefor and extending rearward from the stride up around the belly, through guide-stays on the body-belt, said back-strap being of elastic material on its belly portion, a body-belt supporting a compression-pad and scrotum-bag, and provided with an elastic rear portion and an unyielding front portion acting as a compression-bandage for the groins, and a rigid pad secured to the body-belt above the scrotum-bag and so shaped as to fit upon and bear on the sides of the pubic bone, substantially as described.

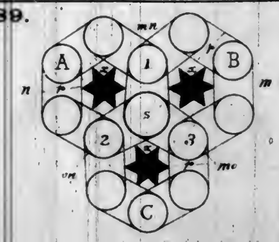
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with their outer points resting against the plates and depending bars, respectively, and a round shaft interposed between these cam-faces, and means, as a hand-wheel, for rotating said shaft, substantially as shown and described.

2. The combination, with a cabinet having an opening for inserting the press-book, of an inverted bed, with its lower face even with the top of that opening supported by depending bars attached to the inner opposite sides of said cabinet, a platen below and arranged to approach said bed, and four segmental cams arranged in pairs, with their outer points resting against the platen and depending bars, respectively, and a round shaft interposed between their cam-faces, extending outside of said cabinet and provided with a hand-wheel for revolving it, substantially as shown and described, and for the purpose specified.

3. The combination, with the cabinet having an opening [illegible]

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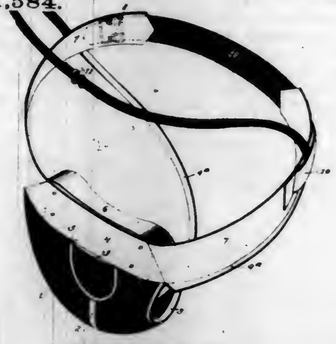


481,591. PROCESS OF DYEING WITH ALIZARIN. HENRI M. F. SCHAEFFER, Lowell, Mass. Filed Jan. 5, 1891. Renewed June 25, 1892. Serial No. 437,953. (No specimens.)

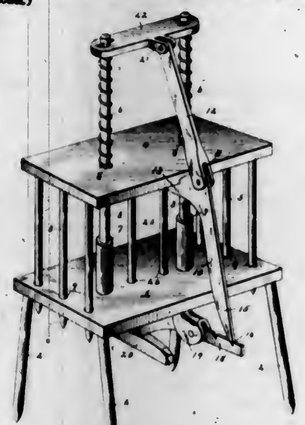
Claim.—The herein-described method of dyeing or producing colors or lakes with alizarin, which consists in first treating the cloth or fiber with a soluble modification of alizarin, consisting of a soluble salt of boracic acid and alizarin and then with a mordant, substantially as described.

481,592. MINING CAGE OR CAR. ERNEST SCHILLO, McDonald, Pa. Filed May 17, 1892. Serial No. 433,301. (No model.)

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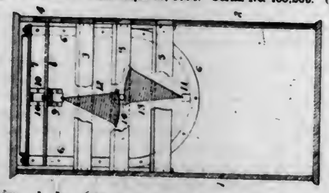


481,585. MOLE-TRAP. CHARLES OERTHER and JAMES W. DILLINGHAM, Blue Springs, Mo. Filed May 21, 1892. Serial No. 433,893. (No model.)



Claim.—In a mole-trap, the combination of a horizontal plate 1, provided with perforations and having depending legs with pointed ends adapted to anchor the trap, parallel standards rising from the plate, a cross-bar connecting the upper ends of the standards, a vertically-movable plate arranged on the standards and provided with depending impalers passing through the perforations of the horizontal plate 1, spiral springs interposed between the cross-bar and the vertically-movable plate, a connecting-link having its upper end pivoted to the cross-bar, a bell-crank lever fulcrumed at its angle to the lower end of the link and having a short arm to support the vertically-movable plate, and a trigger pivoted beneath the horizontal plate 1 and provided at its inner end with a foot and having its outer end adapted to engage the bell-crank lever, substantially as described.

481,586. LETTER-PRESS AND CABINET. GEORGE PAUL, Cuyahoga Falls, Ohio. Filed Sept. 10, 1891. Serial No. 405,266. (No model.)

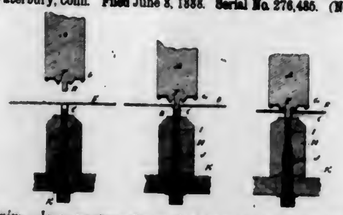


Claim.—1. In a letter-press, an inverted bed supported and retained by depending bars, and a platen below and arranged to approach said bed, combined with four segmental cams arranged in pairs, with their outer points resting against the platen and depending bars, respectively, and a round shaft interposed between these cam-faces, and means, as a hand-wheel, for rotating said shaft, substantially as shown and described.

2. The combination, with a cabinet having an opening for inserting the press-book, of an inverted bed, with its lower face even with the top of that opening supported by depending bars attached to the inner opposite sides of said cabinet, a platen below and arranged to approach said bed, and four segmental cams arranged in pairs, with their outer points resting against the platen and depending bars, respectively, and a round shaft interposed between their cam-faces, extending outside of said cabinet and provided with a hand-wheel for revolving it, substantially as shown and described, and for the purpose specified.

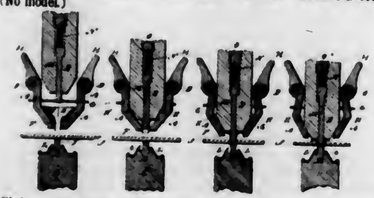
3. The combination, with the cabinet having on its inner opposite sides the U-shaped bars and platen-guides and on its outside the forked shaft-bearings, of the inverted bed attached to the upper end of the U-shaped bars, the platen having slides fitting said guides, the segmental segments resting against said slides and the U-shaped bar, and the shaft interposed between the faces of opposite pairs of segments, resting in the forked bearings and provided with a hand-wheel outside of said cabinet, substantially as shown and described

481,587. BUTTON-ATTACHING MACHINE. CLARK M. PLATT, Waterbury, Conn. Filed June 8, 1888. Serial No. 276,485. (No model.)



Claim.—In a machine for setting buttons, having a perforated center, the combination, with a die of such shape as to firmly hold a button thereon and having formed thereon a rigid pin or lug of smaller diameter than that of said perforation for extending through or partially through the same, said holder or die being also provided with a recess encircling the base of said pin to be partially overlapped by the edge of said perforation, of a second die adapted to hold an open rivet or eyelet and provided with a central yielding pin adapted to enter said eyelet, the several parts being constructed and arranged to operate in the manner and for the purpose substantially as described.

481,588. MACHINE FOR ATTACHING BUTTONS. CLARK M PLATT, Waterbury, Conn. Filed Sept. 10, 1888. Serial No. 285,016. (No model.)



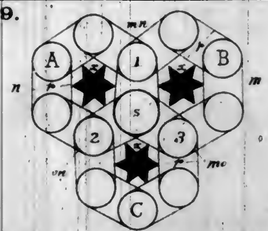
Claim.—In a machine for setting buttons, the combination, with spring-actuated jaws or fingers for holding a hollow rivet or eyelet, of an upper movable holder provided with a central yielding pin for entering said eyelet and a lower holder or die for supporting a centrally-perforated button provided with a rigid pin adapted to extend through said perforation and register with said eyelet, and also provided with an annular recess encircling the base of said rigid pin to lie partially overlapped by the edge of said perforation, substantially as set forth

481,589. PUZZLE. ABNER C. PROCTOR, Washington, D. C. Filed June 8, 1892. Serial No. 436,015. (No model.)

Claim.—1. The game or puzzle board described, having marked thereon three sections with six terminal positions to each section, the sections overlapping, so that the terminals constitute thirteen positions in all, substantially as described.

2. The game or puzzle board described, having thirteen positions arranged with one central position and three sections of six positions, each overlapping about the central position, so that two positions of each section are common to other sections and the central position is common to all, substantially as described.

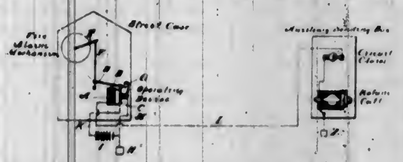
481,589.



3 The puzzle or game board described, having thirteen positions arranged substantially as described, in combination with the pieces described, three of which are designated by letters, three by numbers, and the others blanks, all substantially as stated.

4. The game-board described, having thirteen positions arranged substantially as shown, in combination with the twelve pieces, three of which are designated by letters, three by numbers, and the others not so designated, all substantially as described.

481,590. AUXILIARY FIRE-ALARM SYSTEM. JOSEPH SACHS, New York, N. Y. Filed Mar. 29, 1892. Serial No. 426,960. (No model.)



Claim.—1. A fire-alarm system consisting of a fire-alarm mechanism and a separate and independent electro-magnetic tripping device for said fire-alarm mechanism, a circuit-controlling device directly connected with said tripping device, and an auxiliary operating device at the other end of the circuit, consisting of a circuit-closer and a return-call.

2. A fire-alarm system consisting of the fire-alarm mechanism, a separate electro-magnetic tripping device for said fire-alarm mechanism, a circuit-controlling device connected with said tripping device, and an auxiliary operating device composed of a circuit-closer and return-call in the same circuit as the tripping device and circuit-controller in the fire-alarm box, but remote from said box, substantially as set forth.

3. A fire-alarm system consisting of fire-alarm mechanism, a separate electro-magnetic tripping device for said fire-alarm mechanism, a circuit-breaking device connected with said tripping device, a circuit-closing device remote from said box, a return-call adjacent to said circuit-closer, and a single electric circuit connecting said tripping device, said circuit-breaking device, said circuit-closer, and said return-call.

4. A fire alarm system consisting of a fire-alarm mechanism, a separate electro-magnetic tripping device for said fire-alarm mechanism, a circuit controlling device connected with said tripping device, and any number of circuit-closers and return-calls remote from said fire-alarm mechanism and in one and the same circuit with each other and with said tripping device and said circuit-controlling device.

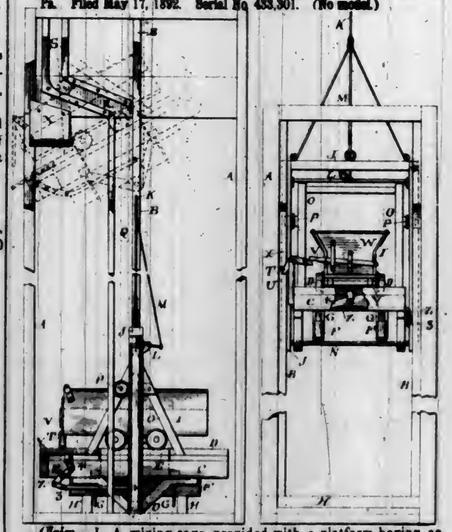
5. A fire-alarm system consisting of a fire-alarm mechanism, a separate electro magnetic tripping device for said fire-alarm mechanism, a circuit-controller directly connected with said tripping device, a number of circuit-closers and return-calls remote from said fire-alarm mechanism and in the same circuit with each other, and a single generative battery in the circuit with said circuit-closers and return-calls.

6. A fire-alarm system consisting of a fire-alarm mechanism, an electro-magnetic tripping device for said alarm mechanism, a circuit-controlling device on said tripping device, a circuit-closer remote from said alarm mechanism, and a return-call adjacent to said circuit-closer and comprising a movable guard normally held by a latch and a magnet having an armature to engage with said latch, said magnet, circuit-closer, tripping device, and circuit-controlling device being in one and the same electric circuit, whereby when the circuit-closer is operated the tripping device will be actuated and simultaneously the said magnet will be energized, thereby tripping the said latch, allowing the movable guard to fall upon the armature of the said magnet, and whereby the said circuit-controlling device will be operated simultaneously with the movement of the tripping device, thereby breaking the circuit, so as to allow the armature of the said magnet to retract, allowing the movable guard to drop to its limit of movement.

481,591. PROCESS OF DYEING WITH ALIZARIN. HENRI H. F. SCHAEFFER, Lowell, Mass. Filed Jan. 5, 1891. Renewed June 25, 1892. Serial No. 437,953. (No specimens.)

Claim.—The herein-described method of dyeing or producing colors or lakes with alizarin, which consists in first treating the cloth or fiber with a soluble modification of alizarin, consisting of a soluble salt of boracic acid and alizarin and then with a mordant, substantially as described.

481,592. MINING CAGE OR CAR. ERNEST SCHILLO, McDonald, Pa. Filed May 17, 1892. Serial No. 433,301. (No model.)



Claim.—1. A mining-cage provided with a platform having an intermediate sectional track, tracks upon both sides of said sectional track in line therewith, the inner ends of which form abutment-stops for the car-wheels when the cage is elevated, a frame carrying the sectional track, having a limited movement up and down with respect to the platform, and a support at the bottom of the shaft for arresting the downward movement of the sectional track, whereby the latter is thrown into alignment with the track on the platform when the cage is at the bottom of the shaft.

2. The mining-cage provided with a platform having a coal-chute arranged beneath and within the area of the same, so as not to interfere with the sides of the shaft, and a link mechanism connected to the car and to the chute for reciprocating the latter outwardly at the top of the shaft and for withdrawing the same upon the descent of the platform.

3. The combination of a shaft, a stationary piece arranged alongside thereof, a cage adapted to travel in the shaft, and a standard secured to the platform, provided with a pivotal lever having oppositely-projecting arms, one of which is adapted to come in contact with said piece on the side of the shaft and cause an upward movement of the opposite arm of the lever, thereby unlatching the gate of the car on the platform at a predetermined point.

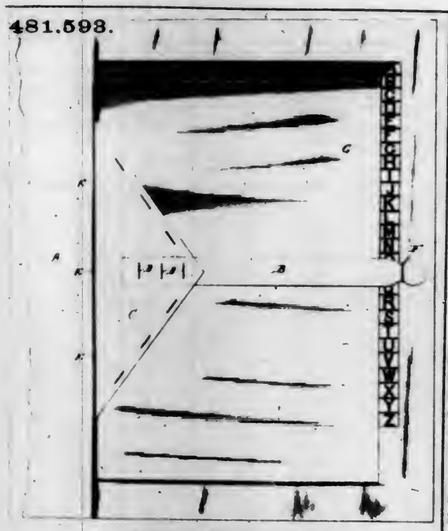
4. The combination of a mining-cage, a platform, a sectional track upon the platform, adapted to be depressed with respect thereto when the cage is elevated, a chute beneath and within the platform, a link mechanism connected to the chute and to the cage for projecting and withdrawing the same, a supplementary frame pivotally connected to the cage, having a guide pulley or pulleys thereon, and a guide way or ways upon the sides of the shaft for guiding and deflecting the supplementary frame.

481,593. DOCUMENT-FILE. EDWARD A. SHARP, Rogers Park, Ill. Filed June 24, 1892. Serial No. 437,863. (No model.)

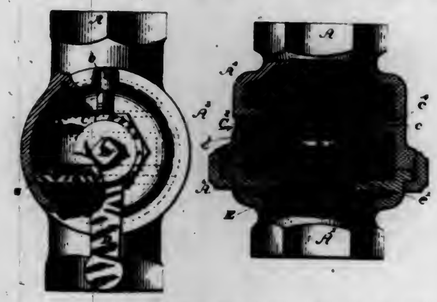
Claim.—1. The improved file comprising a folded cover, clamps, as B B', and a flap C, forming a connection by which the clamps B B' are hinged to the cover, and a fastening, as F, for the outer ends of said clamps, substantially as described.

2. The combination, in a paper-file, of an outer cover A, clamps B B' within said cover, a flap C, forming an attachment between the clamps B B' and the cover A, an index G, included within said clamps and likewise secured to said flap, and a fastening, as F, for the outer ends of said clamps, substantially as described.

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481,594. TRACK-SANDING APPARATUS. CHARLES W. SHERBURNE, Boston, Mass. Filed July 5, 1892. Serial No. 438,869. (No model.)

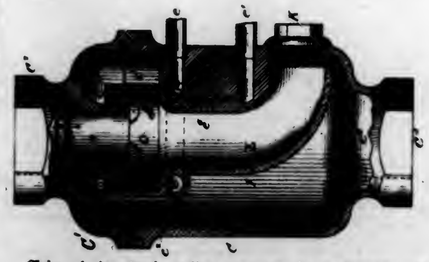


Claim.—1. In a locomotive track-sanding apparatus, the combination of a hollow body having two necks, one for attachment to the sand-pipe leading from the sand-box and the other for attachment to the sand-pipe leading in front of the driving-wheels, and an interior dome with depending walls, outside of which dome and within the cavity of the body is a sand-channel, and with a stage E, provided with a lip upon its inner edge, which lip does not exteod above the lower edge of the depending wall of the dome and is of less diameter than the wall of the dome, and with an air-pipe within the dome connected with a source of air-supply under pressure, said air-pipe C being perforated with holes for the passage of air upon its under side, as and for the purposes described.

2. In a locomotive track-sanding apparatus, the combination of a body having the interior form of a solid of revolution, which body is provided with two necks, one for connection with the sand-pipe leading from the sand-box of a locomotive and the other for connection with the sand-pipe leading in froet of the driving-wheels, with the shaft B, hollow journal C^3, perforated air-pipe C, and dome provided with depending walls C', the whole being adapted to be adjustable to and clamped at any angle with the axis of the necks A A', substantially as described.

3. In a locomotive track-sanding apparatus, the combination of a body having the interior form of a solid of revolution and provided with two necks, one for attachment to the sand pipe leading from the sand-box and the other for attachment to the sand-pipe leading in froet of the driving-wheels, and an interior stage-dome, perforated air pipe delivering air to the interior of the dome, and a shaft B, and a hollow journal C^3, adapted to be connected with a source of air-supply under pressure, and the whole being adjustable within the interior of the body and to be clamped in any position therein by means substantially as described

481,595. TRACK-SANDING APPARATUS. CHARLES W. SHERBURNE, Boston, Mass. Filed July 5, 1892. Serial No. 438,884. (No model.)



Claim.—1. In a track-sanding apparatus, the combination, with the sand-supplying apparatus, of two independent conduits for compressed air, both under control of the engineer, one of them being the pipe *e*, and the other being the pipe *d*, the pipe *d* furnishing only a small quantity of air to propel the sand, the other pipe *e* furnishing a much larger quantity of air to propel the sand, substantially as and for the purposes described.

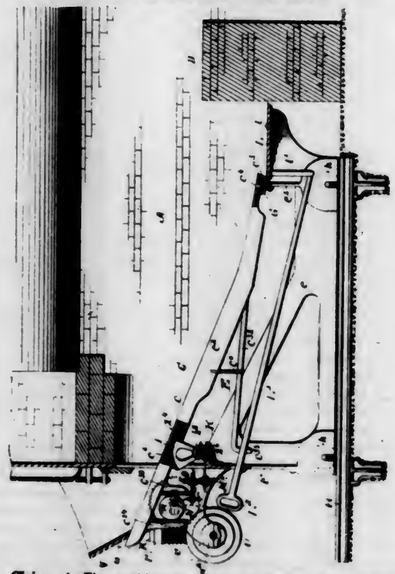
2. In a track-sanding apparatus, the combination, with the train-line and engineer's valve, of the reservoir E, the automatic valve F, air-pipe *e*, and sand-distributing barrel C, substantially as and for the purposes described.

3. The combination of the Westinghouse air-brake apparatus having an automatic valve and its air-reservoir, with an air-actuated sand-distributing barrel and sand-delivery pipe, substantially as described.

4. In a track-sanding apparatus, the combination of a sand-chamber O, a wall M, surrounding said basin, a sand-delivery channel *c*, and two air-pipes, one of which furnishes a very much larger quantity of air than the other, substantially as and for the purposes described.

5. The combination, with a railway-train and with the vehicles thereof and with the air brake apparatus of such a train, of two or more sets of automatic track-sanding apparatus actuated by compressed air of the air-brake apparatus, one of which automatic track-sanding apparatus is located on a vehicle at or near the head of the train and the other one on a vehicle behind the vehicle at or near the head of the train which carries the track-sanding apparatus hereinbefore referred to, substantially as and for the purposes described.

481,596. FURNACE-GRATE. EPHRAIM C. SOOT, Kansas City, Mo. Filed Nov. 23, 1891. Serial No. 412,780. (No model.)



Claim.—1. The combination, in furnace-grates with a grate-bar having separate longitudinal openings in its fire-surface and transverse

ribs between adjoining openings and opposing sides to said openings provided with inwardly-beveled edges, of interchangeable perforate and imperforate plates in said openings, having the edge of each plate beveled and fitted to the respective sides of the openings in said bar, substantially as described.

2. In a furnace-grate, a grate-bar having longitudinal downwardly-extended flanges upon its sides and longitudinal openings in the fire-surface of said bar, and sectional grates in said openings, and transverse ribs on the flanges of said bar between said grates having lateral bolt-receiving flanges, substantially as and for the purpose described.

3. In a furnace-grate having longitudinal grate-bars, the combination, with one of said bars having longitudinal downwardly-extended flanges upon its outer edges and grooves parallel with each other in the inner sides of said flanges, and longitudinal openings in the fire-surface of said bar, of sectional grates in the openings in said bar, transverse compartment-forming ribs connected with the inner side of said longitudinal flanges of said bar between said sectional grates and extending downwardly and serially below the line of adjoining ribs to the line of the respective grooves beneath the several compartments formed by said ribs, and sliding plates in said grooves linked together in a telescopic position, and means for operating said plates, substantially as and for the purpose described.

4. In a furnace-grate having longitudinal grate-bars, the combination, with one of said bars having downwardly-extended flanges upon its outer edges and grooves parallel with each other in the inner sides of said flanges, and longitudinal openings in the fire-surface of said bar, of sectional grates in the openings of said bar, transverse compartment-forming ribs connected with the inner sides of said longitudinal flanges of said bar between said sectional grates and extending downwardly and serially below the line of adjoining ribs to the line of the respective grooves beneath the several compartments formed by said adjoining ribs, and telescopic sliding plates on said grooves having longitudinal grooves, and pins in said grooves linking one plate with another, and an operating-rod hinged at one end to one of said sliding plates, for the purpose described.

5. In a furnace-grate having longitudinal reciprocating grate-bars and suitable transverse supporting-plates for the ends of said bars, the combination, with said supporting-plates, of one of said grate-bars provided with an aperture in the end of said bars directly over said supporting-plate, and a cavity in the under side of said grate-bar communicating with the said aperture, substantially as and for the purpose described.

6. In a furnace-grate having longitudinal reciprocating grate-bars and a suitable transverse supporting-plate for said bars, the combination, with one of said bars having a longitudinal V-shaped groove in the inner surface of said bar at the bearing end and an aperture in said end of said bar communicating with said groove, of serrated ribs in the upper surface of one of said transverse supporting-plates within the groove in the said grate-bar, substantially as and for the purpose described.

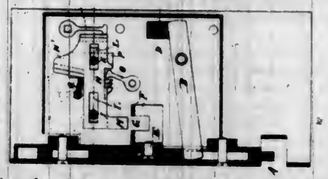
7. In a furnace having suitable side walls, the combination therewith of a grate having longitudinal reciprocating grate-bars, a transverse plate in said walls supporting the rear end of the said grate-bars, a transverse shaft beneath the front ends of the said grate-bars, and a transverse plate beneath and supporting the ends of said shaft, a rocking shoe on said shaft, having its bearing-surface in the arc of a circle supporting the forward end of one of said grate-bars, and lugs on said rocking shoe on each side of said shaft adapted to contact with the said transverse plate, substantially as and for the purpose described.

8. In antifriction grate-bar supports, a rocking shoe or plate consisting of a sector having its bearing-surface in the arc of a circle, and lateral flanges having their outer bearing-surfaces inclined in opposite directions, substantially as and for the purpose described.

9. The combination, with a longitudinal grate-bar having longitudinal downwardly-extending flanges upon its outer edges and a tread-plate on the inner side of each flange, having its lower surface inclined from said flange in an upward direction, of an antifriction support consisting of a rocking shoe or plate, each plate consisting of a sector having its bearing-surface in the arc of a circle, and lateral flanges on the sides of said shoe, having the upper bearing-surface of said flanges inclined in downward and opposite directions and adapted to fit the tread upon the said grate-bar, substantially as and for the purpose described.

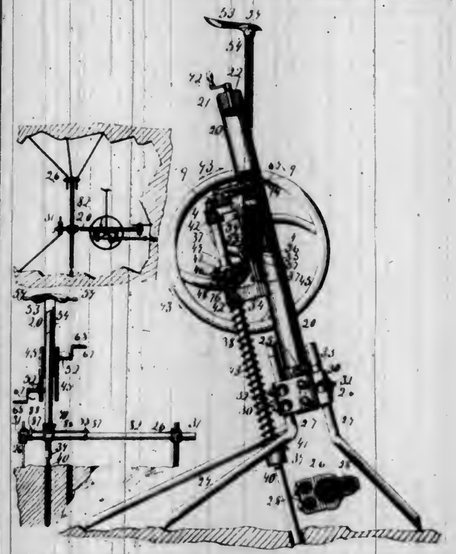
10. In a furnace-grate having suitable upper and lower transverse supports for the upper and lower ends of the grate-bars and rocking shoes upon said upper support, having a bearing-surface describing an arc of a circle, the combination of an inclined grate-bar having a plate extending the length of the fire-surface of said bar and the lower end of said plate bent upwardly at an angle to the upper portion of said plate, and means for reciprocating said bar, substantially as and for the purpose described.

481,597. LOCK. NILS G. SORENSEN, Stockholm, Sweden. Filed Nov. 5, 1891. Serial No. 410,981. (No model.)



Claim.—In a lock, the combination, with a vertically-movable bolt provided with a plate projecting therefrom and having holes therein, of tumblers moving in an angular direction to the bolt, angle-pieces projecting from the under side of the tumblers and substantially parallel to the bolt, whereby when the lock is unbolted said angle-pieces will be in a position directly above the said holes, a tripper beneath said tumblers and reaching up into notches in the edges thereof, and a knob on said tripper, whereby they may be actuated from the outside of the door.

481,598. ROCK-DRILLING MACHINE. WILLIAM X. STEVENS, Washington, D. C. Filed Oct. 3, 1891. Serial No. 408,094. (No model.)



Claim.—1. The combination, in a rock-drilling machine, of a column and a receiver perforated to fit thereon, the receiver having other perforations parallel therewith to receive legs and having yet other perforations transverse thereto to receive similar legs, substantially as described.

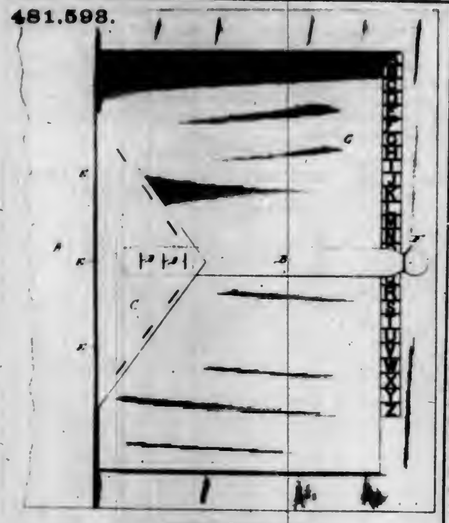
2. The combination, in a rock-drilling machine, of a column, a receiver therefor having perforations both parallel therewith and transverse thereto to receive legs, the said leg perforations intersecting each other in pairs, and a set-screw fitted in the receiver at each intersection, adapted to engage a leg in either of the intersecting perforations, substantially as described.

3. The combination of a rock-drilling-machine column, a slideway of the same form and diameter as the column, and a receiver interchangeably fitted to both column and slideway, substantially as described.

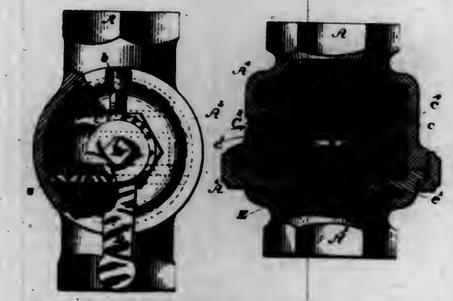
4. The combination, in a rock-drilling machine, of a column, a slideway of the same form and diameter as the column, and a receiver perforated to fit upon either the column or slideway and further perforated to receive legs, substantially as described.

5. The combination, in a rock-drilling machine, of a drill-carriage, a slideway therefor, a drill-plunger fitted to reciprocate in the carriage and provided with a series of radial arms, a sentinel located in the path of rotation of the said arms, and a drive-wheel provided with cams adapted to engage the said arms and lift them over the sentinel, substantially as described

481,593.



481,594. TRACK-SANDING APPARATUS. CHARLES W. SHERBURNE, Boston, Mass. Filed July 5, 1892. Serial No. 438,869. (No model.)

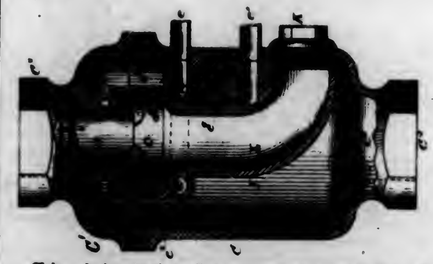


Claim.—1. In a locomotive track-sanding apparatus, the combination of a hollow body having two necks, one for attachment to the sand-pipe leading from the sand-box and the other for attachment to the sand-pipe leading in front of the driving-wheels, and an interior dome with depending walls, outside of which dome and within the cavity of the body is a sand-channel, and with a stage E, provided with a lip upon its inner edge, which lip does not extend above the lower edge of the depending wall of the dome and is of less diameter than the wall of the dome, and with an air-pipe within the dome connected with a source of air-supply under pressure, said air-pipe C being perforated with holes for the passage of air upon its under side, as and for the purposes described.

2. In a locomotive track-sanding apparatus, the combination of a body having the interior form of a solid of revolution, which body is provided with two necks, one for connection with the sand-pipe leading from the sand-box of a locomotive and the other for connection with the sand-pipe leading in front of the driving-wheels, with the shaft B, hollow journal C^3, perforated air-pipe C, and dome provided with depending walls C', the whole being adapted to be adjustable to and clamped at any angle with the axis of the necks A A', substantially as described.

3. In a locomotive track-sanding apparatus, the combination of a body having the interior form of a solid of revolution and provided with two necks, one for attachment to the sand pipe leading from the sand-box and the other for attachment to the sand-pipe leading in front of the driving-wheels, and an interior stage-dome, perforated air pipe delivering air to the interior of the dome, and a shaft B, and a hollow journal C^3, adapted to be connected with a source of air-supply under pressure, and the whole being adjustable within the interior of the body and to be clamped in any position therein by means substantially as described.

481,595. TRACK-SANDING APPARATUS. CHARLES W. SHERBURNE, Boston, Mass. Filed July 5, 1892. Serial No. 438,864. (No model.)



Claim.—1. In a track-sanding apparatus, the combination, with the sand-supplying apparatus, of two independent conduits for compressed air, both under control of the engineer, one of them being the pipe *c*, and the other being the pipe *d*, the pipe *d* furnishing only a small quantity of air to propel the sand, the other pipe *c* furnishing a much larger quantity of air to propel the sand, substantially as and for the purposes described.

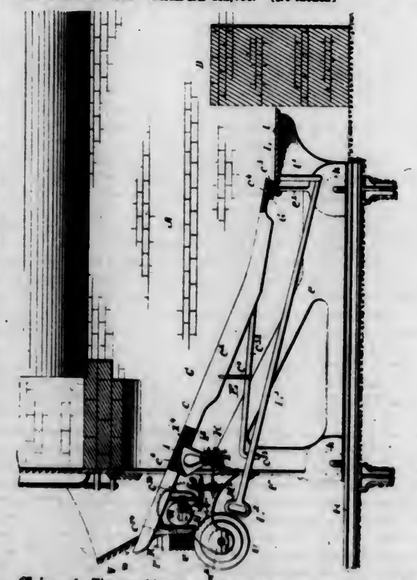
2. In a track-sanding apparatus, the combination, with the train-line and engineer's valve, of the reservoir E, the automatic valve F, air-pipe *c*, and sand-distributing barrel C, substantially as and for the purposes described.

3. The combination of the Westinghouse air-brake apparatus having an automatic valve and its air-reservoir, with an air-actuated sand-distributing barrel and sand-delivery pipe, substantially as described.

4. In a track-sanding apparatus, the combination of a sand-chamber O, a wall M, surrounding said basin, a sand-delivery channel *c*, and two air-pipes, one of which furnishes a very much larger quantity of air than the other, substantially as and for the purposes described.

5. The combination, with a railway-train and with the vehicles thereof and with the air brake apparatus of such a train, of two or more sets of automatic track-sanding apparatus actuated by compressed air of the air-brake apparatus, one of which automatic track-sanding apparatus is located on a vehicle at or near the head of the train and the other one on a vehicle behind the vehicle at or near the head of the train which carries the track-sanding apparatus hereinbefore referred to, substantially as and for the purposes described.

481,596. FURNACE-GRATE. EPHRAIM C. SOOT, Kansas City, Mo. Filed Nov. 23, 1891. Serial No. 412,780. (No model.)



Claim.—1. The combination, in furnace-grates with a grate-bar having separate longitudinal openings in its fire-surface and transverse

ribs between adjoining openings and opposing sides to said openings provided with inwardly-beveled edges, of interchangeable perforate and imperforate plates in said openings, having the edge of each plate beveled and fitted to the respective sides of the openings in said bar, substantially as described.

2. In a furnace-grate, a grate-bar having longitudinal downwardly-extended flanges upon its sides and longitudinal openings in the fire-surface of said bar, and sectional grates in said openings, and transverse ribs on the flanges of said bar between said grates having lateral bolt-receiving flanges, substantially as and for the purpose described.

3. In a furnace-grate having longitudinal grate-bars, the combination, with one of said bars having longitudinal downwardly-extended flanges upon its outer edges and grooves parallel with each other in the inner sides of said flanges, and longitudinal openings in the fire-surface of said bar, of sectional grates in the openings in said bar, transverse compartment-forming ribs connected with the inner side of said longitudinal flanges of said bar between said sectional grates and extending downwardly and serially below the line of adjoining ribs to the line of the respective grooves beneath the several compartments formed by said ribs, and sliding plates in said grooves linked together in a telescopic position, and means for operating said plates, substantially as and for the purpose described.

4. In a furnace-grate having longitudinal grate-bars, the combination, with one of said bars having downwardly-extended flanges upon its outer edges and grooves parallel with each other in the inner sides of said flanges, and longitudinal openings in the fire-surface of said bar, of sectional grates in the openings of said bar, transverse compartment-forming ribs connected with the inner sides of said longitudinal flanges of said bar between said sectional grates and extending downwardly and serially below the line of adjoining ribs to the line of the respective grooves beneath the several compartments formed by said adjoining ribs, and telescopic sliding plates on said grooves having longitudinal grooves, and pins in said grooves linking one plate with another, and an operating-rod hinged at one end to one of said sliding plates, for the purpose described.

5. In a furnace-grate having longitudinal reciprocating grate-bars and suitable transverse supporting-plates for the ends of said bars, the combination, with said supporting-plates, of one of said grate-bars provided with an aperture in the end of said bars directly over said supporting-plate, and a cavity in the under side of said grate-bar communicating with the said aperture, substantially as and for the purpose described.

6. In a furnace-grate having longitudinal reciprocating grate-bars and a suitable transverse supporting-plate for said bars, the combination, with one of said bars having a longitudinal V-shaped groove in the inner surface of said bar at the bearing end and an aperture in said end of said bar communicating with said groove, of serrated ribs in the upper surface of one of said transverse supporting-plates within the groove in the said grate-bar, substantially as and for the purpose described.

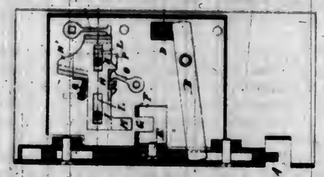
7. In a furnace having suitable side walls, the combination therewith of a grate having longitudinal reciprocating grate-bars, a transverse plate in said walls supporting the rear end of the said grate-bars, a transverse shaft beneath the front ends of the said grate-bars, and a transverse plate beneath and supporting the ends of said shaft, a rocking shoe on said shaft, having its bearing-surface in the arc of a circle supporting the forward end of one of said grate-bars, and lugs on said rocking shoe on each side of said shaft adapted to contact with the said transverse plate, substantially as and for the purpose described.

8. In antifriction grate-bar supports, a rocking shoe or plate consisting of a sector having its bearing-surface in the arc of a circle, and lateral flanges having their outer bearing-surfaces inclined in opposite directions, substantially as and for the purpose described.

9. The combination, with a longitudinal grate-bar having longitudinal downwardly-extending flanges upon its outer edges and a tread-plate on the inner side of each flange, having its lower surface inclined from said flange in an upward direction, of an antifriction support consisting of a rocking shoe or plate, each plate consisting of a sector having its bearing-surface in the arc of a circle, and lateral flanges on the sides of said shoe, having the upper bearing-surface of said flanges inclined in downward and opposite directions and adapted to fit the tread upon the said grate-bar, substantially as and for the purpose described.

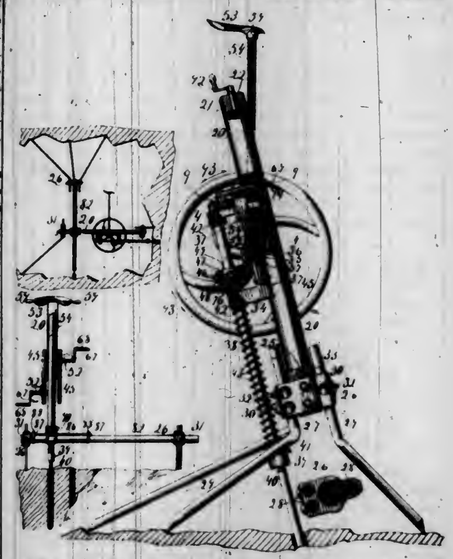
10. In a furnace-grate having suitable upper and lower transverse supports for the upper and lower ends of the grate-bars and rocking shoes upon said upper support, having a bearing-surface describing an arc of a circle, the combination of an inclined grate-bar having a plate extending the length of the fire-surface of said bar and the lower end of said plate bent upwardly at an angle to the upper portion of said plate, and means for reciprocating said bar, substantially as and for the purpose described.

481,597. LOCK. NILS G. BOLINDER, Stockholm, Sweden. Filed Nov. 5, 1891. Serial No. 410,981. (No model.)



Claim.—In a lock, the combination, with a vertically-movable bolt provided with a plate projecting therefrom and having holes therein, of tumblers moving in an angular direction to the bolt, angle-pieces projecting from the under side of the tumblers and substantially parallel to the bolt, whereby when the lock is unbolted said angle-pieces will be in a position directly above the said holes, a tripper beneath said tumblers and reaching up into notches in the edges thereof, and a knob on said tripper, whereby they may be actuated from the outside of the door.

481,598. ROCK-DRILLING MACHINE. WILLIAM X. STEVENS, Washington, D. C. Filed Oct. 8, 1891. Serial No. 408,094. (No model.)



Claim.—1. The combination, in a rock-drilling machine, of a column and a receiver perforated to fit thereon, the receiver having other perforations parallel therewith to receive legs and having yet other perforations transverse thereto to receive similar legs, substantially as described.

2. The combination, in a rock-drilling machine, of a column, a receiver therefor having perforations both parallel therewith and transverse thereto to receive legs, the said leg perforations intersecting each other in pairs, and a set-screw fitted in the receiver at each intersection, adapted to engage a leg in either of the intersecting perforations, substantially as described.

3. The combination of a rock-drilling-machine column, a slideway of the same form and diameter as the column, and a receiver interchangeably fitted to both column and slideway, substantially as described.

4. The combination, in a rock-drilling machine, of a column, a slideway of the same form and diameter as the column, and a receiver perforated to fit upon either the column or slideway and further perforated to receive legs, substantially as described.

5. The combination, in a rock-drilling machine, of a drill-carriage, a slideway therefor, a drill-plunger fitted to reciprocate in the carriage and provided with a series of radial arms, a sentinel located in the path of rotation of the said arms, and a drive-wheel provided with cams adapted to engage the said arms and lift them over the sentinel, substantially as described.

6. The combination of a drill-plunger fitted to reciprocate and to rotate in a carriage and having radial arms, means for lifting and rotating the said arms, and a sentinel located in their path of rotation and made adjustable longitudinally of the carriage, substantially as described.

7. The combination, in a rock-drilling machine, of a sliding carriage, a plunger fitted to reciprocate therein, a wheel journaled in the carriage and adapted to retract the plunger, pedal-cranks upon the wheel, and a saddle supported on the carriage, whereby the driver's relation to the cranks will be maintained throughout the movement of the carriage, substantially as described.

8. The combination of a rock-drilling machine drive-wheel journaled in bearings and provided with pedal-cranks and a saddle having supports journaled upon the said bearings, substantially as described.

9. The combination of a rock-drilling-machine carriage, a drive-wheel journaled therein and provided with pedal-cranks adapted for direct application of the driver's feet and having arms extending from their outer ends, and manual cranks formed on the extended arms, substantially as described.

10. The combination, in a rock-drilling machine, of a carriage, a feed-screw journaled in a frame parallel therewith, a ratchet-wheel threaded upon the screw between end bearings of the carriage, a lever pivoted to the carriage and having a pawl to engage the ratchet-wheel, and a drill-plunger fitted to reciprocate in the carriage, the said plunger communicating motion to the said lever by means of a parallel slide-way with an offset at its end over which the coacting part may pass, substantially as described.

11. The combination, in a rock-drilling machine, of a reciprocating drill-plunger and a feeding-lever, one of them having a parallel slideway with an offset at its end and the other having a coacting part to slide upon the said way and offset, substantially as described, whereby, first, the said lever is held out of action during the descent of the plunger until the advance of the drill into the rock requires more feed, and, secondly, the lever is actuated to give a positive feed motion by the receding plunger when thus required.

12. The combination of a reciprocating drill-plunger having a shoulder near its end, and a feed-lever fitted to bear against one side of the plunger and to pass over the said shoulder into the path of the plunger, substantially as described.

481,599. TUCK-CREASER FOR SEWING-MACHINES. HIRAM P. STEWARD, Elizabeth, N. J., assignor to The Singer Manufacturing Company of New Jersey. Filed Jan. 29, 1892. Serial No. 419,671. (No model.)



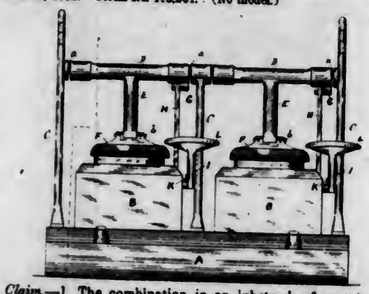
Claim.—1. In a sewing-machine tuck-creaser, the combination, with a plate over which the material is to pass and which is provided with an arm or portion having a creasing-lip, of a creasing-arm co-operating with said lip, means for operating said creasing-arm, and a presser-plate arranged to press upon the material passing over the first-named plate, said presser-plate being provided with a finger *f*, which is in a different vertical plane from the said plate over which the material is to pass, said finger being forward of the needle or the needle-hole in the presser-foot and extending toward the needle and in the direction in which the work is to be moved.

2. In a sewing-machine tuck-creaser, the combination, with a presser-foot adapted to be attached to the presser-bar of a sewing-machine, of a plate B, rigid with said foot and provided with ears, one of which is adapted to be compressed, and is thus a clamping-ear, a set-screw for compressing said clamping-ear, a plate D, provided with a creasing-lip and also with a rod adapted to pass through said ears, and a rocking bar G, having arms journaled on said rod and one of which co-operates with said lip as a creasing-arm, and a yielding operating-lever H to form an elastic connection between said rocking bar and the machine needle-bar or part by which it is operated and thereby yieldingly press the said creasing-arm against said creasing-lip.

3. In a sewing-machine tuck-creaser, the combination, with the presser-foot A, having a shank *a*, of a plate B, rigid with said foot and provided with the ears *b* and *b'*, the plate D, provided with a creasing-lip, the rod E, attached at one end to a standard on said plate and passing through said ears, a set-screw for compressing one of said ears around said rod, the rocking bar G, provided with the arms *g* and *g'*, journaled on said rod, and an operating-lever H, one portion of which is coiled around said rod, said lever having a longer arm to be engaged by the operating device and a shorter arm to depress the said bar G and a spring a^3 for lifting said bar.

4. In a sewing-machine tuck-creaser, the combination, with a presser-foot adapted to be attached to the presser-bar of a sewing-machine, of a plate B, rigid with said foot and provided with ears, a plate D, provided with a creasing-lip and with a rod adapted to pass through said ears, a set-screw for securing said rod and the plate D, with which said rod is connected, in a fixed position relative to said plate B, the rocking bar G, having arms by which it is journaled on said rod, and one of which serves as a creasing-arm, and means for vibrating said bar to operate the creasing arm.

481,600. INKSTAND. CHARLES R. STRAUGHN, Fernwood, Pa. Filed Jan. 16, 1892. Serial No. 418,261. (No model.)



Claim.—1. The combination, in an inkstand, of an ink-well, a base, standards carried by said base and extending above the top of said ink-well, a shaft pivoted to said standards and extending across the top of said ink-well, an arm depending from and integral with said shaft, a cap pivotally connected at its rear end to lower end of said arm and closing the top of ink-well, a crank on said shaft, a lever pivoted to the front part of said standards and carrying an operating-button on its front end, and a connecting-link connecting the rear end of said lever and crank, all substantially as and for the purposes set forth.

2. The combination, in an inkstand, of an ink-well, a base, standards carried by said base and extending above the top of said ink-well, a shaft pivoted to said standards and extending across the top of the ink-well, an arm depending from and integral with said shaft, a cap pivotally connected to lower end of said arm and adapted to close the top of the ink-well, a crank on said shaft, a lever pivoted to the front part of said standards and furnished at its front end with an operating-button, a link connecting the rear end of said lever and the crank, and a stop carried by the standard to which said lever is pivoted and adapted to limit the movement of said lever and its connected parts, all substantially as described.

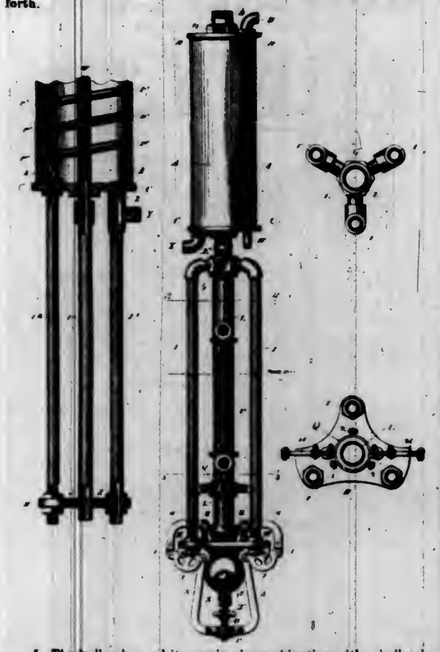
481,601. STEAM-TRAP. CYRUS TAYLOR, Buffalo, N. Y., assignor to the Excelsior Specialty Company, of New York. Filed July 20, 1891. Serial No. 400,128. (No model.)

Claim.—1. The thermo-expansible tube of a steam-trap having a valve-seat, in combination with a valve carrier connected with said tube so as to move simultaneously with and oppositely to said valve-seat, and a ball-valve loosely held and carried by said carrier and co-operating with said valve seat, substantially as set forth.

2. The thermo-expansible tube of a steam-trap having a valve-seat, the fixed plate H, and the valve-casing J, supported by said plate, into which valve-casing the free end of said thermo-expansible tube extends, in combination with a valve-carrier below said plate H, and extending within said casing J, and multiplying and reversing connections between said tube and said valve-carrier, said multiplying and reversing connections consisting of the links *c c*, connected with the thermo-expansible tube, the multiplying levers *u u*, pivoted at their inner ends to said plate H above the same and eccentrically connected with said links *c c*, the multiplying and reversing levers *l l*, eccentrically pivoted to said plate H below the same, said levers *u u* and *l l* being connected together at their outer ends beyond said plate H, and links *s s*, connecting the inner ends of said levers *l l* with the valve-carrier, substantially as set forth.

3. The thermo-expansible tube L of a steam-trap, having a valve-seat, the fixed plate H, and the valve-casing J, supported by said plate, into which valve-casing the lower free end of said thermo-expansible tube extends, the valve-carrier K below said plate H, and extending within said casing J, and the cross bar or yoke *r*, by which the said valve-carrier is carried, in combination with collar Q, fixed to said tube L, the links *c c*, pivoted at their upper ends to said collar Q, the levers *u u*, pivoted at their inner ends to and above said plate H and eccentrically connected with the lower ends of said links *c c*, the reversing-levers *l l*, eccentrically pivoted to and below said plate H, links *l l* beyond said plate H, connecting the outer ends of said levers *u u* to the outer ends of said levers *l l*, and links *s s*, connecting the inner ends of said levers *l l* with said cross-bar *r*, substantially as set forth.

4. The valve-seat, the ball-valve, and its carrier, said ball-valve and carrier moving to and from said valve-seat, in combination with a ball-valve rotator carried by said valve-carrier, substantially as set forth.



5. The ball-valve and its carrier, in combination with a ball-valve rotator consisting of a spring-actuated plunger which comes in contact with said ball-valve at one side of its vertical axis, substantially as set forth.

6. The ball-valve and its carrier, in combination with the centrally-located spring-actuated plunger o and the eccentrically-located spring-actuated plunger V, substantially as set forth.

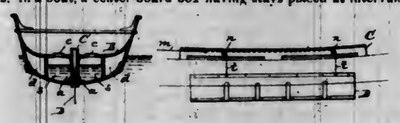
7. In a steam-trap having a thermo-expansible tube which is fixed at one end to a suitable support and the other end of which moves (responsively to changes in temperature) in a valve-casing, ties connecting said support and said casing, said ties being tubular and adapted to serve as conduits for cold water and steam, substantially as set forth.

8. In a steam-trap having a condenser and a thermo-expansible tube which is fixed at one end to a suitable support and the other end of which moves (responsively to changes in temperature) in a valve-casing, ties connecting said support and valve-casing, said ties being tubular, a portion of said ties serving as conduits for water, and one at least of said ties communicating with the interior of said condenser and serving as a conduit for steam, substantially as set forth.

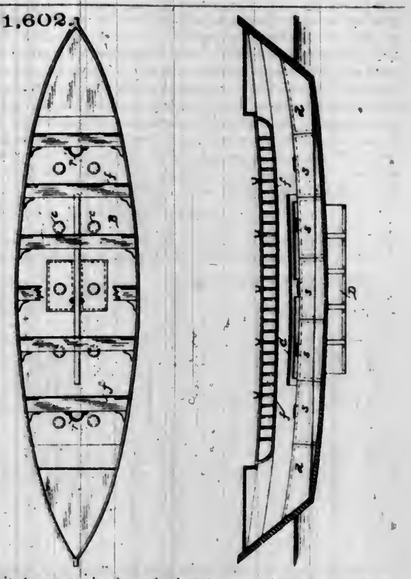
481,602. LIFE-BOAT. WILLIAM H. TAYLOR, Narragansett Pier, R. I. Filed Jan. 25, 1892. Serial No. 419,228. (No model.)

Claim.—1. In a life-boat having a second water-tight floor, as described, a center-board box extending up from the bottom of the boat through said floor, forming two water-tight compartments between the bottom of the boat and the second floor, said center-board box having valves in its sides level with the top of the second floor and opening inward into the box, in combination with removable air-tight tanks for provisions and water, fitted into said two water-tight compartments on each side of the center-board box, substantially as set forth.

2. In a boat, a center-board box having stays placed at intervals

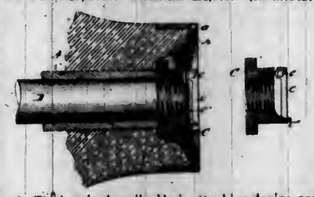


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across its lower opening its entire length, connecting its two sides together for strength, in combination with a center-board having slots made through it corresponding with said stays, substantially as described.

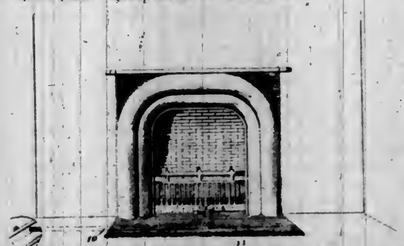
481,603. HUB-ATTACHING DEVICE. ISAAC VAN WINKLE, Dysart, Iowa. Filed Feb. 13, 1892. Serial No. 421,385. (No model.)



Claim.—1. The herein-described hub-attaching device, consisting, essentially, of a burr provided with a lever hinged thereto, the said lever when in normal position not extending beyond the square of the burr laterally and being wholly external to the axle, an axle to which the said burr is attached, and a hub having a notch or shoulder to engage the lever when folded outwardly.

2. In a hub-attaching device, the combination of a notched hub, an axle adapted to receive a burr, a burr provided with a hinged lever adapted when folded outwardly to engage with the notch in the hub and when in normal position lying within the square of said burr, but external to the axle, and a spring to hold the lever in position and prevent rattle.

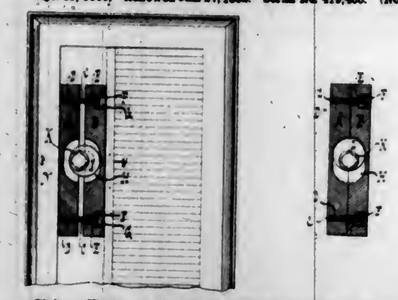
481,604. GAS-MIXER. SAMUEL K. WAGNER, Latrobe, Pa. Filed Nov. 20, 1889. Serial No. 330,955. (No model.)



Claim.—In a system of natural-gas supply, the combination, with a combustion-grate, of a mixing-chamber located underneath and in

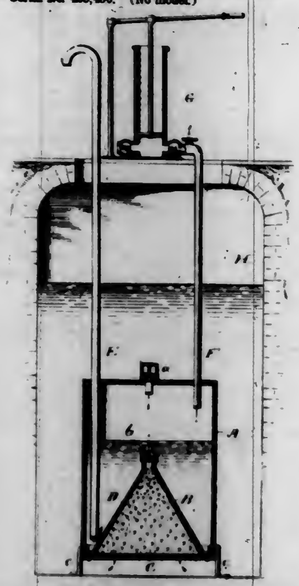
proximity to said grate and comprising a vertical and horizontal arm mutually and integrally connected by a curved elbow, a horizontal gas-supply pipe terminating in said mixing-chamber in a vertical tapered nozzle having its discharge-orifice at a point slightly above the line of the horizontal tube or arm, a manually-adjustable damper pivoted transversely across the air-passage of said horizontal arm, and an air-supply pipe connected to the horizontal arm beyond the chamber and communicating at its other extremity with the exterior air, the whole being so arranged that the gas and air come in contact with each other under pressure in substantially a vertical plane from opposite converging planes, substantially as set forth.

481,605. QUOIN. CHARLES W. WALDRON, Lewiston, Me. Filed Apr. 15, 1886, Renewed Jan. 27, 1892. Serial No. 419,406. (No model.)



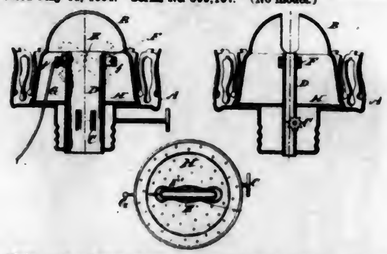
Claim.—The herein-described adjustable printer's quoin, composed of the section A, recessed on its inner side, as shown, the section B, also recessed on its inner side, as shown, and provided at its ends with the holes E and countersinks G, the cam having bearings in the upper and lower sides of said sections and adapted to work in the recess H, formed by the recessed inner faces of the sections, and the guide-pins C at one end screw-threaded into the section A and at the other end provided with a smooth portion, and a stop-head adapted, respectively, to work loosely in the holes E and countersinks G of the section B, substantially as described.

481,606. FILTER. JAMES M. WASSON, Peoria, Ill. Filed Mar. 18, 1892. Serial No. 425,436. (No model.)



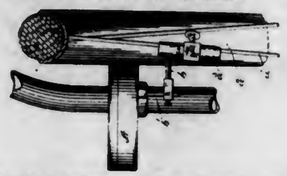
Claim.—In a submerged water-filter, a tank having a closed top with a valved opening therein and a perforated bottom plate, a filter-case packed with filtering material resting on said bottom plate and having a valved opening in its top, an air-compressor, an air-pipe connected with the compressor and extending into the tank, and a discharge-pipe in communication with the tank.

481,607. LAMP-BURNER. RICHMOND A. WENTWORTH, Hope, Me. Filed July 11, 1891. Serial No. 399,167. (No model.)



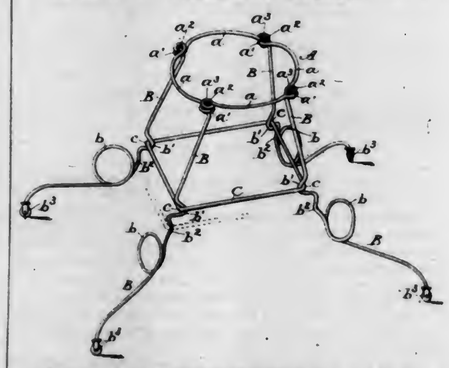
Claim.—In a lamp-burner, the combination, with the flat wick-tube D, of the regulator pivoted to said tube, consisting of a sheet-metal sleeve the sides of which are bent outwardly at their centers, forming convex friction-bearings F, and cut away or recessed at the upper edges of the ends, which project some distance beyond the wick-tube, and the depending adjusting-wire, substantially as described.

481,608. CYCLOMETER. FRANK C. WESTON, Bangor, Me. Filed Apr. 15, 1891. Serial No. 388,993. (No model.)



Claim.—In a cyclometer, the combination, with the case A, adapted to be attached to the fork of a bicycle or tricycle, of the shaft b', provided with the arm b and with the oscillating plate b^4, having a flattened side, the spring m, bearing against said flattened side, the spring-pressed pawl b^5, carried by said plate, the ratchet-wheel engaged by said pawl, a registering-train operated by said ratchet-wheel, and the adjustable and removable tappet a, clamped to a spoke of the machine-wheel and arranged to engage the said arm b to operate the cyclometer positively, substantially as set forth.

481,609. BABY-WALKER. PETER WIBERG, New York, N. Y. Filed Nov. 23, 1891. Serial No. 412,753. (No model.)



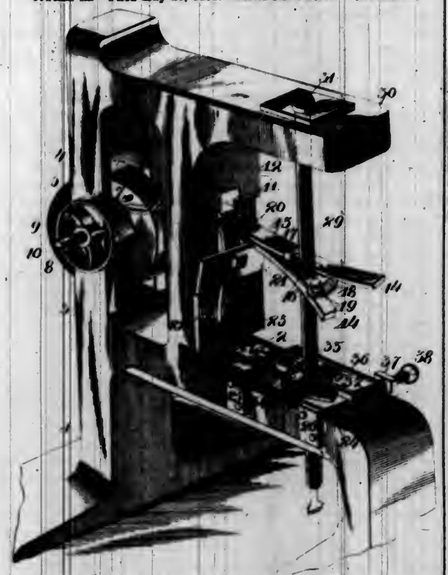
Claim.—1. In a baby-walker for infants, the combination of a waist-ring, spreading legs secured to said ring, a brace-ring encircling said legs, and means to retain said brace-ring at different points on said legs, substantially as shown and described.

2. In a baby-walker for infants, the combination of a waist ring, yielding and spreading legs secured to said ring and formed each with loops or bends projecting at different distances toward the vertical

axis of the chair, and a brace-ring loosely encircling said legs, substantially as shown and described.

3. A baby-walker for infants, composed of a series of legs having each a horizontal member bent to form a section of a waist-ring, the extremity of the horizontal member of each leg being secured to the other end of the horizontal member of the next leg, substantially as shown and described.

481,610. ROCK-DRILLING MACHINE. NICHOLAS WIDMAN, Mascoutah, Ill. Filed May 21, 1892. Serial No. 433,807. (No model.)



Claim.—1. A rock-drilling machine having a gripper composed of two members pivotally united, a wheel having one of its surfaces provided with a cam or cams for actuating said gripper in one direction, and a pin or pins fixed to the opposite surface of said wheel for depressing one end of the gripper and elevating the opposite end of the same, substantially as set forth.

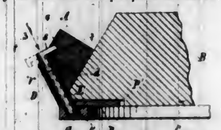
2. A rock-drilling machine consisting of a gripper movably attached to the frame of the machine, a wheel having cam-surfaces for operating the said gripper in one direction, pins carried by the said wheel for elevating one end of the gripper, a reciprocating plate or bar fixed to the bed of the machine, a lever movably attached to the said plate or bar and adapted to be actuated by the movement of the gripper in one direction, and a serrated plate adjustably secured to the said reciprocating plate or bar and adapted to be brought in contact with the drill-shaft for partially rotating the same, substantially as described.

3. A rock-drilling machine consisting of a gripper and means for operating the same, a lever 23, movably attached to the frame of the machine and adapted to be actuated by the said gripper, a reciprocating plate or bar 24, movably attached to one arm of the said lever, a serrated plate 32, adjustably secured to the said plate or bar and adapted to be brought in contact with the drill-shaft 29, an oil-basin 36, movably attached to the bed of the machine, and means for adjusting the same in relation to the said drill-shaft, substantially as set forth.

4. A rock-drilling machine comprising a gripper and means for operating the same, a plate 16, movably attached to one of the members of the said gripper, a slot 18, formed in the said plate, and a screw 19 for holding said plate in its proper adjustment in relation to the drill-shaft of the machine, substantially as set forth.

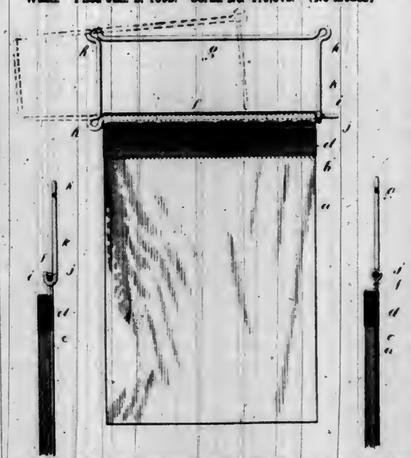
481,611. TOE-WEIGHT FOR HORSES. HARRY ARMSTRONG, Fidelity, Ill. Filed Apr. 5, 1892. Serial No. 427,940. (No model.)

Claim.—1. In a toe-weight for horses, said weight having a tongue adapted for insertion in a channel in the bottom of the hoof, a fastening mechanism comprising a pin D, adapted to pass downward through the weight into the front of the shoe, said pin having a notch r in the side thereof for the reception of the side of a transverse locking or retaining bolt E, having a similar notch g, adapted, when said bolt is pushed inward to the limit of its travel, to allow the withdrawal of the fastening-pin, a spiral spring F, located in a cavity at the end of said locking-bolt, adapted to push the latter back after being pushed in, a pin d inserted in the weight at right angles to the locking-bolt, in the side of which is a recess of such length and breadth as to limit the travel of the locking-bolt and prevent the latter turning round, all of said parts constructed, combined, and adapted to operate substantially as and for the purpose set forth.



2. A toe-weight for horses, having combined with the body thereof a fastening mechanism comprising a fastening-pin and locking-bolt constructed and adapted to each other as described, the bevel b upon the lower end of the pin D, adapted, when the pin is turned half round and in that position thrust into the shoe, to draw the weight snugly up to the hoof, the said fastening-pin D being provided with a bent head and dowel t to facilitate its withdrawal and turning round, as and for the purpose set forth.

481,612. TOILET-PAPER HOLDER. MARTIN A. BROWN, Seattle, Wash. Filed Jan. 2, 1892. Serial No. 416,870. (No model.)



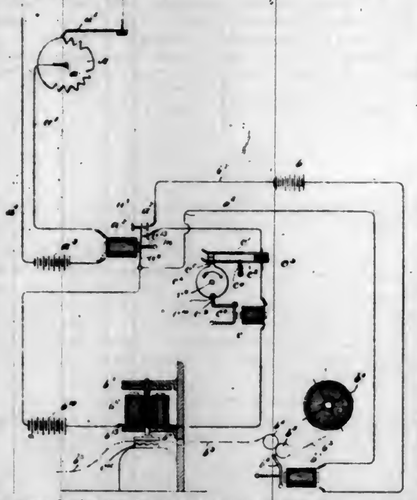
Claim.—The combination, in a toilet paper holder, of a back continued to form a loop, a rectangular wire frame composed of a single integral piece of wire, loops bent out of the wire at the upper corners of the frame and lying in the same plane therewith, and a spring-arm formed by the lower side of the frame, said arm adapted to pass through said loop, and a hook on the lower end of the right vertical side of the frame, adapted to be engaged by the free end of said spring-arm, all arranged and adapted to operate in the manner set forth.

481,613. SIGNAL-TIMING APPARATUS. HENRY A. CRASE, Boston, Mass., assignor to Albert Watts, same place. Filed May 11, 1892. Serial No. 432,615. (No model.)

Claim.—1. In a signaling system, the combination of the following instrumentalities, viz: a main electric circuit, a signal-transmitting mechanism included therein, a relay or receiving mechanism a^2 in said circuit, a local circuit controlled by said relay, a register in said local circuit, a time-stamp provided with an electro-magnet, a second local circuit controlled by the relay a^2 and independent of the register local circuit and in which the electro-magnet of the time-stamp is located, two sets of circuit-terminals for the local circuit of the time-stamp, one set of circuit-terminals being controlled by the relay, a rotary mechanical circuit-controller to govern the operation of the second set of circuit-terminals, and an electro-magnet to govern the operation of the said mechanical circuit-controller, substantially as described.

2. In a signaling system, the combination of the following instrumentalities, viz: a main electric circuit, a signal-transmitting mechanism included therein, a relay or receiving mechanism in said circuit, a local circuit controlled by said relay, a registering mechanism in said local circuit, a second local circuit controlled by the relay, a

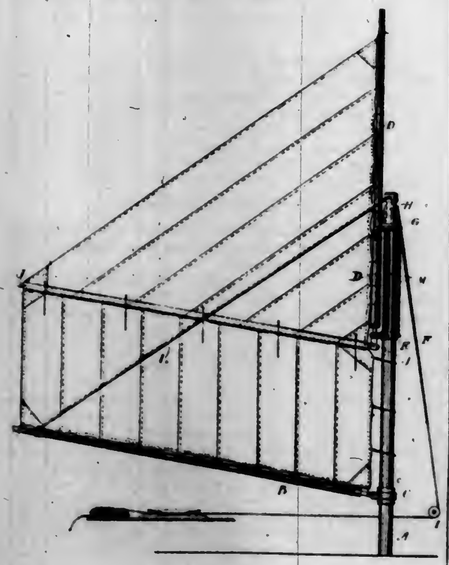
481,618.



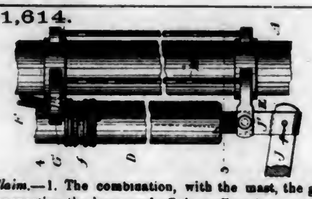
time-stamp having its electro-magnet included in said second local circuit, circuit-terminals for said local circuit, a circuit-controller to operate said circuit-terminals, and an electro-magnet in the local circuit of the time-stamp magnets to govern the operation of the said circuit-controller, substantially as described.

3. In a signaling system, the combination of the following instrumentalities, viz: a main electric circuit, a signal-transmitting mechanism included therein, a relay or receiving mechanism in said circuit, a local circuit containing a register-operating magnet *b'*, a recording strip or tape upon which the signal transmitted is received, a second local circuit controlled by the said relay, time-operating magnets located in said local circuit, normally-closed circuit-terminals in said local circuit, a circuit-controller co-operating with the said circuit-terminals to hold the same normally closed, and an electro-magnet in the local circuit of the time-operating magnets governing the operation of the circuit-controller, substantially as described.

481,614. SAIL. ALPHONSO S. CORSTOCK, Evanston, Ill. Filed Apr. 18, 1892. Serial No. 429,617. (No model.)



481,614.



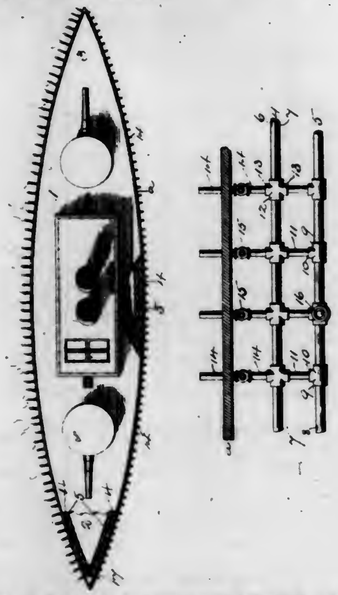
Claim.—1. The combination, with the mast, the gaff, a goose-neck connecting the lower end of the gaff to the mast, and the halyard, of a block mounted to slide on the mast above the goose-neck and means connecting said goose-neck and block, so that they move together and prevent each other from canting, substantially as set forth.

2. The combination, with the mast, the gaff, the goose neck E, connecting the lower end of the gaff to the mast, and the halyard, of a block G, mounted to slide upon the mast above the goose-neck, and spring-rods having their upper ends secured to said block and their lower ends secured to said goose neck, substantially as set forth.

3. The combination, with the mast, the gaff, and the goose-neck E, connecting the lower end of the gaff to the mast, of the block G, means connecting the goose-neck and block, and the jaws G', carried by the block and adapted to receive the gaff between them, substantially as set forth.

4. The combination, with the mast, the gaff, and the goose-neck E, connecting the lower end of the gaff to the mast, of the block G, having jaws G' and eyes *g*, the spring-rods M, connecting the goose-neck and block, and the halyard made fast to the yard and rove through the eyes *g*, substantially as set forth.

481,615. APPARATUS FOR REPELLING BOARDERS AND DISTRIBUTING OIL. FRED BYLE, New Orleans, La. Filed May 11, 1891. Serial No. 392,385. (No model.)

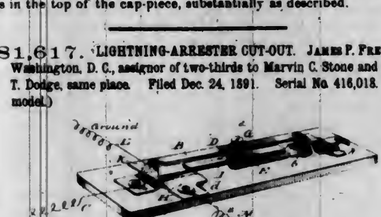


Claim.—1. In combination with a navigable vessel, a plurality of steam and oil pipes extending in an inner and an outer horizontal line circumferentially around the bow, sides, and stern of said vessel, and having registering discharge-openings in their sides, tubular-valved couplings connecting said pipes at said openings, valve-guarded nozzles extending horizontally outward from the outer circumferential pipe, and oil and steam supplies connected to said pipes, respectively, at the bow of the vessel, substantially as and for the purpose set forth.

2. In combination with the navigable vessel, a plurality of steam and oil pipes extending in an inner and an outer horizontal line circumferentially around the bow, sides, and stern of said vessel, and having registering discharge-openings in their sides, tubular couplings connecting said pipes at said openings, valve-guarded nozzles extending horizontally outward from the outer circumferential pipe, and oil and steam supplies connected to said pipes, respectively, at the bow of the vessel, substantially as and for the purpose set forth.

3. A navigable vessel, a pipe extending horizontally around the same and having a plurality of outboard-extending valve-guarded nozzles, and an oil-supply connected to the bow portion of said pipe, whereby oil may be supplied to said pipe and ejected from said nozzles, substantially as and for the purpose set forth.

481,616. BOTTLE-STOPPER. WILLIAM J. FERRIS, Louisville, Ky. Filed May 3, 1892. Serial No. 431,646. (No model.)



Claim.—1. A stopper for bottles, flasks, and like receptacles, consisting of a valve seated upon a discharge-opening of the receptacles, and a retaining device so arranged in proximity to the valve as to permit the latter to have a limited movement from said seat when in a vertical position, but preventing such movement when in any other position, substantially as described.

2. A stopper for bottles, flasks, and like receptacles, consisting of an elongated valve spherical at its lower end and seated upon a spherical seat surrounding the discharge-opening of the receptacle, and a perforated retaining-disk located above the valve and in close proximity thereto, so as to permit the valve to leave its seat only when in a vertical position, substantially as described.

3. A stopper for bottles, flasks, and the like, consisting of a cross-partition located in the discharge-neck and having an aperture, a valve-seat of spherical contour upon the upper end of said aperture, a valve upon said seat, said valve being spherical at one end and flat at the other, and a perforated retaining-disk above the valve in proximity thereto, so as to prevent the valve from leaving its seat except when in a vertical position, substantially as described.

4. In a stopper for bottles, flasks, and the like, a device for preventing the refilling by vacuum apparatus, consisting of a valve located in proximity to the entrance-opening of the bottle and within the same, said valve being adapted to be drawn or sucked across said opening when the vacuum apparatus is set in operation, substantially as described.

5. In a stopper for bottles, flasks, and the like, a device for preventing the refilling by vacuum apparatus, consisting of a valve located in proximity to the entrance-opening of the bottle and within the same, said valve being adapted to be drawn or sucked across said opening when the vacuum apparatus is set in operation, and the bottle-opening being zigzag, so as to prevent interference with said valve, substantially as described.

6. In a stopper for bottles, flasks, and the like, a device for preventing the refilling by vacuum apparatus, consisting of a perforated disk, a cap-piece above said disk and forming therewith an interior chamber, a float-valve located within such chamber, and zigzag openings in the top of the cap-piece, substantially as described.

481,617. LIGHTNING-ARRESTER CUT-OUT. JAMES P. FREEMAN, Washington, D. C., assignor of two-thirds to Marvin C. Stone and Philip T. Dodge, same place. Filed Dec. 24, 1891. Serial No. 416,018. (No model.)

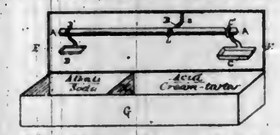


Claim.—1. In a lightning-arrester, the combination of a magnetic needle, means for directing the current lengthwise of the needle, and main-line and ground connections opened and closed alternately by the vibration of the needle.

2. The base, the arched conductor, and the needle, in combination with the line and the ground contacts at opposite sides of the needle.

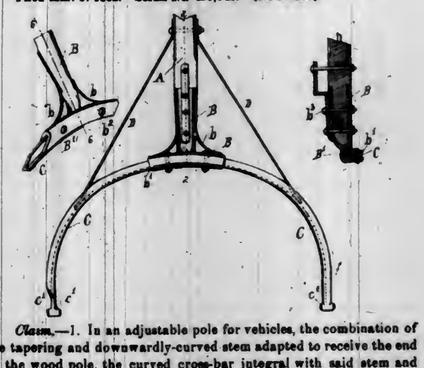
3. In combination with the needle, the line and the ground contacts, through which the current is directed by the needle, the auxiliary magnet, and means for directing the current lengthwise of the needle, substantially as described.

481,618. PROPORTIONAL BALANCE. ORLANDO H. JADWIN, Brooklyn, N. Y. Filed Apr. 20, 1891. Serial No. 389,734. (No model.)



Claim.—The herein-described box, scale-beam, and scale-pans, constructed in such a manner that the smaller of the two compartments of the box, the shorter arm of the scale-beam, and the lesser of the two scale-pans shall bear, respectively, to the larger of the two compartments of the box, longer arm of the scale-beam, and greater of the two scale-pans the same proportions that the component parts of the chemical compound to be contained in the box sustain one to the other.

481,619. VEHICLE-POLE. JAMES P. JOHNSON, Springfield, Ill. Filed Mar. 5, 1892. Serial No. 423,948. (No model.)



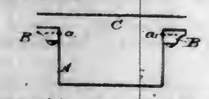
Claim.—1. In an adjustable pole for vehicles, the combination of the tapering and downwardly-curved stem adapted to receive the end of the wood pole, the curved cross-bar integral with said stem and having a longitudinal L-shaped channel adapted to receive a circle-bar of either angle-iron or flat bar-iron, and provided with horizontally-transverse holes to receive bolts connecting said circle-bar with said cross-bar, the integral braces connecting said stem with said cross-bar, and the circle-bar of angle-iron having slots, whereby the upper ends of the segments of said circle-bar may be adjusted longitudinally within said cross-bar, said segments having at their lower ends eyes, as set forth, and for the purpose stated.

2. In an adjustable pole for vehicles, a circle-bar consisting of two segments of angle-iron so formed that the edge of one member of the angle-bar from which said segments are made forms the outer convex edge of said circle-bar and the flat surface of the other member of the angle-bar forms the inner concave surface of said circle-bar, in combination with a stem adapted to receive the wood pole, a cross-bar adapted to adjustably support the upper ends of the segments forming said circle-bar, the integral eyes at the lower ends of said segments, formed by making a quarter-turn in said angle-bar, said eyes having externally-rounded ends and being rimmed out internally, and the braces connecting the wood pole with the circle-bar and adapted to fit in the angle of said circle-bar, as set forth, and for the purpose stated.

3. In an adjustable vehicle-pole, the combination of a circle-bar consisting of two segments adapted to longitudinal adjustment in the cross-bar by means of bolts passing horizontally through holes in said cross-bar and through longitudinal slots in said segment, the downwardly-curved stem adapted to receive a wood pole, the cross-bar supporting the circle-bar, and the braces connecting said circle-bar with said wood pole, as set forth, and for the purpose stated.

4. In an adjustable vehicle-pole, the combination of the stem, the cross-bar, and the braces integral with said stem, the L-shaped longitudinal channel in said cross-bar, the wood pole fitting in said stem, the hammer-strap, the bolts passing through the hammer-strap, the stem, and the wood pole, and connecting all together, the circle-bar consisting of two segments, having their upper ends longitudinally adjustable within the opening in said cross-bar and having at their lower ends eyes, the ends of said eyes being externally conical and rimmed out internally, and the braces connecting said segments with said wood pole, as set forth, and for the purpose stated.

481,620. SHEET-METAL AIR-DUCT. JUDSON H. LAKE, Elmira, N. Y., assignor to T. C. Northcott, same place. Filed May 26, 1892. Serial No. 434,435. (No model.)



Claim.—1. A sheet-metal duct composed of the part A, bent to the form necessary to form the body of the duct, (of any preferred form in cross-section,) and the plain sheet C, with the stripe B, all combined substantially as shown and described.

2. The improvement in the construction of air-ducts, which consists in forming the body of the duct of a sheet of metal bent into a trough-like form, closing its open side by a flat sheet of metal, and securing the whole in place by means of the side stripe B, substantially as herein set forth.

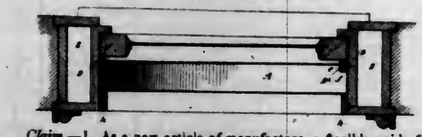
481,621. MAIL-BOX. GEORGE S. LIGHT, Covington, Ky. Filed Nov. 7, 1891. Serial No. 411,332. (No model.)



Claim.—1. A mail-box having a series of drawers therein closed at one end and open at the other, a mail-compartment above said drawers, and hinged doors with hasps and locks over the ends of said drawers, substantially as described.

2. A mail-box having a series of drawers therein open at one end and closed at the other and extending therethrough from end to end, a mail-compartment above said drawers, hinged doors adapted to close over the end of the drawers entire, hasps and locks for securing said doors, rings on the box, and a chain to engage said rings and support the box in proper position, substantially as described.

481,622. SASH-HOLDER. STEPHEN B. MORSE, Rahway, N. J. Filed May 28, 1891. Serial No. 394,386. (No model.)



Claim.—1. As a new article of manufacture, a flexible guide for window-sashes, screens, and the like, consisting of a base *d*, ribs or webs *e*, extending outwardly from the base and having a space between them, and webs *f f*, extending from the webs *e* outwardly and backwardly at an angle to webs *e*, said guide being adapted to fit between sashes and its opposite webs *f* to bear on the opposite sashes.

2. A flexible guide composed of a base *d*, ribs *e*, extending outwardly from the base and having a space between them and ribs *f*, extending backwardly from the ribs *e*, the corresponding ribs *e* and *f* forming an angle between their sides, combined with a strip D^4 fitting between the ribs *e e*.

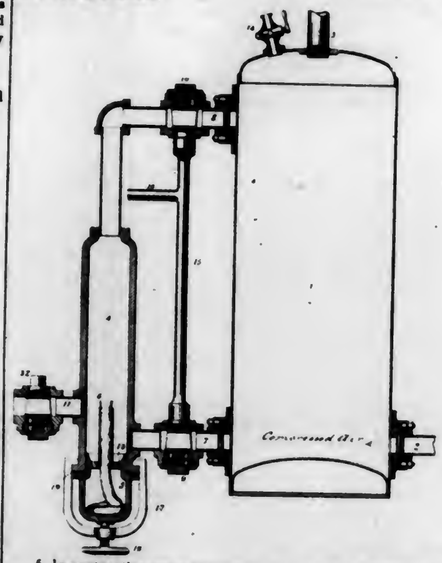
481,623. APPARATUS FOR HEATING COMPRESSED AIR. ROBERT A. PARKE, New York, N. Y. Filed July 10, 1891. Serial No. 399,052. (No model.)

Claim.—1. In combination with a source of compressed-air supply and a motor, an interposed reservoir, and a separate combustion-chamber communicating with the reservoir for the purpose of heating the air contained therein, substantially as described.

2. In combination with a source of compressed air supply and a motor, an interposed reservoir, and a separate combustion-chamber communicating with the reservoir and maintaining a circulation of air therethrough, substantially as and for the purposes described.

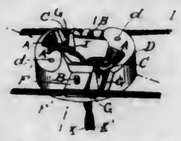
3. A reservoir or chamber having a source of compressed-air supply and an exit leading to a motor, which reservoir communicates at its upper and lower ends with the upper and lower ends, respectively, of a separate combustion-chamber, in combination with a burner producing continuous combustion in compressed air within said combustion-chamber, substantially as and for the purposes set forth.

4. In combination with a reservoir having a source of compressed-air supply and an exit leading to a motor, a separate combustion-chamber, and tubes connecting the reservoir and combustion-chamber at their upper and lower ends, cocks or valves in said tubes, by which communication may be effected or cut off between the reservoir and combustion-chamber, and a cock or valve connected with the combustion-chamber, by means of which the combustion-chamber may communicate with the atmosphere, substantially as and for the purposes described.



5. In combination with a reservoir having a source of compressed-air supply and an exit leading to a motor, a separate combustion-chamber, circulating tubes or passages connecting the reservoir and combustion-chamber, and cocks or valves in said tubes or passages, by which communication may be effected or cut off between the reservoir and combustion-chamber, substantially as and for the purposes described.

481,624. CEILING-ROSETTE CUT-OUT. JAMES FAIS and ALBERT P. SEYMOUR, Syracuse, N. Y. Filed Mar. 21, 1892. Serial No. 425,671. (No model.)



Claim.—1. In an electric-wiring fixture, the combination, with a block of porcelain or similar insulating material adapted to be clamped against the surface of a wall, ceiling, or other support, of fuse-clamps mounted in the face of said block next the surface against which the block is secured and clamp-screws passing through said block from the outer or lower surface thereof and operating to bind or fasten the fuse-wire, as and for the purpose described.

2. In a branch or rosette cut-out or similar electric-wiring device, the combination, with a block of porcelain or similar insulating material adapted to be fastened down upon the surface of any suitable support, such as a ceiling or wall, of fuse-clamps mounted in cavities or depressions on the inner surface of said block, one at or near the rim and the other within the rim, but connected with the rim by an opening adapted to receive the fuse-wire, and screws for operating on said clamps, said screws passing through the block from the outer surface and having their heads on the outside, as and for the purposes described.

3. In an electric-wiring fixture having a cut-out, a porcelain or similar block or plate adapted to be fastened to the surface of a wall

or ceiling and having the metal-work forming the clamping devices mounted on the inner side next such surface, in combination with screws passing through the block from the outer surface and serving the double function of holding the metal-work in place and operating the clamp jaws or plates.

4. In an electric-wiring fixture, the combination, with the block or plate of insulating material D, adapted to be fastened to the surface of a wall or ceiling, of a metal plate I, seated in a cavity or depression on the face of said plate next the support to which the block or plate D is secured, the clamping-screw A, passing through the block from the outer face thereof and entering the clamp-plate I, and an opening or passage connecting the cavity holding said plate I with the rim of the block to form a passage for the fuse-wire, clamped beneath said plate I.

5. In an electric-wiring fixture, the combination, substantially as described, with the block D, of insulating material, such as porcelain, adapted to be fastened to the surface of a wall, ceiling, or other support, of a clamping-plate I, seated in a depression or cavity in the face of the block next the surface to which it is secured and within the rim of said block, a passage connecting said cavity with the outer rim and adapted to receive a fuse wire clamped beneath said plate, a screw passing through said plate from the outer surface thereof for the purpose of holding said plate down and at the same time clamping the fuse-wire, and a second screw A^1, tapped into said plate for the purpose of making electrical connection with a branch or other conductor.

6. In an electric-wiring fixture, the combination, substantially as described, with the block or plate of insulating material D, adapted to be secured to the surface of a ceiling, wall, or other support, of a line-wire clamp consisting of two plates F F', mounted in a cavity or recess on the inside of said block and provided with a fastening or clamping screw passing through from the outer surface, a line-wire held between said plates, and a fuse-wire clamp beneath the lower plate F', as and for the purpose described.

7. The combination, in an electric-wiring fixture, of a combined conductor and fuse-clamp consisting of the two plates F F', mounted in a cavity or depression on one surface of the block or plate of insulating material, the clamping-plate F being mounted or supported at one end free from the surface of the opposite plate, and a fastening and clamping screw passing through said plates from the opposite surface or face of the insulating-block, and a rest or support for the fuse-wire beneath the lower of the two plates.

8. In a ceiling-rosette cut-out, a block or plate of insulating material adapted to be secured to the surface of a wall or ceiling, a line-wire clamp mounted on the face next the surface to which the said block is secured, and a fastening-screw passing through the block of insulating material from the outer surface and serving the combined purpose of holding the brasswork of the clamping devices in place and of operating the clamping-plate or metal piece which fastens the wire.

9. In a branch or rosette cut-out or similar electric-wiring device, the combination, substantially as described, with a block or plate of insulating material, such as porcelain, of clamping metal-work mounted in a depression or cavity in the face of said block next the surface to which the said block is secured and a fastening-screw passing through said block from the outer or lower surface thereof and performing the three functions of holding the metal-work, clamping the conductor-wire, and fastening the fuse.

10. In a ceiling-rosette cut-out, the combination, substantially as described, of a block of insulating material, such as porcelain, adapted to be fastened directly to a supporting-surface, a fuse-holding metal-work mounted in the side of said block next the surface to which it is fastened, and an operating-screw passing through the block from the under or outer side into said metal-work and serving the double purpose of holding the metal-work and clamping the fuse-wire.

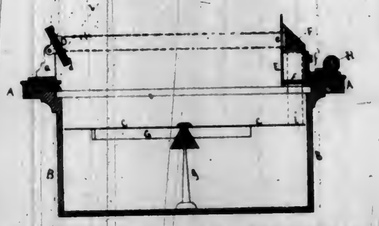
11. In an electric wiring fixture, the combination, substantially as described, with a block D of insulating material, of a pair of clamp-plates F, mounted in a depression on the inner side of said block and at the edge thereof, and a fastening-screw passing through the block of insulating material from the outer surface thereof and tapped into the upper one of said clamp-plates, the said latter plate being supported at one end free from the surface of the opposite clamp-plate, as and for the purpose described.

12. The combination, substantially as described, in an electric-wiring fixture, of a block of insulating material B, a pair of clamp-plates mounted in a depression or cavity on one surface thereof, a clamp-screw passing through the block from the opposite side or surface, and a shoulder or offset *d*, forming a rest for one end of the plate, into which said fastening-screw is tapped, as and for the purpose described.

13. In a ceiling-rosette cut-out, the combination, substantially as described, with a block or plate of insulating material adapted to be secured directly to the surface of a ceiling or wall and having its clamping metal-work mounted in depressions or cavities in the side of said plate next the surface to which it is secured, of a fuse-wire way exposed for inspection and renewal of the fuses at the edge of the block or plate, and clamping-screws passing through said block from the outer surface into the metal-work against which said fuse is fastened.

14. A ceiling or rosette cut-out comprising, in combination, the following parts: a block of insulating material D, having suitable cavities or depressions in the face or side thereof opposite the surface to which said rosette is secured, two pairs of clamp-plates F F', and corresponding fastening-screws passing through the block from the outer surface, clamp-plates I, clamp-screws A, passing through the block from the outer surface thereof and tapped into said plates, and clamp-screws A^2, tapped into the plates I from the inside of the block, and fuse-wire ways or passages accessible from the edge of the block for the renewal of fuses without detaching the insulating-block, as and for the purpose described.

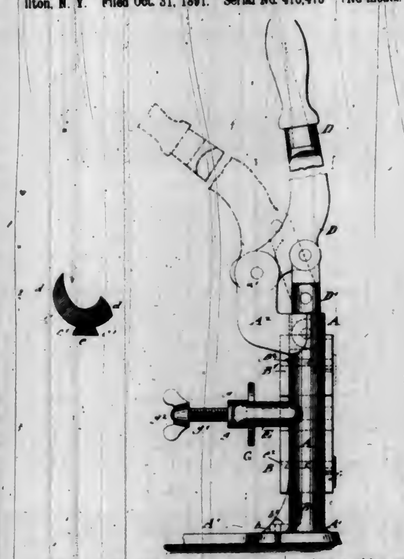
481,625. AZIMUTH-CIRCLE. EDWARD S. RITCHIE, Newton, Mass. Filed Oct. 8, 1891. Serial No. 408,188. (No model.)



Claim.—1. The combination, in an azimuth-circle, of the mirror D, the reflecting prism F, placed beyond the focus of the said mirror, and the cylindrical lens *f*, placed between the reflecting-prism and the compass-card, substantially as set forth.

2. The combination, in an azimuth circle, of the mirror D, the reflecting-prism F, and the case E, having the slit *e* between the said mirror and prism for the passage of solar rays to the compass-card.

481,626. CAPPING-MACHINE. JACOB F. WITTEMANN, Fort Hamilton, N. Y. Filed Oct. 31, 1891. Serial No. 410,478. (No model.)

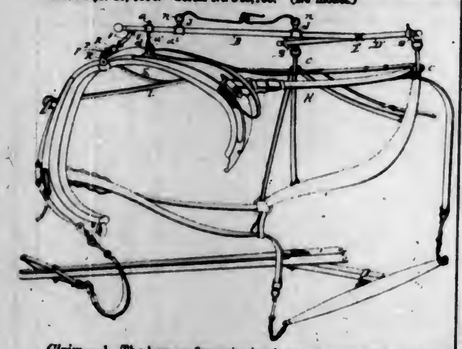


Claim.—1. The combination, in a bottle-capping machine, with a lower stationary block and an upper slide-block, both having dovetailed recesses and overhanging stops or abutments at the rear ends of said recesses, of elastic compressing-jaws having dovetailed shanks inserted into said recesses, said shanks being of less length than the jaws and beveled at their rear ends, and threaded pins having enlarged heads for retaining the jaws in the blocks, substantially as set forth.

2. A compressing-jaw for a bottle-capping machine, formed of

elastic material and approximately of semicircular shape and provided with a dovetailed shank having an exterior sheet-metal reinforcing-sheath, substantially as set forth.

481,627. HANGER FOR SWINGING HARNESS. ROBERT G. ARMSTRONG, Wichita, Kans., assignor to R. G. Armstrong & Co., same place. Filed Apr. 16, 1890. Serial No. 348,163. (No model.)



Claim.—1. The hanger for swinging harness, consisting of a longitudinal bar provided with adjustable rings or hooks for suspending it and with an adjustable depending hook for supporting the forward portion of the harness, two opposite laterally-extending arms or bars connecting with the longitudinal bar, and the two adjustable extending hooks arranged upon said lateral arms or bars, adapted to support the rear portion of the harness when the longitudinal bar is in a horizontal position and release the harness when said bar is tilted, substantially as specified.

2. The hanger for swinging harness, consisting of the combination of the bars D and D' D', the T-coupling E, the adjustable suspending-rings *n n*, the adjustable hooks *g g*, and the adjustable hook a^3, and clevis attachment V, V', R', and P, substantially as and for the purpose set forth.

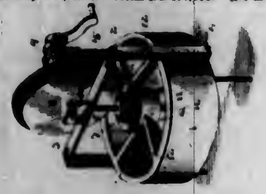
481,628. BEDSTEAD-BRACE. JOHN GRIBBEN, Pittsburg, Pa. Filed Jan. 19, 1892. Serial No. 418,565. (No model.)



Claim.—1. In a bedstead-brace, the combination, with the corner-posts, of longitudinal tie-rods, each comprising two sections provided at their opposing ends, respectively, with right and left hand screw-threads and having their distal ends bent downwardly and forwardly, the latter portion being received by a recess in the posts, turnbuckles connecting the threaded ends of said sections, and keepers secured to the bed-posts and engaging the vertical portions of the tie-rod sections, substantially as and for the purpose set forth.

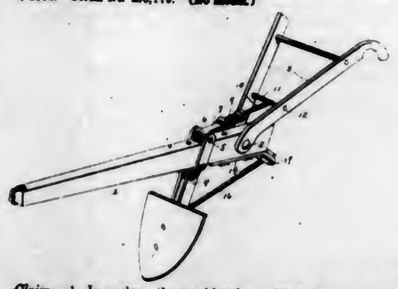
2. In a bedstead-brace, the combination, with the corner-posts, of the tie-rods, each comprising two sections screw-threaded at their opposing ends and bent at their distal ends, as shown, said ends entering recesses in the posts of the respective sides of the bedstead, the turnbuckles connecting the threaded ends of the tie-rod sections, the eyebolts connected with the tie-rods and passing through the posts, and the nuts disposed on the ends of said bolts, all arranged and adapted to operate substantially as and for the purpose set forth.

481,629. POTATO-CUTTER. FOUNTAIN JACKSON, Hawley's Store, N. C. Filed Sept. 30, 1891. Serial No. 407,235. (No model.)



Claim.—In a vegetable-cutter, the combination of a casing, a vertical shaft mounted therein, a conical knife-carrier mounted on the shaft and provided with blades, and the concavo-convex inclined partitions having curved edges arranged adjacent to the conical knife-carrier, substantially as described.

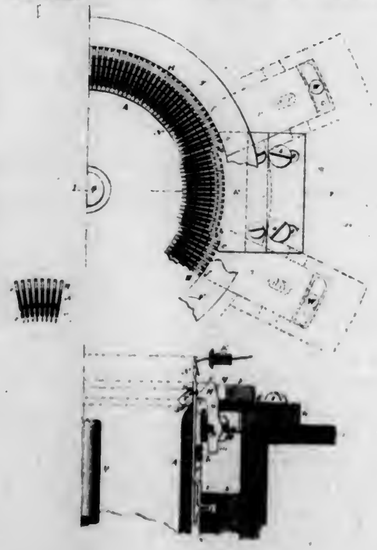
481,630. PLOW. OLE T. JESSEN, Weatherford, Tex. Filed Apr. 7, 1892. Serial No. 428,179. (No model.)



Claim.—1. In a plow, the combination, with the beam, the opposite pivoted handles at the rear ends of the same, and the bifurcated standard embracing the beam and secured thereto, a bolt passing through the bifurcations of the standards above the beam, of a shackle having a perforated head mounted on the bolt, and a rearwardly-disposed stem terminating in a tenon, a turnbuckle swiveled on the tenon, a T-shaped coupling having its transverse portions engaging perforations in the handles and its stem threaded and engaged by the rear end of the turnbuckle, substantially as specified.

2. A plow consisting of the plow-beam, the opposite pivoted and perforated handles, and the bifurcated standard embracing and extending above the beam, the perforated bent plate bolted to the under side of and extending in rear of the beam, the threaded rod passed through the perforation of the plate and having its front end pivotally bolted to the standard near the lower end of the latter, nuts located upon the rod above and below the plate, the bolt passed through the upper ends of the bifurcations above the beam, the shackle pivoted on the bolt, the plate surmounting the shackle, the turnbuckle swiveled on the shackle, and the T-shaped coupling having its transverse portions engaging perforations in the handles and having its threaded stem engaging the turnbuckle, substantially as specified.

481,631. STITCH-HOLDING MECHANISM FOR KNITTING-MACHINES. FRANK LASHER, Bennington, Vt., assignor to the Lasher Stocking Company, same place. Filed Aug 21, 1888. Serial No. 283,361. (No model.)



Claim.—1. An oscillating stitch-holder provided with a thin standing web over which the yarn as it reaches from needle to needle is stretched, standing upon a base thicker than said web, so as to have a projecting rib or guard on each side of the web as a provision for fending off the needles from contact with the sides of the web and also provided with a hook or notch on or in the upper edge of said web, and an open notch in one edge of the body of the same for the reception of the fulcrum-pivot, in combination with a stationary fulcrum-pivot and means, substantially as shown, for holding said stitch-holder and pivot in proper working engagement, substantially as and for the purposes specified.

2. The combination, with a rotary knitting-needle cylinder having a series of longitudinal slots or ways, of a series of needles working in said ways, a fulcrum-ring surrounding said cylinder, a series of stitch-holders of substantially the form described provided with open pivot-notches and pivoted so as to oscillate upon said fulcrum-ring and in radial planes between the needles, said stitch-holders having provisions, substantially as shown, for engaging the last-formed range of stitches and sinking them inwardly during the process of introducing a new feed-thread, and cams for actuating them arranged to operate substantially in the manner described, and for the purposes set forth.

3. In combination with a needle-cylinder, of a series of needles arranged to work in longitudinal grooves upon said cylinder, a series of fulcrum-pivots surrounding said cylinder, a series of stitch-holders having open pivot-notches to oscillate upon said fulcrum-pivots between said needles, and a pair of cam-plates arranged one above and the other below the pivot of oscillation for imparting to said stitch-holders their proper oscillating movements by impact therewith during the revolution of the needle-cylinder, substantially in the manner described, and for the purposes set forth

4. The combination, substantially as shown, of the needle-cylinder, needles, stitch-holders, concentric fulcrum-pivot ring slotted for the stitch-holders, and the spring-band for retaining the stitch-holders in place, substantially as specified.

5. The combination of the needle-cylinder, needles, and a series of stitch-supporters openly notched on one edge for a fulcrum-bearing and having the described notch or gap to engage the last row of completed stitches and sink the same between the needles pivoted side by side along or upon a fulcrum-bearing, with two cam-faces arranged one above and one below the plane of oscillation and adapted by their construction and connection with said stitch-supporters to impart to the same an oscillatory motion between the needles, substantially as described, and for the purposes set forth.

6. The oscillating stitch-holder provided with the described open fulcrum-notch, in combination with the fulcrum-ring, slotted pivot-band, and retaining-spring band as a means for permitting individual insertion and removal of stitch-holders without disturbing the fulcrum-ring or other pivot which may be provided instead or the adjacent stitch-holders, substantially as specified.

481,632. STEAM-ACTUATED ROCK-DRILL. SETH LLOYD and WILLIAM R. LLOYD, West New Brighton, N. Y. Filed Dec. 9, 1890. Serial No. 374,074. (No model.)

Claim.—1. In a variable-stroke drill or analogous machine that requires a variable stroke of piston, the combination, with a cylinder, piston, and main valve, of an auxiliary valve constructed and adapted to be operated by the piston at its shortest stroke, substantially as set forth.

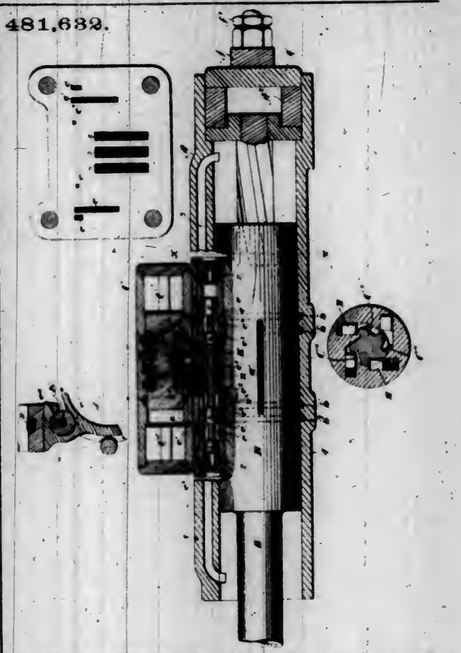
2. In a variable-stroke drill or analogous machine that requires a variable stroke of piston, the combination, with a cylinder, piston, and a main valve adapted to move quickly, of an auxiliary valve adapted to be operated by the piston at its shortest stroke and to operate the main valve after consuming in its stroke the time required for the piston to complete its full stroke, substantially as set forth.

3. In a variable-stroke drill or analogous machine in which a variable stroke is required, the combination, with a cylinder, piston, and a main valve, of an auxiliary valve adapted to be operated by the piston at its shortest stroke and supplied with ports connecting it with the main steam-chest and with the interior of the cylinder, one or more of said ports being restricted, substantially as set forth.

4. In a rock-drill or analogous machine, the combination, with a cylinder having an annular groove adapted to connect with the valve and another groove connecting with the exhaust, of a piston having a longitudinal groove which serves to establish communication between the grooves in the cylinder for the purpose of exhausting the valve, substantially as set forth.

5. In a rock-drill, the combination, with a cylinder having annular grooves therein, two of said grooves being in communication with the main exhaust, of a main valve and an auxiliary valve, said auxiliary valve communicating with other grooves in the cylinder, the piston being provided with a slot adapted to connect the exhaust-grooves

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with the grooves communicating with the auxiliary valve, substantially as set forth.

6. In a variable-stroke rock-drill or analogous machine requiring a variable stroke or piston, the combination, with a cylinder, piston, and main valve constructed to move quickly, of an auxiliary valve adapted to be operated by the piston at its shortest stroke and having its stroke lengthened to admit of close regulation, substantially as set forth.

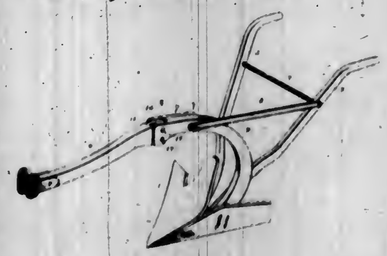
7. In a rock-drill or analogous machine, the combination of a cylinder, piston, and main valve with an auxiliary valve, the exhaust-port of said auxiliary valve being restricted, as and for the purpose described.

8. In a rock-drill or analogous machine, the combination of a cylinder, piston, and main valve with an auxiliary valve, the inlet-port of said auxiliary valve being restricted, as and for the purpose described.

9. In a variable-stroke rock-drill or analogous machine that requires a variable stroke of piston, the combination, with a cylinder, piston, and a main valve constructed to move very quickly, of an auxiliary valve adapted to be operated by the piston at the shortest stroke and having inlet-ports connecting it with the main valve chest to supply it with steam, substantially as set forth.

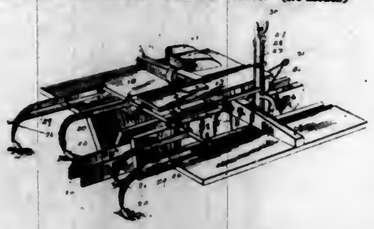
10. In a variable-stroke drill or analogous machine requiring a variable-stroke piston, the combination, with a cylinder, piston, and a main valve constructed to move quickly, of an auxiliary valve adapted to be operated by the piston at its shortest stroke and having exhaust ports placing it in communication with the piston, substantially as set forth.

481,633. PLOW. JOHN F. B. LORENTSEN, Hector, Minn. Filed Feb. 24, 1892. Serial No. 422,662. (No model.)



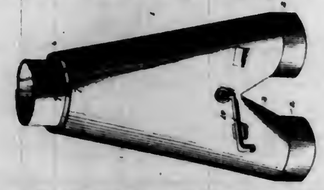
Claim.—The beam terminating at its rear end in a goose-neck standard, the adjacent ends of the standard and beam being widened and the latter bifurcated to receive the former, a pivot-pin connecting the adjacent ends near their upper edges, and a wooden brake-pin connecting the same near their lower edges, substantially as specified.

481,684. HARROW FOR LISTED CORN. ROBERT LYONS, Peiro, Iowa. Filed Mar. 15, 1892. Serial No. 424,993. (No model.)



Claim.—In a combined harrow and cultivator, the combination, with the harrow-section, of the transverse rock-shaft journaled thereon, means for oscillating the rock-shaft, cultivator-bars extending rearwardly from and secured rigidly upon the rock-shaft and terminating in downwardly-disposed shovel-carrying standards, and the clearance rods or bars extending rearwardly from the harrow at the sides of the standards, substantially as specified.

481,685. RAIN-WATER CUT-OFF. WILLIAM C. MAXFIELD, Columbus, Ohio, assignor of one-half to John W. Champion, same place. Filed May 14, 1892. Serial No. 432,993. (No model.)



Claim.—1. The combination, with the conical cut-off chamber terminating at its lower end in the discharge-openings and provided intermediate the same with the inverted-V-shaped partition forming flared mouths for the discharge-openings, the internal ring at the upper end of the cut-off chamber having diametrically-opposite slots and a depending collar, of the cut-off pipe mounted for reciprocation and vibration within the chamber and embracing the collar, pins projecting upward therefrom and through the slots, and means for vibrating the pipe and reciprocating the same at the end of its vibrations into the upper flared ends of the discharge-openings, substantially as specified.

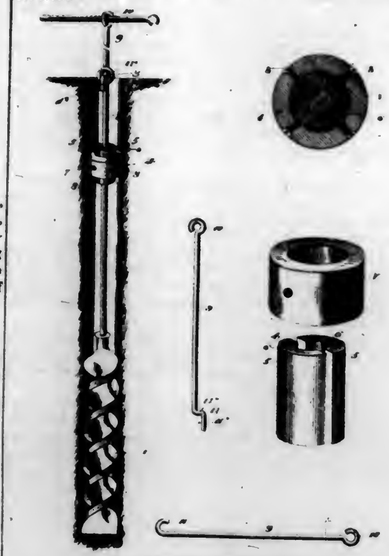
2. The combination, with the conical cut-off chamber terminating at its lower end in the opposite discharges and provided at its upper end with the internal collar extending into the chamber and with the annular ring for supporting the collar, which ring is provided at diametrically-opposite sides of the collar with slots, of the cut-off pipe having its upper end loosely encircling the collar, pins extending from said upper end and passing loosely through the slots of the ring, the crank-shaft journaled in the wall of the chamber, stops located upon the exterior of the chamber at diametrically-opposite sides of the shaft, and an arm rigidly mounted on the inner end of the shaft and pivotally connected to the lower end of the cut-off pipe, substantially as specified.

3. The combination, with the conical cut-off chamber terminating at its lower end in the opposite discharges and provided at its upper end with the internal collar extending into the chamber and with the annular ring for supporting the collar, which ring is provided at diametrically-opposite sides of the collar with slots, of the cut-off pipe having its upper end loosely encircling the collar, pins extending from said upper end and passing loosely through the slots of the ring, the crank-shaft journaled in the wall of the chamber, and an arm rigidly mounted on the inner end of the shaft and pivotally connected to the lower end of the cut-off pipe, substantially as specified.

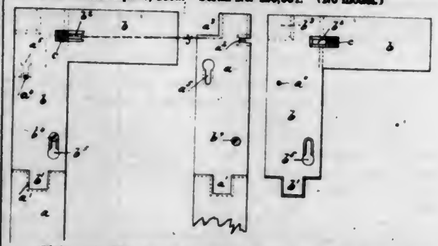
481,686. WELL-BORING APPARATUS. DANIEL L. MONROE, Bloomfield, Iowa. Filed June 24, 1891. Serial No. 397,334. (No model.)

Claim.—1. The combination, with an auger, of the elongated semi-cylindrical boxes having longitudinally-grooved meeting faces fitted upon the stem of the auger and entirely inclosing the clamped portion of the same and a band fitted around the said boxes and provided with radially-set screws bearing against the latter, substantially as and for the purpose set forth.

2. In a boring apparatus, the main auger-stem provided at one end with an eye and the extension stem or stems provided with outwardly or offstanding hooks adapted to detachably engage said eyes, said hooks comprising a right-angled portion at right angles to the stem and passing through said eyes, and a straight end portion projecting beyond the eyes and in line with both stems, substantially as set forth.



481,687. SEPARABLE SQUARE. FREDRICK F. POOLE, Newark, N. J. Filed Apr. 6, 1892. Serial No. 428,061. (No model.)



Claim.—1. The herein-described square, one of the arms *a* being provided with a recess a' at or near its center and also provided with a square or rectangular recess a^2, the other arm *b* with projections b' and b^2, adapted to fit in said recesses a' and a^2 of arm *a*, slots a^3 and b^3 arranged parallel to each other in arms *a* and *b*, respectively, pins b^4 and a^4, secured to said arms and adapted to fit and slide in their respective slots, and a locking mechanism arranged at right angles to said slots, substantially as described, and for the purposes set forth.

2. The herein-described square, one of the arms *a* being provided with a series of locking-pins *e* and at its outer edge with a series of recesses *g*, the other arm *b* with recesses *d* and pins *f*, said recesses and pins being adapted to mesh with the pins and recesses of arm *a*, elongated slots a^3 and b^3, arranged parallel to each other in the arms *a* and *b*, respectively, pins b^4 and a^4, secured to said arms and adapted to fit and slide in their respective slots, and a locking mechanism arranged at right angles to said slots, substantially as specified.

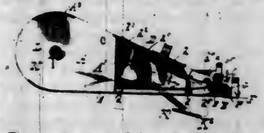
481,688. SHOE-FASTENING. HERBERT S. PULLMAN, Meriden, Conn. Filed Oct. 15, 1890. Serial No. 368,225. (No model.)

Claim.—In a spring clasp or buckle, the combination of a book-shaped tongue or lever, a base of two thicknesses of metal lying contiguous, the lower plate of said base having an opening for the lever, pintle-bearings, and the solid integral bar *e*, struck up to rest in a plane with the top plate and forward of the pintle-bearings and the top plate of said base terminating at its front edge approximately at the rear edge of the bar of the lower plate, all as described and shown, and for the purpose set forth.

481,688.



481,689. ADDRESSING-MACHINE. FRANK D. RETTICH, Cincinnati, Ohio, assignor to the Mather Manufacturing Company, Philadelphia, Pa. Filed June 20, 1891. Serial No. 396,912. (No model.)



Claim.—1. The combination of the outer case, the strip carrying roll mounted therein, the stationary cutter and pivoted cutter at the opposite end of the case, the lever H, pivoted upon the axis of the paper-roll and connected to the pivoted cutter, the lever-arm K, having one arm extending below the case, the link *k*, connecting the opposite arm to the lever H, the pivoted arm K′, pivoted to the case opposite K, the foot K^2, secured to the lever K and arm K′ to bring the knives in cutting contact when the case is brought down upon the article to be addressed, a spring to return the pivoted knife to its upper position when the machine is lifted, and means, such as shown, for feeding the paper strip to the cutters, substantially as shown and described.

2. In an addressing machine, the combination of the case having transverse partition A^1, the paste-roll B, and pressure-roll C, fitted in the front end thereof, the paste-box having its discharge-opening closed by the upper rear half of the paste-roll and held up against said roll by the transverse partition, the strip-roll, the shearing-cutters, and means, such as shown, to feed the paper strip forward and for operating the shearing-cutter, substantially as shown and described.

3. The combination, in an addressing-machine, of the case, the strip-guides, the strip-roll L, mounted in the rear of the case and longitudinally slotted, the spring-latch M, having one end secured in the slot at one end of the roll and the opposite end bent to pass through the rod, said latch being held normally within the slot by spring-pressure, substantially as shown and described.

4. The hereinbefore-described addressing-machine, consisting of the case, the slotted roll L, fitted therein, the spring-catch M, the paste-box D, having sliding cover d^6, the paste-roll B, the pressure-roll C, the guides d' and G, the cutters F F′, the levers H K, link *k*, arm K′, and foot K^2 for operating the cutter F′, the upright H′, the spring A^3, to return the cutter after an address is severed, and the wheel *b′* on the extended end of the shaft-roll B, and the inclined plate E, having rib *e*, combined and arranged substantially as and for the purpose hereinbefore set forth.

481,640. BARREL-STAND. CHARLES RETTIG, Philadelphia, Pa. Filed May 25, 1892. Serial No. 434,367. (No model.)



Claim.—1. A barrel-stand comprising four beds adjustably held together by tie-rods and sleeve-nuts, said beds having inclined ways and carrying adjustable bases, and saddles held to said bases by ball-joints, whereof the respective members interlock with each other, substantially as and for the purposes set forth.

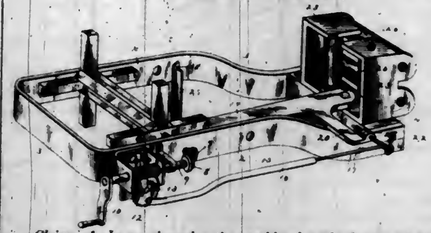
2. A barrel-stand comprising four beds adjustably held together by tie-rods, said beds having inclined ways and carrying adjustable bases and saddles, said saddles attached to said bases by ball-joints, substantially as and for the purposes set forth.

3. In a barrel-stand, sets of beds having inclined ways, bases adjustably attached to said ways and having the ball members of a ball-joint, saddles having the concave members of a ball-joint and fitting over the bases, said beds adjustably held together by tie-rods and mounted on a supporting-surface, and rollers located between said beds and said surface, substantially as and for the purposes set forth.

4. A barrel-stand comprising a set of beds held together by tie-rods, said beds having inclined ways for adjustably supporting bases and saddles with reference to the floor-line, substantially as and for the purposes set forth.

5. A barrel-stand comprising a set of beds held together by tie-rods, said beds having inclined ways and supporting bases and saddles, the latter connected by interlocking ball-and-socket joints, the bases having the cut-away ball portions of such joints and the saddles having the partially-contracted cup-shaped portions of such joints, substantially as and for the purposes set forth.

481,641. REEL-CARRIER. JOHN F. SCHNEIDER, Livingston, Wis. Filed Apr. 11, 1892. Serial No. 428,694. (No model.)



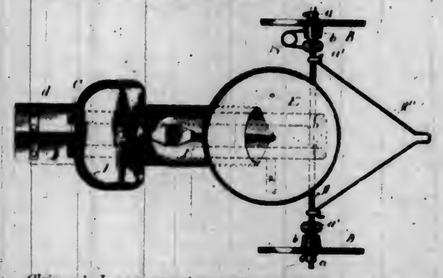
Claim.—1. In a reel-carrier, the combination of a frame, a spool-shaft journaled therein and adapted to carry a spool and provided at one end with a pinion, a counter-shaft journaled on the frame and having a pinion meshing with the pinion of the spool-shaft and provided with a worm, a cog-wheel arranged to mesh with the worm, an oscillating guide adapted to deliver wire equally to a spool, and a pitman connected to the cog-wheel and with the guide and oscillating the same, substantially as described.

2. In a reel-carrier, the combination of a frame, a spool-shaft journaled therein, an L-shaped guide pivoted to the frame and having one of its arms arranged in front of the shaft and provided with a vertical wire-holder, its other arm extending transversely of the frame and provided with a threaded opening, an adjusting-screw engaging the opening, and a pitman connected with the adjusting-screw, substantially as described.

3. In a reel-carrier, the combination of a frame, a spool-shaft journaled therein, an L-shaped guide pivoted to the frame and having one of its arms provided with a wire-holder and arranged in front of the shaft, an adjusting-screw mounted on the other arm, and a pitman connected to the screw and composed of adjustable sections, substantially as described.

4. In a reel-carrier, the combination of a frame, a spool-shaft journaled therein, a stationary guide mounted at the front end of the shaft and comprising a casing, vertical rolls journaled therein and arranged at the sides thereof and horizontal rolls arranged at the top and bottom of the casing, and the L-shaped oscillating guide having one arm provided with a wire-holder arranged in front of the shaft and having its other arm connected with suitable motive power, substantially as described.

481,642. POTATO-PLANTER. SILAS C. SCHOFIELD, Freeport, Ill. Filed Oct. 26, 1891. Serial No. 409,788. (No model.)



Claim.—1. In a potato-planter, the combination, with a main frame, a hopper mounted thereon, and a suitable support for the rear

end thereof, of an axle and suitable wheels and a vertically-adjustable swivel connecting the front of the frame with the axle, substantially as shown and described.

2. The combination, with the frame C, of the shoe D, supporting the rear end thereof, the axle A and wheels B B, the collar A', fastened upon the center of the axle, the vertical pin P, supported by the collar and swiveled in the front end of the frame, and the collar *p*, vertically adjustable upon the pin P and regulating the distance of the front end of the frame above the axle, substantially as shown and described.

3. The combination, with the frame C, the axle A, the wheels B, and the vertically-adjustable swivel connecting the front of the frame with the axle, of the shoe D, lying under the rear end of the frame, and the braces D', fastened at their lower ends to the shoe and formed at their upper ends with a series of bolt-holes, whereby they may be adjustably fastened to the frame, the frame thus being rendered vertically adjustable with reference to the shoe and the axle, substantially as shown and described.

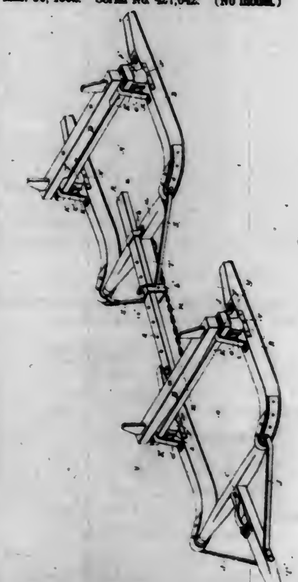
4. The combination, with the frame and its supports, of the hopper E, supported upon the frame, the feeding-spout F, opening from the lower end of the hopper, the feeding-tube G, extending downward from a suitable opening in the feeding-spout, and the valve V, adapted to close said opening in the feeding-spout when desired, substantially as shown and described.

5. The combination, with the frame and its supports, of the hopper, the feeding-spout opening therefrom, the planting-tube opening from the feeding-spout, the valve V, adapted to cover the opening from the feeding-spout to the planting-tube, and the adjustable seat I, mounted upon the frame, substantially as shown and described.

6. The combination, with the frame, the hopper, the feeding-spout, and the planting-tube, of the braces *e*, connecting the hopper with the frame and provided at their lower ends with the lateral extensions *e'*, and the adjustable seat I, mounted upon the frame, substantially as shown and described.

7. The combination, with the frame and the planting devices supported thereby, of the axle supporting the front of the frame, the wheels mounted upon and supporting the axles and provided with hubs formed with ridges *b*, the collars *a a'*, adjustably fastened on the axle and holding the wheels in place, and the spring S, having one of its ends clamped in one of the collars *a'*, while its free end presses upon the hub and is adapted to spring from one ridge *b* to another as the wheel turns and serve as an annunciator for indicating the progress of the planter, substantially as shown and described.

481,648. BOB-SLED. SAMUEL F. SPARR, Bozeman, Mont. Filed Mar. 30, 1892. Serial No. 427,042. (No model.)



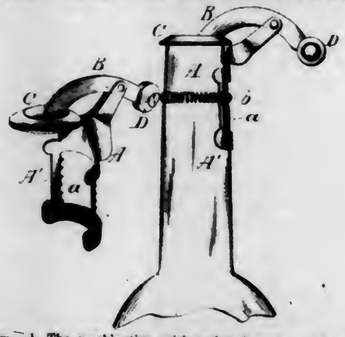
Claim.—1. The combination, with bob sleds, of a reach-bar pivotally secured to the front sled and adjustably connected with the rear sled, said rear sled having a short tongue projecting forwardly therefrom, a chain pivotally connected with the rear sled and removably and adjustably attached to the front sled, and braces pivotally attached to the runners of the rear sled and secured at their forward ends to said tongue of the rear sled, the said tongue of the rear sled being carried by a front cross-beam which is pivotally connected, substantially as described.

2. The combination of a front bob-sled having a pivoted bolster, a reach-bar pivotally connected to said bolster, a rear bob-sled having a tongue connected to a pivoted cross-bar and having loops or sleeves secured thereto, braces movably connected with the front portions of the runners of said rear bob-sled and to said tongue, said reach-bar being adapted to be adjustably mounted in said loops or sleeves, a chain pivotally connected to the rear bob-sled and removably engaging an eye secured to the front bob-sled, substantially as described.

3. The combination of a bob-sled having a transverse bed-beam or bunk supported by hollow metallic knees on the runners, said knees being formed with upper securing-flanges and a lower grooved curved side, a wooden plug in each of said knees of tapered form and having lateral projections to bear on parts of said knees and an upper extension which is fitted into and secured to said transverse bed-beam or bunk, and metal straps secured at their ends to the runners and extended over the said bed-beam or bunk, substantially as described.

4. A knee for joining the runner of a bob sled to a transverse bed-beam or bunk, consisting of a socket having separated arms projecting upwardly therefrom formed with angular flanges at the upper ends thereof, and shoulders on opposite sides at the lower termination of said arms, together with recesses in said sides, and a groove in the lower end thereof to bear on the runner, and a wooden plug constructed with an upper tenon which is inserted in said bed-beam or bunk, as set forth, and the lower end thereof fitted in said socket, substantially as described.

481,644. AUTOMATIC BOTTLE STOPPER AND COVER. CHARLES WEHRDEL, Louisville, Ky., assignor of one-half to F. A. Inder Stroth, same place. Filed Mar. 21, 1892. Serial No. 426,780. (No model.)



Claim.—1. The combination, with a plate bent to conform substantially to the shape of a bottle-neck, said plate provided with notches, and a band adapted to surround a bottle-neck and rest in notches of the plate for retaining the plate in position, of an arm pivotally supported at the upper end of the plate and provided at the inner end with a cap for closing the bottle-mouth, the outer end of the arm adapted to act as a counter-balance for the cap and opposite end of the arm, substantially as set forth.

2. The combination, with a plate bent to conform to the general shape of a bottle-neck and having a central slot the edges of which are notched, and a band adapted to surround the bottle-neck and rest in notches of the plate, of an arm pivoted on the plate and provided at one end with a cap and at the other with a weight, substantially as set forth.

3. The combination, with a bracket bent in the form shown and provided with a series of teeth, of a curved arm pivotally connected to said bracket, a cover or stopper lined with cork and attached to one end of said arm and a weight connected to its opposite end, and a coil spring or rubber band which engages the teeth in the bracket and holds the parts against displacement on the bottle, substantially as set forth.

481,645. POTATO-DIGGER. PETER J. WIBORG, Boston, Mass. Filed May 15, 1891. Serial No. 392,823. (No model.)

Claim.—1. The combination, in a potato-digger, of a rising and falling main frame mounted on wheels and having an endless apron, a scoop pivotally connected at its upper end with the main frame and adapted to swinging laterally in a horizontal plane, a lever mechanism for horizontally swinging the scoop, and an independent lever mechanism acting on the surface traversed to bodily raise the main frame and thereby elevate the scoop which is pivotally connected therewith, substantially as described.

2. The combination, in a potato-digger, of a main frame mounted on wheels and having an endless apron, a scoop pivoted to the forward end of the main frame and adapted to swing laterally in a horizontal plane, steering mechanism connected with the scoop for swinging the latter horizontally, and a lever mechanism for raising and lowering the main frame and attached scoop, substantially as described.



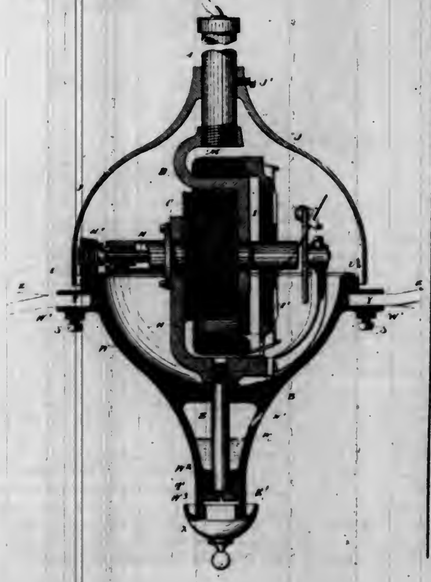
3. The combination, in a potato-digger, of a main frame mounted on wheels and having an endless apron, a scoop pivoted to the forward end of the main frame, adapted to swing laterally in a horizontal plane and provided with a draw-bar, a carriage traveling on the ground and having a spindle journaled in the draw-bar and provided with a lever for adjusting the carriage and causing the scoop to turn laterally on the main frame, and a lever mechanism for raising and lowering the main frame and attached scoop, substantially as described.

4. In a potato-digger, a frame A A and rollers journaled in the same, combined with an endless apron E, having alternate lateral rows of hooks *e e'*, the length of the hooks in one row being different from the ones in front and rear, substantially as and for the purpose set forth.

5. In a potato-digger, a frame A A, mounted on wheels and having a scoop pivoted to its forward end, combined with a treadle-lever O O', pivoted to the forward end of the frame, a roller or wheel on said lever, and a connecting device between said lever and the draw-bar of the scoop, substantially as and for the purpose set forth.

6. The combination, in a potato-digger, of a main frame mounted on wheels and having an endless apron, a scoop pivoted to the forward end of the main frame and adapted to swing laterally in a horizontal plane, a draw-bar connected with the scoop, a carriage having a spindle journaled in the draw-bar and provided with a lever, and a treadle mechanism adapted to act upon the surface traversed for lifting the scoop and main frame, substantially as described.

481,646. ELECTRIC FAN. FRANKLIN H. BEERS, Newark, assignor to himself, Wm. M. Tallman, Plainfield, N. J., and Erastus Hayes and Al. R. Brandly, New York, N. Y. Filed Feb 26, 1892. Serial No. 422,875. (No model.)

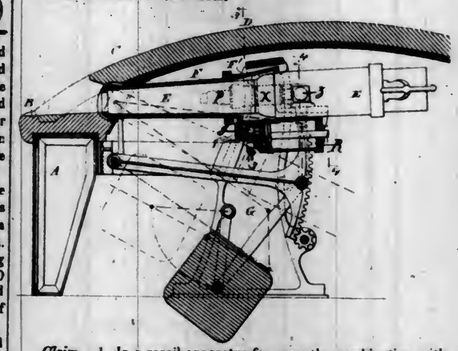


Claim.—1. An electric fan having the fan-blades attached to a revolving shell encompassing the driving-motor, as herein specified.

2. An electric fan having the fan-blades attached to a revolving shell encompassing the driving-motor, in combination with such motor and with bevel friction-gear for communicating motion therefrom to such shell, and with a movable cover, all arranged to serve substantially as herein specified.

3. The fan-driving mechanism comprising a motor having a rapidly-revolving armature and shaft, a conical friction-pulley carried thereby, a shell capable of revolving and carrying the fans turning on a central fixed rod, and provisions for storing and supplying oil to the supporting-bearing, all arranged for joint operation, as herein specified.

481,647. APPARATUS FOR MODERATING THE RECOIL OF GUNS. LÉON DÉMOTEL, Paris, France, assignor to the Compagnie Anonyme des Forges de Chatillon et Commentry, same place. Filed Oct. 15, 1890. Serial No. 368,247. (No model.)



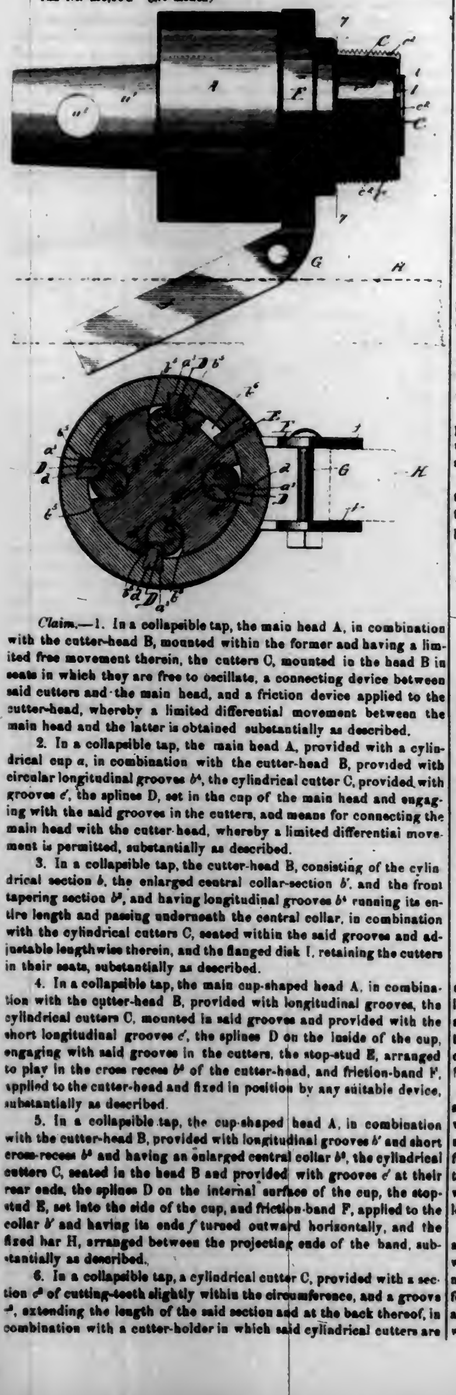
Claim.—1. In a recoil apparatus for guns, the combination, with a shoe for engaging a trunnion of the gun and movable therewith, of a recoil-cylinder, a piston therefor having a piston-rod, and a connection between said rod and said shoe, consisting of a head on the one, a recess adapted to receive said head on the other, and a removable key for locking said head in said recess adapted to be removed by a lever, whereby the gun can be separated from the recoil-cylinder by removing said key, and thereby its ready replacement is permitted.

2. In a recoil apparatus for guns, the combination, with the gun, of the shield F', recoil-cylinders X X, arranged at the respective sides of the gun, formed integrally with said shield, pistons P P, arranged in said cylinders and having rearwardly-extending piston-rods Q Q, connected, respectively, to the trunnions of the gun, a third cylinder R, arranged beneath the gun and formed integrally with said shield, conduits communicating between said recoil-cylinders and said third cylinder, a piston within the latter, a liquid medium contained in said recoil-cylinders and adapted when the pistons thereof are moved under the recoil of the gun to be forced through said conduits into said third cylinder, and thereby to move the piston of the latter, and a resisting-spring acting to resist the movement of the piston in said third cylinder, whereby when the gun recoils its recoil is transmitted through said liquid medium to said spring and is taken up by the latter, and on the termination of its recoil under the reaction of said spring the gun is restored to position, said parts constructed substantially as and for the purpose set forth.

3. In a recoil apparatus for guns, the combination of two recoil-cylinders arranged at the respective sides of the gun in front of its trunnions and parallel with its longitudinal axis, pistons arranged in said cylinders and having rearwardly-extending piston-rods connected at their rear ends to the gun and movable parallel with its axis and in a plane coincident with the axis of its trunnions, a third cylinder, conduits communicating between said cylinders, a piston within the third cylinder, a liquid medium contained in said recoil-cylinders and adapted when the pistons thereof are moved under the recoil of the gun to be forced through said conduits into said third cylinder, and thereby to move the piston of the latter, a resisting-spring acting to resist the movement of the piston in said third cylinder, whereby when the gun recoils its recoil is transmitted through said liquid medium to said spring and is taken up by the latter, and on the termination of its recoil under the reaction of said spring the gun is restored to position, and a separable connection between said piston-rods and the gun, consisting of a head on the one, a recess on the other, and a removable key for locking said head in said recess, said connection constructed when disengaged to permit the dismounting of the gun by its direct rearward movement in direction coincident with its longitudinal axis, whereby other than axial movement is unnecessary to the separation

of the gun from its recoil apparatus, substantially as and for the purpose set forth.

481,648. COLLAPSIBLE TAP. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed Feb. 9, 1892. Serial No. 420,904. (No model.)



Claim.—1. In a collapsible tap, the main head A, in combination with the cutter-head B, mounted within the former and having a limited free movement therein, the cutters C, mounted in the head B in seats in which they are free to oscillate, a connecting device between said cutters and the main head, and a friction device applied to the cutter-head, whereby a limited differential movement between the main head and the latter is obtained substantially as described.

2. In a collapsible tap, the main head A, provided with a cylindrical cup *a*, in combination with the cutter-head B, provided with circular longitudinal grooves b^4, the cylindrical cutter C, provided with grooves c', the splines D, set in the cup of the main head and engaging with the said grooves in the cutters, and means for connecting the main head with the cutter-head, whereby a limited differential movement is permitted, substantially as described.

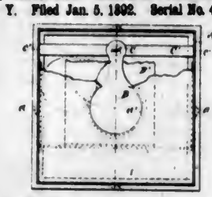
3. In a collapsible tap, the cutter-head B, consisting of the cylindrical section *b*, the enlarged central collar-section b', and the front tapering section b^2, and having longitudinal grooves b^4 running its entire length and passing underneath the central collar, in combination with the cylindrical cutters C, seated within the said grooves and adjustable lengthwise therein, and the flanged disk I, retaining the cutters in their seats, substantially as described.

4. In a collapsible tap, the main cup-shaped head A, in combination with the cutter-head B, provided with longitudinal grooves, the cylindrical cutters C, mounted in said grooves and provided with the short longitudinal grooves c', the splines D on the inside of the cup, engaging with said grooves in the cutters, the stop-stud E, arranged to play in the cross recess b^3 of the cutter-head, and friction-band F, applied to the cutter-head and fixed in position by any suitable device, substantially as described.

5. In a collapsible tap, the cup-shaped head A, in combination with the cutter-head B, provided with longitudinal grooves b' and short cross-recess b^3 and having an enlarged central collar b^5, the cylindrical cutters C, seated in the head B and provided with grooves c' at their rear ends, the splines D on the internal surface of the cup, the stop-stud E, set into the side of the cup, and friction-band F, applied to the collar b' and having its ends *f* turned outward horizontally, and the fixed bar H, arranged between the projecting ends of the band, substantially as described.

6. In a collapsible tap, a cylindrical cutter C, provided with a section c^3 of cutting-teeth slightly within the circumference, and a groove c^4, extending the length of the said section and at the back thereof, in combination with a cutter-holder in which said cylindrical cutters are free to oscillate and mechanism whereby in the backward movement of the tap the cutters are oscillated backward out of working position, substantially as described.

481,649. INKSTAND. GEORGE H. FOSTER and PHILIP H. FARRELL, Brooklyn, N. Y. Filed Jan. 5, 1892. Serial No. 417,061. (No model.)



Claim.—1. The combination, with an ink-fount, of a top therefor provided with an opening, an automatically-operating closing-cover for said opening, and a movable finger rest or piece which may be operated in the act of passing a pen to the opening to effect the uncovering of the opening, substantially as specified.

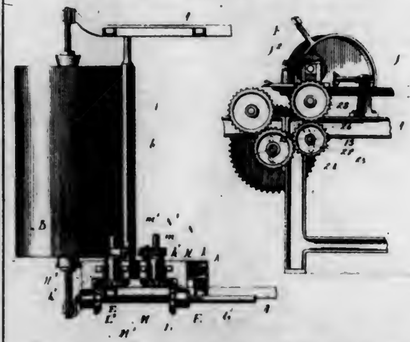
2. In an inkstand, the combination, with a fount, of a tilting top having an opening through it and a closure operated by the movements of said top, substantially as specified.

3. In an inkstand, the combination, with a fount, of a tilting top plate provided with an opening and having trunnion-bearings in said fount and a laterally-movable closure operated by the movements of said top plate, substantially as specified.

4. In an inkstand, the combination, with a fount, of the tilting top plate having an opening, a closure for said opening, a cam on said closure, and a rock-bar having a bearing for said cam, substantially as specified.

5. In an inkstand, the combination, with the fount or body, of the metal frame secured in said fount or body, a tilting plate having trunnion-bearings in said frame, and a closure for an opening in the plate, operated by movements of said plate, substantially as specified.

481,650. PAPER-BAG MACHINE. ALBERT C. GETTER, Chicago, Ill. Filed Oct. 26, 1891. Serial No. 409,775. (No model.)



Claim.—1. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper and adjustable shafts for said punches or dies, whereby the adjustment of the punches can be effected for different lengths of bags, substantially as described.

2. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper adjacent to but entirely at one side of the line of the top edge of each bag, and adjustable shafts for said punches or dies, whereby the adjustment of the punches can be effected for different lengths of bags, substantially as described.

3. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper, adjustable shafts for said punches or dies, and suitable gearing connecting said shafts with the striker or mechanism whereby the web of paper is severed, substantially as described.

4. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of punches or dies located at the front of the machine and in position to perforate the paper adjacent to the edge of the web and in advance of the folding mechanism or former, individual shafts for carrying said punches or dies, individual gear-wheels for said shafts, and suitable gearing connecting said shafts with the shaft of the striker or paper-severing mechanism, substantially as described.

5. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper, adjustable shafts for said punches, a gear-wheel for each of said shafts, adjustable gear-wheels for engaging with the gear-wheels of the punch-carrying shafts, and suitable gearing for transmitting movement to said gear-wheel, substantially as described.

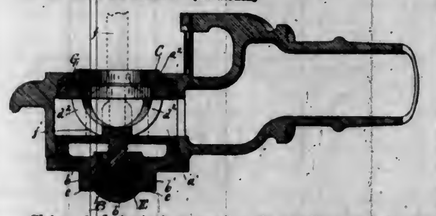
6. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper, adjustable shafts for said punches, a gear-wheel for each of said shafts, adjustable gear-wheels for engaging with the gear-wheels of the punch-carrying shafts, a shaft whereon said adjustable gear-wheels are carried and upon which they are longitudinally adjustable, and suitable gearing for connecting said shaft with the shaft of the striker or paper-severing mechanism, substantially as described.

7. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies for perforating the paper, shafts for said punches or dies, adjustable bearings for carrying said shafts, a suitable support or bracket for said adjustable bearings, and gear-wheels for driving said punch-carrying shafts, also connected to said adjustable bearings, substantially as described.

8. In a paper-bag machine, the combination, with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies for perforating the paper, holders to which said punches or dies are adjustably connected, shafts whereon said holders are adjustably mounted, suitable adjustable bearings for said shafts, and gearing for transmitting movement to said shafts, substantially as described.

9. In a paper-bag machine, the combination with suitable mechanism for feeding the web of paper and severing it into lengths and with means for varying the relative speed of the feeding and severing mechanism, of adjustable punches or dies located in position to perforate the paper adjacent to but entirely at one side of the line of the top edge of each bag, adjustable shafts for said punches or dies, gear-wheels connected to said shafts, adjustable gear-wheels for engaging with the gears upon said shafts, and a shaft extending outside the machine-frame and connecting with the striker-shaft, substantially as described.

481,651. COUPLING FOR AIR-BRAKES. JAMES T. HAYDEN, Chicago, Ill., assignor to the Crane Company, same place. Filed Mar. 31, 1892. Serial No. 427,197. (No model.)



Claim.—1. In brake-hose coupling, the coupling-case A, in combination with the coupling-cap B, the packing-ring C, and the packing-ring retainer D, provided with a threaded stem d', set in a threaded socket in the cap, whereby the retainer may be adjusted without moving the cap, substantially as described.

2. In brake-hose coupling, the coupling-case A, in combination with the packing-ring C, the cap B, provided with interior socket *b*, the internally-threaded bushing E, set in said socket, and the packing-ring retainer D, provided with threaded stem d', adapted to fit said bushing, substantially as described.

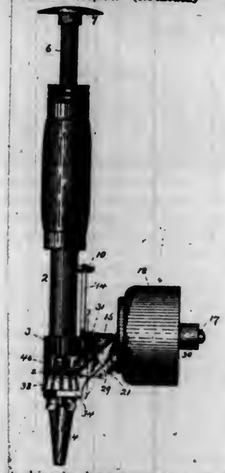
481,652. TROLLING-SPOON. HENRY LOFTIS, Syracuse, N. Y. Filed Dec. 12, 1891. Serial No. 414,831. (No model.)

Claim.—1. The combination, with the shaft *a*, of a spring-clip mounted revolubly on said shaft and terminating with a tongue extending lengthwise of the shaft and free therefrom, the spoon hung on said clip, and a ferrule on the shaft, passing over the free end of the aforesaid tongue and confining the spoon on the clip, as set forth.



2. The combination, with the shaft *a*, of the sleeve *c*, mounted revolubly on said shaft, the loop *b*, projecting laterally from the lower end of said sleeve and terminating with the upwardly-extending tongue b', standing free from the sleeve, the spoon provided with an eye adapted to slip over the said tongue and into the loop, and the ferrule *d*, removably embracing the ends of the sleeve and tongue, substantially as described and shown.

481,653. HAND TACKING IMPLEMENT. NATHANIEL LOMBARD, Boston, Mass., assignor of one-half to Orlando E. Lewis, same place. Filed Sept. 10, 1891. Serial No. 405,290. (No model.)



Claim.—1. In a tacking implement, a reciprocating plunger, the tube in which it works, and a feed-duct forming part of the devices for supplying tacks below the said plunger, in combination with a clearer reciprocating across the said feed-duct to force out the lower tack alone, a spring bearing against this clearer, a shaft on which this spring is wound, and a slotted lever connected to this shaft and receiving a stud on the said plunger in order that the descent of the latter may rock the said shaft and increase the tension of the said spring, thereby causing the latter to operate the said clearer, substantially as set forth.

2. In a tacking implement, a tack-receiver, a revoluble feed-cylinder, and a duct leading from the said receiver to the said cylinder, in combination with a clearer reciprocating across the said duct to force out one tack at a time, a spring acting on the said clearer, a lever arranged to increase the tension of the said spring when rocked in one direction, a shaft on which the said spring is wound and to which the said lever and spring are connected, and a tack-driving plunger having a sliding connection with the said lever to effect the motion of the said clearer when the said plunger is depressed to drive a tack, substantially as described.

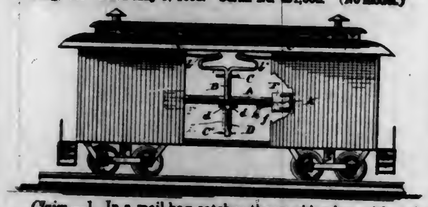
3. In a tacking implement, a reciprocating plunger, in combination with a tack-containing receptacle, connections between the said receptacle and the said plunger for causing the rotation of the former by the stroke of the latter, and devices for conducting the tacks from the said receptacle to the space below the said plunger, the said receptacle being provided with a series of buckets extending inward and also with a concentrically-arranged series of rods which are nearer the center of the receptacle than said buckets and are arranged to enable the said buckets to retain a part of their contents long enough to effect a more even distribution thereof, substantially as set forth.

4. In a tacking implement, a reciprocating plunger, a plunger-tube, and a feed-cylinder connected therewith, in combination with a tack-containing receptacle adapted to be revolved intermittently by the action of the said plunger, a series of rods arranged concentrically

within said receptacle, and a series of buckets between the said rods and the inclosing shell of the receptacle, the said rods being in such proximity to the said buckets as to enable the latter to retain a part of their contents and distribute the latter more evenly as the receptacle revolves, substantially as set forth.

5. In a tacking implement, a tack-driving plunger, in combination with a tack-receptacle rotated thereby and a duct for conveying the tacks from the said receptacle, a clearer reciprocating across the said feed-duct to force out one tack at a time, a spring acting on the said clearer, a lever arranged to increase the tension of the said spring when rocked in one direction, a shaft on which the said spring is wound and to which the said lever and spring are connected, a sliding connection between said lever and said plunger to effect the motion of said clearer when the said plunger is depressed, and a fixed inclined inwardly-projecting deflector 28, arranged within the said receptacle in proximity to the said duct, but outside of the same and operating, when the feed-duct is full, to turn away the rejected tacks, substantially as set forth.

481,654. MAIL-BAG CATCHER. GEORGE W. MOORE, Jr., Lynchburg, Va. Filed May 3, 1892. Serial No. 431,662. (No model.)



Claim.—1. In a mail-bag catcher, the combination, with a shaft mounted in suitable bearings, of an arm secured thereto and provided with a double hook and a lever pivoted directly to said shaft, said arm and lever being provided with rods projecting laterally upon both sides of the same, substantially as set forth.

2. In a mail-bag catcher, the combination, with a shaft mounted in suitable bearings, of an arm secured thereto and provided with a double hook, a lever pivoted directly to said shaft, said arm and lever being each provided with a rod projecting laterally on both sides of the same, the said shaft being capable of a partial rotation in its bearings, whereby the said arm may be adjusted to a horizontal or vertical position, and means for holding said arm in either of its adjusted positions, substantially as set forth.

3. In a mail-bag catcher, the combination, with a shaft detachably mounted in suitable bearings, of an arm secured thereto and provided with two hooks extending in opposite directions, a lever pivoted to said shaft, said arm and lever being each provided with a rod projecting laterally upon both sides of the same, said shaft having a partial rotation in its bearings to swing said lever from a vertical to a horizontal position, shoulders upon the end of the shaft engaging recesses in the bearings for holding the arm in a horizontal position, and a locking lever for holding the arm in a perpendicular position, as set forth.

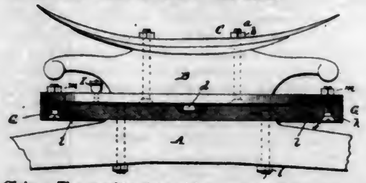
4. In a mail-bag catcher, the combination of a shaft A, carrying a fixed hooked arm B and a pivoted lever D, said arm and lever being respectively provided with laterally-projecting rods C C for holding a mail-bag, and separable bearing-blocks F, one member of which is detachable from the other, in which the ends of the shaft are journaled, whereby the device can be removed from its bearings on one door-frame and journaled in the opposite door-frame, substantially as set forth.

5. In a mail-bag catcher, the combination, with the shaft A, carrying the fixed hooked arm B, having rod C, and pivoted lever D, having rod C', splines E, arranged upon each end of the shaft, and the bearing-blocks F, provided with bearings for the ends of the shaft and with double recesses H, within which said splines lie and serve to hold the shaft in a position to support the arm B in a horizontal position, substantially as set forth.

6. In a mail-bag catcher, the combination, with the shaft A, carrying the fixed hooked arm B, having rod C, and pivoted lever D, having rod C', the bearing-blocks F, in which the ends of said shaft are journaled, the locking-lever k, pivoted within a groove formed in one end of the shaft, and a recess k' in one of said bearing-blocks for the reception of said locking-lever, whereby the shaft is locked in position to support the arm B in a vertical position, substantially as set forth.

7. In combination with the shaft A, arm B, having rod C, and lever D, having rods C', the bearing-blocks F, each consisting of the blocks *f f'*, provided upon their adjacent faces with half-bearings for the ends of the shaft, the block *f* being provided with two bolt-holes and the block *f'* with two open slots in alignment with said bolt-holes, and bolts passing through the said bolt-holes and slots, secured therein by nuts, all constructed and arranged whereby the block *f'* may be detached from the block *f* without removing the bolts, for the purpose specified.

481,655. FIFTH-WHEEL. HENRY OLSEN, Winona, Minn. Filed Apr. 18, 1892. Serial No. 429,590. (No model.)



Claim.—The combination, with a wagon-bolster and an axle, of the fifth-wheel consisting, essentially, of the following instrumentalities in combination, viz: the upper top plate or disk having a centrally-depending boss or lug on its under side and also having bolt-holes through its body and at points around its margin for the passage of bolts which connect it to the axle, the base plate or disk having a central recess or socket on its upper side to receive said depending boss or lug of the top plate or disk and rabbeted on its under marginal edge and also having bolt-holes in its body for the passage of bolts, which connect it to the axle, a ring rabbeted to receive the rabbeted edge of the lower plate or disk and having holes to register with the marginal holes in the upper plate or disk, and bolts or the like for securing the ring to said upper plate, and consequently the lower or base plate thereto, substantially as specified.

481,656. CUTTER OR DRILL APPLICABLE TO COAL, &c. HANS RENOLD, Manchester, and WALTER T. GOOLDEN, LLEWELYN B. ATKINSON, and SYDNEY C. G. GOLD, London, England. Filed Sept. 5, 1891. Serial No. 404,873. (No model.) Patented in England Aug. 24, 1889, No. 13,362.



Claim.—In a cutter-bar or drill, the combination, with a plain cylindrical bar provided with a flange for attachment to the cutting or drilling machine, of a series of taper holes drilled tangentially to a small circle about the axis and cutters with taper shanks frictionally held therewith, cutting faces slightly inclined to the plane of revolution, the said holes arranged at equal distances upon the intersection of each pair of pitch-lines, one left-handed with a pitch about once the length of the bar and one right-handed of short pitch about one-tenth the length of the bar, the cutters being thus adapted both to feed out the cuttings by the right-hand spiral setting and also by the left-hand spiral setting to engage only successively in any stratum parallel to the axis of the bar.

481,657. GAME-COUNTER. SAMUEL D. STURGIS, Jr., and FREMONT P. PECK, Presidio, Cal. Filed Sept. 26, 1889. Serial No. 325,123. (No model.)



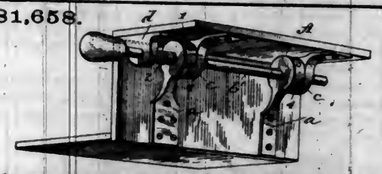
Claim.—In a game-counter, the combination, with the casing provided at opposite ends with two depressed portions and with the intermediate opening, of the two disks B and B', mounted side by side to turn within said casing, said disks provided with the teeth and corresponding numbers adapted to be brought opposite the opening, the finger *g*, pivoted to disk B, its returning-spring and stop, and the two independent disk-actuating dogs mounted at opposite ends of the casing and each provided with an arm extending through the casing into the depressed portions thereof.

481,658. EXTENSIBLE STEP FOR CARS. WILLIAM H. VOSS, East Stroudsburg, Pa. Filed May 16, 1892. Serial No. 433,201. (No model.)

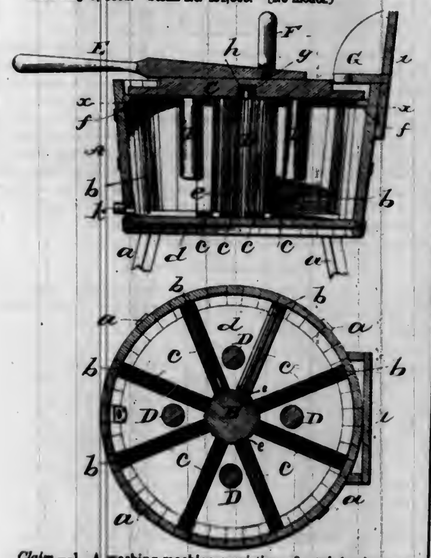
Claim.—1. In combination with a fixed step provided with suitable hangers, a movable step pivoted thereto by a suitable rod, and hangers secured to the movable step and secured to the said rod, the said hangers being provided with locking-faces engaging each other, said pivoted rod being capable of longitudinal movement with the folded step, so as to disengage the locking-faces of the hangers and to permit the step to be turned, substantially as described.

2. In combination with a fixed step, hangers carried thereby, a movable step pivoted by means of a rod to the fixed step through suitable hangers, the hangers of the fixed step being provided with locking-faces, and a spring for keeping the faces in engagement, the said rod being secured to the hangers of the movable step and adapted to be moved longitudinally against the pressure of the spring, substantially as described.

481,658.



481,659. WASHING-MACHINE. REUBEN BITNER, Lebanon, Pa. Filed May 5, 1892. Serial No. 431,868. (No model.)



Claim.—1. A washing-machine consisting of a tub having a central column and rubbers secured to the bottom, the inside of the tub, and to said column, in combination with a cover provided with studs projecting downward from the under side, a lever for oscillating the cover, and an annular flange, substantially as described.

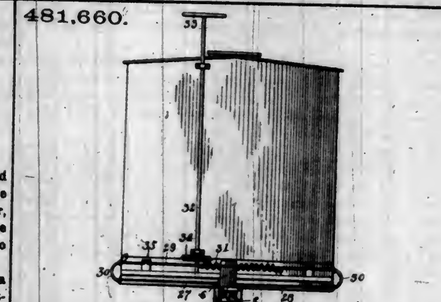
2. A washing-machine consisting of a tub having a central column provided with vertical ribbed and grooved rubbers or bars, like grooved and ribbed rubbers or bars secured to the inner side of the tub and like radial rubbers attached to the bottom of the tub, and an annular inwardly-projecting flange, in combination with a cover supported upon said column and flange and provided with a lever and a vertical handle, substantially as and for the purpose described.

481,660. CAR-COUPLING. EDWARD BROCKWAY, Separ, N. Mex. Filed Dec. 5, 1891. Serial No. 414,108. (No model.)

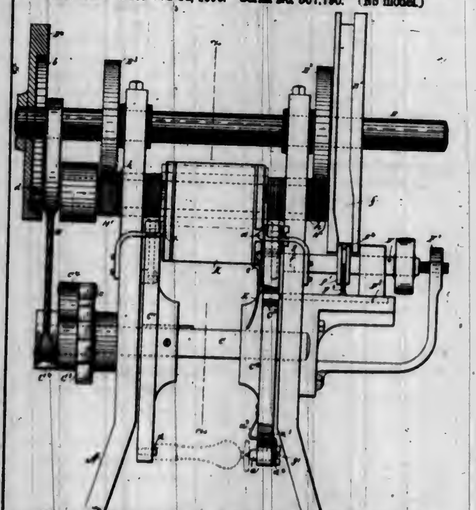
Claim.—1. The combination of a draw-head having an upper casing, a pin working therein, a pin-carrying block having guideways, guide-studs on the pin, a spring adapted to engage the pin when up, a trip-lever for actuating the spring, and a pivoted trip for operating the trip-lever.

2. The combination of a coupling-pin and its inclosing casing, pulleys within the casing, a cord or chain attached to the pin, branch cords or chains leading to each side of the car, a reciprocating rod on the car to which the cord is attached, and means for operating the same.

481,660.



481,661. WOOD-TURNING MACHINE. JAMES U. GAREY, Cleveland, Ohio. Filed Oct. 11, 1890. Serial No. 367,790. (No model.)



Claim.—1. In a wood-turning machine, the combination, with a rotary blank-carrier and means connected therewith for holding blanks, of a rotary reciprocating shaft arranged to engage and impart motion to said blanks, means for throwing this shaft in and out of engagement with the blank-holders, and a locking device connected with said reciprocating shaft for locking the blank-holder, substantially as set forth.

2. The combination, with a rotary blank-holder and live-centers adapted to engage the blanks, of a reciprocating rotary shaft adapted to engage the live-centers and rotate the latter when in contact therewith, a shaft having a cam thereon adapted to co-operate with the rotary reciprocating shaft to impart endwise movement to the latter, and a locking-bar connected with the reciprocating shaft and adapted to lock the blank-holder when the reciprocating shaft engages one of the live-centers, substantially as set forth.

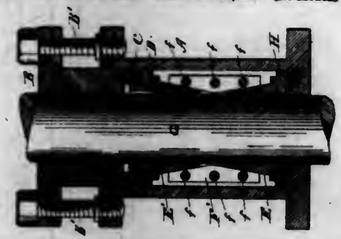
3. The combination, with a disk having slots therein and perforations in proximity to the slots, of centers extending loosely through the perforations, springs secured to the disk and passed through the slots and connected with the centers, said springs bowed away from

the disk, and a cam in position to be struck by the bowed portions of the springs, whereby the centers are thrown outward, substantially as set forth.

4. The combination, with a rotary blank-holder, a feed-spout, and means for automatically engaging said blanks, of means for locking the holder and rotating the blanks, cutter-head, and cam mechanism for throwing the latter in position to operate upon the blank being rotated, substantially as set forth.

5. The combination, with a main shaft carrying a series of cams, of a cutter-shaft mounted in movable bearings, each of the latter being engaged by a cam on the main shaft, a carrier for the blanks, means connecting the carrier-shaft with the main shaft for imparting intermittent rotary movement to said carrier-shaft, a shaft for rotating the carrier-centers, and a cam on said main shaft for imparting a longitudinal movement to the shaft which rotates the centers, substantially as set forth.

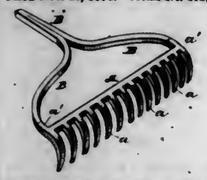
481,662. METALLIC ROD-PACKING. JOHN D. CHAPMAN, Boston, Mass. Filed Oct. 15, 1891. Serial No. 408,633. (No model.)



Claim.—1. In a stuffing-box, the combination of a piston-rod packing device consisting of a clamping-ring F F', smaller than the interior of said stuffing-box, and soft-metal rings E E', with a soft-metal follower C, and an expanding ring D, all operating together substantially as described, and for the purpose set forth.

2. In a stuffing-box, the combination of a piston-rod packing device consisting of a clamping-ring F F', smaller than the interior of said stuffing-box, and soft-metal rings E E', with a leveling-ring H, soft-metal follower C, and an expanding ring D, all adapted to operate together substantially as described, and for the purpose set forth.

481,663. METHOD OF MAKING RAKES. WARREN H. COWDERY, Ashtabula, Ohio. Filed Nov. 17, 1891. Serial No. 412,153. (No model.)



Claim.—1. The improvement in the method of making rakes, which consists in forming the head with lugs projecting from the edge of the head and thereupon welding the braces to said lugs, substantially as set forth.

2. The method of making rakes, which consists in first forming the ends of the head with lugs, then bending said lugs at an angle to the edge of the head, and finally welding the braces to said lugs, substantially as set forth.

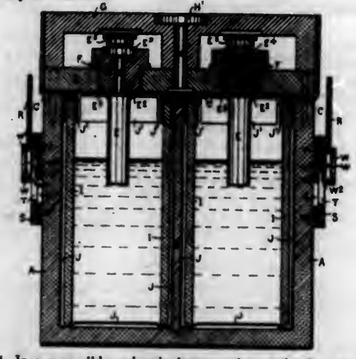
3. The method of making rakes, which consists in forming the head with lugs projecting from its edge, doubling a rod to form braces, forging the doubled portion of the rod to form the tang, and welding the ends of the braces to the lugs upon the head, substantially as set forth.

481,664. GALVANIC BATTERY. WILLIAM J. ENGLEDUE, Byfleet, England. Filed Mar. 23, 1892. Serial No. 426,169. (No model.)

Claim.—1. The combination, in a reversible battery, of the cells, the cover B, extending over the cells, the interposed packing *c*, the headed bushing extending through the cover, the packing F between the said headed bushings and the cover, the shouldered zinc elements E, having screw-threaded stems projecting through the said bushings, the countersunk nuts E^4 on the said stems, the packing interposed between the said shoulder of the elements E and the cover, the nuts E^5 above the nuts E^4 for making the electrical connections, and the top G, extending over the cover B and held thereto, forming cavities for the bushings, substantially as described.

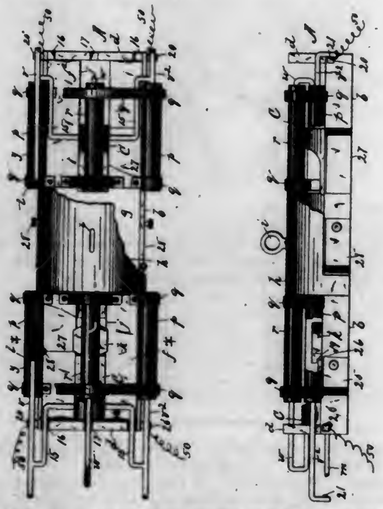
2. The combination, in a galvanic battery, of the cells, the elements E, extending into the same, the cover, the sealing means therefor, the elements I, and the frames J within the cells for holding the said elements I, substantially as described.

3. In a reversible galvanic battery, the cells, the liquid-tight case, the bushings, the handle, the slip-joint, and connection between the said handle and the case, including the locking means therefor, substantially as described.



4. In a reversible galvanic battery, the mechanism for locking the handle in position, whether the battery is being carried thereby in its normal or in its inverted position, the said mechanism consisting of plates S, secured to the sides of the battery and having slots T, recesses U and projections V V' formed therein, pins W, of square or other suitable section, taking into correspondingly-shaped holes in the ends of the handle R and having cylindrical parts W^3 passing through the slots T in the plates S and having riveted on their inner ends washers W^4, which take into the recesses U and each having a notch W^5 formed therein to engage with one or other of the projections V V', combined, arranged, and operating substantially as hereinbefore described, and illustrated in the drawings.

481,665. SAFETY ATTACHMENT FOR ELECTRIC CONDUCTORS. RUDOLPH FURSANG, Boston, Mass. Filed Jan. 18, 1892. Serial No. 418,398. (No model.)

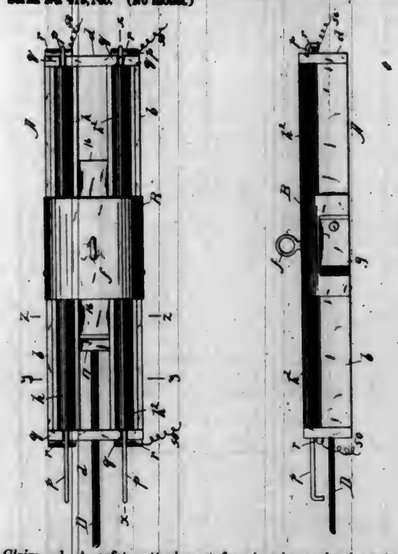


Claim.—1. In a device of the character described, a frame of conducting material provided with a slideway open at one end, in combination with a block fitted to slide in said ways and to which the conducting-wire may be attached, a series of cylinders on said frame, spring-pushed pistons in said cylinders, and a shoe connected to the rods of said pistons, arranged to operate substantially as described.

2. The frame A, in combination with the sliding block *k*, attached to the conducting-wire, the cylinders *r p*, provided with spring-pushed pistons *t*, and the shoes C, connected with the rods of said pistons and normally in engagement with said block, substantially as described.

3. The frame A and insulated supporting-arch *h*, in combination with the wire-blocks *k*, fitted to slide in said frame, the cylinders *p r*, and spring-pushed pistons *t*, and the shoes C, connected with said pistons and adapted to project said blocks from the frame when the tension on said blocks is released, substantially as described.

481,666. SAFETY ATTACHMENT FOR ELECTRIC CONDUCTING-WIRES. RUDOLPH FURSANG, Boston, Mass. Filed Jan. 26, 1892. Serial No. 418,140. (No model.)



Claim.—1. A safety attachment for electric conducting-wires, comprising a frame of conductive material, two sets of twin cylinders secured thereto and provided with spring-pushed pistons, companion pistons being rigidly connected, and a block or bar sliding in slots in the lower cylinders of each set in front of their pistons, to which the conducting-wire is attached, substantially as described.

2. In a device of the character described, a frame of conductive material and an insulated supporting connection therefor, combined with two sets of twin cylinders on said frame, a block to which the conducting-wire is attached, fitted to slide in corresponding cylinders of each set, and spring-pushed pistons in said cylinders, companion pistons being rigidly connected and adapted to eject said block when the tension on the conducting-wire is removed, substantially as described.

3. In a device of the character described, the frame A, provided with twin cylinders h i h^3 i^3, having the connected spring-pushed pistons *k t*, in combination with the line-wire bar 17, fitted to slide in slots 15 of the cylinders i i^3, substantially as and for the purpose set forth.

4. In a device of the character described, the frame A, provided with insulated bosses *r* and ground-wire 50, in combination with the rigidly-connected spring-pushed pistons *k t*, housed in connected cylinders, the line-wire bar 17, fitted to slide in corresponding cylinders and be ejected by said pistons, and the rods *p* for engaging said bosses, all being arranged to operate substantially as described.

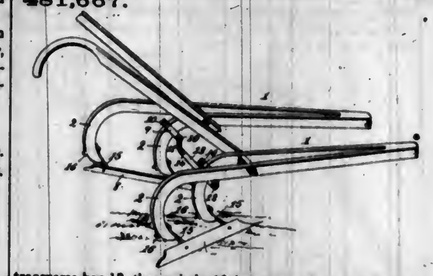
5. In a device of the character described, the frame A, having the insulated supporting-arch B, in combination with the cylinders h i h^3 i^3, mounted in said frame and provided with spring-pushed connected pistons *k t*, said cylinders being slotted at *j*, slots 15, the bar 17, fitted to slide in the slots 15 behind the pistons *t*, the line-wire D, secured to said bar, and the rods *p* on pistons *k*, adapted to form ground connections with the frame when the tension on said wire is removed, substantially as described.

481,667. CULTIVATOR ATTACHMENT. ALBERT S. GILKEY, Burlington, Kans. Filed Oct. 9, 1891. Serial No. 408,239. (No model.)

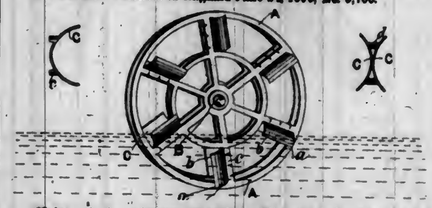
Claim.—1. The combination, with the diverging beams of the two-gang cultivator, of the opposite pairs of metal clamps embracing the inner standards of the beams, bolts passed through the ends of the clamps, a transverse bar, and short chains connected to the ends of the bar and to the front bolts of the clamps, substantially as specified.

2. The combination, with the two-gang cultivator-beams, of the transverse bar 13, the eyebolts 12, inserted in the ends of the bar and provided with perforations, keys passed through the ends of the bar and the perforations, and short chains connecting the eyes to the cultivator-standards, substantially as specified.

3. The combination, with the lower diverging ends of opposite pairs of cultivator-beams, of cast-metal sockets receiving the same, set-bolts passed through the sockets and bearing on the beams, perforated twisted bars, bolts connecting the same with the sockets, and the plow-share pivotally connected to the lower ends of the bars, substantially as specified.



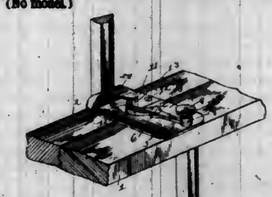
481,668. PADDLE-WHEEL FOR STEAMERS. JOHN HOWARD, Farnworth, near Bolton, assignor to the Concave Paddle Wheel Company, Limited, Liverpool, England. Filed Jan. 9, 1892. Serial No. 417,597. (No model.) Patented in England June 24, 1890, No. 9,760.



Claim.—1. As an improvement in paddle-wheels for steam-vessels, the combination, with the radial arms of the wheel arranged in pairs, of paddles or floats having concave or channeled striking-surfaces and provided at their rear sides with parallel securing wings or lugs, the latter being adapted to contact with and be secured to said arms, substantially as and for the purpose set forth.

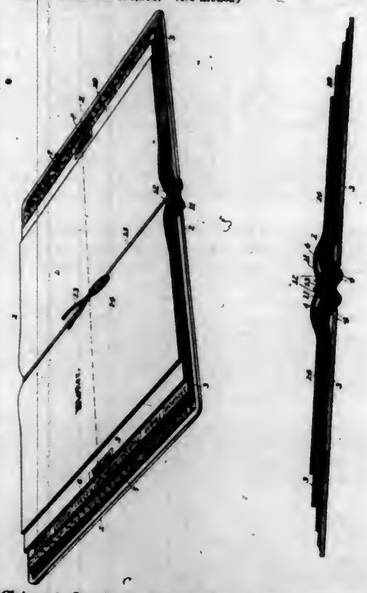
2. As an improvement in paddle-wheels for steam-vessels, the combination, with the radial arms of the wheel arranged in pairs, of concave or channeled floats provided at their rear sides with parallel securing wings or lugs fitting between the pairs of said arms, substantially as and for the purpose set forth.

481,669. FASTENER FOR THE MEETING-RAILS OF SASHES. EDWIN L. KING, New Bedford, Mass. Filed May 6, 1891. Serial No. 391,789. (No model.)



Claim.—As an improved article of manufacture, a sash-fastener for attachment to the meeting-rails of sashes, the same comprising a plate 4, adapted to be secured to the meeting-rail of the lower sash and provided with a perforation 5 and a pivot-stud 6, a plate 11, bent upwardly upon itself at its rear edge to form a guard 14 and provided with a locking-stud 13, the locking-lever 7, fulcrumed at an intermediate point upon the stud 6, said lever being provided at its front end with a cam-faced hook 10 to engage the locking-stud and at its rear end with a vertically-perforated head 8, and the gravity-bolt 9, mounted in the perforation of head 8 and provided with a flattened head 9^a on its lower end to engage the perforations 5 in plate 4 when the hook is in engagement with the locking-stud, and a head 10^a on its upper end, all constructed and combined substantially as specified.

481,670. COMBINED RECORD, DIARY, AND LEDGER. HENRY MEYER, Galveston, Tex., assignor of three-fourths to Herman Riedel, Herman Grosser, and Charles Meynaber, same place. Filed Apr. 30, 1892. Serial No. 431,296. (No model.)



Claim.—1. In a book of the character set forth, the combination of the double index on each side of the center of the same and running in opposite directions and centrally-situated leaves between said indices forming a record, a ledger, and a letter-writing blotter, substantially as described.

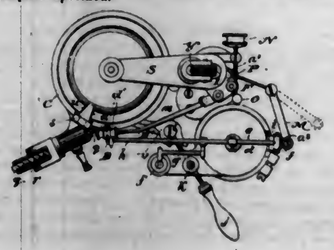
2. In a book of the character set forth, the combination of the double indices on opposite sides of the center thereof and a letter-writing blotter removably mounted between said indices, substantially as described.

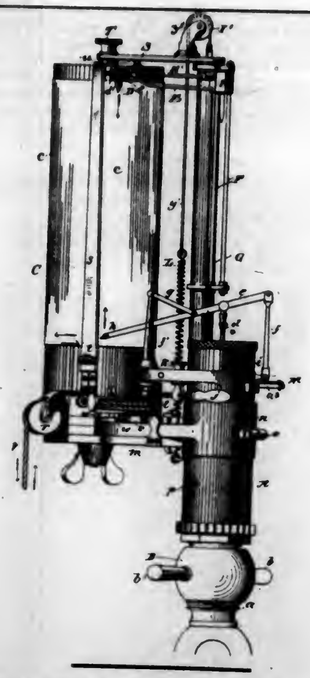
3. In a book of the character set forth, the combination of the eaves provided with double indices on opposite sides thereof and stub-stripe between said leaves, substantially as described.

4. In a book of the character set forth, the combination of the double indices on opposite sides of the center of the book and running in two directions, a ledger-section between said indices, a record adjacent to said ledger-section, and a letter-writing blotter removably secured between said record and ledger, substantially as described.

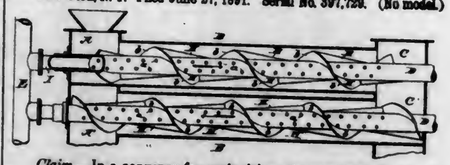
481,671. VALVE-MOTION INDICATOR FOR STEAM-ENGINES. JOHN MILLIS, U. S. Army. Filed May 9, 1891. Serial No. 392,217. (No model.)

Claim.—A valve-motion indicating attachment for steam-engines, which comprises a reciprocating pencil-carrying device, a revolving tube upon which said device is mounted, the valve, devices which connect said pencil-carrying device with the valve of the engine, which said valve communicates motion in one direction to the pencil-carrying device, a spring which communicates motion in the opposite direction to said pencil-carrying device, and devices which turn said tube and bring said pencil-carrying device into or away from contact with the card on which diagrams are to be drawn, substantially as shown, and for the purposes specified.



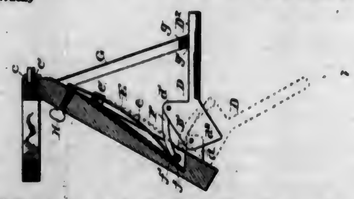


481,672. CONVEYER FOR GRAIN-DRIERS. EDWARD M. PARKER, New York, N. Y. Filed June 27, 1891. Serial No. 397,729. (No model.)



Claim.—In a conveyer for grain-driers, the combination of a hollow perforated shaft, a screw-thread extending spirally around said perforated shaft, and a series of tapering paddles set into said perforated shaft at right angles to the screw-thread, substantially as shown, and for the purposes specified.

481,673. CRANE FOR SUSPENDING MAIL-BAGS. ETHEL A. RAY, Florence, S. C. Filed Apr. 12, 1892. Serial No. 428,821. (No model.)



Claim.—1 In a mail-crane, the combination, with the crane proper provided with arms having journals at their free ends, of plates or bars provided each with a bearing portion located at an angle to the main portion and receiving the journals, said plates or bars projecting inwardly, and a spring-held trigger carried by each plate or bar and adapted to yield toward each other, substantially as set forth.

2. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger pivoted at the free end thereof, a spring, and connections between said spring and the trigger, substantially as set forth.

3. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger provided with a cam and pivoted at the free end of said bar, a spring provided at its free end with a transverse eye, and links pivotally connecting the cam-head with the eye in the spring, substantially as set forth.

4. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger mounted at the free end thereof and provided at one side with an extension and at the opposite side with a stop, a spring disposed longitudinally at the face of the plate or bar, and links connecting the spring with the trigger, said links having their ends adjacent to the spring curved toward the trigger, substantially as set forth.

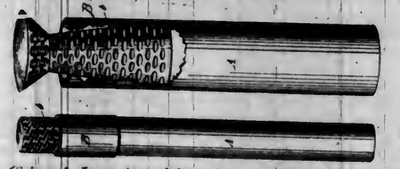
5. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger mounted at the free end thereof, a spring, connections between the latter and the trigger, and a cushioned stop carried by the plate or bar and adapted to limit the movement of the trigger toward the same, substantially as set forth.

6. As an improvement in mail-cranes, a bag-attaching device comprising a carrying plate or bar, a trigger pivotally mounted upon the same, a flat spring carried by said plate or bar, devices connecting the trigger with the spring, and means for regulating the tension of the spring to control the yielding movement of the trigger, substantially as set forth.

7. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger pivoted at the free end thereof, a spring secured upon the face of the plate or bar, connections between the free end of the spring and the trigger, and a set-screw passing through the plate or bar and bearing against the distal end of the spring, substantially as set forth.

8. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger pivoted at the free end thereof and provided with an extension and with a stop, a spring secured upon the face of the plate or bar, connections between the free end of the spring and the extension of the trigger, and a cushioned stop carried by the plate or bar and adapted to be engaged by the trigger when in normal position, substantially as set forth.

481,674. ARGAND LAMP. FRANK REHM, Meriden, Conn., assignor of one-half to the Edward Miller & Company, same place. Filed Mar. 30, 1892. Serial No. 427,116. (No model.)



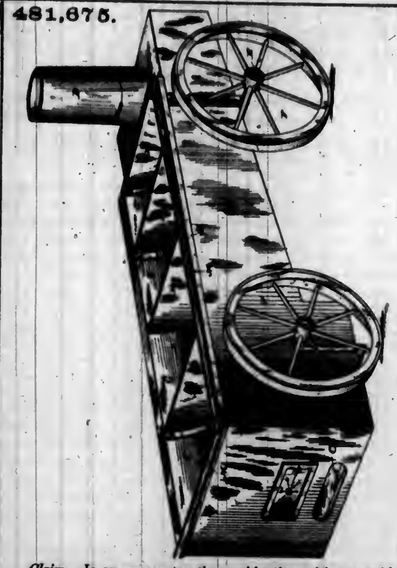
Claim.—1. In an Argand lamp, in combination, a central draft-tube through which air is supplied to the inner mantle of the flame and a distributer coacting therewith and provided with perforations one diameter or dimension of which is greater than a diameter or dimension transverse thereto, substantially as described.

2. In an Argand lamp, in combination, a central draft-tube through which air is supplied to the inner mantle of the flame and a distributer coacting therewith and provided with perforations one diameter or dimension of which is greater than a diameter or dimension transverse thereto, said greater diameter being at an angle with the axis of said distributer, substantially as described.

3. In an Argand lamp, in combination, a central draft-tube through which air is supplied to the inner mantle of the flame and a distributer coacting therewith and provided with perforations one diameter or dimension of which is greater than a diameter or dimension transverse thereto, said perforations being so disposed that no vertical line can be drawn on said distributer between said perforations, substantially as described.

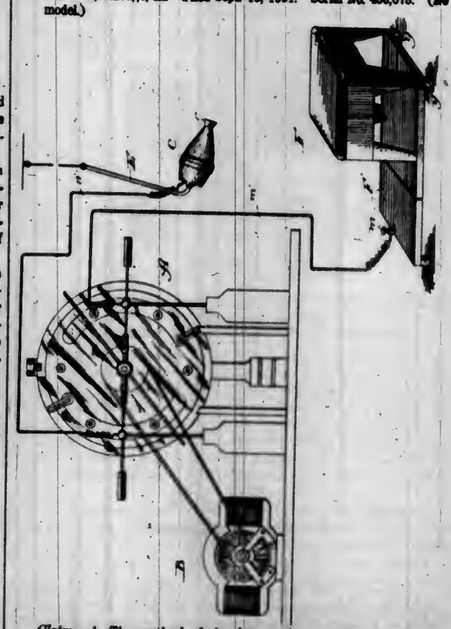
481,675. PORTABLE EVAPORATING APPARATUS. THEOGENE R. RICHARD, Lake Charles, La. Filed Apr. 5, 1892. Serial No. 427,676. (No model.)





Claim.—In an evaporator, the combination, with a portable elongated furnace, of a semicircular evaporating-pan removably fitting within the top of said furnace along the entire length thereof and having a gutter extending along one side and end thereof, a series of partitions arranged within said pan to form separate and independent compartments decreasing in size from the fire-box of the furnace to the opposite end, and a strengthening and supporting band encircling the upper edge of the furnace and the evaporating-pan resting thereon, substantially as set forth.

481,676. APPARATUS FOR GENERATING OZONE. CHRISTOPHER C. SHARP, Chicago, Ill. Filed Sept. 18, 1891. Serial No. 406,073. (No model.)



Claim.—1. The method of simultaneously generating ozone and applying it to a body, which consists in applying one terminal of the

electric generator to the body, maintaining the other terminal out of contact with the said body, generating ozone at the non-conducting terminal, and closing the circuit between the ozone-generating terminal and the body by the current of ozonized air, substantially as described.

2. In a machine for generating and applying ozone, the combination, with an electric generator, of an ozone-generator forming one only of the electric terminals and having a discharge-opening for the ozone, the other terminal being adapted for application to the body, substantially as and for the purpose set forth.

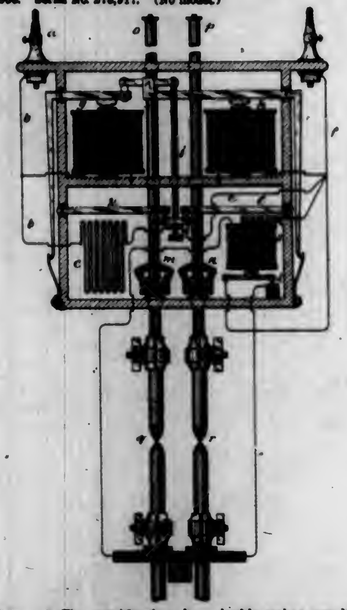
3. In an electric apparatus, the combination, with the electric generator, of an ozone-generator forming one only of the terminals and comprising a bulb of insulating material having a discharge-opening and an electrode in the bulb, to which the conducting-wire leads, provided with projections of conducting material, the other terminal being constructed for application to the body, substantially as described.

4. In an electric apparatus, the combination, with the electric generator, of an ozone-generator forming one of the terminals and comprising a bulb of insulating material having a contracted discharge-opening and lined on its inner surface with conducting material and an electrode in the bulb, to which the conducting-wire leads, provided with pointed metal projections, the other terminal being constructed for application to the body, substantially as described.

5. In an electric apparatus, the combination, with the electric generator, of an ozone-generator forming one of the terminals and comprising a bulb of insulating material having a contracted discharge-opening and lined on its inner surface with conducting material and an electrode in the bulb, to which the conducting-wire leads, comprising a metal cup provided on one of its surfaces with pointed metal projections, the other terminal being constructed for application to the body, substantially as described.

6. In an electric apparatus, the combination, with the electric generator, of an ozone-generator forming one of the terminals and comprising a bulb of insulating material having a contracted discharge-opening and lined on its inner surface with conducting material and an electrode in the bulb, to which the conducting-wire leads, comprising a metal cup provided on its inner and outer surfaces with pointed metal projections, the other terminal being constructed for application to the body, substantially as described.

481,677. DUPLEX-ARC LAMP. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed July 3, 1888. Serial No. 278,917. (No model.)



Claim.—1. The combination, in a double-carbon arc lamp in which the different sets are arranged initially in closed parallel circuits, of a unitary electro-magnetic device for controlling the different sets, and an electro-magnetic cut-out with its coil included in circuit with one set and its armature and back-stop included in circuit with the other set, whereby the different sets are caused to burn in succession, substantially as described.

2. The combination, with the multiple circuit of an electric-arc lamp, of two sets of carbons and a unitary electro-magnetic device for controlling said sets of carbons, one set being included in each side of the said multiple circuit, clutch mechanism operated by electro-magnetic devices to separate said carbons at the same time, and an electro-magnetic cut-out or relay with its coil in circuit with one set of carbons and its armature in circuit with the other set of carbons for opening the circuit of the set of carbons in the side of the parallel circuit containing the armature immediately upon closing the circuit through the lamp, whereby one set of carbons is consumed before the other sets begins to burn, substantially as and for the purpose specified.

3. The combination, with the multiple circuit of an electric-arc lamp, of two sets of carbons and a unitary electro-magnetic device for controlling said sets of carbons, one set being in each side of the said multiple circuit, clutch mechanism operated by electro-magnetic devices to separate and feed the carbons, and an electro-magnetic cut-out or relay with its coil in one parallel circuit and its armature in the other parallel circuit for opening the circuit of one set of carbons when the circuit is closed through the lamp, whereby one set of carbons is consumed before the other begins to burn.

4. The combination, with the two sets of carbons connected with the same circuit in multiple arc, a unitary electro-magnetic regulating mechanism therefor, and an electro-magnet included in that portion or side of the circuit containing the set of carbons first to burn, and its armature-lever adapted to open the side or portion of said circuit containing the second set of carbons initially—that is, immediately on first closing circuit through the lamp—whereby the second set of carbons is prevented from burning until the first set is practically consumed or the descent of the rod of the first set arrested, substantially as and for the purpose specified.

5. In an electric arc lamp, the combination, with two sets of carbons and a unitary mechanism for lifting and feeding the same, of an electro-magnetic cut out with its coil included in circuit with one of said sets (the set first to burn) and the armature of said electro-magnetic cut-out mechanically connected with a key included in circuit with the other set of carbons, (the set last to burn,) whereby the circuit of the carbons last to burn is held open by said key as long as the arc persists at the first set, said circuit of the second set being automatically closed by said key when the arc of the first set is extinguished to bring said second set into active operation, substantially as and for the purpose specified.

6. In an electric-arc lamp, two sets of carbons having the lower members of each pair insulated from one another and included in different sides of the same circuit, of an electro-magnetic circuit-controller for automatically holding open one side of said parallel circuit while the arc is burning between the set included in the other side of said circuit, said electro-magnetic circuit-controller on the extinguishment of the arc acting to close the circuit which had been held open to permit the arc to be established between the second set of carbons.

7. The combination, in an electric-arc lamp containing two sets of carbons in multiple arc, the lower members of the two sets of carbons being insulated from one another, of mechanism for separating and feeding the same and an electro-magnetic circuit-controller having the coil thereof in circuit with one set of carbons and the contact or key controlled by the armature of said electro-magnetic circuit-controller included in the circuit of the other set of carbons between the lower carbon thereof and the point where the two parallel circuits unite.

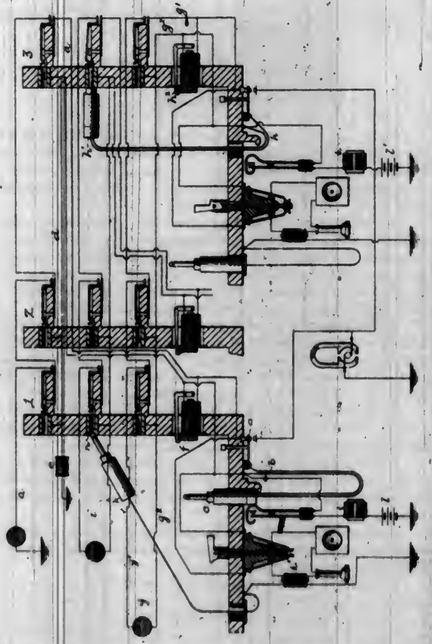
8. The combination, with the sets of carbons of a double-carbon lamp, of mechanism for initially lifting simultaneously the upper members of both pairs, the cut-out around the lamp being opened by such initial movement, and the sets of carbons being connected in multiple arc, an electro-magnetic cut-out with its coils included in circuit with one set, and its armature and back-stop included in circuit with the other set, substantially as specified.

481,678. MULTIPLE-SWITCHBOARD TELEPHONE-EXCHANGE SYSTEM. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 22, 1889. Serial No. 331,205. (No model.)

Claim.—1. In a multiple-switchboard system, the combination, with each line of the system, of a cord provided with a terminal loop-plug, one for each line, and branch circuits, one from a strand of each cord through a retardation-coil and battery to ground, in combination with a switch included in the circuit of each of said branches to open and close its said branch circuit to make its particular line test "busy" or "not busy," as may be desired.

2. In a telephone-exchange system, the combination, with each line of the exchange, of test-rings upon the different switchboards, the said test-rings being connected together, a connecting-cord for each line, with which said test-rings are connected, a branch circuit through a retardation-coil and battery to ground, said branch circuit being connected with the circuit of the test-rings and cord, and a switch included in the circuit of the branch circuit to open and close said branch circuit, whereby the battery may be connected to or disconnected from the said test-ring circuit, substantially as and for the purpose specified.

3. In a telephone-exchange system, the combination, with each telephone-line, of switches, one switch upon each of the switchboards, one portion of the line being connected to the springs and contacts of the switches and another portion of the same line being connected to the test-rings of the said switches, plugs and cords, one plug and cord for each line, each cord being connected with its line, switches, one for each line, adapted to be operated by its plug, a branch circuit through a retardation-coil, and a battery connected through said switch to its line, whereby on lifting the plug the circuit of the battery is closed to the line to bring the line in electrical condition to indicate the busy-test.



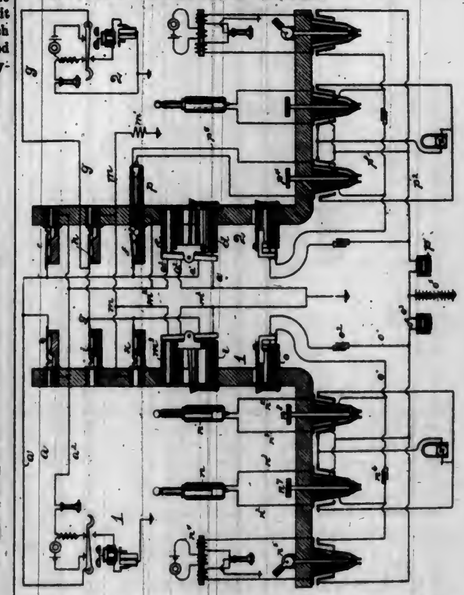
4. In a telephone-exchange system, the lines connected with their respective switches on the different boards, each line connecting with a double-stranded cord terminating in a double-contact plug, one portion of the plug being adapted to make contact with the test-piece of the spring-jack into which it is to be inserted, a branch circuit from this strand through a switch, a retardation-coil, and a battery to ground, substantially as and for the purpose specified.

5. A telephone-line looped through the switches of the different switchboards, one portion of the loop connecting with the test-rings, the other portion of the loop connecting with the springs and their contacts, an annunciator bridged across the loop, a listening-key, two of the contacts of which are connected to the two sides of the loop, a double-stranded cord, each of the two strands being connected with a side of the loop, and a two-part connecting-plug connected with said double stranded cord, substantially as and for the purpose specified.

6. A subscriber's outfit consisting of a generator, bell, and telephone connected with different switches upon different switchboards of the same telephone-exchange in metallic circuit, one side of said metallic circuit including the springs and contacts of the switches and the other side being connected with the test-pieces of said switches, in combination with an individual annunciator bridged across the two sides of said metallic circuit between the contact of the switch on the last board and the test-piece of said switch, said line being provided with a double-stranded flexible cord and terminal plug, one of the strands of said cord being connected with a switch normally held open by said plug resting in its socket, and a ground branch including a battery and retardation-coil connected through said switch with one of the strands of the cord of said plug, said switch being closed when the plug is lifted from its socket, substantially as and for the purpose specified.

7. The combination, with metallic circuits connected with switches on different switch-boards at the central office, of the terminal loop-plug a cord-switch, and a branch from each line through a retardation-coil to a test-battery and ground, said branch being closed to the line automatically on lifting the plug of the line from the socket of its cord-switch, substantially as and for the purpose specified.

481,679. TELEPHONE-EXCHANGE. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 16, 1891. Serial No. 411,961. (No model.)



Claim.—1. The combination, with the individual annunciator provided with two electro-magnets connected in different branches of the subscriber's telephone line, of the clearing-out drop included with the condenser in a bridge-wire between the strands of the cords, said cords and their terminal plugs, the retardation-coil in the branch leading to the retaining-battery, and said battery, whereby the individual annunciator is prevented from being thrown down when generator-current is sent to line from the subscriber's station, while the clearing-out drop is traversed by such generator-current and operated thereby, substantially as described.

2. The combination, with a battery o^3, of branch circuits $o^1 p^1$, each including a retardation-coil and a set of plugs with double-stranded cords for each branch circuit, and a clearing-out annunciator and a condenser in a bridge-wire between the strand of each set of cords, substantially as specified.

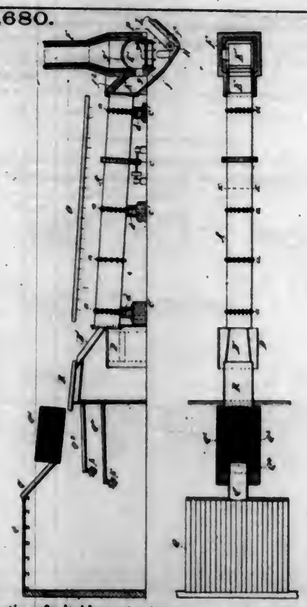
481,680. APPARATUS FOR TREATING THE REFUSE OF CITIES. JACOB J. STORER, East Orange, N. J., assignor to Mary L. Storer, same place. Filed Mar. 18, 1891. Serial No. 385,500. (No model.)

Claim.—1. In a furnace and apparatus for treating the refuse of cities, the combination, with the revolving furnace and the smoke-stack, having a gas-combustion chamber with a perforated roof in its base, substantially as herein shown and described, of a pit with two perpendicular and two sloping sides beneath said combustion-chamber, designed for the continuous reception of the dried or cremated material continuously delivered from the furnace, and an elevator for continuously removing said material from said pit, substantially as set forth.

2. In a furnace and apparatus for treating the refuse of cities, the combination of a revolving screen Q^2, a sorting-table R to receive the material passing over the lower end of said screen, the shaking and sorting screens Q^3 Q^4, arranged below said revolving screen to receive the material that passes through the meshes of the revolving screen, and the revolving cylinder-furnace A, set below the lower end of the sorting-table R to desiccate or cremate the material passing over the lower end of said table, substantially as described.

3. In a system designed for the cremation of the refuse of cities,

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the combination of suitable mechanisms embracing revolving and shaking screens and shaking table for receiving and separating the component parts of the refuse, mechanism for delivering the garbage into the cremating-cylinder, a brick-lined revolving cylinder-furnace set nearly in a horizontal plane, a fire-box at the head of the furnace for delivering heated air and flame into the interior of the same, a gas-combustion chamber with perforated dome in the bottom of the smoke-stack opposite the lower end of the cylinder, a pit beneath the smoke-stack for continuously receiving the cremated garbage as it falls from the furnace, and an elevator for continuously removing the contents of said pit, all arranged and operated substantially as herein shown and described.

481,681. PNEUMATIC TIRE. JOSEPH WELLSTEIN and MORGAN E. MAXFIELD, Milwaukee, Wis. Filed Apr. 11, 1892. Serial No. 428,574. (No model.)



Claim.—1. A pneumatic tire consisting of an inner air-tube, a flat spring wound thereabout with its edges contacting to form a continuous or non-open elastic metallic covering, a reinforcing wrapping maintaining said spring in position, and an outer inclosing tube, substantially as set forth.

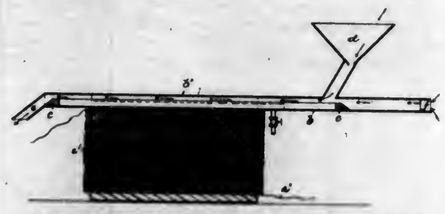
2. A pneumatic tire consisting of an inner air-tube, a rubber-coated binding wound thereabout, a flexible band of spring metal surrounding the central tread-line of the tube, a flat spring wound continuously about the tube, a rubber-coated binding interposed between the strips and the spring, a similar binding wound about said spring, and an outer inclosing-tube, substantially as set forth.

481,682. SOLE. HENRY WOODIN, Northampton, England. Filed Mar. 1, 1892. Serial No. 423,420. (No model.)



Claim.—In a welted boot or shoe, the combination, with the upper, the inner sole, the damp-proof filling, and the outer sole, of the double welt, all of said parts being secured by one line of stitching and having the edge of the lower welt trimmed off to form a rand and the projecting welt sewed to the outer sole, substantially as set forth.

481,683. METHOD OF AND APPARATUS FOR EXTRACTING GOLD AND SILVER FROM THEIR ORES. JONAS W. AYLSWORTH, Orange, and ARTHUR C. PAYNE, Elizabeth, N. J. Filed July 3, 1891. Serial No. 398,444. (No model.)



Claim.—1. The process of extracting precious metal from its ore, which consists in subjecting the ore to the amalgamating action of a magnetic mercurial amalgam, and then passing said ore through a magnetic field and extracting the remaining amalgam, substantially as set forth.

2. The process of extracting precious metal from its ore, which consists in passing the ore containing said precious metal into close association with a magnetic composition and combining the said precious metal therewith, and then forcing the particles of precious metal combined with said composition through a magnetic field and attracting the magnetic particles therefrom, substantially as set forth.

3. The process of extracting precious metal from its ore, which consists in subjecting the ore to the action of an amalgam of mercury and iron, and after separating said ore from the body of said amalgam subjecting the same to the action of a magnet and attracting the remaining particles of said amalgam, substantially as set forth.

4. The process of separating magnetic amalgam from comminuted gangue, which consists in forcing said gangue through a magnetic field and over a surface of mercury, substantially as set forth.

5. The process of separating magnetic amalgam from comminuted gangue, which consists in forcing the dry gangue by pneumatic power over a surface of mercury arranged in a magnetic field, substantially as set forth.

6. The process of separating magnetic amalgam from its gangue, which consists in attracting said magnetic amalgam toward a body of fluid metal, substantially as set forth.

7. The process of separating precious metal from its ore, which consists in passing said ore into a magnetic body of mercury amalgam, the ore being relatively smaller in quantity than the said mercury, and allowing said ore to rise to the surface of said amalgam, then passing said ore over a magnetic field adjacent to a body of liquid metal and attracting particles of amalgam toward and into said body of liquid metal, substantially as set forth.

8. The process of extracting precious metal from comminuted ore, which consists in subjecting said ore to the action of an amalgam containing particles in suspension, such as iron, susceptible to magnetic attraction, substantially as set forth.

9. The combination, with a magnet and a pan or receptacle for mercury, of a blower or other means for forcing the ore over said mercury and through the field of said magnet, substantially as set forth.

10. The combination, with a pan or receptacle for mercury, of a magnet having its pole-pieces in said pan, and means for supplying the pan with comminuted ore, and pneumatic means for forcing said ore in a dry state over said mercury, substantially as set forth.

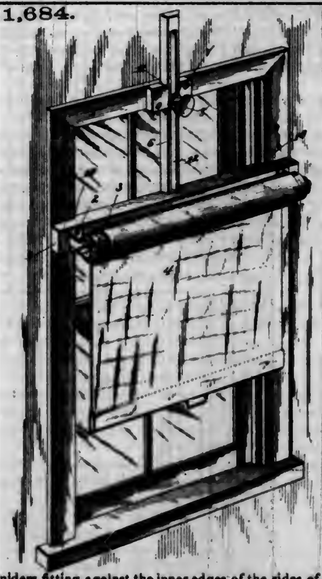
11. The combination, with a closed pan having the longitudinal edges of the pole-pieces a^3 within the same, of a body of mercury within said pan covering the line of greatest magnetic force and means for forcing the dry ore through said pan, substantially as set forth.

12. In combination, a closed pan, a magnet *a*, having pole-pieces in said pan, said pole-pieces having knife-edges, a body of mercury covering said edges, an outlet-opening *e* from the pan, a hopper *d* at the opposite end, and an inlet-opening *f* for pneumatic force, all said parts being arranged and combined substantially as and for the purposes set forth.

481,684. CURTAIN-FIXTURE. CHARLES M. BAKER, Boardman, Fla. Filed Feb. 10, 1892. Serial No. 420,961. (No model.)

Claim.—The combination, with a window-frame, of a horizontal bar having its ends resting against and adapted to slide on the outer faces of the sides of the window-frame and provided on its inner face

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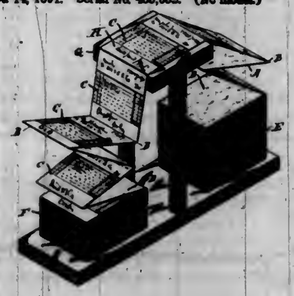
with shoulders fitting against the inner edges of the sides of the frame to prevent longitudinal movement of the bars, curtain-roller brackets mounted on the bar, the blocks 7, secured to the top of the frame at the center thereof and having their inner edges beveled and forming a dovetailed way, the vertically-adjustable bar provided with a longitudinal slot and having its side edges beveled on its outer face and fitting between the blocks and having a flat inner face bearing against the top of the frame, said vertically-adjustable bar having its lower end centrally and permanently secured to the horizontal bar, and a set-screw mounted on the top of the frame and arranged between the blocks and passing through the longitudinal slot of the vertical bar and securing the latter in its adjustment, substantially as described.

481,685. ARTIFICIAL MUSK AND PROCESS OF MAKING THE SAME. ALBERT BAUR, Gispersleben, near Erfurt, assignor to the Society Fabriques de Produits Chimiques de Thann et de Mulhouse, Thann, Germany. Filed Mar. 7, 1892. Serial No. 424,067. (No specimens.) Patented in France Aug. 5, 1891, No. 215,355; in Belgium Aug. 5, 1891, No. 95,915; in Italy Aug. 10, 1891, No. 30,943, and in England Aug. 12, 1891, No. 13,613.

Claim.—1. The described process of obtaining a substitute for musk by mixing an ether of metacresol or other substituted phenols with metallic chloride, heating, mixing with water, and isolating the butylated cresolether, thereby obtaining an aromatic, colorless liquid, introducing the ether into fuming nitric (or nitric and sulphuric) acid, heating and crystallising from a suitable solvent, such as alcohol, as set forth.

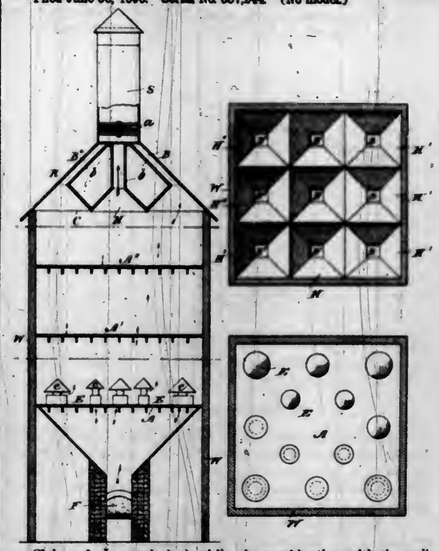
2. The artificial musk herein described, being a trinitro-derivative of the butylated or analogous metacresol in a white crystalline form, characterized by the odor of natural musk, as set forth.

481,686. WRITING-TABLET. FREDERICK BENTEL, Hamilton, Ohio. Filed Sept. 14, 1891. Serial No. 405,652. (No model.)



Claim.—In a writing-tablet, the combination, substantially as set forth, of a strip of paper having pressed opposite folds and forming two piles connected by an intermediate portion of the strip, a support for each of said piles, and a table-surface disposed between said two piles and under said intermediate portion of the trip and at a height from said supports equal at least to the sum of the heights of said two piles.

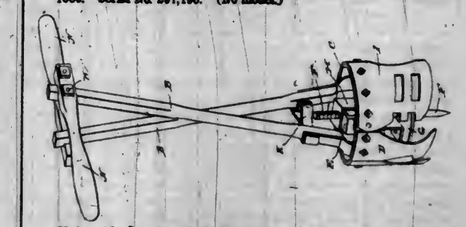
481,687. MALT-DRYING KILN. CARL G. BOSCH, Davenport, Iowa. Filed June 30, 1890. Serial No. 357,244. (No model.)



Claim.—1. In a malt-drying kiln, the combination, with the walls of the drying-chamber, of a floor immediately in the line of the air-supply connections, said floor being provided with openings uniformly increasing in size from the central portion of said floor in all directions toward said walls, a ceiling with openings arranged uniformly throughout its plane or surface, said openings having upwardly-extending walls diminishing in cross-section, a draft tower or exit for the air, and perforated floors or trays located intermediate of the said floor and ceiling to carry and support the material to be dried, all substantially as described.

2. In a malt-drying kiln, the combination, with the walls of the drying-chamber, of a floor immediately in the line of the air-supply connections, said floor being provided with tubular openings uniformly increasing in size from the central portion of said floor in all directions toward said walls, said tubular openings being provided with overhanging shields, a ceiling with openings arranged uniformly throughout its plane or surface, said openings having upwardly-extending walls diminishing in cross-section, a draft tower or exit for the air, and perforated floors or trays located intermediate of the said floor and ceiling to carry and support the material to be dried, all substantially as described.

481,688. POST-HOLE DIGGER. WILLIAM Z. BROWN, Atlas, Ill., assignor of one-half to George Manewal, Buckin, Mo. Filed Jan. 22, 1889. Serial No. 297,193. (No model.)



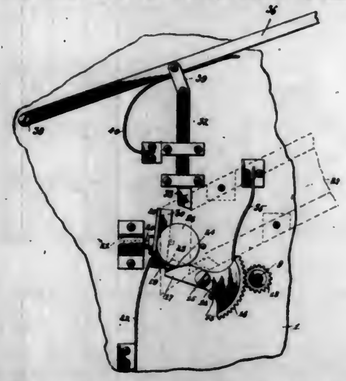
Claim.—1. In a post-hole digger, the combination, with the sections pivoted together, of the bridge extending across one section and the plunger carried by the bridge, substantially as described.

2. In a post-hole digger, the combination, with the frame formed

in halves pivoted together and an operating-handle connected to each half, of the blades secured to the frames and the relatively small removable cutting-points independently secured to the frame in advance of the blades, substantially as described.

3. In a post-hole digger, the combination of the sections pivoted together and formed of relatively small removable cutting points or shares and the perforated blades, substantially as described.

481,689. VENDING-MACHINE. ALFRED B. CHANDLER and GUY H. POWELL, Chicago, Ill., assignors of one-third to C. T. Chandler, Jr., same place. Filed Feb. 19, 1892. Serial No. 422,060. (No model.)



Claim.—1. The combination, with the journal 9 and the lever for turning said journal, of the latch for preventing said journal from turning, means for lodging a coin against said lever and latch, and means for operating said latch and lever through the medium of the coin, substantially as set forth.

2. The combination, with the casing having a discharge opening or chute, of a cylinder journaled in said casing having a pocket adapted to coincide with said discharge-opening, a lever for turning said cylinder, a latch for locking said cylinder, a coin-chute adapted to lodge a coin upon said lever and against said latch, and a plunger adapted to impinge the coin, substantially as set forth.

3. The combination, with the casing having a discharge-opening or delivery-chute, of a cylinder journaled in said casing having a pocket adapted to coincide with said discharge opening or chute, a spur-wheel on said cylinder, a toothed lever adapted to engage said wheel for turning said cylinder, a latch for locking said cylinder, a coin-chute adapted to lodge a coin upon said lever and against said latch, and a plunger adapted to impinge the coin, substantially as set forth.

4. The combination, with the casing having a discharge chute or opening, of a cylinder journaled in said casing, having a pocket adapted to coincide with said discharge opening or chute, a pivoted lever for turning said cylinder, a latch for locking said cylinder, a coin-chute adapted to lodge a coin upon said lever and against said latch, a plunger adapted to impinge said coin, a lever for actuating said plunger, and springs for returning said levers to their normal positions, substantially as set forth.

5. The combination of the journal 9, having a spur-wheel thereon, a toothed lever for rotating said spur-wheel, a latch for preventing said journal from turning, having a shoulder or flange, a coin-chute adapted to lodge a coin against said flange and lever, and a plunger adapted to impinge said coin, substantially as set forth.

6. The combination of the journal 9, having a spur-wheel thereon, a toothed lever for turning said spur-wheel, a sliding latch for preventing said journal from turning, having a flange or shoulder formed thereon, a guideway for said latch, a coin-chute adapted to lodge a coin against such flange and lever, and a plunger adapted to impinge said coin, substantially as set forth.

7. The combination of the journal 9, having a spur-wheel thereon, a toothed lever for turning said spur-wheel, having a rounded or beveled end, a latch for preventing said spur-wheel from turning, having a shoulder formed thereon, a coin-chute having a shield or projection overlapping said latch and lever and adapted to lodge a coin upon said lever and against said shoulder or flange, and a plunger adapted to descend upon the coin while thus supported, substantially as set forth.

8. The combination, with the journal 9, having a spur-wheel thereon, of a toothed lever for turning said spur-wheel, a latch for preventing said spur-wheel from turning, provided with the shoulder 25 and plate 30, a coin-chute having a shield overlapping said plate and said coin-chute being adapted to lodge a coin between said shield and plate against said flange, and a plunger adapted to descend upon the coin and disengage said latch and oscillate said lever, substantially as set forth.

9. The combination, with the delivery-cylinder, of a latch for preventing said cylinder from turning, having the flange 25, the coin-chute at the end of which said latch is arranged adapted to lodge a coin against said flange 25, a lever adapted to turn said cylinder, having its end arranged adjacent to said flange 25, so as to assist in supporting the coin, and a plunger having a beveled end adapted to descend upon the coin while thus supported, substantially as set forth.

10. The combination, with the cylinder, of a lever for turning said cylinder, a spring-latch for preventing said cylinder from turning, a coin-chute adapted to lodge a coin against said latch and upon the end of said lever, a spring-actuated plunger having a beveled end adapted to descend upon the coin while thus supported, and a lever for operating said plunger, substantially as set forth.

11. The combination, with the shaft or journal 9 of a device to be actuated, of a spur-pinion on said journal, a pivoted segment-lever engaging said pinion, a spring-actuated latch for engaging said lever, having a flange or shoulder, a coin-chute adapted to lodge a coin upon said lever and against said shoulder, a plunger adapted to descend upon said coin while thus lodged, a lever 36, pivoted to said plunger, and means for returning said lever 36 and segment-lever to their normal positions, substantially as set forth.

12. The combination of a magazine having an open bottom adapted to contain rolls therein in a single row, a journaled delivery-cylinder arranged under said magazine and having a pocket as large as the open bottom of said magazine, a pinion for rotating said cylinder, a segment-lever engaging said pinion, a latch for locking said segment-lever, and means for actuating said segment-lever and latch through the medium of a coin, substantially as set forth.

13. The combination, with the casing 1, provided with the offset 10, having a slot 37 therein, of a delivery-cylinder mounted at the lower end of said casing, means for locking said cylinder arranged in said offset 10, and a lever pivoted in said offset 10 and projecting through slot 37 and adapted to unlock and actuate said cylinder through the medium of a coin, substantially as set forth.

481,690. RATCHET-WRENCH. PETER COSSETTE, Crystal Falls, Mich., assignor of one-third to Clifford Terrian, same place. Filed June 3, 1892. Serial No. 435,413. (No model.)



Claim.—1. In a wrench, the combination, with a handle, the nut-socket having a shank, and the ratchet-wheels arranged on the shank and provided with the oppositely-disposed teeth 12, of the two sets of pawls pivotally mounted on the handle, springs arranged at opposite sides of the handle and engaging the pawls and adapted to hold them in operative position, and a rotating ring mounted on the handle and adapted to engage the springs to throw the pawls out of mesh to reverse the wrench, substantially as described.

2. In a wrench, the combination, with a handle, a nut-socket having a shank, and the ratchet-wheels mounted on the shank and provided with oppositely-disposed teeth, of the two sets of pawls pivotally mounted on the same, the oppositely-disposed springs secured to the handle and engaging the pawls, and a rotating ring mounted on the handle and provided with enlargements forming cams to engage the springs and having a lug arranged between the cams, substantially as and for the purpose described.

3. In a wrench, the combination of a handle having a rounded portion and provided with a shoulder having curved recesses, a nut-socket having a shank, the ratchet-wheels mounted on the shank and provided with oppositely-disposed teeth, the two sets of pawls pivotally mounted on the handle and having their inner ends arranged in the curved recesses, springs secured to the handle and engaging the pawls, and a rotating ring mounted on the round portion of the handle and having one-half of it enlarged to form cams adapted to throw the springs outward to reverse the wrench, substantially as described.

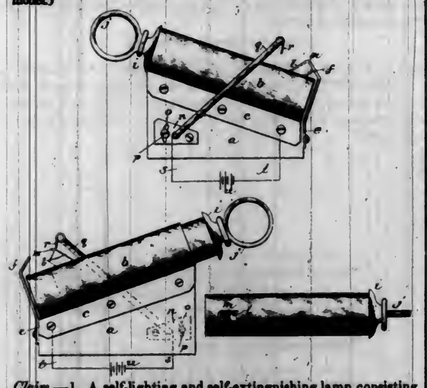
481,691. PICKLE-LIFTER. JOHN A. CURRIE, Jr., and JESSE W. CURRIE, Pipe Creek, Tex. Filed Apr. 11, 1892. Serial No. 428,690. (No model.)



Claim.—1. In a pickle-lifter, the combination of a supporting-arm having eyes in the body thereof and a bent foot at the lower end thereof formed by bending said supporting-arm, and a sliding arm mounted in connection with said supporting-arm and having a lower pointed end, and a limiting-shoulder at the upper portion of the said sliding arm, formed by a bend and adapted to engage one of the eyes of said supporting-arm, substantially as described.

2. In a pickle-lifter, the combination of a supporting-arm having a loop at the upper end thereof and a bent foot at the bottom of the same, together with intermediate eyes formed by bending said supporting-arm, and a sliding arm fitted in said eyes of the aforesaid arm and having a lower pointed or sharpened end, a ring at the upper end of the same, an eye in the body thereof embracing the supporting-arm, and a limiting-shoulder intermediate said eye and ring, said sliding arm being bent to form said parts, substantially as described.

481,692. ELECTRIC CIGAR-LIGHTING LAMP. WILLIAM J. EASTMAN, Waterville, N. Y. Filed Feb. 8, 1892. Serial No. 420,745. (No model.)



Claim.—1. A self-lighting and self-extinguishing lamp consisting, essentially, of a stationary sheath or holder, electrodes of an electric circuit applied thereto, and a torch adapted to be removed from said sheath to close the circuit, and thereby ignite the torch, and to be inserted in said sheath, and thereby extinguish the torch, substantially as described.

2. A self-lighting and self-extinguishing lamp comprising a base, a sheath or holder constructed as an open-ended longitudinally-slotted tube mounted thereon, electric spark-producing means, an extinguisher overhanging one end of the sheath or holder, and a torch fitted to slide in said sheath or holder and having a projecting wick-tube which travels in the slot, substantially as described.

3. A lamp having a base, a sheath or socket composed of sections secured to said base and separated by a passage-way, and light producing and extinguishing means combined with a torch adapted to be moved into and out of said sheath and having a wick-tube traveling in said passage-way, substantially as described.

4. The combination, with the tubular slotted sheath and its igniting and extinguishing devices, of a torch having a wick-tube fitted to said slotted sheath, substantially as described.

5. The combination, with the tubular slotted sheath and its electric igniting devices, comprising a spring-contact overhanging the slot in the sheath, of a torch having a wick-tube traveling in said slot and curved transversely, so as to insure engagement with the spring contact centrally over its wick, substantially as described.

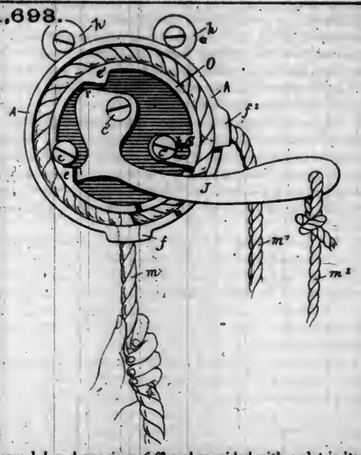
6. The combination, with the sheath, of a torch having a wick-tube, which torch is adapted to be slid longitudinally in said sheath, and a stationary end strip having a terminal overhanging the sheath in the line of movement of the wick-tube and serving as an extinguisher for the torch, substantially as described.

7. A torch open at one end, and thereby adapted to be filled at such end, and a screw-plug for closing such end and terminating in a handle for the torch, substantially as described.

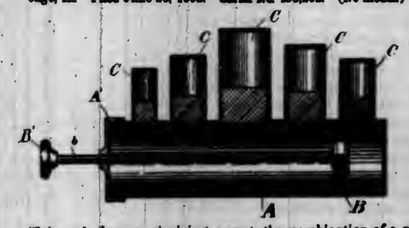
481,698. FIRE-ESCAPE. CHARLES M. FOWLER, Salem, Mass. Filed Apr. 30, 1892. Serial No. 431,232. (No model.)

Claim.—1. In a fire-escape, the combination, with the case A, of the circle O, having the lugs $c\,c'$ and extension x, provided with slot g, the rope m, coiled around the circle O, and the lever J, pivoted as at c', all substantially as described and set forth.

2. The combination, in a fire-escape, of the circular case A, having the ears A A and openings $f\,f^2$ and provided with a slot in its side, the circle O, bearing within the case and provided with the slotted extension x and lugs $c\,c'$, the rope m, coiled around the circle O and within the case, with its free ends carried without through the openings $f\,f^2$, the screws $c\,c'$, and the lever J, pivoted as at c', provided with extensions $i\,i'$ to contact with shoulders $e\,e'$ and with rope m^2, secured to its outer end, all substantially as described and set forth.



481,694. MUSICAL INSTRUMENT. JAMES B. GALLOWAY, Chicago, Ill. Filed June 23, 1892. Serial No. 438,292. (No model.)

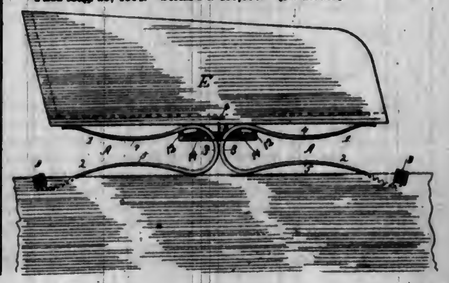


Claim.—1. In a musical instrument, the combination of a main cylinder, a piston therein, means for operating the piston, and a series of organ-pipes connected with the interior of the cylinder, whereby as the piston is moved back and forth the pipes will be played upon, substantially as described.

2. In a musical instrument, the combination of a cylinder, a piston therein, means for operating such piston, and a series of organ-pipes of various sizes connecting with the interior of such cylinder, whereby as the piston is moved back and forth the pipes will be played upon, substantially as described.

3. In a musical instrument, the combination of a cylinder, a piston therein, means for operating such piston, and a series of pipes arranged in a row along the outside of the cylinder and communicating with the interior thereof, whereby as the piston is moved back and forth the pipes will be played upon, substantially as described.

481,695. VEHICLE-SPRING. GEORGE T. GLOVER, Chicago, Ill. Filed Aug. 25, 1891. Serial No. 403,658. (No model.)



Claim.—1. A pair of double-armed springs formed with bent middle portions 3, which are arranged to abut against and back one another, as set forth, the springs being attached to a seat or body at points above their bent middle abutting portions and having the outer ends of their upper arms free to slide against a bearing on the seat or body, substantially as described.

2. The combination of a pair of double-armed springs, for the purpose set forth, and a keeper engaging and holding together the springs and serving to attach them to a seat or body supported upon them, said springs being arranged with their bent middle portions 3 abutting against one another and the outer ends of their upper arms free to slide against a bearing on the seat or body, substantially as described.

3. The combination of a pair of double-armed springs having curved middle portions 3, a keeper formed with a central transversely-arranged bearing portion for a fastening-bolt and oppositely-arranged openings 9 for the said bent middle portions of the springs, and a bolt D, extending up through the central bearing portion 8, so as to attach the keeper to a seat or body supported upon the springs, substantially as described.

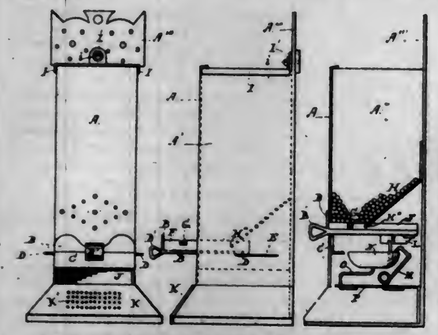
4. A vehicle-seat provided with double-armed supporting-springs arranged in pairs and attached to the seat by keepers which engage the springs adjacent to their middle bends and hold the two springs of each pair with their middle bent portions 3 opposite one another and with the outer end portions of their upper arms, which extend from their middle bends respectively against the front and rear under side portions of the seat, the outer end portions of the lower arms of the springs being provided with hooks for engaging the sides of a vehicle-body, substantially as described.

5. The combination, with a vehicle-seat, of double-armed springs arranged in pairs at opposite ends of the seat and having the outer ends of their lower arms provided with hooks adapted to catch onto the sides of the vehicle-body, keepers connecting the springs in pairs, and bolts for attaching the keepers to the seat, substantially as described.

6. The combination, with a pair of double-armed springs, of a keeper provided with a middle bearing portion 8, openings 9, through which the middle bent portions of the springs extend, and ends which bear against the under side of the upper spring-arms at points forward of said bent middle portions of the springs, substantially as described.

7. A double-armed spring applied for supporting a vehicle seat or body, to which it is attached by a keeper adjacent to its middle bend and formed with a straight upper arm 1^a, which is applied with its outer end portion bearing against but free to slide upon a bearing arranged upon the seat or body, so as to provide between the same and the straight portion of the spring between said bearing and its middle bend a space into which the said normally-straight portion of the spring may bend when cushioning upon the lower arm of the spring, substantially as described.

481,696. AUTOMATIC MATCH-SAFE. GEORGE W. HEFFNER, Montgomery County, Ohio. Filed Jan. 11, 1892. Serial No. 417,763. (No model.)



Claim.—1. In an automatic match-safe, a drawer having two or more longitudinal ribs extending upwardly and secured to the bottom thereof, each rib having a notch adapted to receive a single match.

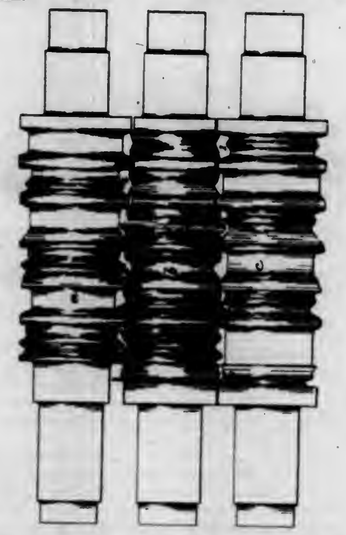
2. In an automatic match-safe, a box having an inclined plane provided with two or more notches at its lower end, secured to the back of said box, in combination with a sliding drawer having the bottom thereof provided with a series of ribs extending upwardly from the bottom, each rib having a notch adapted to receive a single match, substantially as described.

3. In an automatic match-safe, a drawer having a series of ribs extending upwardly from the bottom thereof, each rib having a single notch adapted to receive a single match, the said drawer provided with lugs (attached to the bottom thereof) projecting from its opposite sides and extending through slits made in the opposite sides of the box, whereby the rear of the drawer is supported and its motion in an inward and outward direction may be limited, (by the length of said slits,) as herein shown and described.

4. In an automatic match-safe, the combination of a box having an inclined plane attached to the back thereof, said plane having notches at its lower extremity, with a drawer having a series of longitudinal ribs secured to the bottom thereof, extending upwardly, each rib having a transverse notch adapted to receive a single match when placed in a position at right angles to the ribs.

5. In an automatic match-safe, a box having attached to the back thereof an inclined plane provided with notches and intermediate points at its lower extremity, each notch adapted to straddle each one of the series of ribs of a drawer, each of the said ribs having a notch to receive a single match, said drawer constructed to slide back and forth below said inclined plane and limited in its motion by lugs at the bottom thereof, which extend through slits in the opposite sides of said box, as herein described.

481,697. ROLLS FOR FORMING CONNECTING-PLATES FOR RAIL-JOINTS. DAVID H. LEWIS, Roanoke, Va., and ABRAHAM W. THOMPSON, Newark, N. J., assignors to the Continuous Rail Joint Company of America, of New Jersey. Filed Dec. 10, 1891. Serial No. 414,554. (No model.)



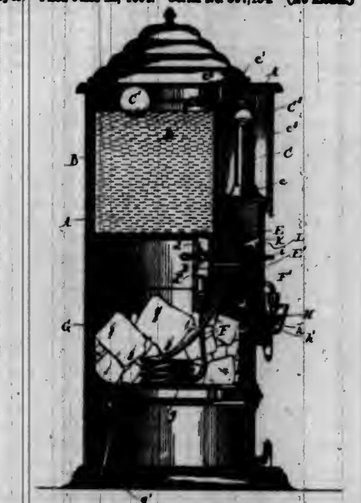
Claim.—1. In a machine for forming railway-rail connecting-plates, the combination of the roll *b*, having a narrow projecting flange g^{13}, with oppositely-inclined working faces g^4 g^5, and at one side of said flange having the working surfaces g^6 g^7 and comparatively low projection g^7, the said working faces g^6 g^7 g^5 being adapted to form with the co-operating roll to the concavous vertical portions of the said connecting-plates, and the roll *c*, having a working face g^{12} substantially parallel with the line of the working faces g^4 g^5 and having a deep groove formed by the oppositely-inclined faces g^{11} g^{12} lying substantially parallel with the faces g^4 g^5, the said working faces being formed to produce a connecting-plate having a vertical part to engage the web of the rail and bearings to engage the top and bottom of the flange thereof, substantially as set forth.

2. In a machine for making connecting-plates for railway-rails, the combination, with the roll *b*, having the working surfaces *y*, of the roll *c*, having the working surfaces g^5, the two sets of surfaces forming the pass 7, of which the portions 18 27 form a sharply-acute angle one with the other, and the portion 17, having the bearing-recesses g^4 and g^5, forms an obtuse angle with the portion 18 to roll a connecting-plate having a bearing or bearings on the web of the rail and on the top and bottom surface of the flange of the rail, substantially as set forth.

3. In a machine for making connecting-plates for railway-rails, the combination of rolls forming passes 1, 2, 3, 4, 5, 6, and 7, of which the first of said passes has a coincident angular recess and projection, the second a similar recess and projection, the pass being of reduced depth, the third of still further reduced depth and having another, an obtuse angle, formed in the pass, the fourth, fifth, and sixth passes being also of reduced depth and having, respectively, the projections d^{12}, e^{12}, and f^{12} forming, with the coincident working faces, pass portions approximating right angles, and the pass 7, having the projection g^{12}, formed much more acute than said projections d^{12} e^{12} f^{12}, the portions 18 27 of said pass being adapted to form the upper and lower bearings to engage the rail-flange and the portion 17 to form the web-bearings, substantially as set forth.

4. In a machine for making railway-rail connecting-plates, the rolls having a series of passes which gradually contract in depth and the last pass of the series having the portions 27 18 17, of which portions 27 18 form a sharply-acute angle and the portions 18 17 an obtuse angle to give the desired shape or form to the vertical web-bearing and the top and bottom flange-bearings, substantially as set forth.

481,698. LIQUID-DISPENSING APPARATUS. ROBERT H. LITTLE, Chicago, Ill., assignor of two-thirds to Henry H. Heimerdinger and Isaac Meyer. Filed June 23, 1891. Serial No. 397,154. (No model.)



Claim.—1. In apparatus of the class described, the combination, with a liquid-delivery pipe or channel and a liquid-discharge pipe or channel, of a series of movable vessels, a handle for moving said vessels coincident with said delivery and discharge pipes or channels, and an intermediate coin-controlled mechanism, whereby said handle may be thrown into engagement with said vessels to shift the same, substantially as described.

2. In apparatus of the class described, the combination, with a liquid-delivery pipe or channel and a liquid-discharge pipe or channel, of a series of rotatable vessels, a rod and handle for rotating said vessels, a coin-carrier connected with said rod, and suitable mechanism connected with said vessels, whereby when a coin is in the seat of the coin-carrier said carrier will engage with and serve to shift said vessels to move the same successively coincident with the delivery and discharge channels, substantially as described.

3. In apparatus of the class described, the combination, with a liquid delivery or induction pipe or channel, of a series of rotatable vessels, a rod and handle for rotating said vessels, a coin-carrier mounted upon and connected to said rod and provided with a seat to receive a coin, suitable devices, such as pawls or dogs, in suitable connection with said vessels for engaging the coin within the coin-carrier, and a suitable releasing-arm for throwing said dogs or pawls out of engagement with the coin, substantially as described.

4. In apparatus of the class described, the combination, with a cover-plate provided with delivery and discharge pipes or channels, of a series of movable vessels, each of which is open at one end and closed at the opposite end, said vessels having their open ends held closely against said plate, said plate serving to close said vessels except when coincident with the delivery and discharge pipes or channels, and a handle for shifting said vessels to bring them coincident with the delivery and discharge pipes or channels, substantially as described.

5. In apparatus of the class described, the combination, with a tank B, of a cover-plate D, provided with the pipes or channels *d* and *d'*, the vessels E and E', held against said cover-plate D, a vessel-holder E^2, by which said vessels are sustained, a spring E^3 for holding said vessels against said cover-plate, a rod I and handle *i*, whereby said vessels may be rotated, and suitable means for effecting the engagement of said rod I with said vessel-holder E^2, substantially as described.

6. In apparatus of the class described, the combination, with a cover-plate having a delivery pipe or channel and a discharge pipe or channel therein, of a series of open-ended vessels adapted to be brought coincident with said pipes or channels and a cooling-pipe connected with said discharge pipe or channel, whereby that portion only of the liquid within said cooling-pipe will be chilled, substantially as described.

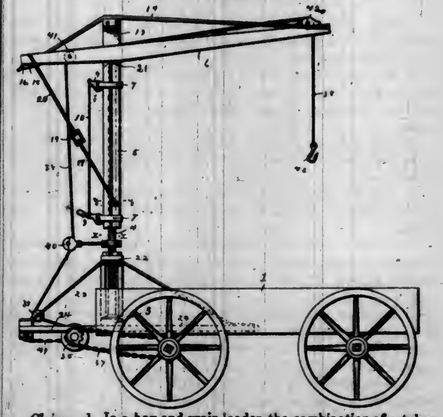
7. In apparatus of the class described, the combination of a coin-chute, a coin-carrier, an operating-rod whereon said coin-carrier is mounted, a device—such, for example, as a vessel-holder—to be rotated, a suitable engaging pawl or dog upon said device, a releasing device for moving said dog or pawl to release the coin, and a spring for returning said coin-carrier to its normal position, substantially as described.

8. In apparatus of the class described, the combination of a coin-carrier, an operating-rod connected with said coin-carrier to shift the same, a plate provided with a coin-slot, a chute for receiving the coin and delivering it to the coin-carrier, said chute being movably sustained, and a spring for shifting said chute to close the coin-slot, substantially as described.

9. In apparatus of the class described, the combination of a cover-plate provided with an induction or delivery pipe or channel, a series of rotatable vessels adapted to be brought coincident with said pipe or channel, a vessel-holder for said vessels, a rod and handle whereby said vessels are rotated, a coin-carrier mounted upon said rod and provided with a seat for the coin, a ratchet-wheel connected to said vessel-holder, a check-pawl for engagement with said ratchet-wheel, suitable coin-engaging devices upon said ratchet-wheel, and a coiled spring for returning said coin-carrier to its normal position, substantially as described.

10. In apparatus of the class described, the combination of a cover-plate D, provided with pipes or channels *d* and *d'*, a vessel-holder E^2, vessels E and E', carried by said vessel-holder, a ratchet-wheel P, connected to said vessel-holder, an operating-rod I, a coin-carrier M, having a seat *m*, a chute L for delivering the coin to said coin-carrier, a pawl *p* for engagement with said ratchet-wheel, a spring O for returning said coin-carrier to its normal position, suitable dogs R R' for engaging a coin within the coin-carrier, and a fixed plate N, provided with a releasing-arm for contacting with said pawls or dogs R R' to release the coin, substantially as described.

481,699. HAY AND GRAIN LOADER. FRANKLIN J. LOVELL, Litchfield, Mich. Filed Aug. 7, 1890. Renewed Aug. 17, 1891. Again renewed June 23, 1892. Serial No. 437,690. (No model.)



Claim.—1. In a hay and grain loader, the combination of a tubular upright movably secured within the wagon-body, a sectional sleeve embracing said upright and carrying a boom, and clamps carried by the sleeve to hold the same at any desired height on the upright.

2. In a hay and grain loader, the combination of an upright rotatably mounted upon the wagon-body, a sectional sleeve carrying clamping devices embracing the said upright, a boom pivoted upon the said sleeve, and adjustable guy-rods connecting the sleeve and boom.

3. In a hay and grain loader, the combination of an upright rotatably mounted upon the wagon-body, a sleeve embracing the said

upright, having a knife-edge bearing, a boom engaging the said bearing, and adjustable guy-rods connecting the sleeve and boom.

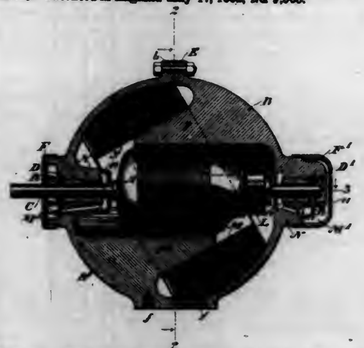
4. In a hay and grain loader, the combination of a standard rotatably mounted upon the wagon-body, an arm rigidly secured thereto, a block having a sliding connection with said arm, a sleeve carried by the upright, a boom carried by the sleeve, and a rope extending from the boom to a suitable elevating mechanism and extending through the said block.

481,700. BRICK. PHILIP S. LOVERIDGE, Knoxville, Pa. Filed May 17, 1892. Serial No. 433,280. (No model.)



Claim.—A brick having a recess or inset in one edge at substantially the center point from end to end, said recess or inset being in depth substantially half the width of the brick and in length substantially half the length of the brick.

481,701. ELECTRIC MOTOR OR DYNAMO-ELECTRIC MACHINE. ROBERT LUNDELL, Brooklyn, assignor of two-thirds to Edward H. Johnson, New York, N. Y. Filed Mar. 14, 1892. Serial No. 424,818. (No model.) Patented in England May 17, 1892, No. 9,365.



Claim.—1. An electric motor having a rotary armature and two overlapping field-magnet poles, all surrounded by a single field-magnet coil, substantially as described.

2. An electric motor having the axes of its field-magnet and armature coils inclined at an angle to each other, with field-magnet poles included in the angular space between said coils, substantially as described.

3. Two semi-spherical field-magnet cores having internally-projecting overlapping pole-pieces and a single field-magnet coil, substantially as described.

4. Two semi-spherical field-magnet cores having internally-projecting overlapping pole-pieces integral therewith, substantially as described.

5. A pair of semi-spherical field-magnet cores having internally-projecting overlapping pole-pieces integral therewith, a rotary armature, and a single surrounding field-magnet coil, substantially as described.

6. A pair of semi-spherical field-magnet cores inclosing a single field-magnet coil and a rotary armature, the effective poles of the field-magnet lying between the armature and the surrounding field-magnet coil, substantially as described.

7. Two hemispheres made of magnetic material having internal overlapping pole-pieces cast integral therewith, and a single field-magnet coil which surrounds the pole-pieces, and a rotary armature, substantially as described.

8. Two hemispheres of magnetic material having internal overlapping pole-pieces integral therewith and means for holding the said hemispheres together, substantially as described.

9. Two hemispheres of magnetic material having each an internal semi-cylindrical pole-piece integral therewith and each overlapping the other, substantially as described.

10. Two hollow hemispheres of magnetic material having each a semi-cylindrical pole-piece integral with its inner face, said pole-pieces overlapping each other, a rotary armature journaled in the opposite hemispheres and lying between the pole-pieces, in combination with a single field-magnet coil, substantially as described.

11. An electric motor having all of its parts inclosed in a two-part magnetic shell, which sustains the journal-bearings of the armature-shaft and the commutator-brushes, the latter being adjustably secured in insulating-sleeves, substantially as described.

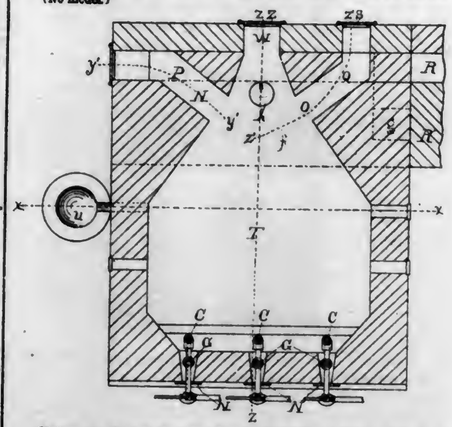
12. An iron-clad electric motor consisting of two hemispheres of magnetic material having the journal-bearings of the armature shaft in the opposite hemispheres and commutator-brushes secured in one of said parts in insulating-sleeves, substantially as described.

481,702. TREAD FOR STAIRS, &c. JONATHAN MASON and JOSEPH MASON, London, and WILLIAM S. CONNER, Stoke Newington, Middlesex, England. Filed June 11, 1892. Serial No. 436,339. (No model.) Patented in England Apr. 7, 1891, No. 5,968; in France Apr. 25, 1891, No. 212,963, and in Belgium Apr. 29, 1891, No. 94,712.



Claim.—A tread for stairs and other purposes, consisting of a plate A, of hard metal, provided with ribs *a* and undercut or dovetail-shaped spaces *b* between the ribs, in combination with filling-pieces *c*, of soft non-slipping material, placed in the spaces *b*, as and for the purpose set forth.

481,708. REVERBERATORY SMELTING-FURNACE. HENRY MATHEY, South Riverside, Cal. Filed Feb. 24, 1891. Serial No. 382,444. (No model.)



Claim.—1. A reverberatory furnace comprising the combination of a hydrocarbon-burner, a suitable deflecting-roof arranged to receive the flame from such burner and direct the heat downward upon the charge to be smelted, and a chamber narrowed by diagonally-arranged walls at the end opposite that at which the flame is introduced and provided with two or more draft-flues opening, respectively, from the chamber through such diagonal walls.

2. A hydrocarbon-burning reverberatory furnace having its chamber narrowed by diagonally-arranged walls at the ends opposite that at which the flame is introduced and provided with two or more draft-flues opening, respectively, from the chamber through such diagonal walls.

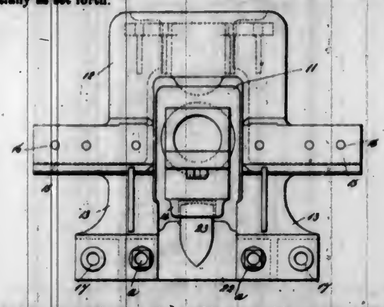
3. A hydrocarbon-burning reverberatory furnace having its chamber narrowed by diagonally-arranged walls at the end opposite that at which the flame is introduced, two or more draft-flues opening, respectively, from the chamber through such diagonal walls, and means for partially closing one or more of such flues to direct the draft toward the other draft flue or flues.

481,704. CAR-TRUCK GEAR. EDGAR PECKHAM, New York, N. Y. Filed Aug. 18, 1891. Serial No. 403,000. (No model.)

Claim.—1. In a car-truck gear, the combination, with an axle-box, of a yoke comprising two members detachably connected together, the upper member having a bearing in the top of the axle-box and the lower member having a bearing in the bottom of said axle-box, substantially as set forth.

2. In a car-truck gear, the combination, with an axle-box, of a yoke comprising an upper and a lower member detachably connected together and in contact, respectively, with said axle-box at top and bottom thereof by suitably adjustable bearings, spaces being provided between the vertical sides of the axle-box and the yoke to facilitate the removal of the axle-box, substantially as set forth.

3. In a car-truck gear, the combination, with an axle-box, of a yoke comprising two members detachably connected together, the upper member having a bearing in and coacting with the top of the axle-box and the lower member having a bearing in and coacting with the bottom of the axle-box, the bearing-surface in the bottom of said axle-box elongated in the direction of the width of the truck, substantially as set forth.



4. In a car-truck gear, the combination, with an axle-box provided in its top with a semi-spherical bearing-surface, of a yoke provided on the under side of its upper horizontal portion with a bearing-surface the complement of the bearing surface on the axle-box, the legs of said yoke equipped with lateral arms, as 15, for securing the same to the truck-frame, substantially as set forth.

5. In a car-truck gear, the combination, with an axle-box provided with a recess on its under side, of a yoke supported by said box and provided with a vertical projection extending upward into said recess, substantially as set forth.

6. In a car-truck gear, the combination, with an axle-box, of a yoke supported by said box and provided with vertical legs extending downward along the sides of said box, and a cross connection between said legs, detachably joined thereto and co-operating with the under side of the axle-box, substantially as set forth.

7. In a car-truck gear, the combination, with an axle-box, of a yoke supported on top of said box and provided with vertical legs having a detachable connection underneath said box inserted into sockets provided on said legs, substantially as set forth.

8. The combination, with an axle-box provided with an elongated socket in its bottom and a yoke supported on top of said axle-box, of a detachable retaining-piece coacting with the lower part of the yoke and having a pin or stud operating within said socket of the axle-box, substantially as set forth.

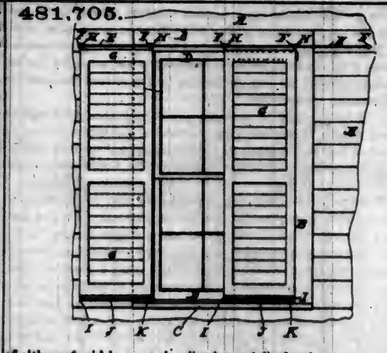
9. In a car-truck gear, the combination, with an axle-box, of a yoke supported on top of said box and a bearing-piece with curved surface detachably connected with said yoke and engaging with a corresponding bearing-surface on top of the axle-box, substantially as set forth.

10. In a car-truck gear, the combination, with an axle-box, of a yoke supported by said box and provided with a recess for receiving an elastic cushion and a bearing-piece supporting said cushion in the yoke and engaging with a bearing-surface on top of the axle-box, substantially as set forth.

11. In a car-truck gear, the combination, with an axle-box, of a yoke supported by said box and provided with a cylindrical recess in the under surface of its upper horizontal member, a hollow metallic bearing-piece fitted to slide within said recess, and a suitably-formed elastic cushion or spring inserted in said bearing-piece within the recess of the yoke, substantially as set forth.

481,705. SHUTTER-WORKER. NEHEMIAH SALTMARSH, Concord, N. H. Filed Apr. 14, 1892. Serial No. 429,108. (No model.)

Claim.—The sliding blinds pivotally connecting by brackets at their top to a horizontal rod mounted near the top of a window-frame, suitable operating-cords passing from each upper corner of said blinds over a roller and through an opening made for the purpose in said window-frame to the interior of a room, the said roller located upon the outside and a metallic socket upon the inner side of said window-frame, suitable guides connecting the bottom of said blinds with the window-sill, and means for holding either of said blinds at an angle with the window, comprising a brace or rod adjustably pivoted at one end to either blind and having at its free end a hook, and an eye upon either side of said window-frame for engaging the hook at the free end of either of said brace-rods, all substantially for the purpose set forth.

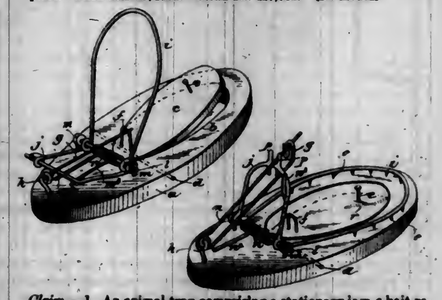


481,706. HARVESTER AND BINDER. JOHN M. TRIER, Jefferson, Ind. Filed Jan. 26, 1892. Serial No. 419,260. (No model.)



Claim.—The combination, with the harvester truss-frame having the slots *c* formed therein, of an attachment consisting of the segment-rack adapted to slide in the said slots, the plate G, extending across the rack and provided with legs *f*, secured to the said rack, the spiral springs secured to the plate, and the rods F, passing through the truss-frame, the springs, and the plate, whereby the weight of the harvester is transferred from the segment-rack to the springs, substantially as shown and described.

481,707. ANIMAL-TRAP. CHAUNCEY B. TRUMBLE, Groton, N. Y., assignor, by mesne assignments, of one-half to Hiram G. Moe, same place. Filed Jan. 23, 1892. Serial No. 419,002. (No model.)



Claim.—1. An animal-trap comprising a stationary jaw, a bait-receiving device, a movable spring-jaw pivoted to the stationary jaw and having a rigid integral back piece by which it may be set, and a trigger secured to the stationary jaw and adapted to be laid over the back piece to engage the bait-receiving device to set the trap, substantially as described.

2. In an animal-trap, a spring-jaw having a front portion constructed to catch and kill animals and a back piece arranged substantially at right angles to the front portion and integral therewith, combined with a base or lower stationary jaw to which the spring-jaw is pivoted, a spring constructed independently of the two jaws and interposed between the two jaws, and a trigger for setting the spring-jaw, substantially as described.

3. In an animal-trap, a movable jaw composed of an active portion provided with a right-angled back portion integral with the active portion and by which the active portion may be manipulated and having pivot-holes, combined with a pivot, a spring for the jaw, a trigger, a stationary jaw, and a baiting device, substantially as described.

4. In an animal-trap, a movable jaw composed of an active por-

tion having a right-angled back portion integral therewith for manipulating the jaw, combined with a pivot fitted to pivot-holes in the movable jaw, a spring for closing the jaw forcibly, a trigger connected and moving with the back portion, a stationary jaw, a baiting device, and a spring normally moving the baiting device toward the movable jaw, substantially as described.

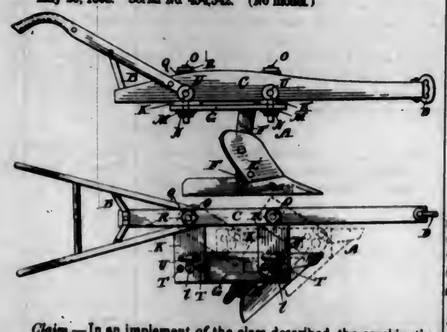
5. In an animal-trap, a stationary jaw having a suitable baiting device and trigger, combined with a movable spring-jaw having an active portion and an integral and rigid right-angled back or manipulating portion and pivoted to the stationary jaw, substantially as described.

6. An animal-trap comprising a stationary jaw, a bait-receiving device, a movable spring-jaw pivoted to the stationary jaw and having a back piece by which it may be set, and a trigger secured to the stationary jaw and adapted to be laid over the back piece and engage the bait-receiving device to set the trap and having a notch or offset to engage the back piece when the trap is sprung to lock the movable jaw and prevent its victim from raising it, substantially as described.

7. An animal-trap comprising a stationary jaw, a bait-receiving device, a movable spring-jaw pivoted to the stationary jaw and having a back piece by which it may be set, and a trigger permanently engaged with the back piece and adapted to be extended over it when it is prone into engagement with the bait-receiving device to set the trap and having a notch or offset to engage the back piece when the trap is sprung to lock the movable jaw and prevent its victim from raising it, substantially as described.

8. An animal-trap comprising a stationary jaw, a bait-receiving device, a movable spring-jaw pivoted to the stationary jaw and having a back piece by which it may be set, and a trigger permanently engaged with the back piece and adapted to be extended over it when it is prone into engagement with the bait-receiving device to set the trap, substantially as described.

481,708. PLOW. EDWARD L. WARD, Santa Rosa, Cal. Filed May 25, 1892. Serial No. 434,342. (No model.)



Claim.—In an implement of the class described, the combination of a plow-stock, a plowshare, parallel links connecting said share with said stock, pivotal connections of said links with said share and said stock, and a series of corresponding holes passing through said share and one end of each of said links, substantially as and for the purpose set forth.

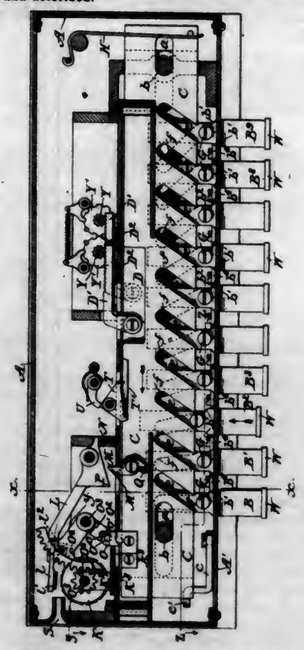
481,709. CHECK PRINTING AND ADDING MACHINE. CARL W. WEHR, Brooklyn, N. Y., assignor to the Kruse Cash Register Company. Filed Sept. 9, 1891. Serial No. 405,184. (No model.)

Claim.—1. The combination of a type-wheel having a single peripheral row of type characters, means to rotate said wheel, a series of keys, means intermediate each of said keys and wheel to shift the latter longitudinally, a platen extending over the line of movement of the wheel, and means to produce an impression at different points in the line of travel of the wheel, substantially as shown and described.

2. The combination of a type-wheel having a single peripheral row of type characters, a shaft with which said wheel rotates and on which it is free to be moved longitudinally, means to rotate the shaft, a series of keys, means intermediate each of said keys and wheel to shift the latter upon the shaft, a platen extending over the line of movement of the wheel, and means to produce an impression at different points in the line of travel of the wheel, substantially as shown and described.

3. The combination of a type-wheel having a single peripheral row of type characters, a shaft with which said wheel rotates and on which it is free to be moved longitudinally, means to rotate the shaft, a series of keys, a sliding plate adapted to carry the wheel with it, means intermediate said keys and plate to shift the latter, a platen extending over the line of movement of the wheel, and means to produce an impression at different points in the line of travel of the wheel, substantially as shown and described.

4. The combination of a type-wheel, a shaft with which said wheel rotates and on which it is free to be moved longitudinally, means to rotate the shaft, a series of keys, a sliding plate adapted to carry the wheel with it and formed with an incline, and means actuated by said keys to co-operate with said incline and shift the plate, substantially as shown and described.



5. The combination of a type-wheel, a shaft with which said wheel rotates and on which it is free to be moved longitudinally, means to rotate the shaft, a series of keys, a sliding-plate adapted to carry the wheel with it and formed with an incline, and a sliding bar adapted to co-operate with said incline to shift the plate and to be moved by said keys, substantially as shown and described.

6. The combination of a type-block movable in a plane parallel with its face and bearing a single line of type characters, a series of keys, means intermediate each of said keys and type block to shift the latter in the plane of its movement and at a right angle to the line of type characters, a platen extending over the line of movement of the type, and means to produce an impression at different points in the line of travel of the type, substantially as shown and described.

7. The combination of a type-block movable upon bearings parallel with its face and having a single line of type characters, a sliding plate adapted to carry said type-block with it, a series of keys, means intermediate said keys and plate to shift the latter, a platen extending over the line of movement of the type, and means to produce an impression at different points in the line of travel of the type, substantially as shown and described.

8. The combination of a type-wheel, a shaft with which it rotates, a series of rows of keys, a series of swinging arms corresponding to said rows of keys, means intermediate said arms and shaft to rotate the latter, a series of sliding bars adapted to engage said arms, and means intermediate said rows of keys and the corresponding bars to shift the latter, substantially as shown and described.

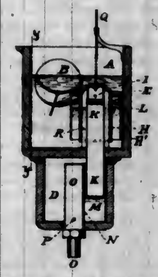
9. The combination of a type-wheel, a shaft with which it rotates, a series of sliding bars, a series of swinging arms having notches with which said bars are adapted to engage, means to move said bars, and means intermediate said arms and shaft to rotate the latter, substantially as shown and described.

10. The combination of a type-wheel, a shaft carrying said wheel, a second shaft, gearing intermediate said shafts, a series of arms upon said second shaft, a series of rows of keys, and means actuated by said keys and adapted to engage said arms, substantially as shown and described.

11. The combination, with a type-wheel, a series of bars movable

longitudinally, and means intermediate said bars and wheel to rotate the wheel, of a series of stop-plates severally pivoted between said bars and formed with shoulders adapted to stand in the path of movement of said bars and to contact with corresponding shoulders of adjacent stop-plates, and a series of rows of keys, and intermediate means to shift said bars, substantially as shown and described.

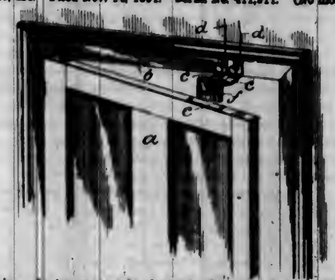
481,710. FLUSH-TANK. BENEDETTE WILLIAMS and CHARLES POOLE, Chicago, Ill. Filed Sept. 19, 1891. Serial No. 406,286. (No model.)



Claim.—1. The combination, with an automatically-filling tank containing the intaking-limb of a siphon, of an independent open-bottomed and voluminous air-chamber connected near its top with the head of said siphon by means of a small air-passage and sealed and unsealed by the rise and fall of water in said tank through the action of said siphon and the action thereof permanently broken through said enlarged air-chamber and air-passage, substantially as specified.

2. The combination, with an automatically-filling tank containing both the intaking-limb of a siphon and an independent open-bottomed and voluminous air-chamber and an air-passage connecting said chamber and head of said siphon, of a tank provided with a discharge-pipe and a trap to the discharging end of said siphon, substantially as specified.

481,711. ELECTRIC DOOR-ALARM. MERTON W. RESSEY, Waterville, Me. Filed Nov. 14, 1891. Serial No. 411,911. (No model.)



Claim.—1. In an electric alarm for doors, windows, and the like, the combination of a pair of metallic plates on the frame or casing, a metallic connecting strip on the door, and a piece of insulating material adapted to be interposed between the plates and the strip as the door moves in one direction only, substantially as described.

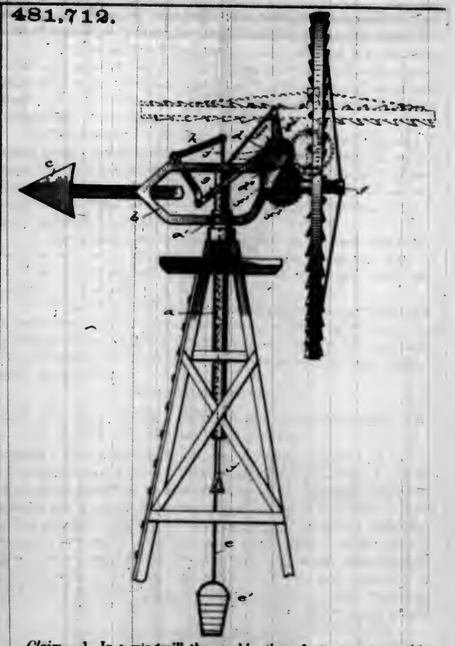
2. The combination of the metallic plates *c*, secured to the frame, the connecting metal strip *e*, attached to the moving part, and the insulating-strip *f*, arranged to be struck by the moving part and interposed between the plates and the strip, as and for the purpose set forth.

3. The combination of the wires *d*, the metallic plates *c*, the metallic connecting-strip *e*, and the piece of insulating material *f*, attached at its upper end to the outer ends of the plates *c*, substantially as described.

4. The combination of the metallic plates *c* on the frame or casing, a hinged cover or housing protecting and concealing the same, the connecting metal strip *e* on the door, and a strip of insulating material depending below the housing and the frame and arranged so as to be struck by the door in moving in one direction and interposed between the plates *c* and the connecting-strip, substantially as described.

481,712. WINDMILL. GEORGE W. CAMPBELL, El Paso, Tex., assignor to John V. Taggart and James H. Boone, same place, and Frank Brown, Jr., Austin, Tex. Filed Dec. 22, 1891. Serial No. 415,875. (No model.)

481,712.



Claim.—1. In a windmill, the combination of a tower, a rotatable frame mounted thereon, a counterbalancing-weight upon the front end of this frame, a vertically-swinging frame pivotally supported upon the rear end of the rotatable frame, an operating-cord connected to the swinging frame above its pivotal point, a wind-wheel having its shaft journaled in the lower end of the vertically-swinging frame, the axis of the wind-wheel shaft being below the axis of the swinging frame, a gear-wheel on the wind-wheel shaft, gearing supported on the swinging frame and meshing with the gear-wheel on the wind-wheel shaft, and operating mechanism connected to the gearing, substantially as described.

2. The combination of a tower, a vertical tube thereon, a revolving frame on said tube, an upright swinging frame pivoted on the other end of said revolving frame, a wind-wheel having its shaft journaled in the lower end of the latter frame and provided with a bevel-pinion, gear-wheels journaled on said swinging frame and meshing with said pinion, a forwardly-extending connecting-rod connected to one of said gear-wheels, an angle-lever pivoted on the revolving frame and having one of its arms attached to said connecting-rod, and a working rod connected to the other arm of said angle-lever and extending down through the vertical tube, substantially as described.

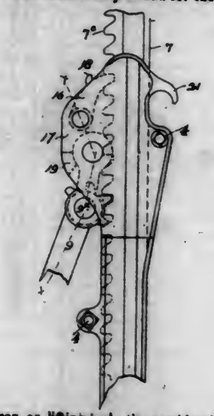
3. The combination of a revolving frame, an upright swinging frame pivoted on the rear end of said frame, a wind-wheel having its shaft journaled on the lower end of said swinging frame below its pivotal point, operating mechanism connected to said wheel-shaft, and a depending cord or wire connected to the upper end of said swinging frame above its pivotal point and carrying a variable weight at its lower end, substantially as described.

4. The combination of a tower, a tube thereon, a rotatable frame on said tube and having its rear end provided with arms *d d*, a counter-balance on its forward end, an open frame *d'*, journaled between the arms *d d*, a wind-wheel having its shaft journaled in the frame *d'* below its pivotal point, a bevel-gear on said shaft, a bevel-gear f^3, journaled in the frame *d'* and meshing with the gear on the shaft, a gear f^4, journaled in the swinging frame and meshing with the gear *d*, a rod *g*, connected to the gear f^4, and means connecting this rod to the operating-cord connected to the upper end of the swinging frame *d'* and extended down through the tube and carrying an adjustable weight, substantially as described.

481,718. WAGON-JACK. MANUEL C. JACKSON, Denver, Colo. Filed Dec. 1, 1891. Serial No. 413,795. (No model.)

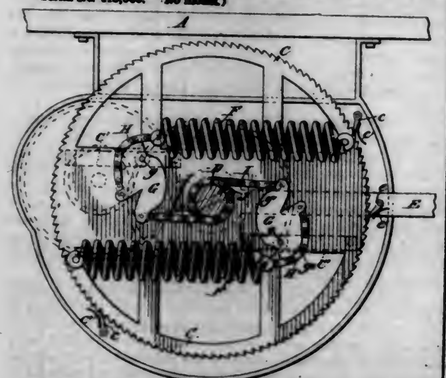
Claim.—1. The combination, with a suitable frame provided with a hook 21, of a movable rack-bar supported therein and having a hook 20, a lever fashioned to engage the face of said bar, a movable fulcrum located on the frame and supporting the lever, and a locking-dog pivoted on the frame and automatically locking the movable bar

as it is released by the lever, whereby hooks 20 and 21 are made to approach each other, substantially as and for the purpose set forth.



2. In a wagon or lifting jack, the combination, with a suitable frame, of a movable rack-bar supported therein, a lever engaging the face of the movable bar and provided with an oscillating fulcrum pivoted on the frame at one extremity and to the lever at the opposite extremity, the frame being shouldered to engage said section and to prevent the teeth of the lever from engaging the bottoms of the recesses between the teeth of the rack, the frame being provided with an interiorly-projecting lug adapted to engage said fulcrum and to prevent its outer movement after the disengagement of the lever from the rack-bar, substantially as and for the purpose set forth.

481,714. SPRING-MOTOR. JOHN F. LANE, Emerson, and JAMES W. ROPER, Cartersville, Ga., assignors to themselves, and Woodville Latham and Enoch J. Rector, Chattanooga, Tenn. Filed Dec. 14, 1891. Serial No. 415,009. (No model.)



Claim.—1. In a spring-motor, the combination of a driving-shaft, a wheel, pivoted devices on said wheel, coiled springs connected to said wheel and to said devices, and connections between said devices and the shaft.

2. In a spring-motor, the combination, with the main shaft, of a winding wheel and parallel coiled springs pivoted thereto, said springs being capable of extension and contraction in the line of their axes and being so connected and arranged with the shaft as to actuate the latter, substantially as described.

3. In a spring-motor, the combination, with the main shaft, of a winding-wheel mounted thereon, coiled springs pivoted to the wheel near its periphery, pivoted lever-acting cams having suitable elliptical or curved edges, chains connecting the ends of the springs with said cams, and chains connected to the main shaft and also to the said cams, so that when the winding-wheel is rotated forward the chains may wind on the shaft, substantially as described.

4. In a spring-motor, the combination of a main driving-shaft, the winding-wheel, cams pivoted to said wheel, said cams having suitably-curved edges and having their pivotal points near one end thereof, connections between the cams and the main shaft, and coil-springs which are capable of expansion and contraction in the line of their axes, said springs being connected to the wheel and to the cams, substantially as described.

5. In a spring-motor, the combination of a main shaft, a ratchet-wheel, pivoted cams on said wheel on opposite sides of the shaft, coiled springs pivoted to the wheel near its periphery, chains connecting the other ends of said springs with the cams, and chains connecting the cams with the shaft, substantially as described.

6. In a spring-motor, the combination of a driving-shaft, a winding ratchet-wheel, a holding pawl or pawls therefor, a winding pawl-carrying lever, cams pivoted to said wheel, the coiled springs on the wheel near its periphery, and connections between the springs and its cams and between the cams and the shaft, substantially as described.

7. In a spring-motor, the combination, with a driving-shaft, of the winding-wheel mounted thereon, a cam pivoted to said wheel, a coiled spring pivoted to the wheel near its periphery, a flexible connection between the other end of said spring and the cam, and another connection between said cam and the shaft, substantially as described.

8. In a spring-motor, the combination of a main driving-shaft, a winding-wheel mounted loosely thereon, an elliptical or curved cam pivoted near one of its foci to the wheel, a coiled spring pivotally connected to the wheel near its periphery, a flexible chain or cable connection between the end of the spring and the cam, and another similar connection between the cam and the shaft, which latter is adapted to wind about the shaft, all arranged so that the leverage of the cam will increase as the resiliency of the spring decreases in the compression of the latter, so that thereby an equality of action may be produced in the operation of the driven shaft, substantially as described.

9. In a spring-motor, the combination of a main driving-shaft, a ratchet-wheel mounted loosely thereon, cams pivoted to the face of said wheel, coiled springs pivoted to the wheel near its periphery, flexible connections between the ends of said springs and the cams, similar connections between the cams and the main shaft that wind around the latter, holding-pawls for the ratchet-wheel, the winding-handle provided with a pawl that engages the said wheel, the fixed gear on the main shaft, and suitable multiplying gearing between it and the driving-pulley, substantially as described.

10. In a spring-motor, the combination of the main driving-shaft having a fixed gear thereon, a train of gearing between it and the driving pulley, and suitable braking devices for regulating the speed of the driving-shaft and gearing, a winding-wheel mounted loosely on the driving-shaft, the actuating coiled springs for said winding-wheel, pivoted thereto and arranged so as to exert their resiliency to produce a rotation of the main shaft, and a winding-lever which engages the said winding-wheel and rotates it sufficiently to extend the springs and thereby wind up the machine when required, substantially as described.

11. In a spring-motor, the combination, with the main shaft, of a winding-wheel thereon, coiled springs pivoted to the wheel, cams pivoted to the wheel, and connections between the springs and cams and the cams and shaft, the gearing actuated by said shaft, a smooth pulley on one of the gear-shafts, a strap partially surrounding said pulley, and a bent vibratory lever pivoted on the frame and connected to one end of said strap, the whole arranged for the purpose of regulating the speed of the machine, substantially as specified.

12. In a spring-motor, the combination of the main shaft, a suitable train of gearing to be actuated thereby, a wheel mounted loosely on said shaft, coiled springs pivoted thereto near its periphery, and cams G G, pivoted to the wheel near the end of their major axes at points g g, said cams having the oppositely-located curved edges g' and g^2, and the flexible connecting-links pivotally attached to the cams at their ends farthest from their pivotal points and to the main driving-shaft and the free ends of the coiled springs, respectively, substantially as described.

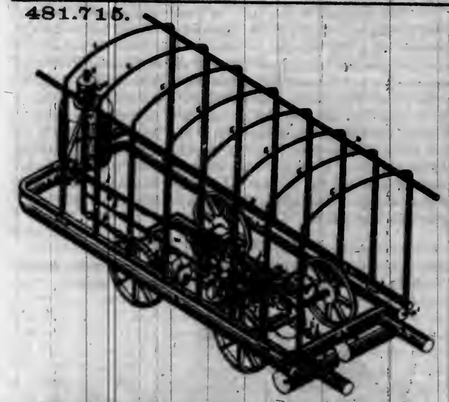
13. In a spring-motor, the combination, with the main shaft, of winding mechanism consisting of a rotary wheel, a handle for rotating it, a coiled spring for driving it, said spring being pivoted on the face of the wheel and capable of expansion and contraction in the line of its axis, and a connection between said spring and the shaft, so that after the spring has been extended the force of its compression may rotate the said shaft, substantially as specified.

14. The combination, in a spring-motor, of the shaft, a wheel mounted thereon, and a coiled spring carried on the face of said wheel, said spring being capable of expansion and contraction in the line of its axis and arranged and connected with the shaft for the purpose of actuating it, substantially as described.

481,715. MOTOR FOR STREET-CARS. JAMES G. LIGHTFOOT, Indianapolis, Ind. Filed July 3, 1891. Serial No. 398,404. (No model.)

Claim.—1. The combination, in a street-car, of the main frame-work consisting of the sills A A, distributing-pipes B B, stanchions C C, eaves D D, and roof-rafters E E, all being pipes and providing storage for the gas and being connected by pipes n n', all substantially in the manner and for the purpose set forth.

481,715.



2. In a street-car, the combination of the gas-pumps t t, air-pumps f f, engine-shaft b, spur gear-wheels e e, pump-shafts e e, having cranked ends that drive the pistons in pumps f f, substantially as described.

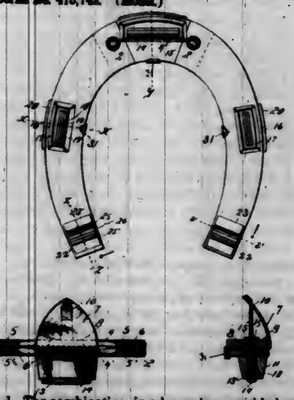
3. In a street-car motor, the combination of the main framework, all formed of pipes and providing a storage for a gas, the shaft b, friction-wheel X, idler friction-wheels Y Y, the driven friction-wheels W W, the truck-axles Z Z, and the lever P, substantially as described.

4. The combination of the main framework consisting of the storage-pipes A, B, C, D, and E, the gas-pumps t t, air-pumps f f, engine-shaft b, spur gear-wheel e e, pump-shafts e e, friction-wheel X, idler friction-wheels Y Y, driven friction-wheels W W, and truck-axles Z Z, substantially as described.

5. In a street-car motor, the combination of the idler friction-wheels Y Y, the links U U U U, the stands V V V V, shafts p p, the arms T T, the rods R S, arm Q, the shaft O, the lever P, and the segmental guide-plate l, for the purpose as set forth.

6. In a street-car motor, the combination of the boiler F, the engine-cylinders a a, the friction-wheels X, Y Y, and W W, the air-pumps f f, gas-pumps t t, reducing-valve i, and storage-pipes A A, B B, C C, D D, and E E, &c., substantially as described, and for the purpose as set forth.

481,716. HORSESHOE. HOLGER OLSON, Henderson Grove, assignor of one-half to John Olson Lander, Knoxville, Ill. Filed Dec. 21, 1891. Serial No. 415,742. (Model.)



Claim.—1. The combination, in a horseshoe provided with a slot, of an integral calk-socket secured thereto by a wedge and trapezoidal-shaped sections extending in said slot, substantially as described.

2. The combination, in a horseshoe provided with a slot, of an integral calk-socket secured thereto by means of a wedge and sections provided with lugs extending in said slot, substantially as specified.

3. The combination, in a horseshoe provided with a slot, of an integral calk-socket secured to the shoe by a wedge and trapezoidal-shaped sections provided with lugs extending into said slot, substantially as described.

4. In a horseshoe provided with a slot, an integral calk-socket, in combination with calk-sections passing through the socket and slot and adapted to engage the walls of the latter to hold the calk and socket in position, in the manner and for the purpose set forth.

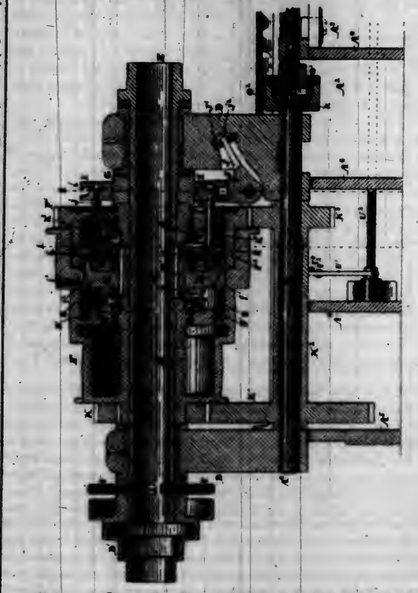
5. The combination, in a horseshoe made of plates provided with a slot, of a pointed metallic toe-shield provided with a slot which registers with slots in the plates, the upper end of said shield being bent backward and provided with a hole through which passes a wedge, substantially as described.

6. The combination, in a horseshoe, of a toe-section composed of plates and a pointed metallic shield secured between said plates, one end of which shield is bent around the inner edge of one of the plates, the other end being pointed and bent upward and backward and provided with a transverse hole through which a wedge is adapted to pass, substantially as specified.

7. The combination, in a horseshoe, of an integral calk-socket provided with a transverse recess, said socket being secured to the shoe by sections provided with shoulders which fit within the recess, substantially as described.

8. The combination, in a horseshoe, of a calk-socket provided with a transverse recess, said socket being secured to the shoe by sections having shoulders which fit within the recess, lugs on the upper ends of said sections, and a wedge driven between said sections, substantially as described.

481,717. LATHE. CHARLES G. RICHARDSON, Boston, Mass. Filed Jan. 25, 1892. Serial No. 419,156. (No model.)



Claim.—1. In a lathe, the combination of a work holding and rotating chuck, a bed provided with suitable ways, a carriage supported by and movable endwise of said ways, and an annular tool-carrier surrounding said bed and supported by said carriage and having provision for securing the cutting-tool holders to it.

2. The combination, in a lathe, of a bed having suitable ways, a work holding and rotating chuck carried by said bed, a carriage mounted upon and movable along said ways and provided with a ring-like portion extending around said bed, and an annular carrier fitted to said ring-like portion of said carriage and surrounding said bed, mechanism for automatically moving said carrier about said bed and carriage, and means having provision for locking said carrier after each intermittent partial rotation.

3. The combination, in a lathe, of a bed having suitable ways, a work holding and rotating chuck supported by said bed, a carriage mounted upon and movable endwise of said ways, a tool-carrier mounted on said carriage and revoluble thereon, a toothed rack secured in a fixed position on said bed, a worm carried by said carriage, a worm-wheel and a train of gears interposed between said rack and worm, said worm-wheel and certain of the gears being carried by pivoted radius arms, a revolving shaft driven or operated from any suitable source of power, suitable gears for imparting motion from said shaft to the worm, an intermittently-revolving shaft, a ratchet-and-pawl mechanism connected with said shaft, a series of cams on the tool-

carrier for operating said ratchet-and-pawl mechanism, a series of rest-bars arranged around, carried by, and adjustable lengthwise of said shaft, and a lifting-bar for raising said worm-wheel into contact with the worm and constructed and arranged to maintain such contact by engagement with one of said rest-bars, whereby the length of feed of the carriage and tool-carrier is determined by the distance from said lifting-bar at the start to the end of said bar or a notch therein where said lifting-bar is disengaged.

4. The combination, in a lathe, of a bed having suitable ways, a work holding and rotating chuck, a carriage mounted upon and movable endwise of said ways and surrounding said bed, an annular tool-carrier mounted upon said carriage and surrounding it and said bed and having a polygonal outer periphery fitted to receive a tool-holder on each of the flat sides of the polygon, a bolt for locking said carrier, a series of sockets in said carrier to receive said bolt, a constantly-revolving shaft operated from any suitable source of power, a second shaft, a friction-clutch mechanism interposed between said shafts and adapted to connect them and cause said second shaft to revolve, a pinion on said second shaft revoluble therewith and freely movable endwise thereof, an internal gear mounted on said carrier and adapted to be revolved about its axis by the revolution of said pinion, a lug pendent from the upper portion of the carriage and slotted to embrace or straddle said shaft and pinion and adapted to engage and move the pawl-carrying block, an adjustable block, a pawl pivoted to said block and provided with an upwardly-projecting wedge-shaped lug, a two-armed lever pivoted to the carriage and engaging the locking-bolt by one of its ends and having its opposite end in position to engage said wedge-shaped lug, means having provision for adjusting the pawl-carrying block on its shaft and means having provision for holding said block in position on its shaft without interfering with the rotation of said shaft, and a spring constructed and arranged to permit a slight endwise movement of said pinion-carrying shaft.

5. The combination, in a lathe, of the bed A, provided with ways A' A', a work holding and rotating chuck, the carriage M, the carrier N, a constantly-revolving shaft operated from any suitable source of power and provided with the friction-clutch hub k, the shaft O, provided with a longitudinal spline-groove and the female coupling-sleeve O^2, the pinion N^2, the spur-gear N', the internal gear l, mounted on the carrier, the block P, movable endwise on the shaft O, the pawl P', provided with the wedge-shaped lug o^3 and the arm o^4, the spring o^5, the screw-shaft O^2, fitted to a threaded hole in the block P, the tie-block O^3, connecting said shafts, as set forth, the spring p', the lever P^2, the locking-bolt m^2, the spring n, a series of bushings m', set in the carrier, the push-pin u, mounted in the carriage, as set forth, the spring u', and the series of pins v, set in the carrier and adapted to act upon said push-pin to move it endwise to trip the pawl P' from engagement with the lever P^2 to allow the locking-bolt to engage with said bushings.

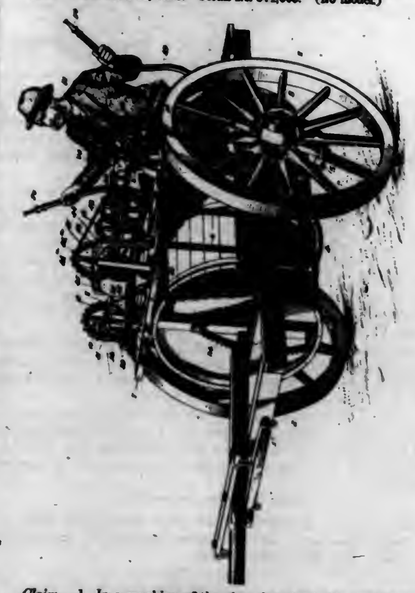
6. In a lathe head-stock, the combination of a chuck-carrying spindle, a cone-pulley mounted loosely thereon and carrying a spur-gear, a gear-wheel also mounted loosely on said spindle between two collars or sleeves firmly secured to said spindle, suitable gears connecting the gear on the cone with the gear on the spindle, a friction-wheel mounted upon said spindle, so as to be revolubly therewith, and movable endwise thereof and having its outer periphery composed of two frusto-conical surfaces, two friction-rings fitted one within the cone-pulley and the other within the rim of the gear loosely mounted on the spindle, said rings having their inner surfaces shaped to fit the frusto-conical surfaces of said friction-wheel and being connected to said cone and gear, so as to be revolubly therewith and movable therein toward or from each other, springs for moving said rings toward each other, a toothed clutch on each side of said friction-wheel, and a shipper mechanism constructed and arranged to move said friction-wheel lengthwise of said spindle in either direction and cause it to first engage one of the friction-rings and then one of the positive clutches.

7. In a lathe, the combination, with the bed and a carriage mounted on and movable endwise of said bed, of a tool carrier mounted on said carriage and intermittently revoluble thereon, a constantly-revolving feed-shaft, a train of feed-gearing constructed and arranged to be thrown into and out of connection with said feed-shaft, an intermittently-revoluble shaft, a series of rest-bars arranged around and parallel to said shaft and adjustable lengthwise thereof, and a lifting-bar for raising the train of feed-gearing and provided with a shoulder to engage said rest-bars, substantially as described.

8. The combination, in a lathe, of a bed having suitable ways, a work holding and rotating chuck supported above said bed, a carriage mounted upon and movable endwise of said ways, a tool-carrier mounted upon said carriage and revoluble thereon, a rest-bar supported by and adjustable lengthwise of said bed, a bar or lever mounted upon and movable with said carriage and constructed and arranged to bear upon said rest-bar during the movement of said carriage and adapted to drop off the end of said rest-bar or through a notch cut therein, and mechanism interposed between said bar or lever and said carriage whereby the movement of said carriage will be stopped by the disengagement of said bar or lever from said rest-bar.

9. The combination, in a lathe, of a bed having suitable ways, a work holding and rotating chuck supported above said bed, a carriage mounted upon and movable endwise of said ways, a tool-carrier mounted upon said carriage and revoluble thereon, a series of rest-bars supported by and independently adjustable endwise of said bed, mechanism for throwing either of said rest-bars into position for action, a bar or lever mounted upon and movable with said carriage and constructed and arranged to engage with or bear upon the rest-bar in action during the movement of said carriage and adapted to drop off the end of said bar or through a notch cut therein, and mechanism interposed between said bar or lever and carriage whereby the movement of said carriage will be stopped by the disengagement of said bar or lever from said rest-bar.

481,718. SPRAYING-MACHINE. FRANKLIN SALISBURY, Catskill, N. Y. Filed Nov. 11, 1890. Serial No. 371,065. (No model.)



Claim.—1. In a machine of the class described, the combination of a tank pivotally and adjustably mounted upon suitable transporting-wheels, a central transverse bearing-brace supported within the tank, a horizontal revoluble shaft journaled in one end of the tank and said central brace and carrying agitators or dashers, a vertical bevel-gear mounted upon the drive-shaft adjacent to said brace, a vertical drive-shaft projecting above the tank and having its lower end stepped in the top of said bearing-brace, said vertical shaft carrying a horizontal pinion meshing with said vertical pinion, a force-pump arranged within the tank, a horizontal crank-shaft mounted upon the top of the tank and loosely connected with the pump-piston within the tank, gearing connecting said crank-shaft with the vertical drive-shaft, and means for transmitting motion to the vertical drive-shaft from the transporting-wheels, substantially as set forth.

2. In a machine of the class described, the combination of a tank mounted upon suitable transporting-wheels, a force-pump arranged within said tank and having an exit-pipe connected with an air-chamber, a horizontal exit-chamber located above the tank and provided with a narrowed portion and a depending tubular chamber projecting from said narrowed portion into the tank and open at its lower end, spring-actuated sliding rods working on each side of the upper exit-chamber and the depending chamber, a valve carried upon the lower ends of said rods and normally closing the open lower chamber and opening into the tank, a branch pipe connecting said exit-pipe with the tubular chamber, and a spray pipe or pipes connected to the upper end of said exit-chamber, substantially as set forth.

3. In a machine of the class described, the combination of a tank mounted upon suitable transporting-wheels, a force-pump arranged within said tank, means for transmitting motion to said force-pump from the transporting-wheels of the machine, an outlet-pipe connecting said force-pump with an air-chamber and having a check-valve, a branch pipe connecting said outlet-pipe with a tubular elongated exit projecting into and above the tank and chamber, having a downwardly-opening spring-actuated valve at its lower open end in the tank, a pipe or pipes connected to the upper end of said exit-chamber and having suitably-constructed nozzles, and adjustable supporting-rods adapted to support the said nozzles and to direct the spray in different directions, substantially as set forth.

4. The combination of the tank, the force-pump within the same, the outlet-pipe, an exit-chamber or casing mounted above the tank and having the cylindrical downward extension projecting within and above the tank and provided with a valve-seat and opening into the tank, a valve mounted upon vertically-movable rods, and springs to force the valve in an upward direction, said cylindrical extension of the chamber being connected with the outlet-pipe of the pump and spray-pipes being connected with the said exit-chamber, substantially as set forth.

5. In a machine of the class described, the combination of the tank, a force-pump for expelling the contents of the latter, and a safety-valve attachment comprising a chamber or casing arranged above the tank and having a narrowed portion provided with a cylindrical extension extending into the tank, the perforated lugs formed adjacent to the narrowed portion of the casing, the vertically-sliding rods mounted in said lugs and carrying a valve that closes the lower end of the cylindrical extension, thumb-nuts mounted adjustably upon the upper ends of said rods, and springs interposed between said thumb-nuts and the perforated lugs, substantially as and for the purpose set forth.

6. In a machine of the class herein described, the combination, with a tank, of a force-pump to expel the contents of said tank, the pipe or pipes having suitably-constructed nozzles, the supporting-rods carrying slotted nozzle rests or supports loosely receiving said nozzles and also having balls at their lower ends, the sockets adapted to receive the said balls and having set-screws for retaining the latter and the supporting-rods at any desired adjustment, and means for vibrating said nozzles in said rests, substantially as and for the purpose herein set forth.

7. In a machine of the class herein described, the combination of a tank, a force-pump for expelling the contents of said tank, the pipe or pipes having suitably-constructed nozzles, means for adjustably supporting the said nozzles, and mechanism for transmitting a laterally-vibrating motion to said nozzles from the transporting-wheels upon which the tank is mounted automatically and simultaneously with the operation of the pump, substantially as set forth.

8. In a machine of the class described, the combination of a tank, a force-pump for expelling the contents of the same, the spray pipe or pipes having suitably-constructed nozzles, a movable support or supports having slotted rests loosely receiving said nozzles, a bell-crank lever located at a suitable point of attachment adjacent to said supports, and connecting-links connecting the arms of said bell-crank with the pipe or pipes and the driving mechanism of the pump, substantially as set forth.

9. In a machine of the class described, the combination of a tank, a force-pump for expelling the contents of the same, the pipe or pipes having suitably-constructed nozzles, a cross-bar mounted adjustably and having slots to support the said nozzles, a horizontally-slotted guide-plate to support the conducting pipe, a connecting-link, a bell-crank lever, and mechanism for transmitting motion to said bell-crank lever from the transporting-wheels upon which the machine is mounted, substantially as and for the purpose set forth.

10. In a machine of the class described, the combination of a tank suitably mounted in a frame having transporting-wheels, a force-pump to expel the contents of said tank, a segmental rack upon the front end of the latter, and a shaft mounted transversely in the frame and having at its inner end a pinion engaging said rack and at its outer end a crank or hand-wheel, substantially as and for the purpose herein described.

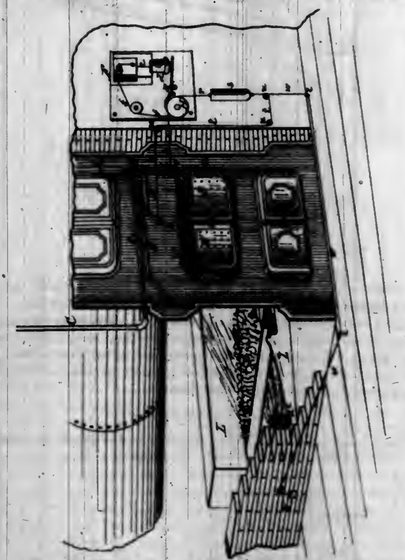
481,719. SMOKE-CONSUMER. JAMES GARDNER, Rochester, N. Y. Filed Mar. 5, 1892. Serial No. 423,877. (No model.)

Claim.—1. In a smoke-consumer, the combination, with a furnace-door, of time mechanism having an escapement, a steam-pipe opening into the furnace, a connection between the door and pipe, and a connection between the door and time mechanism, by which, respectively, the steam is turned on and the time mechanism wound in opening the door, said mechanism having suitable connections for turning off the steam at the end of a given time, substantially as specified.

2. In a smoke-consumer, the combination, with time mechanism having an escapement, of a main furnace-door, a supplemental door or valve, and connections between the main door and the supplementary door or valve and between the main door and time mechanism, whereby, respectively, the supplementary door will be opened and the time mechanism wound by the opening of the furnace-door, substantially as specified.

3. In a smoke-consumer, the combination, with time mechanism having an escapement, of a main furnace-door, a supplementary door or valve, connections between the main door and the supplementary door or valve and between the main door and the time mechanism, whereby, respectively, the supplemental door will be opened and the time mechanism wound by the opening of the furnace-door, and connections between the time-movement and the supplementary door, whereby the latter will be closed at the end of a given time, substantially as specified.

4. In a smoke-consumer, the combination, with time mechanism having an escapement, of a main furnace-door, a supplementary door or valve, connections between the main door and the supplementary door or valve and between the main door and the time mechanism, whereby, respectively, the supplemental door will be opened and the time mechanism wound by the opening of the furnace-door, a steam-pipe and valve, and connections whereby the valve will also be opened by the furnace-door, and connections whereby it will be closed at a predetermined time by the time mechanism, substantially as specified.



5. The combination, with a furnace-door, of an inductive steam-pipe, an eductive steam-pipe, a steam-chamber divided by a diaphragm provided with ports into two compartments, with which said pipes connect, respectively, and a valve attached to the spindle within said chamber and adapted to cover and uncover the ports of the diaphragm, whereby the opening of the door turns on the steam and its closing turns the steam off, substantially as specified.

6. The combination of a furnace-door, a spindle attached to the same and turning with it, a pulley on the spindle, a cord attached to the pulley, and a time mechanism normally held at rest, with which the cord is connected, whereby the opening of the door will wind said mechanism, and a dog adapted to be released by the opening of the door to permit the time mechanism to act, substantially as specified.

7. The combination of a furnace-door, a spindle attached to the same and turning with it, a winding-wheel on the spindle, a pair of pulleys mounted independently on the same support and connected by an engaging dog, a cord attached to the spindle passing over one of the pulleys and provided with a counter-weight, a cord winding on the other pulley and connecting with a drum of the time-movement, a dog for holding the first-named pulley, and a weight attached to the time-movement for operating the dog, as specified.

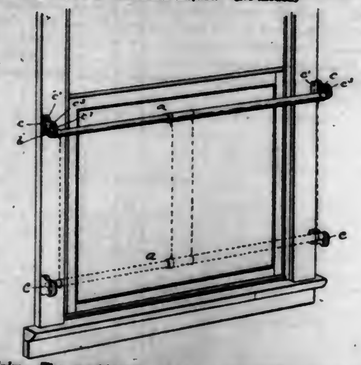
8. The combination of the two pulleys G H, the dog f, connecting the pulleys, the dog M, engaging with the pulley G, the time-movement F, provided with the weight d, resting over the outer end of dog M, the stop h^3 for disengaging the dog f^3, and the winding-cord f, as shown and described, and for the purpose specified.

9. The combination of the door B, the spindle n, turning therewith, the steam-chamber D, the valve-stem k, provided with the valve k', the diaphragm l, and the wheels i o, attached, respectively, to the spindle and valve-stem, one being provided with the slot q and the other with the pin p, as and for the purpose specified.

10. The combination, with a furnace-door, of a steam-pipe for injecting steam into the furnace, a connection between the door and the steam-pipe, whereby the steam will be turned on by opening the door, a damper in a draft-opening in the bridge-wall below the fire, and a connection extending from the door to the damper, whereby the damper will be opened by the opening of the door, as specified.

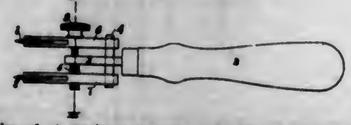
11. In a smoke-consumer, the combination of a time mechanism having an escapement with a steam-pipe adapted to admit steam to the combustion-chamber of the furnace and having a cock or valve and with intermediate devices whereby the steam can be automatically cut off at a predetermined time, substantially as described.

481,720. CURTAIN-ROD. SAMUEL R. SCOTTRON, Brooklyn, N. Y. Filed Feb. 6, 1892. Serial No. 420,842. (No model.)



Claim.—The combination of the bracket-plates provided with closed vertical slots c^3, said slots being enlarged between their ends, as at c^3, and an extensible curtain-rod provided with a button on each end connected to the rod by a narrow neck, said buttons being adapted to pass through the enlargements in the slots and permit their necks to rest either in the upper or lower ends of the slots out of line with the enlargement c^3, substantially as described.

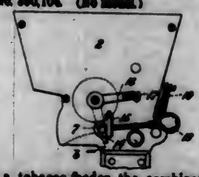
481,721. TRACING-TOOL. THALIA R. SIPE, Allegheny, Pa. Filed Apr. 16, 1892. Serial No. 429,309. (No model.)



Claim.—1. A tracing-tool having a handle, a shank projecting therefrom, a screw-threaded shaft passing through the shank and bearing two arms having tracing-wheels thereon, and a pin passing through holes in the shank and arms, substantially as and for the purposes described.

2. A tracing-tool having a handle, a shank projecting therefrom, a screw-threaded shaft passing through the shank and bearing two arms having tracing-wheels thereon, a head upon one end of the shaft, and a pin passing through holes in the shank and arms, substantially as and for the purposes described.

481,722. CIGAR-BUNCHING MACHINE. FRANCIS THOMPSON and EDWARD H. THOMPSON, Allegheny, Pa. Original application filed June 30, 1890, Serial No. 356,414. Divided and this application filed Apr. 23, 1891. Serial No. 390,104. (No model.)



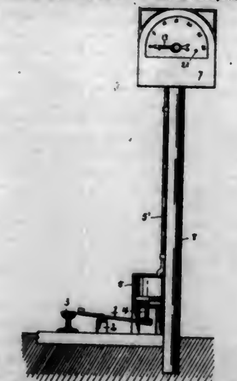
Claim.—1. In a tobacco-feeder, the combination of a swinging door to receive and discharge the tobacco, a hopper containing a rotary feed-cylinder, and a lever upon the protruding end of the feed-cylinder shaft engaging a projection upon the shaft of said swinging door, substantially as and for the purposes described.

2. In a tobacco-feeder, the combination of a hopper, a rotary feed-cylinder located therein, a lever on the shaft of said feed-cylinder, a swinging door, and a movable trigger on the door-shaft, adapted to be operated by the projection, substantially as and for the purposes described.

3. In a tobacco-feeder, the combination of a hopper, a feed-cylinder located therein, a lever on the shaft of said feed-cylinder, a swinging door beneath the cylinder, and a movable trigger on the door shaft, adapted to be moved by the lever on motion of the latter in one direction and to permit free passage of the same in its motion in the other direction, said lever having an adjustable engaging-stud, substantially as and for the purposes described.

4. In a tobacco-feeder, the combination, with the hopper and feeding mechanism, of a swinging door for receiving and discharging the tobacco from the feeding mechanism, said door having laterally-adjustable slotted end portions, substantially as and for the purposes described.

481,728. RAILWAY TIME-SIGNAL. ADELBERT H. THORP, Toledo, Ohio. Filed Sept. 26, 1891. Serial No. 406,960. (No model.)



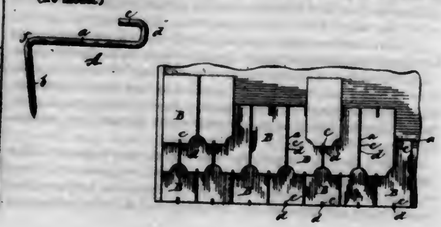
Claim.—1. In a railway time-signal, two connected air-compressors, one of which has connection with the pivoted lever adapted to operate the same when actuated by a moving train, a clock mechanism, a shaft actuated thereby, having a ratchet-wheel, a pointer having a spring-pawl engaging with the ratchet-wheel, a pinion upon the pointer-shaft, and a gear operated by one compressor to revolve the shaft and return the pointer to its starting-point.

2. In a time-signal, a pointer for indicating time, and mechanism connected therewith and with a lever having one end contiguous to the railway-track, said lever having a spring-actuated bearing-plate adapted to contact with the wheels of a passing train when moving in one direction and yield to the pressure of the wheel when contacted with by a train passing in an opposite direction.

3. In a railway time-signal, an air-compressor, a pivoted lever, one end of which is contiguous to the railway-track, the opposite end engaging the piston of the air-compressor, a clock mechanism having a ratchet-wheel on the outer end of the clock-shaft, a pointer having a shaft journaled on the clock-shaft, a spring-pressed bearing on the pointer bearing on the ratchet-wheel, and a gear-wheel on the opposite end of the pointer-shaft meshing with a segmental gear operated by the piston of an air-compressor, said air-compressors being connected by an air-conduit, substantially as described.

4. In a railway time-signal, an air-compressor actuated by a passing train, another air-compressor and an air-conduit between the two, said air-compressor having an upwardly-extending bifurcated piston-rod, a clock mechanism, a pointer moved thereby, having on its shaft a segmental gear, and a gear-wheel meshing therewith, having an integral arm adapted to rest in the bifurcated portion of the piston-rod and be actuated thereby.

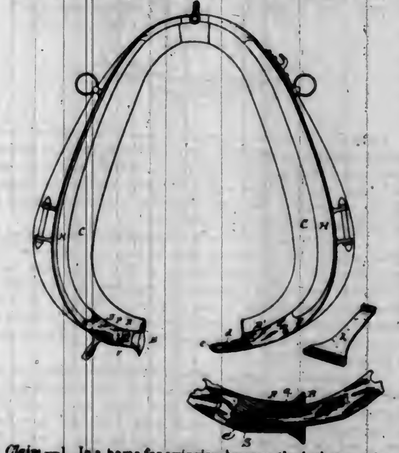
481,724. ROOFING AND SIDING SCREW OR FASTENING. ROLLIN R. L. WESTOVER, Rutland, Vt. Filed July 7, 1891. Serial No. 398,701. (No model.)



Claim.—1. The fastening for the covering-pieces of a roof or other structure, consisting of a piece of metal bent or shaped to form a vertical screw-threaded and pointed penetrating-limb *b*, a clamping-limb *a*, having a downward inclination from the point of its junction with the vertical limb *b*, and an abutment and confining-loop *d*, having a short limb *c*, the said limb *a* lying at an inclination from a right angle with the limb *b* and thus exerting a spring binding or clamping action upon the covering pieces of the roof when the fastening is in use and the limb *c* lying substantially parallel with the limb *a* and conforming to the inclination of the covering-piece of the roof which extends under it and abuts against the bowed portion of the loop, substantially as described.

2. The combination, with the supporting-timbers and the covering-pieces of the roof, of the fastening consisting of a piece of springy metal bent or shaped to form a vertical screw-threaded pointed penetrating-limb *b*, a clamping-limb *a*, having a downward inclination from the point of its junction with the vertical limb *b*, and an abutment and confining-loop *d*, having a short limb *c*, the said limb *a* lying at an inclination from a right angle with the said limb *b* and thus exerting a spring binding or clamping action upon a covering piece of the roof when the fastening is in use and the said limb *c* lying substantially parallel with the limb *a* and thus substantially conforming to the inclination of the covering-piece of the roof which extends under it and abuts against the bowed portion of the loop *d*, said fastening being adapted for penetrating the timbers and being applied in the parting-lines between the covering-pieces, substantially as described.

481,725. HAME-FASTENER. ROBERT G ARMSTRONG, Wichita, Kans., assignor to R. G. Armstrong & Co., same place. Filed Aug. 20, 1891. Serial No. 403,163. (No model.)

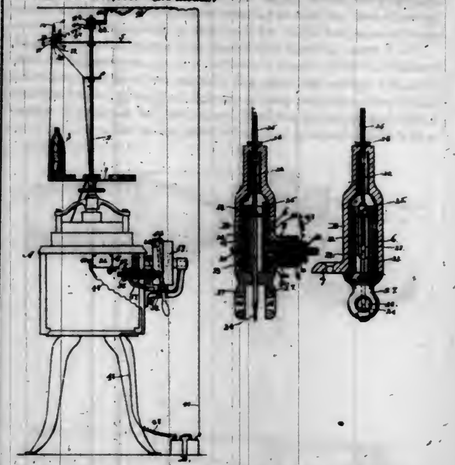


Claim.—1. In a hame for swinging harness, the lock thereof consisting of the extending shank of one hame part provided with a hollow in one side, the socket of the fellow hame part arranged to have the said shank entered therein, and provided in said socket part with the tumbler arranged crossing the socket-chamber and hollowed in one side, and the spring for yieldingly holding the tumbler, substantially as and for the purpose set forth.

2. A hame-lock for swinging harness, comprising a socket formed in one hame part provided with a bell-shaped entrance, a tumbler arranged crossing one side portion of the socket-chamber and provided with a hollow in one side presentable within said chamber, and with a cross-slot in one end for the admission of a key for turning it, a spring for yieldingly holding the tumbler from turning, and an extending shank, of the fellow hame part provided with a hollow in one side and adapted to enter into said socket-chamber, substantially as and adapted to operate in the manner specified.

3. In the hame-lock described, the combination, with the part B, provided with the socket, with the cross-bearing, and with the rear chamber and covering-plate thereof, of the tumbler arranged in said cross-bearing and provided with a hollow in one side arranged to register with the socket, with a flattened shank arranged extending into said rear chamber, and with a cross-slot in its opposite end and accessible at the lock-front, and the spring arranged in said chamber and bearing at its ends oppositely against the tumbler-shank, substantially as and for the purpose set forth.

481,726. ELECTRICALLY-CONTROLLED STOP-MOTION FOR KNITTING-MACHINES. VERNON S. CLOTE, Cohoes, N. Y., assignor of one-half to William W. Stevenson, same place. Filed Oct. 26, 1891. Serial No. 410,099. (No model.)



Claim.—1. In a knitting-machine, a thread-guide consisting of a metallic body-piece provided with an insulating-plug having an adjustable electrical contact-point fixed therein, a sleeve fitted to slide loosely in said body-piece and provided with pendent lugs that have oppositely-located openings for the thread therein, said sleeve being provided with a contact-spring fitted to form an electrical contact with the contact-point of said body-piece, a tension-spring whereby said sleeve is supported in its normal position, and an adjusting-screw whereby the tension of said spring can be regulated, as and for the purpose herein specified.

2. In a thread-guide, the combination of a sleeve fitted to slide in a loose manner in the body-piece of the device, said sleeve being provided with pendent lugs having oppositely-located openings for the passage of the thread therethrough, and a drop fitted to slide loosely in said sleeve and provided with an eye through which the thread passes to normally retain said drop in its raised position, said drop being provided with a lug which when the drop falls takes against a contact-point in the body-piece of the device, as and for the purpose herein specified.

3. The combination of a spring-actuated belt-shipper provided with a sliding bar fitted to engage with a stationary point of the machine, and electrically-controlled mechanism, as herein described, whereby said sliding bar will be released from its engagement with said stationary point, and a thread-guide consisting of the following elements: a metallic body-piece having an electrical contact-point, a sleeve fitted to slide loosely in said body-piece and having eyes for passing the thread through, said sleeve having a contact-spring fitted to take against said contact-point, a tension-spring fitted to normally retain said sleeve in a raised position, a drop fitted to slide loosely in said sleeve and having a lug fitted to take against said contact-point, said drop being normally held in a raised position by a thread passing through its eye, so as to retain the electrical circuit in an open condition, and a generator of electricity electrically connected to said thread-guide, and the mechanism for releasing said belt-shipper, as and for the purpose herein specified.

4. The combination of a belt-shipper provided with a sliding bar to which motion is imparted in one direction by means of a spring, said bar being fitted to engage with a stationary point of the machine to retain the driving-belt on the fast pulley, and a mechanism for releasing said sliding bar from its engagement, the same consisting of a sliding bolt provided with a tappet fitted to take against the sliding bar of said belt-shipper and having a spring fitted to forcibly move said bolt downwardly, a detent-lever connected with said sliding bolt and fitted to engage with a swinging armature, and electro-magnets arranged to attract said armature and effect the disengagement of the latter from said detent-lever, as and for the purpose herein specified.

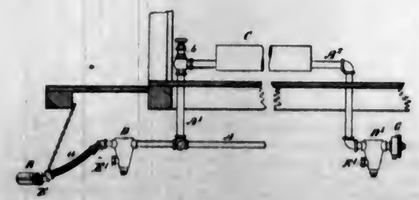
481,727. DRAINAGE-TRAP. EDWARD R. GOLD, New York, N. Y. Filed June 27, 1892. Serial No. 438,065. (No model.)

Claim.—1. A steam-drainage trap consisting of a body or casing having an opening through it and formed with a seat, combined with

a valve arranged to close outwardly against said seat under an internal steam-pressure, and a counterweighting-stem attached to said valve and projecting laterally therefrom, with its center of gravity arranged sufficiently to one side to impart to the valve a tendency to open by tilting on its seat, whereby upon being relieved of pressure it automatically tilts open and drains out the water of condensation.

2. A steam-drainage trap consisting of a plug or body having an opening through it, a seat at its inner end, a valve arranged to close outwardly against said seat, and a counterweighted stem projecting fixedly from said valve, passing through the opening, and of sufficient weight and projecting sufficiently to one side of the valve to impart to the valve a tendency to open by tilting on its seat.





3. A steam-drainage trap consisting of a body or casing having an opening through it, a seat at its inner end, a valve arranged to close outwardly against said seat and having a stem passing through said opening, and a baffle-disk mounted on said stem outside of said opening in the path of an issuing current of steam, whereby the weight of said disk and stem imparts to the valve a tendency to open, while the impact of steam against the disk contributes a tendency to close the valve.

4. A steam-drainage trap consisting of a body or casing having an opening through it made tapering and smaller at the inner end, a seat at the inner end of said opening, and a valve arranged to close outwardly against said seat and having a stem passing through said opening and nearly filling the smaller end thereof, whereby it guides the valve relatively to the seat, and said stem made of sufficient weight and projecting laterally sufficiently to one side of the valve to throw the valve open on the relief of internal pressure against it.

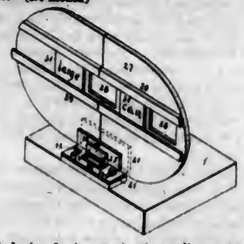
5. A steam-drainage trap consisting of a plug or body having an opening through it in lateral direction and formed at its inner end with an inclined seat, combined with a valve arranged to close outwardly against said seat and having a counterweighted stem passing through said opening, with its center of gravity sufficiently to one side of the valve to impart to the valve a tendency to open by tilting on its seat.

6. A steam-drainage trap consisting of a plug or body having an opening through it in lateral direction and formed at its inner end with an inclined seat at an inward inclination from the vertical, combined with a valve arranged to close outwardly against said seat and having a counterweighted stem passing through said opening with its center of gravity sufficiently to one side of the valve to impart to the valve a tendency to open by tilting on its seat, whereby the valve, when closed by internal pressure, tilts past the vertical and its stem is thrown upwardly to an inclination above the horizontal, thus insuring a maximum opening when opened.

7. A steam-drainage trap consisting of a plug or body having a conical opening through it in lateral direction, smaller at the inner end, an enlarged head at the outer end of said plug, with a recess within it, a seat formed on the inner end of the plug, a valve arranged to close outwardly against said seat and formed with a stem passing through said opening, and a baffle-disk mounted on the outer end of said stem and arranged within said recess so that it is protected thereby.

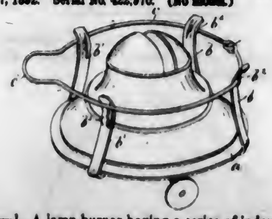
8. A steam-drainage trap consisting of a plug or body having a horizontal opening through it, a seat at its inner end, a valve arranged to close outwardly against said seat, a counterweighted stem projecting laterally through said opening and arranged to impart to said valve a tendency to open, and a cup-shaped strainer fastened to the inner end of said body and inclosing the valve.

481,728. DEVICE FOR INSTRUCTION IN READING AND CALCULATING. WILLIAM W. HALLETT, Lee, Ill. Filed Feb. 17, 1892. Serial No. 421,890. (No model.)



Claim.—A device for instruction in reading and calculating, having a supporting-frame, shafts journaled therein, disks bearing instructive matter mounted on the shafts, a screen for hiding certain portions of the disks, a bracket for supporting said screen, the bracket having a stationary upright back and a spring-actuated movable jaw, between which and the back the screen is held.

481,729. LAMP-BURNER. BARTLETT P. LUDE, Boston, Mass. Filed Feb. 27, 1892. Serial No. 422,970. (No model.)



Claim.—1. A lamp-burner having a series of independent elastic chimney holding arms projecting upwardly from its base and adapted to bear independently on a cylindrical chimney at their upper ends and having loops or offsets, and a reinforcing spring-band engaged with the said loops or offsets and adapted to exert an additional inward yielding pressure thereon, as set forth.

2. A lamp-burner having a series of independent elastic chimney-holding arms projecting upwardly from its base and adapted to bear independently on a cylindrical chimney at their upper ends, one or more of said arms having a cam-shaped projection, combined with a tilting spring-band hinged to one or more of the other arms and adapted to be engaged with said cam-shaped projections by an upward movement of the spring-band and thereby exert inward pressure on the arms, as set forth.

3. A lamp-burner having a series of independent elastic arms projecting upwardly from its base and adapted to bear independently on a cylindrical chimney at their upper ends, one or more of said arms having an eye or loop b^3, while one or more of the other arms has a cam b^3, said eye and cam being integral with the arms on which they are formed, combined with a spring-band passed through said eyes and adapted to be engaged with said cams by an upward movement of the spring-band, as set forth.

4. A lamp-burner having a series of independent elastic chimney-holding arms projecting upwardly from its base and adapted to bear independently on a cylindrical chimney at their upper ends, one or more of said arms having a cam-shaped projection consisting of a series of steps, combined with a tilting spring-band hinged to one or more of the other arms and adapted to engage either of said steps, as set forth.

5. A lamp-burner having elastic chimney-holding arms, and a reinforcing spring-band engaged with said arms and provided with a closing or contracting spring c^4 of helical form, as set forth.

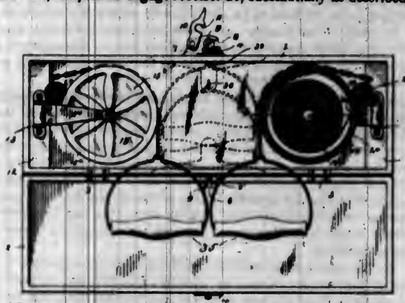
481,730. EXERCISING-MACHINE. CHARLES G. MILLER, Waterbury, Conn. Filed Apr. 22, 1892. Serial No. 430,171. (No model.)

Claim.—1. In an exercising-machine, the combination, with the operative parts of the machine, of a portable case within which the operative parts are inclosed and which is provided with slotted plates 5 and 7 and a latch 10, by which it is secured to the wall.

2. The combination, with a swinging yoke, a spring-actuated drum pivoted therein, and a band attached to said drum and coiled thereon, of a rubber disk having a tube 30 extending through it, said tube being slotted at its ends, a holder 31 engaging the band and the slots in

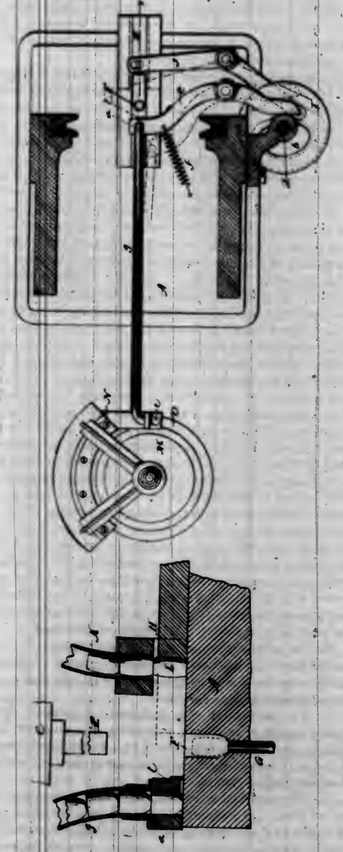
the tube, a chain connected to the holder, and a handle connected to the chain.

3. The combination, with a swinging yoke and a spring-actuated drum pivoted therein, said drum having recesses 26 in its side pieces and a slot 27 in one of said side pieces, of a band 24, having a cross-piece 25, adapted to engage recesses 26, substantially as described.



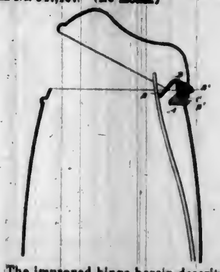
4. The combination, with the swinging yoke, the shaft, and the drum, of a spring connected to the shaft and the drum, and pads between said spring and the side pieces of the drum, whereby rattling is prevented.

481,731. MACHINE FOR SWAGING AND CREASING BULLETS. JOHN P. MCGRAIL, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 7, 1891. Serial No. 404,940. (No model.)



Claim.—In an apparatus for swaging and creasing bullets, the combination of the swaging die and punch, a reciprocating follower adapted to work up and down through the die, a slide arranged to reciprocate in a path at right angles to the path of the punch and between the punch and die, the slide having an opening through it of a diameter corresponding substantially to the diameter of the swaged bullet and so that when the said slide is presented over the die the upward movement of the follower in the die will force a swaged bullet from the die into said slide, a tube leading from the upper side of said slide and terminating at an opening to the creaser, substantially as described, whereby the swaged bullets delivered from the die through said slide form a column in the tube, which automatically conducts and delivers the said bullets successively to the creaser.

481,732. HINGE. CHARLES OSBORNE, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed Apr. 8, 1890. Serial No. 347,107. (No model.)



Claim.—1. The improved hinge herein described, composed of a plate A, having upon its face the spheroidal bosses A' and A^2 and similarly-shaped cavity a' lying between said bosses, and the plate B, provided with boss B' and cavities b' and b^2 upon each side thereof and adapted to closely engage, respectively, with the cavity and bosses on the plate A, and the pivot-pin C, passed through all of the bosses, said plates being formed with interengaging extensions A^* and B^*, respectively, formed upon curved lines conforming to the outlines of the bosses and adapted to serve as stops, and the plate B, formed upon the opposite side of the pivot-pin C from said curvilinear extensions, with an arm D extending angularly therefrom, substantially as specified.

2. A hinge provided at the back with abutting-stops adapted to interlock when the hinge is open, so as both to arrest the opening of the hinge and when said hinge is open to restrain the movement of its parts upon each other lengthwise of the pivot-pin, substantially as described.

3. A hinge composed of a pivot-pin, in connection with plates having on their opposing faces spheroidal bosses and cavities curved in the direction of the axis of the hinge as well as transversely thereto, the said opposing faces being of greater width than the diameter of said bosses and cavities, and the said cavities inclosing the greater part of the convex surfaces of said bosses both in a direction transverse to the said axis and longitudinally thereof, substantially as described.

4. A hinge provided at the back with abutting stops and at the front with an angular arm, said stops being adapted to interlock when the hinge is open, so as at such times to restrain the movement of its parts upon each other lengthwise of the pivot-pin, and said arm being adapted to receive the pressure of a spring, substantially as described.

481,738. SPRING SHADE-ROLLER. JUDSON C. PERKINS, Meriden, Conn., assignor, by direct and mesne assignments, to the Meriden Curtain Fixture Company, same place. Filed Jan. 13, 1892. Serial No. 417,936. (No model.)

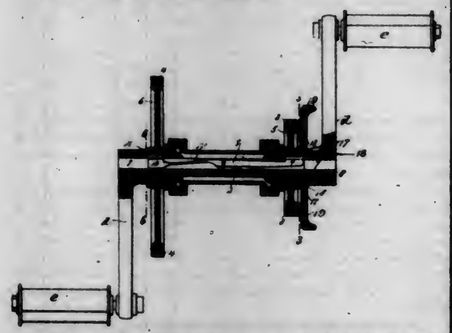


Claim.—In a spring-roller fixture for window-shades, the combination of the following-named instrumentalities, viz: first, the roller adapted to be mounted in brackets and to support the shade, as usual; second, the actuating-spring arranged within the roller and having one end held fast, as usual, but having its other end detached from the roller, and, third, means operating automatically to effect an engagement between the detached end of the actuating spring and the roller whenever, with the spring in its normal condition, the latter rotates in the proper direction to wind up the spring and to maintain such engagement so long as the spring remains under tension, the combination being and operating substantially as hereinbefore set forth.

481,788.



481,784. BICYCLE. LUCIUS J. PHELPS, Passaic, N. J. Filed Oct. 3, 1891. Serial No. 407,645. (No model.)



Claim.—1. The combination, with the driving-shaft and crank-shaft of a cycle, of two sets of driving connections between the crank-shaft and driving-shaft constructed to drive at different speeds, a lever carried by one of the shafts and adapted to close either of the connections between the crank shaft and driving-shaft according to its position, and a cam mounted on the shaft, and connections whereby said lever may be shifted by the foot of the rider, substantially as described.

2. The combination, with the driving-shaft and crank-shaft of a cycle, of two sets of driving connections between the crank-shaft and driving-shaft constructed to drive at different speeds, and a lever carried by one of the shafts and forming a key adapted to close either of the connections between the crank-shaft and driving-shaft and break the other according to its position, substantially as described.

3. The combination, with the driving-shaft and crank-shaft of a cycle, of two sets of driving connections between the crank-shaft and driving-shaft constructed to drive at different speeds, a lever carried by one of the shafts and forming a key adapted to close either of the connections according to its position, and a cam for rocking said lever to shift the connections, substantially as described.

4. The combination, with the driving-shaft and crank-shaft of a cycle, of two sets of driving connections between the crank-shaft and driving-shaft constructed to drive at different speeds, a lever carried by one of the shafts and adapted to close either of the connections according to its position, a spring pressing the lever in one direction to close one set of the connections, and a cam adapted to move the lever against the tension of the spring to close the other set of connections, substantially as described.

5. The combination, with the driving-shaft and crank-shaft of a cycle, of two sets of driving connections between the crank-shaft and driving-shaft constructed to drive at different speeds, a lever carried by one of the shafts and adapted to close either of the connections according to its position, and a sleeve loosely mounted on the shaft and normally carried thereby, said sleeve being provided with a cam-surface adapted to control the position of the lever to close either set of connections according to its position on the shaft, substantially as described.

6. The combination, with the driving-shaft and crank-shaft of a cycle, of two independent sets of driving connections between the crank-shaft and driving-shaft constructed to drive at different speeds, a lever carried by one of the shafts and adapted to close either of the connections according to its position, a sleeve loosely mounted on the shaft and normally carried thereby, said sleeve being provided with a cam-surface adapted to control the position of the lever to close either set of connections, and one or more arms on the sleeve whereby it may be held stationary to shift the connections, substantially as described.

7. The combination, with the crank-shaft and driving-shaft of a cycle, of two sprocket-wheels on each shaft, and chains connecting said wheels to form two sets of connections between the crank-shaft and driving-shaft, said connections being constructed to drive at different speeds, the sprocket-wheels on one of said shafts being mounted loosely, and a cam mounted on the shaft, and connections whereby said sprocket-wheels may be connected to and disconnected from the shaft by the foot of the rider, substantially as described.

8. The combination, with the crank-shaft and driving shaft of a cycle, of two sprocket-wheels on each shaft and chains connecting said wheels to form two sets of connections between the crank-shaft and driving-shaft, said connections being constructed to drive at different speeds, the sprocket-wheels on one of said shafts being mounted loosely, and a lever carried by said shaft and forming a key connecting one or the other of the sprocket-wheels with the shaft according to its position, substantially as described.

9. The combination, with the crank-shaft and driving-shaft of a cycle, of two sprocket-wheels on each shaft and chains connecting said wheels to form two sets of connections between the crank-shaft and driving-shaft, said connections being constructed to drive at different speeds, the sprocket-wheels on one of said shafts being mounted loosely, a lever carried by said shaft and connecting one or the other of the sprocket-wheels with said shaft according to its position, and a cam controlling the position of said lever, substantially as described.

10. The combination, with the crank-shaft and driving-shaft of a cycle, of two sprocket-wheels on each shaft and chains connecting said wheels to form two sets of connections between the crank-shaft and driving-shaft, said connections being constructed to drive at different speeds, the sprocket-wheels on one of said shafts being mounted loosely, a lever carried by said shaft and carrying keys adapted to lock either sprocket-wheel to the shaft according to the position of the lever, said lever having a spring-arm by which one of the keys is carried, a spring pressing the lever into position to close connections by the other key and break connections by the key carried by the spring-arm, and a cam adapted to move the lever against the tension of the spring to reverse the connections, substantially as described.

11. The combination, with a crank-shaft and driving-shaft of a cycle, of two sprocket-wheels on each shaft and chains connecting said wheels to form two sets of connections between the crank-shaft and driving-shaft, said connections being constructed to drive at different speeds, the sprocket-wheels on one of said shafts being mounted loosely, a lever carried by said shaft and carrying keys adapted to lock either sprocket-wheel to the shaft according to the position of the lever, said lever having a spring-arm by which one of the keys is carried, a spring pressing the lever into position to close connections by the other key and break connections by the key carried by the spring-arm, and a sleeve loosely mounted on said shaft and normally carried thereby and provided with a cam-surface adapted to depress the lever against the spring-pressure or release the lever to shift the connections according to its position on the shaft, substantially as described.

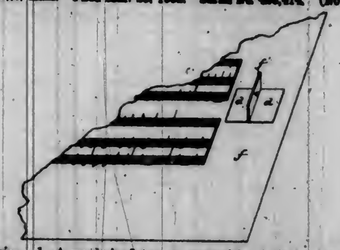
12. The combination, with shaft *c*, having groove 7, of wheels 5 6, mounted loosely on said shaft and having grooves 13 14, and lever 8, pivoted in groove 7 and carrying keys 9 10, adapted to enter said grooves, substantially as described.

13. The combination, with shaft *c*, having groove 7, of wheels 5 6, mounted loosely on said shaft and having grooves 13 14, lever 8, pivoted in groove 7 and carrying keys 9 10, adapted to enter said grooves, and sleeve 15 on said shaft having a cam-surface controlling said lever, substantially as described.

14. The combination, with shaft *c*, having groove 7, of wheels 5 6, mounted loosely on said shaft and having grooves 13 14, lever 8, pivoted in groove 7 and carrying keys 9 10, adapted to enter said grooves, spring 11, pressing said lever into position to connect one of said wheels to the shaft, and sleeve 15 on said shaft having a cam-surface controlling said lever, substantially as described.

15. The combination, with shaft *c*, having groove 7, of wheels 5 6, mounted loosely on said shaft and having grooves 13 14, lever 8, pivoted in groove 7 and carrying keys 9 10, adapted to enter said grooves, one arm of said lever being a spring-arm, spring 11, pressing the other arm of said lever into position to lock the wheel on that side to the shaft, and a cam for moving the lever against the pressure of the spring, substantially as described.

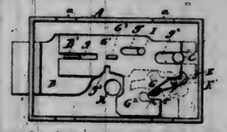
481,785. TAB FOR MUSIC-LEAVES. CHARLES F. PIDGIN, Cambridge, Mass. Filed Mar. 26, 1892. Serial No. 426,414. (No model.)



Claim.—1. A music-leaf turner comprising in its construction a tab of paper or other suitable material, having a base extending at an angle to the tab, said base being adapted to be attached to a sheet of music, as described.

2. A music-leaf turner comprising in its construction a tab of paper or other suitable material, having a base extending at an angle to the tab and provided on its lower surface with gum or other adhesive material, as described.

481,786. LOCK. JAMES ROOME, Terryville, Conn., assignor to the Eagle Lock Company, same place. Filed Apr. 4, 1892. Serial No. 427,655. (Model.)



Claim.—1. In a safety-lock, the combination, with the bolt thereof, of a spring-actuated pivotal dog located near one of the side edges of the said bolt and having its respective ends adapted to engage one at a time with the edge thereof, its inner edge being hooked to lock the bolt in the projected position of the same and its opposite end being adapted for engagement by the bolt which is thereto constructed to turn it on its pivot, one or more tumblers also combined with the bolt and locking the same independently of the said dog, and independent means for the initial operation of the said tumbler or tumblers and the dog, substantially as set forth.

2. In a safety-lock, the combination, with the bolt thereof, of a locking-dog therefor, a secondary bolt for co-operating with the said dog, one or more tumblers combined with the main bolt and locking it independently of the said dog, and independent means for operating the said tumbler or tumblers and the secondary bolt, substantially as described.

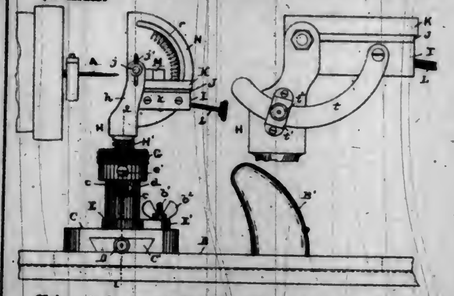
3. In a safety-lock, the combination, with the bolt thereof, of a locking-dog therefor, a secondary bolt co-operating with the said dog, one or more tumblers combined with the main bolt and locking it independently of the said dog and superimposed upon the said secondary bolt, and independent means for operating the said tumbler or tumblers and secondary bolt, substantially as described.

4. In a safety-lock, the combination, with the bolt thereof, which is furnished with a stump, of a locking-dog therefor, a secondary bolt co-operating with the said dog for unlocking the same and having a stump, one or more tumblers having two independent openings respectively receiving the stumps of the main and secondary bolts, and independent means for operating the said tumbler or tumblers and secondary bolt, substantially as described.

5. In a safety-lock, the combination, with the main bolt thereof, of a locking-dog therefor, a secondary bolt which co-operates with the said dog and is extended at one edge to inclose the same, one or more tumblers arranged to lock the main bolt independently of the dog, and independent means for operating the said tumbler or tumblers and the secondary bolt, substantially as described.

6. In a safety-lock, the combination, with the main bolt thereof, of a locking-dog therefor hung on a pivot close to the lower edge of the said bolt and having its respective ends adapted to co-operate one at a time with the said edge of the bolt, its inner end being hooked, a spring engaged with the said dog to be shifted thereby and to exert itself on opposite sides of the pivot on which the dog turns according to the position of the dog, one or more tumblers to lock the said bolt, and independent means for operating the said tumbler or tumblers and dog, substantially as described.

481,787. WORK-HOLDER FOR BORING-MACHINES. FREDERICK SCHMIDT, Baltimore, Md. Filed Feb. 20, 1892. Serial No. 422,208. (No model.)



Claim.—1. In a work-holder for boring-machines, the combination of a carriage arranged to be moved toward and away from the boring tool, a swiveled standard on said carriage and having a side extension with an arc slot, a fastener engaging said arc slot and adapted to lock the swiveled standard at different positions in a horizontal plane, and a table supported by said standard.

2. In a work-holder for boring-machines, the combination of a carriage arranged to be moved toward and away from the boring-tool, a tubular standard on said carriage and having an exterior annular groove, a screw-shank fitting in said standard, a threaded collar fitting on the standard and engaging the screw-shank, said collar having pins which engage the exterior groove in the standard, and a table supported by the screw-shank.

3. In a work-holder for boring machines, the combination of a carriage arranged to be moved up to and away from the boring-tool, a tubular standard on said carriage, having a vertical slot or split and provided with a screw-bolt to draw the split parts together, a screw-shank fitting in said standard, a threaded revolvable collar loosely confined on the said standard and engaging the screw-shank, and a table supported by the said screw-shank.

4. In a work-holder for boring-machines, the combination of a carriage arranged to be moved toward and away from the boring-tool, a standard on said carriage, a vertically-adjustable shank fitting said standard and having a bracket at its upper end comprising a horizontal cross-arm and two vertical side arms, a table between said two side arms and pivotally connected with the same at its forward part, and means for adjusting said table at different angular positions in a vertical plane, substantially as described.

5. In a work-holder for boring-machines, the combination of a carriage arranged to be moved toward and away from the boring-tool, a bracket having two side arms and supported on said carriage, a table between the said two side arms and comprising a base-board pivotally connected therewith, a top board, and a movable wedge between said base-board and top board, and means for adjusting the table at different angular positions in a vertical plane.

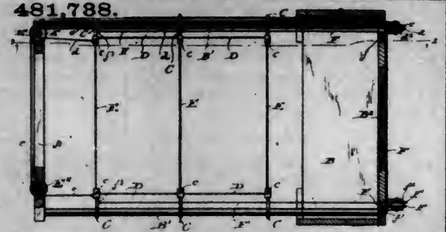
6. In a work-holder for boring-machines, the combination of a carriage arranged to be moved toward and away from the boring-tool, a standard on said carriage, a vertically-adjustable shank fitting said standard and having a bracket at its upper end comprising a horizontal cross-arm and two vertical side arms, a table between said two side arms and comprising a base-board pivotally connected therewith, a top board and a movable wedge between said base-board and top board, and means for adjusting said table at different angular positions in a vertical plane.

7. A work-holder for boring-machines, arranged to be moved up to and away from the boring-tool and having a table on which the work is held, said table arranged to have a lateral adjustment, a vertical adjustment, an angular adjustment in a horizontal plane, and an angular adjustment in a vertical plane and having a separately-adjustable top.

481,788. CLOTHES-DRYING APPARATUS. FRANK SCHILL, HENRY SCHILL, and NICHOLAS SCHILL, Milwaukee, Wis. Filed Nov. 14, 1891. Serial No. 411,807. (No model.)

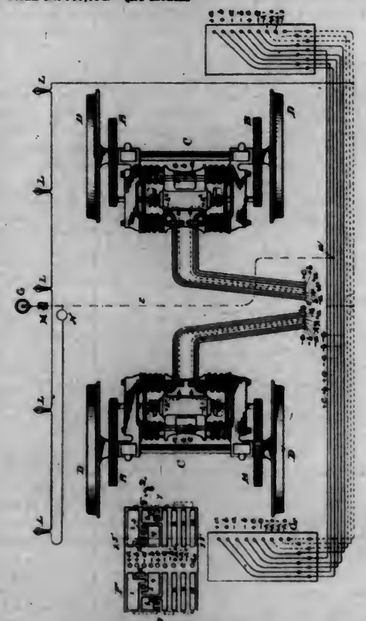
Claim.—A clothes-drying apparatus comprising parallel horizon-

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tal supporting-bars, a series of hangers engaged with said supports and longitudinally movable thereon, said hangers being arranged in pairs and each provided with a suitable clamp, ropes or cords engaged with said clamps and extending transversely between said hangers, ropes or cords extending lengthwise of the supporting-bars and engaged at intervals with said clamps, cords engaged with the outer pair of hangers and extending rearwardly and trained over suitable pulleys and adapted to be operated to retract said transverse ropes or cords, and cords also connected with the outer hangers and trained over pulleys at the outer end of the structure and adapted to be operated to extend said series of transverse ropes or cords, substantially as set forth.

481,739. ELECTRIC MOTOR AND REGULATING DEVICE THEREFOR. FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Railway and Motor Company, same place. Filed Apr. 20, 1889. Serial No. 308,031. (No model.)



Claim.—1. The combination, with an electric motor, of two regulating commutators or switches therefor connected in multiple arc to each other, contacts and circuits extending therefrom to the source of power and making an invariable connection with said source, and other contacts and circuits extending therefrom to the motor-circuit for adjusting said motor-circuit to produce variations in mechanical effects in said motor, each of said regulating-switches having a point of open circuit, whereby either of said switches may be used alone and independently of the other to regulate said motor, substantially as set forth.

2. The combination, with two electric motors, of two regulating commutators or switches therefor connected in multiple arc to each other, contacts and circuits extending therefrom to the source of power and making an invariable connection with said source, and other contacts and circuits extending therefrom to both motors for varying the mechanical effects in both said motors simultaneously by the adjustment of the motor-circuits, each of said switches having a point of open circuit, whereby either of said switches may be used alone and independently of the other for regulating both motors, substantially as set forth.

3. The combination, with an electric motor, of two regulating commutators or switches therefor connected in multiple arc to each other, each provided with contacts and circuits extending therefrom for varying the mechanical effects in said motor and with contacts and circuits for reversing the direction of rotation of said motor, substantially as set forth.

4. The combination, with an electric motor, of a regulating commutator or switch composed of a cylinder having metal contact-plates and a row of contact-buttons adapted to bear on said plates, said buttons being connected to the two terminals of the line and motor, to a series of coils for regulating the resistance of the motor-circuit, and to a reversible part of the motor, substantially as set forth.

5. The combination, with an electric motor, of a regulating commutator or switch composed of a cylinder having two sets of contact-plates, each set comprising regulating-plates and reversing-plates, the reversing-plates being oppositely connected in the two sets, and a row of contact-buttons adapted to bear on either set of plates, the said buttons being connected to the two terminals of the line and motor, to a series of coils for regulating the resistance of the motor-circuit, and to a reversible part of the motor, substantially as set forth.

6. The combination, with an electrically-propelled vehicle, of a vertical cylindrical switch or commutator on each end of the vehicle, having a vertical row of contact-buttons bearing thereon, corresponding buttons on the two switches being connected by conductors extending along the vehicle, and an electric motor connected to said conductors at an intermediate point of the vehicle, each of said switches being provided with connections for regulating the resistance of the motor-circuit and reversing the motor, substantially as set forth.

7. The combination, with a vehicle, of a propelling motor and two regulating commutators or switches therefor connected in multiple on the two ends of the vehicle, respectively, each provided with circuits and contacts for regulating the resistance of the motor-circuit and reversing the motor and each having a point of open circuit, whereby one only may be used at a time to control the motor, substantially as set forth.

8. The combination, with an electric motor, of a regulating commutator or switch composed of a cylinder having two sets of contact-plates separated by an intermediate space and a series of contact-buttons adapted to bear on both sets of contact-plates but narrower than the said separating-space, part of said contact-plates acting to regulate the resistance of the motor-circuit when brought in contact with said buttons and being duplicated in the two sets, the remaining plates being connected oppositely in the two sets and acting to reverse the motor, substantially as set forth.

9. In a regulating commutator or switch for an electric motor, the combination, with an insulating revolving cylinder, of two sets of contact-plates thereon, a portion being duplicates and a portion being duplicates in form but oppositely connected electrically, the former adapted to bear upon contact-buttons connected to coils in the motor-circuit and to connect said coils so as to regulate the resistance of the said circuit and the latter adapted to bear upon contact-buttons connected to a reversible part of the motor, whereby the same regulation may be effected with opposite directions of rotation of the armature by a continuous movement of the cylinder, substantially as set forth.

10. The combination, with an electric motor, of a regulating commutator or switch composed of a cylinder F, having a series of contact-plates thereon, a contact-button *a*, connected to one motor and line-terminal, a contact-button Gr, connected to the opposite line-terminal, and intermediate series of contact-buttons $+b-a+c-d$ connected to a series of coils for regulating the resistance of the motor-circuit, and additional contact-buttons connected to the terminals of a reversible part of the motor, substantially as set forth.

11. The combination, with a vehicle, of two electric motors, one for each axle of said vehicle, two regulating switches or commutators, one at each end of the vehicle, a series of conductors extending along the vehicle and connecting corresponding parts on the two switches, there being two such conductors for the outer field-magnet terminals, respectively, and two for the armature-terminals, respectively, individual branches from each of said conductors to both of the motors, and line connections for the first and the last of said conductors, respectively, substantially as set forth.

12. The combination, with an electric motor, of two circuit-controlling devices for regulating the mechanical effects in said motor, two reversing-switches, one for each controlling device, and common operating means for each controller and its respective reversing-switch, substantially as set forth.

13. The combination, with an electric motor, of two controlling devices for regulating the current in the motor-circuit and two reversing-switches, one for each controlling device, with common operating means for each controller and its respective switch, substantially as set forth.

14. The combination, with two electric motors connected in multiple arc with the same circuit, of two independent regulating commutators or switches composed each of a cylinder having a number of metal contact-plates and a series of contact-buttons adapted to bear on said plates, one button on each switch being connected to the corresponding button on the other switch and to one line and motor terminal, a second button on each switch being connected to the corresponding button on the other switch and to the opposite line and motor terminal, and the remaining buttons being connected to a series of coils for regulating the resistance of the motor-circuit and to a reversible part of the motor, substantially as set forth.

15. The combination, with two motors in multiple arc having a common circuit at a point between their fields and armatures, of two reversing-switches, each acting to reverse both motors, and two regulating devices connected to the two reversing-switches, respectively, so as to be operated by a common means, substantially as set forth.

16. The combination, with two motors in multiple arc having a common circuit at a point between their fields and armatures, of a common reversing-switch having two terminals adjacent to the line and field terminals and a circuit from said two terminals branching to the two armatures, substantially as set forth.

481,740. DENTAL BURRING-TOOL. RUFUS G. STANBROUGH, New York, N. Y. Filed Jan. 20, 1892. Serial No. 418,696. (No model.)



Claim.—1. In burring or cutting mechanisms for dental operations, a vertically-adjustable bifurcated guide-pin or holder, substantially as described.

2. In combination with a frame, a shaft carrying burrs or cutters and means, substantially as described, for adjustably securing the shaft and burrs in the frame, for the purposes set forth.

3. In burring or cutting mechanisms for dental operations, a shaft carrying burrs or cutters held in a frame by means of a collar or hollow cone-bearing at one end and a pin or pivot bearing at the other end and jam-nuts for rendering said bearings adjustable, substantially as described.

4. In burring or cutting mechanisms for dental operations, a bifurcated guide-pin or holder the legs of which are screw-threaded and adapted to straddle the shaft carrying the burrs or cutters and to engage with a set or regulating screw to adjust said guide-pin or holder to different altitudes, substantially as described.

5. In burring or cutting mechanisms for dental operations, a frame having a central slotted extension, a regulating-screw working over said extension, a shaft carrying burrs or cutters secured in said frame by a collar or hollow cone-bearing on one side and a pin or pivot bearing on the other side, with jam-nuts for rendering said bearings adjustable, and a bifurcated guide-pin or holder the legs of which are screw-threaded and adapted to straddle the shaft carrying the burrs or cutters and to extend through slots in the frame and central extension thereof and be adjusted vertically by means of the regulating-screw thereon, substantially as described, for the purposes set forth.

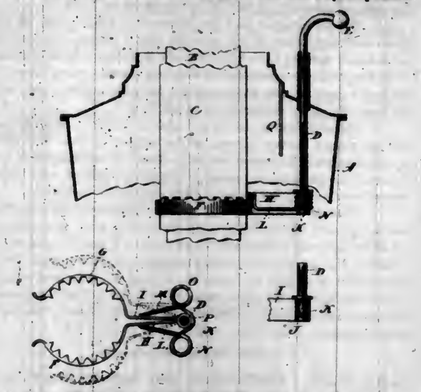
6. In burring or cutting mechanisms for dental operations, integral burrs or cutters provided with an encircling groove, substantially as described, for the purposes set forth.

7. In burring or cutting mechanisms for dental operations, burrs or cutters integral with the shaft and provided with a central encircling groove and a hollow or recess at one end to engage a pivot-bearing, in combination with a tapered centering-point *h*, substantially as described.

8. In burring or cutting mechanisms for dental operations, burrs or cutters integral with the shaft and provided with a central encircling groove, a hollow or recess at one end to engage a pivot-bearing, and a tapering or conical projection on the other side to form a cone-bearing, in combination with the conical centering-point *h*, substantially as described, for the purposes set forth.

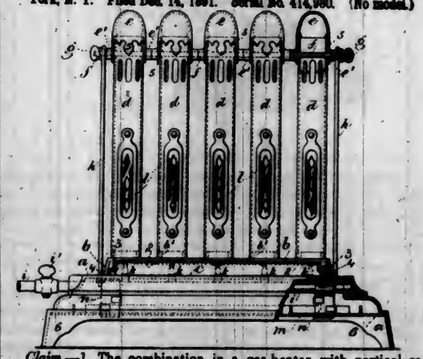
481,741. WICK-RAISER FOR CENTRAL-DRAFT LAMPS. WALDO L. UPSON, Meriden, Conn., assignor to The Bradley & Hubbard Manufacturing Company, same place. Filed Nov. 23, 1891. Serial No. 412,784. (No model.)

Claim.—1. In a wick-raiser for central-draft lamps, the combination of a pair of jaws adapted to embrace the wick one upon each side, the said jaws constructed with arms extending radially outward, and a vertical rod extending vertically through a bearing in the fount, one of the said jaws made fast to the lower end of said rod and the other jaw hinged thereto with a spring the tendency of which is to yieldingly hold the jaws in the closed position, substantially as specified.



2. In a wick-raiser for central-draft lamps, the combination of a pair of jaws adapted to embrace the wick within the fount, each jaw constructed with an arm extending radially outward, the jaws being adapted to swing the one from the other, and a vertical rod upon which the said arms of the jaws are arranged, the said rod extending vertically upward through a suitable bearing in the fount, combined with a wire spring composed of two coils N O, with a bead P between the coils across the rod, the arms L M of the said coils extending inward and adapted to bear upon the outer side of the said arms of the jaws, substantially as described.

481,742. GAS HEATER OR RADIATOR. ARBOVITE WOLFF, New York, N. Y. Filed Dec. 14, 1891. Serial No. 414,960. (No model.)



Claim.—1. The combination, in a gas-heater, with vertical radiating-tubes, a gas-pipe, and burners, of a base *a*, having a central opening with a surrounding flange *a'*, an auxiliary base *b*, adapted to set over the said flange *a'* and having an opening along one side with a flanged edge 2 and bearing-lugs 4, and a longitudinal plate *c*, fitting the aforesaid opening and having hubs 3 in the lugs 4, on which the plate swings, whereby access is given for lighting the burners, substantially as specified.

2. The combination, in a gas heater or radiator, with the base, of sheet-metal radiating-tubes setting upon said base, separate caps fitting over the sheet-metal tubes, a rod passing horizontally through these caps and tubes to connect them together, and tie rods engaging the ends of the said rod and secured to the base to compact and hold together the parts of the heater, substantially as set forth.

3. The combination, in a gas heater or radiator, with the base and sheet-metal radiating-tubes, of separate caps fitting over the sheet-metal tubes and having perforated abutting side hubs, a rod passing horizontally through these caps and tubes to connect them together, and tie-rods engaging the ends of the said rod and secured to the base to compact and hold together the parts of the heater, substantially as set forth.

4. The combination, in a gas heater or radiator, with the base and sheet-metal radiating-tubes, of the separate hollow convex cap *c*, fitting over the sheet-metal tubes, each cap having an internal flange and

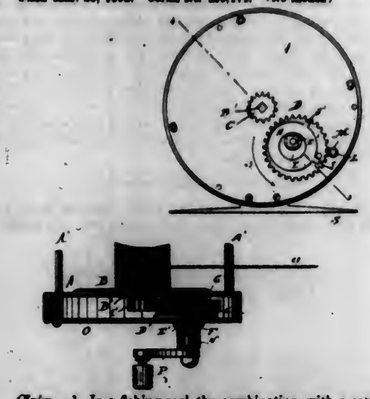
being imperforate above the radiating-tubes, having depending ornamental flanges 5, surrounding the upper ends of the radiating-tubes, and with perforated abutting side lugs *d* and tie-rods *f* for connecting the caps, substantially as and for the purposes set forth.

5. The combination, in a gas heater or radiator, with the sheet-metal radiating-tubes, of the separate caps *c*, fitting over the sheet-metal tubes, each cap having flanges 5 and perforated abutting side lugs *d*, the longitudinal connecting-rod with screw ends passing through the tubes and caps, and the screw-nuts for bringing together and holding the caps and tubes, substantially as specified.

6. The combination, in a gas heater or radiator, with the base *a* and gas-pipes *i*, having burners, of the bottom plate *m*, with turned-up edges to leave air-spaces and with corners 6, and the straps *n*, surrounding the gas-pipe and passing through the plate *m*, with the ends turned over to support the plate, substantially as set forth.

7. The combination, in a gas heater or radiator, with the base *a* and gas-pipes *i*, having burners, of the bottom plate *m*, with turned-up edges to leave air-spaces and with corners 6, and the straps *n*, surrounding the gas-pipe and passing through the plate *m*, with the ends turned over to support the plate, and a sheet of wire-gauze *o*, extending across the base midway between the burners and bottom plate and connected to the gas-pipe for distributing and breaking the force of the air passing to the flames, substantially as specified.

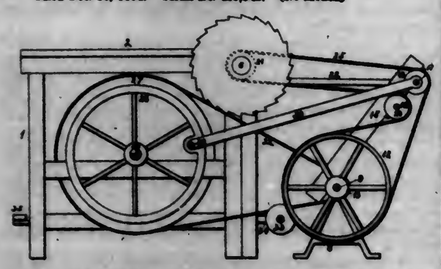
481,748. FISHING REEL. JOHN BORCHARDT, Jersey City, N. J. Filed Mar. 28, 1892. Serial No. 426,171. (No model.)



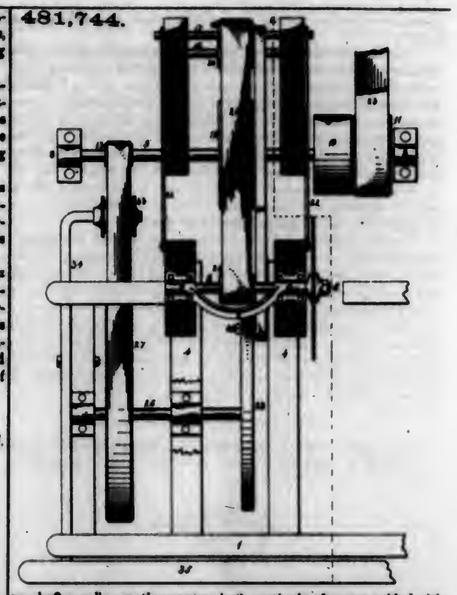
Claim.—1. In a fishing-reel, the combination, with a casing, of a drum, a pinion fixed on the axle of the drum, a cog-wheel adapted to engage said pinion and having an eccentric opening, a disk in said opening, a tubular projection on said disk, which projection is eccentric to the disk, a handle connected with said projection, and a pin on the casing passing through said tubular projection, arms on said disk, and a pin on said cog-wheel, substantially as set forth.

2. In a fishing-reel, the combination, with a casing, of a drum in the same, a pinion on the axle of the drum, a cog-wheel having an eccentric opening, a disk within said opening and mounted eccentrically on a pin of the casing, a spiral spring attached to the cog-wheel and said disk, arms on the disk, and a pin on the cog-wheel, which pin is encountered by the said arms, substantially as set forth.

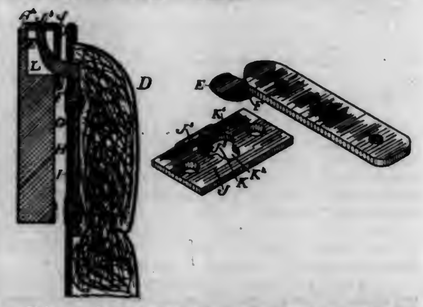
481,744. SWINGING SAW. BENJAMIN BROWN, Rockford, Ill. Filed Dec. 16, 1891. Serial No. 415,543. (No model.)



Claim.—A circular-sawing machine having a supporting-frame, a carriage capable of a sliding movement, a saw on the carriage, a counter-shaft, a pulley on the counter-shaft, a swinging frame provided with pulleys, a belt passing over the pulleys and over the saw-arbor, a loose belt connecting the shaft of the swinging frame with the pulley on the counter-shaft, a tightener for the belt, a disk on the counter-shaft, and an arm connecting this disk with the swinging frame.



481,745. LAZY-BACK FOR VEHICLE-SEATS. ANTHONY G. BRENNEMAN and HERMAN H. UCKOTTER, Cincinnati, Ohio. Filed Dec. 26, 1891. Serial No. 416,128. (No model.)



Claim.—1. In a seat, the cushion made separable from the back-frame and provided with interlocking devices, as follows: a supporting-piece secured to the cushion and provided with the neck bent outward, forward, and then upward and terminating in the enlarged portion or head E, the planes of whose sides are bent obliquely forward and upward and whose head is enlarged over the neck in the direction of its lateral edges, the lower and front side of the neck and the front side of the head being in a continuous curve outward and upward and presenting when the lazy-back is in position an oblique surface to the plane of the frame, and the frame A, provided with opening K, composed of the larger opening K′ above and the smaller opening K² below and recess at rear thereof, substantially as and for the purposes specified.

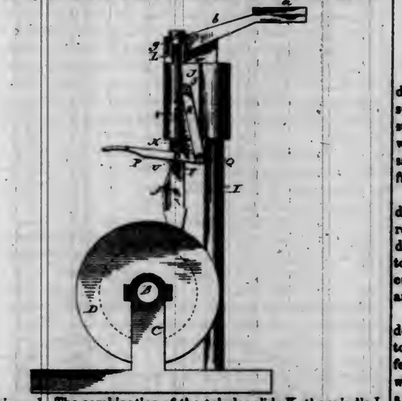
2. In a lazy-back, the cushion made separable from the back-frame and provided with interlocking devices made substantially as follows, to wit: a supporting-piece G, secured to the cushion and provided with the neck F, bent substantially as described, terminating in the enlarged portion, the head E, curved in two directions, and the plate J, secured to the back-frame and having opening K, composed of larger opening K′ above and smaller opening K² below, and the recess L, formed in the frame-piece A′, the plate J being further provided with the lip J², extending from the upper portion of the plate rearward and forming a roof to the upper edge of the recess, and an abutment against which the head E may strike when introduced through the opening K into the recess L, substantially as and for the purposes specified.

3. In a lazy-back, the cushion made separable from the back-frame and provided with interlocking devices made substantially as follows, to wit: a supporting-piece G, secured to the cushion and provided with the neck F, bent substantially as described, terminating in the enlarged portion, the head E, curved in two directions, and the frame A, provided with the opening K, composed of larger opening K′ above and the smaller opening K² below and recess at rear thereof, the length of the head E being such that when the neck F is in opening K′ the upper end of the head will be so near to the roof of the recess that a vertical movement of the cushion cannot enable the neck to be lifted out of opening K², substantially as and for the purposes specified.

4. In a lazy-back, the cushion made separable from the back-frame and provided with interlocking devices made substantially as follows, to wit: a supporting-piece G, secured to the cushion and provided with the neck F, bent substantially as described, terminating in the enlarged portion, the head E, curved in two directions, and the frame A, provided with the opening K, composed of a larger opening K′ above and the smaller opening K² below and recess at rear thereof, the length of the head E being such that when the neck F is in opening K′ the upper end of the head will be so near to the roof of the recess that a vertical movement of the cushion cannot enable the neck to be lifted out of the opening K², the roof of the recess being formed by the flange J² of the plate J, substantially as and for the purposes specified.

5. In a seat, the cushion made separable from the back-frame and provided with interlocking devices, as follows: a supporting-piece secured to the cushion and provided with the neck bent outward, forward, and then upward, and terminating in the enlarged portion or head E, the planes of whose sides are bent forward and upward and whose head is enlarged over the neck in the direction of its lateral edges, but is of a diminishing thickness from front to rear and of less thickness in this direction than the neck, the lower and front side of the neck and the front side of the head being in a continuous curve without projection, and the inner and upper side of the neck being in one continuous curve with the rear side of the head and without projections, substantially as and for the purposes specified.

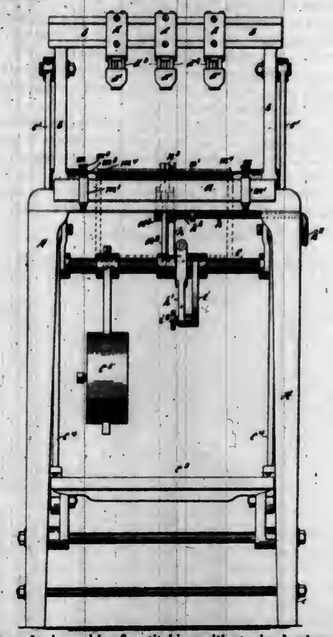
481,748. PIN-STICKING MACHINE. EDWARD A. DURGIN, New Haven, Conn. Filed Oct. 2, 1891. Serial No. 407,539. (No model.)



Claim.—1. The combination of the tubular slide K, the spindle L, arranged within said slide and carrying a punch N at its lower end, the slide constructed with a conductor O, leading into the opening below the said punch and so as to conduct a pin thereto, the slide constructed with a vertical slot T, a lever P, hung by one end in rear of the spindle and so as to swing in a vertical plane, the lever extending forward of the spindle so as to form a handle, with a stud U projecting from said spindle through said slot and into connection with said lever P, substantially as and for the purposes described.

2. The combination of a tubular slide K, the vertical reciprocating spindle L, arranged therein and carrying the punch N, a lever hung by one end in rear of the spindle so as to swing in a vertical plane, the lever extending forward of the spindle so as to form a handle, the said lever in connection with said spindle and slide, whereby the vertical reciprocating movement is imparted to said slide and spindle, a hopper adapted to receive a mass of pins, an inclined channel leading therefrom, a transverse slide *d*, arranged to reciprocate across the lower end of said channel, the said slide constructed with a vertical notch *e*, adapted to receive a pin, mechanism for imparting reciprocating movement to said slide transverse to the said channel, and a conductor *f*, leading from the said notch in the slide at one side of the lower end of said channel to the opening in the slide K below the punch N, substantially as and for the purpose described.

481,747. MACHINE FOR STITCHING WITH STAPLES. ROBERT BURNEY, East Orange, N. J. Filed Aug. 24, 1891. Serial No. 403,566. (No model.)



Claim.—1. A machine for stitching with staples, having a staple driving and feeding device consisting of two plates or devices movably supported in their relation to each other, one of which is provided with a staple-suppporting and feeding rod or device and the other provided with a device operated thereby to reciprocate adjacent to the end of said feeding rod or device and regulate the feed of the staples therefrom, substantially as described, and for the purpose set forth.

2. A staple-driving machine having a staple driving and feeding device consisting of two plates or devices adjustably supported in their relation to each other, one of which is provided with a staple-feeding device and the other with a device having an opening therein adapted to operate adjacent to the end of said feeding device to allow of and cut off the feed of the staples from the latter, substantially as described, and for the purpose set forth.

3. A staple-driving machine having a staple driving and feeding device consisting of two plates or devices adjustable in their relation to each other, one of which is provided with a staple supporting and feeding device and the other with a plate having an opening therein with shoulders or projections adapted for engaging with and releasing a staple from the said supporting and feeding device, substantially as described, and for the purpose set forth.

4. The combination, in a machine for stitching with staples, of a staple driving and feeding device consisting of two plates or devices adapted to operate in a line with each other, one of which is provided with a vertically-arranged groove or guideway and with a staple-feeding rod or device and the other provided with a device adapted to regulate the feed of the staples from the said feeding device into said guideway, a spring-arm extending into said guideway, and a reciprocating staple-driver, substantially as described, and for the purpose set forth.

5. The combination, with a supporting-frame, of a sliding bed or table mounted in suitable ways thereon and provided with teeth or projections, a pivoted lever carrying a pawl for engaging with and operating said bed or table, a cam or eccentric adjustably mounted on a rock-shaft for operating said pivoted lever, an adjusting device or plate secured on said rock-shaft, and means for adjustably connecting the

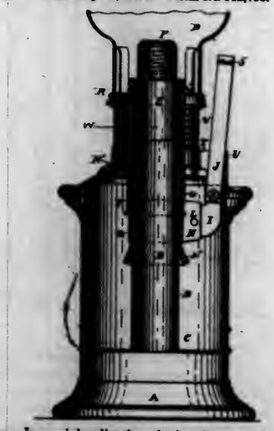
said cam or eccentric therewith, substantially as described, and for the purpose set forth.

6. The combination, with a supporting-frame, of a sliding bed or table mounted in suitable ways thereon and provided with teeth or projections on its under surface, a pivoted lever carrying a pawl for engaging with and operating said bed or table, a cam or eccentric adjustably mounted on a rock-shaft for operating said pivoted lever, an adjusting device or plate secured on said rock-shaft provided with a series of openings therein, and a pin, screw, or other device for adjustably connecting said cam or eccentric with the adjusting device or plate by insertion into one of the said openings thereon, substantially as described, and for the purpose set forth.

7. In a machine for stitching with staples, the combination, with the supporting-frame and a sliding bed or plate mounted in suitable ways thereon, of holding or clamping devices, consisting of a plate adapted for adjustable attachment with said sliding table and provided with spring-arms elastically supported thereby, substantially as described, and for the purpose set forth.

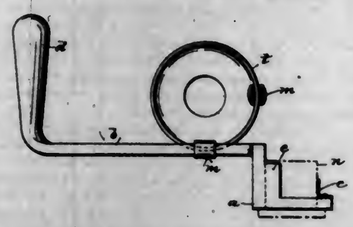
8. In a staple-driving machine, the combination, with the supporting-frame, the sliding bed or table mounted thereon, and the staple-driving mechanism, of a horizontally-sliding gage located above said sliding table and adjustably supported in an arm or bracket located on the supporting-frame by means of a clamping device or screw, substantially as described, and for the purpose set forth.

481,748. WICK-LIFT FOR LAMPS. HORACE L. CLARK, Rutherford, N. J. Filed May 31, 1892. Serial No. 312,755. (No model.)



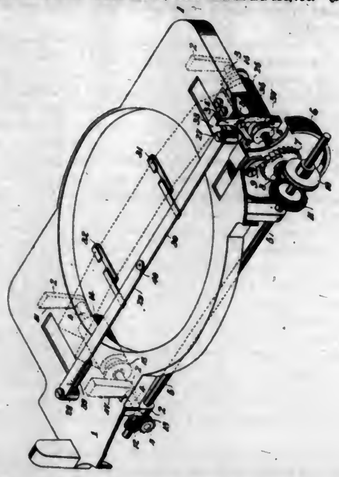
Claim.—In a wick-adjusting device for central-draft lamps, the combination, with a wick-band having a laterally-projecting shank constructed with an upwardly-projecting extension, of a draw-bar having its lower end pivotally connected with the upper end of the said extension of the shank, substantially as set forth.

481,749. CARRIAGE-WRENCH. JOHN A. COREY, Hope Valley, R. I. Filed June 15, 1892. Serial No. 436,776. (No model.)



Claim.—A carriage-wrench consisting of a shank having a light square open head to receive the nut with cheek-flanges on either side of the opening and a spring attached to its outer bar to hold the nut when off the axle, in combination with a spring-clasp attached to the shank, substantially as described, for the purpose of holding the wrench, as herein set forth.

481,750. TYPE-WRITING MACHINE. LOUIS P. DEE, Ilion, assignor to the Remington Standard Type Writer Manufacturing Company, New York, N. Y. Filed Jan. 21, 1892. Serial No. 418,780. (No model.)



Claim.—1. In a type-writing machine, the combination of an inking-ribbon, a ribbon-spool shaft 4, arranged to revolve alternately in opposite directions, a ribbon-spool connected to said shaft to turn therewith in whichever direction said shaft may be rotated, a ribbon-spool shaft 3, arranged to turn always in the same direction, and a ribbon-spool frictionally connected to said shaft, so that it may turn either with said shaft or in a direction opposite to that of the rotation of said shaft, according to the direction of rotation of the opposite shaft and spool.

2. In a type-writing machine, the combination of an inking-ribbon, a ribbon-spool shaft 4, arranged to revolve alternately in opposite directions, a ribbon-spool frictionally connected to said shaft, so as to turn therewith in whichever direction said shaft may be rotated, but capable of being turned by hand independently of said shaft, a ribbon-spool shaft 3, arranged to turn always in the same direction, a ribbon-spool frictionally connected to said shaft, but in a manner to have less friction or resistance than the first-mentioned spool, so that it may turn either with said shaft or in a direction opposite that in which said shaft turns, and an intermediate connecting-shaft transmitting the motion of shaft 3 and arranged to revolve in opposite directions and alternate the direction of revolution of the shaft 4 and its spool.

3. In a type-writing machine, the combination of an inking-ribbon, ribbon-spool shafts 3 and 4, ribbon-spools connected to said shafts, a beveled gear on the shaft 3, a worm-wheel on the shaft 4, and an intermediate shiftable shaft 5, provided at one end with a worm and at its other end with two beveled gears, the arrangement being such that the shaft 3, which rotates always in one direction, may rotate the shaft 4 through the shaft 5 alternately in opposite directions.

4. In a type-writing machine, the combination of an inking-ribbon, a spool-shaft arranged to revolve always in one direction, a ribbon-spool frictionally connected to said shaft and capable of revolving alternately in opposite directions, a spool-shaft arranged to have a slower movement than the first-named shaft and a movement alternately in opposite directions, and a ribbon-spool connected to said slower shaft to turn always therewith and wind and unwind the ribbon.

5. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a horizontally-arranged pivoted arm having a ribbon-support and having a slow step-by-step movement in one direction and a quick rebounding movement in the opposite direction.

6. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a horizontally-arranged pivoted arm having a ribbon-support and connected to one of said ribbon-spool shafts in a manner to be vibrated step by step through the rotations of said shaft.

7. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a pivoted ribbon-carrier, a lever for moving the same, and a cam for actuating said lever.

8. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a pivoted ribbon-carrier, a driving-cam, and an intermediate transmitting

device for moving said carrier in one direction and a spring for moving said carrier in the opposite direction.

9. In a type-writing machine, the combination, with an inking-ribbon and a pair of ribbon-spools, of a pair of pivoted arms geared together at their inner ends and provided with ribbon-guides.

10. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-guides, of a pair of pivoted arms geared together at their inner ends and provided with ribbon-guides and means connected with one of the spool-shafts for vibrating said arms and moving the ribbon laterally.

11. In a type-writing machine, the combination, with an inking-ribbon, a pair of ribbon-spool shafts, and a pair of ribbon-spools, of a pair of pivoted arms geared together at their inner ends and provided with ribbon-guides, means connected to one of the spool-shafts for vibrating said arms in one direction, and a spring for vibrating said arms in the reverse direction.

12. In a type-writing machine, the combination, with an inking-ribbon and a vibratory ribbon-carrier, of a pair of spool-shafts, one arranged to revolve slower than the other, and a ribbon-spool connected to each of said shafts, substantially as described, whereby the lines of type impressions on the ribbon will be oblique and parallel to each other and close together.

13. In a type-writing machine, the combination of an inking-ribbon, a vibratory ribbon-carrier, a spring for moving it in one direction, a lever and cam for moving it in the opposite direction, a ribbon-spool, a shaft for said spool, bearing said cam and revolving faster than its spool, a second ribbon-spool, and a shaft therefor arranged to revolve slower than the first-named shaft.

14. In a type-writing machine, the combination of pivoted arms provided with ribbon-guides, a spring, the lever, the cam, and the ribbon-spools, all arranged to operate substantially as and for the purpose set forth.

15. In a type-writing machine, the combination, with an inking-ribbon, of a rotating ribbon-spool shaft, a sleeve connected to said shaft, and a spool detachably connected to said sleeve by a detent arranged between the sleeve and the spool.

16. In a type-writing machine, the combination, with an inking-ribbon, of a rotating spool-shaft, a sleeve mounted on the said shaft by means of friction devices and capable of turning independently of said shaft, and a spool detachably connected to said sleeve.

17. In a type-writing machine, the combination, with an inking-ribbon, of a spool-shaft, a sleeve mounted on said shaft, a pair of collars secured to said shaft, a spring arranged to press said sleeve between the said collars, and a spool connected to said sleeve.

18. In a type-writing machine, the combination, with an inking-ribbon, of a spool-shaft, a sleeve mounted on said shaft, the collars, the cup, the washers, the spring, the ribbon-spool, and the spring-detent.

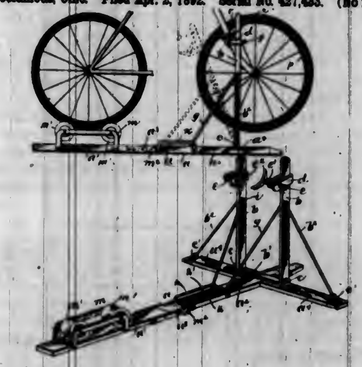
19. In a type-writing machine, the combination, with hangers, of a horizontally-arranged spool-shaft and a vertically-arranged confining-slide for said shaft.

20. In a type-writing machine, the combination, with hangers, of a horizontally-arranged spool-shaft, a vertically-arranged confining-slide, and a detent or lock for said slide.

21. In a type-writing machine, the combination, with hangers, of a spool-shaft having a groove and a confining-slide having a lateral projection to engage said groove and prevent endwise movement of the shaft.

22. In a type-writing machine, the combination, with hangers having hook-shaped bearings, of a spool-shaft, the cap-plate 41, arranged as described, and the slide 43.

481,751. BICYCLE-SUPPORTING FRAME. RICHARD A. ENGLER, Columbus, Ohio. Filed Apr. 2, 1892. Serial No. 427,433. (No model.)



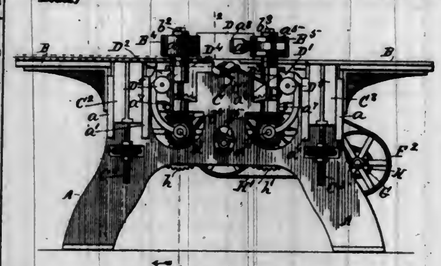
Claim.—1. In a bicycle-supporting frame, the combination, with the base, of a standard-frame rising therefrom and jointedly connected therewith and transverse rest-pins supported from the arms of said standard-frame and adapted to support, as described, the coasting-pins of a bicycle, substantially as specified.

2. In a bicycle-supporting frame, the combination, with the base *a*, a standard-frame rising therefrom and jointedly connected therewith, and rests *a'*, carried by said standard-frame, of a guide-frame *k*, substantially as described, rising from the base, and a sliding brace *g*, pivotally connected with the arms of said standard-frame and adapted to slide within said frame *k*, substantially as specified.

3. In a supporting-frame for bicycles, the combination of the base *a*, a standard-frame having arms *b*, jointedly connected with said base, yokes *d*, adjustably secured to the standard *b*, and rest-pins *e*, projecting from said yokes, substantially as specified.

4. In a bicycle-supporting frame, the combination of the base *a*, formed with two jointed sections, a standard-frame jointedly connected therewith and rising therefrom at one end, transverse rests *a'*, supported from said standard-frame, a roller-frame *m*, supported from the base-section *a'*, and rollers *m'*, journaled therein, substantially as and for the purpose specified.

481,752. BOX-BOARD MATCHER AND JOINTER. REINHERT FISCHER, Chicago, Ill. Filed Mar. 7, 1890. Serial No. 343,044. (No model.)



Claim.—1. In a matching and joining machine, the combination, with the feed-tables, the inner fixed feed-rollers, the outer feed-rollers having a positive movement toward the fixed rollers as well as a spring movement toward the same, of gage-plates located between the pairs of inner feed-rollers, curved arms rigidly supporting said gage-plates at their outer ends, cross-bars to which said arms are attached, the spring-arms a^4, adjustably mounted on the frame, and the rollers a^3, carried by said arms, substantially as described.

2. In a matching and joining machine, the combination, with the feed-tables, the inner fixed feed-rollers, the outer feed-rollers having a positive movement toward the fixed rollers as well as a spring movement toward the same, and rigid gage-plates located between the pairs of inner feed-rollers, of the posts a^5, mounted on the carriages of the movable feed-rollers, spring-arms a^4, carried thereby, and the rollers a^3, carried by the inner bifurcated ends of the spring-arms, thereby giving a positive as well as a spring adjustment to said rollers, substantially as described.

481,753. FERRULE. WILLIAM H. GASKILL, Philadelphia, Pa., assignor to Samuel W. Evans, Jr., same place. Filed Jan. 23, 1892. Serial No. 419,022. (No model.)

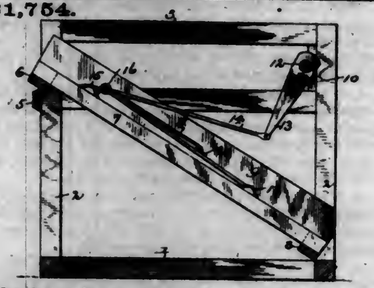


Claim.—A ferrule provided with a peripheral bead or knurl, in combination with a point inserted in the ferrule below said bead or knurl and a retaining-piece located in and embraced by the said bead, substantially as described.

481,754. COAL-SCREEN. SAMUEL GRIFFITHS, Weir, Kans. Filed Feb. 20, 1892. Serial No. 422,221. (No model.)

Claim.—1. In a coal screen or separator, the combination, with the frame, the inclined separating-bars with intervening spaces, and the side walls, of the inverted-V-shaped scraping-plates, the interme-

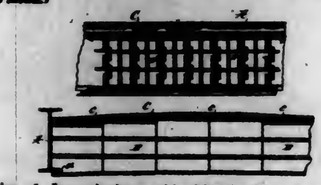
481,754.



diate flat plate, and means, substantially as described, for reciprocating said plates.

2. In a coal screen or separator, the combination, with the frame, the inclined separating-bars with intervening spaces, and the side walls, of the oscillating shaft provided with cranks, the bars pivoted thereto, the transverse inverted-V-shaped plate secured to said bars, the transverse bar, the rods pivoted thereto and provided with an inverted-V-shaped plate, the intermediate flat plate, and the rods connected therewith, pivoted to said transverse bar, substantially as described.

481,755. COHESIVE COMBINED LINTEL-CEILING. RAFAEL GUASTAVINO, Jr., Boston, Mass. Filed June 23, 1891. Serial No. 397,268. (No model.)

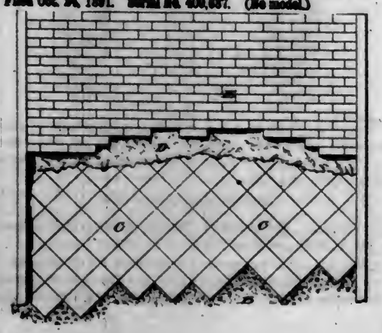


Claim.—1. In a cohesive combined lintel-ceiling, a course of hollow tile-blocks provided on their long sides with interlocking tongue-and-groove joints and laid in cement or plaster with their longitudinal sides perpendicular to the supporting-beams and breaking joints and cooeting with one another to form continuous grooved joints interlaced with each other to form a lintel from beam to beam, substantially as set forth.

2. In a cohesive combined lintel-ceiling, a course of hollow tile-blocks provided with interlocking tongue-and-groove joints and laid in plaster or cement with their longitudinal sides perpendicular to the supporting-beams and breaking joints with one another and a second course of thin tiles laid flat in cement or plaster on top of said course of interlocked tile-blocks and breaking joints with the latter, substantially as set forth.

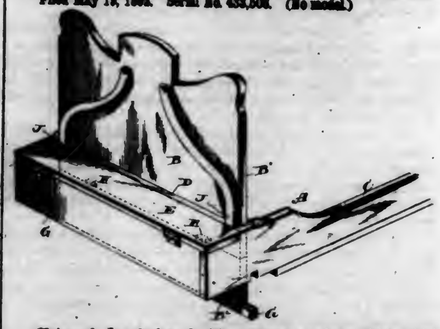
3. In a cohesive combined lintel-ceiling, a course of hollow tile-blocks provided with tongue-and-groove joints on their long sides and laid in cement with their longitudinal sides perpendicular to the supporting-beams and of variable heights or thicknesses from the beams toward the crown of the arch, thus forming a series of steps, a filling of cement to even up the top surface of the structure, and a course of thin flat tiles laid in cement on the top of the whole, substantially as set forth.

481,756. BRICK PAVEMENT. JOHN R. HALDEMAN, Normal, Ill. Filed Oct. 24, 1891. Serial No. 409,687. (No model.)



Claim.—A pavement composed of a suitable bed, a layer of square bricks laid flatwise diagonally across the street, a layer of cement filling the joints and covering the said layer, a layer of sand on the said cement, and an upper layer of bricks set on edge lengthwise across the street on said sand and cement, substantially as specified.

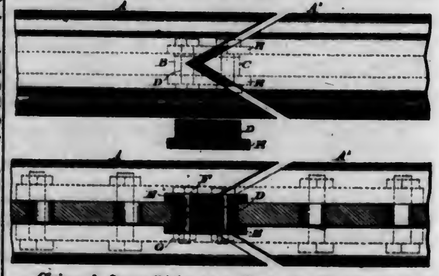
481,757. FOLDING BEDSTEAD. FLOYD HAMBLIN, Mohawk, N. Y. Filed May 19, 1892. Serial No. 433,508. (No model.)



Claim.—1. In a bedstead with recesses or pockets, within which the head or foot board moves, a head or foot board consisting of two hinged sections, said board being vertically movable within certain limits, and stops for limiting said vertical movements, substantially as shown and described.

2. In a bedstead, the combination, with the bedstead having at its ends recesses or pockets, as described, of head and foot boards, each constructed of two hinged sections, the lower section being of substantially the width of the side boards of the bedstead and provided at its ends with extensions G, adapted to engage the lower edges of said side boards and limit the upward movement of the head or foot board when the same is raised, and the stops, substantially as and for the purpose described.

481,758. RAILWAY-JOINT. HENRY T. HEY, Philadelphia, Pa., assignor of one-half to Adolph A. Poehner, same place. Filed Sept. 24, 1891. Serial No. 406,641. (No model.)



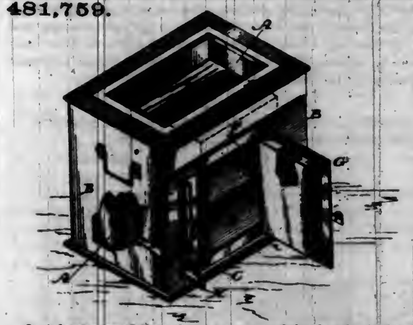
Claim.—1. In a rail-joint, two-rails, one having a V-shaped projecting end and the other rail having a recessed end coinciding with said projecting end, recesses in the adjacent ends of the webs of said rails, and a sliding key applicable and removable endwise in said recesses and having side pieces embracing the sides of the webs of the rails, one of said side pieces being connected with the key and the other side piece adapted to be secured thereto, said parts being combined substantially as described.

2. In a rail-joint, two rails having locking ends with coinciding recesses and a key fitted in said recesses and applicable to and removable therefrom in endwise direction and permitting the rails to move longitudinally thereon, the side pieces being connected with said key by bolts and embracing the webs of said rails, said parts being combined substantially as described.

481,759. HEATER FOR FOOD, &c. GUSTAV L. HINDERER, Philadelphia, Pa. Filed Apr. 25, 1892. Serial No. 430,444. (No model.)

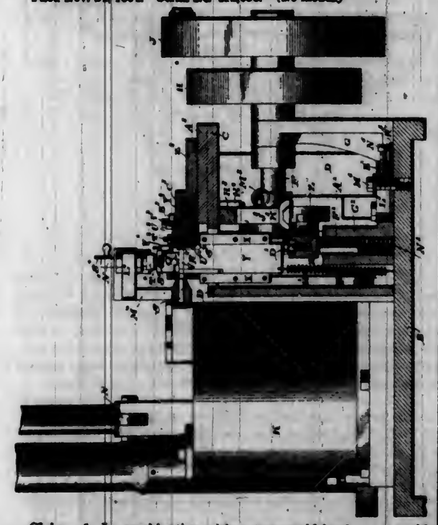
Claim.—1. A heater having a water-reservoir with double side walls and a lid, a heating-chamber within said reservoir, having an open space on its sides and top, and a door connected with the side of the reservoir and opening into said chamber, said parts being combined substantially as described.

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2. A heater consisting of a water-reservoir having the double side walls B, the bottom C, and the lid D, the metallic chamber E within said reservoir, with the opening F therein, having the door G, opening outside the reservoir, and the faucet H, leading from the said reservoir, said lid D having a valve for the escape of the steam, said parts being combined substantially as described.

481,760. TYPE-CASTING MACHINE. THOMAS K. HERSHELLWOOD, Philadelphia, Pa., assignor of one-half to Hermann Popp, same place. Filed Nov. 21, 1891. Serial No. 412,653. (No model.)



Claim.—1. In combination with a type-mold having a movable body-piece therein, an operating-lever adapted to bear against said body-piece, and an adjustable stop with which said lever contacts for regulating the length of movement of said body-piece of the mold, consisting of a hollow block having a slot in one side, a pin movable in said block and provided with a stud working in the said slot, a spring bearing against said bolt, and a clamping-screw for said bolt, substantially as described.

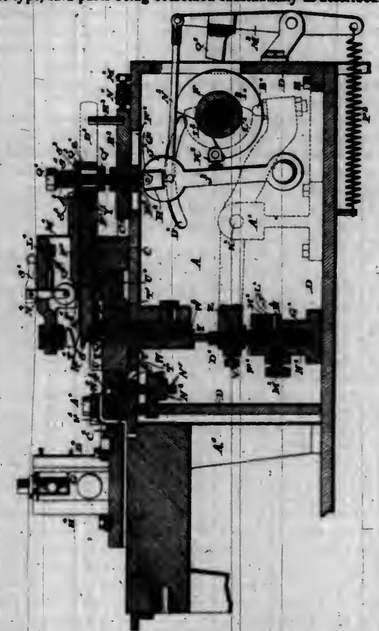
2. In combination with a type-mold having a movable body-piece therein, an operating-lever adapted to raise said body-piece, a hollow block having a slot in one side and a recess in the same side, forming a shoulder, a pin movable in said block and provided with a stud working in the said slot and adapted to stop the downward movement of the said lever, a metallic strip or piece interposed between said stud and shoulder, and a clamping-screw for said bolt, substantially as described.

3. In combination with a type-mold having a movable body-piece therein, an operating-lever adapted to raise said body-piece, a hollow block having a slot in one side and a recess in the same side, forming a shoulder, a pin in said block adapted to limit the downward movement of said lever, a stud on said bolt working in said slot, a spring normally raising said bolt, a strip of suitable material interposed between said shoulder and stud, and a clamping-screw for said bolt, substantially as described.

4. In a type-casting machine, a stationary mold having a recess therein, a body-piece vertically movable in said recess, an operating-lever provided with a cushion adapted to contact with said movable body-piece, a spring secured to said body-piece for automatically lowering the same, and an adjustable stop adapted to be in contact with said lever, limiting its downward movement, said parts being combined substantially as described.

5. In a type-casting machine, a mold having a sliding body-piece, the sliding arm P', with a longitudinal groove, the block Q^x in said arm and having a recessed portion on its under side for engaging the type, the movable piece S' in said groove and provided with an inclined under face on its front end, a spring secured to said piece P' and bearing against the block Q^x, and a binding-screw for said piece S', said parts being combined substantially as described.

6. In a type-casting machine, a mold having a recess therein, a movable body-piece in said recess, the sliding arm P', with a depending block Q', forming a top wall for the said recess, and the block Q^x, adjustable in said arm and having a recessed under face for engaging the type, said parts being combined substantially as described.



7. In a type-casting machine, a mold with a movable body-piece therein, an arm with a block movable on said mold and adapted to form a top wall for a recess therein, a block adjustable in said arm and having a recessed under face for engagement of the type, a reciprocating arm movable in ways on the bed of the machine and having a stud projecting therefrom, and a block secured on said stud and connected with said first-mentioned arm, said parts being combined substantially as described.

8. In a type-casting machine, a mold with a recess therein, a sliding body-piece vertically movable in said recess, the arm P', with depending block Q', movable on said mold, the block Q^x, adjustable in said arm and having a recessed under face to engage the type, and mechanism, substantially as described, connected with said arm for reciprocating the same, said parts being combined substantially as described.

9. In a type-casting machine, a mold having a movable body-piece therein, the arm P', with depending block Q', movable on said mold and forming a top wall for a recess therein, the block Q^x, held in said arm P' and having a recessed under face, a block Z', having a stud on which the arm P' is mounted, an arm having a pin on which the block Z' is secured, the spring D^s, attached to said block, and the pin E^3, against which said spring is adapted to bear, said parts being combined substantially as described.

10. In a type-casting machine, a mold with a type-recess therein, mechanism, substantially as described, for lifting the type from said recess to the top of said mold, an arm for removing said type from said mold, a supporting-block to which said arm is rotatingly attached, a reciprocating arm on which the block is rotatingly mounted, and a

spring attached to said block for keeping said arms and block in line, said parts being combined substantially as described.

11. In a type-casting machine, a mold having a movable body-piece therein, the arm P', with depending blocks Q' and Q^x, the latter having a recessed under face, the block Z', with the stud Y', the reciprocating arm P^2, movable in ways on the frame of the machine and provided with the pin A^2, on which the block Z' is adapted to turn, and the spring D^2, secured to the said block and bearing against a pin or projection on the frame of the machine, said parts being combined substantially as described.

12. In a type-casting machine, a mold having a movable body-piece, the reciprocating arm P', having an inclined upper portion at its front end and provided with the depending block Q' and the adjustable block Q^x, the latter having a recessed under face adapted to engage the type, the wedge T^2, with inclined under surface, and the downwardly-spring-pressed roller F^2, said parts being combined substantially as described.

13. In a type-casting machine, a mold having a movable body-piece, a reciprocating arm having an inclined portion on its upper face near its front end and provided with a block for covering a recess in said mold, a block held by said arm and adapted to engage and move the type when on the mold, a wedge supported on the frame of the machine and adapted to engage the inclined face of said arm, and a roller adapted to bear on said arm, said parts being combined substantially as described.

14. In a type-casting machine, a mold having a recess therein and a movable piece for removing the type from said recess, a reciprocating arm having an inclined portion on its upper face near its front end and provided with a block for covering said recess and a block for moving the type on said mold, a wedge adapted to engage said inclined face, and a spring-pressed roller bearing downwardly against said arm, and a cam-lever for lifting said roller, said parts being combined substantially as described.

15. In a type-casting machine, a frame, a mold having a movable body-piece therein, the arm P', with the depending block Q', adapted to cover a recess in said mold, the type-removing block Q^x in said arm, a reciprocating arm movable in ways on the frame and having a depending lug, mechanism connecting said arms, a lever, a block pivoted to said lug and located in a recess in said lever, and a driving-shaft with a cam thereon operating said lever, said parts being combined substantially as described.

16. A frame, a mold with a recess therein and a body-piece movable in said recess, an arm with means connected therewith for covering said recess and for engaging said type on said mold, mechanism, including a lever, connected with said arm for advancing the same, and a lever pivoted to the frame and connected by a rod with said operating-lever and by a spring with the frame for withdrawing the type-moving arm, said parts being combined substantially as described.

17. A frame, a mold with a type-recess therein and a body-piece movable in said recess, an arm with means connected therewith for covering said recess and for engaging the type when on the top of the mold, mechanism, including a lever, connected with said arm for advancing the same, and mechanism, including a lever, connected with said lever of the advancing mechanism for withdrawing said arm, said lever of the withdrawing mechanism having a projecting arm adapted to be engaged by a cam on the driving-shaft of the machine, said parts being combined substantially as described.

18. In a type-casting machine, a frame, a mold having a type-recess therein, and a body-piece vertically movable in said recess, a block movable on a track on said frame to and from said mold, the arm U^3, with stem adjustably fitted in said block and a projecting portion W^2, a holder having a vertical adjustment in said arm by means of a dovetail connection and provided with a horizontal recess extending across one end thereof, a matrix fitted in said recess, and clamping-screws in said holder and projecting portion for said matrix, said parts being combined substantially as described.

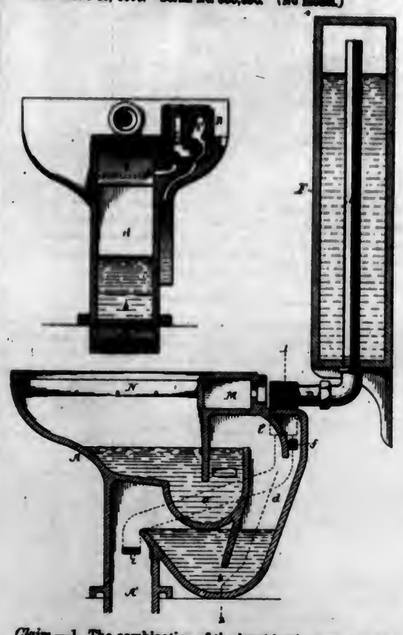
19. In a type-casting machine, a frame, a mold having a movable body-piece, with operating means for raising the type to the top of the mold, a reciprocating arm with the block Q', forming a top wall for the type-recess, and the adjustable block Q^x, with shoulder P^x, and an adjustable support provided with cutters for rubbing the shoulders on opposite sides of the face end of the type, substantially as described.

20. In a type-casting machine, a frame, a mold with a movable body-piece therein, an oscillating lever for raising said body-piece journaled on a cylindrical pivot, and a latch pivoted to one side of said lever and having a recessed face on its free end, adapted to rest on the pivot of said oscillating lever, said parts being combined substantially as described.

21. In a type-casting machine, a frame, a mold with a recess therein, a vertically-movable body-piece in said recess, a reciprocating arm with the blocks Q' and Q^x connected therewith, the latter block for advancing the type on the mold, and a spring-actuated plate in the frame in advance of the mold, having its front edge normally raised, said parts being combined substantially as described.

22. In a type-casting machine, a pusher, a connecting-block, a sliding bar on which said block is mounted, a spring connecting said block and bar, and a bolt working in hangers on the machine-frame and with an end adapted to engage in a recess in said block, said parts being combined substantially as described.

481,761. WATER-CLOSET. SETH R. HUSSEY, Philadelphia, Pa. Filed June 18, 1890. Serial No. 355,890. (No model.)



Claim.—1. The combination of the bowl having upper and lower traps, the tank, the exhaust-pipe leading therefrom, and a valve-box communicating with the exhaust-pipe and having two chambers, one communicating with the space between the two traps and the other with a discharge-passage leading to the discharge-pipe of the bowl, this latter chamber having a valve for preventing backflow through the discharge-passage, substantially as specified.

2. The combination of the bowl having upper and lower traps, the tank, the exhaust-pipe leading therefrom, and a valve-box communicating with the exhaust-pipe and having two chambers, one communicating with the space between the two traps and the other with a discharge-passage in the bowl, both of said chambers having valves, one for preventing backflow into the space between the traps and the other for preventing backflow through the discharge-passage, substantially as specified.

3. The combination of the tank, the inlet-valve chest and its valve, a float-lever, and a valve-rod having a disk covering the mouth of said inlet-chest, substantially as specified.

4. A siphon water-closet bowl having a flushing-rim of capacity equal to or in excess of that of the trap which seals the short leg of the siphon, substantially as specified.

5. A siphon water-closet bowl having a flushing-rim enlarged in area in that portion which extends across the rear of the bowl, whereby the capacity of the rim is caused to equal or exceed that of the trap which seals the short leg of the siphon, substantially as specified.

481,762. VALVE FOR PNEUMATIC TIRES. JOHN F. IVES and FRANK B. COLMAN, New York, N. Y. Filed May 4, 1892. Serial No. 431,842. (No model.)



Claim.—1. A valve consisting of an inflexible or metallic shank carrying a flexible cap, in combination with a hollow valve-stem, said flexible cap normally closing said valve-stem and being adapted to be distended to open said valve-stem, substantially as described.

2. In a valve, the combination of the hollow stem A, with the flexible cap I contained therein, and the plunger H, substantially as described.

3. In an automatic valve, the combination of the valve-stem A, with the shank E, carrying the plunger H, and with the flexible cap I, adapted to be elongated by the plunger H to open said valve, substantially as described.

4. In an automatic valve, the combination of the valve-stem A, the shank E, having longitudinal grooves F F and carrying the flexible cap I, adapted to normally close the valve, and with the plunger H, carried by the shank E, adapted to overcome the normal tendency of the flexible cap I, substantially as described.

5. In an automatic valve, the combination of the valve-stem A, the grooved or perforated shank E, with the plunger H, the flexible cap I, and the washer L of absorptive material, all arranged substantially as described.

6. In an automatic valve, the hollow stem partially threaded internally, the therein-contained valve mechanism, as described, with the cap K, adapted to fit to the upper end of the valve-stem and having the projection M of substantially the same diameter as the plunger H, substantially as and for the purpose described.

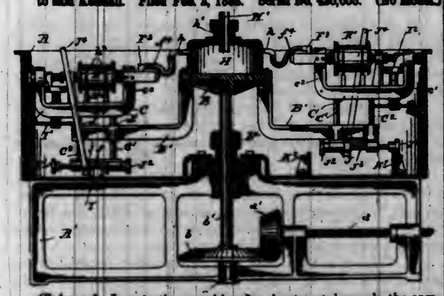
7. In an automatic valve, the valve-stem A, the shank E, carrying the plunger H, and the flexible cap I, having the outwardly-projecting lip J to more closely contact with the sides of the hollow stem A, all arranged to normally permit the passage of air through the stem in one direction and check its return in the opposite direction, substantially as described.

481,763. WIRE-TIGHTENER. LAFAYETTE M. JOHNSON, Seneca, Mo., assignor of one-half to Robert Briggs, same place. Filed Apr. 8, 1892. Serial No. 428,509. (No model.)



Claim.—A fence-wire-tightening device consisting of a shank A, provided at one end with a handle B and at its other end with a tapered portion C and hook D, the end *d* of said hook being bent or deflected to one side, substantially as shown and described, and for the purpose specified.

481,764. CAR-TESTING MACHINE. CHARLES B. KENDALL, Newton, Mass., and HENRY SCHAAKE, Baltimore, Md.; said Schaake assignor to said Kendall. Filed Feb. 2, 1892. Serial No. 420,053. (No model.)



Claim.—1. In a testing-machine for sheet-metal vessels, the combination, with a stationary receiving-tank containing liquid bath for the vessels, of rotating vessel-carrying trucks traveling within the tank and imparting motion to the liquid bath, mechanism for clamping and filling the clamped vessels with compressed air secured to the traveling trucks, and mechanism for automatically submerging the vessels within the bath and raising the same therefrom while the bath is in continuous motion, as and for the purpose set forth.

2. In a testing-machine for sheet-metal vessels, the combination, with mechanism to automatically clamp the vessels and connect them with a compressed-air supply, of a stationary receiving-tank containing a horizontally-moving liquid bath and mechanism for automatically submerging the vessels within the bath and raising same therefrom while the bath is kept in continuous motion, as and for the purpose set forth.

3. In a testing-machine, the combination, with the stationary receiving-tank, said tank containing a liquid bath, of a frame rotating within the tank, vessel-carrying devices secured thereto and carried thereby, said frame and carrying devices with the rotation thereof imparting unagitated motion to the liquid bath, clamping devices for automatically securing the vessels and connecting them with an air-supply, and mechanism for automatically and gradually submerging the vessels within the bath and raising same therefrom while the bath is in continuous motion, as and for the purpose set forth.

4. In a testing-machine, the combination, with the receiving-tank containing a liquid bath for the vessels, of vessel-carrying trucks rotating within said tank and with the rotation imparting motion to the said bath, vessel-holders and clamps carried thereby adapted to receive and automatically clamp the vessels and fill same with air, and mechanism to automatically and gradually submerge the air-filled vessels within the liquid bath and raise same therefrom while the bath is kept in continuous motion, as and for the purpose set forth.

5. In a testing-machine, the combination, with the receiving-tank containing a moving liquid bath, of vessel carrying and clamping devices rotating within the bath and mechanism for automatically submerging the vessels within the horizontally-moving bath and raising same therefrom, as and for the purpose set forth.

6. In a testing-machine, the combination, with a delivery-chute of a receiving-tank containing a moving liquid bath, vessel-carriers rotating within the tank and provided with vessel-holders, and clamps adapted to automatically receive, clamp, and fill the vessel with compressed air, and mechanism for automatically submerging the filled vessels within the moving bath and raising same therefrom, as and for the purpose set forth.

7. In a testing-machine, the combination, with the receiving-tank containing an unagitated moving liquid bath, of vessel carrying and clamping devices rotating within the tank and imparting motion to the bath, and mechanism for automatically and gradually submerging the vessels within the moving bath and raising same therefrom without disturbing or agitating the liquid, as and for the purpose set forth.

8. A testing-machine comprising the horizontally-movable frame, vessel carrying and clamping devices carried thereby, air-supply connected thereto, receiving-tank, within which the horizontally-traveling frame rotates, liquid bath contained within the tank and kept in motion by the rotating frame, and mechanism for automatically submerging the vessels within the moving bath and raising the same therefrom, as and for the purpose set forth.

9. A vessel-tester consisting of a receiving-tank partially filled with a liquid bath, frame rotating horizontally within receiving-tank and carrying clamping devices, said frame during its rotation imparting motion to the liquid bath, and mechanism for first automatically and gradually submerging the traveling vessels and thence raising same above the moving water at different points, so as not to agitate the surface of the moving water, as and for the purpose set forth.

10. In a testing-machine for sheet-metal vessels, the combination, with a stationary receiving-tank containing a liquid bath, of mechanism for imparting rotary motion to the bath and mechanism for clamping and gradually submerging the vessels and raising same from within the continuously-traveling bath, as and for the purpose set forth.

11. In a testing-machine for vessels, the combination, with a stationary receiving-tank, said tank containing a liquid bath, of mechanism for imparting an unagitated continuous traveling movement to the testing-bath, as and for the purpose set forth.

12. In a testing apparatus for vessels, the combination, with the vessel-carrying trucks, of the spring-actuated clamping-heads and the automatic operating-cam for locking and unlocking the clamping-heads during travel of carrying-trucks, as and for the purpose set forth.

13. In a testing apparatus for sheet-metal vessels, the combination, with the vessel-carrying trucks, of the spring-actuated clamping-heads, compressed-air supply connected with one of said heads, and the operating-cam for locking the clamping-heads and filling the vessels with air and for unlocking the heads in order to release the vessels and at the same time close the air-supply during horizontal travel of carrying-trucks, as and for the purpose set forth.

14. In a testing apparatus, the combination, with the receiving-tank containing a liquid bath, of mechanism for imparting a continuous unagitated traveling movement thereto, vessel-holding trucks secured to the traveling mechanism, clamping-heads working therein, air-supply connected to one of the clamping-heads, and the operating-cam adapted to automatically lock the carried vessels between the clamp-heads and open the air-supply so as to fill same and to release the clamped vessels after passing through the testing-bath and close the air-supply, as and for the purpose set forth.

15. In a testing apparatus, the combination, with the vessel-carrying trucks, spring-actuated clamp-heads working therein, and movable sleeve working upon stem of one head, of the automatic cam adapted with the movement thereof to operate the movable sleeve so as to lock or unlock the vessel between clamp-heads, as and for the purpose set forth.

16. In a testing apparatus, the combination, with the delivery-wheel, of the traveling vessel-carrying trucks and the adjustable vessel-seats working within the trucks, as and for the purpose set forth.

17. In a testing apparatus, the combination, with the vessel-carrying trucks, of mechanism for imparting horizontal rotation thereto, clamp-heads secured thereto, one of said heads connected with an air-cylinder, mechanism for moving the heads in or out so as to automatically clamp or unclamp the vessels and fill same with air, and the feed-chute for supplying vessels to the trucks, as and for the purpose set forth.

18. In a testing apparatus, the combination, with the horizontally-traveling trucks and clamp-heads secured thereto, of mechanism for automatically moving the clamp-heads in or out in order to lock or unlock the held vessel during rotary travel of the vessel-carrying trucks, as and for the purpose set forth.

19. In a testing apparatus, the combination, with the receiving-tank, said tank containing a liquid bath, of mechanism for holding the delivered vessel, having horizontal rotation within receiving-tank and imparting corresponding motion to the testing-bath, said holding mechanism adapted to be automatically raised and lowered gradually within the moving water, and mechanism for automatically locking the vessels and admitting air thereto prior to submerging same and unlocking the held vessels and closing the air-supply prior to discharge of same from within receiving-tank, as and for the purposes set forth.

20. In a testing apparatus, the combination, with a receiving-tank containing a liquid bath, of mechanism for imparting a continuous unagitated horizontal rotating movement thereto, vessel-carrying trucks carried thereby, feed-chute for supplying vessels to the tester, mechanism for automatically locking or unlocking the vessels between clamp-heads of the trucks, and devices for allowing the rotary traveling trucks to be gradually lowered or raised within the continuous traveling liquid bath, as and for the purpose set forth.

21. In a testing apparatus, the combination, with the vessel-carrying trucks, of the automatic operating-cam, vessel-clamp heads, and the movable sleeve operated by the automatic cam in order to lock or unlock the clamp-heads during travel of vessel-carrying trucks, as and for the purpose set forth.

22. In a tester, the combination, with the automatic operating-cam and guide-plate moved with the throw of the cam, of the movable sleeve connected to the guide-plate and carried in or out thereby in order to lock or unlock the clamp-heads, as and for the purpose set forth.

23. The combination, with the automatic operating-cam, of the guide-plate provided with groove, said plate rotated with throw of the cam, and movable sleeve provided with depending roller working within groove of guide-plate and adapted with rotation of said plate to carry the movable sleeve in or out in order to lock or unlock the clamp-heads for the vessels, as and for the purpose set forth.

24. The combination, with the spring-actuated sleeve and guide-plate to which said sleeve is connected, of the automatic operating-cam adapted by its throw to move the sleeve in or out so as to lock or unlock the clamp-heads, as and for the purpose set forth.

25. The combination, with the vessel-carrying trucks, of a tester of the movable sleeve working therein, pin or lug for preventing turning of the movable sleeve, and the automatic operating-cam for moving the sleeve in or out in order to lock or unlock the clamp-heads, as and for the purpose set forth.

26. In a testing apparatus, the combination, with vessel-carrying trucks, clamp-heads working therein, one of said heads provided with a spring-actuated hollow stem, piston-rod secured therein, and cap connected to outer end of hollow stem and provided with air-passage communicating with passage-way of hollow stem, of the air-chamber connected with the cap and mechanism for operating the opposite clamp-head, in order that the pressure thereof against vessel held against the heads will cause clamp-head F' to move outward in order to unseat piston-head and allow flow of air through hollow stem to vessel, as and for the purpose set forth.

27. In a testing apparatus, the combination, with the clamp-heads, of the vessel-carrying trucks, one of said heads provided with a hollow spring-actuated stem, said stem communicating with passage-way of an air-supply, and mechanism for automatically moving the opposite head forward or backward, in order that the pressure or removal of pressure upon held vessel will serve to cause backward or forward movement of head F', so as to control supply of air to the carried vessel, as and for the purpose set forth.

28. In a testing apparatus, the combination, with the clamping-heads for the vessel, of the rubber cushion or ring secured to one of said heads, adapted to form an air-tight seat for open end of vessel when pressed thereagainst by inward movement of opposite head, and mechanism for automatically imparting forward or backward movement to head D², in order to likewise move opposite head and cause air-supply to be opened or closed, as and for the purpose set forth.

29. In a testing apparatus, the combination, with the vessel-carrying trucks, tank within which same rotates, feed-chute for supplying vessels to the carrying-trucks, automatic operating-cam, and fixed cam secured to wall of receiving-tank with which operating-cam contacts and is thrown with travel of vessel-truck, of mechanism adapted with throw of automatic cam to lock and unlock the vessel between clamp-heads of vessel-carrying trucks during horizontal travel thereof, as and for the purpose set forth.

30. In a testing-machine, the combination, with a stationary tank, of fixed cam secured thereto, vessel-carrying trucks horizontally traveling within the tank, and automatic operating-cam carried thereby and with the movement thereof contacting with the fixed cam in order to lock the vessels carried by the trucks, as and for the purpose set forth.

31. In a testing-machine, the combination, with the receiving-tank provided with a series of fixed cams, of the traveling vessel-carrying trucks, and the operating-cam carried thereby and adapted with the travel of same to contact with the fixed cams and by the throw imparted locking or unlocking the clamp-heads, as and for the purpose set forth.

32. In a testing apparatus, the combination, with the stationary tank for reception of tester-bath, of the horizontally-rotating mechanism traveling therein, vessel-carrying trucks carried thereby, raising and lowering devices for said trucks, and the inclined trackways secured to bottom of tank, as and for the purpose set forth.

33. In a testing apparatus, the combination, with the receiving-tank, of the vessel-carrying trucks having horizontal rotation within the tank, said trucks having vertical movement, frame secured to lower end thereof, sliding rod or axle working therein, wheels secured to outer ends thereof, operating-lever for shifting axle and wheels, and the inclined trackways located within bottom of tank and upon which wheels of sliding axle travel in accordance as to whether vessel is perfect or imperfect, as and for the purpose set forth.

34. In a testing apparatus, the combination, with the receiving-tank, of the inclined trackways, horizontally-rotating vessel-carrying trucks, and the shifting raising devices for the trucks, said device by moving upon either of the trackways serving to raise the submerged vessels, as and for the purpose set forth.

35. In a testing apparatus, the combination, with the tank, of inclined trackways, vessel-carrying trucks having horizontal rotation within the tank, said trucks adapted to be raised or lowered, sliding axle, guide secured thereto, and frog located within the tank and in line with guide-piece, as and for the purpose set forth.

36. The combination, with the shifting axle for guide-wheels, of guide-piece projecting therefrom and frog located within bottom of tester-tank and with which guide of sliding axle contacts in order to impart full movement to the sliding axle, as and for the purpose set forth.

37. In a tester, the combination, with the vertically-moving vessel-carrying trucks, said trucks having horizontal rotary travel within the tank, of the downwardly-inclined guide-track secured to tank, guide-wheels secured to a sliding axle working thereunder, inclined tracks located within the tank for raising the submerged vessels, and devices for shifting the sliding axle in order to cause the guide-wheels to travel upon one of the inclined trackways, as and for the purpose set forth.

38. In a tester, the combination, with the receiving-tank containing a bath, of inclined trackways located therein, sliding axle secured to the horizontally-rotating mechanism provided with guide-wheels, and devices for shifting the guide-wheels in line with one of the trackways, as and for the purpose set forth.

39. In a can-tester, the combination, with the tank, horizontally-rotating vessel-trucks, and sliding axle connected thereto, of the frog for insuring travel of guide-wheels upon proper trackways, as and for the purpose set forth.

40. The combination, with tester-tank, of the inclined trackway, as K', fixed cam, as O², horizontally rotating vessel-carrying mechanism, and the automatic operating-cam adapted during its line of movement to contact with cam O² and unlock clamp-heads of vessel-carrying trucks, as and for the purpose set forth.

41. The combination, with inclined trackways secured within receiving-tank, of guide-frog and the shifting device connected to the horizontally-traveling trucks, as and for the purpose set forth.

42. In a tester, the combination, with tank, of horizontally-traveling vessel-trucks, inclined trackway secured within tank, as K², for raising of submerged imperfect vessels, operating-cam for unlocking the clamp-heads, so as to release the clamped vessels, releasing fixed cam, as O', adapted to engage operating-cam during travel of rotating trucks, and discharge-chute for imperfect vessels, as and for the purpose set forth.

43. In a testing apparatus, the combination, with the tank, of the horizontally-rotating vessel-carrying trucks, said trucks having vertical movement, and the inclined trackways for raising said trucks, so as to bring the submerged vessels above level of bath contained in tank, as and for the purpose set forth.

44. The combination, with the receiving-tank, of the horizontally-rotating vessel-holding trucks, said trucks having vertical adjustment, inclined trackways for raising submerged vessels in line with discharge-chute for imperfect vessels, automatic operating-cam connected by suitable devices to the clamp-heads, and fixed cams secured within the tank for operating said cam so as to lock and unlock clamp-heads, as and for the purpose set forth.

45. The combination, with the shifting mechanism, of the trackway-cam for moving guide-wheel in line with downwardly-inclined guide-track, as and for the purpose set forth.

46. The combination, with the horizontally-traveling vessel-carrying trucks, of the discharge-chute, vessel-holders secured to the traveling trucks, and outwardly-projecting tongue connected to the discharge-chute and adapted to unseat the tested vessels from rotating trucks and allow for discharge of same into chute, as and for the purpose set forth.

47. The combination, with a testing apparatus, discharge-chute, endless traveling discharging-belt working therein, and horizontally-rotating vessel-carrying trucks, of the outwardly-projecting tongue secured to inner end of chute and adapted during travel of trucks to unseat the tested vessel and raise same so as to become engaged by traveling belt, as and for the purpose set forth.

48. The combination, with the flexible projecting tongue of the discharge-chute, of vessel-carrying trucks provided with vessel-holders, said tongue adapted to raise the vessels from their holders or seats during rotation of the trucks, as and for the purpose set forth.

49. The combination, with the vessel-carrying trucks of a tester, of the projecting tongue connected to the discharge-chute, said tongue adapted to raise the vessels from their seats during travel of the trucks, and mechanism for receiving and carrying the same within a discharge-chute, as and for the purpose set forth.

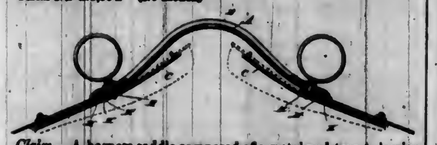
50. The combination, in a testing apparatus with the vessel-carrying trucks, of the vessel-delivery wheel provided with vessel-seats, and mechanism for imparting a uniform speed to traveling trucks and delivery-wheel, as and for the purpose set forth.

51. The combination, in a testing apparatus, with the vessel-carriers, of the feed-chute, vessel-seating delivery-wheel located therein for delivering the vessels to the carriers, and the spring-actuated cover for said chute, as and for the purpose set forth.

52. In a testing apparatus, the combination, with the vessel-carriers, feed-chute, delivery-wheel erected within inner end, spring-actuated door or cover for the chute, of mechanism for operating the delivery-wheel, as and for the purpose set forth.

53. In a testing apparatus, the combination, with the stationary tank, of horizontally-moving bath contained therein, horizontally-rotating vessel-carrying trucks, delivery-wheel for supplying vessels to the trucks, clamp-heads, automatic cam for locking and unlocking the vessels between the clamp-heads through suitable connecting devices, cams located within the stationary tank for operating automatic cam during rotation of trucks in order to allow of locking and unlocking of clamp-heads, devices for submerging and raising the tested vessels, delivery-chutes for carrying off same, and mechanism for imparting travel to trucks, bath, and rotation to delivery-wheels, as and for the purpose set forth.

481,765. HARNESS-SADDLE. DAVID F. MAHER, Mansfield, Ohio, assignor of one-half to Nicholas S. Read, same place. Filed Apr. 9, 1892. Serial No. 428,564. (No model.)

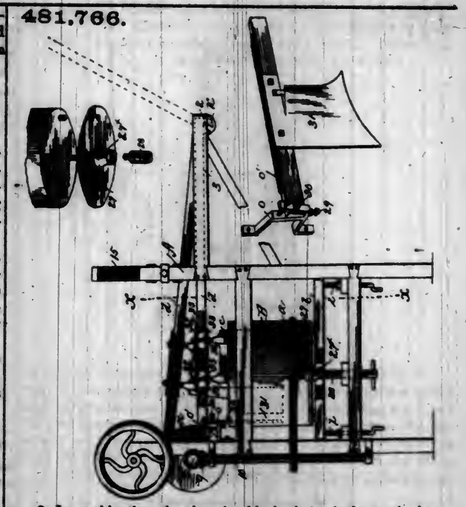


Claim.—A harness-saddle composed of a metal pad-tree A, having upwardly-projecting flanges B and provided in the center with the holes *a a* and at each end with the holes F, also, slotted holes *e*, *e*, and *f*, a pad-plate C, secured to each end, having a pivot movement, and a hinge-block having studs *g g*, secured rigidly to the ends of the pad-tree, and in which are pivoted the pad-plates, the hinge-block being held rigid by the turrets, allowing the removal of the turrets and the replacing of new ones without displacing the pads, substantially as shown and described.

481,766. CHOPPING-MACHINE. George W. Mason, Sharon, Pa. Filed Dec. 4, 1891. Serial No. 414,090. (No model.)

Claim.—1. In combination, the chopping-block, the supporting-frame, the pivoted bars carrying the knives, the means for operating the said bars upward, and the vertically adjustable and removable frame 15, arranged to slide in ways on the main frame and carrying the tension means and guides for the bars, which pass through the guides and are pressed upon by the tension means, substantially as described.

481,766.



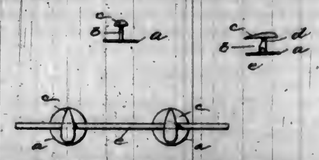
2. In combination, the chopping-block, the main frame, the bars *d*, pivoted thereto and having slots 32 extending longitudinally thereof, the knives, the supporting-bolts for said knives passing through slots in the bars and having yokes secured to the knives, whereby the knives may be adjusted across the chopping-block, each of said knives having a rounded bearing 38 to bear upon the yoke, substantially as described.

3. In combination, the main frame, the knife-bars, with operating means, the chopping-block, with means for rotating it, the table *b*, having rollers upon which the chopping-block rests, the means for vertically adjusting said table, the central bearing 27ˣ on the block, and the pivot-screw 28, vertically adjustable centrally through the table *b* to engage the bearing on the block, substantially as described.

4. In combination, in a meat-chopper, the knife-bars, with operating means therefor, the main frame, the chopping-block, with means for rotating it, the central pivot 28, the central bearing 27ˣ, and the plate 27, detachably connected with the lower end of the chopping-block and carrying the said pivot, substantially as described.

5. In combination, in a meat-chopper, of the knife having the curved bearing 38 on its upper edge, the means for supporting the knife pivoted at the center from which the curve of said bearing is struck, said means having a bearing in engagement with the curved edge to sustain the thrust of the knife, substantially as described.

481,767. COMBINED BUTTON AND LACING HOOK. ANNIE J. MILLER, New York, N. Y. Filed May 10, 1892. Serial No. 432,481. (No model.)

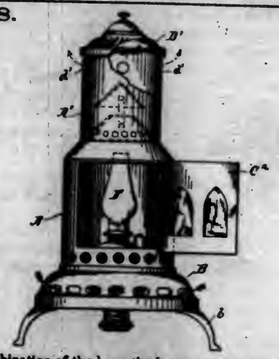


Claim.—The described button and lacing hook, having a thin flat shoe and an elongated hook portion rigidly attached to flat shank, said shank having a cut-away portion adjacent and at right angles to the hook portion for receiving the lacing-cord, and a perforation passing through the shank above the base and parallel with the cut-away portion, in combination with a cord threaded through the perforation, substantially as and for the purpose set forth.

481,768. COOKING, HEATING, AND ILLUMINATING LAMP-STOVE. JOHN F. MYERS, San Francisco, Cal. Filed Feb. 17, 1892. Serial No. 421,886. (No model.)

Claim.—1. The combination of the base having a central perforation and a series of air-openings, an inclosing casing secured upon said base and provided with a series of air-openings in its lower end, and the central-draft lamp suspended in the central perforation of the base and having its oil-reservoir depending below the same and its burner extending upward within the inclosing casing.

481,768.



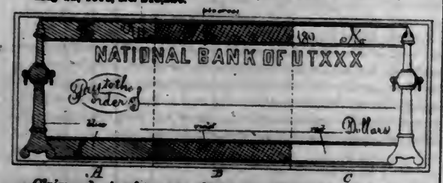
2. The combination of the base, the lamp supported thereby, the casing erected on the base, the deflecting-plate secured to the upper end of the casing and provided with a series of perforations, the drum rising from the said plate and inclosing the perforations therein and provided with a series of air-openings near its upper end, the damper in the top of the drum, and a deflecting-cup secured within the drum and extending over the central opening of the deflecting-plate.

481,769. COFFEE-POT. ROBERT F. RANDALL, Newark, N. Y., assignor to himself, James P. Ballou, and E. Van Petrean, same place. Filed Apr. 6, 1892. Serial No. 428,089. (No model.)



Claim.—A coffee-pot attachment consisting of a conical vessel with tubular extension, an inverted cone-shaped vessel having its lower portion reticulated and a tubular portion detachably held on the tubular extension of the cone, and a spreader on the said tubular portion below the upper end thereof, as set forth.

481,770. SAFETY-PAPER. ALBERT SCHLUMBERGER, Paris, France. Filed Jan. 4, 1892. Serial No. 417,095. (Specimens.) Patented in France May 22, 1891, No. 213,226.



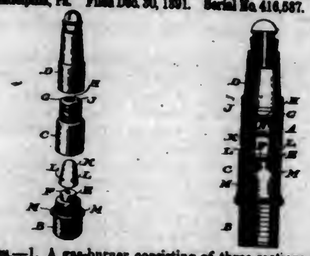
Claim.—1. A safety-paper for papers of value, documents, and the like, consisting in a sheet printed on both sides with coincident designs in such a manner that on holding the paper against the light only one impression is apparent, substantially as shown and described.

2. A safety-paper consisting in a sheet printed on both sides with coincident areas of various colors, the colors of the pairs of coincident areas all combining to produce the same compound color by transmitted light.

3. A safety-paper consisting in a sheet printed on both sides with coincident designs, the designs being arranged in coincident areas of various colors, the colors of the pairs of coincident areas combining to produce the same compound color.

4. A safety-paper consisting in a sheet printed on both sides with coincident designs in various colors arranged in stripe, the stripe on both sides being coincident and the same colors being employed on both sides but arranged in reverse order.

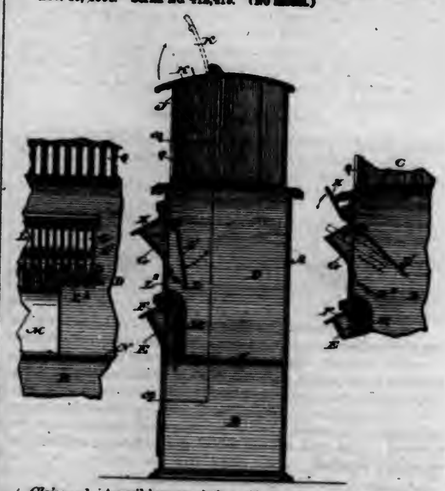
481,771. GAS GOVERNOR AND BURNER. HENRY SCHRADER, Philadelphia, Pa. Filed Dec. 30, 1891. Serial No. 416,587. (No model.)



Claim.—1. A gas-burner consisting of three sections adapted to be fitted together and a valve between two of said sections, one of said two sections having a diaphragm at its upper end with opening therein and provided with a shoulder below said diaphragm and the other section being provided with a diaphragm at its upper end with central opening and a smaller vent aside of said opening, said valve being of inverted-cup shape, having vents in its sides and adapted to rest on said shoulders, said parts being combined substantially as described.

2. A gas-burner consisting of the sections B, C, and D, fitting together, and the inverted-cup-shape valve K, with vents L in its sides, the section B having the shoulder M and the diaphragm E, with a vent F thereon, and the section C having a diaphragm G, with a central opening and a smaller vent aside of said opening, the said valve being adapted to normally rest on the said shoulder M and its crown when raised to close said central opening, leaving said smaller vent opened, said parts being combined substantially as described.

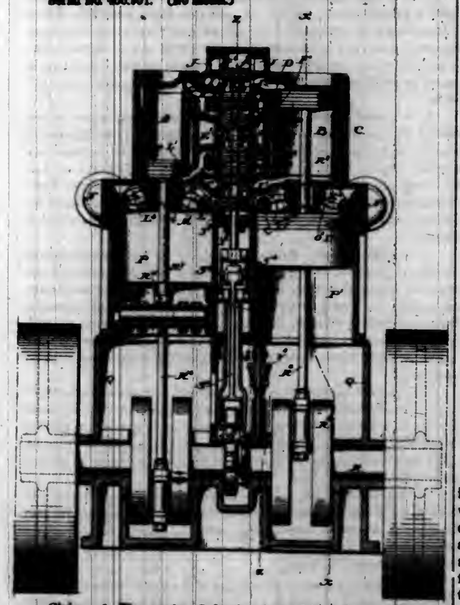
481,772. LETTER-BOX. JAMES STEAR, Philadelphia, Pa. Filed Nov. 19, 1891. Serial No. 412,419. (No model.)



Claim.—1. A mail-box consisting of lower, top, and intermediate compartments, each provided with a throat covered by a door, the throat of the lower compartment extending above the bottom of the intermediate compartment, and the throat of the intermediate compartment having fingers within the compartment for closing the inner end of the throat, said parts being combined substantially as described.

2. A mail-box formed of two or more compartments arranged one above the other, each of said compartments having a throat and one of said compartments having fingers for closing its throat, and the throat of one compartment extending above the bottom of the compartment immediately above it, said parts being combined substantially as described.

481,773. COMPOUND ENGINE. Gustave S. Strauss, New York, N. Y., assignor to James H. Gamble, Cincinnati, Ohio. Filed July 23, 1891. Serial No. 400,951. (No model.)



Claim.—1. The casting C, having formed in it the parallel cylinders A and B, the piston-valve chamber D, also lying parallel to said cylinders, the transversely-lying valve-chambers $L' L^2 L^3 L^4$, formed in the portion *c* of the casting, which constitutes the lower head of cylinders A and B, and the ports connecting the valve-chambers and cylinders, as described.

2. The casting C, having formed in it the parallel cylinders A and B, the piston-valve chamber D, also lying parallel to said cylinders, the transversely-lying valve-chambers $L' L^2 L^3 L^4$, formed in the portion *c* of the casting, which constitutes the lower head of cylinders A and B, and the ports connecting the valve-chambers and cylinders, as described, in combination with the cylinders P P', secured to the portion *c* of the casting and in line, respectively, with cylinders A and B.

3. In a compound engine, substantially as described, the combination of the link S^3 with the positively-connected rod S^4, the valves T^2 T^4 T^5 T^6, actuated by rod S^3 and governing the exhaust from cylinders A and B, the valves $O' O^2 O^3 O^4$, governing the admission and exhaust of cylinders P P' and also actuated by rod S^4, the rod S^5, adjustably connected with link S^3, and the steam-admission valve T, actuated by rod S^5, all substantially as and for the purpose specified.

481,774. CHIP FOR BEER, ALE, &c. JOHN J. WOLF, Philadelphia, Pa. Filed Mar. 14, 1892. Serial No. 424,840. (Model.)



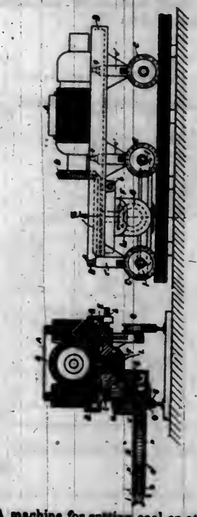
Claim.—1. A beer-chip formed of strips or plates of corrugated metal and cross-bars connecting the same, substantially as described.

2. A beer-chip formed of corrugated metallic strips or plates and cross-bars of corrugated metal connecting the same, substantially as described.

3. A beer-chip formed of strips or plates with openings therein and cross-bars connecting the same, said bars and plates being formed of corrugated metal, substantially as described.

4. A beer or other chip formed of a non-absorbent material having a greater specific gravity than that of the liquid in which it is employed and provided with openings and reinforcing-pieces, substantially as described.

481,775. ELECTRICALLY-DRIVEN MACHINERY FOR CUTTING COAL. LLEWELYN B. ATKINSON and CLAUDE W. ATKINSON, London, England. Filed Aug. 16, 1891. Serial No. 402,019. (No model.)



Claim.—1. A machine for cutting coal or other mineral, consisting of an electrical motor mounted upon a traveling carriage B, provided with track-wheels and adjustable as to height thereon by vertical bearing-screws C C, a driving-shaft *d*, bevel-gears D E F G H O, and an annular ring carrying cutting-tools operated by said gears and adapted to revolve on and protected by fixed bearing-plates N N', forming part of the gearing-framing L and adapted to swivel on the traveling carriage by worm and worm-wheel *b l* round the axis of second vertical driving-shaft, substantially as described.

2. In a machine for cutting coal or other minerals, a revolving ring or annulus carrying the cutting-tools and provided with bevel-geared teeth, in combination with two rigid bearing-plates covering the said bevel-teeth and between which the said tool-ring provided with lubricating-channels is journaled, substantially as described.

3. In a machine for cutting coal or other minerals, a series of curved segments S, detachably attached to one another by cotters T, carrying the cutting-tools R, and adapted to engage by recesses *e'* upon projections *e* of a revolving ring I and to be drawn tightly upon the said ring by the cotters T, substantially as described.

4. In a machine for cutting coal or other minerals, an electromotor mounted on a traveling carriage adjustable for height and level upon its track-wheels, in combination with a cutting-machine provided with a protected disk cutter on a divided and similar traveling carriage, also adjustable as to level upon its track-wheels, and a connection between the wheel-axles of the carriage, adjustable connecting-rods enabling joint movement on the track and a connection between the motor and cutting apparatus, and a sliding universal jointed shaft to communicate rotary motion whatever the irregularities of the track or movement of the apparatus, substantially as described.

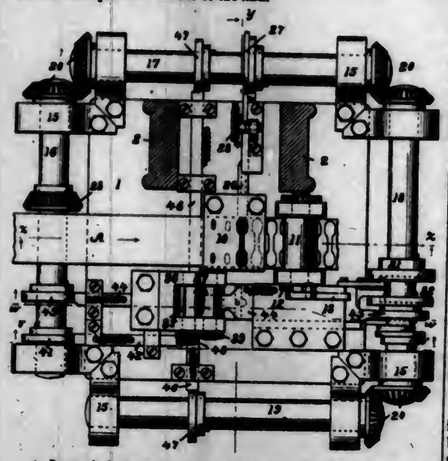
481,776. MACHINE FOR MAKING SHEET-METAL CHAINS. HENRY J. AUSTIN and ROBERT T. LEWIS, Jr., Waterbury, Conn. Filed Mar. 3, 1892. Serial No. 423,496. (No model.)

Claim.—1. In a chain-machine, the combination, with suitable blanking mechanism for forming the links, of means, as described, for feeding the blanked link in the direction of its length and for turning the same, an anvil and bending-slide adapted to receive said fed link and to bend the same into U form, means, as described, for projecting said slide and anvil forward to thread the link, a pair of closing-dies for shaping the link, and a feed for the complete chain, substantially as set forth.

2. In a chain-machine, the combination, with suitable means for forming the blank, of means for feeding said blank in the direction of its length and turning the same, a pair of bending slides having independent and conjoint movement, whereby the link is bent to U form and fed forward and threaded, a pin or anvil for the support of the link during the bending process, and closing devices operated simultaneously on both sides of the link, and means for feeding the same.

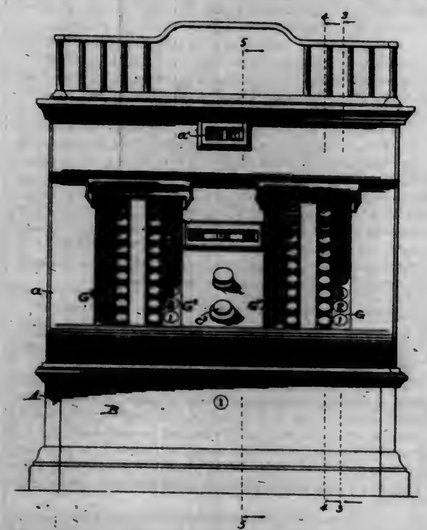
3. In a machine of the character described, the combination, with means for forming the link, of the feed-block in which the link is de-

posited and which is inclined at one end for the turning of the link, a feed-slide operating through the feed-block to project the link in the direction of its length, a pair of bending-slides, whereby the link is first bent and then fed, and closing mechanism, substantially as described for the subsequent treatment of the link.



4. In a chain-machine, the combination, with suitable blanking mechanism, of a feed-block inclined at one end, as shown, a feed-slide working through said block and adapted to project the link in the direction of its length, a pair of bending-slides, one provided with a bending-die and the other with a pin or anvil, and means for first moving the die forward to effect the bending and both dies forward for the purpose of feeding the link, and a pair of closing-dies and suitable feeding mechanism.

481,777. CASH REGISTER, INDICATOR, AND RECORDER. WARREN F. REMY, Knoxville, Pa., assignor to the Eureka Cash Register Company, same place. Filed Feb. 27, 1892. Serial No. 423,061. (No model.)



Claim.—1. In a cash-registering mechanism and in combination with the registering mechanism, an endless operating-chain exposed on one side to be moved with the finger, and an adjacent scale to determine the length of movement, and a stop device with which a link of the chain engages and by which the movement is arrested at the proper point.

2. In a cash-register and in combination with an endless chain arranged to operate the same, the finger-piece upon the chain, the depressed shoulder or stop with which the finger-piece in action may automatically engage to arrest the movement of the chain, and a spring to disengage the finger-piece from the stop when the finger is removed.

3. In a cash-register, the combination of an endless actuating-chain, a wheel turned thereby, an indicator-drum provided with a driving-wheel, an intermediate wheel and a driving-spring connected therewith, a till, and connections through which the till shifts the intermediate wheel from the chain-driving wheel, whereby the chain is caused to wind the spring and the latter thereafter caused to turn the drum.

4. In a cash-register, the finger-chain and a gear-wheel driven thereby, in connection with an indicating-drum, a returning-spring therefor, and a gear-wheel connected thereto, with an intermediate movable wheel, a spring wound thereby, a detent to hold the same as the spring is wound, and means for engaging the intermediate wheel alternately with the chain-driving wheel and the drum-wheel and for releasing the detent when the engagement with the drum-wheel is effected.

5. In a cash-register, the finger-chain and the gear-wheel actuated thereby, in combination with the indicator-drum, its gear-wheel and returning-spring, the intermediate shifting wheel, its spring and detent mechanism, the detent to prevent backward motion of the indicator-drum, and devices whereby the intermediate wheel is engaged with the chain-driving wheel and the drum-wheel alternately and the detenting devices of the intermediate wheel and the drum-wheel released alternately.

6. In a cash-register, in combination with a finger-chain movable in one direction only, an indicator-wheel, a spring to turn the same backward, a detent to hold it against the strain of the spring, gearing through which the chain acts intermittingly to turn the drum forward, and means for releasing the detent that the drum may turn backward independently of the chain.

7. In a cash-register, in combination with a finger-chain, an indicator-drum, a returning-spring therefor, intermediate gearing whereby the drum is connected intermittingly with the chain, a register-wheel, and connections through which the wheel is driven by the chain always in the same direction.

8. In a cash-register, in combination with a finger-chain and a gear-wheel permanently connected therewith, an indicator-drum, a gear-wheel permanently connected therewith, an intermediate gear-wheel and a spring connected therewith, a till, connections through which the till causes the intermediate gear to engage the other wheels alternately, a spring to turn the drum backward, a detent to hold the drum, and means for automatically releasing the detent when the intermediate wheel engages the drum-wheel.

9. In a cash-register, the combination, with the type-carrying drum, of the finger-chain for turning the same, a scale adjacent to the chain to indicate the amount of movement required, a stop to engage and arrest the chain at the proper point, an impression mechanism, and a movable till to operate the impression mechanism and produce a printed record.

10. In a cash-register, the finger-chain, the drum bearing type, intermediate connections through which the chain turns the drum, an impression mechanism, and a till by which the impression mechanism is actuated.

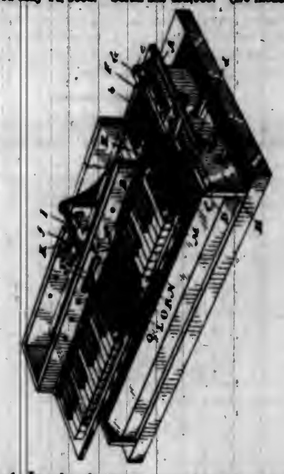
11. In a cash-register, in combination with the finger-chain, the gear connected therewith, the intermediate gear, the till and its connections to shift the intermediate gear, the winding-spring connected with the last-named gear, the detent therefor, the drum bearing type, its gear-wheel and detent, the impression mechanism, and the till arranged to release the detents and actuate the impression mechanism, substantially as described.

12. In a cash-register, in combination with the series of indicator-drums, their gear-wheels, returning-springs, and detents, the finger-chains, their gears connected therewith, the register-wheels turned by said gears, the intermediate shifting-gears, the springs moved thereby, their detents, and the tray arranged to release the detents.

13. In a cash-register, in combination with the finger-chains, the register-wheels geared thereto, the indicator-drums, their returning-springs and detents, the intermediate shifting-gears, their winding-springs and detents, the movable till, devices through which the till shifts the gear and actuates the detents, a spring to force the till open, and a latch to hold the till shut.

14. In a cash-register, the combination of a drum or wheel provided with peripheral type, a finger-chain and connections through which it turns the drum, a scale adjacent to the chain to indicate the extent of movement, a stop to engage and arrest the chain, an ink-ribbon, a paper-feeding mechanism, a sliding till, and an impression mechanism projecting into the path of the till and positively thrown against the drum thereby.

481,778. TRANSPOSING-KEYBOARD. ROBERT R. BELL, Toronto, Canada, assignor to Annie DIXON, same place. Filed June 13, 1891. Renewed May 14, 1892. Serial No. 433,969. (No model.)



Claim.—1. In a key instrument, a series of levers arranged between the keyboard and sounding mechanism of the instrument, in combination with mechanism by which the said levers may be first tilted and then adjusted so as to bring a higher or lower toned note in connection with the key in which the piece is written, substantially as and for the purpose specified.

2. In an organ, a series of levers arranged between the sticker-pins and keyboard and connected to a flexible frame pivoted on the center line of the sticker-pins and supported on a tilting frame, in combination with mechanism arranged to first tilt the levers clear of the buttons on the keys and then adjust them so as to bring a higher or lower toned note in connection with the key in which the piece is written, substantially as and for the purpose specified.

3. In an organ, a series of levers arranged between the sticker-pins and keyboard and connected to a flexible frame, in combination with a series of levers, one resting on each coupler-wire and arranged in connection with the adjusting-levers so that the octave will remain correct notwithstanding the adjustment of the said levers, substantially as and for the purpose specified.

481,779. ENVELOPE-MACHINE. LOUIS P. BOUVIER, Toronto, assignor of one-half to William Harty, Kingston, Canada. Filed May 2, 1892. Serial No. 431,588. (No model.)



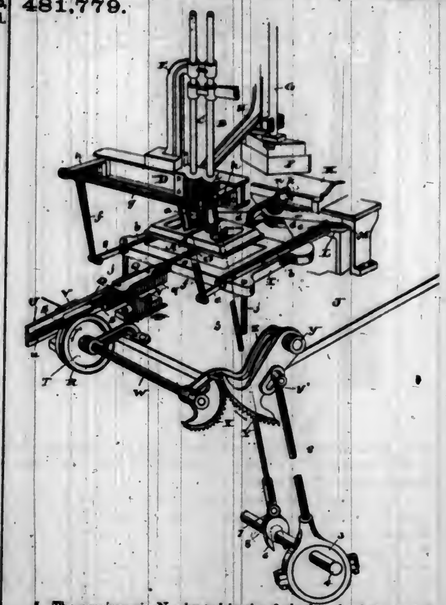
Claim.—1. In an envelope-machine, the combination, with the double-headed plunger and picker, with means for operating them, of a carrier-grip reciprocating between the heads of the plunger, and means for operating said grip, substantially as described.

2. In combination with the picker F and double-headed plunger, with means for operating them, the carrier-grip pivoted in the forked end of the rod O, the bar Q, connected to the said rod and moving on the guide-bar U, the wheel T, and belts R and S, connecting said wheel with the bar Q, substantially as described.

3. In combination with the picker F and double-headed plunger A, with means for operating them, the carrier-grip pivoted in the forked end of the rod O, and means for reciprocating said rod consisting of the bar Q, connected with its rear end and moving on the guide-bar U, the wheel T, secured to shaft W, belts R S, connecting said wheel with the bar Q, the quadrant *x*, also secured to shaft W, the quadrant Y, meshing therewith, and the rod 2, eccentric 3, and shaft 4, substantially as and for the purpose set forth.

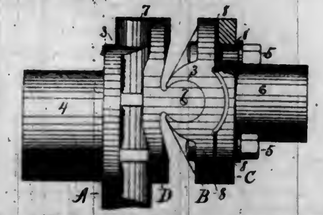
4. In combination with the carrier-grip N, pivoted in the forked end of rod O, the bar Q, formed on the end of said rod and moving on the guide-bar U, the wheel T, belts R and S, connecting the wheel with the bar Q, and the bars *b*, with means for operating them, said means consisting of arms *f*, depending from a rod *g* and having their lower ends pivotally connected to said bars, an arm *i*, carried by the rod *g*, a cam on the main shaft, and connections between the said arm and main shaft, substantially as described.

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5. The carrier-grip N, pivoted in the forked end of the rod O, means for reciprocating the rod, the notches n' n^2, formed in the grip in rear of the pivot-point, and the plunger P, provided with spring *p*, substantially as and for the purpose set forth.

481,780. UNIVERSAL COUPLING. ROBERT S. BROWN, New Britain, Conn., assignor of one-half to F. G. Platt, same place. Filed May 20, 1892. Serial No. 433,758. (No model.)



Claim.—1. The herein-described universal coupling, consisting of the heads A and B, each provided with transverse sockets of a circular form in cross-section, and the middle head D, provided with transverse ribs or projections fitted in said sockets and left free to move longitudinally therein and also to rock, as on a hinge, substantially as described and for the purpose specified.

2. In a universal coupling, the socket-head B, adapted to be coupled to a companion head on a different shaft, the sub-head C for connecting said socket-head with its shaft, and an insulating material S, interposed between said head and sub-head, substantially as described, and for the purpose specified.

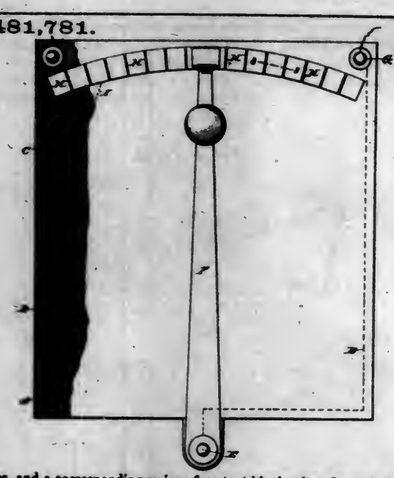
3. A coupling consisting of the heads A and B, having transverse sockets, a sub-head for connecting one of said heads with a shaft, and the middle head D, provided with transverse ribs or projections fitted in said sockets, substantially as described, and for the purpose specified.

481,781. RHEOSTAT. CHARLES R. CARPENTER, Minneapolis, Minn., assignor of one-third to W. S. Andrews, New York, N. Y. Filed Feb. 16, 1891. Serial No. 381,295. (No model.)

Claim.—1. A rheostat or resistance comprising a base-plate corrugated, ribbed, or recessed on the rear face thereof and provided with a coating of enamel or similar vitreous material on the front face and resistance coils or sections embodied in such coating, substantially as and for the purpose described.

2. A rheostat comprising a base-plate provided with a coating of enamel or similar vitreous material, a series of resistance coils or sec-

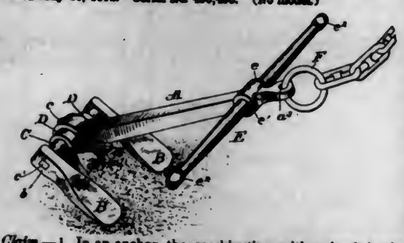
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tions, and a corresponding series of contact-blocks therefor embedded in such coating, and a switch-key co-operating with such series of blocks, substantially as described.

3. A rheostat comprising a base-plate provided with a coating of enamel or similar vitreous material, a series of resistance coils or sections, and connecting-wires embedded in said coating beneath the surface thereof, but out of contact with the base-plate, a corresponding series of contact-blocks also embedded in said coating, but projecting beyond the surface of the same, and a switch-key co-operating with series of blocks, substantially as and for the purpose described.

481,782. ANCHOR. ROBERT S. R. CHRISTENSEN, Charleston, S. C. Filed May 18, 1892. Serial No. 433,493. (No model.)



Claim.—1. In an anchor, the combination, with a shank having a suitable stock attached thereto and having a cylindrical aperture in the lower end thereof and a slot opening into said cylindrical aperture and partially encircling the same, of a shaft having a stud thereon adapted to move freely in said slot and to bring up against the end faces thereof, flukes B, rigidly attached to said shaft, and auxiliary flukes D, having arms d and d' set at an angle to said flukes B, also rigidly secured to said shaft, substantially as and for the purposes described.

2. In an anchor, the combination, with a shank having a suitable stock attached thereto, of a transverse shaft passing through the lower end of said stock, with means for holding said shaft after it has turned through a given angle, the flukes B, rigidly attached to said shaft, and auxiliary flukes D, having arms d and d' set at an angle to said flukes B, also rigidly secured to said shaft, substantially as and for the purpose described.

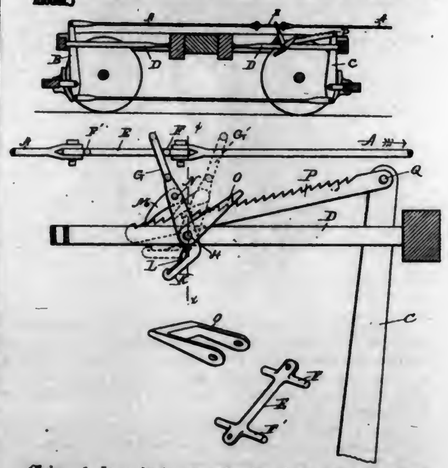
481,783. VIOLIN TAIL-PIECE. JAMES A. CLOSE, Woodstock, Canada. Filed June 2, 1892. Serial No. 435,230. (No model.) Patented in Canada Apr. 9, 1892, No. 36,634.



Claim.—1. In a violin, a tail-piece, a plate C, having clips L to embrace the tail-piece and carrying the pivoted string-sheave A, on which a string may be wound, and a stop, as the spring-finger M, for preventing accidental unwinding, substantially as described.

2. In a violin, a pivoted string-sheave mounted on the tail-piece, in combination with a wheel having an elastic rim arranged to press on the string when wound on the sheave to prevent the string accidentally uncoiling, substantially as described.

481,784. SLACK-ADJUSTER FOR CAR-BRAKES. FRANCIS J. COLE, Baltimore, Md. Filed Apr. 30, 1892. Serial No. 431,330. (No model.)



Claim.—1. In a brake-shoe-adjusting device for railroad-car trucks, the combination of the dead brake-lever, a rack-bar connected to the upper end of the dead brake-lever and by which it may be moved, a pawl pivoted to a stationary part of the truck and engaging and holding the rack, a lever also pivoted to a stationary part of the truck and provided with a pawl which also engages the rack-bar, and the pull-rod of the brake mechanism, provided with attachments for engaging and moving the pivoted lever when the brakes are applied and released, the lever and its pawl moving the rack-bar, and its stationary pawl holding it at the point to which it is moved by the lever.

2. In a brake-shoe-adjusting device for railroad-car trucks, the combination of the dead brake-lever, a bar connected to the upper end of said dead brake-lever and by which it may be moved to adjust the shoes, a lever pivoted to a stationary part of the truck and provided with means for engaging, moving, and holding the bar of the dead brake-lever, the pull-bar of the brake mechanism, provided with attachments for engaging and moving the pivoted lever, as and for the purpose specified.

3. In a brake-shoe-adjusting device for railroad-car trucks, the combination of the dead brake lever, a bar connected to the upper end of said dead brake-lever and by which it may be moved to adjust the shoes, a gripping mechanism secured to a stationary part of the truck and engaging and holding the bar when adjusted, a lever pivoted to a stationary part of the truck and provided with means for engaging and moving the bar of the dead brake-lever, the pull-bar of the brake mechanism, provided with attachments for engaging and moving the pivoted lever, as and for the purpose specified.

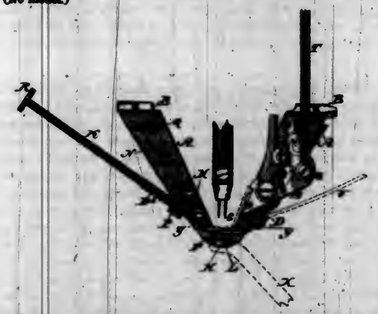
481,785. ELECTRIC-LIGHTING SYSTEM. PITT CRAVATH, Whitewater, Wis. Filed May 31, 1892. Serial No. 435,033. (No model.)



Claim.—1. The combination, in an electric-lighting system, of a source of electric energy, a main circuit leading therefrom, a series of branch circuits, each containing a lamp or lamps, and a multiple switch between the main and branches and having a series of independently-movable contacts less in number than the branches, whereby the number of branch circuits in use is limited, but a selection permitted.

2. In an electric-lighting system, the combination, with a source of electric energy, main circuits leading therefrom, and branch circuits carrying current from said mains through lamps or other translating devices to the other main, of a switch interposed between one of the mains and the branch circuits, said switch having independently adjustable contacts less in number than the branch circuits.

481,786. ATTACHMENT FOR STAPLING-MACHINES. HORACE E. CUNNINGHAM, Brockton, Mass. Filed July 9, 1891. Serial No. 398,902. (No model.)



Claim.—1. A welt-guiding device having a throat and a flat portion in line with said throat and having a vertical opening in line with said throat, and a head with a stem adjustable by a rotatable shaft, said parts being combined substantially as described.

2. A bracket with an opening and adapted to be applied to a boot or shoe stapling-machine, a plate connected with said bracket having a throat leading across said opening, a feeding device adapted to reciprocate across said opening in the line of the throat, and an adjustable guide adapted to be moved across said opening at right angles to the line of the throat to regulate the projecting width of the welt, said parts being combined substantially as described.

3. A welt-guiding attachment comprising a support, a head with stem movable in said support, a rack on said stem, and a rotatable rod with pinion meshing with said rack, said parts being combined substantially as described.

4. A welt-guiding attachment comprising a support, a head with stem movable in said support, a rack on said stem, and a rotatable rod with a pinion meshing with said rack, a ratchet-wheel on said rod, and a spring-catch engaging said ratchet-wheel, said parts being combined substantially as described.

5. A welt-guiding attachment comprising a support, a head with stem movable on said support, a rack on said stem, a rotatable rod with a pinion meshing with said rack, a ratchet-wheel on said rod, a catch engaging said ratchet-wheel, and a coil-spring encircling said rod and having one of its ends secured thereto and the other secured to the support, said parts being combined substantially as described.

481,787. TRAVERSE-MOTION FOR SPINNING AND TWISTING MACHINES. ROBERT DAWS, Philadelphia, Pa. Filed Jan. 9, 1892. Serial No. 417,650. (No model.)

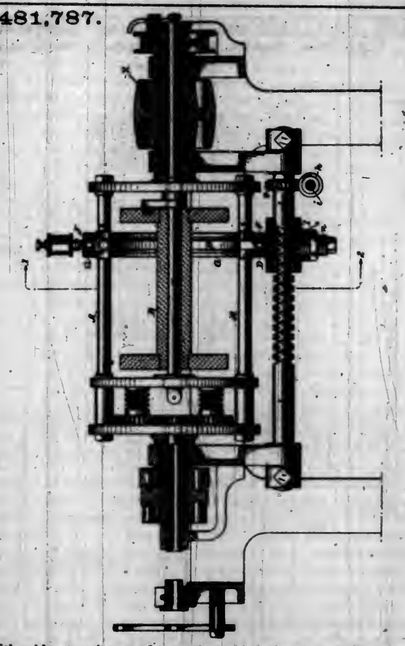
Brief.—The flier of a frame for spinning or twisting cord or rope is provided with a ring having a guide for the rope, a circular frame extending about the ring having bearings for and guiding the ring, the said frame being reciprocated by means of a nut carried thereby and a right and left hand screw.

Claim.—1. The combination of the rotating flier of a spinning or twisting frame, a ring having a portion engaging with said flier and carrying a guide for the rope, a guided frame extending continuously more than half-way around said ring and having a nut, a right-and-left screw-shaft adapted to said nut, and means for rotating said screw-shaft, substantially as specified.

2. The combination of the rotating flier of a spinning or twisting machine with a ring having a portion engaging with said flier and carrying a guide for the rope, a guided frame completely surrounding said ring and having a nut, a right-and-left screw-shaft engaging with said nut, and means for rotating said shaft, substantially as specified.

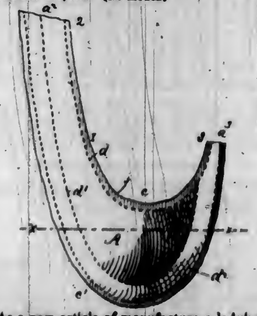
3. The combination of the rotating flier of a spinning or twisting machine, a ring having a portion engaging with said flier and carrying a guide for the rope, a guided frame extending more than half-way around said ring and having an internal bushing providing a bearing therefor, a nut on said frame, a right-and-left screw-shaft engaging with said nut, and means for rotating said shaft, substantially as specified.

481,787.



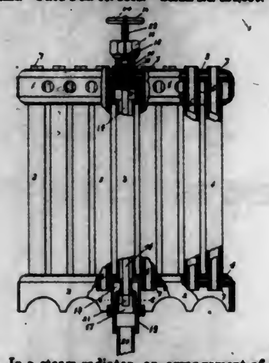
4. The combination of the rotating flier of a spinning or twisting frame with a ring having a portion engaging said flier and a guide for the rope, a guided frame having a portion extending continuously more than half-way around said ring and providing front and rear bearings therefor, but free from peripheral contact therewith, a nut on said frame, a right-and-left screw-shaft engaging with said nut, and means for rotating said shaft, substantially as specified.

481,788. DRESS-PAD. EDWARD GOLDMAN, Baltimore, Md., assignor to the Eureka Coat Pad Company, of Maryland. Filed June 20, 1892. Serial No. 437,350. (No model.)



Claim.—As a new article of manufacture, a lady's dress-pad consisting of a main crescent-shaped section, having on one side an extension terminating with a shoulder straight-edge a^3 and opposite side prolongation tapering to armpit edge a^3, the pad having under layer of fabric a and upper covering a', between which is inserted a mass of soft yielding material s, the main body of which is confined by rows of stitches d d to conform it in crescent shape in alignment with outer edges c c', said yielding material s inclining from the median line of its body in every direction toward boundaries of its confining stitching-lines d d and surrounded on its larger arc with a pocket formed by lines of stitches d^2 d^2, into which is placed a thin layer of yielding stuffing s, the whole thing being surrounded by integral marginal superimposed layers of the covering fabric, forming free edges c c', adapted to be sewed along said edges to a lady's dress between its main fabric and lining, as and for the purpose intended, substantially as described.

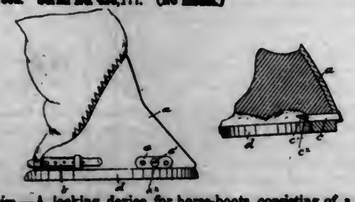
481,789. GRADUATING STEAM-RADIATOR. JOHN T. HAWKINS, Taunton, Mass. Filed Feb. 13, 1892. Serial No. 421,260. (No model.)



Claim.—1. In a steam-radiator, an arrangement of steam-inlets and water-outlet, consisting of an adjustable tube, as 14, closed at the top and inclosed within one of the radiating-tubes, as 8, having an opening, as 15, in its side near the top, and a valve, as 17, secured to its lower open end, both the said tube 14 and the valve 17 communicating with a common steam-inlet and water-outlet, as 20, a stuffing-box bonnet, as 10, through which the closed top of said tube 14 passes, containing a solid portion fitting against said tube 14, so as to close the said opening 15 when the said tube 14 is adjusted to bring said opening 15 within it, said bonnet 10 having a petcock, as 22, establishing communication with the open air, whereby steam is admitted to said radiator above any water which may be retained in it, the heating effect be varied by the adjustment of the opening for water-discharge, effecting a variation of the height at which the water of condensation is maintained, and air be expelled from said radiator through said petcock 22, when desired, substantially as and for the purpose set forth.

2. In a steam-radiator, an arrangement of steam-inlets and water-outlets, consisting of an adjustable tube, as 14, closed at the top and inclosed within one of the radiating-tubes, as 8, having an opening, as 15, in its side near the top, and a valve, as 17, secured to its lower open end, both said tube 14 and valve 17 communicating with a common steam-inlet and water-outlet, as 20, a stuffing-box bonnet, as 10, through which the closed top of said tube 14 passes, containing a solid portion fitting against said tube 14, so as to close the opening 15 when the said tube 14 is adjusted to bring the said opening 15 within it, said bonnet 10 having a petcock, as 22, establishing communication with the open air, one or more valves secured to or formed upon the said tube 14 above the valve 17, so constructed as to establish communication between the interior of said tube 14 and the interior of the radiating-tube 8 by the adjustment of the said tube 14 into the required position, whereby steam is admitted to said radiator above any water which may be retained in it by the adjustment of said tube 14, effecting a variation of the height at which the water of condensation may be maintained and air be expelled from said radiator through said petcock, when desired, substantially as and for the purposes set forth.

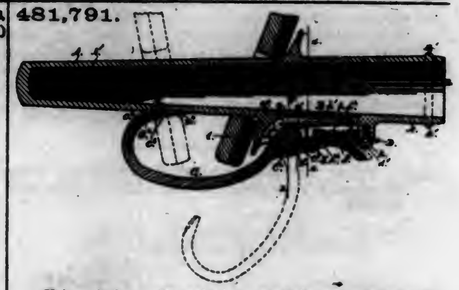
481,790. HORSE-BOOT. JOHN HOAR, Brookline, Mass. Filed Apr. 7, 1892. Serial No. 428,177. (No model.)



Claim.—A locking device for horse-boots, consisting of a plain shank *c*, provided with a T-shaped head *c'* on its inner end and having a beveled surface c^2 on its under side, its opposite end being provided with an interiorly-screw-threaded socket to receive a screw *d'*, and a plate *e*, provided with a hole e^2 for the admission of the screw *d'*, said plate *e* being dished to conform to the contour of the boot and held in position by rivets, substantially as shown and described.

481,791. VEHICLE-POLE TIP. THOMAS J. HOUSTON, Lancaster, Pa. Filed Dec. 17, 1890. Serial No. 375,048. (No model.)

481,791.



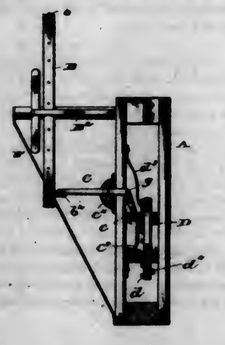
Claim.—1. In a safety pole-tip, a tip-shell or ferrule forming a socket to receive the forward end of a vehicle-pole and having a sloping ring guard or shield surrounding its body to keep the yoke-strap from slipping back, an ornamental bead around and near its rear end on the under side before the ring guard or shield, a forwardly-sloping projection to protect the point of the clasp-hook, and behind said ring guard or shield a rectangular chamber, the forward portion of its side walls having projecting ears to have pivoted therebetween the heel of the clasp-hook at the rear base of the ears, angular recesses to receive and hold the forward end of the slide-bolt, the remaining edges of the walls level to allow a sliding motion to the bolt, the rear wall thickened to receive a screw to hold the rear end of said bolt, and the interior of the chamber to hold the V-spring to act on the heel of the clasp-hook, and the coiled spring to act on the slide-bolt, the tip-shell, ring-guard, walls of the chamber-head, and forwardly-sloping projection of the shell all made integral or forming one body, substantially as described, and for the purpose set forth.

2. In a safety pole-tip, a clasp hook having a heel to be pivoted behind the guard and within the forward end of the chamber, and a retroverted point having a concaved outer face to lie close to the shell of the tip, and an angular end to rest against the forwardly-sloping projection of the shell, the heel having the straight portion to receive the action of the curved arm of the V-spring, the rounded point to depress said arm, the radially-curved portion to oppose the forward end of the slide-bolt, the angular rearwardly-projecting lip to engage the forward end of said bolt to lock the clasp-hook, and the orifice through the heel, through which to pivot said heel, all substantially as described, and for the purpose set forth.

3. In a safety pole-tip, the herein-described slide-bolt to move on and to cover the chamber to the rear of the heel of the clasp-hook pivoted therein, having the forward edge *d* to enter the angular recesses a^2 and to engage the lip c^2 to lock the clasp-hook, the oblong orifice *d'* to receive the headed screw 2 to support the rear end of the bolt, the lug d^2 to support the forward end of the coil-spring to press the bolt forward, the walls d^3 to keep said spring laterally in place, and the handle or thumb-grip d^4 to draw the bolt back, all substantially as described, and for the purpose set forth.

4. In a safety pole-tip, the herein-described V-spring B, folded closely at the heel, having the straight arm *b* to rest upon and to lie close to the shell of the tip within the chamber A^2, and the curved arm *b'*, having its forward portion to engage the portion *c* of the heel of the clasp-hook C to hold said hook closed and to engage the point *c'*, and the lip c^2 of said heel to hold said hook opened, all substantially as described, and for the purpose set forth.

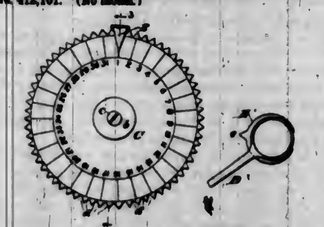
481,792. FENCE-MEASURING MACHINE. FREDERICK HUTCHISON, Jefferson, Iowa. Filed Aug. 4, 1890. Serial No. 361,005. (No model.)



Claim.—1. A measuring-machine consisting of a drum or wheel over which the material to be measured passes, a projection on the side of said wheel adapted to engage the spring-controlled lever, the pawl pivoted to the end of said lever for actuating the indicator-wheel, and the spring engaging the projections on said indicator-wheel for preventing its return movement, substantially as described.

2. A measuring-machine consisting of a drum or wheel having a series of peripheral studs or pins thereon, a shoe arranged adjacent to the drum and connected at one end to a spring, said shoe being arranged to cause the material to be measured to bear upon the studs or pins on the periphery of said drum or wheel, a projection on the side of said wheel or drum engaging a lever for retaining it in its normal position, the pawl pivoted at the end of said lever engaging the projections of the indicator-wheel, and the spring for preventing the return movement of said indicator-wheel, substantially as shown and described.

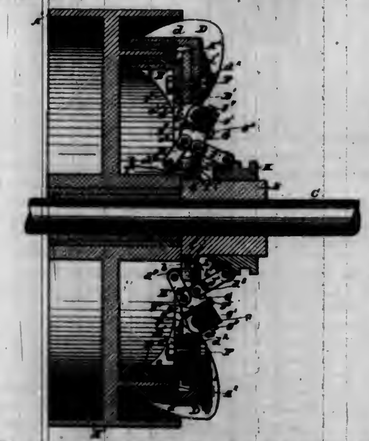
481,793. CALENDAR ATTACHMENT FOR TIMEPIECES. PAUL J. JOHNSON and JOSEPH H. HAMIL, Globe, Ariz. Filed Nov. 16, 1891. Serial No. 412,101. (No model.)



Claim.—1. A calendar attachment for watches and clocks, consisting of a base-plate provided with a pointer and adapted to be secured to a dial, a notched and graduated disk mounted to turn on the base-plate, and a spring adapted to be secured to the boss of the hour-hand and provided with a finger to engage the notched disk, substantially as described.

2. In a calendar attachment for watches and clocks, the combination, with a base-plate adapted to be secured to a dial and provided with a central boss and an inwardly-projecting finger, of a graduated disk having a central aperture to receive the said boss and a notched periphery, a screw and washer for holding the graduated disk on the boss of the base-plate, and a curved spring adapted to be secured to the boss of the hour-hand and provided with a finger to engage the notches of the graduated disk, substantially as herein shown and described.

481,794. FRICTION-CLUTCH. WILLIAM KERSHAW, Cleveland, Ohio. Filed July 11, 1891. Renewed July 8, 1892. Serial No. 439,417. (No model.)



Claim.—1. In a friction-clutch pulley, the combination of an inner and an outer jaw provided with inwardly-extending radial arms, two toggle-arms pivoted to each other and respectively pivoted to the inner jaw and to the inner end of the outer jaw, means for bending and straightening the toggle-arms, and means for moving the pivotal connecting-point between one of the toggle-arms and one of the jaws, and thereby lengthening or shortening the relative distance between the pivotal points of the toggle-arms, substantially as set forth.

2. In a friction-clutch pulley, the combination of a spider having radiating arms, outer and inner jaws having arms sliding upon the faces of the spider-arms and having means for operating them, and balancing-pins having pivotal bearings in the spider-arms and forming pivotal bearings at their ends for the jaw-arms, substantially as set forth.

3. In a friction-clutch pulley, the combination, with sliding jaws, toggle-arms connected to slide said jaws, and a pivot-pin upon one of said jaws for one of said toggle-arms, of a disk eccentrically pivoted upon said pivot-pin and turning in one end of said toggle-arm and means for revolving said disk and securing it in its adjusted position, substantially as set forth.

4. In a friction-clutch pulley, the combination of a loose pulley having a friction-rim, a spider having radial arms, clutch-jaws having their arms sliding upon said spider-arms and having perforated ears at about the middles of the inner arms and at the inner ends of the outer arms, toggle-arms having holes at their outer ends and slits extending from said holes, pins through the ears of the inner arms, worm-disks in the holes of the toggle-arms and eccentrically pivoted upon said pins, worms engaging said disks, screws through the slitted portions of the toggle-arms, toggle-arms pivoted to said outer toggle-arms and to the ears of the outer-jaw arms, a sliding sleeve upon the spider-hub, and links between said sleeve and the joints of the toggle-arms, substantially as set forth.

481,795. VEHICLE SAND-BAND. WILLIAM KLOCKAU, Rock Island, Ill. Filed May 25, 1892. Serial No. 434,347. (No model.)



Claim.—The combination, with an axle, of a curved band encircling the same, flanges D on said band, projecting perforated lugs on the lower ends of said band, a device for filling the space between the said lugs, and a securing-bolt, substantially as shown and described.

2. The combination, with an axle, of a curved band which fits thereover formed of spring metal, perforated lugs at the ends of said band, a plate having a perforated head which fits between the said depending lugs, and a securing-bolt which extends through the said lugs and head, substantially as shown and described.

3. The combination, with an axle and a thill-clip thereon, of a curved spring-band which fits over said axle, inwardly-projecting lugs D on the sides of said band, depending perforated lugs at the ends of the band, plate F, adapted to be clamped to the under side of the axle by the thill-clip, depending portion G of said plate having a perforated head at its lower end, and a clamping-bolt, substantially as shown and described.

4. The combination, with an axle and a thill-clip therefor, of a band of spring metal curved around the axle, flanges D on said band, depending lugs on the ends of said band, plate F, of the same width as the axle and constructed with the depending portion G, having a perforated head at its lower end, projections G' and I, and a clamping-bolt, substantially as shown and described.

5. The combination, with an axle, a thill-clip therefor, and a curved band around said axle having depending perforated lugs at its ends, of a plate having a downward-projecting portion which fits between the said depending lugs, a clamping-bolt, a plate projecting from the upper side of the axle, and a curved head on the outer end of said plate having a groove in its periphery, for the purpose substantially as shown and described.

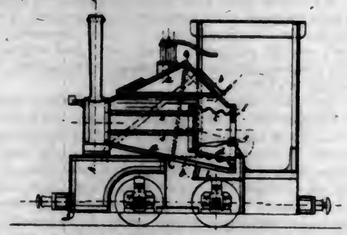
481,796. STEAM-BOILER. GUSTAV LENTZ, Dusseldorf, Germany. Filed Oct. 2, 1889. Serial No. 325,811. (No model.)

Claim.—1. In a steam-boiler having an internal fire-box or flue, an outer shell, the two end portions of which are formed as truncated conical or conoidal tubes coextensive in diameter where they are connected together and the smaller ends of which constitute the ends of the shell, substantially as described.

2. In the outer shell of a steam-boiler having an internal fire-box or flue, the combination of a cylindrical part forming the middle portion of the shell with two truncated conical or conoidal tubes coextensive in diameter where they are connected together and having their larger ends joined to the said cylindrical middle part, while their small

ends constitute the ends of the shell which receive the boiler-heads, substantially as described.

3. In a steam-boiler having an internal fire-box or flue, an outer shell consisting of the combination of a cylindrical part forming the middle portion of the shell with two truncated conical tubes coextensive in diameter at their larger ends, where they are joined to the said cylindrical part, while their small ends are directed toward the ends of the shell, substantially as described.

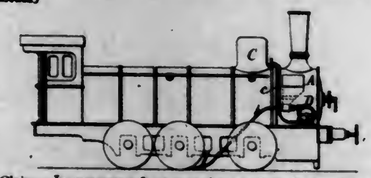


4. In the outer shell of a steam-boiler having an internal fire-box or flue, the combination of a cylindrical part forming the middle portion of the shell with two truncated conical or conoidal tubes coextensive in diameter at their larger ends, where they are joined to the said cylindrical middle part, while their small ends are connected to other cylindrical parts constituting the ends of the shell, substantially as described.

5. A steam-boiler having its outer shell composed of two end portions formed as conical or conoidal tubes to provide a steam-space which is confined to the middle portion of the shell, combined with an auxiliary steam-dome at the rear end of the boiler, which is connected with the said steam-space by a tubular connection, substantially as and for the purposes set forth.

6. In a boiler of the class described, a fire-box or flue constructed of one or more sections having substantially the form in cross-section of the rear end of the boiler, the rear section of the fire-box having an open bottom, in combination with the inner flue-sheet and rear end of said boiler, from which the opposite ends of the fire-box are supported, an ash-pan connected with the open bottom of said rear section of the fire-box, and a cross brace or bar connected with the opposite sides of the open fire-box section and ash-pan, substantially as and for the purposes specified.

481,797. APPARATUS FOR SANDING RAILS. GUSTAV LENTZ, Duesseldorf, Germany. Filed Oct. 21, 1891. Serial No. 409,496. (No model.)



Claim.—In apparatus for use on locomotives for supplying sand to the rails, the combination, with the sand-box A, of a pipe *b*, passing through the same, into one end of which an air-blast is forced by a fan or other suitable means, while such blast is delivered under the wheels from the other end, the part of the pipe situated within the sand-box being provided with lateral holes *b' b'* and made rotatable, so as to bring the holes into any desired position, substantially as described.

481,798. DOOR-CLOSER. ADDISON D. LOUDY, Vandalia, Ohio. Filed May 16, 1892. Serial No. 433,415. (No model.)



Claim.—1. In a door-closer, the combination, with a frame on the casing having teeth, a U-shaped bracket within said frame, and aligned pins, their inner ends being separated and supported by said bracket and their outer ends being supported by said frame, of arms having cylindrical feet journaled on said pins adjacent the bracket and having notches in their outer ends, levers engaging said teeth and also journaled on the pins between said feet and the frame, a spring whose center stands in said notches and connects said arms, whose body passes down outside the arms and coils around their feet, and whose ends bear on the levers, a staple on the door, and a rod between the staple and the center of the spring, as and for the purpose set forth.

2. In a door-closer, the combination, with a frame on the casing and an inwardly-pressing spring therein, of a bar whose inner end is pivoted to the door and whose outer end moves under said spring, the body of this bar being slotted, a removable pin across this slot, and a rod pivoted at its inner end in the slot and having its outer end pivotally connected with the spring, as and for the purpose set forth.

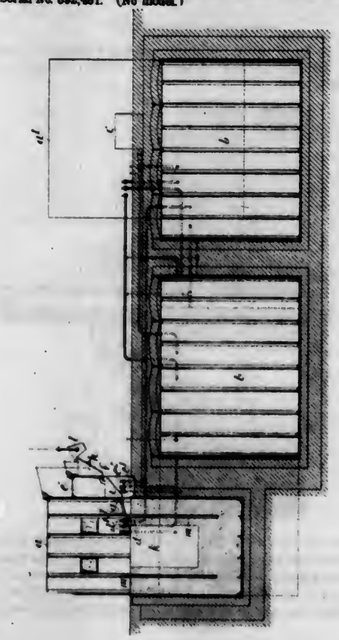
3. In a door-closer, the combination, with a frame on the casing and an inwardly-pressing spring therein, of a staple on the door, a bar whose inner end detachably engages said staple and whose outer end has a roller which moves under said spring, and a rod pivoted at its inner end to the bar and at its outer end detachably engaging said spring, as and for the purpose set forth.

4. In a door-closer, the combination, with a frame on the casing and an inwardly-pressing spring therein, of a staple on the door, a bar whose inner end detachably engages said staple and whose outer end has a roller which moves under said spring, the body of this bar being slotted, a removable pin across this slot, and a rod pivoted at its inner end in the slot in the bar and at its outer end detachably engaging said spring, as and for the purpose set forth.

5. In a door-closer, the combination, with a frame on the casing, having a vertical strip and an inwardly-pressing spring therein, of a staple on the door, a bar whose inner end detachably engages said staple, whose body moves over said strip, and whose outer end has a roller which moves under said spring, and a rod pivoted at its inner end to the bar and at its outer end detachably engaging said spring, as and for the purpose set forth.

6. In a door-closer, the combination, with a frame on the casing, having a vertical strip and an inwardly-pressing spring therein, of a staple on the door, a bar whose inner end detachably engages said staple, whose body moves over said strip, and whose outer end has a roller which moves under said spring, the body of this bar being slotted, a removable pin across this slot, and a rod pivoted at its inner end in the slot in the bar and at its outer end detachably engaging said spring, as and for the purpose hereinbefore set forth.

481,799. APPARATUS FOR USE IN CASTING AND WORKING METALS. WILLIAM E. MAY, London, England. Filed May 12, 1891. Serial No. 392,481. (No model.)

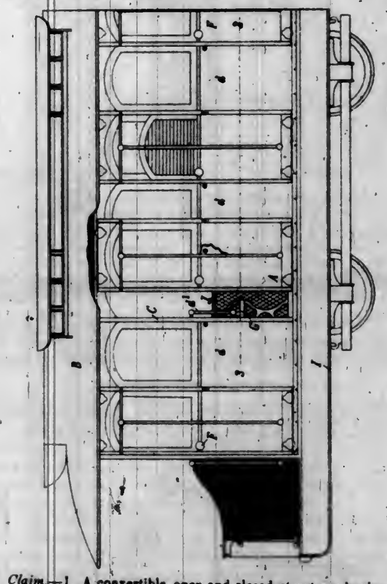


Claim.—1. The combination of a working chamber provided with an opening to admit molten metal, means for hermetically sealing the opening, a series of vacuum-chambers having independent valved connections with the working chamber, and means for separately removing the air from each vacuum-chamber.

2. The combination of a working chamber, a series of vacuum-chambers having independent valved connections with the working chamber, and means for separately removing the air from each vacuum-chamber, an auxiliary chamber having a receiving-opening, an opening in the working chamber, and doors for hermetically closing said openings, as set forth.

3. The combination of a working chamber, a vacuum-chamber having a valved connection with the working chamber, and means for removing the air from the vacuum-chamber, an auxiliary chamber having a receiving-opening, an opening into the working chamber, and doors for hermetically closing said openings, and means for conveying molten metal into and through the auxiliary chamber into the working chamber, all substantially as set forth.

481,800. STREET-CAR. JOHN A. MEELING, Cleveland, Ohio, assignor of one-half to S. D. Dodge, same place. Filed Apr. 8, 1892. Serial No. 428,271. (No model.)



Claim.—1. A convertible open and closed street-car having one side which is composed of vertical posts and removable panels, a foot-board along one side, one or more sliding doors in the side on which the foot-board is placed, an aisle next to said side and extending from one end to the other, and seats arranged transversely on the floor and extending from the aisle to the other side of the car, substantially as set forth.

2. In a convertible open and closed street-car, the combination of vertical posts arranged along one side of the car, removable panels having metallic frames, and bolts for securing said panels to said posts, substantially as set forth.

3. A panel for a convertible street-car having sides, which are formed of two vertical angle-irons and an interposed wood strip having a vertical tongue, metallic cross-pieces at top and bottom, wood facings to the lower parts of said panels, and a vertically-movable window and blind adapted to close the upper part of said panel and lying on opposite sides of said wood strip, substantially as set forth.

4. In a street-car, a sliding door in one side, having beveled vertical edges, combined with vertical posts having inclined vertical edges adapted to engage with the vertical edges on the door, substantially as and for the purpose specified.

481,801. BUTTER-BOX. GEORGE R. MELONEY and JOEL T. CRISWELL, Philadelphia, Pa. Filed Nov. 30, 1891. Serial No. 413,512. (No model.)

Claim.—1. The combination, with the box A, of the corner-piece G, formed of a strip of sheet metal bent through its length into angular form and having its ends inclosed or split and bent down at right angles to the body portion, the two leaves of each end crossing each other to form double end walls, as shown and described.

2. The combination, with the box A, of the corner-piece G, formed of a strip of sheet metal bent through its length into angular form and having its ends inclosed or split and bent down at right angles to the body portion, the two leaves of each end crossing each other, the upper end being inclosed laterally and the portion beyond the inclosure bent downward against the inner side of the box.

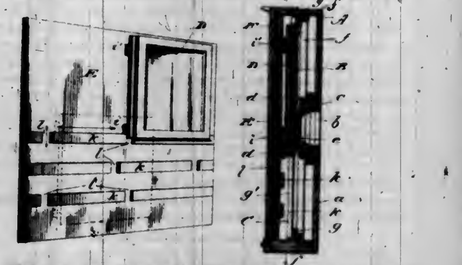


3. In a butter-box, the combination of an outer inclosing vessel, an inner vessel smaller than the inclosing vessel, with an open space between the two, a lid for the inner vessel, projecting horizontally to the walls of the inclosing vessel to retain and hold the inner vessel in proper position, and a series of superposed trays within the inner vessel, substantially as shown and described.

4. In combination with an inclosing vessel, a series of trays provided with angular corner-pieces having at their vertical edges ribs or projections *f'*, projecting against the walls of the inclosing vessel to hold the trays in proper position, substantially as shown and described.

5. In a butter-box, a tray having corner-pieces *f*, with their upper edges dropped below the top of the tray and their lower edges extended below the bottom of the tray.

481,802. PLATE ATTACHMENT FOR CAMERAS. GEORGE I. MINEAR, Ottumwa, Iowa. Filed Mar. 12, 1892. Serial No. 424,684. (No model.)



Claim.—1. An attachment for photograph-cameras, consisting of a movable frame carrying a plate-holder which is provided on its rear side with blocks *i' i*, a board E, supported within a casing, said board having strips with spaces *l* between them, through which the blocks are adapted to pass, and a frame having a marginal packing which is adapted to bear against the sensitised plate carried by the plate-holder, substantially as shown, and for the purpose set forth.

2. An attachment for photograph-cameras, consisting of a casing or frame A, constructed substantially as shown and provided with a board or plate E, having horizontal strips between which are spaces, a plate-holder having on its rear side blocks which are adapted to support the plate-holder upon the strips and pass through the spaces between the strips, for the purpose set forth.

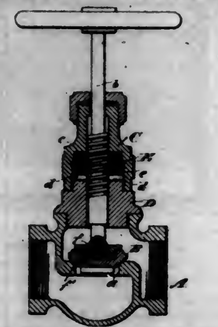
3. A camera attachment consisting of a frame A, having an aperture and movable slide adapted to cover said aperture, a light-excluding packing surrounding the aperture, and a movable slide carrying a plate-holder, the plate carried thereby being adapted to bear against the packing, substantially as shown, and for the purpose set forth.

4. An attachment for photographic cameras, consisting of a frame A, having an aperture with a slide operated by a rod, a plate-holder having blocks *i i* on its rear side, said plate-holder being supported by a board or plate E, having horizontal strips with spaces between through which the blocks *i i* can pass, said plate-holder being adapted to be moved by a horizontally-sliding frame operated by a rod, the plate-holder being held against vertical movement until the slide which moves

the same reaches the limit of its movement in one direction, substantially as shown, and for the purpose set forth.

5. In an attachment for cameras, the combination of a horizontally-movable frame carrying a plate-holder with blocks *i i* and *i' i'* on the rear side thereof, a support for said plate-holder, having parallel strips with spaces between them, and cut-away portions in the strips through which the blocks *i i* pass for adjusting the plate-holder vertically, substantially as shown, and for the purpose set forth.

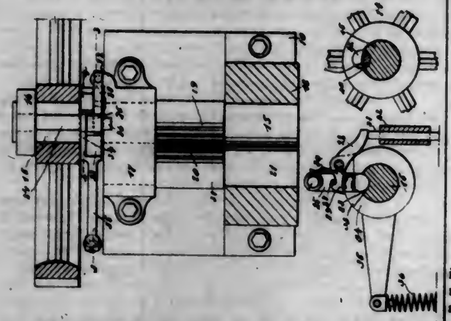
481,808. GLOBE-VALVE. FRANK M. MOORE, Spreckelsville, Hawaii. Filed Sept. 21, 1888. Serial No. 286,080. (No model.)



Claim.—1. In a globe-valve, the combination, with the shell, of the valve-stem guiding-bonnet D, screwed thereto, the casing C, screwed at its inner end to the outer end of the bonnet and having an internal chamber of greater diameter than the bore of the bonnet, a nut E beyond the outer end of the bonnet and lying entirely within the chamber in casing C, and means for preventing the nut from rotating, the valve-stem having a valve on its inner end and having a threaded section operating through the nut, the said stem where it passes through the bonnet being of a diameter to be firmly guided in the bore thereof and said stem being of a length to permit the casing to be moved outward thereon when the nut is to be disconnected from the bonnet to grind the valve, substantially as set forth.

2. In a globe-valve, the combination, with the shell and the partially-threaded valve-stem, of the valve-stem guiding-bonnet D, screwed to the shell and having transverse projections *d d* across its outer end, the nut E, wholly beyond and abutting at its inner end the outer end of the bonnet and transversely notched, as at *c c*, to receive said projections, the bore of the bonnet being of a diameter to form a guide to steady the valve-stem during the grinding of the valve, the casing C, screwed to the bonnet and having an internal chamber wholly inclosing the nut, and a gland on the outer end of the casing, the valve-stem being of a length to permit the casing and its gland to be moved outward sufficiently to disconnect them and the nut from the bonnet to grind the valve, the bonnet then serving to steady the spindle and prevent it from moving laterally, substantially as set forth.

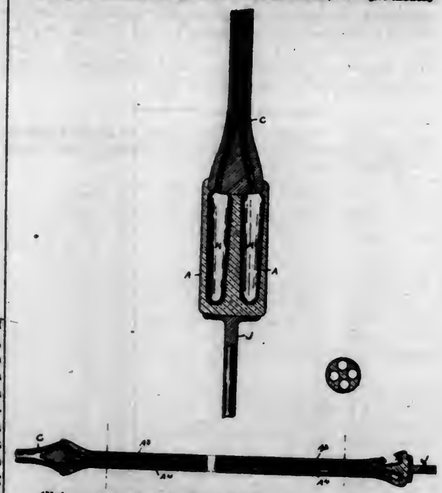
481,804. KNIFE-BLADE MACHINE. THOMAS R. MOORE, Walden, N. Y. Filed Jan. 7, 1892. Serial No. 417,905. (No model.)



Claim.—1. The combination, with the frame having double bearings 17 18, of the two rolls geared together and mounted in said bearings to oscillate, the front ends of the rolls being provided within the bearing 18 with longitudinally-extending dies to receive the blank lengthwise between them and roll it transversely, and an operating mechanism, substantially as set forth.

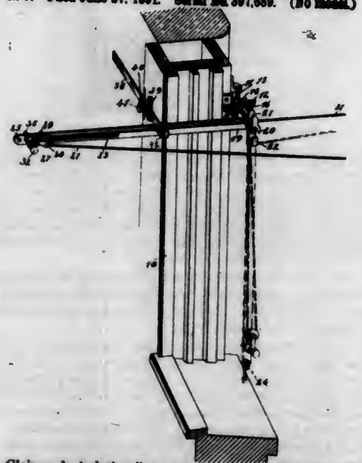
2. The combination, with the frame and the parallel oscillating rolls journaled in bearings thereon, geared together between their ends, and provided at their front ends within one bearing with the opposed dies, of a spring-actuated lever on the rear end of one roll to return the rolls to their normal positions, a gear-wheel loose on said lever-actuated roll, and a locking and tripping mechanism for locking and unlocking said gear and roll, substantially as described.

481,805. MULTIPLEX GLASS TUBE. PATRICK J. MCELROY, Cambridge, Mass. Filed May 20, 1890. Serial No. 353,085. (No model.)



Claim.—A continuous tube made of glass prepared first with separated chambers or cavities open at one end and then blown and drawn simultaneously, substantially as and for the purposes herein described.

481,806. CLOTHES-LINE SUPPORT. ROBERT MCNAB, Paterson, N. J. Filed June 27, 1891. Serial No. 397,669. (No model.)



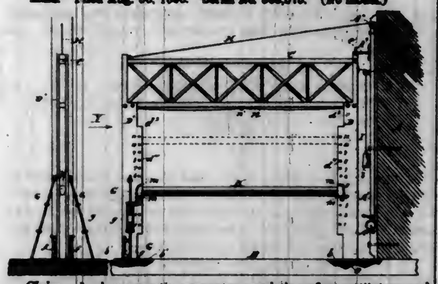
Claim.—1. A clothes-line support comprising a horizontally-swinging supporting-arm pivoted at the outer side of a window-frame, a roughened curved blade extending through the supporting-arm and adapted to be clamped thereto, a swinging main arm journaled on the outer end of the supporting-arm, a guide and hook supported on the outer end of the supporting-arm, a pulley-carrier adjustably mounted on the swinging arm, and an inside cross-arm secured to the window-frame and adapted to support the swinging arm, substantially as described.

2. In a clothes-line support, the combination, with the swinging main arm pivoted at the outer side of a window-frame, of a laterally-adjustable cross-arm supported on the inner side of the window-frame and a swinging plate secured to the cross-arm and adapted to support the main arm, substantially as described.

3. The combination, with the swinging main arm having a longitudinal slot therein with notches on opposite sides of the slot, of a pulley-carrier held to slide on the main arm and provided with a spring-pressed button to engage the notches of the main arm, substantially as described.

4. The combination, with the horizontally-swinging supporting-arm, of a main arm having a series of holes therein adapted to fit the outer end of the supporting-arm and a pulley-carrier mounted on the main arm, substantially as described.

481,807. GYMNASTIC APPARATUS. CHARLES C. HEELY, Boston, Mass. Filed Aug. 30, 1890. Serial No. 363,575. (No model.)



Claim.—1. A gymnastic apparatus consisting of an oscillatory and axially-rotatable standard D, a horizontal beam C, secured to said standard and having at its outer end a standard D', a gymnastic appliance carried by the standards, a cable-supporting pulley A'', journaled above the upper end of the inner standard, and a cable H, secured to the outer end of the horizontal beam, passing over the cable-supporting pulley, and descending to a point in proximity to the floor for the purpose of lifting the horizontal beam, substantially as and for the purposes described.

2. A gymnastic apparatus consisting of an oscillatory and axially-rotatable standard D, a horizontal beam C, secured to said standard and having at its outer end a standard D', a gymnastic appliance carried by the standards, a cable-supporting pulley A'', journaled above the upper end of the inner standard, a cable H, secured to the outer end of the horizontal beam, passing over the cable-supporting pulley, and descending to a point in proximity to the floor for the purpose of lifting the horizontal beam, a pulley A², and a cable I, secured to the inner standard and provided with a balance-weight *i* to aid in lifting the horizontal beam, substantially as described.

3. A gymnastic apparatus consisting of grooved standards, a vertically-movable rotary bar, adjustable bearings mounted on the standards and to which the ends of the bar are pivoted, weighted cords or ropes connected with the bearings for balancing the latter, and a releasing rope or chain attached to the balance-weights for relieving the downward pressure thereof, substantially as described.

481,808. TOY MORTAR. GRANT B. NICHOLS, Wapakoneta, Ohio. Filed Dec. 2, 1891. Serial No. 413,762. (No model.)



Claim.—A toy gun having a fire-cracker mortar at the muzzle end of its barrel and a mortise and tenon connecting the two, said mortar having a lateral fire-cracker opening and a swell or shoulder in its bore, substantially as set forth.

481,809. WATCH-CASE. VICTOR NIVOIS, Brooklyn, N. Y. Filed Feb. 2, 1892. Serial No. 420,071. (No model.)

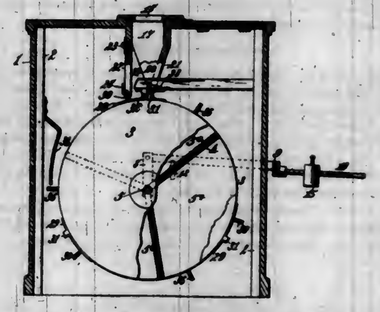
Claim.—In a gold watch-case, the combination, with the shell of the center and a backing or filling of baser metal corresponding strictly in cross-sectional contour to the cross-sectional contour of the shell, the said backing or filling being integrally attached to the shell through the medium of solder applied over its entire inner surface and

481,809.



provided at its lower portion upon its inner face with a recess, of a lift-spring adjustably secured to the backing or filling, the major portion of which lift-spring occupies a recess in the filling, and a catch or releasing spring forming a dust-band, constituting, essentially, a circle within the center and made of such width that it conceals the filling, its recess, and the lift spring, as and for the purpose specified.

481,810. AUTOMATIC GRAIN-WEIGHER. DANIEL J. O'CONNER, Columbus, Ga. Filed Apr. 21, 1892. Serial No. 430,051. (No model.)



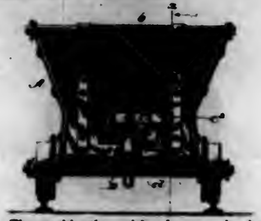
Claim.—1. In an automatic weighing mechanism, the combination, with a cylinder having sector-chambers, of a yoke-lever forming part of the scale-beam and having fulcra upon the side walls of the housing, its ends being connected by link-plates to the journals of the cylinder lying in slots in said housing, and a hopper having a spring-closed gate-valve provided with an arm the end of which lies in the path of a tripping-pin on the periphery of one of the cylinder-heads, substantially as described.

2. In an automatic weighing mechanism, the combination, with a cylinder having sector-chambers, of a scale-beam composed in part of a yoke-lever fulcrumed upon the outside of the housing, its ends connected by link-plates to the journals of the cylinder, a hopper having a spring-closed gate-valve provided with an arm extended in the path of a tripping-pin on the periphery of one of the cylinder-heads, and a stop-bar projected from the wall of the housing over the cylinder and having a lug lying in the path of a stop-lug on the cylinder-head, substantially as described.

3. In an automatic weighing mechanism, the combination, with a cylinder having sector-chambers, of a yoke-lever having its arms connected at their ends to the journals of the cylinder by link-plates, a hopper having a spring-closed gate-valve provided with an arm lying in the path of a tripping-pin on one of the cylinder-heads, a stop-bar projected from the wall over the cylinder and having a lug lying in the path of a stop-lug on the cylinder a little in rear of the tripping-pin, and an elastic friction-brake consisting of a plate on the wall of the housing having its free end converged toward the periphery of the cylinder-head, on which is a pin arranged to engage with and traverse said plate, passing off the same as the gate-valve is opened, substantially as described.

4. The combination, with a frame or housing, of a chambered cylinder having a tripping-pin, a yoke-lever forming part of a scale-beam fulcrumed on the frame or housing and having its ends connected with the journals of the cylinder, a register, devices actuated by the yoke-lever to operate the register, and a hopper having a spring-closed gate-valve provided with an arm the end of which lies in the path of the tripping-pin on the cylinder, substantially as described.

481,811. DUMP-CAR. JOSEPH OSGOOD, Trinidad, Colo., assignor to the Forbes Mine Car Appliance Company, same place. Filed Jan. 11, 1892. Serial No. 417,757. (No model.)

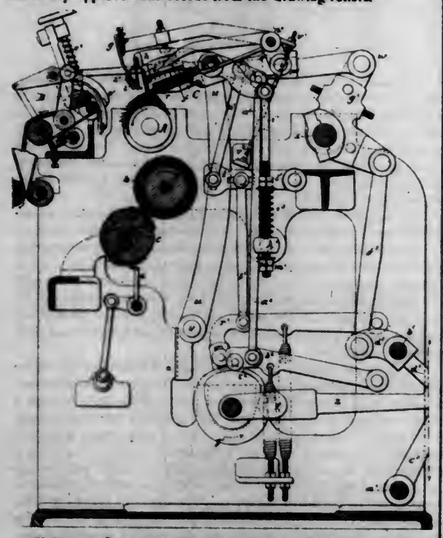


Claim.—1. The combination, with a dump-car having a draw-bar and a catch or lug *d*, of a suspended end door having a latch connected with a horizontal portion fulcrumed to the door and a vertical portion extending downwardly to engagement with said lug *d*, and a stop for maintaining the normal locking position of said latch, substantially as shown and described.

2. The combination, with a dump-car having a draw-bar and a catch or lug *d*, of a suspended end door having a latch constructed with a horizontal portion fulcrumed to the door, a vertical portion extending downwardly to engagement with said lug *d* and an offsetting handle, a stop for maintaining the normal locking position of the latch, and a retaining-spring for holding the latch against jolting loose, substantially as shown and described.

481,812. COMBING-MACHINE. HUBERT L. OTTERMANN, Leipsic, and GASPARD ZIEGLER, Mulhouse, Germany; the Land Title and Trust Company administrator of Gaspard Ziegler, deceased. Filed Aug. 1, 1888. Serial No. 281,611. (No model.) Patented in France May 28, 1888, No. 190,866; in Belgium June 1, 1888, No. 83,004; in England June 14, 1888, No. 8,714; in Germany June 17, 1888, Nos. 51,543 and 53,333; in Italy June 26, 1888, No. 23,713; in Switzerland Mar. 15, 1889, No. 601, and in Russia June 30, 1890, No. 6,665.

Brief.—The reciprocating movements of the drawing-rollers are dispensed with, and the finishing-comb, nippers, and feed mechanism alternately approach and recede from the drawing-rollers.



Claim.—1. In combing-machines, a comb-cylinder provided with circular rows of teeth of increasing fineness, substantially as set forth.

2. In a combing-machine, a comb cylinder having circular rows of teeth of increasing fineness in planes at a slight inclination to planes which are at right angles to the axis of the cylinder, substantially as and for the purposes set forth.

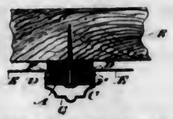
3. In a combing-machine, the combination of the finishing-comb with a cleaning device therefor, consisting of a brush and an angle-plate, and mechanism to reciprocate the brush and plate against the comb, substantially as set forth.

4. In the drawing mechanism of a combing-machine, the combination of an oscillating faller-arm with a counter-faller and mechanism whereby the counter-faller is actuated by the movement of the faller-arm, in the manner and for the purpose set forth.

5. In a combing-machine, the combination of a nipper, a feed mechanism and a finishing-comb having a combined reciprocating motion, with mechanism consisting of a crank in the main driving-shaft and a system of levers, connecting-rods, and bell-cranks whereby the speed of the reciprocating motion diminishes at each end of the stroke, substantially as and for the purposes set forth.

6. In a combing-machine, the combination of a stationary drawing apparatus having drawing-rollers, a faller-arm and a counter-faller, a combing-cylinder and stationary bearings therefor, and a nipper, a finishing-comb, a device for cleaning the finishing-comb, and feed mechanism having a combined reciprocating motion, and mechanism for independently reciprocating the cleaning device, the comb, the feed mechanism, and one of the jaws of the nipper, substantially as set forth.

481,813. METALLIC CEILING. WILLIAM W. OLD and ROBERT H. OLD, Louisville, Colo. Filed Feb. 24, 1892. Serial No. 422,616. (No model.)

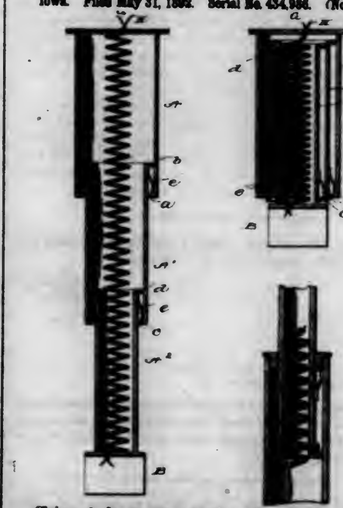


Claim.—1. In a device of the class described, the combination, with grooved furring-strips, of flanged panels engaging the grooves in the said furring-strips and covering-strips for covering the exposed parts of the furring-strips and interlocking with the flanges of the said panels, substantially as shown and described.

2. In a device of the class described, the combination, with grooved furring-strips, of flanged panels engaging the grooves in the said furring-strips, covering-strips for covering the exposed parts of the furring-strips and interlocking with the flanges of the said panels, and a rosette spanning the joint of the covering-strips, substantially as shown and described.

3. In a device of the class described, the combination, with furring-strips formed with grooves at their sides, of panels forming doubled-up flanges entering the grooves in the said furring-strips and covering-strips having flanges entering the doubled-up flanges of the panels in the grooves of the furring-strips, substantially as shown and described.

481,814. EXTENSION-CHANDELIER. FRANK OVERHOLT, Harlan, Iowa. Filed May 31, 1892. Serial No. 434,906. (No model.)



Claim.—1. In an extension-chandelier, the telescopic tubes, the lower one of which is provided with means for supporting a lamp or burner, said tubes having limiting-stops at their ends and one of said tubes carrying a lamp-socket, in combination with spirally-coiled wires within the tubes to be connected with the opposite poles of an electric circuit and to assist in supporting the weight of the tubes and maintain them in their adjusted positions, substantially as herein described.

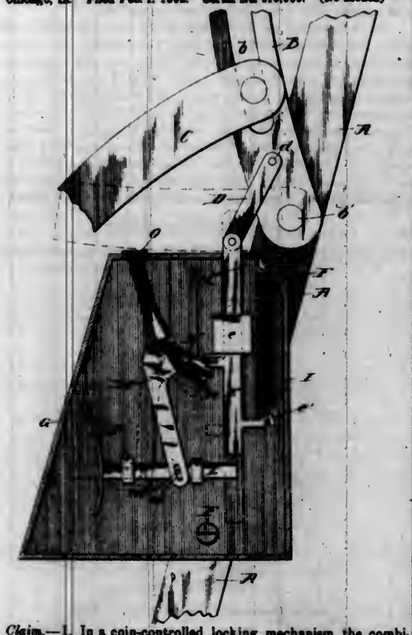
2. In an extension-chandelier, the telescopic tubes having inwardly and outwardly turned flanges at their ends and a lamp-socket carried by the lower tube, in combination with conducting-wires within the tubes and to be connected with a source of electric supply, said wires being spirally coiled, whereby they are distended when the tubes are extended and contracted when the tubes are telescoped, substantially as herein described.

3. In an extension-chandelier having telescopic tubes with inwardly and outwardly turned end flanges, the spring-plates secured to the inner walls of the tubes, with their free ends bearing against the outer walls of adjacent tubes, and spirally-coiled wires extending through said tubes to assist the spring-plates in maintaining the tubes in their adjusted positions, substantially as herein described.

481,815. MEDICAL COMPOUND. THOMAS L. PAGE and JACOB APPEL, Victoria, Tex. Filed Feb. 15, 1892. Serial No. 421,631. (No specimens.)

Claim.—A medical composed compound of an aqueous solution of *Acacia constricta* and *Flourensia cornua* prepared in about the proportions herein set forth.

481,816. COIN-CONTROLLED MECHANISM. HOWARD H. PERRY, Chicago, Ill. Filed Feb. 1, 1892. Serial No. 419,969. (No model.)



Claim.—1. In a coin-controlled locking mechanism, the combination, with the member to be locked, of a casing having a coin-slot, a pivoted bell-crank lever having a coin-support formed on one of its arms, and the outer edge of such support being at least as low as the pivot of said lever, a plunger connected to said member to be locked and adapted to oscillate said lever through the medium of a coin on said support, and a bolt arranged in the path of said plunger and connected with said lever, substantially as set forth.

2. In a coin-controlled locking mechanism, the combination, with the member to be locked, of a casing having a coin-slot, a pivoted lever having a coin receptacle or pan, a plunger connected to said member to be locked and adapted to oscillate said lever through the medium of a coin thereon, a sliding bolt arranged in the path of said plunger, and a pin-and-slot connection between said lever and bolt, substantially as set forth.

3. In a coin-controlled locking mechanism, the combination, with the member to be locked, of a casing having a coin-slot, a pivoted lever having a notched or slotted coin-support, a plunger connected to said member to be locked and having a portion adapted to rise and fall through said notch, so as to oscillate said lever through the medium of the coin thereon, a bolt arranged in the path of said plunger and connected with said lever, and springs for returning said plunger and bolt to their normal positions, substantially as set forth.

4. In a coin-controlled locking mechanism, the combination, with the member to be locked, of a casing having a coin-slot, a pivoted lever having a slotted pan for detaining a coin thereon, a plunger connected with the member to be locked and having a portion adapted to rise and fall through said slot in said coin-pan, and a bolt connected to said lever and arranged in the path of said plunger, substantially as set forth.

5. In a coin-controlled locking mechanism, the combination, with the member to be locked, of a casing having a coin-slot, a pivoted lever having a slotted inclined opened pan provided with lugs or stops for detaining a coin, a plunger connected with the member to be locked and having a portion adapted to rise and fall through said slot, and a bolt connected to said lever and arranged in the path of said plunger, substantially as set forth.

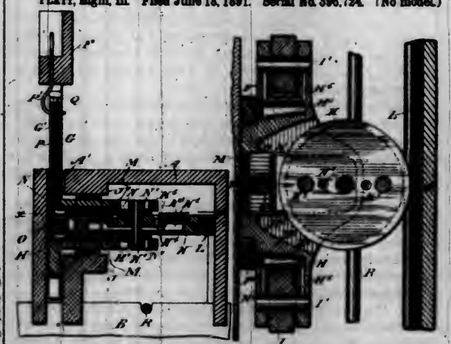
6. In a coin-controlled locking mechanism, the combination, with the member to be locked, of the casing having a coin slot or chute, a pivoted bell-crank lever having an inclined coin-pan on one arm thereof provided with a slot in its end, a sliding bolt connected to the other arm of said bell-crank, a spring for sliding said bolt in one direction, a plunger arranged to strike said bolt, having a nose adapted to pass through the slot in said pan, a link connecting said plunger with the member to be locked, and a spring fixed at one end and secured to said plunger at its other end, substantially as set forth.

7. In a coin-controlled mechanism, the combination, with the member to be locked, of a casing having a coin-slot, a pivoted lever having a flat coin-pan formed on one arm thereof, adapted to support a coin broad side uppermost, said pan being provided with stops on both sides for arresting the coin, a plunger connected with the member to be locked and adapted to oscillate said lever through the medium of a coin thereon and a bolt arranged in the path of said plunger and being operated by said lever, substantially as set forth.

8. In a coin-actuated locking mechanism, the combination, with the casing having a coin-slot and the member to be locked, of a lever having a coin pan or support, a plunger for oscillating said lever through the medium of a coin thereon, a sliding bolt for arresting the movement of said plunger, and a spring for holding said bolt normally across the path of said plunger, substantially as set forth.

9. In a chair, the combination of the frame and the pivoted seat having slotted edges, the entire support or brace C for the outer side of said seat being pivoted to said frame at *c* and having studs engaging in said slotted side edges of the seat, and a locking mechanism secured to said frame and connected to said seat, said braces C being adapted to fold up with the seat independently of the chair-frame, substantially as set forth.

481,817. TROLLEY-CARRIAGE FOR CONDUITS. STEPHEN L. PLATT, Elgin, Ill. Filed June 13, 1891. Serial No. 396,734. (No model.)



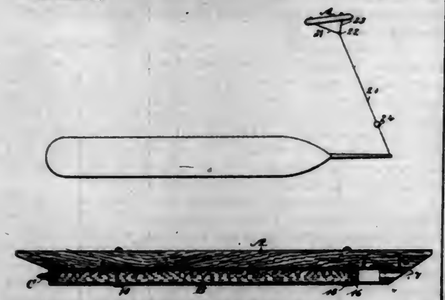
Claim.—1. In an electric conductor, the combination, with a carriage mounted on wheels and provided with an upwardly-projecting hollow arm, of a contact wire or plate extending upward through the arm, a U-shaped frame fitted to slide in the carriage, a contact-wheel mounted in the frame, and a spring arranged between the said frame and the contact wire or plate, substantially as described.

2. In an electric conductor, the combination, with a carriage mounted on wheels and provided with a horizontal recess, transverse slots, and a vertical and recessed arm, of a contact-plate extending up through the recess of the said arm, a U-shaped frame mounted in the horizontal recess of the carriage, a contact-wheel mounted in the frame and having its bearings projecting into transverse slots of the carriage, and a spring arranged between the frame and contact wire or plate, substantially as herein shown and described.

3. In an electric conductor, the combination, with a slotted conduit having upper and lower tracks and a conducting-wire secured to

one side of the conduit, of a forked hanger, a carriage mounted on wheels traveling on said tracks and provided with a recessed arm projecting up between the forks of the hanger, a contact plate or wire extending up through the arm, a U-shaped frame mounted to slide in the carriage, a contact-wheel mounted in the frame, and a spring arranged between the frame and the contact wire or plate, substantially as herein shown and described.

481,818. DEVICE FOR DISTRIBUTING OIL UPON WATER. SIDNEY I. PRESCOTT, Brooklyn, N. Y. Filed Jan. 6, 1892. Serial No. 417,161. (No model.)



Claim.—1. An apparatus for distributing oil on water, comprising a buoyant oil-chamber having an opening at each end and a piston in the oil-chamber, adapted to be acted upon by the waves and separating the oil from the water, substantially as described.

2. In an oil-distributing apparatus, the combination, with a float and an oil-chamber carried by the float, having openings for the ingress of water and for the egress of oil, of a valve regulating the outflow of the oil and a piston located within the oil-chamber to be acted upon by the waves and separating the oil from the waves or water, as and for the purpose set forth.

3. In an oil-distributing apparatus, the combination, with a float and an oil-chamber attached to the float, the forward end of the oil-chamber and the float being beveled, the said chamber being provided with a valve at one end regulating the outflow of the oil and a piston or plunger at the opposite end to be acted upon by the waves and separating the oil from the water, of a means, substantially as shown and described, for attaching the apparatus to a vessel, as and for the purpose set forth.

4. In an oil-distributing apparatus, the combination, with a float and an oil-chamber, the latter being provided with an egress-opening, of a plunger or piston located at one end of the oil-chamber, the said plunger or piston being adapted to be acted upon by the waves, as and for the purpose set forth.

5. In a device or apparatus for the distribution of oil upon the water, the combination, with an oil-chamber open at one end and having an egress-opening at the other end, of a piston located within the oil-chamber at the open end, separating the oil from the water and adapted to be acted upon by the waves, as and for the purpose set forth.

6. In an apparatus for distributing oil upon the water, the combination, with a float, an oil-chamber carried by the float and provided with a valve-controlled egress-opening, and a plunger to be acted upon by the waves and separating the oil from the water, of a tow-line and bridle connected with the apparatus, the tow-line being controlled by a weight-governor, as and for the purpose specified.

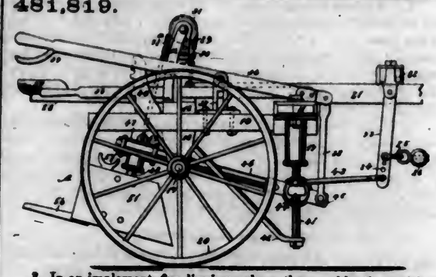
7. The combination, with an apparatus adapted to distribute oil upon the water, of a tow-line and bridle attached to the device, and a weight-governor secured to the tow-line between its point of attachment and the distributer, substantially as shown and described.

481,819. MACHINE FOR DIGGING CELERY. MAURICE M. RAPBET, Comstock, Mich. Filed Mar. 2, 1892. Serial No. 423,490. (No model.)

Claim.—1. In a machine for digging celery, a shovel comprising mold-boards having socket-blocks on their inner surfaces, said blocks being provided with flanges at their lower ends, and a bottom plate having a cutting-edge and adjustably secured to the flanges of the said blocks, substantially as described.

2. In a machine for digging celery, a shovel consisting of mold-boards having socket-blocks on their inner surfaces, said blocks having flanges at their lower ends, a slotted bottom plate having its front end sharpened to form a cutting-edge and provided with teeth projecting from the rear edge, and bolts passed through the slots of the bottom plate into the flanges of the said blocks, substantially as described.

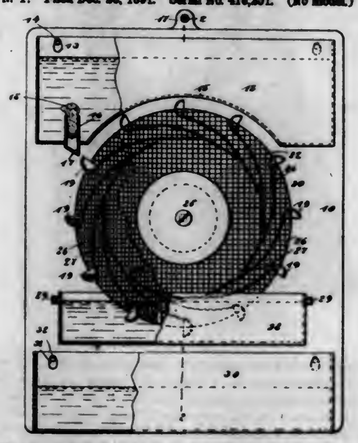
481,819.



3. In an implement for digging celery, the combination, with a wheeled frame, standards projected down from the forward portion of the frame, rods capable of sliding and turning upon the standards at their forward ends, levers connected with the forward ends of the rods, and levers connected with the rear ends of the rods, of a shovel connected with the rear portions of the rods, the said shovel being given its draft by the manipulation of the rods at their forward ends and regulated as to depth by the manipulation of the rods at their rear ends, substantially as and for the purpose set forth.

4. In an implement for digging celery, the combination, with a frame, standards projected downward from the forward portion of the frame, bearing-blocks capable of sliding upon and turning on the standards, and rods connected at their forward ends to the bearing-blocks, being carried in converging directions rearward, of levers connected with the bearing-blocks, whereby they may be raised and lowered, a second set of levers connected with the rear ends of the rods attached to the bearing-blocks, and a shovel removably attached to the rear ends of the rods, said shovel comprising a bottom plate, and mold-boards located at the side edges of the plate and laterally adjustable thereon, substantially as and for the purpose set forth.

481,820. MECHANICAL FLY-TRAP. EMIL RATTNER, New York, N. Y. Filed Dec. 26, 1891. Serial No. 416,251. (No model.)



Claim.—1. In a fly-trap, a hollow wheel provided with buckets on its periphery and with tangential passages leading from the periphery between the buckets to the interior of the same, as specified.

2. In a fly-trap, the combination, with a liquid-containing tank, of a hollow revolving wheel mounted to turn in said tank and provided with tangential passages leading from the periphery to the interior of the wheel, substantially as and for the purpose set forth.

3. A fly-trap comprising a hollow wheel provided with buckets on its periphery and with tangential passages between the buckets and leading from the periphery of the wheel to the interior of the same and a reservoir above the wheel and discharging into the buckets thereof, substantially as described.

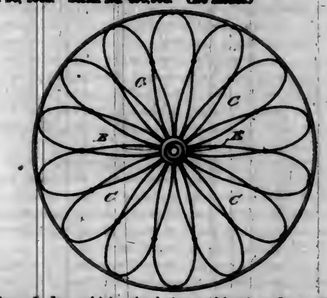
4. A mechanical fly-trap comprising a water-wheel held to turn in a liquid containing tank, said water-wheel having face-buckets with inwardly-extending arms, and a reservoir mounted above the wheel and having an outlet-pipe adapted to deliver upon the buckets, substantially as described.

5. A mechanical fly-trap comprising a hollow water-wheel having face-buckets with inwardly-extending arms which terminate in brushes and a reservoir mounted adjacent to the wheel and having an outlet-pipe to deliver upon the buckets, substantially as described.

6. A mechanical fly-trap comprising a base-board, a hollow water-wheel held to turn on the base-board and provided with face-buckets having inwardly-extending arms, a reservoir mounted above the wheel and having an outlet-pipe to deliver upon the buckets, a liquid-holding tank held to receive the lower portion of the wheel and having end outlets, and a main receiving-tank arranged beneath the wheel-tank, substantially as described.

7. The combination, with a water-wheel having face-buckets and inwardly-extending arms, of a reservoir mounted above the wheel, said reservoir having a concave middle portion to fit over the wheel and an outlet-pipe to deliver upon the buckets, substantially as described.

481,821. WHEEL. JONATHAN REES, Phœnixville, Pa. Filed Apr. 28, 1892. Serial No. 430,992. (No model.)

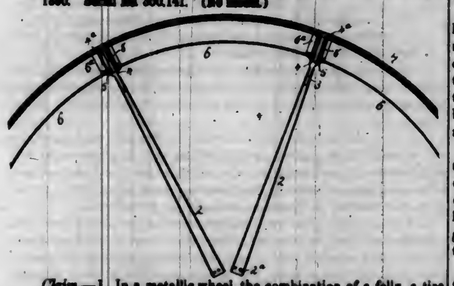


Claim.—1. In a vehicle-wheel, the combination of a mortised hub, spring-spokes C, having the terminal portions attached to a plate D, and bands for retaining said plates within the mortises in the hub, the loop portion of each spoke farthest from the hub being secured to the tire, substantially as shown.

2. In a vehicle-wheel, the combination of the spokes C, made up of bars of spring metal looped as shown, the terminal portions of said spokes being connected to a plate D, bands E E, adapted to encircle the hub and engage with said plates, a tire A, attached to the loop portion of the spokes, each spoke bearing against an adjacent spoke at a point between the tire and hub, and means for connecting the spokes at such points, substantially as shown, and for the purpose set forth.

3. In a vehicle-wheel, the combination of a hub having mortises to receive the ends of spring-spokes, said spokes being bent to form outer loops, which are attached to the tire at a point opposite the point where the ends are secured to the hub, and means, substantially as shown, for connecting the spokes to each other at an intermediate point between the hub and tire, for the purpose set forth.

481,822. WHEEL. JOHN W. REDDIN, Havana, Ill. Filed May 1, 1890. Serial No. 350,141. (No model.)



Claim.—1. In a metallic wheel, the combination of a felly, a tire encircling the same, a hub, and spokes provided with permanent tenons which project through the felly and tire and are riveted down upon the latter to hold the parts together.

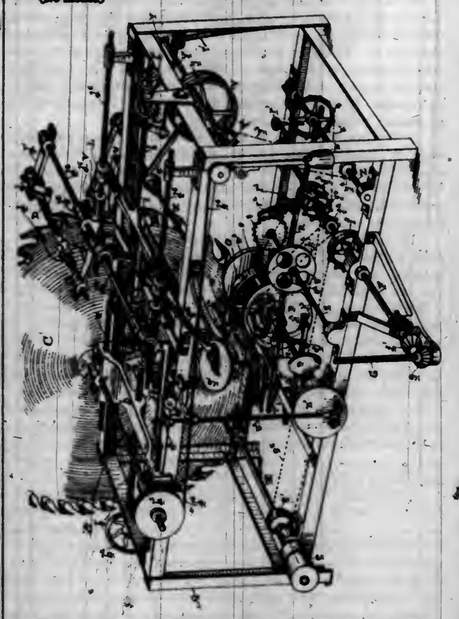
2. In a carriage or wagon wheel, the combination of the rabbeted tire, the channeled felly having its edges seated in the rabbets of the tire, the hub, and the spokes having solid tenons extending through the felly and tire and riveted down upon the latter.

3. In a carriage or wagon wheel, the combination of the rabbeted tire, the felly concave convex in cross-section, having its edges seated in the rabbets of the tire, the hub, and the spokes having tubular bodies and solid tenons, the latter projecting through the felly and tire and riveted down upon the latter.

4. In wheels, in combination, a tire, a felly composed of interlocked sections, and spokes extending continuously through the conjoining ends of the felly-sections and through the tire, whereby the tire and felly are bound together.

5. In a metal wheel, the combination of the tire, the hollow felly, the spokes inserted through the tire and felly and binding them together, and independent struts 8, encircling the spokes within the felly to prevent the crushing of the latter.

481,823. SAW FILING AND SETTING MACHINE. JOHN RICHARDSON, San Francisco, Cal. Filed Dec. 28, 1891. Serial No. 416,262. (No model.)



Claim.—1. In a saw-filing machine, the combination of a file, mechanism for reciprocating it in contact with the tooth of the saw, and mechanism for automatically feeding said saw to present a fresh tooth to the action of the file, comprising a pawl adapted to engage the saw-teeth, a pivoted hanger for the pawl, and a crank-wheel and connection for operating the hanger, substantially as described.

2. In a saw-filing machine, the combination of a file for operating upon the tooth of the saw, mechanism for reciprocating said file, mechanism for feeding the saw to present a fresh tooth to the action of the file, comprising a pivoted hanger carrying a pawl for engaging the tooth of the saw, a crank-wheel, and an adjustable connection between the same and the hanger, and means for raising the file out from between the teeth during the movement of the saw and returning it to a succeeding tooth, substantially as described.

3. In a saw-filing machine, the combination of the file, the holder thereof, the sliding shaft carrying the holder, and the means for reciprocating said shaft, consisting of a transversely-movable cross-head engaging an arm on the shaft, a pitman connecting with the cross-head, the crank-shaft G for driving the pitman, the cross-shaft F, and gearing between said shaft and crank-shaft, and means for driving the cross-shaft, substantially as described.

4. In a saw-filing machine, the combination of the file, the holder therefor, the sliding and rocking shaft carrying the holder, the crank-arm d^6 of said shaft, the reciprocating cross-head I, and the slotted or grooved bearing *i* of said cross-head, into which the crank-arm d^6 fits, whereby the shaft d^5 may be both reciprocated and rocked, substantially as described.

5. In a saw-filing machine, the combination of the file, the file-holder, the sliding rock-shaft, to which said file-holder is connected, and the means for rocking said shaft, consisting of the crank-arm J of the shaft and the rotating cam *k*, operating under said crank-arm, substantially as described.

6. In a saw-filing machine, the combination of the file, the rock-shaft to which said file is attached, and the means for rocking said shaft at each stroke of the file, consisting of the crank-arm J, secured to the shaft, the cam *k*, operating under the crank-arm, the cross-shaft F, and power-transmitting connections between said cross-shaft and the cam-shaft, substantially as described.

7. In a saw-filing machine, the combination of the file, the sliding and rocking shaft d^3, carrying said file, the means for reciprocating said shaft, consisting of the sliding cross-head having the slotted or grooved bearing, the crank-arm of the shaft fitted in said bearing, the crank-shaft G and pitman g^3 connecting it with the cross-head, the counter-shaft F for driving the crank-shaft, and the means for rocking the file-holder shaft, consisting of the crank-arm J, secured thereto, the cam *k*, shaft K, and power-transmitting connections between the cross-shaft F and said shaft K, substantially as described.

8. In a saw-filing machine, the combination of the file, the holder therefor, the reciprocating shaft carrying the holder, the sliding sleeves and their bearings d^3, carrying the shaft, and the means for adjusting said shaft to regulate the position of the file with respect to the saw-tooth, consisting of the tracks on which the sleeves slide; the sliding cross-bar on said tracks, adapted to come in contact with the sleeves, a screw-stem of the cross-bar, and the wheel-nuts *l* for operating the screw-stem, substantially as described.

9. In a saw-filing machine, the means for feeding the saw at stated intervals, consisting of the pawl M, engaging the teeth of the saw, the vibrating hanger carrying the pawl, the crank-wheel m^2, connected with the hanger, and the periodically-moving shaft N, carrying the crank-wheel, and a connection from the crank wheel to the hanger, substantially as described.

10. In a saw-filing machine, the combination of an engaging mechanism for the saw for turning it and the means for periodically operating said mechanism, consisting of the shaft N, by which it is operated, the continuously-rotating wheel O, loose upon said shaft, the disk P, fast thereon, a pawl-and-ratchet mechanism between the wheel and disk, and means for throwing the pawl and ratchet into and out of engagement at stated intervals, substantially as described.

11. In a saw-filing machine, the combination of an engaging mechanism for turning the saw and a means for periodically operating this mechanism, consisting of the shaft N, the continuously-rotating wheel O, loose thereon, the disk P, fast thereon, the normally-engaged pawl-and-ratchet connection between the wheel and disk, the projecting pin of the pawl, and the stop-bar for limiting said pin and throwing the pawl and ratchet into and out of engagement at stated intervals, substantially as described.

12. In a saw-filing machine, the combination of an engaging mechanism for turning the saw, a means for periodically operating this mechanism, consisting of the shaft N, the continuously-rotating wheel O, loose thereon, the disk P, fast thereon, the normally-engaged pawl-and-ratchet connection between the wheel and disk, the projecting pin of the pawl, the stop-bar for limiting said pin and throwing the pawl out of engagement with the ratchet, and a tripping mechanism for throwing the stop-bar out of the way at stated intervals to permit the re-engagement of the pawl with the ratchet, substantially as described.

13. In a saw-filing machine, the combination of an engaging mechanism for turning the saw, a means for periodically operating this mechanism, consisting of the shaft N, the continuously-rotating wheel O, loose thereon, the disk P, fast thereon, the normally-engaged pawl-and-ratchet connection between the wheel and disk, the projecting pin of the pawl, the stop-bar for limiting said pin and throwing the pawl out of engagement with the ratchet, and a tripping mechanism for throwing the stop-bar out of the way at stated intervals to permit the re-engagement of the pawl with the ratchet, consisting of the drop-lever T, having the contact-arm *t'*, and means for operating the drop-lever, substantially as described.

14. In a saw-filing machine, the combination of an engaging mechanism for turning the saw, a means for periodically operating this mechanism, consisting of the shaft N, the continuously-rotating wheel O, loose thereon, the disk P, fast thereon, the normally-engaged pawl-and-ratchet connection between the wheel and disk, the projecting pin of the pawl, the stop-bar limiting said pin and throwing the pawl out of engagement with the ratchet, a tripping mechanism for throwing the stop-bar out of the way at stated intervals to permit the re-engagement of the pawl with the ratchet, consisting of the drop-lever T, having the contact-arm *t'*, and the rotating shaft S, having the wheel, with its pin, for operating the drop-lever, substantially as described.

15. In a saw-filing machine, the combination of an engaging mechanism for turning the saw, a means for periodically operating this mechanism, consisting of the shaft N, the continuously-rotating wheel O, loose thereon, the disk P, fast thereon, the normally-engaged pawl-and-ratchet connection between the wheel and disk, the projecting pin of the pawl, the stop-bar for limiting said pin and throwing the pawl out of engagement with the ratchet, and tripping mechanism for throwing the stop-bar out of the way at stated intervals to permit the re-engagement of the pawl with the ratchet, consisting of the drop-lever T, having the contact-arm *t'*, the rotating shaft S, having the wheel, with its pin, for operating the drop-lever, the ratchet on the shaft, the vibrating pawl-carrying bar R, the pawl of said bar engaging the ratchet, and the cam on the continuously-rotating wheel for operating the pawl-bar, substantially as described.

16. In a saw-filing machine, the combination of the reciprocating and swinging file, periodically-operating mechanism engaging the saw for turning it to present a fresh tooth to the file, and the means for lifting the file out from between the teeth during this movement, consisting of the periodically-rotating shaft N, the crank-wheel n' on its end, the vertical rod n^3, and the crank-arm J of the swinging file-frame, substantially as described.

17. In a saw-filing machine, the combination of the file, the reciprocating and rocking shaft d^3, to which the file is attached, the mechanism for feeding the saw to present a fresh tooth to the file and for raising the file out from between the teeth during the movement of the saw, consisting of the pawl M, engaging the teeth of the saw, the shaft N, and connections between said shaft for operating the pawl, connections between said shaft and the rock-shaft of the file-holder for raising the file, the continuously-rotating wheel O, loose on the shaft N, the disk P, fast thereon, a pawl-and-ratchet connection between said wheel and disk, the outwardly-projecting pin of the pawl, the stop-bar Q for breaking the connection between the pawl and ratchet, the drop-lever T, with its contact-arm *t'*, for relieving the pin of the stop-bar to re-establish the connection, the pin-wheel for operating the drop-bar T, the vibrating pawl-bar, and the pawl and ratchet for operating the pin-wheel, substantially as described.

18. In a saw-filing machine, the combination of a file and file-holder, means for reciprocating the same and raising the file out of engagement with the saw-teeth, a sliding carriage, a shaft journaled therein having a pulley at one end, and a cable connected with the pulley and carrying a weight at its outer end, whereby the saw is fed toward the file, substantially as herein described.

19. In a saw-filing machine, the combination of the reciprocating file, the shaft B, carrying the saw and having the pulley b^3, the weighted cable b^4 for keeping the saw tight against the file, the pawl M for turning the saw, the shaft N for operating the pawl, the disk P on the shaft, and the pawl p^2, engaging the disk, substantially as described.

20. In a saw-filing machine, the combination of the reciprocating file, the counter-shaft F, and power-transmitting connections between said shaft and file for reciprocating it, periodically-operating mechanism for turning the saw to present a fresh tooth, and a pawl-and-ratchet connection between said mechanism and the counter-shaft F, whereby said mechanism is operated at stated intervals, substantially as described.

21. In a saw-filing machine, the file D, with its reciprocating holder for sharpening the front of one tooth, the file d^{10} for sharpening the back of the succeeding tooth, and the arms d^7 and rods d^8, forming the holding-frame for said latter file, supported from the holding-frame of the former file, substantially as described.

22. In a saw-filing machine, the combination of the anvil-block, the vibrating hammer, and the means for operating said hammer, consisting of the oscillating shaft X, to which the hammer is secured, the crank-arm *x* of said shaft, the barred wheel operating on said crank-arm, and the spring connection for controlling the hammer, substantially as described.

481,824. CASH REGISTER AND INDICATOR. EDWARD F. ROBERTS, Rochester, N. Y., assignor, by direct and mesne assignments, to the Roberts Manufacturing Company, of Ohio. Filed July 16, 1889. Serial No. 317,679. (No model.)

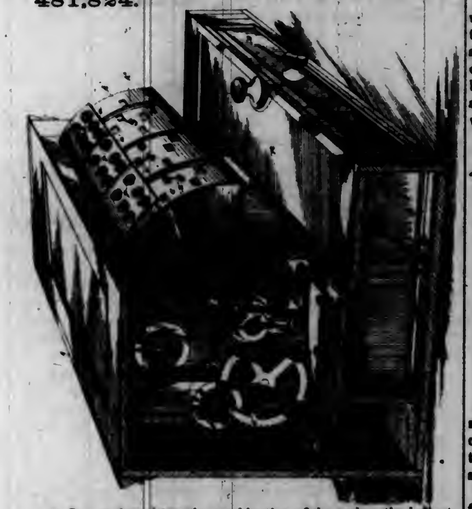
Claim.—1. In a cash-register, the combination of the casing, the reciprocating indicating-strip, the telescoping lever, and the finger keys or plungers on the outer end of said lever, substantially as described.

2. In a cash-register, the combination of the actuating-lever, the curved shield having a slot through which said lever protrudes and perforations of graduated sizes, with suitable keys or plungers of corresponding sizes attached to the actuating-lever and adapted to engage with the said perforations, substantially as described.

3. In a cash-register, the combination of the actuating-lever, the curved shield having a slot through which said lever protrudes and perforations of graduated sizes arranged in rows parallel to the slot, a plate attached to said lever, and spring-controlled keys or plungers which on being pressed against the curved shield drop into certain of the perforations as the actuating-lever is vibrated, substantially as described.

4. In a cash-register, the combination of the indicating mechanism, the registering mechanism, the lever for operating the said mechanisms, the curved shield having a slot through which said lever protrudes, and perforations of graduated sizes, together with suitable keys or plungers of corresponding sizes attached to the lever and adapted to engage with the said perforations, substantially as described.

481,824.



5. In a cash-register, the combination of the casing, the indicating-strip moving before an opening in said casing, the telescoping lever for operating said strip, a shield having a slot through which said lever protrudes, and depressible keys or plungers connected with said lever, by which its vibrations in said slot are limited at the will of the operator, substantially as described.

6. The combination, in a cash-register, of mechanism for registering the amount of each sale with a phonograph and mechanism whereby said phonograph is operated upon the shifting of the registering mechanism and announces the operation of the register, substantially as described.

7. The combination, in a cash-register and annunciator, of mechanism for indicating the amount of each sale and for registering the amount thereof with a phonograph and means whereby the phonograph is actuated when the indicating or recording mechanism is shifted and announces the operation of the register, substantially as described.

8. In a cash-register, the combination of the indicating devices and the lever for shifting the same with a phonograph adapted to announce each operation of the indicating device and mechanism for controlling the same, released upon the shifting of said lever, substantially as described.

9. In a cash-register, the combination of the indicating mechanism and registering mechanism and the levers for controlling the same with a prepared phonograph-record and a reproducer and the devices for controlling the same, released upon the shifting of either of said levers, and means for returning the same to normal position, substantially as described.

10. In a cash-register and annunciator, the combination of the indicating devices, the levers for shifting the same, and the sliding piece or drawer and the latch therefor operated by said levers, with a phonograph, its record-cylinder, and the actuating mechanism thereof released by the movement of said sliding piece when the latter is released, substantially as described, and means for returning the cylinder to normal position upon the return of said sliding piece to normal position, substantially as set forth.

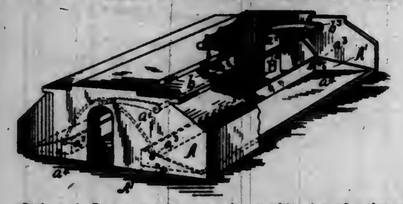
11. The combination of the sliding drawer-top, its latch, and the lever for releasing the same with the phonograph, the mechanism for revolving the phonograph-record cylinder, and means, substantially as described, whereby the phonograph-cylinder revolves and its record is announced upon the movement of the top in one direction and the cylinder thrown back to normal position by the opposite movement of the top, substantially as described.

481,825. NECK-YOKE. LEWIS W. ROTHROCK, Morrisdale Mines, Pa. Filed Mar. 23, 1892. Serial No. 426,055. (No model.)



Claim.—As an improved article of manufacture, a harness attachment consisting of the continuous ring A, provided with the tangential parallel arms *a a*, projecting in the same direction from opposite sides of the ring, and the roller B, removably mounted between the extreme outer ends of the said arms, whereby the portion of the ring between the arms serves to strengthen the device and to prevent a strap passed between the roller and said partition from contacting with the neck-yoke or other connected part, as set forth.

481,826. CARPET-SWEEPER. GEORGE S. SANFORD, Mount Clemens, Mich. Filed Nov. 9, 1891. Serial No. 411,373. (No model.)



Claim.—1. In a carpet-sweeper, the combination of a dust-pan, means for opening and closing said pan, a flexible cable permanently connected therewith and running lengthwise of the handle, and an attachment whereby said cable may be operated to open the pan, substantially as described.

2. In a carpet-sweeper, the combination of a dust-pan, a lever for opening said dust-pan, a flexible cable permanently connected with said lever and running lengthwise of the handle, and means for operating said cable to open said pan, substantially as described.

3. In a carpet-sweeper, the combination of a dust-pan, means for opening said pan, a flexible cable permanently connected with said means for opening the pan and running lengthwise of the handle, and means whereby said cable may be operated to open said pan and to be locked at the extremity of its movement, substantially as described.

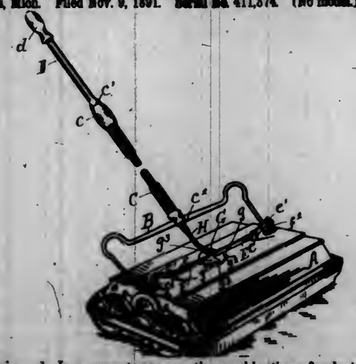
4. In a carpet-sweeper, the combination of a dust-pan, a flexible cable permanently connected with means for opening said pan and running lengthwise of the handle, means for operating said cable, and a spring-actuating mechanism for closing said pan, substantially as described.

5. In a carpet-sweeper, the combination of a dust-pan and a flexible cable permanently attached thereto and running lengthwise of and attached to the handle, adapted to open said dust-pan, substantially as described.

6. In a carpet-sweeper, the combination of a dust-pan and springs for closing the same, a lever for opening said dust-pan, a flexible cable permanently connected to said lever and extending lengthwise of the handle, and a hand-piece to operate said cable to open said pan, substantially as described.

7. In a carpet-sweeper, the combination of a dust-pan, means for opening and closing the same, and a flexible cable permanently connected therewith and extending outside of the case of the carpet-sweeper, whereby the same may be opened and closed, substantially as described.

481,827. CARPET-SWEEPER. GEORGE S. SANFORD, Mount Clemens, Mich. Filed Nov. 9, 1891. Serial No. 411,374. (No model.)



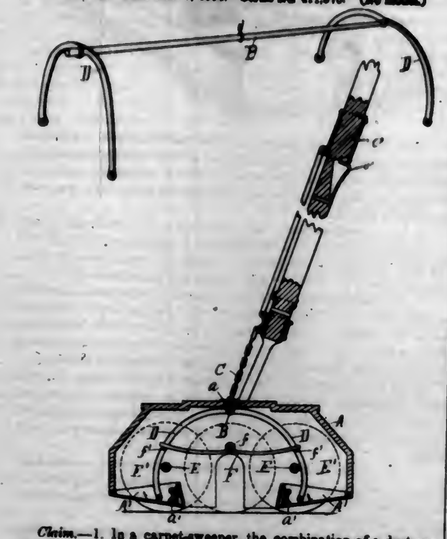
Claim.—1. In a carpet-sweeper, the combination of a dust-pan, means for dumping said dust-pan, and a rotatable handle adapted to operate the said means for dumping the pan, substantially as described.

2. In a carpet-sweeper, the combination of a dust-pan, a lever adapted to open said dust-pan, a disk G, provided with cam f', adapted to operate said lever, and a rotatable handle adapted to rotate said disk, substantially as described.

3. In a carpet-sweeper, the combination of a dust-pan, a lever adapted to open said dust-pan, a rotatable disk provided with a cam adapted to operate said lever, and a rotatable handle connected with said disk by a joint, substantially as described.

4. In a carpet-sweeper, the combination of a dust-pan, means for dumping said dust-pan, a bail provided with a sleeve, and a handle extending through said sleeve and adapted to operate the means for dumping said dust-pan, substantially as described.

481,828. CARPET-SWEEPER. GEORGE S. SANFORD, Mount Clemens, Mich. Filed Nov. 9, 1891. Serial No. 411,376. (No model.)

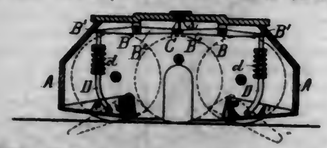


Claim.—1. In a carpet-sweeper, the combination of a dust-pan, a longitudinal bar, links connecting said bar with said dust-pan, and a cable attached to the said bar and extending out through the case and extending lengthwise of the handle, substantially as described.

2. In a carpet-sweeper, the combination of a dust-pan, a longitudinal bar, links connecting said bar with said dust-pan, a cable connected to the said bar and extending out through an opening and lengthwise of the handle, and means mounted on said handle and connected with said cable for operating the same, substantially as described.

3. In a carpet-sweeper, the combination of a dust-pan, a longitudinal bar, links connecting said bar with said dust-pan, a spring engaged with said links and adapted to force said dust-pan open, and a cable connected with the said bar and extending lengthwise of the handle, substantially as described.

481,829. CARPET-SWEEPER. GEORGE S. SANFORD, Mount Clemens, Mich. Filed Nov. 9, 1891. Serial No. 411,376. (No model.)



Claim.—In a carpet-sweeper, mechanism for dumping the dust-pan, consisting of a vertical rod pivoted at its lower end to said dust-pan, a spring adapted to close said dust-pan, a rock-arm adapted to force said rod downward and open the dust-pan against the resistance of the spring, and means connected with said rock-arm and extending up the handle and movable longitudinally therewith for operating the same, substantially as described.

481,830. GAME APPARATUS. ANTON SIEGEL, Brooklyn, N. Y. Filed May 6, 1892. Serial No. 431,966. (No model.)



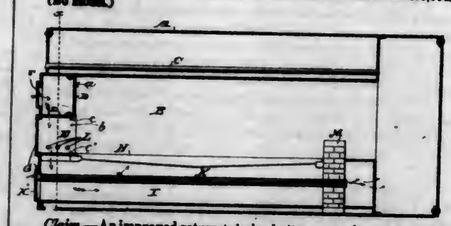
Claim.—1. A game apparatus provided with a handled plate having a central aperture forming a seat for a spinning-top, substantially as shown and described.

2. A game apparatus comprising a handled plate having a central aperture forming a seat for the spinning-top and an indicating device, substantially as described, for indicating the position of rest of the top in the said seat, substantially as set forth.

3. A game apparatus provided with a plate having a central aperture forming a seat for a spinning-top, a handle extending from the said plate, and a pointer held on the said handle and adapted to indicate on characters formed on the body of the spinning-top, substantially as shown and described.

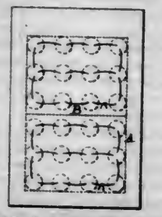
4. In a game apparatus, the combination, with a spinning-top provided with characters on its body, of a handled plate having a central aperture forming a seat for the said top and a pointer held on the said plate and adapted to indicate on the characters on the top, substantially as shown and described.

481,831. AIR-SUPPLY FOR BOILER-FURNACES. IRA V. SCHOFIELD, Jr., San Francisco, Cal. Filed July 24, 1891. Serial No. 400,991. (No model.)



Claim.—An improved return tubular boiler consisting of the combination of a main circular flue B, a casing D, consisting of a vertical plate or diaphragm a, surrounding the upper portion and sides of the front portion of the flue, and the plates or diaphragms b, c, and d', forming the walls of the opening through which the fuel is introduced, said plate d' having openings J, and the plates or diaphragms b and lower side portion of the plate or diaphragm a, having opening L for delivering heated air to the furnace, and the doors F and G, substantially as herein described.

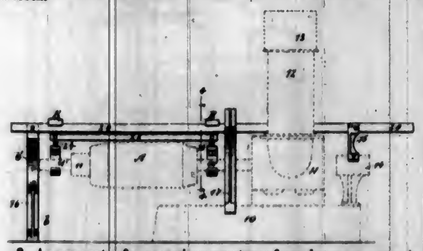
481,832. SALE-CARD FOR BUTTONS. CHARLES F. G. R. SEWERIN, London, England. Filed Jan. 8, 1892. Serial No. 417,369. (No model.) Patented in England Nov. 11, 1891, No. 19,510; in France Nov. 26, 1891, No. 217,080; in Switzerland Jan. 22, 1892, No. 4,419, and in Italy Feb. 6, 1892. LXI. 127.



Claim.—A sale-card for buttons, having lines of perforations terminating remote from the edges of the card to provide a surrounding imperforate or solid rim, said perforations bounding groups of the buttons, and the buttons of each group being stitched to the card independently of the buttons in other groups, substantially as and for the purposes described.

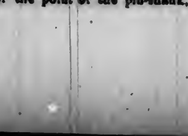
481,833. DEVICE FOR REMOVING ARMATURES. STEPHEN H. SHARPTHRE, Honesdale, Pa. Filed May 6, 1891. Serial No. 391,704. (No model.)

Claim.—1. An apparatus for removing armatures from dynamos, comprising a track extending through the dynamo between its field-magnets above and parallel with its armature, supports for said track at opposite sides of the dynamo, and two connected hangers mounted on said track to travel between the magnets and having depending vertically-adjustable hooks 22, projecting laterally in the same direction to hook under the ends of the armature-shaft, whereby said armature may be lifted and conveyed from the dynamo, substantially as set forth.



2. An apparatus for removing armatures from dynamos, comprising a short bracket 15 to rest on top of the rear armature-bearing box, a ⊓-shaped bracket 17 at the opposite side of the dynamo and provided with a recess 18 and a lug 19 at one side of the recess, an outermost bracket 16, formed with a lower shank-section b and an upper semicircular section b', a track-rail secured at its ends to the upper ends of brackets 16 16 and between its ends to the inner face of lug 19 and projecting at its upper edge above said lug, and a hanger traveling on the track between the field-magnets and having hooks to pass under the ends of the armature-shaft, whereby said armature may be readily removed from the dynamo, substantially as set forth.

481,834. SAFETY-PIN. ARTHUR T. SNELL, Ventura, Cal., assignor to Snell & Weldon, same place. Filed Apr. 12, 1890. Serial No. 347,625. (No model.)



Claim.—1. A safety-pin having its frame and pin-shank composed of a single piece of wire, the frame being composed of two parallel strands of wire constituting the sides of the frame and united at one end by a bend b and the pin-shank having position centrally between said sides, in combination with a shield for said pin made from a sheet-metal blank, the side edges of said shield being united to said frame by being bent around the same, and said shield having a portion k, which is bent around the bend b of the frame and constitutes the catch for the pin-point, substantially as set forth.

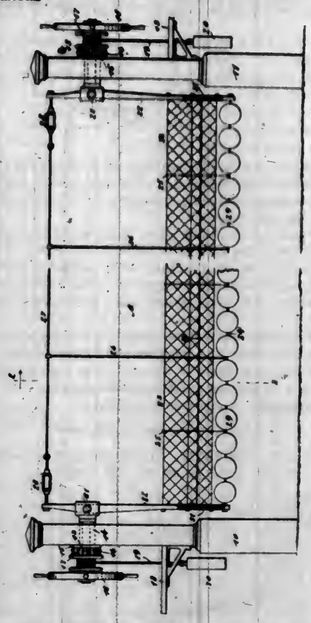
2. A safety-pin having its frame and pin-shank composed of a single piece of wire, the frame being composed of two parallel strands of wire constituting the sides of the frame and the pin-shank having position between said sides, in combination with a shield attached to said frame and comprising two side flanges e e and a catch composed of two oppositely-inclined guide-plates i i, said catch being located between said side flanges, whereby the pin-point must pass between one of said flanges e and one of said guide plates i, substantially as set forth.

3. A safety-pin having a shield comprising two side flanges e e, a base-plate f, connecting said side flanges, a tongue g, projecting centrally from said base-plate on the same side thereof that said side flanges project, and a catch composed of two oppositely-inclined guide-plates i i, said catch being located between said side flanges and straddling said tongue, so that each of said guide-plates i is located between said tongue and one of said flanges e, substantially as set forth.

4. A safety-pin having its frame and pin-shank composed of a single piece of wire, the frame being composed of two parallel strands of the wire constituting the sides of the frame, and the pin-shank A having position centrally between said sides, in combination with a shield for the point of said pin-shank, said shield being supported by said frame and said shield comprising side flanges e e, which extend outwardly from the plane of said sides B and C, and a catch k for the point of said pin-shank, which is located between said flanges, substantially as set forth.

5. A safety-pin having its frame and pin-shank composed of a single piece of wire, the frame being composed of two parallel strands B C of the wire constituting the sides of the frame, and the pin-shank A having position centrally between said sides, in combination with a sheet-metal shield for the point of the pin-shank, comprising side flanges e e, which are attached to the sides B C, respectively, of the pin-frame, a base-plate f, which extends between the sides B C and substantially in the same plane therewith, a central fixed tongue g, extending at right angles from the center of the base of the plate f, and the catch composed of two oppositely-inclined guide-plates i i, which are located between the flanges e e and straddle the tongue g, substantially as set forth.

481,835. DEVICE FOR STARTING RACE-HORSES. JAMES J. SULLIVAN, New York, N. Y. Filed Dec. 18, 1891. Serial No. 415,512. (No model.)



Claim.—1. In a device for starting race-horses, a screen consisting of side pieces, network secured to the lower ends of the side pieces, cushions below the network, and a wire connecting the upper ends of the side pieces, substantially as described.

2. In a device for starting race-horses, the combination, with supports and shafts journaled therein, of a screen connected with the shafts and located between the supports, the said screen comprising a frame carrying cushioned panels, and a mechanism, substantially as described, for rotating the shafts, as and for the purpose set forth.

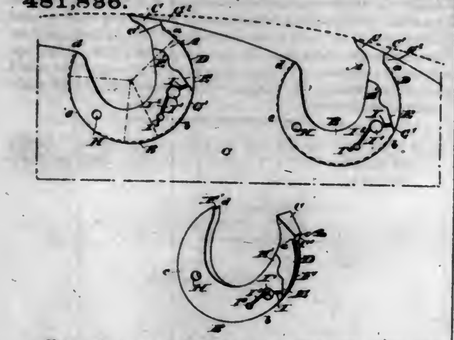
3. In a device for starting race-horses, a screen consisting of side pieces, network secured between the lower ends of the side pieces, a wire or rod connecting the upper ends of the said side pieces, a rod or wire secured to the lower ends of the side pieces below the network, cushions on the said rod or wire, and wires secured to the rod or wire carrying the cushions and to the network and the wire or rod between the upper end of the side pieces, substantially as described.

4. In a device for starting race-horses, the combination, with supports and shafts journaled in said supports and provided with hand-wheels, the shafts being provided at their inner ends with sockets, of a screen the side bars of which are pivoted in the sockets of the shafts, and a take-up device connecting the side bars of the screen, the lower portion of the screen consisting of cushioned panels, substantially as and for the purpose set forth.

5. In a device for starting race-horses, the combination, with supports, shafts journaled in said supports, provided at their inner ends with sockets and at their outer ends with rotating devices, drums secured upon the shafts, cables carried by the drums, and weights attached to the cables, of a screen the side bars of which are pivoted in the sockets of the shafts, the lower portion of the screen consisting of a network and the upper end being provided with a tension device or take-up whereby the screen may be tightened or stretched, all combined to operate substantially as and for the purpose specified.

481,836. SAW-TOOTH. JOHN W. TODD, Portland, Oreg. Filed Apr. 2, 1892. Serial No. 427,447. (No model.)

481,886.

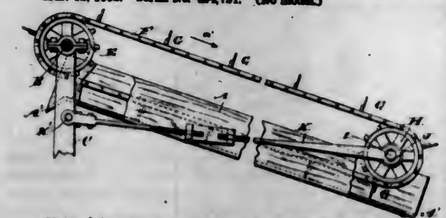


Claim.—1. A saw-tooth provided with a shank and a point seated in the saw-blade and having their outer edges formed partly on a segment of a different circle than the seat in the saw-blade, substantially as shown and described.

2. A saw-tooth provided with a shank and a point seated in the saw-blade and having their outer edges formed partly on a segment of a different circle than the seat in the saw-blade, the end of the shank adjacent to the point being provided with a spring part pressing on the point to hold the latter on its seat, substantially as shown and described.

3. An insertible saw-tooth comprising a shank and a separable point fitted one on the other, the joint being partly straight and partly S-shaped, the outer edges of the said shank and point being partly formed on a segment of a different circle than the seat in the saw-blade, substantially as shown and described

481,887. CONVEYER. PINKNEY C. WILSON, Patterson, La. Filed Mar. 12, 1892. Serial No. 424,721. (No model.)



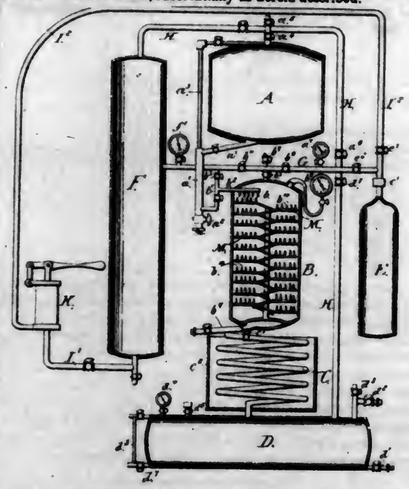
Claim.—A conveyer comprising a box or chute, uprights adjacent to one end thereof, one elevator-shaft being journaled in bearings on said uprights, longitudinally-adjustable arms pivoted to the said supports below the said shaft, extending toward the opposite end of the chute, and having the other elevator-shaft journaled in their free vertically-swinging ends, and the endless elevator mounted on the said shafts, whereby the outer end of the elevator may be set at any desired distance from the bottom of the chute and yet freely swing upward to prevent choking, substantially as described.

481,888. IMPREGNATING LIQUIDS WITH GASES. ULRICH RAGHEANS, Mission San José, Cal. Filed June 10, 1891. Serial No. 396,532. (No model.)

Claim.—1. An apparatus for charging liquid with gas, comprising liquid-supply and receiving vessels on different levels connected with each other and a gas-reservoir connecting with both vessels, whereby the flow of liquid into the receiving-vessel displaces the gas therein and balances the pressure in the supply-vessel to automatically check and regulate the flow of liquid between said vessels, substantially as herein described.

2. In an apparatus for charging liquids with gas, a receiving-vessel to which the gas to be absorbed is supplied, a spirally-wound conveyer-plate in said vessel having upon its surface a series of parallel channels, and a liquid-supply pipe entering the top of said vessel and having a series of nozzles adapted to discharge the liquid into the upper ends of the channels of the conveyer-plate, substantially as herein described.

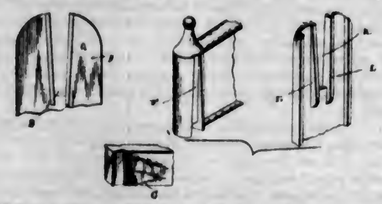
3. In an apparatus for charging liquids with gas, a receiving-vessel to which the gas to be absorbed is supplied, said vessel having within it a spirally-wound conveyer-plate with a series of channels upon its surface, a liquid-supply pipe entering the top of the vessel and having a series of nozzles communicating with the upper ends of the channels, a liquid-reservoir vessel having an outlet-pipe, and a branch pipe connecting said outlet-pipe with the supply-pipe and forming a trap whereby the gas from the receiving-vessel is prevented from escaping into the reservoir-vessel, substantially as herein described.



4. In an apparatus for charging liquids with gas, the reservoir-vessel containing the liquid, the receiving-vessel B, having the spirally-wound conveyer-plate with grooves or channels, the supply-pipe with nozzles by which the liquid from vessel A is supplied to the channels of the conveyer-plate, the coil-pipe C, communicating with the lower end of the receiving-vessel B, the liquid-storage vessel D, communicating with the lower end of the coil-pipe, and a gas-flask for supplying the gas to said vessels, substantially as herein described.

5. An apparatus for charging liquids with gas, consisting of the liquid-reservoir vessel A, the receiving-vessel B, having the spirally-wound conveyer-plate, the connection between the vessels A and B, by which the liquid is supplied to the vessel B, a coil-pipe C, communicating with the lower end of vessel B, the ice-box about said coil-pipe, the liquid-storage vessel D, communicating with the lower end of the coil-pipe, the gas-flask E, communicating with vessels A and B, the gas-storage vessel F, and suitable cocks controlling the connections, substantially as herein described.

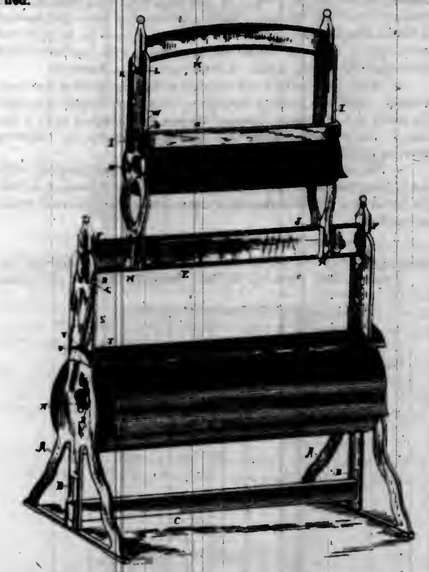
481,839. KNOCKDOWN PAPER-ROLL HOLDER AND CUTTER. ARAD B. BEACH and ALVIN BOOTH, Groton, N. Y. Filed Apr. 5, 1892. Serial No. 427,904. (Model.)



Claim.—1. A knockdown paper-roll holder and cutter comprising side standards, a connecting-bar for their lower ends, a connecting-bar at their upper ends, upper side standards having vertical slots in their lower ends which fit over the said upper cross-bar, a bar connecting the upper ends of the said upper side standards, a paper-roll supported in both the upper and lower standards, and a cutter-bar for each, substantially as described.

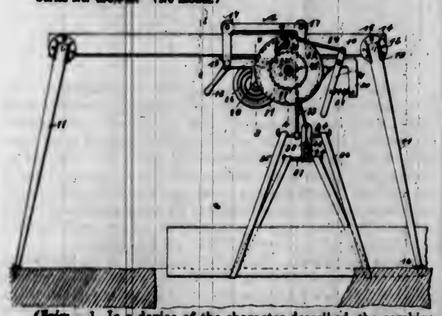
2. A knockdown paper-roll holder and cutter comprising side standards having wedge-shaped slots in their upper and lower ends, a cross-bar for the lower ends having wedge-shaped ends to enter the lower slots, and an upper cross-bar having side grooves which receive the walls of the upper slots, substantially as shown.

3. A knockdown paper-roll holder and cutter comprising side standards, a cross-bar connecting the lower ends thereof, vertical slots in the upper ends of the said side bars, and wedge-shaped beads at the edges of the said vertical slots, a cross-bar for the upper ends of the side bars, having vertical grooves which receive the walls of the said vertical slots and also the wedge-shaped beads, substantially as specified.



4. A paper-roll cutter consisting of a bar being concaved at its under side, slots in each end thereof, the outer wall of the said slots being thickened and provided with vertical slots at their inner sides, combined with vertical standards having beads or ribs at their outer sides which enter the said vertical grooves, substantially as described.

481,840. BURIAL APPARATUS. JOHN B. BRUGLER, Dayton, Tenn., assignor of one-half to Crawford Wilbur, same place. Filed June 4, 1892. Serial No. 435,540. (No model.)



Claim.—1. In a device of the character described, the combination, with a beam and legs supporting the beam, of a carriage held to travel upon the beam, a spring-controlled wheel journaled in the carriage, a shaft, also journaled in the carriage, carrying a guide-wheel fixed thereto, also a ratchet-wheel rigidly secured to the shaft, and a brake-wheel loosely mounted upon the shaft and provided with a pawl adapted for engagement with the ratchet, a lever controlling the brake-wheel, a band attached to the spring-controlled wheel and passing over the brake-wheel, a sling consisting of straps and united at its ends by bars, and a clamping device carried by the straps and adapted for engagement with one of the bars of the sling, the strap being secured to the other bar, as and for the purpose set forth.

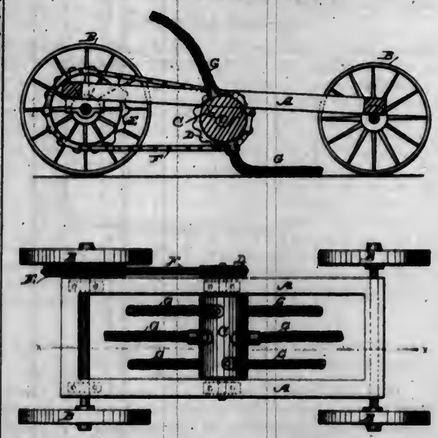
2. In a device of the character described, the combination, with a beam, legs supporting the same, and a carriage adjustable upon the beam, of a spring-controlled wheel journaled in the carriage, a shaft also journaled in the carriage, a sprocket-wheel secured to the shaft, a ratchet-wheel fast to the shaft, a brake-wheel loosely mounted upon the shaft and provided with a pawl engaging with the ratchet, a brake-strap engaging with the brake-wheel, a lever attached to the strap, a sling consisting of straps and united at its ends by bars, a chain attached to the spring-controlled wheel, passed over the sprocket-wheel and attached to one of the bars of the sling, and a clamping device provided with a releasing-slide, the slide and clamping device being adapted for engagement with the other bar of the sling, substantially as shown and described.

3. In a device for lowering coffins, the combination, with the lowering chains or ropes, of a sling consisting of straps and bars uniting the ends of the straps, one of the bars of the sling being attached to the rope or chain, a clamping-plate attached to the rope or chain and engaging with the other bar of the sling, and a spring-controlled releasing-slide carried by the plate engaging with the bar of the sling with which the clamping device engages, as and for the purpose specified.

4. In a device of the character described, the combination, with a supporting-beam, legs adjustably attached to the beam, and a carriage held to travel upon the beam, of a lowering mechanism carried by the carriage, a sling consisting of straps united at their ends by bars, one of which bars is connected with the lowering mechanism, a clamping-plate connected with the lowering mechanism and provided with claws or hooks to engage with the bars of the sling, and a releasing-slide, spring-controlled, carried by the plate and also adapted for engagement with the bar of the sling, as and for the purpose set forth.

5. In a device of the character described, the combination, with a supporting-beam, legs adjustably secured to the beam, a carriage held to travel upon the beam and provided with a brake-lever, a hoisting mechanism connected with the carriage, and a brake mechanism coacting with the hoisting mechanism, of a sling provided at its ends with bars, one of which is connected with the hoisting mechanism, a clamping-plate secured to the hoisting mechanism and adapted for engagement with the other bar of the sling, and a spring-controlled releasing-slide carried by the plate and adapted for engagement with the bar with which the plate engages, substantially as shown and described.

481,841. BEAN-THRASHER. PIERRE BOURSIN, Oakland, Cal. Filed Apr. 1, 1892. Serial No. 427,296. (No model.)



Claim.—1. A bean-thrashing apparatus consisting of the carriage mounted upon bearing-wheels, a rotary transverse drum journaled upon the carriage, and flexible thrashing-arms projecting radially from the surface of the drum, said arms yielding throughout their length when brought into contact with the material to be thrashed and automatically resuming their normal condition when removed from said contact, substantially as herein described.

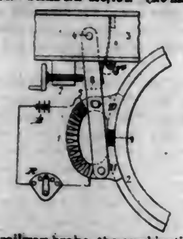
2. A bean-thrashing apparatus consisting of a framework mounted upon bearing-wheels, a drum journaled transversely across the framework, a sprocket-wheel upon the outer end of the drum-shaft, a corresponding sprocket-wheel upon one of the bearing-wheels, and an intermediate driving-chain, thrashing-arms composed of flexible material, adapted to yield to permit them to pass beneath the drum and to automatically straighten out again after being removed from contact with the thrashing-surface, said arms being arranged spirally around the drum in two rows projecting from opposite sides of the drum, substantially as herein described.

3. A bean-thrashing apparatus consisting of the framework mounted upon bearing-wheels, a drum journaled transversely across the framework, driven by power derived from the wheels, two oppositely-projecting series of arms fixed to the surface of the drum, con-

sisting of closely-coiled wire tubes, each row being arranged spirally around the drum, substantially as herein described.

4. A threshing drum or roller having arms composed of closely-coiled wire tubes adapted to yield upon contact with the threshing-surface, in combination with means for operating the drum or roller.

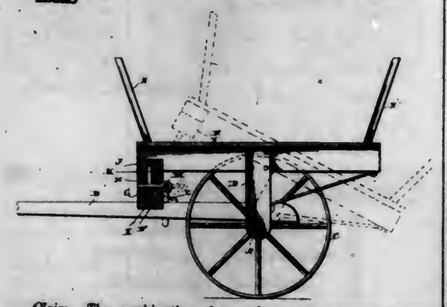
481,842. MAGNETIC BRAKE. ARMAND DE BOVET, Paris, France. Filed Oct. 24, 1891. Serial No. 409,751. (No model.)



Claim.—1. In a railway-brake, the combination, with a core having separate curved plates constituting pole-pieces, of a hanging support for the parts, a spring throwing the curved plates or pole-pieces off the wheel, an adjustable stop to hold said pole-pieces close to the tread of the wheel, a conducting-coil wound upon the core, and a circuit for said coil, substantially as described.

2. In a railway-brake, the combination, with a core having curved pole-pieces forming part of the extremities of said core, of a coil surrounding said core, a circuit for the coil, a link pivoted at one end upon a fixed support and at the other end pivotally connected to the core, an adjustable stop behind the link to hold the pole-pieces close to the tread of the wheel, and an adjustable cam-stop in front of said link to arrest the brake when the pole-pieces are magnetized and hold the latter out of contact with but close to the tread of the wheel, substantially as described.

481,843. DUMPING-CART. WILLIAM H. BOWLER and HARRY S. BOWLER, O'Fallon, Ill. Filed Apr. 26, 1892. Serial No. 430,697. (No model.)



Claim.—The combination of an axle, wheels mounted thereon, shafts projecting forward from the axle, vertical standards pivotally supported at their lower ends on the axle and which are of a length greater than the radius of the wheels, a platform supported by the standards which projects over the wheels, and a means for securing together the platform and the shafts, substantially as shown and described.

481,844. ANIMAL-SHEARS. CHARLES BURGON and HARRY BURGON, Malin Bridge, England. Filed May 5, 1892. Serial No. 431,984. (No model.)



Claim.—1. In the herein-described shearing or clipping machine, the combination, with the vibrating lever, of a central spring bearing on the top cutter-plate and carried by a shank rigidly fixed on the end of the said lever, and a forked cross-head having two prongs adapted to bear on and engage with the ends of the top cutter-plate, and a central socket pivoting freely on the end of the vibrating lever, as described.

2. The combination, with the vibrating-lever spring-shank fitted therein, and a forked cross-head and socket pivoting thereon, of a cross-pin traversing the spring-shank and vibrating lever and received in circumferential slots in the cross-head socket so as to maintain the connection of both the spring and cross-head with the lever while permitting the pivotal motion of the cross-head, as described.

3. In the herein-described shearing or clipping machine, the combination, with the rocking base-plate, of a stud forged integrally therewith and of a sleeve screwed thereon and adapted to fit in the boss of, and to form the upward bearing-surface for, the vibrating lever, as specified.

4. The combination, with the screw-stud forged integrally with the rocking base-plate and with the sleeve screwing thereon, of a drift-pin forced into a hole in the end of the stud so as to expand the same, as specified.

481,845. LAUNDRY DRYING-ROOM. JOHN R. CRAPPELL, San Francisco, Cal. Filed July 13, 1891. Serial No. 399,377. (No model.)

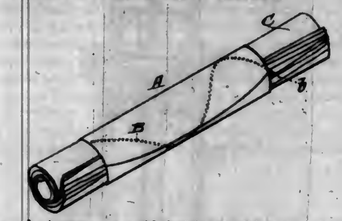


Claim.—1. In a drying-room, the sections consisting of the vertical metallic end plates having the non-conducting material between them and the angle-iron flanged pieces bolted thereto, rods connecting these end plates in pairs, suspending-rollers attached to the upper ends of the plates, and guide-rods upon which the rollers travel, whereby the sections may be drawn out, so that the inner end plate is advanced and closes the opening formed by the withdrawal of the outer end plate when the clothes are outside of the drying-room and the outer end plate closes and forms a portion of the outer end wall when the sections are pushed in, substantially as herein described.

2. In a drying-room, the sections composed of the vertical end pieces, with the non-conducting material between, the angle-iron plates bolted thereto, forming flanges thereon, drying-poles connecting said end pieces, suspending-rods extending above each of these sections in the upper part of the chamber, pulleys with angular suspending-yokes connecting them with the end plates of the sections, so that the pulleys travel upon the suspending-rails, and vertical angle-iron posts against which the flanges of the sections close, whereby the outer end plates of the sections form the outer wall of the room when they are closed in place, substantially as herein described.

3. In a laundry-room having permanent side and end walls, the combination of sections composed of vertical interspaced iron end pieces A and A', having the non-conducting material between them, the angle-iron plates B, bolted to said end plates, the plates C on said sections, having flanges against which the end plates abut, drying-rods extending from one end plate to the other, whereby when the front end plate is drawn out the rear end plate is advanced and closes the opening formed by the withdrawal of the front end plate, track-rods and travelers for suspending the sections, a non-conducting ceiling over the sections, means for supporting the same from the floor-girders above, so as to form an air-space, and means for supporting the track-rods, substantially as herein described.

481,846. WRAPPER. JOHN J. CONRAN, St. Louis, Mo., assignor of two-thirds to Alfred T. Serrano and Hiram A. Bridges, same place. Filed Dec. 14, 1891. Serial No. 415,074. (No model.)

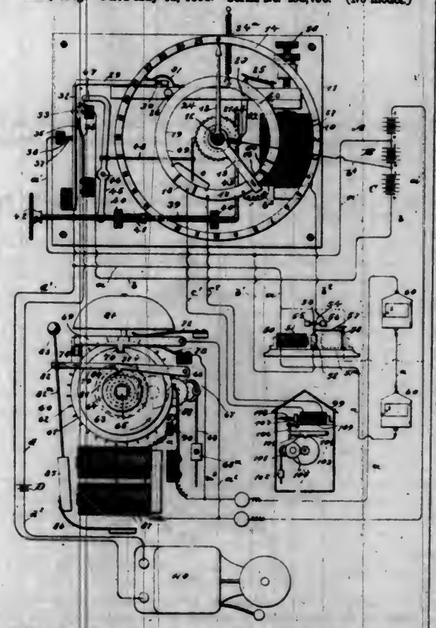


Claim.—1. A wrapper provided with a flexible tearing device secured diagonally thereto, whereby the tearing device will encompass the article in a spiral manner, substantially as set forth.

2. A wrapper provided with a cord secured diagonally to one side thereof, said cord being upon the inside of the wrapper and encompassing the article in a spiral manner when in place upon an article, substantially as set forth.

3. A wrapper provided with an adhesive substance across one end and provided with a cord secured diagonally across the inner surface of the wrapper, one end of the cord projecting beyond the edge of the wrapper adjacent to the adhesive substance, substantially as set forth.

481,847. FIRE-ALARM TELEGRAPH. ANDREW J. COFFER, Portland, Oreg. Filed May 12, 1892. Serial No. 432,730. (No model.)



Claim.—1. In a fire-alarm telegraph, a controller having operative electrical connections with a signal-box, auxiliary boxes arranged in series and connected electrically with the controller, and an automatic and permanent lock for the auxiliary-box mechanism, substantially as described.

2. A fire-alarm telegraph comprising a controller having operative electrical connections with a signal-box, auxiliary boxes arranged in series and electrically connected with the controller, manually-operated means for setting the controller mechanism, and automatic locks to permanently lock said mechanism, substantially as described.

3. In a fire-alarm telegraph, a controller comprising a circular switchboard having insulated segments operatively connected with a signal-box, a switch-arm held to move over the switchboard, a magnet and a vibrating armature held adjacent to the switchboard, a ratchet connection between the armature and the switch-arm, and manually-operated means for throwing the ratchet out of gear, substantially as described.

4. In a fire-alarm telegraph, a controller comprising a circular switchboard having insulated segments operatively connected with a signal-box, a central shaft arranged within the switchboard, a numbered dial arranged concentric with the switchboard, an indicating-pointer carried by the shaft and adapted to move over the dial, a switch-arm secured to the shaft and held to move over the switchboard, a magnet and vibrating armature-lever arranged adjacent to the switchboard, a ratchet connection between the armature-lever and the shaft, and means for throwing the ratchet mechanism out of gear, substantially as described.

5. In a fire-alarm telegraph, a controller comprising a circular switchboard having operative electrical connections with a signal-box, a switch-arm held to move over the switchboard, a magnet and a vibrating armature-lever arranged adjacent to the switchboard, a ratchet connection between the armature-lever and the switch-arm, and a circuit-closer tripped by the first movement of the armature-lever and adapted to turn in an additional electric current, substantially as described.

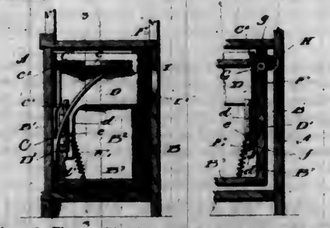
6. In a fire-alarm telegraph, the combination, with the controller-switchboard having its segments operatively connected with the signal-box, of an electro-magnet adapted to connect with an auxiliary signal-box, a vibrating armature-lever held adjacent to the magnet, a ratchet connection between the lever and the switch-arm, a spring contact-lever adapted to close a circuit through a watch-bell and to turn an additional current through the controller, and means for tripping the contact-lever by the movement of the armature-lever, substantially as described.

7. In a fire-alarm telegraph, the auxiliary box comprising a clock-work-operated circuit-breaking wheel, a manually-tripped lever held to normally lock the wheel, a non-interfering lever having a lug thereon to engage a recess in a wheel of the clock work mechanism, a normally-short-circuited magnet and armature adapted to hold the non-interfering lever out of engagement with the clock work mechanism, and means for switching the current through the magnet by the lifting of the tripping-lever, substantially as described.

8. In a fire-alarm telegraph, an auxiliary box comprising a circuit-breaking wheel adapted to make and break connections with a controller, a manually-operated tripping-lever held to normally lock the circuit-breaking wheel, a recessed wheel connected with the circuit-breaking wheel, a non-interfering lever having a lug adapted to drop into the recess of the wheel, a normally-short-circuited magnet arranged within the box, an armature arranged opposite the magnet and having a bell-hammer connected therewith, a bell arranged in the path of the hammer, a stop secured to the hammer-rod and adapted to support the non-interfering lever, and means for putting in the magnet by the lifting of the tripping-lever, substantially as described.

9. In a fire-alarm telegraph, the combination, with the segmental switchboard of the controller and the signal-box operated by clock-work mechanism, of a swinging lever held to normally lock the signal-box mechanism, a magnet and armature arranged above the lever, a hook operated by the armature and adapted to raise the lever, and an electrically-operated switch-arm adapted to move over the switch-board and close the circuit through the signal-box magnet, substantially as described.

481,848. COMBINED BUREAU AND WASH-STAND. HUBERT COUILLARD, Jacksonville, Fla. Filed May 2, 1892. Serial No. 431,396. (No model.)



Claim.—1. The combination, with the main part of the case, of a swinging part adapted to support a wash-bowl and a splash-board slidingly arranged on said swinging part to be automatically operated by the movement of the said swinging part, as set forth.

2. The combination, with the main case and a swinging part arranged to support a wash-bowl, of a splash-board slidingly supported on said swinging part, guides for the said splash-board, and a spring and connections acting in opposition to the spring, whereby the splash-board is opened and closed by the opening and closing of the swinging part, as set forth.

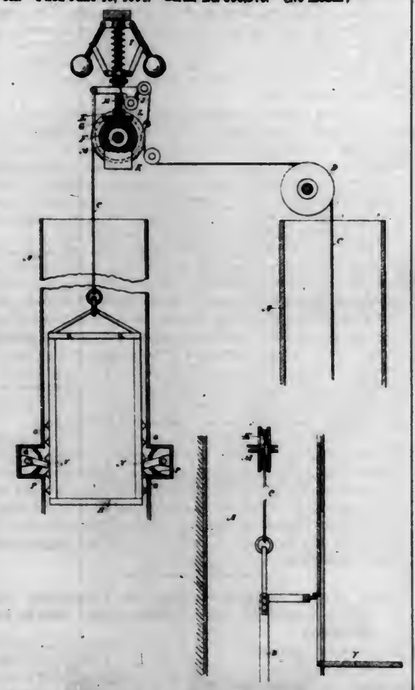
3. The combination, with the case and the swinging part, of a splash-board mounted to slide vertically in guides on the swinging

part, a spring for normally holding the said board closed, and a cord and connections with the said board and case for opening the splash-board as the swinging part is turned outward, as set forth.

4. The combination, with the swinging part, of the brackets thereon with offsets, the sliding splash-board having a depending portion, a guide for said depending portion, a spring connected with the splash-board to keep it closed, and a cord and connections for opening the splash-board or moving it vertically by the swinging of said swinging part, as set forth.

5. The combination, with the case and the swinging part, of the brackets on the swinging part, provided with offsets, the splash-board mounted to slide between the offset portions of the brackets and the adjacent portion of the swinging part and provided with a depending portion having a right-angled part, a guide for said right-angled part, a spring connected with the depending portion and with the bottom of the swinging part, and a cord connected with the splash-board and with some fixed part and run over pulleys, as shown and described.

481,849. FIRE-ESCAPE. ARTHUR R. CRUICKSHANK, San Francisco, Cal. Filed June 15, 1891. Serial No. 396,370. (No model.)

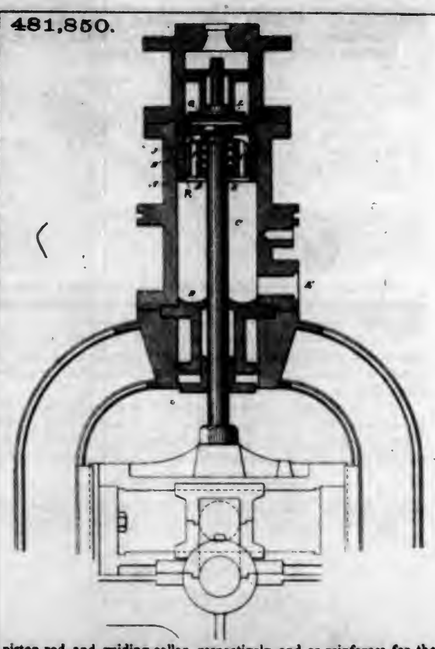


Claim.—A fire-escape consisting of the parallel vertical shafts, cages moving therein and connected with the single rope passing over guide-pulleys, an automatically-operating governor and brake, and supplemental checks whereby the speed of the downwardly-moving cage is regulated and checked, and the elastic or spring platform at the bottom, upon which the cage is received, substantially as herein described.

481,850. AIR-COMPRESSOR. MICHEL DILLENBURG, San Francisco, Cal. Filed Apr. 17, 1891. Serial No. 389,357. (No model.)

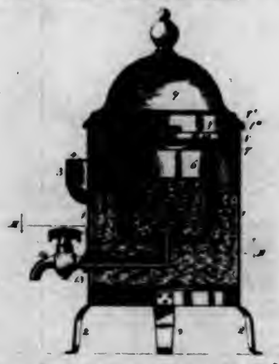
Claim.—An improved air-compressor consisting of a cylinder, a piston-rod, a piston having an exterior sleeve provided with an annular groove around its interior near the bottom and a beveled valve-seat around its interior near its top, said piston having a web whose lower end is smaller than its body, a ring between the web and sleeve and occupying the groove of the latter and the reduced portion of the former and serving as the means for locking the sleeve to the web, but allowing of the ready separation of these parts, said web having a central opening with openings I upon each side thereof, and a central chamber, a spring in said chamber, a valve at the upper end of the piston-rod and a guide-collar on said rod below the valve, said central opening and inner walls of the chamber serving as bearings for the

481,850.



piston-rod and guiding-collar, respectively, and as reinforces for the upper end of the piston-rod, all constructed, combined, and arranged to operate substantially as herein described.

481,851. COFFEE-URN. FREDERICK DOERING, St. Louis, Mo. Filed Feb. 16, 1892. Serial No. 421,744. (No model.)



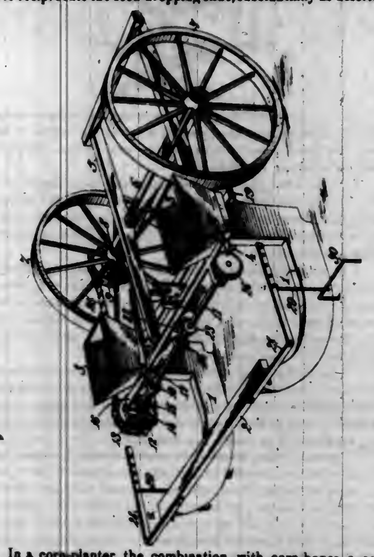
Claim.—1. The combination, with the coffee-vessel and inclosing vessel, of the metal collar 8, secured to the upper rim of the coffee-vessel and fitting the upper rim of the inclosing vessel, substantially as set forth.

2. The combination, with the inclosing vessel and the coffee-vessel having a flange 7, of the collar 8, provided with a flange 8^a, by which it is supported, with a lower lip 8^b, having a flange 8^c, and with the upper lip 8^e, having a flange 8^d, substantially as described.

481,852. CORN-PLANTER. HARVY H. DOUGHERTY, Waverly, Ill., assignor of one-half to Albert F. Brown, same place. Filed Apr. 22, 1892. Serial No. 430,234. (No model.)

Claim.—1. In a corn-planter, the combination, with corn-boxes, a corn-dropping slide, and ground-wheels, one of which carries a chain-engaging wheel, of a transverse shaft provided at one end with a chain-engaging wheel, a chain trained over said chain-engaging wheels, a forked arm secured to the corn-dropping slide, a crank-arm, one member of which engages the fork of said forked arm and the other member of which is secured to a shaft carrying a gear-wheel, and gears on the transverse shaft meshing with said gear-wheel, substantially as described.

2. In a corn-planter, the combination, with corn-boxes, a corn-dropping slide, and ground-wheels, one of which carries a chain-engaging wheel, of a transverse shaft provided at one end with a chain-engaging wheel, a chain trained over said chain-engaging wheels, a forked arm secured to the corn-dropping slide, a crank-arm, one member of which engages the fork of said forked arm and the other member of which is secured to a shaft carrying a gear-wheel, and mutilated gears on said transverse shaft alternately meshing with said gear-wheel to reciprocate the seed-dropping slide, substantially as described.



3. In a corn-planter, the combination, with corn-boxes, a corn-dropping slide, and ground-wheels, one of which carries a chain-engaging wheel, of a transverse shaft, a chain-engaging wheel 12, having a lateral tooth or pin turning loosely on one end of said shaft, a chain trained over said chain-engaging wheels, a forked arm secured to the corn-dropping slide, a crank-arm, one member of which is secured to a shaft carrying a gear-wheel, mutilated gears on said transverse shaft alternately meshing with said gear-wheel, a cog-wheel on the transverse shaft, and a lever for throwing the same into and out of engagement with the lateral tooth or pin on the chain-engaging wheel 12, substantially as described.

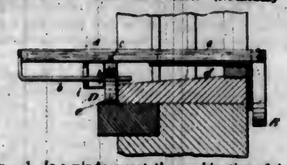
4. In a corn-planter, the combination, with the runners, corn-boxes, and corn-dropping mechanism, of pointer-arms 28, secured to the runners and extending rearward, the pins 29, suspended from and adjustable along the pointer-arms, the laying-out wires 30, and an indicator-wheel in operative connection with the corn-dropping mechanism, substantially as described.

481,853. DRAWER-PULL. ROMAN EICHSTAEDT, Michigan City, Ind. Filed Apr. 30, 1892. Serial No. 431,228. (No model.)



Claim.—In a drawer-pull, the combination, with an inside plate provided with integral perforated brackets stamped therefrom, of an outside plate having perforations for the reception of said brackets and a central opening, a tag or card denoting the contents of the box, secured by the brackets between the face of the box and the outside plate and in such position that it can be seen through the central opening, and a spring-handle provided with trunnions adapted to pass through said brackets to hold the plates in place, substantially as specified.

481,854. WINDOW-SEAT. WILLIAM ENGLER, Brooklyn, N. Y. Filed Feb. 13, 1892. Serial No. 421,419. (No model.)

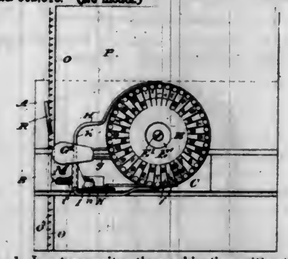


Claim.—1. In a window-seat, the combination of the board A, the folding board B, hinged to the board A and arranged to open out at right angles to and shoulder against said board A, and the angled rods *b*, attached to the edge of the board A and extending parallel with the board A, and the support D, adjustable on the rods *b* and adapted to rest upon the window-sill, substantially as specified.

2. In a window-seat, the combination of the base-board A, the folding board B, hinged to the board A and arranged to open out at right angles to and shoulder against the said base-board, the angled rods *b*, attached to the edge of the base-board and extending underneath and parallel to the said base-board, the adjustable support D, placed on the rods *b* and adjustable along the length of the said rods, and spurs *c*, projecting from the adjustable support D and adapted to enter into and engage the under surface of the board A, substantially as specified.

3. In a window-seat, the combination of the board A, the board B, hinged to the board A and arranged to open out at right angles to the said board A, the yielding strips *d*, attached to the boards A B, the right-angled rods *b*, attached to the edge of the board A and extending parallel with its under surface, and the adjustable support D, placed on the rods *b* and provided with a yielding covering on its lower edge, substantially as specified.

481,855. TYPE-WRITING MACHINE. ANALDO M. ENGLISH, New York, assignor to Philip Becker, Brooklyn, N. Y. Filed May 15, 1891. Serial No. 392,818. (No model.)



Claim.—1. In a type-writer, the combination, with a table formed with a guide-groove, of a spring click or pawl secured to the table and extending over said groove and a notched paper-holding clip movable in said guide-groove beneath said clip, substantially as described.

2. In a type-writer, the combination, with a fixed rack, of a carriage, printing devices, including a printing-key, spacing mechanism, including a locking-pawl and an operating-frame, and a spiral propelling-spring for the carriage, said spring being mounted on and traveling with the carriage, and each depression of the said printing-key or operating-frame serving to distend said spring and the reaction of the spring serving to propel the carriage, substantially as described.

3. In a type-writer, a table, a carriage-way consisting of a plate having overhanging side edges and a rack provided in one side thereof, and a carriage mounted to travel in said way, in combination with printing mechanism and feed devices carried by said carriage, the latter engaging the aforenamed rack, substantially as described.

4. In a type-writer, the combination, with a rack, of a carriage carrying the following elements: a locking-plate having a pawl for engaging said rack, a detent also arranged to engage said rack, a lever for tripping said locking-plate, and a spring, substantially as described.

5. In a type-writer, the combination, with a carriage, of a horizontal printing-disk and an impression-frame carried thereby and a feed mechanism on the carriage, operating in conjunction with a fixed rack on the base and comprising a locking-plate having a pawl for engaging said rack, a detent movable independently of the said pawl and arranged to engage the rack for actuating the carriage, a lever

adapted to engage both the pawl and detent for tripping the same, a spring acting on said lever and serving, also, to actuate the carriage, and a frame connected with said lever and adapted to be operated by the impression-frame, substantially as described.

6. In a type-writer, the combination, with a carriage, of a feed mechanism comprising a rack, a locking-plate having a pawl that engages said rack, a detent separate from said plate, arranged to engage said rack and to be disengaged by said plate, and a spring-controlled feeding-lever engaging said locking-plate, substantially as described.

7. In a type-writer, the combination, with a carriage, of a feed mechanism therefor comprising a rack, a locking-plate having a pawl that engages said rack and having two slots, a detent passing through one of said slots to engage the rack, a feed-lever having a stud passing through the second slot of the locking-plate, a spring connected with the stud and with the carriage, and a lifting-bar for disengaging both the pawl and the detent, substantially as described.

8. As a new article of manufacture, a paper-holder for type-writers, consisting of a clip having a clamping-strip therein, substantially as described.

9. As a new article of manufacture, a paper-holder for type-writers, consisting of a clip having a clamping-strip provided with beveled projections which extend through slots in the clip, substantially as described.

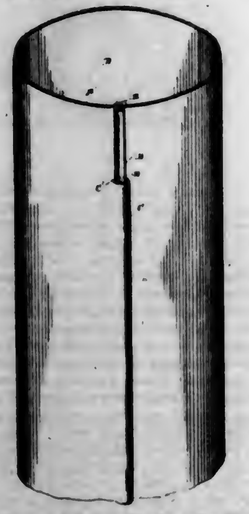
10. In a type-writer, paper-holding devices consisting of a movable paper-holding clip having a clamping-strip and provided with notches and a click arranged in the path of the clip for engaging said notches, substantially as described.

11. In a type-writer, a feed or spacing mechanism comprising a rack, a pawl, and a detent, the said detent normally engaging the rack and also maintaining the pawl in engagement with the rack, substantially as described.

12. In a type-writer, a feed or spacing mechanism comprising a rack, a pawl, and a detent, the detent normally engaging the rack and maintaining the pawl in engagement with the rack, and a spring-acted tripping-lever for the pawl, substantially as described.

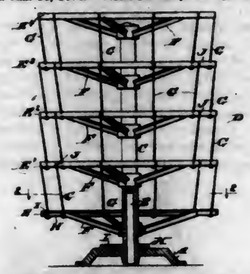
13. In a type-writer, a feed or spacing mechanism comprising a rack, a plate provided with a pawl that normally engages said rack and formed with two slots, a spring-detent extending into one of said slots and engaging the rack, a tripping-lever having a stud entering the second slot of the plate, and a spring connected with said lever and with the carriage or part to be moved, substantially as described.

481,856. STOVEPIPE. THOMAS S. EVANS, St. Louis, Mo. Filed Feb. 2, 1892. Serial No. 420,060. (No model.)



Claim.—In a stovepipe, the combination, with a blank, of an outturned lip formed on one edge of the same, the opposite edge of the blank being formed with a transverse slot, an inturned lip formed on said edge between the slot and one end of the pipe, and the portion of the said edge between the slot and the opposite end of the pipe bulged inward, substantially as and for the purpose shown and described.

481,857. REVOLVING PAPER-FILE. RALPH B. FERGUSON, Akron, Ohio. Filed Jan. 11, 1892. Serial No. 417,794. (No model.)



Claim.—1. A revolving paper-file comprising a frame mounted to turn and impaling-pins extending upward on the outside of the said frame, the lower ends of the pins being pivoted to the said frame, substantially as shown and described.

2. A revolving paper-file comprising a frame mounted to revolve and provided with rings or disks located one above the other, of impaling-pins pivoted on the said rings or disks and adapted to be swung into an outermost open or innermost closed position, substantially as shown and described.

3. A revolving paper-file comprising a frame mounted to revolve and provided with rings or disks located one above the other, of impaling-pins pivoted at their lower ends to the said rings or disks and extending when in a closed position between two adjacent disks or rings, the said pins being adapted to swing in an outermost open position, substantially as shown and described.

4. In a revolving paper-file, the combination, with a frame mounted to revolve and provided with rings or disks located one above the other, of spring-pressed impaling-pins hinged on the said rings or disks and adapted to engage with their free ends recesses in the next-following ring, substantially as shown and described.

5. In a revolving paper-file, the combination, with a frame mounted to revolve and provided with horizontally-extending rings arranged one above the other, of impaling-pins pivoted near the edges of the said rings and adapted to engage with their free ends recesses in the next-following ring, and springs pressing on the pivoted ends of the said pins to hold the same in an innermost or outermost position, substantially as shown and described.

6. A revolving paper-file comprising a frame mounted to revolve and provided with rings or disks located one above the other, of impaling-pins pivoted at their lower ends to the said rings or disks and extending when in a closed position between two adjacent disks or rings, the said pins being adapted to swing in an outermost open position, and a spring for each impaling-pin to hold the latter in an innermost closed or an outermost open position, substantially as shown and described.

7. A revolving paper-file comprising a revolvable frame and impaling-pins arranged in sets on the said frame, one set being located above the other, and the pins of one set arranged alternately with the pins of the next set, substantially as shown and described.

481,858. GUN-CLEANER. WILL H. FERRIS, Franklinville, N. Y. Filed Apr. 28, 1892. Serial No. 430,976. (No model.)



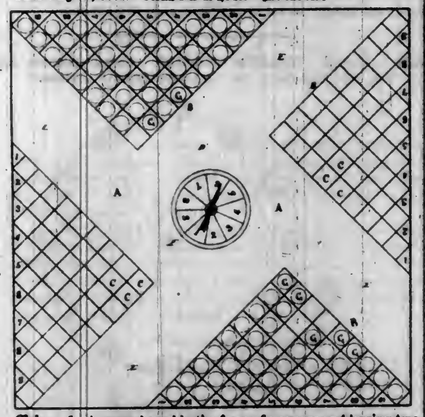
Claim.—1. In a gun-cleaner, the combination of a head having spring-arms or scraping portions formed integral therewith and an expanding bolt to which the cleaning-rod is adapted to be directly attached, substantially as shown, and for the purpose set forth.

2. In a gun-cleaner, the combination of a head having spring members integral therewith, a headed bolt for expanding said spring members, said bolt being adapted to slide in the head and pass beyond the same for engagement with a cleaning-rod, substantially as shown, and for the purpose set forth.

3. In a gun-cleaner, the combination of a head made up of a single piece and provided with longitudinal slits to provide expansible spring members, said head having a tapered aperture substantially circular in cross-section and a rectangular aperture, and a bolt having a rounded head and a rectangular portion adjacent thereto, substantially as shown, and for the purpose set forth.

4. In a gun-cleaner, the combination of a head provided centrally with a tapered aperture, slits dividing the tapered portion of the head into spring members, the lower end of said members having outwardly-projecting flanges, an expanding bolt having a rounded head and a threaded end which projects beyond the end of the cleaner for engagement with the cleaning-rod, substantially as shown.

481,859. PARLOR GAME. STANSBURY GROSS, Williamsport, Pa. Filed May 27, 1892. Serial No. 434,649. (No model.)



Claim.—1. A game-board in the form of a square and having two or more triangular series of small squares or blocks arranged along its sides adjacent to the corners and numbers for each line of squares or blocks, substantially as set forth.

2. A square game-board having four triangular series of small squares or blocks arranged adjacent to its four corners, said small squares or blocks extending in parallel rows, with numbers for each row and each row having one less number of squares than the preceding row, substantially as set forth.

3. A square game-board having four triangular series of squares or blocks arranged along its four sides adjacent to the four corners, said squares or blocks extending in rows parallel with the diagonals of the square, substantially as set forth.

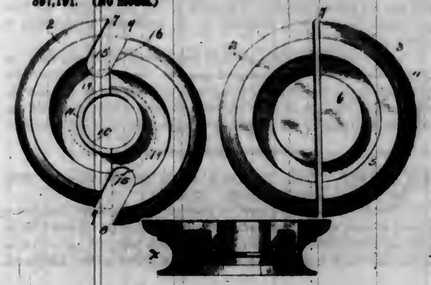
4. A square game-board having four triangular series of squares or blocks arranged in parallel lines along the four sides adjacent to the corners, a central open space and side open spaces between the said series of squares, and numbers for the rows of squares arranged along the outer edges of the triangular series, as set forth.

5. The combination, in an improved game, of a square board having two or more triangular series of small squares or blocks running in parallel rows, numbers for the rows of squares, suitable counters, and a twirling-disk, substantially as set forth.

481,860. SOAP. JOHN GRAY and ABNER SIMMONS, Corsicana, Tex. Filed Jan. 30, 1892. Serial No. 418,671. (No specimens.)

Claim.—A composition for soap, composed of the following ingredients in substantially the proportions specified, viz: sal-soda, borax, salts tartar, ammonia, turpentine, benzine, coal-oil, and soap, as set forth.

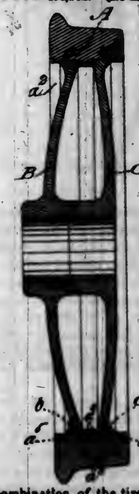
481,861. CUTTER-HEAD AND KNIFE. CHARLES GROVE, Ottumwa, Iowa, assignor to Cooper & Hampton. Filed June 23, 1891. Serial No. 397,191. (No model.)



Claim.—1. The combination, in a cutter-head, of the two equal parts having their semicircular peripheries grooved or patterned, with semicircular walls projecting from the side of the cutter-head and eccentric with the peripheries thereof, said walls having their outer surfaces tapered or coned, an annular ring having its internal surface coned to fit said walls, and thereby secure said parts in offset positions with respect to one another, and an opening concentric with said walls and ring to admit the arbor, and the projecting edges of said two parts being sharpened and parallel with the axis of the wheel, substantially as described.

2. The combination, in a cutter-head, of the two parts 2 and 3, each of a semicircular form, having the patterned peripheries, and each provided with a tapering channel 10 and semicircular walls 11, said walls being tapered and eccentric with the peripheries of the two parts, with the webs between the said walls and the outer portion of the cutter-head, the annular clamping-ring to engage said tapering wall, and the sharpened edges 7 and 8, said parts being provided with slots 15 and the chambered ends 16, all substantially as described.

481,862. CAR-WHEEL. HERMAN GUELS, St. Louis, Mo. Filed Sept. 19, 1891. Serial No. 406,202. (No model.)



Claim.—1. The combination of the tire and the sides, said tire having the two circumferential grooves a a' formed with the outer engaging walls a^2 extending in an approximately radial direction and inclined slightly outward from the center of the tire and said sides being shaped at their peripheral portions so as to fit onto and engage said notches, substantially as described.

2. A car-wheel having its tire and central portion formed in separate parts, said tire having the inner circumferential grooves a a' formed with inner and outer walls a^2 a^3, both outwardly inclined from the center of the tire, and said central portion consisting of two disks, which at the periphery thereof are inserted in the notches in said tire, substantially as set forth.

3. A car-wheel having its tire and central portion in separate parts, said central portion consisting of two disks, which at the periphery thereof are inserted in notches in the inner face of said tire, said notches each having the inner line a^2 thereof parallel with the central axis of the wheel, the inner side a^3 inclined outward and the outer side a^2 inclined outward, and said peripheral disk portions being fitted to said notches, substantially as described.

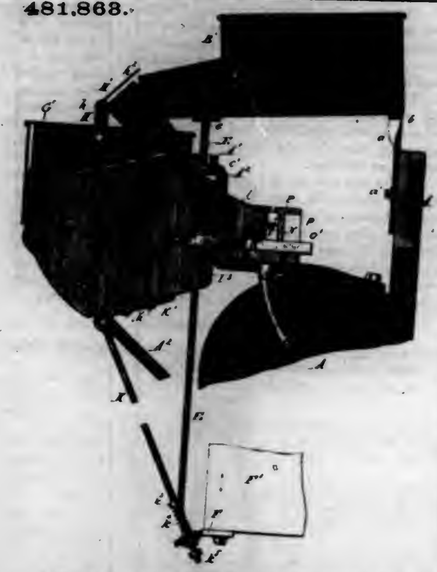
481,863. BOX-NAILING MACHINE. BYRON M. GUSTON, Oswego, N. Y., assignor to Thomson Kingsford, same place. Filed Mar. 5, 1892. Serial No. 423,900. (No model.)

Claim.—1. The nail-pan herein described, provided with partitions pivoted at their lower ends and having devices at their front ends for securing them in the desired adjusted positions.

2. The nail-pan herein described, provided with partitions pivoted at their lower ends to the bottom of the pan and adjustably secured at their upper rear ends to a slotted cross-piece, substantially as described.

3. The combination of the nail-pan, the bolts carrying springs, on which the nail-pan is supported at its front end, and means for vibrating the pan.

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4. The combination of the nail-pan, the bolts carrying springs, on which the nail-pan is supported, and the vertically-reciprocating rod carrying a spring at its upper end, bearing against the nail-pan.

5. The combination of an inclined nail-pan, means for oscillating it vertically, an inclined hopper in front of and below the nail-pan, and adjustable retarders interposed between the hopper and the pan to deflect the nails to the upper end of the inclined bottom of the hopper.

6. The combination of the nail-pan, the hopper, the retarders having the downwardly and rearwardly inclined plates and the upwardly and rearwardly inclined plates, and a shaft on which the plates are mounted.

7. The combination of a nail-pan, a hopper having a forwardly and downwardly inclined bottom and located below the nail-pan and in front thereof, the oscillating nail-tracks working vertically through the hopper and inclined forwardly and downwardly at the end of the downward stroke, the stationary nail-tracks, with which the oscillating rearwardly-extending downwardly-inclined nail-tracks connect, and cut-off mechanism at the lower ends of the stationary tracks.

8. The combination of the hopper, a V-shaped trough therein, the oscillating track working vertically through the trough, and the hinged gate notched at its lower end and bearing on both tracks and which is raised and lowered by the oscillating track.

9. The combination of a hopper having an inclined bottom, a vertically-oscillating track therein, and a guard-plate I', carried by the lower end of the track and extending upwardly therefrom, for the purpose specified.

10. The combination, substantially as set forth, of an inclined hopper provided with a series of V-shaped troughs, an oscillating track, the inclined blocks at the lower ends of the hopper on opposite sides of the track, the upwardly-projecting guard-plate I' between the blocks, and the gate hinged to the upper end of the hopper and bearing against the track.

11. The inclined stationary track herein described, having the opening T, through which superfluous nails are delivered, connected at its upper end with means for feeding nails to the cut-off mechanism, in combination with cut-off mechanism at the lower end of the track, having devices for supporting a number of nails between the opening T and the lower end of the track, and a finger for picking off one nail at a time from the nails thus supported, substantially as set forth.

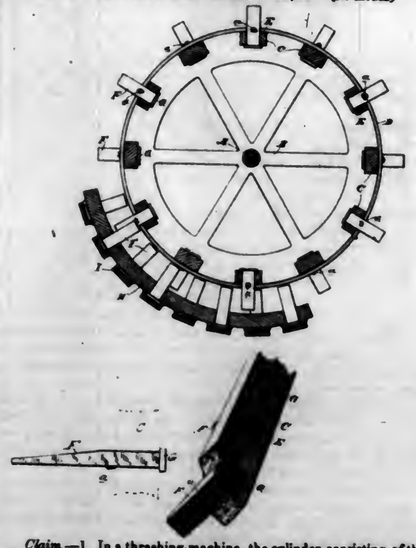
12. The combination, substantially as set forth, of the stationary track, the oscillating track, means for operating the oscillating track, the transversely-reciprocating spring-pressed block carrying the cut-off finger, and connections between the oscillating track and the spring-pressed block for moving the block against the force of the spring.

13. The combination of the finger-carrying spring-pressed block, the grooved uprights, between which the block is mounted, and the top piece or cover provided with an upright board working vertically in the grooves.

14. The combination, with the vertically-reciprocating cross-head, of cut-off devices, the vertically-oscillating track, connections between the track and the cut-off devices, by which the latter are operated, a rod adjustably secured to the track, and a yielding connection between the rod and the cross-head.

15. The combination of the hinged nail-pan, the hopper, the oscillating tracks extending into the hopper, the stationary tracks, the cut-off mechanism, the hammer-carrying cross-head, a rod adjustably connected thereto for oscillating or vibrating the nail-pan, connections between the oscillating nail-tracks and the cut-off mechanism, rods connecting the oscillating nail-tracks with the hammer-carrying cross-head, and springs carried by the lower ends of the rods.

481,864. **THRASHING-CYLINDER.** SAMUEL HAMILTON, King City, Cal. Filed Apr. 6, 1892. Serial No. 428,092. (No model.)



Claim.—1. In a thrashing-machine, the cylinder consisting of the shaft having the disks or spiders secured to it, the bars secured to the periphery of the disks or spiders parallel with the shaft and having rectangular slots made through them, and thrashing-teeth fitted to said bars and held therein by the centrifugal force of the cylinder, said teeth being of approximately rectangular shape in cross-section, having the front and rear edges parallel from end to end, and the sides parallel for a portion of their length from the base, and thence decreasing in diameter to the outer end, substantially as herein described.

2. In a thrashing-cylinder, a cylinder consisting of disks or spiders secured to a central rotary shaft having tooth-bars fixed to their peripheries parallel with the central shaft, rectangular slots made radially in the tooth-bars, teeth having heads upon their inner ends, rectangular in section, corresponding with the openings in the tooth-bars, and a wedge-shaped or tapering transverse section exterior to the bars with the front and rear faces parallel, and indentations made upon the sides of the teeth exterior to the tooth-bars, whereby the metal is raised above the surface around the indentations to prevent the teeth from falling out when the machine is at rest, substantially as herein described.

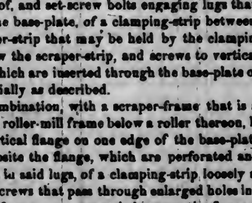
3. A thrashing-machine tooth of approximately rectangular shape in cross-section, having the front and rear edges parallel from end to end and the sides parallel for a portion of the length from the base and thence decreasing in diameter to the outer end, substantially as herein described.

4. A thrashing-machine tooth of approximately rectangular form in cross-section, having an integral head at the inner end, the edges which are in the line of travel being parallel from end to end and the sides parallel for a portion of the length outward from the head and thence converging to the outer end, substantially as herein described.

481,865. **TOOL.** CHARLES B. HARER, Saxton's River, Vt. Filed Oct. 7, 1891. Serial No. 408,056. (No model.)

Claim.—1. An attachment for hammers and hatchets, comprising a body portion having a threaded shank, a pointed prong, and a knife, all integral with the body, the prong and knife being on opposite sides of the said body, and an internally-screw-threaded socket adapted to be secured in the end of the handle, projecting through the head of the hammer or hatchet, substantially as described.

2. An attachment for hammers and hatchets, consisting of a body portion having a threaded shank, a pointed prong, and a knife, all integral with the body, the prong and knife being on opposite sides of the said body, and an internally-threaded socket having barbed flanges thereon, substantially as herein shown and described.



3. A hammer or hatchet provided with an internally-screw-threaded socket secured in the end of the handle, which projects into the eye of the hammer or hatchet, whereby the socket is made to serve as a means for attaching a tool thereto and for securing the handle therein, substantially as described.

4. The combination, with a hammer or hatchet, of a socket adapted to enter the handle of the hammer or hatchet within the hammer or hatchet head, said socket having barbed flanges thereon and an internal screw-thread therein, and a tool having a threaded shank to fit the socket and having on one side a pointed prong and on another side a knife, substantially as described.

481,866. **ADJUSTABLE SCRAPER FOR ROLLER-MILLS.** JOHN HARVEY, Brooklyn, N. Y. Filed May 21, 1891. Serial No. 393,532. (No model.)

Claim.—1. The combination, with a frame having a base-plate, an integral flange thereon at right angles thereto and aligning with one edge thereof, and set-screw bolts engaging lugs that are opposite the flange of the base-plate, of a clamping-strip between the lugs and flange, a scraper-strip that may be held by the clamping-strip, a follower-bar below the scraper-strip, and screws to vertically adjust the follower-bar, which are inserted through the base-plate of the scraper-frame, substantially as described.

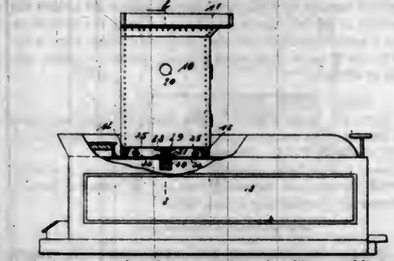
2. The combination, with a scraper-frame that is adapted to be secured upon a roller-mill frame below a roller thereon, having a base-plate and a vertical flange on one edge of the base-plate, lugs on the base-plate opposite the flange, which are perforated and tapped, and set-screw bolts in said lugs, of a clamping-strip loosely secured on the base-plate by screws that pass through enlarged holes in the base-plate of the scraper frame, a scraper-strip between the flange and clamping-strip, a follower-bar below the scraper-strip, and set-screw bolts which have a threaded engagement with the base-plate of the frame and bear on the lower edge of the follower, substantially as described.

481,867. **MESSENGER'S PICKET.** JAMES C. HAYS, Rusk, Tex., assignor of one-half to John J. Murray, same place. Filed Mar. 30, 1892. Serial No. 427,101. (No model.)

Claim.—1. The combination, with a locomotive-tender, of the messenger's picket consisting of a box-like structure mounted on wheels and having a side door and port-holes with closing shutters, and means for attaching it to the flat-top portion of the tender, as shown and described.

2. The combination, with the locomotive-tender having a threaded socket therein, of the revolvable picket having a depending bolt to enter the socket, the picket having also a door in one side with a fastening device therefor and port-holes in its sides, substantially as described.

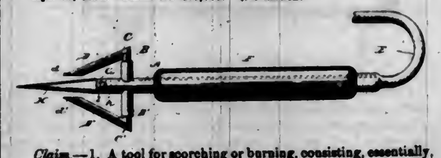
3. The combination, with the tender having rings therein, of the movable picket having a door in one side, port-holes in its sides, and chains depending from its inner sides and terminating in hooks adapted to engage the tender-rings, substantially as described.



4. A messenger's picket comprising a box-like portable structure having a door in one side with a fastening device therefor, shutter-protected port-holes in its sides, cross-bars extending across the bottom, and a fastening-bolt extending downward through the cross-bars and adapted to secure the picket to a support, substantially as shown and described.

5. A messenger's picket comprising a box-like structure having a door in one side, port-holes in its sides, swinging shutters for the port-holes, a seat arranged within it, and fastening-chains secured within it near the top and extending downward through the bottom, the chains being adapted to be secured to a support, substantially as described.

481,868. **TOOL FOR ORNAMENTING THE SURFACES OF WOOD.** CHARLES M. HAYNES, Chillicothe, Ohio. Original application filed July 18, 1891, Serial No. 399,962. Divided and this application filed Apr. 11, 1892. Serial No. 428,686. (No model.)



Claim.—1. A tool for scorching or burning, consisting, essentially, of a tubular handle adapted to be connected with a suitable gas-supply and two Bunsen burners extending from said tubular handle and inclined toward each other so as to direct their flames to a common point, substantially as set forth.

2. A tool adapted for ornamenting wooden surfaces by burning, consisting, essentially, of a burning-stylus mounted upon a suitable handle and a pair of burners arranged on opposite sides of said stylus and carried by said handle, substantially as set forth.

3. A tool adapted for ornamenting wooden surfaces by burning, consisting, essentially, of a short metal bar drawn to a point and having flattened sides, a tubular handle to which said bar is attached, and burners attached to said tubular handle and arranged on opposite sides thereof so that their flames will impinge on the flattened sides of said bar, substantially as set forth.

4. A tool adapted for ornamenting wooden surfaces by burning, consisting, essentially, of a short metal bar drawn to a point and having flattened sides, a tubular handle to which said bar is attached, and branch tubes attached to said tubular handle above the base of the bar C and carrying at their ends Bunsen burners, said tubes being so shaped that the Bunsen burners will extend toward the bar, substantially as set forth.

5. A tool for scorching or burning, consisting, essentially, of a tubular handle adapted to be connected to a suitable gas-supply, a burning-stylus supported from the forward end of said handle, and two burners extending from the handle and inclining toward the burning-stylus, the inner edges of said burners being beveled off substantially parallel to the faces of the stylus, substantially as set forth.

6. A tool for scorching or burning, consisting, essentially, of a tubular handle adapted to be connected with a suitable gas-supply, a burning-stylus detachably secured to said handle, branch tubes extending from said tubular handle, elbows in said tubes, and Bunsen burners extending from said elbows and converging toward the stylus, substantially as set forth.

7. A tool for scorching or burning, consisting, essentially, of a tubular handle, a burning-stylus attached to said handle and consisting of a bar having a broad flat head drawn to a thin edge, branch

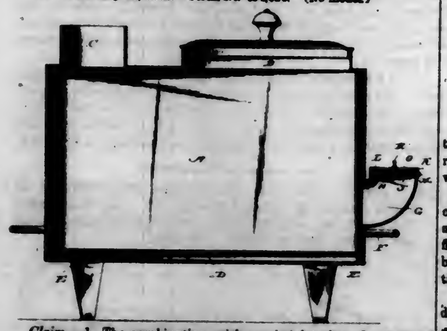
tubes extending from said tubular handle, and Bunsen burners extending from said branch tubes and converging toward the flat sides of said stylus, substantially as set forth.

8. A tool for scorching or burning, consisting, essentially, of a tubular handle, a burning-stylus attached to said handle and formed with a broad flat head having its under edge drawn to a thin burning edge, and burners extending from the tubular handle toward the upper portion of the flat sides of said stylus, whereby the stylus is retained in a heated condition and the lower thin burning-edge is not exposed to the flame, so that a fine clear-cut line can be made, substantially as set forth.

481,869. BASIC LINING. JACOB REESE, Pittsburg, assignor to the Bessemer Steel Company, Limited, Philadelphia, Pa. Filed Feb. 15, 1892. Serial No. 52,776. (No specimens.)

Claim.—A basic lining composed of a mixture of previously highly-dried, shrunk, and indurated lime and an adhesive carbonaceous substance, substantially as described.

481,870. HEATING-STOVE AND DRAFT-REGULATOR THEREFOR. FRITZ H. RIEPE, Jr., and CHARLES F. HILGEMAN, Metropolis City, Ill. Filed May 23, 1892. Serial No. 434,223. (No model.)



Claim.—1. The combination, with an air-inlet pipe of a stove, of a sleeve connected to said inlet-pipe and provided at its free end with a radial flange and an apertured regulating-plate fitted between said flange and a fixed head secured within and partially closing the outer end of the inlet-pipe, substantially as shown and described.

2. The combination, with an air-inlet pipe, of a sleeve fitted around the free outer end of said pipe and provided with a series of slots and having an inwardly-extending flange at its free end, bolts extending through said slots in the sleeve to hold it in position on the air-pipe, and an apertured regulating-plate arranged between the inwardly-extending flange on the sleeve, and a plate secured within and partially closing the outer end of the air-inlet pipe, substantially as described.

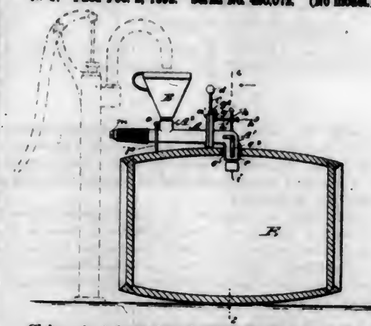
481,871. SPLIT PULLEY. DANIEL G. REITZ, Berlin, Pa., assignor to the Eureka Wood Pulley Company, same place. Filed Apr. 15, 1892. Serial No. 429,336. (No model.)



Claim.—1. In a split pulley, the opposite adjustable hub plates or sections having squared pockets or recesses, the spokes connected with each of said plates and the rim of the pulley, opposing clamping-blocks loosely fitting in said pockets or recesses and overlapping the open ends of the same, and adjusting strips or blocks removably inserted in said pockets or recesses back of said clamping-blocks, substantially as set forth.

2. In a split pulley, the opposite hub-plates having parallel projecting flanges in from the edges thereof, and a series of integral tubular spoke-sockets projecting outwardly therefrom, the registering half-rims removably clamped together, the spokes tenoned in said rims and having their inner ends fitted in said sockets, opposing clamping-blocks loosely and adjustably mounted between said flanges and provided with V-shaped clamping-grooves, and end flanges overlapping the ends of the plate-flanges, and clamping-bolts passing through the corners of said hub-plates outside of the flanges thereof, substantially as set forth.

481,872. LIQUID-MEASURING DEVICE. JACOB ROSS, Brooklyn, N. Y. Filed Feb. 2, 1892. Serial No. 420,072. (No model.)



Claim.—1. A faucet barrel or body having a branch opening between its ends, a closure adapted to close said opening and also the rear end of the barrel or body, and a float-operated valve in the forward end of the barrel or body, substantially as shown and described.

2. A faucet barrel or body having its rear end tapered to fit the outlet-aperture of a barrel and its opposite depending end longitudinally ribbed or corrugated to fit the filling aperture or bung, and a float-operated valve between the ends of said barrel or body, the float being adjacent to the depending end of the body or barrel, substantially as set forth.

3. The combination, with the barrel or body provided with a downwardly-projecting forward end and a vertically-extending slideway in rear of said forward end, of the vertically-sliding gate-valve in said slideway, a bell-crank lever pivoted on the barrel with its upper end constructed to loosely engage and support the gate when raised, a vertically-adjustable float-rod extending down alongside the said downwardly-projecting end, connections between the horizontal arm of the bell-crank lever and the upper end of the float-rod, and a float on the lower end of the rod, substantially as set forth.

4. The combination, with a draw-cock body having a depending nozzle, of vertical ribs thereon and a spring opposite one rib, substantially as described.

5. The combination, with a draw-cock body having a branch or inlet at right angles to its longitudinal passage, of a funnel securable thereto, means to stop the rear end of the body, and an automatically-dropping gate near the discharge end of the body, substantially as described.

6. The combination, with a hollow elongated body having a depending nozzle that is adapted to be removably secured in a barrel bung-hole, of a pair of prop-legs secured to swing on the body near its rear end, a branch inlet-neck on the body, and a funnel securable therein, substantially as described.

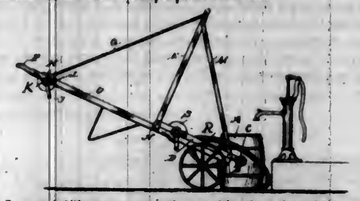
7. The combination, with a hollow elongated body having a depending nozzle securable in a cask bung-hole, of a hollow cup thereon adapted to swing laterally with an upright trigger-rod, a lateral finger-bar on the rod, which is adjustable for height, a bell-crank lever having one limb engaged with the end of the finger-bar and the other limb engaged loosely with a notch in a vertical valve-rod, a sliding gate-valve, a notched rod thereon, and a weight on the rod, substantially as described.

8. In a liquid-measuring device, a gate-valve-trigger mechanism comprising a pivoted bell-crank lever having one limb loosely engaged with a notched rod on the gate-valve, a supported cup-shaped float, a trigger-rod engaging the cup-float below, and having an adjustable finger-bar above, which loosely engages the other limb of the bell-crank lever, substantially as described.

481,873. SPRINKLING DEVICE. JOHN L. HARDY, Pelham Manor, N. Y., assignor to Etta L. Hardy, same place. Filed Sept. 18, 1891. Serial No. 406,196. (No model.)

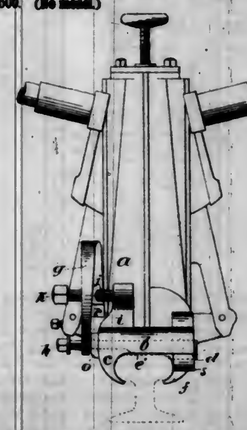
Claim.—1. In a water-sprinkling apparatus, the combination of the vehicle or carriage, the tilting frame pivoted thereto, the tank or water-barrel swiveled to said frame, and a hand-winch or other suitable mechanism for elevating the barrel, as and for the purpose set forth.

2. In a sprinkling apparatus, the combination of the vehicle or carriage, the tilting frame pivoted thereto, and the barrel or tank A, swiveled in the tilting frame, the parts being so arranged as that the barrels when in an elevated position can be retained at or just within the dead-center, as and for the purposes set forth.



3. In a sprinkling apparatus, the combination of a vehicle or carriage, the tilting frame D E, pivoted thereto, the barrel or tank A, swinging in the tilting frame, the said barrel being provided with a hose R and reel S, the rope or chain G, and winding-drum H, said drum being mounted on the main frame of the vehicle, substantially as and for the purposes set forth.

481,874. RAIL-SAWING MACHINE. EDWARD C. SMITH, New York, and JAMES BRADY, Brooklyn, N. Y., assignors to the Smith Portable Rail Saw Company, of New Jersey. Filed May 23, 1890. Serial No. 353,009. (No model.)



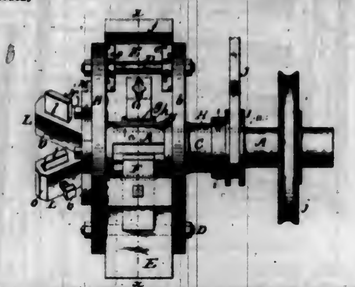
Claim.—1. A mechanism for clamping a rail-sawing machine to the flanged head of the rail to be cut, comprising fixed jaws of hooked form on the machine-base, a movable hooked jaw mounted in guides on the said base and provided with an operating-stem, a movable wedge arranged between a shoulder on said shank and the machine-base, and means, substantially as described, for guiding said wedge in its movements, substantially as set forth.

2. As a means for clamping a rail-sawing machine to the rail to be cut, the combination, with fixed jaws on the machine-base, having a hooked form to take under the flanged rail-head, and a movable jaw also of a hooked form and provided with an operating-shank and a clamping-nut, of a movable slotted wedge arranged between the nut on the jaw-shank and the bed of the machine, substantially as set forth.

3. In a rail-sawing machine, the combination, with the base of the machine provided with the pendent fixed jaws of the clamp, of the movable jaw of the clamp, mounted in guides in the base and provided with an operating-shank, a nut on the projecting end of said shank, and a movable wedge provided with a cam and a slot parallel therewith, said wedge being arranged within the base of the machine and the nut on said shank, which latter projects through the slot in the wedge, substantially as set forth.

4. As a means for clamping a rail-sawing machine to the rail, the combination, with fixed jaws on the machine, of a movable jaw having an operating-shank, a rotatable wedge having a small cam and a concentric slot through which the extremity of said shank projects, said wedge being loosely mounted on a stud projecting from the machine, and a clamping-nut on the end of said shank adapted to be set up to said wedge, substantially as set forth.

481,875. MACHINE FOR TURNING HANDLES. WILLIAM D. SNYDER, Wetzell, Mich. Filed Aug. 10, 1891. Serial No. 402,313. (No model.)



Claim.—1. The combination of the revoluble tubular arbor having openings near one end for the introduction of finishing-knives and the disks fixed on the arbor at the ends of said openings, with the oscillating equipoised finishing-knife holders pivotally suspended between the disks, and means for adjusting said holders, substantially as described.

2. The combination of the tubular arbor, the opposed fixed disks thereon, the bolts uniting said disks, and the finishing-knife holders suspended between the disks and revolved therewith, with the finishing-knives and grooved gibs mounted on said holders and the sliding rods moving in guide-slots in the arbor and extending through one journal-bearing thereof, having inclined tongues engaging said gibs for adjusting the holders, all substantially as and for the purpose set forth.

3. The combination of the revoluble tubular arbor having openings near one end for the introduction of finishing-knives and longitudinal grooves, with the knife-holders pivotally supported on and revolved by the arbor, and the sliding rods lying in and protected by the grooves of the arbor, extending through one journal-bearing thereof and engaging the inner ends of the holders, and means for shifting said rods, substantially as specified.

4. The combination of the tubular arbor having openings and grooves, substantially as described, the disks secured thereto, the knife-holders pivotally mounted between the disks, the grooved gibs on the inner ends thereof, the movable rods lying in the grooves of the arbor, extending through one of the journal-bearings of the arbor and having inclined tongues engaging the gibs, and the devices for shifting said rods, substantially as described.

5. The combination of the tubular arbor, the opposed disks fixed thereon, the bolts uniting said disks, and the adjustable opposite oscillating equipoised finishing-knife holders suspended between the disks and revolved therewith, and means for simultaneously adjusting said holders, and the independently-adjustable gouging-knife holders L, attached to the outer disk, substantially as set forth.

6. The combination of the revoluble tubular arbor having openings near one end for the introduction of finishing-knives and longitudinal grooves, and a journal-sleeve thereon near said openings, with the knife-holders pivotally supported on the arbor, and the sliding rods lying in the grooves of the arbor, passing through said sleeve and engaging the inner ends of the holders, means for shifting said rods, and the blank guide in the end of the arbor, substantially as described.

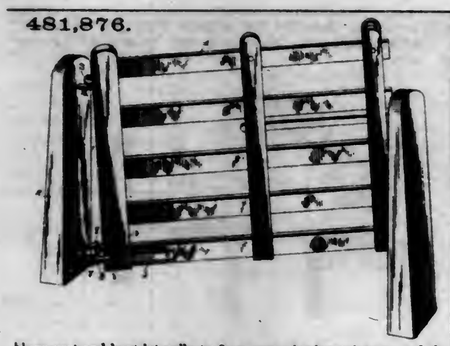
7. The combination of the tubular arbor having openings and grooves, substantially as described, the disks secured thereto, the knife-holders pivotally mounted between the disks, the grooved gibs on the inner ends thereof, the movable rods lying in the grooves of the arbor and having inclined tongues engaging the gibs, and the devices for shifting said rods, and the journal-sleeve slipped over the arbor and rods and adjoining the inner disk, substantially as specified.

8. The combination of the tubular arbor, the opposed disks fixed thereon, the bolts uniting said disks, and the oscillating equipoised finishing-knife holders suspended on said bolts between the disks and revoluble therewith, the gouging-knife holders attached to the outer disk, and the blank guide in the end of the arbor, with the grooved gibs on said holder, the movable rods extending through one journal-bearing of the arbor, having inclined tongues engaging said gibs, and the devices for shifting said rods, substantially as and for the purpose set forth.

481,876. GATE. GEORGE W. SNIDER, Baker's Corners, Ind., assignor of one-half to H. L. Covode, same place. Filed Feb. 9, 1892. Serial No. 420,914. (No model.)

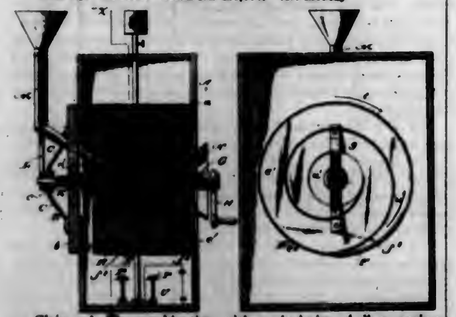
Claim.—The combination, with a gate and a hinge-post, of a hinge connecting the upper portion of the gate to the hinge-post, the pintle-loops arranged a suitable distance apart near the lower end of the

481,876.



hinge-post and bent laterally to form upper horizontal stops, and the bars secured at opposite sides of the gate and extending rearward therefrom and having their rear ends provided with recesses and arranged to engage the pintle-loops, substantially as described.

481,877. CORN-POPPER. DANIEL SWENSON, Kansas City, Mo. Filed Apr. 11, 1892. Serial No. 428,697. (No model.)



Claim.—1. The combination, with an inclosing shell or casing provided with openings in its front and rear walls, of a tubular support or sleeve attached to the rear wall of the casing, a shaft extending into said sleeve and adjustable thereon in the direction of its length, and a drum carried by said shaft and fitting loosely around the sleeve and provided with openings in its heads and side wall, substantially as described.

2. The combination, with an inclosing case or shell provided with suitable openings in its front and rear walls, of a tubular support or sleeve rigidly attached to the case or shell, a shaft extending into said sleeve and movable longitudinally thereon, a drum carried by said shaft and fitting loosely around the tubular support, said drum being provided with an opening in each head and with a V-shaped aperture in its side wall, and a spiral reticulated conduit arranged within the drum between the openings in the heads thereof, substantially as described.

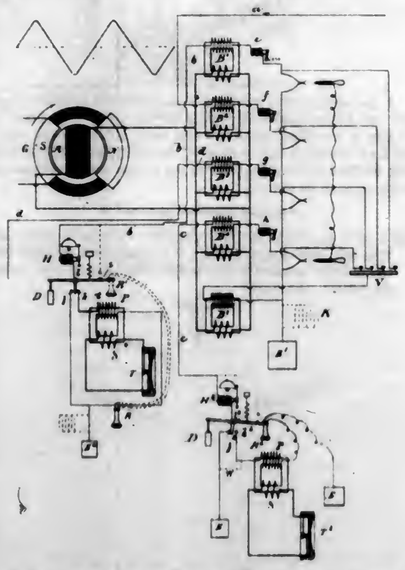
3. The combination, with an inclosing case or shell provided with openings in its front and rear walls, a bracket attached to the rear wall of the casing, a tubular support or sleeve rigidly attached to said bracket, a shaft extending through said sleeve and having the polygonal end thereof fitted in a polygonal socket formed in a hub or short sleeve carried by the bracket at the rear of the casing, connections between said hub and supply-pipe, and a drum rigidly attached to said shaft, substantially as described.

481,878. SYSTEM OF TELEPHONY. ELIHU THOMSON, Swampscott, Mass. Filed Feb. 15, 1892. Serial No. 421,511. (No model.)

Claim.—1. In a system of telephonic transmission, a generator of alternating or varying currents of little or no audible effect in the receiving-instruments, inductive devices or induction-coils operated by said currents whereby similar induced currents are supplied to the separate lines, means, such as switches, for connecting such separate lines, receivers in the said lines, and transmitters also in said lines having inductive coils, one in the line and one in a local circuit, including a resistance-varying or current-varying device responsive to sound-waves.

2. In a system of telephonic transmission, a set of transformers or inductive devices the primaries of which are fed by alternating or varying currents of low period and the secondaries of which are connected into the circuit upon which speech is to be conveyed, receivers in said lines, devices or induction-coils with primaries connected to line, and secondaries connected to current-varying transmitters responsive to sound-waves.

3. In a system of telephonic transmission, a set of transformers or inductive devices the primaries of which are fed by alternating or varying currents of low period and the secondaries of which are to be connected into the circuit upon which speech is to be conveyed, condensers in shunt relation to such secondaries, receivers in said lines, devices or induction-coils with primaries connected to line, and secondaries connected to current-varying devices or transmitters responsive to sound-waves.



4. In a system of telephonic transmission comprising a number of lines, means for generating and transmitting alternating or varying current impulses of comparatively low period through the lines, and means for modifying such waves of current, consisting of an induction-coil one of the coils of which is in the line and the other of which is in a local circuit including the transmitter, substantially as described.

5. In a system of telephonic transmission comprising a system of lines normally fed by alternating or varying impulses of currents, signaling devices in said lines responsive to calling-currents and unresponsive to the normal pulsations or alternations, telephone-receivers for said lines, and transmitting mechanism consisting of a line coil in inductive relation to a local coil, in the circuit of which latter is placed a current-varying device, such as a variable resistance, said current-varying device or transmitter being responsive to vocal or other sounds.

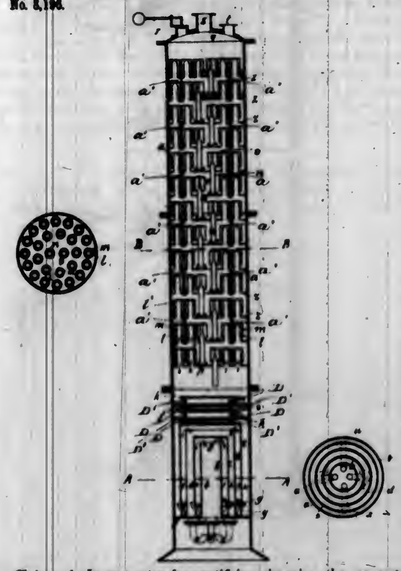
6. In a system of telephonic transmission, a system of lines normally fed by alternating or varying impulses of current, signaling devices in said lines responsive to calling-currents, switch stations or exchanges, annunciators at said stations individually responsive to the opening of their respective lines, receivers adapted to be connected into said lines by the operation of suitable switch mechanism, and transmitters likewise adapted to be connected to such lines, said transmitters having a local circuit including a resistance or current-varying device responsive to sounds, said local circuit being in inductive relation to a coil in the line-circuit while the transmitter is in use.

7. In a telephone system, a line or circuit connecting the exchange with a subscriber's station and normally on closed circuit, a generator for feeding to said current alternating or varying impulses of current suitable for the operation of transmitters, a signal device at the subscriber's end of the line unresponsive to the alternating or varying current which operates the transmitters, but responsive to special calling-currents, and an annunciator at the exchange operative upon the opening of said circuit.

8. In a closed-circuit system of telephonic transmission, lines on closed circuit or through condensers, means in each of said lines for generating or conveying to it alternating or varying impulses of current of low period, transmitters and mechanism for keeping said transmitters in circuit in said lines when in use, comprising a coil in the line with a local coil in inductive relation thereto, and resistance or current-varying devices responsive to vocal or other sounds.

9. A telephone-exchange system comprising a generator of alternating-current impulses, means for conveying individually such impulses of varying current to the individual lines leading from the exchange, annunciators or signal devices in said lines, signal apparatus in said lines at the subscriber's or user's part of the line responsive to currents sent out from the exchange, switching devices for interconnecting the lines at the exchange, transmitters and receivers connected into the lines when in use, said transmitters consisting substantially of induction-coils, one coil being in the line and another in inductive relation thereto when connected to mechanism for varying current or resistance in the circuit of said coil in correspondence with sound-waves reaching the transmitter.

481,879. APPARATUS FOR RECTIFYING GLYCERINE. ROBERT O. UNSWORTH, Pendleton, near Manchester, England. Filed Oct. 31, 1891. Serial No. 410,503. (No model.) Patented in England May 16, 1889, No. 8,196.



Claim.—1. In apparatus for rectifying glycerine, the concentric nested cylinders *b c d e*, forming chambers 1 2 3 4 and open alternately at the top and bottom, the cylinder *a*, bottom *f*, and the pipes *u v w x*, connected with their respective chambers, for carrying off the collected impurities through and from the bottom, substantially as described.

2. In apparatus for rectifying glycerine, the baffle-plates *h i j k*, consisting of alternate disks and annular rings connected together by channel-section rings *D'*, having spaces *D* between their ends, substantially as described.

3. An apparatus for rectifying glycerine, consisting of the cylindrical column *a*, vertically divided into chambers by partitions *s*, provided with two or more concentric rows of pipes *l*, fitted with bonnets or covers *m*, bonneted overflow-pipes *n*, and traps, in combination with a series of concentric cylinders *b c d e*, open alternately at the top and bottom, and baffle-plates *h i j k*, all substantially as set forth.

481,880. FENCE-WIRE TIGHTENER. BARNEY C. WICKERS, Lebanon, Ind., assignor of one-half to Adolph Wysong, same place. Filed Mar. 31, 1892. Serial No. 427,201. (No model.)

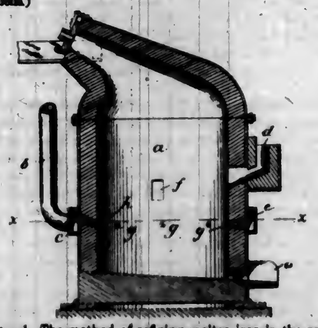


Claim.—1. In a fence-wire tightener, a double bracket providing bearings for a turning-key, a key adapted to rotate in such bearings and provided with a removable ratchet-wheel and a spool, and a lug adapted to engage with the ratchet, formed on each side of the bracket, substantially as shown and described.

2. In a wire-fence tightener, a double bracket having bearings formed therein, lugs formed on the inside of each bracket, one on either side, a turning-key having a squared head and a bobbin formed thereon, such key adapted to fit loosely and be turned in such bearings, and a removable ratchet-wheel adapted to be keyed on such turning-key within the bracket in line with either of the lugs formed on the same, whereby such turning-key is adapted to fit in the brackets from either side, and the ratchet to engage with either lug, substantially as shown and described.

3. The combination of a bracket providing bearings for a turning-key, a key adapted to rotate in such bearings and carrying a removable ratchet-wheel and a spool, a fence-wire adapted to be secured to and tightened by such spool, and a lug adapted to engage with the ratchet, formed on each side of the bracket, the turning-key being retained within its bearings and the ratchet in engagement with the lug by the tension of the fence-wire, substantially as shown and described.

481,881. MANUFACTURE OF IRON AND STEEL. JAMES P. WITHEROW, Allegheny, Pa. Filed Jan. 2, 1889. Serial No. 295,171. (No specimens.)

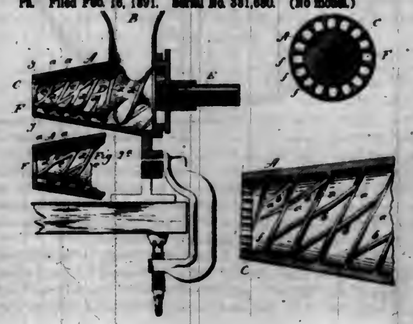


Claim.—1. The method of refining molten iron in the pneumatic process, which consists in simultaneously agitating and subjecting the charge of metal to a blast of air on or near the surface in such manner as to produce an upward circulation of the metal and bring every portion of the charge successively under the oxidizing influence of the blast, substantially as and for the purposes described.

2. The within-described improvement in converting crude iron into malleable iron or steel, consisting in imparting to limited portions in succession of a bath of molten metal violent agitation in the presence of a converting agent, separating the impurities and the metal, returning the latter to the body of the metal in the bath and back from the body of metal in the bath to the area of agitation, and repeating these operations until all the metal has been acted on, the impurities are separated therefrom, and the conversion is complete, substantially as set forth.

3. The process of converting crude iron into malleable iron or steel, which consists in imparting to successive limited portions of a bath of molten metal a violent atomic agitation and separating the metal and the impurities, returning the metal to the body of the bath and maintaining the eliminated impurities in their separated state, and repeating these operations until the entire body has been repeatedly operated upon, substantially as set forth.

481,882. MEAT-CUTTER. OLIVER D. WOODRUFF, Southington, Conn., assignor to the Enterprise Manufacturing Company, Philadelphia, Pa. Filed Feb. 16, 1891. Serial No. 381,680. (No model.)



Claim.—1. In a meat-cutter in which the meat is delivered from one end of the case, and the case containing cutting mechanism to cut the meat, the discharge end having one or more series of notches through which the cut meat is discharged, the said notches formed in the edge of the part which contains them and so as to leave one side open, that side being closed by the adjacent part and so as to complete the openings, substantially as described.

2. The combination, in a meat-cutter, of the casing, a series of spiral ribs on the interior of the casing, said spiral ribs inclining from the entrance to the discharge end of the machine and having the second series of spiral ribs intersecting the first-mentioned ribs and running from near the entrance to the discharge end, but at a greater pitch than that of the first-mentioned series, with a forcer adapted to revolve in the casing, said forcer being constructed with one or more spiral ribs to work in direct contact with the spiral ribs of the casing, and whereby said spiral rib of the forcer, while serving to force the meat through the case, operates as a cutter in connection with the two series of spiral ribs in the case, substantially as specified.

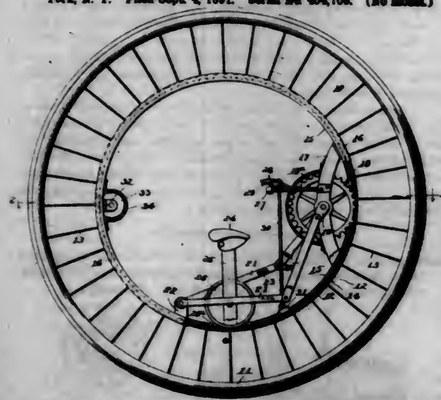
3. The combination, in a meat-cutter, of the casing having internal spiral ribs *a* and *b*, the ribs *b* being of a greater pitch than and intersecting with the ribs *a*, with a forcer having spiral ribs *d* and *c*, the ribs *c* being of a greater pitch than the ribs *d*, the ribs of the forcer being in direct contact with those of the case, whereby the said ribs, while serving to force the meat through the case, operate, in conjunction with the ribs of the case, to cut the meat, substantially as described.

4. The combination of a meat-cutter case having at its discharge end an annular series of notches, suitable cutting mechanism, and at the delivery end of the shaft or central member a solid end that fills the space inside of and so as to close that side of said notches and form discharge-openings, substantially as and for the purpose described.

5. In a meat-cutter, the combination of the crank-shaft E, having dovetailed recess J, with overhanging spiral sides, and a crank-head K, having an internal dovetailed projection M, fitted to said recess, substantially as described, and for the purpose specified.

6. The combination, in a meat-cutter, of the casing, a hopper at the enlarged end of the casing, an opening in the smaller end of the casing, a series of projections at the end of the casing, forming notches, two sets of spiral ribs on the interior of the casing, one set being of a greater pitch than the other set, the said ribs intersecting, a tapered forcer adapted to the casing and having two sets of spiral ribs, one set being of a greater pitch than the other, the said ribs intersecting, said forcer having a solid end which closes the opening in the smaller end of the casing, leaving only the notches for the discharge of meat, substantially as described.

481,883. UNICYCLE. ABRAHAM YOST and FERNANDO YOST, New York, N. Y. Filed Sept. 4, 1891. Serial No. 404,709. (No model.)

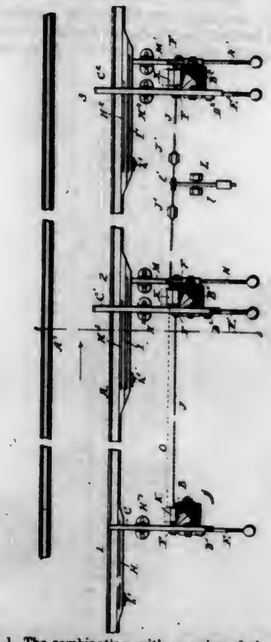


Claim.—1. A unicycle comprising a main wheel having an inner band with teeth therein, a stationary band mounted within the toothed band and having side flanges to overlap the latter, a gear-wheel journaled in a frame-work secured to the stationary band and projecting through a slot in the said band so as to engage the teeth in the toothed band, a seat supported on the stationary band, handle-bars secured to the framework in front of the seat, and a pedal mechanism for driving the gear-wheel, substantially as described.

2. A unicycle comprising a main wheel having an inner toothed band, a stationary band mounted within the toothed band and having overlapping side flanges, a gear-wheel journaled in a suitable frame-work supported by the stationary band and extending through a slot to engage the teeth of the toothed wheel, a frame supported on anti-friction rollers held to contact with the toothed band, a seat carried by the frame, and handle-bars supported in front of the seat, substantially as described.

3. In a unicycle of the character described, the combination of the main wheel having an inner band, a stationary band adapted to ride upon the revolving band, a brake-shoe projecting through the stationary band and adapted to impinge upon the revolving band, and a lever mechanism for operating the shoe, substantially as shown and described.

481,884. AUTOMATIC MECHANICAL BLOCK RAILROAD-SIGNAL. GEORGE C. YOUNG and GEORGE O. WILLEVER, Phillipsburg, N. J., assignors of one-third to John M. R. Shimer, same place. Filed Dec. 5, 1891. Serial No. 414,143. (No model.)



Claim.—1. The combination, with a series of signals arranged along the track, of two series of rail-levers pivotally mounted on the rails, one series being arranged within the tread of the ordinary wheel to be operated by the engine and the other series being arranged beyond the tread of the ordinary wheel to be operated by the passage of the rear car of the train, substantially as described.

2. The combination, with a series of signals arranged along the track, of two series of rail-levers pivoted to the rails, one series being arranged within the tread of an ordinary wheel to be operated by the engine to set the adjacent section to "danger" and the other series of levers being arranged without the tread of the ordinary wheel and connected to the signal at the beginning of the block through which the train has passed to operate the signal to "safety" as the rear car of the train moves over said levers, substantially as described.

3. The combination, with the rail, of two series of rail-levers mounted on the same pivot and connected directly to the side of the rail and each having curved portions projecting above the tread of the rail and a tongue or projection extending below the flange of the rails, one of the levers of each pair being longer than the other, substantially as described.

4. The combination, with the rail, of two series of rail-levers pivotally attached directly to the rail, but at different distances therefrom, a series of signal-posts arranged along the track, connections between the inner rail-lever and the signal upon the post adjacent to said lever, and connections between the signal on the next preceding post and the outer lever, substantially as described.

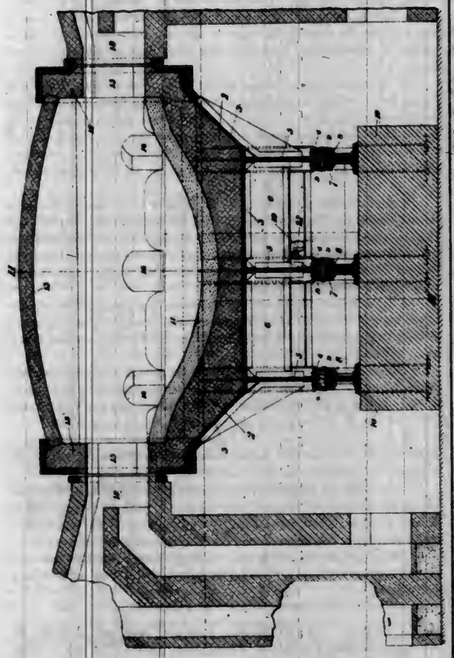
5. The combination, with a series of signal-posts arranged along the track, of two series of rail-levers pivotally connected to the track, one series being within the tread of an ordinary wheel and the other series beyond the tread, connections between the inner lever and the signal on the adjacent post, and connections between the outer lever and the signal of the next preceding post, the respective connections being on opposite sides of the post adjacent to the levers, substantially as described.

6. The combination, with a series of signal-posts arranged along the track, of two series of rail-levers pivotally connected directly to the rail, a lever G, connected to the signal adjacent to the track and arranged to be operated by the inner track-lever, and a lever M, arranged to be operated by the outer track-lever and connected to the signal on the next preceding post, the arrangement being such that the inner rail-lever will be operated by the passing of an ordinary wheel, while the outer lever will be operated only upon the passing of a special wheel projecting beyond the tread of the ordinary wheel, substantially as described.

7. The combination, with the rail, of a track-lever pivotally mounted on said rail, a filling-piece between said lever and the web of the rail, the lever being within the tread of an ordinary wheel, and another track-lever mounted upon the same pivot and arranged outside the tread of an ordinary wheel and adapted to be operated by a wheel having an extended tread, substantially as described.

8. The combination, with the signal-posts carrying semaphores arranged along the track, of the track-levers H and I, pivotally connected to the rail, one of the levers being longer than the other and outside the tread of the ordinary wheel, the levers G and M respectively operated by the track-levers, connections between the lever G and the semaphore C adjacent to the track-levers, and flexible connections between the lever M and the next preceding semaphore, and a take-up device for said flexible connections, substantially as described.

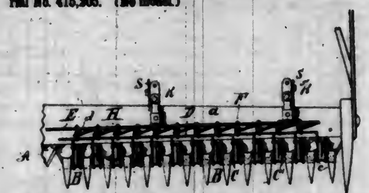
481,885. OPEN-HEARTH FURNACE. HENRY AIKEN, Pittsburg, Pa., FREDERICK W. WOOD, Baltimore, Md., and HARRY H. CAMPBELL, Steelton, Pa. Filed Jan. 29, 1892. Serial No. 419,965. (No model.)



Claim.—1. A metallurgical furnace having rockers on which it can be tipped, a supporting-cradle, laterally-movable antifriction-rollers between the rockers and cradle, and a discharging-spout at the end of the furnace toward which it is oscillatory, substantially as and for the purposes described.

2. A metallurgical furnace having rockers on which it can be tipped, a supporting-cradle comprising curved rails having lateral confining-plates, antifriction-rollers set on the rails between said plates, and means for tipping the furnace, substantially as and for the purposes described.

481,886. MACHINE FOR GRINDING MOWING-MACHINE KNIVES. MICHAEL BALNES, Detroit, Mich., assignor to the Acme Safety Emery Wheel Company, same place. Filed Dec. 16, 1891. Serial No. 415,205. (No model.)



Claim.—1. In combination with the cutting-knives and cutter-bar of a mowing-machine, a holding-bar and a grinding-block movably secured thereto by a clamping-arm adapted to have vertical movement and to hold said grinding-block with its grinding-surface constantly parallel to itself or to a given surface, substantially as and for the purposes described.

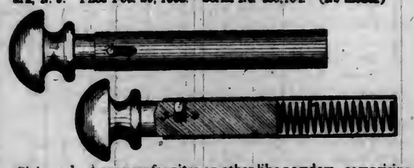
2. In combination with the cutting-knives of a mowing-machine, a grinding-block secured to an arm adapted to turn on a journal having its axis at right angles to the line of movement of the cutting-knives, substantially as and for the purpose described.

3. In a machine for sharpening the knives of mowing-machines, the combination of a holding-rod secured to the cutter-bar, a block of grinding material and a clamp securing the same, a journal secured to said holding-rod and having journaled upon it the said block-holding clamp, and a tension-spring adapted to hold said grinding-block downward, said journal having its axis at right angles to the line of movement of the cutter-knives, substantially as and for the purposes described.

4. In a machine for grinding the knives of mowing-machines, the combination of the holding-rod E, clamps C C', arm D *d*, journal F, and adjusting-pin *f*.

5. In a grinding-machine for mowing-machine knives, the combination of a grinding-block and a holding-clamp therefor adapted to hold said block with its lower or grinding surface constantly in contact with the beveled edge of the knife beneath it and with its line of contact constantly parallel to said beveled edge, substantially as and for the purpose described.

481,887. CARTRIDGE-LOADING TOOL. WILLIAM H. BEARDSLEY and ALVIN D. MOULTON, Bridgeport, Conn., and LOUIS J. WURTH, Newark, N. J. Filed Feb. 29, 1892. Serial No. 423,104. (No model.)

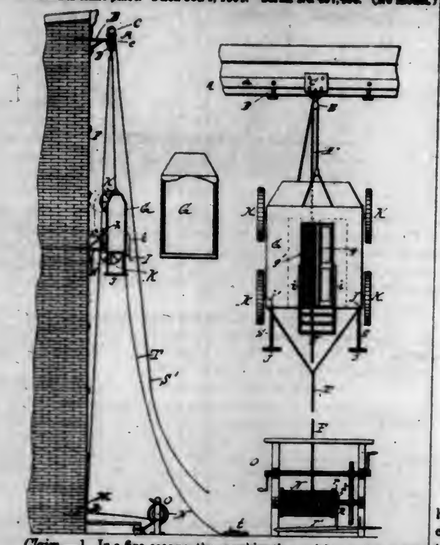


Claim.—1. A rammer for nitro or other like powders, comprising, in combination, shell-rammer 1, having closed end 20 to engage the wad, handle 3, having plunger 2 placed in the open end of said shell-rammer and arranged to operate in the direction of its length, pressure-spring 4, placed between the end of said plunger and the closed end of the shell-rammer, adjustable stop 10, arranged, substantially as shown, so as to regulate the travel of the plunger with reference to the pressure of the spring against which said plunger operates and by so doing regulate the pressure of the shell-rammer upon the powder through the medium of the overlying wad, and means, substantially as shown, to keep the plunger and shell-rammer in operative engagement with each other.

2. A rammer for nitro or other like powders, comprising, in combination, handle 3, having plunger 2 projecting therefrom, shell-rammer 1, mounted on said plunger, in which said plunger operates in the direction of its length, and means, substantially as shown, to maintain them in such operative engagement, pressure-spring 4, placed between the end of the plunger and the closed end of the shell-rammer, and adjustable stop 10, arranged, as shown, to regulate the travel of the plunger, for the purpose set forth, combined with a scale arranged substantially as shown, said scale graduated to indicate the different pressures represented by the spring, as described.

3. A rammer for nitro-powder, comprising, in combination, the wooden section 2, metal shell 1, operatively mounted thereon, having elongated slot 8 therein, spring-pin 6, having point 7 to engage with such slot, said pin operatively located in the wooden section, pressure-spring 4, arranged substantially as shown, and handle 3, all combined and arranged substantially as shown, and for the purpose set forth.

481,888. FIRE-ESCAPE. THELESPHORE J. BERGERON and FERNIE BEDARD, Minneapolis, Minn., assignors to Aurelie Bergeron and Clarissa Bedard, same place. Filed Oct. 1, 1891. Serial No. 407,462. (No model.)



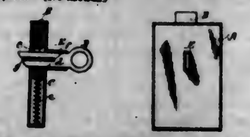
Claim.—1. In a fire-escape, the combination, with a railway permanently attached to the building, a traveler mounted upon said railway, an elevator constructed with hollow walls and having its front and rear openings each provided with a solid door and a woven-wire door, and a cable connecting the elevator with the traveler for raising and lowering said elevator, substantially as specified.

2. In a fire-escape, the combination, with a railway permanently attached to the building, of a traveler mounted upon said railway, an elevator constructed with hollow walls and provided at each of its openings with two doors of the kind described and with guide wheels, and a suitable raising and lowering cable connecting the traveler with the elevator, substantially as specified.

3. In a fire-escape, the combination, with a railway permanently attached to the building, a traveler moving thereon, and suitable raising and lowering tackle, of an elevator constructed with hollow walls and provided with a solid and an open work door at each opening, with guide-wheels at the inner or rear side corners, and with a yielding platform at the bottom thereof, substantially as specified.

4. In a fire-escape of the character described, the combination, with the railway, traveler, and hoisting-cable, of an elevator provided with a solid and an open-work door at each opening, with guide-wheels and a hinged gangway, a yielding platform, and with a suitable guy-rope for guiding the elevator in its ascent and descent, and a guy-rope for moving the traveler across the side of the building, substantially as specified.

481,889. LOCK. WILLIAM H. BLANEY, Attleborough, Mass., assignor to himself and Edwin R. Bullock, same place. Filed July 3, 1891. Serial No. 398,401. (No model.)



Claim.—1. The combination, with the case provided at one side with a fixed outwardly-projecting key-guiding tube and at the opposite side with a perforation adapted for the passage of the end of the key, of the spring-actuated bolt provided with the inclined face adapted for the action of the end of the key and the transverse pin in the fixed key-guiding tube, substantially as described.

2. The combination, with the case provided at one side with the key-guiding tube and at the opposite side with a perforation adapted for the entrance of the end of the key, of the sliding bolt provided with the inclined face adapted for the action of the end of the key, the transverse pin in the key-guiding tube, and the gravitating lever arranged loosely upon the pin, substantially as described.

481,890. CARRIER ATTACHMENT FOR BICYCLES. MAURICE R. ROOD, Kalamazoo, Mich., assignor to the Kalamazoo Cycle Company, same place. Filed Oct. 26, 1891. Serial No. 409,889. (No model.)



Claim.—1. In a mail carrier attachment for bicycles or like vehicles, a frame attached to the handle-bar or forward part of the bicycle, having horns or hooks which are adapted to receive and carry the mail-bag by placing the rings of said bag over the said horns or hooks, in combination with such bag and rings, substantially as set forth.

2. In a mail-carrier attachment for bicycles or like vehicles, a frame for carrying the mail-bag formed of spring wire or rod having two horns or hooks to receive the rings of the mail-bag, and an inclined U-shaped loop or part to come against the side of said bag below the said rings to hold the bag in an inclined position, in combination with such bag and ring, substantially as and for the purposes specified.

3. In a carrier attachment for bicycles or like vehicles, the wire or rod frame C C, having the loops *h h* for hanging the bag on, and the inclined U-shaped loop for holding the bag in an inclined position, while the opposite end of the frame forms the arms to support the bag and attach to the bicycle, in combination with a bag suspended on such frame, substantially as set forth.

4. In a carrier attachment for bicycles, the combination and arrangement of the handle-bar B, upper clip D, frame C C, having horns or loops *h h*, and the bag H, substantially as and for the purposes specified.

5. In a carrier attachment for bicycles or like vehicles, the combination and arrangement of the handle-bar B, upper clip D, finger *a* to rest on top of the handle-bar, finger *f'* to rest on the post, frame C C, and bag H, substantially as and for the purposes specified.

6. In combination with the handle-bar B and post A, the clips D and *f*, finger *f'*, frame C C, having horns or loops *h h*, and a bag H, all arranged and adapted for use, substantially as specified.

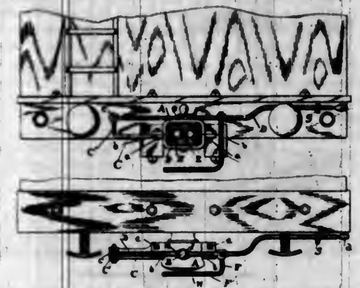
7. In a carrier attachment for bicycles, the upper clip D, formed and constructed, as shown, to have a concaved part on its rear end to receive the handle-bar, and a finger *a* to rest on top of the handle-bar, while at its opposite or front end are the bearings or holes *e e* to receive the arms for supporting and holding a bag suspended over the front wheel of the bicycle, in combination with such bag, substantially as set forth.

481,891. CAR-COUPLING. THOMAS J. BOOS, Baltimore, Md., assignor of one-half to John H. Vieweg, same place. Filed Apr. 11, 1892. Serial No. 428,560. (No model.)

Claim.—1. An attachment for link-and-pin car-couplers, comprising a clamp to fit on the draw-head and a lever pivoted to said clamp and having an arm adapted to extend in front of the draw-head and below the coupling-link, substantially in the manner and for the purpose described.

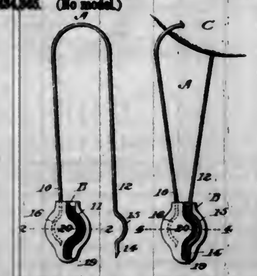
2. An attachment for link-and-pin car-couplers, comprising a clamp to fit on the draw-head and a lever pivoted to said clamp and constructed to connect with the coupling-pin and having an arm adapted to extend in front of the draw-head and below the coupling-link, in the manner and for the purpose described.

3. An attachment for link-and-pin car-couplers, comprising a clamp made in two parts to fit on opposite sides of the draw-head and a lever pivoted to said clamp and constructed for connection with the coupling parts.



4. An attachment for link-and-pin car-couplers, comprising a clamp to fit on the draw-head and a lever pivoted to said clamp and adapted to extend across the top of the draw-head and having an opening through it to receive the coupling-pin, substantially as and for the purpose described.

481,892. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to the E. J. Brooks & Company, New York, N. Y. Filed May 25, 1892. Serial No. 434,265. (No model.)



Claim.—1. A seal for meat, composed of a flexible shackle of wire and a compressible seal-disk to unite the ends of said shackle, the shackle having a spear end which is constructed with a sharp-pointed extremity and with an anchoring device in the form of a short re-entrant bend adapted to be thrust through the meat, substantially as hereinbefore specified.

2. In combination with a flexible shackle of wire having a spear end comprising a sharp-pointed extremity and an anchoring device in the form of a short re-entrant bend, a compressible seal-disk fast on the other end of the shackle and having a recess in its face conformed to and which admits said spear end and closed at one end to mask said sharp-pointed extremity, substantially as hereinbefore specified.

481,893. PANTOGRAPH TRACING AND ENGRAVING MACHINE. JOHN BRYCE and ADAM KIDD, Glasgow, Scotland, assignors to the Glass and Metal Engraving Company, Limited, same place. Filed June 17, 1891. Serial No. 396,569. (No model.) Patented in England Sept. 12, 1888, No. 13,173.

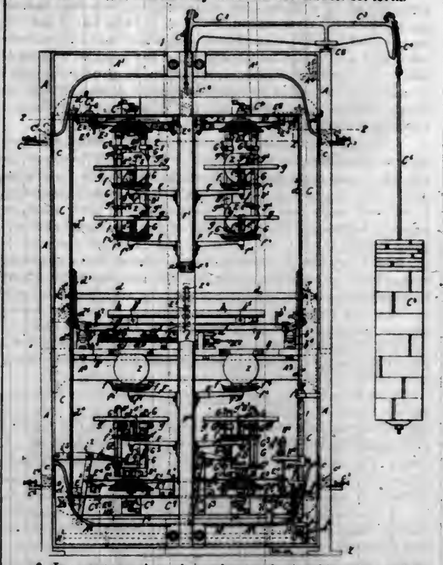
Claim.—1. A pantograph-machine for tracing and engraving objects, comprising a stationary frame on which the objects are mounted, in combination with cylindrical cages carried and rotated in a balanced frame moved vertically, said cages being turned by a laterally-moving frame within the balanced frame, these frames being moved in their respective directions by and proportionally to the motion of the ordinary pantograph pointer and mechanism, substantially as set forth.

2. In a pantograph tracing and engraving machine, the combination comprising a stationary frame and bracketed arms carrying the objects, with open cylindrical cages rotated and moved vertically and carrying vertical and hoop bars outside, and tracing points or diamonds secured on said bars to engrave the designs in both directions on the stationary objects, substantially as and in the manner set forth.

3. In a pantograph tracing and engraving machine, a vertically-moving balanced frame, in combination with rotating open-barred engraving-cages mounted on said frame, substantially as and for the purposes set forth.

4. In a pantograph tracing and engraving machine, the combination comprising a balanced raising and lowering vertical frame with open-barred vertical rotating cylindrical cages, and spring-clip shifting and setting levers with tracing points or diamonds attached to said bars, the frame and cages being actuated by and proportional to the motion of the ordinary pantograph pointer and mechanism, substantially as and for the purposes set forth.

5. In a pantograph tracing and engraving machine, the combination comprising rotating cylindrical cages carrying tracing points or diamonds, a vertically-moving balanced frame on which said cages are mounted, and a vertical wheeled frame traversing horizontally and laterally on the vertical balanced frame and having bands and pulleys to rotate the cages, substantially as and in the manner set forth.

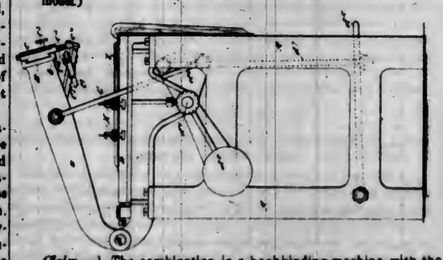


6. In a pantograph tracing and engraving machine, the combination comprising rotating cage-bars and vertical shifting ring-bars, levers with tracing points or diamonds, and reciprocating frame for putting the points and levers into or out of action, substantially as and for the purposes set forth.

7. In a pantograph tracing and engraving machine, the combination comprising rotating cylindrical cages with a clutch having rigid lateral arms and gripping-pawl clips and a scroll-grooved disk for securing the objects to be treated, substantially as and in the manner set forth.

8. In a pantograph tracing and engraving machine, the combination comprising a fixed frame and vertical and transverse moving balanced frames having flat surfaces or objects secured to the fixed frame and parallel to the moving frames, with adjustable lateral arms carrying the levers of tracing points or diamonds on the lateral traversing frame, substantially as and in the manner set forth.

481,894. BOOKBINDING-MACHINE. ROBERT BURNET, East Orange, N. J., assignor, by mesne assignments, to The Burnet Machine Company, same place. Filed Dec. 22, 1890. Serial No. 375,536. (No model.)



Claim.—1. The combination, in a bookbinding-machine, with the main supporting-frame and a sliding table supported thereon, of a secondary frame located above and hinged at one end to the said main supporting-frame and provided with staple feeding and driving mech-

anism supported thereby at or near its opposite end, and means for raising and lowering said hinged frame, substantially as described, and for the purpose set forth.

2. In a bookbinding-machine, the combination, with a main supporting-frame, of a sliding table supported in suitable ways thereon, a secondary frame located above and hinged to said main supporting-frame and provided with staple feeding and driving mechanism supported thereby, and means for operating said hinged frame and mechanism supported thereby and the said sliding table in unison, substantially as described, and for the purpose set forth.

3. In a bookbinding-machine, the combination, with a main supporting-frame, of a sliding table supported in suitable ways thereon and provided with teeth or projections on its under side, a pawl for engaging and operating the said table, a secondary frame located above and hinged to said main supporting-frame and provided with staple feeding and driving mechanism supported thereby, an adjusting device for regulating the feed of said table, and means connected with the hinged frame for operating the pawl and moving the sliding table in unison with the hinged frame, substantially as set forth.

4. In a bookbinding-machine, the combination, with the supporting-frame, of a table supported in suitable ways on said frame and provided with teeth or projections thereon, an operating-pawl, and a stationary pawl or catch for engagement with the teeth or projections on said table, and a cam for throwing both of said pawls out of engagement with said table, substantially as described, and for the purpose set forth.

5. In a bookbinding-machine, the combination, with a supporting plate or frame, of a secondary plate provided with a guideway therein adjustably supported in its relation to said supporting-plate on a sliding rod or rods and provided with a staple-feeding rod secured thereto adjacent to the said guideway therein, a device supported on said feed-rod for automatically feeding or releasing the staples on said feed-rod, and a device secured on said supporting-plate for driving the staples, substantially as described, and for the purpose set forth.

6. In a bookbinding-machine, the combination, with a supporting plate or frame, of a secondary plate adjustably supported in its relation to the former on a sliding rod or rods and provided with a feed-rod secured thereto, a feeding device secured on said feed-rod, consisting of a roll or wheel having teeth or projections thereon, and a hinged frame carrying a pawl adapted to engage and operate said feeding-roll, substantially as described, and for the purpose set forth.

7. In a bookbinding-machine, the combination, with a supporting plate or frame, of a secondary plate provided with a guideway therein and adjustably supported in its relation to said supporting-frame on a sliding rod or rods and provided with a staple-feeding rod secured thereto adjacent to the said guideway therein, a cover or guard located on said feed-rod, and a device secured upon said supporting-plate for driving the staples, substantially as described, and for the purpose set forth.

8. In a bookbinding-machine, the combination, with a feed-rod, of a feeding device secured thereto, consisting of a supporting-rod provided with a wheel or roll having teeth or projections thereon adapted to engage or contact with the said feed-rod, and a hinged frame attached to said supporting-rod, provided with a pawl for engagement with said toothed feeding-roll, and means for operating said hinged frame, substantially as and for the purpose set forth.

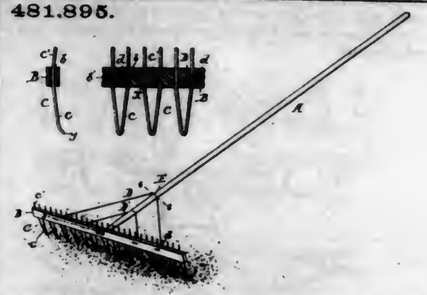
9. In a bookbinding-machine, the combination, with a feed-rod, of a supporting rod pivotally secured thereto and provided with a toothed feeding-roll supported at one end thereof adjacent to the feed-rod, a frame hinged to said supporting-rod and provided with a pawl for engagement with said feeding-roll, springs for engaging with and adjustably holding said supporting-rod in a normal position, with the feeding-roll adjacent to the feed-rod, and means for operating the said hinged frame, substantially as described, and for the purpose set forth.

10. In a bookbinding-machine, the combination, with a feed-rod, of a supporting-rod secured thereto, provided with a feeding-roll supported thereby adjacent to the feed-rod, a frame hinged to said supporting-rod and provided with a pawl for engagement with said feeding-roll, adjusting screws located in the engaging or contacting ends of said supporting-rod and hinged frame, and means for operating said hinged frame, substantially as described, and for the purpose set forth.

481,895. HAND-RAKE. THOMAS COLDWELL, Newburg, N. Y. Filed Sept. 22, 1891. Serial No. 406,436. (No model.)

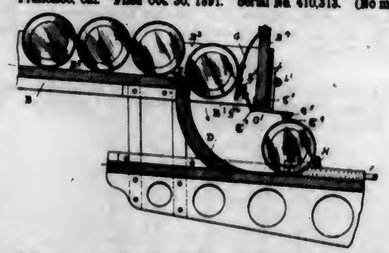
Claim.—The herein-described rake, which consists of a handle, a wooden rake-head, and a series of wire-teeth substantially V-shaped and having the two arms of the V diverging from the point for a portion of their length and for the remainder of their length being parallel to each other, the wires from which the teeth are formed being tightly driven through the head and extending beyond the opposite faces thereof and the projecting portions of the wire on each side of the rake-head being bent slightly toward the handle at the points where they emerge from the rake, whereby the rake-teeth are secured in the head and at

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the same time given the proper inclination, substantially as set forth.

481,896. CAN-LABELING MACHINE. PARKER GRITTENDEN, San Francisco, Cal. Filed Oct. 30, 1891. Serial No. 410,313. (No model.)

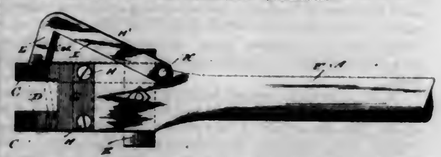


Claim.—1. An inclined track or runway for feeding cylindrical cans and packages by gravity to labeling-machines or other apparatus, consisting of two inclined troughs or tracks arranged on different levels, one over the other, the upper track having an outlet at the lower end to discharge the cans singly upon the lower track, a gate or yielding part adapted to hold a can in said outlet, a lever or part controlling said gate and being itself controlled by a can on the lower track, releasable stops on the lower track adapted to hold the can thereon, tripping-stops in the path of the rolling cans on the lower track, connected with the holding-stops and located at a distance below the same, and a stop or check behind the outlet in the upper track, controlled by the can suspended in the said outlet and adapted to hold back the can until the suspended can is released, combined for operation as set forth.

2. The combination, with an inclined trough or track for rolling cans, having an outlet for discharging the cans at the lower end, of a yielding gate or stop to hold a can suspended in said outlet and a check at the back of said outlet, which is held in position to stop the next can in the trough from dropping into the outlet by the can suspended in the outlet and is adapted to yield and release the can behind it as the suspended can is discharged through the outlet, substantially as described.

3. The combination of the two inclined tracks or runways A B, one above the other, the upper one having an outlet in the bottom, the yielding gate G, pivoted lever G', stops H and K on the lower track, and the yielding check at the back of the outlet, substantially as described.

481,897. SPROUT-PULLER. GEORGE T. CULL, Wickliffe, Ky. Filed Apr. 2, 1892. Serial No. 427,541. (No model.)



Claim.—1. An implement for the purpose described, consisting of a lever having one end bifurcated and an angular arm pivotally connected to said lever and adapted to extend across the slot in the end thereof, substantially as described.

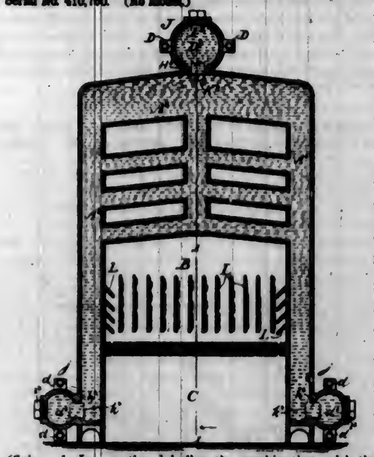
2. In an implement for the purpose described, the combination of a lever having a fulcrum or block attached thereto at an intermediate point of its length and having one end bifurcated, and an angular arm

pivotally connected to the lever and adapted to extend across the slot in the end thereof, substantially as described.

3. The combination of a lever having one end bifurcated, a metallic plate secured to one face of the lever and projecting beyond the solid portion thereof, and an angular arm pivoted at one end to the lever and adapted to pass across the slot in the lever beyond the free edge of the protecting-plate, substantially as described.

4. The combination of a lever having one end bifurcated, a fulcrum-block on the lever, a plate attached to the lever and provided with a slot which aligns with the slot in the lever, the central portion of said plate being cut away on its under surface to form a cutting-edge, and an angular arm pivoted to the lever and having one of its members provided with a cutting-edge and adapted to extend across the aligned slots in the protecting-plate and lever, substantially as described.

481,898. BOILER. GEORGE B. DIXON, Chicago, Ill., assignor of one-half to Robert Webster Caldwell, Sr., same place. Filed Nov. 2, 1891. Serial No. 410,780. (No model.)



Claim.—1. In a sectional boiler, the combination, with the several sections thereof, of a header having a number of openings through which it communicates with the several sections of the boiler and a second set of openings or hand-holds affording access to the openings aforesaid, a plug for closing at will any of the openings through which the header and any of the boiler-sections communicate, and removable plugs closing said hand-holes, substantially as set forth.

2. In a sectional boiler, the combination of a number of sections, a header formed in sections corresponding with the boiler-sections, openings through which the several sections of the boiler and header communicate, openings affording access to the interior of the several sections of the header, removable plugs closing the latter openings, and means for closing the former openings, substantially as set forth.

3. In a sectional boiler, the combination of a number of sections A', &c., a header formed in sections D', &c., corresponding with the boiler-sections, opening H', &c., through which the boiler-sections and header-sections communicate, a second series of openings larger than the openings H', &c., for affording access to the interior of the header, removable plugs I', &c., closing said openings, and plugs for closing at will any of the openings H', &c., substantially as set forth.

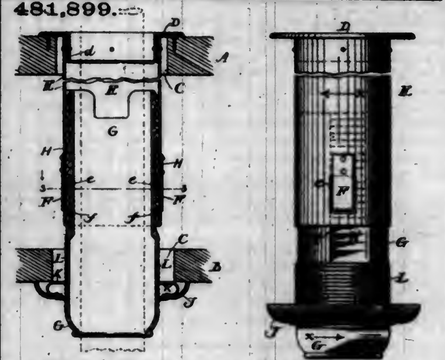
481,899. PIPE-INSULATOR. GEORGE B. DIXON, Chicago, Ill., assignor of one-half to Robert Webster Caldwell, same place. Filed Mar. 1, 1892. Serial No. 423,398. (No model.)

Claim.—1. In a pipe-insulator, the combination of two sleeves, a detent carried by one of said sleeves, and a rack extending only partly around the other, said sleeves being capable of relative rotation and said detent being adapted to be forced outward, and thereby disengaged from the rack, by the relative rotation of the sleeves, substantially as set forth.

2. In a pipe-insulator, the combination of two sleeves, a detent carried by one of said sleeves, and a rack extending only partly around the other, the surfaces between the teeth of the rack merging with the surface of the sleeve, substantially as set forth.

3. In a pipe-insulator, the combination of two sleeves, a detent carried by one of said sleeves, and a rack extending only partly around the other, the notches or depressions between the teeth of said rack terminating abruptly at one end, forming shoulders adapted to engage

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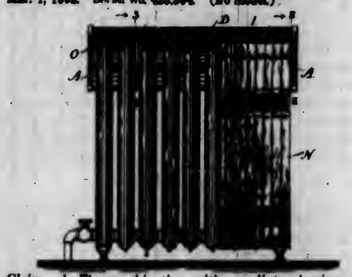


said detent and limit the relative rotation of said sleeves, and at the other end merging with the surface of the sleeve, substantially as set forth.

4. In a pipe-insulator, the combination of a pair of sleeves, a rack on one of said sleeves, a detent carried by the other and adapted to engage said rack, a second rack on one of the sleeves, and a collar adjustable on said second rack, the teeth of the second rack being closer together than the teeth of the first-named rack, substantially as set forth.

5. In a pipe-insulator, the combination of the floor-ring D, the sleeve E, secured thereto, a detent carried by said sleeve, the sleeve G, having racks H and L, and the ring J, adjustable on the rack L, substantially as set forth.

481,900. SHIELD FOR RADIATORS. GEORGE B. DIXON, Chicago, Ill., assignor of one-half to Robert Webster Caldwell, same place. Filed Mar. 1, 1892. Serial No. 423,394. (No model.)



Claim.—1. The combination, with a radiator having a number of loops, of a shield having brackets extending down between said loops and means between said loops for supporting said brackets, substantially as set forth.

2. The combination, with a radiator having a number of loops and struts between said loops for maintaining them at proper distances apart, of a shield having brackets extending down between the loops of the radiator and engaging said struts, substantially as set forth.

3. The combination, with a radiator having a number of loops, of a shield having brackets extending down between said loops and means between said loops for engaging said brackets, said brackets being adjustable longitudinally with respect to the shield, substantially as set forth.

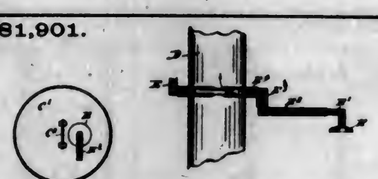
4. In a shield for radiators, the combination of the shield proper D and the brackets I, secured to said shield and having the cross-arms K, substantially as set forth.

5. A shield for radiators, having the shield proper D bent at its edge into a tube *d*, in combination with the castings A, having the flanges B, terminating in the C-shaped portions *b* and secured to the ends of said shield, and means for supporting it, substantially as set forth.

6. The combination of the shield proper D, the end castings A, secured to the ends of said shield, the pole N, supported at its ends by said end castings, and the curtain O, depending from said pole, substantially as set forth.

481,901. FUME-DRAINER FOR COOKING-VESSELS. BENJAMIN F. FOWLER, Minneapolis, Minn., assignor of one-half to Clarence R. Waterman, same place. Filed Mar. 19, 1892. Serial No. 425,542. (No model.)

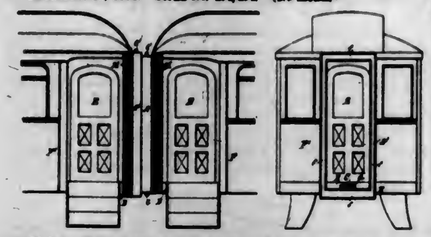
481,901.



Claim.—1. The fume-drainer consisting of the pipe E^4, tapping the outlet-flue pipe D, and the telescoping sections F and F^3, connected with the said pipe E^4 by means of the double thimble-joint F^2, substantially as described.

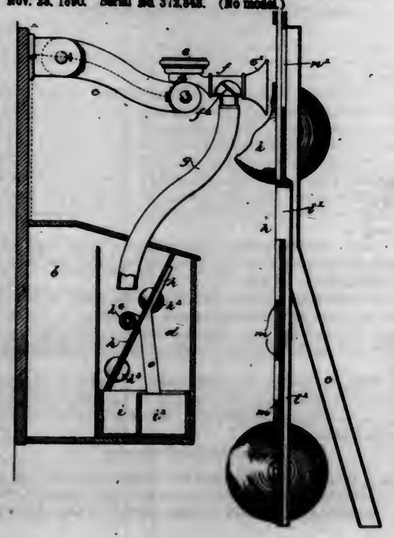
2. The fume-drainer consisting of the pipe E^4, tapping the outlet-pipe D and passing through the same, the pair of telescoping sections having secured to their outer ends the cups E and connected at their inner ends to the opposite ends of the said pipe E^4 by means of the double thimble-joints F^2, substantially as described.

481,902. VESTIBULE-CAR. GEORGE HADDON, Providence, R. I. Filed Mar. 10, 1892. Serial No. 424,494. (No model.)



Claim.—The combination, with the adjoining cars of a railway-train, of the connecting-frames, the one provided with a continuous edge and the other with a continuous groove adapted to receive the continuous edge of the opposite frame, the said groove being narrow at the sides of the frame and much wider at the top and bottom, the fixedly-pivoted bars arranged to support the upper and lower edges of the frames and provided with the studs extending in opposite directions loosely through the top and bottom portions of the frames, the springs arranged at opposite sides of the pivoted arms to hold the same in a central position, and the flexible material for connecting the frames to the vestibules of their respective cars, substantially as described.

481,908. COIN SIGNAL-SOUNDING DEVICE. CHARLES W. HOLBROOK, Windsor Locks, assignor, by mesne assignments, to the Gray Automatic Telephone Pay Station Company, Hartford, Conn. Filed Nov. 23, 1890. Serial No. 372,842. (No model.)



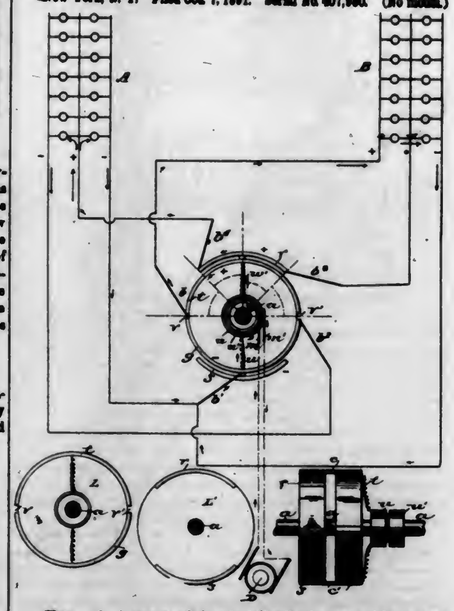
Claim.—1. In a telephone-toll collector, in combination, a signal-plate having a series of coin channels or guides located side by side across the plate, a trap for the passage of the false coins formed in the walls of the coin-channel and an outlet-channel extending from such traps, and a coin-box having separate receptacles appurtenant to the serviceable and the false coins, respectively, all substantially as described.

2. In a telephone-toll collector, a signal-plate having a series of coin-channels arranged in succession across the plate and the signal-bells projecting into one or more of the separate coin-channels, all substantially as described.

3. In a telephone-toll collector, a coin-channel having an irregular surface forming the coin-retarding device, and two or more signal-bells projecting into the path of movement of the coin and between which the retarding device is located, all substantially as described.

4. In a telephone-toll collector, in combination, a transmitter borne on an adjustable arm, an extensible tubular connection having a deflector at the upper end and extending from the transmitter to the signal-box, the signal-box containing the coin-plate and coin-receiving drawer, and the coin-plate having a series of coin-channels arranged across the plate with traps and a separate outlet for false coins, the several bells secured to the signal-plate, and the money-drawer divided into compartments to receive the separate classes of coins, all substantially as described.

481,904. SYSTEM OF ELECTRIC LIGHTING. ERNST HUBER, New York, N. Y. Filed Oct. 7, 1891. Serial No. 407,980. (No model.)



Claim.—1. A system of electrical distribution comprising two or more work circuits, a generator continuously supplying said circuits, and means for varying the current in each circuit, the arrangement being such that each work circuit successively receives its maximum current from the generator, while in the other circuits the current is diminished, but not interrupted, substantially as and for the purposes hereinbefore set forth.

2. The combination of two or more circuits and translating devices included therein, a generator continuously supplying the same, and means whereby the translating devices in the successive circuits are placed alternately in multiple and in series, substantially as and for the purposes hereinbefore set forth.

3. The combination of a revolving shaft carrying a series of ring-segments and a series of electrodes, the ring-segments being arranged in insulated pairs in the same circumferential plane, connections between a segment of one pair and a segment of another pair, a series of collecting mediums, a source of electric energy, connections between the source of energy and the electrodes and between the electrodes and segments, and a series of distributing-wires complemental to the collecting mediums.

4. The combination of a revolving shaft carrying a series of insulated ring-segments and a series of insulated electrodes, the segments being arranged in insulated pairs in the same circumferential plane, connections extending from a segment of one pair to a segment of another pair, the electrodes being arranged in pairs, connections between the electrodes and segments, a source of electric energy and connections between each source and the electrodes, and current-collecting mediums from which extend distributing-wires.

5. The combination of a revolving shaft carrying a series of insulated ring-segments and a series of insulated electrodes, the segments being arranged in insulated pairs in the same circumferential plane, the pairs being arranged relatively to each other in different vertical planes, connections extending from a segment of one pair to a segment of another pair, the electrodes being arranged in different vertical planes in proximity to each other and to the segments, connections between the electrodes and the segments, a source of electric energy and connections between each source and the electrodes, and current-collecting mediums from which extend distributing-wires.

6. The combination of a revolving shaft carrying a series of electrodes and a series of disks of insulating material, each disk being provided with a series of ring-segments, a segment of one series being connected to a segment of another series, a source of electric energy, current-collecting mediums, connections between the source of energy and the electrodes and between the electrodes and ring-segments, and a series of distributing wires.

7. The combination of a revolving shaft carrying a series of insulated electrodes and a series of disks of insulating material, each disk being provided with a series of insulated ring-segments, a segment of one series being connected to a segment of another series, a source of electric energy, current collecting mediums, connections between the source of energy and the electrodes and between the electrodes and ring-segments, and a series of distributing-wires.

8. The combination of a revolving shaft carrying a series of insulated electrodes and a series of disks of insulating material, each disk being provided with a series of insulated ring-segments arranged in the same circumferential plane, a segment of one series being connected to a segment of another series, a source of electric energy, current-collecting mediums, connections between the source of energy and the electrodes and between the electrodes and ring-segments, and a series of distributing-wires.

9. The combination of a revolving shaft carrying a series of insulated electrodes and a series of disks of insulating material, each disk being provided with a series of insulated ring-segments, a segment of one series being connected with a segment of another series, a source of electric energy, current-collecting mediums, connections between the source of energy and the electrodes and between the electrodes and ring-segments, and a series of distributing-wires.

10. The combination of a revolving shaft carrying a series of electrodes insulated from the shaft and from each other and arranged in parallel vertical planes, a series of insulating-disks carried by said shaft and each provided with a series of insulated ring-segments, a segment of one series being connected to a segment of another series, current-collecting mediums, a source of electric energy and connections extending from the source of energy to the electrodes and from the latter to the segments.

11. The combination of a revolving shaft carrying a series of electrodes and also a series of disks of insulating material, the disks being insulated from each other and arranged in parallel vertical planes and each disk carrying a pair of ring-segments arranged in the same circumferential plane, a segment of one series being connected to a segment of another series, current-collecting mediums, a source of electric energy, and connections extending from the source of energy to the electrodes and from the electrodes to the segments.

12. The combination of a revolving shaft carrying a series of electrodes insulated from the shaft and from each other and arranged in parallel vertical planes, a series of disks of insulating material insulated from each other and carried by said shaft, each disk being provided with a series of insulated ring-segments arranged in the same circumferential plane, a segment of one series being connected to a segment of another series, current-collecting mediums, a source of electric energy, and connections extending from the source of energy to the electrodes and from the electrodes to the segments.

481,905. ELECTRIC RAILWAY. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Sept. 21, 1891. Serial No. 406,406. (No model.)



Claim.—1. In an electric railway, the combination of a main track and a branch track, a conductor arranged along the main track and having its under side exposed or unobstructed, a conductor arranged along the branch track and having its under side exposed or unobstructed and separated from the main conductor at the junction of the tracks a distance sufficient to allow a downwardly-extending collector to pass, an electrically-propelled vehicle, and a downwardly-extending collector carried by and connected to said vehicle above the conductors and having a vertically-adjustable contact making a traveling electrical connection with the under side of either of the conductors of the main line or branch.

2. In an electric railway, the combination of a main track and a branch track, a conductor arranged along the main track and having its under side exposed or unobstructed, a conductor arranged along the branch track and having its under side exposed or unobstructed and separated from the main conductor at the branching point a distance sufficient to allow the collector to pass, an electrically-propelled vehicle, a branch, and a current-collecting device carried by the vehicle, formed of a rearwardly-extending arm pivoted upon a transverse axis and having a grooved contact device at its free end, adapted to make an underrunning contact with the under surface of the conductor of the main line or branch.

3. In an electric railway, the combination of a main track and a branch track, a conductor arranged along the main track and having its under side exposed or unobstructed, a conductor arranged along the branch track and having its under side exposed or unobstructed and separated from the main conductor at the branching point a distance sufficient to allow a downwardly-extending collector to pass, an electrically-propelled vehicle, a downwardly-extending collector carried by and connected to said vehicle above the conductor and having a vertically-adjustable contact making a traveling electrical connection with the under side of either of the conductors of the main line or branch, and a mechanical connection between said arm and the forward part of the vehicle to control the raising and lowering of said contact.

4. In an electric railway, the combination of a main track and a branch track, a conductor arranged along the main track and having its under side exposed or unobstructed, a conductor arranged along the branch track and having its under side exposed or unobstructed and separated from the main conductor at the branching point a distance sufficient to allow a downwardly-extending collector to pass, an electrically-propelled vehicle, a downwardly-extending current-collecting device carried by and connected to the vehicle above the conductor and formed of a downwardly-extending and rearwardly-extending arm pivoted upon a transverse axis and having a grooved contact device at its free end, adapted to make an underrunning contact with the under surface of the conductor of the main line or branch, and a mechanical connection between said arm and the forward part of the vehicle to control the raising or lowering of said contact.

5. In an electric railway, the combination of a main track and a branch track, a conductor arranged along the main track and having its under side exposed or unobstructed, a conductor arranged along the branch track and having its under side exposed or unobstructed and separated from the main conductor at the branching point a distance sufficient to allow a downwardly-extending collector to pass, an electrically-propelled vehicle, and a downwardly-extending current-collecting device carried by and connected to the vehicle above the conductors and consisting of a rearwardly-extending spring-actuated arm pivoted upon a transverse axis and having a grooved contact device at its free end, adapted to make an underrunning contact with the under surface of the conductor of the main line or branch.

6. In an electric railway, the combination of a main track and a branch track, a conductor arranged along the main track and having its under side exposed or unobstructed, a conductor arranged along the branch track and having its under side exposed or unobstructed and separated from the main conductor at the branching point a distance sufficient to allow the collector to pass, an electrically-propelled vehicle, a collector carried by said vehicle, having a vertically-adjustable contact making a traveling electrical connection with the under side of either of the conductors of the main line or branch, and a short section of electrical conductor arranged partly below the conductors of the main line and branch at the branching point of the railway for supplying current to the collector when passing the separation between the conductors of the main line and branch.

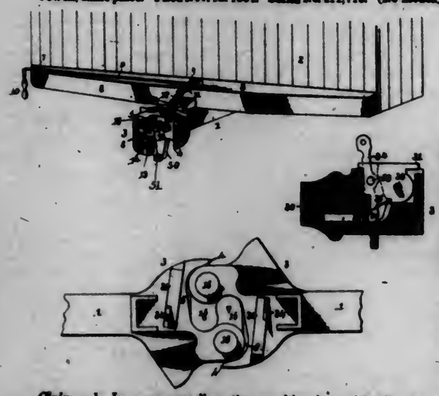
7. In an electric railway, the combination of a main track and a branch track, a conductor arranged along the main track and having its under side exposed or unobstructed, a conductor arranged along the branch track and having its under side exposed or unobstructed and separated from the main conductor at the branching point a distance sufficient to allow the collector to pass, an electrically-propelled vehicle, a current-collecting device carried by the vehicle, formed of a rearwardly-extending arm pivoted upon a transverse axis and having a grooved contact device at its free end, adapted to make an underrunning contact with the under side of the conductor of the main

line or branch, a mechanical connection between the said arm and the forward part of the vehicle to control the raising or lowering of said arm, and a short section of electrical conductor arranged partly below the conductors of the main line and branch at the branching point of the railway for supplying current to the collector when passing the separation between the conductors of the main line and branch.

8. In an electric railway, a slotted conduit arranged along a railway, a suspended conductor arranged within the slotted conduit and insulated therefrom, an electrically-propelled vehicle, and a current-collecting device carried by the vehicle, extending through the slot of the conduit, and having a rearwardly-extending pivoted arm provided with a contact making an undermunning electrical connection with the suspended conductor, and a spring arranged above the slot of the conduit to hold the contact in connection with the conductor.

9. In an electric railway, a slotted conduit arranged along a railway, a suspended conductor arranged within the slotted conduit and insulated therefrom, an electrically-propelled vehicle, and a current-collecting device carried by the vehicle and consisting of a frame extending through the slot of the conduit and having a rearwardly-extending pivoted arm provided with a contact making an undermunning electrical connection with the suspended conductor, a spring to hold the contact in connection with the conductor, and a mechanical device leading to the front end of the car for moving the said contact device away from the conductor.

481,906. CAR-COUPLING. DELBERT W. JEWELL and GEORGE JEWELL, Alexander, N. Y., assignors of one-half to Jasper B. Lewis and John Jewell, same place. Filed Nov. 12, 1891. Serial No. 411,718. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head and a catch therein, the body of the draw-head having a horizontal cavity and a pin in the bottom thereof, of a jaw mounted on a vertical pivot, an arm projecting from said jaw and moving in the cavity, and a recess in the arm, moving over said pin.

2. In a car-coupling, the combination, with the draw-head having a horizontal cavity and a vertical recess, a lug rising from the bottom of said cavity, a catch mounted on a horizontal pivot in said recess, and a pin pivoted to the catch and adapted to rest on the upper end of the lug when the catch is raised, of a jaw mounted on a vertical pivot, an arm projecting from said jaw and moving in the cavity of the draw-head, the rear end of said arm having an arc moving past said lug and pin, and a projection on the face of this arc adapted to strike the pin as the device is uncoupled.

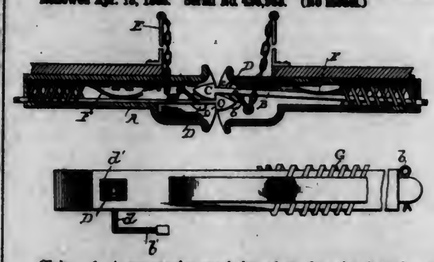
3. In a car-coupling, the combination, with the draw-head having a horizontal cavity and a vertical recess, a lug rising from the bottom of said cavity, a catch mounted on a horizontal pivot in said recess, and a pin pivoted to the catch and adapted to rest on the upper end of the lug when the catch is raised, of a jaw mounted on a vertical pivot, an arm projecting from said jaw and moving in a cavity of the draw-head, the rear end of said arm having an arc moving past said lug and pin, and a heel projecting from the face of this arc at a point to move over said lug.

4. In a car-coupling, the combination, with the draw-head having a horizontal cavity and a vertical recess, a pivoted jaw having an arm moving in said cavity, a lug rising from the bottom of the latter in rear of said arm, a catch pivoted in said recess, and a pin pivoted to the catch, of an oscillating rod on the end of the car, a crank projecting therefrom above the catch, and a chain connecting this crank with the head of the pin, so as to move the lower end of the latter onto the lug as the catch is raised.

5. In a car-coupling, the combination, with the draw-head having a horizontal cavity and a vertical recess, a lug rising from the bottom of said cavity, a catch mounted on a horizontal pivot in said recess, and a pin pivoted to the catch and adapted to rest on the upper end of the lug when the catch is raised, of a jaw mounted on a vertical pivot, an arm projecting from said jaw and moving in the cavity of the draw-head past said lug and pin, and a projection on the arm adapted to strike the pin as the device is uncoupled.

6. In a car-coupling, the combination, with the draw-head having a horizontal cavity, a lug within the same, and a V-shaped spring, one foot of which bears against the lug, of a jaw mounted on a vertical pivot and having a notch in its body, within which the other foot of said spring rests, a stop for limiting the outward movement of the jaw, and a pin pivotally mounted for holding said jaw in closed position.

481,907. CAR-COUPLING. JEFFERSON KNUDSEN, San Diego, Cal., assignor to Milton S. Babcock, same place. Filed May 27, 1892. Renewed Apr. 13, 1892. Serial No. 430,962. (No model.)



Claim.—1. A car-coupler consisting of the draw-head A, the arrow-headed tongues secured therein, the cams mounted in said tongues and operated by the arm d', the spring F, secured to the upper side of the draw-head and arranged to hold the tongue against the lower side of the draw-head, substantially as described.

2. The combination of the draw-head, the tongues passing through the same and secured at its inner end by the bolt b, as shown, while the other end thereof is provided with the pointed ends having the shoulders c, the cams mounted in the tongues near the head thereof, the arm b', connected with the standard E by the operating-chain, and the spring F, secured to the upper side of the draw-head, as set forth.

3. The combination, with a railway-car, of the draw-head A, provided with the tongue B, the spiral spring G, the oblong cam D, pivotally mounted in the tongue and adapted to press against the head of the other tongue and thus separate the heads thereof, the spring F, secured to the inner side of the draw-head and pressing downwardly against the tongue, the transverse shaft d, and the arm b', adapted to actuate the cam, substantially as described.

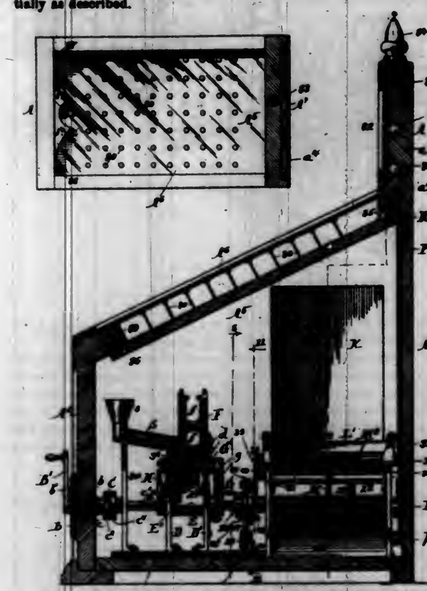
481,908. APPARATUS FOR DISPENSING ARTICLES OF MERCHANDISE. ROBERT H. LITTLE, Chicago, Ill., assignor to John G. Saxe, same place. Filed May 7, 1891. Serial No. 391,867. (No model.)

Claim.—1. In apparatus of the class described, the combination, with a coin-controlled mechanism, of a supplemental carrier provided with a seat to receive a ball or sphere, operative connections between said supplemental carrier and said coin-controlled mechanism, suitable means for delivering a ball or sphere to the seat of said supplemental carrier, and a handle for operating said supplemental carrier, whereby when a ball is within the seat of said supplemental carrier the movement of said carrier will serve to actuate the coin-controlled mechanism, substantially as described.

2. In apparatus of the class described, the combination, with suitable coin-controlled mechanism, of a supplemental carrier adapted to receive a rolling body, suitable operative connections between said supplemental carrier and the coin-controlled mechanism, and a plate provided with means for deflecting the rolling body before its passage into said supplemental carrier, substantially as described.

3. In apparatus of the class described, the combination, with suitable coin-controlled mechanism, of a supplemental carrier adapted to receive a rolling body, a handle for shifting said supplemental carrier, suitable operative connections between said supplemental carrier and the coin-controlled mechanism, and a plate provided with plan for deflecting the rolling body before its passage into said supplemental carrier, substantially as described.

4. In apparatus of the class described, the combination, with a coin-carrier, and means for delivering the coin thereto, and suitable operative connections between said carrier and the mechanism to be actuated thereby, of a supplemental carrier adapted to receive a rolling body, and suitable operative connections between said supplemental carrier and the mechanism actuated by the coin-carrier, means for delivering a rolling body to said supplemental carrier, and mechanism for actuating said coin-carrier and said supplemental carrier, substantially as described.



5. In apparatus of the class described, the combination, with a coin-carrier, and means for delivering the coin thereto, and suitable operative connections between said carrier and the mechanism to be actuated thereby, of a supplemental carrier having a seat to receive the rolling body, suitable operative connections between said supplemental carrier and the mechanism to be operated by the coin-carrier, means for delivering a rolling body to the seat of the supplemental carrier, and a suitable handle connected with said coin-carrier and said supplemental carrier for actuating the same, substantially as described.

6. In apparatus of the class described, the combination, with a coin-carrier and means for delivering the coin thereto, of an operating-bar adapted to be engaged by said coin-carrier when a coin is carried thereby, a movable part connected to said operating-bar, a supplemental carrier having a seat to receive a ball or sphere and adapted to actuate said operating-bar, means for delivering a ball or sphere to the said seat of the supplemental carrier, and suitable means for actuating both said coin-carrier and said supplemental carrier, substantially as described.

7. In apparatus of the class described, the combination, with a coin-carrier and means for delivering the coin thereto and suitable operative connections between said coin-carrier and the mechanism to be actuated thereby, of a supplemental ball-carrier, and suitable operative connections between said supplemental carrier and the mechanism actuated by the coin-carrier, means for delivering a ball or sphere to the said supplemental carrier, suitable means for actuating said coin-carrier and said supplemental carrier, and a perforated plate over which the ball will roll, said plate being provided with means for deflecting the ball before its delivery to the supplemental carrier, substantially as described.

8. In apparatus of the class described, the combination of a coin-carrier having a seat adapted to receive a coin, means for delivering a coin to said coin-carrier, a handle connected with said coin-carrier whereby it may be shifted, an operating-bar extending into position to be engaged by a coin within said coin-carrier, a shaft for sustaining said operating-bar separate from the coin-carrier, a segment-rack mounted upon said shaft, a discharge-plate provided with a rack for engagement with said segment-rack, a spring for retracting said segment-rack and said operating-bar and said discharge-plate, a table above said discharge-plate having an opening therein, a box for sustaining the articles to be dispensed, said box being mounted above said table, and a stationary false bottom or plate below said table and serving to support the articles to be dispensed, substantially as described.

9. In apparatus of the class described, the combination of a suitable coin-carrier and means for shifting the same, an operating-bar extending into position to be engaged by a coin within the seat of said coin-carrier, a shaft whereon said operating-bar is sustained separate from said coin-carrier, a segment-rack mounted upon said shaft, a discharge-plate provided with a rack for engagement with said segment-rack, a table beneath which said discharge-plate is sustained, said table being provided with an opening through which the articles to be dispensed may pass one at a time, a false bottom or plate beneath said opening for sustaining the articles to be dispensed, a spring for retracting said shaft and its connected parts, and a suitable discharge chute or apron beneath said false bottom to receive the articles discharged therefrom, substantially as described.

10. In apparatus of the class described, the combination of a carrier for receiving a body whereby the mechanism will be rendered operative and means for operating said carrier, of a discharge device, suitable operative connections between said discharge device and said coin-carrier, a box for sustaining the articles to be dispensed, said box being divided into compartments, and suitable means for shifting said box, substantially as described.

11. In apparatus of the class described, the combination of a carrier for a coin or other body and means for operating the same, of a discharge device, suitable operative connections between said discharge device and said coin-carrier, a box for sustaining the articles to be dispensed, said box being divided into compartments, a shifting frame for advancing said box, and suitable intermittently-actuating mechanism for advancing said box to bring its successive compartments into position to be emptied, substantially as described.

12. In apparatus of the class described, the combination, with a suitable delivery device and mechanism for operating the same, of a box having compartments for containing the articles to be dispensed, a spring for advancing said box, an escapement for controlling the action of said spring, and a pawl and ratchet for operating said escapement mechanism, said pawl and ratchet being operatively connected with said delivery devices, whereby after a certain number of articles have been delivered the escapement will be operated to effect the advance of the compartment-box, substantially as described.

13. In apparatus of the class described, the combination, with suitable delivery mechanism comprising a table having a space therein through which the articles to be delivered may pass, of a false bottom or plate beneath said delivery-space of said table, a series of compartments mounted above said table, a shifting frame connected to said series of compartments, a spring for advancing said shifting frame, and an escapement for controlling the action of said spring, substantially as described.

14. In apparatus of the class described, the combination, with suitable coin-controlled mechanism, of a carrier adapted to receive a rolling body, a plate over which said rolling body may pass, said plate being provided with projections for deflecting said rolling body, and a device connected with the coin-controlled mechanism for delivering said rolling body onto said plate, substantially as described.

15. In apparatus of the class described, the combination, with suitable coin-controlled mechanism, of a carrier adapted to receive a rolling body, a plate over which said rolling body may pass, said plate being provided with projections for deflecting said rolling body, a suitable receptacle for the rolling bodies, a suitable releasing device—such, for example, as a slide-block—for deflecting the rolling bodies successively onto said plate, and suitable connecting mechanism between said slide-block and the coin-controlled mechanism, whereby the operation of the coin-controlled mechanism will serve to release said rolling bodies, substantially as described.

16. In apparatus of the class described, the combination of a coin-carrier, an operating-shaft, and suitable connections whereby said operating-shaft may be suited with said coin-carrier, an arm upon said operating-shaft, a shifting rod adapted to be moved by said arm, a discharge device—such, for example, as a slide-block—connected with said shifting rod, a receptacle for rolling bodies, the discharge from which is controlled by said slide-block, an inclined plate provided with projections for deflecting said rolling bodies, a supplemental carrier beneath said inclined plate, and suitable means for conducting the rolling bodies from said inclined plate to said supplemental carrier, substantially as described.

17. In apparatus of the class described, the combination of a coin-carrier having a seat adapted to receive a coin, means for delivering the coin to said coin-carrier, a handle connected with said coin-carrier whereby it may be shifted, a pivoted operating-bar extending into position to be engaged by a coin within said coin-carrier, means for shifting said pivoted bar to release said coin, and a shaft whereon said pivoted operating-bar is mounted, said shaft being movable independently of the coin-carrier and serving to actuate suitable mechanism to be controlled by the coin-carrier, substantially as described.

18. In apparatus of the class described, the combination of a coin-carrier having a seat adapted to receive a coin, means for delivering the coin to said coin-carrier, a handle connected with said coin-carrier whereby it may be shifted, a pivoted operating-bar extending into position to be engaged by a coin within said coin-carrier, a frame for said operating-bar, a shaft to which said frame is connected, said shaft be-

ing movable independently of the coin-carrier, a cam-plate with which said operating-bar is engaged, and suitable connections between said shaft and the mechanism to be operated thereby, substantially as described.

19. In apparatus of the class described, the combination of a carrier having a seat to receive a rolling body, means for delivering a rolling body to said carrier, a handle for shifting said carrier, a plate provided with projections for deflecting said rolling bodies, suitable means for delivering the rolling bodies to said carrier, and connections between the said carrier and the mechanism to be operated thereby, substantially as described.

20. In apparatus of the class described, the combination of a carrier having a seat to receive a ball or sphere, a shaft-section whereon said carrier is mounted, a suitable handle for operating said shaft-section, an operating-bar adapted to be engaged by a ball or sphere within said carrier, a shaft-section to which said operating-bar is attached, suitable connections between said shaft-section and the mechanism to be operated thereby, a plate provided with projections for deflecting the rolling body, a suitable conduit for delivering the balls or spheres from said plate to said carrier, and suitable mechanism for delivering the balls or spheres ceto said plate, substantially as described.

21. In apparatus of the class described, the combination of a carrier having a seat to receive a ball or sphere, means for delivering the ball or sphere thereto, a handle for shifting said carrier, an inclined plate provided with projections for deflecting the balls or spheres delivered thereto and having its bottom perforated to permit the balls or spheres to pass through said plate, an operating-bar adapted to be engaged by a ball or sphere within said carrier, and suitable connections between said operating-bar and the mechanism to be actuated thereby, substantially as described.

481,909. SOLE. HOLLIS W. MERRILL, Lynn, assignor to the American Shoe Tip Company, Boston, Mass. Filed Nov. 24, 1891. Serial No. 412,943. (No model.)



Claim.—1. An intermediate sole for boots or shoes, consisting of a central portion or body *g*, skived at its edge around the toe and sides, and an edge finish *f*, consisting of a reversely-skived strip of finished leather folded upon itself, the beveled inner edge of the piece *f* being joined to the reversely-beveled edge of the portion *g*, substantially as shown and described.

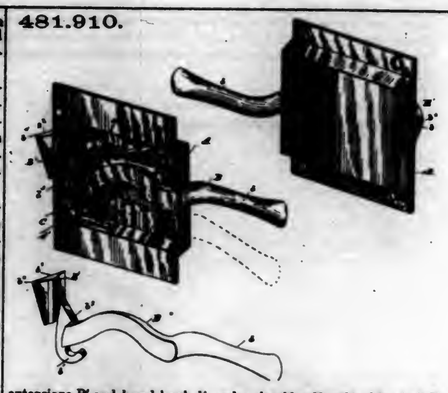
2. An intermediate sole for boots or shoes, consisting of a central portion or body *g*, provided around its toe and sides with an edge of finished material, composed of a reversely-beveled strip of finished leather folded upon itself and having a molded projection outside the line of the upper, whereby when the intermediate sole is in position in the shoe the lower edge of the upper is protected, substantially as shown and described.

481,910. LATCH. CHARLES W. MONROE, Cleveland, Ohio. Filed Sept. 21, 1891. Serial No. 406,233. (No model.)

Claim.—1. The combination of a latch-case A, provided with a short latch-opening on one edge and a slotted opening on the opposite side and an interior corner lug A', a latch-bolt extending through the openings in the case on either side, one extremity being beveled to form a latch, the other forming a handle and the central portion forming approximately a right angle and provided with hook *b'*, substantially as described.

2. A case provided with long and short openings *a* and *a'*, and a corner lug A', in combination with the angular latch-bolt B, extending through the openings in said case and provided with the long and short

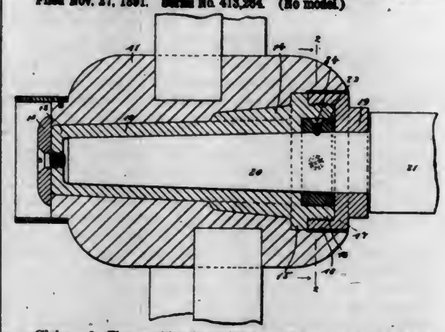
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extensions *B'* and *b* and hook *b'*, and a shoulder *b²* and locking-bolt E, with the corner spring C, substantially as described.

3. The combination of a case provided with long and short side openings and a corner lug integral with the case, a latch-bolt pivotally connected with the corner lug and provided with long and short extensions arranged to meet angularly at the pivoted point, and a hook *b'*, a beveled latch-head on the short extension, the said beveled head being cut away at its lower portion to form a pointed wedge, substantially as set forth.

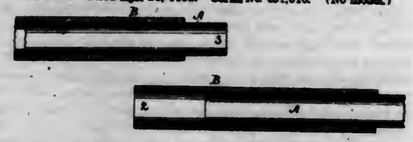
481,911. AXLE-BEARING. THOMAS J. MCGEE, Hattiesburg, Miss. Filed Nov. 27, 1891. Serial No. 413,264. (No model.)



Claim.—1. The combination, with the axle-box closed at its outer end and provided in said closed end with a threaded aperture, of the fastening-plate of greater diameter than said closed end and provided with a retaining-screw entering said aperture, substantially as set forth.

2. The combination, with the axle-box having a closed outer end provided with a threaded aperture and an annular recess in the inner end of the box to receive the axle-collar, of the plate 13, of greater diameter than the closed end of the box, having a screw entering said aperture, and a nut screwed upon the inner threaded end 16 of the box and closing the outer side of the said annular recess, substantially as set forth.

481,912. CONDUIT FOR ELECTRIC CONDUCTORS. AUGUSTUS HOLL, Mount Vernon, N. Y., assignor to Abner J. Tower, trustee, Boston, Mass. Filed Apr. 28, 1892. Serial No. 431,010. (No model.)



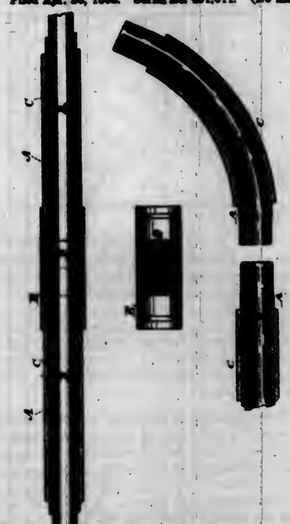
Claim.—1. The conduit for electric conductors, composed of metallic-tube sections inclosed in tubular coverings of insulating material, there being tubular insulating material forming the connection between one metallic-tube section and the next, substantially as specified.

2. A conduit for electric conductors, composed of metallic-tube sections and a tubular covering of insulating material upon each tube-section, the insulated tubular covering projecting at one end of each

section, so as to receive into it the projecting metallic tube of the next section, the parts being secured together, substantially as set forth.

3. The conduit for electric conductors, composed of metallic-tube sections, each tube-section being inclosed in a tubular covering of insulating material, the metal tube of one section passing into the end of the tubular covering of the next section, there being an insulating-washer between the ends of the metallic tubes, substantially as set forth.

481,918. CONDUIT FOR ELECTRIC CONDUCTORS. AUGUSTUS HOLL, Mount Vernon, N. Y., assignor to Abner J. Tower, trustee, Boston, Mass. Filed Apr. 28, 1892. Serial No. 431,011. (No model.)



Claim.—1. The conduit for electric conductors, composed of a metal tube with a lining of insulating material adhering to the inside of the metal tube and a casing or covering of insulating material, substantially as set forth.

2. The combination, in a conduit for electric conductors, of metallic tubes lined with insulating material that adheres to the metal of the tubes and coated with insulating material and metallic couplings connecting the metallic-tube sections, substantially as set forth.

3. The combination, in a conduit for electric conductors, of metallic-tube sections lined with an insulating material and covered with an insulating-coating, and metallic screw-couplings for uniting the metallic-tube sections and an insulating-covering upon the outside of each screw-coupling, substantially as set forth.

481,914. ELECTRIC-CIRCUIT CONNECTION. AUGUSTUS HOLL, Mount Vernon, N. Y., assignor to Abner J. Tower, trustee, Boston, Mass. Filed Apr. 28, 1892. Serial No. 431,012. (No model.)

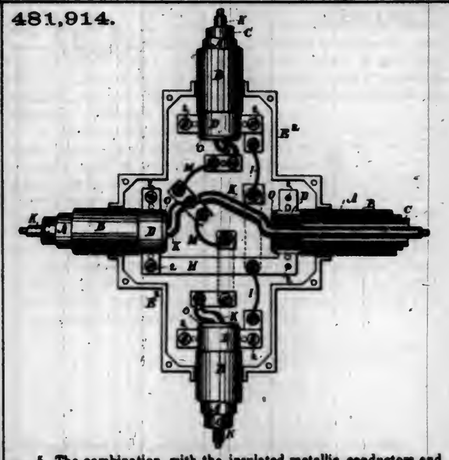
Claim.—1. The combination, with the insulated metallic conductors, of tubular metallic conduits inclosed in insulating material, junction-boxes and metallic clips for receiving the ends of the tubular metallic conduits, and electric connections to such clips, substantially as set forth.

2. The combination, with the insulated metallic conductors and the tubular insulated metallic conduits, of a junction-box into which the ends of the conduits pass, metallic clips for receiving and holding the exposed ends of the metallic tubular conduits, metallic connections between the respective clips and blocks, and clamp-screws for the metallic conductors, substantially as set forth.

3. The combination, with the conduit formed of a metal tube having an insulating-covering, of an insulated conductor within the conduit, a movable perforated plug through which the conductor passes, and a clamp around the metallic tube where the plug is applied for holding the tube, substantially as specified.

4. The combination, with a tubular conduit formed of a metal tube having an insulating-covering, of an insulated conductor within the conduit, and a movable perforated plug through which the insulated conductor passes and which plug is received into the open end of the conduit, and metallic clips adapted to receive and clamp the exposed ends of the metallic tubes of the conduit, and metallic connections to the clips, whereby the metallic tubes of the conduits can be used for the exterior circuit connections, substantially as set forth.

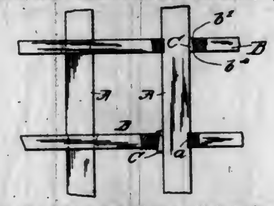
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5. The combination, with the insulated metallic conductors and the metallic conduit-tubes inclosed in insulating material and having exposed ends, of metallic clips receiving and holding such exposed ends, porcelain blocks to which such clips are attached, and circuit-connecting plates or strips in grooves in the porcelain and fusible cut-out connections, substantially as set forth.

6. The combination, with the rosettes or junction-boxes, of tubular conduits and conductors passed into the notched edges of such junction-boxes and clips for holding the ends of the conduits within the boxes, so that they may be detached without removing the junction-boxes, substantially as set forth.

481,915. JAIL-GRATING. GODFREY L. NOREMAN, Atlanta, Ga. Filed Apr. 13, 1892. Serial No. 429,058. (No model.)



Claim.—1. In a device of the class specified, the bars B, horizontally arranged and slotted, bars A, inserted in said slots and being notched to engage said bars B, and wedge-shaped keys C, adapted to be driven into the recesses beside the said bars A, for the purpose specified.

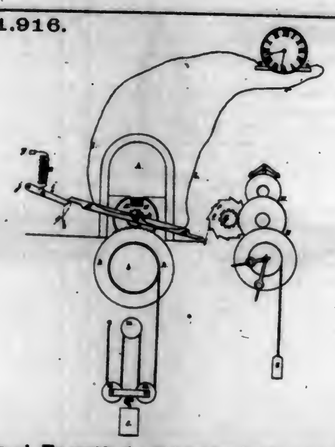
2. In a device of the class specified, bars B, having slots therein, one end of each of said slots having inclined faces *b'* and *b²*, bars A, notched and adapted to be inserted in said slots, and tapering keys driven into the said slots beside the bars A and being upset to fill the openings completely, for the purpose specified.

3. In a device of the class specified, bars B, having slots therein, one end of each of said slots having inclined faces *b'* and *b²*, bars A, notched and adapted to be inserted in said slots, and tapering keys driven into the said slots beside the bars A and being upset to fill the openings completely and being cut off flush with the top and bottom of the bars B, substantially as and for the purpose specified.

4. In a device of the class specified, bars B, having slots therein, one end of each of said slots having inclined faces *b'* and *b²*, one of which faces is longer than the other, bars A, notched and adapted to be inserted in said slots, and tapering keys driven into the said slots beside said bars A and being upset to fill the openings completely and being cut off flush with the top and bottom of the bars B, substantially as and for the purpose specified.

481,916. ELECTRIC CENTRAL CLOCK. NICOLAUS PROKOSCHOFF, Kiev, Russia, assignor of one-half to Nicolaus Fahlberg, same place. Filed Sept. 4, 1891. Serial No. 404,756. (No model.) Patented in Germany Mar. 27, 1890, No. 54,622; in Belgium Oct. 28, 1890, No. 92,510; in France Nov. 3, 1890, No. 209,264, and in England Nov. 22, 1890, No. 18,998.

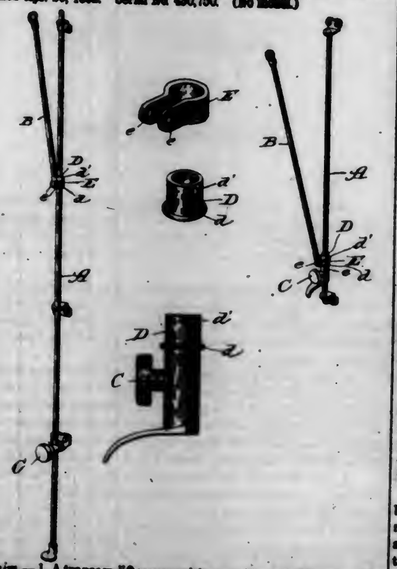
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Claim.—1. The combination, with primary and secondary clocks having, respectively, a toothed wheel *f* and a suitable electro-magnetic escapement, of an induction mechanism comprising an intermittingly-revolving induction-coil and a doubled-armed lever, the latter revolving in unison with said coil and coacting with said toothed wheel, and an electric circuit connecting said induction-coil and said electro-magnetic escapement, substantially as hereinbefore specified.

2. In combination with the intermittingly-revolving double-armed lever *d* and toothed wheel *f*, the spring-suspended lever *e*, which co-acts with and arrests or partially arrests said lever *d* before it has performed half a revolution for the purpose of causing the respective ends of said lever *d* to engage alternately with said toothed wheel *f* without any jar or shock, substantially as hereinbefore specified.

481,917. TRANSOM-LIFTER. JOHN F. WOLLESEN, Chicago, Ill. Filed Apr. 26, 1892. Serial No. 430,750. (No model.)

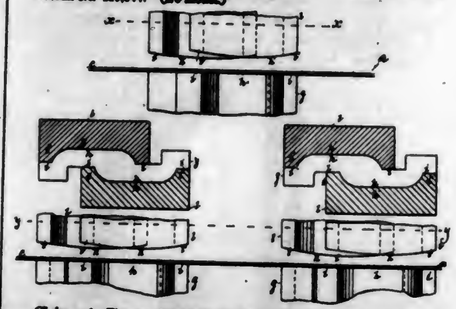


Claim.—1. A transom-lifter comprising a guide-rod sliding in guide-plates and a lifter-arm rotatably secured to said guide-rod through a swivel connection, substantially as described.

2. In a transom-lifter, the combination of a guide-rod, a sleeve secured thereto, a collar encircling said sleeve and adapted to rotate thereon, means whereby the collar is prevented from slipping up or down, and a lifting-arm secured to said collar, substantially as described.

3. In a transom-lifter, a guide-rod, a sleeve moving longitudinally along said rod and adapted to be locked at the proper point thereon, a set-screw to effect such locking, a collar encircling said sleeve and adapted to rotate thereon, means whereby the collar is prevented from slipping up or down, and a lifting-arm secured to said collar, substantially as described.

481,918. DIE FOR USE IN MACHINES FOR MAKING METALLIC FENCING. THOMAS V. ALLEN, New York, N. Y. Filed Jan. 27, 1892. Serial No. 419,377. (No model.)



Claim.—1. The combination of the duplex bed-die consisting of two notch-cutting edges *h*, one at each side at a predetermined distance apart laterally and each overlapping the other in the lengthwise direction of the die-face, so that each of said edges terminates opposite the center of the other and being converse to each other suitably for notching the opposite edges of the intermediate plain strip, and the punches or movable dies having the counterpart edges *h'* and respectively arranged for co-operation with said edges of the bed-die, substantially as described.

2. The combination of the duplex bed-die consisting of two notch-cutting edges *h* and slit-cutting edges *i*, one on each side at a predetermined distance apart laterally and each overlapping the other in the lengthwise direction of the die-face, so that parts *h* each terminate opposite the center of the other and being converse to each other suitably for notching the opposite edges of the intermediate plain strip, and the punches or movable dies having the counterpart edges *h' i'* and respectively arranged for co-operation with said edges of the bed-die, substantially as described.

3. The combination of dies for producing two barbed strips and one notched strip from one blank, consisting of two sets of duplex bed and movable dies having notch and slit cutting edges *h i* and *h' i'* to cut the strip in two slits, making points on the barbed strips and notches on the other, said two sets of dies being located apart the length of three notches of the barbed strips in the line of the feed movements of the strip, substantially as described.

481,919. ELECTRIC GUEST-CALL. FRANKLIN BENNER, Minneapolis, Minn. Filed Oct. 26, 1891. Serial No. 409,806. (No model.)

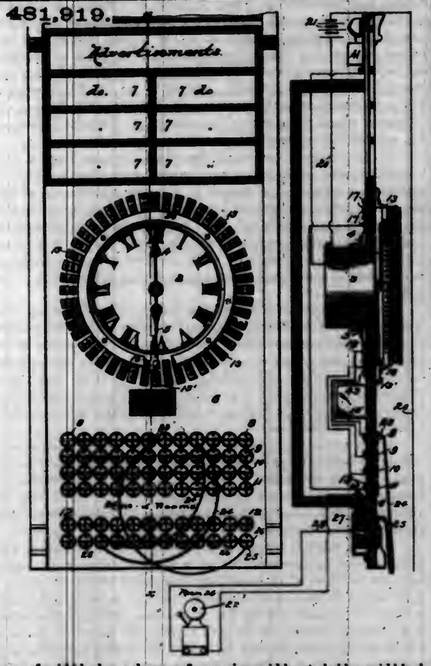
Claim.—1. The combination, in a guest-call, of a clock and an hour-hand for the same, provided with a contact brush or spring 16, with contact-bracket segments 13 arranged about the dial of said clock, movable pins 16, arranged in said brackets and adapted to be pushed through the same into the path of the end of said spring 16, said segments being insulated from one another, and means for connecting the same with call-bells arranged in the several rooms of the building, as described.

2. The combination, with the clock provided with the hour-hand having the contact-spring 16, of the contact-segments 13, having the form of brackets and provided with pins 16, binding-posts for said segments on the back of the insulating-board on which the same are placed, and means for preventing the removal of said pins from said brackets, substantially as and for the purpose specified.

3. The combination, in a guest-call, of a clock having an hour-hand, with insulated contact-segments arranged about the same and representing the various time-divisions of the clock, contact-pins slidably arranged in said sections, a brush on said hour-hand to engage the same when pushed in, time-plates 8, 9, 10, and 11, arranged upon the face of the call, plug-sockets therein, room-number plates arranged thereon, plugs and cords connected therewith, said plugs adapted to be placed in said sockets, connection from said room-number plates to call-bells, and connections between the time-plates and corresponding contact-segments, substantially as described.

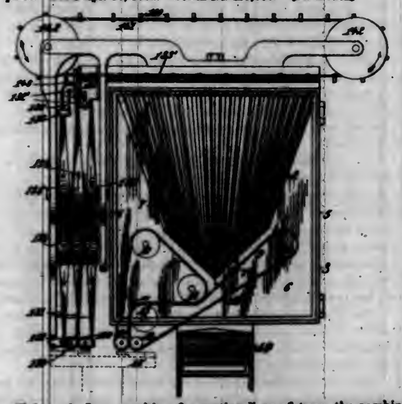
4. The combination, with the room-number plate, of a bar 32, blocks 33, insularly arranged thereon, back plates 37, screws 30, connecting the same with said number-plates, means for holding said blocks or back plates in contact, springs 34 and 39, said spring 34 connected with

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one of said blocks, and means for moving said bar to bridge said blocks and plates, substantially as described.

481,920. MACHINE FOR PRODUCING TYPE-BARS. JOSEPH C. FOWLER, Washington, D. C., assignor of one-half to L. G. Hine, same place. Filed Apr. 16, 1892. Serial No. 429,266. (No model.)

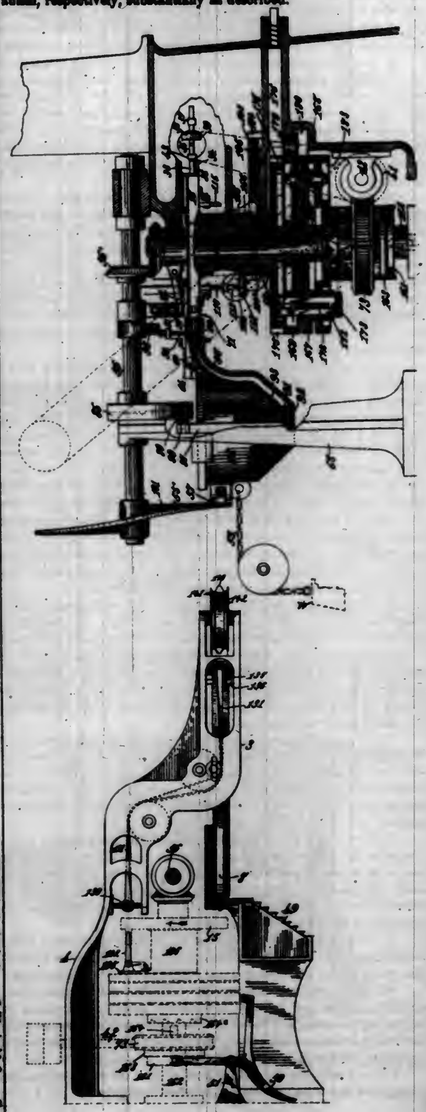


Claim.—1. In a machine for casting lines of type, the combination, with a keyboard and magazine, of a machine table or platform having a series of devices for receiving and retaining a line of matrices and means for giving said table an intermittent fractional revolution to advance the line set up to a second position and bring a succeeding matrix-receiving device into position to receive a line of matrices while a further operation is carried out with the line previously set, substantially as described.

2. In a machine for casting lines of type, the combination, with a magazine and suitable means for selecting and assembling a line of matrices, of a rotating machine table or platform provided with a plurality of matrix receiving and retaining devices and means for rotating said table to bring the lines of matrices set up to a mold and then to distributing mechanism, substantially as described.

3. In a machine for casting lines of type, the combination, with suitable means for selecting the matrices and for casting a type-line from the same when assembled, of a machine-table having a series of assembling spaces or chambers arranged thereon and means for rotating the table to bring a line of matrices into position to co-operate with the casting mechanism and at the same time bring a succeeding assembling-chamber into position to receive the matrices from the magazine, substantially as described.

4. The combination, with a magazine for containing matrices and spacers, of a series of devices for obtaining matrices from the magazine-cells in any desired orderly arrangement, a table mounted on a central shaft and provided with a series of assembling chambers or devices, suitable casting devices arranged to co-operate with a line of matrices contained in a matrix-assembling space or chamber, distributing mechanism so arranged as to operate upon a line of matrices in another space or chamber, and means for rotating the table to bring one empty matrix space or chamber into position to receive a line of matrices and at the same time bring a second and third preceding chamber or device to the casting devices and to the distributing mechanism, respectively, substantially as described.



5. In a machine for casting lines of type, the combination of a rotatable table or platform, with means for assembling matrices thereon, casting devices, and means for rotating the table, substantially as described.

6. In a machine for casting lines of type, the combination of a support and a rotatable table arranged on the support and having a plurality of matrix-assembling spaces, with means for assembling matrices in said spaces, casting devices, and means for rotating the table on the support, substantially as described.

7. In a machine for casting lines of type, the combination of a square rotatable table having a matrix-assembling space at each side portion and devices for advancing and supporting the matrices in each space, with means for delivering the matrices into and discharging them from the spaces, casting devices, and means for rotating the table, substantially as described.

8. In a machine of the kind specified, a revolubie machine table or platform of rectangular form, having upon each side a matrix-assembling space or chamber provided at one end with entrance and exit openings and a spring-retracted pusher and justifier and at the other end with a movable follow-block, and having beneath the exit-opening of each space or chamber an ejector adapted to drive the matrices upward out of said space or chamber, substantially as described.

9. In a machine of the character specified, a rotating machine table or platform mounted upon a central support and provided upon each side with a matrix-assembling space or chamber, having at one end transverse extensions, constituting matrix-entrance openings and exits, the latter having such size as to permit the passage of lips on the edges of the matrices, and thereby constituting a gage to avoid the ejectment of more than one matrix at the same moment, substantially as described.

10. In a machine of the kind described, the combination, with a magazine composed of individual cells having their exit ends arranged in two downwardly-converging lines meeting at a central point, of matrix-carrying belts beneath said exit ends, a pulley upon which said belts are brought in contact, guide-rolls, one of which is yielding, between which the belts pass and beneath which they separate, and a revoluble machine table or platform having a plurality of matrix-assembling spaces or chambers adapted to be brought by the partial revolution of the table beneath the said guide-rolls successively, substantially as described.

11. In a machine of the type set forth, the combination, with a magazine composed of individual cells, of belts and pulleys arranged to receive the matrices as they are obtained from the magazine, a pair of guide-rolls between which the belts pass and beneath which they separate, a machine table or platform having a series of matrix-assembling spaces or chambers so arranged as to be brought successively beneath the guide-rolls by the partial revolution of the table, casting mechanism arranged to register with one of said assembling-spaces after each partial revolution, distributing devices so arranged as to register simultaneously with another of said assembling-spaces, means for operating said casting mechanism and distributing devices automatically while the operator sets up a line of matrices by the selecting and assembling mechanism, and means for giving a partial revolution to the machine-table, substantially as described.

12. In a machine of the type set forth, the combination, with a magazine for the matrices and spacers, of selecting and assembling mechanism to carry the matrices to the point where the line is formed, a machine-table having matrix-assembling spaces or chambers to receive the selected and assembled matrices, casting devices, a distributing-bar arranged above the magazine-cells, and a belt mechanism engaging the matrices and carrying them successively to the distribution-bar, substantially as described.

13. In a machine of the type set forth, the combination, with a magazine and matrix selecting and assembling devices, of a machine-table having one or more matrix-assembling spaces or chambers, a distribution-bar, and a belt mechanism engaging the matrices successively and carrying them upward to said distribution-bar, substantially as described.

14. In a machine of the type specified, the combination, with a magazine, of matrix-assembling mechanism, a machine-table having one or more matrix-assembling spaces or chambers, and a belt mechanism engaging the matrices as they are separately removed from the line and carrying them successively to the distributing mechanism, substantially as described.

15. In a machine of the type set forth, the combination, with a matrix-magazine, of a belt mechanism to carry the matrices from the line set up to the distributing apparatus, substantially as described.

16. In a machine of the type set forth, the combination, with a matrix-magazine and suitable distributing apparatus, of means for supporting the assembled line of matrices, and a belt mechanism which receives the matrices successively and delivers them to the distributing apparatus, substantially as described.

17. In a machine for casting lines of type, the combination, with a magazine and suitable selecting and assembling devices, of a table having matrix-assembling spaces or chambers arranged at intervals thereon, means for rotating said table, a casting mechanism with which one of said assembling-spaces is caused to register by means of said rotary movement, a distribution apparatus with which a preceding and separate space is caused to register, a belt mechanism having continuous movement to convey the matrices to the distribution apparatus, an ejector to drive the matrices out of the assembling-space, and automatic means for operating the casting and distributing mechanism, substantially as described.

18. In a machine for casting lines of type, the combination, with a machine-table having one or more spaces or chambers in which the matrices are assembled, of ejectors to drive the matrices out of said chamber, a belt receiving the ejected matrices and carrying them to the distributing apparatus, and two pulleys arranged at different points, one being elastically movable beneath the end of the distribution-bar, said pulleys carrying the belt by which the matrices are removed from the assembling-spaces to the distributing devices, substantially as described.

19. In a machine for casting lines of type, the combination, with an intermittently-rotating table having a plurality of assembling-spaces or selected matrices, assembling devices to carry said matrices to the space where they are set up, a distributing mechanism, a continuously-moving belt by which the matrices are carried to the distribution mechanism, and pulleys driving said belt and having their axes of revolution parallel with each other, a half-twist being given to the belt, substantially as described.

20. In a machine for casting lines of type, the combination, with a machine-table having a series of assembling-spaces, of a matrix-magazine, a casting mechanism, a distribution apparatus, a belt mechanism between the same and the machine-table, an ejector for driving the separate matrices out of the assembling-space, and means for rotating the table and reciprocating the ejector, substantially as described.

21. In a machine for casting lines of type, the combination, with a rectangular machine-table having a plurality of spaces for assembling the matrices, of an assembling mechanism, means for giving a quarter-turn to the machine-table at intervals, a casting mechanism arranged to register with the line of matrices after the first quarter-turn, means for moving the crucible to avoid the angles of the table and to lock up the matrices in the mold, a distributing apparatus with which the same line registers after the second quarter-turn of the table, and a belt mechanism which conveys the matrices from the machine-table to the distribution-bar, substantially as described.

22. In a machine for casting lines of type, the combination, with a table having an assembling space or chamber for a line of matrices, of a mold having jaws which open upon a pivotal connection in such manner as to separate the interior faces of the jaws one from another, one of said faces being provided with intaglios for the formation of longitudinal ribs or raised surfaces in low relief projecting from one face of each line when cast, substantially as described.

23. In a machine for casting lines of type, a mold composed of two jaws connected by a pivotal joint to enable said jaws to separate from each other in opening and approach in closing, one of said jaws being provided with intaglios for the formation of longitudinal ribs or raised surfaces in low relief upon one face of the cast line, substantially as described.

24. In a machine for casting lines of type, the combination, with a table having assembling-spaces for the assembled matrices, of a follow-block arranged in one end of said space, a forcer with which said follow-block is brought in contact as the table turns, means for rotating said table at intervals to advance the line to a distribution mechanism, a pusher at the other end of the assembling-space to advance the assembling matrices as they enter and push them against the follow-block, which forms a support for the end of the line, a reciprocation-bar, and means for operating the same, substantially as described.

25. The combination of a rotatable table, means for assembling matrices thereon, casting devices, means for rotating the table, and mechanism for taking the matrices from the table and distributing the same, substantially as described.

26. The combination, with a table or platform, means for assembling matrices thereon, casting apparatus, and distributing devices, of belt mechanism for taking the matrices from the table or platform and delivering them to the distributing devices, substantially as described.

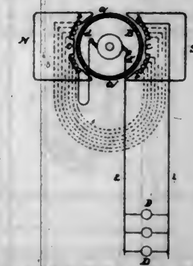
27. The combination, with a magazine for the matrices and spacers and with an assembling chamber or space, of a pair of coacting belts arranged beneath the two inclining series of exit ends of the cells of the magazine, and an elastic plate hanging from a support at or near the point where the two inclining series of exit ends meet, substantially as described.

28. The combination, with a magazine, a machine-table, and means for selecting and obtaining matrices and spacers from the cells of the magazine, of a casting mechanism, a distributing mechanism having a distribution-bar, a belt receiving the matrices and spacers from the machine-table and carrying them to the distributing mechanism, and a pair of rolls adjacent to the end of the distribution-bar, over which the belt runs, one of said rolls being above the other and mounted on a journal-support, which is pressed toward the other roll and the end of the distribution-bar, whereby the matrices and spacers are allowed to pass and are automatically placed upon the end of the distribution-bar, substantially as described.

29. The combination, with a distribution-bar and with a flexible belt carrying the matrices and spacers thereto, of a pair of rolls adjacent to the end of the bar to carry the belt, one roll being elevated above the other and having a spring-support adapting it to yield in a direction away from the end of the bar, a pivoted spring-actuated guard mounted on a frame having a matrix-opening into which the end of the guard normally projects, and a series of travelers carried by duplex belts in parallelism with the distribution-bar, the beveled ends of said travelers being adapted to engage the beveled end of the guard and retract it to allow passage for a matrix or spacer, substantially as described.

REISSUES.

11,266. DYNAMO-ELECTRIC MACHINE. WILLIAM S. ANDREWS, New York, N. Y., and THOMAS SPENCER, Philadelphia, Pa., assignors, by direct and mesne assignments, to Herbert C. Wirt, Boston, Mass. Filed July 11, 1882. Serial No. 430,711. Original No. 408,415, dated July 9, 1889.



Claim.—1. In a dynamo-electric machine, the combination of the armature, the generating-coils thereon, the field-magnet, and the external stationary coils supported upon said field-magnet and wound so as to oppose the magnetizing effect on the armature-core of said generating-coils, substantially as set forth.

2. In a dynamo-electric machine, the combination of the armature, the generating-coils thereon, the field-magnet having grooves in its pole-pieces, and the coils wound in said grooves, so as to oppose the magnetizing effect on the armature-core of said generating-coils, substantially as set forth.

DESIGNS.

21,802. TABLE. ZELIA NUTTALL, Dresden, Germany. Filed Aug. 5, 1892. Serial No. 442,263. Term of patent 3½ years.



Claim.—The design for a table, stool, or similar article, substantially as herein shown and described.

21,803. TABLE. ZELIA NUTTALL, Dresden, Germany. Filed Aug. 5, 1892. Serial No. 442,264. Term of patent 3½ years.



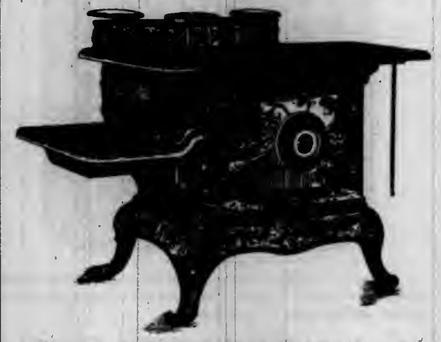
Claim.—The design for a table, stool, or similar article, substantially as herein shown and described.

21,804. COOKING-STOVE. GEORGE H. HOLLAND, St. Louis, Mo., assignor to the Bridge & Beach Manufacturing Company, same place. Filed July 30, 1892. Serial No. 441,769. Term of patent 14 years.



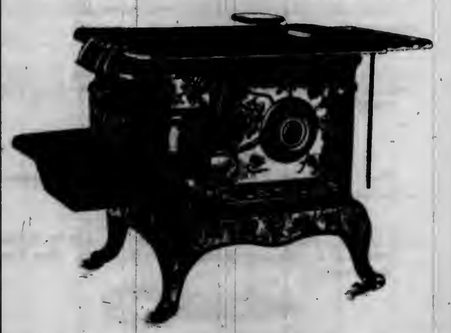
Claim.—The design for a cooking-stove, substantially as shown and described.

21,805. COOKING-STOVE. GEORGE H. HOLLAND, St. Louis, Mo., assignor to the Bridge & Beach Manufacturing Company, same place. Filed July 30, 1892. Serial No. 441,770. Term of patent 14 years.



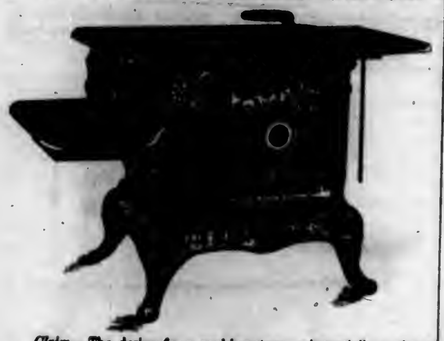
Claim.—The design for a cooking-stove, substantially as shown and described.

21,806. COOKING-STOVE. GEORGE H. HOLLAND, St. Louis, Mo., assignor to the Bridge & Beach Manufacturing Company, same place. Filed July 30, 1892. Serial No. 441,771. Term of patent 14 years.



Claim.—The design for a cooking-stove, substantially as shown and described.

21,807. COOKING-STOVE. GEORGE H. HOLLAND, St. Louis, Mo., assignor to the Bridge & Beach Manufacturing Company, same place. Filed July 30, 1892. Serial No. 441,772. Term of patent 14 years.



Claim.—The design for a cooking-stove, substantially as shown and described.

21,808. STOVE-BOARD. ALBERT LEBERARDT, Jersey City, N. J. Filed July 21, 1892. Serial No. 440,894. Term of patent 3½ years.



Claim.—The design for the ornamentation of a stove-board, herein shown and described, the same comprising the border A, the centerpiece B, and the points C, as set forth.

21,809. HANDLE FOR CUTLERY, &c. WILLIAM W. HAYDEN, Newark, N. J. Filed July 20, 1892. Serial No. 440,677. Term of patent 3½ years.



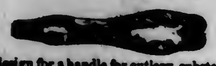
Claim.—The design for a handle for cutlery, substantially as herein shown and described.

21,810. HANDLE FOR CUTLERY, &c. WILLIAM W. HAYDEN, Newark, N. J. Filed July 20, 1892. Serial No. 440,678. Term of patent 3½ years.



Claim.—The design for a handle for cutlery, substantially as herein shown and described.

21,811. HANDLE FOR CUTLERY, &c. WILLIAM W. HAYDEN, Newark, N. J. Filed July 20, 1892. Serial No. 440,679. Term of patent 3½ years.



Claim.—The design for a handle for cutlery, substantially as herein shown and described.

21,812. HANDLE FOR CUTLERY, &c. WILLIAM W. HAYDEN, Newark, N. J. Filed July 20, 1892. Serial No. 440,680. Term of patent 3½ years.



Claim.—The design for a handle for cutlery, substantially as shown and described.

21,813. WATCH-CASE. JOHN C. DUBBEE, Canton, Ohio. Filed July 18, 1892. Serial No. 440,412. Term of patent 14 years.



Claim.—The design for a watch-case, as herein described and shown.

21,814. CAMPAIGN-BADGE. HOWARD W. WELLIS, Poughkeepsie, N. Y. Filed July 19, 1892. Serial No. 440,541. Term of patent 3½ years.



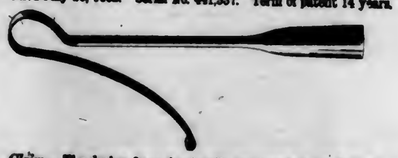
Claim.—The design for a campaign-badge, as herein shown and described.

21,815. CAMPAIGN-BUTTON. WOODBURY S. HOW, Philadelphia, Pa. Filed July 23, 1892. Serial No. 441,057. Term of patent 3½ years.



Claim.—The design for a campaign-button, as herein shown and described.

21,816. SHEPHERD'S CROOK. ALBERT L. BABCOCK, Billings, Mont. Filed July 26, 1892. Serial No. 441,337. Term of patent 14 years.



Claim.—The design for a shepherd's crook, substantially as herein shown and described.

21,817. WHIP. JULIAN POMEROY, Springfield, Mass. Filed Aug. 3, 1892. Serial No. 442,077. Term of patent 14 years.



Claim.—The design for a whip, herein shown and described.

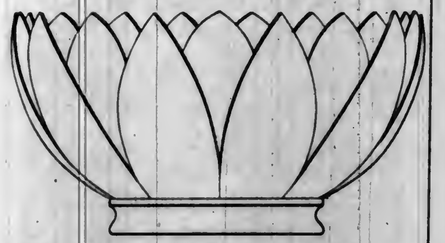
21,818. LAMP-BRACKET. ALFRED KOSER, New York, N. Y. Filed June 27, 1892. Serial No. 438,218. Term of patent 3½ years.

21,818.



Claim.—The design for a bracket, substantially as herein shown and described.

21,819. LAMP GLOBE OR SHADE. JOSEPH WEBB, Sewickley, Pa. Filed Aug. 1, 1892. Serial No. 441,573. Term of patent 7 years.



Claim.—The design for a globe or shade, substantially as herein shown and described.

21,820. LAMP-STANDARD. ALFRED KOSER, New York, N. Y. Filed June 27, 1892. Serial No. 438,219. Term of patent 3½ years.



Claim.—The design for a lamp-standard, substantially as shown and described.

21,821. PADLOCK-CASE. EDWARD A. JUDD, New Britain, Conn., assignor to the Corbin Cabinet Lock Company, same place. Filed July 21, 1892. Serial No. 440,838. Term of patent 7 years.



Claim.—The design for a padlock-case, substantially as shown and described.

21,822. PISTOL-CHEEK. JOSEPH H. WINSOR, Springfield, Mass. Filed Apr. 2, 1892. Serial No. 427,544. Term of patent 14 years.



Claim.—The design for a pistol-cheek, substantially as shown and described.

21,822.



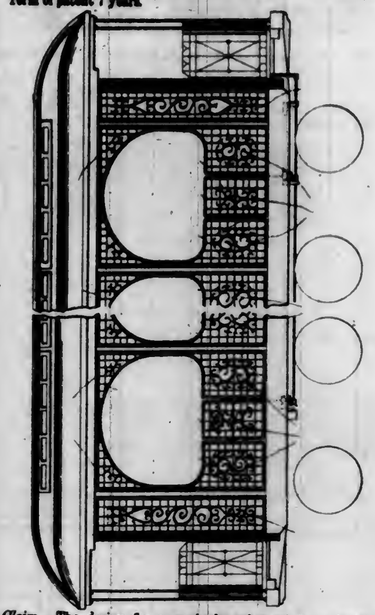
Claim.—The design for the cheek-piece of a pistol-grip, substantially as shown and described.

21,823. PISTOL-CHEEK. DANIEL B. WESSON and JOSEPH H. WINSOR, Springfield, Mass. Filed Apr. 2, 1892. Serial No. 427,547. Term of patent 14 years.



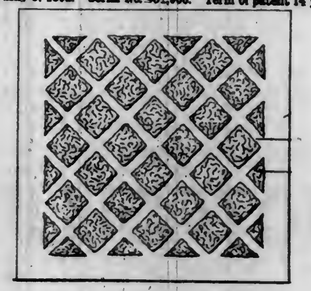
Claim.—The design for the cheek-piece of a pistol-grip, substantially as herein shown and described.

21,824. RAILWAY-CAR BODY. ROBERT I. SLOAN and RICHARD D. GALLAGHER, Chicago, Ill. Filed July 23, 1892. Serial No. 441,056. Term of patent 7 years.



Claim.—The design for a car-body, substantially as herein described and shown.

21,825. SIDING-PLATE. PHILIP A. DELAURIERS, St. Paul, Minn. Filed May 5, 1892. Serial No. 431,968. Term of patent 14 years.



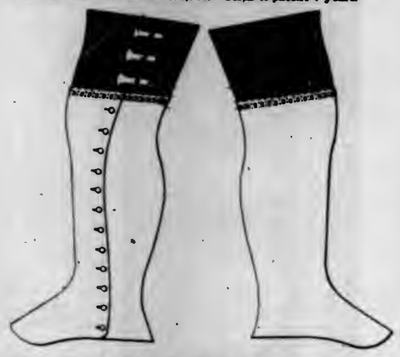
Claim.—The design for a siding-plate, as shown and described.

21,826. BOTTLE. JOHN B. GROSSER, Chicago, Ill. Filed Apr. 12, 1892. Serial No. 428,800. Term of patent 14 years.



Claim.—The design for a bottle, as herein shown and described.

21,827. LEGGIN. SAMUEL BORCHARDT, New York, N. Y. Filed June 16, 1892. Serial No. 436,963. Term of patent 7 years.



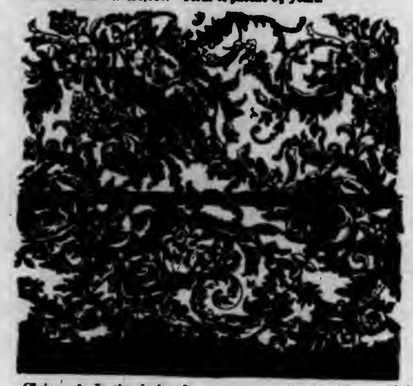
Claim.—The design for a leggin, herein shown and described.

21,828. CLOAK. ABRAHAM POPKIN, New York, N. Y. Filed July 21, 1892. Serial No. 440,936. Term of patent 3½ years.



Claim.—The design for a cloak, substantially as shown.

21,829. CARPET. PIERRE C. CHAMBELLAN, West Hoboken, N. J., assignor to the Bigelow Carpet Company, Clinton, Mass. Filed July 2, 1892. Serial No. 439,067. Term of patent 3½ years.



Claim.—1. In the design for a carpet as herein shown and described, the body A.

2. In a design for a carpet as herein shown and described, the border B.

3. The design for carpets, consisting of the body A and the border B, substantially as shown.

TRADE-MARKS

REGISTERED AUGUST 30, 1892.

21,692. LAGER-BEER. F. A. POTH BREWING COMPANY, Philadelphia, Pa. Filed May 7, 1892.



Essential feature.—The representation of an ermine robe having thereon a shield and a goblet of beer. Used since January, 1887.

21,693. MINERAL WATER. ST. LEON MINERAL WATER COMPANY, LIMITED, Toronto, Canada. Filed July 1, 1892.



Essential feature.—The representation of the face of a lion with the name "ST. LEON" printed thereon. Used since March, 1890.

21,694. SOCIETY JOURNAL. THE TOWN TOPICS PUBLISHING COMPANY, New York, N. Y. Filed Aug. 3, 1892.

TOWN TOPICS

Essential feature.—The words "TOWN TOPICS." Used since 1884.

21,695. ALE AND BEER. GEORGE W. WIEDENMAYER, Newark, N. J. Filed May 9, 1892.

JERSEY

Essential feature.—The word "JERSEY" with an underscored line below the same. Used since March 1, 1892.

21,696. RIDER-DOWN CLOTH OF A WAVY APPEARANCE. HENRY H. BELL'S SONS, Milton and New York, N. Y. Filed July 29, 1892.

Waverly

Essential feature.—The word "WAVERLY." Used since March, 1892.

21,697. CORDOVAN LEATHER. WILLIAM N. BIENSTRATH, Chicago, Ill. Filed July 15, 1892.

COLUMBIAN

Essential feature.—The word "COLUMBIAN." Used since January 1, 1892.

21,698. VETERINARY POWDERS. A. MITCHELL & Co., Calhoun, La. Filed July 13, 1892.

MAC

Essential feature.—The letters "A M C C." Used since April 1, 1892.

21,699. GIN. ROBERT BURNETT & Co., London, England. Filed Apr. 12, 1892.



Essential feature.—The representation of a mural crown surmounted by a branch of grape-vine and an extended hand bearing a pruning-knife, with a fac-simile of the firm-signature. Used since 1887.

21,700. GINGHAMS. JOHN FARNUM & Co., Philadelphia, Pa. Filed July 27, 1892.

FRANKFORD

Essential feature.—The word "FRANKFORD" and the representation of an eagle. Used since June 1, 1892.

21,701. MATTRESSES AND OTHER UPHOLSTERY. GEORGE W. GILL, Jacksonville, Fla. Filed Apr. 8, 1892.

P.P.

Essential feature.—The letters "P. P." inclosed between the representations of a pine and a palmetto tree. Used since March 1, 1892.

21,702. FOOD FOR INFANTS AND INVALIDS. F. B. BENGER & Co., LIMITED, Strangeways, Manchester, England. Filed Aug. 5, 1892.

BENGER'S

Essential feature.—The word "BENGER'S." Used since January 27, 1882.

21,703. OIL OR GAS STOVES. CENTRAL OILGAS STOVE COMPANY, Northampton and Boston, Mass. Filed Apr. 29, 1892.

Central

Essential feature.—The word "CENTRAL." Used since November 15, 1890.

21,704. PLATE OR CATHEDRAL GLASS. JEFFERSON GLASS CO., Washington, Pa. Filed Apr. 20, 1892.

ALLIGATOR

Essential feature.—The word "ALLIGATOR." Used since January 1, 1892.

21,705. TIN AND TERNE PLATES. MERCHANT & Co., Philadelphia, Pa. Filed Aug. 6, 1892.

MERCHANT'S
OLD METHOD.

Essential feature.—The words "MERCHANT'S OLD METHOD." Used since July 6, 1892.

21,706. DETERGENT COMPOUNDS IN LIQUID FORM. PETERSON & RUSH, St. Louis, Mo. Filed July 23, 1892.

RENOVENE.

Essential feature.—The word "RENOVENE." Used since August, 1891.

21,707. SPECIFIC FOR GOUT, RHEUMATISM, AND KINDRED DISEASES. RENZ & HENRY, Louisville, Ky. Filed July 23, 1892.

HENRY'S
TRI-IODIDES.

Essential feature.—The words "HENRY'S TRI-IODIDES." Used since January 30, 1892.

21,708. ANTIFRICTION METAL. THE ELECTRICON METAL COMPANY, Newark, N. J., and New York, N. Y. Filed July 23, 1892.

ELECTRICON

Essential feature.—The word "ELECTRICON." Used since March 15, 1892.

21,709. BABBITT METAL. ASA W. DAY, St. Louis, Mo. Filed May 4, 1892.

GOLD-LEAF

Essential feature.—The word "GOLD-LEAF." Used since March 1, 1892.

21,710. ALE. SUSSE & WHEELER, Peoria, Ill. Filed May 16, 1892.



Essential feature.—The representation of a deer surrounded by a landscape view. Used since February 17, 1892.

21,711. SATIN AND VELVET RIBBONS. PASSAVANT & CO., New York, N. Y. Filed Aug. 4, 1892.

2020

Essential feature.—The number "2020." Used since February, 1884.

21,712. DRIED CURRANTS. WILLIAM H. DOBLE, Quincy, Mass. Filed Aug. 8, 1892.

PURITY WASHED

Essential feature.—The words "PURITY WASHED." Used since July 1, 1891.

21,713. RUBBER BELTING. BOSTON WOVEN HOSE AND RUBBER COMPANY, Boston, Mass. Filed Aug. 8, 1892.

BULL DOG

Essential feature.—The words "BULL DOG." Used since July 1, 1890.

21,714. CORN PRODUCTS USED FOR BREWING PURPOSES. BENJAMIN G. HUDNUT, Terre Haute, Ind. Filed Apr. 20, 1892.

MAIZELINE

Essential feature.—The word "MAIZELINE." Used since March 20, 1892.

21,715. ANALGESIC PREPARATIONS. ESEN B. SMITH, Ipswich, Mass. Filed July 16, 1892.

PHENODYNE

Essential feature.—The word "PHENODYNE." Used since November 11, 1888.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

WEBSTER *v.* PARKHURST AND HAM.

Decided July 20, 1892.

PRACTICE—SUGGESTIONS BY EMPLOYÉ.

Where one has conceived of an invention and discloses the essence of it to another whom he employs to develop and perfect it, suggestions from the employé in the course of experiments and dependent upon the main idea will not ordinarily give the employé any rights as an inventor. (Citing *O'Reilly v. Morse*, 15 How., 62, and *Agawam Co. v. Jordan*, 7 Wall., 583.)

APPEAL from Examiners-in-Chief.

CASH-REGISTER.

Application of Jerome J. Webster filed January 2, 1889, No 295,137. Application of Edward B. Parkhurst and Foster Ham filed July 5, 1888, No. 279,049.

Mr. A. M. Moore and *Mr. V. D. Stockbridge* for Webster.

Messrs. Peck & Rector and *Messrs. Church & Church* for Parkhurst and Ham.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Webster.

Counsel for Parkhurst and Ham contend in argument that since Parkhurst and Ham were the first to make both actual and constructive reduction to practice of the invention in controversy, therefore Webster, in order to prevail, should offer such proof as establishes his case beyond a reasonable doubt, contending that the underlying principle which requires that degree of proof to overturn a patent granted applies with equal force to the case of him who is first to reduce to practice.

It is the general rule in civil cases that a reasonable preponderance of evidence is sufficient to establish the case of him who is able to furnish that degree of proof, and that rule of evidence applies here in the present case; but, as was said in *Hunter* v. *Jenkin*, (56 O. G., 1705:)

> The issue of a patent is an event that is deliberate, certain, and official in a high sense. It ought not to be lightly set aside. The courts have agreed that in all attacks upon it of this same general nature—*i. e.*, on the ground of public use, prior use, abandonment, or prior invention—a case, in order to succeed, must be made out beyond a reasonable doubt.

A patent granted furnishes an exception to the general rule, and that exception is based largely upon the deliberate, certain, and official nature of the act.

Webster was having manufactured by the hands of the Boston Cash Register Company a certain form of cash-register. It was not wholly satisfactory in operation. Webster and the company undertook to have Ham produce a new model in accordance with this contract:

JAMES H. WRIGHT, *President.* W. W. DREW, *Treasurer.*
OFFICE OF THE BOSTON INDICATOR & RECORDER CO.,
No. 98 Cambridge street, Boston, April 7, 1888.

Proposal to draft and examine thoroughly and reduce machine to a further practical basis, if possible.

The results of examination to be submitted to your company within one week for approval.

A new set of patterns for a two-bank machine to be built with a metallic base—$55.00.

Patterns to be owned by your company.

Your company to give an extra sum for drafting and examination not to exceed $55 00.

A first machine to be built from these patterns as a model to build from hereafter, this machine or model to be perfect working in all its mechanical parts, and is built by Wm. Wood & Co., subject to further contract.

This first machine not to exceed $38.00 and to be completed within four weeks from this date and no change in plans to be made after plans have been approved by your company that may affect the construction of the machine materially. This model to be accepted when completed, if satisfactory. The whole to be paid for when model has been accepted by your company.

WM. WOOD & CO.,
Per F. HAM.

J. H. WRIGHT, *Pres.*

This was the first that Parkhurst or Ham had to do with the cash-registers. Previous to the making of this contract Webster possessed a model which embodied in a crude and imperfect way the issue in controversy. Webster says that he communicated the basic idea of this improvement to Ham and that the machine subsequently produced by Parkhurst and Ham was simply the embodiment of the mechanical ideas of the old cash-register amended by the new ideas which Webster communicated to Ham. For instance, a certain interview at which such communication was made is contended by Webster to have taken place on the 10th day of April, 1887, and with reference thereto Webster testifies as follows:

Webster's testimony, (Rec., p. 10:)

> Interrogatory 37. What did you next do about your invention after the model "Exhibit A" had been completed?
>
> Answer. In the spring of 1888 some of the officers of our company had heard of a Mr. Ham, of Woburn, as being a very good mechanic. Some of the officers were dissatisfied with the class of work we were getting in Boston from the people who were manufacturing for us and had mooted the idea of making a change. Mr. Ham came to us about the middle of March, 1888, and met Mr. Wright, president of the company, Mr. Drew, the treasurer, and myself at Mr. Drew's store, Cambridge street Boston. He then said that he had the control of a large shop well supplied with good machinery adapted to the manufacture of cash-registers, except special tools, and that he would like to make a bid on the manufacture of our machines. It was then agreed that we would give him an opportunity to examine one of our machines and see what he thought he could do. Two or three days afterward, I think on the 17th of March, we sent him one of our machines similar to "Exhibit B." Early in April, I think on the 7th, Mr. Ham came to Boston and met us again at Mr. Drew's store, and a contract was entered into with him to make one model machine for a stated price. At that time I told him that there were several changes to be made in the machine which had been sent him and which he told us he had taken all apart and knew all about; but at that interview I did not fully explain what the changes were; but about three or four days later, I think on the 10th of April, Mr. Ham again visited Boston and met Mr. Drew, Mr. Wright, and myself, as before, although

Mr. Drew was busy a large part of the time waiting upon customers in the front store. Consequently Mr. Wright and myself did most of the talking with Mr. Ham on that occasion. Mr. Ham reminded me that I had said several changes were to be made and he had come from Woburn to find out exactly what those changes consisted in. I then made a sketch of the key having the rack or wing with projection at its lower extremity in the presence of Mr. Wright, who was sitting by our side, and generally instructed Mr. Ham, as well as I could in a short time, what changes were necessary to carry out my ideas.

Wright's testimony, (Rec., p. 52:)

Interrogatory 24. Do you remember any of the instructions which Mr. Webster gave Mr. Ham during that interview?

Answer. I do remember several of them. First, the new Webster key and the long pawl were to be introduced into it, so as to dispense with the grid on the back of our machine as then constructed. The latch was to be provided to hold the long pawl out of engagement with the key after its full depression, thus allowing the key to return to its place, and the latch just named was to be tripped by the fall of the rocker-plate, thus permitting the long pawl to return to engagement with the keys. I think, also, hooks were to be provided to fall onto the rocker-plate after the registration, so that the machine would remain locked until the drawer was closed or the hooks pushed away from the rocker-plate. I also recall that at this time Mr. Webster marked out for Mr. Ham the form of the key. This he did because it differed from the key in the machine which Mr. Ham had examined.

Drew's testimony, (Rec., p. 42:)

Interrogatory 29. What did the building of that model by Mr Ham have to do with this invention?

Answer. Mr Ham came to us and wished to make a bid on building our machines. After having some talk with him, he asked to have a machine (one of our old machines) sent to him at Woburn for examination, which we sent him on the 17th of March, 1888. After that there was a contract made between Mr. Ham and our company to build one model machine. It was stated to him at that time that there was to be several changes made in the machine. I do not remember whether he was told just what those changes should be at the time when the contract was made; but a few days later—say two or three—he met Mr. Webster, Mr Wright, and myself at my store on Cambridge street. Mr. Webster then explained, as nearly as he could, what changes it was thought best to make. The changes spoken of at this interview, as I remember the conversation, were in the keys, a device for preventing the depression of two keys at the same time, also a different device for ringing the bell from what we had been using, and, I think, a slight change in the locking device for the wheel. There might have been other changes talked of which I do not remember.

Int. 30. What was the change "in the keys" which was spoken of at this interview with Mr. Ham?

Ans. The change was from using the back grid to a rack on the keys, as near as I can remember.

Int. 31. What was said about it, and who said it?

Ans. I think it was Mr. Webster. I do not know just what was said, as I was not with Mr. Webster and Mr. Ham and Mr. Wright all of the time, for the reason that I had to attend to customers in the store part of the time while this conversation was going on

Ham denies squarely the communication herein referred to; but the preponderance of evidence is clearly against him, and it is found as a fact in the case that Webster did thus communicate to Ham the basic idea of the improvement in controversy. Ham (perhaps with the assistance of Parkhurst) took the crude ideas thus conveyed to him by Webster and embodied them very perfectly and skillfully, possibly producing new details which of themselves and apart from the state of facts which exists here might be patentable to Parkhurst and Ham; but the Supreme Court has twice, at least, passed upon questions very similar to this—once when the Morse telegraph patent was under consideration, and then that Court said:

Neither can the inquiries he made nor the information or advice he received from men of science in the course of his researches impair his right to the character of an inventor. (*O'Reilly* v. *Morse*, 15 How., 62.)

In the other case the Supreme Court said:

Where a person has discovered an improved principle in a machine, manufacture, or composition of matter, and employs others to assist him in carrying out that principle, and they, in the course of experiments arising from that employment, make valuable discoveries ancillary to the plan and preconceived design of the employer, such suggested improvements are in general to be regard ed as the property of the party who discovered the original improved principle, and may be embodied in his patent as a part of his invention. Suggestions from another, made during the progress of such experiments, in order that they may be sufficient to defeat a patent subsequently issued, must have embraced the plan of the improvement and must have furnished such information to the person to whom the communication was made that it would have enabled an ordinary mechanic, without the exercise of any ingenuity and special skill on his part, to construct and put the improvement in successful operation. Persons employed, as much as employers, are entitled to their own independent inventions; but where the employer has conceived the plan of an invention and is engaged in experiments to perfect it, no suggestions from an employé, not amounting to a new method or arrangement, which, in itself, is a complete invention, is sufficient to deprive the employer of the exclusive property in the perfected improvement. But where the suggestions go to make up a complete and perfect machine, embracing the substance of all that is embodied in the patent subsequently issued to the party to whom the suggestions were made, the patent is invalid, because the real invention or discovery belonged to another. (*Agawam Co.* v. *Jordan*, 7 Wall., 583.)

It may be that except for the aid given by Parkhurst and Ham the crude ideas of Webster would never have been developed into practical mechanism. But that point is immaterial in view of the principle which the Supreme Court has laid down.

The decision of the Examiners-in-Chief awarding priority of invention to Webster is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Ninth Judicial District.

NORTON *et al. v.* JENSEN *et al.*

Decided March 10, 1892.

1. PATENTS FOR INVENTIONS—INFRINGEMENT—CAN ENDING AND HEADING MACHINES.

Claims 1 and 2 of Letters Patent No. 267,014, to Edwin Norton, November 7, 1882, for a machine for putting on the ends of fruit and other cans, and claims 6 and 7 of Letters Patent No. 274,363, to Norton and Hodgson, March 20, 1883, for a can-ending machine, and claim 14 of Letters Patent No. 294,065, to Norton and Hodgson, February 26, 1884, for a can ending and seaming machine, and Letters Patent No. 322,060, to Edmund Jordan, July 14, 1885, being an improvement on the original Norton machine, sustained and *Held* infringed by the "Jensen machine" made under Letters Patent No. 376,804, to Mathias Jensen, January 24, 1888, for a can crimper and capper. Letters Patent No. 307,197, to Edmund Jordan, October 28, 1884, and No. 307,491, to Norton and Hodgson, November 4, 1884, for machines of the same class, *Held* not infringed.

2. CONSTRUCTION OF PATENTS.

It is the duty of courts to construe a patent by a reference to the language of its claims and an examination of the specifications and drawings accompanying the same.

3. ORIGINAL INVENTORS—INFRINGEMENT.

Where an invention is of a primary character and stands at the head of an art, it is entitled to a liberal construction of its claims and all persons who make devices or machines operating on the same principle and performing the same functions by analogous means or equivalent combinations, even though the machine may be an improvement of the original and patentable as such, are to be treated as infringers.

4. WHAT IS AN INFRINGEMENT.

An infringement takes place whenever a party avails himself of the invention of the patentee without such a variation as constitutes a new discovery.

5. COMBINATION CLAIM—EQUIVALENTS.

When a combination patent covers a new arrangement of old elements, producing a new and useful result, the same may be protected by invoking the doctrine of equivalents, as against the substitution for any particular element of a different device known at the date of the patent as a means of performing similar work; and the fact that the substitute performs some additional functions does not prevent it from being an infringement.

6. INFRINGEMENT.

There cannot be any infringement of a combination claim unless every element of the combination or a mechanical equivalent of an omitted element is used.

7. EXPERT EVIDENCE.

The opinions of experts are admissible in evidence in patent cases; but they are not conclusive upon the courts.

APPEAL from the Circuit Court of the District of Oregon.

Bill by Edwin Norton and Oliver W. Norton against Mathias Jensen and John Fox for infringement of a patent. Decree for complainants. Defendants appeal. Modified and affirmed.

Before HANFORD, HAWLEY, and MORROW, Judges.

Mr. C. W. Fulton and *Messrs. Wheaton, Kalloch & Kierce* for the appellants.

Mr. John W. Munday and *Mr. Edmund Alcock* for the appellees.

HAWLEY, *J.*:

This is a suit in equity for the infringement of certain Letters Patent. The circuit court entered a decree adjudging that the defendants have infringed claims 1 and 2 of Letters Patent No. 267,014, dated November 7, 1882, granted to Edwin Norton, for a machine for putting on the ends of fruit and other cans; claims 6 and 7 of Letters Patent No. 274,363, dated March 20, 1883, granted to Edwin Norton and John G. Hodgson, for a can-ending machine; claim 14 of Letters Patent No. 294,065, dated February 26, 1884, granted to Edwin Norton and John G. Hodgson, for a can ending and seaming machine; claim 1 of Letters Patent No. 307,197, dated October 28, 1884, granted to Edmund Jordan, for a can ending machine; claims 1, 2, 3, 8, and 9 of Letters Patent No. 307,491, dated November 4, 1884, granted to Edwin Norton and John G. Hodgson, for a can-ending machine, and claims 1, 2, 6, 7, 11, 12, and 13 of Letters Patent No. 322,060, dated July 14, 1885, granted to Edmund Jordan, for a heading-machine. The inventions specified in these Letters Patent were designed to produce cans having tight exterior-fitting heads, and relate to the particular operation in the manufacture of sheet-metal cans which consists in putting the exterior tight-fitting heads on the cylindrical portion of the can. It is admitted that no machine exactly like the drawings in Letters Patent No. 267,014 has ever been constructed; but machines have been built embodying the essential principles outlined in this patent. The other Letters Patent are for various improvements to the primary patent.

Appellants claim that the state of the art at the time of Norton's first invention is represented by Letters Patent No. 235,700, dated December 21, 1880, granted to George H. Pierce, for mechanism for placing and soldering heads and cans. This machine seems to have been constructed for an entirely different character of work from that performed by any of appellees' patented machines, and to be essentially different in its mechanism and modes of operation. The patent specifies a mechanism for making cans the bodies of which are flared outwardly at their ends in order to enable a loose inside-fitting head to be dropped or placed on and within such outwardly-flared body, and then soldered in place. But there is another reason why the Pierce patent has no particular bearing upon any of the inventions or machines in controversy. The testimony clearly shows that Norton's original invention was prior in point of time to Pierce's application for Letters Patent. Norton testifies that he never saw or heard of Pierce's patent until after he considered his invention and built and used experimentally his first experimental can-heading machine, which was made and used by him for the purpose of experiment alone as early as July 15, 1880; that his invention of the machine, as claimed in claims 1 and 2 of Letters Patent No. 267,014, was, in fact, made prior in time to the date of the Pierce patent and to the date of filing of the application for the Pierce patent; that after making his experimental machine he, in the early part of 1881, made a complete set of working drawings for the patterns of a machine like the drawings of Patent No. 267,014; that before his machine was completed Mr. Hodgson and himself had made further improvements, as shown in Letters Patent No. 274,363, and that for this reason the first complete and working automatic machine was made like the drawings and specifications of said patent, instead of like the drawings in the Patent No. 267,014. The first complete machine was made and put in public use in 1882. Norton's invention must therefore be considered as being of a primary character, standing at the head of the art as the first machine ever invented for applying tight exterior-fitting can-heads to can-bodies automatically, and appellees are entitled to a broad and liberal construction of the claims of their patent.

Where an invention is one of a primary character and the mechanical functions performed by the machine are, as a whole, entirely new, all subsequent machines which employ substantially the same means to accomplish the same result are infringements, although the subsequent machine may contain improvements in the separate mechanisms which go to make up the machine. (*Machine Co.* v. *Lancaster*, 129 U. S., 273; 9 Sup. Ct. Rep., 299.)

Appellants contend that Jensen's invention was brought about by the necessities of the salmon-canning industry; that his machine is specifically adapted to putting the final heads on cans filled with fish or other substance; that it is the only machine for heading cans that can practically be used for this purpose; that the Norton machines cannot be successfully used to accomplish this result; that the Jensen machine carries the can and heads it in a vertical position; that its claim to superiority over all other heading-machines is the peculiarity of its construction, so as to head hand-made cans, which are used almost exclusively in the salmon-canning business; that appellees have not been injured by the Jensen machine, because it has simply met a want that Norton's machine did not and could not supply. It appears from the testimony that Jensen prior to the construction of his machine visited Norton's factory in San Francisco and saw and examined his machines. There is some controversy in the testimony as to whether or not appellee's machines will operate successfully upon hand-made cans. Mr. Norton testifies that the automatic can-heading machine manufactured under his patents "will work successfully upon hand-made cans;" that he worked them exclusively upon hand-made cans for nearly two years prior to building his automatic can-body machines, and that they worked "with perfect success."

The fact that Jensen's machine, as constructed, is an improvement, in some respects, upon appellees' machines must be admitted; but this does not relieve it of the character of an infringing machine. Norton being the original inventor, he, and those claiming under him, would have the right to treat as infringers all persons who make devices or machines—

operating on the same principle and performing the same functions by analogous means or equivalent combinations, even though the infringing machine may be an improvement of the original, and patentable as such.

(*McCormick* v. *Talcott*, 20 How., 405. See, also, *Wells* v. *Gill*, 1 Ban. & A., 77; *Kendrick* v. *Emmons*, 2 Ban. & A., 208; *Turrell* v. *Spaeth*, 3 Ban. & A., 458; *Colt* v. *Arms Co.*, 1 Fish. Pat. Cas., 108; *Winans* v. *Railroad Co.*, 4 Fish. Pat. Cas., 2; *Whipple* v. *Manufacturing Co.*, *Id.*, 29; *Fruit Co.* v. *Curran*, 7 Sawy., 270; 8 Fed. Rep., 150.)

The real question to be determined is whether or not the Jensen machine—Letters Patent No. 376,804, dated January 24, 1888, granted to Mathias Jensen, for a can crimper and capper—contains the several inventions and improvements covered by the several claims of appellees' patents, as heretofore enumerated, and thereby infringes the same. Before proceeding to review the several claims in the respective patents which the decree finds to have been infringed it is proper to notice some of the general differences which it is claimed exist between the elements and methods of construction in appellees' machines from the Jensen machine.

First, as to the mold found in all the patents, it is claimed by appellants that the Jensen mold is vitally different from the mold of the other patents; that it is not only different in form, but that its mode of operation, as well as construction, is different, and that it acts upon entirely different principles. On the other hand, the contention of appellees is that the mold found in all the patents, though different in construction, is substantially identical in principle; that the mode of operation is the same, and that the differences existing in the Jensen mold from appellees' machines are of the most formal and immaterial character. Upon the oral argument of this case models of the respective molds, as well as of other portions of the machinery, were brought into court, by means of which the respective counsel were enabled to fully and clearly illustrate and explain their views as to the construction, purpose, operation, and effect of the different molds. The conclusions to be arrived at in this case depend to a great extent upon the proper solution of this question, and necessarily involve the careful consideration and weighing of the voluminous evidence offered by the respective parties, which in this case in several of its features presents many questions of much embarrassment and difficulty. The testimony upon both sides is principally that of experts skilled in the science and operation of machinery which they were called upon to explain, and in their testimony they not only state the facts concerning the difference in the construction of the respective machines, but give their opinions whether or not there is any difference in the operation of the machines or in the effects produced thereby. Expert testimony is admissible to explain the several drawings, models, and machines that are exhibited upon the trial, their operation, purpose, and effect, and the differences which exist in the various devices involved in their construction. The opinion of an expert is, in certain cases, admissible in evidence, but it is not conclusive upon the courts. It is to be considered as the judgment and opinion of a person who has had extensive practice, education, and knowledge in relation to the particular subject upon which his testimony is given. If the reasons given by the expert witness are deemed reasonable and satisfactory, the court may adopt them; but if they are unsatisfactory the court will discard the testimony and act upon its own knowledge and judgment. It is always the duty of the courts to construe the patents by a reference to the language of the claims and an examination of the specifications and drawings accompanying the same. It satisfactorily appears from the evidence that Norton discovered that by rounding and sizing the can-body by external pressure and by centering and guiding the can-head accurately in line with the can-body the entire circumference of the can-body could be entered simultaneously into the can-head by forcing its two parts squarely together. His invention which embodied this mode of operation consisted in a device designated as a "mold", which was adapted, as stated by appellees' counsel, to receive and encircle the can body and can-head, to size and true up the can-body, and to register and guide the head and body together when thus held and guided by the mold. The mold was constructed of two diameters having a difference between them of the thickness of the tin, the smaller one corresponding to the interior diameter of the can-head flange to the exterior diameter of the can-body, the larger one corresponding to that of the exterior of the can-head flange. The function of the larger diameter is to give room for the annular flange of the can-head outside of the can-body in the mold and to center the can-head accurately in line with the can-body as the head and body are forced together by the piston. The function of the smaller diameter is to size and round the can-body by external pressure. The can-head and the can-body are both simultaneously contained in this mold, and are brought together by a square linear movement by means of a piston, so that the tight-fitting exterior head is applied with precision, all sides at once, the entire circumference passing to place simultaneously. The mold is then opened to discharge the headed can by a lateral separation of its segments or parts.

The first claim of Letters Patent No. 267,014 reads as follows:

1. In a machine for applying to can-bodies heads fitting outside the same, the combination of a device for sizing the exterior diameter of the can-body to conform to the interior diameter of the can-head and holding the same so sized while the head is applied, said sizing and holding device having its end enlarged to fit the exterior diameter of the can-head, so as to leave an annular space between it and the can-body for the reception of the flange of the can-head, with a device for forcing the can-head into said annular space, and thereby applying the head outside the can-body, substantially as specified.

The Jensen mold, though different in form, possesses all the general features of the Norton mold which we have mentioned and is in all respects substantially the same in principle as the Norton mold. The mode of operation is certainly the same. True, the Jensen machine puts on only one head at a time, and the plunger or piston in his machine is placed in such a manner as to move the can-body toward the can-head instead of the can-head toward the can-body, as is the case in the Norton machine. Jensen cut a slot or notch in the end of his mold, so that the

can-head could be slipped in sidewise instead of at the end of the mold. In the Norton machine the can-body is delivered into the mold laterally or sidewise and the can-head endwise with the mold, while Jensen, having cut the notch in the end of the mold for the purpose of delivering the can-head in laterally or sidewise, delivers the can-body to the mold endwise.

There are other minor differences in relation to the molds that were discussed by counsel which we deem it unnecessary to here refer to in detail. It is sufficient to state that after a careful examination of all the testimony, the specifications, and drawings, and an inspection of the molds, our conclusion is that the differences pointed out between the respective molds are mostly formal and do not present any substantial difference in the principle of the operation of the respective machines. The patentee in his specifications refers to the fact that changes may be made in the form without departing from the essential characteristics of his invention:

I have shown duplicate chutes for the can-caps and pistons at each end of the molds.

It will be understood that the invention may be used to cap one end at a time or both ends, as desired. Nor do I wish to be limited to arms C, arranged in pairs, nor to the precise manner of opening the molds, nor to the precise operating mechanism therefor, because these features may obviously be varied in many respects.

* * * I do not wish to limit myself to any particular form or construction of can-mold or means of operating said mold to clamp or release the can, nor to any particular devices for forcing the can end upon the can-body when secured in said mold, as all these features or devices may be greatly varied without departing from the principle or essential characteristic of my invention.

It may also be observed that the molds may be mounted upon a reciprocating slide or an endless belt or other device instead of the revolving wheel shown in the drawings.

No one can avoid infringement simply by means of ingenious diversities of form and proportion presenting simply the appearance of something unlike the patented machine. It is well settled that a copy of the principle or mode of operation described in the prior patent is an infringement of it. If the patentee's ideas are found in the construction and arrangement of the subsequent device, no matter what may be its form, shape, or appearance, the parties making or using it are deemed appropriators of the patented invention and are infringers. An infringement takes place whenever a party avails himself of the invention of the patentee without such a variation as constitutes a new discovery.

Jugde Nelson in *Blanchard* v. *Beers* (2 Blatchf., 416) said that—

the sure test, and one the jury should be guided by in all cases of this kind, is whether or not the defendant's machine, whatever may be its form or mechanical construction, has incorporated within it the principle or the combination or the novel ideas which constitute the improvement to be found in the plaintiff's machine. If it does, then, no matter what may be its mechanical construction or its form, it is an infringement—an appropriation of the ideas of another, simply in a different form.

The same learned judge in *Tatham* v. *Le Roy* (2 Blatchf., 486) said:

Formal changes are nothing. Mere mechanical changes are nothing. All these may be made outside of the description to be found in the patent, and yet the machine after it has been thus changed in its construction is still the machine of the patentee, because it contains his invention, the fruits of his mind, and embodies the discovery which he has brought into existence and put into practical operation.

(See, also, *Winans* v. *Dunmead*, 15 How., 343; *Potter* v. *Schenck*, 1 Biss., 518.)

Claim 2 of the Norton patent, No. 267,014, reads as follows:

2. In a machine for applying to can-bodies heads fitting outside the same, the combination of a chute or device for delivering the can-bodies to the machine, with a movable device for clamping the can-body and sizing its exterior diameter to conform to the interior diameter of the can-head, said clamping and sizing device having its end or mouth enlarged to leave an annular space between the same and the can-body clamped therein for the reception of the flange of the head, a chute or device for delivering the can heads to the machine, and a device for forcing the can-head into said annular space at the end of said clamping and sizing device, substantially as specified.

The elements contained in this claim, in addition to claim 1, are a chute or device for delivering the can-heads to the machine and a device for forcing the can-head into the annular space at the end of the clamping and sizing device. These elements are not limited either by the claim or the specifications of the patent to a can-head-feed chute, but cover any equivalent or form of feed device that is suitable for conveying the can-head to the machine. In the Norton machine the arrangement is such that the can-bodies will move along by their own gravity. The Jensen machine contains a chute or device for delivering the can-bodies to the machine, arranged in such a manner that the can-bodies will not propel themselves by their own gravity, but it contains a supplemental device for moving the can-bodies along the same. The essential fact is the existence of the chute or device in the Jensen patent for delivering the can-bodies to the machine. This can-head pusher found in the Jensen machine is simply an addition to the can-head-feed chute of the Norton patent.

As Norton was the first inventor to produce a machine having the combination with the can-mold having a recess or enlarged diameter at its end, and the piston with a can-body-feed device, and a can-head-feed device, he is certainly entitled to claim it in its entirety. The witness Dayton testifies that the Jensen machine employs the same means, to wit:

A chute for delivering the can-heads and a strictly equivalent means for delivering the can-bodies. The traveling belt and a rotary or reciprocating feeder, both of which are used by Jensen to carry in the can-bodies, have long been well-known for such purposes, and seem to have been selected by Jensen from a wide range of familiar mechanisms adapted to set on the can while standing in an upright position. The addition of the feed-fingers at the lower end of the can-head chute in the Jensen machine, for pushing the can-heads into place with respect to the clamp-mold, was also within the range of well-known mechanical means for such purposes.

Claims 6 and 7 of the Norton and Hodgson patent, No. 274,363, for a new and useful improvement in can-ending machines, read as follows:

6. The combination of the can-body-clamping device or mold with a chute for the can-heads, a reciprocating head or piston at the base of said chute for automatically feeding the can-heads to the mouth of the mold and applying the same to the can-body, and a spring pin or device for holding the can-head in position at the mouth of the mold, substantially as specified.

7. The combination of the delivery-chute wheel having half-molds upon its periphery, reciprocating half-mold, chute for the can-heads, piston for applying the same to the can-bodies, and discharging-chute, substantially as specified.

The spring device mentioned in claim 6 constitutes an important element in the machine. There is some controversy with reference to its use in the Jensen machine. It is not described in the specifications or drawings of the Jensen patent, and Jensen in his testimony denies that he now uses it or any equivalent device. Norton testifies that it was in the Jensen machine which he examined. Jensen admits that it was placed in a few of his machines, but claims that when used it was for an entirely different purpose from that in the Norton and Hodgson machine. The action of the circuit court in finding an infringement of claim 6 is justified by the testimony of appellees' witnesses to the effect that the spring pin or device in appellees'

machine and in the Jensen machine, when used, performs substantially the same functions, and operates to hold the can-head in position at the mouth of the mold, and is combined in both machines with the mold, piston, and can-head chute. The action of the court in finding an infringement of claim 7 is justified by testimony showing that the reciprocating and revolving bar F, having the fingers H, as shown in Fig. 3 of the Jensen patent, is an equivalent for the can-body-feeding wheel of the Norton and Hodgson patent. The testimony shows that in both machines there is a reciprocating half-mold mounted on the frame of the machine.

Appellants contend that, inasmuch as the claims of this patent are for improvements upon combination claims, the patentees should be restricted to the particular form of their improvements, and that they are not entitled to invoke the doctrine of equivalents. This same contention is relied upon as an answer to the charge of infringement to most of the claims in all of the subsequent patents.

Mr. Justice Clifford, in delivering the opinion of the Court in *Imhaeuser* v. *Buerk*, (101 U. S., 655,) clearly states the principles of law upon this subject, as follows:

> Equivalents may be claimed by a patentee of an invention consisting of a combination of old elements or ingredients, as well as of any other valid patented improvement, provided the arrangement of the parts composing the invention is new, and will produce a new and useful result. Such a patentee may doubtless invoke the doctrine of equivalents, as against an infringer of the patent; but the term "equivalent," as applied to such an invention, is special in its signification, and somewhat different from what is meant when the term is applied to an invention consisting of a new device or an entirely new machine.

In explanation of the term "equivalent," after citing illustrations, he says:

> Patentees of an invention consisting merely of a combination of old ingredients are entitled to equivalents, by which is meant that the patent in respect to each of the respective ingredients comprising the invention covers every other ingredient which, in the same arrangement of the parts, will perform the same function, if it was well known as a proper substitute for the one described in the specification at the date of the patent. Hence it follows that a party who merely substitutes another old ingredient for one of the ingredients of the patented combination is an infringer if the substitute performs the same function as the ingredient for which it is so substituted, and it appears that it was well known at the date of the patent that it was adaptable to that use.

The mechanical substitute—

> may perform some other functions, but this does not prevent it from being an infringement. (*Norton* v. *Can Co.*, 45 Fed. Rep., 638.)

In *Carter* v. *Baker* (1 Sawy., 516) Judge Sawyer defines an "equivalent" in the following language:

> When in mechanics one device does a particular thing or accomplishes a particular result, every other device known and used in mechanics which skillful and experienced workmen know will produce the same result or do the same particular thing is a known mechanical substitute for the first device mentioned for doing that thing or accomplishing that result, although the first device may never before have been detached from its work and the second one put in its place. It is sufficient to constitute known mechanical substitutes that when a skillful mechanic sees one device doing a particular thing he knows the other devices whose use he is acquainted with will do the same thing.

(See, also, *Seymour* v. *Osborne*, 11 Wall., 556; *Machine Co.* v. *Murphy*, 97 U. S., 125; *Wicke* v. *Ostrum*, 103 U. S., 469.)

Keeping in view these principles of law, and also bearing in mind that there can be no infringement of a combination claim unless every element or a mechanical equivalent of an omitted element is used, we proceed to a consideration of the claims in the subsequent patents.

Claim 14 of the Norton and Hodgson patent, No. 294,065, for a new and useful improvement in can ending and seaming machines, reads as follows:

> 14. The combination, with a can-body-clamping mold, of a chute or device for delivering the can-bodies thereto, a chute or device for delivering the can-heads at the mouth of said mold, mechanism for applying the can-head to the can-body, and mechanism for bending and compressing into a seam the flanges uniting the can head and body, substantially as specified.

This patent shows the first combined can heading and crimping machine which operated to automatically apply the can-heads to the can-bodies and to crimp the same. The patentees are therefore certainly entitled to claim the combination of the devices which enabled them to accomplish these purposes, as set forth in the claim under consideration. The can-heading device in this patent is substantially the same as in the appellees' other patented machines, with the mechanical addition providing for crimping the heads while the can is still held in the clamping-mold. The can-body chute is also substantially the same as in the other patents. The drawings accompanying this patent have the squeezing-jaw form of crimper. The Jensen machine employs the rotary form, and for this reason, among others, it is claimed that it does not infringe claim 14; but the testimony of both parties shows that both forms of crimpers are old and well known and could readily be used one for the other. As the substituted device in the Jensen machine is the well-known mechanical equivalent of the device used in this patent, the combination remains the same under the law, and the use of the substituted device must be treated as an infringement of the prior machine.

Claim 1 of the Jordan patent, No. 307,197, for an improvement in can-ending machines for automatically putting the ends of sheet-metal cans onto the bodies, reads as follows:

> 1. In a machine for automatically putting the ends of sheet-metal cans on the bodies, a segmental clamp-chuck and mounted to be capable of performing the following operations: first, to receive and retain a can end; second, to grasp and hold the body of the can in a proper position; third, to force the end of the can on the body of the same; fourth, to release the end and body of the can when these operations are completed, combined with suitable means for actuating the same to effect these operations.

Appellants earnestly argue that this claim has not been infringed by them. They contend that, whatever views may be entertained as to the claims of certain other patents, this claim for the segmental clamp chuck or mold must be limited to the particular form of the improvement in the machine as shown in the drawings accompanying the patent; that appellees cannot under this claim invoke the doctrine of equivalents; that the machine itself has never been used and is impracticable; that the underlying principle of the Jensen machine is in every respect essentially different from this patent and does not in any respect accomplish its work by the same mode of operation; that the elements of each machine are essentially different and the mode of operation clearly distinct. A majority of the members of this court are of opinion that this claim has not been infringed for the reasons given by them in a separate opinion. I shall therefore, with reference to this claim, only express my individual views.

The contention of appellants with reference to the limitation of this claim is directed to some extent to the particular method of mounting the mold, as shown and described in the Jordan patent, by which the mold is made to swing first to one side and then to the other, so that the can-heads and can-bodies may be delivered into it. This particular feature of the Jordan patent, as to the vertically-moving and horizontally-swinging manner of mounting the mold, is covered by claims 2 and 3 of the Jordan patent, which are not claimed to have been infringed by the Jensen machine. The essential improvement of the Jordan patent covered by claim 1 is in the construction of the mold itself. This claim, it will be observed, is not limited to any particular method of mounting the mold. The claim is for—

> a segmental clamp-chuck and mounted to be capable of performing the following operation, etc.

By an examination of the specifications it will also be seen that the patentee did not limit himself to the particular method of mounting the mold as shown in the drawings accompanying the patent:

> At present my invention relates to and is employed in a machine the features of which are fully shown in the accompanying drawings and described in this specification, but is adapted to and can be operated in a press or machine of any suitable construction.

Under the rules already announced it is clear to my mind that the patentee is entitled to the doctrine of equivalents. Norton testified that he had one of the Jordan machines in one of his factories fitted up for several sizes of cans; that it was not at present running, but that it had run successfully, and was a successful and operating machine. This testimony, in my opinion, disposes of the objections raised as to the alleged impracticability of the machine.

What is the proper construction to be given to the patents under consideration? Do the molds of each machine, notwithstanding their difference in construction, perform substantially the same function, in substantially the same way, to obtain the same result, or do they perform different functions or operate in a different way, producing, substantially, a different result? In *Machine Co.* v. *Murphy*, *supra*, as well as in the other cases heretofore quoted from or referred to, the Supreme Court of the United States very clearly lays down the rule by which all courts should be governed in determining questions of this character. It is there declared that in all cases, except where form is of the essence of the invention, it is not—

> safe to give much heed to the fact that the corresponding device in two machines, organized to accomplish the same result, is different in shape or form the one from the other, as it is necessary in every such investigation to look at the mode of operation or the way the device works, and at the result, as well as at the means by which the result is attained. Inquiries of this kind are often attended with difficulty, but if special attention is given to such portions of a given device as really does the work, so as not to give undue importance to other parts of the same which are only used as a convenient mode of constructing the entire device, the difficulty attending the investigation will be greatly diminished, if not entirely overcome. (*Watson* v. *Ring*, 1 Cliff., 620.) Authorities concur that the substantial equivalent of a thing, in the sense of the patent law, is the same as the thing itself; so that if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though different in name, form, or shape. (Curt. Pat., 310.)

Jensen, after speaking in relation to the difference in the mounting of the respective molds, which has been already noticed, testifies that the can-mold in his machine also differs from the segmental clamp-chuck in the Jordan machine in this: that it is so constructed that it has one passage for receiving the can-head and another passage for receiving the can-body, so that the can-head may be entered therein, while the can-body is shaped and rounded, guided and forced into the can-head with one and the same stroke, without any performance whatever with the can-mold, as all these operations take place while the can-mold is closed and at rest, and that his machine differs from the combination in claim 1 of the Jordan patent in having omitted the segmental clamp-chuck with but one passage. These differences, in addition to others previously noticed, are relied upon to establish the fact that there has been no infringement of this claim.

The testimony upon the part of appellees is very lengthy and in some respects materially in conflict with the testimony of Jensen. From an examination of all the testimony bearing upon the question under consideration, and the principles of law applicable thereto, my conclusion is that Jensen obtained the idea and copied the feature of feeding or inserting the can-head in the recessed mouth of the mold before the can-body is inserted in the mold and of forcing the body endwise or longitudinally into the mold after the mold has been closed to support the can-head in the recess of the mold from the Jordan patent. That he likewise copied the feature of beveling or tapering the lower mouth of the mold, so as to facilitate the endwise insertion of the can-body in its sizing or clamping mold. That these features of the machine are covered by the claim under consideration, and that the element of this claim is found in the Jensen machine. That, although the clamp-chuck in the Jordan patent is divided into six parts or segments, and the mold in the Jensen machine is only divided into two parts, the molds in both machines open and close substantially in the same manner and for substantially the same purpose. That the purpose of the Jensen mold, as well as the segmental clamp-chuck in the Jordan patent, is, first, to hold and retain the can-head in the recess of the mold; second, to grasp and size up the can-body; third, to force the can-body longitudinally into the mold and apply the head to it, and, fourth, to release the end and body of the can. That the Jensen mold is specially adapted to accomplish these purposes and is combined with suitable mechanism for operating it, so as to bring about the results above mentioned, and that, notwithstanding the differences in the mode of construction, the dissimilar contrivances and devices for actuating the parts in the two machines, and the improvements in the Jensen machine, as testified to by the respective witnesses and pointed out by counsel in the oral argument, it contains the invention of Jordan as set forth in claim 1, and therefore, under the principles of the law as hereinbefore announced, infringes the same.

Claims 1, 2, 3, 8, and 9 of the Norton and Hodgson patent, No. 307,491, for a new and useful improvement in can-ending machines, read as follows:

> 1. The combination of an inclined clamp or mold for holding the can with a reciprocating piston or device for applying the head or cover thereto while held in such inclined position, substantially as specified.
>
> 2. The combination of an inclined clamp or mold for holding the can with a plate or support for the bottom of the can to rest against, and a reciprocating piston or device for forcing the head upon the can, substantially as specified.
>
> 3. The combination of an inclined clamp or mold with a plate or support at the lower end of said mold, an inclined chute for delivering the can-heads at the mouths of said mold, and a reciprocating piston for applying said heads to the can, substantially as specified.
>
> 8. The combination of an inclined device for holding the can with an inclined chute for delivering the cans thereto in an inclined position, and a device for applying the cover or head to the can while held in such inclined position, substantially as specified.
>
> 9. The combination of an inclined device for holding the can with an inclined chute for delivering the cans thereto in an inclined position, and a device for applying the cover or head to the can while held in such inclined position, and a spirally twisted or curved discharge-chute to receive the can in an inclined position and deliver it in a horizontal position to the carrier, substantially as specified.

The machine described in this patent is substantially the same as the machine in Patent No. 274,363, with the exception that it is so arranged as to hold the can at an incline, instead of horizontally, for the purpose of operating on filled cans. It will be noticed that each of the claims refers to the incline. This patent, with these improvements, stands at the head of the art, as providing for the first machine to automatically put the final head upon a filled can. The essentials of a machine to accomplish this purpose are, first, some means for taking the can into the machine and into the mold in such an upright position as that the contents of the can will be retained; second, a mold for applying the head to the can while in this position, and, third, some suitable means for discharging the can after it is headed, which will cause it to turn down into the proper position to roll through the solder bath, with the head applied undermost. These elements are found in both machines. The only point seriously urged against the infringement of the several claims in this patent is that the Jensen machine holds the can at an angle of ninety degrees, while in the machine described in this patent the can is held at a less angle. With reference to this patent, a majority of the members are of opinion that the claims thereof have not been infringed. My individual views, briefly expressed, are that if the inclination is sufficient to prevent the spilling of the contents of the can it does not make any essential difference in what particular angle it is employed. If the angle employed in the Norton and Hodgson machine safely accomplishes the result

of preventing the spilling of the contents of the can, and the testimony of appellees' witnesses is that it does, then it seems to me clear that appellants cannot avoid infringement upon the ground that their machine operated at a greater angle.

Claims 1, 2, 6, 7, 11, 12, and 13 in the Jordan patent, No. 323,060, for a new and useful invention in heading-machines for automatically applying the heads on the bodies of sheet-metal cans, read as follows:

1. In a can-heading machine, the combination, with two reciprocating part-molds, of a reciprocating device for conveying the can-body to a position between said part-molds and holding it there while said molds move forward to clamp the can-body, substantially as specified.

2. The combination, with two part-molds, of a reciprocating device for conveying the can-body to a position between said part-molds and holding it there until clamped thereby, substantially as specified.

6. The combination, with a pair of molds for clamping the can-body, of a plunger-head and a slide to adjust the can-head opposite the mold, substantially as specified.

7. The combination, with a pair of can-body-clamping molds, of a plunger-head, a reciprocating slide to move the can-head opposite the mold, and a chute for delivering the can-heads to said slide, substantially as specified.

11. The combination, with a pair of can-body-clamping molds, of a chute for the can-heads, a slide for moving the can-head opposite said molds, and a lever and cam for operating said slide, substantially as specified.

12. The combination, with two part-molds, of a can-head chute, a slide to move the can-head opposite the mold, a lever and cam for operating said slide, a plunger and plunger-head, and a cam and lever for operating said plunger, substantially as specified.

13. The combination, with two part-molds, of a reciprocating conveyer to convey to and hold the can-body between said molds and a cam and lever for reciprocating said conveyer, substantially as specified.

This patent is simply for an improvement upon the original Norton machine. The mold is substantially the same in both patents, the principal difference between the patents being in the manner of mounting the mold and in feeding the bodies and heads of the cans to the mold. If we are correct in the conclusions reached as to the infringement of the other patents, it necessarily follows that these claims have been infringed, and it would serve no useful purpose to again discuss the points and reiterate the reasons for our conclusion.

In my opinion the decree of the circuit court should be affirmed.

HANFORD, *J.*, (concurring:)

The opinion in this case, written by Judge Hawley, is concurred in by Judge Morrow and myself, and adopted as the opinion of the court as to the principal invention of Mr. Norton of a "machine for putting on the ends of fruit and other cans," and the several improvements and combinations of the parts of said machine with additional devices for doing all the work of bringing together cylindrical can-bodies and the disks or caps for closing the ends thereof and joining them by a series of harmonious automatic movements covered by the several patents issued to E. Norton, Norton and Hodgson, and Edmund Jordan, respectively, and numbered 267,014, 274,363, 294,065, and 322,060. We are of the opinion, however, that for some kinds of work the machine contrived by the appellant Jensen is an improvement upon any machine previously constructed and a very useful invention, and that it is not an infringement of any rights of the appellees under the patent issued to Edmund Jordan, No. 307,197, or the Norton and Hodgson patent, No. 307,491. While we are willing to protect the complainants to the full extent of their lawful claims under the patent laws, we have not failed to notice that, by his own testimony, Mr. Norton has manifested a disposition to restrict the use of his patented machinery to the heading of cans manufactured by a particular corporation, thereby imposing a grievous burden upon important industrial enterprises, from which they cannot escape unless other machinery can be lawfully employed. For this reason we are not inclined to enlarge their rights by any strained construction of the law, nor by presuming in their favor facts not clearly proven by legal evidence. We hold that the Jordan "can-ending machine," Patent No. 307,197, by reason of being cumbersome and slow in its operations is not a practicable machine for putting heads on tin cans of the size required for use in putting up fruits, vegetables, meats, fish, and similar materials for individual and family use, and therefore it cannot be infringed by the use of a different machine which will do such work well at a reasonable cost. It is true that Mr. Norton has testified that a Jordan machine set up in his factory has been operated successfully; but this is only the conclusion of an interested witness. It states no particulars as to the time during which the successful operation of the machine continued, nor the number of cans, whether one or a dozen or more, that were successfully operated upon, and he does not say whether or not the expense attending the successful operation was or was not the cause of discontinuing the same, and, besides this, same witness admits that this machine is too slow in its operation to be profitably employed in heading cans of the size required in the largest numbers. The most that he claims for it is that it is a splendid-working machine for putting covers on gallon or other large cans, a class of work for which, so far as the evidence discloses the facts, the Jensen machine has not been used. Mr. Jordan is not the inventor of the mold or discoverer of the principle of the segmental clamp described in the specifications for his patent. His invention consists of a new use of these appliances, in combination with others, to produce certain results. This is a sufficient reason for limiting the patent to the particular use mentioned in the specifications. The "can-ending machine" described in Patent No. 307,491 is simply the machine covered by the Patents Nos. 267,014, 274,323, and 322,060, tilted up by being bedded upon a table the top of which is an inclined plane of about forty-five degrees from a horizontal, combined with a spirally-twisted discharge-chute, so constructed as to receive cans in the inclined position in which they are held by the clamp when the heads are applied and deliver the same in an horizontal position. The object of setting the machine in such inclined position is to make it operate upon filled cans. It is obvious that to move and operate upon well-filled cans, especially of liquid or semi-liquid substances, the cans must be in true vertical positions, and the movement must be so free from jarring or concussion as to not disturb the contents, whereas one of the essentials of the "can-ending machine" is a carrier or feeding chute so constructed as to bring the cans into such a position that by force of gravity they will drop into the half-molds upon the periphery of the intermittently-revolving wheel. The machine will not operate upon filled cans in an upright position without some additional device or substitute for gravity to force the cans into the revolving half-molds, for the clamp or mold has no attraction for the cans or means of seizing them without the aid of an extraneous force. The contrivance of setting the can-ending machine in an inclined position and the adjustment of the feed and discharge chutes to work with it in that position can scarcely be considered to involve the exercise of inventive genius or anything more than ordinary mechanical skill, and being, at best, but partially successful in the accomplishments of its object, we cannot, under the law as we understand it, hold that any rights of the patentees have been infringed by the Jensen machine, which the evidence shows to be in its operation upon filled cans a complete success. The patent laws were not designed for the benefit of the man who attempts to originate a useful thing, but rather to reward the one who first achieves success in the production of it. It would be a perversion of the law to hold a machine which can do certain kinds of work to be an infringement of a patent for a different machine, which cannot do the same work. The decree of the circuit court should be so modified as to declare that the Patents Nos. 307,197 and 307,491 are not infringed by use of the Jensen machine, and in all other respects affirmed, and it is so ordered.

Costs of the appeal are awarded to the appellants.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

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World's Columbian Exposition.

To the inventors and manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the developement of American invention.

W. E. SIMONDS,
Commissioner.

Protection of Foreign Exhibitors.

DEPARTMENT OF STATE,
Washington, D. C., July 30, 1892.

To the Diplomatic and Consular Officers of the United States:

GENTLEMEN: I subjoin a transcript of the act of Congress approved April 6, 1892, Public No. 20, entitled "An act to protect foreign exhibitors from prosecution for exhibiting wares protected by American patents and trade-marks," which reads as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That no citizen of any other country shall be held liable for the infringement of any patent granted by the United States, or of any trade-mark or label registered in the United States, where the act complained of is or shall be performed in connection with the exhibition of any article or thing at the World's Columbian Exposition at Chicago.

You will transmit copies of this circular to the government of the country to which you are accredited, and ask that it be given the widest possible circulation for the information of those directly concerned.

I am, gentlemen, your obedient servant,

JOHN W. FOSTER,
Secretary of State.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 4, 1892.

Official copy to the Commissioner of Patents for his information and guidance.

E. M. DAWSON,
Chief Clerk.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Powers of Attorney.

(ORDER No. 766.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 25, 1892.

The attention of Examiners and the Application Clerk is called to Rule 18. General powers of attorney cannot be considered. In each application the written authorization must be filed. A power of attorney purporting to have been given to a firm or copartnership will not be recognized, either in favor of the firm or any of its members, unless all its members shall be named in such power of attorney.

The provisions of this rule must be strictly enforced as to all applications hereafter filed.

W. E. SIMONDS,
Commissioner.

Issue of September 6, 1892.

Patents	409	No. 481,921 to No. 482,329, inclusive.
Designs	24	No. 21,830 to No. 21,853, inclusive.
Trade-Marks	15	No. 21,716 to No. 21,730, inclusive.
Labels	None.	
Reissues	2	No. 11,267 to No. 11,268, inclusive.
Total issue	450	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nevada		
Arizona Territory			New Hampshire		
Arkansas	3		New Jersey	12	1
California	13		New Mexico Territ'y		
Colorado	6		New York	67	5
Connecticut	8		North Carolina	1	
Delaware			North Dakota		
District of Columbia	6		Ohio	25	1
Florida	2		Oregon	4	
Georgia			Pennsylvania	44	1
Idaho			Rhode Island	9	
Illinois	41		South Carolina		
Indian Territory			South Dakota	1	
Indiana	14		Tennessee	5	
Iowa	9		Texas	6	
Kansas	5		Utah Territory		
Kentucky	2		Vermont	2	
Louisiana	3		Virginia	3	
Maine	9		Washington	3	
Maryland	6		West Virginia	1	
Massachusetts	25		Wisconsin	16	
Michigan	13		Wyoming		
Minnesota	8	2	U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	18	1			
Montana		1	Total to citizens of the United States	398	12
Nebraska	6				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	1		Netherlands		
Austria-Hungary			Newfoundland		
Belgium	1		New South Wales		
Bermuda			New Zealand		
British Guiana			Norway		
Canada	3		Porto Rico		
Chile, Republic of			Portugal		1
Cuba	2		Russia		
Denmark			Scotland		
England	11	1	South Australia		
France	3	1	Spain		
Germany	10		Sweden		
Guatemala			Switzerland		
India	1		Victoria	1	
Hawaii			West Indies		
Ireland	1				
Italy			Total to citizens of foreign countries	35	3
Mexico	1				

APPLICATIONS UNDER EXAMINATION.

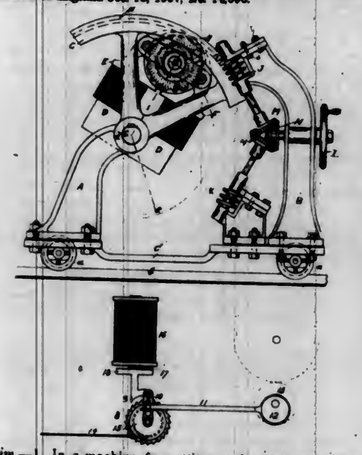
Condition at Close of Business August 30, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	July 7	Aug. 23	88
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	July 7	Aug. 11	132
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	July 5	Aug. 9	162
	Between two and three months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	June 18	Aug. 24	257
21	Textiles, etc.	June 6	Aug. 18	199
32	Advertising, Baggage, Packing and Storing Vessels, etc.	June 7	Aug. 16	292
23	Instruments of Precision, Acoustics, Optics, etc.	June 7	Aug. 11	294
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	June 14	Aug. 10	264
8	Furniture, Toilet, Umbrellas and Canes, etc.	June 28	Aug. 8	286
12	Mechanical Engineering, Stores-Service, etc.	June 21	Aug. 6	224
16	Telegraphy, Telephony, Electric Lighting and Signaling.	June 20	Aug. 6	263
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	June 3	Aug. 4	217
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 13	Aug. 1	250
17	Paper-Manufactures and Printing.	June 1	July 27	234
2	Farm Stock, Products, etc	June 7	July 26	328
5	Fine Arts, Stationery, Book-Binding, Music, etc.	June 9	July 14	213
18	Steam-Engineering, etc	June 9	July 6	229
	Between three and four months in arrears.			
24	Sewing-Machines and Apparel	May 23	Aug. 26	97
10	Carriages and Wagons and Railway-Cars.	May 20	Aug. 20	508
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	May 27	Aug. 13	259
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	May 10	Aug. 3	208
22	Fire-Arms, Navigation, Signals, etc.	May 18	July 26	194
9	Hydraulics, Fire-Extinguishers, etc.	May 13	July 15	440
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	May 2	July 13	312
19	Stoves and Furnaces	May 6	July 11	403
4	Civil Engineering, etc.	May 16	July 1	391
1	Tillage and Fences	May 9	July 1	252
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Apr. 18	July 29	458
7	Harvesters, Games and Toys	Apr. 4	July 27	552
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 12	June 18	461
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Mar. 11	Aug. 27	360
26	Electricity, Generation, Distribution, etc.	Mar. 28	Aug. 4	414
	Total number of applications awaiting action			9,271
	Under one month in arrears.			
	Designs	Aug. 23	Aug. 24	23
	Trade-Marks	Aug. 25	Aug. 24	26

PATENTS

GRANTED SEPTEMBER 6, 1892.

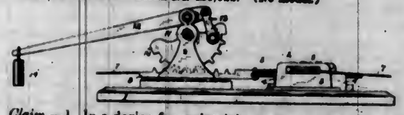
481,921. APPARATUS FOR CUTTING MINERALS. LLEWELYN B. ATKINSON and HENRY W. RAVENSHAW, London, and FREDERICK MORI, Leeds, England. Filed Aug. 13, 1891. Serial No. 403,071. (No model.) Patented in England Oct. 13, 1887, No. 14,090.



Claim.—1. In a machine for cutting coal or other minerals, an electrical motor carrying a cutter-bar on the axis of its armature and provided with trunnions formed from magnet-yoke c, journaled in bosses *d d* in frames A A′ upon a traveling carriage, in combination with a rack segment or quadrant G, keyed to the said trunnions and operated by a pair of worms J K, geared by bevel-wheels to hand-wheel L to adjust the motor and the cutter-bar to any desired height, the motor and bar being adapted to clamp in such position by bolt-heads and nuts traveling in fixed radial slots H I, substantially as described.

2. In a machine for cutting coal or other minerals, an automatic rope-feed for the traveling cutting-machine and cutter, consisting of a rope-drum 15, operated by a ratchet-wheel 8, driven by a pawl 9, receiving reciprocating movement by an eccentric motion 11 12 from a shaft rotated from the motor axis, and a disengaging electro-magnet 16, to which the pawl-arm 18 forms an armature adapted so as to lift the pawl out of gear when there is excess of electrical current passing through the motor, the feed being thus automatically stopped until the cutter is relieved, substantially as described.

481,922. COMPENSATOR FOR SIGNAL-WIRES. SAMUEL W. BABCOCK, Avon, N. Y., assignor of one-half to E. H. Babcock, same place. Filed Feb. 15, 1892. Serial No. 421,622. (No model.)

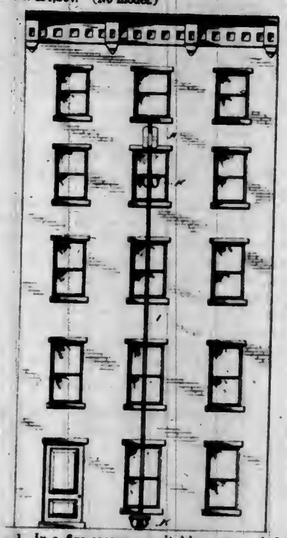


Claim.—1. In a device for maintaining an even tension on wires or cables, the combination, with the movable slide having the pulley thereon and the rack connected thereto, of the pivoted segmental gear, the weighted lever, and the link connecting said lever with the gear, substantially as described.

2. In a device for maintaining an even tension on wires or cables, the combination, with the base having the guides and the stationary pulley thereon, of the slide, the pulley thereon, the rack, the pivoted segmental gear, the pivoted lever having the weight thereon, and the link connecting the lever with the gear, substantially as described.

3. In a device for maintaining an even tension on wires or cables, the combination, with the movable slide having the pulley, of the lever having a weight thereon, a connecting-piece pivoted on a stationary support and operating on the slide, and a link connecting said piece with the lever, substantially as described.

481,923. FIRE-ESCAPE. ARGALUS A. BADGER, Windsor, Mo., assignor of one-half to Silvester J. Cotton, same place. Filed Apr. 30, 1892. Serial No. 431,267. (No model.)



Claim.—1. In a fire-escape, a suitably-supported frame or box, opposite pairs of friction wheels or pulleys arranged on opposite sides of said box, and an endless escape-rope passing over said opposite pairs of pulleys or wheels, substantially as set forth.

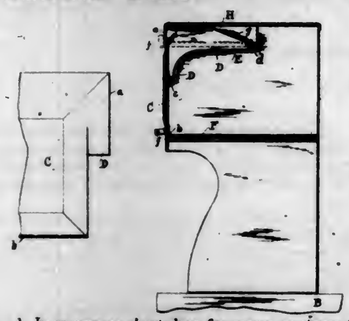
2. In a fire-escape, a frame or box adapted to be suspended from a building, opposite horizontal pairs of grooved rope wheels or pulleys arranged pair above pair in opposite sides of the said box or frame, and an endless escape-rope passing continuously around each horizontal pair of wheels or pulleys, substantially as set forth.

3. In a fire-escape, a box or frame having a longitudinal central opening, a supporting-bolt passing through the top of said box or frame, a central supporting-pulley suspended from said bolt within said opening at the top of the box or frame, opposite horizontal pairs of rope wheels or pulleys mounted within said box or frame on opposite sides of the central opening therein and arranged pair above pair, and an endless escape-rope passing over the said supporting-pulley and passed continuously around each opposite horizontal pair of wheels or pulleys, substantially as set forth.

4. In a fire-escape, the combination, with a friction-retarded endless escape-rope, of body-supporting attachments secured to said rope

and comprising a main front securing-ring, a waistband connected to said ring and adapted to be buckled thereto, and opposite crotch-straps secured to opposite sides and back of the waistband and provided at their ends with snap-hooks designed to engage the front securing-ring, substantially as set forth.

481,924. OVEN AND CLOSET DOOR FOR RANGES. MARY BORN, Cleveland, Ohio, administratrix of F. W. Born, deceased. Filed Nov. 9, 1891. Serial No. 411,361. (No model.)



Claim.—1. In an oven or closet door for ranges or stoves, the combination of the door having the projecting ends *a* and spring-bearings D, with the ways E and the guides H, arranged substantially as and for the purpose specified.

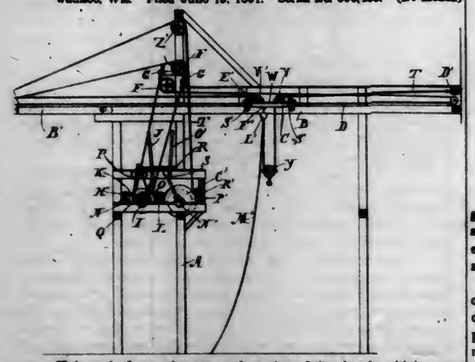
2. In an oven or closet for ranges or stoves, a door C, having a spring-bearing at each end, in combination with the ways E and guides H, said bearings resting on the lower terminals of the ways when the door is closed, arranged as described, whereby the closet may be opened or closed by the automatic movement of the door, in the manner substantially as set forth.

481,925. PROCESS OF MAKING WHISKY. WILLIAM E. BRADLEY, Frankfort, Ky. Filed July 9, 1889. Serial No. 316,973. (No specimens.)

Claim.—1. The process herein described of drawing off thin beer from the top of the fermenter at the end of the fermenting period and before distillation, separately distilling the same, and using the slop from this separated beer in subsequent repetition of the process of whisky-making, substantially as described.

2. The process herein described of drawing off thin beer from the top of the fermenter at the end of the fermenting period and before distillation, separately distilling the same, rapidly cooling the slop, and using the slop from this separated beer in subsequent repetition of the process of whisky-making, substantially as described.

481,926. ELEVATOR AND CARRIER. PETER H. BRODBECK, Milwaukee, Wis. Filed June 15, 1891. Serial No. 396,408. (No model.)



Claim.—1. In an elevator and carrier of the class in which a carriage actuated by an endless belt travels on a tramway, the combination, with the frame and two parallel shafts journaled in boxes fixed on the frame, which shafts are connected mechanically so as to revolve in opposite directions, one shaft being the driving-shaft connected mechanically to the power-supply, of a drum interposed between the shafts, about which drum the endless carriage-actuating cable is wound, a friction-wheel on the axle of the drum near one extremity of the drum, adapted to contact severally with corresponding wheels on the shafts, and a cylindrical box provided with a lever-handle, in which box the axle of the drum at that end on which the friction-wheel is fixed is journaled eccentrically, the box itself being journaled revolubly in a bearing on the frame, substantially as described.

2. In an elevator and carrier, the combination, with a tramway and a carriage actuated thereon by an endless cable, of a truck mounted and arranged to travel laterally on the carriage, pulleys journaled in the truck at right angles to its line of motion, a hoisting-cable running on and depending between the pulleys in the truck, and a sheave-block at the end of the tramway, supported and traveling laterally parallel with the truck on a rod-bracket, to which sheave-block the extremity of the hoisting-cable is attached, substantially as described.

3. In an elevator and carrier, the combination, with a tramway and a carriage adapted to travel thereon, of a truck adapted to travel laterally of the tramway on the carriage, pulleys in the truck, over which a hoisting-cable runs, and a sheave, to which the extremity of the hoisting-cable is attached, which sheave is supported and travels laterally parallel with the truck on a bracket therefor, substantially as described.

4. In an elevator and carrier, the combination, with a hoisting-cable, of a brake for clutching and locking the cable independently of the location of the carrier on its track, comprising a suitable relatively fixed beam through which the cable runs in an aperture therefor, a wedge-shaped key arranged to slide in ways therefor alongside the cable-aperture, an oscillating lever pivoted on the beam at one side of the cable aperture, a pin projecting from the key through a slot in the beam into an arm of the lever, a weight suspended from one arm of the lever, adapted to tilt the lever and hold the key normally out of engagement with the cable, and a hand-rope attached to the other arm of the lever, by which the lever can be tilted against the action of the weight and in the other direction, whereby the key is put into engagement with the cable and the cable is locked to the beam, substantially as described.

481,927. CABLE LOGGING-MACHINE. JOHN BUCKLEY, Eureka, Cal. Filed Mar. 8, 1892. Serial No. 424,225. (No model.)



Claim.—1. In a cable logging-engine, the combination of a frame, grooved pulleys carried thereby, one of which is the driving-pulley, a stationary cable, and reversely-situated tension devices at opposite ends of the engine for taking up the slack of the cable, substantially as described.

2. In a cable logging-engine, the combination of a frame mounted on wheels, grooved pulleys carried by said frame, one of which is the driving-pulley, a stationary cable, and a spring-actuated sheave or pulley through which said cable passes movable across the longitudinal direction of said cable to take up the slack therein, substantially as described.

3. In a cable logging-engine, the combination of a frame mounted on wheels, pulleys carried by said frame having grooves therein and one of which is the driving-pulley, a stationary cable secured at its opposite ends, leads at each end of said frame through which said cable passes, and reversely-situated tension devices at opposite ends of the engine adjacent to said leads for taking up slack in the cable, substantially as described.

4. In a cable logging-engine, the combination of a frame or support mounted on flanged wheels to engage a track, grooved pulleys differing in diameter and carried by said frame or support, one of which forms the driving-pulley, a lead at each end of said frame or support having pulleys therein over which the cable passes, and a spring-actuated movable sheave mounted in said lead to take up the slack of said cable, substantially as described.

5. In a cable logging-engine, the combination of a frame or support mounted on wheels, grooved pulleys carried by said frame or support, one of which is the driving-pulley, a stationary cable, and an automatically-operating sheave or pulley movable transversely across the line of and engaging said cable, substantially as described.

6. In a cable logging-engine, the combination of a frame or support mounted on wheels, grooved pulleys carried by said frame or support, one of which is larger than the other and forms the driving-pulley, a stationary cable engaged by said pulleys, tighteners in connection with said pulleys for taking up the slack of the cable passing thereover, a lead at each end of said frame or support having pulleys therein over which the cable passes, and a spring-actuated sheave mounted in said lead and engaged by said cable, substantially as described.

481,928. FREIGHT AND GRAIN CAR. JOHN F. BUTZ, Fort Worth, Tex. Filed Apr. 21, 1892. Serial No. 429,968. (No model.)



Claim.—1. A combined dead-freight and grain car comprising a car-body provided with a longitudinally-slotted bottom, vertically and outwardly movable lateral bottom sections, and vertically-movable end bottom sections hinged to the ends of the car-body, substantially as set forth.

2. A combined dead-freight and grain car comprising a longitudinally-slotted bottom, a chute or trough located beneath the bottom and communicating with the slot and also provided with a suitable discharge-slide and vertically and outwardly-movable lateral bottom sections, and vertically-movable end sections located within the car-body above its bottom, substantially as set forth.

3. A combined dead-freight and grain car having a longitudinally-slotted bottom and provided, also, with a chute or trough extending externally of and longitudinally beneath said bottom and communicating with the slot and having a downwardly-converging bottom, and a discharge-slide mounted in the middle of said chute, the chute being wholly external from the car-bottom, substantially as set forth.

4. A combined dead-freight and grain car provided with outwardly and vertically movable lateral bottom sections, said sections being recessed and extended at their outer margins to receive the side standards of the car-body and also to enter the side door-openings, substantially as set forth.

5. A combined dead-freight and grain car provided with a pair of vertically and outwardly movable lateral bottom sections, a revoluble winding-shaft journaled in the upper part of the car-body and carrying oppositely-disposed winding-drums, and flexible connections leading from said drums and connected to the outer portions of the lateral bottom sections, substantially as set forth.

6. A combined dead-freight and grain car comprising outwardly and vertically movable lateral bottom sections, guiding-studs mounted at the ends of said sections, and guide-grooves at the ends of the car-body and serving to receive the said studs, substantially as set forth.

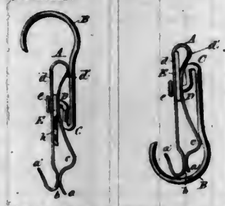
7. A combined dead-freight and grain car comprising end bottom sections hinged to the ends of the car-body, staples also secured to ends of the car-body, staples secured to the free ends of the end sections, and pins engaging said staples when the sections are raised, substantially as set forth.

8. A combined dead-freight and grain car comprising outwardly and vertically movable lateral bottom sections, a revoluble winding-shaft, flexible connections between said shaft and the bottom sections, and a pawl-and-ratchet opening to retain the shaft in its desired position and to release the same for reversed rotation, substantially as set forth.

9. A combined dead-freight and grain car comprising outwardly and vertically movable lateral bottom sections, a winding-shaft, flexible connections between the shaft and the bottom sections, a worm-wheel carried by said shaft and the bottom sections, a worm-wheel carried by said shaft, and a vertical operating-shaft having crank-handles at its upper and lower ends and also provided with a worm to engage the worm-wheel, substantially as set forth.

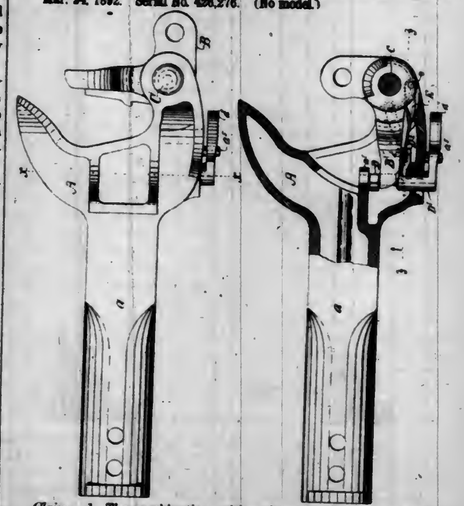
10. A combined dead-freight and grain car comprising a car body having its bottom or floor longitudinally slotted and grooved, a pair of lateral bottom sections the inner margins of which are arranged to engage the grooves, a revoluble shaft mounted in the car-body, and flexible connections from said shaft to the bottom sections near their inner margins, substantially as set forth.

481,929. COMBINED HAT AND COAT HANGER AND CIGAR-CUTTER. WILLIAM R. COLE, Pottsville, Pa. Filed Aug. 8, 1891. Serial No. 402,157. (No model.)



Claim.—As an improved article of manufacture, the combined hat and coat hanger and cigar-cutter herein described, comprising the spring-clamp A, having near its upper end the curved knife-edge *d*, the suspension-hook B, bent at its lower end and journaled in the members of the spring-clamp, and the blade E, rigidly attached to said suspension device between the members of the spring-clamp, substantially as set forth.

481,930. CAR-COUPLING. CHARLES H. DALE, New York, N. Y., assignor to the Empire Car Coupler Company, Weehawken, N. J. Filed Mar. 24, 1892. Serial No. 426,276. (No model.)



Claim.—1. The combination, with a draw-head and a knuckle pivotally connected thereto, of a retaining dog or block, mechanism comprising an arm movable in a vertical plane for operating the dog or block, and means for swinging said knuckle open after it is released from the dog or block by the vertical movement of the dog or block operating arm, substantially as specified.

2. The combination, with a draw-head and a knuckle pivotally connected thereto, of the retaining dog or block, operating mechanism therefor, and means extending from the dog or block operating

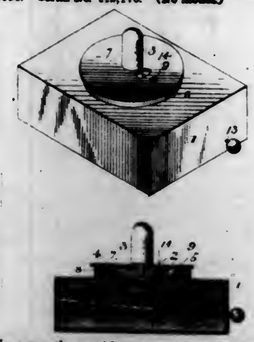
mechanism and having a lost-motion action with the knuckle for swinging the knuckle open, substantially as specified.

3. The combination, with a draw-head and a knuckle pivotally connected thereto, of a dog or block for locking the knuckle, an arm having an oscillating movement relatively to the draw-head, and a rod connected pivotally with the knuckle and also connected with said arm for swinging said knuckle open after it is unlocked, substantially as specified.

4. The combination, with a draw-head and a knuckle pivotally connected thereto, of a movable dog or block for locking the knuckle when closed, a rock-shaft supported in the draw-head, an arm extending from the rock-shaft, and a rod pivotally connected with the knuckle and having a loose connection with the arm extending from the rock-shaft, substantially as specified.

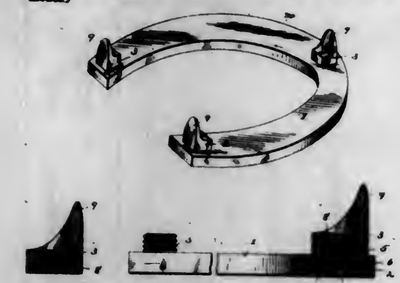
5. The combination, with a draw-head and a knuckle pivotally connected thereto, of a dog or block consisting of an arm, a rock-shaft supported in the draw-head and having the said arm connected with it, a second arm extending from said rock-shaft, and a rod pivotally connected with the knuckle and having a loose connection with the second-mentioned arm, substantially as specified.

481,931. TOY. CHARLES W. DELANEY, Hammond, Ind. Filed Dec. 15, 1891. Serial No. 415,170. (No model.)



Claim.—In a toy, the combination, with the box having apertures therein and the inclined barrel provided with a spring-actuated plunger, of the rotatable disk having an aperture therein adapted to register with the aperture in the box, the housing having a corresponding aperture, and the tube communicating with the barrel and the aperture in the box, substantially as described.

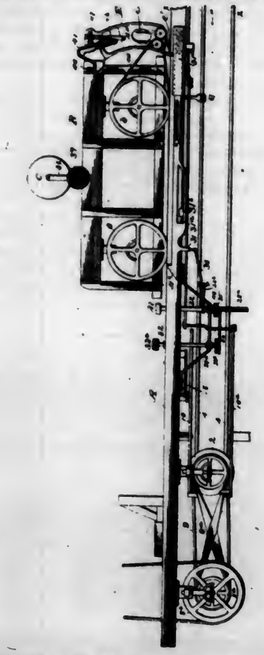
481,932. HORSESHOE. CHARLES R. DEVINE and GEORGE LA CHAPELLE, Williamsport, Pa. Filed May 7, 1892. Serial No. 432,184. (No model.)



Claim.—1. The herein-described improved shoe, the same being provided with a perforation flared from the center toward each end, the tapered stud inserted into the perforation, the rear end of the stud being spread, and the toe-calk threaded on the stud, substantially as specified.

2. The herein-described improved shoe, the same being provided with a perforation flared from the center toward each end, the tapered stud inserted into the perforation, the rear end of the stud being spread and the outer end of the stud being threaded, and the hollow calk having its outer end inclined from front to rear and its inner end internally threaded and removably mounted on the stud, substantially as specified.

481,933. CLOTH-PILING MACHINE. FRANK H. DOBSON, Omaha, Nebr., assignor of two-thirds to James T. Robinson and George E. Stokes, same place. Filed Mar. 3, 1891. Serial No. 383,540. (No model.)



Claim.—1. In a piling-machine, the combination, with the piling-table, of a vibrating fold-laying arm adapted to swing in a plane parallel with and over said table and means for actuating said fold-laying arm, substantially as and for the purposes specified.

2. In a piling-machine, the combination, with a piling-table, of a fold-laying arm arranged at one end thereof, a cloth-truck adapted to travel on the piling-table, and means for actuating the fold-laying arm from the cloth-truck, substantially as and for the purposes specified.

3. In a piling-machine, the combination, with a piling-table, of a cloth-carrying truck mounted on the table, a cable for actuating said truck, reversing mechanism for said cable, levers at the feed end of the table for actuating the reversing mechanism, and means on the truck for actuating the reversing mechanism independently of the levers, substantially as and for the purposes specified.

4. In a cloth-piling machine, the combination, with the power-driven cable and its power driving mechanism, of reversing mechanism composed of the pivoted levers 10, 10^a, and 22, hand-levers 12 and 12^a, arranged near the feed end of the table, and suitable intermediate connections, substantially as and for the purposes specified.

5. In a piling-machine, the combination, with the power-driven cable and the power driving mechanism, of automatic shifting mechanism composed of shifting-levers 10, 10^a, and 22, the bell-crank levers 14, 15, and 16 and 24, 25, and 26, and suitable intermediate connections, substantially as and for the purposes specified.

6. In a piling-machine, the combination, with the piling-table, of a vertically-adjustable vibrating fold-laying arm arranged at one end of the piling-table and means for actuating said arm, substantially as and for the purposes specified.

7. In a piling-machine, the combination, with a piling-table, of a vibrating fold-laying arm, a post for the same, and a slide for actuating the post and its arm, substantially as and for the purposes specified.

8. In a piling-machine, the combination, with a piling-table, of a vibrating fold-laying arm, a post therefor, and a spring-retracted slide for actuating the post and its arm, substantially as and for the purposes specified.

9. In a piling-machine, the combination, with a piling-table and a truck arranged to travel thereon, of a vibrating fold-laying arm, a slide for actuating the vibrating arm, said slide having a catch adapted to engage a projection on the truck, substantially as and for the purposes specified.

10. In a piling-machine, the combination, with a piling-table and a truck arranged to travel thereon, of a vibrating fold-laying arm, a slide for actuating the vibrating fold-laying arm, said slide provided with a catch for engaging a projection on the truck, and a cam-slot for disengaging the catch from said projection on the truck, substantially as and for the purposes specified.

11. In a piling-machine, the combination, with a piling-table and a truck arranged to travel thereon, of a fold-laying arm, a spring-retracted slide for actuating said fold-laying arm, said slide provided with a catch for engaging the truck, and a cam for disengaging the catch of the slide from the truck, substantially as and for the purposes specified.

12. In a piling-machine, the combination, with a piling-table and a truck arranged to travel thereon, of a fold-laying arm having a threaded post, a ratchet-nut, a second post arranged in the path of the truck to be rotated thereby, and a ratchet actuated from said second post and which engages the ratchet-nut on the post of the fold-laying arm, substantially as and for the purposes specified.

13. In a piling-machine, the combination, with a piling-table and traveling truck therefor, of cloth-laying rolls mounted on the traveling truck and means for actuating the rolls from the axle of the truck, substantially as and for the purposes specified.

14. In a piling-machine, the combination, with a piling-table and a traveling truck therefor, of adjustable cloth-laying rolls mounted in housings on the truck, said rolls being adjustable in an arc of a circle described from the front axle of the truck, substantially as and for the purposes specified.

15. In a piling-machine, the combination, with a piling-table and a truck arranged to travel thereon, of cloth-laying rolls adjustably journaled in housings on the truck and means for automatically elevating said rolls from the piling-table, substantially as and for the purposes specified.

16. The combination, with a truck for piling-machines, of movable roll-bearings, cloth-laying rolls journaled therein, a rack and pinion for moving said bearings, and a pendent arm and ratchet mechanism for actuating the pinion which moves the rack, substantially as and for the purposes specified.

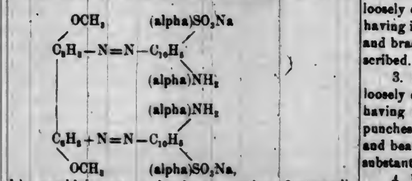
17. The combination, with a truck for piling-machines, of movable roll-bearings, cloth-laying rolls journaled therein, a rack and pinion for moving said bearings, and a knuckle-jointed pendent arm and ratchet mechanism for actuating the pinion which moves the truck, substantially as and for the purposes specified.

18. In a cloth-piling machine, the combination, with the piling-table and a cloth-truck arranged to travel thereon, of cloth-laying rolls adjustably journaled in juxtaposition to the front wheels of said truck, and belts for driving said cloth-laying rolls from the axle of the truck, substantially as and for the purposes specified.

19. The combination, with the truck of a piling-machine, of movable roll-bearings arranged segmentally thereon, cloth-laying rolls journaled in said movable bearings, and belts for driving said cloth-laying rolls from the axle of the truck, substantially as and for the purposes specified.

481,934. RED DYE AND PROCESS OF MAKING THE SAME. CARL DUISBERG, Elberfeld, Germany, assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed July 16, 1891. Serial No. 399,696. (Specimens.) Patented in Germany Nov. 19, 1885, No. 33,302; in England Nov. 24, 1885, No. 14,424; in France Dec. 19, 1885, No. 173,042; in Austria-Hungary May 7, 1886, No. 2,432 and No. 2,587, and in Italy May 26, 1886, No. 19,967.

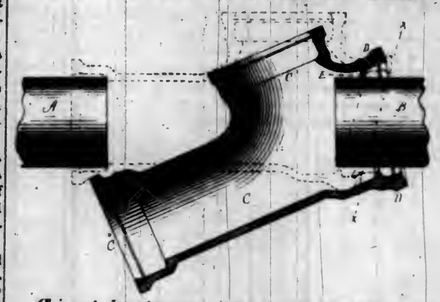
Claim.—1. The dye-stuff hereinbefore described, which has the formula:



and is obtained by combining one molecular proportion of tetrazodiphenol ether with two molecular proportions of alpha-naphthylamine monosulpho-acid and which forms in dried state a dark-brown amorphous powder that easily dissolves in water with bluish-red color and which is dissolved by concentrated sulphuric acid to a deep-blue liquid from out of which by the addition of water flakes of the same color are separated, while the supernatent fluid becomes colorless, and unmordanted cotton is dyed by it in a soap-bath magnificently bluish red.

2. The process for the production of a new substantive tetrazo dye-stuff by combining one molecular proportion of the tetrazo compound of dianisidine with molecular proportions of alpha-naphthylamine alpha-monosulphonic acid, (naphthionic.)

481,935. WATER OR GAS MAIN. HERBERT F. DURHAM, New York, N. Y. Filed Feb. 24, 1892. Serial No. 422,601. (No model.)



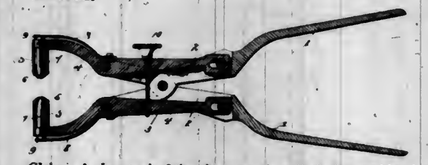
Claim.—1. In a pipe system of the character described, a special or branch, as C, one of whose bell ends is enlarged horizontally, so that its diameter in horizontal section is greater than its diameter in vertical section, said special being provided with a branch or side discharge-opening C' near said enlarged bell end, whereby space is provided for the end of the main pipe during the application of the special without recourse to a pocket, substantially as described.

2. In a pipe system of the character described, an enlarged bell end, as D, whose face or end is beveled off at an oblique angle with the axis of the special, substantially as described.

3. In a pipe system of the character described, an enlarged bell end, as D, provided on its inner surface with the oblique bead or rib E, substantially as set forth.

4. In a pipe system of the character described, the special or branch herein specified and consisting, essentially, of the round pipe C, provided with the ordinary round bell end C", the enlarged elliptical bell end D, having an oblique face, as described, the oblique bead or rib E, and the branch or side discharge-opening C', placed near the enlarged bell end, substantially as specified.

481,936. BALANCE-WHEEL PLIERS AND CALIPERS. JACOB E. ECKERT, Marengo, Iowa. Filed Apr. 7, 1892. Serial No. 428,176. (No model.)



Claim.—1. In a tool of the character described, the combination of the jaws, handles to which said jaws are pivoted and having a loose connection with the rear portions of said jaws, so that the latter can have a sliding movement at their rear ends in said handles, and a gage-screw extending through the said jaws intermediate of the rear ends and the pivotal points thereof, substantially as described.

2. In a tool of the character described, the combination of jaws loosely connected at their rear ends to have a sliding movement and having inwardly-extending posts with centers fixed to the ends thereof and brass punches movably mounted in said posts, substantially as described.

3. In a tool of the character described, the combination of jaws loosely connected at their rear ends to have a sliding movement and having hollow posts extending inward from the ends thereof, brass punches mounted in said posts, and spring-arms secured to said jaws and bearing on the ends of said punches to hold the same in position, substantially as described.

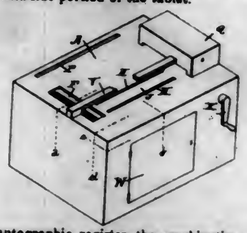
4. In a tool of the character described, the combination of the handles with their front portions bifurcated to form arms which receive and are pivoted to each other and jaws pivotally connected to the front ends of said arms and having their rear ends moving in and through said bifurcated portions of the handles, substantially as described.

481,937. AUTOGRAPHIC REGISTER. WILLIAM L. EGRY, Hamilton, Ohio. Filed Mar. 16, 1892. Serial No. 425,066. (No model.)

Claim.—1. In an autographic register, the combination, substantially as set forth, of a writing tablet, a pair of feed-rolls arranged to feed a strip of paper longitudinally over the tablet, a pair of feed-rolls arranged to draw a strip of paper transversely over the tablet, and a rigid surface interposed between a portion of the two papers, whereby

writing done upon certain portions of the top paper will not be transferred to the lower paper.

2. In an autographic register, the combination, substantially as set forth, of a writing-tablet, a pair of feed-rollers arranged to feed a strip of paper longitudinally over the tablet, a longitudinal slot in said tablet under said strip at a distance from its edge and dividing said tablet into a main portion and a side portion under said strip, and a pair of feed-rolls arranged to draw a strip of paper through said slot and over said side portion of the tablet.

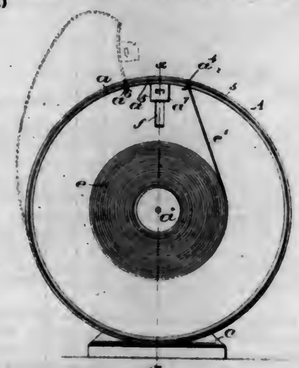


3. In an autographic register, the combination, substantially as set forth, of a writing-tablet, feed-rolls arranged to draw a strip of paper over said tablet, and a rigid bar disposed over an intermediate portion of the tablet at right angles to said feed-rolls and parallel with the line of travel of said strip.

4. In an autographic register, the combination, substantially as set forth, of a writing-tablet divided by a slot into a main portion and a side portion, a support arranged to hold a roll of paper at one side of said tablet parallel with said slot, a pair of feed-rolls at the other side of the tablet parallel with said slot, a support arranged to hold a roll of paper at right angles to said slot, and a pair of feed-rolls disposed at right angles to said slot to operate upon the last-mentioned paper.

5. In an autographic register, the combination, substantially as set forth, of a writing-tablet having a dividing-slot and a rigid bar disposed above the surface of the tablet over said slot, and mechanism, substantially as described, for drawing a strip of paper over and parallel with said slot and under and parallel with said bar and for drawing a second strip through said slot under the first-mentioned strip.

481,988. SANDPAPERING-ROLL. JOHN A. EVERETT and JOHN FINN, Jr., Natick, Mass. Filed Feb. 3, 1892. Serial No. 420,673. (No model.)



Claim.—1. A sandpapering-roll capable of receiving an abrasive strip in coil form, said roll having a central support integral with it and upon which said coil is placed, and an opening in the periphery of the roll through which the outer or free end of the strip may be drawn, substantially as described.

2. A sandpapering-roll capable of receiving an abrasive strip in coil form, said roll having a central support integral with it and upon which said coil is placed, a socket in said central strip at one end of the roll to receive the driving-shaft, and a clamping device secured to the said central support at the opposite end of the roll to act upon and retain said coil in position, and an opening in the periphery of the roll through which the free end of the paper strip may be drawn, substantially as described.

3. A sandpapering-roll capable of receiving an abrasive strip in coil form and having an opening in its periphery through which the free end of the strip may be drawn, combined with a clamping device, and means to clamp the same against the edges of the strip in the coil and press the latter against the end plate of the roll to thereby hold the coil in position clamped edgewise between the roll and clamping device, substantially as described.

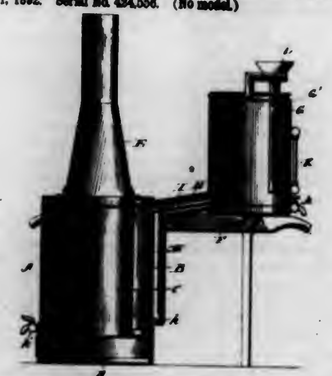
481,989. PRESERVING-JAR. JOHN E. FARER, St. Louis, Mo. Filed Apr. 21, 1892. Serial No. 430,159. (No model.)



Claim.—1. The combination, in a preserving jar or can, of a jar or can having the neck thereof inclining from the mouth of the vessel downwardly and inclining inwardly, substantially as set forth, with a lid or stopper consisting of a disk, of tin or other elastic metallic substance, having the edge thereof turned downward and forming an acute angle with the bottom of the lid or stopper and having a band, of rubber or elastic substance, stretched around the side of the lid or stopper, substantially as set forth.

2. The stopper or lid consisting of a disk, of tin or other elastic metallic substance, having the edge thereof turned downward and forming an acute angle with the bottom of the stopper or lid and having a band, of rubber or elastic substance, stretched around the side of the stopper or lid, in combination with a jar or can having a neck inclining downwardly and inwardly from the month, substantially as set forth.

481,940. STEAMER. VOLENTINE F. FAGG, Avilla, Mo. Filed Mar. 11, 1892. Serial No. 424,556. (No model.)



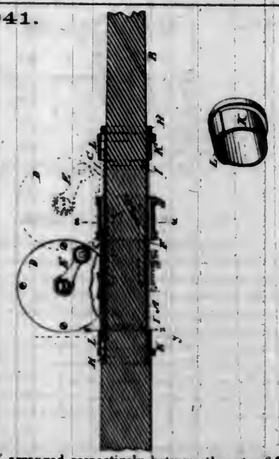
Claim.—The combination of a boiler having an annular water-space, an adjacent water-supplying and steam-distributing vessel or tank located adjacent to and above said boiler, a feeding-tube extending from the lower end of said tank to the upper end of said boiler, passing down outside of said boiler, which latter forms a wall of the tube, to a point near to the lower end of the boiler and opening into the same at each point, and a smaller discharging-tube leading from said tank and opening into the extreme upper end of the boiler water-space, said discharging-tube being inclosed within the upper portion of the feeding-tube, substantially as set forth.

481,941. HOLDER FOR FISHING-LINE REELS. JEREMIAH FALVEY, New York, N. Y. Filed Jan. 14, 1892. Serial No. 418,040. (No model.)

Claim.—1. A reel-holder for a fishing-rod, consisting of a tube or support A, having at each end a revoluble ring provided with a laterally-projecting recessed portion adapted to receive the end of a reel-base and adjustable transversely by turning the ring on the tube or support, and a longitudinally-sliding ring arranged on the tube or support between the revoluble end rings, substantially as described.

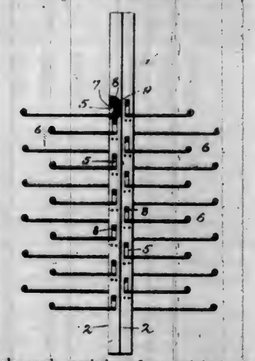
2. A reel-holder for a fishing-rod, consisting of a tube or support A, having a set of flanges H and I at each end portion, the revoluble

481,941.



rings K and K', arranged, respectively, between the sets of flanges and provided with laterally-projecting recessed portions L, adapted to receive the end of a reel-base and adjustable transversely by turning the rings, and a longitudinally-sliding ring G, arranged on the tube or support between the revolable end rings, substantially as described.

481,942. RACK FOR DISPLAYING GOODS. EPHRIAM A. FOSTER, Port Clinton, Ohio. Filed Feb. 16, 1891. Serial No. 381,575. (No model.)

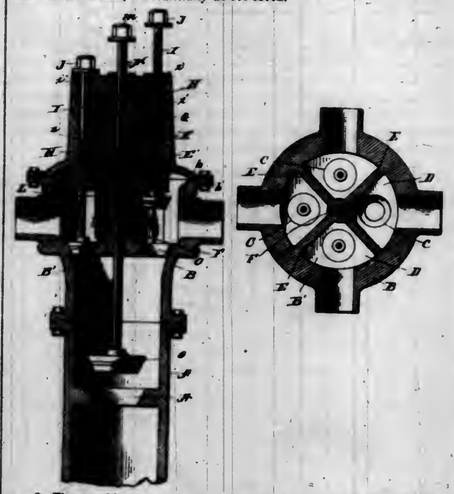


Claim.—A display-rack consisting of an upright having vertical slots and outwardly-projecting arms having their inner ends bent upwardly at right angles, forming short arms provided with eyes, the said bent portions located in and extending from the lower to the upper walls of the slots, and pivot-pins located in the upper parts of said slots and passing through said eyes, whereby the bent portions are held in said slots against the rear walls thereof, thus distributing the pressure between the pivot rear and bottom walls of said slot when the rods are in use and permitting the rods to lie close to the sides of the support when not in use.

481,943. DISTRIBUTING-VALVE. SAMUEL GOWIN, Sing Sing, N. Y. Filed Apr. 15, 1892. Serial No. 429,334. (No model.)

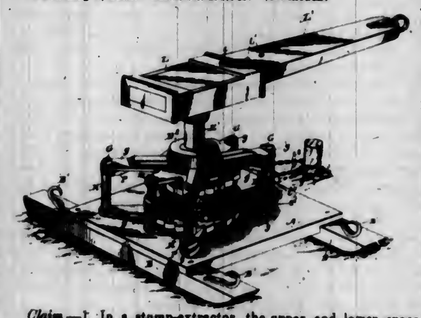
Claim.—1. The combination, with the main supply-pipe, of a distributing-valve casing having a series of partitioned valve-chambers and valve-seats within each of said chambers, of an inclosing cap secured to said casing to form an air-chamber and provided with a series of interiorly-threaded hubs projecting into each of said valve-chambers, threaded valve-stems working in said hub and terminating above the cap in squared operating-heads, and valves swiveled to the lower ends of said stems within said chambers, substantially as set forth.

2. The combination, with the main supply-pipe having a valve-seat, of a distributing-valve casing mounted upon said supply-pipe and having a series of partitioned valve-chambers and valve-seats within each of said chambers, an inclosing cap secured to said casing and provided with a central interiorly-threaded hub extending to the valve-seats within said casing, and a surrounding series of shorter interiorly-threaded hubs projecting into each of said valve-chambers, threaded valve-stems working through the several hubs and terminating above the cap in squared operating-heads, and valves swiveled to the lower ends of said stems, substantially as set forth.



3. The combination, with a valve-stem, of a valve having an upper valve-disk provided with a central recessed portion having a top perforation, a swiveled collar secured to the end of the valve-stem projecting within said recessed portion, a lower valve-disk provided with an upwardly-extending flange fitting within the recessed portion of the upper disk and inclosing the collar thereon, and a beveled washer also fitting over the flange of the lower disk and clamped between both of said disks, substantially as set forth.

481,944. STUMP-EXTRACTOR. PETER HANSEN, Antigo, Wis. Filed May 3, 1892. Serial No. 431,645. (No model.)



Claim.—1. In a stump-extractor, the upper and lower spaced plates having a series of front and rear extended arms and bearing-collars, clamping-bolts passing through said arms, spacing-sleeves mounted upon the front pair of bolts between said arms, guide-rollers loosely mounted upon said front spacing-sleeve, a chain-wheel revolving between said plates and provided with integral hubs bearing in said collars and an upwardly-extending integral squared portion, a chain-parting plate loosely supported between the front guide-rollers and at the front of the chain-wheel, and a sweep removably connected with the squared portion of said wheel extension, substantially as set forth.

2. In a stump-extractor, the upper and lower frame-plates having integral eccentric flanges, a chain-wheel mounted to revolve between said plates, opposite guide-rollers arranged at the front of said wheel, opposite wedge-shaped anchor-chain blocks having eccentric ends resting in said eccentric flanges, chain-rings mounted upon said wedge-shaped blocks, and a single anchoring-chain having its ends connected to said rings, substantially as set forth.

3. In a stump-extractor, the combination, with the upper and lower spaced plates, the lower of which is provided with opposite

notches and the chain-wheel mounted to revolve between said plates, of the swinging bolts depending from opposite sides of the upper plate and provided with lower projecting ends adapted to be sprung into and out of the notches in the lower plate, and chain-relieving rollers loosely working upon said bolts and designed to receive the chain to relieve the same from the wheel, substantially as set forth.

4. In a stump-extractor, the upper and lower frame-plates, a chain-wheel mounted to rotate between said plates and provided with upper and lower projecting flanges having a peripheral series of reversely-disposed ratchet-teeth, opposite dogs pivoted to suitable points of attachment and adapted to engage and be disengaged from their respective ratchets, and movable leaf-springs pivoted to the upper and lower frame-plates adjacent to said dogs and adapted to be moved over and away from the latter, substantially as set forth.

481,945. RIDING-SADDLE. VERNON D. HART, Addison, W. Va. Filed Dec. 16, 1891. Serial No. 415,945. (No model.)



Claim.—1. The herein-described improved saddle, the same comprising a cantle, cantle sections or extensions hinged at their front upper corners to the front lower corners of the cantle and depending therefrom, and springs for normally supporting the extensions in line with the cantle, substantially as specified.

2. The herein-described improved saddle, the same comprising the opposite side bars, the arched cantle embracing and secured to the same, the cantle sections or extensions, the leather hinges connecting the sections at their upper front corners to the lower front corners of the cantle, and the V-shaped metal springs interposed between the meeting edges of the cantle and the sections, substantially as specified.

3. The herein-described improved saddle, the same comprising the opposite side bars, the pommel-arch connecting the side bars, and the inverted-U-shaped pommel removably mounted on the arch and provided with a horn, substantially as specified.

4. The herein-described improved saddle, the same consisting of the opposite sides, the recessed pommel-arch connecting the two, the inverted-U-shaped metal straps embracing the recess and having the central threaded opening and its ends terminating in loops, prongs mounted on the metal strap with which the loops engage, a horn perforated longitudinally and rising from the pommel, and a pin passed removably through the horn and threaded in the pommel-arch embracing metal strap, substantially as specified.

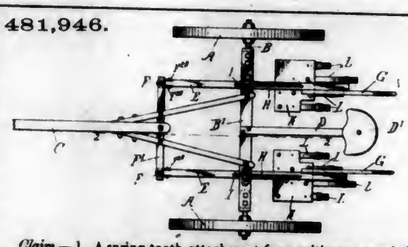
5. The combination, with the saddle comprising the inverted-U-shaped cantle, of the described improved side-saddle attachment, the same consisting of an L-shaped horn, a curved guard secured at its front end to the horn, and devices for removably connecting the rear end of the curved guard to the cantle of the saddle and the horn to the side of the same, substantially as specified.

6. The combination, with the saddle, the stud located at the rear end thereof and the eye at the front end, of the herein-described attachment, consisting of the bar 18, recessed at its rear end to embrace the cantle, the L-shaped supporting-horn 20, connected to the front end of the bar, the hook pivoted to the horn and adapted to engage the eye of the saddle, the curved guard 21, secured at its front end to the horn, the pintle connected to the rear end of the guard, and the V shaped eye 23, pivoted at its terminals to the pintle and at its angle provided with the reduced neck for engaging the stud of the saddle, substantially as specified.

7. The combination, with the saddle comprising the inverted-U-shaped cantle, the side attachment connected to the pommel and cantle and consisting of a curved guard, and an L-shaped supporting-horn at the front end of the same, of the shield 29, secured to the front of the saddle, substantially as specified.

481,946. SPRING-TOOTH ATTACHMENT FOR CULTIVATORS. DEXTER R. HERRINGTON, Greenwood, Ill. Filed May 31, 1892. Serial No. 434,947. (No model.)

481,946.



Claim.—1. A spring-tooth attachment for a cultivator, consisting of the shovel block or bar K and four spring-teeth mounted thereon, said teeth being arranged with three in an oblique line and the fourth in transverse line with one of the three, to which it is not adjacent, the adjacent tooth being not located in the next space to the rear of said fourth tooth, substantially as set forth.

2. A spring-tooth attachment for a cultivator, consisting of the block K, having suitable fore-and-aft channels or grooves on its inner face and the spring-teeth lodged in such grooves, the block being provided with bolt-holes for securing the teeth, respectively, each in either of two positions on the block, substantially as and for the purpose set forth.

3. A spring-tooth attachment comprising the block K and the spring-teeth secured to its under side, provided with the bolt-hole k' at the forward part and the two bolt-holes k^2 k^2 laterally separated toward the rear part, substantially as and for the purpose set forth.

4. A spring-tooth attachment for a cultivator, consisting of the block K and the four spring-teeth secured to its under side, said block being provided with bolt-holes for securing each of said teeth in two positions fore and aft and having the recess K' at the inner rear corner, substantially as set forth.

481,947. GAME-COUNTER. PAUL H. HILLARD, Westerly, R. I. Filed Feb. 6, 1892. Serial No. 420,533. (No model.)



Claim.—1. A game-counter composed of a recessed base, a series of pivoted indices arranged in the recesses, operating-springs for said indices, and a slab or plinth overlapping the indices at their pivoted ends, arranged to form an abutment to the raised indices and a finish over their inner ends when the indices are down, substantially as described.

2. A game-counter composed of movable indices in the form of hinged levers provided with springs, and a base provided at the edges with small recesses to receive said levers and in the middle with a large recess back of said lever-indices, adapted to form a receptacle to receive the game apparatus, substantially as described.

3. A game-counter composed of a base provided with small recesses of rectangular form therein, a series of pivoted indices in said recesses at the upper part thereof, leaving vacant spaces below, the leaf-springs of U form confined in said spaces, with one member bearing against the indices and the other resting on the bottom of said recesses, and the plinth or slab overlapping the indices at their pivoted ends, arranged to form an abutment to the raised indices and a finish over their inner ends when the indices are down, substantially as described.

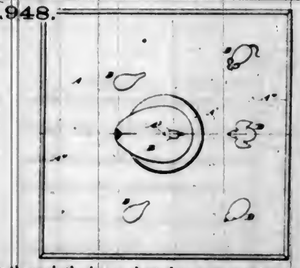
481,948. TOY. PAUL H. HILLARD, Stonington, Conn. Filed Mar. 5, 1892. Serial No. 423,832. (No model.)



Claim.—1. A toy device having a hollow shell with a ball inclosed and protruding through the base adapted to support the shell by rolling on a surface below and to allow it to move easily in all directions, as herein specified.

2. A toy device having a hollow shell with a ball inclosed and

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protruding through the base adapted to support the shell by rolling on a surface below and allowing it to move easily in all directions and having a surface D^2 in its base allowed to bear frictionally on the floor or surface below and to effect the turning of the device axially with each change in the direction of its motion, as herein specified.

3. A toy device composed of a hollow shell with its interior prepared to offer but slight friction and inclosing one or more spheroids allowed to protrude through the bottom, so as to impart a wriggling motion as it moves by the rolling of such support or supports on a surface below, as herein specified.

4. The board A, with its dome A', central post A^3, pin A^4, and rim A^5, in combination with a set of movable devices composed each of a hollow shell with a spheroid inclosed and protruding through the base adapted to support the shell by rolling on a surface below and allowing it to move easily in all directions and having a surface D^2 in its base allowed to bear frictionally on the floor or surface below and to effect the turning of the device axially with each change in the direction of its motion, as herein specified.

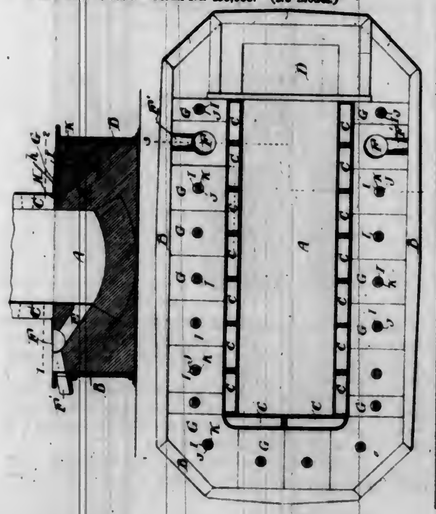
481,949. COMPOSITION OF MATTER FOR JOURNAL-BEARINGS. PHILIP H. HOLMES, Gardiner, Me., assignor to the Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Filed Jan. 2, 1892. Serial No. 416,807. (No specimens.)



Claim.—1. A composition of matter consisting of plumbago, carbonized fiber, deposited carbon, and an uncarbonized oil binder.

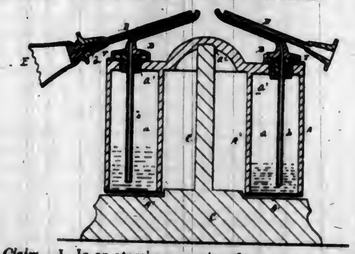
2. The process herein described of making a composition of matter, said process consisting in, first, making a composition of plumbago, fiber, and a carbonizable oil; second, subjecting the composition to such a heat as to carbonize the fiber and oil; third, subjecting the composition to a treatment with an oil binder, and, fourth, drying or heating the composition, so as to cause the oil to set or resinify, substantially as described.

481,950. BLAST-FURNACE. MALVERN W. ILES, Denver, Colo. Filed June 7, 1892. Serial No. 435,833. (No model.)



Claim.—In combination with the crucible-walls of a blast-furnace, cover-plates G, anchored to the top of the crucible-walls and having a depressed flange H on their edges next to the crucible, and water-jackets C, set on the depressed flanges H, substantially as and for the purpose specified.

481,951. ATOMIZER. FREDERICK F. INGRAM, Detroit, Mich. Filed Mar. 12, 1892. Serial No. 424,668. (No model.)



Claim.—1. In an atomizer, a series of receptacles, each provided with atomizer-tubes, and a bulb or pump having a detachable connection with any and all of said tubes, substantially as described.

2. In an atomizer, a body or case having a series of integral receptacles, each provided with atomizer-tubes, and a bulb or pump to engage and operate any and all of said tubes, substantially as described.

3. In an atomizer, a body or case constructed of an integral casting having a series of receptacles therein, each receptacle provided with atomizer-tubes, and a bulb or pump to operate said tubes, substantially as described.

4. In an atomizer, a metal body or case constructed with a series of cells or receptacles closed at the base and each formed with a neck at the upper end, stoppers engaged in said necks, said stoppers each provided with atomizer-tubes, and a bulb or pump to operate said tubes, substantially as described.

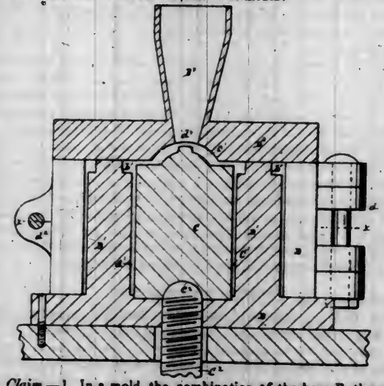
5. In an atomizer, a revolving body or case provided with a series of receptacles, said receptacles each provided with atomizer-tubes, and a bulb to operate said tubes, substantially as described.

6. In an atomizer, a cast-metal body or case provided with a series of receptacles formed integral therewith, the interior of the body formed hollow, and a standard supporting said body, substantially as described.

7. In an atomizer, a body or case provided with a series of receptacles, stoppers provided with atomizer-tubes engaged in said receptacles, a pump or bulb to operate said tubes, and labels held in place by said stoppers, substantially as described.

8. The case or body herein described, consisting of a casting provided with a series of cells cast integral therewith, said cells arranged in an annular series about the outer portion of said body, said casting provided with a hollow center open at the base and covered at the top, substantially as described.

481,952. MOLD. FREDERICK F. INGRAM, Detroit, Mich. Filed Mar. 12, 1892. Serial No. 424,667. (No model.)

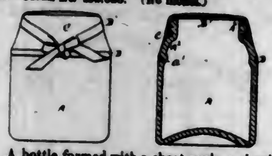


Claim.—1. In a mold, the combination of the base B, the cores B' thereupon, a central vertically-movable core, and an inclosing case, substantially as described.

2. In a mold, the combination of the base B, cores B', central

movable core C, screw C^3, having a threaded engagement with the base and carrying said movable core, and an inclosing case, said core having a detachable engagement with said screw, substantially as described.

481,953. BOTTLE. FREDERICK F. INGRAM, Detroit, Mich. Filed May 6, 1892. Serial No. 432,083. (No model.)



Claim.—1. A bottle formed with a short neck, a shoulder, a fastening-flange to retain a tie cord or band, located below the shoulder at the top of the body of the bottle, said shoulder flaring from the base of the neck outward to said flange, substantially as and for the purpose set forth.

2. A bottle formed with a short neck threaded on its exterior, a shoulder, a fastening-flange to retain a tie cord or band, located below the shoulder at the top of the body of the bottle, said shoulder flaring outward from the base of the neck to said flange, substantially as and for the purpose set forth.

3. A bottle formed with a neck, a shoulder, a retaining-flange below the shoulder at the top of the body of the bottle, a stopper engaging the neck, a covering applied over the stopper and extending downward over the shoulder to the top of the body of the bottle, and a tie cord or band engaged over the edge of the covering below said retaining-flange, said shoulder and neck forming a backing in close proximity to said covering, substantially as set forth.

4. A bottle formed with a wide-mouthed neck of only sufficient length for stoppering, a shoulder, a retaining-flange below the shoulder at the top of the body of the bottle, a cap having a screw-threaded engagement upon the neck, a covering applied over the cap and extending downward over the shoulder to the top of the body of the bottle, and a tie cord or band engaged over the edge of the covering below said retaining-flange, said shoulder and capped neck forming a backing in close proximity to said covering, substantially as described.

481,954. TOBACCO-CURING BARN. JOHN R. JEWEL, Jewel, N. C. Filed Nov. 13, 1891. Serial No. 411,831. (No model.)



Claim.—1. The tobacco-supporting frame, in combination with the skeleton frame having alternate doors of canvas and wood, the canvas roofing secured to the ridge-pole of the skeleton frame, and the roll-rod to which the free end of the said canvas roofing on one side of the roof is attached, substantially as shown and described, and for the purpose set forth.

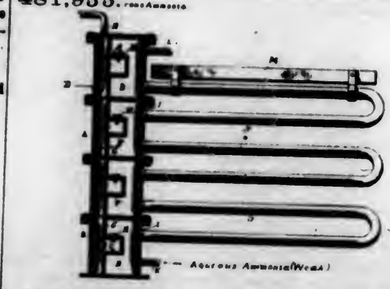
2. The roll-rod, the ridge-pole, the drums H, secured to the ends of said rod, and the canvas roofing having one end secured to the ridge-pole and the other end attached to the roll-rod, in combination with the ropes *f*, secured to the said drums and wound thereon by means of the canvas roof unrolling from the roll-rod, substantially as and for the purpose set forth.

3. In a tobacco-curing barn, the skeleton frame and the tobacco-supporting frame surrounded by the skeleton frame, but not attached thereto, said skeleton frame having upon each side and end two hinged doors, one of canvas and one of wood, in combination with the canvas roofing and means, substantially such as described, for rolling the said roofing so that it will cover or uncover one or both sides of the barn-roof separately or together, for the purpose set forth.

481,955. AMMONIA-ABSORBER. FREDERICK KAMER, Knoxville, Tenn. Filed Jan. 28, 1892. Serial No. 419,197. (No model.)

Claim.—1. In an ammonia-absorber, the combination of a cylinder or receiver having an inner gas-space having an upper inlet, interior valve-chambers leading from said space into the body of the receiver, cooling circulating-pipes connected with said receiver, and inlet and discharge solution pipes connected to said receiver, substantially as set forth.

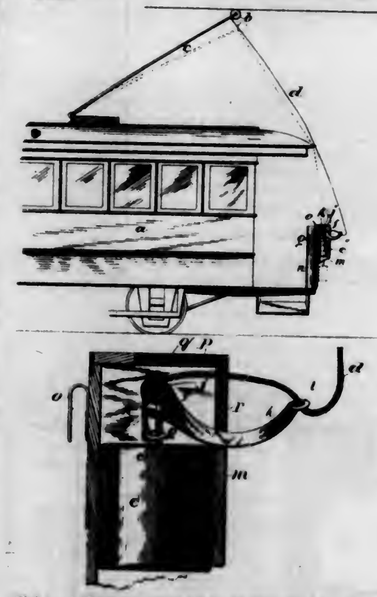
481,955. AMMONIA-ABSORBER.



2. In an ammonia-absorber, the combination of a cylindrical vessel comprising a series of independent chambers, one above the other, a continuous gas-space running the entire length of said vessel and through said chambers and provided with valved escape-openings, cooling-pipes connecting said chambers with each other, and inlet and discharge pipes located at the bottom and top of said vessel, substantially as set forth.

3. In an ammonia-absorber, the combination of a vessel comprising a series of independent chambers, one above the other, a continuous gas-space having an upper inlet and running the entire length of said vessel through said various chambers, offstanding valve-chambers projecting within each chamber from said space and provided with valved escape-openings, horizontal cooling-pipes having return-bends and connecting said chambers in series with each other, and inlet and discharge pipes located at the bottom and top of said vessel, respectively, substantially as set forth.

481,956. AUTOMATIC TROLLEY-DISCONNECTOR. GEORGE A. KIMBALL, Seattle, Wash. Filed Nov. 21, 1891. Serial No. 412,673. (No model.)



Claim.—1. In an automatic trolley-disconnector, the combination of the trolley-pole, a cord, a pivoted trigger actuated by the cord, and a weight normally hung within a slot formed in the short arm of the trigger, substantially as described.

2. In an automatic trolley-disconnector, the combination of a trolley-pole, a cord attached thereto, and a pivoted trigger adapted to trip a weight which is normally hung within a slot formed in the short arm of the trigger, as and for the purpose set forth.

3. In an automatic trolley-disconnector, the combination of an open-bottom box secured to the car, a trigger pivoted in the box and having its long arm projecting outside thereof, a downwardly-extending slot formed in the trigger, a weight normally hung within said slot, and a cord connected to the weight, trolley, and trigger, substantially as described.

481,957. DEVICE FOR HOLDING OPEN GRAIN AND OTHER SACKS FOR FILLING SAME. ALBERT L. KLANK, Champaign, Ill. Filed Feb. 17, 1892. Serial No. 421,861. (No model.)

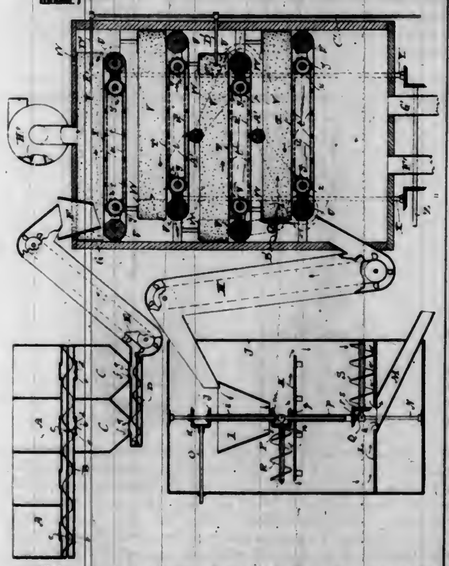


Claim.—1. A wire bag-holder consisting of a continuous wire *a b b a*, having spring-arms, and the wire *c*, having catches *e e*, as and for the purpose specified.

2. A wire bag-holder consisting of a continuous wire *a b b a*, having spring-arms provided with catches *a a* at their extremities, coiled portions *b b*, and a suspending-loop *d*, and a connecting-wire *c*, having catches *e e* adjacent to said coiled portions *b b*, substantially as and for the purpose specified.

3. A bag-holder having springs *b b*, arms extended in opposite directions from said springs and having catches *a a* at their extremities, a connecting-piece *c* to maintain the springs in proper position, and catches *e e*, substantially as and for the purpose specified.

481,958. MALTING APPARATUS. GUSTAVE A. KRAUSE, Milwaukee, Wis., assignor of one-fourth to George C. H. Guettler and George Krausnick, same place. Filed Sept. 7, 1891. Serial No. 404,968. (No model.)



Claim.—1. A germinating-chamber provided with a series of endless screen-floors the alternate members of which are made to travel in opposite directions, a support for each screen-floor, consisting of a pair of endless chains driven by sprocket-wheels and connected at intervals by transverse braces that impinge against said screen-floor, suitable means for conveying steeped grain to the germinating-chamber, and other suitable means for conveying the germinated material to a drying-kiln, substantially as set forth.

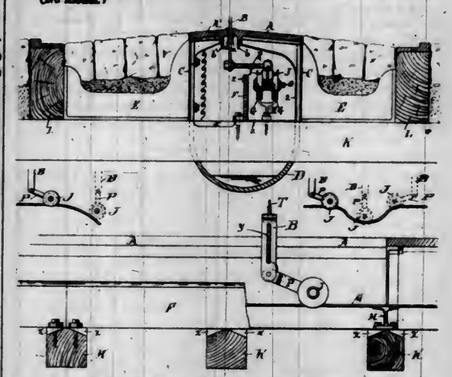
2. A germinating-chamber provided with a series of endless screen-floors the alternate members of which are made to travel in opposite directions, endless traveling supports for the screen-floors, endless traveling guards for said floors, suitable means for conveying steeped grain to the germinating-chamber, and other suitable means for conveying the germinated material to a drying-kiln, substantially as set forth.

3. A germinating-chamber provided with a series of endless screen-floors the alternate members of which are made to travel in opposite directions, tracks arranged in the germinating-chamber, a support for each screen-floor, consisting of a pair of endless chains driven by sprocket-wheels and connected at intervals by transverse braces that impinge against said screen-floor, antifriction-rollers carried with the support to run on said tracks, suitable means for conveying the steeped grain to the germinating-chamber, and other suitable means for conveying the germinated material to a drying-kiln, substantially as set forth.

4. A series of steeping-vats, combined with a germinating-chamber connected thereto by a conveyer mechanism, a series of traveling screen-floors within the germinating-chamber, a kiln having upper and lower floors of different diameters, the lower one being the one of the greater diameter and provided with a discharge-opening, a delivery spout in register with the discharge-opening, a screw-stirrer arranged above each kiln-floor, suitable means for imparting a planetary movement to each of the stirrers, and a conveyer mechanism connecting said germinating-chamber and kiln, substantially as set forth.

5. A malting apparatus comprising a series of steeping-tanks, a germinating-chamber, a conveyer mechanism connecting the tanks and chamber, a series of endless screen-floors the alternate members of which are made to travel in opposite directions, a support for each screen-floor, consisting of a pair of endless chains driven by sprocket-wheels and connected by transverse braces that impinge against said screen-floor, a drying-kiln, and a conveyer mechanism connecting said chamber and kiln, substantially as set forth.

481,959. CONDUIT SYSTEM FOR ELECTRIC RAILWAYS. REUBEN LAWRENCE, St. Joseph, Mo. Filed Jan. 27, 1890. Serial No. 338,204. (No model.)



Claim.—1. In an electric-railway conduit, the combination of removable cover-plates A A', having a slot-opening between them, side plates C C, brackets E E, and drain D, substantially as set forth.

2. In an electric-railway conduit, the combination of the removable cover-plates having a slot-opening between them, side plates C C, brackets fixed upon the ties of the railway, supporting and forming the framework of the said conduit, and the longitudinal rail-carrying sills also supported by said brackets, substantially as set forth.

3. In an electric-railway conduit, the combination of the removable cover-plates having a slot-opening between them, side plates C C, brackets fixed upon the ties of the railway, supporting and forming the framework of the said conduit, the longitudinal rail-carrying sills also supported by said brackets, and the drain D, substantially as set forth.

4. In an electric-railway conduit, the side plates C C, the brackets E E, fixed upon the ties of the railway, supporting and forming the frame of said conduit and sustaining the rails of the road, substantially as set forth.

5. In an electric-railway conduit, the combination of dripping-points *a a'* with the strengthening-flanges *b b'* of the plates A A', substantially as set forth.

6. In an electric-railway conduit, the combination of the dripping-points *a a'*, flanges *b b'*, and the splash-guard partition F, substantially as set forth.

7. In a conduit, cover-plates having dripping-points on each side of the slot-opening, and a partition within the conduit to one side of the slot-opening, conducting-wires located therein, substantially as described.

8. In an electric-railway conduit, the combination of removable cover-plates A A', having a slot-opening between them, side plates C C, brackets E E, drain D, a double electric conductor composed of round wire, and elevated supports therefor, substantially as set forth.

9. In an electric-railway conduit, the combination of removable

cover-plates A A', having a slot-opening between them, side plates C C, brackets E E, a double electric conductor composed of round wire, elevated supports therefor, a trolley having two sheave-formed brushes making contact upon the upper sides of said conductors, and a pendulous support for carrying said brushes, substantially as set forth.

10. In combination with a hanger B, an extension R, secured thereto, a trolley J, a swinging arm P, carrying the trolley and supported from the extension R, and an electrical connection between the hanger B and the arm P, substantially as described.

11. In a conduit, the contact-wires located therein, a break in said wires, a bridging-wire 16 between the ends of said wires, a supporting-plate 12 for the trolley, pivoted at one end, a centrally-arranged supporting-bracket, and a spring secured to said bracket and bearing against the pivoted plate 12, substantially as described.

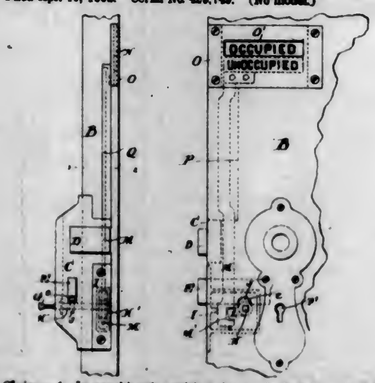
12. In combination with a standard, as V', a hanger B, a trolley supported therefrom, a detachable connection between the standard and hanger, and flexible connecting means, as W, between the said standard and hanger, substantially as described.

13. In an electric-railway conduit, the combination of removable cover-plates having a slot-opening between them and a space partitioned off and to one side of the slot, a double electric conductor, elevated supports therefor, and a trolley supported by a ball-and-socket connection, having contact upon the top of said conductors and having free movement in any direction, substantially as set forth.

14. In an electric-railway conduit, the combination of removable cover-plates having a slot-opening between them, dripping-points on opposite sides of said slot, and a space partitioned off and to one side of the slot, a double electric conductor, elevated supports therefor, and a trolley supported by a ball-and-socket connection, having contact upon the top of said conductors and having free movement in any direction, substantially as set forth.

15. In an electric-railway conduit, the combination of removable cover-plates having a slot-opening between them, a space partitioned off and to one side of said slot, a double electric conductor therein, a trolley having contact upon the top of said conductor, and an automatically resilient support for the trolley, substantially as set forth.

481,960. INDICATOR-LOCK. CHARLES LINDSTROM, Altoona, Pa. Filed Apr. 19, 1892. Serial No. 429,749. (No model.)



Claim.—1. In combination with a door, a lock-bolt, a shaft H, arranged to turn as bolt moves out and in, a rod M, having a sign N at its top, a plate O, arranged to inclose the sign and having a slot O' for its display, and a lever L, secured to shaft H and engaged with rod M, as described, so as to move the rod and sign when the bolt is moved.

2. In combination with a door, a lock-bolt, a shaft H, arranged to turn as the bolt moves in or out, said shaft extending in through the door beyond the lock, a rod M, inserted in the door, a lever L, secured to shaft H and engaged with rod M, a sign at the head of rod M, and an opening O' in the side of the door for the display of said sign.

481,961. THILL-COUPLING. JOHN E. MILLER, Allegany, N. Y. Filed Apr. 12, 1892. Serial No. 428,818. (No model.)



Claim.—1. The combination of supporting-arms provided with open bearings and with recesses in their sides surrounding the said bearings, the thill-iron, coupling-pin inserted through the thill-iron and resting in said bearings, washers mounted on the coupling-pin and adapted to engage said recesses, and securing-nuts mounted on the pin and bearing against said washers.

2. The combination of the supporting-arms provided with open bearings and with recesses in their sides around the said bearings, the coupling-pin resting in the said bearings, securing-nuts mounted on the coupling-pin, and washers engaging the recesses in the supporting-arms and provided with lips engaging the sides of the nuts.

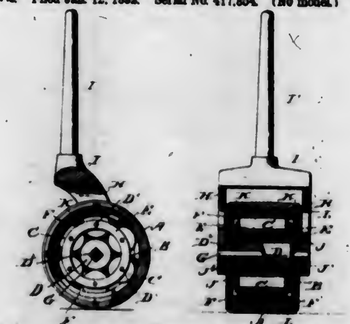
481,962. METHOD OF MANUFACTURING HORSESHOE-NAILS. WILLIAM W. MINER, New Haven, Conn. Filed Apr. 15, 1891. Serial No. 389,006. (No model.)



Claim.—1. The method of making horseshoe-nails, substantially as set forth, which consists in upsetting a rounded head on one end of a blank, reducing the body or shank of the blank to a tapering form circular in cross-section and then flattening the head and shank of the blank, and thereby producing a nail having flattened sides and rounded edges throughout its length.

2. The method of making horseshoe-nails, substantially as set forth, consisting in upsetting on the end of a blank a head circular in cross-section and flattened at its upper end, reducing the body or shank of the blank to a tapered form circular in cross-section throughout its length, and then flattening the shank and head and thereby producing a nail having flattened sides, rounded side edges, and a flattened driving-surface on top of its head.

481,963. FURNITURE-CASTER. ALFRED A. MINOR, Egg Harbor, Wis. Filed Jan. 12, 1892. Serial No. 417,854. (No model.)



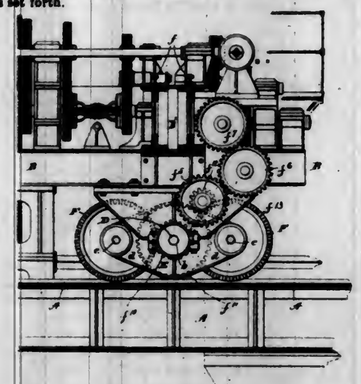
Claim.—As an improved article of manufacture, the herein-described furniture-caster, the same comprising, in combination, the roller A and its casting, the shaft G, the roller D, carried thereby, the rollers C, arranged in a series within the roller A and around the roller D, the rings E, carrying stub-shafts on which the rollers C are journaled, the packing-rings F within the roller A at the ends of the rollers C, and the plates H, all arranged and operating substantially as and for the purpose specified.

481,964. OVERHEAD TRAVELING CRANE. JOHN R. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and William H. Morgan, same place. Filed Aug. 4, 1891. Serial No. 401,662. (No model.)

Claim.—1. In a traveling crane, the combination, with a bridge, of a series of trucks supporting each end of the bridge, each truck being connected to the bridge by a centrally-located horizontal pivot, a pinion concentric with the horizontal pivot of one truck, and a pinion carried by or rigid with a track-wheel of said truck and meshing with the pinion concentric with the horizontal pivot, substantially as set forth.

2. In a traveling crane, the combination, with a bridge, of a series of trucks supporting each end thereof, each truck being mounted on a centrally-located horizontal pivot, one truck at each end of said bridge being provided with a driving-pinion concentric with the horizontal pivot connecting the bridge and truck and with a second pinion fast to one of the track-wheels and meshing with the driving-pinion, substantially as set forth.

3. In a traveling crane, the combination, with a bridge provided at its opposite ends with series of depending brackets arranged in pairs, of a truck pivotally mounted in each pair of brackets, a driving-pinion concentric with the axis of one of said trucks, and gearing connecting said driving-pinion with a track-wheel of said truck, substantially as set forth.



4. The combination, with a frame and series of trucks supporting same, each truck being connected to the frame by a centrally-located horizontal pivot, of a driving gear-wheel concentric with the axis of one of said trucks, and gearing connecting said driving gear-wheel with one or more of the track-wheels, substantially as set forth.

481,965. COIN-CONTROLLED SPIROMETER. ORLAND D. ORVIS, Chicago, Ill. Filed Feb. 10, 1891. Renewed Jan. 30, 1892. Serial No. 419,747. (No model.)

Claim.—1. In a coin-controlled spirometer, the combination, with a liquid-reservoir and an indicator connected therewith, a piston-chamber and a piston working therein for controlling the admission of air to the reservoir, of a stop device for preventing the operation of said piston and a trip carrying said stop device and operated by the coin for removing the same so as to permit the operation of the piston, substantially as described.

2. In a coin-controlled spirometer, the combination, with a liquid-reservoir and an indicator connected therewith, a piston-chamber and a piston working therein for controlling the admission of air to the reservoir, of a stop device for normally preventing the operation of the piston and a trip carrying said stop and alternately operated by the coin and the piston, substantially as described.

3. In a coin-controlled spirometer, the combination, with a liquid-reservoir and an indicator therefor, of the air-inlet passage, a valve-chamber located in said passage provided with outlet-ports, a valve working in said chamber, normally closing said ports and provided with an air-passage of less diameter than the passage connecting said chamber with the reservoir, whereby when air is blown into the reservoir the valve will be forced onto its seat so as to close the outlet-ports, but when the blowing ceases the back-pressure of the compressed air in the reservoir will lift the valve from its seat and open the outlet-ports, so as to permit the escape of the compressed air therethrough, substantially as described.

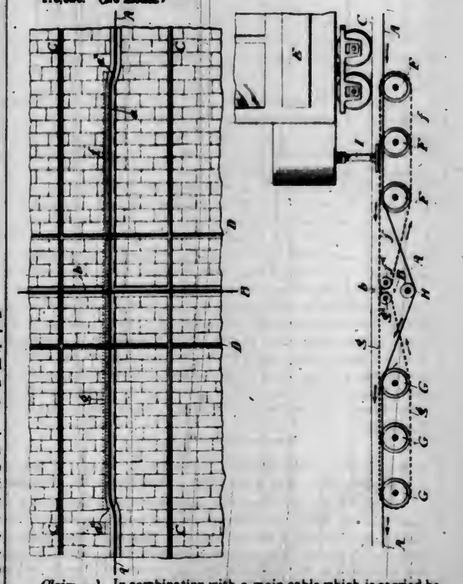
4. In a coin-controlled spirometer, the combination, with a liquid-reservoir and an indicating-vessel connected at the lower end thereof with said reservoir, of a piston-chamber connected with the upper end of said vessel and a spring-seated piston in said chamber opposing the passage of air from said vessel into the chamber, substantially as described.

5. In a coin-controlled spirometer, the combination, with a liquid-reservoir, an air-inlet passage, a valve-chamber located in said passage provided with outlet-ports, and a valve working in said chamber, normally closing said ports and provided with an air-passage of less diameter than the passage connecting said chamber with the reservoir, of an indicating-vessel connected at its lower end with said reservoir and at its upper end with a piston-chamber, and a spring-seated piston working in said chamber, opposing the passage of the air from said vessel into the chamber, substantially as described.

6. In a coin-controlled spirometer, the combination, with a liquid-reservoir, a piston-chamber, a piston working therein for controlling the admission of air to the reservoir, a stop device for normally preventing the operation of the piston, and a trip carrying said stop and alternately operated by the coin and the piston, of an indicating-vessel connected at its lower end with said reservoir and at its upper end with another piston-chamber, and a spring-seated piston working in said chamber, opposing the passage of the air from said vessel into the chamber, substantially as described.

7. In a coin-controlled spirometer, the combination, with a liquid-reservoir, a piston-chamber, a piston working therein for controlling the admission of air to the reservoir, a stop device for normally preventing the operation of the piston, a trip carrying said stop and alternately operated by the coin and the piston, an air-inlet passage connecting said piston-chamber and reservoir, a valve-chamber located in said passage, provided with outlet-ports, and a valve working in said chamber, normally closing said ports and provided with an air-passage of less diameter than the passage connecting said chamber with the reservoir, of an indicating-vessel connected at its lower end with said reservoir and at its upper end with a second piston-chamber and a spring-seated piston working in said chamber opposing the passage of the air from said vessel into the chamber, substantially as described.

481,966. CROSSING FOR UNDERGROUND CABLE RAILWAYS. WILLIAM H. PAGE, Philadelphia, Pa. Filed Jan. 14, 1892. Serial No. 418,086. (No model.)

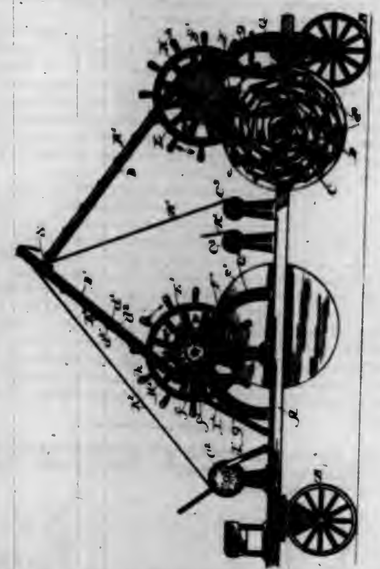


Claim.—1. In combination with a main cable which is carried beneath a crossing cable, a crossing cable, conduits for said cables, slots in said conduits, a main track, a crossing track, a car upon the main

track provided with a cable-grip and with a supplemental toothed motor-chain grip, two endless supplemental motor-chains applied within the main conduit one at each side of the crossing cable and both carried into such proximity to said crossing cable as to leave merely a grip space or way between them, and combined pulleys and sprocket-wheels adapted to respectively support the main cable and the supplemental motor-chains, to be driven by said main cable and to drive said supplemental motor-chains, substantially as set forth.

2. In a cable-crossing device, in combination with supporting and driving sprocket-wheels in the main conduit and with a supplemental toothed motor-grip upon the car, an endless motor-chain composed of links formed with apertured lugs, sprocket-teeth, and grip-teeth, substantially as and for the purpose set forth.

481,967. FIRE-ESCAPE LADDER AND MEANS FOR RAISING THE SAME. PHILIP A. PALMER, Chicago, Ill. Filed Sept. 24, 1891. Serial No. 406,720. (No model.)



Claim.—1. The combination, with a sectional ladder, of swinging supports F, formed with arms *f*, a reel E, mounted between said supports and having fingers *e*, a roller *f'*, mounted between the ends of the arms *f* and separated from the reel by a space sufficient for the passage of the ladder, a windlass C^3, guy-ropes R R^3, coiled on the windlass and fastened to the topmost section of the ladder, and means for rotating the reel and windlass, substantially as shown and described.

2. The combination, with the folding ladder, of swinging supports F, segments G, the reel E, mounted in said supports, means for rotating the reel, and means for fastening the swinging supports at any desired angle upon the segments, substantially as shown and described.

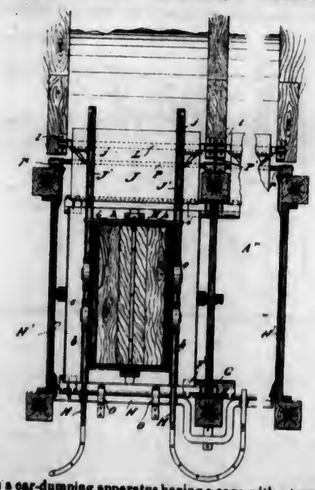
3. The combination, with a wagon-bed, of two drums mounted thereon, sectional ladders constructed substantially as described and wound upon said drums, lifting-reels placed in proper relation to said drums and provided with fingers adapted to engage the successive rounds of said ladders, means for connecting the upper end of one of said ladders with the other ladder at any desired point, guy-ropes for bracing one or both of said ladders, and means for rotating the lifting-reels whereby said ladders may be raised, substantially as shown and described.

481,968. CAR-DUMPING APPARATUS. THOMAS J. PHILLIPS, Ottumwa, Iowa. Filed June 30, 1891. Serial No. 398,092. (No model.)

Claim.—1. In a car-dumping apparatus, a track-rail having beneath it at one end an attached lug adapted to engage with an interposed stop or bar to tip the rail and also adapted to drop below the surface of the track when not in use to afford an unobstructed track, thus enabling the car to run off the cage in an additional direction, substantially as described and shown.

2. In a car-dumping apparatus having a cage with a track thereon made adjustable to enable it to be tilted to place the car on an inclined plane, the rails *b b*, provided with lugs F to prevent the endwise shifting of the rails, substantially as described and shown.

3. In a car-dumping apparatus having a cage with a track thereon made adjustable to enable it to be tilted to place the car on an inclined plane, the rails *b b*, provided with lugs E E to give the ends of the rails *b b* an additional landing-base, substantially as described and shown.



4. In a car-dumping apparatus having a cage with a track thereon made adjustable to enable it to be tilted to place the car on an inclined plane, the rails *b b*, provided with lugs E E to give the ends of the rails *b b* an additional landing-base, and with lugs F to prevent the endwise shifting of the rails, substantially as described and shown.

5. In a car-dumping apparatus carrying a car on an adjustable track, said track adapted to be tipped to place the car on an inclined plane, a slidable bar N, provided with short track-rails M M, so adjusted as to form a continuation of the untipped track, and also adapted to be readily interposed beneath the rails of the adjustable track to tip the same, substantially as described and shown.

6. The combination, in a car-dumping apparatus, of the slidable bar N, connected with the rock-shaft P and lever P' of the rods N' N', and short rods *p p*, located on opposite sides of the twin shafts, substantially as described and shown, and for the purpose specified.

7. In a car-dumping apparatus, the combination of a cage having an adjustable track, with track-rails M M, adapted to form a continuation of the adjustable track, and means whereby the track-rails may be moved beneath the adjustable track to tilt the same, all substantially as described.

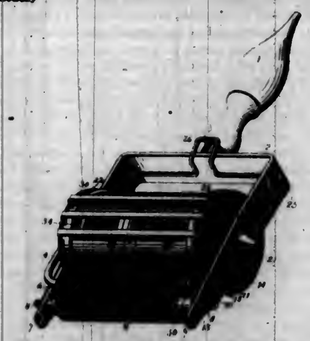
8. In a car-dumping apparatus, the combination of a cage having an adjustable track, with a lug or lugs F, attached to the adjustable track to prevent the endwise shifting of the track, all substantially as described.

9. In a car-dumping apparatus, the combination of a cage having an adjustable track, track-rails M M, adapted to form a continuation of the adjustable track, and means whereby the track-rails M M may be moved beneath the adjustable track to tilt the same, a tipple adapted to connect with the adjustable track, having an automatic unlatching device and having tipple-rails inclining downward toward the cage to secure the return of the empty car upon the cage, substantially as described.

10. In a car-dumping apparatus, the combination of the cage adapted to be landed near the surface, an adjustable track on the cage, an elliptic spring adapted to fix the car on the cage and hold it while in vertical transit, a slidable bar adapted to tip the track upon the cage to place the car on an inclined plane, a tipple adapted to connect with the track upon the cage, an automatic unlatching device, and a tipple-track inclining downward toward the cage and located between the tipple and the cage to secure the return of the empty car, all substantially as described and shown.

11. In a car-dumping apparatus, the combination of the cage adapted to be landed near the surface, an adjustable track on the cage, having lugs F and E, an elliptic spring adapted to fix the car on the cage and hold it while in vertical transit, a slidable bar adapted to tip the track upon the cage to place the car on an inclined plane, a tipple adapted to connect with the track upon the cage, an automatic unlatching device, and a tipple-track inclining downward toward the cage and located between the tipple and the cage to secure the return of the empty car, all substantially as described and shown.

481,969. ROTARY HAND-STAMP. GEORGE A. PIKEP and WILLIAM J. TOWRY, Shelbyville, Tenn. Filed Oct. 6, 1891. Serial No. 407,914. (No model.)



Claim.—1. In a rotary stamp, the combination, with a frame, the main handle, a printing-cylinder journaled therein, and a stud on the end of the cylinder and projecting outwardly therefrom, of an inking-roller bearing against the cylinder, a spring-wire stop extending across said frame in rear of said cylinder and having an end portion projecting through the frame in the path of and normally engaging said stud, and a thumb-piece on said stop opposite the main handle in rear of said cylinder, as and for the purpose set forth.

2. In a rotary stamp, the combination, with a printing-cylinder having the ends of its face raised and grooves in its ends and a notch communicating with one of the grooves, of type having flanges at top and bottom and resting on the face of the cylinder between said raised ends and clamping-bars engaging said flanges, having their ends turned down and having their extremities turned in so as to engage said grooves and cut away at one edge to form engaging and adjusting tongues, as and for the purpose set forth.

3. In a rotary stamp, the combination, with a printing-cylinder having the ends of its face raised and grooves in its ends and a notch communicating with one of the grooves, of type having flanges at top and bottom and resting on the face of the cylinder between said raised ends and clamping-bars engaging said flanges, having their ends turned down and having their extremities turned in so as to engage said grooves, as and for the purpose set forth.

4. In a rotary stamp, the combination, with a printing-cylinder, type having flanges at top and bottom, and clamping-bars for locking said type to the cylinder, of a strip set in the face of the cylinder and provided with holes, a plate having a turned-up edge and a slot through its body, and a screw passing through said slot and engaging one of the holes, as and for the purpose hereinbefore set forth.

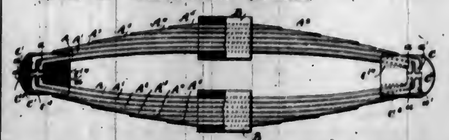
481,970. STAPLE-DRIVING IMPLEMENT. ERNEST A. PORTER, Florence, Mass. Filed May 16, 1891. Serial No. 393,059. (No model.)



Claim.—1. In a hand tacking-machine, the combination of a casing, a vertical guide-rod secured adjacent to the casing to form a feed-way between the casing and the inner edge of the guide-rod, a reciprocative plunger fitted in the casing and provided with a lengthwise slot, a foot-piece secured in the lower end of the casing, a feed-lever fulcrumed in the foot-piece with its free end arranged to sweep the lower end of the guide-rod and feedway, a spring to move the feed-lever inward, and a latch-rod having its upper end engaging in the slot of the plunger and its lower end secured to the feed-lever, substantially as and for the purpose specified.

2. In a hand tacking-machine, the combination of an outer casing having teeth on its base, a guide-rod secured to the casing to form a feedway between the casing and the inner edge of the guide-rod, a reciprocative plunger formed with a slot *j*, arranged in the case, a foot *c*, mounted in the base of the casing and provided with a handle *g*, a feed-lever fulcrumed in the foot to sweep with its free end the lower end of the guide-rod and feedway, a spring to throw the feed-lever inward, and a latch-rod *i*, engaging in the slot of the plunger and the toe of the feed-lever, substantially as and for the purpose specified.

481,971. SPRING. GEORGE L. POTTER, Fort Wayne, Ind. Filed Apr. 29, 1892. Serial No. 431,190. (No model.)



Claim.—1. The spring-support C, having a back C', a supporting-bar C^4, secured to the back by webs, as C^5, and a recess C^6, formed between the back C' and the bar C^4, to receive the bent ends or gibs of the spring.

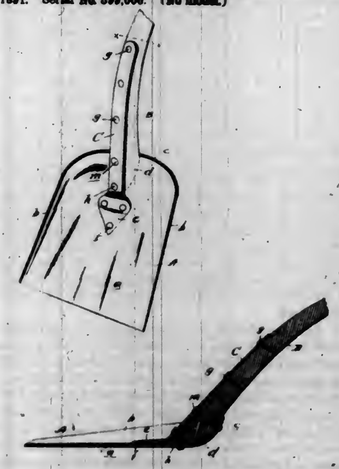
2. The spring-support C, having a back C', an outwardly-tapered supporting-bar C^4, secured to the back by webs, as C^5, and a recess C^6, formed between the back C' and the bar C^4, to receive the bent ends or gibs of the spring.

3. The spring-support C, having a back C', a supporting-bar C^4, secured to the back by end webs, as C^5, and a partition web or webs, as C^5, and a recess C^6, formed between the back C' and bar C^4, to receive the bent ends or gibs of two or more parallel springs.

4. The combination of a leaf-spring A^3, having its two longest leaves formed with gib ends *a a'*, lying close together, with spring-supports C, having backs C', and spring-supporting bars C^4, united by webs, as C^5, and a recess C^6, formed between the back and support, to receive the gib ends *a a'*.

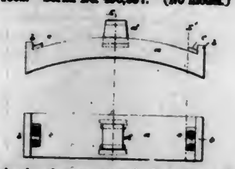
5. The combination of two or more sets of parallel leaf-springs, each set being held together by a separate and independent clamp, as B, with supports C, having backs C', and supporting-bars C^4, united by end and partition webs, as C^5 C^5 C^5, and having recesses C^6 formed between said back and bar to receive gib ends of the spring.

481,972. SHOVEL. PETER POULSON, Somers, Wis. Filed July 14, 1891. Serial No. 399,666. (No model.)



Claim.—The improved shovel herein described, consisting, essentially, of the blade A, having the flat bottom *a*, the outwardly-flaring curved side walls *b*, narrow in width at the forward edge of the blade and increasing in width or height toward the rear end thereof, and the outwardly and upwardly curved rear wall *c*, into which the side walls merge, as shown, the handle B, of oval form in cross-section, having its lower end formed with an enlarged portion *d*, curved upon its rear side to conform to the inside curvature of the rear wall *c* of the blade, the strap C, having at its lower end the flat portion *e* placed upon the flat part of the blade and secured thereto by bolts *f* and having its upper portion shaped to the handle and secured to the face thereof by bolts *g*, the connecting-bolt *m*, taking through the upper portion of the strap C, the handle, and the rear wall *c* of the blade, and the connecting-bolt *h*, taking through the strap C, the handle, and the bottom *a* of the blade, substantially as and for the purpose set forth.

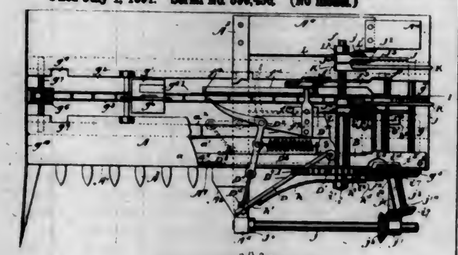
481,978. BRAKE-SHOE. CHARLES T. SCHOEN, Allegheny, Pa. Filed Apr. 27, 1892. Serial No. 430,837. (No model.)

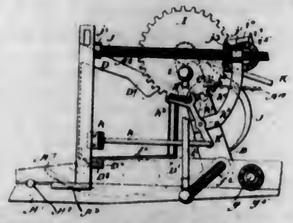


Claim.—1. A brake-shoe composed of a body *a* of wrought metal forged with the lips *b* and lugs *c* to hold the shoe in the shoe-head against lateral displacement and having the clip *d* embedded in the body, substantially as described.

2. A brake-shoe of the master-car-builders' standard, having the wrought-metal body *a* of a single piece and the clip *d* embedded in said body transversely thereof, substantially as described.

481,974. GRAIN-BINDER. GEORGE SCHUBERT, Walnut, Tex. Filed July 1, 1891. Serial No. 398,436. (No model.)





Claim.—1. In a grain-binder, the combination of a butt-board and mechanism for moving the same, with a rod A, hinged to near the free end of the butt-board and with its other end pivoted to the lower end of the lever A^7, and the lever A^7, pivoted to the binder-frame and having its upper end bifurcated, as shown, and the arm A^8, bent grainward and provided with a spring A^9 to engage with a pin i^3, secured to the gear-wheel I, having a depression i^2, a guide i^3, and a shaft mounted in a pivoted bearing-block, as shown, and for the purpose described.

2. In a grain-binder, the combination of a butt-board with a rod A, hinged to near the free end of the butt-board and with its other end pivoted to the lower end of the lever A^7, and the lever A^7, pivoted to the binder-frame and having its upper end bifurcated, as shown, and the arm A^8, bent grainward and provided with a spring A^9 to engage with a pin i^3, secured to the gear wheel I, having a depression i^2, a guide i^3, a shaft mounted in a pivoted bearing-block, a bell-crank D^3, pivoted in the platform, extending with its free end in the path of the conveyer and connected with its other arm to the butt-board by a connecting-rod D^4, as shown, and a conveyer operated in the platform, as and for the purpose described.

3. In a grain-binder, the combination of a butt-board with a rod A, hinged to near the free end of the butt-board and with its other end pivoted to the lower end of the lever A^7, and the lever A^7, pivoted to the binder-frame and having its upper end bifurcated, as shown, and the arm A^8, bent grainward and provided with a spring A^9 to engage with a pin i^3, secured to the gear-wheel I, having a depression i^2, a guide i^3, a shaft mounted in a pivoted bearing-block, a conveyer operated in the platform, a bell-crank D^3, pivoted in the platform, extending with its free end in the passage-way of the conveyer and connected with its other arm to the butt-board by a connecting-rod D^4 in position, as shown, and a spring D^5, secured with one end to a bracket and with its other end to the bell-crank D^3, for the purpose described.

4. In a grain-binder, the combination, with a gear-wheel I, provided with a depression i^2, formed in its toothed periphery, a guide i^3, and a pin i^3, as shown, of a shaft i^{10}, provided with a pinion i^7 and a bevel-pinion i^3, said shaft i^{10} carried by a pivoted bearing j^3, a lever A^7, pivoted to the binder-frame and having its upper end bifurcated, the arm A^8, provided with a spring A^9 to engage with the pin i^3, a rod A, connecting the lever A^7 to a butt-board, and a conveyer to operate the butt-board, as shown, and for the purpose described.

5. In a grain-binder, the combination, with a gear-wheel I, provided with a pin i^3 and a depression i^2, formed in its periphery, and a guide i^3 to correspond with the depression i^2 and secured to the gear-wheel I, as shown, of a shaft i^{10}, having its rear end i^2 projecting and provided with a pinion i^7 and a bevel-pinion i^3, said shaft i^{10} being carried by a pivoted bearing j^3, a lever A^7, pivoted to the binder-frame and having its upper end bifurcated, and the arm A^8, provided with a spring A^9 to engage with a pin i^3, a rod A, connecting the lower end of the lever A^7 to a butt-board, and a bell-crank pivoted in the platform and connected to the butt-board by a rod D^4, as shown, and for the purpose described.

6. In a grain-binder, the combination, with a bracket j, secured to the frame of the machine and provided with an arm j^5, provided with a flange or projection j^7 and a slide j^3, of a bearing j^3, pivoted to the projection j^7 and with its free end resting on the slide j^3 and provided with a shaft i^{10}, provided with the projection i^2 and a pinion i^7 and a bevel-pinion i^3, and a gear-wheel I, provided with a depression i^2 and a guide i^3, as shown, and for the purpose described.

7. In a grain-binder, the combination, with a needle formed of sections, the section f^3, rigidly secured to a rock-shaft f', and the section f^4, pivoted to the free end of the section f^3, of a spring-pressed stud f^6, projecting through a perforation f^5 and secured to the section f^3, a slot f^{11}, formed in the heel of the section f^4, and a bar f^9, located in the platform and projecting with its free end rearward, with its free end adjacent the section f^3 in position to engage in the slot f^{11}, for the purpose described.

8. In a grain-binder, the combination, with a needle formed of sections, the section f^3, rigidly secured to the rock-shaft f', and the section f^4, pivoted to the free end of the section f^3, of a perforation f^5 in the section f^3, located slightly in rear of the pivot f^{12}, a spring-pin projecting through the perforation f^5, with its projecting end beveled from the lower side, a bar f^9, secured in the platform, projecting toward the rear, with its free end adjacent the section f^3 and located on line with the movement of the stud f^6 and having its end beveled from its upper side, and a slot f^{11} in the heel of the section f^4, as shown, and for the purpose described.

9. In a grain-binder, the combination, with a compressor J, formed as shown and pivoted on a shaft f and provided with a coiled spring J', rigidly secured with its stubble end to the compressor and projecting grainward, with its free and projecting end curved outwardly and bent to form a hook J^4 to engage with the slot J^5 of the breast-plate, of a discharger-arm secured on the shaft f, and a bell-crank lever, as shown, and for the purpose described.

10. In a grain-binder, the combination, with a compressor J, constructed as shown and loosely hinged on the shaft f and provided with a coiled spring J', rigidly secured with its stubble end to the compressor and projecting grainward, with its free and projecting end curved outwardly and bent to form a hook J^4 to engage with the slot J^5 of the vertical flange L of the breast-plate, of a bell-crank pivoted on the outwardly-curved end of the spring J' adjacent the hook J^4, with the arm J^5 extending down adjacent the vertical flange L, with the other arm J^7 projecting in the path of the discharging-arm K, and a discharging-arm rigidly secured on the shaft f adjacent the compressor, as and for the purpose described.

11. In a grain-binder, the combination, with a compressor constructed as shown and loosely hinged on the shaft f and provided with a coiled spring J', rigidly secured at its stubble end to the compressor and projecting grainward, with its free and projecting end curved outwardly and bent to form a hook J^4 to engage with the slot J^5 of the vertical flange L of the breast-plate, of a bell-crank pivoted on the outwardly-curved end of the spring J' adjacent the hook J^4, with the arm J^5 extending down adjacent the vertical flange L, with the other arm

J^7 projecting in the path of the discharging-arm, a discharging-arm K, rigidly secured to the shaft f adjacent the compressor J, and a depression L' in the vertical flange L of the breast-plate, as and for the purpose described.

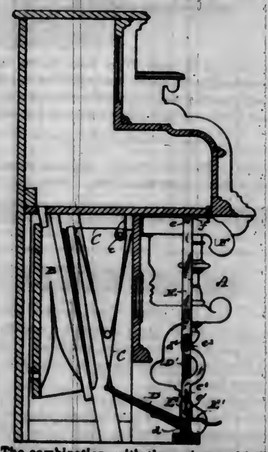
481,975. METER FOR ALTERNATING ELECTRIC CURRENTS. OLIVER B. SHALLENBERGER, Rochester, assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Original application filed Oct. 31, 1888, Serial No. 289,626. Divided and this application filed Sept. 27, 1889. Serial No. 325,201. (No model.)



Claim.—1. In an alternate-current electric motor, a coil or closed secondary conductor consisting of continuous rings or circuits of conducting material connected together in parallel circuit, substantially as described.

2. In an electric motor, a closed secondary circuit composed of circuits of conducting material and metallic connections between the successive circuits.

481,976. SWINGING TREADLE FOR ORGANS. WILLIAM H. SLEMMER, Milwaukee, Wis., assignor to the United States Swing Treadle Company, same place. Filed Jan. 19, 1892. Serial No. 418,563. (No model.)



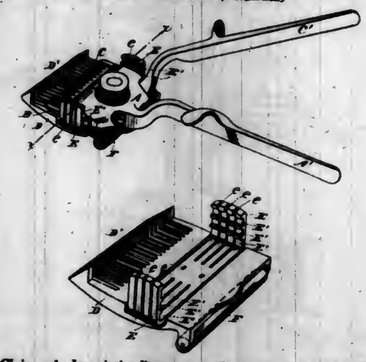
Claim.—1. The combination, with the casing and bellows of an organ, of suitable levers pivotally connected with the lower part of the casing and operatively connected with the bellows, swinging hanger-arms pivotally connected with the casing at their upper ends and provided at their lower ends with suitable foot-pieces, and operative connections between said levers and said swinging hanger-arms, substantially as and for the purposes described.

2. The combination, with the casing and bellows of an organ, of suitable bell-crank levers pivotally engaged with the lower part of the casing and operatively connected with the bellows, swinging hanger-arms pivotally connected with the casing at their upper ends and provided at their lower ends with suitable foot-pieces, and movable connections between said hanger-arms and said bell-crank levers, substantially as and for the purposes described.

3. The combination, with the casing and bellows of an organ, of independent bell-crank levers, each pivotally engaged with the lower part of the casing and having one of its arms operatively connected with the bellows, independent swinging hanger-arms pivotally connected at their upper ends with the casing and provided at their lower ends with suitable foot-pieces, lateral pins or projections upon said bell-cranks, and slots in said hanger-arms operatively engaged with said pins or projections, substantially as described.

4. The combination, with the casing and bellows of an organ, of suitable levers pivotally connected with the lower part of the casing and operatively connected with the bellows, swinging hanger-arms pivotally connected at their upper ends with the casing and operatively engaged with said levers, and suitable foot-pieces adjustably engaged with the lower ends of said hanger-arms, substantially as described.

481,977. HAIR-CLIPPER. JOHN W. SMITH, Boston, Mass. Filed Nov. 25, 1891. Serial No. 413,077. (No model.)



Claim.—1. In a hair-clipper, a stationary and movable clipper-plate and a detachable comb-plate having spring-clips provided with a series of grooves for the purpose of securing the said comb-plate in different positions relative to the clipper-plates, substantially as specified.

2. In a hair-clipper, a stationary and movable clipper-plate and a detachable comb-plate having laterally-grooved and longitudinally-slitted spring-clips for securing said comb-plate to the clipper, substantially as and for the purpose set forth.

481,978. CURTAIN-FIXTURE. SAMUEL H. SHAVELY, Washington, D. C., assignor of one-fourth to Frederic W. Ritter, Jr., same place. Filed Jan. 27, 1892. Serial No. 419,447. (No model.)



Claim.—1. In a curtain-bracket, the combination of two lapping longitudinally-adjustable arm-sections having adjacent corrugated interlocking surfaces which permit said arm-sections to be adjusted longitudinally in a right line and also at an angle to each other and a clamp for securing the parts when adjusted in either position, substantially as and for the purposes specified.

2. The combination, in a curtain-bracket, of two bracket-sections adjustable one on the other, one of said sections provided with longitudinal grooves and one with points or projections adjacent to one end thereof, whereby said sections may be adjusted in a right line or at an angle to each other, substantially as and for the purposes specified.

3. The combination, in a curtain bracket, of two adjustable sections, each provided on its inner or contacting face with grooves and points, whereby said sections may be adjusted to a right line or at an angle to each other, substantially as and for the purposes specified.

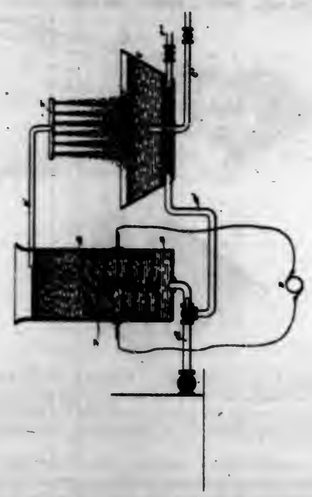
4. In a curtain-bracket, the combination of two longitudinally-slotted extensible arm-sections having adjacent corrugated interlocking surfaces and means for pivotally and adjustably connecting and clamping said arm sections, substantially as and for the purposes specified.

481,979. APPARATUS FOR ELECTRICALLY PURIFYING WATER. LOUIS T. STANLEY, Brooklyn, N. Y., assignor, by mesne assignments, to the Cutter Electrical and Manufacturing Company, Philadelphia, Pa. Filed Feb 11, 1890. Serial No. 340,262. (No model.)

Claim.—1. In an apparatus for purifying water, the combination, with a series of electrodes between which the water passes, of a settling-chamber into which the water is delivered and means, substan-

tially as described, for dividing up or spraying the water in its passage from the electrodes to the settling-chamber, as set forth.

2. The combination, with an electrolyzing-chamber and a series of electrodes alternately opposite and forming a zigzag course of vertical passage between them for water, of a settling-chamber into which the water is delivered and means for dividing up or spraying the water in its passage from the electrolyzing to the settling chamber, as set forth.



3. The combination, with an electrolyzing-chamber, electrodes contained therein, and a water-supply connected with said chamber, of an outlet-pipe in position to take off the water after its passage between the electrodes and provided with a rose or perforated nozzle and a settling-chamber into which the water is delivered in jets or spray, as set forth.

4. The combination, with one or more electrolyzing chambers or compartments and a series of iron and carbon electrodes contained in each, of means for delivering water to the chamber or chambers in jets or spray, a settling-chamber, and means for dividing up or spraying the water in its passage from the electrolyzing-chamber to the same, as set forth.

5. The combination, with the electrolyzing chamber or chambers and an outlet provided with a rose or spraying-pipe, of a settling-chamber composed of one or more connected compartments with sloping or tapered bottoms and partitions or aprons extending from the top nearly to the bottom of each compartment, as set forth.

481,980. FENCE. EDWARD G. STORM and SAMUEL M. STORM, Lebanon, Ind. Filed Feb. 19, 1892. Serial No. 422,165. (No model.)

Claim.—1. In a fence-post, the combination, with a base and upright articulated together, of arms projecting laterally from the sides of the said upright and guys passing over the said arms and secured to the lower end of the said base and the upper end of the said upright, substantially as described.

2. In a fence-post, the combination, with a base formed of a half-circle having lateral and longitudinal wings arising therefrom, the wings having their upper ends connected together, of a ball rigidly secured to the upper ends of the said wings, an upright having in its lower end one-half of a spherical bearing corresponding to the said ball, a block secured to the said bearing and having the opposite half of the said bearing therein, a piece 15, mounted on the said post and having an eye 15^2 on each side thereof, arms projecting laterally from the lower end of the said upright, and guy-wires passing over the said arms and having their lower ends secured to the said half-circle and their upper ends to the said eyes, substantially as described.

3. In a fence, the combination, with a base, of an upright articulated thereon, arms projecting laterally from the side of the said upright, a piece 15, mounted on the said post and having eyes on each side thereof, and guy-wires secured to the said base and to the said eyes and passing over the said arms, substantially as described.

4. In a fence-post, the combination, with a base and of an upright articulated thereto, of a piece 15, having a projection 15′ thereon and having an eye 15^2 surrounding the said upright and an eye 15^2 on each side of the said post, lateral arms projecting from the base of the said upright, guy-wires passing over the said arms and connected to the

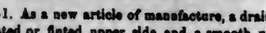
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said base and to the said eyes 15^2, a brace having its upper end engaged by the projection 15′ and its lower end bearing upon the ground, and twisted wires having their opposite ends secured to the base of the said brace and of the upright, substantially as described.

481,981. DRAINER-PLATE. HERMAN STRATER, Boston, Mass. Filed Apr. 6, 1892. Serial No. 427,854. (No model.)





Claim.—1. As a new article of manufacture, a drainer-plate having a corrugated or fluted upper side and a smooth under side and composed of sheet metal corrugated, combined with a metallic substance which enters the depressions on the under side, substantially as and for purposes explained.

2. A drainer-plate composed of a series of corrugated sheets having their ends turned at right angles to form transverse lips, combined with a metallic substance, as solder, which unites said contiguous lips to form a butt-jointed continuous integral sheet, the corrugations being in alignment in the several sheets and the latter located in one and the same plane, substantially as stated and set forth.

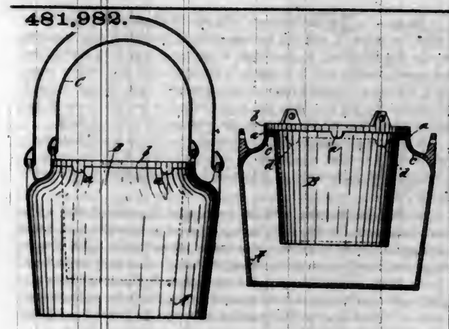
3. In combination with a drainer-box and its non-contiguous slats, a drainer composed of a series of corrugated plates, as an integral sheet, and a series of transverse pendent fastening-strips adapted to pass between the slats and be bent thereagainst, substantially as described.

4. A drainer-plate composed of a series of corrugated sheets with downwardly-turned ends, said ends being integrally united to form stiffening-ribs on the under side, combined with the slats of a drainer-box, said ends being adapted to be bent against or fastened to the slats to hold the plate in position, substantially as described.

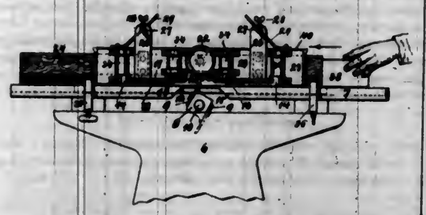
481,982. STEAMING-KETTLE. JAMES F. TAYLOR, Brooklyn, N. Y. Filed Oct. 16, 1891. Serial No. 408,980. (No model.)

Claim.—In a device of the character herein set forth, the outer vessel for containing water and the inner vessel arranged to close the mouth of the outer one and to contain the material to be heated, said vessels being provided with lugs *a a* and corresponding notches *d d*, the parts being combined and arranged, as set forth, to provide for escape of steam without withdrawing the inner vessel from the water, for the objects explained.

481,982.



481,988. WORK-HOLDER AND SAFETY-GUARD FOR UNIVERSAL WOODWORKERS. JOHN G. TROM, Cincinnati, Ohio. Filed Feb. 12, 1892. Serial No. 421,305. (No model.)



Claim.—1. In a work-holder and safety-guard for universal woodworkers, the combination, with the table of the latter, of pressure-foot 40, arms 29, of elastic material, to which it is secured, arms 27, to which arms 29 are adjustably secured, and standards 26, to which arms 27 are secured in a manner to make them capable of a lateral as well as a rotary adjustment, the latter adjustment being for the purpose of raising or lowering the pressure-foot, all substantially as shown and described.

2. In a work-holder and safety-guard for universal woodworkers, the combination, with fence 25, of a pressure-bar 23 to hold the work against the fence, hinges to which this bar is secured, means to support the hinges, springs interposed between the hinges and their supports, a slide to which said supports are secured, and means to adjust the slide on the table of the machine, all substantially as shown and described.

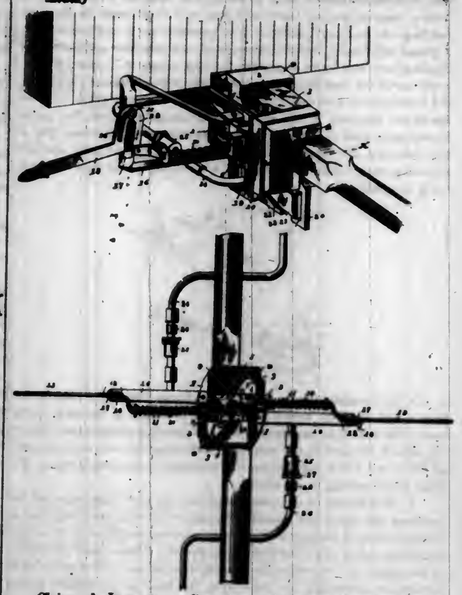
3. In a work-holder and safety-guard for universal woodworkers, the combination, with fence 25 and the machine-table, of pressure-bar 23 and pressure-foot 40 for holding the work against the two former, a slide to which pressure-bar 23 and pressure-foot 40 are adjustably secured, and means to adjust the slide on the machine-table, all substantially as shown and described.

4. In a work-holder and safety-guard for universal woodworkers, the combination, with fence 25 and the machine-table, of pressure-bar 23, hinges to which it is secured, supports on which the hinges rest, springs between said supports and the hinges, a pressure-foot 40, arms 29 and 27, which hold this pressure-foot adjustable, a slide on which all the parts are supported, and means to adjust this slide on the machine-table, all substantially as shown and described.

5. In a work-holder and safety-guard for universal woodworkers, the combination, with fence 25 and the machine-table, of a slide adjustably secured to this table, means to accomplish such adjustment, standards secured to the slide, pins extending out from the standards, hinges supported on these pins, springs between the standards and hinges, a pressure-bar secured to these hinges, arms 27, supported on the standards mentioned before, elastic arms 29, secured to arms 27, and a pressure-foot 40, secured to these latter arms, all substantially as shown and described.

6. In a work-holder and safety-guard for universal woodworkers, the combination, with fence 25, of a pressure-bar 23 to hold the work against the fence, hinges to which this bar is secured, means to support the hinges, springs interposed between the hinges and their supports, a slide to which said supports are secured, stops to prevent the hinges from becoming disengaged from the slide, and means to adjust the slide on the machine-table, all substantially as shown and described.

481,984. COMBINED CAR AND AIR-BRAKE COUPLING. JAMES R. THOMAS, Sulphur Springs, Tex., assignor to the Thomas Car Coupling Company, same place. Filed Apr. 11, 1892. Serial No. 428,700. (No model.)



Claim.—1. In a car-coupling, the combination of the draw-head having an offset with a chamber therein to receive an opposite portion of the coupling, a sliding key or dog mounted in said draw-head and operating transversely therethrough, and means for releasing said key or dog, substantially as described.

2. In a car-coupling, the combination of a draw-head having an offset with a chamber therein to receive an opposite portion of the coupling, a key or dog movably mounted therein and extending transversely therethrough and provided with an inner beveled end, a rod connected to said key or dog and having a coiled spring thereon bearing against the key or dog to normally impel the same inward, and a lever connected to said rod for uncoupling the said key or dog, substantially as described.

3. In a car-coupling, the combination of a draw-head having an offset with a chamber therein to receive an opposite portion of the coupling, a key or dog transversely mounted therein, a rod having the slotted end thereof connected with said key or dog, whereby the latter may move thereover, a spring surrounding said rod, and a lever connected to the outer end of said rod for the purpose of uncoupling the said key or dog, substantially as described.

4. In a car-coupling, the combination of the draw-head having an offset with a chamber therein to receive an opposite portion of the coupling, a key or dog movable transversely therethrough, a rod connected to said key or dog, and a lever having a U-shaped end attached to said rod, substantially as described.

5. The combination, with a car-coupling, of a loosely-mounted gasket-head of the form set forth, having a clamping-spring in connection with the rear thereof, and an air-brake pipe connected with said gasket-head, substantially as described.

6. The combination, with a car-coupling, of a gasket-head loosely supported in connection therewith, a bracket with a slot therein, a clamping-spring attached to the rear portion of said gasket-head, and an air-brake pipe connected to said gasket-head and loosely passed through said slotted bracket and entering the same upon the side, substantially as described.

481,985. CALF-WEANER. WILLIAM H. TYLER, Davis City, Nebr. Filed Jan. 28, 1891. Serial No. 379,444. (No model.)

Claim.—1. The muzzle consisting of a nose-embracing frame having opposite front and rear pairs of eyes, opposite side bars terminating in front and rear eyes, the former engaging the rear eyes of the nose-frame, an arched piece 9, engaging the rear eyes of the nose-frame, in combination with a bar loosely mounted in the front pair of eyes, an apron loosely supported by the bar, a chin-strap connecting

the eyes of the nose-frame, and a strap connecting the rear eyes of the cheek-bars, substantially as specified.

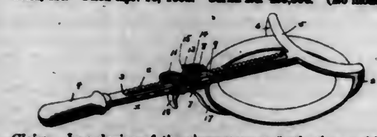
2. The herein-described calf-weaner, consisting of a piece of wire bent to form the central kink 1, diverged at opposite sides thereof to form a nose embracing frame and bent at a right angle to form depending side portions 2, coiled to form opposite eyes 3, and rearwardly-disposed side bars 4, coiled at the ends of said side bars and forwardly disposed and bent upon themselves to form supports 7, upwardly disposed under the nose-frame and terminating beyond the same in guards, the arch-piece 9, and the connecting-bar 12, in combination with the apron-bar mounted in the eyes 3, terminating in points, the apron loosely supported thereby, the chin-strap connecting the rear eyes of the side bars, the opposite cheek-bars connecting said eyes, and the adjusting-strap connecting the rear ends of the cheek-bars, substantially as specified.



3. In a muzzle, the nose-embracing frame having the kink 1, the eyes 3, and the side bars 4, the apron 17, hinged in the eyes 3, the lower side bars 6, terminating in apron-supporting projections 7 below the eyes 3, the arch 9, the strap 22, connecting the rear or inner ends of the bars 4 and 6, and means for connecting the muzzle upon the head of the animal, as set forth.

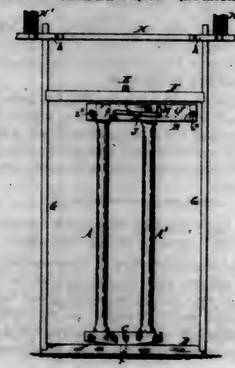
4. In a muzzle of the class described, the wire frame adapted to embrace the mouth and nostrils of a calf or colt and provided with a hinged apron 17, having its lower edge bent outwardly, as at 18, stops extending below and from the frame, and the frame below the pivot of the apron for preventing the rearward movement of the apron, and devices for connecting the muzzle to the head of an animal, as set forth.

481,986. PLATE OR PAN LIFTER. CHARLES I. WALDRON, Round Pond, Me. Filed Apr. 16, 1892. Serial No. 429,302. (No model.)



Claim.—In a device of the character set forth, the combination of a bar or rod having centrally-located ratchet-teeth thereon, with horizontal shoulders on opposite sides thereof, and a front yoked end with downward-extending curved arms, a sliding block mounted on said bar or rod having a lower curved arm and a finger-piece and an upper slotted head, a pawl or dog mounted in said slotted head and having a nose at the front and rear portions thereof, and a spring bearing on the top of said pawl or dog to normally hold the front nose thereof in engagement with ratchet-teeth, substantially as described.

481,987. CATTLE-STANCHION. JEREMIAH WARSON, Friendship, N. Y. Filed Mar. 9, 1887. Serial No. 230,201. (No model.)



Claim.—1. The combination, with the fixed stanchion-bar A, the slotted top piece B, and the bottom piece C, provided with a socket *m*, of a stanchion-bar A', provided at its lower end with a shoulder and seated loosely and removably in the socket of the bottom cross-piece, whereby the stanchion-bar is prevented from falling through the socket by the shoulder and is permitted to be lifted out of the socket when released at its upper end, substantially as set forth.

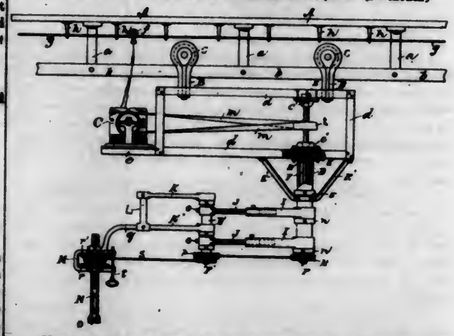
2. The combination, with the pivoted cross-piece B and stanchion-bars A A', of a catch *o*, pivoted to the cross-piece B, and a beam F, provided with a recess *p*, in which said catch engages, substantially as set forth.

3. The combination, with the cross-piece B, provided with a pivoted catch *o*, and a beam F, having a recess *p*, in which said catch engages, of the movable stanchion-bar A', whereby the catch is withdrawn from said recess upon closing the bar, substantially as set forth.

4. The combination, with the cross-piece B, provided with a pivoted catch *o* and a pivoted locking-latch, of a movable stanchion-bar A', which is locked in a vertical position between the catch *o* and latch, substantially as set forth.

5. The combination of a supporting-frame and a stanchion pivotally connected thereto and consisting of a bottom piece and a head-piece, with the fixed stanchion-upright A and the movable stanchion-upright A', the said head-piece having a longitudinal slot and the upright slots *h h* in its opposite walls, and the latch consisting of a longitudinal middle portion *f*³ and right-angularly extended end portions, one portion *f'* of which constitutes the latch-pivot and the other *f* constituting the latch-engaging member, the said latch being interchangeable, whereby its pivot and supporting member and the engaging portion may be inserted to the hole and slot, respectively, therefor from either side of the stanchion head-piece, substantially as described.

481,988. POWER-TRANSMITTING DEVICE. ELBERT D. WEYBURN, Chicago, Ill., assignor to the Weyburn Special Machine Company, same place. Filed Apr. 16, 1891. Serial No. 389,211. (No model.)



Claim.—1. An apparatus for the purpose described, comprising a suspended traveling carriage, a power-transmitting device, a hollow shaft or tube depending from said carriage, a driving-shaft passing through said tube, arms pivoted to swing horizontally loosely attached at one end to said shaft or tube, a second hollow shaft or tube to which the other ends of said arms are rigidly attached, a second driving-shaft passing therethrough and additional arms loosely attached at one end to said second hollow shaft and carrying the cutting-tool, and connections between the power-transmitting device and first driving-shaft, the latter and second driving-shaft, and between the second driving-shaft and the cutting-tool, substantially as described.

2. An apparatus for the purpose described, comprising a suspended traveling carriage, a power-transmitting device, a hollow shaft or tube depending from said carriage, arms I I, having sockets in one end, loosely embracing said shaft or tube, arms J J, fitting within said sockets, a second hollow shaft or tube to which said arms J J are rigidly attached, arms K K', loosely journaled on said second shaft, a cutting-tool carried by said arms K K', and suitable driving connections between the power-transmitting device and the cutting-tool, substantially as described.

3. In an apparatus for the transmission of power, a suspended traveling carriage, an electric motor carried thereby, a hollow shaft or tube depending therefrom, arms I I, loosely journaled at one end on said shaft or tube, arms J J, adjustably secured at one end to the arms I I, a second hollow shaft or tube D', to which the opposite ends of said arms J J are rigidly attached, and arms K K', loosely journaled on said shaft D', the arm K' having a downwardly-curved extension upon which the cutting-tool is supported, substantially as described.

4. In an apparatus for the transmission of power, a suspended traveling carriage, an electric motor carried thereby, a hollow shaft or tube D, depending therefrom, a second hollow shaft or tube D', arms I I J J, adjustably connected together, the former being loosely journaled on the shaft D and the latter rigidly attached to said shaft D', arms K K', loosely journaled on said shaft D', the arms K' having a downwardly-curved extension, a bracket upon the lower end of said extension, and an adjustable shaft for operating the cutting-tool, journaled in said bracket, substantially as described.

5. In an apparatus for the transmission of power, a suspended traveling carriage, an electric motor carried thereby, a hollow shaft or tube D, screw-threaded upon its internal upper surface, a collar upon the upper portion of said shaft, secured to the under side of the traveling carriage, a nut having a screw-threaded extension adapted to pass down through the bottom of the traveling carriage and take into the threads in the shaft or tube D, and a series of horizontally-swinging arms supporting at the other end of the series the cutting-tool, and means for driving said tool, substantially as described.

6. In an apparatus for the purpose described, in combination with the traveling carriage and electric motor mounted therein, the hollow shaft D, secured to the under side of the traveling carriage, a driving-shaft passing upward therethrough, a collar upon the upper part of said shaft, having a tapering lower side, a hollow nut having an upwardly-extending screw-threaded part secured to the upper part of the carriage and having a cup-shaped socket for the reception of the tapering lower part of the collar, and connections between the motor and the driving-shaft and the latter and the cutting-tool, substantially as described.

7. In the described apparatus, in combination with the traveling carriage and an electric motor mounted thereon, a hollow shaft or tube D, screw-threaded internally at its upper end, a collar attached thereto and secured to the under side of the traveling carriage, a hollow nut having a downwardly-extending screw-threaded portion passing through the under part of the carriage and taking into the threads in the shaft or tube B, a driving-shaft F, passing through said shaft D, a collar upon the upper end thereof, having a tapering under side, a hollow nut secured to the upper part of the traveling carriage and having a cup-shaped socket in which the tapering collar rests, a second cup-shaped bearing formed upon the interior of the shaft D near its lower portion, and a second tapering collar secured to the shaft F and resting therein, a second shaft or tube D', a driving-shaft F', having bearings similar to those above described, arms pivoted to said hollow shafts to swing horizontally and supporting the cutting-tool, a driving connection between the motor and the shaft F, and driving connections between the shafts F and F' and between the shaft F' and the cutting-tool, substantially as described.

481,989. ELECTRIC FIRE AND BURGLAR ALARM CONNECTION. HOMER T. WILSON, Louisville, Ky. Filed June 9, 1892. Serial No. 436,169. (No model.)
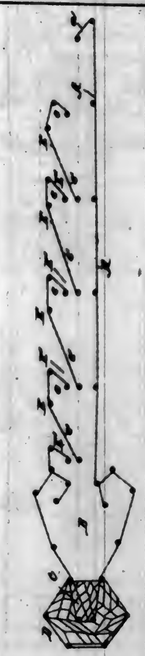


Claim.—1. The combination, with the blade C, of the blade B, bent to form a loop *b'*, which is provided with a melting composition E, as and for the purpose set forth.

2. The spring-blade B, having loop *b'* filled with a melting composition E and having the offset *c'*, in combination with the spring-blade C, having beveled face *c²*, as and for the purpose set forth.

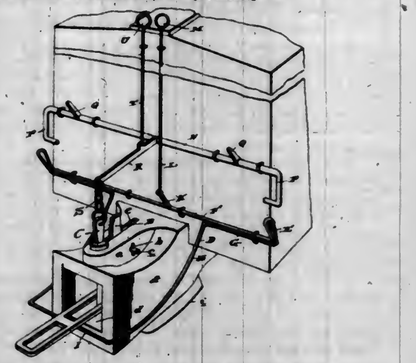
481,990. POUND-NET. GEORGE WILLIAMS and ALBERT A. CLEVELAND, Astoria, Oreg. Filed Nov. 5, 1891. Serial No. 411,011. (No model.)

Claim.—The improved net, substantially as herein described, comprising the pot or pound, the lead extended therefrom and provided at its outer end with a hook *a*, and the series of guard-sections arranged alongside the lead and having their adjacent ends slightly separated and lapped past each other and provided at their ends farthest from the pot or pound with hooks projected toward the lead, the latter hooks and the hook *a* of the lead being arranged to open toward the pot or pound, all substantially as and for the purposes set forth.

481,990.



481,991. CAR-COUPLING. JOSEPH J. WIEDA, Defiance, Ohio. Filed Mar. 19, 1892. Serial No. 425,627. (No model.)

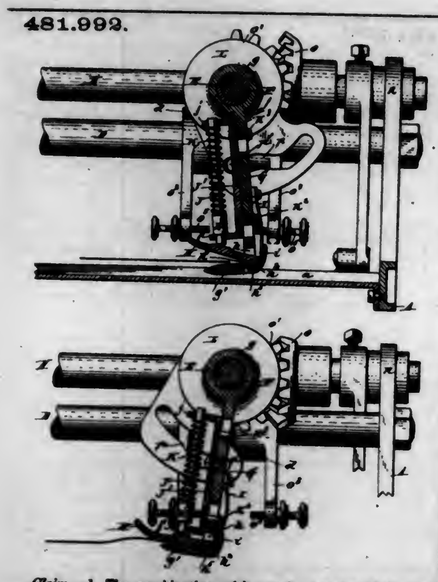


Claim.—1. The combination, with a draw-head, of the link-manipulating device formed from a single piece of material and having the straight portion adapted to be journaled on a car and having the loops at opposite ends of said straight portion forming handles and also having the forwardly and downwardly curved branches on opposite sides of the draw-head, and the transverse connecting portion adapted to assume a position in front of the draw-head and below the the flaring mouth thereof, substantially as specified.

2. The combination, with a draw-head, of the link-manipulating device constructed as described and journaled in the front wall of the car, the vertical rod connected with said device for manipulating the same from the top of a car, the shaft journaled in the front of the car and having the arms P and the stops Q and also having the arm R, the vertical rod leading from said arm, and the coupling-pin connected with the outer end of said arm, substantially as specified.

481,992. PAPER-FEEDING MACHINE. WILLIAM WOOLSLEY, Poughkeepsie, assignor to D. H. Burrell & Co., Little Falls, N. Y. Filed Aug. 20, 1891. Serial No. 403,174. (No model.)

481,992.



Claim.—1. The combination, with a rock-arm provided with a lower fixed jaw, of an upper movable jaw hinged to the rock-arm, an oscillating cam, a spring-rod and support movably mounted on the rock-arm and actuated by the cam to close the movable jaw, and means whereby the movable jaw is opened, substantially as set forth.

2. The combination, with a rock-arm provided with a fixed jaw and a movable jaw hinged to the rock-arm, of a spring attached to the rock-arm and holding the movable jaw open, an oscillating cam, and intermediate mechanism whereby the movable jaw is closed by the cam, substantially as set forth.

3. The combination, with the movable gripper-arm and the fixed jaw secured to the lower end of said arm, of a movable jaw pivoted to the gripper-arm and having a movement toward and from the fixed jaw, a nose formed on the movable jaw, a spring secured to the gripper-arm and bearing against the nose of the movable jaw, whereby the latter is yieldingly held in an open position, an oscillating cam, and intermediate mechanism whereby the movable jaw is closed by the cam, substantially as set forth.

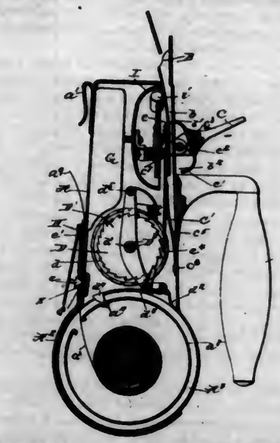
4. The combination, with the movable gripper-arm and the fixed jaw secured to the lower end of said arm, of a movable jaw pivoted to the gripper-arm, a spring whereby said movable jaw is opened, a presser rod bearing loosely upon said movable jaw, a plate movably arranged upon said gripper-arm, and a spring whereby a yielding connection is formed between the presser-rod and the supporting-plate, substantially as set forth.

5. The combination, with the movable gripper arm provided at its lower end with a fixed jaw, of a movable jaw pivoted to said arm and provided with a nose on its upper side, a spring secured to the gripper-arm and bearing against said nose, an upright rod resting loosely upon said movable jaw and provided with a collar, a movable plate arranged upon the gripper-arm and provided with an ear supporting said rod, a spring surrounding said rod and bearing with its ends against said collar and ear, and a cam whereby the movable plate is actuated, substantially as set forth.

481,998. DEVICE FOR COLLECTING, REGISTERING, AND RECORDING FARES. WILLIAM T. WOOD, Nashville, Tenn., assignor of one-half to S. G. MERRILL and JAMES T. DICKS, same place. Filed June 22, 1891. Serial No. 397,091. (No model.)

Claim.—1. A fare receptacle and register comprising a receptacle for the fares, provided with a removable portion, and a movable register arranged adjacent to the receptacle, the register being provided with printing-faces, a surface upon which the printing is to be done, and a connection between the removable portion of the receptacle and the register, whereby when the removable portion is displaced the printing-faces of the register are brought against the surface designed to receive an impression, substantially as described.

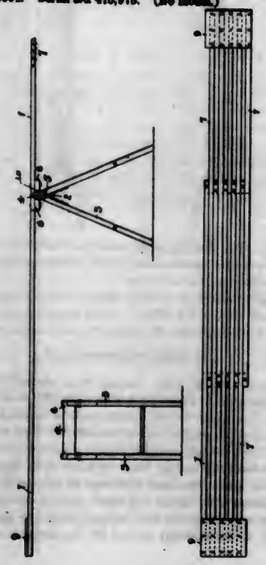
2. A combined fare receptacle and register comprising a fare-receptacle having a removable portion permitting displacement to allow of the removal of the fares, a way or passage leading to the receptacle, a lever provided with a projection or projections extending into the way or passage and serving to regulate the introduction of fares, a register connected with the lever in such manner as to be operated by the lever, the register being movable, and a connection between the removable portion of the receptacle and the register, substantially as described.



3. A combined fare receptacle and register comprising a fare-receptacle provided with a removable portion permitting the removal of the fares, a register placed adjacent to the receptacle, a connection between the removable portion and the register, a printing-surface consisting of a strip of paper or the like, and a locking device for the removable portion, between the parts of which the strip of paper is introduced, the parts being so arranged that the strip of paper or the like is injured in the act of releasing the locking device, substantially as described.

4. A combined fare receptacle and register comprising a fare-receptacle having a removable portion permitting displacement to allow of the removal of the fares, a way or passage leading to the receptacle, a lever provided with a projection or projections extending into the way or passage and serving to regulate the introduction of fares, a bell, and a projection from the lever engaging the hammer of the bell, and a register connected with the lever, substantially as described.

481,994. SEESAW. CRATTON A. WOODBURY, Rutland, Vt. Filed Dec. 23, 1891. Serial No. 415,973. (No model.)

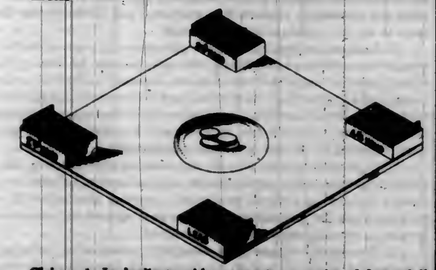


Claim.—1. The seesaw-board consisting of two members, longitudinally movable with respect to each other, composed of interlapping strips provided at each end with a transverse bar secured to the strips, said bars being on opposite sides of the same, and each of the under bars extending laterally beyond its series of strips on one side thereof to afford a support for the exterior strip of the other member, substantially as set forth.

2. The seesaw-board consisting of two members, longitudinally movable with respect to each other, composed of interlapping strips provided at each end with a transverse bar, the bars of the adjacent inner overlapped ends being on their under side and adapted to be arranged close to a fulcrum on each side thereof, in combination with a suitable support constituting such fulcrum, substantially as set forth.

3. In combination, a seesaw-board and a horse, the latter composed of two frames hinged together and having their side bars extended above or beyond the hinge and provided with notches to receive cross-bars to act as a fulcrum when the legs of the horse are spread and said cross-bars notched to retain the board laterally, substantially as set forth.

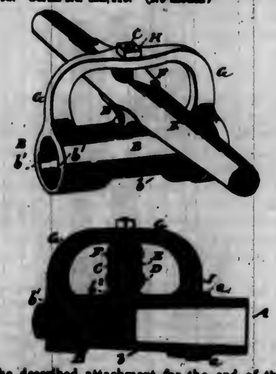
481,995. APPARATUS FOR DUPLICATE WHIST. MILTON U. WOOD, Philadelphia, Pa. Filed May 31, 1892. Serial No. 435,043. (No model.)



Claim.—1. In duplicate-whist apparatus, a series of four subdivided compartments, each subdivision of each of the four compartments similarly marked to designate the respective hands played and each compartment marked to respectively designate it, substantially as described.

2. In duplicate-whist apparatus, a series of four subdivided compartments, each compartment marked, respectively, to designate the lead-hand, second hand, third hand, and fourth hand and each subdivision marked to designate the order in which the respective hands to be contained therein were played, substantially as described.

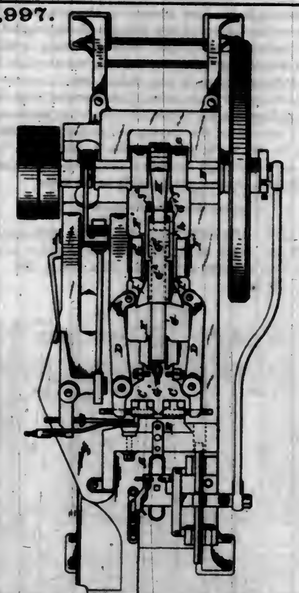
481,996. NECK-YOKE. JACOB ESSELEN, Arlington, Nebr. Filed Feb. 29, 1892. Serial No. 422,416. (No model.)



Claim.—The described attachment for the end of the pole or tongue of a vehicle, consisting of the tip B, having the excision *b*, front flange *b'*, hole *b²*, and keeper G, the washers D F, neck-yoke E, and the bolt C, the latter passing through all the other parts and provided with an end nut, substantially as shown and described.

481,997. NAIL-MACHINE. JOHN M. H. BAACKES and CHARLES ESSLER, Cleveland, Ohio. Filed Oct. 13, 1891. Serial No. 408,560. (No model.)

481,997.



Claim.—1. In a nail-machine, the combination, with a hammer-stock formed with longitudinal grooves in its sides, of cutter-operating cams removably secured with their feet in said grooves, substantially as set forth.

2. In a nail-machine, the combination of a hammer-stock formed in its sides with longitudinal grooves open at one end, cutter-operating cams formed with feet fitting into said grooves and sliding into the same at their open ends, and means for removably closing the open ends of the grooves and locking the cams in place, substantially as set forth.

3. In a nail-machine, the combination of a hammer-stock formed in its sides with longitudinal dovetailed grooves open at one end, cutter-operating cams formed with dovetailed feet fitting into said grooves and sliding into the same at their open ends, and means for removably closing the open ends of the grooves and locking the cams in place, substantially as set forth.

4. In a nail-machine, the combination of a hammer-socket formed with longitudinal dovetailed grooves in its sides, cutter-operating cams formed with dovetailed feet fitting in said grooves, and cheek-pieces upon the sides of the hammer-stock head and having their edges bearing against and locking said cams, substantially as set forth.

5. In a nail-machine, the combination of a hammer-stock formed with longitudinal dovetailed grooves in its sides terminating in wider straight-sided grooves in the hammer-stock head, cutter-operating cams formed with dovetailed feet adapted to enter said wide grooves and to fit and slide in said dovetailed grooves, and cheek-pieces secured upon the sides of the hammer-stock head and having their forward edges bearing against said cams and covering said wide grooves, substantially as set forth.

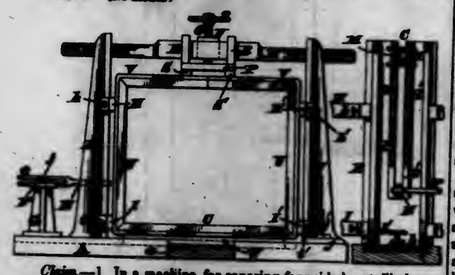
6. In a nail-machine, the combination of a hammer-stock having longitudinal dovetailed grooves in its sides terminating in wider straight-sided grooves in the sides of the hammer-stock head and having vertical grooves at the forward edges of said head, cutter-operating cams having dovetailed feet inserted through said wider grooves and secured in said dovetailed grooves, and cheek-pieces secured upon the sides of the hammer-stock head and having inwardly projecting flanges upon their forward edges fitting in the vertical grooves and locking the cams in place, substantially as set forth.

7. In a nail-machine, the combination of a pitman having a cross-head at its forward end, a hammer-stock having a bearing for said cross-head in its rear end and a rearwardly-flaring mouth from said bearing, and cheek-pieces secured upon the sides of said hammer-stock and formed with holes for the ends of the cross-head and with enlargements upon their inner faces fitting in the flaring mouth and closing the open sides of the cross-head bearing, substantially as set forth.

8. In a nail-machine, the combination of a pitman having a cross-head at its forward end, a hammer-stock having longitudinal dovetailed grooves terminating in wider straight-sided grooves and vertical grooves at the meeting ends of said grooves and formed with a

transverse bearing in its head opening at the rear end in a flaring mouth, cams having dovetailed feet fitting in the dovetailed grooves, a segmental bushing for the pitman cross-head fitting in the bearing and having a slot corresponding to the flaring mouth of the hammer-stock head, bushing-sections in the ends of the slot in the bushing, cheek-pieces secured upon the sides of the hammer-stock head and having vertical flanges in the vertical grooves of the latter and formed with holes for the ends of the bushing and sections and with enlargements fitting in the flaring mouth of the hammer-stock head, and screw-bolts inserted through the ends of the cheek-pieces and bearing against the bushing-sections, substantially as set forth.

481,998. MACHINE FOR SQUARING METALLIC BOXES, FRAMES, &c. JAMES BARR, Cincinnati, Ohio, assignor to the Victor Safe and Lock Company, same place. Filed June 4, 1892. Serial No. 435,557. (No model.)

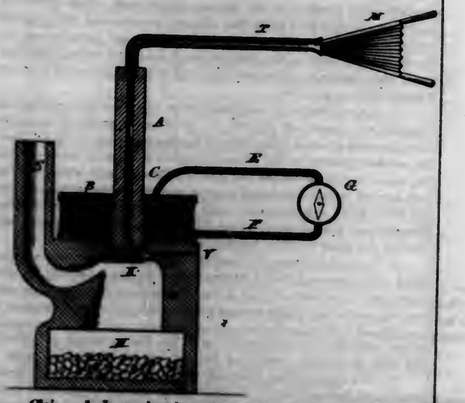


Claim.—1. In a machine for squaring four-sided metallic boxes, frames, &c., the combination of a horizontal base, a perpendicular standard secured thereto, another perpendicular standard capable of being shifted on said base, a vertically-adjustable bar carried by said standards, and a pressing attachment applied to said bar and adapted to be forced toward said base, substantially as described.

2. In a machine for squaring four-sided metallic boxes, frames, &c., the combination of a horizontal base, a perpendicular standard secured thereto, another perpendicular standard capable of being shifted on said base, a vertically-adjustable bar secured in longitudinal slots of said standards, and a pressing attachment applied to said bar and adapted to be forced toward said base, substantially as described.

3. In a machine for squaring four-sided metallic boxes, frames, &c., the combination of the grooved base A *a*, the shiftable standard B, having a vertical slot C, perforated ribs D *d* D' *d'*, and bearers H I, the fixed standard J, having a vertical slot K, perforated ribs L *l* L' *l'*, and bearers H' I', and the vertically-adjustable bar M, secured within said slots C K and provided with a nut N, screw O, plate P, and a pair of bars S S', for the purpose described.

481,999. ELECTRIC FURNACE GENERATOR. ELIHU THOMSON, Washington, D. C. Original application filed Aug. 31, 1887, Serial No. 248,397. Divided and this application filed May 18, 1891. Serial No. 393,171. (No model.)



Claim.—1. In an electric generator, the combination of an electro-magnet having an axial bore and an armature in front of the same with a heater acting upon the armature and a cooling apparatus for intermittently passing a cooling fluid through the bore of the magnet against the armature, substantially as described.

2. In an electric generator, the combination of an electro-magnet and an armature supported by non-magnetic material with a heater for heating the armature and a cooler for intermittently cooling the same, substantially as described.

3. In an electric generator, the combination of an electro-magnet having an axial bore and an armature facing the same with a heater acting upon one side of the armature, a source of cooling fluid discharging intermittently through the bore of the magnet against the other side of the armature, and a vent opening or openings for the escape of the cooling fluid, substantially as described.

4. In an electric generator, the combination of a series of electro-magnets and a common extended armature for the same with a heater acting upon one side of the armature and a cooling agent acting intermittently and in rotation upon the individual portions of the armature which are opposed to the individual magnets, substantially as described.

5. In an electric generator, the combination of a series of electro-magnets and a common extended armature facing the same with a heater acting upon the whole surface of one side of the armature, a cooling apparatus acting intermittently and in rotation upon the individual sections on the other side of the armature which are exposed to the individual magnets, and a commutator and collector for straightening the alternating currents thus generated and for conveying the same to the line, substantially as described.

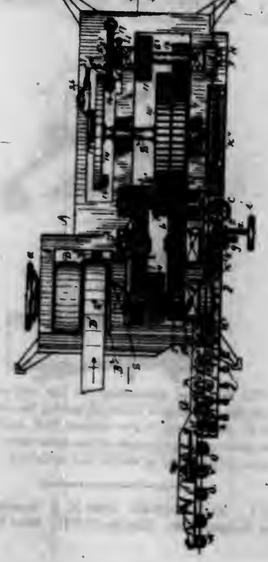
6. In an electric generator, the combination of a series of electro-magnets and a common armature for the same, a heater for heating the whole surface of one side of the armature, a reaction-wheel driven by a cooling fluid, projecting intermittently and in rotation jets of the fluid against the individual sections on the other side of the armature which are exposed to the individual magnets, and a commutator and collector actuated by the reaction-wheel, substantially as described.

7. In an electric generator, the combination of a series of individual magnetic systems exposed to the action of heat and electric conductors included in a circuit or circuits traversing the fields with a reaction-wheel for projecting a cooling agent against the magnetic systems in rotation, substantially as described.

8. The method of generating electricity in a conductor traversing a magnetic field, which consists in subjecting the elements of the field to the continuous action of heat and to the intermittent action of a cooling agent, substantially as described.

9. The method of generating electricity in a conductor traversing a magnetic field, which consists in subjecting the elements of the field to the continuous action of heat and at the same time intermittently cooling the same, substantially as described.

482,000. WIRE STRAIGHTENING AND CUTTING MACHINE. CURTIS B. BRAINARD, Joliet, Ill. Filed May 23, 1892. Serial No. 433,940. (No model.)



Claim.—1. In a machine for cutting off wire in lengths, the combination of drive shaft S^2, having gear-wheels 1, 5, and S^{10}, fast pulley P^2, loose pulley B, and feed-roll F' mounted thereon, shaft S, having gear-wheel 4 and feed-roll F mounted thereon, straightening-rolls n O V W, guide-box K^3 for guiding the wire to the feed-rolls, an adjustable guide K^3 at the opposite side of said rolls, guide-box K^4 for conducting the wire to the wire-cutters, shaft S', having gear-wheels 3 7 8 mounted thereon, shaft S^2, having gear-wheel 10, wiper-wheel 14, and idle-gear 9 mounted thereon, shaft S^3, having gear-wheel 11 and disk H mounted thereon, hollow shaft S^5, having gear-wheels 12 and 23 and disk H' mounted thereon, lathe-point shaft S^4, arranged in said hollow shaft and having the flanges S^7, lever 17, having pin S^8 for engaging said flanges, wire-cutter J, fixed in disk H, and reciprocating wire-cutter J', having the pin J^3 and spring W' arranged in disk H', all arranged to operate substantially as and for the purpose set forth.

2. In a machine for cutting off wire in lengths, the combination, with the draft-shaft S^2, bearing gear-wheel 1, idle-gear 2, shaft S', bearing gears 3 and 7, shaft S^3, bearing gear 10, and wiper-wheel 14, having cam 15, lever 17, having pin S^8, spring S^{10}, lathe-center shaft S^4, having flanges S^7, hollow shaft S^5, having gears 12 and 23 mounted thereon, and disk H', reciprocating wire-cutter J', having the pin J^3 and spring W', shaft S^3, having gear 11 and disk H mounted thereon, wire-cutter J, fixed in said disk and arranged to register with cutter J', the means for driving shafts S^2 S^3 and said disks and cutters, and the means for feeding the wire into the machine, substantially as and for the purpose set forth.

3. In a machine for cutting off wire in lengths, the combination of the feed-rolls and means for straightening and conducting the wire into and through the machine and a pair of wire-cutters arranged in revolving disk holders in such manner that their cutting-edges may register as they revolve in the direction the wire travels between them, one of said cutters being fixed in its holder and the other adapted to be advanced or reciprocated forward to register with the fixed cutter and cut off the wire between them and then recede to be out of the way of the next feed of wire forward, substantially as and for the purpose set forth.

4. In a machine for cutting off wire in lengths, the combination, with wiper-wheel 14 and the means for driving the same, of the tally or registering mechanism comprising the standard 30, the notched wheels 32 and 34, having, respectively, the pins 31 and 40, the bell 36 and its knocker 27, adapted to be engaged by pin 31, lever 37, pawl 39, springs 33 and 35, and pitman 18, all arranged to operate substantially as and for the purpose set forth.

5. In a machine for cutting off wire in lengths, the combination of bed L', arm L, pivoted thereto and having the guide-box K^2 on its outer end at the rear of the feed-rolls, hand-wheel C, and its screw-shaft having the collar s^2 for vertically adjusting the said guide-box, substantially as and for the purpose set forth.

6. In a machine for cutting off wire in lengths, the combination of bed L', guide-box K^4, screw-shaft *s*, having hand-wheel *i* and flange *i'*, and die *g*, having a notch for receiving said flange and for reciprocating said die, substantially as and for the purpose set forth.

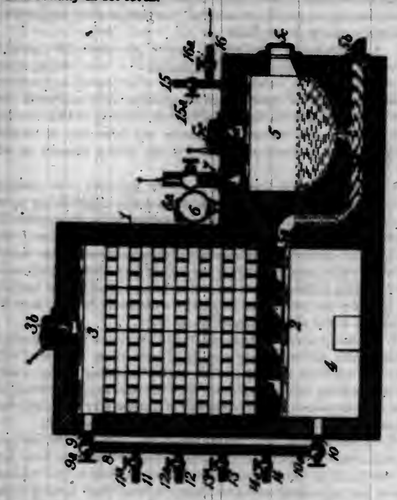
7. In a machine for cutting off wire in lengths, the combination of bed L', screw-shaft *s*, having hand-wheel *i* and flange *i'*, and die *g*, having a notch for receiving said flange and for reciprocating said die, substantially as and for the purpose set forth.

482,001. PROCESS OF AND APPARATUS FOR PURIFYING, REFINING, AND CARBURETING METALS. BENJAMIN BRAGSLAY, St. Louis, Mo. Filed Mar. 31, 1890. Serial No. 346,294. (No model.)

Claim.—1. The improvement in the method of purifying and refining metals, which consists in introducing molten metal into an inclosed chamber, highly heating a mass of refractory material in a separate chamber, passing an air-blast first through the hot refractory material and thereafter through the molten metal, and shutting off the air-blast and forcing a blast of hydrogen first through the hot refractory material and thereafter through the molten metal, substantially as set forth.

2. The improvement in the method of purifying and refining metals, which consists in introducing molten metal into an inclosed chamber, highly heating a mass of refractory material in a separate chamber, passing an air-blast first through the hot refractory material and thereafter through the molten metal, shutting off the air-blast and forcing a blast of hydrogen first through the hot refractory material and thereafter through the molten metal, and shutting off the hydrogen-blast and forcing a blast of nitrogen gas and a hydrocarbon first through the hot refractory material and thereafter through the molten metal, substantially as set forth.

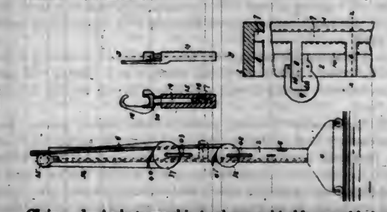
3. The improvement in the method of purifying and refining metals, which consists in introducing molten metal into an inclosed chamber, highly heating a mass of refractory material in a separate chamber, passing an oxidizing-blast—such as steam or carbonic acid, or both—first through the hot refractory material and thereafter through the molten metal, shutting off the oxidizing-blast and forcing a non-oxidizing blast—such as hydrogen or hydrocarbon gas—first through the hot refractory material and thereafter through the molten metal, and shutting off the non-oxidizing blast and forcing a solid material—such as charcoal, coke, spiegel, manganese, aluminium, &c.—into the body of molten metal by means of a blast of nitrogen gas previously heated by passing it through the hot refractory material, substantially as set forth.



4. In an apparatus for purifying and refining metals, the combination, substantially as set forth, of a combustion-chamber, a valve controlling an outlet therefrom, a regenerator-chamber communicating therewith and containing a body of loose refractory material, a metal-chamber communicating by a passage with the combustion-chamber and having a charging-opening and a lower tapping-gate, air and gas and hydrocarbon pipes leading into the upper portion of the metal-chamber, air, gas, and steam, and oil pipes controlled by valves and leading into a connecting-pipe which communicates at its ends with the regenerator-chamber and the combustion-chamber, respectively, and valves controlling communication between said connecting-pipe and said chambers.

5. In an apparatus for purifying and refining metals, the combination, substantially as set forth, of a combustion-chamber, a valve controlling an outlet therefrom, a regenerator-chamber communicating therewith and containing a body of loose refractory material, a metal-chamber communicating by a passage with the combustion-chamber, a charging-hopper for solid material, a valve-controlled pipe leading therefrom to the passage leading to the metal-chamber, an upper charging-opening and a lower tapping-gate on the metal-chamber, air and gas and hydrocarbon pipes leading into the upper portion of the metal-chamber, air, gas, and steam and oil pipes controlled by valves and leading into a connecting-pipe which communicates at its ends with the regenerator-chamber and the combustion-chamber, respectively, and valves controlling communication between said pipe and said chambers.

482,002. PHOTOGRAPHIC-BACKGROUND HOLDER. ALVIN C. CASWELL, Fitchburg, Mass., assignor to the Nashua Iron and Brass Foundry Company, Nashua, N. H. Filed Nov. 14, 1890. Serial No. 371,395. (No model.)



Claim.—1. A photographic-background holder provided with upright standards, a roller bearing or support sliding on each of them, a series of rollers or drums supported at intervals on said standards, and connections between the stationary roller-supports and the sliding sup-

ports, whereby any roller of the series may be readily transferred from its stationary supports to the sliding supports, as set forth.

2. A photographic-background holder provided with upright standards, a block or bearing for the journal of a roller sliding upon each of said standards, one of which blocks is provided with means for locking the roller against turning while supported in it, a series of rollers or drums supported at intervals on said standards, and connections between the stationary and sliding roller-supports, whereby any roller of the series may be readily transferred from its stationary supports to the sliding supports as set forth.

3. A photographic-background holder provided with upright standards, a block or bearing for the journal of a roller, sliding upon each of said standards, a series of stationary roller-journal supports on said standards, those of one standard being constructed to prevent the rollers from turning while supported therein, hoisting devices for the sliding supports, and connections whereby any roller may be readily transferred from its stationary supports to the sliding supports, as set forth.

4. A photographic-background holder provided with upright standards, a block or bearing for the journals of a roller, sliding upon each of said standards, the block of one standard being constructed to prevent the roller from turning while supported therein, a series of stationary roller-journal supports on said standards, those of one standard being constructed to prevent the rollers from turning while supported therein, hoisting devices for the sliding supports, and connections whereby any roller may be readily transferred from its stationary support to the sliding support, as set forth.

5. A photographic-background holder having a pair of upright standards with vertical grooves on their inner faces, a series of roll-supporting brackets secured to said standards, sliding hooks in said vertical standards, and cross-grooves from the roll-supporting brackets to the vertical groove, whereby any roll of a series may be transferred from its supporting-brackets to the sliding hooks, as set forth.

6. In combination, the upright standards provided with vertical grooves, a series of stationary brackets on the standards for receiving and holding a roll from turning, and sliding supports in the vertical grooves for supporting and preventing the roll from turning while being elevated or lowered, one of the standards having a cross-groove leading from each bracket to the vertical groove, whereby any roll of the series may be transferred from its bracket to the sliding supports, as set forth.

7. In combination, a frame having two upright standards, stationary roller-supporting brackets secured to said standards, journal-supports sliding vertically on said standards, connections between the brackets and the sliding supports, and a stub-shaft mounted at the top of the standards to receive and hold a roller when elevated, as set forth.

8. In combination, the standard 1, having a vertical groove and a series of brackets 12, the standard 2, having vertical and cross-grooves and a series of brackets 9, the sliding blocks 15, having hooks 16, the cords 27 and 28, attached to said hooks and passing over suitable pulleys, and the winding-drum to receive said cords, as set forth.

9. In combination, the standards having vertical grooves, and a roller having a round journal at one end and a journal with round and square portions at the other end, the journal-supporting blocks 15, having hooks to receive the round journals and a spring-pressed fork to embrace the square journal, as and for the purpose set forth.

10. In combination, the standards having vertical grooves, a roller having a round journal at one end and a journal with round and square portions at the other end, and stationary brackets on the standards, one of which has an angular groove to receive and hold the square journal, the journal-supporting blocks 15, having hooks to receive the round journals and a spring-pressed fork to embrace the square journal, as and for the purpose set forth.

11. In combination, the standards having vertical grooves, a roller having a round journal at one end and a journal with round and square portions at the other end, stationary brackets on the standards, one of which has an angular groove to receive and hold the square journal, the journal-supporting blocks 15, having hooks to receive the round journals and a spring-pressed fork to embrace the square journal, and a stop to release the square journal from the fork when it is elevated, as set forth.

12. The sliding journal support herein described, consisting of the block 15, formed with C-hook 16 and central bore 17, spring 18 in said bore, and bar 19, resting on said spring and having angular fork 20, as set forth.

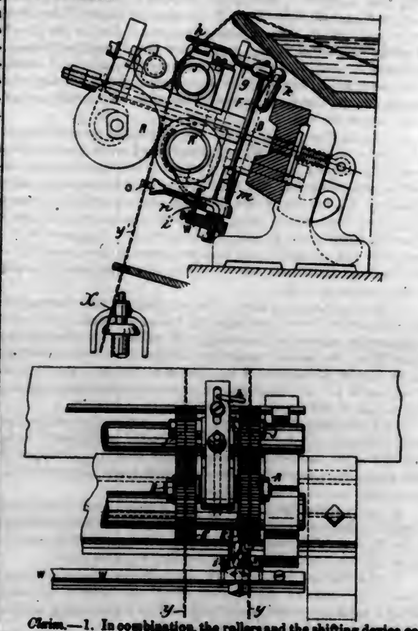
13. The standard 2, having partially-closed vertical groove 7 and cross-grooves 8, in combination with the brackets 9, having open slots whose horizontal portions 10 register with cross-grooves 8 and whose vertical portions are angular in shape, and a roller having a square journal fitting and adapted to slide in said slots and grooves, as set forth.

14. In combination, the standards with vertical grooves, the rollers supported therein, the cords for elevating them, the pulley 29 on standard 1, the pulleys 30 and 31 on standard 2, arranged at an inclination to each other, and the winding-drum 32, as set forth.

15. In combination, the standard 2, having vertical slot 7, the casting 33 at the upper end of the standard, having a slot 30* registering with slot 7 in the standard, and the stub shaft 34, journaled in said casting and having notch 30, which may be caused when desired to register with slots 7 and 30*, as and for the purpose set forth.

482,008. SPINNING-MACHINE. LOUIS D. CROM, EDOUARD ROBERMAIN-MERRAERE, and JEAN LAPIN, Roulers, Belgium. Filed May 31, 1892. Serial No. 435,111. (No model.) Patented in Belgium Mar. 11, 1891, No. 94,103; in France May 14, 1891, No. 213,480, and in Russia May 26, 1891, No. 6,760.

Brief.—A vertical rock-shaft, placed under tension so as to rotate in one direction, has two arms, one below the drawing-rolls which is in contact with the thread, and the other above the rollers and removed from the thread. When the thread breaks, the rock-shaft, being no longer restrained by the lower arm contacting with the thread, rotates, whereupon the upper arm carries the thread out of the bit of the rollers.



Claim.—1. In combination, the rollers and the shifting device consisting of the upper part, to engage the thread, the lower part, the positive connection between the same, joined at its ends to both said parts, being under tension, and the lower one arranged to engage the thread and hold the shifter against the said tension until the thread breaks, substantially as described.

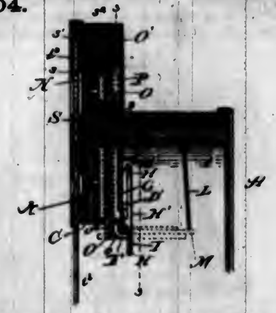
2. In combination, the rollers, the upper and lower arms, the rock-spindle extending between and connecting the said arms, and the means for placing the arms under tension, the said lower arm being arranged to engage the thread and hold the parts under restraint until the thread breaks, whereupon the rock-shaft will turn under the tension and cause the upper arm to withdraw the thread from the rollers, substantially as described.

3. In combination, the rollers, the upper and lower arms, and the positive connections between them joined to both, said arms being pivotally supported and extending in different radial directions, whereby when the lower arm is engaging the thread to hold the parts against movement the upper arm will be to one side of the said thread, substantially as described.

482,004. REGISTERING MONEY-BOX. JOSEPH C. F. DEE, Chicago, Ill. Filed June 27, 1891. Serial No. 397,704. (No model.)

Claim.—1. In a self-registering money-box, an inclined horizontal coinway, stops at intervals above and varying in their distance from the coinway, and a registering device and an actuator therefor at each stop, comprising two parts respectively on opposite lateral sides of the way, connected by an introduced coin, to operate substantially as described.

482,004.



2. In a self-registering money-box, an approximately-horizontal coinway, a stop for the coin in its movement on the coinway, a spring-sustained shelf on one side and a pivoted finger on the other side of the coinway, a handle for turning the finger on its pivot, and a register-operating device in the line of movement of the shelf, said shelf and finger being adapted normally to pass each other in the movement and connected to move together by an introduced coin, substantially as described.

3. In a self-registering money-box, a coinway arranged at the upper part of the box, a tilting shelf on one side of the coinway and a tilting finger on the other side of the coinway and adapted to pass the shelf without engaging the same and to engage the same on the introduction of a coin, and a tripping device supported in the box and arranged to engage the coin carried by the tilting shelf and cause the coin to fall into the receptacle below, substantially as described.

4. In a self-registering money-box, in combination, an inclined coinway, stops for the introduced coin arranged above and at varying distances from the coinway, a rod at one side of the coinway, spring-controlled fingers supported on said rod, spring-controlled slotted shelves on the other side of the coinway opposite to the fingers, a registering device for each stop having its operating mechanism in the line of movement of the shelf, a trip located in the box and adapted to engage the coin and cause it to fall from the shelf when the latter returns after it is tilted, and a handle to turn the rod carrying the fingers, substantially as described.

5. A self-registering money-box having dials in its face, pointers on said dials, mechanism to revolve said pointers a definite space at each motion, a coinway in the rear of the registering mechanism, fingers at one side of the coinway and shelves on the other side, both made pivotal and adapted to operate together on the introduction of a coin, an extension of the shelves to engage the register-operating mechanism, a coin-receptacle below, and a trip arranged to engage the coin and cause it to be removed from the shelf as the shelf returns, substantially as described.

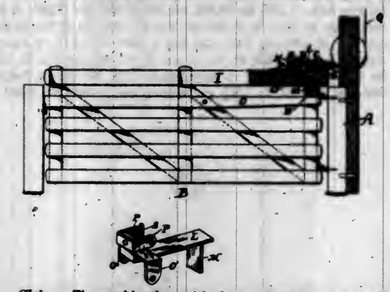
6. In a self-registering money-box, in combination, an inclined coinway, a coin-receptacle below the same, stops above the coinway and arranged at varying distances therefrom, a rod below the coinway extending out through the wall of the box and provided with a handle, fingers secured to the rod, and a spring upon the rod normally retaining the same in position to cause the fingers to point upward, a shelf pivoted on the shaft at each finger and having a tail piece or extension, the finger and shelf being on opposite sides of the coinway, a slot in the shelf to permit the finger to pass through the same, and a registering device engaged to be operated by the tail-piece of the shelf in the movement, substantially as described.

7. In a self-registering money-box, in combination, an inclined coinway, stops above the coinway, arranged at varying distances therefrom, a spring-retained upsetting shelf having an extension and arranged on one side of the coinway and a spring-retained finger on the opposite side of the coinway, slots in the coinway and the shelves to permit the passage of the finger, a trip device supported in a box to extend downward to a point adjacent to the end of the shelf when upset, a registering mechanism, and a connection between the registering mechanism and the shelf, operative when the latter is upset, substantially as described.

8. In a self-registering money-box, in combination, a coinway D', rod F, fingers G, pivotally supported on the spring retaining-rod F normally in a vertical position, shelves H, extensions I on the shelves, register-dials, serrated disks, and spring-controlled rods carrying pawls to engage the serrations, said rods being arranged to be engaged and elevated by the extensions I when the shelves are down, substantially as described.

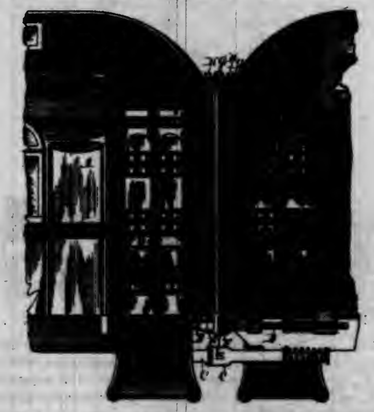
9. In a self-registering money-box, the combination of the following elements: register dials and fingers s, radially-serrated disks N, carrying the fingers, rods O, with their surrounding retaining-springs P and having a vertical movement against the resistance of the springs, pawls R, secured to the rods and engaging the serrations of the disks N, a slotted coinway, stops arranged at intervals above the coinway at varying distances therefrom, rod F, arranged below and parallel with the coinway, a handle for turning said shaft against the resistance of the spring thereon, fingers and slotted shelves mounted upon the shaft at opposite sides of the coinway, said shelves having an independent movement controlled by the springs, a trip L, spring-controlled to extend normally adjacent to the outer end of the shelf when down, and a coin-receptacle below, the parts being arranged to operate substantially as described.

482,005. GATE. UDO DREESMAN, Pekin, and JOSEPH WAGNER, Tremont, Ill. Filed Jan. 20, 1892. Serial No. 419,069. (No model.)



Claim.—The combination, with the standard A, of a beam D, pivoted in a recess near its upper end, pulleys C C, secured in pulley-blocks upon opposite faces of the standard A, the gate B, hinged to the standard A and provided with a recess K in its upper rail, a lever L, located in said recess, provided with the clip O', the pin S, an elbow M, passed through the rail I and bearing against the latch O, and with the perforated arms P and the connecting-cords Q Q, substantially as specified.

482,006. CAR-VESTIBULE. ARTHUR FORDHAM, Chicago, assignor of one-half to Robert H. Wiles, Prospect, and Harry Bitner, Chicago, Ill. Filed Dec. 21, 1891. Serial No. 415,606. (No model.)



Claim.—1. The combination, with a car-platform and a spring-actuated buffer-plate at the end thereof, of a vestibule-frame hinged to the buffer-plate and a spring transmitting its force in one direction to the car-platform and in the opposite direction to the vestibule-frame and tending to throw the upper end of the frame outward or away from the platform, substantially as shown and described.

2. The combination, with a car-platform and a spring-actuated buffer-plate at the end thereof, of a vestibule-frame connected with the buffer-plate by a spring-hinge tending to throw the upper end of the frame outward from the car, substantially as shown and described.

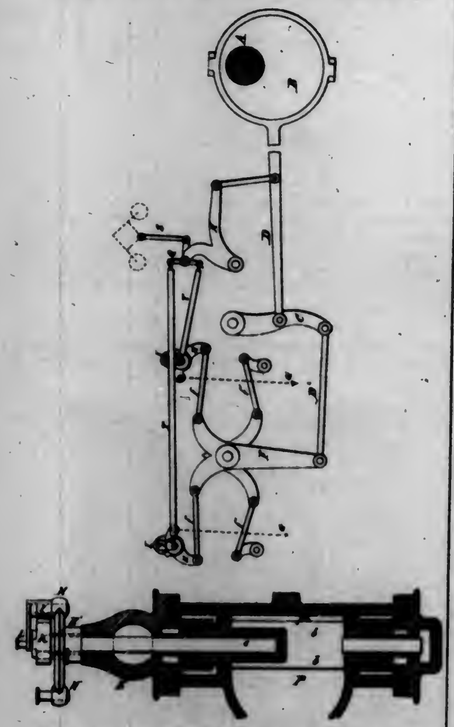
3. The combination, with a car-platform and a spring-actuated buffer-plate at the end thereof, of a frame G, hinged to the buffer-plate, and springs S S, encircling the hinge-pintles and pressing the upper end of the frame outward, substantially as shown and described.

4. The combination, with a car-platform and a buffer-plate at the

end thereof, of a vestibule-frame hinged to the buffer-plate, a spring interposed between the platform and the vestibule-frame and tending to throw the upper end of the frame outward, and a stop limiting the outward movement of the upper end of the frame, substantially as shown and described.

5. The combination, with the car platform, the buffer-plate, and the vestibule-frame connected with the buffer-plate by spring-hinges, of chains *g*, connecting the upper end of the frame with the superstructure of the car and limiting the outward movement of the upper end of the frame, substantially as shown and described.

482,007. VALVE-GEAR. JOHANN B. PREHARY, Munich, Germany. Filed Mar. 3, 1891. Serial No. 383,668. (No model.) Patented in France July 20, 1883, No. 156,067, and July 20, 1887, No. 184,908; in Belgium Sept. 17, 1884, No. 66,393, and Nov. 3, 1887, No. 79,386; in Germany Sept. 20, 1884, No. 31,542, and May 16, 1888, No. 47,261; in England Apr. 27, 1887, No. 6,151, and May 3, 1888, No. 7,277; in Austria-Hungary Aug. 22, 1887, No. 13,114 and No. 35,302, and Feb. 28, 1888, No. 36,622 and No. 3,861; in Italy Aug. 20, 1888, No. 449; in Switzerland Sept. 20, 1889, No. 1,606, and in Spain Aug. 7, 1890, No. 10,901.



Claim.—1. The combination of disk F and rods *f* with lever H, connected thereto, a lever L, pivoted to lever H and having catch I, a crank K, keyed to the valve-spindle and adapted to be engaged by catch I, rod T, connected to lever L, and a governor-controlling rod T, substantially as specified.

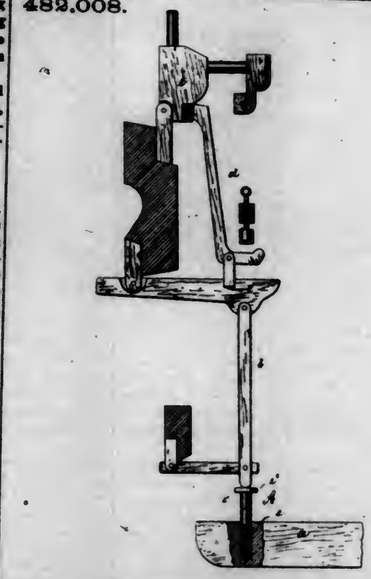
2. The combination of lever N with lever Q, operated by the governor, rods T T, levers L L, and with the lever H, catch I, and crank K, substantially as specified.

482,008. PILOT FOR PIANO-ACTIONS. JOSEPH HERRBURGER, Paris, France. Filed June 30, 1892. Serial No. 438,296. (No model.)

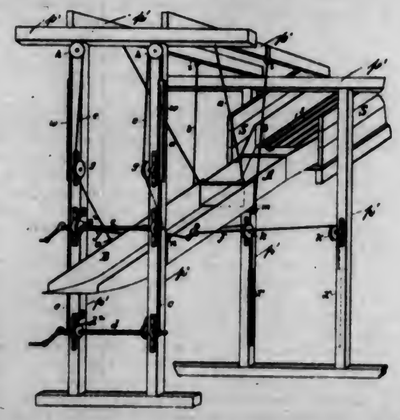
Claim.—1. A pilot for piano-actions, consisting of a shank having a threaded lower section, a squared upper section, a contracted neck, and an annular head that receives such neck, substantially as specified.

2. The combination of a key and abstract in a piano-action with an interposed pilot consisting of a shank having a threaded lower section, a squared upper section, a contracted neck, and an annular head that receives such neck, substantially as specified.

482,008.



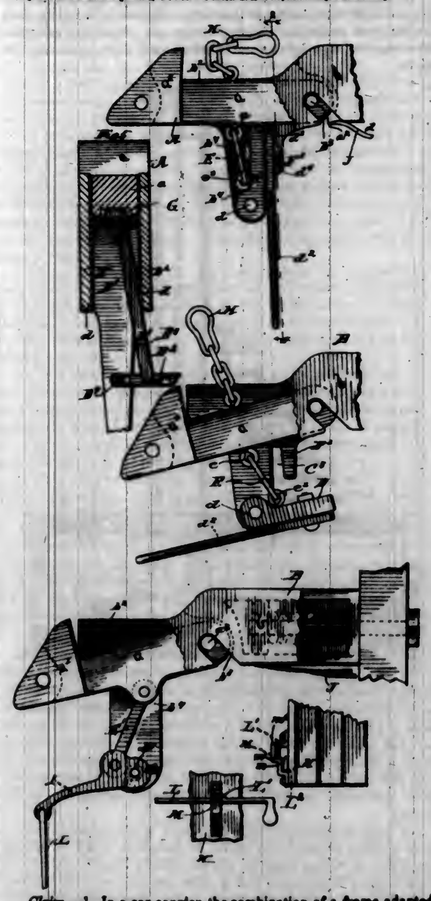
482,009. COAL-CHUTE. RAPHAEL M. ROSSA, Denver, Colo. Filed Dec. 4, 1890. Serial No. 373,610. (No model.)



Claim.—1. In a coal-tipple, the combination of the following elements, namely: a fixed inclined receiving-chute or guideway, a movable extension or delivery-chute adjustable longitudinally in constant telescopic relations therewith, a windlass and connection for suspending the forward or delivery end of said movable chute at any desired height, while permitting its longitudinal movement, and a second windlass and counterweighted connections for drawing said delivery-chute forward to loading position and withdrawing the same when released to receded position, substantially as and for the purpose specified.

2. In a coal-tipple, in combination with a fixed inclined receiving-screen or guideway having an extension, a delivery-chute movable in longitudinal telescopic relations with said extension, rods pivotally suspending said chute at the rear, cords suspending said chute at its forward portion, a windlass upon which said cords are wound, a second windlass placed upon the tipple framing forward of the chute, cords extending thence rearwardly to and connected with the chute and cords extending rearwardly of said connection over idler-pulleys upon the tipple-framing, and overbalancing counter-weights hung upon the free ends of said last-named cords, substantially as set forth.

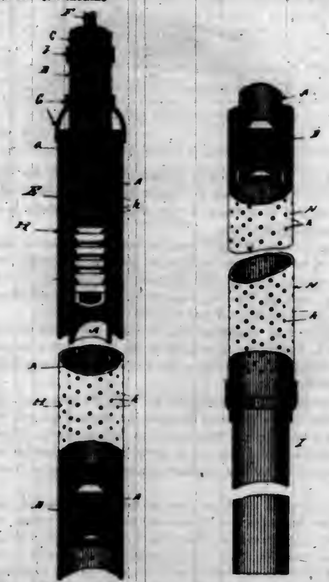
482,010. CAR-COUPLING. ROBERT S. KIRKPATRICK, Des Moines, Iowa, assignor of two-thirds to A. P. Chamberlin and R. Chaverness, same place. Filed Sept. 24, 1891. Serial No. 406,695. (No model.)



Claim.—1. In a car-coupler, the combination of a frame adapted to be secured in a car, a hook pivoted by the stem thereof in the frame, so that the hook extends beyond the edge of the frame on the hook side thereof and can be moved laterally therein and thereby retracted from such extension, a lever pivoted in the frame to one side of and between the pivotal point of such hook-stem and the hook end thereof, and a link connecting the stem of the hook with the lever, whereby when the hook is in position in the frame to automatically couple with a suitable coupler on an adjacent car it is locked in such position by the lever and when the lever is turned so that the hook is unlocked such hook is moved laterally to one side and into a position not adapted to engage with the coupler on an adjacent car, substantially as described.

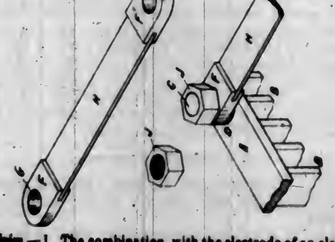
2. In a car-coupler, the combination of a frame adapted to be secured in a car, a spring abutting against the car and against the frame, a hook pivoted by the stem thereof in the edge of the frame on the hook side thereof, so that the hook extends beyond the frame and can be moved laterally therein and thereby retracted from such extension, a lever pivoted in the frame to one side of and between the pivotal point of such hook stem and the hook end thereof and a link connecting the stem of the hook with the lever, and an arm movably secured on the lever, adapted to lock such lever in a determined position, whereby when the hook is in position in the frame to automatically couple with a suitable coupler on an adjacent car it is locked in such position and the lever so locking it in position can be locked in a determined position by the movable arm thereon and when the lever is turned so that the hook is unlocked such hook is moved laterally one side and into a position not adapted to engage with the coupler on an adjacent car, substantially as described.

482,011. OIL-WELL PUMPING MECHANISM. OLIVER A. KING, Bradford, Pa. Filed May 31, 1891. Renewed Aug. 2, 1892. Serial No. 441,970. (No model.)



Claim.—The combination, in an oil-well pumping mechanism, of a working barrel A and tube-sections B C, secured thereto and extending upward out of the well, with a perforated tube H, surrounding the working barrel A, and a collar G on the upper end of the perforated pipe H, surrounding the tube-section between thimbles or collars *a* and *b* thereon, substantially as and for the purpose set forth.

482,012. BATTERY-CONNECTOR. EDWARD R. KNOWLES, Brooklyn, N. Y. Filed Oct. 15, 1891. Serial No. 408,691. (No model.)



Claim.—1. The combination, with the electrode of an electric battery, of a screw-threaded projection C, provided with a shoulder D, and a conical-shaped projection E, substantially as described.

2. The combination, with the electrode of an electric battery, of a screw-threaded projection C, provided with a shoulder D, and conical-shaped projection E, all composed of a hard non-oxidizable metal or alloy, substantially as described.

3. A connecting-piece for electric batteries, consisting of a strip or bar composed of a soft non-oxidizable metal, provided at each end with a head or lug composed of a hard non-oxidizable metal or alloy, substantially as described.

4. A connector for electric batteries consisting of a screw-threaded projection C, provided with a shoulder D, in combination with a connecting-piece H, provided with lugs F and cut J, substantially as described.

5. A connector for electric batteries, consisting of a screw-threaded projection C, provided with a shoulder D, composed of a hard elastic non-oxidizable metal or alloy, in combination with a connecting-piece H, composed of a soft flexible non-oxidizable metal or alloy, said strip being provided with lugs F, composed of a hard elastic non-oxidizable metal or alloy, substantially as described.

482,018. VENTILATED VAULT-COVER. WILSON LAIN, Chartiers Heights, Md. Filed Nov. 6, 1891. Serial No. 411,074. (No model.)



Claim.—1. The covered ventilated trap or basin for streets or other exposed points, having the upper edge of the lower wall of its chamber adapted to discharge at the surface, substantially as and for the purpose set forth.

2. The covered ventilated trap or basin for streets or other exposed points, having within its chamber the manhole proper, with the upper or top edge thereof standing above the upper edge of the basin or trap and removed from the imperforate portion of the cover, substantially as and for the purpose set forth.

3. The covered ventilated trap or basin for streets or other exposed points, having the upper edge of the lower wall of its chamber provided with overflow-outlets at the surface, substantially as and for the purpose specified.

4. The covered ventilated trap or basin for streets or other exposed points, having within its chamber the manhole proper, with the upper or top edge thereof standing above the upper edge of the basin or trap, and the upper edge of the lower wall of its chamber adapted to discharge at its surface, substantially as and for the purpose specified.

5. The covered ventilated trap or basin for streets or other exposed points, having within its chamber the manhole proper, with the upper or tip edge thereof standing above the higher edge of the basin or trap and removed from the imperforate portion of the cover, the upper edge of the lower wall of said chamber having discharge-outlets at the surface, substantially as set forth.

6. The covered ventilated trap or basin for streets or other exposed points, having the top or upper edge of the walls of its chamber higher at one side than at the other to adapt said edge to the general inclination of the surrounding surface and having within its chamber the manhole proper, with the top edge thereof standing above the upper edge of the higher wall of said chamber and removed from the imperforate portion of the cover, substantially as set forth.

7. The combination, with the trap or basin, having its top surface in the same general inclination as the surrounding surface, of the ventilated cover having in its under side channels adapted to register with cavities in the upper edge of the lower side of said trap or basin, substantially as specified.

8. The covered ventilated trap or basin for streets or other exposed points, having the top or upper edge of the walls of its chamber higher at one side than at the other and having within its said chamber the manhole proper, with the top edge thereof standing above the upper or top edge of the higher wall of said chamber, the cover of said basin or trap having in its under side channels adapted to register with cavities in the top or upper edge of the lower wall of said chamber, substantially as and for the purpose specified.

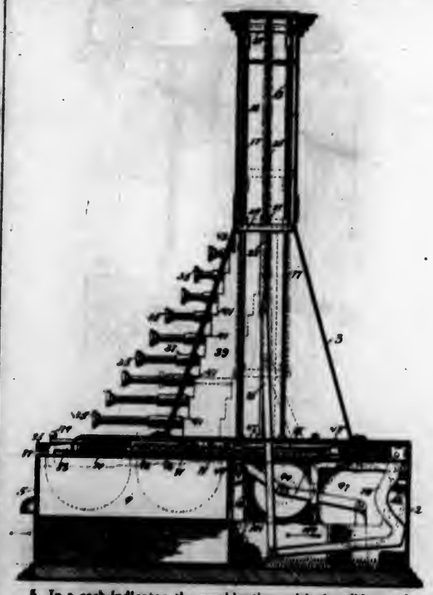
482,014. CASH INDICATOR, REGISTER, AND RECORDER. PETER J. LARSEN, Minneapolis, Minn. Filed Sept. 19, 1890. Serial No. 365,552. (No model.)

Claim.—1. In an indicator, the combination, with a series of slides or drops provided with numbers or characters, of a series of keys for each of said slides, means for supporting said slides in any position in which they may be, and means for moving said support and thereby permitting said slides to drop a sufficient distance only to expose the number or character corresponding to the key that is operated, and means for locking each of said keys in the position to which it has been moved.

2. In an indicator, the combination, with a series of slides or drops, of a series of keys for each of said slides and a series of sliding plates upon which said slides are adapted to be supported and arranged to be controlled by said keys, whereby upon the operation of any key in a series the sliding plate will be moved a sufficient distance to permit the corresponding slide to drop and expose the number or character corresponding to that of the key that is operated.

3. In a cash-indicator, the combination, with a series of slides, each provided with numbers or figures, of a series of sliding plates having inclined or step edges and upon which said slides are adapted to be supported, and a series of keys for each of said sliding plates, adapted to move said plates different distances, whereby upon the operation of any one of said keys the corresponding sliding plate will be moved and the corresponding slide will be permitted to drop and rest upon said plate and expose the number or figure corresponding to the key that is operated.

4. In a cash-indicator, the combination, with a movable drop or slide provided with a series of numbers or figures, of a sliding plate provided with an inclined or stepped edge and supporting said slide and a series of keys by any one of which said sliding plate may be moved.



5. In a cash-indicator, the combination, with the slides or drops 13, each provided with a series of figures, of means for simultaneously raising said slides, means for holding them in their raised position, a series of keys for each slide, and means arranged to be moved by said keys and controlling said slides and adapted to permit said slides to move either simultaneously or one at a time, and means for arresting each slide when it has moved a sufficient distance to expose the character represented by the key that is operated, substantially as described.

6. In a cash-indicator, the combination, with a suitable case, of a series of slides provided with figures or characters, means for setting said slides, the sliding plates 39, and the series of keys for each of said slides adapted to move said sliding plates and thereby to permit said slides to move a sufficient distance to expose a character or figure corresponding to that of the key that is operated.

7. In a cash-indicator, the combination, with a suitable case and a money-drawer, of a series of drops or slides, each provided with a series of figures or numbers, means operated by said money-drawer for setting said slides at zero, a series of keys for each slide, and means controlled by said keys whereby upon the operation of any key the corresponding slide will be moved a sufficient distance to expose the number or character represented by the key that is operated.

8. In a cash-register, the combination, with a series of registering-wheels, of a series of movable bars for operating said wheels, means for moving said bars in any order in the direction in which they do not operate the wheels, and means for causing said bars to be operated successively in the direction in which they operate the registering-wheels.

9. In a cash-register, the combination of the registering mechanism, a series of operating-keys, a series of drops or slides arranged to be operated by said keys, a series of movable bars also operated by said keys, and means for causing the wheels of said registering mechanism to be operated by said movable bars in succession when said slides or drops are reset at zero.

10. In a cash-register, the combination, with a series of registering ratchet-wheels, of a series of movable ratchet-bars, each provided with a series of teeth and adapted to pass said ratchet-wheels without turning them when moving in one direction and to turn said wheels when moving in the opposite direction, the number of teeth on said bars corresponding to the number of teeth on said wheels, a series of keys for moving each bar in the direction in which it does not move said wheels, said keys being arranged to move said bars different distances, the distance that each bar is moved by any key corresponding to the number of the key, and means for reversing the movement of said bars after they have been moved by said keys and thereby turning said wheels to correspond to the movement of said bars.

11. In a cash-register, the combination, with the cash-drawer, of the registering-wheels 49, the movable bars 71, adapted to operate said wheels, the series of keys for each bar, and means for locking said bars in the positions into which they are moved.

12. In a cash-register, the combination, with the cash drawer, of the registering-wheels 49, the movable bars 71, adapted to operate said wheels, keys for moving said bars, and a locking device for holding said bars in the position into which they are moved by said keys and releasing them in succession upon the opening of the cash-drawer.

13. In a cash-indicator, the combination, with the registering mechanism, of the cash-drawer provided with the stepped surfaces 89 and 93 and the pivoted frame having bearings upon said surfaces and arranged to engage the bars that operate the registering mechanism when the drawer is closed and to release them in succession when the drawer is opened.

14. In a cash-register, the combination, with the registering-wheels, of the sliding bars 71, the sliding bars 47, connected therewith and provided with the projections 96, the series of keys for each wheel, the pivoted frame engaging the projections on the bars 47, and the sliding drawer provided with the stepped surfaces 89 and 93 and controlling said frame.

15. In a cash-register, the combination, with the sliding bars, of the series of wheels 49, provided with the ratchet-teeth 61, the spring-dogs 57, the shaft 51, the disk 63, secured to said shaft and arranged between said wheels and adapted to hold said dogs 57 out of engagement with the ratchet 61 except at one point in the movement of the wheel, and means for successively operating said sliding bars.

16. In a cash indicator and register, the combination of a cash-drawer, a registering mechanism, a series of drops or slides, each provided with a series of numbers or characters, a series of numbered keys for each slide, and mechanism connecting said devices whereby upon the opening of the cash-drawer the slides are set at zero and the preceding sale or transaction is registered and upon operating the keys in any order the slides are moved to show the number represented by the keys that are operated and the registering mechanism is set to register these numbers at the next opening of the cash-drawer.

17. In a cash indicator, register, and recorder, the combination of a cash-drawer, a recording mechanism, a registering mechanism, a series of drops or slides, each provided with a series of numbers, a series of numbered keys for each slide, and mechanism connecting said devices whereby upon the opening of the cash-drawer the preceding transaction is recorded and registered and the indicating-slides are set at zero and upon the operating of said keys simultaneously or in any order the slides are moved to show the numbers represented by the keys that are operated and the registering and recording mechanisms are set to register and record these amounts at the next opening of the cash drawer.

18. In a cash-register, the combination of a cash-drawer, a registering mechanism provided with a series of wheels, a series of numbered keys for each wheel, and mechanism connecting said devices whereby upon the opening of the cash-drawer the preceding transaction is registered and upon operating said keys simultaneously or in any order the registering mechanism is set to register upon the next opening of the cash-drawer the amount represented by the numbers of the keys that are operated.

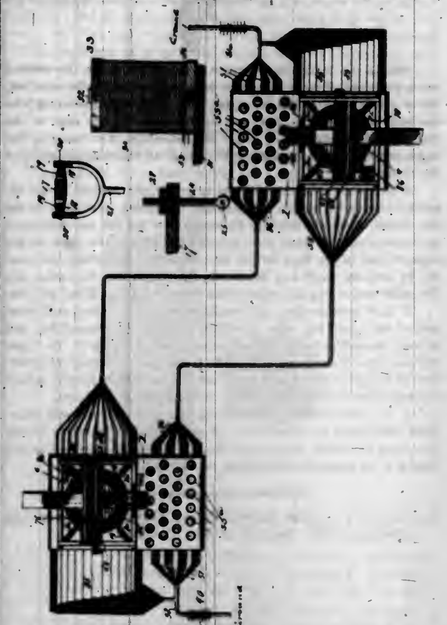
482,015. PRINTING OR RECORDING TELEGRAPH. ZACHARY T. LILLARD and URBINUS RENARD, Kansas City, Mo. Filed Jan. 23, 1892. Serial No. 419,081. (No model.)

Claim.—1. A printing or recording telegraph apparatus comprising a receiver consisting of a number of pivotal type-carrying bars, a number of electro-magnets, each having its armature mechanically connected to one of the type-carrying bars, an impression-cylinder journaled above the type-carrying bars, a presser-roll geared to the impression-cylinder, a drum carried by the impression-cylinder, a band wound upon the drum and carrying a gravity-weight, a sprocket-wheel carried by the presser-roll, a pair of ribbon-feeding spools journaled at opposite points relative to the impression-cylinder, a sprocket-wheel carried by one of the spools, and a sprocket-chain running over the sprocket-wheels of said spool and roll, substantially as set forth.

2. A printing or recording telegraph apparatus comprising a receiver consisting of a number of pivotal type-carrying bars, a number of electro-magnets, each having its armature mechanically connected to one of the type-carrying bars, an impression-cylinder journaled above the type-carrying bars, a lower presser-roll geared to the impression-cylinder and an upper presser-roll geared to the lower presser-roll, a drum carried by the impression-cylinder, a band connected to the drum, and a gravity-weight connected to the band, substantially as set forth.

3. A printing or recording telegraph apparatus comprising a receiver consisting of a number of pivotal type-carrying bars, a number of electro-magnets, each having its armature mechanically connected to one of said type-carrying bars, an impression-cylinder journaled above the type-carrying bars, a presser-roll geared to the impression-cylinder, a drum, a band wound upon said drum and carrying a gravity-weight, a sprocket-wheel carried by the presser-roll, a pair of ribbon-feeding spools journaled at opposite points relative to the impression-cylinder, a sprocket-wheel carried by one of the spools, a sprocket-chain running over said sprocket-wheel and over the sprocket-wheel of the presser-roll, a number of teeth or serrations carried by the opposite spool, and a spring-detent engaging said teeth or serrations, substantially as set forth.

4. A printing or recording telegraph apparatus comprising a receiver consisting of a number of pivotal type-carrying bars, a number of electro-magnets, each having its armature mechanically connected



to one of said bars, an impression-cylinder journaled above the type-carrying bars and carrying a drum, a band wound upon said drum, a gravity-weight carried by said band, a guide-plate mounted vertically upon the machine frame and having the band passing longitudinally of it, and a clamping-plate and clamping-screw carried by the guide-plate, the clamping-plate being arranged to engage and clamp the band, substantially as set forth.

5. A printing or recording telegraph apparatus comprising an impression-cylinder journaled upon the frame of a receiver, a guide-plate mounted vertically upon said frame and carrying at one end a friction-roll, a clamping-screw working through the guide-plate, a clamping-plate swiveled upon the clamping-screw, a drum carried by the impression-cylinder, and a weighted band connected to the drum and extending past the guide-plate and also engaged at times by the clamping-plate, substantially as set forth.

6. A printing or recording apparatus comprising a transmitting-instrument having a key the stem of which is provided with an enlargement or collar, a tubular post surrounding the stem of the key and having an internal partition, a contact-block located within the post, a conducting-shell surrounding the collar or enlargement of the key and also placed in frictional engagement with the enlargement, and a lifting-spring surrounding the inner part of the key-stem, substantially as set forth.

7. A printing or recording telegraph apparatus comprising a combined transmitter and receiver, consisting of a suitable supporting-framework, a nest or circular series of type-carrying levers mounted above the base of the framework, a circular series of electro-magnets mounted also upon the base of the framework and immediately below the nest of type-levers and each having an armature-lever mechanically connected to one of the type-levers, a series of keys mounted upon the base of the framework and each surrounded by a tubular stem having an internal shoulder, a conducting-plug inserted into the lower end of each post and connected electrically to the line, and a conducting-

shell located in the upper part of each post and connected electrically also to the line and in electrical contact with the stem of the key, each magnet being separately connected to the key of a similar instrument in the circuit, and each key being also separately connected to a magnet of each similar instrument, substantially as set forth.

482,016. METHOD OF LASTING. HUGH E. V. LELLEY, Milford, Mass., assignor of one-half to THOMAS LELLEY, same place. Filed Aug. 28, 1891. Serial No. 403,999. (No specimens.)



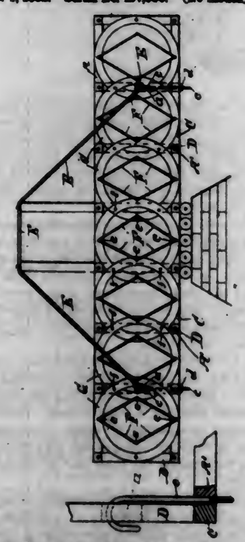
Claim.—1. In the manufacture of boots and shoes, the method herein described of securing uppers to channeled inner soles on a last, which consists in drawing the upper over the last and securing it to the inner sole by tacks, then temporarily securing the edge of the upper to the channel-flap by staple-like fastenings, then removing the tacks, and thereafter connecting the upper to the channel-flap by a line of stitches.

2. In the manufacture of boots and shoes, the method herein described of securing uppers to channeled and slitted inner soles on the last, which consists in drawing the upper over the last and securing it to the inner sole by tacks, then securing the edge of the upper to the edges of both of the flaps formed by channeling and slitting the inner sole by suitable staple-like fastenings, then removing the tacks, and thereafter connecting the upper to the channel-flap by a line of stitches.

3. In a boot or shoe, the combination, with a channeled inner sole, of an upper the edge of which overlies the channel-flap and pointed staple-like fastenings which embrace the edge of the upper and the edge of the channel-flap, the points of said fastenings entering the opposite ends of said upper and channel-flap to thereby secure the said upper to said channel-flap, substantially as described.

4. In a boot or shoe, the combination, with an inner sole channeled and slitted to form flaps a' a^3, the former of which is turned over upon the latter, of an upper the edge of which is secured to said flaps a' a^3 by staple-like fastenings, substantially as described.

482,017. IRON BRIDGE. HIRAM A. LEGATE, Springfield, Ark. Filed Apr. 1, 1892. Serial No. 427,264. (No model.)

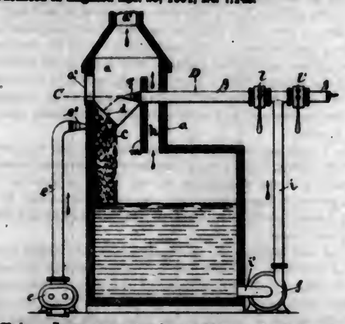


Claim.—1. The combination, with a bridge and the beams A', of the uprights having a slot and the bolt *c*, its straight end passed through one of the said beams and secured there and its hook end passed through the said slot, substantially as and for the purpose set forth.

2. The combination, with a bridge, of the uprights provided with slots, the hook-bolt adapted to engage the slots, and the cables engaging the said hook-bolt, substantially as and for the purpose set forth.

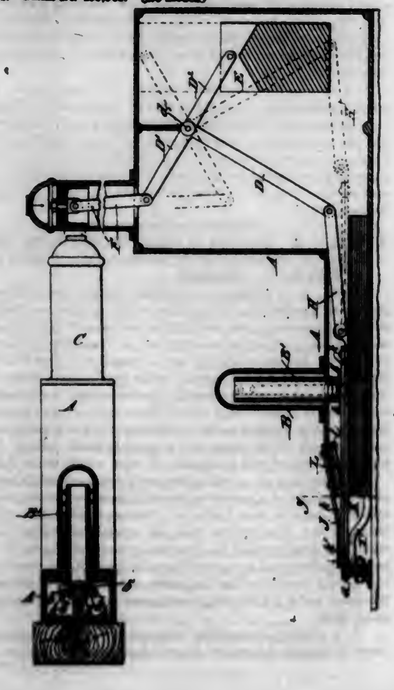
3. The combination of the slotted uprights, the hook-bolts extending through the slots, and the cables engaging the said hook-bolts with the rings G and rods F, connected together, to the rings, and to the said uprights, substantially as and for the purpose set forth.

482,018. APPARATUS FOR PURIFYING AND REFINING ALCOHOLIC LIQUORS AND OTHER LIQUIDS. SAMUEL MASON, Jr., Manchester, England. Filed Sept. 15, 1891. Serial No. 406,007. (No model.) Patented in England Apr. 30, 1891, No. 7,140.



Claim.—In an apparatus for purifying and refining alcoholic liquors and other fluids, a treating-vessel *a*, open at its upper end *a'* and having internally above the fluid level a vertical passage *h* and inclined positioned perforated plates *c* and *d*, onto which latter are respectively projected in film form air and the fluid to be treated from flat-mouthed pipes d' d^3 and g g', positioned, respectively, above the plates *c* and *d*, the pipe d' leading to an air-pump *e* and the pipe *g* by means of branch pipe *i* to a fluid-circulating pump *f*, in communication with the treating-vessel *a*, the plates *c* and *d* being adapted to thoroughly break up and mix the fluid to be treated with the air and the passage *m* and open end a' to permit the foul gases or other foreign matter released to escape from the purified fluid, substantially as set forth.

482,019. TORPEDO-SIGNAL. WILLIAM H. MILLNER, Chicago, Ill., assignor of one-half to J. Chester Lyman, same place. Filed Sept. 12, 1891. Serial No. 405,903. (No model.)



Claim.—1. In a torpedo-signal, the combination of the torpedo-carrier, a magazine for the torpedoes, a device for individually removing the torpedoes therefrom and placing them upon the carrier, an anvil adjacent to the track on which the outer end of the carrier is adapted to rest, an air-piston having a suitable connection with a pneumatic power-supply, and a leverage connection between said piston and torpedo-carrier, substantially as described.

2. In a torpedo-signal, the combination, with the torpedo carrier consisting of a horizontal plate and a pair of longitudinal spring-arms thereon and means for actuating said carrier, of a torpedo-magazine, spring devices thereon having oppositely-projecting points and operating to remove the torpedoes individually therefrom and place them upon the aforesaid carrier, an anvil adjacent to the track, and a projecting cover above it, between which and the anvil the torpedo-carrying end of the carrier is adapted to rest in operative position.

3. In a torpedo-signal, the combination of a main casing, a carrier consisting of a horizontal plate and a pair of longitudinal spring-arms thereon, a vertical torpedo-magazine above the carrier, a spring device or devices for automatically placing the torpedoes individually upon the carrier, and suitable leverage connections for actuating the carrier, substantially as described.

4. The herein-described combined torpedo-signal and semaphore-signal, consisting, essentially, in the combination, with a pneumatic supply of a semaphore, of an air-piston and a torpedo-carrier operated by said piston so that when the semaphore-arm indicates "danger" the torpedo may simultaneously be placed in exploding position adjacent to the track.

5. In a torpedo-signal, the combination of the carrier consisting of a longitudinal plate and two parallel longitudinal spring-arms thereon, an air-piston within an air-cylinder, and leverage connections between said piston and torpedo carrier, substantially as described.

6. In a torpedo-signal, a carrier consisting of longitudinal plate K and crescent-ended parallel spring-arms *k k*, an anvil I adjacent to the track, a cover J above said anvil, a torpedo-magazine located vertically above the carrier, and suitable devices for operating the carrier, substantially as described.

7. In a torpedo-signal, the combination of a horizontally-reciprocating carrier consisting of a longitudinal plate K and spring-arms *k k* thereon, the anvil I adjacent to the track, the cover J above said anvil, the cylindrical torpedo-magazine B', located vertically above the carrier, and the devices for reciprocating the carriage, substantially as described.

8. In a torpedo-signal, the combination of a torpedo-carrier consisting, essentially, of a longitudinal plate K and parallel longitudinal spring-arms *k k*, secured thereon and having the forward crescent ends *k'*, the anvil I near the back, cover J above said anvil, cylindrical torpedo-magazine B', located above the carrier, and the springs *b*, secured to the sides of said magazine and provided with oppositely-projecting points *b'*, that engage the torpedo-column, substantially as described.

9. In a torpedo-signal, the combination of the carrier provided with the parallel crescent-ended spring-arms, the cylindrical torpedo-magazine arranged vertically above the carrier, provided with engaging-springs which automatically permit the torpedoes to be deposited singly at the proper time upon the carrier, and a scraper-pawl pivoted above the carrier and having its end adapted to drop between the carrier-arms and sweep the surface of the carrier, all substantially as described.

10. The combination of the main casing A, an air-cylinder thereon containing an air-piston, a horizontally-reciprocating torpedo-carrier operating within the lower portion of the casing and having its forward end adapted to move contiguous to the face of the track, a torpedo-magazine above said carrier, and a T-shaped lever pivoted within the casing, said lever being provided with a weight and being connected with the aforesaid piston and also with the carrier, substantially as described.

11. In a torpedo-signal, the combination of the air-cylinder to which the air-pipe of the semaphore is connected, said cylinder containing a piston, a horizontally-reciprocating torpedo-carrier consisting of a longitudinal plate provided with parallel spring-arms *k*, having enlarged ends *k'*, the anvil I, cover J thereabove, torpedo-magazine B', having cover B and provided with the springs *b*, and the leverage mechanism between the air-piston and the torpedo-carrier, consisting, essentially, of the T-shaped weight-provided lever and the links F and H, substantially as described.

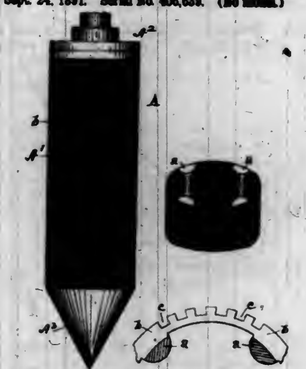
12. In a torpedo-signal, the combination of the torpedo-carrier consisting of a horizontal longitudinal plate K and the parallel spring-arms *k k*, secured thereon and having crescent-shaped forward ends *k'*, the anvil I adjacent to the track, cover J above it, the cylindrical torpedo-magazine B', containing the vertical column of torpedoes and provided with the springs *b b*, having oppositely-projecting points *b'*, that engage the lower end of the torpedo column, and the pivoted pawl or latch L, adapted to drop at certain times between the spring-arms *k k* and sweep the surface of the plate K, substantially as described.

13. In a torpedo-signal, the combination, with the torpedo-carrier consisting of a plate provided with a pair of longitudinal spring-arms, of a depending pawl supported above the carrier and adapted to clear the upper surface thereof of the fragments of an exploded torpedo.

14. In a torpedo-signal, the combination of a torpedo-carrier, a magazine for torpedoes, a horizontally-reciprocating torpedo-carrier consisting of a plate and a pair of longitudinal spring-arms thereon, an anvil adjacent to the track, and a protecting-cover above the anvil, said cover being for the purpose of protecting and covering the torpedo which may be below it and preventing any interference therewith, substantially as described.

15. In a torpedo-signal, the combination of the main casing to inclose the mechanical parts, a reciprocating torpedo-carrier consisting of a horizontal plate provided with longitudinal spring-arms, a torpedo-magazine above the carrier, which deposits its torpedoes individually thereon, a pivoted depending pawl, the end of which is in contact with the upper face of the carrier for the purpose of clearing it of the fragments of an exploded torpedo, an anvil located adjacent to the track, and a protecting-cover above the same for protecting the torpedoes which may be located beneath it, and thus prevent interference therewith, substantially as described.

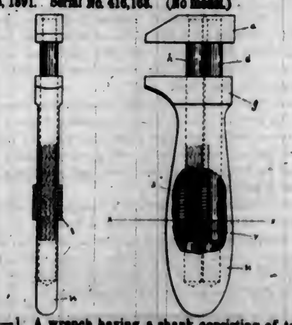
482,020. SAND-SCREEN. CLEOPHAS MORLEAU, Middletown, Ohio. Filed Sept. 24, 1891. Serial No. 406,639. (No model.)



Claim.—1. A sand-screen consisting of a continuous cylindrical tube or shell of metal formed with a series of longitudinal ribs upon its inner periphery integral with the cylindrical shell and provided with circumferential screening-slits extending entirely around and through the shell, leaving the supporting-ribs substantially intact, substantially as set forth.

2. In a sand-screen of the general type embodying a tubular shell cut through by screening-slits, a series of cross-grooves cut partially through the shell across the screening-slits, substantially as set forth.

482,021. WRENCH. FRANK MOSBERG, Attleborough, Mass., assignor to the Mosberg Manufacturing Company, same place. Filed Dec. 26, 1891. Serial No. 416,168. (No model.)



Claim.—1. A wrench having a shank consisting of two parallel bars, in combination with an adjusting-nut having an internal screw-thread fitting into a screw-thread on one of said bars and a screw-thread on its outside fitting into a section of screw-thread made on the concave milled side of the other of said bars, substantially as specified.

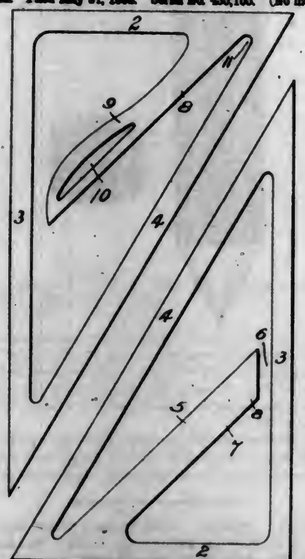
2. In a wrench, the combination of the following elements, viz: an outer jaw, to which are secured two parallel bars which extend into the inner jaw and handle, with means for holding and adjusting them lengthwise in said handle, substantially as herein specified.

482,022. WEATHER-STRIP. WILLIAM H. NIXON, Plymouth, Ind. Filed Jan. 26, 1892. Serial No. 419,530. (No model.)



Claim.—The combination, with the door and the molding-strip having a groove upon its under face and a vertical groove upon its inner face, of the hinged strip, the inner edge of which is designed to be held between the foot and the groove of the under face of the molding-strip, and the vertically-adjustable foot on the door beneath the molding-strip, with the vertical portion in the groove of the inner face of the molding-strip, substantially as and for the purpose specified.

482,023. COMPOUND TRIANGLE. ARTHUR T. PAGE, Minneapolis, Minn. Filed May 31, 1892. Serial No. 435,105. (No model.)



Claim.—1. As a new article of manufacture, a compound triangle composed of the three main side pieces or bars 2, 3, and 4, respectively, forming within themselves a triangular space, and a projection extending from the inner side of one of said bars into said triangular space, substantially as described.

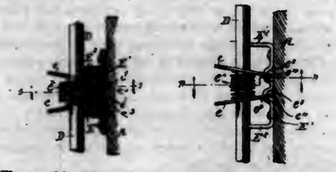
2. As a new article of manufacture, a compound triangle composed of the side pieces or bars 2, 3, and 4, forming within themselves a triangular space, and a projection extending from the base of the triangle into said space, said projection being provided with a straight upper edge and an irregularly-curved lower edge, substantially as and for the purpose specified.

3. As a new article of manufacture, a compound drafting-instrument composed of the three bars 2, 3, and 4, forming a triangular space within themselves, and a bar 5, projecting from the base-bar 2 into the triangular space, and a protractor 12, arranged within said space and provided with perforations having irregularly-curved edges, substantially as described, and for the purpose specified.

482,024. TRANSOM-LIFTER. EDWARD PATTEN, Chicago, Ill. Filed Oct. 12, 1889. Serial No. 326,930. (No model.)

Claim.—1. The combination, with the operating-rod of a transom-lifter, of a clutch or holding device comprising a base-plate adapted for attachment to the door-casing and two apertured clutch-plates engaging said rod, said clutch-plates having at their inner ends lugs or pivot-pins, and the base-plate being made flat on its inner face for contact with the door-casing and provided in such flat inner face with notches or recesses having flat walls or surfaces parallel with the inner face of the base-plate for engagement with the lugs or pivot-pins upon the clutch-plates, substantially as described.

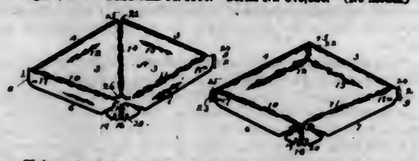
2. The combination, with a transom-lifter bracket and connecting-rod, of a connecting piece or head having a permanent swiveled connection with both the bracket and the connecting rod, substantially as described.



3. The combination, with a transom-lifter bracket provided with an annular groove near its end, of a connecting-rod provided with a similar groove near its end and a connecting piece or head provided with sockets to receive the ends of the bracket and connecting-rod and with projecting parts entering said grooves to retain the said bracket and connecting-rod in engagement with the said connecting piece or head, substantially as described.

4. The combination, with a transom-lifter bracket provided with an annular groove near its end, of a connecting-rod provided with a similar groove near its end, a connecting piece or head provided with sockets to receive the ends of the bracket and connecting-rod, an integral projection on the head engaging the groove on the connecting-rod to hold the same in the socket, and a rivet inserted through the head and engaging the groove in the bracket, substantially as described.

482,025. METALLIC ROOFING-TILE. BERRAIN B. REPP, Washington, D. C. Filed Jan. 31, 1891. Serial No. 379,890. (No model.)



Claim.—1. A roofing-tile having upward-turned flanges on its upper sides, as 4 and 5, and extending along the cut-away portions 8 and 9, as and for the purposes set forth.

2. A roofing-tile having cut-away portions 8 and 9 at each side, each having an upward flange, one of said flanges forming a rib, and a nail-hole in the apex of said rib, as and for the purposes set forth.

3. A roofing-tile having a notch in its upper end and a rib at one side with a nail-hole in its apex, whereby when the tiles are secured in position the nail passing through the rib of one tile will pass through the notch of the tile immediately below it, substantially as described.

4. An approximately rectangular roofing-tile having cut-away sides 1 and 2 and provided with a rib 9 at one side 2 and an upward-projecting flange 8 at its side 1, as and for the purposes set forth.

5. A roofing-tile having holes 17 and 18 at the lower ends of the cut-away sides 1 and 2 and provided with points 19 and 20 at its central lower end, as and for the purposes set forth.

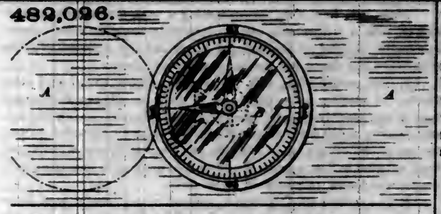
6. A roofing-tile having a nail-hole 24 at the apex of a rib running along one side of the tile and a raised portion 26 to accommodate the head of a nail passed through a similarly-situated nail-hole of an under tile, as and for the purposes set forth.

7. A roofing-tile having ribs 10 and 11 and flanges on the upper sides 4 and 5, said ribs and flanges meeting each other at their outer extremities, as set forth.

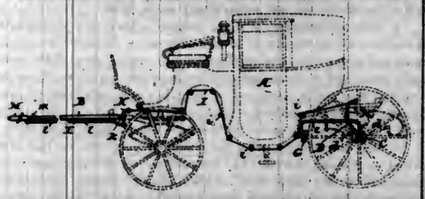
482,026. PLUMB-LEVEL. JOHN T. RIDER, South Oil City, Pa., assignor of one-fourth to Harvey Fritz, same place. Filed Apr. 6, 1891. Serial No. 387,826. (No model.)

Claim.—The herein-described plumb-level, consisting of the stock A, in which is adjusted the axis D, having bearings in the adjustable step E, screwed into the bottom of the recess *a* and in the graduated dial-plate B, covering the top of said recess and having rigidly secured thereto a pointer F, adapted to traverse the aforesaid dial-plate, and a ring G, supporting a closed vessel H, containing mercury, adapted to bring the aforesaid pointer speedily to a perpendicular.

482,026.



482,027. VEHICLE-BRAKE. ELI SWARTZ and DANIEL S. REESER, Scranton, Pa. Filed Jan. 30, 1892. Serial No. 419,697. (No model.)



Claim.—1. The combination, with the axle, of the brackets fixed to the axle, the brake-shaft supported in the brackets above and in front of the axle, the brake-carrying arms upon the ends of the brake-shaft, and the lever extending upward from the shaft and connected to the brake-operating devices, substantially as described.

2. The combination, with the axle, of the brackets D, extending upward and forward, the brake-shaft E, mounted on the brackets and having arms *c* carrying the brakes, and a lever H for operating the shaft, substantially as described.

3. The combination of the axle, the brackets attached to the axle, the brake-shaft having arms *c* and lever H attached thereto, the brakes at the outer ends of the arms *c*, the arm *k'* upon the brake-shaft, and the spring *k*, connecting the arm *k'* with the axle, substantially as described.

4. The combination, with a cut-under vehicle, of the brackets connected with the rear axle, the brake-shaft provided with arms carrying the brakes and a lever, a cable extending from the upper end of said lever to a lever pivoted between the hounds, a rod connecting the latter lever with a sleeve upon the tongue of the vehicle, and guides for conducting the cable along the bottom of the vehicle, substantially as described.

5. The combination, with the axle, of the brackets fixed to the axle, the brake-shaft, the lever for operating the shaft, the arms at the outer ends of the shaft, and the two-part brake-heads, each having one part rigidly connected to the brake-shaft and the other part movable and provided with a shoe, substantially as described.

6. The combination, with the brake-shaft, of the two-part brake-head, the lower part of the brake-head being connected rigidly to the shaft and provided with an upwardly-extending slotted tongue and the upper part having a recess to receive said tongue, and a screw or pin arranged to pass through the slot in the tongue, whereby the two parts are movably held together, substantially as described.

7. The herein-described two-part brake-head, the lower part having an upwardly-extending slotted tongue and the upper part having a portion overlapping the lower part, the said overlapping portion being provided with a recess to receive the tongue, and a pin or bolt for retaining the tongue within the recess, substantially as described.

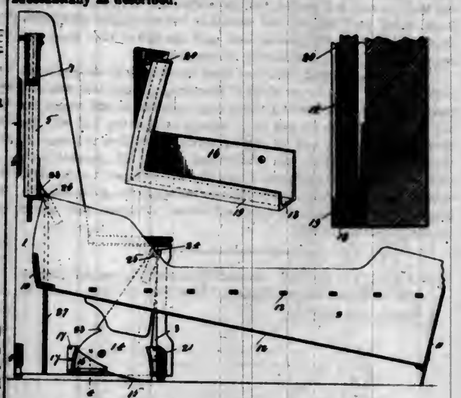
8. The combination, with the shaft E, having the arms *c f*, of the two-part brake-head, the lower part *g* being rigidly connected to the arms *f* and provided with the slotted tongue *g'* and the upper part *g''* overlapping the lower part and provided with a recess to receive the tongue, a pin or bolt *g''* to retain the tongue within the recess, and a shoe *m*, attached to the back of said upper portion, substantially as described.

482,028. WARDROBE-BED. CHARLES TEMPEL, Chicago, Ill. Filed Aug. 31, 1891. Serial No. 403,863. (No model.)

Claim.—1. In a folding bed, the combination, with a stationary frame, of rocking supports carried by the stationary frame and bearing directly against the floor when rocked toward the front of the frame and a folding-bed portion pivoted to the upper ends of the rocking supports, substantially as described.

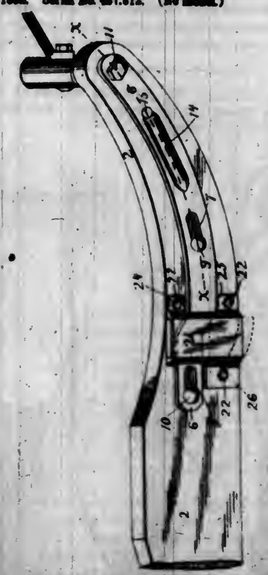
2. In a folding bed, the combination, with a stationary frame, of segmental rocking supports carried by the stationary frame and bearing directly against the floor when rocked toward the front of the frame and a folding-bed portion pivoted to the upper ends of the segmental rocking supports, substantially as described.

3. In a folding bed, the combination, with a stationary frame having rear brackets 16, of segmental rocking supports 14, resting on the brackets when rocked toward the rear of the frame and having downwardly-extended portions 15, which bear directly against the floor when the supports are rocked toward the front of the frame, and a folding-bed portion pivoted to the upper ends of the rocking supports, substantially as described.



4. In a folding bed, the combination, with a stationary frame having the front stops 21 and the rear brackets 16, provided with upwardly-extending stop portions 20, of the segmental rocking supports 14, having front and rear notches 22 and 23 and downwardly-extending portions 15, which bear directly against the floor when the supports are rocked toward the front of the frame, substantially as described.

482,029. SLED-BRAKE. JOHN WESTBERG, Fertile, Minn. Filed Apr. 5, 1892. Serial No. 427,813. (No model.)



Claim.—1. The combination, with the sled-runner having a slotted end, of a sliding bar arranged upon the side thereof and having inclined shoulders, guides for the rear end of the bar, a spring to normally hold the bar forward, and a brake-block having inclined shoulders to engage the inclined portions of said bar, guides being provided for said block, substantially as described.

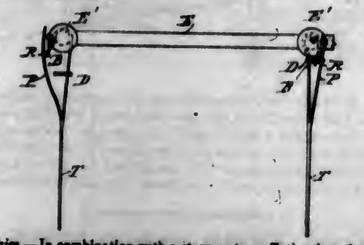
2. The combination, with the runner, of a bar slidably secured upon the side thereof, guides for the bar, said bar connected with the

cross-rod of the sled and having an inclined shoulder, a brake-block having an inclined shoulder to be engaged thereby, and a guide-plate for said block, secured upon the side of the runner and fastening the block in place, substantially as described.

3. The combination, with the sled-runner, of the cross-rod 3 thereof, said runner having a slotted end, the bar arranged upon the side of the runner and having the slots 7 and 8, bolts 9 and 10, extending through the same, the forward end of said bar engaging said cross-rod and the rear end having the upwardly-inclined shoulder 16, the brake-block provided with the beak-like lower end and with shoulders 17, and the guide-plate secured upon the side of the runner and engaging said block, substantially as described.

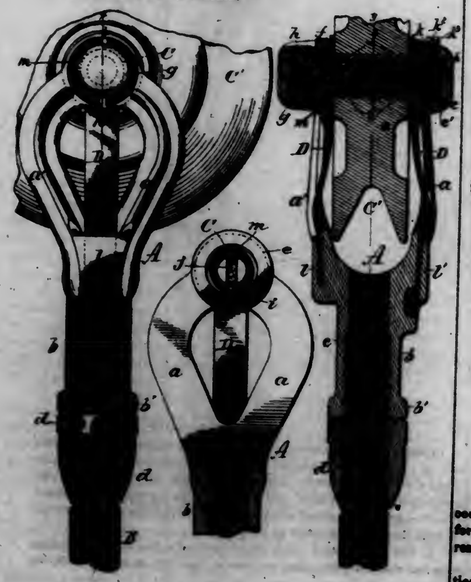
4. The combination, with the runner provided with the slot 4 and with the plate 5, of the cross-rod 3, extending through said slot, said runner having the recess 13, the spring contained in said recess, the bar 6, provided with the lug 15 to engage said spring and with the slots 7 and 8, bolts 9 and 10, passing through said slots and securing the bar upon the runner, the brake-block having the recessed inner side and the inclined shoulders 17 and shoulders 19, said bar provided with the inclined edges 16 to engage the same, and the guide-plate 21, provided with lugs fastened upon said runner, all substantially as and for the purpose specified.

482,080. BUCKLE. GEORGE WILLIAMSON, Luton, and CONSTANTINE DE NEUVE, London, England. Filed Feb. 12, 1892. Serial No. 421,381. (No model.)



Claim.—In combination with a strap or trace T, the slotted piece B on the free end of the same, the D-piece D, loosely arranged on the trace to slide thereon toward and from the said free end, and the tongue P for holding the parts together, substantially as described.

482,031. TROLLEY FOR ELECTRIC RAILWAYS. CLARENCE A. ADAMS and THOMAS J. TREBY, Lincoln, Nebr. Filed Mar. 25, 1892. Serial No. 426,365. (No model.)



Claim.—1. In a harp for supporting a trolley-wheel, the combination, with a trolley-pole and an internally-screw-threaded sleeve screwed to the end of said pole, of a lock-nut also screwed onto the pole below the sleeve and bearing against said sleeve.

2. The combination, with the arms of a harp, one of said arms having an opening in its upper end, of an internally-screw-threaded boss at the upper end of the other arm and a journal passing through said opening in one arm and screwing into the screw-threaded boss at the upper end of the other arm, the said journal having an enlarged head adapted to bear against the outer face of the arm through which the journal passes, substantially as set forth.

3. The combination, with the arms of a harp, one of said arms having an opening in its upper end, of a hollow journal passing through said opening and provided with a head, the latter adapted to bear against the outer face of said arm, an internally-screw-threaded boss at the upper end of the other arm adapted to receive the screw-threaded end of the hollow journal, substantially as set forth.

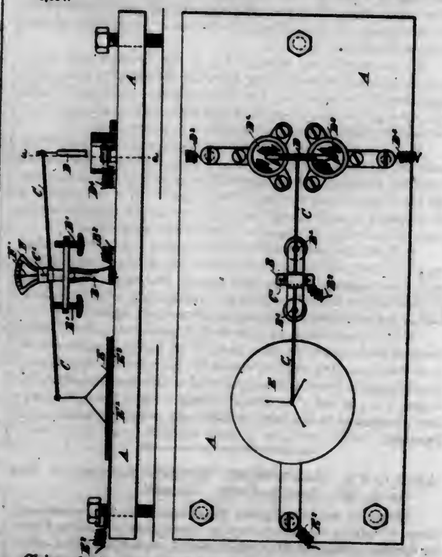
4. The combination, with the arms of a harp, one of said arms having an opening therein, of an internally-screw-threaded boss at the upper end of the other arm, a hollow journal passing through the opening in one of said arms and adapted to screw into the internally screw-threaded boss at the upper end of the other arm, said boss and journal having aligned screw-threaded perforations, and a screw passing through said screw-threaded perforations, substantially as set forth.

5. The combination, with the arms of a harp, one of said arms having an opening therein, of an internally-screw-threaded boss at the upper end of the other arm, a hollow journal passing through the opening in one of said arms and adapted to screw into the screw-threaded boss at the upper end of the other arm, said boss and journal having aligned screw-threaded perforations, and a screw passing through said screw-threaded perforations, said screw having a vertical groove therein, substantially as set forth.

6. The combination, with a harp adapted to support a journal for a trolley-roller, of pockets cast on said harp and springs inserted in said pockets and adapted to bear on said trolley-wheel, substantially as set forth.

7. The combination, with a harp and a journal carried thereby, of pockets cast on said harp and contact-springs inserted in said pockets and provided at their upper ends with openings to encircle said journal, substantially as set forth.

482,032. ELECTROSTATIC SWITCH AND PHASE-INDICATOR. ALFRED U. ALSEN, Melbourne, Victoria. Filed May 26, 1891. Serial No. 394,106. (No model.) Patented in Victoria Apr. 15, 1891, No. 5,057.



Claim.—1. A system of electrical distribution consisting of the combination of electric alternators, circuit-closers therefor, and means for operating said circuit-closers, consisting of relatively-movable plates respectively charged by different alternators.

2. A system of electrical distribution consisting of the combination of two electric alternators, a main line in circuit with one of said alternators, circuit-closers in circuit with the other alternator, and means controlling said circuit-closers, consisting of relatively-movable plates of an electric condenser, which plates are respectively connected to the two alternators.

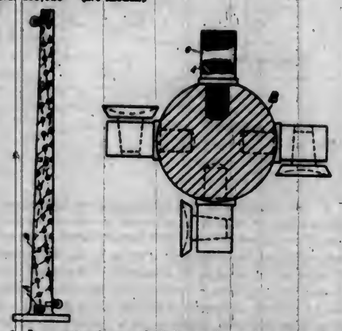
3. An electrostatic switch and phase-indicator constructed of the beam C, suitably supported and carrying at its one end the disk E and at its other end the link D, in combination with the disk E and mercury-wells D' and D², all arranged and connected substantially as described and illustrated.

4. A system of electrical distribution consisting of the combination of a circuit-closer, alternators in circuit therewith, and means controlling the circuit-closer, consisting of electrically-charged bodies within inductive distance to one another.

5. An electrostatic switch consisting of the combination of a circuit-closer, relatively-movable plates of a condenser controlling said circuit-closer, and an indicating device controlled by said plates or plate.

6. The combination, in an electrical system of distribution, of main-line conductors, alternators in parallel circuit therewith, circuit-closers in circuit between the main-line conductors and the alternators, and relatively-movable plates charged by said alternators and engaged to said circuit-closers.

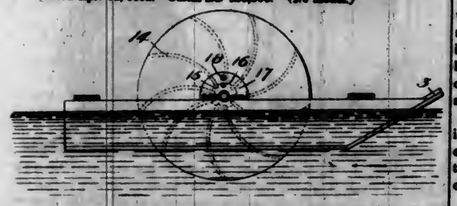
482,033. CUTTER OR DRILL FOR COAL. CLAUDE W. ATKINSON and LLEWELYN B. ATKINSON, London, England. Filed Aug. 18, 1891. Serial No. 403,026. (No model.)



Claim.—1. In a cutter bar or drill for coal or other minerals, the combination, with a cylindrical bar, of a series of tool-holders arranged at and fitted into holes in the intersections of right and left handed spirals of different pitch, one with pitch the length of the bar and the other intersecting spiral with a pitch of about one-tenth the length of the bar, substantially as set forth.

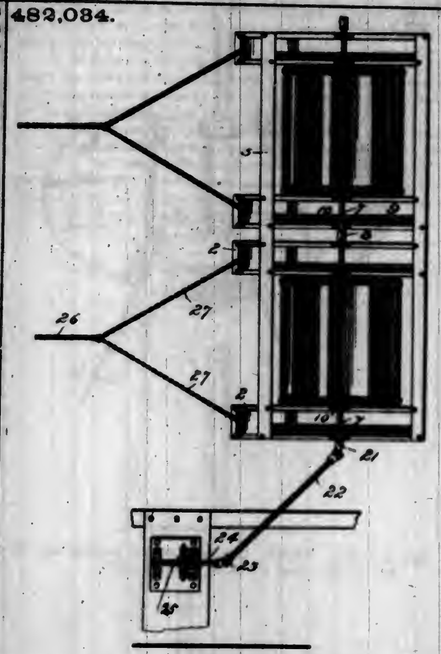
2. In a cutter bar or drill for coal or other mineral, a diamond-shaped cutting-tool with a taper shank detachably attached to a holder A, in combination with a revolving bar supporting the said holders, the cutter being so disposed in the holder and to the bar that the front and back corners of the cutting-edge rotate in different planes of revolution, substantially as and for the purpose specified.

482,034. CURRENT WATER-WHEEL AND MEANS FOR TRANSMITTING POWER THEREFROM. ISAAC R. BURNY, Minneapolis, Minn. Filed Apr. 11, 1892. Serial No. 428,503. (No model.)

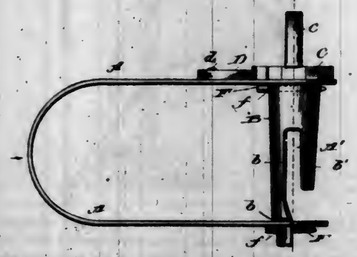


Claim.—The combination of the boats 2 and the beams 5 and 6, extending between the same and rigidly connecting them with the transverse shaft 7, extending between said boats, the water-wheel arranged upon said shaft, said water-wheel being made up of the parts 11, 12, and 13 and the curved blades 14, the plates 17, arranged upon said ends and having hubs secured upon said shaft, the universal joints 21 and 23, the rod 22, extending between the same, and the power-shaft arranged upon the shore in connection with the joint 23, substantially as described.

482,034.



482,035. WIRE-TIGHTENER. JOHN I. BUCKINGHAM, Harmon, S. D. Filed Jan. 14, 1892. Serial No. 418,069. (No model.)



Claim.—1. The combination, with a U-shaped frame, of a winding-shaft having a longitudinal slot disposed at one end diametrically and passing entirely through one side of the shaft at a point between the arms of the frame, substantially as specified.

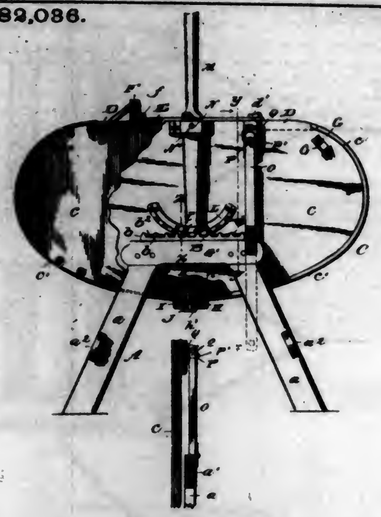
2. The combination of the U-shaped frame having at its bend a wire-receiving slot and guiding-eye with a winding-shaft rotatably mounted in the frame and provided with a longitudinal slot terminating in a curved portion which passes through one side of the shaft and having at one end a ratchet and means for turning the shaft and at the other end means for preventing the spreading of the arms of the frame, substantially as specified.

3. The combination, with a U-shaped frame, of a shaft terminating at one end in bifurcations and an adjacent ratchet and at the other end in a shoulder and a semi-cylindrical bearing and having between the arms of the frame a slot with one end extending through the side of the shaft, substantially as specified.

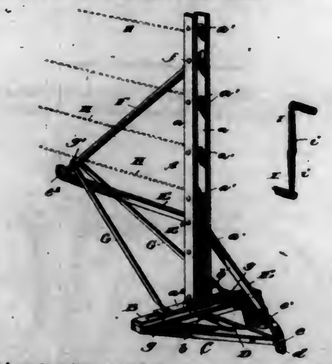
482,036. WASHING-MACHINE. FRED L. BUCKLEY, Assin Creek, Pa. Filed Mar. 11, 1892. Serial No. 424,867. (No model.)

Claim.—The combination, with the support and the oscillating tub, of a bar hinged to the tub and having a hole at its upper end, a pin on the tub to engage said hole, the outer end of the pin being provided with a transverse groove, and a gravity-loop hinged to the tub and adapted to embrace the upper end of said bar and enter said groove, as and for the purpose specified.

482,086.



482,037. FENCE. RICHARD H. FENTON, Sheridan, Ind. Filed Mar. 16, 1892. Serial No. 425,131. (No model.)



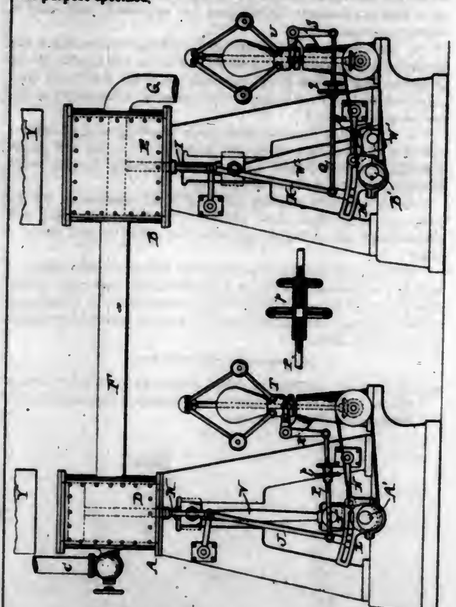
Claim.—1. A base for a fence-post, comprising a triangular support, a cross-bar secured thereto, and a rod extending from the apex of the triangle to the base and hooked over the said cross-bar, substantially as specified.

2. The combination, with a post and its triangular base, of a stay-bar connected at one end to the base, extended in an inclined direction and thence substantially horizontally, an inclined brace-bar supported on the horizontal portion of the stay-bar, the rod extending from the apex of the base and engaging one end of the stay-bar, and a bar connecting the brace-bar and base, as set forth.

3. The combination, with the base having notched cross-bar and the metal cross-bar on the same, of the rod extending at right angles to the cross-bar and seated in the notch of the base, with a hooked end engaging the metal cross-bar and its other end hooked, the stay having one end engaged with the said hook and the other end extended horizontally, the inclined brace-bar supported on the horizontal portion of the stay, and the oppositely-inclined brace-bar secured to the base and embracing the inclined bar, as set forth.

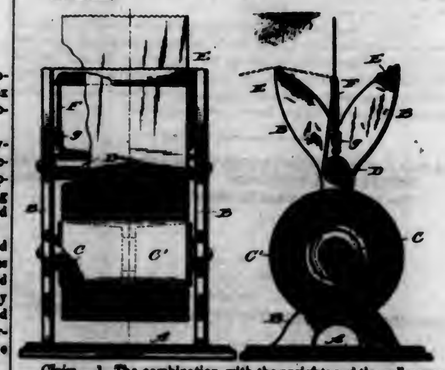
482,088. STEAM-ENGINE. WILLIAM R. GOOD, Philadelphia, Pa., assignor to the Southwark Foundry and Machine Company, same place. Filed Mar. 26, 1892. Serial No. 426,694. (No model.)

Claim.—1. In combination with high and low pressure cylinders connected by a conduit or receiver, a governor regulating the admission of steam to the high-pressure cylinder, said governor being arranged to lengthen the admission as the work on said cylinder increases, and a governor regulating the admission of steam to the low-pressure cylinder, said governor being arranged to shorten the admission as the work on that cylinder increases, substantially as and for the purpose specified.



2. The combination of two steam-engines disconnected as to their reciprocating or rotative movements, a receiver connecting the exhaust of one engine-cylinder with the admission of the second, a governor regulating the admission of steam to the high-pressure cylinder and arranged to increase the admission as the work on said cylinder increases, and a governor regulating the admission of steam to the low-pressure cylinder, arranged to shorten the admission as the work on said cylinder increases, substantially as and for the purpose specified.

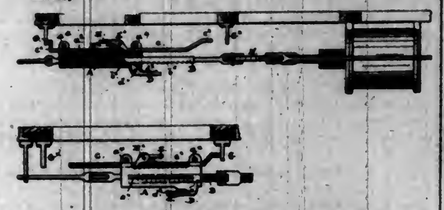
482,089. ROLL-PAPER HOLDER AND CUTTER. EDWARD B. CRAPSER, Richford, N. Y. Filed May 31, 1892. Serial No. 435,099. (No model.)



Claim.—1. The combination, with the uprights and the roll-paper holder, of a bar above the roll-paper support and a spring tension device secured to said bar and standing vertically, as and for the purpose specified.

2. The paper-holder and cutter consisting of the uprights, the roll-paper support held between the same, the bar held between the uprights above the roll-paper support, the serrated cutting-plates, one upon each side of the vertical center of the device upon the uprights, and a central vertical spring tension device provided with parallel bars, between which the paper is designed to be passed and yieldingly held, as set forth.

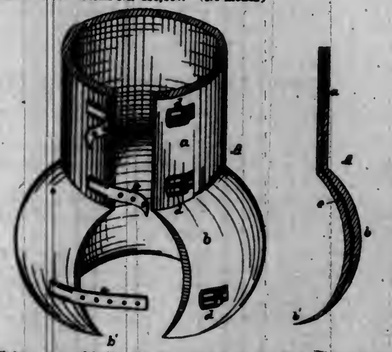
482,040. SLACK-TAKE-UP FOR AIR-BRAKES. LEONIDAS GUILLERET, San Francisco, Cal. Filed Dec. 9, 1891. Serial No. 414,462. (No model.)



Claim.—1. The herein-described slack-take-up for air-brakes, consisting of the two-part bar or part A B, the ratchet-teeth and pawl as a means of connecting the said parts to permit longitudinal movement of one part on the other in one direction, but to lock them together against movement in the opposite direction, the slide bar C, of greater length than the two-part bar, and means by which the same is locked to the two-part bar in one direction and is allowed to slide in it in the opposite direction to shift it longitudinally thereon, and stops or abutments setting in the path of said slide-bar to engage the ends thereof and limit its movement, constructed and combined for operation substantially as described.

2. In a slack-take-up for air-brakes, the combination, with the lever of the brake-piston and the lever, rod, or other part to be operated thereby, of the two-part rod or bar A B, one part or section connected to the brake-lever and the other part to the rod, lever, or part to be moved, the two parts sliding in opposite directions one on the other, ratchet-teeth on one part and a spring-pawl on the other part as a means of connecting said parts together to allow longitudinal movement of the parts on each other in one direction, but to lock them in the opposite direction, and the slide *c* and means for locking it to the said parts to afford longitudinal movement in one direction and to lock it on said part in the opposite direction, and stops or abutments arranged for operation in the path of said slide to limit the movement thereof, substantially as described.

482,041. HORSE-BOOT. HUTSON R. HUBB, Cleveland, Ohio. Filed Oct. 29, 1891. Serial No. 410,167. (No model.)



Claim.—An ankle-boot for horses, composed of an integral piece of rubber having a layer of fibrous stiffening material embedded therein and having an upper tubular portion to fit upon the leg and a lower globose portion to inclose the joint, said globose portion thickened at its middle part and having a thin flexible free edge, and means for securing the boot upon the leg, substantially as described.

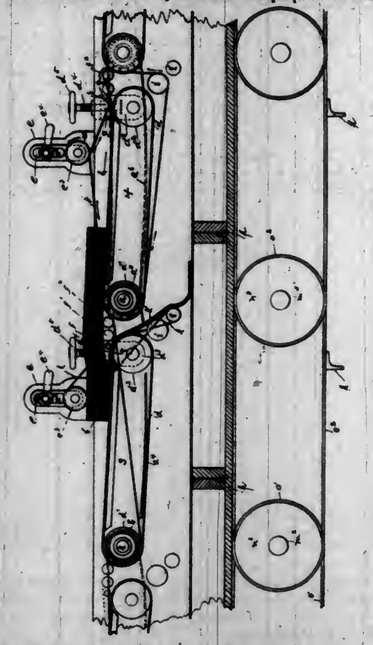
482,042. APPARATUS FOR CUTTING AND SPREADING GLUE. CHARLES KELLER, Springdale, Pa. Filed May 23, 1891. Serial No. 393,733. (No model.)

Claim.—1. In an apparatus for cutting glue, the combination of a traveling carrier, a wire in such position as to cut a sheet from the top of the glue block and bring it to the desired thickness, and a cutting-wire back of said cutting-wire and close to a traveling carrier supporting the block to cut a sheet from the lower end of the glue block, substantially as and for the purposes set forth.

2. In apparatus for cutting glue, the combination of a traveling carrier, and a cutting-wire close to the same to cut a sheet from the lower face of the glue block, and a depressing-roller rotating in the opposite direction to the movement of said glue block to force such sheet down from the glue block as it is fed forward, substantially as and for the purposes set forth.

3. In apparatus for cutting glue, the combination of two or more traveling carriers having cutting-wires close to the same and feeding-rollers between said carriers to carry the glue block from one carrier to the next, substantially as and for the purposes set forth.

4. In apparatus for cutting glue, the combination of two or more traveling carriers having cutting-wires close to the upper surfaces thereof, a depressing-roller traveling in an opposite direction to the course of the glue, and one or more feeding-rollers traveling in the same direction as the glue block and adapted to feed it from one carrier to the next, substantially as and for the purposes set forth.



5. In apparatus for cutting glue, the combination of a series of traveling aprons or pulleys mounted on suitable sheaves, each of said aprons being driven from the forward sheave, a cutting-wire extending across above the apron, and adjusting-bearings for the rear roller of each apron to adjust the same, according to the thickness of the glue sheet to be cut, substantially as and for the purposes set forth.

6. In apparatus for cutting glue, the combination of a traveling apron to carry the glue block, a stationary wire extending across above said apron, and a power-driven roller above the wire, traveling in the direction of the glue block to assist in feeding the same, said power-driven roller being mounted on sliding bearings providing for the adjustment of the same with relation to the cutting-wire, substantially as and for the purposes set forth.

7. In apparatus for cutting glue, the combination of a traveling apron and a cutting-wire extending across and above the same, a depressing-roller traveling in the opposite direction to the course of the glue sheet, and a net under the apron, traveling at the same speed as the apron, to receive the glue sheet therefrom, substantially as and for the purposes set forth.

8. In apparatus for cutting glue, the combination of an endless traveling apron, a cutting-wire extending across and above the same, a depressing-roller extending across and above the sheet to the under surface of the block, guiding-rollers under and back of the endless apron, and a net under the apron, traveling at the same speed as the apron, to receive the glue sheet, substantially as and for the purposes set forth.

9. In apparatus for cutting glue, the combination of two or more traveling carriers having cutting-wires close to the same to cut a sheet from the lower surface of the glue block, and a series of drying-nets corresponding to the traveling carriers and extending under the same and adapted to receive the glue sheets therefrom, and pushing mechanism to feed forward the series of drying-nets, substantially as and for the purposes set forth.

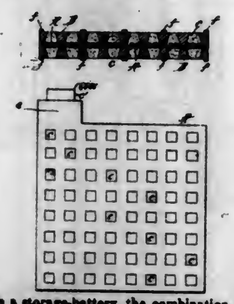
10. In apparatus for cutting glue, the combination of a series of drying-nets, a pushing apparatus to feed the same forward, and a transverse pushing apparatus to feed the same crosswise to bring other surfaces of the nets into position to receive the glue sheets, substantially as and for the purposes set forth.

11. In apparatus for cutting glue, the combination, with a series of drying-nets arranged in a step-by-step position, of mechanism for feeding said drying-nets forward and a reciprocating transverse pusher having a series of steps to engage with the several nets.

12. In apparatus for cutting glue, the combination, with a series of drying-nets arranged in a step-by-step position, of mechanism for feeding said drying-nets forward, a reciprocating transverse pusher having a series of steps adapted to engage with said nets, and mechanism for normally holding said pusher away from said nets, substantially as and for the purposes set forth.

13. In apparatus for cutting glue, the combination, with the frame, of the pusher *q*, the rack *u*, the toothed segment *u'*, engaging said rack, the spring *w*, and the arm *z*, having the toothed segment *z'*, adapted upon the revolution of the shaft *y'* to engage the toothed segment *u'* to operate the pusher, substantially as and for the purposes set forth.

482,043. STORAGE-BATTERY. PATRICK KENNEDY and CHARLES J. DIM, Brooklyn, N. Y., assignors to the Acme Storage Battery Company, of West Virginia. Filed Sept. 25, 1891. Serial No. 406,802. (No model.)



Claim.—1. In a storage-battery, the combination, with non-conducting structures for holding the active material, of an electrical conductor placed between them and a joint integrally connecting the said structures, substantially as herein set forth.

2. In a storage-battery, the combination of non-conducting structures provided with ribs *d* and constructed to hold the active material with a slotted electrical conductor placed between said structures, substantially as herein set forth.

3. In a storage-battery, a conductor constructed and arranged for connection with electric wires and having openings therethrough, active material arranged at opposite surfaces of said conductor, and non-conducting structures for containing the active material and for holding the same against the opposite sides of said conductor and constructed to meet at intervals through the openings therein, all substantially as and for the purpose herein set forth.

4. In a storage battery, a conductor constructed and arranged for connection with electric wires and having openings therethrough, active material arranged at opposite sides thereof, and non-conducting structures composed of material which becomes adhesive when warmed and joined through the openings in the conductor by adhesion, substantially as and for the purpose herein set forth.

5. The combination, with the active material of a storage-battery, of a conductor A, composed of multiple flat strips or plates *b*, connected together with slots *a* between them and constructed and arranged for connection with suitable electric wires, and non-conducting structures which hold the active material in contact with the strips or plates *b* and which meet through the slots *a*, all substantially as and for the purpose herein set forth.

6. The combination, with the active material of a storage-battery, of a conductor A, composed of multiple flat strips or plates *b*, connected together with slots *a* between them and constructed and arranged for connection with suitable electric wires, and non-conducting structures which hold the active material in contact with the strips *b* and are united through the slots *a* by adhesion along their length, substantially as and for the purpose herein set forth.

7. In a storage-battery, the combination of non-conducting structures having a series or system of cavities with an interposed conductor constructed for connection with suitable electric wires and having a series or system of openings coincident with the spaces between the cavities of each of the said structures, whereby provision is made for bringing the conductor in contact with the contents of the cavities and for connecting the structures by their contact through the said openings, substantially as and for the purpose herein set forth.

8. In a storage-battery, the combination of non-conducting structures having cavities which are larger at their inner than at their outer ends with a slotted conductor A, the bars *b* of which lie across the said inner ends of said cavities, while the structures meet and are connected through the slots *a* of said conductor, substantially as and for the purpose herein set forth.

9. In a storage-battery, the combination of an electrical conductor having a shank or connecting device *c* with a non-conducting structure for holding the active material and a sleeve extended from said structure to protect said shank or device, substantially as herein set forth.

10. In a storage-battery, a conductor A, composed of connected flat strips or plates *b*, having slots *a* between them and provided with means for connection with suitable electric wires, in combination with a non-conducting structure having rows of cavities larger at their inner than at their outer ends and arranged coincident with and opposite to the strips or plates *b*, and a non-conducting backing or support at the back of said conductor, all substantially as and for the purpose herein set forth.

482,044. STORAGE-BATTERY. PATRICK KENNEDY and CHARLES J. DIM, Brooklyn, N. Y., assignors to the Acme Storage Battery Company, of West Virginia. Filed Sept. 25, 1891. Serial No. 406,803. (No model.)



Claim.—1. A structure for holding the active material of a storage-battery, composed of a cohesive bitumen, resin, gum, or gum-resin and a mineral non-conductor of electricity, substantially as herein set forth.

2. A structure for holding the active material of a storage-battery, composed of a cohesive bitumen, resin, gum, or gum-resin and a mineral non-conductor of electricity, in substantially the proportions herein set forth.

3. A structure for holding the active material of a storage-battery, composed of a cohesive bitumen, resin, gum, or gum-resin and a finely-pulverized mineral non-conductor of electricity, substantially as herein set forth.

4. A structure for holding the active material of a storage-battery, composed of shellac and a mineral non-conductor of electricity, substantially as herein set forth.

5. A structure for holding the active material of a storage-battery, composed of shellac and a finely-pulverized mineral non-conductor of electricity, substantially as herein set forth.

6. A structure for holding the active material of a storage-battery, composed of shellac and a finely-pulverized mineral non-conductor of electricity, in substantially the proportions herein set forth.

7. A structure for holding the active material of a storage-battery, composed of shellac and finely-pulverized glass, substantially as herein set forth.

8. A structure for holding the active material of a storage-battery, composed of shellac and finely pulverized glass, in substantially the proportions herein set forth.

9. A structure for holding the active material of a storage-battery, composed of a cohesive bitumen, resin, gum, or gum-resin and a floured mineral non-conductor of electricity, substantially as herein set forth.

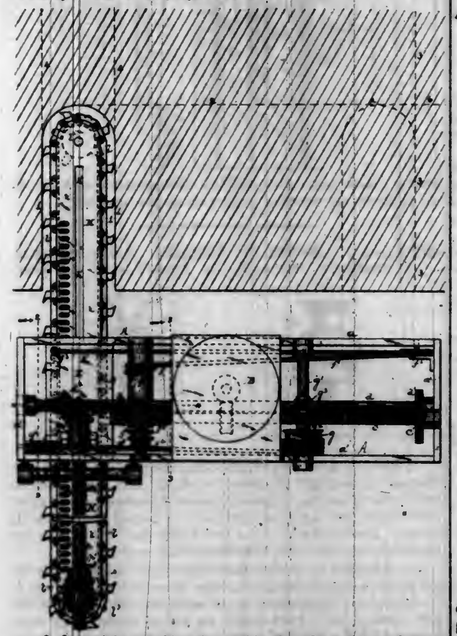
10. A structure for holding the active material of a storage-battery, composed of a cohesive bitumen, resin, gum, or gum-resin and floured glass, substantially as herein set forth.

11. A structure for holding the active material of a storage-battery, composed of shellac and floured glass, substantially as herein set forth.

482,045. MINING-MACHINE. BENJAMIN A. LIGE, Allegheny, Pa. Filed Apr. 30, 1891. Serial No. 391,096. (No model.)

Claim.—1. In a mining-machine, the combination of a stationary frame, a carriage sliding therein, a cutter-frame pivoted to and carried by the carriage, a motor secured to the stationary frame and driving a grooved shaft extending longitudinally of said frame, beveled gearing driven by said grooved shaft, a grooved shaft extending longitudinally of the cutter-frame, and beveled gearing driven thereby to drive a cutter-chain on said frame, substantially as and for the purposes set forth.

2. In a mining-machine, the combination of a stationary frame having a motor mounted thereon and driving a grooved shaft extending longitudinally thereof, a carriage sliding in said frame, a cutter-frame having a sliding connection with said carriage, beveled gearing driven by said grooved shaft to drive a grooved shaft extending longitudinally of the cutter-frame, and beveled gearing driven by the latter grooved shaft to drive the cutting mechanism of the frame, substantially as and for the purposes set forth.



3. In a mining-machine, the combination of a stationary frame, a carriage sliding in said stationary frame, a cutter-frame having a sliding connection with such carriage, gearing driven from said carriage to drive a grooved shaft extending longitudinally of the cutter-frame, and beveled gearing driven by the latter grooved shaft to drive the cutting mechanism of the cutter-frame, said grooved shaft being formed in two sections, so that the outer or free end thereof may be removed, substantially as and for the purposes set forth.

4. In a mining-machine, the combination of a stationary frame having a motor secured thereto and having a carriage sliding therein, and a cutter-frame pivoted to said carriage and having a sliding movement with relation thereto, a longitudinal shaft mounted on a stationary frame and carrying a worm, drums mounted on said frame and driven by such worm, and gearing and rope connections for such drums to opposite ends, respectively, of the machine and thence to the carriage, substantially as and for the purposes set forth.

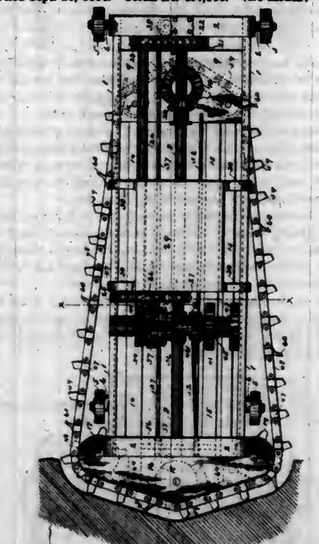
5. In a mining-machine, the combination of an electric motor mounted centrally of the stationary frame and having a vertical armature-shaft, a longitudinal shaft mounted in the stationary frame, worm-gearing connections between said armature-shaft and said longitudinal shaft, a grooved shaft extending longitudinally of the machine, gearing between such longitudinal shafts, a carriage sliding in the stationary frame, a cutter-frame pivoted to and carried by the carriage, and gearing connections from said grooved shaft to the cutting mechanism mounted on the cutting-frame, substantially as and for the purposes set forth.

6. In a mining-machine, the combination of a stationary frame, a carriage sliding therein, a cutter-frame pivoted to and having a longitudinal movement with relation to the carriage, a grooved shaft extending longitudinally of the stationary frame and having a pinion sliding thereon, a shaft driving the cutting mechanism and carrying a pinion engaging with said pinion and mounted in a swivel-bearing, and a yoke to hold said second pinion in engagement with said first pinion, substantially as and for the purposes set forth.

7. In a mining-machine, the combination of a stationary frame, a carriage, a cutter-frame pivoted to and swinging with relation to the carriage, the shaft *m*, mounted in the swivel-bearings m^2 m^2, a shaft *d*, carrying the pinion d^2, the pinion *m'* meshing therewith, and a clevis *r*, adapted to fit between the bearing m^2 and a pinion *m'* to hold said pinions in engagement, substantially as and for the purposes set forth.

8. In a mining-machine, the combination of a stationary frame, a carriage sliding therein, a cutter-frame extending under the carriage and having a longitudinal slot *k'* in the top plate thereof, and a king-bolt passing through said slot and forming a pivotal connection between the carriage and the cutter-frame, substantially as and for the purposes set forth.

482,046. MINING-MACHINE. BENJAMIN A. LIGE, Allegheny, Pa. Filed Sept. 29, 1891. Serial No. 407,110. (No model.)



Claim.—1. In a mining-machine, the combination of a winding-drum, a removable sleeve adapted to be secured to said drum for the purpose of varying the feed, devices for driving said drum, a rope wound on said drum and connected with a movable carriage, and said carriage movable on a stationary frame, substantially as set forth.

2. In a mining-machine, a cutter having a V-shaped groove on its cutting-edge, said edge being sloped back from the shank to the end of said cutter in a direction reversely inclined to the movement of the chain, substantially as set forth.

3. In a mining-machine, a cutter having a V-shaped groove on its end and its cutting-edge sloped back from the shank to the end of said cutter in a direction reversely inclined to the movement of the chain, substantially as set forth.

482,047. SHIPPING RECEIPT-BOOK. JOHN D. D. MORTIMER, Stockton, Cal. Filed Feb. 24, 1892. Serial No. 422,678. (No model.)



Claim.—As an improved article of manufacture, the shipping receipt-book herein described, consisting, essentially, of the covers A, suitably connected together, the shipping-order detachably connected to a stub, which in turn is permanently connected to the covers, the detachable shipping-receipt arranged after the shipping-order and next to the same, said shipping-receipt being detachably connected to a stub, which in turn is permanently connected to the covers, and the permanent or stationary shipping-receipt arranged after the detachable shipping-receipt and next to the same, the said permanent shipping-receipt, which is designed to remain in the book and form a permanent record, being permanently connected to the covers, substantially as specified.

482,048. ANNEALING-OVEN. DANIEL W. MURPHY, Marion, Ohio. Filed Apr. 5, 1892. Serial No. 427,998. (No model.)

482,050.

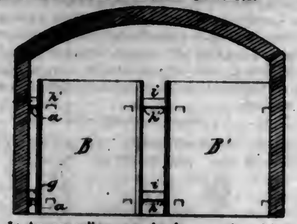
482,052.

Claim.—1. In apparatus for purifying and disposing of sewage, the combination, with a sewer-main and a tank or pit into which such main opens, of a support carrying a series of traveling perforated screening-buckets for receiving the contents from the main, a press for receiving the solid matter from the buckets and provided with a pipe leading back to the pit, a delivery-chute between the buckets and press, a pipe leading to the bottom of the pit and provided with an enlarged lower end, and a pump connected to the upper end of said pipe, substantially as shown, and for the purpose set forth.

2. In apparatus for purifying and disposing of sewage, the combination, with a sewer-main and a tank or pit into which said main opens,

manent record, being permanently connected to the covers, substantially as specified.

482,048. ANNEALING-OVEN. DANIEL W. MURPHY, Marion, Ohio. Filed Apr. 5, 1892. Serial No. 427,986. (No model.)



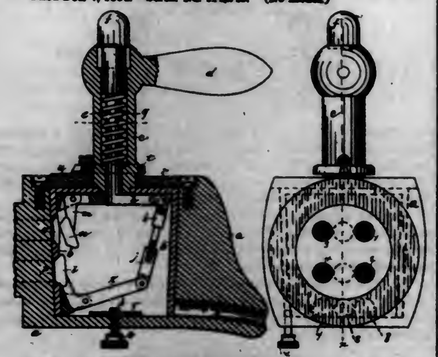
Claim.—1. An annealing-oven having a series of inwardly-projecting seats, in combination with annealing-pots, and devices resting on the seats on the oven-walls and bearing against the pots, and devices resting between the pots, substantially as set forth.

2. An annealing-oven having a series of inwardly-projecting seats, in combination with a series of sectional annealing-pots and devices resting on the seats in the oven-walls and bearing against sections of the pots, and removable devices interposed between the pots for supporting the sections thereof, substantially as set forth.

3. The combination, with an annealing-oven having a series of inwardly-projecting seats, of sectional annealing-pots formed of detachable sides and ends, said sides and ends having outwardly-projecting seats, and devices interposed between the pots and walls of the oven and between the pots, substantially as set forth.

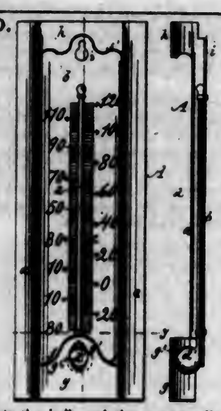
4. An oven, in combination with two longitudinal series of sectional annealing-pots, and removable devices interposed between the adjacent ends of the pots of the two series for holding said ends in position, substantially as set forth.

482,049. FAUCET OR VALVE. FRANK POMPEO, Chicopee, Mass. Filed Dec. 7, 1891. Serial No. 414,946. (No model.)



Claim.—In a compound faucet and valve, the combination of a casing provided with a chamber and having four inlet-ports and one outlet-port, a rotatable shell fitted in the chamber and formed with a hollow vertical stem and provided with two inlet ports to register with two inlet ports of the casing and two outlet-ports to register in turn with the outlet-ports of the casing, a vertical movable spring-actuated rod in the hollow stem of the shell having a radially-arranged arm on the lower end within the rotatable shell, valves fulcrumed in the shell to open and close the inlet-ports thereof, and connections between the valves and the arm of the vertically-movable rod, substantially as shown and described.

482,050. THERMOMETER-CASE. JOHN D. WARD, Phelps, N. Y. Filed Jan. 21, 1892. Serial No. 418,769. (No model.)



Claim.—1. A thermometer-case made from a single piece of sheet metal provided with a guard *g*, struck out from the bottom, forming a shield and cover to the bulb, as herein shown and described.

2. A thermometer-case made from a single piece of sheet metal provided with a guard *g*, struck out from the bottom, said guard having an arch *g'*, with an opening *g²* therein which comes opposite the inclosed bulb, as and for the purpose specified.

3. A thermometer-case made from a single piece of sheet metal provided with the body *b*, the side ribs *a a*, the guard *g* at the bottom, forming a shield to the bulb, and the corresponding guard *h* at the top, as shown and described, and for the purpose specified.

482,051. STOPPER FOR INKSTANDS. CHARLES L. WEBBER, Jr., Bradford, Pa. Filed Dec. 31, 1891. Serial No. 416,690. (No model.)



Claim.—1. A stopper for inkstands, consisting of a flexible cork adapted to fit ink-wells of different sizes, said cork being provided with a central opening of greater diameter than the dip-cup to admit of the lateral play of said tube and having a dome-shaped top having a central opening therein and a very flexible and yielding apex and comparatively thick lower walls, substantially as set forth.

2. A stopper for inkstands, consisting of a flexible cork having thick walls, a central opening of greater diameter than the dip-cup or ink-conveying tube to permit of the lateral play of said tube within said opening, and a dome-shaped top having comparatively thick lower walls and a thin flexible and easily-yielding apex and a central opening to receive the dip-cup or ink-conveying tube, in combination with an ink-conveying tube and dip-cup, substantially as set forth.

3. In a stopper for inkstands, the combination, with a dip-cup and ink-conveying tube, of a cork having a lower portion of a thickness and solidity to adapt it to fill the mouth of the ink-well and having a tapering circumference to adapt it to fit ink-wells of different sizes and a central opening of greater diameter than the diameter of the ink-conveying tube, and a dome-shaped cap having a thin flexible and easily-yielding centrally-bored apex and comparatively thick lower walls, substantially as and for the purpose set forth.

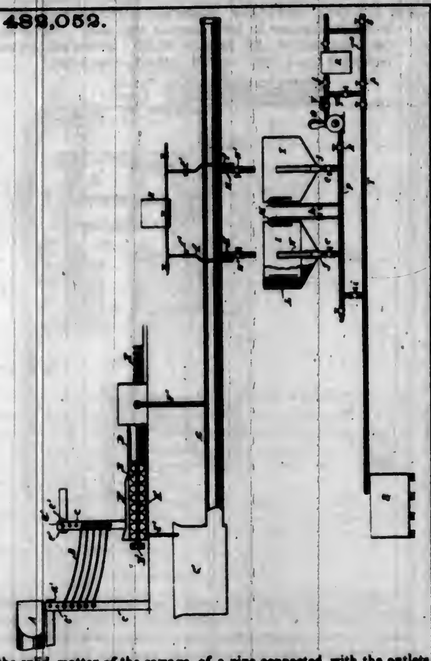
482,052. APPARATUS FOR PURIFYING SEWAGE. JOHN WILSON, New York, N. Y., assignor to Roman Dohm, same place. Filed Nov. 16, 1891. Serial No. 412,093. (No model.)

Claim.—1. A sewage disposal plant comprising, in combination, the following devices: a series of inclined screens for receiving the sewage discharged from a main and upwardly curved at the ends remote from the discharge, a conveyer and press for receiving and compressing the solid matter, a conduit for carrying off the liquid separated and expressed from the solid matter, tanks into which said conduit discharges, outlets for said tanks at different levels therein for drawing off the liquid or the sludge, and a pump connected with the outlets and ducts or pipes therefrom to a discharging-filter and to a receptacle for the sludge, as set forth.

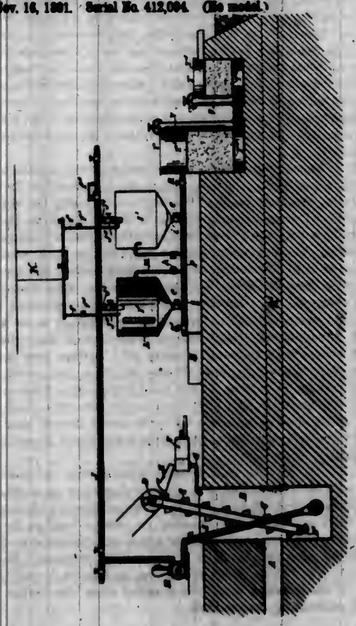
2. The combination, with a main tank or receptacle for containing the liquid separated and expressed from the solid matter of a sewerage system, of a series of tanks under independent discharge-pipes from the main tank, a reservoir for chemicals connected with the said discharge-pipes or the tanks thereunder, a conduit for liquid from each of the series of tanks, a pump and filter therein, and a discharge-pipe at a lower level for the sludge, as set forth.

3. The combination, in a sewage-disposal plant, with a series of settling or storage tanks for the liquid separated and expressed from the solid matter of the sewage, of a pipe connected with the outlets of said tank and a pump connected therein, a pipe or duct from said pump to and through a filter, another around said filter, another pipe T to a tank or receptacle for sludge, and a pipe or duct from the outlet of the tanks to the sludge-tank direct, and cocks or valves for controlling said pipes or ducts, as herein set forth.

482,052.



482,058. APPARATUS FOR PURIFYING SEWAGE. JOHN WILSON, New York, N. Y., assignor to Roman Dohm, same place. Filed Nov. 16, 1891. Serial No. 412,094. (No model.)



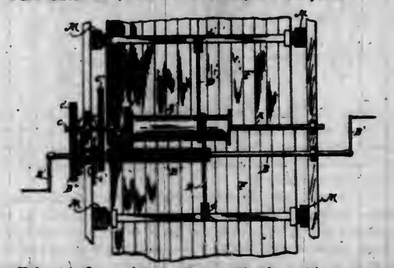
Claim.—1. In apparatus for purifying and disposing of sewage, the combination, with a sewer-main and a tank or pit into which such main opens, of a support carrying a series of traveling perforated screening-buckets for receiving the contents from the main, a press for receiving the solid matter from the buckets and provided with a pipe leading back to the pit, a delivery-chute between the buckets and press, a pipe leading to the bottom of the pit and provided with an enlarged lower end, and a pump connected to the upper end of said pipe, substantially as shown, and for the purpose set forth.

2. In apparatus for purifying and disposing of sewage, the combination, with a sewer-main and a tank or pit into which said main opens, of a support carrying a series of traveling perforated screening-buckets for receiving the contents from the main and elevating such contents to the top of the pit, a delivery-chute, a press receiving the material from said chute, a pipe leading to the bottom of the pit, two or more separate settling-tanks, and pipe connections between said settling-tanks and pumps and provided with suitable cocks and valves, substantially as and for the purpose described.

3. In apparatus for purifying and disposing of sewage of the character described, the combination, with the elevator, press, and pump, of the discharge-pipe leading from said pump, the settling-tanks, and the branch pipes connecting said discharge-pipe with said tanks, the reservoir, and the pipes leading from said reservoir and communicating with the branch pipes, each of the pipes named being provided with suitable cocks or valves, substantially as shown, and for the purpose set forth.

4. In apparatus for purifying and disposing of sewage, the combination, with the settling-tanks, of the pipe or conduit communicating therewith at the bottom and provided with suitable cocks or valves, the sludge-tank S, the siphon-pipes connecting said tanks with the conduit and controlled by cocks, and a suitable filter apparatus, substantially as described.

482,054. HAND-ELEVATOR. HENRY G. ZOECKNICK, Cleveland, Ohio. Filed Feb. 5, 1891. Serial No. 380,870. (No model.)



Claim.—1. In an elevator, the combination, with a car or cage and a revolubie drum capable of sliding endwise, of a hoisting-rope passed over the drum and extending in two directions from the latter and adapted to impart endwise motion to the drum in either direction to accommodate the position of the drum to itself, and elongated gear intermeshed with a gear on the drum for the purpose of accommodating the position of the drum, substantially as set forth.

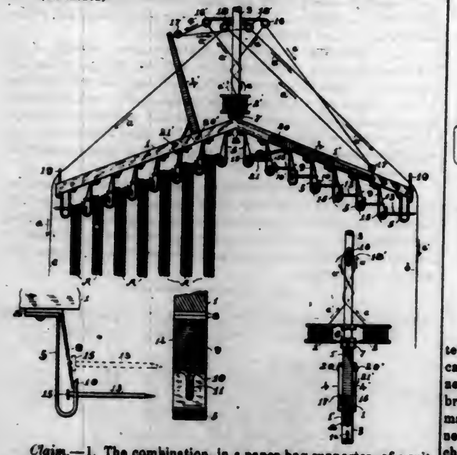
2. In a hand-elevator of the variety indicated, the driving-shaft thereof having ratchet-wheels and engaging pawls arranged in reverse order, cords connected with the respective pawls and operatively connected with a gravity-lever in common, whereby the casting of each lever tilts and holds inoperative the one pawl or the other, according to the direction that the gravity-lever is tilted, substantially as set forth.

482,055. SEALED CAN. GEORGE W. GARRISON, East Orange, N. J., assignor to Reed & Carnrick, New York, N. Y. Filed Feb. 6, 1890. Serial No. 339,330. (No model.)



Claim.—The can-body having an inwardly-turned annular shoulder *a* and an upwardly-projecting rim *f*, forming an annular recess in its outer surface for receiving the downwardly-turned flanges or lips of the inner and outer covers, in combination with an inner soft-metal head or cover having an upturned flange extending from shoulder *a* and having its edge or lip *d* turned over and soldered to the outer edge of rim *f*, away from the contained food, as described, and an outer slip-cover having its flange in said recess flush with the body of the can, whereby a space or chamber is formed between the covers below the top edge of the can and burning of the food is avoided during the soldering operation, as described.

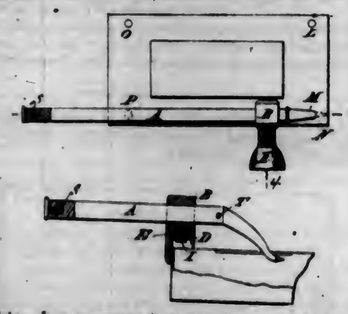
482,056. PAPER-BAG HOLDER. HENRY F. ELTON and JONATHAN W. CADWELL, New York, N. Y. Filed Oct. 16, 1891. Serial No. 408,872. (No model.)



Claim.—1. The combination, in a paper-bag supporter, of a suitable frame, a holder depending therefrom, a slot therein to receive the bag-supporting wire or nail, and a spring whose free end closes the upper end of said slot to prevent the accidental displacement of the wire or nail, as described.

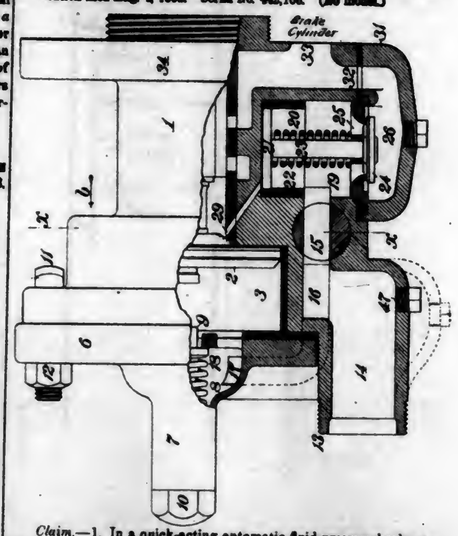
2. In a paper-bag supporter of the character described, the combination, with a suitable supporting-frame, of the holder 5, whose curved end 10 is provided with the slot 11 to admit the body portion of a nail below its head, spring 9 to close the upper open end of said slot so as to retain the nail therein, as shown, and slot 14, formed through both said spring and holder, said latter slot placed above the curved slotted end of said holder and the free end of said retaining-spring, so as to receive the point of a nail whose head portion rests in the holder adjacent thereto, in the manner and for the purpose set forth.

482,057. CAN-OPENER. JOHN H. GOLDEN, Bay Shore, N. Y. Filed May 8, 1891. Renewed Aug. 6, 1892. Serial No. 442,200. (No model.)



Claim.—In a can-opener, the combination, substantially as before set forth, of the self-adjusting block B, the knife D, and the guide E, the lever A, and the handle F, constructed to form a complete device to open all forms of cans.

482,058. AIR-BRAKE. THOMAS J. HOGAN, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Original application filed June 20, 1891, Serial No. 396,937. Divided and this application filed Aug. 4, 1892. Serial No. 442,108. (No model.)



Claim.—1. In a quick-acting automatic fluid-pressure brake system, the combination, with the main body or shell of the triple-valve casing, of a nozzle or connection formed integral therewith for connection with the train-pipe, whereby the train-pipe, triple valve, and brake-cylinder or auxiliary reservoir, to whichever the triple valve may be directly connected, may form a permanent rigid structure beneath the car, a separate removable head for the triple-valve piston-chamber, and a separate removable head for the quick-acting devices, whereby the triple valve or the quick-acting devices, or both, may be removed or examined without breaking the continuity between the triple-valve casing and the train-pipe, substantially as set forth.

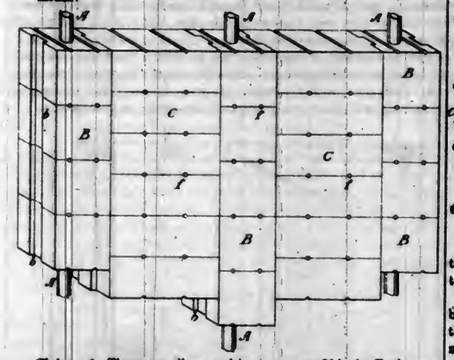
2. In an automatic fluid-pressure brake system, a quick-acting triple-valve casing consisting of a main body or shell containing the triple valve and its piston, a nozzle or connection formed on the main body or shell for connection with the train-pipe, a passage from this nozzle or connection to the triple-valve piston-chamber, another passage from the nozzle to the quick-acting valve, a separately-removable cover for the triple-valve piston-chamber, and a separately-removable cover for the quick-acting valve devices, whereby the triple valve and quick-acting devices are accessible for examination or repair without disturbing the rigid permanent structure formed by the train-pipe, triple valve, and brake-cylinder or auxiliary reservoir, substantially as set forth.

3. In an automatic fluid-pressure brake system, the combination, with the triple valve, of a train-pipe nozzle or connection formed integral with the main body of the triple-valve casing for permanent connection to the train-pipe, passages in the main body or casing and leading from said nozzle or connection to the triple-valve piston-chamber and to the quick-action valve, a valve in the latter passage for connecting or disconnecting the quick-action devices, and separately-removable heads or covers for the triple-valve piston-chamber and quick-acting devices, whereby these parts may be removed without breaking connection with the train-pipe, substantially as set forth.

4. In an automatic fluid-pressure brake system, the combination, with a quick-acting triple-valve casing, of a passage from the train-pipe to the brake-cylinder controlled by the quick-acting valve, a valve in said passage for cutting out the quick-acting valve from communication with the train pipe, and a separately-removable cover for the quick-acting devices, whereby the quick-acting devices may be examined or repaired without opening the train-pipe to the atmosphere, substantially as set forth.

5. In an automatic fluid-pressure brake system, the combination, with a triple-valve casing, of a quick-acting valve controlling communication from the train-pipe to the brake-cylinder, and an automatic drain-valve located in the chamber or passage between the quick-acting valve and the brake-cylinder and so constructed as to close automatically when said chamber is subjected to pressure by the opening of the quick-acting valve and to open automatically and drain the water of condensation from said chamber when the brakes are released, substantially as set forth.

482,059. CONSTRUCTION OF SEA-WALLS. ALSTON C. KINWAY, Tacoma, Wash. Filed June 16, 1891. Serial No. 396,483. (No model.)



Claim.—1. The sea-wall comprising courses of blocks B, the metallic piles A, arranged in said courses, and the courses of blocks C, of different heights from the blocks B, said blocks being all locked together by tongue-and-groove joints, whereby great lateral strength is obtained without the use of mortar and the blocks made to break joints, substantially as specified.

2. A sea-wall comprising metallic piles and concrete blocks locked together by tongue-and-groove joints, said blocks having edge grooves which serve the twofold function of passages for tide-water and receiving a sling in lowering them, substantially as specified.

482,060. TORPEDO-CASE. WILLIAM S. LOWE and GERDON W. VAN KENNELAER, Lima, Ohio. Filed Aug. 27, 1891. Serial No. 403,900. (No model.)



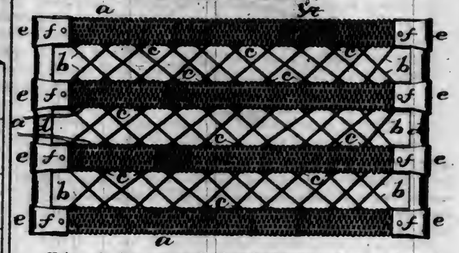
Claim.—1. A torpedo-shell the side walls whereof are composed of flexible material and the ends of rigid material and the connecting devices extending from one end to the other and located within the shell.

2. A torpedo-shell comprising side walls, the bottom located at one end and a perforated cap located at the opposite end, substantially as set forth.

3. In a torpedo-case, the combination, with a cylindrical shell, of a bottom having a conical lower end and a concaved upper end, substantially as set forth.

4. The combination, with a body portion, of a top provided with a conical inner end having perforations therein and a bottom having a conical outer end and a concaved inner end, substantially as set forth.

482,061. WIRE MAT. THOMAS MIDGLEY, Beaver Falls, Pa. Filed Mar. 21, 1892. Serial No. 426,234. (No model.)



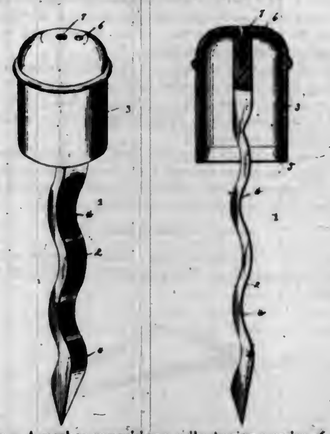
Claim.—1. A wire mat having flexible bars forming the ends thereof abutting the metallic body and secured thereto by clips extending around the bars.

2. A wire mat composed of bars and separating sections, in combination with flexible bars abutting the metallic body and secured thereto by clips extending around the flexible bar and secured to the mat.

3. A wire mat composed of bars of coiled-wire helices and separating sections, in combination with flexible bars abutting the ends of the former bars and secured thereto by metallic clips extending around the flexible bars and surrounding the ends of said wire bars.

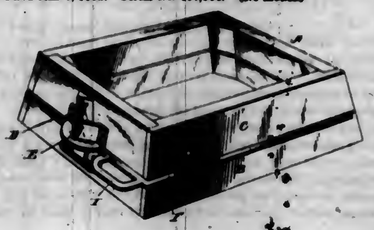
4. A wire mat having flexible bars at the end, in combination with metallic clips provided with lateral extensions to engage a bar of the mat and a tongue to surround the flexible bar.

482,062. LAND-MARKER. HENRY C. MCBROOM, Nashville, Tenn. Filed Sept. 11, 1891. Serial No. 405,413. (No model.)

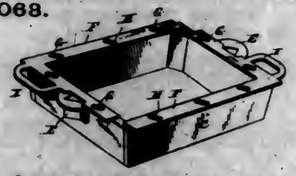


Claim.—A marker comprising a spike having a series of sinuous bends and provided in its head with a threaded socket, a cylindrical cap fitting over the head of the spike and having a central opening in its top and with a perforation near the opening and having its lower edge sharpened and adapted to be driven into the ground, and a screw passing through the central opening of the cap and engaging the threaded socket of the spike, substantially as described.

482,063. MOLDING-FLASK. JAMES G. NEWBURY, Gowanda, N. Y. Filed Jan. 7, 1892. Serial No. 417,301. (No model.)

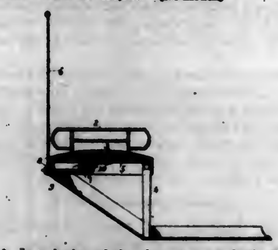


482,068.



Claim.—In a molding-flask, the combination, with the cope, of retaining set-screws secured in the bottom edges of said cope, and opposite right-angled sand-supporting plates provided with diagonal slots working over said set-screws, and with handles to slide said plates toward the center of the cope to form an inner sand ledge or shelf or withdraw the same, substantially as set forth.

482,064. VEHICLE-SEAT. THOMAS B. PADGITT, Dallas, Tex. Filed May 26, 1892. Serial No. 434,356. (No model.)

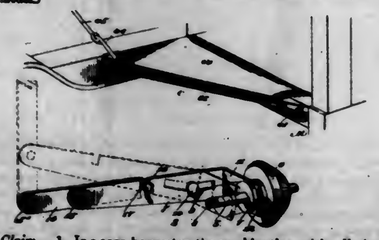


Claim.—1. In a device of the character set forth, the combination of hinged end arms or irons and legs, hooks on the bottom side of the seat, the seat-body, the foot rod or rail, and safety-hooks, all constructed and arranged as set forth.

2. In a device of the character set forth, the combination of the seat-body or stool, hooks connected to the under side of the same, a foot rail or rod, and safety-hooks engaging said foot rail or rod and arranged in such manner as to prevent slipping of the seat or stool body, substantially as described.

3. In a device of the character set forth, the removable seat-body or stool having the hinged end arms 2, the hinged legs 4, and the hooks or bolts 10, arranged on the under side and adapted to hold the seat or stool in position, substantially as described.

482,065. CORN-HARVESTER. HENRY C. PROPLES and ALONZO R. PROPLES, Eskridge, Kans. Filed Aug. 14, 1891. Serial No. 402,634. (No model.)

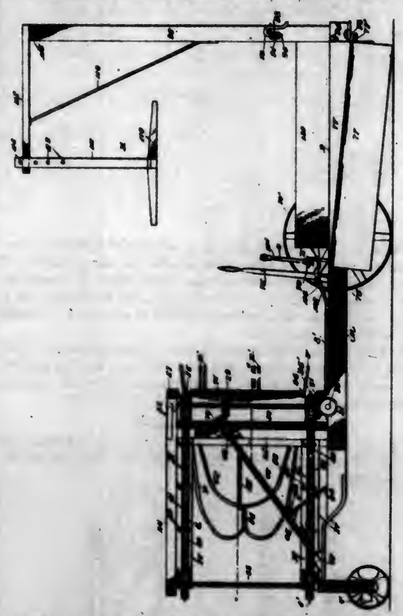


Claim.—1. In a corn-harvester, the combination, with a discharge-table consisting of a series of slats axially pivoted in a pivoted transverse sill at the forward end of the table and pivoted spring-actuated retaining-arms at the rear end thereof, of means for maintaining the slats in a horizontal position within their supports, substantially as specified.

2. In a corn-harvester, the combination, with the main frame and the cutting apparatus, of a table comprising slats, each pivoted in an oscillating bar extending across the frame, means for rocking said bar, spring-actuated retaining-arms at the delivery-edge of the table, adapted to support it when raised, and means for turning the slats on their pivots to discharge the stalks, all substantially as described.

3. In a corn-harvester, the combination, with the main frame and the cutting apparatus thereon, of a dumping-table comprising a series of axially-pivoted slats mounted at their front ends in a transverse bar journaled in the frame, arms extending from the front corners of the slats, a metal strap pivotally connected to the upper ends of the arms, a latch on said bar for locking the slats in their flat positions, and retaining-arms at the rear end of the table for supporting the slats, substantially as specified.

4. In a corn-harvester, the combination, with the main frame, a transverse bar journaled in said frame, a handle rising from said bar, a number of slats, each having one thin edge, and pins projecting from the ends of the slats near their thin edges, those at the front ends being pivoted in said bar, of retaining-arms pivoted to the frame and having lower horizontal members adapted to support the pins at the rear ends of the slats when the arms are swung inwardly and the means for turning said slats on their pivots, substantially as described.



5. In a corn-harvester, the combination, with the frame having a transverse bar, a number of slats, each having one thin edge, pins projecting from the ends of the slats near their thin edges, those at the front being journaled in said bar, and arms adapted to support the rear pins, of straps secured across the slats and each having a forwardly-bent end, two horizontal straps, each pivotally mounted on the forwardly-bent ends at its side of the frame, a toggle-lever connecting the inner ends of said horizontal straps, and a latch for said lever, substantially as described.

6. In a corn-harvester, the combination, with the main frame, two banks of slats therein, each slat being pivotally supported near one edge, a horizontal strap connected to each bank, and a toggle-lever connecting said straps, of a button on the frame adapted to engage the knuckle of said lever, an upright adjacent said knuckle, and a tripping-lever pivoted to said standard and passing beneath the knuckle, as and for the purpose set forth.

7. In a corn-harvester, the combination, with the main frame and a dumping-table therein having pins projecting from its delivery-edge, of uprights on the frame, eyes therein, retaining-arms whose upper ends are pivoted in said eyes and thence extend forwardly and whose bodies are adapted to engage said pins, and springs throwing said arms normally forward, so that their forwardly-bent ends will strike said uprights, as and for the purpose set forth.

8. In a corn-harvester, the combination, with a main frame and a dumping-table therein having pins projecting from its delivery-edge, of uprights on the frame, eyes therein, retaining-arms, each comprising a horizontal lower member pivoted at its outer end to the frame, its inner end extending slightly to the rear, an upwardly-inclined upper member leading therefrom into an inverted U at its upper end and thence forwardly, the lower member being adapted to engage said pins, an eye in the upright in which said U is pivoted, and means for throwing the arm normally forward, as and for the purpose set forth.

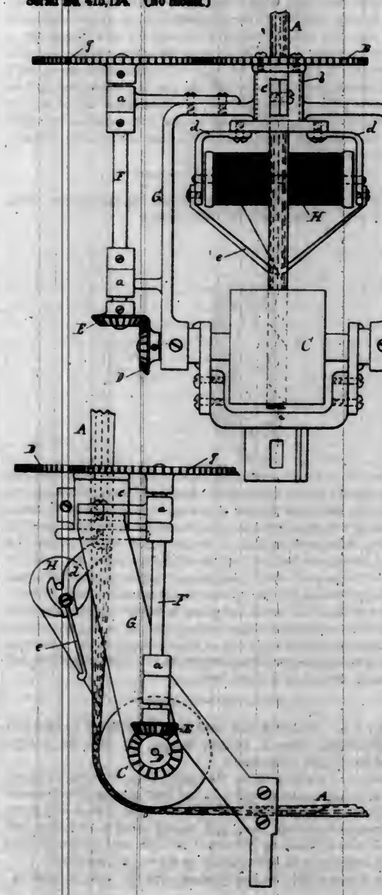
9. In a corn-harvester, the combination, with the framework having a stub-shaft provided with a box and the main wheel mounted on said shaft and having a toothed ring, of a shaft one end of which is journaled in said box and the body of which adjacent this end is squared, a gear having a square hub sliding on said shaft and adapted to engage said ring, a grooved collar connected to said gear, a lever pivoted to said frame and having a finger, and a plate pivoted to the lever, having a slot in its body sliding over a stud on the frame having an outturned end provided with a notch engaging the groove in the collar and having a notch in which said finger is adapted to rest, as and for the purpose set forth.

10. In a corn-harvester, the combination, with the frame, an upright thereon, and the cutting apparatus, of a guiding-finger comprising two stout spring-wires crossed and twisted together at their centers, turned on edge, and bent into U shape in plan, one end of the U being secured in said upright and the other end projecting to the rear above said cutting apparatus substantially as described.

11. In a corn-harvester, the combination, with the frame mounted on wheels and a sill on said frame having a forward extension, of a knife pivoted near one edge of the extension with its other end moving in a slot, an upright shaft driven by connections with one of said wheels, grasping-fingers operated by the rotation of said shaft, an inclined crank-shaft terminating at its upper end in a gear meshing with a gear on the upright shaft, and a pitman-rod connected at one end with the crank and at the other end with the movable end of the knife, as and for the purpose set forth.

12. In a corn-harvester, the combination, with stub-axles having boxes on their front sides, main wheels on said axles, and toothed rings on said wheels, of shafts journaled in said boxes and leading forwardly, the cutting apparatus connected oppositely with and operated by said shafts, gears and collars on the shafts, and shifting mechanism, substantially as described, for moving each gear by its collar into or out of mesh with the toothed ring on the main wheel, as and for the purpose hereinbefore set forth.

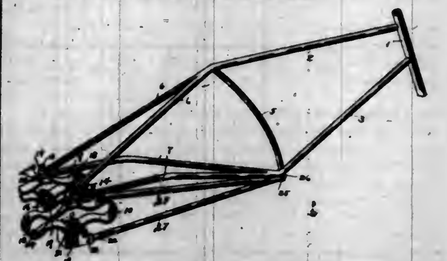
482,066. MECHANISM FOR WRAPPING WARP-CHAINS. CHAS. E. SOUTHMAYD and HENRY GILBARD, Lewiston, Me. Filed Dec. 15, 1891. Serial No. 415,134. (No model.)



Claim.—1. A roll arranged to be rotated by the frictional contact of a chain of warping, in combination with a wheel having a tubular hub through which the said chain passes, a spool arranged transversely with relation to the said chain and carried by the said hub in its rotation to wind a thread around the said chain and intermediate gearing, whereby the said roll transmits rotation to the said wheel and spool, whereby the said chain in its forward motion causes the thread to be wound around it, substantially as set forth.

2. In combination with the roll C and its shaft, the gear-wheels D E, the shaft F, driven thereby, the wheel *g*, turning with the said shaft, the wheel B, meshing with wheel *g* and having a tubular hub *b*, the detachable arms *d*, attached to the said hub, the transverse spool H, journaled in the said arms and rotating with the said hub, and frame G, to which all the said parts are attached, the relative arrangement of the hub, spool, and roll being such that a chain of warping which passes straight through the said hub will be in contact with and impart motion to the said roll and be wound by the thread from the said spool as the latter is carried around by the hub *b*, substantially as set forth.

482,067. BICYCLE. FRANK SWEETLAND, Angola, N. Y. Filed Feb. 10, 1892. Serial No. 420,994. (No model.)



Claim.—1. In a machine of the class described, the combination, with the framework bifurcated at its rear end to form a fork, each of the bifurcations terminating in eyes, a pair of blocks having tenons fitting the eyes, and nuts threaded on the tenons, said blocks being provided at their lower ends with base-plates having a depending tenon and pairs of perforations, of a pair of axle-blocks having transverse axle-receiving openings and their upper sides provided with base-plates having upwardly-disposed studs and pairs of perforations, the bowed springs interposed between the upper and lower blocks, U-shaped clips passing at the opposite sides of the springs and through the base-plates, nuts mounted on the clips, and a brace-bar pivotally connected to the lower block and at its front end to the framework, substantially as specified.

2. In a machine of the class described, the combination, with the rear end of the framework and the axle-supporting blocks, of the intermediate springs 9, having the gradually-curved ends 10 and upper and lower central oppositely-bowed portions 11, substantially as specified.

3. The combination, with the upper and lower reaches 2 and 3, the upper and lower sockets 4, the latter being provided with the pairs of perforated ears 25, the upper and lower converging forks 6 and 7, terminating in eyes, and the blocks 8, secured to the eyes, of the pairs of bow-springs 9, the lower axle-blocks 18, having the ears 22, and the brace-bars 27, pivoted between the ears 22 and 25, substantially as specified.

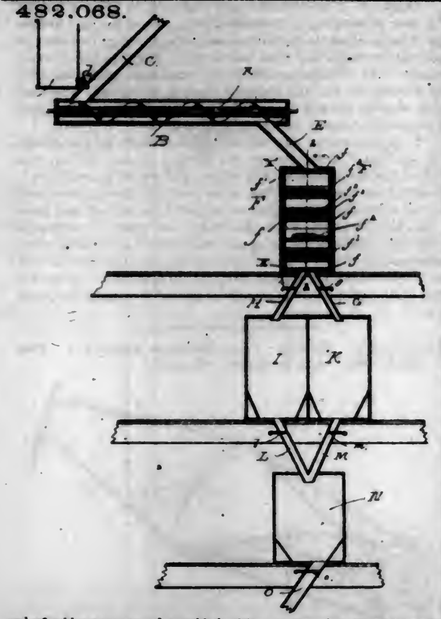
482,068. PROCESS OF AND APPARATUS FOR TREATING WHEAT. CHARLES O. WEBB, Longmont, Colo. Filed July 30, 1891. Serial No. 401,204. (No model.)



Claim.—1. A process for preparing wheat before grinding, which consists in first dampening the wheat-berry in an aqueous solution of soda, passing the soda-dampened or wet berry tortuously through a steam-heated chamber to subject the same to the action of steam-heat and cause a penetration of the soda into the berry, and finally successively passing it into and allowing it to remain within a series of bins, substantially as set forth.

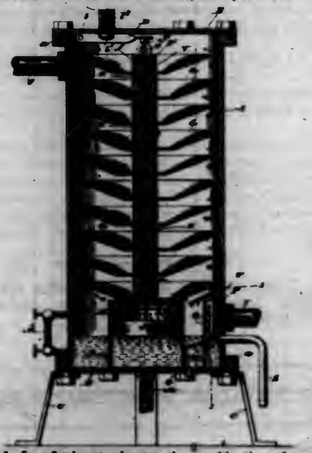
2. In an apparatus for preparing wheat, the combination, with a screw conveyer and a solution-containing tank located at one end thereof, of a steam heater or penetrator connected with the opposite

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end of said conveyer and provided with a rectangular steam-circulating frame of connected piping, a series of parallel horizontal circulating-pipes communicating with the sides of said rectangular frame of piping, and a series of alternately and diagonally arranged deflecting-plates located over said parallel pipes within the sides of the rectangular pipe-frame, and a series of communicating pins provided with valved openings and connected in series with said heater or penetrator, substantially as set forth.

482,069. FEED-WATER HEATER. JOHN J. WILSON, Wahoo, Nebr. Filed Jan. 21, 1892. Serial No. 418,958. (No model.)



Claim.—1. In a feed-water heater, the combination of a cylinder having a top water-inlet and a lower steam-inlet, a vertical supporting-tube centrally supported within said cylinder, a series of regularly-spaced concaved water-pans having eccentrically-disposed bottom perforations receiving said vertical supporting-tube and alternately disposed with relation to each other, so that the said concaved pans have their edges alternately contacting with the inner sides of the cylinder to form a tortuous steam-passage, a float-actuated valve-stem moving through said supporting-tube, and a valve arranged over the upper end of said stem, substantially as set forth.

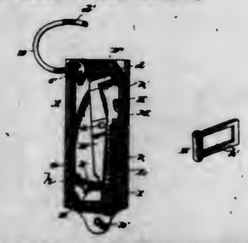
2. In a feed-water heater, the combination of the cylinder having an upper water-supply opening and lower steam-inlet, of a supplemental perforated cylinder resting upon the bottom of said main cylinder, a vertical supporting-tube supported upon said perforated cylinder, a series of spaced water-pans mounted upon said vertical tube and arranged out of line with each other, and a float-actuated valve working over said water-supply opening, substantially as set forth.

3. In a feed-water heater, the combination of a cylinder having an upper water-inlet and a lower steam-inlet, a supplemental perforated cylinder resting upon the bottom of said main cylinder, a vertical supporting-tube extending above said perforated cylinder, a series of spaced water-pans mounted over said supporting-tube, a float inclosed by and working within said perforated cylinder, a float stem connected with said float and working through said tube, and a valve controlled by said float-stem working over the water-inlet, substantially as set forth.

4. In a feed-water heater, the combination of a cylinder having an upper water-inlet and a lower steam-inlet, a supplemental perforated cylinder resting upon the bottom of the main cylinder, a vertical supporting-tube supported upon said perforated cylinder, a series of concaved water-pans mounted over said tube and arranged out of line with each other, intermediate spacing collars or blocks mounted over said tube, a float-controlled stem working through said tube, a valve-lever hinged to the top of the cylinder and carrying a valve working over the water-inlet and controlled by said float-controlled stem, and an oil collecting and discharging chamber located directly opposite said steam-inlet and opening into the cylinder, substantially as set forth.

5. In a feed-water heater, the combination of a cylinder having an upper valve-controlled water-inlet and a steam-inlet in one side near the bottom thereof, an oil-collecting chamber located directly opposite said steam-inlet and extending slightly above the same, said oil-chamber having a series of downwardly-inclined curved deflectors arranged upon one wall thereof directly opposite said steam-inlet, a series of perforations directly below said deflectors and opening into the cylinder for the escape of the water of condensation, an oil-drain below the steam-inlet and above the top line of perforations, and an inclined steam-deflector arranged over the open upper end of said oil-chamber and projecting downwardly beyond the same into the cylinder to direct the steam throughout the bottom of the latter, substantially as set forth.

482,070. PADLOCK. VORIES F. BROWN, San Antonio, Tex. Filed Apr. 5, 1892. Serial No. 427,861. (No model.)



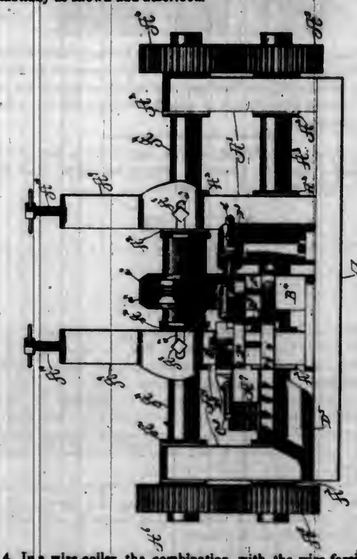
Claim.—In a lock, the casing having an opening in one end thereof, a shackle pivoted at one end to said casing and having a locking-perforation in the other end thereof, a locking-lever pivoted at its center in said casing and provided with a locking-pin at one end, adapted to engage the shackle-perforation, a leaf-spring arranged within the casing and having one end bearing against the pin end of said locking-lever to hold the same within said shackle-perforation, a key-guide plate arranged within the casing over the other end of said locking-lever and provided with a slot extending from end to end of the same and adapted to receive the blade or wing of a key, so that such blade or wing can engage said inner end of the locking-lever to move said lever, and a spring-actuated shackle-ejecting bolt arranged at one side of the casing, substantially as set forth.

482,071. MACHINE FOR MAKING COILED-WIRE FABRIC FOR BED-BOTTOMS. FRED L. BRYANT, Chicago, Ill. Filed Oct. 1, 1891. Serial No. 407,420. (No model.)

Claim.—1. In a wire-coiler, the combination, with the wire-forcing rolls, and shafts bearing said rolls, and bearing-posts receiving said shafts, of studs extending laterally from the upper ends of said posts, arches located above said posts and having notches receiving said studs, and screws extending downward through said arches to bear upon said shafts or rolls, substantially as shown and described.

2. In a wire-coiler, the combination, with the base A, posts A', shaft A^3, bearing a roll a^2, shafts A^4, each bearing a roll a^4, and bearing-blocks A^5, surrounding said shafts and resting in said posts, and gears A^6 and A^7, applied to said shafts, of studs extending laterally from the upper ends of said posts, and arches located above said posts and having notches receiving said studs, and screws extending downward through said arches to bear upon said shafts or rolls, substantially as described.

3. In a wire-coiler, the combination, with wire-forcing rolls and a coiling-spindle, of a guide B^9, extending from said rolls to said spindle and consisting of two superposed plates B^9, having a wire-passage between them and having arranged at the front of them a pair of rolls B^{10}, separately adjustable with reference to the paths of the wires, substantially as shown and described.



4. In a wire-coiler, the combination, with the wire-forcing rolls and the coil-forming spindle, of a post rising between said rolls and said spindle, a guide supported upon said post and consisting of two superposed guide-plates having a wire-passage between them, and two arms B^9, hinged to said guide in planes perpendicular to the plane common to both wires and each supporting a roller B^{10}, adjacent to a similar roller on the other of said arms, and means for forcing either of said rollers into the path of the adjacent wire independently of the other of said rollers, substantially as shown and described.

5. In a wire-coiler, the combination, with wire-forcing roll and a coil-forming spindle, of a channeled guide-support located between said rolls and said spindle, a guide located upon said support in the channel thereof and consisting of two superposed guide-plates having a wire-passage between them, one of said plates being cut away at its sides at the front sufficiently to receive at each side an arm B^9, and an arm B^9, located at each side of the plate and hinged thereto at the rear end, and rollers B^{10}, located between and each independently journaled to the adjacent arm B^9, the rear ends of said arm B^9 extending into and confined by the walls at the side of the channel in said guide-support, substantially as shown and described.

6. In a wire-coiler, the combination, with wire-forcing rolls and a coil-forming spindle, of a channeled guide-support located between said rolls and said spindle, a guide located upon said support in the channel thereof and consisting of two superposed guide-plates having a wire-passage between them, one of said plates being cut away at its sides at the front sufficiently to receive at each side an arm B^9, and an arm B^9, located at each side of said plate and removably hinged thereto by a pin b^9, extending through said arms and said guide-plate, and rollers B^{10}, located between and each independently journaled to the adjacent arm B^9, the rear ends of said arms B^9 extending into and confined by the walls at the side of the channel in said guide-support, substantially as shown and described.

7. In a wire-coiler, the combination, with the wire-forcing rolls and a guide for conducting the wire from said rolls, of a coil-forming spindle secured by an adjustable eccentric mounting, substantially as shown and described.

8. In a wire-coiler, the combination, with the wire-forcing rolls and a guide for conducting the wires from said rolls, of a post D, an adjustable eccentric block D^3, supported by said post D, and a coil-forming spindle located adjacent to said wire-guide and supported by said eccentric block eccentrically to the wrist of said eccentric block, substantially as shown and described.

9. In a wire-coiler, the combination, with wire-forcing rolls and a guide for leading the wire from said rolls, of a spirally-grooved spindle C, a shell C', surrounding said spindle, a prolongation c, a tapering loose shell C^3, surrounding said prolongation, and a guide-spindle C^5, secured endwise to said prolongation c, substantially as shown and described.

10. In a wire-coiler, the combination, with a spiral die, and means for forcing the wire through said spiral die, and a substantially cylindric coil-guide, of a plate D^2, a suitable support for said plate, a finger-block adjustably secured to said plate, and a finger extending from said finger-block into substantial contact with said coil-guide, substantially as shown and described.

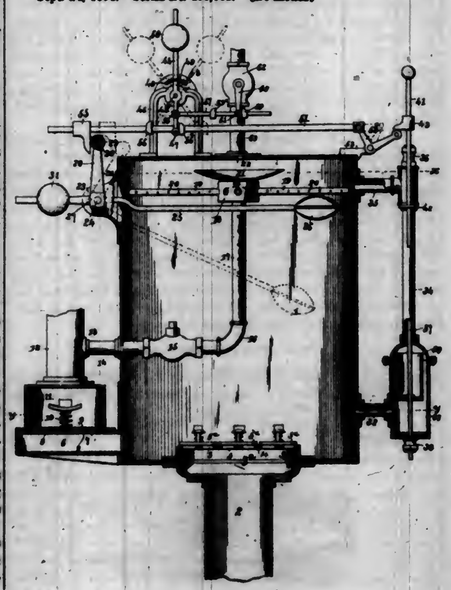
11. In a wire-coiler, the combination, with a spiral die, mechanism for forcing the wire through said spiral die, and a substantially cylindric coil-guide leading from said spiral passage, of a block D^2, a suitable support for said block, bolts D^7 and d^7 for adjustably securing said plate to said support, and a coil-engaging device adjustably secured to said plate and extending into the path of the coil, substantially as shown and described.

12. The combination, with a wire-coiler, of an obliquely-curved guide in front of said coiler and against which the wire bears as it leaves the coiler and means for adjusting said guide longitudinally and also in a direction at right angles to the axis of the coiler, substantially as shown and described.

13. In a wire-coiler, the combination, with devices forming a spiral passage and mechanism for forcing wire through said spiral passage, of coil-modifying mechanism embodying an engaging device arranged to extend from the outside of into the cylindric space occupied by the coil and being adjustable in a direction substantially parallel to the coiling-axis and also at right angles to said coiling-axis, whereby said engaging device may force the coil to traverse the path longitudinally out of the normal sufficiently to bend and permanently modify the pitch, substantially as shown and described.

14. In a wire-coiler, the combination, with devices forming a spiral passage, and mechanism for forcing wire through said spiral passage, and a spindle axially in line with said spiral passage and adapted to have the coil travel around it as said coil issues from said spiral passage, of coil-modifying mechanism embodying an engaging device arranged to extend obliquely over and partially embrace said spindle in a direction parallel to the adjacent portions of the coil and being adjustable in a space parallel to the surface of said spindle, substantially as shown and described.

482,072. STEAM VACUUM-PUMP. DAVID P. BURDON, Jacksonville, Fla., assignor of one-half to Paul Battelkan, same place. Filed Sept. 24, 1891. Serial No. 406,663. (No model.)



Claim.—1. In a steam vacuum-pump, the combination, with the steam vacuum-cylinder, the valve-controlling devices, and discharge-pipe, of a vertical spray-pipe connected with the discharge-pipe and extending vertically in said cylinder to near the top thereof, said vertical spray-pipe being provided with a series of longitudinally-arranged perforations and terminating at its extreme upper end in an enlarged collecting chamber or reservoir of larger diameter than the same, a series of radially-extending perforated spray-tubes connected to said enlarged chamber or reservoir and projecting near to the sides of the cylinder to thoroughly spread and diffuse the spray below the inlet, and a concaved diffusing-plate supported upon the top of said collecting chamber or reservoir directly beneath the cylinder steam-inlet to diffuse and spread the steam above and over the network of spray-tubes, substantially as set forth.

2. In a steam vacuum-pump, the combination, with a cylinder having a discharge-pipe extending above the top of the same, of a spray-condensing pipe connected to said discharge-pipe and projecting within said cylinder, a shaft journaled in the upper end of said cylinder, floats connected to said shaft, weighted bell-crank levers carried upon the outer ends of said shaft, an opposite reciprocating cup-stem, a horizontal valve-operating lever controlled in both directions alternately by said float-actuated bell-crank levers, and means for connecting said horizontal lever with the steam-valve, substantially as set forth.

3. In a steam vacuum-pump, the combination, with a cylinder having valved receiving and discharge openings and a spray-condensing tube, of a shaft journaled in the upper end of said cylinder, parallel float-carrying arms mounted upon said shaft within the cylinder, double bell-crank levers carried upon the outer ends of said shaft without the cylinder, an opposite reciprocating cup-stem, a horizontal operating lever or rod controlled in both directions alternately by said float-actuated bell-crank levers and said cup-stem, a weighted tilting lever controlled by said horizontal rod, and a valve arm or lever controlled by said tilting lever and connected with the steam-valve, substantially as set forth.

4. In a steam vacuum-pump, the combination, with a cylinder having valved receiving and discharge openings and a spray-condensing tube, of a shaft journaled in the upper end of said cylinder, floats connected to said shaft, weighted bell-crank levers carried by said shaft without the cylinder, a horizontal lever or arm controlled in one direction by said bell-crank levers, a bell-crank lever connected to one end of said horizontal rod, a vertically-reciprocating cup-stem engaging the bell-crank lever connected to said rod and operating the same in an opposite direction, a weighted tilting lever controlled by said horizontal rod, and a valve arm or lever connected with said tilting lever and the steam-valve, substantially as set forth.

5. In a steam vacuum-pump, the combination, with the cylinder, of the float-operated weighted bell-crank levers, a cup-cylinder connected with the main cylinder at its lower end, a tube projecting upwardly from said cup-cylinder and connected with the main cylinder at its upper end, a reciprocating stem mounted in said tube and cylinder and carrying a gravitation or float cup located within the cylinder, depending parallel arms connected to said reciprocating stem and carrying tappets, a horizontal rod or lever having a tappet at one end engaged by said weighted bell-crank levers, a bell-crank lever connected to the other end of said rod and adapted to be engaged by the tappets upon said depending arms, and means for connecting said horizontal lever with the steam-valve, substantially as set forth.

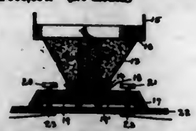
6. In a steam vacuum-pump, the combination, with the cylinder, of the float-operated bell-crank levers, the opposite reciprocating cup-stem carrying tappets, the horizontal lever or rod having a depending tappet engaged by said bell-crank levers and connected at its other end with a bell-crank lever operated by said stem and further provided with the intermediate spaced tappets, a U-shaped casting supported upon said cylinder and provided with a segmental slot, a tilting weighted lever pivoted to said casting and having a contact end engaged by said spaced tappets, and a stud or roller working in said slot, a horizontal valve lever or arm connected to said tilting lever and provided with spaced tappets, and a depending valve-operating lever engaging said tappets, substantially as set forth.

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Claim.—The herein-described envelope having soluble or fugitive ink applied to its inner surface and adapted to be covered and inclosed by a flap, substantially as described, said soluble or fugitive ink being slightly removed from the line of gum for securing the flap, substantially as described.

482,074. ELECTRICAL HEATER. JOHN V. CAPEN, New York, N. Y., assignor of one-half to Edward H. Johnson, same place. Filed Mar. 5, 1891. Serial No. 383,860. (No model.)



Claim.—1. An electrical heater consisting of an insulated heating-conductor and an inclosing sheet-metal box, the lower edge of the cover being bent under the box, thereby holding it in place and forming a tight joint, substantially as described.

2. An electrical heater consisting of an insulated heating-conductor and an inclosing box or case having a cover, a metal plate on the box-cover, and a screw or similar device passing through the plate, cover, and box and connecting said three parts together, substantially as described.

3. The combination of a heater, a box inclosing the same, a heating-platform for electrical heaters, consisting of a sheet-metal box, cover, and a copper plate in direct contact therewith and connected thereto, substantially as described.

4. The combination, with a heating-conductor and inclosing box, of a cover therefor and a composition containing graphite and a metallic oxide between the conductor and the cover, substantially as described.

5. The combination, in an electrical heater, of a heating-conductor, enlarged terminals therefor, an inclosing case, and conductors, in the form of screws or bolts, extending from the terminals to the outside of the case, substantially as described.

6. The combination, in an electrical heater, of a heating-conductor in the form of a volute coil, with a space at the center, and enlarged terminals therefor in said space, substantially as described.

7. The combination, in an electrical heater, of a heating-conductor in the form of a volute insulated ribbon, terminal plates or blocks having a thickness substantially equal to the width of the heating-conductor, and means for connecting the conductor thereto, substantially as described.

8. The combination, in an electrical heater, of an insulated heating-conductor in the form of an insulated ribbon, layers of asbestus treated with sulphate of alumina, below and above said heating-conductor, and an inclosing case, substantially as described.

9. The combination, in an electrical heater, of the base, the shell supported thereon, the heating-conductor, an inclosing box therefor supported by the shell, and the screw or rod connecting said parts together, substantially as described.

10. The combination, in an electrical heater, of the base, the metal terminals supported on said base, the shell also supported on the base, the heater supported on the shell, and the screws or conductors extending from the heating-conductor to said terminals, substantially as described.

11. The combination, in an electrical heater, of the base, the metal terminals supported on said base, the shell also supported on the base, the heater supported on the shell, and the screws or conductors extending from the heating-conductor to said terminals, and means for connecting the terminals to the supply-circuit, substantially as described.

12. The combination, with an electrical heater, of screws or similar devices passing through the base thereof and in electrical contact with the terminals of the heater and sockets in a table or similar support connected to the supply-circuit, whereby by inserting the screws

482,078. MEANS FOR DETECTING THE OPENING OF SEALED ENVELOPES. LESSEE P. CALLENDER, Madison, N. J. Filed July 28, 1891. Serial No. 400,711. (No model.)

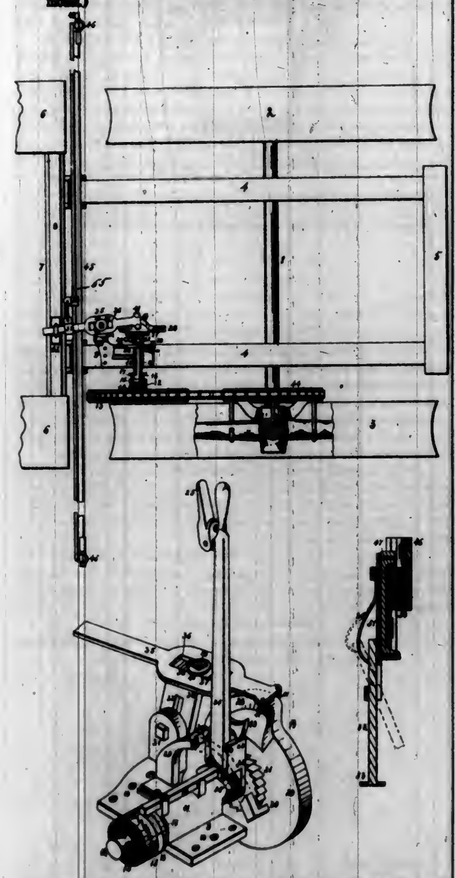


the circuit may be closed through the heater and at the same time the heater be held in place, substantially as described.

13. The combination of a shell or body forming a stand, a heater comprising a heating-conductor inclosed in a metal case supported thereon, and a mass of asbestus or similar material in the space within the shell below the heater, substantially as described.

14. The combination, in an electrical heater, of a heating-plate having depressions and a heater mounted on the under side of the plate below each depression, each of said heaters being complete in itself and adapted to concentrate heat at the point of the plate where it is secured, substantially as described.

482,075. MARKING ATTACHMENT FOR PLANTERS. CHARLES W. CRAPUE, Marengo, Ill. Filed Mar. 12, 1892. Serial No. 424,732. (No model.)



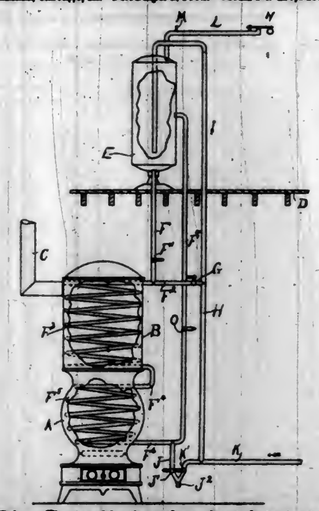
Claim.—1. A corn-planter having a main frame, supporting-wheels therefor, a sprocket-wheel affixed to one of the supporting-wheels, a shaft on the frame, a cam-wheel and a sprocket-wheel secured to the shaft, a marker rod and a seed-slide, a pivoted lever engaging the rod and the slide and having, also, an engagement with the cam, and an oscillatory marker-arm having a pivoted connection with the marker-rod, said marker moving transverse to the line of advance of the planter.

2. A corn-planter having a main frame, supporting-wheels therefor, a sprocket-wheel secured to one of the supporting-wheels, a shaft journaled in the frame, a sprocket-wheel and a cam-wheel on the shaft, a belt connection between the sprocket-wheels, a clutch for connecting the driven wheel and its shaft, a lever for operating the clutch, a seed-slide and a marker-rod, a lever having an enlargement with the slide and the rod and with the cam-wheel, and a movable joint for said lever.

3. A corn-planter having a main frame, supporting-wheels therefor, a seed-slide and a marker-bar, a marker-arm having a pivotal connection with the marker-bar, said arm having an upward yielding movement and a backward yielding movement for its lower end.

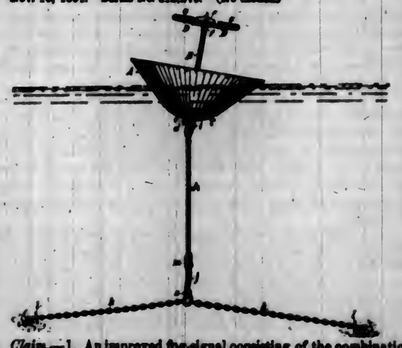
4. A corn-planter having a main frame, supporting-wheels therefor, a seed-slide and a marker-bar, a marker-arm having a pivotal connection with the marker-bar, said arm sliding in vertical ways and having an upward yielding movement therein, the lower portion of the arm having a pivotal connection with the upper portion, and a spring for holding the two parts in a vertical line.

482,076. APPARATUS FOR HEATING WATER. HENRY B. CLARKE, Chicago, Ill. Filed Apr. 1, 1892. Serial No. 427,248. (No model.)



Claim.—The combination of an elevated storage-tank, a lower heating apparatus containing a coil, a pipe F, leading from the top of the coil to the bottom of the tank, a pipe F^3, leading from the tank to the bottom of the coil, a supply-pipe K H, leading to the tank and discharging at the bottom thereof, a cross-pipe F^2, extending from the supply-pipe to the pipe which leads from the top of the coil to the bottom of the tank, and pipes communicating with the lower end of the pipe which leads from the tank to the bottom of the coil and with the feed-pipe, respectively, and terminating in an outlet-tube J^3, the said pipes being provided with suitable valves, whereby the circulation through the coil may be stopped or controlled.

482,077. FOG-SIGNAL. WALTER R. CLOSE, Bangor, Me. Filed Nov. 18, 1891. Serial No. 412,570. (No model.)

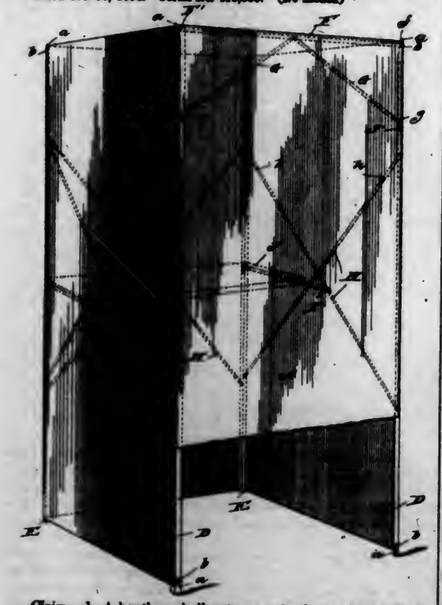


Claim.—1. An improved fog-signal consisting of the combination of a float, a vertical mast extending above said float, a gong attached to the upper end of said mast, radial arms projecting beneath said gong and beyond the same, tubes with one end closed attached to said radial arms in proximity to said gong, and rolling balls located within said tubes and adapted to roll and strike against said gong in the manner described, with an anchoring attachment consisting of a balance-rod secured to the bottom of said float and connected thereto

by a link, a cable fastened to the lower end of said rod, and tender-chains departing from said cable, their opposite ends attached to anchors, all substantially in the manner shown, and for the purpose set forth and described.

2. In a fog-signal, the combination, with a float having converging sides, of a heavy bottom secured thereto, the bottom surface of which is convex and provided with two depending lugs, a mast secured to the bottom and projecting above the top of the float, a gong secured to the top of the mast, tubes secured to the mast and projecting outward beyond the outer edge of the gong, balls within the tubes, a pin through the lugs on the bottom of the float, a link secured thereto, and anchoring mechanism secured to the link, substantially as set forth.

482,078. COLLAPSIBLE BOOTH. HENRY C. COOK, Oak Park, Ill. Filed Oct. 30, 1891. Serial No. 410,855. (No model.)



Claim.—1. A booth or similar structure having upright walls, the frame whereof is composed of vertical corner-posts connected by diagonal braces hinged at their ends to the posts and having joints between said ends, whereby the members of the braces may be folded and the frame may be collapsed, substantially as described.

2. A booth or similar structure the frame whereof is composed of vertical posts consisting of angle-bars, and diagonal braces hinged at their ends, respectively, to the said posts, said braces crossing each other on the same side and provided between their ends with joints to adapt them to be folded into the angles of the corner-posts, whereby the frame may be collapsed, substantially as described.

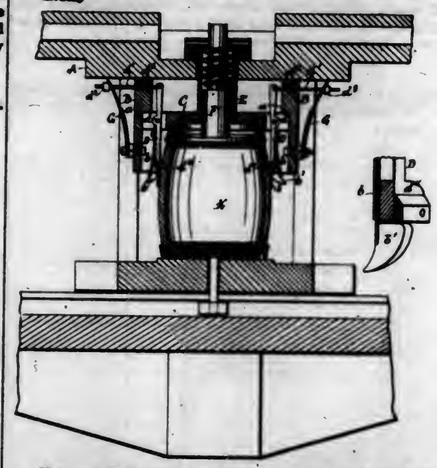
3. A booth the frame whereof is composed of metal corner-posts connected by hinged braces provided with joints between their ends, said corner-posts having hooks or lugs at their respective ends, and walls composed of canvas or other flexible material adapted to be engaged by said hooks or lugs whereby to secure the canvas or covering to the frame, the entire structure being thus adapted to collapse for storage or shipment without separation of its parts, substantially as described.

4. A booth the frame whereof is composed of vertical corner-posts connected by hinged braces provided with joints between their ends, and a bar having one end thereof hinged to the top of one of the corner-posts and the other end socketed into the other of said corner-posts, and diagonal braces hinged to said horizontal brace and having their ends adapted to engage the front corner-posts, substantially as described.

5. A booth the frame whereof comprises, in combination, vertical corner-posts connected by hinged braces and short bars or arms hinged to said braces and adapted to engage the rear corner-posts to support a table or shelf, substantially as described.

6. A booth the frame whereof comprises, in combination, vertical corner-posts connected by hinged braces and short arms or bars hinged at one end to one part of the frame and their free ends adapted to engage another part of the frame whereby to support a shelf, said shelf having grooves in its lower surface adapted to engage said arms or bars whereby to brace the structure, substantially as described.

482,079. MACHINE FOR HOOPING AND HEADING KEGS. THEODORE A. COOK, Callicoon Depot, assignor to James Mathison and Walter Mathison, Brooklyn, N. Y. Filed Nov. 3, 1891. Serial No. 410,730. (No model.)

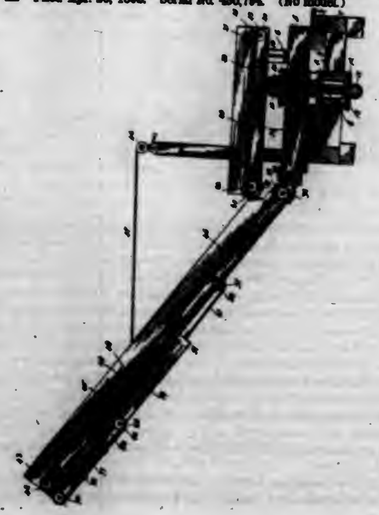


Claim.—1. The ring or casing B, formed with apertures d^3, the inclosed header-plate C, the hoop-drivers pivoted in the header-plate and projecting above the same, and the rods d', attached to the upper ends of the hoop-drivers and projecting through the apertures d^3 and provided with adjusting-nuts at the outer ends, in combination with the plate-springs G, bolted to the outside of the casing and engaging the said rods d', substantially as and for the purposes described.

2. The hoop-driver pivoted in the header-plate and having a spring *b* bolted to the outer surface thereof and projecting below the lower end of the driver, said spring being provided at its lower end with a cam *b'*, held by the spring at a point below the driver, substantially as and for the purposes set forth.

3. A hoop-driver provided with a spring and cam held by the spring at the lower end of the driver, in combination with another stronger spring attached to the upper end of the driver, substantially as described.

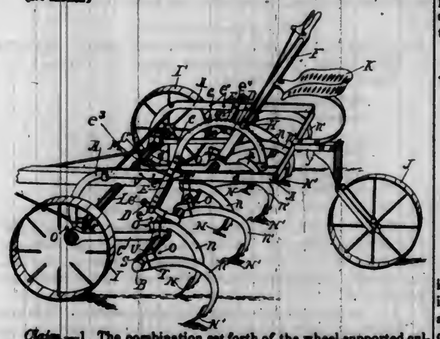
482,080. STRAW-STACKER. JAMES R. COOPER, Sugar Grove, Ill. Filed Apr. 26, 1892. Serial No. 430,794. (No model.)



Claim.—1. In a straw-stacker, the combination, with the frame 1, of a circular track carried thereby, the frame 5, having depending rollers engaging said circular track, the standards 3 and 6 in said frames 1 and 5, respectively, the circular top 4, resting on the top of the standards 3 and provided with a sleeve extending upwardly and downwardly therefrom through the standards 6 and 3, a shaft extending through said sleeve, carrying gear-wheels 12 and 14, uprights extending from the frame 5, side pieces supported by said standards, a conveyer traveling between said side pieces, a shaft supported by the frame 5, an elevator mounted to swing on said shaft, a longitudinally-sliding frame carried by said elevator, means for sliding said frame, a rope connected with said elevator and with a windlass carried by one set of the upright standards, pulleys in said elevator and in said longitudinally-sliding frame, conveyers traveling on said pulleys, gear mechanism intermediate said pulleys and the gear-wheel 14, and means connected with the gear-wheel 12 for driving the conveyer-belts, substantially as described.

2. In a stacker, the combination, with a frame 1, adapted to be secured to a separator, a standard 3, rigidly fixed in said frame 1 and having a smooth circular top 4 and provided with a vertical sleeve 8, extending upward from said standard 3, of a frame 5, a standard 6, rigidly fixed thereto and having a smooth circular bottom 7, adapted to rest upon said circular top 4 and to turn thereon, said standard 6 having a circular opening at the center to permit the passage through it of the sleeve 8, side pieces 22, supported above said frame 5 by suitable standards, a table 28, carried by side pieces 22, a bevel gear-wheel 11, mechanism for driving the same, a vertical shaft 13, passing upward through said sleeve 8, a bevel gear-wheel 12, mounted upon the lower end of said shaft 13 and adapted to mesh with said gear-wheel 11, a bevel gear-wheel 14, mounted upon the upper end of said shaft 13, a horizontal shaft 16, a bevel gear-wheel 15, mounted upon the inner end of said shaft 16 and adapted to mesh with said gear-wheel 14, a sprocket-wheel 30, mounted upon the outer end of the shaft 16, a horizontal shaft 26, journaled in said side pieces 22, a sprocket-wheel 27, mounted upon one end of said shaft 26, bearings 32, secured to said frame 5, a horizontal shaft 31, journaled in said bearings 32, a sprocket-wheel 33, mounted upon one end of said shaft 31, a sprocket-chain 34, passing around said sprocket-wheels 27, 30, and 33, pulleys 24, mounted upon said shaft 26, a horizontal shaft 25, journaled in said side pieces 22, pulleys 23, mounted upon said shaft 25, conveyer-belts 28, carried by said pulleys 23 and 24, an elevator 39, hinged to said frame 5, so as to permit of adjustment vertically at its upper end, devices for lowering and raising said elevator 39, a sliding frame 74, carried by said elevator 39 and adapted to be moved longitudinally of said elevator, devices for moving said sliding frame 74, conveyer-belts carried by said elevator 39 and said sliding frame 74, and mechanism for driving said conveyer-belts so as to carry the straw up said elevator 39 and sliding frame 74, substantially as described.

482,081. ORCHARD-CULTIVATOR. JOHN E. DALY, Glendora, and ALBERT A. NEIL, Covina, Cal. Filed Apr. 12, 1892. Serial No. 428,775. (No model.)



Claim.—1. The combination set forth of the wheel-supported cultivator-frame, the beam provided with shovels arranged in front and rear series, draft-bars arranged to pivotally connect the beam with the frame, the tilting arm fixed to the beam, the link pivotally connecting such arm with the frame, and means for rotating the beam and retaining it in position.

2. The combination set forth of the wheel-supported cultivator-frame, the axle journaled thereto, the beam provided with shovels arranged in front and rear series, the draft-bars arranged to pivotally connect the beam with the frame, the link pivoted to the frame above the beam, the tilting arm fixed to the beam and arranged to extend forward in an upward oblique direction and pivoted to the link, so that the pivotal joint uniting the two is practically between the axle of the cultivator and the beam, the operating-lever fixed to the beam, a rack fixed to one of the draft-bars, and a pawl mounted on the lever and arranged to engage the rack.

3. In a cultivator, the combination set forth of parts to be clamped, the clip-bracket provided with a socket arranged to receive the part to be clamped and also provided with a recess at one side of such socket to receive the clamp member 8, such clamp member provided with a socket arranged to receive the part to be clamped, the end of the clamped member being arranged to extend along the stem of the bracket, the clip-link arranged to embrace the stems of the bracket and of the clamp member, and a suitable key inserted within the link to press the stems toward each other.

482,082. PAINT-POT. WILLIAM B. DENISE and HENRY C. FULLER, Bentonville, Ark. Filed May 19, 1892. Serial No. 433,577. (No model.)



Claim.—1. The combination of a paint-pot provided at its ends with openings, the tapering paint-brush-receiving pockets arranged on the outside of the pot on the ends thereof and communicating with the interior of the pot by means of said openings, a transverse partition dividing the pot in two compartments, and the inclined flanges arranged at the top of the partition and on both sides of the same and extending from one side of the pot to the other to form shields to prevent the paint of one compartment splashing into the other, substantially as described.

2. The combination of a paint-pot provided at its ends with openings, the tapering paint-brush receiving pockets arranged at the ends of the pot and communicating with the interior of the pot by means of said opening, a transverse partition dividing the pot into two compartments and extending above the upper edges thereof, the curved flanges secured to the partition and extending therefrom over the compartments and forming shields, and a wire hook having divergent shanks secured to the partition at opposite sides of the pot, substantially as described.

482,083. COMBINED INHALER AND MEDICAMENT-HOLDER. THOMAS M. DUNHAM, Ocean Grove, N. J. Filed June 11, 1892. Serial No. 436,394. (No model.)



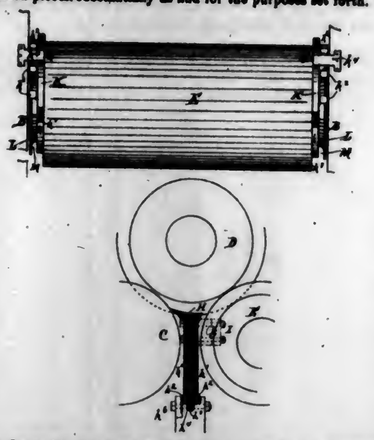
Claim.—1. A metallic holder for medicaments, comprising a casing divided into two communicating compartments, a diaphragm having a perforation therein and separating said compartments, and an adjustable screw fitting in and governing the admission of fluid from one compartment to the other, substantially as specified.

2. In a portable metallic holder for medicaments, the combination, with the exterior casing of the receptacle provided with a filling port or duct, of a diaphragm interiorly placed within said casing and provided with an orifice and an adjustable screw seated in the filling-port and terminating in a valve-point fitting the orifice of the said diaphragm, substantially as specified.

482,084. CANE-MILL. JOHN FISHER, Havana, Cuba. Filed Dec. 8, 1891. Serial No. 414,372. (No model.)

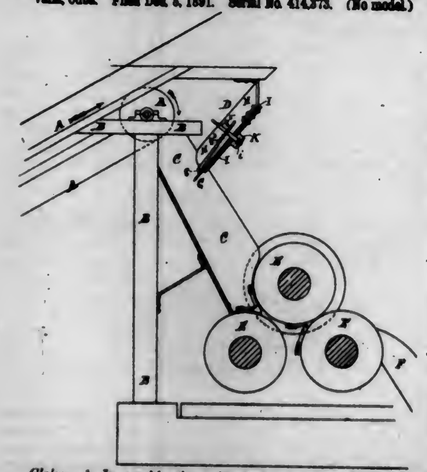
Claim.—1. In combination with the turn-plate or knife of a cane-

mill, a supporting cross-beam extending between the two cheek-pieces, composed of a pair of vertical side plates grooved at their upper edges into said turn-plate or knife and at their lower edges into a bottom strip extending the whole length of the vertical plates, a series of bolts screwing into the bottom of said turn-plate or knife and passing through the said bottom plate, a series of nuts or equivalent devices operating to hold the said bottom plate, the vertical side plates, and the turn-plate securely together, a pair of swing boxes or bearings attached to the upper end portions of said supporting cross-beam, a pair of bearing pins or projections securely attached to each of the cheek-pieces, and a pair of bottom bearing lugs or projections attached to each of the cheek-pieces, substantially as and for the purposes set forth.



2. In combination with the rolls of a cane-mill, a pair of segmental stop-pieces K, adapted to wear against the necked ends of said rolls, and side and radial pressure-brackets K^2 and K^4, as and for the purposes set forth.

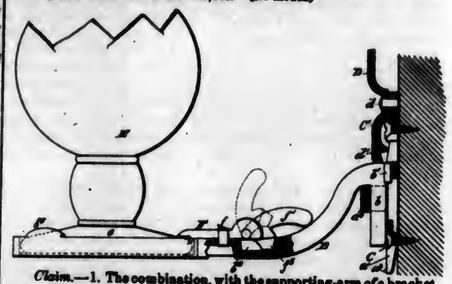
482,085. FEED-CHUTE FOR SUGAR-MILLS. JOHN FISHER, Havana, Cuba. Filed Dec. 8, 1891. Serial No. 414,373. (No model.)



Claim.—1. In combination with the main chute for supplying material to the rolls of a sugar mill, a counter-chute provided with an extension-blade for controlling the size and shape of the opening or space between the two chutes, and means for moving said extension-blade or a portion thereof in and out to project more or less from the counter-chute, substantially as and for the purposes set forth.

2. In combination with the main chute for supplying materials to the rolls of a sugar-mill, a counter-chute provided with an extension-blade for controlling the size and shape of the opening or space between the two chutes, a pair of swivel connections attached to the ends of the extension-blades, a pair of swinging levers connected by a shaft extending the width of the chute, and a pair of connecting-pitmen, either one of which is provided with a series of gabs or hook-slots, whereby the said pitman is lengthened or shortened, substantially as and for the purposes set forth.

482,086. BRACKET. WILBUR D. GRIDLEY, Brooklyn, N. Y. Filed Apr. 20, 1892. Serial No. 430,061. (No model.)



Claim.—1. The combination, with the supporting-arm of a bracket, of a latch for locking the article to be held in its seat and a catch pivoted to and carried by the latch for holding the latch in locked adjustment, substantially as set forth.

2. The combination, with the supporting-arm of a bracket, of a latch for locking the article to be held in its seat, and a catch pivoted to and having a swinging movement transverse to the movement of the latch, the catch and the supporting-arm being provided the one with a recess and the other with a projection adapted to engage the recess and thereby hold the latch in locked adjustment, substantially as set forth.

3. The combination, with a supporting-arm section and the wall-section, the one provided with a pintle and the other with a socket, the wall-section being further provided with an opening therethrough at a point above the pintle and socket for the adjustment of the wall-section on and its removal from a fixed fastening device at pleasure, of a latch pivoted to the wall-section and adapted to swing into position over said opening through the wall-section to lock the pintle in the socket, substantially as set forth.

4. The combination, with the wall-section provided with an opening having a contracted neck to receive a fastening device, of a swinging latch pivotally secured to the said wall-section and provided with a lip adapted to overlap the head of the fastening device and prevent the accidental displacement of the wall-section, substantially as set forth.

5. The combination, with the wall-section provided with an opening having a contracted neck to receive a fastening device and with a socket, of a supporting-arm having a pintle adapted to enter the said socket and a latch provided with a lip and adapted to swing into position to simultaneously lock the pintle in its socket and wall section to its fastening device, substantially as set forth.

482,087. BAR AND FASTENING FOR SASHES AND LIKE STRUCTURES. WILLIAM HENDERSON, Chicago, Ill. Filed Mar. 2, 1891. Serial No. 383,473. (No model.)



Claim.—1. A bar and fastenings consisting of the marginal doubled caps or fastenings C and D, without seams on their outer surfaces, and the rib B, connecting them, said caps or fastenings being separate and distinct pieces from the rib, substantially as and for the purpose set forth.

2. A bar and fastenings consisting of the marginal doubled caps or fastenings C and D, without seams on their outer surfaces, and the rib B, connecting them and forming the bar A, having the notches *d*, said caps or fastenings being separate and distinct pieces from the rib, substantially as and for the purpose set forth.

3. A bar and fastenings consisting of the marginal doubled caps or fastenings C and D, without seams on their outer surfaces, and the rib B, connecting them, and the ledges or shoulders *a* and *b* on each side of the rib and substantially at right angles therewith, said caps or fastenings being separate and distinct pieces from the rib, substantially as and for the purpose set forth.

4. A bar and fastenings consisting of the marginal doubled caps or fastenings C and D, without seams on their outer surfaces, and the rib B, connecting them and forming the bar A, having the notches *d*, and the ledges or shoulders *a* and *b* on each side of the rib and substantially at right angles therewith, said caps or fastenings being separate and distinct pieces from the rib, substantially as and for the purpose set forth.

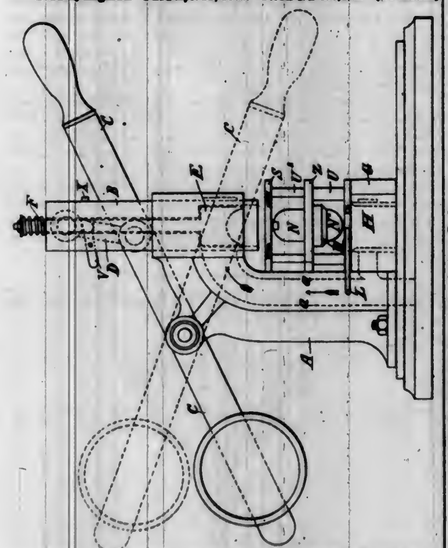
5. A bar and fastenings consisting of the hollow marginal doubled caps or fastenings C and D, without seams on their outer surfaces, and the rib B, connecting them, and the ledges *a* and *b* on each side of the rib and substantially at right angles therewith, said heads being separate and distinct pieces from the rib, substantially as and for the purpose set forth.

6. A bar and fastenings composed of three pieces, consisting of the hollow marginal doubled caps or fastenings C and D, without seams on their outer surfaces, and the ribs B, connecting them, said caps or fastenings being separate and distinct pieces from the rib, substantially as and for the purpose set forth.

7. A bar and fastenings composed of three pieces, consisting of the doubled marginal caps or fastenings C and D, without seams on their outer surfaces, and the rib B, connecting them and forming the bar A, having the notches *d*, and the ledges or shoulders *a* and *b* on each side of the rib and substantially at right angles therewith, substantially as and for the purpose set forth.

8. A bar and fastenings composed of three curved pieces, consisting of the hollow marginal doubled caps or fastenings C and D, without seams on their outer surfaces, and the rib B, connecting them, and the ledges and shoulders *a* and *b* on each side of the rib and substantially at right angles therewith.

482,088. PROCESS OF AND APPARATUS FOR THE MANUFACTURE OF HOLLOW CAOUTCHOUC BALLS. GUSTAV L. HILLE, London, England. Filed Apr. 28, 1892. Serial No. 430,172. (No model.)

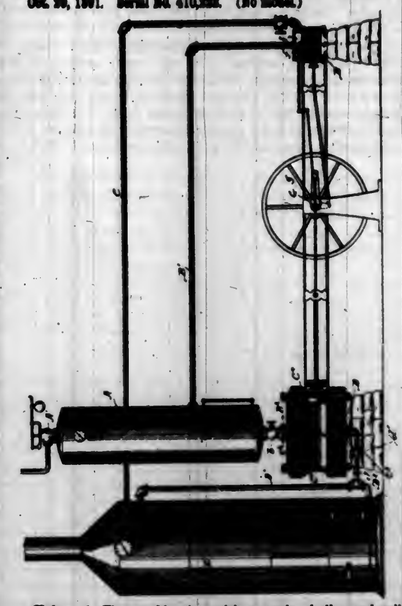


Claim.—1. The process of making hollow rubber balls with overlapping seam, consisting in first forming two rubber disks into hollow hemispheres, of which one has a projecting beveled edge, next placing the said hemispheres together, with the said projecting edge of the one overlapping the edge of the other, and finally contracting and compressing the said projecting and overlapping edge around the other hemisphere to produce the autogenous union of the two halves, substantially as and for the purpose set forth.

2. The combination, with a stationary outer die, an outer die movable toward and from said stationary outer die, a support for said stationary die, a standard containing a guide for said movable die, and means of heating said support and standard, of an inner former comprising two hemispherical form-pieces, a carrier for said inner former movable laterally toward and from a position between said stationary and movable outer dies, and a clamping device interposed between said stationary and movable outer dies, substantially as herein set forth.

3. The combination, with the bed G, the stationary die H, the standard A, and the piston B and ejector E, constituting a movable die, of the laterally-movable carrier T, the cross-head Z, with its attached form-pieces N N', and sockets U, fitted to guides in said carrier, the disk supporting cross-head S and its guide-rods U^3, fitted to said sockets U, and the springs U^4 and U^5, applied, respectively, to said cross-head Z and rods U^3, all substantially as and for the purpose herein set forth.

482,089. STEAM-ENGINE. JAMES D. JACKSON, Chicago, Ill. Filed Oct. 20, 1891. Serial No. 410,222. (No model.)



Claim.—1. The combination, with an engine, boiler, and cylinder, of a tank connected directly with the cylinder-exhaust by an unobstructed pipe, said tank being provided with an escape-valve, a pump actuated by the engine and connected directly with the tank by a valved pipe, and a pipe connecting the discharge end of the pump with the boiler, said pipe being provided with a check-valve and with a regulator-valve adapted to close communication between the pump and boiler, substantially as described.

2. The combination, with an engine, boiler, and cylinder, of a tank connected directly with the cylinder-exhaust by an unobstructed pipe, said tank being provided with an escape-valve, a pump connected directly with the tank by a valved pipe, a pipe leading from the discharge end of the pump, and branch pipes leading from the discharge-pipes to both the steam and water spaces of the boiler, said discharge-pipe being fitted with a check-valve, and a regulator-valve adapted to close communication between the pump and boiler, substantially as described.

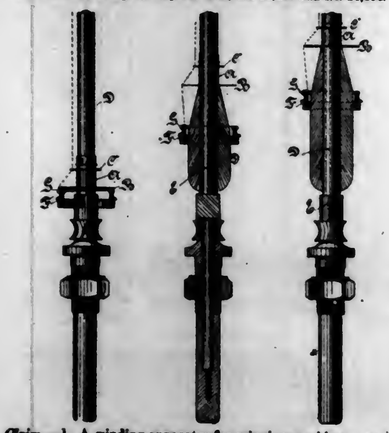
482,090. FORK FOR VELOCIPEDES. CYRUS KERR, Lakeside, Ill. Filed Jan. 11, 1892. Serial No. 417,749. (No model.)



Claim.—1. In a velocipede-fork, the combination of a crown A, which is concave beneath and has faces A^2 and lateral down-directed edges A^4, and an arch composed of the tubular legs B', having at their upper ends faces B^2, meeting and brazed to the faces A^2, and a reinforcing member B^3, integral with said legs and concave, with upward-directed edges B^4, meeting and brazed to the edges A^4, substantially as shown and described.

2. In a velocipede-fork, the combination of the crown A, concave beneath and having the lateral downward-directed edges A^4, faces A^5, and reinforcing-tongues C, and tubular legs B', having faces B^3 meeting and brazed to the faces A^5, and said tongues entering and being brazed to the outer walls of said legs, and a connecting member integral with said legs and concave above and having upward-directed edges B^2 meeting and brazed to the edges A^4 of the crown A, substantially as shown and described.

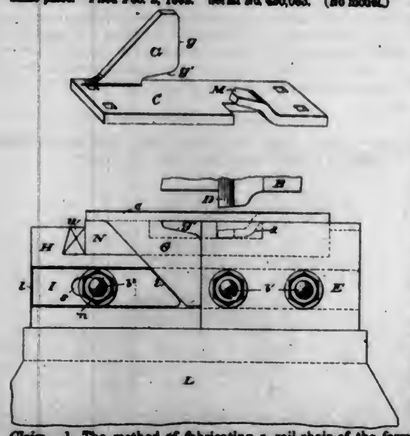
482,091. SPINDLE FOR SPINNING MACHINERY. ERNST F. KRAFFT, St. Blasien, Germany. Filed Apr. 2, 1891. Serial No. 387,372. (No model.) Patented in Switzerland Feb. 28, 1891, No. 3,285; in Luxemburg Feb. 28, 1891, No. 1,415; in Belgium Feb. 28, 1891, No. 93,965; in England Feb. 28, 1891, No. 3,674; in France Feb. 28, 1891, No. 211,779; in Italy Feb. 28, 1891, No. 29,180; in Spain Feb. 28, 1891, No. 11,843, and in Austria-Hungary July 25, 1891, No. 11,127 and No. 26,896.



Claim.—1. A winding apparatus for spinning machinery, consisting of a short tube A, that is provided with a disk B and arranged to fit upon a spindle and to turn therewith and slide thereon, and an eyeleted ring arranged upon the tube, substantially as described.

2. A winding attachment for spinning machinery, consisting of a short tube A, arranged to fit upon a spindle, a disk carried by the tube, and an eyeleted ring mounted on the tube and arranged to slide and turn thereon.

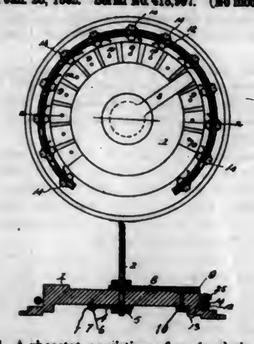
482,092. METHOD OF AND DIE FOR MAKING RAIL-CHAIRS. PATRICK J. LAVELLE, Johnstown, Pa., assignor to the Johnson Company, same place. Filed Feb. 2, 1892. Serial No. 420,063. (No model.)



Claim.—1. The method of fabricating a rail-chair of the form substantially as hereinbefore described, which consists in first cutting out a side lug or brace from a piece of angle-iron to form a blank for the chair and then truing up said lug and stamping up a clip in dies to complete the chair.

2. A pair of dies for forming rail-chairs, consisting of a die provided with a punch, as D, and a mating die provided with a depression suited to the shape of said punch in performing its office and with a guide for truing up a side lug or brace on the chair.

482,098. RHEOSTAT. HARRY W. LAWRENCE, Denver, Colo., assignor of one-half to Henry H. Metcalf, same place. Filed Apr. 25, 1891. Renewed Jan. 23, 1892. Serial No. 418,997. (No model.)



Claim.—1. A rheostat consisting of an insulating-block 1, provided with a series of plates 9, insulated from each other, metal screws 10, passing up through the block into said plates, a carbon resistance supported upon block 1 and provided with clamps 14, surrounding the carbon, and secured by adjusting-screws 25, a wire connecting each screw 10 with screw 25, a rotating metal stem 2, secured to plate 1 and provided with a metal arm adapted to engage plates 9, and a circuit the wires of which are electrically connected, respectively, with stem 2 and the plate 9 at one extremity of the series of plates, substantially as and for the purpose set forth.

2. A rheostat consisting of an insulating-block 1, provided with a series of metal plates 9, insulated from one another, metal screws 10, passing up through block 1 into said plates, a carbon resistance provided with adjustable clamps, wires connecting said clamps with screws 10, a rotating metal stem 2, passing through block 1 and provided with a metal arm adapted to engage plates 9, a circuit the wires of which are electrically connected, respectively, with stem 2 and the plate 9 at one extremity of the series, and a casing inclosing the mechanism and provided with foraminated sides, substantially as and for the purpose set forth.

482,094. GAS-STOVE. JAMES B. MICHENER, Kokomo, Ind. Filed Feb. 13, 1892. Serial No. 421,367. (No model.)



Claim.—1. In a stove, the combination of the hollow tapering bowl having its lower and smaller end closed, the open gas-chamber of larger diameter than the smaller end of the bowl and forming therewith an annular gas-jet surrounding the exterior of the bowl, the hood arranged to cover the open upper end of the bowl and to conduct the products of combustion to the interior thereof, said hood being provided with an opening for the escape of the products of combustion, and a gas-supply pipe connected to said gas-chamber and arranged to form a support therefor, all substantially as set forth.

2. In a stove, the combination of the hollow tapering bowl having its lower and smaller end closed, the open gas-chamber of larger diameter than the smaller end of the bowl and forming therewith an annular gas-jet surrounding the exterior of the bowl, the hood arranged to cover the open upper end of the bowl and to conduct the products of combustion to the interior thereof, said hood being provided with an opening for the escape of the products of combustion, the pipe secured to said hood beneath said opening and forming an extension thereof downwardly into the interior of the bowl, and a gas-supply pipe connected to said gas-chamber, all arranged to co-operate, substantially as set forth, whereby the bowl is heated exteriorly by an open flame and interiorly by the escaping products of combustion.

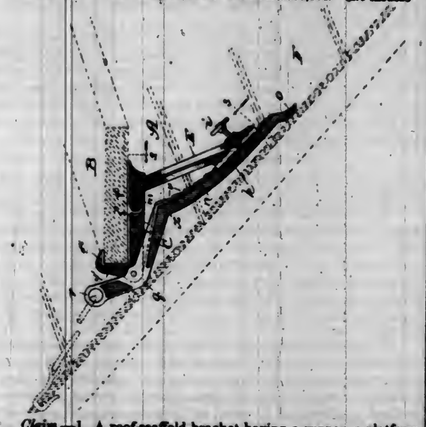
3. As a new article of manufacture, a gas-stove consisting of a tapering bowl-shaped body surrounded at its smaller end by an annular gas-jet and provided at its upper open end with a hood arranged to gather the products of combustion and to conduct them to the interior of the bowl, and a discharge-pipe connected with the interior of the bowl, whereby the exterior of the bowl may be surrounded by an open flame and be heated interiorly by the products of combustion, substantially as set forth.

482,095. STOCKING. HENRY C. MCCLURE, Davenport, Iowa. Filed June 10, 1892. Serial No. 436,262. (No model.)



Claim.—As a new article of manufacture, a stocking having a great-toe pocket and an opening extending from the base of said pocket to the outer edge of the stocking at the base of the little toe and a flap or an extension of the sole of the stocking adapted to be turned back over said opening and conform to the shape of the toes of the wearer, substantially as and for the purpose set forth.

482,096. ROOF-SCAFFOLD BRACKET. HERBERT MCCORMACK, McLuney, Ill. Filed July 13, 1891. Serial No. 399,301. (No model.)



Claim.—1. A roof-scaffold bracket having a runner, a platform-support hinged to the runner, and a brace extending between the free end of the platform-support and the runner and movable at both ends to different points along the said support and runner to adjust the angle of the support with relation to the pitch of a roof, substantially as described.

2. A roof-scaffold bracket having a runner concave on its upper side toward its rear end, a platform-support hinged to the runner, and a brace extending between the free end of the platform-support and the said concave portion of the runner and movable at both ends to different points along the said support and runner to adjust the angle of the support with relation to the pitch of a roof, substantially as described.

3. A roof-scaffold bracket having a runner concave on its upper side toward its rear end, a platform-support pivoted to the runner, and a brace having a socket at one end confined upon the concave portion of the runner and loosely engaging at its opposite end the platform-support toward its free end, substantially as and for the purpose set forth.

4. A roof-scaffold bracket having a runner, a bell-crank-shaped platform-support pivoted at its angle to the runner and provided with a clip on its upper arm to overlap the platform, and a brace extending between the free end of the platform-support and the runner and movable to adjust the angle of the said support with relation to the pitch of a roof, substantially as described.

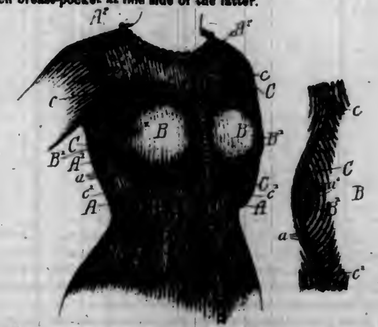
5. A roof-scaffold bracket having a runner formed with a convex bearing *q* near its forward end, a convex bearing *o* near its rear end and a straight seat *p* on its upper side, a platform-support pivoted to the runner near the bearing *q* to extend lengthwise of and coincide with the seat *p*, and a brace extending between and engaging at opposite ends the free end of the platform-support and the runner and movable simultaneously at both ends to different points along the said support and runner to adjust the angle of the said support with relation to the pitch of a roof, substantially as described.

6. A roof-scaffold bracket having a runner formed with a convex bearing *q* near its forward end, a convex bearing *o* near its rear end, a straight longitudinally-recessed seat *p* on its upper side and lateral flanges *s* extending between the said seat and bearing *o*, a platform-support pivoted to the runner near the bearing *q* to extend lengthwise of and coincide with the seat *p*, and a brace loosely engaging at one end the platform-support near its free end and provided at its opposite end with a socket embracing the said flanged portion of the runner, substantially as and for the purpose set forth.

7. A roof-scaffold bracket A, comprising, in combination, the runner C, formed with the convex bearings *q* and *o* and seat *p* and concave on its upper side and flanged laterally lengthwise between the seat *p* and bearing *o*, a platform-support D, pivoted to the runner near the bearing *o* to extend lengthwise of and coincide with the seat *p*, a brace E, bifurcated at one end and embracing and having limited movement at that end upon the free end of the platform-support and provided at its opposite end with a socket *k*, embracing the said concave portion of the runner, and a set-screw *i* on the socket for securing the brace in its adjusted position on the runner, the whole being constructed and arranged to operate substantially as described.

482,097. KNIT UNDERGARMENT. JOSEPH H. PIER, Jacksonville, Ill. Filed May 31, 1892. Serial No. 433,817. (No model.)

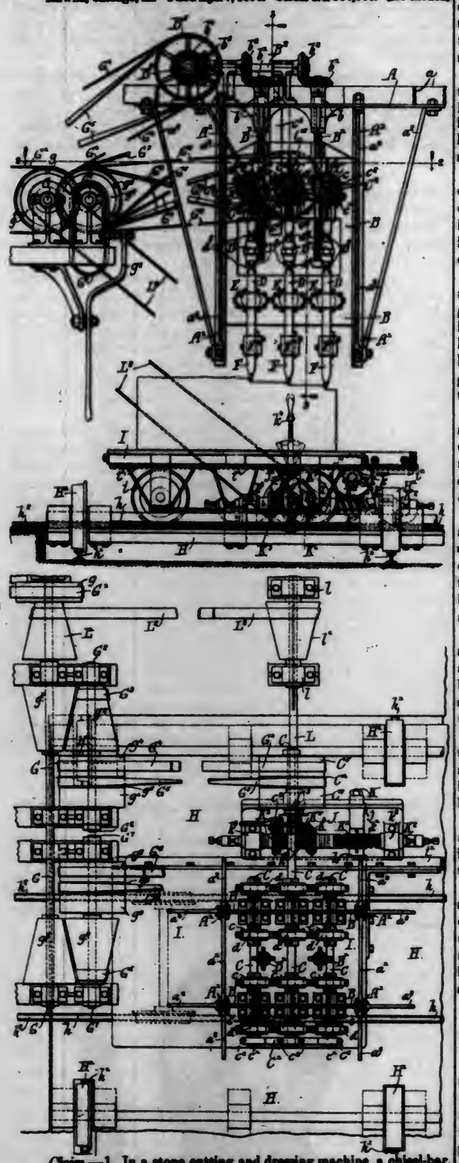
Brief.—The breast-pocket is formed by leaving a vertical slit at the time of knitting the garment, and widening the part of the garment at one side of such slit so as to form a flap having a corner edge, which is afterward joined to the opposite or straight side of the slit, so that a single curved seam exists extending from top to bottom of each breast-pocket at one side of the latter.



Claim.—A garment of elastic or ribbed knit goods, containing a breast-pocket formed by means of ribs or rows of stitches *a' a'*, added to the fabric at one side of a vertical seam O therein and forming a

lateral extension or flap B', the margin of which is secured to the adjacent part of the garment by said seam, the fabric forming the garment being continuous above and below said seam, substantially as described.

482,098. STONE CUTTING AND DRESSING MACHINE. JOHN RAWLS, Chicago, Ill. Filed Apr. 7, 1891. Serial No. 387,962. (No model.)



Claim.—1. In a stone cutting and dressing machine, a chisel-bar, in combination with an eccentric or its equivalent for actuating said chisel-bar, a stationary bearing engaging said chisel-bar, and driving-gear for the eccentric, embracing means for reversing the direction of motion of the same, substantially as described.

2. In a stone cutting and dressing machine, a chisel-bar, in combination with an eccentric or its equivalent for actuating the same, a stationary bearing engaging said chisel-bar between the actuating-eccentric and the cutting end of the bar, said bearing being adjustable toward and from the actuating-eccentric to vary the oscillation of the chisel-bar, and driving-gear for the eccentric, embracing means for reversing the direction of motion of the same, substantially as described.

3. In a stone cutting and dressing machine, the combination, with a plurality of chisel-bars of different lengths arranged in a straight row, one behind the other, and an eccentric or its equivalent for imparting to said chisels a combined reciprocatory and oscillatory motion, of stationary bearings engaging said bars between the eccentrics and the ends thereof, and driving-gear for the eccentric, embracing means for reversing the direction of motion of the same, substantially as described.

4. In a stone cutting and dressing machine, the combination, with the main chisel-actuating shaft C, having a fast pulley C^4 and loose pulleys C^5, of the straight and cross belts G^4 G^5, the counter-shaft G^2, having pulleys g^4 and g^5 and cone-pulley g^6, the shaft G, having cone-pulley g^7, and the adjustable belt G^3, gripped between said cone-pulleys, substantially as described.

5. In a stone cutting and dressing machine, the combination, with chisels and actuating mechanism therefor, of a frame wherein said chisels are mounted, and power-actuated feeding mechanism for moving said frame toward and from the stone, comprising means for varying the speed of said feeding mechanism to advance the frame more or less rapidly, as desired, substantially as described.

6. In a stone cutting and dressing machine, the combination, with a chisel-carrying frame and feed-screws therefor provided with bevel-gears, of a shaft provided with bevel-gears to mesh therewith and having a bevel-gear b^3, a shaft B^3, having a bevel-gear b^4 and fast and loose pulleys B^4 B^5, straight and cross belts G^6 G^7, a counter-shaft G^1, having pulleys g^8 g^9 and cone-pulley g^{10}, a shaft G, having cone-pulley g^{11}, and an adjustable belt G^8, gripped between said pulleys, substantially as described.

7. In a stone cutting and dressing machine, the combination, with a frame, of a plurality of shafts mounted therein and provided with eccentrics to actuate the chisels, pins on the outer eccentrics, a connecting-rod having bearings for said pins, and actuating mechanism connected with one of said shafts to rotate the same, substantially as described.

8. In a stone cutting and dressing machine, the combination, with a chisel-bar and an eccentric or its equivalent for actuating the same, of an oscillating bearing, through which the chisel-bar passes and reciprocates, said bearing being located between the said eccentric and the working end of the bar, and driving-gear for the eccentric, embracing means for reversing the direction of motion of the same, substantially as described.

9. In a stone cutting and dressing machine, the combination, with a chisel-bar and its actuating mechanism, of a bearing-box E, having a recess *e*, bearing-blocks E^3, having surfaces adapted to fit the chisel-bars and having their outer faces curved, and gibs E^2, having correspondingly-curved faces to bear against the bearing-blocks, substantially as described.

10. In a stone cutting and dressing machine, the combination, with the chisel bar and its actuating mechanism, of a bearing-box E, having a recess *e*, bearing-blocks E^3, having curved outer surfaces, gibs E^2, having correspondingly curved abutting-surfaces, and adjusting-screws e^3, bearing on said gibs, substantially as described.

11. In a stone cutting and dressing machine, the combination, with a chisel-bar having a serrated rabbet *d*, of a chisel having a corresponding rabbet *f*, a collar F', wedge F^2, and set-screws f^2 and f^3, substantially as described.

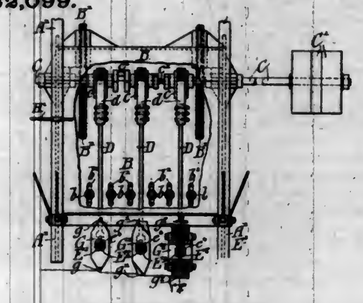
12. In a stone cutting and dressing machine, the combination, with a chisel-bar and an eccentric or its equivalent for actuating said bar, of a stationary bearing engaging the bar between the eccentric and its end, a driving-gear for actuating the eccentric, comprising means for reversing the direction of motion of the same, a carriage, and reversible feed mechanism for moving said carriage in either direction, substantially as described.

482,099. STONE CUTTING AND DRESSING MACHINE. JOHN RAWLS, Chicago, Ill. Filed July 31, 1891. Serial No. 400,838. (No model.)

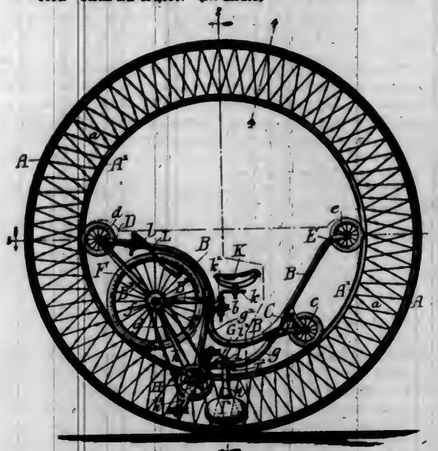
Claim.—1. In a stone cutting and dressing machine, the combination, with a supporting-frame and a revoluble shaft mounted therein and provided with an eccentric and eccentric-rod, of a tool-carrying bar provided with an elastic or spring portion pivotally connected with the supporting-frame, said bar having connected with it by a pivotal joint the end of the eccentric-rod, whereby the said bar is supported and its motions are controlled by said rod, substantially as described.

2. In a stone cutting and dressing machine, the combination, with a supporting-frame and a revoluble shaft mounted therein and provided with an eccentric and eccentric-rod, of a tool-carrying bar provided at one end with a tool intermediately pivoted to the eccentric-rod and connected at its other end with the frame, the connection at this latter point being an adjustable one to vary the tilt of the tool, substantially as described.

482,099.



482,100. UNICYCLE. JOHN RAWLS, Chicago, Ill. Filed Aug. 30, 1891. Serial No. 404,233. (No model.)



Claim.—1. The combination, with inner and outer connected rims, of a frame supported within the inner rim and provided with a driving-wheel, separate crank-shafts mounted on the frame at points exterior to the inner rim and provided with cranks, and driving mechanism connecting the crank-shafts with the driving-wheel, embracing a driving-chain and sprockets for each crank-shaft, substantially as described.

2. The combination, with inner and outer connected rims, of a frame supported within the inner rim and provided with a driving-wheel and with a forked bracket extending beyond the inner rim, stub-shafts journaled to the lower ends of the fork and each carrying a sprocket-wheel and crank, sprockets on each end of the hub of the drive-wheel, and chains extending around said sprocket-wheels, substantially as described.

3. The combination, with the inner and outer connected rims, of a frame supported within the inner rim and provided with driving and guide wheels running on said inner rim, driving mechanism connected with the driving-wheel, and weights secured to the lower part of the frame and extending below the inner rim, substantially as described.

4. The combination, with the inner and outer connected rims, of a frame provided with driving and guide wheels running upon the inner rim, driving mechanism connected with the driving-wheel, and weights adjustably secured to the lower part of the frame and extending below the inner rim, substantially as described.

5. The combination, with the outer and inner connected rims, of a frame provided with driving and guide wheels running upon the inner rim, a sleeve or yoke attached to the frame and longitudinally adjustable thereon, and weights attached to said sleeve or yoke and located below and outside of the inner rim, substantially as described.

6. The combination, with the outer and inner connected rims, of a frame having driving and guide wheels running upon the inner rim, driving mechanism carried by the frame and connected with the driving-wheel, and a tire or tires, of rubber or other yielding substance, interposed between the said inner rim and the said driving and guide wheels, substantially as described.

7. The combination, with the outer and inner connected rims, said inner rim having a groove in its inner face, of a frame having grooved driving and guide wheels, driving mechanism carried by the frame and connected with the driving-wheel, and a cylindric tire or tires, of rubber or other yielding substance, interposed between the said inner rim and the said driving and guide wheels, substantially as described.

8. The combination, with an outer rim, of an inner rim suspended concentrically therein by two sets of spokes extending from rim to rim and inclined relatively to the radii of the wheel, the spokes of one set being arranged alternately with and at opposite angles to the spokes of the other set, whereby the rims may be maintained in the same plane, substantially as described.

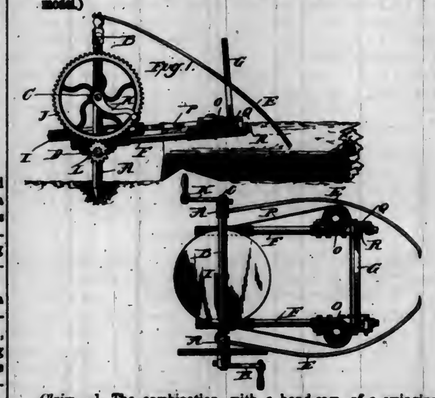
482,101. PROCESS OF MAKING DISINFECTANTS. BRUNO R. SCHMIDT, Radebeul, Germany, assignor to Dr. F. von Heyden Nachfolger, same place. Filed July 5, 1890. Serial No. 357,961. (No specimens.)

Claim.—The process herein described for converting phenols which are difficultly soluble in water into disinfecting mixtures which are easily soluble in water, said process consisting in taking difficultly-soluble phenols, such as the so-called "crude carbolic acid" of a higher boiling-point than pure carbolic acid, and consisting mainly of cresols, and mixing them with water and with a metallic salt of an aromatic compound of the classes of aromatic acids and phenols, substantially as herein set forth.

482,102. DISINFECTANT. BRUNO R. SCHMIDT, Radebeul, Germany, assignor to Dr. F. von Heyden Nachfolger, same place. Original application filed July 5, 1890, Serial No. 357,961. Divided and this application filed July 16, 1892. Serial No. 440,273. (No specimens.)

Claim.—The disinfecting compound herein described, consisting of a mixture of cresol or matter containing cresol, such as crude carbolic acid and a metallic salt of an aromatic compound of the classes of aromatic acids and phenols in the proportions herein set forth, and water.

482,103. PORTABLE BAND SAWING-MACHINE. ABRAM C. STERR, Woodville, Oreg. Filed Sept. 25, 1891. Serial No. 406,817. (No model.)



Claim.—1. The combination, with a band-saw, of a swinging frame having an arched outer end, a carrier-pulley near each foot of the arch, a driving-pulley at the pivoted end of the frame, having its plane parallel with the pivotal axis of said frame, and a shaft and gearing concentric with said pivotal axis and connected to gearing on said driver-pulley, substantially as described.

2. The combination of a fixed frame, a driver-shaft journaled therein, a swinging frame pivoted concentrically with said driver-shaft, a driver-pulley parallel to said shaft, and carrier-pulleys at the outer ends of the side pieces of said swinging frame, the saw passing over said pulleys and having its cutting portion lying between said carrier-pulleys, substantially as described.

3. The combination, in a band sawing-machine, of supporting devices consisting of a frame adapted to be fixed in relation to the piece operated upon, a swinging frame pivoted to said fixed portion, the outer end of said swinging portion being spanned by a laterally-projecting arch, pulleys carried by said swinging frame and having their planes of rotation parallel to the pivotal axis of said swinging frame, and a band-saw extending across the open space at the outer end of said swinging frame, substantially as described.

4. The combination, in a portable band sawing-machine, of a frame having pointed side bars adapted to be driven in the ground, braces

pivoted to its upper portion and adapted to be secured to the piece operated on, a swinging frame pivoted to the first-named frame, the outer end of said swinging frame being spanned by a laterally-projecting arch, pulleys carried by said swinging frame and having their planes of rotation parallel to the pivotal axis of said swinging frame, and a band-saw extending across the open space at the outer end of said swinging frame, substantially as described.

482,104. CEILING-BLOCK FOR INCANDESCENT LAMPS. [illegible]

Claim.—1. In a car-coupler, the combination, with the head and the swinging section carrying a locking-bolt, of the rock-shaft having a lug to engage the locking-bolt and an arm on the outer end of said shaft, substantially as specified.

2. The combination of the coupler-head, the swinging section, the locking mechanism, means comprising a rock-shaft for operating the locking mechanism, and an arm or arms on the outer end of said shaft of malleable iron, substantially as specified.

3. In a car-coupler, the combination, with the head and the

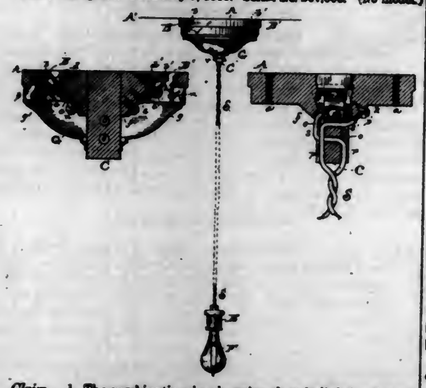
said rule-holder and its respective graduations brought to register with the lower end of the rule-holder, whereby its lower outwardly-projecting end is always identical with or the same in length as that of the vacant part or space above the gage at the upper end of the rule-holder and each rule readily and accurately set in position for mitering or other dressing, substantially as herein set forth.

3. In a miter-tool, the combination, with a grooved or slotted rule-holder, of a longitudinally-adjustable gage and a lug or projection constructed on its inner upper end and engaging the slot in said holder,

482,110.

pivoted to its upper portion and adapted to be secured to the piece operated on, a swinging frame pivoted to the first-named frame, the outer end of said swinging frame being spanned by a laterally-projecting arch, pulleys carried by said swinging frame and having their planes of rotation parallel to the pivotal axis of said swinging frame, and a band-saw extending across the open space at the outer end of said swinging frame, substantially as described.

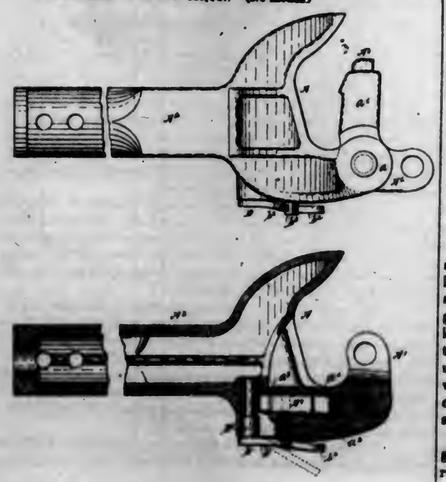
482,104. CEILING-BLOCK FOR INCANDESCENT LAMPS. LOUIS STERNBERGER, New York, N. Y., assignor to himself and William J. Jenks, same place. Filed July 3, 1886. Serial No. 207,063. (No model.)



Claim.—1. The combination, in a hanging electric-lighting fixture, of an insulating-block adapted for mechanical attachment to a ceiling or like support, connecting devices on said block for making electrical connection with main or supplying conductors, connecting devices on said block in electrical connection with the connecting devices for the main conductors for making electrical connection with suspended conductors, flexible electrical conductors depending from the said last-named connecting devices, a socket or holder for an incandescent electric lamp supported by and having its terminals electrically connected with the said flexible conductors, and an additional mechanical connection of said flexible conductors with said block for removing the weight from the electrical connections, substantially as set forth.

2. The combination, with the ceiling-block having the perforated projecting pin, of the flexible lamp-conductors depending therefrom and electrically connected with contact devices on the block, said wires being threaded through holes in said pin to remove the weight from the electrical connections, substantially as set forth.

482,105. CAR-COUPLING. CLINTON A. TOWER, Cleveland, Ohio, assignor to the Empire Car Coupler Company, Weehawken, N. J. Filed Jan. 30, 1892. Serial No. 419,647. (No model.)



Claim.—1. In a car-coupler, the combination, with the head and the swinging section carrying a locking-bolt, of the rock-shaft having a lug to engage the locking-bolt and an arm on the outer end of said shaft, substantially as specified.

2. The combination of the coupler-head, the swinging section, the locking mechanism, means comprising a rock-shaft for operating the locking mechanism, and an arm or arms on the outer end of said shaft of malleable iron, substantially as specified.

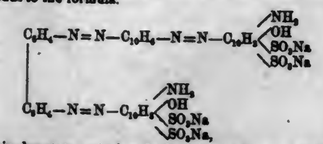
3. In a car-coupler, the combination, with the head and the swinging section carrying a locking-bolt, of a rock-shaft having a lug to engage the locking-bolt, an arm on the outer end of said shaft, and a connection between said arm and a fixed portion of a car, whereby the unlocking device will be operated should the coupler be detached in the rear thereof, substantially as specified.

4. The combination of the coupler-head having the recess and an outward opening, the rock-shaft having the lug, the arms b' b^3, and the stop b^3 on the head, substantially as specified.

482,106. AZO COLORING-MATTER. MORITZ ULRICH and JOHANNES BARNHAMS, Elberfeld, Germany, assignors to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Feb. 1, 1892. Serial No. 419,947. (Specimens.) Patented in England Aug. 26, 1890, No. 13,443; in France Dec. 6, 1890, No. 210,053, and in Italy Apr. 27, 1891, XXV, 29,631.

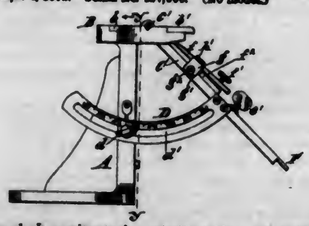
Claim.—1. The process for producing a blue direct-dyeing coloring-matter by combining one molecular proportion of tetrazo-dipheuyl chloride with one molecular proportion of alpha-naphthylamine, by further diazotizing the thus-formed intermediate product, and by subsequently combining the obtained hexazo compound with two molecular proportions of the sodium salt of the 1.8 amido-naphthol beta-disulpho-acid, hereinbefore described.

2. As a new product, the dye-stuff hereinbefore described, which corresponds to the formula:



which is in dry state and when finely pulverized a grayish-black powder easily soluble in hot water, with dark-blue color, on the addition of acids a dark-blue precipitate separates, in solutions of sodium carbonate and in ammonia liquid it is soluble with dark-blue color, and in soda-lye with reddish-blue color, in concentrated sulphuric acid it is soluble with greenish-blue color, and on addition of water a flaky-blue precipitate is separated, it dyes unmordanted cotton in alkaline soap-baths a pure greenish-blue, and the said dyed cotton if passed through a watery solution of sodium nitrite and diluted mineral acid, washed and placed in an alkaline solution of beta-naphthol, changes this greenish-blue shade to black.

482,107. MITER-TOOL. ANDREW VAN BERGER, Cincinnati, Ohio. Filed Apr. 4, 1892. Serial No. 427,680. (No model.)



Claim.—1. In a miter-tool, a suitable table, a rule-holder having a recessed base or stock and pivotally connected with said table, a longitudinally-adjustable bar or gage in said rule-holder, and a suitable clamp for holding the work to place, said gage having a series of graduations or lines on its face which are respectively brought to register with any desired mark or index on said holder-stock, whereby the space for the rule at the upper end of the holder, lying beyond the upper end of said gage, is readily determined and made to correspond with the length of the rule to be dressed, and said rule readily and accurately set in place for mitering or dressing, substantially as herein set forth.

2. In a miter-tool, the combination, with a rule-holder, of a longitudinally-adjustable and scaled or graduated gage and a suitable rule-holding clamp, the said gage being of the same length as the said rule-holder and its respective graduations brought to register with the lower end of the rule-holder, whereby its lower outwardly-projecting end is always identical with or the same in length as that of the vacant part or space above the gage at the upper end of the rule-holder and each rule readily and accurately set in position for mitering or other dressing, substantially as herein set forth.

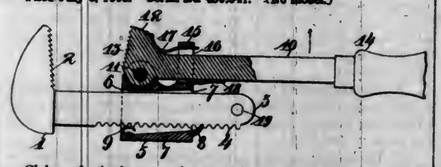
3. In a miter-tool, the combination, with a grooved or slotted rule-holder, of a longitudinally-adjustable gage and a lug or projection constructed on its inner upper end and engaging the slot in said holder, whereby a guard is provided and the sharply-mitered edges of the respective rules are positively prevented from entering or being forced under said upper end of the gage, substantially as herein set forth.

4. In a miter-tool, the combination, with a grooved or slotted rule-holder, of a gage having its face scaled or graduated and at its upper end a lug or stop projecting inwardly from its bottom or inner face, substantially as and for the purpose specified.

482,108. PROCESS OF MAKING PIPERAZIN. PAUL VOLKMANN, Elberfeld, Germany, assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed June 11, 1892. Serial No. 436,393. (Specimens.)

Claim.—The new process of producing piperazin, which consists in treating the dinitroso compounds of diphenylpiperazin, ditolylpiperazin, dixylylpiperazin, dinaphthylpiperazin, or the sulpho-acids or other substitution products thereof with sulpharous acid, sulphur dioxide, or alkaline bisulphites.

482,109. PIPE-WRENCH. WILLIAM J. WALKER, St. Louis, Mo. Filed July 8, 1892. Serial No. 439,341. (No model.)



Claim.—1. A pipe-wrench comprising a stationary jaw, an extension formed on the same, teeth formed on said extension, a movable member adapted to slide on said extension, a tooth formed rigidly with said member for engagement with said teeth, and a lever movably attached to said member, one end of which forms the movable jaw, substantially as described.

2. A pipe-wrench comprising a stationary jaw, an extension 3, formed on the same, teeth formed on the said extension, a movable member 5, having a space through which the said extension passes, inclined upper and lower surfaces 7, forming a part of said space, a tooth 8, formed on the said member and adapted to engage with said teeth, a lever 10, movably attached to said member, one end of which forms the movable jaw, and a spring 9 for holding the said tooth 8 in engagement with the teeth 4, formed on the extension 3, substantially as described.

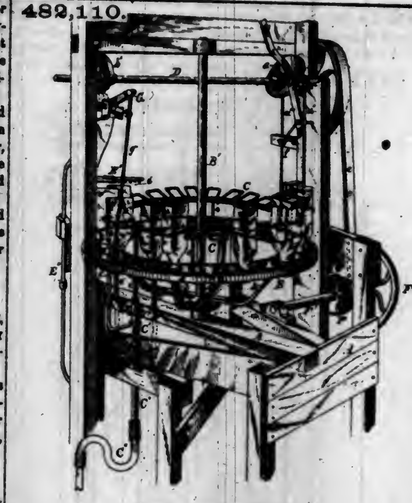
3. A pipe-wrench consisting of a stationary jaw 1, a horizontal extension 3, forming a part of the same, teeth 4, formed on the lower surface of said extension, movable member 5, having a space 6, through which the said extension passes, a tooth 8, formed with the said member and adapted to engage with the said teeth 4, a spring 9, located within the said passage 6 and interposed between the lower wall of the same and the lower surface of said extension, and a handle or lever 10, movably attached to said member 5, one end of which forms the movable jaw, substantially as described.

4. A pipe-wrench consisting of a stationary jaw 1, having a horizontal extension 3, teeth formed on the lower surface of the same, a movable member 5, having a passage 6, through which the said extension passes, inclined upper and lower surfaces 7, forming a part of said passage, a tooth 8, formed with the said member 5 and adapted to engage with the said teeth 4, a spring 9, interposed between the extension 3 and the lower wall of the passage 6, an extension 15, formed with the member 5 and provided with an opening 16, and a lever 10, movably attached to the said member, one end of which forms the movable jaw, substantially as described.

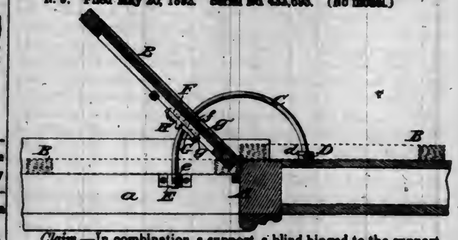
482,110. APPARATUS OR MACHINE FOR CLEANING BOTTLES. GEORGE R. WALLACE, Belfast, Me. Filed Apr. 11, 1892. Serial No. 428,645. (No model.)

Claim.—The combination of the supporting-wheel B and shaft B', the shaft D, having on it the two cams a and b', the band-wheel E, band c, pulley-wheel F, and driving crank-wheel F'', the pawl-lever d', check-rod f, lever G, connecting-rod g, and water-pipe C, and branch jets d.

482,110. [illegible]



482,111. SHUTTER-FASTENER. CHARLES L. WALKER, Seabright, N. J. Filed May 20, 1892. Serial No. 433,698. (No model.)



Claim.—In combination, a support, a blind hinged to the support, a plate upon the blind, said blind and plate having an elongated slot therein, a curved bar passing through said slot and adjustably secured at both sides of the hinged connection between the blind and the support, and means for securing the blind to the bar at different angles, substantially as set forth.

482,112. SUPPORT FOR ELECTRIC LAMPS. AUGUSTUS WRIGHT, Providence, R. I., assignor to the Hope Electric Appliance Company, same place. Filed Mar. 23, 1892. Serial No. 426,061. (No model.)

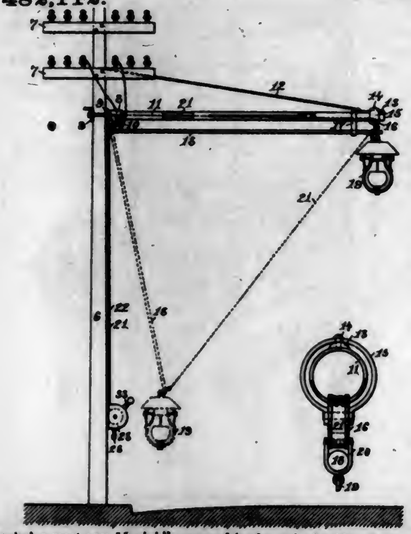
Claim.—1. In an electric-lamp support, the combination, with a mast-arm suitably supported, a pivoted drop-arm, a lamp secured to the end thereof, and a metallic band by which the lamp is sustained, of a rocking bearing over which the band is passed, carried by the outer end of the mast-arm, as described.

2. In a support for electric lamps, the combination, with a mast-arm suitably supported and a bearing-block 13, secured thereto, of the pulley-frame 15, bearing on said block and secured by the screw 14, a pulley 16, journaled between the ends of said frame, a metallic band 21, bearing on said pulley, and a lamp secured to the end of said band, as described.

3. In a support for electric lamps, the combination, with a mast and an arm extending therefrom, of a capstan-case 23, a drum 24, carried by the shaft 25, having the pin 26 journaled therein and having a groove to receive the band 21, a brake-band 27, extending around said drum and operated by the lever 28, extending through and pivoted to the bottom of the case, a ratchet-wheel 29, also secured to said shaft, a pawl 30, having the depending arm 31, pivoted to the back of the case and engaging said ratchet, a crank-shaft 32, having the tapering enlargement 35, an axial recess formed in said shaft and a transverse slot cut through the end portion thereof and adapted to engage the transverse pin 36, a groove 37, formed around said crank-shaft, and a counterweighted pivoted plate 38, adapted to engage in said slot and to be operated by the arm 41, as described.

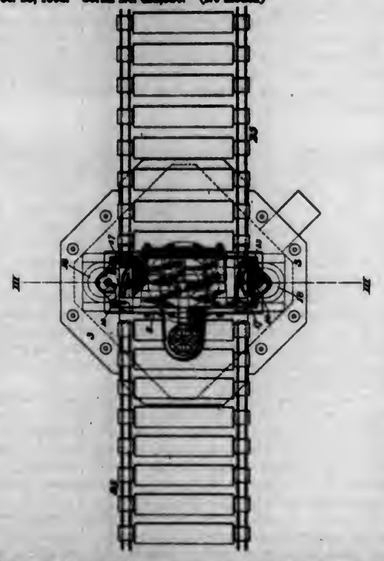
4. The combination, with the pole 6 and a capstan secured thereto, the hollow casting 8, secured to the upper portion thereof by the yokes 9 9 and suitable bolts, a pulley 10, journaled within said casting,

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a tubular mast-arm 11, rigidly secured to the end of said casting and having the depending flagers 17 and the upper stay 12, secured to the outer end of said arm by an elongated strap forming a bearing-block 13, having a rounded upper surface, a pulley-frame 15, supported by said block and secured in place by the screw 14, and a pulley 16, journaled between the ends of said frame, of the tubular rigid stay 18, pivoted to the mast 6, and a metallic band 21, secured to the outer end of said stay, passing over said pulleys 10 and 16, and secured at the other end to the capstan-drum contained within said case 23, as and for the purpose described.

482,113. METAL-SHEARS. HENRY AIKEN, Pittsburg, Pa. Filed Feb. 23, 1892. Serial No. 422,886. (No model.)



Claim.—1. In metal-shears, the combination of knife-heads and an actuating-motor, a machine-frame movable to separate the knife-heads, and a motor for so moving the frame, substantially as and for the purpose described.

2. The combination of a stationary head, a machine-frame, an actuating-cylinder, a moving head actuated by the cylinder, and mechanism which acts on the machine-frame and is adapted to move the same, with the stationary head, to vary the gap between the heads, substantially as and for the purposes described.

3. The combination of a stationary head, an upright machine-frame fixed thereto, a moving head held by the frame and movable independently thereof, an actuating-cylinder carried by the frame and adapted to actuate the moving head, and lifting mechanism acting on the frame and adapted to lift the same to vary the distance between the heads, substantially as and for the purposes described.

4. The combination of a stationary head, an upright machine-frame fixed thereto, a moving head held by the frame and movable independently thereof, an actuating-cylinder carried by the frame and adapted to actuate the moving head, a support independent of the machine-frame, which supports the moving head when in its bottom position, and lifting mechanism acting on the frame and adapted to lift the same to vary the distance between the heads, substantially as and for the purposes described.

5. In metal-shears, the combination of the moving knife-head and actuating-motor, a stationary knife-head, and a lifting-cylinder adapted to lift the stationary head to vary the width of the gap between the knives, substantially as and for the purposes described.

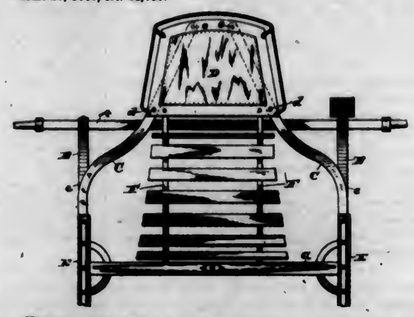
6. The combination of a machine-frame composed of upright bars, a head carried thereby, a moving head movable within the frame, motors comprising cylinders and plungers set in series in the frame, with their stationary parts supported thereby, and lifting mechanism by which the frame can be moved vertically, substantially as and for the purposes described.

7. The combination of a stationary head, an upright machine-frame fixed thereto, a moving head held by the frame and movable independently thereof, an actuating-cylinder carried by the frame and adapted to actuate the moving head, lifting mechanism acting on the frame and adapted to lift the same to vary the distance between the heads, and a counterbalancing-cylinder fixed to the frame and bearing downwardly on the moving head, substantially as and for the purposes described.

8. The combination of a machine-frame, knife-heads, one of which is fixed to the frame, motors comprising cylinders and plungers set in series in the frame, and a frame-lifting motor, substantially as and for the purposes described.

9. The combination of a machine-frame composed of upright bars, a head carried thereby, a moving head movable within the frame, an actuating-cylinder carried by the frame, guides for supporting the frame, and a lifting-cylinder connected with the frame and adapted to lift the same, substantially as and for the purposes described.

482,114. SULKY. JOHN B. ARMSTRONG, Guelph, Canada. Filed Apr. 7, 1890. Serial No. 346,907. (No model.) Patented in Canada Mar. 27, 1886, No. 28,709.

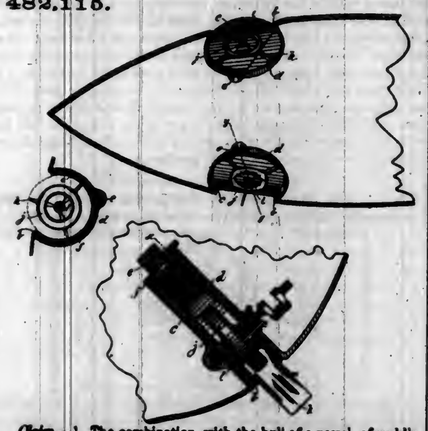


Claim.—1. In a sulky, the combination, with the axle and shafts, of curved single-plate steel springs which connect the shafts and axle and are rigidly connected thereto, and upwardly-curved single-plate springs or seat-supports rigidly connected with the shafts in line with the first-mentioned springs, substantially as and for the purposes specified.

2. In a sulky, the combination, with the axle, shafts, and seat, of two sets of reversely-curved single-plate tempered-steel springs, which springs taper in thickness, one set of said springs rigidly connected to the axle and the other set connected with the seat, and both sets rigidly connected with the shafts at adjacent points and in line with each other, substantially as and for the purposes specified.

482,115. PADDLE-WHEEL BOAT. JACOB S. BAKER, New York, N. Y. Filed Oct. 26, 1889. Renewed Feb. 4, 1892. Serial No. 420,932. (No model.)

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Claim.—1. The combination, with the hull of a vessel, of paddle-wheels located in and projecting laterally from recesses in the sides of the hull forward of the middle thereof, said wheels having their plane of rotation inclined from the front downward lengthwise of the hull.

2. The combination, with the hull of a vessel, of paddle-wheels located in and projecting laterally from recesses in the side of the hull, said wheels having their plane of rotation inclined downwardly outward transversely, and being wholly below the water-line.

3. The combination, with the hull of a vessel, of paddle-wheels located in and projecting laterally from recesses in the sides of the hull forward of the middle thereof, said wheels having their plane of rotation inclined from the front downward lengthwise of the hull and also downwardly outward transversely and being wholly below the water-line.

4. The combination, with the hull of the vessel, having the wheel-recesses in the sides below the water-line and adapted for horizontal paddle-wheels, of such wheels located in said recesses and consisting of paddles attached at the inner ends to a ring of equal width on the face as the width of the paddles and equal, or thereabout, to the vertical width of the recesses and attached to arms of the wheel-hub, the radius of said ring being equal to the distance of the wheel-shaft from the mouth of the recess, substantially as described.

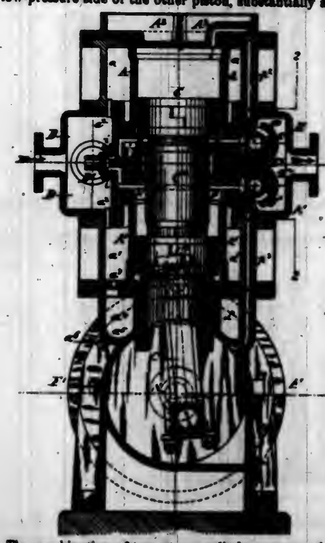
5. The combination, with the hull of the vessel, having the wheel-recesses in the sides below the water-line and adapted for horizontal paddle-wheels, of such wheels located in said recesses and consisting of three paddles attached at the inner end to a ring of equal width on the face as the width of the paddles and equal, or thereabout, to the vertical width of the recesses and attached to arms of the wheel-hub, the radius of said ring being equal to the distance of the wheel-shaft from the mouth of the recess, and the opening of the recess being one-third of the circumference of the wheel, substantially as described.

6. The combination, with the hull of the vessel, having the wheel-recesses in the sides below the water-line and adapted for horizontal wheels, of such wheels located in said recesses and each consisting of three paddles attached at the inner end to a ring or hub secured to the shaft and being of equal radius, or thereabout, as the distance of the wheel-shaft from the mouth of the recess and the opening of the recess being one-third of the circumference of the wheel, substantially as described.

482,116. COMPOUND STEAM-ENGINE. RUDOLF BEHR, New York, N. Y. Filed Mar. 17, 1892. Serial No. 425,202. (No model.)

Claim.—1. The combination of two cylinders arranged axially in line with each other, an intermediate separating portion or web between said cylinders, two pistons, one in each cylinder, connected by an intermediate portion or shank guided in the separating-web of the cylinders, a steam-supply valve communicating with ports at the lower ends of the cylinders, and exhaust-valves also communicating by ports with the inner ends of the cylinders and provided with cavities communicating alternately with channels leading to the outer ends of the cylinders and with the exhaust-pipe, substantially as set forth.

2. The combination of two cylinders arranged in line with each other, an intermediate separating portion or web between said cylinders, two pistons, one in each cylinder and connected by an intermediate portion or shank that is guided in the separating portion, a steam-supply valve, two exhaust-valves having longitudinal cavities communicating with the high and low pressure sides of the cylinders, steam-ports connecting the high-pressure spaces of the cylinders with the supply and exhaust valves, and channels connecting the low-pressure ends of the cylinders with the exhaust-valves, whereby the high-pressure steam is conducted from the high-pressure side of one piston to the low-pressure side of the other piston, substantially as set forth.



3. The combination of two steam-cylinders arranged axially in line with each other, an intermediate separating portion or web between said cylinders, two pistons, one in each cylinder, an intermediate portion or shank connecting said pistons, said shank being guided in the separating portion of the cylinders, a supply-valve for the live steam, two exhaust-valves provided with central cavities, radial slits, and recesses at each side of said slits, a bent tube connecting the ends of the exhaust-valves, ports for connecting the steam-supply valve with the high-pressure sides of the cylinders and with the exhaust-valves, and channels by which the exhaust-valves are connected with the low-pressure sides of the cylinders, substantially as set forth.

4. The combination of two cylinders arranged in line with each other, an intermediate separating portion between said cylinders, a steam-piston for each cylinder, a connecting portion or shank for said pistons guided in the intermediate separating portion, a steam-supply valve, and steam-exhaust valves which are coupled together and strapped to an eccentric on the driving-shaft, substantially as set forth.

5. The combination of two cylinders arranged vertically in line with each other and provided with steam-jackets, a steam-chest, a steam-supply valve in said steam-chest, channels connecting the steam-chest with the steam-jackets, a reservoir for the water of condensation, located below the lower cylinder, and a channel connecting the steam-jacket of the lower cylinder with the reservoir, said reservoir being provided with a plugged discharge-opening for the water of condensation, substantially as set forth.

482,117. REGENERATIVE GAS-FURNACE. FRIEDRICH DANNER, Tarentum, assignor of one-half to the Pittsburgh Plate Glass Company, Creighton, Pa. Filed Feb. 27, 1892. Serial No. 423,096. (No model.)

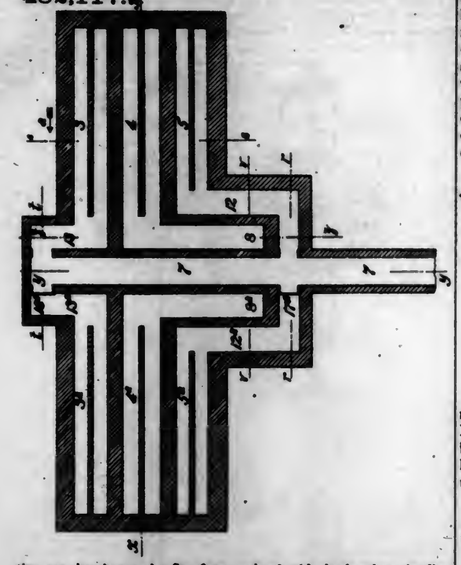
Claim.—1. The improvement in the method of controlling the distribution of heat to a furnace, which consists in varying the supply of air to opposite sides of a jet of gas, and thereby causing the greater supply of air to deflect the flame toward the opposite side of the furnace, substantially as set forth.

2. The combination, in a gas-furnace, of a gas-port opening therein, air-ports opening in rear of and at opposite sides of the gas-port, and valve mechanism for controlling the supply of air to each air-port, so as to cause the deflection of the hot gases toward either side of the furnace, substantially as set forth.

3. The combination, in a gas-furnace, of a gas-port opening therein, two air-ports in rear of the opposite sides of the gas-port, and valve mechanism for increasing or decreasing the supply of air to either or both air-ports, whereby the hot gases may be deflected toward the side of the furnace away from the port through which the greater supply of air enters, substantially as set forth.

4. The combination, in a regenerative gas-furnace, of a central regenerative gas-chamber, a flue leading therefrom to the furnace, two regenerative air-chambers, one located on each side of the regenera-

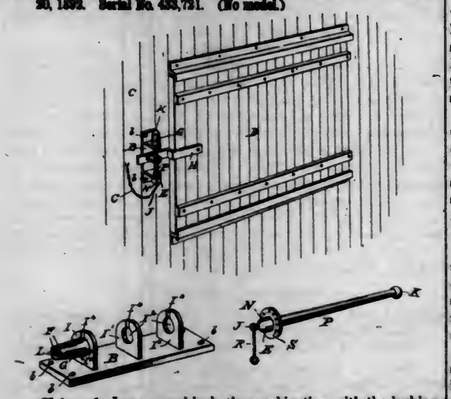
482,117.



tive gas-chamber, and a flue from each of said air-chambers, leading to a port-opening in rear of each side of the gas-flue, substantially as set forth.

5. A regenerative gas-furnace having two sets of regenerative chambers, one set at each end, consisting of a central gas-chamber and two air-chambers, one on each side of the gas-chamber, with flues opening into opposite ends of the furnace, substantially as set forth.

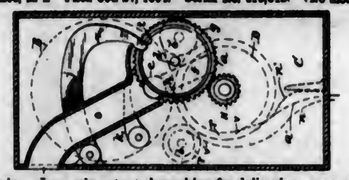
482,118. SEAL-LOCK. JOHN DOWLING, Altoona, Pa. Filed May 20, 1892. Serial No. 433,731. (No model.)



Claim.—1. In a car seal-lock, the combination, with the locking-plate having the series of outwardly-projecting lugs provided with holes, and with slots extending from their outer edges to the holes, said slots and holes being in alignment, spring-tongues surrounding the upper hole of the series and converging, and a cylindrical guard having a slot mounted on the upper lug and encircling the tongues, of a hasp for engaging the intermediate lug, a locking bolt or pin having upper and lower heads of a diameter less than the holes of the lug, the lower head exceeding in size the upper head, the seal adapted to pass over the upper head and of a lesser diameter than the lower head, and the chain connected to the bolt or pin and adapted at its opposite end to be connected to a car, substantially as specified.

2. The combination, with the lock-plate having the outwardly-projecting lugs provided with holes and inwardly-extending slots, the holes and slots registering, the cylindrical guard surrounding the hole of the upper lug, slotted to agree with the same, and provided at the inner corners of its slot with parallel flanges, and the L-shaped spring-tongues riveted to the upper lug, extending up into the guard, and having their upper ends converged, of the hasp for engaging the intermediate lug, the bolt or pin having the upper and lower heads of less diameter than the holes of the lugs, the lower head exceeding in diameter the upper head and provided with a notch and depending eye, the circular seal adapted to be introduced over the upper head of the pin and rest against the lower head thereof, the rod having opposite eyes, one of which engages with the eye of the bolt or pin, and the chain loosely connected to the lower end of the rod and adapted to be connected to a car, substantially as specified.

482,119. COIN-ACTUATED MECHANISM. JOHN EVANS, Providence, R. I. Filed Oct. 27, 1891. Serial No. 410,012. (No model.)



Claim.—In a coin-actuated machine for delivering paper, using a roll of paper, the combination of the main delivery-roll D, paper-roll B, supported by said roll D, roll *b'*, arranged to carry the paper once in each or opposite directions between said rolls D and B, the two layers of paper being in contact with each other while between said rolls, substantially as set forth.

482,120. AMMUNITION-MEASURE. HORACE O. FRENCH, Washington, D. C. Filed May 24, 1892. Serial No. 434,134. (No model.)



Claim.—1. In a tool of the class described, the combination of two sliding shells telescopically connected, the inner shell being provided upon its exterior with a scale and the outer shell having its lower edge notched to form a sight-opening and at one side of the same provided with an indicating-finger for moving over the scale, a loop rising from the end of the inner section, a stud passing through the loop and projecting from the outer section, and a clamping-nut on said stud and designed to bear upon the loop, substantially as specified.

2. In a tool of the class described, the combination of two sliding shells telescopically connected, the inner shell being provided upon its exterior with a scale and the outer shell having its lower edge notched to form sight-openings, provided with a scale and at one side of the sight openings provided with an indicating-finger for moving over the scale, a loop carrying a finger rising from the base of the inner shell, a stud threaded and extending through the loop, and a nut located upon the stud and bearing on the loop, substantially as specified.

3. In a tool of the class described, the combination, with the two telescopically-connected shells, of a threaded stud extending from the outer shell, a slotted loop or plate extending upwardly from the inner shell through recesses formed in the base of the stud, and a clamping-nut threaded on the stud and impinging upon the loop or plate, substantially as specified.

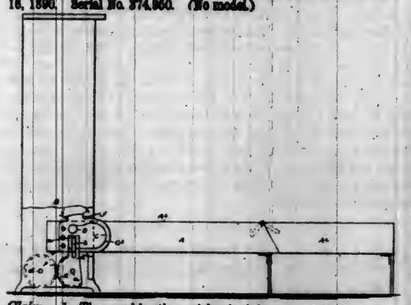
4. In a tool of the class described, the combination, with the telescopically-connected shells, the inner one of which is provided upon its exterior with a series of scales and the outer one of which is provided at its lower edge opposite the scales with recesses having at one side indicating-fingers for moving over the scales, of a threaded stud extending from the outer shell and provided at its base with an opening, a loop extending upwardly from the lower shell through the opening and lying upon the external shell, and a handle terminating at its inner end in a threaded ferrule engaging the nut and at its inner end impinging upon the loop, substantially as specified.

482,121. CAR-COUPLING. WILLIAM R. GALLAHER, Orugers, N. Y. Filed Mar. 20, 1892. Serial No. 426,076. (No model.)

Claim.—1. The combination, in a car-coupler, of the draw-head *a*, provided with a pawl having a square spindle-support and a perforation through it for a coupling-pin to align with the holes in the draw-head only when raised by the introduction of a link, the pawl to be manipulated by means of a crank *j*, a rod connecting with the crank and extending to the top of the car and having connection with the lever *l*, by which the rod and pawl may be operated, and a link provided with enlarged ends *k k* and a central lug *g*, substantially as shown and described.

2. In a car-coupling, a draw-head provided with a pawl *d*, suspended on a square spindle having bearings in the sides of the draw-head, the spindle having a crank on one end to be manipulated by a connecting-rod *b* and a lever *l*, the pawl and draw-head being perforated to receive an ordinary coupling-pin, a coupling-pin *p*, and a link *c*, provided with enlarged ends and with a lug *g* at its center, substantially as shown and described.

482,122. WARDROBE-BEDSTEAD. MARTHA C. GELDOWSKY, executrix of Ferdinand Geldowsky, deceased, Cambridge, Mass. Filed Dec. 16, 1890. Serial No. 374,960. (No model.)



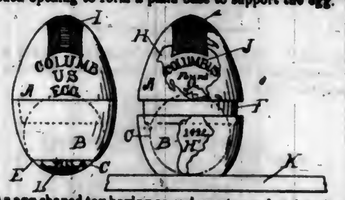
Claim.—1. The combination, with a bed-frame and the base therefor, of a camway which is held on the side rail of said bed-frame and has straight and rounded concave opposite end portions C^3 C^3, a straight portion C^4 along one of its sides and joining said ends C^3 C^3, rounded concave portions C^5 C^7 and a rounded convex portion C^6 between said concave portions and severally along the other of its sides and joining each other and said end portions C^3 C^3, and a stud D, held on said base and having said camway bearing thereon, as described, for the purposes specified.

2. The combination, with a bed-frame and the base therefor, of a camway which is held on the side rail of said bed-frame and has straight and rounded concave opposite end portions C^3 C^3, a straight portion C^4 along one of its sides and joining said ends C^3 C^3, rounded concave portions C^5 C^7 and a rounded convex portion C^6 between said concave portions and severally along the other of its sides and joining each other and said end portions C^3 C^3, a stud D, held on said base and having said camway bearing thereon, weighted gears F and gear E, both hung on said base and meshing each other, and the gear E having a slotted arm or extension E^3, and a stud *m* on side rail of bed-frame and engaging said slotted arm, as described, for the purposes specified.

3. The combination, with a bed-frame and the base therefor, of a camway which is held on the side rail of said bed-frame and has straight and rounded concave opposite end portions C^3 C^3, a straight portion C^4 along one of its sides and joining said ends C^3 C^3, rounded concave portions C^5 C^7 and a rounded convex portion C^6 between said concave portions and severally along the other of its sides and joining each other and said end portions C^3 C^3, a stud D, held on said base and having said camway bearing thereon, stops *h j* on the side rail of the bed-frame, and stops *f g* on the base, adapted to act in co-operation, as described, for the purposes specified.

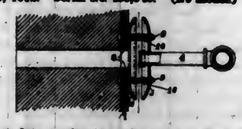
482,123. HISTORICAL TOY NOVELTY. FREDERICK C. J. GERER, Los Angeles, Cal. Filed Aug. 7, 1891. Serial No. 401,964. (No model.)

Claim.—1. An egg-shaped toy comprising the combination of two shell members adapted to fit together and arranged to form an interior chamber, one of said shell members being chambered and provided with an end opening extending through the end of the shell from the chamber, and an interior member arranged within the chamber to protrude through the end opening to complete the symmetry of the egg, all the parts being so constructed and arranged that the interior member may be retracted from the opening to allow the rim of shell around such opening to form a plain base to support the egg.



2. An egg-shaped toy having an end opening and an interior member yieldingly mounted in such opening, all the parts being so constructed and arranged that the interior member may be retracted from the opening to allow the rim around such opening to form a plain base to support the toy.

482,124. SMOKE-CONSUMER. THOMAS GUNNING, Pittsburg, Pa. Filed May 19, 1892. Serial No. 433,540. (No model.)

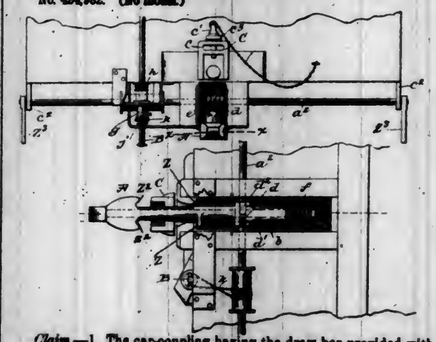


Claim.—1. A furnace having a hole through its front casing, a perforated dished plate secured to the casing, a second dished plate adjustably held in front thereof, and an injector projecting into the space between the two plates, substantially as and for the purposes described.

2. A furnace having a hole or holes in its front casing, perforated dished plates secured at the front of the holes, dished plates supported upon bolts passing through the first-named plates, and injectors passing through the outer plates into the space between the two, substantially as and for the purposes described.

3. A furnace having a hole or holes in its front casing, perforated dished plates secured at the front of the holes, dished plates supported upon bolts passing through the first-named plates, spiral springs surrounding the bolts, and injectors passing through the outer plates into the space between the two, substantially as and for the purposes described.

482,125. CAR-COUPLING. GEORGE C. HARLIN, Seattle, Wash., assignor of one-tenth to Alexander Densmore. Filed Mar. 15, 1892. Serial No. 424,982. (No model.)



Claim.—1. The car-coupling having the draw-bar provided with a worm-and-gear connection with its actuating-shaft, substantially as set forth.

2. The car-coupling having the draw-bar provided with a segmental gear and the actuating-shaft provided with a worm adapted to mesh with said gear, substantially as specified.

3. The car-coupling having the draw-bar provided with a segmental gear and a cam-stop, the support for said draw-bar having a slot to receive said cam-stop and the actuating-shaft having a worm meshing with said gear, substantially as specified.

4. The car-coupling having its actuating-shaft adapted to be operated by a hand-shaft having a spline connection with the drum or spool, the drum having a chain or cable connection with the first-named shaft, substantially as set forth.

5. In a car-coupling, the ordinary link-receiving draw-head having at one end a socket to receive said link and hung or pivoted near one end upon an apertured bracket and a pin adapted to effect engagement between the draw-head and bracket, substantially as specified.

482,126. TRAIN SIGNALING APPARATUS. JAMES M. HENRY, Wilmerding, and ROBERT B. WILSON, Altoona, Pa. Filed Dec. 23, 1891. Serial No. 415,949. (No model.)

below the surface of the board and working entirely within said curved depression, as and for the purpose set forth.

2. A drawing-board having depressed arcs or recesses in its face near its ends and in each arc a supplemental curve on the arc of a circle and bent inwardly at its center, in combination with an independent T-square, whose head loosely rests against said curve and works within said recesses, as and for the purpose set forth.

3. A drawing-board having depressed arcs or recesses in its face near its ends and wire guides in the bottoms of said arcs, in combination with a supplemental inwardly-bent spring-curve in each recess, having its free working ends resting on said guides, and means, substantially as described, for adjusting the bend of said curve with relation to said depressed arcs, but always keeping it on the arc of a circle,

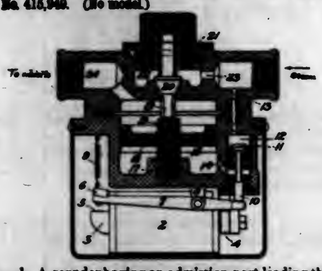
3. The combination of a frame, a vertical sounder-magnet, a horizontal armature-lever arranged below the magnet, the adjustable eccentric forming its lower stop, and the adjustable screw forming its upper stop.

4. The combination of a C-shaped frame A, the pendent sounder-magnet, the iron extension *b* of its core arranged outside of the magnet-coil, the horizontal armature-lever arranged below the magnet, and the horizontal key arranged below the armature-lever.

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5. In a car-coupling, the ordinary link-receiving draw-head having at one end a socket to receive said link and hung or pivoted near one end upon an apertured bracket and a pin adapted to effect engagement between the draw-head and bracket, substantially as specified.

482,126. TRAIN SIGNALING APPARATUS. JAMES M. HENRY, Wilmerding, and ROBERT B. WILSON, Altoona, Pa. Filed Dec. 23, 1891. Serial No. 415,949. (No model.)

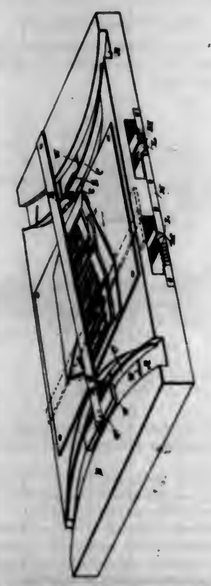


Claim.—1. A sounder having an admission-port leading thereto, a main valve controlling said port, a piston bearing against the main-valve stem, a branch passage leading to said piston, a valve controlling said passage, and an electrically-operated lever bearing upon the valve in the branch passage, substantially as and for the purposes described.

2. A sounder having an admission-port leading thereto, a main valve controlling said port, a piston working loosely in a cylinder and bearing against the main-valve stem, a branch port leading to one side of the piston, a secondary valve controlling the branch passage, a lever bearing upon the secondary valve, an electro-magnet, and an armature carried upon the lever, substantially as and for the purposes described.

3. An electric coupling comprising two similar halves having interlocking lugs, each half having two contact-buttons to which the wires of the circuit lead, a hollow bushing with which one of the wires contacts, a movable button within the bushing, and a ring to which a branch wire from the other wire leads and arranged to contact with the movable button, substantially as and for the purposes described.

482,127. DRAWING APPARATUS. ALBERT H. JOHNSON, Tampa, Fla. Filed Sept. 14, 1891. Renewed July 23, 1892. Serial No. 440,994. (No model.)



Claim.—1. A drawing-board having near one edge the curved depression or recess on the arc of a circle, in combination with a T-square whose blade passes over the curve and the ends of whose head loosely rest against the outer face of said curve, said head projecting below the surface of the board and working entirely within said curved depression, as and for the purpose set forth.

2. A drawing-board having depressed arcs or recesses in its face near its ends and in each arc a supplemental curve on the arc of a circle and bent inwardly at its center, in combination with an independent T-square, whose head loosely rests against said curve and works within said recesses, as and for the purpose set forth.

3. A drawing-board having depressed arcs or recesses in its face near its ends and wire guides in the bottoms of said arcs, in combination with a supplemental inwardly-bent spring-curve in each recess, having its free working ends resting on said guides, and means, substantially as described, for adjusting the bend of said curve with relation to said depressed arcs, but always keeping it on the arc of a circle, as and for the purpose set forth.

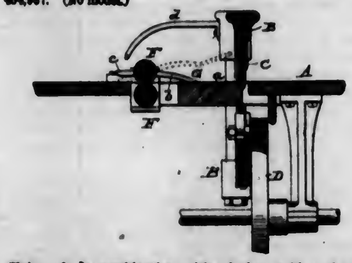
4. The combination, with a drawing-board and near one edge thereof an inwardly-bent curve, of means, substantially as described, for adjusting the bend of said curve, but always keeping it on the arc of a circle, as and for the purpose set forth.

5. The combination, with a drawing-board having a depressed arc in its face and a supplemental spring-curve within said arc and having its free working ends resting against the inner wall thereof, of a rod connected directly to the center of said curve and moving longitudinally in the body of the board, and means, substantially as described, for adjusting the position of said rod from the front edge of the board, as and for the purpose set forth.

6. The combination, with a drawing-board having a depressed arc in its face and a spring-curve within said arc, its ends resting against the inner wall thereof, of a rod connected to the center of said curve and moving in the body of the board, a lever pivoted near one end to said rod and centrally to the board, and a notched plate over which the other end of the lever moves, as and for the purpose set forth.

7. The combination, with a drawing-board having a depressed arc in its face and a spring curve within said arc, its ends resting against the inner wall thereof, of a rod connected to the center of said curve and moving in the body of the board, a guide having eyes through which said rod is guided, and a pivoted lever connected to the rod and projecting beyond the edge of the board, as and for the purpose hereinbefore set forth.

482,128. TAKE-UP DEVICE FOR CLOTH-CUTTING MACHINES. WILLIAM H. KERR, Rochester, Md. Filed May 31, 1892. Serial No. 434,967. (No model.)



Claim.—1. In combination with a bed or table and a feed-roll adapted to advance a sheet or web of material over the same, a cutter and a take-up device located between the cutter and the feed-roll and serving by its movement to take up the slack of material accumulating between the feed-roll and the cutter during the cutting operation.

2. In combination with a bed or table A, reciprocating cutter C, and feed-roll F, an intermittent take-up G, substantially as and for the purpose set forth.

3. In combination with bed or table A and feed-roll F, cutter-frame B, provided with cutter C and arm *d*, and a take-up G, consisting of arms *b*, plate or bar *a*, and tail *c*, the arms being pivotally supported and the tail *c* being located in path of the arm *d*, substantially as set forth.

482,129. COMBINED TELEGRAPH KEY AND SOUNDER. DAN J. LOUWIE, New York, N. Y. Filed May 2, 1892. Serial No. 431,532. (No model.)

Claim.—1. The combination of a frame, the sounder-magnet depending from its upper end, the armature-lever arranged below the magnet, and the key arranged below the armature-lever, all the parts being in the same plane, or substantially so.

2. The combination of a bifurcated frame, the key and armature-lever pivoted and playing between the sides or bifurcations of the frame, and the sounder-magnet supported above the armature-lever.

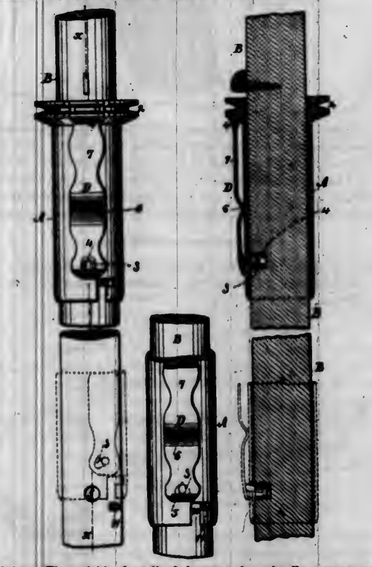
3. The combination of a frame, a vertical sounder-magnet, a horizontal armature-lever arranged below the magnet, the adjustable eccentric forming its lower stop, and the adjustable screw forming its upper stop.

4. The combination of a C-shaped frame A, the pendent sounder-magnet, the iron extension *b* of its core arranged outside of the magnet-coil, the horizontal armature-lever arranged below the magnet, and the horizontal key arranged below the armature-lever.



5. The combination of a C-shaped frame the lower side or end of which is bifurcated and formed with lateral feet or extensions for attachment to the base-board, the downwardly-projecting sounder-magnet supported by the upper end of the frame, the horizontal armature-lever pivoted and playing between the bifurcations or sides of the frame and its adjusting-stops, and the horizontal key-lever also pivoted and playing between the sides of the frame, arranged below the armature-lever.

482,180. UMBRELLA-RUNNER. JAMES F. MASON, Brooklyn, N. Y. Filed Nov. 3, 1891. Serial No. 410,712. (No model.)



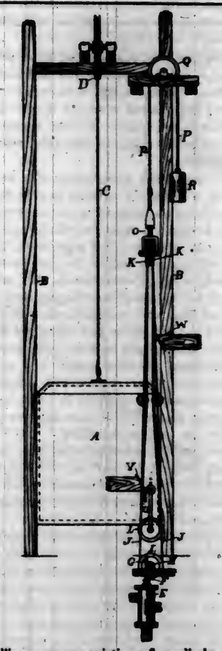
Claim.—The within-described improved umbrella-runner, comprising the tubular runner A and spring D, the latter constructed at its lower free end with a downwardly-inclined and inwardly-projecting pin provided with the point or spur 8, the opposite end thereof being rigidly secured to the upper portion of said runner, the spring having the bend 6 about the center thereof, forming a fulcrum, whereby when the portion 7 of the spring is depressed it causes the free end thereof to disengage with the holes 4 and 5 in the staff B, all as shown and described.

482,181. ELEVATOR-CONTROLLING MECHANISM. ALEXANDER J. MCADAM, San Francisco, Cal. Filed Apr. 21, 1892. Serial No. 430,082. (No model.)

Claim.—1. In elevator-controlling gearing, the combination of the cage A, the water-controlling means consisting of a cylinder, piston, rack and pinion, and pulley I, up-and-down-traveling pulleys K K, pulley L, attached to the cage, ropes J J, passed partially and oppositely around and fastened to the pulleys I and L, hand-lever T, attached to the axle of the pulley L, rope P, suspended shackle-pulley Q, and movable weight R, substantially as described.

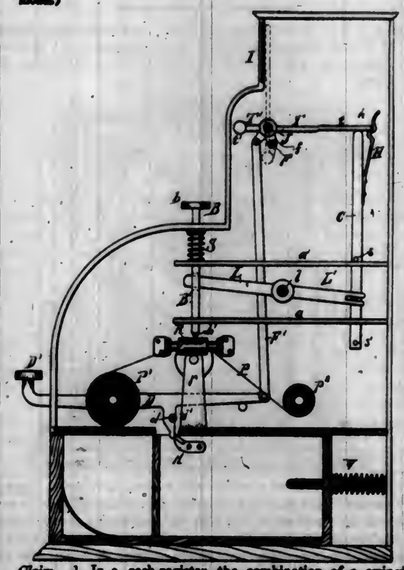
2. In elevator-controlling gearing, the combination of the cage A,

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the water-controlling means consisting of a cylinder, piston, rack and pinion, and pulley I, up-and-down-traveling pulleys K K, pulley L, attached to the cage, ropes J J, passed partially and oppositely around and fastened to the pulleys I and L, hand-lever T, attached to the axle of the pulley L, rope P, suspended shackle-pulley Q, and movable weight R, lever U, and stops V and W, substantially as described.

482,182. CASH INDICATOR AND RECORDER. WILLIAM T. MCGRAW, Detroit, Mich. Filed May 14, 1892. Serial No. 433,002. (No model.)



Claim.—1. In a cash-register, the combination of a swinging counterweighted tablet-rod, an actuating-key, and a lever actuated by said key and actuating said tablet-rod and adapted to turn said tablet-

rod from a horizontal to a vertical position, substantially as and for the purpose specified.

2. In a cash-register, the combination of a swinging counter-weighted tablet-rod, a vertically-moving rod, and a spring secured to said vertically-moving rod and adapted to receive the end of said tablet-rod in holding engagement when the tablet-rod is in a vertical position and to release said tablet-rod from engagement with said spring as the last-mentioned rod rises vertically, substantially as and for the purpose described.

3. In a cash-register, the combination of a swinging counter-weighted tablet-rod, a lifting-rod adapted to raise the tablet end of said tablet-rod from a horizontal position, and a spring secured to said lifting-rod adapted to hold the tablet end of said tablet-rod when in a horizontal position and to move out of engagement therewith as said lifting-rod rises, substantially as and for the purpose described.

4. In a cash-register, the combination of a swinging counter-weighted tablet-rod, a readjusting-bar swinging from the journal upon which said tablet-rod turns, and an actuating-key adapted to turn said readjusting-rod, and thereby throw said tablet-rod from a vertical to a horizontal position, substantially as and for the purpose described.

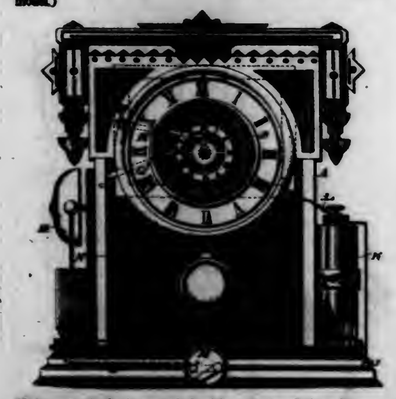
5. In a cash-register, the combination of a swinging counter-weighted tablet-rod, a lifting-bar provided with a holding-spring, a re-adjusting-bar, an actuating-key adapted to operate said lifting-bar, and an actuating-lever adapted to operate said readjusting-bar, substantially as and for the purpose described.

6. In a cash-register, the combination of a swinging counter-weighted tablet-rod, a lifting-bar, and an actuating-key, and an impression-type formed integral with the stem of said key adapted to produce an impression upon a web of paper beneath it, substantially as and for the purpose described.

7. In a cash-register, the combination of an inclosing case, a drawer adapted to move in and out of said case, a swinging counter-weighted tablet-rod, a key, and intermediate mechanism adapted to swing said tablet-rod, a readjusting-lever, also adapted to swing said tablet-rod, a pair of paper-rolls, mechanism connected with said readjusting-lever adapted to move forward the paper from one of said rolls to the other, and a printing-type formed integral with the stem of the tablet-actuating keys and adapted to print characters upon the web of paper, substantially as and for the purpose described.

8. In a cash-register, the combination of a swinging counter-weighted tablet-rod, an actuating-key adapted to lift the said counter-weighted tablet-rod to a position of inspection, a readjusting-lever adapted to return said tablet-rod from a position of inspection to a position of concealment, and a locking-bolt actuated by said readjusting-lever and adapted to be lifted out of locking engagement with a catch on the drawer of said cash-register cotemporaneously with its readjusting movement, substantially as and for the purposes described.

482,183. ELECTRIC ALARM-CLOCK. JOHN MCMILLAN and GEORGE H. TAYLOR, Philadelphia, Pa.; said Taylor assignor to said McMillan. Filed Mar. 26, 1891. Renewed Feb. 15, 1892. Serial No. 421,635. (No model.)

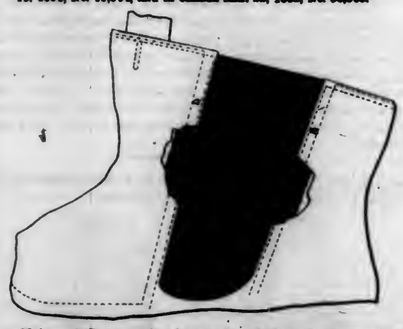


Claim.—1. A clock provided with a setting-dial and a recessed disk carried by the same, a gravitating pivoted arm normally in contact with the periphery of said disk, and a stationary finger forming an electric terminal adapted to be contacted by said arm, said arm and finger being in an electric circuit which is closed when said arm and finger contact, substantially as described.

2. An electric alarm attachment to a clock, consisting of a setting-dial with a recessed disk on the hand post or arbor, a gravitating pivoted arm connected with the frame of the works of the clock, a stationary finger forming an electric terminal and supported adjacent to said arm and normally free of contact of said arm, a battery, and a bell, said frame, arm, finger, and bell being in an electric circuit which is closed by contact of said arm with said finger, substantially as described.

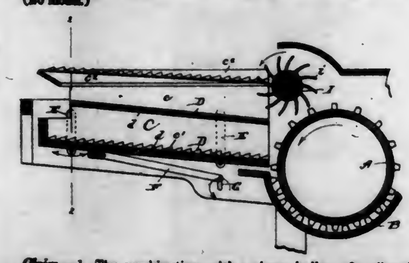
3. A clock provided with a setting-dial and a recessed disk carried by and movable with said dial, a gravitating pivoted arm normally in contact with the periphery of said disk, a stationary finger forming an electric terminal adapted to be contacted by said arm, a battery, and a bell, said frame, arm, finger, bell, and battery being in an electric circuit, and a switch for opening and closing said circuit, interposed in said circuit, substantially as described.

482,184. SHOE. HENRY NEWCOMB, Corinth, Miss. Filed Sept. 26, 1891. Serial No. 406,963. (No model.) Patented in England Nov. 11, 1891, No. 19,564, and in Canada Mar. 22, 1892, No. 38,563.



Claim.—A Congress shoe having the elastic goring secured to the leather portions of the upper and provided with a lining extending beyond the edges of the leather and overlapping the inside of the goring and having fastenings securing the elastic threads or filaments to the web of the goring itself and to the extended lining, said fastenings being removed from and independent of the leather portions of the shoe.

482,185. FEEDING DEVICE FOR CLOVER-HULLERS. CHAUNCEY PITTENGER, Kingsbury, Ind. Filed Dec. 18, 1891. Serial No. 415,471. (No model.)



Claim.—1. The combination, with a clover-huller, of a vibrating feeding-box having inclined side ledges c^3 and vertical wall c, supporting said ledges, both the ledges and walls being armed with rows of teeth D, substantially as specified.

2. In a clover-huller, the combination, with cylinder A and concave B, of a rotary feeding-picker I, located over the front of cylinder A and provided with reversible teeth, substantially as set forth.

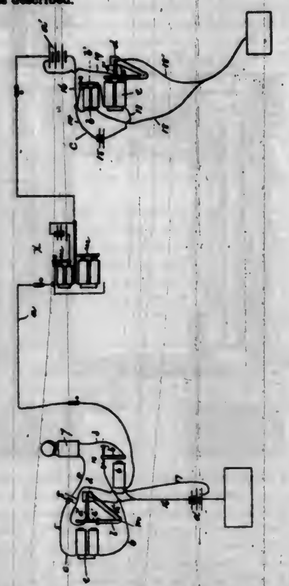
3. The combination, with a clover-huller, of a vibrating feeding-box and a picking-cylinder, said cylinder having reversible curved teeth, substantially as set forth.

482,186. AUTOMATIC BATTERY CUT-OFF. WALTER S. RICHARDS, Natick, assignor of one-half to George B. James, Boston, Mass. Filed Jan. 3, 1891. Serial No. 376,945. (No model.)

Claim.—1. In a telegraph, the combination of a line-circuit, a battery or equivalent generator connected therewith, and two relatively movable terminals or contacts connected with the generator and reacting upon each other, with a magnet in a local circuit controlling one of said contacts directly and the other contact by the reaction of the first, and devices in the main line for controlling the local circuit, whereby upon the opening of the main line the reacting contacts will

momentarily short-circuit the generator without removing the same from the line, substantially as described.

2. In a telegraph, the combination of a line-circuit, a battery or equivalent generator connected therewith, two relatively movable terminals or contacts connected with the poles of the generator, with a local circuit controlled by the main line and a circuit-controller controlled by the local circuit, actuating to separate the said contacts by the closing of the local circuit and to momentarily close the said contacts and then separate them again when the local circuit is opened, substantially as described.

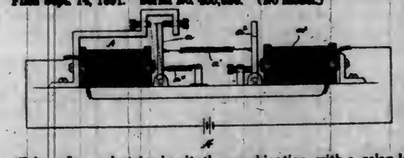


3. In a telegraph, the combination of a line-circuit, a battery or equivalent generator connected therewith, two relatively movable terminals or contacts and connections between the same and the poles of the generator, whereby the generator is short-circuited when the contacts are brought together, with a local circuit controlled by the main line, an electro-magnet in the local circuit, and mechanical connections between the armature of said magnet and the said contacts, whereby the movement of said armature toward the magnet acts to separate the contacts, while its return movement acts to first bring together and then separate the contacts, substantially as described.

4. The combination of the electro-magnet, its armature, a retracting spring for the latter, a bell-crank lever loosely engaged with said armature and having a contact or terminal and arranged to momentarily engage another contact or terminal secured to the armature, as set forth.

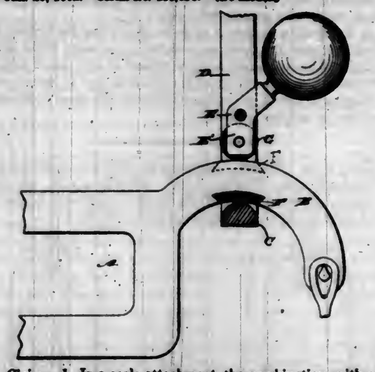
5. The combination of the electro-magnet, its armature, and armature-retracting spring, a bell-crank lever having studs arranged to permit lost motion of the armature between them, a contact d, attached to said lever, and a contact d', attached to the armature, as set forth.

482,187. ELECTRICALLY-ADJUSTING RELAY. WALTER S. RICHARDS, Natick, assignor of one-half to George B. James, Boston, Mass. Filed Sept. 14, 1891. Serial No. 405,898. (No model.)



Claim.—In an electric circuit, the combination, with a relay located in said circuit and its armature, of an electro-magnet included in the same circuit with the relay and provided with an armature pivoted outside of the electro-magnet and located in front of the pole-piece of the said electro-magnet, and a spring connecting said armatures, substantially as described.

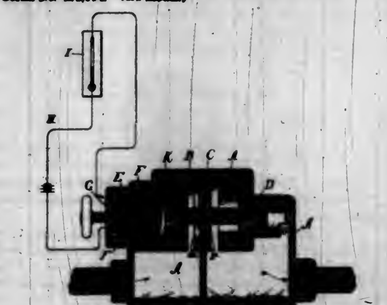
482,188. SCALE ATTACHMENT. LOUIS F. ROBARE, An Sable Forks, assignor to himself and Robert J. Clark, Champlain, N. Y. Filed Jan. 20, 1892. Serial No. 418,623. (No model.)



Claim.—1. In a scale attachment, the combination, with a fork, of a scale-beam projecting through the fork and a locking-lever pivoted in the fork and having a roller, of rubber or analogous material, journaled therein, said roller being adapted to engage the top of the beam, substantially as described.

2. In a scale attachment, the combination, with a fork, of a scale-beam projecting through the fork and provided with a contact of soft material on its under side and a locking-lever pivoted in the fork and having a roller, of rubber or analogous material, journaled therein, substantially as herein shown and described.

482,189. ELECTRIC VALVE-CONTROLLER. EDWARD F. ROBERTS, Columbus, Ohio. Filed Aug. 26, 1890. Renewed Feb. 11, 1892. Serial No. 421,094. (No model.)



Claim.—1. In a heating system, the combination of a valve for controlling the heating fluid, provided with pistons upon the opposite sides thereof, one of which is operated by excess of pressure and the other by an electro-magnet included in an electric circuit which also includes a thermostatic circuit-closer, substantially as and for the purpose set forth.

2. In a heating system, the combination of a valve for controlling the heating fluid, provided with differential pistons on the opposite sides thereof, the one open to and adapted to be operated by excess of pressure and the other by an electro-magnet included in an electric circuit which also includes a thermostatic device controlled by a variation of temperature, substantially as and for the purpose set forth.

3. In a heating system, the combination of a valve for controlling the heating fluid, provided at one of its sides with a piston open to and operated by excess of pressure and at its other side with an armature in connection with a magnet for operating the same, and a thermostat in the circuit of the magnet, substantially as and for the purpose set forth.

4. In a heating system, the combination of a valve having differential pistons secured to its opposite sides, the smaller piston open to and operated by excess of back-pressure and the larger having an armature in connection with one or more magnets arranged in the same chamber, and a thermostat arranged in the circuit of the magnets, substantially as and for the purpose set forth.

5. In a heating system, the valve for controlling the heating fluid, provided at one of its sides with a piston open to and operated by ex-

cess of pressure and at its other side with an armature, in combination with an electro-magnet contained with the valve-casing, an electric circuit including such magnet, and a thermostatic circuit-closer, substantially as and for the purpose set forth.

6. In a heating system, a valve for controlling the heating fluid, an electro-magnet for operating said valve, the same being inclosed within the valve-casing and being composed of two sets of coils, and appropriate cores, the one set within the other, and an electric circuit including such magnet, and a thermostatic circuit-closer, substantially as and for the purpose set forth.

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ting said outlet-pipe and consisting of an annularly-flanged top cap and a series of depending spaced plates provided with an alternate series of lateral perforations, said cap being further provided with a circular series of perforations within the flange thereof and communicating with the spaces inclosed by said plates, a regulator connected to said cover, and water-supply pipes, substantially as set forth.

cap and a series of spaced plates depending therefrom and provided with a series of alternately-arranged perforations in the sides thereof, and guide-rollers secured to the bottom edge of the inner inclosing plate, a regulator connected to said cover, a pan or plate supported within the opposite compartment and provided with a series of slotted openings and depending tubes connected therewith, and an escape-chamber arranged horizontally thereunder and provided with an elongated escape-tube communicating with the space above the water-line inclosed by said pan or plate, substantially as set forth.

7. In a gas purifier and condenser, a condensing-chamber provided with circulating-pipes surrounded by a water-space, a supple-

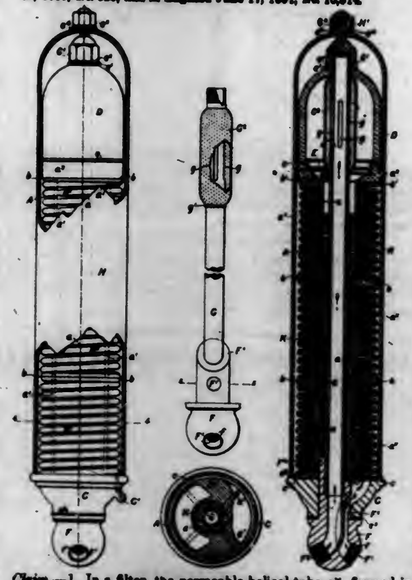
chute, a circuit-closing device moved by the depression of said lever into position to bear on a coin in said chute, an electro-magnet and electrical connections completing a circuit through said magnet when the said circuit-closing device is in contact with a coin, and an escapement mechanism controlled by said electro-magnet, said mechanism being adapted to co-operate with the teeth or pins of the wheel in permitting a partial rotation of the latter, and including a latch which is thrown by the action of said magnet into position to be actuated by the lever during its return movement, as set forth.

8. In a coin-operated vending-machine, the combination of a rotary wheel having merchandise-holding pockets and a series of teeth

cess of pressure and at its other side with an armature, in combination with an electro-magnet contained with the valve-casing, an electric circuit including such magnet, and a thermostatic circuit-closer, substantially as and for the purpose set forth.

6. In a heating system, a valve for controlling the heating fluid, an electro-magnet for operating said valve, the same being inclosed within the valve-casing and being composed of two sets of coils, and appropriate cores, the one set within the other, and an electric circuit including such magnet, and a thermostatic circuit-closer, substantially as and for the purpose set forth.

482,140. FILTER. DOMINGO M. SARTORIO, Buenos Ayres, Argentine Republic. Filed Nov. 7, 1891. Serial No. 411,187. (No model.) Patented in France Oct. 8, 1890, No. 201,080; in Argentine Republic Nov. 19, 1890, No. 822, and in England June 17, 1891, No. 10,314.



Claim.—1. In a filter, the permeable helical tube a^x, formed integral with the cylinder A, which it surrounds, and adapted to serve as herein set forth.

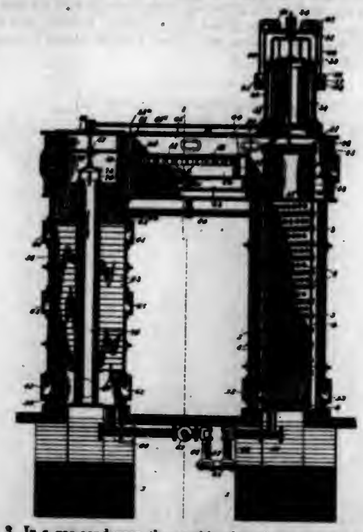
2. In a filter, the combination, with the upright cylindrical vessel A and the cap D on its upper end, of the base C under that vessel, the support F under and partially within the said base, the central tube G, and the concentric grating G^2, arranged substantially as and for the purposes set forth.

3. In a filter, the combination, with a vessel A, formed with a permeable helical tube a^x, of a sand-reservoir K, a passage for leading sand therefrom into the current entering the helical tube, and an opening for allowing the sand to return to the sand-reservoir for reuse in scouring the filtering-surfaces, substantially as set forth.

482,141. GAS PURIFIER AND CONDENSER. GOTTLIEB SMARTT, Annapolis, Md. Filed July 13, 1891. Serial No. 399,263. (No model.)

Claim.—1. In a gas-condenser, an outer inclosing cylinder, an inner independent condensing-chamber provided with separate series of circulating-pipes arranged in a horizontal series at right angles one above the other, a supplemental cooling-chamber above said condenser, an outlet-pipe communicating with the interior thereof and said condenser directly over the network of circulating-pipes therein, a cover inclosing said outlet-pipe and provided with a series of lateral perforations, a regulator connected to said cover, drain-pipes connected with said condenser and cooling-chamber, a hydraulic gas closer or cut-off located in the drain-pipe from said condensing-chamber, and water-supply pipes, substantially as set forth.

2. In a gas-condenser, an outer inclosing cylinder, an inner condensing-chamber provided with a series of water-circulating pipes communicating with the inclosed water-space between said condensing-chamber and the outer cylinder, a supplemental cooling-chamber above said cylinder and inclosed condensing-chamber, an outlet-pipe communicating with the interior thereof and said condensing-chamber directly above the network of circulating-pipes therein, a cover inclosing said outlet-pipe and consisting of an annularly-flanged top cap and a series of depending spaced plates provided with an alternate series of lateral perforations, said cap being further provided with a circular series of perforations within the flange thereof and communicating with the spaces inclosed by said plates, a regulator connected to said cover, and water-supply pipes, substantially as set forth.



3. In a gas-condenser, the combination of an outer inclosing cylinder, an inner condensing-chamber provided with a series of water-circulating pipes, a supplemental cooling-chamber above said cylinder and condenser, an outlet-pipe communicating with the interior thereof and said condenser and projecting into said cooling-chamber, a laterally-perforated cover inclosing said upwardly-projecting pipe and provided with a circular series of perforations in the top thereof, a supplemental open water-cylinder located above said cooling-chamber and said cover and provided with an outer wall and a shorter inner wall forming an open water-space between the same, the overflow from said space being over said shorter wall upon said perforated cover in the cooling-chamber, an inverted weight-regulated cylinder working within said water-space and connected with said cover, and water-supply pipes connected with said upper open water-space and said inclosing cylinder, substantially as set forth.

4. In a gas purifier and condenser, the combination of a cooling-chamber having a gas-inlet and an inclosed gas-space above the water-line, a closed escape pipe or duct below and communicating with said gas-space and leading therefrom, a purifying and condensing cylinder provided with a top inclosing jacket surrounding the entire upper end of the same and connected with said escape pipe or duct, a downwardly-extending pipe connecting said jacket with the bottom inlet of the cylinder, a series of independent and removable sectors arranged in a circle one above the other within the cylinder and each provided with diagonally-arranged plates alternately disposed with each succeeding sector, forming a zigzag passage through the cylinder, an automatically-revolving water sprinkler or distributer located above said sectors within the top of said cylinder, an escape-pipe centrally located within said cylinder and passing down between and supporting said sectors and communicating with the bottom outlet, a deflecting-plate supported above the top open end of said escape-pipe and forming a bearing for the lower end of said sprinkler, and an overflow-pipe connecting said cooling-chamber with the upper end of said cylinder, substantially as set forth.

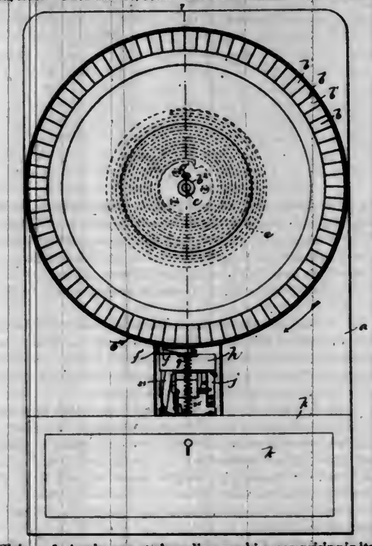
5. In an apparatus of the class described, a purifying-chamber, a pan or plate located within said chamber and provided with a series of perforations, depending sides, and depending tubes inclosed within said sides and communicating with said openings and extending below said pan, and an escape pipe and duct provided with an upwardly-extending elongated escape-tube projecting up between said tubes and communicating with the space above the water-line, inclosed by said pan or plate and water supply and circulating pipes, substantially as set forth.

6. In an apparatus of the class described, a purifying-chamber provided with communicating compartments separated by a short partition-wall, a supply-pipe inwardly extending within one of said compartments, a cover inclosing said pipe, the same consisting of a top cap and a series of spaced plates depending therefrom and provided with a series of alternately-arranged perforations in the sides thereof, and guide-rollers secured to the bottom edge of the inner inclosing plate, a regulator connected to said cover, a pan or plate supported within the opposite compartment and provided with a series of slotted openings and depending tubes connected therewith, and an escape-chamber arranged horizontally thereunder and provided with an elongated escape-tube communicating with the space above the water-line inclosed by said pan or plate, substantially as set forth.

7. In a gas purifier and condenser, a condensing-chamber provided with circulating-pipes surrounded by a water-space, a supplemental chamber arranged thereover and communicating therewith and provided with two compartments, a gas regulator and purifier within one compartment, a tubed plate and an escape chamber and duct located under said plate in the other, a purifying and condensing cylinder provided with a top inclosing jacket communicating with said escape chamber and duct and the bottom inlet to said cylinder, drain-pipes communicating with the several purifiers, a hydraulic gas closer or cut-off located in said drain-pipes, valved supply and outlet pipes communicating with both cylinders and a common supply, and water-circulation pipes communicating with the various chambers, substantially as set forth.

8. In a gas purifier and condenser, the combination, with communicating purifying and condensing chambers and drain-pipes connecting the same with a common-drain center, of a hydraulic gas-closer located in said drain-pipes intermediate of the purifying-chambers, the same consisting of a U-shaped portion depending beneath the horizontal plane of said drain-pipes and designed to be normally filled with the drain-water and condensed products, substantially as set forth.

482,142. COIN-CONTROLLED VENDING-MACHINE. CHARLES A. SEATTON, Malden, assignor of one-half to Harry L. Ayer, West Newton, Mass. Filed Jan. 18, 1892. Serial No. 418,444. (No model.)



Claim.—1. A coin-operated vending-machine comprising in its construction a coin-chute, a lever adapted to be depressed by the operator and provided with means for returning it to its normal position, a wheel having merchandise-holding pockets and a series of teeth or pins, an electric circuit including an electro-magnet and a swinging contact or electrode adapted to be moved by the depression of said lever, the circuit being adapted to be closed by the contact of said electrode with a suitable coin in the chute, and an escapement or let-off mechanism normally in position to engage a tooth of the wheel and adapted to be engaged with said lever by the action of the electro-magnet when the latter is energized, the arrangement being such that a movement of said lever in one direction prepares it for engagement with said escapement mechanism, while a movement of said lever in the opposite direction operates the escapement, as set forth.

2. In a coin-operated vending-machine, the combination of a rotary wheel having merchandise-holding pockets and a series of teeth or pins, a lever adapted to be moved or depressed by the operator and provided with means for returning it to its normal position, a coin-chute, a circuit-closing device moved by the depression of said lever into position to bear on a coin in said chute, an electro-magnet and electrical connections completing a circuit through said magnet when the said circuit-closing device is in contact with a coin, and an escapement mechanism controlled by said electro-magnet, said mechanism being adapted to co-operate with the teeth or pins of the wheel in permitting a partial rotation of the latter, and including a latch which is thrown by the action of said magnet into position to be actuated by the lever during its return movement, as set forth.

3. In a coin-operated vending-machine, the combination of a rotary wheel having merchandise-holding pockets and a series of teeth or pins, a lever adapted to be moved or depressed by the operator and provided with means for returning it to its normal position and provided with two escapement-operating arms 61 62, a coin-chute, a circuit-closing device moved by the depression of said lever into position to bear on a coin in said chute, an electro-magnet and electrical connections completing a circuit through said magnet when the said circuit-closing device is in contact with a coin, and an escapement mechanism comprising two pallets independently movable, a rocking bar, such as 52, connections between said bar and the pallets, through which each movement of the bar moves the pallets simultaneously in opposite directions, a latch connected with one end of said bar and formed to engage the arm 62 when said arm is moved by the return movement of the lever, said latch being controlled by the electro-magnet and engaged with said arm only when the magnet is energized, the latch and bar being moved in one direction by said arm during a part of the return movement of the lever, and a loose connection, such as the link 58, between the opposite end of the bar 52 and the arm 61, through which the bar is moved in the opposite direction during the latter part of the return movement of the lever, as set forth.

4. In a coin-operated vending-machine, the combination of a fixed coin-chute, a coin-arresting gate therein, means for alternately opening and closing said gate, delivery mechanism and electrically-controlled operating devices therefor, including an electric circuit, devices for closing said circuit through a coin or piece of conducting material in the position it assumes by gravitation in the chute when arrested by said gate, said devices including a swinging contact and means for moving it alternately into and out of the chute, a permanent magnet movable crosswise of the chute, and mechanism for reciprocating said magnet, said mechanism being timed to give the magnet a movement in the direction required to displace a fraudulent piece attached thereby before the said swinging contact enters the slot, whereby the said piece is prevented from closing the circuit, as set forth.

5. A coin-operated vending-machine comprising in its construction a coin-chute, a lever adapted to be depressed by the operator and provided with means for returning it to its normal position, a wheel having merchandise-holding pockets and a series of teeth or pins, an electric circuit including an electro-magnet and a swinging contact or electrode adapted to be moved by the depression of said lever, the circuit being adapted to be closed by the contact of said electrode with a suitable coin in the chute, an escapement or let-off mechanism controlled by said electro-magnet and operated by the return movement of said lever, a permanent magnet movable across the coin-chute and adapted to displace a fraudulent piece therein from the path of the swinging electrode, and connections between said permanent magnet and lever, whereby the magnet is reciprocated when the lever is oscillated, as set forth.

6. The combination of the coin-chute, the coin-arresting gate therein, the bell-crank lever affixed to said gate, the locking-lever 23, adapted to engage one arm of said bell-crank lever and arranged to be displaced by a coin inserted in the chute, the hand-lever A, having a swinging arm 18, and a fixed locking device with which said arm 18 is held in engagement by the bell-crank lever when the latter is locked by the lever 23, the displacement of the lever 23 causing the release of the bell-crank lever and of the arm 18, thus permitting the depression of the lever A, as set forth.

7. The combination, with the merchandise-holding wheel having a series of pins, of the escapement and escapement-operating mechanism consisting of the pallets f f', the stud or rock-shaft 53, to which the pallet f' is affixed, the pallet f being adapted to swing loosely on said shaft, the bar 52, affixed to said shaft, the pivoted lever 55, engaged at one end with the bar 52 and at the other with the pallet f', the latch 50, engaged with one end of the bar 52, the link 58, engaged with the other end of said bar, the hand-lever A, having arms 61 and 62, arranged to co-operate with said link and latch, an electro-magnet, an armature for said magnet, a pivoted lever supporting said armature and adapted to throw the latch into engagement with the arm 62 when the magnet is energized, and a coin-completed electric circuit including said magnet and adapted to be closed by a movement of the lever A, as set forth.

482,143. DEVICE FOR PREVENTING RAILWAY COLLISIONS. JOHN SUTHERLIN, Marshfield, Wis. Filed Dec. 15, 1891. Serial No. 415,149. (No model.)

fixed cams acting on the eyelet-pusher, and a lever for closing the mold, which lever is also operated from the above-mentioned rocking shaft, substantially as set forth.

5. In a machine for making buttons from plastic material, the combination, with a slide on the end of which part of the mold is formed, of a lever pivoted in said slide, a rocking shaft operated from said lever, a cam-lever operated from the rocking shaft, and an open section of the mold, which open section is provided with two gripping-jaws for holding an eyelet, said open section of the mold being acted upon by the cam-lever that receives motion from the rocking shaft, substantially as set forth.

pin that can enter a slot in the rear end of the handle-lever, and an eyelet-feeding and mold-closing device operated from the rock-shaft, substantially as set forth.

12. In a machine for making buttons from plastic material, the combination, with a slide on which one section of a mold is formed, of a sliding collar on said mold-section, an eyelet-feeder, an additional mold-section, and a handle-lever pivoted to swing vertically and laterally, which handle-lever operates the sliding collar on the mold-section connected with the slide and also operates the eyelet-feeder and the additional mold-section, substantially as set forth.

an abutment and in which the curved passage G' is formed, and the pipes D and D', the latter extending down through the retort C within the range of the fire and formed with the openings d^3, and the shields d^3, substantially as shown and described, and for the purpose specified.

6. The combination of a partition-wall K, formed with an opening K', and a retort C, formed with the openings C', lugs C^2, and flanges C^3, said partition K closing the space between the retort and the furnace-walls, the fire-pan F, formed with the slotted standards f'', a superheating-chamber G, the under side of which is solid and forms an abutment and in which the curved passage G' is formed, and the pipes D

482,143. DEVICE FOR PREVENTING RAILWAY COLLISIONS.

John Stibbs, Marshfield, Wis. Filed Dec. 15, 1891. Serial No. 415,143. (No model.)



Claim.—1. A device for preventing railway collisions, &c., that consists of an independent frame designed for automatically-detachable connection with a railway-train in advance of the latter and having its sides provided with inclined upper edges, wheels carried on axles that have their bearings loose in guides on the frame, a windlass mechanism that normally supports said frame above the track for said train and wheels, a pivoted striker arranged to extend in advance of the aforesaid frame, and a trip-catch for the windlass mechanism, controlled by the striker, substantially as set forth.

2. A device for preventing railway collisions, &c., that consists of an independent frame designed for automatically-detachable connection with a railway-train in advance of the latter and having its sides provided with inclined upper edges, blocks loose in guides on the frame, wheel-carrying axles having their bearings in the blocks, a shaft arranged intermediate of the axles and provided with drums, antifriction-pulleys on the loose blocks, flexible devices fast at one end to the frame sides, extended over the pulleys, and fastened to the drums to wind thereon in opposite directions, auxiliary antifriction-pulleys arranged over certain of said flexible devices, and an arm extending from said shaft, a trip-catch for engagement with the arm, a pivotal striker arranged to extend in advance of said frame, and a connection between the striker and trip-catch, substantially as set forth.

3. A device for preventing railway collisions, &c., that consists of an independent frame having the sides thereof inclined upon their upper edges, wheels carried on axles loose in guides on the frame, a windlass mechanism that normally supports said frame above the track for said train and wheels, a pivotal coupling-pin controlled by the windlass mechanism and designed for engagement with a locomotive link-bar, a trip-catch for said windlass mechanism, and a pivoted striker that extends in advance of the aforesaid frame and controls said trip mechanism, substantially as set forth.

4. A device for preventing railway collisions, &c., that consists of an independent frame designed for automatically-detachable connection with a railway-locomotive in advance of the latter and having its sides provided with inclined upper edges, wheels carried on axles having their bearings loose in guides on the frame, a windlass mechanism that normally supports said frame above the track for said train and wheels, a pivotal striker arranged to extend in advance of the aforesaid frame, a trip-catch for the windlass mechanism controlled by the striker, and a bar arranged in the path of a brake and throttle-valve controlling lever depending from said locomotive, substantially as set forth.

482,144. MACHINE FOR MAKING BUTTONS FROM PLASTIC MATERIAL.

Max Stern, New York, N. Y., assignor of one-half to Leo Stern, same place. Filed Nov. 6, 1891. Serial No. 411,046. (No model.)

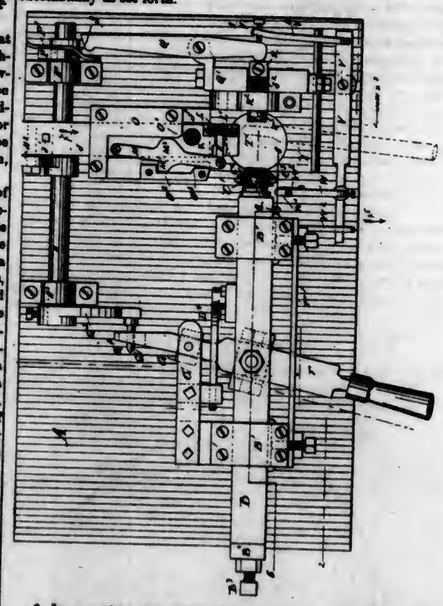
Claim.—1. A machine for making buttons from plastic material, constructed with a slide on the end of which one part of the mold is formed, and a handle-lever for shifting said slide, which lever is pivoted in said slide to swing laterally and is also pivoted in said slide to swing vertically, substantially as set forth.

2. In a machine for making buttons from plastic material, the combination, with a slide on the end of which one part of the mold is formed, of a handle-lever mounted to swing laterally and vertically on said slide, a rocking shaft operated from said handle-lever, an eyelet-feeder operated from said rocking shaft, and a lever for closing the mold, also operated from said rocking shaft, substantially as set forth.

3. In a machine for making buttons from plastic material, the combination, with a mold composed of two sections, of a slide, a handle-lever mounted to swing laterally and vertically on said slide, a rocking shaft operated from said handle-lever, a sliding plate operated from said rocking shaft, an eyelet-holder on said sliding plate, an eyelet-pusher pivoted on said sliding plate, and a lever for closing the mold, which lever is also operated from said rocking shaft, substantially as set forth.

4. In a machine for making buttons from plastic material, the combination, with a mold composed of two sections, of a slide on the end of which one part of the mold is formed, a handle-lever mounted on the slide to swing vertically and laterally, a rocking shaft operated from said handle-lever, a sliding plate connected with the rocking shaft and carrying an eyelet-support, an eyelet-pusher pivoted on said slide, fixed cams acting on the eyelet-pusher, and a lever for closing the mold, which lever is also operated from the above-mentioned rocking shaft, substantially as set forth.

5. In a machine for making buttons from plastic material, the combination, with a slide on the end of which part of the mold is formed, of a lever pivoted in said slide, a rocking shaft operated from said lever, a cam-lever operated from the rocking shaft, and an open section of the mold, which open section is provided with two gripping-jaws for holding an eyelet, said open section of the mold being acted upon by the cam-lever that receives motion from the rocking shaft, substantially as set forth.



6. In a machine for making buttons from plastic material, the combination, with a slide on which one section of a mold is formed, of a sliding clearing-collar on said mold-section, a rocking shaft, a bar connected with said rocking shaft and with the sliding clearing-collar, a hook-arm on said shaft, and a handle-lever pivoted on the slide, which handle-lever is embraced by the hook-arm, substantially as set forth.

7. In a machine for making buttons from plastic material, the combination, with a slide on which one section of a mold is formed, of sliding spring-jaws in the opposite part of the section and a trigger-lever operated from the slide and serving to force outward the spring-jaws in the mold-section, substantially as set forth.

8. In a machine for making buttons from plastic material, the combination, with a slide on which one mold-section is formed, of an opposite mold-section constructed with two spring-jaws, a pivoted lever having an arm adapted to act on the spring-jaws of said mold-section, a projection on the slide, adapted to operate said lever, and an intermediate device interposed between said lever and the spring-jaws, so as to move the spring-jaws forward and permit them to separate, substantially as set forth.

9. In a machine for making buttons from plastic material, the combination, with a slide, of a handle-lever pivoted to said slide to swing laterally and vertically, guide-bars between which the lever can swing laterally, and notches in the edges of said guide-bars to permit the vertical movements of said lever, substantially as set forth.

10. In a machine for making buttons from plastic material, the combination, with a slide, of a handle-lever pivoted in the same to swing laterally and vertically and provided at its rear end with a slot, guide-bars for guiding the handle-lever in its lateral movements, which guide-bars are provided with notches in the edges that permit the vertical movements, a rocking shaft provided with an arm having a pin adapted to enter the slot in the end of the handle-lever, and eyelet-feeding and mold-closing devices operated from the rocking shaft, substantially as set forth.

11. In a machine for making buttons from plastic material, the combination, with a slide, of a handle-lever pivoted in the same to swing laterally and vertically, a slotted pivot through which the handle-lever passes, a rocking shaft provided with an arm having a pin that can enter a slot in the rear end of the handle-lever, and an eyelet-feeding and mold-closing device operated from the rock-shaft, substantially as set forth.

12. In a machine for making buttons from plastic material, the combination, with a slide on which one section of a mold is formed, of a sliding collar on said mold-section, an eyelet-feeder, an additional mold-section, and a handle-lever pivoted to swing vertically and laterally, which handle-lever operates the sliding collar on the mold-section connected with the slide and also operates the eyelet-feeder and the additional mold-section, substantially as set forth.

13. In a machine for making buttons from plastic material, the combination, with a slide, of an eyelet-pusher, a rod having its lower end directly above the pusher, and means for holding said rod, substantially as set forth.

14. In a machine for making buttons from plastic material, the combination, with a mold, of a slide, a rod supported on said slide, an eyelet-pusher on the slide, and an additional rod for holding a series of eyelets and supported from the above-mentioned rod to have its lower end directly above the pusher, substantially as set forth.

482,145. BURNER.

Edmund T. Wise, London, Canada, assignor of one-fourth to Thomas H. Robinson, same place. Filed Jan. 4, 1892. Serial No. 417,082. (No model.)



Claim.—1. The combination of a partition-wall K, in which the opening K' is formed, and a vaporizing-retort C, in which the centrally-located and inclined or funnel-shaped openings C' are formed, said retort being provided with the flanges C^3, surrounding said openings C', and said partition-wall and retort dividing the chamber into which this apparatus is placed into two apartments, the openings C' through the retort C forming the only communication between the two apartments into which said chamber is divided, with a superheating-chamber G, the under side of which is solid and forms an abutment, and said chamber G being provided with a curved passage G', which communicates with the retort C, and a pipe D', communicating with said passage and extending down through the retort and within the range of the fire, and openings d^3, formed in said pipe D' below said retort, substantially as shown and described, and for the purpose specified.

2. The combination of a partition-wall K, in which an opening K' is formed, and a vaporizing-retort C, in which the centrally-located and inclined or funnel-shaped openings C' are formed, said retort being provided with the flanges C^3, surrounding said openings C', and said partition-wall and retort dividing the chamber into which this apparatus is placed into two apartments, the openings C' through the retort C forming the only communication between the two apartments into which said chamber is divided, a superheating-chamber G, the under side of which is solid and forms an abutment, and said chamber G being provided with a curved passage G', the pipe D, communicating between the retort C and the passage G', and a pipe D', communicating with the passage G and extending down through the retort C and within the range of the fire, and the openings d^3, formed in said pipe D' below said retort, and the shields D^3, surrounding the pipes D and D', substantially as shown and described, and for the purpose specified.

3. The combination of a partition-wall K, formed with the opening K', and the retort C, formed with the openings C' and the flanges C^3, the superheating-chamber G, communicating therewith, and a pipe D', communicating with the said chamber G and extending down through the retort and within the range of the fire and formed with the openings d^3, and said retort formed with the lugs C^3, and a fire-pan F, formed with the slotted standards f^4 and held at the position to which they are or may be adjusted by suitable means whereby the partition-wall, retort, and connections may be raised or lowered to enlarge, reduce, or vary the size of the apartments, substantially as shown and described, and for the purpose specified.

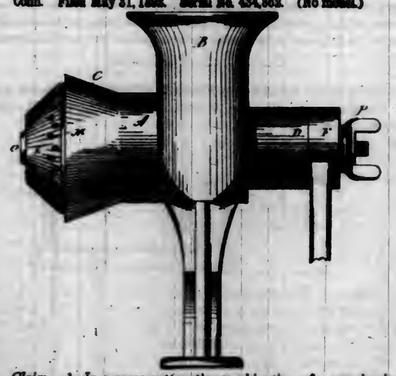
4. The combination of a partition-wall K, formed with an opening K', and a retort C, formed with the openings C' and flanges C^3, said partition K closing the space between the retort and the furnace-walls, a superheating-chamber G, the under side of which is solid and forms an abutment and in which the curved passage G' is formed, and the pipes D and D', the latter extending down through the retort C within the range of the fire and formed with the openings d^3, substantially as shown and described, and for the purpose specified.

5. The combination of a partition-wall K, formed with an opening K', and a retort C, formed with the openings C' and flanges C^3, said partition K closing the space between the retort and the furnace-walls, a superheating-chamber G, the under side of which is solid and forms an abutment and in which the curved passage G' is formed, and the pipes D and D', the latter extending down through the retort C within the range of the fire and formed with the openings d^3, substantially as shown and described, and for the purpose specified.

6. The combination of a partition-wall K, formed with an opening K', and a retort C, formed with the openings C', lugs C^3, and flanges C^3, said partition K closing the space between the retort and the furnace-walls, the fire-pan F, formed with the slotted standards f^4, a superheating-chamber G, the under side of which is solid and forms an abutment and in which the curved passage G' is formed, and the pipes D and D', the latter extending down through the retort C within the range of the fire and formed with the openings d^3, substantially as shown and described, and for the purpose specified.

482,146. MEAT-CUTTER.

Oliver D. Woodruff, Southington, Conn. Filed May 31, 1892. Serial No. 434,962. (No model.)



Claim.—1. In a meat-cutter, the combination of a case having a hopper for the introduction of the meat at one end, a spiral follower arranged within the case, the case near its delivery end constructed with internal spiral ribs and the follower with corresponding spiral ribs adapted to operate as cutters upon said spiral ribs within the case, and the spiral ribs on the follower forming grooves between them, the said grooves continued over the delivery end of the follower producing ribs between the grooves which form cutters, combined with a stationary perforated plate, against the inner surface of which the said cutters on the end of the plate will bear, and means for imparting rotation to said follower, substantially as described.

2. The combination of a case having a hopper for the introduction of meat at one end, the opposite end of the case flaring and constructed with spiral ribs upon its inside around said flaring portion, a spiral follower within said case and adapted to revolve therein, the follower extending through the flaring portion of the case and in that flaring portion of the case the follower constructed with a series of spiral ribs coacting with the ribs in the case as cutters, the ribs on the follower producing grooves between them, which grooves are continued over the end of the follower, thereby forming substantially radial cutters on the end of the follower, and a stationary perforated plate in the delivery end of the case, against the inner surface of which the said radial cutters on the follower are adapted to work, substantially as described.

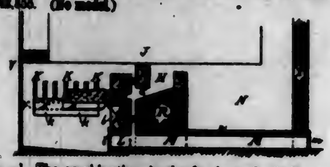
3. The combination of a case having a hopper at one end for the introduction of meat, a spiral follower within the said case, the interior of the case toward its delivery end constructed with spiral ribs upon its inside and the follower constructed with corresponding spiral ribs adapted to co-operate with the spiral ribs in the case as cutters and so as to produce a preliminary cut upon the meat passing through the case, the outer end of the follower of conical shape, the grooves between the said spiral cutting-ribs of the follower continued onto the said conical surface on the end of the follower and so as to form grooves therein, producing cutters on the said conical end of the follower, with a perforated plate outside the end of the follower and of an internal shape corresponding to the conical end of the follower, the said plate stationary and so that the cutters on the said conical end of the follower may work in close contact with the inner surface of said perforated plate, substantially as described.

4. The combination of the case A, having a hopper B for the introduction of the meat at one end, a spiral follower G, arranged longitudinally within the case and extending through the hopper end of the follower and provided with means for imparting revolution to the follower, the interior of the case toward its delivery end constructed with a series of spiral ribs, the follower upon its surface also constructed with a series of spiral ribs corresponding to the spiral ribs on

the interior of the case, the ribs on the follower being adapted to coact with the ribs of the case as preliminary cutters, the grooves formed by the said spiral ribs on the follower continued over onto the end of the follower and so as to produce substantially radial ribs therein to serve as cutters, a perforated plate outside the end of said follower and connected to the case so as to be held stationary against revolution with the follower, a bolt longitudinally through the perforated plate and follower, with a nut upon the opposite end of the follower, adapted through said bolt to draw the perforated plate against the end of the follower, substantially as described.

5. In a meat-cutter, the combination of a case having a hopper for the introduction of meat at one end, a spiral follower arranged longitudinally in the case and so as to revolve therein and adapted to force the meat introduced through the hopper toward the opposite end of the case, a stationary perforated plate on the delivery end of the case, and the follower constructed with radial cutters on the delivery end corresponding to and adapted to work against the inner surface of the perforated plate, the said cutters being made an integral part of the follower, substantially as and for the purpose described.

482,147. BOILER AND FURNACE SETTING. CLARENCE O. ABEY, Cleveland, Ohio. Filed Dec. 10, 1891. Renewed Aug. 12, 1892. Serial No. 442,855. (No model.)



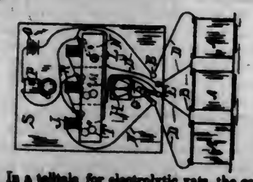
Claim.—1. The combination, in the fire-box of a boiler or other furnace, of narrow ascending side pockets with a large lower connecting pocket whose axis is nearly parallel with the surface of the grate, with a duct at the back edge of the grate and near its level, with an arch or lintel directly over this duct that does not extend up to the boiler or roof of furnace, with a descending duct immediately behind this arch or lintel, with an ascending duct immediately below the descending duct, which is connected into a chamber at the rear underneath the rear combustion-chamber, this under chamber connecting with the air outside by means of a regulating-door, with a nearly horizontal duct just in the rear of the duct from the back edge of the grate, with a chamber at the back of this duct which opens only into this duct and at its upper back surface, with a wall between the descending duct and the last-named chamber, resting upon an arch or lintel over the rear horizontal duct and extending up tight to the boiler or roof of furnace.

2. The combination, in the fire-box of a boiler or other furnace, of a duct from the back edge of the grate, with another duct intersecting the first duct and connecting at its top with the fire-chamber and at its bottom with a chamber connected with the outer air, with a wall over the first duct and in the rear of the second duct, which extends up tight to the boiler or roof of the furnace.

3. The combination, in the fire-box of a boiler or other furnace, of a bridge-wall running above the grate-level, with a duct at about the grate-level, with a damping-plate forming the floor of said duct, with a wall slightly in the rear of the bridge-wall, resting on an arch or lintel and continuing up tight to the boiler or roof of the furnace.

4. The combination, in the construction of the combustion-chambers of a boiler or other furnace, of two ducts from the fire-chamber, one above the other, with a duct passing from outside under the rear combustion-chamber, with a duct passing into the rear combustion-chamber, all four ducts meeting at a common point.

482,148. TELLTALE FOR ELECTROLYTIC REFINERIES. FRANCIS B. BADT, Chicago, Ill., assignor of two-thirds to Lester S. Ellis and A. M. Scarles, same place. Filed May 16, 1892. Serial No. 433,150. (No model.)



Claim.—1. In a telltale for electrolytic vats, the combination of a series of vats connected in series with a meter, conductors leading from the terminal of each vat, and a movable circuit-closer connected with the terminals of the meter and adapted to successively engage such conductors from the vats, so that the meter is successively placed in a local circuit with each vat without disturbing the circuit of the rest of the vats.

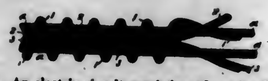
2. In a telltale for electrolytic vats, the combination of a series of vats coupled in series with a series of visual signaling devices, each in a normally-closed local circuit, including itself and one vat.

3. In a telltale for electrolytic vats, the combination of a series of vats coupled in series with a series of visual signaling devices, each in a normally-closed local circuit, including itself and one vat, and a meter, and a circuit-closer adapted to switch said meter successively into each of such local circuits, as desired.

4. In a telltale for electrolytic vats, the combination of a series of vats coupled in series with a series of visual signaling devices, each in a normally-closed local circuit, including itself and one vat, an audible signaling device adapted to be closed upon the operation of any visual device.

5. In a telltale for electrolytic vats, the combination of a series of vats coupled in series with a series of visual signaling devices, each in a normally-closed local circuit, including itself and one vat, an audible signaling device adapted to be closed upon the operation of any visual device, and a meter and a circuit-closer therefor adapted to successively cut said meter into each of such local circuits.

482,149. ELECTRICAL CIRCUIT AND CABLE. JOHN A. BARRETT, Brooklyn, N. Y., assignor to the Standard Underground Cable Company, Pittsburg, Pa. Filed Jan. 8, 1891. Serial No. 377,066. (No model.)



Claim.—1. An electric circuit consisting of a pair of naked conductors and a single mesh of cord, tape, or similar insulating material woven between and about said conductors, with a greater thickness of the woven insulating material between the conductors than about the same, substantially as described.

2. An electric circuit consisting of a pair of naked conductors and a single mesh of cord, tape, or similar insulating material woven between and about the conductors and constructed to form a flat-band circuit, with a greater thickness of the woven insulating material between than about the conductors, substantially as described.

3. An electric circuit consisting of a pair of naked conductors, one or more strands of cord, tape, or similar insulating material lying between the conductors, and one or more strands wound about the conductors and intermediate strand or strands and crossing the latter alternately on opposite sides, substantially as described.

4. An electric circuit consisting of a pair of naked conductors, one or more strands of cord, tape, or similar insulating material lying between the conductors, and one or more strands of similar material wound about the conductors and intermediate strand or strands and crossing the latter alternately on opposite sides, said strands being constructed and arranged to form a greater thickness of insulating material between than outside the conductors, substantially as described.

5. An electric circuit consisting of a pair of naked conductors, two strands of cord, tape, or similar insulating material lying between the conductors, and a single strand wound about the conductors and intermediate strands and crossing the latter alternately on opposite sides, substantially as described.

6. In an electric cable, the combination of a plurality of independent circuits, each circuit consisting of a pair of conductors woven in a single mesh of cord, tape, or other insulating material, with a greater thickness between the conductors than outside the same, substantially as described.

7. In an electric cable, the combination of a plurality of independent circuits, each circuit consisting of a pair of conductors woven in a single mesh of cord, tape, or other insulating material, with two strands between the conductors and one strand outside the same, substantially as described.

8. An electric cable consisting of a plurality of independent circuits, each circuit consisting of a pair of conductors woven into a flat band, with a greater thickness of insulating material between the conductors of the same circuit than between those of different circuits, substantially as described.

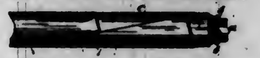
9. In an electric cable, the combination of a plurality of electric circuits, each circuit consisting of a pair of naked conductors insulated by being woven in a single mesh of cord, tape, or other insulating material, forming an air-containing serving, an envelope about each circuit preventing or retarding the passage of the sealing material, a protecting-sheath inclosing the enveloped circuits, and sealing material filling the space between the envelopes and sheath, substantially as described.

10. In an electric cable, the combination of a plurality of electric

circuits, each circuit consisting of a pair of conductors woven in a single mesh of cord, tape, or other insulating material, forming an air-containing serving, with a greater thickness of insulating material between than outside the conductors, an envelope about each circuit preventing or retarding the passage of the sealing material, a protecting-sheath inclosing the enveloped circuits, and sealing material filling the space between the envelopes and sheath, substantially as described.

11. In an electric cable, the combination of a plurality of electric circuits, each circuit consisting of a pair of conductors insulated by an air-containing serving, with a greater thickness of insulation between than outside the conductors, and an envelope about each circuit, substantially as described.

482,150. ELECTRIC CONDUCTOR. JOHN A. BARRETT, Brooklyn, N. Y., assignor to the Standard Underground Cable Company, Pittsburg, Pa. Filed Jan. 8, 1891. Serial No. 377,067. (No model.)



Claim.—1. An electric conductor or group of conductors having a covering of paper, cloth, or other flexible material provided with tucks extending transversely to the lines of flexure, substantially as described.

2. An electric conductor or group of conductors having a covering consisting of a strip of paper, cloth, or other flexible material wound about the conductor or group of conductors and provided with tucks extending transversely to the lines of flexure, substantially as described.

3. An electric conductor or group of conductors having a covering consisting of a strip of paper, cloth, or other flexible material wound spirally about the conductor or group of conductors and provided with tucks extending transversely to the lines of flexure, substantially as described.

4. An electric conductor or group of conductors having a covering consisting of a strip of paper, cloth, or other flexible material wound spirally about the conductor or group of conductors and provided with tucks extending transversely to the lines of flexure, the overlapping edges of the successive windings being gummed together, substantially as described.

5. An electric conductor or group of conductors surrounded by a spiral wrapping formed of the flexible strip *c*, having the longitudinal tuck 1, substantially as described.

6. An electric conductor or group of conductors surrounded by a spiral wrapping formed of the flexible strip *c*, having the longitudinal tuck 1 and the fold 4 parallel thereto, the sections formed by the tuck and fold overlapping, substantially as described.

7. An electric conductor or group of conductors surrounded by a spiral wrapping formed of the flexible strip *c*, having the longitudinal tuck 1 and the fold 4 parallel thereto, the sections formed by the tuck and fold overlapping and being gummed together, substantially as described.

8. A wrapping consisting of a strip of paper *c*, or other flexible material, provided with tucks extending transversely to the lines of flexure of the applied wrapping, substantially as described.

9. A spiral wrapping consisting of the flexible strip *c*, having the longitudinal tuck 1, substantially as described.

10. A spiral wrapping consisting of the flexible strip *c*, having the longitudinal tuck 1 and fold 4 parallel thereto, substantially as described.

11. A spiral wrapping consisting of the flexible strip *c*, having the longitudinal tuck 1 and fold 4 parallel thereto, forming comparatively wide sections 2 3, and narrow section 5, lying in a plane intermediate of the planes of the other two sections, substantially as described.

482,151. ELECTRIC CONDUCTOR. JOHN A. BARRETT, Brooklyn, N. Y., assignor to the Standard Underground Cable Company, Pittsburg, Pa. Filed July 17, 1891. Serial No. 399,796. (No model.)



Claim.—1. In an electric cable, the combination of a plurality of independent circuits, each circuit consisting of a pair of conductors formed into a single oblong strand, the distance between conductors of the same circuit being greater than that between conductors of adjacent circuits, substantially as described.

2. In an electric cable, the combination of a plurality of independent circuits, each circuit consisting of a pair of conductors formed into a single strand by a covering of paper or other insulating material applied about both conductors and secured to hold the conductors at a distance apart greater than the distance between conductors of adjacent circuits in the cable, substantially as described.

3. In an electric cable, the combination of a plurality of independent circuits, each circuit consisting of a pair of conductors formed into a single oblong strand by a covering of paper or other insulating material applied about both conductors and secured to hold the conductors at a distance apart greater than the distance between the conductors of adjacent circuits in the cable, substantially as described.

4. An electric cable consisting of an inclosing sheath and a plurality of independent circuits, each circuit consisting of a pair of conductors formed into a single oblong strand, the distance between conductors of the same circuit being greater than that between conductors of adjacent circuits, substantially as described.

5. An electric cable consisting of an inclosing sheath and a plurality of independent circuits, each circuit consisting of a pair of conductors formed into a single oblong strand by a covering of paper or other insulating material applied about both conductors and secured to hold the conductors at a distance apart greater than the distance between the conductors of adjacent circuits in the cable, substantially as described.

6. A plurality of conductors having a covering consisting of a strip formed of one or more layers of paper or other insulating material wrapped about and inclosing all the conductors and having its opposite sides secured together between the conductors to hold them in place, substantially as described.

7. A plurality of conductors having a covering of paper or other insulating material applied about the conductors and a binding strip or strips between the conductors, the covering and binding strip or strips being secured together between the conductors to hold them in place, substantially as described.

8. A plurality of conductors having a covering of paper or other insulating material applied about the conductors, and a binding strip or strips applied outside the wrapper between the conductors, the covering and binding strip or strips being secured together between the conductors to hold them in place, substantially as described.

9. A pair of conductors having a covering consisting of one or more strips of paper or other insulating material wrapped about both conductors and a binding strip or strips between the conductors, the wrapping and binding strip or strips being secured together between the conductors to hold them in place, substantially as described.

10. A pair of conductors having a covering consisting of one or more strips of paper or other insulating material applied straight and wrapped about both conductors with the edges overlapping between the conductors and having the plies secured together between the conductors to hold them in place, substantially as described.

11. A pair of conductors having a covering consisting of one or more strips of paper or other insulating material applied straight and wrapped about both conductors with the edges overlapping between the conductors and a binding strip or strips between the conductors, the wrapping and strip or strips being secured together between the conductors by sewing or gumming to hold them in place, substantially as described.

482,152. ELECTRIC CIRCUIT AND CABLE. JOHN A. BARRETT, Brooklyn, N. Y., assignor to the Standard Underground Cable Company, Pittsburg, Pa. Filed Aug. 28, 1891. Serial No. 403,963. (No model.)



Claim.—1. An anti-induction circuit consisting of a pair of flat conductors arranged edgewise with relation to each other, substantially as described.

2. A single-strand anti-induction electric circuit consisting of a pair of flat conductors held in position edgewise with relation to each other, substantially as described.

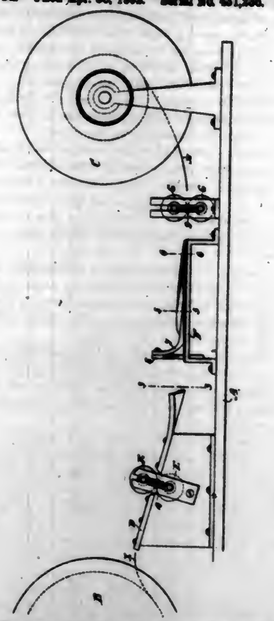
3. A single-strand anti-induction electric circuit consisting of a pair of flat conductors held in position edgewise with relation to each other by insulating material between and about the conductors, substantially as described.

4. An electric cable consisting of a group of flat conductors forming a plurality of anti-induction circuits and arranged with the conductors of the same circuits edgewise with relation to each other, substantially as described.

5. An electric cable consisting of a plurality of single-strand anti-induction circuits, each circuit consisting of a pair of flat insulated conductors held in position edgewise with relation to each other, substantially as described.

6. A group of flat conductors forming a plurality of anti-induction circuits and arranged with the conductors of the same circuits edgewise with relation to each other, substantially as described.

482,153. MACHINE FOR FOLDING TAPE. JOHN A. BARRETT, Brooklyn, N. Y., assignor to the Standard Underground Cable Company, Pittsburg, Pa. Filed Apr. 30, 1892. Serial No. 431,296. (No model.)



Claim.—1. The combination, with the external guide *a*, having one or more inwardly-curved wings 5 6, of internal guide *b*, over which said wings are curved, having one or more wings 9, curved outwardly over wings 5 6, substantially as described.

2. The combination, with external guide *a*, having one or more inwardly-curved wings 5 6, and internal guide *b*, over which said wings are curved, having one or more wings 9, curved outwardly over said wings 5 6, of guide D, having curved slot 2, through which the strip is led to the guides *a b*, substantially as described.

3. The combination, with the external guide *a*, having one or more inwardly-curved wings 5 6, and internal guide *b*, over which said wings are curved, having one or more wings 9, curved outwardly over said wings 5 6, of guide D, having curved slot 2, through which the strip is led to the guides *a b*, and marking-rolls E, by which the fold-lines are marked, substantially as described.

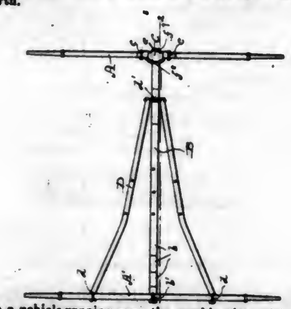
4. The combination, with the external guide *a*, having one or more inwardly-curved wings 5 6, and internal guide *b*, over which said wings are curved, having one or more wings 9, curved outwardly over said wings 5 6, of guide D, having curved slot 2, through which the strip is led to the guides *a b*, marking-rolls E, by which the fold lines are marked, and pressing-rolls G, substantially as described.

5. The combination, with reel B for the unfolded strip and driven winding-reel C, of guide D, having curved slot 2, marking-rolls E, by which the fold-lines are marked, external guide *a*, having one or more inwardly-curved wings 5 6, internal guide *b*, over which said wings are curved, having one or more wings 9, curved outwardly over wings 5 6, and pressing-rolls G between the guides and winding-reel, substantially as described.

482,154. VEHICLE RUNNING-GEAR. CHARLES S. BURNS, Racine, Wis. Filed Mar. 26, 1892. Serial No. 426,706. (No model.)

Claim.—1. In a running-gear, the combination, with the front and rear axles, of a spring-reach connecting said axles and having a flexible connection with the front one of said axles and side springs engaged with the rear axle upon opposite sides of the reach and connected together at their front ends by a transverse rod or bolt arranged to movably engage with the forward part of said spring-reach, substantially as set forth.

2. In a running-gear, the combination, with the front and rear axles, of a spring-reach engaged at its rear end with the rear axle and having a flexible connection at its front end with the front axle, and side springs engaged with the rear axle upon opposite sides of the reach, said springs being arranged to converge toward their forward ends, and a transverse rod or bolt connecting the forward ends of said side springs and arranged to rest in movable engagement with the upper surface of the forward portion of said spring-reach, substantially as set forth.



3. In a vehicle running-gear, the combination, with the front and rear axles, of a spring-reach comprising two or more leaves arranged one upon another, said spring-reach being connected rigidly with the rear axle and flexibly with the front axle, side springs each comprising one or more leaves and connected with the rear axle upon opposite sides of the reach and converging toward their front ends, and a transverse connection between said front ends adapted to rest in movable engagement with the forward part of said spring-reach, said spring-reach and said side springs being bent upwardly toward their central portions, so as to afford a support for the body of the vehicle above the body of the axles, substantially as set forth.

4. In a vehicle running-gear, the combination, with the front and rear axles, of a spring-reach composed of two or more leaves and rigidly connected at its rear end with the rear axle and flexibly connected at its forward end with the front axle, side springs engaged with said rear axle upon opposite sides of the reach and converging toward their forward ends, and a transverse rod or bolt connecting the forward ends of said springs and adapted to be arranged to rest in movable engagement with the upper surface of the forward part of the reach, substantially as set forth.

5. In a vehicle running-gear, the combination, with the front and rear axles, of a reach connecting the same and provided with a flat extension, a plate secured to the front axle and provided with a recess or depression adapted for the reception of said extension of the reach, and stops upon said extension adapted to engage with the front and rear sides of said plate, substantially as set forth.

6. In a vehicle running-gear, the combination, with the front and rear axles, of a reach connecting the same and provided at its forward end with a flat extension, a plate adapted to be secured upon the top of the front axle and provided with a recess for the reception of said extension of the reach, an angular projection on the forward side of said plate, an extension on the rear side of said plate constructed in the form of an arc of a circle, an upturned end on the said extension of the reach adapted for engagement with said angular projection, and a stop on said reach adapted for engagement with the extension on the rear of said plate, substantially as set forth.

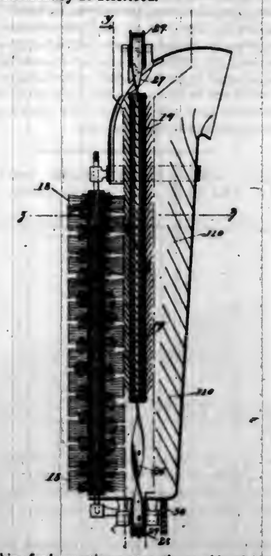
7. In a vehicle running-gear, the combination, with the front and rear axles, of a spring-reach comprising two or more flat leaves, an extension on the front end of the lower leaf, a plate adapted for engagement upon the top of the front axle and provided with a recess for the reception of said extension and provided with an angular projection on its front side and with a projection on its rear side constructed in the form of an arc of a circle, and an upturned ear or stop on the front end of the extension of said lower leaf adapted for engagement with the angular projection on the front of said plate, and the second leaf of the reach being arranged to engage with said rearward projection on said plate, substantially as set forth.

482,155. TRANSMITTER FOR FIBROUS MATERIAL. GERARD BERKMAN, New York, N. Y. Filed Apr. 22, 1891. Serial No. 389,982. (No model.)

Claim.—1. In a transmitter for fibrous material, barbs projecting from the inclosing case inwardly and in the direction of transmission, in combination with one or more spirally-reciprocating actuators having barbs projecting outwardly and in the direction of transmission and means for actuating the same, substantially as described.

2. The machine for producing a spiral reciprocating motion, which consists of a driving sheave or wheel and means for rotating the same first in one direction and then in the other, in combination with an idle sheave or wheel and a twisted band passing around said wheels, substantially as described.

3. In a transmitter for fibrous material, the combination of a transmitting-channel and a spirally-reciprocating actuator provided with barbs projecting in the direction of transmission, partly exposed to the exterior of the channel, adapted to feed the material both laterally into and longitudinally through the said channel, with means for operating the same, substantially as described.



4. In a machine for harvesting cotton, the combination of a rotary brush or adjacent pair thereof for removing the cotton from the pickers, a transmitting-channel, and a spirally-reciprocating actuator provided with barbs projecting in the direction of transmission and adapted to catch the cotton from said brushes and carry the same through said channel with means for operating the same, substantially as described.

5. In a machine for harvesting cotton, the combination of rotary pickers, a transmitting-channel, two spirally-reciprocating actuators having barbs projecting on their adjacent sides in the direction of transmission, and two cylindrical brushes rotating toward the channel on their adjacent sides in contact with the actuators, adapted to strip the cotton from the pickers, said actuators adapted to catch the cotton from the brushes and feed it both laterally into and longitudinally through the said channel and mutually to clean each other, with means for operating the same, substantially as described.

482,156. COTTON-HARVESTER. GERARD BERKMAN, New York, N. Y. Original application filed Nov. 15, 1890, Serial No. 371,535. Divided and this application filed Apr. 22, 1891. Serial No. 389,934. (No model.)

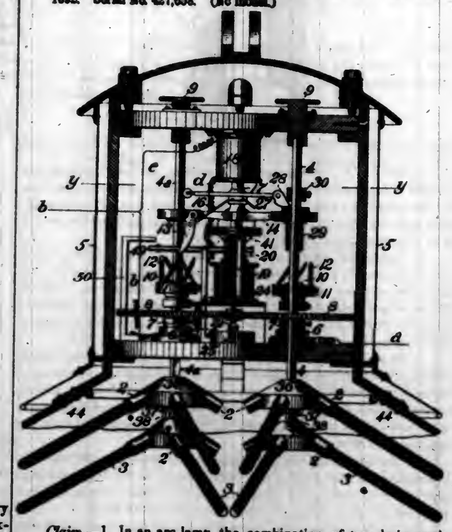


Claim.—1. In a machine for harvesting cotton, two or more flexible shafts supported by the same elastic arm, each shaft being connected at one end to a separate rotating device J and at the other end to a separate picking device X', projecting from said arm, substantially as described.

2. In a machine for harvesting cotton, an elastic arm containing two or more flexible shafts X, in combination with the end piece *d*, having apertures through which project picking devices, substantially as described.

3. In a machine for harvesting cotton, the flexible arm consisting of a rigid tube N, terminating at its upper end in an elastic portion and at its lower end bearing a plurality of elastic tubular fingers, and flexible shafts terminating in pickers, supported thereby, substantially as described.

482,157. ELECTRIC-ARC LAMP. JOHN T. BIRCH, Pittsburg, assignor of one-half to William B. Henderson, Ingram, Pa. Filed Apr. 4, 1892. Serial No. 427,658. (No model.)



Claim.—1. In an arc lamp, the combination of two hubs, each provided with radially-arranged holders for carbon rods, a series of cam projections connected to the shafts carrying the hubs, and reciprocating dogs engaging said projections and thereby rotating the shafts and hubs, substantially as set forth.

2. In an arc lamp, the combination of two hubs, each provided with radially-arranged holders for carbon rods, a series of cam projections connected to the vertical shafts carrying the hubs, dogs operative by gravity and adapted to engage said projections, and a solenoid for raising the dogs, substantially as set forth.

3. In an arc lamp, the combination of two hubs, each provided with radially-arranged holders for the carbon rods, a series of cam projections connected to the vertical shafts carrying the hubs, dogs operative by gravity and adapted to engage said projections, a solenoid for raising the dogs, and means operative by an electric magnet for moving the hubs in a direction contrary to that imparted by the dogs, substantially as set forth.

4. In an arc lamp, the combination of two hubs, each provided with a series of radially-arranged holders for the carbon rods, a series of cam projections connected with the vertical shafts carrying the hubs, dogs operative by gravity and adapted to engage the cam projections, a solenoid for raising the dogs, and a switch movable with the dogs and operative to direct the current through the solenoid as the dogs approach the lower limit of the movement and to break the current through the solenoid as the dogs reach the upper limit of their movement, substantially as set forth.

5. In an arc lamp, the combination of two hubs, each provided with radially-arranged sockets for carbon rods, mechanism for rotating said hubs so as to bring the carbon rods into operative relation to each other successively, auxiliary hubs provided with radially-arranged sockets, and connections between the main and auxiliary hubs, whereby the auxiliary hubs may be rotated by the main hubs after the latter have made one revolution, substantially as set forth.

6. In an arc lamp, the combination of an electric magnet having a conducting-spool and included in the shunt-circuit of the lamp, an armature operative on an abnormal increase in the current through the magnet, and a contact-piece connected to the main circuit, substantially as set forth.

482,158. WARDROBE-BED. ADELBERT M. BRAINARD, Chicago, Ill. Filed Oct. 19, 1891. Serial No. 409,206. (No model.)

482,158.



Claim.—1. In combination with the casing, the bed-frame jointed thereto to turn upward and downward, the mattress-frame hinged to the bed-frame to swing inward and outward, and means for automatically and positively controlling this motion of the mattress-frame as it is carried up and down with the bed-frame.

2. The casing and the bed-frame jointed thereto to turn upward and downward, in combination with the mattress-frame jointed to the bed-frame to move inward and outward at the head end and rails or guides whereon said end travels, whereby the motion of the mattress-frame in relation to the bed-frame is controlled and a balancing action of the parts secured.

3. In combination with the casing, the gravitating head-board thereto, the bed-frame sustained and guided, respectively, by the horizontally and the vertically movable pivots, the mattress-frame jointed thereto, the tracks whereon the mattress-frame is sustained during part of its movements, and supports F, whereon it is sustained during the remainder of its movements.

4. The casing and the bed-frame jointed thereto to fold therein, in combination with the mattress-frame hinged to the bed-frame and provided with rollers, the track whereon said rollers travel, and the fixed rollers whereon the mattress-frame pivots and slides.

5. In combination, the casing, the gravitating head-board, the bed-frame sustained by shifting pivots, the mattress-frame hinged to the bed-frame and having the shoulders or inclines, and the fixed rollers or bearings on which the mattress-frame bears at its free end.

482,159. WARDROBE-BEDSTEAD. ADELBERT M. BRAINARD, Chicago, Ill. Filed Oct. 19, 1891. Serial No. 409,211. (No model.)



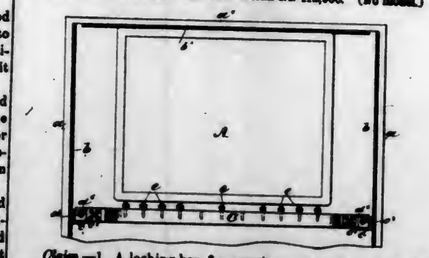
Claim.—1. In a folding bed, the combination of the casing, the arms or levers jointed thereto to turn upward and downward, the bed-frame jointed to the levers and provided with rollers, the rails whereon the rollers travel, and connections through which the rails are elevated at one end as the bed is extended.

2. In a folding bed, the casing and the rising and falling head-board thereto, in combination with the lever jointed to the casing to turn upward and downward, the bed-frame jointed to the levers, the track-rails to sustain the end of the bed-frame, and the connection from the rails to the head-board, substantially as shown.

3. In a folding bed, a bed-frame mounted to turn upward and downward, in combination with track-rails against which the end of the bed-frame rides and connections between the head-frame and track-rails through which these rails are positively elevated to offer an increasing resistance as the bed-frame is turned downward.

4. The casing, the gravitating head-board, and the arms or levers having studs mounted in horizontal and vertical guides in the casing, in combination with the bed-frame pivoted to the arms, the pivoted rails arranged to sustain and guide the end of the bed-frame, and the connection between the head-board and rails.

482,160. LOCKING-BAR FOR CHASES. JOHN S. BROWN, Jersey City, N. J. Filed Nov. 24, 1891. Serial No. 412,990. (No model.)



Claim.—1. A locking-bar for securing a chase in position on a press-bed, comprising a bar C, having locking-jaws *c* mounted one in each end of said bar, and eccentrics *d*, journaled rotatively in the bar, said eccentrics engaging apertures in the respective jaws, substantially as set forth.

2. The combination, with a press-bed having flanges at its sides, of a chase locking-bar extending transversely across the bed and resting thereon, said bar having jaws *c* mounted in its respective ends and each adapted to be driven outward in two directions by eccentrics, the said eccentrics mounted rotatively in the bar and engaging circular apertures in the respective jaws, as set forth.

3. A locking-bar for securing a chase in position on a press-bed, comprising a bar C, having pointed screws *e* set in its edge or face adjacent to the chase, a movable jaw *c*, mounted in each end and adapted to be protruded by an eccentric, and eccentrics mounted in the respective ends of the bar and engaging apertures in said jaws, substantially as set forth.

482,161. COMPLETE-STROKE MECHANISM FOR CASH-REGISTERS. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed May 21, 1892. Serial No. 433,836. (No model.)

Claim.—1. The combination of a revoluble pinion, two reciprocating racks adapted to alternately engage the pinion, means for shifting the racks at the opposite ends of their strokes to disengage one rack from the pinion and engage the other with it, means for holding the racks in their shifted positions, a ratchet revoluble with the pinion, and a pawl co-operating with the ratchet, substantially as described.

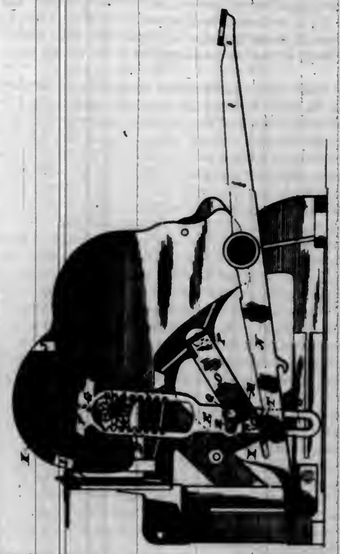
2. The combination of a series of operating-keys, a movable bar common to all of the keys, to which bar the keys become attached when operated, a revoluble pinion, two reciprocating racks actuated by said movable bar and adapted to alternately engage the pinion, means for shifting the racks at the ends of their strokes to disengage one rack from the pinion and engage the other with it, means for holding the racks in their shifted positions, a ratchet revoluble with the pinion, and a pawl co-operating with the ratchet, substantially as and for the purpose described.

3. The combination of a series of operating-keys, a movable bar common to all of the keys, to which bar the keys become attached when operated, a revoluble pinion, two reciprocating racks actuated by said movable bar and adapted to alternately engage the pinion, means for shifting the racks at the ends of their strokes to disengage one rack from the pinion and engage the other with it, a projection moving with the racks and co-operating with a fixed guide-rib for holding the racks in their shifted positions, a ratchet revoluble with the pinion, and a pawl co-operating with the ratchet, substantially as and for the purpose described.

4. The combination of a series of operating-keys, a movable bar

common to all of said keys, a revoluble pinion, two reciprocating racks actuated by said movable bar and adapted to alternately engage the pinion, means for shifting the racks at the ends of their strokes to disengage one rack from the pinion and engage the other with it, and means for holding the racks in their shifted positions, whereby the successive operations of the keys will rotate the pinion in the same direction, substantially as described.

5. The combination of a series of operating-keys, a movable bar common to all of said keys, a revoluble pinion, two reciprocating racks actuated by said movable bar and adapted to alternately engage the pinion, means for shifting the racks at the ends of their strokes to disengage one rack from the pinion and engage the other with it, and a projection moving with the racks and co-operating with a fixed guide-rib to hold the racks in their shifted positions, substantially as described.



6. The combination of the reciprocating racks C D, interposed pinion B, ratchet U, moving with the pinion, pawl V, springs K L, rib H, and projection G, carried by the racks and co-operating with the rib H, substantially as described.

7. The combination of the revoluble shaft A, the pinion B, fast thereon, the reciprocating plate E, carrying the racks C D upon opposite sides of the pinion B, the cross-plate F, connecting the upper ends of the racks, the springs K L, co-operating with the plate F, the rib H, and the projection G on the plate F co-operating with the rib H, substantially as described.

8. The combination of the revoluble shaft A, the pinion B and ratchet U fast thereon, the pawl V, the reciprocating plate E, carrying the racks C D on opposite sides of the pinion, the plate F at the upper ends of the racks, the springs K L, the rib H, and the projection G on the plate F co-operating with the rib H, substantially as described.

9. The combination of the pinion B, the reciprocating plate E, carrying the racks C D on opposite sides of said pinion, the plate F at the upper ends of the racks, the springs K L, the rib H, the projection G on the plate F co-operating with the rib H, the key-levers N, and the vibrating cross bar or frame common thereto and connected to the plate E, substantially as described.

10. The combination of the pinion B, the ratchet U, moving therewith, the pawl V, the reciprocating plate E, carrying the racks C D on opposite sides of the pinion B, the plate F at the upper ends of the racks, the springs K L, the rib H, the projection G on the plate F co-operating with the rib H, the vibrating cross bar or frame, and the series of key-levers adapted to be coupled to said bar when displaced from normal position, substantially as described.

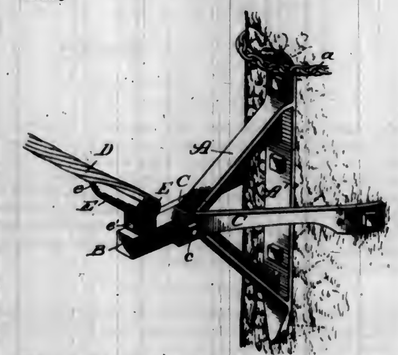
11. The combination of the revoluble shaft A, the pinion B, and ratchet U fast thereon, the pawl V, the reciprocating plate E, carrying the racks C D on opposite sides of the pinion B and provided at its lower end with the longitudinal slot S, embracing the stud T on the frame, the plate F at the upper ends of the racks, the springs K L, the rib H, the projection on the plate F co-operating with the rib H, the series of key-levers N, provided with hooks X, and the vibrating frame having the flange W co-operating with said hooks and provided, also, with a pin Q, engaging the transverse slot R in the plate E, substantially as described.

482,162. SAWBUCK. JOSEPH CHATTAWAY, Petoskey, Mich. Filed Feb. 10, 1892. Serial No. 420,990. (No model.)



Claim.—In combination with a sawbuck, a toothed dog pivoted to the cross-legs at or near the intersection thereof and extending vertically between them when in normal position and under spring tension, substantially as described.

482,163. HANGER OR SUPPORT FOR LOG-CARRIERS, &c. GEORGE W. COLE, Chicago, Ill. Filed Sept. 9, 1891. Serial No. 405,208. (No model.)



Claim.—1. A track-supporting hanger comprising a frame provided with an arm, a socket in such arm, and jaws adapted to engage with the track and provided with shanks fitting into such socket, substantially as described.

2. A track-supporting hanger comprising a frame having an extending arm, a socket in such arm, and jaws having shanks entering such socket, such jaws being clamped upon the track, the external curve of the jaws corresponding with the curve of the track, whereby the more even running of the vehicle is facilitated, substantially as described.

3. A track-supporting hanger for lumber-carriers, &c., comprising a triangular frame carrying an arm, a socket in such arm, and jaws supported in such socket and adapted to be clamped upon the track, such jaws being beveled at their ends to permit the wheels of the carriage to pass them without jar, substantially as described.

4. The combination of a triangular frame provided with an extending arm, a socket in such arm, jaws for engaging with the track, supported in such socket and provided with means for clamping them against the track, and side braces secured to the support and fastened to the frame to prevent any sidewise movement thereof, substantially as described.

5. A track-supporting hanger provided with an extending arm, a socket in such arm, and jaws adapted to engage with the track, rotatably supported in such socket, substantially as described.

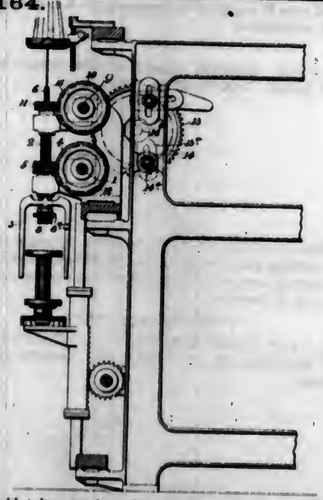
6. The combination of a track-supporting hanger provided with an arm, jaws engaging with the track and held in a socket in such arm, and a double load-carrying sheave traveling on such track, whereby the jar of passing one of the jaws is lessened and the load steadied, substantially as described.

482,164. TWISTING-FRAME. ARRAN COMBE, Belfast, Ireland. Filed June 30, 1891. Serial No. 397,804. (No model.)

Brief.—The fliers and the haul-pulleys of the twisting-frame are both driven from a main shaft by means of worm-gearing, between such shaft and the haul-pulleys there being an intermediate shaft mounted upon an adjustable bracket, whereby gear-wheels of varying diameters may be employed.

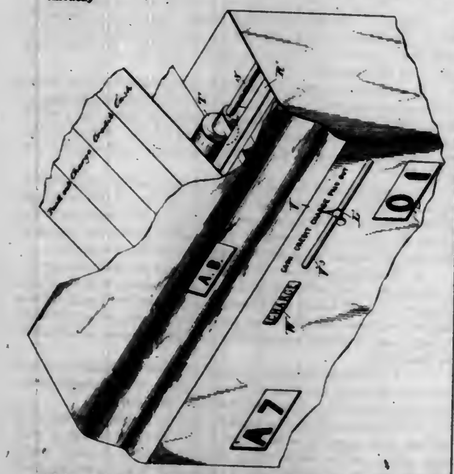
Claim.—In a twisting-frame, and in combination, a main shaft carrying worm-wheels, supporting-tubes, fliers carried thereby, worm-

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wheels on said tubes gearing with the worms on the main shaft, a second shaft carrying worm-wheels, yarn-tubes carrying worm-wheels gearing with the worms on the second shaft, haul-pulleys driven by gearing from said yarn-tubes, and the means for communicating the motion from the shaft 1 to the shaft 9, including the gear-wheels 13 14 on the short shaft 14^a, gearing, respectively, with the gears on the shafts 1 and 9, and the bracket 14^b, carrying said shaft 14^a, said bracket being slotted and adjustable longitudinally and laterally on its holding-bolt, substantially as described.

482,165. CASH REGISTER, INDICATOR, AND RECORDER. Hugo Cook, Dayton, Ohio. Filed June 3, 1891. Serial No. 395,589. (No model.)



Claim.—1. In a cash register and indicator, the combination of a type wheel or carrier bearing upon its periphery a series of numbers representing different values, a second type wheel or carrier arranged beside the first type-wheel and bearing upon its periphery a series of type letters or characters, a driving mechanism for said wheels, capable of connection therewith and disconnection therefrom, and two series of keys co-operating with the driving mechanism to determine the extent of movement imparted by it to the type-wheels, one of said series of keys bearing numbers corresponding to those upon the first type-wheel and the other bearing letters or characters corresponding to those upon the second type-wheel, and a platen co-operating with the type-wheels, whereby at each operation of the machine both the amount of the sale and the letter or character designating the clerk who made it may be printed upon a paper strip or ticket interposed between the platen or type-wheels.

2. In a cash register and indicator, the combination of an indicator bearing a series of numbers representing different values, a type wheel or carrier bearing upon its periphery a corresponding series of type-numbers and moving in unison with the indicator to simultaneously bring to the indicating-point a given number on the indicator and to the printing-point a corresponding number upon the type-wheel, a second indicator bearing a series of letters or characters, a second type-wheel bearing upon its periphery corresponding type letters or characters and moving in unison with the indicator, a driving mechanism for said indicators and type wheels, capable of connection therewith and disconnection therefrom, two series of keys co operating with the driving mechanism to determine the extent of movement imparted by it to the indicator and type wheels, one series bearing numbers corresponding to those upon the first indicator and type wheel and the other series bearing letters or characters corresponding to those upon the second indicator and type wheel, and a platen co-operating with the type-wheels, substantially as and for the purpose described.

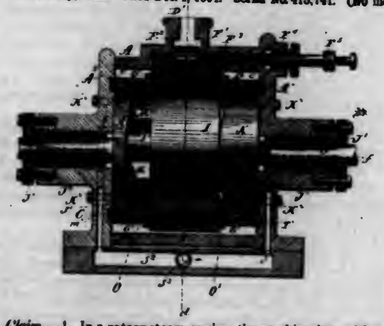
3. In a cash register and indicator, the combination of the indicator-wheels, the type-wheels moving in unison therewith and bearing corresponding type-numbers, the platen co-operating with the type-wheels, a paper-carriage laterally movable across the type-wheels, a record-strip carried thereby and divided into different longitudinal spaces, and an index indicating the different spaces or columns on the record-strip and co-operating with the laterally-movable paper-carriage to determine the position of the record-strip relative to the type-wheels, substantially as and for the purpose described.

4. In a cash register and indicator, the combination of the indicator-wheels, the type-wheels bearing corresponding type-numbers and movable in unison with the indicator-wheels, a platen co-operating with the type-wheels, a paper-carriage laterally movable across the type-wheels, a record-strip carried thereby and divided into different longitudinal spaces, an index corresponding to the different spaces or columns on the record-strip, and a handle or pointer movable with the paper-carriage over the index to determine the position of the record-strip relative to the type-wheels, substantially as and for the purpose described.

5. In a cash register and indicator, the combination of the type-wheels, the printer co-operating therewith, the paper-carriage laterally movable across the type-wheels, the record-strip carried thereby and divided into different longitudinal columns or spaces, the paper-carriage bearing the series of words referring to the different columns of the record-strip, and the casing being provided with an opening through which said words are separately visible when the paper-carriage is moved to different positions to bring the columns of the record-strip opposite the type-wheels.

6. In a cash register and indicator, the combination of the type-wheels, the printer co-operating therewith, the laterally-movable paper-carriage, the record-strip carried thereby and divided into different longitudinal columns or spaces, the paper-carriage bearing a series of words designating the different columns on the record-strip and separately visible through an opening in the casing when the paper-carriage is movable laterally to different positions to bring different columns of the record-strip opposite the type-wheels, and a pointer movable with the paper-carriage over an index designating the different columns on the record-strip.

482,166. ROTARY STEAM-ENGINE. William B. Coulter, Waterbury, Conn. Filed Dec. 1, 1891. Serial No. 413,741. (No model.)



Claim.—1. In a rotary steam-engine, the combination, with a cylinder, of a rotary piston-head located therein, two corresponding cam-heads located on opposite sides of the piston-head, having their operating-faces equidistant at opposite points from each other and each composed of corresponding continuously-pitched spirals merging into each other at their ends to form a continuous track, and one or more transversely-reciprocal pistons mounted in the said head and having their opposite ends engaged with the faces of the respective cam-heads, which are engaged at one or more points by the respective faces of the piston-head, so as to co-operate with the said piston or pistons in forming steam-chambers, substantially as described.

2. In a rotary steam-engine, the combination, with a cylinder having peripheral steam-inlet ports, of a rotary piston-head located therein and having steam-inlet ports arranged to coincide with those in the cylinder and entering its periphery and issuing from its sides, two corresponding cam-heads located on opposite sides of the piston-head and each having an exhaust-port opening out of its operating-face, and one or more transversely-reciprocal pistons mounted in the said head and having their opposite ends engaged with the faces of the respective cam-heads, which are engaged at one or more points by the respective faces of the piston-head, so as to co-operate therewith in forming steam-chambers, substantially as described.

3. In a rotary steam-engine, the combination, with a cylinder having one or more peripheral steam-inlet ports, of a rotary piston-head having steam-inlet ports entering its periphery and issuing from its sides, two corresponding cam-heads respectively located on opposite sides of the said head and having oppositely-winding operating-faces which are respectively equidistant at opposite points from each other, one or more transversely-reciprocal pistons mounted in the said head and having their opposite ends engaged with the faces of the respective cam-heads, which are respectively engaged at one or more points by the respective faces of the piston-head, so as to co-operate with the piston or pistons in forming steam-chambers, and exhaust-ports leading from the said chambers, substantially as described.

4. In a rotary steam-engine, the combination, with a cylinder having peripheral steam-inlet ports, of two cam-heads respectively located in the opposite ends of the said cylinder, having the opposite points in their operating-faces equidistant from each other and each having an exhaust-port and a large central opening, a piston-head located between the said heads, engaging with the highest points in the faces thereof, having heavy hubs which bear in the central openings of the said heads, and constructed with steam-inlet ports entering its periphery in position to coincide with the ports in the cylinder and issuing from its sides, and one or more transversely-reciprocal pistons mounted in the said head and having their opposite ends engaged with the faces of the respective cam-heads, substantially as described.

5. In a rotary steam-engine, the combination, with a cylinder having two or more peripheral inlet-ports and segmental ducts leading therefrom and following its inner periphery, of a piston-head having inlet-ports entering its periphery and arranged thereon to coincide with the said ports and ducts of the cylinder and issuing from its sides, two cam-heads respectively located at the ends of the cylinder and having irregular or winding operating-faces which are uniformly separated from each other, and one or more transversely-reciprocal pistons mounted in the said head and having their opposite ends engaged with the faces of the respective cam-heads, the highest points whereof are engaged by the respective faces of the piston-head, substantially as described.

6. In a rotary steam-engine, the combination, with a cylinder having segmental steam-ducts formed in the inner face of its periphery, of a rotary piston-head having steam-ports arranged to coincide with the said ducts, two cam-heads respectively located on opposite sides of the said head and having irregular or winding operating-faces which are equidistant at opposite points from each other, and one or more transversely-reciprocal pistons mounted in the said head and having their opposite ends engaged with the faces of the respective cam-heads, which are respectively engaged at one or more points by the respective faces of the piston-head, so as to co-operate with the pistons in forming steam-chambers, substantially as described.

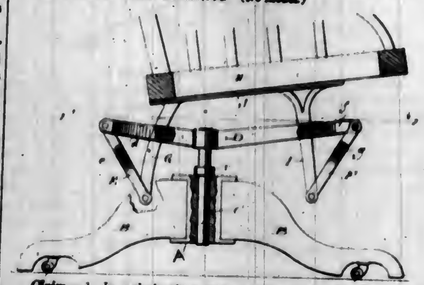
7. In a rotary steam-engine, a rotary piston-head having one or more deep transverse chambers formed in its periphery, a piston-holder set into each of said chambers, a piston mounted in each block piston-holder, and antifriction-pinions mounted in the block piston-holder on opposite sides of the piston, which is thereto furnished with racks, substantially as described.

8. In a rotary steam-engine, the combination, with a rotary piston-head having one or more deep transverse chambers formed in its periphery, of a two-part chambered piston-holder set into each of said chambers, a piston set into each holder and having its opposite faces provided with longitudinal racks, and pinions set into the holder on opposite sides of the piston, engaging with the racks thereof, and taking the strain of its operation upon their journals, substantially as described.

9. In a rotary steam-engine, the combination, with a cylinder having one or more peripheral inlet-ports, of a steam-chest surrounding the said cylinder, an annular cut-off located in the said chest encircling the cylinder and having inlet-ports coinciding with those in the cylinder, means for oscillating the cut-off to gage the amount of steam admitted to the cylinder, one or more pistons located in the cylinder, means for rotating and operating them, and exhaust-ports leading out of the said cylinder, substantially as described.

10. In a rotary steam-engine, the combination, with a cylinder having one or more inlet ports in its periphery, of a steam-chamber surrounding the said cylinder, an annular cut-off located in the said chamber encircling the cylinder, having peripheral ports coinciding with the ports therein and furnished with a rack, a pinion engaged with the said rack, means for operating the pinion to oscillate the cut-off on the cylinder, a rotary piston-head located in the cylinder, one or more pistons mounted in the said head, and exhaust-ports leading out of the cylinder, substantially as described.

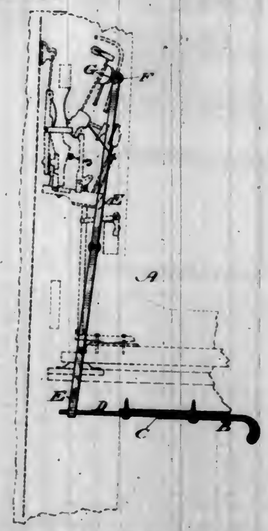
482,167. CHAIR. Fred A. Dennett, Sheboygan, Wis. Filed Oct. 2, 1891. Serial No. 407,514. (No model.)



Claim.—1. In a chair, the combination, with a base having a central socket, of a single longitudinal support provided with a depending device that engages said socket, a seat having front and rear arms depending therefrom, and links pivotally connected to said support and arms, substantially as set forth.

2. In a chair, the combination of a stationary base, a horizontal support pivotally connected to the center of the base, a seat having front and rear arms depending from its under side, and links pivotally connected to said support and arms, substantially as set forth.

482,168. EXPRESSION-REGULATOR FOR PIANOS. Joseph Y. Brockenmiller, Jenkintown, Pa. Filed May 16, 1892. Serial No. 433,134. (No model.)



Claim.—1. An expression-regulator for a piano, consisting of a pivoted knee-piece and two pivoted levers adapted to be attached to the casing of the piano, said parts being combined substantially as described.

2. An expression-regulator for a piano, consisting of a knee-piece

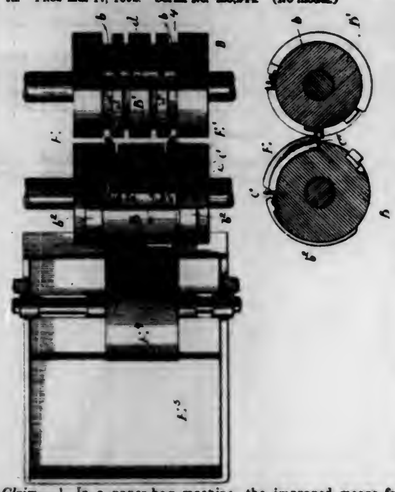
adapted to be pivoted to the casing of a piano and having a roller journaled on one end, a pivoted lever having one end in contact with said roller, a vertically-pivoted lever within the piano-casing, having its lower end in contact with one end of said first-mentioned levers and its upper end adapted to contact with the hammer rest rail or head of the piano, said parts being combined substantially as described.

482,169. PORTABLE WAGON-LOADER. JAMES E. EVELETH, Salix, Iowa. Filed Mar. 18, 1892. Serial No. 425,461. (No model.)



Claim.—A portable wagon-loader comprising an axle and supporting-wheels, a loading-platform having a dumping-stop, a discharge-opening, and a chute at its upper end and a receiving-board hinged to its lower end, said platform comprising inclined side beams supported by risers from the axle, transverse joists and a flooring, uprights at the upper ends of said beams, a cross-brace and a stationary rod connecting the uprights, a shoveling device having a pivoted bail, and a hoist-rope secured to said bail and led through a block carried by the brace, whereby the shoveling device engages said stop to cause it to dump and the bail engages said rod to prevent the device falling through the opening, all substantially as described.

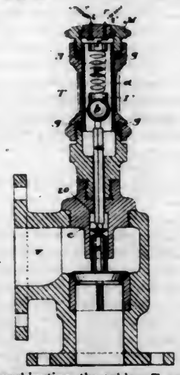
482,170. PAPER-BAG MACHINE. ALBERT C. GETTEN, Chicago, Ill. Filed Mar 17, 1892. Serial No. 425,344. (No model.)



Claim.—1. In a paper-bag machine, the improved means for creasing the bag-blank, which consists of a pair of rolls, one of which rolls is provided with two creasing-blades, one of said blades being adjustable around the periphery of the roll to enable it to be shifted with respect to the other blade and the other of which rolls is provided with two grooved creasing plates or channels, one of which is adjustable around the periphery of the roll to permit it to be shifted with respect to the other, whereby the distance between the creased lines of the bag may be varied as desired, substantially as described.

2. In a paper-bag machine, the improved means for creasing and pasting the bag-blank, which consists of a pair of rolls, one of which rolls is provided with paste-pads and with two creasing-blades, one of said blades being adjustable around the periphery of the roll to enable it to be shifted with respect to the other blade and the other of which rolls is provided with two grooved creasing plates or channels, one of which is adjustable around the periphery of the roll to permit it to be shifted with respect to the other, whereby the distance between the creased lines of the bag may be varied as desired, substantially as described.

482,171. FEED-INDICATOR FOR BOILERS. ANDRÉ GUASCO and ANGE CHUBB, Marseilles, France. Filed Oct. 8, 1891. Serial No. 408,113. (No model.) Patented in France July 7, 1890, No. 206,795; in Belgium Aug. 17, 1891, No. 95,723; in England Aug. 21, 1891, No. 14,128; in Germany Sept. 29, 1891, No. 65,429; in Italy Sept. 30, 1891, No. 30,427; in Spain Nov. 7, 1891, No. 12,506, and in Austria-Hungary Nov. 27, 1891, No. 38,823 and No. 68,465.



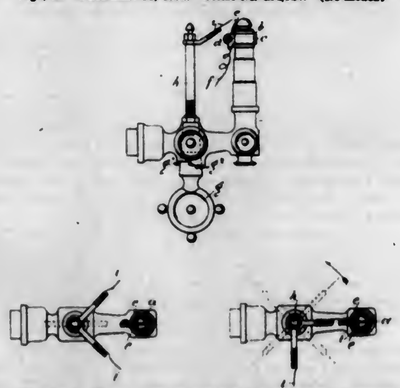
Claim.—1. In combination, the tubing T, screw-threaded at its lower end for attachment to its support, the insulating-cap M, closing the upper end of said tube, the terminals *t t'*, carried by the said cap, the valve *e* and its casing, the movable stem *a*, operated thereby, the movable contact I, and the spring K, intermediate of the contact, and the movable stem *a*, substantially as described.

2. In combination, the tubing T, having openings in its side, the valve *e*, with its casing, the movable stem *a*, carrying indicator *b*, the inner glass tube *d*, the terminals *t t'*, the contact I, connected with the stem *a*, and the means for supporting the terminals closing the end of the tube and holding the parts in place, consisting of the insulated cap M, substantially as described.

3. In combination, the valve with its stem, the indicator *b*, the contact I, the interposed spring between the contact and the indicator, and an electric circuit arranged to be opened and closed by the movable contact I, substantially as described.

4. In combination, the tubing T, the valve *e*, with its casing, the terminals *t t'*, the insulating-cap M therefor, the contact I, the movable stem *a*, connected therewith to move the same to the terminals, and the valve *e* on the lower end of the stem *a*, resting upon the stem of the valve *e*, substantially as described.

482,172. ELECTRICAL GAS-LIGHTER. JAMES E. HAMILTON, Chicago, Ill. Filed Mar. 11, 1892. Serial No. 424,527. (No model.)



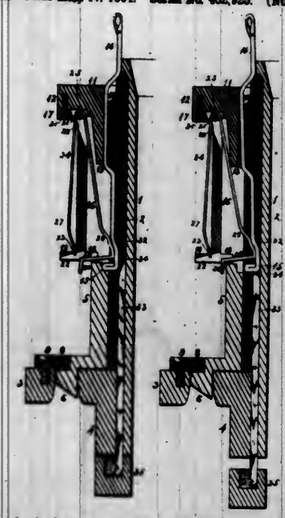
Claim.—1. In an electric gas-lighting device, the combination, with a cock carrying a shaft parallel to the axis of said cock, provided with a pair of arms carrying reciprocating wipers moving in a horizontal plane, of an insulated spur near the slot of a gas-burner, substantially as specified.

2. In an electric gas-lighting device, the combination, with a gas-burner with insulated spurs on each side of the slot thereof, of a shaft on the end of the gas-cock parallel with its axis and revolving therewith, provided with an arm carrying a wiper adapted to make and break contact with said spurs, substantially as specified.

3. In an electric gas-lighting device, the combination, with a burner with insulated spurs on each side of the slot thereof, of a cock with a shaft on its end axial and revolving therewith, provided with a pair of arms carrying wipers adapted to make and break contact with said spurs, substantially as specified.

4. In an electric gas-lighting device, the combination, with a gas-cock adapted to make the usual half-revolution, surmounted by a shaft axial and revolving therewith, and provided with arms carrying wipers, of a burner and insulated spurs on each side of its slot, to operate substantially as specified.

482,178. KNITTING-MACHINE. HOWARD E. HARBAUGH, Rockford, Ill. Filed Aug. 17, 1891. Serial No. 402,925. (No model.)



Claim.—1. A knitting-machine provided with needle-grooves, needles located therein, a needle-operating cam, two sections provided with means adapted to hold the fashioning-needles in action or allow them to become inactive, the sections having movements independent of each other in the lengthwise direction of the needles.

2. A knitting-machine provided with a needle-cylinder having needle-grooves, needles located therein, a needle-operating cam, two sections provided with means adapted to hold the fashioning-needles in engagement with the cam or allow them to become inactive, the sections having movements independent of each other in the lengthwise direction of the needle-cylinder.

3. A knitting-machine provided with a needle-cylinder having needles-grooves, needles located therein, a needle-operating cam, two series of arms for holding the fashioning-needles in engagement with the cam, the series having a movement independent of each other in the lengthwise direction of the needle-cylinder.

4. A knitting-machine provided with needle-grooves, needles located therein, a needle-operating cam, three series of arms for holding the needles in engagement with the cam, two series for the fashioning-needles and other series for the remaining needles, which are thrown in and out of action, the series of arms for the fashioning-needles having a movement independent of the remaining series.

5. A knitting-machine provided with needle-grooves, needles located therein, a needle-operating cam, and three sections provided with arms for holding the needles in engagement with the cam, two of the sections for the fashioning-needles, the arms of which are of different lengths, and the arms of the remaining section which operate upon the front needles being of equal length.

6. A knitting-machine provided with needle-grooves, needles located therein, a needle-operating cam, three sections provided with arms for holding the needles in engagement with the cam, two of the sections for the fashioning-needles and the remaining section for the front needles, the arms of each of the sections located and moving in the lengthwise direction of the needle-grooves, and means for moving the sections, the arms of which operate upon the fashioning-needles.

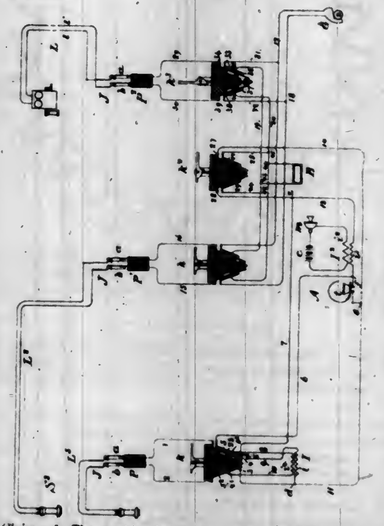
7. A knitting-machine provided with needle-grooves, needles located therein, a needle-operating cam, two sections provided with arms extending therefrom of different lengths and located in the needle-grooves for the purpose of holding the needles in action or allowing them to become inactive.

8. A knitting-machine provided with needle-grooves, needles located therein, a needle-operating cam, two sections provided with arms extending therefrom and located in the needle-grooves and having their upper ends beveled, each section provided with a toothed rack, and dogs for engaging the teeth of the racks for alternately raising or lowering them.

9. A knitting-machine provided with needle-grooves, needles located therein, a needle-operating cam, springs for holding the needles out of action, a suitable frame, one end of the springs held by the frame and the other end of each located in a needle-groove in contact with the needle thereof.

10. In a knitting-machine, the combination of a needle-cylinder provided with needle-grooves, a needle-operating cam, a cylinder surrounding the needle-cylinder, provided with grooves conforming to the needle-grooves, springs held in place in the grooves of the outside cylinder, each having one end stationary and the other end in contact with a needle, and each provided with a projection by which the springs can be removed to release the needles.

482,174. TELEPHONE-EXCHANGE APPARATUS. ANGUS S. HIBBARD, New York, N. Y., assignor to the American Telephone and Telegraph Company, of New York. Filed June 2, 1892. Serial No. 435,279. (No model.)



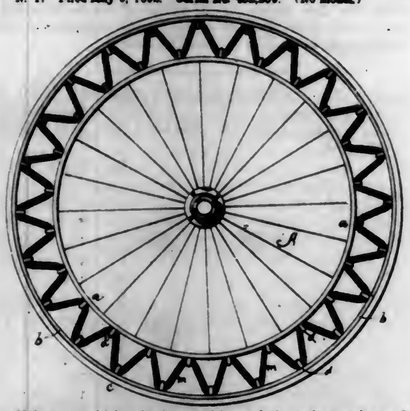
Claim.—1. The combination, with a series of telephone service-circuits, an order-circuit, an operator's receiving-telephone, and a circuit-changer controlling the connection of said telephone with the said service-circuit, of a repeating-coil having one of its windings connected with the order-circuit and an independent loop extending from the terminals of the said receiving-telephone and formed into a closed circuit with the other winding of the said repeating-coil, substantially as described.

2. The combination, with a series of telephone service-circuits, an order-circuit, operators' receiving and transmitting telephones, and a circuit-changer controlling the connection of said telephones with the said service-circuits, of two independent loop-circuits, one including the receiving-telephone only, and the other including the transmitter also, a repeating induction-coil, and an auxiliary circuit-changer or switch-key controlling the relations of the terminals of the said two loops, the repeating-coil, and the order circuit and adapted in one position to connect one winding of the said coil with the order-circuit and to form the other winding thereof with the receiving-telephone loop into a closed circuit and in a second position to disconnect the said repeating-coil from the said two circuits and to close the order-circuit through the said second loop containing the said receiving and transmitting telephones, substantially as described.

3. The combination, substantially as hereinbefore described, of a series of telephone service-circuits, flexible link conductors terminating in plug-connectors for uniting any two such circuits, an operator's receiving and transmitting telephone, and a listening-key interposed between the said telephone outfit and the said link conductors and

adapted to connect the said telephones therewith and disconnect them therefrom, with an order-circuit, a repeating-coil, a local circuit including the said receiving-telephone, a second and normally-open local circuit including the secondary helix of the transmitter induction-coil as well as the receiver, and a circuit-changing switch interposed between the terminals of the said local circuits and the order-circuit and so constructed and connected that when placed in one position the order-circuit is closed through one helix of the repeating-coil and the receiving-telephone local circuit through the other, the second local circuit remaining open, and so that when placed in a second position the circuits of the repeating-coil are both opened, while the local circuit, which includes both transmitter and receiver, is connected directly with the order-circuit, substantially as described.

482,175. VEHICLE-WHEEL. GEORGE HOLLAFOLLA, Syracuse N. Y. Filed May 9, 1892. Serial No. 432,239. (No model.)



Claim.—A vehicle-wheel comprising a hub, spokes, and two felloes substantially parallel to each other, connected together by a band of elastic material strung through loops arranged alternately upon the two felloes.

482,176. COMPOSITION OF MATTER. PHILIP H. HOLMES, Gardiner, Me., assignor to the Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Filed Jan. 2, 1892. Serial No. 416,855. (No specimens.)

Claim.—1. A composition of matter consisting of plumbago, carbonized fiber, and a binder, substantially as specified.

2. A composition of matter consisting of plumbago combined with structural and deposited carbon, substantially as described.

3. The process herein described of making a plumbago and carbon compound, said process consisting, essentially, in, first, mixing plumbago and fiber; second, subjecting the mass to pressure; third, drying the mass; fourth, immersing it in oil, and, finally, baking the mass to carbonize the oil and fiber, substantially as set forth.

482,177. ELECTRICAL CONDUCTOR. PHILIP H. HOLMES, Gardiner, Me., assignor to the Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Filed Jan. 2, 1892. Serial No. 416,858. (No model.)



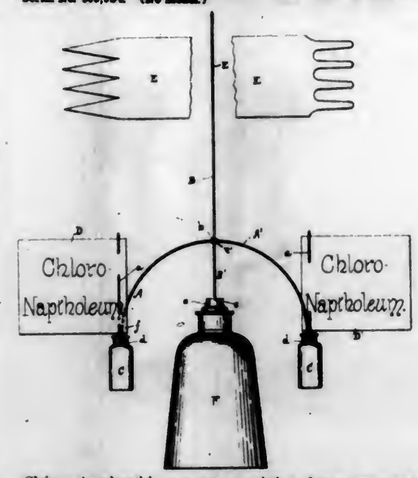
Claim.—1. An electric conductor composed of particles of plumbago disposed in strata which lie in planes parallel with the direction of the current.

2. An electric conductor composed of particles of electric-conducting carbon and divided fiber disposed in strata which lie in planes parallel with the direction of the current.

3. An electric conductor composed of particles of electric-conducting carbon united by an oil-binder and disposed in strata which lie in planes parallel with the direction of the current.

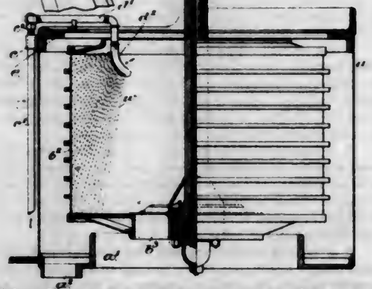
4. An electric commutator-brush composed of particles of conducting-carbon, such as plumbago, disposed in strata, which lie in planes parallel with the direction of the current, and are thus presented on end to the commutator when the brush is in use, substantially as described.

482,178. ADVERTISING DEVICE. WILLIAM R. IRISH, Cleveland, Ohio, assignor to Robert S. West, same place. Filed Oct. 26, 1891. Serial No. 409,994. (No model.)



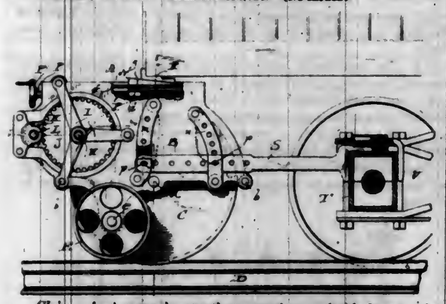
Claim.—An advertising apparatus consisting of two or more packages suspended by two or more wires A A', said wires being attached to an upright wire B, having a pivotal bearing, in combination with the wings D D', pivotally connected to the wires *a a*, said wings causing the apparatus to turn on its pivotal bearing by reason of air-currents striking against the same, substantially as and for the purpose set forth.

482,179. APPARATUS FOR WASHING SUGAR. RICHARD P. JOHNSON, Boston, Mass. Filed May 9, 1892. Serial No. 432,333. (No model.)



Claim.—The combination, with the curb and basket of a centrifugal machine, of a water-supply pipe, as *c'*, a branch pipe provided with a perforated shoe, and a valve or cock to automatically effect the discharge of water through the shoe when the latter is placed in position within the basket and to shut off the supply when withdrawn, the shape of the shoe being that of a curved tube perforated on its convex side to enable it to discharge water from the upper to the lower part of the basket, substantially as described.

482,180. MANUAL MOTOR. MARTIN JOHNSON, Milwaukee, Wis. Filed May 11, 1892. Serial No. 432,635. (No model.)



Claim.—1. A manual motor that comprises a suitable frame, a single-track wheel having its axle supported by the frame, an actuating mechanism in gear with the wheel, and suitable means for detachably connecting said frame with a railway-car, substantially as set forth.

2. A manual motor that comprises a suitable frame, a track-wheel having its axle supported by the frame, an actuating mechanism for the wheel, suitable means for detachably connecting said frame with a car, and surface-wheels supported on the aforesaid frame eccentric to the track-wheel, substantially as set forth.

3. A manual motor that comprises a suitable frame, a track-wheel having its axle supported by the frame, an actuating mechanism for the wheel, a wedge-block longitudinally adjustable in said frame, a step loose on the wedge-block, and a suitable bar carried by the aforesaid frame for connection with a car axle box, substantially as set forth.

4. A manual motor that comprises a suitable frame, a single-track wheel having its axle supported by the frame, an actuating mechanism in gear with the wheel, and a car-connecting bar capable of positive vertical and angular adjustments on said frame, substantially as set forth.

5. A manual motor that comprises a suitable frame, a single-track wheel having its axle supported by the frame, an actuating mechanism in gear with the wheel, a car-connecting bar, and a car-connecting hook at right angles to the bar, said bar and hook being carried by said frame, substantially as set forth.

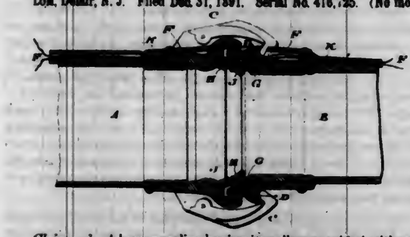
6. A manual motor that comprises a suitable frame, a single-track wheel having its axle supported by the frame, an actuating mechanism in gear with the wheel, and a car-connecting bar carried by the frame and having the outer end thereof in the form of a clamp provided with a longitudinally-adjustable section, substantially as set forth.

7. A manual motor that comprises a suitable frame, a track-wheel having its axle supported by the frame, an actuating mechanism for the wheel, a wedge-block loose in the frame and provided with a screw-threaded sleeve, a screw-rod engaging the sleeve, a step loose on the wedge-block, and suitable means for connecting said frame with a car, substantially as set forth.

8. A manual motor comprising a suitable frame, a track-wheel and surface wheels connected to the frame, a train of gearing controlling the track-wheel, a wedge-block longitudinally adjustable in said frame, a step loose on the wedge-block, and a car-connecting bar adjustable to various elevations and angles on the aforesaid frame, substantially as set forth.

9. A manual motor comprising a suitable frame, a track-wheel and surface wheels connected to the frame, a train of gearing controlling the track-wheel, a wedge-block longitudinally adjustable in said frame, a step loose on the wedge-block, a car-connecting bar, and a car-connecting hook at right angles to the bar, said bar and hook being carried by the aforesaid frame, substantially as set forth.

482,181. ELECTRIC CONNECTOR FOR HOSE. CHARLES F. KELLOM, Deinir, N. J. Filed Dec. 31, 1891. Serial No. 416,725. (No model.)



Claim.—1. A hose-coupling having its collars provided with tubes on their sides and electric wires in said tubes and having a segmental ring adapted to contact with said wires, substantially as described.

2. A hose-coupling having one of its collars provided with a gasket and the other collar provided with fingers, a segmental ring seated on said gasket, adapted to contact with said fingers, and electric wires connected with said ring and fingers, said parts being combined substantially as described.

3. A hose-coupling having one of its collars provided with a gasket adapted to extend between it and the other collar, a ring on said collar, and fingers or points on the other collar, said parts being combined substantially as described.

4. A hose-coupling having each of its collars provided with a contact-piece, one of the pieces being secured to packing, which forms a water-tight joint for the coupling, substantially as described.

482,182. PNEUMATIC TIRE. CHARLES M. LUNGREN, Bayonne, N. J. Filed Sept. 16, 1891. Serial No. 405,831. (No model.)



Claim.—1. The combination, in a vehicle-tire, of a wheel-rim and a surrounding flexible envelope adapted to be distended to shape by compressed air, the wheel-rim partly filling the space inclosed by the inflated envelope and adapted to form a supporting center for this envelope when relieved of its compressed air, substantially as described.

2. The combination, in a vehicle-tire, of a wheel-rim and a surrounding flexible envelope adapted to be distended to shape by compressed air, the envelope being non-expansible at its outer part and expansible at its inner part and the wheel-rim being arranged to form a supporting center for the flexible envelope when it is relieved of its compressed air, substantially as described.

3. The combination, in a vehicle-tire, of a wheel-rim and a surrounding flexible envelope adapted to be distended to shape by compressed air, the wheel-rim consisting of a metal channel provided with a tubular or solid ring of elastic material and arranged to form a supporting center for the flexible envelope when it is relieved of its compressed air, substantially as specified.

4. A vehicle-tire consisting of an envelope or strip of flexible material adapted to be distended to shape by compressed air, said strip or envelope being non-expansible at the part which bears upon the ground and expansible at the part near the wheel-rim, substantially as specified.

5. A vehicle-tire consisting of a strip of flexible material provided with enlarged edges, said strip of material being non-expansible at its central portion and expansible at the parts between this central portion and the enlarged edge, substantially as specified.

6. A vehicle-tire having the following elements in combination: first, a band or strip of flexible material provided with enlarged edges; second, a wheel-rim provided with channels at its edges, said channels being adapted to receive the enlarged edges of the tire, but being large enough to allow these to be freely withdrawn, and, third, retaining rings or strips adapted to hold the enlarged edges of the tire in the rim-channels by acting as wedge-pieces, substantially as specified.

7. In a vehicle-tire, the combination of a wheel-rim provided with a central abutment, a tire consisting of a band or strip of flexible material provided with enlarged edges, and wedge-rings adapted to hold the enlarged edges of the tire in the channels between the central abutment and the edges of the rim, substantially as shown and described.

482,183. WATER CIRCULATOR AND PURIFIER FOR STEAM-BOILERS. JAMES MACDONALD, Los Angeles, Cal., assignor of one-half to Mary MacDonald, same place. Filed July 7, 1891. Serial No. 398,650. (No model.)

Claim.—1. The water-purifier set forth, comprising the combination of the boiler, a purifier-tank devoid of impurity-retaining diaphragms between its ingress and egress pipes, the hot-water pipe leading from the boiler and arranged to discharge horizontally into the lower part of the purifier-tank at one side and above the bottom thereof, the cold-water injector arranged coaxial with the horizontal discharge member of the hot-water pipe, with its discharge-orifice immediately outside of the tank, as set forth, and the purified-water pipe leading from the tank to the boiler and having its mouth arranged in the side wall of the tank, near the top of the tank, on the side thereof opposite the ingress or discharge orifice of the hot and cold water pipe.

2. The combination of a suitable boiler, an unobstructed tank pro-

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integrating-blades situated below the roll and acting in conjunction therewith on the stock as it passes through the lower passage and upper disintegrating-blades acting in conjunction with the blades on the stock as it passes through the upper passage, substantially as set forth.

3. The combination of the casing, a central disintegrating-roll therein, the horizontal mid-feather on each side of the roll, forming upper and lower passages, one or both of the outer ends of the mid-feather being at an angle, substantially as described.

4. The combination of the casing, a central mid-feather forming two passages, and a disintegrating-roll mounted in the casing and pro-

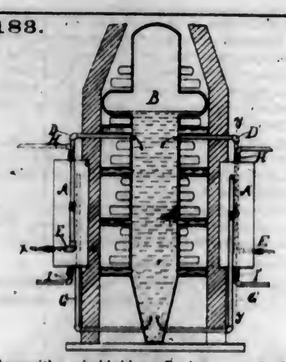
tained in said box, and frames on each side of the knife-box, the lower portion of each frame being beveled toward the knives, so as to guide the stock thereunder, substantially as described.

14. The combination of the casing, disintegrating-roll, the upper disintegrating-knives situated above the roll, a box for said knives, frames on each side of the box, having inclined portions, said frames being adjustable upon the casing, and set-screws for adjusting said frames and locking each frame in the adjusted position, substantially as described.

said table, and the compressor cord or rope, substantially as described.

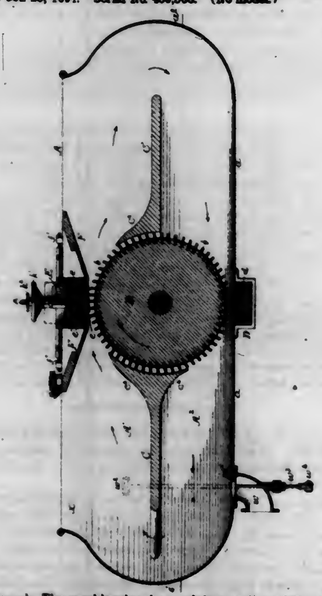
482,187. VALVE. GEORGE R. MOORE, Springfield, Mass. Filed Nov. 7, 1891. Serial No. 411,189. (No model.)

482,183.



vided at its base with a suitable blow-off, a hot-water pipe leading from the boiler below the water-line to the lower part of the tank at such a point above the bottom thereof as to allow a settling-chamber therebeneath, a feed-water injector arranged with its discharge-orifice coaxial with the hot-water pipe and close to the mouth thereof, (that is to say, within three or four inches thereof,) so that the injected cold water is caused to enter the purifier-tank incased in a sheath of hot water and the impurities released at the instant of change of temperature will fall into the settling chamber or basin, and a purified-water pipe leading from the tank at a point near the top thereof opposite the mouth of the hot-water pipe to the boiler at or near the bottom thereof, the whole being so arranged that there are no obstructions which will impede the passage of the water or retain any deposit or impurities within the tank between the inlet at the bottom and the outlet at the top, whereby the water is instantly and uniformly changed in temperature and the current immediately flows in an upward oblique direction through the purifier, thus giving perfect freedom for the impurities to fall out of the current and deposit at a point from which they can readily be removed.

482,184. PULP-ENGINE. GUYON MILLER, Downingtown, Pa. Filed Oct. 23, 1891. Serial No. 409,583. (No model.)

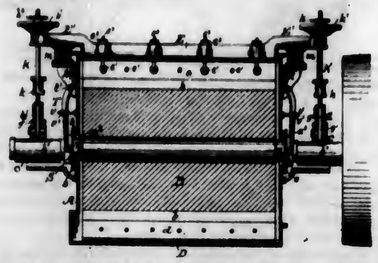


Claim.—1. The combination, in a pulping-engine, of the tank, the disintegrating roll B, and partitions C C, one on each side of the roll, forming the mid-feather which separates the tank into upper and lower passages, with upper disintegrating-blades directly above the roll and acting in conjunction therewith, substantially as described.

2. The combination of a casing, the disintegrating-roll, and the mid-feather forming upper and lower passages in the casing with disintegrating-blades situated below the roll and acting in conjunction therewith on the stock as it passes through the lower passage and upper disintegrating-blades acting in conjunction with the blades on the stock as it passes through the upper passage, substantially as set forth.

3. The combination of the casing, a central disintegrating-roll therein, the horizontal mid-feather on each side of the roll, forming upper and lower passages, one or both of the outer ends of the mid-feather being at an angle, substantially as described.

4. The combination of the casing, a central mid-feather forming two passages, and a disintegrating-roll mounted in the casing and projecting into each passage with disintegrating-blades in each passage, acting on the stock in conjunction with the roll, substantially as described.



5. The combination of the casing, the mid-feather, the fixed lower blades, the vertically-movable roll, the vertically-movable upper blades, and mechanism, substantially as described, whereby the carrier of the upper blades is connected to the roll, so that when the roll is raised the upper blades will be raised, substantially as described.

6. The combination of the casing, the mid-feather separating the casing into upper and lower passages, a roll extending into both passages, fixed lower blades, movable upper blades, boxes for the trunnions of the roll, levers connected to said boxes, levers connected to the upper blade-carrier, said levers being connected together, and mechanism for raising and lowering the rolls and blades, substantially as described.

7. The combination of the casing, the mid-feather, a disintegrating-roll, bearings for the journals of said roll, the fixed lower blades, the vertically-movable upper blades, a lever on each side of the casing, locked to the bearings for the roll, a lever on each side of the casing, connected to the upper blade-carrier, connections between the roll-levers and the blade-levers, vertical screw-rods connected to said levers, nuts on said screw-rods having gear-teeth in the periphery, a transverse shaft, and worms on said transverse shaft gearing with the teeth of the said nuts, substantially as described.

8. The combination, in a pulping-engine, of the upper blade-casing, blades therein, filling-pieces between said blades, transverse securing-pins for the said blades, and eyebolts through which the pins pass, said bolts passing up through the box, with nuts adapted to said bolts, substantially as described.

9. The combination, in a pulping-engine, of the casing, the upper blades, box therefor mounted in said casing, and a disintegrating-roll connected to the box with springs or their equivalents situated between the casing and the box, said springs tending to raise the blade-box, substantially as described.

10. The combination of the casing, disintegrating-roll, vertical adjusting-rods connected to the bearings of said roll, adapted to guideways on the casing, threaded worm-wheels on the bars, a transverse shaft, worms on the shaft, engaging with the worm-wheels, and bearings for said shaft mounted on the upright rods and resting on the guides therefor, so that any accidental raising of the roll will not disengage the gearing, but merely raise the bearings of the transverse shaft, substantially as described.

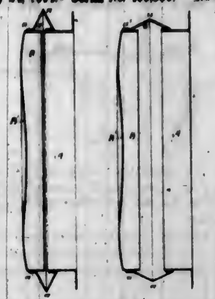
11. The combination of the casing, the disintegrating-roller, bearings therefor, levers connected to said bearings, upper disintegrating-blades, carrier therefor, levers connected to said carrier, and connections between the roll-levers and the blade-levers, the fulcrum of the blade-lever being at a greater distance from its weight than the fulcrum of the roll-lever, whereby when the roll is raised the blades will be moved a greater extent than the roll, substantially as described.

12. The combination of the casing, openings in the side of said casing, a disintegrating-roll, the trunnions of said roll extending through the openings in said casing, flanged rings adapted to said trunnions, pivoted levers adapted to bear against said rings, and bolts for holding the levers against the ring with annular packing between each ring and the casing, substantially as described.

13. The combination, in a pulping-engine, of the casing, the disintegrating-roll, the upper knife-box situated above the roll, knives contained in said box, and frames on each side of the knife-box, the lower portion of each frame being beveled toward the knives, so as to guide the stock thereunder, substantially as described.

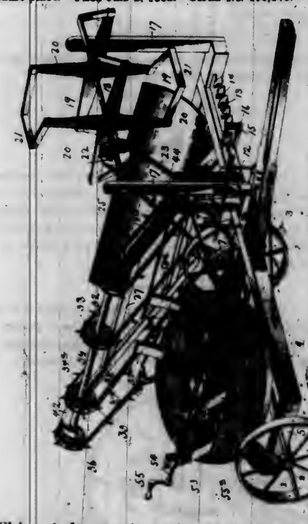
14. The combination of the casing, disintegrating-roll, the upper disintegrating-knives situated above the roll, a box for said knives, frames on each side of the box, having inclined portions, said frames being adjustable upon the casing, and set-screws for adjusting said frames and locking each frame in the adjusted position, substantially as described.

482,185. METER-DIAPHRAGM. WILLIAM N. MILSTED, New York, N. Y. Filed July 24, 1891. Serial No. 400,539. (No model.)



Claim.—The combination of the fixed and movable portions of the diaphragm with the flexible portion inclosing the triangular space, the lines being so proportioned that the area of the space will be the same when the diaphragm is fully expanded and fully contracted, substantially as specified.

482,186. CORN-HARVESTER. HAMON MORRISON, Morantown, Kans., assignor of one-half to Greenleaf W. Campbell and John H. Vaughn, same place. Filed Jan. 2, 1892. Serial No. 416,873. (No model.)

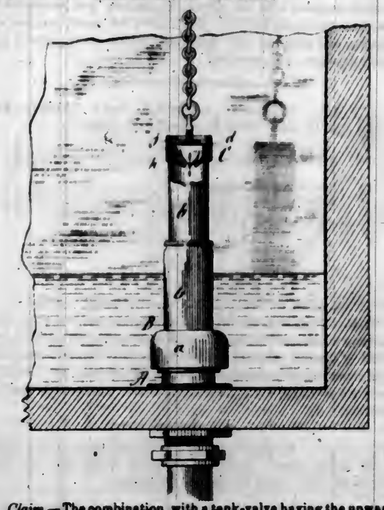


Claim.—1. In a corn-harvesting machine, the combination, with the elevator, of the binder-table located underneath the upper end thereof, the upwardly-extending curved arms or jaws secured to said table, the shaft journaled in said jaws, and a compressor cord or rope secured to said shaft, substantially as described.

2. In a corn-harvesting machine, the combination, with the elevator, of the binder-table made in two parts hinged together, the lever secured to one of said parts, the upwardly-extending curved arms or jaws, the shaft journaled therein, and a compressor cord or rope secured to said shaft, substantially as described.

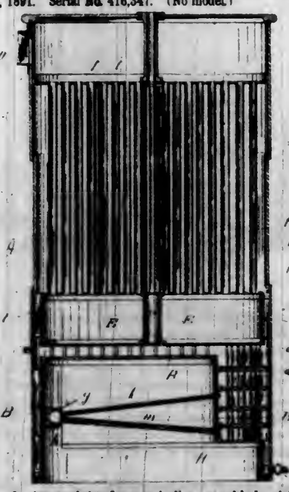
3. In a corn-harvesting machine, the combination, with the elevator, of the rotatable binder-table made in two parts hinged together, the lever secured to one of said parts, the upwardly-extending curved arms or jaws, the shaft journaled therein, the staple secured to the said table, and the compressor cord or rope, substantially as described.

482,187. VALVE. GEORGE B. MOORE, Springfield, Mass. Filed Nov. 7, 1891. Serial No. 411,189. (No model.)



Claim.—The combination, with a tank-valve having the upwardly-extended and upwardly-opening tubular member adapted for communication with the valve-seat opening, of a muffle or diaphragm composed of resilient material, as rubber, having slits within its borders leaving members at either side which have their edges normally together, whereby said passage will be usually practically closed, but whereby downward air-suctions or overflowage of water passing through said passage from its top will insure a suitably-corresponding opening of the passage, substantially as described.

482,188. FURNACE-BOILER. EDWARD B. PARKHURST, Woburn, assignor to the Complete Combustion Company, Boston, Mass. Filed Dec. 28, 1891. Serial No. 416,347. (No model.)



Claim.—1. An upright furnace-boiler provided with a center chamber located above the crown-sheet and larger in transverse area than the fire-chamber, a series of flue-pipes connecting the combustion-chamber with said center chamber and traversing the water-space between the sides of the fire-chamber shell and the boiler-shell, and another series of flue-pipes traversing the water-space above said center chamber and connecting said center chamber with the smoke-chamber and uptake, substantially as shown and described.

2. An upright downdraft furnace-boiler provided with a water-grate and having a center chamber located above the crown-sheet of larger transverse area than the fire-chamber, a series of flue-pipes traversing the water-space around the fire-chamber and connecting said center chamber with the combustion chamber, and another series of flue-pipes traversing the water-space above the center chamber and connecting said chamber with the smoke-chamber and uptake, substantially as shown and described.

482,189. CARRIAGE. AUGUSTUS N. PARRY, Amesbury, Mass. Filed June 13, 1892. Serial No. 436,437. (No model.)

ing the rope under tension through an upright furnace, in which it is subjected to a softening heat, and exposing the rope to a blast of air or a spray of water as it emerges from the furnace, substantially as described.

6. The combination of the furnace, the upright chamber therein through which the rope to be heated is passed, a delivery-drum and a receiving-drum for the rope, and a water-spraying device situated between the furnace and the receiving-drum through which water can be forced against the rope, substantially as described.

482,191. EYEGLASS-HOLDER. ERNEST C. PERKINS, Geneva, N. Y. Filed May 2, 1892. Serial No. 431,449. (No model.)

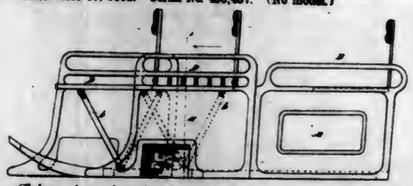
482,193.

2. The combination, with the cotton-opener and lifting-apron from which cotton is delivered to the opener, of an intermediate revolving cage and means whereby the cotton is delivered from the lifting-apron to the cage and from the cage to the opener, substantially as herein set forth.

482,195. LUBRICATING-HUB. FREDERICK W. RANDOLPH, Raynor, Va. Filed Dec. 17, 1891. Serial No. 415,389. (No model.)

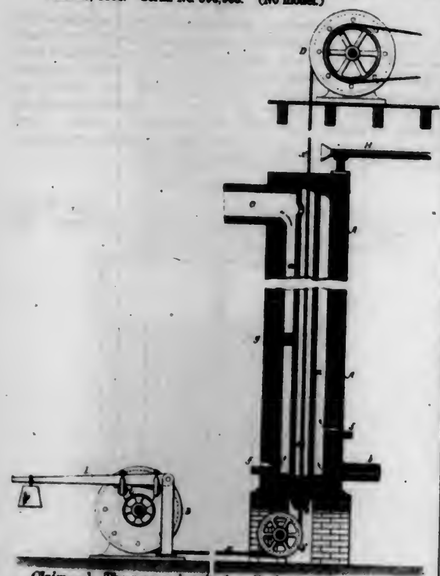
2. An upright downdraft furnace-boiler provided with a water-grate and having a center chamber located above the crown-sheet of larger transverse area than the fire-chamber, a series of flue-pipes traversing the water-space around the fire-chamber and connecting said center chamber with the combustion chamber, and another series of flue-pipes traversing the water-space above the center chamber and connecting said chamber with the smoke-chamber and uptake, substantially as shown and described.

482,189. CARRIAGE. AUGUSTUS N. PARRY, Amesbury, Mass. Filed June 13, 1892. Serial No. 436,437. (No model.)



Claim.—A carriage having a wheel-house to admit the cut under of the front wheels and the front seat or seats having attached thereto a section of the side panel formed to correspond with the wheel-house and provided with jumping-irons upon which said seat may be moved forward and rearward while maintaining a level position, substantially as specified.

482,190. PROCESS OF AND APPARATUS FOR MANUFACTURING WIRE ROPE. AUGUST F. W. PARTE, Philadelphia, Pa. Filed June 20, 1891. Serial No. 396,963. (No model.)



Claim.—1. The process herein described of equalizing the tension and compacting the strands of a wire rope, said process consisting in subjecting the rope to the action of heat while under strain and while maintained in an upright position, substantially as described.

2. The process of equalizing the tension and compacting the strands of a wire rope, said process consisting in subjecting the rope to the action of transmitted heat while said rope is under strain, is maintained in an upright position, and is protected from a flow of air, substantially as described.

3. In an apparatus for heating wire rope, the combination of a furnace, an upright fire-proof tube therein through which the rope to be heated is passed, and mechanism for feeding said rope through the furnace and for imparting tension to the rope, substantially as described.

4. The combination of the upright furnace, the upright fireproof tube therein, inlets and outlets for the passage of the rope to be heated, and a box containing granular material, through which the rope passes into the tube, substantially as described.

5. The process of tempering ropes of steel wire, consisting in passing the rope under tension through an upright furnace, in which it is subjected to a softening heat, and exposing the rope to a blast of air or a spray of water as it emerges from the furnace, substantially as described.

6. The combination of the furnace, the upright chamber therein through which the rope to be heated is passed, a delivery-drum and a receiving-drum for the rope, and a water-spraying device situated between the furnace and the receiving-drum through which water can be forced against the rope, substantially as described.

482,191. EYEGLASS-HOLDER. ERNEST C. PERKINS, Geneva, N. Y. Filed May 2, 1892. Serial No. 431,449. (No model.)



Claim.—1. The combination, with the rigid body and the inner slots therein and the glass-frames mounted thereon, of the levers pivoted in said slots, the guards thereon, and the springs connected to said levers and body.

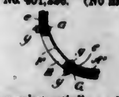
2. The combination, with the slotted body and the finger-levers pivoted thereto, of springs connected thereto and provided with slots in their outer ends and means to adjustably connect said ends to the body.

3. An eyeglass comprising a rigid body, glass-frames adjustably mounted thereon, finger-levers pivoted in said body, nose-guards mounted upon said levers, and springs connected to said levers and adjustably connected to said body, in combination, as set forth.

4. The combination, with the rigid body, of the levers pivoted thereon and projecting above it and the nose-guards mounted adjustably upon the lower ends of said levers.

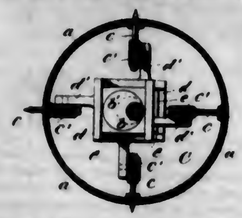
5. The combination, with the rigid body, of the levers pivoted thereon and projecting above it, and the nose-guards mounted adjustably upon said levers, springs connected to said levers and body, and means to vary their tension.

482,192. RICE-SCOURER. SQUIRE A. PICKETT, Crowley, La. Filed July 30, 1891. Serial No. 401,296. (No model.)



Claim.—In a machine substantially as described, the combination of the casing having an opening E and grooved or recessed at *e* along the edges of said opening, the wire-netting fitted over the opening E and inserted at its edges in the groove or recess *e*, the strips fitted in the groove or recess, and the fastening-bolts for such strips, all substantially as and for the purposes set forth.

482,193. FEEDING MECHANISM FOR MACHINERY FOR OPENING, CLEANING, AND PREPARING COTTON. JAMES C. POTTER, Pawtucket, R. I., assignor to the Potter & Atherton Machine Company, same place. Filed June 29, 1892. Serial No. 438,444. (No model.)

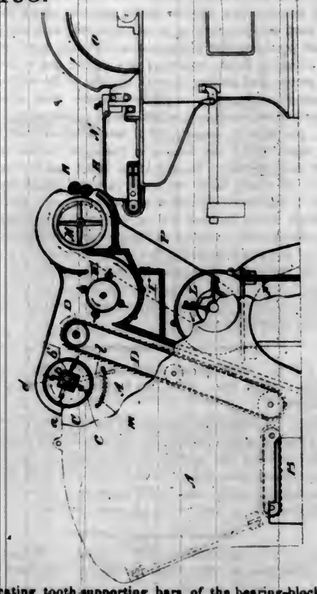


Claim.—1. The combination of the doffer-cylinder, the doffer-teeth, the tooth-supporting bars, the saddles, their sliding blocks, and the stationary eccentrics on which said blocks are mounted, substantially as and for the purpose set forth.

2. The combination, with the lifting-apron, of the doffer-cylinder, the doffer-teeth, the tooth-supporting bars, the saddles, the sliding blocks, the eccentrics on which said blocks are mounted, and the eccentric-carrying shaft adjustable in its bearings, as and for the purposes hereinbefore set forth.

3. The combination, with the doffer-cylinder, the doffer-teeth, and

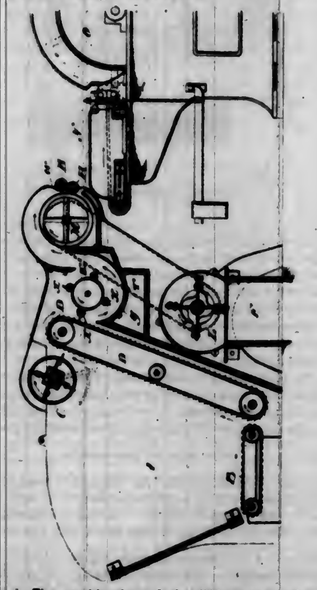
482,193.



the reciprocating tooth-supporting bars, of the bearing-blocks swiveled to the ends of the bars and fitting in radial guide-grooves in the cylinder-heads, substantially as and for the purposes hereinbefore set forth.

482,194. FEEDING MECHANISM FOR MACHINERY FOR OPENING AND PREPARING COTTON. JAMES C. POTTER, Pawtucket, R. I., assignor to the Potter & Atherton Machine Company, same place. Filed June 29, 1892. Serial No. 438,445. (No model.)

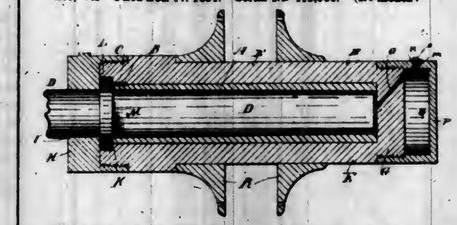
Brief.—The invention resides in the interposition of a condensing-cylinder or revolving cage between the opening mechanism and the lifting-apron for feeding cotton thereto.



Claim.—1. The combination of the lifting-apron, the beater-clearer, the revolving cage, and the stripper-rolls, substantially as herein set forth.

2. The combination, with the cotton-opener and lifting-apron from which cotton is delivered to the opener, of an intermediate revolving cage and means whereby the cotton is delivered from the lifting-apron to the cage and from the cage to the opener, substantially as herein set forth.

482,195. LUBRICATING-HUB. FREDERICK W. RANDOLPH, Raynor, Va. Filed Dec. 17, 1891. Serial No. 415,389. (No model.)

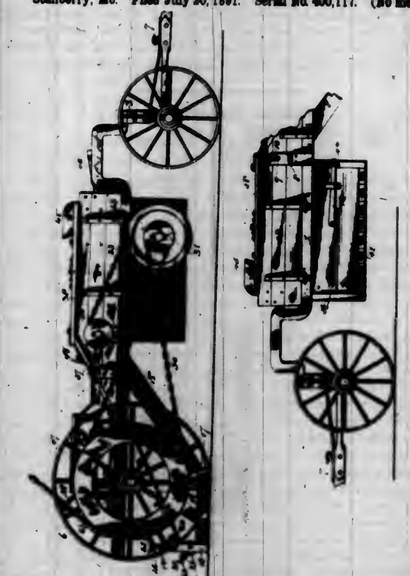


Claim.—1. The combination, with a vehicle-axle, of a lubricating-hub having an open rear end and a solid front end formed in the same piece, the said solid end having an oil-channel extending from its outer edge diagonally through to the inside center thereof and of the front cap secured to the solid end to form an oil-cup, substantially as shown and described.

2. In a self-oiling axle-hub, the combination, with the horizontal portion and the front end formed in the same piece, having an oil-channel extending diagonally therethrough, of the front cap attached to and surrounding the said end, so as to form an oil-cup between the said front end and the cap, with the rear cap adapted to confine the axle to the hub and the spoke-flanges shrunk upon the said horizontal portion, substantially as shown and described.

3. In a self-oiling axle-hub, the front solid end provided with an oil-channel and the front cap secured to the said solid end to form an oil-cup between the said cap and the solid end, combined with the cylinder A and means, substantially such as described, for holding the cylinder in the hub and up to the inner face of the solid end, whereby the said cylinder is continually oiled, as set forth.

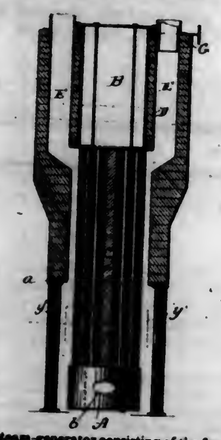
482,196. STREET-SWEEPING MACHINE. SERENO H. RATHBURN, Stanberry, Mo. Filed July 30, 1891. Serial No. 400,117. (No model.)



Claim.—In a street-sweeping machine, the combination, with the frame and supporting-wheels, the conveyer, and means for operating the same, of the dust-receptacle having an opening at its rear end to receive the upper end of the conveyer, a hinged side door, and the bottom consisting of a series of removable transverse bars having their outer ends cut away or recessed, forming shoulders against which the

door abutting when closed and locked, whereby removal of said bars is prevented, substantially as described.

482,197. STEAM-BOILER AND BOILER-FURNACE. SEBASTIAN RUMMEL, Sharon, Pa. Filed Apr. 26, 1892. Serial No. 430,764. (No model.)



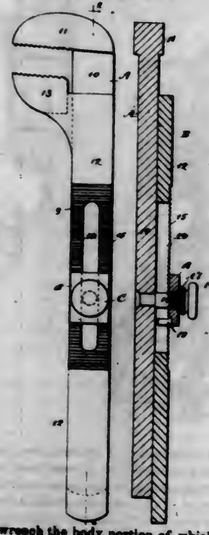
Claim.—1. A steam-generator consisting of the flue or boiler space provided with a steam and mud drum and flues, said space being formed by suitable brickwork, a series of columns, and a metal ring interposed between the columns and the brickwork, substantially as described.

2. In combination, a furnace made up of brickwork, columns supporting said brickwork, a mud-drum located within the space inclosed by the columns, and brickwork between the columns, substantially as described.

3. In combination with the boiler-space, a mud-drum located below the line of the heat-opening, a series of flues extending therefrom and connected with the steam-drum, and a central partition-wall extending from the mud-drum to the bottom of the steam-drum, substantially as described.

4. In combination with a mud-drum and steam-drum and intermediate flues, a contracted space through which the tubes pass, an exit-flue from said space passing around the steam-drum, and dampers located in the upper ends of said flues, substantially as described.

482,198. WRENCH. JOHN RYAN, New York, N. Y. Filed July 13, 1892. Serial No. 439,887. (No model.)



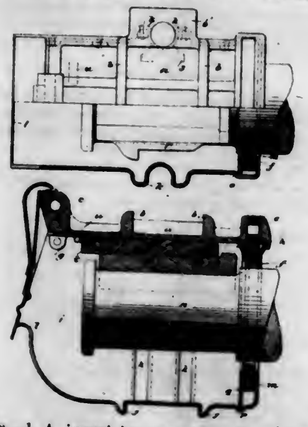
Claim.—1. A wrench the body portion of which consists of two sections, a fixed and a sliding section, the fixed section comprising a shank and an upper jaw, and the sliding section a shank held to slide upon the fixed section, carrying at its upper end the lower jaw of the wrench and provided with a longitudinal slot and teeth around said slot, and a locking device consisting of a pin turning in the shank of the fixed section and passing through the slot of the sliding section, and a toothed locking-plate engaging with the teeth of the sliding section and carried by the pin, substantially as described.

2. A pipe-wrench constructed in two body-sections, each comprising a shank and a jaw formed at the upper portion thereof, the upper jaw being formed at the top of its shank and the lower jaw at the side of its shank below the upper jaw, the shank carrying the lower jaw being provided with a slot and the outer surface of the slotted shank being toothed, and a locking device consisting of a toothed locking-plate engaging with the toothed surface of the shank of the lower jaw and provided with a threaded aperture, a pin loosely mounted in the unslotted shank and passed through the slot in the sliding shank and through the aperture in the locking-plate, that portion of the pin being threaded, and means for turning the pin, substantially as shown and described.

482,199. PROCESS OF FINISHING LEATHER. JOHN SANSENBACHER, Canfield, Ohio. Filed May 7, 1892. Serial No. 432,182. (No specimens.)

Claim.—The process for finishing leather, consisting of heating the same in a stuffing-wheel, adding the above-described heated stuffing compound, rotating the stuffing-wheel containing the leather and heated compound, removing the leather and stoning the leather while warm, cooling the leather, and finally applying a heated stuffing compound, substantially as and for the purpose specified.

482,200. CAR-JOURNAL BOX. CHARLES T. SCHORR, Allegheny, Pa. Filed Mar. 28, 1892. Serial No. 426,736. (No model.)



Claim.—1. A journal-box comprising an independently-constructed top of suitable material and formation, combined with a body of wrought metal, such as pressed steel, made separate from the top and composed of sides, bottom, a rear wall, and a front lip made integral and fitted and secured to such top, substantially as described.

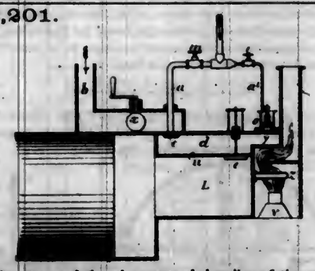
2. A journal-box comprising a top having a groove in its under side and downwardly-projecting lugs, combined with a body struck up from wrought metal, having its edges fitted in said grooves and fastened to said lugs, substantially as described.

3. In a journal-box, a wrought-metal body provided with lateral shoulders *o* and a bottom groove *p*, combined with a partition-plate *q*, fitted therein, to separate off or form in the rear of the box a compartment for the reception of the dust-guard, substantially as described.

482,201. OIL-MOTOR ENGINE. HERMANN SCHUHM, Cologne-Deutz, Germany, assignor to the Gas-Motoren-Fabrik-Deutz, same place. Filed Feb. 27, 1892. Serial No. 423,087. (No model.) Patented in Belgium Jan. 7, 1892, No. 97,835, and in Italy Feb. 3, 1892, LXI, 92.

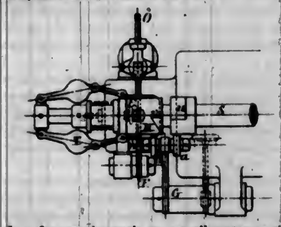
Claim.—In a petroleum or oil motor engine, the combination, with a vaporizing-chamber on the explosion-chamber of the engine, of an automatic valve *e*, which closes auxiliary air and oil supply passages *q* and *r*, a stop-cock *m* for closing the ordinary oil-supply pipe *a*, a valve for closing the ordinary air-supply passage *b*, an auxiliary oil-supply

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pipe *a'*, with stop-cock *i*, and an extended wall *y* of the vaporizing-chamber heated by a lamp, so that for starting the engine the valves *m* and *x* are closed while valve *i* is opened, so as to admit oil and air through the valve *e* to the heated part *y* of the vaporizing-chamber, and thus form a heated explosive charge that passes through valve *e* into the explosion-chamber, substantially as described.

482,202. GAS OR OIL MOTOR ENGINE. HERMANN SCHUHM, Cologne-Deutz, Germany, assignor to the Gas-Motoren-Fabrik-Deutz, same place. Filed Mar. 7, 1892. Serial No. 424,055. (No model.) Patented in Belgium Feb. 27, 1892, No. 96,539; in Italy Mar. 19, 1892, LXI, 384, and in Spain Mar. 26, 1892, No. 12,074.



Claim.—In a four-stroke cycle gas or oil motor engine, the combination, with the ordinary cam, such as *u*, for opening the discharge-valve during the expelling-stroke, of two cams, such as *v* and *w*, that are controlled by the engine-governor, of which the one cam *v*, which is formed with a sloping face on its following side, so as to have a variable dwell, is also made to act upon the discharge-valve so as to hold it open for a longer or shorter space of time during the first part of the suction-stroke, while the second cam *w*, which is formed with a sloping face on the leading side, acts upon the inlet valve or valves for the explosive charge of the cylinder, also with a variable dwell, so as to open this or these as soon as the before-mentioned cam allows the discharge-valve to close and to hold it or them open until the end of the suction-stroke, substantially as described.

482,203. AUTOMATIC SIGNAL DEVICE FOR RAILROADS. BYRON SHOEMAKER and JUDSON SHOEMAKER, St. Louis, Mo. Filed Jan. 6, 1892. Serial No. 417,184. (No model.) Patented in Canada Feb. 12, 1892, No. 33,263.

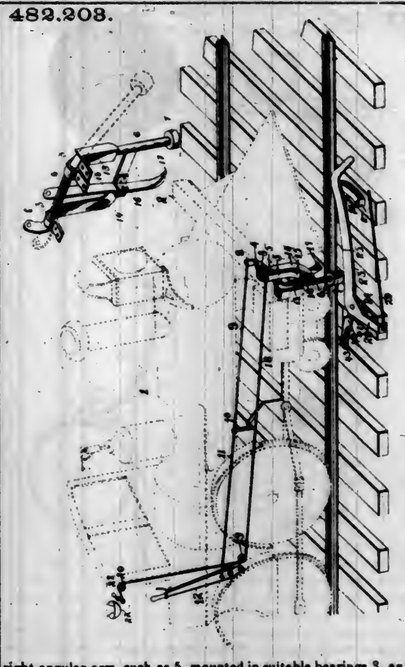
Claim.—1. In an automatic signaling device for railroads, the combination, with the locomotive, of a rocking arm comprising a horizontal bearing portion and a vertical portion projecting normally downwardly at the side of the locomotive, and means connecting said rocking arm with the locomotive reversing-lever, whereby said arm is actuated by the latter, substantially as and for the purpose set forth.

2. In an automatic signaling device for railroads, the combination, with a locomotive, of a rocking arm mounted thereon and comprising a downwardly-projecting member, mechanism for connecting said arm with the locomotive reversing-lever, and a local alarm-lever carried by said arm and adapted to be simultaneously thrown out of operation therewith, substantially as and for the purpose set forth.

3. An automatic signal device for railroads, consisting of an arm 5, suitably mounted in bearings and adapted to be attached to the front of the locomotive, a friction-wheel 7, carried by said arm, a curved brace 14, also secured to said arm, a lever 15, movably secured to said brace, having a wedge-shaped lower end 17, a rope or cord 18, attached to the upper end of said lever, leading to and connected to an alarm in the cab of the locomotive, a rod attached to the said arm 5 and connected to the reversing-lever on the locomotive, levers secured to the cross-ties and adapted to be moved by the said roller, and suitable wires leading to and connected with a shaft for operating or elevating an arm, substantially as described.

4. An automatic signal device for railroads, consisting of a

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right-angular arm, such as 5, mounted in suitable bearings 3, an arm, such as 8, attached to or formed with the arm 5, a rod 9, movably attached to the said arm 8 and also attached to the lever 10, for operating the link upon the locomotive, a second rod, such as 11, attached to the said arm 10 and also to the reversing-lever 12 upon the locomotive, a brace, such as 14, a lever, such as 15, movably secured to said brace, having a wedge-shaped lower end 17, a cord or rope, such as 18, attached to the upper end of said lever and passed over suitable rollers and also attached to the clapper 21 of the gong 32 for sounding an alarm, and a system of levers arranged to one side of the track-rails for operating or rotating suitable shafts, such as 40, substantially as described.

482,204. PRINTING-PRESS. WALTER SCOTT, Plainfield, N. J. Filed Sept. 11, 1891. Serial No. 405,269. (No model.)

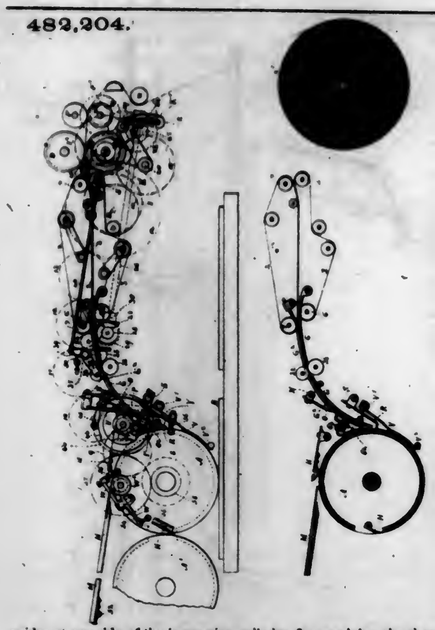
Claim.—1. The combination, in a two-revolution perfecting-press having two impression-cylinders, of feeding, cutting, and forwarding mechanism for supplying sheets from a roll, and a curved and downwardly-inclined table or guides at the downwardly-moving side of the impression-cylinder, whereby the sheets are passed to the impression-cylinder directly from the curved surface, substantially as set forth.

2. The combination, with the impression-cylinder of a printing-press, of a feed-board for hand-feed above the impression-cylinder, means for supplying and cutting sheets automatically, a table or guides at one side of the impression-cylinder, over which the automatically-supplied sheets pass downwardly to the impression-cylinder, and forwarding-rolls for regulating the passage of the sheet over the said guides or table to the impression-cylinder, substantially as set forth.

3. The combination, with the impression-cylinder of a printing-press, of a feed-board for hand-feed above the impression-cylinder, feed-rolls and changeable gearing for varying the length of sheet supplied, cutters for perforating or separating the sheets, a table or guides at one side of the impression-cylinder, over which the automatically-supplied sheets pass downwardly to the impression-cylinder, and forwarding-rolls for regulating the passage of the sheets over said guides or table to the impression-cylinder, substantially as set forth.

4. The combination, with an impression-cylinder and its grippers of a printing-press, of forwarding belts or rolls, cutters for perforating or separating the web, feed-rolls and changeable gearing for varying the speed of the feed-rolls and the length of paper fed in for each sheet, eccentric gears or their equivalents for giving to the cutters or perforators a speed corresponding, or nearly so, to that of the paper at the time such paper is cut or perforated, gearing connecting the feed-rolls, and forwarding-rolls, whereby the latter are caused to move at the same or nearly the same speed as the sheets of paper, and a table or

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guides at one side of the impression-cylinder for supplying the sheets in a downward direction to such impression-cylinder, substantially as set forth.

5. The combination, with the impression-cylinder and its grippers, of a feed-board and gages adapted to sheets supplied by hand, a table or guides extending from the impression-cylinder at one side thereof, automatic feeding and cutting mechanism for supplying sheets from a roll of paper, and changeable mechanism for operating the grippers to take the sheet as the same is fed by hand or automatically, substantially as set forth.

6. The combination, in a two-revolution perfecting-press having two impression-cylinders, of feeding, cutting, and forwarding mechanism for supplying the sheet from a roll, a curved and downwardly-inclined table or guides at the downwardly-moving side of the impression-cylinder, and a feed-board at the upper part of the same impression-cylinder, substantially as set forth.

7. The combination, with the impression-cylinder and its grippers, of an inclined table or guides at the downwardly-moving side of the impression-cylinder, a forwarding-roll for moving the paper down the inclined table or guides, fingers acting upon the paper to steady the same and to check its movement down the table, and mechanism for bringing the fingers and forwarding-roll into action, substantially as set forth.

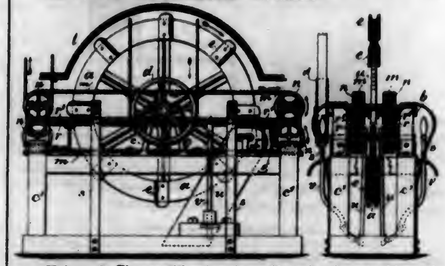
8. The combination, with the impression-cylinder and the automatic feeding mechanism, of a downwardly-inclined and curved table or guides for pressing the sheet in a curved condition against the downwardly-moving side of the impression-cylinder to be taken by the grippers thereof, substantially as set forth.

9. The combination, with the impression-cylinder and grippers of a printing-press, of a table or guides extending out from one side of such impression-cylinder, forwarding tapes or belts and their rollers, feed-rolls, and cutting or perforating cylinders, changeable gearing for varying the speed of the feed-rolls, gearing connecting the feed-rolls and the rolls for the belts for driving the latter at the same or nearly the same speed as the feed-rolls, a pair of forwarding-rolls, and mechanism, substantially as specified, receiving its motion in harmony with one of the cutting-cylinders for bringing the forwarding-rolls into action in harmony with the cutting devices, substantially as set forth.

10. The combination, with the impression cylinder and its grippers, of a downwardly-inclined table or guides at the downwardly-moving side of the impression-cylinder, feeding and cutting mechanism, the gages R for the advancing end of the sheet, contiguous to the impression-cylinder, fingers acting against the paper to steady the same upon the table, and mechanism for moving the fingers and the gages, substantially as set forth.

11. The combination, in a printing-press, with the revolving impression-cylinder and its grippers, of a feed-board for hand-fed above the impression-cylinder, automatic mechanism for supplying sheets, and a downwardly-inclined table or guides at the downwardly-moving side of the impression-cylinder and over which the automatically-supplied sheets pass, substantially as set forth.

482,205. MACHINE FOR PREPARING FIBER. HAROLD SERRELL, New York, N. Y., administrator of Isidoro Villamor, deceased. Filed Jan. 18, 1892. Serial No. 418,202. (No model.)



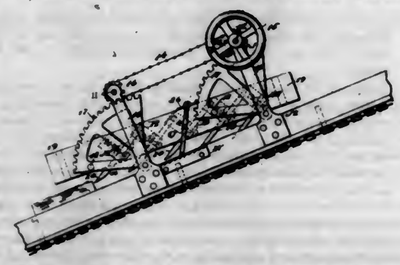
Claim.—1. The combination, in a fiber-cleaning machine, of a revolving wheel having radial or nearly radial knives or scrapers secured to the face of the same, a presser-board pivoted near the upper end thereof where the bank of fiber is supplied, said board being inclined in the direction of the scraping action, so that the fiber is spread out as scraped by the knives, and a lever for moving the lower end of the presser-board toward the scraping-wheel, substantially as specified.

2. The combination, in a fiber-cleaning machine, with a revolving wheel having knives or scrapers, of a scraping-board over which the fibers are drawn as they are cleaned, the feeding and holding belts that receive the leaves between the straight portions thereof and hold such leaves at one end while the other ends are being cleaned, substantially as specified.

3. The combination, in a fiber-cleaning machine, with a revolving wheel having knives or scrapers, of a scraping-board over which the fibers are drawn as they are cleaned, the feeding and holding belts between which the leaves are supplied and by which they are held at at one end while the other ends are being cleaned, and mechanism, substantially as set forth, for applying pressure to the straight portions of said belts to cause them to grip the fiber firmly, substantially as specified.

4. The combination, in a fiber-cleaning machine having a revolving wheel and scrapers, of a scraping-board over which the fibers are drawn as they are cleaned, feeding and holding belts, and yielding supports between which such belts pass for retaining the fibers that are supplied between the chain as they are cleaned, substantially as specified.

482,206. PLANER FOR ICE-ELEVATORS. WILLIAM H. M. SMITH, Brooklyn, N. Y. Filed Dec. 22, 1891. Serial No. 415,853. (No model.)



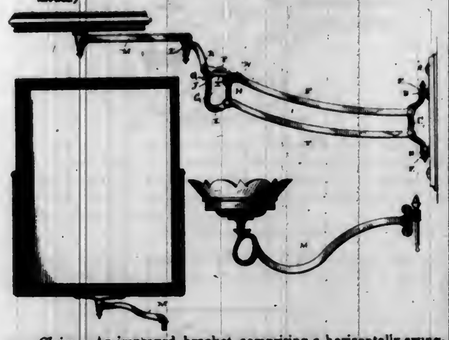
Claim.—1. In an ice-planer, the combination, with an elevator, of a planer-body held at an inclination above the elevator and provided with several series of knives one in rear of the other, the knives of the several series being in alignment, means for adjusting the inclination of the planer-body, and means for locking it in the position to which it has been adjusted, substantially as described.

2. In an ice-planer, the combination, with supports, of segmental racks pivoted to said supports, a planer-body secured to the said racks, pinions meshing with said racks, and means for operating the pinions, substantially as described.

3. In an ice-planer, the combination, with supports, of segmental racks pivoted to said supports, a planer-body secured to the racks, pinions meshing with the racks, sprocket-wheels on the shafts of the pinions, chain belts passing over the sprocket-wheels, and a crank on one of the pinion-shafts, substantially as described.

4. In an ice-planer, the combination, with an elevator, of pivoted segmental racks, a planer-body secured to the racks, pinions meshing with said racks, means for operating the pinions, racks secured to the elevator, and pawls pivoted to the planer-body and engaging the racks on the elevator, substantially as described.

482,207. ADJUSTABLE SWINGING BRACKET. NELSON R. STREETER, Groton, N. Y. Filed Jan. 26, 1892. Serial No. 419,219. (No model.)



Claim.—An improved bracket comprising a horizontally-swinging head, parallel arms pivoted at their inner ends one above the other to swing vertically, a combined hand-piece and support consisting of an inner and outer vertical portion, upper and lower horizontal portions connecting the ends of the vertical portions, and a supporting-arm extending upward and outward therefrom, the outer ends of said arms pivoted to the said inner vertical portion, the upper arm having serrations above and inside of its pivotal point, a pawl pivoted at the upper outer corner of the said hand-piece and in a plane above the pivotal point of the upper arm, the inner end of the pawl extending inside of the pivotal point of the said arm, whereby the said hand-piece must be raised before the pawl can be released, the said outer vertical portion forming a hand-piece, and a depending handle upon the outer end of the pawl, whereby it is convenient to be operated by the thumb, substantially as specified.

482,208. CHARM OR LOCKET. AUGUST L. TETAZ and LEOPOLD C. HACHEN, Chicago, Ill. Filed May 20, 1892. Serial No. 433,666. (No model.)

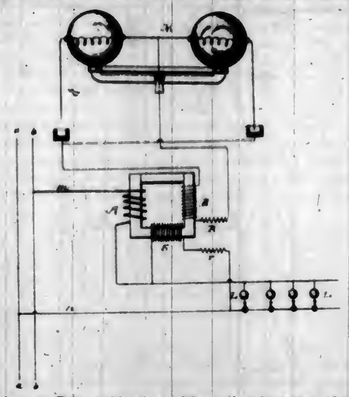


Claim.—1. The combination, with two hemispherical shells divided by a meridian plane and provided with polar projections also divided by said meridian plane, of a hinged joint connecting the two parts of one of said projections and a locking device connecting the parts of the other of said divided polar projections, substantially as specified.

2. The combination, with two hemispherical shells divided by a meridian plane and provided with a long and a short polar projection, whereof the latter is entirely divided by said meridian and whereof said other projection is only partly divided by said plane and cut transversely to said meridional cut, of a thread and nut on said latter projection, substantially as specified.

3. The combination, with two hemispherical shells representing the earth, having raised portions to represent land, whereof the remaining depressed portions represent water and which are filled with blue enamel, and each provided on its interior with images in relief, of divided polar projections, whereof one is provided with a hinge-joint and the other with a locking device adapted to connect the parts of said divided polar projection, substantially as specified.

482,209. INDUCTION-COIL FOR ELECTRIC METERS. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Mar. 5, 1889. Serial No. 301,910. (No model.)



Claim.—1. The combination, with an electric meter, of coils or conductors tending to help one another and placed, respectively, in derivation to the work and in circuit with the work and a third coil or conductor inductively related to the other two and supplying the current which causes the operation of the meter, as and for the purpose described.

2. The combination, on the same iron core, of three coils, one of few turns carrying current in direct proportion to the current to be measured, a second carrying current in derivation to the work and tending to help the first, and a third connected to a separate circuit and being the seat of currents induced by the other two for operating upon the meter.

3. The combination, substantially as described, of three coils inductively related to one another and connected, respectively, as described, one into the main circuit with the work, a second into a derived circuit around the work and adapted to help the first, and a third into the the circuit with an electric meter for measuring the current consumed in the work.

4. The combination, substantially as described, of a meter-circuit, a main-circuit coil in inductive relation to the same and in series with the work, and a helping high-resistance circuit in a branch around the work at the point of consumption and also in inductive relation to the meter-circuit, as and for the purpose described.

5. The combination, with constant-potential mains feeding a translating device or devices requiring a variable amount of energy, of a coil or conductor in the circuit through which the energy consumed passes, a helping coil or conductor of practically constant effect, and a separate meter-circuit in inductive relation to the first two, as and for the purpose described.

482,210. MACHINE FOR TAPER-TURNING. WILLIAM W. TUCKER, Hartford, Conn. Filed July 13, 1891. Serial No. 399,432. (No model.)

Claim.—1. In a taper-turning mechanism, the combination, with the lathe-spindle and with a fixture-stock arranged to move parallel with the axis of said spindle, of the spring-actuated slide in said stock and fitted to carry one end of the piece to be turned, the cutter-slide mounted on the fixture-stock crosswise to the line of movement thereof, and a guide-block inclined to the line of movement of the fixture and engaging the cutter-slide, whereby the cutter is moved laterally of the fixture during the longitudinal movement thereof, substantially as described.

2. In a taper-turning mechanism, the combination, with the fixed stock having the sleeve 10, of the slide in said sleeve fitted to support the piece to be turned, the spring actuating said slide, and a stop limiting the outward movement of the slide, substantially as described.

3. In a taper-turning mechanism, the combination, with the fixed stock constructed, substantially as described, for carrying the work-supporting slide, of the cutter-carrying slide L, the cutter-holder shiftably supported, substantially as described, on said slide and provided with two cutters, and a holder-lock for locking said holder in successive positions, substantially as described.

4. In a taper-turning mechanism, the combination, with the fixed stock carried by the carret and constructed, substantially as described, to carry the guide-slide, of the guide-slide, the cutter-slide, the spring normally moving said cutter-slide to bring the cutter toward the piece to be turned, a stop limiting said movement, and a guide-bracket having two guide-grooves, one parallel to the longitudinal line of move-

ment of the fixture and engaging the fixed stock and the other inclined to said line of movement and engaging the cutter-slide, substantially as described.

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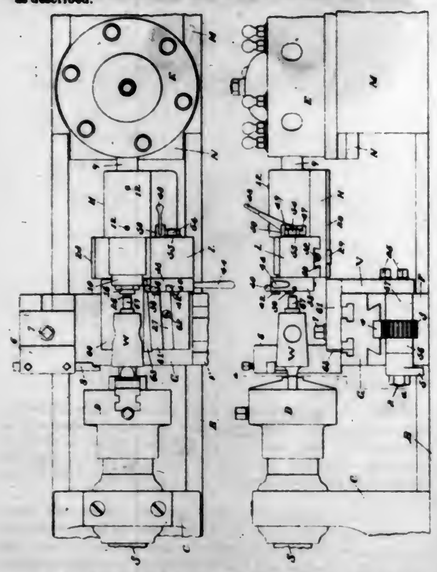
482,213. PROCESS OF REDUCING UNSMELTED ORES. JACOB T. WAINWRIGHT, Chicago, Ill. Filed Feb. 28, 1891. Serial No. 383,188. (No model.)

shaft and having its opposite end secured to the remaining seat-section, substantially as specified.

4. In a combined walking-stick and seat, the combination, with the lower base-supports and the upwardly-diverging seat-supporting standards provided with opposite semicircular grooves longitudinally disposed, one of which is provided at its lower end with a cavity, of the brace pivoted in the lower end of one of the grooves and at its free end adapted to take into the cavity, substantially as specified.

5. In a combined walking-stick and seat, the combination, with the three leg-standards pivoted together, one of which is slightly longer than the remaining two and terminates at its lower end in a

ment of the fixture and engaging the fixed stock and the other inclined to said line of movement and engaging the cutter-slide, substantially as described.



5. In a taper-turning mechanism of the class specified, the combination, with the fixed stock and with the cutter-slide movable crosswise of said stock, of the rotatable cutter-holder mounted on said slide, two cutters mounted in said holder, means for separately adjusting said cutters, a holder-locking bolt carried in the slide and engaging the holder, and means for withdrawing said bolt, substantially as described.

6. The combination, with a cutter-holder, substantially as described, of the cutters 36 and 40, means clamping said cutters in place, means, substantially as described, for adjusting said cutter 36, the screw 43, and the intermediate thrust-rod passing to one side of the cutter 36 and engaging the cutter 40 for adjusting the same, substantially as described.

7. In a taper-turning mechanism, the combination, with a fixture, substantially as described, of the fixed guide-block 60, fitted to engage the guide 28 of said fixture, and the adjustable guide-block 61, fitted to engage the cutter-slide of the fixture, and a pattern-wedge controlling the position of the adjustable guide-block, substantially as described

8. The combination, with the fixed stock H, having the hollow shank 9, of the forwardly-projecting sleeve 10, the slide 13, having the hollow stem 18, the spring 17, outside of said stem and extending within the hollow shank 9, and a rod, substantially as described, limiting the forward movement of the slide and extending into said hollow stem, substantially as described.

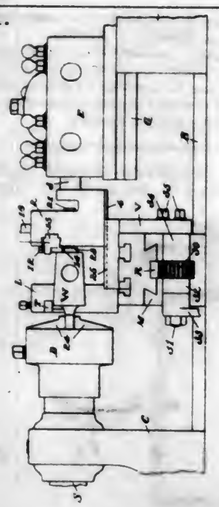
482,211. MACHINE FOR MILLING PLUG-VALVES. WILLIAM W. TUCKER, Hartford, Conn. Filed July 13, 1891. Serial No. 399,483. (No model.)

Claim.—1. The combination, with a suitable holder or stock having a guide for the piece to be milled, of the cutter-slide fitted to move crosswise of said guide at one side thereof, a cutter fixed on said slide slightly inclined to the line of movement thereof, and means actuating the slide, substantially as set forth.

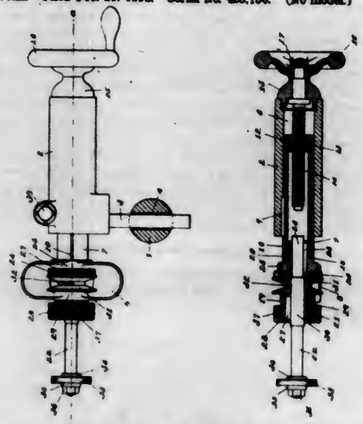
2. The combination, with a holder or stock substantially as described, of the removable guide-bushing, the cutter-slide, the cutter set inclined on said slide, means for adjusting the cutter on the cutter-slide, a shaft geared to the cutter-slide and journaled in said holder, and means for revolving the shaft by hand, substantially as set forth.

3. The combination, with the spindle-chuck and turret of a turret-lathe, of the guide-bracket having the guide-slot therein, the milling-tool holder fixed in the turret and having the guide constructed to enter and slide in said guide-slot and constructed, substantially as described, to support the piece to be milled, a sliding cutter carried by said holder, and means for actuating said cutter in a direction crosswise to said guide-slot, all substantially as set forth.

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482,212. GRINDING-FIXTURE. WILLIAM W. TUCKER, Hartford, Conn. Filed Feb. 29, 1892. Serial No. 423,156. (No model.)

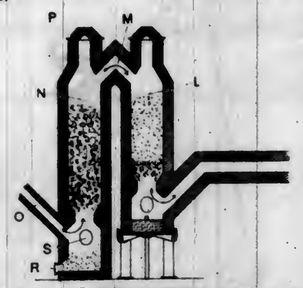


Claim.—1. In a fixture of the class specified, the combination, with a holder and with a carrier, substantially as described, having a tubular stem fitted to slide in the holder, the bore of said stem at the forward end thereof being tapered substantially as described, of the spindle, the adjustable outer bearing for the spindle, the adjustable inner bearing 20, fitting in the tapered portion of said bore, and means, substantially as described, for adjusting said bearing 20 within the tubular stem, substantially as set forth.

2. In a fixture of the class specified, the combination, with the holder and with the sliding spindle-carrier having the hollow stem 7 fitted to slide in the holder, of the spindle, the conical bearing 20, having its larger end within the bore of the stem, the nut 24, engaging the smaller end of said bearing for adjusting the same, the removable carrier-actuating nut 12, and a screw engaging the nut 12 for sliding the spindle-carrier, whereby the carrier may be actuated and on removal of the nut 12 the bearing 20 may be removed through the tubular stem of said carrier, substantially as described.

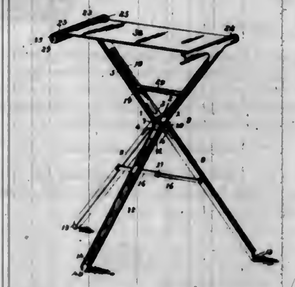
3. In a fixture of the class specified, the combination, with the carrier 8, having the hubs 29 and 25, and the tubular stem 7, fitted to receive a tapered bearing, of the bearings 21 and 20, fitting within said hubs, respectively, the spindle supported in said bearings, the driving-wheel fixed on the spindle, the nut 24 for adjusting the bearing 20, the ring 28 for adjusting the bearing 21, and means for supporting and actuating the carrier, substantially as shown and described.

482,213. PROCESS OF REDUCING UNSMELTED ORES. JACOB T. WAINWRIGHT, Chicago, Ill. Filed Feb. 23, 1891. Serial No. 382,188. (No model.)



Claim.—In the art of reducing unsmelted or partly-smelted ore, the improved method of operation, which consists in generating gases at successionally-increasing temperature, passing these gases downward through ore, and maintaining this ore in an unreplenished condition, substantially as set forth.

482,214. COMBINED CANE AND STOOL. CHARLES WALLIS and ROBERT MADER, Bay City, Mich. Filed Apr. 23, 1892. Serial No. 430,387. (No model.)



Claim.—1. In a combined walking-stick and seat, the opposite diverging and folding standards terminating at their upper ends in hollow handle-sections forming seat-supports, one of said handle-sections being provided with end walls having central bearings and one of the end walls being provided with a countersunk polygonal recess, a shaft journaled in the bearings, a head or knob mounted for reciprocation on the shaft and having at its inner side a polygonal boss designed to fit the recess, a spring for normally maintaining said boss in the recess, means for locking the boss out of engagement with the recess, and a seat secured to the shaft, adapted to be wound thereon and having its opposite end secured to the opposite handle-section, substantially as specified.

2. In a combined walking-stick and seat, the opposite diverging and folding standards terminating at their upper ends in hollow handle-sections forming seat-supports, one of said handle-sections being provided with end walls, one of which has an angular cavity, and each of said end walls having bearings, a shaft journaled in the bearings and extending beyond that end wall having the cavity, a knob mounted non-rotatably upon the extended end of the shaft and adapted for reciprocation, a projection on the inner side of the knob for engaging the cavity, means for locking the knob out of engagement with the cavity, and a flexible seat wound upon the shaft and connected at its opposite end to the opposite seat-section, substantially as specified.

3. In a combined walking-stick and seat, the combination, with the upwardly-diverging seat-standards terminating in the semi-cylindrical hollow seat-sections, one of which is provided with opposite heads having bearings, the head at one end having a countersunk polygonal recess surrounding its bearing, of a shaft mounted in the bearing and extending beyond the polygonal recess, a knob mounted non-rotatably upon the extended end of the shaft and provided at its inner side with a surrounding annular boss adapted to fit the recess and at its front side with a circular recess in which the end of the shaft terminates in a head, a coiled spring mounted on the shaft between the inner end of the recess of the knob and the head of the shaft, an L-shaped recess formed in the front face of the knob at one side of the shaft, an L-shaped pin mounted therein and adapted to be projected into the path of the shaft, and a flexible seat secured to the shaft and having its opposite end secured to the remaining seat-section, substantially as specified.

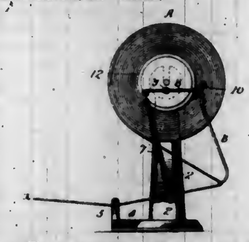
4. In a combined walking-stick and seat, the combination, with the lower base-supports and the upwardly-diverging seat-supporting standards provided with opposite semicircular grooves longitudinally disposed, one of which is provided at its lower end with a cavity, of the brace pivoted in the lower end of one of the grooves and at its free end adapted to take into the cavity, substantially as specified.

5. In a combined walking-stick and seat, the combination, with the three leg-standards pivoted together, one of which is slightly longer than the remaining two and terminates at its lower end in a lower cylindrical portion, of a ring mounted on the cylindrical end of the lower standard and provided at one side with a recess or cut-away portion adapted to be brought opposite the lower ends of the remaining standards, whereby they may be liberated, substantially as specified.

6. In a combined walking-stick and seat, the combination, with the two leg-standards 8, quadrant-shaped in cross-section, and the semicylindrical leg-standard 12, hinged together at their upper ends, and the latter standard being provided with a lower cylindrical end slightly reduced, of a ferrule and a ring mounted above the ferrule on the cylindrical end and provided with a cut-away side or upper edge, substantially as specified.

7. In a combined walking-stick and seat, the metal sections crossed and terminating in upper and lower sockets, the upper sockets being semicylindrical and the lower sockets quadrant-shaped, a metal block, a pivot-pin passed through the same, and a semicylindrical socket hinged to the lower end of the block, seat standards mounted in the upper sockets, a seat supported thereon, and leg-standards located in the lower sockets, and means for locking the legs together, substantially as specified.

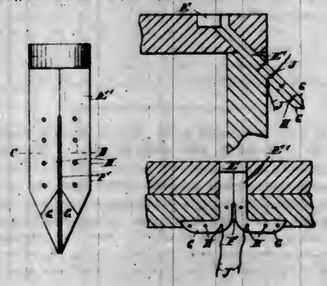
482,215. THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES. SIMON W. WARDWELL, Jr., Boston, Mass. Filed Feb. 26, 1892. Serial No. 422,921. (Model.)



Claim.—1. The combination, with the sewing-machine and with the thread take-up thereof, of a spool or cop containing the thread, substantially frictionless bearings for the said spool, a movable controller having a bearing for the thread between the spool and the take-up and supported to move in one direction under the draft upon the thread, and means for positively swinging the controller in the opposite direction and causing it to draw the thread from the spool, substantially as set forth.

2. The combination, in a thread-controlling device, of a spool or cop, substantially frictionless bearings therefor, a swinging controlling-arm having a bearing for the thread and supported to move in one direction under the draft of the thread, and a spring arranged to swing the arm in the other direction and cause it to draw the thread from the spool, as set forth.

482,216. SEALING DEVICE. LUDWIG WURSBURG, London, England. Filed Dec. 2, 1891. Serial No. 413,816. (No model.) Patented in England June 6, 1891, No. 9,633.



Claim.—1. As an improved article of manufacture, the nail for use in sealing boxes, &c., the same having a split shank whose lower portion is provided with one or more transverse apertures adapted to receive a sealing wire or cord, as shown and described.

2. The combination of two or more flanged nails having the lower ends of their shanks split and perforated, as described, with cords or their equivalents connecting the perforated portions of adjacent nails, substantially as described.

482,217. SWING. CORNELIUS CLARK ALEXANDER and ISAAC ZOOK ALEXANDER, Hartford City, Ind.; said Isaac Zook Alexander assignor to William J. Alexander, same place. Filed Feb. 4, 1892. Serial No. 420,340. (No model.)

482,218.

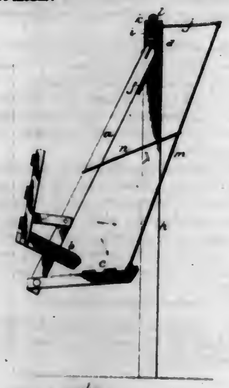
482,220. TRAIN-ORDER CATCHER. EDWARD C. BARNEY, New Bloomfield, Pa. Filed Mar. 1, 1892. Serial No. 423,363. (No model.)

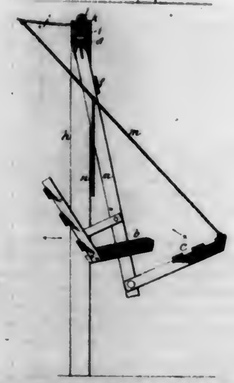
482,222. COMBINATION-LOCK. GEORGE L. BARNEY, Indianapolis, Ind. Filed Apr. 29, 1892. Serial No. 431,175. (No model.)

Claim.—1. As an improved article of manufacture, the nail for use in sealing boxes, &c., the same having a split shank whose lower portion is provided with one or more transverse apertures adapted to receive a sealing wire or cord, as shown and described.

2. The combination of two or more flanged nails having the lower ends of their shanks split and perforated, as described, with cords or their equivalents connecting the perforated portions of adjacent nails, substantially as described.

482,217. SWING. CORNELIUS CLARK ALEXANDER and ISAAC ZOOK ALEXANDER, Hartford City, Ind.; said Isaac Zook Alexander assignor to William J. Alexander, same place. Filed Feb. 4, 1892. Serial No. 420,340. (No model.)





Claim.—1. In a swing, the combination, with the suspending-bars and the foot-rest pivoted thereto, of an overhead spring-arm having a fixed relation to the swing and a flexible connection with the free end of the foot-rest, for the purpose stated.

2. In a swing, the combination, with the suspending-bars and a pivoted foot-rest, of an overhead spring-arm, a clamp-holder therefor, whereby said arm may be secured in fixed position to the front or to the rear of the swing, and a flexible connection for said spring-arm and the foot-rest, for the purpose stated.

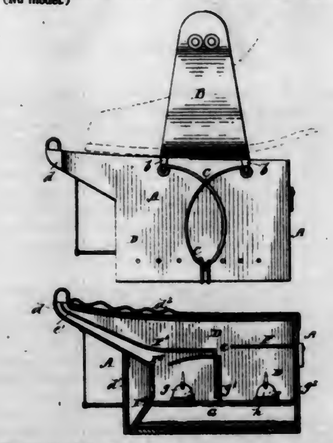
3. In a swing, the combination, with the fixed pintle-brackets *c e* and the seat-suspending bars having eyes *d d* for engaging said pintle-brackets, of a latch-bar *f*, pivoted at one end to one of said suspension bars and standing across and engaging the other of said suspension-bars, whereby to secure said suspension-bars and permit their removal from said pintle-brackets, substantially as described.

482,218. SWINGING GATE. MARTIN ANDERSON, Henderson Station, Ill. Filed Apr. 26, 1892. Serial No. 430,515. (No model.)

Claim.—The combination of a swinging gate having its inner end bar extended vertically and provided at the upper end with a horizontal bar disposed at an angle to the gate, the inclined supporting-bars arranged at each side of the gate and extending upward and outward, the operating-ropes arranged in pairs and extending in opposite directions from the gate, each pair having its outer ends supported by an inclined bar and having its inner ends secured to the horizontal bar at opposite ends thereof, the pivoted latch-bar mounted on the gate and provided at its inner end with a weight, and the latch-ropes arranged in pairs at each side of the gate and having their lower ends secured to the latch-bar and their upper ends attached to the operating-ropes, substantially as described.



482,219. COMBINED STIRRUP-LANTERN AND FOOT-WARMER. THOMAS F. BAIRD, Gasburg, Va. Filed May 2, 1892. Serial No. 431,516. (No model.)

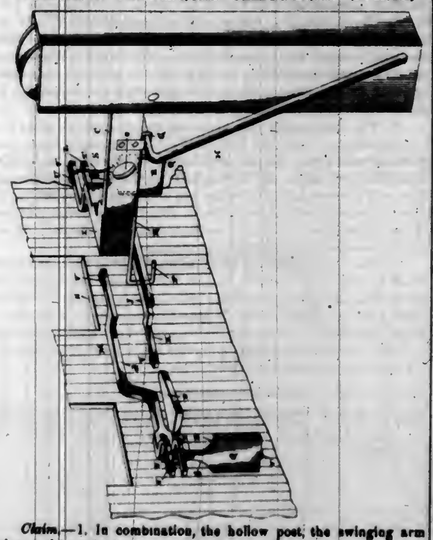


Claim.—1. The combination of a riding-stirrup, a lantern-case, and a removable reservoir-lamp having two burners, and a vertical partition between the said burners, whereby the combined stirrup-lantern and foot-warmer can be used alternately as a lantern or foot-warmer, or as a foot-warmer and lantern at the same time, substantially as described.

2. The combination of a riding-stirrup, a lantern-case formed with a forwardly-extending chimney portion upon which the foot of the rider is adapted to rest, and a removable reservoir-lamp having two burners and a vertical partition between the burners, the front surface of the said partition being silvered or polished to form a reflector, substantially as described.

3. The combination of a riding-stirrup, a lantern-case roughened on its top surface and formed with a forward-extending foot-support which serves as a conductor for the heat, suitable guards on said case, and a removable reservoir, substantially as described.

482,220. TRAIN-ORDER CATCHER. EDWARD C. BARNETT, New Bloomfield, Pa. Filed Mar. 1, 1892. Serial No. 423,363. (No model.)



Claim.—1. In combination, the hollow post, the swinging arm fulcrumed in a slot in the post, a weight in the post attached to the inner end of the arm, a longitudinally-movable catch carried by the arm and arranged to engage a stationary means secured to the post to hold the arm depressed, said catch adapted to be forced in by a passing car to release the catch, and a longitudinally-arranged receiving and delivering bar on the outer end of the arm, substantially as described.

2. A receiving and delivering device comprising a horizontally-disposed bar provided with a single receiving-finger at one end and two parallel separated delivering-prongs at the outer end, arranged in the same vertical plane and in such a manner that an order-holder supported thereon will be held against lateral swinging or displacement, and the receiving-finger of a corresponding bar will pass between said prongs, substantially as set forth.

3. A delivery device comprising a post, an arm pivoted thereto, a means for moving the arm vertically at its outer end, an endwise-moving rod which has its outer end extending beyond the end of the arm, the inner end of the rod forming a catch, means to be engaged by said catch to hold the arm, a projection upon the car to move the rod endwise, and a delivery-bar, substantially as specified.

4. In combination, a post, a swinging arm carried thereby, and a horizontally-disposed receiving and delivering bar on the outer end of said arm, provided with a single receiving-finger at one end and a pair of separated parallel delivering-prongs at the other end, arranged in the same vertical plane, the lower prong serving as a guide or guard to hold the ring of the holder against swinging, substantially as shown and described.

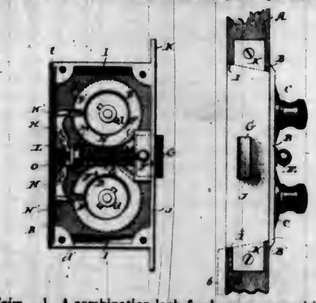
482,221. HANDLE-HOLDER FOR BRUSHES, &c. WILLIAM R. BARNETT and BENNET R. CHALK, Mount Washington, Md. Filed Mar. 24, 1892. Serial No. 426,312. (No model.)



Claim.—1. The improved handle-holder herein described, comprising the two separated sockets, the handle-section pivoted at its lower end between the said sockets and provided above said pivot with oppositely-projected lugs arranged to project in the adjustments of the handle into their respective sockets, and securing devices for holding the said lugs in their sockets, substantially as set forth.

2. The improved handle-holder herein described, consisting of the joint-plate having a central seat and provided on opposite sides of such seat with sockets C, the side plates C' of which are perforated, one perforation of each pair being threaded, the handle-section pivoted at its lower end in the seat of the joint-plate and provided above said pivot with oppositely-projected perforated lugs fitting in their respective sockets C in the different adjustments of the handle-piece, and the screw-pin by which to retain the said lugs in their sockets, substantially as set forth.

482,222. COMBINATION-LOCK. GEORGE L. BARNEY, Indianapolis, Ind. Filed Apr. 29, 1892. Serial No. 431,175. (No model.)



Claim.—1. A combination-lock for drawers, comprising the face-plate carrying the dial and the beveled sides, the face-plate extending beyond the beveled sides, substantially as described.

2. The combination-lock for drawers, comprising the face-plate, the beveled sides, the face-plate extending beyond the beveled sides, and the top plate having the extensions K, substantially as described.

3. The combination, with a drawer having a portion cut away on a bevel, of the lock having beveled sides and a face-plate carrying the dial the edges of which extend beyond the bevel sides and fitting the beveled cut-away portion in the drawer, substantially as described.

4. In a permutation lock, the combination, with the disks, each provided with a notch, of the sliding plate, a bolt operated by the sliding plate, and the dogs arranged at the rear of the sliding plate and adapted to enter the notches in the disk, substantially as described.

5. In a permutation-lock, the combination, with the disk having saw-tooth edges and a notch in each disk, of the slide-plate carrying the latch and the pivoted dogs arranged at the rear of the slide-plate and adapted to enter the notches in the disk, substantially as described.

6. In a permutation-lock, the combination, with the disk, of the slide-plate carrying the latch and having an upward-turned rear end, of the pivoted dogs bearing on said upward end and a spring for retaining them in position, substantially as described.

7. In a permutation-lock for drawers, the combination, with the face-plate having the disks, an operating-stud on the outside of the face, the disks mounted on the rear of the face, having saw-tooth edges, and a notch in the edges, a slide-plate carrying a latch and mounted on the rear of the face-plate, the dogs at the rear of the slide-plate, a top plate having an opening for the bolt, and the lateral extension K and the sides of the lock being beveled, substantially as described.

482,223. VENT-CLOSURE. JOHN L. BARTELS, Jr., Milwaukee, Wis. Filed Mar. 17, 1891. Serial No. 385,430. (No model.)



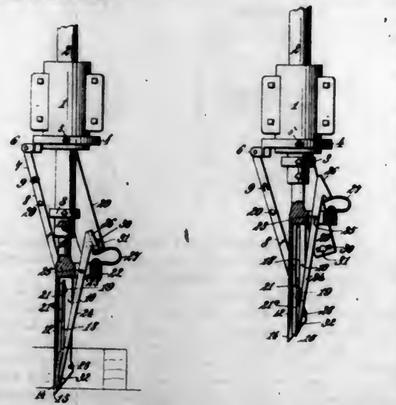
Claim.—The securing device for closures of vents, &c., the same consisting of a strip of sheet metal provided near its ends with punched openings, the stock removed by the punch forming annular flanges about the openings, and the tacks consisting of a shank and head, the former being provided between its point and the head with an annular groove receiving the flanges and forming a space between the head and the plate for a tack drawing tool, said shank being tapered from the groove to the point and forming at the top of the groove a shoulder of greater width than the shank at the bottom of the groove to direct the flanges into the grooves, substantially as described.

482,224. MORTISING-MACHINE. LOUIS A. BELMONT and ALFRED C. CLOAD, New Orleans, La. Filed Feb. 15, 1892. Serial No. 421,632. (No model.)

Claim.—1. An attachment for mortising-machines, consisting of a recessed chisel, a plunger attachment having one end pivotally at-

tached to a rigid support on the machine, a cross-head lying in the recess in the chisel, to which the lower end of the plunger attachment is pivotally connected, a clearer carried by said cross-head, and a spring-actuated snapper-bar having a cam-plate adapted to engage a cam-pin on the downward stroke of the chisel, substantially as described.

2. In a mortising-machine, the combination, with a cutter or chisel having a longitudinal recess or channel, of a snapper-bar pivotally mounted upon said chisel and having its point lying in the lower end of the recess therein, means for automatically vibrating said snapper-bar to pack the detached chip or core, and a clearer traversing the slot or channel as the chisel is withdrawn from the mortise, substantially as described.

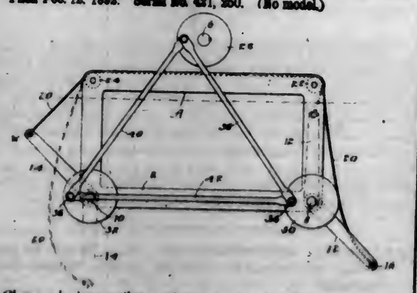


3. In a mortising-machine, the combination, with a reciprocating chisel having a longitudinal channel or recess, of a snapper-bar having its point lying in the lower end of the slot or channel and capable of a limited vibration therein and means for automatically forcing said point inward in said channel to compact the chips therein, substantially as described.

4. In a mortising-machine, the combination, with the chisel-mandrel and with a box within which said mandrel moves, of a cutter or chisel mounted in the mandrel and having a longitudinal channel open upon the front edge and extending nearly to the back of the cutter, a cross-head lying in said channel between the side pieces of the chisel, a plunger attachment hinged to a ring mounted on the box and having parallel arms between which lies the chisel, said arms engaged by pins on the cross-head, a snapper-bar pivoted on a bracket projecting from the front of the cutter or chisel, the lower end of said snapper-bar lying in the channel of the chisel, a cam-pin supported by an arm rigid on a bracket dropped from the ring and lying in the path of a cam-plate on the descending snapper-bar, and a clearer attached to the cross-head, substantially as described.

5. The combination, with a chisel having a longitudinal channel inclosed on both sides and in rear, the sides being beveled downwardly and rearwardly to form inclined cutting-edges, of a chip-clearer located in the said channel and serving to eject the chips on the upstroke of the chisel, substantially as described.

482,225. PROPELLER. WALTER R. BOHRAM, St. Paul, Minn., Filed Feb. 12, 1892. Serial No. 421,260. (No model.)



Claim.—1. A propeller consisting of a pair of similar cranks driven at equal speed with alternating movements and a flexible web running over suitable supports above said cranks and having its ends connected, respectively, to their pins, combined and adapted to be operated substantially as described.

2. The combination, with a boat and its driving-shaft, of a pair of similar parallel crank-shafts so connected to said driving-shaft as to be driven thereby with alternate movements, a flexible web having its ends connected, respectively, to the crank-pins of said crank-shafts, and idler-drums journaled above said crank-shafts and supporting the slack of said web, substantially as described.

3. The combination, with a boat and its driving-shaft, of the two-part rectangular frame, the crank-shafts journaled in said frame, each provided with a pair of crank-arms connected by a cross-bar or common crank pin, means for driving said crank-shafts simultaneously from said driving-shaft, the flexible web having its ends secured to the pins or cross-bars of said crank-shafts, and the idler-drums journaled in said frame above said crank-shafts and carrying the slack of said web, substantially as described.

4. The combination, with the driving-shaft 6, of the crank-shafts 8 and 10, each provided with a crank-disk at each end, pitmen connecting said crank-disks with said driving-shaft, the crank-arms carried by said shafts 8 and 10, the cross-bars connecting said arms together, the flexible web having its ends attached to said cross-bars, and the idler-drums journaled above said shafts 8 and 10 and supporting said web, substantially as described.

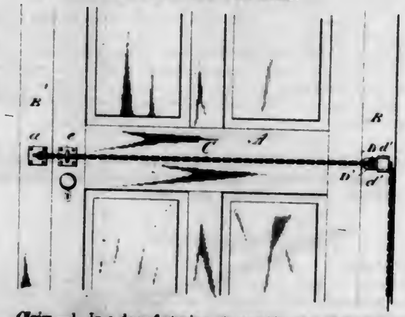
482,226. CULTIVATOR-TOOTH. MALVIN J. CHENEY and HERMAN BENCH, Taylor, Iowa. Filed Apr. 27, 1892. Serial No. 430,830. (No model.)



Claim.—1. The herein-described improved cultivator-tooth having an approximately diamond-shaped point and an arm or wing extending from one side and bent or curved over said point to near a line with the opposite side of the tooth-shank and having a forward sharpened edge, as set forth.

2. The herein-described improved cultivator-tooth, having a shank provided with right-angular slots in the outer end, a diamond-shaped point, and a curved arm or wing extending from one side of said point upward and across its face, and having a forward sharpened edge, as set forth.

482,227. DOOR-CHECK. WILLIAM J. CONNER, Labette, Kans. Filed May 26, 1892. Serial No. 434,508. (No model.)



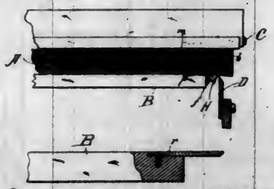
Claim.—1. In a door-fastening, the combination of the fixtures a and D, rigidly secured to the door-frame on each side of the door, a chain permanently attached to one of the fixtures and adapted to be engaged by a pawl carried by the other fixture, substantially as shown, and for the purpose set forth.

2. In a door-fastening, the combination of a chain C, rigidly secured to one side of the door-frame and provided at its free end with a needle or bar *e*, a pawl secured to the opposite side of the frame, said pawl having a reduced end which engages with said chain, substantially as shown.

3. The combination, in a door-fastening, of a chain permanently secured to the door-frame, an eye or loop carried by the door, through which the chain passes, and a fixture D, secured to the opposite side of the door-frame, the chain being adapted to be engaged by said fixture, substantially as shown, and for the purpose set forth.

4. The combination, in a door-fastener, of a chain rigidly secured to the door-frame and adapted to engage with an eye carried by the door, a spring-actuated pawl attached to the opposite side of the door-frame, the pawl having a reduced end which may pass through a link of the chain and engage with the bed-plate of the fixture which carries the pawl, substantially as shown.

482,228. PAPER-CUTTING MACHINE. ROBERT D. CRAWFORD, East Pepperell, Mass. Filed Sept. 18, 1891. Serial No. 406,068. (No model.)



Claim.—1. In a paper-cutting machine, a bed provided with a depressible projection at its cutting-edge, substantially as and for the purpose set forth.

2. In a paper-cutting machine, a bed, in combination with a spring-tensioned bar secured at an edge thereof between said bed and the cutter-knife and having a face normally flush with the face of said bed, substantially as described.

3. In a paper-cutting machine, a spring-pushed bar angular in cross-section and hinged by an edge to an edge of the paper-bed of said machine, a face of said bar being normally flush with the face of said bed, substantially as and for the purpose set forth.

4. The bed B, in combination with the bar H, hinged thereto, and the spring *f*, interposed between said bed and bar, substantially as described.

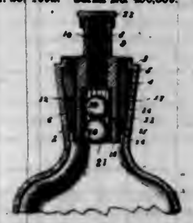
482,229. BRACELET. LOUIS CREMONESI, New York, N. Y. Filed May 16, 1892. Serial No. 433,129. (No model.)



Claim.—1. A bracelet or similar ornament comprising an endless spring formed into a series of open loops and limiting-links held in the loops, the links having widened and oppositely-extending free ends, substantially as described.

2. A bracelet or similar ornament comprising an endless spring formed into a series of open loops and links held to span every two loops, the links being doubled around the loops and having widened and inwardly-curved free ends, substantially as described.

482,230. BOTTLE AND STOPPER. HENRY CRIMMEL, Fostoria, Ohio. Filed Apr. 23, 1892. Serial No. 430,359. (No model.)



Claim.—1. The herein-described stopper adapted to interlock with the neck of a bottle, the same consisting of a truncated cork having a central bore, a tube mounted therein and provided near its outer end with a smaller or reduced bore and at its lower end with an expanded bore, each of its bores being provided with grooves respectively differential in depth, said tube terminating at its lower end in a reduced opening, and a ball mounted in the lower end of the bore and adapted to close the opening, substantially as specified.

2. The herein-described stopper adapted to interlock with the neck of a bottle, the same consisting of a truncated cork having a central bore, a metal tube located in the bore and provided at its upper end with an expanded bore having a reduced bore and at its lower end with a reduced valve-seat, and a valve adapted to cover the seat when the stopper is in a vertical position, substantially as specified.

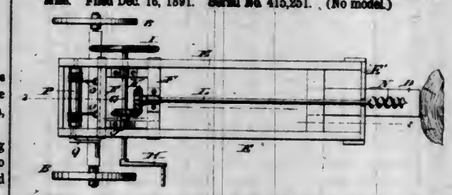
3. The combination, with the vessel having a tapered neck, the mouth of which is provided with an annular shoulder, of a stopper consisting of a cork having an upper annular shoulder forced into the neck and engaging the shoulder, said cork being provided with a bore, a metal tube snugly fitting the bore, said tube terminating at its upper end in a reduced opening and at its lower end in a reduced valve seat or opening, and a valve mounted over the lower reduced opening, substantially as specified.

4. The combination, with a vessel having a tapered neck terminating in a reduced annular shoulder, of a cork tapered to fit the neck and having an upper reduced end forming a shoulder for engaging that of the neck, a metal tube mounted in the cork and extending below the end of the same, said tube being provided with an upwardly-opening valve, and a ring mounted on the lower end of the tube and having prongs embracing the exterior of the cork and terminating at the shoulder thereof, substantially as specified.

5. The combination, with the vessel having the tapered neck and annular shoulder at the upper end of the same, of the tapered cork fitting the neck and having an annular shoulder engaging that of the neck, a tube mounted in the cork and comprising a lower bore and an upper reduced bore, said bores having their walls corrugated, a cap having a central opening threaded on the lower end of the tube, and a ball mounted in the large bore of the tube and adapted to close the opening in the tube, substantially as specified.

6. The combination, with the vessel having the tapered neck provided with the annular shoulder, of the tapered cork fitting the neck and provided with an external shoulder engaging that of the neck, a metal tube mounted in the cork, extending below the same, exteriorly threaded at its lower end, and having an upper and a lower bore, each of which is grooved longitudinally, the upper bore being smaller than the lower bore, a metal ring mounted on the lower end of the tube and provided with a series of upwardly-disposed cork-embracing prongs terminating at the shoulder of the cork, a perforated cap threaded on the lower end of the tube, a pair of balls mounted in the large bore of the tube and loosely fitting the same, a washer interposed between the lower end of the cork and ring, and an annular boss located upon the upper end of the tube and extending over the upper end of the cork, substantially as specified.

482,231. BORING-MACHINE. JONATHAN W. DAY, Crystal Springs, Miss. Filed Dec. 16, 1891. Serial No. 415,251. (No model.)



Claim.—The improved stump-boring machine composed of the truck-frame having supporting rear wheels and front legs, the slotted ways E E, mounted in inclined position on said frame, and the stop-board D, projecting from their lower end, the frame F, sliding in the ways, the crank-shaft G, passing through them and carrying the gear J centrally and the balance-wheel on one end, the auger L, mounted in the frame F and having miter-gear K, and means for adjusting the auger-carrying frame and its attachments, as shown and described.

482,232. WATCHMAKER'S TWEEZERS. CHARLES W. DELANEY, Hammond, Ind. Filed Dec. 15, 1891. Serial No. 415,171. (No model.)

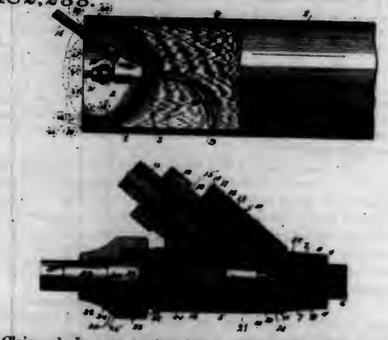


Claim.—1. A watchmaker's or jeweler's tool comprising the gripping-legs, the inwardly-projecting lips having a notch or groove in their inner edges, and the pins located underneath one of the lips and adapted to project under the opposite lip, substantially as described.

2. A watchmaker's or jeweler's tool comprising the gripping-legs having the grooves upon their inner faces, the inwardly-projecting lips with a notch or groove on their inner edges, and the pins located underneath one of said lips and adapted to project under the opposite lip, substantially as described.

482,233. AMMONIA DIFFER-VALVE. JACOB DREYFOUSS, St. Louis, Mo., assignor to the National Ammonia Company, same place. Filed Apr. 18, 1892. Serial No. 429,675. (No model.)

482,233.



Claim.—1. In an ammonia-valve, the combination of the gas-cylinder, the branched valve-joint, the bearer head for the valve-joint, the valve-stem in said joint, and the arc-curved dipper-pipe 6, extending from the bearer-head to the side of the cylinder, substantially as described.

2. In an ammonia-valve, the combination of the gas-cylinder having the concave valve bearer-head, the integral forked branched valve-joint screw-seated in said head, one of the forks of said joint provided with the main horizontal screw-threaded bore 10 and the other fork provided with the angle-bore 12 and the enlarged screw-perforate bore 13, the screw valve-stem that works in said screw-bore 10, and the compression supply-pipe that engages in said screw-perforate bore 13, substantially as described.

3. In an ammonia-valve, the combination of the integral forked branched valve-joint provided with the main screw-threaded valve-bore 10, the screw-threaded valve-stem 23, having the shoulder 30, the elongated neck 29, the wrench-seat 31, the smooth reduced extension 25, the secondary reduced extension 26, the valve-shoulder 28 between said extensions, the soft-metal gasket 20, against which said valve-shoulder presses to produce a gas-tight seat, and the bevel end 27 of said valve-stem, substantially as described.

4. In an ammonia valve, the combination of the integral forked branched valve-joint provided with the fork 37, the main screw-threaded valve-bore 10, and the peripheral screw 32, the screw valve-stem that works in said bore, the soft-metal gasket against which said valve closes, the rubber gasket 35, and the jam-nut 34, having the jam-shoulder 36 and the perforate screw 33, substantially as described.

5. In an ammonia-valve, the combination of the integral forked branched valve-joint having the fork 37, provided with the screw-threaded bore 10, the valve-screw-threaded stem 23, the soft-metal gasket against which said valve closes, the said hunchback joint also provided with the angle-bore 12, that connects with the valve-bore 10, the enlarged screw-perforate bore 13, and the gasket-shoulder bore 14, the rubber gasket 17, the screw-attached compressor supply-pipe 15, and the jam-nut 16, having the round stem 19, the progressive butt-end of which jams against said rubber gasket 17, substantially as described.

6. In an ammonia-valve, the combination of the gas-cylinder 1, the concave valve bearer-head 2, having the perforate center screw-threaded seat 3, the integral branched valve-joint 5, having the screw-threaded nozzle 4, and the valve and compressor supply-bores, the valve-stem in said valve-bore, the concave head of said gas-cylinder having the inwardly-curved lip 39, and the cover 41, having the inwardly-projecting lugs 40 and 42, and the bolt 44, whose head and screw-nut hold said cover to the concave valve-head of said cylinder, substantially as described.

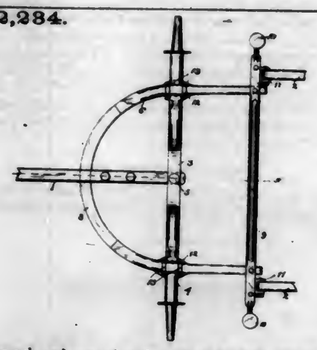
482,234. VEHICLE RUNNING-GEAR. EGBERT DENNIS, Rochester, N. Y., assignor of one-half to George Hoyer, same place. Filed Apr. 4, 1892. Serial No. 427,943. (No model.)

Claim.—1. The combination, with the reach and axle, of the combined hounds and slides having the semicircular part beneath the reach, the ends extending forward of the axle, the clips for the connection of the thills on said ends, and the step connected thereto, substantially as described.

2. The combination, with the reach and axle, of the combined hounds and slide having the semicircular part beneath the reach and the ends extending forward of the axle, the cross-bar connecting said ends, the clips for the thills thereon, and the step secured to the end of said bar, substantially as described.

3. The combination, with the reach and axle, of the combined hounds and slide having the semicircular part beneath the reach and the ends extending forward of the axle, of the plates 12, passing beneath the axle and secured at the ends to the slide, and the clips connecting said plates to the slide on opposite sides of the axle, substantially as described.

482,284.



482,285. LOCOMOTIVE ASH-PAN. JOHN W. KADE, Dallas, Tex. Filed Mar. 29, 1892. Serial No. 426,965. (No model.)



Claim.—1. A locomotive ash-pan having a rear draft-opening, an air-drum inclosing said draft-opening and open at its lower end, and a regulating-damper working within said air-drum over said draft-opening, substantially as set forth.

2. A locomotive ash-pan having a rear draft-opening, an enlarged air-drum inclosing said draft-opening and provided with an opening below the rear wall of the ash-pan, and a regulating-damper working within said air-drum and over said draft-opening, substantially as set forth.

3. A locomotive ash-pan provided with a rear draft-opening, an air-drum inclosing said draft-opening and provided with a curved lip projecting below and in front of the rear wall of the ash-pan, and a regulating-damper working within said air-drum and over said draft-opening, substantially as set forth.

4. The combination, with the ash-pan having front and rear draft-openings, of draft-regulating doors working over said openings, means for controlling said doors, and an air-drum inclosing the rear draft-opening and draft-door working thereover, substantially as set forth.

5. The combination, with the locomotive ash-pan having draft-openings at each end and a series of damping slats or leaves adapted to be closed in a line below said openings, of crank-arms connected with said slats or leaves, a single connecting-rod pivotally connected to the ends of said crank-arms, a vertical bracket-arm projecting from the front end of said ash-pan, a locking-bracket secured to the opposite ends of the ash-pan, an oscillating lever pivoted near its center to said bracket-arm, a connecting-link loosely connected to one end of said connecting-rod and to the lower end of said lever, and a horizontal operating-rod connected to the upper end of said lever and provided in its under side, near the handle thereof, with a series of locking-notches adapted to engage said locking-bracket, substantially as set forth.

482,286. STEAM-BLOWER. AUGUSTUS FLETCHER, Minersville, Pa. Filed Nov. 2, 1891. Serial No. 410,569. (Model.)



Claim.—1. A steam-blower consisting of an annular pipe containing passages through its walls for the escape of the steam, the direction of said passage being laterally and inwardly oblique to the axis of the blower, substantially as described.

2. A steam-blower consisting of a frusto-conical nozzle and an annular steam-pipe located in the large end of said nozzle, said pipe having a series of small holes arranged to give the jets of steam issuing therefrom a direction both laterally and inwardly oblique, substantially as described.

3. A steam-blower consisting of a nozzle and a steam-pipe delivering jets of steam into said nozzle in a direction laterally oblique to the axis of the nozzle, whereby the steam is caused to form a vortex, substantially as described.

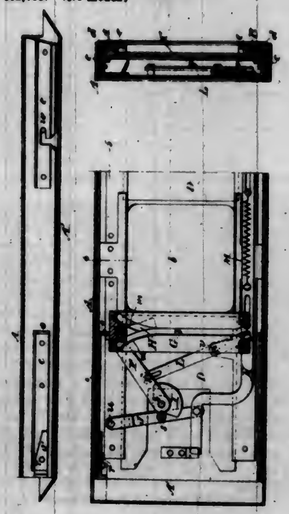
482,287. NAME-PLATE FOR MONUMENTS, SIGNS, &c. REINHOLD H. FOLLENIUS, St. Louis, Mo. Filed Feb. 3, 1892. Serial No. 420,716. (No model.)



Claim.—1. The combination, with the monument, wall, or object to be marked, of the bed-frame 1, the glass tablet 5, the said tablet having the countersinks 7 and 8 and the frosted margin 12 in and adjoining said countersinks and the remainder of said tablet clear of color and frosting, the colored and frosted glass name-plate 9, having the inscription and its surrounding field, respectively, colored and frosted, the said name-plate seated in said countersink 7, and the back reflector-plate seated in the countersink 8, substantially as described.

2. The combination, with the monument, wall, or object to be marked, of the bed-frame, the glass tablet 5, said tablet provided with the countersinks 7 and 8 and the frosted margin 12 in and adjoining said countersinks and the remainder of said tablet being clear of color and frosting, the colored and frosted glass name-plate 9, having the inscription and its surrounding field, respectively, colored and frosted, the said name-plate seated in said countersink 7, the back reflector-plate seated in said countersink 8, the waterproof cement ring 13, and the air chamber or inclosure 14, that constitutes a non-conductor of dampness and frost, substantially as described.

482,288. ATTACHMENT FOR STEREOPTICONS, MAGIC LANTERNS, &c. HORACE W. FOSCH, Newburg, N. Y. Filed Nov. 23, 1891. Serial No. 412,709. (No model.)

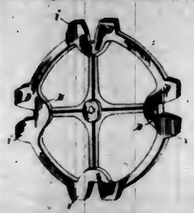


Claim.—1. In a slide-changing and light-eclipsing carrier adapted for insertion in the slide-receiver of the lantern, the combination of a slide adapted for carrying lantern-transparencies, a shutter for closing the aperture of the lantern, and mechanism connected with the slide carrier and shutter, substantially as described, for moving the slide-carrier while holding the shutter closed and then opening the shutter while the slide-carrier is stationary, the cycle of operations being effected by a single movement of the operating-lever in one direction.

2. In an attachment for magic lanterns and other like optical instruments, the combination of the tubular case A A', having opposite front and rear openings *b b* in its sides, the sliding divided shutter or shutter-sections D D, the outside crank E, with its spindle *i*, the inner crank F on said spindle, the cam I, the arm or lever J, adapted to be actuated by said cam in one direction, the sliding frame K, the reverse arms or levers L L, connecting said sliding frame with the shutter-sections, and the spring M, controlling the opening of the shutter, substantially as specified.

3. In an attachment for magic lanterns and other like optical instruments, substantially as specified, the combination, with the tubular case A A', having opposite exposing-openings in its front and rear sides, of the sliding double transparency-carrier B, having double exposing-openings *g g* arranged side by side, the outer crank E, with its attached spindle *i*, and inner crank F, having an outer stud or roller *k*, the upright or piece G, attached to the transparency-carrier, having an upright groove *l*, with reversely-curved end branches *m m*, the switch H, the fixed stop *o*, and movable stop *o'*, essentially as described.

482,289. SPROCKET-CABLE ELEVATOR. MICHAEL GARLAND, Bay City, Mich. Filed Apr. 18, 1892. Serial No. 429,510. (No model.)



Claim.—1. A combined rope and sprocket wheel having some of the spaces between the pairs or sets of sprockets or teeth gapped or cut out, as specified, and having the rest of such spaces ungrooved circumferentially of the wheel to seat the sprocketed rope which may be run on such wheel, substantially as and for the purposes described.

2. The combination, with a combined rope and sprocket wheel having gaps *m* between some of the pairs of sprockets and having its periphery ungrooved at all points except immediately at either side of where the said gaps are formed, of a cable arranged to run on the ungrooved periphery of said wheel and provided with sprocket-like devices which engage with said gaps, all substantially as and for the purposes hereinbefore set forth.

482,240. ELECTRIC-ARC LAMP. JAMES R. GASTON, Sparta, Ill., assignor to the Gaston Electrical Manufacturing Company, same place. Filed May 31, 1892. Serial No. 435,000. (No model.)

Claim.—1. In an electric-arc lamp, the improved carbon-carrying sliding frame comprising the horizontal body portion provided with a rack 11 upon its under edge, guiding devices, as 12, projecting from one face adjacent its ends, and an outwardly-diverging arm 7, provided at its outer terminal with a socket 6, substantially as and for the purpose set forth.

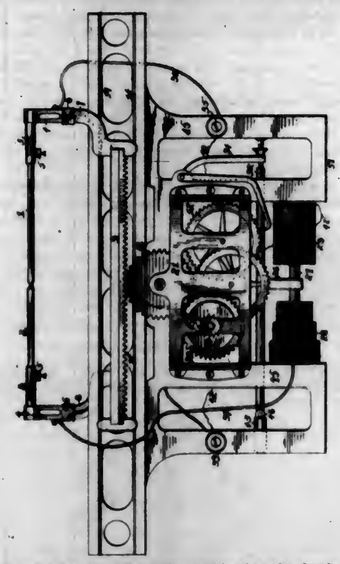
2. In an electric-arc lamp, the improved carbon-carrying frame comprising the horizontal body portion provided with a rack 16 upon its upper edge, guiding devices, as 12, projecting from one face adjacent its ends, an outwardly-diverging arm 8, provided at its outer terminal with a socket 6, and a vertical arm 17, secured to the end of the body portion which is opposite that to which said outwardly-diverging arm is connected, substantially as and for the purpose set forth.

3. In an arc lamp, the frame-plate having opposite guiding-tracks 14 projecting from opposite sides of said frame-plate and the tracks projecting from one side of said frame-plate in the same plane with those which project from the opposite side of the frame-plate, substantially as and for the purpose set forth.

4. In an arc lamp, the frame-plate having opposite guiding-tracks 14 projecting from opposite sides of said frame-plate and the tracks on one side of the frame-plate located parallel with the tracks on the opposite sides of said frame, substantially as and for the purpose set forth.

5. The improved frame for arc lamps, comprising the horizon-

tally-extending base-plate 31, adapted to support the lamp mechanism, the vertical plate 15, rising from said base-plate at a right angle thereto, and the tracks 14, located one pair on the front and one pair on the rear side of said vertical plate, the upper track of each pair extending horizontally in the same plane and all located parallel to each other and to said base-plate, substantially as and for the purpose set forth.



6. In a positive-feed arc lamp, the combination of a clutch-wheel having a series of teeth arranged with attenuated outer extremities and a projection having an attenuated extremity adapted to engage said teeth and turn said wheel in either direction, substantially as and for the purpose set forth.

7. In a positive-feed arc lamp, a clock-train having a high-speed wheel, as 52, in combination with the combined detent and brake-shoe 50, constructed and arranged to engage the teeth of said wheel simultaneously as a detent and a brake-shoe, substantially as and for the purpose set forth.

8. In an arc lamp, the improved carbon-holding arm comprising a shank 4, formed integral with the sliding frame, a pair of clamping-jaws 56, formed integral with the upper end of said shank, the tubular socket 3, removably located between said jaws and having a suitable carbon-clamp, and a screw, as 57, for causing said jaws to bind upon said tubular socket, substantially as and for the purpose set forth.

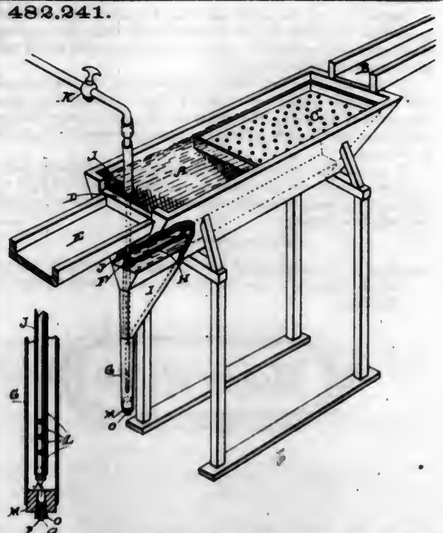
482,241. SEPARATING SAND AND SLIMES. GEORGE GATES, Jackson, Cal. Filed Jan. 5, 1892. Serial No. 417,061. (No model.)

Claim.—1. In an apparatus for separating slimes from heavy coarse particles, a tank with a narrow bottom and a narrow opening therein, an inclined triangular channel, the upper edge of which connects with the slot, an approximately vertical receiving-pipe into which the lower angle of the channel discharges, a pipe through which water is delivered into the lower part of the receiving-pipe, and a discharge-opening in the bottom of the receiving-pipe, through which the heavy particles escape, while the lighter particles are carried upward to the tank and overflow by the water, substantially as herein described.

2. In an apparatus for separating slimes from heavy coarse particles, a settling-tank with a slotted inclined discharge-channel and a pipe into which the channel delivers its contents, a removable stopper at the bottom of the pipe, having a central hole, and a second stopper fitting the hole, and a discharge-opening through this stopper with a bushing of hard material to prevent wear, substantially as herein described.

3. An apparatus for separating sand and slimes, consisting of a tank having inclined sides, a tray with a flat perforated bottom situated in the upper part near the receiving end of the tank, a sluice through which the material is delivered into the tray to pass through the bottom, a depressed overflow-opening at the upper part of the discharge end, through which the slimes escape, a vertical opening from the bottom, an inclined slot and channel extending from said opening toward the center of the tank, whereby the heavier particles are caused to pass gradually into the channel and discharge from its lower angle,

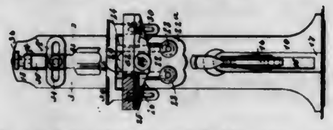
482,241.



the water-pipe J, and a vertical receiving and separating pipe, substantially as herein described.

4. An apparatus for separating slimes and sand, consisting of the tank with inclined sides, the perforated receiving-tray at the upper end, the overflow-opening at the discharge end, a passage extending vertically down from the bottom near the discharge end, a slot in the bottom of the tank, and an inclined channel connecting with the slotted opening and pipe, as shown, stoppers fitted to the lower end of the pipe with a central discharge-hole, and a supplemental water-pipe of smaller diameter extending down into the main pipe, having perforations around its lower end, whereby the water is delivered into the pipe to agitate and separate the slimes and sand, substantially as herein described.

482,242. MORTISING-MACHINE. ERIK J. GRYVOLD, Eagle Mills, Mich. Filed Aug. 19, 1891. Serial No. 403,092. (No model.)



Claim.—1. The combination, with the frame A, provided on its rear side with vertical ways 11, and vertical slots 14 22, extending through the frame from front to rear, the cross-head 12, sliding in said ways and having a rod 19, extending downward through a suitable guide 20, a spring encircling the rod and bearing at its lower end on said guide, the treadle-lever pivotally connected with the cross-head, and a tool-carrying arm projecting from the cross-head through the upper slot 14, of the adjustable work-table on the front of the frame and set-screws extending through the lower slots and supporting the table, substantially as set forth.

2. The combination, with the vertically-slotted frame, of the table 22, comprising a vertical member 22^a, having set-screws extending through said slots, the open horizontal dovetail member 22^b, the bed-plate 25, having a dovetail recess receiving said member 22^b and an opening 27, a swiveled screw 28, connecting the bed-plate and member 22^b to adjust the bed-plate toward and from the frame, and the vertically-sliding clamp 30, having depending slotted members bolted to the bed-plate, and the bed-block 32, secured upon the bed-plate and having an opening registering with the opening 27, substantially as set forth.

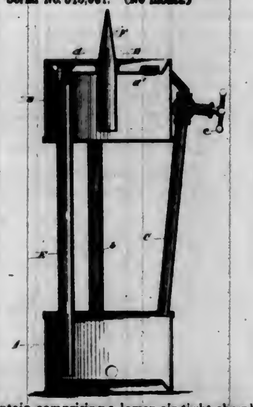
3. In an implement of the character described, the combination, with the tool-carrier, an adjustable table, a mechanism, substantially as described, for moving the carrier to and from the table, a bed-plate located upon the table, provided with a recess in one edge, forming at said edge a tongue, and a gage adjustable upon the bed-plate, of blades adjustably connected with the tool-carrier, adjustable to and from each other, and held at angles one to another, as and for the purpose specified.

482,243. SHAFT-TUG. JOSEPH L. GREGORY, Washington, Mo. Filed Apr. 1, 1892. Serial No. 427,417. (No model.)



Claim.—An improved shaft-tug consisting of the metallic sections A A', having coincident flanges a' a', extending entirely around the inner edges thereof, whereby to form a groove B, a packing-ring C, held in such groove and projected beyond the inner edges thereof, each of such sections having coincident laterally-extending lugs a^5 a^6 a^7, connected to form guide-loops a^4, and means for securing such sections together, substantially as and for the purpose described.

482,244. FOUNTAIN. GEORGE C. GRISIER, Jefferson, Iowa. Filed June 26, 1889. Serial No. 315,661. (No model.)



Claim.—A fountain comprising a lower air-tight chamber having an air-compressor connecting with its top, a valve located between the chamber and the source of pressure, an upper air-tight chamber having a basin-like top provided with an opening communicating with the latter reservoir, an escape-pipe opening into the bottom of the basin portion and connecting with and extending to within a short distance of the bottom of the lower chamber, an air-pipe connecting with the top of the lower chamber and entering the upper chamber near its top, a valve carried by the latter pipe, a jet-nozzle extending from near the bottom to without the upper reservoir, and plugs or stoppers for closing the opening in the escape-pipe and in the basin, substantially as described.

482,245. WRENCH. JACOB H. GUILEY and JAMES E. WRIGHT, Saginaw, Mich. Filed Apr. 7, 1892. Serial No. 428,109. (No model.)

Claim.—1. As an article of manufacture, a pipe-wrench consisting of a bar provided at one end with a fixed jaw and having a rack arranged at one side of said jaw, a slidable sleeve fitted on and adapted to move longitudinally of the bar, and a toothed gripping-wheel carried by said sleeve and having the teeth on its periphery meshing directly with the rack on the bar or shank, substantially as described.

2. A pipe-wrench consisting of a shank or bar provided with a rigid jaw at one end and having a rack arranged at one side of said jaw, a sliding sleeve fitted on the bar and adapted to move longitudinally thereon, and a gripping-wheel carried by said sleeve and provided on its periphery with a series of teeth which mesh directly with the rack on the bar, the outer faces of said teeth being serrated or roughened, substantially as described.

3. In a pipe-wrench, the combination of a shank or bar provided at one end with a stationary jaw and having a rack arranged at one side of said jaw, a sleeve fitted on said bar and provided at one end

482,245.



with extending flanges, a gripping-wheel mounted on a shaft which is journaled in said flanges and having on its periphery a series of teeth which mesh with the rack, a coiled spring arranged in a recess or socket in the bar below the rack thereon, connections between said sliding sleeve and coiled spring, and a face arm or plate attached to the sleeve and arranged over the socket or recess in the bar, substantially as described.

482,246. SHUTTER-FASTENER. EDWARD W. HAGER, St. Louis, Mo. Filed Feb. 29, 1892. Serial No. 423,261. (No model.)



Claim.—As an improved article of manufacture, a shutter attachment comprising a deflecting housing of an inverted-U-shaped form, made in a single piece of metal and provided in its parallel side walls with apertures, and a catch provided at its inner end with outwardly-projecting journals engaging said apertures, said catch being located entirely within the walls of said housing and provided at its rear end with a rearwardly-extending integrally-formed limiting-stop arranged to engage the wall of the housing C at a predetermined point, substantially as and for the purpose set forth.

482,247. ELEVATOR. STEDMAN H. HALE, Chicago, Ill. Filed June 29, 1891. Serial No. 397,835. (No model.)

Claim.—1. The combination, in an elevator and with the car, counter-balance connected by a cable with the car, and motor-engine and connections, of a supplemental counter-balance in the form of a flexible weight or chain connected at one end to a fixed elevated support and at the other with a vertically-moving part of the apparatus, substantially as set forth.

2. The combination, with the cage, counter-balance, vertical engine, and multiplying gears and flexible suspensories, of one or more flexible weights or chains connected each with an elevated support at one end and at the other with a vertically-moving part of the apparatus, substantially as set forth.

3. The combination, with the car of an elevator, of one or more flexible weights or chains, each connected at one end with a fixed elevated support and at the other with the car, substantially as described.

482,247.



482,249. LUBRICANT. DEFIANCE HARRIS, Ionia, Mich. Filed May 11, 1892. Serial No. 432,602. (No specimens.)

Claim.—1. The herein-described lubricant, comprising silica, alumina, iron, plumbago, castor-oil, and mineral oil, combined in or about the proportions specified.

2. An electrical conducting semi-fluid lubricant for dynamo-electric machines or motors, consisting of alumina, plumbago, silica, and iron, combined with a suitable lubricating-oil forming a vehicle, as and for the purpose described.

482,250. SAW SET AND GAGE. [illegible]

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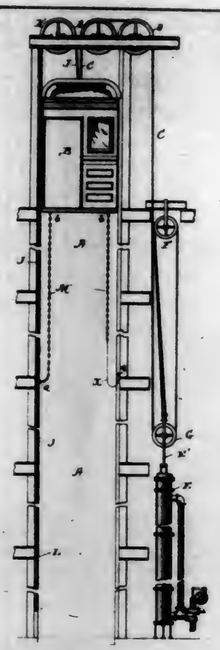
3. In a watchman's time-check, the combination, with a printing-wheel, an inking-ribbon, and paper-reels, of a spring-pressed printing-bar to be operated by the watchman, a platen moved in and out of the path of the printing-bar, and mechanism between the printing-bar and one of the paper-reels for operating the said reel from the printing-bar, substantially as described.

4. In a watchman's time-check, the combination of the ratchet-wheel E, carrying characters representing the hours of the day, the electro-magnetic wheel-operating device consisting of the electro-magnet F, the spring-pressed armature-lever *j*, provided with the arm *m*

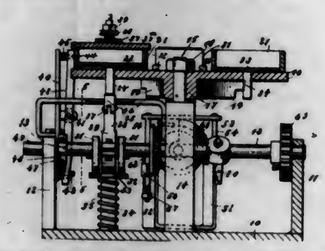
any surplus of clay from the mold in which the clay has been partially pressed and mechanism for actuating the molds, plungers, and scraper, substantially as described.

4. In a brick or tile machine, the combination of a series of traveling molds having movable false bottoms or press-blocks, mechanism for feeding clay into said molds, a depending vertically-movable plunger for pressing the contents of the molds while their press-blocks are at rest, vertically-movable and oppositely-arranged upper and lower plungers for closing the top of a mold and moving its press-block upward to re-press the mold contents, and mechanism for

482,247.



482,248. BRICK-MACHINE. HOWARD HARLAN, Renovo, Pa., assignor to himself and George R. McCrea, same place. Filed Mar. 5, 1892. Serial No. 423,862. (No model.)



Claim.—1. The combination, with the turn-table having a series of molds provided with plungers, the stems of which extend down through the table, projections on the under side of the table, a latch for locking the table, and a cover under which the molds are successively brought, of a transverse shaft beneath the table, provided with an arm to strike said projections and move the table intermittently, an eccentric also on said shaft to actuate the plungers as they are brought over it, a cam also on said shaft to release the latch, and a vertical slide to act on the mold-plungers and cause them to discharge the molded article, and a counter-shaft from which said slide is actuated and geared to the main shaft, substantially as set forth.

2. The combination, with the turn-table, its molds, and bottom plungers, of a transverse shaft having an eccentric 30 and a vertical plunger-operating slide 25, actuated therefrom, a cam 31, parallel with the eccentric, posts 34 34, extending above the table, springs 35 on the lower ends thereof, the vertical frame sliding on said posts and resting on the springs, the top cross-bar 37 of the frame crossing the table and provided with a mold-cover 37ª and the lower cross-bar 32 being acted on by the cam 31, and an arm on the drive-shaft for rotating the table, substantially as set forth.

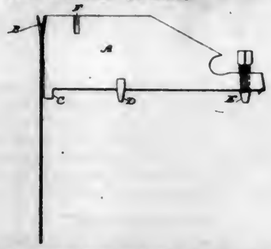
3. The combination, with the revolvable tables carrying brick-molds and having compressing and ejecting mechanism for the molds, of flanges produced on the under side of the table, a revolving driving-shaft extending horizontally beneath the table, and an arm secured to the shaft and adapted to engage the flanges, substantially as described.

482,249. LUBRICANT. DEGATUR HARMON, Ionia, Mich. Filed May 11, 1892. Serial No. 432,908. (No specimens.)

Claim.—1. The herein-described lubricant, comprising silica, alumina, iron, plumbago, castor-oil, and mineral oil, combined in or about the proportions specified.

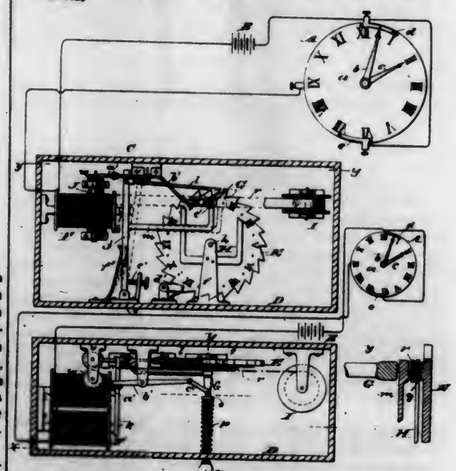
2. An electrical conducting semi-fluid lubricant for dynamo-electric machines or motors, consisting of alumina, plumbago, silica, and iron, combined with a suitable lubricating-oil forming a vehicle, as and for the purpose described.

482,250. SAW SET AND GAGE. CHARLES F. HEATH, Durham, Cal., assignor of one-half to William M. Taylor, same place. Filed May 29, 1891. Serial No. 394,542. (No model.)



Claim.—A saw set and gage consisting of the block of metal having the inclined face at one end serving as an anvil upon which the saw-tooth is set, the projection or lug C, extending crosswise the block at one end, the independent separated legs D at the sides of the block and outside of the plane of its walls, and the adjustable screw E, passing through the block, so that its point, the ends of the lug, and the two legs D will be in contact with the side of the saw-blade and the point of the tooth when the latter is properly set, substantially as herein described.

482,251. WATCHMAN'S ELECTRIC TIME-RECORDER. EMANUEL R. HEYNER, Leon, Mex. Filed Mar. 2, 1892. Serial No. 423,496. (No model.)



Claim.—1. In a watchman's time-check, the combination, with a clock and an electrical device connected therewith, of a printing-wheel operated by the electrical device and having its characters on one side, an ink-ribbon in front of the printing-wheel, a strip of paper in front of the ink-ribbon, a printing-bar to be operated by the watchman, and a platen moved in and out of the path of the printing-bar by the electrical device, substantially as described.

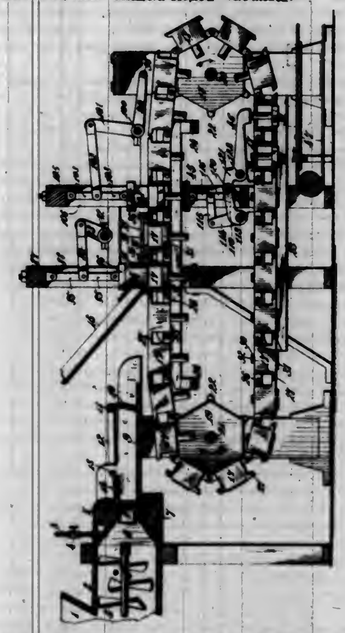
2. In a watchman's time-check, the combination, with a clock and an electrical device connected therewith, of a printing-wheel operated by the electrical device and having its characters on one side, an ink-ribbon in front of the printing-wheel, paper-reels mounted to allow the paper to pass in front of the ink-ribbon, a printing-bar to be operated by the watchman, a platen moved in and out of the path of the printing-bar by the electrical device, and means for rotating one of the paper-reels from the printing-bar, substantially as described.

3. In a watchman's time-check, the combination, with a printing-wheel, an inking-ribbon, and paper-reels, of a spring-pressed printing-bar to be operated by the watchman, a platen moved in and out of the path of the printing-bar, and mechanism between the printing-bar and one of the paper-reels for operating the said reel from the printing-bar, substantially as described.

4. In a watchman's time-check, the combination of the ratchet-wheel E, carrying characters representing the hours of the day, the electro-magnetic wheel-operating device consisting of the electro-magnet F, the spring-pressed armature-lever j, provided with the arm m and pawl l, adapted to engage the ratchet-wheel, the spring-pressed printing-bar G, arranged to press upon the arm m, and the electric generator and circuit-closer, substantially as specified.

5. The combination, with the time printing mechanism, of the reel I, carrying the paper strip r, the reel J for receiving the paper strip, the ratchet-wheel w, the lever b', the spring-pressed pawl a', the link c', and the printing-bar G, substantially as specified.

482,252. BRICK-MACHINE. GEORGE T. JACOBS, Washington, D. C. Filed Oct. 29, 1891. Serial No. 410,234. (No model.)



Claim.—1. In a brick or tile machine, the combination, with a series of pivotally-connected molds, of movable press-blocks located in and forming false bottoms for said molds and having on their under sides projections that extend through openings in the mold-bottoms, a depending plunger for pressing the material in the mold while the press-block in said mold is at rest, oppositely-arranged upper and lower plungers so constructed that while the upper plunger closes the top of a mold the lower ones move the press-block upward to re-press the mold contents, and means for actuating the plungers and for moving the molds forward when the plungers are withdrawn, substantially as described.

2. In a brick or tile machine, the combination, with a series of traveling molds and movable press-blocks located in and forming false bottoms for said molds and having on their under sides projections that extend through openings in the mold-bottoms, of a vertically-movable plunger located above the molds for pressing the material in a mold while its press-block is at rest, oppositely-arranged upper and lower plungers located above and below the molds in such a manner that while the upper plunger closes the top of a mold the lower ones move the press-block vertically to re-press the mold contents, an ejector for discharging the mold contents, and mechanism for actuating the molds, plungers, and ejector, substantially as described.

3. In a brick or tile machine, the combination, with a series of pivotally-connected traveling molds and separate plungers for pressing and re-pressing the mold contents, of a laterally-reciprocating scraper located intermediate the pressing and re-pressing plungers to remove any surplus of clay from the mold in which the clay has been partially pressed and mechanism for actuating the molds, plungers, and scraper, substantially as described.

4. In a brick or tile machine, the combination of a series of traveling molds having movable false bottoms or press-blocks, mechanism for feeding clay into said molds, a depending vertically-movable plunger for pressing the contents of the molds while their press-blocks are at rest, vertically-movable and oppositely-arranged upper and lower plungers for closing the top of a mold and moving its press-block upward to re-press the mold contents, and mechanism for moving said molds and plungers intermittingly, substantially as described.

5. In a brick or tile machine, the combination of a tempering-box having feed-rollers in its exit end, a trough to receive the strip of clay from between said rollers, a horizontal guide-board supported across the trough above and in front of the exit-space between the rollers to prevent the clay strip from being carried upward as it passes out from the rollers, and a knife for cutting the strip of clay into blocks, substantially as described.

6. In a brick or tile machine, the combination of a series of traveling molds having movable false bottoms or press-blocks located therein, mechanism for feeding clay into said molds, a depending plunger for pressing the contents of a mold while its press-block is at rest, oppositely-arranged upper and lower plungers for closing the top of a mold and actuating its press-block to re-press the mold contents, a laterally-movable scraper located intermediate the pressing and re-pressing plungers, an ejector for discharging the pressed and re-pressed contents of the molds, and mechanism for intermittingly moving the molds, plungers, scraper, and ejector, substantially as described.

7. In a brick or tile machine, the combination of a tempering-box provided with feed devices, a series of traveling molds, a trough intermediate said tempering-box and molds, a horizontal guide supported across the trough above and in front of the exit end of the tempering-box to hold the strip of clay down onto the trough, and a vertically-movable knife to cut the clay into blocks for the molds, substantially as described.

8. In a brick or tile machine, the combination of the tempering-box 2, the trough 9 for receiving a strip of tempered clay from said box, the intermediate horizontal and vertical feed-rollers 7 and 8, having their shafts provided with miter-gears 72, the ratchet-wheel 71 on the shaft of one of the horizontal feed-rollers, the arm 68, loosely mounted on said roller-shaft and provided with a pawl 70 and a pin 67, and the reciprocating bar 63, having a slotted lug engaged with said pin, whereby the feed-rolls are intermittingly actuated, substantially as described.

9. In a brick or tile machine, the combination of a series of traveling molds, a trough 9 for supporting a strip of clay, devices for feeding the clay along the trough toward the molds, a vertically-movable knife 10, arms 12, that carry said knife, a rock-shaft 13, to which said arms are secured, an inclined arm or cam 75, mounted on the rock-shaft and provided with the lug 76, and the reciprocating bar 63, having a tappet 74 engaged with said cam, whereby the knife 10 is actuated intermittingly, substantially as described.

10. In a brick or tile machine, the combination of a series of traveling molds 17, provided with movable false bottoms or press-blocks 31, the depending vertically-movable plunger 35, having a cross-head 86, provided at its ends with guides 90, the uprights 88, having vertical grooves 89 to receive said guides, the cross-beam 87, the toggles 85, the rock-shaft 82, having upward-projecting arms 83 and a downward-projecting arm 81, the levers 84, connecting the arms 83 and toggles 85, and the reciprocating arm or bar 77, having a loose connection with the rock-shaft arm 81, whereby the plunger 35 is actuated, substantially as described.

11. In a brick or tile machine, the combination, with a series of traveling molds 17, of a laterally-reciprocating knife or scraper 38, located above said molds, a cross-head 37, to which said knife is secured, the guide-rails 36, the rod 39, the pivoted lever 93, engaged with said rod and having a tail end 92, and the traverse-bar 60, provided with pins or strikers 91 to impinge on the tail end 92 of the lever 93, and thereby actuate the knife or scraper, substantially as described.

12. In a brick or tile machine, the combination, with a series of traveling molds 17, having movable bottoms or press-blocks 31, located therein, of the upper plunger 41, having a cross-head 104, provided at its ends with guides 106, the uprights 106, having vertical grooves 107 to receive said guides, the cross-beam 105, the toggles 103, the rock-shaft 100, having arms 101, the levers 102, connecting said arms and toggles, the rotary gear 51, provided with a cam-groove 97, the arm 99, mounted on the rock-shaft 100 and having a pin or roller engaged in said cam-groove, whereby the plunger 41 is intermittingly actuated to close the top of a mold, and mechanism for raising the press-block 31 in the mold when the top of said mold is closed, substantially as described.

13. In a brick or tile machine, the combination, with a series of traveling molds 17, having movable false bottoms or press-blocks 31

located therein and provided on their under sides with studs 42, that enter openings 43 in the mold-bottoms, of a vertically-movable cross-head 45, provided with vertically-projecting plungers 44 to bear on the studs 42 and force a press-block 31 upward in a mold, the uprights 106, having vertical grooves to receive guides on the ends of said cross-head, the cross-beam 118, the toggles 116, the rock-shaft 113, having arms 114, the levers 115, connecting said arms and toggles, the arm 112, mounted on the rock-shaft 113, the traverse-bar 60, provided with a bracket 109, having a loose connection with said rock-shaft arm, and an upper depending plunger 41 for closing the top of a mold when the press-block 31 located therein is actuated, substantially as described.

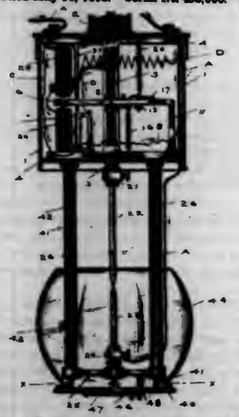
14. In a brick or tile machine, the combination, with a series of pivotally-connected traveling molds 17, having movable false bottoms or press-blocks 31, provided with stems 30, projecting through the mold-bottoms, of an ejector 46, adapted to be brought in contact with the stem of a press-block in an inverted mold to eject a brick therefrom, a shaft 122, on which said ejector is mounted, the rock-shaft 113, having an arm 119, loosely connected with the tail end of said ejector, and means for actuating said rock-shaft, substantially as described.

15. In a brick or tile machine, the combination of a series of pivotally-connected traveling molds 17, having vertically-movable false bottoms or press-blocks 31, provided with stems 30, that project through the mold-bottom, a pivotally-supported and intermittingly-actuated ejector 46, adapted to be brought in contact with the stem of a press-block in an inverted mold to eject a brick therefrom, and a conveyer 47 to receive and carry away the discharged bricks, substantially as described.

16. In a brick or tile machine, the combination, with a series of pivotally-connected traveling molds 17, of the polygonal wheels 18 and 19, on which the chain of molds is mounted, the shaft 20 of the wheels 18, the spur-gear 52 on said shaft, the shaft 49, having a mutilated gear 51, adapted to mesh at intervals with the spur-gear 52, and thereby actuate the wheels 18 and 19 and molds 17 intermittingly, the cam 57 on the shaft 49, the pivoted and bifurcated or slotted lever 56, engaged with and actuated by said cam, and the lever-arm 54, having a pawl 53, adapted to engage with and intermittingly lock and release the gear 52, substantially as described.

17. In a brick or tile machine, the combination of a series of pivotally-connected traveling molds 17, intermittingly-rotating polygonal wheels 18 and 19, on which the chain of molds is mounted, a depending vertically-movable plunger 35 for pressing the clay in an upright mold, oppositely-arranged upper and lower plungers 41 and 44 for re-pressing the clay in the upright molds, press-blocks 31, located in said molds and adapted to be acted on by the lower plungers 44 of the re-pressing mechanism, the rotary shaft 49, provided with cams or eccentrics, and connections from said cams or eccentrics to intermittingly actuate the pressing and re-pressing plungers, substantially as described.

482,253. ELECTRIC-ARC LAMP. JESSE F. KESTER, Terre Haute, Ind., assignor to the Kester Arc Lamp and Manufacturing Company, Chicago, Ill. Filed May 11, 1892. Serial No. 432,680. (No model.)



Claim.—1. In an electric-arc lamp, a clutch mechanism consisting of a friction-block to contact with or grip the carbon holder or rod, such friction-block set in the arms of the collar surrounding the carbon holder or rod, such collar set within a centrally-pivoted yoke, all set within a single armature-frame, which is pivoted at one point, a trip-arm attached to such friction-block and releasing the same by operation with such armature-frame, and an armature set in such frame and between two non-differentially-wound electro-magnets, one above and one below such armature, to control such armature and operate such armature-frame and clutch mechanism, substantially as shown and described.

2. In an electric-arc lamp, a clutch mechanism carried in a frame pivoted at one end to a single bracket, the opposite end provided with two arms, an armature held in place by such arms, and non-differentially-wound electro-magnets in line with and on each side of such armature, one magnet set in the main circuit and the other in the shunt-circuit, whereby through the magnetizing of such magnets the armature-frame is actuated and the clutch is operated to feed the upper-carbon holder, substantially as shown and described.

3. In an electric-arc lamp, a clutch mechanism carried in a frame, one end pivoted to a bracket, an armature on the opposite end, electro-magnets in line with and on either side of such armature, their same poles together, a bracket secured to one of the arms of the framework, such bracket provided near its end with two projections, one above and the other below such pivoted armature-frame, and set-screws passing through such projections, adapted to contact with such armature-frame as it rises or falls to limit the upward and downward movement of the same, one of such magnets set in the main circuit and the other in a shunt-circuit, whereby the current passing through such magnets operates to move the armature-frame and its clutch mechanism, and thereby feed the upper-carbon holder, substantially as shown and described.

4. In an electric-arc lamp, a clutch mechanism consisting of a pivoted frame, a yoke centrally pivoted within such frame, its arms rigidly mounted on the ends of a pin, a collar surrounding the carbon-holder, having arms loosely mounted on such pin, a friction-block having a beveled face adapted to contact with the side of the carbon-holder and rigidly mounted on the pin, and electrical means for actuating the armature-frame, whereby the clutch mechanism is adapted to feed the upper-carbon holder, substantially as described.

5. In an electric-arc lamp, a clutch mechanism within an armature-frame pivoted at one end and having an armature in the opposite end, the clutch mechanism consisting of a yoke centrally pivoted in the armature-frame, its arms rigidly mounted on a pin, a collar fitting about and adapted to loosely contact with the upper-carbon holder, its arms loosely mounted on such yoke-pin, a friction-block rigidly mounted on the yoke-pin between the arms of the collar and adapted to engage frictionally with the carbon rod, an arm formed on the friction-block to limit its downward movement, a spring secured to the under side of the friction-block and to the lamp framework, an adjustable spring secured to the top of the armature-frame, its opposite end secured to the lamp-frame, and electrical means for actuating the armature-frame through its armature, whereby the upper-carbon holder and rod are fed through the friction-clutch mechanism, substantially as shown and described.

6. In an electric-arc lamp, an automatic cut-out mechanism consisting of a thermostat so placed as to be acted upon by the heating of the shunt-magnet coil and a resistance-coil whereby such thermostat, should the carbon rod stick or be broken or burned out, will cut the lamp out of the main circuit and cut in the resistance-coil, substantially as shown and described.

7. In an electric-arc lamp, a framework carrying therein a friction-clutch adapted to contact with and feed the upper-carbon rod and holder to such lamp, one end of such framework pivoted to a bracket, and an armature formed in the opposite end, adjustable stops for limiting the movement of such frame, electro-magnets having laminated cores set one above and one below such armature, one of such magnets set in the main circuit and the other in a shunt-circuit, and a thermostat and a resistance-coil set in the shunt-circuit, the thermostat operated on by the shunt-magnet to cut in the main circuit into a resistance-coil when the circuit through the carbons is broken, substantially as shown and described.

8. In an electric-arc lamp, a pair of carbon-holders, a clutch carried in a pivoted frame, an armature in such frame actuated by electro-magnets, one set on each side, one of such magnets set in the main circuit and the other in a shunt-circuit, a thermostat consisting of a welded strip of steel and brass mounted on a base and insulated therefrom, a bracket on such base having a contact-piece and insulated therefrom, a wire connecting such contact-piece with the base, and a wire leading from such bracket to the resistance-coil, such thermostat and resistance-coil set in a shunt-circuit, whereby upon the breaking of the circuit through the carbons and the heating of the shunt-magnet the thermostat will contact with and be held against its contacting piece, thereby throwing the main circuit into the resistance-coil until the current is cut off from the lamp, substantially as shown and described.

9. In an electric-arc lamp, a thermostat consisting of a welded strip of steel and brass set in a vertical line with a shunt-magnet, such thermostat secured to a base-plate and insulated therefrom, a bracket formed on such plate having at its top a contact-piece, such piece insulated from such bracket and connected with the same by a wire adapted to be heated by the electric current, and a shunt-circuit from

the main-line wires, connected at one end to the thermostat and its opposite end connected to the bracket and to a resistance-coil, whereby when the circuit through the carbons is broken the heat of the shunt-magnet will force the thermostat to contact with its contact-piece, thereby throwing the main-line current into the resistance-coil, the resistance of which is equal to the arc, substantially as shown and described.

10. In combination, a thermostat consisting of a welded flexible strip of steel and brass secured at its lower end to a base-plate and insulated therefrom, such thermostat in close proximity with a shunt-magnet, a bracket having on its upper end a contact-piece which is insulated therefrom, and a wire adapted to be heated by the electric current, connected to such contact-piece and to the base, such thermostat set in a circuit of its own, one end connected to the thermostat and the other to its bracket, such thermostat adapted to contact with its contact-piece when heated by the shunt-magnet and be retained in contact by the heat of the wire connecting the contact-piece with the base, substantially as shown and described.

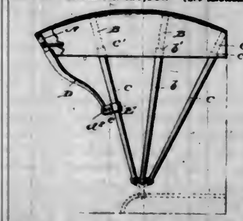
11. In an electric-arc lamp, in combination with the framework of such lamp having two hollow vertical arms connected at their lower ends by a cross-piece therefrom as a holder for the lower carbon, a globe-holder consisting of a plate with vertical rods mounted thereon, such rods adapted to work within the vertical arms of the lamp-frame, one of such rods having a groove therein which does not extend to either end of such rod, such groove adapted to engage with a pin through one of the lamp-arms, and a lug formed on the cross-piece of the lamp-frame, adapted to engage with a latch on the bottom of the globe-holder for locking such globe-holder to the main frame of the lamp, substantially as shown and described.

12. In an electric-arc lamp, a lower-carbon holder mounted on a cross-piece connecting the hollow arms of the framework of the lamp, a globe-holder formed of a plate upon which the globe rests, two rods formed on the top of such plate, adapted to work in the hollow arms of the lamp-frame, one of such rods having an elongated notch therein and adapted to engage with a pin through one of the arms of the lamp-frame, an opening through the bottom of the globe-holding plate, a pivoted door or latch adapted to close such opening, a lug or pawl formed on the cross-piece of the lamp-frame and adapted to pass through such base-plate of the globe holder, and the pivoted door or latch of the base-plate, adapted to engage with the notch in such lug and thereby support the globe-holder in position, substantially as shown and described.

13. In an electric-arc lamp, a framework consisting of two hollow vertical arms secured to the casing of the lamp and connected at their lower ends by a cross-piece carrying thereon a holder for the lower carbon, and a globe-carrier consisting of a plate having vertical rods mounted on the upper side, such rods adapted to work within the vertical arms of the lamp-frame, such rods having elongated notches therein adapted to engage with set-screws through the lamp-arms, whereby such globe-holder is held in position when raised or drawn down, substantially as shown and described.

14. In an electric-arc lamp, a globe-holder having in its base-plate an opening, a pivoted door or latch adapted to close such opening, a lug projecting from the lamp-frame, adapted to pass through such base-plate of the globe-holder, and the pivoted door or latch of the base-plate, adapted to engage with the notch in such lug and thereby support the globe-holder, substantially as described.

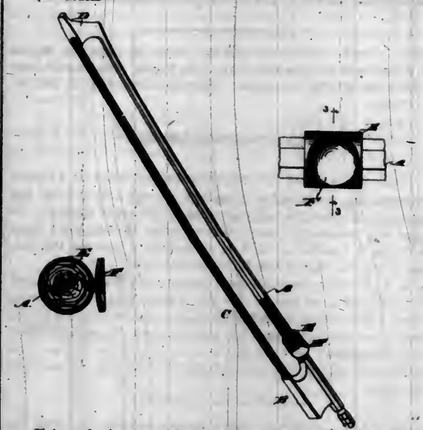
482,254. CARRIAGE-TOP. SALEM E. KIKBOLT, Jackson, Tenn. Filed Apr. 14, 1892. Serial No. 429,147. (No model.)



Claim.—1. In a carriage-top, the front bow, the compound curved supports for said bow having the sockets in their upper ends to receive the bow, and adjustable clamps on the adjacent bow-supports to receive the inner ends of the front-bow supports, substantially as described.

2. In a carriage-top, the combination, with the bows and supports therefor, of the clamps adjustably secured on the supports for one of the bows and the compound curved front-bow supports pivotally secured to said clamps and having sockets in their upper ends which receive the extremities of the front bow, substantially as described.

482,255. BOW FOR STRINGED MUSICAL INSTRUMENTS. EMIL A. KRETSCHMER, Horicon, Wis. Filed May 21, 1892. Serial No. 433,842. (No model.)



Claim.—1. An attachment for bows for stringed instruments, comprising a slide and a screw extending through the slide to secure it in proper position on the bow and provided with a concave head forming a thumb-piece, substantially as set forth.

2. The combination, with the bow, of the slide mounted on the bow-staff and having a transverse threaded aperture and a screw extending through the aperture into contact with the bow-staff and provided with a head having a concave outer face to receive the end of the thumb, substantially as set forth.

482,256. TOOL-HANDLE. ALBERT LANDON and LOUIS MARTEL, Rutland, Vt. Filed Feb. 9, 1892. Serial No. 420,924. (No model.)



Claim.—1. The combination, with an interiorly-chambered tool-handle provided with a pivoted cover, of tools located in the handle and a latch fulcrumed within the handle the head of which is adapted for engagement with the lid or cover and provided with an outwardly-extending wing adapted likewise for engagement with the outer portion of the lid or cover, substantially as shown and described.

2. The combination, with a tool-handle provided with a chambered interior and a pivoted lid or cover having an opening therein, of tools pivoted in the handle and a latch likewise pivoted in the handle and of angular construction, one member being provided with a head adapted to pass through a slot in the lid or cover, the opposite member extending outward for engagement with the outer end portion of the cover, the inner end of the said latch being provided with feet adapted for engagement with and as a rest for the tools when wholly contained within the handle, as and for the purpose specified.

3. The combination, with a tool-handle provided with an interior chamber open at one end and closed at one side by a pivoted cover, of tools pivoted within the handle near its open end, the shanks of which are provided with shoulders upon one edge and a lock or latch of angular formation, likewise pivoted within the chamber of the handle, the head portion of which latch is adapted for locking engagement with the lid or cover, the horizontal member being provided with an extension adapted for engagement with the outer or free end of the lid or cover, the vertical member being likewise provided at its inner end with feet adapted for engagement with and as a support for the tools when located wholly within the handle, as and for the purpose specified.

482,257. SPIRAL HAIR OR OTHER PIN. JOHN T. LARKIN, Halifax, Canada. Filed Feb. 15, 1892. Serial No. 421,593. (No model.)



Claim.—A hair or jewelry pin consisting of a body portion of helical or spiral form and provided with a swiveled or rotatable head, substantially as described, and for the purpose specified.

482,258. COVER FOR BOXES. VICTOR A. LEHUCHER, MELINA A. LEHUCHER, and ADRIEN MATHIEU, Paris, France. Filed June 28, 1892. Serial No. 438,326. (No model.) Patented in France Feb. 20, 1892, No. 219,560.

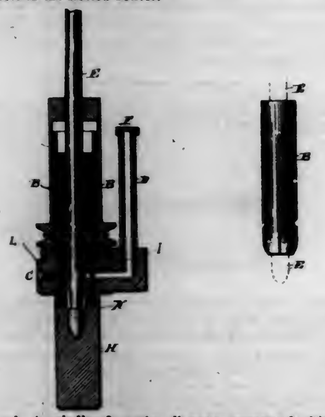


Claim.—1. A cover for preserve-boxes, consisting of a flanged sheet-metal ring *a*, adapted to be secured to a box, a sheet-metal ring *d*, having its outer annular edge attached to the upper surface of the flanged ring between the inner and outer edges thereof, and a transparent disk *b*, confined air-tight at its periphery between the inner edges of the two rings, substantially as described.

2. A cover for preserve-boxes, consisting of a flanged sheet-metal ring *a*, adapted to be secured to a box, a sheet-metal ring *d*, having its outer annular edge soldered to the upper surface of the flanged ring between the inner and outer edges thereof, and a transparent disk *b*, having its periphery provided with an annular packing-ring *c* and confined air-tight between the inner edges of the two rings, substantially as described.

482,259. SPINDLE. JOSEPH LOSEHEN, Pottsville, Pa. Filed Feb. 26, 1892. Serial No. 422,943. (No model.)

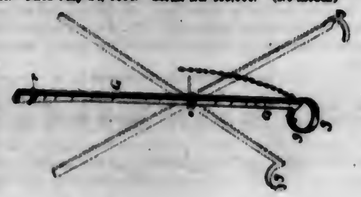
Brief.—To afford effective lubrication of the spindle it is made tapering but terminating in a conical bearing which provides a shoulder, the lubricant being supplied at the reduced diameter of the spindle through a hole in the slotted bolster.



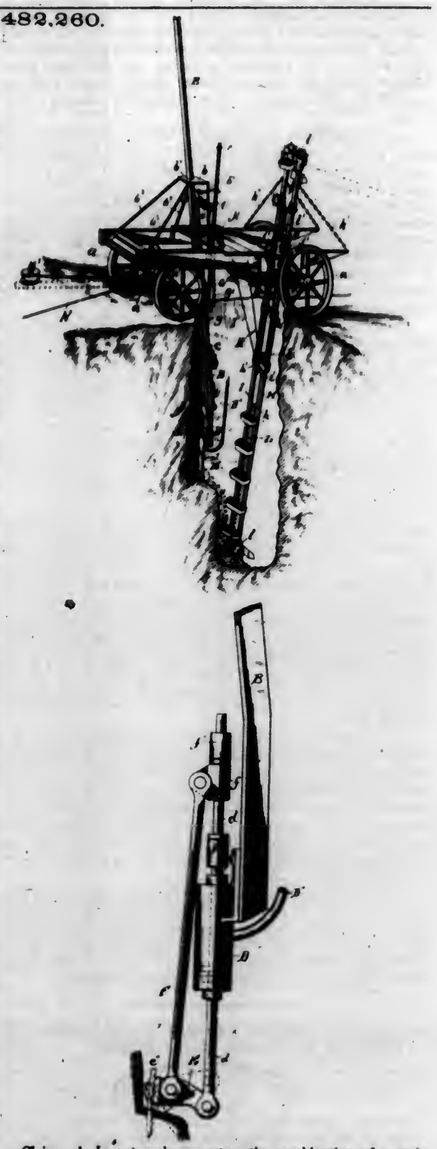
Claim.—1. A spindle of varying diameter supported within the bolster and gradually tapering toward a shoulder and terminating in a conically-shaped step-bearing, in combination with the casing L, having the step H, the bolster B within the casing, and an oil-cup having a supply-tube leading to the spindle at its reduced diameter through an opening in the bolster, substantially as described.

2. The casing L, having step H, in combination with the bolster B within the casing and slotted at its lower extremity, the spindle supported within the bolster, gradually tapering toward a shoulder and terminating in a conically-shaped step-bearing, and an oil-cup having a supply-tube leading to the spindle at its reduced diameter through an opening in the bolster, substantially as described.

482,260. TRENCH-EXCAVATOR. ARTHUR J. MASON, Kansas City, Mo. Filed July 24, 1891. Serial No. 400,606. (No model.)



482,260.



Claim.—1. In a trench-excavator, the combination of a main frame, a plate supported above said frame, an angular beam carrying the pick, arranged to move vertically in said plate, and the tongs adapted to grasp said beam and adjust it laterally, so that the pick will operate in the desired position, substantially as described.

2. In a trench-excavator, the combination of the main frame, an angularly-slotted plate supported over the front portion of said frame, an angular beam adapted to move vertically in said plate, the pick, and mechanism for operating the same on the lower end of said beam, a windlass arranged below the plate on the supports therefor and having a weighted arm, a rope attached to said windlass and the lower end of the beam to adjust the same vertically, and the tongs fulcrumed on the frame to move the beam laterally, substantially as described.

3. In a trench-excavator, the combination of a main frame, the rods in the front part of said frame, an angularly-slotted plate supported on the rods, and the pick carrying beam adapted to move vertically in said plate and fitting loosely in the slot to permit the lower end of the beam to be adjusted laterally, substantially as described.

4. In a trench-excavator, the combination of a main frame, the rods secured in the front portion of said frame and converging to their upper ends, the angularly-slotted plate mounted on said rods, the pick-carrying beam adapted to move vertically in said plate, and the tongs fulcrumed on the main frame, adapted to grasp the main beam and adjust it laterally, substantially as described.

5. In a trench-excavator, the main frame, the pick-beam loosely mounted thereon, and the tongs having their lower ends curved and extending at right angles to the handles thereof, said tongs being fulcrumed to the main beam at their pivotal point, substantially as described.

6. In a trench-excavator, the combination of a main frame, the pick-beam mounted on said main frame, the pick mechanism, the tongs fulcrumed in the frame, and the chain supporting said tongs, substantially as described.

7. In a trench-excavator, the combination of the main frame, the beam loosely supported on said frame, the cylinder secured to the lower end of the beam, the piston-rod, the pick, and connections intermediate of the pick and piston rod to operate the former, substantially as described.

8. In a trench-excavator, the combination of the pick-beam, the cylinder, the piston-rod extending through said cylinder, and the link pivotally secured to the lower end of the piston-rod and carrying a pick-point, substantially as described, for the purpose set forth.

9. In a trench-excavator, the combination of the pick-beam, the cylinder, the piston-rod extending through the cylinder, the link pivotally secured to the lower end of said piston-rod and carrying the pick-points, the rod pivotally secured to said link between the pick-points and the piston-rod and having its upper end loosely connected to the upper end of the piston-rod, and the abutments on said piston-rod, as and for the purpose set forth.

10. In a trench-excavator, the combination of the pick-beam, the cylinder, the piston-rod extending through the cylinder, the link on the lower end of the piston-rod, the clamping-plates on said link, the pick-points, the rod pivotally secured to said link and connected to the upper end of the piston, and the abutments, substantially as described.

11. In a trench-excavator, the piston-rod, the link pivotally secured thereon at its lower end, the transverse plate on the front of said link, the movable plate adapted to be clamped tightly to the transverse plate, the recesses in said plates, and the picks, substantially as described.

12. In a trench-excavator, the piston-rod, the link pivotally secured thereon at its lower end and carrying the binding-plates, the picks, and a screw passing through said plates and securing the picks firmly between them, substantially as described.

13. In a trench-excavator, the elevator comprising the movable sections, each section consisting of two parallel tubes adapted to telescope into the tubes of the section next above, the transverse pieces connecting the lower ends of each pair of tubes, and means for suspending said elevator on the machine, substantially as described.

14. In a trench excavator, the elevator composed of the sections adapted to telescope one within the other, the ropes connecting the lower end of one section with the main frame and with the lower end of the next adjacent section, whereby each section may be independently adjusted, and the bucket-chain, substantially as described.

15. In a trench-excavator, the elevator consisting of the sections of parallel tubes, each section being adapted to telescope in the one next above, the ropes connecting the lower ends of two adjacent sections, the bucket-chain, and the suspension device loosely secured on the rear axle of the machine, substantially as described.

16. In a trench-excavator, the frame, the elevator, and the suspension device consisting of the collar loosely secured on the rear axle of the machine and the plate swiveled to said collar and having the sleeves on the outer ends thereof, through which pass the tubes forming the elevator, substantially as described.

17. In a trench-excavator, the frame, the collar fitted loosely on the rear axle of the machine, the plate swiveled to said collar and having the sleeves in which the tubes of the elevator pass, the suspension devices, the elevator, and the rope connecting the suspension device with the lower end of the upper section of the elevator and adapted to elevate the same, substantially as described.

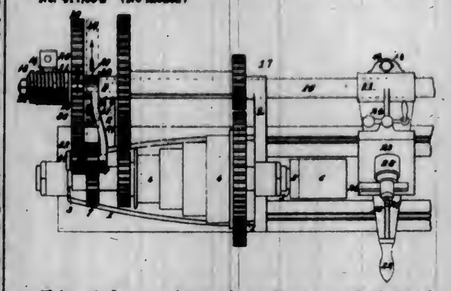
18. In a trench-excavator, the frame mounted on wheels and adapted to straddle the trench, the pick-beam loosely secured above the frame, the pick and mechanism for operating the same, carried by the beam, the elevator loosely secured on the rear axle of the machine, and the bucket-chain, both pick-beam and elevator being capable of a vertical and lateral adjustment to bring the latter in proper position beneath the pick, substantially as described.

19. In a trench-excavator, the frame, the pick-beam loosely secured in the forward part of the frame and capable of vertical adjustment, the pick and mechanism for operating the same, carried by the beam, the elevator composed of the telescopical sections, said elevator being loosely secured on the rear axle of the machine, the bucket-chain, and means for adjusting the pick-beam and elevator, substantially as described.

20. In a trench-excavator, the frame, a pick-beam loosely secured in the front portion of said frame and having a vertical and lateral adjustment, the pick and mechanism for operating the same, carried by said beam, the elevator loosely secured on the rear axle and adapted to be adjusted laterally thereon, the bucket-chain operating on said elevator, and means for adjusting the pick and elevator, substantially as described.

21. In a trench-excavator, the pick-beam made of angle-iron loosely fitted in an angularly-slotted plate to enable the lower end of the pick-beam to be swung in any direction, substantially as described.

482,261. REVERSING ATTACHMENT FOR SCREW-CUTTING LATHES. JOHN J. MERRING, St. Louis, Mo. Filed Jan. 13, 1890. Serial No. 417,884. (No model.)



Claim.—1. In a reversing attachment for screw-cutting lathes, the combination of the leader gear-wheel 10 and screw guide-hob 11, the elongated bearing-rod 8, on which said leader-wheel and hob are laterally adjustable, the drive-pinion 7, the mandrel of the lathe on which said drive-pinion is mounted, the hanger-bar 29, the journal 31, that projects from said hanger-bar, the tube-bearing 30, that mounts to said bar, and the broad intervening reversing-pinion 32, that is mounted on said journal 31 and effects a reversing movement of said leader-wheel to that of its normal drive, substantially as described.

2. In a reversing attachment for screw-cutting lathes, the combination of the elongated bearing-rod 8, the leader gear-wheel 10, and screw guide-hob 11, laterally adjustable on said rod, the back gear-frame in which said rod is mounted, the drive-pinion 7, mounted on the mandrel that carries the cone-pulleys, the hanger-bar 29, having the mounting tube-bearing 30, the journal 31, that projects from said hanger-bar, the broad intervening reversing-pinion 32, mounted on said journal, the perforate angle-arm 34, that projects from said hanger-bar, and the set-screw 36, that secures said angle-arm to the back gear-frame, substantially as described.

3. In a reversing attachment for screw-cutting lathes, the combination of the laterally-adjustable leader gear-wheel and screw guide-hob, the drive-pinion Y, the attachable hanger-bar 29, carrying the journal 31, the broad intervening reversing-pinion 32, mounted on said journal, said hanger-bar provided with the slit-opening 38, the perforate lugs 39, and the set-screw 40, that tightens the mounting bearings of said hanger-arm, substantially as described.

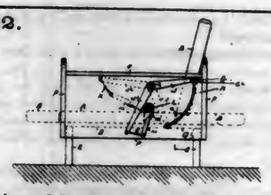
4. In a reversing attachment for screw-cutting lathes, the combination of the laterally-adjustable leader gear-wheel 10 and screw guide-hob 11, the drive-pinion 7, the attachable hanger-bar 29, the intervening broad reversing-pinion 32, carried by said attachable hanger-bar, the guide-screw 13 on the periphery of said hob 11, the leader-die 14, that works in said screw, the guide-arm 19, the chaser-bar 16, the chaser-tool 15, the die-holder turret 25, the die-cutter 26, the set-screw that holds said cutter, the chuck 5 on the mandrel, and the blank 6, held by said chuck while said cutter effects its respective right and left hand screw cuts, substantially as described.

5. In a reversing attachment for screw-cutting lathes, the combination of the reversing-pinion 32, the interchangeable leader gear-wheel 10, and the hanger-bar that carries said pinion, the screw guide-hob 11, and drive-pinion 7, substantially as set forth.

482,262. SOFA-BED. JAMES P. MILLER, Boston, Mass. Filed May 10, 1892. Serial No. 432,504. (No model.)

Claim.—In a sofa-bed of the character described, the combination, with the back and opposite arm-frames, of bolts G, held on said back-frame at its opposite ends, carrying slots H in said arm-frames, receiving said bolts G, angular levers J J^3, fulcrumed on said arm-frames and concentric with said slots H and by their arms J engaging said bolts G, coiled springs L at one end rigidly held on said arm-frames, and chains K, joining the free end of said springs L and the arms J^3

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of said angular levers J J^3, substantially as described, for the purposes specified.

and provided with a platform beneath the supply-hopper, a slide carrying a scale, a portion of which is visible from the outside of the box-body, a weight held to slide upon the scale-beam, and a connection between the scale-carrying slide and the scale-beam weight, as and for the purpose set forth.

5. In a device of the character described, the combination, with a scale-beam and a device for supplying material to a vessel supported by the scale-beam, of a dial having movement past a sight-opening, a weight held to slide upon the scale-beam, and a connection between the dial and the beam, whereby when the dial is moved the weight will also be moved, as and for the purpose set forth.

6. A machine of the character described, comprising a box hav-

hooks, detachably connected therewith at one end and at the other end secured to the casing, substantially as set forth.

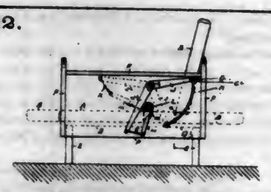
2. In a folding bed, the combination, with a casing and a bed pivoted in said casing, of springs connected with the casing at its base, and also connected with the head portion of the bed, and spring-pressed levers fulcrumed in the base of the casing, said levers having bearings upon extensions at the sides of the bed, as and for the purpose specified.

3. The combination, with a casing and a bed pivoted therein, of springs secured at one end in the base portion of the casing and adjustably attached to the under portion of the bed at the head, projections formed at the sides of the bed, at the head, back of the pivot of

bottom rolls provided with a fixed ring *e*, which carry dies on their peripheries, the loose dies H, having a letter or design formed thereon, the securing-rings F, provided with beveled faces which hold the dies in position, and the adjusting-screws *f*, by which the securing-rings are held, substantially as described.

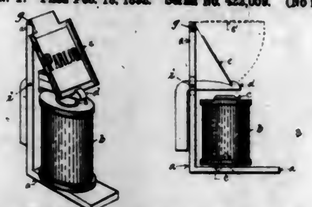
6. In apparatus for producing or impressing upon sheets of ductile metal lettering, figuring, or design in relief, the combination, with the framing A, the shafts G, which carry the rolls, and the top and bottom rolls D and E, upon the peripheries of which the dies are mounted and each provided with a ring *e*, with beveled faces, of the dies H, having a letter or design formed thereon, the loose movable

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of said angular levers J J², substantially as described, for the purposes specified.

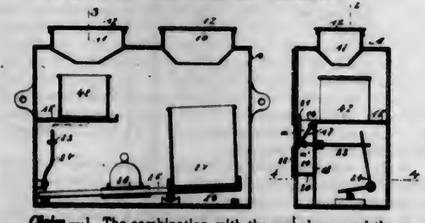
482,268. ELECTRIC ANNUNCIATOR. ERASTUS D. MOORE, New York, N. Y. Filed Feb. 18, 1892. Serial No. 422,069. (No model.)



Claim.—1. The combination of the frame *a*, the helix *b*, the magnet-core *c*, the armature *d*, the indicator-plate *e*, the spring *f*, pivotally mounted, as at *g*, and the pivot carrying the armature, all arranged and operating substantially as and for the purpose set forth.

2. The combination of a frame having a slot therein and two projecting arms, a core mounted in a position approximately parallel with said slot, the armature *d*, pivotally mounted in the slot, an indicator-plate pivoted between the arms of the frame and engaging the armature, and a spring, as at *f*, adapted to throw the indicator-plate away from the armature when the armature releases the plate, substantially as set forth.

482,264. MILK-RECEIVER. SILAS J. MORGAN, La Grange, Ill. Filed Apr. 4, 1892. Serial No. 427,622. (No model.)



Claim.—1. The combination, with the scale-beam and the receptacle-platform carried thereby, of a ticket-delivery mechanism connected with the scale-beam and operated thereby when the receptacle receives the proper quantity, substantially as set forth.

2. In a device of the character described, the combination, with the box-body provided with a hopper leading into the interior and a sub-compartment having an opening at one end and a damper pivoted at the opposite end of the sub-compartment, which damper is capable of extending across the compartment, of a trip-lever, a connection between the trip-lever and the damper, and a scale-beam one end o which is adapted for engagement with the trip-lever, which beam is also provided with a platform located beneath the hopper, the platform being adapted to receive a vessel, substantially as shown and described.

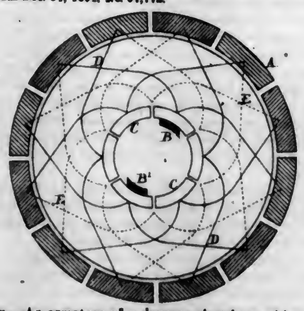
3. In a device of the character described, the combination, with a box-body and a feed apparatus leading into the body, the said body being provided with a sub-compartment and a damper pivoted in the compartment, of a trip-lever, a connection between the trip lever and the damper, a scale-beam fulcrumed within the box-body, one end of the beam being adapted for engagement with the trip-lever, the said beam being also provided with a platform located beneath the feed apparatus, a weight adjustably placed upon the beam, and a slide carrying a scale connected with the adjustable weight, whereby the said weight may be moved in such a manner as to regulate the weighing capacity of the scale, substantially as shown and described.

4. In a device of the character described, the combination, with a casing provided with a supply-hopper, a ticket-receiving compartment having a drop-bottom, and a trip-lever connected with the drop-bottom, of a scale-beam adapted for engagement with the trip-lever and provided with a platform beneath the supply-hopper, a slide carrying a scale, a portion of which is visible from the outside of the box-body, a weight held to slide upon the scale-beam, and a connection between the scale-carrying slide and the scale-beam weight, as and for the purpose set forth.

5. In a device of the character described, the combination, with a scale-beam and a device for supplying material to a vessel supported by the scale-beam, of a dial having movement past a sight-opening, a weight held to slide upon the scale-beam, and a connection between the dial and the beam, whereby when the dial is moved the weight will also be moved, as and for the purpose set forth.

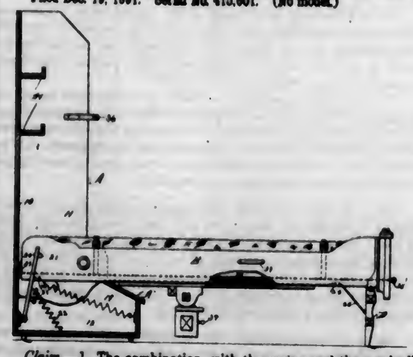
6. A machine of the character described, comprising a box having an inlet-opening at its top and two doors on one side, a scale-beam in the box, provided with a receptacle-platform adjacent to one door and below the said inlet-opening, a sliding weight on the beam, a dial having a movement past an opening in the box and connected with the weight, and a handle on the dial, projecting adjacent to one of said door-openings, a ticket-delivering mechanism connected with the scale-beam and operated thereby, a passage leading downward to said mechanism from the other of said two doors, and a locking mechanism to simultaneously lock both of the said doors after the operator has placed a receptacle on the platform, dropped a ticket in the passage, and adjusted the dial by means of said handle, substantially as set forth.

482,265. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. JOHN NEBEL, Charlton, assignor to the Siemens Brothers & Co., Limited, Westminster, England. Filed Nov. 11, 1891. Serial No. 411,596. (No model.) Patented in Germany Feb. 22, 1891, No. 61,059; in England Nov. 30, 1891, No. 20,340; in France Dec. 24, 1891, No. 304,633, and in Belgium Dec. 31, 1891, No. 97,772.



Claim.—An armature of a dynamo-electric machine, having its conducting-bars, not less than eight in number, divided into two, three, or *n* sections and this number increased or diminished by adding or subtracting 2, 4, or 2*n*—2, each bar of the number so determined being connected, not to that opposite to it, but to the second, third, or *n*th before the opposite, and each brush touching two, three, or *n* commutator-segments, of which there are half as many as there are bars, substantially as and for the purpose set forth.

482,266. FOLDING BED. WILLIAM S. NEVINS, Terre Haute, Ind. Filed Dec. 19, 1891. Serial No. 415,601. (No model.)



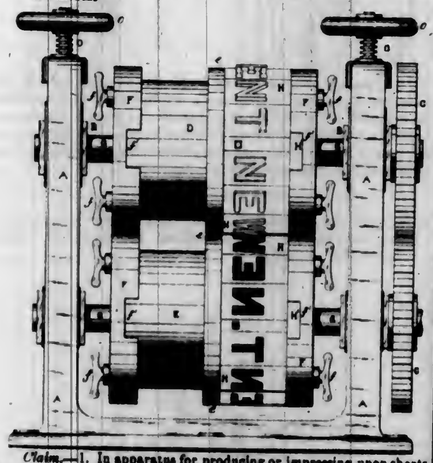
Claim.—1. The combination, with the casing and the vertically-swinging bed having side projections in rear of its pivots, of levers hinged at their rear ends to the casing and crossing the said projections, a series of hooks on each lever, and a spring for each series of hooks, detachably connected therewith at one end and at the other end secured to the casing, substantially as set forth.

2. In a folding bed, the combination, with a casing and a bed pivoted in said casing, of springs connected with the casing at its base, and also connected with the head portion of the bed, and spring-pressed levers fulcrumed in the base of the casing, said levers having bearings upon extensions at the sides of the bed, as and for the purpose specified.

3. The combination, with a casing and a bed pivoted therein, of springs secured at one end in the base portion of the casing and adjustably attached to the under portion of the bed at the head, projections formed at the sides of the bed, at the head, back of the pivot of the bed, levers fulcrumed in the rear of the base and having constant bearing upon the projections of the bed, and springs secured to the base of the casing and adjustably connected with the levers, as and for the purpose specified.

4. In a folding bed, the combination, with a casing, a bed pivoted therein and removable therefrom, springs attached to the base of the casing and to the head portion of the bed back of its pivot, and spring-pressed levers fulcrumed in the base and having constant bearing upon projections formed at the sides of the bed, of a latch carried by the bed and adapted for engagement with a keeper on the casing, a trip device connected with the latch, handles secured to the sides of the bed, latches attached to the sides of the casing and adapted for engagement with the handles, all combined to operate substantially as and for the purpose set forth.

482,267. APPARATUS FOR PRODUCING LETTERING, &c., IN RELIEF ON SHEETS OF DUCTILE METAL. JOHN M. NEWTON, Stalybridge, England, assignor of five-twelfths to John Edward Gimson and Arthur Newton, same place. Filed Nov. 3, 1891. Serial No. 410,766. (No model.)



Claim.—1. In apparatus for producing or impressing upon sheets of ductile metal lettering, figuring, or design in relief, the combination, with the rolls, of dies H, each in the form of a segment cut from a cylinder, having a letter or design formed thereon, and the securing-rings F, each cap shaped to fit over the end of the roll and provided with beveled faces which secure the dies on the roll, substantially as described.

2. In apparatus for producing or impressing upon sheets of ductile metal lettering, figuring, or design in relief, the combination, with a roll provided with a ring *e*, having beveled faces, of the dies H, having letters, figures, or designs thereon, substantially as and for the purpose described.

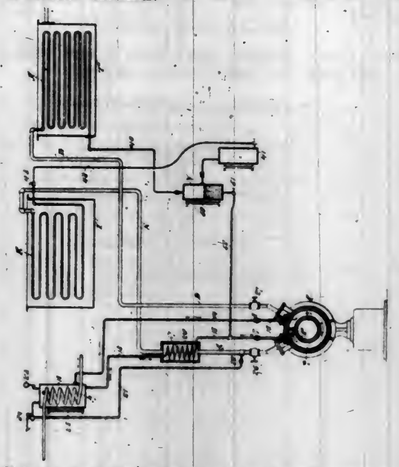
3. In apparatus for producing or impressing upon sheets of ductile metal lettering, figuring, or design in relief, the combination, with a roll provided with a ring *e*, of the movable cap-shaped rings F, which fit over the ends of the rolls, and the adjustable screws *f*, by which the rings are clamped, substantially as described.

4. In apparatus for impressing or producing upon sheets of ductile metal lettering, figuring, or design in relief, the combination, with the roll provided with a stationary ring *e* and dies H, of the movable rings F, provided with a recess *f'*, and the loose key-segment H', substantially as described.

5. In apparatus for producing or impressing upon sheets of ductile metal lettering, figuring, or design in relief, the combination of the framing A, the shafts G, to which the rolls are affixed, the top and bottom rolls provided with a fixed ring *e*, which carry dies on their peripheries, the loose dies H, having a letter or design formed thereon, the securing-rings F, provided with beveled faces which hold the dies in position, and the adjusting-screws *f*, by which the securing-rings are held, substantially as described.

6. In apparatus for producing or impressing upon sheets of ductile metal lettering, figuring, or design in relief, the combination, with the framing A, the shafts G, which carry the rolls, and the top and bottom rolls D and E, upon the peripheries of which the dies are mounted and each provided with a ring *e*, with beveled faces, of the dies H, having a letter or design formed thereon, the loose movable securing-rings F, provided with beveled faces which hold the dies in position and formed with a recess *f'*, through which the dies are inserted, the loose key-segments H', which fill the recesses *f'*, and the adjusting-screws *f*, which maintain the securing-rings in position, substantially as described.

482,268. REFRIGERATING APPARATUS. CARLETON W. MASON and CHARLES H. LEINERT, New York, N. Y. Filed Oct. 3, 1891. Serial No. 407,603. (No model.)



Claim.—1. In a refrigerating apparatus, the combination of a piston-chamber in a gas-compressor for the reception of a circulating sealing lubricant and the circulatory system of ascending and descending columns of lubricating or sealing liquid communicating therewith, which columns of liquid are propelled by the alternate expansion and contraction due to the heat of compression in said chamber and the lower temperature above, substantially as described.

2. The combination, with the cylinder of a gas-compressor and its piston, the latter provided with an annular chamber between its bearing ends, within which the lubricating or sealing liquid may circulate and be subjected to the heat of compression, of a reservoir connected with said chamber for supplying a body of the liquid thereto and means for cooling said liquid, through which chamber the liquid is circulated by the changing specific gravity due to the said heat and cooling, substantially as described.

3. The combination, with the cylinder of a gas-compressor and its piston, the latter provided with an annular chamber intermediate between its bearing ends, of induction and eduction pipes connecting such chamber with a lubricating or sealing liquid reservoir and without communication with the pressure side, substantially as described.

4. In a gas-compressor, the combination, with a piston provided with an annular chamber intermediate between its bearing ends and having a longitudinal cut-off or dividing-wall, of induction and eduction pipes leading to said chamber on opposite sides of said cut-off, substantially as described.

5. In a gas-compressor, the combination, with a piston provided with a chamber intermediate between its bearing ends and having a longitudinal cut-off, of induction and eduction passages through the body of the compressor-cylinder communicating with said chamber on opposite sides of the cut-off, pipes connecting said passages with a lubricating or sealing liquid reservoir, and a cooler operating to reduce the temperature of the liquid prior to its introduction into said chamber, substantially as described.

6. In a refrigerating apparatus, the combination, with a compressor-piston provided with a chamber within which the lubricating or sealing liquid is circulated without communication with the pressure

side, of induction and eduction pipes connecting such chamber with a lubricating or sealing liquid reservoir, said induction-pipe having a coil which is within a chamber through which the expanded gas passes in returning to the compressor, substantially as described.

7. In a refrigerating apparatus, the combination, with a compressor-piston provided with a chamber for the circulation of the lubricating or sealing liquid, induction and eduction pipes connected therewith and with a lubricating or sealing liquid reservoir, of a pipe connecting said reservoir with the low-pressure side of the apparatus and provided with an adjustable valve whereby gas that may have leaked into said reservoir will be automatically discharged when it has attained a predetermined pressure, substantially as described.

8. A refrigerating apparatus consisting of a compressor-piston

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cavity and adapted to receive the fruit, and a central slot and opening through which the knife passes when the carrier reaches it and through which the pit is ejected when forced from the fruit, substantially as herein described.

2. In a fruit-pitting machine, a framework having a rotary shaft with sprocket-wheels fixed thereto journaled at one end, a crank-shaft with a sprocket-wheel fixed thereto, a chain passing from said sprocket-wheel to a second sprocket-wheel upon the first-named shaft, treadles and connecting-rods uniting them with the cranks, whereby motion is transmitted to the shafts, a stationary shaft fixed at the opposite end of the top of the machine, having loosely-revolving sprocket-wheels

ate projecting points N⁶, and the central projecting spurs Q, substantially as herein described.

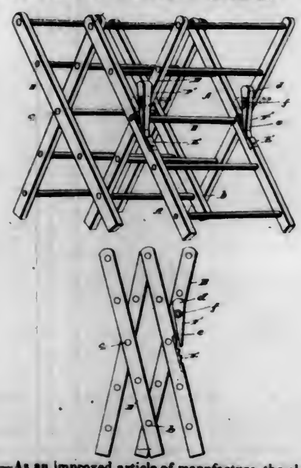
482,273. MACHINE FOR OPENING AND PREPARING COTTON. JAMES C. POTTER, Pawtucket, R. I., assignor to the Potter & Atherton Machine Company, same place. Filed June 29, 1892. Serial No. 438,446. (No model.)

side, of induction and eduction pipes connecting such chamber with a lubricating or sealing liquid reservoir, said induction-pipe having a coil which is within a chamber through which the expanded gas passes in returning to the compressor, substantially as described.

7. In a refrigerating apparatus, the combination, with a compressor-piston provided with a chamber for the circulation of the lubricating or sealing liquid, induction and eduction pipes connected therewith and with a lubricating or sealing liquid reservoir, of a pipe connecting said reservoir with the low-pressure side of the apparatus and provided with an adjustable valve whereby gas that may have leaked into said reservoir will be automatically discharged when it has attained a predetermined pressure, substantially as described.

8. A refrigerating apparatus consisting of a compressor whose piston is provided with a chamber for the lubricating or sealing liquid independent of the chamber or passages for the gas, a condenser to which the compressed gas is directly conveyed, an expansion-coil in which the gas is vaporized and from which it is directly conveyed to the suction side of the compressor, a drip-tank for separating such gas or oil as may combine from slight leakage in long use, and a storage-reservoir for the liquefied gas, which drip-tank and storage-reservoir are located between the condenser and expanding-coil, substantially as described.

482,269. CLOTHES-DRIER. GEORGE W. HORTH, Clarkes, Oreg. Filed May 10, 1892. Serial No. 432,497. (No model.)



Claim.—As an improved article of manufacture, the clothes-rack described, consisting, essentially, of the vertically-oblique bars A and B, pivotally connected together, and the cross bars or rounds connecting said vertically-oblique bars, the toothed plates secured to the outer sides of two of the bars A below their pivotal points, and the pawls F, constructed as shown and pivoted to two of the bars B at a suitable distance from their upper enlarged ends and out of their longitudinal centers to serve in locking the frame, substantially as and for the purposes specified.

482,270. MEANS FOR DRAWING CABLES INTO CONDUITS. THOMAS F. O'CONNOR, New York, N. Y., and JOSEPH W. MABEE, Pittsburg, Pa., assignors to the Standard Underground Cable Company, Pittsburg, Pa. Filed Jan. 6, 1892. Serial No. 417,304. (No model.)

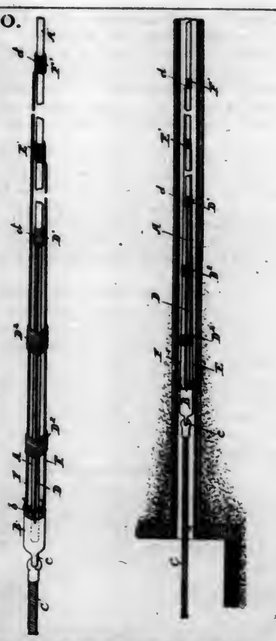
Claim.—1. The means, substantially as hereinbefore set forth, for introducing cables into conduits or ducts, which consists, essentially, of a draw-rope provided with a cap for the reception of the end of the cable and having connected thereto a series of wires, the ends of which are secured to the cable, as and for the purposes set forth.

2. As a means for introducing cables into conduits or ducts and preventing undue strain thereof, the combination of a series of draw-wires connected to the cable at different points along its length, substantially as described.

3. As a means for introducing cables into conduits or ducts, the combination of a draw-rope having a cap for the reception of the free end of the cable and a series of wires connected to the cap and to the cable at different points along its length, substantially as described.

4. As a means for introducing cables into conduits or ducts, the combination of a series of draw-wires connected to the cable at different points, each draw-wire being slightly shorter than the section of the cable to which it is attached, substantially as described.

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5. As a means for introducing cables into conduits or ducts, the combination of a draw-rope having a cap provided with a recess for the reception of the free end of the cable, and a series of draw-wires attached to the cap and having their free ends securely attached to the cable at different points and intermediate loose wrappings for the cable and draw-wires, substantially as described.

482,271. ATTACHMENT FOR VELOCIPEDES. GEORGE OPENSHAW and CHARLES A. CARR, Bury, England. Filed Oct. 10, 1891. Serial No. 408,398. (No model.)

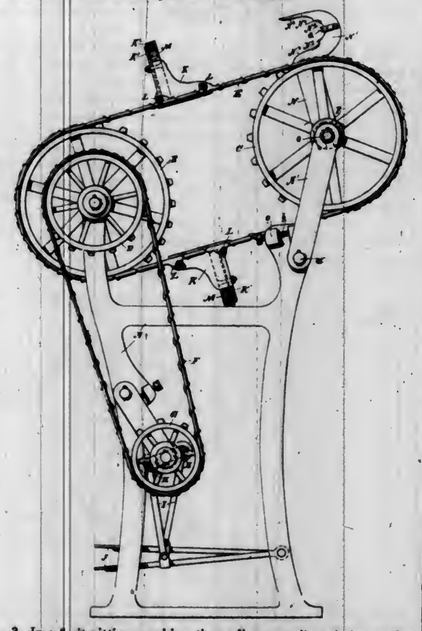


Claim.—The combination, with a bicycle or other velocipede, of a hook E, secured thereto, a strap or belt to surround the body of the rider, the ends of which strap or belt terminate in front of the rider, a straddle C, to which the ends of the strap or belt are adjustably attached, and a ring secured to the breeches-strap and adapted to be connected to the hook on the vehicle, substantially as described.

482,272. FRUIT-PITTING MACHINE. FRANK C. PHILIPS, Healdsburg, Cal. Filed May 6, 1892. Serial No. 432,053. (No model.)

Claim.—1. In a fruit-pitting machine, the framework having a horizontal stationary shaft fixed at one end of the top with sprocket-wheels revolving loosely thereon and a central radially-fixed sickle-shaped knife projecting from the shaft intermediate between the sprocket-wheels, a rotary shaft journaled at the opposite end of the frame and means for communicating motion thereto, sprocket-wheels fixed upon said shaft, chains passing around these sprocket-wheels and those upon the fixed shaft, parallel with each other, fruit-carriers with their opposite sides fixed between the two chains, having a concavity and adapted to receive the fruit, and a central slot and opening through which the knife passes when the carrier reaches it and through which the pit is ejected when forced from the fruit, substantially as herein described.

2. In a fruit-pitting machine, a framework having a rotary shaft with sprocket-wheels fixed thereto journaled at one end, a crank-shaft with a sprocket-wheel fixed thereto, a chain passing from said sprocket-wheel to a second sprocket-wheel upon the first-named shaft, treadles and connecting-rods uniting them with the cranks, whereby motion is transmitted to the shafts, a stationary shaft fixed at the opposite end of the top of the machine, having loosely-revolving sprocket-wheels upon it at equal distances apart with those upon the first-mentioned shaft, independent chains passing around said sprocket-wheels, parallel with each other, and carriers consisting of boxes having an open front, closed back and sides, and a central slot passing through the bottom and back, means whereby said carriers are secured between the chains and movable therewith, elastic cup-shaped back pieces and bottom pieces fitted into the carriers to receive the fruit, having slots made therein, and a central opening in the concavity of the back piece for the ejection of the pit, in combination with a knife having a shank fixed centrally to the stationary shaft, extending radially outward therefrom, and having the concave cutting-edge with the centrally-projecting spurs, whereby the fruit is first cut around the pit as it is brought against the knife and the pit is forced out through the back of the carrier, substantially as herein described.

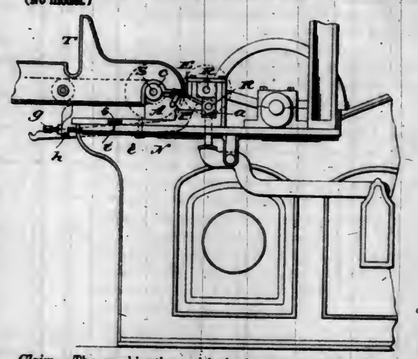


3. In a fruit-pitting machine, the endless traveling chains passing around sprocket-wheels parallel with each other, carriers fixed between the chains and movable therewith, having a slotted bottom and back, the elastic cup-shaped receiving-plates or holders upon the bottoms of the carriers, and the slotted concaved backs having the central opening for the ejection of the pit, said backs being adjustable in the back of the outer case by means of slots and screw-bolts to fit them to different sizes of fruit, substantially as herein described.

4. In a fruit-pitting machine, the rotary and stationary shafts, sprocket-wheels mounted thereon, endless parallel chains passing around the wheels, with carriers secured between and movable with them, a stationary radial knife extending outward from the fixed shaft to intercept and divide the fruit brought to it by the carriers, and a two-part framework on which the sprocket-wheel shafts are mounted, said framework being adjustably united, so that the tension of the chain is maintained, substantially as herein described.

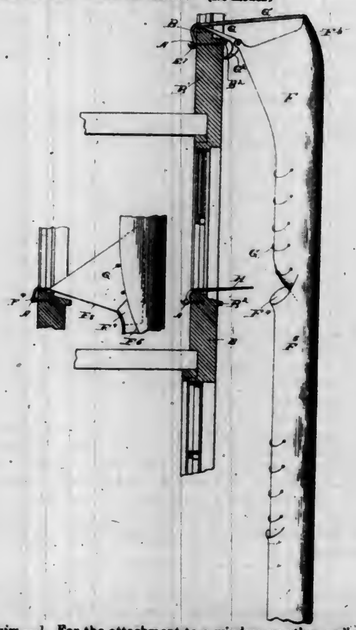
5. In a fruit-pitting machine, the rotary and stationary shafts, sprocket-wheels mounted thereon, endless parallel chains passing around the wheels, with carriers secured between and movable with them, in combination with a stationary radial knife having the shank secured to the stationary shaft and having the outer sickle-shaped end with the independent curved cutting-edges N^2 N^3, the intermediate projecting points N^4, and the central projecting spurs Q, substantially as herein described.

482,273. MACHINE FOR OPENING AND PREPARING COTTON. JAMES C. POTTER, Pawtucket, R. I., assignor to the Potter & Atherton Machine Company, same place. Filed June 29, 1892. Serial No. 438,446. (No model.)



Claim.—The combination, with the beater, the feed-rolls, evener devices, and feed-apron, of a stand secured to and adjustable upon the frame and carrying said feed-rolls, evener devices, and feed-apron, whereby the feed-rolls and the other parts with which they are in operative relation may as a whole be adjusted toward and away from the beater, substantially as and for the purposes hereinbefore set forth.

482,274. FIRE-ESCAPE. JAMES PRIDE, London, England. Filed Apr. 16, 1891. Serial No. 389,198. (No model.)



Claim.—1. For the attachment to a window or other wall-opening of a fire-escape, the combination, with the ladder, of a frame G G', having feet G^2, substantially as and for the purpose described.

2. In a fire-escape, the combination, with a folding frame pivotally supported, as described, of the casing or framework carried by said folding frame, to which the chute is directly attached and serving to hold the mouth of the chute open and to contain the chute when not in use, substantially as shown and described.

3. The combination, with a fire-escape chute or tube having intermediate openings by which entrance to the chute may be secured,

of loops or rungs upon the outside of the chute and also upon the flap, substantially as and for the purpose described, and illustrated in Fig. 3 of the accompanying drawings.

4. In a fire-escape, the combination, with the chute or tube having one or more intermediate openings by which entrance to the chute may be had, of an apron secured to the chute at each of these entrances and extending a suitable distance up the sides of the chute, having hooks or other means of attachment for securing it in place, substantially as described.

5. In a fire-escape, the combination, with a tube or chute, of fork-ended rungs secured to its vertical edges, substantially as described, and illustrated in the accompanying drawings.

6. In a fire-escape, the combination, with a tube or chute having

suitable bearing and running over the top of said chain, and spring g^3, impinging against the bearing of said wheel g' and bearing said wheel down against said sprocket-chain, keeping it taut, substantially as shown and described, and for the purposes set forth.

4. An armillary sphere carried by a pivoted arm moving over a scale representing latitude and provided with a weighted horizon-disk and with movable declination-quadrants pivoted at the poles, substantially as described.

5. In an armillary sphere carried by a pivoted arm moving over a scale representing latitude, a circle representing the ecliptic arranged to be turned about its own center and also around the equator-circle and means for supporting the same, substantially as described.

6. In an armillary sphere carried by a pivoted arm moving over a scale representing latitude, the combination of circles representing, respectively, the equator, the meridian, and the ecliptic, a weighted

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of loops or rungs upon the outside of the chute and also upon the flap, substantially as and for the purpose described, and illustrated in Fig. 3 of the accompanying drawings.

4. In a fire-escape, the combination, with the chute or tube having one or more intermediate openings by which entrance to the chute may be had, of an apron secured to the chute at each of these entrances and extending a suitable distance up the sides of the chute, having hooks or other means of attachment for securing it in place, substantially as described.

5. In a fire-escape, the combination, with a tube or chute, of fork-ended rungs secured to its vertical edges, substantially as described, and illustrated in the accompanying drawings.

6. In a fire-escape, the combination, with a tube or chute having its edges folded over cores, of fork-ended rungs secured to it by rivets passing through the forked ends of folded edges and cores, substantially as described, and illustrated in the accompanying drawings.

7. For attachment to a window or door or other wall-opening, the combination, with a purchase-bar, of a platform which may be connected to it by hooks which admit of its removal from the bar only when the platform is in an inoperative position.

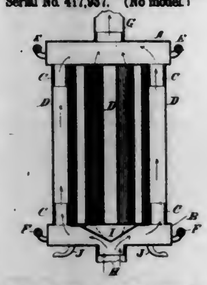
8. In a fire-escape, the combination, with the folding frame having the pivoted hooks at the rear side, of the purchase-bar, to which the folding frame is pivotally connected by said hooks, substantially as and for the purpose set forth.

482,275. SWINGING BED FOR INFANTS. BERTHA B. ROACH, Upper Alton, Ill. Filed Dec. 8, 1891. Serial No. 414,377. (No model.)



Claim.—As an improvement in swinging beds for infants, the combination, with a flexible hammock and a bed disposed therein, of head and foot boards 14, of greater height than said bed and adapted, when applied, to retain the sides of the hammock in vertical position above the bed, whereby guards for the latter are formed, substantially as and for the purpose set forth.

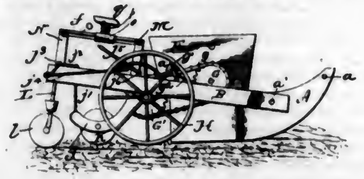
482,276. HEATING-DRUM. JACOB SEITHER, Keokuk, Iowa. Filed Jan. 13, 1892. Serial No. 417,937. (No model.)

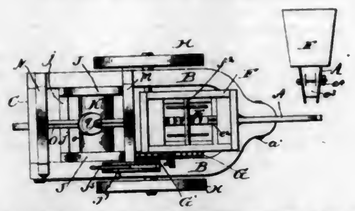


Claim.—In a heating-drum, the combination of a pair of hollow heads or terminals, short sections of pipe or tubing connected to and communicating with each of the heads, a similar number of flues for connecting the heads, fitting over the short sections of tubing, a conical heat deflector located in the center of the lower head and directly over the inlet-pipe, whereby the heat is equally distributed among the flues, and inlet and outlet pipes connected to each head, substantially as described.

482,277. COTTON-PLANTER. PETER P. SIMPSON, Henderson, assignor of one-half to William J. Arnett, Mountain Home, Ark. Filed Feb. 4, 1892. Serial No. 420,267. (No model.)

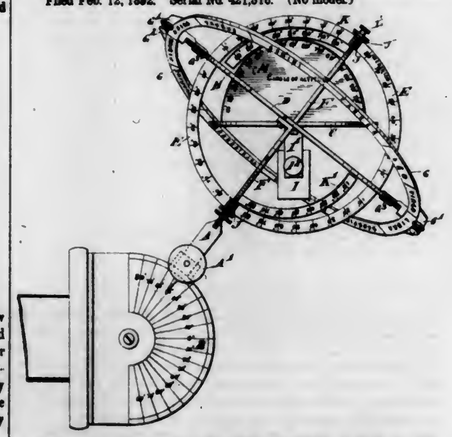
Claim.—1. The combination, with the frame B, of runner A, pivoted in the front end of said frame, widening at its rear end to receive the periphery of the feeder, hopper F, secured to the upper part and rear end of said runner, feed-wheel E, and stirrer f^3, journaled in said hopper, slotted feed-regulator c^6, borne in the front end of said hopper, adjustable plate c^5, pivoted in the rear end of said runner, sprocket-wheel G', borne on the axle of the wheels of the planter, sprocket-wheel G, secured on the end of the axle of the feeder E, sprocket-chain g, passing around said wheels, sprocket-wheel g', journaled in a suitable bearing and running over the top of said chain, and spring g^5, impinging against the bearing of said wheel g' and bearing said wheel down against said sprocket-chain, keeping it taut, substantially as shown and described, and for the purposes set forth.





2. In a cotton-seed planter, the combination of the side pieces B, borne on an axle and wheels, runner A, pivoted between the front ends of said side pieces and provided with means for raising its rear end from the ground, hopper F, secured to the upper edges and rear end of said runner and provided with means for working the seed into the furrow below, roller K, journaled between arms J and provided with means for raising said roller from the ground, caster-wheel l, journaled in the lower forked end of rod L, rod L, pivoted in the rear cross-beam C, braces M and N, secured to said side pieces B, rod O, rigidly secured to the apex of said braces, and sliding seat q, working on said rod, said braces, rod, and seat being in the rear of the axle and wheels of said planter, substantially as shown and described, and for the purposes set forth.

482,278. ARMILLARY SPHERE. JOHN S. SLATER, Calcutta, India. Filed Feb. 12, 1892. Serial No. 421,316. (No model.)



Claim.—1. An armillary sphere for illustrating motions of celestial bodies, carried by a pivoted arm moving in a vertical plane over a scale graduated to represent latitude, substantially as described.

2. In an armillary sphere for representing motions of celestial bodies, a pivoted weighted disk that represents the sensible horizon and is adapted to remain in a horizontal attitude in all positions of the armillary sphere and an adjustable circle of altitude carried by said weighted disk, substantially as described.

3. An armillary sphere for illustrating motions of celestial bodies, carried by a pivoted arm moving in a vertical plane over a scale graduated to represent latitude and provided with a pivoted weighted disk representing the sensible horizon, the said disk assuming a horizontal position in all positions of the armillary sphere, substantially as described.

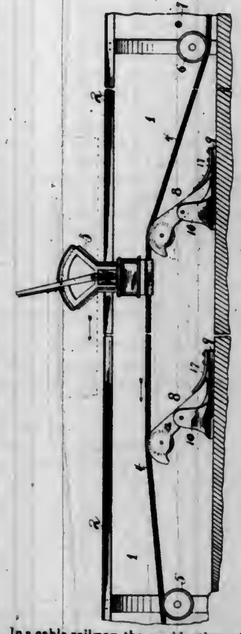
4. An armillary sphere carried by a pivoted arm moving over a scale representing latitude and provided with a weighted horizon-disk and with movable declination-quadrants pivoted at the poles, substantially as described.

5. In an armillary sphere carried by a pivoted arm moving over a scale representing latitude, a circle representing the ecliptic arranged to be turned about its own center and also around the equator-circle and means for supporting the same, substantially as described.

6. In an armillary sphere carried by a pivoted arm moving over a scale representing latitude, the combination of circles representing, respectively, the equator, the meridian, and the ecliptic, a weighted horizon-disk, and movable declination-quadrants pivoted at the poles, substantially as described.

7. In an armillary sphere, the combination, with circles D, E, F, and G, disk C, weight I, scale M, and quadrants K K', of the arm A, moving over scale B and having a clamp A' for fixing it in any desired position on said scale, substantially as described.

482,279. AUTOMATIC GIPSY FOR CABLE RAILWAYS. ANDREW J. SMITH, St. Louis, Mo., assignor of one-half to Theodore H. Wurmb, same place. Filed Oct. 24, 1891. Serial No. 409,653. (No model.)



Claim.—1. In a cable railway, the combination, with the cable and its carrying-sheaves normally below the path of the grip, of gipsies arranged in juxtaposition with a crossing cable and adapted to normally hold a straight determinate length of the first-mentioned cable elevated in the path of the grip, substantially as set forth.

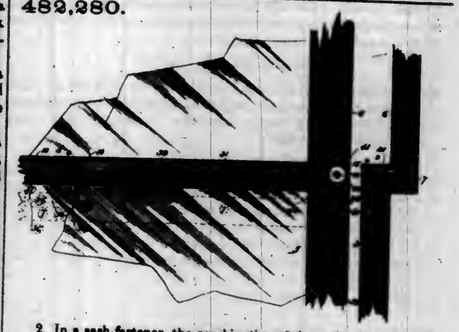
2. In a cable railway, the combination, with the cable, of yielding gipsies arranged to normally hold a determinate length of said cable above the normal height and in the normal path of the grip jaws carried by the car, whereby cars may take the cable without stopping or slacking speed at any point within said determinate length so elevated, substantially as set forth.

3. The combination of two yielding supports S, situated a determinate distance apart in a cable-conduit and constructed to yieldingly hold a determinate length of cable elevated above its normal line of travel and in a line in the path of the grip-jaws, substantially as specified.

482,280. AUTOMATIC SASH-FASTENER. GEORGE SOLARI, St. Louis, Mo. Filed Apr. 5, 1892. Serial No. 427,912. (No model.)

Claim.—1. In a sash-fastener, the combination of the spring-lock that fastens together the meeting-rails of the sash, the captor-cord that captivates the spring-bolt of said lock in its disengaged position, and the pivoted captor quadrant-plate that holds said cords, substantially as described.

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2. In a sash-fastener, the combination of the spring-lock that fastens together the meeting-rails of the sash, the captor-cord 31, the pivoted captor quadrant-plate 58, connected by said cord to the bolt of said lock, the ratchet-teeth 65 on said quadrant-plate, and the spring-pawl 66, that engages in said ratchet and maintains the stress of said quadrant-plate on said cord, substantially as described.

3. In a sash-fastener, the combination of the spring-lock that fastens together the meeting-rails of the sash, the captor-cord 31, the pivoted captor quadrant-plate 58, the ratchet-teeth on said captor-plate, the spring-pawl that engages in said teeth, and the automatic trip-bolt 75, that trips said pawl out of engagement with said ratchet, substantially as described.

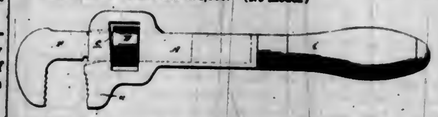
4. In a sash-fastener, the combination of the pivoted spring captive-quadrant lock-bolt 21, the captor-cord 31, that when said lock-bolt is not engaged holds it captive, the spring 27, that when said bolt is released by said cord throws it into its engaged position, the keeper 34, and the safety-box 81, the said box having the anti-rattler locking-surface 82, against which said bolt locks, substantially as described.

5. In a sash-fastener, the combination of the countersunk boxing of the spring-lock, embedded in one of the sash-rails, the keeper-plate having its safety-boxing 81 embedded in the corresponding sash-rail, the pivoted quadrant-bolt, the spring that projects said bolt into engagement with said keeper-plate, the captor-cord 31, the captor-plate 58, that holds the initial end of said cord, the serrated rack on said captor-plate, the pivoted pawl 66, whose point when the spring-bolt is held captive engages with said rack, the spring 67, that projects said pawl, the trip-bolt 75, having the elongated neck 77, and the trip-bolt-carrier lugs 50, between which said elongated neck is seated and works, substantially as described.

6. In a sash-fastener, the combination of the window-sill, the boss 80, embedded in said sill, the upper and the lower sash, the spring-lock countersunk in the meeting-rail of one sash, the keeper countersunk in the corresponding meeting-rail of the other sash, the captor-cord 31, secured to the spring-actuated bolt of said lock, the perforate seat 33, in which said cord is secured, the serrated rack and grooved captor pivoted plate 58, the perforate seat 62, in which the other end of said captor-cord is secured, the pivoted spring-pawl which engages with said rack, the trip-bolt 75, that vertically surmounts said boss 80 and when the sash is closed strikes the same and trips said pawl from engagement with said rack, substantially as described.

7. In a sash-fastener, the combination of the spring-lock 8, the captor-cord 31, that controls the action of the spring-bolt of said lock, to which bolt it is secured, the pivoted captor-plate 58 with its serrated rack 65, to which captor-plate the other end of said cord is secured, the pivoted spring-pawl 66, the automatic trip-bolt 75, the key-seat stem of the journal-shaft of said captor-plate, and the key that operates the same, substantially as described.

482,281. WRENCH. GEORGE B. STEVENSON, Chicago, Ill. Filed May 4, 1892. Serial No. 431,809. (No model.)



Claim.—In a wrench, the rigid jaw having a transverse slot, the forward wall c of which has its upper portion beveled and its lower portion straight and also having the longitudinal slot which extends into the shank or handle thereof and is open on the upper or outer side of said handle and has its lower wall in advance of the transverse slot beveled downwardly and forwardly, in combination with the movable jaw having a threaded shank or stem arranged in the slotted head and

shank or handle of the rigid jaw, and a threaded nut arranged on said stem and within the transverse slot of the rigid jaw, the whole adapted to operate substantially as specified.

482,282. DEVICE FOR FLOODING SHIPS' MAGAZINES. WILLIAM TAIT, Philadelphia, Pa., assignor to the William Cramp & Sons Ship and Engine Building Company, same place. Filed Apr. 13, 1892. Serial No. 428,967. (No model.)

out of registry with said opening cannot be withdrawn, substantially as set forth.

3. In combination, in a ship, a magazine or compartment to be flooded, a water-inlet thereto provided with a flood cock or valve, a valve-stem leading from said cock to a casing or deck-plate and terminating therein in a key head or socket located above a tight diaphragm through which said stem passes, a casing or deck-plate provided at or near its lower portion with a tight diaphragm and near its upper portion with a diaphragm or cover having a non-circular opening through it, an air-pipe leading from said magazine to said deck-plate and surrounding said valve-stem, one or more alarms opening through the tight diaphragm of the deck-plate, and a valve-key the valve-stem-engaging end portion of which is conformed to the key-head or socket

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482,284. FRUIT PITTING AND SPREADING MACHINE. JUDGE D. THOMAS and EDWARD E. THOMAS, San José, Cal. Filed May 4, 1892. Serial No. 431,826. (No model.)

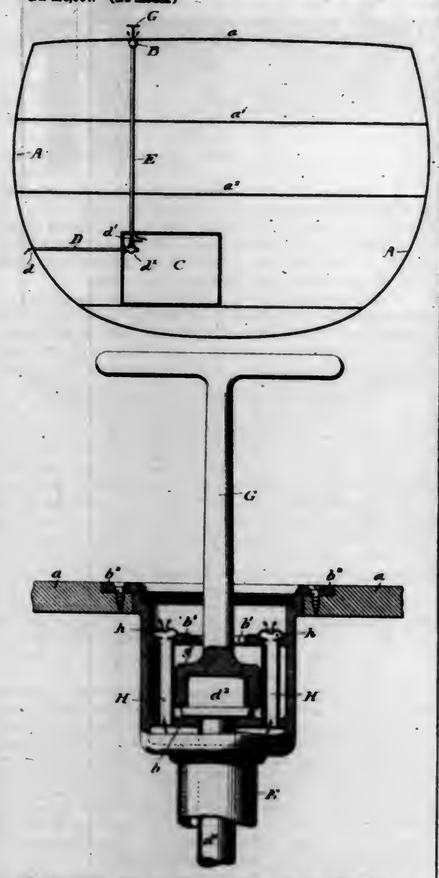
wardly upon the table after being cut, substantially as herein described.

5. In a fruit-pitting machine, the reciprocating carriers, the inclined delivery-channels by which the fruit is delivered in proper position to the carriers, stationary and movable knives by which the fruit is split and the pits separated therefrom, inclined plates by which the two halves of the fruit are separated and laid side by side, and a reciprocating rake by which the fruit after being thus laid is drawn backwardly and delivered and arranged upon a tray beneath the table, substantially as herein described.

6. In a fruit-pitting machine, the carriers, the knives by which the fruit is split and the pits separated therefrom, means for turning

shank or handle of the rigid jaw, and a threaded nut arranged on said stem and within the transverse slot of the rigid jaw, the whole adapted to operate substantially as specified.

482,282. DEVICE FOR FLOODING SHIPS' MAGAZINES. WILLIAM TAIT, Philadelphia, Pa., assignor to the William Cramp & Sons Ship and Engine Building Company, same place. Filed Apr. 13, 1892. Serial No. 428,967. (No model.)



Claim.—1. In combination, a magazine or compartment to be flooded, a water-inlet thereto provided with a flood cock or valve, a valve-stem leading from said cock to a casing or deck-plate and terminating therein in a key head or socket, a casing or deck-plate provided with a diaphragm or cover having a non-circular opening through it, and a valve-key the valve-stem-engaging end portion of which is conformed to the key head or socket of the valve-stem and registrable with the key-opening in order that it may be introduced through it, the arrangement being such that the key can only be introduced when its stem-engaging portion or socket registers with the key-opening, and when so introduced applied to the key-head and with it turned out of registry with said opening cannot be withdrawn, substantially as set forth.

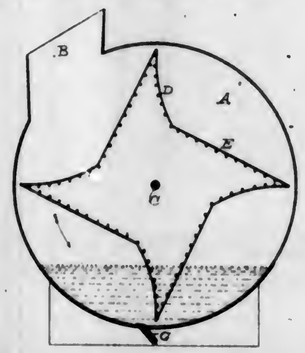
2. In combination, a magazine or compartment to be flooded, an air-pipe leading from said magazine and terminating in an alarm, a water-inlet thereto provided with a flood cock or valve, a valve-stem leading from said cock to a casing or deck-plate and terminating therein in a key head or socket, a casing or deck-plate provided with a diaphragm or cover having a non-circular opening through it, and a valve-key the valve-stem-engaging end portion of which is conformed to the key head or socket of the valve-stem and registrable with the key-opening in order that it may be introduced through it, the arrangement being such that the key can only be introduced when its stem-engaging portion or socket registers with the key-opening, and when so introduced applied to the key-head and with it turned out of registry with said opening cannot be withdrawn, substantially as set forth.

3. In combination, in a ship, a magazine or compartment to be flooded, a water-inlet thereto provided with a flood cock or valve, a valve-stem leading from said cock to a casing or deck-plate and terminating therein in a key head or socket located above a tight diaphragm through which said stem passes, a casing or deck-plate provided at or near its lower portion with a tight diaphragm and near its upper portion with a diaphragm or cover having a non-circular opening through it, an air-pipe leading from said magazine to said deck-plate and surrounding said valve-stem, one or more alarms opening through the tight diaphragm of the deck-plate, and a valve-key the valve-stem-engaging end portion of which is conformed to the key head or socket of the valve-stem and registrable with the key-opening in order that it may be introduced through it, the arrangement being such that the key can only be introduced when its stem-engaging portion or socket registers with the key-opening, and when so introduced applied to the key-head and with it turned out of registry with said opening cannot be withdrawn, substantially as and for the purposes set forth.

4. In combination, a compartment to be flooded, a water-inlet thereto provided with a flood-cock or valve, a valve-stem leading from said cock to a casing or deck-plate and terminating therein in a key-head d^3, a casing or deck-plate B, provided with a diaphragm or cover $b^\times$, having formed through it the key-opening b', and a valve-key G, having a socket g externally conformed to the key-opening b' and internally to the key-head d^3, the arrangement being such that the key can only be introduced when its socket registers with the key-opening, and when so introduced applied to the key-head and with it turned out of registry with said opening cannot be withdrawn, substantially as and for the purposes set forth.

5. In combination, a compartment to be flooded, an air-pipe leading from said compartment and terminating in an alarm, a water-inlet to said compartment provided with a flood cock or valve, a valve-stem leading from said cock to a casing or deck-plate and terminating therein in a key-head d^3, a casing or deck-plate B, provided with a diaphragm or cover $b^\times$, having formed through it the key-opening b', and a valve-key G, having a socket g externally conformed to the key-opening b' and internally to the key-head d^3, the arrangement being such that the key can only be introduced when its socket registers with the key-opening, and when so introduced applied to the key-head and with it turned out of registry with said opening cannot be withdrawn, substantially as and for the purposes set forth.

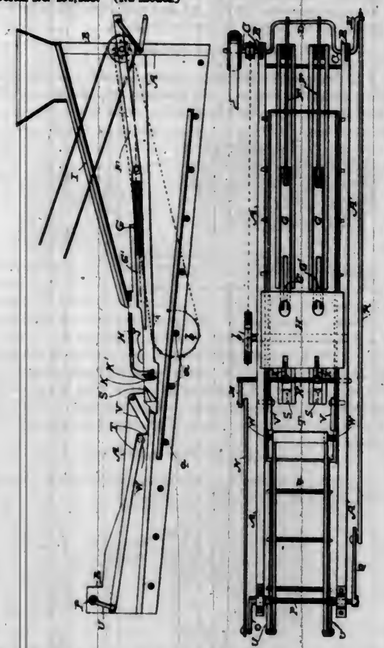
482,283. FRUIT-DIPPER. EDWARD R. THOMAS, San José, Cal. Filed Apr. 13, 1892. Serial No. 429,048. (No model.)



Claim.—1. A fruit-dipping apparatus consisting of a wheel rotating within a casing having a dipping-trough in the lower portion, said wheel having buckets formed with curved surfaces D and straight surfaces E, both composed of open network, substantially as herein described.

2. An apparatus for dipping fruit, consisting of a casing having a dipping trough in the lower part, an open front from which the fruit is delivered, a closed back, and a supply chute or hopper at the upper back portion, in combination with a wheel journaled within the casing, having network-buckets adapted to receive the fruit which is delivered through the supply-chute and carried down into the liquid in the trough, and corresponding network-extensions from the rear of said buckets by which the fruit is swept out and discharged from the front of the machine, substantially as herein described.

482,284. FRUIT PITTING AND SPREADING MACHINE. JUDGE D. THOMAS and EDWARD E. THOMAS, San José, Cal. Filed May 4, 1892. Serial No. 431,835. (No model.)



Claim.—1. A fruit-pitting machine consisting of horizontal reciprocating vertically-slotted carriers having the elastic sides between which the pits fall, a table beneath which said carriers reciprocate, said table having holes made through its surface to receive the fruit and deliver it to the carriers, and inclined-channeled chutes in which the fruit is automatically placed with its longest diameter in a vertical position and by which it is delivered to the holes in the table, substantially as herein described.

2. In a fruit-pitting machine, the horizontally-reciprocating carriers having the front ends slotted vertically with elastic sides and the concaved depressions adapted to receive and retain the fruit, a table beneath which the carriers reciprocate, having holes made in it of such diameter as to allow the fruit to fall through the holes and guide it to the carriers, inclined chutes by which the fruit is automatically placed with its longest diameter in a vertical position and by which it is delivered into the openings in the table, stationary knives fixed in the table beneath the carriers, projecting upwardly in the slots in the same so as to split the lower part of the fruit as it is moved over them, and sickle-shaped knives fixed to a shaft journaled across the lower part of the table, with a means for partially rotating said shaft, whereby the edges of the knives are caused to split the upper part of the fruit and to press upon the pits and force them downward through the slotted front ends of the carriers and through the corresponding slots in the lower part of the frame, substantially as herein described.

3. In a fruit-pitting machine, the horizontally-reciprocating carriers having the slotted elastic front ends and concave depressions in which the fruit is received, the inclined delivery-channels by which the fruit is automatically arranged with its greatest diameter in a vertical direction and in which it is allowed to roll down a table having holes in line with the lower ends of the delivery-chutes, into which the fruit is received therefrom and by which it is delivered to the carriers, stationary knives by which the lower part of the fruit is split as it is forced over the knives by the movement of the carriers, sickle-shaped knives fixed to a shaft, by which they are caused to split the fruit from above and force the pits down between the elastic front ends of the carriers and the openings in the table, and receiving-trays placed beneath the table, into which the pits fall, substantially as herein described.

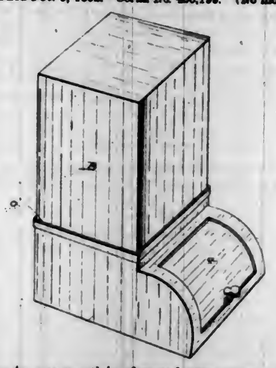
4. In a fruit-pitting machine, the horizontally-reciprocating carriers, the inclined feeding-channels by which the fruit is placed and delivered to the carriers, stationary and semi-rotating knives by which the fruit is split and the pits forced out of it, and inclined plates or shares by which the two parts of the fruit are separated and laid outwardly upon the table after being cut, substantially as herein described.

5. In a fruit-pitting machine, the reciprocating carriers, the inclined delivery-channels by which the fruit is delivered in proper position to the carriers, stationary and movable knives by which the fruit is split and the pits separated therefrom, inclined plates by which the two halves of the fruit are separated and laid side by side, and a reciprocating rake by which the fruit after being thus laid is drawn backwardly and delivered and arranged upon a tray beneath the table, substantially as herein described.

6. In a fruit-pitting machine, the carriers, the knives by which the fruit is split and the pits separated therefrom, means for turning the two halves of the fruit and laying it properly upon the table, a reciprocating rake and the inclined pivoted plates upon each side of the table or frame, pins projecting from the sides of the rake, which move up the inclined plates as the rake moves toward the carriers and allows the rake to drop from the rear ends of said plates, so as to draw the fruit backward in its return stroke, the pins passing beneath the pivoted plates on the return movement, substantially as herein described.

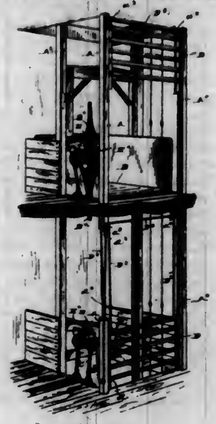
7. In a fruit-pitting machine, the reciprocating carriers, knives by which the fruit is split and the pits removed therefrom, reciprocating rakes by which the fruit is drawn backward from the carriers and knives, carriers situated beneath the table, adapted to support drying-trays, and a means by which the tray is moved rearwardly during each reciprocation of the rake, whereby the fruit is evenly delivered and spread upon the trays, substantially as herein described.

482,285. GROCER'S CADDY. CORNELIUS TOOHEY, San Francisco Cal. Filed Feb. 3, 1892. Serial No. 420,199. (No model.)



Claim.—As a new article of manufacture, a grocer's caddy consisting of a base having an open top and provided with a horizontal ledge surrounding its inner walls below said top, and a removable top B, having its lower end adapted to enter said opening and rest upon said ledge, substantially as herein described.

482,286. ELEVATOR-GATE. ENOCH D. TOOPS, Indianapolis, Ind. Filed Apr. 23, 1892. Serial No. 430,215. (No model.)



Claim.—1. The combination of an elevator-gate mounted to slide between vertical posts alongside a hatchway, cords running over appropriately-arranged sheaves and connecting said gate with a pair of stocks pivotally supported at their lower ends alongside the hatchway, and a spreading device mounted on the elevator and arranged to come between said stocks and force them apart as said elevator comes to the proper position, whereby said gate is automatically operated, substantially as set forth.

2. The combination of an elevator-gate, a pair of vibrating stocks arranged alongside the hatchway, cords running over appropriate sheaves and connecting said gate with said stocks, and a cam secured to the side of the elevator and arranged to pass between said stocks, whereby they are spread apart and the gate elevated, substantially as set forth.

482,288. CAR-COUPLING. SANFORD R. WILLIAMS, Monmouth, Oreg., assignor of one-half to J. J. Malloy and Susie Malloy, same place. Filed Dec. 24, 1891. Serial No. 416,051. (No model.)

mental reservoir, an open-end tube passing through the float from top to bottom and secured water-tight, a rod passed through said tube, having a lateral projection near one end resting against the end of the float, a key engaging the rod and resting against the other end of the float, a valve for controlling the supply of fluid, and connections between said rod and valve, whereby the latter is operated by the slightest movement of the float either up or down, substantially as set forth.

5. In a lamp, the combination of the main reservoir, the supplemental reservoir having a valve-piece in its base, provided with a screw-threaded stem fitting within a central screw-threaded opening in the base of the supplemental reservoir, said valve-piece and its stem having passages, a pipe connecting the passage in said stem with the duct 16 and socket 19, the stem 21, fitted in socket 19, the filter 65, placed in duct 27, and the burner, supplied with fluid from the supplemental reservoir, said socket 19, duct 18, socket 8, duct 13, and socket 12 being in direct vertical line, so that the sediment arrested by the filter may be removed by removing the follower, substantially as set forth.

11. The combination, with the main reservoir, the supplemental reservoir, and the pipe communicating at one end with said main reservoir and at the other end with a duct in the center of the bottom of the supplemental reservoir, of a valve-piece having a stem communicating with said duct and having a branch extending radially toward the

Claim.—1. The combination of an elevator-gate mounted to slide between vertical posts alongside a hatchway, cords running over appropriately-arranged sheaves and connecting said gate with a pair of stocks pivotally supported at their lower ends alongside the hatchway, and a spreading device mounted on the elevator and arranged to come between said stocks and force them apart as said elevator comes to the proper position, whereby said gate is automatically operated, substantially as set forth.

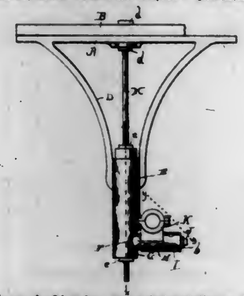
2. The combination of an elevator-gate, a pair of vibrating stocks arranged alongside the hatchway, cords running over appropriate sheaves and connecting said gate with said stocks, and a cam secured to the side of the elevator and arranged to pass between said stocks, whereby they are spread apart and the gate elevated, substantially as set forth.

3. The combination of the elevator having the cam rigidly secured to its side, a pair of pivoted stocks arranged alongside the hatchway and provided with sheaves and antifriction-rollers, the elevator-gate, and cords running over appropriate sheaves and connecting said gate and sheaves on said vibrating stocks, said cam being arranged to pass between said antifriction-rollers on said stocks and spread them, whereby the gate is operated, substantially as set forth.

4. The combination of the elevator-gate, the vibrating stocks pivoted or hinged at their lower ends alongside the hatchway and formed to engage with appropriately-formed tracks at their upper ends, cords connecting said gate with said vibrating stocks, and the device secured to the elevator for spreading said stocks, whereby said gate is operated, substantially as set forth.

5. The combination of an elevator-gate arranged to slide in vertical ways, cords upon which said gate is hung, and means for operating said cords so as to raise the gate, one of said cords being connected with the operating mechanism and the other being fastened securely at one end and extended through a loop or around a sheave on the end of said first cord and formed with a loop in its other end through which the cord which is connected to the gate extends, one end being connected with one corner of the gate and the other end passing to the other side and being connected to the other side of the gate, substantially as set forth.

482,287. SHAFTING-HANGER. AUBERT H. WAGNER, Chicago, Ill. Filed Dec. 31, 1891. Serial No. 416,710. (No model.)



Claim.—1. In a shafting-hanger, substantially as described, the combination, with the beam B, the top plate connected to said beam, the hanger-arms depending from said top plate, the vertically-disposed sleeve E, carried by said hanger-arms, and the sleeve G, loosely mounted in the sleeve E and carrying a journal-box, of the vertical rod taking up through the sleeve G and through the top plate A and the beam B and having threads at its end and at intermediate points in its length and nuts mounted on said rod, substantially as and for the purpose specified.

2. In a shafting-hanger, the combination, with the sleeve G and the interiorly-threaded sleeve extending laterally from said sleeve G, of the sleeve loosely mounted on the interiorly-threaded sleeve and having an annular flange at its outer end and a threaded rod headed at its outer end and taking loosely through the end of the loosely-mounted sleeve and into the bore of the threaded sleeve, substantially as and for the purpose set forth.

3. In a shafting-hanger, the combination, with the sleeve G, the interiorly-threaded sleeve extending laterally from said sleeve G, and the sleeve loosely mounted on the interiorly-threaded sleeve and having an annular flange at its outer end, of a threaded rod headed at its outer end and taking loosely through the end of the loosely-mounted sleeve and into the bore of the threaded sleeve and a nut or washer mounted on said threaded rod on the inside of the annular flange of the loosely-mounted sleeve, substantially as and for the purpose set forth.

4. In a shafting-hanger, substantially as described, the combination, with the vertically-disposed sleeve E, hung as described and having a slot in its lower portion, the sleeve G, loosely mounted in the sleeve E, and the sleeve extending laterally from the sleeve G and through the slot of the sleeve E and supporting a journal-boxing, of the vertically-disposed threaded rod and nuts mounted on said rod, substantially as and for the purpose set forth.

482,288. CAR-COUPLING. SANFORD R. WILLIAMS, Monmouth, Oreg., assignor of one-half to J. J. Malloy and Susie Malloy, same place. Filed Dec. 24, 1891. Serial No. 416,051. (No model.)



Claim.—In a car-coupling, the combination of a draw-head having vertical grooves in its sides and a horizontal groove in its bottom, a hook arranged at the center of the bottom of said mouth and having a beveled front and approximately-vertical rear face and a flat top face, a block pivoted in a draw-head and having a flat lower face adapted to rest upon the upper face of the hook, a spring bearing the block normally upon the hook, means for raising the block against the tension of the spring, and a rectangular loop pivoted in a perforation of the block and working in the grooves on the sides and bottom of the draw-head in rear of the hook, all as and for the purpose herein-before set forth.

482,289. BUCKLE. JACOB ZIEGLER, Arlington, Nebr. Filed June 26, 1892. Serial No. 437,982. (No model.)



Claim.—In a trace-buckle, the combination of a buckle-frame consisting of side pieces joined at one end and in the middle, but open at the other end, the sides of said open end terminating in forks, said pieces joining the middle of said side pieces, having an upwardly-projecting stud, with an outer piece secured to the other trace-section and having recesses adapted to receive the upper prongs of the fork, and a downwardly-projecting cross-piece, substantially as described.

482,290. LAMP. ISAAC F. BLAKE, GEORGE R. SMITH, and EDWIN M. DOTE, Denver, Colo. Filed Nov. 14, 1887. Serial No. 255,138. (No model.)

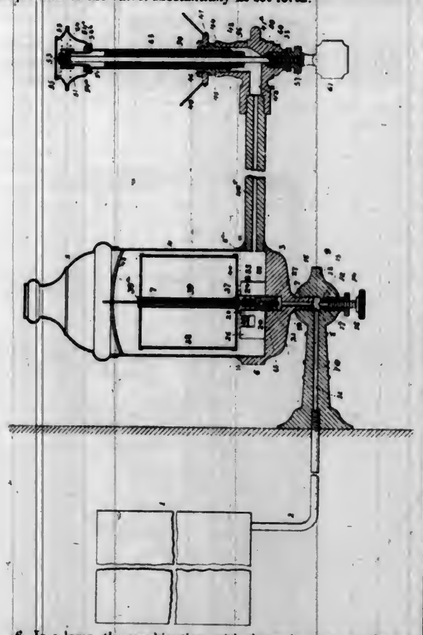
Claim.—1. In a lamp, the combination of the main reservoir, a supplemental reservoir, a pipe communicating at one end with the main reservoir and at the other end with the supplemental reservoir, a valve in the bottom of the supplemental reservoir for closing the opening through which the fluid enters said supplemental reservoir, said valve having a screw-threaded stem, a suitable bearing for said stem, a float situated within the supplemental reservoir above the valve, connections between the float and the valve-stem, whereby the latter is rotated by the movement of the former, and a burner supplied with fluid from the supplemental reservoir, substantially as set forth.

2. In a lamp, the combination of the main reservoir, the supplemental reservoir, a pipe forming communication between them, a removable valve-piece having passages communicating with said pipe and terminating in a conical discharge-opening, a needle-valve placed opposite said opening and having a screw-threaded stem, a suitable bearing for said stem, a lever projecting from said stem, a float situated in the supplemental reservoir, connection between the float and lever, and a burner supplied with fuel from the supplemental reservoir, substantially as set forth.

3. In a lamp, the combination, with the main reservoir, the supplemental reservoir, pipe connecting them, and the burner supplied with fuel from the supplemental reservoir, of the valve for controlling the supply of fluid from the main reservoir, having a screw-threaded stem, a suitable bearing for said screw-threaded stem, a lever projecting from the stem, a float situated in said supplemental reservoir and having an open-end tube passing therethrough from top to bottom, and a rod fixed to the lever of the valve-stem, passing up through said tube and detachably affixed to the float, substantially as set forth.

4. In a lamp, the combination, with the main reservoir, the supplemental reservoir, pipe connecting them, and the burner supplied from said supplemental reservoir, of a float situated in said supplemental reservoir, an open-end tube passing through the float from top to bottom and secured water-tight, a rod passed through said tube, having a lateral projection near one end resting against the end of the float, a key engaging the rod and resting against the other end of the float, a valve for controlling the supply of fluid, and connections between said rod and valve, whereby the latter is operated by the slightest movement of the float either up or down, substantially as set forth.

5. In a lamp, the combination of the main reservoir, the supplemental reservoir having a valve-piece in its base, provided with a screw-threaded stem fitting within a central screw-threaded opening in the base of the supplemental reservoir, said valve-piece and its stem having passages, a pipe connecting the passage in said stem with the main reservoir, a valve for controlling the supply of fluid to the supplemental reservoir, and a float situated in said reservoir for controlling the position of the valve, substantially as set forth.



6. In a lamp, the combination, with the main reservoir, the supplemental reservoir, the pipe connecting them, and the burner, of a valve for controlling the admission of fluid to the supplemental reservoir, a float in said reservoir having connection with the valve, the rod projecting from said float, and the removable spring-metal plate perforated for the passage of said rod and adapted to be supported by springing it between the sides of the supplemental reservoir, substantially as set forth.

7. In a lamp, a supplemental reservoir consisting of a base portion formed of a solid casting having a chamber on its upper side and a rabbet formed in the wall of the chamber, sheet-metal sides fitting within said rabbet, and a cap fitted on the sides, substantially as shown and described.

8. In combination with the bracket 10, having an enlargement 9, provided with a screw-threaded socket 8, said bracket being provided with a duct 11, communicating with said socket, and a supplemental reservoir having a screw-threaded stem adapted to be screwed in said socket, substantially as set forth.

9. In a lamp, the combination of the main reservoir 1, the supply-pipe 2, leading therefrom, the bracket 9 10, having duct 11, sockets 8 and 12, situated directly in line with each other and connected by duct 13, the supplemental reservoir having the stem 7 secured in the socket 8, and the duct 18, located directly in line with the axis of the duct 13, the internally-screw-threaded follower 16, fitted in the socket 12, and the valve 15, having screw-threaded stem 14 engaging the thread of the follower, said valve being adapted to enter and close the duct 18, substantially as set forth.

10. In a lamp, the combination of the main reservoir 1, the supply-pipe 2, the bracket 9 10, having duct 11, sockets 8 12, formed vertically in opposite sides of the bracket, and duct 13, connecting said sockets, the removable follower fitted in and closing the socket 12, the valve 14, fitting in the follower, the supplemental reservoir having the duct 18 and socket 19, the stem 21, fitted in socket 19, the filter 65, placed in duct 27, and the burner, supplied with fluid from the supplemental reservoir, said socket 19, duct 18, socket 8, duct 13, and socket 12 being in direct vertical line, so that the sediment arrested by the filter may be removed by removing the follower, substantially as set forth.

11. The combination, with the main reservoir, the supplemental reservoir, and the pipe communicating at one end with said main reservoir and at the other end with a duct in the center of the bottom of the supplemental reservoir, of a valve-piece having a stem communicating with said duct and having a branch extending radially toward the side of the reservoir, a second branch at right angles thereto, lugs projecting from said second branch, one of said lugs being provided with the ingress-opening and the other with the bearing for the stem of the valve, the valve, a lever secured thereto and projecting to about the center of the reservoir, and a float having connection with said lever, substantially as and for the purposes set forth.

12. In a lamp, the combination, with the main reservoir, the burner, and suitable connecting-pipes, of the supplemental reservoir having the centrally-located screw-threaded socket with which one of the connecting-pipes communicates, the valve-piece 20, having the stem 21, adapted to be secured in said socket, the branches 22 23, the lug 26, projecting laterally therefrom, the fluid-duct extending through the stem 21, the branches 22 23, and the lug 26 and there communicating with the interior of the supplemental reservoir, the valve 34, having the screw-threaded stem, the lug 26, having the screw-threaded perforation forming a bearing for the screw-threaded valve-stem, the lever projecting laterally from the valve-stem, and the float having connection with said lever, substantially as set forth.

13. A valve-piece consisting of the stem 21, the branch 22, forming an L therewith, the branch 23, forming a T with the branch 22, and the projection 26, said parts having the ducts 27 28 30 32 and the chamber 31, with which the duct 32 communicates, the opening for the escape of fluid being formed through one of the walls of the said chamber, and the projection 24, having the screw-threaded perforation, in combination with a main reservoir, a supplemental reservoir, a pipe for connecting said reservoirs, a valve having a screw-stem fitting the threaded opening through the projection 24, a float situated in the supplemental reservoir, connections between the said float and valve-stem, and a suitable burner, substantially as set forth.

14. The combination, with the herein-described valve-piece, consisting of the casting comprising the stem 21, the branch 22, the T branch 23, the projection 26, and the lugs 24 25, having the duct 27 extending through the stem 21, the duct 28, extending through the branch 22 and with which the duct 27 communicates, the duct 30, extending through the branch 23 and communicating with the duct 28, the groove 33 in the extremity of the branch 23, the chamber 31, with which the groove 32 communicates, the escape-aperture formed through one of the walls of the chamber, the screw-threaded perforation formed through the lug 24, and the smooth perforation through the lug 25, the plug 29, closing the extremity of the duct 28, the plate 33 for closing the end of the chamber 31 and duct 30 and covering the groove 32, of a reservoir within which said valve-piece is screwed and a screw-threaded valve fitting in the screw-threaded perforation in lug 24, and the smooth perforation in lug 25, adapted to regulate the size of the escape-aperture, substantially as set forth.

15. In a lamp, the combination, with a main reservoir, a supplemental reservoir, a pipe connecting them, and a burner, of a float situated in the supplemental reservoir, a valve having a screw-threaded stem, connection between the float and valve-stem, and a valve-piece having the opening for the egress of fluid surrounded by the seat for the valve, and a suitable bearing for the screw-threaded stem of the valve, the parts of said valve-piece being rigid one with another, substantially as set forth.

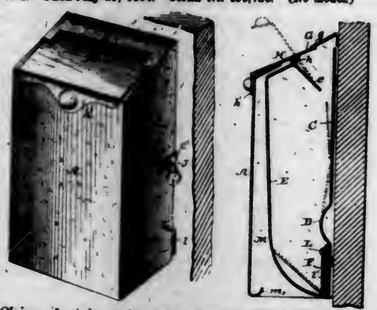
482,291. DRAWBRIDGE-GUARD. FRANK BOUCHER, Fond du Lac, Wis., assignor of one-half to Peter T. Corbeille, same place. Filed Apr. 22, 1892. Serial No. 430,282. (No model.)



Claim.—1. The spindles carrying lateral wings or gate-panels and provided with guide-pins adapted to rotate the spindles in an arc of ninety degrees by their passage in slots or grooves cut on the inside and in spiral form of the fixed thimbles or sleeves set in and through the floors of the draw and pier, respectively, of the bridge structure, in combination with said thimbles, grooved as described, and the actuating levers and weights under the bridge and pier, all substantially as and for the purposes set forth.

2. In a system of automatic guards for drawbridges, the combination of the rotating posts *a*, carrying gate-panels *b*, sockets or sleeves *c c*, with spiral slot *m*, the weighted levers *g h*, and segments *e f* with bridge and pier A B C D E.

482,292. HOUSE LETTER-BOX. PHILIP C. BROWN, Washington, D. C. Filed July 20, 1891. Serial No. 400,726. (No model.)



Claim.—1. A house letter-box having a closed and an open compartment and a clamp for yieldingly holding the mail-matter in the open compartment, substantially as described.

2. A house letter-box divided into a closed and an open compartment by a spring-partition which acts as a clamp to hold the mail-matter in the open compartment.

3. The combination, with the plate C, adapted to be secured to a building and provided with the corrugation D, of the box A, hinged thereto and provided with a slotted top and shutter and the deflecting-plate *e*, substantially as described.

4. The combination, with the plate C, adapted to be secured to a building and provided with a hasp *c'*, of the box A, hinged to said plate and provided with a staple J, secured to the free end of a spring K, said staple projecting through a slot in the box and engaging the hasp, and means for locking said staple and hasp, substantially as shown and described.

5. The combination, with the plate C, adapted to be secured to a building, of the box A, hinged thereto and having a slotted top and shutter and provided with a partition E, curved at its lower end and extending from the lower inner edge of the box to near the top thereof, forming a receptacle for mail-matter and a compartment open at the bottom for the reception of newspapers, substantially as shown and described.

6. The combination, with the plate C and the box A, hinged thereto, of the curved partition E, secured within said box at its top and bottom and constituting a spring, said partition, in connection with said box and plate, forming a closed receptacle for mail-matter and an open receptacle for newspapers, substantially as shown and described.

7. The combination, with the plate C and box A, hinged thereto, of the spring-partition E, curved at its lower end and extending from the rear lower edge of the box to near the top thereof and dividing the box into a closed receptacle for mail-matter and an open compartment for newspapers, the lower front edge of the box being turned inwardly and upwardly to form a flange, substantially as shown and described, and for the purpose specified.

8. In combination with a letter-box, an indicator consisting of a pivoted rod provided with a finger projecting within the box and engaging the mail contained therein and provided with a finger projecting without the box, by means of which the rod is rotated, substantially as described.

9. In a house letter-box, the combination, with the slotted top thereof, of a flat hinged shutter projecting partially within and partially without said slotted top and opened by the pressure exerted by the insertion of the letter and closed by gravity and constituting a guide to cause a letter when inserted in the box to drop vertically therein, substantially as described.

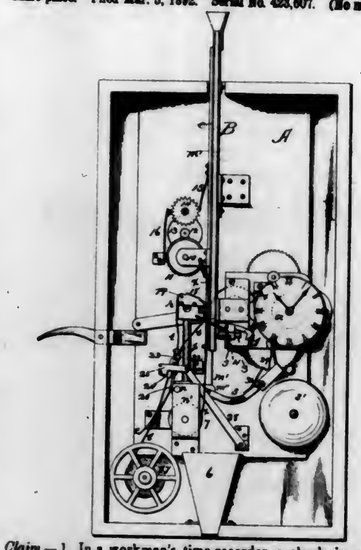
10. In a house letter-box, the combination, with the slotted top thereof, of a flat hinged shutter H, projecting partially within and partially without said slotted top, and a corrugation D, formed in the box at a point beneath the rear end of the shutter, said shutter opening by pressure exerted by the insertion of a letter and closing by gravity and constituting a guide to cause the letter to strike the corrugation D to deflect the same to the position shown, and for the purpose specified.

11. In a house letter-box, the combination, with a box provided with a slotted top and having a curved bottom and a corrugation D, of a hinged shutter H, projecting partially within and partially without said slotted top and opened by the pressure exerted by the insertion of a letter and closed by gravity, said shutter constituting a guide to cause the letter to strike the corrugation D and be deflected over upon the curved bottom of the box, substantially as shown and described.

12. In a house letter-box, the combination, with a slotted top, of a flat shutter hinged to said slotted top and serving as a guide to direct the letters toward the rear wall of the box and a corrugation formed in said rear wall and acting to deflect the letters in the manner shown, and for the purpose specified.

13. In a house letter-box, the combination, with the slotted top, of a flat shutter hinged within said slotted top and projecting partially within and without said top, the rear end of the shutter normally resting against the under side of the top of the box and the forward end resting upon the upper side of the top, said shutter being automatically opened by the insertion of a letter and closing by gravity, substantially as shown and described.

482,293. WORKMAN'S TIME-RECORDER. WILLARD L. BUNDY, Binghamton, N. Y., assignor to the Bundy Manufacturing Company, same place. Filed Mar. 3, 1892. Serial No. 423,607. (No model.)



Claim.—1. In a workman's time-recorder, a check, in combination with a check-chute, a lever projecting into it, a rod connected to said lever, a rock-shaft, and a crank arm thereon to which said rod is connected.

2. In a workman's time-recorder, a check, in combination with a check-chute, a lever projecting into it, a rod connected to said lever, a rock-shaft, a crank-arm thereon to which said rod is connected, and an impression-platen mounted upon an arm secured to said rock-shaft.

3. In a workman's time-recorder, a check, in combination with a check-chute, a lever projecting into it, a rod connected to said lever, a rock-shaft, a crank-arm thereon to which said rod is connected, a hammer-rod secured to said crank-arm, and a bell.

4. In a workman's time-recorder, a check, in combination with a check-chute, a lever projecting into it, a rod connected to said lever, a rock-shaft, a crank arm thereon to which said rod is connected, an impression platen mounted upon an arm secured to said crank-shaft, actuated by the insertion of a check into the check-chute.

5. The combination, with the impression-platen, of a rock-shaft to which it is connected and means to rotate said crank-shaft, actuated by the insertion of a check into the check-chute.

6. The combination, with the impression-platen and the hammer-rod and bell, of a rock-shaft to which they are connected and means to rotate said shaft by the insertion of a check into the check-chute.

7. In a workman's time-recorder, a rock-shaft, an impression-platen connected thereto, a hammer-rod also connected thereto, and means to rotate said shaft, and a check-chute, in combination with a trip-hook mounted upon said chute and adapted to engage with a pin upon said hammer-rod when said rock-shaft is rotated.

8. In a workman's time recorder, a rock-shaft, an impression-platen connected thereto, a hammer also connected thereto, and means to rotate said shaft, and a check-chute, in combination with a trip mounted upon said chute and provided with a hook upon one end, adapted to engage with said hammer-rod when said rock-shaft is rotated, and having a trip-arm upon the other end, projecting into the chute and with which a check engages to disengage said hook.

9. In a workman's time-recorder, a rock-shaft and means to rotate it and an impression-platen connected thereto and provided with a lateral arm, in combination with a sliding stop adapted to project into the check-chute and with which said arm is adapted to engage to withdraw it from the chute.

10. In a workman's time-recorder, a rock-shaft, a hammer-rod connected thereto, and a spring-finger thereon, in combination with a sliding stop with which said finger engages when said rock-shaft is rotated.

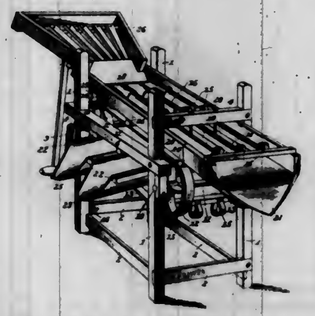
11. In a workman's time-recorder, a check-chute, a check, a ribbon-reel mounted upon a shaft, and a train of gearing operatively connected to said shaft, in combination with a vertically-movable rod and a finger thereon adapted to engage with the terminal gear when said rod is operated by the passage of the check through the chute.

12. In a workman's time-recorder, a rock-shaft, a paper-chute secured thereto, a slide upon said chute, a rocking frame mounted upon said slide, a grip upon said frame, and means to rock said frame when said shaft is rotated, in combination, as set forth.

13. In a workman's time-recorder, a clock, time-wheels synchronous therewith, a rock-shaft, and an impression-platen connected thereto and actuated thereby, in combination with a check-chute, a rod connected to said rock-shaft, a lever connected to said rod and projecting into the check-chute, and a check operatively engaging with said lever to rotate said shaft when inserted into said chute.

14. In a workman's time-recorder, a check, a check-chute, and a sliding stop holding the check upon the printing-line, in combination with an impression-platen thrown away from the chute by the insertion of the check into the chute and an arm upon the platen engaging said stop to release said check at the same moment that the impression blow is given by the platen.

482,294. FRUIT-SIZER. ASHBEL C. BURER, Gypsum, assignor to D. A. Scott, Catawba Island, Ohio. Filed Mar. 19, 1891. Serial No. 385,707. (No model.)

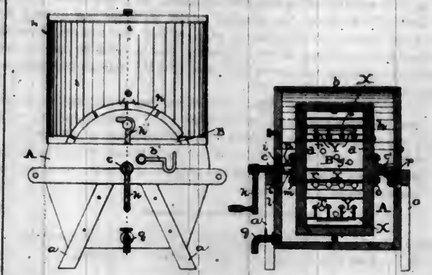


Claim.—1. In a fruit-sizer, the combination, with a framework, a front and a rear shaft, pulleys mounted on the shafts, endless belts connecting the pulleys, a series of cleats connecting the belts, resilient fingers extending upward from the cleats in line with each other, and chutes formed of canvas and arranged under and transverse to the belt, of a superimposed distributing-table having a series of slots graduated in width and increasing in size over each successive chute, the fingers of the belt extending through the slots, and a chute at the end of the table, substantially as specified.

2. In a fruit-sizer, the combination, with the framework and a distributing-table having a series of slots, of an endless belt located under the table and having a series of fingers extending through the slots, and transverse troughs arranged under said slots, which slots increase in width from rear to front above the troughs, substantially as specified.

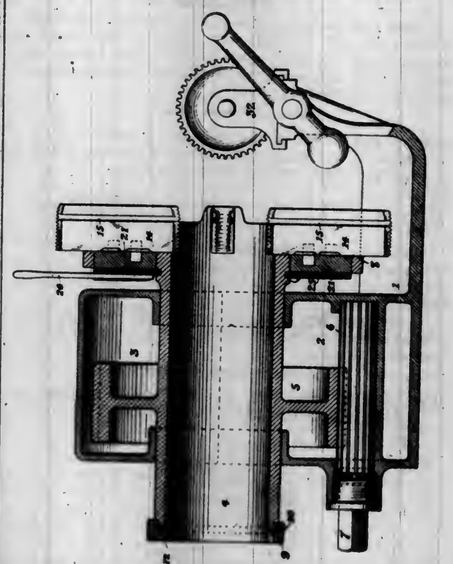
3. In a fruit-sizer, the combination, with the distributing-table having a series of longitudinally-disposed slots increasing in size at intervals from rear to front, side bars located at the sides of the table and having their ends extending beyond the front end of the table and connected by a canvas chute, of a front and rear shaft, one of which is provided with a crank, a pair of pulleys mounted on each shaft, endless belts passing around the pulleys, cleats connecting the belts, inverted-U-shaped resilient fingers secured to the front and rear edges of the cleats and projecting through the slots of the table, the transverse series of bars located between the upper and lower sides of the belt and at the beginning of each increase of width in the slots, and the canvas blank mounted on the bars and sagging between the same, the end of the blank between the bars being scalloped, substantially as specified.

482,295. WASHING-MACHINE. RAMON K. BURT, Haddam, Kans. Filed Feb. 20, 1892. Serial No. 422,216. (No model.)



Claim.—In a cylinder washing-machine, the combination of an outside casing, a revoluble cylinder within said casing and provided with suitable openings, a rock-bar journaled in said cylinder and having an extension to stop against the peripheral wall of the cylinder, and projecting pegs fastened to said rock bar.

482,296. PIPE-THREADING MACHINE. ARTHUR W. CASE, Bridgeport, Conn. Filed Nov. 27, 1891. Serial No. 413,225. (No model.)



Claim.—1. In a machine substantially as described, the combination, with the hollow main shaft having a gear thereon, a pinion having means for the application of power thereto meshing with and adapted to operate the said gear, the head carried by the main shaft and provided with suitable threading-tools, and a threaded leader-ring detachably secured upon the opposite extremity of the said shaft, of a polygonal leader-nut having a plurality of its faces concaved, said faces bearing threads of different pitch, and a single yoked plane projecting face, said leader-nut being mounted eccentrically and provided with a handle whereby it may be revolved into or out of engagement with the said leader-ring, as set forth.

2. The combination, with the hollow shaft and the head secured thereto, of the dies adapted to cut at either end thereof, having means for the attachment of independent shoes and provided with grooves and seated in the head, means, as described, for holding the dies, the said independent shoes having means for attachment with the dies, and a scroll-plate adapted to engage the said shoes, and means for operating and locking the scroll-plate.

3. In a machine of the character described, the combination, with the head, of the grooved dies seated therein, retaining-plates fitting the grooves and adapted to hold the dies, shoes independent of said dies, provided with projecting studs for engagement with suitable

openings therein, and a scroll-plate for engaging the shoes, and means for operating the scroll-plate.

4. In a machine of the character described, the combination, with the head, of a series of dies adapted to cut at either end thereof, seated and adapted to slide therein and provided with sockets, shoes independent thereof and having projecting pins or studs for engagement with said holes, and a scroll-plate engaging the shoes and through them adapted to operate the dies.

5. In a machine of the character described, the combination, with the head, of a series of dies mounted therein and adapted to have a radial movement, each die provided with a socket, shoes 19, independent of said dies, each having a stud 20 for engagement with the die-socket, and a scroll-plate engaging and adapted to operate them and the dies, substantially as set forth.

4. A coffee-pot, in combination with a grounds-receptacle formed of two sections comprising, respectively, a top and bottom portion, each of said sections being provided with gauze ends held in place by a slip ring or band, means for securing the receptacle in place, lugs located around the receptacle and adapted to engage the inner side of the pot, and a handle secured to the lower section or body portion, as set forth.

5. A coffee-pot of the class described, having a grounds-receptacle, in combination with a valve secured to the receptacle and commanding the opening in the spout, substantially as described.

6. A coffee-pot provided with a grounds receptacle having a gauze bottom and top and a pocket formed in the top, substantially as described.

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openings therein, and a scroll-plate for engaging the shoes, and means for operating the scroll-plate.

4. In a machine of the character described, the combination, with the head, of a series of dies adapted to cut at either end thereof, seated and adapted to slide therein and provided with sockets, shoes independent thereof and having projecting pins or studs for engagement with said holes, and a scroll-plate engaging the shoes and through them adapted to operate the dies.

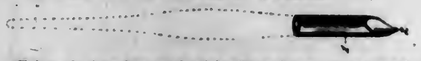
5. In a machine of the character described, the combination, with the head, of a series of dies mounted therein and adapted to have a radial movement, each die provided with a socket, shoes 19, independent of said dies, each having a stud 20 for engagement with the die-socket, and a scroll-plate engaging and adapted to operate them and the dies, substantially as set forth.

482,297. ELECTRIC INSULATOR. WILLIAM H. CLARK, Brooklyn, N. Y. Filed May 31, 1891. Serial No. 393,667. (No model.)



Claim.—An insulator for electric wires, having a screw-threaded stem and a flat collar over said stem to protect the same from moisture, said insulator having a square hole in its lower end and being provided with a depression in its top and with side projections, substantially as described.

482,298. WRITING-PEN. FREDERICK C. COLBURN, Arlington, N. J., assignor to the Arlington Manufacturing Company, New York, N. Y. Filed Aug. 5, 1890. Serial No. 361,051. (No model.)



Claim.—1. As an improved article of manufacture, a non-corrosive writing-pen composed of pyralin or other pyroxiline compound which is unaffected by moisture and adapted to be cut or trimmed, substantially as described.

2. A non-corrosive writing-pen composed of a tube of pyralin or other pyroxiline compound extended at one end into a split nib, substantially as described.

482,299. COFFEE-POT. WILLIAM H. COMSTOCK, Oskaloosa, Iowa. Filed Jan. 9, 1892. Serial No. 417,517. (No model.)



Claim.—1. A coffee-pot, in combination with a coffee-grounds receptacle composed of two sections, the lower end of which is provided with downwardly-extending braces and hooks in the bottom of the pot, in the manner and for the purpose substantially as set forth.

2. A coffee-pot, in combination with the herein-described grounds-receptacle, composed of two sections comprising, respectively, a body and its lid, the lid being constructed of two rings fitting one within another in such a manner as to form a pocket on its top, in the manner and for the purpose stated.

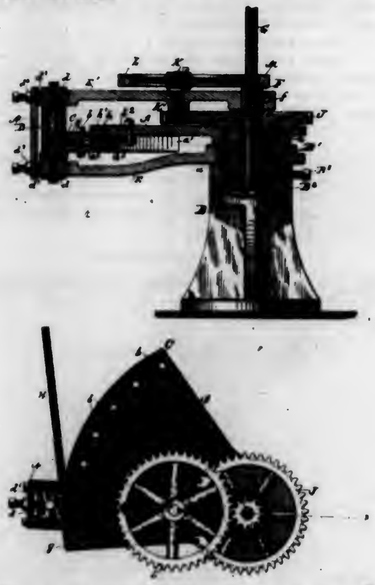
3. A coffee-pot, in combination with a coffee grounds receptacle having a handle and a valve or door secured to said handle, whereby the opening in the spout may be opened or closed, as and for the purpose set forth.

4. A coffee-pot, in combination with a grounds-receptacle formed of two sections comprising, respectively, a top and bottom portion, each of said sections being provided with gauze ends held in place by a slip ring or band, means for securing the receptacle in place, lugs located around the receptacle and adapted to engage the inner side of the pot, and a handle secured to the lower section or body portion, as set forth.

5. A coffee-pot of the class described, having a grounds-receptacle, in combination with a valve secured to the receptacle and commanding the opening in the spout, substantially as described.

6. A coffee-pot provided with a grounds receptacle having a gauze bottom and top and a pocket formed in the top, substantially as described.

482,300. HOOP-FLARING MACHINE. THEODORE A. COOK, Calliscoon Depot, assignor to James Mathison and Walter Mathison, Brooklyn, N. Y. Filed May 1, 1891. Renewed Aug. 13, 1892. Serial No. 442,946. (No model.)



Claim.—1. In a hoop-flaring machine, a segment fixed upon a standard and a gear-wheel J fixed above the segment on a post or stud, in combination with a sweep-arm journaled at the center of the said fixed gear-wheel, a power-shaft journaled at the axis of the sweep-arm, a pinion M, shaft K', journaled in the sweep-arm, and the gear-wheels K L, fixed on said shaft and meshing, respectively, with pinion M and gear-wheel J, substantially as described.

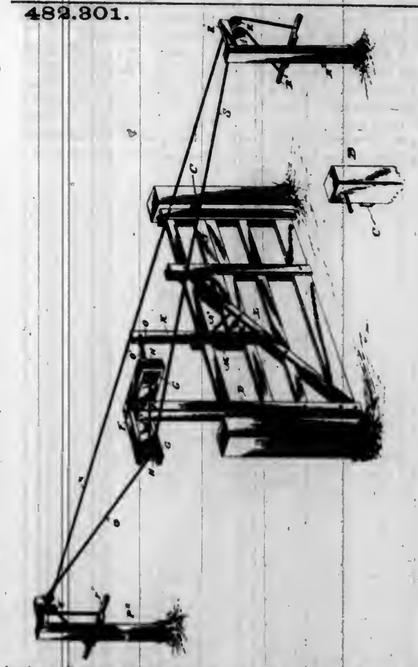
2. The standard B, provided with a segment A, secured thereto, and having a bearing B' beneath said segment, and provided with the shaft or stud F, in combination with the sweep-arms E F', one above and the other below the segment, the fixed gear-wheel J between the segment and the upper sweep-arm, the shaft K', held by the upper sweep-arm, the pinion K meshing with the gear-wheel J, and the upper gear-wheel L, meshing with the pinion on the power-shaft, the sweep-arms being provided with a bender held adjacent to the curved edge of the segment, substantially as described.

482,301. GATE. WILLIAM S. COULTER, Stockwell, Ind. Filed Feb. 1, 1892. Serial No. 419,941. (No model.)



Claim.—The combination, with a gate, of a frame at its hinged end composed of two arms arranged at right angles to each other and

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having pulleys at their outer ends, a latch-bar, an arm for operating the latch, levers supported upon posts at the roadside, a cord passing over the pulleys on the angle-frame and connecting the outer end of one of these levers with the latch-arm, a cord connecting one arm of said angle-frame with the inner end of the other lever, and a cord connecting the remaining ends of said levers, substantially as described.

482,302. SNAP-HOOK. JAMES L. COX, Moore's Salt Works, Ohio. Filed Dec. 14, 1891. Serial No. 415,008. (No model.)



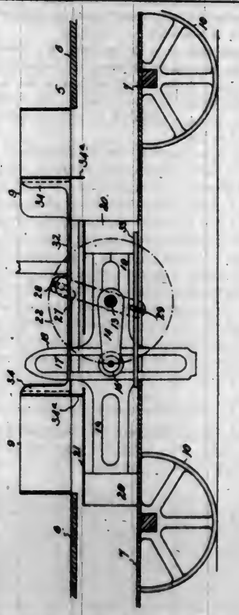
Claim.—1. In combination with a hook having a hollow enlargement or swell, the tongue pivoted to the rear wall of the latter, being in part surrounded or inclosed by the same, with a straight portion extending through a slot in its front wall and beneath a cross portion thereof and having all of its surface within the plane of the outer edge of said swell, and a spring contained in the latter, engaging the inner side of the tongue, and thus being completely housed, substantially as shown and described.

2. The hook described, consisting of the body portion formed with hollow enlargement, with slot at its forward end, and a hook, the tongue pivoted at the rear of said enlargement and having flat upper face below the upper edge of the enlargement, and a portion extended through the said slot and confined beneath a front cross portion of the wall of the enlargement, and a compression-spring within the enlargement beneath the tongue between its pivot and outer end, substantially as described.

482,303. BALING-PRESS. HENRY DEYE, Denver, Colo. Filed Nov. 20, 1891. Serial No. 412,135. (No model.)

Claim.—1. In a baling-press, the combination, with a supporting-frame, of a shaft journaled therein, a slotted yoke, crank mechanism made fast to the shaft and engaging the yoke, a lever fulcrumed on the shaft, two movable frames slidingly supported on the stationary frame and on opposite sides of the main shaft, the movable frames being respectively connected with two arms of the lever, one of these frames being flanged and the other lying in the path of the yoke, suitable hoppers supported upon the stationary frame and in line with the flanged movable frames, and means for rotating the shaft, whereby a reciprocating movement is imparted to the yoke and the flanged movable frame, substantially as described.

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2. The combination, in a baling-press, of a stationary frame provided with a chamber and corresponding hopper, a rotating shaft, a cam mounted thereon, a feeding-lever fulcrumed upon the frame, and a vertically-movable arm connected with the cam at one extremity and with the lever at the opposite extremity, whereby as the shaft rotates the lever is actuated, substantially as and for the purpose set forth.

3. The combination, in a baling-press, of a stationary frame provided with baling-chambers and corresponding hoppers, a condenser consisting of a flanged movable frame slidingly supported in line with the hoppers, a rotating shaft journaled in the frame, a yoke, plungers secured thereto in line with the baling-chambers, crank mechanism connecting the shaft with the yoke, a lever centrally fulcrumed on the stationary frame and having its upper arm connected with the condenser, and a horizontally-sliding frame lying in the path of the yoke and connected with the lower arm of the lever, whereby as the shaft rotates a reciprocating movement is imparted to the yoke, the plunger, and the condenser, the condenser and the yoke moving simultaneously in opposite directions, substantially as and for the purpose set forth.

4. The combination, in a baling-press, of a stationary frame provided with baling-chambers and corresponding hoppers, a condenser slidingly supported upon the frame in line with the hoppers, a shaft, a yoke carrying plungers and connected with the shaft by crank mechanism, a lever fulcrumed on the frame and having slotted arms, a pin connected with the condenser and engaging the slot in one arm of the lever, a horizontally-sliding frame lying in the path of the yoke and provided with a projection engaging the slot in the other arm of the lever, and means for rotating the shaft, whereby a reciprocating movement is imparted to the condenser and the plunger simultaneously in opposite directions, substantially as and for the purpose set forth.

5. In a baling-press, the combination, with a supporting-frame provided with baling-chambers and corresponding hoppers, of a shaft journaled in said frame, feeding-levers fulcrumed on the frame and having their inner arms slotted and their outer arms fashioned to engage the material in the hopper, grooved cams oppositely disposed on the shaft, vertically-reciprocating arms provided with pins engaging the grooves in the cams and the slots in the inner arms of the lever, and means for rotating the shaft, whereby the feeding-arms are actuated, substantially as described.

6. The combination, in a baling-press, of a stationary frame, a shaft centrally journaled therein, a baling-chamber and a corresponding hopper located on each side of the shaft, a slotted yoke carrying two plungers, moving in line with the chambers, crank mechanism connecting the yoke with the shaft and provided with an antifrictional bearing located in the slot of the yoke, a condenser supported upon the frame in line with the hoppers, levers connecting the condenser with the yoke, and automatic feed mechanism consisting of two levers fulcrumed on the frame, cams oppositely disposed on the main shaft,

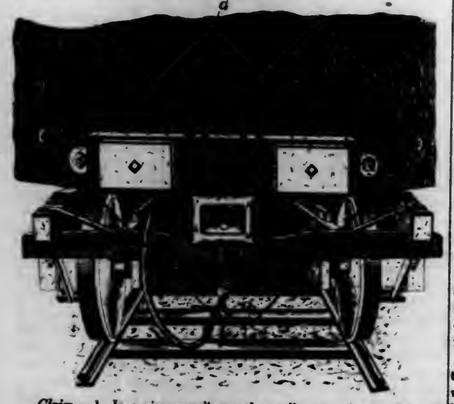
and vertically-movable slotted arms connected with the levers and actuated by the cams, substantially as described.

7. The combination, in a baling-press, of a frame, a shaft journaled therein, and automatic feed mechanism consisting of a lever fulcrumed on the frame, a cam rigidly secured to the main shaft, and a vertically-movable slotted arm mounted on the shaft and connected with the feeding-lever and actuated by the cam as the shaft rotates, substantially as described

8. In a double baling-press, the combination of the supporting-frame, a shaft journaled therein, two chambers, one on either side of the shaft, and automatic feed mechanism consisting of two levers, one for each chamber, these levers being fulcrumed on the frame, cams rigidly secured to the main shaft and oppositely disposed thereon, and vertically-movable slotted arms mounted on the shaft, connected with the feeding-levers, and actuated by the cams, substantially as described.

9. In a baling-press, the combination, with a supporting-frame, of the shaft, a reciprocating yoke and plungers, and condensing mechanism consisting of horizontally-movable heads, a lever centrally fulcrumed on the shaft and having slotted extremities, a pin attached to the condenser and engaging the upper slot in the lever, and a horizontally-movable frame lying in the path of the yoke and provided with a projection engaging the lower slot in the lever, substantially as described.

482,804. PIPE-COUPLING AND COUPLING ATTACHMENT FOR RAILWAY-CARS. FRED DU MOUTIER, Ogdensburg, N. Y. Filed Dec. 8, 1891. Serial No. 414,494. (No model.)



Claim.—1. In a pipe-coupling and coupling attachment for railway-cars, the combination, with a flexible pipe, of a coupling-head thereon, and a pipe secured to the car, and a supporting chain or rope passing freely therethrough and having its ends attached to the coupling-head.

2. In a pipe-coupling and coupling attachment for railway-cars, the combination, with a flexible pipe, of a coupling-head thereon, and a pipe with curved ends secured to the car, and a supporting chain or rope passing freely therethrough and having its ends attached to the coupling-head.

3. In a pipe-coupling and coupling attachment for railway-cars, the combination, with a flexible pipe, of a coupling-head thereon, a T-iron having its stem secured to said pipe at or near the coupling-head, a pipe secured to the car, and a supporting chain or rope passing freely therethrough and having its ends attached to the arms of the T-iron.

4. In a pipe-coupling and coupling attachment for railway-cars, the combination, with a coupling-face set at an angle to the line of piping, of an elastic annular packing removably secured within the coupling-head, and upon the rear edge of the face of said coupling-head a wedge-shaped horn, and on the opposite side of said face a projecting headed lug adapted to engage with a similar horn on a companion duplicate coupling-head, substantially as herein shown and described.

482,805. GUN. GEORGE F. FOGERTY, Cambridge, Mass., assignor of one-half to George Fogerty, same place. Filed Nov. 21, 1891. Serial No. 412,669. (No model.)

Claim.—1. In a magazine-gun, the tube d', fitted in the stock and provided with holders b at one side and with a slide-bar b^3, provided with engaging devices b^4, at the opposite side, combined with the cartridge-receiver d at the forward end of the tube, the support d^3, to which said receiver is pivoted, and means for moving said support to bring the cartridge into alignment with the barrel, and means for pushing the cartridge into the barrel, substantially as described.

2. In a magazine-gun, the tube d' to receive the cartridges and means for feeding them forward, combined with a cartridge-receiver at the forward end of the tube, a support to which said receiver is pivoted, and projections i i' on said support, which are engaged and moved by the breech-block to bring the cartridge into alignment with the barrel and to return the support to its normal position, and means for pushing the cartridge into the barrel, substantially as described.



3. In a magazine-gun, a cartridge-chamber and cartridge-holders therein and a cartridge-moving device for feeding the cartridges forward one at a time, combined with a pivoted cartridge-receiver and a pivoted support therefor, means for moving said support on its pivot in either direction, and means for turning said receiver on its pivot to bring the cartridge held by it into alignment with the barrel, and means for pushing the cartridge into the barrel, substantially as described.

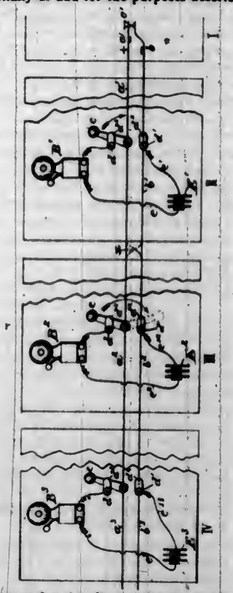
4. In a magazine-gun, a cartridge-chamber and cartridge-holders therein and a cartridge-moving device for feeding the cartridges forward one at a time, a handpiece, and a projection o^3, connecting said handpiece with the cartridge-moving device, combined with a pivoted cartridge-receiver, a pivoted support therefor, a projection o', connected to said handpiece for moving the said support on its pivot in either direction, and means for turning said receiver on its pivot to bring the cartridge held by it into alignment with the barrel, and means for pushing the cartridge into the barrel, substantially as described.

5. In a magazine-gun, a cartridge-chamber and spring-acting cartridge-holders therein, a cartridge-moving device consisting of a slide-bar with cartridge-engaging devices carried by it, and a handpiece connected with said slide-bar, combined with a pivoted cartridge-receiver and a pivoted support therefor, and a projection moved by said handpiece for moving said support on its pivot in either direction, and means for turning the cartridge-receiver on its pivot, and means for pushing the cartridge into the barrel, substantially as described.

482,806. ELECTRIC RAILWAY-SIGNAL. CHARLES K. HALL, New Orleans, La., assignor of forty-nine one-hundredths to William B. Lillard, same place. Filed Apr. 4, 1892. Serial No. 427,728. (No model.)

Claim.—1. An apparatus for signaling from car to car on railway-trains, having two continuous conductors insulated from each other and connected from car to car throughout the train, an electric bell and a source of electricity in each car, electrically connected together and having one terminal connected to a contact-strip connected to one of said conductors and the other terminal connected to a contact-strip insulated from both conductors, and a switch in each car, adapted to connect either the second continuous conductor to said insulated contact-strip or to connect the two continuous conductors together, substantially as and for the purposes described.

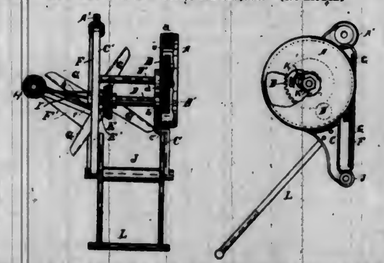
2. An apparatus for signaling from car to car on railway-trains, having two continuous conductors insulated from each other and connected from car to car throughout the train, a contact-maker in the engine, adapted to electrically connect said conductors, and an electric bell and a source of electricity in each car, electrically connected together and having one terminal connected to a contact-strip connected to one of said conductors and the other terminal connected to a contact-strip insulated from both conductors, and a switch in each car, adapted to connect either the second continuous conductor to said insulated contact-strip or to connect the two continuous conductors together, substantially as and for the purposes described.



3. In an apparatus for signaling of the character described, the combination, with a block of insulating material M, having two wire-couplings N secured therein, of the metallic spring-plunger P, having guide-piston p', engaging in said block, and having curved surfaces p^2, adapted to come into contact with said wire-couplings, and a buffer p^3 to press said curved surfaces back clear of said couplings when the wires are connected to the next car, and the spring Q, tending to press said plunger forward and hold said curved surfaces against said wire-couplings, substantially as and for the purposes described.

4. In an apparatus for signaling of the character described, the combination, with a block of insulating material M, having two wire-couplings N secured therein, of the metallic spring-plunger P, having guide-piston p', engaging in said block, and having curved surfaces p^2, adapted to come into contact with said wire-couplings, and a buffer p^3 to press said curved surfaces back clear of said couplings when the wires are connected to the next car, and the spring Q, tending to press said plunger forward and hold said curved surfaces against said wire-couplings, and a pin for holding said spring-plunger clear of said wire-couplings, substantially as and for the purposes described.

482,807. LAWN-TRIMMER. HANS P. HANSEN, Grand Rapids, Mich. Filed June 4, 1892. Serial No. 435,562. (No model.)



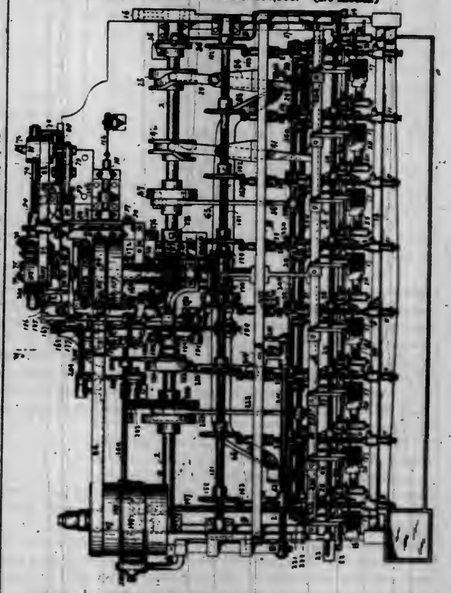
Claim.—1. In a lawn-trimmer, a traction-wheel supported upon a shaft, gear-wheels within said traction-wheel, provided with a clutching device for transmitting the motion of the traction-wheel and shafts, in combination with bevel-gears, revolving knives supported upon a vertical shaft, a stationary knife, and a revolving brush, substantially as and for the purpose set forth.

2. The combination, in a lawn-trimmer, of a supporting-frame having a traction-wheel provided with an overreaching rim for the protection of the power-transmitting mechanism, gear-wheels within said traction-wheel, and a shaft extending from one of said gear-wheels across the frame and provided at the opposite end with a bevel-gear, a vertical shaft provided at its upper end with a bevel-gear, a knife-frame securely attached to the lower end of the vertical shaft, a series of revolving knives, an adjusting-screw for said frame, a shoe for supporting the knife-frame, said shoe provided with a forwardly-inclined projecting arm for the support of a stationary knife, a stationary knife, a revolving brush, and rollers for the support of the mower-frame, substantially as and for the purpose set forth.

3. The combination, in a lawn-trimmer, of a supporting-frame having a traction-wheel, supporting-rollers, and power-transmitting mechanism, with an outwardly-projecting stationary knife, revolving knives supported above said stationary knife upon a vertical shaft, the edges of said knives being tangential from the rim of the hub g of the frame that supports them, so as to form a perfect shearing cut with the stationary knife, an adjusting-screw, and a revolving brush, substantially as and for the purpose set forth.

4. The combination, in a lawn-trimmer, of a supporting-frame having power-transmitting mechanism, with an outwardly-projecting forwardly-inclined horizontal stationary knife, a revolving brush, and a series of revolving knives supported upon a vertical shaft and arranged to co-operate with the stationary knife in producing a shearing cut, substantially as and for the purpose set forth.

482,808. THREAD-WINDING MACHINE. CHARLES HILL, Newark, N. J., assignor, by direct and mesne assignments, to Thomas Russell, Montclair, N. J., and Robert W. Ferguson, New York, N. Y., trustees. Filed Oct. 2, 1891. Serial No. 407,533. (No model.)

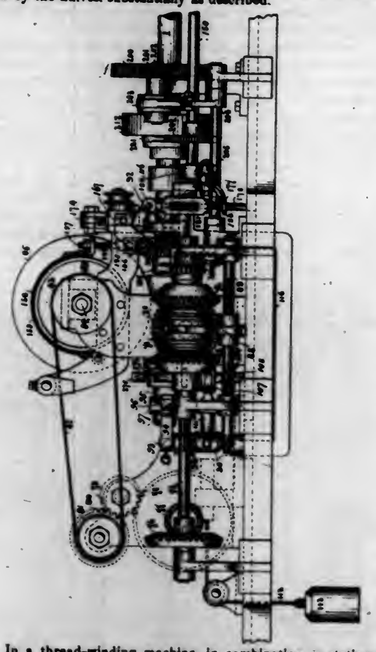


Claim.—1. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and parallel spindles crossing the space between said frames, means whereby said reciprocating frame is actuated and means whereby the spindles are rotated, a laterally-traversing bar arranged transversely of the spindles, a slide on said bar, a series of thread-guides mounted on said slide, and means whereby said slide is actuated to intermittently retract the thread guides, substantially as described.

2. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and parallel spindles crossing the space between said frames, means whereby said reciprocating frame is actuated and means whereby the spindles are rotated, a laterally-traversing bar arranged transversely of the spindles, a series of thread-guides mounted thereon, a series of hoppers in-

termediate the spindles, a series of reciprocating hopper-bottoms, a slide transversely of the spindles, and connections between said slide and said hopper-bottoms, whereby the hopper-bottoms are moved transversely of the spindles, substantially as described.

3. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and parallel spindles crossing the space between said frames, means whereby said reciprocating frame is actuated and means whereby the spindles are rotated, a laterally-traversing bar arranged transversely of the spindles, a series of thread-guides mounted thereon, a series of knives reciprocating parallel with the spindles, means whereby they are reciprocated, and means whereby the threads are inserted in the slits formed by the knives, substantially as described.



4. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and parallel spindles crossing the space between said frames, means whereby said reciprocating frame is actuated and means whereby the spindles are rotated, a laterally-traversing bar arranged transversely of the spindles, a series of thread-guides mounted thereon, a series of spool-slitting knives, a series of fingers, means whereby they are moved in a plane parallel with the spindles, and a series of hooks and means whereby they are reciprocated across the path of the fingers, substantially as described.

5. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and parallel spindles crossing the space between said frames, means whereby said reciprocating frame is actuated and means whereby the spindles are rotated, a laterally-traversing bar arranged transversely of the spindles, a series of thread-guides mounted thereon, a series of spool-slitting knives, a series of mechanisms whereby the thread is placed in the slit and cut, an abutment for the end of the spool, an ejector separate from the abutment, and means whereby the ejectors are moved parallel with the spindles, substantially as described.

6. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and parallel spindles crossing the space between said frames, means whereby said reciprocating frame is actuated and means whereby the spindles are rotated, a laterally-traversing bar arranged transversely of the spindles, a series of thread-guides mounted thereon, a series of spool-abutments, a series of spool-slitting knives, a series of mechanisms whereby the thread is carried into the slits and cut and to a retainer, a retainer, and a series of pins whereby the thread is carried forward of the face of the abutments, substantially as described.

7. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and parallel spindles 2 and 3, crossing the space between said frames, means whereby said reciprocating frame is actuated and means whereby the spindles are rotated, a laterally-traversing bar arranged transversely of the spindles, a series of thread-guides mounted thereon, a traverse screw-shaft, a nut engaging the same, a clutch adapted to drive said shaft in opposite directions, and means whereby said clutch is shifted at the end of each traverse, substantially as described.

9. In a thread-winding machine adapted for winding a series of spools at one time, in combination, the main frame, a series of thread-guides, a traversing-bar, a member mounted to move on said bar with which the thread-guides are connected, mechanism whereby said member is moved to cause the retreat of the thread-guides intermittently, end pieces extending from said traversing-bar by the frame of the machine, bearings in said frame for said end pieces, a yoke on the opposite side of the frame connecting said end pieces, mechanism whereby said yoke is caused to traverse, mechanism whereby said traverses are stopped, and mechanism whereby said traverses are started automatically, substantially as described.

10. In combination, the spindle, the knife below the central level of the spindle, the thread-guide above the central line of the spindle, the finger moving in a downwardly-inclined direction between the guide and spool and over the knife, the hook intercepting the path of the finger and moving beneath the spindle, the retainer, and the pusher, whereby the thread is thrust in front of the shoulder of the spindle, substantially as described.

11. In combination, the spindle, the thread-guide, the knife whereby the spool is slit, the finger whereby the thread is placed in the slit, the hook 39, and a spring cheek-plate 43, whereby the thread from the thread-guide is held against the side of the hook, and means whereby said hook is reciprocated relatively to said cheek-piece, substantially as described.

12. In combination, the frame of the machine, the spindle, the thread-guide, the spool-slitting knife, the finger oscillating between the thread-guide and the spool, a reciprocating hook 39, a slide whereon this hook is mounted moving at right angles with the axis of the spindle, and means of securing the thread on the opposite side of the spindle from the thread-guides, substantially as described.

13. In a thread-winding machine, in combination, a divided spindle, a spool-abutment on each part thereof, mechanism whereby one part of the spindle is pressed toward the other part with a maximum pressure when the spindle is not rotating and a minimum pressure when the spindle is rotating, and a spring permitting the parts to yield to such pressure, substantially as described.

14. In a thread winding machine, in combination, a divided spindle, mechanism whereby one-half is reciprocated, a reciprocating spool-carrier, and an upwardly-inclined guideway, whereby the spool-carrier is caused to approach from one side and below, whereby the spool neither interferes with the direct retreat of the carrier nor the carrier with the dropping of the spool when wound, substantially as described.

15. In a thread-winding machine, in combination, a spindle, a slitting-knife, and mechanism whereby said knife is moved in a line crosswise of the flange of the spool, substantially as described.

16. In a thread-winding machine, in combination, a spindle, a slitting-knife, a knife-stock, and mechanism whereby said knife is moved in a line crosswise of the flange of the spool, said knife-stock being provided with a recess in the plane of motion of the knife wherein the knife may be adjusted, substantially as described.

17. In a thread-winding machine, in combination, a spindle having a spool-abutment, a slitting-knife, a finger whereby the thread is moved laterally, a hook and knife whereby the thread is held and cut, and a member whereby the thread is returned laterally in front of the abutment, substantially as described.

18. In a thread-winding machine, in combination, a spindle, a spring-pressed spool-abutment on the spindle, an ejector whereby the spool is ejected from the spindle, a knife separate from the ejector, whereby the spooled thread is severed from the unspooled thread, and a member whereby the end of the unspooled thread is brought into position across the end of the abutment to be clamped against the same by the spool to be placed upon the spindle, said member being mounted on the ejector, substantially as described.

19. In a thread-winding machine, in combination, a divided spindle, a spring-pressed abutment upon each part thereof, and mechanism whereby one part of the spindle is pressed toward the other part with a maximum of pressure when the spindle is rotating, substantially as described.

20. In a thread-winding machine adapted to wind a series of spools at once, in combination, a series of spindles, a transversely-arranged bar, as 40, guideways in the frame wherein said bar slides transversely of the spindles, a series of hooks carried by said bar, a shaft, as 34, arranged transversely of the spindles, means whereby said shaft is rocked, and a series of fingers upon said shaft, each adapted to draw the thread over the spool-flange into position to be engaged by one of said hooks, substantially as described.

21. In a thread-winding machine adapted for winding a plurality of spools at once, in combination, a series of spindles arranged approximately parallel with one another and projecting in front of the main frame of the machine, a series of hoppers arranged one between every two spindles, a series of sliding hopper-bottoms, whereby the spools are carried transversely to the spindles, a slide extending transversely of the spindles, to which all of said hopper-bottoms are connected, and means whereby said slide is reciprocated, substantially as described.

22. In a thread winding machine adapted for winding a series of spools at once, in combination, a series of spindles arranged approximately parallel with one another and projecting to the front of the main frame of machine, the following slides having transverse guideways in the main frame of the machine, viz: the slide for carrying the series of half-spindles, the slide for carrying the slit-cutting knife, the slide for carrying the ejector, the slide for carrying the traversing bar, and the following slides having longitudinal guideways in the main frame of the machine, viz: the slide for carrying the thread-securing hook, the slide for carrying the mechanism whereby the spools are conveyed from the hopper to the spindle, and the slide for carrying the scrap-end cutter, substantially as described.

23. In a thread-winding machine adapted for winding a series of spools at once, in combination, a series of spindles arranged approximately parallel with one another and projecting to the front of the main frame of the machine, a traversing slide having guideways transverse of the main frame of the machine, a slide superposed upon the same, mechanism whereby said last-mentioned slide is moved in a direction longitudinally of the main frame, and the series of thread-guides mounted upon said last-mentioned slide, substantially as described.

24. In a thread-winding machine, in combination, mechanism for completing and changing the spools, the traverse screw-shaft, and mechanism whereby the motion of the said first-named mechanism is communicated to the said shaft, whereby the thread-guide while the spindle is at rest is moved to the end of the short traverse by the rotation of said screw-shaft, substantially as described.

25. In a thread winding machine adapted to wind a plurality of spools at once, in combination, the series of thread-guides, a rod with which they are all connected, a cam actuating said rod to cause the retreat of the guides from the spools, a ratchet-wheel connected with the said cam, a rocker, two pawls connected with the opposite ends of the rocker, and means whereby said rocker moves in unison with the traverses, whereby the ratchet is actuated by one pawl for the forward traverse and the other pawl for the backward traverse, substantially as described.

26. In a thread-winding machine, in combination, traversing mechanism, a thread-guide, a cam by which it is retreated from the spool, a friction-clutch mounted on the traversing mechanism, a rod connected with said friction-clutch, mechanism whereby the motion of said rod actuates said cam, and an adjustable stop whereby the extent of motion of said rod is regulated, substantially as described.

27. In a thread-winding machine, in combination, traversing mechanism, a thread-guide, a cam by which it is retreated from the spool, a friction-clutch mounted on the traversing mechanism, a rod connected with said friction clutch, a rocker, two pawls, a ratchet-wheel, and two adjustable stops whereby the extent of motion in both directions received by said rod is regulated, substantially as described.

28. In a thread-winding machine, in combination, the bed-plate E, the spindle-turning shaft 151, the cam-shaft 1, the traverse screw-shaft 69, the bearings of all of said shafts mounted upon said bed-plate, the vertical plate A, mounted upon the front edge of said bed-plate, the spindle-shafts 2, having bearings in the plate A and projecting at right angles therethrough, substantially as described, whereby the bearings of all said shafts are mounted upon the same bed plate.

29. In a thread-winding machine, in combination, a traverse screw-shaft, a nut permanently engaging therewith, a traversing frame, a clutch adapted to cause the rotation of said shaft in either direction, a shaper connected with said clutch, a stud co-operating with said shaper and connected to and moving in unison with the traverse-frame, a spool-dismounting mechanism, a pulley whereby the same is actuated, a pulley whereby the traversing mechanism is actuated, a belt, a belt-shifting mechanism, and mechanism connecting the traverse-frame with the belt-shifting mechanism, substantially as described.

30. In a thread-winding machine, a bed-plate E, a vertical plate A, mounted thereon, provided with a front horizontally-extending flange G, having guideways, a series of spindle-shafts 2, having their bearings in the plate A and projecting at right angles therethrough above the flange G, and the spool-conveyers 21 and the slide 23, mounted in said guideways, substantially as described.

31. In a thread-winding machine, in combination, a thread-winding mechanism and a pulley for actuating the same, a mechanism for completing and changing the spools and a pulley for actuating the same, a belt to drive said pulleys alternately, mechanism whereby said belt is shifted from one of said pulleys to the other, and vice versa, automatically, a traverse-frame, a traverse screw-shaft, a nut permanently engaging the same, a clutch adapted to drive said shaft in either direction, a shaper connected with said clutch, a stud co-operating with the shaper, and means whereby said stud is moved in unison with the traverses, substantially as described.

32. In a thread-winding machine, in combination, a thread-winding mechanism and a pulley for actuating the same, a mechanism for completing and changing the spools and a pulley for actuating the same, a belt to drive said pulleys alternately, a traverse-frame, a traverse screw-shaft, a clutch adapted to drive said shaft in both directions, mechanism whereby said clutch is shifted at the ends of the traverses, and the following mechanism whereby said belt is shifted from one pulley to the other, and vice versa, viz: a belt-shifter, a weight connected with the same, a pawl whereby the belt-shifter is held in antagonism to said weight, means whereby said pawl is tripped at the end of each winding operation, and mechanism whereby the belt-shifter is returned into engagement with said pawl at the commencement of each winding operation, substantially as described.

33. In a thread-winding machine, in combination, a thread-winding mechanism and a pulley for actuating the same, a mechanism for completing and changing the spools and a pulley for actuating the same, a belt to drive said pulleys alternately, and the following mechanism whereby said belt is shifted from one pulley to the other, and vice versa, viz: a belt shifter, a slide upon which the belt-shifter reciprocates, weights urging the belt-shifter and slide respectively in opposite directions, the latter overbalancing the former, a pawl whereby the belt-shifter is held in antagonism to the slide-weight, a pawl whereby the belt-shifter is held in antagonism to its own weight, means whereby said first pawl is tripped at the end of each winding operation, means whereby the slide is returned in antagonism to its weight, and means whereby said second pawl is tripped at the commencement of each winding operation, substantially as described.

34. In a thread-winding machine, a shaft connected both with the mechanism for revolving the spindles and with the mechanism for producing the traverses, a sleeve mounted loosely on said shaft connected with the mechanism for completing and changing the spools, means whereby said shaft and said sleeve are actuated alternately, a traverse screw-shaft, a nut permanently engaging the same, and a clutch whereby said shaft is turned alternately in opposite directions, substantially as described.

35. In a thread-winding machine, in combination, a stationary frame, a reciprocating frame parallel thereto, a series of divided and side-by-side spindles, means whereby the spindles are rotated, the bar 14, connected with said reciprocating frame, and the cam by which it is operated, provided with a centrally-flattened surface, whereby the pressure is reduced intermediate the mounting of the spool and the operation of the knife, substantially as described.

36. In a thread-winding machine, in combination, a series of divided and side by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, a series of spool-conveyers 21, and the following parts for operating said conveyers, viz: the slide 23, transversely of the spindles, the lever 24, the cam 25, and means for operating said cam, substantially as described.

37. In a thread-winding machine, in combination, a series of divided and side-by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, a series of knives 29, a series of longitudinally-sliding knife-bars 31, a series of arms 330, and the following parts for operating the same, viz: rock-shaft 340, arm 350, connecting rod 56, cam 57, and means whereby said cam is operated, substantially as described.

38. In a thread-winding machine, in combination, a series of divided and side-by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, a series of ejectors 26, a series of longitudinally-sliding bars 27, a series of arms 28, and the following parts by which the same are operated, viz: rock-shaft 220, arm 221, connecting-rod 222, cam 223, and means whereby said cam is operated, substantially as described.

39. In a thread-winding machine, in combination, a series of divided and side-by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, a series of oscillating fingers 33, and the following parts by which said fingers are operated, viz: rock-shaft 34, arm 38, connecting-rod 37, cam 35, and means whereby said cam is operated, substantially as described.

40. In a thread-winding machine, in combination, a series of divided and side-by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mech-

anism, a series of hooks 39, and the following parts by which said hooks are operated, viz: slide 40, lever 41, cam 42, and means whereby said cam is operated, substantially as described.

41. In a thread-winding machine, in combination, a series of divided and side-by side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, the series of knives 46, the series of knife-arms 47, and the following parts by which the same are operated, viz: slide 49, lever 52, cam 233, and means whereby said cam is operated when the spindles rotate, substantially as described.

42. In a thread-winding machine, in combination, a series of divided and side-by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, a series of thread-guides, a traversing frame carrying the same, a nut 68, connected therewith, a screw-shaft 69, and the following parts for operating said screw-shaft, viz: gear 71, fast thereon, shaft 74, gears 72 and 73, turning freely thereon and meshing with gear 71, and a clutch 75, splined to said shaft 74, substantially as described.

43. In a thread-winding machine, in combination, a series of divided and side-by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, a series of thread-guides, slide 140, carrying the same, cam 143, moving said slide, shaft 147 upon which said cam is mounted, traversing mechanism, and means whereby said shaft 147 is moved at each traverse of the thread-guides, substantially as described.

44. In a thread-winding machine, in combination, a series of divided and side-by-side spindles, means whereby one division of said spindles is reciprocated relatively to the other, spindle-rotating mechanism, a series of thread-guides, a screw-shaft whereby they are caused to traverse, mechanism for finishing the spool after winding, and the following parts whereby the thread-guides are moved to the commencement of the short traverse intermediate the winding operations, viz: the ratchet-wheel 206, means whereby it is operatively connected with the traverse-screw, the pawl 207, and means whereby it is operatively connected with the said mechanism for finishing the spool after winding, substantially as described.

482,809. BEARING. PHILIP H. HOLMES, Gardiner, Me., assignor to the Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Filed Sept. 18, 1891. Serial No. 406,064. (Model.)



Claim.—1. A bearing made of a composition of lubricating material and fiber intimately mixed and compressed, the fibers at the bearing-surface being mainly in a direction transversely to the longitudinal line of the bearing-face.

2. A bearing made of a composition of plumbago and fiber intimately mixed and compressed, the fibers at the bearing-surface lying mainly in a direction transversely to the longitudinal line of the bearing-face, and a binder, substantially as described.

3. A bearing made of a composition of plumbago or other lubricating material, the fiber intimately mixed and united, said bearing having a curved bearing-face, the fibers lying mainly in lines radiating from the center from which said curved face is produced, substantially as described.

482,810. PROCESS OF MANUFACTURING COMPOSITION JOURNAL-BEARINGS. PHILIP H. HOLMES, Gardiner, Me., assignor to the Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Filed Jan. 2, 1892. Serial No. 416,856. (No specimens.)

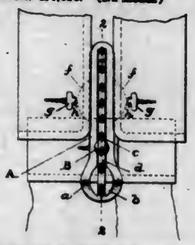
Claim.—1. The process herein described of forming a plumbago composition for bearings, &c., said process consisting in, first, mixing plumbago, fiber, and liquid; second, expelling the liquid by pressure, and, third, impregnating the mass with a liquid binder, substantially as set forth.

2. The process herein described of forming a plumbago composition for bearings, &c., said process consisting in, first, mixing plumbago, fiber, and an inert mineral substance in liquid; second, expelling the liquid by pressure, and, third, impregnating the mass with a liquid binder, substantially as described.

3. The process herein described of forming a plumbago composition for bearings, &c., said process consisting in, first, mixing plumbago, fiber, and liquid; second, expelling the liquid under pressure; third, impregnating the compressed composition with an oil-binder, and, fourth, drying the composition to set the binder, substantially as set forth.

4. The process herein described of forming a plumbago composition for bearings, &c., said process consisting in, first, mixing plumbago, fiber, and gypsum with liquid; second, expelling the liquid by pressure; third, impregnating the compressed composition with an oil-binder, and, fourth, drying the composition to set the binder, substantially as described.

482,811. CUFF-HOLDER. HARRY W. JOHNS, Baltimore, Md., assignor of one-tenth to Augustus H. Brinkmann, same place. Filed June 13, 1892. Serial No. 436,626. (No model.)



Claim.—1. A cuff-holder comprising a body portion constructed for attachment to the buttonhole of a cuff and having a longitudinal slot which receives the shank of the sleeve-button and a resilient strip extending lengthwise of the slot and having permanent position over the same, said strip rigidly attached at the two ends to the body portion at the ends of the slot and provided with a series of indentations which confront the slot and engage the top of the head of the sleeve-button, the strip extending over the same, in the manner described.

2. A cuff-holder comprising a metal plate having a longitudinal slot which receives the shank of the sleeve-button, a corrugated or indented strip over said slot to engage the head of said button, and lateral extensions or enlargements on two opposite sides of the plate having means of attachment at their outer ends with the buttonholes in the confronting edges of the cuff, said enlargements or extensions serving as a spreader, substantially in the manner described.

482,812. COMPUTING-MACHINE. PETER J. LANDIN, Minneapolis, Minn., assignor to Thomas B. Walker and Sarah R. Wilson, same place. Filed Feb. 3, 1891. Serial No. 379,966. (No model.)



Claim.—1. The combination, with a suitable casing, of a series of ratchet-wheels arranged therein and a series of slides arranged in said casing and partially exposed and provided with a series of notches arranged to engage said ratchet-wheels as the slide is moved in one direction and to pass said ratchet-wheels without moving them as the slide is moved in the opposite direction and provided, also, with a numbered series of notches arranged in the exposed portion of said slides and corresponding with the series of notches which engage with the wheels, substantially as described.

2. The combination, with a suitable casing and a series of slides arranged in said casing and partially exposed, of a series of ratchet-wheels arranged in said casing and adapted to be engaged by said slides as they move in one direction and to remain stationary as the slides move in the opposite direction and provided with a series of numbers or figures, and means for automatically retracting said slides after each movement thereof.

3. The combination, with a suitable casing, of a series of ratchet-wheels arranged therein provided with figures or characters and a series of slides engaging said ratchet-wheels and provided with a series of numbered notches or recesses arranged on exposed portions of said slides, whereby as said slides are moved by placing an instrument upon one of the notches the corresponding ratchet-wheel will be moved to register a number corresponding to the number of the notch so engaged and will remain in this position while the slide is returned to its normal position.

4. The combination, with a suitable casing, of a series of ratchet wheels arranged therein, means for resetting said wheels after each operation, and a series of slides arranged to engage directly with said wheels and turn them as the slides are moved in one direction and to pass without turning them as the slides are moved in the opposite direction and provided with a series of numbered notches arranged outside of said casing, for the purpose specified.

5. In a machine of the class described, the combination of a notched slide provided with a series of numbers, a stop arranged in the line of movement of said slide, and a ratchet-wheel engaged and turned by the said slide as it is moved in one direction and provided with a series of numbers, whereby as said slide is moved to bring any one of its numbers opposite said stop the ratchet-wheel is turned and the same number is registered, substantially as described.

6. In a machine of the class described, the combination, with the casing having an inclined lower wall and an open lower front portion, of a series of slide arranged in said casing and provided with numbered notches arranged opposite the open portion of said casing and a series of registering-wheels arranged in said casing opposite an opening through which the numbers on the wheels may be seen and adapted to be engaged and operated by said slides as they are moved in one direction and to remain stationary as they are moved in the other direction, substantially as described.

7. In a machine of the class described, the combination, with the casing having a portion of its front open, of a series of slides arranged in said casing and having a series of numbers arranged opposite the open portion of said casing, whereby said slide may be moved by the application of a suitable instrument to any one of its notches, springs for returning said slides to their normal positions after each operation, and a series of registering-wheels arranged in said casing opposite a suitable opening and adapted to be engaged and operated by said slide as they are moved in one direction only, substantially as described.

8. The combination, with a series of registering ratchet-wheels, of a series of slides provided with a series of notches corresponding to the ratchet-teeth upon said wheels and adapted to engage and turn said wheels as the slides are moved in one direction, means for preventing a reverse movement of said wheels as the slides are turned in the opposite direction, and a series of numbered notches upon said slides corresponding to the numbers upon said wheels, whereby said slides are adapted to be moved by engaging a suitable instrument with any one of said notches.

9. The combination, with a suitable casing, of a series of ratchet-wheels arranged therein and provided with a series of characters or figures, a series of slides engaging said ratchet-wheels and provided with a series of numbered notches or recesses arranged in portions of said slides that are exposed, means for preventing said wheels from moving in a reverse direction, and means for automatically retracting said slides after each operation, substantially as described.

10. The combination, with a series of registering-wheels and provided with ratchet teeth or notches, of a series of slides provided with a corresponding series of ratchet teeth or notches adapted to engage directly with the teeth upon said wheels as said slides are moved in one direction, means for retracting said slide after each movement, and means for preventing a reverse movement of said wheels.

11. The combination, with a casing 2, provided with a shaft 4, of the series of ratchet-wheels arranged upon said shaft and having a figure or character for each ratchet tooth or notch upon each wheel, said wheels being arranged opposite an opening in said casing, a series of slides provided with ratchet-teeth corresponding with the teeth upon said wheels and provided with a corresponding series of numbered notches arranged in a portion of said slides that is exposed, and springs for returning said slides to their normal positions after each movement, and means for preventing a reverse movement of said wheels.

12. The combination, with a series of registering-wheels and means connecting said wheels whereby each wheel is caused to move one notch or space when the next lower wheel in the series moves a complete revolution, each of said wheels being provided with a series of ratchet-teeth or notches, of means for preventing said wheels from moving in the reverse direction, a series of slides, each provided with a series of teeth or notches corresponding with the ratchet-teeth or notches on said wheels and adapted to engage and turn said wheels as the slides are moved in one direction, and means for retracting each of said slides after each movement thereof.

13. The combination, with a series of registering-wheels and means connecting said wheels whereby each wheel is caused to turn one space when the next lower wheel in the series makes a complete revolution, of means for preventing said wheels from moving in the reverse direction, means for simultaneously setting all of said wheels at zero, a series of slides, each provided with a series of ratchet-teeth corresponding to the teeth upon said wheels and adapted to engage and turn said wheels as the slides move in one direction, and means for retracting said slides after each movement.

14. The combination, with a suitable case, of a series of registering ratchet-wheels arranged therein, means connecting said wheels whereby each wheel is caused to move one space as the corresponding wheels make a complete revolution, means for preventing the reverse movement of said wheels, a series of slides, each provided with a series of ratchet-teeth or notches corresponding to the teeth upon said wheels and with a corresponding series of numbered notches arranged in exposed portions of said slides, and means for retracting each of said slides after each movement thereof.

482,818. DISH-WASHING MACHINE. HAMILTON F. LOW, Cleveland, Ohio. Filed Jan. 11, 1892. Serial No. 417,607. (No model.)



Claim.—1. The combination, in a machine of the character described, of a tank, an agitator which travels in a circle within the tank and which rotates upon its own axis, and a basket or frame supported within the tank, said basket being adapted to hold dishes, substantially as described.

2. The combination, in a machine of the character described, of a tank, a stationary gear within the tank, a shaft that turns in the hub of a stationary gear, an arm fixed upon the shaft, a pinion driven by the arm and meshing with the stationary gear, an agitator which turns with the pinion, and a basket or frame supported within the tank, said basket or frame being adapted to hold dishes, substantially as described.

3. The combination, in a machine of the character described, of a tank, an agitator which travels in a circle within the tank and which rotates on its own axis, braces within the tank above the agitator, a screen supported by the braces, and a basket or frame supported within the tank by the braces, said basket being adapted to hold dishes, substantially as shown and described.

4. The combination, in a machine of the character described, of a tank, a stationary gear within the tank, a shaft that turns in the hub of the stationary gear, an arm fixed upon the shaft, a pinion driven by the arm and meshing with the stationary gear, an agitator which turns with the pinion, braces within the tank, a screen, and a basket or frame supported by the braces, said basket or frame being adapted to hold dishes, substantially as shown and described.

482,814. TRANSPLANTER. HIRAM MOOS, Red Creek, N. Y. Filed July 30, 1891. Serial No. 401,183. (No model.)



Claim.—1. The combination, with the spring frame-bars hinged together at one end, of the handles adapted to slide thereon and the points upon the handles adapted to be opened by squeezing the handles together.

2. The combination, with the spring-bars hinged together at one end, of the handles mounted and adapted to slide thereon and the concaved points upon the handles adapted to be opened by squeezing the handles together.

3. The combination, with the frame and the handles mounted thereon and the points, of the grip-springs mounted upon the frame and projecting backward between the points.

ward said cylinder and closing toward said condensing-chamber, substantially as and for the purposes set forth.

482,816. MECHANISM FOR OPENING AND CLOSING JAIL-DOORS. PETER J. PAULY, Sr., and PETER J. PAULY, Jr., St. Louis, Mo., assignors to Pauly Jail Building and Manufacturing Company, same place. Filed Mar. 15, 1892. Serial No. 425,042. (No model.)

482,817. TYPE-WRITING MACHINE. ADDISON N. PRITT, New York, N. Y. Filed June 18, 1891. Serial No. 396,673. (No model.)

from the trigger and the other end within range of the operating-key, substantially as set forth.

13. A type writer composed of a sliding carriage provided with a rack-bar beneath, in combination with a trigger and pawl, said trigger having attached thereto the spring for moving the carriage, a lever for operating but disconnected from said trigger independently of the printing mechanism, and a lever connected with the printing mechanism, substantially as set forth.

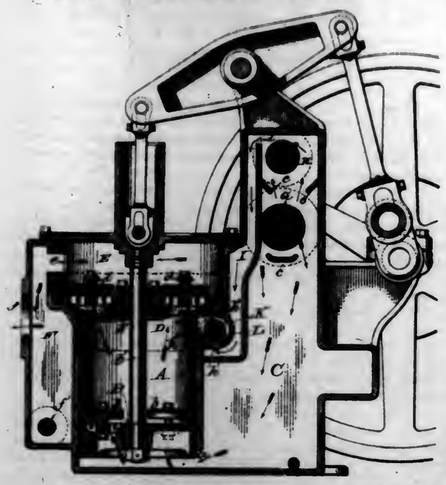
14. A type-writer composed of a sliding carriage provided with

Claim.— 1. The combination, with the spring frame-bars hinged together at one end, of the handles adapted to slide thereon and the points upon the handles adapted to be opened by squeezing the handles together.

2. The combination, with the spring-bars hinged together at one end, of the handles mounted and adapted to slide thereon and the concaved points upon the handles adapted to be opened by squeezing the handles together.

3. The combination, with the frame and the handles mounted thereon and the points, of the grip-springs mounted upon the frame and projecting backward between the points.

482,815. AIR-PUMP FOR CONDENSERS. BRUNO V. NORDBERG, Milwaukee, Wis., assignor to the Bruno Nordberg Company, same place. Filed Nov. 17, 1891. Serial No. 412,147. (No model.)



Claim.—1. In a pump for condensers, the combination, with the cylinder, piston, and suction and discharge valves, of a condensing-chamber having an opening into the space between the suction and discharge valves of the pump and an air-valve placed in said opening and closing toward said condensing-chamber, substantially as and for the purposes set forth.

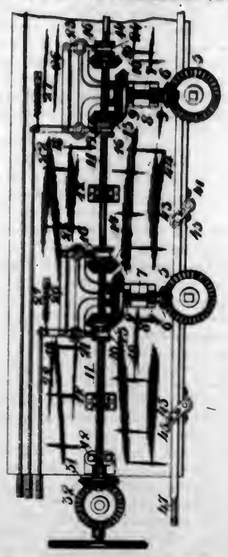
2. In a pump for condensers, the combination, with an upright cylinder, an outwardly-opening discharge-valve, and a piston provided with an inwardly-opening valve, of a condensing-chamber communicating with the pump-cylinder through an opening into the space between the piston and the discharge-valve and an air-valve placed in said opening and closing toward said condensing chamber, substantially as and for the purposes set forth.

3. In a pump for condensers, the combination, with an upright cylinder, a condensing-chamber communicating therewith, a piston provided with one or more upwardly-opening valves, and an upper head also provided with one or more upwardly-opening valves, of a cylindrical valve-chamber formed in the side of the pump-cylinder, with open ends, which are closed by caps or plugs, said valve-chamber communicating through a port in its under side with the condensing-chamber and through a lateral port with the cylinder above said piston, and a cylindrical valve seated in the lower side of said valve-chamber and normally closing the port from said condensing-chamber, substantially as and for the purposes set forth.

4. In a pump for condensers, the combination, with the cylinder, piston, suction and discharge valves, and a condensing-chamber communicating with the lower end of the pump-cylinder, of a passage leading from the upper part of the condensing-chamber in a space between the suction and discharge valves of the pump and an air-valve placed in said passage and opening toward said space, substantially as and for the purposes set forth.

5. In a pump for condensers, the combination of a piston provided with one or more upwardly-opening valves, an upright cylinder provided with one or more outwardly-opening valves in its upper end and with a horizontal cylindrical valve-case opening into said cylinder between the valve or valves in its upper end and said piston, and a condensing-chamber communicating with the lower end of said cylinder and with said valve-chamber through a port in the bottom thereof, and a cylindrical valve seated by gravity over said port, opening toward said cylinder and closing toward said condensing-chamber, substantially as and for the purposes set forth.

482,816. MECHANISM FOR OPENING AND CLOSING JAIL-DOORS. PETER J. PAULY, Sr., and PETER J. PAULY, Jr., St. Louis, Mo., assignors to Pauly Jail Building and Manufacturing Company, same place. Filed Mar. 15, 1892. Serial No. 425,049. (No model.)



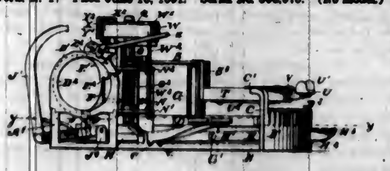
Claim.—1. Mechanism for opening, closing, and locking cell-doors, consisting of a hinged door, a gear-wheel rigidly secured to the same, a shaft mounted in suitable bearings secured to the top of the cell, a pinion keyed to one end of said shaft, adapted to mesh with said gear-wheel, a gear-wheel keyed to the opposite end of the said shaft, an operating-shaft journaled in suitable bearings and adapted to be turned by suitable mechanism, and pinions movable upon said operating-shaft and adapted to be successively brought in contact with the last-named gear-wheel for locking the door or operating the same when the said operating-shaft is rotated, substantially as described.

2. Mechanism for opening, closing, and locking cell-doors, consisting of a hinged door, a shaft rigidly secured to the same, a beveled gear-wheel fixed to said shaft, a shaft, such as 7, mounted in suitable bearings secured to the top of the cell, a pinion keyed to one end of the said shaft and adapted to mesh with said gear-wheel, a beveled gear-wheel 10, keyed to the opposite end of said shaft, an operating-shaft, and beveled pinions movable upon said shaft, one of which is locked against rotation and the other adapted to be rotated by said shaft, both of which are adapted to be successively brought into contact with the said beveled gear-wheel 10, substantially as described.

3. Mechanism for opening, closing, and locking cell-doors, consisting of a hinged door, a beveled gear-wheel fixed to the same, a pinion adapted to mesh with the said gear-wheel, a gear-wheel, such as 10, adapted to impart motion to the said pinion, an operating-shaft 11, beveled pinions loosely mounted upon said shaft and adapted to be successively brought in contact with the said gear-wheel 10, levers attached to the said pinions, a plate, such as 26, attached to the said levers, a bar, such as 22, attached to one of the said levers, and a lever adapted to be attached to the cell, to which one end of the said bar is loosely attached for operating the said pinions independent of the said shaft, substantially as described.

4. A device for opening, closing, and locking cell-doors, consisting of a rotating shaft, such as 3, to which the cell-door is attached, a beveled gear-wheel fixed to the upper end of the said shaft, suitable gearing in connection with said gear-wheel, and an operating-shaft, such as 11, beveled pinions, such as 13 and 15, adapted to be moved in a horizontal direction upon the same, one of which is adapted to be rotated by the said shaft, levers for operating said pinions successively, a spring attached to one of the said levers, a bar attached to the lever to which the spring is attached, and a lever attached to the cell, to which one end of the bar is attached, substantially as described.

482,817. TYPE-WRITING MACHINE. ADELBERT H. PETIT, New York, N. Y. Filed June 16, 1891. Serial No. 396,673. (No model.)



Claim.—1. A type-writer having, in combination, a vertically-movable non-rotatable type-wheel shaft, a type-wheel rotatably mounted on its upper end, a pulley below said type-wheel, connected therewith by a vertical stem, a segmental wheel engaging with the pulley, and an arm connected with said segmental wheel having a hinged key-bar therein, as set forth.

2. A type-writer having, in combination, a vertically-movable non-rotatable type-wheel shaft, a type-wheel rotatably mounted on its upper end, a pulley below said type-wheel, connected therewith by a stem, a segmental wheel engaging with the pulley, an arm connected with said segmental wheel having a hinged key therein, a circular lettered plate above said arm, and a toothed circular plate below the hinged key, substantially as set forth.

3. A type-writer having beneath the carriage a toothed rack, in combination with a trigger centrally hinged, having at one end a tooth normally in engagement with the carriage-rack, a spring-pressed hinged pawl on the toothed end of the trigger, projecting in the direction of the pivot of the latter, a hinged lever having one end beneath the end of the trigger and its opposite end projecting forward and provided with a horizontal key-bar, and a spring connected with said trigger for drawing the same back to its normal position and moving the carriage, substantially as set forth.

4. A type-writer having a hammer for printing the characters, in combination with a lever having at its inner end a lateral or right-angled bend adapted to actuate the hammer and a key-bar for throwing the proper character in position and operating said lever, substantially as set forth.

5. A type-writer having a hammer for printing the characters, a trigger carrying alternately-actuating pawls, and the carriage actuated by said pawls, in combination with a lever adapted to simultaneously actuate said hammer and trigger and a key-bar for throwing the proper characters in position and operating said lever, substantially as set forth.

6. A type-writer having a hammer for printing the characters, a trigger carrying alternately-operating pawls, and the carriage actuated by said pawls, in combination with a lever having the right-angled bend at one end, one arm of said bend being adapted to engage said trigger and the other arm to engage said hammer, and a key-bar for throwing the proper character in position and operating said lever, substantially as specified.

7. A type-writer having, in combination, a vertically-movable type-wheel shaft carrying a pulley having a sliding stem connection with the rotatable type-wheel, a segmental wheel having connection with said pulley by oppositely-wound bands, and its arm provided with a hinged key-bar, substantially as and for the purposes set forth.

8. A type-writer having a sheet-feeder composed of two rolls mounted on the slotted paper-receiving tube, said rollers mounted within keepers at each end and having a lever hinged between the journals of the rollers, having cams arranged between and for spreading apart said rollers, substantially as set forth.

9. In a type-writer, a carriage having two rollers movable to and from each other by the paper-guard comprising the inverted-V-shaped wire guards adapted to overhang said rollers, one of the journals having a hand-wheel, and two or more sets of faces on said journal, and a spring-finger laterally movable and adapted to engage with either set of faces, substantially as set forth.

10. In a type-writer, a base having two horizontal parallel ways, in combination with a carriage mounted thereon having a central horizontal rack-bar beneath and a hooked post or standard extending up from the base and around said rack-bar to hold the carriage in position, substantially as set forth.

11. In a type-writer, a carriage composed of two horizontal parallel gained bars, a head at each end, having centrally below a connecting rack-bar and on the upper side keepers for rollers, in combination with said rollers, springs for holding the same together, and a lever with cams thereon arranged between and for separating said rollers, substantially as set forth.

12. A type-writer composed of a sliding carriage provided with a rack-bar beneath, in combination with a trigger and pawl beneath said rack-bar having attached thereto the spring for moving the carriage and a lever having one end in engagement with but disconnected from the trigger and the other end within range of the operating-key, substantially as set forth.

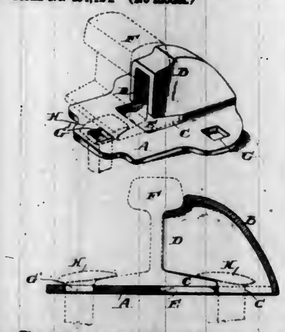
13. A type writer composed of a sliding carriage provided with a rack-bar beneath, in combination with a trigger and pawl, said trigger having attached thereto the spring for moving the carriage, a lever for operating but disconnected from said trigger independently of the printing mechanism, and a lever connected with the printing mechanism, substantially as set forth.

14. A type-writer composed of a sliding carriage provided with a rack-bar, in combination with a trigger having a pawl adapted to normally engage said rack-bar and having a spring-pressed pawl or latch also adapted to engage said rack-bar and move the carriage when the aforesaid pawl is disengaged from said rack-bar and having attached thereto the spring for actuating the carriage, and a lever having one end adapted to engage said trigger and the other end adapted to be actuated by the operating-key, substantially as and for the purpose set forth.

15. A frame composed of the single post with two brackets or ledges, a type-wheel shaft passing through said brackets, two vertical shafts on the front side, carrying on their upper ends rotatable ink-fountains, and on the rear side of the upper bracket two swiveled posts for holding vertically-disposed rollers, and the endless ribbon around said rollers.

16. A type-writer having rotatable ink-fountains and suitable tension rollers and an endless ribbon around the same, in combination with inverted-U-shaped guard-pieces over said tension-rollers, substantially as set forth.

482,818. TIE-PLATE AND BRACE. WILLIAM H. PHILLIPS, Philadelphia, Pa., assignor to Paul Thompson, same place. Filed Apr. 29, 1892. Serial No. 431,194. (No model.)



Claim.—The cast-metal tie-plate and brace having a platform A, a brace B, cast integral therewith, formed with a cavity D, and adapted to fit closely against the rail-head, and an opening E, formed in the platform A beneath the cavity in brace B, all substantially as and for the purpose specified.

482,819. SAWING-MACHINE. ALEXANDER RODGERS, Sr., Muskegon, Mich., assignor to the Rodgers Iron Manufacturing Company, same place. Filed Mar. 28, 1892. Serial No. 426,804. (No model.)

Claim.—1. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, and a dog carried by the said frame, substantially as described.

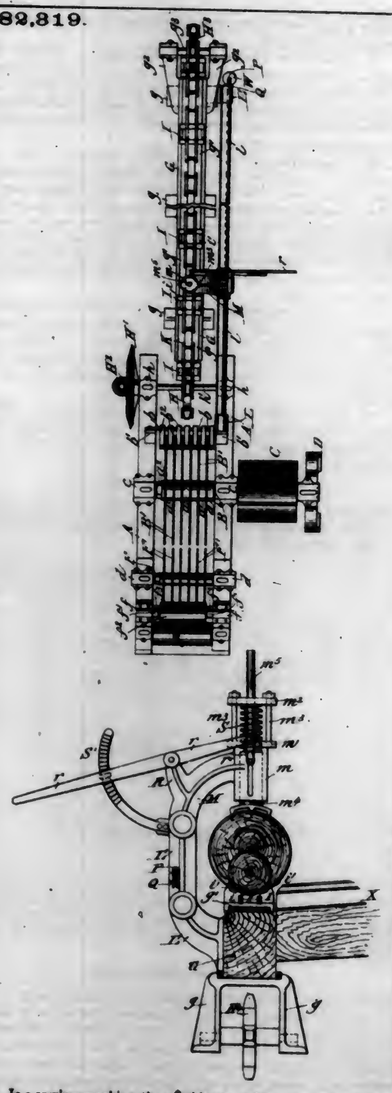
2. In a sawing-machine, the combination of the ways, the endless sprocket-chain, the dogs or bunks carried by the said chain, the frame mounted to move parallel with the said chain, and the dog carried by the said frame, substantially as described.

3. In a sawing-machine, the combination of the main feeding device consisting of the main support or base, the ways mounted thereon, the sprocket-wheels journaled one at each end of the said support or base and one of them being adjustable, the chain carried by the said wheels, and the bunks or dogs carried by the said chain, with the frame mounted to move parallel with the said feeding device, and the dog carried by the frame, substantially as described.

4. In a sawing-machine, the combination of the main feeding mechanism, the movable frame mounted independent of the said mechanism, the dog carried by the said frame, and the means for retracting the said frame, substantially as described.

5. In a sawing-machine, the combination of the ways, the endless sprocket-chain, the dogs or bunks carried on the said ways by the said chain, the guides parallel with the said ways, and the auxiliary dogging device carried by the said guides, substantially as described.

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6. In a sawing-machine, the combination of the ways, the endless sprocket-chain, the dogs or hooks carried on the said ways by the said chain, the guides parallel with the ways, the frame carried by the guides, and the spring-actuated dog carried by the said frame, substantially as described.

7. In a sawing-machine, the combination of the main feeding mechanism, the guides mounted parallel with the said mechanism, the frame mounted on the said guides, the dog carried by the said frame, and the rope leading from the frame to the front of the machine, passing over a sheave, and having a weight attached to its end, substantially as described.

8. In a sawing-machine, the combination of the main feeding mechanism, the guides parallel with the line of movement of the said mechanism, the frame movably mounted on the said guides, the cylinder carried by the frame, and the dog movably mounted in the said cylinder, substantially as described.

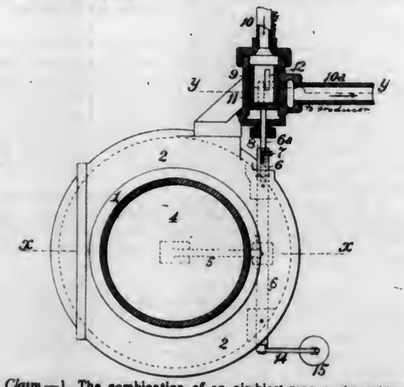
9. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, and the spring-actuated dog mounted in the said cylinder, substantially as described.

10. In a sawing machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, and the spring actuated dog mounted in the said cylinder, substantially as described.

11. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, the perforated plate or guide mounted above the cylinder, and the spring-actuated dog mounted in the cylinder and having a shank registering with the perforation in the said guide or plate, substantially as described.

12. In a sawing-machine, the combination of the main feeding mechanism, the frame mounted independent of the said mechanism and movable parallel with the same, the cylinder carried by the frame, the spring-actuated dog mounted in the cylinder, and the lever pivoted to the frame and connected with the dog, substantially as described.

482,320. AUTOMATIC STEAM-REGULATOR FOR GAS-PRODUCERS. EDWIN RUUD, Pittsburg, Pa., assignor to the Fuel Gas and Manufacturing Company, same place. Filed Aug. 29, 1891. Serial No. 404,108. (No model.)



Claim.—1. The combination of an air-blast pipe, a steam-blast pipe, valve-chambers interposed between sections of each of said pipes, a regulating-valve controlling the air-blast pipe, a shaft journaled in bearings and connected to said valve, a regulating-valve connected to said shaft and fitted to move circumferentially within the valve-chamber of the steam-blast pipe and having ports adapted to register with ports formed therein, and a counter-balance connected to the valve-shaft and acting thereon in opposite direction to the opening movement of the valves, substantially as set forth.

2. The combination of an air-blast pipe, a steam-blast pipe, valve-chambers interposed between sections of each of said pipes, a regulating-valve controlling the air-blast pipe, a shaft journaled in bearings and connected to said valve, a regulating-valve constructed to move longitudinally and circumferentially within the valve-chamber of the steam-blast pipe and having ports adapted to register with ports formed therein, a shaft secured to said valve and connected adjustably to the shaft of the regulating-valve, and a counter-balance coupled to the valve-connecting shafts and acting thereon in opposite direction to the opening movement of the valves, substantially as set forth.

482,321. CULTIVATOR FOR LISTED CORN. LAMBERT P. SCHRADER, Clay Centre, Kans., assignor of one-half to John C. Johnston, same place. Filed Oct. 26, 1891. Serial No. 409,771. (No model.)

Claim.—1. In a cultivator, the combination of a crank-axle and wheels with the runners having adjustable knives attached to the rear thereof, substantially as shown and described.

2. In a cultivator for listed corn, the combination, with runners D D, of the crank-axle and wheels, rear knives A A, connected with said runners by means of draft-bars *i i*, and crank-lever *d* and link *g* for regulating the depth of said knives in the soil, substantially as shown and described.

3. In a cultivator for listed corn, the combination, with the cranked axle and wheels, of runners D D, cross-head C, knives *a a*, secured to said cross-head, rear knives A A, and lever *d* for regulating the depth thereof, substantially as shown and described.

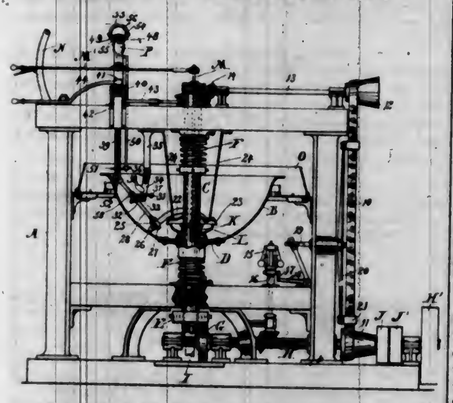
4. In a cultivator for listed corn, the combination, with adjustable knives A A operated by lever *d*, of knives *a a*, secured to the

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periphery of carriage-wheels H H, substantially as and for the purposes set forth.

482,322. ORE-CONCENTRATOR. CHARLES E. SEYMOUR, Lake Geneva, Wis., assignor to the Seymour Concentrator Company, Chicago, Ill. Filed Sept. 19, 1891. Serial No. 406,183. (No model.)



Claim.—1. In an ore-concentrator, the combination, with a pan-carrying shaft, of a governor connected to and actuated by the driving mechanism, a bell-crank lever, one arm of which is connected by a link to the movable collar of the governor and the other arm of which bell-crank is connected to movable belt-guiding arms, and a pulley-belt passing around a cone-pulley on the driving-shaft and a reversed cone-pulley on a counter-shaft, said belt being adapted to be engaged by the movable arms connected to the bell-crank and to be shifted by the same with relation to its position on the cone-pulleys, substantially as set forth.

2. In a centrifugal concentrator or separator, the combination, with a revoluble pan fixed on a vertical shaft capable of vertical movement and a cam secured to and actuated by the driving-shaft, which cam is arranged by its revolution to regularly elevate the pan and permit it to fall, of a counter-shaft geared to and driving the pan-shaft and connected to the driving-shaft by a belt on reversed cone or speed pulleys, and a governor geared to the driving-shaft and arranged to automatically shift the belt so as to regulate the speed of the pan at a uniform rate and a predetermined speed varying, as desired, from the speed of the pan-elevating cam, substantially as described.

3. In a centrifugal ore-concentrator, the combination, with a revoluble pan fixed and carried on a vertical hollow shaft, of a flexible discharge-pipe having an open mouth at one end adapted to sweep along the side of the pan and gather deposits therefrom and secured at its other end to a part fixed on the frame and arranged to discharge into a cup or sleeve and thence through a port into the hollow shaft, substantially as described.

4. In a centrifugal ore-concentrator having a revolving pan fixed on a hollow shaft, a flexible discharging-tube arranged to sweep the sides of the pan and gather deposits therefrom and discharge them into the hollow shaft, and a metal mouthpiece secured adjustably to the flexible tube, combined substantially as described.

5. In a centrifugal ore-concentrator having a revolving pan fixed on a hollow shaft, a flexible discharging-tube arranged to sweep the sides of the pan and gather deposits therefrom and discharge them into the hollow shaft, a metal mouthpiece secured to the flexible tube, and a soft-metal lip or scoop secured to and projecting from the mouthpiece, combined substantially as described.

6. In an ore-concentrator having a revoluble pan fixed on a hollow shaft and a flexible tube arranged to gather and discharge deposits from the sides of the pan, a rod connected to the tube, a rack connected to the rod, and a worm connected operatively with and so as to be revolved by a revolving shaft of the mechanism, which worm is arranged to be put in gear with the rack to elevate it, combined substantially as described.

7. In a concentrator having a revoluble pan fixed on a hollow shaft and a flexible tube arranged to gather and discharge deposits from the sides of the pan, a rod connected to the tube, a finger on the rod, bearing movably on a pin in a supporting-arm, and means for raising the rod, substantially as described.

8. In an ore-concentrator having a revoluble pan fixed on a hollow shaft and a flexible tube arranged to gather deposits from the sides of the pan and discharge them into the shaft, a rod connected to the tube, a finger hinged on the rod, arranged to fold in one direction and bearing on a pin in a supporting-arm, and a stud arranged to receive the bearing and thrust of the finger as the rod is raised and lowered, combined substantially as described.

9. In an ore-concentrator having a revoluble pan and a swinging discharge-pipe adapted to sweep the sides of the pan and gather and discharge deposits therefrom, a means for elevating the flexible tube, comprising a rack connected to the tube, a worm adapted to mesh with the rack, a block movable on the frame, on which block the worm is axled, a spring arranged to retrieve the block and hold the worm out of gear with the rack, and means for moving the block and putting the worm temporarily in gear with the rack, combined substantially as described.

10. In an ore-concentrator having a revoluble pan and a flexible pipe arranged to sweep the sides thereof and gather and discharge deposits therefrom, means for automatically elevating the flexible tube, comprising a rack connected to the tube, a worm adapted to mesh with the rack, a block movable on the frame, on which block the worm is axled, a spring arranged to retract the block and hold the worm out of gear with the rack, a tripping-lever arranged to shift the block and put the worm temporarily in gear with the rack, and an endless cable provided with a button adapted to engage the tripping-lever and tilt it, combined substantially as described.

11. In an ore-concentrator having a revoluble pan and a flexible pipe arranged to sweep the sides thereof and gather and discharge deposits therefrom, means for automatically elevating the flexible tube, comprising a rack connected to the tube, a worm adapted to mesh with the rack, a block movable on the frame, on which block the worm is journaled, a spring arranged to retract the block and hold the worm out of gear with the rack, an endless cable provided with a button adapted to engage the tripping-lever and tilt it, and a detaching device consisting of a rod movable vertically in the frame, having an arm arranged to engage a pin on the rack as it is elevated and to be raised thereby, which rod is adapted to strike the button on the cable and throw it out of engagement with the tripping-lever, combined substantially as described.

12. In an ore-concentrator having a revolving pan, a flexible discharge-pipe and an automatic device for lifting the pipe, operated by an endless cable provided with a button, a motion-checking device comprising a ring secured to the frame, through which ring the endless cable passes, and a funnel in two parts or jaws, one of which is rigid to the ring and the other of which is hinged to the fixed part and is provided with a spring closing the movable jaw yieldingly against the fixed jaw, which funnel is adapted to receive yieldingly the thrust of the button on the cable and check the motion of the cable temporarily, substantially as described.

482,323. MAGNETIC SEPARATOR FOR ORE-CONCENTRATORS. CHARLES E. SEYMOUR, Lake Geneva, Wis., assignor to the Seymour Concentrator Company, Chicago, Ill. Filed Oct. 2, 1891. Serial No. 407,524. (No model.)

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of insulated spring-pressed fingers adapted to meet over the trolley-wire.

12. A trolley having a flanged trolley-wheel and an oscillatory head having flanges extending above the flanges of the trolley-wheel, in combination with fingers carried by the said head and meeting over the trolley-wire.

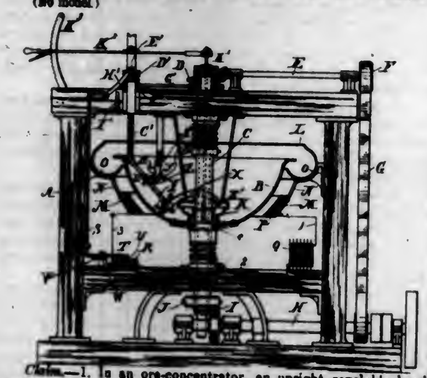
13. A trolley having a flanged trolley-wheel and an oscillatory head having flanges extending above the flanges of the trolley-wheel, in combination with spring-pressed fingers carried by the said head and meeting over the trolley-wire.

482,326. FRICTION-CLUTCH. WILLIAM A. WILKINSON, Minne-

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482,323. MAGNETIC SEPARATOR FOR ORE-CONCENTRATORS.

CHARLES R. SEYMOUR, Lake Geneva, Wis., assignor to the Seymour Concentrator Company, Chicago, Ill. Filed Oct. 2, 1891. Serial No. 407,534. (No model.)



Claim.—1. In an ore-concentrator, an upright revoluble bowl adapted to receive and hold pulverized ores while being separated by centrifugal force by the rotation of the bowl, in combination with electric devices arranged around the bowl on the outside thereof at a distance from and opposite to its upwardly and outwardly flaring sides, which electric devices are adapted to magnetize or charge the bowl electrically by induction, substantially as described.

2. In an ore-concentrator, an upright revoluble bowl adapted to receive and hold pulverized ores while being separated by centrifugal force by the rotation of the bowl, in combination with a coil of insulated wire about the bowl on the outside thereof opposite to and at a distance from its sides, which coil of wire is in and forms a part of the electric circuit, whereby when in activity electrically the bowl is by induction magnetized or charged electrically, substantially as described.

3. In an ore-concentrator, an upright revoluble bowl adapted to receive and hold pulverized ores while being separated by centrifugal force by the rotation of the bowl, in combination with a coil of insulated wire about the bowl on the outside at a distance therefrom, which wire forms a part of an electric circuit, a circuit-breaker in the circuit, and a battery also in the circuit for generating the electricity therefor, substantially as described.

4. In an ore-concentrator, the combination of a concentrator pan or bowl, means for magnetizing the same, an electric circuit, spring-actuated contact-points within said circuit, a pivoted key provided with an arm bearing upon one of the contact-points, and a vertical rod connected to the outer end of said key, substantially as set forth.

5. In an ore concentrator, the combination of a concentrator pan or bowl, means for magnetizing the same, an electric circuit, a circuit-breaker within the circuit, said circuit-breaker consisting of spring-closed contact-points, a pivoted key, a rod bearing against the key, a bell-crank lever having one arm secured to the upper end of the rod, and a pivoted button constructed to engage said bell-crank lever and hold the contact-points out of engagement, substantially as set forth.

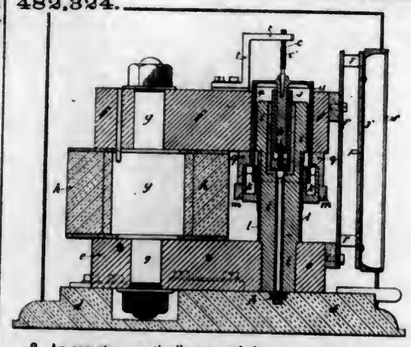
6. In an ore-concentrator, the combination of a concentrator pan or bowl, means for magnetizing the same, an electric circuit, a circuit-breaker within said circuit, a rod for controlling the circuit-breaker, a bell-crank lever having one arm secured to the upper end of the rod, and a rack or part arranged to be moved vertically in the frame of the machine and adapted to engage the inner member of the bell-crank and cause the operation of the circuit-breaker, substantially as set forth.

482,324. ELECTRIC METER.

FRANCIS TRAGUE, London, England, assignor to John Abbott Iliffe, same place. Filed Nov. 17, 1891. Serial No. 412,186. (No model.) Patented in England Jan. 8, 1891, No. 389; in France Feb. 26, 1891, No. 211,733; in Germany May 2, 1891, No. 60,792, and in Italy June 30, 1891, No. 29,640/265.

Claim.—1. An electric meter operating on the known principle of the rotation of currents by magnets, comprising an electro-magnet of horseshoe form with a hole through and near the end of the upper limb, a polar extension from the lower limb into the said hole to form an annular field therein, an insulated annular mercury-cup surrounding the said polar extension, and an insulated mercury-cup sunk axially in the center of the said polar extension with a step-pivot therein, a vertically-pivoted armature supported on said pivot and making electrical contact within the said mercury-cups, circuit connections, and a train of wheels and indexes mounted in a framework upon the said magnet and driven from the armature-axle, substantially as and for the purpose herein described.

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2. An armature vertically suspended on pivots and rotatable in a truly concentric annular field, the armature-axle being immersed nearly the whole of its length in an insulated central mercury-cup sunk within a polar extension and the outer part of the said armature immersed in an adjustable annular mercury-cup, substantially as and for the purpose herein described.

3. In an electric meter, the combination of a polar extension within a cylindrical polar space forming a truly concentric annular field, an insulated central mercury-cup sunk axially in the said polar extension, a vertically-arranged armature supported upon a pivot at the bottom of said cup, and an outer annular mercury-cup vertically adjustable upon said polar extension and adapted for the rotation therein of the edge of the armature, substantially as and for the purpose herein described.

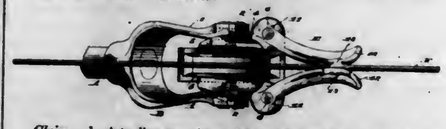
4. In an electric meter, the combination of a magnetic field of force with an armature having a central mercury contact and an outer annular mercury-trough adjustable to regulate the immersion therein of the armature, substantially as herein described.

5. In an electric meter, the combination of a truly concentric annular field, with an armature pivotally supported within a central mercury-cup, an air-chamber situated at the base of the armature-axle and protecting its pivot from mercurial contact, an outer mercury contact, and circuit connections, substantially as and for the purpose herein described.

6. In an electric meter, the combination of an electro-magnet of horseshoe form with a detachable framework containing indicating devices, said framework being secured in a vertical position against the upper and lower limbs of the said magnet, an armature rotatable in an annular field, and a driving-shaft communicating motion from the armature-spindle to the said indicating devices, substantially as and for the purpose herein described.

482,325. TROLLEY FOR ELECTRIC RAILWAYS.

JAMES M. C. TYNER and SAMUEL S. IRVINE, Minneapolis, Minn. Filed Nov. 30, 1891. Serial No. 413,588. (No model.)



Claim.—1. A trolley carrying a detent adapted to occupy a position over the trolley-wire at a point in rear of the trolley-wheel.

2. A trolley carrying a series of fingers adapted to meet over the trolley-wire at a point in rear of the trolley-wheel.

3. A trolley carrying a series of insulated fingers adapted to meet over the trolley-wire.

4. A trolley carrying a series of spring-pressed fingers adapted to meet over the trolley-wire at a point in rear of the trolley-wheel.

5. A trolley carrying a series of insulated spring-pressed fingers adapted to meet over the trolley-wire.

6. A trolley having an oscillatory head carrying a series of fingers adapted to meet over the trolley-wire.

7. A trolley having an oscillatory head carrying a series of insulated fingers adapted to meet over the trolley-wire.

8. A trolley having an oscillatory head carrying a series of insulated spring-pressed fingers adapted to meet over the trolley-wire.

9. A trolley having an oscillatory balanced head carrying a series of fingers adapted to meet over the trolley-wire.

10. A trolley having an oscillatory balanced head carrying a series of insulated fingers adapted to meet over the trolley-wire.

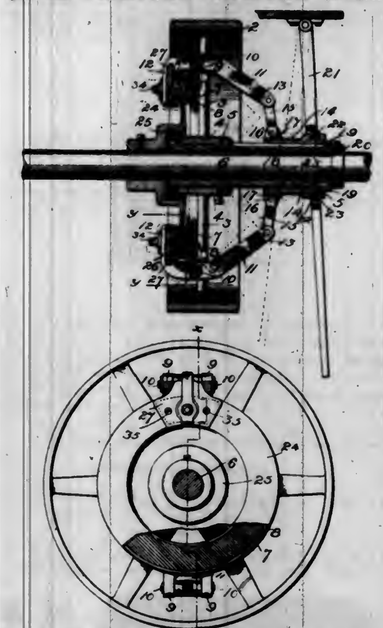
11. A trolley having an oscillatory balanced head carrying a series of insulated spring-pressed fingers adapted to meet over the trolley-wire.

12. A trolley having a flanged trolley-wheel and an oscillatory head having flanges extending above the flanges of the trolley-wheel, in combination with fingers carried by the said head and meeting over the trolley-wire.

13. A trolley having a flanged trolley-wheel and an oscillatory head having flanges extending above the flanges of the trolley-wheel, in combination with spring-pressed fingers carried by the said head and meeting over the trolley-wire.

482,326. FRICTION-CLUTCH.

WILLIAM A. WILKINSON, Minneapolis, Minn. Filed Nov. 6, 1891. Serial No. 411,044. (No model.)



Claim.—1. The combination, in a friction-clutch, of the shaft with the sleeve 5 loosely journaled thereon, the pulley fixed on said sleeve, the sleeve 14, slidably secured on the sleeve 5 and adapted to move therewith, a shipper-rod for moving said sleeve 14 longitudinally, the recessed ring 7, fixed with respect to the pulley, the wooden ring 8, fixed thereon, the arms or levers 11, lugs fixed with respect to the ring 7 and whereon said levers are pivoted, the inwardly-extending ends of said levers provided with sector-like recessed jaws 27, having the wooden friction-blocks 26, the friction-disk 24, arranged between said blocks and wooden ring and having a strong hub 25 securely fixed on the shaft, links 15, pivotally connecting the ends 13 of the levers 11 with said sliding sleeve 14, said blocks 26 being pivotally secured in said jaws and adapted to adjust themselves to the disk when pressed into contact therewith, substantially as described.

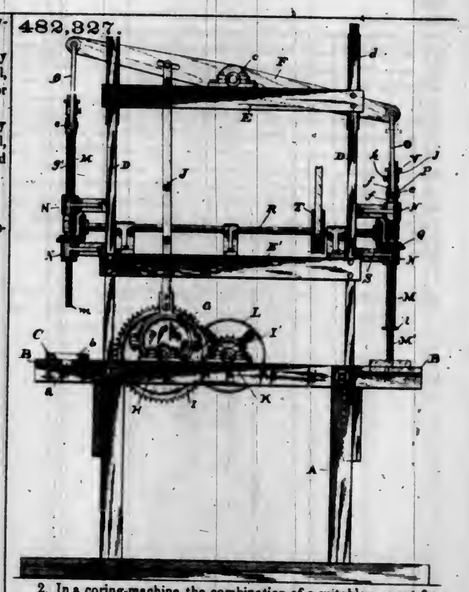
2. The combination, with the shaft, of a friction-disk fixed thereon, the pulley loosely arranged with respect to the same, the friction device thereon, levers or arms 11, having jaws 27, the wooden blocks 26, arranged therein, follower-plates 28, whereon the same are secured, the threaded sleeve 30, having the ball-bearing end to engage the followers, said followers provided with the ball-bearing surfaces 33, and the locking-bolts 31, having heads bearing on said surfaces 33 and secured by nuts 34, substantially as described.

482,327. FRUIT-CORING MACHINE.

JOHN ADAMS, Baltimore, Md., assignor to the A. Booth Packing Company of Baltimore City, same place. Filed June 4, 1892. Serial No. 435,473. (No model.)

Claim.—1. In a coring-machine, the combination of a stand or table, vertical coring-tubes mounted to slide and revolve in suitable bearings, a walking-beam connected with said coring-tubes, a bevel gear-wheel on each tube and having spline connection therewith, and a drive-shaft carrying gear-wheels meshing with those on the coring-tubes.

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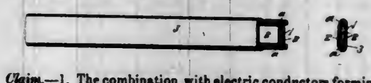


2. In a coring-machine, the combination of a suitable support for the article under treatment, a vertically-reciprocating coring-tube, and a sliding gravity-plunger within the said tube to push out the core, substantially as described

3. In a coring-machine, the combination of a suitable support for the article under treatment, a walking-beam, a coring-tube, links connecting said walking-beam and coring-tube, and a plunger-rod within the coring-tube and having a cross-head arranged to slide on the said connecting-links.

482,328. ELECTRIC CABLE.

JOHN A. BARRETT, Brooklyn, N. Y., assignor to The Standard Underground Cable Company, Pittsburg, Pa. Filed Aug. 28, 1891. Serial No. 403,962. (No model.)



Claim.—1. The combination, with electric conductors forming one or more circuits, of a core upon which the conductors are secured at a distance from each other, said core consisting of a hollow structure constructed to provide fixed space for dry-air insulation between said conductors, substantially as described.

2. The combination, with electric conductors forming one or more circuits, of a core upon which said conductors are arranged at a distance from each other and insulating material binding said core and conductors together, said core consisting of a hollow structure constructed to provide fixed space for dry-air insulation between said conductors, substantially as described.

3. A single-strand anti-induction electric circuit consisting of a core and one or more electric circuits thereon, each circuit consisting of a pair of conductors arranged on opposite sides of said core and a covering of insulating material binding the core and conductors together, said core consisting of a hollow structure constructed to provide fixed space for dry-air insulation between the conductors, substantially as described.

4. The combination, with electric conductors forming one or more circuits, of a core consisting of a hollow structure, of paper or similar insulating material, upon which the conductors are secured at a distance from each other, substantially as described.

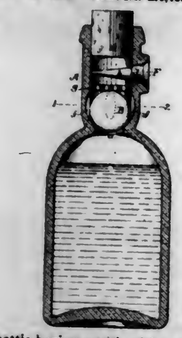
5. In an electric cable, the combination, with an inclosing sheath, of a plurality of single-strand electric circuits, each circuit consisting of an oblong core of insulating material, and electric conductors forming a circuit secured on the core at the opposite edges of the same, said core being constructed to provide space for dry-air insulation between the conductors, substantially as described.

6. In an electric cable, the combination, with an inclosing sheath, of a plurality of cores and electric conductors forming one or more circuits secured in position upon each core, said cores being constructed to provide space for dry-air insulation between the conductors, substantially as described.

7. In an electric cable, the combination, with an inclosing sheath, of a plurality of cores of insulating material, electric conductors forming one or more circuits arranged upon each core, and insulating material outside said conductors binding each of said cores and the conductors thereon together, said cores being constructed to provide space for dry-air insulation between the conductors, substantially as described.

8. An electric cable consisting of an inclosing sheath and a plurality of single-strand electric circuits, each single strand consisting of a core of insulating material and one or more circuits thereon, each circuit consisting of a pair of conductors arranged in position upon opposite sides of said core, and a covering of insulating material binding said conductors and core together, said cores being constructed to provide space for dry-air insulation between the conductors, substantially as described.

482,329. BOTTLE DESIGNED TO PREVENT REFILLING. EDWIN L. TEVIS, Philadelphia, Pa., assignor of one-half to Joshua Tevis, same place. Filed Mar. 28, 1892. Serial No. 426,733. (No model.)



Claim.—1. A bottle having a neck with a detachable stopper, a valve-seat in said neck, a valve adapted to said seat and serving to close the bottle against inflow, and a second opening provided with a non-removable plug or stopper having a finger projecting across the neck of the bottle above the valve, substantially as specified.

2. A bottle having a neck with detachable stopper, a valve-seat in said neck, a valve adapted to said seat and fitting snugly to the neck of the bottle so as to close the same against inflow, narrow grooves or passages in the neck above the valve-seat and alongside of the valve, an obstruction to prevent the removal of the valve from the bottle, and a second opening having a non-removable plug or stopper, substantially as specified.

3. A bottle having a neck with detachable stopper, a valve-seat in said neck, a valve adapted thereto and serving to close the bottle against inflow, a second opening provided with a non-removable plug or stopper having a finger projecting across the neck of the bottle, and a perforated plate interposed between the valve and said finger, substantially as specified.

REISSUES.

11,267. MANUFACTURE OF YELLOW DYES. MEINHARD HOFFMANN, Mainkur, near Frankfort-on-the-Main, assignor to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed July 19, 1892. Serial No. 441,953. Original No. 472,121, dated Apr. 5, 1892. Patented in France Sept. 29, 1890, No. 206,526.

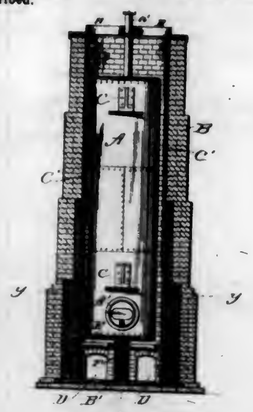
Claim.—The yellow dye-stuff herein described, derived from tetrazo naphthaline beta-disulpho-acid and phenols, which is easily soluble in water, difficultly soluble in spirit, dissolving with a brilliant violet shade in strong sulphuric acid, from which, on diluting with some water, the free acid of the dye-stuff separates in the form of a dark-green precipitate, which, by further addition of water, is dissolved with a yellow shade.

11,268. SETTING FOR STEAM-BOILERS. SEBASTIAN RUBNER, Greenville, Pa. Filed Apr. 4, 1892. Serial No. 427,764. Original No. 454,771, dated June 23, 1891.

Claim.—1. In combination with a casing, a boiler located therein, said casing being divided into two parts by a vertical division-wall of which said boiler forms a part and an independent source of heat for each part, substantially as described.

2. In combination with a casing having a vertical partition-wall a horizontal transverse wall at the base of the chimney, heat-entrances D D on each side of the partition-wall, and a boiler set within the casing, said boiler having vertical sets of flues on each side of the partition-wall, substantially as described.

3. In combination with the casing B, provided with a vertical partition-wall, a boiler set centrally therein, arches or openings D D, connected to independent heat-supplies, a feed-water pipe located above said arches and apertures provided with casings G, substantially as described.



4. In combination with the casing B, having a transverse and vertical partition-wall, heat-entrances D D on each side of the partition-wall, brackets attached to the boiler and let into the vertical partition-wall, the external diameter of the boiler being less than the internal diameter of the casing to provide flues, and apertures in the casing above and below the boiler connecting with said flues, said apertures having doors, together with a top plate having openings connecting with the flues, substantially as described.

DESIGNS.

21,830. TRIMMING. CHARLES LEKOW, Rosebank, N. Y. Filed June 21, 1892. Serial No. 437,524. Term of patent 3½ years.



Claim.—The design for trimmings, as herein shown and described.

21,831. TRIMMING. JOSEPH W. SCHLOSS, New York, N. Y. Filed July 29, 1892. Serial No. 441,622. Term of patent 3½ years.



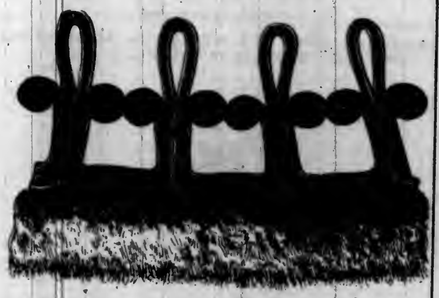
Claim.—The design for fur trimming herein shown and described.

21,832. TRIMMING. HENRY M. SACKS, Madison, N. J. Filed Aug. 13, 1892. Serial No. 443,038. Term of patent 3½ years.



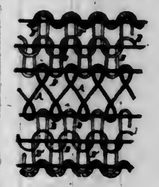
Claim.—The design for a trimming, substantially as herein shown and described.

21,833. TRIMMING. HENRY M. SACKS, Madison, N. J. Filed Aug. 13, 1892. Serial No. 443,039. Term of patent 3½ years.



Claim.—The design for a trimming, substantially as herein shown and described.

21,834. TRIMMING. LOUIS TIESE, New York, N. Y. Filed June 25, 1892. Serial No. 438,041. Term of patent 3½ years.



Claim.—The design for a flat band trimming herein described and shown.

21,835. SPOON. RICHARD H. ACTON, Alexandria, Va. Filed Aug. 6, 1892. Serial No. 442,391. Term of patent 7 years.



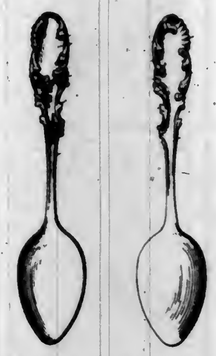
Claim.—The design for a spoon herein shown and described.

21,836. SPOON. ALTON H. FANCHER, Brooklyn, N. Y., assignor to the E. W. Bliss Company, Limited, London, England. Filed July 15, 1892. Serial No. 440,163. Term of patent 3½ years.



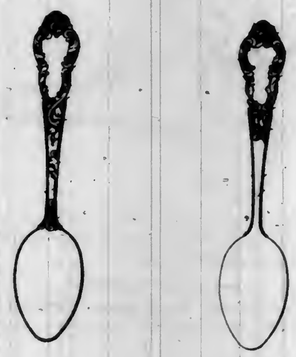
Claim.—The design for a spoon, substantially as shown and described.

21,837. HANDLE FOR SPOONS, &c. JOHN W. MAILLOT, Attleborough, Mass. Filed Aug. 6, 1892. Serial No. 442,383. Term of patent 3½ years.



Claim.—The design herein described and shown for the handle of a spoon or other like article.

21,838. HANDLE FOR SPOONS, &c. CHARLES C. WEBSTER, Providence, R. I., assignor to The Howard Sterling Company, same place. Filed Aug. 9, 1892. Serial No. 442,619. Term of patent 7 years.



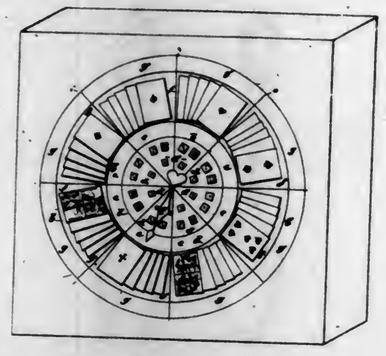
Claim.—The design for handles of spoons and similar articles, as herein shown and described.

21,839. HANDLE FOR SPOONS, &c. GEORGE WILKINSON, Providence, R. I., assignor to The Gorham Manufacturing Company, same place. Filed Aug. 9, 1892. Serial No. 442,618. Term of patent 7 years.



Claim.—The design for handles of spoons and similar articles, as herein shown and described.

21,840. BOX. CHARLES L. DOBRICK, New York, N. Y. Filed Nov. 12, 1891. Serial No. 411,740. Term of patent 7 years.



Claim.—The design for boxes, as described in the specification, and shown in the drawing.

21,841. TRUMPET. ALBERT SCHOENHUT, Philadelphia, Pa. Filed Aug. 13, 1892. Serial No. 443,081. Term of patent 7 years.



Claim.—The design for a trumpet, as herein described, and as shown in the accompanying drawing.

21,842. TRUMPET. ALBERT SCHOENHUT, Philadelphia, Pa. Filed Aug. 13, 1892. Serial No. 443,083. Term of patent 7 years.



Claim.—The design for a trumpet, as herein described, and as shown in the accompanying drawing.

21,843. BUTTON. WILLIAM J. VAN KEUREN, Honesdale, Pa. Filed July 11, 1892. Serial No. 439,705. Term of patent 3½ years.



Claim.—The design for a button, as herein shown and described.

21,844. THIMBLE. HENRY A. WHEMAN, Philadelphia, Pa., assignor to Simons, Brother & Co., same place. Filed Feb. 20, 1892. Serial No. 422,298. Term of patent 14 years.



Claim.—The design for a thimble, as herein described and shown, consisting of the representation of a "Liberty bell" having the upper roughened surface A.

21,845. CLASP. SARA BAXTER, New York, N. Y. Filed Aug. 10, 1892. Serial No. 442,718. Term of patent 3½ years.



Claim.—The design for a clasp herein shown and described.

21,846. BADGE. WILLIS R. MUNGER, Harrisburg, Pa. Filed Aug. 9, 1892. Serial No. 442,622. Term of patent 3½ years.



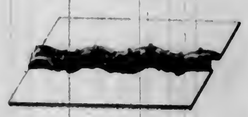
Claim.—The design for a badge herein shown and described.

21,847. BACK OF A BRUSH OR SIMILAR ARTICLE. CHARLES C. WIENTGE, Providence, R. I., assignor to The Howard Sterling Company, same place. Filed Aug. 9, 1892. Serial No. 442,630. Term of patent 7 years.



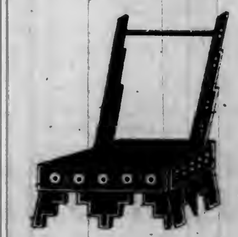
Claim.—The design for the back of a brush or similar toilet article, as herein shown and described.

21,848. METAL BORDER. CHARLES GEORGE, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed Aug. 4, 1892. Serial No. 442,186. Term of patent 3½ years.

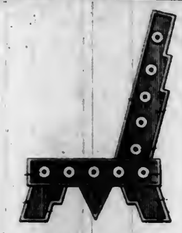


Claim.—The design for a metal border herein shown and described.

21,849. CHAIR. ZELIA NUTTALL, Dresden, Germany. Filed Aug. 5, 1892. Serial No. 442,382. Term of patent 3½ years.

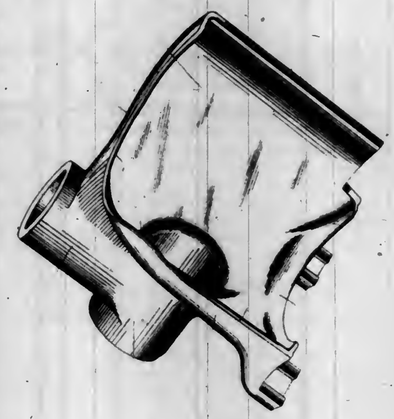


21,849.



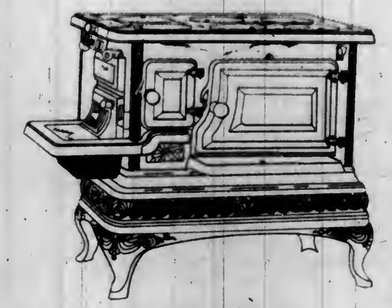
Claim.—The design for a chair herein shown and described.

21,850. CUTTER-HEAD HOOD FOR PLANERS. JAMES ROBERTS, Boston, Mass., assignor to the S. A. Woods Machine Company. Filed Aug. 4, 1892. Serial No. 442,185. Term of patent 14 years.



Claim.—The design for a cutter-head hood for planers and matchers, substantially as herein shown and described.

21,851. STOVE OR RANGE. OSCAR G. THOMAS, Taunton, Mass. Filed July 26, 1892. Serial No. 441,557. Term of patent 7 years.



Claim.—The design for a stove or range, substantially as shown and described.

21,852. OIL OR GAS STOVE. EARL A. TERRELL and WILLIAM H. WILDER, Florence, Mass. Filed Aug. 11, 1892. Serial No. 442,813. Term of patent 14 years.



Claim.—The design for an oil or gas stove, as herein shown and described.

21,853. OIL HEATING-STOVE. MAURICE G. BENEDICT, Detroit, Mich. Filed July 30, 1892. Serial No. 441,751. Term of patent 7 years.

21,853.



Claim.—The design for an oil heating-stove, consisting of an ornamental square leg-frame, a square tank chamber, a burning-chamber having deeply-seated light-openings, the side and bottom approaches to said openings being ornamented with scrollwork, the meeting edges of contiguous openings being rounded and finished vertically in a cyma curve terminating at its upper end with an open flower, a round heating-chamber, and a dome-shaped top, substantially as shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 6, 1892.

21,716. PORTUGUESE WINES. COMPANHIA GERAL D'AGRICULTURA DOS VINHOS DO ALTO DOURO, Oporto, Portugal. Filed June 30, 1892.



Essential feature.—The representation of a shield surmounted by a crown with a woman holding a bunch of grapes at the right side and a dragon couchant regardant at the other side of said shield. Used since 1852.

21,717. CASH-REGISTERING MACHINES. THE COLUMBIA CASH REGISTER COMPANY, Miamisburg, Ohio. Filed July 30, 1892.

COLUMBIA

Essential feature.—The word "COLUMBIA." Used since March 1, 1892.

21,718. PANTS AND OVERALLS. JOHN G. LEWIS, Jefferson City, Mo. Filed Aug. 9, 1892.

BUX KIN

Essential feature.—The word-symbol "BUX KIN." Used since June 1, 1892.

21,719. LAGER AND OTHER BEERS. ELFRETH & OTT, Philadelphia, Pa. Filed June 18, 1892.

EISEN

Essential feature.—The word "EISEN." Used since February 5, 1892.

21,720. CHICORY. GEO. FLOTO'S SONS, Brooklyn, N. Y. Filed July 9, 1892.



Essential feature.—The representation of a shield bearing the figure of a Maltese cross surmounted by a bird and inclosed by a circle. Used since July 1, 1890.

21,721. MONTHLY PUBLICATION. MATTHIAS N. FORNEY, New York, N. Y. Filed Aug. 11, 1892.

AMERICAN ENGINEER

Essential feature.—The words "AMERICAN ENGINEER." Used since August 9, 1892.

21,722. TABLETS FOR THROAT AND LUNG DISEASES. KURUM CHEMICAL CO., St. Paul, Minn. Filed Aug. 11, 1892.

KURUM

Essential feature.—The word "KURUM." Used since July 20, 1892.

21,723. DRESS AND NEGLIGÉE SHIRTS. MISSOULA MERCANTILE COMPANY, Missoula, Stevensville, Victor, Corvallis, and Demersville, Mont. Filed May 28, 1892.

CORONET

Essential feature.—The word "CORONET." Used since April 1, 1892.

21,724. HAIR-CURLING COMPOUNDS. ADA M. PETRI, Minneapolis, Minn. Filed July 25, 1892.



MURLINE

Essential feature.—The word "MURLINE" and a rear view of a woman's head showing short or close curls. Used since January 1, 1891.

21,725. WATCHES AND JEWELRY. HAYDEN W. WHEELER & Co., New York, N. Y. Filed Aug. 5, 1892.

HW

Essential feature.—A W-shaped symbol having the letters "H" and "W" in its loops. Used since February 2, 1888.

21,726. METALLIC BEDSTEADS AND WIRE MATTRESSES. STEPHEN WILKES, Minton, England. Filed Aug. 10, 1892.

ATLAS

Essential feature.—The word "ATLAS." Used since 1884.

21,727. VASELINE. CHESEBROUGH MANUFACTURING COMPANY, New York, N. Y. Filed Aug. 13, 1892.



21,729.



Essential feature.—The representation of an ornamental center piece in blue color, within the lower border of which appears ornamental flower-work; over the center is an ornamental scroll in the same color surmounted by two grape-leaves, and the whole is set off by displayed rays in the same color in which are printed the words "PREMIÈRE QUALITÉ" and "SILLERY MOUSSE." Used since July 1, 1891.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

21,727. VASELINE. CHESEBROUGH MANUFACTURING COMPANY, New York, N. Y. Filed Aug. 13, 1892.



Essential feature.—The words "BLUE SEAL." Used since October 10, 1888.

21,728. ENAMELED AND BUFF BUILDING BRICKS OR BLOCKS. JOSEPH CROMLEY, Trenton, N. J. Filed Aug. 8, 1892.

+LEY

Essential feature.—The rebus "+LEY." Used since May 26, 1892.

21,729. CHAMPAGNE. KUPFERMANN & Co., Rheims, France. Filed July 26, 1892.

21,729.



Essential feature.—The representation of an ornamental center piece in blue color, within the lower border of which appears ornamental flower-work; over the center is an ornamental scroll in the same color surmounted by two grape-leaves, and the whole is set off by displayed rays in the same color in which are printed the words "PREMIÈRE QUALITÉ" and "SILLERY MOUSSE." Used since July 1, 1891.

21,730. MEDICINAL PLASTERS. FREDERICK MERZ, Brooklyn, N. Y. Filed Aug. 6, 1892.



Essential feature.—A half-length portrait of a child with the conventional representation of a heart upon its breast. Used since January 1, 1887.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

HUTT AND PHILLIPS *v.* FOGLESONG.

Decided July 29, 1892.

PRACTICE—RULES 122 AND 124.

Upon a motion to dissolve an interference upon the ground of irregularity in declaring the same the Primary Examiner is not at liberty to decide the question of patentability.

ON petition.

MACHINE FOR MAKING PAPER VESSELS.

Application of James W. Hutt and Arthur J. Phillips filed January 2, 1891, No. 376,508. Application of Washington Foglesong filed January 26, 1891, No. 379,148.

Messrs. D. C. Ridout & Co. for Hutt and Phillips.
Messrs. Whitaker & Prevost for Foglesong.

SIMONDS, *Commissioner:*

In this case a motion was made before the Primary Examiner to dissolve the interference on the ground of such irregularity in declaring the same as will preclude a proper determination of the question of priority. The Primary Examiner granted the motion. He stated his reasons at full length, and they are that Hutt and Phillips are estopped from making the claim which is in interference. Thereupon Hutt and Phillips took an appeal to the Examiners-in-Chief, and they reversed the Examiner's decision.

Now comes Foglesong with a petition to the effect that—

Your petitioner therefore prays that you will personally consider the question of the jurisdiction of the Board of Examiners-in-Chief on said motion as on appeal or otherwise and will direct the Primary Examiner that his decision dissolving the interference is of full force and effect, and that you instruct him to send the application of Foglesong to issue.

Rules 122 and 124 are as follows:

122. Motions to dissolve an interference upon the ground that no interference in fact exists, or that there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority, or which deny the patentability of an applicant's claim, or his right to make the claim, should, if possible, be made not later than the twentieth day after the statements of the parties have been received and approved. Such motions, when in proper form, will be transmitted by the Examiner of Interferences, with the files and papers, to the proper Primary Examiner for his determination.

When the motion has been decided by the Primary Examiner, if no appeal has been taken therefrom, at the expiration of the time limited for appeal, the Examiner will return the files and papers, with his decision, to the Examiner of Interferences. Such decision will be binding on the Examiner of Interferences unless reversed or modified on appeal. (Rule 124.)

124. Appeal may be taken directly to the Commissioner from decisions of the Primary Examiner on all motions except the following: (1) On motions to dissolve which deny the patentability of applicant's claim; (2) on motions to dissolve which deny the right of an applicant to make the claim; (3) on motions involving the merits of the invention. Decisions on these motions, when appealable, go to the Examiners-in-Chief, and upon such appeals the party only whose claim is affected shall have the right to appear and be heard, unless the question is *inter partes.*

One effect of Rule 124 is to exclude the motions it specifies from consideration under a motion based—

upon the ground * * * that there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority.

But that is precisely what the Primary Examiner did, and his action, although it might have been a right one for a proper motion, was unwarranted by the motion which was before him for consideration. The Examiner's action being practically a nullity, it follows that the decision of the Examiners-in-Chief thereon is a nullity, although it must be said that the question coming before them as it did the Examiners-in-Chief could have been expected to take no other action than that which they did take.

It is true that appeals lie from decisions themselves and not from the reasons given; but when, as in this case, it clearly appears from the decision itself that the Examiner was acting outside of the jurisdiction which he possessed at the time the reasons of the decision must be taken into account.

The decisions of the Primary Examiner and of the Examiners-in-Chief stand vacated without prejudice to Foglesong's right to make further motion for dissolution.

EX PARTE L. J., H. C., AND J. H. HUNTER.

Decided June 17, 1892.

PRACTICE—MODEL NOT REGULARLY FILED MAY BE RETURNED.

The Office required a model, which applicant furnished, clearly indicating, however, at that time and subsequently, that he wished the model returned. The Office did not, in response to applicant, insist upon the permanent filing of a model, nor were the receipt and application of the model to the case under consideration entered on the file-wrapper, under Rule 56. *Held*, on renewed request by the applicant for its return, that the model was not regularly filed, and should be returned.

REQUEST for return of model.

APPARATUS FOR REGISTERING CAR-FARES.

Application of L. J., H. C., and J. H. Hunter filed January 28, 1892, No. 419,521.

Mr. William H. Fisher for the applicants.

FROTHINGHAM, *Assistant Commissioner:*

The first action had in this case was a requirement for a model. The application was thereafter transferred to another examining division. Applicants on April 28, 1892, forwarded a model to the Patent Office, accompanying the same by a letter stating:

We hope it will be possible for you to retain this model but a few days, as it is the only one we have, and it will be necessary for us to have it back here at the earliest moment possible.

The model was duly received, but its receipt and application to the case under consideration have never been entered on the file-wrapper, as required by Rule 56. Before any action was taken by the Office a letter was received asking for the return of the model if the Office was through with it. Ample notice was therefore received that these applicants did not intend to permanently file the said model, and if the model

solidated Brake Shoe Co. v. *Detroit Steel & Spring Co.*, 47 Fed. Rep., 894; *Coop* v. *Institute, Id.*, 899.) Upon this ground I shall sustain the demurrer, with costs, with leave to the complainant to amend its bill within ten days.

Demurrer sustained.

in any position on the seat by means of a set-screw. This mechanism is simple and easily understood, and the elements are specifically set out in the first claim.

Stress is laid by the complainant upon the fact that the specification says that—

the slide carrying the handle-bar and the seat on the head may have a figure other than the dovetail figure represented.

I do not think that this language should be construed

U. S. Circuit Court—Northern District of Illinois, Northern Division.

PASTEUR CHAMBERLAND FILTER COMPANY *et al. v.* FUNK *et al.*

Decided May 16, 1892.

PATENT—INFRINGEMENT—WHEN BOND WILL NOT BE REQUIRED OF COMPLAINANT AS A CONDITION OF PRELIMINARY INJUNCTION

The model was duly received, but its receipt and application to the case under consideration have never been entered on the file-wrapper, as required by Rule 56. Before any action was taken by the Office a letter was received asking for the return of the model if the Office was through with it. Ample notice was therefore received that these applicants did not intend to permanently file the said model, and if the model was necessary in order to understand the invention the Office should have promptly advised applicants that action on the merits would be suspended pending the filing of a model, which would become a part of the permanent records of the said application for patent. It appears that no such action was taken, but that the Examiner proceeded with the case and wrote a letter of rejection.

The request for the return of the model has been renewed. Under the circumstances it is held that the model has not been regularly filed, and should therefore be returned to the applicants.

The Examiner has stated orally that a model is not, in his opinion, necessary to an understanding of the invention.

It is directed that the model be returned.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Massachusetts.

OVERMAN WHEEL COMPANY *v.* ELLIOTT HICKORY CYCLE COMPANY.

Decided March 24, 1892.

PATENTS FOR INVENTIONS—INFRINGEMENT—PLEADING.

Under Revised Statutes, section 4886, providing for the issuing of a patent where, *inter alia*, the invention has not been patented or described in any foreign country before the date of the invention, a bill for infringement of a patent is demurrable which does not allege such facts.

SUIT by the Overman Wheel Company against the Elliott Hickory Cycle Company for infringement of a patent. Heard on demurrer to the bill. Demurrer sustained.

Messrs. Chamberlin, White & Mills for the complainant.

Mr. William A. Redding for the defendant.

COLT, *J.:*

Upon inspection of the patent granted to A. H. Overman April 14, 1885, numbered 315,537, for improvements in rubber tires for wheels, I am not prepared to say that it is invalid for want of patentable novelty. Taking this view, it seems to me it would serve no good purpose to enter into a discussion of the patent at this stage of the proceedings. The first three grounds of demurrer are therefore overruled.

The fourth special ground for demurrer is that the bill does not aver that the alleged invention shown and described in said Letters Patent had not been patented nor described in any printed publication in this or any foreign country before the date of said alleged invention. An allegation of this character appears to be necessary under the provisions of the statute, and the courts have so held. (Rev. Stats., sec. 4886; *Consolidated Brake Shoe Co.* v. *Detroit Steel & Spring Co.*, 47 Fed. Rep., 894; *Coop* v. *Institute, Id.*, 899.) Upon this ground I shall sustain the demurrer, with costs, with leave to the complainant to amend its bill within ten days.

Demurrer sustained.

U. S. Circuit Court—District of Massachusetts.

POPE MANUFACTURING COMPANY *v.* WARWICK CYCLE MANUFACTURING COMPANY *et al.*

Decided April 30, 1892.

PATENT—INFRINGEMENT—BICYCLES.

The claims of Letters Patent No. 245,071, to George Illston, August 2, 1881, for improvements in bicycles, must, in view of the prior state of the art, be limited to the specific forms of devices therein described, and, the claim being for a dovetail grooved seat, the words of the specification "the slide carrying the handle-bar and the seat on the head may have a figure other than the dovetail figure represented" cannot be construed to include other and different forms of adjustable mechanism and must be held to include at most a modification of the dovetail form.

Mr. William A. Redding and *Mr. Charles E. Pratt* for the complainant.

Mr. John L. S. Roberts for the defendants.

COLT, *J.:*

The bill in this case is based upon the alleged infringement of Letters Patent No. 245,071, granted to George Illston, August 2, 1881, for improvements in bicycles.

The invention relates to the construction of the head of a bicycle so that the handle on the head may be adjusted and readily removed from the machine.

The specification says:

On one face of the head I make a vertical dovetail or grooved seat, on or in which a slide works, the said slide being fixed in any position on the said seat by means of a set-screw. In the upper part of the said slide the handle-bar is secured. The handle-bar may either be permanently fixed to the said slide or be capable of detachment therefrom.

When it is required to adjust the height of the handle on the head it is only necessary to slacken the set-screw of the slide, when the said slide carrying the handle-bar may be raised or lowered on its seat and refixed in its adjusted position by driving home the set-screw.

Instead of this arrangement there is another form of mechanism set forth in the patent, consisting of a vertical slot on the face of the head of the bicycle, in which a sliding socket works. This sliding socket carries the handle-bar and is fixed at the required height by a screw-nut.

The first form of the device if covered by the first claim of the patent, which is as follows:

1. The improvements in constructing the heads of bicycles and tricycles hereinbefore described and illustrated in Figs. I, II, III, IV, V, VI, and VII of the accompanying drawings, for the purpose of readily adjusting the vertical height of the handles on the said heads and rendering the handles detachable from the heads—that is to say, making on the face of the head a dovetail or grooved seat, on or in which a slide carrying the handle-bar works, the said slide being adjusted at any desired height on the said seat, and fixed in its adjusted position by means of a set-screw or other equivalent arrangement, substantially as described and illustrated.

The scope of the Illston invention seems to me to be clear. He describes in his patent two forms of mechanism for adjusting the handle on the head of a bicycle "with great nicety."

In the present suit we are only concerned with the first form, which consists in placing on one face of the head a dovetail grooved seat, in or upon which a slide carrying the handle works, the slide being fixed

in any position on the seat by means of a set-screw. This mechanism is simple and easily understood, and the elements are specifically set out in the first claim.

Stress is laid by the complainant upon the fact that the specification says that—

the slide carrying the handle-bar and the seat on the head may have a figure other than the dovetail figure represented.

I do not think that this language should be construed to include other and different forms of adjustable mechanism, but that within the sense of the patent it can only include at most a modification of the dovetail form in which the slide works.

The claim itself, by reference to the figures shown in the drawings and by its specific language, refers to the dovetail construction.

An examination into the prior state of the art forbids any such broad construction of this claim as the complainant contends for.

In the Hanlon patent, of July 7, 1868, there is found adjustable mechanism for the seat and the cranks of a velocipede, and that patent says, after describing these devices, that—

the handles e may, if desired, be also made extensible.

In the McCleave patent, of April 13, 1869, the handle, in connection with the frame of the machine, is raised and lowered for the purpose of adjusting the distance of the crank from the seat to the size of the rider.

The use of a dovetail seat with a slide and set-screw for the purpose of adjustability appears to be old in other branches of the art. In the old milling-machine what was known as the "back-rest" or "back center" was constructed after this form.

In view of the prior state of the art the Illston patent must be limited to the forms of devices therein described.

The defenses to this suit are non-infringement and want of patentability.

In the defendants' device the handle-bar is connected with the spindle, which slides in a socket upon the head of the machine and is fastened at any desired place by a set-screw.

I question, in view of what was old and well known, whether there is anything patentable in the defendants' device; but, however this may be, it is perfectly clear to my mind that the defendants' device is no infringement of the first claim of the Illston patent.

Although argued with much force by complainant's counsel, it would be going beyond all sound rules in the construction of patents to so construe the first claim of the Illston patent as to cover the defendants' mechanism, not only because of the position which that patent occupies in the art, but also because the defendants' device is different in construction.

The spindle, socket, and set-screw, which make the defendants' handle adjustable, are not the dovetail grooved seat on the face of the head, with its slide carrying the handle-bar, of the Illston patent.

Taking the Illston patent to mean what it says and construing it in the light of the prior state of the art, I am clearly of opinion that no case of infringement has been made out.

It is unnecessary to consider the second ground of defense.

Bill dismissed.

U. S. Circuit Court—Northern District of Illinois, Northern Division.

PASTEUR CHAMBERLAND FILTER COMPANY *et al. v.* FUNK *et al.*

Decided May 16, 1892.

PATENT—INFRINGEMENT—WHEN BOND WILL NOT BE REQUIRED OF COMPLAINANT AS A CONDITION OF PRELIMINARY INJUNCTION.

Where a defendant has been guilty of bad faith toward a complainant in an infringement suit, he is not equitably entitled to ask a bond from complainant as a condition to the granting of a preliminary injunction, and the court will waive the requirement of bond where the record discloses proof of such a state of facts.

Messrs. Kerr & Curtis, Mr. L. Hill, and *Messrs. Staley & Shephard* for the complainants.

Mr. H. A. Toulmin, Mr. L. L. Bond, and *Messrs. Poole & Brown* for the defendants.

BLODGETT, *J.:*

This case is now before the court on a motion for a preliminary injunction to restrain the alleged infringement of Patent No. 336,385, granted February 16, 1886, to Charles Edouard Chamberland, for a filtering compound.

The scope and characteristics of the patent are perhaps best disclosed by the patentee himself in his specifications, where he says:

The means hitherto employed for filtering water ordinarily consist in the use of burned brick, powdered substances, and various other materials, but which, either from the character of the materials themselves or from the manner in which they are used or compounded, are not fully satisfactory where great thoroughness in filtering is requisite. However efficient the named substances may be for filtering purposes, yet they do not, however, retain all germs or microbes or extremely fine organisms which are in suspension in the water or other liquid. * * *

My invention is designed more completely to hold back and retain such germs.

The compound is formed, substantially, of pipe-clay or any other suitable clay and porcelain-earth, or its equivalents, hereinafter named. The clay is diluted in water, and then mixed with the porcelain-earth or its equivalents. The porcelain-earth is ground or reduced to fine powder in any suitable mill, after having been previously baked in any suitable kiln. The proportions are from twenty to forty per cent. of clay to sixty to eighty per cent. of porcelain-earth or its equivalents. They may, however, vary more or less. I wish it, however, to be understood that I do not limit myself to the above-named substances, for the same or very much the same result may be attained by using, for instance, silex, magnesia, or its equivalent, instead of porcelain-earth. * * *

A filtering-body produced from the above compound is homogeneous and fulfills the required conditions for filtering.

I do not wish to be understood as laying claim, broadly, to the materials hereinabove mentioned as a filtering compound, but only when they are treated as above specified.

The proof is, I think, quite convincing that defendants use a filtering compound made by combining kaolin clay or porcelain-earth and finely-ground silex in about the proportions of thirty to forty-five per cent. of kaolin and the balance ground silex. This, I think, is an infringement of the patent, as the patentee expressly says:

I do not limit myself to the above-named substances, [pipe-clay and porcelain-earth,] for the same or very much the same result may be attained by using, for instance, silex, magnesia, or its equivalent, instead of porcelain-earth.

The utility of this compound for filtering purposes is, I think, abundantly established by the proof as it now stands for the purposes of this motion.

The infringement being established, as I think it is by the proof, an injunction will be ordered as prayed.

A bond would be required as a condition of granting this injunction but for the proof in the record showing that the defendants in this suit have been guilty of bad faith toward the complainants to such an extent that they are not equitably, as I think, entitled to the protection of the bond from complainants.

U. S. Circuit Court—Eastern District of Missouri, Eastern Division.

SMITH & DAVIS MANUFACTURING COMPANY *v.* MELLON.

Decided June 1, 1892.

1. PATENT—PUBLIC USE—BED-BOTTOMS.

Letters Patent No. 269,242, issued December 19, 1882, to John G. Smith, is void for the reason that the bed-bottoms were on

Messrs. Dyrenforth & Dyrenforth for the defendants.

JENKINS, *J.:*

The bill is filed for an infringement of a patent for peppered enameled iron-ware, issued to Chester Comstock, the Letters Patent being numbered 415,161, dated November 12, 1889, and a motion is made for a

of the second claim in the Comstock patent, as to whether the words—

having the properties and characteristics substantially as hereinbefore set forth—

are to be limited to the process described in the specification or whether it is a claim for peppered enamelware, however produced.

Some months after these patents Vollrath filed a claim for another patent, his claim being for an article

served, it was not a question for the officers of the Patent Office to construe. That is within the province of the court.

Upon this motion there have been presented the *ex parte* affidavits of two experts on each side construing this claim differently, so that it may be said, at the least, that the proper construction of this second claim of the Comstock patent is not altogether free

U. S. Circuit Court—Eastern District of Missouri, Eastern Division.

SMITH & DAVIS MANUFACTURING COMPANY *v.* MELLON.

Decided June 1, 1892.

1. PATENT—PUBLIC USE—BED-BOTTOMS.
Letters Patent No. 269,242, issued December 19, 1882, to John G. Smith, is void for the reason that the bed-bottoms were on sale more than two years before the application for the patent.
2. A CHANGE MADE WITHIN THE TWO YEARS, WHICH IS ONLY A "PREFERABLE FORM," WILL NOT SAVE A PATENT OTHERWISE VOID FOR PUBLIC USE.
A change made in the bed-bottoms within the two years prior to the application for the patent, but which is described only as a preferable form, will not save the patent.

Mr. William M. Eccles for the complainant.
Mr. George H. Knight for the defendant.

THAYER, (orally:)

In view of the testimony the court is of the opinion that the invention covered by Letters Patent No. 269,242 was in public use and on sale for more than two years prior to the date of the application for the patent and that the patent is for that reason void. (*Smith Co.* v. *Sprague*, 123 U. S., 249; *Egbert* v. *Lippman*, 104 U. S., 333; *Manning* v. *Cape May Co.*, 108 U. S., 462; *Andrews* v. *Hovey*, 123 U. S., 267.)

It hardly admits of a doubt that complainant made and sold wire bed-bottoms which embodied all of the material features or elements of the invention for a period of more than two years prior to October 14, 1882, and that it did so not as an experiment, but for the purpose of realizing a profit.

The closing of the head of the spiral springs by passing the top wire around the second before extending it to form a hook cannot be regarded, under the specifications, as a material feature of the invention. That is merely a preferable mode of construction. The patentee would be entitled to claim (and no doubt would claim if there was occasion to do so) that the use of a spring with an open head was an infringement of his patent as well as the use of a spring with a closed head.

Bed-bottoms embracing all of the material elements of the invention having been in public use and on sale for more than two years prior to the application, the patent is void and the bill must be dismissed.

U. S. Circuit Court—Eastern District of Wisconsin.

IRON-CLAD MANUFACTURING COMPANY, INCORPORATED, *v.* JACOB J. VOLLRATH MANUFACTURING COMPANY, LIMITED, *et al.*

Decided June 27, 1892.

1. PATENT—INFRINGEMENT—PRELIMINARY INJUNCTION—RULE.
A motion for a preliminary injunction in advance of any adjudication by the courts or an adjudication by the Patent Office as to priority will not be allowed unless the case is entirely clear and unless irrevocable injury is to result from withholding the injunction.
2. FUNCTION OF THE PATENT OFFICE AND COURTS IN CERTAIN CASES.
The province of the Patent Office in interference cases is to determine the issue of priority, the construction of patents being for the courts to determine when the occasion arises upon infringement proceedings.

Messrs. L. L. Bond, Marcellus Bailey, and Ernest C. Webb for the complainant.
Messrs. Dyrenforth & Dyrenforth for the defendants.

JENKINS, *J.:*

The bill is filed for an infringement of a patent for peppered enameled iron-ware, issued to Chester Comstock, the Letters Patent being numbered 415,161, dated November 12, 1889, and a motion is made for a preliminary injunction to restrain the defendants from the alleged infringement pending this litigation.

The specification, after stating the process for obtaining the "foundation coating," as it may be called, of the vessel that is to be enameled, proceeds:

When the metallic surface to be enameled has been properly pickled and cleansed in the usual way and a paste of suitable material has been prepared in any one of the usual ways for the production of either the "mottled" ware, "white" ware, or "plain" ware, I incorporate in such paste, perferably, comminuted or granular oxide of iron, and after coating the surface of the iron with such paste having so commingled with it the comminuted oxide of iron it is subjected in the muffle to the usual fusing process, which produces the glazed appearance, but which also leaves the comminuted or granular oxide, in its natural or substantially natural condition, in practically mechanical suspension within the body of the glaze, and prodncing an appearance in the finished article which I here denominate as "peppered" enameled iron-wire, in contradistinction to the æsthetic appearance of the severally and previously described well-known articles in the trade. While, as I have said, I prefer to use granular or comminuted oxide of iron to produce this effect, it will be understood that I may employ any other suitable contrasting body which will not fuse at the ordinary temperature employed for fusing the paste which subsequently constitutes the coating, and I therefore do not wish to be limited in any degree to the character or quality of the material employed for this purpose, so long as it results in the production of what I have termed "peppered" enameled iron-ware, by which term I intend and mean enameled iron-ware having mechanically suspended or held in and throughout the glaze a granular or comminuted material in color contrasting with that of the body of the enameled coating, and comparatively infusible as compared with the glaze, so that when the latter is fused on the ware the granular or comminuted contrasting colored material, although mixed with and held in the glaze, will preserve unimpaired its original form, and thereby give the enamel a peppered appearance.

The first claim of the patent is for the process described.

The second claim is stated to be—

As a new article of manufacture, peppered enameled iron-ware having the properties and characteristics substantially as herein-before set forth.

On the 19th of November, 1889, just a week following the issuance of the patent to Comstock, a patent was issued to Vollrath, which is the foundation of the defendants' claim, and his process differs from the other as stated in the specification. After the foundation coating he makes a mixture which he calls "A." Then, according to the color desired, he takes the necessary ingredients and adds them to a separately-prepared mixture in substantially the same porportions as the mixture A, the amount of the coloring ingredient added being more or less as a light or dark result is desired, and this mixture is melted, cooled, and ground dry into a condition like sand, forming a mixture B, and is ground to a different degree of fineness from the mixture A. He mixes A and B in the necessary proportions to produce the desired effect, according as the finished product is to have more or less of the color prominent. This mixed mass, composed of A and B, is of a paste-like consistency, and is applied by pouring or dipping the articles having the first-described foundation coating, and then they are put into a muffle and subjected to a temperature of about 1,000° Fahrenheit, and it produces what is called in the patent "a speckled appearance," consequent upon the different degrees of fineness of the mixture.

The question in this litigation is upon the construction

of the second claim in the Comstock patent, as to whether the words—

having the properties and characteristics substantially as herein-before set forth—

are to be limited to the process described in the specification or whether it is a claim for peppered enamel-ware, however produced.

Some months after these patents Vollrath filed a claim for another patent, his claim being for an article of manufacture, namely:

Iron-ware having incorporated in the enamel throughout the entire coating specks contrasting in color with the remainder of the enamel.

There was an interference declared upon that claim, and it was held by the Patent Office that the second claim of the complainant's patent was in anticipation of this alleged discovery, and it is asserted by the complainant that that decision substantially forecloses this claim of the defendants, and substantially holds that the second claim of the complainant's patent is to be construed as a claim for articles of enameled iron-ware having this peppered appearance, however produced. The court cannot agree with that conclusion. The issue before the Patent Office was whether this claim for the article of peppered ware, or speckled ware, as claimed by Vollrath, was anticipated by the second claim of Comstock, and the controversy there was as to which was the first invention. The sole controversy was as to whether Vollrath or Comstock had first invented peppered ware. The Patent Office held that Comstock was the first inventor; but it was not within the province of the Patent Office to construe this second claim of the patent, nor was it essential to the determination of the question there involved.

There were some things said in the opinions by the different officers of the Patent Office which have been supposed to bear upon this question, and, so far as the court is advised by reading their decisions, there would seem to be some comfort to be gained from them by both parties.

The decision of the Examiner-in-Chief asserts:

The appearance may be given in various ways, amounting to but little beyond the ordinary resources of the craft in manipulating their enameling processes; but it appears from the record that each party to the interference has secured a patent to his peculiar method of producing the effect, and each has also been allowed a claim for his specific product resulting from his specific process. Each of these claims is supposed to correspond to the product resulting from the pursuance of the method set out in the patent of the respective parties. The issue in interference is deemed to be somewhat generic, thus covering the species made by either party. Hence this interference. The title to the generic claim must turn upon the evidence as to what each party did in arriving at the general result of speckled or peppered ware and the dates of such experiments. In any case, each party's species, as defined by its mode of production, is secured to him beyond cavil. This is an instructive instance, moreover, of the utility, if avoidance of litigation be an object, of defining and limiting the novel product of a process by the terms of that process in setting forth the true and patentable substance, contrary to usual practice, but correctly set out and distinguished by the Commissioner in *ex parte* Painter, (57 O. G., 999.)

The existing allowed claims to both parties we regard as specific, being based on their respective processes.

Now, upon the other side, the Acting Commissioner of Patents, in his decision, said:

Without setting forth the various facts upon which a conclusion is based as to just what will meet the terms of the issue, it is sufficient to state that such subject matter is held to be enameled iron-ware having incorporated in the enamel specks, fusible or infusible in their inherent characteristics, scattered throughout the enamel, and giving it a speckled or peppered appearance.

It would thus seem that the Acting Commissioner of Patents, so far as his attention was called to the subject, took a different view of this second claim from that taken by the Examiner; but, as before observed, it was not a question for the officers of the Patent Office to construe. That is within the province of the court.

Upon this motion there have been presented the *ex parte* affidavits of two experts on each side construing this claim differently, so that it may be said, at the least, that the proper construction of this second claim of the Comstock patent is not altogether free from doubt. The court need not go further than to say that, without expressing any opinion whatever upon the construction which should be given to that second claim, for upon a motion for an injunction in advance of any adjudication by the courts or an adjudication by the Patent Office as to priority it is well settled that a preliminary injunction will not be allowed unless the case is entirely clear and unless irrevocable injury is to result from withholding the injunction. Here there is no sort of dispute that the defendants are responsible for any damages which the complainants may sustain if there should be a final adjudication in their favor upon the construction contended for their claim. As the question is not free from doubt and is one respecting which the experts are not in accord, it would seem to be improper for the court, as a preliminary step in the litigation, to do that which might work great injury to the defendants, when, if the complainants shall finally be adjudged entitled to relief, the defendants are amply able to compensate them for the injury.

The motion for an injunction will therefore be overruled.

OPINION OF THE ATTORNEY-GENERAL.

OATHS—WHO MAY ADMINISTER.
A notary who is not authorized by the laws of his country to administer oaths or take affidavits lacks the requisite authority to administer the oath required by Revised Statutes, section 4892.

DEPARTMENT OF JUSTICE,
Washington, August 25, 1892.

SIR: Your communication of the 13th instant relating to the taking of the oaths prescribed by section 1892 of the Revised Statutes before notaries of foreign countries who are not authorized by the laws of those countries to administer oaths, with accompanying documents, came to hand duly.

Said section reads:

The applicant shall make oath that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent; that he does not know and does not believe that the same was ever before known or used; and shall state of what country he is a citizen. Such oath may be made before any person within the United States authorized by law to administer oaths, or when the applicant resides in a foreign country before any minister, chargé d affaires, consul, or commercial agent holding commission under the Government of the United States, or before any notary public of the foreign country in which the applicant may be.

It is shown by the letter of the Commissioner of Patents and otherwise that some countries have omitted to give their notaries any statutory authority to administer oaths or to take affidavits. This is the case in Austria-Hungary, and only cases arising there will be considered in this opinion.

The question submitted to me for an opinion is, in substance, whether an oath made by an applicant for

a patent and sworn to before a notary of Austria-Hungary who has no authority by the law of his domicile to administer an oath or take an affidavit is to be regarded as a valid and lawful oath under said statute in the procedure of the Patent Office.

It is understood that in many foreign countries and in all of the States of the United States notaries are authorized by the local statutes to perform the acts of administering oaths and taking affidavits.

that have authority to give the same, calling Almighty God to witness that his testimony is true.

An affidavit is defined to be "an oath or affirmation reduced to writing, sworn or affirmed before some officer who has authority to administer it." (19 Tex., 155.)

It is stated (Wharton's Law Lexicon, 573) that—

The administering of unlawful oaths is an offense against the Government and punishable by penal servitude.

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a patent and sworn to before a notary of Austria-Hungary who has no authority by the law of his domicile to administer an oath or take an affidavit is to be regarded as a valid and lawful oath under said statute in the procedure of the Patent Office.

It is understood that in many foreign countries and in all of the States of the United States notaries are authorized by the local statutes to perform the acts of administering oaths and taking affidavits. It is scarcely to be supposed that in a minor matter of this kind Congress makes inquiry as to the exact status of notaries among all the nations.

It may be fairly inferred that Congress intended by the words "any notary public" to include those and only those authorized by their local laws to administer oaths.

Our statute requires that the "applicant shall make oath," and permits that—

such oath may be made before any person within the United States authorized by law to administer oaths,

as well as before the specified United States officers. It can hardly be implied that it was intended that, outside of this country, persons not authorized to administer oaths were to be called upon to act for this Government in administering oaths. Our Government neither appoints the foreign notary its officer, nor authorizes him to act, it merely permits the non-resident applicant, for his own convenience, to make oath before a designated local officer, supposed to possess authority to take the affidavit. If a notary public, from the nature of his office, the practice under the law-merchant, or the rules of international law, could rightfully be regarded as possessing the right to administer an oath of this character, that would, doubtless, be sufficient to connect the statute with any act that the notary might perform under it; but an assumption that he has this power by virtue of his office is not sustained by the authorities.

Although a notary, or a notary public, is an officer known to the law of the nations, and of great antiquity, he is not, according to ancient custom or general usage, authorized to take affidavits or administer oaths.

The power to administer oaths is not one of the incidents of the office of notary public under the general law-merchant, nor was it under the Roman law, from which it was derived. When that power is annexed to the office, it is so by virtue of positive enactment. (Proffatt on Notaries, 165, 178.)

Neither the taking of affidavits nor the administering of oaths is done by a notary under the law-merchant.

Authority is given in most of the States to notaries to administer oaths and to take affidavits; but this authority is one derived from statute law and did not belong to the officer originally. (16 A, and E, Ency. of Law, 768.)

The act of administering a solemn oath, "calling on God to witness the truth of what is said" by the person sworn, seems of necessity to require the individual officiating to be clothed by law with an especial authority.

For a private person to assume to administer an oath with its adjuration would be presumptuous in the highest degree, to say the least.

Said Lord Coke:

An oath is an affirmance or denial * * * before one or more that have authority to give the same, calling Almighty God to witness that his testimony is true.

An affidavit is defined to be "an oath or affirmation reduced to writing, sworn or affirmed before some officer who has authority to administer it." (19 Tex., 155.)

It is stated (Wharton's Law Lexicon, 573) that—

The administering of unlawful oaths is an offense against the Government and punishable by penal servitude.

An extra-judicial oath is defined to be—

An oath taken without the direction or authority of law.

It is added that—

An extra-judicial oath when false does not expose the person to punishment for perjury. (And. Dic., 720.)

It is true that Lord Eldon states (6 Vesey, 824,) that "a notary public by the law of nations has credit everywhere;" but it may be fairly contended that this credit must be limited to acts which pertain to the nature of the office, or to such as he is authorized by the laws of his country to perform.

In *Haggett* v. *Iniff* (31 Eng. L. and E., 202) the court refused to receive affidavits taken before a notary public of the State of New York until it was shown that—

according to the law of the United States a notary public was duly qualified to administer oaths and take affidavits in any law proceedings in that country.

It is also true that the Commissioner of Patents, in a decision dated January 5, 1884, in answer to a suggestion that "a notary in Germany is not authorized to administer an oath, that he acts merely as a conveyancer," says that—

such designated officials in administering the oath act by virtue of the authority conferred by the statute of the United States and not by virtue of any power or authority conferred by the foreign government.

The only question shown to be before the Commissioner was whether an affidavit taken before a judge of the Royal Prussian Court at Buckau, was sufficient to comply with section 4892. No notarial oath or affidavit is referred to as being before the Commissioner. The matter of notarial action and authority was argumentative merely. It was not before the Commissioner for decision, and therefore could not have been decided by him. It is not necessary for me to hold that he intended to determine it.

It is clear that the applications to which you refer, and which are illustrated by the communications of Consul-General Goldschmidt and Mr. Jentzsch—viz, those that are signed or signed and sworn to in blank and afterward filled in, and those which bear merely a certificate of the signing, but no applicant's oath or affidavit—furnish no sufficient ground for official action in the Patent Office.

The practices referred to relate to administrative matters within the purview of your Department and are such as may well be called to the attention of Congress; but they are not such as now require an official opinion from me.

In conclusion, it is my opinion that a notary of Austria-Hungary who is not authorized by the laws of his country to administer oaths or take affidavits lacks the requisite authority to administer the oath required by section 4892 of the Revised Statutes.

Very respectfully,

W. H. H. MILLER,
Attorney-General.

The Secretary of the Interior.

THE
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OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Changes in Classification.

(ORDER No. 774.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 8, 1892.

In Division XXIII, Class 73, Measuring-Instruments, a new subclass is formed entitled "Platform-scales."

In Division IV the following sub-classes are formed in Class 159, Fire Escapes and Ladders:

Friction—
- Jaw,
- Jaw, set-screw,
- Hand-clamp,
- Reel—
  - End-thrust,
  - Strap-brake,
  - Jaw brake,
  - Jaw-brake, tension,
- Shooting lines,
- Tortuous,
- Tortuous and jaw—
  - Set-screw,
- Wheel-brake.

Hoists—
- Fixed guides,
- Movable guides,
- Pulley-block,
- Reciprocating cages,
- Hoists—
  - Shooting-spar.

Ladders—
- Collapsible,
- Extension,
- Feet,
- Hooks,
- Sectional,
- Stops,
- Trussed.

Flexible ladders—
- Reel,
- Sectional,
- Sectional, elevator,
- Single stile,
- Trolley.

Step-ladders—
- Store-service.

In Division IV the following sub-classes are formed in Class 61, Hydraulic Engineering:

Chutes—
- Screens,
- Water-power.

Dams and levees—
- Cores,
- Mattresses.

Pile-drivers—
- Jigs,
- Monkey,
- Piston,
- Swinging-hammer,
- Pile-drivers—
  - Sinking.

Piles—
- Metallic,
- Protected.

Tunnels—
- Excavators,
- Shields.

Water-gates—
- Sliding,
- Swinging.

W. E. SIMONDS,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 7, 1892.

SIR: I am directed by the Secretary to inform you that the order of the Department dated April 26, 1889, disbarring Daniel O'Driscoll, of Washington, D. C., from practice before this Department and its Bureaus has this day been rescinded.

Very respectfully,
E. M. DAWSON.
Chief Clerk.

The Commissioner of Patents.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Notice.

All solicitors, agents, or attorneys who, in circulars or advertisements or otherwise, refer to the Commissioner of Patents, or to any other official of the Patent Office, for evidence of their professional standing, do so without authority.

DISCLAIMER.

428,638.—*Hermann Schulze-Berge* and *Franz G. A. Schulze-Berge*, Brooklyn, N. Y. IMPROVEMENT IN AIR-PUMPS. Patent dated May 27, 1890. Disclaimer filed September 2, 1892, by the patentees.

Enter their disclaimer to "any kind of bearing included in claims 1 and 3 except such which secure a constant direction of the axis of rotation of the pump-vessel."

Issue of September 13, 1892.

Patents	383	No. 482,330 to No. 482,712, inclusive.
Designs	6	No. 21,854 to No. 21,860, inclusive.
Trade-Marks	23	No. 21,731 to No. 21,753, inclusive.
Labels	None.	
Reissues	3	No. 11,269 to No. 11,271, inclusive.
Total issue	415	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	....	Nevada	1	....
Arizona Territory	....	....	New Hampshire	1	....
Arkansas	3	....	New Jersey	12	1
California	10	1	New Mexico Territ'y	....	....
Colorado	....	....	New York	67	5
Connecticut	7	....	North Carolina	1	....
Delaware	....	....	North Dakota	....	....
District of Columbia	1	....	Ohio	26	....
Florida	1	....	Oregon	....	....
Georgia	2	1	Pennsylvania	38	1
Idaho	1	..	Rhode Island	5	....
Illinois	36	1	South Carolina	1	....
Indian Territory	....	....	South Dakota	5	1
Indiana	10	2	Tennessee	3	....
Iowa	10	....	Texas	5	....
Kansas	2	....	Utah Territory	....	....
Kentucky	6	1	Vermont	1	....
Louisiana	2	....	Virginia	2	....
Maine	2	1	Washington	2	....
Maryland	5	....	West Virginia	3	....
Massachusetts	22	4	Wisconsin	10	....
Michigan	13	....	Wyoming	....	....
Minnesota	14	1	U. S. Army	....	....
Mississippi	....	....	U. S. Navy	....	....
Missouri	12	2			
Montana	1	....	Total to citizens of the United States	357	22
Nebraska	5	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Mexico	....	..
Austria-Hungary	....	....	Netherlands	....	
Belgium	....	....	Newfoundland	....	
Bermuda	....	....	New South Wales	....	
Brazil	....	....	New Zealand	....	
Canada	6	....	Norway	....	
Cape Colony	....	....	Queensland	....	....
Chile, Republic of	....	....	Russia	....	....
Cuba	....	..	Scotland	....	....
Ecuador	....	....	South Australia	....	....
England	18	1	Spain	....	....
France	....	....	Sweden	....	....
Germany	8	....	Switzerland	....	....
Hawaii	....	....	Victoria	....	....
Ireland	....	....			
Italy	....	....	Total to citizens of foreign countries	32	1
Japan	....	....			

APPLICATIONS UNDER EXAMINATION.

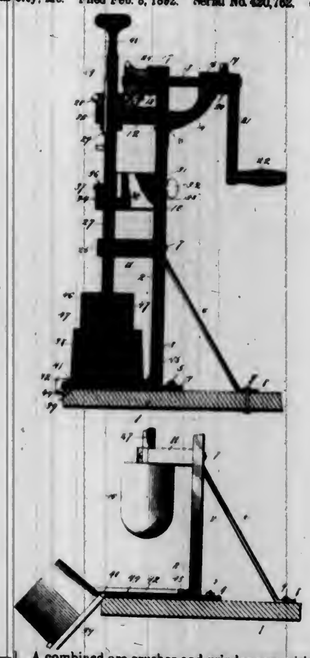
Condition at Close of Business September 6, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	July 19	Aug. 30	81
8	Furniture, Toilet, Umbrellas and Canes, etc.	July 6	Aug. 23	301
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	July 12	Aug. 16	157
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	July 11	Aug. 11	129
	Between two and three months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	June 25	Sept. 1	250
21	Textiles, etc.	June 13	Aug. 25	195
12	Mechanical Engineering, Store-Service, etc.	June 20	Aug. 21	220
23	Instruments of Precision, Acoustics, Optics, etc.	June 13	Aug. 20	277
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	June 9	Aug. 19	262
32	Advertising, Baggage, Packing and Storing Vessels, etc.	June 7	Aug. 16	305
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	June 13	Aug. 15	260
16	Telegraphy, Telephony, Electric Lighting and Signaling.	June 20	Aug. 12	244
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	June 16	Aug. 11	215
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	June 14	Aug. 10	276
17	Paper-Manufactures and Printing.	June 9	July 27	263
2	Farm Stock, Products, etc	June 10	July 26	371
5	Fine Arts, Stationery, Book-Binding, Music, etc.	June 13	July 14	236
18	Steam-Engineering, etc	June 20	July 6	219
	Between three and four months in arrears.			
24	Sewing-Machines and Apparel	May 31	Aug. 29	104
10	Carriages and Wagons and Railway-Cars.	May 25	Aug. 20	498
22	Fire-Arms, Navigation, Signals, etc.	May 9	Aug. 8	192
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	May 10	Aug. 3	228
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	May 7	July 18	324
9	Hydraulics, Fire-Extinguishers, etc.	May 13	July 16	448
4	Civil Engineering, etc.	May 17	July 14	378
19	Stoves and Furnaces	May 16	July 11	405
1	Tillage and Fences	May 20	July 1	266
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Apr. 18	Aug. 3	471
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 21	June 24	457
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Mar. 11	Sept. 1	371
26	Electricity, Generation, Distribution, etc.	Apr. 4	Aug. 4	434
7	Harvesters, Games and Toys	Apr. 4	Aug. 1	529
	Total number of applications awaiting action			9,366
	Under one month in arrears.			
	Designs	Aug. 27	Aug. 27	54
	Trade-Marks	Aug. 25	Sept. 5	67

PATENTS

GRANTED SEPTEMBER 13, 1892.

482,330. ORE CRUSHER AND GRINDER. NELSON F. ACKER, Kansas City, Mo. Filed Feb. 8, 1892. Serial No. 420,762. (No model.)



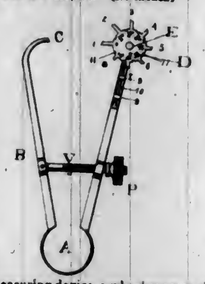
Claim.—1. A combined ore crusher and grinder comprising a vertical supporting frame or standard, a vertical operating-shaft axially revoluble and vertically or longitudinally reciprocatory upon said standard, a tappet carried by said shaft, and a sliding bracket having a vertical cam and vertically adjustable upon the standard or frame, so as to cause its cam to either engage or disengage the tappet of the operating-shaft, substantially as set forth.

2. A combined ore crushing and grinding machine comprising a vertically reciprocatory and axially-revoluble operating-shaft carrying a pestle and a mortar mounted upon the bed of the machine and movable forwardly and backwardly on the bed and also arranged to tilt forwardly from the bed, substantially as set forth.

3. A combined ore crushing and grinding machine comprising a suitable base or bed, a pair of guides mounted on said bed and having each a groove open at its rear end and closed at its front end, and a mortar having an extended base provided with a pair of trunnions to engage said grooves, substantially as set forth.

4. A combined ore crusher and grinder comprising a vertical supporting frame or standard, a sliding bracket vertically adjustable thereon and carrying a vertical cam, a horizontal and revoluble actuating-shaft mounted in the upper end of said standard and carrying a beveled gear-wheel at one end, and a vertical operating-shaft axially revoluble and vertically or longitudinally reciprocatory upon said standard, a tappet carried by the shaft, and a beveled gear-wheel carried by the upper end of the operating-shaft and meshing with the beveled gear-wheel on the actuating-shaft, the sliding bracket being arranged to engage and disengage its cam with the tappet of the operating-shaft, substantially as set forth.

482,331. DIFFERENTIAL CALIPER-POINT. GEORGE T. BECHTOL, Elmira, N. Y., assignor of one-half to Fred. W. Parsons, same place. Filed Mar. 15, 1892. Serial No. 425,068. (No model.)

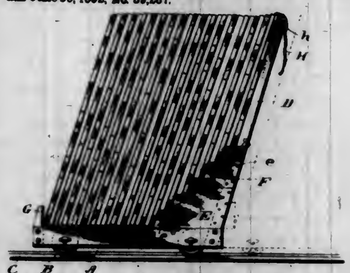


Claim.—1. In a measuring device, a wheel or cam suitably mounted and having one or more points on its periphery set eccentrically with reference to the center, whereby the distance between contact-points may be increased or diminished at will, substantially as described.

2. In a measuring device, the combination of ordinary calipers with a wheel suitably mounted, having one or more spokes or projections of unequal lengths from the center, varying from each other by a definite and certain amount, and provided with means for locking said wheel in position, and a graduated scale or index, substantially as described.

3. The combination, in a measuring device, of a body suitably mounted, comprising one or more contact-points whose motion about its axis increases or diminishes the distance between the measuring-points, means for locking the same, and a graduated scale or index adapted to indicate the amount of adjustment, substantially as and for the purposes set forth.

482,332. LUMBER-TRUCK. ALBERT T. BENIS, Louisville, Ky. Filed June 3, 1892. Serial No. 435,393. (No model.) Patented in Canada June 30, 1892, No. 39,237.



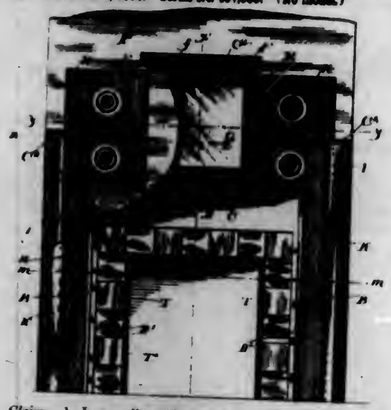
Claim.—1. In a truck for lumber-drying kilns, the combination, with the body of the truck, of an inclined standard secured at its lower end to the body of the truck and adapted to serve as a support for lumber piled upon the truck, substantially as described.

2. The combination, with the truck, of the inclined standard, the brace for said standard, the planking E, notched as described, and the

standards D at the opposite end of the truck, substantially as shown and described, and for the purpose specified.

3. In a lumber-drying truck for dry-kilns, the combination, with the truck, of the inclined standard thereon and the curtain H, extending from the upper end of the standard to the upper face of the lumber piled upon the next adjacent truck in the train, substantially as shown and described, and for the purpose specified.

482,888. ADJUSTABLE MANTEL. ELIJAH B. BENBOW, Chicago, Ill. Filed Oct. 2, 1891. Serial No. 407,586. (No model.)



Claim.—1. In an adjustable mantel, the combination, with a central frame having a fireplace opening and an over-mantel above the central frame, of separate back pieces having inner edges adapted to lie behind the outer edges of the central frame and over-mantel and to be symmetrically adjusted with reference to the central line of the mantel and to be fastened to said central frame and over-mantel, substantially as and for the purpose set forth.

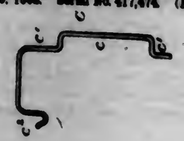
2. The combination, with the central frame made up of the jambs B B, mantel-shelf C, and facing D D', of the over-mantel above the central frame, having jambs E E, and the back pieces H H, having inner edges conforming substantially to the outline of the central frame and over-mantel, said back pieces being adapted to be symmetrically adjusted with reference to the central frame and over-mantel and to be secured to the rear edges of the jambs B B E E and mantel-shelf C, substantially as shown and described.

3. In an adjustable mantel, the combination, with a central frame having a fireplace-opening and an over-mantel resting on the frame, of back pieces whose inner edges lie behind the central frame and over-mantel and are fastened thereto, wall-plates lying in the plane of the back pieces and beside the outer edges thereof, and pilasters covering the space between said wall-plates and back pieces, substantially as shown and described.

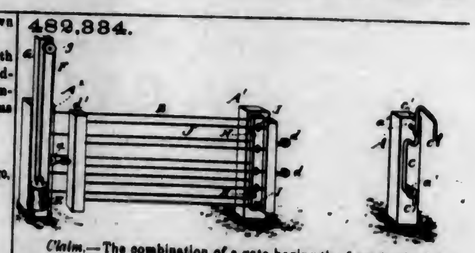
4. In an adjustable mantel, the combination, with a central frame having a fireplace-opening, an over-mantel resting on the central frame, back pieces having their inner edges behind and fastened to the outer edges of the central frame and over-mantel, wall-plates lying in the plane of the back pieces and beside the outer edges thereof, and pilasters covering the spaces between said wall-plates and back pieces and permitting necessary variation of said spaces, of shelves fastened to said back pieces and covering the upper ends of said wall-plates and pilasters, substantially as shown and described.

5. The combination, with the central frame and over-mantel, of the back pieces H H, the wall-plates I I, the pilasters K K, and the shelves C^3 C^3, fastened to the back pieces and covering the upper ends of the wall-plates and pilasters, said shelves being formed at their inner rear angles with notches *n*, adapted to pass over the outer edges of the over-mantel, and thereby to permit adjustment of the back pieces, substantially as shown and described.

482,884. WIRE-FENCE GATE. HENRY BLANKENBURG, Lohrville, Iowa. Filed Jan. 9, 1892. Serial No. 417,674. (No model.)

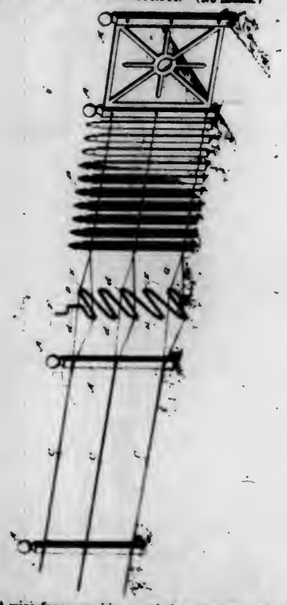


482,884.



Claim.—The combination of a gate having the front hooks *d d*, a post having the eyebolts *d' d'* on the front face, and a latch journaled in said eyebolts, the said latch being provided with a crank *c* between the journals *d' d'* and with a bent-over hook end d^3, as and for the purpose described.

482,885. FENCE-MACHINE. HENRY G. CADY, Pine Bluff, Ark. Filed Jan. 14, 1890. Serial No. 336,916. (No model.)



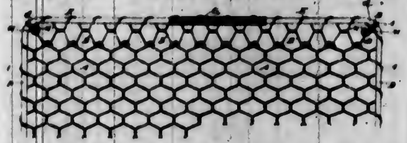
Claim.—A wire-fence machine consisting of a crosser-frame formed of a single continuous piece of wire bent to form small diverging angles opening upon opposite sides of said frame alternately and turned at the ends of said frame into substantial coincidence with the vertical axis of the crosser-frame, the diverging arms and alternate angles having an elastic yield in the direction of said axis and the angles being provided with loops for the wires, while the lower arm of the frame has a pivotal point to enter the coil, substantially as specified.

482,886. SPIROMETER. HENRY G. CADY, Pine Bluff, Ark. Filed Dec. 1, 1891. Serial No. 413,743. (No model.)



Claim.—In a toy, a figure formed with a chamber and openings at the top and bottom thereof, an air-receptacle within the chamber, and a tube connected at one end to the air-receptacle and extending through the opening in the top to the exterior thereof for inflating the air-receptacle.

482,887. WOVEN-WIRE BED-BOTTOM. WILLIAM B. CAMPBELL, Brooklyn, N. Y., assignor, by mesne assignments, to Emily H. Campbell, same place. Filed June 20, 1891. Serial No. 396,690. (No model.)



Claim.—A length of spiral-wire fabric having a transverse spiral wire extending across at each end in the manner known as "cording," with the longitudinal spiral wires engaged together along their entire lengths, and also connected in pairs at each end by linking the folded ends of said longitudinal wires in the angular position shown and engaging them jointly with the cording-wire by the passage of the latter through the angle so formed and clinching the ends of the longitudinal wires upon the cording-wire, the said parts being combined with each other and with one or more additional cording-wires extending across the fabric at the end and the whole inclosed in a frame of stiffer material, as herein specified.

482,888. NAIL-EXTRACTOR. MASCHIL D. CONVERSE, New York N. Y. Filed Jan. 29, 1891. Serial No. 379,522. (No model.)

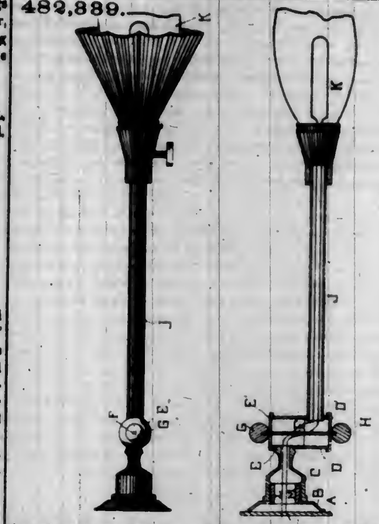


Claim.—In a nail-extractor, movable jaws for impingement of the nail, constructed with diagonal faces relatively to the vertical plane of the pivotal axis when the tool is in a vertical position, in combination with a fulcrum, substantially as and for the purposes shown and described.

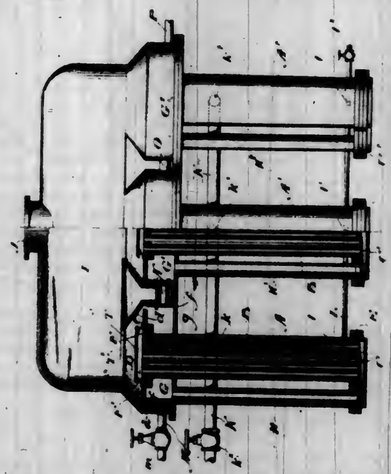
482,889. ELECTRIC-LIGHT FIXTURE. EDWIN R. CHOLLAR, Chicago, Ill. Filed Jan. 4, 1892. Serial No. 417,042. (No model.)

Claim.—In a joint for an electric-light fixture, the combination of two open-ended tubular parts adapted to fit snugly together end to end with removable caps adapted to cover the ends, two pipes removably secured one to each of such tubular parts, and a bolt passing through such tubular parts and through the caps parallel with the length of the tubular parts and adapted to hold them securely together.

482,889.



482,340. APPARATUS FOR EVAPORATING LIQUIDS. CHARLES W. COOPER, New York, N. Y. Filed June 30, 1891. Serial No. 397,966. (No model.)



Claim.—1. An evaporating apparatus in which provision is made for the continuous supply, continuous circulation, and continuous discharge of liquid to be concentrated, and wherein are combined the following elements: an evaporating-chamber, a tube-supply chamber located at the base of said evaporating-chamber, a vapor and liquid separating chamber located at the upper portion of said evaporating-chamber, evaporating-tubes leading from said tube-supply chamber upward to said separating-chamber, an independent return channel or conduit leading from said separating-chamber downward to said tube-supply chamber, a feed-pipe or liquid-supply for the tube-supply chamber, an overflow or discharge passage leading from said separating-chamber near its basal portion, a vapor-exit from said separating-chamber, and means for supplying a heating medium to the evaporating-chamber, substantially as set forth.

2. An evaporating apparatus in which provision is made for the continuous supply, continuous circulation, and continuous discharge of liquid to be concentrated, and wherein are combined the following elements: a tube-supply chamber located at the base of the evaporating-

chamber, a vapor and liquid separating chamber located at the upper portion of the evaporating-chamber, evaporating-tubes leading from said tube-supply chamber upward to said separating-chamber, an evaporating chamber or casing which incloses the evaporating-tubes and is provided with tube-heads through which said tubes pass and also with means for supplying it with a heating medium, an independent return channel or conduit leading from the basal portion of the separating-chamber downward to the tube-supply chamber, a deflector diaphragm within the separating-chamber, a feed for supplying liquid to the tube-supply chamber, an overflow or discharge passage leading from the separating-chamber near its basal portion, and a vapor-exit from the separating-chamber, substantially as set forth.

3. The combination, with the tube-supply chamber, the evaporating-tubes, the separating-chamber, and the return-conduit, of the deflector diaphragm, substantially as set forth.

482,842.

conveyer, an opposing friction-roller turning axially in insulated bearings, a car, and a traveling contact-maker adapted to pass between said friction-rollers, all combined and arranged as described.

4. In an electric conduit for electric railways, the combination of opposing friction-rollers, one of which is adapted to be pushed into electrical contact with an otherwise insulated electric conducting-wire, and a traveling contact-maker made in parts, one of said parts being an electrical conductor and being in electrical connection with the car, another of said parts being of insulating material and adapted to prevent the passage of electricity except to said car, substantially as and for the purpose described.

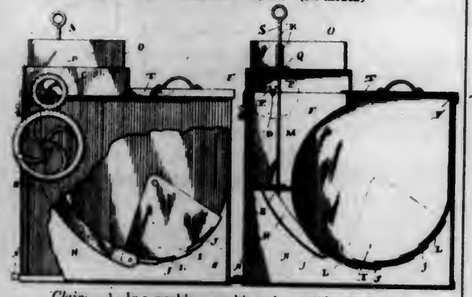
as the sashes move in an opening direction, exerting an increasing pressure upon the sashes, which are thereby locked against opening until released from the stops.

6. The combination, substantially as set forth, of two sashes arranged to move, two pairs of movable stops arranged one pair in contact with each sash, means adapted to cause the stops to move with the sash and exert an increased pressure as it moves in an opening direction, a spring or springs pressing the stops against the sashes, means for connecting each pair of stops together, and an operating-handle and connections whereby both sashes are held in the closed position by

chamber, a vapor and liquid separating chamber located at the upper portion of the evaporating-chamber, evaporating-tubes leading from said tube-supply chamber upward to said separating-chamber, an evaporating chamber or casing which incloses the evaporating-tubes and is provided with tube-heads through which said tubes pass and also with means for supplying it with a heating medium, an independent return channel or conduit leading from the basal portion of the separating-chamber downward to the tube-supply chamber, a deflector diaphragm within the separating-chamber, a feed for supplying liquid to the tube-supply chamber, an overflow or discharge passage leading from the separating-chamber near its basal portion, and a vapor-outlet from said separating-chamber, substantially as set forth.

3. An evaporating apparatus in which provision is made for the continuous supply, continuous circulation, and continuous discharge of liquid to be concentrated, and wherein are combined the following elements: a series of evaporating-chambers substantially such as hereinbefore set forth—that is to say, a series each of which is composed, essentially, of a basal tube-supply chamber from which evaporating-tubes lead upward to a separating-chamber and of an independent return channel or conduit, and each of which is provided with means whereby it is supplied with a heating medium to heat its evaporating-tubes—a vapor-chamber common to each evaporating-chamber of the series, a liquid-supply to the tube-supply chamber of the first evaporating-chamber of the series, overflow-passages or discharge-outlets from a preceding to a succeeding separating-chamber of each evaporating-chamber throughout the series, and an overflow-passage or discharge-outlet from the separating-chamber of the last evaporating-chamber of the series, substantially as set forth.

482,341. WASHING-MACHINE. CHARLES C. DAVIS, Mercer, S. C.
Filed Oct. 28, 1891. Serial No. 410,085. (No model.)

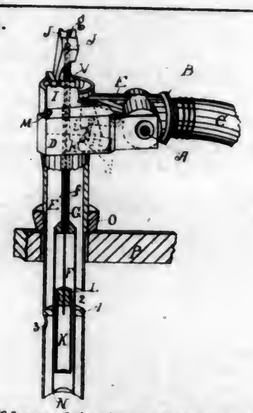


Claim.—1. In a washing-machine, the combination, with an outer tank and a removable receptacle adapted to fit within said tank and which is provided with a slotted apartment, of an oscillating frame within the tank, agitators on said frame which reciprocate in the slots of the said apartment, a crank-shaft journaled on the said receptacle, and arms connecting the said frame with the shaft, substantially as shown and described.

2. In a washing-machine, the combination, with an outer tank and cylindrical receptacle therein provided with a series of slots arranged in step order, of a frame pivoted to the centers of the receptacle sides, a series of curved agitators on said frame arranged in step order and which reciprocate through said slots, and a means for operating the said frame, substantially as shown and described.

3. In a washing-machine, an outer tank, a cylindrical receptacle supported therein and provided with a series of slots arranged in step order, an oscillating frame pivoted to the outer side of the said receptacle, a series of agitators or plates adapted to reciprocate through the said openings, a crank-shaft, and arms connecting the said shaft and oscillating frame, the parts being combined to operate substantially as shown and described.

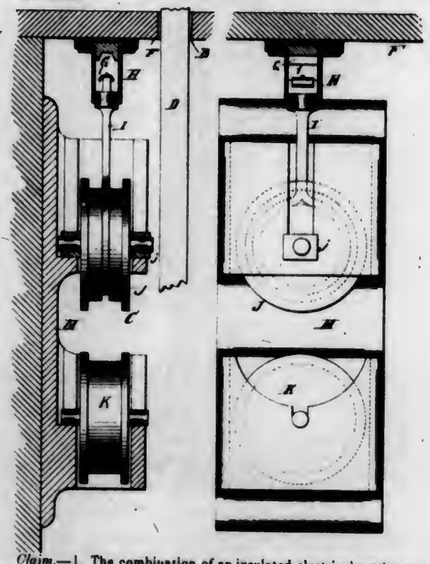
482,342. AUTOMATIC-CUT-OFF CASK-FILLING FAUCET. JOHN H. DRILLER, Los Angeles, Cal. Filed May 22, 1891. Serial No. 393,681. (No model.)



Claim.—1. In a barrel-filling device, the combination of a suitable faucet-head and plug, operative means connected with the plug to normally close it, a trigger for retaining such plug-operating means in its set position to hold the faucet open, and a hammer pivoted to the faucet and arranged to normally rest upon such trigger, a float arranged to be operated by the rising liquid within the barrel, and suitable means detachably connecting the float with such hammer to hold the hammer elevated above such trigger and arranged to be lifted out of its engagement with the hammer when the rising liquid elevates the float, thereby releasing the hammer to allow it to fall to actuate the trigger to release the plug-closing device.

2. In a cut-off faucet of the class set forth, the combination of operative means connected with the plug to normally close it, the pivoted catch-plate provided with the weight-sustaining shoulder and the trigger-supporting shoulder, the pivoted catch-releasing trigger provided with the diagonally-arranged catch-engaging shoulder, the trigger-actuating hammer, and means for retaining and releasing the same connected with a float to be operated by the rising liquid.

482,343. INCLOSED CONDUCTOR FOR ELECTRIC RAILWAYS. GEORGE A. DUPUI, Detroit, Mich. Filed May 16, 1891. Serial No. 393,041. (No model.)



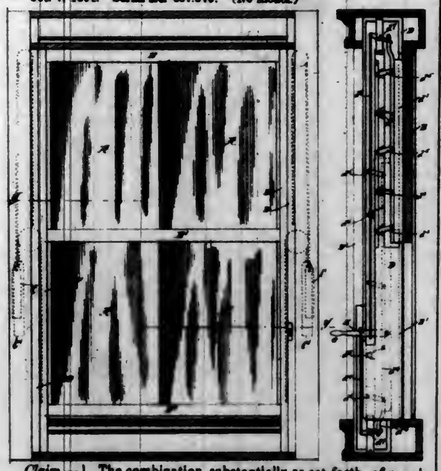
Claim.—1. The combination of an insulated electrical conductor, a traveling car, a traveling contact-maker connected to said car, and contact-pieces hung below said conductor and reaching through the insulation of said conductor, normally out of contact with said conductor, but arranged to be pushed upward by said traveling contact-maker into contact with said conductor and to drop by gravity out of electrical contact, substantially as and for the purpose described.

2. The combination of an insulated electrical conducting-wire, conducting piston-rods or plungers reaching through the insulation of said electrical conductor, friction-rollers on the outer end of said plungers moving with them, fixed friction-rollers opposite the first-mentioned friction-rollers, and a contact-making traveler arranged to travel between said friction-rollers and of a thickness sufficient to force the rollers apart and the pistons into contact with the main conductor, substantially as and for the purpose described.

3. In an electric railway, in connection with a friction-roller adapted to be brought into electrical contact with an insulated electric conveyer, an opposing friction-roller turning axially in insulated bearings, a car, and a traveling contact-maker adapted to pass between said friction-rollers, all combined and arranged as described.

4. In an electric conduit for electric railways, the combination of opposing friction-rollers, one of which is adapted to be pushed into electrical contact with an otherwise insulated electric conducting-wire, and a traveling contact-maker made in parts, one of said parts being an electrical conductor and being in electrical connection with the car, another of said parts being of insulating material and adapted to prevent the passage of electricity except to said car, substantially as and for the purpose described.

482,344. WINDOW. OLIVER M. EDWARDS, Syracuse, N. Y. Filed Oct. 7, 1891. Serial No. 407,979. (No model.)



Claim.—1. The combination, substantially as set forth, of a sash, two movable stops arranged one at each of two edges of one side of the sash, means adapted to cause the stops to move with the same with an increased pressure upon the sash as it moves in an opening direction, and a spring or springs pressing the stops against the sash, whereby the movable stops are held in contact with the sash and are moved by such contact as the sash moves in an opening direction, exerting an increasing pressure upon the sash, which is thereby locked against opening until released from the stops.

2. The combination, substantially as set forth, of a sash, two pivoted movable stops arranged one at each of two edges of one side of the sash, pivotal connection between the stops and the window-frame, adapted to cause the stops to move the same with an increased pressure upon the sash as it moves in an opening direction, and a spring or springs turning the stops on their pivots, whereby the movable stops are held in contact with the sash and are turned on their pivots by such contact as the sash moves in an opening direction, exerting an increasing pressure upon the sash, which is thereby locked against opening until released from the stops.

3. The combination, substantially as set forth, of a sash, means for automatically moving it in an opening direction, movable stops and means adapted to cause the stops to move with the sash as it moves in an opening direction and exert an increased pressure thereon, whereby the sash is held by the stops against moving automatically until released from the stops.

4. The combination, substantially as set forth, of a sash, two movable stops arranged at each of two edges of one side of the sash, means adapted to cause the stops to move with an increased pressure upon the sash as it moves in an opening direction, a spring or springs pressing the stops against the sash, and means adapted to move the stops against the stress of the springs, whereby the movable stops are held in contact with the sash and are moved by such contact as the sash moves in an opening direction, exerting an increasing pressure upon the sash, which is thereby locked against opening until released by the movement of the stops against the stress of the spring or springs.

5. The combination, substantially as set forth, of two sashes arranged to move in opposite directions, two pairs of movable stops arranged one pair in contact with each sash, means adapted to cause the stops to move with the sash and exert an increased pressure as it moves in an opening direction, and a spring or springs pressing the stops against the sashes, whereby the two pairs of movable stops are held in contact with their respective sashes and are moved by such contact as the sashes move in an opening direction, exerting an increasing pressure upon the sashes, which are thereby locked against opening until released from the stops.

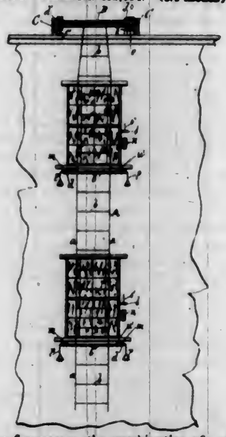
6. The combination, substantially as set forth, of two sashes arranged to move, two pairs of movable stops arranged one pair in contact with each sash, means adapted to cause the stops to move with the sash and exert an increased pressure as it moves in an opening direction, a spring or springs pressing the stops against the sashes, means for connecting each pair of stops together, and an operating-handle and connections whereby both sashes are held in the closed position by the stops and either sash is released from the control of the stops by the handle and connections.

7. The combination, substantially as set forth, of two sashes arranged to move in opposite directions, two pairs of movable stops arranged one pair in contact with each sash, means adapted to cause the stops to move with the sash and exert an increased pressure as it moves in an opening direction, a spring or springs pressing the stops against the sashes, means for connecting each pair of stops together, and an operating-handle and connections whereby both sashes are held in the closed position by the stops and either sash is released from the control of the stops by the handle and connections.

8. A compound window-stop composed of a stationary and a movable portion, the latter being embraced by the former on substantially two of its sides and secured thereto by links pivoted at one end to the stationary part, forming a portion of the window-frame, and at the other end to the movable part.

9. A compound window-stop composed of a stationary portion provided with a sash-abutment or stationary stop and a movable portion, the latter being embraced by the former on substantially two of its sides and secured thereto by a movable connection and such movable portion adapted to contact with another sash.

482,345. FIRE-ESCAPE. ALEXANDER FERGUSON, Lewiston, Me. Filed Nov. 23, 1891. Serial No. 412,851. (No model.)



Claim.—1. In a fire-escape, the combination of a pliable metallic ladder having some of its rounds *b'* extended beyond its sides, with a bracket having arms *d d*, which are provided with grooves *c c* to receive the extended ends of the said rounds, substantially as set forth.

2. An improved fire-escape consisting of a pliable metallic ladder, reel B, spring *g*, spring-starter *e*, wires *i i'*, cam *j*, and sprig *k* to regulate the descent of the ladder, all substantially as herein described.

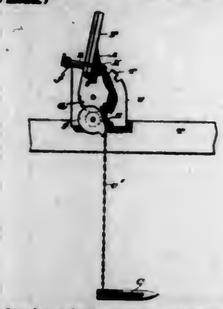
3. An improved fire-escape consisting of a pliable metallic ladder with rounds *b' b'*, reel B, with its operating mechanism, hinged bracket with its arms *d d*, grooves *c c*, sprig *n*, catch *l*, and wire *i'*, all constructed and operating substantially as described.

482,346. LUBRICATOR. MARION H. FINK, Alden Station, Pa. Filed Jan. 21, 1892. Serial No. 418,771. (No model.)



Claim.—The combination, with a shaft and a sleeve or drum working thereover and having a threaded nipple, of a funnel-shaped oil-cup or revolving lubricator carried by said sleeve or drum and provided with a threaded spout secured within said nipple and of a less diameter than the same and an inclosing cap or cover provided with a clamping-plate having a series of clamping-jaws, a buffer and spring-imparting cushion removably secured between said clamping-jaws, and a feeding plunger-rod, of the same diameter throughout, working in said oil-cup and spout and adapted by the revolutions of said sleeve to be thrown alternately against said cushion and the shaft, substantially as set forth.

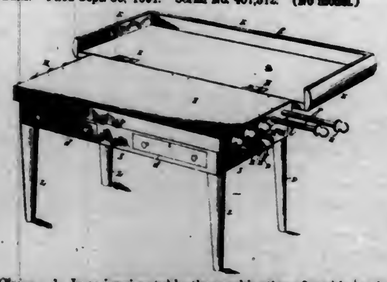
482,347. FOOT-LEVER FOR THE CUTTER-BARS OF MOWERS. LEWIS I. FOLSOM, Stone House, Nev. Filed Feb. 8, 1892. Serial No. 420,712. (No model.)



Claim.—1. A foot-lever for harvesters, comprising a base having an upright with a toothed segment, large and small intermeshing gears pivoted on the upright, the small gear being connected with the cutting apparatus, an arm projecting radially from the large gear and carrying a foot-plate, a spring-actuated pin connected to the arm and normally engaging said toothed segment, and an L-shaped lever pivotally connected at its angle with the plate, one arm being connected with said pin and the other arm standing over the plate, substantially as described.

2. A foot-lever for harvesters, comprising a base having an upright with a toothed segment, large and small intermeshing gears pivoted on the upright, the small gear having a grooved hub, a chain passing around said hub to the cutting apparatus, an arm projecting radially from the large gear and carrying a foot-plate, a transverse casing beneath the foot-plate, a pin in the casing, a spring also therein forcing the pin into engagement with said rack-bar, a support on the foot-plate, a bell-crank lever pivoted at its angle to said support with its inner arm standing above the foot-plate, and a rod connected to the outer arm thereof and leading through the spring to said pin, substantially as hereinbefore described.

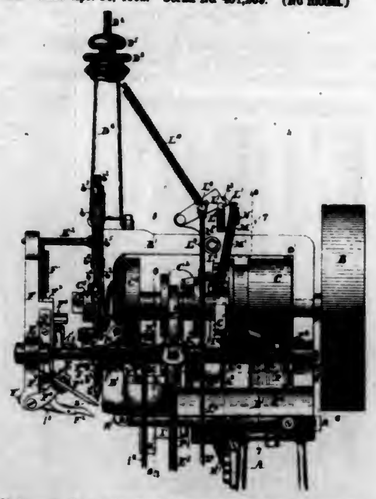
482,348. IRONING-BOARD. ELIZABETH R. FOWLER, Chetopa, Kans. Filed Sept. 30, 1891. Serial No. 407,312. (No model.)



Claim.—1. In an ironing-table, the combination of a table-top having a padded cover and supporting-legs and also provided with holes in the opposite ends thereof, clothes-supporting rods removably inserted in said holes in the opposite ends of the table and having enlarged heads, and a cover hinged to the rear edge of said top and of a length to cover the top and said heads, said cover having depending edges or flanges at the ends and front thereof of slightly-greater width than the thickness of the table-top, substantially as described.

2. In an ironing-board, the combination of a table-top provided with a padding and having holes in the opposite ends thereof in which rods are movably mounted, side bars beneath said top, the rearmost whereof is of double thickness and provided with a hinged section, legs at the ends of said side bars, a half-leg at the free end of said hinged section, a button pivoted in a notch in the inner face of said section, the end side bar having a lip thereon to frictionally engage said half-leg, and a cover hinged to the rear side of said table-top adapted to be supported by said button and provided with a flange of slightly-greater width than the table-top is thick to thereby embrace the edges of said table top and the heads of the clothes-supporting rods, substantially as described.

482,349. LASTING-MACHINE. ISAIE PRUDENTTE, Montreal, Canada. Filed Apr. 30, 1892. Serial No. 431,269. (No model.)



Claim.—1. In a lasting-machine, the combination of a horizontally-reciprocating bar or frame, an arm secured to said bar or frame, an upper pincher-jaw pivoted to said bar or frame, two jaw-levers pivoted one to each side of said arm and adapted to operate either in conjunction therewith as a single rigid jaw or independently thereof, according to the style of work desired to be done, a spring for holding said lower-jaw levers in position to operate in conjunction with said arms as a rigid jaw, mechanism for moving said main pivoted jaw about its pivot to open said pinchers, mechanism for moving said main pivoted jaw about its pivot to co-operate with one or both of said lower-jaw levers to grip the upper and retain a grip thereon while the upper is being drawn over the inner sole, mechanism for moving one or the other of said side jaws about its pivot when desired to raise its operating end and cause it to co-operate with said upper jaw and draw the upper inward at a higher level, thereby forming a crimp of the slack leather, and mechanism for feeding and driving a fastening to secure said upper to the inner sole when the pull thereon has been completed.

2. In a lasting-machine, the combination of a horizontally-reciprocating bar or frame, a lower pincher-jaw secured to said bar or frame, an upper jaw pivoted to said bar or frame and adapted to co-operate with said lower jaw, a spring for moving said upper jaw about its pivot and holding said jaw away from the lower jaw during the movement of said pinchers toward the shoe upper to be lasted, a cam, a vertically-reciprocating block mounted upon said pincher-carrying bar or frame and operated by said cam, a lever carried by said block and constructed and arranged to engage with said pivoted jaw and move it about its pivot to co-operate with said rigid jaw and grip the upper of the shoe being lasted and retain said grip during a portion of the reverse movement of said pinchers, and a nailing mechanism for securing said upper to the inner sole when the pull thereon has been completed.

3. In a lasting-machine, the combination of a horizontally-reciprocating pincher-carrying bar or frame, a rigid arm secured to said bar or frame, two side jaw levers pivoted to said rigid arm, a spring to hold said side jaws in positions to act in conjunction with said arm as a rigid jaw when desired, an upper pincher-jaw pivoted to said bar or frame and adapted to co-operate with said side-jaw levers, a spring for moving said upper jaw away from said lower jaws and holding said jaws open during their movement toward the shoe-upper to be lasted, a cam, a reciprocating block operated by said cam, a lever pivoted to said block and provided with three downwardly-projecting arms, two of which are adapted to engage, together or separately, with some portion of the said upper jaw, while the other arm is constructed and arranged to engage with one or the other of said side-jaw levers to raise it to a higher level when it is desired to have said upper jaw co-operate with only one of said side-jaw levers, mechanism having provision for moving said lever about its fulcrum, and a nailing mechanism for securing said upper to the inner sole when the pull thereon has been completed.

4. In a lasting-machine, the combination of a horizontally-reciprocating pincher-carrying bar or frame, a rigid arm secured to said bar or frame, two side-jaw levers pivoted one to each side of said rigid arm, a spring to act upon both of said side-jaw levers and hold them normally in positions to act in conjunction with said rigid arm and to form a single rigid jaw when desired, an upper pincher-jaw pivoted to said bar or frame and adapted to co-operate with both of said side jaws as a single rigid jaw or with either of said side-jaw levers independently, as may be desired, a spring for moving said upper jaw about its pivot to open said pinchers and hold them open during the movement of said pinchers toward the shoe-upper to be lasted, a cam, a reciprocating block operated by said cam, a lever pivoted to said block and provided with three downwardly-projecting arms, and one upwardly-projecting arm having a wedge-shaped cross-section, the two outer of said downwardly-projecting arms engaging when said lever is in its central position with said upper jaw to move it a predetermined distance about the pivot and cause it to co-operate with both of said side jaws in their normal positions and acting as one rigid jaw to grip and pull the upper, and when said lever is moved about its fulcrum one or the other of said outer downwardly-projecting arms will engage with said pivoted jaw at a different level and move it a lesser distance, while the central downwardly-projecting arm at the same time will engage with one or the other of said side-jaw levers to raise its operating end to co-operate with the upper jaw to grip the upper and pull it in laps over the inner sole, two spring-operated pins mounted in bearings in said reciprocating block, one on either side of the center of the wedge-shaped upwardly-projecting arm of said lever, an adjustable stop or abutment adapted to be moved into the path of one or the other of said pins and to be engaged thereby to force it against the beveled side of the upwardly-projecting arm of said lever to move it about its fulcrum, and mechanism having provision for moving said stop into or out of the path of one or the other of said pins, so that either or neither of them may be engaged thereby at the desire of the operator.

5. In a lasting-machine, the combination of a horizontally-reciprocating pincher-carrying bar or frame, a rigid arm secured to said bar or frame, a jaw-lever pivoted to each side of said rigid arm, a spring to hold both of said jaw-levers in position to act in conjunction with said arm to form a single rigid lower jaw when desired, an upper pincher-jaw pivoted to said bar or frame and adapted to co-operate with both of said lower-jaw levers when acting as a single rigid jaw or with either of said side jaws independently, as may be desired, a spring for moving said upper jaw about its pivot to open said pinchers and hold them open during their movement toward the shoe-upper to be lasted, means having provision for moving said upper jaw about its pivot to co-operate with one or both of said jaws to grip the upper and retain a grip thereon during a portion of the reverse motion of said pinchers, means having provision for moving one of said lower-jaw levers about its pivot, when desired, to raise its gripping end and cause it to co-operate with said upper jaw and pull the gripped portion of the upper upward and then toward the center of the sole, thereby forming a fold or lap of the slack leather, and a horizontally reciprocating slide provided with a forked or notched end to co-operate with said pinchers to assist in forming said fold and laying it upon the inner sole.

6. In a lasting-machine, the combination of a horizontally reciprocating pincher-carrying bar or frame, a pair of pincher-jaws mounted thereon, a horizontal guide rod or bar carrying said bar or frame and fitted to and movable endwise in suitable fixed bearings, an arm mounted upon said rod, a cam constructed and arranged to act upon said arm to move said rod and bar or frame in one direction to allow said pinchers to grip the upper, and a spring for moving said rod and bar or frame in the opposite direction to strain the leather over the inner sole preparatory to securing it thereto.

7. In a lasting-machine, the combination of a pincher-carrying bar or frame, a pair of pincher-jaws mounted thereon, a horizontal rod firmly secured by one end to said pincher bar or frame and fitted to and movable endwise in suitable fixed bearings, an arm mounted on said rod, a cam provided with a throw to act upon said arm to move said rod and the pincher bar or frame to a position to grip the upper, and also provided with two reverse throws to allow said bar to move in the opposite direction, and a standstill between said reverse throws of sufficient length to allow the fastening of the upper to the inner sole before the completion of the movement of the rod in that direction, and a spring for moving said pincher-carrying bar in said opposite direction.

8. In a lasting-machine, the combination of a horizontal rod fitted to and movable endwise in suitable bearings, a pincher-carrying bar or frame secured to said rod, an arm mounted on and movable about but not endwise on said rod, a cam provided with a throw to act upon said arm and move said rod and the pincher-carrying bar or frame in the direction of the length of said rod when said arm is held in its normal position, a spring for moving said rod in a direction opposite to the throw of said cam, and means having provision for moving said arm about said rod at the will of the operator.

9. In a lasting-machine, the combination of a horizontal rod fitted to and movable endwise in suitable bearings, a pincher-carrying bar or frame secured to said rod, a pair of pincher-jaws mounted on said bar or frame, a bell-crank lever mounted upon and movable about but not endwise on said rod, a cam engaging with one arm of said lever and adapted to move said lever about said rod to prevent the reciprocating movement of said pincher-carrying bar or to move said arm and the rod upon which it is mounted lengthwise of said rod to produce the said reciprocating movement of said pincher-carrying bar, a spring for moving said rod and its pincher-carrying bar in the opposite direction to produce the strain upon the leather, and a removable stop to prevent or permit the movement of said lever about said rod at the will of the operator.

10. In a lasting-machine, the combination of a horizontal rod mounted in suitable bearings, a pincher carrying bar or frame secured thereto, a pair of pincher-jaws mounted on said bar or frame, a bell-crank lever mounted upon and movable about said rod, but immovable thereon relative to its length, a cam engaging with one arm of said lever and adapted to move said lever about said rod to prevent the reciprocating movement of said pincher carrying bar or to move said arm and the rod upon which it is mounted lengthwise of said rod to produce the said reciprocating movement of said pincher-carrying bar, a spring for moving said rod and its pincher-carrying bar in the opposite direction to produce the pull upon the upper, a vertical rod secured to the horizontal arm of said lever, a stand provided with a bearing for the lower end of said rod, a lever pivoted to said stand and constructed and arranged to serve as a removable stop to limit the downward movement of said rod, a spring for holding said rod normally in its elevated position, a spring to hold said stop-lever in its normal position with its vertical arm under the said vertical rod, and a system of treadle-levers adapted to trip said lever when it is desired to prevent the reciprocating movement of said pincher-carrying bar

11. In a lasting-machine, the combination of a horizontally-reciprocating bar constructed and arranged to turn the flap of the upper over upon the inner sole, a second bar or rod fitted to a slot in said first bar and provided with a nail or fastener receiving pocket, and means having provision for reciprocating the latter bar to carry the nail from the receiving-point to a position beneath the driver and at the same time move the other slide a sufficient distance to accomplish its object.

12. In a lasting-machine, the combination of a horizontal slide provided with a forked end, another slide provided with a nail-receiving pocket and arranged to in its movement move the first slide a sufficient distance to turn the upper over upon the last, a pivoted lever, a link connecting said lever and said second slide, a truck mounted upon the end of said lever, and a cam arranged to engage with said truck and transmit motion through it to said slides.

13. In a lasting-machine, the combination of a grooved horizontal slide provided with a forked end, another slide mounted in said groove and provided with a nail-receiving pocket and adapted in its movement to move the first slide a predetermined distance, a pivoted lever in two parts, one of which is adjustably secured to the other about the same pivot, a bar connecting one part of said lever with said second slide, a truck mounted upon the other part of said lever, and a cam arranged to engage with said truck and transmit motion through it to said slides.

14. In a lasting-machine, the combination of a horizontal slide provided with a forked end, another slide provided with a nail-receiving pocket and adapted in its movement to move the first slide a predetermined distance, a yielding connection between the two slides to prevent a too sudden contact, and means for reciprocating the nail-carrying slide.

15. In a lasting-machine, the combination, with a horizontally-reciprocating bar or frame, a pair of pincher-jaws carried thereby, means having provision for reciprocating said bar or frame and the pinchers, means having provision for opening and closing said pincher-jaws, and a horizontally-reciprocating fork-ended bar for pressing the upper down upon the inner sole, of a wire-feeding mechanism, a device for cutting the wire into the required lengths, a gripping mechanism for holding the portion thus cut, a bending mechanism for forming the cut-off portion into a staple, a horizontally-sliding bar provided with a pocket to receive said staple, a driving mechanism, and means having provision for moving said slide with its staple from the receiving-point to a position beneath the driving mechanism, and vice versa.

16. In a lasting machine, the combination, with a horizontally-reciprocating bar or frame, a pair of pincher-jaws carried thereby, means

having provision for reciprocating said bar or frame and the pinchers, means having provision for opening and closing said pincher-jaws, and a horizontally-reciprocating fork-ended bar for pressing the upper down upon the inner sole, of a wire-feeding mechanism, a device for cutting the wire mechanism for adjusting the position of said cutting device to provide for cutting nails of different lengths, fingers to seize said cut-off portion, mechanism for bending the cut-off portion into a staple, a driving mechanism, a sliding bar provided with a pocket to receive the staple, and means having provision for moving said slide with its staple from the receiving-point to a position beneath the driving mechanism.

17. In a lasting-machine, the combination, with a horizontally-reciprocating bar-frame, a pair of pincher-jaws carried thereby, means having provision for reciprocating said bar and pinchers, means having provision for opening and closing said pincher-jaws, and a horizontally-reciprocating bar for pressing the upper down upon the inner sole, of a wire-feeding mechanism, mechanism for automatically regulating the length of wire fed, a wire-cutting device, and mechanism for automatically adjusting the position of said wire-cutting device to regulate the lengths of the nails or fastenings.

18. In a lasting-machine, the combination of a pair of nail-receiving jaws, mechanism for closing said jaws, a reciprocating slide provided with a nail-receiving pocket, and mechanism for lifting said jaws to deliver said nail into said pocket.

19. In a lasting-machine, the combination of a nail-delivering device, a vertically-reciprocating bar, a pair of jaws attached to said bar and adapted to receive said nail, a spring for closing said jaws, a horizontally-reciprocating slide provided with a nail or fastener receiving pocket, and mechanism for releasing the grip upon said fastener when in the upward movement of said bar the nail has been delivered into said pocket.

20. In a lasting-machine, the combination of a horizontally-reciprocating slide, mechanism for controlling the movement of said slide, a cutter secured to said slide, two feed-rolls also secured to said slide, a disk secured to the shaft of one of said feed-rolls, a cylinder loosely mounted upon said shaft and inclosing said disk, a tangential notch or recess cut in the inner perimeter of said cylinder, a friction-roll in said recess between said disk and the inner perimeter of said cylinder and adapted to serve as a means of connecting said cylinder and disk and compelling them to move together in one direction and to disconnect them when the cylinder is moved in the opposite direction, and mechanism for imparting to said cylinder an intermittently-oscillating movement about its shaft to a greater or less distance.

21. In a lasting-machine, the combination of a pair of feed-rolls, a disk secured to the shaft of one of said feed-rolls, a cylinder loosely mounted upon said shaft and surrounding said disk, a tangential notch or recess cut in the inner perimeter of said cylinder, a friction-roll interposed between said disk and said cylinder, a crank-pin set in the outer face of said cylinder, a horizontally-arranged lever provided with a longitudinal slot, a sliding block fitted to said slot, a rod connecting said block and said crank-pin, mechanism for moving said block in said slot a predetermined but variable distance, and a cam for vibrating said slotted lever.

22. In a lasting-machine, the combination of a horizontally-reciprocating slide, a pair of feed-rolls mounted on shafts carried by said slide, a disk secured to the shaft of one of said feed-rolls, a cylinder loosely mounted upon said shaft and surrounding said disk, a tangential notch or recess cut in the interior perimeter of said cylinder, a friction-roll interposed between said disk and said cylinder, a crank-pin adjustably set in said cylinder, a horizontally-arranged lever provided with a longitudinal slot, a cam for vibrating said lever, a sliding block mounted in the slot of said lever, a fulcrum-pin mounted in said block, a rod connecting said fulcrum-pin and the crank-pin in said cylinder, a vertically-arranged lever mounted on a fixed fulcrum and connected to said horizontal slide and provided in its upper end with a longitudinal slot, a second sliding block fitted to the slot in said vertical lever and mounted on said fulcrum-pin, a cutting device secured to said horizontally-reciprocating slide, a sleeve pivoted to the upper end of said vertically-arranged lever and provided with a downwardly-projecting arm, a spring for keeping said sleeve in its elevated position, a revolving segmental block or lug, a stop to limit the movement of said sleeve and said slotted arm in one direction, means for depressing said arm into the path of said revolving segmental block or lug to cause said slotted lever to be moved in the opposite direction, and a stop to limit the movement of said lever in said opposite direction.

23. In a lasting-machine, the combination of a wire feeding and controlling mechanism, a wire-cutting mechanism, a pivoted horizontally-arranged lever provided with a longitudinal slot, a track mounted thereon, a cam for moving said lever, a horizontally-reciprocating center-carrying slide, a vertically-arranged lever pivoted to a fixed support and to said slide and slotted at its upper end, two sliding blocks mounted in the slots in said two levers, a pin connecting said blocks, a rod connecting said pin with the wire feeding and controlling device, a sleeve pivoted to said vertically-arranged lever and provided with a downwardly-projecting arm, a revolving segment or lug adapted to come in contact with said arm and move it outward, a stop to limit the inward movement of said arm, a spring to keep said vertically-arranged lever normally in its innermost position, a spring for keeping said sleeve normally in an elevated position, a rod mounted in said sleeve, a latch constructed and arranged to shut down in front of said rod and hold it in its retracted position when said vertical lever has been moved outward by said revolving segment or lug, a spring to keep said latch normally in a raised position, a suitable treadle mechanism, and a rod connecting said treadle mechanism and said latch.

24. In a lasting-machine, the combination of a nearly-vertical lever for controlling the cutting devices, a nearly-horizontal lever for controlling the wire-feeding devices, a universal joint connecting said levers to enforce united action, a sleeve pivoted to said vertical lever and provided with a downwardly-projecting arm, a revolving segment or lug adapted to come in contact with and move said arm outwardly, a rod adjustably mounted in said sleeve to limit the length of the longer nails or fastenings, an adjustable stop to limit the length of the shorter nails, a vertically-arranged spring-supported rod forming a saddle for said adjustable sleeve-rod, a spring for normally holding said sleeve in its inner position, a pivoted spring-raised latch-lever adapted to shut down by the end of said adjustable sleeve-rod to hold it in its retracted position, a suitable treadle mechanism, and a rod connecting said treadle mechanism with said latch.

25. In a lasting-machine, the combination of a horizontally-reciprocating pincher-carrying bar or frame, a pair of pincher-jaws carried by said frame, a vertically-reciprocating block carried by said bar or frame, a multiple-armed lever mounted on said block and constructed and arranged to control the action of said pinchers, a pair of pins for operating said lever also carried by said block, an adjustable stop or abutment mounted on the frame of the machine-head and constructed and arranged to be normally held in a position intermediate between the path of said pins as they are moved to the rear, a treadle mechanism, and suitable connections between said treadle mechanism and said abutment whereby said stop or abutment may be moved into the path of either one or the other of said pins at the will of the operator.

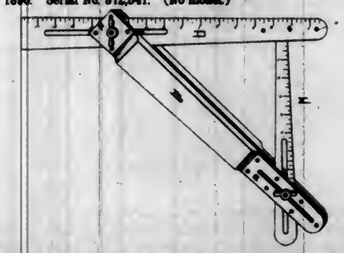
26. In a lasting-machine, the combination, with a pair of horizontally reciprocating pinchers, the vertically-sliding block F^6, the four-armed lever F^9, and the cam-block F^8, both carried by said sliding block F^6, the two pins f f, the springs f' f', and the three-armed or T-shaped lever F^{11}, of a main treadle-lever, a spring to lift said lever, a foot-pad pivoted to said treadle-lever so that it can be moved either in a lateral or vertical direction, an upwardly-projecting arm formed upon said foot-pad and provided with a shoulder on each side thereof, a pair of levers fulcrumed upon the base of the machine and arranged one upon each side of said arm in positions to be engaged and depressed by said shoulders when desired, and rods connecting said levers with the horizontal arms of the lever F^{11} for controlling the operation of the pinchers.

27. In a lasting-machine, the combination of a horizontally-reciprocating bar or frame, a pair of pinchers carried by said bar, a lever, cam, and spring for reciprocating said pincher-bar, a main treadle-lever, a foot-pad secured thereto, a lever pivoted to the under side of said foot-pad, an arm on said lever projecting upward through an opening in said pad, a spring to keep said lever in a normally-raised position, a stand secured to the base of the machine, a spring-raised rod having a bearing for its lower end in said stand and connected at its other end with the lever for controlling the reciprocation of the pincher-carrying bar, and a spring-actuated bell-crank lever, the vertical arm of which in the normal position of said lever forms a stop to prevent the downward movement of said sod, while the lateral arm lies in the path of the lever pivoted to said foot-pad and may be depressed thereby when desired.

28. In a lasting-machine, the combination of a horizontally-reciprocating bar or frame, a pair of pincher-jaws carried by said bar, the vertically-sliding block F^6, the four-armed lever F^9, and the cam-block F^8, both carried by said sliding block F^6, the pins f f, the springs f' f', the three-armed or T-shaped lever F^{11}, a lever, cam, and spring for reciprocating said pincher-carrying bar, a wire feeding and cutting mechanism, a main treadle-lever, a foot-pad pivoted thereto, so that it may be oscillated either laterally or vertically and provided with an upwardly-projecting arm having a shoulder upon each side thereof and an overhanging lip, a lever on each side of said arm constructed and arranged to be acted upon and depressed independently by said shoulders to control the operation of the pincher opening and closing mechanism, a lever constructed and arranged to be acted upon by said overhanging lip to control the wire feeding and cutting devices, a lever pivoted to the under side of said foot-pad, a spring for raising the movable end of said lever, and a bell-crank lever adapted to be depressed by said last lever to control the movement of the pincher-carrying bar.

29. In a lasting-machine, the combination of the shaft B^3, the cam O^3, mounted on said shaft, the horizontally-reciprocating rod E, a pincher-carrying bar or frame mounted on and movable horizontally with said rod, a two-armed lever mounted on and movable about said rod and adapted to be acted upon when in its normal position by said cam to reciprocate said rod and pincher-carrying bar or frame, a rod pivoted by one end to and pendent from the free end of the horizontal arm of said lever, a spring on said pendent rod tending to force it downward and vibrate said lever, a main treadle-lever for operating the clutch or shipping mechanism for starting and stopping the operations of the main shaft, and a lever constructed and arranged to serve as a stop and support for holding said pendent lever and the first-named two-armed lever in their normal positions and adapted to be moved from beneath said pendent rod by the operator's foot, while depressing said main treadle-lever, thereby causing a suspension of the reciprocation of the pincher-carrying bar and the operation of the pinchers.

482,350. STAIR-BUILDER'S TOOL. William T. Gasherie, Omaha, Nebr., assignor of one-half to Wilson T. Graham, same place. Filed Nov. 24, 1890. Serial No. 372,541. (No model.)



Claim.—1. In a stair-builder's tool, the combination of a stock provided at one end with a fixed and at the other with a sliding binding-post, said fixed post supporting and holding an adjustable main blade, said blade being graduated and tapering from a square base to a round end and adapted to form the tread and nosing of a pitch-board, and a slotted graduated auxiliary blade tapering from a rounded to a square end and adjustable upon said sliding binding-post and adapted to form the riser of a pitch-board, all arranged to operate substantially as and for the purpose set forth.

2. As an improved article of manufacture, a stair-builder's tool comprising the two-part stock A, having a fixed and a sliding binding-post adapted to accommodate the graduated and adjustable blades D and E, as shown, said stock and blades being adjustable and adapted to form, in combination, respectively, the base-line, tread, nosing, and riser of a pitch-board, each of said instrumentalities being independently adjustable to any desired measurement, substantially as and for the purpose set forth.

482,351. DARNING-LAST. Sarah H. Garwood, Southsea, England. Filed Jan. 11, 1892. Serial No. 417,714. (No model.) Patented in England June 23, 1890, No. 9,713.

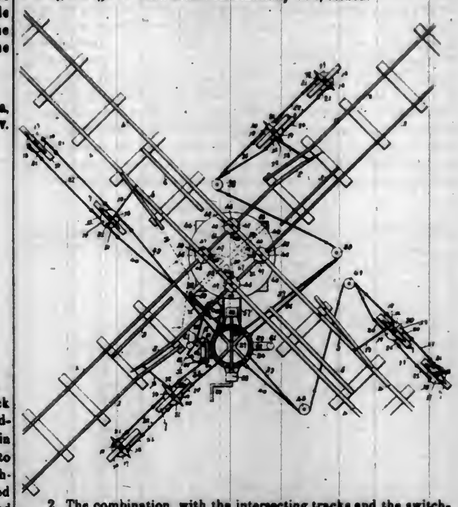


Claim.—1. A darning-last consisting of a plate recessed upon each of its edges and partially-rotatable bars mounted in said recesses upon all sides of the last for independent movement and carrying a plurality of pins, substantially as set forth.

2. A darning-last consisting of a plate recessed upon each of its edges with means of support, partially-rotatable bars mounted in said recesses and carrying pins, and springs in said recesses acting upon said bars to hold them in their normal position, substantially as set forth.

482,352. RAILROAD-CROSSING. Reba B. Gibson, Cadillac, Mich., assignor of one-fourth to Harry Wood, same place. Filed Nov. 26, 1891. Serial No. 413,494. (No model.)

Claim.—1. In a railroad-crossing, the combination, with the intersecting tracks, of signal-stands located at the side of each track, target-masts journaled in the stands and terminating at their upper ends in signal-targets, disks mounted on the shafts, pins located upon the disks at diametrically-opposite sides of the shafts, a power-frame, a vertical shaft journaled therein, a gear on the shaft, upper and lower disks on the shaft, a transverse operating crank-shaft, a gear mounted thereon, links loosely pivoted at their centers at diametrically-opposite sides of the upper and lower disks of the power, and cables, links, and rods leading from the opposite ends of the links to the pins of the disks of those signal-targets located at the sides of the tracks disposed at a right angle to each other, substantially as specified.



2. The combination, with the intersecting tracks and the switch-rails thereof, of the switch-stands located opposite the switch-rails of the tracks, the switch-masts in the stands, the targets or signals at the upper ends thereof, the disks upon the masts, the switch-rods loosely connected to the switch-rails and to the disks, the power-frame, the vertical shaft therein, the gear at the upper end of the shaft, the transverse shaft terminating in a crank and having a gear for operating the main gear, the upper and lower disks on the gear-carrying shaft, pairs of links pivoted at diametrically-opposite sides of each of the disks of the power-shaft, and cables leading from the ends of one pair of links to the disks upon the switch-stands of the south and north bound tracks and from the other pair to those of the east and west bound tracks, and suitable pulleys located between the tracks, substantially as specified.

3. The combination, with the four intersecting tracks and the switches thereof, of the switch and signal stands located at the side of each track, each comprising a mast terminating at its upper end in a signal and a disk below the same, pitmen connecting the disks of the switch-masts with the switches, links pivoted at diametrically-opposite sides of the disks of each of the masts, rods connecting the links, a power-frame, a power mechanism mounted in the frame and adapted to rotate, and cables leading from the ends of the links of the switch-stands to said rotatable power mechanism, substantially as specified.

4. The combination, with the four intersecting tracks and their switches, of the switch and signal stands, the masts for the same, the disks on the masts, switch-rods connecting the disks of the switch-stands with the switches, links pivoted to diametrically-opposite sides of the switch-stand disks, links pivoted at their ends to the disks of the signal-masts, rods connecting the two links, a power-frame, a vertical shaft mounted therein, means for operating the shaft, upper and lower disks mounted on said shaft, pairs of links pivotally connected between their ends to diametrically-opposite sides of the upper and lower disks, cables leading from the opposite ends of the links of the upper disk to the links of the switch-disks of tracks running in one direction, and similar cables similarly connecting the remaining lower disk to the pair of angularly-disposed tracks, substantially as specified.

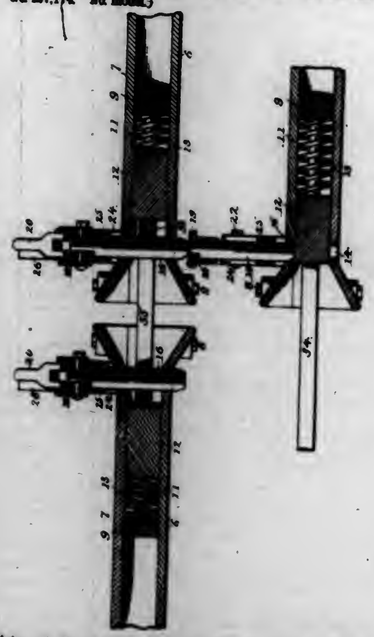
5. The combination, with the four intersecting tracks, of the frame located at said intersection, the vertical shafts mounted in the frame beneath the intersections of the rails, the short shifting rails located at the upper ends of the shafts, sprocket-wheels mounted on the shafts, a sprocket-chain embracing the same, a second sprocket-wheel mounted upon one of the shafts, a power-frame, a winding-shaft therein, means for operating the same, a sprocket thereon, and a sprocket-chain encircling said wheel and connecting with the second sprocket-wheel of the shifting-rail-carrying shaft, substantially as specified.

6. The combination, with the intersecting rails and the intermediate frame, of the vertical shafts beneath the rails, the disks at the up-

per ends of the shafts, the short shifting rails on the disks and notches formed in the disks, mechanism for simultaneously operating the shifting rails, the rock-shaft journaled in the frame intermediate to the pairs of disks and provided with rock-arms adapted to interlock with the notches of the disks, and means for operating said rock-shaft, substantially as specified.

7. The combination, with the intersecting rails and the intermediate frame, of the vertical shafts beneath the rails, the disks at the upper ends of the shafts, the short shifting rails on the disks and notches formed in the disks, mechanism for simultaneously operating the shifting rails, the rock-shaft journaled in the frame intermediate to the pairs of disks and provided with rock-arms adapted to interlock with the notches of the disks, a frame having a curved notched locking-plate, a shaft journaled in the frame and terminating at its upper end in a crank having a pivoted gravity-handle for locking with the plate, a sprocket on the lower end of the shaft, a crank on the rock-shaft, a sprocket located between the crank of the rock-shaft and that of the vertical shaft, a pitman connecting the same with the crank of the rock-shaft, and a sprocket-chain connecting the sprocket carrying the pitman with that of the vertical shaft, substantially as specified.

482,353. CAR-COUPLING. CHRISTIAN H. GOHL, Saginaw, Mich., assignor of one-half to Hans Rost, same place. Filed Mar. 31, 1892. Serial No. 427,174. (No model.)



Claim.—1. In a car-coupler, the combination, with the main body portion having the pin apertures, of the pin, the block for supporting the pin, the link, the lever for raising the pin, and the lock or catch for locking the lever in its lower position, so as to sustain the pin independently of the block, substantially as described.

2. In a car-coupler, the combination, with the main body portion having the pin-apertures, of the pin, the block for supporting the pin, the springs, the link, the lever for raising the pin, and the lock or catch for locking the lever in its upper position, so as to prevent disengagement from the link, or in its lower position so as to sustain the pin independently of the block, substantially as described.

3. In a car-coupler, the combination, with the main body portion having the pin-apertures, of the pin, the block for supporting the pin, the link and the lever for raising the pin, the pin being loosely connected at its upper end to the lever, and the lever having a limited longitudinal movement upon its fulcrum, substantially as described.

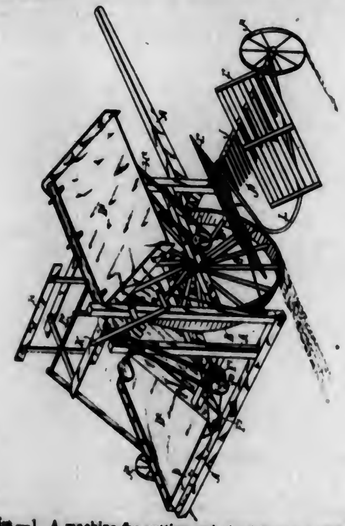
4. In a car-coupler, the combination, with the pin-locking lever having a lateral or sidewise movement and provided upon its upper and lower edges with retaining recesses, of the catch-bar having projections adapted to engage within said recesses, substantially as described.

482,354. SEPARATOR. AUGUST A. GOUBERT, Brooklyn, N. Y. Filed Mar. 2, 1892. Serial No. 423,035. (No model.)



Claim.—A centrifugal steam-separator provided with wings or plates projecting from the interior surface of the well-chamber at an acute angle therewith and to the course of the steam or water, substantially as described.

482,355. CORN CUTTING AND SHOCKING MACHINE. GEORGE D. HAWORTH, Ackworth, Iowa. Filed Feb. 26, 1892. Serial No. 423,027. (No model.)

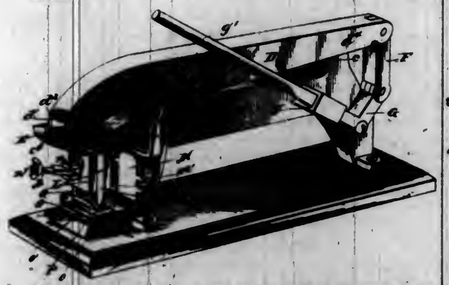


Claim.—1. A machine for cutting and shocking corn, consisting of the frame, cutter-bar, endless carrier, and reel, constructed and adapted to operate substantially in the manner set forth, in combination with a shocking device comprising a frame adapted to receive and form the stalks into a compact bundle or shock and having the forward part of the frame upon which the butts rest adapted to be inclined downward and the rear end of the frame adapted to be elevated, substantially in the manner set forth, for the purposes stated.

2. A corn shocking device adapted to be connected with a machine adapted for cutting corn, comprising an axle with a wheel on its outer end, a frame composed of rods or fingers connected with said axle and provided with means whereby it may be inclined downwardly, and another frame connected with the said axle, adapted to contain a plurality of cornstalks and provided with means whereby it may be raised, substantially in the manner set forth, for the purposes stated.

3. An improved corn-shocking device adapted to be connected with a machine adapted for cutting corn, comprising an axle adapted to be mounted in a part of the frame of a corn-cutting machine, a plurality of fingers or rods fixed to the said axle, a crank-arm fixed to the said axle, a rope attached to the said crank-arm and to a lever provided with a detent device, a frame attached to the said axle and adapted to support a number of cornstalks, and a rope attached to the said frame and to a lever, substantially as and for the purposes stated.

482,356. PUNCHING AND SHEARING MACHINE. FRANK M. HELFRICH, Hebron, Nebr. Filed Jan. 12, 1892. Serial No. 417,867. (No model.)



Claim.—1. In a machine of the class described, the combination of the stationary shear-blade having a circular pivot-groove near one end and an upwardly-extending guide lug near the opposite end, the movable shear member provided with a circular pivot ring or flange working and fitting snugly within said groove and with an extended lever portion, a pivot-bolt passing through said members at their point of pivot, an offstanding angle-bracket receiving one end of said pivot-bolt and secured to the stationary shear member, a bell-crank lever pivoted at its angle to said stationary member near one end, a toggle-forming link pivoted directly to the lever end of said movable shear member and to one arm of said bell-crank, and an operating-lever connected to the other arm of said bell crank, substantially as set forth.

2. In a punching and shearing machine, the combination, with a stationary shear member provided with vertical parallel punch-guide lugs, of the movable shear member pivotally connected to said shear member, a reciprocating punch detachably connected with the pivoted shear member and moving between said guide-lugs, a swinging cap-plate adapted to be swung against said guide-lugs to inclose the punch therein and away from the same to allow for the removal of the punch, and a clamping device arranged at one end of said stationary shear member and adapted to engage one edge of said cap-plate to hold the same closed, substantially as set forth.

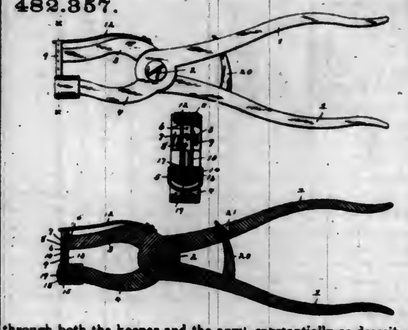
3. In a punching and shearing machine, the combination of a stationary shear member provided with a vertical recess, parallel guide-lugs projecting beyond both sides of each recess and a die-bed located directly beneath the lower ends of said lugs, the pivoted shear member, a punch-carrying plate or arm loosely connected to one end of said pivoted shear member and working in said vertical recess and between said lugs, a reciprocating punch detachably connected to said plate or arm between said lugs, a hinged cap-plate inclosing the punch between said lugs, and operating mechanism, substantially as set forth.

4. In a punching and shearing machine, the combination of a stationary shear member provided with parallel guide-lugs and a die-bed located beneath the lower ends of the same, the pivoted shear member, a reciprocating punch detachably connected with one end of the pivoted member and working between said guide-lugs, a hinged cap-plate hinged to one of said lugs and provided with projecting securing-lugs at its free edge and inclosing the punch within said lugs, a hinged or swinging clamping-bolt pivoted at one end to said stationary member and adapted to be swung and clamped between the securing-lugs of said plate to hold the same closed, and operating mechanism, substantially as set forth.

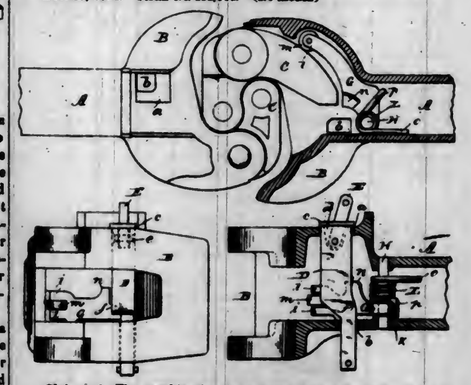
482,357. STAPLING IMPLEMENT. GILBERT HAY, Fayetta, Mo., assignor of one-half to Henry Rose, same place. Filed May 9, 1892. Serial No. 432,287. (No model.)

Claim.—In a stapling device of the character set forth, the combination of an upper jaw carrying a plunger overlapping an extension of said jaw, a spring-actuated feeding-tube engaging said plunger and movable thereover, a lower jaw longer than the said upper jaw and provided with a recess in the front end thereof, an anvil removably mounted in said recess of the lower jaw, a keeper of similar form to and adapted to hold the said anvil in position, and a screw passed through both the keeper and the anvil, substantially as described.

482,357.



482,358. CAR-COUPLING. JAMES A. HINSON, Chicago, Ill. Filed Nov. 13, 1891. Serial No. 411,801. (No model.)



Claim.—1. The combination, in an automatic car-coupler, of the knuckle, a vertically-movable latch, and means both for supporting said latch in its raised position and for swinging said knuckle on its pivots or bearings, substantially as described.

2. The combination, in an automatic car-coupler having a swinging knuckle, of a vertically-movable latch provided with a shoulder on its side and a horizontal arm pivoted within the draw-head and adapted to enter beneath said shoulder and support said latch and to swing said knuckle outwardly when said latch is raised, substantially as described.

3. The combination, in an automatic car-coupler having a swinging knuckle, of a vertically-movable latch, an arm pivoted within the draw-head, and means for holding said arm yieldingly in contact with said latch, substantially as described.

4. The combination, in an automatic car-coupler having a swinging knuckle, of a vertically movable latch, a friction-roller, and means for holding said roller in yielding contact with said knuckle and adapted to support said latch when raised, substantially as described.

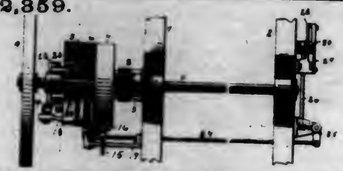
5. The combination, in an automatic car-coupler having a swinging knuckle, of a vertically-movable latch, an arm pivotally secured in rear of the latch and carrying a friction-roller in its free end, and a spring arranged to press against said arm, substantially as described.

6. The combination, in an automatic car-coupler having a swinging knuckle, of a vertically-movable latch, a curved horizontal arm pivotally secured in the draw-head, carrying a roller at its free end and having a vertical projection formed thereon near its pivotal point, and a spiral spring surrounding the pivot of the arm and exerting its strength against said arm, substantially as described.

7. The combination, in an automatic car-coupler, of a vertically-movable latch having a cavity with inclined end walls formed in its upper end and a link or bar pivoted at one end within said cavity for connecting the uncoupling-chain with said latch, substantially as described.

482,359. STOPPING AND REVERSING MECHANISM FOR PRINTING-PRESSES. WINFIELD S. HOBBS, Taunton, Mass., assignor to the Campbell Printing Press and Manufacturing Company, New York, N. Y. Filed Apr. 28, 1892. Serial No. 431,026. (No model.)

482,359.



Claim.—1. The combination, in a driving mechanism for printing-presses, of the tight pulley and a loose pulley, a clutch arranged to operate from said loose pulley, whereby if the clutch is in operation the loose pulley may transmit motion to the machine, another loose pulley of the same diameter as the tight pulley, belts for driving the two loose pulleys, and means for throwing the belt from the loose pulley of the same diameter as the tight pulley onto the tight pulley and at the same time disengaging the clutch, and vice versa, substantially as described.

2. In a driving mechanism for printing-presses, the combination of a tight pulley having one member of a friction-clutch, a loose pulley having the other member of the friction-clutch, another loose pulley, of the same diameter as the tight pulley, belts for driving the two loose pulleys, and means for moving the belt from the loose pulley of the same diameter as the tight pulley onto the tight pulley and for disengaging the friction-clutch at the same time, and vice versa, substantially as described.

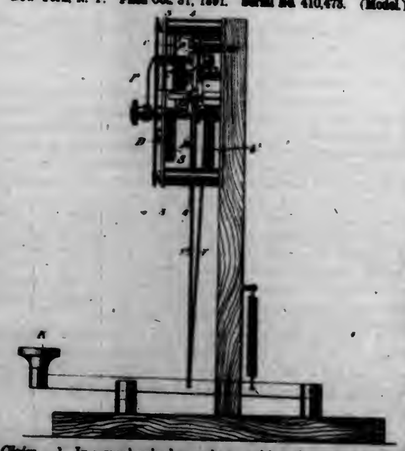
3. The combination of the shaft 4, tight pulley 6, having one member of a friction-clutch, loose pulley 5, having the other member of the friction-clutch, loose pulley 7, counter-shaft pulleys 11 and 12, of different sizes, belts between the counter-shaft pulleys and the loose-pulleys, whereby loose pulleys 5 and 7 will be revolved at different speeds, and means for moving the belt from pulley 7 onto pulley 6 and for disengaging the friction-clutch, and vice versa, substantially as described.

482,360. SHIELD FOR CURLING-IRONS. THOMAS IRRGANGER, Jr., Brooklyn, N. Y. Filed Apr. 26, 1892. Serial No. 430,465. (No model.)



Claim.—A shield for curling-irons, consisting of a tube having an open end and a head upon the opposite end, forming a closure, with a slot extending from the open end longitudinally of the shield to near the closed end, substantially as described.

482,361. COUNTER FOR TYPE-WRITERS. FRANCIS W. JOHNS, New York, N. Y. Filed Oct. 31, 1891. Serial No. 410,473. (Model.)



Claim.—1. In a mechanical counting-machine, the retaining-pawl p', notched at n, the releasing-arm a', arranged to interlock with pawl p' at n, and the releasing-pin s', in combination with the actuating-key K, the connecting-rod r, the actuating-arm a, and pawl p, the ratchet-wheel R, and spring S, all substantially as set forth.

2. In a mechanical counting-machine, the combination of releasing-arm a' and retaining-pawl p' with the ratchet-wheel R, pins s', and spring S, all substantially as set forth, and for the purpose of automatically releasing ratchet-wheel R.

3. In a mechanical counting-machine, the combination of releasing-key K', rod r', and forked arm a' with retaining-pawl p', ratchet-wheel R, releasing-pins s', and spring S, all substantially as set forth.

4. In a mechanical counting-machine, the combination of the pneumatic cushion C and plunger v with stop-arm a^3, ratchet-wheel R, and spring S, all substantially as set forth, and for the purpose of checking the momentum of ratchet-wheel R when it is released and returning to zero.

5. In a mechanical counting-machine, the combination of retaining-pawl p', having a notch n, with releasing-arm a', ratchet-wheel R, pins s and s', and spring S, all substantially as set forth.

6. A mechanical counting-machine consisting of the actuating-key K, actuating-arm a, connected to key K by means of rod r, pawl p, fastened to arm a and arranged to be pressed against wheel R, the ratchet-wheel R, arranged to be rotated step by step with the pointer P, retaining-pawl p', arranged to hold wheel R in place, the releasing-arm a', arranged to be pressed against pawl p', spring S, arranged to return wheel R to the zero-point when not held by pawl p', and pneumatic cushion C, arranged as a stop for wheel R, all as set forth and shown.

482,362. ILLUMINATING DEVICE FOR STAGE SCENERY AND FOR OTHER PURPOSES. WILLIAM JORDAN and EDWARD BROADBRIDGE, Jr., Brighton, England. Filed Nov. 21, 1891. Serial No. 413,314. (No model.) Patented in England Feb. 10, 1891, No. 2,999.



Claim.—1. In a device of the character described, the combination, with a succession of ribs or bars of varying diameters and pieces of translucent material between said ribs, of a light within said chamber, a representation of flowers, shrubs, or analogous matters surrounding the same and upon which the light is diffused, and a handle whereby the same may be carried, substantially as set forth.

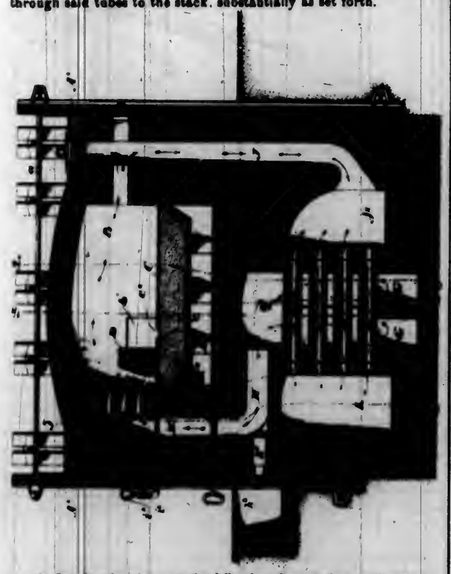
2. In a device of the character described, the combination, with a conical chamber or frame provided with a succession of ribs or bars of varying diameters and pieces of differently-colored translucent material between said ribs, of a light within said chamber, a representation of flowers, shrubs, or analogous matters surrounding the same and upon which the light is diffused from the light.

3. In a device of the character described, the combination, with a conical frame or chamber and a representation of flowers surrounding the same, of means for causing light of different shades to be reflected thereon, substantially as set forth.

482,368. HEATING-FURNACE. PETER KEIL, Jr., Philadelphia, Pa. Filed Dec. 2, 1890. Serial No. 373,289. (No model.)

Claim.—1. In a heating-furnace, the following elements in combination: a combustion-chamber, a pre-heating air-chamber beneath the hearth of the combustion-chamber and in communication with a source of cold-air supply and with a recuperating-chamber, a recuperating-chamber, flues leading from said recuperating-chamber to the combustion-chamber and each having a series of independent ports opening into said combustion-chamber, a series of fuel-burners opening into the combustion-chamber angularly with respect to the direction of discharge of the ports and operating in conjunction with said ports, a series of independent recuperating-tubes traversing the recuperating-chamber, and draft-downtakes from the combustion-chamber which discharge through said tubes to the stack, substantially as set forth.

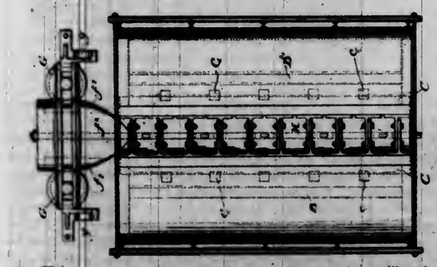
2. In a heating-furnace, the following elements in combination: a combustion-chamber, a pre-heating air-chamber beneath the hearth of the combustion-chamber and in communication with a source of cold-air supply and with a recuperating-chamber, a recuperating-chamber, flues leading from said recuperating-chamber to the combustion-chamber and each having a series of independent ports opening into said combustion-chamber, a series of fuel-burners opening into the combustion-chamber angularly with respect to the direction of discharge of the ports and operating in conjunction with said ports, a series of independent recuperating-tubes traversing the recuperating-chamber and alternated and staggered in the manner set forth, and draft-downtakes from the combustion-chamber which discharge through said tubes to the stack, substantially as set forth.



3. In a heating-furnace, the following elements in combination: a combustion-chamber, a recuperating-chamber, means for supplying air to the recuperating-chamber, flues leading from said chamber and each discharging through a series of valve-controlled ports into the combustion-chamber, valve-controlled fuel-burners likewise discharging into the combustion-chamber and operating in conjunction with said ports, a series of recuperating-tubes traversing the recuperating-chamber, alternated or staggered, as set forth, and discharging to the stack, and draft-downtakes leading from the combustion-chamber and opening into said tubes, substantially as set forth.

4. In a heating-furnace provided with a combustion-chamber, in combination, a recuperating-chamber embodying an air-inlet, a series of recuperating-tubes traversing said recuperating-chamber, staggered or alternated with respect to each other, non-circular in cross section, and disposed with their major transverse axes in substantially horizontal arrangement, a draft-downtake in communication, respectively, with the combustion-chamber and the recuperating-tubes, and a hot-air flue leading from the recuperating-chamber to the combustion-chamber, substantially as set forth.

482,364. APPARATUS FOR MAKING METAL TUBES. PETER KEIL, Jr., Philadelphia, Pa. Filed Feb. 3, 1891. Serial No. 380,102. (No model.)



Claim.—1. An apparatus for the manufacture of metallic tubes from a plurality of skelp, in which are combined the following elements: a double skelp-heating furnace embodying a central vertically extending skelp-heating chamber co-extensive with the length of the furnace structure, and also embodying two lateral combustion-chambers respectively in connection with the upper portion of said skelp-heating chamber, welding-rolls at the delivery end of said furnace, a mandrel-rod extending through the upper portion of said skelp-heating chamber and provided with a mandrel-head in suitable relation to the pass of the rolls and also with supports for sustaining an upper skelp, and skelp-carrying devices arranged within the lower portion of said skelp-heating chamber and adapted to support and carry a lower skelp, substantially as and for the purpose as set forth.

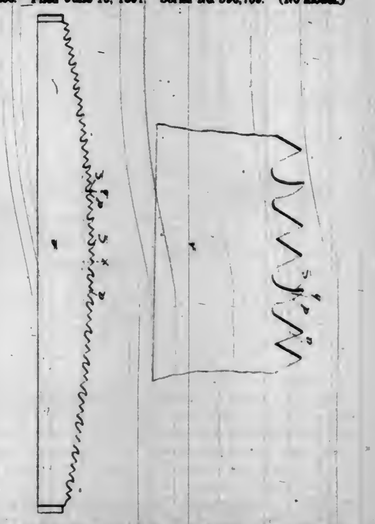


2. A double skelp-heating furnace embodying a central skelp-heating chamber, two lateral combustion chambers connecting with said skelp-heating chamber, and downtakes formed in partitions which form the inner walls of said combustion-chambers and the walls of the lower portion of said skelp-heating chamber, substantially as set forth.

3. In combination with a furnace embodying a central skelp-heating chamber and lateral combustion-chambers, a rolling-mill composed of welding-rolls located at the delivery end of the furnace in alignment with its skelp-heating chamber and provided with a mandrel head, and a mandrel-rod supporting said mandrel-head, extending completely through said skelp-heating chamber of the furnace and provided with skelp-supports, substantially as set forth.

4. A double skelp-heating furnace comprising two lateral combustion-chambers embodying suitable outlets for the products of combustion, and a skelp-heating chamber situated between and as to its respective sides in communication with said combustion-chambers, and as to its intermediate portion in communication with the atmosphere through a longitudinal top opening, substantially as set forth.

482,365. CROSSCUT-SAW. WILLIAM H. H. KEIHR, Rathdrum, Idaho, assignor of three-fourths to Frank O. Hill and Robert S. McCrea, same place. Filed June 18, 1891. Serial No. 396,789. (No model.)



Claim.—As an improved article of manufacture, a saw-blade having cutting-teeth arranged in pairs and a drag-tooth between each pair of cutters, said drag-teeth being disposed in opposite directions from the longitudinal center of the blade and having but one cutting side and the reverse side rounded off or beveled, substantially as specified.

482,366. AUTOMATIC STOCK-FEEDER. WALTER P. KELLOGG, Syracuse, N. Y. Filed May 23, 1892. Serial No. 433,982. (No model.)

Claim.—The combination, with the T-lever provided with studs and journaled in bearings at the ends of its head, of a catch engaging the lower arm thereof and the weight connected to said catch and

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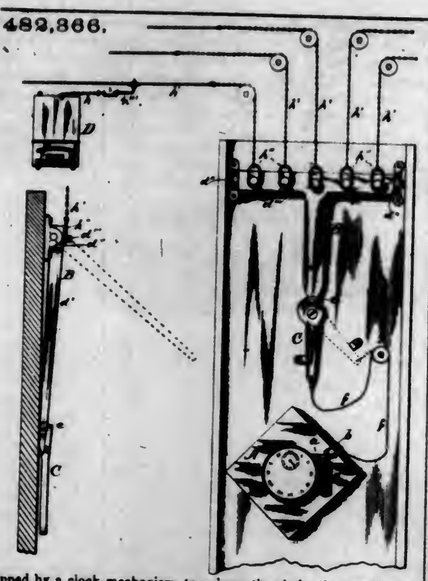
supported on cross-bar b, the block h, attached to the tongue, curved bar e, pivoted to block h, and the rods f and g, connected at their outer ends to the levers $a\,a$ and at their inner ends to the ends of the curved bar e, substantially as described.

482,371. MATCH-SAFE. MARTIN R. LAND, Norfolk, Va. Filed Sept. 30, 1891. Serial No. 407,311. (No model.)

glycerine produced from the waste acids from the remaining part of the spent acids.

482,373. CLOTH-FOLDING MACHINE. SAMUEL T. LOCKWOOD and SAMUEL K. WHITE, Chicago, Ill. Filed Jan. 19, 1889. Serial No. 296,826. (No model.)

482,866.



tripped by a clock mechanism to release the chains detachably connected to the head of said lever, as set forth.

482,867. COMPOSITION OF MATTER FOR ARTIFICIAL STONE. JOSEPH R KEELING and CHARLES FUCHS, Jr., New York, N. Y., assignors to the Pyrolith Company, of New Jersey. Filed Dec. 21, 1891. Renewed July 20, 1892. Serial No. 440,639. (No specimens.)

Claim.—The herein-described composition of matter for the manufacture of artificial stone, which consists of a basic cement of chloride and oxide of magnesium, sand or analogous filling material, a solution of asphaltum, and a solution of albumen and caseine.

482,868. PORTABLE VESSEL. ARTHUR C. KIMBER, New York, N. Y. Filed Nov. 10, 1890. Serial No. 370,956. (No model.)



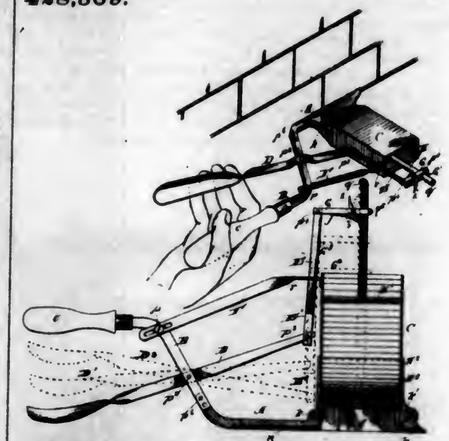
Claim.—1. A vessel having a frame composed of sections of slats or bars, each slat or bar pivoted at its end to the end of its contiguous slat or bar in a continuous loop or circle, so that when spread open such frame forms continuous sides, in combination with a rubber or other waterproof or impermeable cloth, substantially as set forth.

2. A frame for a bath-tub or other portable vessel, consisting of an even number or series of slats hinged together end to end and an additional slat connected to the free ends of the end slats of the series by hinges, the additional slat being equal in length to the aggregate thickness of the even number of slats, substantially as described.

3. A frame for a bath-tub or other portable vessel, consisting of an even number or series of slats hinged together end to end and an additional slat connected to the free end of the end slats of the series by hinges, the additional slat being equal in length to the aggregate thickness of the even number of slats, in combination with an impermeable cloth, substantially as described.

498,869. POINTING MECHANISM FOR MASONRY. HENRY B. KERR, Sioux City, Iowa. Filed May 4, 1892. Serial No. 431,700. (No model.)

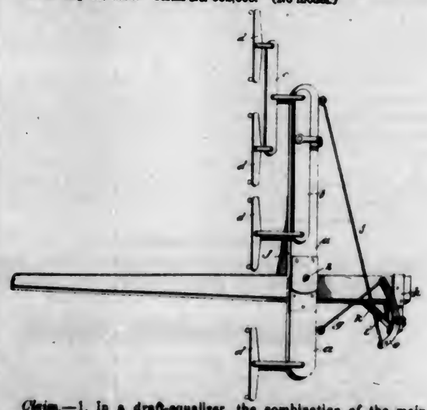
498,869.



Claim.—1. A pointing mechanism for masonry, consisting of a box-like structure secured to a bar which has a slot or groove upon its lower surface, said box having an opening communicating with said groove for the mortar to pass out, a curved arm or handle B, attached to said bar, and a plunger and plunger-rod operated within said box, said plunger-rod being notched, so as to engage a ratchet, and operated by means of a lever and lever-bars, which support said ratchet and act in conjunction with the curved arm or handle B, all as and for the purpose described.

2. The combination, in a pointing mechanism for masonry, of a box-like structure secured to a bar which has a slot or groove upon its lower surface, said box having an opening communicating with said groove for the mortar to pass out, a curved arm or handle B, attached to said bar, and a plunger and notched plunger-rod operating within said box, said plunger-rod engaging with a ratchet and operated by means of a lever and lever-bars, which support said ratchet and act in conjunction with the curved arm B, all substantially as and for the purpose described.

482,870. DRAFT-EQUALIZER. JOHN LAMUTH, Irvington, Iowa. Filed May 22, 1890. Serial No. 352,808. (No model.)

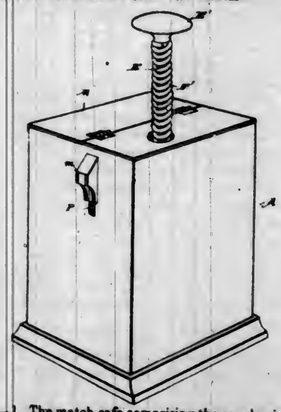


Claim.—1. In a draft-equalizer, the combination of the main tongue, the whiffletrees, the transverse levers *a a*, joined together at their contiguous or meeting ends and pivoted at that point upon the tongue, the rear curved bar *c*, pivotally supported upon the horizontal block *h*, attached to the tongue and projecting outward therefrom on one side thereof, it being firmly supported by means of a brace, a rod *f*, extending from one end of the curved bar *c* to the oppositely-located main lever *a*, and the rod *g*, extending from the other end of the bar *c* to the other of the levers *a*, said rods *f* and *g* being pivotally attached at their ends, all arranged to operate substantially as described.

2. The combination of the tongue, the levers *a a*, joined together and pivoted to the tongue by means of the pivot B, the whiffletrees *d*, the brace *j*, the cross-bar *b*, supported on one lever *a*, the cross-bar *e*,

supported on cross-bar *b*, the block *h*, attached to the tongue, curved bar *c*, pivoted to block *h*, and the rods *f* and *g*, connected at their outer ends to the levers *a a* and at their inner ends to the ends of the curved bar *c*, substantially as described.

482,871. MATCH-SAFE. MARTIN R. LAND, Norfolk, Va. Filed Sept. 30, 1891. Serial No. 407,311. (No model.)



Claim.—1. The match-safe comprising the case having the match-receptacle at its upper portion, the rear wall of said chamber being inclined downwardly and inwardly to the bottom, the latter terminating a short distance from the front wall and leaving an interval or space thereat, the slide reciprocating vertically in said space, the horizontal trough designed to receive a single match at a time under the action of said slide, the follower reciprocating horizontally in said trough to eject the match therefrom, the operating knob or handle, and the retracting-springs, substantially as specified.

2. The match-safe comprising the case having the match-receptacle at its upper portion at one side thereof, a slide reciprocating vertically through one side portion of said receptacle and designed in its upward movement to carry a single match over the forward wall of said receptacle, the horizontal trough adapted to receive said match in a lengthwise position therein, the follower reciprocating horizontally in said trough and operated by the vertically-reciprocating slide to eject said match, means for igniting said match by its ejection, and the operating-knob and retracting-springs, substantially as specified.

3. The combination, with the case or receptacle having the match-receptacle therein, of the slide designed to reciprocate vertically through one side of said chamber, the operating-knob connected to said slide, the match-receiving trough, the slide or follower reciprocating therein and connected with the vertical slide in such a manner as to operate therewith, means for automatically igniting the match as it is ejected, and the retracting-springs, substantially as specified.

482,872. PROCESS OF RECOVERING NITRO-GLYCERINE FROM WASTE ACIDS. JAMES LAWRENCE, Paulsborough, N. J. Filed Apr. 13, 1892. Serial No. 429,049. (No specimens.)

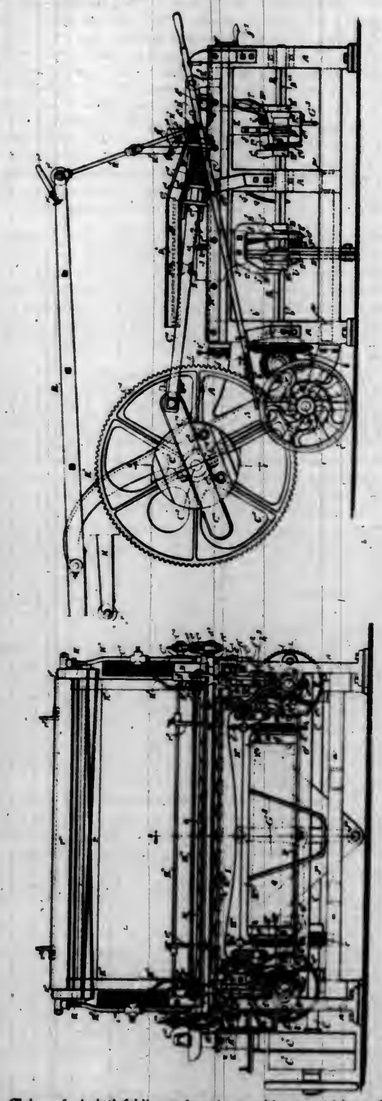
Claim.—1. In the manufacture of nitro-glycerine, the improvement which consists in, first, nitration of the glycerine; second, separation of the nitro-glycerine formed from the waste acids; third, cooling the waste acids to a temperature below the freezing-point of nitro-glycerine and above the freezing-point of the acids.

2. In the manufacture of nitro-glycerine, the improvement which consist in, first, nitration of the glycerine; second, separation of the nitro-glycerine formed from the waste acids; third, cooling the waste acids to a temperature below the freezing-point of nitro-glycerine and above the freezing-point of the acids and agitating said acids during said cooling.

3. In the manufacture of nitro-glycerine, the improvement which consists in, first, nitration of the glycerine; second, separation of the nitro-glycerine formed from the waste acids; third, adding sulphuric acid to the waste acids and cooling the same to a temperature below the freezing-point of nitro-glycerine and above the freezing-point of the acids.

4. In the manufacture of nitro-glycerine, the improvement which consists in, first, nitration of the glycerine; second, separation of the nitro-glycerine formed from the waste acids; third, cooling the waste acids to a temperature below the freezing-point of nitro-glycerine and above the freezing-point of the acids and removing the nitro-glycerine produced from the waste acids from the remaining part of the spent acids.

482,873. CLOTH-FOLDING MACHINE. SAMUEL T. LOCKWOOD and SAMUEL K. WHITE, Chicago, Ill. Filed Jan. 19, 1889. Serial No. 296,826. (No model.)



Claim.—1. A cloth folding and cutting machine comprising a cloth-clamp for holding the folded edges of the cloth, cloth-cutting mechanism operating to sever the cloth transversely, and a reciprocating cloth-carrier operating to carry the folds of cloth alternately to the cloth-clamp and cutting mechanism, substantially as described.

2. A cloth folding and cutting machine comprising clamping-plates for holding the folded edges of the cloth, a cloth-cutting mechanism, and a reciprocating cloth-carrier consisting of a carrying-blade constructed to carry the cloth to and insert it between the clamping-plates and a folding-bar constructed to carry the cloth to the cutting mechanism, said cutting mechanism being constructed to sever the cloth along the fold held by the said folding-bar, substantially as described.

3. The combination of clamping-plates constructed to hold the

folded edge of the cloth, a reciprocating carrying-blade for carrying the cloth to the said clamp-plates, a reciprocating folding-bar provided with a knife-edge, a series of cutting-rollers acting upon the knife-edge to sever the cloth, and means for supporting and actuating said rollers, said folding-bar being constructed to carry the cloth to and into contact with the said rollers, substantially as described.

4. The combination of a reciprocating carrying-blade and two clamp-plates, one of which is movable toward and from the other and one of which is provided with notches or spaces, means for actuating the movable clamp-plate, a series of movable clamp-fingers acting upon the opposing clamp-plate through the said spaces or notches, and means for actuating said fingers, substantially as described.

5. A folding-machine comprising two clamp-plates constructed to hold the folded edge of the cloth, a carrying-blade, a folding-bar provided with a knife-edge and two creasing-plates, a series of bodily-movable grooved rollers acting in connection with said knife-edge, and means for supporting and actuating said rollers and creasing-plates to sever and crease the cloth, said folding-bar being constructed to carry the cloth to and into contact with the rollers, substantially as described.

6. The combination of two clamp-plates constructed to hold the folded edge of the cloth, a horizontally and vertically reciprocating carrying-blade for carrying the cloth to the clamp-plates, a horizontally-reciprocating folding-bar provided with a knife-edge, a plurality of horizontally-movable rollers acting against said knife-edge, and means for sustaining and actuating said rollers, said folding-bar being constructed to carry the cloth to and into contact with the rollers, substantially as described.

7. The combination, with the machine-frame, of a cloth-clamp constructed to hold the folded edge of the cloth, a cutting mechanism for severing the cloth transversely, a reciprocating cloth-carrier consisting of a carrying-blade operating to carry the cloth to and into the cloth-clamp and a folding-bar constructed to carry the cloth to the cutting-off mechanism, and separate frames severally supporting said cloth-clamp and cutting mechanism, said frames having sliding connection with the machine-frame, substantially as described.

8. The combination, with the machine-frame, of a cloth-clamp, a reciprocating carrying-blade for carrying the cloth to the cloth-clamp, a reciprocating folding-bar provided with a knife edge, a plurality of rollers acting upon said knife-edge, said folding-bar being constructed to carry the cloth to and into contact with the rollers, a longitudinally-sliding bar sustaining and giving motion to the said rollers, means for actuating said sliding bar, and yielding blocks mounted in said sliding bar and immediately supporting the said rollers.

9. The combination, with the machine-frame, of a cloth-clamp, a reciprocating carrying-blade for carrying the cloth to the cloth-clamp, a reciprocating folding-bar provided with a knife-edge, a plurality of rollers acting upon said knife-edge, said folding-bar being constructed to carry the cloth to and into contact with the said rollers, a longitudinally-sliding bar sustaining said rollers, and means for actuating said bar, comprising a spring acting to throw said bar in one direction and a cam connected with said bar and acting to move the latter in the opposite direction, substantially as described.

10. The combination of a cloth-clamp for holding the folded edges of the cloth, cloth-cutting mechanism operating to sever the cloth transversely, a reciprocating cloth-carrier consisting of a carrying-blade constructed to carry the cloth to the cloth-clamp and a folding-bar constructed to carry the cloth to the cutting mechanism, and a second cloth-clamp located adjacent to the cutting mechanism and constructed to grip the cut-off edge of the cloth above the folding-bar, substantially as described.

11. The combination, with a cloth-clamp, of a reciprocating carrying-blade for carrying the cloth to the clamping device, a reciprocating folding-bar, a cutting mechanism comprising a knife-edge on the bar and a series of rollers acting against the knife-edge, said folding-bar being constructed to carry the cloth to the rollers, means for supporting and actuating said rollers, a stationary clamp-plate located above the rollers, a vertically-movable clamp-plate located in front of the rollers and acting upon said stationary plate, and means for actuating said clamp-plate, substantially as described.

12. The combination of a cloth-clamp for holding the folded edges of the cloth, cloth-cutting mechanism operating to sever the cloth transversely, a reciprocating cloth-carrier consisting of a carrying-blade acting to carry the cloth to and into the cloth-clamp and a folding-bar having a flat top surface and operating to carry the cloth to the cutting mechanism, a stationary clamp-plate located above the cutting mechanism, a series of spring-fingers acting upon the top surface of the said bar, a vertically-movable clamp-plate located in front of the cutting mechanism and acting against said clamp-plate, and means for actuating said movable clamp-plate, substantially as described.

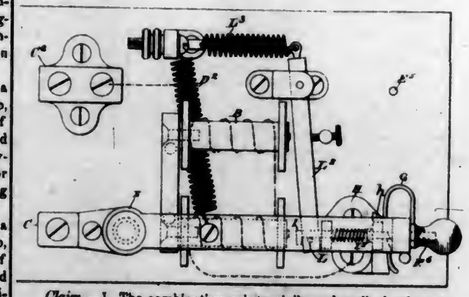
13. The combination, with a cloth-clamp, of a carrying-blade, a folding-bar having a knife-edge operating to carry the cloth to said cloth-clamp, a series of rollers acting against said knife-edge, said folding-bar being constructed to carry the cloth to and against said rollers, means for sustaining and actuating said rollers, a stationary clamp-plate located above the rollers and folding bar, a vertically-movable clamp-plate located in front of the rollers, a pivotally-supported oscillating blade acting upon the cloth beneath the folding-bar to free the same from said folding-bar, and means for actuating said clamp-plate and oscillating blade, substantially as described.

14. The combination, with front and rear cloth-clamps and a reciprocating cloth-carrier, of a horizontally-arranged cloth-rack pivotally supported at one end and having its opposite or free end located over and movable toward and from the cloth-carrier and means for actuating said rack, substantially as described.

15. The combination of two clamp-plates constructed to hold the folded edges of the cloth, a carrying-blade, a folding-bar provided with a knife-edge and with two creasing-plates, a series of bodily-movable rollers having grooves at their ends, which grooves are formed by yielding disks attached to the ends of the rollers, and means for sustaining and actuating said rollers, substantially as described.

16. The combination of cloth-clamps arranged at different elevations at opposite ends of the machine, a folding-bar moving in a horizontal plane and adapted to carry the cloth to one of said cloth-clamps, and a carrying-blade constructed to carry the cloth to the other of said cloth clamps, having both a horizontal and vertical movement, means for giving a horizontal reciprocatory movement to said folding-bar, and means for giving a combined horizontal and vertical reciprocatory motion to the said carrying-blade, substantially as described.

482,374. AUTOMATIC ELECTRIC CUT-OUT. CYPRIEN O. MAILLOUX, New York, N. Y. Filed Sept. 9, 1890. Serial No. 364,422. (No model.)



Claim.—1. The combination, substantially as described, of a cut-out switch, a releasing detent or catch therefor, an electro-magnet whose armature is adapted to engage said catch after it has begun its movement under the influence of the magnet, and means for adjusting the relative position of the parts of the armature and detent which engage when the armature is moved forward, whereby the point at which the armature shall encounter the resistance of the catch in its forward movement may be determined or adjusted.

2. The combination, substantially as described, of the switch-lever, the sliding detent or catch I, the spring I^3, acting on the same, an armature-lever L^2, and a pin and connecting-hook between the same and the catch, as and for the purpose described.

3. The combination, substantially as described, of the switch-lever D, the contact-spring G, secured to the end thereof, a conducting-block secured to the base and having a vertical extension with which said spring makes contact, a sliding detent mounted on said extension and adapted to engage with the lever to hold it in circuit-closing position, and an electro-magnet and armature for actuating said detent, as and for the purpose described.

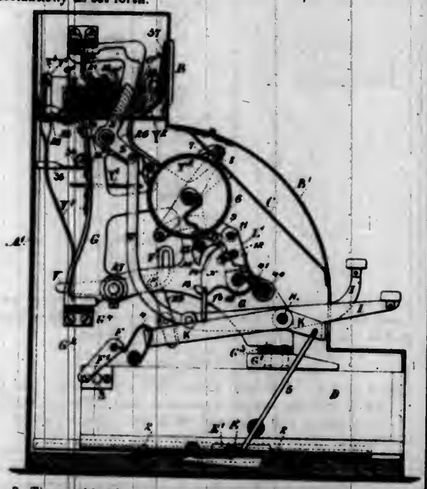
4. The combination, substantially as described, of a switch-lever D, mounted on a terminal block or binding-post of the apparatus, electro-magnet B, armature-lever L^2, sliding catch I, and the spring G carried by the switch-lever and adapted to make connection with a vertical contact-face upon a conducting-block secured to the base-plate of the apparatus, as and for the purpose described.

5. The combination, substantially as described, with the switch, of the catch or detent therefor, an armature adapted to engage the catch in its forward movement toward the pole of the magnet, and an adjustable stop I^3 upon the catch for determining its position with relation to the armature, as and for the purpose described.

482,375. CASH REGISTER AND INDICATOR. HERBERT R. MARSHALL, Brooklyn, N. Y., assignor to himself and William Burtis, New Rochelle, N. J. Filed Jan. 26, 1892. Serial No. 419,100. (No model.)

Claim.—1. The combination, in a registering apparatus, of flexible number-plates adapted to lie closely against one another and number-slides connected with the respective number-plates, key-levers and connections between the number-slides, and the key-levers for moving one number-slide and its flexible number-plate at a time into view, substantially as set forth.

2. The combination, with the flexible number-plates, of crank-plates with which the respective number-plates are connected, key-levers, and connections between the key-levers and the crank-plates for moving the same and bringing one flexible number-plate into view, substantially as set forth.



3. The combination, in a registering mechanism with the case and indicating-window, of three sets of flexible number-plates, two sets of number-slides connected with two of the sets of flexible number-plates, and mechanism for moving such number-slides toward and from the window to expose or retract the flexible numbers, and plates with which the third and intermediate set of flexible number-plates is connected, and mechanism for moving such plates and numbers up and down behind the window, substantially as specified.

4. The combination, with the key-levers, of a rocker-frame actuated by either key-lever, number plates and slides with which the number-plates are respectively connected, levers for moving the number-slides, each lever being provided with a tooth, a pawl-plate for engaging the tooth when the number-slide is projected, connections between the number-slide levers and the key-levers, and connections between the pawl-plate and the rocker-frame, whereby the pawl-plate is disconnected from the tooth when either key-lever is depressed, substantially as set forth.

5. The combination, with the flexible number-plates, of crank-plates with which the respective number-plates are connected, teeth or projections upon the crank-plates, a pawl-plate for engaging the tooth of the crank plate when the number-plate is projected into view, a rocker-frame acted upon by either key-lever, and a connection between the rocker-frame and the pawl-plate for liberating the crank-plates and number-plates upon the depression of either key, and springs for returning the number-plates to their normal positions, substantially as set forth.

6. The combination, with three sets of key-levers in a registering apparatus, of three sets of flexible number-plates, number-slides and actuating-levers for two of the sets of number-plates, crank-plates for the third set of number-plates, teeth and pawl-plates for holding the projected number-plates, a rocker-frame actuated by the key-levers and connections from such rocker-plate for withdrawing the pawl-plates, and springs for returning the flexible number-plates and their connected parts to their normal positions, substantially as set forth.

7. The combination, in a registering mechanism, of key-levers, a rocker-frame, number-plates arranged in three groups, a holding-tooth for each number-plate and connections from the respective key-levers for moving the number-plates, three pawl-plates for retaining the respective number-plates that are moved into view, the lever V and connection to the rocker-frame, the link V', connected to the lever V, and lever connections from the link to the respective pawl-plates for simultaneously disconnecting such pawl-plates from the respective teeth that hold the number-plates, substantially as set forth.

8. The combination, with the key-levers and indicating number-plates, of a computing apparatus having a ratchet-wheel, a pawl and lever for moving the same, arms connected with the pawl-lever, a supporting-shaft for such arms, sectors upon such shaft and connections from the same to the key-levers, there being ratchet-teeth and pawl-shifters upon each sector, and double-ended spring-pawls brought into action by the pawl-shifters and engaging the teeth upon the sectors to prevent such sectors or their connected levers being returned to their normal positions until after the respective key-levers have been fully depressed, substantially as set forth.

9. The combination, with the key-levers and the computing apparatus, of sectors and connections to the respective key-levers and rotary tumblers for engaging the projections upon the sectors to prevent more than one key in a section being depressed until the previously-depressed key in the same section has been restored to its normal position, substantially as set forth.

10. The combination, in a registering apparatus, with the key-levers and cash-drawer, of a holding-latch below the drawer, a rocker-frame beneath the key-levers, a push-pin from the same for unlatching the cash-drawer, a cross-shaft and pusher-levers thereon, and a spring for giving a parallel motion to the cash-drawer in opening the same, substantially as set forth.

11. The combination, in a registering apparatus having an inclosing case and indicating-window, of a blank behind such window, having ciphers and a period, flexible number-plates in groups, one group for each set of numbers, with the ends of the flexible number-plates lying close together adjacent to the blank behind the indicating-window, and mechanism, substantially as specified, for giving motion to the flexible number-plates and projecting them into view between the indicating-window and the stationary blank, substantially as set forth.

482,376. CARTRIDGE-HOLDER FOR MAGAZINE-GUNS. PAUL MAUSER, Oberndorf-on-the-Neckar, Germany, assignor to the Waffenfabrik Mauser, same place. Filed June 8, 1892. Serial No. 435,905. (No model.)



Claim.—1. A cartridge-holder consisting of a metallic frame having a back *a*, provided with a spring *f*, and having longitudinal flanges of convenient width for embracing a cartridge, which are folded or doubled on themselves and have shoulders for engaging the base of a cartridge to retain it in the holder, substantially as set forth.

2. A cartridge-holder consisting of a metallic frame having a back *a*, provided with a spring *f*, and having longitudinal flanges of convenient width having their edges *c* folded inwardly on themselves and constructed at their inner edges as shoulders for engaging the base of a cartridge to retain it in the holder, substantially as set forth.

3. A cartridge-holder consisting of a metallic frame having a back *a*, provided with a spring *f*, and having longitudinal flanges of convenient width having their edges *c* folded inwardly on themselves and their edges *d* bent laterally from their edges *c* and constructed to engage the base of a cartridge to retain it in the holder.

482,377. ARTIFICIAL TOOTH. JOHN W. MOFFITT, Philadelphia, Pa., assignor to Peter McGill, Lambertville, N. J. Filed Nov. 18, 1891. Serial No. 412,261. (No model.)



Claim.—1. The combination, with an artificial tooth provided with a transverse perforation and with a lateral groove or grooves extending rearwardly therefrom, of a wire extending through said perforation and projecting rearward of the tooth, the sides of the wire being engaged with said groove or grooves, substantially as described.

2. The described artificial tooth provided with the transverse perforation and with the groove extending rearwardly from the ends of said perforation, the latter and the groove being adapted to receive a wire, substantially as described.

482,378. AUTOMATIC BRAKE. THOMAS A. MCCANDLESS, Irving, Kans. Filed Apr. 9, 1892. Serial No. 428,594. (No model.)

Claim.—1. In a brake, the combination, with a running-gear, of a brake-bar provided at its ends with arms forming extensions of the brake-bar and hinged to the same at their inner ends and at their upper edges and adapted to swing upward, the springs secured to the upper face of the brake-bar and engaging the upper faces of the arms to force the latter downward, and the clips arranged beneath the arms and having rectangular portions to receive the same and provided at their front ends with upwardly-inclined guiding portions, substantially as described.

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formation on its forward end, a car-coupling device formed on or fixed thereto, a vertical bore extended therethrough, and a horizontal bore intersecting it, an air-conducting pipe or hose in the lower end of the said vertical bore, a valve-stem in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the said valve-stem and terminating at its side in alignment with the said horizontal bore, and means for automatically turning the said stem in the bore, so as to cut off or establish a continuity of air-conducting passages from the said horizontal bore when two mating draw-heads come together.

conducting pipe or hose inserted in the lower end of the said vertical bore, a valve-stem in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the valve-stem and terminating at its side in alignment with the said horizontal bore, a spring-actuated pawl secured to the top of the said valve-stem, whereby its bore is normally retained out of alignment with said horizontal bore and which is adapted to engage parts of a mating draw-head and bring the said bores into alignment when brought into contact therewith, a concentrically-bored connecting-plate in the side face of the draw head, mounted therein in such a manner as to be capable of a limited lateral movement relative to the draw-head, and yielding pressure devices normally holding the same outwardly from the draw-head

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2. In a brake, the combination, with a running-gear having a longitudinally-movable tongue, and an arched plate 22, secured to the tongue and provided with a slot, of a vertical lever having a tongue-opening to receive the tongue and fulcrumed on the pivot of the latter and having its upper end arranged in the slot of said plate 22, a transverse bar provided with keepers, a brake-bar arranged in the keepers and having hinged arms carrying brake-shoes, brake-levers fulcrumed intermediate their ends and having their outer ends connected with the brake-bar, and a connecting-rod connected with the inner ends of the brake-levers and the lower end of the vertical lever, substantially as described.

482,879. FIRE-ALARM. JOHN C. F. MCGRIFF, Los Angeles, Cal. Filed Sept. 1, 1891. Serial No. 404,420. (No model.)



Claim.—1. In a fire-alarm, the combination, with a shell or casing containing an explosive, of a fuse and a fuse-protecting case inclosing the fuse and secured to the shell or casing and projecting outward therefrom, said fuse-protecting case being adapted to be broken by an undue rise in temperature.

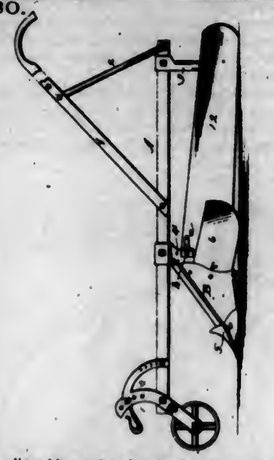
2. In combination with the outer shell *a*, provided with the hole *b*, the inner shell provided with a socket *d*, coinciding with the opening *b* and with a fuse-opening L, a fuse B, projecting through the opening, and a fuse-case C, inclosing the projecting end of the fuse and secured within the socket, said fuse-case being adapted to be broken by an undue rise in temperature.

482,880. DOUBLE-MOLD-BOARD PLOW. CHARLES H. PARSH, Locke, N. Y. Filed Apr. 6, 1892. Serial No. 428,087. (No model.)

Claim.—1. In a hiller, the combination, with the runners and beam mounted thereon, of the plow-head and the point secured thereto, wings loosely secured to the plow-head, and mold-boards secured to the runner and adapted to have their rear ends adjusted vertically and laterally, as set forth.

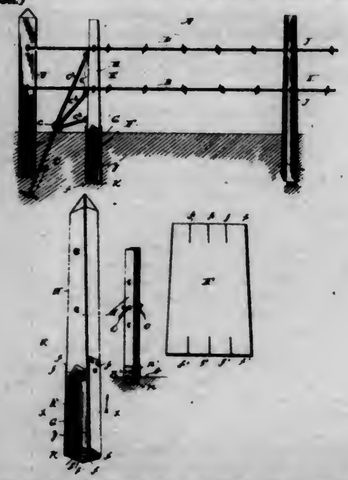
2. In a hiller, the combination, with the runners and the beam mounted thereon, of the plow-head, the point secured thereto, forward

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wings secured adjustably to the plow-head, and rear wings secured loosely to the forward knee of the runner and adapted to be adjusted at their rear ends laterally and vertically, as set forth.

482,381. COMBINED FENCE POST AND BRACE. PAUL PEARSON, Kearney, Mo., assignor of one-half to Zenas F. Milbourn, same place. Filed Aug. 15, 1890. Renewed Feb. 9, 1892. Serial No. 420,922. (No model.)



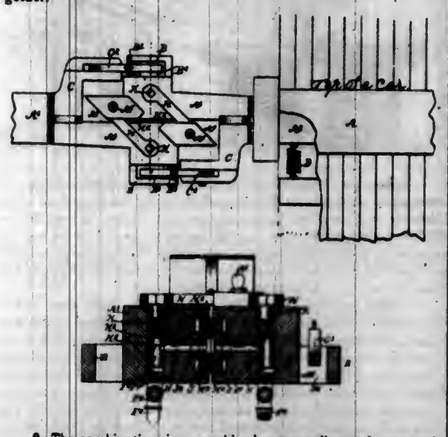
Claim.—1. In a fence-post, the combination of the post proper with the base portion consisting of a receptacle to receive ballast, said base portion being formed of a single piece of metal Z-shaped in cross-section, fastening devices formed thereon to secure the post proper thereto, and a bottom to close the lower end of the said receptacle, formed by upturned ends of the sides thereof, substantially as described.

2. In a fence-post, a post proper, a ballast-receptacle at the lower end thereof, formed of a single piece of metal, ears *f*, formed integral with said base-section for receiving the post proper thereto, ears *f'*, formed integral with the lower end of the lower section and bent at right angles to close said end, a series of brace-rods c^3, secured to the post, and an anchor D, provided at its upper end with a device for receiving and holding the brace-rods, substantially as described.

482,382. COMBINED AIR-BRAKE AND CAR-COUPLING. PERRAS PELTON, Persia, Iowa. Filed Apr. 26, 1892. Serial No. 430,905. (No model.)

Claim.—1. The combination, in a combined car-coupling and automatic air-brake hose-coupling, of a draw-bar having an enlarged

formation on its forward end, a car-coupling device formed on or fixed thereto, a vertical bore extended therethrough, and a horizontal bore intersecting it, an air-conducting pipe or hose in the lower end of the said vertical bore, a valve-stem in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the said valve-stem and terminating at its side in alignment with the said horizontal bore, and means for automatically turning the said stem in the bore, so as to cut off or establish a continuity of air-conducting passages from the said horizontal bore when two mating draw-heads come together.



2. The combination, in a combined car-coupling and automatic air-brake hose-coupling, of a draw-bar having an enlarged formation on its forward end, a car-coupling device formed on or fixed thereto, a vertical bore extending therethrough, and a horizontal bore intersecting it and extended toward the face thereof which would contact with a like surface on a mating draw-head, an air-conducting pipe or hose inserted in the lower end of the said vertical bore, a valve-stem in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the said valve-stem and terminating at its side in alignment with the said horizontal bore, and a spring-actuated pawl secured to the top of the said valve-stem, whereby its bore is normally retained out of alignment with the said horizontal bore and which is adapted to engage parts of a mating draw-head and bring the said bores into alignment when brought into contact therewith.

3. The combination, in a combined car-coupling and automatic air-brake hose-coupling, of a draw-bar having an enlarged formation on its forward end, a car-coupling device formed on or fixed thereto, a vertical bore extending therethrough, and a horizontal bore intersecting it and extending toward the side face of the draw-head, an air-conducting bore or pipe inserted in the lower end of the said vertical bore, a valve-stem in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the valve-stem and terminating at its side in alignment with the said horizontal bore, means for automatically turning the said valve-stem in the bore, a concentrically-bored connecting-plate in the side face of the draw-head, mounted therein in such a manner as to be capable of a limited lateral movement relative to the draw head, and yielding pressure devices normally holding the same outwardly from the draw-heads.

4. The combination, in a combined car-coupling and automatic air-brake hose-coupling, of a draw-bar having an enlarged formation on the forward end, a car-coupling device formed on or fixed thereto, a vertical bore extending therethrough, and a horizontal bore intersecting it and extending toward the side face of the draw-head, an air-conducting hose or pipe inserted in the lower end of the said vertical bore, a valve-stem in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the valve-stem and terminating at its side in alignment with the said horizontal bore, means for automatically turning the said valve-stem in the bore, a concentrically-bored connecting-plate in the side face of the draw-head, mounted therein in such a manner as to be capable of a limited lateral movement relative to the draw-head, and yielding pressure devices normally holding the same outwardly from the draw-heads, and yielding pressure devices normally tending to hold the draw-bar toward the side thereof on which the said connecting-plate is located.

5. The combination, in a combined car-coupling and automatic air-brake hose-coupling, of a draw-bar having an enlarged formation on its forward end, a car-coupling device formed on or fixed thereto, a vertical bore extending therethrough, and a horizontal bore intersecting it and extending toward the side face of the draw-head, an air-conducting pipe or hose inserted in the lower end of the said vertical bore, a valve-stem in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the valve-stem and terminating at its side in alignment with the said horizontal bore, a spring-actuated pawl secured to the top of the said valve-stem, whereby its bore is normally retained out of alignment with said horizontal bore and which is adapted to engage parts of a mating draw-head and bring the said bores into alignment when brought into contact therewith, a concentrically-bored connecting-plate in the side face of the draw-head, mounted therein in such a manner as to be capable of a limited lateral movement relative to the draw-head, and yielding pressure devices normally holding the same outwardly from the draw-head.

6. The combination, in an air-brake hose-coupling, of a draw-bar having an enlarged head, a vertical bore in the said head, a horizontal bore intersecting it and extending toward its side, an air-conducting pipe or hose inserted in the lower end of the said vertical bore, a valve-stem inserted in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the valve-stem and terminating in its side in alignment with the said horizontal bore, and means for turning the said stem so as to cut off or establish a continuity of air-conducting passages from the said hose to the side of the draw-head.

7. The combination, in an air-brake hose-coupling, of a draw-bar having an enlarged head, a vertical bore in the said head, a horizontal bore intersecting it and extending toward its side, an air-conducting pipe or hose inserted in the lower end of the said vertical bore, a valve-stem inserted in the upper end of the said vertical bore, a bore extending upwardly from the lower end of the valve-stem and terminating in its side in alignment with the said horizontal bore, and a spring-actuated pawl secured to the top of the said valve-stem and adapted to normally hold the said bores out of alignment with each other and to engage a portion of the mating draw-head and bring the said bores into alignment when brought in contact with a mating draw-head.

8. The combination, in an automatic air-brake hose-coupling, of a draw-head, an air-conducting pipe or hose inserted in a bore in the said draw-head, which extends to its side, a connection-plate secured to its side, having a concentric bore which communicates with the aforesaid bore, said plate being capable of limited lateral movement relative to the draw-head, and yielding pressure devices normally holding the said plate outwardly from the draw-head.

9. The combination, in an automatic air-brake coupling, of a draw-head, an air-conducting pipe or hose inserted in a bore in the said draw-head, which extends to its side, a connection-plate removably attached to its side and having a concentric bore which communicates with the aforesaid bore, said plates being capable of a limited lateral movement relative to the draw-head, a rubber cushion having a concentric opening placed between the said plate and draw-head, and yielding pressure devices applied to the draw-bar to normally hold it toward its side in which the said connection-plate is located.

10. A combined automatic car-coupling and automatic air-brake hose-coupling comprising a draw-bar, a draw-head divided vertically into two parts, a hook having an inclined forward surface, pivoted to the outer end of one of the ends of the draw-head, and a projection having a wall that extends at right angles to the draw-head, having an inclined forward surface on the other portion of the draw-head, an air-conducting pipe or hose inserted in the said draw-head, and the mechanism, substantially as shown and described, for automatically establishing a continuity of air-conducting passages to a portion thereof which contacts with a like surface on a mating draw-head.

11. A combined automatic car-coupling and automatic air-brake hose-coupling comprising a draw-bar having a draw-head, substantially as described, the coupling device secured therein, as shown, an inclined front surface on the draw-head, extending above the level of the draw-head, a vertical bore in the said draw-head, air conducting pipe or hose inserted therein, a valve-stem having the spring-actuated pawl adapted to engage the said inclined surface of the draw-head, substantially as shown and described, a connecting-plate secured to the side of the draw-head, as set forth, and the link-cavity and intersecting pin-bore in the forward end of the draw-head, substantially as shown and described, to operate in the manner set forth.

482,883. CLOTHES-PIN. WILLIAM L. PIKE, Groton, N. Y. Filed Apr. 23, 1892. Serial No. 430,332. (No model.)

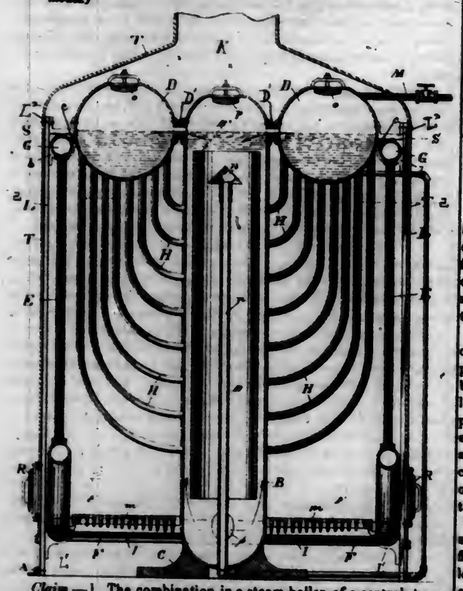


Claim.—1. A clothes-pin constructed from a single piece of wire bent to form loops constituting angularly-diverging gripping-jaws and a spring-arm carrying a head normally extending substantially across the space between said jaws.

2. A clothes-pin constructed from a single piece of wire bent to

form loops constituting angularly-diverging gripping-jaws and a spring-arm carrying a head normally extending angularly upward and substantially across the space between said jaws.

482,384. STEAM-BOILER. MICHAEL H. FLEMERTY, Baltimore, Md., assignor of fifty-one one-hundredths to Washington Bowie and Elijah J. Bond, same place. Filed Dec. 26, 1891. Serial No. 416,139. (No model.)



Claim.—1. The combination, in a steam-boiler, of a central steam and water chamber with two or more spheroids arranged around the upper end thereof and forming steam and water chambers and connected to said central chamber by steam and water passages, substantially as set forth.

2. The combination, in a steam-boiler, of a central steam and water chamber with two or more spheroids arranged around the upper end thereof and forming steam and water chambers and connected to said central chamber by steam and water passages and water connections between the said spheroids and the lower end of the said central chamber, substantially as set forth.

3. The combination, in a steam-boiler, of a central steam and water chamber, two or more spheroids connected thereto, a circular water-ring arranged around and outside said spheroids, with a base water-ring and pipes connecting the said water-rings and forming thereby a water-jacket for the furnace, substantially as set forth.

4. The combination, in a steam-boiler, of a central steam and water chamber, two or more spheroids connected thereto, a circular water-ring arranged around and outside said spheroids, a base water-ring arranged around the grate, pipes connecting said water-rings and forming thereby a water-jacket around the furnace, with pipes connecting said base water-ring and the lower end of the central chamber, substantially as set forth.

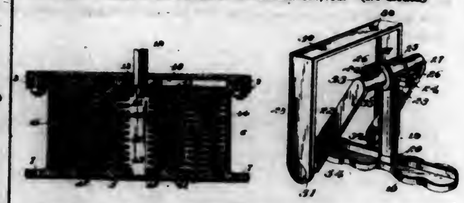
5. The combination, in a steam-boiler, of a central steam and water chamber with two or more spheroids arranged around the upper end thereof and connected to said central chamber and an open-ended cylinder arranged within the said central chamber for promoting the circulation, substantially as set forth.

6. The combination, in a steam-boiler, of a central steam and water chamber, two or more spheroids arranged around the upper end thereof and connected to said central chamber, with a feed-water heater arranged between the spheroids and pipes conveying the water from the feed-water heater to the central chamber, substantially as set forth.

7. The combination, in a steam-boiler, of a central steam and water chamber, two or more spheroids arranged around the upper end thereof and connected to said central chamber, with a series of feed water heaters arranged within the furnace between the spheroids and having fire-tubes therethrough and pipes connecting said feed-water heaters with the said central chamber, substantially as set forth.

8. A steam-boiler having a vertical central steam and water chamber, a series of spheroids arranged around the upper end thereof and connected to said central chamber, in combination with a water-jacket around the furnace, consisting of vertical water-tubes connected to upper and lower water-rings, said rings being respectively in communication with the spheroids and the lower end of the said central chamber, substantially as set forth.

482,385. SPRING FOR VEHICLES. HARRY R. RAUDENBUSH, Vicksburg, Pa. Filed June 23, 1892. Serial No. 437,752. (No model.)



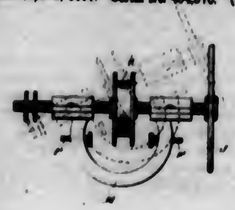
Claim.—1. The combination, with the vehicle-body and front and rear axles, of the series of intermediate spring-boxes, each of which consists of a metal box having an opening in its top, an intermediate follower-plate, a post extending through the opening in the top and connected to the follower-plate, and sets of double springs coiled in reverse directions and interposed between the follower-plate and bottom of the box, substantially as specified.

2. The combination, with the body and axle, of the metal box secured to the axle, the superimposed cover, the intermediate follower-plate, the under side of the follower-plate and the upper side of the bottom being provided with a series of vertically-opposite cylindrical lugs and encircling flanges, coiled springs located between the follower-plate and bottom of the box and encircling at their upper and lower ends said lugs, the series of external springs coiled at variance with and encircling the first-mentioned springs and having their ends encompassed by the annular flanges, the post passed through the top of the box and secured to the follower-plate, and connections between the post and body, substantially as specified.

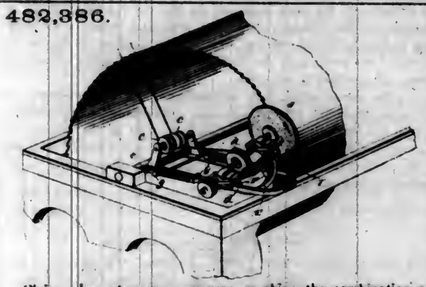
3. The combination, with the vehicle-body and axle, of the intermediate box having corrugated sides, a bottom having circular flanges, opposite end lugs having perforations and cylindrical lugs located in and concentric with the flanges, perforated lugs at the upper edge of the box, a flanged cover fitting the box and provided with an opening-bolt connecting the cover with the upper lug and bolts connecting the lower lug with the axle, an intermediate centrally-perforated follower-plate the under side of which is provided with depending lugs encircled by flanges, sets of inner and outer reversely-coiled springs encircling the lugs of the plate and bottom and encompassed by the flanges of the same, the vertical post passing loosely through an opening in the cover and having its lower end reduced to form a tenon passing through the follower-plate and secured against withdrawal, and a shackle connecting the upper end of the post with the body, substantially as specified.

4. The combination, with the body having the facing-strips, the axles, the side-connecting bars, the transverse bars, and the depending U-shaped hangers secured to the body near the corners thereof and provided near their lower ends with transversely-opposite bearing-openings, of the series of boxes secured to the transverse bars and provided with perforated covers, follower-plates mounted in the boxes, coiled springs interposed between the bottoms of the boxes and the under sides of the follower-plates, posts extending through the openings in the cover and secured at their lower ends to the follower-plates, said posts having their upper ends terminating in transverse heads forming opposite perforated lugs and intermediate bearings, clips surmounting the heads, bolted thereto and completing the bearings, and inverted-U-shaped bails having their transverse cylindrical portions loosely journaled in the bearings and their lower extremities oppositely and laterally disposed to form journal-lugs for engaging with the openings of the inverted-U-shaped hangers, substantially as specified.

482,386. STAVE-SAW GUMMER. AARON SCANABORN, Parsley, W. Va. Filed Sept. 2, 1891. Serial No. 404,570. (No model.)

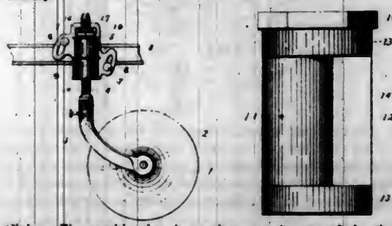


482,386.



Claim.—In a stave-saw-gumming machine, the combination of the base-plate B, the frame pivoted to the base-plate, the slotted yoke E, secured to the frame by thumb-screws, the slidable mandrel or arbor carrying the grinding-disk, journaled in the yoke, and the pulleys and belt, all arranged and operating substantially as described.

482,387. ATTACHMENT FOR PLOW-COLTERS. JOHN C. F. SCHNOOR, Moline, Ill. Filed June 28, 1892. Serial No. 438,270. (No model.)



Claim.—The combination, in a colter attachment, of the clamp-plate provided with the projection having a vertical circular opening therein, the sleeve adapted and constructed to fit in such opening, such sleeve provided with the vertical circular eccentric opening adapted and constructed to receive the colter-shank, the octagonal projection at the upper end of such sleeve, the horizontal opening at the upper end of said clamp-plate, the threaded eyebolt adapted and constructed to encircle said colter-shank and its end to pass through said horizontal opening, and the nut for securing such eyebolt and colter-shank in the desired position, substantially as described.

482,388. PAD FOR BED-PANS. KATHARINE A. SHAFFER, Harrisburg, Pa. Filed May 9, 1892. Serial No. 432,343. (No specimens.)



Claim.—1. An improved inflatable bed-pan pad provided with hooks which are adapted to engage with the rim about the orifice of a bed-pan, said pad being secured to the bed-pan and folded under the same, thus forming a cushion for the upper and lower surfaces of the pan, substantially as shown and described.

2. The combination, with the bed-pan, of an inflatable pad, one end being depressed by tacking and cut on the arc of a circle, and hooks secured to said curved end adapted to engage with the rim about the orifice of a bed-pan, substantially as shown and described.

3. As an improved article of manufacture, an inflatable bag composed of rubber, provided with hooks and an inflating-tube, and the rivets for securing the sides together, substantially as shown and described.

482,389. VENTILATOR. JOSEPH SKOOG and FRANK SKOOG, Milwaukee, Wis. Filed Feb. 1, 1892. Serial No. 420,671. (No model.)



Claim.—1. In a ventilator, the combination, with a plate or door provided with vent-holes, of a bell-shaped covering therefor provided with depending lugs bearing upon the plate, exit-openings for the foul air being formed between the non-contacting edge of the covering and the top of the plate, substantially as set forth.

2. In a ventilator, the combination of a plate or door having vent-holes therein, tubes fitted in said holes and extending above the plate or door, and a covering for each tube free from contact with the upper end thereof, provided with an interior depending annular flange surrounding the upper end of the tube, but free from contact therewith, substantially as set forth.

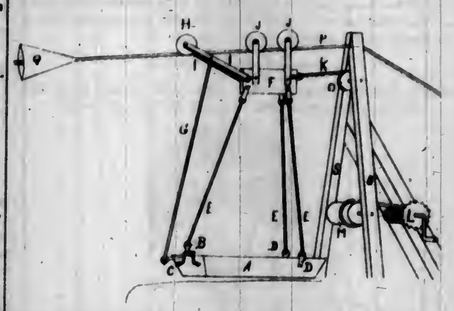
3. In a ventilator, the combination of a plate or door having vent-holes therein, tubes fitted in said vent-holes, each having an externally-tapering upper end and provided with a medial annular flange above the plate or door, said flange having a sigmoidal bend to form an outer annular convexity and an inner annular concavity or groove, and a top or covering for the tube extending over the same and free from contact therewith, provided with a depending internally-tapering flange surrounding the tube, forming an annular space, said flange terminating at a point above the groove, and the edge of the covering supported a slight distance above the top of the plate or door, substantially as set forth.

4. In a ventilator, the combination of a plate or door having a vent-hole therein, a tube inserted in said hole provided with a medial annular flange above the plate or door, said flange having a sigmoidal bend or flexure forming an under outer annular chamber and an inner upper concavity, and a top or cover supported above the tube, so as to leave a free air-space to the top thereof, substantially as set forth.

5. In a ventilator, the combination of a plate or door having vent-holes therein, tubes fitted in said vent-holes, a covering for each tube provided with exit-ports for the passage of the foul air to the external atmosphere, yokes beneath the plate or door provided with upwardly-extending arms, the ends thereof bearing against the under surface of said plate or door, and screws passing through the tubes and having their opposite ends engaging, respectively, the covers and yokes, substantially as set forth.

6. In a ventilator, the combination, with a plate or door having vent-holes therein, of tubes inserted in said vent-holes, each tube provided with a medial annular convex flange, said convexity forming an under annular chamber, and a top or cover supported above the tube, so as to leave a free air-space to the top thereof, substantially as set forth.

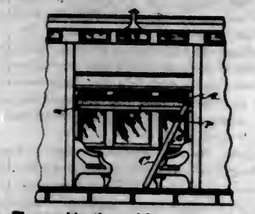
482,390. SELF-ACTING DUMPING APPARATUS. JAMES C. SMITH and CHARLES LARIMER, Topeka, Kans. Filed May 26, 1892. Serial No. 434,400. (No model.)



Claim.—1. In a dumping apparatus, a platform suspended under an elevated inclined cable, said platform having eye-joints on each side near one end and a loop hinged in the middle of the other end, in combination with a hook engaging said loop, a trolley on said inclined cable, two ropes connecting one end of the trolley with the eye-joints on the platform and secured therein, a rope connecting the other end of the trolley with the stem of the hook, a pulley on the inclined cable connected to the trolley by a pair of lever-arms pivoted to said trolley, a rope extending from said lever-arms to one end of the hook, a reverse incline rigidly secured to the inclined cable at place of dump, and suitable power connected by rope to the trolley to return the platform to its place after dumping, all substantially as described.

2. In a dumping apparatus, the receptacle A, in combination with the lever-lock attachment B, loop C, eye-joints D D, wire ropes E E E, trolley F, wire rope G, pulley H, pair of lever-arms I I, wire rope K, windlass L, drum M, pulley O, elevated inclined wire cable P, reverse incline Q, posts R R, and posts S S, all substantially as described.

482,391. FOLDING STEP FOR CAR-BERTHS. HARRY C. STANLEY, New York, N. Y. Filed Nov. 21, 1891. Serial No. 412,640. (No model.)



Claim.—1. The combination, with a car or state-room berth, of a ladder pivoted by one end to rock into a plane parallel with the rails of the berth and adapted to fold toward the berth's front rail when elevated, substantially as described.

2. The combination, with a berth-frame, of a folding ladder secured by its upper end to the upper end of the berth and means to elevate the ladder and retain it parallel with the front rail of said berth-frame, substantially as described.

3. The combination, with a berth-frame, of a ladder composed of two channeled side bars and jointed step-pieces adapted to lie in the channels of the bars and a device which elevates and normally retains the ladder in a plane parallel with the front rail of the berth-frame, substantially as described.

4. The combination, with a berth-frame having its front rail slotted, of a folding ladder which incloses its steps when folded and is loosely held in connection with the frame near one end and adapted to occupy the slot of the frame-rail when in a folded condition, substantially as described.

5. The combination, with a rectangular berth-frame, a slide-bar loosely secured on the top bar of the frame, and a torsional spring thereon, of a folding ladder having its top cross-bar rule-jointed to the end of the slide-bar and a side bar thereof engaged by one end of the torsion-spring, substantially as described.

6. The combination, with a rectangular berth-frame having its front cross-bar longitudinally and laterally slotted, a slide-bar loosely secured on the inner side of the top cross-piece of the berth-frame, so as to be adapted to slide longitudinally, an extension-piece rule-jointed on one end of the slide-bar, a torsion-spring on said bar, and a guide-bar loosely engaged by one end of the torsion-spring, of a ladder comprising two channeled side bars and a series of step-pieces jointed at their ends within the channels of the side bars, the extension-piece of the slide-bar being joined at one end to the outer side bar of the ladder and the inner side bar thereof connected with the remaining end of the torsion-spring, substantially as described.

482,392. CUSHION FELLY AND TIRE. CHARLES STEIN, Meadville, Pa. Filed Dec. 2, 1891. Serial No. 413,795. (No model.)



Claim.—1. The combination, with the felly having side sockets and having a central bent portion shaped to fit against the main part thereof, of a tire adapted to fit in the sockets of the fellies, substantially as described.

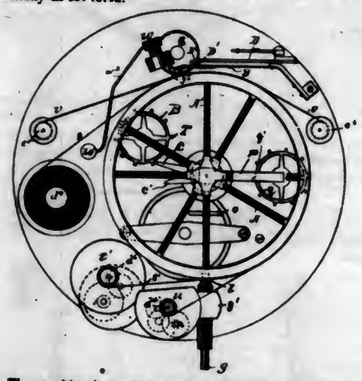
2. The combination, with the felly having side sockets and the central bend, the middle portion of the bend bearing against the body portion of the felly, of the hollow tire having a concaved inner portion and having shoulders to fit in the sockets of the felly, substantially as described.

3. The combination, with the spring-acting felly having retaining-sockets, of the hollow tire adapted to be seated in the sockets, the tire having a concave inner side to give it a double cushion action, substantially as described.

482,393. SPEED AND WHISTLE RECORDER FOR LOCOMOTIVE-ENGINES. BENJAMIN F. STOCKTON, South Bend, Ind. Filed Aug. 17, 1891. Serial No. 402,894. (No model.)

Claim.—1. The combination, with a clock-train and two wheels, one actuated by the clock-train and the other by the travel of the locomotive, of two ribbons, one passing over each wheel, a marking-point resting over both ribbons, and a device actuated at regular intervals by the clock-train for forcing the marking-point toward the ribbon, substantially as set forth.

2. The combination, with a clock-train and two ribbons, one moved longitudinally by the clock-train and suitable feeding mechanism and the other by devices actuated by an axle of the locomotive, of a marking-point resting over both ribbons and a device actuated by the clock-train for forcing said marking-point toward the ribbons, substantially as set forth.



3. The combination, with a clock-train and two wheels, one actuated by the clock-train and the other by the travel of the locomotive, of two ribbons, one passing over each wheel, a marking-point adapted to make an impression on both ribbons, and a device connecting such marking-point and the whistle-actuating devices, substantially as set forth.

4. The combination, with a clock-train and two ribbons, one actuated by the clock-train and the other by devices connecting it with a car-axle, of a device actuated by the whistle-operating devices for forcing the marking-point toward the ribbons and making impressions thereon, substantially as set forth.

5. The combination, with a wheel having characters on its periphery, devices for actuating said wheel by the travel of the locomotive, a second wheel having characters on its periphery, and a clock-train for actuating said latter wheel, of a ribbon passing over each wheel and a marking-point adapted to strike the ribbons intermittingly and impress thereon the characters immediately below the marking-point, substantially as set forth.

6. The combination, with a wheel actuated by the travel of the locomotive, a time-train, and a wheel actuated by the time-train, both wheels having characters on their peripheries, and ribbons resting on said wheels and adapted to move therewith, of a roller for holding a portion of one ribbon continuously in contact with the periphery of its wheel and an intermittingly-actuated marking-point adapted to force both ribbons into contact with their respective wheels, substantially as set forth.

7. The combination, with a clock-train and two ribbons, one actuated by the travel of the locomotive and the other by the clock-train, of devices for marking the distance traveled on one ribbon and devices for marking intervals of time on both ribbons.

8. The combination, with a clock-train and two wheels, one actuated by the travel of the locomotive and provided with characters, each character representing a mile or fraction of a mile, and the second wheel actuated by the clock-train and provided with characters each representing a fraction of an hour, of a ribbon for each wheel, and means for impressing on one ribbon the characters representing a mile or fraction thereof, and devices for making impressions on both ribbons at regular intervals of time, substantially as set forth.

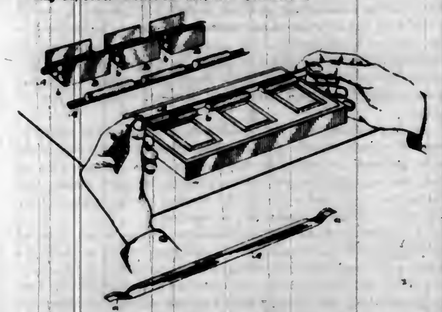
9. The combination, with a clock-train, two wheels, one actuated by the travel of the locomotive and the other by the clock-train, and a ribbon passing over each wheel, of devices for making impressions on both ribbons at regular intervals of time and devices for making impressions on both ribbons every time the whistle is opened and closed, substantially as set forth.

10. The combination, with a clock-train and two independent ribbons, one moved by the travel of the locomotive and the other by the clock train, of devices for marking on one ribbon characters representing the miles and fractions of a mile traveled and devices for marking characters on both ribbons at regular intervals of time, substantially as set forth.

11. The combination, with a clock-train and two independent ribbons, one actuated by the travel of the locomotive and the other by the clock-train, of devices for marking on one ribbon characters representing miles and fractions of miles traveled and devices for imprinting characters on both ribbons, each of the latter characters representing a fraction of an hour.

12. The combination, with a clock-train and two ribbons free to move at unequal speeds, one ribbon actuated by the travel of the locomotive and the other by the clock-train, of means for imprinting on one ribbon characters each representing the fraction of a mile, devices actuated by the clock-work for imprinting on both ribbons characters each representing a fraction of an hour, and a device connected to the whistle blowing mechanism and adapted to make impressions on both ribbons every time the whistle is opened and closed, substantially as set forth.

482,394. CORE-SETTER. JAMES D. STORIE, Oshawa, Canada. Filed July 16, 1891. Serial No. 399,968. (No model.)



Claim.—1. The combination, in a core-setter, of a bin or bins constructed to contain two or more series of cores in alignment and an elongated receptacle adapted for insertion in said bin or bins to receive a core from each series, substantially as described.

2. The herein-described method of molding, consisting in arranging two or more series of cores in alignment and at distances apart corresponding to the distance between the respective core-prints they are intended to fill and moving a core from each series at one operation and depositing these cores in the core-prints, the relative positions of the cores being maintained throughout the operation, substantially as described.

482,395. BURR AND SHIVE EXTRACTOR FOR CARDING-MACHINES. WILLIAM SULLIVAN, Cherry Valley, Mass. Filed Feb. 23, 1892. Serial No. 423,407. (No model.)

Brief.—The burrs are removed by a comb having a longitudinal, vertical, and a lateral adjustment.



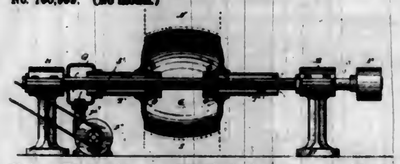
Claim.—In a carding-machine, the combination, with a frame, of two brackets secured to the inner side thereof underneath the licker-in or tumbler roll, each bracket consisting of two wide flat arms arranged at right angles to each other, one of which arms forms the base of the bracket and said arms being each provided with a slot and occupying a vertical plane when secured to the frame, the slot in the base being longitudinal, whereby the bracket may be adjusted horizontally relatively to the roll, and the slot in the other arm being transverse or vertical, and one arm of each of said brackets projecting toward the corresponding arm of the opposite bracket, and a bar secured to the projecting portions of said brackets, having a comb upon its upper edge and provided with a longitudinal slot at each end, whereby said bar when secured to the brackets occupies a vertical position and is adjustable longitudinally and vertically thereon, substantially as set forth.

482,396. ART OF MANUFACTURING SHEET-IRON. BENJAMIN TALBOT, Chattanooga, Tenn. Filed Mar. 26, 1892. Serial No. 426,497. (No specimens.)

Claim.—1. That improvement in the art of manufacturing continuous sheets of metal which consists in pouring molten cast-iron into the space between two rolls revolving toward each other and solidifying the iron by their cooling action and subsequently decarburizing the continuous sheet thus produced.

2. That improvement in the art of manufacturing decarburized sheets of metal which consists in pouring pure molten carbide of iron into the space between two rolls revolving toward each other and solidifying the iron by their cooling action and subsequently decarburizing the sheets of metal thus produced.

482,397. VENTILATING-ARMATURE FOR DYNAMO-ELECTRIC MACHINES. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Apr. 2, 1885. Serial No. 160,998. (No model.)



Claim.—The combination, with the hollow armature, of the tubular extensions T T', encircling the armature-shaft at opposite ends of the armature, a box or casing Q in which the end of one extension revolves, a pipe P', connected with said box, and a blower F, as and for the purpose described.

482,398. WAGON-BODY. GEORGE F. THOMPSON, Minneapolis, Minn. Filed Nov. 7, 1891. Serial No. 411,143. (No model.)

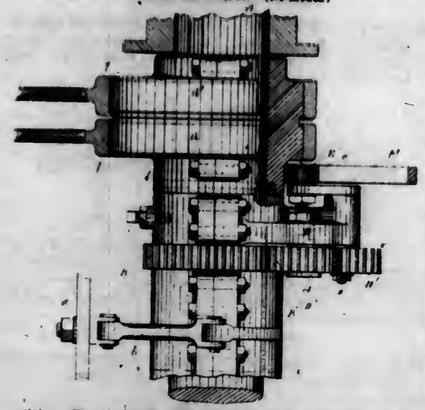


Claim.—1. The combination, in a wagon-body, of the sill and a panel, with a bolt secured in said sill and having its head standing slightly above the same, the metal post having the slotted base adapted to be forced into engagement with said bolt, said post arranged on the inside of said panel, the inwardly-extending leg or foot of said post, means for securing the same upon the sill, the side legs of said post, and screws passing through said legs into the panel to secure the same, substantially as described.

2. The combination, in a wagon-body, of the sills and sides thereof, with the hollow metal posts, said posts provided with the feet 14, adapted to be screwed to the sills, and with the internal shoulders and the bolts passing through the sill beneath each post and having their heads engaging the internal shoulders thereof, and side lugs 12 on each post, the same provided with screw-holes and screws passing through the same into the panel, substantially as described.

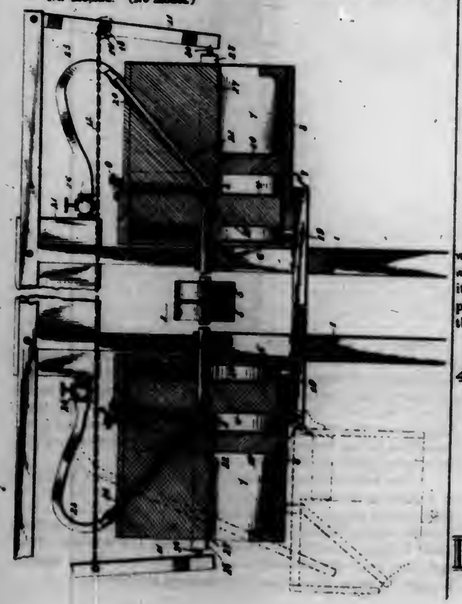
3. The combination, with the sill 2 and the panel 4, of the rib 5, the hollow metal post 7, provided with the shoulder 8 to engage the under side of the rib 5 and with the lug 10 to engage the inner face of said rib 5, a bolt passing through the panel and said rib and secured by a nut engaging the inside face of the lug 10, a shoulder 19, having a slot 20, provided in the base of the post, a bolt 16, extending down through the sill, its upper end engaging said shoulder 19, a nut on the lower end of the bolt for securing the same, and side lugs 12 on the post, through which screws are inserted into the panel to secure said panel, substantially as described

482,399. VALVE-GEAR. CARL R. TIDBLAD, Jamaica Plain, Mass. Filed Jan. 6, 1892. Serial No. 417,109. (No model.)



Claim.—The improved valve-gear as described, consisting, in combination with a rotating shaft and a stationary gear arranged on said shaft, of an arm secured to the latter and having a pinion meshing in the stationary gear, and a crank connected to said pinion and adapted to actuate an arm loosely journaled on the rotary shaft and connected to one or more eccentrics, substantially as and for the purpose set forth.

482,400. GRINDER. JOSEPH R. TRAWICK, Spear, N. C., assignor of three-fourths to Henry R. Jones and Thomas R. Vance, same place, and George H. Zimmerman, Cranberry, N. C. Filed Feb. 29, 1892. Serial No. 423,222. (No model.)



Claim.—1. In a grinding-mill, the combination of a hopper composed of a cylindrical stationary section provided with a discharge-opening and a hinged section, a shaft extending within the stationary section, a grinding-disk carried by the shaft and fitting snugly within the stationary section and having its periphery arranged close to the section, said grinding-disk being arranged between the discharge-opening and the hinged section, a water-supply pipe and a plunger arranged in the hinged section, substantially as described.

2. In a grinding-mill, the combination of a hopper having a stationary section provided with a discharge-opening and having a hinged section, the shaft, a grinding disk carried by the shaft and provided with a central recess, an inclined water-pipe mounted in the hinged section and having its inner end arranged in the recess of the grinding-disk, and a plunger arranged in the hinged section, substantially as described.

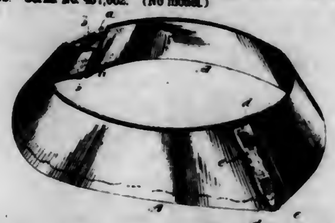
3. In a grinding-mill, the combination of a hopper composed of a stationary section provided with a discharge-opening, and a hinged section having a depending partition, a shaft, a grinding-disk carried by the shaft and arranged in the stationary section, an inclined water-pipe mounted on the partition and arranged to direct water upon the grinding-disk, and a plunger arranged in the hinged section and provided in its head with an opening to receive the partition and having bars arranged on opposite sides of the partition, substantially as described.

4. In a grinding-mill, the combination of a frame, the oppositely-disposed hoppers, a shaft, grinding-disks arranged on the ends of the shafts, plungers mounted in the hoppers, the levers fulcrumed on the frame and engaging the plungers to advance the same, a chain connecting the levers, and a windlass for winding up the chain and advancing the plungers, substantially as described.

5. In a grinding-mill, the combination of a frame, a tank mounted on the frame, a hopper composed of a stationary section and a hinged section, a grinding-disk mounted in the stationary section, a water-pipe mounted on the hinged section and arranged to discharge water from the grinding-disk and provided with a flexible section extending from the hopper to the tank and permitting the stationary section to be swung downward, substantially as described.

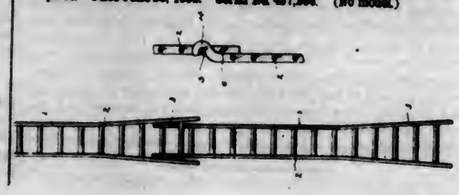
6. In a grinding-mill, the combination of a frame, hoppers mounted on opposite sides of the frame, a shaft, grinding-disks mounted on the ends of the shaft and arranged within the hoppers, plungers mounted in the hoppers, levers fulcrumed on the frame and engaging the plungers, a chain connecting the levers, and a windlass mounted on one of the levers and comprising a shaft, ratchet-wheels, and the detachable operating-levers engaging the ratchet-wheels and having adjustable weights, substantially as described.

482,401. BELT. JOSEPH TYNAN, Cohoes, N. Y. Filed June 22, 1892. Serial No. 437,602. (No model.)



Claim.—As an improved article of manufacture, a belt for the waist formed of a single piece of material having a downward and outward inclination to conform to the shape of the body at the waist, with its ends provided with securing means, a vertically-disposed stiffening-piece at the rear of the belt, and a similarly-disposed piece secured to the belt over said stiffening-piece, substantially as shown and described.

482,402. TOY EXTENSION-LADDER. RICHARD A. BOOTH, Bridgeport, Conn., assignor to the Ives, Blakeslee & Williams Company, same place. Filed June 20, 1892. Serial No. 437,366. (No model.)

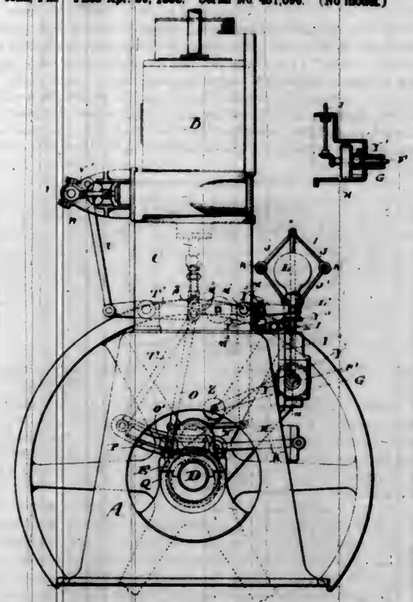


Claim.—A toy fire-ladder section consisting of side pieces and rounds, the lower ends of the side pieces inclining outward and the lower rounds being longest and the upper ends of the side pieces being curved forward and then recurved backward to form hook-shaped connecting devices having sockets on the inner sides of the side pieces to receive a round of another section of the ladder, and said sockets being deep enough so that when one round is engaged the round next below it will lie upon the outer side of said side pieces below the curves, substantially as shown and described.

482,403. INSECTICIDE. JOSEPH J. CARTER, Alvin, assignor to A. C. Hill and W. W. Maxwell, Travis County, Tex. Filed June 13, 1892. Serial No. 436,550. (No specimens.)

Claim.—The herein-described compound for the purpose described, consisting of sodium chloride, slaked lime, flour of sulphur, and bicarbonate of soda, substantially as specified.

482,404. SAFETY ATTACHMENT FOR ENGINE-GOVERNORS. FRANCIS W. DEAN, Cambridge, Mass., assignor to James H. Gamble, Daytona, Fla. Filed Apr. 20, 1892. Serial No. 431,096. (No model.)



Claim.—1. In combination with a steam-engine having mechanism for actuating its admission-valve, a governor arranged to act upon said mechanism to vary the throw of the valve, a belt operated by a rotating part of the engine and arranged to operate the governor, and a lever Y, arranged to act on the governor mechanism to diminish the throw of the valve, said lever being normally supported out of operation by the belt aforesaid and arranged, as described, to act on the governor mechanism only in case the belt breaks.

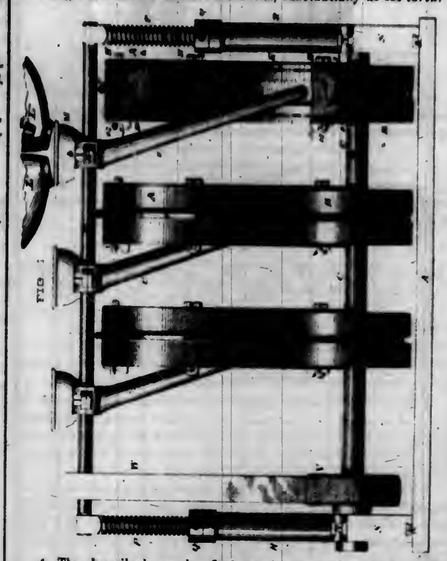
2. In combination with a steam-engine having mechanism for actuating its admission-valve, a governor arranged to act on said mechanism to vary the throw of the valve, a belt driven by a rotating part of the engine and arranged to drive the governor, a lever Y, pivotally supported at one end and supported on the belt at its other end, a lever M, forming part of the connection from the governor to the valve-actuating mechanism, and a lifter Y, arranged below said lever M and connected to lever Y, as described, and so as to raise lifting-lever M when the belt-supported end of lever Y falls.

482,405. APPARATUS FOR CASTING CYLINDRICAL BODIES. WILLIAM C. FARNUM, Chicago, Ill. Filed Feb. 9, 1888. Serial No. 263,436. (No model.)

Claim.—1. The combination of the annular flask inclosing annular cover-plates and inclosed annular mold, with space between said mold and flask, and yielding links and keys for uniting said side plate, mold, and flask and binding the parts of the combination together, substantially as specified.

2. The combination, with the revolving annular flask and inclosed mold, of a tubular runner having a funnel-shaped top attached to a removable bar supported by suitable standards, substantially as specified.

3. The combination, with a gang of revolving molds, of a corresponding gang of runners, each being attached by an adjusting-clamp to a common movable bar, and standards for supporting the same, said bar being removable from said standards, substantially as set forth.

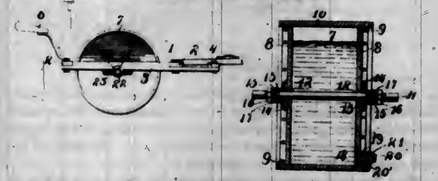


4. The described annular flask, having circumferential guiding groove or rib and carrying a concentric annular mold, in combination with a single pair of supporting-rollers, each ribbed or grooved to cooperate with the corresponding devices on the flask, by the revolution of one or both of which the flask is rotated independently of the other driving connections, substantially as described, and for the purposes set forth.

5. The combination, with a rotating annular flask carrying a mold, of two supporting-rolls, one or both of which may be drivers, and a suitable device connected with the bearings of said rolls, whereby they may be distended or brought together to accommodate flasks of different diameters, substantially as specified.

6. A gang of runners mounted on a single horizontal bar and vertically-adjustable supports for carrying said bar, in combination with a like gang of revolving molds and flasks mounted on a corresponding series of supporting and driving rolls, substantially in the manner described, and for the purposes set forth.

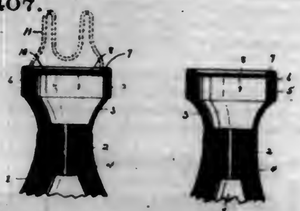
482,406. LAND-ROLLER. EDWARD GRIESDORFER, Pittsfield, Ill. Filed Feb. 15, 1892. Serial No. 421,589. (No model.)



Claim.—As an improvement in land-rollers, the herein-described roller, comprising a hollow cylindrical drum closed at its ends by heads having central apertures, flanged collars surrounding said apertures, a shaft passing through the latter and provided near its free or bearing ends with screw-threads, binding-nuts meshing with said threads, and a packing interposed between the flanged collars and the nuts, substantially as and for the purpose set forth.

482,407. CONVERTIBLE ATOMIZER AND SPRAYER. JOHN E. MAGEE, Toledo, Ohio. Filed Jan. 27, 1892. Serial No. 419,396. (No model.)

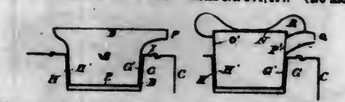
482,407.



Claim.—1. In combination, a compressible bulb, a top portion secured thereon having a plurality of foraminous diaphragms, and an intermediate removable fabric packing.

2. In a convertible atomizer and sprayer, a compressible bulb, a top portion secured thereon having a cup-shaped portion, and a flanged ring upon the same, in combination with an upper and lower foraminous diaphragm and an intermediate removable fabric packing, and a douche removably secured within the flange of the ring.

482,408. FAUCET AND BUNG. RIVERIUS MARSH, New Brunswick, N. J. Filed Nov. 14, 1890. Serial No. 371,417. (No model.)



Claim.—1. A faucet composed of a removable tapering shell or plug of sheet metal, with a spouted top and a solid bottom and an outer tapering and closely-fitting shell, also of sheet metal, attached to the can to receive the removable plug, both shells having discharge-orifices and vent-holes, substantially as herein set forth.

2. A faucet composed of a fixed outside shell and a rotatable inside shell, in combination with a horizontal shell upon the rotatable shell and a hollow rotatable plug or shell within the latter, each shell aforesaid being suitably provided with venting or discharge orifices, all as set forth.

3. A faucet having a rotatable inside shell of sheet metal provided with discharge-orifices and vent-holes, in combination with and closely fitting into a corresponding and spouted outside shell, also of sheet metal, with coinciding orifices and holes, substantially as set forth.

4. A faucet having a removable and rotatable sheet-metal plug with a closed bottom, in combination with a corresponding outer shell having its lower end cut at an incline, and a projecting wire in the plug engaging beneath the incline of the outer shell for holding the plug in place, substantially as herein set forth.

5. A faucet composed of an outer conical shell of sheet metal provided with venting and discharge orifices and a conical rotatable shell closely fitting the outer conical shell and provided with corresponding venting and discharge orifices, substantially as set forth.

482,409. PENCIL-CLASP. ERNEST W. MILDRUM, Berlin, assignor of one-half to William Honlen, Hartford, Conn. Filed Feb. 13, 1892. Serial No. 421,454. (No model.)



Claim.—1. A clasp consisting of three or more members bent into substantially the form of a figure 8, the alternate members crossing each other at the point corresponding to the crossing in that figure, whereby one of the openings is contracted by the expansion of the other opening, substantially as described.

2. A pencil-clasp having substantially the form of a figure 8, adapted to encircle and interlace a pencil and a compass-leg in its respective openings corresponding to those in that figure, whereby the clasp is tightened upon both the pencil and the compass-leg when one of them is tapering and is forced into its seat in the clasp, all substantially as described.
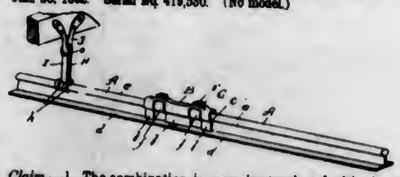
482,410. MANGLE. CARL A. OYBROE, Chicago, Ill. Filed Dec. 23, 1891. Serial No. 415,906. (No model.)

Claim.—1. In a mangle, a frame having standards, in combination with rollers rotatably secured in the standards of the frame, a roller of less diameter also rotatably secured in the standards of the frame, a handle detachably secured to such roller, the periphery of the first-named rollers in contact with the periphery of the second-named and smaller roller, a spring supporting the journal-bearings of the under roller, and a cam having a handle secured thereto, such cam being adapted to be pressed against the center of the spring, and thereby the first-named rollers pressed against the smaller roller and the articles contained thereon, whereby upon removing the pressure of the cam upon the spring the smaller roller will roll from the frame and by turning such cam against the spring pressure can be brought to bear upon the smaller roller when in the frame and the articles contained thereon as the same are rotated, substantially as described.



2. In a mangle, a frame having rollers D, G, and H journaled therein, one of said rollers (D) having protruding journals, a handle detachably secured to one of the journals, the under roller being vertically adjustable, a spring M, supporting said roller, a cam acting on the center of the spring for controlling the position of said under roller, and the standards of the frame, supporting said rollers D, G, and H, having L-shaped slots, whereby said roller D will roll out of said slot when pressure on the spring is removed by lowering the cam, substantially as described.

482,411. CARRIER-TRACK. JOSEPH R. PORTER, Ottawa, Ill. Filed Jan. 23, 1892. Serial No. 419,580. (No model.)

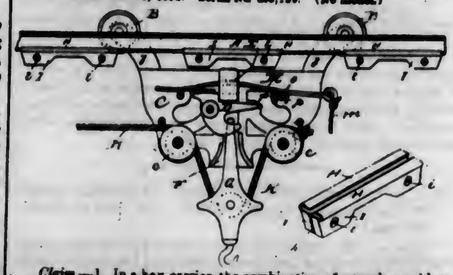


Claim.—1. The combination, in a carrier-track and with abutting rails thereof, of a coupling-piece B, having straight-edged vertical webs or plates *b*, extending down to and adapted to bear upon the base-flanges of the rails, and devices for drawing the rails upwardly, so that said flanges will bear against the lower edges of said webs, substantially as specified.

2. The combination, in a carrier-track and with abutting rails thereof, of a coupling-piece B, having straight-edged vertical webs or plates *b*, adapted to bear upon the base-flanges of the rails, bolts F, adapted to grasp the head of the rails and extended upwardly through the piece B, and nuts G above the piece B, substantially as specified.

3. As a means for suspending a hay-carrier track, the combination of the hangers having oppositely-turned non-pivoted jaws adapted to grasp the track, adapted to bear against each other at a point above said jaws, and having openings at their upper ends and the suspending-loop passing through said openings and provided with a crotch or bend for holding the hangers together, substantially as set forth.

482,412. HAY-CARRIER AND TRACK. JOSEPH R. PORTER, Ottawa, Ill. Filed Feb. 29, 1892. Serial No. 423,139. (No model.)



Claim.—1. In a hay-carrier, the combination of a track provided with a series of positive shoulders or stops, a carriage mounted on said track and adapted to travel thereon past said stops, hoisting devices

mounted on said carriage, a vertically-sliding bolt or catch E on and movable with said carriage and adapted to engage any of said stops, an operating device or cord connected with said catch and independent of the hoisting devices, and a support for said catch, operated by the hoisting devices, whereby the carriage is released by the hoisting of the load and may be caused to pass the intermediate stops of the said series or to engage any one of said stops and be locked in place at will irrespective of the hoisting devices, substantially as set forth.

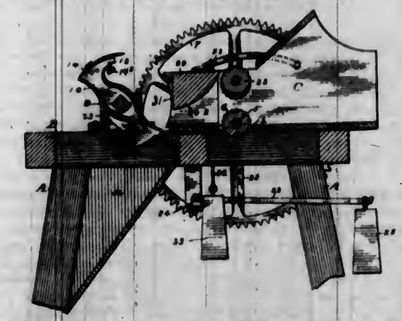
2. In a hay-carrier, the combination of a track provided with shoulders or stops, a carriage mounted and adapted to travel thereon, a hoisting-rope supported by said carriage, a fall-block G, carried and operated by the rope, a hook on the carriage, adapted to engage and support the fall-block, a catch E, engaging the hook to sustain and lock it in its supporting position and movable away from said hook and into the path of the said stops on the track, and means, such as a cord, for operating the catch, substantially as set forth.

3. In a hay-carrier, the combination of a track provided with shoulders or stops, a carriage mounted and adapted to travel thereon, a hoisting-rope supported by said carriage, a fall-block G, carried and operated by the rope, a hook on the carriage, adapted in one position to engage and support the fall-block and in another position to support a catch, the said catch or bolt adapted to engage the said hook to sustain and lock it in its first-mentioned position and movable away from said hook and into the path of the said stop on the track, and means, such as a cord, for operating the catch, substantially as set forth.

4. In a hay-carrier, the combination, with a track provided with stops, of a carriage thereon, a hoisting-rope and fall-block on the carriage, a hook adapted to support said fall-block, a vertically-movable catch for engaging said hook or said stops on the track, a lever connected with the catch, and means, such as a cord, for operating the lever, substantially as set forth.

5. In a hay-carrier, the combination, with the track, consisting of a rail having lateral base-flanges, a carriage having wheels running on the said flanges, hoisting devices on the carriage, a movable catch mounted on the carriage, and a stop for said catch, consisting of thin plates H, adapted to clamp said wheel-supporting track-flanges and permit the free passage of the wheels and having vertical downwardly-extending flanges A, rigid stop-plates I, situated outside of the latter flanges, and means for forcing the stop-plates together to cause the plates H to clamp the rail, substantially as set forth.

482,413. STRAW-CUTTER. JULIUS RAATZ, Manistee, Mich. Filed Dec. 5, 1891. Serial No. 414,164. (No model.)



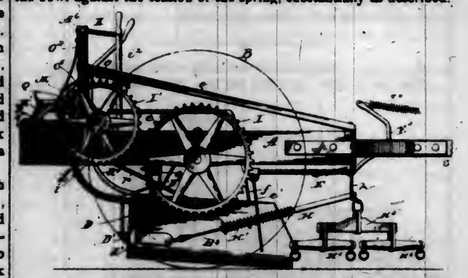
Claim.—In a straw-cutter, the combination, with the straw-box, the rotating knife-wheel, and the feed-rollers, of the ball 28, having its arms pivotally secured to the sides of the straw-box, the presser-block 29, arranged between the feed-rollers and the knife-wheel and rigidly secured to the cross-bar of said ball, and the weighted ball 32, pivotally suspended from the forward end of the ball 28, substantially as and for the purpose specified.

482,414. WHEELED SCRAPER. CHARLES RATH, Mobeetie, Tex. Filed Jan. 20, 1891. Serial No. 378,461. (No model.)

Claim.—1. In a scraper, the combination, with the frame and ground-wheel, of the vertically-movable scraper-bowl with means, substantially as described, for raising the same, and a lowering mechanism for said bowl driven by the ground-wheel for lowering the bowl against the power exerted by the raising mechanism, substantially as described.

2. In a scraper, the combination, with the frame and ground-wheel, of the vertically-movable scraper-bowl, mechanism, substantially as described, for elevating the same, and the crank-shaft connected to the bowl for positively lowering the same driven by the ground-wheel, substantially as described.

3. In a scraper, the combination, with the frame and ground-wheel, of the vertically-movable scraper-bowl, a spring for elevating the same, and a crank-shaft driven by the ground-wheel for lowering the bowl against the tension of the spring, substantially as described.



4. In a scraper, the combination, with the frame and ground-wheel, of the vertically-movable scraper-bowl, the spring for elevating the bowl, and connections between the bowl and ground-wheel for lowering the same against the tension of the spring, substantially as described.

5. In a scraper, the combination, with the frame and ground-wheel, of the vertically-movable scraper-bowl, the spring for elevating the same, the crank-arms for lowering the bowl against the tension of the spring, flexible connections and the winding-drums driven by the ground-wheel for operating the crank-arms, substantially as described.

6. In a scraper, the combination, with the frame, ground-wheels, and the vertically-movable scraper-bowl, of the spring for elevating the same, connections between the scraper-bowl and ground-wheel for lowering the same against the tension of said spring, and the clutch interposed in said connections, whereby the bowl may be permitted to return to an elevated position under the influence of the spring, substantially as described.

7. In a scraper, the combination, with the frame and ground-wheels, of the vertically-movable scraper-bowl, mechanism, substantially as described, for automatically elevating the same, an arm connected to the bowl for depressing the same, a winding-drum connected to said arm, and a shifting-gear connection between said winding-drum and ground-wheel, substantially as described.

8. In a scraper, the combination, with the frame, ground-wheels, vertically-movable scraper-bowl, and mechanism, substantially as described, for elevating the same, of the arm connected to the bowl, the winding-drum connected to the crank-arms, the gear-wheel on the ground-wheel, and the shifting-gear meshing therewith and connected to the drum-shaft, substantially as described.

9. In a scraper, the combination, with the frame, ground-wheels, vertically-movable scraper-bowl, and mechanism for raising the same, substantially as described, of the arm connected to said bowl for depressing the same, the winding-drum connected to said arm, the gear-wheel on the ground-wheel, the shifting-gear on the drum-shaft, adapted to mesh with said first-mentioned gear, and the spring-pawl for holding said shifting-gear and drums against the power of the elevating mechanism, substantially as described.

10. In a scraper, the combination, with the frame and ground-wheels, the vertically-movable scraper-bowl, and mechanism, substantially as described, for elevating the same, of the arm connected to the bowl, the winding-drum, the gear on the ground-wheel, shifting-gear, and the crank-shaft in which said shifting-gear is mounted, having the operating-handle, substantially as described.

11. In a scraper, the combination, with the vertically-movable scraper-bowl, mechanism, substantially as described, for elevating the same, of the ground-wheels, and connections between said bowl and ground-wheel for depressing the bowl against the power of the elevating mechanism, and a brake for retarding the upward movement of the bowl, substantially as described.

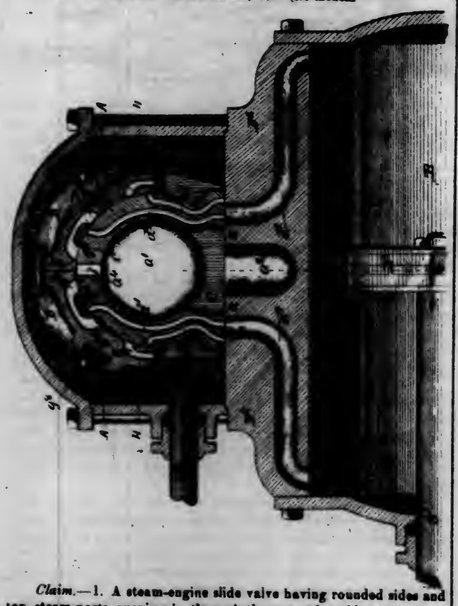
12. In a scraper, the combination, with the vertically-movable scraper-bowl, mechanism, substantially as described, for elevating the bowl, and the ground-wheel, of a gear on the ground-wheels, a shifting-gear adapted to mesh with the gear on the ground-wheel to lower the bowl, mechanism connecting said shifting-gear and bowl, a pawl for arresting said shifting-gear, a brake, and an operating-handle connected to said pawl and brake, whereby when the handle is moved to release the pawl the brake is applied, and vice versa, substantially as described.

13. In a scraper, the combination, with the frame, ground-wheels, scraper-bowl hung in horizontal bearings in the frame, and mechanism for depressing the bowl from the ground-wheel, as described, of the

draft-links connected to the bowl below its pivotal point and passing through guides at the front end of the frame, substantially as described.

14. In a scraper, the combination, with the frame, ground-wheels, scraper-bowl hung in horizontal bearings in the frame, and mechanism for depressing said bowl, substantially as described, of the spring draft-links connected to the bowl below its pivotal point and passing through guides at the front of the frame, substantially as described.

482,415. STEAM-ENGINE VALVE. EMIL L. SAUER, Chicago, Ill. Filed Dec. 21, 1891. Serial No. 415,766. (No model.)



Claim.—1. A steam-engine slide valve having rounded sides and top, steam-ports opening in through the respective sides at a point about midway between the top and bottom and extending down through the wall and out at the under side, exhaust-ports opening in higher up with reference to the steam-ports and extending down parallel therewith, and an exhaust-port through the top of said valve and communicating with the chamber therein, in combination with a cut-off valve seated on the slide-valve and covering the steam and exhaust ports and provided with ports corresponding thereto and adapted to have a rotary movement simultaneously with the reciprocating movement of the slide-valve, whereby the different steam and exhaust ports are alternately brought into coincident relation, substantially as set forth.

2. In a steam-engine valve of the character described, the combination, with a reciprocating slide-valve having a rounded top and sides, of a cut-off valve concavo-convex in form and seated upon and corresponding to the exterior surface of the slide-valve and adapted to have a reciprocating rotary movement simultaneously with the movement of said slide-valve, substantially as set forth.

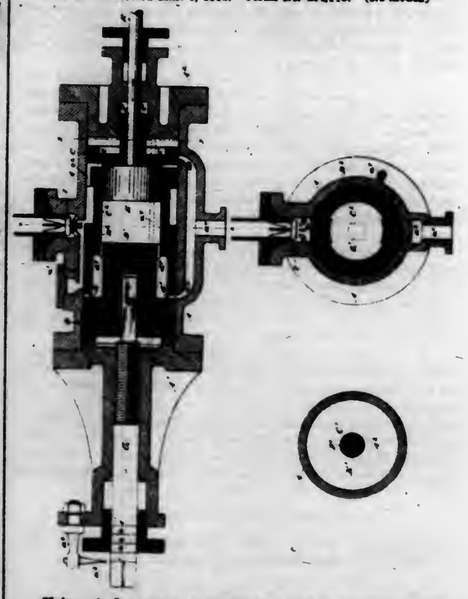
3. The combination, with a slide-valve having exterior rounded top and sides and provided with steam and exhaust ports in its walls on each side of the central exhaust-chamber and an exhaust-port opening downwardly through the top into said chamber, of a cut-off valve seated upon the slide-valve and provided with steam and exhaust ports corresponding to those in the slide-valve, whereby the steam first enters through the cut-off, is exhausted back through the slide or main valve into the cut-off or rotary valve, and finally returned through the slide-valve into the central exhaust-chamber, substantially as set forth.

4. The combination, with a slide and rotary cut-off valve, of companion spiders located at the respective ends of said valves and consisting of a number of arms and a hub and connected to the slide-valve by pivot-bolts inserted through the hub part, the ends of the outside arms being rigidly secured to the rotary valve and the central arm having a bifurcated end, and tap-bolts rigidly inserted in the walls of the inclosing steam-chest and projecting into said forked end of the central arm, whereby a reciprocating rotary movement is imparted to the cut-off valve by the movement of the slide-valve, substantially as set forth.

5. In a steam-engine valve, the combination, with a valve-yoke, of the companion track-rails recessed in the east part below the valve-seat and beveled on their respective sides from the top downwardly and the spool-shaped friction-rollers interposed loosely between said yoke and track-rails, substantially as set forth.

6. The combination, with a slide-valve, of a valve-yoke provided with recesses in the upper edge and vertical lugs, as described, and tap-bolts inserted in said valve and having the head ends resting in said recesses, substantially as set forth.

482,416. PUMP. ALFRED SIEBERT, New York, N. Y. Filed May 7, 1891. Renewed Mar. 8, 1892. Serial No. 424,115. (No model.)



Claim.—1. In a pump, in combination with an external cylinder A, having suitable ports and an internal piston and piston-rod with suitable operating means for the latter, an internal cylinder made in two separate parts C D, with provisions, as internal screw-threads in one part and external screw-threads in the other part, engaged together, as shown, for changing the length of the internal cylinder, and thereby varying the quantity of liquid pumped at each stroke, as herein specified.

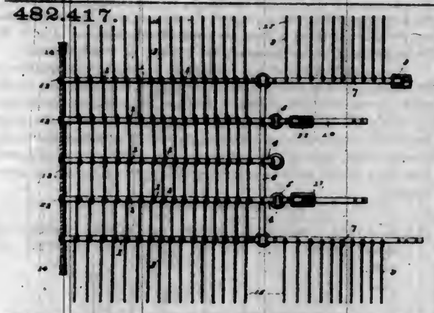
2. In a pump, in combination with an external cylinder A, having suitable ports and an internal piston with suitable operating means, an internal cylinder made in two separate parts C D, with provisions, as internal screw-threads in one part and external screw-threads in the other part, engaged together, as shown, for changing the length of the internal cylinder, and provisions, as the feather engaging the piston-rod with one of the parts of the internal cylinder, for holding such part against being revolved, and provisions, as the revoluble rod having the squared end engaged in a corresponding socket in the other part of the internal cylinder, for revolving such part relatively to the other by operating on the outside of the pump, substantially as herein specified.

3. The pump described, having the external cylinder A, piston B, and piston-rod *b*, in combination with each other and with the internal cylinder made in two parts C and D, engaged together by screw-threads, the part C being held against rotation and the other part D being capable of being rotated, and with the screw-threaded rod G engaged with the part D, as shown, so as to control its revolution, but leave it free to move axially, the rod G being graduated, as shown, and with an index H, adapted to show by inspection on the outside the condition of the internal cylinder and therefore the quantity which the pump is delivering at each stroke, all substantially as herein specified.

482,417. FLY-NET. GEORGE SOLLENBERGER, Mechanicsburg, Pa. Filed May 17, 1892. Serial No. 433,344. (No model.)

Claim.—In a fly-net, the combination of a central bar and a pair of parallel bars on each side of and parallel with said central bar, said bars being constructed of leather and having loops in the opposite ends

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of the same, rings secured in the front loop of each of the bars, lashes of textile fabric connected to said bars and having metal end coverings, breast-straps supporting lashes and secured to the rings of the outermost bars farthest from the central bar, said breast-straps being united at the center when joined, and straps 10, secured to the rings connected to the front ends of the bars next to the central bar and adapted to be secured to the neck-strap or adjacent upper part of harness, substantially as described.

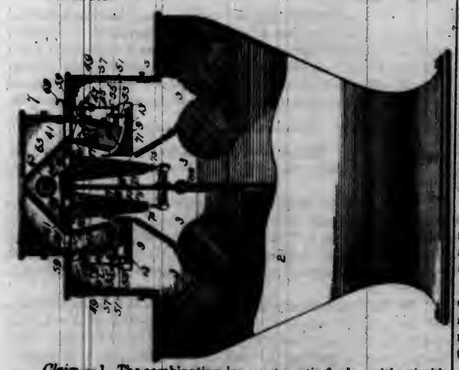
482,418. VEHICLE-WHEEL HUB. LORENS SWENSON, Cresco, Iowa, assignor of two-thirds to Will Patterson, same place. Filed Mar. 16, 1892. Serial No. 425,145. (No model.)



Claim.—1. The combination, with the spindle, of the thimble at the inner end, the thimble at the outer end, the sleeve or box carrying the spoke-sockets, the shell-sections on opposite sides of the socket and secured to the opposite end of the sleeve or box, and a nut for retaining the hub on the spindle, substantially as specified.

2. The combination, with a hub, of the spindle, shouldered as described, the sleeve on the inner end of the spindle, also shouldered and provided with the channels on its outer side near its inner end, the sleeve on the outer end of the spindle, having a flange at its outer end, and a nut on said spindle, substantially as and for the purpose specified.

482,419. AUTOMATIC FEEDER FOR ROLLER-MILLS. JOSEPH L. WILLFORD, Minneapolis, Minn. Filed Oct. 17, 1891. Serial No. 409,021. (No model.)



Claim.—1. The combination, in an automatic feeder, with suitable shoes and pivoted hangers supporting said shoes, of a spring connecting said hangers, an operating-rod connected to said spring, a spring-fulcrum connected with said rod, an operating-shaft, and an eccentric upon said shaft also connected with said rod, substantially as described.

2. The combination, with the independent vibrating shoes and their supporting-hangers, of springs connecting said hangers, an operating-rod, and an eccentric for moving said rod.

3. The combination, with the vibrating shoes and their supporting-hangers, of suitable springs connecting said hangers, rods connected with said springs, springs forming fulcrums for said rods, and eccentrics for operating said rods, whereby a balanced motion for said shoes is provided.

4. The combination, with the feed-shoes, of the hangers connected to said shoes and provided with the knife-edge bearings 17, the arms 21, formed integrally therewith, and the spring 31, connecting said arms, substantially as described.

5. The combination, with the vibrating shoe, of the hangers connected therewith and provided with the knife-edge bearings 17, the arms 21, formed integrally therewith, the spring 31, connected to said arm, and the operating-rod connected to said spring, substantially as described.

6. The combination, with the vibrating shoe and the hopper, of the swinging valve arranged between said hopper and said shoe, through which the material from said hopper passes, and a gate connecting with said swinging valve and arranged to be raised or lowered by the movement of said valve, substantially as described.

7. The combination, with a vibrating shoe and hopper, of the swinging valve arranged between said hopper and shoe and arranged to receive the material from said hopper and means for balancing said valve, substantially as described.

8. The combination, with the vibrating shoe, of the hinged valve arranged above said shoe and having an adjustable gate at its lower end and means for counterbalancing said valve, substantially as described.

9. The combination, with the vibrating shoe having a curved upper surface, of the pivoted valve arranged above said shoe and having a curved lower end.

10. In an automatic feeder, a valve consisting of a receptacle open at its upper and lower ends and mounted upon a suitable pivot, and the shoe arranged beneath and in proximity to the lower end of said valve, whereby the lower end of said valve swings over said shoe as the supply of material varies, and a gate connected with said valve and arranged to be raised and lowered by the movement of said valve, substantially as described.

11. In an automatic feeder, a valve having open upper and lower ends and mounted upon a pivotal support, a counterbalance-weight connected with said valve, a shoe arranged beneath the lower end of said valve and over which said lower end of the valve is moved as the supply of material to said valve is varied, and a gate connected with said valve and arranged to be raised and lowered by the movement of said valve, substantially as described.

12. In an automatic feeder, the combination, with a vibrating shoe, of a swinging valve arranged above said shoe, a pivoted gate arranged above said shoe, and a connection between said gate and said valve, whereby said gate is automatically raised or lowered by the movement of said valve.

13. The combination, with the feeder and rolls, of a suction-fan, the pockets arranged within the casing, means for distending said pockets, and the knockers arranged to operate upon said pockets, substantially as described.

14. The combination, with the feeder and rolls and the casings 2 and 5, of the air-chamber 65, arranged above said casing 2, the fans connected with said air-chamber, openings 68 between said air-chamber and said casing, pockets arranged in said casing and covering said openings, spring-controlled devices for distending said pockets, and means for jarring said pockets, substantially as described.

15. The combination, with the feeder and rolls and the casing 5, of the air-chamber 65, arranged above said casing and connected therewith by suitable openings, valves 67 for closing said openings, suction-fans connected with said air-chamber, pockets arranged over said openings 68, spring-controlled devices for distending said pockets, and suitable knockers for jarring the material that adheres to said pockets, substantially as described.

16. The combination, in an automatic feeder, with a vibrating shoe, of hangers supporting said shoe, a draft-bar operating said shoe springs arranged between said shaft and said hangers, and a suction-fan arranged upon the shaft by which said shoe is operated and arranged to create a suction through the casing in which the shoe is located.

17. The combination, in an automatic feeder, with the vibrating shoe and the shaft provided with eccentrics connected through suitable springs with said shoe for operating the same, of the suction-fans mounted on said eccentric-shaft and arranged to create a suction through the casing in which the shoe is located.

482,420. ADJUSTABLE THERMOSTAT. MELVIN D. COMPTON, Newark, N. J. Filed Nov. 21, 1891. Serial No. 412,067. (No model.)

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ing a suitable index, and a ring-coil P, and provisions for dividing the current and conveying it from one point in such ring-coil in both directions around to the opposite point thereon, as herein specified.

4. In combination with a rudder and provisions, substantially as described, for transmitting electric currents varied according as the rudder is turned in one position or another, an indicating device having a ring-coil P, and provisions for dividing the current and conveying it from one point in such ring-coil in both directions around to the opposite point therein, and having a freely-revolving coil delicately mounted within to serve as an index and conveying a current, as herein specified.

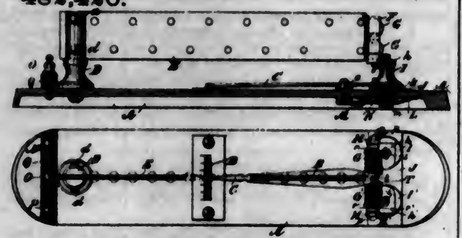
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outlet, and an escape-pipe connected to said relief-valve, and a separator with which said escape-pipe communicates.

4. The combination, with a suitable fan, of a relief-valve connecting with the exit-opening in said fan and provided with a suitable outlet, two or more pipes leading from said outlet, valves arranged in said outlet, an escape-opening for said relief-valve, a separator with which said escape-pipe communicates, and a connection between said separator and the intake-pipe of said fan.

5. The combination, with a suitable fan, of a relief-valve connecting with the exit-opening in said fan, an air-escape pipe connected to said

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Claim.—1. In an electrical system, a thermostatic expansible piece forming a terminal of an electric circuit, contact-pieces forming corresponding terminals on either side thereof, the said contact-pieces forming the cores or poles of electro-magnets and being located each in a separate branch circuit, and the said electro-magnet being located, respectively, in the same branch circuits, the said expansible piece having or carrying an armature common to the two magnets, as and for the purpose set forth.

2. The combination, with an electro-magnetic motor and a pair of branch circuits connected therewith, of a thermostat adapted to close one branch or the other on an increase or decrease of the temperature, the said thermostat consisting of an expansible piece forming the terminal of the main circuit and carrying an armature which is located between the poles or cores of a pair of electro magnets, one on each side of the said armature, the said magnets, with their cores or poles, being located in different branches, as set forth.

3. In a thermostat, a pair of adjustable electro-magnets located on opposite sides of the expansible portion, in combination with an armature attached to or forming a part of the said expansible portion, as set forth.

4. In a thermostat, an adjustable frame or plate carrying insulated posts, a pair of electro-magnets, one on each post, the said electro-magnets being adjustable with reference to the posts, all in combination with a thermostatic piece having or carrying an armature between the said electro-magnets, as set forth.

5. In a thermostat, a frame or plate carrying a pair of insulated posts, an electro-magnet adjustably supported on each post, a thermostatic piece having or carrying an armature between the said magnets, in combination with a scale and a pointer co-operating therewith, the said pointer engaging with the said plate or frame in such a manner as to move it when turned, as and for the purpose set forth.

482,421. RUDDER-INDICATOR. CHARLES CORY, New York, N. Y. Filed Nov. 24, 1891. Serial No. 412,942. (No model.)



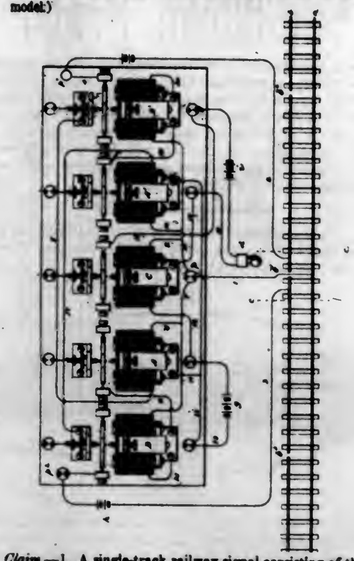
Claim.—1. In combination with an electro-magnet and indicator at any required place in the ship, a series of commutator-bars arranged in the arc of a circle, supported on a ring capable of being easily detached when required, with a series of wires connecting each commutator-bar to the indicating mechanism independently of the other wires in the series, a brush arranged to move in a corresponding circular path, also supported on a ring capable of being easily detached when required, with suitable electrical connections, and means for causing the rings carrying the brush and commutators to move one relatively to the other as the rudder is turned, and with electric connections to a battery or equivalent source of electric current, all arranged for joint operation as herein specified.

2. In a rudder-indicator, two series of commutator-bars and brushes, each brush moved upon its commutator by the turning of the rudder and arranged one series to control the positive and the other the negative current, in combination with each other and with a source of electric current, electrical connections connecting each commutator-bar to the indicating mechanism independently of the other connections, and an indicating mechanism having an electro-magnet controlled by such current, all arranged for joint operation substantially as herein specified.

3. In combination with a rudder and provisions, substantially as described, for transmitting electric currents varied according as the rudder is turned in one position or another, an indicating device having a suitable index, and a ring-coil P, and provisions for dividing the current and conveying it from one point in such ring-coil in both directions around to the opposite point thereon, as herein specified.

4. In combination with a rudder and provisions, substantially as described, for transmitting electric currents varied according as the rudder is turned in one position or another, an indicating device having a ring-coil P, and provisions for dividing the current and conveying it from one point in such ring-coil in both directions around to the opposite point therein, and having a freely-revolving coil delicately mounted within to serve as an index and conveying a current, as herein specified.

482,422. RAILWAY-CROSSING PROTECTOR. ROBERT J. M. DARLEY, Columbus, Ohio. Filed Mar. 2, 1892. Serial No. 423,447. (No model.)



Claim.—1. A single-track railway-signal consisting of the combination of an alarm or gate, two sets of relays respectively operating said alarm or gate for trains coming in both directions, and two other relays controlling said two sets of relays, respectively, to make them inoperative when a train has passed the alarm or gate, substantially as described.

2. The combination, with an alarm or gate for highway-crossings of railroads, of a relay, as C, operating the alarm or gate, two other relays, as A A', each controlling the first relay, a fourth relay, as B, controlling the circuit of one of the said two relays A A', and two insulated sections of track in circuit, respectively, with the relays A A', one of the sections being in circuit with the said fourth relay B, for the purpose set forth.

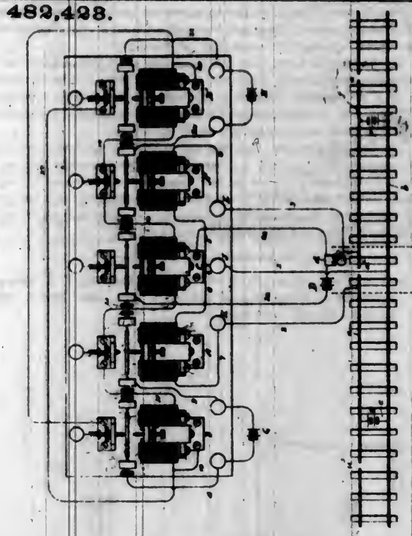
3. The combination, with two insulated track-sections extending in opposite directions from a crossing, two relays, as A A', in circuit with the respective sections, an alarm-relay, as C, controlled by said two relays, and two other relays, as B' B, controlling the circuits, respectively, of said two relays A A', the relays B' B also being included in circuit with the respective track-sections, for the purpose set forth.

482,423. RAILWAY-CROSSING PROTECTOR. ROBERT J. M. DARLEY, Columbus, Ohio. Filed Apr. 20, 1892. Serial No. 429,577. (No model.)

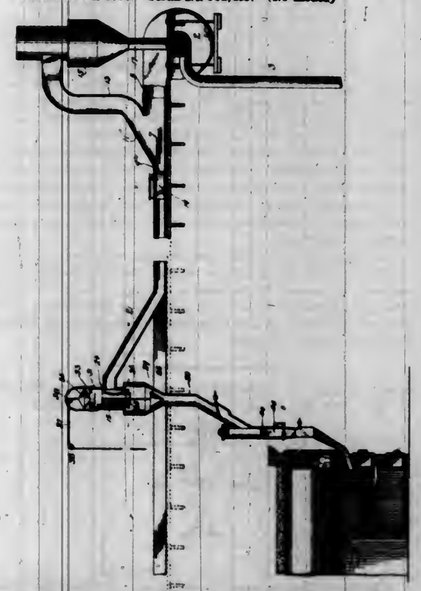
Claim.—1. The combination, with an alarm or gate for highway-crossings of railroads, of a relay, as C, operating the alarm or gate, two other relays, as A A', each controlling the first relay, and two other relays, as B B', each controlling the other and the alarm-relay C, and two insulated sections of track in circuit, respectively, with the relays A A'.

2. The combination, with an alarm or gate for highway-crossings of railroads, of a relay, as C, operating the alarm or gate, two other relays, as A A', each controlling the first relay, and two other relays, as B B', each controlling the other and the alarm-relay C, and two insulated sections of track in circuit, respectively, with the relays A A', and batteries connected between the rails, whereby the wheels and axles of trains will operate as alarm or gate, in the manner described.

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482,424. FUEL-FEEDER. HENRY L. DAY, Minneapolis, Minn. Filed Feb. 24, 1891. Serial No. 382,405. (No model.)



Claim.—1. The combination, with a suitable fan, of a blast-pipe connected with said fan, a relief-valve connected with said pipe and provided with a suitable fuel-discharge outlet, an air-escape pipe connected with said relief-valve, and a separator arranged to receive the air from said air-escape pipe, substantially as described.

2. The combination, with a suitable fan, of a blast-pipe connected with said fan, a relief-valve connected with said pipe and provided with suitable outlet-openings, an air-escape pipe connected with said relief-valve, and a separator arranged to receive the air from said escape-pipe and to return the material from said separator to the inlet side of said fan, substantially as described.

3. The combination, with a suitable fan, of a relief-valve connecting with the exit opening in said fan and provided with a suitable outlet, valves arranged in said outlet, two or more pipes leading from said outlet, and an escape-pipe connected to said relief-valve, and a separator with which said escape-pipe communicates.

4. The combination, with a suitable fan, of a relief-valve connecting with the exit-opening in said fan and provided with a suitable outlet, two or more pipes leading from said outlet, valves arranged in said outlet, an escape-opening for said relief-valve, a separator with which said escape-pipe communicates, and a connection between said separator and the intake-pipe of said fan.

5. The combination, with a suitable fan, of a relief-valve connecting with the exit-opening in said fan, an air-escape pipe connected to said relief-valve, a fuel-outlet from said relief-valve, and a fuel-pipe leading from said fuel-outlet to a suitable furnace, substantially as described.

6. The combination, with a suitable fan, of an outlet-pipe connected therewith, a relief-valve connected with said outlet, a separator connected with the intake-pipe of said fan, an air-escape pipe extending from said relief-valve to said separator, pipes extending from said relief-valve, valves for regulating the passing of the material from said relief-valve to said pipes, a separator with which one of said pipes communicates, and a pipe extending from said separator to the furnace, substantially as described.

7. The combination, with a separator provided with a chamber 24 and with a chamber 25 with which said chamber 24 communicates by a series of inclined flights, of a central tube 26 in said separator and an adjustable cover regulating the escape of air through said tube, substantially as described.

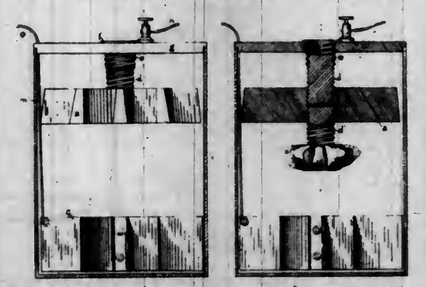
8. The combination, with the separator having the conical chamber 25, of the cone 39, arranged in the outlet-opening of said separator, and the adjustable cover 35, arranged over the air-escape outlet of said separator, substantially as described.

9. The combination, with the separator provided with a suitable opening for the escape of the air from said separator, of the conical cover 35 and means for adjusting said cover for the purpose of regulating the escape of the air from said separator.

10. The combination, with the separator provided with the conical lower end, of the cone 39, arranged in the opening in said chamber and provided with the wings 41.

11. The combination, with the feeder-pipe 30, of the branch pipes 32, the relief-valve 42, arranged between said feeder-pipe and said branch pipes and provided with the expansion-chamber 44, projecting in opposite directions, and the pivoted valve-plate 46, substantially as described.

482,425. GALVANIC BATTERY. THOMAS T. ECKERT, New York, N. Y. Filed May 16, 1892. Serial No. 433,117. (No model.)



Claim.—1. In a galvanic battery, a zinc electrode formed of zinc plates having screw-perforations and separate zinc screws alternately arranged, as and for the purpose described.

2. In a galvanic battery, a zinc electrode formed of zinc plates having screw-perforations and separate zinc screws alternately arranged and applied and a cross-bar to which the electrode is suspended by one of said screws.

3. In a galvanic battery, a zinc electrode formed of perforated zinc plates and separate zinc pins or screws, said pins or screws being employed to fasten adjoining plates together and to suspend the composite electrode from a cross-bar or other support above the cell.

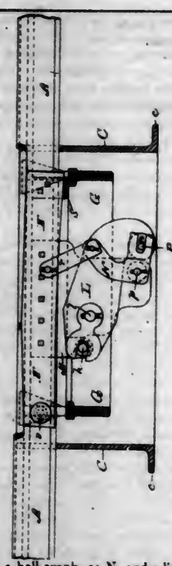
4. In a galvanic battery, a perforated zinc plate and a separate pin or screw of the same material, substantially as described.

482,426. STREET-RAILWAY SWITCH. TOM L. JOHNSON, Cleveland, Ohio. Filed Nov. 16, 1889. Serial No. 330,995. (No model.)

Claim.—1. In an automatic switch, a rocking frame, as G, provided with an auxiliary pivot-web, as H, and a pivot, as A, substantially as set forth.

2. In an automatic switch, in combination with a vertical lifting-

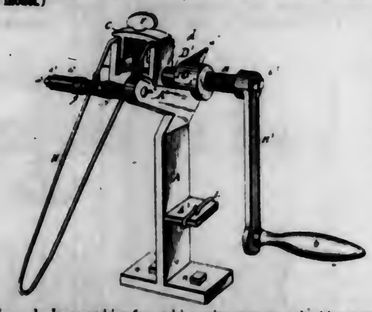
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plate, as F, a lever, as L, a bell-crank, as N, and a link, as *r*, substantially as set forth.

3. In an automatic switch composed of rails having vertical webs, in combination with a lifting switch-plate hinged to said vertical webs and a supporting-plate, as M, connected to the webs of said rails for supporting mechanism to operate said switch-piece, substantially as set forth.

482,427. MACHINE FOR MAKING WIRE SPRINGS AND COUPLINGS. SEBASTIAN KOHR, Louisville, Ky., assignor of one-half to Samuel F. Harian, same place. Filed May 14, 1892. Serial No. 433,010. (No model.)



Claim.—1. In a machine for making wire springs, a double screw-vise having a sleeve-base with an opening through it square in cross-section, adapted to slip over a squared shaft, two jaw-pieces rectangular as to their sides and top rising perpendicularly from the base in parallel planes, each provided with a groove along its top edge, and a top jaw or cross-head covering the tops of the base jaw-pieces and provided with two downwardly-projecting parallel guide-plates fitting inside and close to the base jaw-pieces, in combination with a vise-clamping screw passing perpendicularly through the cross-head or top jaw into a screw-threaded hole in the sleeve-base and having a coil-spring surrounding its shaft between the top jaw and base, substantially as described.

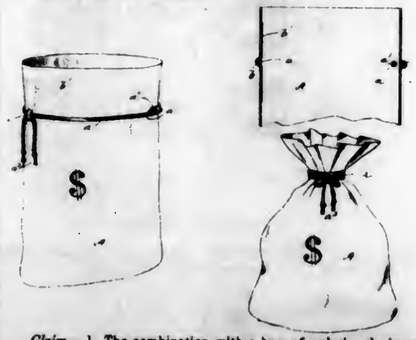
2. A machine for making wire springs and couplings, having a frame consisting of a standard A, base *a a*, journal-box A', arm A^3, guide a', and die-plate A^5, and a stud-post a^3, projecting horizontally from the inner face of the arm A^3, carrying a sleeve-roller G, provided with guide-beadings *g*, in combination with a shaft B, journaled in the box A', provided with a crank and handle at its outer end, and having its inner end squared and carrying a double screw-vise C, constructed and arranged substantially as set forth, and for the purposes specified.

3. The combination, with the frame, the shaft journaled therein, and means for rotating said shaft, of a vise secured to said shaft and rotating therewith, said vise having a grooved top and sloping bottom, and sleeves projecting from said vise and adjacent to the sloping bottom thereof, substantially as shown and described.

4. The combination, with the frame, the shaft journaled therein, means for rotating said shaft, and the roller-sleeve G, having beads *g g*, of a vise located adjacent to said sleeve and rotatable with said shaft, said vise having a grooved top and sloping bottom, and sleeves projecting from said sloping bottom of the vise.

5. The combination, with the vise consisting of a base, two side jaws, a removable top jaw, and sleeves projecting laterally from said side jaws, said side jaws having their tops grooved and their bottoms sloped toward said sleeves, a clamping-screw engaging said top jaw and the base of the vise, and a coil-spring encircling said screw, of a supporting frame and means for rotating said vise.

482,428. BAG. FRANK W. LAWRENCE, Saratoga, N. Y., assignor of one-half to Henry H. Lawrence, same place. Filed May 2, 1892. Serial No. 431,408. (No model.)



Claim.—1. The combination, with a bag, of a closing device consisting of a cord or tape secured at its middle point to a point on the bag, with its free ends passing freely around the bag and through an eye in the bag located at a point diametrically opposite the point to which the cord is secured, substantially as described.

2. The combination, with a bag, of a closing device consisting of a cord or tape secured at its middle point to a point on the bag by a knot in the cord inclosing the material of the bag, the free ends of the cord passing freely around the bag and through an eye in the bag located at a point opposite the point to which the cord is secured, substantially as described.

3. The combination, with a bag provided with an eye formed by a loop of tape on the outside of the bag, its ends passing through punctures and secured to the inside of the bag, of a cord or tape secured at its middle point to a point on the bag opposite said eye, the free ends of the cord passing in opposite directions through the said eye, for the purpose set forth.

482,429. HAT-VENTILATOR. WILLIAM P. O'CONNOR, Milwaukee, Wis. Filed May 26, 1890. Serial No. 353,044. (No model.)

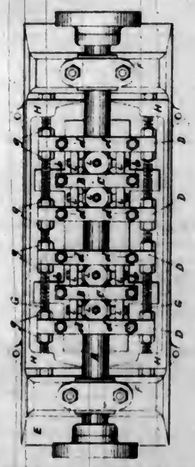


Claim.—1. The combination, with a hat, of a ventilator consisting of two or more oppositely and outwardly opening leaves, each cut from and hinged at one side in an opening in the crown and adapted to be closed flush therewith, a disk or flange attached to the inside of the crown, projecting inside of the edges of said opening to constitute a seat for said sections or leaves, and means for holding said sections or leaves open more or less, as desired, said leaves serving, when open, as deflectors to direct air into and permit its unobstructed passage out of the hat, substantially as and for the purposes set forth.

2. The combination, with a hat, of a ventilator consisting of two or more outwardly-opening leaves cut from and hinged in the crown of the hat, a reinforcing-disk attached to the inside of the crown and projecting inside of the edges of the openings in the crown and serving as a seat for said leaves when they are closed, and one or more sections cut from said disk corresponding with and a little smaller than said leaves to which they are attached, and means for holding said leaves open more or less, as desired, substantially as and for the purposes set forth.

3. The combination, with a hat, of a ventilator consisting of one or more leaves hinged in an opening or openings formed in the crown, so as to open outwardly, an adjusting-screw having a suitable bearing attached to the inside of the crown, and a nut with which said screw engages, provided with an arm or arms connected with said leaf or leaves, so as to open and close the same by the turning of said screw in opposite directions, substantially as and for the purposes set forth.

482,430. ANTIFRICTION THRUST-BEARING. GEORGE WILKIN and FREDERICK EDWARDS, Southampton, England. Filed May 3, 1892. Serial No. 431,695. (No model.) Patented in England Sept. 11, 1890, No. 14,317.

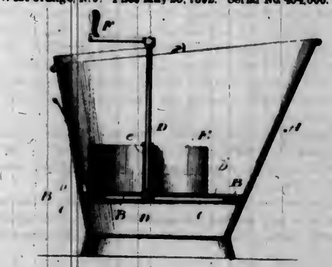


Claim.—1. In combination, the frame, the shaft journaled therein, the plate B, fixed to the shaft, the plate D, fixed to the frame, the collar K, loose on the shaft and comprising the central hub part, and the journals extending radially about the said hub and free at their outer ends, the removable nuts on the said journals, and the antifriction-rollers held removably on said journals by the said nuts, the said plates B and D having grooves in which the rollers travel, said grooves being arranged to hold the rollers out of contact with the nuts, substantially as described.

2. In combination, the frame, the shaft, the plate D about the shaft, fixed to the frame, the collar loose on the shaft and carrying antifriction-rollers, the plate B on the shaft, and the means for holding the said plate B rigidly to the shaft, consisting of the collar C, fixed on the shaft and having notches, the key to extend through the said notches and along the surface of the shaft, the said plate B being formed in sections adapted to fit between the collars and having a key-seat to fit over the key, substantially as described.

3. In combination, the shaft, the frame, the plate B on the shaft, the loose collar having the antifriction-rollers, the plate D, formed in sections and having the openings 20 between said sections, the bolts *d* for securing the two sections together, and the screws G, passing through the openings 20 and connecting the plate D to the frame, substantially as described.

482,431. COAL-SCUTTLE SCREEN. HORACE ST. J. ANDREWS, West Orange, N. J. Filed May 23, 1892. Serial No. 434,066. (No model.)

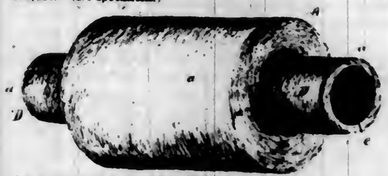


Claim.—1. A sifting device for use with coal-scuttles, comprising a screen or sieve to be fixedly attached to the scuttle and an oscillatory cylinder to rest upon said sieve and carrying a vertical plate, substantially as shown and described.

2. A sifting device comprising a screen or sieve, the pintle rising from its center, and the oscillatory cylinder pivoted on said pintle and having a diametrically-extending plate, substantially as specified.

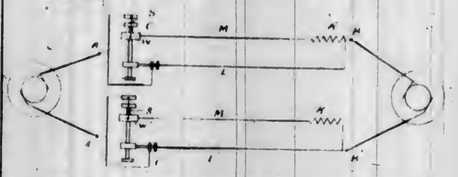
3. In combination with a coal-scuttle, a sifting device comprising a plate supported above the bottom of the scuttle and having its front portion imperforate and its remainder perforate and the oscillatory cylinder having the plate or partition to move the material over the perforate portion, said cylinder being removably mounted upon the screening-plate, substantially as shown and described.

482,432. MUFF. CHARLES C. ASHBAUGH, Detroit, Mich., assignor to Walter Buhl & Co., same place. Filed May 14, 1892. Serial No. 433,017. (No specimens.)



Claim.—As a new article of manufacture, a muff comprising a filling and an external covering for the body thereof and the ends, the said covering being extended beyond the edges of the hand-openings in the ends of the muff to form a tubular wristlet adapted to be folded inwardly into the interior of the muff and reversibly unfolded to extend the same, substantially as described.

482,433. SAFETY DEVICE FOR ELECTRIC CIRCUITS. LLEWELYN B. ATKINSON, London, England. Filed Sept. 12, 1891. Serial No. 405,486. (No model.)



Claim.—1. In a system of distributing electric currents, the combination of a main outgoing and return conductor having in circuit with the outgoing conductor an automatic covered or protected circuit-breaker close to the generator, a subsidiary conductor connected as a shunt from each extremity of the said outgoing and return conductors, and a covered or protected fuse in circuit with the said subsidiary conductor controlling the circuit-breaker on the main conductor, disconnecting both circuits from and at specially covered or protected points close to the source of electric supply should the main cable be broken, substantially as set forth.

2. A compound electric conductor consisting of a main conductor of stranded wires taking the longitudinal tension of the cable and containing a protected automatic cut-out in its circuit, in combination with the subsidiary closely-coiled conductor of single or multiple parallel wires adapted to readily extend its coils under longitudinal tension without breaking, connected as a long shunt to the main conductor and having a protected fuse in its circuit and surrounding or surrounded by and insulated from the said main conductor, substantially as set forth.

3. The combination, with a main outgoing and return conductor and a subsidiary conductor connected as a shunt from each extremity of the said outgoing and return conductors, of a resistance in the said subsidiary conductor at the end farthest from the generator and a covered or protected fuse at the end nearest to the generator, substantially as set forth.

482,434. CAKE-BOX. ELLA E. BAILEY, Baltimore, Md. Filed Jan. 26, 1892. Serial No. 419,258. (No model.)

Claim.—A cake-box consisting of a box or outer casing having a hinged top or lid for obtaining access to the top shelf, a drop front flap or door for obtaining access to the lower shelves, a removable skeleton frame, and foraminous embossed shelves supported and movable in brackets in the skeleton frame, whereby a convenient receptacle for edibles is provided, the same are prevented from becoming soft and

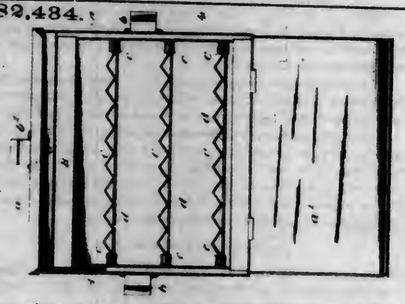
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482,488. PROCESS OF REDUCING ZINC. CHRISTOPHER JAMES, Swansea, England. Filed Dec. 23, 1891. Serial No. 416,269. (No specimens.) Patented in England July 7, 1891, No. 11,563; in Belgium Aug. 17, 1891, No. 93,763; in Spain Sept. 23, 1891, No. 12,373, and in France Nov. 16, 1891, No. 216,113.

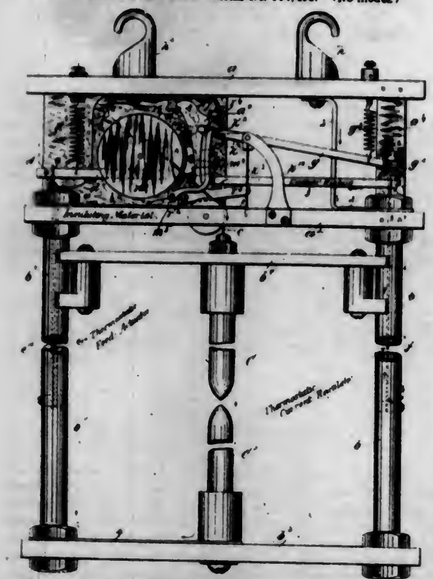
Claim.—A process for the treatment of sulphide-zinc ores, consisting of partially calcining the ore, discontinuing the calcination when a portion of the ore is brought to the condition of a sulphate, melting the partially-calcined ore in a reverberatory or suitable furnace, and collecting the volatilised zinc by condensation in a chamber distinct

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moldy, and the shelves containing the same may be readily removed, substantially as described.

482,485. ELECTRIC-ARC LAMP. HENRY H. CUTLER, Waltham, Mass. Filed June 26, 1891. Serial No. 397,493. (No model.)



Claim.—1. The combination of the carbons of an electric-arc lamp with a feed-actuator and a circuit-controller governing the application of current thereto and a thermal feed-regulator responsive to changes in length of the arc and operating the said circuit-controller for the feed-actuator, substantially as described.

2. The combination of the feed-pawl and its actuating-pawl carrier with a pawl-controller governing the engagement of the said pawl and a regulator responsive to change in length of the arc co-operating with the said pawl-controller, substantially as and for the purpose described.

3. The combination, with the carbons of an arc lamp, of a feed-actuator comprising a thermostatic device connected in circuit and responsive to the heat produced by the current therein, a circuit-controller governing the application of current to the said thermostatic actuator, and a regulator responsive to changes in length of arc operating the said circuit-controller, substantially as described.

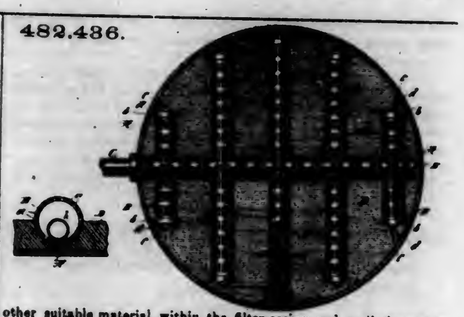
4. The combination, with the carbons of an electric-arc lamp, of the feed-actuator whose motive power is the current supplied to the lamp and a regulator comprising a thermostatic instrument also operated by the current supplied to the lamp and responsive to changes in current produced by changes in length of the arc, said regulator governing the application of motive current to the actuator, substantially as and for the purpose described.

482,486. FILTER. WILLIAM M. DOUGLAS, Elizabeth, N. J. Filed Apr. 19, 1889. Serial No. 307,812. (No model.)

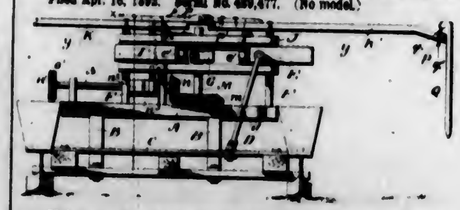
Claim.—1. In a filter, the combination of a bed of cement or other suitable material within the filter-casing, a discharge or washing pipe embedded therein and provided with openings upon its exposed portions, substantially as described.

2. In a filter, the combination of a bed of cement or other suitable material within the filter-casing, a discharge or washing pipe embedded therein and provided with openings upon its exposed portions, and a second perforated pipe within said pipe, substantially as described.

482,486.



482,487. CHECK-ROW PLANTER. STORM B. SARE, Narka, Kans. Filed Apr. 16, 1892. Serial No. 429,477. (No model.)



Claim.—1. In a check-row planter, the combination of shaft M, adapted to be actuated from a drive-wheel of the machine, a trip on the said shaft, a reciprocating bar having one side cut away to form abutting shoulders for the said trip to engage with, a seed-slide, a lever connecting the seed-slide with the said reciprocating bar and having a slot midway of its ends, and a pin adjustably connected with the frame of the machine and adapted to enter the slot in said lever, substantially as described.

2. In a check-row corn-planter, the combination of the standards F, a reciprocating bar slotted at its ends to receive the said standards and having its middle portion cut away and provided with rollers at the ends of said cut-away portions, a lever having an adjustable fulcrum and adapted to connect the seed-slide with said reciprocating bar, shaft M, operated from a drive-wheel of the planter, and a trip on the said shaft to engage with the said rollers and actuate the said reciprocating bar, substantially as described.

3. In a check-row planter, the combination of shaft M, adapted to be operated from a drive-wheel of the planter, the reciprocating bar E, having connection with and adapted to drive the seed-slide, and a trip adjustable in its length secured to the said shaft M to operate and vary the throw of the said bar, substantially as described.

4. In a check-row corn-planter, the combination, with a pivoted arm K, a hook to engage with the said arm and retain it in a normal position, and a reciprocating bar to operate the seed-slide, of a dog carried by the said hook to hold the latter in an operative position, a block carrying a roller, and a cam on the said reciprocating bar to engage with the said roller and release the dog, substantially as and for the purpose described.

5. In a check-row corn-planter, the combination of shaft N, shaft M, operated from shaft N, a clutch to throw the machine in and out of gear, a hook having engagement with and adapted to gear and ungear the said clutch, a dog and a block carried by the said hook, a lever to independently operate the hook and the said block, an arm adapted to carry the marker and be held in a normal position by the said hook, and a reciprocating bar having a cam to engage with the said roller on the block to liberate the hook and the said arm, substantially as described.

6. In a planter, the combination, with an arm and means for actuating the same, of a marking-pin having a head portion and provided with a forked plate to embrace the sides of the said arm and retain the pin in place, substantially as described.

7. In a planter, the combination, with two arms extending in opposite directions and pivoted between their ends, of an adjustable hinge connection uniting the inner ends of the said arms, substantially as set forth.

482,488. PROCESS OF REDUCING ZINC. CHRISTOPHER JAMES, Swansea, England. Filed Dec. 28, 1891. Serial No. 416,209. (No specimens.) Patented in England July 7, 1891, No. 11,563; in Belgium Aug. 17, 1891, No. 95,763; in Spain Sept. 23, 1891, No. 12,373, and in France Nov. 16, 1891, No. 216,113.

Claim.—A process for the treatment of sulphide-zinc ores, consisting of partially calcining the ore, discontinuing the calcination when a portion of the ore is brought to the condition of a sulphate, melting the partially-calcined ore in a reverberatory or suitable furnace, and collecting the volatilized zinc by condensation in a chamber distinct from the furnace, substantially as described.

482,489. PNEUMATIC SEWERAGE SYSTEM. CHARLES T. LIEBNER, Berlin, Germany. Filed Feb. 17, 1887. Serial No. 227,983. (No model.) Patented in Germany Nov. 11, 1886, No. 40,488.



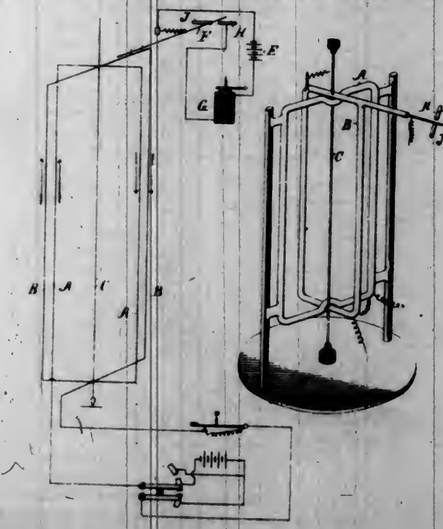
Claim.—1. A sewerage system consisting of district-reservoirs, district-pipes leading thereto, house-pipes leading to the district-pipes, with traps interposed between the house and district pipes, discharge-pipes M between the district-reservoirs and the receiving-station, valved passages from the district-reservoir to the open air, valves for shutting off drainage communication to the district-reservoirs and opening communication to the receiving-station, and a suction-pump at the receiving-station, receiving-reservoirs connecting with the discharge-pipes M, and a collecting-tank in connection with the reservoirs, substantially as described.

2. In a sewerage system, a district-pipe, a house-pipe *b*, a vacuum-pump for forming a vacuum in the district-pipes *a*, and traps interposed between the district-pipes and house-pipes, said traps being of varying heights relatively to their distance from the suction-power, substantially as described.

3. In a sewerage system, a district-reservoir, district-pipes leading thereto, a discharge-pipe M from said reservoir, an air-valve in said reservoir, a valve E, controlling the discharge of the contents of the reservoir, a vacuum-pump in connection with the pipe, and an air-inlet on the opposite side of the valve E, substantially as described.

4. In a sewerage system, a collecting-tank for receiving the sewerage material, a rotating screw Q, a casing surrounding said screw, a vertical partition D between the casing and the walls of the tank, and a horizontal partition with a space between it and the bottom of the tank and a discharge.

482,440. TELEGRAPH-RELAY. WILLIAM MAYER, Jr., New York, N. Y. Filed July 18, 1891. Serial No. 399,914. (No model.)

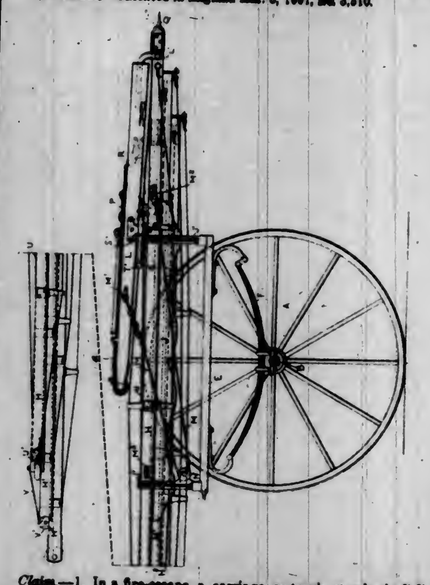


Claim.—1. In a telegraph system, the combination of a main-line conductor, ironless rectangular coils, a rotary arbor carrying one of the coils, the other coil being stationary and both coils being in series with each other and in circuit with the said main-line conductor, two opposite sides of the one coil being at an angle with two opposite sides of the other coil in proximity to said arbor, while the remaining sides of the coils are all parallel to one another, an independent or local line conductor, and a circuit-closer in circuit therewith and controlled by that coil which is carried on said arbor.

2. In a telegraph system, the combination of a main-line conductor, relatively-movable coils in series with each other and in circuit with the main-line conductor, two portions of each coil being at an angle to two portions of the other and the remaining portions of each coil being parallel to one another, an independent or local line conductor, and a circuit-closer in circuit therewith and controlled by that coil which is movable.

3. A telegraph-relay consisting of the combination of relatively-movable rectangular coils, which are free from iron and whose four longest sides are parallel to one another, and a circuit-closer carried by one of the coils, for the purpose set forth.

482,441. FIRE-ESCAPE AND SCALING-LADDER. GEORGE W. MELVIN, Deptford, England. Filed June 9, 1888. Serial No. 435,376. (No model.) Patented in England Mar. 3, 1891, No. 3,810.



Claim.—1. In a fire-escape, a carriage or truck, standards J' J', extending upwardly therefrom, a ladder or ladders supported by said standards, a lever L, hinged to one end of the main ladder, and operating-ropes M M, attached to the lever L and extending directly to and over pulleys on the front of the carriage and thence to the main ladder, substantially as described.

2. In combination with the ladders, the supporting-frame and the overhanging pivoted part W under spring tension, substantially as described.

3. In a fire-escape or scaling-ladder, the combination of projections S S on the lever L L with the standards J' J' on the carriage, substantially as and for the purpose set forth.

4. In a fire-escape, the combination of the carriage or truck, the standards J' J' thereon, the ladder H, supported by said standards, the lever L, provided with operating-ropes M M, extending from said lever to the ladder over pulleys on the carriage, and the additional studs M^2 M^2, substantially as described.

5. In a fire-escape or scaling-ladder, the combination, with the standards J' and the ladder, of pivoted fingers W, provided with springs X for the purpose of enabling the ladders to be readily removed from the carriage, substantially as set forth.

482,442. MUSICAL NOTATION. JOHN W. ROSEBORO, Belchertville, Tex. Filed May 18, 1891. Serial No. 393,261. (No model.)

Claim.—1. The improved music-sheet having the four staffs

graphically indicated, as described, the first in broad heavy lines, the next in light lines, the third in double lines, and the fourth in two light and two double lines, each having spaces of unequal width and dotted lines therein, substantially as specified.

2. The improved music-sheet having the repeat character, consisting of the cross-lines and dots, arranged substantially as set forth.

of guide-sheaves for the hauling-rope, the upper pair of said guide sheaves having flanges on their inner faces and the lower pair having flanges on their outer faces, substantially as described.

6. In a conveying device, the combination, with a divided hauling-rope having supports for a hoisting-rope, of guide-sheaves separated by a space corresponding to that which separates the branches of the hauling-rope, a hoisting-rope, and a guide-pulley for the hoisting-rope, located in a place between the hauling-rope guide-sheaves, substantially as described.

coupling-pin hole thereof, a shoulder or offset in one of the grooves, and a coupling-pin having one or more studs or splines coinciding with said grooves, the shoulder specified being adapted to hold the pin by its projecting stud up for the passage of the link and to liberate it by the shock of coupling.

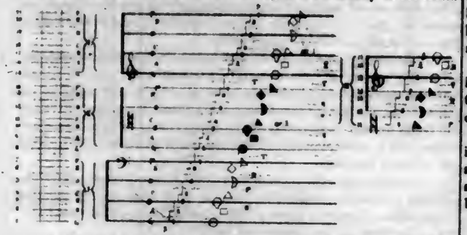
2. In a car-coupler of the class specified, the combination of a draw-head substantially as described, a locking-block pivoted at its forward upper portion on a transverse pin in the draw-head and adapted to swing down to locking position by its gravity alone, means, substantially as described, for liberating the same, a pivoted knuckle

sections coupling the reversing-arms and the flexible covering, substantially as set forth.

5. The combination of a reversible seat-back, reversing-arms connected thereto with the capacity of relative revolutionary movement, a roller connected to the reversing-arms, a flexible covering or upholstering connected at its ends to the seat-back, and a connection coupling the roller and the covering, substantially as set forth

graphically indicated, as described, the first in broad heavy lines, the next in light lines, the third in double lines, and the fourth in two light and two double lines, each having spaces of unequal width and dotted lines therein, substantially as specified.

2. The improved music-sheet having the repeat character, consisting of the cross-lines and dots, arranged substantially as set forth.



3. The improved music-sheet having annotated staffs, as described, the first in broad heavy lines, the second in light lines, the third in double lines, and the fourth in two light and two double lines, each having spaces of unequal width and dotted lines in the spaces parallel to the ledger-lines, the fourth being inclosed in the brace connecting the two lower lines of the treble-staff and the two upper lines of the tenor-staff, substantially as specified.

482,443. CONVEYING AND HOISTING DEVICE. EDMUND G. SPILSBURY, Trenton, N. J., assignor to the Trenton Iron Company, same place. Filed Apr. 19, 1892. Serial No. 429,732. (No model.)



Claim.—1. In a conveying device, the combination, with a traveling carriage, of a hauling-rope for said carriage and a hoisting-rope supported by the hauling-rope, and thereby being prevented from sagging, substantially as described.

2. In a conveying device, the combination, with a traveling carriage, of a hoisting-rope, a divided hauling-rope having its branches separated from each other by an intervening space, and supports suspended between the branches to prevent sagging of the hoisting-rope, substantially as described.

3. In a conveying device, the combination, with a traveling carriage, of a hoisting-rope, a divided hauling-rope having its branches separated from each other by an intervening space, and supporting-rollers suspended between the branches to prevent sagging of the hoisting-rope, substantially as described.

4. In a conveying device, the combination, with a traveling carriage, of a hoisting-rope, a divided hauling-rope having its branches separated from each other by an intervening space, clips secured to the branches, and supporting-rollers mounted between said clips, said rollers preventing the sagging of the hoisting-rope, substantially as described.

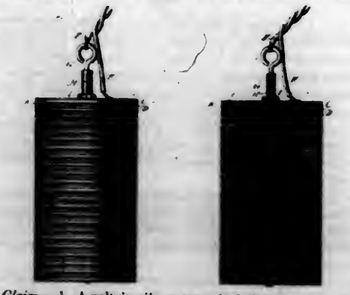
5. In a conveying device the combination, with a divided hauling-rope having its branches separated by an intervening space, of clips secured to the two branches, said clips having inwardly and downwardly inclined bearings, rollers mounted within said bearings, and two pairs of guide-sheaves for the hauling-rope, the upper pair of said guide-sheaves having flanges on their inner faces and the lower pair having flanges on their outer faces, substantially as described.

6. In a conveying device, the combination, with a divided hauling-rope having supports for a hoisting-rope, of guide-sheaves separated by a space corresponding to that which separates the branches of the hauling-rope, a hoisting-rope, and a guide-pulley for the hoisting-rope, located in a plane between the hauling-rope guide-sheaves, substantially as described.

7. In a conveying device, the combination, with a divided hauling-rope and supports for a hoisting-rope, of a driving-pulley having two independent sets of gripping devices, one for each division or branch of the hauling-rope, substantially as described.

8. In a conveying device, the combination, with a divided hauling-rope, of a driving-pulley provided with face-plates having outlying side flanges and gripping-dogs located within spaces intermediate the side flanges and face-plates, the branches of the hauling-rope passing between the dogs and the face-plates, substantially as described.

482,444. VOLTAIC PILE. WILLIAM E. WASHBURN, Cedar Rapids, Iowa, assignor of two-thirds to F. S. Washburn and F. E. Washburn, same place. Filed June 14, 1892. Serial No. 436,690. (No model.)

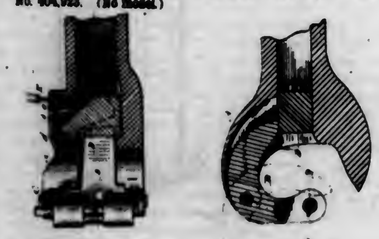


Claim.—1. A voltaic pile composed of alternate layers of positive and negative electric elements and interposed alternately-arranged absorbents and non-conductors, one of said elements having a small portion extending past the insulation and in contact with the opposite element, whereby the pile is adapted to operate by immersion in a suitable exciting-fluid, substantially as described.

2. In a voltaic pile, the combination of positive and negative elements in alternating series, interposed absorbents and non-conductors also in alternating series, with contact-points to connect the elements separated by the non-conductors, and an insulated stem passing through the entire series and having an electrical connection with one of the elements at one end, and means for closing the circuit, substantially as described.

3. The herein-described voltaic pile, composed of disks of copper and zinc, separating disks of porous paper and paraffine arranged in alternating order, as specified, a lip on each of the disks of one element adapted to make a point of contact with the disks of the opposite element, an insulated rod or wire passing through all the disks and connecting electrically with one of the terminal disks corresponding electrically with itself, a clamp-ring to hold the parts together, and circuit-closing means, substantially as described.

482,445. CAR-COUPLING. DYER WILLIAMS, Cedar Rapids, Iowa, assignor to Florence Williams, same place. Filed Sept. 7, 1891. Serial No. 404,923. (No model.)

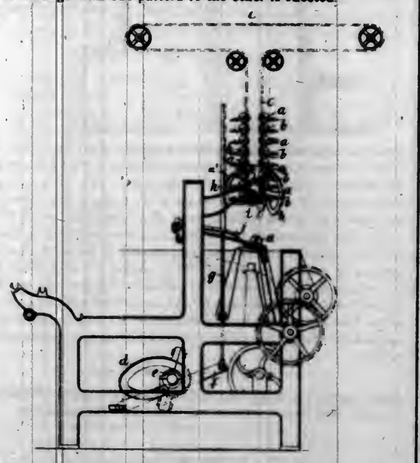


Claim.—1. In a car-coupler of the class specified, the combination of the knuckle having one or more longitudinal grooves in the coupling-pin hole thereof, a shoulder or offset in one of the grooves, and a coupling-pin having one or more studs or splines coinciding with said grooves, the shoulder specified being adapted to hold the pin by its projecting stud up for the passage of the link and to liberate it by the shock of coupling.

2. In a car-coupler of the class specified, the combination of a draw-head substantially as described, a locking-block pivoted at its forward upper portion on a transverse pin in the draw-head and adapted to swing down to locking position by its gravity alone, means, substantially as described, for liberating the same, a pivoted knuckle with coupling-pin holes provided with one or more internal grooves to receive a stud or spline and with a slight offset in one of said grooves, and a coupling-pin having one or more studs or splines fitting loosely in said groove or grooves, substantially as and for the purpose set forth.

482,446. LOOM FOR WEAVING TUFTED FABRICS. HENRY DIXON, Kidderminster, England. Filed Dec. 30, 1891. Serial No. 416,571. (No model.)

Brief.—For weaving fabrics having end borders two patterns are arranged upon the alternate bars of the chain, which chain is turned two bars at a time. By turning the chain forward or backward one bar the change from one pattern to the other is effected.



Claim.—In a loom for weaving tufted pile fabrics, the combination of a drum or cylinder, an endless chain carried thereby, two sets of bobbins, each set constituting a pattern, one set being carried by the alternate links of the chain and the other set by intermediate links, arms, substantially as described, adapted to take each bobbin, as required, from the chain to pass it through the warp and return it to the chain, means for moving the chain forward two links step by step, and a lever to turn said drum or cylinder to thereby move the chain backward or forward one link to weave from the alternate set of bobbins.

482,447. REVERSIBLE BACK FOR CAR OR OTHER SEATS. MATTHIAS N. FORREST, New York, N. Y. Filed Apr. 4, 1892. Serial No. 427,666. (No model.)

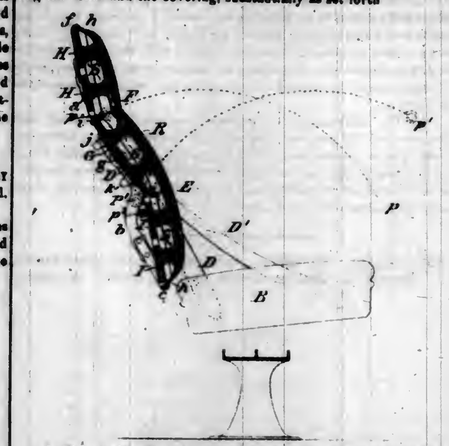
Claim.—1. The combination of a reversible seat-back having a flexible or articulated body, reversing-arms pivotally connected to said seat-back, and transmitting mechanism interposed between the reversing-arms and the flexible body, whereby the form of the surface of the body is changed in and by the reversal of the seat-back, substantially as set forth.

2. The combination of a reversible seat-back, reversing-arms connected thereto, and rotary mechanism connected to the reversing-arms and to the upholstery of the seat-back and acting to extend and depress different portions thereof in and by the reversal of the seat-back, substantially as set forth.

3. The combination of a reversible seat-back having a flexible or articulated body, reversing-arms connected to said seat-back, members connected to and deriving movements of rotation from the reversing-arms, and connections interposed between said rotary members and the flexible or articulated body, substantially as set forth.

4. The combination of a reversible seat-back, reversing-arms connected thereto, a flexible covering adapted to be automatically changed in form in and by the reversal of the seat-back, and intermediate connections coupling the reversing-arms and the flexible covering, substantially as set forth.

5. The combination of a reversible seat-back, reversing-arms connected thereto with the capacity of relative revolutionary movement, a roller connected to the reversing-arms, a flexible covering or upholstering connected at its ends to the seat-back, and a connection coupling the roller and the covering, substantially as set forth



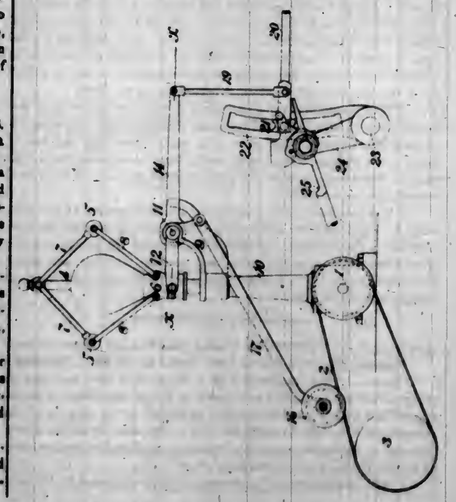
6. The combination of a reversible seat-back provided with flexible or articulated backing and reversing mechanism adapted to effect a change of form of the seat-back in and by its movement during reversal, substantially as set forth.

7. The combination of a reversible seat-back, flexible or articulated backing connected to the seat-back frame at its upper and lower edges and pivoted to it in the middle, and reversing mechanism adapted to effect a change of the form of the back in and by its reversal, substantially as set forth.

8. The combination of a reversible seat-back, backing consisting of a central section and upper and lower sections flexibly connected to the central section and to the seat-back frame, and reversing mechanism whereby the form of the back is changed in and by its reversal, substantially as set forth.

9. The combination of a reversible seat-back provided with flexible or articulated backing or elastic upholstry, reversing-arms connected to the back, and stops which engage with it to change the form of its surface in and by its reversal, substantially as set forth.

482,448. GOVERNOR. JAMES HEMPHILL and JOSEPH FAWELL, Pittsburg, Pa. Filed Feb. 15, 1892. Serial No. 421,943. (No model.)



Claim.—1. The combination of a governor, a lever operated by the governor and adapted to regulate the movement of the valve controlling the flow of steam to the cylinder of the engine, said lever being formed in two sections, and a lock for normally holding the sections of said lever in approximate parallelism with each other, substantially as set forth.

2. The combination of a governor, a lever operated by the governor and adapted to regulate the movements of the valve controlling the flow of steam to the cylinder of the engine, said lever being formed in two parts or sections, a lock for holding each sections in approximate parallelism with each other, and means operative on the rupture of the governor-driving belt for unlocking said sections, substantially as set forth.

482,450.

of the sheet being coated in sectional transfer-colorings adapted to be impressed upon another surface when traced by a stylus or pencil, substantially as described.

482,452. SHAKING-GRATE. CHARLIE E. MARX, Cleveland, Ohio. Filed Oct. 26, 1891. Serial No. 409,923. (No model.)

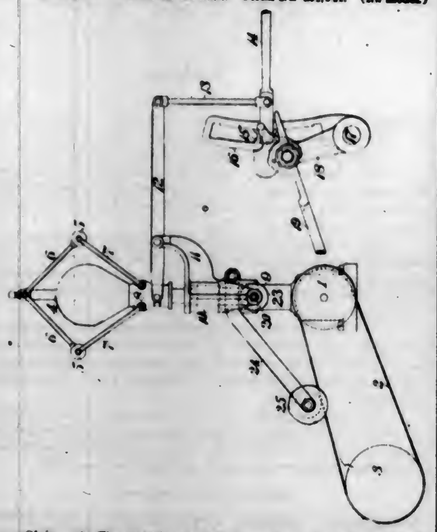
Claim.—1. In a power bottle-corking machine, the combination, with the driving-shaft 1 and its pinion, the crank-shaft M, with its gear-wheel O, the clutch Q, its engaging-key *c*, the disengaging spring-bolt V, and the connected treadle U, the connected vertically-reciprocating cork-plunger and bar E, with its curved slot *h*, and the opening and closing cork-guide F, of the bottle-rest H, with its lifting-lever Y from the treadle U, the adjustable collar *p'* and spring *z*, and its automatic grip-levers 6 and 7, and the releasing-link 8, and pin 10, all arranged to operate substantially as and for the purpose herein set forth.

Claim.—1. The combination of a governor, a lever operated by the governor and adapted to regulate the movement of the valve controlling the flow of steam to the cylinder of the engine, said lever being formed in two sections, and a lock for normally holding the sections of said lever in approximate parallelism with each other, substantially as set forth.

2. The combination of a governor, a lever operated by the governor and adapted to regulate the movements of the valve controlling the flow of steam to the cylinder of the engine, said lever being formed in two parts or sections, a lock for holding such sections in approximate parallelism with each other, and means operative on the rupture of the governor-driving belt for unlocking said sections, substantially as set forth.

3. The combination of a governor, a pivot-pin connected with the sleeve of said governor and oscillated thereby, said pin being provided with an angular and a rounded portion, a lever normally fitting on said angular portion, and means operative on a rupture of the governor-driving belt for shifting the lever onto the rounded portion of the pivot-pin, substantially as set forth.

482,449. GOVERNOR. JAMES HEMPHILL and JOSEPH FAWELL, Pittsburg, Pa. Filed Feb. 15, 1892. Serial No. 421,641. (No model.)



Claim.—1. The combination of a governor, a lever having its inner end connected to the governor and its outer end to the stem of a valve controlling the flow of steam to the cylinder of an engine through suitable interposed mechanism, and means for so shifting the pivotal support of the lever and thereby lower the outer end of the lever as to shift the valve over the inlet-ports of the cylinder in case of a rupture of the governor-driving belt, substantially as set forth.

2. The combination of a governor, a lever having its inner end connected to the governor and its outer end connected by suitable interposed mechanism to the stem of a valve controlling the flow of steam to the cylinder of an engine, and means for lowering the pivotal support of the lever in case of a rupture of the governor-driving belt, substantially as set forth.

3. The combination of a governor, a lever operated by the governor for regulating the movements of the valve controlling the flow of steam to the cylinder, a sliding sleeve forming the pivotal support for the lever and supported in normal position by a pin, and means for removing said pin in case of rupture of the governor-driving belt, substantially as set forth.

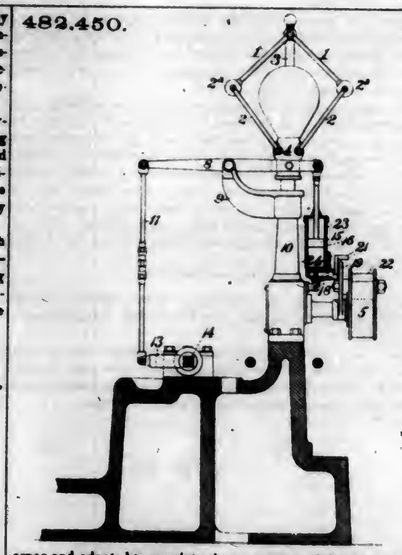
482,450. GOVERNOR. JAMES HEMPHILL and JOSEPH FAWELL, Pittsburg, Pa. Filed Feb. 15, 1892. Serial No. 421,642. (No model.)

Claim.—1. The combination of a governor, a lever operated by the governor and connected to the stem of the cut-off valve of a steam-engine, and a fluid-pressure cylinder operative on the rupture of the governor-driving belt to shift the lever in the same direction and to the same or a greater extent than would be produced by the governor at an abnormal speed, substantially as set forth.

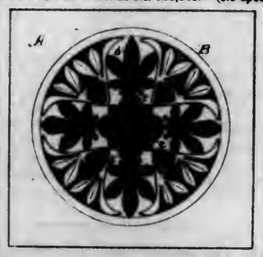
2. The combination of a governor, a lever operated by the governor and adapted to regulate the movement of the valve controlling the flow of steam to the cylinder of an engine, a fluid-pressure cylinder having its piston connected to the lever, and a valve mechanism controlling the flow of fluid-pressure to the cylinder and operative on the rupture of the governor-driving belt, substantially as set forth.

3. The combination of a governor, a lever operated by the governor and adapted to regulate the movements of the valve controlling the flow of steam to the cylinder of an engine, a fluid-pressure cylinder having its piston connected to the lever and provided at or near its ends with outlet-ports, and a valve mechanism controlling the flow of the fluid-pressure to the cylinder and of air from the cylinder and operative on the rupture of the governor-driving belt, substantially as set forth.

482,450.



482,451. TRANSFER-SHEET. FREDERICK KOSTUI, Williamsport, Pa. Filed Nov. 5, 1889. Serial No. 329,375. (No specimens.)



Claim.—1. As a new article of manufacture, the transfer-sheet herein described, comprising a single sheet of translucent paper and a design or pattern impressed or inscribed thereon by ink, which impresses the outlines of the pattern upon another surface when the same is traced by a pencil or stylus following the outlines of the pattern, which are visible on the top surface of the sheet, substantially as described.

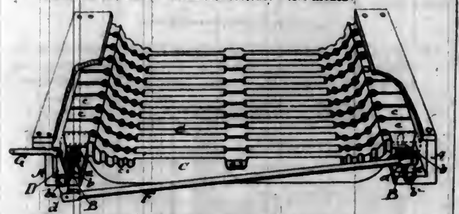
2. As a new article of manufacture, a reversible transfer sheet consisting of a sheet of paper and the coincident patterns or designs impressed on the two surfaces of said sheet, substantially as described.

3. As a new article of manufacture, a transfer-sheet having an ink pattern or design impressed thereon, said pattern being variously colored and adapted to be transferred to another surface or sheet when traced by a stylus or pencil, substantially as described.

4. As a new article of manufacture, a reversible sheet having a pattern or design impressed on both surfaces thereof, the pattern on one surface registering with that on the other surface, and both patterns being correspondingly colored in two or more colors, substantially as described.

5. As a new article of manufacture, a transfer-sheet comprising a single sheet of paper and a design or pattern thereon, one of the faces of the sheet being coated in sectional transfer-colorings adapted to be impressed upon another surface when traced by a stylus or pencil, substantially as described.

482,452. SHAKING-GRATE. CHARLES E. MARK, Cleveland, Ohio. Filed Oct. 26, 1891. Serial No. 409,923. (No model.)



Claim.—In a shaking-grate, the angle-plates A, having seats for the rock-shafts, rock-shafts B B, mounted therein and provided with the pins or lugs *b b*, grate-bars C C, having socketed heads *c c*, supported on said pins in reverse order, and means for rocking said shafts oppositely, whereby the grate-bars have imparted to them the reciprocating movements, substantially as and for the purpose specified.

482,453. BENCH-BLOCK FOR DENTISTS, JEWELERS, AND OTHERS. GEORGE W. MELOTTE and CHARLES M. CLIFTON, Ithaca, N. Y.; said Clinton assignor to said Melotte. Filed May 14, 1892. Serial No. 433,094. (No model.)

Brief.—Different blocks are adjustably supported upon a single bracket by means of a rotating hub of several arms.



Claim.—1. In combination, the bracket having a hub-supporting stud, the transversely cored-out hub having a bore 6 and adapted to support two or more blocks of different character at an angle to the stud, the plug screwing into the stud and provided with a head fitting said bore, and a spring bearing in said head and on the hub, whereby the hub is held endwise on the stud, substantially as set forth.

2. The combination of the bracket adapted to be attached to a bench or table and provided with a hub-supporting stud and a multiple-armed hub rotatably secured thereon, provided with sockets each having a block, and a lock adapted to hold the hub in any desired one of several situations, substantially as set forth.

3. The combination, with a bracket and with a rotatably-adjustable-and socketed hub, of an anvil supported in one of said sockets and a lock adapted to secure the anvil in different positions when suitably rotated, substantially as set forth.

4. In combination, the bracket having a hub-supporting stud 3, the hub provided with passage 6 to receive the stud and provided, also, with passage 12 to permit the insertion of an anvil-fastening screw-plug 10 and to give access to the said plug for its removal, and a detachable anvil 18, substantially as set forth.

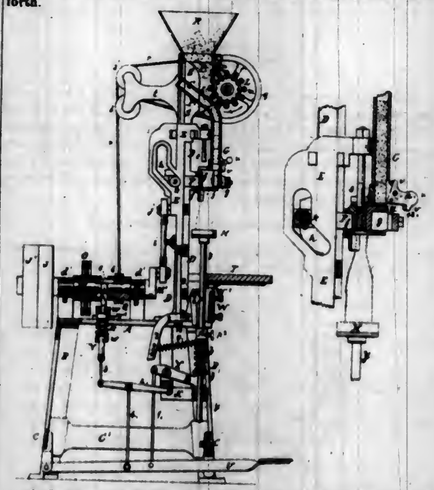
5. The combination of the bracket provided with a pin and with a stud and having a plurality of block-supporting arms and the block-supporting hub fitted to be supported and turned upon said stud and having, also, notches to receive said pin, substantially as set forth.

6. The combination of the bracket provided with a pin and with a stud and having a plurality of block-supporting arms, and the block-supporting hub fitted to be supported and turned upon said stud and having, also, notches to receive said pin, and a spring normally holding the pin in the notch when they are suitably engaged to lock the hub against rotation, substantially as set forth.

7. In combination with the block-supporting stud, the split thimble, the spring tending to spread said thimble situated in a recess in the stud, and said block suitably apertured to embrace the thimble on the stud, substantially as set forth.

482,454. POWER BOTTLE-CORKING MACHINE. DAVID MUELLER, New York, N. Y., assignor to the Bottlers' and Brewers' Machine Manufacturing Company. Filed Feb. 2, 1892. Serial No. 420,080. (No model.)

Claim.—1. In a power bottle-corking machine, the combination, with the driving-shaft I and its pinion, the crank-shaft M, with its gear-wheel O, the clutch Q, its engaging-key *c*, the disengaging spring-bolt V, and the connected treadle U, the connected vertically-reciprocating cork-plunger and bar E, with its curved slot *k*, and the opening and closing cork-guide F, of the bottle-rest H, with its lifting-lever Y from the treadle U, the adjustable collar *p'* and spring *z*, and its automatic grip-levers 6 and 7, and the releasing-link 8, and pin 10, all arranged to operate substantially as and for the purpose herein set forth.

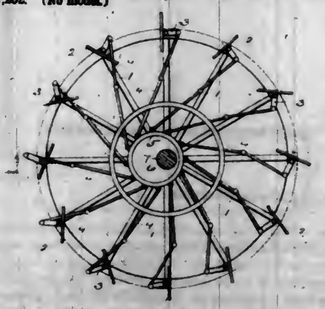


2. In a power bottle-corking machine, the combination, with the driving-shaft I, its pinion and belt-pulley, the crank-shaft M, the reciprocating plunger *e*, the opening and closing cork-guide F, and bottle-rest H, of the cork-hopper P, the connected and revolving agitating-drum L, with its projections *m* and guide-bands *n*, the cork-plunger bar E, with its agitating-blade S, and the feed-tube G, with its cut-off pawl *u*, all arranged to operate automatically in feeding each cork for each downstroke of the cork-plunger, substantially as and for the purpose herein described.

3. In a power bottle-corking machine, the combination, with the driving-shaft I, and the hopper P, the cork-plunger *e*, and cork guide F, with its connected sliding section, of the revolving drum L, with its projections *m*, its grooves *p*, and bands *n*, the feed-tube G, its cut-off pawl *u*, and the reciprocating plate S, substantially as and for the purpose herein stated.

4. In a power bottle-corking machine, the combination, with the cork-plunger *e* and guide-bar E, of the bottle-rest H, its rod *y*, its guide-case W', with the grip-lever 6, the link 8, its pin 10, and the lever 7, the spring *z*, the collars *p'* and *z'*, the lever Y, and treadle U, substantially as and for the purpose herein set forth.

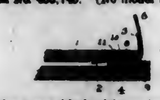
482,455. FEATHERING PADDLE-WHEEL. CHARLES H. MCCREADY, West Bridgewater, Pa. Filed June 23, 1891. Serial No. 397,262. (No model.)



Claim.—The herein-described paddle-wheel for steamboats, comprising the frame having arms, a series of buckets pivoted to the periphery of said frame, short cranks secured to the ends of the journals of said buckets, eccentrics on the shaft of the wheel adjacent to the

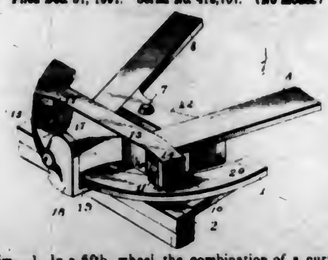
bearings thereof and provided with an eccircling strap, and jointed rods, each pivoted at its inner end to said strap and at its outer end to one of said cranks, said eccentric being adapted to enter and lift the buckets vertically into and out of the water, and said buckets being free to oscillate in their bearings, as described.

482,456. SHOE. EVAN MCDONALD, Rochester, N. Y. Filed May 20, 1892. Serial No. 433,745. (No model.)



Claim.—The shoe provided with an insole having a portion cut away at its edges, forming a recess below the surface of the sole, and a shoulder, combined with a folded strip of canvas, leather, or other material fastened in the bottom of said recess and with the upper secured to the insole by stitches passing through the upper under the strip at the bottom of said recess and through the insole within the recess, substantially as set forth.

482,457. FIFTH-WHEEL. FRANK MCLAUGHLIN, Baker's Corner, Ind. Filed Dec. 31, 1891. Serial No. 416,707. (No model.)



Claim.—1. In a fifth-wheel, the combination of a curved plate forming a track and designed to be mounted on an axle, the bar 13, provided at its ends with recesses, a casing secured at the front of the bar and receiving the curved plate and composed of a recessed block, a vertically-disposed plate secured to the front of the block and having a horizontal flange extending rearward from the lower end of the vertical plate, and rollers arranged in said recesses and in the casing and mounted on the track, substantially as described.

2. In a fifth-wheel, the combination of a curved plate, the cross-bar 13, provided with forwardly-extending ends arranged at an angle to the body of the cross-bar 13, a casing centrally secured to the bar, and rollers mounted on the curved plate and arranged at the ends of the bar 13 and in the casing, substantially as described.

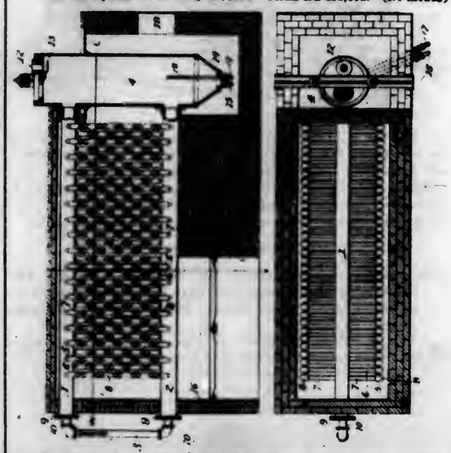
3. In a fifth-wheel, the combination of a curved plate having a transverse bar and provided with rearwardly-extending arms terminating in a socket, an eyebolt journaled in the socket, the cross-bar 13, a casing centrally secured to the bar, and rollers mounted on the curved plate and arranged at the ends of the bar 13 and in the casing, substantially as described.

482,458. FURNACE. VINCENT J. PARNELL, Farmington, Mo. Filed Apr. 25, 1891. Serial No. 390,510. (No model.)



Claim.—The combination, with a heater having a grate at its front end, an exit-flue leading from the center of its rear end, and a boiler mounted upon the heater and divided into sections by a transverse vertical partition, of a transverse horizontal partition within the heater, extending from a point slightly forward of the center of the mouth of said exit-flue to a point beneath said vertical partition, where it terminates, rods journaled in the sides of the casing and extending across the ends of this horizontal partition, handles on the ends of said rods, an L-shaped damper fixed upon the front rod at the inner terminal of said partition and adapted in both positions to have one wing thereof form a rear wall for the heater fire-box, while the other wing rests flat upon either side of the partition, said L-shaped damper being adapted to divide the currents of heat directly in a line below the vertical partition, and a flat damper fixed upon the rear rod and of a width to strike the rear end of the heater above said mouth, as and for the purpose hereinbefore set forth.

482,459. STEAM-BOILER. JAMES POLLOCK, Wilkes-Barre, Pa., assignor, by mesne assignments, to the Wyoming Boiler Company, Limited, same place. Filed May 13, 1892. Serial No. 433,892. (No model.)



Claim.—1. In a steam-boiler, the combination of the horizontal steam-drum, the horizontal water-drum, the vertical connections 3 4 at the ends of said drums, and the two series of zigzag pipes connecting said drums, substantially as described.

2. In a steam-boiler, the horizontal steam and water drums having their forward ends extending through the front wall of the furnace and provided with removable covering-plates, the vertical pipe 3, communicating with the forward ends of the drums, the enlarged casing 4, with which the rear ends of the drums communicate, and the zigzag pipes arranged in two series and communicating with both of said drums, substantially as described.

3. The combination, with the horizontal drums, the zigzag tubes connecting said drums, and the vertical pipe 3, extending between the forward ends of said drums, of a vertical casing 4 in communication with the rear ends of the drums, said casing having a steam-outlet at the upper end and a conical bottom and blow-off pipe at its lower end, substantially as described.

4. The combination, with horizontal steam and water drums, of two series of zigzag pipes connecting said drums, an enlarged cylindrical casing connected to the rear ends of said drums, a steam-outlet at the upper end of the casing, a perforated water-inlet pipe near the lower end of the casing, and a blow-off pipe 15 at the bottom of the casing, substantially as described.

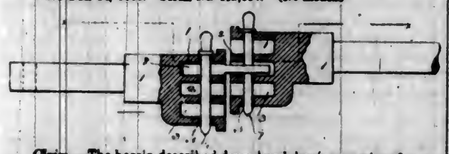
482,460. FLOOD-FENCE. JOHN H. POULTER, Arcola, Ill. Filed Dec. 18, 1889. Renewed Feb. 18, 1892. Serial No. 422,035. (No model.)



Claim.—In a flood-fence, the combination, with the swinging panel comprising a cylindrical head linked to suitable posts or supports and having suitable pickets secured therein, of the adjacent fence-panels having short bottom rails and long upper rails, the latter being extended into the path of the swinging head and of the end pickets

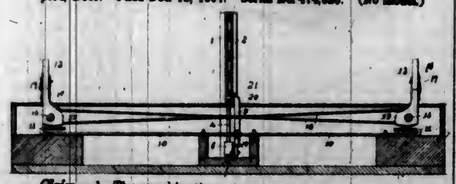
of the swinging panel to form a stop for the latter to limit its swinging movement in either direction, substantially as and for the purpose set forth.

482,461. CAR-COUPLING. JOHN A. SAMPLE, Wilkinsburg, Pa. Filed Dec. 14, 1891. Serial No. 415,087. (No model.)



Claim.—The herein-described draw-head, having a series of openings arranged in the front face, the one above the other, and a vertical opening for the pin passing through the said openings, in combination with a link having a rectangular portion adapted to fit into one of the openings, a circular opening through the said rectangular portion, and the reduced end of the said link having an opening for the pin of the other draw-head, and a point formed on the said link, substantially as and for the purpose described.

482,462. AUTOMATIC GATE. RANDOLPH E. SLAWSON, Davenport, Nebr. Filed Dec. 12, 1891. Serial No. 414,889. (No model.)



Claim.—1. The combination of a swinging gate provided with a horizontally-extending arm, a rock-shaft disposed longitudinally of the roadway and provided with an intermediate arm connected with the said arm of the gate and having terminal arms, and levers adapted to be moved by a vehicle-axle and arranged to engage the terminal arms to turn the rock-shaft, substantially as described.

2. The combination of a swinging gate having a depending portion and provided with an arm extending therefrom, a rock-shaft arranged at right angles to the gate and provided at its ends with arms and having a centrally-arranged arm, a rod connecting the central arm of the rock-shaft with the arm of the gate, and cam-levers pivotally mounted above the ends of the rock-shaft and arranged to be operated by a vehicle to depress the arms at the ends of the rock-shaft, substantially as described.

3. The combination of a swinging gate having a depending portion and having an arm extending therefrom, a rock-shaft provided at its ends with arms and having intermediate of its ends an arm 9, connected with the arm of the gate, levers mounted above the ends of the rock-shaft and adapted to depress its terminal arms and provided with outwardly-swinging hinged sections, and connections between the hinged sections of one lever and the body of the other lever, substantially as described.

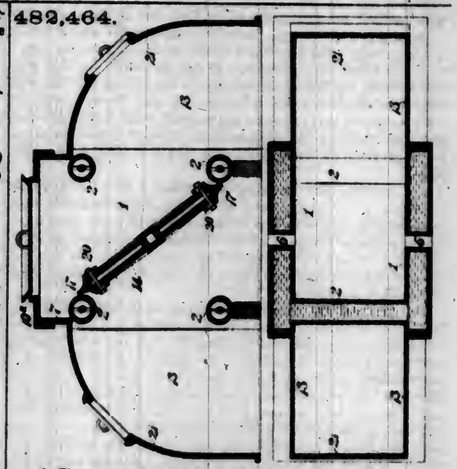
4. The combination of a swinging gate having a depending portion and provided with an arm extending therefrom, a rock-shaft provided intermediate of its ends with an arm connected with the arm of the gate and having at its ends arms, cam-levers mounted above the ends of the rock-shaft and arranged to depress its arms and provided with outwardly-swinging hinged sections, connections between the hinged section of one lever and the cam of the other lever, and springs for holding the hinged section in alignment with the other portions of the levers, substantially as described.

5. The combination of the swinging gates provided with horizontally-extending arms, a rock-shaft disposed longitudinally of the roadway and provided intermediate of its ends with a beveled projection and with an arm connecting with the said arms, said rock-shaft having terminal arms, the axle-operated levers arranged to engage the terminal arms, and a latch mounted on one of the gates and adapted to engage the other and arranged to be engaged by the said beveled projection, substantially as described.

482,463. CASING FOR FURNACE-VALVES. WILLIAM SWINDELL, Pittsburg, Pa. Filed Feb. 1, 1892. Serial No. 419,910. (No model.)

Claim.—1. The combination, in a valve-chamber for furnaces, of hollow side walls or casings, tubes connecting such walls or casings, a valve adapted to seat itself in its several positions against such tubes, and pipes for introducing water into the casing, substantially as set forth.

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2. The combination, in a valve-chamber for furnaces, of tubes arranged transversely of the chamber and connected to a suitable water-supply and a valve adapted to seat itself in its normal positions against said tubes, substantially as set forth.

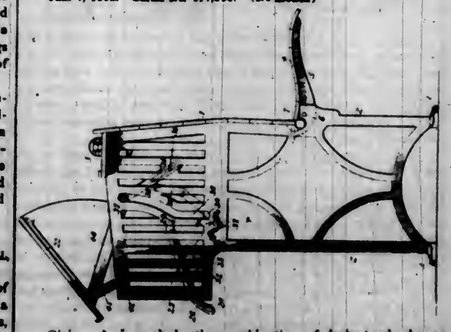
3. The combination, in a valve-chamber for furnaces, of hollow side walls or casings provided with suitable water-inlets, tubes connecting such walls or casings, a valve adapted in its normal positions to seat itself against such tubes, and removable hoods or cap-plates fitting between the side walls, substantially as set forth.

482,464. BURGLAR-ALARM. HOMER T. WILSON, Louisville, Ky. Filed Mar. 4, 1892. Serial No. 423,776. (No model.)



Claim.—The herein-described contact device, adapted to be used in connection with a projection on the lower rail of a window-sash or other object, the same consisting of the inner and outer spring contact-plates provided with aligned perforations near one end, an insulating-block interposed between the plates and provided with aligning perforations and at opposite sides with wire-receiving grooves, and screws passed through the aligned perforations of the plates and intermediate insulating-block and adapted to project beyond the same into a window-sill or other object and to clamp the plates, block, and wires, said plates having their ends beyond the block bent and adapted to contact, substantially as set forth.

482,465. SCHOOL-DESK. CYRENIUS S. BARNES, Elba, Nebr. Filed Jan. 7, 1892. Serial No. 417,305. (No model.)



Claim.—1. In a desk, the combination of desk-standards provided with guides, a desk-top, brackets supporting the desk-top and

provided with pins arranged in said guides, arms pivotally connected to the brackets and having a limited movement on the standards, and means for raising and lowering the arms, substantially as described.

2. In a desk, the combination of desk-standards provided with guides, a desk-top, brackets supporting the desk-top and provided with pins arranged in said guides and adapted to move therein, arms pivotally connected to the brackets and provided with longitudinal slots, pins projecting from the standards and arranged in the slots of the arms, and means for raising and lowering the arms, substantially as described.

3. In a desk, the combination of a standard provided with a guide,

connected to said side opening of the dome, a dust-flue vertically disposed and connecting the said vent of the ash-box and of the last-named vent and having a damper therein, a removable collar located in the top opening of the dome and depending above and below the same, a central magazine having its lower end connected to said collar and the upper end thereof secured to the said drum, a smoke-flue spirally arranged within the said drum around the magazine and having the lower end thereof communicating with the vent entering the side of the dome of the fire-pot and the upper end of the same opening into a smoke-pipe passing through the side of the casing and drum, and an air-flue spirally arranged between the upper and lower surfaces of the

Claim.—1. Means for operating cut-offs, comprising, in combination with a suitable belt, a wheel bearing upon said belt, a weight-arm pivotally supported within said wheel and provided with a lug projecting through the wall of said wheel, a spring connected with said arm, and a tripping device arranged to be operated by the lug on said arm, substantially as described.

2. The herein-described wheel for operating cut-offs, consisting of the disk 19 and rim 25, said disk being provided with a slot 45, a disk closing the other side of the wheel, the weight-arm pivoted within said disk and provided with a lug 47, projecting through said slot 45, the spring 37, connected with said arm, and means for adjusting said

the same, and mechanism whereby said wheels are driven, substantially as set forth.

4. In a transportation system, a car hung from an upper track and friction drive-wheels bearing and acting against the side of said car, the car being so hung that the action of gravitation will force and hold it against the friction-wheels, and mechanism for driving the wheels, substantially as described.

5. In a transportation system, a car hanging from an upper track and friction drive-wheels bearing against the sides of the car, the car being hung from a point at one side of its center of gravity, so that it

provided with pins arranged in said guides, arms pivotally connected to the brackets and having a limited movement on the standards, and means for raising and lowering the arms, substantially as described.

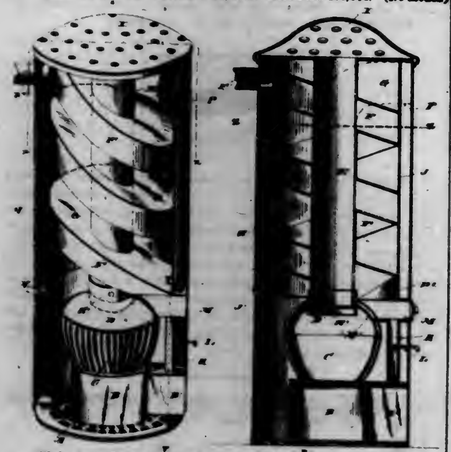
2. In a desk, the combination of desk-standards provided with guides, a desk-top, brackets supporting the desk-top and provided with pins arranged in said guides and adapted to move therein, arms pivotally connected to the brackets and provided with longitudinal slots, pins projecting from the standards and arranged in the slots of the arms, and means for raising and lowering the arms, substantially as described.

3. In a desk, the combination of a standard provided with a guide, a desk-top, a bracket supporting the desk-top and provided with a pin arranged in said guide, an arm pivotally connected to the bracket and having a limited movement on the standard, an L-shaped lever fulcrumed at its angle and having one end connected to said arm, and an operating-lever connected to the other end of the L-shaped lever, substantially as described.

4. In a desk, the combination of standards provided with guides, a desk-top, brackets supporting the desk-top and provided with pins arranged in said guides, arms 34, pivotally connected to the brackets and having a limited movement on the standards, a rod journaled in the standards and provided at one end with an arm 30ª, rigidly connected to it, an L-shaped lever rigidly secured at its angle to the other end of the rod, links connecting the inner ends of the L-shaped lever and the arms 30ª with the arms 34, and an operating-lever connected with the outer end of the L-shaped lever, substantially as described.

5. In a desk, the combination of a standard provided with a guide, a desk-top, a bracket supporting the desk-top and provided with a pin arranged in said guide, an arm pivotally connected to the bracket and having a limited movement on the standard, an L-shaped lever fulcrumed at its angle and having its inner end connected with said arm and provided at its other end with a pin, and an operating-lever fulcrumed on the standard and provided with a longitudinal slot receiving the pin of the L-shaped lever, substantially as described.

482,466. COMBINED STOVE AND FURNACE. CARL BRANDT, Cedar Falls, Iowa. Filed Mar. 23, 1892. Serial No. 426,111. (No model.)

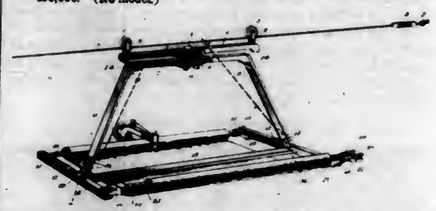


Claim.—1. In a combined stove and furnace, a fire-pot having a drum mounted thereover, provided with a spirally-arranged smoke-flue connected with said fire-pot and a spiral air-flue between the parts of the said spirally-arranged smoke-flue, said smoke-flue connecting with a smoke-pipe in the side of the stove or furnace and the air-flue opening at its upper end through the top of said stove or furnace, substantially as described.

2. In a combined stove and furnace, the combination of a fire-pot, a drum mounted thereon having a spirally-arranged smoke flue therein connected at its lower end with said fire-pot and at its upper end with an escape-pipe located in the side of the furnace or stove, a spirally-arranged air flue between the parts of said smoke-flue and opening out of the top of said drum, and a chamber or magazine extending centrally through said flues, substantially as described.

3. In a combined stove and furnace, the combination of a casing having a base made with open-work for the passage therethrough of currents of air, an interior drum open at the bottom and having a perforated top and a perforated top fitted over said casing and said drum, an ash-box on said base having a cleaning-vent, a fire-pot above said ash-box having a detachable dome and a top and side opening, a vent connected to said side opening of the dome, a dust-flue vertically disposed and connecting the said vent of the ash-box and of the last-named vent and having a damper therein, a removable collar located in the top opening of the dome and depending above and below the same, a central magazine having its lower end connected to said collar and the upper end thereof secured to the said drum, a smoke-flue spirally arranged within the said drum around the magazine and having the lower end thereof communicating with the vent entering the side of the dome of the fire-pot and the upper end of the same opening into a smoke-pipe passing through the side of the casing and drum, and an air-flue spirally arranged between the upper and lower surfaces of the smoke-flue, substantially as described.

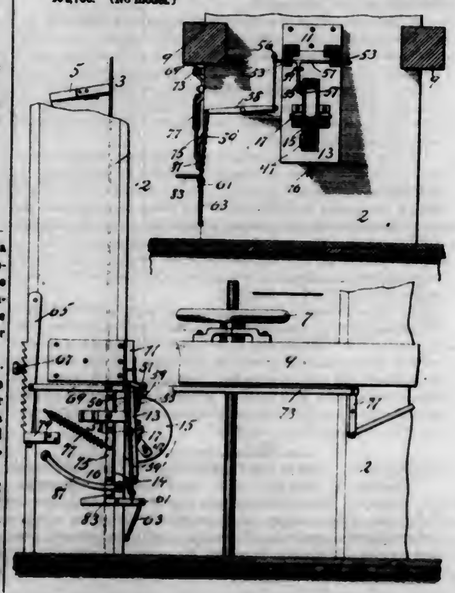
482,467. QUILTING ATTACHMENT FOR SEWING MACHINES. JOHN W. CLAYTON, Chattanooga, Tenn. Filed Apr. 26, 1892. Serial No. 430,696. (No model.)



Claim.—1. In a quilting-frame, the combination of a carriage, a suspending-frame pivotally connected to said carriage, a quilting frame proper connected to said suspending-frame, and set-screws in said suspending-frame adapted to engage the carriage for the purpose of holding the quilting-frame in rigid adjustment for straight-running stitches, substantially as described.

2. In a device of the character set forth, the combination of a carriage, a suspending-frame having an upper beam movably connected to said carriage, obliquely-arranged arms hinged at their upper ends to the ends of said beam and having a series of openings extending through the lower portion of each, a folding quilting-frame supporting rollers and having plates hinged to the centers of the end strips thereof, said plates having a series of openings in their free ends, and removable pins adapted to be inserted through aligned openings of said plates and obliquely arranged arms, substantially as described.

482,468. MEANS FOR OPERATING SAFETY CUT-OFFS FOR GRAIN-ELEVATORS. WILFRED G. COGSWELL, Duluth, Minn., assignor, by direct and mesne assignments, to Herman R. Long, same place, and Charles R. Soule, Grand Haven, Mich. Filed Aug. 31, 1891. Serial No. 404,188. (No model.)



Claim.—1. Means for operating cut-offs, comprising, in combination with a suitable belt, a wheel bearing upon said belt, a weight-arm pivotally supported within said wheel and provided with a lug projecting through the wall of said wheel, a spring connected with said arm, and a tripping device arranged to be operated by the lug on said arm, substantially as described.

2. The herein-described wheel for operating cut-offs, consisting of the disk 19 and rim 25, said disk being provided with a slot 45, a disk closing the other side of the wheel, the weight-arm pivoted within said disk and provided with a lug 47, projecting through said slot 45, the spring 37, connected with said arm, and means for adjusting said spring, as described.

3. The combination, with the elevator-belt, of the wheel arranged in engagement with said belt, an arm arranged within said wheel, a tripping device, and a lug upon said arm adapted to engage said tripping device without engaging it when the wheel is running at its normal speed.

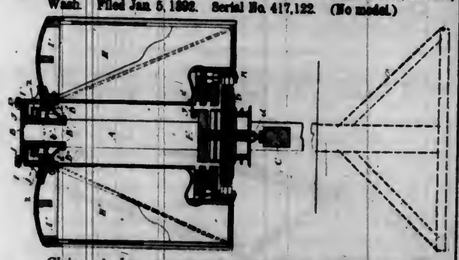
4. The combination, with the elevator leg and belt, of the plate pivotally supported upon said leg, the wheel mounted upon said plate and arranged to engage said belt, a movable arm inclosed within said wheel, a tripping device, and a lug upon said arm projecting through a slot in said wheel and adapted to engage said tripping device when the wheel is running slowly and to pass the same without engagement when the wheel is running at its normal speed.

5. In combination with the elevator-belt, a wheel arranged to be held against the same by gravity, a yieldingly-held weighted arm pivoted within said wheel, a lug upon said arm projecting through the side of the wheel, a pivoted tripping-arm arranged in position to be engaged by the lug on said weighted arm when the wheel is running at a low rate of speed, and a cut-off gate actuated by the tripping of said arm, substantially as described.

6. The combination, with the elevator belt and leg, of a hinged frame on said leg, a wheel journaled in said frame and adapted to engage said belt to be rotated thereby, a weighted arm yieldingly held in said wheel, a pivoted trip-lever to engage said arm, as described, a gate, a rack pivoted on the leg and by means of which the gate is normally supported, a draw-rod 69 in connection with said rack, a spring in connection with said draw-rod, and a latch normally holding the same under tension and adapted to be tripped by said trip-lever, substantially as described.

7. The combination, with the elevator belt and the leg wherein the same is adapted to run, of a frame hinged thereon from its upper edge, a wheel or pulley carried in said frame and held by gravity against said belt, a weighted arm yieldingly held in connection with said wheel, a trip-shaft 51, having a trip-lever 55 to engage said weighted arm, as described, a lever 58, linked to an end 56 of the shaft 51, a latch 61, pivoted on the leg, a spring 63 in connection therewith, a connection between said latch and the lever 58, a lever 75 to be engaged by said latch and pivoted on the leg, the bar 69 in connection therewith, a spring 77, connected with the lever 75, and a rack-bar 65, pivoted on the leg, and a feed-gate having a lug to engage said rack-bar, whereby on the slowing down of said belt said rack 65 is withdrawn and said gate permitted to fall, substantially as described.

482,469. TRANSPORTATION SYSTEM. LOGIAN F. COOK, Tacoma, Wash. Filed Jan. 5, 1892. Serial No. 417,122. (No model.)



Claim.—1. In a transportation system, the combination of cars suspended off of their center of gravity, with horizontal propeller-wheels against which said cars bear, and means for increasing the friction of the cars against their propelling-wheels at the pleasure of the attendant, all substantially as shown and described.

2. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, and an up and a down track, the cars on which are adapted to be driven, the up cars by one side of said wheels and the down cars by the other, combined with cars suspended off their centers of gravity and means for forcing said cars against their drive-wheels when desired, substantially as described.

3. In a transportation system, a car hanging from an upper track and a line of friction drive wheels acting against the said car to move the same, and mechanism whereby said wheels are driven, substantially as set forth.

4. In a transportation system, a car hung from an upper track and friction drive-wheels bearing and acting against the side of said car, the car being so hung that the action of gravitation will force and hold it against the friction-wheels, and mechanism for driving the wheels, substantially as described.

5. In a transportation system, a car hanging from an upper track and friction drive-wheels bearing against the sides of the car, the car being hung from a point at one side of its center of gravity, so that it will tend to swing and bear against said drive-wheels and be driven by them, as described and shown.

6. In a transportation system, a series of columns supporting tracks, antifriction roller-bearings on such tracks, rotating friction drive-wheels supported by said columns, mechanism for rotating said wheels, and cars adapted to bear against said wheels and be moved by them and supported from a beam or bar adapted to travel on said roller-bearings in the track, substantially as described.

7. In a transportation system, a series of columns supporting tracks, friction drive wheels supported by said columns, mechanism for rotating said wheels, a longitudinal fixed brake-beam running from column to column, and a car adapted to take against the drive-wheels, and a brake upon the car, acting against the said brake-beam, substantially as described.

8. In a transportation system, tracks and cars designed to run upon said tracks, in combination with two sets of friction drive-wheels, one set being of smaller diameter than the other, and means whereby the car may be connected to or disconnected from one or the other of said wheels as it is desired to hasten or diminish the speed, substantially as set forth.

9. In a transportation system, tracks and cars designed to run upon said tracks, in combination with a series of shafts, each shaft carrying two or more friction drive-wheels of different diameters, and means whereby the cars may be connected to or disconnected from one or the other of said wheels to increase or diminish its speed, substantially as described.

10. In a transportation system, tracks and cars designed to run upon said tracks, in combination with a series of shafts, each shaft carrying two friction drive-wheels of different diameters, having their surfaces roughened, bearing-faces on said cars against which the wheels act, and mechanism by which the cars may be connected with or disconnected from said wheels, substantially as described.

11. In a transportation system, a line of horizontal friction drive-wheels driven by suitable mechanism, cars adapted to bear against said drive-wheels, and means whereby the cars may be forced laterally away from said wheels in order to stop, substantially as described.

12. In a transportation system, a line of posts or columns carrying a longitudinal brake-beam, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against said drive-wheels, a series of wheels mounted upon the car, and means for forcing said wheels against the longitudinal brake-beam on the posts or columns, whereby the car is forced from the drive-wheels, for the purpose hereinbefore described.

13. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against said drive-wheels, posts supporting said drive-wheels, and a longitudinal brake-beam upon said posts, in combination with wheels mounted in a suitable boxing or frame, tracks on which the boxing or frame slides, and toggle-levers connected with said frame and with mechanism for moving them, substantially as described and shown.

14. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against said drive-wheels, posts supporting said drive-wheels, and a longitudinal brake-beam upon said posts, in combination with a series of wheels movable inwardly and outwardly upon the car to bear against the said brake-beam and brakes acting against said wheels, substantially as described.

15. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against said drive-wheels, posts or columns supporting the drive wheels, and a longitudinal brake-beam upon said posts, in combination with a series of wheels mounted in sliding frames or boxes movable inwardly and outwardly upon the car and brakes pivoted at one end to the box or frame and connected at the other to a rod and hand-lever or equivalent mechanism, substantially as described.

16. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against said drive-wheels, posts supporting said drive-wheels, and a longitudinal brake-beam upon said posts, in combination with a series of wheels mounted to move outward and inward against the brake-beam, brakes acting against said wheels, and supplemental or safety brakes acting against the brake-beam, substantially as described and shown.

17. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against the said drive-wheels, posts supporting said drive-wheels, and a longitudinal

brake-beam upon said posts, in combination with mechanism for forcing the car away from the drive-wheels and a brake upon the car movable toward and acting against the said longitudinal brake-beam, substantially as described.

18. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against the said drive-wheels, posts supporting said drive-wheels, and a longitudinal brake-beam upon said posts, in combination with brake-wheels adapted to move against the brake-beam aforesaid, brakes acting against said wheels, and supplemental or safety brakes consisting of blocks movable on anti-friction bearings and rods connected to them to move the same as described.

19. In a transportation system, a series of columns supporting wheel, a clutch on the track structure, acting against said central shaft, latches on the main tracks for holding the switch or turn-table in position, means for connecting and disconnecting said latches, and auxiliary drive-wheels at the ends of the turn-table, connected to the central drive-wheel, substantially as described and shown.

29. The combination, with a switch or turn-table for a transportation system, consisting of a section of the track structure supported by a circular guide or track from a bridging piece or truss spanning the turn-table or switch, a central rotating shaft passing loosely through the track structure, the upper end journaled in the said truss and the lower end journaled in a transverse beam between the columns, a friction drive-wheel on said shaft, auxiliary friction drive wheels at the

482,472. NUT AND BOLT LOCK. THOMAS A. PLANIGAN, Pittsburg, Pa. Filed Apr. 12, 1892. Serial No. 428,998. (No model.)

tions 5 of the bung-faucet and having the perforations 14, the arm 17, pivoted to the collar and having the hub 18 perforated in alignment with the terminals of the yoke, and the removable pin 19 for locking the arm and yoke, substantially as specified.

482,475. BENDING VEHICLE-SHAFTS. ORLANDO A. GOLDSWORTHY, Chicago, Ill. Filed Oct. 5, 1891. Serial No. 407,898. (No model.)

brake-beam upon said posts, in combination with mechanism for forcing the car away from the drive-wheels and a brake upon the car movable toward and acting against the said longitudinal brake-beam, substantially as described.

18. In a transportation system, a line of friction drive-wheels driven by suitable mechanism, cars adapted to bear against the said drive-wheels, posts supporting said drive-wheels, and a longitudinal brake-beam upon said posts, in combination with brake-wheels adapted to move against the brake-beam aforesaid, brakes acting against said wheels, and supplemental or safety brakes consisting of blocks movable on anti-friction bearings and rods connected to them to move the same as described.

19. In a transportation system, a series of columns supporting tracks, a series of shafts supported by the columns, friction drive-wheels of different diameters on the shafts, and means for driving the drive-wheels, in combination with a car, a bearing-face against which the large friction drive-wheel bears and acts, and a movable bearing-face for the small drive-wheels, substantially as described.

20. In a transportation system, a series of columns or posts supporting tracks, drive-wheels of different diameters supported on the columns, and means for rotating the drive-wheels, in combination with a car provided with a bearing-face for the larger drive-wheel and a bearing-face for the small drive-wheel, the last being movable out and in by means of toggle-levers and connecting-rods, as described.

21. In a transportation system, a series of columns or posts supporting tracks, drive-wheels of different diameters supported on the posts, and mechanism for rotating said drive-wheels, in combination with a car provided with a fixed longitudinal bearing-face against which the large drive-wheel bears, and a movable bearing-face formed of a longitudinal beam, transverse slots in said beam, bolts passed through the car-frame and through the said slots to support the said beam, and means for moving said beam to and from the car and against the smaller drive-wheel, substantially as described.

22. In a transportation system, a series of columns supporting tracks, a series of shafts supported by the columns, two or more friction drive-wheels of different diameters upon each of said shafts, means for driving said friction-wheels, and a longitudinal fixed brake-beam from column to column, in combination with a car provided with a series of movable wheels adapted to be moved against the brake-beam to force the car out from the drive-wheels, a brake, a fixed bearing-face for the larger drive-wheels, and an outward and inward movable beam forming a bearing-face for the smaller drive-wheels, all substantially as described and shown.

23. In a transportation system having a line of posts or columns supporting friction drive-wheels, the combination, with an overhead track consisting of a longitudinal partition separating the up and down tracks, outside longitudinal guiding-beams, and antifriction-rollers between the partition and said beams, of a car suspended by means of hangers from a runner traveling upon said rollers, substantially as set forth.

24. In a transportation system having a line of posts or columns supporting friction drive-wheels, the combination, with an overhead track consisting of a longitudinal partition separating the up and down tracks, outside longitudinal guiding-beams, antifriction-rollers between the partition and the last-said beams, and bolts passing through the beams and partition and forming bearings for the antifriction-rollers, of a car suspended by hangers from a runner designed to travel on such rollers, substantially as set forth and shown.

25. In a transportation system having a line of posts or columns supporting friction drive-wheels, the combination, with an overhead track consisting of a series of antifriction-rollers and guide-beams on which a suspended car travels, of a cover-plate over said track, substantially as described, and for the purposes set forth.

26. A switch or turn-table for transportation systems, consisting of a section of track supported by a circular guide or track and having a longitudinal brake-beam, in combination with a central rotating shaft passing loosely through the tracks and brake-beam and carrying a friction drive-wheel, means for driving said shaft, and a clutch acting between the track structure and the shaft to connect the same, so that the track structure may rotate with the shaft, substantially as described.

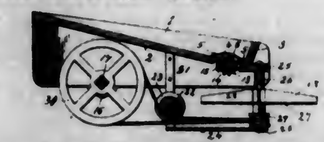
27. A switch or turn-table for a transportation system, consisting of a section of the track structure supported by a circular guide or track and having a longitudinal brake-beam, in combination with a central rotating shaft passing loosely through the tracks and brake-beam and carrying a friction drive-wheel, mechanism for driving said wheel, a clutch on the track structure, acting against the central shaft to connect the same, and latches on the main tracks for holding the switch or turn-table in position, substantially as described.

28. A switch or turn-table for a transportation system, consisting of a section of the track structure supported by a circular guide or track and having a longitudinal brake-beam, in combination with a central rotating shaft passing loosely through the tracks and brake-beam and carrying a friction drive-wheel, mechanism for driving said wheel, a clutch on the track structure, acting against said central shaft, latches on the main tracks for holding the switch or turn-table in position, means for connecting and disconnecting said latches, and auxiliary drive-wheels at the ends of the turn-table, connected to the central drive-wheel, substantially as described and shown.

29. The combination, with a switch or turn-table for a transportation system, consisting of a section of the track structure supported by a circular guide or track from a bridging piece or truss spanning the turn-table or switch, a central rotating shaft passing loosely through the track structure, the upper end journaled in the said truss and the lower end journaled in a transverse beam between the columns, a friction drive-wheel on said shaft, auxiliary friction drive wheels at the ends of the turn-table or switch, driven from the central drive-wheel, the shaft of the central drive-wheel passing below the turn-table, and means for driving said shaft from the drive-shafts on the main lines, of a clutch on the track structure, acting against the said central shaft, a system of levers for moving the clutch, latches on the main-track structure for holding the switch or turn-table in position, and means for connecting and disconnecting said latches from the turn-table or switch, as described and shown.

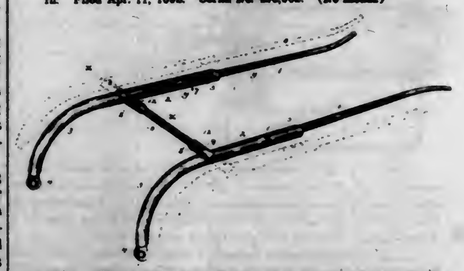
30. In a turn-table or switch consisting of a swinging section of the track structure, a central shaft passing loosely through the track structure and carrying a drive-wheel, and a clutch on the track structure, acting against the central shaft, the combination, with pivoted latches on the main-track structure and flanged seats for said latches on the turn-table or switch structure, the flanges of said seats having outside inclined faces, of vertical pins passing through the said seat, sliding rods carrying said pins, cords passing over pulleys and connected to the rods, and a pull upon said cords, whereby the pins may be raised and the pivoted latches forced upward from their seats, substantially as described and shown.

482,470. SEEDER. FRED A. CRANE, Good Hope, Ill. Filed May 31, 1892. Serial No. 435,084. (No model.)



Claim.—The combination, with the opposite side bars 1, the inclined bottom, the end wall for the side bars, and the feed-opening in the bottom, of a shaft journaled in the side bars below the bottom, feed devices mounted on the shaft, a pulley on the outer end of the shaft, a rear drive-shaft having a crank, large and small pulleys on said shaft, a crossed belt connecting the small pulley with the pulley of the feed-shaft, a pair of depending standards located in front of the drive-shaft, a transverse shaft connecting the two, a guide-pulley thereon, a plate extending forward from the lower ends of the standards, a shaft vertically disposed and pivotally supported between the front end of the plate and the bottom of the hopper, the seed-disk mounted on the shaft, the pulley below the disk, and the belt connecting the pulley with the large pulley of the drive-shaft and between the two passed over the guide-pulley, substantially as specified.

482,471. VEHICLE-SHAFT. WILLIAM R. CULLISON, Englewood, Ill. Filed Apr. 11, 1892. Serial No. 428,662. (No model.)



Claim.—The combination of tubular irons having apertures in the front ends thereof and inwardly-projecting transverse tubular arms also having openings in the ends of the same, shafts adjustably fitted in said irons, a cross brace or rod adjustably fitted in said arms, said shafts and cross brace or rod being formed with openings at the ends thereof, and removable pins or bolts connecting said parts, substantially as described.

482,472. NUT AND BOLT LOCK. THOMAS A. FLANIGAN, Pittsburg, Pa. Filed Apr. 12, 1892. Serial No. 428,903. (No model.)



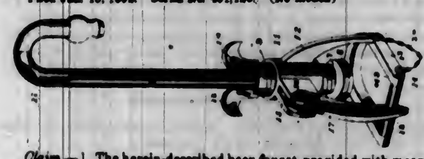
Claim.—A nut-locking device, substantially as described, consisting of a nut having a threaded orifice through one side of the same, a tap-bolt adapted to project through said orifice and lock said nut, a cap adapted to be beat over the head of the said tap-bolt to prevent the same from turning, means for holding said cap in position, and means to prevent the cap from slipping off endwise of said nut, all arranged and combined for service substantially as and for the purpose described.

482,473. HOOK AND EYE. HENRY C. FRANK, New York, N. Y. Filed Nov. 11, 1891. Serial No. 411,544. (No model.)



Claim.—In hooks and eyes for dress-fastenings and analogous purposes, the eye described, having a spring-tongue B^3, extending forward under the front of the eye, adapted to grip the hook elastically between the tongue and the eye and formed with an offset B^3 near its mid-length, arranged to receive the bight or main bend of the hook when it is moved backward and to resist any accidental unhooking, in combination with a hook A, having a transverse corrugation A^4, arranged to meet the point of the spring-tongue and to insure that the compression of the parts together shall depress the junction of the hook and eye, and thus increase the security of the fastening, as herein specified.

482,474. BEER-FAUCET. FRANK A. FRENVILLER, Detroit, Mich. Filed Jan. 15, 1892. Serial No. 418,139. (No model.)



Claim.—1. The herein-described beer-faucet, provided with means for attaching the same to a bung-faucet and with an air-tube 21, located near its discharge end, substantially as specified.

2. The herein-described beer-faucet, the same being adapted to be inserted into the end of a bung-faucet and provided in rear of its extremity with a disk 7 and a packing-disk 8, combined with means for clamping the same upon the bung-faucet, substantially as specified.

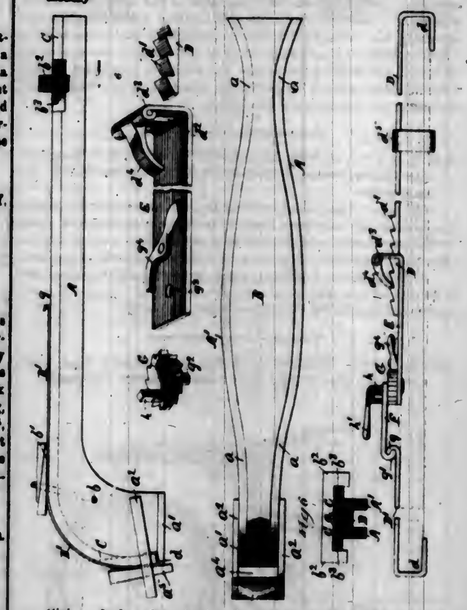
3. The herein-described beer-faucet, the same consisting of a discharge-tube 6, having the packing-disk and washer at its inner end, clamping-yoke mounted on the tube in front of the disk and extending rearwardly beyond the disk, and means for locking the yoke upon a bung-faucet, substantially as specified.

4. The herein-described beer-faucet, adapted at its inner end for connection with a bung-faucet, an externally-threaded sleeve swiveled on the beer-faucet 2, a collar threaded on the sleeve, arms extended from the collar, a yoke connected to the arms and adapted to engage the beer-faucet, and means for locking the yoke and for rotating the sleeve, substantially as specified.

5. The herein-described beer-faucet, the same consisting of a tube adapted at its rear end for connection with a bung-faucet, an externally-threaded sleeve mounted on the tube, a collar threaded on the sleeve and provided with arms and between the same with lugs, a U-shaped yoke adapted to engage the bung-faucet connected with the arms, an arm pivoted between the lugs and provided with a hub perforated in alignment with the terminals of the yoke, and a locking-pin removably passed through the terminals of the yoke and the hub of the arm, substantially as specified.

6. The combination, with the bung-faucet tube having the key 3, threaded portion 4, and reduced portion 5, of the tube 6, the rear end of which is fitted into the threaded portion 4, the disk 7, and the packing-disk 8, interposed between the disk 7 and the end of the bung-faucet, the externally-threaded sleeve 9, mounted on the tube and having thumb lugs 10, the collar 11, and the rearwardly-extending arms 12, the U-shaped yoke 13, adapted to fit the grooved portion 5 of the bung-faucet and having the perforations 14, the arm 17, pivoted to the collar and having the hub 18 perforated in alignment with the terminals of the yoke, and the removable pin 19 for locking the arm and yoke, substantially as specified.

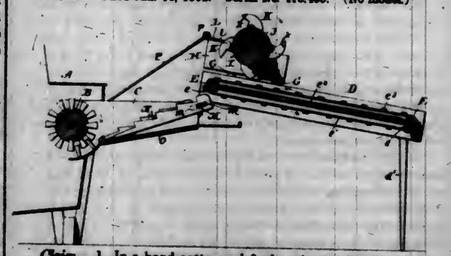
482,475. BENDING VEHICLE-SHAFTS. ORLANDO A. GOLDSWORTHY, Chicago, Ill. Filed Oct. 5, 1891. Serial No. 407,669. (No model.)



Claim.—1. In a form for bending vehicle-shafts, the combination of the companion side members curved at their rear ends, the central part projecting above said side members, the bottom board a^7, the bars a^9, the cross-bar a^8, the locking-wedges a^6, the elongated link b, the wedge b', the angle-clamp b^3, and the wedges b^4, whereby the object may be rigidly locked in the form, substantially as set forth.

2. In an endwise-clamping mechanism for vehicle-shafts, the combination of the following elements, viz: the strap-plate D, having one end bent around to conform to a shaft-bar and the other end provided with ratchet-teeth, the companion strap-plate D', having a hook on the inner end, the connecting-plate E, having one end upturned and perforated to receive the end of the plate D, the pawl pivoted in said upturned end, the connecting-link E, the eccentric ratchet-wheel G, seated in the plate E, and the connecting-link F, whereby a strong pressure is exerted on both ends of an object clamped therein, substantially as set forth.

482,476. BAND-CUTTER AND FEEDER. DAVID GWIN, Edgerton, Mo. Filed Jan. 18, 1892. Serial No. 418,495. (No model.)



Claim.—1. In a band-cutter and feeder, the combination, with a thrashing-machine having extended side arms inclosing the feeding-table in front of the cylinder, of an endless-carrier feeder-frame hinged to the outer ends of said arms, a knife-cylinder journaled upon said feeder-frame, a multiple-crank shaft journaled in the outer ends of said side arms, a series of alternately reciprocating and vibrating down-

wardly-inclined notched feeding and spreading bars connected at their upper ends to said crank-shaft, and a vibrating delivering-pan connected at its lower edge in front of the cylinder to one or more of said bars and working thereunder, substantially as set forth.

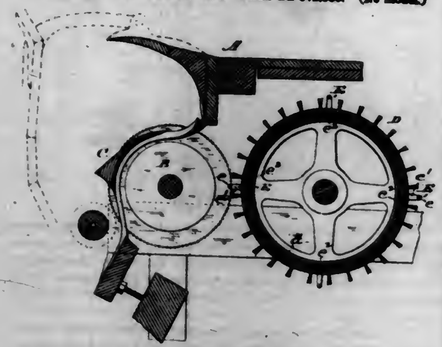
2. In a band-cutter and feeder, the combination, with a threshing-machine having extended side arms, of an endless-carrier feeder-frame hinged to the outer ends of said feeder-arms, a knife-cylinder journaled upon said feeder-frame, a fender-plate in front of said knife-cylinder, a multiple-crank shaft journaled in the outer ends of said side arms, a series of alternately-reciprocating notched feeding and spreading bars connected at their upper ends to said crank-shaft, a vibrating delivering-pan connected at its lower edge to one or more of said bars and working thereunder, and a hinged float-board hinged to said fender-plate and normally lying directly over said feeding and spreading bars, substantially as set forth.

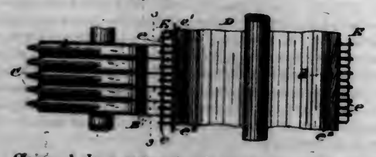
482,477. PROCESS OF BLEACHING. CARL J. H. DE HAEN, Linden, near Hanover, Germany. Filed Mar. 18, 1892. Serial No. 425,454. (No specimens.)

Claim.—1. The process of bleaching, which consists in subjecting the goods to be treated to a bath of peroxide of sodium, and a salt containing an oxide capable of being precipitated by sodium, such as sulphite of magnesia or magnesium-chloride, substantially as specified.

2. The process of bleaching, which consists in subjecting the goods to be treated to a bath of peroxide of sodium and magnesium salts, such as magnesium chloride, substantially as specified.

482,478. BRUSH FOR COTTON-GINS. SOME R. HALL, Little Rock, Ark. Filed Nov. 24, 1890. Serial No. 372,533. (No model.)





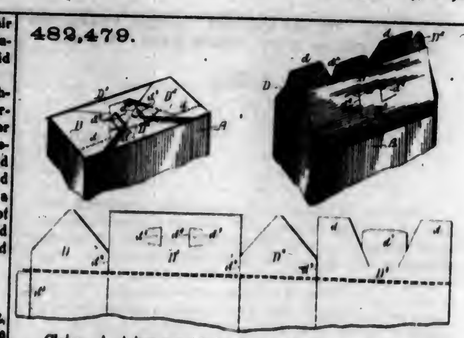
Claim.—1. In a cotton-gin, the saws, the brush-cylinder, the series of longitudinal plates let into the surface of said cylinder, the arms projecting from said plates and alternating with the saws, and the brushes inserted in said arms and extending on each side thereof to engage with the saws, substantially as and for the purpose set forth.

2. The combination, with the saws, of a single rotary cylinder arranged in the rear of the saws and carrying two sets of brushes, one of which sets of brushes projects radially from the cylinder to contact with the peripheries of the saws and the other set of brushes lying parallel with the surface of the saws and operating with the radial brushes to bear against both lateral faces of the saws, substantially as and for the purpose set forth.

3. The combination, with the saws, of a single rotary brush-cylinder arranged in rear of the saws and provided on its surface with two sets of brushes, one of which sets of brushes projects radially beyond the surface of the cylinder and the other set of brushes being parallel with the surface of the cylinder, two of the latter brushes being carried by a common support between a pair of radial brushes and arranged to contact with the lateral faces of the saws opposite to the teeth thereof, substantially as and for the purpose set forth.

482,479. BOX. WARREN R. HOWE and FRANK R. DAVIDSON, Chicago, Ill. Filed Jan. 22, 1891. Serial No. 378,606. (No model.)

482,479.



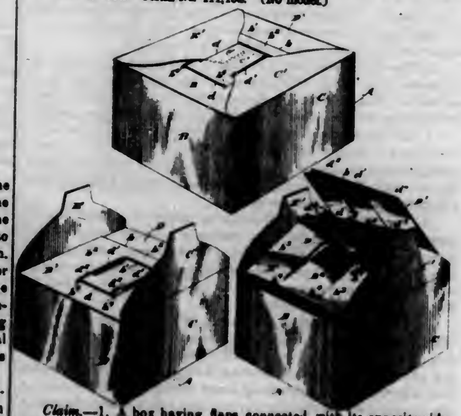
Claim.—1. A box provided with two flaps connected with opposite side walls of the box, one of said flaps being provided with two slits or notches extending inwardly from its outer end to form a tongue and the other with two U-shaped slits forming interior tongues to engage with the side margins of the tongue upon the flap first mentioned when the flaps are folded together, substantially as described.

2. A box provided with two flaps connected with opposite side walls of the box, one of said flaps being provided with two slits or notches extending inwardly from its free edge to form a tongue, which tongue is slitted at each side to form lateral tongues, and the other with two slits in its central part, which form tongues to engage with the tongue upon the flap first mentioned and which are adapted to receive the said lateral tongues for locking the flaps together, substantially as described.

3. A box provided with four flaps connected with its side walls, one of said flaps being provided with slits or notches extending inwardly from its free edge to form a tongue, the flap opposite thereto being provided with interior cuts or slits and the intermediate flaps being provided with narrow ends or projections adapted to enter said interior slits, substantially as described.

4. A box provided with four flaps connected with its side walls, one of said flaps being provided with slits or notches extending inwardly from its free edge to form a tongue, which tongue is slitted to form lateral tongues, the flap opposite thereto being provided with interior cuts or slits adapted to receive the said lateral tongues and the two intermediate flaps being provided with narrow ends or projections adapted for insertion in said interior cuts or slits, substantially as described.

482,480. PAPER BOX. WARREN R. HOWE, Chicago, Ill. Filed Nov. 7, 1891. Serial No. 411,132. (No model.)

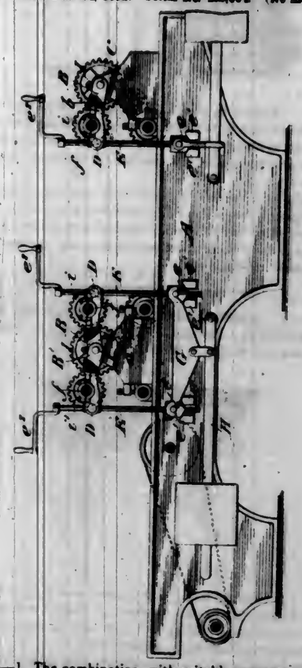


Claim.—1. A box having flaps connected with its opposite side walls, the free ends of said flaps having continuous edges and one of said flaps being provided with a U-shaped slit forming a tongue, between which and the body of the flap the free edge of the opposite flap is inserted in folding, the end portions of said slit being located at a distance apart less than the width of the free end of the opposite flap and being arranged transversely to the free edge of said opposite flap, and the said free edge of said opposite flap being adapted to engage the ends of the slit when the box is closed, whereby the side walls to which the flaps are attached are supported against inward pressure, substantially as described.

2. A box having flaps connected with its opposite side walls, the edges of the free ends of said flaps being continuous and one of said flaps being provided with a U-shaped slit forming a tongue, between which and the body of the flap the free edge of the opposite flap is inserted in folding, said opposite flap being provided with lateral tongues, between which and the under side of said flap the tongue of the first-named flap may be inserted, substantially as described.

3. A box each of the side walls of which is provided with a flap, one of said flaps having a U-shaped slit forming a tongue, the base of which slit is adjacent to the free end of the flap, an opposite flap adapted to be inserted between the first-named flap and its tongue and provided with parallel slits which lie over said tongue, and two remaining opposite flaps narrowed at their free ends to pass through the U-shaped slit of the first-named flap and enter the slits of the second-named flap, substantially as described.

482,481. PLANING-MACHINE. ALFRED B. HUTCHINSON, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, Limited, same place. Filed Feb. 24, 1892. Serial No. 422,664. (No model.)



Claim.—1. The combination, with suitable supports, of a pair of roller-carrying frames having their ends overlapped and pivotally secured to the supports, leaving a free space between the pivots and in the axial line thereof, substantially as set forth.

2. The combination, with suitable supports, of a roller-carrying frame pivotally secured at its ends to said supports, a master-wheel mounted in axial alignment with the pivots which secure the roller-carrying frame, the feed-roller, and a pinion fixed to rotate therewith in engagement with the master wheel, substantially as set forth.

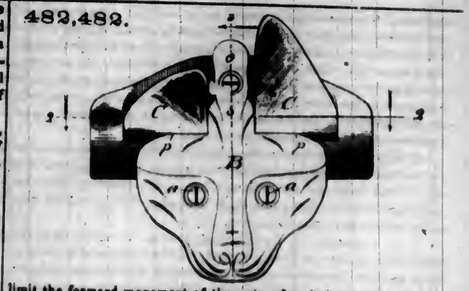
3. The combination, with suitable supports, of a roller-carrying frame pivotally secured at its ends to said supports, an adjusting-rod swiveled to the free end of said frame, a rocking nut engaged with said rod, and a weight connected with said nut, substantially as set forth

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482,482. GATE-LATCH. CHARLES M. LAMB, Adrian, Mich. Filed Sept. 16, 1891. Serial No. 406,109. (No model.)

Claim.—1. In a gate-latch, the combination of two plates A and B, internally recessed to form a trunnion-socket and provided with coincident screw-holes for securing them together and to the edge of a gate or post, a trunnion incased between the plates, a plate C, rigid with the trunnion and normally projecting forward and resting upon a shoulder *p*, provided for it on the outer plate, and having an inclined outer edge, whereby it is lifted by the action of the gate in closing and drops by gravity to its normal position when released, and a stop to

482,482.



limit the forward movement of the gate after it has passed the pivotal plate, substantially as described.

2. The combination of the plates C, having inclined outer edges and trunnions *q*, plate A, having sockets for the outer trunnions and recessed to form half the socket for the inner trunnions, an outer plate recessed to form the other half of the socket for the inner trunnions, and means for securing the parts together and to a gate or post, substantially as described.

482,483. JEWELRY. HARRY LEER, New York, N. Y. Filed May 26, 1892. Serial No. 434,406. (No model.)



Claim.—1. In an article of jewelry, the combination, with the boxing, of the stone or setting, a lug or projection thereon to engage in a keeper in the boxing, and a rotary latch thereon to engage in another keeper in the boxing, substantially as specified.

2. In an article of jewelry, the combination, with the boxing having the keepers, of the stone or setting, the plate secured thereto having an integral lug or projection to engage in one of the keepers, and the rotary latch movable into the other of said keepers, substantially as specified.

3. In an article of jewelry, the combination, with the boxing having the keepers, of the stone or setting having the groove, the metal plate seated in said groove, an integral lug on said plate, and the rotary latch seated in a recess in said plate, substantially as specified.

4. In an article of jewelry, the combination, with the boxing having the keepers and a hole in its bottom, of the stone provided with a groove having undercut side walls, a plate seated in the groove and engaged by the side walls, an integral lug or projection on said plate to engage in one of the keepers, and a rotary latch on said plate having the pivot provided with the transverse groove, substantially as specified.

482,484. MACHINE FOR MAKING BOX-BINDING CHANNEL-STRIPS. JOHN G. LETTELIER, Los Angeles, Cal. Filed Mar. 28, 1891. Serial No. 386,535. (No model.)

Claim.—1. In a machine for forming channel-strips for berry-boxes, the combination of the train comprising the rotary shears and a series of rotary channel-formers arranged in pairs graded with increasing depth and decreasing width of channel from the shears rearwardly, and suitable guides arranged to guide the strip from the shears to the formers and from one set of formers to another and having the face of each guide conforming to the shape of the contact-face of the rotary member immediately preceding such guide.

2. The combination of the frame of the machine, the shears, and former-shafts, the rotary shears and formers arranged on the ends of their respective shafts on the outside of the shaft-supporting frame, and suitable gages and guides arranged to hold the strip in position and to discharge the scrap from the machine.

3. The machine for forming channel-strips, comprising the combination of a train consisting of the rotary shears and the series of rotary channel-formers arranged in pairs graded with increasing depth and decreasing width of channel from the shears rearwardly, the spreader-arc, the grooved spreader-roller, and the withdrawing-rollers, and operative mechanism connecting the parts of the train.

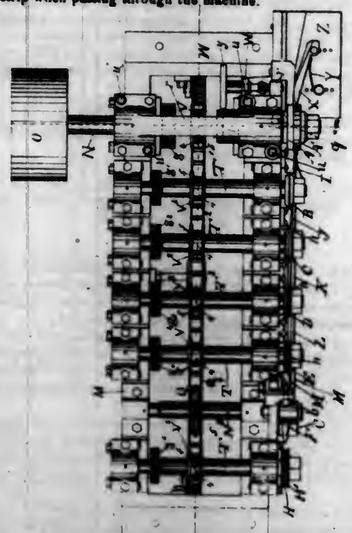
4. In a machine for forming channel-strips, the combination of a train of channel-forming rollers, the grooved spreader-roller arranged in line with the channel-rollers, and the spreader-arc arranged to project into the groove of the spreader-roller and into the path of the strip, and operative mechanism connecting the parts of the train.

5. The combination of the frame, the shaft provided with one

member of the shears and journaled in the movable journal-piece, so as to prevent axial movement of such shaft in its bearing, such movable journal-piece secured to the frame by set-bolts which pass through bolt-holes in the frame, which are slightly larger than the set-bolts, and the screw parallel with the shaft connecting the journal-piece and the frame, so that when the set-bolts are loosened the journal-piece and its shears-shaft can be moved transverse of the frame to adjust the shears laterally to compensate for their wear.

6. In a machine for forming channel-strips, the combination of the feed-table, the spring feed-guide arranged to press against the edge of the strip, the rotary shears, and the antifriction-roller arranged opposite the spring feed-guide to engage the edge of the strip as the strip passes into the machine.

7. In a machine for forming channel-strips for berry-boxes, the combination of the train comprising the rotary shears and a series of rotary channel-formers arranged in pairs graded with increasing depth of channel from the shears rearwardly, and suitable guides arranged to engage the sides of the strip to prevent lateral or sidewise movement of the strip when passing through the machine.



8. In a machine for forming channel-strips for berry-boxes, the combination of the power-shaft, the series of sprocket-wheels arranged upon one line of channel-former-carrying shafts, the sprocket-chain arranged upon each wheels, the sprocket-chain guide-wheels arranged upon the other line of channel-former-carrying shafts and each provided with a groove of sufficient width and depth to permit the sprockets on the sprocket-wheels to pass therethrough and having their flanges arranged to project down upon each side of such sprockets and bear upon the outer upper faces of the sprocket-chain and so hold the chain firmly down upon the sprocket-wheels, and the leading wheels arranged to hold the chain taut.

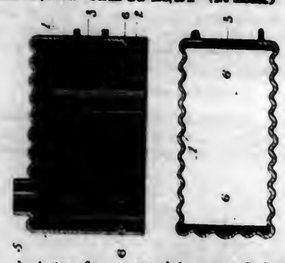
9. In a machine for forming channel-strips, the combination of the train comprising a series of rotary channel-formers graded and arranged in pairs with increasing depth and decreasing width of channel from the front end of the machine rearwardly, and suitable means arranged toward the end of the train to widen a portion of one end of the channel of the strip after the channel is formed.

10. In a machine for forming channel-strips, the combination of the train comprising the rotary shears and the series of rotary channel-formers graded and arranged in pairs with increasing depth and decreasing width of channel from the front end of the machine rearwardly, and suitable means arranged toward the rear of the train to widen a portion of one end of the channel of the strip after the channel is formed.

11. In a machine for forming channel-strips, the combination of the train comprising the rotary shears and a series of rotary channel-formers graded and arranged in pairs with increasing depth and decreasing width of channel from the front end of the machine rearwardly, the guides arranged between the rotary shears and the first set of formers and provided with flat smooth opposing faces between which the strip of tin is received as it comes from the rotary shears, and the scrap shield or guide arranged to direct the scrap away from the machine.

12. In a machine for forming channel-strips, the combination of the train comprising the rotary shears and the series of rotary channel-formers graded and arranged in pairs with increasing depth and decreasing width of channel from the front end of the machine rearwardly and having the insertion-rollers provided with side stops arranged at a distance from the extreme outer edge of the insertion roller equal to one-half of the width of the strip to be channeled.

482,485. STOVE FOR HEATING OVENS FOR JAPANNING, ENAMELING, AND GLAZING. THEODORE M. LINCOLN, Hartford, Conn. Filed Feb. 23, 1892. Serial No. 422,454. (No model.)



Claim.—1. A stove for an enamel, japan, or glazing oven or kiln, formed of a single casting in the shape of a continuous arch having a corrugated wall, with integral end walls connected to the arch by circular corners, and having fuel, ash, and smoke openings, substantially as specified.

2. A stove for an enamel, japan, or glazing oven or kiln, formed of a single casting in the shape of a continuous arch having a vertical corrugated wall and end walls with vertical corrugations, connected to the arch by circular corners, and having fuel, ash, and smoke openings, substantially as specified.

482,486. LINE-WIRE-TIGHTENING DEVICE FOR ELECTRIC-LAMP SUPPORTS. CHARLES A. PFLUGER, Chicago, Ill. Filed May 3, 1892. Serial No. 431,684. (No model.)



Claim.—1. In combination with a suspension-support for an electric lamp, a rotary binding-post at which to connect and tighten the line-wire, and means for holding the post against the strain of the tightened line-wire, substantially as described.

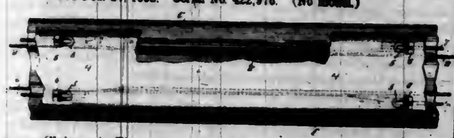
2. In combination with a suspension-support for an electric lamp, a rotary binding-post having a winding-drum provided with an attaching device for the line-wire, and means for holding the post against the strain of the tightened line-wire, substantially as described.

3. In combination with a suspension-support for an electric lamp, a bracket, a rotary binding-post journaled in the bracket and provided with a winding-drum having an attaching device for the line-wire, and a ratchet and a dog to engage the ratchet and hold the post against the strain of the tightened line-wire, substantially as described.

4. In combination with a suspension-support for an electric-arc lamp, brackets B and B', fastened to plates *r* and *r'* on a supporting-board A, rotary binding-posts *p* and *p'*, having winding-drums C C', provided with attaching devices for the line-wire and journaled in the brackets and provided in their protruding ends with eyes at which to suspend the lamp and with attaching means for the wires *m*, and means on the rotary posts for holding them against the strain of the tightened line-wire, substantially as described.

5. A suspension-support for electric-arc lamps, comprising, in combination, a board A, carrying plates *r* and *r'*, and brackets B and B', rotary binding-posts *p* and *p'*, journaled in the brackets and having winding-drums C and C', provided with ratchets *i* and flattened on their protruding end portions and there provided with fastening means for the wires *m*, dogs *k*, eyes *o* in the protruding ends of the posts, attaching means *k'* on the drums for the line-wire, and a suitable switch E, the whole being constructed and arranged to operate substantially as described.

482,487. PNEUMATIC TIRE. LOCIUS J. PHELPS, Passaic, N. J. Filed Feb. 27, 1892. Serial No. 422,976. (No model.)



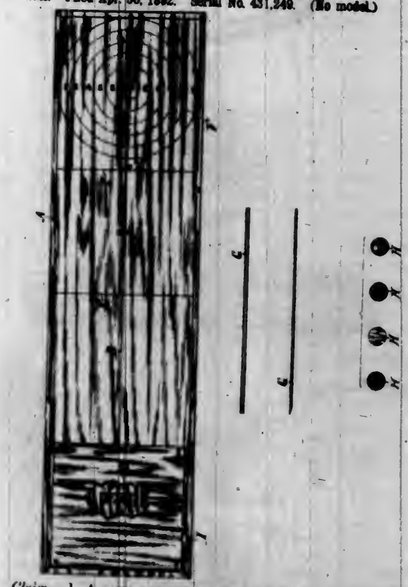
Claim.—1. The combination, with a hollow rim having surfaces inclined upward and outward on each side of the outer face of the rim, of a pneumatic tire secured on the outer side of said rim by wires carried by but loose in the edges of the envelope and lying on the inclined surfaces of the rim and having their ends secured through the outer plate of the rim, substantially as described.

2. The combination, with a rim having surfaces inclined upward and outward on each side of the outer face of the rim, of a pneumatic tire secured on the outer side of said rim by wires carried by but loose in the edges of the envelope and lying on the inclined surfaces of the rim, said wires having their ends secured to the rim by hooks or equivalent means and provided with extensions beyond the hooks for drawing up the wires, substantially as described.

3. The combination, with a rim having surfaces inclined upward and outward on each side of the outer face of the rim, of a pneumatic tire secured on the outer sides of said rim by wires carried by the edges of the envelope and lying on the inclined surfaces of the rim, said wires having their ends secured to the rim by hooks or equivalent means and provided with extensions beyond the hooks for drawing up the wires, substantially as described.

4. A hollow wheel-rim consisting of the plates 3 4, riveted together on the central line and having the edges of the plate 3 sprung within the curved overedges of the plate 4, substantially as described.

482,488. GAME APPARATUS. FREDERICK S. SILLER, Milwaukee, Wis. Filed Apr. 30, 1892. Serial No. 431,249. (No model.)

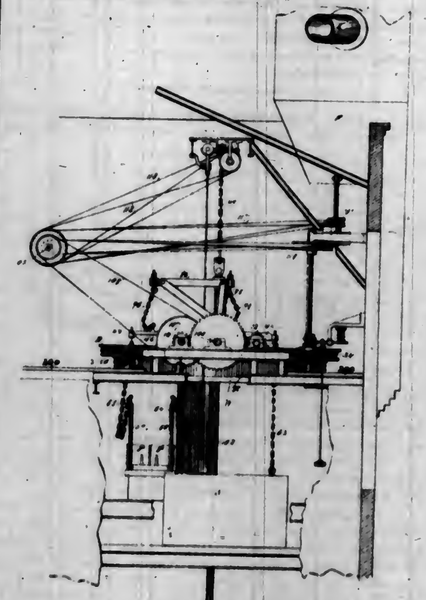


Claim.—1. A game apparatus comprising a diagram consisting of bordering lines, a vertical line extending a portion of the length of said diagram and crossed at a point nearest its lower end by a short line centering thereon, a transverse line at the upper end of the vertical line, a medial transverse line, and a target at the upper portion of the diagram, with a space between the same and the upper transverse line, the bull's-eye and the concentric circles comprising said target being adapted to receive therein buttons or chips propelled or forced from a designated starting-point, said spaces being also appropriately numbered, and the words "Start," "Out," and "In" being arranged, respectively, below the short line in the space between the medial and upper transverse lines and in the space between the latter and the target, substantially as set forth.

2. A game apparatus comprising a diagram consisting of bordering lines, a vertical line extending a portion of the length of said diagram and crossed at a point nearest its lower end by a short line centering thereon, a transverse line at the upper end of the vertical line, a medial transverse line, a target at the upper portion of the diagram, with a space between the same and the upper transverse line, the bull's-eye and the concentric circles comprising said target being adapted to receive therein buttons or chips propelled or forced from a designated starting-point, said spaces being also appropriately numbered and the words "Start," "Out," and "In" being arranged, respectively, below the short crossed line in the space between the medial and the upper transverse lines and in the space between the latter and the target, and a tally-sheet arranged in the starting-space, substantially as set forth.

3. A game apparatus comprising a diagram consisting of bordering lines, a vertical line extending a portion of the length of the diagram and crossed at a point nearest its lower end by a short line centering thereon, the space beneath said short line constituting the starting-space, a transverse line at the upper end of the vertical line, a medial transverse line, a target at the upper portion of the diagram, with a space between the same and the upper transverse line, the bull's-eye and concentric circles of said target being appropriately numbered and the words "Start," "Out," and "In" being arranged, respectively, below the short crossed line in the space between the medial and upper transverse lines and in the space between the latter and the target, a series of buttons or chips arranged in sets of different colors, and canes or sticks for forcing said buttons or chips from the starting-space, substantially as set forth.

482,489. APPARATUS FOR PICKLING METAL PLATES. DANIEL M. SOMERS and WILLIAM H. ATKINSON, Brooklyn, N. Y. Filed Aug. 7, 1891. Serial No. 401,967. (No model.)



Claim.—1. In a pickling-machine, the combination, with a series of vats for containing baths for the treatment of metal plates and a moving carriage operating to transport the plates from vat to vat and supporting mechanisms for the manipulation of the plates in the vats, of a guard-plate O, interposed between the vats and said mechanisms to protect the latter from destructive fumes arising from the vats, and a flue for conducting said fumes away, substantially as described.

2. In a pickling-machine, the combination, with a series of vats for containing baths for the treatment of metal plates and a moving carriage operating to transport the plates from vat to vat and supporting mechanisms for the manipulation of the plates in the vats, of the guard-plate O, fixed to the carriage, and a guard plate 200, fixed outside of said carriage, both of which plates are interposed between the vats and said mechanisms to protect the latter from destructive fumes arising from the vats, and a flue for conducting said fumes away, substantially as described.

3. In a pickling-machine, the combination, with a series of vats for containing baths for the treatment of metal plates and a moving carriage operating to transport the plates from vat to vat, supporting mechanisms for the manipulation of the plates in the vats, and provided with means to prevent the passage of the fumes through it, of a flange projecting from the carriage into a liquid seal, substantially as described.

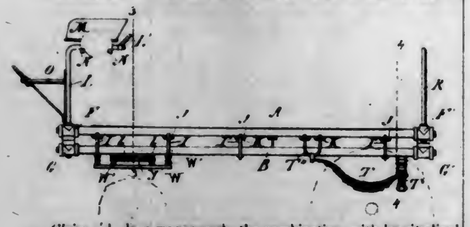
4. In a pickling-machine, the combination, with a series of vats for containing baths for the treatment of metal plates and a movable carriage operating to transport the plates from vat to vat and supporting mechanisms for the manipulation of the plates in the vats, of a flange projecting from the carriage into a liquid seal and a guard plate o, co-operating with said flange and liquid seal to prevent the acid-fumes from passing upward through said carriage, substantially as described.

5. In a pickling-machine, the combination, with a series of vats for containing baths for the treatment of metal plates and a movable carriage operating to transport the plates from vat to vat and supporting mechanisms for the manipulation of the plates in the vats, of a flange projecting from the carriage into a liquid seal, a guard-plate co-operating with said flange and liquid seal, and a guard-plate about said carriage, whereby the passage of the acid-fumes upward through the carriage and about the carriage is prevented, substantially as described.

6. In a pickling-machine, the combination, with a series of vats for containing baths for the treatment of metal plates, a moving carriage operating to transport the plates from vat to vat and supporting mechanisms for the manipulation of the plates in the vats, and a flue F for conducting away the fumes from the vat, of a vertical deflector or guide V at the outer side of the vat, substantially as described.

7. In a pickling-machine, the combination of a series of vats for containing baths for the treatment of metal plates, a moving carriage operating to transport the plates from vat to vat and supporting mechanisms for the manipulation of the plates in the vats, and a horizontal deflecting-plate arranged above the vats and about the carriage, substantially as described.

482,490. WAGON-RACK. GEORGE T. STERLING and JOHN BLOOMER, Milwaukee, Wis. Filed Dec. 14, 1891. Serial No. 414,976. (No model.)



Claim.—1. In a wagon-rack, the combination, with longitudinal tubular rails, of a tubular end guard-frame secured to the longitudinal rails by passing through couplings on the extremities of the rails and through the rails therein and being secured thereto by nuts turning on their extremities against the couplings, substantially as described.

2. In a wagon-rack, the combination, with longitudinal tubular rails, of tubular end rails and T-couplings by which the longitudinal rails are secured to the end rails, substantially as described.

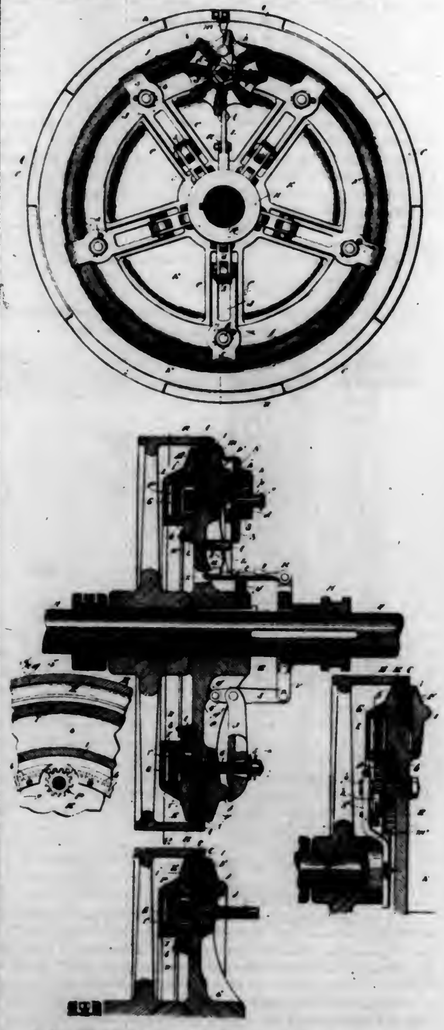
3. In a wagon-rack, the combination, with outside tubular longitudinal rails and inner longitudinal tubular rails in a plane below the plane of the outside rails, of tubular end rails and T-couplings whereby the end rails are secured to the extremities of the outside rails, and T-couplings on the end rails and on the inner and lower longitudinal rails, which couplings on the end rails and on the inner and lower longitudinal rails are connected together by a screw, substantially as described.

4. In a wagon-rack, the combination, with parallel longitudinal tubular rails at a distance apart, of a circle of the fifth-wheel and an irregular radial cross-brace having its four arms secured to the circle at their extremities and having medial parts arranged at right angles to the rails resting thereon, which medial parts of all the four arms bear against the rails and are secured thereto by brackets fastened to the rails, which brackets have shoulders or bearings for the arms at right angles to the rails, the arrangement being adapted to greatly strengthen the construction and prevent endwise movement of the members relatively, substantially as described.

482,491. FRICTION-CLUTCH. PETER WEIMER, Schenectady, N. Y. Filed July 22, 1891. Serial No. 400,291. (No model.)

Claim.—1. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member and connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

2. The combination, with the driving and driven members of a friction-clutch, and mechanism for clamping said two members, and mechanism for shifting said clamping mechanism to and from clamping position, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member and connections engaging said clamping mechanism and operated by said tightening mechanism for operating and continuing the clamping movement of said clamping mechanism begun by its shifting mechanism to increase the friction between the two members of the clutch, substantially as described.



3. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

and means for rendering said tightening mechanism inoperative when the two members are unclutched, substantially as described.

4. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the said two members of the clutch, and means for rendering said tightening mechanism inoperative when the two members are unclutched and for restoring it to operative position when said members are clutched, substantially as described.

5. The combination, with the driving and driven members of a friction-clutch, mechanism for clamping said two members, and mechanism for shifting said clamping mechanism to clamping and unclamping positions, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, and means for rendering said tightening mechanism inoperative during the first part of the movement to unclamping position of said clamping mechanism, substantially as described.

6. The combination, with the driving and driven members of a friction-clutch, mechanism for clamping said two members, and mechanism for shifting said clamping mechanism to clamping and unclamping positions, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, and means for rendering said tightening mechanism inoperative during the first part of the movement to unclamping position of said clamping mechanism and for restoring it to operative position during the latter part of the movement to clamping position of said clamping mechanism, substantially as described.

7. The combination, with the driving and driven members of a friction-clutch, mechanism for clamping said two members, and mechanism for shifting said clamping mechanism to clamping and unclamping positions, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch and connections operated by said shifting mechanism and engaging said tightening mechanism for rendering the latter inoperative during the movement to unclamping position of said shifting mechanism, substantially as described.

8. The combination, with the driving and driven members of a friction-clutch, mechanism for clamping said two members, and mechanism for shifting said clamping mechanism to clamping and unclamping positions, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch and connections operated by said shifting mechanism and engaging said tightening mechanism for rendering the latter inoperative during the movement to unclamping position of said shifting mechanism and restoring said tightening mechanism to operative position upon the movement to clamping position of said shifting mechanism, substantially as described.

9. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a pawl-and-ratchet mechanism and connections upon one member and operated from the other member when the speed of the driven member is less than that of the driving member and connections engaging said clamping mechanism and operated by said pawl-and-ratchet mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

10. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a pinion and connections upon one member and operated from the other member when the speed of the driven member is less than that of the driving member and connections engaging said clamping mechanism and operated by said pinion for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

11. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a pinion, a pawl-and-ratchet mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member for rotating said pinion, and connections engaging said clamping mechanism and operated by said pinion for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

12. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a pinion, a pawl-and-ratchet mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member for rotating said pinion, and gearing engaging said clamping mechanism and operated by said pinion for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

13. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a pinion, a pawl-and-ratchet mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member for rotating said pinion, and a cog-wheel engaging said clamping mechanism and operated by said pinion for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

14. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a pinion, a pawl-and-ratchet mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member for rotating said pinion, a cog-wheel engaging the clamping mechanism and operated by said pinion, and a ring threaded on said cog-wheel and connected to said clamping mechanism and movable upon said cog-wheel upon the rotation of the latter for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

15. The combination, with the driving and driven members of a friction-clutch, mechanism for clamping said two members, and mechanism for shifting said clamping mechanism to clamping and unclamping positions, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism, a rod operated by and simultaneously with the movement of said shifting mechanism and engaging said tightening mechanism for throwing it into or out of operative position, and a cam for disengaging said rod from said tightening mechanism before the completion of the movement to unclamping position of said shifting mechanism, substantially as described.

16. The combination, with the driving and driven members of a friction-clutch, mechanism for clamping said two members, and mechanism for shifting said clamping mechanism to clamping and unclamping positions, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, connections engaging said clamping mechanism and operated by said tightening mechanism, a rod operated by and simultaneously with the movement of said shifting mechanism and engaging said tightening mechanism for throwing it into or out of operative position, a cam for disengaging said rod from said tightening mechanism before the completion of the movement to unclamping position of said shifting mechanism and holding said rod out of engagement therewith during the fore part of the return or clamping movement of said shifting mechanism, and means for continuing and completing the movement to operative position of said tightening mechanism independently of said shifting mechanism, substantially as described.

17. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member and operated from the periphery of the other member when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

18. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a tightening-lever pivoted upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said tightening-lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

19. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a tightening-lever pivoted upon one member and operated from the periphery of the other member when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said tightening-lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

20. The combination, with the clamping mechanism of a friction-clutch, of the cog wheel I upon one member, ring G, threaded upon

said cog-wheel and connected to said clamping mechanism, pinion P, engaging said cog-wheel, and mechanism engaging said pinion and operated from the other member of the clutch for rotating said pinion, substantially as described.

21. The combination, with the clamping mechanism of a friction-clutch, of the cog-wheel I upon one member, ring G, threaded upon said cog wheel and connected to said clamping mechanism, pinion P, engaging said cog-wheel, pawl-and-ratchet mechanism *h d*, and a lever operated from the other member for operating said pawl-and-ratchet mechanism, substantially as described.

22. The combination, with the clamping mechanism of a friction-clutch, of a lever upon one member and operated from the other member, pawl-and-ratchet mechanism *h d*, operated by said lever, and connections between said pawl-and-ratchet mechanism and said clamping mechanism, substantially as described.

23. The combination, with the clamping mechanism of a friction-clutch, of a lever upon one member, finger *m* upon the other member for operating said lever, pawl-and-ratchet mechanism operated by said lever, pinion P, rotated by said pawl-and ratchet mechanism, and connections between said pinion and the clamping mechanism of the clutch, substantially as described.

24. The combination, with the clamping mechanism of a friction-clutch and sleeve H for shifting said clamping mechanism to and from clamping position, of the shaft *p* upon one member of the clutch, sleeve *s*, mounted upon and movable longitudinally of said shaft, lever S, carried by said sleeve and operated from the other member of the clutch, connections between sleeve H and sleeve *s* for moving said lever to and out of operative position upon the movement to clamping and unclamping position, respectively, of the sleeve H, and connections between shaft *p* and the clamping mechanism of the clutch, substantially as described.

25. The combination, with the clamping mechanism of a friction-clutch and sleeve H for shifting said clamping mechanism to and from clamping position, of the shaft *p* upon one member of the clutch, sleeve *s*, mounted upon and movable longitudinally of said shaft, lever L, fulcrumed upon the clutch and engaging said sleeve *s*, lever S, carried by the latter and operated from the other member of the clutch, rod R, connected to sleeve H and engaging lever L for moving lever S to and out of operative position upon the movement to clamping and unclamping position, respectively, of the sleeve H, and connections between shaft *p* and the clamping mechanism of the clutch, substantially as described.

26. The combination, with the clamping mechanism of a friction-clutch and sleeve H for shifting said clamping mechanism to and from clamping position, of the shaft *p* upon one member of the clutch, lever S, movable longitudinally of said shaft and operated from the other member of the clutch, lever L, fulcrumed upon the clutch, connections between said lever and lever S, rod R, connected to sleeve H, lug *t* upon said rod engaging lever L for moving lever S out of operative position upon the movement to unclamping position of the sleeve H, cam *u* upon said rod and means coacting therewith for disengaging lug *t* from lever L before the unclamping movement of sleeve H is completed, and connections between shaft *p* and the clamping mechanism of the clutch, substantially as described.

27. The combination, with the clamping mechanism of a friction-clutch and sleeve H for shifting said clamping mechanism to and from clamping position, of the shaft *p* upon one member of the clutch, sleeve *s*, mounted upon and movable longitudinally of said shaft, lever L, fulcrumed upon the clutch and engaging said sleeve *s*, lever S, carried by the latter and operated from the other member of the clutch, rod R, connected to sleeve H, lug *t* upon said rod engaging lever L for moving lever S out of operative position upon the movement to unclamping position of the sleeve H, cam *u* upon said rod and means coacting therewith for disengaging lug *t* from lever L, before the unclamping movement of sleeve H is completed, and connections between shaft *p* and the clamping mechanism of the clutch, substantially as described.

28. The combination, with the clamping mechanism of a friction-clutch and sleeve H for shifting said clamping mechanism to and from clamping position, of the shaft *p* upon one member of the clutch, sleeve *s*, mounted upon and movable longitudinally of said shaft, lever L, fulcrumed upon the clutch and engaging said sleeve *s*, lever S, carried by the latter and operated from the other member of the clutch, rod R, connected to sleeve H, lug *t* upon said rod engaging one side of lever L for moving lever S out of operative position upon the movement to unclamping position of the sleeve H, cam *u* upon said rod and means coacting therewith for disengaging lug *t* from lever L, before the unclamping movement of sleeve H is completed, means coacting with rod R for bringing said cam into engagement with the opposite side of lever L during the latter part of the return or clamping movement of sleeve H to restore lever S to operative position, and connections between shaft *p* and the clamping mechanism of the clutch, substantially as described.

29. The combination, with the clamping mechanism of a friction-clutch and sleeve H for shifting said clamping mechanism to and from clamping position, of the shaft *p* upon one member of the clutch, sleeve *s*, mounted upon and movable longitudinally of said shaft, lever L, fulcrumed upon the clutch and engaging said sleeve *s*, lever S, carried by the latter and operated from the other member of the clutch, rod R, connected to sleeve H, lug *t* upon said rod engaging one side of lever L for moving lever S out of operative position upon the movement to unclamping position of the sleeve H, cam *u* upon said rod, and means coacting therewith for disengaging lug *t* from lever L before the unclamping movement of sleeve H is completed, means coacting with rod R for bringing said cam into engagement with the opposite side of lever L during the latter part of the return or clamping movement of sleeve H to restore lever S to operative position, spring *z* between cam *u* and lever L, and connections between shaft *p* and the clamping mechanism of the clutch, substantially as described.

30. The combination, with the clamping mechanism of a friction-clutch and sleeve H for shifting said clamping mechanism to and from clamping position, of the shaft *p* upon one member of the clutch, sleeve *s*, mounted upon and movable longitudinally of said shaft, lever L, fulcrumed upon the clutch and engaging said sleeve *s*, lever S, carried by the latter and operated from the other member of the clutch, rod R, connected to sleeve H, lug *t* upon said rod engaging one side of lever L for moving lever S out of operative position upon the movement to unclamping position of the sleeve H, spring *y* for holding said rod normally in position for such engagement, cam *u* upon said rod, and means coacting therewith for disengaging lug *t* from lever L before the unclamping movement of sleeve H is completed, means coacting with rod R for bringing said cam into engagement with the opposite side of lever L during the latter part of the return or clamping movement of sleeve H to restore lever S to operative position, spring *z* between cam *u* and lever L, and connections between shaft *p* and the clamping mechanism of the clutch, substantially as described.

31. The combination, with the clamping mechanism of a friction-clutch, of the disk E, provided with cam *g*, engaging said clamping mechanism in its operative position, and with recess *g'* at the base of the cam for receiving the bearing portions of said clamping mechanism in its inoperative position, substantially as described.

32. The combination, with the toggle mechanism of a clutch, of the ribs *e*, formed in the face of one of the members and embracing the bearing portions of said levers, and cams *g* between said ribs, substantially as described.

33. The combination, with the toggle-levers of a friction-clutch, of the disk E, provided with cams *g*, engaging said toggle-levers in the operative position, and with recesses *g'* at the base of the cam for receiving the bearing portions of said levers in their inoperative positions, substantially as described.

34. The combination, with the disk E, having cams *g* and recesses *g'*, of the levers J, arms 2 3, and the rollers 4 upon the arms 3, substantially as described.

35. The combination, with the driving and driven members of a friction-clutch and a plurality of clamping devices for clamping said two members, of tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, a friction-adjusting wheel, connections engaging said wheel and operated by said tightening mechanism, and threaded connections between said wheel and all of said clamping devices to increase the friction between the two members of the clutch, substantially as described.

36. The combination, with the driving and driven members of a friction-clutch and a plurality of clamping devices for clamping said two members, of a pinion and connections upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, a friction-adjusting cog-wheel rotated by said pinion, and threaded connections between said cog-wheel and all of said clamping devices for simultaneously operating all of said devices to increase the friction between the two members of the clutch, substantially as described.

37. In a friction-clutch, the combination, with a plurality of clamping devices, of the disk E, cog-wheel I, journaled on said disk, and ring G, connected to said clamping devices and threaded upon and movable axially of said cog-wheel upon the rotation of the latter to adjust said clamping devices, substantially as described.

38. In a friction-clutch, the combination, with a plurality of clamping devices, of the disk E, cog-wheel I, journaled on said disk, ring G, connected to said clamping devices and threaded upon and movable axially of said cog-wheel upon the rotation of the latter to adjust said clamping devices, and pinion P and shaft *p* for rotating said cog-wheel, substantially as described.

39. In a friction-clutch, the combination, with a plurality of clamping devices, of the disk E, cog-wheel I, journaled on said disk, and ring G, connected to said clamping devices and threaded upon and movable axially of said cog-wheel upon the rotation of the latter to adjust said clamping devices, pinion P and shaft *p* for rotating said cog-wheel, and washer *w*, connected to disk E and engaging cog-wheel I to prevent its movement axially of the clutch, substantially as described.

40. The combination, with pulley B, its plate C, and disk E and ring F, embracing said plate, of the rib *j* upon the outer face of the ring F in line with plate C, cog-wheel I upon the inner face of the disk E and provided with an extension in line with the rib *j*, clamping mechanism connected with said cog-wheel and engaging rib *j*, and means for shifting said cog wheel to clamping and unclamping positions into and out of engagement with rib *j*, substantially as described.

482,492. COMBINED COLLAR AND HAME FASTENER. Joseph C. Wellman, Blair, Nebr. Filed May 2, 1892. Serial No. 431,560. (No model.)



Claim.—1. In a collar-fastener, the combination of part 2, provided at its joint end with a dovetail extension loosely fitted to slide vertically into a corresponding recess in the joint end of part 1, a rabbet across the top of the extreme end of the dovetail extension, a corresponding shoulder across the recess, adapted to impinge on the bottom of the rabbet, that portion of the parts in which the dovetail coupling is located being straight across on its lower face and convex in cross section on its upper face, the nether surface of each part from the coupling portion toward its extreme end concave in cross section, and a horizontal mortise through the dovetail coupling from the concavity in one part to the concavity in the opposite part, adapted to receive the upper fold of a hame-strap, substantially as shown and described.

2. In a combined collar and hame fastener, the combination of parts 1 and 2, separably coupled together and having the concavities 18 and 18' in their nether surfaces and the shoulders 15 and 15', and the combination hooks and nuts 3 and 3', each consisting of a common square nut having an integral extension projecting from one of its edges flush with the nether surface of the nut and bent to form a hook adapted to engage the links in the ends of the hames, the hook extension of less thickness than the nut to form a shoulder corresponding to and adapted to bear against the shoulders 15 and 15', substantially as shown and described.

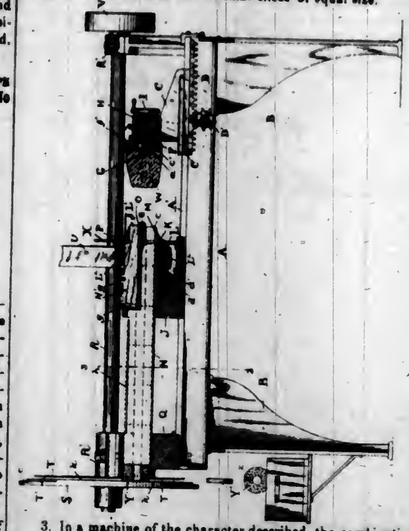
3. In a combined collar and hame fastener, the combination of part 2 and part 1, separably coupled together, each attached to the lower end or a half of the collar by a pair of screw-bolts 8, the heads seated in countersinks in double washers 9, part 2 having in its nether surface the concavity 18' and the shoulder 15', and the martingale retainer 11 having the perforations 23 23 to loosely receive the screw-bolts and seated in the concavity, one of the screw-bolts provided with a combined nut and hook 3', adapted to engage the link in lower end of hame and bear against the shoulder 15', part 1 having a similar shoulder and combined hook and nut, substantially as shown and described.

4. In a combined collar and hame fastener, the combination of parts 1 and 2, attached to the lower ends of the halves of a collar, part 2 having a dovetail extension fitted loosely to slide vertically into a corresponding recess in part 1, a rabbet across the top of the extreme end of the dovetail extension, a corresponding shoulder across the recess, adapted to impinge on the bottom of the rabbet, a horizontal mortise through the dovetail extension and walls of the recess, adapted to receive a locking-key, part 2 having the concavity 18' and the shoulder 15', the martingale-retainer 11, seated in the concavity, the combined nut and hook 3', adapted to bear against the shoulder 15' and engage the link in lower end of hame, part 1 having the concavity 18 and the shoulder 15, the combined nut and hook 3, adapted to engage the link 6 and the hame 7 and bear against the shoulder 15, and the leather key 10, one end fixed in the concavity, the other adapted to be inserted through the mortise in the dovetail coupling, substantially as shown and described.

482,493. MACHINE FOR TREATING PINEAPPLES. George W. Zastrow, Baltimore, Md. Filed Apr. 11, 1892. Serial No. 428,582. (No model.)

Claim.—1. In a machine of the character described, the combination of a shear, a cylindrical sizing-cutter through which the article under treatment passes to said slicer, and a carriage for feeding the said article first through the said cylindrical cutter and then to the slicer, whereby the machine will cut the article into circular slices of equal size.

2. In a machine of the character described, the combination of a rotary slicer-disk having a slicing-knife secured to one face, with a space between it and the said disk-face, a cylindrical sizing-cutter through which the article under treatment passes to the slicer-disk, and a carriage for feeding said article first through the said cylindrical cutter and then against the face of the said rotary disk, whereby the machine cuts the article into circular slices of equal size.



3. In a machine of the character described, the combination of a rotary slicer-disk having a recess in one face and a slicing-knife secured on said face and extending over said recess, a cylindrical sizing-cutter through which the article under treatment passes to the slicer, and a carriage for feeding the said article first through the said cylindrical cutter and then against the face of the rotary slicer-disk, the slice cut off by the knife on said disk entering the recess in the latter, for the purpose described.

4. In a machine of the character described, a cylindrical sizing-cutter and a concentric coring-tube, both arranged to act simultaneously on the article under treatment.

5. In a machine of the character described, a cylindrical sizing-cutter and a coring-tube having permanent location concentrically therein.

6. In a machine of the character described, a cylindrical sizing-cutter and a coring tube having permanent location concentrically therein, in combination with a carriage to present the article under treatment to the action of said two cutters.

7. In a machine of the character described, a coring-tube having a radial blade attached on its exterior to split the article under treatment at the same time that it is cored by said tube.

8. In a machine of the character described, the combination of a cylindrical sizing-cutter and a radial splitting-blade therein.

9. In a machine of the character described, the combination of a carriage, a cylindrical sizing-cutter, and a radial splitting-blade located in said cylindrical cutter.

10. In a machine of the character described, the combination of a cylindrical rotary sizing cutter and a stationary blade located therein, substantially as and for the purpose described.

11. In a machine of the character described, a cylindrical sizing-cutter, a coring-tube located concentrically therein, and a radial splitting-blade also located in said cylindrical cutter.

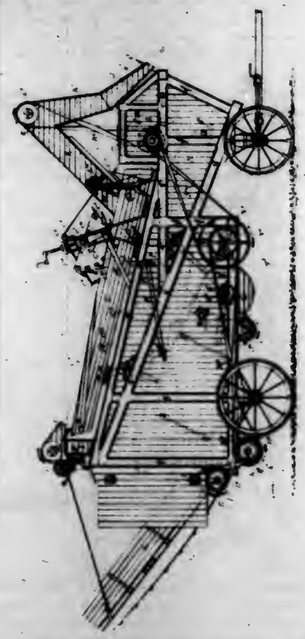
12. In a machine of the character described, the combination of a cylindrical sizing-cutter, a coring-tube, a radial splitting-blade, and a carriage to present the article under treatment to the action of all three of said cutters, substantially as described.

13. In a machine of the character described, the combination of a cylindrical sizing-cutter, a coring-tube, a slicer, and a carriage to present the article under treatment to the action of all three of said cutters, substantially as described.

14. In a machine of the character described, the combination of a cylindrical sizing-cutter, a coring-tube, a radial splitting-blade, a slicer, and a carriage to present the article under treatment to the action of all four of said cutters.

15. In a machine of the character described, the combination, with a suitable cutter, of a sliding carriage holding a revoluble cork-screw which projects to receive the article under treatment.

482,494. THRASHING-MACHINE. OLIVER ANDERSON, Racine, Wis., assignor of one-half to Henry F. Herrick, same place. Filed Apr. 17, 1890. Serial No. 348,361. (No model.)



Claim.—1. In a thrashing-machine, the combination, with a thrashing-cylinder and concave, of a straw-conveyer, a bundle-feeder embracing a reciprocating table, rigidly-connected pivoted arms supporting both the straw-conveyer and the said table, and means for actuating said conveyer and table, substantially as described.

2. In a thrashing-machine, the combination, with a thrashing-cylinder and concave, of a straw-conveyer, a bundle-feeder and band-cutter comprising a reciprocating table and an oscillating band-cutter, rigidly-connected pivoted arms supporting both the straw-conveyer and the said table, means connected with one of said arms and giving vibratory motion thereto, and connections between said band-cutter and one of said arms by which oscillatory motion is given to the band-cutter, substantially as described.

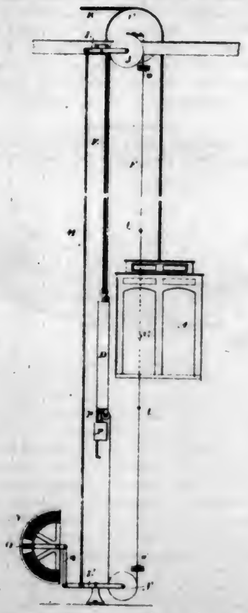
3. In a threshing-machine, the combination, with a thrashing-cylinder and concave, of a straw-conveyer, a feeder and band-cutter comprising a reciprocating table, oscillating band-cutter, and an oscillating toothed segment opposed to the cutter, rigidly-connected pivoted arms sustaining both the straw-conveyer and the said table, means connecting one of said arms with the oscillating band-cutter for actuating the latter, means connecting said toothed segment with one of said arms for actuating said segment, and means giving vibratory motion to said arms, substantially as described.

4. The combination, with a thrashing-cylinder and a concave extending over the downwardly-movable side of the cylinder, of a straw-conveyer and an inclined board located beneath the concave pivotally connected with the frame of the machine at its upper end and with the straw-conveyer at its lower end and forming a continuation of the straw-conveyer, substantially as described.

5. In a thrashing-machine frame, the combination, with the supporting-wheels and front and rear axles, of inclined longitudinal frame-pieces extending from the front axle upwardly and rearwardly the entire length of the machine, lower longitudinal frame pieces extending forwardly from the rear axle and terminating in the rear of the front axle, and vertical frame-pieces crossing the inclined frame-pieces at a point at the rear of the front axle and attached to the front ends of the lower longitudinal frame-pieces, forming a space for the forward wheels, substantially as described.

6. In a thrashing-machine, the combination, with a thrashing-cylinder and a concave extending over the downwardly-moving side of the cylinder, of a bundle-feeder delivering the grain to the upwardly-moving side of the cylinder and discharge devices located at the said upwardly-moving side of the cylinder, substantially as described.

482,495. CONTROLLING DEVICE FOR ELEVATORS. NORMAN C. BARRETT, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Aug. 4, 1890. Serial No. 360,924. (No model.)



Claim.—1. The combination, with an elevator and counter-weight connected to the car, of a single running cable passing around pulleys located, respectively, at the top and bottom of the hatchway and attached to the counter-weight, so that the drag of the cable comes directly upon the said weight when moving in each direction, and a starting and stopping mechanism for the elevator, actuated by said cable, as set forth.

2. The combination of an elevator-car and counter-weight with the movable pulleys above and below the car, respectively, the running rope for operating the starting and stopping mechanism, passing around said pulleys, and an intermediate connection between the pulleys, whereby movement of the one causes a corresponding movement of the other.

3. The combination of an elevator-car, a counter-weight, and the pulleys above and below the car, one at least carried upon a pivoted lever, with the rope running around said pulleys for operating the starting and stopping mechanism and having its ends attached to the counter-weight as described.

4. The combination of the elevator-car, counter-weight, movable pulleys, and running rope for operating the starting and stopping mechanism, passing around the pulleys and attached to the counter-weight, with the pivoted lever carrying upon one arm one of the said pulleys and having attached to the other arm a connection leading to the second pulley, for the purpose described.

5. The combination of the pivoted lever at the bottom of the hatchway, connected to the starting and stopping mechanism, and the running rope attached to the counter-weight, as described, and operating said lever with the return-rope connected with the running rope at the upper end of the hatchway and to the said lever, for the purpose described.

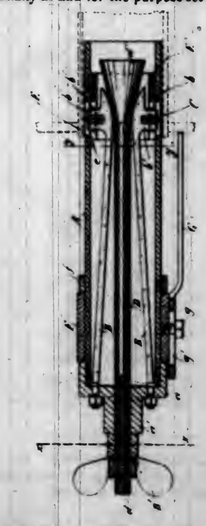
6. The combination of the single running rope for operating the starting and stopping mechanism, passing around suitable pulleys and attached at both ends to the counter-weight, with a take-up device for taking the slack of the rope, as described.

482,496. TUBE-CUTTER. MARCELLUS C. COPPAGE, Terre Haute, Ind. Filed Jan. 9, 1892. Serial No. 417,467. (No model.)

Claim.—1. In a tube-cutter, the combination, with the revoluble barrel provided with slots and having a cap at one end of it, of the spring-arms rigidly secured at one end to the said cap and having their free ends working in the said slots, the rollers carried by the free ends of the spring-arms and projecting through the said slots, and a retractible feed-spindle provided with a cone adapted to press against the

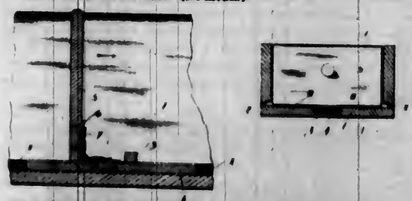
curved ends of the said arms beyond the said rollers and to press the said rollers outwardly, substantially as set forth.

2. In a tube-cutter, the combination, with the revoluble barrel provided with cutting devices and having a cap at one end, of a collar secured to the barrel, a ring journaled on the barrel between the said collar and cap, the guides provided with longitudinal slots, and screws passing through the said slots, and adapted to clamp the guides to the said ring, substantially as and for the purpose set forth.



3. In a tube-cutter, the combination, with the barrel provided with slots, of a cap secured to one end of the barrel and provided with means for revolving it, the spring-arms secured to the cap and provided with double eyes at their free ends, the slotted guide-ring secured to the barrel for the double eyes to engage with, the rollers carried by the double eyes, the feed-spindle provided with a cone for pressing the rollers against the tube, and a nut engaging with the end of the said feed-spindle outside the cap, substantially as and for the purpose set forth.

482,497. FILE. CHARLES W. COX, Oak Park, Ill. Filed Feb. 27, 1892. Serial No. 423,085. (No model.)



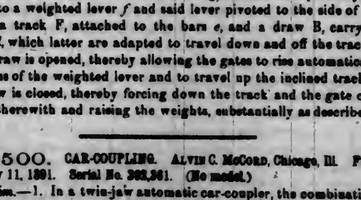
Claim.—1. The combination, with a drawer having a groove in the bottom thereof, of a slide fitted into said groove, a board hinged upon said slide and adapted to be tilted toward the front of the drawer, cards fitted into said drawer between the board and the front of the drawer, said cards being adapted to be moved lengthwise of the drawer, and means for locking said board rigidly in fixed engagement with the drawer when such board stands perpendicular and releasing it from engagement with the drawer when the board is tilted forward, substantially as described.

2. The combination, with a drawer having a longitudinal groove in the bottom thereof, of a slide fitted into said groove, board 5, hinged upon said slide, a hinge 6 to permit of the tilting of said board, devices carried by said board adapted to engage the bottom of the drawer when the board is in a vertical position and to be thrown out of engagement with the bottom of the drawer when the board is tilted, and cards 10, movable lengthwise of said drawer, substantially as described.

3. The combination, with a drawer 1, having a groove 3, of a slide 4, fitted into said groove, board 5, mounted upon said slide 4, a hinge 6, secured to said board and to the slide in such manner as to permit of the tilting of said board, pins 8 in the bottom of said board, adapted to engage the bottom of the drawer when the board is in a vertical position and to be thrown out of engagement when the board is tilted, a spring 7, adapted to return the board to a vertical position, and cards 10, movable lengthwise of said frame, substantially as described.

4. The combination, with a frame 1, having grooves 2 along its lower edges and a groove 3 extending lengthwise thereof, of a slide 4, fitted in said groove 3, board 5, mounted upon said slide, a hinge 6, connected to said board and to the slide in such manner as to permit of the tilting of the board, a spring 7, adapted to return the board to a vertical position, pins 8 in the lower edge of said board, adapted to engage the bottom of the drawer when the board is in a vertical position and to be thrown out of engagement with the drawer when the board is tilted, cross-bar 9 upon said slide a short distance from the board 5, and cards 10, having strips 11, said strips having projecting ends 12, adapted to fit into the grooves 2, substantially as described.

482,498. DUMPING-WAGON. SAMUEL J. FORSGARD, Waco, Tex. Filed May 7, 1890. Renewed July 27, 1892. Serial No. 441,350. (No model.)



Claim.—The combination of a frame, double dumping-boxes swinging upon axles, and a U-shaped dumping-lever, said lever provided with points extending slightly beyond its axis, substantially as described and set forth.

482,499. SAFETY-GATE FOR DRAWBRIDGES. WILLIAM GODDARD, Oshkosh, Wis. Filed Mar. 7, 1892. Serial No. 424,040. (No model.)



Claim.—1. In an automatic bridge-gate opening and closing device, the combination of the vertically-sliding gate C, bars *e*, rigidly attached to the lower end of the gate, said bars being pivotally attached to a weighted lever *f* and said lever being pivoted to the side of the bridge, a track F, attached to the bars *e*, and a draw B, carrying rollers *d*, which latter are adapted to travel down and off the track F as the draw is open, thereby allowing the gate to rise automatically by means of the weighted lever and to travel up the inclined track as the draw is closed, thereby forcing down the track and the gate connected therewith and raising the weights, substantially as described.

2. In an automatic bridge-gate opening and closing device, the combination of the vertically-sliding gate C, bars *e*, rigidly attached to the lower end of said gate, said bars pivotally attached to weighted lever *f*, which latter is pivoted to the side of the bridge, an arched track F, attached to the bars *e*, a draw B, provided with a bar J, carrying rollers or travelers *d*, which are adapted to travel on the arched track F, and an auxiliary roller or traveler *m*, which travels beneath and upon the arched track F, substantially as and for the purpose described.

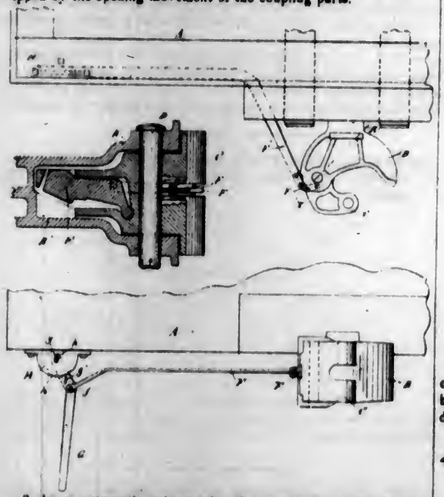
3. In an automatic bridge-gate opening and closing device, the combination of the vertically-sliding gate C, guideways *c c*, a slot or passage D in the bridge-floor for the passage of said gate, bars *e*, rigidly attached to the lower end of the gate, said bars pivotally attached to a weighted lever *f* and said lever pivoted to the side of the bridge, a track F, attached to the bars *e*, and a draw B, carrying rollers *d*, which latter are adapted to travel down and off the track F as the draw is opened, thereby allowing the gates to rise automatically by means of the weighted lever and to travel up the inclined track as the draw is closed, thereby forcing down the track and the gate connected therewith and raising the weights, substantially as described.

482,500. CAR-COUPLING. ALVIN C. MCCORD, Chicago, Ill. Filed May 11, 1891. Serial No. 392,561. (No model.)

Claim.—1. In a twin-jaw automatic car-coupler, the combination, with the coupling-hook, of an automatic locking device for the coupling-hook, a releasing device for the locking device, and a retaining

device for the releasing device, adapted to be set to hold the locking device in its unlocked position and to be tripped on the opening movement of its coupling parts, substantially as and for the purpose set forth.

2. In an automatic coupler, the combination, with the coupling parts and an automatic locking device, of a releasing device, a hand-lever for controlling the same, and a retaining device for the lever, adapted to hold the locking device in its unlocked position and be tripped by the opening movement of the coupling parts.



3. In an automatic twin coupler, the combination, with a coupling-hook, of a locking-dog carried by the heel-piece of the coupling-hook, a releasing-rod connected both to the locking-dog and the coupling-hook at some point in advance of its pivot, a hand-lever for operating the rod, and a retaining device for the lever, adapted to hold the dog in its unlocked position when the coupling-hook is closed and be tripped by the rod when the coupling-hook is opened, substantially as described.

4. In an automatic twin coupler, the combination, with a coupling-hook, of a locking-dog carried by the hook, a releasing-rod connected to said dog and also to the hook in advance of its pivot, the slotted and toothed segment-plate, and the hand-lever pivotally connected to the rod, having its fulcrum-pin working in the slot of said plate and having a fixed pawl for engaging said teeth, substantially as and for the purpose set forth.

5. The combination, with the coupler-head B, having locking-lug B', of the recessed coupling-hook C, the pivot-bolt D, the locking-dog E, the sectional jointed releasing device F F', connected to the dog and passing to the exterior of the coupling-hook in advance of its pivot, the segment-plate H, having the slot *h* and teeth *h'*, and the hand-lever G, pivotally connected to the section F' of the releasing-rod and having its fulcrum-pin *g* working in the slot *h*, and a fixed pawl *g'* for engaging with the teeth *h'*, substantially as described.

482,501. CURLING OR CRIMPING IRON. FRANK S. SLEEPER, Duluth, Minn. Filed Oct. 16, 1891. Serial No. 408,870. (No model.)

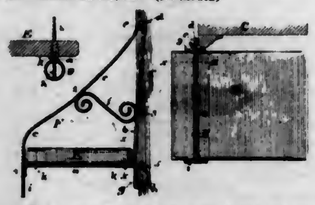
Claim.—1. As a new article of manufacture, a combined hair curler and crimper comprising two arms, each provided with a semicylindrical curling or crimping portion, one of which approximately entirely closes into the other and which when in contact are parallel, whereby the hair can be either curled or crimped and a single curl made at one operation, substantially as described.

2. As a new article of manufacture, a combined hair curler and crimper comprising two arms, each provided with a single curling or crimping portion, one of which approximately entirely closes into the other and which when in contact are parallel, the said curling or crimping portions having closed guard ends, whereby the hair can be curled or crimped and a single curl made at one operation and the hair waved, without the liability of the curling or crimping portion catching into the hair, substantially as described.

3. As a new article of manufacture, a combined hair curler and crimper comprising two arms, each provided with a single curling or crimping portion, one of which approximately entirely closes into the other and which when in contact are parallel, the said curling or crimping portions having closed guard ends and weighted, whereby the hair can be curled or crimped by one operation and the hair waved without liability of the curling or crimping portions catching into the hair, and the parts brought automatically together, substantially as described.



482,502. HANGING WINDOW-SHELF. WILLIAM A. THOMPSON, Boston, assignor of one-half to Matthias E. Crocker, Malden, Mass. Filed Oct. 8, 1891. Serial No. 408,132. (No model.)



Claim.—1. The combination of the shelf E and the bracket F, composed of the horizontal bar *a*, the slightly-inclined upright *b*, the tie-rod *c*, connecting the front end of the bar *a* and the upper end of the bar *b*, and the parts *g h*, arranged at right angles to each other, said bracket being provided with a loop or eye *d* at its upper end, with its axis parallel to the rear edge of the shelf, the bar *a* being hinged or pivoted to said shelf, substantially as and for the purposes described.

2. The combination of the shelf E and two brackets F, pivoted to said shelf, one near each end, and each provided with a loop or eye at its upper end, with its axis parallel to the rear edge of the shelf and adapted to engage a screw or stud set in the edge or surface of the casing, which is at right angles to the wall of the building, and also provided with the members *g* and *h*, constructed and arranged to bear, respectively, against the front and edge of the window casing.

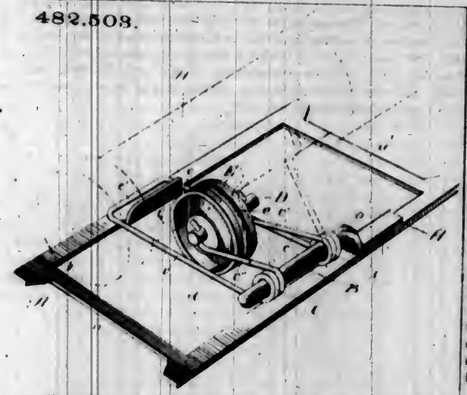
482,503. AXLE-LUBRICATOR. WILLIAM H. WARD, Topeka, Kans., assignor of one-half to Josiah P. Lewis, same place. Filed Nov. 16, 1891. Serial No. 412,096. (No model.)

Claim.—1. In a car-axle lubricator comprising a frame, a supporting-spring comprising coils having two sets of arms extending therefrom, one of such arms resting normally in a substantially horizontal position and the other set extending from the coils at an angle to the horizontal arms and adapted to support the lubricating-wheel, substantially as described.

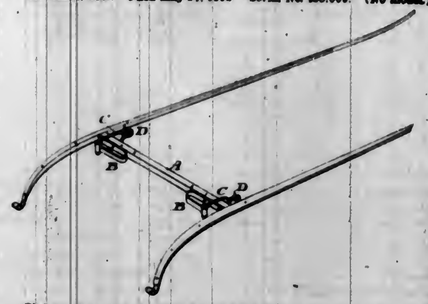
2. A car-axle lubricator comprising a frame, a spindle attached to the frame at one end only, and a supporting-spring comprising coils embracing the spindle, arms for supporting the lubricating-wheel, and arms extending to and resting upon the opposite side of the frame, whereby the spring may be introduced into the axle-box and removed therefrom without disturbing the frame.

3. In a car-axle lubricator, the combination of a frame resting upon the bottom of the journal-box, provided with a spindle and a lug, a supporting-spring comprising coils adapted to pass over the spindle, substantially horizontal arms adapted to rest upon the frame and engage with the lug, angularly-placed arms, a spindle supported by the latter arms, and a lubricating-wheel revolving upon such spindle, substantially as described.

482,503.

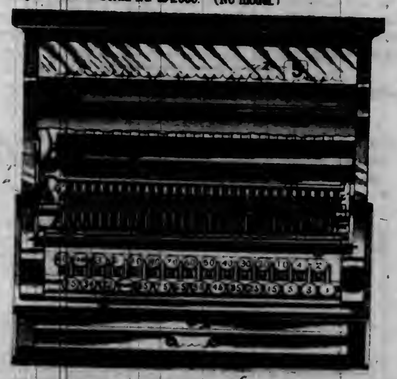


482,504. SPRING DRAFT ATTACHMENT. ROBERT BOETTLER, Cleveland, Ohio. Filed May 31, 1892. Serial No. 435,069. (No model.)



Claim.—A spring tug attachment for thills, consisting of U-shaped springs B B, one arm of each spring secured to rear side of cross bar A of the thills, and U-shaped yokes C C, embracing said cross-arm and pivotally attached to the free ends of the springs B B and provided with hooks D D, whose points stand upright, substantially as described, and for the purpose set forth.

482,505. CASH-REGISTER. HUGO COOK, Dayton, Ohio. Filed May 23, 1892. Serial No. 434,000. (No model.)



Claim.—1. The combination of a series of guideways for holding a supply of counters adapted to travel through them by gravity, a pair of detents for each guideway, co-operating with the counters therein to release them one by one, and a series of operating-keys representing different values projecting between the guideways and arranged to bear against and co-operate with the detents, substantially as described.

2. The combination of a series of guideways containing a supply of counters adapted to travel through them by gravity, a pair of spring-detents for each guideway, co-operating with the counters therein to release them one by one, and a series of operating-keys representing different values projecting between the guideways and co-operating with the detents, substantially as described.

3. The combination of a series of guideways, a hopper for holding a supply of counters communicating with the guideways at their upper ends, a pair of detents for each guideway, co-operating with the counters therein to release them one by one, and a series of operating-keys representing different values projecting between the guideways and co-operating with the detents, substantially as described.

4. The combination of a series of guideways for holding a supply of counters adapted to travel through them by gravity, a pair of detents for each guideway, co-operating with the counters therein to release them one by one, a series of operating-keys projecting between the guideways and co-operating with the detents, and a receptacle communicating with the delivery ends of the guideways and having a series of divisions for receiving and keeping separate the counters delivered to it from the different guideways, substantially as described.

5. The combination of a series of guideways, a hopper for holding a supply of counters, communicating with the guideways at their upper ends, a receptacle communicating with the guideways at their lower ends and having a series of divisions for receiving and keeping separate the counters delivered to it from the different guideways, a pair of detents for each guideway, co-operating with the counters therein to release them one by one, and a series of operating-keys representing different values projecting between the guideways and co-operating with the detents, substantially as described.

6. The combination of a series of guideways, a hopper for holding a supply of counters, communicating with the guideways at their upper ends, a pair of detents for each guideway, co-operating with the counters therein to release them therefrom one by one, a series of operating-keys representing different values projecting between the guideways and co-operating with the detents, and a receptacle communicating with the lower ends of the guideways and having a series of divisions for receiving and keeping separate the counters delivered to it from the respective guideways, substantially as described.

7. The combination, in a cash register and indicator, of a series of guideways for holding a supply of counters adapted to travel through them by gravity, a series of operating-keys representing different values and projecting between the guideways, a series of indicators adapted to be brought into view by the operations of said keys to indicate their respective values, means co-operating with the keys and with the counters in the guideways to release one counter in each guideway upon the operation of the key corresponding to such guideway, and a receptacle having a series of divisions for receiving and keeping separate the counters delivered to it from the different guideways, whereby upon the operation of any key an indicator representing its value is exposed to view and a counter deposited in the proper receptacle to preserve a record thereof.

8. The combination, in a cash register and indicator, of a series of guideways to hold a supply of counters adapted to travel through them by gravity, a pair of detents for each guideway, co-operating with the counters therein to release them one by one, a series of operating-keys representing different values and co-operating with the detents, a receptacle communicating with the guideways and provided with divisions for receiving and keeping separate the counters delivered to it from the different guideways, a money-drawer, and a lock therefor released by the operation of any key of the series, whereby upon operating any key of the series to open the money-drawer a registry of such operation is made by the deposition of a counter in the proper receptacle.

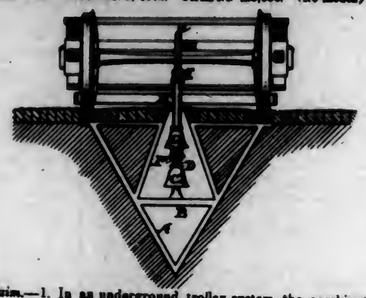
9. The combination of the tubes F', the spring-detents L' M', adapted to enter openings therein, and the keys G, projecting between the tubes and co-operating with the detents, substantially as described.

10. The combination of the hopper H', the tubes F', communicating therewith, the spring-detents L' M', adapted to enter openings therein, and the keys G, projecting between the guideways and co-operating with the detents, substantially as described.

11. The combination of the tubes F', the detents L' M', adapted to enter openings therein, the keys G, projecting between the tubes and co-operating with the detents, and the receptacle E, communicating with the lower ends of the tubes and provided with the troughs K' for receiving and keeping separate the counters delivered to it from the different tubes F', substantially as described.

12. The combination of the hopper H', the tubes F', communicating therewith at their upper ends, the receptacle E, communicating with the tubes at their lower ends and provided with the troughs K', the detents L' M', and the keys G', projecting between the tubes F' and co-operating with the detents, substantially as described.

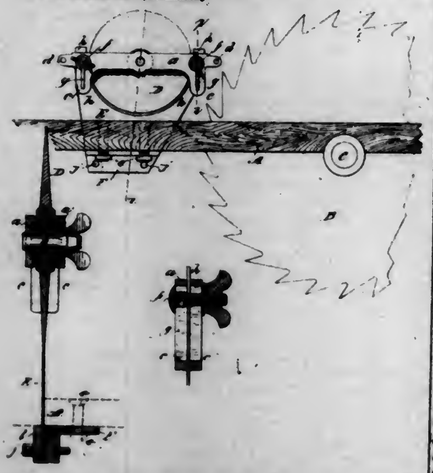
482,506. UNDERGROUND TROLLEY. JOSEPH FISHER, Cleveland, Ohio. Filed Mar. 9, 1892. Serial No. 423,994. (No model.)



Claim.—1. In an underground trolley system, the combination, with the depending trolley-arm E, having a trolley-wheel F, and the electric conductor D, of the antifriction-sleeve H, fitted loosely on the trolley-arm for protecting the arm from wear in the slot, substantially as and for the purpose set forth.

2. In an underground trolley system, the combination of conduit A, insulators C C, supports B B, electric conductor D, trolley-arm E, trolley-wheel F, shield G, antifriction-sleeve H, and depending clearers J J, constructed to operate substantially as described.

482,507. KERF-SPREADER. JOSEPH M. FOSTER, Boston, Mass., assignor of one-half to Robert Bruce, same place. Filed Aug. 6, 1891. Serial No. 401,884. (No model.)



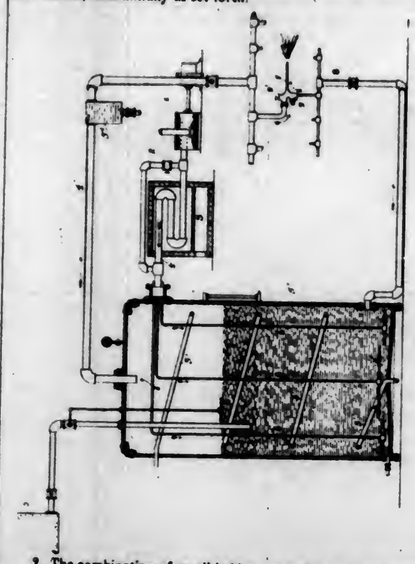
Claim.—1. In a kerf-spreader, the combination of standard E, formed of thin metal and secured to the table, so as to extend up through the kerf of the saw, and the disk D, diminished in thickness at its periphery and supported by said standard above the piece to be sawed and so as to extend down into the kerf thereof, substantially as specified.

2. In a kerf-spreader, the combination of the thin-metal standard adapted to be arranged in the line of the plane of the saw and to be secured to the table below the plane thereof, the bar *a*, secured to said standard, and the disk D, pivoted in said bar above the piece being sawed and so as to extend down into the kerf thereof, substantially as specified.

3. In a kerf-spreader, the combination, with standard E, adapted to be secured to the table, of the bar *a*, supporting the disk D above the piece to be sawed and provided with the slots *g*, whereby said disk may be vertically adjusted according to the thickness of the piece to be sawed, substantially as specified.

482,508. APPARATUS FOR BURNING OIL. GEORGE H. HARVEY, Pittsburg, Pa., assignor of three-fourths to James Getty, Jr., same place, and George D. Rayaud and Gustav P. Perreaud, New York, N. Y. Filed Feb. 6, 1891. Renewed July 24, 1892. Serial No. 441,040. (No model.)

Claim.—1. The combination of an oil-holder, an air-forcing device, an air-conduit for conveying air to the oil-holder, means for mechanically distributing the air in the oil, a burner, and conduits connecting the upper and lower parts, respectively, of the oil-holder with the burner, whereby carbureted air and residual oil may be conveyed to said burner, substantially as set forth.



2. The combination of an oil-holder, an air-forcing device, an air-conduit for conveying air to the oil-holder, a heater for heating the air, means for mechanically distributing the air in the oil, a burner, and conduits connecting the upper and lower parts, respectively, of the air-holder with the burner, whereby carbureted air and residual oil may be conveyed to said burner, substantially as set forth.

3. The combination of an oil-holder, an air-forcing device, an air-conduit for conveying air to the oil-holder, means for mechanically distributing the air in the oil, a burner, and conduits connecting the upper and lower parts, respectively, of the oil-holder with the burner, whereby carbureted air and residual oil may be conveyed to said burner, and an independent regulating-valve in the oil-conduit, substantially as set forth.

4. The combination of an oil-holder, an air-forcing device, an air-conduit for conveying air to the oil-holder, means for mechanically distributing the air in the oil, a burner, and conduits connecting the upper and lower parts, respectively, of the oil-holder with the burner, whereby carbureted air and residual oil may be conveyed to said burner, and independent regulating-valves in the oil and vapor conduits, respectively, located at the burner and adapted to positively close either wholly or partially the oil and vapor passages, substantially as set forth.

482,509. WITHDRAWN.

482,510. PLOW STANDARD AND ATTACHMENT. WILLIAM T. STAPLER, Harmony Grove, Ga. Filed Nov. 28, 1891. Serial No. 413,499. (No model.)



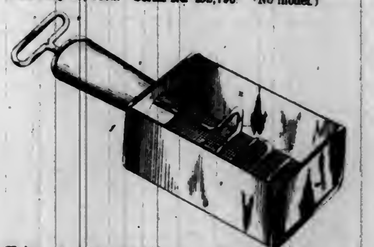
Claim.—1. The plow-standard constructed substantially as described, comprising a pair of metallic plates placed edgewise and separated above their lower ends the greater portion of their length, said plates being bent abruptly inward near their lower ends and extending thence downwardly face to face and rigidly secured together, so as to form a narrow centrally-disposed heel-piece or runner integral with the standard proper, whereby a firm support for the blade is afforded and friction and wear upon the sides of the standard back of the blade are prevented, substantially as described.

2. The combination, with the plow-handle, of the non-rotating washer and clip consisting of a flat metallic plate having its ends arranged at right angles to the central portion thereof and having a square or polygonal opening through said central portion, and the fastening-bolt having a correspondingly-shaped shank adapted to fit said opening, whereby wearing and splitting of the timber are prevented and the fastening-bolt, nut, and washer are each secured against rotation, substantially as described.

3. In combination with the beam, the independently-adjustable handles, and means, substantially as described, whereby either or both handles may be adjusted and secured in the desired position, said handles being flexibly connected together, so as to permit of their independent adjustment for the purpose of raising or lowering either handle independently of the other, substantially as described.

4. In combination with the plow-beam, the independently-adjustable handles having the elongated slots at their lower ends, the non-rotating washers, and clips arranged to embrace the handles and span said slots, and the fastening-bolts connecting the handles through said slots and clips, so as to adjustably connect and bind the handles, beam, and clip together, substantially as described.

482,511. HAND-SIFTER. JOSHUA R. STORIE, Travisville, Tenn. Filed May 12, 1892. Serial No. 432,795. (No model.)



Claim.—A sifter consisting of a receptacle having a wire-gauze bottom and provided with a hollow handle extending longitudinally of the receptacle and an agitator arranged on the wire-gauze bottom and provided with a stem arranged within the handle and adapted to reciprocate in the same and extended beyond its outer end and provided with a handle, substantially as described.

482,512. STRINGING PIANOS. CHARLES S. WEBER, San José, Cal. Filed Feb. 2, 1892. Serial No. 420,113. (No model.)



Claim.—1. In a stringed musical instrument, the combination, with a metal plate having a pin-hole, of a tuning-pin inserted in the said pin-hole and bent from a normal position to create a frictional binding of the said pin in the pin-hole, substantially as set forth.

2. In a stringed musical instrument, the combination, with a metal plate having a pin-opening and a tuning-pin inserted in the said opening, of a set-screw constructed to bear laterally on the said tuning-pin to bend the same from a normal position, substantially as and for the purpose described.

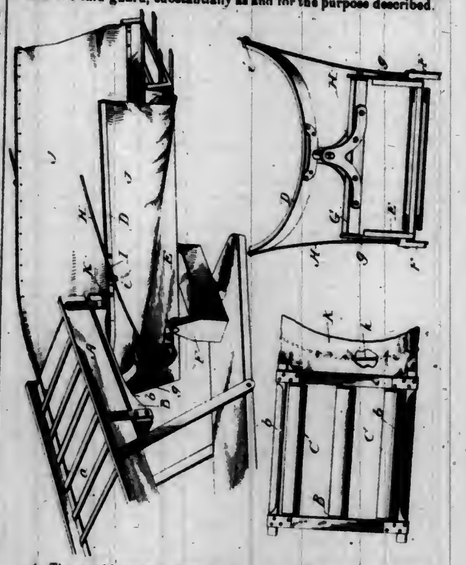
3. In a stringed musical instrument, the combination, with a metal plate having a pin-opening and a tuning-pin inserted in the said opening, of a set-screw constructed to bear laterally on the said tuning-pin and a shoe interposed between the said set-screw and the tuning-pin, substantially as specified.

482,513. STRAW-STACKER. LORENZO D. WELLS, Morrisonville, Ill. Filed Feb. 4, 1892. Serial No. 420,308. (No model.)

Claim.—1. The combination, with the carriers A and E, of the bow D, having pivotal connection with the carrier E and adapted to tilt vertically and laterally, a flexible guard depending from and supported by the bow, and spring-arms for yieldingly supporting the outer ends of the said bow, substantially as and for the purpose described.

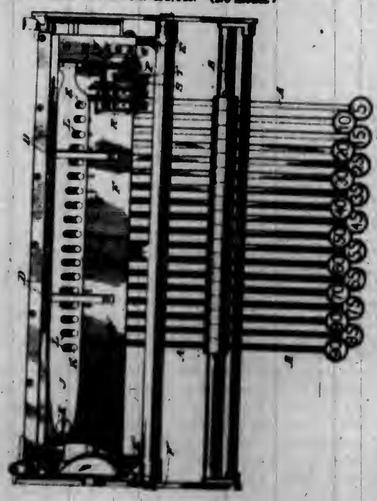
2. The combination, with the carriers A and E, of the bow D, having pivotal connection with the carrier E and adapted to tilt vertically and laterally, a flexible guard depending from and supported by the bow, and spring-arms for yieldingly supporting the outer ends of the said bow, substantially as and for the purpose described.

3. The combination, with the carriers A and E, of the bow D, having pivotal connection with the carrier E and adapted to tilt vertically and laterally, a flexible guard depending from and supported by the bow, and spring-arms for yieldingly supporting the outer ends of the said bow, and an apron depending from the carrier A and extending within the said guard, substantially as and for the purpose described.



4. The combination, with the carriers A and E, the carrier E being adapted to tilt vertically and laterally, and the roller-frame B, pendent from the carrier A, of the bar G, journaled at its ends on the carrier E, the bow D, pivotally connected with the bar G, spring arms H for supporting the bow D, the flexible guard J, depending from and supported by the bow D, and the apron K, stiffened by bow *k*, depending from carrier A, substantially as described.

482,514. CASH-REGISTER. ALLEN I. BLANCHARD, Chicago, Ill., assignor to the National Cash Register Company, Dayton, Ohio. Filed May 10, 1892. Serial No. 432,440. (No model.)



Claim.—1. In a machine such as described, the combination of a movable bar or plate provided with a series of slots and a series of cams arranged to reciprocate through said slots, so as to move the bar different distances, and each adapted to entirely fill the length of its co-operating slot when moved through it for the purpose of positively arresting the bar when it has been moved the proper distance.

2. In a machine such as described, the combination of a movable bar or plate provided with a series of slots and a series of graduated cams arranged to reciprocate through said slots, so as to move the bar different distances, and each adapted to entirely fill the length of its co operating slot when moved through it for the purpose of positively arresting the bar when it has been moved the proper distance.

13. In a machine such as described, the combination of a horizontal guide-plate provided with a series of slots of different lengths, a swinging bar resting thereon and provided with a series of coincident slots of corresponding lengths, a series of vertically-guided rods carrying cams of different widths corresponding to the lengths of the respective slots in the movable bar and guide-plate and adapted to pass through said slots, and a series of key-levers representing different values for lifting the respective rods, substantially as and for the purpose described.

14. In a registering-machine, the combination of a series of keys representing different values, a registering-bar adapted to be moved different distances by the operations of

connecting with both of said chambers, a single valve which connects said supply-pipe with both of said branch pipes and is adapted to control the inflow of water into either or both of said chambers, said valve being also adapted to control the inflow of water into one of said chambers and a simultaneous outflow of contaminated water from the other chamber, a passage connecting the discharge end of said chambers directly together, a passage connecting the discharge end of either of said chambers with the inlet end of the other chamber, a third or purifying chamber, a passage connecting the discharge end of the second chamber with the inlet of the third chamber, and suitable

482,517. CASH-REGISTER. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed May 23, 1892. Serial No. 434,001. (No model.)

Claim.—1. In a machine such as described, the combination of a movable bar or plate provided with a series of slots and a series of cams arranged to reciprocate through said slots, so as to move the bar different distances, and each adapted to entirely fill the length of its co-operating slot when moved through it for the purpose of positively arresting the bar when it has been moved the proper distance.

2. In a machine such as described, the combination of a movable bar or plate provided with a series of slots and a series of graduated cams arranged to reciprocate through said slots, so as to move the bar different distances, and each adapted to entirely fill the length of its co operating slot when moved through it for the purpose of positively arresting the bar when it has been moved the proper distance.

3. In a machine such as described, the combination of a horizontally-movable bar or plate provided with a series of slots and a series of vertically-guided cams arranged to reciprocate through said slots and move the bar different distances and each adapted to entirely fill the length of its co-operating slot when moved through it for the purpose of positively arresting the bar when it has been moved the proper distance.

4. In a machine such as described, the combination of a horizontally-movable bar or plate provided with a series of slots and a series of vertically-guided graduated cams arranged to reciprocate through said slots and move the bar different distances and each adapted to entirely fill the length of its co-operating slot when moved through it for the purpose of positively arresting the bar when it has been moved the proper distance.

5. In a machine such as described, the combination of a movable bar containing a series of slots of different lengths, a series of cams of different widths corresponding to the lengths of the respective slots in the bar and movable in defined paths through said slots, and suitable means for moving the respective cams through the slots in the bar, substantially as and for the purpose described.

6. In a machine such as described, the combination of a movable bar provided with a series of slots of different lengths, a series of cams of different widths corresponding to the lengths of the respective slots in the bar and movable in defined paths through said slots, and a series of key-levers representing different values and co-operating with the series of cams to move them through the slots in the bar, substantially as and for the purpose described.

7. In a machine such as described, the combination of a horizontally-movable bar provided with a series of slots of different lengths, a series of vertically-guided rods carrying cams of different widths corresponding to the lengths of the respective slots in the bar and adapted to pass through said slots, and a series of keys of different values for lifting the respective rods and moving the cams through the slots in the bar, substantially as and for the purpose described.

8. In a machine such as described, the combination of a series of key-levers representing different values, a series of vertically-guided rods arranged to be lifted by the rear ends of said levers and provided with cams of varying widths, and a movable bar arranged above the series of cams and provided with a series of slots of different lengths corresponding to the widths of the respective cams, through which slots said cams are adapted to pass when the front ends of the key-levers are depressed substantially as and for the purpose described.

9. In a machine such as described, the combination of a pivoted bar arranged to swing in a horizontal plane and provided with a series of slots of different lengths, a series of cams of different widths corresponding to the lengths of the respective slots and movable in defined paths through the same, and a series of keys representing different values for moving the different cams through the slots in the bar, substantially as and for the purpose described.

10. In a machine such as described, the combination of a horizontally-swinging bar provided with a series of slots of different lengths, a series of vertically-guided rods carrying cams of different widths corresponding to the lengths of the respective slots in the bar and adapted to pass through said slots, and a series of key-levers representing different values for lifting the respective rods and moving the cams through the slots in the bar, substantially as and for the purpose described.

11. In a machine such as described, the combination of a movable bar provided with a series of slots of different lengths, a fixed guide-plate provided with coincident slots of corresponding lengths, a series of cams of different widths corresponding to the lengths of the respective slots in the guide-plate and movable bar and adapted to pass through said slots and move the bar different distances, and a series of keys for operating the cams, substantially as and for the purpose described.

12. In a machine such as described, the combination of a horizontally-movable bar provided with a series of slots of different lengths, a fixed guide-plate provided with coincident slots of corresponding lengths, a series of vertically-guided rods carrying cams of different widths corresponding to the lengths of the respective slots in the movable bar and guide-plate and adapted to pass through said slots, and a series of key-levers representing different values for lifting their respective rods, substantially as and for the purpose described.

13. In a machine such as described, the combination of a horizontal guide-plate provided with a series of slots of different lengths, a swinging bar resting thereon and provided with a series of coincident slots of corresponding lengths, a series of vertically-guided rods carrying cams of different widths corresponding to the lengths of the respective slots in the movable bar and guide-plate and adapted to pass through said slots, and a series of key-levers representing different values for lifting the respective rods, substantially as and for the purpose described.

14. In a registering-machine, the combination of a series of keys representing different values, a registering-bar adapted to be moved different distances by the operations of different keys, a rack moving with the bar, a pinion meshing with the rack, a registering-wheel, a clutch between the pinion and registering-wheel, and a shifter actuated at the completion of the positive stroke of a key to break the clutch between the pinion and registering-wheel and permit the latter to remain stationary while the pinion returns to normal position, substantially as described.

15. In a registering-machine, the combination of a slotted registering-bar, a series of cams of different widths adapted to pass through the slots and move the bar different degrees, a series of keys for operating the cams, a rack moving with the registering-bar, a pinion meshing with the rack, a registering-wheel, a clutch between said wheel and pinion, a vibrating bar common to all of the keys, and a shifter for the clutch actuated by said bar to break the clutch at the completion of the positive stroke of an operated key, substantially as and for the purpose described.

16. In a registering-machine, the combination of a series of keys representing different values, a registering-bar adapted to be moved different distances by the operations of different keys, a rack moving with the bar, a pinion meshing with the rack, a registering-wheel, a clutch between the pinion and the wheel, a shifter for the clutch, and a lock operated by the shifter to lock the registering-wheel simultaneously with the breaking of the clutch between the pinion and wheel.

17. In a registering-machine, the combination of the slotted guide-plate F, the swinging bar J, moving upon said plate and provided with slots L of different lengths, the key-levers A, and the rods E, carried by the rear ends of the said levers and provided with cam-plates H of different widths corresponding to the different lengths of the slots L in the bar J and adapted to pass through said slots, substantially as and for the purpose described.

18. In a registering-machine, the combination of the shifter X, provided with the lug A′ and spring I′, and the reciprocating plate C′, provided with the cam B′, co-operating with the lug A′, and with the pins G′ H′ co-operating with the spring I′, substantially as described.

19. In a registering machine, the combination of the toothed disk T, the sliding pinion P, a clutch connection between them, the shifter X, provided with the locking-arm O′, co-operating with the disk T and provided also with the spring I′ and the lug A′, and the reciprocating plate C′, provided with the cam B′ and pins G′ H′, co-operating with the lug A′ and spring I′, respectively, substantially as described.

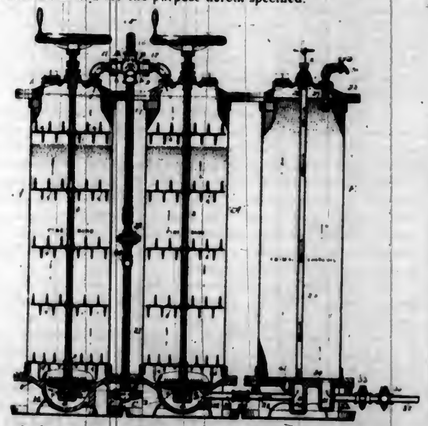
20. In a machine such as described, the combination of a series of operating-keys, a movable bar provided with slots of different lengths, a series of cams of different widths corresponding to the lengths of the respective slots in the movable bar and movable in defined paths through the slots, a vibrating frame common to all of the keys, and a resetting-plate operated by said frame to reset the movable bar upon the release and return of the operated key, substantially as described.

21. The combination of the operating-keys A, the rods E, operated thereby and provided with the cams H, the guide plate F, the slotted bar J, the vibrating frame D′ E′, and the resetting-plate J′, operated by the vibrating frame and co-operating with the bar J, substantially as described.

482,515. APPARATUS FOR PURIFYING WATER. JAMES H. RENWICK, Albany, assignor to the New York Filter Company, New York, N. Y. Filed Aug. 25, 1887. Serial No. 247,814. (No model.)

Claim.—1. In a water-purifying apparatus, the combination of three cylinders, two of which are primary filtering-chambers and the other a chemical purifying-chamber, a valve B for controlling the direction of the inflowing water into the first two chambers, a three-way stop-cock D, connecting the pipes C and 21, a filtered-water pipe C, connecting with the filtered-water chambers of said primary filtering-chambers and forming a roundabout pipe for conveying the filtered water outside of said chemical purifying-chamber, waste-water pipes 17 and 40, a filtered-water pipe 28, connecting said purifying-chamber with the filtered-water chambers, and a filtered-water outlet-pipe 32, all of said pipes being arranged exteriorly to the apparatus and the pipes 17, 28, 32, and 34 being each provided with a suitable valve for controlling the passage of liquid therethrough, substantially as and for the purpose specified.

2. In a water-purifying apparatus, the combination, with two primary filtering-chambers, of a supply-pipe provided with branches connecting with both of said chambers, a single valve which connects said supply-pipe with both of said branch pipes and is adapted to control the inflow of water into either or both of said chambers, said valve being also adapted to control the inflow of water into one of said chambers and a simultaneous outflow of contaminated water from the other chamber, a passage connecting the discharge end of said chambers directly together, a passage connecting the discharge end of either of said chambers with the inlet end of the other chamber, a third or purifying chamber, a passage connecting the discharge end of the second chamber with the inlet of the third chamber, and suitable valves for controlling the flow of water through said passages, whereby water may be passed either simultaneously or successively downwardly through the first two chambers and then through the third chamber, as and for the purpose herein specified.



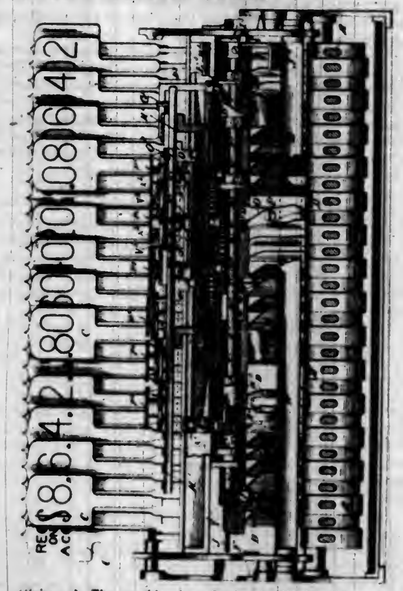
3. In a water-purifying apparatus, the combination, with two primary filtering-chambers, of a supply-pipe provided with branches connecting with both of said chambers, a single valve which connects said supply-pipe with both of said branches and is adapted to control the inflow of water into either or both of said chambers and a simultaneous outflow of water from the other chamber, as herein described, a passage connecting the discharge end of said chambers with each other and with an outlet-passage for the filtered water, a passage connecting the discharge end of either one of said chambers with the inlet end of the other, a third or purifying chamber, a passage connecting the discharge end of the second chamber with the inlet end of the third chamber, a passage connecting the discharge end of the third chamber with the outlet-passage for the filtered water, and suitable valves or cocks for controlling the flow of water through said passages and chambers, whereby water may be passed through either or both of the first two chambers and then directly out through said outlet-passage without passing through the third chamber, as and for the purpose herein specified.

482,516. CUT-OFF VALVE FOR ENGINES. OTIS E. BROWN and PELEG STETSON, Brockton, Mass. Filed Jan. 22, 1892. Serial No. 418,941. (No model.)



Claim.—The combination, with the steam or valve chest, of a slide-valve having at each of its opposite ends a steam-port A^3 divided into separated and radiating sections, a cut-off valve for each steam-port of the slide-valve, and having a steam-port F^2 divided into separated and radiating sections corresponding to and fulcrumed to swing on said slide-valve, and thereby have the said separated sections of its steam-ports placed either into or out of register with those of the slide-valve, spring lever catches G G^2, fulcrumed on the slide-valve and at their free ends extended toward each other, radial arms J J^3 of the cut-off valves H H^2, studs on said arms to be engaged by said catches, extensions L L^4 of said arms J J^3 beyond their said studs, and fixed abutments M M^4 of the valve-chest to work on said arms' extensions L L^4, substantially as described, for the purposes and operation specified.

482,517. CASH-REGISTER. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed May 23, 1892. Serial No. 434,001. (No model.)



Claim.—1. The combination of a longitudinally-sliding plate or bar provided with a series of slots extending lengthwise of it and a series of cams arranged to reciprocate through said slots so as to move the plate different distances and each adapted to fill the entire length of its co-operating slot when moved through it to positively arrest the plate when it has been moved the proper distance.

2. The combination of a longitudinally-sliding plate or bar provided with a series of slots extending lengthwise of it and a series of graduated cams arranged to reciprocate through said slots so as to move the plate different distances and each adapted to fill the entire length of its co-operating slot when moved through it to positively arrest the plate when it has been moved the proper distance.

3. The combination of a longitudinally-sliding plate or bar provided with a series of slots extending lengthwise of it and a series of vertically-guided cams arranged to reciprocate through said slots and move the bar different distances and each adapted to fill the entire length of its co-operating slot when moved through it to positively arrest the bar when it has been moved the proper distance.

4. The combination of a longitudinally-sliding plate or bar provided with a series of slots extending lengthwise of it and a series of vertically-guided graduated cams arranged to reciprocate through said slots and move the bar different distances and each adapted to fill the entire length of its co-operating slot when moved through it to positively arrest the bar when it has been moved the proper distance.

5. In a registering-machine, the combination of a longitudinally-sliding registering plate provided with a series of slots of different lengths extending lengthwise thereof and a series of gradnated cams whose widths correspond to the lengths of the respective slots in the sliding plate, said cams being adapted to reciprocate through the slots in said plate so as to move the same different distances proportionate to the widths of the respective cams.

6. In a registering-machine, the combination of a longitudinally-sliding registering plate provided with a series of slots of different lengths, a series of key-levers representing different amounts, and a series of graduated cams whose widths correspond to the lengths of the respective slots in the sliding plate, said cams being adapted to be moved by the key-levers in defined paths through the slots in said plate, for the purpose described.

7. In a registering-machine, the combination of a longitudinally-sliding registering plate provided with a series of slots of different lengths, a series of key-levers representing different amounts, and a series of vertically-guided graduated cam-plates pivoted to the rear ends of said key-levers and adapted to be lifted by them through the slots in the sliding plate, for the purpose described.

8. In a registering-machine, the combination of a series of movable registering plates, each provided with a series of slots of different lengths, a series of sets of cams adapted to reciprocate through the

slots in said plates so as to move the plates different distances, each cam being adapted to fill the entire length of its co-operating slot when moved through it, and thereby positively arrest the plate when it has been moved the proper distance, and a resetting-bar common to and co-operating with all of the plates to reset them when they have been moved by the cams.

9. In a registering-machine, the combination of a series of movable registering plates, each provided with a series of slots of different lengths, a series of sets of graduated cams adapted to reciprocate in defined paths through the slots in said plate, one set of cams for each plate, the widths of the cams in each set corresponding to the lengths of the slots in the plate with which they co-operate, and a resetting bar common to and co-operating with all of the slotted plates to reset them after they have been moved by the cams.

10. In a registering-machine, the combination of a series of longitudinally-sliding registering plates, each provided with a series of slots of different lengths extending lengthwise of the plate, a series of sets of graduated cams, one set for each plate, adapted to reciprocate in defined paths through the slots in said plates and corresponding in widths to the lengths of the slots, and a longitudinally-sliding resetting-bar co-operating with all of the plates to reset them after being moved by the cams.

11. In a registering-machine, the combination of a series of longitudinally-sliding registering plates, each provided with a series of slots of different lengths extending lengthwise of the plate, a series of sets of key-levers, one set for each plate, a series of sets of graduated cams, one set for and operated by the keys of each set and adapted to reciprocate in defined paths through the slots in the plate corresponding to such set, a vibrating frame common to all of the keys of all of the sets and moved by the operation of any key, and a resetting-bar actuated by the vibrating frame and co-operating with all of the registering plates to reset them after they have been moved by the cams.

12. In a registering-machine, the combination of a longitudinally-sliding registering plate provided with a series of slots of different lengths extending lengthwise thereof, a series of graduated cams whose widths correspond to the lengths of the respective slots in the sliding plate, a series of operating-keys for moving the cams in defined paths through the slots in the sliding plate, a rack carried by said plate, a spindle having fast upon it a pinion meshing with the rack and having splined upon it a sliding clutch-collar, a registering-wheel carrying a set of clutch-teeth adapted to co-operate with those on the sliding clutch-collar, and means for moving the clutch-collar into engagement with the clutch-teeth of the registering wheel at the beginning of the strokes of the keys in one direction and disengaging it therefrom at the ends of said strokes.

13. The combination of a rotary shaft, a pinion loose upon said shaft, a pawl movable with the pinion and adapted to engage a notch in the shaft, a second pinion loose on said shaft, and a pawl movable therewith and adapted to engage a notch in the shaft, a reciprocating rack meshing with the first pinion, and a second rack intermediate said first rack and the second pinion, for the purpose described.

14. The combination of a rotary shaft, a sleeve loose thereon and carrying a pinion, and a housing containing a pawl adapted to engage a notch in the shaft, a second sleeve loose upon the shaft and carrying a second pinion, and a housing containing a second pawl, adapted to engage a notch in the shaft, a reciprocating rack meshing with the first pinion, and a second rack meshing with the first rack and with the second pinion, for the purpose described.

15. The combination of a rotary shaft, a pinion loose thereon, a pawl movable with the pinion and adapted to engage a notch in the shaft, a second pinion loose on said shaft, and a pawl movable there with and adapted to engage a notch in the shaft, a series of operating-keys, a vibrating frame common to said keys and moved by the operation of any one of them, a rack carried by said frame and meshing with the first-mentioned pinion, and a second rack intermediate the first rack and the second pinion, substantially as and for the purpose described.

16. The combination of the registering-wheels P' and P², the ratchet R', carried by the wheel P², the sliding plate O², carrying the pawl Q², and the latch T², co-operating with the pawl Q² and with a cam carried by the wheel P', whereby at each complete revolution of the wheel P' the latch is tripped and the pawl Q² set to engage the ratchet of the wheel P² when the plate O² is slid to the left, substantially as and for the purpose described.

17. The combination of the registering-wheels P', P², and P³, the ratchets R', carried by the wheels P² and P³, the sliding plate O², carrying the pawls Q² and R², the former adapted to co-operate with the ratchet of the wheel P² and the latter with the ratchet of the wheel P³, the spring S², the latches T² U², co-operating, respectively, with the pawls Q² R² and with cams carried by the wheels P' and P², and the pins Z² for disengaging the pawls from the ratchets, substantially as and for the purpose described.

18. The combination of the registering-wheels P', P², and P³, the ratchets R', carried by the wheels P² and P³, the sliding plate O², carrying the pawls Q² and R², the former adapted to co-operate with the ratchet of the wheel P² and the latter with the ratchet of the wheel P³, the spring S², the latches T² U², co-operating, respectively, with the pawls Q² R² and with cams carried by the wheels P' P², the revolvable shaft W', and the cams A² B², fast thereon and co-operating with the arm D², depending from the sliding plate O², substantially as described.

19. The combination of the key-levers A, the vertically-guided cam-plates D, carried by their rear ends, and the sliding registering plates provided with longitudinal slots corresponding in length to the widths of the respective cams, substantially as and for the purpose described.

20. The combination of the key-levers A, the vertically-guided cam-plates D, carried by their rear ends, the sliding registering plates provided with slots corresponding in lengths to the widths of the respective cams, the resetting-bar K, co operating with the registering-plates, the vibrating bar T, extending across the keys, and the lever O, co-operating with said bar and with the resetting-bar K, substantially as described.

21. The combination of the key-levers A, the vertically-guided cam-plates D, carried by their rear ends, the sliding registering plates provided with slots corresponding in lengths to the widths of the respective cams, the racks carried by the sliding plates, the spindles K', carrying pinions meshing with said racks, the sliding clutch-collars feathered upon said spindles, the registering-wheels carrying clutch-teeth adapted to co-operate with those on the sliding collars, the swinging plate S' for lifting the clutches, and the revoluble shaft W', carrying a cam co-operating with the plate to lift the same and engage the clutches, substantially as described.

22. The combination of the rotary shaft W', the sleeve C², loose thereon, the pinion B² and housing H², fast on said sleeve, the latter containing the pawl I², adapted to engage the notch J² in the shaft W', the sleeve F², loose on the shaft W', the pinion E² and housing L², fast on said sleeve, the latter containing the pawl M², adapted to engage the notch N² in the shaft W', the reciprocating rack A², meshing with the pinion B², and a second rack D², intermediate the rack A² and pinion E², substantially as and for the purpose described.

23. The combination of the rotary shaft W', the notched disk I², fast thereon, the locking-dog H², co-operating with said disk, the key-levers A, the vibrating frame lifted by said levers, and the bracket J², carried by said frame and co-operating with the dog H², in the manner and for the purpose described.

482,518. NUT-LOCK. WILLIAM COKAYNE, Sedalia, Ind., assignor of one-third to James C. Shafor, same place. Filed May 31, 1892. Serial No. 435,023. (No model.)



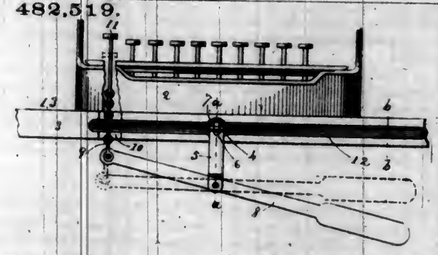
Claim.—1. In a nut-lock, the combination, with a plurality of nuts and bolts, of a longitudinally-slotted plate fitting over the said bolts and connecting a pair of the same and a plurality of spring locking-plates movably secured in the slot of the slotted plate at their forward ends and pivotally secured together at their rear or abutting ends in said slot, substantially as described.

2. In a nut-lock, the combination, with the rail A, bolts B B', and nuts C C', of the connecting-plate E, fitting over any two adjacent bolts and having a central longitudinal slot e for the locking-plates, the locking-plates D D', secured in said slot, the rivet-pin 5, joining the rear extremities of said locking-plates, and the rivets e e', holding said locking-plates in said slot, as specified.

482,519. TYPE-WRITING MACHINE. WILLIAM S. EDWARDS, Charleston, W. Va. Filed Apr. 27, 1892. Serial No. 430,819. (No model.)

Claim.—The combination, in an attachment for type-writing machines, of the stand supporting such a machine, provided with the vertical slot in the body of the stand and the socket in the front face of the stand, extending toward the rear and having the flange around the mouth thereof, the standard fitting into said socket and having the hinge at one end thereof, the lever pivoted to said standard having the chain near one end thereof and suitably weighted at the other end,

482,519.



and the shift-key forming part of the ordinary mechanism of the machine and connected to said chain, all substantially as herein described, for the purposes, first, of shifting the operation of the machine from lower to upper case type without use of the hands of the operator, and, secondly, of conveniently stowing the aforesaid standard and lever when not in actual use.

482,520. PORTABLE DENTAL CHAIR. FRANK H. FIELD, New Orleans, La., and CHARLES H. FIELD, Dalton, Ga. Filed June 20, 1891. Serial No. 396,929. (No model.)



Claim.—1. In a dental-chair support, the combination of a base, an upright standard, a sleeve secured on said standard, arms extending laterally from the said sleeve, sockets mounted on said arms, adapted to receive the feet of a chair, and a support for the chair-back, substantially as described.

2. In a dental-chair support, the combination of a base, an upright standard, a sleeve adjustably secured on said standard, arms extending laterally from the said sleeve, the laterally-adjustable sockets mounted on the said arms, adapted to receive the feet of the chairs, varying as to the width between their legs, and a support for the chair-back, substantially as described.

3. In a dental-chair support, the combination of a base, an upright standard, a sleeve adjustably secured on said standard, arms extending laterally from the said sleeve, the rotatable sockets mounted on the said arms, adapted to receive the feet of a chair and to be moved with the same on the tilting of the chair, and an adjustable support for the chair-back, substantially as described.

4. In a dental-chair support, the combination of the base, the upright standard, the sleeve adjustably secured on the said standard, the arms projecting laterally from the sleeve, the rotatable and laterally-adjustable sockets mounted on the said arms to receive the legs of chairs, varying as to the width between their legs, and to move with the legs on tilting the chair, and an adjustable support for the chair-back, substantially as described.

5. In a dental-chair support, the combination of a base, an upright standard, a sleeve adjustable on said standard, the arms carried by the sleeve, the sockets made in sections to be adjustable to chair-legs of variable sizes mounted on said arms, and a support for the chair-back, substantially as described.

6. In a dental-chair support, the combination, with a base-support, of the back-support consisting of a rod and hook secured on its ends, one of the said hooks being adjustable, and the brace-rod hinged at its ends to the supports, substantially as described.

7. In a dental-chair support, the combination of a base-support, the back-support consisting of a rod, a hook secured to the upper end of the rod, the bracket secured to the lower end of the rod, and means for securing the said bracket to the chair-back, and the brace-rod hinged at its ends to the said support, substantially as described.

8. In a dental-chair support, the combination, with a base-support, of a support for the back of the chair, comprising a rod provided with hooks to engage a portion of the chair, at least one of which hooks is vertically adjustable on the rod, a brace-rod hinged at its ends to the said supports, and a hinged connection between said back-support and brace-rod, substantially as and for the purposes set forth.

9. In a dental-chair support, the combination, with a base-support, of a support for the back of the chair, comprising a rod having a slitted sleeve carrying a hook to engage a part of the chair, means for clamping said sleeve to its rod, a brace-rod hinged at its ends to the said supports, and a hinged and detachable connection between said brace-rod and sleeve, substantially as and for the purposes set forth.

10. In a dental-chair support, the combination, with a base-support, of a support for the back of a chair, provided with means for securing a chair thereto, a sectional brace-rod hinged at one end to said back-support and at the other end with the base-support and formed with teeth, a pinion supported by one section of said brace-rod and engaging said rack-teeth, and means for turning said pinion to adjust the length of the brace-rod and lock it to its adjustment, substantially as and for the purposes set forth.

11. In a dental-chair support, the combination, with the chair-back support for the attachment of a chair, of a head-rest bar, an arm hinged at one end to said bar and at the other end to said back-support, a segmental brace attached at one end to said back-support and at the other to said hinged arm, a segmental brace connected at one end to said head-bar and at the other end to said hinged arm, and a clamp for securing said braces in their adjustment to said hinged arm, substantially as and for the purposes set forth.

12. In a dental-chair support, the combination, with the base-support and the standard provided with an adjustable sleeve carrying sockets for the legs of a chair, of an adjustable back-support for the upper part of the chair, the brace-rod hinged at its ends to the said support, and a head-rest supported from said back-support and adjustable both vertically and to the inclination of the chair, substantially as and for the purposes set forth.

13. In a dental chair, the combination, with a base-piece, of a superstructure sliding vertically on said base-piece and having feet to rest upon a floor, a wedge fitting between said base-piece and a portion of the superstructure, and an eccentrically-actuated rod for forcing said wedge between the base-piece and superstructure to raise and lower the feet of the structure from and to the floor, substantially as and for the purposes set forth.

14. In a dental chair, the combination, with a base-piece, of a superstructure sliding vertically on said base-piece and having feet to rest upon a floor, a hollow arm to said superstructure, and an eccentrically-actuated rod working in said arm and carrying a wedge to be forced between the base-piece and the superstructure to raise the superstructure and lift its feet from off the floor to permit the superstructure to be easily revolved, substantially as and for the purposes set forth.

15. In a dental chair, the combination, with a base-piece, of a superstructure sliding vertically on said base-piece and having feet resting upon a floor, a wedge fitting between said base-piece and a portion of the superstructure, and the screw passing through the said portion of the superstructure to form an adjustable bearing for the wedge, substantially as described.

16. In a dental chair, a detachable foot-rest consisting of the bars D', joined at their inner ends to form a guide and clamp, the board carried on the outer ends of the said bars, the suspending-arms pivoted to the said rods and provided with hooks at their upper ends, the segment connected at one end to the said suspending-arms and the free end passing through the guide or clamp formed in the inner ends of the bars D', and the screw for clamping the guide, substantially as described.

17. In a dental chair, a removable arm consisting of the arm proper, the standard hinged to the front end of the arm, and the clamps or collars attached to the lower end of the standard and the rear end of the arm proper for the purpose of securing the arm to the front leg and back post of its respective side, substantially as described

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482,521. TYPE-WRITING MACHINE. BERNARD GRANVILLE, Dayton, Ohio. Filed May 2, 1891. Serial No. 391,363. (No model.)

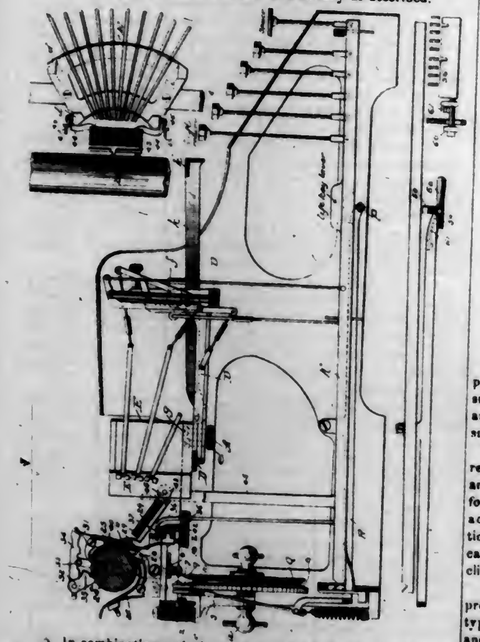
Claim.—1. The ratchet-wheel having a retracting-spring, the paper-carriage connected therewith, a frame arranged to be operated by the key-levers and connected with the push-pawl of the ratchet-wheel, a return-key arranged to act upon the frame, and a retaining-pawl, the parts being combined and arranged to operate substantially as described.

2. In combination, the ratchet-wheel connected to the paper-carriage, a push-pawl engaging said ratchet, a retaining-pawl, and lever mechanism connected to the push-pawl, said pawl being adapted to

engage and operate the retaining-pawl when desired, substantially as described.

3. In combination, the ratchet-wheel connected to the paper-carriage, the frame arranged to be operated by the key-levers and connected to the push-pawl of the ratchet-wheel, a return-key arranged to operate upon the frame, and a retaining-pawl reversed to the push-pawl, the pawls having the construction and relative location as described, whereby the push-pawl, acted upon by the extreme movement of the return-key, raises the retaining-pawl, all substantially as described.

4. In combination with the ratchet-wheel connected to the paper-carriage and the push-pawl connected with the key-levers, the retaining-pawl mounted upon the segment pivoted upon the axis of the wheel and provided with means for adjustment, whereby the pawls may be set to bear snugly against the teeth, substantially as described.

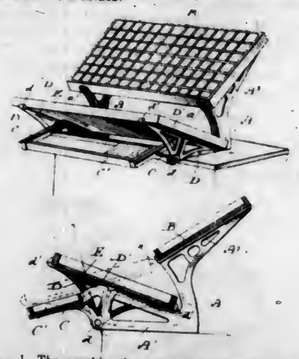


5. In combination with the push-pawl mounted upon a bell-crank lever and connected to a frame, with key-levers adapted to operate

bar having a bearing-face provided with notches, said bar being pivoted to and carried by the pivoted space-frame, substantially as described.

12. In combination with the key-levers and mechanism connected therewith for moving the paper-carriage, a variable-spacing mechanism consisting of a bar on the connecting-frame beneath the key-levers and the mechanism for moving the paper-carriage, the said bar having two bearing-faces, one plain and the other provided with notches, and a lever for turning said bar, substantially as described.

482,522. TYPE-CASE AND GALLEY SUPPORT. JAMES E. HAMILTON and FRANK KAUFMANN, Jr., Two Rivers, Wis., assignors to the Hamilton Manufacturing Company, same place. Filed May 5, 1892. Serial No. 431,881. (No model.)

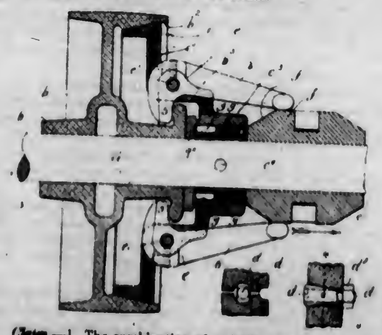


Claim.—1. The combination, with a bracket provided with supports for an upper type-case and with suitable galley supports, of a support for a lower type-case, pivotally engaged with said bracket and adapted to permit said case to normally rest above said galley, substantially as set forth.

2. The combination, with a pair of brackets having upwardly and rearwardly extending arms adapted to support an upper type-case and with forwardly-extending galley-supporting arms, of supports for the lower type-case, pivotally engaged with said brackets and adapted to be vibrated so as to give a rearward or a forward inclination to said lower case, the arrangement being such that when said case is inclined forwardly it will rest above the galley and when inclined rearwardly it will expose the same, substantially as set forth.

3. A type-case and galley support comprising a pair of brackets provided with upwardly and rearwardly inclined supports for an upper type-case, forwardly and downwardly inclined galley-supporting arms and intermediate horizontal base or supporting surfaces, and lower type-case supports engaged with opposite ends thereof and extending below said ends and pivotally engaged with said brackets adjacent to their horizontal supports, said pivoted supports being adapted to be moved so as to give a forward or a rearward inclination to said lower type-case, substantially as set forth.

482,523. CLUTCH. JAMES HARTNESS, Springfield, Vt. Filed Feb. 15, 1892. Serial No. 421,518. (No model.)



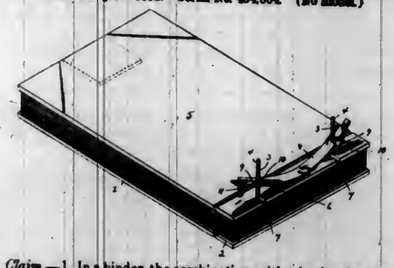
Claim.—1. The combination of a shaft, a loose pulley thereon, a friction-clutch member comprising a hub affixed to the shaft, a divided ring formed to engage a clutch-surface on the pulley and provided with means whereby it may be expanded to compensate for wear, and

independently-movable arms connecting the parts of said ring with the hub, said arms permitting the expansion of the ring, and means for engaging the pulley with said ring, as set forth.

2. The combination of a shaft, a loose pulley thereon having a flanged hub and a friction-surface, a friction-clutch member composed of a divided ring formed to engage the friction-surface of the pulley, means for expanding the ring to compensate for its wear, a hub affixed to the shaft and offset from the said ring, and a series of flexible arms connecting the said hub with the ring, a series of bell-crank levers pivotally connected to said arms and having inwardly-projecting shorter arms engaged with the flange of the pulley-hub and longer arms arranged so that when moved outwardly from the shaft they will cause the shorter arms to engage the pulley with the clutch member, and means for moving said longer arms, as set forth.

3. The combination of a shaft, a loose pulley having an internal clutch-surface, a divided or sectional ring formed to engage said surface, independently-movable arms connecting the parts of said ring with the hub, adjustable wedges interposed between the ends of the sections of the ring, whereby the ring may be expanded to compensate for wear, and means for moving the pulley to engage it with the ring, as set forth.

482,524. TEMPORARY BINDER. LOUIS W. HASSENFLUG, Toledo, Ohio. Filed May 31, 1892. Serial No. 434,884. (No model.)



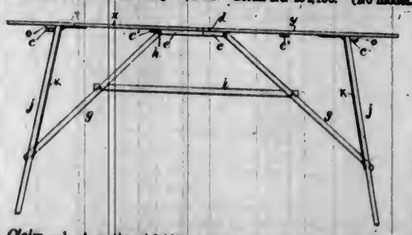
Claim.—1. In a binder, the combination, with a back, of the filing-pins secured thereto, a cover formed with slots adapted to receive the pins, and an upwardly-curved clamping-bar secured to the cover centrally between the pins, said bar having slots near its outer ends to receive the pins, and said bar normally binding upon the pins and holding the cover in position.

2. In a binder, the combination, with a back, of the filing pins, the cover, the clamping-bar secured to the cover and adapted to engage the pins, and the supports for elevating the ends of the clamping-bar.

3. In a binder, a back, a cover, a clamping-bar secured upon the cover, clamping-pins secured to the back and having a compressible section at the upper ends.

4. In a binder, a back formed with flexibly-connected end portions, filing-pins secured in the end portions, a cover having a flexibly-connected end portion having slots coincident with the filing-pins, a clamping-bar secured upon the end portion of the cover centrally of the pins and formed with recesses to receive the filing-pins, and a weight upon the opposite end of the cover.

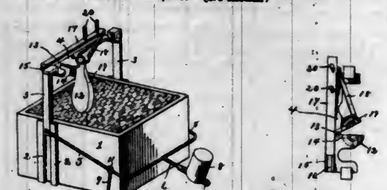
482,525. SECTIONAL-TOP FOLDING TABLE. ROBERT J. NEILL, Elizabeth, N. J. Filed May 24, 1892. Serial No. 434,158. (No model.)



Claim.—1. A sectional folding table having the top provided with hinged legs and divided into the four boards *x*, *x'*, *y*, and *y'*, connected together by the hinges *c*, *c'*, and *d*, as set forth, and the boards being provided at their central junction with the rabbeted stripe *e*, and the rabbeted plate *f*, fitted thereto, substantially as set forth.

2. A sectional folding table consisting in the four boards provided at their central junction with the rabbeted stripe *e*, the plate *f*, fitted thereto, with the pins *h* bearing upon the ends of the stripe *e*, the hinges *c*, mounted upon the cleats *o*, the legs *j*, provided with the hook-rods *l* and braces *k*, and the braces *g*, fitted to the rods *l* and attached to the plate *f* by the removable pins *h*, substantially as herein set forth.

482,526. APPARATUS FOR MECHANICALLY OPERATING PASTE-GLASS MOLDS. MICHAEL J. OWENS, Findlay, Ohio. Filed Dec. 18, 1891. Serial No. 415,476. (No model.)

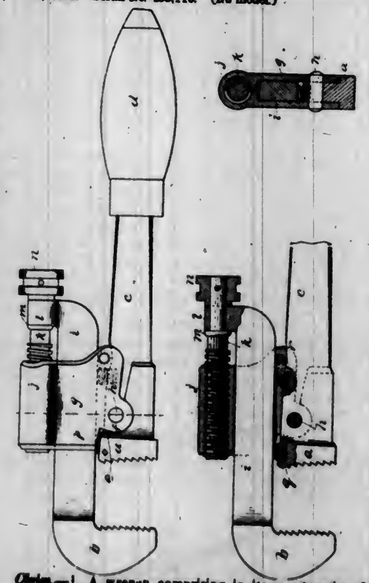


Claim.—1. In an apparatus for mechanically operating paste-molds to open, close, and cool the same, a tank containing a cooling liquid, a two-part mold, and mechanism for opening, closing, and immersing the molds.

2. In an apparatus for mechanically operating glass-paste molds, a tank filled with liquid, a movable frame, a section of mold connected therewith, and a section of mold pivotally connected with a lever pivoted to the frame, said frame being movable to immerse the molds in the liquid.

3. In an apparatus for mechanically operating paste-molds, a tank, a frame vertically movable in relation to the tank, carrying a sectional mold, and means connected thereto to open and close the mold mechanically, and a lever one end of which is pivoted to the frame and the other end carrying a weight to counterbalance the frame, so that the molds are raised above the tank.

482,527. PIPE-WRENCH. DANIEL R. PORTER, Chelsea, assignor to the Columbian Manufacturing Company, Brockton, Mass. Filed May 16, 1892. Serial No. 433,110. (No model.)

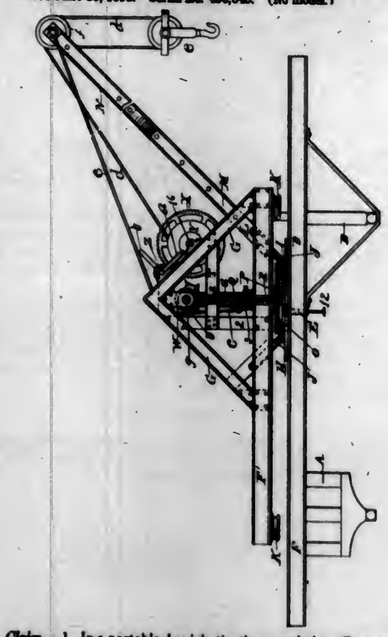


Claim.—1. A wrench comprising in its construction fixed and movable jaws having their shanks arranged parallel with each other, a rocker pivoted on the fixed jaws, a nut forming an integral part of the rocker and extended above the shank of the movable jaw, the last-mentioned shank being provided with an upturned end, and an adjusting-screw having a bearing in said upturned end and threaded into said nut, as set forth.

2. In a wrench, a fixed jaw, a rocker pivoted thereto having a threaded opening, and a channel intermediate the threaded opening and the fixed jaw, a movable jaw working in the channel and having an upturned end, and an adjusting-screw loosely journaled in the said end and engaging the threaded opening in the rocker, as set forth.

3. In a wrench, a fixed jaw, a rocker pivoted thereto having a threaded opening, and a channel intermediate the threaded opening and the fixed jaw, a movable jaw working in the channel and having an upturned end, an adjusting-screw loosely journaled in the said end and engaging the threaded opening in the rocker, and springs interposed between the rocker and the fixed jaw, as set forth.

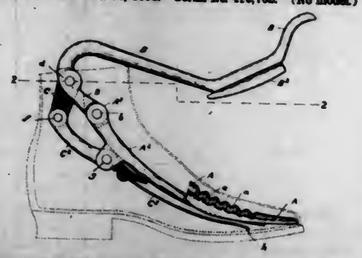
482,528. PORTABLE DERRICK. GEORGE W. PATTON, Chicago, Ill., assignor to himself, James H. Shepard, and John Dolese, same place. Filed June 25, 1892. Serial No. 438,045. (No model.)



Claim.—1. In a portable derrick, the three angle-bars F, mounted on the bolsters of a truck, and lateral supports hinged thereto, in combination with a fixed under cross-bar and a slidable stirrup embracing both the bar and the support, as and for the purpose specified.

2. The combination of the spar with a rotating truss, a central bed-plate, and a central post-support, rollers interposed between the truss and bed-plate, and a slidable collar 5 on the post, a sliding adjustable ring on the post above the collar, and a supporting rope attached to the collar and to the spar, as and for the purpose specified.

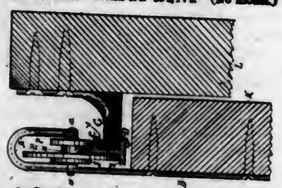
482,529. BOOT OR SHOE CREASER. HENRY P. ROBERTS, Jamestown, N. Y. Filed Dec. 31, 1891. Serial No. 416,702. (No model.)



Claim.—1. A tool for creasing boot or shoe uppers, composed of a grooved block shaped to fit the inner side of the upper and a rearward extension, a lever fulcrumed on said rearward extension of and extending over said grooved block, and a link in two sections jointed end to end and one to said lever and the other to said extension of and extended under said block, substantially as described, and for the purpose specified.

2. A tool for creasing boot or shoe uppers, composed of a grooved block shaped to fit the inner side of the upper and a rearward extension separate from it and the block, adapted to be detachably attached, a lever fulcrumed on said rearward extension of and extending over said grooved block, and a link in two sections jointed end to end and one to said lever and the other to said extension of and extended under said block, substantially as described, for the purposes specified.

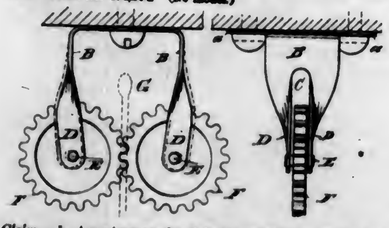
482,530. DOOR-HANGER. SAMUEL SHERFFLER, Jr., Joliet, Ill. Filed Aug. 31, 1891. Serial No. 404,174. (No model.)



Claim.—1. In the door-hanger shown and described, the combination of the track D, having the inner flange *c* and the lower flange *y*, and the wheel-treads E and F, the tread E supporting the door on the flange *y*, and the tread F not being in contact with flange *c*, all arranged to operate substantially as and for the purpose set forth.

2. In the door-hanger shown and described, the combination of the track D, having the flanges *c* and *y*, and the bracket G, secured to the track by having said flanges closed thereon, substantially as and for the purpose set forth.

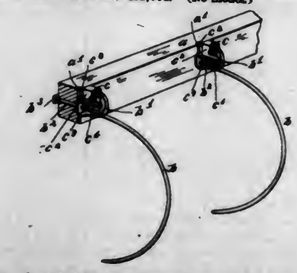
482,531. CLOTHES-HOLDER. GEORGE W. SEAVEY, Chelsea, Mass., assignor of one-half to George D. Emery, same place. Filed May 25, 1892. Serial No. 434,304. (No model.)



Claim.—1. As an improved article of manufacture, the herein-described improved clothes-holder, the same consisting of a resilient blank struck out of a single piece of metal, having a body portion with bifurcated or slotted arms and bent down opposite each other and provided with eyes at their lower ends, and wheels mounted in said eyes and opposing each other with a yielding action.

2. As an improved article of manufacture, the herein-described improved clothes-holder, consisting of a resilient blank struck out of sheet metal and perforated for screw attachment, provided with opposing arms bent down and bifurcated, the ends being perforated and twisted, substantially as shown and described, and wheels mounted between said bifurcated twisted ends and opposing each other with a yielding action.

482,532. HAY-RAKE. JOHN H. THOMAS, Springfield, Ohio. Filed May 11, 1892. Serial No. 432,681. (No model.)



Claim.—1. A holder for rake-teeth, having an open socket with projecting sides and an extended arm projecting from said socket, said arm being provided with a grooved periphery, substantially as and for the purpose specified.

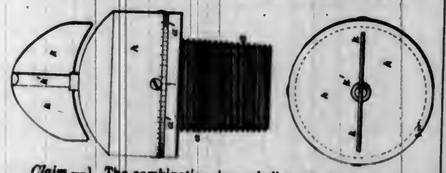
2. A holder for rake-teeth, formed of a single piece and provided with a receiving-socket for the spring-coil and an extended grooved arm adapted to support the tooth by engaging with the coil at a single point, said holder being provided with an opening in line with the lower side of said engaging-arm, substantially as specified.

3. In a hay-rake, the combination, with the rake head and the spring-tooth connected thereto, of a tooth-holder having a socket with projecting sides to receive the spring-coil, and a projecting arm with a grooved periphery adapted to receive and support the projecting end of said rake-tooth at the point where it joins the coil, and means for securing said rake-tooth and holder to said rake-head, substantially as specified.

4. The combination, with a rake-head, of a spring-tooth having a coil and an extending screw-threaded portion, a tooth-holder having a socket to receive said coil, and an extending arm adapted to engage and hold said extended portion at the point where it joins said coil, a projecting lug on said holder to engage said rake-head, and means for securing the extended portion of said tooth in said rake-head, substantially as specified.

5. The combination, with a rake-head, of a spring-tooth having a coil and a straight extended portion, a tooth-holder having a projecting arm grooved at its outer periphery to engage said tooth at a single point between said coil and extended portion, and means for securing the extended portion of said tooth in the rake-head, substantially as specified.

482,533. FUSE FOR EXPLOSIVE PROJECTILES OR SHELLS. JAMES C. THOMPSON, Brockley, England. Filed Apr. 25, 1891. Serial No. 390,426. (No model.) Patented in England Oct. 23, 1884, No. 15,150; in Belgium Aug. 31, 1889, No. 87,423; in Italy Oct. 30, 1889; in France Nov. 11, 1889, No. 200,259; in Austria-Hungary Jan. 31, 1890, and in Germany May 7, 1890, No. 51,981, and June 10, 1890, No. 53,366.



Claim.—1. The combination, in a shell or projectile with a detonator or primer and a wheel or disk mounted on a part of the shell and restraining the detonator from action and provided with a slot or cut-away portion which when the wheel is turned through a given angle releases the detonator, of a spindle parallel to the axis of the shell, vanes on the same for preventing its rotation during the flight and rotation of the wheel, and gears intermediate to the spindle and the said wheel or disk, as set forth.

2. The combination, in a fuse, of a slotted toothed wheel, an exploding device held out of action thereby, a spindle provided with vanes for preventing its rotation during the flight of the shell, gears intermediate to the spindle and the toothed wheel, and a stop or arm interposed in the path of movement of the detonator of the exploding device adapted to be withdrawn by the movement of the toothed wheel relatively to the exploding device, as set forth.

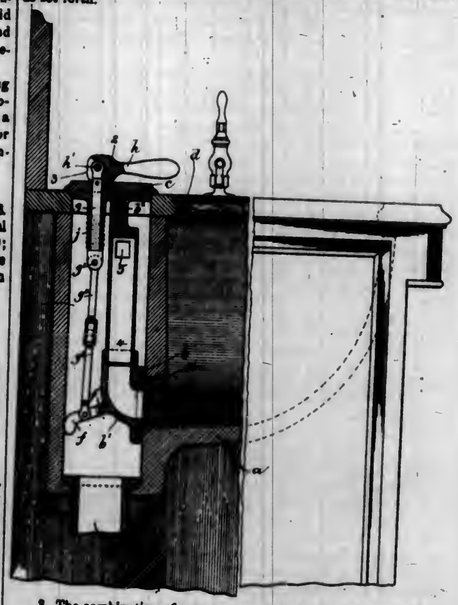
3. The combination, with a shell or projectile, of a spindle parallel to the axis of said shell and provided with vanes for preventing its rotation during the flight of the shell, and a detonator or exploding device adapted to be ignited or operated for exploding the charge in the shell by a predetermined movement of the shell and the spindle relatively to each other, as set forth.

4. In a shell or projectile, the combination of the spindle provided with vanes for preventing its rotation during the flight of the shell, a train of gears carried by the shell and engaging with the spindle, a spring-actuated detonator adapted to be released by said train, and a primer carried by a movable part of the detonator adapted to be thrown forward and exploded by the impact of the wheel upon a body in its path, as set forth.

482,534. OUTLET-VALVE FOR SET BOWLS. JOHN L. THURSTON, Somerville, and FRED B. HOW, Boston, Mass. Filed Nov. 30, 1891. Serial No. 412,903. (No model.)

Claim.—1. The combination, with a water-receptacle *a*, having an outlet-chamber *c*, communicating with the lower portion of the receptacle through one or more outlet-orifices, of a cap or support at the upper end of said chamber, a swinging arm or valve-holder pivoted to said cap and depending therefrom into the chamber, a clapper-valve supported wholly by said arm and arranged to bear on the back of the bowl and close the outlet-orifices therein, and a valve-operating device supported by said cap and adapted to move said arm to force the valve against the back of the receptacle, the said cap, arm, valve, and valve-operating device being adapted to be applied and removed together, as set forth.

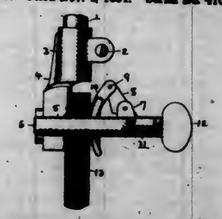
2. The combination, with a water-receptacle *a*, having an outlet-chamber *c*, communicating with the lower portion of the receptacle through one or more outlet-orifices, of a cap or support at the upper end of said chamber, a swinging arm or valve-holder pivoted to said cap and depending therefrom into the chamber, a clapper valve secured to the lower portion of said arm and arranged to bear on the back of the receptacle and close the outlet-orifices therein, a rod or plunger fitted to move vertically in said cap and provided at its upper end with an operating device, whereby it may be moved vertically, an arm or strut pivoted at one end to the lower portion of the valve-holder and arranged to bear at its other end against the rear wall of the chamber, and a rod connecting said arm or strut with the plunger, as set forth.



3. The combination of a water-receptacle having an outlet-chamber communicating with the lower portion of the receptacle, a tubular arm pivoted to a support at the upper end of said chamber, said arm having its lower end arranged as an inlet to coincide with the said outlet-orifices and having an outlet above said inlet, an annular valve surrounding said inlet, and means for moving the valve-holder to press said valve against the wall of the receptacle, as set forth.

4. The combination of a cap or plate *c*, formed to be engaged with a fixed support, an arm or valve-holder pivotally connected to said plate and having a valve on its swinging end, an arm pivoted to said holder and arranged to bear at its swinging end on a fixed surface near the valve, and an operating device supported by the plate, whereby said arm may be moved to press its swinging end against said surface, and thereby press the valve against its seat, the said valve-holder, valve, arm, and operating device being supported by the cap or plate and applied and removed therewith, as set forth.

482,535. CLAMP FOR ARC-LAMP CARBONS. ANSON WEBER, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Nov. 4, 1891. Serial No. 410,894. (No model.)



Claim.—1. The combination, in a carbon-holder, of the main body, the extension therefrom, a link the lower end of which is pivoted to the extension, a clamping-jaw pivoted to the upper end of said link,

and means for pressing the jaw against a carbon in the clamp, substantially as described.

2. The combination, in a carbon-holder, of the main body, the extension therefrom, a link the lower end of which is pivoted to the extension and having a stop to limit its forward movement when there is no carbon in the clamp, a clamping-jaw pivoted to the upper end of said link, but in a line outside of the circumference of a carbon of normal size used in the clamp, and means for pressing the jaw against the carbon in the clamp, substantially as described.

3. The combination of the clamp-body, the movable clamp member, a sleeve on the body, having a screw-hole, and a screw in the same for moving the movable member, said screw having a short screw-threaded section and a smooth section, both within the hole in the sleeve, the screw-threaded part of the screw being always within the sleeve during use of the device, whereby its thread is protected, substantially as described.

4. The combination, in a clamp for arc-light carbons, of the clamp-body having a projecting sleeve bored for the reception of a screw, a screw in said hole having a screw-threaded portion adapted to co-operate with the screw-threaded hole and a smooth portion adapted to enter the screw-hole, and a clamp member moved by said screw, the smooth portion of the screw being of such length that it always projects into the screw-hole during ordinary use of the device, so that the screw-thread will not be exposed, substantially as described.

5. The combination, in a clamp for arc-light carbons, of the clamp-body having a projecting sleeve bored for the reception of a screw, a portion of the hole being screw-threaded and a portion being larger and smooth, whereby a shoulder 14 is formed, a screw in said hole having a screw-threaded portion adapted to co-operate with the screw-threaded hole and a larger smooth portion adapted to enter the smooth portion of the hole, and a clamping-jaw moved by said screw, substantially as described.

482,586. WALK AND BRIDGE PLANK. ALEXANDER ZAGELMEYER, West Bay City, Mich. Filed Nov. 16, 1891. Serial No. 412,025. (No model.)



Claim.—1. A plank for walks and bridges, having a plane surface on its under side and having the middle portion of its width of a greater thickness than the thickness of its lateral edges, substantially as set forth.

2. The combination, in a walk, of the stringers or sleepers and a series of planks, each plank provided on its under side with a plane surface resting upon the stringers and having on its upper side a surface of convex form transversely, substantially as set forth.

482,587. METHOD OF DISINTEGRATING VEGETABLE SUBSTANCES. HENRY J. BIRD, Hoboken, N. J. Filed Sept. 11, 1891. Serial No. 405,427. (No specimens.)

Claim.—1. The method herein specified of disintegrating vegetable substances and separating the fiber for paper-stock, consisting in subjecting such vegetable material to the action of gastric juices in the presence of sufficient heat to render such gastric juices efficient in the disintegration of the material and washing out the other substances for the separation of the fiber, substantially as set forth.

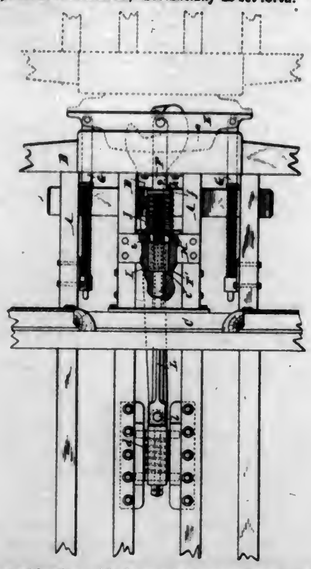
2. The method herein specified of disintegrating vegetable fiber for the production of paper-stock, consisting in subjecting such vegetable fiber to the action of gastric juices and an alkali in the presence of sufficient heat to render such gastric juices efficient and washing the other substances from the fiber, substantially as set forth.

3. The method herein specified for disintegrating and separating the vegetable substances contained in the paunches in slaughtered cattle, consisting in adding thereto an alkali, such as lime, heating the same in a suitable vessel, and subjecting such material to a beating or pulping operation for separating the fibers and washing out the softened materials to obtain paper-stock, substantially as set forth.

482,588. CAR-BUFFER. THOMAS A. RUSSELL, Buffalo, N. Y. Filed Mar. 15, 1892. Serial No. 424,975. (No model.)

Claim.—1. The combination, with the stationary platform of a railway-car, the longitudinally-movable draw-bar, and a buffer or platform extension movable on the stationary platform, of a follower-socket guided on the stationary platform, a spring for projecting the buffer or platform extension bearing with its inner end against the bottom of the follower-socket, and a coupling-bar attached at one end to said socket and at its opposite end to the draw-bar, substantially as set forth.

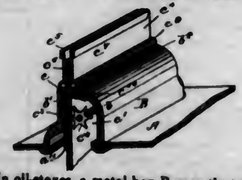
2. The combination, with the stationary platform of a railway-car and the longitudinally-movable draw-bar, of a buffer or platform extension movable on the main platform, a movable abutment or follower guided on the main platform, a spring for projecting the buffer or platform extension, bearing against said abutment, and a coupling-bar attached at one end to the draw-bar and having its other end movably attached to said abutment and provided with a shoulder bearing against said abutment, substantially as set forth.



3. The combination, with the stationary platform of a railway-car and the longitudinally-movable draw-bar, of a buffer or platform extension movable on the main platform, a movable abutment or follower having a pin or projection, a projecting spring for the buffer or movable platform, bearing against said abutment, and a coupling-bar attached at one end to the draw-bar and having at its other end a longitudinal slot in which the pin of the abutment is arranged, substantially as set forth.

4. The combination, with the stationary platform of a railway-car and the longitudinally-movable draw-bar, of a buffer or platform extension movable on the main platform, a movable abutment or follower having a pin or projection, a projecting spring for the buffer or movable platform, bearing against said abutment, and a coupling-bar attached at one end to the draw-bar and having at its other end a longitudinal slot in which the pin of the abutment is arranged, and a shoulder bearing against the abutment, whereby the latter is caused to move outward with the draw-bar, substantially as set forth.

482,589. OIL-STOVE. WILLIAM M. BOWMAN and ELMER F. SHAW, Plymouth, Mass., assignors to the Plymouth Foundry Company, same place. Filed Apr. 3, 1890. Serial No. 346,402. (No model.)



Claim.—1. In oil-stoves, a metal box B upon the top plate of the reservoir or tank of the stove, having a slit or recess through its top for receiving the wick-tube and a chamber or space on one side only for holding the wick-raiser, substantially as described.

2. A burner for oil-stoves, comprising a cast-metal box B, the sides and ends of which are integral, a slit through the top near one side, forming an opening for the reception of the wick-tube, the said wick-tube, and the shaft and wick-raisers contained in said box at one side of the wick only, as and for the purposes described.

3. A burner for oil-stoves, comprising a box of cast metal the sides and ends of which are integral and which has a long opening through its top located nearer one side of the box than the other, a wick-tube inserted in said slit and having one side extending downward into the cavity of the box, and a wick-raiser shaft and raisers thereon on the other side of said downwardly-extending section and in the cavity of said box, as and for the purposes described.

4. In a burner for oil-stoves, the box B, having the integral sides and ends and provided with a long opening through its top near one side of the box, a wick-tube inserted in said opening, made of two pieces, the edges of which overlap, each of which has a rib c' and one of which sections extends downwardly into the cavity of the box and bears against its sides and the other of which sections has its lower edge folded upon the under surface of the top of the box, a wick-raiser shaft in the cavity of said box, and wick-raisers thereon, as and for the purposes described.

482,540. HAND NAILING IMPLEMENT. WILLIAM J. BROWN, Philadelphia, Pa. Filed Jan. 12, 1892. Serial No. 417,783. (No model.)



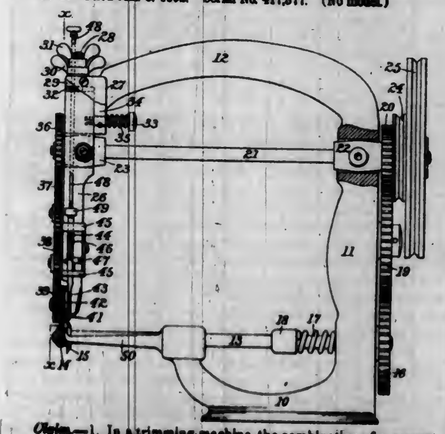
Claim.—1. The combination, with a containing staple-case and plunger-guide, of a movable plunger or driver-blade longitudinally split or divided at its lower extremity transversely to the crown of the staple, forming two spring members, to enable it to operate with an outwardly-pressing spring-like action within the containing-case, substantially as described.

2. The combination, with a containing staple-case and plunger-guide of flat or flattened oval form, of a plunger of similar conformation provided with an impact head at its upper end and longitudinally split or divided at its lower end transversely to the crown of the staple, forming two spring members, to enable it to operate with an outwardly-pressing spring-like action within the containing-case, substantially as described.

3. The combination, with a containing staple-case and plunger-guide provided with vertical guideways, of a plunger-blade longitudinally split or divided at its lower end transversely to the crown of the staple, forming two spring members, and provided with wings or flanges adapted to fit said vertical guideways of the containing-case, substantially as described.

4. A staple-driver consisting of a staple-case B, having a side opening c, a vertically split or divided plunger or driver A, forming two spring members, the latter having an impact head d and made concave at its base m, substantially as described.

482,541. HAT-TRIMMING MACHINE. LOUIS BULASKY, New York, N. Y. Filed Jan. 8, 1892. Serial No. 417,377. (No model.)



Claim.—1. In a trimming-machine, the combination of a support-ing-frame having an upper horizontal arm, a fixed head carried by said arm, a depending arm guided in said head, a screw engaging the upper end of said depending arm and passing through the top plate of said head and provided with an adjusting-nut, a rotary cutter carried at the lower end of said depending arm, a driving-shaft having a bearing in the upper end of said arm, and a train of gears supported by said arm to drive said cutter from said shaft, substantially as shown and described.

2. In a trimming-machine, the combination of a frame having an upper horizontal arm, a head carried by said arm, a depending arm guided in said head, a screw or bolt passing through an aperture in a vertical wall of said head and engaging said depending arm, a spring interposed between the head of said screw or bolt and said wall, a rotary cutter carried by the lower end of said arm, a train of gears supported by said arm for driving said cutter, and a second cutter to co-operate with said first-named cutter, substantially as shown and described.

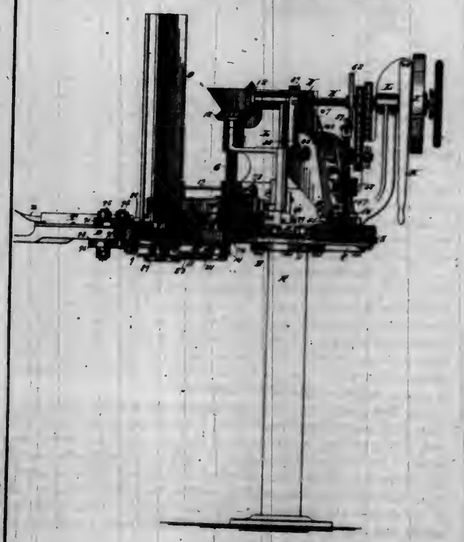
3. In a trimming-machine, the combination of a frame having an upper horizontal arm, a head carried by said arm, a depending arm guided in said head, a screw or bolt passing loosely through the top plate of said head and engaging the upper end of said arm and provided with an adjusting-nut, a screw or bolt engaging said depending arm and passing loosely through a vertical wall of said head, a spring acting upon said screw, a cutter carried by the lower end of said depending arm, means to rotate said cutter, and a second cutter to co-operate with said first-named cutter, substantially as shown and described.

4. In a trimming-machine, the combination of a frame having an upper horizontal arm, a head carried by said arm, a depending arm guided in said head, a screw or bolt passing loosely through the top plate of said head and engaging the upper end of said arm and provided with an adjusting-nut, a spring interposed between the upper end of said arm and said top plate, a screw or bolt engaging said depending arm and passing loosely through a vertical wall of said head, a spring acting upon said screw, a cutter carried by the lower end of said depending arm, means to rotate said cutter, and a second cutter to co-operate with said first-named cutter, substantially as shown and described.

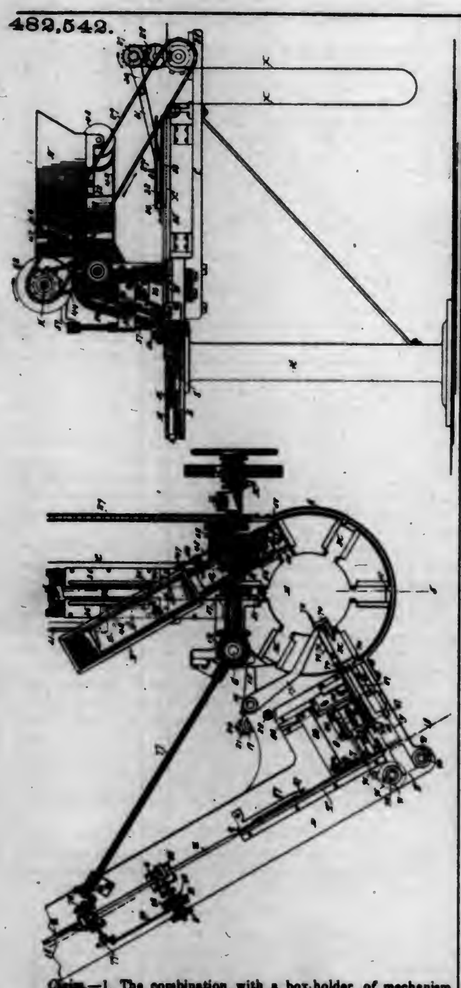
5. In a trimming-machine, the combination of a frame having an upper horizontal arm, a head carried by said arm, a vertical arm depending from said head, means for adjusting said arm, a cutter carried by the lower end of said arm, means to rotate said cutter rapidly, a feed-wheel mounted upon the same axis with said cutter, but to rotate freely thereon and independently of said cutter, and a lower feed-wheel and means to rotate it more slowly than the upper cutter, substantially as shown and described.

6. In a trimming-machine, the combination of a frame having an upper horizontal arm, a head carried by said arm, a vertical arm depending from said head, means for adjusting said arm, a stud carried by the lower end of said arm, a sleeve mounted on said stud, a cutter and a gear fixed to said sleeve, a feed-wheel mounted loosely upon said sleeve between said gear and cutter, means to rotate said gear and cutter rapidly, and a lower feed-wheel and means to rotate it more slowly than the upper cutter, substantially as shown and described.

482,542. BOX-FILLING MACHINE. WILLIAM H. BUTLER and WILLIAM R. LANDFEAR, Brooklyn, N. Y.; said Landfear assignor to said Butler. Filed Sept. 25, 1891. Serial No. 406,844. (No model.)



482,542.



Claim.—1. The combination, with a box-holder, of mechanism co-operating with said holder to form and deliver boxes thereto, a box-filling mechanism by which the boxes are filled, and a covering and delivering mechanism by which the filled boxes are delivered from the holder and inserted in tubular covers, substantially as described.

2. The combination, with a box-holder, of mechanism co-operating with said holder to form and deliver boxes thereto, a box-filling mechanism by which the boxes are filled, a covering and delivering mechanism by which the filled boxes are delivered from the holder and inserted in tubular covers, and a sealing mechanism for applying sealing-strips to said boxes, substantially as described.

3. The combination, with an intermittently-moving carrier provided with a plurality of box-holders, of mechanism co-operating with said holder to form and deliver boxes thereto, a box-filling mechanism to which the boxes are advanced from the box-forming mechanism by the carrier and by which they are filled, and covering and delivering mechanism to which the boxes are advanced from the filling mechanism and by which they are delivered from the carrier and inserted in tubular covers, substantially as described.

4. The combination, with an intermittently-moving carrier provided with a plurality of box-holders, of mechanism co-operating with said holders to form and deliver boxes thereto, a box-filling mechanism to which the boxes are advanced from the box-forming mechanism by the carrier and by which they are filled, covering and delivering mechanism to which the boxes are advanced from the filling mechanism and by which they are delivered from the carrier and inserted in tubular covers, and sealing mechanism by which sealing-strips are applied to the boxes, substantially as described.

5. The combination, with an intermittently-moving carrier provided with a plurality of box-holders, of feeding mechanism for advancing a strip of box-blanks to said carrier, mechanism co-operating with said holders to form boxes from said blanks and deliver them to the holders, a box-filling mechanism to which the boxes are advanced from the box-forming mechanism by the carrier and by which they are filled, and covering and delivering mechanism to which the boxes are advanced from the filling mechanism and by which they are delivered from the carrier and inserted in tubular covers, substantially as described.

6. The combination, with an intermittently-moving carrier provided with a plurality of box-holders, of cutting and feeding mechanism for forming a strip of box-blanks, a cutter and box-forming die for severing blanks from said strip and forming boxes in said holders, a box-filling mechanism to which the boxes are advanced from the box-forming mechanism by the carrier and by which they are filled, and covering and delivering mechanism to which the boxes are advanced from the filling mechanism and by which they are delivered from the carrier and inserted in tubular covers, substantially as described.

7. The combination, with an intermittently-moving carrier provided with a plurality of box-holders, of mechanism co-operating with said box-holders to form and deliver boxes thereto, a magazine containing the articles to be packed, to which the boxes are advanced from the box-forming mechanism, feeding and packing mechanism for feeding the articles from the magazine and packing them in the boxes, and a covering and delivering mechanism to which the boxes are advanced from the packing mechanism and by which they are delivered from the carrier and inserted in tubular covers, substantially as described.

8. The combination, with an intermittently-moving carrier provided with a plurality of box-holders, of means coacting with said holders to supply them with boxes, a magazine containing the articles to be packed, to which the boxes are advanced by the carrier, feeding mechanism for feeding the articles from the magazine, a counting and packing mechanism by which the articles are counted and packed in the boxes, and a covering and delivering mechanism to which the boxes are advanced from the packing mechanism and by which they are delivered from the carrier and inserted in tubular covers, substantially as described.

9. The combination, with an intermittently-moving carrier provided with a plurality of holders, of means coacting with said holders to supply them with boxes, a magazine containing the articles to be packed, feeding mechanism for feeding the articles from the magazine, a receiving-chamber having a swinging bottom, to which the articles are delivered from the magazine, a reciprocating plunger by which the articles are removed from the chamber and packed in the boxes, and a covering and delivering mechanism to which the boxes are advanced from the packing mechanism and by which they are delivered from the carrier and inserted in tubular covers, substantially as described.

10. The combination, with an intermittently-moving carrier provided with a plurality of box-holders, of mechanism co-operating with said box-holders to form and deliver boxes thereto, a filling mechanism to which the boxes are advanced from the box-forming mechanism by the carrier and by which they are filled, a plunger for delivering the filled boxes from the carrier, and a cover-magazine and feeding mechanism for delivering tubular covers in the path of the filled boxes as they are delivered by the plunger, substantially as described.

11. The combination, with a holder adapted to receive and hold a box, of box-filling mechanism by which the box is filled, a plunger for delivering the filled box from the holder, a cover-magazine in which the tubular covers are packed flat, and feeding and opening mechanism by which a cover is delivered open in the path of the filled box as it is advanced by the plunger, substantially as described.

12. The combination, with a holder adapted to receive and hold a box, of box-filling mechanism by which the box is filled, a plunger for delivering the filled box from the holder, a vertical cover-magazine in which the covers are packed flat, a plunger by which the bottom cover is removed endwise from the cover-magazine, and a plunger and co-operating devices advancing the cover sidewise into the path of the filled box and opening the cover, substantially as described.

13. The combination, with a holder adapted to receive and hold a box, of box-filling mechanism by which the box is filled, covering and delivering mechanism by which the filled box is delivered from the holder and inserted in a tubular cover, and sealing mechanism by which a sealing-strip is applied to said box, substantially as described.

14. The combination, with a holder adapted to receive and hold a box, of box-filling mechanism by which the box is filled, covering and delivering mechanism by which the filled box is delivered from the holder and inserted in a tubular cover, feeding mechanism by which a pasted web is advanced into the path of the filled box, a cutter for severing a sealing-strip from said web, and means for pressing said strip on said box, substantially as described.

15. The combination, with a holder adapted to receive and hold a box, of box-filling mechanism by which the box is filled, covering and delivering mechanism by which the filled box is delivered from the holder and inserted in a tubular cover, feeding mechanism by which a pasted web is advanced into the path of the filled box, a cutter for severing a sealing-strip from said web, and feeding and pressing rolls to which the boxes are advanced by the delivering mechanism, substantially as described.

16. The combination, with magazine N and feeding-belt 42, of vibrating separator 45 above said belt, substantially as described.

17. The combination, with magazine N, feeding-belt 42, and raceway 54, of spring-supported plates 55 and reciprocating packing-plunger 56, substantially as described.

18. The combination, with spring-supported plates 55, of reciprocating packing-plunger 56 and means for actuating said plunger with a shorter throw at certain strokes, substantially as described.

19. The combination, with a reciprocating packing-plunger and a holder for the material or articles to be packed, of means for actuating said plunger with a shorter throw as successive layers of the material or articles are packed, substantially as described.

20. The combination, with holder M, of a box-delivering plunger 70, having fingers *a* for turning down one end of the box and guide 69 above the path of the box for turning down the opposite end, substantially as described.

21. The combination, with a plunger for advancing a flat tubular cover sidewise, of devices co-operating therewith to open the cover, substantially as described.

22. The combination, with a plunger for advancing a flat tubular cover sidewise, of devices co-operating therewith to open the cover and means for inserting a box in said cover, substantially as described.

23. The combination, with a plunger for advancing a box, of a plunger for advancing a flat tubular cover sidewise into the path of the box and devices co operating with said plunger to open the cover, substantially as described.

24. The combination, with the cover-magazine O, of plunger 63 for removing the bottom cover endwise from the box, plunger 65, advancing the box sidewise, and devices co-operating with said plunger to open the box-cover, substantially as described.

25. The combination, with plunger 65, of bar 67, having spring inclined finger *b*, and bar 68, having a guiding-incline on its lower side, substantially as described.

26. The combination, with plunger 65, of bar 67, having spring inclined finger *b* and overhanging flange 5, and bar 68, having a guiding-incline on its lower side and overhanging flange 6, substantially as described.

27. The combination, with plunger 65, of bar 67, having the inclined spring-pressed finger *b*, substantially as described.

28. The combination, with box filling and covering mechanism, of sealing mechanism for applying a pasted sealing-strip on the end and overlapping the sides of the box, substantially as described.

29. The combination, with box filling and covering mechanism, of feeding mechanism for advancing a pasted strip into the path of the filled and covered box and pressing devices for pressing the strip on the box, substantially as described.

30. The combination, with box filling and covering mechanism, of feeding mechanism for advancing a pasted strip into the path of the filled and covered box and feeding and pressing rolls 91, substantially as described.

31. The combination, with box-filling mechanism, of covering and delivering mechanism adapted to cover the boxes and deliver a line of boxes, feeding mechanism for advancing a pasted strip into the path of the filled and covered boxes, and feeding and pressing rolls 91, run at a higher speed than the delivering mechanism, substantially as described.

482,548. POCKET CHECK AND BANK BOOK. LEWIS C. BUTLER, West Bay City, and HENRY R. CROPP, Saginaw, Mich.; said Cropp assignor to said Butler. Filed Mar. 20, 1891. Renewed June 20, 1892. Serial No. 437,845. (No model.)

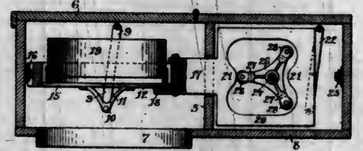


Claim.—A pocket check and bank book provided with a pocket on inside of one of the covers adapted to receive independent checks, an erasive tablet and one or more memorandum-sheets bound together with the cover, and a removable check-memorandum sheet and a removable bank-deposit and balance sheet, substantially as described, and as and for the purpose set forth.

482,544. COMPOSITION OF MATTER FOR WALL DECORATION. GEORGE A. CASSELMAN, Fort Dodge, Iowa. Filed Nov. 23, 1891. Serial No. 412,878. (No specimens.)

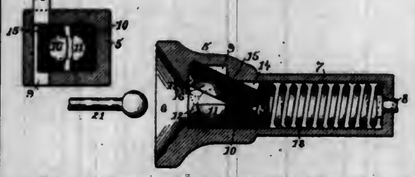
Claim.—The herein-described composition of matter to be used for ornamenting walls, &c., consisting of stucco, calcined plaster, whiting, glue, borax, and corn-starch in about the proportions specified.

482,545. SIFTER. JAMES CHARLESWORTH, Providence, R. I. Filed Apr. 13, 1892. Serial No. 428,947. (No model.)



Claim.—The combination, with the case 5, having an extension 8, an opening in the bottom of the case surrounded by the collar 7, the arms 9 9, pivoted at their upper ends to the sides of the case and having their lower ends connected by the shaft 10, the brackets 11, mounted on said shaft, a frame composed of the sides 12 12, the ends 13 and 14, and the braces 15 15, supported on said brackets, and a sieve 19, supported in said frame, of the member 20, pivotally supported in the extension-case by the arms 22 22 and having the arm 17 extending into the case 5 and secured to end 14 of the sieve-frame, cam-shoulders 21 21, formed around an opening in the member 20, a shaft 24, journaled in bearings in the sides of the extension-case, rotatable by a crank, and a member 26, having arms 27 27, and bearing-rolls 28 28, journaled in the ends of said arms, mounted on said shaft, as described.

482,546. CAR-COUPLING. MILO M. CLARKE, Westerly, R. I. Filed Jan. 6, 1892. Serial No. 417,161. (No model.)



Claim.—1. In a car-coupler, the combination, with a hollow coupler-head having a hollow shank and a bell-shaped mouth and a forward vertical slot adjoining said hollow portion, of two separable spring-operated blocks longitudinally movable in said hollow portion and having cavities in their adjoining surfaces, a connecting-pin having an end adapted to be contained in said cavities, and means adapted to be contained within said vertical slot for locking said blocks together, as described.

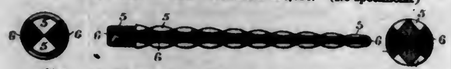
2. The combination, with the hollow coupler-head having the mouth 6, hollow shank 7, and vertical slot 9, of the jaw 10, having the cavity 11 and flaring opening 12 at the forward portion and the base 13 and rib 14, the jaw 15, having a central transverse slot engaging the rib 14 of the jaw 10 and the forward cavity 16 and flaring opening 17, a coiled spring 18, contained within the hollow of said base and pressing against the base of the jaw 10, the locking-bar 19, adapted to move in the slot 9, and means for operating the same, and a connecting-pin 21, having a ball end adapted to be engaged by said cavities, as and for the purpose described.

482,547. NECK TIE OR BAND. CHARLES S. COLE, Bridgeport, Conn. Filed Sept. 22, 1891. Serial No. 406,474. (No model.)



Claim.—A scarf or tie provided on its inner side at intervals with soft-rubber pads which in use will come in contact with the collar and prevent said scarf or tie from slipping.

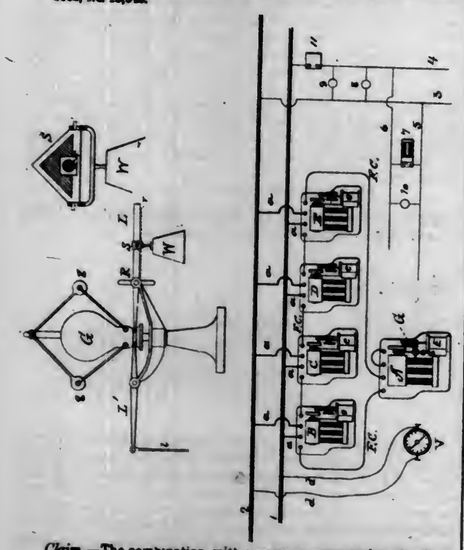
482,548. MOTHER-OF-PEARL ARTICLES AND PROCESS OF MAKING THE SAME. OTTO C. BOHERT and LOUIS COHEN, Providence, R. I. Filed June 15, 1892. Serial No. 436,780. (No specimens.)



Claim.—1. The process for constructing mother-of-pearl articles herein described, consisting in forming a number of lengths having longitudinal angular surfaces, next securing these lengths together on these angular surfaces, and finally ornamenting the outer surface of the article by cutting away portions of the same, as described.

2. A pearl article formed of a number of segmental strips or lengths secured together on their radial surfaces, as described.

482,549. MEANS FOR CONTROLLING ELECTRIC GENERATION. THOMAS A. EDISON, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Mar. 12, 1891. Serial No. 384,141. (No model.) Patented in England June 7, 1891, No. 9,483; in Germany July 30, 1891, No. 64,608; in Italy July 30, 1891, No. 13,196; in Belgium Aug. 16, 1891, No. 95,302; in Victoria Sept. 6, 1891, No. 3,078; in India Oct. 13, 1891, No. 323; in New South Wales Oct. 26, 1891; in France Oct. 28, 1891, No. 144,108; in Spain Nov. 2, 1891, No. 1,781; in Austria-Hungary Nov. 13, 1891, No. 31 and No. 1,863; in Queensland Dec. 30, 1891; in New Zealand Jan. 4, 1892, No. 880, and in Canada Nov. 23, 1892, No. 15,846.

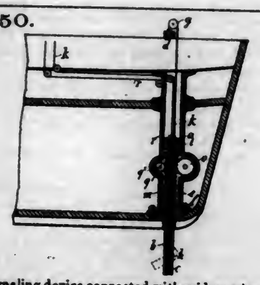


Claim.—The combination, with a main or consumption circuit, of one or more magneto-electric machines connected therewith, an exciting-machine supplying the field-circuit of the main machine or machines, means for varying the speed of the exciting-machine independently of the main machine or machines, and a suitable electrical indicator indicating the condition of the main circuit, substantially as and for the purpose set forth.

482,550. SHALLOW-WATER ALARM. HANS BULER, Lehe, near Bremerhaven, Germany. Filed June 3, 1892. Serial No. 435,400. (No model.) Patented in England Oct. 30, 1891, No. 18,719, and in France Nov. 2, 1891, No. 217,186.

Claim.—1. A ship's appliance for automatically signaling when banks or shallow water are encountered, comprising a movable rod passing through the ship's bottom, an articulated member on the lower end of said rod, a spring for holding said member in line with the rod, and a signaling device connected with said articulated member, all combined substantially as set forth.

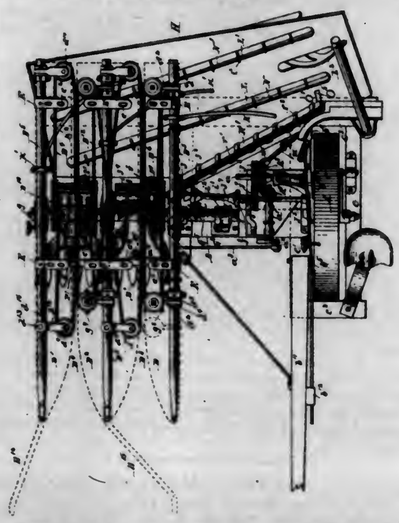
2. A ship's appliance for automatically signaling when banks or shallow water are encountered, comprising a movable rod passing through the ship's bottom, an articulated member on the lower end of said rod, a signaling device connected with said member, a rack formed on the rod, a pinion engaging said rack, and a second signaling device connected with said pinion, all combined substantially as herein shown and described.



3. A ship's appliance for automatically signaling when banks or shallow water are encountered, comprising a movable rod passing through the ship's bottom, an articulated member on the lower end of said rod, a spring connected with said rod, a flexible connection between the spring and the said member, a signaling device connected with the spring, and a counterbalancing device connected with the spring, all combined substantially as herein shown and described.

4. A ship's appliance for automatically signaling when banks or shallow water are encountered, comprising a movable rod passing through the ship's bottom, an articulated member on the lower end of said rod, a signaling device connected with said member, and a second and independent signaling device and means for operating the same from said rod, substantially as herein shown and described.

482,551. CORN-HARVESTER. GEORGE A. FARRALL, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed May 20, 1890. Serial No. 352,572. (Model.)



Claim.—1. In a gathering and carrying mechanism for harvesters, the combination of a belt having a single carrying portion which bears against one side of the stalk, and a belt having two carrying portions which bear against the opposite side of the stalk above and below the single carrying portion, substantially as set forth.

2. The combination, with a system of gathering and carrying belts, pulleys supporting said belts, and longitudinal bars supporting said pulleys, of rocking standards pivotally connected to said bars, whereby the gathering mechanism may be adjusted lengthwise of the machine, substantially as set forth.

3. The combination, with the system of gathering and carrying belts and the pulleys around which these belts run, of bars supporting the pulleys and provided with brackets, gathering-boards supported on said brackets, friction-rollers attached to said boards and bearing against the belts, and rocking standards pivotally connected with said bars, substantially as set forth.

4. The combination, with the system of gathering and carrying belts, the pulleys supporting said belts, and longitudinal bars adjustably supporting said pulleys, of gathering-boards arranged above said belts and supported on said bars, friction-rollers bearing against the belts and adjustably secured to the gathering-boards, and rocking standards pivotally secured with their upper ends to said bars, substantially as set forth.

5. The combination, with the gathering-frame and the rocking standards pivotally supporting said frame at their upper ends, of a drive-shaft journaled on the lower portions of said standards, drive-pulleys secured to said shaft, transfer-pulleys journaled concentric with the pivotal connection of the standards and gathering-frame, supporting-pulleys mounted on the front and rear portions of the gathering-frame, and belts running over the drive-pulleys, transfer-pulleys, and supporting-pulleys, substantially as set forth.

6. The combination, with the system of gathering-belts, the gathering-frame supporting said belts, and suitable intermediate mechanism whereby motion is transmitted from the main drive or master wheel to said belts, of rocking standards supporting said gathering-frame at their upper ends, a rock-shaft supporting the standards at their lower ends, and suitable mechanism whereby said rock-shaft is actuated in order to tilt the gathering mechanism, substantially as set forth.

7. The combination, with the system of belts, the gathering-frame supporting said belts, and the rocking standards pivotally supporting said frame at their upper ends, of a drive-shaft journaled on the standards and receiving motion from the main drive or master wheel through intermediate mechanism, drive-pulleys mounted on the drive-shaft, around which the gathering-belts pass, and a rock-shaft journaled in bearings on the main frame and supporting the lower end of the standards, substantially as set forth.

8. The combination, with the gathering and carrying frame and the rocking standards supporting said frame, of a rock-shaft supporting the standards, bearings in which said rock-shaft is journaled, and means whereby said bearings are adjusted in order to raise and lower the gathering mechanism, substantially as set forth.

9. The combination, with the gathering and carrying mechanism, the standards supporting said mechanism, and the rock-shaft supporting said standards, of a bearing-arm provided at one end with a bearing in which said rock-shaft is journaled and provided at its opposite end with a serrated face which engages with similar serrations formed on a base-plate secured to the main frame and a pivot-bolt adjustably securing said bearing to said base-plate, whereby the rock-shaft may be raised or lowered, substantially as set forth.

10. The combination, with the gathering and carrying mechanism, of the rocking standards pivotally supporting the carrying mechanism and a guide bar pivotally connecting the carrying mechanism with the main frame, whereby the gathering and carrying mechanism is guided in its longitudinal movement, substantially as set forth.

11. The combination, with the gathering and carrying mechanism, of rocking standards supporting said carrying mechanism and upright shields arranged in front of the standards and having their opposing faces on opposite sides of each stalk-passage converging rearwardly, whereby the standards are protected and the stalks are guided past the same, substantially as set forth.

12. The combination, with the gathering and carrying frame, of standards pivotally supporting said carrying-frame, guide-bars pivotally secured with their upper ends to the front portion of the carrying-frame and pivoted with their lower ends to the front portion of the main frame, and rearwardly-extending shields attached to said guide-bars, substantially as set forth.

13. The combination, with the gathering and carrying mechanism which grasps the central portion of the stalks, of rollers arranged transversely underneath the carrying mechanism, a belt passing around said rollers, and rocking standards which support the gathering mechanism and said rollers, substantially as set forth.

14. The combination, with the gathering-frame and the gathering-belts supported thereon, of a binder-table which receives the stalks from said gathering-frame and spring guide-arms secured with their upper ends to the rear end of the gathering-frame and pressing with their lower ends against the stalks on the binder-table, substantially as set forth.

15. The combination, with the cutter mechanism, of a forwardly-inclined binder-table, a butter arranged along the lower end of the binder-table in rear of the cutter mechanism, and a gathering and carrying mechanism extending rearwardly over the butter and table, whereby the stalks are carried over the butter and then dropped upon the table and allowed to align themselves against the butter in rear of the cutter mechanism, substantially as set forth.

16. The combination, with the cutter mechanism and a forwardly-inclined binder-table, of an adjustable butter pivoted at one end to the forward end of the binder-table and extending inwardly from said pivotal point along the rear side of the cutter mechanism and nearly parallel thereto, and thence obliquely rearward and upward toward the binder mechanism, and a gathering and carrying mechanism whereby the stalks are carried over the butter, substantially as set forth.

17. The combination, with the cutter mechanism, the forwardly-inclined binder-table which receives the stalks, and the binder mechanism, of a stationary butter arranged along the lower front end of the binder-table in rear of the cutter mechanism, a traveling butter extending from the stationary butter inwardly toward the binder mechanism, and a gathering and carrying mechanism whereby the stalks are carried over the stationary butter, substantially as set forth.

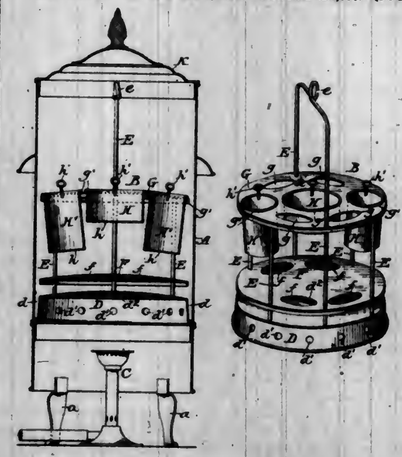
18. The combination, with the cutter mechanism and the forwardly-inclined binder-table of a stationary butter-board arranged transversely upon the binder-table in rear of the cutter mechanism and pivoted on said table with its outer or forward end, a traveling butter-apron pivotally connected at its outer end to the inner end of the butter-board and adjustably supported at its opposite end upon the stubbleward end of the binder-table, and a gathering and carrying mechanism whereby the stalks are carried over the stationary butter-board, substantially as set forth.

19. The combination, with the cutter mechanism, the forwardly-inclined binder-table arranged in rear of said cutter mechanism, the gathering mechanism whereby the stalks are carried from the cutter mechanism to the binder-table, and the binder mechanism arranged on the stubbleward end of the table, of an adjustable butter consisting of a transverse butter-board arranged upon the binder-table in rear of the cutter mechanism and pivoted at its outer end to the forward end of said table and a traveling butter-apron movably attached with its inner end to the inner end of the butter-board and adjustably supported with its opposite end upon the stubbleward end of the table adjacent to the binder mechanism, substantially as set forth.

20. The combination, with the main frame supported on opposite sides by a master-wheel and a grain-wheel and the cutter mechanism arranged upon said frame, of a forwardly-inclined stalk-receiving table arranged with its lower front end in rear of the cutter mechanism and adjacent to the grain-wheel and extending obliquely upwardly from the grain-wheel to the rear side of the master-wheel, a binder mechanism arranged upon the stubbleward end of the table in rear of the master-wheel, a sectional butter having one part arranged transversely along the front edge of the table in rear of the cutter mechanism and the other part extending obliquely rearwardly and upwardly toward the binder mechanism, a carrying-apron whereby the stalks are carried from the grainward end of the table to the binder mechanism, and a gathering and carrying mechanism whereby the stalks are carried over the butter, substantially as set forth.

21. The combination, with the binder-table which receives the stalks, of an endless belt arranged lengthwise underneath said table and having teeth which pass through longitudinal slots formed in said table and a crank-shaft which bears alternately against the under side of the carrying portion of the belt, whereby the teeth of the latter are alternately moved above and below the surface of the table, substantially as set forth.

482,552. DENTAL-TOOL STERILIZER. WILLIAM G. FLANDERS, New York, N. Y. Filed Feb. 9, 1892. Serial No. 430,833. (No model.)



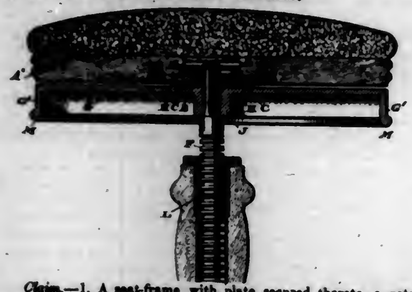
Claim.—1. The combination of a hot-water vessel and a stand for instruments, adapted to be placed therein, said stand being composed of a bottom plate, apertured disk above said plate, and supporting-wires, substantially as shown and described.

2. The combination of a hot-water vessel, a stand for instruments, adapted to be placed therein and having an apertured disk and sup-

porting-wires, and a cup having a perforated bottom supported in the aperture in said disk, substantially as shown and described.

3. The combination of a hot-water vessel, an inverted cup placed centrally within said vessel to leave a space between itself and the walls of the vessel and having its sides and its top perforated, and a stand for supporting instruments above said cup, substantially as shown and described.

482,553. STOOL. PHILIP H. FUHRMANN, Mahanoy City, Pa. Filed Dec. 12, 1891. Serial No. 414,816. (No model.)

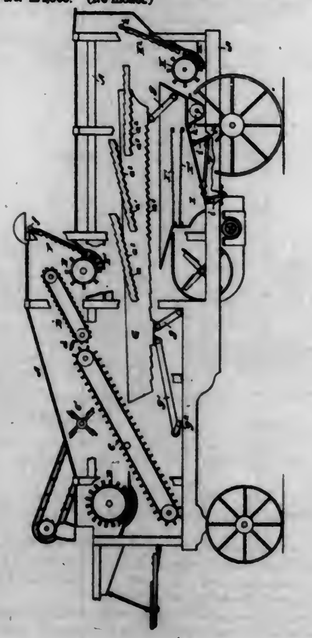


Claim.—1. A seat-frame with plate secured thereto, a rotary screw-stem with cap movable on said plate, a ring secured to said stem and bearing on said plate, and a threaded standard for said stem, said parts being combined substantially as described.

2. A seat-frame having a plate secured thereto with a downwardly-projecting annular rib, a screw-stem having a cap movable on said plate, a ring secured on said stem and having a rib in contact with said rib on the plate, and an interiorly-threaded standard for said stem, said parts being combined substantially as described.

3. A seat-frame having a plate with a downwardly-projecting rib thereon, a screw-stem, and a ring secured to said stem with an upwardly-projecting rib thereon, in combination with a cap connected with the top of said stem and having a depending flange which rests freely on the plate of the seat-frame, and a threaded standard, substantially as described.

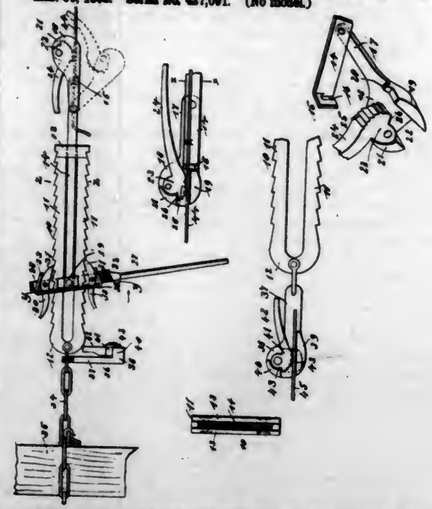
482,554. COMBINED THRASHING-MACHINE AND GRAIN-SEPARATOR. JOSEPH GALLAND, Mansfield, Ohio, assignor to the Aultman & Taylor Machinery Company, same place. Filed Mar. 11, 1892. Serial No. 424,565. (No model.)



Claim.—1. The combination, in a combined thrashing-machine and grain-separator, of the thrashing-cylinder B, the apron C, beater C', raddle D, forwardly-delivering bruising-cylinder E, with its forwardly-inclined feeder-plate F, and the shaker G, extending forwardly under aprons C D and cylinder E and operating substantially as described.

2. The combination of the thrashing-cylinder B, the apron-carrier C, beaters C' and c, raddle D, forwardly-delivering bruising-cylinder E, with its feeder-plate F and the double-decked shaker G, extending forwardly under raddles C D and cylinder E, and bruising-cylinder K, with its feeder-plate K^2, all arranged and operating substantially as and for the purpose described.

482,555. WIRE-STRETCHER. JUDSON N. HATCHER, Montgomery, Mo., assignor to himself and Robert J. Wilson, same place. Filed Mar. 30, 1892. Serial No. 427,091. (No model.)



Claim.—1. A wire-stretcher comprising a double ratchet-bar having parallel members toothed on their outer edges, a draw-bar held to slide in the ratchet-bar and having its outer end bent and notched, a wire-clamp pivoted to the outer end of the ratchet-bar, the clamp having a movable and fixed jaw, the latter of which is provided with a lug to enter the notch of the draw-bar, a lever mounted loosely on the ratchet-bar and pivoted to the draw-bar, spring-pressed pawls pivoted in the lever on opposite sides of the ratchet bar, and a fastening device to secure the ratchet-bar to a support, substantially as described.

2. In a wire-stretcher, the combination, with the draw-bar having a notched end and a lever mechanism for operating the same, of the wire-clamp pivoted on the draw-bar, the clamp having a fixed jaw on one side with a lug to enter the notch of the draw-bar, and a cam-lever pivoted adjacent to the jaw and adapted to impinge thereon, substantially as described.

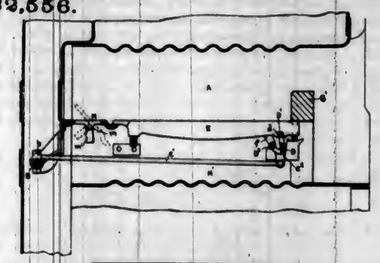
3. In a wire-stretcher, the combination, with the double ratchet-bar having teeth upon its outer edges, the draw-bar held to slide therein, and the recessed lever mounted on the ratchet-bar and pivoted to the draw-bar, of pawls pivoted in the lever on opposite sides of the draw-bar and adapted to engage the teeth of the latter, the said pawls having rearwardly-extending ends which serve as handles, and the spring-rod extending transversely across the ratchet-bar and draw-bar and having its ends bent and held to press upon the pawls, substantially as described.

482,556. GRATE. THOMAS HENDERSON, Liverpool, England. Filed Mar. 13, 1890. Serial No. 343,905. (No model.)

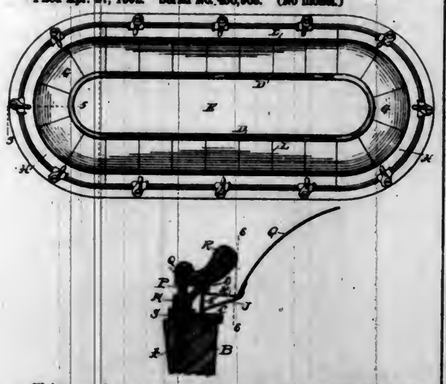
Claim.—1. The combination, with the moving grate-bars of a furnace, of a tilting clinker grate or plate dumping directly into the ash-pit and forming a continuation of the said bars at their ends nearest the furnace-door, said clinker-plate being located adjacent to the latter.

2. The combination, with the movable grate-bars of a furnace, of a tilting clinker grate or plate forming a continuation of said grate-bars and located between them and the furnace-door and adjacent to the latter, said clinker grate or plate having a counter-balance normally holding its surface in the same horizontal plane as the surface of the grate-bars.

482,556.



482,557. METALLIC GASKET. FRANCIS H. HILL, Chicago, Ill. Filed Apr. 27, 1892. Serial No. 430,908. (No model.)



Claim.—1. In a metallic casket, the double clamping device composed of two members, the under member having a hooked side portion capable of hooking over the rim of the top of the casket and the upper member having beveled surfaces to force the lower member firmly down upon the rim of the casket, substantially as described.

2. In a metallic casket, the metallic plate top having slitted ends and continuing sides provided with strengthening-ribs and connected at their edges to a vertical rim I, and the vertical rim I, attached to the top and braced vertically, all substantially as specified.

3. In a metallic casket, the vertical rim I, secured rigidly at its upper edge to the metallic top of the casket and braced thereto at its lower edge to be held securely in a vertical position, the hooked clamping device adapted to hook over the upper edge of the rim of the top, the upper member of the clamping device adapted to clamp the under member vertically upon the vertical rim I, and the rubber gasket C, attached to the body of the casket, substantially as specified.

482,558. DENTAL DRILL. LOUIS MAILLARD, Galt, Canada. Filed Mar. 31, 1892. Serial No. 427,230. (No model.)



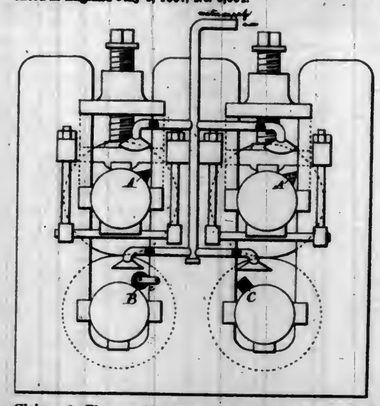
Claim.—A burr-drill having a series of hook-shaped cutting-edges, two of which are joined in the center and another two terminating in points on opposite sides of the first two, and cutting-edges running between the pointed and continued cutting-edges, substantially as described.

482,559. LUBRICATOR. JOSEPH J. MARTIN, Bellevue, and WILLIAM H. BROWNFIELD, Dayton, assignors of one-third to Louis K. Marty, Newport, Ky. Filed Apr. 9, 1892. Serial No. 428,443. (No model.)



Claim.—The within-described specific construction of loose-pulley journal, which construction includes the cylindrical tube A, having a central bore B and at one end a head C, provided with a continuous annual chamber D, and a filling-hole closed by a stopper E, said chamber being furnished with a pair of ports F F', about in line with the outer periphery of said tube, a series of reverse helical grooves G G' being made externally of said tube and a circumferential groove H being formed in it near the end remote from said head C, the grooves G G' being in communication both with said ports F F' and the groove H, all as herein set forth, and for the purpose explained.

482,560. LUBRICATOR. ARTHUR HIRN, Middlesbrough-on-Tees, England. Filed Dec. 7, 1891. Serial No. 414,230. (No model.) Patented in England July 9, 1887, No. 9,661.



Claim.—1. The combination, with a journal-box and journal therein, of a foraminous metallic envelope within the journal-box and in contact with the journal, a solid lubricant inclosed by the envelope, and means for directing a stream of water upon the envelope and the journal, the perforations or interstices in the envelope being of sufficient size to admit of the free passage of the water, whereby it comes into contact with the lubricant and cools it.

2. The combination, with a journal-box and the journal therein, of a loose envelope of perforated sheet metal within the journal-box bearing upon the journal, a solid lubricant inclosed by the envelope, and means for directing a stream of water upon the envelope, its contents, and the journal.

3. The combination, with a journal-box and the journal therein, of an envelope of wire gauze within said journal-box, a solid lubricant inclosed by said envelope, and means for directing a stream of water upon the envelope, its contents, and the journal.

482,561. HEEL. ALLEN R. PARKHOM, Monongahela City, Pa. Filed Apr. 6, 1892. Serial No. 428,029. (No model.)

Claim.—1. A heel for boots or shoes, having a hollow extending below the sole, closed at its bottom and opening at and within the insole, in combination with a rubber plug having its body reduced in thickness between its ends and having an annular convex rim seated upon the insole, whereby it is rendered compressible, substantially as described.

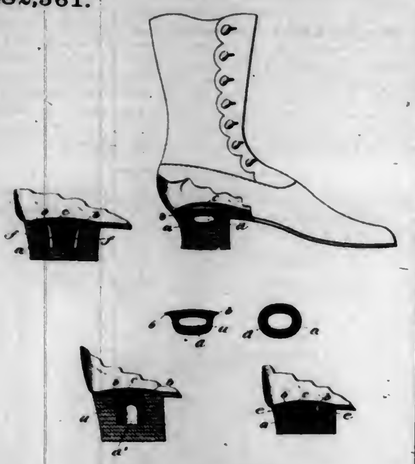
2. A heel for boots or shoes, having an interior hollow extending below its sole, closed at the bottom and opening at and within the insole, in combination with a hollow or chambered rubber plug seated upon the bottom or said heel-hollow and having an annular rim projecting within an opening in the insole, substantially as described.

3. A heel for boots or shoes, having an interior hollow extending below the sole, closed at its bottom and open at and within the insole, in combination with a rubber plug having a closed air-chamber therein, seated upon the bottom of said heel-hollow and having a rim seated within the opening in the insole, substantially as described.

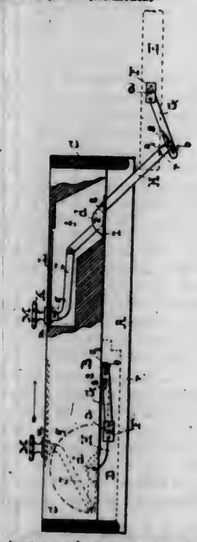
4. As a new article of manufacture, the herein-described cushioned plug for the heels of boots or shoes, consisting of a rubber plug having a closed air-chamber therein and a top rim and adapted for use with a heel having an interior hollow extending below its sole, closed at the bottom and open at the insole, substantially as described.

5. The combination, with the heel of a boot or shoe having an interior hollow, of a rubber plug having a circular top convex bearing-surface seated within an opening in the insole and its body of less diameter seated upon the bottom of said heel-hollow and glued on one or both seats, substantially as described, for the purpose stated.

482,561.



482,562. SHUTTER-WORKER. JAMES S. PATTEN, Baltimore, Md., assignor of three-fourths to Jackson Holland, same place. Filed Oct. 28, 1891. Serial No. 410,144. (No model.)



Claim.—1. In a shutter-worker, the combination of an arm pivoted to the shutter and provided with a slot, a lever having its fulcrum in some stationary part of the sill or sub-sill and loosely connected at one end to the slotted end of the arm, a link hinged to the other end of the said lever, and a handle to move the other extremity of the said link crosswise of the window-frame, substantially as specified.

2. In a shutter-worker, the lever H, having a pin, and the arm G, having a curved notch whereby in the folding of the two parts the pin will enter the notch and lock the two parts, substantially as specified.

482,563. SPINDLE-TIP FOR SPRING SHADE-ROLLERS. JUDSON C. PERKINS and LEWIS R. LEEDS, Meriden, Conn., assignors to the Meriden Curtain Fixture Company, same place. Filed Jan. 13, 1892. Serial No. 417,918. (No model.)

Claim.—1. A spindle-tip for spring-rollers, composed of sheet metal bent and shaped into form, comprising an inner end member substantially cylindrical in contour, a loop-like outer end portion, as specified, and an intermediate enlarged body portion having an opening through it diametrically to permit the engagement with said body portion of the pawl of the roller and to permit the passage of dirt through said opening, all substantially as hereinbefore set forth.

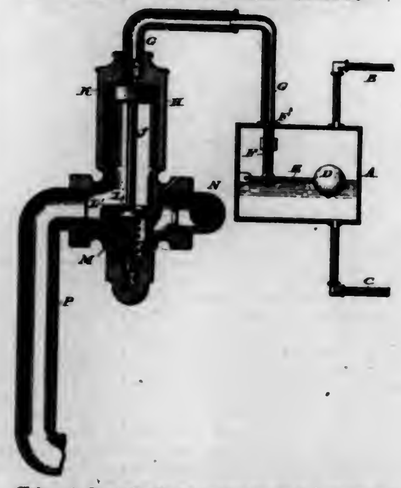
2. A spindle-tip composed of a sheet-metal blank shaped and bent on itself at about its middle lengthwise to form an outer end member adapted to engage with a slotted bracket, an enlarged middle member or portion, as specified, and a hollow inner end portion comprising the end portions of the said blank, all substantially as and for the purposes hereinbefore set forth.



3. The combination, with a spindle-tip composed of a sheet-metal blank shaped and bent on itself at about its middle lengthwise to form an outer end member adapted to engage with a slotted bracket, an enlarged middle member or portion, as specified, and a hollow inner end portion comprising the end portions of the blank, of a washer or confining-collar *k*, all substantially in the manner and for the purposes hereinbefore set forth.

4. A spindle-tip composed of a sheet-metal blank shaped and bent on itself lengthwise to form an outer end member adapted to engage with a slotted bracket, an enlarged middle member or portion, as specified, and a hollow inner end member, all substantially as and for the purposes hereinbefore set forth.

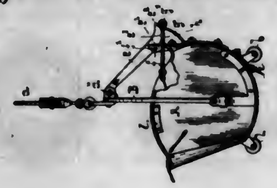
482,564. BOILER-FEED. GEORGE W. SCHILLING, Philadelphia, Pa. Filed Jan. 19, 1892. Serial No. 418,551. (No model.)



Claim.—1. In a boiler-feeder, a valve having the self-closing head L, supply and feed pipes N and P, and a chamber above said head L, said chamber containing the follower K, the latter being adapted to bear against said head and is disconnected therefrom, substantially as described.

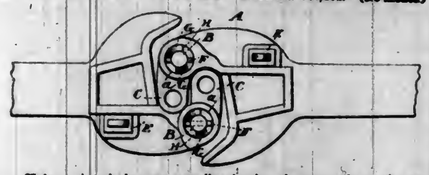
2. A gage having steam and water pipes connected therewith and containing a float and a valve connected therewith, in combination with the valve H and intermediate pipe G, the supply and feed pipes N and P, connected with said valve H and the valve-head L, and follower K in said valve, said follower being adapted to engage with said head L and is disconnected therefrom, substantially as described.

482,565. DEVICE FOR UNLOADING VESSELS, CARS, &c. JOSEPH SOOY, Baltimore, Md. Filed Jan. 23, 1892. Serial No. 419,070. (No model.)



Claim.—A bucket and a bail pivoted thereto and a latch pivoted to the bail, having a notch *f* and a curved surface e^3, combined with a roller attached to the bucket for engagement with said notch, and a plate-spring, also secured to the bucket, adapted to be pulled toward the same and having a cylindrical surface to act upon the curved surface of the latch to lift said latch and release the bucket and allow it to tilt, substantially as set forth.

482,566. CAR-COUPLING. CLAYTON WEEKS and JOHN E. BUSH, Hobart, N. Y. Filed Mar. 30, 1892. Serial No. 427,102. (No model.)



Claim.—A twin-jaw car-coupling having the cross-pin on the upper end of the hook-jaw pintle and the reverse inclines in the upper hinge-eye thereof, as and for the purpose set forth.

482,567. CIGARETTE-MACHINE. VICTOR H. BARBOUR, Washington, D. C. Filed May 13, 1892. Serial No. 432,830. (No model.)

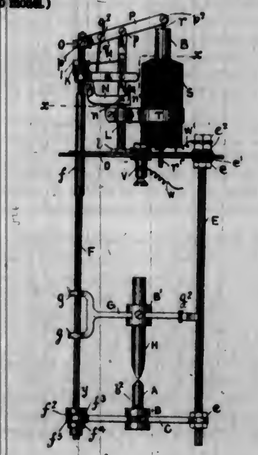


Claim.—1. A group of rolling devices comprising a series of rollers, frames at each end, in which they are mounted, and a shield, stop, or guide at each end of the group to prevent the wrapper from passing through the group between two contiguous rollers, substantially as set forth.

2. A group of rolling devices comprising an uneven number of rollers, frames in which they are supported hinged in the axial line of one of the rollers, and curved stops, shields, or guides secured to each frame for preventing a wrapper from passing through the group of rollers between contiguous rollers at the rear of the group.

3. A group of rolling devices comprising a series of rollers, frames at each end in which they are mounted, and a shield, stop, or guide at each end of the group to prevent the wrapper from passing through the group between contiguous rollers, the distance between the frames being equal to the length of the cigarette to be formed, and the arrangement being such that the filler, which is at first shorter than the completed cigarette, is spread longitudinally against the end frames, whereby smooth-finished ends are given to the cigarette by the rolling devices.

482,568. ELECTRIC-ARC LAMP. HUBERT H. BISLAND and JOHN BURNS, Newcastle-on-Tyne, England. Filed Apr. 20, 1892. Serial No. 429,859. (No model.)



Claim.—1. An arc lamp having a twist-rod, a movable carbon-holder controlled thereby, means for lifting said twist-rod and holder simultaneously, and means for imparting a rotary motion to the twist-rod at a determinate point of its lift, as and for the purpose set forth.

2. An arc lamp having a twist-rod, a movable carbon-holder supported thereon by fixed threads engaging the thread on the twist-rod, means for lifting the twist-rod and holder simultaneously, and means for imparting to the twist-rod a rotary motion at a determinate point of its lift, whereby the pitch of the threads will offset the rise in the twist-rod and keep the carbon-holder in a stationary position.

3. A feed mechanism for arc lamps, comprising a twist-rod having a loose nut and carbon-holder threaded thereon, means for lifting the twist-rod, carbon-holder, and nut simultaneously, and means for retarding and holding the nut at a determinate point in the lift, thereby rotating the twist-rod in a direction opposing the further rise of the carbon-holder.

4. A feed mechanism for arc lamps, comprising a twist-rod, a loose nut and a carbon-holder threaded thereon, an electro-maguet, and connections between the electro-magnet and twist-rod, whereby the latter is raised against the force of gravity, and means for jamming the nut at a determinate point in the lift of the rod, thereby compelling the twist-rod to rotate in the nut and carbon-holder on its further lift and preventing the further rise of the carbon-holder.

5. The combination of the solenoid S, core R, lever P, twist-rod F, upper-carbon-supporting cross-bar G and loose nut K upon the twist-rod, and means whereby when the current is passed through the solenoid S the nut K shall first rise freely with the twist-rod F and there be jammed, whereby the twist-rod F first rises without turning, lifting the carbon-holder and striking the arc, and then rises and turns in the nut K and also in the holder G, leaving said holder stationary after the twist-rod turns.

6. The combination of the solenoid S, the core R, the oscillating lever P, the pivots *p*, the bobbin O, the twist-rod F, and cross-bar G, substantially as and for the purposes described.

7. The combination of the lever P, twist-rod F, friction-plate I, nut K, suspension-rod q', plate Q, and support N, substantially as and for the purposes described.

8. The combination of the lever P, movable plate Q, suspended therefrom, nut K, twist-rod F, support N, friction-plate I, and springs M, substantially as described.

9. The combination of the lever P, carrying the arc-striking mechanism, suspension-rod q', plate Q, and sliding bearing q^2, substantially as described.

10. The regulated support N, pivoted at *n* and having a regulated screw n', and plate I, arrested by said support, substantially as and for the purposes described.

11. The combination of the friction-plate I, a device M for pressing the same down, support N, lever P, core R, and solenoid S, in combination with the plate Q, rod q', arresting device q^3 and q^4, nut K, and twist-rod F, whereby as the weight of the twist-rod F and its appurtenances draws the core R up the nut K shall be relieved from the pressure friction-bar a trifle before the plate Q strikes the bottom of slot q^4 and arrests the downward course of F and its appurtenances by jamming.

12. The combination of the solenoid S, supported upon standard L by clamp-plate T, core R, oscillating lever P, pivot p^2, with the plate D, and the guide r', whereby the core is kept nearly central in the solenoid S, for the purposes described.

13. The combination of the carbon-carrier B, the supporting-plate C, passing through a slot in the holder B the carbon A, passing through a hole in plate C and in holder B, and the set-screw *b*, whereby the carbon A is tightly held on one side by the holder B and on the other side by the plate C.

14. The combination of the plate C, carbon-holder B, and set-screw *b*, substantially as described.

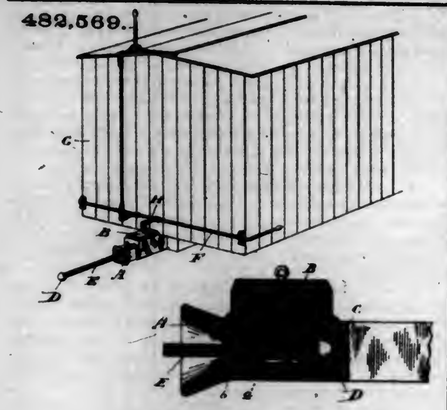
15. The combination of the twist-rod F, loosely-fitting metallic sleeve f^2, washer and sleeve f^3, and washer f^3, and the nut f^4, whereby the twist-rod F has a bearing in plate C, while free to rise up and down, and is entirely insulated from the plate C.

16. The combination of the carbons A and H with holder B', carried on cross-piece G, supported on a twist-rod F, said twist-rod F being capable of both a twisting motion in its nuts *g* and of a vertical rise-and-fall motion in the mechanism for adjusting the position of the carbon in an arc lamp.

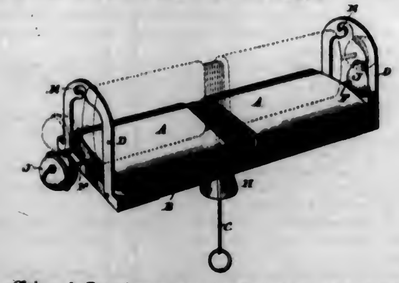
482,569. CAR-COUPLING. JOSEPH H. COLEMAN, Tottenham, Canada. Filed Mar. 7, 1892. Serial No. 424,054. (No model.) Patented in Canada Apr. 4, 1892, No. 38,627.

Claim.—The draw-head A, having recesses *a* and a socket C made in it, in front of which is placed a movable block B, with a hole *b* made through it, in combination with a link E, having the head D formed on it, substantially as and for the purpose specified.

482,569.



482,570. CLAPPER. FRANCISCO R. DE RITEROS, Philadelphia, Pa. Filed Nov. 9, 1891. Serial No. 411,341. (No model.)



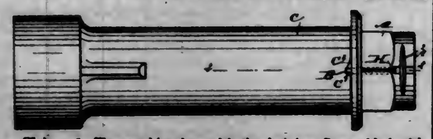
Claim.—1. Two clappers, one placed above the other, in combination with a cord which is connected with one of the clappers so as to rotate the same on the other clapper, said cord passing through the lower clapper, substantially as described.

2. A pair of clappers, one of which has slotted standards and the other of which is rotatable, having journals supported in said standard and an operating-cord, substantially as described.

3. The clapper B, provided with supports D, having open slots E, the rotatable clapper A, having journals F, and an operating-cord C, which is connected with the rotatable clapper and guided in the other clapper, said parts being combined substantially as described.

4. Two clappers, one of which is provided with standards, each having open slots at its upper end, the other clapper having journals adapted to be inserted in said slots, a cord wound around said last-mentioned clapper and passing through an opening in the other one, and a handle on said first clapper, said parts being combined substantially as described.

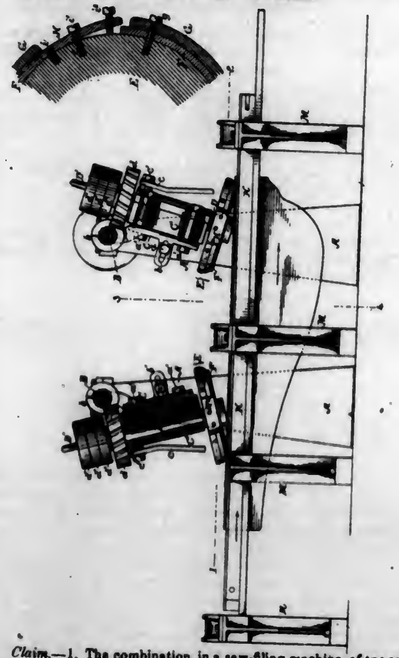
482,571. HUB-ATTACHING DEVICE. MICHAEL F. DEHEBRER, Brooklyn, N. Y. Filed May 20, 1892. Serial No. 433,676. (No model.)



Claim.—1. The combination, with the hub-box C, provided with a notch C' in its outer end, of the nut screwing into the outer end of the box and provided with a spring-pressed locking-pin B, projecting at its inner end through its flange or shoulder into said notch and having an operating finger-piece to retract it, substantially as set forth.

2. A nut A for hub-boxes, having a threaded inner end, an annular external flange or shoulder, a squared portion outside of the flange, a longitudinal bore A', extending through the flange and the said squared portion, a transverse recess A^3 in the outer side of the nut beyond the outer end of the bore A', and the spring-pressed bolt extending through the said bore with its end B projecting beyond the inner face of the flange and its outer end extending outward at right angles and adapted to enter the transverse recess and hold the bolt retracted, substantially as set forth.

482,572. SAW-FILING MACHINE. THOMAS S. DIXSTON, Philadelphia, Pa., assignor to Henry Disston & Sons, Incorporated, same place. Filed Dec. 7, 1891. Serial No. 414,268. (No model.)



Claim.—1. The combination, in a saw-filing machine, of the saw-carrier, a filing-disk, an inclined shaft carrying the same, a file mounted on said disk and having its cutting-face projecting from the lower side of the disk, with mechanism for rotating said shaft, substantially as specified.

2. The combination, in a saw-filing machine, of the saw-carrier, the file-disk, an inclined shaft carrying the same, a file carried by said disk, having its cutting-face projecting from the lower side of said disk, the axis of said saw-filing disk being in a different vertical plane from that assumed by the teeth of the saw being acted upon, with mechanism for driving said shaft, substantially as specified.

3. The combination of the inclined shaft D, the filing-disk, files carried thereby and projecting from the lower side of the disk, the saw-guides, and feeding-plates on said disk for moving the saw into line with the files, substantially as specified.

4. The combination, in a saw-filing machine, of the disk with semicircular files clamped thereto and having cutting-teeth upon their opposite faces, whereby said files may be reversed when worn, substantially as specified.

5. The combination, in a saw-filing machine, of a semicircular file having two cutting-faces inclined toward a common edge and adapted to act respectively on the front and back of the saw-teeth, the number of cutting-teeth on that face of the file acting on the front of the saw-tooth being greater than the number of cutting-teeth on that face of the file acting on the back of the saw teeth, substantially as specified.

6. The combination of the saw-guides, the file-carrying disk, the semicircular files carried by said disk and having cutting-faces projecting from one side of the disk, with feed-plates in front of said files, and devices for adjusting one end of said feed-plates from and toward the periphery of the file-carrying disk, substantially as specified.

7. The combination, in a saw-filing machine, of the carrier for the saw, a bearing, a shaft adapted to said bearing, a filing-disk carried by said shaft, with weights on the shaft, said shaft having sufficient vertical play to allow for the wearing away of the file and the adjustment of the saw in its carrier, substantially as specified.

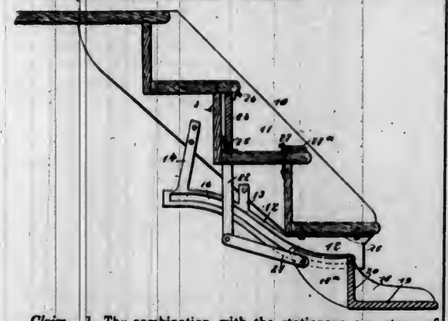
8. The combination of the frame, a driving-shaft adapted to bearings therein, a frame C, hung to said shaft and adjustable with relation to the framework, a block C', carried by the frame C, a shaft adapted to said block, a worm-wheel therein adapted to engage with a worm on the driving-shaft, a filing-disk carried by said shaft, and a saw-guide for holding the saw being acted upon, substantially as specified.

9. The combination of the adjustable bearing-block C', the shaft D, a filing-disk carried thereby, the saw-guide, and devices for effecting the vertical adjustment of said shaft, substantially as specified.

10. The combination of the adjustable block C', the shaft D, the filing-disk carried thereby, the saw-guides, a worm-wheel D, mounted on said shaft, a worm engaging therewith, and a cam-lever fulcrumed to said block C' and adapted to act upon the side of the worm-wheel *d*, substantially as specified.

11. The combination of the frame, the shaft B, adapted to bearings therein, an adjustable frame C, hung upon said shaft, slotted extensions *b'* on said frame, adjusting and clamping screws *a*, a block C', adjustably secured in said block C, a shaft D, a filing-disk carried thereby, the saw-guides, a worm-wheel carried by said shaft D, and a worm carried by the shaft B and adapted to engage with said worm-wheel, substantially as specified.

482,573. MOVABLE STEP. FRANK FORSTER, Miwanda, Cal. Filed Jan. 2, 1892. Serial No. 416,835. (No model.)



Claim.—1. The combination, with the stationary car-steps, of curved slotted brackets secured to the under side of the steps, a movable step held to slide in the brackets, and a fastening device to secure the step, substantially as described.

2. The combination, with the stationary car-steps, of curved slotted brackets secured to the side pieces of the steps on the under side of the latter, a movable step having studs held to slide in the brackets, and a fastening device to secure the step, substantially as described.

3. The combination, with the car-steps, of curved brackets secured to the under side of the steps, a movable step held to slide in the said brackets, and a plate pivoted on the steps and pivotally connected with the movable step, substantially as described.

4. The combination, with the stationary car-steps, of slotted brackets secured to the side pieces of the steps on the under side of the latter, a movable step having studs held to slide in the brackets, levers pivotally connected with the steps and extending upward through the stationary steps, said levers being connected by a cross-plate at the top, and fastening devices to hold the plate in a raised or lowered position, substantially as described.

5. The combination, with the stationary car-steps, of slotted brackets secured to the side pieces of the steps on the under side of the latter, a movable step having stops adapted to slide in the brackets, swinging levers extending upward through the stationary steps, said levers being connected at the top by a cross-plate and connected at their lower ends with the movable step by means of connecting-rods, and spring-catches adapted to hold the cross-plate in a raised or lowered position, substantially as described.

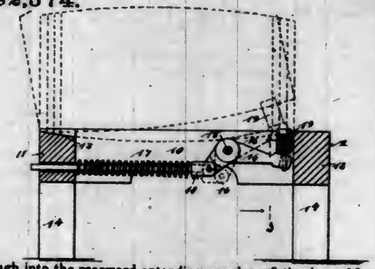
482,574. TILTING DEVICE FOR BARRELS OR CASKS. WILLIAM FULLARD, Brooklyn, N. Y. Filed Feb. 15, 1892. Serial No. 421,565. (No model.)

Claim.—1. The combination, with a barrel rack or stand A, of the transverse shaft 15, a bell-crank lever 16 thereon, a longitudinally-sliding rod 18, extending through an aperture in the front end of the rack and pivoted to the downward-projecting member of said lever, a spring 17 on the rod and pressing it inward to raise the rearward-extending member of the lever, and a transverse pillow block 19, carried by the said rearward-extending member, substantially as set forth.

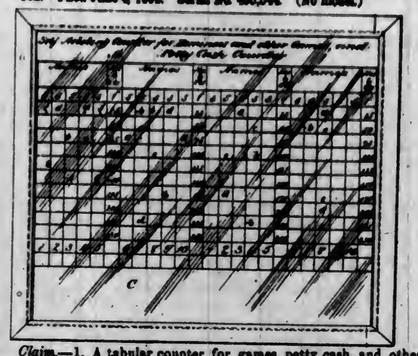
2. The combination, with the barrel rack or stand A, of the transverse shaft 15, a bell-crank lever 16 thereon, a tilting pillow-block 19, having central downward-flaring aperture, a pivot extending therethrough into the rearward-extending member of the lever 16, a longitudinally-sliding rod 18, mounted on the rack and pivoted at its rear end to the depending member of the lever 16, and the spring 17 on the rod and pressing it toward lever 16, substantially as set forth.

3. The combination, with the rack or stand, of a transverse centrally-pivoted vertically and transversely tilting pillow-block and a spring mechanism for forcing the pillow-block upward, substantially as set forth.

482,574.



482,575. GAME-COUNTER. WILLIAM R. HERBERT, Galveston, Tex. Filed June 4, 1892. Serial No. 435,544. (No model.)



Claim.—1. A tabular counter for games, petty cash, and other purposes, consisting of a card, slate, or tablet ruled on its face to form a series of horizontal rows of marking or counting squares, one row below the other and each containing a given number of such squares, and further provided with a perpendicular column arranged by the side of such series of horizontal rows and numbered to form multiples in successive order of and opposite the aggregate counts or marks made in the marking-squares, substantially as herein described.

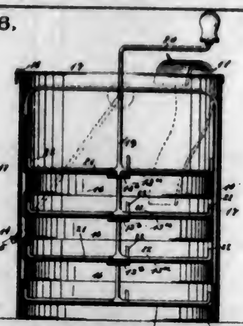
2. A tabular counter in which five is the multiple, consisting of a card, slate, or tablet A, having ruled perpendicular and horizontal lines *b c*, forming horizontal rows of marking or counting squares *d*, one row below the other and each row containing five of such squares, also ruled to form a perpendicular column *f* by the side of each series of horizontal rows of said marking-squares, numbered successively in a downwardly direction opposite the rows of marking-squares with increasing numbers, commencing with twenty-five at top and increasing by twenty-five additional each succeeding row of horizontal squares, essentially as and for the purpose or purposes herein set forth.

3. In a tabular counter in which five is the multiple, made up of two or more series of horizontal rows of five marking-squares each, with a perpendicular column by the side of each of said series, numbered consecutively with increasing numbers, commencing with twenty-five and increasing by twenty-five additional each succeeding row of horizontal squares, the arrangement below each two series of the horizontal rows of marking-squares of a row of figures increasing from one to ten, substantially as and for the purposes specified.

482,576. FLOUR-SIFTER. IDA M. INGRAM, Sedalia, Mo. Filed Jan. 26, 1892. Serial No. 419,276. (No model.)

Claim.—1. A flour-sifter comprising a cylindrical body provided with a sieve in its bottom, a series of connected spaced sieves passed downward into the body and removable collectively therefrom, and a central shaft extending down through the connected sieves and provided with an agitator for each one of the connected sieves and having an agitator on its lower end for the body-sieve, substantially as set forth.

482,576.



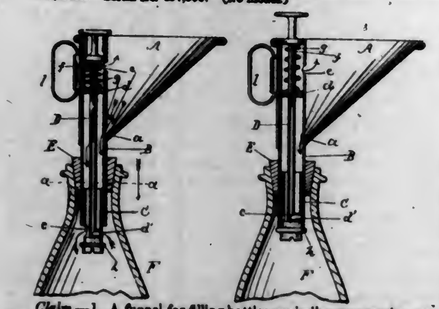
2. The combination, with the sifter-body, of a plurality of sieves arranged one above another within the body, a bail connecting the several sieves and extending to a point adjacent to the body-top, and a revoluble shaft mounted within the body and carrying projecting arms which move above the sieves, substantially as described.

3. The combination of the sifter-body, the removable sieves having a supporting-bail, and a hook secured to the bail and adapted to engage the body-top, substantially as described.

482,577. COMPOSITION OF MATTER FOR THE EXTRACTION OF GOLD AND SILVER FROM ORES. EDWARD D. KENDALL, Brooklyn, N. Y. Filed May 27, 1892. Serial No. 434,528. (No specimens.)

Claim.—The before-described composition of matter, to be used for extracting gold and silver from minerals, tailings, and other matters containing one or both of these metals, consisting of water, one or more soluble ferri-cyanides, and one or more soluble cyanides, prepared and combined as herein stated.

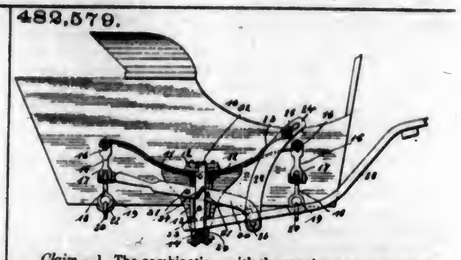
482,578. FUNNEL. KARL KIEFER, Cincinnati, Ohio. Filed June 20, 1892. Serial No. 437,355. (No model.)



Claim.—1. A funnel for filling bottles or similar receptacles, consisting of a section of a cone having a straight back, to which is attached, vertically, tube B, having orifice *a* opening into and communicating with the lower end of the funnel, said tube provided with valve-pipe D, extending the full length thereof, and the disk *d*, having orifice in which said pipe is movable, said orificed disk being permanently adjusted near the upper end of tube B, the pipe D, carrying at its lower extremity valve A, and the open-ended cup C above said valve, integral with said pipe and surrounding it concentrically, having eduction-orifice *c*, all in combination with hollow stem of the valve-pipe, having open-ended branch *d'* and upper aperture *f*, as and for the purpose intended, substantially as described.

2. In a funnel having its body formed of a section of a cone and flat back *w*, vertical tube B, hollow pipe D within the tube, adjusted to move reciprocatingly in vertical directions within said tube, the pipe D, having at its lower end valve A and at its opposite end push-button *h*, spiral spring *g* under the push-button, bearing upwardly against the under surface of said push-button, orificed disk *d*, horizontally adjusted within tube B at the opposite end of the spring, all in combination with lower air-inlet *d'* and upper air-outlet *f*, and valve-cup C, integral with and surrounding the lower end of pipe D, concentric therewith and movable vertically within tube B, substantially as described.

482,579. ROAD-CART. JESSE KIRKALL, New Madrid, Mo. Filed May 10, 1892. Serial No. 432,496. (No model.)

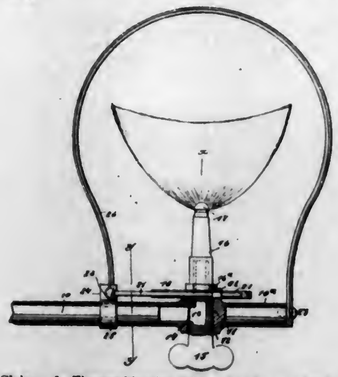


Claim.—1. The combination, with the running-gear and the box freely suspended thereon, of a shaft journaled beneath the box and carried by the running-gear, crank arms secured to the shaft and connected with the box, and a lever mechanism for turning and adjusting the crank-shaft, substantially as described.

2. The combination, with the running-gear and the box suspended from springs carried by the running-gear, of a shaft journaled beneath the box, crank-arms secured to the shaft and connected with the box-springs, a lever secured to the shaft, and a fastening device to fix the position of the lever, substantially as described.

3. A road-cart comprising the axle, the shafts secured thereto and having a transverse rock-shaft having upwardly-projecting arms slotted at their upper ends and provided with an adjustable operating-lever, the longitudinally-extending springs secured at their middle portions to the axle and having extensions 23 secured to the slotted ends of the said arms, and links supporting the body from the ends of said springs, substantially as set forth.

482,580. GAS-BURNER ATTACHMENT. GEORGE LE VESCONTE, Minneapolis, Minn. Filed Dec. 11, 1891. Serial No. 414,722. (No model.)



Claim.—1. The combination, with a gas-pipe provided with a vertical key and a burner carried by the upper end of the key, of the metallic band secured fixedly at one end to the gas-pipe and curved upward over the burner and downward and operating connections between the lower end of the band and the said key, substantially as set forth.

2. The combination, with the gas-pipe having a burner-controlling revoluble valve mounted therein, of a slide mounted on the gas-pipe, a metallic band extending above the burner, said band having one end fixed to the pipe and the other pivoted to the slide, and a ratchet connection between the slide and valve, whereby the latter will be operated by the movement of the slide, substantially as described.

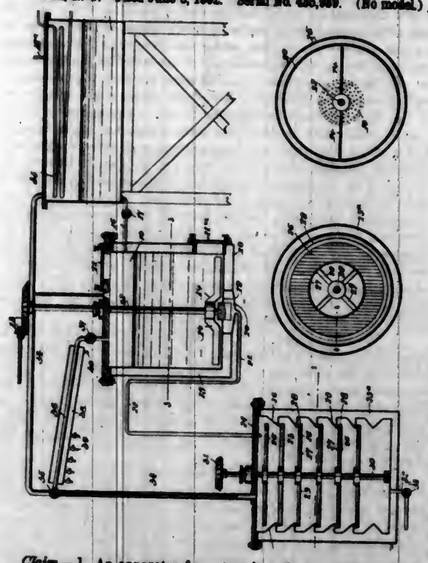
3. The combination, with the gas-pipe having a revoluble burner-controlling valve mounted therein, of a slide mounted upon the pipe, a band formed of layers of dissimilar metals, having one end secured to the pipe and the other end pivoted to the slide, and a ratchet mechanism connecting the slide and valve and adapted to operate the latter, substantially as described.

4. The combination, with the gas-pipe and the revoluble burner-controlling valve mounted therein, of a slide mounted on the gas-pipe, a ratchet secured to the valve, a toothed spring-pawl secured to the slide and adapted to engage the ratchet-teeth, and a composite metallic band having one end secured to the gas-pipe and the opposite end pivoted to the slide, the said band being arranged adjacent to the burner, substantially as set forth.

5. The combination, with the gas-pipe and the revoluble hollow

valve mounted transversely therein, said valve having a port adapted to register with the bore of the gas-pipe and carrying the gas-burner, of a ratchet-disk secured to the valve, a slide mounted on the gas-pipe and carrying a toothed spring-pawl adapted to engage the ratchet-disk, and an arched band of dissimilar metals having one end secured to a prolongation of the gas-pipe and the opposite end pivoted to the slide, the said band extending above the gas-burner, substantially as described.

482,581. OIL-EXTRACTING APPARATUS. CHARLES MANN, New York, N. Y. Filed June 8, 1892. Serial No. 436,089. (No model.)



Claim.—1. An apparatus for extracting oils, comprising a steam-jacketed extracting-tank provided with a strainer in its bottom and a rotary stirrer, a steam-jacketed evaporator in a lower plane than the extractor, a pipe connecting the bottom of the extractor with the top of the evaporator, a centrifugal spraying mechanism in the said evaporator, and a vapor-pipe leading from the top of the evaporator into the top of the extractor, whereby the vaporized extracting fluid will be conducted back to the extractor, substantially as set forth.

2. An apparatus for extracting oils, comprising a steam-jacketed extracting-tank provided with a stirring mechanism and a strainer in its bottom, a tank for the extracting fluid provided with a pipe leading into the extractor, a centrifugal steam-jacketed evaporator, a pipe leading from the extractor below its strainer into the upper end of the evaporator, a vapor-pipe leading from the upper end of the evaporator back to the extracting-fluid tank and having a branch pipe leading into the top of the extractor, and valves and cooling devices for said vapor-pipes, substantially as set forth.

3. In an apparatus of the character described, the evaporator comprising a steam-jacketed tank provided in its top with an inlet for the oil and extracting fluid, a centrifugal spraying mechanism in the tank receiving the oil and fluid and spraying it against the heated walls of the tank to vaporize the fluid, a vapor-outlet in the top of the tank, and an oil-outlet in its bottom.

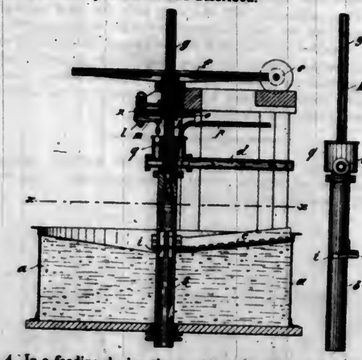
4. In an apparatus of the character described, the evaporator comprising a steam-jacketed tank, the inner wall of which is formed with a series of inwardly-projecting annular ledges 25, a series of horizontal peripherally-perforated sprayers, one projecting under each ledge to receive the oil therefrom and discharge it against the ledge next below, a supply pipe for the oil and fluid discharging upon the top sprayer, a vapor-outlet in the top of the tank, and an oil-outlet in its bottom.

482,582. FEEDING DEVICE FOR ORE-WASHING MACHINES. CARL A. B. MEINECKE, Clausthal, Germany. Filed Oct. 27, 1890. Serial No. 369,470. (No model.) Patented in Germany Aug. 4, 1886, No. 36,067, and in Austria-Hungary Nov. 15, 1886, No. 40,067 and No. 14,179.

Claim.—1. In a feeding device, the combination, with a knife adapted to cut a thin layer of material under treatment, of a watering device moving with the said knife and adapted to dissolve and wash off the cut material, substantially as shown and described.

2. In a feeding device, the combination, with a hollow shaft mounted to turn and to slide and provided with inlet-openings, of a knife secured on the said hollow shaft and adapted to cut a thin layer from the surface of the material, the cut material being free to pass through the said openings into the hollow shaft, substantially as shown and described.

3. In a feeding device, the combination, with a hollow shaft mounted to turn and to slide and provided with inlet-openings, of a knife secured on the said hollow shaft and adapted to cut a thin layer from the surface of the material, the cut material being free to pass through the said openings into the hollow shaft, and a perforated water-pipe arranged above the said knife and mounted to turn with same, substantially as shown and described.

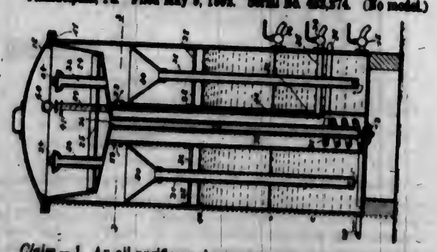


4. In a feeding device, the combination, with a hollow shaft provided with side openings and a screw-shaft secured centrally to the said hollow shaft, of a knife secured on the said hollow shaft and adapted to cut into the material, the cut parts of which are adapted to pass through the openings into the said hollow shaft, a nut engaging the said screw-shaft, and a worm-wheel feathered on the said screw-shaft and adapted to be rotated, substantially as shown and described.

5. In a feeding device, the combination, with a hollow shaft provided with side openings and a screw-shaft secured centrally to the said hollow shaft, of a knife secured on the said hollow shaft and adapted to cut into the material, the cut parts of which are adapted to pass through the openings into the said hollow shaft, a nut engaging the said screw-shaft, a worm-wheel feathered on the said screw-shaft and adapted to be rotated, and means, substantially as described, for locking the said nut in a fixed position and for rotating the same, substantially as shown and described.

6. In a feeding device, the combination, with a hollow shaft provided with side openings and a screw-shaft secured centrally to the said hollow shaft, of a knife secured on the said hollow shaft and adapted to cut into the material, the cut parts of which are adapted to pass through the openings into the said hollow shaft, a nut engaging the said screw-shaft, a worm-wheel feathered on the said screw-shaft and adapted to be rotated, a water-receptacle held on the upper end of the said hollow shaft and connected with the water-supply, and a perforated pipe extending from the said receptacle and arranged in line with and above the said knife, so as to discharge water upon the cut material to dissolve the same and wash it to the openings in the hollow shaft, substantially as shown and described.

482,588. OIL PURIFIER AND RESERVOIR. RUDOLPH MOSS, Philadelphia, Pa. Filed May 9, 1892. Serial No. 432,274. (No model.)



Claim.—1. An oil purifier and reservoir comprising a main tank having a water inlet and outlet in its lower portion, a central well having outlets near the top, a hopper held above the well and having an

outlet-tube extending downward into the well, a steam-coil arranged in the lower portion of the well, and hoppers arranged beneath the well-outlets and having delivery-tubes extending into the lower portion of the tank, substantially as shown and described.

2. An oil purifier and reservoir comprising a main tank having suitable water inlets and outlets in its lower portion, a central vertical well having a steam-coil in its bottom, a hopper held above the well and having an outlet-tube extending into the lower portion of the well, and the pipes 33, arranged vertically within the hopper, their open upper ends being below the top of the hopper and their lower ends opening through the bottom of the same, whereby the pipes are adapted to receive oil from the upper part of the well and deliver it through

spindles are of less diameter than the diameter of the bridge-apertures and of greater length than the thickness of the bridges and which balance-staff is at the inner terminus of said surfaces or spindles provided with shoulders the diameters of which are greater than the diameter of the bridge-apertures that surround said spindles adjoined to said shoulders between said shoulders and said pivots, of bridges provided with essentially-aligning apertures, which apertures are of slightly-greater diameter than the diameter of said spindles and the thickness of which bridges is slightly less than the length of said spindles, as and for the purpose set forth.

2 The combination, with the ends of the balance-staff of a watch

having therein two sets or series of holes corresponding to similar holes in the walls of the furnace, one set of holes being above the other set and fitted with metallic sockets holding stationary electrodes, in combination with adjustable rods of metal or carbon fitted in the lower set of holes for the purpose of striking the arc when commencing to work the furnace, substantially as hereinbefore described.

482,587. LIGHTING DEVICE. BRADFORD H. PENDLETON, Evanston, Ill. Filed Nov. 19, 1891. Serial No. 412,407. (No model.)

vertical arms or brackets, of a shaft having its bearings in the upper end of said arms, a wire reel mounted upon said shaft, and a guide and bracket pivoted upon the ends of said shaft and straddling the reel and provided with a guide eye or slot, the upper ends of the arms of the reel-carriage being provided with recesses forming shoulders to limit the vertical play of the tension-bracket, substantially as described.

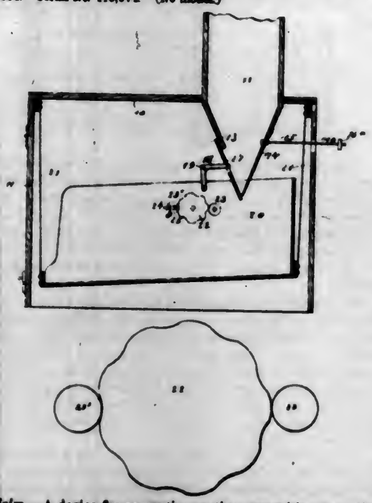
2. The combination, with the bed-plate provided with the guide-channel, as described, of the reel-carriage provided with vertical brackets supporting the reel-shaft and having at their upper ends recesses or stops to limit the motion of the take-up yoke, and the take-up yoke

outlet-tube extending downward into the well, a steam-coil arranged in the lower portion of the well, and hoppers arranged beneath the well-outlets and having delivery-tubes extending into the lower portion of the tank, substantially as shown and described.

2. An oil purifier and reservoir comprising a main tank having suitable water inlets and outlets in its lower portion, a central vertical well having a steam-coil in its bottom, a hopper held above the well and having an outlet-tube extending into the lower portion of the well, and the pipes 33, arranged vertically within the hopper, their open upper ends being below the top of the hopper and their lower ends opening through the bottom of the same, whereby the pipes are adapted to receive oil from the upper part of the well and deliver it through the bottom of the hopper into the main tank, substantially as described.

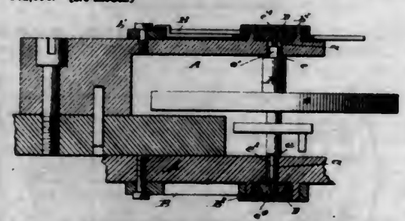
3. The combination, with the main tank, the inner well having outlets near the top, and the hopper arranged above the well and adapted to deliver into the lower portion thereof, of the second set of hoppers arranged beneath the main hopper and adapted to deliver into the bottom portion of the well and pipes extending vertically through the main hopper and adapted to deliver into the second set of hoppers, substantially as described.

482,584. DEVICE FOR CONVERTING MOTION. GEORGE E. MORRISON and WILLIAM A. DYE, Jr., Edgerton, Kans. Filed Nov. 5, 1891. Serial No. 410,974. (No model.)



Claim.—A device for converting motion, comprising a revoluble cam-wheel and rollers journaled on a movable body and arranged on opposite sides of the cam-wheel so as to press against the same, one of the rollers having a sliding bearing, and means, as the spring 20, for holding it against the cam-wheel, substantially as described.

482,585. BEARING FOR BALANCE-STAFFS OF TIMEPIECES. GEORGE NEWTON, New York, N. Y. Filed Nov. 29, 1890. Serial No. 373,006. (No model.)



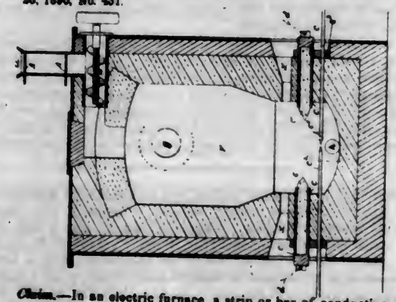
Claim.—1. The combination, with the ends of the balance-staff of a watch or of a chronometer, which balance staff is provided with a pivot at each of its extremities journaled in jewels, stones, or bearings set in the free ends of reciprocating springs, the other ends of which springs are made fast to any desirable part of the watch or of the chronometer and having a surface or spindle upon the ends of said balance-staff adjoining and at the inner ends of said pivots, which spindles are of less diameter than the diameter of the bridge-apertures and of greater length than the thickness of the bridges and which balance-staff is at the inner terminus of said surfaces or spindles provided with shoulders the diameters of which are greater than the diameter of the bridge-apertures that surround said spindles adjoined to said shoulders between said shoulders and said pivots, of bridges provided with essentially-aligning apertures, which apertures are of slightly-greater diameter than the diameter of said spindles and the thickness of which bridges is slightly less than the length of said spindles, as and for the purpose set forth.

2. The combination, with the ends of the balance-staff of a watch or of a chronometer, which balance-staff is provided with a pivot at each of its extremities journaled in jewels, stones, or bearings set in the free ends of reciprocating springs, the other ends of which springs are made fast to any desirable part of the watch or the chronometer and having a surface or spindle upon the ends of said balance-staff adjoining and at the inner end of said pivots, which spindles are of less diameter than the diameter of the ridge-apertures and of greater length than the thickness of the bridges and which balance-staff is at the inner terminus of said surfaces or spindles provided with shoulders, the diameters of which shoulders are greater than the diameters of the bridge-apertures that surround said spindles adjoined to said shoulders between said shoulders and said pivots, of flanges surrounding the jewel-beds, bridges provided with essentially-aligning apertures, which apertures are of slightly-greater diameter than the diameter of said spindles and the thickness of which bridges is slightly less than the length of said spindles, the distance between the surfaces of said spindles and the inner surfaces of said apertures being practically equal to the distance between the jewel-beds and the inner surfaces of said flanges, substantially as described.

3. The combination, with the balance-bridge provided with an aperture to receive a balance-staff, a spring mounted upon the bridge containing the jewel-bed, and a flange surrounding the bed, of a balance-staff passing through the pivot aperture in the bridge into the jewel of the bed, the space intervening the staff and the walls of the bridge-aperture being essentially the same as the distance intervening the periphery of the jewel-bed and the inner face of the flange, substantially as described.

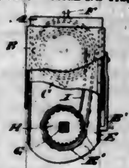
4. The combination, with the balance staff of a watch or chronometer, provided with a pivot at each of its ends and a reduced portion (surface or spindle) between each of said pivots and the main body of said staff, and a shoulder on each end of said staff at the inner termini of said spindles, of a bridge at each end of said staff, each of which bridges is provided with an aperture through which one of said spindles passes, each of which apertures has a diameter sufficiently larger than said spindle, which passes through it, to permit said spindle to turn freely without touching the surface of said aperture unless when subjected to a severe strain and then to come in contact therewith, the inner surface of each of said bridges being sufficiently near to each of said shoulders at each of the extremities of the main body of said staff to come in contact therewith when said staff may receive a severe end-thrust, otherwise to permit said staff to run freely and without coming in contact with either of said bridges and the distance between the surface of each of said spindles and the surface of each of said apertures being practically equal to the distance between the periphery or edge of each of said jewel-beds and the inner surface of the flange or elevation which surrounds or nearly circumvents it, substantially as set forth.

482,586. ELECTRICAL FURNACE. THOMAS PARKER, Newbridge, England, assignor to the Electric Construction Corporation, Limited, same place. Filed July 5, 1890. Serial No. 357,826. (No model.) Patented in England Oct. 29, 1889, No. 17,060; in France June 23, 1890, No. 206,566; in Germany June 27, 1890, No. 55,700, and in Italy Oct. 23, 1890, No. 431.



Claim.—In an electric furnace, a strip or bar of conducting material on each of two opposite sides of the furnace, each strip or bar having therein two sets or series of holes corresponding to similar holes in the walls of the furnace, one set of holes being above the other set and fitted with metallic sockets holding stationary electrodes, in combination with adjustable rods of metal or carbon fitted in the lower set of holes for the purpose of striking the arc when commencing to work the furnace, substantially as hereinbefore described.

482,587. LIGHTING DEVICE. BRADFORD H. PENDLETON, Evanston, Ill. Filed Nov. 19, 1891. Serial No. 412,407. (No model.)



Claim.—1. A lighting device comprising a box adapted to be secured on a lamp or lantern and provided with a scratcher, a circular casing pivoted in the said box, means for locking said casing, a strip arranged in a roll and placed in the said casing, the said strip being provided with igniting-points and passed through a slot in the rim of the casing and over the said rim, and a shaft mounted to turn in the box and adapted to wind up the said igniting-strip, substantially as shown and described.

2. In a lighting device, the combination, with a box having a hinged lid provided with a lug, of a casing mounted to turn in the said box and having in its rim a notch adapted to be engaged by the said lug on the lid, a scratcher fixed on the said box, and a strip provided with igniting-points and arranged in a roll held loosely in the said casing, substantially as shown and described.

3. In a lighting device, the combination, with a box having a scratcher and a hinged lid provided with a lug, of a casing mounted to turn in the said box and having in its rim a slot for the passage of a strip carrying igniting-points, a notch in the edge of the casing to receive the lug on the lid, and a lug held on the said casing and adapted to butt on a lug in the box when the said notch is in position to receive the lid-lug, substantially as shown and described.

4. The combination, with the burner provided with the open-ended tube or sleeve B, provided with a catch B', of the lighting device comprising a box extending through the tube or sleeve, locked thereto by said catch and provided adjacent to the burner-tip with a scratcher, a circular slotted tape-carrying casing pivoted in the upper open end of the box adjacent to the scratcher, means for locking the casing against rotation, and a tape-operating shaft mounted in the lower or outer end of the box exterior to the said tube or sleeve, substantially as set forth.

482,588. PUMP. WILLIAM PETERSON, Geneseo, Minnesota. Filed Apr. 22, 1892. Serial No. 430,230. (No model.)



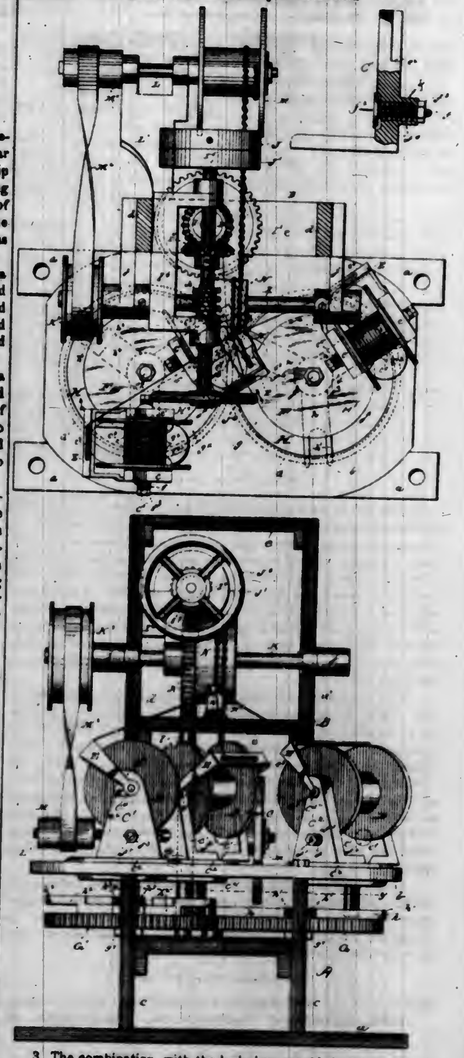
Claim.—In a pump, the combination, with the well-tube, its suction-valve, a tube having sliding movement in the well-tube above the suction-valve and having its lower end provided with a plunger-valve, a second plunger-valve having sliding movement in the sliding tube, and plunger-rods, one connected with the sliding tube and the other with the valve sliding in the tube, of a pump-body in connection with the well-tube above the sliding tube and sliding valve, a standard, a handle fulcrumed upon the standard through the medium of a link and having a connection with one of the plunger-rods, a lower lever comprising a long and a short section pivotally connected, the short section being pivoted to the post or standard and the long section attached to the other plunger-rod, a lever fulcrumed near its center upon the post or standard between the upper and lower levers, a link connection between the fulcrum of the upper lever and its connection with the plunger-rod and one extremity of the intermediate lever, and a second link connecting the opposite extremity of the intermediate lever with the longer member of the lower sectional lever, as and for the purpose set forth.

482,589. MACHINE TO PLAIT WIRE. OTHNIEL PRESTON, Hornellsville, N. Y., assignor of two-thirds to H. C. Preston and O. Preston, Jr., same place. Filed Mar. 7, 1889. Serial No. 302,349. (No model.)

Brief.—The improvements consist in certain specific details pointed out in the claims.

Claim.—1. The combination, with a reel-carriage provided with vertical arms or brackets, of a shaft having its bearings in the upper end of said arms, a wire reel mounted upon said shaft, and a guide and bracket pivoted upon the ends of said shaft and straddling the reel and provided with a guide eye or slot, the upper ends of the arms of the reel-carriage being provided with recesses forming shoulders to limit the vertical play of the tension-bracket, substantially as described.

2. The combination, with the bed-plate provided with the guide-channel, as described, of the reel-carriages provided with vertical brackets supporting the reel-shaft and having at their upper ends recesses or stops to limit the motion of the take-up yoke, and the take-up yoke pivoted to the top of the reel-carriages and straddling the same and provided with a guide-eye, substantially as described.



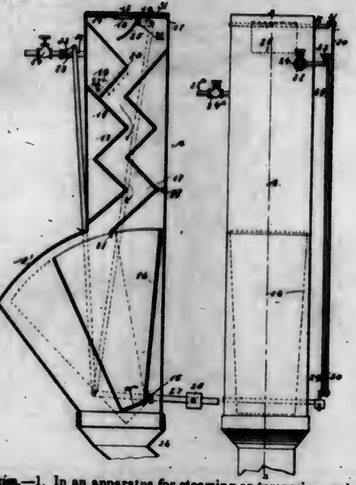
3. The combination, with the bed-plate provided with the guide-channel, as described, of the reel-carriages provided with vertical brackets supporting the reel-shaft and reel and having at their upper end recesses or stops to limit the motion of the take-up yoke, the take-up yoke provided with a guide-eye and pivoted to the top of and straddling the reel-carriage, and the automatic friction-brake consisting of the spring-surrounded bolt seated in a recess in the brackets of the reel-carriage and adapted to bear against the flange of the reel, substantially as specified.

4. In a wire-braiding machine, the combination, with the reel-car-

rings, the reels mounted therein, the take-up yokes, and the automatic friction-brakes, of the bed plate provided with guide-channels, the intermeshing gearing by which motion is imparted to the reels, the intermediate bracket and guide-eye, the receiving-drum, and the gearing by which it is caused to revolve with a speed corresponding to the delivery from the reels, the whole arranged to give a yielding delivery to and produce an automatically-regulated draft upon the strands during the operation of braiding to compensate for the spring of the wire, substantially as specified.

482,590. DEVICE FOR STEAMING OR TEMPERING GRAIN.

ROLLIN I. ROSMAN, Kingman, Kans. Filed Feb. 2, 1892. Serial No. 420,074. (No model.)



Claim.—1. In an apparatus for steaming or tempering grain, the combination, with a counterbalanced hopper having an opening in its bottom and a passage-way or chute provided with steam-inlets located above the hopper, of a valve located beneath the grain-supply opening of the apparatus, a valved steam-supply pipe, and a connection, substantially as shown and described, between the valve of the steam-supply pipe and the valve at the grain-supply opening, substantially as shown and described, whereby the movement of the hopper in one direction will close the valve of the steam-supply pipe and the valve of the grain-supply and when moved in an opposite direction will open said valves, as set forth.

2. In an apparatus for steaming or tempering grain, the combination, with a casing and a hopper pivoted within said casing and having an attached counterbalanced lever, of a zigzag passage-way or chute provided with steam-inlets located above the hopper, a valve located beneath the grain-inlet of the casing, a steam-pipe leading into the casing and supplying steam to the passage-way, said pipe being provided with a valve, and connecting-rods uniting the counterbalanced lever with the said valves, substantially as shown and described, whereby when the lever is moved in one direction the valves will be closed and when moved in an opposite direction the valves will be opened, as set forth.

3. In an apparatus for steaming or tempering grain, a steam-inlet valve, a valve capable of cutting off the supply of grain, a hopper adapted to receive and deliver grain, and a connection between the hopper and the valves, whereby the latter are automatically operated by the former, as and for the purpose set forth.

482,591. FOOT-RAILING FOR COUNTERS.

GUSTAV A. SOUHLINGER, Mishawaka, Ind. Filed Mar. 18, 1892. Serial No. 425,474. (No model.)



Claim.—1. The combination of a counter with a foot-railing which has arms or brackets B with bent hooks b', in the top of which are holes into which there are inserted rubber bumpers b^2 for the hinged bent knees d^3 of legs d', in combination with the railing to rest on said bent hooks of brackets when raised from the floor in a perpendicular position.

2. The combination of the arms B, the hooks b', and the rubber bumpers b^2, with the hinged fore legs d' to said brackets and with the rail D to said bent knees d^3, all for the purpose as herein set forth.

482,592. FOUNTAIN-PEN.

LAURENT A. SHATTUCK, Bloomsburg, Pa. Filed July 30, 1891. Serial No. 401,162. (No model.)



Claim.—1. In a fountain-pen, a point-section or nozzle having a tubular body loosely fitting at its front end and wholly concealable within the handle and a rear end portion, as c', adapted to hold by friction and abutting against a section of a tube held within the reservoir by friction or otherwise, forming a stop, as A', substantially as described.

2. In a fountain-pen, a longitudinally-adjustable point-section or nozzle having a split rear end portion and a tubular body wholly concealable and loosely fitting within the reservoir and holding a feeder and a pen having shoulders abutting against the front end of said point-section, substantially as described.

3. In a fountain-pen, a point-section or nozzle wholly concealable within the reservoir, having one or more auxiliary ink-passages, as c, formed on its external periphery, one or more transverse slots or openings, as c^3, forming communication between said auxiliary passage and the main passage, pen, and feed-bar, substantially as described.

4. In a fountain-pen, in combination, a reservoir A, having stop A' and shoulder a', a nozzle C, having tubular body wholly concealable within the reservoir, an enlarged rear end portion adapted to hold by friction, and an external peripheral groove or grooves c, communicating with transverse slot c^3, a feeder, a pen, and a pen-cap, substantially as described.

5. In a fountain-pen, the combination, with a handle or reservoir having an open end exteriorly curvilineal shaped for a finger-rest, of a point-section, as C, having a tubular body counterbored at its front end, having ink and air stops, as c^3, radial slot c^3, auxiliary passage c, a shouldered pen, a feeder, and a pen-cap, substantially as described.

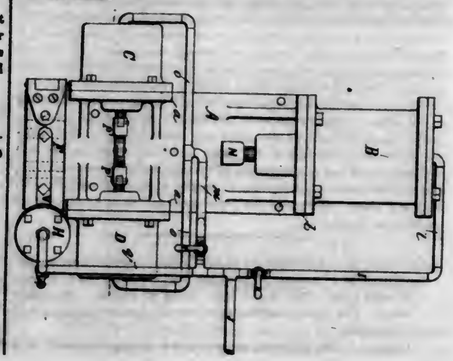
6. In a fountain-pen, a tubular feeder, as D, having a straight transverse pen-slot conformed to pens of different curves by V-shaped side grooves d^3 d^3, cut in the external periphery in line with said pen-slot and forming auxiliary ink-passages above the pen outside of the main central feed-channel, substantially as described.

7. In a fountain-pen, in combination, a reservoir open at one end, a nozzle having a tubular body fitting within the reservoir and held by two or more rearwardly-diverging arms, a pen, a feeder, and a pen-cap, substantially as described.

8. In a fountain-pen, a tubular nozzle or point-section held by its rear end within the reservoir and having an opening, as c^3, forward of its rear end for filling without wholly removing said nozzle from the reservoir and a body portion forward of said opening of slightly-less diameter than the bore of the handle to form a loose fit, whereby said point-section may be readily adjusted longitudinally to regulate the flow of ink and to gage the exposure of the pen without removing the pen from its seat, substantially as shown and described.

482,593. MACHINE FOR APPLYING HOSE CONNECTIONS.

ALBERT M. SMITH, Meadville, Pa. Filed Jan. 29, 1892. Serial No. 419,652. (No model.)



Claim.—1. A machine for applying couplings to hose, consisting of a holder for the pipe, a device for forcing the coupling into the pipe, arranged in line with the end of the said pipe, and laterally-arranged compressing means for forcing the band in place about the pipe end and coupling, substantially as described.

2. In combination with a holder for the pipe, a device for forcing the coupling into the same, arranged in line therewith, laterally-arranged compressing devices for the band, a source of power, and connections therefrom to the forcing and compressing devices for operating the same, substantially as described.

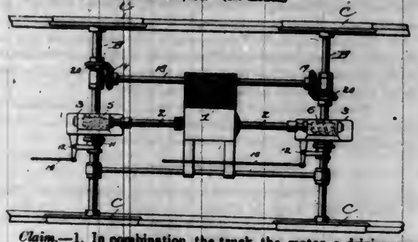
3. In combination with a holder for the pipe, the cylinder B, a piston-rod therein in line with the pipe end and adapted to force the coupling into the same, the cylinders C D, arranged laterally of the position of the coupling, carrying compressing means for operating upon the band M of the coupling, a source of power, a main pipe, and branch pipes extending therefrom to the cylinders and provided with suitable cocks, substantially as described.

4. In combination with a holder for the pipe, the cylinders B, C, and D, and the operating devices carried thereby, arranged, respectively, to insert the coupling and clamp the band upon the same, the cylinder H, the piston carried thereby and adapted to secure the upper part F of the pipe-holder in place, and connections from a source of power to the said cylinders B, C, D, and H, substantially as described.

5. In combination with the pipe-holder, the cylinders C D, the pistons therein, and the fingers A A, pivoted thereto and adapted to operate on the projecting ends of the clamp band M, substantially as described.

482,594. ELECTRIC LOCOMOTIVE.

WILLIAM H. SOLBY and WILLIAM W. PERKINS, Philadelphia, Pa., assignors of three-fifths to James Wolstencroft, William O'Neil, and William H. Yelland, same place. Filed Jan. 7, 1892. Serial No. 417,311. (No model.)



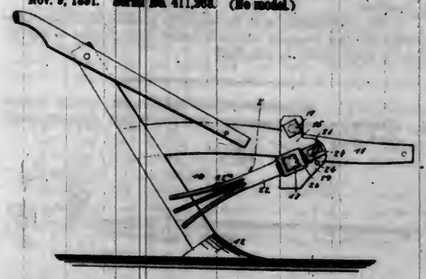
Claim.—1. In combination, the truck, the motor, a driving connection between the front of the said motor shaft and the axle, and a second driving connection between the rear of said shaft and the rear axle, said connections being differential with respect to each other, clutches on the axles, and an idler connection between the axles independent of the motor and its connected mechanism, substantially as described.

2. In combination, the truck, the motor, the driving connections therefrom to the front and rear axles, respectively, the clutches, and the idler connections between the axles, comprising the shaft and the miter-gears, the said shaft being in connection with the motor-frame, substantially as described.

3. In combination, the truck, the motor, the differential worm-gearing between the front and rear ends of said motor-shaft and the front and rear axles, the casings or boxes inclosing said gearing, the friction-clutches, also located within said casings and having sleeves extending through packing-glands thereon to the outside, and means for operating the clutches connected to the projecting sleeves, substantially as described.

482,595. PLOW-FENDER.

GASTON B. SPENCER, Ouachita City, La., assignor to himself and Willie Edwin Hopkins, same place. Filed Nov. 9, 1891. Serial No. 411,968. (No model.)



Claim.—1. The combination, with a clamp having a series of holes and provided with bolts having projecting heads, of a feeder having spring-fingers at one end, a socket at the other end to receive one of the bolt-heads, and an opening at one side of the socket, through which and into one of the holes of the clamp a thumb-screw is adapted to be passed, substantially as described.

2. A device of the character described, comprising a clamp consisting of two side pieces, one of which is widened and provided with a series of holes, and bolts having squared heads connecting the side pieces, and a feeder having spring-fingers at one end, a socket to fit the bolt-heads, and a slotted end and thumb-screw to facilitate its attachment to the widened side piece of the clamp, substantially as described.

482,596. METHOD OF FINISHING BOOKBINDERS' CLOTH.

THOMAS A. SUTTON and WILLIAM H. SUTTON, Salford, England. Filed Dec. 28, 1891. Serial No. 416,268. (No specimens.)

Brief.—The cloth is subjected to a napping operation before being oiled, glazed, or colored.

Claim.—1. The method herein described of finishing bookbinders' cloth, tracing-cloth, or label-cloth, said mode consisting in first raising a nap or pile upon the woven fabric, then applying to the napped surface a filling or sizing composition, and then glazing the same, substantially as described.

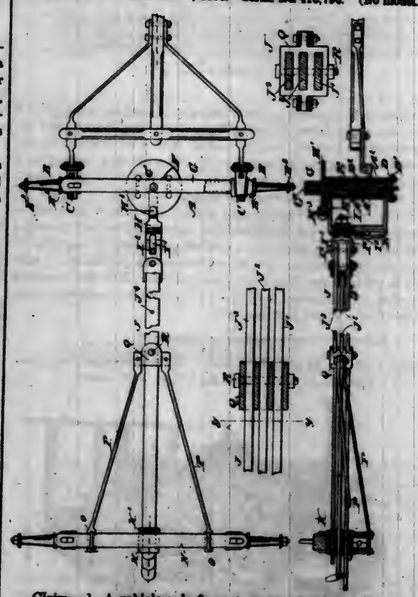
2. The method herein described of finishing bookbinders' cloth, tracing-cloth, or label-cloth, said mode consisting in first raising a nap or pile upon the woven fabric, then applying to the napped surface a filling or sizing composition, and then glazing the same by stiffening and calendering, all substantially as set forth.

3. The method herein described of finishing bookbinders' cloth, tracing-cloth, or label-cloth, said mode consisting in first raising a nap or pile upon the woven fabric, then applying to the napped surface a filling or sizing composition and a coloring-matter, and then glazing the same, substantially as described.

4. The method herein described of finishing bookbinders' cloth, tracing-cloth, or label-cloth, said mode consisting in first raising a nap or pile upon the woven fabric, then applying to the napped surface a filling or sizing composition, then glazing the same, and finally embossing a grain or pattern thereon, all substantially as described.

482,597. VEHICLE RUNNING-GEAR.

JAMES W. TAYLOR, Vermillion, S. D. Filed Nov. 2, 1891. Serial No. 410,796. (No model.)



Claim.—1. A vehicle-axle formed of two separate and independent side plates having their ends rounded to form spindles and a top plate fitting upon the side plates, substantially as described.

2. A vehicle provided with an axle comprising separate and independent side plates made of metal and having their ends formed into

heads and spindles and thimbles shrunk on the said spindles and heads, substantially as shown and described.

3. A vehicle provided with an axle comprising separate and independent side plates made of metal and having their ends formed into heads and spindles, thimbles shrunk on the said spindles and heads, and a flanged nut screwing on the outer threaded end of each spindle to abut against the end of the thimble, substantially as shown and described.

4. The combination, with an axle, of a block on the axle, a disk above the block, a clip for securing the disk and block to the axle, a king-bolt passing through the disk, block, and axle, a U-shaped frame having its ends entering recesses in the block and axle and pivoted on the king-bolt, and a flanged guide secured to the frame and engaging the disk, substantially as described.

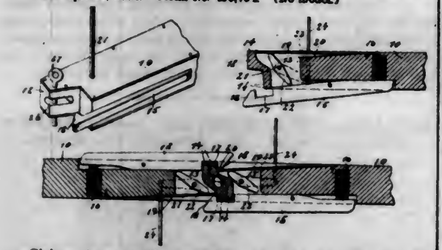
5. The combination, with a frame pivoted to the front axle and provided with a guideway H', of a fork I', secured to the reach and provided with a bolt I, by which the reach is pivoted to the frame, and the arm I², secured to the bolt I and working in the guideway H', substantially as herein shown and described.

6. In a vehicle, the combination, with a reach-rod made in several parts, of a rear axle, a bearing secured on the said rear axle, and in which is fitted to slide the said reach-rod, a bolster attached to the said rear axle, a bearing supported from the said rear axle and engaging the said reach-rod in front of the rear axle, and a bolt for connecting the last-mentioned bearing with the said reach-rod, substantially as shown and described.

7. In a vehicle, a reach-rod made in several parts, connected with each other at their front ends, a bearing supported upon the rear axle, rods projecting from the rear axle, and a bearing to which the said rods are secured, each bearing being formed with openings for the independent passage of the several parts of the reach-rod, substantially as shown and described.

482,598. CAR-COUPLING. FREEMAN THOMPSON, Dover, N. H.

Filed Apr. 28, 1892. Serial No. 430,754. (No model.)



Claim.—A car-coupling comprising a draw-head having at the end and on one side a forwardly-extending projection, said draw-head being horizontally recessed near the end to form a vertical end lip and provided with a transverse socket in one side containing a spring 16, a locking-arm pivoted on one side of the draw-head, crossing the spring 16 at its rear end, and having a recess near its free end to engage the lips of two couplings a spring-plate rigidly secured at its inner end on the opposite side of the draw-head and having its front end arranged in the rear of the lip, a crank-rod extending vertically through the recess in the draw-head and provided with a handle mechanism at each end, and a double cam secured to the crank-rod within the recess and adapted to press simultaneously upon the locking-arm and spring-plate, substantially as shown and described.

482,599. TRACTION-ENGINE. ISRAEL TOWNSEND, Portsmouth, Va. Filed Dec. 17, 1891. Serial No. 415,393. (No model.)



Claim.—1. The combination, with the driving-wheel, of an endless traction-belt passing around the same and lying in the plane of its lowest contact-line for some distance in front of that line and devices offering yielding resistance to the rising of the belt above that plane.

2. The combination, with an engine-driving wheel, of a belt pulley in its plane and normally resting upon the same horizontal plane, a yielding support or bearing for said pulley, and a traction-belt passing around both the drive wheel and pulley.

3. The combination, with the driving-wheel, of the pulley in front thereof, mounted in links swinging upon the axle of the driving-wheel, and a traction-belt passing around both the driving-wheel and pulley.

4. The combination, with the driving-wheel, the links swinging about its axis, and the pulley mounted in the free ends of said links, of the traction-belt passing around both the driving-wheel and pulley and a spring offering yielding resistance to the pulley's swinging upward from its normal position.

5. The combination, with the driving-wheel, of a pulley in the same plane mounted to swing about the wheel's center, an endless traction-belt passing around both wheel and pulley, and a spring offering yielding resistance to lifting the pulley from the plane upon which the driving-wheel rests.

6. The combination, with the driving-wheel, of the pulley in the plane of the same, the pulley-guiding fork having the curved shaft sliding in fixed bearings, the nut resisting the sliding of said shaft in one direction, the spring coiled about the shaft and offering yielding resistance to its sliding in a contrary direction, and a traction-belt passing around both pulley and driving-wheel.

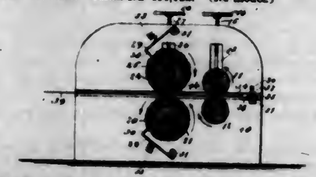
7. The combination, with the driving-wheel, of the pulley in the same plane swinging in links mounted upon the axle of the driving-wheel, the guiding-fork and curved shaft sliding in the fixed bearings, the spring resisting lifting of the pulley from the ground, and a traction-belt passing around both pulley and wheel.

8. The combination, with the pulley, the guiding-fork having the shaft sliding in fixed bearings, and the spring coiled about said shaft below one of said bearings, of the nut working upon said shaft to compress the spring and vary its tension.

9. The combination, with the driving-wheel, links pivoted upon its axle, and a pulley mounted in the free ends of said links, of devices for varying the distance of the pulley from said axle and a traction-belt passing around both the driving-wheel and pulley.

10. The combination of the endless belt, the transverse bars or cleats fixed thereto, and the slightly-projecting steel plates fixed along the front edges of said cleats, substantially as set forth.

482,600. CASE-CLEANER. PETER TRIPS, Lebanon, Ind. Filed Nov. 11, 1891. Serial No. 411,622. (No model.)



Claim.—1. The combination of the machine-frame having longitudinal grooves on its inner sides, the rollers and brushes mounted transversely in the case and in pairs, and the case-holding device adapted to be slipped into the grooves of the frame, substantially as described.

2. A machine of the character described, comprising a frame having horizontal grooves in its inner wall, a cross-bar held to slide in the groove and having means for attachment to the case, a pair of rollers mounted in the frame, the upper roller being mounted in vertically-adjustable bearings, a pair of revoluble brushes mounted adjacent to the rollers and parallel therewith, the upper brush having vertically-adjustable bearings, scrapers held to impinge upon the brushes, and driving mechanism for revolving the rollers and brushes, substantially as described.

3. The combination, with the revoluble brushes, of spring-pressed toothed scrapers arranged adjacent thereto and adapted to impinge thereon, substantially as described.

482,601. IMPLEMENT FOR CUTTING GLASS. JOHANN URBANEK, Frankfort-on-the-Main, Germany. Filed Apr. 26, 1892. Serial No. 430,987. (No model.)

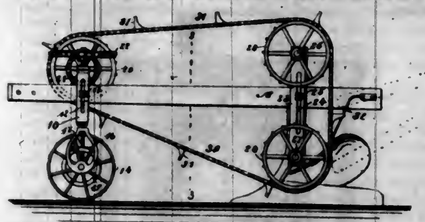


Claim.—1. In implements for cutting glass, the block *a* and elastically-hinged block *c*, holding the blunt diamond *d'*, in combination with the handle *b*, rigidly fixed to the block *a* and holding the sharp diamond *d'*.

2. The handle *b* and block *a*, rigidly fixed to each other, in combination with the block *c*, hinged at *c⁴* and provided with the spring *d*.

3. The handle *b*, with block *a* rigidly fixed to the handle and holding the sharp diamond *d'*, in combination with the block *c*, hinge *c⁴*, spring *d*, and adjustable screw *g*, holding the blunt diamond *c*.

482,602. PLOW ATTACHMENT. CURTIS H. WARRINGTON, West Chester, Pa. Filed June 28, 1892. Serial No. 438,261. (No model.)



Claim.—1. The combination, with a plow-beam, a supporting and driving wheel carried by the beam, a chain-pulley located above the supporting and driving wheel, and a driving connection between the chain-pulley and the driving and supporting wheel, of chain-pulleys located at the opposite side of the beam near its rear, one above and the other below it, and an endless chain belt passing over the chain-pulleys diagonally across the beam, the said belt being provided with carriers, as and for the purpose specified.

2. The combination, with a plow-beam, an adjustable yoke attached to the forward portion of the beam, and a combined driving and supporting wheel carried by the yoke, of a sprocket-wheel journaled at one side of the beam, a driving connection between the sprocket-wheel and the combined driving and supporting wheel, sprocket-wheels adjustably located near the end of the beam upon the opposite side of the forward sprocket-wheel, one of the rear wheels being located above and the other below the beam, an endless chain belt passing diagonally both above and below the beam and over the sprocket-wheels, carriers attached to the outer faces of the belt, and a finger secured to the beam and adapted for engagement with the carriers, as and for the purpose set forth.

3. The combination, with a plow-beam, a combined driving and supporting wheel adjustably attached to the forward portion of the beam, a sprocket-wheel located upon the mold-board side of the share at the top of the beam, and a driving connection between the beam and the sprocket-wheel and supporting and driving wheel, of a supporting-bar adjustably attached to the opposite or landside portion of the plow-beam near its rear, the said supporting-bar being somewhat wedge-shaped or triangular in cross-section, sprocket-wheels journaled upon the supporting-bar, one at the top and the other at the bottom, the upper wheel being at the bottom and the lower wheel opposite the landside of the share, an endless belt passed over the sprocket-wheels and extending diagonally across the top and bottom of the beam, carriers located upon the belt, and a stripping mechanism secured to the beam and adapted for engagement with the carriers, as and for the purpose specified.

482,603. STAND FOR BEER-GLASSES, &c. EDUARD WEIGEL, Greifenberg, Germany. Filed June 23, 1891. Serial No. 397,210. (No model.)



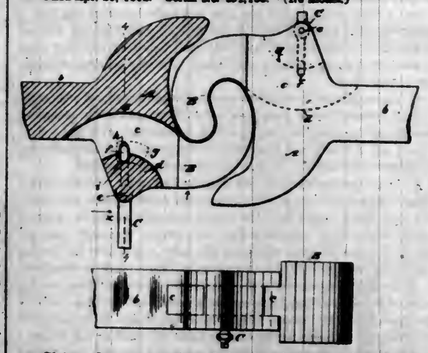
Claim.—A stand for glasses or other receptacles for liquids, consisting of a liquid-receptacle proper provided with a perforated disk pushed upward by means of a spring and kept in position by a detachable ring, so that the liquid will drop down through the perforated disk into the liquid-receptacle and there be absorbed by a sponge.

482,604. METHOD OF PRODUCING AN IMITATION OF BROCADE OR GOLD CLOTH. FRANZ P. WERNER, Munich, Germany. Filed Apr. 7, 1892. Serial No. 428,233. (No specimens.) Patented in Belgium Nov. 14, 1891, No. 97,197.

Claim.—1. The method of producing imitations of brocade or gold cloth, consisting in coating a textile fabric, first, with spirituous gelatine; secondly, with a ground consisting of a flour paste mixed with Venetian turpentine and ox-gall; thirdly, with collodion having castor-oil or the described equivalent added thereto; fourthly, with French mixture, to which has been added tenacious varnish; fifthly, with leaf metal, and, finally, with an alcoholic shellac solution, substantially as set forth.

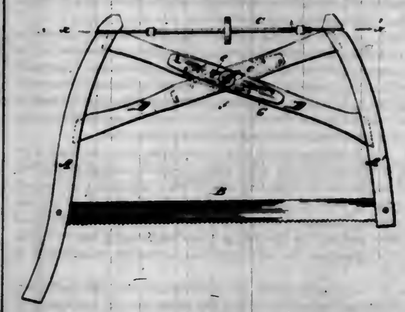
2. As a new article of manufacture, an imitation of brocade or gold cloth, which consists of a textile fabric covered wholly or partially with coatings, first, of spirituous gelatine; second, of a ground composed of flour paste mixed with Venetian turpentine and ox-gall; third, of collodion and castor-oil or the described equivalent; fourth, of French mixture; fifth, of leaf metal, and, finally, of alcoholic shellac solution, substantially as set forth.

482,605. CAR-COUPLING. GEORGE W. WILKINSON, Chicago, Ill. Filed Apr. 29, 1892. Serial No. 431,163. (No model.)



Claim.—In a car-coupler of the description herein referred to, the combination of the movable hook-shaped knuckle part having a notch in its joint or tail portion, the stationary head part slotted to receive said tail portion within or through it, and having a corresponding notch in its portion over or against which said tail portion moves and an opening in its under side facing said notches, and the laterally-projecting lever loosely pivoted to the head part to admit of its being moved upward and backward or forward from the under side of the head part, said lever being provided with a nose or hook at its inner end adapted to engage with the notch in the tail portion of the knuckle part and to engage with or disengage from the notch in the stationary head part of the coupler, substantially as specified.

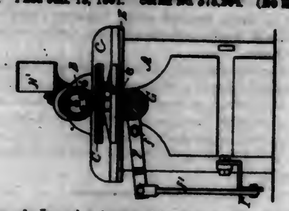
482,606. BUCKSAW. PETER WOODRUFF, Kansas City, Mo., assignor to himself and James M. Gross, same place. Filed Jan. 25, 1890. Renewed Mar. 8, 1892. Serial No. 424,165. (No model.)



Claim.—1. In a bucksaw, the combination, with the frame composed of the side or end pieces A A' and the centrally interlapping and crossing diagonal braces D D, having slots *c c*, of a clamping set-screw passing through said slots and adjustable from the exterior of the braces for operation in connection with an adjustable stretcher and the saw-blade, substantially as specified.

2. In a bucksaw, the combination of the plates G G, having slots *c c* in them, the diagonal crossing-braces D D, having central reductions *b b* in their adjacent surfaces and slots *c c*, the clamping set screw S, the end frame-pieces A A', and the adjustable stretcher C, for operation in relation with each other and with the saw-blade, essentially as set forth.

482,607. IRONING-MACHINE. FRANK D. ADAMS, Northville, Mich. Filed Jan. 19, 1891. Serial No. 378,264. (No model.)



Claim.—1. In an ironing-machine, the combination, with a frame, of a non-rotatable hollow polishing-iron, means for interiorly heating the iron, a friction-roll below the iron, means for rotating the roll, a traveling support between the iron and roll, actuated by the roll, an ironing-board on the support, normally out of contact with the iron, and levers for forcing the iron and board into engagement, substantially as described.

2. The combination, with a non-revolvable polishing iron, of an ironing-board mounted upon a support, and a friction-roller for actuating the same and pressing the ironing-board into contact with the polishing-iron, and depressions *e* along the middle portions of the guides for said support, substantially as and for the purposes described.

3. In an ironing-machine, the combination, with a frame having bearings at its upper edges, of a cylindrical polishing-iron non-rotatable in operation, adjustably held in said bearings, means for heating the iron interiorly, a reciprocating ironing-table mounted upon the frame, a revolvable friction-roll below the table, and a lever for forcing the polishing-iron and table into engagement, substantially as described.

4. In an ironing-machine, the combination, with a frame having elongated bearings at its upper end, of a polishing-iron immovable in operation adjustably located in said bearings, means for heating the iron interiorly, a reciprocating ironing-table mounted on the frame, a friction-roll below the table, means for actuating the roll, and a lever for forcing the polishing-iron and table into engagement.

482,608. KNITTING-MACHINE. CHARLES J. APPLETON, New York, N. Y., assignor of two-thirds to Hugo S. Mack and Hibert A. Whittelsey. Filed Dec. 26, 1890. Renewed Aug. 18, 1892. Serial No. 443,364. (No model.)

Brief.—The alternately-raised horizontal needle-bars are raised and the needles reciprocated by improved pattern and Jacquard mechanism. The carrier-arms carry cams which are vertically movable to adapt themselves to the needle-bars. Two yarn-guides are employed, pattern mechanism determining through a swinging tongue-catch their respective periods of operation, pattern mechanism also operating to hold the inactive one positively out of action. Means are provided whereby the active yarn-guide will when moving in either direction lead the knitting-cams. Cloth take-up hook-bars are provided, one for each needle-bar, mechanism operating to move one or both in unison with its or their row or rows of needles.

Claim.—1. In a knitting-machine, the combination, with needle-bars and pattern mechanism for raising the same and lost-motion devices interposed between said mechanism and needle-bars, of Jacquard mechanism for advancing the needles, oscillating sleeves, levers operated by the said pattern mechanism, and means operated by said levers for connecting and disconnecting the Jacquard mechanism to and from their respective sleeves, substantially as described.

2. In a knitting-machine, the combination, with needle-bars arranged in substantially the same plane, of levers connected thereto, pattern mechanism for operating said levers, a lug having an inclined top carried by each of said levers, sliding levers resting at one end upon said lugs, Jacquard mechanism for advancing the needles, and mechanism operated by the sliding levers for bringing into or throwing out of operation the said Jacquard mechanism, substantially as described.

3. In a knitting-machine, the combination, with the needle-bars and pattern mechanism for raising the needle-bars in predetermined order, of a drum and ratchet for operating said mechanism, the sliding bar G^2, having pawl G' and having the inclined slot G^3, into which a fixed pin projects, and mechanism for operating said bar, substantially as described.

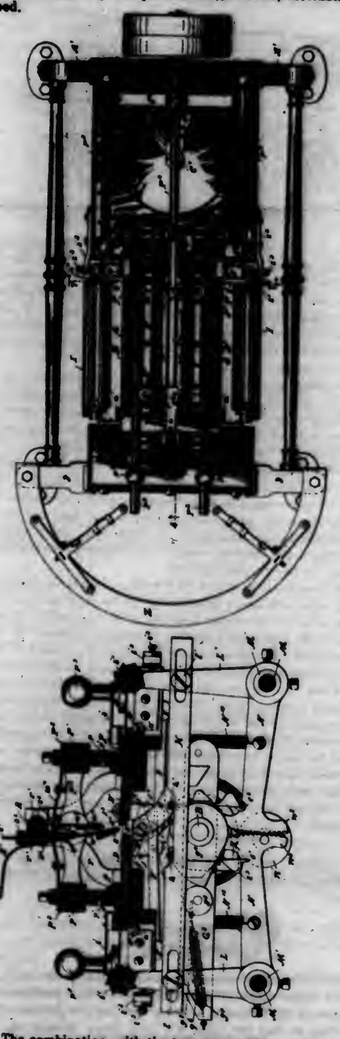
4. The combination, with the carrier-arms P' and mechanism for reciprocating them, of cams hinged to said arms and vertically movable in relation thereto, the needles, the needle-bars, and mechanism for raising the inner edges of said needle-bars, substantially as described.

5. The combination, with the carrier-arms P', of the cams P, having lugs provided with vertical slots *p*, the said carrier-arms having pins *p'* entering said slots, the needles, their needle-bars, and mechanism for raising said bars, substantially as described.

6. The combination, with the cams P and their sliding bars P^6, of the cross-bars P^5, the operating-rod P^4, secured thereto at one end and having cross-head P^3 at its other end, way-rods p^2 for the cross-head, and means for operating said cross-head, substantially as described.

7. The combination, with rod P^4, having the hole *u*, and the cross-bar P^5, having groove *u'*, of the head-plate u^2, having guide-pins u^3, and the friction-spring u^4, carried by cross-bar P^5 and resting on the upper guide-pin, substantially as described.

8. The combination, with the two yarn-guides having pins c^3, of the tongue-catch U, pivoted to a reciprocating carrier and having notches u^5 and u^6 in its upper and lower edges, respectively, and means for positively restraining the movements of the yarn-guides when not engaged by the pivoted tongue-catch, substantially as described.



9. The combination, with the two yarn-guides having pins c^3, of the tongue-catch U, pivoted to a reciprocating carrier and having notches u^5 and u^6 and stop-pin u^8, and the spring-bold latch u^7, pivoted to catch U and having a point at one end extending beyond the notch u^6, substantially as described.

10. The combination, with two yarn-guides, a catch for engaging with either of them, and means whereby the catch may be reciprocated, of pattern devices for automatically raising and lowering the catch and locking the yarn-guide not engaged with such catch in one of its extremes of movement and positively holding it in that position, substantially as described.

11. The combination, with the two yarn-guides, one having an upwardly-projecting pin and the other a downwardly-projecting pin, of the vertically-movable plate g^4, having holes g^5 g^6, pattern mechanism for automatically moving said plate, and means for reciprocating either of said guides, substantially as described.

12. The combination, with the two yarn-guides having pins c^3, of the reciprocating hinged tongue-catch U, having notches u^5 u^6, the vertically-movable rod Q, the cross-pins q^3, supported and operated by the rod Q, and means for operating said rod, substantially as described.

13. The combination, with the guide-bar R, having ways *r'* and with the yarn-guides S S' fitted to said ways, the needles *s'*, and the needle-operating cams, of mechanism for moving said yarn-guides along the ways, having an extensible portion, and adjustable stops secured to said ways, against which the yarn-guides abut and are positively held to bring them into proper relation with respect to the cams to insure the laying of the yarn in the hooks of the needles on the return stroke of the appropriate guide before the needles are withdrawn, substantially as described.

14. In a knitting-machine, the combination, with two needle-bars and their needles arranged in substantially the same plane, of mechanism for reciprocating the needles of one or both of the needle-bars, a vertically-movable hook-bar under each needle-bar and having hooks adapted to engage the fabric knitted by the needles, and mechanism for moving one or both of the hook-bars in unison with its or their respective row or rows of needles and retiring it or them from action when its or their respective row or rows of needles are retired therefrom, substantially as described.

15. The combination, with the hook-bar V and a rock-shaft having arms to which the hook-bar is hinged, of a spring v^9, secured to the under side of one arm and extending under the said bar, substantially as described.

16. The combination, with the shaft v^8, hinged hook-bars V, having arms v^9, provided with holes, and the pins v^{10}, passing through said holes, of the spring v^9, coiled around said pins above the said hook-bars, substantially as described.

17. The combination, with the swinging hook-bars having crank-pins *h h'*, of the sliding bar K, having inclines *k k'*, and means for operating said bar, substantially as described.

18. The combination, with the swinging hook-bars having crank-pins *h h'*, of the oscillating arms L L', having pins *l l'*, the bar K, provided with slots through which said pins pass and provided, also, with inclines *k k'* and with cam-surfaces, the shaft B, the disk g^4, and the pins *x x'*, carried by such disk, substantially as described.

19. The combination, with the hook-bars having crank-pins *h h'*, of the sliding bar K, provided with inclines *k k'* and provided with a plurality of cams on its side, one of said cams being in a different lateral plane from the others, a rotary disk having two pins for engaging the different cams, one of said pins being longer than the other, substantially as described.

20. The combination, with the hook-bars having crank-pins *h h'*, of the sliding bar K, having inclines *k k'* and provided with the cams *y*, *y'*, y^2, and y^3 on its side, and the rotary disk g^4, having pins *x x'*, substantially as described.

482,609. STRAM-MANGLE. FRANK BALDWIN, New York, N. Y. Filed Aug. 1, 1891. Serial No. 401,305. (No model.)



Claim.—A mangle comprising a frame, a plurality of stationary horizontally-aligned irons mounted on the frame with a space between their adjacent edges and having their lower faces convex and forming segments of a common circle, means for heating the irons, an endless belt, the upper run of which lies against the lower convex faces of the irons, and rollers carrying the said belt, substantially as set forth.

482,610. NUT-LOCK. JOHN BENNER, Elizabethville, Pa. Filed Mar. 19, 1892. Serial No. 426,067. (No model.)

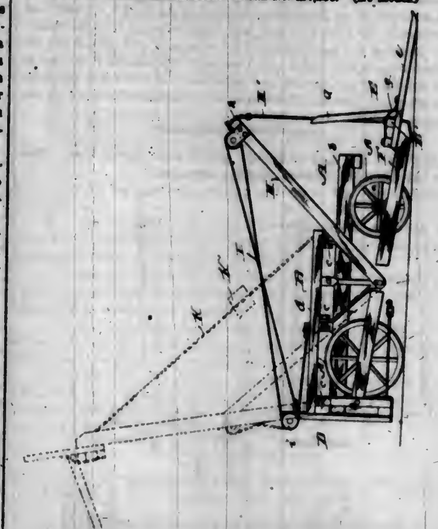
Claim.—1. In a nut-lock comprising a bolt having slots formed at the end, the nut on the bolt, the washer provided with apertured ears adapted to incline the sides of said nut, and a locking-key engaging a slot of the bolt and the apertures of the ears to secure the bolt, substantially as and for the purpose described.

2. In a nut-lock comprising a bolt A, having cross-slots *a* formed in the end, the nut B on the bolt, the washer C, provided with upturned apertured ears *c*, and a pliable wire locking-key D, engaging a slot *a* of the bolt and apertures c^3 of the ears to secure the bolt, substantially as and for the purpose described.

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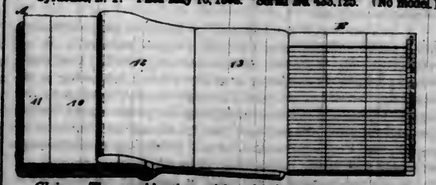


482,611. HAY-STACKING MACHINE. PHILIP BERNARD, Jefferson, S. D. Filed Mar. 21, 1892. Serial No. 427,262. (No model.)



Claim.—The combination, with the vehicle or truck, the frame supported thereon, the bars F F, pivoted at their rear ends to said frame, a cross-head E', rigidly secured to the forward portion of the said bars, a series of teeth rigidly secured at their rear ends to said bar, a second cross-head E, to which the teeth are also secured, and a series of vertical fingers G, one pivoted to each tooth in front of said cross-heads, of the levers H H, pivoted at their lower ends, one at each side of the machine below the level of the axles, a flexible connection between each of said levers and the cross-head E, and the double-rigged elevating-cables for operating said levers, substantially as specified.

482,612. INDEX ATTACHMENT FOR BOOKS. WILLIAM D. REVIS, Syracuse, N. Y. Filed May 16, 1892. Serial No. 433,125. (No model.)



Claim.—The combination, with a book having a fly-leaf 10, of stout material, provided along its free edge with a reinforce 11, of the index B and the strip 12, secured at one edge to the leaf 10 between its front and rear edges and at its opposite edge secured to the free edge of one cover 13 of the index, substantially as set forth.

482,618. BUTTER-PASSAGE. JAMES F. BLY, Mayville, N. Y., assignor to Clarence E. Cipperly, same place. Filed May 11, 1892. Renewed Sept. 16, 1892. Serial No. 445,122. (No model.)

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lovers, and a suitable means for rocking the rock-shaft, substantially as specified.

4. In a car-coupler, a link in combination with a draw-head, a rearwardly pitched hook rising from the draw-head at the forward end thereof and having its forward edge beveled, and a curvilinear plate connected to the forward edge of the hook and extending rearwardly of the same, substantially as specified.

482,615. CAR-COUPLING. DAVID BREWER, Emporia, Kans. Filed Apr. 16, 1892. Serial No. 429,450. (No model.)

482,617. TANK-FEEDER. MERRITT BURT and JOHN W. SKILTON, Jacksonville, Fla. Filed Oct. 23, 1891. Serial No. 409,636. (No model.)

in combination with a slide moving vertically in the clamp-frame and having a screw-stem passing through the arms and forming a connection for the same and a screw nut or knob fitting said screw-stem and adapted, when turned up to rigidly fix the arms to the clamp, substantially as shown and described.

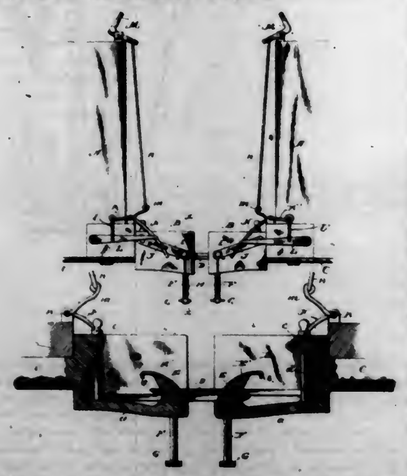
3. A dental cervix-clamp consisting of the flanged and slotted main frame A and the bent arm B, having clutch-points at their lower ends, the clamp-screw for fastening the two together, and the pivotally connected and adjustable arms D D, with means for rigidly connecting the same to the main frame, substantially as shown and described.

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Claim.—A butter or other package comprising a metal bucket, a protective casing or jacket of non-conductive material surrounding the same and of less depth than the depth of the bucket, a metal hoop surrounding the bottom of said jacket and clamping it to the bucket and covering the space between the bottom of said jacket and the bottom edge of the bucket, and a series of clips secured at one end to the bottom of the bucket and extending outwardly and upwardly therefrom and embracing the metal hoop, substantially as and for the purpose set forth.

482,614. CAR-COUPLING. JOHN H. BRAUN, Roslyn, Wash. Filed Apr. 20, 1892. Serial No. 429,890. (No model.)



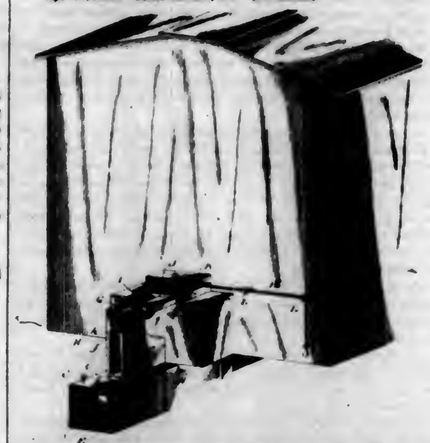
Claim.—1. In a car-coupler, the combination, with a draw-head, a rearwardly-pitched hook rising from the longitudinal center of the bottom of the draw-head at the forward end thereof and having its forward edge beveled to form a downward projection, and a vertically-disposed pin taking through the draw-head adjacent to the inner or rear end thereof, of a link having its rear end square with respect to its sides and having its forward end beveled, substantially as and for the purposes specified.

2. In a car-coupling, substantially as described, the combination, with a draw-head comprising a bottom wall, side walls, and a top wall at the inner ends of the side walls, a rearwardly-pitched hook rising from the bottom wall adjacent to its forward end and having its forward edge beveled, a pin taking through the draw-head, and a link engaged by said pin, of the vertically-disposed pitmen taking through apertures formed in the bottom of the draw-head and adapted to engage the link, a cross-bar connecting said pitmen, and a suitable means for raising said pitmen, substantially as specified.

3. In a car-coupling, substantially as described, the combination, with a draw-head, a hook rising from the bottom wall of the draw-head, a pin taking through the draw-head, a link straddling the hook and engaging the pin, the vertically-disposed pitmen taking through apertures in the bottom of the draw-head and adapted to engage the link, and a cross-bar connecting said pitmen, of the levers fulcrumed upon the sides of the draw-head and having the laterally and rearwardly extending hooks at intermediate points in their length, links connecting the levers and the cross-bar of the pitmen, the rock-shaft, the arms carried by said rock-shaft and engaging the hooks of the levers, and a suitable means for rocking the rock-shaft, substantially as specified.

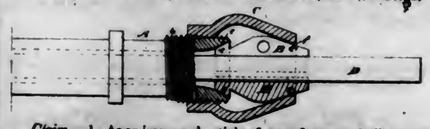
4. In a car-coupler, a link in combination with a draw-head, a rearwardly pitched hook rising from the draw-head at the forward end thereof and having its forward edge beveled, and a curvilinear plate connected to the forward edge of the hook and extending rearwardly of the same, substantially as specified.

482,615. CAR-COUPLING. DAVID BREWER, Emporia, Kans. Filed Apr. 16, 1892. Serial No. 429,460. (No model.)



Claim.—In a car-coupler, substantially as described, the combination, with a draw-head and a pin taking through the draw-head and having a head adjacent to its upper end, of the upright rising from the draw-head and having a way or groove in its forward side reduced in width at an intermediate point in its length, a vertical sheave carried by said upright, a vertical sheave carried by a support rising from the draw-head, a horizontal sheave also carried by said support, and a cable connected at one end to the pin of the draw-head and taking over the vertical sheaves of the upright and support and around the horizontal sheave of said support, substantially as and for the purpose specified.

482,616. HOLLOW-MANDREL CHUCK. FREDRICK A. BUSH, Urbana, Ohio. Filed July 16, 1891. Serial No. 399,702. (No model.)



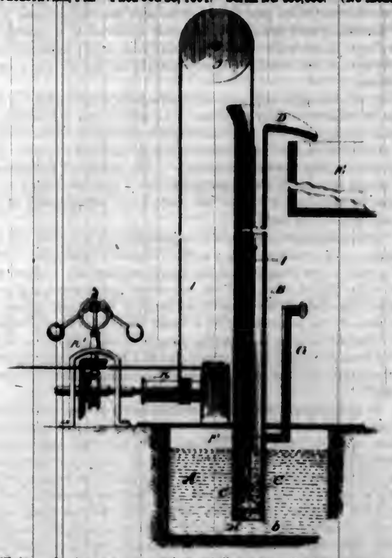
Claim.—1. As an improved article of manufacture, a hollow-mandrel chuck open at both ends to permit the work to pass entirely through it and provided with separate and independent frictionally-driven yielding dies or jaws separated longitudinally from end to end and adapted to remain stationary at times within the body of the chuck while the latter continues to rotate, substantially as set forth.

2. As an improved article of manufacture, a chuck provided with frictionally-driven dies or jaws separated longitudinally from end to end and about which the body of the chuck is free to be rotated by the mandrel at times and springs between the adjacent sides of the chucks, substantially as set forth.

3. As an improved article of manufacture, a chuck provided with frictionally-driven dies or jaws about which the body of the chuck is free to be rotated by the mandrel at times, opposed recesses in the sides of the dies or jaws, and spiral springs resting at their ends in said recesses, substantially as set forth.

4. As an improved article of manufacture, a chuck consisting in a mandrel having a flaring unbroken circular mouth *e*, a cone or body portion C, screwed upon the mandrel and having a circular mouth *f*, flared or tapered reversely to the mouth *e* and of unbroken or uninterrupted contour, the dies or jaws beveled or inclined oppositely on their outer edges at their ends to be held to the work by friction between the two unbroken mouths *e f* and at times remain stationary while the mandrel and cone or body rotate, and spiral springs between the sides of the dies or jaws, substantially as set forth.

482,617. TANK-FEEDER. MERRITT BURT and JOHN W. SKILTON, Jacksonville, Fla. Filed Oct. 23, 1891. Serial No. 409,636. (No model.)



Claim.—1. An apparatus substantially as described, comprising a pipe having a water-inlet and provided at about the water-level with an air-opening, through which air may enter to break the suction, and a piston and hoisting means therefor, the piston being movable from a point below the air-opening up to a point above the same, substantially as set forth.

2. In an apparatus substantially as described, the combination of the reservoir, the pipe extending at its lower end thereinto and provided near the water-level with an air-opening, the piston movable in the pipe past the said air-opening, and means whereby to hoist the said piston, substantially as set forth.

3. In an apparatus substantially as described, the combination of the reservoir, the pipe opening at its lower end into the reservoir and having an air-opening F at about the water-level, and a pipe G, communicating at one end with the said opening and extended at its upper open end above the ground-level, the piston in the pipe, and the means whereby to raise said piston, substantially as set forth.

4. The improved apparatus herein described, comprising the reservoir the pipe having an air-inlet, the piston movable in the pipe past the said opening, and the rope connected with the said piston, whereby to raise the same, substantially as set forth.

5. The improved apparatus substantially as herein described, consisting of the reservoir, the pipe opening at its lower end in the reservoir and having an air-opening F, and a pipe G, communicating with said opening, the piston movable in the pipe past the opening G, the rope connected with said piston, and the guide-pulley J, all substantially as set forth.

6. The combination, substantially as described, of the tank E, reservoir A, pipe B, having its inlet in the reservoir and its discharge arranged to deliver into the tank, the piston in the pipe, the latter having an air-opening at about the water-line in the reservoir, the rope connected with the piston, and mechanism for pulling said rope to lift the piston, substantially as set forth.

482,618. RUBBER-DAM CLAMP. AMBER I. F. BUKBAUM, Walnut Hills, Ohio. Filed June 13, 1892. Serial No. 436,609. (No model.)

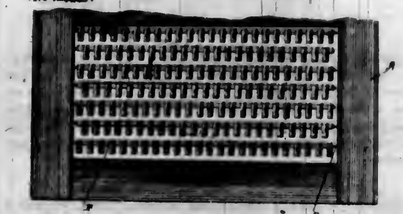


Claim.—1. A dental cervix-clamp having arms D D, with teeth or spurs adapted to embrace between them a portion of the neck of the tooth, the said arms being pivotally connected to the clamp and made adjustable, as described.

2. In a dental cervix-clamp, the arms D D, with teeth or spurs adapted to embrace between them a portion of the neck of the tooth, in combination with a slide moving vertically in the clamp-frame and having a screw-stem passing through the arms and forming a connection for the same and a screw nut or knob fitting said screw-stem and adapted when turned up to rigidly fix the arms to the clamp, substantially as shown and described.

3. A dental cervix-clamp consisting of the flanged and slotted main frame A and the bent arm B, having clutch-points at their lower ends, the clamp-screw for fastening the two together, and the pivotally connected and adjustable arms D D, with means for rigidly connecting the same to the main frame, substantially as shown and described.

482,619. RUBBING-SURFACE FOR PULP-REDUCING MACHINES. JOHN B. CARTER, Kokomo, Ind. Filed June 20, 1891. Serial No. 396,921. (No model.)



Claim.—1. A rubbing-surface for pulp-reducing machines, consisting of bars having transverse rubbing surfaces or teeth, substantially as described.

2. A rubbing-surface for pulp-reducing machines, consisting of bars having transverse rubbing-surfaces, which are slightly rounded on their upper edges, substantially as specified.

3. A rubbing-surface for pulp-reducing machines, consisting of bars having transverse rubbing-surfaces and recesses between the rubbing-surfaces, substantially as specified.

4. A rubbing-surface for pulp-reducing machines, consisting of a series of parallel bars separated a suitable distance and each having transverse rubbing projections, substantially as described.

5. A rubbing-surface for pulp-reducing machines, consisting of a series of parallel bars separated a suitable distance and each having transverse rubbing-surfaces, the rubbing-surfaces of the bars alternating, as described, substantially as described.

482,620. EXTENSION-TABLE. HENRY CORBAN, Jr., Warren, Pa. Filed Mar. 25, 1892. Serial No. 426,362. (No model.)



Claim.—1. In an extension-table, the combination, with the sliding rails, of a top formed of a central fixed section and end sections hinged to the central section and formed of a series of slats hinged together, and depending brackets carrying the end legs and receiving the slats of the end sections between the members thereof, substantially as described.

2. In an extension-table, the combination, with the sliding rails, of brackets carried by the rails, having parallel and spaced members and provided with sockets, end legs secured in the said sockets, and a top consisting of a fixed central section and end sections hinged to the central section and formed of hinged slats adapted to enter the space between the members of the brackets when the table is contracted, substantially as described.

3. In an extensible table, the combination, with a fixed top section and roll-sections connected with the fixed section at its ends, the said roll-sections consisting of a series of hinged slats, of side rails adapted to slide beneath the roll-sections, brackets supported by the side rails and adapted as supports for the legs of the table, and an expanding and contracting medium operated from the fixed portion of the table-top and connected with the sliding side rails, as and for the purpose set forth.

4. In an extensible table, the combination, with a fixed top section, roll-sections connected with the ends of the fixed section, and sliding side rails adapted as an upper and lower support for the roll-sections, of beam connections between opposite sliding side rails, return-brack-

ets attached to the said beams and adapted as supports for the lower folds of the roll-sections, said brackets being provided with sockets to receive legs, friction-rollers carried by the brackets, endless cables passed over the friction-rollers of each bracket and connected with the roll-sections and top, and an expanding and contracting mechanism, substantially as shown, connected with the sliding side rails, as specified.

482,621. BUTTON-FASTENER. ANNA W. CURRIER and GEORGE CLARK, Malden, Mass. Filed July 1, 1891. Serial No. 398,136. (No model.)



Claim.—A button-fastener consisting of a length of wire having a single bend intermediate of its ends to form a pin part and a body part and having an eye-retaining loop formed in the body part and a tab or loop at the end of the latter, the said body part, pin part, and tab or loop being in one flat plane and the eye-retaining loop projecting out of said plane substantially at a right angle thereto, substantially as described.

482,622. DRAFT DEVICE FOR WHIFFLETREES. GRIFFIN V. P. DAY, Dimbo, Cal. Filed Oct. 9, 1891. Serial No. 408,251. (No model.)

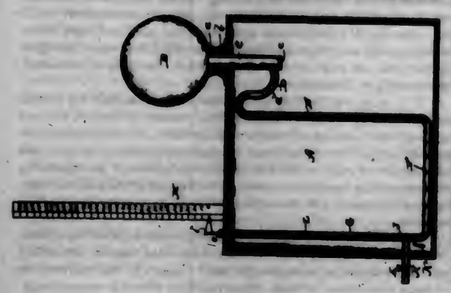


Claim.—1. The improved draft device, substantially as herein described, consisting of the casing, the springs located therein, and the draft-bar arranged between said springs and having lateral arms or portions engaging the same, such draft-bar being provided with a stud projected above such casing and with a bracing rib or portion b^3, all substantially as and for the purposes set forth.

2. As an improved article of manufacture, a draft device consisting of the casing composed of upper and lower sections provided in their inner faces with coincident recesses D, having wings d, and provided centrally with grooves C, opening out of the front end of the casing, and the top section being provided with a slot d', and the draft-bar movable longitudinally in the grooves C, extended at its front end beyond the casing, provided at its rear end with lateral arms extended into the wings d and engaging in rear of the springs, and provided at its upper side with a stud or pin projecting up through the slot d' and above the casing, the said stud being adapted to receive a buggy-whiffletree and the front end of the draft-bar for engagement by the hook of a plow singletree, all substantially as described, and for the purposes set forth.

3. The improved draft device, substantially as described, comprising the casing provided with recesses D, having lateral wings d at their rear ends, springs E, fitted in the recesses D, and the draft-bar arranged and movable longitudinally in the casing between the recesses D and provided with arms b, extended in opposite directions and across the recesses D and bearing in rear of the springs E, all substantially as and for the purposes set forth.

482,623. STRENGTH-TESTING DEVICE. PATRICK J. DOOLING, Folsom, Cal. Filed Apr. 26, 1892. Serial No. 431,018. (No model.)



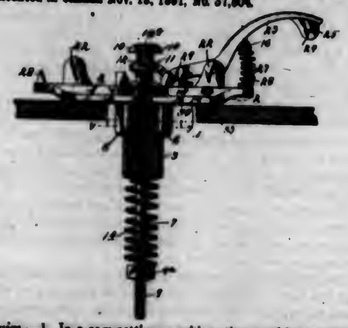
Claim.—1. In a strength-testing device substantially as described, the combination, with a resilient bulb and a suitable means for feeding air thereto, of the pipe G, connected with the resilient bulb, a piston movable in said pipe G, the piston-rod connected to the piston and carrying an index-finger, and a graduated scale or bar placed adjacent to the path of the index-finger, substantially as and for the purpose set forth.

2. In a strength-testing device substantially as described, the combination, with a resilient bulb and a suitable means for feeding air thereto, of the pipe G, a pipe intermediate the pipe G and a clack or check valve arranged in the intermediate pipe and opening away from the bulb, a piston movable in the pipe G, the piston-rod connected to the piston and carrying an index-finger, and a graduated scale or bar placed adjacent to the path of the index-finger, substantially as and for the purpose set forth.

3. In a strength-testing device substantially as described, the combination, with a resilient bulb, a suitable means for feeding air thereto, the pipe G, a pipe intermediate the pipe G and the bulb, a piston movable in the pipe G, the piston-rod connected to the piston and carrying an index-finger, and a graduated scale or bar placed adjacent to the path of the index-finger, of a check or clack valve arranged in the intermediate pipe and opening away from the bulb and a cock or valve arranged in the intermediate pipe at a point between the check or clack valve and the pipe G, substantially as and for the purpose set forth.

4. In a strength-testing device substantially as described, the combination, with the bulb, the pipe C, connected therewith and having a check or clack valve opening toward the bulb, the pipe G, a pipe intermediate the pipes C and G, a check or clack valve arranged in the intermediate pipe and opening away from the bulb, a cock or valve arranged in the intermediate pipe between the clack or check valve and the pipe G, the branch leading from the pipe G, and a cock or valve mounted in said branch, of a piston mounted in the pipe G and a piston-rod connected to the piston and carrying an index-finger at its free end, all substantially as and for the purpose described.

482,624. SAW-SETTING MACHINE. FRANCIS J. DRAKE, Belleville, Canada. Filed Jan. 30, 1892. Serial No. 419,811. (No model.) Patented in Canada Nov. 16, 1891, No. 37,904.



Claim.—1. In a saw-setting machine, the combination, with the plate and the boss formed integral or in one piece, said plate being provided with apertures and upwardly-projecting lugs at each side, of the removable and reversible lever provided with a pivoted pawl and the vertically-reciprocating plunger having lateral projections with which said pawl is adapted to engage to elevate the plunger, substantially as described.

2. In a saw-setting machine, the combination, with the plate and the boss formed integral therewith, having an angular recess at its upper end and a cylindrical aperture at its lower end, of the plunger having a square upper part with lateral projections at its side and a projection at its front, an adjustable hammer having a series of radial heads adapted to abut against the projection on the front of the plunger, a cylindrical screw-threaded lower end, a coiled spring and a regulating-nut, and the lever and pivoted dog for elevating the plunger, substantially as described.

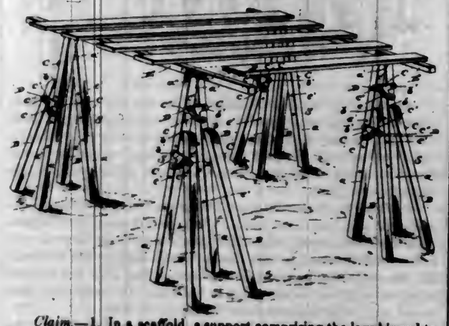
3. In a saw-setting machine, the combination of the plate, the boss formed integral therewith, the spring-actuated reciprocating plunger within said boss, having a projection upon its upper front end, the adjustable hammer having a series of beveled striking-heads, and means, substantially as described, for reciprocating said plunger.

4. In a saw-setting machine, the combination, with the plate and the boss, the spring-actuated plunger having front and lateral projections at its upper end, the adjustable hammer having a series of beveled striking-heads adapted to abut against said front projection, the adjustable anvil having a series of arms with beveled faces, and the set-screw for adjusting the inclination of the saw, of the pivoted lever having a pivoted dog adapted to engage with the lateral projections to elevate the plunger, substantially as described.

5. In a saw-setting machine, the combination, with the plate and boss and the spring-actuated plunger, of the cones at each end of said plate, the lugs intermediate thereof and the plunger, the reversible lever adapted to be pivoted in said lugs, the cone formed thereon, the adjustable guide provided with forwardly-projecting arms, and the coiled spring engaging with said cones, substantially as described.

6. In a saw-setting machine, the combination, with the plate having a boss, upwardly-extending lugs, cones at each end, and slots with beveled sides intermediate of the lugs and boss, of the spring-actuated plunger, the lever having the pivoted dog, the cone, the leg at the outer end with a transverse slot, and the coiled spring engaging with the cones, substantially as described.

482,625. SCAFFOLD. JOHN DUNBAR, Brooklyn, N. Y. Filed Mar. 23, 1892. Serial No. 426,909. (No model.)



Claim.—1. In a scaffold, a support comprising the legs hinged together, the struts or braces hinged to the legs, and the locking-plates adapted to lock the parts together when folded, substantially as described.

2. A support for scaffolds, consisting of the legs hinged together near the upper ends, the struts or braces hinged to the legs, and the locking-plate pivoted on one leg and having a segmental slot therein, and the pin or screw on the other leg projecting through said slot, substantially as and for the purpose described.

3. A support for scaffolds, consisting of the legs hinged together near their upper ends, the struts or braces hinged to said legs, the locking-plate pivoted on one leg and having a segmental slot therein with a lateral offset, and the pin in the other leg projecting through said slot and offset, substantially as and for the purpose set forth.

4. A support for scaffolds, consisting of the legs hinged together, the plate pivoted on one leg and having a segmental slot with a lateral offset at one end, the pin on the other leg projecting through said slot, the struts or braces hinged to the legs to unfold at an angle thereto, and the plates adapted to lock the struts or braces to said legs, substantially as described.

5. A support for scaffolds, comprising the legs hinged together and the struts or braces therefor and the locking-plates pivoted on said legs and adapted to lock the legs and braces compactly together, substantially as described.

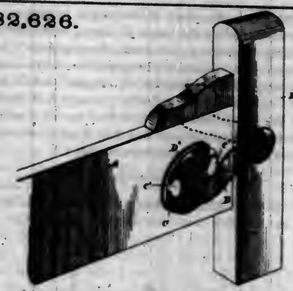
6. In a support for scaffolds, the legs hinged together, the locking-plate pivoted on one leg and having a segmental slot and lateral offset therein, a pin or screw in the other leg and projecting through the slot in the plate, said plate being adapted to lock the legs tightly and compactly together when the end with the offset is turned upward, the struts or braces hinged to said legs, and the locking-plates pivoted on the legs and adapted to lock the struts or braces, substantially as described.

482,626. BED-LOCK. IRVIN H. ELLIOTT, Allapaha, Ga. Filed Mar. 11, 1892. Serial No. 424,582. (No model.)

Claim.—1. In a bed-lock, the combination of a plate having horns thereon and an irregularly-curved headed arm having flanges to take under the horns of said plate, the said plate being secured to a bed-rail and the arm pivotally secured to the bed-post, substantially as described.

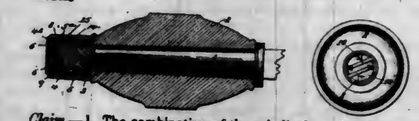
2. In a bed-lock, the combination of a plate having horns thereon, with flanges overhanging toward the center thereof and lugs on the back of said plate, an irregularly-curved arm having a head and flanges to take under the said horns of the plate, the said arm being formed with a lug to assist in holding the same in position, the said plate being

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arranged in connection with a bed-rail, and the arm pivotally secured to the bed-post, substantially as described.

482,627. VEHICLE-HUB-ATTACHING COLLAR. LAFAYETTE FARR, Priestown, Ohio. Filed Apr. 5, 1892. Serial No. 427,871. (No model.)



Claim.—1. The combination of the spindle formed with angular grooves in its end, a hub on said spindle, a locking ring provided with internal lugs adapted to be turned into engagement with said angular grooves, and means for preventing the reverse movement of said locking-ring, whereby the hub will be securely held in place, substantially as set forth.

2. The combination of the spindle formed with angular grooves in its end, a hub on said spindle, a locking-ring provided with internal lugs adapted to enter said angular grooves and be turned into engagement therewith, and suitable pins, screws, or dogs adapted to lock said ring against movement on said spindle, substantially as set forth.

3. The combination of the spindle formed with right-angled grooves near or at its end, the hub on said spindle, the locking ring or nut provided with inwardly-projecting lugs and correspondingly arranged to said grooves, said ring being adapted to be moved longitudinally and circumferentially on the spindle for causing the lugs to engage in said right-angled grooves, and spring-dogs carried by said locking-ring and adapted to engage in said grooves for holding the ring from revolving, substantially as and for the purpose set forth.

4. The combination of the spindle formed with the grooves or notches at its end, which extend longitudinally and circumferentially, the hub on said spindle, the locking ring or nut formed with inwardly-projecting lugs which are adapted to engage in said grooves, and spring-arms mounted on said locking-ring and carrying dogs at their free ends which are adapted to engage in the longitudinal terminals of said grooves, said locking ring or nut being adapted to move longitudinally on the spindle to lock the parts in position, substantially as set forth.

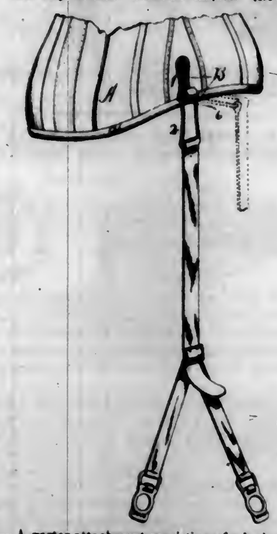
5. The combination of the spindle formed with grooves in its outer end, a hub on said spindle formed with a screw-threaded outer end, a locking-ring provided with inwardly-projecting lugs adapted to engage the groove of said spindle, means for retaining the lugs into engagement, a friction-ring mounted on said locking-ring and held against movement thereon, and a cap engaging the screw-threaded end of the hub and bearing against said friction-ring, substantially as set forth.

482,628. LIFTING-JACK. WILLIAM Y. FISHER and CHARLES PERRY, Big Timber, Mont. Filed Apr. 29, 1892. Serial No. 431,184. (No model.)



Claim.—A lifting-jack consisting of the base A, having mounted thereon the standard B, having the recess *b'* formed in the front portion thereof, the strap *b*, spanning said recess, the cap-piece C, inclosing the top and upper side portions of the standard and having an extension *a'*, with opening *b'*, the lifting-bar D, adapted to slide in said opening, strap, and recess and provided with the dogs E M, the latter having branch *m*, the ball G, and lever F, pivoted to bolt *f*, said lever having a link *d* connected to a branch *e* of dog E, all combined and arranged to operate as and for the purposes specified.

482,629. GARTER ATTACHMENT. PETER H. FLYNN, Syracuse, N. Y. Filed May 12, 1892. Serial No. 432,703. (No model.)



Claim.—A garter attachment consisting of a body having an outward and upward extending hook, means for securing the body to the garment, and a loop having a bar at its upper end, the width of said bar being greater than the distance between the point of the hook and body, as set forth.

482,630. FRYING-PAN OR SKILLET. BENJAMIN F. FOWLER, Minneapolis, Minn., assignor of one-half to Clarence R. Waterman, same place. Filed Apr. 20, 1892. Serial No. 429,931. (No model.)



Claim.—1. A pan or skillet comprising a body provided with notches at its upper edge, a removable handle provided at its inner end with a groove forming a flue and extending from the top of the pan to the bottom thereof, and a cover provided with curved flanges and having slots therein adapted to register with the notches and to close the same, substantially as described.

2. A pan or skillet comprising a body provided with notches at its upper edge and having beveled flanges arranged on its outer face and forming a dovetailed way, a detachable handle having its inner end beveled and adapted to fit in the dovetailed way and provided with a vertical groove extending from the top to the bottom of the pan, and a cover having curved flanges provided with slots to register with said notches and having a flange arranged to close the top of said groove, substantially as described.

482,631. TOOTH-BRUSH CASE AND PENCIL-HOLDER COMBINED. SAMUEL S. FOX, Marion, Ohio. Filed Feb. 6, 1892. Serial No. 420,606. (No model.)

Claim.—The herein-described tooth-brush case and pencil-holder

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combined, consisting of the case composed of two sections connected by a spring hinge, the pencil-holder attached to the brush-case and provided with a spring extension, and the spring-clamp, all constructed and arranged substantially as and for the purpose herein set forth.

482,632. PLANTER ATTACHMENT FOR DISK HARROWS. JASPER E. GALLUP, Mellette, S. D., assignor of one-half to Burnham W. Cole, same place. Filed Mar. 18, 1892. Serial No. 425,490. (No model.)



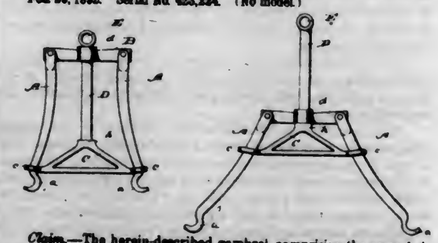
Claim.—1. In a planter attachment for disk harrows, the seed-box, the depending arms adjustably secured to said seed box, the plates removably secured to said depending arms, and the feed tubes or chutes leading from said seed-box and supported by said depending arms, and means for feeding the grain to said tubes or chutes, substantially as set forth.

2. The herein described planter attachment for disk harrows, comprising the seed-box, the adjustable plate secured thereto, the depending arms secured to said adjustable plate, the guide-plates removably secured to said arms, the feed tubes or chutes leading from said seed-box, the rings or collars secured to said depending arms and designed to support said feed tubes or chutes, and means for feeding the grain to said feed tubes or chutes, substantially as set forth.

3. The herein-described improved planter attachment for disk harrows, consisting of the metal plate for guiding the grain, the ring or collar having a lower flange to which said plate is secured, a supporting-arm inserted in said ring or collar, and the set-screw for securing the same thereto, substantially as set forth.

4. The herein-described improved planter attachment for disk harrows, comprising the combination of the seed-box, the adjustable plate secured thereto, the depending arms secured to said adjustable plate, the rings or collars secured to said depending arms and having lower flanges, the guide-plates secured to said flanges, the feed tubes or chutes leading from the seed-box, the rings or collars secured to said depending arms and designed to support said feed tubes or chutes, and means for feeding the grain to the feed tubes or chutes, substantially as set forth.

482,633. GAMBREL. HARRISON GARWICK, Morrison, Ill. Filed Feb. 29, 1892. Serial No. 423,294. (No model.)

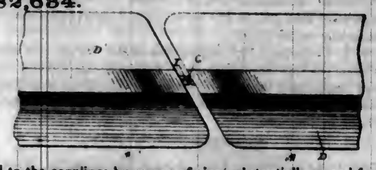


Claim.—The herein-described gambrel, comprising the arms A A, having hooks at their lower extremities, the cross-head to which said arms are pivoted at their upper portions, the transverse yoke-piece C, having eyes at its extremities through which said arms loosely pass, and the arm or stem D, connected to the central portion of said yoke-piece and passing loosely through an aperture in the central portion of the cross-head, substantially as specified.

482,634. RAILWAY-COACH. MAX GOETZE, Fort Meade, S. D. Filed Mar. 26, 1892. Serial No. 426,543. (No model.)

Claim.—The combination, with the cars of the character described, of the couplings having their front portions beveled in opposite directions, the side walls having slots formed therein and on opposite sides thereof, and a link with a hook and eye, adapted to be connected to the couplings by means of pins, substantially as and for the purposes specified.

482,634.



482,635. DIP-NET. FRANK HANEM, Terre Haute, Ind. Filed Apr. 31, 1892. Serial No. 430,067. (No model.)



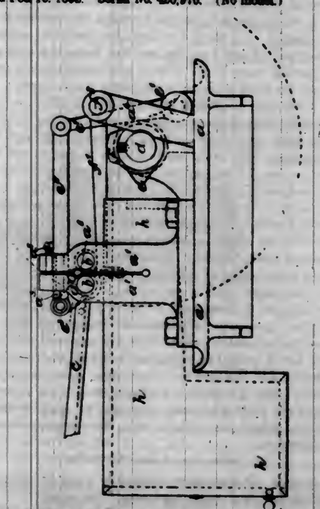
Claim.—1. A minnow-seine consisting of the seine proper, the umbrella-frame supporting the same and having a short stick, and the bait-bag suspended from the end of the stick so as to rest within the seine and provided with a weight, substantially as described.

2. A minnow-seine consisting of the stick, the ribs secured to the upper ends thereof, the seine attached to the lower ends of the ribs, the runner having the stretchers to close and open the ribs, and a bait-bag suspended from the stick within the seine, and a weight or sinker, substantially as described.

3. A minnow-seine comprising a stick, a weighted bait-bag removably suspended in the lower end thereof, an umbrella-frame carried by the stick, a seine attached to the lower ends of the ribs of the umbrella-frame, the upper end of said stick being formed for attachment to a fishing rod or pole, substantially as described.

4. The seine consisting of the stick adapted to have a bait-bag suspended from its lower end, the ribs, stretchers, and runners carried by said stick, and the seine attached to the lower ends of the ribs, so as to be beneath the bait-bag.

482,636. MEANS OR APPARATUS FOR GAGING AND SORTING SPHERICAL ROLLERS OR BALLS. WILLIAM HILLMAN, Coventry, England, assignor to the Auto Machinery Company, Limited, same place. Filed Feb. 10, 1892. Serial No. 420,970. (No model.)



Claim.—1. In means or apparatus for gaging and sorting spherical rollers or balls, the combination of adjustable parallel gaging-bars, a slightly-inclined feeding-tray in front of the gaging-bars, a feeder between the lower edge of the said tray and the front gaging-bar and moving in an arc around the latter, an inclined grooved ejector working up and down between the gaging-bars, cams and levers for operating the feeder and ejector, and boxes for receiving the balls assorted, substantially as herein shown and described.

2. In a gaging and sorting apparatus, the combination of the tray, the pair of adjustable gage-bars, the feeder working at the end of the tray and delivering the balls directly on the gage-bars, and the intermittently-reciprocating ejector working between the gage-bars, said parts having suitable driving mechanism, substantially as described.

3. In a gaging and sorting apparatus, the combination of the inclined tray, the pair of parallel gage-bars located parallel with the mouth of the tray, and the oscillating feeder journaled on one of the gage-bars and working between the tray and gage-bars, whereby a row of balls are simultaneously delivered from the tray to the gage-bars, for the purpose explained.

4. In means or apparatus for gaging and sorting spherical rollers or balls, a pair of adjustable gaging-bars between which balls below a given size will fall into a receptacle below, means for feeding balls to such gaging-bars, and an inclined grooved ejector working up and down between the gaging-bars and ejecting into a side receptacle those balls which were too large to pass through the space between the gaging-bars, substantially as herein shown and described.

5. In a gaging and sorting apparatus, the combination of the tray, the parallel gage-bars located parallel with the tray, and the segmental feeder between the tray and gage-bars journaled on and oscillating about the adjacent gage-bar, in the manner substantially as described, and for the purpose set forth.

6. In a gaging and sorting apparatus, the gage-bars, the pair of vertical arms in which the ends of said gage-bars are mounted, and the micro-adjustment for the bars, consisting of the set-screws threaded in one arm and bearing on the other of each pair of arms for regulating the distance between them, substantially as explained.

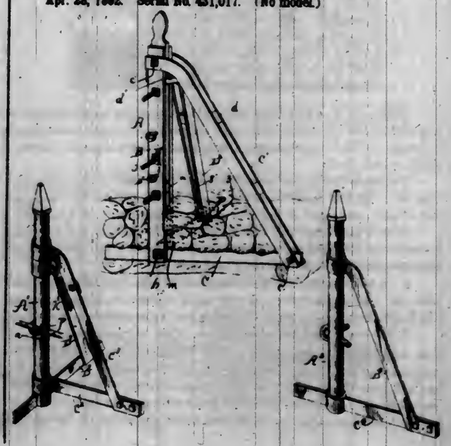
7. In a gaging and sorting apparatus, the combination of the gage-bars and a pair of vertical brackets for supporting said gage-bars, each of said brackets being split to form arms and provided with the push-screws, and binding-screws for accurately spacing the distance between the arms, all substantially as and for the purpose set forth.

8. In a gaging and sorting apparatus, the combination of the pair of parallel gage-bars and the vertically-reciprocating ejector having a grooved upper side working between said bars, substantially as and for the purpose set forth.

9. In a gaging and sorting apparatus, the combination, with the parallel gage-bars, of the vertically-reciprocating ejector working between said gage-bars and having grooved and inclined upper side, substantially as and for the purpose set forth.

10. In a machine for gaging and sorting, the combination of a suitable base, a pair of vertical brackets supporting gage-bars, an inclined tray terminating on a line adjacent to the gage-bars, the feeding-segment journaled on one of the gage-bars and having a controlling-lever, an ejector having an inclined grooved upper side reciprocating between the gage-bars, a suitably-fulcrumed lever upon which the ejector is supported, a suitably-fulcrumed controlling-lever connected by a link to the feed-lever, a power-shaft having cams for engaging the ejector-lever and the feed-controlling lever, and suitable receptacles beneath the gage-bars and the end of the ejector, all substantially as and for the purposes set forth.

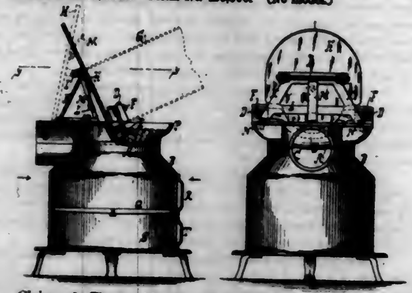
482,637. FENCE-POST. DANIEL HINDLEY, Beard, Ind. Filed Apr. 28, 1892. Serial No. 431,017. (No model.)



Claim.—1. In a fence-post, the combination, with the spaced vertical bars B and the anchor-bars C and D, interposed and secured between the spaces of the lower ends of the bars B, of the spaced bars C' D', arranged on opposite sides of the outer ends of the anchor-bars and secured thereto, the upper ends of said bars C' D' secured on opposite sides of the bars B and arranged at right angles thereto, substantially as and for the purposes specified.

2. In a fence-post of the character described, the combination, with the spaced vertical bars B, provided with a series of openings formed therein, of the threaded tightening-hooks E, passing through said openings, with nuts F thereon, substantially as and for the purposes specified.

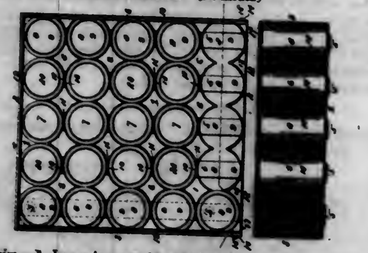
482,638. FLOATING POT. JOHN B. HOLSTEN, New York, N. Y. Filed Mar. 30, 1892. Serial No. 426,560. (No model.)



Claim.—1. The combination of a floating pot having upwardly-projecting standards or supports D, a guide-bar E, having its ends secured to the standards or supports, a bracket K, adjustable on the pot toward and from the guide-bar, and an inclined gage H, pivoted to the bracket and provided with a catch M for engaging a part of the bracket to hold the gage in a fixed position, substantially as described.

2. The combination of a floating pot having upwardly-projecting standards or supports D, a guide-bar E, having its ends secured to the standards or supports, a bracket K, adjustable on the pot toward and from the guide-bar and provided with a cross-piece L, and an inclined gage H, pivoted to the bracket and provided with a catch M for engaging the cross-piece of the bracket, substantially as described.

482,639. COIN-TRAY. ANTHONY ISCH, East St. Louis, Ill. Filed Apr. 27, 1892. Serial No. 430,832. (No model.)



Claim.—1. In a coin-tray, the combination of the bottom and sides and ends of the tray having separable concave-convex partitions gaged in height to hold a certain given amount of coin in deposit, substantially as described.

2. In a coin-tray, the combination of the bottom, the sides, and rear end, and the concave-convex separable partitions that separate the columns and rows of columns of coin, substantially as described.

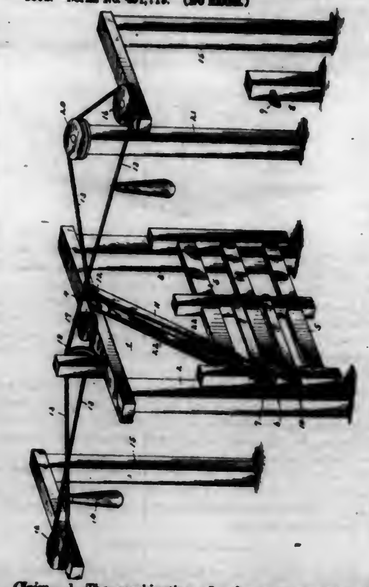
3. In a coin-tray, the combination of the bottom, the channel-grooves 5 in said bottom, the sides 3, and rear end 4, and the concave-convex partitions 6, substantially as described.

4. In a coin-tray, the combination of the bottom, the sides 3, and rear end 4, said sides provided with the look-slots 16 and the end gate 12, that locks into said slots of the side pieces, substantially as described.

5. In a coin-tray, the combination of the bottom, the sides, and rear end, the said sides being provided with the look-slots 16, the concave-convex partitions 6, forming the coin-depository chambers 20, the end-gate 12, the concave-convex plate secured to the inside of said end-gate, the concavities of which plate embrace the rear column of coins, the said end-gate provided with the trigger-slots 18, the spring-snap catches 14, secured to said end-gate, and the triggers 17, that pass through said slots 18 and by which said spring-snaps are tripped, substantially as described.

6. In a coin-tray, the combination of the bottom and sides and rear end of the tray, the spring-snapped end-gate 12, and the concave-convex partitions 6, inlapping surmounting flanges 19 of said side and rear end, that overlap and hold said partitions and coin in place, substantially as described.

482,640. GATE. PETER JOHNSON, Cambridge, Ill. Filed May 3, 1892. Serial No. 431,719. (No model.)



Claim.—1. The combination of a frame, a gate hinged to the frame and provided with latches, an inclined bar extending upward and rearward from the front of the gate and provided at its upper end with a pulley, the uprights 15, arranged on opposite sides of the gate, the upright 21, arranged to have the gate open adjacent to it, pulleys mounted on the uprights and the frame, an endless operating-rope passing around the pulleys and provided with depending handles, and the latch-ropes extending along the inclined bar and having their lower ends connected with the latches and their upper ends secured to the endless rope and disposed on opposite sides of the pulley at the upper end of the inclined bar, substantially as described.

2. The combination of a frame, a gate hinged to the frame, the uprights 15, arranged at opposite sides of the gate and having horizontal arms extending inward and carrying pulleys, the upright 21, arranged in the direction in which the gate swings and provided at its top with a pulley, the horizontal and vertical pulleys mounted on the frame, and the endless operating-rope passing around the pulleys and connected with the gate, substantially as described.

3. The combination of a frame, a gate hinged to the frame and provided with upper and lower latches, a keeper mounted on the frame and adapted to be engaged by one of the latches, a supplemental latch-post having a keeper adapted to be engaged by the other latch, an inclined bar extending upward from the gate and provided at its upper end with a pulley, the uprights 15 and 21, the pulleys mounted on the frame and the uprights, an endless operating-rope passing around the pulleys, and latch-ropes having their lower ends connected to the latch and their upper ends arranged on opposite sides of the pulley of the inclined bar and secured to the operating-rope, substantially as described.

482,641. BAG-HOLDER. EVERETT H. KETCHUM, Jamestown, N. Y. Filed Dec. 26, 1891. Serial No. 416,256. (No model.)

Claim.—1. A bag-holder, substantially as described, comprising the pivoted jaws or members having the curved or bulged portions between their meeting ends and the pivot, as set forth.

2. A bag-holder, substantially as described, comprising the spring-pressed jaws or members having the curved or bulged portions and the roughened opposing faces, as set forth.

3. A bag-holder, substantially as described, comprising the spring-pressed jaws pivoted together and having the bulged or curved portions and the longitudinal reinforcing-ribs, as set forth.

4. A bag-holder comprising the pivoted jaws or members having the bulged or curved portions adapted to receive and hold the folded edge of paper, one of the jaws having on its outer face a label-receiving pocket located at or near one end of said jaw, substantially as described.



5. A bag-holder comprising the jaws or members, one of which has a slotted label holder on its outer face, as set forth.

6. A bag-holder comprising the jaws or members provided with the curved or bulged portions, one of said jaws having one end doubled or folded upon itself and forming an open pocket adapted to receive a label, substantially as described.

7. In a bag holder or rack, the standard and cross-arm having the hooks which have the upright prongs on opposite sides of the standard and arm, as described.

8. In a bag holder or rack, the upright post and cross-arm, the double hooks thereon, and the backing-plates rigid with the cross-arm below the hooks thereof and between the vertical prongs of the same, substantially as described.

9. A bag-holder having a pocket on its outer side and a folded label having numerals or characters on its folds and adapted to fit within said pocket to expose the numeral or character on its outer face, as and for the purpose described.

10. A bag-holder having the slotted pocket on its outer side and the foldable label consisting of a series of members connected together and designed to fold upon transverse creases or lines, so as to lie flat upon each other, each fold having on its faces numerals or characters indicating the sizes of bags, substantially as described.

482,642. COMBINED FUSE AND FILE HOLDER. JOHN LORAUER, Crenshaw, Pa. Filed May 2, 1892. Serial No. 431,534. (No model.)



Claim.—A file and fuse holder consisting of the parallel compartments 1 2, the former having the retaining-spring and the latter provided with an upwardly-movable bottom and a suitable means for raising the same, as set forth.

482,643. DEVICE FOR SUPPORTING AND CARRYING VESSELS. JOSEPH MAILLIARD, San Geronimo, and JAMES H. JOHNS, San Francisco, Cal. Filed Dec. 9, 1891. Serial No. 414,667. (No model.)



Claim.—The herein-described device for supporting and carrying vessels, consisting of a rectangular band or hoop B, a second band or hoop C, the ends of whose side pieces are pivoted to the band B at the middle points of two opposite sides thereof, so that the hoops B and C may be relatively movable upon their pivotal points to permit them to occupy either a position in the same plane with each other or in a position at right angles to each other, substantially as shown, and a handle or bail D, whose ends are pivoted upon the same pivots which connect the hoops B and C, said bail being so arranged that it will span the frame and top of the can which is to be supported, substantially as described.

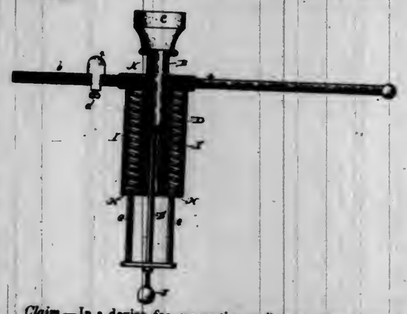
482,644. FOLDING COOP. JOSEPH H. MARQUIS, Utley, Ohio. Filed Apr. 30, 1892. Serial No. 431,377. (No model.)



Claim.—1. The herein-described folding poultry coop of rectangular form, said coop comprising the bottom A, having the longitudinal strips *a a* at its lateral edges, the top and sides formed of the angular wires D D, having the upper horizontal portions *d* and the vertical arms E E, loosely engaging the strips *a a* at their lower ends, the top strips *c c*, running parallel and longitudinally of the coop and spaced from each other on the portions *d* of the angular wires, the ends F F', consisting each of a series of wires bent into elongated U shape and pivotally connected to the bottom and to end wires C of the top, and means for locking the parts in both upright and folded position, substantially as specified.

2. The herein-described folding poultry-coop, comprising the rectangular bottom of thin material reinforced by the longitudinal edge strips *a a* and the under battens *b*, the top B, consisting of the parallel longitudinal strips *c c*, spaced from each other on horizontal portions *d*, a series of angular wires D, the vertical arms E E of said angular wires loosely engaging the strips *a a* of the bottom and forming the sides of the coop, the elongated U-shaped wires forming the ends of the coop and loosely connected to the bottom of the coop and to transverse end wires C C of the top, the braces H for securing the coop in upright position, said braces consisting of stiff wire loosely connected at its ends to staples in the bottom of the coop and having upwardly-converging oblique arms *k*, united by a hook-eye designed to engage slots in the side strips *c*, and the small hooks for securing the parts in their folded positions, all substantially as specified.

482,645. DEVICE FOR SUPPORTING WALL-PAPER. ELBERT D. MILES, Machias, N. Y. Filed Apr. 29, 1892. Serial No. 431,190. (No model.)



Claim.—In a device for supporting wall-paper, the combination of the body having an air-chamber formed therein, a sucker-cup at one end, a piston engaging the air-chamber, a piston-rod connected thereto and provided with a cross-head, guide-rods connected to said cross-head and having disks at their upper ends, springs mounted in the body and bearing upon the disks, a lever fulcrumed on said body, and a counterbalance-weight mounted on said lever, substantially as described.

482,646. STORE-SERVICE APPARATUS. CHARLES W. MCCORMICK, Emporia, Kans. Filed Sept. 22, 1891. Serial No. 406,507. (No model.)

Claim.—1. In a store-service apparatus for raising and lowering goods, the combination of the cord C, the pendent fish-hook-shaped hook D, connected to one end thereof and pivoted at L, the pull-cord H, and the counterbalance-weight R, substantially as set forth.



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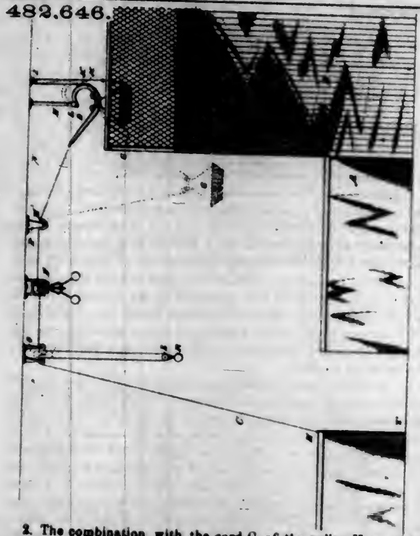
coiled spring mounted on the rod between the axle and the nut or collar of the tube, and a spring mounted on the rod within the tube and having one of its ends connected to the rod and the other end bearing against the frame, all substantially as specified.

482,650. HORSESHOE. CHARLES A. READE, Chicago, Ill. Filed Feb. 13, 1892. Serial No. 421,425. (No model.)

platform in line with the discharge end of the throat or chute for receiving and temporarily holding the material in charges, said platform being pivotally secured and provided at its rear end with a gate adapted to close the throat or chute to cut off the further supply of material when the desired charge has been deposited upon the platform, substantially as herein described.

2. In a feeder having a supply hopper or bin with discharge-throat or chute, the combination of a gate controlling said throat or chute and a tilting platform for receiving the material in charges, said platform being located beyond said gate and connected therewith, and

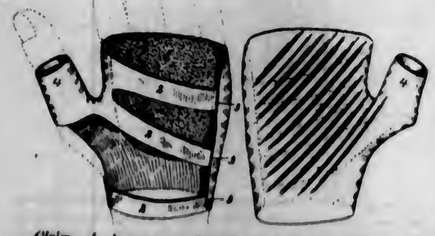
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2. The combination, with the cord C, of the pulley U, provided with a metal boxing V, having a flange W and inclined grooves X and push-lugs Z, with the annular grooved disk *a*, the governor-spindle, and the fixed collar *g*, secured to the spindle, substantially as set forth.

3. The combination, with the governor mechanism, of the adjustable cross-head *e*, the adjustable stop *i*, and the spring *o*, substantially as set forth.

482,647. TENNIS-GLOVE. CLARENCE C. OSBAR, St. Louis, Mo. Filed Aug. 31, 1891. Serial No. 404,322. (No specimens.)



Claim.—1. As a new article of manufacture, a rubber tennis-glove having its palm lined with an absorptive material, substantially as and for the purpose set forth.

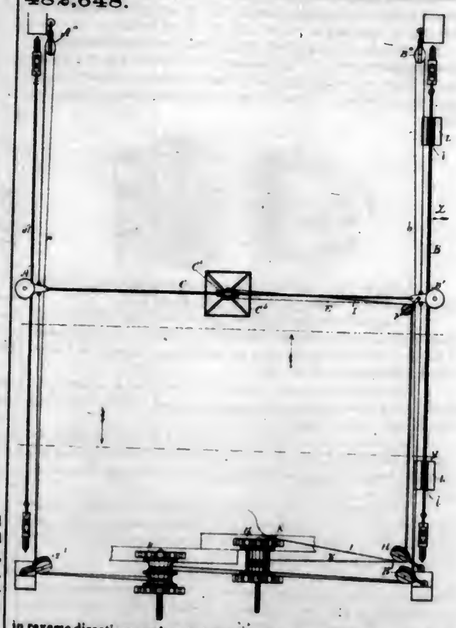
2. As a new article of manufacture, a rubber tennis-glove formed with a corrugated palm and a lining of some suitable absorptive material, substantially as and for the purpose set forth.

3. As a new article of manufacture, a rubber tennis-glove having the palm lined with a suitable felt, whereby the moisture from the hand will be absorbed and the glove prevented from slipping on the hand, substantially as set forth.

482,648. HOISTING DEVICE. ANDREW OLSON, Quincy, Mass. Filed Apr. 11, 1892. Serial No. 428,577. (No model.)

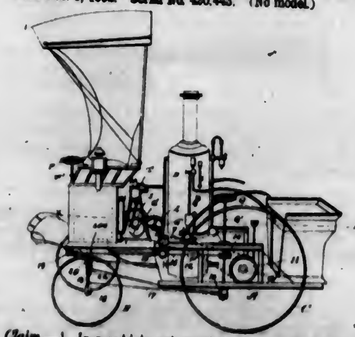
Claim.—A hoisting apparatus consisting of a pair of longitudinal cables A and B, one of which is arranged at a higher elevation than the other, the traveling rollers A' and B', mounted, respectively, on the longitudinal cables, a transverse cable C, connected with said traveling rollers, a trolley C', mounted on the transverse cable and provided with a suspended block and tackle composed of a sheave C^2, pulleys C^3 C^4, and a hoisting-rope E, a rope I, connected with said trolley, a pair of endless ropes *a* and *b*, connected with the traveling rollers on the longitudinal cables, a windlass D, on which said endless ropes are wound

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in reverse directions, and an independent hoisting-windlass G, on which the hoisting-rope is wound, substantially as described.

482,649. STEAM-CARRIAGE. ACHILLE PHILION, New York, N. Y. Filed Feb. 5, 1892. Serial No. 420,443. (No model.)



Claim.—1. In a vehicle substantially as described, the combination, with the main frame and the axle pivotally connected thereto, of the shaft Q', carrying a hand-wheel, the drum 16, fixed on said shaft, a cable taking around the drum and having its ends connected to the axle adjacent to the ends thereof, the sprocket-wheel 14, fixed on the shaft Q', the shaft P', carrying a hand-wheel, the sprocket-wheel 13, fixed on said shaft P', and a sprocket-chain taking around the sprocket-wheels 13 and 14, substantially as and for the purpose set forth.

2. In a vehicle substantially as specified, the combination, with the main frame or body and a tube connected to and depending from the frame or body and having a nut or collar at its lower end, of the axle, a rod connected to the axle and extending up into the tube of the frame or body, a coiled spring mounted upon the rod between the axle and the nut or collar of the tube, and a coiled spring mounted upon the rod within the tube and having one of its ends connected to the rod and the other end bearing against the frame or body, substantially as specified.

3. In a vehicle substantially as described, the combination, with the main frame or body and a tube connected to and depending from the frame or body and having a nut or collar at its lower end, of the axle, the shield connected to the axle, the rod pivotally connected to the shield and axle and extending up into the tube of the frame, a

coiled spring mounted on the rod between the axle and the nut or collar of the tube, and a spring mounted on the rod within the tube and having one of its ends connected to the rod and the other end bearing against the frame, all substantially as specified.

482,650. HORSESHOE. CHARLES A. READE, Chicago, Ill. Filed Feb. 13, 1892. Serial No. 421,425. (No model.)



Claim.—1. A horseshoe consisting of its body having on its under side a toe-calk, the full-height calks connected therewith and having their inner edges resting flush with the inner edge of the body, the angular branches connected to and extending from the outer edges of the side calks to the outer edge of the body, and the linear heel-calks located midway of the heel of said body and below and out of line with said side calks, substantially as and for the purposes specified.

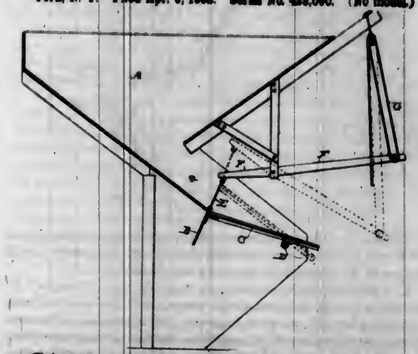
2. The combination, with the body of a horseshoe, having a toe and side calks, with angular branches extending from the side calks to the outer edge of the body, and the heel-calks located midway of the heel of said body and below and out of line with said side calks, of a web spanning the shoe on its upper side and having quarter-pads adapted to be seated between the contiguous ends of the side and heel calks and the frog pad connected to the web between said quarter-pads, substantially as and for the purpose specified.

482,651. BUTTON. JAMES B. RICHTER, Reedsburg, Wis. Filed May 27, 1892. Serial No. 434,632. (No model.)



Claim.—In a separable button, the combination, with the head having a collar extending from the upper wall to the bottom thereof, a tube with slotted wall arranged midway of the collar and having a recess at the upper portion thereof at an angle to said slotted part of the same, and a coiled spring located above said tube and in the collar, of a shank having on its upper end a lug, said shank with the lug adapted to be inserted in the slotted tube and rotated so that the lug will be seated in the recess of the tube, substantially as and for the purposes specified.

482,652. FEEDER FOR COAL, ORE, &c. LOUIS ROSENFELD, New York, N. Y. Filed Apr. 6, 1892. Serial No. 428,090. (No model.)



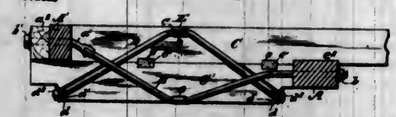
Claim.—1. A feeder for coal, ore, &c., having a supply hopper or bin provided with a discharge throat or chute, in combination with a platform in line with the discharge end of the throat or chute for receiving and temporarily holding the material in charges, said platform being pivotally secured and provided at its rear end with a gate adapted to close the throat or chute to cut off the further supply of material when the desired charge has been deposited upon the platform, substantially as herein described.

2. In a feeder having a supply hopper or bin with discharge-throat or chute, the combination of a gate controlling said throat or chute and a tilting platform for receiving the material in charges, said platform being located beyond said gate and connected therewith, whereby as the gate moves to control the passage of the material the platform varies its inclination to receive, regulate, temporarily hold, and deliver the charge, substantially as herein described.

3. In a feeder having a supply hopper or bin with discharge throat or chute, the combination of a gate controlling said throat or chute, a tilting screen beyond said gate and adapted to vary its inclination simultaneously with the movement of said gate, an operating-lever, and a connection therefrom with the gate, substantially as herein described.

4. A feeder consisting of the hopper or bin with discharge throat or chute, the movable gate traversing said throat or chute from below, the tilting charge-platform connected with said gate, the bail of the gate, and the operating-lever connected with the bail, substantially as herein described.

482,653. DRAW-TIMBER FOR CARS. JOHN ROVER and WILLIAM A. ROVER, Lima, Ohio. Filed May 24, 1892. Serial No. 434,134. (No model.)



Claim.—1. In a car, the combination, with the upper and lower sills C C', the end draft-bars A A', and the upper and lower cross-bars E E', engaging, respectively, the upper and lower sills, of the bent brace and truss rod B, engaging the lower cross-bar and having its ends detachably secured to the upper and lower draft-bars, the cross-plates *d*, bearing against the lower sill, and the bent brace and truss rod D, engaging the upper cross-bar and having its ends detachably secured to the cross-plates, substantially as described.

2. In a car, the combination of the upper and lower sills C C', the front draft-bar A, abutting the front end of the lower sill, the rear draft-bar A', abutting the rear end of the upper sill, the upper and lower cross-bars E E', mortised into the upper and lower sills and having curved end portions *c*, the bent brace and truss rod B, engaging the curved end portions of the lower cross-bar and having its ends extending through the upper and lower draft-bars and detachably secured in place, the cross-plates *d*, bearing against the lower sill, and the bent brace and truss rod D, engaging the curved end portions of the upper cross-bar and having its ends detachably secured to the cross-plates, substantially as described.

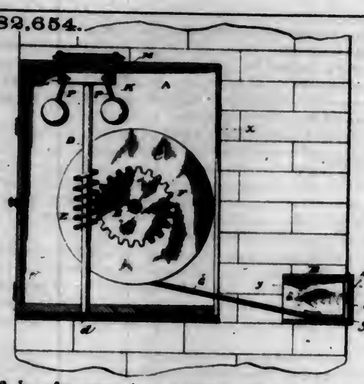
3. In a car, the combination, with the end draft-bars and upper and lower sills or beams and lower sills or beams, of the angular brace and truss rods and the cross-bars supported upon said sills or beams and having curved projecting ends to receive said brace and truss rods at their angles, said brace-rods connecting said draft-bars together and said truss-bars having their ends secured to cross-bars resting upon abutments or offsets of said lower sills or beams, substantially as set forth.

482,654. FIRE-ESCAPE. CHARLES R. SAMSOUSY, Duluth, Minn. Filed Nov. 30, 1891. Serial No. 413,564. (No model.)

Claim.—1. The fire-escape comprising the case or closure adapted to be inclosed in the inner face of a wall or building near an exit thereof, the spools or drums journaled therein, the chains or cables carried thereby, the straps, the vertical shaft carrying a worm in engagement with the gear of said drums, the friction-brake for said shaft, and the second and smaller case in the outer wall of the building and provided with a spring-actuated hinged face or cover, substantially as specified.

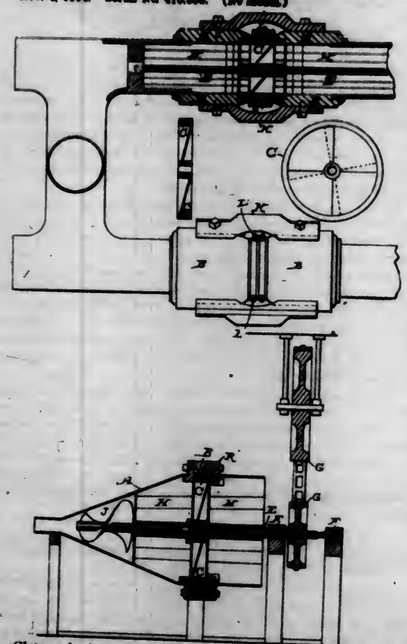


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2. In a fire-escape, the combination, with the drums or spools and the ropes or cables carried thereby, the gear, and the vertical shaft having the worm thereon in engagement with said gear, of the block on said shaft, the governor-arms connected to said block, the loose block adapted to be operated by said arms, and friction-disks in contact with said loose block, substantially as specified.

482,655. APPARATUS FOR THE PROPULSION AND TRANSMISSION OF WATER. MARK P. SEXTON, San Francisco, Cal. Filed Nov. 4, 1891. Serial No. 410,898. (No model.)



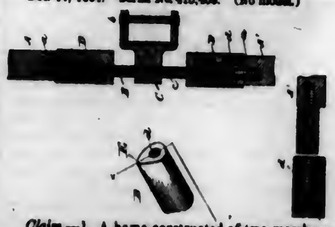
Claim.—1. An apparatus for the propulsion and transmission of water, consisting of the combination of a conical-shaped casing having a ring at the larger end of the casing and having a counterbore groove or channel in its inner face, a circular disk having angularly-disposed overlapping plates or blades fixed within it, and means for rotating the disk, substantially as herein described.

2. An apparatus for the propulsion and transmission of water, consisting of a disk having angularly-disposed overlapping plates or blades fixed within it, a means by which said disk may be rotated, a ring or casing having a counterbore in which the periphery of the disk is fitted to rotate, antifrictional wheels in the ring to sustain the disk, an extension-chamber connected with the ring, through which the water is delivered from the propeller-disk, and a web formed of angularly-united plates fitted into said chamber A or on both sides of the disk C.

forming passages through which the water is discharged, substantially as herein described.

3. An apparatus for the propulsion and transmission of water, consisting of the rim or disk with the radial angularly-disposed overlapping plates or blades, a means by which rotary motion is imparted to the propeller disk, a ring or casing with a counterbore in which the periphery of the disk rotates, antifriction wheels against which the disk is supported, an extension-chamber from said ring having an interior web with openings formed of plates whereby the rotation of the water in the chamber A, as well as on the other side of the disk C, is prevented as it is received or delivered by the propeller-disk C, an extension of the propeller-shaft passing through said web into the chamber, and a worm-screw or propeller-blade secured to said extension, substantially as herein described.

482,656. HAME. WILLIAM H. SIMMONS, Buffalo, N. Y. Filed Dec. 17, 1891. Serial No. 415,408. (No model.)



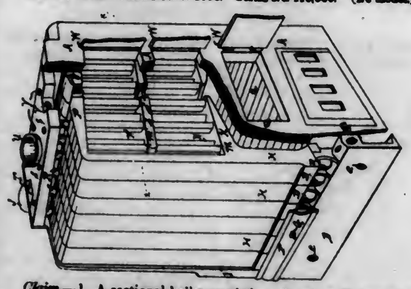
Claim.—1. A hame constructed of two members or sections having the threaded sockets in their contiguous ends, the connecting-rod having its threaded ends screwed into said sockets and adapted to be adjusted vertically therein, and the screw-threaded draft-iron carried by the threaded bar and adjustable thereon independently of the adjustment of the members to each other, substantially as described.

2. A hame constructed in two parts having the sockets in their contiguous ends, the collars fitted on said ends and each having an opening therein, part of which opening in the collar aligns with the sockets in the hame, and the connecting-rod adjustably fitted in the openings in the collars and hame, substantially as described.

3. A hame constructed in two parts, each having the sockets in one end, the collars fitted on the contiguous ends, and each collar having an opening therein, the opening in the collar at the outer end thereof being in alignment with the socket in the hame, the beveled extension on one side of each collar arranged to pass between the rim and body of the collar, the threaded connecting-rod, and the draft-iron, substantially as described.

4. A hame constructed of two parts having the sockets in their contiguous ends, the connecting-rod adjustably fitted in said socket, the draft-iron carried by said rod between the sections of the hame, and the collars fitted on said contiguous ends of the hame and each having a beveled extension on one side thereof, adapted to be fitted between the rim and body of the horse-collar, substantially as described.

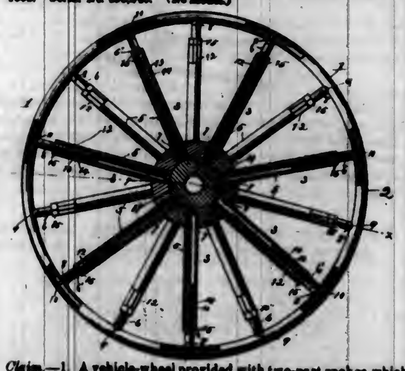
482,657. CAST-IRON SECTIONAL BOILER. HENRY A. SMITH, Detroit, Mich. Filed Nov. 3, 1891. Serial No. 410,800. (No model.)



Claim.—1. A sectional boiler consisting of sections H, having the parts K and P connected together by the pipes M N, the box L, and the pipes M' N', substantially as shown and described.

2. A sectional boiler consisting of opposing rows of sections H, each section having an intermediate water-box L, a damper between the opposing boxes L, end sections covering the vertical space between the two rows of sections H, a manifold at the base of each row of sections, and a drum connected with the top of all the sections, substantially as shown and described.

482,658. VEHICLE-WHEEL. WILLIAM W. TAYLOR, Wood, Ky., assignor of one-half to Charles L. Searcy, same place. Filed Apr. 23, 1892. Serial No. 430,940. (No model.)



Claim.—1. A vehicle-wheel provided with two-part spokes which are made of tubular metal and telescoped intermediate of their ends and with a continuous or endless metallic rim having no tire, substantially as described.

2. A vehicle-wheel provided with two-part spokes which are made of tubular metal and telescoped intermediate of their ends, with means for adjusting the length of said spokes, and with a continuous or endless and cylindrical metallic rim having no tire.

3. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube, with two-part tubular spokes which are telescoped intermediate of their ends, and with means for adjusting the length of said spokes, substantially as described.

4. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube, with two-part tubular spokes which are telescoped intermediate of their ends, and with means for adjusting the length of said spokes, said means including the exteriorly-screw-threaded portions of the outer parts of said spokes and the long interiorly-screw-threaded nuts mounted thereon, substantially as described.

5. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube, with two-part tubular spokes which are telescoped intermediate of their ends, and with means for adjusting the length of said spokes and holding them as adjusted, said means consisting of the exteriorly-screw-threaded portions of the outer parts of said spokes and the long interiorly-screw-threaded nuts and jam or lock nuts mounted thereon, substantially as described.

6. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube having openings in its inner surface, with a hub having screw-threaded spoke-openings, with two-part tubular and telescoped spokes having screw-threaded inner ends and forked or concaved shoulders with tenons at their outer ends, and with means for adjusting the length of said spokes, substantially as described.

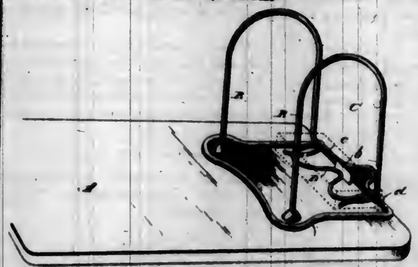
7. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube having openings in its inner surface, with a hub having screw-threaded spoke-openings, with two-part tubular and telescoped spokes having screw-threaded inner ends and forked or concaved shoulders with tenons at their outer ends, and with means for adjusting the length of said spokes, said means including the exteriorly-screw-threaded portions of the outer parts of said spokes and the long interiorly-screw-threaded nuts mounted thereon, substantially as described.

8. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube having openings in its inner surface, with a hub having screw-threaded spoke-openings, with two-part tubular and telescoped spokes having screw-threaded inner ends and forked or concaved shoulders with tenons at their outer ends, and with means for adjusting the length of said spokes and holding them as adjusted, said means consisting of the exteriorly-screw-threaded portions of the outer parts of said spokes and the long interiorly-screw-threaded nuts and jam or lock nuts mounted thereon, substantially as described.

9. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube, with two-part and tubular spokes, and with a hub having an interiorly-screw-threaded bore or opening and a two-part vertically-divided exteriorly-screw-threaded and removable journal-box, substantially as described.

10. A vehicle-wheel constructed entirely of metal and provided with a rim which is wholly composed of a continuous pipe or tube, with two-part tubular and adjustable spokes, and with a hub having a two-part and vertically-divided journal-box in its bore, a space or oil chamber between said parts, one or more feed-ducts leading thereto, and one or more screw-plugs for normally closing said ducts, substantially as described.

482,659. BILL-FILE. JAMES TRALL, Rochester, N. Y. Filed July 7, 1892. Serial No. 439,214. (No model.)



Claim.—1. In a paper-file, a swinging frame having the lower or connecting portion within a cover or casing, said connecting portion having a plate secured thereto which extends beyond each side of the same, and a spring located within the casing and adapted to exert a spring pressure upon the plate, substantially as shown, and for the purpose set forth.

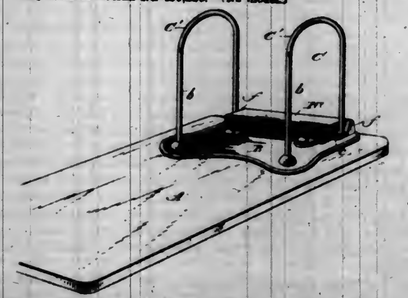
2. A bill or paper file having a swinging frame made up of a single piece, a plate *b*, secured to the central portion of said swinging frame, and a spring having its terminal members bent to embrace the connecting portion of the swinging frame and bear upon the plate carried thereby, substantially as shown.

3. In a bill-file constructed substantially as shown, a swinging frame C, provided with a concave plate *b*, and a spring having a central portion which bears upon said plate, the terminal members being curved and looped around the transverse portion of the swinging frame and adapted to contact with a casing or cover, substantially as shown, and for the purpose set forth.

4. In a bill-file, the combination of a base having upwardly-projecting pins B B, a swinging frame made of a single piece, the connecting portion thereof carrying centrally a plate, and a spring adapted to engage with said plate on opposite sides of the connecting portion, so as to hold the swinging frame either in contact with the pins or away from the same by exerting a spring-pressure on opposite sides of the cross-bar, substantially as shown, and for the purpose set forth.

5. In a bill-file, the combination of a base carrying upwardly-projecting pins, a casing retaining therein a swinging frame, said casing having lugs adjacent to the openings through which the connecting-bar of the swinging frame passes, the connecting-bar having a plate secured thereto, a wire or bar spring having a central portion which bears upon the plate, and curved portions connecting the central portion with the terminal members, said terminal members being looped over the connecting-bar of the swinging frame and the ends extended to bear against the casing, substantially as shown.

482,660. BILL-FILE. CHRISTIAN D. THEN, Rochester, N. Y. Filed July 7, 1892. Serial No. 439,220. (No model.)



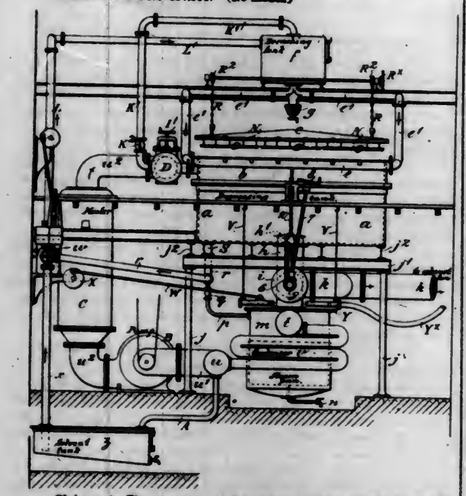
Claim.—1. A paper file having a base with upwardly-projecting pins and concave legs carried thereby and a movable frame made of a single piece, the connecting portion of said frame being curved up-

wardly to provide a spring portion which abuts against the inner side of a covering-plate, so as to hold the movable frame in contact with the pins or rearwardly inclined, substantially as shown, and for the purpose set forth.

2. In a bill-file, the combination of the base B, having upwardly-projecting pins secured thereto, a covering plate or frame adapted to be secured to the base and provided with end recesses through which the lower portion of the swinging frame passes, and inclined stops formed on the covering-plate, the swinging frame having a transverse portion which is bent out of line with its bearings and flattened, said central connecting portion being adapted to abut against the inner side of the covering-plate, substantially as shown, and for the purpose set forth.

3. In a bill-file, the combination of a swinging frame secured to a base B, having upwardly projecting pins, and a covering-plate therefor having a flat inner side with which the connecting portion of the swinging frame engages, said connecting portion being bent out of line with the side bearings and provided with flattened portions, substantially as shown, and for the purpose set forth.

482,661. PROCESS OF AND APPARATUS FOR DEGREASING LEATHER. FREDERICK N. TURNEY, Nottingham, England. Filed Jan. 9, 1892. Serial No. 417,555. (No model.)



Claim.—1. The process of degreasing leather herein described, which consists in suspending the leather within a closed tank, drenching it with a solvent, passing a current comprising heated air and a vapor of the solvent over the leather, condensing the vapor of the solvent out of the current of heated air and vapor, and passing air substantially free of the vapor over the leather, substantially as described.

2. The process of degreasing leather herein described, which consists in suspending the leather within a closed tank, drenching it with a solvent, passing a current comprising heated air and a vapor of the solvent over the leather, and recovering the solvent for reuse by condensing the vapor of the solvent out of the current of heated air and vapor, substantially as described.

3. In an apparatus for degreasing leather, the combination, with a storing-tank for the solvent and a degreasing-tank, of means for suspending the leather in said tank, a drenching-tank having communication with the degreasing-tank, a steam-jacketed pan for vaporizing the solvent, communicating with the degreasing-tank, a longitudinal pipe located beneath and communicating with the degreasing-tank, condensing-coils connected with said longitudinal pipe and with the solvent-storing tank, a pump for conveying the solvent from the storing-tank to the drenching-tank, and a pan connected with the vaporizing-chamber and with the degreasing-tank, substantially as described.

4. In an apparatus for degreasing leather, a degreasing-tank formed with flanged pipes *c* and provided with orifices *d*, communicating with said flanged pipes, and provided, also, with an oblong passage J and having angle and T bars 17 located therein, substantially as described.

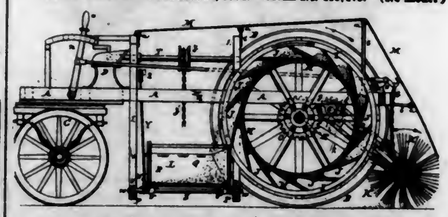
5. In an apparatus for degreasing leather, the combination, with a degreasing-tank, and angle and T bars located within said tank, of perforated trays for showering a solvent upon the leather and leather-supporting frames provided with rollers running on said angle and T bars, substantially as described.

482,662. MOTTO-PLATE. CHARLES M. UNDERWOOD, Hamilton, Canada. Filed Mar. 14, 1892. Serial No. 424,876. (No model.) Patented in Canada Apr. 23, 1892, No. 36,787.



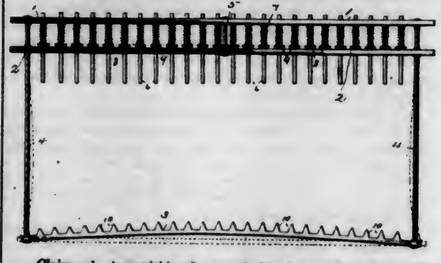
Claim.—An inscription or motto plate consisting of a main frame having a depressed panel between two perpendicular slits, a letter-plate holder fitted in said panel having bent prongs at each end for securing to said frame, and letter plates and blank plates bent down at top and bottom about said letter-plate holder, substantially as described.

482,663. STREET-SWEEPING MACHINE. ANDREAS VOELKLE, New York, N. Y. Filed Dec. 18, 1891. Serial No. 415,475. (No model.)



Claim.—The combination, in a street sweeping machine, of the rotating drum having peripheral pockets, the collecting-trough located in front of said drum, the flat spring upon which the rear of the trough rests, the crank-arbor carrying the rear portion of the trough and journaled in bearings in the frame, the roller upon which the front portion of the trough rests and is adapted to move, the hinged door, latch-hook, and engaging-stud, and the elevating-rope and hand-crank, whereby the door is opened and the trough raised and moved forward, substantially as and for the purposes specified.

482,664. VARNISHING FRAME OR HOLDER. ALBERT G. WEISENBORN, Jersey City, N. J., assignor to the American Lead Pencil Company, New York, N. Y. Filed Mar. 23, 1892. Serial No. 426,157. (No model.)



Claim.—1. A varnishing frame or holder for pencils and other like articles, provided with means for engaging by end pressure the terminals only of the pencil or other article, substantially as described.

2. A varnishing frame or holder for pencils and other like articles, containing a number of individual clamps for engaging by end pressure the terminals of the pencils to the exclusion of any portion of the sides, substantially as described.

3. A varnishing frame or holder provided with a series of clamps, each composed of a spring-actuated pin-follower and a blunt lug opposite to and matching said follower, substantially as described.

4. A varnishing frame or holder composed of two parallel bars, spring-actuated followers mounted therein, another bar provided with lugs equal in number to and matching the followers, and side rods connecting the last named bar with the two parallel bars, substantially as described.

5. A holder for articles to be varnished, composed of a rigid guide with a series of elastically-supported pin-followers mounted therein and a frame connected with the rigid guide and provided with a bar having lugs in alignment with the pins, substantially as described.

6. A holder for articles to be varnished, composed of a rigid guide with a series of elastically-supported pins mounted therein and an elastic frame connected with the rigid guide and provided with an elastic bar having lugs in alignment with the pins, substantially as described

7. A varnishing frame or holder for pencils and other like articles, provided with means for engaging by end pressure a portion only of the terminals and no portion of the sides of the pencil or other article, substantially as described.

8. A varnishing frame or holder for pencils and other like articles, containing a number of individual clamps for engaging by end pressure a portion only of the terminals of the pencils to the exclusion of any portion of the sides, substantially as described.

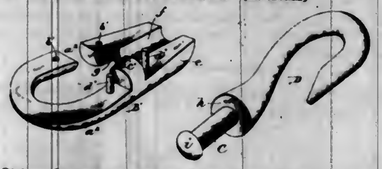
9. A varnishing frame or holder provided with a series of spring-actuated followers and a series of lugs or supports for the articles to be varnished equal in number to and matching the followers, the clamping-faces of the followers and lugs being smaller than the terminal faces of the articles, substantially as described.

10. A varnishing frame or holder provided with a series of clamps, each composed of a spring-actuated follower and a blunt lug opposite to and matching said follower, the clamping-faces of the followers and lugs being smaller than the terminal faces of the articles, substantially as described.

11. A varnishing frame or holder composed of two parallel bars, spring-actuated followers mounted therein, another bar provided with lugs equal in number to and matching the followers, the clamping-faces of the followers and lugs being smaller than the terminal faces of the articles to be held thereby, and side rods connecting the last-named bar with the two parallel bars, substantially as described.

12. A holder for articles to be varnished, composed of a rigid guide with a series of elastically-supported pin-followers mounted therein and a frame connected with the rigid guide and provided with a bar having lugs in alignment with the pins, the clamping-faces of the followers and lugs being smaller than the terminal faces of the articles to be held thereby, substantially as described.

482,665. CHAIN-LINK. DAVID M. WILLIAMS, Edwardsdale, Pa. Filed May 11, 1892. Serial No. 432,642. (No model.)



Claim.—In a chain substantially as described, the combination, with a link consisting of two sections respectively comprising the body of a general loop form having an opening, the transverse apertures formed in the body adjacent to the opening therein, the shoulder extending from the inner side of the body, the studs extending from the inner side of the body on opposite sides of the shoulder and adapted to take through the transverse apertures of the other section and be riveted, and the extended portion *e*, having a groove *f*, of semicircular form in cross-section, in its inner side, and the seat *g* at the inner end of said groove, of the hook having its shank journaled in the bearing formed by the grooves *f* of the extended portion *e* and reduced to form the shoulder A and the head *i*, substantially as specified.

482,666. BRUSH AND METHOD OF MAKING THE SAME. ARTHUR H. WOLCOTT, Winthrop, assignor to John L. Whiting & Son, Boston, Mass. Filed Nov. 18, 1891. Serial No. 411,783. (No model.)

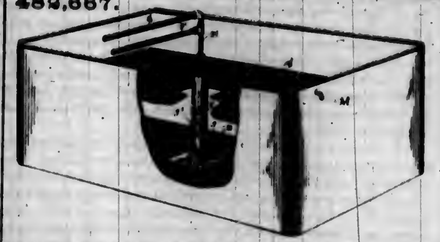


Claim.—The method herein described of securing brush-bristles, which consists in compressing the butt-ends of the bristles inwardly toward the center of the mass by simultaneously compressing all parts of an annular ductile metal band directly against the butt-ends of the bristles, substantially as described.

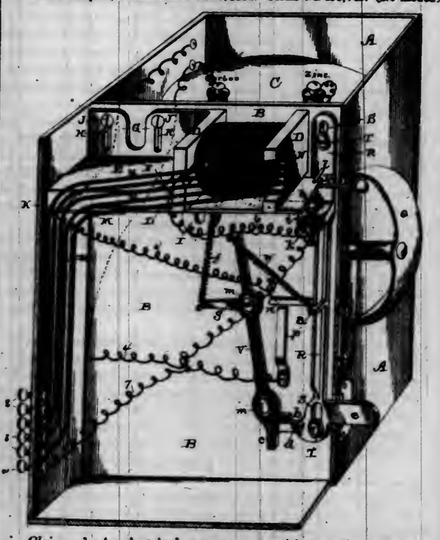
482,667. APPARATUS FOR THE PASTEURIZATION OF BEER. SAMUEL S. WOODBURY, Bradford, Pa. Filed Nov. 3, 1891. Serial No. 410,661. (No model.)

Claim.—The combination, with a tank, of a circulation-pipe supported therein, a hot and cold supply-pipe connected to the upper end of the circulation-pipe, and a deflector composed of diverging sides arranged beneath the last-named pipe, substantially as shown and described.

482,667.



482,668. ELECTRICAL APPARATUS. LEONIDAS G. WOOLLEY, Grand Rapids, Mich. Filed June 6, 1892. Serial No. 435,745. (No model.)



Claim.—1. An electrical apparatus comprising a coil or helix, two circuits, a vibrating rheotome within both circuits, a shifting bar carrying a contact-point within both circuits and engaging the said rheotome, a second contact-point carried by the said shifting bar for closing and opening one of said circuits, and electrodes connected with the said helix or coil, substantially as specified.

2. An electrical apparatus comprising a coil or helix, two circuits, a vibrating rheotome within both circuits, a shifting bar carrying a contact-point which is within both circuits, the said contact-point engaging the said rheotome, the shifting bar limiting the upward movement of the rheotome and itself moving substantially at right angles to the said rheotome, and electrodes connected to the said coil or helix, substantially as described.

3. An electrical apparatus comprising an electro-magnet, the coil thereof being formed into a loop or loops, a vibrating rheotome therefor carrying a clapper, a shifting bar moving at substantially right angles to the said rheotome and engaging with both the circuit-breaker and armature thereof, an outer and inner circuit, the said shifting bar being within both circuits and carrying a contact for breaking and closing the said inner circuit, and electrodes connected to the said coil, substantially as specified.

4. An electrical apparatus comprising an electrical source, an electro-magnet, the coil thereof being formed into one or more loops, a vibrating rheotome, a sliding shifting bar engaging both the armature and circuit closer and breaker of the rheotome, the said bar being supported and sliding substantially at right angles to the rheotome, a stop with which the said shifting bar engages for holding it in its shifted position, an inner and outer circuit connected with the said shifting bar, the said bar having a contact for closing and opening the inner circuit, and electrodes connected with the said magnet-coils, substantially as specified.

5. An electrical apparatus comprising an electro-magnet, a vibrating rheotome, a shifting bar engaging the said rheotome, the bar being at right angles to the rheotome, having longitudinal slots, and an operating arm or handle, supporting-screws passing through the said slots, a stop engaging the said shifting bar for holding it in its shifted position, and the circuits formed substantially as described, whereby the shifting of the bar opens or closes one circuit and shifts the rheotome, substantially as described.

6. An electrical apparatus comprising an electro-magnet, a vibrating rheotome, a shifting bar engaging said rheotome, the bar being substantially at right angles to the rheotome and having a longitudinal and lateral movement at its lower end, the bar being provided with a projection, stops with which the projection engages, one stop being nearer the rheotome than the other, an operating-handle, a spring for holding the bar projection in engagement with the stop, and the circuits formed substantially as described, whereby the shifting of the bar opens or closes one circuit and shifts the rheotome, substantially as set forth.

7. An electrical apparatus comprising an electro-magnet, a vibrating rheotome, a sliding shifting bar engaging the said rheotome, the bar having a longitudinal and lateral movement at its lower end, an operating-handle, stops for the said projection, one nearer the rheotome than the other, and a spring for normally holding the bar toward the rheotome and also toward the said stops, and the circuits formed substantially as described, whereby the shifting of the bar shifts the rheotome and breaks or closes one of the circuits, substantially as specified.

8. An electrical apparatus comprising an electro-magnet, a vibrating rheotome therefor, a shifting bar substantially at right angles to the rheotome and which engages the rheotome for shifting it, the said magnet having an adjustment longitudinal of the said bar for the purpose specified, and the circuits formed substantially as described, whereby the shifting of the bar shifts the rheotome and closes or opens one of the circuits, substantially as specified.

9. An electrical apparatus comprising an electro-magnet, a vibrating rheotome therefor, a longitudinally-sliding shifting bar substantially at right angles to the said rheotome and engaging therewith, stops for the bar, the said magnet and stops each having an adjustment longitudinal of the said bar, as specified, and the circuits formed substantially as described.

10. An electrical apparatus comprising an electro-magnet, a vibrating rheotome therefor, a longitudinally-sliding shifting bar substantially at right angles thereto, engaging the said rheotome, a stop-bar having stops at its lower ends for the said shifting bar and extending upward, a spring secured to the said stop-bar and the rheotome, a spring also secured to the said stop-bar and the shifting bar, all operating as described, and the circuits formed substantially as set forth.

11. An electrical apparatus comprising an electro-magnet having transverse slotted supporting-ears, a rheotome, a longitudinally-sliding shifting bar engaging the said rheotome, and the circuits formed substantially as specified, whereby the magnet is adjustable in relation to the shifting bar, substantially as described.

12. An electrical apparatus comprising an electro-magnet having a securing projection at one pole-piece, a vibrating rheotome having one end secured to the said projection and its free end overlapping the other pole, whereby the magnetism of the magnet is concentrated at the pole adjacent to the free end of the rheotome, a circuit, and contact-points, substantially as set forth.

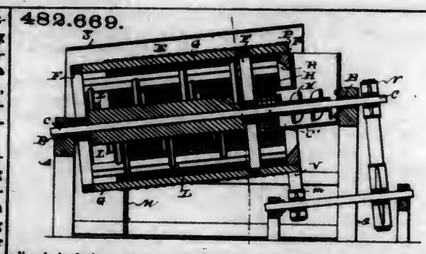
13. An electrical apparatus comprising a battery, a magnet having only a primary coil which is itself formed into loops for the purpose specified, a vibrating rheotome, two circuits formed through the said coil, a shifting bar engaging the free end of the rheotome and within both the circuits a contact upon the sliding bar for closing and breaking one circuit, and electrodes connected with the said magnet-coil and the said loops, substantially as specified.

14. An electrical apparatus comprising a coil or helix, two circuits, a vibrating rheotome within both circuits, a shifting bar carrying a contact-point within both circuits and engaging the said rheotome, and a second contact-point carried by the said shifting bar for closing and opening one of the said circuits, substantially as specified.

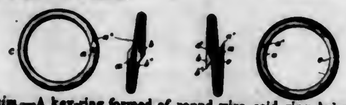
482,669. COTTON-CLEANING MACHINE. CORNELIUS YOUNG, Selma, Ala. Filed Nov. 19, 1891. Serial No. 412,400. (No model.)

Claim.—1. In a cotton-cleaning machine, the combination, with the framework having the transverse under partition and the inclined shaft journaled in said framework, said shaft having a series of spirally-arranged beaters terminating short of one end thereof, of the inclined large-mesh-wire cylinder around said shaft, said cylinder having at its upper end, around that portion of the shaft free from beaters, a circular receiving-chamber located between the upper end frame of the cylinder and an interior circular frame, and mechanism for rotating said shaft and cylinder, substantially as specified.

2. In a cotton-cleaning machine, the combination, with the inclined shaft, its series of spirally-arranged beaters in close proximity to each other and terminating short of one end of the shaft, of the inclined large-mesh wire-cloth cylinder around said shaft, the circular frame therein near one end portion, and a circular receiving-chamber around that portion of the shaft free from the beaters, said chamber being located between said circular frame and the upper end frame of the cylinder, and mechanism designed to rotate said shaft and cylinders at different rates of speed, substantially as specified.

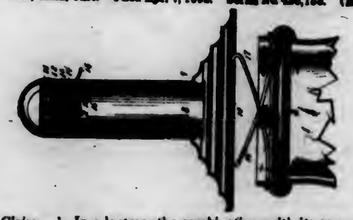


482,670. RING. RUDOLF B. ACKERMAN, Minneapolis, Minn., assignor to John Chester Lyman, Chicago, Ill. Filed Dec. 16, 1891. Serial No. 415,311. (No model.)



Claim.—A key-ring formed of round wire, said ring being normally helical in form and with free ends beveled in reverse direction, the cylindrical portion of the ends overlapping and adapted by torsion to have the beveled ends reversed for the insertion of a key, substantially as described.

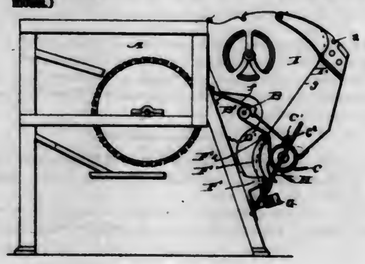
482,671. LANTERN. ALFRED L. RABOS and BENJAMIN F. COCKAYNE, Tiffin, Ohio. Filed Apr. 7, 1892. Serial No. 428,138. (No model.)



Claim.—1. In a lantern, the combination, with its cap and suitable supporting parts, of a globe-holder consisting of two separate equal spring-loops fastened to the lower end of the cap and extending obliquely in opposite directions, so as to act with equal resiliency against the top of the globe and hold it in place, substantially as and for the purpose specified.

2. In a lantern, the combination, with a tube and supporting parts, of an open-sided sleeve thereon adapted to carry a cap-piece, and a spring secured to the sleeve and passing around a guard formed between the openings 12 and 14 to form a catch, and a notch in the tube, substantially as and for the purpose specified.

482,672. HULLER COTTON-GIN. WILLIAM G. BOOKWITH, Prattville, Ala., assignor to the Daniel Pratt Gin Company and Washington L. Hill, Sr., same place. Filed Mar. 31, 1892. Serial No. 427,251. (No model.)



Claim.—1. In a huller-gin, the combination, with the saws, the spiked roller, and the driving belt, of the belt-regulator and its lever and the pivoted cotton-box head normally in contact with an arm of said lever, substantially as specified.

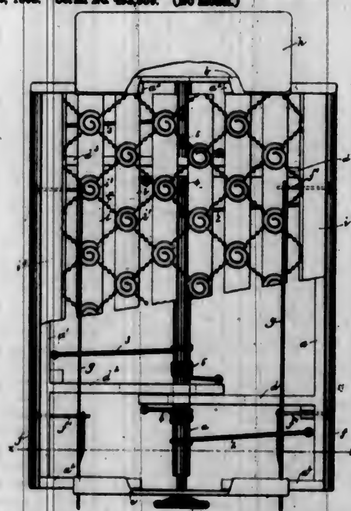
2. In a huller-gin, the combination, with the cotton-box head having a tail-piece, the spiked roller, the saw-shaft and saws, and the belt driving said roller from the saw-shaft, of the belt-regulator normally held against said belt, the lever carrying said regulator, the lower end of said lever being extended into position to be engaged by the tail-piece of the cotton-box head, substantially as specified.

3. In a huller-gin, the combination, with the hinged or pivoted head, the spiked roller, its adjustable bearing, the saws, and the driving-belt, of the tightener-lever acting on said belt, and means on said cotton-box head for engagement with an arm of said lever when said head is in its normal position, substantially as specified.

4. In a huller cotton-gin, the combination, with the hinged or pivoted head, the spiked roller, and its driving-belt, of the tightener-lever acting on said belt, the spring-box on the tail-piece of the head, and the lever for operating the cotton-box, substantially as specified.

5. In a huller cotton-gin, the combination, with the spiked roller, the saws, the driving-belt, and the lever carrying the regulator for said belt, of the hinged or pivoted cotton-box head formed in two sections having a loose connection, one of said sections having a tail-piece adapted to engage an arm of said lever, substantially as specified.

482,673. LOUNGE. WILLIAM S. BOWIE, Boston, Mass. Filed May 9, 1892. Serial No. 432,290. (No model.)



Claim.—1. In a lounge or couch bed, two transversely-movable slat-supporting sections and slats carrying springs thereon, the side slats being rigidly secured to their supports and the intermediate slats being free to move on their supports and connected with the side slats, combined with a single longitudinal operating-shaft *e* and intermediate connections between said shaft and said transversely-movable sections, whereby the latter are extended and retracted by the operation of the former, substantially as described.

2. In a lounge or couch bed, two longitudinal side rails and two transverse slat-supporting frames connected to each side rail and movable transversely therewith, and several longitudinal slats carrying springs, mounted on said transverse supporting-frames, the side slats being rigidly secured to their supports and the intermediate slats being free to move on their supports and connected with the side slats, combined with the longitudinal operating-shaft *e* and intermediate connections between said transversely-movable parts and said shaft, whereby the bed may be extended and retracted by turning said shaft, substantially as described.

3. In a lounge or couch bed, two longitudinal side rails and two transverse slat-supporting frames connected to each side rail and movable transversely therewith, end pieces a^6, also connected to said side rails, and several longitudinal slats carrying springs, mounted on said transverse supporting-frames, separable transversely, combined with the longitudinal operating-shaft *e* and intermediate connections between said transversely-movable parts and said shaft, whereby the width of the bed may be varied by turning said shaft and a single-width head-board and foot-board formed to present guides for said end pieces a^6, substantially as described.

4. In a lounge or couch bed, two longitudinal side rails and two transverse slat-supporting frames connected to each side rail and movable therewith, and several slats carrying springs, supported on said frames, combined with the longitudinal operating-shaft *e* and cords or chains connecting said shaft with the transversely-movable parts, whereby the latter are extended or retracted by said shaft, substantially as described.

5. In a lounge or couch bed, two longitudinal side rails and two transverse slat-supporting frames connected to each side rail, having slots or openings a^5, slats carrying springs, placed on said slotted frames, combined with a single longitudinal operating-shaft *e*, placed in said slots or openings a^5, and intermediate connections between said shaft and the transversely-movable parts, whereby the bed is extended or retracted by the operation of said shaft, substantially as described.

6. In a lounge or couch bed, two transversely-movable sections, slats carrying springs placed thereon, the side slats being rigidly secured to these supports and the intermediate slats being free to move on their supports, and the slats i^3, placed on top of the springs on said rigidly-secured side slats, combined with a full-width mattress placed on said springs and pockets to receive the side edges of said mattress when the bed is closed up and used as a lounge, substantially as described.

7. In a lounge bed, two transversely-movable slat-carrying frames, slats independently movable thereon, and springs borne by said slats, combined with the side pieces *f f* to hold the side edges of the bedclothing, substantially as described.

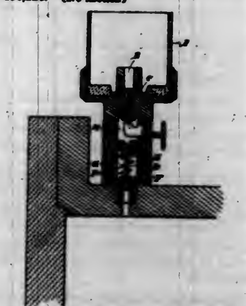
8. In a lounge-bed, two transversely-movable slat-carrying frames, slats independently movable thereon, and springs borne by said slats, combined with side pieces *f f* and a locking or retaining device therefor, substantially as described.

9. In a lounge or couch bed, two transversely-movable sections, slats carrying springs thereon, the side slats being rigidly secured to their supports and the intermediate slats being free to move on their supports and connected with the rigidly-secured side slats, combined with a full-width mattress placed on said springs and pockets at the sides of the transversely-movable sections to receive the side edges of said mattress when the bed is retracted and used as a lounge, substantially as described.

10. In a lounge or couch bed, two transversely-movable slat-supporting sections and slats carrying springs thereon, the side slats being rigidly secured to their supports and the intermediate slats being free to move on their supports and connected with the rigidly-secured side slats, and means for extending and retracting said sections transversely to widen or narrow the bed, combined with a full-width mattress placed on said springs and pockets to receive the side edges of said mattress when the bed is retracted and used as a lounge, substantially as described.

11. In a lounge or couch bed, two transversely-movable slat-supporting sections and means for extending and retracting them, combined with a series of slats carrying springs, supported on said sections, the outside slats being rigidly secured to the sections and the intermediate slats being free to move independently on their supports and connected with each other and with the rigidly secured side slats, whereby they will be separated as the slat-supporting sections are extended, substantially as described.

482,674. LUBRICATING-CUP. IRA J. REIGER, San Francisco, Cal., assignor of one-half to A. W. Sanborn, same place. Filed Dec. 26, 1891. Serial No. 416,223. (No model.)



Claim.—1. A lubricator-cup having the opening and extension below, and an upwardly-closing valve which opens by gravitation when relieved of pressure and closes when pressure is applied from below, whereby oil is admitted into the valve-chamber from the cup when

the valve is opened, said extension having a second chamber containing a double-ended valve situated below the first one, one of the valves closing upwardly when exposed to pressure from below and the other closing downwardly when exposed to pressure from above, substantially as herein described.

2. A lubricating-cup having the passage and chamber below the bottom of the cup, a valve situated within said chamber, closing upwardly when exposed to pressure from below and opening by gravitation to allow oil to flow into its chamber, an extension from said cup having a second chamber situated below and communicating with the first-named chamber, a valve-stem within said chamber, having an upwardly-closing valve at the lower end, and a spring surrounding the valve-stem, acting to close the lower valve, whereby the upper valve is opened, said extension having a second chamber containing a double-ended valve situated below the first one, one of the valves closing upwardly when exposed to pressure from below and the other closing downwardly when exposed to pressure from above, substantially as herein described.

to said fixed standards with freedom for both a sliding and pivotal motion thereon, substantially as and for the purpose set forth.

4. The combination, with a supporting-truck, of pivoted standards rising from one end of said truck, a band-cutter and feeder frame having the delivery end of the same pivoted to said pivoted standards and its receiving end free for sliding and pivotal movement, a fixed gear carried by said frame, and a worm and worm-gear carried by the pivoted standards, having one member of the train engaging said fixed gear, whereby the said frame may be adjusted both vertically and longitudinally by said worm-gear, substantially as described.

livering thereto from its top, and means for moving said grain-board toward and from the celled feed-cylinder, whereby any shattered grain accumulating at the throat between the grain-board and feed-cylinder will be forced into the cells of the said cylinders and be carried over to the thrashing-cylinder, substantially as described.

5. The combination, with the feed-board G, of the grain-board B^2 B^3, pivoted to the frame near its inner end and pivotally connected to the feed-board G at its outer end, means, such as the eccentric B^5 and the rod B^6, for imparting a rocking motion to said grain-board, the cylinder E, overhanging the said feed-board and provided with band-cutting knives and stripping-combs, and the celled feed-cylinder B B', overhanging the grain-board B^2 and delivering from its top, substantially as described.

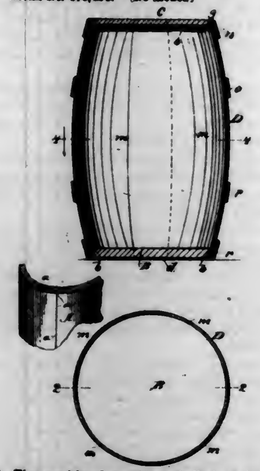
arm for adjustably securing the same in any desired position, and an eccentric strap or ring on said eccentric engaging crank-arms on said shaft for feathering the said shafts under the motion of the cylinder, substantially as described.

12. In a band-cutter and feeder, the combination, with the rotary cylinder having feathering shafts for carrying the band-cutting knives, stripping-combs, and clearing teeth, as described, of the stripping-comb and clearing-teeth castings formed with half-hubs and means for detachably clamping the same together and to the said shafts, and the comb member of which casting is provided with a shank for securing the knives thereto, substantially as described.

the valve is opened, said extension having a second chamber containing a double-seated valve situated below the first one, one of the valves closing upwardly when exposed to pressure from below and the other closing downwardly when exposed to pressure from above, substantially as herein described.

2. A lubricating-cup having the passage and chamber below the bottom of the cup, a valve situated within said chamber, closing upwardly when exposed to pressure from below and opening by gravitation to allow oil to flow into its chamber, an extension from said cup having a second chamber situated below and communicating with the first-named chamber, a valve-stem within said chamber, having an upwardly-closing valve at the lower end, and a spring surrounding the valve-stem, acting to close the lower valve, whereby the upper valve is closed when exposed to pressure from below and the lower valve is closed and the upper valve opened by the action of the spring when relieved from pressure from below, substantially as herein described.

482,675. BARREL. EMERSON COLE, Brooklyn, N. Y. Filed Jan. 18, 1892. Serial No. 418,458. (No model.)



Claim.—1. The combination, with a shell or body which is provided with a longitudinal slit near the end and having the edges of said slit chamfered and overlapping and an inwardly-extending head thereon near the end edge of the body, of a head that is disk-like and coniform on the edge seated on the interior bead and a hoop adapted to compress the end wall of the body against the edge of the head and seal the overlapping joints of the body, substantially as described.

2. The combination, with a body or shell which has a longitudinal slit near each end extending through the ends, the edges of which slits are chamfered and overlapping, and an inwardly-projecting bead at each end of the body, of a coniform top head seated on an adjacent bead, a peripherally-grooved lower head interlocking with an adjacent bead, and a hoop at each end adapted to compress the body against the edges of the heads and close the overlapping edges of the body-slits, substantially as described.

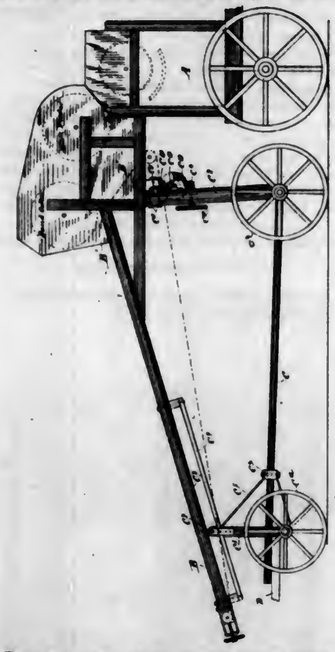
482,676. SUPPORT FOR BAND-CUTTERS AND FEEDERS. ROBERT E. DORTON, Minneapolis, Minn. Filed Mar. 15, 1892. Serial No. 424,946. (No model.)

Claim.—1. The combination, with a supporting-truck, of a band-cutter and feeder frame mounted on said truck and means for independently raising and lowering either end of said frame on the said truck, substantially as and for the purpose set forth.

2. The combination, with a truck, of fixed standards rising from one end of the truck and pivoted standards from the other and a band-cutter and feeder frame having one end pivoted to said pivoted standards and the other secured to the other standard with freedom for both a sliding and pivotal movement, whereby the band cutter and feeder frame may be adjusted by moving the pivoted standards, substantially as described.

3. The combination, with a wagon-like truck having its front and rear sets of wheels adjustably coupled together, of pivoted standards rising from one end of said truck and fixed standards rising from the other and a band-cutter and feeder frame having its delivery end pivoted to said pivoted standards and having its receiving end connected to said fixed standards with freedom for both a sliding and pivotal motion thereon, substantially as and for the purpose set forth.

4. The combination, with a supporting-truck, of pivoted standards rising from one end of said truck, a band-cutter and feeder frame having the delivery end of the same pivoted to said pivoted standards and its receiving end free for sliding and pivotal movement, a fixed gear carried by said frame, and a worm and worm-gear carried by the pivoted standards, having one member of the train engaging said fixed gear, whereby the said frame may be adjusted both vertically and longitudinally by said worm-gear, substantially as described.



5. The combination, with the wagon-like truck having its sets of wheels adjustably coupled together, of standards rising from the front axle, fixed against pivotal motion when the wheels are coupled together, standards rising from the rear axle free for pivotal motion thereon, a band-cutter and feeder frame having its delivery end pivoted to said pivoted standards and its receiving end mounted for both sliding and pivotal motion on said fixed standard, a fixed gear carried by said frame, and a worm and train of worm-gear carried by said pivoted standards, one member of which meshes with said fixed gear, substantially as and for the purposes set forth.

482,677. BAND-CUTTER AND FEEDER. ROBERT E. DORTON, Minneapolis, Minn. Filed Mar. 15, 1892. Serial No. 424,947. (No model.)

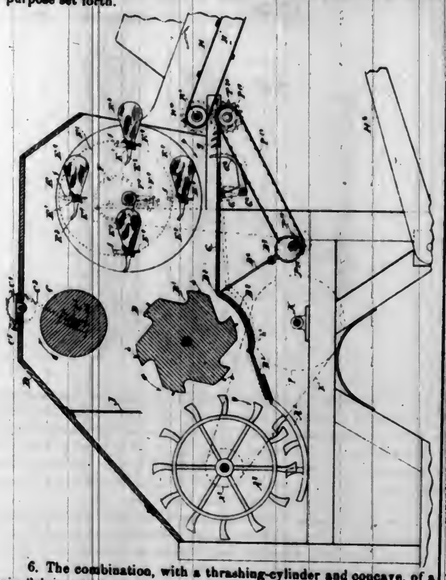
Claim.—1. In a band-cutter and feeder, a rotary cylinder carrying the band-cutting knives and provided with a series of stripping-combs, whereby the bands are cut and a series of endwise divisions of the bundles are effected, substantially as described.

2. The combination, with the longitudinally-reciprocating toothed feed-board, of the rotary cylinder overhanging said board transversely to the line of feed and provided with band-cutting knives and stripping-combs and a bundle-supplying conveyer having its delivery end overlapping the receiving end of the feed-board and offset from the same in the vertical plane, whereby an endwise division of the cut bundle is effected and the shattered grain from the conveyer is caught by the feed-board, substantially as described.

3. The combination, with the rotary cylinder provided with band-cutting knives and stripping-combs, of the reciprocating toothed feed-board and the retarding-teeth working through slots of the feed-board into and out of engagement with the lower layers of the stock, substantially as described.

4. In a thrashing-machine, the combination, with the feed-board, of a pivoted grain-board spanning the space between the feed-board and the thrashing-cylinder and concave, a band-cutter located over said feed-board, a coiled feed-cylinder overhanging the said grain-board and having a movement opposite to that of the thrashing-cylinder, delivering thereto from its top, and means for moving said grain-board toward and from the coiled feed-cylinder, whereby any shattered grain accumulating at the throat between the grain-board and feed-cylinder will be forced into the coils of the said cylinders and be carried over to the thrashing-cylinder, substantially as described.

5. The combination, with the feed-board G, of the grain-board B^2 B^3, pivoted to the frame near its inner end and pivotally connected to the feed-board G at its outer end, means, such as the eccentric B^5 and the rod B^6, for imparting a rocking motion to said grain-board, the cylinder E, overhanging the said feed-board and provided with band-cutting knives and stripping-combs, and the coiled feed-cylinder B B', overhanging the grain-board B^3 and delivering from its top to the thrashing-cylinder, the said parts operating substantially as and for the purpose set forth.



6. The combination, with a thrashing-cylinder and concave, of a parallel oppositely-moving feed-cylinder delivering thereto from its top and a combined resistance and stripping cylinder overhanging the feed-cylinder and spaced apart therefrom to form a feed-throat, the said feed-cylinder being driven at a slow speed and the said resistance and stripping cylinder at a relatively-high speed, substantially as and for the purpose set forth.

7. The combination, with a thrashing-cylinder and concave, of the parallel oppositely-moving slow-speeded feed-cylinder delivering thereto from its top, the overhanging relatively-high-speeded combined resistance and stripping cylinder turning in the same direction as the thrashing-cylinder, and a clearing-cylinder located in the front angle between said feed and resistance cylinders, turning in the same direction as the feed-cylinder at a relatively-high speed, and provided with projecting teeth working against the back-pressure from said feed and resistance cylinder to throw back any accumulating excess of stock, substantially as described.

8. The combination, with the slow-moving feed-cylinder B, of the fast-moving resistance and stripping cylinder C, the fast moving cylinder E, provided with the feathering shafts E', having secured thereto the backwardly-extended band-cutting knives E^2 and the forwardly-extended clearing-teeth E^3, the reciprocating toothed feed-board G, and the retarding-teeth G^3, substantially as described.

9. In a band-cutter and feeder, the combination, with the feed-board, of sliding boxes mounted on the side of the frame and provided with draw-bolts for adjusting the same, the rotary cylinder mounted in said sliding boxes and provided with feathering shafts having secured thereto the band-cutting knives, stripping-combs, and clearing-teeth, substantially as described.

10. In a band-cutter and feeder, the combination, with a rotary cylinder having feathering shafts for carrying parts operating on the stock, of an adjustable feathering mechanism for setting said shafts and parts carried thereby in any desired angular relation to said cylinder, substantially as described.

11. In a band-cutter and feeder, the combination, with a rotary cylinder provided with a series of shafts journaled in its head for carrying parts operating on the stock, of an eccentric loosely mounted on the cylinder-shaft, having an extended hub provided with a locking-arm for adjustably securing the same in any desired position, and an eccentric strap or ring on said eccentric engaging crank-arms on said shaft for feathering the said shafts under the motion of the cylinder, substantially as described.

12. In a band-cutter and feeder, the combination, with the rotary cylinder having feathering shafts for carrying the band-cutting knives, stripping-combs, and clearing teeth, as described, of the stripping-comb and clearing-teeth castings formed with half-hubs and means for detachably clamping the same together and to the said shafts, and the comb member of which casting is provided with a shank for securing the knives thereto, substantially as described.

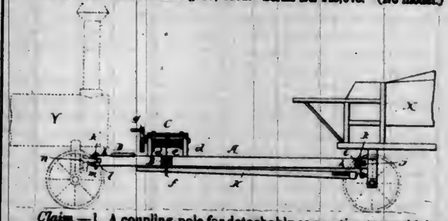
13. The combination, with the bundle-table detachable from the separator at its delivery end, of the riser-arms pivotally connected at their lower ends to the separator-frame and having a pivotal and sliding connection with the bundle-table at their outer end for lifting the bundle-table to the top deck of the separator, substantially as described.

14. In a band-cutter and feeder, the combination, with fixed ways secured to the frame, of sliding boxes mounted in said ways, hangers suspending said boxes from the top of the frame with freedom for upward and downward movement in the said ways, and the combined resistance and stripping cylinder journaled in said boxes overhanging the feed-cylinder and riding on the stock as a float, substantially as described.

15. In a band-cutter and feeder, the combination, with the feed-cylinder B, of the curved ways C^3, fixed to the frame, the sliding boxes C', mounted in said ways, the combined resistance and stripping cylinder C, journaled in said boxes, the link C^5, connected to said boxes at their lower end and pivotally connected at their upper end to the hand-wheel C^4, and means for securing the said hand-wheels in any desired position, substantially as and for the purpose set forth.

16. A band-cutting and feeding mechanism organized for cutting the bands, spreading the cut bundles, and effecting a series of endwise divisions of the stock and the delivery of the same to the thrashing-cylinder with a sliding and butt-spreading feed in imitation of hand-feeding, the said mechanism consisting of the following combination of elements, to wit: suitable bundle-supplying conveyers, as H, the fast-moving cylinder E, in constant motion, having the feathering shaft E', carrying the knives E^2, the clearing-teeth E^3, and the stripping-combs E^4, the slow-moving feed-cylinder B, delivering from its top to the thrashing-cylinder, the fast-moving resistance and stripping-cylinder C, overhanging the feed-cylinder, the overdecking hood D, and a suitable resistance surface, such as the feed-board G, and the grain-board B^3, underlying the said cylinders E and B, substantially as and for the purpose set forth.

482,678. COUPLING-POLE. ALFRED DREW, De Lisle, Ohio. Filed Oct. 2, 1891. Renewed Aug. 15, 1892. Serial No. 443,075. (No model.)



Claim.—1. A coupling-pole for detachably connecting two vehicles arranged one behind the other, consisting of a body portion, arms extending laterally therefrom, a winding-drum, and a chain or rope guided by said arms and wound in opposite directions upon the drum, said chain or rope adapted to engage the tongue of one of the vehicles, substantially as described.

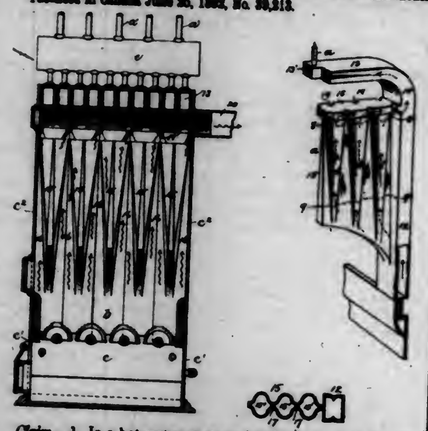
2. A coupling-pole for detachably connecting two vehicles arranged one behind the other, consisting of a body portion, laterally-extending arms near one end thereof, guides at the ends of the arms, a winding-drum, and a chain or rope passing over said guides and wound in opposite directions upon the drum, said chain or rope adapted to engage the tongue of one of the vehicles, substantially as described.

3. A coupling-pole for detachably connecting two vehicles arranged one behind the other, consisting of a body portion, lateral arms having guide-pulleys at their ends, a winding-drum mounted in standards above the arms, a hand-wheel, a chain or rope passing over said pulleys and wound in opposite directions upon the drum, and a ring on the chain or rope adapted to receive the tongue of one of the vehicles, substantially as described.

4. A coupling-pole for detachably connecting two vehicles arranged one behind the other, consisting of a body, arms extending laterally from the body near one end, guide-pulleys on the arms, standards, a drum and hand-wheel carried by the standards, a chain or rope passing over the pulleys and wound in opposite directions upon the

dram, a ring on the chain or rope to receive the tongue of one of said vehicles, and a platform on the pole-body adjacent to the hand-wheel, substantially as described.

482,679. HEATING APPARATUS. JOHN H. GATES, Holyoke, and EUGENE H. GATES, Fitchburg, assignors to the H. H. Gates Heating Company, Boston, Mass. Filed May 6, 1892. Serial No. 432,012. (No model.) Patented in Canada June 25, 1892, No. 39,213.



Claim.—1. In a hot-water or steam heating apparatus, the combination, with a fire-box, of a series of heating-sections overhanging the fire box and comprising heads, each as 18, collectively forming a substantially horizontal partition or septum above the fire-box, tapering receptacles depending from said heads and having inclined heat-absorbing surfaces separated by tapering flues which gradually decrease in width from their lower to their upper ends, said heads having recesses, each as 19, which when the sections are assembled form contracted outlets from the tapering flues through the said partition or septum, as set forth.

2. In a hot-water or steam heating apparatus, the combination, with a fire-box, of a series of heating-sections, each comprising a side portion, each as 12, a top portion, each as 13, and a wing including a head 18, extending inwardly from said side portion, and tapering receptacles depending from the head, the said side and top portions forming the sides and top of the heater, while the heads form a substantially horizontal partition below the top, said heads being provided with outlet-openings connecting said space with the tapering flues between the tapering receptacles, as set forth.

3. A hot-water or steam-heater comprising two rows of sections, each row constituting one-half of the fire-box-inclosing structure, each section comprising a side portion, such as 12, a top portion, such as 13, and a wing portion having a head projecting inwardly from the side portion and tapering receptacles depending from said head, the side and top portions of each row forming one side and a part of the top of the structure, while the wings of each row meet the wings of the other row over the center of the fire-box, the heads of the two rows forming a horizontal partition below the top of the structure, said partition having outlet-openings for the flues between the tapering receptacles, as set forth.

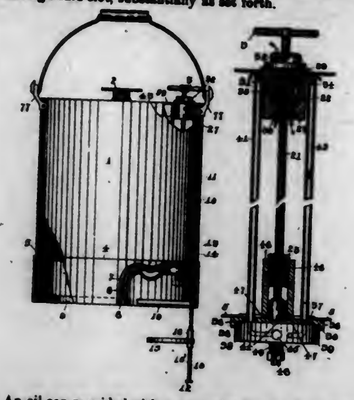
4. A hot-water or steam heater comprising two rows of sections, each row constituting one-half of the fire-box-inclosing structure, each section comprising a side portion, such as 12, a top portion, such as 13, recessed at its end, and a wing portion projecting inwardly from the side portion, the recess in the end of each top portion receiving the corresponding end of the opposite top portion, combined with a header or receptacle located over the meeting ends of the top portions and connected with said portions by tubes, said header being connected with the distributing-pipes, as set forth.

5. In a hot-water or steam heating apparatus, the base or ash-pit section having hollow walls, the outer sides of which are recessed to offset the upper edges of said walls, combined with heating-sections supported by said walls and connected with the latter by short pipes located in the recesses of the walls, as set forth.

482,680. LAMP-FILLING OIL-CAN. JAMES GRARY, Bradford, Pa., assignor of three-fourths to L. Emery, Jr., same place. Filed Apr. 26, 1892. Serial No. 430,891. (No model.)

Claim.—1. An oil-can provided with a supporting-band at its bottom, having a slot 8 therein, and with an oil-discharging spout jointed to the can and adapted to be swung through said slot and a drip-pan secured to the band on each side of the slot, said spout in its closed position being entirely within the band and having both ends over the pan, all substantially as set forth, whereby the band is strengthened and drip either from the spout or from its joint with the can is received.

2. An oil-can provided with a supporting-band at its bottom, having a slot 8 therein, and with an oil-discharging spout and an air-inlet pipe in proximity thereto, the spout and pipe being connected to a disk 29, supplied with suitable ports and eccentrically pivoted to a disk 36, fixed to the can-bottom and having corresponding ports, said spout and pipe being adapted to be swung together and entirely within the band through said slot, substantially as set forth.



3. An oil-can provided with a supporting-band at its bottom, having a slot 8 therein, and with an oil-discharging spout communicating with an opening in the bottom of the can, and an air-inlet pipe in proximity thereto, both being adapted to be swung together through said slot, said air-inlet pipe communicating with a pipe extending within the can to its upper part, and a valve adapted to close both the oil and air passages, substantially as set forth.

4. An oil-can provided with a supporting-band at its bottom, having a slot 8 therein, and with an oil-discharging spout, in combination with the vertically-adjustable lamp-holding device attached to the can, substantially as set forth.

5. An oil-can provided with a supporting-band at its bottom, having a slot 19 therein, in combination with a horizontally-movable pivoted lamp-support adapted to be moved through said slot and under the can, substantially as set forth.

6. An oil-can provided with a supporting-band at its bottom, having a slot 19 therein, in combination with a horizontally-movable pivoted lamp-support adapted to be moved through said slot and under the can, said support being also vertically adjustable, substantially as set forth.

7. An oil-can provided with a supporting-band at its bottom having a slot 8 therein, in combination with a horizontally-movable lamp-support adapted to be moved through said slot and under the can, said support being attached to a rod vertically adjustable on the can, whereby its foot can be raised to a level with the bottom of the can-supporting band, substantially as set forth.

8. In an oil-can, the plug 39, rotatably supported near its bottom and provided with air-passages 58 and 54 and oil-passage 45, in combination with air-inlet pipes 43 and 41 and with an oil-outlet in the can-bottom and a valve therefor, said oil-passage and air-passage being eccentrically situated with respect to the plug, substantially as set forth, whereby the rotation of the plug opens or closes the passages.

9. In an oil-can, the combination of the correspondingly-apertured plugs 39 and 36, with the air-pipes and the oil-spout and air-inlet pipe, said oil-spout and air-inlet pipe being secured to the rotatable apertured plug 39, substantially as set forth.

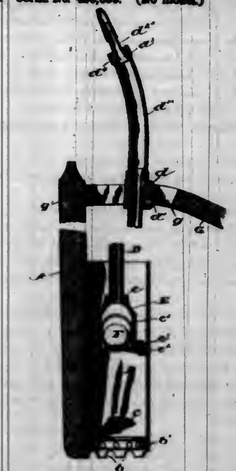
10. In an oil can, an oil-spout and an air-inlet pipe having the open ends in proximity and each provided with tapered points to prevent the retention of drops, the end of the air-pipe being above that of the spout, whereby the retention of a drop between them is avoided, substantially as set forth.

11. In an oil-can, its cover, the plug 27, the flanged nut 32, having air-inlet holes, and the valve-stem having a screw-threaded and perforated enlargement 22, all in combination, whereby air may be admitted to or excluded from the can, substantially as set forth.

12. In an oil-can, its cover, the plug 27, the flanged nut 32, having air-inlet holes, and the valve-stem having a screw-threaded and perforated enlargement 22, the bottom having an oil-discharge passage, and a pipe whereby the upper part of the can and such oil-discharge passage communicate, whereby external air may be admitted to said discharge-passage, substantially as set forth.

13. In an oil-can, the combination of an oil-discharge passage at the bottom of the can, a valve therefor, and a pipe extending from the inner end of said passage to the upper part of the can, and a discharge-spout communicating with the lower or outer end of said passage, whereby air may be admitted to the inner end of the spout to facilitate the discharge of drip, substantially as set forth.

482,681. PORTABLE GARDEN OR SPRAYING PUMP. GIDEON D. HAMBLIN, Deering, assignor to Dennis A. Meaher, Portland, Me. Filed Apr. 6, 1892. Serial No. 428,089. (No model.)



Claim.—1. In a pump, the combination, with a cylinder, of a flanged hollow plunger therein, an annulus c^3, secured to the plunger and having a valve-seat, a check-bar c^2, having its ends bent outwardly and secured between said annulus and the flange of the plunger, a ball-valve inclosed between said check-bar and the annulus, and means for operating the plunger, substantially as set forth.

2. In a pump, the combination, with the stock or standard, of a cylinder mounted thereon having a valve at its base, a forked lever secured to the other end of the standard and projecting from the same side as the cylinder, a hollow plunger within the cylinder, provided with a valve, a collar pivotally secured in the fork of the lever, a hollow piston-rod communicating with the plunger and the collar, and a flexible tip secured to the collar above the handle, substantially as set forth.

482,682. BOTTLE AND STOPPER. HENRY HEARTFIELD, Croydon, assignor of two-thirds to Thomas Webb, Stockport, England, and Charles Henry Heartfield, New York, N. Y. Filed Jan. 27, 1891. Serial No. 379,319. (No model.) Patented in England May 28, 1889, No. 8,871.



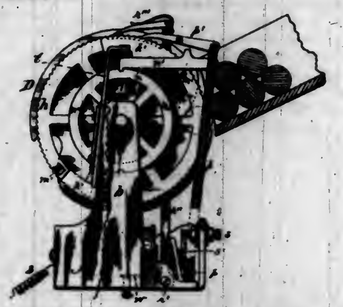
Claim.—A bottle for aerated waters and other liquors, having a screw-thread of buttress shape formed in the neck thereof, provided at its lower end with an abutment or abrupt termination, in combination with a plain cork, substantially as described.

482,683. VENDING-MACHINE. ARCHIE J. HENRY, Watertown, N. Y., assignor of one-half to Ernest A. E. Meyer and Charles H. Sprague, same place. Filed Nov. 26, 1891. Serial No. 413,276. (No model.)

Claim.—1. The combination, with the delivery-cylinder secured upon a shaft, of a ratchet-wheel secured thereon and a ratchet-bar loose thereon, pawls in engagement therewith, and means to reciprocate the push-pawl.

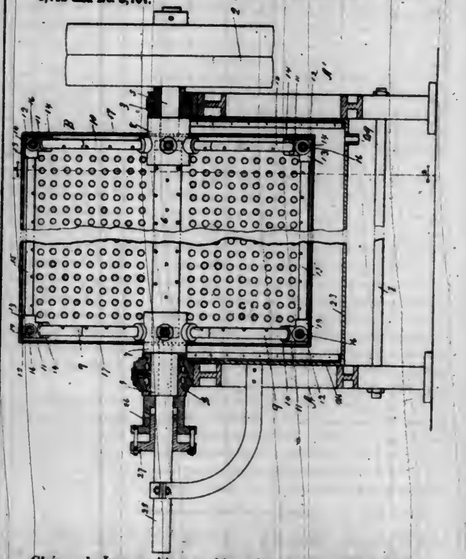
2. The combination, with the delivery-cylinder secured upon a shaft, of a ratchet-wheel secured thereon and a ratchet-bar loose thereon, a spring connecting said bar to said wheel, and means to rotate said ratchets.

3. The combination, with the delivery-cylinder secured upon a shaft and the escapement-wheel secured thereon, of a ratchet-wheel upon said shaft, a ratchet-bar loose upon said shaft, wedging-lugs upon said bar, an escapement-look raised by said lugs to release the escapement, a spring connecting said bar to said wheel, and means to operate said ratchet-bar to produce a tension upon said spring before the escapement is released.



4. The combination, with the delivery-cylinder secured upon a shaft, the ratchet-wheel and ratchet-bar thereon, and the reciprocating push-pawl in engagement therewith, of an electro-magnet, its armature, and means to vibrate said armature and said pawl to which it is connected.

482,684. MACHINE FOR WASHING SHAVINGS. RUDOLPH H. HERLAN, Chicago, Ill. Filed June 22, 1891. Serial No. 397,113. (No model.) Patented in Germany Jan. 26, 1891, No. 58,961; in France Feb. 6, 1891, No. 211,223, and in Austria-Hungary Dec. 6, 1891, No. 3,712 and No. 3,767.

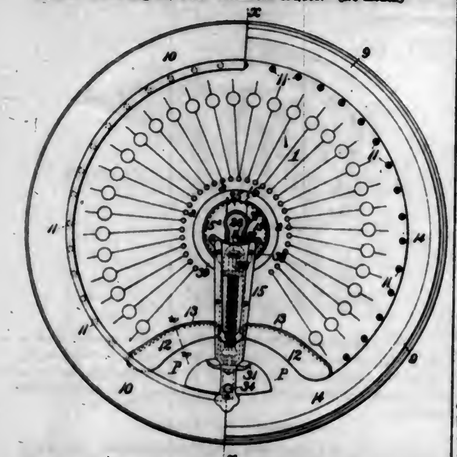


Claim.—1. In a washing-machine of the kind specified, the combination, substantially as hereinbefore set forth, of a revolable perforated cylinder provided with a hollow perforated shaft and with perforated pipes located along its ends and sides, said shaft and pipes communicating with a source for supplying water thereto, substantially as shown and described.

2. In a washing-machine of the kind specified, the combination, as hereinbefore set forth, of a revolable perforated flat-sided cylinder provided with a hollow perforated shaft and with perforated pipes located along its ends and sides, said shaft and pipes communicating with a source for supplying water thereto, substantially as shown and described.

3. In a washing-machine of the kind specified, the combination, as hereinbefore set forth, of a main frame, a revoluble perforated cylinder having the means set forth and shown for spraying water within the same, a trough or receptacle inclosing the lower portion of said cylinder, and a deflecting-plate removably secured to said main frame along one side of said cylinder, substantially as shown and described.

482,685. GAME APPARATUS. MORRIS V. MILLER, Bellaire, Ohio, assignor of one-half to Natalie Immerwahr and Edward Jones, same place. Filed Aug. 29, 1891. Serial No. 404,108. (No model.)



Claim.—1. In a game apparatus, the combination of a table, an upwardly-projecting band or rim arranged at or near the perimeter of the table, a series of cushioned posts or pillars arranged a short distance apart inside of the band or rim, said posts and rim forming pockets for the reception of balls, and a ball propelling or shooting device pivoted at the center of the table and adapted to drive the balls across the table, substantially as set forth.

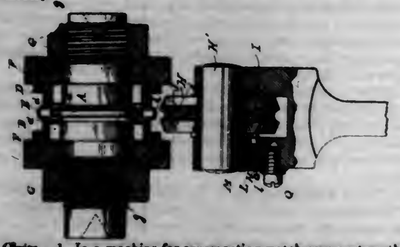
2. In a game apparatus, the combination of a revoluble table provided at or near its perimeter with a series of pockets or pigeon-holes for the reception of balls and a ball propelling or shooting device pivoted at the center of the table, adapted to drive the balls horizontally across the table, substantially as set forth.

3. In a game apparatus, the combination of a table, a series of pockets or pigeon-holes arranged around the table for the reception of balls, a pool, and a gutter passing around behind the pockets and constructed to conduct the balls to the pool, and a ball propelling or shooting device pivoted at the center of the table and adapted to drive the balls horizontally across the table, substantially as set forth.

4. In a game apparatus, the combination of a table, an upwardly-projecting band or rim arranged at or near the periphery of the table, a series of cushioned posts or pillars arranged a short distance apart inside of the band or rim, said posts and band forming pockets for the reception of the balls, the space between the posts and band having a bottom inclined toward one point of the table, and a ball propelling or shooting device pivoted at the center of the table and adapted to drive the balls across the table, substantially as set forth.

5. In a game apparatus, the combination of a table provided at or near its perimeter with a series of pockets or pigeon-holes, a ball propelling or shooting device pivoted at the center of the table, a gutter arranged on top of the shooting device for conducting the balls toward the inner end thereof, and a loop at the end of the shooting device for guiding the ball into position, substantially as set forth.

482,686. KNURLING OR ORNAMENTING WATCH-CASES. FRITZ MINK, Philadelphia, Pa. Filed Oct. 11, 1890. Serial No. 367,846. (No model.)



Claim.—1. In a machine for ornamenting watch-case centers, the combination of a mandrel, two clamping-rings having a larger internal diameter than the mandrel, so as to be free to move upon the mandrel-shaft transversely to its axis, for clamping the article to be ornamented between them, and a rotary die-wheel adapted to be brought in contact with the surface of the metal exposed between said clamping-rings.

2. In a machine for ornamenting watch-case centers, the combination of a mandrel, two clamping-rings having a larger internal diameter than the mandrel, so as to be free to move upon the mandrel-shaft transversely to its axis, and formed with annular clamping-ledges corresponding with the ledges upon the rims of the center for clamping the article to be ornamented between them, with an annular surface exposed between said rings, and a rotary die-wheel adapted to be brought in contact with the surface of the metal exposed between said clamping-rings.

3. In a machine for ornamenting watch-case centers, the combination of a mandrel, two clamping-rings having a larger diameter than the mandrel and movable transversely to the axis thereof for clamping the article to be ornamented between them, and a rotary die wheel adapted to be brought in contact with the surface of the metal to be ornamented, exposed between said clamping-rings, said die-wheel being formed with one or more projecting lips on the edge of its annular die-surface for forming the hinge-flats of the center.

4. The combination, with a rotating supporting-mandrel for a watch-case center, of a wheel H, having an annular die-surface *h*, and lips J, projecting from the edge of said die surface and formed with the pins or points *j* in said projecting lip, substantially as and for the purpose specified.

5. The combination, with a supporting-mandrel for a watch case center, of a wheel having an annular die-surface adapted to be pressed in contact with the annular edge of the center, a supporting-handle in which said wheel is journaled, and a stop between said handle and wheel for arresting the movement of the latter after a complete rotation.

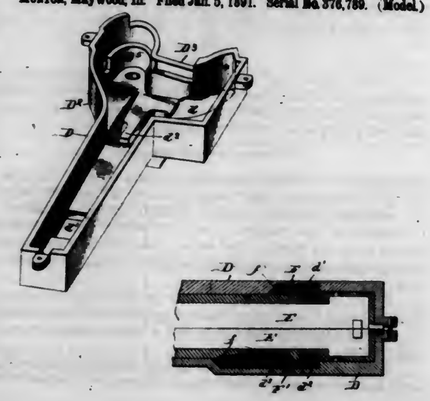
6. The combination, with a supporting-mandrel for a watch-case center, of a knurling-wheel having an annular die-surface adapted to be brought in contact with the surface of the center and having a recess upon one of its sides, a supporting-handle in which said wheel is journaled, and an adjustable stop carried by said handle and adapted to engage with the recess of the knurling-wheel to arrest it after one complete revolution.

7. The combination, with a supporting-mandrel for a watch-case center, of a knurling-wheel having an annular die-surface adapted to be brought in contact with the annular surface of the center and having a recess upon one of its sides, a handle in which said wheel is journaled, provided with a slot M, a plate L, pivoted to said handle, having a slot R, a spring-pressed pin N, carried by the plate L, and an adjusting-screw Q, working in the slot R of the plate L, substantially as and for the purpose specified.

8. In a machine for ornamenting watch-case centers, &c., the combination of a rotating mandrel having a central portion formed to correspond with the interior of the center but of smaller diameter, clamps to clamp the center in line with said central portion of the mandrel, with freedom of movement transversely to the axis of the mandrel, and a knurling-wheel having an annular die-surface adapted to be brought in contact with the annular face of the center.

9. A knurling-wheel for ornamenting watch-case centers, having an annular die-surface and provided with one or more lips projecting upon said annular die-surface for forming the hinge-flats upon the center simultaneously with imparting the ornamentation thereto.

482,687. MOLD FOR CASTING STEEL CAR-COUPLINGS. JAMES MUNTON, Maywood, Ill. Filed Jan. 5, 1891. Serial No. 376,789. (Model.)



Claim.—1. The mold for casting the draw-bar and forked head of steel car-couplers, comprising two metal half-molds D D′, having a stem portion and two forks D^4 D^5, a core E, and a yielding core-block fitting in a recess or pocket in the metallic stem portion of said mold to form the external projection on the draw-bar and to permit the draw-bar portion of the casting in contracting to move toward the head thereof, substantially as specified.

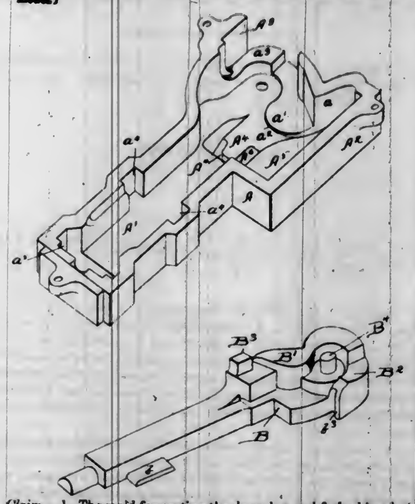
2. The iron or metallic mold D D′ for casting the fork or divided portion of a car-coupler, said mold having two forks D^4 D^5, furnished with a rounded and tapering intermediate portion D^6, lying between said forks D^4 D^5, said mold being provided with means for slipping or crowding the forks of the coupler-casting off of said intermediate portion of the mold as the metal contracts to give room for the forks to move toward each other in the contracting action of the casting, said means consisting of a shoulder or projection d^3 at the body or shank portion of the mold, and said mold also having a pocket for a core-block in the stem portion thereof, and a core-block fitting in said pocket of smaller diameter than the pocket, and a filling of yielding material at the end of said core-block to permit the stem portion of the coupler-casting to move toward the body or shank portion thereof in contracting, whereby said coupler-castings may be made of steel, substantially as specified.

3. The metal mold for casting steel car-couplings, consisting of two metallic half-molds D and D′ having rounded and tapering intermediate portion D^6, core E, and core-blocks E′, said half-molds having recesses *d* to receive said core-blocks E′, substantially as specified.

4. The metal mold for casting steel car-couplings, consisting of two metallic half-molds D and D′, having rounded and tapering intermediate portion D^6, core E, core-blocks E′, and sliding core-blocks F F′, said half-molds having recesses or pockets *d*, *d*′, and d^3 to receive said core-blocks E′, F, and F′, respectively, substantially as specified.

5. The iron or metallic mold for casting the forked divided portion of a steel car-coupler, said mold having two forks with a rounded intermediate portion between said forks to permit the casting in its contracting action to withdraw its forks from the forks of the mold sufficiently to permit the forks to approach each other as the intermediate body portion of the casting contracts, said mold being provided with a shoulder or projection near the back part of the body or shank portion thereof to cause the casting to hug the back portion of the mold opposite to said forks, and thereby cause the forks of the coupler to withdraw out of the forks of the mold, substantially as specified.

482,688. METALLIC MOLD FOR CASTING DRAW-BARS. JAMES MUNTON, Maywood, Ill. Filed Apr. 7, 1892. Serial No. 428,106. (No model.)



Claim.—1. The mold for casting the draw-bar and forked head of steel car-couplers, comprising a metallic shell A, having stem portion A′, two limbs or forks A^2 A^3, one of said forks having a metallic inner wall, and a core B, having an extension forming the inner wall of the other of said forks, substantially as specified.

2. The mold for casting the draw-bar and forked head of steel car-couplers, comprising a metallic shell A, having a shank and body portion and two forks, one of said forks having an inner metallic wall *a* and the other a raised ledge *a*′, and a core B, a part of which fits upon said raised ledge *a*′ and constitutes, with said raised ledge, the inner wall of one of said forks, substantially as specified.

3. The mold for casting the draw-bar and forked head of steel car-couplers, comprising a metallic shell A, having a shank and body portion and two forks, one of said forks having an inner metallic wall *a* and the other a raised ledge *a*′, and a core B, a part of which fits upon said raised ledge *a*′ and constitutes, with said raised ledge, the inner wall of one of said forks, said metallic shell A having also a raised ledge or wall a^3, and the core and extension B^3, fitting on said raised ledge a^3, substantially as specified.

4. The mold for casting the draw-bar and forked head of steel car-couplers, comprising a metallic shell A, having a shank and body portion and two forks, one of said forks having an inner metallic wall *a* and the other a raised ledge *a*′, and a core B, a part of which fits upon said raised ledge *a*′ and constitutes, with said raised ledge, the inner wall of one of said forks, said metallic shell A having, also, a raised ledge or wall a^3, and the core an extension B^3, fitting on said raised ledge a^3, the body portion of said metallic shell A having recess A^5 and the core having corresponding projection B^5, substantially as shown and described.

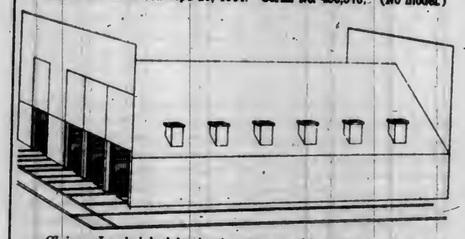
5. The mold for casting the draw-bar and forked head of steel car-couplers, consisting of a metallic shell having two forks, one of said forks having an inner metallic wall and the other an inner wall of sand or core material, substantially as specified.

482,689. CASTING STOVE-LININGS. JAMES MCDERMOTT, Louisville, Ky., assignor of one-fourth to David A. Keller, same place. Filed Apr. 24, 1891. Serial No. 390,236. (No model.)



Claim.—The improved mold for casting stove-linings, consisting of the cope B, the drag A of metal, a fixed journal *a* on each end thereof, a flattened portion *a*′ on one end of one of said journals *a*, adapted to receive a crank for revolving said drag, a stop *b*, projecting laterally from one side of said drag, and a matrix in one face of said drag adapted to receive a pattern corresponding thereto while filling the cope with sand, in combination with the pattern C, all constructed and combined to operate substantially as described, and for the purpose shown.

482,690. BRICK-DRIER. FRANCIS R. MCELFRESH, New Cumberland, W. Va. Filed Sept. 23, 1891. Serial No. 406,573. (No model.)



Claim.—In a brick-drier having upper and lower sections of pipes arranged against its side walls and extending throughout their length, the leaves 22, hinged to the said side walls midway between the two sections of pipes and adapted to throw the rising heat against the goods, substantially as set forth.

482,691. PNEUMATIC REGISTERING BALLOT-BOX. JOHN MCTAMMANY, Worcester, Mass., assignor to Alexander McTammany, Akron, Ohio. Filed Dec. 19, 1891. Serial No. 415,659. (No model.)

Claim.—1. A ballot-box comprising a chamber for containing ballots and a ballot bed or guideway into or upon which the ballot is deposited and having combined therewith means for testing the ballots for ascertaining if more than one candidate is indicated thereon for the same office, and a count-registering mechanism automatically controlled by the ballot, a dropway into the containing-chamber, and a feeding-carrier whereby the ballot is advanced along said way and into the drop, substantially as set forth.

2. In a ballot-box, a ballot-registering mechanism provided with an operating-pneumatic actuated by air passed through a perforation in the ballot, substantially as set forth.

3. A pneumatic ballot-registering mechanism, in combination with a perforated ballot, a ballot-bed having air-channels, and a wind-inducing apparatus whereby an air-current is caused to pass through said ballot for actuating the pneumatic and registering devices corresponding to the perforations of the ballot, substantially as set forth.

4. In a ballot-box, a counting-register and a mechanical ballot, in combination with an automatically-operating register-actuating mechanism controlled by said ballot, said register-actuating mechanism being arranged wholly below the ballot-bed and at intervening position between the ballot and counting-register, for the purpose set forth.

5. A ballot box comprising a receiving-way having a system of air-ducts, a series of pneumatics communicating with said ducts, a series of counting-registers respectively connected for operation with said pneumatics, a ballot-receiving chamber, and means, substantially as described, for advancing the ballot by stages along said guideway or bed, and bellows apparatus for inducement of air-currents in the wind-ways, substantially as set forth.

12. In a ballot-box, the combination, with the ballot-receiving bed and its overlying guards having windways I, of the reed-cells M, containing reeds, and having air-channels, substantially as described, for the purpose set forth.

13. In a ballot-box, the combination, with the ballot-receiving bed and its overlying guard-pieces that conceal the perforated parts of the ballot, having a primary and a secondary series of air-ducts that each correspond to the positions of ballot-perforations, a series of reeds or pneumatic sound-producing devices arranged in said primary series of air-ducts, a series of pneumatic motors arranged in connection with said second series of air-ducts, registering devices connected with said pneumatics, a ballot-receiving chamber, and means, substantially as described, for advancing the ballot by stages along said guideway or bed, and bellows apparatus for inducement of air-currents in the wind-ways, substantially as set forth.

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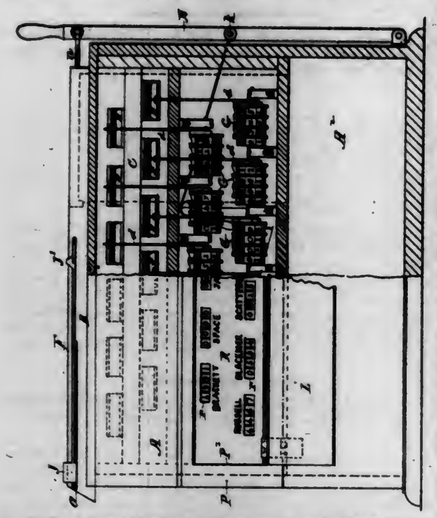
482,694. ICE-MACHINE. MAGNUS J. PALSON, Gloucester, Mass., assignor of two-thirds to William H. Perkins and Loring B. Haskell, same place. Filed Mar. 28, 1891. Serial No. 386,690. (No model.)

3. A pneumatic ballot-registering mechanism, in combination with a perforated ballot, a ballot-bed having air-channels, and a wind-inducing apparatus whereby an air-current is caused to pass through said ballot for actuating the pneumatic and registering devices corresponding to the perforations of the ballot, substantially as set forth.

4. In a ballot-box, a counting-register and a mechanical ballot, in combination with an automatically-operating register-actuating mechanism controlled by said ballot, said register-actuating mechanism being arranged wholly below the ballot-bed and at intervening position between the ballot and counting-register, for the purpose set forth.

5. A ballot box comprising a receiving-way having a system of air-ducts, a series of pneumatics communicating with said ducts, a series of counting-registers respectively connected for operation with said pneumatics, and a perforated ballot controlling said air-ducts, substantially as set forth.

6. A ballot-box having a bed or way fitted with a series of air-inlet ducts whereon the ballot is caused to rest before its final transfer into the containing-chamber of the box, a series of pneumatic motors respectively connected with said air-ducts, counting-registers actuated by said pneumatic motors, and an opposite series of air-ducts corresponding to the air ducts of the bed and leading to an exhaust-bellows or wind-inducing apparatus, in combination with a perforated ballot corresponding to the arrangement of said bed and adapted to serve as a valve between said opposing air-ducts, substantially as set forth.



7. A mechanical ballot for automatic registering ballot-boxes, having its face apportioned into a series of spaces for containing the names of candidates, a corresponding series of spaces near the border for indicating-marks, and a second corresponding series of spaces for receiving perforations denoting the candidates for which the ballot will register, said latter spaces containing dots or imprints to denote the proper position for punching the ballot, substantially as set forth.

8. In a ballot-box or vote-registering apparatus, a ballot-receiving bed or guideway having edge pieces or guards that extend along the sides of said bed, with inwardly-overlying parts that form guiding-grooves for the edge of the ballot and that conceal the marked or perforated parts of the ballot when entered therein, substantially as set forth.

9. In a ballot-box, a ballot-receiving bed, table, or guideway adapted for supporting a perforated paper ballot and provided with windways overlying guard-pieces that conceal the perforated parts of the ballot, having passages therethrough that correspond with the windways of the receiving-table, and sound-producing devices disposed in the windways for operation by air-currents passed through the same and controlled by the ballot, for the purpose set forth.

10. The method of testing ballots in which the indicating-marks are formed by perforation of the ballot fabric, which consists in subjecting the ballot upon a suitable bed having windways that communicate with sound-producing devices to the induced current of air passed through perforations of the ballot, whereby said sound-producing devices are made responsive to any excess of inlet air over the normal quantity due to the correct perforation, substantially as set forth.

11. A ballot-box comprising, in combination, a guideway, table, or bed provided with air-ducts for the reception of the perforated ballot and overlying guard-pieces that conceal the perforated parts of the ballot, having a primary and a secondary series of air-ducts that each correspond to the positions of ballot-perforations, a series of reeds or pneumatic sound-producing devices arranged in said primary series of air-ducts, a series of pneumatic motors arranged in connection with said second series of air-ducts, registering devices connected with said pneumatics, a ballot-receiving chamber, and means, substantially as described, for advancing the ballot by stages along said guideway or bed, and bellows apparatus for inducement of air-currents in the windways, substantially as set forth.

12. In a ballot-box, the combination, with the ballot-receiving bed and its overlying guards having windways I, of the reed-coils M, containing reeds *m*, and having free air-passages *l'* and reed-ducts *m'*, leading into the wind-chest or exhaust-chamber, and a group of air-ducts *i*, leading from the bed into the reed-coil corresponding to the office groups of candidates, substantially as set forth.

13. The combination, with an automatically-registering ballot-box having a series of counters or indicating-registers, of a removable card or tablet having apertures that correspond with the several indicating-registers, through which the figures thereon can be observed, and containing the names of candidates or designating signs corresponding to the ballots for denoting the particular indicating-registers appropriated to the respective candidates, substantially as set forth.

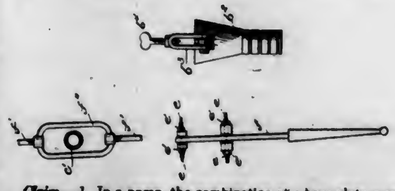
14. The combination, with the ballot-receiving bed or guideway and its overlying guard-pieces, of reciprocating carriers or feeders consisting of rods that run in guideways and having hooks that engage the ballot and means for imparting motion thereto for advancing the ballots by intermittent action along said guideway and into the interior of the ballot-box, substantially as set forth.

15. A ballot-box comprising, in combination, a ballot-testing bed or way provided with a series of wind ways or ducts that communicate with sound-producing devices and an adjustable stop-valve or slide arranged for individually closing or stopping said windways for ascertaining in which of the series any sound is produced.

16. The combination, with the ballot-testing bed and its overlying guards having windways that lead therethrough and communicate with reeds or sound-producing devices, of a slide or adjustable stop-valve for individually closing the entering windways, means for shifting said stop-valve, and an indicating-scale to denote the official title of the candidate or candidates on that portion of the ballot corresponding with the windways over which said stop-valve is adjusted, substantially as and for the purpose set forth.

17. In a ballot-box comprising a series of indicating-registers and automatic operating mechanisms, the combination, with said registers, of a securable door or glazed shutter, a designating tablet or card supported in front of said indicating-registers, and a second door or shutter affording access to said glazed shutter, substantially as and for the purpose set forth.

482,692. DOUBLE-ACTING PUMP. GEORGE J. HETH, Dayton, Ohio, assignor of one-half to Joseph Gress, same place. Filed Oct. 7, 1891. Serial No. 408,029. (No model.)

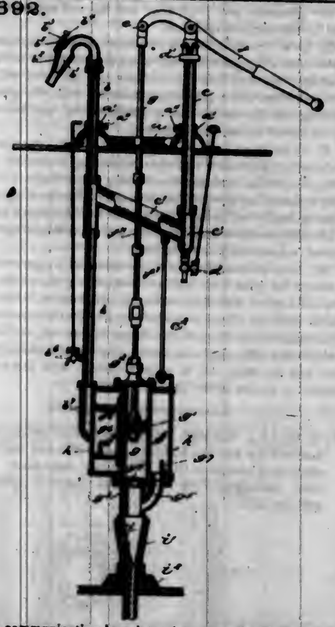


Claim.—1. In a pump, the combination of a base-plate, a supply-pipe supported thereon, a pump-cylinder and valve-chambers connected to the lower end of the supply-pipe, a piston and rod, an air-chamber supported by the base-plate, and a lateral tubular connection *c'*, connecting the supply-pipe at a point between the base-plate and pump-cylinder with the lower end of the air-chamber, said connection inclining downwardly toward the air-chamber, substantially as described.

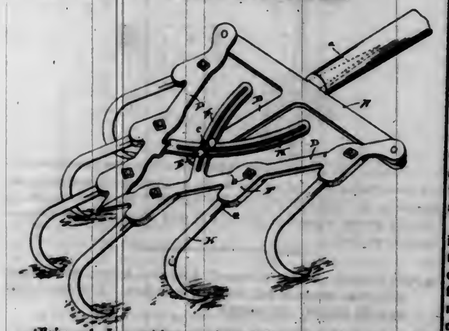
2. In a pump, the combination, with a well-platform and a removable pump adjustably depending therefrom, said pump having its inlet-pipe formed into a hollow cone *i* at its lower end, of a stationary support within the well and a stationary suction-pipe supported thereon and carrying a conical cup, this cup being adapted to receive and closely fit the cone *i* when the pump is let down into the well, as and for the purpose described.

3. In a double-acting pump, the combination of a cylinder *g*, having its ends closed by removable heads g^2 and g^3, the latter being provided with a valved opening g^4, and a suction-pipe depending therefrom, longitudinal chambers g^5, formed integrally on the exterior of the cylinder, one of these chambers being provided with a valve-opening at its lower end, communicating by a lateral passage g^6 with the suction-pipe, and the other one being provided with two separated horizontal partitions having each an inwardly-opening valve, side plates *h h*, removably bolted over the open sides of said chambers, one of these plates having formed integrally with its exterior a vertical passage h^7, communicating at its lower end with the chamber between the valved partitions, a supply-pipe, and a piston and piston-rod, substantially as described.

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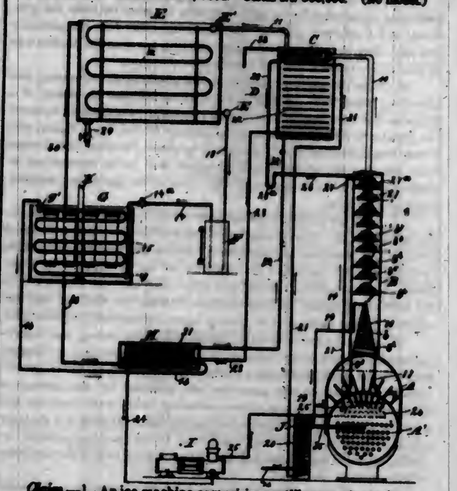
482,693. HAND-CULTIVATOR. ROBERT O. ORMSBY, Paris, Mo. Filed Dec. 21, 1891. Serial No. 415,740. (No model.)



Claim.—1. In a cultivator substantially as described, the combination, with the head-bar, the tongue extending forwardly from said head-bar, and the threaded post rising from said tongue, of the adjustable frame-bars pivotally connected to the head-bar and carrying teeth, the lateral branches extending inwardly from the adjustable frame-bars and having longitudinal slots to receive the threaded post of the tongue, and a nut for fixing said branches and the adjustable bars with respect to the head-bar and the threaded post, substantially as and for the purpose set forth.

2. In a cultivator substantially as specified, the combination, with the frame-bars, the laterally-oblique projections formed on said bars, the slots G, formed in the under side of said projections, and the vertical apertures formed in the bars at the inner end of said slots, of the teeth having their inner portions seated in the slots G and having angular branches at their inner ends taking up through the apertures in the bars, and a suitable means for securing the ends of the teeth in the apertures of the bars, substantially as specified.

482,694. ICE-MACHINE. MAGNUS J. PALMER, Gloucester, Mass., assignor of two-thirds to William H. Perkins and Loring B. Haskell, same place. Filed Mar. 28, 1891. Serial No. 386,660. (No model.)



Claim.—1. An ice-machine comprising a still, an analyzer in communication therewith, a separator in communication with the analyzer and serving to finally separate the aqueous vapor from the gas, a condenser in communication with the separator, a refrigerator in communication with the condenser, an absorber communicating with the refrigerator, a feed-water heater having a coil which is connected with the still for the passage of the weak liquor, a reducer connected with said coil for further reducing the temperature of such liquor, and connections between the reducer and the absorber, connections between the absorber and the analyzer, and means for forcing the liquor from the absorber to the analyzer, substantially as described.

2. In an ice-machine having generating, condensing, and absorbing apparatus, an analyzer consisting of a chamber into which the gas generated is directed, coils in said analyzer for receiving the strong liquor from the absorber, and a separate coil also in said analyzer and adapted to receive the weak liquor passing from the vaporizing apparatus to the absorber, substantially as described.

3. In an ice-machine, the combination, with a generator, of a chamber above the generator and communicating therewith, a series of baffle-partitions in the chamber, and a strong liquor-supply pipe entering the top of the chamber and provided with a series of coils, one above each of the baffle-partitions and discharging into the said chamber, substantially as described.

4. In an ice-machine, the combination, with a generator, of a chamber communicating with the generator, baffle-partitions in the chamber, the lower ones of which are provided with spiral depressions, and a supply-pipe entering the chamber at the top and provided with a series of coils above the upper baffle-partitions, substantially as and for the purpose specified.

5. In an ice-machine, the combination, with generating, condensing, and absorbing apparatus, of a chamber in communication with the generating apparatus, coils in said chamber at the top, to which coils the strong liquor from the absorbing apparatus is delivered, baffle-plates below said coils and formed with spiral depressions or corrugations, and a separate coil below said baffle-partitions, the latter coil being connected with the still for receiving the weak liquor passing to the absorber, substantially as described.

6. In an ice-machine, the combination, with generating, condensing, and absorbing apparatus, of a chamber, a shell or casing within said chamber and formed with outlet-openings near the bottom, and a pipe entering said shell from the generator and extending above the outlets thereof, substantially as described.

7. In an ice-machine, the combination, with generating, condensing, and absorbing apparatus, of a chamber between the generator and condenser, coils at the upper end of said chamber for receiving the strong liquor from the absorber, baffle-plates below the outlet of said coils, a conical shell at the bottom of the chamber having outlet-openings near its lower end, a pipe entering said conical shell from the generator and extending above the outlets thereof, and a helical coil around said shell, the coil forming the receiver of the weak liquor passing from the generator to the absorber, substantially as described.

8. In an ice-making machine having generating, condensing, and absorbing apparatus, the combination of a boiler and connections be-

tween the absorber and the still, said connections including a coil in the smoke-box of the boiler, substantially as described.

9. In an ice-making machine having generating, condensing, and absorbing apparatus, the combination of a chamber between the generator and condenser, a boiler, and connections between the absorber and said chamber, said connections including a coil in the smoke-box of the boiler, substantially as described.

10. In an ice-making machine having generating, condensing, and absorbing apparatus, the combination of an analyzer consisting of a chamber between the generator and condenser, connections between the generator and absorber for the passage of the weak liquor, said with the generator and projecting into the said casing, substantially as and for the purpose specified.

22. In an ice-machine, the combination, with a generator and a chamber above the generator and communicating therewith, of a conical casing projecting into the chamber and provided with apertures above its bottom and a pipe communicating with the generator and projecting into the conical casing nearly to the top thereof, substantially as herein shown and described.

23. In an ice-machine, the combination, with a generator, a chamber above the generator and communicating therewith, and an absorber, of a conical and apertured casing projecting into the chamber,

Claim.—1. In a bell adapted to be secured to the under side of a platform of a car, the combination, with a gong and a revolving frame adapted to sound the same, of actuating mechanism for operating the frame, restoring mechanism for operating the same in one direction, and a foot-piece or push-rod adapted to be operatively connected with the actuating mechanism below the platform and to extend upward through the platform for imparting motion to the actuating mechanism in opposition to the force of the restoring mechanism, substantially as set forth.

2. In bell mechanism adapted to be secured to the under side of a platform of a car, the combination, with a gong suitably supported

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482,698. WHIPPLETREE. WILLIAM J. ROSE, Horseheads, assignor of one-half to Norris M. Compton, Sullivanville, N. Y. Filed Feb 24, 1891. Serial No. 382,622. (Model.)

tween the absorber and the still, said connections including a coil in the smoke-box of the boiler, substantially as described.

9. In an ice-making machine having generating, condensing, and absorbing apparatus, the combination of a chamber between the generator and condenser, a boiler, and connections between the absorber and said chamber, said connections including a coil in the smoke-box of the boiler, substantially as described.

10. In an ice-making machine having generating, condensing, and absorbing apparatus, the combination of an analyzer consisting of a chamber between the generator and condenser, connections between the generator and absorber for the passage of the weak liquor, said connections including a coil in the said analyzer-chamber, and connections between the absorber and chamber, said latter connections including a coil in the smoke-box of the boiler of the generator, substantially as described.

11. In an ice-machine having generating, condensing, and absorbing apparatus, the combination of an analyzer consisting of a chamber between the generator and condenser, a feed-water heater, connections between the generator and the absorber for the passage of the weak liquor, said connections including a coil in the analyzer and a coil in the feed-water heater, and connections between the absorber and the analyzer for the passage of the strong liquor, substantially as described.

12. In an ice-machine having generating, condensing, and absorbing apparatus, the combination of an analyzer consisting of a chamber between the generator and condenser, a boiler, a feed-water heater, connections between the generator and absorber for the passage of the weak liquor, said connections including a coil in the analyzer and a coil in the feed-water heater, and connections between the analyzer and absorber for conducting the strong liquor, said connections including a coil in the smoke-box of the boiler and a coil in the analyzer substantially as described.

13. In an ice-machine having generating, condensing, and absorbing apparatus, the combination of a feed-water heater for the boiler of the generator and connections between the generator and the absorber for the passage of the weak liquid, said connections including a coil in the said feed-water heater, substantially as described.

14. In an ice-machine having generating, condensing, and absorbing apparatus, the combination of a feed-water heater, a reducer receiving water from the condenser, and connections between the generator and the absorber for conveying the weak liquor, said connections including a coil in the feed-water heater and a coil in the reducer, substantially as described.

15. In an ice-machine having generating, condensing, and absorbing apparatus, the combination of a separator between the generator and the condenser for separating the aqueous vapor from the gas and a reducer for reducing the temperature of the weak liquor, the separator being arranged in the reducer and the latter forming the receiver of the cooling-water from the condenser, and connections between the generator and the absorber, said connections including a coil in the reducer, substantially as described.

16. In an ice-machine, the combination, with a generator, condenser, absorber, and separator between the generator and condenser, of a reducer in which the separator is arranged, a feed-water heater for the boiler of the generator, a coil in the feed-water heater, and connections between the coil of the feed-water heater and the generator and reducer, substantially as described.

17. In an ice-machine, the combination, with a generator, a chamber above the generator, a condenser, a separator between the generator and condenser, an absorber, and a reducer in which the separator is arranged, having a coil and connected with the absorber, of a coil in chamber above the generator and communicating with the generator, a feed-water heater for the generator, and a coil in the feed-water heater and connected with the coil in the chamber and with the coil of the reducer, substantially as herein shown and described.

18. In an ice-machine, a separator for condensing the aqueous vapor of the gas, said separator having chambers arranged in zigzag form and each provided with transverse baffle-bars comprising a single large bar alternating with two smaller bars, substantially as described.

19. In an ice-machine having generating, condensing, and absorbing apparatus and a cooler or reducer for the weak liquor, a separator arranged to receive the gas, said separator being arranged in said reducer and consisting of chambers arranged in zigzag form and having transverse baffle-bars, substantially as described.

20. In an ice-machine having generating, condensing, and absorbing apparatus, the combination of a feed-water heater for the boiler of the generator, a reducer or cooler, a water-pipe coil in the absorber, connections between said coil and the body of the condenser and between the coil and the reducer, and connections between the generator and the absorber, the said connections including a coil in the feed-water heater and a coil in the reducer, substantially as described.

21. In an ice-machine, the combination, with a generator and a chamber above the generator and communicating therewith, of an apertured casing projecting into the chamber and a pipe communicating with the generator and projecting into the said casing, substantially as and for the purpose specified.

22. In an ice-machine, the combination, with a generator and a chamber above the generator and communicating therewith, of a conical casing projecting into the chamber and provided with apertures above its bottom and a pipe communicating with the generator and projecting into the conical casing nearly to the top thereof, substantially as herein shown and described.

23. In an ice-machine, the combination, with a generator, a chamber above the generator and communicating therewith, and an absorber, of a conical and apertured casing projecting into the chamber, a pipe communicating with the generator and projecting into the conical casing, and a coil around the conical casing, having one end leading into the generator and its other end in communication with the absorber, substantially as described.

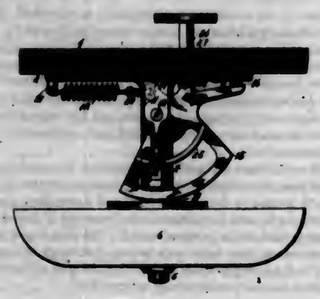
24. In an ice-machine, the combination, with a generator, a chamber above the generator and communicating therewith, and an absorber, of a series of baffle-partitions in the chamber, a pipe in communication with the absorber, projecting into the chamber and provided with a series of coils above the baffle-partitions, and a coil in the chamber below the baffle-partitions and having one end leading into the generator and its other end in communication with the absorber, substantially as herein shown and described.

482,695. SUPPORT FOR WHIRLS OF SPINDLE-BOBBINS. JOE ROBINSON and RICHARD ROBINSON, Dudley Hill, near Bradford, England, assignors of one-half to Oliver Brook Lister, same place. Filed Jan. 8, 1892. Serial No. 417,598. (No model.) Patented in England Mar. 26, 1891, No. 5,375.



Claim.—In a spinning and twisting machine, the combination of the non-rotating integral spindle A, the grooved cap D, encircling the spindle A, the balls E E, the rotating washer F, the cap for retaining the said washer in position, the tube H, and driving-whirl J, substantially as set forth.

482,696. BELL. HOWARD D. ROCKWELL, Bristol, Conn., assignor to the New Departure Bell Company, same place. Filed Apr. 7, 1892. Serial No. 428,105. (No model.)

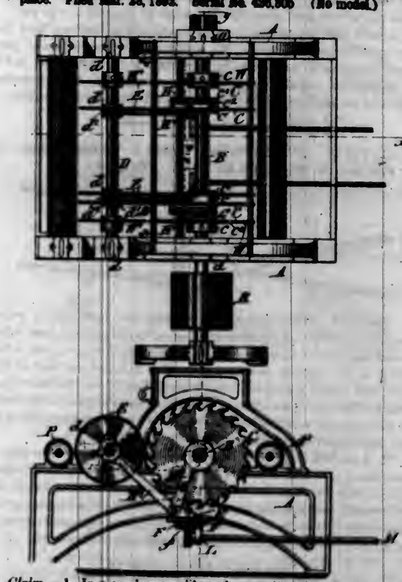


Claim.—1. In a bell adapted to be secured to the under side of a platform of a car, the combination, with a gong and a revolving frame adapted to sound the same, of actuating mechanism for operating the frame, restoring mechanism for operating the same in one direction, and a foot-piece or push-rod adapted to be operatively connected with the actuating mechanism below the platform and to extend upward through the platform for imparting motion to the actuating mechanism in opposition to the force of the restoring mechanism, substantially as set forth.

2. In bell mechanism adapted to be secured to the under side of a platform of a car, the combination, with a gong suitably supported and a revolving frame adapted to sound the same, of mechanism for actuating the frame and a foot-piece or push-rod designed to extend upward through the floor of the platform for communicating motion to the actuating mechanism, substantially as set forth.

3. In bell mechanism adapted to be secured to the under side of a platform of a car, the combination of a stud, a gong carried on the lower end thereof, a revolubile frame carried concentrically within the gong, a pinion adapted to rotate the frame, a gear meshing with the pinion, and a foot-piece or push-rod vertically movable in fixed bearings in the platform, adapted to rotate the gear, substantially as set forth.

482,697. SAWING-MACHINE. ALEXANDER ROGERS, Sr., Muskegon, Mich., assignor to the Rodgers Iron Manufacturing Company, same place. Filed Mar. 26, 1892. Serial No. 426,905. (No model.)



Claim.—1. In a sawing-machine, the combination of the arbor, the saws adjustably mounted thereon, the shaft journaled back of and parallel with the said arbor, the disks adjustably mounted thereon, and the shifters connecting each disk with a particular saw to hold the same in alignment, so that when the latter is adjusted a like adjustment will be given to the former, substantially as described.

2. In a sawing-machine, the combination of the arbor, the saw adjustably mounted thereon, the shaft journaled back of and parallel with the said arbor, the disks adjustably mounted thereon, the movable racks, and the fixed and the hinged shifters connecting, respectively, the disks and saws with the racks, each disk being so held as to be immediately back of a particular saw, so that when the latter is adjusted a like adjustment will be given to the former, substantially as described.

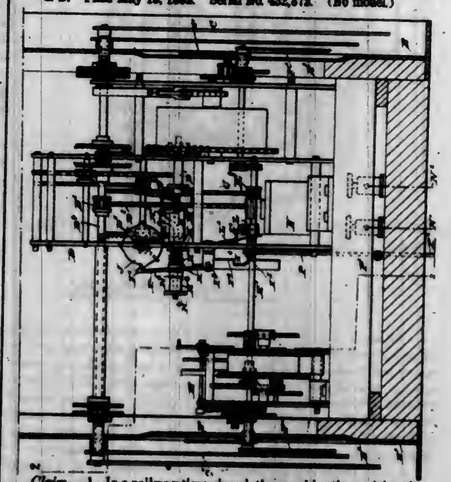
3. In a sawing-machine, the combination of the main frame, the parallel arbor and shaft journaled in the said frame, the saws and disks adjustably mounted on the said arbor and shaft, respectively, the guides secured to main frame parallel with the arbor and shaft, the movable racks carried by the guides, the fixed and hinged shifters connecting, respectively, a saw and a disk with the same rack, so that the said saw and disk will be held in alignment and both be adjusted to the same extent by the movement of the rack, substantially as described.

482,698. WHIFFLETREE. WILLIAM J. ROSS, Horseheads, assignor of one-half to Harris M. Compton, Sullivanville, N. Y. Filed Feb 24, 1891. Serial No. 382,682. (Model.)



Claim.—In a whiffletree connection, the combination of a plate, a tongue projecting from said plate and having one face beveled or inclined, a plate having a sleeve projecting therefrom and adapted to enter a perforation in the first-mentioned plate, and a loop on said plate adapted to receive said tongue, said loop being provided with an inclined inner face against which said tongue is adapted to bear, substantially as set forth.

482,699. RAILWAY TIME-SIGNAL. WALTER SCOTT, Hot Springs, S. D. Filed May 13, 1892. Serial No. 432,572. (No model.)



Claim.—1. In a railway time-signal, the combination, with a time-clock indicating the time of the day, of an auxiliary clock mechanism, an electro-magnetic releasing mechanism for the said auxiliary clock mechanism, and a stop mechanism, substantially as described, controlled from said time-clock and arranged to stop the auxiliary clock mechanism, the said stop mechanism comprising a lever fulcrumed on a wheel of the auxiliary clock mechanism and adapted to abut on an arm on one of the said wheels of the time-clock, a rod connected with the said lever, and a stop-lever connected with the said rod and adapted to engage a stop-wheel on the wind-wheel shaft of the said auxiliary clock mechanism, substantially as shown and described.

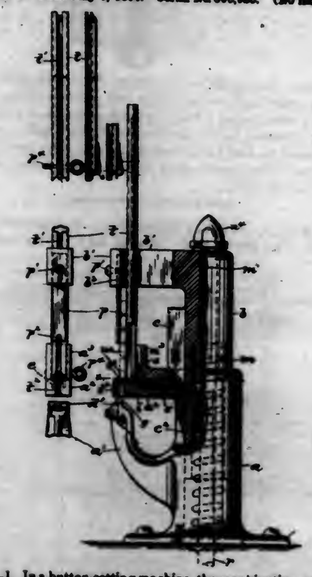
2. In a railway time-signal, a stopping mechanism comprising an arm held on a revolubile gear-wheel, a wheel mounted to turn and carrying a lever adapted to abut on the said arm, a rod connected with the said lever and fitted to slide in the hub of the said second wheel, and a stop lever connected with the said rod, substantially as shown and described.

3. In a railway time-signal, a stopping mechanism comprising an arm held on a revolubile gear-wheel, a wheel mounted to turn and carrying a lever adapted to abut on the said arm, a rod connected with the said lever and fitted to slide in the hub of the said second wheel, a stop-lever connected with the said rod, and a spring pressing on the said stop-lever, substantially as shown and described.

4. In a railway time-signal, a stopping mechanism comprising an arm held on a revolubile gear wheel, a wheel mounted to turn and carrying a lever adapted to abut on the said arm, a rod connected with the said lever and fitted to slide in the hub of the said second wheel, a stop-lever connected with the said rod, a spring pressing on the said stop-lever, and an armature-lever controlled by electro-magnets and having its free end extending into a notch in the said stop-lever, substantially as shown and described.

5. In a railway time-signal, the combination, with an electro-magnet, of a releasing device for the armature-lever of the said electro-magnet and comprising a plate adapted to be actuated by the wheels of the passing train, a lever engaging the said armature-lever, and intermediate mechanism for connecting the said second lever to impart a swinging motion to the latter when the said plate is pressed, substantially as shown and described.

482,700. BUTTON-SETTING MACHINE. ISAAC H. SIMON, Providence, R. I. Filed July 9, 1891. Serial No. 398,925. (No model.)



Claim.—1. In a button-setting machine, the combination, with the following stationary or fixed elements—viz., a die-carrying anvil, a button and fastener holding tube or magazine, and a holder interposed between the adjacent faces of said anvil and tube—of a suitably-mounted spring-resisted driving-head, a plunger or driver secured thereto, a yielding pusher mounted between the tube and holder, means for forcing the pusher in an endwise direction, and mechanism for intermittingly operating the driver-head, substantially as described.

2. In a button setting machine, the combination, with a spring-resisted head, a setting-plunger attached thereto, a stationary anvil, and a holder and runway, of a yielding pusher actuated and controlled by the movement of said head and having the outer or free end of the pusher arranged to engage a combined button and pronged fastener and force them laterally from the mouth of the runway into the said holder preparatory to being attached to the material *f* by the driver, substantially as described.

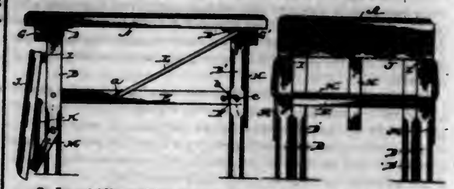
3. In a button-setting machine provided with a stationary anvil and holder and a chute or runway, the combination therewith of a suitably mounted and actuated head, a setting-plunger attached thereto, and a pusher actuated by said head arranged to convey a button and fastener from the runway to the holder, substantially as described.

4. In a button-setting machine, the combination, with a stationary die, holder, and tube or magazine, of a movable driver, as *p*, mounted in front of the tube to form a guide for the column of buttons mounted therein, a yielding pusher mounted to travel back and forth past the lower end of the tube or runway, and a vertically-moving head having the driver secured thereto and also arranged to actuate and control the pusher, substantially as described.

5. In a button setting machine, a suitable upsetting die or anvil, a substantially vertical button-chute for containing buttons and attached fasteners, and a reciprocating setting-plunger the rear face of which is immediately adjacent to the string of buttons in the chute, as and for the purpose set forth.

482,701. FOLDING TABLE. JAMES C. SHOW, Butler, Pa., assignor of one-half to William J. Barrickman, same place. Filed Mar. 5, 1892. Serial No. 423,908. (No model.)

Claim.—1. In a folding table, the combination, with a top and pairs of legs hinged to the under side of the top, of a shelf hinged at one end to one pair of legs and a latch consisting of a depending strip notched near the lower end, adapted to engage the fore end of the shelf and hold the same in a horizontal position, as set forth.



2. In a folding table substantially as described, the combination, with the top and the pair of legs B B' flexibly connected to the under side of the top and having the transverse connecting-strips at their upper ends, of the shelf pivotally connected at one end to one pair of legs and having angular recesses or notches in the corners of its opposite end to engage the other pair of legs, and the latch connected to the transverse strip of the legs B' and having a shoulder adjacent to its lower end and its inner side beveled from said end to the shoulder, substantially as and for the purpose set forth.

3. In a folding table substantially as described, the combination, with the top and the pairs of legs flexibly connected to the under side of the top, of the shelf pivotally connected at one end to one pair of legs, a latch adapted to engage the free end of the shelf and hold the same in its horizontal position, the auxiliary leaf hinged to one pair of legs, the angular bail pivotally connected at its ends to the under side of said leaf, and the straps pivotally connected to the transverse portion of the bail and to the pair of legs, substantially as specified.

482,702. CURLING-TONGS. GEORGE L. THOMPSON, Chicago, Ill. Filed Nov. 10, 1891. Serial No. 411,497. (No model.)



Claim.—1. A curling-tongs comprising two jaws, one of which forms the mandrel and the other the clasp of the tongs, said jaws being pivoted together at their inner ends, handles for the jaws, and a link pivoted at its opposite ends to the handles between the ends of the latter, one of said jaws being rigid with its handle and the other jaw being pivoted to its handle at a point between the pivot connecting the latter handle with said link and the pivot which connects the jaws with each other, substantially as described.

2. A curling-tongs comprising a cylindric jaw, a concave jaw of sheet metal, provided with ears by which it is pivoted on the cylindric jaw and with an extension or arm adjacent to its pivot, a handle for the cylindric jaw, forming an extension of the same, a handle for the concave jaw, pivotally connected with said arm or extension thereof, and a link connecting said handles, substantially as described.

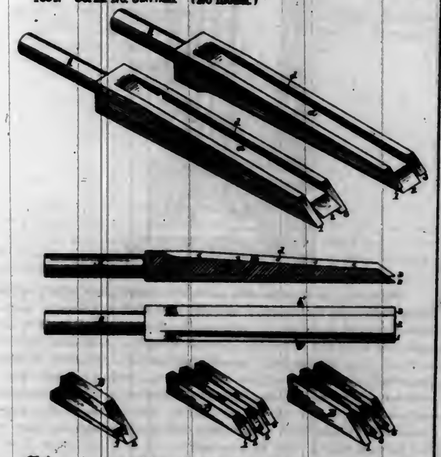
482,708. REFRIGERATOR-CAR. OSCAR VERIN, New York, N. Y. Filed Sept. 21, 1891. Serial No. 406,306. (No model.)



Claim.—1. In a refrigerator-car in which a refrigerant-chamber at one end of the interior of the car is separated from the central storage-space of the car by an imperforate partition extending laterally of the car and terminating at its top and bottom edges somewhat below and above, respectively, the car-roof and car-floor, and thereby constituting continuously-open throats above and below said partition, the combination, with said partition, of an offset a^2, projecting horizontally from its lower edge on the side toward the refrigerant-chamber, and a valve C, extending laterally of the car and adapted to close said throat below said partition and eccentrically pivoted on a longitudinal axis under said offset, whereby when said valve is turned to an open position on its said axis its narrower portion will lie beneath said offset and its wider portion will project into said refrigerant-chamber, substantially as and for the purpose set forth.

2. In a refrigerator-car in which a refrigerant-chamber at one end of the interior of the car is separated from the central storage-space of the car by an imperforate partition extending laterally of the car and terminating at its top and bottom edges somewhat below and above, respectively, the car-roof and car-floor, and thereby constituting continuously-open throats above and below said partition, the combination, with said partition, of an offset a^2, projecting horizontally from its lower edge on the side toward the refrigerant-chamber and provided with a depending stop a^3 and a valve C, extending laterally of the car and adapted to close said throat below said partition and eccentrically pivoted on a longitudinal axis under said offset, together with the upwardly-projecting lip *a*, extending laterally on the car-floor below said partition, whereby when the valve is closed its receptive longitudinal edges will abut against the said stop and lip, substantially as and for the purpose set forth.

482,704. MORTISING-CHISEL. CHARLES L. WALL, Philadelphia, Pa., assignor of one-half to Jacob G. Wall, Camden, N. J. Filed July 6, 1891. Serial No. 398,523. (No model.)



Claim.—1. A mortising-chisel having a series of cutting-edges side by side, but in different longitudinal planes, and grooved longitudinally in its front face, substantially as specified.

2. A mortising-chisel having a series of cutting-edges side by side, but in different longitudinal planes, and grooved both as to its front and rear faces, substantially as specified.

3. A mortising-chisel grooved longitudinally and having cutting-edges side by side, but in different longitudinal planes, one or more of the grooves of the chisel being contracted in width toward the cutting end of the chisel, substantially as specified.

4. A mortising-chisel having cutting-edges side by side, but in different longitudinal planes, and having grooves in its front and rear faces, both of said grooves being contracted in width toward the front or cutting end of the chisel, substantially as specified.

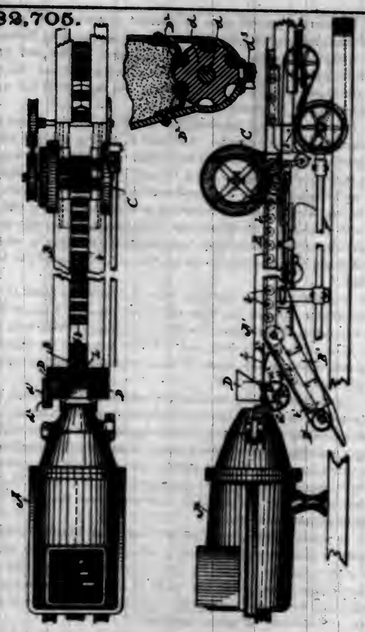
5. A mortising-chisel having a series of cutting-edges side by side and in different longitudinal planes, but in the same transverse plane, substantially as specified.

482,705. BRICK-SANDING MACHINE. WILLIAM W. WALLACE and RAYMOND C. PENFIELD, Willoughby, Ohio, assignors to J. W. Penfield & Son, same place. Filed Aug. 22, 1891. Serial No. 403,460. (No model.)

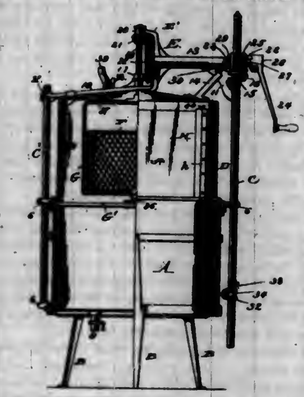
Claim.—1. In sanding apparatus for brick cut-off tables, the combination, with an endless apron having an inclined section, of one or more sand-containers adapted to discharge onto such inclined section of the apron, a fluted roller located in the eduction of a container, and a scraper or cut-off adapted to engage the periphery of such roller, substantially as set forth.

2. In sanding apparatus for brick cut-off tables, in combination, an endless apron having an inclined section next the brick-machine, a bridge located over such inclined section for supporting the bar of clay, sand-boxes located on either side of such bridge and adapted to discharge sand onto the inclined section of the apron, and a scraper or distributer adapted to spread the sand on the apron, substantially as set forth.

482,705.



482,706. DISH-WASHING MACHINE. STEPHEN A. WALTER, Moline, Ill. Filed Mar. 17, 1892. Serial No. 425,202. (No model.)



Claim.—1. A dish-washing machine comprising a water-tank having vertical guides on opposite sides, a vessel slidable on said guides and provided with a dish-holding basket, and means comprising an engaging rack and pinion carried by the vessel for lowering and raising said vessel into and out of the tank, substantially as herein described.

2. In a dish-washing machine, the combination of a water-tank having vertical uprights or rods, an open-bottom vessel adapted to enter said tank, a dish-holding basket supported within the vessel, suitable guides on said vessel engaging the uprights on the tank, whereby the vessel is vertically guided, a pinion, and a vertically-guided rack-bar engaged thereby for vertically moving the vessel, substantially as herein described.

3. In a dish-washing machine, the combination of a water-tank having the uprights or rods, the vessel D, having an open bottom and closed top, a support for said vessel slidable on said uprights, means for raising and lowering the vessel, a dish-holding basket supported within said vessel, a frame for supporting the basket provided with a shaft mounted in said support, and a shaft and gearing for rotating the frame and basket within said vessel, substantially as herein described.

4. In a dish-washing machine, the combination of a water-tank

having the vertical guides upon its exterior opposite sides, an open-bottom vessel adapted to enter said tank, a basket-holding frame supported within said vessel, a dish-holding basket within said frame, means for rotating the frame and its basket, and a rack and pinion by which the inner vessel is moved vertically into and out of the water-tank, substantially as herein described.

5. In a dish-washing machine, the combination of a water-tank, the vertical guides or uprights, the vessel D, having an open bottom and closed top, a casting secured to the top of the vessel for supporting the same and having the arms 10 and 11 guided upon said uprights, and a head-casting E', a basket holding frame within the vessel D, having a vertical shaft mounted in said head-casting and provided with a pinion, a shaft mounted horizontally within the arm 11 and provided with a gear-wheel, and means for rotating it, whereby the basket and its supporting-frame are rotated, substantially as herein described.

6. In a dish-washing machine, the water-tank, the vessel D, vertically adjustable thereon, the basket-holding frame, and means for rotating the same, in combination with a vertically-movable rack-bar, a pinion loose on the drive-shaft, and a clutch between the pinion and drive-shaft, whereby the vessel D may be raised and lowered, substantially as herein described.

7. In a dish-washing machine, the water-tank, the vessel D, the horizontal and vertical shafts with interposed gearing, a crank-handle on the horizontal shaft having a clutch-surface, a pinion on said shaft having a corresponding surface adapted to engage the clutch-surface of the crank-handle, a pivoted shipper for throwing the pinion into and out of engagement with the crank-handle, and a vertically-guided rack-bar engaged by the pinion to raise and lower the vessel D, substantially as herein described.

8. In a dish-washing machine, the water-tank having the uprights or guides, a vessel movable on said guides in vertical planes, and provided with means for supporting the dish-holding basket, and means for raising said vessel above the plane of the top of the water tank, whereby said vessel may swing laterally about one of the uprights as an axis, substantially as herein described.

9. In a dish-washing machine, the combination of the water-tank, the open-bottom vessel having means for supporting the basket, the casting for supporting the vessel having the arms 10 and 11 and head-casting E', the vertical and horizontal shafts, and interposed gearing for rotating the basket, the uprights on said tank extending through guides in the ends of the arms 10 and 11, and means for raising and lowering the vessel and enabling it to be swung laterally beyond the vertical plane of the tank and about one of the uprights as an axis, substantially as herein described.

10. In a dish-washing machine, the water-tank with its uprights 10 and 11, the vessel D mounted thereon and supporting the basket, means for rotating said vessel, a pivoted stop on one of the uprights, a rack-bar having a stop for engaging the pivoted stop, and a pinion and driving mechanism for operating the pinion to raise the vessel above the tank and enabling it to be swung laterally about one of the uprights as an axis, substantially as herein described.

11. In a dish-washing machine having a water-tank, a dish-holding vessel, and means for raising and lowering the same, comprising the uprights C and C', a vertically-movable rack bar provided with a stop, a pinion for moving the rack-bar, and a stop on one of the uprights engaged by the rack-bar and pivotally secured, so that it may be moved to increase the vertical movement of the vessel and to enable said vessel to be raised above the tank and to swing about one of the uprights as an axis, substantially as herein described.

12. In a dish-washing machine, the vessel D, having a vertically-sliding door in its side, a frame within the vessel, and a basket supported therein, in combination with a water-tank and means for rotating the vessel and raising and lowering the same, substantially as herein described.

13. In a dish-washing machine, the tank, the vessel D, with its supporting-casting provided with arms 10 and 11, and the vertical and horizontal shafts and interposed gearing, in combination with a vertically-guided rack-bar, a pinion loose on said horizontal shaft, having the pins or lugs projecting from one of its faces, and a clutch-surface on its opposite face, a locking-lug on the supporting-casting, with which the pins or lugs on the pinion engage to hold the vessel elevated, a pivoted shipper for moving the pinion out of contact with said locking-lug, and a clutch-surface on the drive-shaft, into contact with which the pinion may be thrown, substantially as herein described.

14. In a dish-washing machine, the water-tank, the vessel D with its basket, and means for rotating and raising and lowering the vessel, in combination with a spray pipe or nozzle supported in the top of the vessel and connected with a hot-water supply and a valve for controlling said pipe or nozzle, substantially as herein described.

15. In a dish-washing machine, the tank, the vessel D, provided with a dish-holding basket and having pivotally-secured wings or blades on its inner surface with limiting stops therefor, whereby said wings or blades are thrown outward to direct the water inward toward the center of the vessel and upon the dishes upon one movement of the vessel and folded inward on the reverse movement, and means for rotating the basket, substantially as herein described.

482,707. CUT-OFF PISTON-VALVE. FRANK J. WATERS, Providence, R. I., assignor of one-half to George Howe, same place. Filed Apr. 25, 1892. Serial No. 430,505. (No model.)

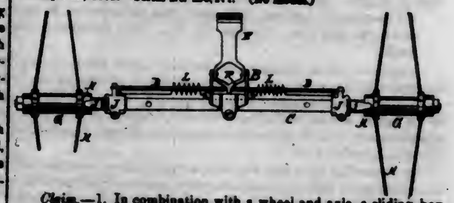


Claim.—1. In a piston slide-valve, the combination, with a cylindrical slide-valve having solid ends and provided with central longitudinal inlet-slots and outlet-ports intermediate said slots and the end walls and a tubular valve-stem secured through a perforation in one end wall, of an independently-movable cut-off valve carried in the forward end of said valve-chamber and provided with a tubular valve-stem extending through the stem of the slide-valve, and an independently-movable cut-off valve carried in the rear portion of the slide-valve and provided with a valve-stem extending through the stem of the forward cut-off valve, as described.

2. The combination, with the slide-valve 10, longitudinally-movable in a suitable valve-casing and provided with inlet and outlet ports, and the extensions 15 and 17, provided with outlet-ports 16 and 18, of the bearing-rings 11 11, contained within circumferential depressions in the walls of the slide-valve, as described.

3. The combination, with the slide-valve 10, having solid ends and provided with the inlet-slots 12 and the outlet ports 13 and 14, the extensions 15 and 17, provided with the ports 16 and 18, and the tubular valve-stem 19, secured in a perforation in the forward end of the slide-valve, of an independently-movable cut-off valve 20, contained within the forward portion of the slide-valve and provided with a tubular valve-stem 21, extending through the stem of the slide-valve, and an independently-movable cut-off valve 22, contained within the rear portion of the slide-valve and provided with a valve-stem 23, extending through the stem of the forward cut-off valve, as described.

482,708. LOCK FOR BABY-CARRIAGES. GARDNER A. WATKINS, Gardner, Mass., assignor to Heywood Bros. & Co., same place. Filed Apr. 25, 1892. Serial No. 430,477. (No model.)



Claim.—1. In combination with a wheel and axle, a sliding box provided with one or more projecting arms or dogs constructed to engage said wheel, a pedal, a cam, and an operating-rod secured to the said sliding box and co-operating with the said cam, substantially as and for the purposes set forth.

2. In combination with the wheels and axle of a baby-carriage or other vehicle, a pair of sliding boxes carried upon the said axle and each provided with one or more projecting arms or dogs constructed to engage one of the said wheels, a pedal, a cam, and one or more operating-rods co-operating with the said cam and arranged to simultaneously throw the said dogs into or out of engagement with the said wheels, substantially as and for the purposes set forth.

3. A lock for the wheels of baby-carriages, consisting of a sliding clamp and a plate turning with one of the said wheels and provided with recesses or projections to engage the said clamp, substantially as set forth.

4. A lock for the wheels of baby-carriages, consisting of a sliding clamp and studs secured to one of the said wheels and constructed to engage the said clamp, substantially as and for the purposes set forth.

5. In combination with a wheel and axle, one or more dogs constructed to engage the said wheel, a pedal-movement secured at or near the center of the said axle, and one or more rods co-operating with the said pedal-movement to throw the said dogs into or out of engagement with the said wheel, substantially as and for the purposes set forth.

482,709. THRASHING-MACHINE. JAMES H. WILSON, Minneapolis, Minn., assignor of one-half to Thomas A. Whitworth, same place. Filed Jan. 23, 1892. Serial No. 418,897. (No model.)



Claim.—1. In a thrashing-machine, the combination, with a carrier-frame pivoted at its receiving end, of an endless separating-carrier over which the stock is passed mounted on said frame and a constantly-running shaft having an eccentric or crank connection with the delivery end of said carrier-frame for imparting to the same an oscillating motion in the vertical plane.

2. In a thrashing-machine, the combination, with the separating-carriers and their supporting-shafts, of shields inclosing the said shafts and supported in a fixed position with reference thereto, whereby the straw or fiber cannot wrap about the said shafts.

3. The combination, with the carrier-supporting shafts, of shields inclosing the said shafts fixed against rotary motion constructed in two sections telescoping with each other at their inner ends and working at their outer ends with a close joint against the faces of the carrier-wheels, substantially as described.

4. A carrier-shaft shield for inclosing the shaft, divided longitudinally for permitting the same to be placed over the shaft when in working position, substantially as described.

5. The combination, with the carrier-shaft, of a shield for inclosing the shaft, constructed in two telescoping sections divided longitudinally, whereby the same may be sprung over the shaft and fitted to any width of carrier without the removal of the wheels, substantially as described.

6. The combination, with the carrier-shaft, of a shield for inclosing the same, constructed in two telescoping sections divided longitudinally to permit the same to be sprung over the shaft and provided with interlocking flanges on the meeting edges of their divided parts, and means for securing the said sections against rotary motion on the shaft when in position, substantially as and for the purpose set forth.

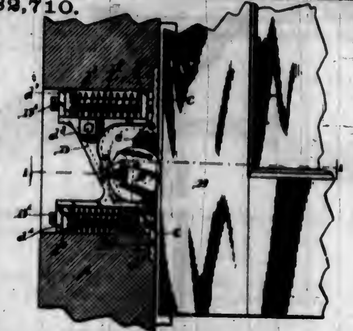
482,710. SASH-HOLDER. WILLIAM H. DALBEY, Indianapolis, assignor of one-half to Edward D. Kingsbury, Irvington, Ind. Filed Apr. 29, 1892. Serial No. 431,142. (No model.)

Claim.—1. A sash-balance consisting of a supporting plate or frame, an adjustable frame connected therewith, and a friction-roller mounted on an inclined way in said adjustable frame, to which it is connected by means whereby its rotary motion is positively limited, substantially as set forth.

2. In a sash-balance, the combination of the main supporting plate or frame, a frame mounted to slide on guide-pins or parts connected therewith, springs interposed between a bearing-point connected with said main plate and a bearing-point on said adjustable frame, means for adjusting the tension of said springs, and a frictional bearing connected with said adjustable frame and extending through the opening in said main frame to bear against the sash, substantially as set forth.

3. In a sash-balance, the combination of the frame C, the frame D, connected therewith by means of the bolts D' and springs D^2, the roller E, mounted against the inclined wall of said frame D and connected
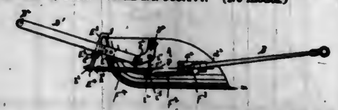
482,710.



therewith by means of the lugs *d*, which engage loosely with recesses in the ends of said roller, substantially as set forth.

4. In a sash-balance, the combination, with the supporting plate and frame, of a roller mounted in a recess therein, said roller being formed oblong or cam-shaped and connected loosely to the frame, whereby its motion is limited and it is held directly against the sash when in use, substantially as set forth.

482,711. EARTH-SCRAPER. JULIUS D. BRAINARD, St. Paul, Minn. Filed June 5, 1891. Serial No. 395,177. (No model.)



Claim.—1. In an earth-scraper, the scoop having the draft-bail B, pivoted thereto at its forward end, a handle-bail pivoted to the side of the scoop near its rear, cross stop-bar E', connecting the sides of said handle-bail and adapted to rest beneath the rear upper portion of the scoop to limit the upward motion of the handle-bail, and a catch pivoted to said cross stop-bar and adapted to lock said stop-bar and handle-bail to said scoop to prevent the downward movement of the handle-bail.

2. In an earth-scraper, the scoop having the draft-bail B, pivoted thereto at its forward end, a handle-bail pivoted to the scoop near its rear end, cross stop-bar E', connecting the sides of said handle-bail and adapted to rest beneath the rear portion of the scoop, rod E^3, journaled upon said stop-bar and with upturned end E^4, having catch *g*, adapted to engage with the scoop and hold the handle-bail connected thereto, downwardly-projecting portion E^4 on said rod and having adjustable eyebolt *h'*, hanger F', pivoted to said scoop, chain F^2, connecting said hanger with a clip upon the draw-bail, and chain F^3, connected by one end to said hanger by a sliding link and by the other end to said eyebolt, whereby when said scoop is overturned said handle-bail is released, substantially as and for the purpose set forth.

3. In an earth-scraper, the combination of the scoop and a handle-bail formed with flat sides and semi-tubular rear and a wood filling or core inserted into said semi-tubular portion, as and for the purpose set forth.

482,712. EXTENSION-CHANDELIER. JOSEPH R. BOSHER, Ansonia, Conn., assignor to Wallace & Sons, same place. Filed Apr. 2, 1892. Serial No. 427,563. (No model.)



Claim.—1. In combination, in an extension-chandelier, an upper stationary tube and a lower tube movable thereon and adapted to carry the lamp-supports, an extensible suspension connection arranged within the tubes and adapted to permit their relative movement one on the other, which connection is constructed and attached to the lower tube, so as to only have movement therewith, a locking-rod projecting to within the upper tube and carried by and vertically movable on the

482,712.



lower tube, and a link located within the upper tube and arranged between the locking-rod and the suspension connections and adapted to force the rod and said connections to engaging contact with the upper tube, substantially as set forth.

2. In combination, the upper stationary tube A and the lower tube B, adjustable thereon, extensible suspension connections, as chain G and rod F, arranged within the tubes and attached to the lower tube to move only therewith, the locking-rod P, vertically movable on the lower tube and projecting to within the upper tube, the spring N, acting to press the rod upwardly, and a link or toggle Q, arranged between the rods F and P and adapted to separate said rods and permit them to come together by the vertical movement of rod P, whereby the rods are brought to engaging contact with the upper tube and released therefrom, substantially as set forth.

REISSUES.

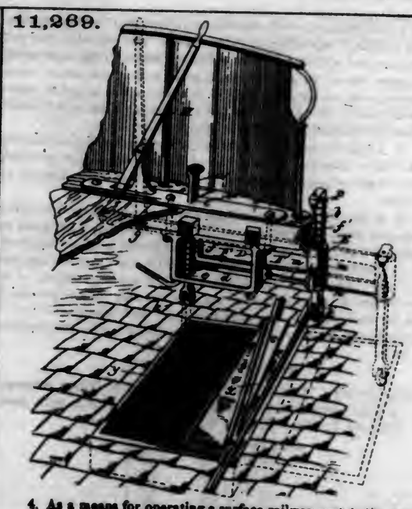
11,269. SWITCH-OPERATING DEVICE FOR RAILWAY-CARS. JAMES KELLY, Pittsfield, Mass. Filed July 3, 1890. Serial No. 358,097. Original No. 427,577, dated May 13, 1890.

Claim.—1. The combination, with a suitable supporting part of a car-platform, of a supplemental support laterally movable on said primary support, a plunger vertically movable in relation to said supplemental support, and a spring for normally maintaining said plunger in its uppermost position, an appliance for causing the lateral movement of said supplemental support, a flexible connection by one end secured to a part of said plunger and thence guided to and attached to a stationary part of the car, all whereby when said supplemental support is outwardly moved said plunger will, through said flexible connection, be downwardly drawn, substantially as and for the purpose set forth.

2. The combination, with the platform of a car provided with a hanger-yoke having therein vertical perforations and the guideways *g g*, of the vertically-movable and spring-supported plunger-spindle *a* and the frame F, movable in said guideways and provided with a part B, constituting a vertical guiding-bearing, a plunger-spindle spring-supported in said latter bearing, a means for moving said frame and bearing-support laterally, and a means for securing a downward thrust of the plunger therein guided, substantially as and for the purpose set forth.

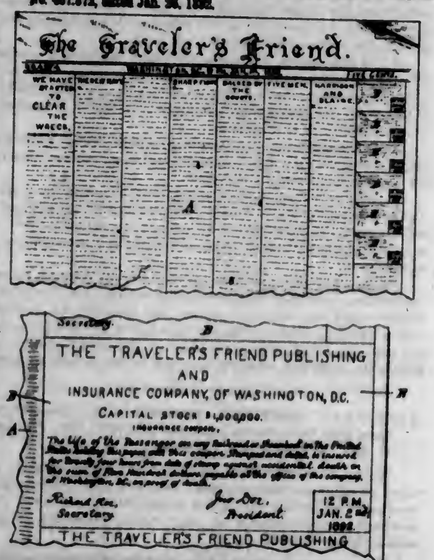
3. As a means for operating a surface-railway switch, the combination, with a car, of a laterally-movable guide-bearing and a vertically-movable plunger therein, mechanism for giving lateral movement to said guide-bearing, and connections of the plunger therewith for automatically actuating the plunger by said lateral movement of the guide, the same being adapted to actuate a platform-switch, substantially as described.

11,269.



4. As a means for operating a surface-railway switch, the combination, with two vertically-movable platforms connected with said switch and located one between the rails of the track and the other at one side of the track, of two vertically-movable plungers mounted on the car, one of said plungers being also laterally movable, and means for depressing either of said plungers, substantially as and for the purpose set forth.

11,270. MEANS FOR INSURING TRAVELERS AGAINST LOSS BY ACCIDENT. REBA H. HILL, Washington, D. C., assignor to John G. Slater, same place. Filed July 21, 1892. Serial No. 440,837. Original No. 407,872, dated Jan. 26, 1892.



Claim.—1. The herein-described means for insuring travelers and others against loss by accident, which consists of a newspaper or other periodical provided with a name or title, an address, and an issue-date and having one or more coupons containing the name of the insurer, and an accident-insurance policy specifying the time and amount beyond which the insurer is not responsible, substantially as described.

2. The herein-described means for insuring travelers and others against loss by accident, which consists of a newspaper or other periodical provided with a name or title, an address, and an issue-date and having one or more coupons containing a heading for the name and address of the insurer, and an accident-insurance policy specifying the

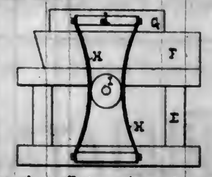
time and amount beyond which the insurer is not responsible, substantially as described.

3. The herein-described means for insuring travelers and others against loss by accident, which consists of a newspaper or other periodical provided with a name or title, an address, and an issue-date and having a series of coupons, each containing a heading for the name and address of the insurer, a date space, and an accident-insurance policy specifying the time and amount beyond which the insurer is not responsible, substantially as described.

4. The herein-described means for insuring travelers and others against loss by accident, which consists of a newspaper or other periodical containing columns for news, attractive reading matter, and advertisements, and a series of coupons, each of which is provided with a heading for the name and address of the insurer, and an accident-insurance policy specifying the time and amount beyond which the insurer is not responsible, substantially as described.

5. The herein-described means for insuring travelers and others against loss by accident, which consists of a newspaper or other periodical containing columns for news, attractive reading matter, and advertisements, and a series of coupons, each of which is provided with the name of the insurer, an accident-insurance policy specifying the time for and the amount of the insurance, and a space dated the same as or subsequent to that of said periodical and to that upon the coupon immediately above or preceding, substantially as described.

11,271. MECHANICAL MOVEMENT. HENRY D. MENTZEL, Baltimore, Md. Filed June 11, 1892. Serial No. 436,408. Original No. 447,964, dated Mar. 10, 1891.



Claim.—1. A toggle to effect a reciprocating motion, which consists of a spring-bar secured so as to be immovable at one end and at the other end attached to the device to be reciprocated, combined with a deflecting device which is applied to the said bar at a point between the ends thereof, substantially as and for the purpose specified.

2. In combination with the frame or some other stationary part of a machine, spring-bars connected at their ends to the said frame and also to some device to be reciprocated, and means for deflecting intermediate portions of the said spring-bars in a direction practically at a right angle with the line of movement of the said driven device, substantially as and for the purpose specified.

3. In combination with the frame or some other stationary part of a machine, spring-bars connected at their ends to the said frame and also to some device to be reciprocated, and a revolable frame situated between the said bars and carrying eccentrics, whereby in the revolution of the said shaft the springs are deflected from their normal position or shape, substantially as and for the purpose specified.

4. In combination with a stationary frame and a movable frame situated above the stationary one, two separated bars or devices which connect the two frames and are held yieldingly in the position of their nearest approach to each other, and a rotating device situated between and in contact with the said connecting-bars or devices, adapted in its revolution to simultaneously and equally distend or further separate the said bars, (the said bars being adapted to return automatically to their normal position,) whereby a vertical reciprocating motion is imparted to the said movable frame, substantially as specified.

DESIGNS.

21,854. HANDLE FOR SPOONS, &c. JOHN LARSON and JAMES M. VAN SLYKE, Madison, Wis. Filed June 24, 1892. Serial No. 437,994. Term of patent 7 years.



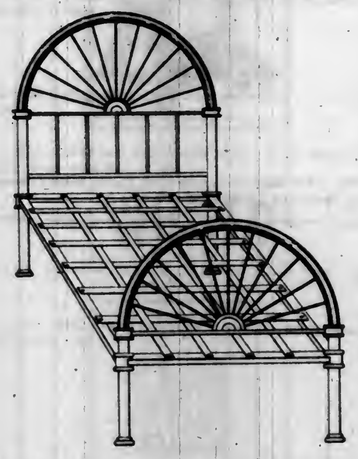
Claim.—The design for the handles of spoons or similar articles herein shown and described.

21,855. HANDLE FOR SPOONS, &c. JOHN LARSON and JAMES M. VAN SLYKE, Madison, Wis. Filed June 27, 1892. Serial No. 438,393. Term of patent 7 years.



Claim.—The design for the handles of spoons or similar articles herein shown and described.

21,856. BEDSTEAD. FRED R. WILCOX, Syracuse, N. Y. Filed July 18, 1892. Serial No. 440,406. Term of patent 7 years.



Claim.—The design for a bedstead herein shown and described.

21,857. CARPET. HERBERT T. GEORGE, London, England, assignor to Arnold, Constable & Co., New York, N. Y. Filed Aug. 17, 1892. Serial No. 443,351. Term of patent 3½ years.



Claim.—The design for carpets, consisting of the ornamentations shown in the drawing accompanying this specification.

21,858. PATTERN FOR PRINTED FABRIC. SAMUEL M. SCHWAB, Jr., New York, N. Y. Filed June 27, 1892. Serial No. 438,317. Term of patent 7 years.



Claim.—The design for a pattern for printed fabric, substantially as herein shown and described.

21,859. BADGE. JOHN BART, Paterson, N. J. Filed July 22, 1892. Serial No. 440,960. Term of patent 3½ years.



Claim.—The design for a badge, substantially as described and shown.

TRADE-MARKS

REGISTERED SEPTEMBER 13, 1892.

21,731. A LINE OF MEDICINES. ARKWRIGHT MEDICINE CO., St. Louis, Mo. Filed June 27, 1892.



Essential feature.—An elliptical-shaped figure bearing the picture of an ark, upon which is the word "ARKWRIGHT." Used since May 19, 1892.

21,732. LARD. J. M. CERALLOS & Co., New York, N. Y. Filed Aug. 16, 1892.

CATALUÑA

Essential feature.—The word "CATALUÑA." Used since January 1, 1890.

21,733. DENTIFRICE. FLORENCE MANUFACTURING COMPANY, Northampton, Mass., New York, N. Y., and Chicago, Ill. Filed June 20, 1892.

TWIN LUXURIES.

Essential feature.—The words "TWIN LUXURIES." Used since June 1, 1892.

21,734. LIQUORS AND CORDIALS. GORDON & Co., London, England. Filed Aug. 15, 1892.



Essential feature.—The representation of a boar's head. Used since 1769.

21,735. SEEDS AND PLANTS. OASIS NURSERY COMPANY, Westbury, N. Y. Filed Aug. 12, 1892.

OASIS

Essential feature.—The word "OASIS." Used since July 15 1892.

21,736. ELECTRIC RINGS FOR THE CURE OF DISEASE. MALCOLM D. PENCHAM, New York, N. Y. Filed Aug. 16, 1892.



Essential feature.—The representation of a child holding a ring above its head. Used since June 1, 1891.

21,737. WHISKY. C. D. SMITH DRUG COMPANY, St. Joseph, Mo. Filed May 17, 1892.

THOROUGHBRED

Essential feature.—The word "THOROUGHBRED." Used since May, 1890.

21,738. LAUNDRY AND TOILET SOAP. BEACH SOAP CO., Lawrence, Mass. Filed May 31, 1892.

WORLD

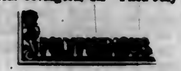
Essential feature.—The word "WORLD." Used since April 1, 1881.

21,739. BEER. HAGEMANN BREWING COMPANY, San Francisco, Cal. Filed May 13, 1892.

AB

Essential feature.—The letters "A B." Used since March 1, 1862.

21,740. COTTON ROPE, CORDAGE, AND TWINE. PORTERDALE MILLS, Porterdale, near Covington, Ga. Filed July 20, 1892.



Essential feature.—The word "POLYPHEMOUS" and a representation of the one-eyed monster named "Polyphemous." Used since January 1, 1892.

21,741. NATURAL MINERAL WATER. JOHN SCHUSTTOSH, Rapid City, S. D. Filed June 13, 1892.



Essential feature.—The word "CATHOLICON" and the representation of two Indians at the rim of a basin or spring of water. Used since June 1, 1889.

21,742. VINEGAR, PICKLES, CATSUPS, CHOW-CHOW, MUSTARD, AND SAUCES. THE M. A. GEDNEY PICKLING COMPANY, Minneapolis, Minn. Filed Nov. 30, 1891.



Essential feature.—The capital letter "O" inclosing the representation of a landscape and a cascade or waterfall. Used since October 1, 1891.

21,743. CANDIES. WILLIAM H. WEBER, Hazleton, Pa. Filed Aug. 19, 1892.



Essential feature.—The letters "W. H. W." in script. Used since January 1, 1887.

21,744. STRAW LUMBER. ANDREW S. CHURCH, New York, N. Y. Filed Aug. 5, 1892.

STRAWLUM

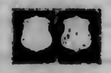
Essential feature.—The word "STRAWLUM." Used since June 1, 1892.

21,745. COTTON YARN. SANFORD SPINNING COMPANY, Fall River, Mass. Filed Aug. 20, 1892.



Essential feature.—The representation of a woman sitting at a spinning-wheel. Used since June 15, 1892.

21,746. FRANGIBLE BOXES CONTAINING POSTAGE-STAMPS FOR DELIVERY BY A COIN-CONTROLLED MACHINE. UNITED STATES POSTAGE STAMP DELIVERY COMPANY, Portland, Me., and Boston, Mass. Filed Aug. 22, 1892.



Essential feature.—The representation of the two duplicate shields arranged side by side. Used since July 1, 1892.

21,747. MACHINE FOR MAKING CALCULATIONS AND RECORDING THE RESULTS. CALCULAGRAPH COMPANY, East Orange, N. J., and New York, N. Y. Filed Aug. 22, 1892.

Calculagraph

Essential feature.—The word "CALCULAGRAPH." Used since April 15, 1891.

21,748. WHISKY. JOHN MILLER & Co., Boston, Mass. Filed Aug. 1, 1892.



MILLER'S GAME COCK

Essential feature.—The representation of the end of a whisky-barrel with a string of game birds hung in front of it and a faucet or cock in it, together with the words "MILLER'S GAME COCK, THE KING OF ALL WHISKIES." Used since June 14, 1892.

21,749. LAUNDRY SOAP. READS MANUFACTURING CO., Chicago, Ill. Filed Aug. 4, 1892.

EASY WORK

Essential feature.—The words "EASY WORK." Used since November 1, 1891.

21,750. WHEAT-FLOUR. SHELL & MAKEPEACE, Troupsburg, N. Y. Filed Aug. 30, 1892.

WHITE KID

Essential feature.—The words "WHITE KID." Used since October, 1883.

21,751. A PREPARATION OF CORN-STARCH OR CORN-FLOUR. THE NATIONAL STARCH MANUFACTURING COMPANY, Covington, Ky., and New York and Buffalo, N. Y. Filed Dec. 9, 1891.



Essential feature.—The representation of the Falls of Niagara. Used since August, 1884.

21,752. CANNED SOUP. VAN CAMP PACKING COMPANY, Indianapolis, Ind. Filed May 18, 1892.

ROYAL

Essential feature.—The word "ROYAL." Used since February 1, 1892.

21,753. CANNED TOMATOES. VAN CAMP PACKING COMPANY, Indianapolis, Ind. Filed May 18, 1892.



Essential feature.—The words "CHICAGO TRADE TOMATOES" upon the representation of a band and bar superimposed upon a vine with foliage and flowers. Used since August 1, 1889.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE HOUSTON.

Decided September 1, 1892.

PRACTICE—RULE 68.

After final rejection claims substantially different from those finally rejected cannot be admitted without the showing required by Rule 68.

ON petition.

ROLL-HOLDING PHOTOGRAPHIC APPARATUS.

Application of David H. Houston filed March 12, 1886, No. 195,019.

Messrs. Edson Bros. for the applicant.

FROTHINGHAM, *Acting Commissioner:*

This is a petition taken from the action of the Examiner refusing to incorporate into the case for the purposes of appeal certain claims as substitutes for the claims which are finally rejected.

The record shows that on March 3, 1892, claims 40, 41, 42, 43, and 45 were finally rejected; that on March 29, 1892, these claims were erased by applicant and two new ones (present claims 41 and 42) were offered; that on April 13, 1892, the Examiner stated that these claims (41 and 42) were the same as prior claims 42 and 45, respectively, and were "admitted for the purpose of appeal only." Thereafter applicant presented four claims in place of the two claims thus admitted, requesting consideration thereof. This request was refused by the Examiner. Thereupon applicant offered an amendment to the specification and six claims to be substituted in place of the two claims admitted on March 29, 1892, alleging that they were "in better form for appeal." The Examiner refused to enter this amendment including the six claims, and from this action the present petition is taken.

In the case of *ex parte Collis* (50 O. G., 992) it was held that—

1. Amendments canceling claims or presenting those rejected in better form for consideration on appeal may be admitted either before or after the appeal has been taken without a showing why they were not earlier presented.
2. An amended claim which does not differ materially from that finally rejected may be admitted for the purpose of appeal, but not otherwise, without further showing. The applicant's opinion may properly be consulted as to whether the proposed amended claim is couched in better form than the corresponding claim which has been rejected. [Syllabus.]

The words "which does not differ materially from" are to be particularly noted in said quotation. These words indicate that the amendment must be such as does not touch the merits of the case—that is, the amended claim must not differ in *substance* from the claim for which it is sought to be substituted to warrant its admission for the purpose of appeal. It is clear that if an applicant desires to substitute six claims for two claims for the purpose of appeal the four of the new claims must be different in scope from the two rejected claims.

It must be presumed, therefore, that some of the claims now sought to be introduced are materially different from those finally rejected. Such being the case, the claims cannot properly be entered except "upon a showing duly verified of good and sufficient reasons why they were not earlier presented." (Rule 68.)

It is contended on behalf of applicant that he is entitled to vary the substance of the claims standing finally rejected provided the new claims cover subject-matter the substance of which has at any time heretofore been finally rejected.

I am unable to take this view of the case, for it is held that where after final rejection it is sought to enter for the purposes of appeal claims which had been formerly erased such claims cannot properly be reinstated unless there is some showing of inadvertence, irreparable injury, or of special circumstances surrounding the case. (See *ex parte Jameson*, 43 MS. Dec., 436; *ex parte Smith*, 43 MS. Dec., 490; *ex parte Auchu*, 49 MS. Dec., 352.)

The object of Rule 68 is to put an end to proceedings in a case after final rejection except under certain specified conditions. As was said in the case of *ex parte Smith, supra*:

There must be an end somewhere to the prosecution of an application, and the Office, in consideration of the large amount of work imposed upon it and the constant struggle to keep from falling hopelessly behind, is fully justified in restricting the power to bring up for reconsideration matters which appear to have been finally disposed of. (See, also, *Bouvier, ex parte*, 42 MS. Dec., 1.)

Under all the circumstances of the case I am of the opinion that such showing has not been made as to warrant the admission of the proposed amendment.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Southern District of New York.

AMERICAN SOLID LEATHER BUTTON COMPANY *v.* EMPIRE STATE NAIL COMPANY.

Decided April 22, 1892.

PATENT—INFRINGEMENT—PLEADING—DEMURRER.

A bill which sets forth a patent for a "process" of making furniture nails and then alleges that defendant, "in infringement of the aforesaid Letters Patent," did wrongfully "make, use, and vend to others to be used furniture-nails embracing the improvement set forth and claimed" in said patent, *Held* bad on demurrer as not alleging an infringement of the process.

SUIT for infringement of Letters Patent No. 270,239, issued January 9, 1883, to J. Wilson McCrillis, for an improvement in the process of manufacturing furniture-nails and analogous articles. Heard on demurrer to the bill.

STATEMENT OF THE CASE.

The bill, after alleging the issuance of the patent, averred—

that defendant, well knowing the premises and the rights secured to your orator as aforesaid, but contriving to injure your orator and to deprive it of the benefits and advantages which might and otherwise would accrue from said inventions, * * * did, * * * in violation of its rights and in infringement of the aforesaid Letters Patent No. 270,239, unlawfully and wrongfully and in defiance of the rights of your orator make, use, and vend to others to be used furniture-nails embracing * * * the improvement set forth and claimed in the aforesaid Letters Patent No. 270,239.

The bill prays that the defendant may be compelled to account for and pay to your orator the income thus unlawfully derived from the violation of the rights of your orator as above, as well as the damages therefor, and be restrained from any further violation of said rights.

Your orator prays that your honors may grant the writ of injunction restraining the defendant * * * from any construction, sale, or use in any manner of * * * furniture-nails, * * * in violation of the rights of your orator, as aforesaid, * * * and also that your honors * * * may assess, in addition to the gains and profit, * * * the damages your orator has sustained by reason of said infringement.

The bill contains a prayer for all other relief that it may be righteous in the premises to administer.

Messrs. Witter & Kenyon (*Alan D. Kenyon*, of counsel) in support of the demurrer.

The patent is for a process of manufacturing furniture-nails. Nowhere is it alleged in the bill that the defendant uses or has used this process. The bill simply alleges that defendant has made, used, and sold certain furniture-nails. The patent being for a process and not for a product, the use or sale of the product (furniture-nails) is of course not an infringement. (*Merrill* v. *Yeomans*, 94 U. S., 568-574; *Dittmar* v. *Rix*, 1 Fed. Rep., 342.) Nor is the making of furniture-nails, even of exactly the same kind as that made by the patented process, unless all the steps of the process are used. (*Hammerschlag* v. *Garrett*, 10 Fed. Rep., 479; *Dittmar* v. *Rix*, 1 Fed. Rep., 342; *Fermentation Co.* v. *Maus*, 20 Fed., Rep. 725.)

Mr. Rowland Cox opposed.

A general charge of infringement is sufficient. (*McCoy* v. *Nelson*, 121 U. S., 486; 7 Sup. Ct. Rep., 1000; *American Bell Tel. Co.* v. *Southern Tel. Co.*, 34 Fed. Rep, 804.) In the latter case there was a general charge of infringement of a patent "covering both a process and an apparatus." The court overruled the demurrer, citing numerous cases, (which see,) including *McCoy* v. *Nelson*, *supra*. In *Haven* v. *Brown* (6 Fish. Pat. Cas., 414) Mr. Justice Swayne states the rule, as follows:

The bill merely declares * * * that the patent is for an improvement in bedstead-fastenings, and in the same general terms it alleges infringement.

He then proceeds to say that—

upon the general principles of equity pleading the bill would be bad.

But he overruled the demurrer, adding:

The form of the bill in the present case rests upon a foundation too deep to be disturbed. We therefore feel bound to hold that the demurrer must on authority, though not on principle, be overruled.

In numerous other cases the same doctrine is referred to as one that cannot be disturbed. (3 Rob. Pat., 430.)

If there were here any doubt, it would be cured by the profert of the patent plus the allegation that it has been infringed.

WALLACE, *J.*:

The demurrer is sustained because the bill does not contain any sufficient averment of infringement by the defendant of the process of complainant's patent.

Bill may be amended upon payment of costs.

U. S. Circuit Court—District of New Jersey.

UNITED STATES ELECTRIC LIGHTING COMPANY *v.* EDISON LAMP COMPANY.

Decided June 20, 1892.

1. PATENTS FOR INVENTIONS—ANTICIPATION.
   Letters Patent No. 306,980, October 21, 1884, to Edward Weston, for an improvement in the process of manufacturing carbon conductors for incandescent electric lamps, *Held* anticipated by Letters Patent No. 211,262, issued January 7, 1879, to William E. Sawyer and Albon Man, for the same invention.
2. SAME—PRIOR PUBLIC USE.
   Independently of the question as to priority of invention, the Weston patent is invalid because of two years' public use, prior to his application, by Sawyer and Man in their workshop in New York city.

SUIT by the United States Electric Lighting Company against the Edison Lamp Company for infringement of a patent.

Messrs. Kerr & Curtis and *Mr. George H. Christie* for the complainant.

Messrs. Eaton & Lewis and *Mr. Frederic H. Betts* for the defendant.

ACHESON, *J.*:

This suit is brought for the infringement of Letters Patent of the United States No. 306,980, dated October 21, 1884, granted to Edward Weston upon an application filed May 27, 1881, for an improvement in the process of manufacturing carbon conductors for incandescent electric lamps. The nature of the invention is sufficiently indicated by the claim, which is as follows:

The improvement in the art of making carbon conductors for incandescent lamps, which consists in first forming a carbon core or base, and then building up said core with carbon obtained and deposited upon the same by and during the operation of electrically heating said core, while surrounded by or saturated with a carbonaceous substance, substantially as hereinbefore set forth.

A number of defenses to the suit have been interposed; but it seems to me to be necessary to consider only two of them, namely: first, the prior Letters Patent of the United States No. 211,262, for the same invention, dated January 7, 1879, granted to William E. Sawyer and Albon Man, upon an application filed October 15, 1878, and, second, the alleged public use of the invention by Sawyer and Man and those acting under them for more than two years before Weston's application for a patent. That the invention set forth in Weston's specification and claim was fully disclosed by Sawyer and Man in their above-recited earlier patent is clear. It is shown, also, beyond contestation that Sawyer and Man made and perfected the invention and actually reduced it to practical use in the month of March, 1878. Nevertheless, the plaintiff, the assignee of Weston, asserts priority of invention and right for Weston over Sawyer and Man, and it appears that in an interference proceeding in the

Patent Office between these inventors the decision of the Office was in favor of Weston upon the question of priority. The proofs in that proceeding, which were taken in the year 1882, have been brought into this case by stipulation, and some other additional evidence upon that question has been introduced.

Weston testifies that he commenced his experiments in treating carbons by electrically heating them in a carbon liquid at Newark, N. J., "some little time prior to the Centennial in 1876"—he "cannot, however, fix the precise date"—at his laboratory No. 194 Eighth avenue, and continued these experiments there, and afterward, with some described modifications, at 228 Plane street, whither he removed "in the early part of 1877—about the month of April, 1877;" that "soon after" his removal to Plane street, "about the month of June or July, 1877—it may have been a little later, or possibly a little earlier, but was not very far from the date named"—he transferred part of his apparatus, in order to have the advantage of steam-power, to the basement of the shop of the Weston Dynamo Electric Machine Company, at 284 Washington street. This building had originally been a Jewish synagogue, and hence is designated by the witnesses as the "church." Mr. Weston states that with his facilities in the "basement of the church" he there succeeded in obtaining carbons very much superior to anything he had before obtained. Upon that subject he says:

They were extremely hard; in fact, so hard that they suggested to my mind the possibility of preparing in this way black diamonds. They were so hard and dense that I took particular pains to show them to Mr. Edward E. Quimby, and I handed him a file to test them with, and he also endeavored to scratch the glass in one of the windows in the rear end basement of the factory. Mr. Quimby was so much struck by the metallic appearance of the carbon, its density and hardness, that he asked me to give him some samples, which I did at that time—namely, about the middle of the year 1877. From that time I saw that I had overcome all trouble relating to the preparation of carbons for incandescent lamps.

Mr. Weston then describes the process which he used most and preferred at that time. Being asked, upon his examination in chief, to state generally to what extent and under what circumstances he used this process of preparing carbons subsequently to the year 1877, he answered:

I have used the process more or less from that time up to the present time [*i. e.*, March, 1892] whenever I did any work on incandescent electric lighting, and I have done a great deal in this direction. After perfecting the carbons I still found there were numerous conditions to be met in order to secure a commercially successful incandescent electric lamp, and with this idea in view I worked from time to time, as time and circumstances would permit, trying to overcome the other difficulties. During this time I used almost exclusively the carbons prepared by treating at a high temperature in the presence of hydrocarbon gas or oil.

Being asked upon his cross-examination how many carbons he treated after he commenced work in the basement of the church, Mr. Weston answered:

Quite a number. I kept no record of the quantity treated. There were several dozens.

In response to the inquiry how long he continued to treat carbons in the basement of the church, he stated:

Until the removal of my laboratory to a separate building next door to the factory. I cannot fix the date without reference to the books of the company, as I took no pains to refresh my memory in regard to this matter. My impression is, however, that it was in the early part of the following year.

He added that he could and would ascertain the exact date of the removal of his laboratory from the basement of the church to the building next door, for the company had provided him the room in the building next door "and engaged to pay the rent." Afterward, when his examination was resumed, Mr. Weston stated:

I cannot fix the precise date when I moved into the laboratory next door to the church; but the first entry I can find on the books in regard to rent paid is on the 1st day of October, 1878.

Edward E. Quimby, (a solicitor of patents,) after fixing his first acquaintance with Mr. Weston as having occurred in May, 1877, testifies thus:

Mr. Weston did describe to me his discovery that a deposit of carbon was formed upon a carbon pencil maintained in a condition of incandescence by the passage of an electric current through it while it was surrounded by a hydrocarbon atmosphere. He brought to my office and gave me samples of such deposits, which were in small particles, but of extraordinary hardness. This communication was made to me by Mr. Weston, according to the best of my recollection, within six months of the date of my first acquaintance with him, while I was engaged in perfecting some of his older patents by reissuing them.

Mr. Quimby then states that a day or two later he visited Mr. Weston's laboratory on Washington street, in the basement of the old church, "and witnessed the operation of his method of obtaining such deposits;" and he describes the apparatus used and the operation. Upon his cross-examination, Mr. Quimby states that he has no memoranda in writing by which he can fix the date of this visit to Mr. Weston's laboratory, but says it—

was during the early part of my acquaintance with him; it was within six months of the time of my first seeing him, and was before cold weather set in.

He says:

Mr. Weston moved his laboratory into the adjoining building some time after the experiments to which I have referred, and after that removal my visits to his laboratory were more frequent than before.

He states he has no recollection when that removal took place. Being asked if, after the removal, he saw any incandescent electric lamps in operation in Mr. Weston's laboratory, he answered:

I cannot say. My memory is wholly at fault in the matter.

And being further asked when, after the experiments he testified about, he first saw any incandescent electric lamp made by or for Mr. Weston having an illuminating-conductor of this treated carbon, Mr. Quimby answered:

It is impossible for me to say. I cannot recollect.

Levi Broadbent, who was a foreman in the employ of the Weston Dynamo Electric Machine Company from July, 1877, to September, 1879, testifies that upon one occasion when passing through Mr. Weston's laboratory he—

saw him treating or having carbons in a globe filled with oil and running a current of electricity through them.

This, he says, occurred—

between the month of July, 1877, and the 1st of January, 1878. I can't positively fix the date; it was between these points of time.

He states that Weston subsequently spoke to him about the matter—

and said that the carbon that had been in the oil and the electricity run through it was very hard, and so that a file would not touch it.

Upon his cross-examination Mr. Broadbent testifies thus:

Question. How do you know that it was previous to January, 1878? By what circumstance do you fix on that date as being the date previous to which you saw Mr. Weston treating the carbon?
Answer. I know it by the circumstance that Mr. Weston's new laboratory was finished in December, 1877; it was in the laboratory I saw this.
Ques. Was it in the laboratory in the basement of the church?
Ans. Yes, sir; we used to call it the "church;" it was a church once.
Ques. And you saw Mr. Weston treat these carbons in that laboratory for the first time, as I understand you?
Ans. Yes, sir.
Ques. When did he move into that laboratory?

Ans. I couldn't place the date exactly; but it was just after it was finished. It was in December, 1877.

The substance of the testimony by which it is sought to anticipate Sawyer and Man has been above set forth. Is the evidence under all the circumstances sufficient to establish a completed invention by Weston prior to March, 1878? Leaving out of view the negative testimony of the defendant's witnesses, who naturally would know something of Weston's doings, the plaintiff's own evidence impresses me as singularly vague. Did Weston's operations as described by himself and his witnesses amount to anything more than experiments? Could the invention here in question be derived from anything Quimby or Broadbent saw Weston do or learned from him any more than it could have been deduced from the Despretz publication of 1849? Do the proofs convincingly show a perfected invention made by Weston in the summer of 1877, as alleged by him. Then, again, is there any reliable testimony as to the all-important matter of time? Here the plaintiff's case rests altogether upon mere recollection, which is always unreliable as respects dates. The only date certainly fixed is October 1, 1878, when rent was paid for the premises adjoining the basement of the "church," so called; but the book-entry of that payment strongly suggests that the removal of Weston's laboratory from that basement to the building next door took place, not in the early part of the year 1878, according Weston's "impression," but late in that year, and that conclusion would shake the whole fabric of the plaintiff's case. In this connection the testimony of Broadbent, quoted above, deserves the most serious consideration, for that witness seems to testify that Weston did not go into his laboratory in the basement of the church until December, 1877.

How can Weston's assertion that from "about the middle of the year 1877" he saw that he had "overcome all trouble relating to the preparation of carbons for incandescent lamps" be satisfactorily reconciled with his subsequent conduct, his silence as to an invention then deemed so important, and his supineness? His great delay in applying for a patent for this process is the more extraordinary when we discover from the proofs that in the years 1878 and 1879 he took out or applied for no less than ten patents for various other inventions. Furthermore, it is a significant fact that when Weston eventually moved, on May 27, 1881, his application for a patent was made in the interest of the plaintiff company (which had become the owner of his inventions) after the plaintiff had failed in its negotiations to purchase the Sawyer and Man patent or acquire a license under the same. To overthrow the prior patent of Sawyer and Man, which had issued so early as January 7, 1879, and was immediately followed by uncommon publicity, the proof of anticipation by Weston should be at least positive, unequivocal, and convincing. (*Cantrell* v. *Wallick*, 117 U. S., 689, 695; 6 Sup. Ct. Rep., 970; *Clark Thread Co.* v. *Willimantic Linen Co.*, 140 U. S., 481, 492; 11 Sup. Ct. Rep., 846.) Taking the proofs as a whole, they fail to satisfy me that Weston's alleged invention preceded that of Sawyer and Man.

But whatever conclusion upon the question of priority may be adopted, at any rate, under the proofs, the defense of two years' prior public use of the invention before the application for the patent in suit rests upon impregnable ground. A public use does not depend upon the number of persons to whom the use is known, and it is enough if a single device embodying the invention is publicly used by even one person, (*Egbert* v. *Lippmann*, 104 U. S., 333;) and a public use of the invention more than two years before the application for a patent, although without the consent of the inventor, invalidates the patent. (*Andrews* v. *Hovey*, 123 U. S., 267, 274; 8 Sup. Ct. Rep., 101, and 124 U. S., 694; 8 Sup. Ct. Rep., 676.) In March, 1878, when Sawyer and Man made the invention here in controversy, they were engaged in completing an incandescent electric lamp of their devising, which they perfected to their satisfaction and patented in June, 1878. Between March, 1878, and May, 1879, they and their assigns made a large number of these lamps, and continuously used therein for incandescent electric lighting, at their workshop in the city of New York, carbons prepared by the method described in and covered by their patent of January 7, 1879, and during that period they there exhibited both the actual treatment of the carbons by the patented method and the use thereof in their lamps to large numbers of persons besides the workmen in their employ. Clearly this use of the invention, as shown by the proofs, was a public and practical use. It is here worthy of remark that the *Scientific American*, in its issue of March 8, 1879, published a clear description of the process of treating carbons as practiced by Sawyer and Man and as set out in their patent. Whatever experiments Sawyer and Man may have made after March, 1878, concerned their lamp with a view of increasing its efficiency and commercial value and did not relate to the carbon treatment itself, which was perfected in March, 1878, and required no subsequent test. Now, it may be that the Sawyer and Man lamp did not prove the success the inventors supposed it to be and that no perfect incandescent electric lamp was produced until the fall of 1880; but still the Sawyer and Man lamp was actually operative and had some practical utility. That it was not a commercial success is not here a controlling consideration. The material fact is that the method invented and patented by Sawyer and Man for the treatment of carbons was put to successful practical use by them in their lamp. No doubt the commercial value of the invention depended much upon the production of a perfect incandescent electric lamp; but, nevertheless, the treatment of carbons by electrically heating them while surrounded by or saturated with a carbon liquid was a distinct invention. It was an independent and valuable contribution to the general art of electric lighting. This, indeed, is the position of the plaintiff company, for it alleges that Weston made and perfected the invention as early as the summer of 1877, before a perfectly-successful incandescent electric lamp had been devised by any one.

I have only to add that it is quite evident from the proofs that the issue of a patent to Weston was inadvertently made, in disregard of the expressed views

of the Examiner of Interferences and the Examiners-in-Chief that Weston was precluded from the grant of a patent by reason of the statutory bar of two years' public use, disclosed by the evidence in the interference proceedings in the Patent Office.

For the reasons above given and without reference to other alleged defenses the bill of complaint must be dismissed.

Let a decree be drawn dismissing the bill, with costs.

U. S. Circuit Court—District of Maryland.

YOUNG *et al.* *v.* BALTIMORE COUNTY HEDGE AND WIRE FENCE COMPANY.

Decided June 21, 1892.

PATENTS FOR INVENTIONS—LIMITATION OF CLAIM—HEDGE FENCES.

Letters Patent No. 254,085, to Wesley Young, February 21, 1882, for an improvement in plashed hedges, *Held* to be for a wire extending along the base of a hedge to prevent the passage of small animals, and further *Held* that the patent is void for want of patentability, it being old to use such a wire to keep the plants in position and to give the hedge increased lateral strength, and it being old to use a wire along the base of an ordinary fence to prevent the passage of small animals.

IN equity. Bill by Wesley Young and the Maryland Hedge and Wire Fence Company against the Baltimore County Hedge and Wire Fence Company for infringement of patent. Bill dismissed.

Messrs. Wood & Boyd, for the complainants.

Mr. G. L. Van Bibber, *Mr. M. Bailey*, and *Mr. W. F. Mitchell* for the defendant.

MORRIS, *J.*:

The bill of complaint in this case alleged the infringement of four patents; but the bill has been dismissed as to all except the patent to Wesley Young, No. 254,085, dated February 21, 1882. That patent is for an improvement in "plashed hedges." The claim is a narrow one, for a single and simple improvement. The patentee, Young, describes the method of plashing hedge fences as practiced at the date of his application, which he says is by bending over the plant in the line of the fence, the bending taking place in the root, and securing the first plant in its bent position by fastening it to a stake. Then a piece of wire is passed under the first plant quite near the ground and crossed and twisted around the next plant, and in like manner around as many succeeding plants as the wire is capable of holding in their proper relative positions, it being intended that the wire shall cross the plants approximately at right angles to their inclined positions and so that every plant is held down in its inclined position and in the plane of the fence. In describing this method, which he states was then in use, he says:

Or one or more of the lines of wire may be stretched first, and the plants bent down and secured in position by attaching them to the wire.

He further says:

The present invention looks to the still further development of this branch of industry, and has for its object to provide a hedge fence, which, from the time it is first plashed, will present a strong and impassable barrier to all ordinary stock which is permitted to run at large, and the proper growth of which hedge will not be interfered with by the causes ordinarily existing. * * *

In order to give the fence the requisite degree of lateral strength at the start, I apply a continuous horizontal line or lines of wire or other material along it from end to end, securing the said line or lines to the plants by staples, nails or loops or other suitable fastenings, as shown in the drawing, or by interweaving it with the plants, as shown. I preferably apply two lines of wire, one near the upper ends of the plants after they are plashed and cut off to the proper height, and one near their base, as represented in the drawing, though other intermediate lines of wire may also be employed, if thought necessary. I also prefer to employ barbed wire, as that affords additional effectiveness as a barrier to stock; but plain wire will answer reasonably well. * * *

The lower wire is indispensable, for by its aid the openings between the plants are closed at the bottom from the start, and small pigs are prevented from passing through, thereby enabling the side shoots of the plants to extend out and close the openings effectively, making a firm, close fence as soon as the plashing is done. This lower wire should be placed quite near the surface of the ground to be most effective.

It will be seen that additional lateral strength of the fence is secured by the employment of the two lines of wire, one at the top and another at the bottom, with or without intermediate lines, and, secondly, that the effectual closing of the lower intervals of the fence to enable the shoots to properly develop is accomplished by the lower wire alone.

I am aware that it is not new to place a line of barbed wire along the bottom of a post-and-board fence for the purpose of preventing small animals from passing under the fence; also, that it is not new to interweave in the upper portion of a live hedge fence withes or branches not a part of the growing fence, and such construction I do not claim as my invention. Neither do I claim a hedge fence on which the plants are plashed together by means of a continuous line of wire wound around them from one to another near the upper ends, as shown in patent to D. M. Kirkbridge, May 30, 1876.

The claims are:

1. A hedge fence composed of live plants bent down in the plane of the fence and held in place by suitable fastenings, and having a line of wire extending along the base of the plants near the ground, said wire being secured to the plants and operating to prevent the passage through the spaces between the plants of small stock before said spaces have become closed or protected by the growth of the shoots, substantially as described.

2. A hedge fence composed of live plants bent down in the plane of the fence and held in place by suitable fastenings, and having a horizontal line of wire extending along the upper portion of the plants, and secured thereto to give increased lateral strength, and having also a horizontal line of wire extending along and secured to the bases of the plants, for preventing the passage through the spaces between the plants of small stock before said spaces have become closed or protected by the growth of the side shoots, substantially as described.

The claims of the original application in the Patent Office were broader; but upon objection and a citation from the *Gardener's Chronicle* for 1873, page 1115, and for 1875, page 458, the applicant modified his claim so as only to cover a line of wire extending along the base of the plants near the ground, and secured to the plants, and operating to prevent the passage of small animals through the spaces between the plants before the spaces have become closed by the growth of shoots. The *Gardener's Chronicle* for 1875 describes an improvement in hedge culture by driving small stakes along the center of the hedge six to eight feet apart, to which a line of wire is stapled and drawn tight by being attached at the ends to gateways when they occur in the line of the fence. It is said:

The principal uses and advantages of the wire thus inserted are to constitute a permanent backbone, as it were, to the hedge, thereby preventing animals, as cattle and horses, from pushing themselves through, which they are very liable to do at all thin and weak parts of a hedge. When once the hedge grows over and fairly covers the wire, the posts are of little further use, and do not require renewal, as the fence itself sufficiently supports the wire and keeps it ever afterward in its place.

The only differences between what is described in the publication from which the above is taken and what is claimed in Young's patent is that by Young's method it is stated that the wire is to be used earlier in the life of the hedge—that is to say, when it is first plashed—and that the lower wire is to be placed quite near the ground, so as to intercept small animals before the lowest shoots are sufficiently grown to make a barrier. It is not said in Young's method whether the wires are to be stretched taut between convenient posts or not; but it is obvious that in practice this would be done if practicable. In Young's method the wires are to be stapled or otherwise suitably fastened to the plants, and in the published method the wires were at first to be stapled to the small posts; but in the end the plants supported the wire.

At the threshold of the consideration of the patentability of these matters connected with growing-hedge fences it suggests itself that the plashing of the hedges—that is, the bending over of the plants at the roots in the line of the fence, all at the same angle, and securing them in that position—and the discovery of the fact that growing in that position the shoots tend to spread out lower down, and the shoots of the lower inclined plants tend to interlace with those of the upper plants, so as to form an effective vigorously-growing-hedge fence, all this to the first discoverer, and also the best means of accomplishing it, might fairly be matters requiring invention and proper to be protected by a patent; but it also suggests itself that after this method of growing a hedge was known the use in connection with it of anything in such common use and so obvious as a line of wire along the hedge or interweaved in the hedge for the purposes of a fence merely and to prevent animals from passing through where the hedge was too weak itself to prevent them could not be a discovery or require invention.

It is said that no one before Young systematically used the lower wire for this purpose or taught the public how essentially important it was to the proper growth of the lower shoots of the plants that they should be thus protected, and no one before Young, it is said, for this reason was uniformly successful in growing at a moderate cost an effective hedge fence; but this is not showing Young to have been an inventor, but merely that he does systematically and thoroughly and with a sense of its importance what others had the means of doing and knew how to do, but did not appreciate the importance of, just as a man may know that a certain treatment is good for his fruit-trees, but does not obtain the best results because he does not use it intelligently at the right times and in the best manner.

The use of a wire along the base of an ordinary fence is admitted in the specification to be a common means of preventing the passage of small animals. Such a wire would be fastened in any suitable way, either to the fence itself or to stakes put down for that purpose, and it would either be stretched taut or interweaved, as might be convenient. It would with many ornamental fences or palings answer the double purpose of preventing the animals passing in and out and also of preventing the injury to the fence itself from the abrasion and forcing asunder which results when animals are frequently pushing through and enlarging an opening. In the growing-hedge fence the lower wire performs exactly these same uses. It is more important and the consequences of neglecting its timely use are more serious just to the extent that a growing hedge is more easily spoiled and more difficult to repair than an ordinary dead fence. In Young's patent the only use claimed for the lower wire is as a defense against animals, and he cannot be allowed to claim it generally, as he abandoned and erased from his application those claims in which he had attempted to cover the use of the wire to keep the plants in position and to give the hedge increased lateral strength. He was obliged to make this abandonment because he recited in his specification that one of the known ways of securing the plashed plants in position was by attaching them to a stretched line of wire, and the *Gardener's Chronicle* disclosed that it was old to use a stretched wire to give increased lateral strength while the hedge-plants were young and weak.

The decree of 19th June, 1891, in the Circuit Court of the United States for the Western Division of the Western District of Tennessee, called in this case the "Memphis decree," adjudges this patent to be valid, but confines it to a horizontal wire—

secured to the plants without any extraneous support.

If the claim of the patent is to be read with this restriction, then the respondents in this case do not infringe, as it is proved that the horizontal wires used by them remain stretched taut between posts or trees or gateways or whatever stationary objects in the line of the fence they can be conveniently attached to, and after they are thus stretched the plants are inclined and secured in their inclined position by being fastened to the stretched wires, using the diagonal wires only when necessary to keep a plant in position which was more than ordinarily stiff and refractory; but I think in the present case it has been shown by the complainants' witnesses, and notably by their expert witness, See, that the end attachments of the horizontal wires have no bearing upon the construction of the claims of the patent; and I conclude, as does complainants' witness, that at least a preliminary use of a post or some fixed object to which the ends of the wire might be fastened is clearly implied by the specification of the patent itself.

Upon the whole case my conclusion is that, in view of what had been before done, the claim for a line of wire secured to the plants near the ground to prevent the passage of animals is void for want of patentability, and that, however beneficial its timely use as pointed out by Young may be, it is an improvement in the art of hedge-making, resulting, not from invention or discovery, but from the more systematic and thorough attention to the fact that the young shoots at the base of the plants ought to be protected against small animals until they are sufficiently grown to be a barrier themselves.

Bill dismissed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 60.—No. 12. TUESDAY, SEPTEMBER 20, 1892. PRICE—$5 per year.

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World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Protection of Foreign Exhibitors.

DEPARTMENT OF STATE,
Washington, D. C., July 30, 1892.

To the Diplomatic and Consular Officers of the United States:

GENTLEMEN: I subjoin a transcript of the act of Congress approved April 6, 1892, Public No. 29, entitled "An act to protect foreign exhibitors from prosecution for exhibiting wares protected by American patents and trade-marks," which reads as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That no citizen of any other country shall be held liable for the infringement of any patent granted by the United States, or of any trade-mark or label registered in the United States, where the act complained of is or shall be performed in connection with the exhibition of any article or thing at the World's Columbian Exposition at Chicago.

You will transmit copies of this circular to the government of the country to which you are accredited, and ask that it be given the widest possible circulation for the information of those directly concerned.

I am, gentlemen, your obedient servant,

JOHN W. FOSTER,
Secretary of State.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 4, 1892.

Official copy to the Commissioner of Patents for his information and guidance.

E. M. DAWSON,
Chief Clerk.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below:

INDEX TO FRENCH PATENTS, 1791 to 1879, inclusive, (subject-matter,) one volume, 935 pages, bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1892, (subject-matter,) one volume, 120 pages—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of September 20, 1892.

Patents	411—No. 482,713 to No. 483,123, inclusive.
Designs	5—No. 21,860 to No. 21,864, inclusive.
Trade-Marks	22—No. 21,754 to No. 21,775, inclusive.
Labels	None.
Reissues	None.
Total issue	438

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	5	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	1	.....
Arkansas	1	.....	New Jersey	13	.....
California	9	.....	New Mexico Territ'y	.....	.....
Colorado	4	2	New York	58	7
Connecticut	11	2	North Carolina	1	.....
Delaware	.....	.....	North Dakota	.....	.....
District of Columbia	2	.....	Ohio	37	.....
Florida	.....	.....	Oregon	2	.....
Georgia	.....	.....	Pennsylvania	58	1
Idaho	1	.....	Rhode Island	9	2
Illinois	38	2	South Carolina	.....	.....
Indian Territory	1	.....	South Dakota	1	.....
Indiana	11	.....	Tennessee	1	.....
Iowa	6	1	Texas	8	.....
Kansas	2	.....	Utah Territory	.....	.....
Kentucky	5	.....	Vermont	3	.....
Louisiana	3	.....	Virginia	2	1
Maine	3	.....	Washington	4	.....
Maryland	3	1	West Virginia	1	.....
Massachusetts	25	2	Wisconsin	12	.....
Michigan	15	1	Wyoming	1	.....
Minnesota	11	.....	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	.....	.....
Missouri	9	.....			
Montana	2	.....	Total to citizens of the United States	376	23
Nebraska	6	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Netherlands	.....	.....
Austria-Hungary	1	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	1	.....
Bermuda	.....	.....	New Zealand	.....	.....
British Guiana	.....	.....	Norway	.....	.....
Canada	4	.....	Porto Rico	.....	.....
Chile, Republic of	.....	.....	Portugal	.....	.....
Cuba	.....	.....	Russia	1	.....
Denmark	.....	.....	Scotland	4	.....
England	10	.....	South Australia	.....	.....
France	4	.....	Spain	.....	.....
Germany	15	.....	Sweden	.....	.....
Guatemala	.....	.....	Switzerland	.....	.....
India	.....	.....	Victoria	.....	.....
Hawaii	.....	.....	West Indies	.....	.....
Ireland	.....	.....			
Italy	.....	.....	Total to citizens of foreign countries	40	.....
Mexico	.....	.....			

APPLICATIONS UNDER EXAMINATION.

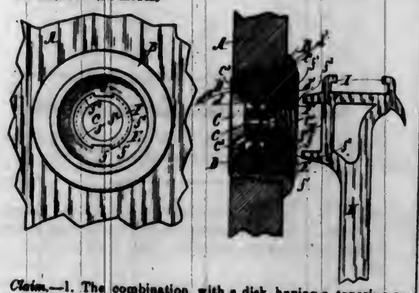
Condition at Close of Business September 13, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	July 20	Sept. 8	96
8	Furniture, Toilet, Umbrellas and Canes, etc.	July 13	Sept. 1	265
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	July 15	Aug. 26	105
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	July 19	Aug. 23	138
	Between two and three months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	June 30	Sept. 12	232
16	Telegraphy, Telephony, Electric Lighting and Signaling.	July 1	Sept. 5	227
21	Textiles, etc.	June 23	Sept. 3	218
24	Sewing-Machines and Apparel	June 14	Sept. 1	100
23	Instruments of Precision, Acoustics, Optics, etc.	June 15	Aug. 29	264
12	Mechanical Engineering, Stores-Service, etc.	June 24	Aug. 24	220
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	June 21	Aug. 20	290
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	June 16	Aug. 11	190
22	Fire-Arms, Navigation, Signals, etc.	June 17	Aug. 6	207
5	Fine Arts, Stationery, Book-Binding, Music, etc.	July 5	Aug. 1	213
2	Farm Stock, Products, etc	June 15	Aug. 1	331
18	Steam-Engineering, etc	June 22	July 14	198
1	Tillage and Fences	June 13	July 1	403
	Between three and four months in arrears.			
26	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	June 10	Aug. 16	203
10	Carriages and Wagons and Railway-Cars.	May 28	Aug. 20	506
32	Advertising, Baggage, Packing and Storing Vessels, etc.	June 7	Aug. 16	207
17	Paper-Manufactures and Printing.	June 9	Aug. 4	232
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	May 23	Aug. 3	206
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	May 10	July 28	315
4	Civil Engineering, etc	May 23	July 22	302
9	Hydraulics, Fire-Extinguishers, etc.	May 13	July 16	431
19	Stoves and Furnaces	May 16	July 11	455
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 3	Aug. 26	448
26	Electricity, Generation, Distribution, etc.	Apr. 16	Aug. 24	443
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 21	June 25	454
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Apr. 1	Sept. 13	351
7	Harvesters, Games and Toys	Apr. 4	Aug. 15	548
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 30	Aug. 15	302
	Total number of applications awaiting action			9,209
	Under one month in arrears.			
	Designs	Aug. 27	Sept. 8	48
	Trade-Marks	Sept. 7	Sept. 9	8

PATENTS

GRANTED SEPTEMBER 20, 1892.

482,713. BUNG. JOHN RANDELL, Milwaukee, Wis., assignor of one-fourth to Michael Postel, same place. Filed Jan. 27, 1892. Serial No. 419,463. (No model.)



Claim.—1. The combination, with a disk having a tapering peripheral edge provided with a rigid stem and a ring having tapering interior surfaces, of a collar loose on the stem, having a tapering periphery, the outer edge of which is adapted to bear on the bushing, and a countersunk tapering recess, a nut turning on the stem against the collar, and laterally-projecting substantially annular ears on the nut having recesses for a tool, the nut and the ears thereon being of less diameter that the countersunk recesses in the collar opposite thereto, so as to permit a hook-providing tool to be passed below and around into engagement with the ears for withdrawing the bung from the bushing, substantially as set forth.

2. In a bung, the combination, with a disk provided with a rigid stem and an elastic ring, of a collar loose on the stem, which collar is provided with a countersunk recess, a nut turning on the stem entirely within the countersunk recess of the collar, and an overturned head on the stem to prevent the removal of the nut therefrom, substantially as set forth.

3. In a bung, the combination of a disk having a central stem projecting from its interior face, said interior face provided with a series of ribs, an elastic ring seated upon said disk and provided with a series of complementary grooves to receive the ribs, a collar bearing against the outer side of the elastic ring, and a nut turning upon the stem, substantially as set forth.

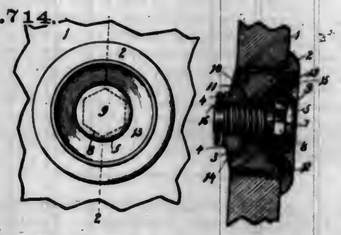
4. In a bung, the combination of a disk having its outer face of substantially truncated conical shape and provided with a stem extending centrally and outwardly therefrom, a frusto-conical collar surrounding loosely the stem and provided upon its interior surface with a series of ribs, an interposed elastic ring having tapering interior surfaces provided with grooves to receive the ribs of the collar, and a nut engaging the stem, substantially as set forth.

5. In a bung, the combination of a disk having a stem extending therefrom, said stem having its outer extremity enlarged and screw-threaded forming an annular shoulder, a collar loose on the stem below the annular shoulder, an elastic or yielding ring about the stem and interposed between the disk and collar, and a nut turning on the threaded extremity of the stem, substantially as set forth.

482,714. BUNG. JOHN RANDELL, Milwaukee, Wis., assignor of one-fourth to Michael Postel, same place. Filed Apr. 30, 1892. Serial No. 431,236. (No model.)

Claim.—1. The combination, with a bung, of a screw-bolt working therethrough, said bolt provided upon its inner end with a contacting-surface constructed to act against the inner face of the bung upon the unscrewing of the bolt and to rotate said bung therewith, substantially as set forth.

482,714.



2. In a bung, the combination of an elastic ring, disks acting against opposite faces of said ring and a screw-bolt passing through said disks and drawing the same together to expand the ring, said bolt provided upon its inner end with a contacting-surface constructed to act against the inner face of the inner disk upon the unscrewing thereof and to rotate the bung therewith, substantially as set forth.

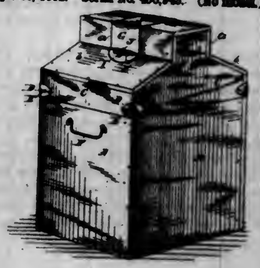
3. In a bung, the combination of an elastic ring, disks acting against the opposite faces of said ring, the inner disk provided upon its inner face with a series of radial ribs, and a screw-bolt passing through the disks and drawing the same together to expand the ring, said bolt provided upon its inner end with a transverse pin, substantially as set forth.

4. In a bung, the combination of an elastic ring substantially cylindrical upon its outer surface and its inner surface beveled from the ends inwardly, forming tapering faces, a disk fitting against the inner tapering face of the ring, a frusto-conical collar fitting against the outer tapering face, and a screw-threaded bolt passing through an aperture in the collar and through a threaded opening in the disk, said bolt provided upon its inner end with a contacting-surface constructed to act against the inner face of the disk upon the unscrewing thereof and to rotate the bung therewith, substantially as set forth.

5. In a bung, the combination of an elastic ring, disks acting against opposite faces of said ring, and a screw-bolt passing through the disks, said bolt provided upon its outer end with an integral headed portion and upon its inner end with means for preventing its entire withdrawal from the bung, substantially as set forth.

6. In a bung, the combination of an elastic ring, disks acting against opposite faces of said ring, and a screw-bolt provided upon its inner end with means for preventing its entire withdrawal from the bung, near its outer end with an enlargement, and at its extremity with a headed portion having its edge extending laterally beyond the enlargement, said enlargement adapted to be engaged by a tool or spanner passing beneath the headed portion, substantially as set forth.

482,715. PACKING-CASE. GEORGE W. BARKER, Brooklyn, N. Y. Filed Apr. 28, 1892. Serial No. 430,943. (No model.)



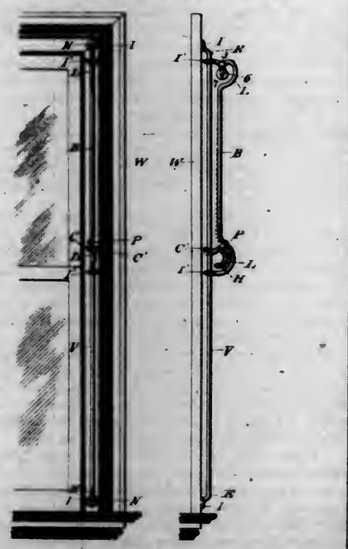
Claim.—1. In a packing-case, the combination of vertical posts in the corners of the case, which project above the sides of the case, metallic clips at the corners of the cover, and devices for attaching the cover to the posts, which pass through the metallic corner-clips, substantially as set forth.

2. In a packing-case, the combination of vertical posts in the corners of the case, which project above the sides of the case, metallic clips at the corners of the cover, and a hole in each clip for the passage of a screw and screws, which pass through the clips, the sides of the cover, and enter the posts, substantially as set forth.

3. A cover for a demijohn or jar case, having inclined laterally-arranged upper parts, a rectangular nozzle-protecting part between the inclined parts and a rabbeted piece of wood at the junction of the inclined parts, and the nozzle-protecting part provided laterally with two surfaces against which, respectively, the inclined parts and the vertical portions of the nozzle-protecting parts rest, whereby they may be nailed direct to the said rabbeted piece, substantially as set forth.

4. A cover for a demijohn or jar case, having inclined laterally-arranged upper parts and a rectangular nozzle-protecting part between the inclined parts, a rabbeted piece of wood at the junction of the inclined parts, and the nozzle-protecting part provided laterally with two surfaces against which, respectively, the inclined part and the vertical portions of the nozzle-protecting part rest, whereby they may be nailed direct to the said rabbeted part, and blocks placed interiorly at the ends of the nozzle-protecting part, the grain whereof runs substantially at right angles to the grain of the end pieces of the cover, substantially as set forth.

482,716. CURTAIN-FIXTURE. FRED H. BASSETT, Saranac Lake, N. Y. Filed Sept. 25, 1891. Serial No. 406,611. (No model.)



Claim.—1. In a curtain-fixture, the combination of a vertical rod to be secured to a window, a resilient bracket having eyes sliding on the rod, and a friction-clutch pivoted to the bracket and provided with an eye receiving the rod and adapted to bind against the same, said clutch being provided with a depending handle arranged to be drawn outward to draw the eye of the clutch out of frictional engagement with the rod, substantially as described.

2. The combination, with vertical rods at the sides of a window, of a bracket comprising a spring-rod having loops near its ends with eyes at their extremities sliding on each rod, a friction-clutch pivoted to the bracket, having a curve passing behind the rod and having a handle standing in the lower loop, and a curtain-fixture carried by the upper loop, as and for the purpose set forth.

3. The combination, with a bracket, of a curtain-fixture comprising a vertically slotted disk having an integral tongue bent into an eye embracing the bracket, a rivet connecting the tongue to the body, and a segment pivoted on said rivet and swinging to close the upper portion of said slot, as and for the purpose set forth.

482,717. WHIP-SOCKET. FRANCIS E. BENTON, Stoughton, Mass. Filed Apr. 12, 1892. Serial No. 428,828. (No model.)



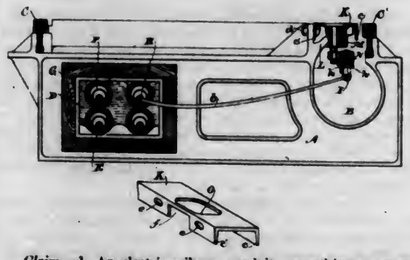
Claim.—A whip-socket clasp made of a single block of rubber molded to fit snugly at top and bottom, there provided with oppositely-extending outer flanges and metallic bands, the clasp-body being of less diameter than the ends, with longitudinal corrugations convex on the inside and concave at the rear, substantially as shown and described.

482,718. COMPOSITION COATING FOR PAPER TUBES. SIGMUND BERGMANN, New York, N. Y., assignor, by mesne assignments, to the Interior Conduit and Insulation Company, same place. Filed Mar. 4, 1891. Serial No. 383,704. (No specimens.)



Claim.—A coating for a tube or conduit, consisting of a mixture of plumbago and plaster-of-paris, substantially as specified.

482,719. CONDUIT FOR ELECTRIC RAILWAYS. FRANCIS O. BLACKWELL, Boston, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Dec. 4, 1890. Serial No. 373,543. (No model.)



Claim.—1. An electric-railway conduit comprising transverse yokes and slot-rails, one, at least, of which consists of an inverted channel-iron set substantially flush with the street-surface and bolted to the yokes, as set forth.

2. An electric-railway conduit comprising transverse yokes and slot-rails, one, at least, of which consists of an inverted channel-iron, one flange forming a drip edge and the other bolted to the yokes, as described.

3. In an electric-railway conduit, the combination of transverse yokes and an inverted channel-slot iron forming a shield over the supply-conductor with an upright slot-rail forming the other edge of the slot, as set forth.

4. The combination, in an electric-railway conduit, of the transverse yokes having inwardly-extending bracket-seats, with the inverted channel-iron substantially flush with the street surface and provided with perforations which receive the insulator-hangers, as set forth.

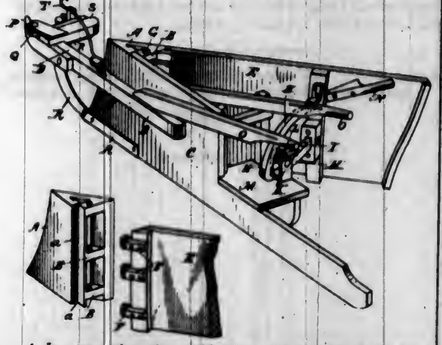
482,720. SNOW-PLOW. ALBERT B. BLACK, Concord, Mass. Filed Apr. 13, 1892. Serial No. 428,939. (No model.)

Claim.—1. In a snow-plow, a point having the landside and diverging share with cross-bars uniting their rearward portions all cast integral and formed with a vertical recess to receive, flush with the landside, the forward end of the side wall of the plow, in combination with the adjustable wing having projecting lugs at its forward end and with a vertical rod through said lugs and the cross-bars of the point constituting hinges on which the wing swings horizontally, substantially as set forth.

2. In a snow-plow, a rigid point and landside and an adjustable wing hinged vertically to swing horizontally from said point, in combination with a double brace hinged at the ends to the adjustable wing

and with an intermediate ratchet on said brace and a pivoted cam-lever engaging therewith, substantially as set forth.

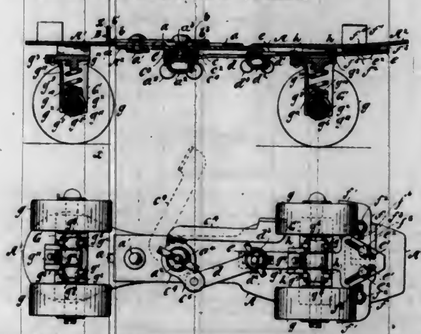
3. In a snow-plow, the point and landside and the adjustable wing hinged vertically in rear of the point, in combination with the adjusting-brace hinged to the wing at two points, one above the other, a single ratchet-fastening applied to said brace at a point intermediate between its hinges, and with a handle whereby said wing may be manipulated independently, substantially as set forth.



4. In a snow-plow, the combination, with the body of the plow, of the offset fender P, applied to the front of the beam, and the roller-fender Q, adapted to protect the landside of the plow, substantially as set forth.

5. In a snow-plow, the combination, with the rigid point and adjustable wing, of the curved upturned guard secured to the lower edges of the point and at its upper end bolted to the beam, whereby it serves as a cutter and as a guard in surmounting obstacles, substantially as set forth.

482,721. ROLLER-SKATE. JAMES CARRIE, Brooklyn, N. Y. Filed May 18, 1892. Serial No. 433,436. (No model.)



Claim.—1. A support for a roller-skate axle, comprising a bracket G, secured to the shoe-plate and having two side portions $g' g^3$, provided with perpendicular slots open at the bottom, a journal-box extending the entire width of the axle between the hubs of the rollers g and having flat-sided and parallel grooves $g^1 g^2$, in which are loosely fitted the slotted portions of the sides $g' g^3$, a spring g^3, and a stop-plate g^{11}, substantially as described.

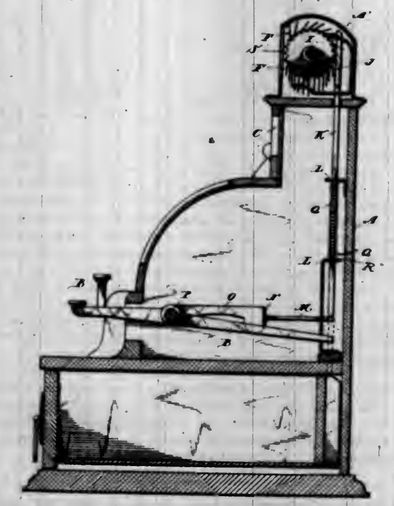
2. The combination, in a roller-skate of a shoe plate, toe-grips having slotted extensions connected thereto and arranged to slide transversely thereof, a reciprocating bar provided with slots converging toward each other and engaging with pins secured to the extensions of the toe-grips, a link pivotally and adjustably connected to the reciprocating bar, means for guiding the latter to move longitudinally of the skate, a lever having an arm pivotally connected to the said link, a heel-grip adjustably connected to the shoe-plate, a locking device, as C, for locking or unlocking the skate to or from a shoe, and a bolt, secured from turning, extending through the heel-grip, shoe-plates, locking device, and lever and provided with a thumb-nut to clamp the said parts together, substantially as described.

3. In a roller-skate, the combination of a shoe-plate, toe-grips, each having a slotted extension, one of which is fitted to slide within a bifurcated end portion of the other, rivets secured to the shoe-plate and extending through the slots of the extensions to support and guide the same, a bar fitted to move longitudinally of the shoe-plate and having slots converging toward each other and in which are fitted to slide pins secured to the extensions of the toe-grips, and means for reciprocating the said bar and locking the same in position, substantially as described.

4. In a roller-skate, the combination of a shoe-plate composed of two overlapping sections, a heel-grip adjustably connected thereto, a locking device comprising a disk secured to the front section and having an annular inclined rim forming a cam-surface against which bears a corresponding cam-surface of a disk secured to the hub of a lever, and a bolt, prevented from turning, extending through the heel-grip, front and rear sections of the shoe-plate, and locking device for clamping the said parts together, substantially as described.

5. In a roller-skate, the combination of the shoe-plate A, composed of two longitudinally-adjustable sections $A' A^3$, overlapping each other, the heel-grip B, and toe-grips $f f'$, adjustably connected thereto, the reciprocating bar e, having slots converging toward each other and adapted to impart a lateral to-and-fro motion to the toe-grips, the link d, pivotally and adjustably connected to the bar e and to an arm of a lever c^3, and the locking device C, comprising the cam disks $c c^1$, the bolt c^2, thumb nut c^4, and lever c^5, the latter being arranged to operate the toe-grips and lock the same, together with the heel-grip and the two sections of the shoe-plate, together simultaneously, substantially as described.

482,722. ADVERTISING APPARATUS FOR CASH-REGISTERS. HUGO COOK, Dayton, Ohio. Filed July 27, 1891. Serial No. 400,870. (No model.)



Claim.—1. In a cash register and indicator, the combination of the casing having in its upper portion the usual window or sight-opening C, through which the indicators which exhibit the amount of the sale are exposed, and provided, also, with a second window S, located above the window C, the revoluble disks E E, supported within the space behind the window S, the advertising-plates F, pivotally supported by and between the disks E E, the toothed wheel I, revoluble with the disks E E, the actuating-pawl J, co-operating with the wheel I, and connections between said pawl and a movable part of the machine, whereby the pawl is caused to turn the wheel I and disks E E at each operation of the machine, substantially as and for the purpose described.

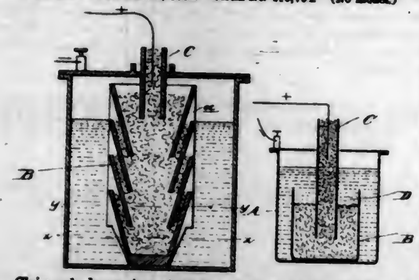
2. In a cash register and indicator, the combination of the casing having in its upper portion the usual window or sight-opening D, through which the indicators which exhibit the amount of the sale are exposed, and provided, also, with the second window S, located above the window C, the revolvable shaft D, journaled in the space behind the window S, the disks E E and toothed wheel I, fast upon said shaft, the advertising plates F, pivotally supported by and between the disks E E, the pawl J, co operating with the wheel I, the vertically-movable rod K for actuating the pawl, the operating-keys B, and the vibrating cross-bar N, co-operating with the keys B and with the rod K, in the manner described.

482,723. DRIVE-CHAIN. THOMAS CORSCADEN, New Britain, Conn., assignor to the Stanley Works, same place. Filed Jan. 30, 1892. Serial No. 419,836. (No model.)



Claim.—In a drive-chain, a link having a pintle of a flattened form in cross-section and flat side bars extending in their flat form to the outer edge of said pintle, while a portion of said pintle between said side bars is bent or twisted, substantially as described, and for the purpose specified.

482,724. ELECTROLYTIC APPARATUS. THOMAS CRANEY, Bay City, Mich. Filed Jan. 2, 1892. Serial No. 416,764. (No model.)



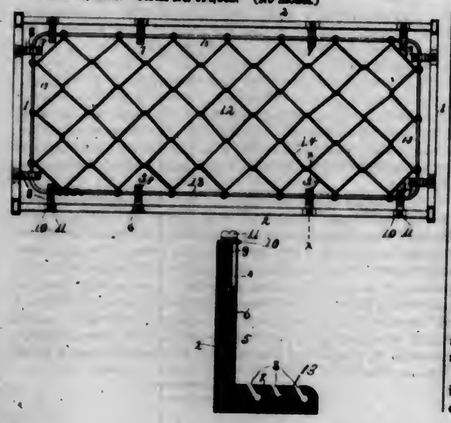
Claim.—1. In an electrolytic apparatus, an anode consisting of a body of carbon arranged to expose a number of separate horizontal surfaces and a coil of non-conducting material inclosing said anode and having openings leading to said surfaces, substantially as described.

2. In an electrolytic apparatus, a carbon anode incased within an outer supporting-coil of non-conducting material, said anode consisting of a central body of pulverized carbon packed within the wall of the coil and having segregated portions contained within pockets or interstices formed in the walls of the coil and forming exposed horizontal surfaces, substantially as described.

3. In an anode for electrolytic apparatus, the combination of a coil of non-conducting material formed with open interstices in the wall thereof and a carbon body incased within said coil and provided with segregated portions contained in the interstices of the coil and forming exposed horizontal surfaces, substantially as described.

4. In an anode for electrolytic apparatus, the combination of a coil consisting of a series of superimposed sections projecting within each other and forming open interstices between each sections and a body of carbon incased within said coil and having segregated portions extending into the interstices between the sections and forming the exposed sections of the anode, substantially as described.

482,725. BEDSTEAD. GEORGE H. CURREY, Evant, Tex. Filed Dec. 12, 1891. Serial No. 414,602. (No model.)



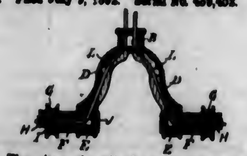
Claim.—In a bedstead, the combination, with the side and end rails having vertical mortises or grooves, the cap-plates covering the upper ends of the grooves or mortises and having threaded apertures, and a mattress-support, of the hangers respectively comprising the vertical shank or body seated in the grooves or mortises of the rails, and the horizontal branch extending inwardly from said shank or body and having a slot to seat the side and end bars of the mattress-support, and the adjusting-screws taking through the threaded apertures of the cap-plates and having their lower ends connected to the hangers, substantially as and for the purpose set forth.

482,726. GUARD FOR VEHICLE-SHAFTS. FRED DE LA MATER, Fremont, Nebr. Filed Nov. 27, 1891. Serial No. 413,241. (No model.)



Claim.—As an article of manufacture, a shaft-guard, comprising tips or thimbles, adapted to be secured to the ends of the shafts, said tips or thimbles provided each with a pair of parallel slots *b b'* on their sides, whereby a loop *c* is formed, a strap buckled in each loop, and a snap-hook connected with one strap and a ring with the other, said straps made just long enough to reach from one shaft to the other when coupled together, whereby they are held taut, substantially as set forth.

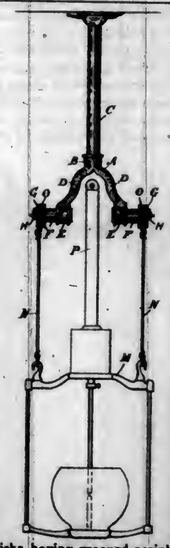
482,727. SUSPENSION-BRACKET FOR ELECTRIC LAMPS. THOMAS DILLON, Indianapolis, Ind., assignor of one-half to John Caven, same place. Filed July 9, 1892. Serial No. 439,452. (No model.)



Claim.—1. The above-described suspension-bracket for electric lamps, consisting of a socket adapted to receive a standard or hanger, a pair of hollow diverging arms extending from said socket and each terminating in a socket whose axis is at right angles to the axis of the standard-socket, a pair of arms, formed of wood or other like non-conducting material, mounted in said sockets and projecting in opposite directions therefrom, and a pair of metallic disks each provided with a peripheral groove and a binding-post and mounted upon the ends of said arms, all substantially as set forth.

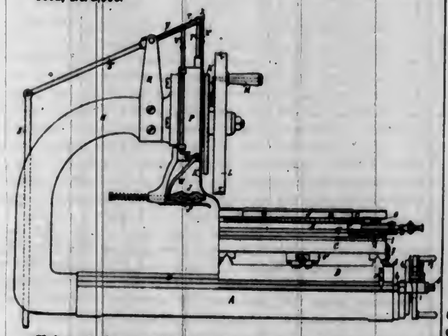
2. The combination of the bracket having a pair of hollow diverging arms terminating in open sockets adapted to receive a pair of non-conducting arms, the pair of non-conducting arms mounted in said

482,727.



sockets, the metallic disks having grooved peripheries and mounted upon the ends of said non-conducting arms, the electric conductors extending through said arms and electrically connected, respectively, with said disks, the pair of rods embracing the peripheries of said disks, and the lamp suspended from said rods, all arranged to co-operate substantially as set forth, whereby the lamp is supported and is connected with an electric conductor which is concealed within the bracket, substantially as set forth.

482,728. MACHINE FOR PRINTING MUSIC. LOUIS DURDILLY, Paris, France. Filed Apr. 23, 1892. Serial No. 430,205. (No model.) Patented in France Sept. 26, 1891, No. 216,373, and in England Mar. 26, 1892, No. 5,896.



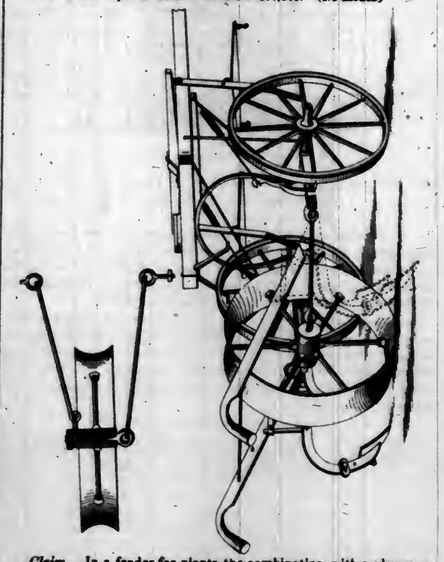
Claim.—1. In a machine for printing music, the combination of a frame A, with two sliding carriages B and C placed thereon, a hand screw-spindle D for effecting the forward and rearward displacement thereof, an index X, a transverse screw-spindle *e*, effecting the displacement from right to left, an index Z for the same, gears from the shaft *d* to actuate spindle *e*, and a crank 1, which can be displaced between stops 5 and 6, inserted in a plate 4, so as to limit this motion, substantially as set forth.

2. In a machine for printing music, a revolving plate G, rubber sheet placed thereon, pins and hinges *g* for fixing the paper, carriage D, upon which said plate is mounted, graded rollers E E' for displacing said carriage, runners F F' adjustable thereon, slide-blocks *d'* for causing said adjustment, and the spring-actuated finger of said block, substantially as set forth.

3. In a machine for printing music, a wheel L, a slide-block Q, upon which said wheel is mounted, a fixed crown N, and musical signs or type engraved on the circumference of said wheel L and repeated on the side of the rim to guide the operator, substantially as set forth.

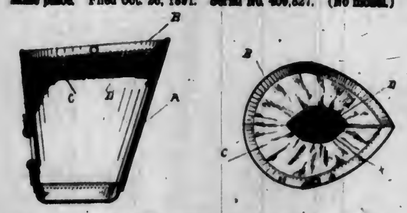
4. In a machine for printing music, a system of levers S, branches V, T, X, and U, a rod T', moved thereby, a slide-block Q, actuated by said rod in order to bring the sign on the wheel down to the paper, a rod X', an index K, guided thereby, rods V', U', and W, and inking-rollers J, substantially as set forth.

482,729. CULTIVATOR ATTACHMENT. ALONZO DYER, Odessa, Mo. Filed Sept. 23, 1891. Serial No. 407,079. (No model.)



Claim.—In a fender for plants, the combination, with a plow or a straddle-row cultivator, of a wheel having suitable connection therewith and a concave or hollow rim adapted to run over and protect a row of growing plants, substantially as shown and described.

482,730. NOSE-BAG. WILLIAM BERNHARDT, New York, N. Y., assignor, by mesne assignments, to the Economic Feed Bag Company, same place. Filed Oct. 26, 1891. Serial No. 409,827. (No model.)



Claim.—In a nose-bag for animals, the combination, with the bag, of a flexible diaphragm C, composed of open-work and secured to the upper margin of the bag, an annular water-tight spring-case D, secured around the inner margin of the diaphragm, and a spring X within said case, substantially as set forth.

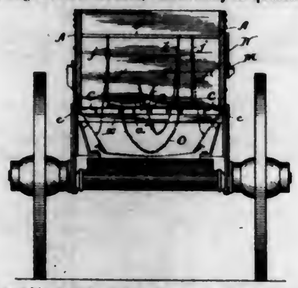
482,731. DUMPING-WAGON. JOHN S. FIELD and WILLIAM J. BERDO, Chicago, Ill. Filed June 3, 1892. Serial No. 435,360. (No model.)

Claim.—1. The dumping-wagon having its bottom divided into three longitudinal sections, the outside ones of which are hinged at their outer edges and swing down at their inner edges and the central one is pivoted at its ends, so as to tip sidewise, substantially as specified.

2. The dumping-wagon having its bottom divided into three longitudinal sections, the outside ones of which are hinged at their inner edges and the central one of which is pivoted at its ends, so as to tip sidewise, and also having movable supporting devices for locking the sections in the raised position, substantially as specified.

3. The combination, in a dumping-wagon, of three longitudinal floor sections, the outer ones of such sections being hinged so as to swing downwardly at their inner edges and the central section being

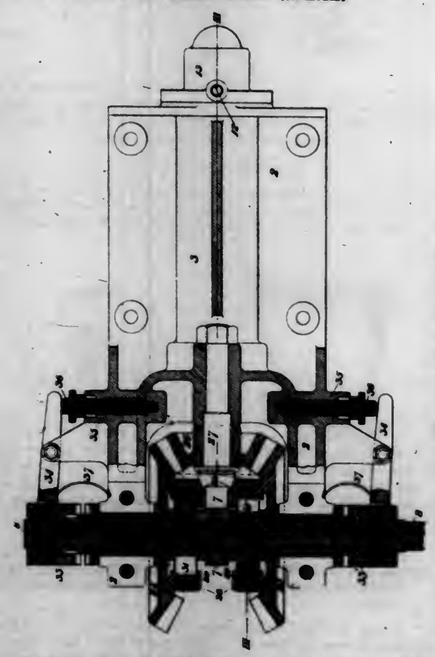
pivoted at its ends and adapted to tip sidewise, movable supporting-bars for supporting said floor-sections in their raised position, devices for moving said bars into and out of their acting positions, and devices for raising the floor-sections, substantially as specified.



4. The combination, in a dumping-wagon, of three longitudinal floor-sections each adapted to tip sidewise, essentially as described, the central section overlapping the edges of the side sections, means for raising said sections after dumping, and means for supporting the sections in the raised position, substantially as specified.

5. In a dump-wagon having a floor consisting of three longitudinal sections, whereof the side sections are hinged at one edge and swing downward and the center section is pivoted at its ends and tips sidewise, the combination, with the side sections, of the chain O, secured to said sections and limiting their downward movement, substantially as specified.

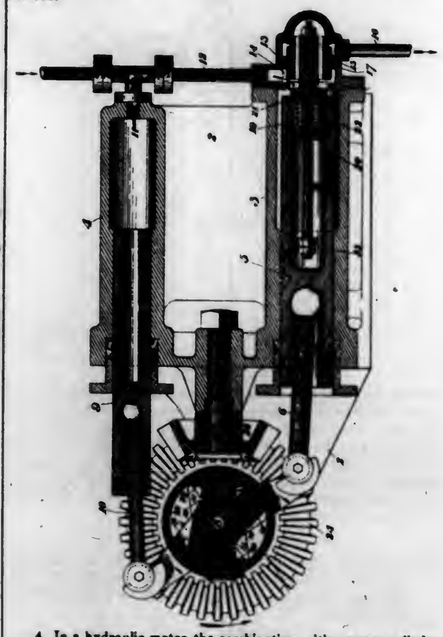
482,782. HYDRAULIC MOTOR. SAMUEL FORTER, Allegheny, Pa. Filed Sept. 19, 1891. Serial No. 406,169. (No model.)



Claim.—1. In a hydraulic motor having two coacting cylinders and plungers, the combination of two piston-valves, one situated in each cylinder and controlling its inlet and exhaust ports, plungers in said cylinders adapted to engage and move said valves in one direction, and connecting mechanism by which the motion of one valve by the plunger will move the other valve in reverse direction, substantially as and for the purposes described.

2. In a hydraulic motor, the combination, with a motor-cylinder, reciprocatory plunger, and main shaft, of gear-wheels connected by clutch mechanism with the motor and adapted to be rotated thereby in opposite directions and a third gear-wheel connecting said first-named gear-wheels, substantially as and for the purposes described.

3. In a hydraulic motor, the combination, with a motor-cylinder, reciprocatory plunger, and main shaft, of gear-wheels connected by clutch mechanism with the motor and adapted to be rotated thereby in opposite directions, a third gear-wheel connecting said first-named gear-wheels, and clutches adapted to connect either of the latter gear-wheels with the main shaft, substantially as and for the purposes described.

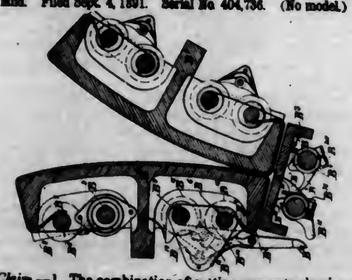


4. In a hydraulic motor, the combination, with a motor-cylinder, reciprocatory plunger, and main shaft, of gear-wheels connected by clutch mechanism with the motor and adapted to be rotated thereby in opposite directions, a third gear-wheel connecting said first-named gear-wheels, clutches adapted to connect either of the latter gear-wheels with the main shaft, and auxiliary motor-cylinders adapted to operate the clutches, substantially as and for the purposes described.

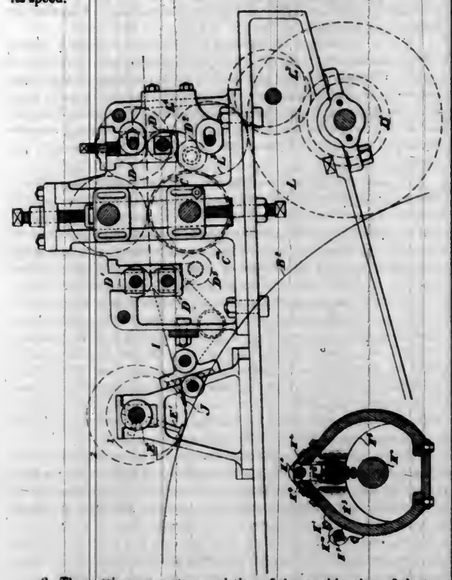
5. The combination, with the reciprocatory plunger and main shaft, of a hub connected with the plunger and oscillatory thereby, flanged wheels 24 25, set in proximity to the hub, shoes bearing against the flanges of the wheels, and toggle-links interposed between the hub and shoes, substantially as and for the purposes described.

6. The combination, with the reciprocatory plunger and main shaft, of a hub connected with the plunger and oscillatory thereby, flanged wheels 24 25, set in proximity to the hub, shoes bearing against the flanges of the wheels, and toggle-links interposed between the hub and shoes, and a gear-wheel 26, connecting the wheels 24 and 25, substantially as and for the purposes described.

482,783. PRINTING-MACHINE. THOMAS GIBSON, London, England. Filed Sept. 4, 1891. Serial No. 404,736. (No model.)



Claim.—1. The combination of cutting apparatus having cutting-blades radially adjustable to cut sheets of different lengths, change-speed gear for the cutting apparatus to drive it at different speeds to make the proper number of cuts for each revolution of the impression-cylinder, the form and impression cylinders, the segments thereof readily removable, so that segments of one size can quickly be changed for segments of another size, a roller on which the sheets printed at each revolution are collected, and change-speed gear for regulating its speed.



2. The cutting apparatus consisting of the combination of the two shafts and the collars secured thereto, the segmental bars connected with the collars and radially adjustable relatively to the shafts, a plate carried by one of the segmental bars, and the pins O^3 on the bars, for the purpose specified.

3. The combination of an impression-cylinder having across it at equal distances apart around its circumference lines of grippers, two pairs of feed-rollers for feeding forward a continuous web of paper to this cylinder, pairs of cutting-segments adjustable radially on the axes which carry them, situated between the pairs of feed-rolls, gearing for driving them from the axis of the impression-cylinder at a slower surface speed than this cylinder, change-gear wheels for enabling the feed rollers and segments to be always driven at the same surface speed, and detacher-rods carried by a revolving axis near the feed-rolls and close to the impression-cylinder and which nip the forward edge of the paper between themselves and the impression-cylinder at a time when a partial line of severance formed across the paper by the cutting-segment has passed beyond the second pair of feed-rolls.

4. The impression-cylinder herein described carrying at equal distances apart around its circumference removable segments which pass across it from one side to the other, the outer surface of each segment being covered with a thick blanket, which at its ends is secured to two rollers at the back of the segment, and means for turning these rollers to wind up and stretch the blanket and for preventing the rollers from turning back and allowing the blanket to slacken and with canvas covering attached at its end to other rollers at the back of the segment, one impeded by friction from revolving too freely and the other caused to revolve slowly and wind canvas onto itself.

5. An impression-cylinder provided with a series of removable segments arranged at equal distances apart around its circumference and which pass across it from one side to the other, each of said segments having a thick blanket covering provided with means for stretching it, said blanket having a canvas covering provided with means for feeding it across the face of the blanket, substantially as described.

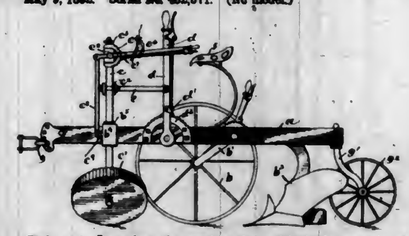
6. The form cylinder provided with a series of removable beds arranged at equal distances apart around its circumference, each bed having a series of undercut grooves formed longitudinally in its outer face and provided with a series of bars arranged at right angles to said grooves, each of said bars having projections which enter and fit into the undercut grooves and which are adjustable therein, the sides of said bars being undercut to overlap the sides of printing-plates placed on the bed, substantially as described.

7. In a form cylinder, the combination of a supporting-frame and a series of removable beds, each having a series of longitudinal undercut grooves, a series of bars arranged transversely to said grooves and having projections fitting the undercut grooves, so that the bars may move laterally across the face of the cylinder, said bars being undercut on their sides to overlap the sides of printing-plates placed on the cylinder, and means for clamping the bars to the plates, substantially as set forth.

8. A pasting-cylinder in which the reservoir is made cylindrical on the exterior, where the bearings which carry the pin-bar are to be secured to it, in combination with a pin-bar carried in bearings secured to the reservoir by radial screw-bolts, substantially as described.

9. A paste-reservoir made curved or cylindrical on the exterior where the bearings which carry the pin-bar are to be secured, in combination with said pin-bar and its bearings, and radial screw-bolts secured to the bearings and adjustable toward and from the mouth of the paste-reservoir, substantially as described.

482,784. SULKY-PLOW. MICHAEL GLYNN, Otterbein, Ind. Filed May 9, 1892. Serial No. 432,371. (No model.)

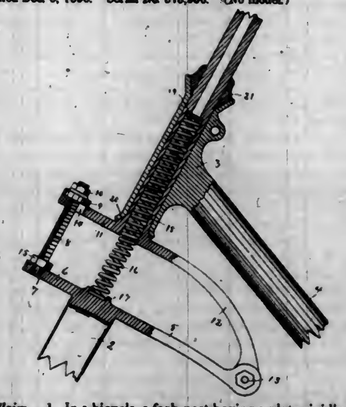


Claim.—1. In a plow, the combination, with the beam, side wheel *b*, and caster-wheel g^4, of a rod *c*, supported in the forward portion of the framework, a guide-wheel on said rod, a lever *d*, and a connecting mechanism between said lever *d* and rod *c*, by means of which rotary motion is imparted to said rod through the motion of said lever, substantially as and for the purpose specified.

2. In a plow, the combination, with the plow-beam, its share and supporting wheels, and a lever *d*, rising from the framework, of beam-arm b^4, rod *c*, journaled thereto and carrying wheel c', arm c^3, projecting from said rod *c*, and a connecting-piece *e* between said arm c^3 and lever *d*, substantially as and for the purpose specified.

3. In a plow, the combination, with the beam, share, and framework, supporting-wheels therefor, and a lever *d*, fulcrumed to said frame, of an arm b^4, projecting, as described, from the beam, wheel-carrying rod *c*, journaled in said arm, rack c^4 on the upper end of said rod *c*, lever-arm c^2, fulcrumed to said rack, arm c^3, connecting said lever-arm and arm b^4, and connecting-piece *e* between said arm c^3 and lever *d*, substantially as and for the purpose specified.

482,785. BICYCLE. OLAUS HARSON, Toledo, Ohio, assignor of part to Joseph L. Yost, same place, and Harry A. Lozier, Cleveland, Ohio. Filed Dec. 8, 1890. Serial No. 373,936. (No model.)

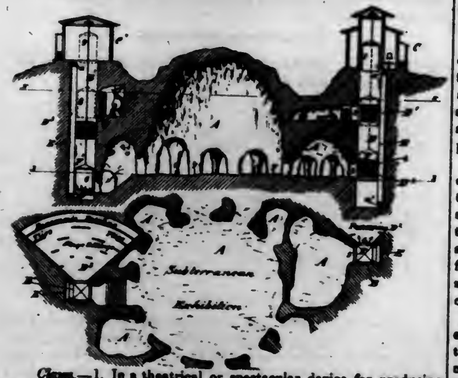


Claim.—1. In a bicycle, a fork-post having a plate rigidly secured thereon, a steering-head, a plate pivotally connected with the plate of the fork-post, having an integral tubular extension working in the-

steering-head, a spring mounted in the said extension and bearing at its lower end on the plate of the fork-post, and a threaded bolt engaging the free ends of the plates.

2. In a bicycle, a fork-post, a plate rigidly secured thereon having a hollow boss on its upper face, a steering-head, the upper and the lower ends of which are flared, a plate pivotally connected with the plate of the fork-post and having an integral tubular extension working in the steering-head, said extension having conical bearings engaging the flared ends of the steering-head, a spring mounted in the extension and bearing at its lower end in the said hollow boss, and a threaded bolt engaging the free ends of the plates.

482,786. SUBTERRANEAN EXHIBITION APPARATUS. HIPPOLYTE HARDY, Minneapolis, Minn. Filed Feb. 10, 1891. Serial No. 380,900. (No model.)



Claim.—1. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car, of a traveling curtain arranged to move adjacent thereto in vertical direction and painted in imitation of the walls of a shaft in which the car is supposed to ascend or descend, whereby by the movement of such curtain the illusion is created of a movement of the car.

2. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car, of a vertically-moving endless revolving curtain arranged exterior to an opening in the side of the car and painted in imitation of the walls of a shaft in which the car is supposed to move.

3. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car, of a traveling curtain arranged to move in vertical direction adjacent thereto and painted in imitation of the walls of a shaft and means for imparting a tremor to the car during the movement of said curtain, whereby the illusion is created of a movement of the car.

4. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car and its shaft, of curtains arranged in said shaft adjacent to the sides of the car and driving mechanism for moving them simultaneously in vertical direction.

5. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car and a traveling curtain arranged to move in vertical direction adjacent thereto, of means for imparting a tremor to the car, consisting of a lever from which the car is hung and mechanism for imparting short and rapid vibrations to said lever.

6. In a theatrical or spectacular device for producing illusory effects, the combination of a vertical shaft, an elevator-car mounted therein, a vertically-moving curtain arranged to create the illusion of a movement of the car within said shaft, and movable screens at the top of said shaft for gradually cutting off the light proportionally to the supposed descent of the car.

7. In a theatrical or spectacular device for producing illusory effects, the combination of a vertical shaft, an elevator-car mounted therein, a vertically-moving curtain arranged to create the illusion of a movement of the car within said shaft, and movable screens at the top of said shaft arranged to overlap, forming between them a rectangular opening corresponding in shape to the shaft and adapted by their movement to reduce or enlarge the opening proportionally to the supposed descent or ascent of the car in said shaft.

8. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car and its shaft, of a blower for forcing air through said shaft to contribute to the illusion of a movement of the car.

9. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car and its shaft, of a blower for forcing air through said shaft and a source of hot or cold air, adapted to be put into communication with said blower, whereby air of different temperatures may be forced into said shaft at different times.

10. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car and its shaft, of a blower for forcing air through said shaft, a cold-air box, a hot-air box, and a swinging spout or section of pipe for establishing communication between the section of the blower and either of said boxes.

11. In a theatrical or spectacular device for producing illusory effects, the combination of a vertical shaft, an elevator-car therein, an opening through one side of the shaft for the passage of passengers into or from said car, and a traveling curtain arranged to move vertically along the side of the shaft through which said opening is formed and having an opening adapted to coincide with said opening, whereby passengers may enter or leave the car through the opening in said curtain.

12. In a theatrical or spectacular device for producing illusory effects, the combination of a vertical shaft, an elevator-car movable therein, openings into said shaft at different heights on one side thereof, and an endless traveling curtain arranged to move vertically along the side of the shaft containing said openings and formed with an opening adapted to coincide with either of said openings, whereby different positions of said curtain disclose different openings from said shaft.

13. In a theatrical or spectacular device for producing illusory effects, the combination of a vertical shaft, an elevator-car movable therein, openings into said shaft at different heights, one for the admission of passengers to the car, another for their exit therefrom, and a third for displaying to the passengers a scenic or spectacular representation, one or more revolving curtains lining the walls of said shaft for conveying the illusion of a continued movement of the car within said shaft, and mechanism for starting, driving, and stopping said curtains and for starting, driving, and stopping the car.

14. In a theatrical or spectacular device for producing illusory effects, the combination of a vertical shaft, an elevator-car movable therein, openings into said shaft at different heights, one for the admission of passengers to the car and another for their exit therefrom, a marine exhibition or aquarium-tank arranged behind a third opening, and one or more revolving curtains lining the walls of said shaft for conveying the illusion of a continued movement of the car within said shaft.

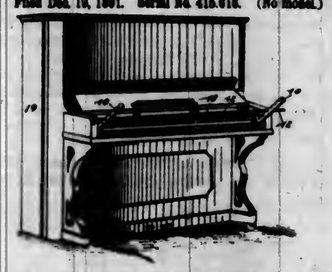
15. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car having an opening in its side, of an endless revolving curtain arranged outside said opening, rollers carrying said curtain mounted in bearings carried by the car, and means for revolving said rollers and curtain.

16. In a theatrical or spectacular device for producing illusory effects, the combination, with an elevator-car having openings in its sides, of a vertical shaft in which said car is movable, an endless curtain lining one end of said shaft and movable in vertical directions relatively to said car, an endless revolving curtain arranged outside one of the openings in said car on another side of said shaft, rollers carrying said curtain mounted in bearings carried by the car, and a driving-belt *u*, driven at a speed proportionate to that of the curtain lining said shaft and arranged to impart rotation to the rollers of the curtain carried by the car, whereby the latter or smaller curtain is driven at the same surface speed relatively to the car as the larger curtain.

17. In a theatrical or spectacular device for producing illusory effects, the combination of an elevator-car, a traveling curtain arranged to move in vertical direction adjacent thereto to create the illusion of a movement of the car, and a panoramic spectacle in a chamber at one side of the car, with communicating openings, whereby by suspending the movement of the curtain, displaying the panorama to the occupants of the car, and closing said openings and resuming the movement of the curtain the illusion is imparted of a scene exhibited at some point in the descent or ascent of the car.

18. In a theatrical or spectacular device for producing illusory effects, the combination of an elevator-car and a traveling curtain arranged to move adjacent thereto in vertical direction to create the illusion of a movement of the car with two or more panoramas mounted on a movable platform arranged in a chamber adjacent to the car, so that either panorama may be exhibited to the occupants of the car through communicating openings, whereby by suspending the movement of the curtain, displaying a panorama, then closing the openings, resuming the movement of the curtain and moving the platform to bring another panorama into position to be viewed, again suspending the movement of the curtain, and displaying the panorama the illusion is created of a plurality of scenes viewed at different levels in the course of the descent or ascent of the car.

482,737. PIANO ATTACHMENT. HENRY A. HAUPT, Brooklyn, N. Y. Filed Dec. 19, 1891. Serial No. 415,616. (No model.)



Claim.—1. A piano attachment comprising the two bars having notches in their upper edges to receive the cross-rod and attaching devices at their lower ends to engage the keyboard, substantially as set forth.

2. A piano attachment comprising the two inclined bars provided at their lower ends with downward-projecting tongues and angle pieces or clips adapted to engage the keyboard, and a cross-rod adjustable on said bars, substantially as set forth.

3. The combination, with a piano, of notched supports extending diagonally forward and upward from in front of the keyboard and a cross-bar held in the notches of the supports, substantially as shown and described.

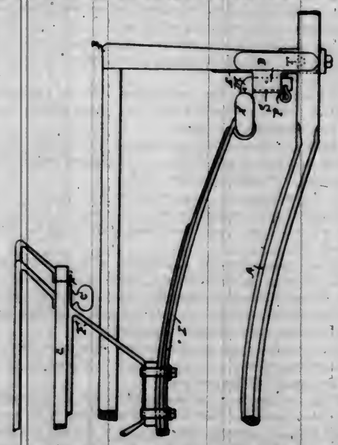
4. The combination, with a piano, of supports extending diagonally upward and forward from the front of its case, said supports having at their lower ends angle-pieces to fit the piano-case, and a cross-rod held in the notches of the supports, substantially as described.

5. The combination, with a piano having recesses in its case adjacent to the keyboard, of forwardly-extending supports having angle-pieces at their lower ends adapted to fit the edge of the piano case and having depending tongues to enter the recesses in the case, and a cross-bar connecting the supports, substantially as described.

482,738. EFFERVESCENT BEVERAGE. OLIVE M. HOSHTHAM, Washington, D. C. Filed Nov. 14, 1890. Renewed July 14, 1892. Serial No. 440,096. (No specimens.)

Claim.—The herein-described composition of matter to be used as a beverage, consisting of pure sugar, water, raspberry juice, tartaric acid, citric acid, soap-bark, caramel or coloring, and cooking-raisins, in the proportions desired, with a mixture to cause effervescence, composed of pure honey, boiling water, and the whites of nine eggs.

482,739. TWO-WHEELED VEHICLE. JACKSON W. HEWITT, Jackson, Mich. Filed Mar. 26, 1892. Serial No. 426,478. (No model.)

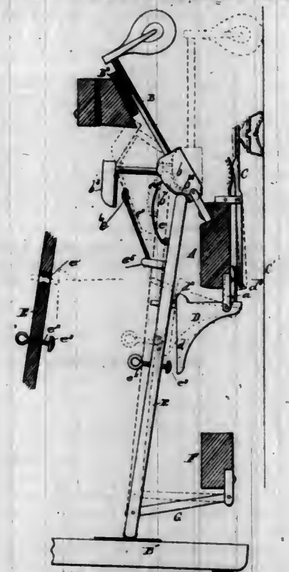


Claim.—1. A two-wheeled vehicle provided with sockets S secured to the running-gear thereof, and a spring I, provided at its ends with irons M, adapted to fit into said sockets, said spring being adapted to be detachably clamped to the seat of said vehicle, said vehicle being provided with a rod or rods R, adapted to fit into said sockets and to be clamped to said seat, substantially as shown, and for the purpose set forth.

2. In a two-wheeled vehicle provided with a screw-threaded aperture or aperture A upon the seat thereof and provided with sockets S upon the running-gear thereof, a spring I, provided with irons M at the ends thereof, said irons being adapted to fit into said sockets, said spring being provided with a lug or lugs F, said lugs having apertures through them, a rod or rods R, adapted to fit into said sockets and provided with lugs r, similar to lugs F, and thumb-screws C, substantially as and for the purpose set forth.

3. A two-wheeled vehicle provided with sockets S, secured to the running-gear thereof, and a spring I, provided at its ends with irons M, adapted to fit into said sockets, said spring being adapted to be detachably secured to the seat of said vehicle, substantially as and for the purpose described.

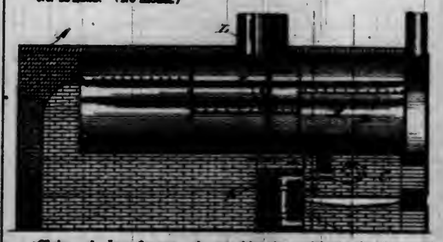
482,740. UPRIGHT-PIANO ACTION. ALFRED HIGEE, New York, N. Y. Filed Nov. 25, 1891. Serial No. 413,093. (No model.)



Claim.—1. In a piano-action, a sticker provided with a hole, as *c'*, in combination with a pivoted throw-off lever provided with a pin for engaging the hole in the sticker, substantially as set forth.

2. In a piano-action, the combination, with a sticker having a hole, as *c'*, of a pivoted throw-off lever provided with a pin for engaging the hole in the sticker and a heel, as *d*, for bearing against the sticker, substantially as set forth.

482,741. FURNACE. FRANK L. HIGGINS, Chicago, Ill., assignor of one-half to Percy H. Sloan, same place. Filed Mar. 3, 1892. Serial No. 424,222. (No model.)



Claim.—1. In a furnace, the combination, with the fire-box and the boiler, of air-flues having horizontal branches exposed to the heat of the fire-box and arranged to discharge thereinto against the natural draft of the furnace and pipes connected with the boiler and termi-

sating within said horizontal branches, whereby water may be allowed to drip into said horizontal branches while heated, substantially as set forth.

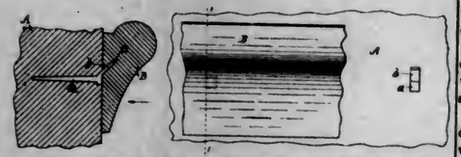
2. In a furnace, the combination, with a fire-box, the ash-pit, and the boiler, of upright metallic air-flues communicating with the ash-pit and having horizontal branches exposed to the heat of the fire-box and arranged to discharge therein against the natural draft of the furnace and pipes connected with the boiler and terminating within said horizontal branches, whereby water may be allowed to drip into said horizontal branches, substantially as set forth.

3. In a furnace, the combination, with the fire box and the bridge-wall, of upright air-flues having horizontal branches arranged to discharge into the fire-box away from the bridge-wall, the boiler, and the pipes extending into said horizontal branches of the air-flues and being connected with the boiler above and below its water-line, substantially as set forth.

4. In a furnace, the combination, with the fire-box and the bridge-wall, of a deflector arranged in said fire-box and projecting downwardly in front of the bridge-wall, upright air-flues arranged to discharge across the passage between the bridge-wall and said deflector against the natural draft of the furnace, the boiler, and pipes leading into said flues and being connected with said boiler above and below its water-line, substantially as set forth.

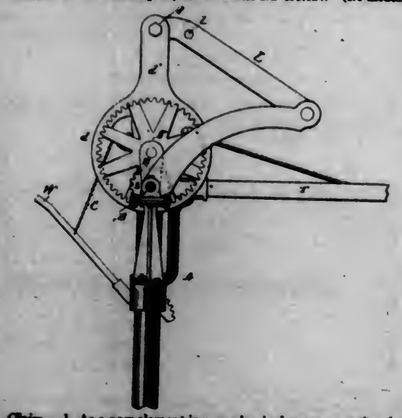
5. In a furnace, the combination, with the fire-box and the bridge-wall, of a deflector arranged within said fire-box and projecting downwardly in front of the bridge-wall, upright air flues arranged within the bridge-wall and having horizontal branches at their upper and lower ends leading into the fire-box and the ash-pit, respectively, the pipes J, projecting into the horizontal branches at the upper ends of said flues, and the manifold pipe K, connecting with said pipes J and being connected with a steam-supply, substantially as set forth.

482,742. MEANS FOR HANGING MOLDINGS. NICHOLAUS HOFFERD, Rochester, N. Y. Filed Dec. 28, 1891. Serial No. 416,363. (No model.)



Claim.—A molding having a continuous longitudinal kerf or channel formed in its rear surface, in combination with nails, each having its head formed with a surface at right angles with the shaft or body of the nails to receive the stroke of the hammer in driving and an inclined extended part at one side of the head, the latter, with its extended part, being received in said kerf or channel in the molding when the latter is put to place on the nails, substantially as shown, and for the purpose specified.

482,748. MECHANICAL MOVEMENT. CLIFFORD A. HOLCOMB, Beloit, Wis. Filed May 19, 1892. Serial No. 433,627. (No model.)

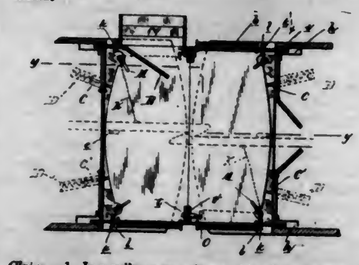


Claim.—1. As a new element in a mechanical movement, the plate D, constructed with the gear-rim d^2, the central means d^3 for connection by a link to the driving member, and the projecting arm d', having means d^3 for connection to the driven member, substantially as described.

2. The combination of the driving member with the driven member by means of the pinion *b*, the link E, and the plate D, constructed as herein described, as and for the purpose set forth.

3. The new mechanical movement herein described, consisting, essentially, in the pinion *b*, the link E, and the peculiarly-constructed plate D, adapted to operate together, substantially as set forth.

482,744. VESTIBULE-CAR. JOHN KERSHER, Cleveland, Ohio. Filed Apr. 15, 1891. Renewed Apr. 18, 1892. Serial No. 429,580. (No model.)



Claim.—1. In a railway-car, the combination, with the platform, of a horizontally-oscillating vestibule-section and a sliding connection between the car and vestibule, substantially as described.

2. In a railway-car, the combination, with the platform, of a horizontally-oscillating vestibule-section having its sides and roof overlapping the end of the car and having a sliding engagement therewith, substantially as described.

3. In a railway-car, the combination, with the platform, of a rigid vestibule-section pivoted thereon and a sliding connection between the car and vestibule, substantially as described.

4. In a railway-car, the combination, with the platform and an oscillating section thereon, of a guide-plate hinged to the sides of said vestibule and guide-bearings in the car with which said plates engage, substantially as described.

5. In a railway-car, the combination, with the platform, of the oscillating vestibule-section thereon, guide-plates at the sides of the vestibule, a hinge-joint in said plates, and a sliding connection between the vestibule-section and said plates, substantially as described.

6. In a railway-car, the combination, with the platform, of the oscillating vestibule-section thereon, the guide-plates engaging in bearings in the end of the car and hinged in said plates, and the sliding connection between the plates and the vestibule-section, substantially as described.

7. In a railway-car, the combination, with the platform, of the vestibule-section having a horizontal and vertical oscillation, the guide-plates engaging in guide-bearings in the car, a hinge in said plates, and a socket in the vestibule adapted to slidingly engage with said plates and arranged to permit the oscillation of said socket on the plates, substantially as described.

8. In a railway-car, the combination, with the vestibule, of the guide-plates *i*, the cross-heads *k*, the pins *n*, guide grooves *o*, sockets *l*, and pins *m*, substantially as described.

9. In a vestibule-car, the combination, with the vestibule-section extending from side to side of the car, of extensible steps secured to said vestibule, substantially as described.

10. In a railway-car, the combination, with the vestibule-section extending from side to side of the car, of steps secured to said vestibule-section and means for raising and lowering said steps, substantially as described.

11. In a railway-car, the combination, with the vestibule-section extending from side to side of the car, of steps secured to said vestibule-section by means of rods forming the steps supporting a railing, and means for raising and lowering said rod to fold the steps beside the vestibule-section, substantially as described.

12. In a railway car, the combination, with the vestibule-section, of steps secured thereto and adapted to be folded up across the door thereof, substantially as described.

13. In a railway-car, the combination, with a rigid vestibule-section supported upon the platform, of an extension of the roof of said vestibule slidingly engaging with the roof of the car, substantially as described.

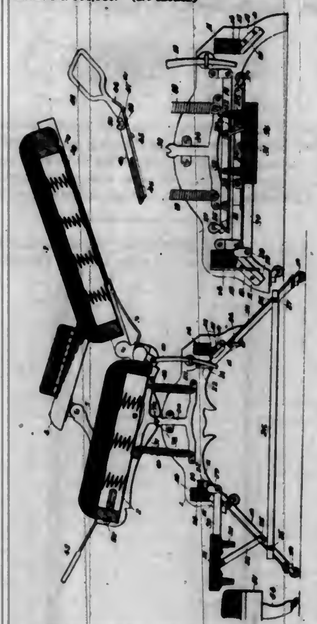
14. In a vestibule-car, the combination, with the vestibule-section supported upon the platform, of an extension of the roof overlapping the roof of the car and a saddle upon which this extension is supported, substantially as described.

15. In a railway-car, the combination, with the platform, of a vestibule-section supported thereon, an extension of the roof overlapping the roof of the car, and an oscillating saddle upon which said extension slidingly engages, substantially as described.

16. In a railway-car, the combination, with a pivotal vestibule-section, of the springs D, applied to opposite sides thereof, substantially as and for the purposes described.

17. In a railway-car, the combination, with the vestibule-section, of the buffer-plates at the front side thereof, the hooks *t*, corresponding apertures in which said hooks engage, the bell-crank levers O, and means for rocking said bell-crank levers to disengage said hooks.

482,745. CHAIR. PEARL C. LEWIS, Catskill, N. Y. Filed Feb. 13, 1891. Serial No. 381,318. (No model.)



Claim.—1. The combination, with a reclining-chair, of supplemental leg-frames pivoted to each end of the base-frame of said chair and adapted to overlap each other and fold within the base, and each provided with the locking-lugs 25, adapted to engage a transverse notched leg-frame brace, and a pivoted supporting-hook catch loosely connected to one of the leg-frames and at its free end adapted to detachably engage one of the locking-lugs 25 of the opposite leg-frame, substantially as set forth.

2. The combination, with a reclining-chair, of the plates or castings secured to the inner sides of the side pieces of the base-frame of said chair and having laterally-flanged shoulders, and the oppositely-pivoted leg-frames adapted when extended from beneath said base-frame to rest within said lateral flanges, preventing lateral displacement, and against the main shoulder of said castings, substantially as and for the purpose set forth.

3. The combination, with a reclining-chair having the base-frame, the rocking seat, and the pivoted back-frame and the cross-pieces connecting the sides of the base-frame, of the plates or castings secured to the sides of the said base-frame and having heads abutting against and secured to the cross-pieces of the latter, and laterally-flanged shoulders, and the leg-frames connected pivotally to opposite ends of said base-frame by means of bolts or screws passing through clips or securing-plates and adapted when extended from beneath the frame to rest within said lateral flanges, forming supplemental stops, preventing lateral displacement, and against the main shoulder of said castings, substantially as set forth.

4. The combination of a reclining-chair, supplemental leg frames pivoted to each end of the base-frame of said chair and one of which frames is provided with a hook, said leg-frames being adapted to overlap each other and be folded under the base-frame, brackets pivoted to the front end of the latter, a foot-rest rigidly secured between the outer ends of said brackets and provided with lugs or studs, said foot-rest being adapted to be folded beneath the frame beneath the folded leg-frames and is supported thereunder by said hook of one of the leg-frames engaging a lug or stud thereof, substantially as set forth.

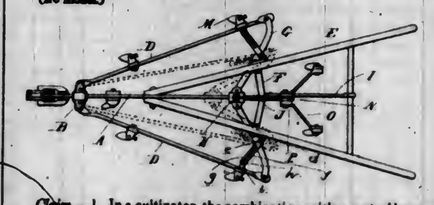
5. The combination, with a reclining-chair, of the supplemental leg-frames pivoted to and adapted to be folded under the base-frame of the same, arms or brackets pivoted to said base-frame, extending out horizontally from beneath and to the front of the same and carrying a foot-rest adapted to be folded under said base-frame and leg-frames, and means for supporting the foot-rest and leg-frames together independently of said base-frame when thus folded, substantially as set forth.

6. The combination, with a reclining-chair, of the supplemental folding leg-frames pivoted to the base-frame of said chair, the legs of the front frame being provided with mortised recesses, the arms or brackets pivoted independently to said base-frame and carrying the foot-rest, the legs or brackets hinged to the same and adapted to engage the recesses or mortises in the front legs, and a turn-buckle to secure said legs or brackets when folded under the same, said leg-frames and foot-rest being adapted to be folded and locked together beneath the base-frame and independently therefrom, substantially as and for the purpose set forth.

7. The combination, with a chair constructed substantially as described, the side rails of which are provided with notches or recesses, and the arm-connecting lugs, of the arms or brackets adapted to rest flat upon the forward ends of said side rails and having the stirrups at their front ends, longitudinal slots at their rear ends adapted to straddle said lugs, and downwardly-extending lugs or pins adapted to engage the notches or recesses in the side rails of the chair, substantially as specified.

8. The combination, with a chair constructed substantially as described, the side rails of which are provided with the arm-connecting lugs, and notches or recesses located at their forward ends, of the metallic plates provided with perforations registering with said notches or recesses, the stirrups having the arms or brackets composed of two parts pivotally connected and adapted to be held securely with relation to each other by means of a suitable set-screw, the rear end of said arm being provided with a longitudinal slot adapted to straddle said lugs within the side rails of the chair, and with a downwardly-extending lug adapted to engage one of the series of recesses in the side rail of the said frame of said chair, substantially as and for the purpose herein set forth.

482,746. CULTIVATOR. JAMES G. MALLERY and EDWIN J. YOUNG, Flint, assignors, by direct and mesne assignments, to the Gale Manufacturing Company, Albion, Mich. Filed Oct. 19, 1891. Serial No. 409,193. (No model.)



Claim.—1. In a cultivator, the combination, with a central bar and handles supported thereon, of hinged side bars having laterally-adjusting means, and adjustable braces connecting the side bars and handles, consisting of two fixed vertical members and a slotted horizontal member between and slidingly attached to the fixed members, substantially as described.

2. In a cultivator, the combination, with a central bar and handles supported thereon, of hinged side bars having laterally-adjusting means, and adjustable braces connecting the handles and side bars, consisting of projecting members on the handles and projecting members on the side bars, and a loosely-held sliding member uniting the projecting member, substantially as described.

3. In a cultivator, the combination, with a center bar and handles mounted thereon, of hinged side bars having adjusting means and braces connecting the handles and side bars, consisting of fixed depending standards on the handles having horizontal offsets, fixed standards on the side bars having horizontal offsets, and horizontal slotted links loosely secured to the offsets and uniting the same, substantially as described.

482,747. GAME FOR AMUSEMENT. JESSE S. MALIN, ISAIAH D. WIRT, and JONAS H. WIRT, Portland, Ind. Filed Feb. 1, 1892. Serial No. 420,019. (No model.)

Claim.—1. The game apparatus herein described, consisting of a board having thereon a revolving indicator surrounded by a circular arrangement of the names of all the States, with their respective number of electoral votes, a circle of perforated stars, in which to peg off, opposite the name of each State, the number of the electoral vote for each State as it is counted, so that it may not be again counted in adding up the total in one game, in connection with the two perforated spirals, in which is kept the count of the game, as specified.

provided with means for attachment to the apparel for retaining said form yieldingly in place upon the figure while being adjusted, substantially as specified.

3. A device for the purpose specified, consisting of a frame composed of vertical and transverse strands crossing at an angle and adjustably coupled, the plate *z*, having the inner curved edge, and the strands A and D, crossing at right angles, said strands being rigidly secured at their points of crossing and fixedly attached to said plate, whereby said strands are retained in the form of a square and the rocking of the frame is obviated.

482,749. WRENCH. [illegible]

482,752. LAWN-MOWER. WILLIAM H. PRIEBLE and FREDERICK J. PRIEBLE, Aurora, Ill. Filed Jan. 26, 1892. Serial No. 419,579. (No model.)

levers, and the cultivating-plows attached to the draft-levers, substantially as set forth.

2. In a cultivator, the combination, with the axle having parallel axle-arms or ends, of horizontal equalizing draft-levers pivotally mounted within the opposite axle ends, the supporting-wheels adjustably connected to the rear ends of said draft-levers, the horizontal plow-levers pivotally mounted within said axle ends and carried by said horizontal draft-levers, and the cultivating-plows connected with the swinging ends of said plow-levers, substantially as set forth.

lugs extending beyond said recesses, and clamping-bolts passing through said legs, substantially as set forth.

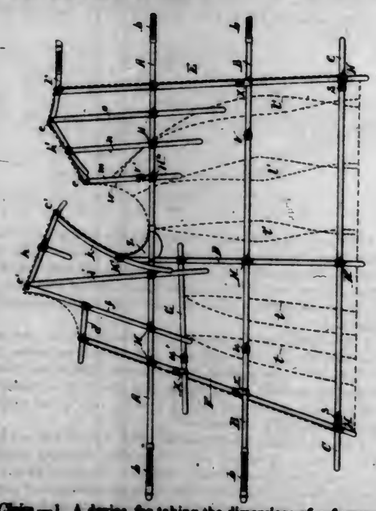
482,752. LAWN-MOWER. WILLIAM H. PRIEBLE and FREDERICK J. PRIEBLE, Aurora, Ill. Filed Jan. 26, 1892. Serial No. 419,579. (No model.)

peg off, opposite the name of each State, the number of the electoral vote for each State as it is counted, so that it may not be again counted in adding up the total in one game, in connection with the two perforated spirals, in which is kept the count of the game, as specified.



2. The game apparatus herein described, comprising the indicator *a*, the circle containing the names of all the States *b*, with their respective number of electoral votes, the circle of perforated stars *d*, and the two spirals *f f*, all substantially as set forth.

482,748. MEASURING AND DRAFTING DEVICE FOR GARMENTS. CASPAR MANNBACH, Detroit, Mich. Filed Mar. 31, 1892. Serial No. 426,742. (No model.)

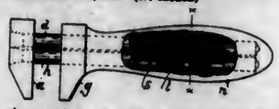


Claim.—1. A device for taking the dimensions of a figure, consisting of a series of vertical and transverse strands adjustably coupled, the loops pivoted to the outer vertical strands, the intermediate vertical strand D, and the transverse strands B G, attached to said strand D and having their outer ends supported in said loops, substantially as set forth.

2. A device for obtaining the dimensions of a bust or figure, consisting of a form composed of a series of flexible crossed strands adjustably coupled at their points of crossing, said form adapted to inclose but one side of the figure from the center of the back to the center of the front, and the transverse strands having elastic extensions provided with means for attachment to the apparel for retaining said form yieldingly in place upon the figure while being adjusted, substantially as specified.

3. A device for the purpose specified, consisting of a frame composed of vertical and transverse strands crossing at an angle and adjustably coupled, the plate *s*, having the inner curved edge, and the strands A and D, crossing at right angles, said strands being rigidly secured at their points of crossing and fixedly attached to said plate, whereby said strands are retained in the form of a square and the rocking of the frame is obviated.

482,749. WRENCH. FRANK MOSHERG, Attleborough, Mass., assignor to the Mosberg Manufacturing Company, same place. Filed Feb. 3, 1892. Serial No. 420,154. (No model.)



Claim.—A wrench having a head with a shank consisting of two parallel bars adjustable in a handle having an inner jaw attached thereto, in combination with a nut having an internal screw-thread fitting into screw-threads on the outer sides of said bars and chambered in said handle to adjust the bars lengthwise thereon, as set forth.

482,750. MUCILAGE-HOLDER. FRANK H. PALMER, Brooklyn, N. Y. Filed Nov. 20, 1891. Serial No. 412,868. (No model.)



Claim.—1. A mucilage-holder comprising a wooden casing formed with a central bore and a stick of mucilage permanently fastened in the said bore and having one end projecting at the end of the casing, substantially as shown and described.

2. In a mucilage-holder, the combination, with a wooden casing having a central bore, of a stick of mucilage permanently fastened in the said central bore and having one end projecting beyond the cut-down end of the said casing, and a cap fitting over the cut-down end of the casing and protecting the projecting end of the mucilage-stick, substantially as shown and described.

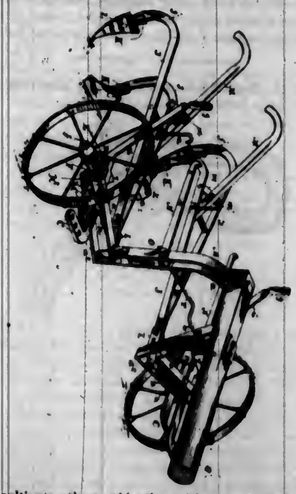
3. In a mucilage-holder, the combination, with a casing having a central bore, of a stick of mucilage permanently secured in the said bore and projecting at one end thereof and a cap fitted over the said casing at the projecting end of the mucilage-stick, the said cap being provided with a reduced end into which extends the projecting end of the stick of mucilage, substantially as shown and described.

4. The combination, with a casing having two concentric bores, of a stick of mucilage permanently secured in one of the said bores and a stick of lead secured in the other bore, the said sticks extending in opposite directions to project at the ends of the casing, substantially as shown and described.

482,751. PLOW. CHARLES A. PYBURN, Wapello, Iowa. Filed Feb. 3, 1892. Serial No. 420,213. (No model.)

Claim.—1. In a cultivator, the combination of an arch axle having a central arch and opposite pairs of parallel axle arms or ends extending rearwardly at an angle from the central arch, horizontal equalizing draft-levers pivotally mounted within the opposite axle ends, the supporting-wheels vertically adjustable on the rear ends of said draft-levers, and the cultivating-plows attached to the draft-levers, substantially as set forth.

2. In a cultivator, the combination, with the axle having parallel axle arms or ends, of horizontal equalizing draft-levers pivotally mounted within the opposite axle ends, the supporting-wheels adjustably connected to the rear ends of said draft-levers, the horizontal plow-levers pivotally mounted within said axle ends and carried by said horizontal draft-levers, and the cultivating-plows connected with the swinging ends of said plow-levers, substantially as set forth.



3. In a cultivator, the combination, with the axle having the central arch and projecting axle ends, of the equalizing draft-levers connected with said axle ends and provided with notched blocks at their inner ends, adjustable spindle-arms having notched blocks at one end, adjustably clamped to the notched blocks of said draft-levers, and wheel-spindles at their other ends, and the cultivating-plows attached to the draft-levers, substantially as set forth.

4. In a cultivator, the combination, with the axle, of the horizontal draft-levers mounted in the axle ends and provided with notched blocks at their inner ends, vertically-adjustable spindle-arms having notched disks at one end, adjustably clamped to the notched blocks of said draft-levers, and wheel-spindles at their other ends, and the cultivating-plows attached to said horizontal draft-levers, substantially as set forth.

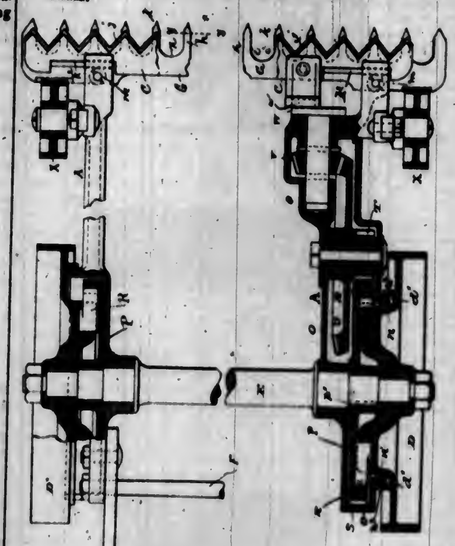
5. In a cultivator, the combination, with the axle having the opposite parallel axle arms or ends, of equalizing draft-levers pivotally mounted within the opposite axle ends and carrying the supporting-wheels, horizontal plow-levers pivotally mounted within said axle ends and loosely connected with said pivoted draft-levers, said plow-levers having limiting-slots working over the draft-levers' pivot-bolts, and the cultivating-plows adjustably connected with the swinging ends of said plow-levers, substantially as set forth.

6. In a cultivator, the combination, with the axle having the opposite parallel arms or ends, straight pivot-bolts passing through said axle ends, equalizing draft-levers pivotally mounted on said bolts within the axle ends and carrying the supporting-wheels, bowed or crank bolts located in the extreme ends of the axle-arms, horizontal plow-levers pivoted at their outer ends to said crank-bolts and having pivot-studs pivotally engaging the draft-levers, curved slots working over said straight pivot-bolts, and a series of coupling pins or studs at their inner swinging ends, and the cultivating-plows attached to said coupling-pins, substantially as set forth.

7. In a cultivator, the combination, with the axle, of the open wheel carrying draft-levers connected with the axle-arms and provided with shoulders at their inner ends and one side, sliding supporting-feet having flat-tread portions at one end and opposite slotted ends and bolts passing through said slotted ends and the shouldered ends of said draft-levers, said supporting-feet being adapted to have the heads thereof slide over said bolts to engage said shoulders and be slid within said open draft-levers, respectively, substantially as set forth.

8. In a cultivator, the combination, with the axle, the equalizing-levers working within each axle and having a series of coupling-studs and the cultivating-plows, of the coupling-plates or clevises pivotally connected with the front ends of the plows and comprising separate plates having oval slots, taking over the equalizing-levers, coupling-sockets receiving the studs above and below the levers, and perforated lugs extending beyond said recesses, and clamping-bolts passing through said lugs, substantially as set forth.

482,752. LAWN-MOWER. WILLIAM H. PRIBBLE and FREDERICK J. PRIBBLE, Aurora, Ill. Filed Jan. 26, 1892. Serial No. 419,078. (No model.)



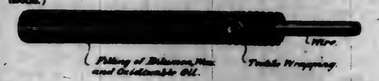
Claim.—1. In a lawn-mower, a fixed cutter-bar whose knives or blades have the following characteristics, namely: an upper surface in the same continuous plane to their extreme tip, triangular in cross-section as far back as the inner angles of the movable blades, long, narrow, and with their sides parallel with each other, and having their tips beveled to a point in the line of their top surface.

2. In a lawn-mower, the combination, with a fixed cutter-bar having narrow parallel-sided blades triangular in cross-section as far back as the inner angles of the movable blades and terminating in a sharp point in a line with their flat top surface, of a reciprocating cutter-bar having its cutters of ordinary saw-tooth or triangular form, substantially as set forth.

3. A reciprocating cutter-bar having near each of its ends an upwardly-projecting rib k^2, integral with and bent up at right angles to the body of the bar, in combination with stationary parts of the frame or machine, having in their under faces corresponding grooves in which said ribs lodge and move, substantially as and for the purpose set forth.

4. A traction-wheel for lawn-mowers, having an inwardly-projecting annular flange n^3 between its hub and perimeter and a deep annular groove between such flange and hub, in combination with the gear-inclosing case O, having the outwardly-projecting broad annular flange *n* between its perimeter and hub and entering such groove, all substantially as shown and described.

482,753. INSULATED ELECTRIC WIRE. THOMAS L. REED, Providence, R. I. Filed May 31, 1890. Serial No. 353,862. (No specimens.)



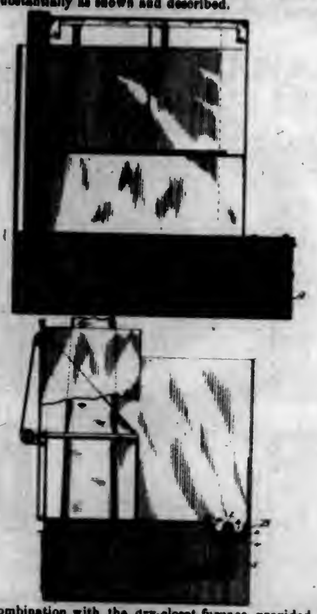
Claim.—1. A conducting-wire covered with a textile wrapping filled with a composition of bitumen, wax, and oxidized or oxidizable oil.

2. A conducting-wire covered with a textile wrapping filled with a composition of petricite, wax-tailings, and linseed-oil, in substantially the proportions specified.

482,754. URINAL. WILLIAM S. ROSS, Madisonville, Ky. Filed July 5, 1892. Serial No. 316,491. (No model.)

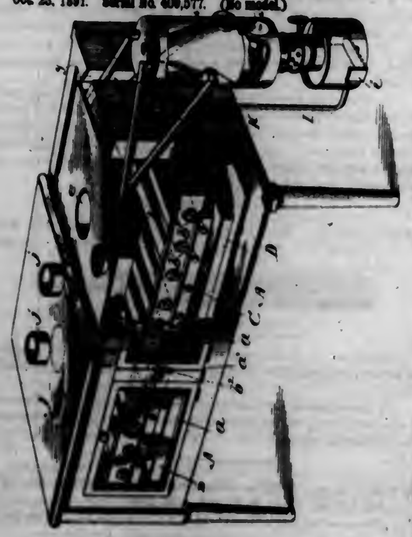
Claim.—1. A urinal consisting of a perforated top trough having

a bottom formed with two parallel gutters therein, an imperforate angular trough in cross-section, consisting of two sections secured under the perforated trough with their ends sealed thereto and arranged to incline downward from the ends of the trough to their point of union, and a conduit-pipe secured to the said sections at their lowest point, substantially as shown and described.



2. In combination with the dry-closet furnace provided with a perforated plate arranged above the floor of the combustion-chamber, a conduit-pipe opening into the combustion-chamber under the perforated plate and arranged at an upward incline, and the urinal-trough, consisting of the imperforate-bottom trough composed of sections secured to the upper end of the conduit-pipe and inclined upward from their connection therewith, and a perforated trough secured to the imperforate trough, said perforated trough being formed with parallel gutters, substantially as described, and for the purpose specified.

482,755. INCUBATOR. Joseph S. Rubel, Le Mars, Iowa. Filed Oct. 23, 1891. Serial No. 409,577. (No model.)



Claim.—1. The combination, in an incubator having an open front, of doors *a* and the intermediate piece *a'*, closing said open front, the evaporating-pans, and the roller-frame adapted to be inserted and removed through the said open front, one of the cranks b^3 of the rollers extending through the piece *a'* and adapted to have a suitable handle applied thereto, substantially as and for the purpose described.

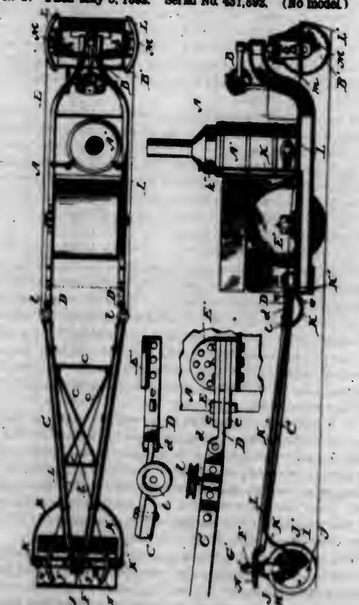
2. The combination, in an incubator having its top closed by a cover and having slots in one end wall, which extend through the top edge of said wall, of a shallow boiler or radiator removably inserted through the said top and a heater and tank exterior to the said incubator, the tank being permanently connected to and movable with the said pan by the pipes G and G', substantially as set forth.

482,756. ROPE-HOLD. Ephraim T. Rugg, Alexandria, Ohio. Filed June 30, 1891. Serial No. 398,070. (No model.)



Claim.—A rope-holder for forming a loop by frictionally clamping an end of a rope to the body of the same, consisting of a plate with three eyes integrally connected, the central eye being slightly oblique to the left of a true vertical line, the right eye extending slightly above a horizontal plane at an angle from the lower portion of said central eye, and the left eye being obliquely arranged to the upper part of said central eye, all of said eyes being in different planes and the two end eyes arranged nearer to each other on one side of the central eye than on the other side of said latter eye, the two end eyes being adapted to receive the body of the rope and the central eye the end of said rope, which is interposed between the body of the rope passing through said end eyes and the plate, whereby a half-hitch of the rope is made, substantially as described.

482,757. COMBINATION ROAD-ROLLER. Robert C. Ruthven Buffalo, assignor to the Barber Asphalt Paving Company, New York, N. Y. Filed May 5, 1892. Serial No. 431,892. (No model.)



Claim.—1. The combination of a steam-roller, an advance roller, a connecting-reach, means for connecting and disconnecting the advance and the steam rollers, and suitable steering-gear for steering the advance roller adapted to be operated from the steam-roller, substantially as described.

2. The combination of a steam-roller, an advance roller, a reach connecting the two, means for connecting and disconnecting the advance and the steam rollers, and suitable steam connections between the steam-roller and the interior of the advance roller, substantially as described.

3. The combination of a steam-roller, an advance roller, a connecting-reach, suitable steam connections between the steam-roller and the interior of the advance roller, and steering-gear for steering the advance roller adapted to be operated from the steam-roller, substantially as described.

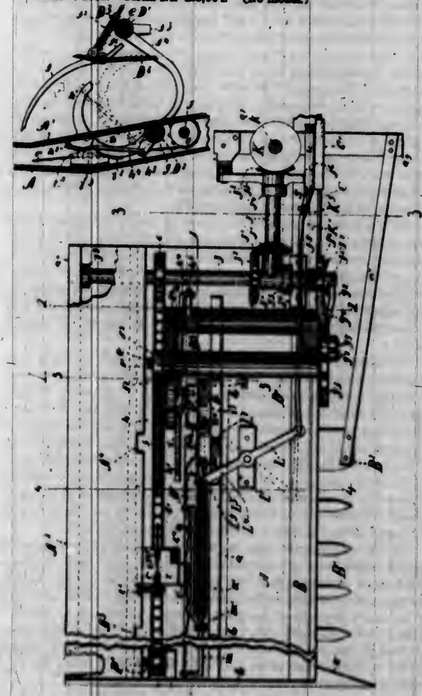
4. The combination of a steam-roller, an advance roller, a connecting-reach, suitable steam connections between the steam-roller and the interior of the advance roller, steering-gear for steering the advance roller adapted to be operated from the steam-roller, and means for connecting and disconnecting the rollers, substantially as described.

5. The combination of the steam-roller A, having the steering-roller B' and yoke *b*, the reach C, having the hinged links D D, detachably connected to the steam-roller A, the sleeve F, fastened to the reach, the yoke H, having the yoke-bolt G, an axle mounted in the yoke, rollers turning upon the axle, the cable connection L L between the yokes H and *b* of the respective rollers, and means for steering the roller B', substantially as described.

6. The combination of the steam-roller A, having the boiler A', the reach C, detachably connected to the steam-roller, the yoke H, pivoted to the forward end of the reach C, the fixed axle I, suspended in the yoke and having the tubular borings *i i*, the hollow rollers J' J', mounted upon and communicating with said tubular axle, the steam connection K between the boiler A' and the axle I, and means for connecting and disconnecting the same, substantially as described.

7. The combination of the steam-roller A, having the boiler A', the steering-roller B', the reach C, detachably connected to the steam-roller, the yoke H, pivoted to the forward end of the reach C, the fixed axle I, suspended in the yoke and having the tubular borings *i i*, the hollow rollers J' J', mounted upon and communicating with said tubular axle, the detachable steam connection K between the boiler A' and the axle I, and the detachable cable connection L L between the advance roller and the steering-roller B', substantially as described.

482,758. GRAIN-BINDER. George Schubert, Walnut, Tex. Filed Mar. 7, 1892. Serial No. 423,994. (No model.)



Claim.—1. In a grain-binder, a grain-receiving platform having a slot, a conveyer operated in said slot, a lever L, pivoted in the platform having a lug L^2, pivoted in its rear end, a rod *m*, extending through the lugs L^2 and *m'* and having its grainward end bent to extend into the passage-way of the conveyer, a rod *n*, secured to the rod *m* and extending stubbleward with its free end bent to extend into the passage-way of the conveyer, an inclined block n^2 in the passage-way of the rod *m*, having a projection n^4 to be engaged by a dog n^3, pivoted to the stubbleward end of the rod *m*, shoulders L^4 and L^5 in the platform in position to be engaged by the lever L, the shoulder L^5, slightly above the level of the shoulder L^4, and a spring *n'*, coiled on the rod *m*, in combination with gear-shifting mechanism connected with the forward end of the lever L, substantially as and for the purpose described.

2. In a grain-binder, a grain-receiving platform having a slot, a conveyer operated in said slot, a lever L, pivoted in the platform having a lug L^2 pivoted in its rear end, a rod *m*, extending through the lugs L^2 and *m'* and having its grain end bent to extend into the passage way of the conveyer-block, and a dog n^3, pivoted to the stubble end of said rod *m* in position to engage with the notch or shoulder n^4, formed on the block n^2, a shoulder L^5 in the platform, as shown, a rod *n* on the rod *m* and having a rearward-bent end projecting in the path of the conveyer, a coiled spring on the rod *m*, a rod K', pivoted with its grainward end to the forward end of the lever L, a movable bearing j^3 to engage with the inclined slot in the rod K', a shaft *j*, journaled in the movable bearing j^3 and in a pivoted bearing, a bevel-pinion j^3 on the shaft *j* to be engaged and disengaged with the bevel-pinion K^2 and K on the shaft *k*, a sprocket-wheel on the shaft J, a chain on said sprocket-wheel to operate the conveyer, and bevel-pinions J' and *j'* to operate the shaft J, as shown and described.

3. In a grain-binder, a needle formed in sections having the section A pivoted on the shaft *g*, projecting with its free end grainward, with the section A' pivoted to the free end of the section A and connected to the arm A^3 rigid on the shaft *g* by the connecting-rod A^4, a bracket i^3 in position to be engaged by the end A^5 of the connecting-rod A^4, a spring i^3, secured to the section A, projecting with its free end grainward in position to engage with the stud *i* on the connecting-rod A^4, a post i^2 to engage with the spring i^3, a grain-receiving platform having a slot, a conveyer operated in said slot to start the needle, operating mechanism, and clutch-tripping mechanism connected therewith and controlled by the shaft *g*, substantially as shown and described.

4. In a grain-binder, a needle formed in sections having the section A pivoted on the shaft *g*, projecting with its free end grainward, with the section A' pivoted to the free end of the section A and having a heel A^3, projecting stubbleward and connected to the arm A^3 rigid on the shaft *g* by a connecting-rod A^4, a bracket i^3 in position to be engaged by the end A^5 of the connecting-rod A^4, a spring i^3, secured to the section A, projecting with its free end grainward in position to engage with the stud *i* on the connecting-rod A^4, a post i^2 to engage with the spring i^3, a grain-receiving platform having a slot, a conveyer operated in said slot, operating mechanism, and clutch-tripping mechanism connected therewith and controlled by the shaft *g*, as shown and described.

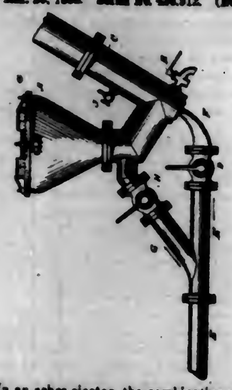
5. In a grain-binder, a needle formed in sections having the section A pivoted on the shaft *g* and projecting with its free end grainward, with the section A' pivoted to the free end of the section A, and having a heel A^3, projecting stubbleward and connected to the arm A^3 rigid on the shaft *g* by a connecting-rod A^4, a bracket i^3 in position to be engaged by the end A^5 of the connecting-rod A^4, a spring i^3, secured to the section A, projecting with its free end grainward in position to engage with the stud *i* on the connecting-rod A^4, said connecting-rod A^4 curved, as shown, to come in proper contact with the needle or section A', a post i^2 to engage with the spring i^3, a grain-receiving platform having a slot, a conveyer operated in said slot, operating mechanism, and clutch-tripping mechanism connected therewith and controlled by the shaft *g*, as shown and described.

6. In a grain-binder, a needle formed in sections having the section A pivoted on the shaft *g*, projecting with its free end grainward, with the section A' pivoted to the free end of the section A and having a heel A^3, projecting stubbleward and connected to the arm A^3 rigid on the shaft *g* by a connecting-rod A^4, a bracket i^3 in position to be engaged by the end A^5 of the connecting-rod A^4, a spring i^3, secured to the section A, projecting with its free end grainward in position to engage with the stud *i* on the connecting-rod A^4, a post i^2 in the platform, as shown, to engage with the spring i^3, and means to operate the shaft *g*, as and for the purpose described.

7. In a grain-binder, in combination with operating mechanism, a grain-receiving platform having a slot, a conveyer operated in said slot, a needle operated in said platform, a breast-plate, an arm *f*, pivoted on a stud D^6 on said breast-plate and having the extension f^4, an arm f^2 rigid on the shaft *e* to engage with said extension f^4, a rod *f'*, pivoted to the arm *f* and extending through a lug D^4, a nut or its equivalent on its free end to prevent the rod *f'* from disengaging from the

lug D^2, a spring f^3 coiled on the rod f', as shown, and for the purposes described, and means to operate the shaft e, substantially as shown and described.

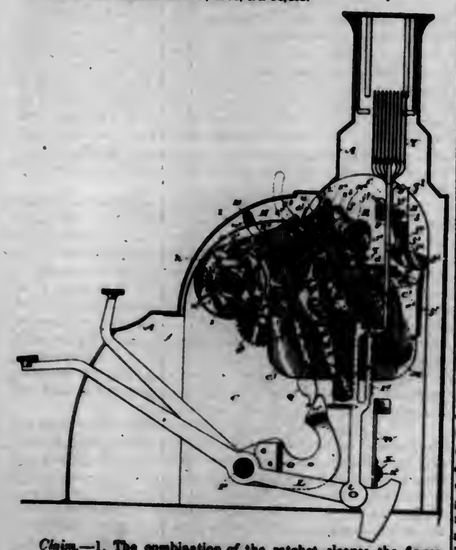
482,759. ASH-EJECTOR FOR SHIPS. HORACE SEE, New York, N. Y. Filed Mar. 30, 1892. Serial No. 426,912. (No model.)



Claim.—1. In an ashes-ejector, the combination of an ash-receptacle, a jet-pipe provided with a valve or cock located in close proximity to the jet end of the pipe for opening and closing the jet-orifice, and a discharge-pipe connected to said ash-receptacle and jet-pipe to discharge said receptacle through its bottom, substantially as and for the purposes set forth.

2. In an ashes-ejector, the combination of an ash-receptacle provided with a removable cover or seal, a jet-pipe, a discharge-pipe, and a bilge-discharge pasover-pipe and valve connecting said pipes, for the purposes set forth.

482,760. CASH INDICATOR AND REGISTER. JOHN SHARPE, Toronto, Canada. Filed Jan. 21, 1892. Serial No. 418,754. (No model.) Patented in Canada Nov. 18, 1891, No. 33,405.



Claim.—1. The combination of the ratchet-sleeves, the finger-keys and ratchet-bars to partly rotate the sleeves on one stroke of the ratchet-bars, the vertical rods containing the tablets Y at their upper ends, supported in their normal position in guide-bars and designed to be moved upwardly by the upper throw of the ratchet-bars operated from the finger-keys, the pins J^3, secured in each ratchet-bar and extending rearwardly from the same, the detent J', secured to the rod R and designed to come in contact with the swinging dog z^3 and thereby throw the swinging frame Z clear in order to permit of the passage of each pin J^3 to be engaged by the said frame for holding the rod up, and the connections to the key-levers for rocking the rod R, as and for the purpose specified.

2. The combination of the ratchet-bars operated as described, the vertical rods containing the tablets on the same and having pins J^3, and the detent J' on the shaft R, designed to engage with the swinging spring-dog z^3, rigidly held against the shoulder z^4, so that the rearward movement of the detent J' will swing the frame Z, with its cross-bar z^2, rearwardly and allow the pin J^3 to rise above said cross-bar to be held thereby, as and for the purpose specified.

3. The combination of the registering-disks, the ratchet-sleeves geared thereto, the finger-keys and ratchet-bars to partly rotate the sleeves on one stroke of the ratchet-bars, the carrying-plate loosely supported on the shaft and held in position by the jaw-shaped end of the goose-neck arm of the lever c between each adjacent ratchet-sleeve and the upper notch of the spring-catch, which is pivoted on the intermediate standard-plate, and the spring-dog e, pivoted on the carrying-plate and designed to move the adjacent carrying-sleeve forward the space of one tooth, as and for the purpose specified.

4. The combination of the registering-disks, the ratchet-sleeve geared thereto, the finger-keys and ratchet-bars to partly rotate the sleeves on one stroke of the ratchet-bars, the carrying-plate loosely supported on the shaft and held in position by the jaw-shaped end of the goose-neck arm of the lever c between each adjacent ratchet-sleeve, the upper notch of the spring-catch, which is pivoted on the intermediate standard-plate, the spring-dog e, pivoted on the carrying-plate and designed to move the adjacent carrying-sleeve forward the space of one tooth, the pins b^3 on the gear-wheel adjacent to the carrying-plate designed to engage with the pin b^4 on the catch b, and in passing it to raise the said catch and the spiral spring d, attached to the lower end of the lever c and designed to bring the goose-neck arm of the lever rearwardly and throw the dog-shaped end a^2 into the lower notch of the catch b^2 and the dog e rearwardly, so as to engage with the next succeeding tooth, substantially as and for the purpose specified.

5. The combination of the registering-disks, the ratchet-sleeves geared thereto, the finger-keys and ratchet-bars to partly rotate the sleeves on one stroke of the ratchet-bars, the carrying-plate loosely supported on the shaft and held in position by the jaw-shaped end of the goose-neck arm of the lever c between each adjacent ratchet-sleeve, the upper notch of the spring-catch, which is pivoted on the intermediate standard-plate, the spring-dog e, pivoted on the carrying-plate and designed to move the adjacent carrying-sleeve forward the space of one tooth, the pins b^3 on the gear-wheel adjacent to the carrying-plate designed to engage with the pin b^4 on the catch b and in passing it to raise the said catch, and the spiral spring d, attached to the lower end of the lever c and designed to bring the goose-neck arm of the lever rearwardly and throw the dog-shaped end a^2 into the lower notch of the catch b^2 and the dog e rearwardly, so as to engage with the next succeeding tooth, the swinging dog pivoted on the lower end of one of the strips of the lever c and provided with a stop c^2, so as to enable its corresponding engaging arm, extending from the shaft R and receiving its upward movement from the tension of the spring r^3, attached to the arm r' on the outer end of the shaft R, to engage with the end of the swinging dog and in passing it to throw the lower end of the lever forwardly, so as to bring the carrying-plate and dog to their normal positions and the adjacent sleeve forward the space of one tooth, as and for the purpose specified.

6. The combination, with the carrying device consisting of the carrying plate and catch b and their operating mechanism, of the pin u^2, extending upwardly from the spindle u and designed to be held by the spring V, attached at one end to the curved arm u' of the arm u and at the other end to the standard-plates, so as to hold the pin u^2 against the upper spindle c^4 of the lever c when the lid is open, and thereby hold the lever c and the carrying-plate A stationary, as and for the purpose specified.

7. The combination, with the registering-disks and the finger-keys attached to and operating the ratchet-bars, which are connected with said disks, said keys being pivoted on the shaft P, supported in bearings in the outer standard-plates, of the bar O, attached at its outer end to the brackets o, secured to the shaft P and having the upper end o', against which the bottom ends of the levers Q abut, the upper ends of the levers Q having a quadrant q formed on them designed to engage with the quadrant r on the shaft R, which has arms r' extending rearwardly, the rear ends of the said arms being connected by the spiral springs r^3 to the bottom of the standard-plates, the said shaft R, with its spring, serving to return all the keys to normal position.

8. The combination, with the finger-keys attached to and operating the ratchet-bars and pivoted on the shaft P, supported in bearings in the outer standard-plates, the bar O, attached at its outer ends to the brackets o, secured to the shaft P, and the pin t at the outer end of one of the brackets, of the pivoted lever S, having a toe s, designed to be thrown above the pin t by the bell-crank T, which is tilted on its pivot by the engagement of the lower arm of the lever U, caused by the upward throw of its arm u' by the spring V when the lid is open, as and for the purpose specified.

9. The combination, with the finger-keys, the brackets o, and pivoted lever Q, provided at its upper end with the quadrant q to mesh with the quadrant r on the shaft R, of the arm N', extending beneath and abutting the pin L', secured in the rearwardly-projecting end of the stop-arm 11', rigidly secured to the shaft H', of the stop-arms 8', 9', 10', 11', 13', and 14', also secured to the shaft H', all of the stop-arms engaging with the projections 8, 9, 10, 11, 12, 13, and 14 on the disks 1 2 3 4 5 6 7, as and for the purpose specified.

10. The combination, with the finger-keys, the brackets o, the pivoted lever Q, provided at its upper end with the quadrant q, arranged to mesh with the quadrant r on the shaft R, and the arm N', extending beneath and abutting the pin L' and the pin L^2, both of which are secured in the rearwardly-projecting end of the stop-arm 11', rigidly secured to the shaft H, of the stop-arms 8', 9', 10', 11', 13', and 14', also secured to the shaft H', all of the stop-arms engaging with the projections 8, 9, 10, 11, 12, 13, and 14 on the disks 1 2 3 4 5 6 7, as and for the purpose specified.

11. The combination, with the stop-arms 8', 9', 10', 11', 13', and 14', operated as described and having enlarged ends J', designed to fill up the space between two succeeding projections 8, 9, 10, 11, 13, and 14 on the disks 1, 2, 3, 4, 6, and 7, of the stop-arms 12', loosely journaled on the shaft H', and having an enlarged end j', designed to fill up the space between two succeeding projections 12 on the disk 5, and pin J^4, over which extends an arm a^3, projecting forwardly from the shaft H', as and for the purpose specified.

12. The combination, with the banks of keys, the registering-disks 1, 2, 3, and 4 of each bank connected to and operated from the finger-keys by means of the ratchet-bars, ratchet-sleeves and trains of gearing, as described, and the disks 5 6 7, connected to and operated from the disk 4, of the stop-arms for holding the said disks in alignment, and the spiral spring f', connected to the shaft H' at one end and at the other to the shaft J, whereby all of the said arms are subjected to tension, as and for the purpose specified.

13. In combination, the disks 1, 2, 3, and 4, with operating means therefor, said disks having projections 8, 9, 10, and 11, the stop-arms 8' 9' 10' 11', the disk 5, having an independently-movable stop-arm 12', the shaft H', on which the said arm is loosely secured, the projecting arm O^2, extending over the pin j', and the carrying mechanism between the disks 4 and 5, substantially as described.

14. In combination, the registering-disks M, secured to the hollow shaft in proximity to the faces of the disks 4, 5, and 6 and provided with notches, the pawls, the quadrant for engaging the said pawls, the means for manually operating the quadrant, consisting of the spindle m^4, extending through the hollow shaft, and the knob at its outer end, and the knob for turning the disks back to zero, substantially as described.

15. The disks M', secured to the hollow shaft D in proximity to the faces of the disks 4, 5, and 6 and provided with notches m, in combination with the quadrants m^2, secured in the spindle m^4, the turning-knob n^3, the slot n^2, made in the end of the spindle m^4, and the pin m^3 extending through the slot n^2 and turning-knob n^3, and the pin n^4, designed to extend into the pin n^5 in the end of the hollow shaft D, as and for the purpose specified.

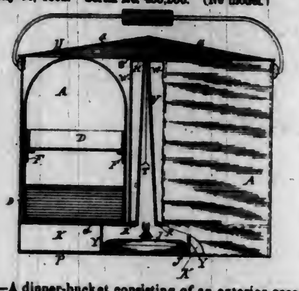
16. In combination, a series of disks having pins f and arranged side by side, a shaft D, carrying said disks, said shaft having a groove or grooves G, extending longitudinally of the same and in the same radial plane and corresponding to the zero position of the disks, the said shaft having a second short section of groove G', extending parallel with the main groove directly adjacent thereto, but in a different radial plane, said groove G' extending only under the last disk of the series and in radial position corresponding to the "9" digit and adapted to form a stop for the disk when its "9" digit is brought to view, substantially as described.

17. The shaft D, provided with a turning-knob E, a series of disks 1, 2, 3, 4, 5, 6, and 7, having spring-pins f, extending into a longitudinal groove G cut in the shaft D, in combination with the turning-knob E, secured in the end of the shaft D, and the bell-crank P^2, the forward end of which is depressed by the lever P', so as to raise the arm r', and thereby relieve the arm N' on the shaft R from its contact with the pin L' on the rearwardly-projecting end 11^2 of the arm 11', as and for the purpose specified.

18. In combination, in a cash-register, the casing, the disks arranged therein side by side, the carrying mechanism between the disks, the means for adjusting the same, including the shaft m^4, reaching outside the casing, and the turning-knob, the cover of the casing, and the arm z', projecting from the hub of the turning knob and adapted to engage with and resist the closing movement of the cover when the registering mechanism is not properly adjusted, substantially as described.

19. The disks Z and 4, provided with projections 9 and 11 and supported on the shaft B and operated as specified, in combination with the rocking detents Z^3 and Z^5, held in their normal position by the spring Z^4 and designed to be brought into the path of the projections 9 and 11, respectively, by the arms Z^2 and Z^6, extending from the rock-shaft R, the said rock-shaft being connected with the key-levers, substantially as described.

482,761. DINNER-BUCKET. HERBERT J. SIBLEY, Chicago, Ill. Filed May 16, 1892. Serial No. 433,238. (No model.)



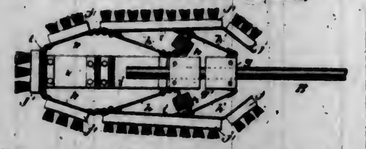
Claim.—A dinner-bucket consisting of an exterior case provided internally at each end with a heating-chamber and between these chambers a central chamber with the conical heating-pipe extending vertically through it, a lamp-chamber extending from side to side of the bottom of the case, and dead-air chambers on both sides of the lamp-chamber, in combination with a metal basket in each end chamber, with pans therein, and a lamp provided with an inserting-plate, substantially as and for the purpose specified.

482,762. TRACE-FASTENER. DANIEL B. SMITH, Mobile, Ala. Filed May 16, 1892. Serial No. 433,190. (No model.)



Claim.—In a trace-fastener, the combination, with a singletree, of a loop or eye integrally formed with a shouldered head having a screw-shank, said loop or eye being in duplicate and vertically and immovably disposed across each of the ends of the singletree, and a flanged or headed stud or pin projecting from the rear of the said singletree and adapted to be engaged by the trace after having been passed through the said loop or eye, substantially as described.

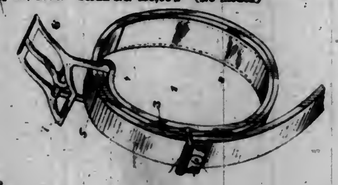
482,768. CAN-WASHER. CHARLES H. SOUTHARD, Preston, N. Y. Filed Aug. 17, 1891. Serial No. 402,800. (No model.)



Claim.—1. An expansion brush formed of the hubs g g', the swinging arms k k', the expansible frame formed of the bars i k and plate l and arranged for expansion by end pressure, the brushes carried by the expansible frame, and the springs n, arranged to contract the frame, substantially as specified.

2. In a can-washer, the combination of a trough adapted to receive cans and an expansible rotary brush arranged to revolve within the trough and constructed to be expanded by the pressure of the can and contracted by springs, substantially as specified.

482,764. THILL-TUG. SAMUEL STEWART, Ickesburg, Pa. Filed May 21, 1892. Serial No. 433,884. (No model.)

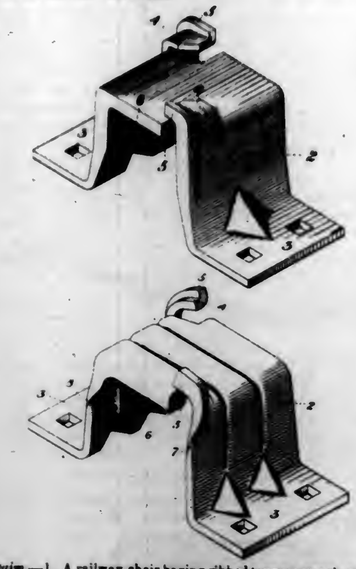


Claim.—1. In a tug, the combination of a rolled body having an end stitched within the same at the edges thereof to form a pocket, a flat spring mounted in said pocket and having its upper end secured and the lower end thereof free to move, a buckle having a loop secured in said body and a rear guard, a keeper attached to the body, and a stop located adjacent to and adapted to bear against the said keeper, substantially as described.

2. In a tug, the combination of the body constructed as set forth and having a billet extending therefrom, a buckle secured to said body, and a keeper independent of said buckle, comprising a rectangular frame and attached to said body and engaging said billet and having legs bent therefrom and extending in opposite directions at right angles to the plane of the frame, substantially as described.

3. In a tug, the combination of a body consisting of a rolled strap containing a spring, a buckle secured to said body, a keeper independent of said buckle, and an adjustable stop for said keeper, substantially as described.

482,765. RAILWAY-CHAIR. SIMON H. STUPAKOFF, Pittsburg, Pa., assignor to Charles H. Read, same place. Filed Jan. 15, 1892. Serial No. 418,184. (No model.)



Claim.—1. A railway-chair having ribbed tongues struck up from the body of the chair, substantially as described.

2. A railway-chair having diagonally-situate ribbed tongues struck up from the body of the chair, substantially as described.

3. A railway-chair having diagonally-situate tongues struck up from the body of the chair, the chair having ribs forced out from and of substantially the same thickness as the body, substantially as described.

4. A railway-chair having diagonally situate tongues struck up from the body of the chair, the chair having ribs forced out from and of substantially the same thickness as the top and sides of the chair, substantially as described.

5. A railway-chair having diagonally-situate ribbed tongues struck up from the body of the chair, the remainder of the chair having inwardly-projecting marginal flanges, substantially as and for the purposes described.

6. The method of making rail-chairs, consisting in cutting diagonally-opposite tongues in a rectangular blank and then bending the blank into chair form and forming ribs upon said tongues, substantially as and for the purposes described.

7. The method of making rail-chairs, consisting in cutting diagonally-opposite tongues in a rectangular blank, then bending the blank into chair form, and forming marginal flanges upon the edges of the tongues, substantially as and for the purposes described.

8. The method of making rail-chairs, consisting in cutting diagonally-opposite tongues in a rectangular blank, then bending the blank into chair form, and forming marginal flanges upon the edges of the tongues and chair-body, substantially as and for the purposes described.

482,766. GUARD-RAIL. SIMON H. STUPAKOFF, Pittsburg, Pa., assignor to Charles H. Read, same place. Filed Mar. 16, 1892. Serial No. 425,174. (No model.)



Claim.—1. A rail provided with a removable guard and a hook arranged to hold said guard in place, substantially as described.

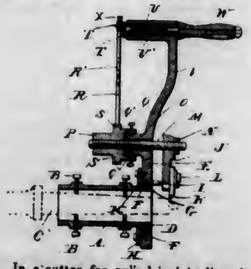
2. A rail provided with a guard fitting over its inner flange or tram and a hook secured to the rail and taking into a recess in the outer side of the guard, substantially as described.

3. A rail provided with a removable guard fitting upon its tram and a bolt passing through the web of the rail and provided with a hook engaging said guard, substantially as described.

4. A rail provided with a removable guard fitting upon its tram and a bolt having a nut bearing upon an inclined surface and having its end bent into a hook which engages the guard, substantially as described.

5. A rail provided with a block fitted between its flange and base, a removable guard fitting over the tram of the rail and resting upon a shoulder of the block, and a hooked bolt engaging the guard and passing through a slot in the block, substantially as described.

482,767. AXLE-CUTTER. JOHN SWEGLES, Wayne, Mich. Filed Feb. 23, 1892. Serial No. 422,378. (No model.)



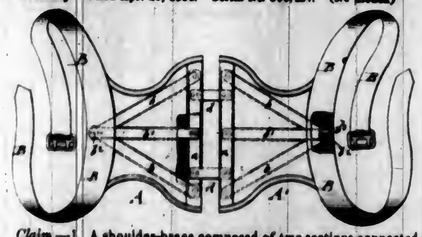
Claim.—1. In a cutter for cylindrical bodies, the combination, with an adjustable support, of a crank-arm movably secured on the support, a cutter-head carried by the crank-arm, a screw for adjusting the cutter-head, a ratchet engaging the screw, a pawl for rotating the ratchet, and a handle loosely mounted in the crank-arm supporting said pawl, substantially as described.

2. In a cutter for cylindrical bodies, the combination, with a support, cutter-head, and a crank-arm for operating the head, of a screw for longitudinally adjusting the cutter-head, a pawl-and-ratchet mechanism for moving the screw, and an independently-movable handle in the crank-arm engaging the pawl, substantially as described.

3. In an axle-cutter, the combination of a stationary sleeve, a disk journaled at one end, guide-pins extending from the face of said disk, a cutter-head carrying a cutter slidingly engaging said pins, a screw secured to said head and passing through the disk, an adjusting-nut on the screw having a ratchet thereon, a double spring-pawl engaging said ratchet, an arm extending from said disk forming an operating-crank, a spindle journaled in the end of said arm, and a pin on the end of said spindle engaging the pawl and adapted to actuate the adjusting-nut in the rotation of the head, substantially as described.

4. In an axle-cutter, the combination of the sleeve, the disk E, journaled at one end thereof, the cutter-head J, carrying the cutter and sliding on guides secured to the disk, the screw M, the nut P, rotating in stationary bearings on the disk, the spring-pawl R, the pin T, engaging in a slot in said pawl, the set-screw X for adjusting the movement of said pin, the spindle U, to which said pin is secured, the bearing U', in which said spindle is journaled, and the extension V, supporting said bearing, substantially as described.

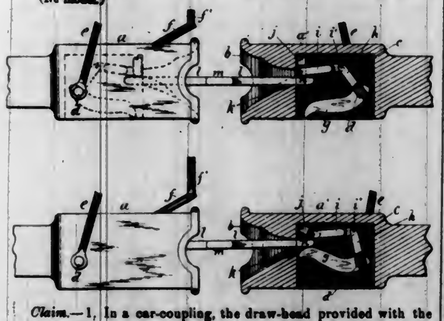
482,768. SHOULDER-BRACE. WILHELM J. TEUFEL, Stuttgart, Germany. Filed Apr. 25, 1891. Serial No. 390,427. (No model.)



Claim.—1. A shoulder-brace composed of two sections connected by short transverse pieces, each section being formed of a vertical strap, a fixed spring extending laterally from said strap, converging springs extending also from the vertical straps toward the fixed spring, the inner ends of the converging springs being pivoted to the vertical strap, while the outer ends are applied to the fixed spring, and shoulder straps at the outer ends of the fixed and converging springs, substantially as set forth.

2. A shoulder-brace formed of two sections, each section being composed of a vertical strap, a fixed laterally-extending spring attached to the vertical strap, converging springs, the inner ends of which are pivoted to said strap and connected by their outer slotted ends with a pin on the fixed spring, shoulder-straps attached to the outer ends of the fixed spring, and short transverse pieces connecting the vertical straps of both sections, substantially as set forth.

482,769. CAR-COUPLING. WILLIAM H. UNDERWOOD and WILLIAM R. CLUM, Woodland, Mich. Filed Apr. 13, 1892. Serial No. 429,012. (No model.)



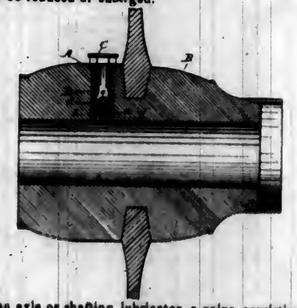
Claim.—1. In a car-coupling, the draw-head provided with the shoulders *k k'* and a chamber *c*, in open connection with the mouth *b*, a shaft *d*, extending through said chamber, with bearings in the sides thereof and levers attached to the terminals of said shaft outside the draw-head, and a tongue *g*, rigidly attached to said shaft within the chamber, in combination with an arm *h*, rigidly attached to the shaft, the pivoted link *i* and pivotal apron *j*, and the coupling-bar of the form described, substantially in the manner and for the purpose set forth.

2. In a car-coupling, the combination of the coupling-rod having the heads *n* at the terminals thereof, the tongue *g*, shaft *d*, and locking mechanism arranged within the chamber, as described, and the levers *e*, *f*, and *f'*, whereby the cars may be coupled or uncoupled from the top or on the side, substantially as specified.

482,770. AXLE-LUBRICATOR. GEORGE L. WEAVER, Dayton, Ohio. Filed June 3, 1892. Serial No. 435,382. (No model.)

Claim.—1. In an axle or shafting lubricator, an outer cylinder having a cap at one end and a shoulder at the other provided with a slot adapted to receive the head of a screw, a removable inner cylinder inclosed in said outer cylinder, in combination with a flap-valve within said inner cylinder having a screw adapted to increase or diminish the flow of the lubricant from the valve to the shaft or axle.

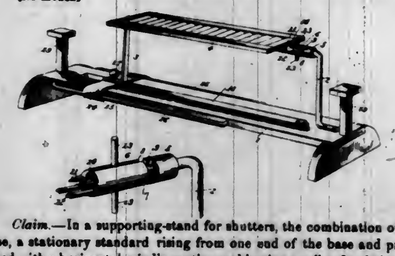
2. In an axle or shafting lubricator, an outer cylinder adapted to be inserted and secured in a wheel-hub, the said cylinder having an inner cylinder inserted therein, the said inner cylinder being provided with a hinged valve of convex form to enter a concave seat, the outlet from said seat having a transverse screw whereby the size of the outlet may be reduced or enlarged.



3. In an axle or shafting lubricator, a valve consisting of a flap pivoted to its seat, the said flap having an annular groove *g* and a convex surface *e'*, in combination with its seat having a concave surface *e*, an opening *i* in the bottom thereof, and a screw *i'*, adapted to reduce or enlarge the opening *i*, for the purposes herein set forth.

4. In an axle or shafting lubricator, the outer cylinder A, having cap C, and shoulder *a'*, in combination with the inner tube D, having a flap-valve *d* therein provided with an opening *i*, and screw *i'*, adapted to enter the groove *d'* in the shoulder *a* of the outer cylinder, for the purposes herein set forth.

482,771. STAND FOR WINDOW-SHUTTERS. AUGUSTUS D. WEBSTER, Springfield, Ill., assignor of two-thirds to Frank A. Webster and John S. Condell, Jr., same place. Filed Feb. 4, 1892. Serial No. 420,318. (No model.)



Claim.—In a supporting-stand for shutters, the combination of a base, a stationary standard rising from one end of the base and provided with a horizontal spindle portion and having a collar fixed thereon and provided with oppositely-disposed projections, a cylindrical chuck mounted on the spindle portion of the stationary standard and provided at one end with notches and having a limited longitudinal movement to engage and disengage the projections of the collar and provided at its other end with engaging-points and with supporting-flanges, and an adjustable standard rising from the opposite end of the base and adapted to engage and form a pivot for one end of the shutter, substantially as described.

482,772. COMBINED COOKING AND HOT-WATER-HEATING STOVE. MARGARET A. WILCOX, Chicago, Ill., assignor to the Wilcox Water Heater Company, same place. Filed Oct. 29, 1891. Serial No. 410,239. (No model.)

Claim.—1. In a cooking and heating stove, two water-heating coils, one within the other, each arranged in a separate heating-flue, the inner coil constructed to be connected with a boiler and the city supply and the outer with a radiator, and means for cutting off the heat from the outer flue, substantially as described.

2. In a cooking and heating stove, a pair of coils of pipe arranged in separate chambers, one within the other, and a series of cooking-chambers arranged around the same, and means for heating said cooking-chambers or either of the coils at will, substantially as described.

3. In a cooking and heating stove, a water-heater set in a central chamber, passages around the base of the same, and a series of cooking-chambers around the central chamber, and means for directing the

products of combustion to the water-heater or cooking-chambers at will, substantially as described.

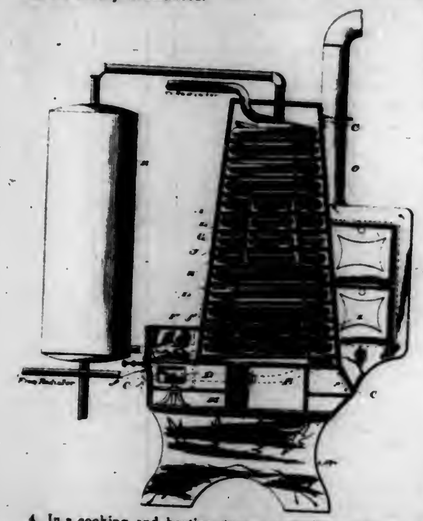
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outlet valve at one cylinder-head, a source of pressure connected therewith, an air inlet and outlet valve at the other cylinder-head, a receptacle for liquids, connected with the air-outlet valve, a faucet for drawing the liquid from the receptacle, a piston reciprocating in said cylinder and having a weighted piston-rod, and suitable connections between said piston-rod, automatic valve, and faucet, whereby when the liquid is drawn from the faucet compressed air is automatically forced into the liquid-receptacle.

3. In a coin-controlled apparatus for dispensing liquids, the combination of a cylinder, an automatically-controlled pressure inlet and outlet valve at one cylinder-head, a coin-operated latch for locking

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products of combustion to the water-heater or cooking-chambers at will, substantially as described.



4. In a cooking and heating stove, a central water-heating apparatus and a pair of circular passages arranged around said central water-heater, each of which is provided with a series of cooking-apertures and one side having closed cooking-chambers arranged over said cooking-apertures, substantially as described.

5. In a cooking and heating stove, a central water-heating apparatus, a combustion-chamber in front and oven in the rear, and curved passages surrounding said water-heating apparatus and leading from the combustion-chamber to the oven, and closed cooking-chambers over a portion of said passages, substantially as described.

482,773. BATHING-CAP. HARRY R WILLIAMS, Brooklyn, N. Y. Filed Dec. 3, 1891. Serial No. 413,947. (No model.)



Claim.—1. A bathing-cap comprising, essentially, two flat disks of waterproof material, the lower one being elastic and having a head-opening in it, and an elastic rubber band attached flatwise to the lower disk about the edge of the head-opening, substantially as set forth.

2. A bathing-cap comprising, essentially, two separate flat disks of waterproof material attached together at their outer edges, the lower one being elastic and having a head-opening in it, and an elastic rubber band attached around the edge of the head-opening and flatwise upon the said lower disk, substantially as set forth.

3. As a new article of manufacture, a lower section for caps, consisting of a flat disk of elastic rubber having a centrally-located head-opening and a reinforcing-band of elastic rubber attached flatwise upon said disk around the edge of the head-opening, substantially as set forth.

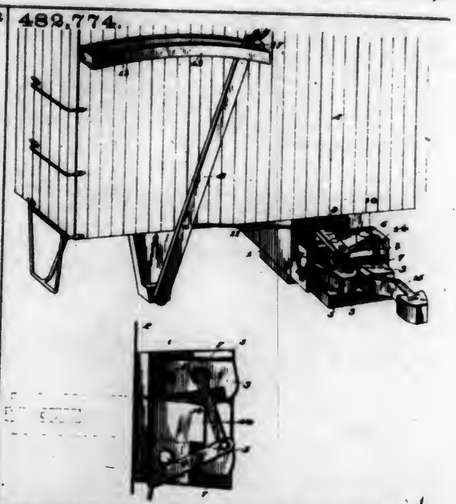
482,774. CAR-COUPLING. JAMES A. WENWALL, Embarrass, Wis. Filed May 3, 1892. Serial No. 431,747. (No model.)

Claim.—1. In a car-coupling, the combination of a draw-head having pivoted spring-actuated jaws, a toggle consisting of a lever fulcrumed intermediate its ends on one of the jaws, a bar connecting the outer end of the lever with the other jaw, and an operating-lever connected with the inner end of said lever, substantially as described.

2. In a car-coupling, the combination of a draw-head provided at its top with a projection, pivoted spring-actuated jaws mounted on the draw-head and provided with vertical stems arranged on opposite sides of the projection and adapted to abut against the same to hold the jaws partly open, a toggle comprising a lever fulcrumed on one of the stems, a bar pivoted to the outer end of the lever and to the stem of the other jaw, and an operating-lever connected with the inner end of said lever, substantially as described.

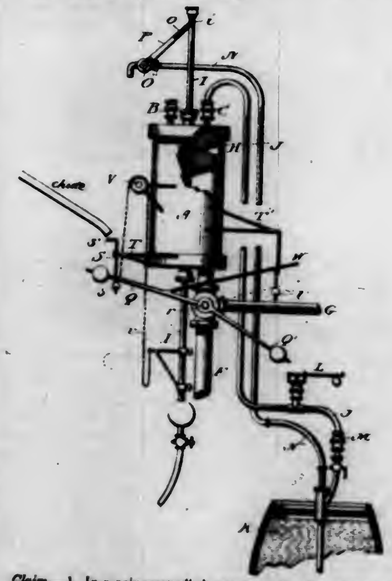
3. In a car-coupling, the combination of a draw-head having a horizontal extension projecting from its bottom and having its outer

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edge beveled, spring-actuated jaws having their inner ends pivoted in the draw-head and having their outer ends supported by the said extension and provided intermediate their ends with vertical standards, a toggle consisting of a lever fulcrumed intermediate its ends on one of the stems, a bar connecting the outer end of the lever with the other stem, and an operating-lever connected with the inner end of the other lever, substantially as described.

482,775. COIN-OPERATED AUTOMATIC HYDRAULIC AIR-COMPRESSOR. RUSSELL F. AVERY, Spokane Falls, Wash., assignor to Jacob Goetz, trustee, same place. Filed Apr. 13, 1891. Renewed July 19, 1892. Serial No. 440,518. (No model.)



Claim.—1. In a coin-controlled apparatus for dispensing liquids, the combination of a cylinder having an automatically-controlled pressure inlet and outlet valve, a coin-operated latch for locking and releasing said valve, a piston-head reciprocating in said cylinder and having a weighted piston-rod, and suitable connections between said valve and piston-rod, substantially as set forth.

2. In a coin-controlled apparatus for dispensing liquids, the combination of a cylinder, an automatically-controlled pressure inlet and outlet valve at one cylinder-head, a coin-operated latch for locking and releasing said valve, a source of pressure connected with said valve, an air inlet and outlet valve at the other cylinder-head, a receptacle for liquids, connected with the air-outlet valve, a faucet for drawing the liquid from the receptacle, a piston reciprocating in said cylinder and having a weighted piston-rod, and suitable connections between said piston-rod, automatic valve, and faucet, substantially as described.

3. In a coin-controlled apparatus for dispensing liquids, the combination of a cylinder, an automatically-controlled pressure inlet and outlet valve at one cylinder-head, a coin-operated latch for locking and releasing said valve, a source of pressure connected with said valve, an air inlet and outlet valve at the other cylinder-head, a receptacle for liquids, connected with the air-outlet valve, a faucet for drawing the liquid from the receptacle, a piston reciprocating in said cylinder and having a weighted piston-rod, and suitable connections between said piston-rod, automatic valve, and faucet, substantially as described.

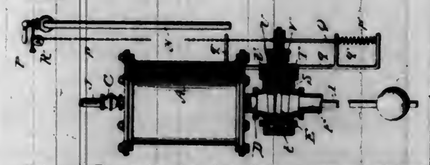
4. In a coin controlled apparatus for dispensing liquids, the combination of the cylinder A, the valve E, having inlet and outlet G F, its toothed spindle *r*, the weighted lever Q', permanently secured to the spindle, its latch U, the weighted lever Q, freely mounted on the spindle *r* and adapted to engage with the tooth *r'*, its arm W, the piston-head H, the weighted piston-rod I, the pulley V, and the chain *v*, all connected as described, and for the purpose set forth.

5. In a coin-controlled apparatus for dispensing liquids, the combination of the cylinder A, the valve E, having inlet and outlet G F, its toothed spindle *r*, the weighted lever Q', permanently secured to the spindle, its latch U, the weighted lever Q, freely mounted on the spindle and adapted to engage with the tooth *r'*, its arm W, its coin-operated latch S, the piston-head H, the weighted piston-rod I, the pulley V, and the chain *v*, all connected as described, and for the purpose set forth.

6. In a coin-controlled apparatus for dispensing liquids, the combination of the cylinder A, the valve E, having inlet and outlet G F, its toothed spindle *r*, the weighted lever Q', permanently secured to the spindle, its latch U, the weighted lever Q, freely mounted on the spindle and adapted to engage with the tooth *r'*, its arm W, its coin-operated latch S, the piston-head H, the weighted piston-rod I, the pulley V, the chain *v*, the faucet O, its slotted arm P, a receptacle for liquids, suitable connections between said receptacle, faucet, and air inlet and outlet in the other cylinder-head, and a source of pressure connected with the valve E, substantially as described.

7. In a coin-controlled apparatus for dispensing liquids, the combination, with the liquid-containing vessel and a faucet for drawing the liquid therefrom, of an air-compressor, a tube connecting said air-compressor with said vessel, a suitable connecting device between said faucet and said air-compressor, and a coin-operated latch for locking and releasing said compressor, substantially as described.

482,776. AIR PUMP OR COMPRESSOR. RUSSELL F. AVERY, Spokane Falls, Wash., assignor to Jacob Goetz, trustee, same place. Filed Apr. 13, 1891. Renewed July 19, 1892. Serial No. 440,519. (No model.)

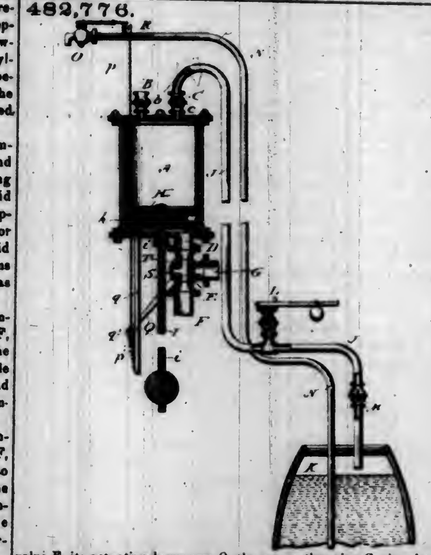


Claim.—1. The combination of a cylinder, a piston, a weighted piston-rod, an inlet and outlet at one cylinder-head, connected with a source of pressure, a valve controlling said pressure inlet and outlet, an air-inlet and an air-outlet at the other cylinder-head, a receptacle for liquids, a connecting-pipe between said air-outlet and receptacle, a check-valve in said air-inlet, a faucet for drawing the liquid from the receptacle, and suitable connections between the faucet and the valve controlling said pressure inlet and outlet, substantially as described.

2. The combination of a cylinder, a piston, a weighted piston-rod, an inlet and outlet at one cylinder-head, connected with a source of pressure, a valve controlling said pressure inlet and outlet, an air-inlet and an air-outlet in the other cylinder-head, a receptacle for liquids, a connecting-pipe between said air-outlet and receptacle, a check-valve and regulating-valve in said pipe, a check-valve in said air-inlet, a faucet for drawing the liquid from the receptacle, and suitable connections between the faucet and the valve controlling said pressure inlet and outlet, substantially as described.

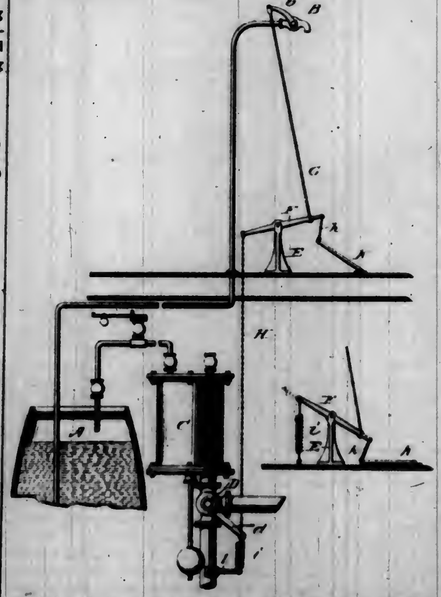
3. The combination of the cylinder A, having the outlet C and inlet B, the check-valves therein, the pressure-inlet having the three-way

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valve E, its actuating-lever arm Q, the connecting-pipe G, the piston-head H, having the weighted piston-rod I, the receptacle K, the connecting-tube having the valves L and M, the faucet O, its connecting-tube, its lever-arm P, chain *p*, and spring *p'*, connecting it with lever-arm Q of the valve E, substantially as described.

482,777. DEVICE FOR OPERATING PUMPS BY MEANS OF TREADLES. RUSSELL F. AVERY, Spokane Falls, Wash., assignor to Jacob Goetz, same place. Filed Aug. 5, 1891. Renewed July 19, 1892. Serial No. 440,520. (No model.)



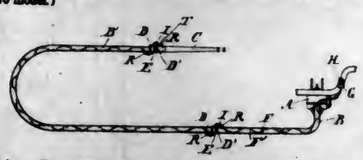
Claim.—1. In an apparatus for dispensing liquids, the combination, with the faucet of the liquid-containing vessel and the pressure-valve of the air-pump connected therewith, of a centrally-pivoted lever, suitable connections between the arms of the lever, respectively, with the faucet and pressure-valve, a treadle attached to said lever,

and a device for automatically raising the lever after the treadle has been depressed, substantially as described.

2. In an apparatus for dispensing liquids, the combination, with the faucet B, communicating with the liquid-containing vessel A, of the arm *b* of the faucet, the pivoted lever F, the rod G, connecting one arm of the lever F with the arm *b* of the faucet B, the treadle K, pivoted to the lever F, and means for automatically raising the lever, substantially as described.

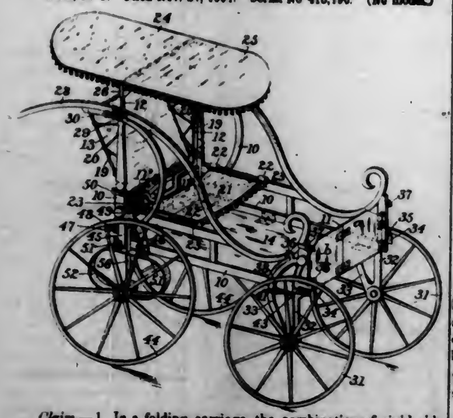
3. In an apparatus for dispensing liquids, the combination of the faucet B, communicating with the liquid-containing vessel A, the arm *b* of the faucet, the pressure-valve D of the pump C, the arm *d* of the pressure-valve, the lever F, the rod G, connecting one arm of the lever F with the arm *b* of the faucet, the chain H, connecting the other arm of the lever F with the arm *d* of the pressure-valve, the treadle K, pivoted to the lever F, and the spring *i*, attached at one end to the arm *d* of the pressure-valve and at the other to a fixed support, substantially as described.

482,778. ELECTRIC SIGNALING DEVICE FOR FIREMEN. GEO. L. BARNARD, Milwaukee, Wis. Filed July 24, 1891. Serial No. 400,525. (No model.)



Claim.—The combination of hose-sections, registering metallic couplings secured to the contiguous ends of said sections, flexible tubings projecting from the registering couplings, said tubings provided with enlarged insulating-heads, means for detachably connecting the ends of said tubings when the same are brought into juxtaposition, spirally-arranged wires embedded in each section of hose leading to the metallic couplings, spirally-wound embedded wires in each section passing through the metallic couplings into the flexible tubings, said wires being also spirally wound therein and provided with metallic disks adapted to be brought into contact when the ends of the tubings are secured together and to be surrounded by the insulating-heads of said tubings, and annular guards for the wires, extending out from the hose-couplings, said guards adapted to protect the wires at points close to the hose and provided with flaring mouths to permit free bending at points distant from the hose, substantially as set forth.

482,779. CHILD'S CARRIAGE. FREDERICK BORNEMANN, New York, N. Y. Filed Nov. 27, 1891. Serial No. 413,196. (No model.)



Claim.—1. In a folding carriage, the combination of rigid side frames, a front or foot board composed of two sections hinged to the side frames and to each other and adapted to be folded inwardly, a rigid bottom piece adapted to be turned upwardly against said side frame, and a rigid back frame hinged to one of said side frames and adapted to engage the other of said side frames, substantially as shown and described.

2. In a folding carriage, the combination of rigid side frames, inwardly-folding end pieces, a rigid bottom piece adapted to be turned up against one of said side frames, and an independent seat secured to one of said side frames, so that it may be turned up against the same and adapted to engage the other of said side frames, substantially as shown and described.

3. In a folding carriage, the combination of rigid side frames, inwardly-folding end pieces hinged to said side frames, a rigid bottom piece hinged to one of said side frames and adapted to be turned up against the same, and wheel-supporting arms pivoted upon said side frames to swing in a plane parallel therewith, substantially as shown and described.

4. In a folding carriage, the combination of a folding body having rigid side frames, handles hinged to said frames to fold laterally thereon, and means to maintain said handles in extended position, substantially as shown and described.

5. In a child's carriage, the combination of side frames, a back frame supported thereby, an adjustable back hinged at its lower edge to said back frame, eyes on the lateral edges of said back and frame, and cords passed alternately through the eyes on said frame and those on said back, substantially as shown and described.

6. In a folding carriage, the combination of rigid side frames, a back frame hinged to one of said side frames and adapted to engage the other, a canopy supported at the top of said frame to swing down against it, and means to maintain it in elevated position, substantially as shown and described.

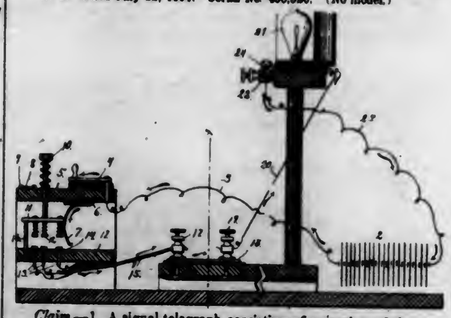
7. In a child's carriage, the combination of side frames, a back frame supported thereby, clips to engage the upper corners of said frame and removable therefrom, and a canopy carried by said clips, substantially as shown and described.

8. In a folding carriage, the combination of the side frames of the body, wheel-supporting arms pivoted thereto and having hooks formed thereon and spring-catches carried by said side frames above and below the pivots of said arms and adapted to engage said hooks to maintain the arms in the desired position, substantially as shown and described.

9. In a folding carriage, the combination, with the side frames of the body, of a wheel-supporting arm pivoted thereto, said arm consisting of two bars, as described, and a latch pivoted to said frame and having a nose to engage one of said bars to hold it against lateral movement and a tail to rest against the other of said bars, substantially as shown and described.

10. In a carriage, the combination of a stud-axle having a hub slotted vertically a flat spring secured to the body of the carriage and having both its ends secured to said hub by a bolt, and a rigid arm secured to said body and projecting downwardly through the slot in said hub, substantially as shown and described.

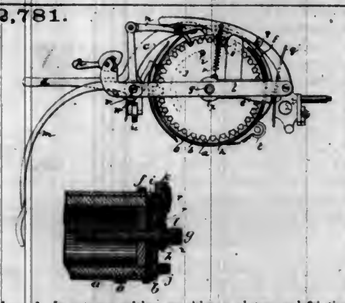
482,780. SIGNAL-TELEGRAPH. CLAUDIUS V. BOUGHTON, Buffalo, N. Y. Filed July 22, 1891. Serial No. 400,336. (No model.)



Claim.—1. A signal-telegraph consisting of a number of electric lights arranged in a continuous line, a number of spring-pressed keys arranged upon a board and representing the letters of the alphabet, each key opening or closing a circuit, which includes the necessary lights to form the dashes and dots of the Morse system called for by the letter upon the key in operation, all arranged and operating substantially as and for the purpose stated.

2. The herein-described signal-telegraph, consisting of the key-board 5, spring-pressed keys 10, movable index-plate 8, one or more spring-pressed pins 12, secured to each key for connecting the positive wire 3, leading from the battery 2, with one or more rigid pins to which return-wires are secured, and after passing through certain combinations of electric lamps are combined into a single return-current leading to the battery from which the positive wire is fed, all arranged and operating substantially as shown and described.

482,781. TYPE-WRITING MACHINE. BYRON A. BROOKS, Brooklyn, N. Y. Filed Oct. 2, 1886. Serial No. 215,134. (No model.)



Claim.—1. In a type-writing machine, a platen and friction feed-roll, combined with a pawl and ratchet for spacing between lines and a pawl and ratchet for revolving said platen on its axis to expose to view its printing-point and also for simultaneously revolving said roll about the axis of said platen.

2. In a type-writing machine, the combination of a platen and friction feed-roll adapted to revolve around its own axis while it remains stationary in space and means for revolving said platen on its axis to expose to view its printing-point and for simultaneously revolving said friction feed-roll about the axis of said platen without revolving it about its own axis.

3. In combination with the platen of a type-writing machine, a pawl and ratchet for spacing between lines and a pawl and ratchet for revolving the platen in one direction to expose to view the printing-point and a spring for returning the platen to its initial position.

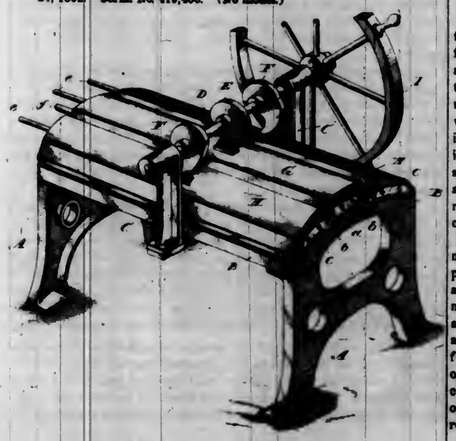
4. In combination with the platen of a type-writing machine, a pawl and ratchet for revolving the platen in one direction to expose to view its printing-point, a spring for returning the platen to its initial position when released from the control of said pawl, and an arm having a notch for retaining it at its initial position.

5. In a type-writing machine, the combination, with a pawl and ratchet for revolving the platen about its own axis to expose the printing-point, of a pawl and ratchet for revolving said platen to space between lines of print, a detent meshing with the teeth of said ratchet-wheel, and a spring attached to said detent and to an arm moving with said platen when revolved to expose its printing-point.

6. In a type-writing machine, a platen combined with fast and loose ratchet-wheels free to move independent of each other, one of said wheels being controlled by ratchet and spring to expose to view the printing-point on the platen and subsequently to return to its initial position and the other being controlled by pawl, by means of which spacing between lines is accomplished.

7. In a type-writing machine, a platen friction-roll and an apron-guide for keeping the paper smooth on the surface of said platen, combined with a pawl and ratchet for spacing between lines and a pawl and ratchet for revolving said platen, friction-roll, and apron-guide about the axis of said platen.

482,782. PROCESS OF AND MACHINE FOR BENDING AND DRYING WOOD. RICHARD P. BURKHARDT, Dayton, Ohio. Filed Jan. 27, 1892. Serial No. 419,406. (No model.)



Claim.—1. The process of bending wood, consisting in clamping it at its middle between rigid male and female dies and then bending its ends between said male die and additional female dies.

2. In a wood-bending machine, the combination, with a rigid male die, of a sectional female die, the parts of which are rigid, and means for clamping the wood first between the male die and middle section of the female die and then between the male die and outer sections of the female die, substantially as described.

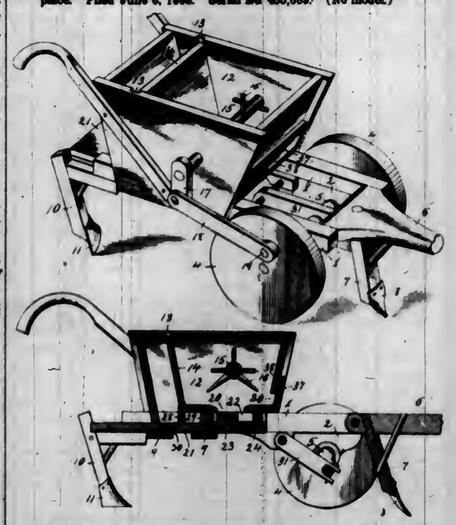
3. In a wood-bending machine, the combination, with a rigid male die, of a sectional female die, the parts of which are rigid and hinged together, and means for pressing the sections of the female die successively upon the male die, substantially as described.

4. In a wood-bending machine, the combination, with a male die and a sectional female die, of a shaft provided with cams for pressing the sections of the female die successively upon the male die, substantially as described.

5. In a wood-bending machine, the combination, with a male die and a sectional female die, of a shaft provided with cams for operating the sections of the female die successively in one direction and with chains or cables for operating it in the opposite direction.

6. In a wood-bending machine, the combination of the steam-heated male die B, the hinged sectional steam-heated female die G H, the shaft D, provided with cams E F, and the cables *d*, uniting the sections H and the shaft, substantially as described.

482,783. PLANTER AND FERTILIZER-DISTRIBUTER. AYLMER BOSS, Summerfield, La., assignor of one-half to Sidney S. Tatum, same place. Filed June 6, 1892. Serial No. 435,689. (No model.)

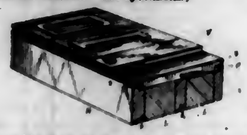


Claim.—1. In a planter, the combination, with the framework, the cranked axle, and ground-wheels, of the hopper mounted on the framework and having its opposite side walls provided with grooves, a removable partition mounted in the grooves, an opening in front of the hopper, a closure for the same, a bottom for the front compartment of the hopper, provided with an opening and at its rear edge with a depending stop, constituting a cut-off, a seed-slide recessed at its front end and in rear of the same reduced, said slide being mounted in the framework under the hopper and by its reduction forming a stop or shoulder, a pair of adjustable blocks mounted in the recess and adapted to form an intervening opening and perforations in the rear reduced portion of the slide, and connections between the slide and crank of the axle, substantially as specified.

2. In a planter, the combination of the opposite side bars terminating at their rear ends in shovel-carrying standards and the front pivoted tongue carrying a furrow-opening shovel, the centrally-cranked axle having the opposite ground-wheels and the transverse bars connecting the side bars of the hopper, the opposite side walls of which are internally recessed, a partition removably mounted in the recess and forming a front and a rear compartment, a bottom located in the front compartment and provided with an opening and at its rear edge opposite the partition with a depending portion, forming a combined cut-off and stop, the seed slide recessed at its front end and having the opposite edges of its recess convexed, a pair of blocks mounted in the recess and having their opposite edges concaved to conform to the

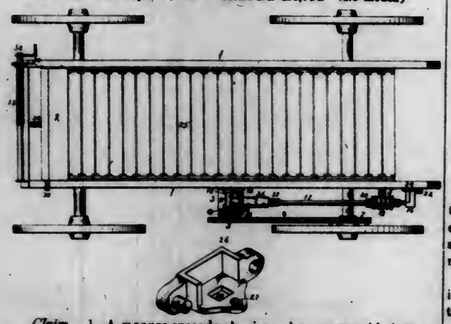
edges of the recess, set-screws passed through the sides of the seed-slide and bearing on the blocks, said slide in rear of the recess being reduced upon its upper side to form a transverse shoulder adapted to abut against a stop and provided in rear of its shoulder with a seed-opening, and a forked bail loosely connected to the front end of the slide and at its front end to the central crank of the axle, substantially as specified.

482,784. TYPE. ALLISON COLEMAN, Henrietta, Tex. Filed June 11, 1891. Serial No. 396,009. (No specimens.)



Claim.—The combination of type-faces of various sizes having dovetailed projections across their backs adjacent to the front nicked edges, semi-dovetailed outwardly-inclined projections across the back of the face near the back edge and parallel with the adjacent angle or edge of the dovetail, and a guide-curve leading from the said adjacent dovetail angle downwardly to the rear face of the inclined projection, a base consisting of duplicate and independent sections, each having an acute angle-groove engaging the dovetail angle edges and said inclined projections, the front base-section having its engaging angle alone facing away from the nicked edge, while the angles of the other base-sections face toward said nicked edge and by the disposition of the type-face curve are adapted to be engaged simultaneously by the inner angle edges of the dovetail projections and the inclined projections, and leads between said sections, substantially as set forth.

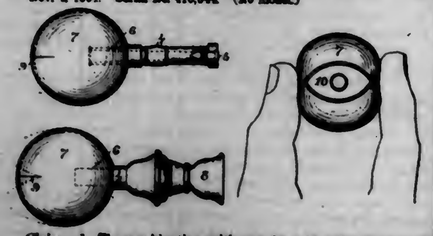
482,785. MANURE-SPREADER. WHITEFIELD COMPTON, Rockford, Ill. Filed Apr. 12, 1892. Serial No. 428,914. (No model.)



Claim.—1. A manure-spreader having a box, a movable bottom therefor, a shaft for driving the bottom, and a bottom composed of slats joined by brackets at each of their ends, each bracket having a pintle at one end and an eye at its other end.

2. A manure-spreader having a box, a movable bottom therefor, a shaft for supporting and driving the bottom, a polygonal wheel on the shaft, sprocket-teeth on the faces of the wheel, the bottom composed of slats joined by brackets at each of their ends, each bracket having a recess in its under face for the teeth of the sprocket-wheel, and a pintle at one end and an eye at the other.

482,786. RESONATOR. HENRY CROCKER, Fairfax, Vt. Filed Nov. 4, 1891. Serial No. 410,844. (No model.)

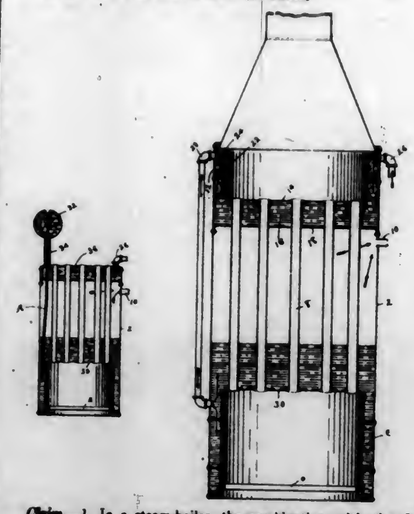


Claim.—1. The combination, with a reed or other device adapted to produce sound, of a hollow body made of flexible material having an opening the body and opening of which can be altered in shape at will, as described.

2. The combination, with a reed or other sound-producing device, of the resonator 7, consisting of a hollow body made of a flexible material, provided with a slit or opening which can be altered in shape at will by external pressure, adapted to modulate and control the sound, as described.

3. A hollow chamber made of a flexible material having an opening which can be so altered in shape as to resound at will the fundamental tone or mix together the fundamental tone and the overtones, an opening for the reception of the sound or the sound-producing device, and a tube or conduit connecting the flexible hollow chamber with a sound-producing device, as described.

482,787. STEAM-BOILER. OLIVER CROSBY, St. Paul, Minn. Filed Dec. 29, 1891. Serial No. 416,407. (No model.)



Claim.—1. In a steam-boiler, the combination, with the flues thereof and a water-chamber surrounding and inclosing the upper ends of the flues, of a reservoir located above and communicating with said chamber, having suitable outlet at or near its top and adapted to replenish said chamber automatically, substantially as described.

2. In a boiler, the combination, with a water-chamber surrounding the ends of the flues, of a reservoir connected with said chamber, the outer walls of which are formed by an extension of the boiler-shell, adapted to keep said chamber at all times filled, substantially as described.

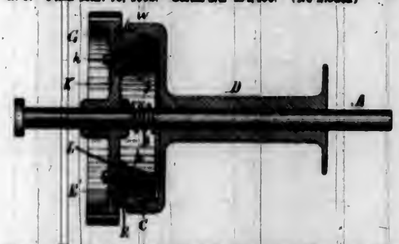
3. In an upright boiler, the combination, with the water-chamber surrounding and inclosing the upper ends of its flues, of an annular reservoir or extension to said chamber above the same, adapted to keep said chamber supplied with water, and an outlet-pipe communicating with said reservoir at or near its top, substantially as described.

4. The combination, with the shell of an upright boiler, of an upper extension thereof, the flue-sheet, the inner shell connected at its lower end to the flue-sheet and at its upper end with the top of said extension, the diaphragm arranged beneath said flue-sheet, constituting a water-chamber surrounding the upper ends of the flues, and a storage-reservoir therefor, and an outlet-pipe communicating with the space between the inner shell and the extension at or near their junction, substantially as described.

5. In an upright steam-boiler, the combination, with the flues, of a flue-sheet of less diameter than the boiler, a diaphragm beneath the flue-sheet, inclosing and surrounding the flues and forming a water-chamber, an upper extension of the boiler-shell, a concentric inner shell connected at its lower end to the edge of the flue-sheet and at its upper end to the shell extension, forming a reservoir for said chamber, an inlet-pipe for said chamber, and an outlet-pipe for said reservoir communicating with it near its top, substantially as described.

6. The combination, with the upright boiler-shell having an upper extension, of the flue-sheet of less diameter than the shell, the inner shell 22, connected to the edge of said flue-sheet and to the top of said extension, forming an annular chamber or reservoir 24, a diaphragm 18, arranged beneath said flue-sheet, the inlet water-pipe 26, and the outlet-pipe 28, communicating with the reservoir at or near its top and leading to the boiler beneath, substantially as described.

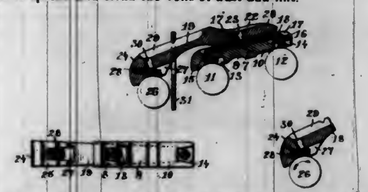
482,788. FRICTION-WHEEL. ALBERT J. DAVIS, Perth Amboy, N. J. Filed Mar. 10, 1892. Serial No. 424,600. (No model.)



Claim.—The combination, with the hoisting-drum D, provided with the hollow cone C, of the gear-wheel G, provided with disk K, having the recess L therein, and the ring E, having the plate E', divided into two parts and fitted to such recess and provided externally with the metallic dovetails G' and with the wooden blocks *w*, grooved each upon its two inner corners to fit such dovetails and tapered externally to fit the cone C, as and for the purpose set forth.

482,789. SADDLE FOR TOP ROLLS. EZRA DIXON, Bristol, R. I. Filed Jan. 21, 1892. Serial No. 418,782. (No model.)

Brief.—The wicks are fastened so as to project beneath the oil-opening, and not fastened in the oil-openings as heretofore, the object being to allow of a free flow of the oil. The wick cavities are made wider in the direction of the travel of the rolls, so as to allow the wick ends to spread and clean the rolls of dust and lint.

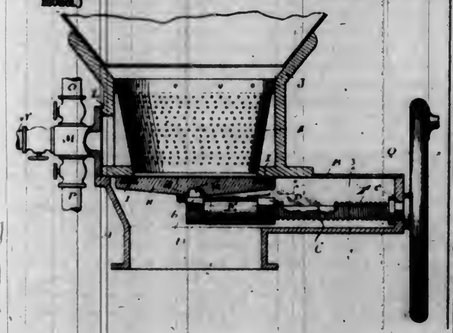


Claim.—1. A top-roll saddle the members of which are provided with transverse concaved bearing-surfaces and cavities forming wick-containing chambers adjoining such bearings, gradually widening in the direction of the travel of the rolls, as described.

2. In a top-roll saddle, the combination, with a member provided with a lubricant-containing chamber in the upper surface and a passage connecting said chamber with a bearing-surface, of a lubricating-wick secured in perforations in the end of said member and extending below said passage, as described.

3. In a two-part top-roll saddle, an upper member 19, having a tapering shank 20, a forward depending end 24, and a roll-depression 25, and provided with the reservoir 29, passage 30, and the wick 28, secured in perforations in said depending end and extending beneath said passage 30, as and for the purpose described.

482,790. GRAIN-TREATING APPARATUS. FRANKLIN B. GIBBS, Milwaukee, Wis. Filed July 11, 1891. Serial No. 399,157. (No model.)

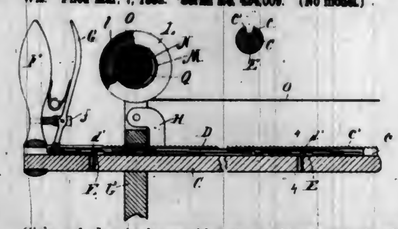


Claim.—1. The receptacle having a discharge-opening and tracks beyond the latter, in combination with a cross-head consisting of parallel bars mounted on the tracks and joined by a screw-threaded sleeve, a knob on one of the cross-head bars, a valve for said opening having a recess engaged by the knob, and a screw-rod engaging the sleeve, substantially as set forth.

2. The receptacle having a recess-opening and tracks beyond the latter, provided at one end with risers, in combination with a cross-head consisting of parallel bars mounted on the tracks and joined by a screw-threaded sleeve, a knob on one of the cross-head bars, a valve for said opening having a recess engaged by a knob, and a screw-rod engaging the sleeve, substantially as set forth.

3. The combination of a grain-receptacle having an open-ended and inclosed foraminous portion as well as a valve-controlled discharge-opening below this foraminous portion, in combination with a water-pipe and air-pipe having a common inlet to the receptacle adjacent to said foraminous portion thereof, and a waste-pipe also in communication with the inlet for the water and air pipes, substantially as set forth.

482,791. BORING-MACHINE. CHARLES S. HARRIS, Milwaukee, Wis. Filed Mar. 7, 1892. Serial No. 424,009. (No model.)
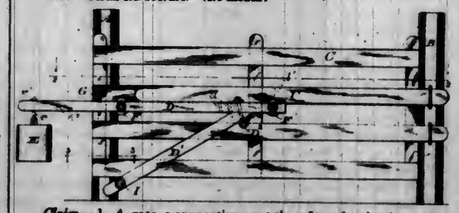


Claim.—1. In a boring-machine, the combination of a longitudinally-moving pulling-rod, a bit-spindle moving therewith, an arm constructed to normally engage and bear upon the rod, and means for throwing the arm in and out of engagement with said rod, substantially as set forth.

2. In a boring-machine, the combination of a longitudinally-moving pulling-rod having a recess in the direction of its length, said recess having its bottom provided with inclined lugs, a sliding key fitting in the recess and provided upon its under side with inclined or beveled surfaces registering with the inclined lugs a spring-arm connected to one end of the key and constructed to simultaneously elevate said key and force the same lengthwise, an arm constructed to normally engage and bear upon the rod, and a bit-spindle constructed to move longitudinally with the pulling-rod, substantially as set forth.

3. In a boring-machine, the combination, with a pulling-rod, of a rotatable shaft, a tape or cord for operating the shaft, an adjustable arm upon the pulling-rod, to which the opposite end of the tape or cord is connected, and means upon the shaft for determining the distance the pulling-rod and bit have been moved in either direction, substantially as set forth.

4. In a boring-machine, the combination, with a pulling-rod, of stationary casings forming part of the frame, one of said casings provided with a slit or opening, a rotatable shaft passing through the casings, a tape secured to the shaft and wound upon the same within one of the casings, said tape passing out of the casing and connected with the pulling-rod, and a spring within the other casing, one end connected to the shaft and the other to the casing, substantially as set forth.

482,792. GATE. FLOYD HOPKINS, Belvidere, Ill. Filed Jan. 11, 1888. Serial No. 260,421. (No model.)



Claim.—1. A gate, a supporting-post therefor, a bar having a pivotal connection with the post, rollers on the bar, upon which the gate rests, a counterbalance-weight for the gate, and an adjustable diagonal brace for supporting the outer end of the bar.

2. A gate, a supporting-post therefor, a pintle offset from the post, an arm having an eye for said pintle, the arm bearing a flanged

roller and a bar, a like roller on the bar, one of the bars of the gate resting upon the rollers, and a counter-balance for the gate.

3. A gate, a supporting-post therefor, a bar pivoted to the post, two rollers secured to said bar, upon which rollers the gate rests, a counter-balance for the gate secured to the bar, and a diagonal brace pivoted to the supporting-post and adjustably connected to the bar.

4. A gate, a supporting-post therefor, a horizontal bar having an eyebolt extending therefrom, a flanged roller on the eyebolt, said eyebolt extending over a pintle on the supporting-post, a second roller on the horizontal bar upon which rollers a bar of the gate rests, a brace-bar having an eyebolt engaging a pintle on the post near its lower end, an adjustable connection between the horizontal bar and the brace-bar, and a movable counterbalancing-weight on the horizontal

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482,795. ROCK-CRUSHER. HORACE L. KENT, Boston, Mass. Filed Sept. 7, 1891. Serial No. 404,975. (No model.)

of the links of the chain being adapted to be engaged by the pawl, substantially as described.

roller, a curtain or screen wound thereon, and means for securing the curtain in its adjustment, substantially as described.

4. In a curtain-fixture, the combination of a window, the track-plates secured to one of the sashes and provided with a series of perforations, the brackets arranged on the track-plates and engaging the same and provided with spring-actuated bolts arranged to engage the said perforations, the curtain-casing connecting the brackets, a spring-actuated curtain-roller, a curtain or screen wound on the roller, and means for securing the curtain in its adjustment, substantially as described.

roller and a bar, a like roller on the bar, one of the bars of the gate resting upon the rollers, and a counter-balance for the gate.

3. A gate, a supporting-post therefor, a bar pivoted to the post, two rollers secured to said bar, upon which rollers the gate rests, a counter-balance for the gate secured to the bar, and a diagonal brace pivoted to the supporting-post and adjustably connected to the bar.

4. A gate, a supporting-post therefor, a horizontal bar having an eyebolt extending therefrom, a flanged roller on the eyebolt, said eyebolt extending over a pintle on the supporting-post, a second roller on the horizontal bar upon which rollers a bar of the gate rests, a brace-bar having an eyebolt engaging a pintle on the post near its lower end, an adjustable connection between the horizontal bar and the brace-bar, and a movable counterbalancing-weight on the horizontal bar.

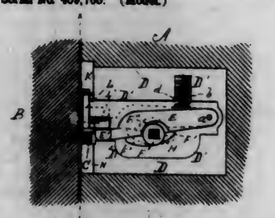
5. The combination of a gate, a hanger, and a hanger-post, the hanger being provided with antifriction-bearings for a part of the gate to slide upon and extended to the rearward of its hinges, said extension being provided with a counterbalance-weight, substantially as and for the purpose described.

482,793. GRAPHOSCOPE. FRANK R. HOUSE, Brattleborough, Vt. Filed Feb. 5, 1892. Serial No. 420,379. (No model.)



Claim.—The case A, open at top, having a central stem *a*, an opening *d* in the rim A', and the pins *e*, in combination with the open reel B, having the milled nut *b'*, fastening-screw *d*, the picture-strip C, and adjustable glass D.

482,794. LATCH. MYRON R. HUBBELL, Wolcott, Vt. Filed Oct. 26, 1891. Serial No. 409,765. (Model.)



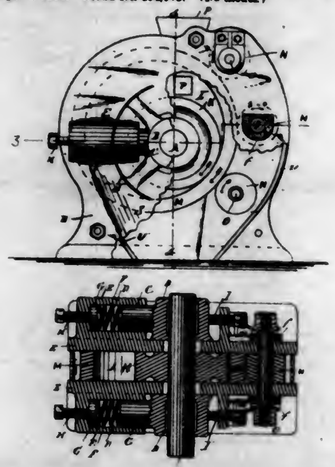
Claim.—1. In a latch, the combination of a rack or toothed bar secured to the jamb or door-frame, pawls pivotally suspended from the door and adapted to drop into and be engaged by said rack when the door is closed, and mechanism for raising the said pawls out of engagement with the rack when the door is to be opened, substantially as described.

2. In a latch, the combination of a rack or toothed bar secured to the jamb or door-frame, pawls pivotally suspended from the door and adapted to drop into and be engaged by said rack when the door is closed, a tumbler adapted to be lifted by means of the knob-spindle, and mechanism intermediate with said tumbler and pawls, whereby the latter may be lifted out of engagement with the rack, substantially as set forth.

3. In a latch, the combination of a tumbler adapted to be raised by the rotation of the knob-spindle, said tumbler being provided at its free end with a cross-bar or end piece, as E', a toothed bar secured horizontally to the door-jamb, and pawls pivotally secured to the stationary portion of the latch and hanging normally with the ends in engagement with said toothed bar and constructed to have their ends swung up directly by the said cross-bar E' when the spindle is rotated, substantially as described.

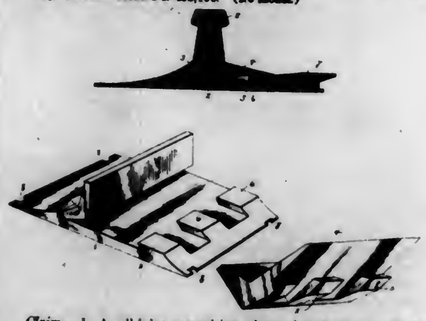
4. The herein-described improved latch, consisting, essentially, of the plate or case D D', provided with the cross-plate K, the winged sleeve F F, the tumbler E, provided at its free end with the cross-bar E', the pawls L, pivotally hung from said cross-plate K and provided with the shoulders L', and the toothed bar C, secured to the door-jamb, all substantially as described.

482,795. ROCK-CRUSHER. HORACE L. KENT, Boston, Mass. Filed Sept. 7, 1891. Serial No. 404,975. (No model.)



Claim.—In a rock-crusher, the combination of the roll K, supported in sliding bearings, the revolving ring M, and friction-rolls N with the frame E, provided with recesses S and the cover U, substantially as described, for the purposes specified.

482,796. RAIL-JOINT. THOMAS J. KENNEDY, Renfrew, Pa. Filed May 7, 1892. Serial No. 432,190. (No model.)



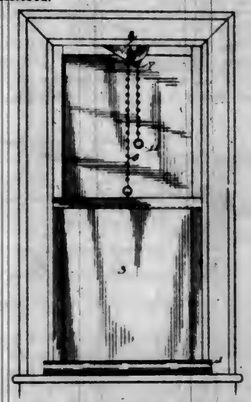
Claim.—1. A rail-joint comprising a base-plate forming a seat for rails and provided at one end with an integral fish-plate and having at its other end lugs arranged at intervals and having their inner ends beveled, a removable fish-plate provided on its lower face with lugs having their outer ends beveled and arranged at intervals and adapted to interlock with the lugs of the base-plate, and means for holding the lugs in engagement, substantially as described.

2. A rail-joint comprising a base-plate forming a seat for rails and provided at one end with an integral fish-plate and having at its other end lugs arranged at intervals and having their inner ends beveled, a removable fish-plate provided on its lower face with lugs having their outer ends beveled and arranged at intervals and adapted to interlock with the lugs of the base-plate, and wedges arranged in the intervals or spaces between the lugs and holding the removable fish-plates against longitudinal movement and causing the same to clamp rails, substantially as described.

482,797. WINDOW-SHADE. MELROSE McK. KILLINGER, Battle Creek, Nebr., assignor to Fannie A. Grinnell, Wytheville, Va. Filed Feb. 13, 1891. Serial No. 381,234. (No model.)

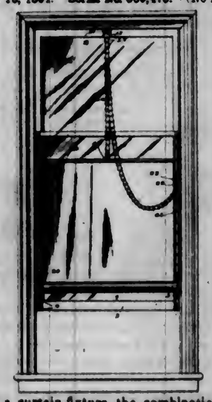
Claim.—1. The combination of the longitudinal casing designed to be secured at the bottom of a window, the curtain-roller arranged within the casing, the curtain unrolling upward from the bottom of a window, the hanger designed to be secured to the top of a window, the pulley arranged in the hanger, the pawl pivoted in the hanger, and the chain provided with open links and having one end secured to the free upper end of the curtain and passing around the pulley, any one

of the links of the chain being adapted to be engaged by the pawl, substantially as described.



2. In a curtain-fixture, the combination of the casing 1, having its ends provided with bearings, the curtain unrolling upward from the bottom of a window, the roller arranged within the casing and journaled within said bearings, the hanger adapted to be secured to the top of a window and provided with a pulley, the pawl pivoted between the sides of the hanger and provided with a V-shaped tooth, and the chain having flat open links and connected to the free upper end of the curtain and passing over the pulley, any one of the links being adapted to be engaged by the pawl, substantially as described.

482,798. WINDOW SHADE OR SCREEN. MELROSE McK. KILLINGER, Battle Creek, Nebr., assignor to Fannie A. Grinnell, Wytheville, Va. Filed Apr. 18, 1891. Serial No. 389,478. (No model.)



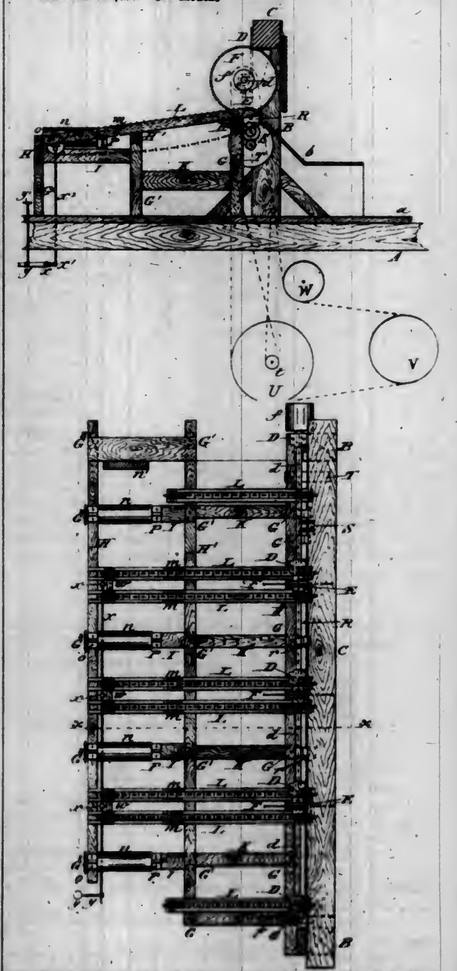
Claim.—1. In a curtain-fixture, the combination, with the window, of the brackets mounted adjustably on the lower sash, a spring-actuated curtain-roller mounted in the brackets, a curtain or screen wound on the same and leading upward, a hanger secured to the top of the window and provided with a roller and with a pawl, and the chain passing over the roller and arranged to be engaged by the pawl and having one end secured to the end of the curtain, whereby the curtain-fixture can be arranged at any part of a window and be adjusted both upward and downward therefrom, substantially as described.

2. In a curtain-fixture, the combination, with a window, of the brackets adjustably secured to the lower sash, a spring-actuated curtain-roller mounted in the brackets, a curtain or screen wound on the roller and leading upward to the top of the window, and means located at the top for securing the curtain or screen in its adjustment, whereby the curtain-fixture is adapted to be arranged at any point of a window and be adjusted upward and downward therefrom independently of the sashes, substantially as described.

3. In a curtain-fixture, the combination of a window, the track-plates secured to one of the sashes, the brackets engaging the track-plates and being vertically adjustable on the sash, means for securing the brackets at any point of adjustment, a spring-actuated curtain-roller, a curtain or screen wound thereon, and means for securing the curtain in its adjustment, substantially as described.

4. In a curtain-fixture, the combination of a window, the track-plates secured to one of the sashes and provided with a series of perforations, the brackets arranged on the track-plates and engaging the same and provided with spring-actuated bolts arranged to engage the said perforations, the curtain-casing connecting the brackets, a spring-actuated curtain-roller, a curtain or screen wound on the roller, and means for securing the curtain in its adjustment, substantially as described.

482,799. MACHINE FOR SAWING UP SLABS, &c. SAMUEL MAFFETT and ROBERT WEIR, Muskegon, Mich. Filed Aug. 27, 1889. Serial No. 322,096. (No model.)



Claim.—In a machine for cutting up slabs, edgings, and the like, the combination, with the main frame, consisting of the upright posts B B, the beam C, the posts G, G', and G², the stringers H, H', and H², and the girders I and K, of the saw-arbor *d*, mounted in brackets D, said saw-arbor carrying a series of saws F, the pulley *f* for operating said saw-arbor, the gutters L, which carry the feed-chains hinged at *m*, the feed-chains running on sprocket-wheels journaled on shafts secured to the main frame, the series of rollers *n*, which serve to carry the stock into the machine, journaled to the main frame and operated by suitable chain-wheels, as shown, stop *n'*, the table *b*, the foot-lever mechanism for raising the hinged sections of the gutters, and suitable gearing for operating the shaft R, all arranged substantially in the manner and for the purpose set forth.

482,800. PUMP-MOTOR. JOHN H. MILLER and JOHN H. OSWALT, Clayton, Ohio. Filed Apr. 8, 1892. Serial No. 428,406. (No model.)

as F, and two exterior clamps offset to fit over said lugs and projections above and below the same, each of said clamps having a recess adapted to receive either the head or nut of a fastening-bolt.

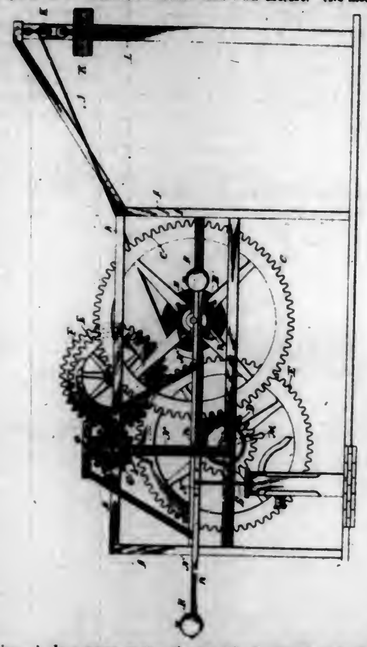
2. The combination of a rail of channel form provided with lugs on its vertical webs, an interior chair having projections, as F, two exterior clamps offset to fit over said lugs and projections, and a bolt passing through said clamps and chair and having its head and nut seated in recesses formed in said clamps between said lugs and projections.

482,804.

combination with a key inserted in a keyway between the lower surface of said brace and the top surface of the chair.

2. A rail-chair having a brace on one side bearing against the under side of the head of the rail and provided with a hook passing through a slot in the rail-seat, in combination with a key inserted in a keyway between the lower surface of said brace and the top surface of the chair

482,800. PUMP-MOTOR. JOHN H. MILLER and JOHN H. OSWALT, Clayton, Ohio. Filed Apr. 8, 1892. Serial No. 428,406. (No model.)



Claim.—1. In a pump-motor, the combination, with a train of gears, of a horizontal arm pivoted to the framework, a vertical slotted piece pivoted to the said horizontal arm, and springs limiting the vibration of said vertical slotted piece, as shown herein and described.

2. In a pump-motor, the horizontal arm N', pivoted to the frame of the machine, adjustable weights R on said arm, the vertical slotted piece N, the upper piece O, provided with springs P, in combination with crank-disk I and a train of gears actuated by a rope R and weight K', as herein described, and for the purposes set forth.

482,801. CHAIR FOR RAILROAD-RAILS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Sept. 30, 1891. Serial No. 407,274. (No model.)



Claim.—1. The combination of a channel-rail having side webs, an interior box-chair, and filling-pieces inserted on both sides of said chair between it and said webs.

2. The combination of a channel-rail having side webs terminating in interior angle-lugs, an interior chair having a seat for said rail, and filling-pieces inserted on both sides of said chair above said lugs and between the chair and said webs.

3. A rail-chair provided with offsets or projections, as *d*, and recesses, as *e*.

4. The combination of a channel-rail, a chair having projections, as *d*, and recesses, as *e*, and wedges inserted between the webs of said rail and the sides of said chair.

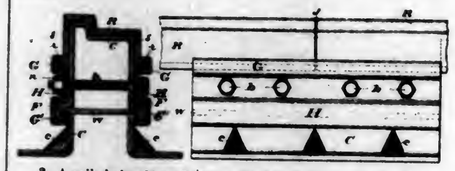
5. A rail-chair provided with projections, as *d*, recesses, as *e*, in its sides, and an interior brace, as F.

6. A rail-chair provided with projections, recesses in its sides, and an interior brace, in combination with a channel-rail and wedges shaped to fit into said recesses between the sides of said chair and the webs of said rail.

482,802. RAILROAD-RAIL CHAIR. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Sept. 30, 1891. Serial No. 407,275. (No model.)

Claim.—1. The combination, with a rail of channel form provided with lugs on its vertical webs, of an interior chair having projections, as F, and two exterior clamps offset to fit over said lugs and projections above and below the same, each of said clamps having a recess adapted to receive either the head or nut of a fastening-bolt.

2. The combination of a rail of channel form provided with lugs on its vertical webs, an interior chair having projections, as F, two exterior clamps offset to fit over said lugs and projections, and a bolt passing through said clamps and chair and having its head and nut seated in recesses formed in said clamps between said lugs and projections.



3. A rail-chair of box form provided with an inserted horizontal stiffening-plate.

4. In combination with a rail-chair of box form having recesses in its sides, a horizontal stiffening-plate, as W, inserted in said recesses.

5. The combination, with a rail of channel form, of an interior chair, a horizontal stiffening-plate recessed in said chair, and two exterior clamps.

6. The combination of a rail of channel form provided with lugs on its vertical webs, an interior chair, an interior horizontal stiffening-plate for said chair, and two exterior clamps offset to fit over said lugs and each provided with a recess adapted to receive either the head or nut of a fastening-bolt.

7. The combination of a rail of channel form provided with lugs on its vertical webs, an interior chair having projections, as F, two exterior clamps offset to fit over said lugs and projections, and a horizontal stiffening-plate for said chair recessed therein.

8. The combination of a rail of channel form provided with lugs on its vertical webs, an interior chair having projections, as F, two exterior clamps offset to fit over said lugs and projections, a horizontal stiffening-plate for said chair, and a bolt or bolts passing through said clamps and chair and having their heads and nuts located within recesses formed in said clamps.

482,803. CHANNEL-RAIL AND CHAIR. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Sept. 30, 1891. Serial No. 407,276. (No model.)



Claim.—1. In combination with a railroad-rail of channel form provided with inner lugs on its vertical webs, a chair shaped to fit under the head of said rail and over said lugs.

2. In combination with a railroad-rail of channel form provided with inner lugs on its vertical webs, a chair offset to fit over said lugs and an interior brace-plate for said chair.

3. In combination with a railroad-rail of channel form provided with inner lugs on its vertical webs, a chair offset to fit over said lugs and an interior brace-plate for said chair seated in recesses formed in the sides thereof.

4. In combination with a railroad-rail of channel form provided with inner lugs on its vertical webs, a chair offset to fit over said lugs and a brace-plate for said chair provided with lugs, as *a*.

5. In combination with a railroad-rail of channel form provided with inner lugs on its vertical webs, a chair offset to fit over said lugs and a brace-plate having stamped-out lugs, as *a*, secured to said chair by bolts passing through said stamped-out lugs and the sides of the chair.

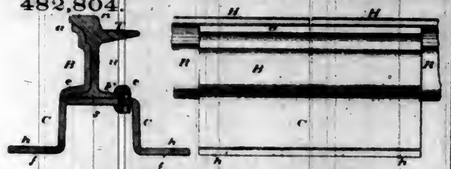
482,804. RAILROAD-RAIL CHAIR AND PROCESS OF MAKING THE SAME. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Sept. 30, 1891. Serial No. 407,277. (No model.)

Claim.—1. A rolled blank for making rail-chairs having an excess of metal on one of its surfaces adapted to be drawn out to form a portion of the finished chair.

2. The process of making rail-chairs, consisting in first forming a bar of metal into part of the shape of chair desired, and then drawing out a portion of said bar to form the remainder of the chair.

3. The process of making rail-chairs, consisting in first forming a bar of metal into part of the shape of chair desired, leaving a protrusion

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or mass of metal, and then drawing out said protrusion to form the remainder of the chair.

4. The process of making rail-chairs, consisting in first forming a bar of metal of a box shape having a lump or protrusion on its upper surface, and then drawing out said protrusion to form a rail-brace.

482,805. COMBINED RAILROAD-RAIL AND CHAIR AND METHOD OF MAKING THE SAME. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Feb. 2, 1892. Serial No. 420,092. (No model.)



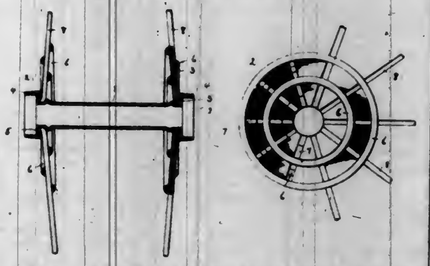
Claim.—1. As a new article of manufacture, a railway-rail and chair or support welded together, the junction of the rail and chair at the ends of the latter being made on curved lines.

2. As a new article of manufacture, a railway-rail and chair or support welded together, the ends of the chair at its junction with the rail having imparted thereto a concave form.

3. As a new article of manufacture, a railway-rail and chair or support welded together, said chair being enlarged in dimension at the points *c c* of its junction with the rail.

4. The method herein described of welding railroad-rails and chairs together, consisting in first forming a rail and chair each with a bead or bulb on a vertical web and then pressing out the metal of the chair at its ends into fillets or curves, thereby lengthening the chair at the weld, substantially as and for the purposes set forth.

482,806. WHEEL. THEODORE C. MUHL, Toledo, Ohio. Filed Aug. 17, 1891. Serial No. 402,823. (No model.)



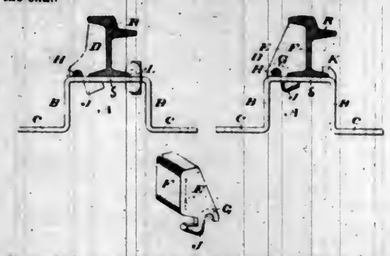
Claim.—1. In a metal wheel, hub-disks formed of a single piece having a web, a central opening therein, a sand-band concentric with the same, and rings upon either side of the web concentric to the central openings, in combination with spokes passed between the rings and having their ends upset within recesses formed within the web.

2. A metal wheel formed of a thimble, a disk upon each end thereof, each disk comprising, in a single piece, a web, having a central opening for the insertion of the thimble, recesses formed concentrically of the central opening and leading thereto for the reception of the inner ends of the spokes, radial grooves extending from the recesses to the periphery, rings upon each side of the web, and spokes arranged, the ends being forced, at an angle into the recesses and resting upon the thimble.

482,807. BRACE-CHAIR FOR RAILROADS. GEORGE MURRAY, Johnstown, Pa., assignor to the Johnson Company, same place. Filed May 5, 1890. Serial No. 350,686. (No model.)

Claim.—1. A rail-chair having a brace on one side bearing against the side of the rail and provided with a hook in its lower portion, in combination with a key inserted in a keyway between the lower surface of said brace and the top surface of the chair.

2. A rail-chair having a brace on one side bearing against the under side of the head of the rail and provided with a hook passing through a slot in the rail-seat, in combination with a key inserted in a keyway between the lower surface of said brace and the top surface of the chair



3. A rail chair having on one side a clamp for the foot of the rail and on the opposite side a brace bearing against the side of the rail and provided with a hook in its lower portion, in combination with a key inserted between the lower surface of said brace and the top surface of the chair.

4. A rail-chair of box form, having a brace on one side bearing against the side of the rail and provided with a hook in its lower portion, in combination with a key inserted between the lower surface of said brace and the top surface of the chair.

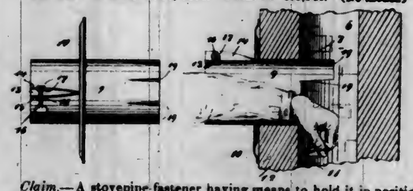
5. A rail-chair of box form, having a rail-brace on one side provided with a hook passing through a slot in the rail-seat, in combination with a key inserted between the lower surface of said brace and the top surface of the chair.

6. A rail-chair of box form, having a rail-brace on one side bearing against the under side of the head of the rail and provided with a hook passing through a slot in the rail-seat, in combination with a key inserted between the lower surface of said brace and the top surface of the chair.

7. A rail-chair provided with a rail-brace having vertical ribs and a face bearing against one side of the rail and secured to the chair by a hook and key.

8. A rail chair having a rail-brace on one side secured thereto by a hook and a key and provided on the opposite side with a clamp for the foot of the rail stamped out of the rail-seat.

482,808. STOVEPIPE-FASTENER. JOHN R. MCGORON, Terrace Park, Ohio. Filed Nov. 30, 1891. Serial No. 413,546. (No model.)



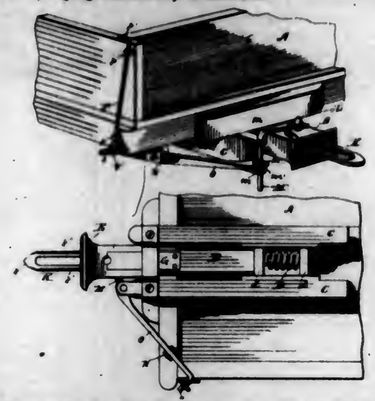
Claim.—A stovepipe-fastener having means to hold it in position in the chimney and being provided with the improved means to hold the stovepipe to it, which means are obtained by cutting a longitudinal slit in the fastener, and consisting of two vertical flanges which are formed by bending outwardly the cut edges of such slit, a reinforcing-nut connected to one of said flanges, and an adjusting-screw passing through this nut and connected to the other flange in a manner to prevent it from moving longitudinally, all as substantially shown and described.

482,809. CAR-COUPLING. JAMES F. PURSLEY, South Pittsburg, Tenn. Filed Dec. 19, 1891. Serial No. 415,649. (No model.)

Claim.—1. The combination of a draw-head having a slot formed in its bottom, a spring-plate attached to the under side of the draw-bar and provided with an upwardly-extending lug which extends through the slot in the bottom of the draw-head, a link adapted to be secured between the top of the draw-head and the spring-pressed lug, and a coupling-pin, substantially as described.

2. The combination of a draw-head having a slot formed in its lower side, a spring-plate attached at one end to the under side of the draw-bar and normally lying flush therewith, a lug rigid with the free end of the spring-plate and extending through the slot in the draw-head, a link arranged within the draw-head, and a coupling-pin

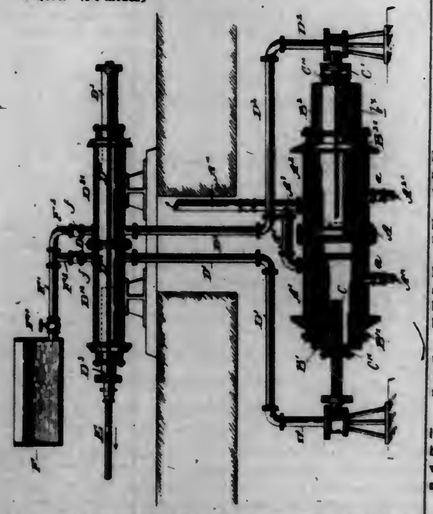
adapted to be passed through the draw-head and link and fit in a recess in the spring-lug, substantially as described.



3. The combination of a draw-head having a slot formed in its lower side, near the forward end thereof, a flat spring-plate attached at one end to the draw-bar and provided at its free end with an upwardly-extending lug which extends through the slot in the draw-head, the forward end of such lug being curved and provided with a vertical groove or recess, a link, and a coupling-pin adapted to be passed through suitable apertures in the draw-head and the link and fit in the vertical groove or recess in the spring-lug, substantially as described.

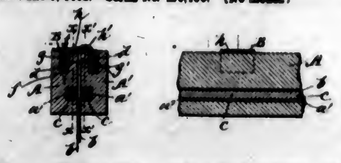
4. The combination, with a draw-head and coupling-link, of a coupling-pin provided near its upper end with an annular recess, a rod fitted in suitable guides at one side of the draw-head and bent near its upper end to extend across the draw-head, the end of such bent portion being bifurcated and engaging the coupling-pin, a lever fulcrumed below the car and having one end engaging with the pin-supporting rod, and a vertical rod fitted in guides attached to the side of the car and having its lower end engaged with the lever, substantially as described.

482,810. HYDRAULIC MINING-PUMP. WILLIAM A. ROCKLIFF and JOHN P. FOLEY, Rumsey, Mont. Filed Mar. 8, 1892. Serial No. 424,196. (No model.)



Claim.—The combination of two cylinders, each having a closed end secured to the closed end of the other and opposite open ends provided with pistons, rods connecting the pistons of the two cylinders, and means for reciprocating said pistons with a system of piping connecting each of the closed ends of the said cylinders with a second pair of closed-end cylinders arranged at a lower level, each being provided with a hollow piston communicating with one of the first-mentioned cylinders, suction-pipes, one each for each closed cylinder, and discharge-pipes extending from each of said closed cylinders and provided with suitable check-valves, substantially as specified.

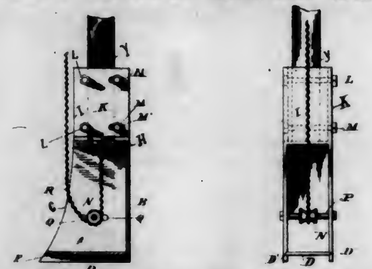
482,811. WINDOW-SCREEN. SAMUEL ROSBOOK, New York, N. Y. Filed June 9, 1892. Serial No. 436,130. (No model.)



Claim.—1. The expansible window-screen coupling and guide, consisting of a corrugated plate B, constructed of a form whereby it can be applied upon the channeled edges of an expansible window-screen and provided with a fastening-tongue, a guiding-tongue, and with a passage for a fastening-screw, and also with a flat bearing portion A and an inverted arch or crown shaped portion A', the said plate being fastened by one end to one of the channeled sections of the screen and loosely connected by one of its tongues to the other channeled section and serving for coupling and truly guiding said sections with a minimum of frictional contact, substantially as described.

2. The corrugated plates B; having, respectively, a flat bearing portion A and an inverted arch or crown shaped portion A' and formed with fastening-tongues *g* and guiding-tongues *g'*, in combination with the sliding channeled sections A A' of an expansible window-screen, said sections receiving into their channels the tongues of the plate, and with fastening-screws having heads a little greater in diameter than the lower portion of the spaces between the side walls of the fastening-tongues, substantially as described.

482,812. SHOE FOR CISTERN-TUBING. EDWARD SAHLAND, Quincy, Ill. Filed Dec. 18, 1891. Serial No. 415,511. (No model.)



Claim.—1. In a shoe for cistern-tubing, a base formed of a hollow casting wider at the bottom than at the top, in combination with a socket portion provided with a movable side or clamping-plate, whereby the tubing is held removably in place, as set forth.

2. In a shoe for cistern-tubing, the combination of a hollow base provided with a movable bottom and a socket portion having a removable side containing oblong slots, as specified.

3. In a shoe for cistern-tubing, a hollow base portion having its lower end wider than the upper end and provided with a roller having an adjustable axis, in combination with a socket portion with an open bottom and a movable side or clamping plate provided with adjustable bolts, as and for the purpose set forth.

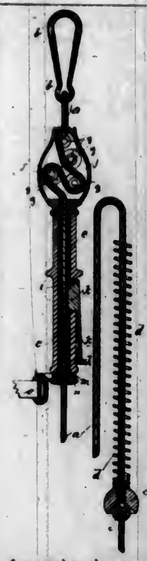
4. In a shoe for cistern-tubing, the combination of a hollow cast-metal base surmounted by a socket provided with a movable clamping side and bolts whereby various-sized tubing can be inserted in the manner and for the purpose described.

5. In a shoe for cistern-tubing, the combination of a hollow metallic base provided with a roller mounted on a shaft adjustable in the base and a socket portion on the base portion, said socket being provided with a removable side, and bolts for clamping said side in the manner and for the purpose substantially as described.

482,818. FIRE ESCAPE. MICHAEL SCHWARZ, Dresden, Germany. Filed Mar. 30, 1892. Serial No. 427,007. (No model.) Patented in Germany Dec. 22, 1890, No. 58,982; in France Feb. 27, 1891, No. 211,750; in England Mar. 12, 1891, No. 4,478; in Austria-Hungary Apr. 20, 1891, No. 606 and No. 13,156, and in Belgium June 17, 1891, No. 96,315.

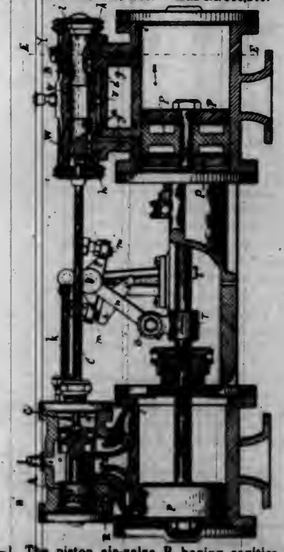
Claim.—In a fire-escape of the class described, the combination

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of the cylinder *e*, the case *f*, secured to the upper end of said cylinder and having a hinged cover *f'*, a winged nut and bolt for securing said cover in its closed position, a series of rollers *g*, pivoted in said case, a hand-brake *k*, pivoted at one end to the cylinder and provided with a brake-surface and a lever-handle *k*, an opening in the side of cylinder *e*, through which opening the brake-surface of the brake is adapted to project, a bracket *m*, adapted to be secured to the lower end of the cylinder by a securing-ring *n*, a belt *o*, secured to said bracket, a rope passing through the cylinder and around the rollers and out through an opening in the upper end of the case *f*, a snap-hook secured to the upper end of the rope, a weight *c*, secured to the lower portion of the rope, and a coiled spring encircling said rope and located between the weight and the lower end of the cylinder, all arranged for co-operation, as described.

482,814. STEAM-ACTUATED AIR PUMP. EDWIN SMEDLEY, Dubuque, Iowa. Filed Sept. 26, 1890. Serial No. 366,279. (No model.)



Claim.—1. The piston air-valve B, having cavities A A therein serving to open and close the ports *a a'* and *b b'*, and having an oil-hole through it to allow the free movement of the valve and to permit the air and oil to flow from one end of the valve to the other as the valve moves from end to end.

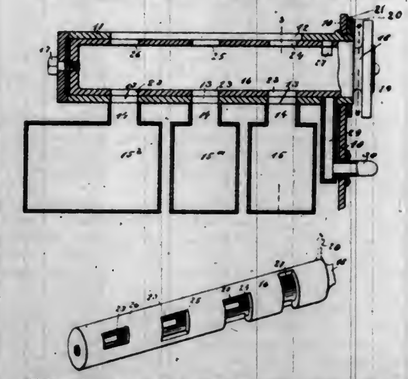
2. In combination with the valve-cage W, the piston air-valve provided with the exterior oil room or recess V for caging the oil, and with the interior passage *i*, as and for the purposes set forth.

3. In combination with the air-cylinder and piston and the described piston air-valve B, a main steam-valve directly connected to said air-valve, and an auxiliary steam-valve and actuating devices intermediate the air-piston and the auxiliary steam-valve, whereby the air-valve is adapted to be thrown by the main steam-valve prior to the movement of the air-piston.

4. In combination with the air-piston P and with the piston air-valve B, constructed and operated as described and having the passage *i* through it, the rocker arm or rod *l*, its adjusting-screws *m m'*, the lever *n*, having tappets *x x*, cross-head T, through which said lever slides, and air piston-rod T^3, carrying said cross-head, and connections intermediate the said rocker *l* and the piston air-valve B.

5. In combination with the air-piston P and with the piston air-valve B, constructed and operated as described and having the passage *i* through it, the rocker arm or rod *l*, its adjusting-screws *m m'*, the lever *n'*, having tappets *x x*, cross-head T, through which said lever slides, air-piston T^3, carrying said cross-head, arm *h*, connecting-rod *k*, auxiliary steam-valve S, main steam-valve A, and connecting-rod C.

482,815. MEASURING-FAUCET. CYRUS W. STEINERT, Harrisburg, Pa. Filed Dec. 1, 1891. Serial No. 413,689. (No model.)



Claim.—1. A measuring-faucet comprising a valve casing having a longitudinal slot on one side and a series of short slots on the other, a plurality of measuring-pockets connected with the valve-casing by means of the short slots, an outlet-pipe opening from the valve-casing, and a revoluble hollow valve held to turn in the valve-casing, the valve having on one side a series of longitudinally-aligning slots to register with the short slots of the valve-casing and on the opposite side a series of slots of graduated width adapted to register with the long slot in the valve-casing and with the outlet-pipe, substantially as described.

2. The combination, with the slotted valve-casing and the measuring-pockets connected therewith, of an outlet-pipe opening from the casing, a revoluble hollow valve held to turn in the casing and provided with slots adapted to register with the slots in the valve-casing and with the outlet-pipe, an indicating-dial arranged adjacent to one end of the valve, and a hand carried by the valve and adapted to move over the dial, substantially as described.

3. The combination, with the slotted valve-casing having an outlet-pipe opening therefrom and the measuring-pockets connected with the valve-casing, of the revoluble hollow valve having slots to register with the slots in the valve-casing and with the outlet-pipe, said valve having its outer end formed into a stem provided with a handle, an indicating-dial arranged adjacent to the stem, and a hand carried by the stem and adapted to move over the dial, substantially as described.

4. The combination, with the valve-casing having its opposite sides slotted, the measuring-pockets connected with the valve-casing, and the outlet-pipe opening from the valve-casing, of the revoluble hollow valve mounted within the casing, said valve having on one side a series of longitudinal slots and on the opposite side a series of slots of graduated width, substantially as described.

482,816. WHEEL-PLOW. EPHRAIM STOCK, Hailes Forks, Wyo. Filed Feb. 16, 1892. Serial No. 421,737. (No model.)

482,816.



Claim.—1. The combination, with a plow-beam carrying a plowshare, of a tongue having a bearing thereon pivoted to the said beam and a flexible coupling connected to the said beam and passing over the said bearing on the tongue, to which coupling draft strains may be applied, as described.

2. The combination, with a plow-beam carrying a plowshare, of a tongue having a bearing thereon pivoted to the said beam, a flexible coupling connected to the said beam and passing over the said bearing on the tongue, to which coupling draft strains may be applied, and means whereby the said plow-beam and tongue may be locked in any desired position, as described.

3. The combination, with a plow-beam carrying a plowshare, of a tongue having a bearing thereon pivoted to the said beam, a flexible coupling connected to the said beam and passing over the said bearing on the tongue, to which coupling-draft strains may be applied, a cross-bar having its one end secured to the tongue and its opposite end bent upwardly, a rack-bar contained in the said upwardly-bent end of the cross-bar, a wheel carried on the lower end of the said cross-bar, a segmental rack engaging the said rack-bar, means for locking the said rack in any desired position, an L-frame pivoted in the rear of the said cross-bar, one arm thereof being bifurcated and the opposite arm being provided with a suitable lock, and a wheel mounted within the bifurcated arm of the said frame, as described.

482,817. DOOR-FASTENER. WILLIAM W. TANNER and THEODORE W. BUSCH, Fremont, Mich., assignors of one-third to Joseph Gerber, same place. Filed Dec. 16, 1891. Serial No. 415,544. (No model.)



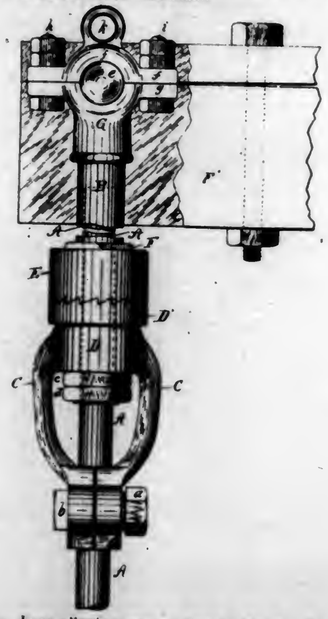
Claim.—1. In combination with a door, a casing and a projection on said casing, and an axially-divided knob attached to said door and engaging said projection, substantially as described.

2. In a door-fastening, a knob on the door engaging a fixed projecting block on the jamb, said knob being axially divided and having a stem passing through the door, and an outer knob secured to said stem, substantially as described.

3. The combination, with a door and its casing or jamb, of a block having a concave rear and an inclined front side, an axially-divided knob engaging said block having a stem passing through said door, a pin inserted in said door and passing transversely through said stem, and a knob having an axial opening to receive the outer end of said stem and secured to the same, substantially as described.

4. As an article of manufacture, an improved door-fastening consisting of an axially-divided knob having a shouldered stem and a knob having an axial opening fitting said stem, substantially as described.

482,818. ADJUSTING APPARATUS FOR OIL-WELLS. GEORGE H. WADSWORTH and WILLIAM SHEMBLEY, Findlay, Ohio. Filed Sept. 26, 1891. Serial No. 406,964. (No model.)



Claim.—In an adjusting apparatus for oil-wells, the polish-rod A, the yoke C, and ratchet D E, in combination with the pipe B, ball and pitman *d* G, and the working-beam F, arranged substantially as and for the purpose set forth.

482,819. ELASTIC TIRE. CURT WAGNER, Oederan, Germany. Filed Jan. 28, 1892. Serial No. 419,543. (No model.)



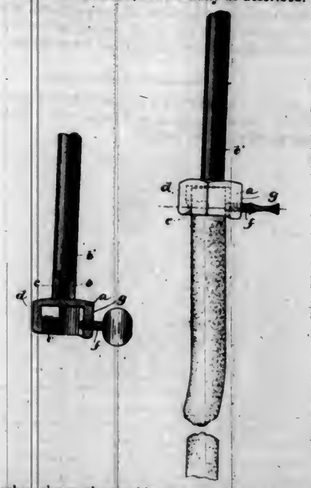
Claim.—1. The combination, with the semicircular rim or felly of a wheel provided at its upper lateral edges with bearing-surfaces, of a semicircular elastic tire having its ends seated upon said bearing surfaces of the tire and secured to the latter and a spring arranged intermediate the tire and felly and having alternate large and small convolutions, said spring forming a yielding support for the tire intermediate its ends, as described, for the purpose specified.

2. The combination, with a semicircular rim or felly of a wheel provided at its upper lateral edges with bearing-surfaces, of a semicircular elastic tire having its ends seated upon said bearing-surfaces of the tire and secured to the latter, a spring arranged intermediate the tire and felly and having alternate large and small convolutions, said spring forming a yielding support for the tire intermediate its ends, and a band engaging the larger convolutions of the spring and encircling the felly for the purpose of securing the said spring in place, as described.

482,820. CARBON-HOLDER. ERNEST P. WARNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Apr. 21, 1892. Serial No. 430,067. (No model.)

Claim.—1. A carbon-clamp *a*, provided with the lips *e e* upon its inner surface, said lips being provided with contact-surfaces running in a horizontal direction, and a thumb-screw *f*, whereby the carbon held by said clamp may be aligned with the other member of a pair of carbons, substantially as specified.

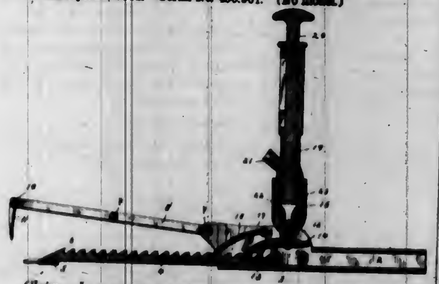
2. A carbon clamp of angular cross-section adapted to give three points of contact to the carbon, two of said contact-points being provided upon lips running in a horizontal direction, and to permit a swinging motion of said carbon in any direction, whereby the point of said carbon is brought in alignment with the other carbon of the pair and secured in that position, substantially as described.



3. In a carbon-clamp, the combination, with three points of contact for the carbon, of a recess above said contact-points, whereby a swinging motion of said carbon in any direction is permitted, substantially as described.

4. In a carbon-clamp, the combination, with three points of contact approximately in the same plane, of a recess above said contact-points, provided with a ceiling against which the carbon may rest.

482,821. CARPET-STRETCHER. JACOB ALBIN, Seymour, Ind. Filed Apr. 28, 1892. Serial No. 430,961. (No model.)

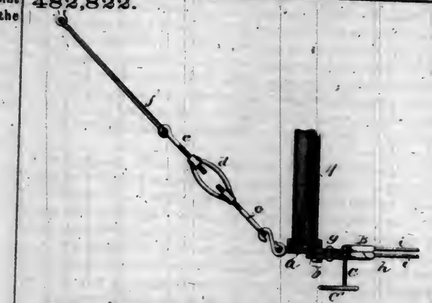


Claim.—In a carpet-stretcher, the combination of a frame with a tubular body and front side extensions open at the top and provided with forwardly-projecting overhanging ears, a ratchet-bar adjustably mounted in said body and having a comb at the front end thereof, a pair of arms secured to said overhanging ears and provided with depending spikes or spurs at their front ends in advance of the comb on the ratchet-bar, the said overhanging forwardly-projecting ears extending the outer ends of the said arms beyond the said comb, a socket pivotally mounted between the extensions of said body and having a bottom depending lug with a slot therein running parallel with the opening between said extensions, a push-pawl pivotally mounted in said slotted lug and having a rear finger-engaging extension, a stop-pawl in advance of said push-pawl and independent of the same and adapted to be raised from engagement with the ratchet-bar by the elevation of the said push-pawl, and an operating-lever embodying tacking mechanism, removably fitted in said socket, substantially as described.

482,822. CASH AND PACKAGE CARRIER APPARATUS. SAMUEL W. BARR, Mansfield, Ohio. Filed Mar. 14, 1892. Serial No. 424,935. (No model.)

Claim.—1. In a cash and package carrier apparatus, the combination, with a suitable support, of a pair of curved beads connected therewith, said beads running approximately parallel with each other, and track-wires leading to the beads, whereby the beads serve as tracks for the carrier to run upon, substantially as set forth.

482,822.

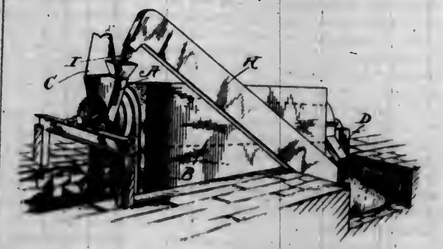


2. In a cash and package carrier apparatus, the combination, with a pair of track-wires capable of being spread apart, of a support comprising a main plate and a pair of track-plates having curved outer edges along which the track-wires are supported, said track-plates secured to the main plate and forming a part of the track, substantially as set forth.

3. The combination, with a pair of track-wires capable of being spread apart, of a curved support along which both track-wires are supported in proximity to each other and in the same or approximately the same vertical plane, substantially as set forth.

4. The combination, with a main plate, of a pair of track-plates having curved outer edges secured to the main plate and secured together, said track-plates having hollow beads formed at their outer edges, track-wires passed through these beads, and a depending guard below the main plate and in a plane substantially parallel with the outer edges of the track-plates, substantially as set forth.

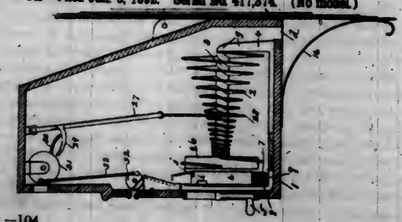
482,823. PROCESS OF DRYING AND DISINTEGRATING CLAY, &c. FRANKLIN D. CUMMER, Cleveland, Ohio, assignor to Eliza R. Cummer, same place. Filed July 25, 1891. Serial No. 400,744. (No specimens.)



Claim.—1. The process herein described of drying clay and similar material, and consisting, essentially, first, in heating and stirring the material until it is partially dried, and, second, piling the heated and partially-dried material, whereby the drying process is completed by means of the aggregate heat in the pile of material, substantially as set forth.

2. The process herein described of drying clay and similar materials, comprising, first, heating, stirring, and partially drying the material in any suitable mechanical drier; second, returning a portion of the heated material and mixing it with the green material to be heated, and, third, piling the heated and partially-dried material to evaporate the same to dryness by means of the accumulated heat in such pile of material, substantially as set forth.

482,824. NEWSPAPER-VENDER. ALBERT E. DAIS, Pittsburg, Pa. Filed Jan. 8, 1892. Serial No. 417,874. (No model.)



Claim.—1. In a vending apparatus, the combination of a case having a coin-inlet and a delivery-opening, a rotatable shaft having a helix arranged to deliver to the delivery-opening, a disk carried by said shaft and having the spaced converging slots, means, substantially as described, to convey the coins from the inlet-opening in the case to the slots in the coin-disk, and the coin-operated levers adapted to be operated by the coins in said coin-disk to release said levers from engagement with the coin-disk, substantially as described, for the purpose specified.

2. In a coin-actuated vending apparatus, the combination of a case having a coin-inlet and a delivery-opening, a shaft carrying a helix arranged to deliver articles to said delivery-opening, a coin-disk carried by the shaft to receive from the coin-inlet and having the spaced slots for coins of different denominations, a locking-lever arranged in the path of one coin in the coin-disk, another lever adapted to be operated by a coin of different denomination in the coin-disk and having means to release the locking-lever from engagement with the coin-disk, and a change-receptacle arranged to be automatically operated by the last-named lever, substantially as and for the purpose described.

3. In a coin-operated vending apparatus, the combination of a case having coin-inlets and a delivery-opening, a shaft carrying a helix to deliver to the delivery-opening, a coin-disk mounted on the shaft to receive from the coin-inlets and having the converging slots, which are spaced laterally on opposite faces of the disk, the locking-lever arranged to be actuated by a coin of one denomination in the coin-disk, another lever 9, adapted to be operated by a coin of different denomination in the coin-disk and having means for releasing the locking-lever from the coin-disk, a change-receptacle operated directly from the operating-shaft, and means actuated by the lever 9 to release the coin from the change-receptacle and permit the same to be discharged from the machine, substantially as described.

4. In a coin-operated vending apparatus, the combination of a case having coin-inlets and a delivery-opening, a shaft carrying a helix, a rotatable change-receptacle actuated by rotations of the shaft, a coin-disk carried by the shaft, a lever operated by a coin in the coin-disk, and a detent in the path of the coin-lever and normally confining the coins in the coin-holder, substantially as described.

5. In a coin-operated vending apparatus, the combination of a case having the coin-inlets and the delivery-opening, the shaft carrying a helix and a slotted coin-disk, a rotatable coin-holder geared to the shaft and having the discharge-slots, the locking-lever engaging said coin-disk, a releasing-lever arranged to be actuated by a coin of different denomination from the coin required to operate the locking-lever, and the pivoted strip 21, normally closing the slots in the coin-holder and arranged to be operated by the releasing-lever, substantially as described.

6. In a coin-actuated vending apparatus, the combination of a case having the slots, a shaft carrying a delivery-helix, a coin-disk normally locked by a coin-actuated lever, a swinging feeder carrying a trip-arm near its upper end, a roller having an arm sustained by the trip-arm of the feeder, and another roller linked to the first roller and arranged close to the coin-slot of the case, substantially as and for the purpose described.

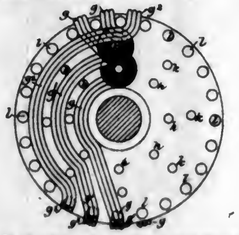
7. In an automatic newspaper-vending apparatus, the combination of a case having a coin-inlet and a newspaper-outlet opening, a shaft carrying a helix or worm, means for automatically delivering said papers, means for automatically delivering change simultaneously with said papers, and a feed-blade arranged between the divisions of the helix and adapted to be moved forward as the latter is rotated and support the papers carried thereby, substantially as herein described.

8. In an automatic newspaper-vending apparatus, the combination of a case having a coin-inlet and a newspaper-outlet opening, a shaft carrying a helix or worm, means for automatically delivering said papers, means for automatically delivering change simultaneously therewith, means for closing the coin-inlets when said case is exhausted of papers and exposing the words "All sold," and a feed-blade arranged between the divisions of the helix and adapted to be moved forward as the latter is rotated and support the papers carried thereby, substantially as and for the purpose set forth.

9. In an automatic newspaper-vending apparatus, the combination, with a case having a slot in one side and an opening at the bottom, of a shaft arranged within the case, a helix carried by said shaft and adapted to receive the papers between its several divisions and automatically discharge the same through the opening in the bottom of the case, a circular disk mounted on said shaft and having an opening extending entirely through the same, a spring-actuated lever adapted to lock the disk and release the same when a coin is dropped through said slotted disk and into the lever and the shaft is rotated, and a case to contain change, and means to deliver said change simultaneously with said paper, substantially as herein described.

10. In an automatic newspaper-vending apparatus, the combination, with a case having a slot in one side and an opening at the bottom, of a shaft arranged within said case, a helix carried by said shaft and adapted to receive the papers between its several divisions and automatically discharge the same through the opening in the bottom of the case, a circular disk mounted on said shaft and having an opening extending through the same, a disk having a thread thereon and rotary case containing a number of compartments for change, and means to open the lower end of said compartments to discharge said change simultaneously with said papers, substantially as herein described.

482,825. ARMATURE-WINDING FOR DYNAMO-ELECTRIC MACHINES. RUDOLF EICKEMEYER, Yonkers, N. Y. Filed Sept. 3, 1890. Serial No. 363,810. (No model.)



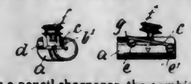
Claim.—1. In an armature-winding for dynamo electric machines, the combination, with an armature-core, of strands or lengths of insulated wire, each having one turn around appropriate portions of the core divided into separate and distinct sets, the strands in each set being shaped at the ends of the core in a predetermined form unlike the strands of the other set, and each set having locking-pins at the ends of the core, substantially as described.

2. In an armature-winding composed of strands of insulated wire crossing both ends of the core and covering appropriate portions of its face, the combination of locking-studs for securing said strands on the core and disks on said studs for separating the strands in planes parallel with the ends of the core.

3. In an armature-winding, the combination, with an armature-core, of specially-bent strands or lengths of insulated wire in single turns crossing at the ends of the core and covering appropriate portions of the face of said core and locking-pins which confine the strands at the ends of the core against centrifugal and rotative displacement, substantially as described.

4. A winding for dynamo-electric-machine armatures, composed of strands or lengths of wire which are bent into various forms and constitute separate sets or series of strands, the strands of each set having a form peculiar to themselves, and all of said strands secured in place by pins in holes in the ends of the armature-core.

482,826. PENCIL-SHARPENER. CARL FABER, Nuremberg, Germany. Filed Apr. 1, 1892. Serial No. 427,418. (No model.)



Claim.—1. In a pencil-sharpener, the combination, with the body *a*, having a conical bore *b*, slot *b'*, and incline *d*, of the reversible blade *c* and the screw *f*, for the purpose as described.

2. In a pencil-sharpener, the combination, with the body *a*, having a conical bore *b*, slot *b'*, and incline *d*, of the reversible blade *c*, the screw *f*, adjusting-screws *e* and *e'*, and stop *g*, the central hole in the blade *c* being wider than the threaded portion of screw *f*, substantially and for the purpose as described.

482,827. COMBINATION FENCE-TOOL. JOHN W. GALLANT, Delta, Colo., assignor of one-half to Peter Mundry, same place. Filed May 7, 1892. Serial No. 432,173. (No model.)

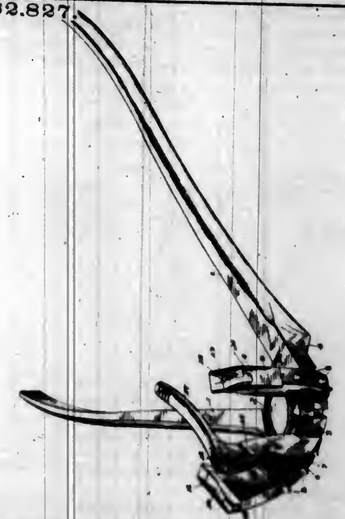
Claim.—1. In a tool of the character set forth, the combination of the handles having horizontally-disposed disks with notches therein and heads integrally formed therewith and extending upward at an angle therefrom and a gripping-lever mounted between said heads and pivotally connected to one of the same, substantially as described.

2. In a tool of the character set forth, the combination of heads and a gripping-lever movably mounted between the same and projecting rearwardly therefrom, substantially as described.

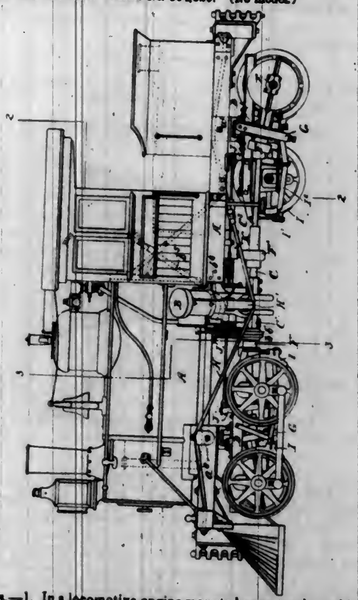
3. In a tool of the character set forth, the combination of heads having an opening extending therethrough and a gripping-lever mounted between said heads in line with said opening, substantially as described.

4. In a tool of the character set forth, the combination of reins or handles having horizontally-disposed disks integrally formed therewith and provided with notches, and heads rising vertically from said disks with spurs or points thereon and an opening extending therethrough, a gripping-lever mounted between said heads and projecting rearwardly therefrom, teeth secured in the upper portions of said heads, and means for securing said teeth in position, substantially as described.

482,827.



482,828. LOCOMOTIVE. CHARLES L. HEISLER, Dunkirk, N. Y. Filed May 25, 1891. Serial No. 394,020. (No model.)



Claim.—1. In a locomotive-engine mounted upon trucks and having a centrally-located longitudinal shaft connecting the trucks, the combination, with the boiler, of an engine-frame located, essentially, beneath the boiler and secured thereto, engines mounted thereon and arranged with their center lines at an angle to each other, and the boiler within the angle and passing the plane of the angle with its axis perpendicular to said plane, substantially as described.

2. In a locomotive-engine mounted upon trucks and having a centrally-located longitudinal shaft connecting the trucks, the combination of two engines arranged at an angle to each other and connected to the crank-shaft and having the eccentrics of both engines located at one side of the crank, substantially as described.

3. In a locomotive engine mounted upon trucks and having a centrally-located longitudinal shaft connecting the trucks, the combination of the engines arranged at an angle to each other and connected to the shaft and tumbling-shaft common to both engines, arranged within the angle formed by the engines, substantially as described.

4. In a locomotive-engine mounted upon trucks and having a centrally-located longitudinal shaft connecting the trucks, the combination, with the engines arranged at an angle to each other and connected to the shaft, of the eccentrics connected to the shaft at one side of the crank and the tumbling-shaft common to both engines, arranged within the angle formed by the engines, substantially as described.

5. In a locomotive-engine mounted upon trucks and having a centrally-located longitudinal shaft connecting the trucks, the combination, with the engines arranged at an angle to each other and connected to the longitudinal centrally located crank-shaft, of struts secured to the engine-frames and truss-rods bearing on the struts and connected to the frame of the locomotive, substantially as described.

6. In a locomotive mounted upon two pivoted trucks, the combination of the driving-engines for propelling the locomotive, a central driving-shaft which is independent of the inner driving-axles, but geared to the extreme or outside driving-axles, and connections between the outside driving-axles and the inner driving-axles, substantially as described.

7. In a locomotive-engine, the combination, with the main frame supporting the driving-engines, of two pivoted trucks supporting the same, gears connected with the outside axles of the trucks, a shaft-section connected to said gears and mounted on the truck, and connections between said shaft-sections and the driving-engines, substantially as described.

8. In a locomotive-engine, the combination, with the main frame and driving-engines mounted thereon, of the main shaft-section supported thereby, pivoted trucks supporting the engine, gear connections for the outside axles of the truck, a shaft-section mounted on the truck, and a floating shaft-section connecting the fixed section of the shaft with the section on the truck, substantially as described.

9. The combination, with the main frame and driving-engines carried thereby, of a fixed section of the main shaft connected thereto, a pivoted truck having gears connected with the outside axle, a shaft-section mounted on the truck, a floating shaft-section interposed between the fixed shaft-section and the section on the truck, and knuckle-joints connecting the shaft-sections, substantially as described.

10. In a locomotive-engine, the combination, with the pivoted truck, of a section of the driving-shaft mounted on the truck and connected by gearing to the outside axle, and a spring-support mounted on the truck for supporting said shaft-section, substantially as described.

11. In a locomotive having a pivoted truck, the combination, with the outside axle, of gears connected thereto, a section of the main driving-shaft connecting said gears, a yoke-piece connected to the bolster, and spring-supported bearings in said yoke-piece for the shaft-section, substantially as described.

12. In a locomotive, the combination, with the main frame, the driving-engines mounted thereon, and a short fixed section of the main driving-shaft secured thereto, of two trucks pivotally connected to and supporting the frame, gears connected to the outside axles of the trucks, a short shaft-section mounted on each truck and connected to the axle, a relatively-long floating shaft-section between each truck-section and the main fixed section of the shaft, and knuckle-joints connecting the shaft-sections, substantially as described.

13. In a locomotive-engine, the combination, with the truck, of a brake device consisting, essentially, of brake-shoes, rods connecting said brake-shoes, a U-shaped lever connected to said rods, and connections between said U-shaped lever and the brake-cylinder, substantially as described.

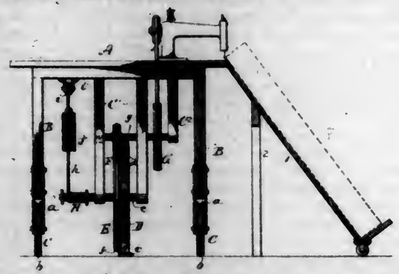
14. In a locomotive-engine, the combination, with the main frame, of a driving-engine supported thereon, the pivoted trucks supporting the same, the brake-shoes arranged on the inner sides of the wheel, a U-shaped-lever mounted on the truck and connected to the brake-shoes, and a brake-cylinder mounted on the engine and connected to the lever, substantially as described.

15. In a locomotive-engine, the combination, with the main frame, of the driving-engines mounted thereon, a longitudinal driving-shaft, trucks supporting the engine, shaft-sections mounted on the trucks and connected with the extreme axles, a floating shaft-section between the truck and the driving-engine, a brake mechanism mounted on the trucks, each having a U-shaped lever, tension-rods connected to the levers and passing above the apex of the engines, a brake-cylinder located on the frame, and connections between the brake-cylinder and tension rods, substantially as described.

16. In a locomotive-engine mounted upon trucks and having a centrally-located longitudinal shaft connecting the trucks, the combination of the boiler having a cylindrical shell inclosing the fire-box and ash-pan, located above the longitudinal central shaft and the engines arranged at an angle to each other and connected to the said shaft, substantially as described.

17. In a locomotive-engine having a longitudinal centrally-located shaft, a truck having a substantially U-shaped brake-lever, the lower ends of which are connected to the brake device, substantially as described.

482,829. CARRIAGE FOR CARRYING AND OPERATING SEWING-MACHINES. MELTIAH W. LAWRENCE, Gardiner, Me. Filed Oct. 28, 1891. Serial No. 410,058. (No model.)

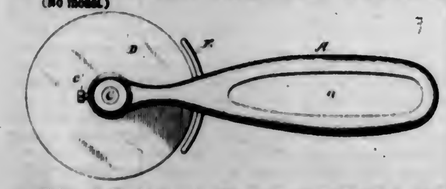


Claim.—1. The combination, with a carriage and tramway, of a wheel carried by the carriage and provided with peripheral projections adapted to engage the tramway, whereby the carriage is moved, means for automatically turning the wheel in one direction, a shaft actuated by the wheel, a sewing-machine, and belts for imparting motion from the wheel to the sewing-machine, substantially as set forth.

2. The combination, with a carriage and a rack-bar located on the floor, of a wheel carried by said carriage and having peripheral projections adapted to mesh with the rack-bar, a cord or rope wound upon the shaft of said wheel and carried over a pulley on the carriage, a weight secured to the free end of said cord or rope, and means for transmitting motion from said wheel to a sewing-machine on the carriage, substantially as set forth.

3. The combination, with a carriage and a sewing-machine located thereon, of a wheel having peripheral projections, a rack-bar, with which said wheel meshes, a cord or rope wound on the shaft of said wheel and passing over a pulley on the carriage, a weight secured to the free end of said rope or cord, a band-wheel on the same shaft with the first-mentioned wheel, a pulley carried by the carriage, a band passing over said pulley and band-wheel, a band-wheel carried by the same shaft with the pulley, and a strap for transmitting motion from said last-mentioned band-wheel to the sewing-machine on the carriage, substantially as set forth.

482,830. ROLLER-KNIFE FOR TRIMMING WALL-PAPER. DAVID S. MORGAN, Asheville, N. C. Filed June 17, 1891. Serial No. 396,652. (No model.)

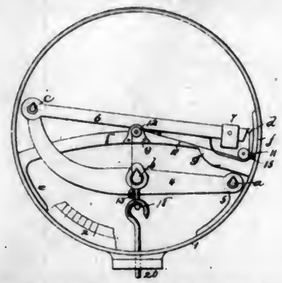


Claim.—1. The improved wall-paper cutter comprising the handle, the head B, perforated to receive the journal-pin, the journal-pin adjustably inserted in the perforation and provided with a head *c*, the circular cutting-blade mounted on said journal-pin between the heads B and *c*, and means for holding the journal-pin in different positions, said blade having a thickened hub and being plane upon one side and concaved from the hub to the periphery upon the opposite side, substantially as described.

2. The improved wall-paper cutter comprising the handle, the head B, having a boss *b*, the journal-pin C, inserted in the head and having a head *c*, and the revolving circular cutting-blade mounted upon the journal-pin, the said handle having a guard integral therewith and extending equally to either side thereof concentric with the blade, whereby the cutter may be used with either hand, substantially as described.

482,831. PENDULUM-SCALE. DAVID OLMSTED, Minneapolis, Minn. Filed Jan. 30, 1892. Serial No. 419,679. (No model.)

Claim.—1. The lever 4, provided near its middle portion with a stud *b* and pivoted at one end to a fixed support and having the other end curved upward, and the straight lever 6, pivotally connected to such curved end of lever 4 and having at or near its free end a weight, in combination with the curved fulcrum-beam 8, fixed transversely in the casing, an index-finger and means for operating it connecting with lever 6, and the platform-rod hung upon stud *b*, substantially as described.

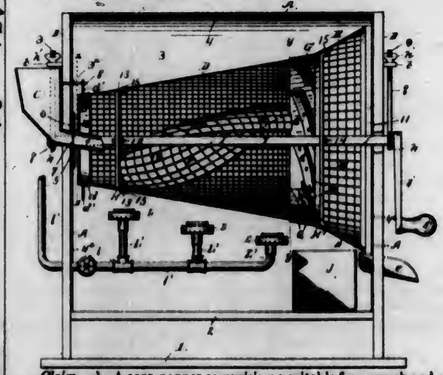


2. The curved lever 4 and the weighted straight lever 6, pivotally connected, as described, in combination with the curved fulcrum-beam 8, supporting-lever 6, said beam having supported thereon a shaft carrying a pulley and index-finger, a guide adjacent to the end of said beam, a cord attached to the end of lever 6 and passing over said guide and pulley, and a weight attached to the free end of the cord, substantially as described.

3. The curved lever 4 and weighted straight lever 6, pivotally connected, as described, in combination with the curved fulcrum-beam 8, the shaft 14, carrying grooved cone-pulley 12, an index-finger 16, supported on said beam 8, pulley 11, and a cord 10, attached to the end of lever 6, passing over pulleys 11 and 12 and having a weight attached to its free end, substantially as described.

4. In combination with lever 6, fulcrumed upon the curved beam 8, a suitably-supported rotary shaft carrying a cone-pulley and index-finger, a guide near the end of beam 8, and the weighted cord attached to the free end of lever 6 and passing over said guide and pulley, substantially as described.

482,832. CORN-POPPER. IDA M. PALMER, Kansas City, Mo. Filed Dec. 28, 1891. Serial No. 416,366. (No model.)



Claim.—1. A corn-popper comprising a suitable framework and a suitable revoluble popping-receptacle, a vibratory feed-hopper mounted upon the framework and carrying an outwardly-extending arm, and a number of projections carried by the popping-receptacle and successively engaging the arm to vibrate the hopper, substantially as set forth.

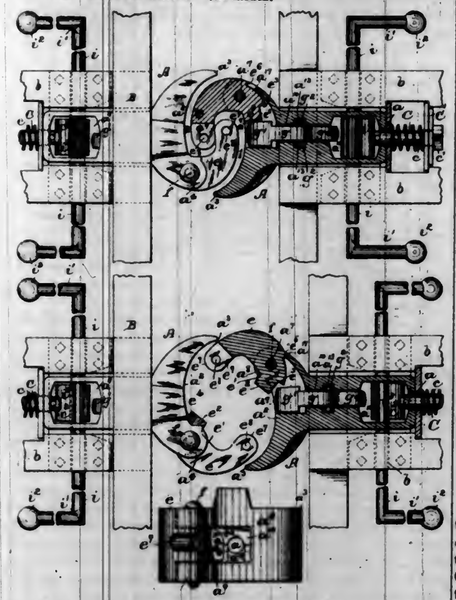
2. A corn-popper comprising a suitable framework, a suitable revoluble popping-receptacle mounted in said framework, a number of pendent hangers having adjusting-screws at their upper ends, and a shaft for the popping-receptacle, having its bearings in the lower ends of said hangers, substantially as set forth.

3. A corn-popper comprising a suitable framework having outwardly-extending brackets secured thereto, a suitable revoluble receptacle having a longitudinally-extending shaft, and a pair of pendent hangers having hooked bearings at their lower ends for the said shaft and externally screw-threaded at their upper ends, and a pair of adjusting-nuts surrounding said upper ends of the hangers and resting upon the brackets, substantially as set forth.

4. A corn-popper comprising a suitable revoluble popping-receptacle and a number of elongated guards or cheeks mounted in the discharge end of the receptacle and set obliquely to the longitudinal axis of said receptacle, the said cheeks or guards extending past each other at their adjacent ends and having said ends separate from each other by suitable spaces, substantially as set forth.

5. A corn-popper comprising a suitable revoluble popping-receptacle and a flared foraminous discharge-separator located at the discharge end of the receptacle, substantially as set forth.

482,833. CAR-COUPLING. THOMAS L. RIVERS, Newark, N. J., assignor of one-third to Jonas Thielemann, same place. Filed Apr. 27, 1892. Serial No. 430,866. (No model.)



Claim.—1. In a car-coupling, the combination of a draw-head provided with a longitudinal opening having guiding-surfaces a^{10}, provided with bearings a^{11}, a swinging jaw pivoted to said draw-head, provided at its inner end with a lug, a catch within the draw-head, pivotally and detachably arranged in the bearings therein, adapted to engage the swinging jaw, and means adapted to engage with one end of said pivoted catch to disengage its holding end from said lug on the swinging jaw, substantially as and for the purposes set forth.

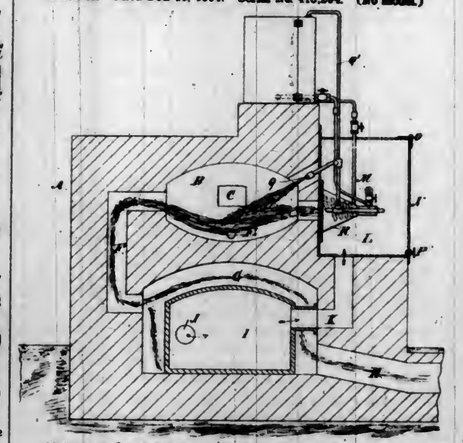
2. In a car-coupling, the combination of a draw head provided with a longitudinal opening and slotted horizontally in one side, a pivoted jaw in said slot provided at its inner end with a lug adapted to project from the said opening in the draw-head and provided with a flat side and a cut-away and curved surface on said lug, a catch within the draw-head, pivotally and detachably arranged in bearings a^{10} therein, adapted to engage with said flat side of said jaw, but capable of being lifted from such engagement, and ride on said cut-away and curved surface, substantially as and for the purposes set forth.

3. In a car-coupling, the combination of a draw-head provided with a longitudinal opening and slotted horizontally in one side, a pivoted jaw in said slot provided at its inner end with a lug adapted to project into said opening in the draw-head and provided with a flat side a^9 and a cut-away and curved surface on said lug, a catch within said draw-head, pivotally and detachably arranged in bearings a^{10} therein, having a curved and weighted nose-piece g', adapted to engage with said flat side of the jaw, but capable of being lifted from such engagement, and said curved and cut-away surface being adapted to ride under said curved nose-piece and thereby raise said pivoted catch, substantially as and for the purposes set forth.

4. In a car-coupling, the combination of a draw-head provided with a longitudinal opening having guiding-surfaces a^{10}, provided with bearings a^{11}, a swinging jaw pivoted to said draw-head, provided at its inner end with a lug, a catch within the draw-head, pivotally and detachably arranged in bearings therein, adapted to engage with said swinging jaw, a shaft or rod arranged in bearings beneath said draw-head, a tripper on said rod, and operating-levers on either or both ends of said rod for causing the said tripper to lift the catch and disengage its holding end from the lug on the swinging jaw, substantially as and for the purposes set forth.

5. In a car-coupling, the combination of a draw-head having a U-shaped end, an opening a^9, a chamber a^{12}, provided with bearings a^{10}, an opening a^{11}, and ears a^5 and a^6, a swinging jaw pivoted between said ears, provided with a lug e', a flat side e^9, and a cut-away and curved portion, a catch g, provided with journal-pins pivotally arranged in said bearings in the draw-head, a weighted and curved nose-piece g' and a finger g^4 on said catch, and means adapted to engage with said finger and disengage said nose-piece from the flat surface e^9 on the lug on said swinging jaw, substantially as and for the purposes set forth.

482,834. LIQUID-FUEL FURNACE. GEORGE ROSE, Glasgow, Scotland. Filed Dec. 16, 1891. Serial No. 415,294. (No model.)



Claim.—1. In combination with a furnace B, a chamber G, through which the products of combustion pass to the stack, a closed chamber L, having a burner therein, and means for supplying air to the burner-chamber, consisting of a chamber I, located in the chamber G and having an air-inlet and an air-supply pipe from the chamber I to the burner-chamber, substantially as described.

2. In combination with the closed burner-chamber L, an air-supply leading thereto, a burner within the chamber, and supply-pipes for the burner, extending into the chamber, an opening in line with the burner, leading to the combustion-chamber, and a second opening from the chamber L to the combustion-chamber, with a steam-pipe located within the same and discharging a jet upon the main flame from the burner after it has entered the furnace, substantially as described.

482,835. WAGON END-GATE. GEORGE B. SHERR, Marengo, Iowa. Filed Dec. 22, 1891. Serial No. 415,900. (No model.)



Claim.—1. An improved wagon end-gate composed of a single piece of sheet metal having integral wings at its sides, an incline at its bottom and provided with means for connecting it with a wagon-box.

2. An improved wagon end-gate composed of a single piece of sheet metal doubled at its top and bottom edges to increase its strength and provided with means for connecting it with a wagon-box.

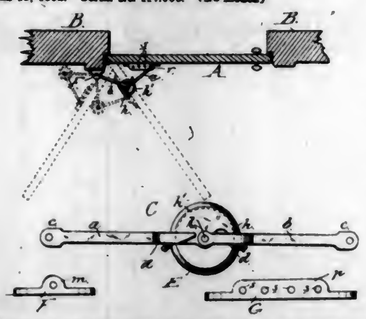
3. An improved wagon end-gate composed of a single piece of sheet metal doubled at its top and bottom edges, provided with reinforcing-pieces at its rear, and also with means for connecting it with a wagon-box.

4. An improved locking and supporting device for an end-gate and shoveling-board, comprising a flat metal strip extended around the rear of the end-gate, bent outward and perforated at its ends, a flat metal arm pivoted to each of the said ends, and flat metal arms doubled and adapted to admit the aforesaid arms between their ends and allow them to be pivoted therein and having their free ends formed into loops, a loop fixed to each side of the wagon-box and adapted to admit the said arms to be moved therein and to engage the said loops on the ends of the arms and support the device when used as a shoveling-board, and a hook secured to each side of the wagon-box, adapted

to admit and retain the free ends of the doubled arms and thereby secure the end-gate to the wagon, substantially in the manner set forth, for the purposes stated.

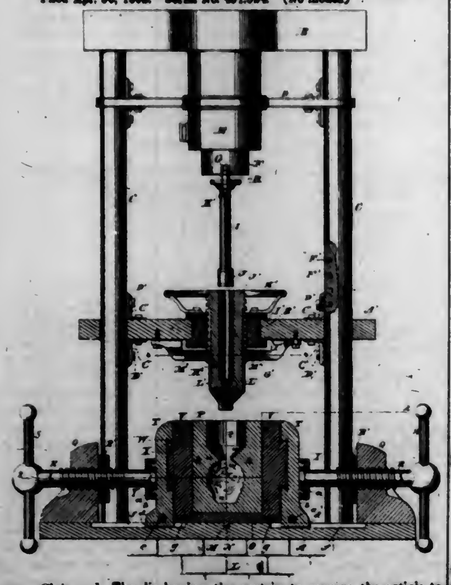
5. An improved wagon end-gate and shoveling-board comprising an end-gate formed of a single piece of metal doubled at its top and bottom, having its bottom edge inclined forward, for the purposes stated, reinforcing-pieces on its rear surface, and the locking and supporting devices, all constructed and combined substantially as set forth in the specification.

482,836. DOOR-CLOSER. ELI M. WYANT, Waterloo, Iowa. Filed Jan. 13, 1892. Serial No. 417,966. (No model.)



Claim.—The combination, in a door-closer, of two pivotally-united arms having forked inner ends, forming an open yoke or frame, the ends of one arm having the curved portions *k*, provided with lugs *h*, adapted to engage the ends of the other arm and form a limiting-stop, and a coiled spring in said yoke or frame having its opposite ends bearing against the arms, a plate adapted to be fixed to the door frame or casing and having one of the arms pivotally secured to it, a plate adapted to be secured to the door and having ears or lugs provided with a series of holes, and a removable bolt connecting the outer end of the other arm with said holes, whereby the tension and power of the spring are regulated, substantially as herein described.

482,837. MEANS FOR ORNAMENTING SHEET-METAL ARTICLES. BERNARD M. ADELL and WILLIE OSTRANDER, New York, N. Y. Filed Apr. 30, 1892. Serial No. 431,324. (No model.)



Claim.—1. The die having the matrix to receive the article to be treated, combined with the reciprocating threaded cylinder adapted at its lower end to enter the mouth of said die, the packing at the lower end of said cylinder to form a liquid-tight joint, the internally-threaded revoluble external sleeve engaging said cylinder, means for preventing vertical movement in said sleeve, the guide for preventing revolving motion in said cylinder, and means for exerting pressure upon the liquid within said article, substantially as and for the purposes set forth.

2. The die having the matrix to receive the article to be treated, combined with the reciprocating threaded cylinder adapted at its lower end to enter the mouth of said die, the packing at the lower end of said cylinder to form a liquid-tight joint, the internally-threaded revoluble external sleeve engaging said cylinder, the vertically-adjustable frame supporting said sleeve and preventing vertical movement therein during its rotation, the guide for preventing revolving motion in said cylinder, and means for exerting pressure upon the liquid within the said article, substantially as and for the purposes set forth.

3. The die having the matrix to receive the article to be treated and the inclined mouth leading to said matrix, combined with the hollow cylinder through which hydraulic pressure is applied, the nut on the reduced lower end of said cylinder and conforming to said inclined mouth, and the annular packing held in place by said nut and having the downwardly and inwardly inclined lip to engage the inclined flange on the article to be treated, substantially as and for the purposes set forth.

4. The die having the matrix to receive the article to be treated, combined with the reciprocating threaded cylinder, the nut on the reduced lower end of said cylinder, the packing held in place by said nut and having the annular downwardly-depending lip, the revoluble sleeve engaging said cylinder, the frame supporting said sleeve, the guide for the cylinder, and the plunger adapted to enter said cylinder, substantially as and for the purposes set forth.

5. The die having the matrix to receive the article to be treated, combined with the hollow reciprocating non-revoluble cylinder having packing at its lower end and adapted to engage the article within said die, the plunger in line with and adapted to enter said cylinder, and hydraulic apparatus carrying said plunger, substantially as and for the purposes set forth.

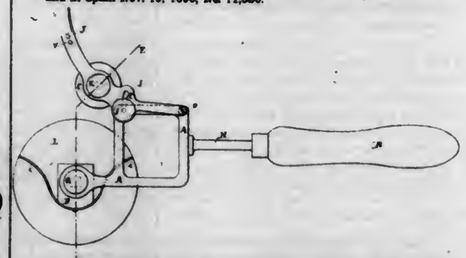
6. The die having the matrix to receive the article to be treated, combined with the adjusting pressure-screws R, in line with the sides of said die, the laterally-adjustable platens V, carried by said screws, the hollow cylinder in line with the said matrix and having packing at its lower end to form a liquid tight joint, and the hydraulic plunger within said cylinder, substantially as and for the purposes set forth.

7. The die to receive the article to be treated, the bed-plate, the screws in line with the sides of the die, the followers on said screws, the platens adjustable on said followers, the cylinder communicating with the interior of said article, and the plunger within said cylinder, substantially as and for the purposes set forth.

8. The die having the matrix to receive the article to be treated, the screws in line with the sides of the die, the followers on said screws, the guides for the followers, the platens on said followers, the cylinder communicating with the interior of said article, and the plunger within said cylinder, substantially as and for the purposes set forth.

9. The die, combined with the adjusting pressure-screws R in line with the sides thereof and mounted in the threaded bearings Q, and the laterally adjustable independent platens V, carried by the said screws and overlapping each other at one end, substantially as and for the purposes set forth.

482,838. CHOPPER. JOSEPH E. AUBAT, Clermont-Ferrand, France. Filed May 20, 1892. Serial No. 433,790. (No model.) Patented in France June 17, 1890, No. 206,354; in Belgium Nov. 10, 1890, No. 92,663, and in Spain Nov. 19, 1890, No. 11,520.

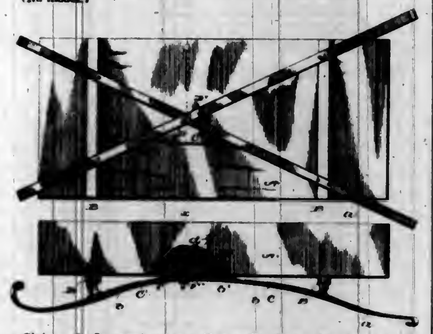


Claim.—1. In combination with a holding-frame, a series of stationary sleeves D, and a series of circular cutters held between the faces of adjacent sleeves and revolving thereon, substantially as described.

2. In combination with a holding frame and a series of revolving cutters, and a series of cleaners interposed between the cutters, said cleaners being supported on a stationary part of the frame at their central portions, with their outer ends free, substantially as described.

3. The combination, with the cutting devices, of a movable sharpening apparatus consisting of frame I and a series of grinders adapted to be put in contact with the cutters L when desired, substantially as specified.

482,839. RUNNING-GEAR FOR VEHICLES. CHARLES M. ELY-DENBURGH, Riverhead, N. Y. Filed Oct. 20, 1891. Serial No. 409,314. (No model.)



Claim.—1. In running-gear, diagonally-disposed springs crossing each other below the body of the vehicle and normally held thereto by a flexible connection, said springs having supplemental plates secured to the main plates upon each side of the point of crossing, but having only a single thickness at the places where they cross, substantially as herein described.

2. In running-gear, diagonally-disposed curved springs consisting of the plates *a*, crossing each other at points near their centers and secured to the body of the vehicle at points between the crossing and outer extremities, said plates having supplemental leaves or plates secured to the main plates upon each side of the point of crossing, thereby leaving but a single thickness of each spring at the place where they cross.

3. In running-gear, the diagonally-disposed springs, each consisting of a main plate having supplemental plates or leaves secured to its surface upon each side of its upper surface between its central portion and ends, thereby leaving said central portion of but a single thickness, said central portion being united and joined to the body of the vehicle by a spring connection.

4. In running-gear, the body having the cross-bars, the diagonally-disposed springs secured to said bars and crossing each other near the center of the under side of the body, a bolt or pin passing loosely through said body and the crossed portion of the springs, a nut adjustable upon the threaded end of the bolt or pin, and a spring surrounding the bolt between its opposite ends and the bottom or floor of the body, whereby the crossed portions of the main spring are normally held against said bottom or floor, but yield under the influence of weight upon the body, substantially as herein described.

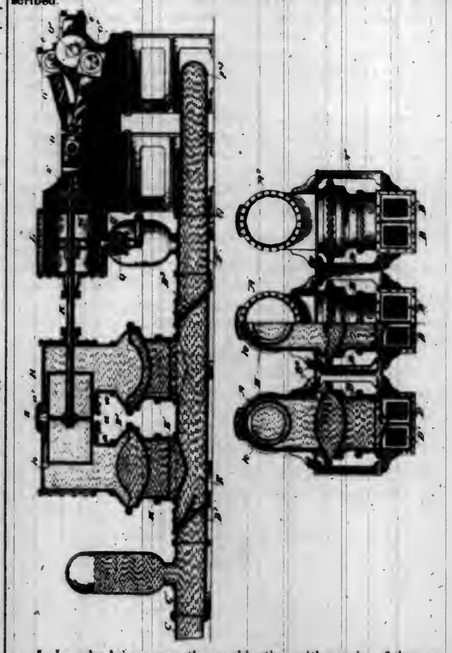
482,840. STEAM-PUMP. CALEB H. BOOTH, Dubuque, Iowa. Filed Jan. 8, 1892. Serial No. 417,413. (No model.)

Claim.—1. In a steam-actuated dredging-pump, the combination, with valved supply and discharge pipes, of three or more pump-cylinders arranged parallel and divided centrally and having pumping-chambers connected to their under sides at opposite ends, diaphragms in the pumping-chambers, forming closed chambers above, in which a suitable liquid is placed, plungers in the cylinders, exterior packing for the plungers located on the respective sections of the cylinders, and steam-actuated pistons connected directly with the plungers, substantially as described.

2. In a steam-actuated dredging-pump, the combination, with valved supply and discharge pipes, of a series of three or more pump-cylinders divided centrally and arranged parallel and having pumping-chambers at opposite ends, diaphragms secured across the pumping-chambers, plungers in the cylinders above the diaphragms, formed with air-storage compartments communicating with the interior of the cylinders, packing for the plungers, engaging the outer faces thereof and carried by the respective sections of the cylinders, and means for actuating the plungers, substantially as described.

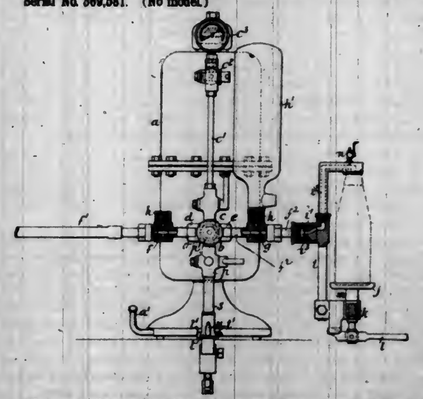
3. In a steam-actuated dredging-pump, the combination, with the inlet and discharge pipes and valves in the pipes, of a horizontally-disposed pump-cylinder having pumping-chambers at opposite ends thereof, diaphragms across the pumping-chambers, and a plunger in the cylinder, having an air-storage compartment communicating with the interior of the cylinder above the diaphragm, substantially as described.

4. In a dredging-pump, the combination, with the suction and discharge pipes, of a pump cylinder having pumping-chambers at opposite ends thereof, flexible diaphragms across the pumping-chambers, a plunger in the cylinder, and an air-storage compartment communicating with the interior thereof above the diaphragm, substantially as described.



5. In a dredging-pump, the combination, with a series of three or more pumping-cylinders, each having pumping-chambers at opposite ends, of diaphragms across the pumping-chambers, valved suction and discharge pipes leading into the chambers below the diaphragms, plungers in the cylinder, air-storage compartments communicating directly with the interior of the cylinders above the diaphragm, steam-cylinders for each pump-cylinder, connections between the pistons thereof and the plungers, a crank-shaft, and pitmen connecting the cranks of the shaft with the steam-pistons, substantially as described.

482,841. APPARATUS FOR THE MANUFACTURE OF AERATED LIQUIDS. LUTHER G. CHINNERY and SWARTZ M. CHINNERY, London, England, assignors to Chinnery & Co., same place. Filed Oct. 26, 1890. Serial No. 369,581. (No model.)



Claim.—1. In combination with a vessel for compressed gas and

with devices connected thereto for filling bottles, a system of connecting pipes f' f^3 and their connections with the water-reservoir and the gas-reservoir, and a three-way cock in said pipe f^3, controlling the amount of gas to be mixed with the liquid and also the passing of the aerated liquid into the bottle or vessel to be filled, substantially as set forth.

2. In combination with the gas-vessel, the liquid-containing vessel, the pipes f' and f^3, cocks f and g and the device b, having five ways or passages, a separate device connected to each of said passages and a revoluble bottle-filler having the filling-tube i^3, connected with a stationary trunnion on a supply-tube having a passage i^3 therein, and whereby the rotation of the bottle-filler shall close the connection

482,843.

and the attaching-stirrups having pins on their lower sides adapted to said recesses, the openings of which lead laterally from the interior space of the shoe, substantially as described.

2. In combination, the shoe, the two front stirrups, the heel-stirrups, the plate *d*, connected to the front stirrups, and the straining-band *c*, passing around the hoof and the plate *d* and secured at its ends to the heel-stirrups, the said plate *d* being curved and extending from one front stirrup *b* to the other, substantially as described.

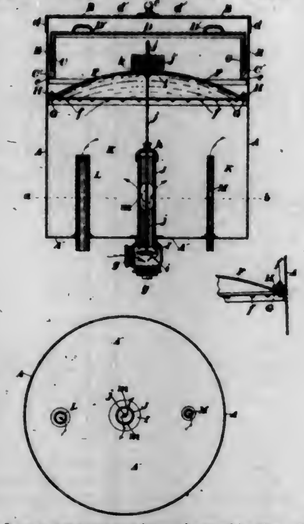
to them, of a plow-beam provided with a bar at its lower end, said bar being pivotally connected to the said bracket, and a bolt pivoted at one end to the mold board and having its other end adjustably connected with the plow-beam above the said bar, substantially as set forth.

with devices connected thereto for filling bottles, a system of connecting pipes f' f^3 and their connections with the water-reservoir and the gas-reservoir, and a three-way cock in said pipe f^3, controlling the amount of gas to be mixed with the liquid and also the passing of the aerated liquid into the bottle or vessel to be filled, substantially as set forth.

2. In combination with the gas-vessel, the liquid-containing vessel, the pipes f' and f^3, cocks f and g and the device b, having five ways or passages, a separate device connected to each of said passages and a revolvable bottle-filler having the filling-tube i^2, connected with a stationary trunnion on a supply-tube having a passage i^3 therein, and whereby the rotation of the bottle-filler shall close the connection between said passage and tube, substantially as and for the purposes set forth.

3. The combination, in a liquid-aerating apparatus, of a three-way cock for admitting to a mixing-vessel the liquid to be aerated, another three-way cock for admitting gas to the same vessel and for discharging the liquid after its aeration, and an intermediate five-way connection between said cocks communicating with them and also with the reservoir a and with the water-gage, as and for the purposes set forth.

482,842. PRESSURE-REGULATOR. GEORGE HARRIS, Chicago, Ill. Filed Mar. 21, 1891. Serial No. 385,912. (No model.)

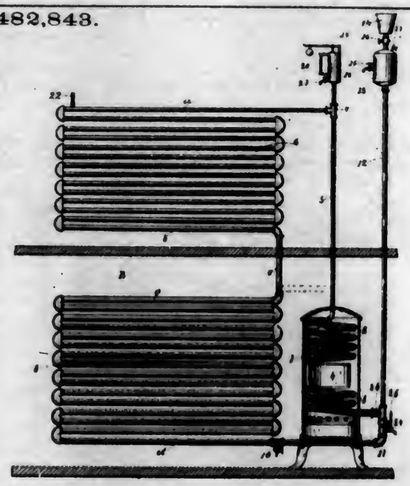


Claim.—In a gas-pressure regulator, the combination, with a casing provided with a cover and having an inlet-pipe provided with a valve-seat and outlet-opening, of two rings secured to the interior thereof, the upper one of which is smaller in diameter than the casing and has its bottom turned outwardly and secured to the casing and forms with said casing an annular space for the reception of a liquid and the lower ring is provided with bolt-holes, a cylindrical closed top cover within the upper ring, a loose ring provided with bolt-holes to correspond with the holes of the lower ring, a flexible diaphragm between the two perforated rings, bolts through the perforated rings, for securing the diaphragm and the rings together, and a rod secured to the diaphragm having a valve at its lower end and weights upon its upper end on top of the diaphragm, substantially as set forth.

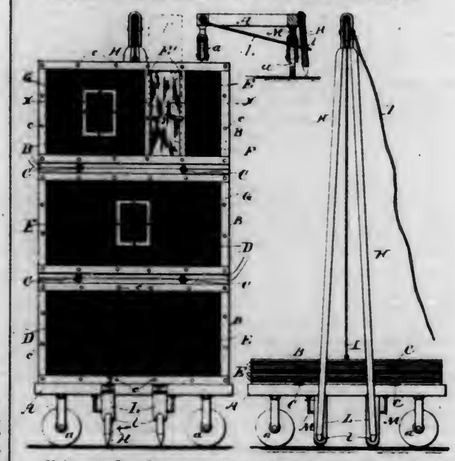
482,843. APPARATUS FOR PURIFYING AND AGING LIQUORS. CHRISTIAN HEINTZ, Buffalo, N. Y. Filed June 7, 1892. Serial No. 435,797. (No model.)

Claim.—In an apparatus for aging and purifying liquors, the combination of a substantially continuous vertically-arranged pipe a portion of which is formed into a coil, a stove surrounding the coiled portion of the pipe, a vertical filling-pipe communicating with said pipe at the lower end of the coil outside of the stove, a filling-vessel at the top of the vertical pipe provided with suitable cocks, and three cocks in the continuous pipe below the coil, two of which are liquid and air outlets, respectively, and the other one a stop-cock, the stop-cock being located between the air-outlet and the union between the vertical pipe and lower end of the coil and a thermometer and a safety-valve connected with the continuous pipe, substantially as set forth.

482,848.



482,844. FIRE-SHIELD. WILLIAM M. HERRINGTON, Wellsborough, Pa. Filed Feb. 9, 1892. Serial No. 420,902. (No model.)



Claim.—1. In a fire-shield, the combination, with the truck and its frame, of a series of frames containing fireproof material, two sheets of wire-netting surrounding the said material, the chain-hinges for connecting the frames together and to the truck-frame, the derrick, the pivoted arms wherein the derrick rests, and means for operating the said frames, substantially as and for the purpose set forth.

2. In a fire-shield, the combination, with the truck-frame, the arms pivoted thereto, and the derrick adapted to rest in apertures in the said arms, of a series of frames connected together and to the truck-frame, the fireproof material and netting surrounding the same, the grooved bars dividing the said material of one of the frames so as to leave an opening, and the fireproof-door adapted to slide in the grooves of the said bars over the opening, substantially as and for the purpose set forth.

3. In a portable fire-shield, the combination, with the truck, the truck-frame, and a series of frames containing fire-proof material and a wire-netting, of the fireproof-door F, the springs f, and the grooved bars in which the said door is operated, substantially as and for the purpose set forth.

482,845. HORSESHOE. WLADIMIR KONDAKOFF, Gatchina, near St. Petersburg, Russia. Filed Apr. 12, 1892. Serial No. 428,908. (No model.)

Claim.—1. In combination, the shoe having the dovetailed recesses e extending from the inner edge and closed on the outer edge

and the attaching-stirrups having pins on their lower sides adapted to said recesses, the openings of which lead laterally from the interior space of the shoe, substantially as described.

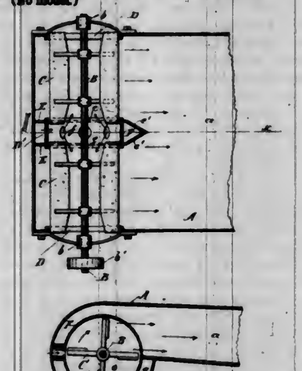
2. In combination, the shoe, the two front stirrups, the heel-stirrups, the plate d, connected to the front stirrups, and the straining-band c, passing around the hoof and the plate d and secured at its ends to the heel-stirrups, the said plate d being curved and extending from one front stirrup b to the other, substantially as described.



3. In combination, the shoe, the heel-stirrups a, one of which has a lug h at or near its free end and a second lug i in the rear of the same, the straining-band c, having a lug i' at its free end and arranged to lie adjacent to the lug i on the heel-stirrup, said band having, also, a perforation y in the rear of its lug i', adapted to lie over and permit the lug h to project through it when the lugs i and i' are brought adjacent to each other, and the means for holding the front of the shoe, substantially as described.

4. In combination, the shoe, the front and heel stirrups, the ribbed plate d, connected to the front stirrups, and the straining-band c, passing around the ribbed plate and secured to the heel-stirrups, substantially as described.

482,846. FAN AND REGULATOR FOR THRASHING-MACHINES. FRANK P. LANDIS, Waynesborough, Pa. Filed Apr. 2, 1892. Serial No. 427,520. (No model.)



Claim.—1. The combination, with the sections of the fan secured upon the fan-shaft, of a fan-casing provided with an outlet common to the said sections and inlets at the ends of the fan and between its sections and a perforated ring supported in the casing and arranged between the said fan-sections, substantially as set forth.

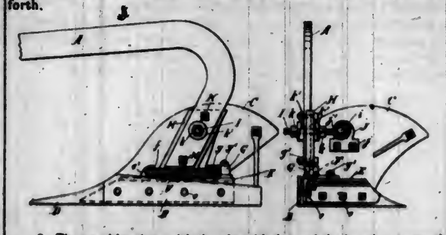
2. The combination, with the sections of the fan secured upon the fan-shaft, of a fan-casing provided with an outlet common to the said sections and inlets at the ends of the fan and between its sections, a ring provided with holes, and short pipes supporting the said ring in the casing and connecting the holes in the ring with the said inlets in the casing between the sections, substantially as set forth.

3. The combination, with the sections of the fan secured upon the fan-shaft, of a fan-casing provided with a single outlet common to the said sections and a ring encircling the adjacent ends of the fan-blades of each two sections, said ring being provided with holes between the sections for the admission of air, substantially as set forth.

482,847. PLOW. FRANK P. LANDIS, Waynesborough, Pa. Filed May 26, 1892. Serial No. 434,736. (No model.)

Claim.—1. The combination, with the plow-blades and the bracket secured to them, of a plow-beam provided with a bar at its lower end, one end of the said bar being hemispherical and pivoted in a lug at the front end of the said bracket, and the laterally-adjustable clip provided with fastening-bolts passing through slots in the rear end of said bracket and engaging with the rear end of the said bar, substantially as set forth.

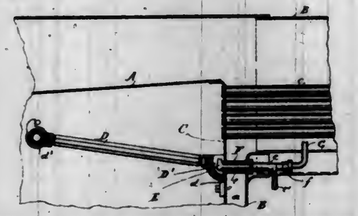
2. The combination, with the plow-blades and the bracket secured to them, of a plow-beam provided with a bar at its lower end, said bar being pivotally connected to the said bracket, and a bolt pivoted at one end to the mold board and having its other end adjustably connected with the plow-beam above the said bar, substantially as set forth.



3. The combination, with the plow-blades and the bracket secured to them, of a plow-beam provided with a bar at its lower end, said bar being pivotally connected to the said bracket, a screw-threaded bolt passing through the plow-beam and provided with a spherical head, a socket pivotally connecting the said head with the mold-board, and a nut and a pair of wedge-shaped washers on the said bolt at each side of the plow-beam, substantially as set forth.

4. The combination, with the plow-blades and the bracket secured to them and provided with a lug at its front end, of the plow-beam provided with a bar at its lower end and having a hemispherical end pivoted in the said lug, a laterally-adjustable clip engaging with the other end of the said bar and secured to the said bracket, and a bolt provided with a spherical head pivoted to the mold-board and having its other end adjustably connected with the plow-beam above the said bar, substantially as set forth.

482,848. STEAM-BOILER ATTACHMENT. FRANK P. LANDIS, Waynesborough, Pa. Filed May 26, 1892. Serial No. 434,737. (No model.)



Claim.—1. In a boiler, the combination, with the outer shell, the fire-box provided with a tube-plate, and a series of tubes, of a water-tight tube passing through the shell and the tube-plate, a pipe passing through the said tube and provided with a nozzle inside the fire-box and having a handle for oscillating it outside the boiler, and a pipe provided with a valve and operatively connected with the aforesaid pipe and with the interior of the boiler, whereby a jet of steam may be directed across the ends of all the tubes, substantially as set forth.

2. The combination, with a boiler provided with a series of horizontally-arranged fire-tubes, of a steam-nozzle arranged crosswise of the ends of the tubes inside the fire-box and means for oscillating said nozzle, whereby the steam may be directed across all the tubes, substantially as set forth.

3. The combination, with a boiler provided with a series of horizontally arranged tubes and a support for the baffle-plate, secured to the tube-plate below the tubes and having a recess D', of a steam-nozzle arranged in the said recess and directed crosswise of the ends of the tubes, whereby the steam may be directed across the tubes and the nozzle preserved from direct contact with the flame, substantially as set forth.

482,849. BLIND-STILE-MORTISING MACHINE. PIERRE H. LARCHER, Paris, France. Filed June 28, 1892. Serial No. 438,327. (No model.) Patented in France Feb. 2, 1891, No. 211,112; in Belgium June 12, 1891, No. 95,243; in England June 12, 1891, No. 10,008; in Germany June 15, 1891, No. 61,351; in Sweden June 17, 1891, No. 3,521; in Switzerland June 23, 1891, No. 3,631; in Italy June 25, 1891, No. 29,942; in Norway June 29, 1891, No. 3,236; in Turkey July 2, 1891, No. 233; in Tunis July 13, 1891, No. 36; in Spain July 20, 1891, No. 13,226, and in Austria-Hungary Oct. 10, 1891, No. 26,896 and No. 60,918.

Claim.—1. In a machine for mortising blind-stiles, the framework and the cutting-tool, in combination with a spacing-carriage movable

longitudinally intermittently to space the mortises, and a work-carriage for carrying the stile before the tool movably carried by said spacing-carriage, said carriages constructed with interengaging guideways adapted to permit the oblique movement of the work-carriage relatively to the other, stops for limiting such movement, a catch for locking the spacing-carriage in its respective positions, and means for moving said work-carriage whereby the latter can move obliquely before the tool to cut one mortise, and then the spacing-carriage can be shifted to adjust the work-carriage for the adjacent mortise.

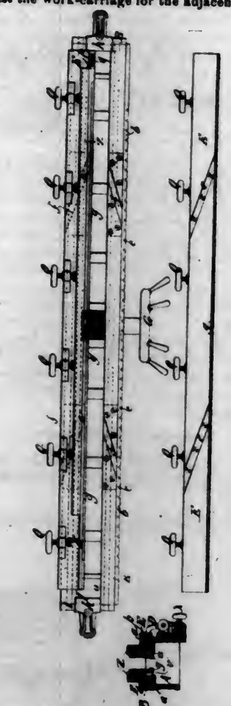
framework and the mortising-tool, in combination with a spacing-carriage, as B, having a graduated rack, as b, of two work-carriages, as E E, for carrying the stiles before the mortising-tools, said spacing-carriage constructed with oblique guideways f f, the one for one work-carriage and the other for the other, and the one extending obliquely at one inclination and the other at a reverse inclination, and said work-carriages constructed with guideways, as e e, adapted to engage said guideways on said spacing carriage, whereby said work-carriages can move obliquely relatively to said spacing carriage and when so moved will alternately approach and recede from each other, said work-car-

joint and having an entrance for the bobbin at its face, for the purpose set forth.

3. In combination with a rotary shuttle and a disk bobbin, a non-rotary bobbin-case within said shuttle permanently attached thereto by a swivel-joint, having an arm and a tension device attached to its periphery and provided with self-threading thread-guides, including a radial hole opposite the space between the bobbin-disks, and a slit extending to said hole from an opening in the outer edge of the bobbin-case, substantially as herein specified.

482,858. ORE-SEPARATOR. HORACE H. TAYLOR, San Francisco, Cal., assignor of one-half to Robert Pollard, same place. Filed Apr. 26, 1892. Serial No. 430,698. (No model.)

longitudinally intermittently to space the mortises, and a work-carriage for carrying the stile before the tool movably carried by said spacing-carriage, said carriages constructed with interengaging guideways adapted to permit the oblique movement of the work-carriage relatively to the other, stops for limiting such movement, a catch for locking the spacing-carriage in its respective positions, and means for moving said work-carriage whereby the latter can move obliquely before the tool to cut one mortise, and then the spacing-carriage can be shifted to adjust the work-carriage for the adjacent mortise.



2. In a machine for mortising blind-stiles and other similar uses, the framework and the cutting-tool, in combination with a spacing-carriage, as B, movable longitudinally intermittently to space the mortises, a work-carriage, as E, for carrying the stile before the tool carried movably by said spacing-carriage, interengaging guideways, as *f f*, on said carriages adapted to permit the oblique movement of the work-carriage relatively to the other stops, as *h h'*, for limiting such movement, said work-carriage constructed with a cog-rack, as *g*, pinion F, meshing with the latter for driving said work-carriage, and a catch between said spacing-carriage and said frame-work for locking the former in its respective positions, and consisting of a pawl on the one part and a graduated rack on the other part, whereby while said spacing-carriage is locked by said catch said work-carriage may be moved obliquely by said pinion to cut the mortise, and by adjusting said spacing-carriage the several mortises to be cut can be spaced, substantially as and for the purpose set forth.

3. In a machine for mortising blind-stiles and other similar uses, the framework and a pair of cutting-tools, in combination with a spacing-carriage movable longitudinally intermittently to space the mortises, and a pair of work-carriages for carrying the stiles before the tools movably carried by said spacing-carriage, the latter constructed with oppositely-inclined guideways, corresponding guideways provided on said work-carriages and adapted those of the one to engage one set of guideways on said spacing-carriage and those of the other the oppositely-inclined set thereon, whereby said work-carriages when moved relatively to said spacing-carriage travel obliquely relatively thereto, the one at one inclination and the other at a reverse inclination, stops for limiting said movements of said work-carriages relatively to said spacing-carriage, a catch for locking the latter in its respective positions, and means for simultaneously moving said work-carriages, whereby the opposing stiles of a blind can be carried, the one by each work-carriage, and be then simultaneously mortised to produce the opposite mortises for the one slat of a blind, substantially as set forth.

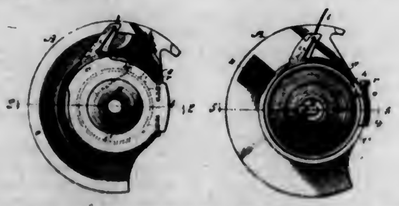
4. In a machine for mortising blind-stiles and for similar uses, the framework and the mortising-tool, in combination with a spacing-carriage, as B, having a graduated rack, as *b*, of two work-carriages, as E E, for carrying the stiles before the mortising-tools, said spacing-carriage constructed with oblique guideways *f f*, the one for one work-carriage and the other for the other, and the one extending obliquely at one inclination and the other at a reverse inclination, and said work-carriages constructed with guideways, as *e e*, adapted to engage said guideways on said spacing carriage, whereby said work-carriages can move obliquely relatively to said spacing carriage and when so moved will alternately approach and recede from each other, said work-carriages having cog racks, as *g g*, a pinion F, engaging the latter for driving said work-carriages simultaneously, means for locking said spacing-carriage in its respective positions, whereby when so locked the work-carriages can be moved to cut the mortises, and means for locking the work-carriages to the spacing carriage, whereby the latter can be moved through the work-carriages to adjust its position, substantially as and for the purpose set forth.

5. In a machine for mortising blind-stiles and for similar uses, the framework, and the mortising tools, in combination with a spacing-carriage B, having a central recess *u* and reverse inclined guideways, as *f f*, two work-carriages E E for carrying the stiles to be mortised having guideways, as *e e*, engaging those of said spacing-carriage constructed with cog-racks *g g* on their inner sides depending from said recess in the spacing-carriage, said guideways constructed to permit oblique movement of said work-carriages relatively to said spacing-carriage, the one at one inclination and the other at a reversed inclination, whereby when reciprocated said work-carriages approach and recede from each other, and a long pinion F beneath said spacing-carriage and meshing with said cog-racks for simultaneously driving said work-carriages, substantially as and for the purpose set forth, whereby as said work-carriages approach and recede from each other in operation their cog-racks traverse said pinion and said recess *u*.

6. A machine for mortising blind-stiles and for similar uses, the framework and the mortising-tools, in combination with a spacing-carriage B, two work-carriages E E, movable obliquely thereon, means for driving said work-carriages, and adjustable stops, as *h h'*, for limiting the movement of said work-carriages relatively to said spacing-carriage, said stops constructed when said work-carriages contact with either of them to lock said work carriages to said spacing-carriage and thereby permit the movement of the latter by the continued action of the driving means for said work-carriages, substantially as and for the purpose set forth.

7. In a machine for mortising blind-stiles, the frame A and a pair of cutting-tools *k k*, adjustably mounted to be movable toward the work for cutting the mortises, in combination with the spacing-carriage B, carried on said frame, movable intermittently, constructed with opposed oblique guideways and having a graduated rack, as *b*, a pair of work-carriages E E, adapted to carry the two stiles of a blind having guideways engaging, respectively, those of said spacing-carriage and adapted to cause the work-carriages to simultaneously move in reversed angles, means for simultaneously moving said work-carriages, means for manipulating said tools, and the catch D on said frame and engaging said graduated rack for locking said spacing-carriage in its respective positions, substantially as and for the purpose set forth.

482,850. SHUTTLE FOR SEWING-MACHINES. ARTHUR M. LESLIE, Chicago, Ill. Filed July 19, 1886. Serial No. 208,486. (No model.)



Claim.—1. In combination with a disk bobbin, a rotary shuttle having an inner edge concentric with its center of rotation, and a non-rotary bobbin-case in two parts united to form a peripheral groove, within which said inner edge of the shuttle revolves, such case having a bobbin entrance and a suitable bobbin-retainer at its outer face, whereby the bobbin-case is permanently attached to the shuttle by a swivel-joint, the bobbin is completely isolated from the shuttle, and removing and replacing the bobbin alone are provided for, substantially as hereinbefore specified.

2. The combination, substantially as herein specified, of an annular rotary shuttle having its bore concentric with its axis of motion and a bobbin-case permanently attached within said bore by a swivel-joint and having an entrance for the bobbin at its face, for the purpose set forth.

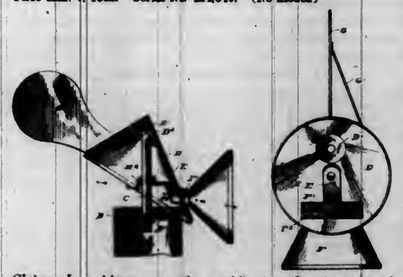
3. In combination with a rotary shuttle and a disk bobbin, a non-rotary bobbin-case within said shuttle permanently attached thereto by a swivel-joint, having an arm and a tension device attached to its periphery and provided with self-threading thread-guides, including a radial hole opposite the space between the bobbin-disks, and a slit extending to said hole from an opening in the outer edge of the bobbin-case, substantially as herein specified.

4. In combination with a rotary shuttle and a disk bobbin, a cylindrical non-rotary bobbin-case having a radial threading-hole and a peripheral arm furnished with thread-guides, a tension-spring attached at one end to the periphery of the case, and a regulating-screw which is vertical in the working position of the parts, engaging said spring, substantially as herein specified.

5. In combination with an annular rotary shuttle and a disk bobbin, a non-rotary bobbin-case within said shuttle permanently attached thereto by a swivel-joint and having an annular back-bearing for the bobbin in the form of a beveled inner flange, and an annular bobbin-retaining cap attached to the outer edge of said case by a hinge and correspondingly beveled, substantially as herein specified.

6. In combination with a non-rotary bobbin-case, a rotary shuttle having a body of dish shape, with its convex back permanently united by a swivel-joint with said case at the back of the latter, its peripheral edge central with reference to the face and back of the combined shuttle and case, and its concave face provided with an inclined loop-spreader extending from said peripheral edge to the face of the case for passing the needle-loops over the latter, substantially as herein specified.

482,851. CHIMNEY-CAP. WILLIAM A. PEARCE, Houghton, Mich. Filed Mar. 7, 1892. Serial No. 424,049. (No model.)



Claim.—In a chimney-cap, the combination of a tube or pipe having a rod extending vertically therefrom, a conical cap having an eccentric apex and mounted over said tube or pipe and rotatably supported by said rod and having the apex thereof nearer one side than the other to provide an oblique arrangement and a depending elongated sloping side, which projects over and below a portion of the said tube or pipe, said cap having a vane in connection with the upper shorter side thereof, and an elongated tubular neck of substantially rectangular form extending through the depending portion of the cap at an oblique angle to the top portion of the tube or pipe and having an elongated flaring funnel secured to the outer end thereof, whose lower edge depends below the lowermost portion of the cap to prevent passage of air under the edge of said cap, substantially as described.

482,852. BOOMERANG. CALVIN G. STEVENS, Watertown, N. Y. Filed May 4, 1891. Serial No. 391,587. (No model.)

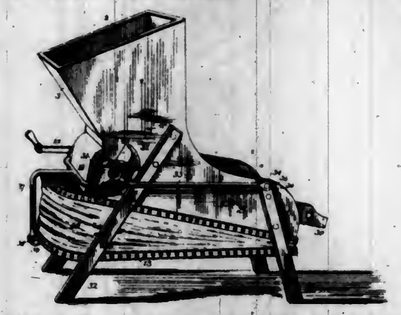


Claim.—1. A toy missile having a bent body provided with a flat lower face and a slightly-convexed upper face with beveled edges, said faces being unbroken.

2. A toy missile comprising a bent body having a flattened lower face and convex upper face, and provided with vibrating strings secured to the arms.

3. A toy missile having a hollow bent body and beveled edges, the outer faces of said body being provided with perforations.

482,853. ORE-SEPARATOR. HORACE H. TAYLOR, San Francisco, Cal., assignor of one-half to Robert Pollard, same place. Filed Apr. 26, 1892. Serial No. 430,698. (No model.)



Claim.—1. In a separator of the class described, the combination, with the framework, the bellows, the superimposed hopper, the cut-off located between the discharge of the hopper and the bellows, an air-blast leading from the bellows, and the shaft for supporting the same to a point below the cut-off, of a riffle-frame located in front of the cut-off, a lever pivoted to the frame, connected with the bellows, and resting upon the cut-off-supporting shaft, and a cam on the shaft for raising and lowering the lever as said shaft rotates, substantially as specified.

2. In a separator of the class described, the combination, with the framework, the bellows, the air-blast leading therefrom, and the superimposed hopper, of the riffle-frame located under the hopper and in front of the blast, the transverse cut-off shaft, cams mounted thereon, a bail having a lateral offset extending in the path of the cams and having its front end pivoted to the framework, and connections between the lower movable member of the bellows and the bail, substantially as specified.

3. In a separator of the class described, the combination, with the framework, the bellows having its upper immovable member secured rigidly to the frame and provided with a perforation, a transverse bar mounted on the bellows and having a cavity communicating with the perforation and terminating in a discharge orifice or passage, and an upwardly-opening valve mounted in the cavity over the perforation, of means for operating the bellows, a superimposed hopper, a cut-off for the same, means for operating the cut-off, and a riffle-frame located in front of the cut-off and air-blast, substantially as specified.

4. In a separator of the class described, the combination, with the opposite sides 1, having the supporting-legs, the hopper in the upper end of the same, and the bellows at the lower end of the frame and having its upper immovable member connected rigidly therewith, of the transverse cut-off shaft located between the bellows and hopper and having the rearwardly-curved cam-fingers 31 on the opposite ends of the same, the cut-off mounted on the shaft, the riffle-frame located under the cut-off, the U-shaped bail 33, embracing the side walls of the separator and pivoted at its front end to the opposite sides of the frame, the terminals 34 of said bail being upwardly bent, as at 40, to take over the shaft 7 and laterally bent, as at 41, and projecting into the path of the cam-fingers, said bail being further provided with the bent arm 37, and the bracket 39, pivoted, as at 38, to the lower end of the arm and at its inner end connected to the lower or movable member of the bellows, substantially as specified.

482,854. PHOTOGRAPHIC SHUTTER. JOHN K. THORNTON, Manchester, England, assignor of one-half to Edgar Pickard, same place. Filed Nov. 3, 1890. Serial No. 370,908. (No model.) Patented in England Sept. 27, 1886, No. 12,236.

Claim.—1. In a photographic shutter constructed with a spring-driven blind mounted upon a roller *a*, the combination, with a rotating disk D, geared to a pinion C and provided with a projecting stud *d*, of the movable adjustable stop-lever E, provided with the detent or stop *e* to engage with the said stud, substantially as and for the purposes described.

2. In a photographic shutter having a spring-driven blind, the combination, with the rotating disk D, carrying projecting pins or studs *c*, *c'*, and *d*, of the detent-lever E, provided with the detent *e*, which engages with the said studs, substantially as described.

3. In a photographic shutter, the combination, with the spring-driven blind A, winding-roller *a*, and pinion C, of the toothed disk having the projecting pin or stud *d*, the detent-lever E, having the detent or stop *e*, which engages with the projecting pin, and the pneumatic bulb F and bail G, by which the detent-lever is moved, substantially as described.

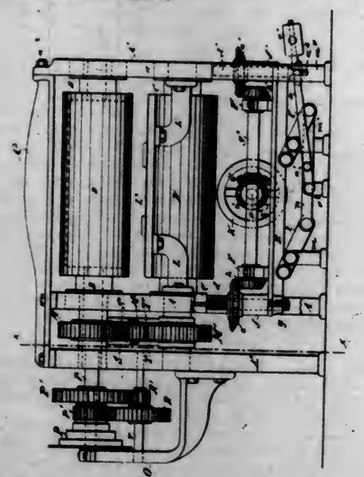
482,854.



4. In a photographic shutter, the combination, with the spring-driven blind A, winding-roller *a*, carrier-pinion C, and toothed disk D, having studs *c d d* upon its face, of the adjustable detent-lever E, with detent *e*, which engages with the said studs and the pneumatic bulb F and ball G substantially as described.

5. The combination of the spring-driven blind A, having aperture A', mounted in the case B on a spring-roller *a'* and winding-roller *a*, the pinion C, affixed to the end of the winding-roller, the toothed disk D, carrying studs *c d d*, the adjustable lever E, carrying detent *e*, which engages with the studs on the disk D and arrests the progress of the blind, and the pneumatic bulb F, operated by the ball G, which moves the detent-lever E to release the studs on the disk D, substantially as and for the purposes described.

482,855. MACHINE FOR DECORATING WOOD. ABRAM TILTON, Brooklyn, and AUGUST HORNEL, New York, N. Y. Filed Oct. 29, 1891. Serial No. 410,275. (No model.)



Claim.—1. In a machine for ornamenting wood and other surfaces, the combination of a standard divided in halves, which are pivoted to the base of the standard, with roller-bearings also divided in halves and attached to the respective halves of the standard, and an angle-piece of the upper cross-bar of the machine, by which angle-piece the halves of the standard and of the roller-bearings are held together, substantially as set forth.

2. In a machine for ornamenting wood and other surfaces, the combination of the adjustable rail E, having on its ends supporting-rods for the adjustable bearings of the feed-roller, with the lever-arms *l l'*, the connecting-rod *n*, connecting the said lever-arms with each other, and the weighted lever *o*, fulcrumed to the connecting-rod, substantially as set forth.

3. In a machine for ornamenting wood and other surfaces, the combination of pulley P, having pinion *p'* on shaft *p*, with gear-wheel R and pinion R' on shaft *r*, gear-wheel P' and pinion N on shaft *p*, gear-wheel M^2, links S S', attached to shaft *p* and the shaft of said gear-wheel, links T T', attached to shaft of feed-mill D' and the shaft of gear-wheel M^3, and gear-wheels M and M' of the rollers D and D', respectively, substantially as and for the purpose set forth.

482,856. BICYCLE. ALFRED TREMBLAY, Holyoke, Mass. Filed Feb. 10, 1892. Serial No. 420,946. (No model.)



Claim.—1. In a system of leverage for imparting a rapid rotary movement to bicycles and other vehicles propelled by manual force, the combination of the levers 4 and 5, connecting-rods 7, 8, and 9, with the pitman-levers 6, pitmen 10, and arms 1 and 2, having central bearings, substantially as described.

2. In a manually-operated vehicle, the pedal 12, cranks 11, and pitmen 10, in combination with levers 4, 5, and 6, arms 1 and 2, and the connecting-rods 7, 8, and 9, substantially as described, and for the purpose specified.

3. In a manually-operated vehicle, levers 4 5 6, pitmen 10, cranks 11, pedals 12, with the drums 13 and connecting mechanism, substantially as described.

482,857. SHEARS. THOMAS M. UNDERWOOD, Baldwyn, Miss., assignor of one-half to John Rowan, same place. Filed June 29, 1892. Serial No. 438,438. (No model.)

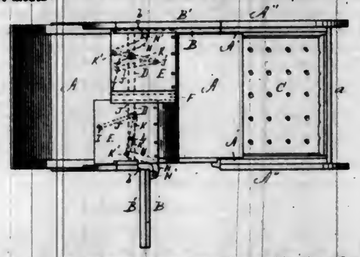


Claim.—1. In a barber's appliance, the combination, with the pivoted members of a pair of shears, of a screw-threaded pivot rod therefor, adjusting-nuts for said pivot-rod, an expansion-spring interposed between one of said members and an adjusting-nut, and a comb having one extremity held on the pivot-rod between the spring and adjusting-nut, substantially as specified.

2. In a barber's appliance, the combination, with the pivoted members of a pair of shears, of a screw-threaded pivot-rod therefor, adjusting-nuts for said pivot-rod on both sides of the shears, an expansion-spring interposed between one of said members and the adjacent nut, a comb having its rear extremity held on the pivot-rod between the said spring and nut, and a spring-clip provided with spaced vertical perforations on the forward extremity of the comb, substantially as specified.

3. In a barber's appliance, the combination, with the shears and its pivot-rod, of a comb having a plate provided with a plurality of perforations secured to its rear extremity, a spring between the shears and the said plate, and an adjusting-nut controlling the tension of said spring, substantially as specified.

482,858. TWO-SEATED CARRIAGE. FRANCIS H. VANIER and OVILA VANIER, Amesbury, Mass. Filed June 21, 1892. Serial No. 437,496. (No model.)

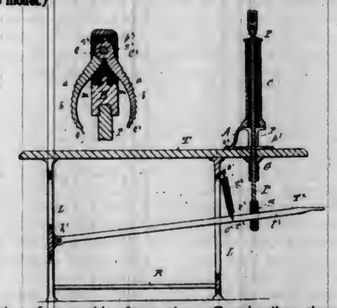


Claim.—1. In a two-seated carriage, the combination of a horizontally-sliding front seat, a door swinging in the side of the carriage-body, and connecting mechanism intermediate with said seat and door, whereby the opening of the door slides the said front seat forward and the closing of the door slides it rearward, substantially as described.

2. In a two-seated carriage, the combination of the horizontally-sliding front seat E, swinging door B, lever K, pivotally secured to the carriage-body, link J, pivotally secured at its opposite ends to the lever K and the seat, and link N, pivotally secured at its opposite ends to the lever K and the door, substantially as set forth.

3. In a two-seated carriage, the combination of the central partition or upright H, provided with the longitudinally-placed bar F, grooved at F' on its opposite sides, the sides A', provided with the grooves *e*, the sliding front seat E, whose edges rest in said grooves, the swinging door B, and mechanism connecting said door and seat, whereby the opening and closing of the door slides the front seat forward and back, respectively, substantially as described.

482,859. MACHINE FOR TURNING COLLARS AND CUFFS. JAMES H. YOUNG, Troy, N. Y. Filed Jan. 4, 1892. Serial No. 416,930. (No model.)

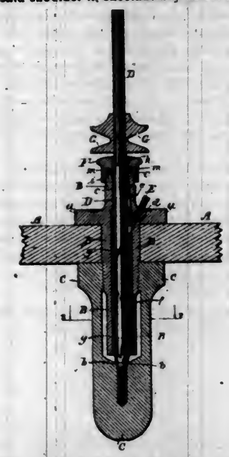


Claim.—In a machine for turning cuffs and collars, the combination of a cylinder C, a reciprocative rod P, arranged within the cylinder and carrying a head H, the clutch-arms hinged to the head and formed with serrations on their outer edges, and a treadle connected to the lower end of the reciprocative rod to operate the rod and clutch, substantially as described.

482,860. SUPPORT FOR SPINNING-SPINDLES. JAMES BLAIR, Worcester, Mass. Filed July 27, 1891. Serial No. 400,780. (No model.)

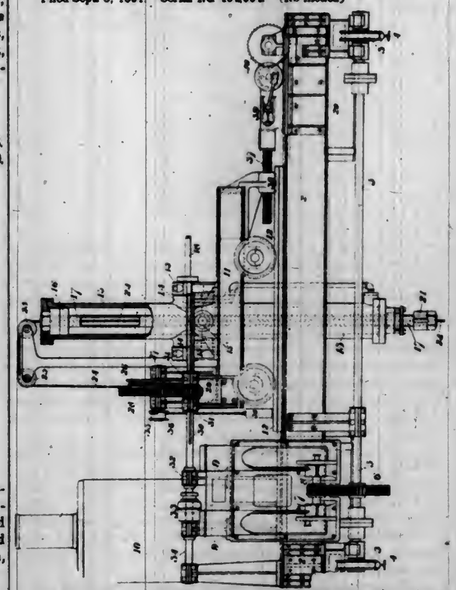
Brief.—The invention resides in the particular construction of the bolster-bearing in combination with the removable cap covering the same.

Claim.—1. The bolster-case B, having an internal bore and a reduced bearing *c* at its upper end, and the spindle D, extending through the internal bore of said bolster-case and turning in said bearing *c*, said spindle having a reduced portion forming a shoulder A at the bearing *c*, in combination with a cap F, removably secured to the upper end of the bolster-case and embracing the reduced portion of the spindle above said shoulder A, substantially as set forth.



2. The bolster case B, having bearing *c* and an annular recess with shoulder *i* at its upper end, and a spindle D, turning in said bearing *c*, in combination with a cap F, screwing onto the exterior of said bolster-case and embracing said spindle, said cap F having a downwardly-extending annular flange *m*, entering said recess and seating on said shoulder *i* substantially as set forth.

482,861. MILL APPLIANCE. JAMES A. BURNS, Homestead, Pa. Filed Sept. 3, 1891. Serial No. 404,664. (No model.)



Claim.—1. The combination, with a tongs-lifter having attachments for the tongs, of a flexible connection also connected with the tongs at a different point, a drum and weight by which the slack of the connection is taken up, and a motor connected with the drum and adapted to supply thereto power in addition to the power afforded by the weight, substantially as and for the purposes described.

2. The combination, with a tongs-lifter having attachments for the tongs, of a flexible connection also connected with the tongs at a different point, a drum and weight by which the slack of the connection is taken up, a motor connected with the drum and adapted to supply thereto power in addition to the power afforded by the weight, and a

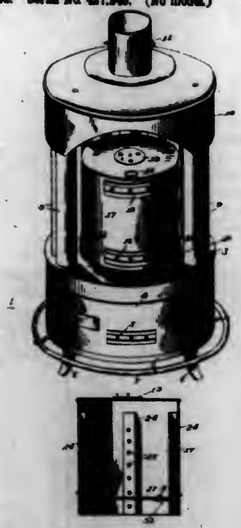
clutch adapted to connect and disconnect the motor and drum, substantially as and for the purposes described.

3. The combination of a lifting-cylinder having a hollow piston-rod, a cord which passes through said piston-rod, a drum and weight by which the slack of the cord is taken up, and means for rotating the drum, substantially as and for the purposes described.

4. The combination of a lifting-cylinder having a hollow piston-rod, a cord which passes through said piston-rod, a drum and weight by which the slack of the cord is taken up, a shaft for rotating the drum, and a clutch for operating the shaft, substantially as and for the purposes described.

5. The combination of a lifting-cylinder having a hollow piston-rod, a cord which passes through said piston-rod, a drum around which the cord passes, a clutch arranged to engage the drum-shaft, a shaft upon which the clutch is mounted, said clutch-shaft having splined thereon a pinion and carrying a cam engaging a fixed cam-face, and a rack arranged to actuate said pinion, substantially as and for the purposes described.

482,862. STRAW-BURNER. GUSTAV A. BYOR, Edgar, Nebr. Filed Mar. 31, 1892. Serial No. 427,246. (No model.)



Claim.—1. In a trash burner or furnace, the combination of a base having an opening in the top thereof, a series of flues extending upward from said base, a dome supported by and connected with said flues, and a chamber or magazine removably fitted in the opening of said base, substantially as described.

2. In a trash burner or furnace, a base having an opening in the top thereof, a series of flue-pipes projecting upward from said base, a dome mounted upon and connected with said flue-pipes and having a centrally-located smoke-pipe, and a magazine or burning-chamber removably fitted in the top of said base, the said flue-pipes extending only partially around the said base to form an entrance to the top thereof, substantially as described.

3. In a trash burner or furnace, the combination of a hollow base forming an ash-pit and having a series of collars projecting from the top thereof and surrounding a centrally-located opening, a dome having a series of collars depending therefrom, pipes detachably connected to the collars of said base and dome, and a burning-chamber having a detachable grate therein and removably mounted in said central opening of the base and communicating with the latter, substantially as described.

4. In a trash burner or furnace, the combination of a base, a dome, having the under front side thereof concaved at an upward incline toward the front, pipes detachably connecting said base and dome, and a burning-chamber located between said base and dome, the said concaved inclined portion of the dome permitting access to the top of the burning-chamber while the latter is in position, substantially as and for the purpose set forth.

5. In a trash burner or furnace, the combination of a base, a dome pipes detachably connecting said base and dome, tie-rods extending through said pipes and holding the parts together, and a burning-chamber removably mounted in said base and surrounded by said pipes, substantially as described.

6. A burning-chamber for a trash-burning furnace, having a series of internal flues and a grate in the bottom thereof, removably engaging said flues, substantially as described.

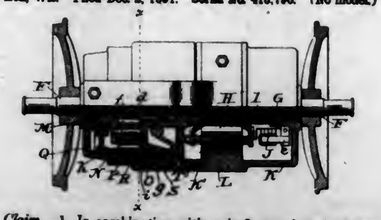
7. A burning-chamber for a trash-burning furnace, having a series of internal flues with apertures therein and a grate detachably connected to the lower ends of said flues and above the bottom of the chamber, substantially as described.

8. In a burning chamber or magazine for a trash-burning furnace, the combination of a series of internal flues, a grate having peripheral slots to take over the said flues, and sliding catches on said grate to engage the flues, substantially as described.

9. In a burning chamber or magazine for a trash-burning furnace, the combination of a series of internal flues extending partially upward into said chamber and having a series of openings or apertures therein and slots in the lower portions of the same, a grate having peripheral slots to take over the said flues, and sliding catches adapted to engage the slots in the lower ends of the flues, substantially as described.

10. In a trash burner or furnace, the combination of a base having an opening therein, a burning-chamber removably fitted in said opening and having internal flues and a bottom grate, a dome over the said burning-chamber, and a series of pipes connecting the base and dome, substantially as described.

482,863. ELECTRIC LOCOMOTIVE. CONRAD M. CONRADSON, Madison, Wis. Filed Dec. 2, 1891. Serial No. 413,790. (No model.)



Claim.—1. In combination with a shaft or axle to be driven and electric motor and gearing substantially such as shown and described interposed between the motor and the shaft or axle and adapted at the will of the attendant to positively lock together the rotating member of the motor and the shaft or axle, and thereby to cause the two to move as one, or to transmit motion from the rotating member of the motor to the shaft or axle through intermediate moving parts and at a different rate of speed from that of the rotating member of the motor.

2. In combination with an electric motor and with a shaft to be driven, intermediate gearing substantially such as described and shown for transmitting motion differentially from the moving member of the motor to the shaft, and a clutch adapted to lock together the moving member of the motor, the shaft, and the gearing and to cause said parts to rotate as one.

3. In combination with the shaft or axle, a sleeve encircling the same and provided with a pinion, an electric motor consisting of a fixed and a rotating member, said rotating member being secured to said sleeve, a pinion rotating with said sleeve, a second pinion meshing with the first and carried by a sleeve or head keyed to the axle or shaft, an annular gear-wheel encircling the shaft or axle and meshing with the second pinion, a fixed shell or head, and means substantially such as shown for causing the annular gear-wheel to be locked to the pinion-carrying head or sleeve or to the fixed shell or head at will, whereby the shaft or axle may be made to move at the same speed with or at a different speed from the movable member of the motor.

4. In combination with shaft or axle F, sleeve G, provided with pinion *d*, armature H, carried by said sleeve, field-magnet L, and means for supplying electric current to the armature, sleeve M, made fast to shaft or axle F, head or spider O, connected to sleeve M, pinion N, carried by sleeve M, and head O, fixed shell Q, and gear-wheel P, adapted to be thrown into engagement with head or spider O or with shell Q at will.

5. In combination with shaft or axle F, sleeve G, provided with pinion *d* and armature H, sleeve M and head O, pinion N, fixed shell Q, annular gear-wheel P, and electro-magnets R S, adapted to move the wheel P into engagement with spider or head O or with shell Q as one or the other magnet is energized.

482,864. SPLIT WHEEL. CONRAD M. CONRADSON, Madison, Wis. Filed Dec. 26, 1891. Serial No. 416,115. (No model.)

Claim.—In a split wheel, the combination, with a split rim, of a split hub arranged within the rim with its plane of division at an angle to the plane of division of the rim, with each hub-section overlapping



parts of both rim-sections, and bolts or screws for uniting the rim-sections to the hub-sections, all substantially as shown and described, whereby the bolts serve to mutually support the rim and hub sections and the ready replacement of either of the rim and hub sections is permitted without removing the wheel from its shaft.

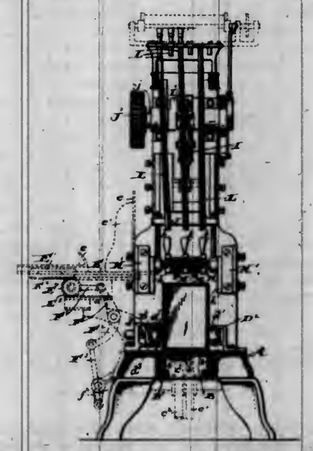
482,865. SAFETY DEVICE FOR WINDOW-CLEANERS. RUDOLPH d'HEUREUSE, New York, N. Y. Filed July 2, 1891. Serial No. 398,214. (No model.)



Claim.—1. In a safety device for the purpose described, a guard A, provided with a back strap whose ends are secured to said guard, in combination with a body-belt, as B, provided with loops or eyes, as C, substantially as set forth.

2. In a safety device for the purpose described, a guard A and a back strap D, having one of its ends permanently secured to said guard and its other end detachably connected thereto, in combination with a body-belt provided with loops and eyes, substantially as set forth.

482,866. BOX-NAILING MACHINE. SAMUEL H. EDWARDS, Bayonne, N. J. Filed Apr. 27, 1891. Serial No. 390,596. (No model.)



Claim.—1. In a box-nailing machine, the combination of lid-feeding devices, reciprocating nail-holders and hammers, power devices for independently operating said lid-feeding devices and the nail-holders and hammers, and connecting mechanism between the power devices for operating the nail-holders and hammers and the devices for operating the lid-feeding devices to control the operation of the latter, whereby said lid-feeding devices may be automatically thrown out of operation when the action of the nail-holders and hammers is suspended.

2. In a box-nailing machine, the combination of lid feeding devices to automatically feed the lids above the boxes, reciprocating lid-supporters to receive the lids successively from said feeding devices and deposit them upon the box, nail-holders to bring the nails in position upon the lid, and hammers to drive the nails from said nail-holders into the lid and box.

3. In a box-nailing machine, the combination of lid-feeding devices, reciprocating nail-holders and hammers, power devices for independently operating said lid-feeding devices and the nail-holders and hammers, connecting mechanism between the power devices for operating the nail-holders and hammers and the devices for operating the lid-feeding devices to control the operation of the latter, a clutch to throw the power devices for operating the nail-holders and hammers into and out of operation, and intermediate mechanism controlled by the box in passing to the machine to operate said clutch, whereby the operation of the lid-feeding devices, nail-holders, and hammers is controlled by the box in passing into the machine.

4. In a box-nailing machine, the combination of lid-feeding devices to automatically feed the lids above the boxes, reciprocating lid-supporters to receive the lids successively from said feeding devices and deposit them upon the box, reciprocating nail-holders to bring the nails in position upon the lid, means to reciprocate said lid-supporters and nail-holders synchronously, and hammers to drive the nails from said nail-holders into the lid and box.

5. In a box-nailing machine, the combination of feeding devices to feed the boxes successively to the machine, reciprocating nail-holders to bring the nails in position upon the box, reciprocating hammers to drive the nails from said holders into the box, power devices to reciprocate said nail-holders and hammers, a clutch to throw said power devices into and out of operation, and intermediate mechanism controlled by the box in passing through the machine to operate said clutch and cause the nail-holders and hammers to reciprocate.

6. In a box-nailing machine, the combination of lid-feeding devices, nail-holders and hammers, power devices to operate the lid-feeding devices and the nail-holders and hammers independently, a clutch to connect said lid-feeding devices with the power devices for operating them, and clutch-shifting devices to operate said clutch, controlled by the power devices for driving the nail-holders and hammers.

7. In a box nailing machine, the combination of box-carriers to carry the boxes successively into the machine, nail-holders to hold the nails in position to be driven, hammers to drive the nails from the holders into the box, a support for a series of lids, a pusher to push the lids successively from said support over the top of the box and under the nail-holders and hammers, and power devices to reciprocate said pusher.

8. In a box-nailing machine, the combination of box-carriers to carry the boxes successively into the machine, nail-holders to hold the nails in position to be driven, hammers to drive the nails from the holders into the box, a support for a series of lids, a pusher to push the lids successively from said support over the top of the box and under the nail-holders and hammers, a rack and pinion to reciprocate said pusher, and means to operate said pinion.

9. In a box-nailing machine, the combination of box-carriers to carry the boxes successively into the machine, nail-holders to hold the nails in position to be driven, hammers to drive the nails from the holders into the box, a support for a series of lids, a pusher to push the lids successively from said support over the top of the box and under the nail-holders and hammers, a rotatable shaft, a pinion E^4, connection between said pinion and rotatable shaft to reciprocate the pinion, and racks E^5 E^3, between which said pinion is reciprocated, the pusher carrying one of said racks.

10. In a box-nailing machine, the combination of box-carriers to carry the boxes successively into the machine, nail-holders to hold the nails in position to be driven, hammers to drive the nails from the holders into the box, a support for a series of lids, a pusher to push the lids successively from said support over the top of the box and under the nail-holders and hammers, power devices to operate said pusher, a driving-shaft, a clutch to connect said power devices of the pusher and the driving-shaft, and means to operate said clutch controlled by the box in its passage through the machine.

11. In a box-nailing machine, the combination of carriers to carry the box to the machine, a pusher to feed the lids successively upon the box, nail holders to hold the nails in position to be driven, hammers to drive the nails, an intermittently-operating stop to arrest the box under the nail-holders and hammers, and a carrier to carry the nailed box from the machine.

12. In a box-nailing machine, the combination of nailing devices, a driving-shaft, a clutch to connect said driving-shaft with the nailing devices, a projection arranged in the path of the box in passing to the machine, and operating connections between said projection and the clutch to connect the driving-shaft with the nailing devices, whereby the nailing devices are intermittently connected with the driving-shaft when the box passes to the machine.

13. In a box-nailing machine, the reciprocating frame M', carrying the notched lid-supports M^2.

14. In a box-nailing machine, the combination of the adjustable bed-plate B, rollers D', carried upon arms *d*, pivoted to said bed-plate,

so as to be adjusted with it, and carriers C and C' for carrying the boxes to and from the bed-plate.

15. In a box-nailing machine, the reciprocating frame M', carrying the movable guides M^6 and the notched lid-supports M^9.

16. In a box-nailing machine, the combination of a reciprocating frame, pivoted lid-supporting hooks carried thereby, a pusher to push the lids successively to the pivoted supporting-hooks, nail-holders to hold the nails in position to be driven, and hammers to drive the nails.

17. In a box-nailing machine, the combination of a reciprocating frame and curved spring-pressed guides M^6 carried thereby, pivoted spring-pressed lid-supporting hooks M^9, movable with said reciprocating frame, and a pusher to push the lids successively to said hooks M^9, whereby when the reciprocating frame descends said hooks M^9 are pushed aside by the box and the lid is deposited thereon.

18. In a box-nailing machine, the combination, with a support for the box, of an intermittently-reciprocating frame, lid-supporters and nail-holders carried by said frame and reciprocating with it, intermittently-reciprocating hammers to drive the nails from said holders, and feeding devices to feed the lids successively to said lid-supporters under the nail-holders.

19. In a box-nailing machine, the combination, with a support for the box, of an intermittently-reciprocating frame, lid-supporters and nail-holders carried by said frame and reciprocating with it, intermittently-reciprocating hammers to drive the nails from said holders, nail-tubes to supply nails to said nail-holders, intermittently-operating nail-feeding devices to feed the nails to said nail-tubes, and feeding devices to feed the lids successively to said lid supporters under the nail-holders.

20. In a box-nailing machine, the combination, with reciprocating nail-holders and hammers, of vertically-reciprocating lid-holders located under said nail-holders and hammers, adapted to receive the lid and carry it down upon the box, and power devices to reciprocate said nail-holders and hammers and lid-holders.

21. In a box-nailing machine, the reciprocating frame M', carrying the spring-pressed guides M^6, having the curved extremities m' and the spring-pressed lid-supports M^9.

22. In a box-nailing machine, the reciprocating frame M', carrying the notched lid-supports M^9, having the curved extremities m^6, and the springs M^{10}, acting upon the lid-supports M^9 to press them outward.

23. In a box-nailing machine, the combination of the pitmen I I, power devices to reciprocate said pitmen intermittently, cross-heads J J, carried by said pitmen I I, hammers O, carried by said cross-heads, cross-heads H H, carried by said cross-heads J J, but movable thereon, nail-holders K, and lid-supporters M, carried by said cross-heads H H.

24. In a box-nailing machine, the combination of the reciprocating nail-holders and hammers, power devices to reciprocate said nail-holders and hammers, a clutch to connect said power devices with the main driving-wheel, a lock to lock said clutch out of connection, a carrier for the box to carry it into the machine under the nail-holders and hammers, a pivoted stop in the path of said box, and connections between said pivoted stop and lock whereby the lock is released upon the passage of a box into the machine and the clutch is thrown into connection.

25. In a box-nailing machine, the combination of reciprocating nail-holders and hammers, power devices to operate them, a clutch to connect said power devices, a lock to lock said clutch out of operation, a bell-crank P^3, connected with said lock, a pivoted arm R, arranged in the path of the box in passing under the nail-holders and hammers, so as to be pushed aside by it, and a pivoted dog Q^2, moving with said arm R, adapted to actuate the bell-crank P^3 and withdraw the lock of the clutch, substantially as and for the purpose described.

26. In a box-nailing machine, the combination of the main driving-wheel, reciprocating nail-driving devices, a shaft *j*, from which said reciprocating nail-driving devices are operated, a clutch to connect the main driving-wheel and shaft *j*, a lock O^4 to lock said clutch out of operation, the cam O^3, carried by the shaft *j*, the spring-pressed bolt O^4, and the lever O^5, connected therewith, and mechanism to operate the lock O^4, controlled by the box in passing through the machine, all combined and operating substantially as and for the purpose described.

27. In a box-nailing machine, the combination of carriers to carry the boxes into and from the machine, power devices to drive said carriers, lid-feeding devices to feed the lids in succession upon the boxes, connections between the lid-feeding devices and the driving devices of the carriers to operate them synchronously, reciprocating nail-holders and hammers, and power devices to reciprocate said nail-holders and hammers intermittently and independently of driving of the carriers, and connecting mechanism between the clutch and the power devices for reciprocating the nail-holders and hammers to operate the clutch and disconnect the lid-feeders and driving devices of the carriers when the nail-holders and hammers cease operating.

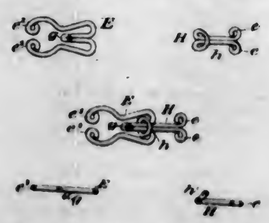
28. In a box-nailing machine, the combination, with reciprocating nail-holders and hammers, of nail-tubes to supply the nails to the nail-holders, nail-feeding devices to feed the nails one at a time to the nail-tubes, a nail-supply pan for supplying the nails to said nail-feeding devices, and intermittently operating power devices to intermittently raise and lower said nail-supply pan.

29. In a box-nailing machine, the combination, with reciprocating nail-holders and hammers, of tubes to supply the nails to the nail-holders, nail-feeding devices to feed the nails one at a time to the nail-tubes, a nail-supply pan hinged to said nail-feeding devices and adapted when raised to supply nails thereto, a crank-shaft and connections between said crank-shaft and pan, a main driving-shaft, gearing between said main driving-shaft and crank-shaft, and a clutch for disconnecting said gearing and main driving-shaft, intermittently connected with said driving-shaft.

30. In a box-nailing machine, the combination, with reciprocating nail-holders and hammers, of nail-tubes to supply the nails to the nail-holders, nail-feeding devices to feed the nails one at a time to the nail-tubes, a nail-supply pan hinged to said nail-feeding devices and adapted when raised to supply nails thereto, a crank-shaft and connections between said crank-shaft and pan, a main driving-shaft, gearing between said main driving-shaft and crank-shaft, a clutch for disconnecting said gearing and main driving-shaft, having a curved groove *z*, the bolt Y, finger V^4, and worm V', and worm-wheel V^3, combined and operating substantially as and for the purpose set forth.

31. In a box-nailing machine, the combination, with the hammers, of the nail-holders K, consisting of the main body portion K', the front portion K^2, formed with the nail-bore between them, the connecting-bolts for connecting said parts K' and K^2 together, the yoke K^5, and screw K^7, combined substantially as and for the purpose described.

482,867. HOOK AND EYE. WILLIAM J. EDWARDS and FRANCIS R. BARCLAY, Youngstown, Ohio. Filed Mar. 18, 1892. Serial No. 425,497. (No model.)



Claim.—1. In a hook and eye, the combination of a substantially U-shaped eye the free ends of which are provided with means for securing it to a garment and the sides and walls thereof are contracted or bent inward toward each other intermediate their ends and bottom and the bottom or curved portion is provided with a tongue, and a hook the point of which is provided with an opening through which the tongue of the eye passes when the two are engaged, the distance between the contracted portion of the walls of the eye being less than the transverse diameter of the extended or open portion of the hook, whereby the walls of the eye must be sprung outwardly to permit of the passage of the hook between them, substantially as set forth.

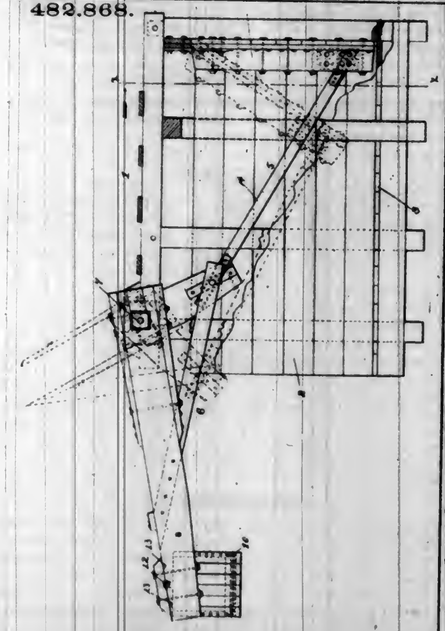
2. In a hook and eye, the combination, with a hook the point of which is bent outwardly and rearwardly and is expanded or provided with an opening, of a substantially U-shaped eye the walls of which are contracted or bent inward or toward each other and the bottom or curved portion is provided with a tongue the end of which extends to the contracted portion and is bent downward below the plane of the eye, whereby the end of the tongue will occupy the plane of the hook when in position and must be raised above said plane when it passes through the opening of the hook, substantially as set forth.

482,868. AUTOMATIC FLOOD-GATE. SYDNEY FLINN, Caddoa, Colo. Filed June 1, 1891. Serial No. 394,783. (No model.)

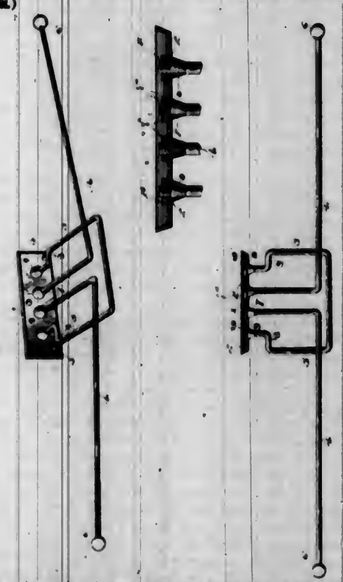
Claim.—1. The combination of a framework designed to lead from a canal, aqueduct, or the like, a flood-gate hinged at its top, and a weighted bell-crank-lever frame provided with an extension and fulcrumed at one of its angles on the frame and extending below its fulcruming-point and connected with the bottom of the gate, substantially as described.

2. The combination of a frame-work, a flood-gate hinged at its top, a bell-crank-lever frame fulcrumed on the frame at one of its angles, a connecting-frame pivotally attached to the flood-gate and the lever-frame, and a weight attached to the bell-crank-lever frame, substantially as described.

482,868.

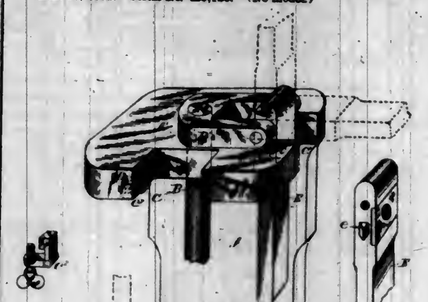


482,869. TOWEL-RACK. JOHN F. HUBER and GEORGE L. MARVIN, Central City, Nebr. Filed June 21, 1892. Serial No. 437,490. (No model.)



Claim.—A towel-rack comprising the base-plate adapted to be secured to a supporting-surface and provided with openings 2, a rectangular supporting-frame extending horizontally from the plate and having its sides bent inward at 8 and provided with shoulders and threaded and extending through openings 2, the L-shaped arms adapted to be supported in a horizontal position by the said frame and having their inner ends provided with shoulders and arranged in openings 2, and nuts arranged on the inner face of the plate and securing the arms and the frame to the same, substantially as described.

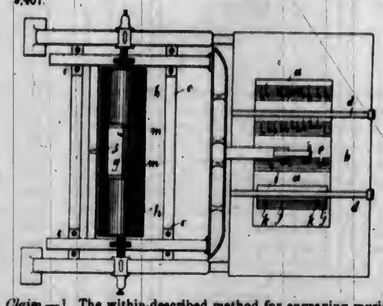
482,870. SWITCH-STAND. SAMUEL JOSH, Plain Dealing, La. Filed Mar. 16, 1892. Serial No. 425,123. (No model.)



Claim.—1. In a switch-stand, the combination, with the cap-plate having two or more locking-recesses in its edges formed with bolt-openings in the side walls thereof, of a lever secured to the switch-shaft, having a hinged connection, a lock on the hinged connection, having a beveled catch-bolt arranged to engage the sides of the recesses and enter the bolt-holes, and a removable plug in the bolt-hole of one of the recesses, substantially as described.

2. In a switch-stand, the combination, with the switch-shaft, of a cap having two or more looking-recesses formed with bolt-openings in their side walls, a hinged lever on the switch-shaft, a lock on the lever, and a movable plug fitted in one of the bolt-openings, substantially as described.

482,871. METHOD OF PRODUCING MUSIC OR LIKE ENGRAVINGS. CHARLES A. KER, Glasgow, Scotland. Filed Feb. 10, 1892. Serial No. 420,934. (No model.) Patented in England June 6, 1889, No. 9,407.



Claim.—1. The within-described method for engraving music or the like, consisting in punching or otherwise cutting out the musical or other sign upon a pattern-sheet of suitable material, then placing said sheet upon a table in an engraving-machine, then securing a sheet of suitable material upon a roller, then transferring the characters from the first sheet to the second sheet by means of a pantograph, and then removing the sheet from the roller and printing from said sheet, substantially as and for the purposes described.

2. In a machine for engraving music or the like, the combination, with a table for holding a pattern-sheet, of a roller for holding a sheet upon which the characters are to be transferred from the pattern-sheet upon the table, a transfer-sheet placed upon said roller, and means, substantially as described, for holding said transfer-sheet upon said roller while a pantograph is caused to transfer the characters from the pattern-sheet to said transfer-sheet upon said roller, said holding means permitting the transfer-sheet to be placed upon and removed from said roller, substantially as and for the purposes described.

482,872. INSULATOR. CHARLES T. LEE, Boston, Mass., assignor to the Johns-Pratt Company, Hartford, Conn. Filed Nov. 14, 1891. Serial No. 411,926. (No model.)

Claim.—1. An insulator comprising an insulation-block composed of a series of sheets of mica compressed and compacted together, the said block having a parallel-sided seat formed thereon, and a metallic shell or casing inclosing or partially inclosing the said block, tightly compressing the seat thereon, and held on the seat by frictional contact, for the purposes and substantially as set forth.

482,872.



2. An insulator comprising a core, a series of sheets of mica strung on said core and closely compressed and compacted together thereon, the said block having a parallel-sided seat formed thereon, and a metallic shell or casing inclosing or partially inclosing the mica on said core, tightly compressing the seat thereon, and held on the seat by frictional contact, for the purposes and substantially as set forth.

below the drum D, open at its lower end and provided with the perforated diaphragm *d*, said drum being imperforated below and perforated above said diaphragm, substantially as and for the purpose specified.

482,875. COIN-CONTROLLED VENDING APPARATUS. JOHN G. MACPHERSON, McKeesport, Pa. Filed May 27, 1892. Serial No. 434,597. (No model.)

adapted to engage with one or a series of projections on the delivery-slide, as and for the purpose described.

8. In a coin-operated vending apparatus, the combination, with a bed-plate and the delivery-slide, of the pivoted coin-holder, an endwise-movable puncturing-bar arranged in the path of the coin-holder, a detent adapted to retain the puncturing-bar and having a bell-crank in the path of a projection on the slide to release the detent from the puncturing-bar, and a locking mechanism normally engaged with the slide and adapted to be released upon the inward movement of the puncturing-bar, as and for the purpose described.

9. In a coin-controlled vending apparatus, the combination, with a

gases escaping about the stuffing-box of the same, a piston formed on an extension of the piston-rod of the compressor, ports located at opposite ends of the pump-cylinder, the one being connected with the induction-pipe of the compressor and the other with the pump-cylinder at the opposite end, and valves *a b*, controlling said ports, substantially as and for the purpose specified.

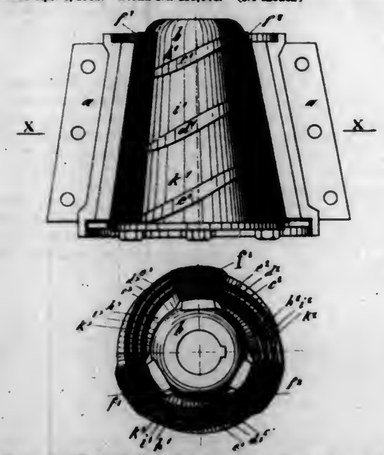
482,877. DIAL TRANSMITTER. FREDERICK PEARCE, New York, N. Y. Filed May 3, 1892. Serial No. 431,628. (No model.)

482,872.



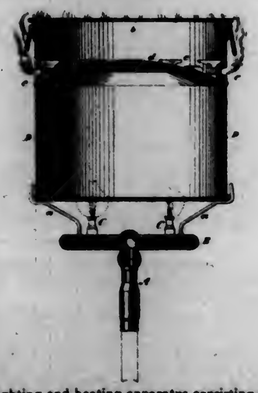
2. An insulator comprising a core, a series of sheets of mica strung on said core and closely compressed and compacted together thereon, the said block having a parallel-sided seat formed thereon, and a metallic shell or casing inclosing or partially inclosing the mica on said core, tightly compressing the seat thereon, and held on the seat by frictional contact, for the purposes and substantially as set forth.

482,873. GRINDING-MILL. CARL C. L. LOCHT, Colberg, Germany. Filed Apr. 6, 1892. Serial No. 428,073. (No model.)



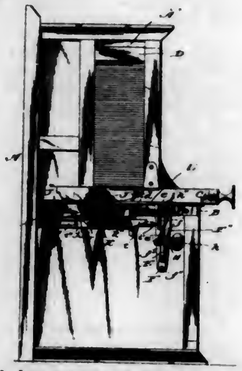
Claim.—A mill for coarse-grinding grain, consisting of a cast iron conical casing *a*, composed of two parts and provided with toothed steel blades inserted into dovetail grooves, in which casing revolves a cast-iron cone *b*, carrying also toothed steel blades *f*, which are inserted in such a manner that between each two blades always the same free deepened space is produced, which is divided by ribs *c' d' e'*, &c., conically running from above downward into several chambers, so that in consequence of the revolution of the cone the material to be treated passes from the first chamber of the first partition into the second chamber of the second partition, and so on, meeting only once each blade f_1 substantially as set forth, and shown in the accompanying drawings.

482,874. LIGHTING AND HEATING APPARATUS. JAMES D. LUTHER, Brooklyn, N. Y. Filed Mar. 15, 1892. Serial No. 424,959. (No model.)



Claim.—A lighting and heating apparatus consisting of the gas-pipe A, gas-ring B, having gas-nipple C and bracket *a*, all arranged below the drum D, open at its lower end and provided with the perforated diaphragm *d*, said drum being imperforated below and perforated above said diaphragm, substantially as and for the purpose specified.

482,875. COIN-CONTROLLED VENDING APPARATUS. JOHN G. MACPHERSON, McKeesport, Pa. Filed May 27, 1892. Serial No. 434,597. (No model.)



Claim.—1. In a coin-controlled vending machine, the combination, with an endwise-movable delivery-slide and locking means therefor, of a pivoted swinging coin-holder below the slide and arranged to allow the passage of the coin therethrough and a puncturing-bar or plunger adapted to be retracted by the impact of a coin in said coin-holder and arranged to release the locking mechanism of the slide, substantially as and for the purpose described.

2. In a coin-controlled vending-machine, the combination, with an endwise-movable delivery-slide and locking means therefor, of a pivoted swinging coin-holder below the slide and arranged to allow the passage of the coin therethrough and a puncturing-bar or plunger in the path of said coin-holder and adapted to be retracted only by the impact or pressure of the coin while contained within the coin-holder, substantially as and for the purpose described.

3. In a coin-controlled vending apparatus, the combination, with a delivery-slide, of a coin-holder arranged to be moved with the slide, a puncturing-bar or plunger in the path of the coin-holder and adapted to be retracted only by the impact or pressure of the coin therein, and an ejecting mechanism operating to strip the holder of the coin while the puncturing-bar is in its retracted position, as and for the purpose described.

4. In a coin-controlled vending apparatus, the combination, with a delivery-slide, of a coin holder adapted to move with the slide and having the coin-actuated locking means, a puncturing-bar in the path of the coin-holder, a detent operated by the slide to restrain the puncturing-bar while the slide and coin-holder are returned to their normal positions, and a locking mechanism operated by the plunger-bar on the inward thrust of the same and the coin-holder, as and for the purpose described.

5. In a coin-controlled vending apparatus, the combination, with a delivery-slide, of a swinging coin-holder movable with the slide, a puncturing-bar in the path of the coin-holder and adapted to be retracted by the impact or pressure of a coin in said holder, an ejector lever or bar having means to be operated by the slide, a detent for restraining the puncturing-bar while the ejector-lever is being operated, and a latch between the puncturing-bar and the ejector-lever, which permits the ejector-lever to be depressed only while the puncturing-bar is retracted, as and for the purpose described.

6. In a coin-controlled vending apparatus, the combination of a bed-plate having the coin-slot, the delivery-slide also provided with a coin-slot, the swinging coin-holder pivoted below the bed-plate in suitable bearings thereon and having a spring which normally holds the coin-holder in position to receive from said coin-slots, a balanced lever carried by the coin-holder and having one end thereof arranged in the path of the coin to be deposited in the coin-holder, a locking-pin connected to and movable by the balanced lever, a puncturing-bar in the path of the coin-holder, and locking devices operated by the puncturing-bar, as and for the purpose described.

7. In a coin-operated vending apparatus, the combination, with a bed-plate and the delivery-slide, of the pivoted coin-holder arranged to receive from the coin-slots in said plate and slide, an endwise-movable puncturing-bar guided on the bed-plate and arranged in the path of the coin-holder, and a pivoted lever arranged to be operated by the retracted movement of the puncturing-bar and having the locking-pin adapted to engage with one or a series of projections on the delivery-slide, as and for the purpose described.

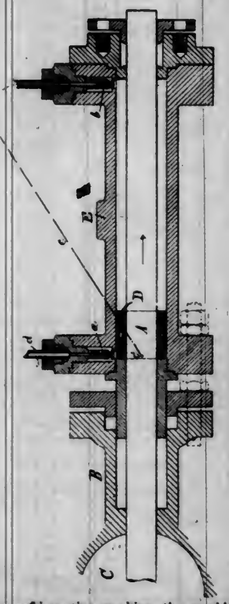
8. In a coin-operated vending apparatus, the combination, with a bed-plate and the delivery-slide, of the pivoted coin-holder, an endwise-movable puncturing-bar arranged in the path of the coin-holder, a detent adapted to retain the puncturing-bar and having a bell-crank in the path of a projection on the slide to release the detent from the puncturing-bar, and a locking mechanism normally engaged with the slide and adapted to be released upon the inward movement of the puncturing-bar, as and for the purpose described.

9. In a coin controlled vending apparatus, the combination, with a bed-plate and the delivery-slide, of the pivoted coin-holder, a puncturing-bar in the path of the coin holder, a detent for the puncturing-bar, and an ejector arranged to clear the coin from the coin-holder and having an operating-piece in the path of a tooth on the slide, as and for the purpose described.

10. In a coin-controlled vending apparatus, the combination of a slotted bed-plate, a slotted delivery-slide, a pivoted coin-holder having a pressure-spring to hold the same in line with the coin-slots in said plate and slide, a locking mechanism carried by the coin-holder, a puncturing-bar in the path of the coin-holder and having the safety-latch, and an ejector-bar adapted to be restrained by the safety-latch of the puncturing-bar and having means to be operated by the slide only when the puncturing-bar and the latch are retracted, as and for the purpose described.

11. In a coin-controlled vending apparatus, the combination of a bed-plate, a slide, a pivoted coin-holder, an endwise-movable puncturing-bar having the lateral stud *n*, the ejector-lever likewise having the stud *n'*, a latch movable with the puncturing-bar and adapted to be freed from the stud of the ejector-bar when the puncturing-bar is retracted, a detent for engaging the puncturing-bar, and independent operating mechanisms for the puncturing bar and the ejector-lever, as and for the purpose described.

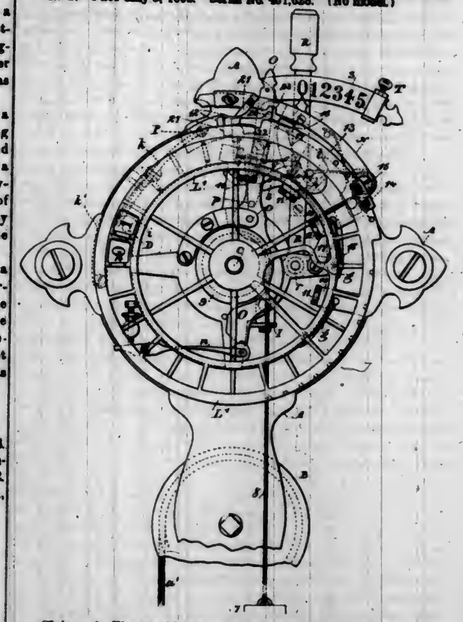
482,876. GAS-COMPRESSOR FOR REFRIGERATING-MACHINES. BERNHARD H. MÜNSTER, Hastedt, near Bremen, assignor to Wilhelm Oesenbrück and Adolf Oesenbrück, Hemelingen, Germany. Filed May 19, 1892. Serial No. 433,514. (No model.) Patented in Germany Sept. 1, 1891, No. 62,318.



Claim.—1. In a refrigerating-machine, the combination of the compressor, a pump-cylinder arranged in line with the compressor-cylinder to receive the gases escaping about the stuffing-box of the same, a piston formed on an extension of the piston-rod of the compressor, a port opening into the end of the pump-cylinder toward the compressor-cylinder and connected with the induction-pipe of the latter, and a valve *a*, controlling said port, substantially as described.

2. In a refrigerating-machine, the combination of the compressor, a pump-cylinder arranged in line with the compressor, to receive the gases escaping about the stuffing-box of the same, a piston formed on an extension of the piston-rod of the compressor, ports located at opposite ends of the pump-cylinder, the one being connected with the induction-pipe of the compressor and the other with the pump-cylinder at the opposite end, and valves *a b*, controlling said ports, substantially as and for the purpose specified.

482,877. DIAL TRANSMITTER. FREDERICK PEARCE, New York, N. Y. Filed May 3, 1892. Serial No. 431,628. (No model.)



Claim.—1. The combination, in a dial transmitter, of a primary dial containing indicating-numbers, a shaft carrying the same, gearing and a weight to rotate the same in one direction, a clutch mechanism to connect and disconnect the dial, a revolving circuit-closing cylinder, a stop-lever and mechanism connecting the same with the clutch, and a projection upon the dial to move the stop-lever in one direction and disconnect the clutch and allow the dial to be returned to its normal position, and a projection upon the dial to move the stop-lever in the opposite direction to couple the same to the clock mechanism for the repetition of the signal, and a weight or spring to return the dial to its normal position, substantially as set forth.

2. A series of dials for a dial transmitter, each dial having indicating-numbers on a portion of its face and the front dial having openings through which to observe the numbers upon the dials in the rear, latches by which the dials can be held in their proper relative positions, mechanism for rotating the dials in one direction and a circuit-closing device simultaneously rotated, a weight for returning the dials to their normal positions, a stop-lever and a finger upon the outer dial for moving the stop-lever in one direction, a clutch mechanism operated by the stop-lever to disconnect the dials from the rotating mechanism, and an arm or damper moved by the stop-lever to stop the fly of the motor, and a projection upon the dial to return the stop-lever to its normal position and allow the motor to rotate at the termination of the back movement of the dials, and a circuit-closing mechanism for breaking the electric circuit during the return movement of the dials, substantially as set forth.

3. The combination, with the rotating mechanism in a dial transmitter, of a series of dials, latches for holding the dials in their proper relative positions as they may be set for giving the desired signals, a revolving cylinder for closing the electric circuits, a battery-closing device, and projections upon their respective dials for acting upon the battery-closing device to break the electric circuit during one rotation of the circuit-closing cylinder between the signals given for one dial and those for the next dial, substantially as set forth.

4. The primary dial and a shaft with which it is connected, a grooved hub for the primary dial, a weight and cord connected with the grooved hub for returning the primary dial to its normal position, a motor for revolving the dial-shaft, and a clutch mechanism for con-

secting the shaft to the motor, a circuit-closing cylinder and its springs, one or more secondary dials loose on the shaft of the primary dial, and latches for holding the secondary dials in their proper relative positions, a circuit-closing arc and projections upon the dials to actuate the same, and circuit connections, substantially as specified, whereby the connections to the battery are broken between the transmission of the signals for one dial and the signals for the next dial, substantially as set forth.

5. The combination, with the electric circuits and circuit-closing devices in a dial transmitter, of a primary dial, the shaft with which it is connected, a weight and cord for returning the dials to their normal positions, a clutch for connecting the dials with the motor, a stop-lever, and a finger upon the outer dial or margin-wheel for acting upon the stop-lever in one direction, a projection upon the primary dial for acting upon the stop-lever in the other direction, a latch for holding the primary dial at the end of its return movement, and mechanism actuated by the motor for withdrawing the latch when the instrument is set in motion, substantially as set forth.

6. The combination, in a dial transmitter, of dials, mechanism for adjusting and holding the dials in their proper relation one to the other, a motor for giving motion to the dials in one direction, a weight and cord for returning the dials to their normal positions, a clutch for connecting the dial shaft to the motor, a stop-lever acted upon by the dials, first in one direction to disconnect the clutch mechanism and in the other direction to connect such clutch mechanism, a hand-lever, a rack upon the same, and a pawl upon the stop-lever for returning the hand-lever to its normal position, projections upon the hand-lever and stop-lever, respectively, for acting upon the fly of the motor for stopping and starting the apparatus, substantially as set forth.

7. The combination, with the dials in a dial transmitter and mechanism for moving such dials and returning them automatically to their normal positions, of circuit-closing devices actuated by the motor and a battery-closer acted upon by the dials, substantially as set forth, whereby the circuit is closed by the starting of the dials, interrupted between the signals for one dial and the signals for the next dial interrupted during the return of the dials to their normal positions, and again automatically closed as the dials are set in motion, substantially as set forth.

8. The combination, with the primary dial and the shaft with which it is permanently connected, of a motor-and-clutch mechanism for moving such dial, a cord and weight for returning the dial to its normal position, one or more secondary dials and latches for holding the dials in their respective positions when adjusted, an outer dial or margin-wheel, a stop-lever and a finger upon the margin-wheel for moving the stop-lever in one direction, and a projection on the primary dial for moving the stop-lever in the other direction, a battery-closing arc, an insulated wedge and circuit-closing springs, and a projection upon the arc extending out over the dials, there being projections upon the dials and upon the margin-wheel for raising the battery-closing arc and breaking the circuit to give the margin or pause between one signal and the next, or between one set of signals and their repetition, there being a projection upon the stop-lever for holding up the circuit-closing arc during the return movement of the dials, substantially as set forth.

9. The combination, in an electric signaling-machine, of dials, means for rotating the same, rotary circuit-closing devices and circuit connections, a circuit-closer having two contacts and receiving its motion from the dials, and double connections for simultaneously connecting the battery and external circuits or the reverse, substantially as set forth.

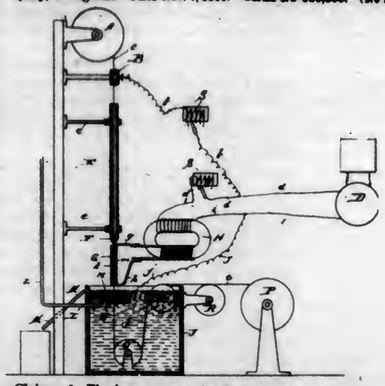
10. The combination, with the primary and secondary dials and the mechanism for rotating the same and the disconnecting coupling, of a weight to return the dials to their normal positions, and a dash-pot to regulate the speed of movement, substantially as set forth.

482,878. CAR-MOVER. CHARLES W. PIERCE, Union City, Ind. Filed June 20, 1892. Serial No. 437,360. (No model.)



Claim.—A car starter and mover comprising the two side pieces having the connecting-web and adapted to straddle the head of the rail, one of the lower ends of the side pieces being in rear of the other, lugs on the lower ends of the side pieces at their inner faces, adapted to engage the head of the rail, one of said lugs being in advance of the other, and a lever fulcrumed between the upper ends of the side pieces and having the lower end reduced for engaging the rim of the car-wheel, for the purpose described.

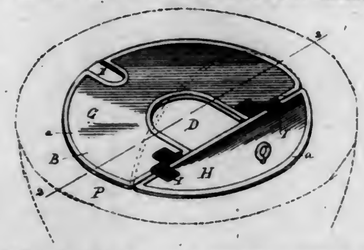
482,879. METHOD OF AND APPARATUS FOR TEMPERING WIRE. FRED PURDY, Englewood, assignor to the American Spring Company, Chicago, Ill. Filed Nov. 7, 1889. Serial No. 329,533. (No model.)



Claim.—1. The improvement in the tempering of wire, consisting in heating the wire by means of a current of electricity passing through it and equalizing the heat by moving the wire through a heated tube and then chilling the wire, substantially as set forth.

2. In apparatus for tempering wire, a dynamo or other source generating an alternating electric current, in combination with a heating-tube G, electric connections from said dynamo to said tube, and other connections adapted to carry the current from the dynamo to the wire, substantially as set forth.

482,880. COVER FOR MELTING-POTS. JAMES A. ST. JOHN, St. Louis, Mo. Filed Oct. 14, 1891. Serial No. 408,653. (No model.)

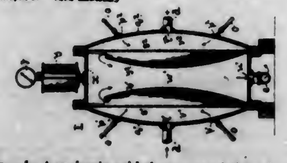


Claim.—1. A floating cover for molten metal, consisting of plates and an interposed filling of refractory material, substantially as and for the purposes described.

2. A sectional floating cover for molten metal, formed with openings for the passage of moving parts, said sections being hinged together, substantially as and for the purposes described.

3. The combination, with a melting-pot, of a floating cover therefor, consisting of plates and an interposed filling of refractory material, substantially as and for the purposes described.

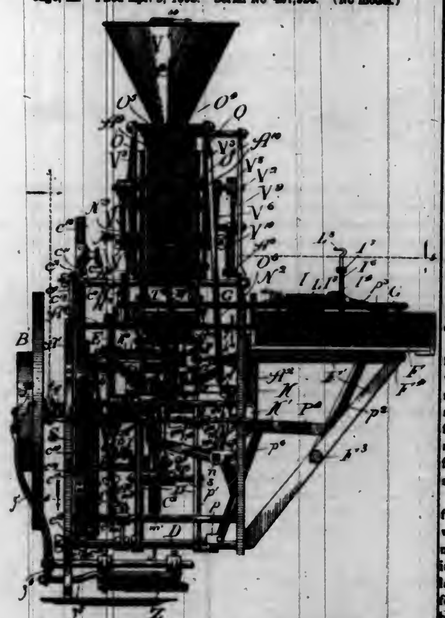
482,881. APPARATUS FOR CHARGING BEER WITH CARBONIC ACID. JOHN B. STOBAUGH, Newark, N. J. Filed Sept. 26, 1891. Serial No. 406,953. (No model.)



Claim.—1. A carbonic-acid charger consisting of a casing with an interposed diaphragm, forming an inlet-chamber for the liquid to be impregnated and an outlet-chamber, the part of the casing forming the inlet-chamber being provided with a series of carbonic-acid nozzles inclined inwardly toward the center, said nozzles being arranged at equal distances from each other and at equal distances from a central inlet-opening, substantially as shown and described.

2. A carbonic-acid charger consisting of a casing with interposed foraminous diaphragm or diaphragms, forming an inlet chamber or chambers for the liquid to be saturated and an outlet chamber, the inlet-chamber being provided with means, substantially as shown and described, for the introduction of carbonic acid and the outlet-chamber with one or more deflectors, substantially as specified.

482,882. CIGAR-BUNCHING MACHINE. NICOLAS STROTZ, Chicago, Ill. Filed Apr. 5, 1892. Serial No. 427,926. (No model.)



Claim.—1. In a cigar-bunch machine, the combination, with bunch-rolling mechanism, of an initial receptacle for the filler, reciprocating between its long-filler-receiving position and its discharge position in the machine, engaging and releasing means for engaging the receptacle when it reaches the discharge position and reciprocating the same in the direction of the rolling mechanism, and means for discharging the filler therefrom to the bunch-rolling mechanism, substantially as described.

2. In a cigar-bunch machine, the combination, with bunch-rolling mechanism, of a carriage, an initial receptacle for the filler, mounted in the carriage to have limited independent movement therein and reciprocated by the carriage between its receiving and discharge positions, and means for reciprocating the receptacle in the carriage when in the discharge position toward and from the bunch-rolling mechanism, substantially as described.

3. In a cigar-bunch machine, the combination, with bunch-rolling mechanism, of a carriage formed with a relatively-movable section, a receptacle for filler, mounted in said movable section, means for reciprocating the carriage into and out of the machine, and reciprocating means for engaging said movable section when the carriage enters the machine and moving it toward the bunch-forming mechanism, substantially as described.

4. In a cigar-bunch machine, the combination, with bunch-rolling mechanism, of a carriage formed of relatively-stationary and extensible sections, an initial receptacle for filler, mounted in said extensible section, a support extending into the machine and laterally thereof upon which said relatively-stationary section of the carriage reciprocates, a support upon which the extensible section of the carriage reciprocates, terminating at one side of the machine, and reciprocating means engaging the said extensible section as it leaves its support and moving it toward the bunch-forming mechanism, substantially as described.

5. In a cigar-bunch machine, the combination, with the movable bunch-rolling table, forming-belt, and bunch-roller, of a frame in which the bunch-roller is journaled, provided with cam-shaped ends affording guides which project beyond the roller, and a reciprocating frame carrying a binder-tensioning rod which moves upon the said guides in the movement of its frame, and initial movement of the rolling-table to engage and press the binder against the forming-belt, substantially as described.

6. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism and final receptacle for the bunch, of a movable carrier operated from the driving-power of the machine to transfer the bunch from the bunch-rolling mechanism to the final receptacle and comprising a frame provided with a stationary and a pivotal jaw, the jaws affording between them a receptacle for the bunch, a spring upon the frame maintaining the jaws normally closed, a projection upon the pivotal jaw, a stationary stop in the path of said projection near the bunch-rolling mechanism, and a stop for the pivotal jaw near the final receptacle, whereby the pivotal jaw is opened by contact of its projection with one stop in the movement of the carrier to the bunch-rolling mechanism and locked in its closed condition when the carrier is moved to the final receptacle, and ejecting mechanism for discharging the bunch from the carrier into the final receptacle, substantially as described.

7. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism and final receptacle for the bunch, of a carrier operated from the driving-power of the machine to transfer the bunch from the rolling mechanism to the final receptacle, comprising a frame provided with opening and closing jaws, affording between them a shaper for the bunch, an ejector from the carrier-frame, having a stem and reciprocal through the said shaper, and means for actuating the said ejector to discharge the bunch from the shaper to the final receptacle, comprising a longitudinally-movable and vertically-oscillating bar operated from the driving-power of the machine and having a projection engaging and releasing the ejector-stem, substantially as described.

8. In a cigar-bunch machine, the combination, with the bunch-forming mechanism, of a vertically-disposed mold-board, a frame in which the mold-board is yieldingly supported at its lateral edges to move freely in an upward direction and be resisted in its movement in a downward direction, an adjustable stop c^{12} at the base of said frame for the mold-board to rest upon when first inserted in the frame, intermittent raising mechanism for the mold-board, and means for transferring the bunch from the rolling mechanism to the mold-board, substantially as described.

9. In a cigar-bunch machine, the combination, with the bunch-forming mechanism, of a vertically-disposed mold-board, a frame in which the mold-board is yieldingly supported at its lateral edges to move freely in an upward direction and be resisted in its movement in a downward direction, guide projections c^{13} on the said frame, overlapping the face of the mold-board, intermittent raising mechanism for the mold-board, and means for transferring the bunch from the bunch-rolling mechanism to the mold-board, substantially as described.

10. In a cigar-bunch machine, the combination, with the bunch-forming mechanism, of a vertically-disposed mold-board, a frame in which the mold-board is yieldingly supported at its lateral edges to move freely in an upward direction and be resisted in its movement in a downward direction, a counter-balance, an intermittent raising mechanism for the mold-board, and means for transferring the bunch from the bunch-rolling mechanism to the mold-board, substantially as described.

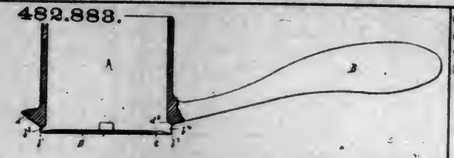
11. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism, initial receptacle for the filler, and mechanism for transferring the filler from the said receptacle to the bunch-rolling mechanism, of a reservoir for short filler, having a discharge-opening in its base, intermittingly-actuated mechanism for transferring short filler therefrom to the initial receptacle, comprising a box provided with wings which slide upon the base of said reservoir, open at its top and having a hinged base-plate, and a stationary strip across which the box moves, operating to engage and close the hinged base as the box moves to its filling position and to disengage the said base as the box arrives at its discharge position, substantially as and for the purpose set forth.

12. In a cigar-bunch machine, the combination, with the bunch-rolling mechanism and final receptacle for the bunch, of a carrier for transferring the bunch from the rolling mechanism to the final receptacle, pivotally mounted upon a rocking support, and means for turning the carrier on its pivot in the movement between its receiving and discharge positions, comprising a stationary rack and a gear connected with the carrier and traveling upon the rack, substantially as described.

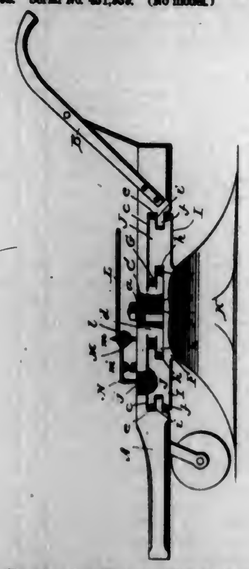
482,888. ICE-SHAVE. JOEL STORER, Long Lake, Minn. Filed Nov. 7, 1891. Serial No. 411,130. (No model.)

Claim.—In an ice-shave, the receptacle A, having the handle B and open at both ends and formed with lips d' d^3, said lips having their downward surfaces inclined outward and upward, in combination with blade D, forming the bottom of said receptacle, and with cutting-edges b' b^3, substantially as and for the purpose set forth.

482,883.



482,884. PLOW. CHARLES H. VANDERBURG, Florence, Oreg. Filed May 5, 1892. Serial No. 431,939. (No model.)



Claim.—1. The plow described, consisting of the beam having recesses and a vertical opening and socket, the plow having a boss, recesses, and tongues and wear-plates, the pivot-bolt, and the pivoted lever having a bent end to hold the plow in its adjusted position, and a spring acting on the lever, as set forth.

2. The herein-described plow, consisting of the beam provided with vertical opening *a*, socket *b*, and transverse grooves with tongues, the plow-body having threaded bars, a transverse cavity around said bars, with grooves to receive the tongues of the beam and with grooves to receive projections on the beam upon opposite sides of the socket therein, the pivot-bolt engaging the hole *a* in the beam and the opening in the socket, the stirrup on the beam, the lever pivoted on the stirrup and provided with coils engaging a coil of the stirrup with its end bent at right angles to the length of the lever, and a spring acting on the lever between its bent end and its pivot, all substantially as shown and described.

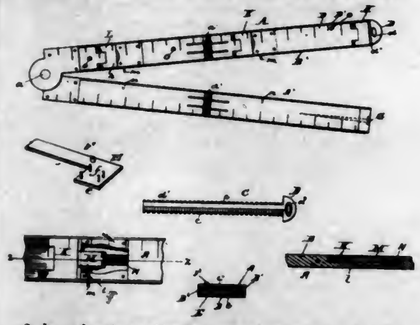
482,885. HARNESS-SNAP. THOMAS V. WALLACE, Monongahela City, Pa. Filed Nov. 21, 1891. Serial No. 412,660. (No model.)



Claim.—The herein-described snap-hook having shoulders on its opposite sides and rings adapted to close the opening of said hook, one of said rings being pivoted to the point of said hook on one side of said opening and the other ring pivoted to the hook on the opposite side of said opening, substantially as shown and described.

482,886. COMBINED RULER-GAGE AND CIRCLE-SCRIBER. LEWIS M. WEAVER and ZACHARIAS C. LESHER, Lock Haven, Pa. Filed Jan. 21, 1892. Serial No. 418,631. (No model.)

Claim.—1. In a ruler, the combination, with the two pivotally-connected sections, of a notched slide fitted in a socket formed in one of the sections and a spring-plate arranged in said socket and provided with projecting pins adapted to take into the notches in the slide to hold the same in any desired position, substantially as described.

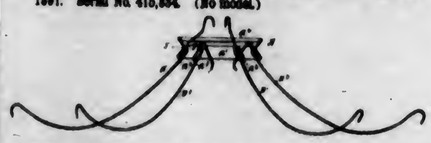


2. In a ruler, the combination, with the two sections pivotally connected together, each of said sections being composed of a central piece and metallic side plates or strips, of plates pivotally connected to the side plates and adapted to extend at right angles to the length of the ruler and means for normally keeping said plates in contact with the ruler, substantially as described.

3. In a ruler, the combination, with the two sections pivotally connected together, of a slide fitted in a socket in one of the sections and provided with an enlarged head having an integral lip or flange on one face, a plate pivotally connected to the ruler near one end and having a lip or flange formed on its free end and normally extending below the lip on the head of the slide, similar plates pivotally connected to the ruler at intermediate points of its length, and means for normally holding such plates against the ruler, substantially as described.

4. In a ruler, the combination, with the two sections pivotally connected together, of the gage-plates pivotally connected to one of the sections and adapted to fit in suitable recesses formed therein, and spring-pressed plates for holding the gage-plates against the ruler, said plates being provided with outwardly-extending pins or studs which are adapted to fit in suitable sockets in the other section when the sections are brought together, substantially as described.

482,887. SHADE-HOLDER. FREDERICK ADAMS, Allegheny, Pa., assignor to the Pittsburg Brass Company, same place. Filed Dec. 22, 1891. Serial No. 416,834. (No model.)



Claim.—1. In a shade-holder, the combination of a ring-shaped part having an outwardly-flaring lower portion provided with sockets, which are extended away from said part and provided with openings at the top and arms having tongues formed therein for removably engaging in said sockets, the said sockets being alternately large and small, and the said tongues being made to correspond, substantially as specified.

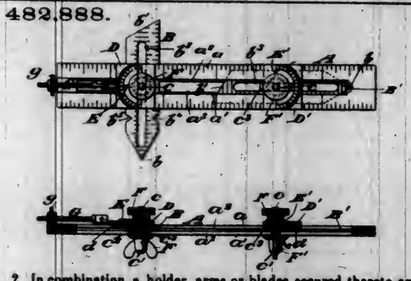
2. In a shade-holder, the combination, with a ring-shaped part having an outwardly-flaring lower portion provided with sockets, of arms having downwardly-extending tongues for removably engaging with said sockets, and portions extending above the sockets, substantially as specified.

3. In a shade-holder, the combination, with a ring-shaped part having an outwardly-flaring lower portion provided with sockets, of arms formed of wire having portions b b' b^3, the portions b b' being close together a short distance from the portion b^3, forming tongues parallel with the portions b^3 for engaging with said sockets, substantially as specified.

482,888. DOUBLE-BLADE BEVEL-GAGE. JOHN FOX, New York, N. Y. Filed Feb. 26, 1892. Serial No. 423,709. (No model.)

Claim.—1. In combination, a holder, arms or blades secured thereto and having an edgewise-tilting movement, a longitudinal movement, and a bodily movement along the holder, said blades being free to approach into engagement with each other in their bodily movement along the holder, and means for securing the blades in their several adjustments, substantially as set forth.

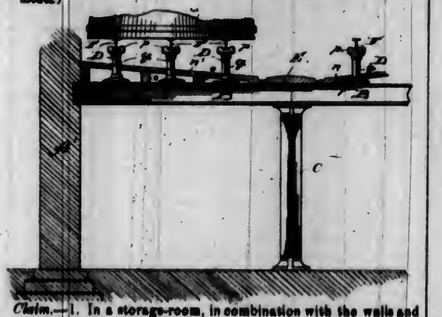
482,888.



2. In combination, a holder, arms or blades secured thereto and having an edgewise-tilting movement, a longitudinal movement, and a bodily movement along the holder, means for securing the blades in their adjustments, and an adjusting device comprising a nut and screw engaged with one of the blade-supports and with the holder for adjusting one of the blades bodily along the holder relatively to the other blade, substantially as set forth.

3. In combination, a holder consisting of two parallel sides fixed together and provided with longitudinal slots, arms or blades, supports for the arms or blades, said supports comprising spindles extending through the slots in the sides of the holder and through the blades, index-hands fixed to move with the blades as the latter are tilted edgewise, clamping-nuts on one side of the holder for locking the blade and index-hand in tilted adjustment, and clamping-nuts on the opposite side of the holder for locking the blades to the holder in their adjustments bodily along the holder, substantially as set forth.

482,889. CONSTRUCTION OF STORAGE-ROOMS. WILLIAM GRIMMER, Chicago, Ill. Filed Feb. 20, 1892. Serial No. 422,181. (No model.)



Claim.—1. In a storage-room, in combination with the walls and supporting-pillars or the like supporting-girders, shoes supported at intervals directly on the girders, and supporting-beams F for vats G or the like extending crosswise of the girders and seated on shoes thereon, substantially as described.

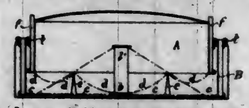
2. In a storage-room, the combination, with the walls and supporting-pillars or the like, of floor-girders supported thereon, shoes D, supported at intervals directly on the girders, supporting-beams F for vats G or the like extending crosswise of the girders and seated on shoes thereon, and a floor E, built on the girders around the shoes, substantially as described.

3. In a storage-room, the combination, with the walls and supporting-pillars or the like, of floor-girders B, supported thereon, shoes D, each having a base *r*, shaft *g*, and recessed head *p*, forming a seat supported at intervals in pairs directly on adjacent girders, supporting I-beams F for vats G or the like extending crosswise of the girders and seated in the recessed heads of said shoes, and a floor E, built on the girders around the shaft portions of the shoes, substantially as described.

482,890. BUILDING-BLOCK. CARL GRÜNZWEIG, Ludwigshafen-on-the-Rhine, Germany, assignor to Grunzweig & Hartmann, same place. Filed Aug. 7, 1891. Serial No. 401,961. (Specimens.)

Claim.—The method of manufacturing blocks, which consists in forming an aqueous solution of clay and tar to constitute a pulp, stirring the same to form a milky blue-white emulsion, adding cork chips, and molding and drying the product to cause an evaporation of the volatile components of the tar, substantially as specified.

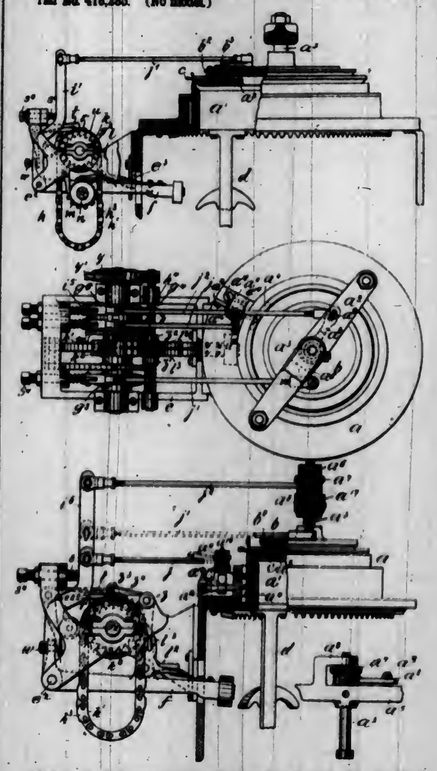
482,891. GAS-HOLDER. KARL G. BARKHAUSEN, Hanover, Germany. Filed Jan. 9, 1892. Serial No. 417,679. (No model.)



Claim.—1. In a gas-holder, the combination, with the outer section B and the bell A, of a stationary central pillar inside the holder, a ring constructed to slide on the said pillar, a series of radial chains *d*, connecting the said ring with the periphery of the bell, and a second series of chains connecting the said ring with the periphery of the outer section B, substantially as set forth.

2. In a gas-holder, the combination, with the bell A, of a stationary central pillar inside the holder, a ring constructed to slide on the said pillar, a series of radial chains connecting the said ring with the periphery of the bell, and the supports *e*, arranged under the middle portions of the said chains, substantially as set forth.

482,892. AUTOMATIC CHAIN-MOTION FOR KNITTING-MACHINES. DAVID C. BELLIS, Elizabeth, N. J. Filed Dec. 28, 1891. Serial No. 416,285. (No model.)



Claim.—1. An automatic chain-motion for knitting-machines, provided with a pattern-chain drum having a feed-wheel, a pattern-chain, a rocker-arm, a feed-dog carried by said arm, a cam-wheel mounted on said arm and adapted to throw the feed-dog out of action, and a pawl for imparting rotary motion to said cam-wheel, substantially as and for the purposes set forth.

2. An automatic chain-motion for knitting-machines, provided with a pattern-chain, a bracket connected with the main frame of the machine, a pattern-chain drum and complemental feed-wheel connected with the bracket, a rocker-arm provided with a feed-dog and complemental cam-wheel, pawl-and-ratchet connections between said cam-wheel and bracket, and means for actuating the rocker-arm, substantially as and for the purposes set forth.

3. An automatic chain-motion for knitting-machines, provided with a tappet connected with a revolving member of the machine, a

rocker-arm in range of said tappet, a pattern-chain, a pattern-chain drum provided with a feed-wheel, a feed-dog and its complemental cam-wheel carried by said rocker-arm, and means for rotating said cam-wheel at every oscillation of the rocker-arm, substantially as and for the purposes set forth.

4. In an automatic chain-motion for knitting-machines, a pattern-chain drum provided with a feed-wheel, a pattern chain, a rocker-arm, a feed-dog, and a positively-driven cam-wheel carried by the rocker-arm, substantially as and for the purposes set forth.

5. In an automatic chain-motion for knitting-machines, a pattern-chain, a pattern-chain drum provided with a feed-wheel, a rocker-arm, an oscillating spring-actuated feed-dog on said rocker-arm, and a positively-driven cam-wheel carried by said arm and adapted to throw said feed-dog out of action, substantially as and for the purposes set forth.

6. In an automatic chain-motion for knitting-machines, a pattern-chain, a pattern-chain feed-wheel, a rocker-arm, a feed-dog carried by said arm and tending to engage the pattern-chain feed-wheel, a cam-wheel on said arm for throwing said dog out of action, a ratchet-wheel connected with the cam-wheel, and a spring-actuated pawl for operating said ratchet-wheel, substantially as and for the purposes set forth.

7. An automatic chain-motion for knitting-machines, provided with a pattern-chain drum provided with a feed-wheel, a pattern-chain, a rocking arm, a feed-dog on the rocker-arm, a counter-shaft provided with a finger for throwing the feed-dog out of action and with a radial arm, a cam-wheel engaging the radial arm, and an auxiliary feed-dog on the rocker-arm for actuating said cam-wheel, substantially as and for the purposes set forth.

8. In an automatic chain-motion for knitting-machines, a pattern-chain drum provided with a feed-wheel, a pattern-chain, a rocker-arm provided with spring-actuated feed-dogs, a rock-shaft provided with a finger engaging one of said feed-dogs, and a cam-wheel actuated by the other of said dogs for controlling the rock-shaft, substantially as and for the purposes set forth.

9. An automatic chain-motion for knitting-machines, provided with a pattern-chain drum having a feed-wheel, a pattern-chain, a rocker-arm provided with a feed-dog for operating said drum, a rock-shaft provided with a finger for throwing the feed-dog out of action, a radial arm on said rock-shaft, and a positively-driven drum or cam-chain for controlling the radial arm, substantially as and for the purposes set forth.

10. An automatic chain-motion for knitting-machines, provided with a tappet and complemental rocker-arm, a pattern-chain, a pattern-chain drum having a feed-wheel, a pattern-chain feed-dog on said rocker-arm, a rock-shaft having a radial arm, a finger projecting from said shaft into range of the feed-dog, a draw or cam chain for engaging said radial arm, and pawl-and-ratchet connections operated by said rocker-arm to feed said draw or cam chain, substantially as and for the purposes set forth.

11. In an automatic chain-motion for knitting-machines, a pattern-chain drum, a pattern-chain, a feed-dog adapted to operate a pattern-chain, a rock-shaft provided with two radial arms, a finger projecting from said rock-shaft into range of said feed-dog, a draw-chain engaging one of said radial arms, a cam-wheel engaging the other of said radial arms, and means for feeding said cam-wheel and draw-chain, substantially as and for the purposes set forth.

12. In an automatic chain-motion for knitting-machines, a rocking arm and its complemental tappet, a counter-shaft provided with a draw-chain drum, a draw-chain, pattern-chain drums keyed to said shaft and provided with star and feed wheels, a feed-wheel and a cam-wheel connected together and rotatably mounted on said shaft, a detent for engaging said star-wheel, feed-pawls connected with the rocking arm for operating said feed-wheels, a rock-shaft provided with two radial arms, respectively engaging the cam-wheel and draw-chain, and a finger projecting from the rock-shaft into range of the chain-drum feed-dog, substantially as and for the purposes set forth.

13. In an automatic chain-motion for knitting-machines, a pattern-chain drum and its complemental feed mechanism, a star-wheel connected with said drum, a detent adapted to engage the star-wheel, and a rocking arm in range of said detent, substantially as and for the purposes set forth.

14. In an automatic chain-motion for knitting-machines, a pattern-chain drum and its complemental feed mechanism, a star-wheel connected with said drum, a rocking arm provided with a lug, and a bell-crank detent having one of its arms in range of the lug and the other arm adapted to engage the respective teeth of the star-wheel, substantially as and for the purposes set forth.

15. In an automatic chain-motion for knitting-machines, a pattern-chain drum and its complemental feed mechanism, a star-wheel connected with said drum, a detent adapted to engage the respective teeth of the star-wheel, a rocking arm, and a set-screw connected with the rocking arm and having its point in range of said detent, substantially as and for the purposes set forth.

16. In an automatic chain-motion for knitting-machines, a pattern chain drum and its complemental feed-wheel, a star-wheel connected with said drum, a detent for engaging said star-wheel, and a rocking arm provided with a feed-dog and in range of said detent, substantially as and for the purposes set forth.

17. An automatic chain-motion for knitting-machines, provided with a pattern-chain, a chain-lever riding on said chain, a needle-cam ring, a system of levers connected with the needle-cam ring and operated by said chain-lever, a spring working in a sleeve in the frame of the chain-motion mechanism and adapted to engage the chain-lever, and a set-screw mounted in said sleeve and having the point thereof in engagement with said spring, substantially as and for the purposes set forth.

18. An automatic chain-motion for knitting-machines, comprising a pattern-chain, a chain-drum having feed and star wheels, a rocking arm provided with a feed-dog, a detent in range of said rocking arm and engaging said star-wheel, a latch engaging said star-wheel, means operated by said rocking arm for throwing said dog out of action, a chain-lever contacting with the pattern-chain, and a link connected with the chain-lever and adapted to be connected with the cam-rings of a knitting-machine, substantially as and for the purposes set forth.

19. An automatic chain-motion for knitting-machines, provided with a pattern-chain and its complemental feed mechanism, a chain-lever operated by said chain, a rotatable nut engaging the dial-spindle of the knitting-machine and provided with a radial arm, and a link connected with said chain-lever and radial arm, substantially as and for the purposes set forth.

20. An automatic chain-motion for knitting-machines, provided with a pattern-chain and its complemental feed mechanism, a rotatable nut engaging the dial-spindle of the knitting-machine and provided with a radial arm, and a link pivoted to the chain-lever and adjustably connected with said arm by means of a bolt engaging a slot in the arm, substantially as and for the purposes set forth.

21. An automatic chain-motion for knitting-machines, provided with a pattern-chain and its complemental feed mechanism, a yoke provided with an arm and supported upon the bed of the knitting-machine, a nut rotatably mounted between said yoke and arm, a threaded dial-spindle afforded a range of end-play in apertures in said arm and yoke and engaging said nut, and means connected with said chain-lever for operating said nut, substantially as and for the purposes set forth.

22. A chain-motion for knitting-machines, provided with a rotatable nut engaging the dial-spindle of the machine, and connections between said nut and chain-motions, substantially as and for the purposes set forth.

23. An automatic chain-motion for knitting-machines, provided with a pattern-chain and its complemental feed mechanism, a chain-lever operated by said chain, a swinging arm engaging the vertically-ranging stitch-cam of the machine, a stem provided with a jaw engaging said swinging arm, a nut engaging said stem and provided with a radial arm, and a link connected with said chain-lever and radial arm, substantially as and for the purposes set forth.

24. An automatic chain-motion for knitting-machines, provided with a pattern-chain and its complemental feed mechanism, a chain-lever operated by said chain, a bracket provided with a fork and supported upon the bed of the machine, a swinging arm pivoted to said bracket and engaging the vertically-ranging stitch cams of the machine, a stem afforded a range of end-play in apertures in the fork and having a flat face in engagement with the bracket, a jaw on said stem for engaging the swinging arm, a nut rotatably mounted in said fork and engaging said stem, a radial arm on said nut, and a link connected with said radial arm and chain-lever, substantially as and for the purposes set forth.

25. An automatic chain-motion for knitting-machines, provided with a pattern-chain and its complemental feed mechanism, a chain-lever operated by said chain, a swinging arm engaging the vertically-ranging stitch-cam of the machine, a stem provided with a jaw engaging said swinging arm, a nut engaging said stem and provided with a radial arm, and a link pivoted to the chain-lever and connected with the radial arm by a nut engaging a slot in the radial arm, substantially as and for the purposes set forth.

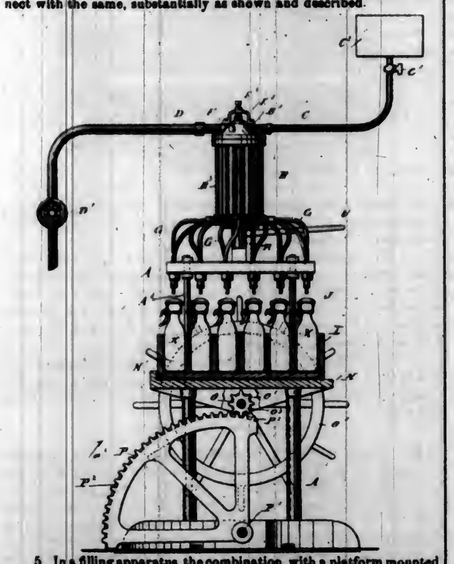
482,898. BOTTLE-FILLING MACHINE. GEORGE CLAUS, Jr., Elizabeth, and ALBERT M. SCHOMBURG, Newark, N. J. Filed Oct. 15, 1891. Serial No. 408,836. (No model.)

Claim.—1. In a filling apparatus, the combination, with a sirup-supply and a liquid-supply, of a measuring device, a valve mounted to turn in the said measuring device and adapted to alternately connect the said sirup-supply and the said liquid-supply, a fixed platform formed with bores connected with the said measuring device, and charging-pipes adapted to slide in the said bores and arranged to close the bores and to connect with the same, substantially as shown and described.

2. A filling apparatus comprising a sirup-supply, a liquid-supply, a head, a valve mounted to turn in the said head and adapted to alternately connect the latter with the said sirup-supply and the said liquid-supply, a base-plate provided with nozzles, and a series of tubes connecting the said base-plate with the said head, substantially as shown and described.

3. In a filling apparatus, a measuring device comprising a hollow base-plate, a head, tubes connecting the base-plate with the said head, a series of nozzles extending from the said base-plate, and pipes connected with the said nozzles, substantially as shown and described.

4. In a filling apparatus, a measuring device comprising a hollow base-plate, a head, tubes connecting the base-plate with the said head, a series of nozzles extending from the said base-plate and pipes connected with the said nozzles, a fixed platform formed with bores connected with the last-mentioned pipes, and charging-pipes adapted to slide in the said bores and arranged to close the bores and to connect with the same, substantially as shown and described.



5. In a filling apparatus, the combination, with a platform mounted to slide vertically and adapted to support the tray carrying the bottles, of a shaft mounted on the said platform, a pinion secured in the said shaft, and an eccentric segmental gear-wheel in mesh with the said pinion, substantially as shown and described.

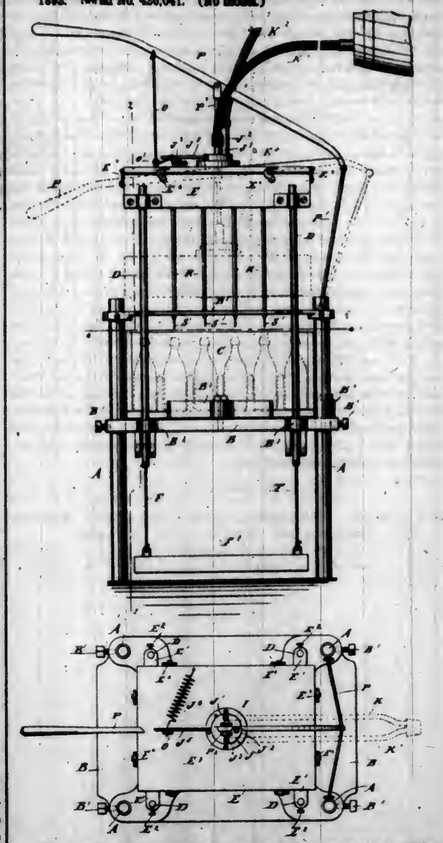
6. In a filling apparatus, a measuring device comprising a hollow base-plate carrying outlet-nozzles, a series of tubes extending from the said hollow base-plate, a head connected with the said tubes, and a valve mounted to turn in the said head and adapted to alternately connect the said head with a sirup-supply and a liquid-supply, substantially as shown and described.

7. In a filling apparatus, the combination, with a platform mounted to slide vertically and adapted to support the tray carrying the bottles, of a shaft mounted on the said platform, a pinion secured in the said shaft, and an eccentric segmental gear-wheel in mesh with the said pinion and rims or annular flanges formed on the said pinion and gear wheel and in frictional contact one with the other, substantially as shown and described.

8. In a filling apparatus, the combination, with a sirup-supply and a liquid-supply, of a measuring device, substantially as described, a valve mounted to turn in the head of the measuring device and adapted to alternately connect the latter with the said sirup-supply and the said liquid-supply, a fixed platform formed with bores connected with the said measuring device, charging-pipes adapted to slide in the said bores and arranged to close the bores and to connect with the same, and a second platform mounted to slide toward and from the said fixed platform and supporting the tray carrying the bottles, the latter being in alignment with the said charging-pipes to engage and actuate the latter, substantially as shown and described.

9. In a filling apparatus, the combination, with a measuring device provided with a hollow base-plate, of a valve seated in the said base-plate and connected with the outside, and means for opening the said valve to let out air and gas from the said base-plate, and a spring for holding the said valve to its seat, substantially as shown and described.

482,894. BOTTLE-FILLING MACHINE. GEORGE CLAUS, Jr., Elizabeth, and ALBERT M. SCHOMBURG, Newark, N. J. Filed Mar. 23, 1892. Serial No. 426,041. (No model.)



Claim.—1. In a bottle-filling apparatus, the combination, with a filling-tank mounted to slide vertically and provided with single compartments formed by longitudinal and transverse partitions in the said tank, of an inlet-valve held on the cover of the said tank and controlling the filling of the several compartments, a filling-pipe extending from the bottom of each compartment, and a valve held in each filling-pipe and provided with a rod extending below the end of the said filling-pipe at the time the valve is seated on the upper end of the said filling-pipe, substantially as shown and described.

2. In a bottle-filling apparatus, the combination, with a filling-tank mounted to slide vertically and provided with single compartments formed by longitudinal and transverse partitions in the said tank, of an inlet-valve held on the cover of the said tank and controlling the filling of the several compartments, a filling-pipe extending from the bottom of each compartment, and a valve held in each filling-pipe and provided with a rod extending below the end of the said filling-pipe at the time the valve is seated on the upper end of the said filling-pipe, the said inlet-valve being adapted to close at the downward movement of the said tank to shut off the supply and connect the tank with the outer air while the valve in the filling-pipe opens when the tank moves into a lowermost position, substantially as shown and described.

3. In a bottle-filling apparatus, the combination, with a tank, of an inlet-valve held on the said tank and comprising a plate attached to the said tank and formed with inlet-apertures and a gas-escape aperture, which apertures lead to the interior of the tank, a valve-disk mounted to turn on the said plate, inlet-pipes held on the said disk and adapted to register with the said inlet-apertures, and a gas-escape pipe held in the said disk and adapted to register with the said escape-aperture at the time the other inlet-pipes register with their corresponding inlet-apertures, substantially as shown and described.

4. In a bottle-filling apparatus, the combination, with a fixed plat-

form adapted to support the tray carrying the bottles, of a counter-balanced filling-tank mounted to slide toward and from the said platform and provided with longitudinal and transverse partitions forming single compartments, filling-pipes secured on the bottom of the said tank, one for each compartment, the said pipes being adapted to pass into the bottles to be filled, a valve held on the upper end of each filling-pipe, and a rod extending from each valve through the corresponding filling-pipe to project below the end of the latter at the time the valve is seated, substantially as shown and described.

5. In a bottle-filling apparatus, the combination, with a fixed platform adapted to support the tray carrying the bottles, of a counter-

said chambers into the cooking-oven, substantially as described, and for the purpose set forth.

2. In a cooking apparatus, a hot-water chamber, a hot-air chamber surrounding the same, and a cooking chamber or oven arranged above and communicating with said chambers, in combination with means for regulating and cutting off the communication between the chambers, and a damper for controlling the admission of cold air into the hot-air chamber, or vice versa, as desired, substantially as hereinbefore described.

3. The cooker, substantially as hereinbefore described, consisting

in line with the outer edge of the arm to which it is attached sufficiently to meet the line of the outer edge of the other arm and extended at the opposite side of said hinge into the angle formed by extending the main portion of the inner edges of said arms in direct lines meeting adjacent to said shaft, and the portions of said plates so extended having notches D, which register in line with the inner edge of one of said arms when the square is open, and a key hinged by one end to said inner edge and adapted to have the other end extend into said notches, substantially as shown and described.

2. In a square, the combination, with one of the arms of said

form adapted to support the tray carrying the bottles, of a counterbalanced filling-tank mounted to slide toward and from the said platform and provided with longitudinal and transverse partitions forming single compartments, filling-pipes secured on the bottom of the said tank, one for each compartment, the said pipes being adapted to pass into the bottles to be filled, a valve held on the upper end of each filling-pipe, and a rod extending from each valve through the corresponding filling-pipe to project below the end of the latter at the time the valve is seated, substantially as shown and described.

5. In a bottle-filling apparatus, the combination, with a fixed platform adapted to support the tray carrying the bottles, of a counterbalanced filling-tank mounted to slide toward and from the said platform and provided with longitudinal and transverse partitions forming single compartments, filling-pipes secured on the bottom of the said tank, one for each compartment, the said pipes being adapted to pass into the bottles to be filled, a valve held on the upper end of each filling-pipe, and a rod extending from each valve through the corresponding filling-pipe to project below the end of the latter at the time the valve is seated, and an inlet-valve held on the top of the said filling-tank and arranged to automatically close on the downward movement of the said tank, so that the supply is cut off at the time the valves in the filling-pipes open to discharge their contents into the individual bottles, substantially as shown and described.

6. In a bottle-filling apparatus, the combination, with a counterbalanced tank mounted to slide vertically, of a valve held on the said tank and provided with a disk mounted to turn and connected with the filling-pipes, a spring-pressed handle extending from the said disk, a rope connected with the said handle, and a lever for controlling the sliding motion of the said tank and connected with the said rope, substantially as shown and described.

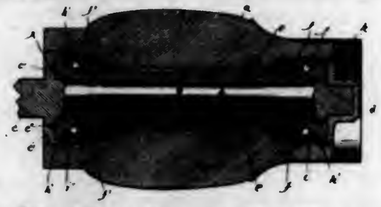
482,895. WHIP-CANE. MELANCTHON O. FELKER, Springfield, Ohio. Filed Apr. 8, 1892. Serial No. 428,257. (No model.)



Claim.—1. As an improvement in whip-canes, the combination, with a hollow open core of sheet metal wound in a spiral form with an open channel between the edges, substantially as shown and described, of a plug at the lower end within the core, a tip-ferrule of compressible metal at the lower end, having spiral grooves indented into the same while mounted on the end, whereby the plug resists the compressive action in forming the grooves and the latter maintain the tip-ferrule in place, and a whip end having a matching-ferrule adapted to screw upon said tip-ferrule for use as a whip and to be mounted within the core for use as a cane.

2. As an improvement in whip-canes, a special form of whip end, consisting of a tapering and spirally-wound sheet-metal core with open edges to give flexibility, a filling of rattan within said core to prevent the buckling of the core at the edges when bent extremely, an outer capping of overlapping layers, a rawhide tip extension inserted within said core and covering, a hollow open core adapted to receive said whip end and constitute the stock of the whip, wrapping-layers outside said stock to give body thereto, a stiffening-tube at the butt-end, a cap therefor, a stiffening-plug at the outer end of the stock to solidify the core, a tip-ferrule inclosing said end and layers and held thereon by indented spiral grooves, substantially as shown and described, and a matching ferrule secured to the whip end to mount the latter on the stock for use as a whip.

482,896. BALL-BEARING FOR VEHICLE-WHEELS. EDWARD S FRASIER, Aurora, Ill. Filed Mar. 19, 1892. Serial No. 425,634. (No model.)



Claim.—1. The combination, with a hub, of bushes *f f'*, a sleeve *g*, having collars *h h'*, and balls interposed between the collars *h h'* and the bushes *f f'*, substantially as described.

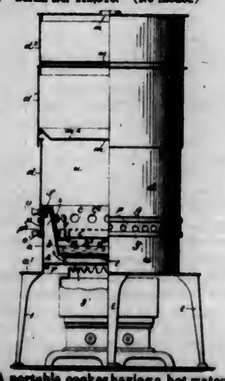
2. The combination, with a wheel-hub, of a non-rotary cylindrical sleeve on which the hub revolves, ball-bearings located at opposite ends of the sleeve, and collars secured to the ends of the sleeve and adjustable thereupon for the purpose of retaining the sleeve in position and preventing its displacement when the hub is removed from the axle-spindle, substantially as described.

3. The combination, with a hub having a sleeve *c* and bushes *f f'*, of a sleeve *g*, having collars *h h'* adjustably secured thereon, and balls interposed between said collars and the bushes *f f'*, substantially as described.

482,897. METHOD OF MAKING CHEESE. JOHAN D. FREDERIKSEN, Little Falls, N. Y., assignor of one-half to David H. Burrell, same place. Filed Jan. 30, 1891. Serial No. 379,633. (No specimens.)

Claim.—The herein-described method of treating milk or skim-milk for incorporating the albumen in the curd, which consists in heating the milk or skim-milk to a temperature at which the albumen is coagulated or thickened and prepared for incorporation with the curd, then cooling the milk to a temperature which admits of restoring to the sterilized milk the property of being curdled by rennet, then adding to it a starter or ferment to restore this property and allowing the same to act upon or develop in the milk, and then curdling the milk by adding the rennet, substantially as set forth.

482,898. COOKER. JOHN H. GARDNER, Providence, R. I. Filed Nov. 20, 1891. Serial No. 412,510. (No model.)



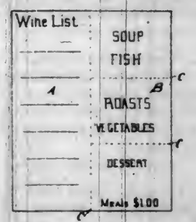
Claim.—1. A portable cooker having a hot water or steam chamber at the bottom, an annular hot-air chamber surrounding the walls of said steam-chamber, a cooking oven or compartment above the steam-chamber, and dampers for controlling the admission of steam and hot air or products of combustion, either combined or singly, from said chambers into the cooking-oven, substantially as described, and for the purpose set forth.

2. In a cooking apparatus, a hot-water chamber, a hot-air chamber surrounding the same, and a cooking chamber or oven arranged above and communicating with said chambers, in combination with means for regulating and cutting off the communication between the chambers, and a damper for controlling the admission of cold air into the hot-air chamber, or vice versa, as desired, substantially as hereinbefore described.

3. The cooker, substantially as hereinbefore described, consisting of the normally-stationary base portions *a b*, having apertured sides separated from each other to form the annular hot-air chamber *b*, the axially-movable collar or extension *d*, having an apertured pan *c*, secured thereto and fitting into the base portion *b* and forming a space b^2 between them, a cover or top for the collar, and a damper arranged to adjust the openings formed in the sides of the base *a*, all combined and adapted for operation substantially as set forth.

4. In a cooker provided interiorly with a hot-water chamber, a hot-air chamber, and a cooking chamber or oven and having adjustable openings communicating with said chambers for controlling the admission of steam and hot air into the said oven, the combination therewith of an exterior indicator or index arranged to show the relation of the several openings, substantially as hereinbefore described.

482,899. MEAL-CHECK. FRANK C. GELLENBECK, Chicago, Ill., assignor, by mesne assignments, to Charles R. Padgett and Charles C. Denton, same place. Filed Aug. 27, 1891. Serial No. 403,884. (No model.)



Claim.—1. The combination, with a menu-card, of two or more checks detachably secured thereto, two of said checks being designated, respectively, as "guest's check" and as "cook's check," so as to make the remainder incomplete as a bill of fare, and hence useless for another guest.

2. The combination of a menu-card having a bill of fare on its face, with a check or checks upon the reverse side thereof, and placed so that when removed the bill of fare will be mutilated, so as to make the remainder incomplete as a bill of fare, and hence useless for another guest.

482,900. FOLDING SQUARE. WILLIAM H. GOLDSBERRY, Chicago, Ill. Filed Nov. 10, 1891. Serial No. 411,456. (No model.)

Claim.—1. In a square, the combination of an arm A, an arm B, plates A' and B', applied to one side of said arms and overlapping and hinged to each other by the plate C and each extended past said shaft in line with the outer edge of the arm to which it is attached sufficiently to meet the line of the outer edge of the other arm and extended at the opposite side of said hinge into the angle formed by extending the main portion of the inner edges of said arms in direct lines meeting adjacent to said shaft, and the portions of said plates so extended having notches D, which register in line with the inner edge of one of said arms when the square is open, and a key hinged by one end to said inner edge and adapted to have the other end extend into said notches, substantially as shown and described.

2. In a square, the combination, with one of the arms of said square, of a clamp F, having a flexible body F', applied to one side of and along the edge of said arm, and having fingers F^2 extending around the edge of said square and resting normally in contact with the face of the arm opposite said body F', and the portions of said body F' supporting said fingers being normally curved away from said arm, substantially as shown and described.

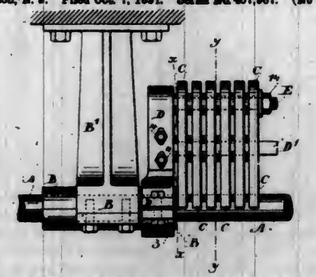
482,901. ART OF MOLDING. FRED E. GORDON, Allegheny, Pa. Filed Aug. 15, 1891. Serial No. 402,756. (No specimens.)

Claim.—1. As a new composition of matter, facing material for green-sand molds, consisting, essentially, of molding-sand containing a binding material, such as loam and finely-pulverized rosin thoroughly intermingled, substantially in the proportions specified.

2. In the art of green-sand molding, the improvement which consists in facing the mold by applying to the pattern a layer of thoroughly-intermingled molding-sand and rosin and then filling the flask with heap-sand, which forms a backing for the facing, substantially as and for the purposes described.

3. In the art of green-sand molding, the improvement which consists in dusting the pattern with lycopodium and then forming the mold, substantially as and for the purposes described.

482,902. MEANS FOR REDUCING FRICTION. GEORGE M. GUERRANT, New York, N. Y., assignor to himself and Theodore F. Young, Clinton, N. J. Filed Oct. 7, 1891. Serial No. 407,987. (No model.)

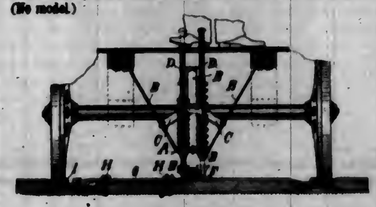


Claim.—1. The combination, with the shaft, arbor, or spindle, and the bearing for the same, of magnets with their poles in close proximity to the moving surface and means for holding and adjusting the position of such magnets around the shaft, whereby the direction in which the magnets act can be varied to lessen friction, substantially as specified.

2. The combination, with the shaft or other article, of a bearing for the same, having a circular projection around the shaft, a frame and clamps for securing the same to the circular projection, and permanent magnets supported by such frame, substantially as set forth.

3. The combination, with the shaft or other article, of a bearing for the same, having a circular projection around the shaft, a frame and clamps for securing the same to the circular projection, permanent magnets supported by such frame, and arms extending from the frame, and adjusting mechanism for varying the distance between the poles of the permanent magnets and the shaft, substantially as set forth.

482,903. STREET-RAILWAY-SWITCH APPLIANCE. JAMES P. HOLDSER, Spokane, Wash. Filed Jan. 11, 1892. Serial No. 417,703. (No model.)



Claim.—The combination, in an automatic street-railway-switch appliance, of a stirrup or frame bolted to the bottom of the car-frame, two vertical rebounding pedal-rods held thereby, said rods provided with antifriction bevel-rollers, and a wedge-shaped block or shoe connected with the switch-tongue by means of a horizontal bar and adapted to be operated by said pedal-rods, all substantially as set forth.

482,904. CAR-COUPLING. ROBERT KLEINERT, Breslau, Germany, assignor to Körner & Schulte, same place. Filed Apr. 8, 1892. Serial No. 428,308. (No model.) Patented in Germany May 13, 1891, No. 62,010.

walls of the chimney, the said projection being provided with slots or perforations which when taken together are substantially equal in area to the area of slots or perforations in the cover portion of said box, with a deflecting-slab supported upon uprights or legs situated at each corner of each flue and high enough above the flues to raise the said deflecting-slab a sufficient distance to form on all sides of the flue an opening equal to the area of said flue, substantially as set forth.

2. In a chimney cap or ventilator, the combination of a box consisting of a bottom portion A, suitably attached to the chimney and projecting beyond and overhanging the outer walls thereof, the said projection being provided with slots or perforations a^3, the box portion B supported on the bottom portion A, the cover portion C, and the deflecting-slab D, substantially as shown and described.

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corrugated wires and bind the interlocking wires together and the wire of the spring into the corrugations of the interlocking wires, substantially as set forth.

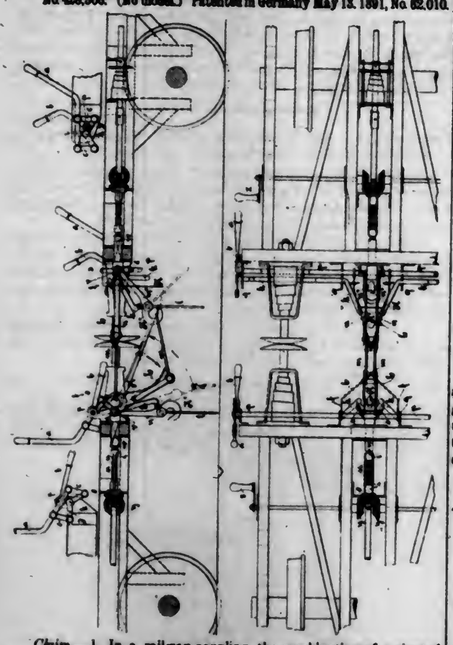
2. The combination, with a supporting-wire that is corrugated upon its horizontal or nearly horizontal portion, of a crossing key similarly corrugated and interlocking with the corrugations of the supporting-wire, and a wire spring having a nearly-circular coil at the smaller end thereof interwoven above and below the crossing wires and into the corrugations of the same, so that the respective parts are tightly wedged together, substantially as set forth.

3. The combination, with the upholstery-springs, of supporting-wire bristles and wound spirally around said cone, substantially as shown and described.

482,910. NUT-LOCK. CHARLES C. WEBSTER, Anniston, Ala. Filed Mar. 14, 1892. Serial No. 424,867. (No model.)

Claim.—The combination, in an automatic street-railway-switch appliance, of a stirrup or frame bolted to the bottom of the car-frame, two vertical rebounding pedal-rods held thereby, said rods provided with antifriction bevel-rollers, and a wedge-shaped block or shoe connected with the switch-tongue by means of a horizontal bar and adapted to be operated by said pedal-rods, all substantially as set forth.

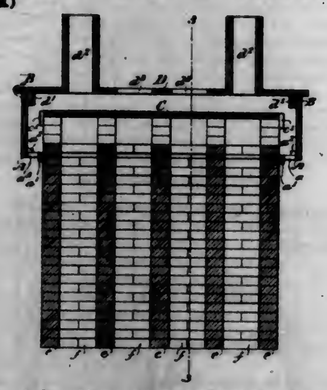
482,904. CAR-COUPLING. ROBERT KLEINERT, Breslau, Germany, assignor to Körner & Schulte, same place. Filed Apr. 8, 1892. Serial No. 428,308. (No model.) Patented in Germany May 13, 1891, No. 62,010.



Claim.—1. In a railway-coupling, the combination of a pivoted link *n* with actuating cranked cross-shaft *k*, a pivoted loop *m*, actuating cross-shaft *p*, arms *f*, and chains *h*, substantially as specified.

2. In a railway-coupling, the combination of a pivoted link *n*, having studs *e*, with actuating cross-shaft *k*, a pivoted loop *m*, actuating cross shaft *p*, arms *f*, chains *h*, and with a pivoted hook R', having guide-flaps *s*, substantially as specified.

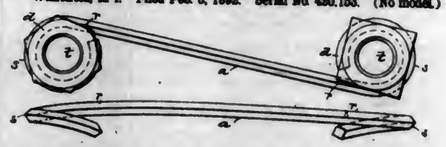
482,905. CHIMNEY CAP OR VENTILATOR. GEORGE M. MCCLOSKEY, Brooklyn, N. Y. Filed Jan. 11, 1892. Serial No. 417,895. (No model.)



Claim.—1. In a chimney cap or ventilator, the combination of a box the bottom of which projects beyond and overhangs the outer walls of the chimney, the said projection being provided with slots or perforations which when taken together are substantially equal in area to the area of slots or perforations in the cover portion of said box, with a deflecting-slab supported upon uprights or legs situated at each corner of each flue and high enough above the flues to raise the said deflecting-slab a sufficient distance to form on all sides of the flue an opening equal to the area of said flue, substantially as set forth.

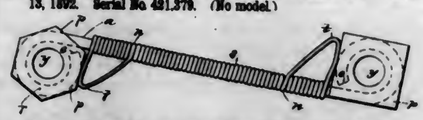
2. In a chimney cap or ventilator, the combination of a box consisting of a bottom portion A, suitably attached to the chimney and projecting beyond and overhanging the outer walls thereof, the said projection being provided with slots or perforations a^2, the box portion B, supported on the bottom portion A, the cover portion D, having slots or perforations d^2, the said slots or perforations d^2 being substantially equal in area to the area of the slots or perforations a^2 when taken together, with the deflecting-slab C, supported within said box above the flues by means of legs or supports situated at each corner of each flue and of a height sufficient to raise the said deflecting-slab high enough to form an opening on all sides of the flue equal to the area of the flue, substantially as set forth.

482,906. NUT-LOCK AND BOLT-TIGHTENER. JOHN G. PERRY, Wakefield, R. I. Filed Feb. 3, 1892. Serial No. 420,153. (No model.)



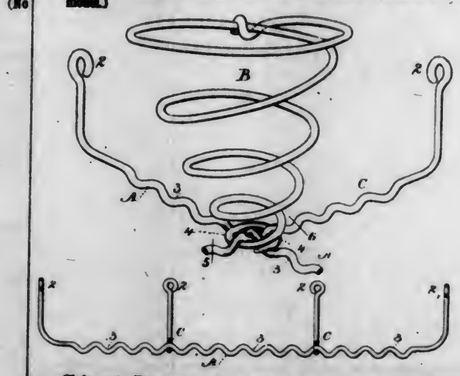
Claim.—A nut consisting of a metallic bar having a spring circle at each end and an intermediate section springing up to yieldingly engage the lower edge and corner of the nut, said bar having one or more inclined sloping faces in cross-section over which the corners of the nut will ride and depress the locking-bar when force is applied, substantially as set forth.

482,907. NUT-LOCK. JOHN G. PERRY, Wakefield, R. I. Filed Feb. 13, 1892. Serial No. 421,379. (No model.)



Claim.—A nut-lock and bolt-tightener having a metallic bar with its ends bent around and down to encircle the bolts and form stiff spiral springs, with a wire wound around the bar between the circled ends and bent to form loops or tongues having their outer ends on the inner sides of the circles raised above the plane of the circles to prevent the nut from turning back, substantially as and for the purpose set forth.

482,908. SPRING-SUPPORT FOR UPHOLSTERY. JOHN A. STAPLES, Newburg, N. Y. Filed Mar. 10, 1892. Serial No. 424,590. (No model.)



Claim.—1. The combination, with a wire spring in which the coil of wire is circular, or nearly so, at the smaller end, of corrugated interlocking crossing wires with which the nearly-circular end of the spring is interwoven, so as to wedge tightly above and below the respective corrugated wires and bind the interlocking wires together and the wire of the spring into the corrugations of the interlocking wires, substantially as set forth.

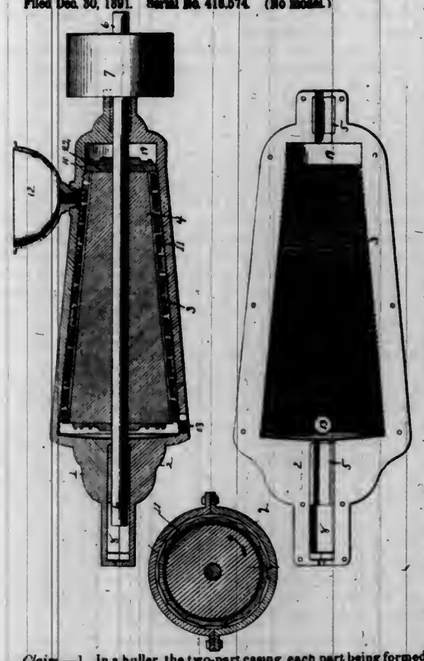
2. The combination, with a supporting-wire that is corrugated upon its horizontal or nearly horizontal portion, of a crossing key similarly corrugated and interlocking with the corrugations of the supporting-wire, and a wire spring having a nearly-circular coil at the smaller end thereof interwoven above and below the crossing wires and into the corrugations of the same, so that the respective parts are tightly wedged together, substantially as set forth.

3. The combination, with the upholstery-springs, of supporting-wires having corrugations throughout their nearly-horizontal portions and bent upwardly at the ends and terminating with eyes or connections by which the ends of the wires are secured to the wooden frame, the corrugations in the wires being adapted to receive the wires of the springs at the lower ends of such springs to prevent the springs slipping upon the wires, substantially as set forth.

4. The combination, with upholstery-springs, of supporting-wires crossing each other beneath the respective springs, such wires having corrugations sufficiently close together to allow the positions of the intersections to be varied to adapt them to the positions of the springs, and the corrugations forming receptacles for the coils of wire at the ends of the springs, whereby the springs are held in position by the corrugations of the wire, substantially as set forth.

5. The combination, with the upholstery-springs, of supporting-wires having ends that are adapted to be secured to the seat-frame, the substantially horizontal portion of one or more of the crossing wires being corrugated to form receptacles for the coils of wire at the ends of the springs and with which wires the spring is interwoven, so as to bind tightly above and below the crossing wires and hold the wires and springs firmly together, substantially as specified.

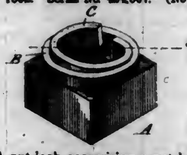
482,909. COFFEE-HULLER. WILLIAM H. B. STOUT, Chicago, Ill. Filed Dec. 30, 1891. Serial No. 416,574. (No model.)



Claim.—1. In a huller, the two-part casing, each part being formed with grooves on its inner periphery, adapted to form a continuous spiral groove when the said parts are secured together, the ribs between said grooves having flat surfaces, whereby the ribs as an entirety are adapted to form a polygonal internal surface, substantially as shown and described.

2. In a huller, the combination, with the two-part casing, each part being formed with grooves on its inner periphery and adapted to form a continuous spiral groove when said parts are secured together, the ribs between the grooves having flat surfaces, whereby the same as an entirety form a polygonal surface, of a revoluble cone arranged between the parts of the casing and covered with flexible material bearing wire bristles and wound spirally around said cone, substantially as shown and described.

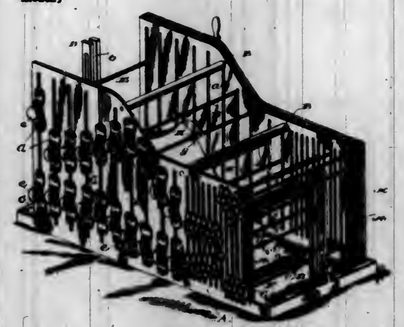
482,910. NUT-LOCK. CHARLES C. WRENSHALL, Anniston, Ala. Filed Mar. 14, 1892. Serial No. 424,867. (No model.)



Claim.—1. A nut-lock comprising a nut having a collar projecting from the face of the nut back from the corners thereof and around the bolt-opening for the reception of the washer or lock, and a split spring washer or lock seated in said collar and held therein by frictional contact against the wall of the collar, a portion of the washer on one side of its split projecting outside of the collar, substantially as and for the purposes described.

2. In a nut-lock, a nut having a recess formed in the body of the nut around the bolt-opening therein and provided with a collar projecting from its face around the opening for the bolt, the inner circumference of said collar coinciding with that of said recess, whereby a seat for a washer is formed partly in the body of the nut and partly in said collar, and a spring washer or lock located in said seat and having a portion projecting outside of the collar, substantially as and for the purposes described.

482,911. CONFORMATOR. ABRAHAM S. ADLER, Baltimore, Md. Filed Nov. 5, 1891. Renewed Aug. 24, 1892. Serial No. 443,944. (No model.)



Claim.—1 In a conformator, transversely-mounted vertically-slidable rods arranged in upper and lower series and adapted to delineate the outlines of a last introduced between them.

2. In a conformator, a frame vertically slotted, an upper and lower series of vertically-adjustable horizontal rods slidable in said frame, and a last or form adapted to be introduced between the rods of the upper and lower series.

3. In a conformator, a frame having a double series of horizontal rods mounted to slide vertically therein, the rods of one series occupying the upper part of the frame and those of the other series the lower portion of said frame, a form adapted to be introduced between said series of rods, and a diagram or sheet adapted to be brought into contact with the ends of the rods, whereby the outline of the inserted form is transferred to the diagram or sheet.

4. In a conformator, the slotted sides and the double series of rods adapted to be adjusted toward and from each other, in combination with standards at the opposite ends of the machine, rods adjustably fitted thereto, and a last or form suspended from said end rods between the double series of rods.

5. In a conformator, the slotted sides and the double series of rods held by friction and adjustably secured so that the rods of one series may be moved toward and from those of the other series, in combination with slotted end standards horizontally and vertically suspended from said latter rods between the double series of rods, and a diagram or sheet adapted to be brought against the ends of the double series of rods, whereby the outline of the last or form is transferred to the diagram or sheet.

6. In a conformator, the slotted sides and slotted end standards, the upper and lower series of transverse rods slidable from opposite ends of the slotted sides and having ends protruding, one of said ends having a spring and adjusting-nut and the others being pointed, and a

hinged platform or plate carrying a diagram or sheet adapted to be brought against the pointed ends of the rods, whereby the outline of an object inserted between the double series of rods is indicated upon the diagram or sheet.

7. In a conformator, the slotted sides, the transverse rods mounted therein in double series, one series occupying the upper portions of the slots and the other the lower portions thereof, blocks mounted to slide upon the rods of both series and having pins adapted to be adjusted against a form introduced between said double series of rods, the blocks on the lower series of rods having pins projecting, also, from their lower sides, and diagrams or sheets adapted to be pressed against the

Claim.—1. An insulator consisting of a cylinder of insulating material and a holder wherein the said cylinder is placed and loosely held, the said holder being shaped to partially inclose the cylinder, and thereby keep it in place, substantially as described.

2. An insulator consisting of a cylinder of insulating material and a holder wherein the said cylinder is placed and loosely held, the said holder being provided with lips or projections which partially inclose the cylinder, and thereby keep it in place, substantially as described.

3. An insulator consisting of a cylinder of insulating material and a trough-shaped holder wherein the said cylinder is placed and loosely held, the said holder having lips or projections which partially inclose

Claim.—1. In a suspender-buckle, the combination of a rigid frame made rectangular, having side loops *a a* adjacent to the lower cross-bar of said rigid frame, a back plate clamped to the sides and lower cross-bar of the frame, and a swinging hook-carrying frame secured to the rigid frame by being passed through the loops *a a*, the transverse portion of said hook-carrying frame being bent out of line with the portion which engages with the loops, substantially as shown, and for the purpose set forth.

2. In a suspender-buckle, the combination of a rectangular wire frame A, having side loops *a a* adjacent to the lower cross-bar of said

swinging valve 5, also having a beveled edge, and a plate 3, located above the hinge, substantially as shown, and for the purpose set forth.

482,917. MACHINE FOR CUTTING LATH-YARNS. HENRY S. DIX, Chelsea, Mass., assignor to Sylvester B. Hinckley, same place. Filed Feb. 24, 1891. Serial No. 382,420. (No model.)

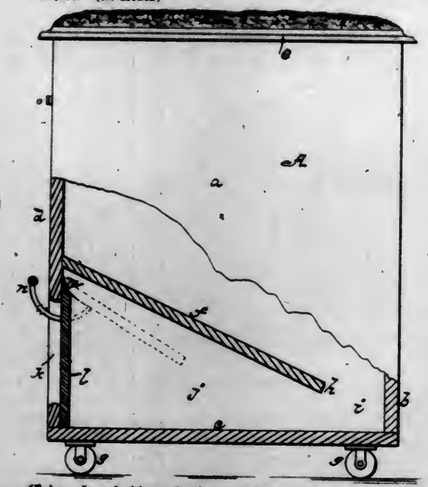
hinged platform or plate carrying a diagram or sheet adapted to be brought against the pointed ends of the rods, whereby the outline of an object inserted between the double series of rods is indicated upon the diagram or sheet.

7. In a conformator, the slotted sides, the transverse rods mounted therein in double series, one series occupying the upper portions of the slots and the other the lower portions thereof, blocks mounted to slide upon the rods of both series and having pins adapted to be adjusted against a form introduced between said double series of rods, the blocks on the lower series of rods having pins projecting, also, from their lower sides, and diagrams or sheets adapted to be pressed against the latter pins and the ends of the double series of rods, whereby correct outline of the inserted form is transferred to the diagrams or sheets.

8. In a conformator, the slotted sides and the double series of transverse rods slidable therein, a form adapted to be introduced between said series of pins and against which the rods are adjusted, and a hinged or pivoted plate at one side of the machine adapted to be brought against the ends of the rods, said plate having a yielding surface on which a diagram or sheet is placed.

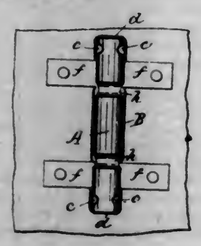
9. In a conformator having a double series of transverse rods vertically adjustable toward and from a last suspended between them, a diagram having parallel-numbered lines at opposite ends corresponding to the heel and toe portions of the last, whereby the length of the heel and toe is ascertained.

482,912. COMBINED STOOL AND COAL-RECEPTACLE. FREDERICK BORNEMANN, New York, N. Y. Filed Dec. 11, 1891. Serial No. 414,666. (No model.)



Claim.—In a fuel-box, the improved box A, having the inclined partition *f*, and the door *l*, hinged at *m* on the inner face of the front wall and provided with the handle *n*, said door serving the double purpose of closing the opening *k* and forcing the fuel rearwardly therefrom when pushed inwardly, thereby keeping the floor near the front opening clear of fuel, the handle also serving the twofold purpose of operating the door and moving the box from one place to another, all as shown and described.

482,913. INSULATOR. HERBERT H. BROOKS, Cambridge, assignor of one-half to Augustus T. Clark, Boston, Mass. Filed Oct. 26, 1891. Serial No. 409,781. (No model.)

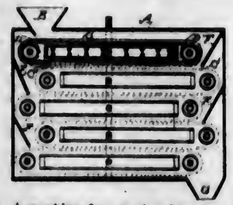


Claim.—1. An insulator consisting of a cylinder of insulating material and a holder wherein the said cylinder is placed and loosely held, the said holder being shaped to partially inclose the cylinder, and thereby keep it in place, substantially as described.

2. An insulator consisting of a cylinder of insulating material and a holder wherein the said cylinder is placed and loosely held, the said holder being provided with lips or projections which partially inclose the cylinder, and thereby keep it in place, substantially as described.

3. An insulator consisting of a cylinder of insulating material and a trough-shaped holder wherein the said cylinder is placed and loosely held, the said holder having lips or projections which partially inclose the cylinder, and thereby keep it in place, substantially as described.

482,914. BITUMINOUS-ROCK-REDUCING MACHINE. JOHN T. COCHRAN, Oakland, Cal. Filed Apr. 25, 1892. Serial No. 430,691. (No model.)



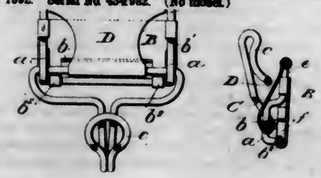
Claim.—1. A machine for treating bituminous rock, consisting of the exterior casing, a series of horizontal traveling carrying-belts, sprocket-wheels around which said belts pass, gears upon the outer projecting ends of the shafts of said wheels, whereby motion is communicated to them, a hopper in the top of the casing, through which material is delivered upon the upper belt, and a discharge-opening at the bottom of the casing, through which the material is delivered, substantially as herein described.

2. A machine for treating bituminous rock, consisting of a casing, a receiving-hopper at one end of the top, a discharge-opening at the opposite end of the bottom, a series of horizontal traveling belts situated one above the other, the receiving end of each lower belt extending beyond the discharge end of the belt above, and inclined guide-plates extending from the end of the casing to near the surface at the end of the receiving-belt, whereby the material is directed from one belt to another, substantially as herein described.

3. An apparatus for treating bituminous rock, consisting of a casing having a hopper at one end of the top, a discharge-opening at the opposite end of the bottom, a series of horizontal traveling belts situated one above the other and so arranged that the receiving end of each belt extends beyond the discharge end of the belt above, inclined guide-plates extending from the ends of the casing to near the surface at the receiving end of each belt, heating-pipes extending between the upper and lower surfaces of each belt, and a steam-supply pipe connecting with each series of pipes and having controlling-clocks, whereby the moving material may be heated and the temperature regulated, substantially as herein described.

4. A machine for treating bituminous rock, consisting of a series of horizontally-traveling belts passing around sprocket-wheels journaled within a casing, having a receiving-hopper at one end of the top and a discharge-opening at the opposite end of the bottom, the receiving end of each belt extending beyond the discharge end of the belt above, having an inclined guide by which the material is directed from one belt to the other, gear-wheels fixed upon the outer ends of the shafts which project through the side of the casing and engaging each other, so as to drive the alternate belts in opposite directions, a worm-wheel and screw and driving-shaft, whereby power is transmitted to move the belts simultaneously, and a heating apparatus consisting of closed steam-jackets disposed between the upper and lower surfaces of each belt, each being independently connected with the main supply-pipe, having clocks by which the amount of steam admitted to each jacket may be regulated, substantially as herein described.

482,915. BUCKLE. SHELDON E. COOK, Chicago, Ill. Filed May 31, 1892. Serial No. 434,982. (No model.)



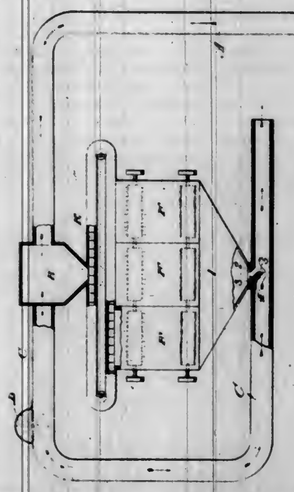
Claim.—1. In a suspender-buckle, the combination of a rigid frame made rectangular, having side loops *a a* adjacent to the lower cross-bar of said rigid frame, a back plate clamped to the sides and lower cross-bar of the frame, and a swinging hook-carrying frame secured to the rigid frame by being passed through the loops *a a*, the transverse portion of said hook-carrying frame being bent out of line with the portion which engages with the loops, substantially as shown, and for the purpose set forth.

2. In a suspender-buckle, the combination of a rectangular wire frame A, having side loops *a a* adjacent to the lower cross-bar of said frame, a back plate B, having portions which are adapted to be bent over the side pieces and cross-bar of the rigid frame, said back plate also having a forwardly-projecting serrated portion *b* above the lower cross-bar of the frame A, and a hook-carrying frame C, secured to the rigid frame by being passed through the loops thereof, the portion of said hook-carrying frame below the forwardly-projecting serrated portion of the back plate being bent out of line with the portions which engage with the loops, substantially as shown, and for the purpose set forth.

3. In a suspender-buckle, the combination, with a rectangular frame having loops or bent portions *a a*, a back plate B, rigidly secured thereto and provided with an outwardly-bent portion *b*, located above the lower cross-bar of the frame A, and a hook-carrying frame pivoted to the frame A and retained in engagement therewith by the back plate, of a plate D, attached to the transverse bar of the hook-frame and to the transverse bar of the frame A, substantially as shown.

482,916. PNEUMATIC FEEDER FOR COTTON-GINS. JAMES CORNELISON, Oakland, Ind. Ter. Filed Apr. 28, 1892. Serial No. 431,061. (No model.)

Brief.—The seed, after ginning, are blown away from the machine by the same blast of air that feeds the unginned cotton to the gins.



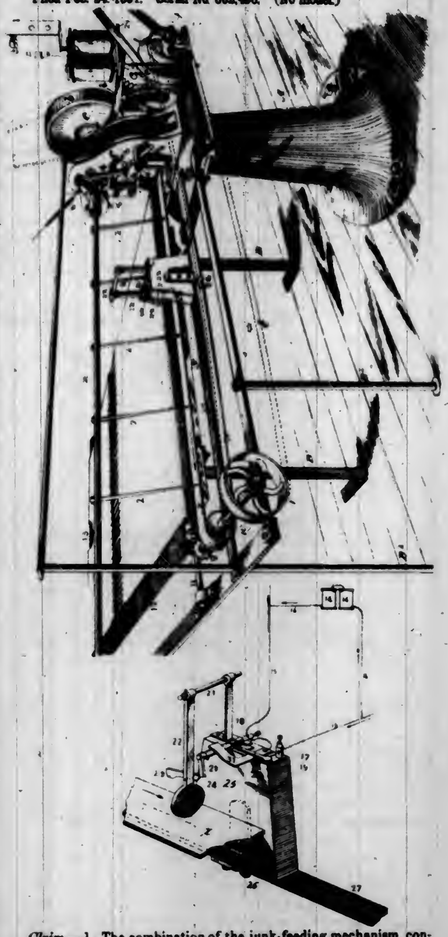
Claim.—1. In combination with a cotton-gin having a pneumatic conveyer for the cotton, an exhaust-chamber B, having a screen over the opening therein, which connects with the conveyer, and an opening for delivering the cotton from the conveyer to the gin, and an exhaust-fan for creating an air-current through the conveyer and through a discharge-pipe, said discharge-pipe being connected to the cotton-gin by a valved aperture, substantially as shown.

2. In combination with a cotton-gin having a pneumatic conveyer leading into an exhaust-chamber having a screen, means for delivering the cotton from the exhaust-chamber to the gin, and a pipe extending from the exhaust-chamber to the under side of the gin, the gin being connected by a chute to the aperture in the pipe C, said aperture having a swinging valve hinged to the side thereof, so that it will be brought to an inclined position by the exhaust-air impinging against the same, substantially as shown, and for the purpose set forth.

3. The combination, with a cotton-gin and an exhaust-pipe connected to each other by a chute and an aperture between the chute and exhaust-pipe, of a hinged valve 5 and a plate 3, located above said hinge, substantially as shown, and for the purpose set forth.

4. The combination, with a cotton-gin and an exhaust-pipe, of a chute connecting the same, an aperture 2, having a beveled edge, a swinging valve 5, also having a beveled edge, and a plate 3, located above the hinge, substantially as shown, and for the purpose set forth.

482,917. MACHINE FOR CUTTING LATH-YARNS. HENRY S. DIX, Chelsea, Mass., assignor to Sylvester B. Hinckley, same place. Filed Feb. 24, 1891. Serial No. 382,490. (No model.)

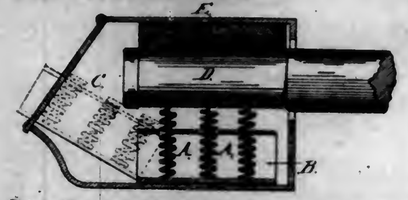


Claim.—1. The combination of the junk-feeding mechanism, consisting of a pair of driven groove-faced rolls and a driven carrying-belt, a junk-severing cutter, with means to actuate the same, a clutch mechanism by which the knife actuating devices may be rendered operative and inoperative, an electro-magnet arranged to operate the clutch-engaging devices, and an electric circuit connected with said magnet to render the same operative and provided with a circuit-breaker arranged to be actuated by contact therewith of the junk as it is advanced by the feeding device.

2. In a junk-cutting machine, the combination, with a feeding and severing mechanism, of the clearer, consisting of shaft *z*, having fingers 2, the arm 3, arranged on said shaft, the shaft *a*, arranged to be periodically rotated, and the cam 7, secured on said shaft *a* and arranged to act upon and depress the roll 6, and thereby actuate shaft *z*, all substantially as specified.

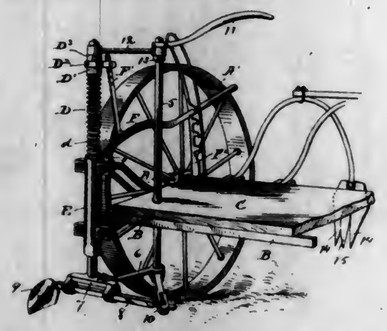
3. The combination of the grooved feed-rolls and junk carrying belt, the crank-shaft having the cutting-knife connected therewith and provided with an interlocking clutch, the electro-magnets, the armature thereof and the clutch-engaging key, and the electric circuit embracing said magnets and provided with a circuit-breaker with the actuator thereof arranged in the path of the junk as moved forward by said feeding devices.

482,918. AXLE-LUBRICATOR. JOHN Q. FITCH, San Francisco, Cal., assignor of one-third to A. W. Sanborn, same place. Filed July 29, 1891. Serial No. 401,065. (No model.)



Claim.—The combination, with a journal having a bearing and an oil box or receiver beneath said journal, of one or more feeders consisting of fine wires twisted into a strand coiled into a spiral and an independent removable frame or support within said reservoir and removable therefrom through its end opening, said frame or support carrying the spirals in upright positions, with their lower ends resting upon its bottom, while their upper ends are maintained in constant yielding contact with the journal, substantially as herein described.

482,919. CULTIVATOR. JACOB GEDDERN, Cleveland, Ohio. Filed June 16, 1892. Serial No. 436,995. (No model.)



Claim.—1. In a cultivator, the combination, with a frame and a spindle supported therein and adapted to reciprocate up and down relative to the machine, said spindle carrying a cultivator-blade, of a rocking spindle also connected with the frame and with the cultivator-blade, whereby when the rock-spindle is rocked the blade is moved, substantially as set forth.

2. The combination, with a suitable frame or support, of a yieldingly-supported yoke connected therewith, a rod having sliding connection with the yoke and carrying a cultivator-tooth, and a rock-spindle connected with the rod and adapted to reciprocate the latter as the spindle is rocked, substantially as set forth.

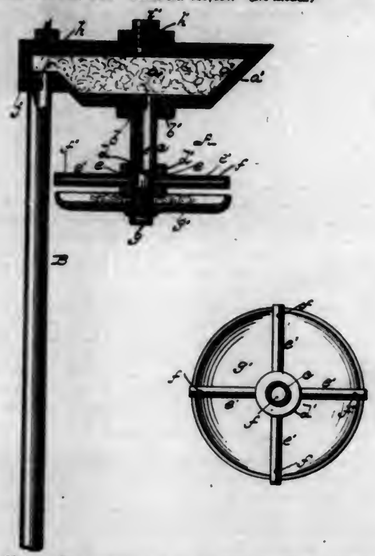
3. The combination, with a frame or support, of a pair of spindles supported therein, one spindle constructed to reciprocate and having connected therewith a sliding tooth and the other spindle adapted to rock, the latter connected with the sliding tooth and adapted to slide the latter back and forth, substantially as set forth.

4. The combination, with a frame or support, of a pair of spindles connected together and capable of endwise movement and one adapted to rock and a cultivator-tooth having sliding connection with one spindle and the other spindle connected with this tooth, whereby to impart a sliding movement thereto when it is rocked, substantially as set forth.

5. The combination, with a frame or support, a spindle having sliding connection with the frame, said spindle carrying a yoke, a bar sliding in the yoke and carrying a tooth, a spring for yieldingly sustaining and normally elevating the spindle, and a lever for adjusting this spindle and locking it in position, of a rock-spindle having connection with the sliding spindle, said rock-spindle connected with the sliding bar, and a lever for rocking this spindle, substantially as set forth.

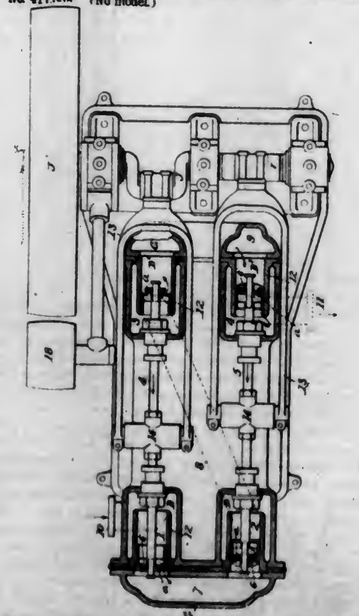
6. Cultivating devices comprising a pair of shares slightly separated or divided at their lower ends and a cutter having a curved nearly-vertical forward edge located between these shares, the extreme lower ends of the teeth curving or projecting away from the blade, substantially as set forth.

482,920. VAPOR-BURNER. HARRY S. GILES, Philadelphia, Pa. Filed Oct. 31, 1891. Serial No. 410,417. (No model.)



Claim.—The combination, with a retort having the usual supply-pipe and a discharge-pipe leading from the bottom thereof, of a burner connected with said discharge-pipe and consisting of a tubular portion provided with laterally-extended tubes having perforations which are adapted to discharge upward toward the retort and a plug bearing a drip-cup and secured into the lower end of the tubular portion, substantially as described.

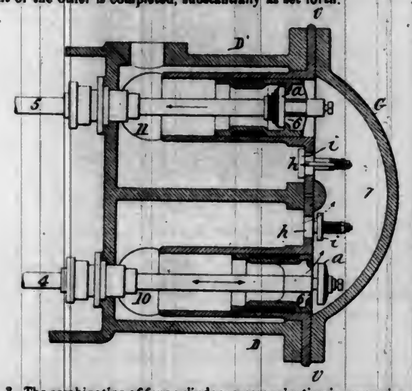
482,921. PUMP. MILAN W. HALL, Plainfield, N. J., assignor to Otis Brothers & Company, New York, N. Y. Filed Jan. 7, 1892. Serial No. 417,888. (No model.)



Claim.—1. The combination, in a pump, of four cylinders arranged and connected for the fluid to flow through the same successively,

valved pistons and piston-rods, each connecting two pistons of adjoining cylinders, and a crank-shaft having cranks at right angles, each connected with one of the piston-rods, substantially as set forth.

2. A pump with two pairs of connected cylinders having inlet and outlet ports and intermediate connecting-channels, a reciprocating valved piston in each of said cylinders, whereby to force the water in one direction through the same, and means, substantially as described, to move each piston to reverse the direction of one before the movement of the other is completed, substantially as set forth.



3. The combination of four cylinders communicating in succession, each having a piston with a port, and connections between the pistons in line with each other, and means for driving all the pistons, the valves of the pistons in line with each other opening in opposite directions, substantially as described.

4. The combination, in a pump, of two pairs of cylinders arranged and connected to permit the fluid to flow successively to the same, and valved pistons, those in line connected together, the valves in two pistons opening in one direction and those in the others opening in the opposite direction, substantially as described.

5. The combination, with the cylinders and pistons of a duplex or multiple pump and with the openings and valves with the pistons thereof, of auxiliary openings or passages between the ends of the cylinders and self-acting valves adapted to said openings, substantially as set forth.

482,922. PIPE-COUPLING. REINHOLD HERMAN, Crafton, Pa. Filed Nov. 27, 1891. Serial No. 413,252. (No model.)



Claim.—1. In a pipe-coupling, the combination of two internally-threaded tubes, one provided with a concavo-convex flange and the other provided with a flange having a threaded perimeter, and a packing-block having a convex bearing surface supported by a thimble formed integral with the tube and flange, and an internally-threaded sleeve provided with an inwardly-projecting flange, substantially as set forth.

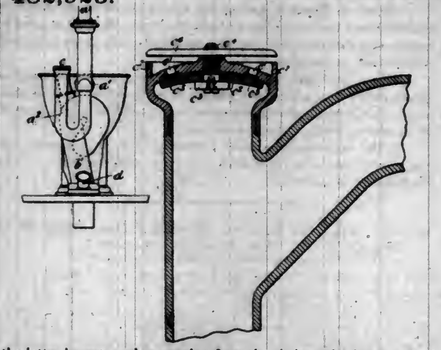
2. In a pipe-coupling the combination of two internally-threaded tubes, one provided with a concavo-convex flange and the other provided with a flange having a threaded perimeter, and a packing-block having a convex bearing-surface supported by a thimble formed integral with the tube and flange, and an internally-threaded sleeve provided with an inwardly projecting rim, the sleeve and one of the tubes being insulated from the other tube, substantially as set forth.

482,923. WATER-CLOSET. SIDNEY JEFFINGS and JOHN MORLEY, Lambeth, England. Filed June 6, 1892. Serial No. 436,063. (No model.)

Claim.—1. In water-closets, the combination of a pan, a siphon-pipe leading from the pan, a water-supply pipe with two branches, one to the pan and the other to the long leg of the siphon, and an air-inlet valve in the upper part of the latter branch.

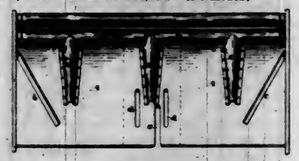
2. In water-closets, the combination of a pan, a siphon-pipe leading from the pan, a trap at the bottom of the long leg of the siphon, a water-supply pipe with two branches, one to the pan and the other to the long leg of the siphon, an air-inlet valve in the upper part of

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the latter branch, and an opening from the air into the lower end of the long leg of the siphon.

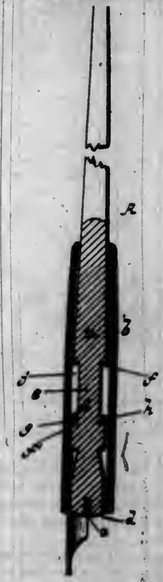
482,924. HARVESTER. MILTON KIMBERLIN, Nabb, Ind. Filed Sept. 29, 1890. Serial No. 366,609. (No model.)



Claim.—1. An improved attachment to the table of a grain-harvesting machine, which consists of supports for the straw as it is conveyed to the packers, consisting of curved sheets of suitable material, flanged to permit of their attachment to a wooden table, and cupped so as to project partially over the rollers of said table, all substantially as described.

2. An improved attachment for grain-harvesters, consisting of the supports E, attachable by screws, bolts, or nails to the table of the harvester and constructed of material which is flexible and affords little friction, all as described.

482,925. PENHOLDER. GEORGE MCELWAIN, Englewood, Ill. Filed July 25, 1892. Serial No. 441,174. (No model.)

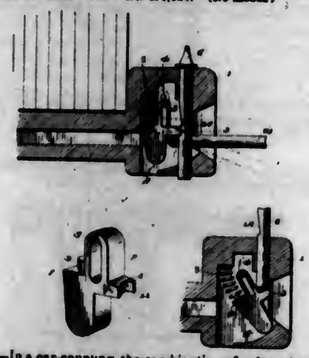


Claim.—1. The stem having the reduced portion and shoulders and the sleeve having the groove and the ring, said ring adapted to engage said shoulders, whereby the movement of the sleeve is limited, substantially as described.

2. In a penholder having a movable sleeve, an inner annular groove, and a ring within said groove, in combination with the stem having shoulders adapted to engage said ring and limit the movement of the sleeve, substantially as described.

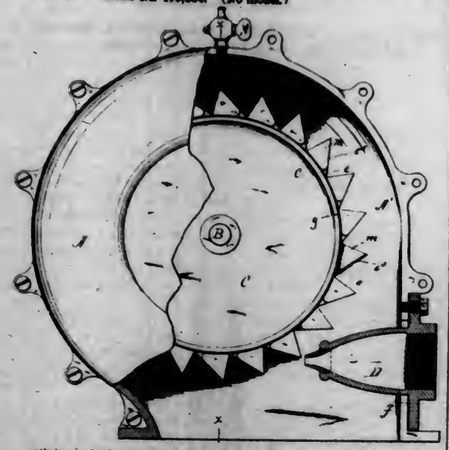
3. The penholder described, consisting of stem *a*, sleeve *b*, and ring *h*, said sleeve having groove *g* and the stem-shoulders *f f'*, all substantially as described.

482,926. CAR-COUPLING. BENJAMIN H. PAGES, Philippi, W. Va. Filed Apr. 27, 1892. Serial No. 430,837. (No model.)



Claim.—In a car-coupling, the combination of a draw-head, a pin-support provided at its front with a projection and having a longitudinal slot, a horizontal pivot-pin passing through the slot, a spring engaging the rear of the pin-support and forcing the same downward and outward, and a coupling-pin provided with a notch adapted to be engaged by the said projection, substantially as described.

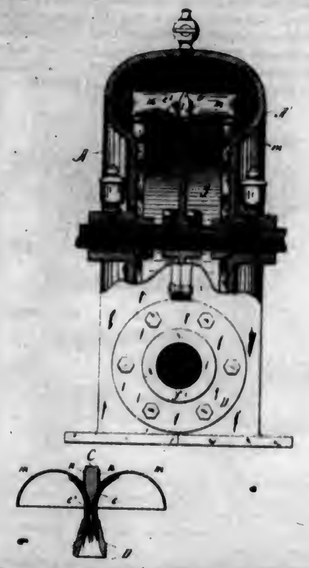
482,927. WATER-MOTOR. LEMUEL FOSTER, Providence, R. I., assignor to the Malden Machine Company, Boston, Mass. Filed Oct. 29, 1891. Serial No. 410,226. (No model.)



Claim.—1. In a water-motor, the combination of a serrated wheel whose teeth are formed with narrow forward edges and diverging sides, deflecting-wings, and a jet-nozzle having a double orifice, substantially as described.

2. In a water-motor, the combination of a serrated wheel the teeth of which have their sides inclined laterally, with deflecting-wings, and a jet-nozzle having a double orifice with converging jet-channels leading thereto, whereby converging jets are thrown upon the wheel, substantially as described.

3. In a water-motor, a narrow serrated rimmed wheel formed of teeth having narrow edges and beveled sides, with deflecting-wings adjacent to the toothed periphery, and a jet-nozzle provided with jet-tubes arranged obliquely to each other, whereby jets are thrown obliquely against the teeth of the wheel and deflected laterally, substantially as described.

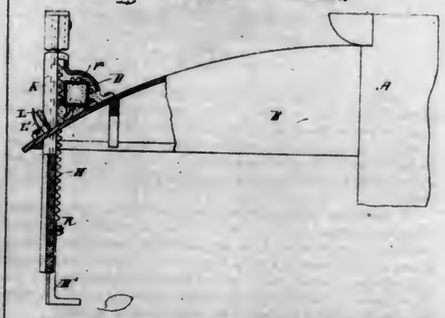


4. In a water-motor of the character described, a toothed motor-wheel the teeth of which form a narrow periphery, the forward edge of each tooth being narrower transversely than vertically and extending obliquely upward from the rim of the wheel in the plane of its disk, in combination with a jet-nozzle placed adjacent thereto, substantially as described, and for the purpose set forth.

5. The combination of a motor-wheel with teeth having their sides laterally curved and adjacent curved deflecting-wings, substantially as described, and for the purpose set forth.

6. A water-motor wheel having a toothed periphery in which the sides of the teeth are inclined laterally, with deflecting-wings on its disk adjacent to said teeth, substantially as described.

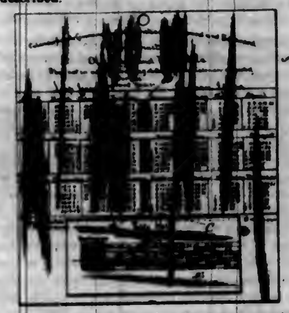
482,928. SIGN FOR CARS. CHARLES S. REED, Boston, Mass. Filed Dec. 21, 1891. Serial No. 415,791. (No model.)



Claim.—In a car-sign device, the combination of a rotating prismatic sign-board having a pinion P, adapted to engage with and operate a movable rack H, and pointer R, connected to said rack with an auxiliary sign S, said auxiliary sign S and pointer R being so arranged as to indicate (to a person on the platform) which legend on the outside sign is displayed, substantially as and for the purpose set forth.

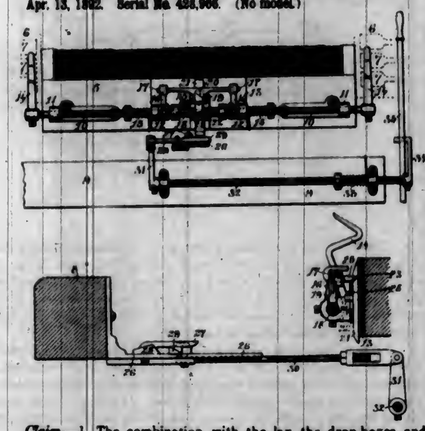
482,929. CALENDAR. CHARLES H. RENDELL and EDWIN S. PINNEY, Tulare City, Cal. Filed July 12, 1892. Serial No. 439,836. (No model.)

Claim.—1. In a calendar of the class described, the combination of a card having a central slot or slots and the days of the year marked upon opposite sides of said slot or slots and a card adapted to slide upon the back of the main card, said sliding card having the days of the week marked thereon in different columns, all substantially as shown and described.



2. In a calendar of the class described, the combination of a main card having a central slot or slots, the days of the ordinary year arranged upon one side of the slot or slots and the days of the leap-year arranged upon the opposite side of the slot or slots and in reverse order, the strips upon the rear face of the main card, and the sliding card having the days of the week arranged thereon in different columns, all substantially as shown and described.

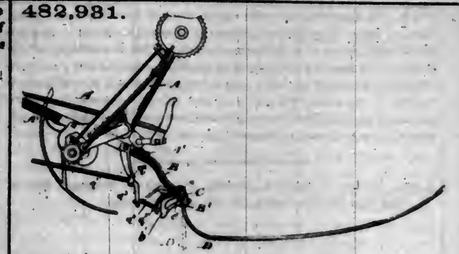
482,930. STOP-MOTION FOR LOOMS. JOHN J. SHANAHAN, Providence, R. I., assignor to the National Worsted Mills, same place. Filed Apr. 13, 1892. Serial No. 428,966. (No model.)



Claim.—1. The combination, with the lay, the drop-boxes, and the swell-fingers, the spring-operated rock-shafts 10 10, provided with the detector-fingers 14 14 and the arms 16 16, a pivoted latch-post having the transverse bar 17, adapted to be engaged by said arms 16 16, and a vertically-sliding plunger normally sustained by said latch-post, of the breast-beam 8, the picker-lever for controlling the picker-motion, a bracket-plate secured to the breast-beam, an arm pivoted to said plate and adapted to be engaged by said plunger when depressed, and mechanism intermediate said pivoted arm and the picker-lever, whereby said lever is operated, as described.

2. The combination, as hereinabefore described, with the breast-beam 8, the bracket-plate 26, provided with the guide-finger 27 and the beveled block 28, the arm 29, pivoted to such plate, the shipper-lever for controlling the picker-motion, and mechanism intermediate said pivoted arm 29 and the picker-lever, of the lay, the drop-boxes, swell-fingers in said boxes and detector-fingers pressing against said swells, a vertically-sliding plunger carried by the lay and adapted to engage the pivoted arm 29 when depressed, and means intermediate said plunger and the detector-fingers to support the same under normal conditions and adapted to release the same when the detector-fingers are pressed outward, as described.

482,931. SHEAF-CARRIER FOR SELF-BINDING HARVESTERS. JOHN F. STEWARD, Chicago, Ill. Filed June 24, 1891. Serial No. 397,343. (No model.)



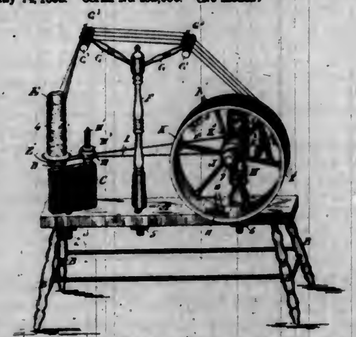
Claim.—1. A sheaf-carrier finger-joint consisting of a part secured to the broad vertical side of a bar, so as to leave a space between the said bar and said part, that the vertical axis of the finger may be free to swing at its lower end, said space at its upper end constricted to form a swivel-joint, in which the vertical axis of the finger may rock as well as turn, said finger having an arm extended from the part forming its axis to adapt it to receive a bar that shall connect said finger with others, said arm controlled between the axis of movement of the finger and the connecting-bar by a limiting-stop *e*, substantially as described.

2. A sheaf-carrier finger-joint consisting of a broad-faced bar and a joint-piece secured thereto, the vertical axis of the finger lying in a space between the joint-piece and the flat bar, the said joint-piece adapted to form a broad slot below and a constricted throat above, whereby the finger-joint may shift at the lower part of the bearing at the swivel-joint formed by the throat of said joint-piece; the said finger having an arm extending from its vertical axis and said joint-piece having a cam *d'* below the said arm and the stop *c* above said arm to aid in controlling the movement of the said arm and through it the movement of the finger, substantially as described.

3. A sheaf-carrier finger-joint consisting of a supporting-bar having a broad side, a joint-piece so secured to said bar as to leave a space for the axis of the finger to turn and to slide at the lower part of the joint-piece, said finger having an arm extending from the vertical axis whereby the finger may be moved, a stop and cam as one piece with the said joint-piece adapted to control the arm of the said finger, consisting of the surfaces *c* and *d'*, the arm of the finger practically moving in a slot, but said slot cut away at one end, whereby when the finger is turned sufficiently far on its axis the arm part of the finger will have been moved sufficiently far to escape the action of the uppermost stop, so that it may be lifted upward and drawn out of the joint or by a reversal of the movement a new tooth may be substituted, substantially as described.

4. A sheaf-carrier finger-joint consisting of a broad-sided bar, a joint-piece secured to said bar, so as to leave a space between said bar and joint-piece for the axis of the finger to shift, said finger having an arm substantially at right angles to said axis, said joint-piece having integral with itself the stop and cam surfaces *c* and *d'*, substantially as described.

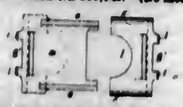
482,932. REEL FOR UNRAVELING TUBULAR-KNITTED GOODS AND WINDING THE YARN. NAPOLÉON TOURANGEAU, Montreal, Canada, assignor of one-half to Joseph Odilon Marceau, same place. Filed May 14, 1892. Serial No. 432,968. (No model.)



Claim.—1. The combination of the spindle-carrier C, having a socket-spindle E, the yarn-carrier having separating-guides G^2, and a reel or drum K, winding the yarn separately, as set forth.

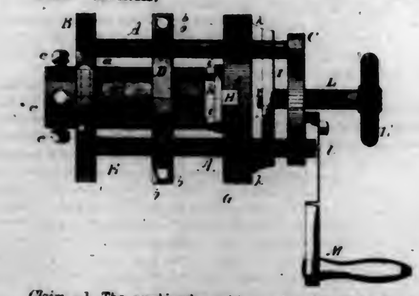
2. The combination of the reel or drum K for winding the yarns, having a series of peripheral grooves or channels to divide or separate the several yarns, a yarn-carrier having guides G^2, dividing or separating the yarns of knitted goods, a spindle-carrier C, having a sock-spindle E, on which to sleeve the knitted goods, and an endless driving-belt I, connecting the said reel and spindle, whereby the several yarns of a knitted fabric are simultaneously unraveled and separately wound upon said reel, substantially as set forth.

482,933. VEHICLE-SPRING. JEROME W. WETMORE, Erie, Pa. Filed May 18, 1891. Serial No. 393,145. (No model.)



Claim.—An adjustable bearing-plate for vehicle-springs, consisting of two separate parts adapted to be secured to the axle-tree, each said part being provided with similar vertical side plates *f*, recesses *g*, friction-rods *g*, and clips *i*, adapted to secure the said rods in the said recesses, one of the said parts being also provided with the horizontal side ribs *o* and the tongue *m*, adapted to rest on the top of the axle-tree, and the other said part being provided with the recess *l*, adapted to engage the said tongue, and the clips *k*, adapted to be bent over the said side ribs, substantially as set forth.

482,934. MACHINE FOR CUTTING THE ENDS OF SPINDLES. JAMES A. WILLIAMS, Walkerton, Ind. Filed Feb. 1, 1892. Serial No. 419,954. (No model.)

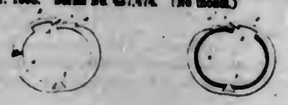


Claim.—1. The combination, with a series of rods or bars, of a disk secured at each end of said series of rods or bars, a sleeve loosely mounted in one of said disks and adapted to hold a spindle or similar device, a ring mounted to slide on said rods or bars, a screw for sliding said ring, a cutter carried by said ring, and means for revolving the machine independently of the sleeve, substantially as and for the purpose set forth.

2. The combination, with a series of rods or bars, of a disk mounted at each end of said series of rods or bars, another disk mounted on said rods or bars adjacent to the disk at one end of the device, a sleeve mounted loosely in said adjacent disks in such manner as to be incapable of longitudinal movement, a ring mounted to slide on the rods or bars, a cutter carried by said ring, means for manipulating the latter, and means for rotating the machine independently of the loose sleeve, substantially as set forth.

3. The combination, with a series of rods or bars, of disks located at the ends of said rods or bars, the disk at one end being made in separable sections and secured together, another sectional disk mounted on said rods or bars adjacent to the first-mentioned sectional disk, a sleeve loosely mounted in said sectional disks in such a manner as to prevent longitudinal movement of said sleeve, a sliding ring, a cutter carried thereby, a cross-bar carried by said sliding ring, a screw swiveled in said cross-bar and passing through a screw-threaded opening in the disk at the inner end of the machine, and an operating-wheel carried by said screw, and a handle for rotating the machine independently of the sleeve, substantially as set forth.

482,935. NUT-LOCK. JOHN W. WILLCOXON, Manassas, Va. Filed June 31, 1892. Serial No. 437,474. (No model.)



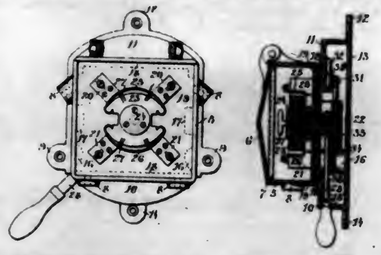
Claim.—1. The herein-described nut-lock, the same consisting of a ring split and having one of its terminals reduced to form a spring locking-tongue provided with a shoulder and its opposite terminal provided with a shoulder for engaging the same, the inner edge of the ring being reduced to form a cutting-edge, substantially as specified.

2. The herein-described nut-lock, the same consisting of a ring split and having one of its terminals reduced to form a spring locking-tongue provided with a shoulder and its opposite terminal provided with a shoulder for engaging the same, the inner edge of the ring being reduced to form a cutting-edge and provided diametrically opposite the spring-tongue with a reduction or recess to facilitate the closing of the ring, substantially as specified.

3. The herein-described nut-lock, the same consisting of a ring split and having one of its terminals reduced to form a spring locking-tongue provided with a shoulder and its opposite terminal provided with a shoulder for engaging the same, the inner edge of the ring being reduced to form a cutting-edge which diametrically opposite the spring-tongue is provided with a V-shaped recess, the inner corners of which meet when the ring is closed, substantially as specified.

4. The herein-described nut-lock, the same consisting of a ring-blank split to form opposite terminals and internally reduced to form an annular cutting-edge, one of said terminals being interiorly reduced to form a spring-tongue terminating at its front end in a locking-shoulder and the remaining terminal exteriorly reduced and provided with an inner front recess and in rear of the same with a higher or deeper shoulder, substantially as specified.

482,936. ELECTRIC SWITCH AND CASE. AUGUSTUS WRIGHT, Providence, R. I., assignor to the Hope Electric Appliance Company, same place. Filed May 31, 1892. Serial No. 434,882. (No model.)



Claim.—1. In a switching device, the combination, with the case 5, having the cover 6 hinged thereto, a depending plate 10, an upwardly-extending hood 11, a back 13, having the flange 15, and the lugs 16 and 17, extending from the inner surface of the case, of the partition or plate 19, formed of insulating material, and a switching device carried on said plate, as described.

2. In an electric switching device, the combination, with contact-posts and a rotatable block carrying contact-plates, of a lever adapted to rotate said block, links pivoted to said lever, other links pivoted to the free ends of the first-mentioned links and to stationary studs, and a spring adapted to exert an inward pressure on the ends of the first-mentioned links, as described.

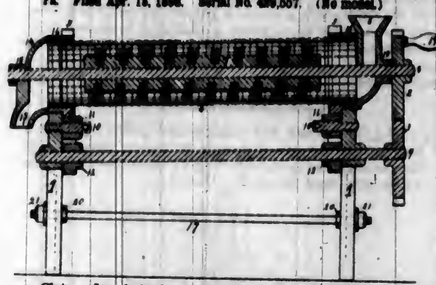
3. In an electric switching device, the combination, with posts carrying contacts, a block carrying connecting-plates, and a shaft suitably journaled, to which said block is secured, of the lever 28, secured to said shaft and having the extension 29, a link 30, pivoted to said extension, a link 31, pivoted to the free end of the link 30 and to a stationary stud, the link 34, pivoted to the lever, a link 33, pivoted to said link and to a stationary stud, and a spring 35, secured at its ends to the pivots A and B, as described.

4. In an electric switch, the combination, with a base, contact-posts secured thereto, a shaft journaled in a perforation in said base, a block having connection plates secured to said shaft, and a handle 37 for rotating the same, of a lever secured to said shaft at the end opposite the block, double links pivoted to the ends of said lever and to stationary studs, and means for exerting a contracting strain on the pivots connecting each pair of links, as described.

5. The combination, with the case 5, having a hinged cover, a depending plate 10, an upwardly-extending hood 11, a back 13, having the flange 15, and the lugs 16 and 17, extending from the inner surface of the case, of the insulating-partition 19, a switching device secured thereto and operated by a shaft journaled in a perforation in said partition, a lever 28, secured to the end of said shaft, an extension 29 on said lever, a link 30, pivoted to said extension, a second link 31, pivoted to the link 30 and to a stud on the partition, the link 34, pivoted to the lever 28, the link 33, pivoted to the link 34 and to a stud on the partition, and the spring 35, the ends of which are secured to

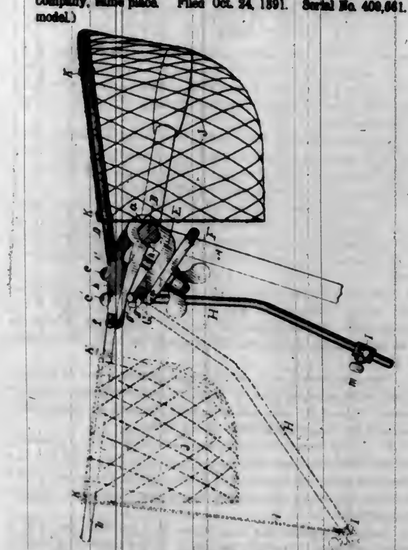
the pivots connecting the links 30 and 31 and 33 and 34, as and for the purpose described.

482,937. FRUIT-CLEANER. HENRY BARDSLEY and WALTER PARKINSON, Philadelphia, assignors of one-third to James Bardsley, Lyndell, Pa. Filed Apr. 18, 1892. Serial No. 429,507. (No model.)



Claim.—In a fruit cleaning machine, the combination of a tubular wire screen, provided at the end with hoops, each hoop formed with a supporting-tread and projecting gear-teeth, a frame at the ends, with stationary receiving and discharge heads for said screen and with bearings for treads, a central shaft provided with a driving crank-pinion and a spiral brush within said screen, a counter-shaft provided with pinions, one of which directly engages the crank-wheel, and two carrier pinions transmitting motion to the screen to revolve it in an opposite direction to that which the spiral brush revolves, substantially as set forth.

482,938. CHILD'S SEAT OR PARCEL-CARRIER FOR BICYCLES. MAURICE R. HOOD, Kalamazoo, Mich., assignor to the Kalamazoo Cycle Company, same place. Filed Oct. 24, 1891. Serial No. 409,661. (No model.)



Claim.—1. A child's seat or carrier for bicycles, having a seat part for the child to sit on, foot-rests or supports for the child's feet, and arm-rests or supports for the arms, the said parts adapted to be attached to a bicycle and made adjustable in such a manner that they can be set to carry the child either in front or behind the handle-bar, substantially as shown.

2. A child's seat for bicycles or other like vehicles, consisting of a frame attached to the bicycle and a net or bag hanging down from such frame for the child to sit in, the said net or bag having its outer edges on three sides secured to the said frame, while the edge of the net or bag on the fourth side is separate from the frame and depressed to near the level of the seat part, substantially as and for the purposes specified.

3. A child's seat for bicycles or other like vehicles, consisting of a frame attached to the bicycle and a hammock or swinging seat hanging down from such frame, which is adapted to swing independent of the frame, said hammock or seat so arranged that the child can sit squarely in it while its feet are hanging over one side, substantially as shown.

4. A child's seat for bicycles or other like vehicles, consisting of a circular and horizontally-projecting frame to encircle the body of the child and form arm-rests for the child and cords hanging down from the said frame to support the seat and child, the seat and child being free to swing independent of the said frame, substantially as specified.

5. A child's seat for bicycles or other like vehicles, made reversible, so that the front part of the seat can be set to form a back-rest and the back-rest can be set to form a seat, substantially as and for the purposes specified.

6. A child's seat for bicycles or other like vehicles, having a horizontally-projecting frame to encircle the body of the child and a net hanging down from such frame to form a seat for the child to sit in, the edge of the net on one side being separated from the frame to allow the child's legs to pass through between the net and frame, substantially as specified.

7. In a child's seat and carrier for bicycles, the elliptically-shaped frame D, net or bag J, and cord L, all adapted for use substantially as and for the purposes specified.

8. In a child's seat for bicycles, the combination of the swinging rod H, foot-rests I, and cords *l l*, substantially as and for the purposes specified.

9. A parcel-carrier for bicycles, consisting of a bag for carrying the parcels and a frame on the inside of the bag for supporting the bag and keeping the sides of the bag extended, the lower part of the bag adapted to hold and carry the parcel, while the upper part of the bag serves as a cover to come over the parcel, substantially as and for the purposes specified.

10. In a parcel-carrier for bicycles, velocipedes, or other like vehicles, the receptacle being a bag, a circular or elliptically-shaped frame for supporting the bag, consisting of a wire or rod bent around horizontally, the sides of the bag hanging down from the said frame to carry the load inside and below said frame, substantially as specified.

11. In a parcel-carrier for bicycles, velocipedes, or other like vehicles, a bag for the carrying-receptacle and a frame projecting from the handle-bar to support the bag, the said frame having a clip on its rear part to go over the handle-bar of the bicycle, in combination with a clip on the lower or opposite side of the handle-bar to clamp the handle-bar at one end and bear against the frame of the carrier or upper clip at its opposite end, and a bolt or screw passing through the said clips intermediate between their bearing-points on the handle-bar and each other to bind or clamp the clips together and against the handle-bar, substantially as specified.

12. In a parcel-carrier for bicycles, the combination of the carrier-bag J, upper clip C, supporting the frame for the bag, lower clip E, bolt G, and handle-bar B, all arranged and adapted for use substantially as and for the purposes specified.

13. In a parcel-carrier for bicycles, the receptacle being a bag, the combination, with the handle-bar and handle-bar post, of the two clips C and E, bolt or screw G, intermediate between the bearing-points of the clips, and the post brace F, having a finger *k* projecting from one side to bear against the post, all arranged and adapted for use substantially as specified.

14. In a parcel-carrier for bicycles, to be attached to and project outwardly from the handle-bar of a bicycle or other like vehicle, a post-brace to attach to the carrier-frame at one end of the brace and at its opposite end having projecting fingers *k k* to bear on opposite sides of the post to prevent the carrier from turning on the handle-bar in either direction, substantially as set forth.

15. In a child's seat or parcel-carrier for bicycles, the combination and arrangement of the clips C and E, post-brace F, and bolt G to pass through the clips and brace and bind them together against each other and the handle-bar, substantially as specified.

16. In a child's seat or parcel-carrier for bicycles, the combination of the clips C and E for clamping the handle-bar at one end and bearing against each other at their opposite ends, with a bolt or a screw intermediate between these bearing-points for drawing the clips toward each other and a projecting finger *k* to rest against the handle bar post, substantially as set forth.

17. In a child's seat or parcel-carrier for bicycles, a finger *k* to rest against the post, said finger provided with a slot *j* through one part for receiving a bolt to secure it to the carrier-frame, substantially as and for the purposes specified.

18. In a child's seat or parcel-carrier for bicycles, the circular or elliptically-shaped frame D, having its ends projecting outwardly from its major axis to be inserted between and held by the cross-bars *c c'* and *d d*, in combination with the said cross-bars, substantially as set forth.

19. In a child's seat or parcel-carrier for bicycles, the frame D, formed of a single wire or rod having its ends turned outwardly from the frame to be inserted into bearings in a casting or metallic piece

which is secured to the bicycle, the normal condition of the said ends of the frame D being such as to cause them to spread apart from their bearings, so that the spring-tension against the said bearings will be sufficient to hold the frame D in place and keep it from rattling, substantially as specified.

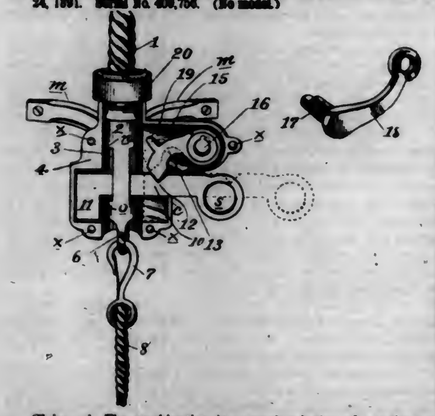
20. In a child's seat or parcel-carrier for bicycles, the frame formed of a single wire or rod which is bent around to have the two ends come nearly together, at which point the ends are turned outwardly to be inserted in bearings in a metallic piece, which is secured to the handle-bar or handle-bar post of the bicycle, the said bearings and frame so constructed that the frame can be set to stand in opposite directions to bring it either in front or behind the handle bar, substantially as specified.

21. In a child's seat or parcel-carrier for bicycles, the combination and arrangement of the bag J, frame D, clips C and E, and bolt or screw G, substantially as and for the purposes specified.

22. In a parcel carrier for bicycles, the receptacle being a bag having a cord L, running around through its upper edges to regulate the opening, a cleat *c'* for winding the cord L, around, and a frame projecting from the handle-bar to support the bag, substantially as set forth.

23. In a child's seat for bicycles, a clip E, having a groove *h* in one end to receive the handle bar and groove *g* in the opposite end to receive the foot-rest-supporting rod, substantially as set forth.

482,939. SECURING DEVICE FOR CABLES. WILLIAM F. BOSSERT, Utica, and JOHN H. FINDLAY, Ogdensburg, assignors to the Utica Electrical Manufacturing and Supply Company, Utica, N. Y. Filed Oct. 24, 1891. Serial No. 409,756. (No model.)



Claim.—1. The combination, in a securing device, of a stationary body having a vertical barrel, a holder to which a guy or supporting-cable is attached, adapted to enter the barrel as a sleeve, and a latch for engaging the holder, substantially as set forth.

2. The combination, in a securing device, of a stationary vertical barrel, a holder to which a guy or supporting-cable is attached, adapted to enter the barrel as a sleeve, a latch for engaging the holder, and a catch for engaging the latch, substantially as set forth.

3. The combination, in a securing device, of a barrel, a holder to which a guy or supporting-cable may be attached and adapted to enter the barrel, and a latch for engaging the holder, having a downwardly-extending projection adapted to engage the holder, whereby the latch cannot be drawn until the holder is drawn down, substantially as set forth.

4. The combination, in a cable or guy supporting device, of the barrel 3, the holder 2, and the latch 10, having projection 11, substantially as set forth.

5. The combination, on a cable or guy securing device, of the fixed barrel, a holder adapted to enter the barrel and having a loop or eye at its lower end for receiving a snap or hook, a latch adapted to engage the holder, and a pawl or catch for engaging the latch, substantially as set forth.

6. The combination, in a cable or guy securing device, of a fixed vertical barrel, a holder adapted to enter the barrel as a sleeve, having hood adapted to engage and cover the upper end of the barrel, and a lock for securing the holder, substantially as set forth.

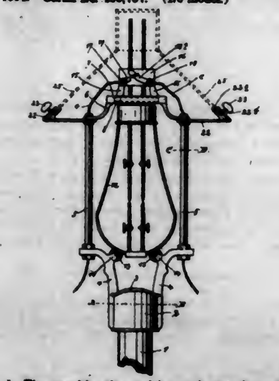
7. The combination, in a cable or guy securing device, of a fixed barrel 3, a holder 2, a latch 10, having projection 11, and pawl or catch 13, substantially as set forth.

8. The combination, in a cable or guy securing device, of a vertical fixed barrel 3, a holder 2, having loop 6, a latch 10, having projection 11, and catch 13, having a keyhole, substantially as set forth.

9. The combination, in a cable or guy securing device, of a casing forming a vertical barrel 3, a holder 2, adapted to run in the barrel and adapted to be secured to the rope or guy and having an opening 9, and loop 6, a latch 10, having projection 11, and catch 13, having a keyhole, substantially as set forth.

10. The combination, in a cable or guy securing device, of a casing forming a vertical barrel 3, a holder 2, adapted to be secured to the cable or guy and to enter the barrel and having an opening 9 and loop 6 and hood 20, a latch 10, having projection 11, and catch 13, having a keyhole, substantially as set forth.

482,940. FRAME FOR ELECTRIC-ARC LAMPS. WILLIAM F. BOSSERT, Utica, and JOHN H. FINDLAY, Ogdensburg, assignors to the Utica Electrical Manufacturing and Supply Company, Utica, N. Y. Filed Oct. 24, 1891. Serial No. 409,757. (No model.)



Claim.—1. The combination, with an electric-lamp frame, of insulators 13, adapted to engage and support the lower portion of the lamp, and a ring 7, adapted to surround the upper portion of the lamp and secure the same by means of insulating-pieces within the ring, substantially as set forth.

2. The combination, with an electric-lamp frame, of insulators 13, adapted to engage and support the lower portion of the lamp, and a clamping-ring adapted to surround the upper portion of the lamp and engage the same by insulators, substantially as set forth.

3. The combination, with an electric-lamp frame, of the lamp-hood and supporters therefor having a segmental portion on which the edge of the hood rests, and projecting lugs adapted to receive the edge of the hood, and a set screw for securing the hood, substantially as set forth.

4. The combination, with an electric-lamp hood, of a supporter therefor having a segmental portion 22^{a}, on which the edge of the hood rests, and projecting lugs 22^{d} and 22^{b}, adapted to receive the edge of the hood, and a set-screw for securing the hood, substantially as set forth.

5. The combination, with an electric-lamp post frame, of a ring 7, surrounding the upper portion of the lamp, and insulators 9 and 9^{a}, projecting inside of the ring, and adjustable insulator 9^{b}, also projecting inside of the ring, substantially as set forth.

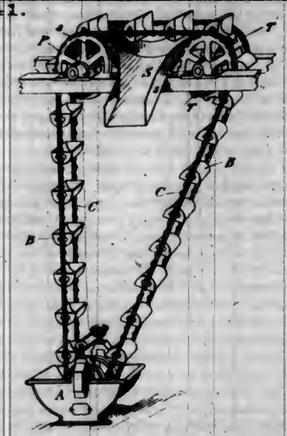
6. In a lamp frame, the combination of a socket 3, the arms 4 4, projecting therefrom, carrying insulators 13 13 and uprights 5 5, the ring-supporting arms 6, and the ring 7, surrounding the upper portion of the lamp and adapted to engage the same by insulators, substantially as set forth.

7. The combination, in a lamp-frame, of a socket 3, the arms 4, carrying insulators 13, hollow uprights 5 5, ring-supporting arms 6, engaging upon the upper ends of the uprights 5, and supporting-ring 7, which is adapted to surround and engage by adjustable insulators the upper portion of the lamp, switch-board 16 and the supports therefor, binding-post 17 and 18, and switch-lever 18^{a}, substantially as set forth.

482,941. BUCKET-ELEVATOR. JOSEPH CAVANAGH, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed May 12, 1890. Serial No. 351,561. (No model.)

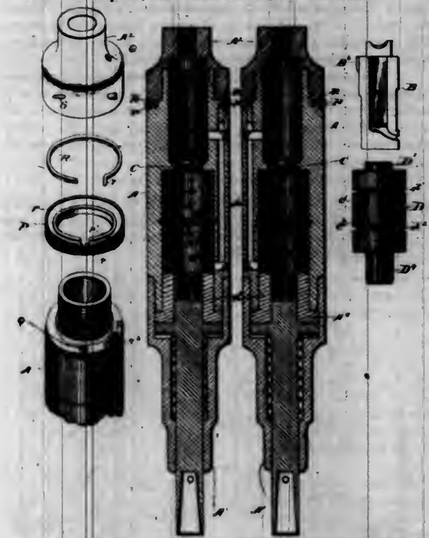
Claim.—In an endless-belt elevator, the belting and buckets of which are led off about horizontally from the head wheel or wheels, a chute composed of a vertically-curved portion located within the line of travel of the belting and buckets and adapted to receive and support in engagement with the buckets any discharge from them and

482,941.



so inclined portion adapted to deliver the load by the natural flow of the material along the bottom, substantially as shown and described.

482,942. PNEUMATIC TOOL. DANIEL DRAWBAUGH, Eberly's Mill, Pa., assignor to the Pneumatic and Electric Tool Company, New York, N. Y. Filed Apr. 30, 1892. Serial No. 431,294. (No model.)



Claim.—1. In a pneumatic tool, the combination of the cylinder, valve, air-port, beater, and projection, said ports being so arranged as that the projection closes the air-port before the beater reaches the extreme of its movement, forming an air-cushion around the projection and leaving the cross-sectional area of the projection open to the air-port, whereby the return movement may be initiated, substantially as described.

2. In a pneumatic tool, the combination, with the cylinder, valve, and air-port opening into the cylinder in line with the beater in its longitudinal movement, of the beater and co-operating projection for closing said port before the beater reaches the limit of its movement, whereby the area of the projection is available to initiate the return movement, substantially as described.

3. In a pneumatic tool, the combination, with the cylinder, valve, and air-port opening into the cylinder in line with the beater in its longitudinal movement, of the beater and the projection entering the air-port to close the same before the beater reaches the extreme of its movement, whereby an air-cushion is formed around the projection and the area of the projection is available to initiate the return movement, substantially as described.

4. In a pneumatic tool, the combination, with the cylinder, valve, and air-port opening into the cylinder in line with the beater and constituting a reduced portion of the cylinder, of the beater having the reduced end or projection entering said reduced portion of the cylinder to cut off the air-supply before the beater reaches the limit of its movement, whereby an air-cushion is formed around the projection, substantially as described.

5. In a pneumatic tool, the combination, with the casing having the cylinder and valve-chamber formed in alignment therein and the enlarged air-port in the wall between said cylinder and valve-chamber, of the beater having the projection entering said air-port to close the same before the beater reaches the limit of its movement, whereby an air-cushion is formed around the projection, substantially as described.

6. In a pneumatic tool, the combination, with the casing having the cylinder and valve chamber formed in alignment therein with the enlarged air-port in the wall between said cylinder and valve-chamber, the valve-casing in said chamber having the passage leading to said port and the valve, of the beater having the reduced end or projection entering said port before the beater reaches the extreme of its movement to close the same and form an air-cushion around the projection, substantially as described.

7. In a pneumatic tool, the combination, with the cylinder, beater, and valve controlling the air-passages for each other, respectively, of the annular pressure-groove in communication with the air-supply and surrounding the beater, substantially as described.

8. In a pneumatic tool, the combination, with the cylinder, valve controlling the beater, and beater controlling the valve, of the relatively small exhaust-ports in the beater and cylinder for the passages from the ends of the valve and the annular pressure-groove in communication with the air-supply and surrounding the beater, substantially as described.

9. In a pneumatic tool, the combination, with the cylinder, valve controlling the beater, passages leading from pressure to approximately the center of the cylinder and from there to the ends of the valve, and the relatively small exhaust-passages, of the beater having the ports and passages registering with said ports and passages in the cylinder and the annular pressure-groove into which the pressure-passage in the cylinder opens, whereby pressure on the beater is equalized, substantially as described.

10. In a pneumatic tool, the combination, with the cylinder, valve controlling the beater, the pressure-groove in the inner surface of the cylinder in communication with the pressure-supply, and passages and ports leading from said cylinder to opposite ends of the valve and to exhaust, of the beater having ports and passages for connecting the pressure groove and passages to opposite ends of the cylinder and the latter passages with exhaust, substantially as described.

11. In a pneumatic tool, the combination, with the cylinder, valve, and annular pressure-groove in the inner face of the cylinder in communication with the pressure-supply and ports and passages leading to opposite ends of the valve, of the beater having grooves adapted to register with the last-mentioned passages and supply-passages connecting the pressure-groove and grooves in the beater when at opposite extremes of its movement, substantially as described.

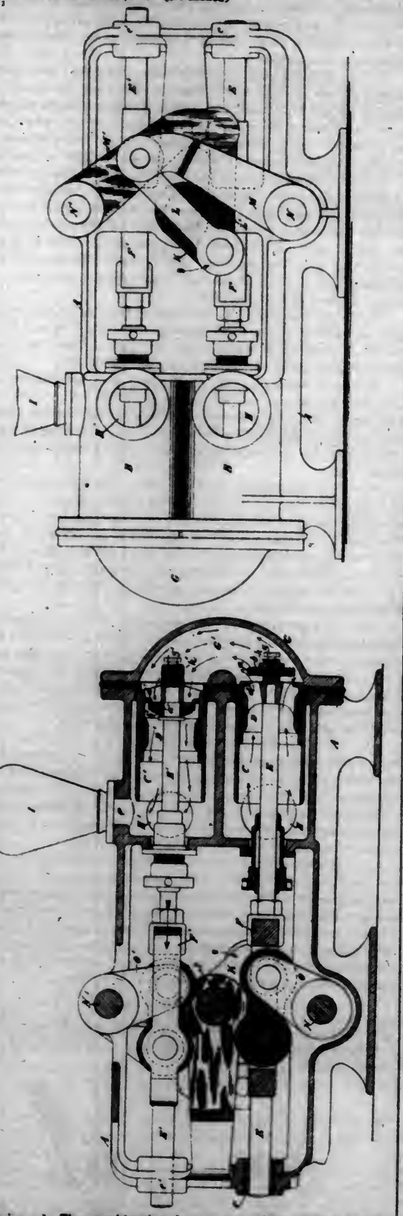
12. In a pneumatic tool, the combination, with the cylinder, valve, and annular pressure-groove in the inner face of the cylinder in communication with the pressure-supply and ports and passages leading to opposite ends of the valve and to exhaust, of the beater having grooves adapted to register with the passages leading to opposite ends of the valve and with the exhaust-passages and passages in the beater in communication with said grooves and adapted to register with the pressure-groove in the cylinder, substantially as described.

482,943. SULKY-PLOW. LOUIS S. PLAYAU, Pittsburg, Tex., assignor to B. F. Avery & Sons, Louisville, Ky. Filed June 22, 1892. Serial No. 437,560. (No model.)



Claim.—In a sulky-plow carriage, the combination, with the frame of the carriage and the axle of the furrow-wheel, of an inclined perforated portion or device *l*, the washers or collar-like devices arranged on either side of the part *l* and penetrated by the axle of the wheel, and means for clamping together rigidly the combined parts, all substantially as and for the purposes set forth

482,944. FORCE-PUMP. MILAN W. HALL, Plainfield, N. J., assignor to Otis Brothers & Company, New York, N. Y. Filed Mar 25, 1891. Serial No. 386,397. (No model.)



Claim.—1. The combination, in a pump, of two valved pistons working in alternation to propel a column of liquid and a driving-gear for imparting to each a comparatively slow working stroke and a quick return stroke, consisting of a driving crank-shaft, two rock-levers M M', connected each to the corresponding piston, and two links connecting said levers with the crank, whereby the levers are vibrated from the crank at varying speeds, substantially in the manner and to the effect specified.

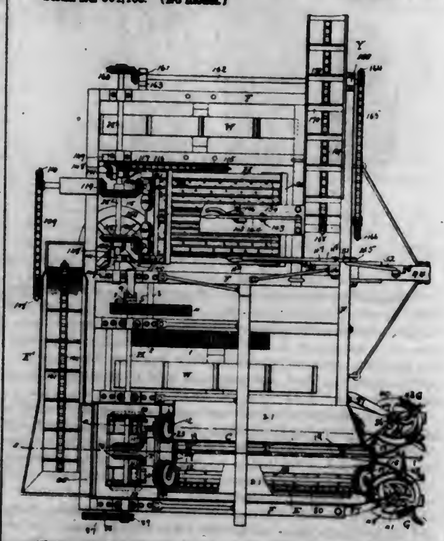
2. The combination, in a pump, of two valved pistons working in alternation to propel a column of liquid and a driving-gear for imparting to each a comparatively slow working stroke and a quick return stroke, consisting of a driving crank-shaft and two rock-levers connected to the respective pistons and driven from the crank through interconnecting links, said levers having their axes arranged beyond the crank radius and the lengths of the lever-arms and links relatively to the crank radius and the distances between the respective axes being proportioned to bring the positions of the crank at the opposite extremes of the movement of either lever approximately one-third of a revolution apart, substantially as specified.

3. The combination, in a pump, of two valved pistons working in alternation to propel a column of liquid and a driving-gear for imparting to each a comparatively slow working stroke and a quick return stroke, consisting of a driving crank-shaft and two rock-levers connected to the respective pistons, arranged with their axes on opposite sides of the driving-shaft, and links connecting the crank with the respective levers, the lengths of the lever-arms, links, crank radius, and distance between axes being relatively proportioned to drive the respective levers on the working strokes of their pistons through an arc of about two-thirds of a revolution and to begin the working stroke of each at approximately one-sixth of a revolution before the termination of the working stroke of the other, substantially as specified.

4. The combination, in a pump, of two valved pistons working in alternation to propel a column of liquid and a driving-gear for imparting to each a comparatively slow working stroke and a quick return stroke, consisting of a driving crank-shaft, two rock-levers comprising each two lever-arms connected by a rock-shaft, one of said arms connected to the corresponding piston and the other arm of each lever connected to the crank by a link, the lengths of the lever-arms, links, crank radius, and distance between axes being relatively proportioned to drive each lever on the working stroke of its piston during approximately two-thirds of a revolution and to drive it on its return stroke within the period of working stroke of the other, whereby the durations of working strokes of the respective levers are made to overlap and the load of lifting the column of water is transferred successively from each piston to the other while the column is kept in uninterrupted flow, substantially in the manner specified.

5. The combination, in a pump, of the cylinder B, having the opening H at one side, a lining in said cylinder shorter and smaller in diameter than said cylinder and with its inner end extending over said opening and having an opening at the outer end, and a piston reciprocating in said lining and provided with an opening and valve, substantially as set forth.

482,945. CORN-HARVESTER. DANIEL W. HANSON and JOHN S. FARNHAM, Mineral, Ill.; Alice M. Hanson, administratrix of said Daniel W. Hanson, deceased, assignor to said Farnham. Filed Apr. 30, 1891. Serial No. 391,102. (No model.)



Claim.—1. In a corn-harvester, the combination, with drawing-rolls and snapper-rolls located within a rectangular frame, brackets projecting inwardly from said frame, eyes at the inner ends of said brackets in which the shafts of the rolls are journaled, and means for rotating the rolls, of guides 62, connected to shoes at the front ends of said frame and curving rearward and inwardly, their bodies being bifurcated and having elbows 63 standing forward of each eye and their rear ends 64 extending outwardly from the elbows and being secured to said brackets, substantially as described.

2. In a corn-harvester, the combination, with a rectangular frame, of drawing-rolls journaled therein and diverging toward their front ends, means for turning said rolls toward each other, snapper-rolls journaled in the frame above the drawing-rolls, and means for turning them in the opposite direction, the front ends of all said rolls being tapered, substantially as described.

3. In a corn-harvester, the combination, with a rectangular frame-work, a pair of inwardly-turning drawing-rolls journaled therein and having longitudinal ribs on their faces, and guides covering the said rolls, of a pair of outwardly-turning snapper-rolls located above the drawing-rolls and comprising flat bodies 79 and intermeshing gears 77, connecting said bodies, substantially as and in the manner set forth.

4. In a corn-harvester, the combination, with the inwardly-turning drawing-rolls having ribs on their faces and diverging toward their front ends, the guides leading to their front ends, the curved guides 92, partially covering said rolls, and the elevators E outside said curved guides, of the snapper-rolls S, located above and turning in opposite directions to said drawing-rolls, and intermeshing gears 74 75 between one of each pair of rolls, substantially as described.

5. In a corn-harvester, the combination, with a board 18, rotating sprocket-wheels at the extremities thereof, a guide 27 adjacent one side of said board and rising above the same, and a shield 21 above the board, having a depending edge 22, of an endless chain moving around said board and sprocket-wheels and L-shaped fingers pivoted at their angles to the upper sides of certain links of said chain, substantially as described.

6. In a corn-harvester, the combination, with a board 18, rotating sprocket-wheels at the extremities thereof, a shield 25 near the inner edge of said board, and an inclined shield 21 above the board and having a depending edge 22, of an endless chain moving around said board and sprocket-wheels and inside said shield and L-shaped fingers 19, pivoted at their angles to the upper sides of certain links of the chain, substantially as described.

7. In a corn harvester, the combination, with a pair of gatherers, a pair of rearwardly-moving chains, and means for moving said gatherers and chains in unison, of a pair of forwardly-inclined drawing-rolls rotating toward each other at greater speed than the machine progresses forwardly, a pair of oppositely-rotating snapper-rolls above said drawing-rolls and connected therewith by gearing, and elevators into which said snapper-rolls deliver, substantially as described.

8. In a corn-harvester, the combination, with a frame mounted on supporting-wheels, rotating gatherers, rearwardly moving stalk-chains, drawing-rolls and snapper-rolls beneath said chains, elevators beneath said rolls, and gearing from one of said driving wheels for driving all of said mechanisms, of a rear elevator into which said other elevators deliver, a husker, and connections from the other supporting-wheel for driving said rear elevator and husker, substantially as described.

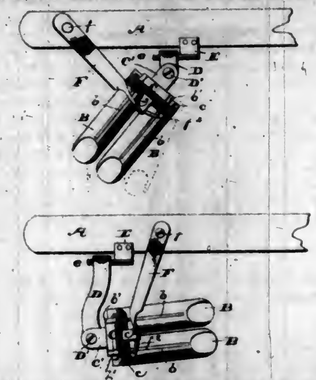
9. In a corn-harvester, the combination, with the rearwardly-moving stalk-chains, the shields 21, covering the same, the frame F, supporting the whole, and the straps 37, projecting from said frame, of brackets 34, forwardly and outwardly inclined shafts 36, carried by said brackets and their upper ends being connected to said straps, gathering-wheels journaled on said shafts and carrying gear-wheels beneath them, and connections between said gear-wheels and the chain-driving shafts, substantially as described.

10. In a corn-harvester, the combination, with a main shaft M', driven from a supporting-wheel, a gear 118 on said shaft, an elevator E', driven through connections leading to an intermeshing gear 119 at one side of said gear 118, and at the other side thereof an intermeshing gear 120, driving a pair of husking rollers, of the gathering and stripping devices driven from the other supporting-wheel and delivering into said elevator, as and for the purpose set forth.

11. In a corn-harvester, the combination, with a main shaft M', driven from a supporting wheel, main gears 118 and 118' on said shaft, two pairs of husking-rollers driven by intermeshing gears 120 and 120' at one side of said main gears, an elevator E', driven by connections leading to a bevel-gear at the other side of the main gear 118, a bevel-gear 152, intermeshing with the other main gear 118', and a balance-wheel 150, mounted on the shaft of this bevel-gear, of the gathering and stripping devices driven from the other supporting-wheel and delivering into said elevator, as and for the purpose set forth.

12. In a corn-harvester, the combination, with the gathering and stripping devices and an elevator leading therefrom, of a husker comprising a box 130, having longitudinal wires 134 in its upper side, inwardly-turning husking-rollers within said box, one of which has headed screws and the other cavities in its face, receiving said screws, the elevator delivering into the upper end of said box, and a delivery-elevator leading from the lower end thereof, as and for the purpose hereinbefore set forth.

482,946. TRUSS. CHARLES A. HARVEY, New York, N. Y. Filed Feb. 12, 1891. Renewed Mar. 4, 1892. Serial No. 423,729. (No model.)



Claim.—1. In a truss, the combination, with the pivotally-supported pad, of a spring having a segmental portion engaging a part connected with said pad and means for adjusting said pad laterally about a point concentric with the segmental portion of said spring, substantially as described.

2. In a truss, the combination, with the pivotally-supported pad provided with the wrist-piece and wrist-pin for securing the lateral adjustments of said pad, of a spring having a segmental portion concentric with said wrist-pin engaging a part connected with the pad, substantially as described.

3. In a truss, the combination, with the truss-band, of the artificial fingers supported therefrom, said fingers being adjustably secured to their supports and independently adjustable in respect to each other and to said supports, substantially as described.

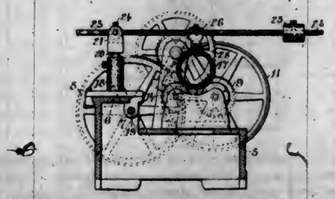
4. In a truss, the combination, with the truss-band, of the elastic artificial fingers supported therefrom, means for adjusting said fingers with respect to each other and their supports, and means for adjusting said supports with respect to said band, substantially as described.

5. In a truss, the combination, with the truss-band, of the block supported therefrom, the artificial fingers provided with attaching-ribs, and means for adjustably securing said ribs to said block, the adjacent faces of said ribs and block being provided with serrations, substantially as described.

6. In a truss, the combination, with the truss-band, of the block connected thereto by a wrist connection permitting the lateral adjustment of said block and the artificial fingers provided with attaching-ribs adjustably secured to said block, whereby said fingers may be adjusted independently with respect to each other and to said block and said block may be adjusted with respect to said band, substantially as described.

7. In a truss, the combination, with the truss-band, of the supporting plate provided with the pivot-pin, the wrist-piece engaging said pivot-pin, the block adjustably secured to said wrist-piece, the artificial fingers adjustably secured to said block, and a spring secured to said band and having a segmental portion engaging an ear secured to said block, substantially as described.

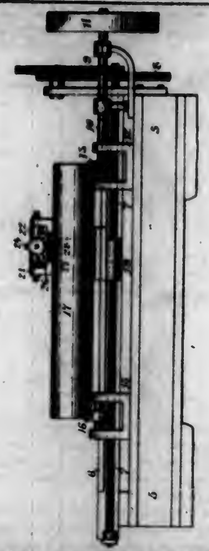
482,947. GROUNDING-MACHINE. JOHN HOPE, Providence, R. I., assignor to the John Hope & Sons Engraving and Manufacturing Company, same place. Filed May 20, 1892. Serial No. 433,653. (No model.)



Claim.—1. In a grounding device, the combination, with two pairs of rotatable disks journaled in suitable bearings and a roll to be engraved, supported, and rotated thereby, of a traversing mechanism, a milling-tool supported thereby against the surface of the roll, and means for traversing said mechanism, as described.

2. In a ground-engraving machine, the combination, with the disks 13 and 14, journaled in the block 12, the disks 16, journaled in the

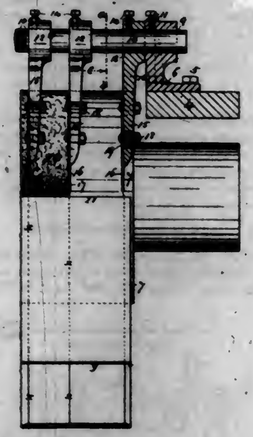
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block 15, said blocks being supported on a suitable base, and means for rotating one or more of said disks, of the worm 7, journaled in suitable bearings, a traversing mechanism carrying a milling-tool and provided with a threaded clamp for engaging said worm, and means for rotating said worm, as described.

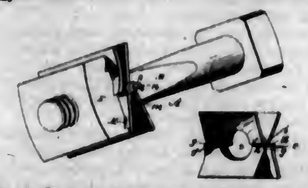
3. In a ground engraving machine having a traversing engraving device operated by a worm-gear, the disks 13 and 14 and 16 16, suitably mounted and adapted to rotate the article to be engraved, and means intermediate the disk 13 and said worm whereby they are simultaneously rotated, as and for the purpose described.

482,948. DEVICE FOR MANUFACTURING LINOLEUM FLOOR-CLOTH. THOMAS MITCHELL, Wimbledon, England. Filed June 27, 1892. Serial No. 438,123. (No model.)



Claim.—The combination, with the rolls of a calendering-machine, between which backing for the linoleum material passes, of opposite rigidly-located head-stocks 6, two parallel guide-rods 10, rigidly supported thereby, and a series of adjustable reversible heads 12, each provided with means for securing it where desired to be located on the guide-rods and with an adjustable and removable division-plate 18, accurately fitting the contour of the opposite calender-roll with a sufficient clearance for the backing fabric, as set forth.

482,949. NUT-LOCK. ALEXANDER P. NELMS, Georgetown, Tex. Filed Jan. 9, 1890. Renewed Feb. 26, 1892. Serial No. 422,857. (No model.)



Claim.—1. The nut-lock comprising the pair of interlocked washers, each having an opening for the bolt, a slit extending from the said opening to one edge, and the lips bent outward from the slit, the integral portion of each washer being arranged in the slit of the other, and thereby interposed between the lips, for the purpose set forth, substantially as described.

2. The combination, with the bolt and the nut, of a pair of interlocked washers having the central openings for the bolt-shank, the slits extending from said openings to opposite edges, and the lips formed by bending opposite sides of said slits beyond the planes of the washers and adapted to engage the base of the nut, substantially as described.

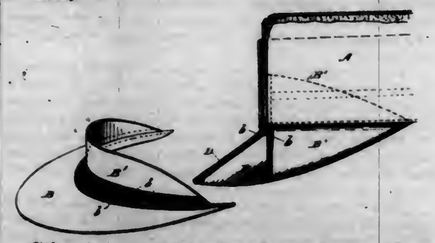
3. The combination of the bolt having the angular shank, the nut, and the pair of interlocked washers having angular openings for the bolt-shank and having lips to engage the base of the nut, substantially as described.

4. The combination, with the bolt and nut, of the pair of interlocked washers having the lips to engage the base of the nut and the wire loop or key between the said washers and forming the fulcrum therefor, for the purpose set forth, substantially as described.

5. The nut-locking device comprising the pair of interlocked washers having the slits on opposite sides, the lips bent outward from the slits, and the integral portions arranged between the respective pairs of lips, whereby the latter are prevented from being pressed inward to the planes of the washers, substantially as described.

6. The nut-locking device comprising the pair of interlocked washers, each having the slit on one side, the pair of lips, and the integral portion opposite the lips, the said integral portions of the washers being in the form of a compound curve, substantially as described.

482,950. HAT, CAP, &c. ADOLPH ROSENTHAL, Boston, Mass., assignor of three-fourths to Charles Rosenthal, Harry Goldstein, and Leopold Bash, same place. Filed Dec. 18, 1891. Serial No. 417,226. (No model.)



Claim.—1. As a new article of manufacture, a head-gear consisting of a body provided with the visor or brim B and protector B', the visor being curved on its inner edge to fit the body and hinged to the protector by a strip *b*, which is secured to the margins of the visor B and protector B', all substantially as and for the purpose set forth.

2. As a new article of manufacture, a head-gear consisting of a body provided with the visor or brim B and protector B', hinged together and incased in a bag-like covering D, having a flap *d*, the visor being fashioned on its inner edge to fit the body, the covering inclosing both the visor and protector, all substantially as and for the purpose set forth.

482,951. MEANS FOR UNLOADING GRAVEL-TRAINS. WILLIAM D. SPRATTON and JOHN H. DRAKE, Middletown, N. Y. Filed June 19, 1891. Serial No. 396,581. (No model.)

Claim.—1. The combination, with a train of flat cars, of a scraper adapted to be moved from end to end of the train while the engine moving the same remains stationary with relation to the car upon which it is mounted, a separate rope-drum engine located upon a car coupled to the train at the end opposite to that from which the plow

starts, and a rope connecting the scraper with the rope-drum, substantially as described.



2. In combination with a train of flat cars, a scraper adapted to be moved from end to end of the train, a rope-drum engine located upon a car coupled to the train, a rope connecting the scraper with the rope-drum, and a locomotive-engine whereby the whole may be moved to cause the scraper as it advances relatively to the train to occupy a determined position relatively to the track, substantially as described.

482,952. ATTACHING KNOBS TO SHANKS. FRANK A. WILMOT, Bridgeport, Conn., assignor to the Wilmot & Hobbs Manufacturing Company, same place. Filed Oct. 26, 1891. Serial No. 409,804. (No model.)



Claim.—The combination, with a knob having a central opening, of a shank having a tapering reduced end adapted to enter said opening and a shoulder surrounding the reduced end which bears upon the face of the knob when assembled, the tapering end acting as a wedge to center the shank and to prevent the knob from collapsing under the heat and pressure of welding, substantially as described.

482,953. KNOB. FRANK A. WILMOT, Bridgeport, Conn., assignor to the Wilmot & Hobbs Manufacturing Company, same place. Filed Oct. 26, 1891. Serial No. 409,805. (No model.)



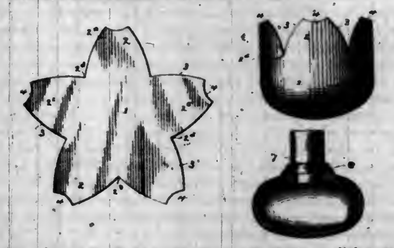
Claim.—1. A metallic knob consisting of a shank having a reduced end, a collar having at one end an opening to receive the reduced end of the shank and at the outer end, in its outer side, a groove, and a knob the edge of which is closed inward into said groove, substantially as described.

2. A metallic knob consisting of a shank having a reduced end, a collar having at one end an opening to receive the reduced end of the shank and at the other end, in its outer side, a groove, outwardly-extending lugs in said groove, and a knob the edge of which is closed inward into said groove and is provided with notches 11, which engage the lugs, substantially as described.

3. A metallic knob consisting of a shank having a reduced end, a collar having at one end an opening to receive the reduced end, and a shoulder 8, which forms a bearing for a sleeve 9, and at the other end, in its outer side, a groove, and a knob the edge of which is closed inward into said groove, substantially as described.

4. A knob consisting of an iron shank having a reduced end, a collar formed from high-grade metal, having an opening to receive the reduced end and a shoulder 8, a sleeve formed from high-grade metal, which bears against the shoulder and covers the shank, and a knob formed from a compound metal, consisting of an iron shell covered by a shell of high-grade metal, the edge of said knob being closed inward and caused to engage a groove 4 in the collar, substantially as described.

482,954. KNOB. FRANK A. WILMOT, Bridgeport, Conn., assignor to the Wilmot & Hobbs Manufacturing Company, same place. Filed Oct. 26, 1891. Serial No. 409,806. (No model.)

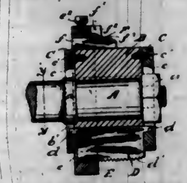


Claim.—1. A knob formed from a blank having radial arms the sides of which are convex curves intersecting at their inner ends, the metal at the tips being removed, leaving concave curves, so that when said arms are closed together the metal thereof will just form the inner face of the knob and will leave the shank-opening already formed, substantially as described.

2. The combination, with the shank and the collar, of a knob formed from a blank having radial arms the sides of which are convex curves intersecting at their inner ends, the outer ends of said arms being curved inwardly against the shank and rigidly secured thereto, substantially as described.

3. The combination, with a shank having a shoulder 7 and a collar 8, resting against said shoulder, of a knob formed from a blank having radial arms the sides of which are convex curves intersecting at their inner ends, the outer ends of said arms being curved inward against the shank and attached thereto, substantially as described.

482,955. PIPE-TAP. EDWARD M. WOLFE, Reading, Pa., assignor to the Reading Iron Company, same place. Filed Feb. 15, 1892. Serial No. 421,563. (No model.)



Claim.—1. In a pipe-tap, the combination, with the grooved stock B, having thread-cutters D, removably secured in the grooves, of the movable collar E, grooved to pass freely over the projecting thread-cutters, cutters F, seated in grooves in said collar, and set-screws for pressing said cutters F into gripping contact with the stock, substantially as set forth.

2. In a pipe-tap, the combination, with the stock B, provided with thread-cutters D, of the longitudinally-adjustable collar E, carrying cutters F, having cutting-edges f^2 and f^3 for facing and counterboring, respectively, substantially as set forth.

3. In a pipe-tap, the combination, with the stock provided with thread cutters, of a collar grooved to pass freely over the projecting thread-cutters, cutters F, having shanks entering grooves in said collar, heels bearing upon the face of the collar, and cutting-surfaces adapted to face and counterbore, and means engaging said shanks for forcing the cutters into gripping contact with the stock, substantially as set forth.

482,956. CASH-REGISTER. BENJAMIN F. WRIGHT, Hartwell, assignor of two-thirds to Amos G. Woolley and Edgar M. Woolley, Cincinnati, Ohio. Filed May 16, 1892. Serial No. 433,250. (No model.)



Claim.—1. In a registering device of the character described, the combination of the registering-wheels, the ratchet-wheels secured to them, the exposed stationary number-plate, the pivoted arm carrying a plate or shutter to cover or expose the number on said plate, the rod upon which said arm is pivoted, and the pawl pivoted upon the end of said arm opposite the shutter and engaging the teeth of the ratchet-wheel which carries the register, whereby the register is partially revolved by drawing down the shutter to expose the number on the number-plate, substantially as shown and described.

2. The combination, substantially as hereinbefore set forth, of the case, the exposed number-plate A^3 above it, the cash-drawer in the lower part of the case, a rod crossing the drawer, a series of registering-wheels within the case, ratchet-wheels secured to said registering-wheels, pivoted arms carrying shutters at one end to cover the numbers upon the number-plate when thrown up, and pawls at the opposite end to actuate the registers when the shutter is thrown down, the pawls pivoted to the shutter-arm and engaging the teeth of the registering-wheel ratchets, the rods upon which the shutter-arms are pivoted, the angle-lever also pivoted to the shutter-arms and having its long arm projecting in the path of the cross-bar in the drawer, and its short arm projecting under the rod upon which the shutter-arm is pivoted, whereby a registering-wheel is turned by throwing down the shutter-arm, and the shutter automatically returned to cover its number by drawing out the drawer.

3. The combination of the ratchet-wheels, the registering-wheels secured thereto, the pivoted shutter, the number-plate corresponding to the numbers on the register-wheels, pivoted shutters to cover or expose the numbers on said plate, pawls engaging the teeth on the ratchet-wheels and carried by the pivoted shutters to turn the ratchet and register-wheel when the shutters are turned down, a transverse shaft carrying pawls rigidly secured to it and engaging the teeth of the ratchet-wheels to prevent their backward movement, a spring to hold the pawls in contact with the ratchet-wheels, a bell, and a knocker secured to the pawl-shaft to sound an alarm when the ratchets are turned, substantially as shown and described.

482,957. TOY. JOHN A. ALLEN, Philadelphia, Pa. Filed June 5, 1889. Serial No. 313,115. (No model.)



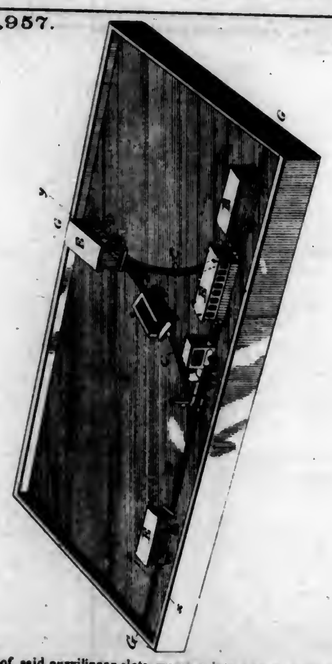
Claim.—1. In a puzzle or toy, the combination, with several blocks representing a locomotive and cars, of a base having a main track and two branch tracks diverging therefrom in reverse directions on the same side of the main track and uniting in a spur forming a Y, the spur being of sufficient length to hold only the locomotive or one car, substantially as described.

2. The combination, in a puzzle, of several blocks or figures, one of which represents a locomotive and the others cars, with a base having a main track and branches diverging therefrom in reverse directions on the same side of the main track and uniting in a spur to form a Y, said spur being of a length to hold only the locomotive or one of the cars, and the main track extending beyond the point of intersection of one of the diverging tracks therewith to hold the locomotive and one or more cars free of the Y, substantially as described.

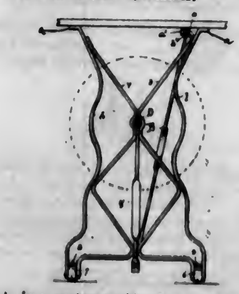
3. A game or puzzle consisting of a base with a rectilinear track or slot extending throughout the length of said base and opening out at the ends of the latter, a transverse track, slot, or spur opening out of one side of the base, curvilinear slots on one side only of the rectilinear slot and connecting the said rectilinear and transverse slots, the transverse slot being of a length to hold the locomotive or one car only, an inclosing guard or rail attached to the sides and ends of the slots, and cars having depending pins to move in said slots, substantially as described.

4. A game or puzzle consisting of a base with a rectilinear slot, curvilinear slots extending from said rectilinear slot and on one side only thereof, said curvilinear slots merging into a transverse rectilinear slot of a length to hold only one car or block, which may be the locomotive or another car, and cars or blocks having headed pins to move in said slots, substantially as described.

482,957.



482,958. SEWING-MACHINE FRAME. BENJAMIN F. BELLOWS, Cleveland, Ohio, assignor to Edward T. Lufkin, same place. Filed Feb. 27, 1892. Serial No. 423,092. (No model.)

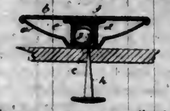


Claim.—1. In a sewing-machine frame, a side piece A, made up of the bent bars 1, 2, 3, and 4 and the vertical middle bar 5, the bars 3 and 4 being connected with the bars 1 and 2, respectively, at three points by means of rivets and with each other and the middle bar at two points by means of rivets, substantially as set forth.

2. In a sewing-machine frame, the sides made up of the bent bars 1, 2, 3, and 4 and the vertical bar 5, all riveted together, as described, the lower end of the bar 5 being provided with orifices, a treadle-rod passing through said orifices, and shoulders on said treadle-rod, combined with a brace consisting of the center piece b, two arms b^2 b^2, the lower end of each of which surrounds the treadle-rod and lies between one of the shoulders thereon and the adjacent piece 5, and two arms b' b', which pass through and are adjustably connected with ears formed by bending over the upper ends of the bars 3, substantially as set forth.

482,959. BUTTON. CHARLES A. BRYANT, Wakefield, Mass. Filed Mar. 7, 1892. Serial No. 424,035. (No model.)

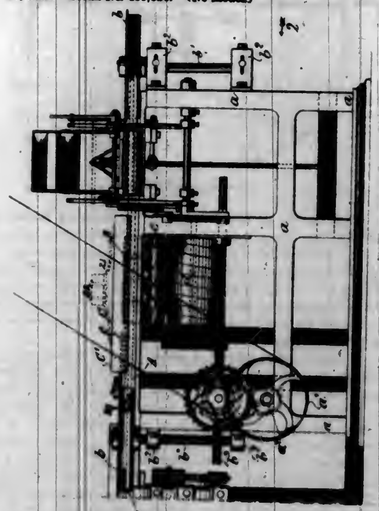
Claim.—1. A button having an aperture through its back, combined with a cup-shaped anvil secured within the button, the internal diameter of the cup being greater than the diameter of the aperture in the back of the button, and with a soft-metal ball arranged loosely in the recess in the anvil, substantially as described.



2. A button having an aperture centrally through its back, combined with a cup-shaped anvil, the internal diameter of the cup being greater than the diameter of the aperture in the back of the button, and the anvil secured within the button, the open side of the recess toward the aperture in the back of the button, but eccentric thereto, and a soft-metal ball arranged loosely in the recess in the anvil, substantially as described.

3. A button consisting of a front and a back, the back recessed at the center, and with a central aperture through it, combined with a cup-shaped anvil in length corresponding to the distance between the inside of the back of the button and the inside of the face of the button, the diameter of the recess in the anvil greater than the diameter of the aperture in the back of the button, with a soft-metal ball arranged loosely in the recess of the anvil, substantially as described.

482,960. MACHINE FOR COMBING FIBROUS MATERIALS. GEO. E. DOWNTHORPE and TAYLOR BURROWS, London, England. Filed Jan. 21, 1892. Serial No. 418,890. (No model.)

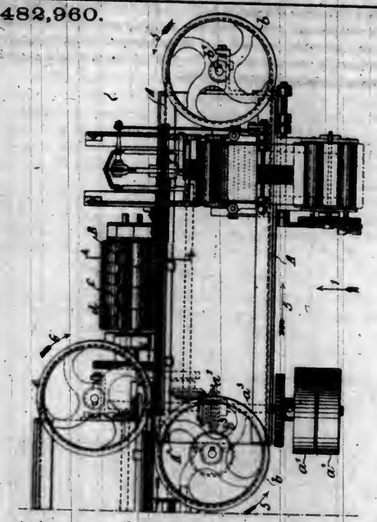


Claim.—1. In a combing-machine of the character described, the combination, with a suitable combing device, of an endless carrier for the fibrous material consisting of a plurality of bands carrying parallel rows of teeth on their upper edges, and a compressor plate or plates fitting between said parallel rows of teeth, and adapted to hold said fibrous material between said teeth while it is being combed, substantially as and for the purposes described.

2. In a combing-machine of the character described, the combination, with a suitable combing device, of an endless carrier for the fibrous material consisting of a plurality of bands carrying parallel rows of teeth on their upper edges, and a compressor plate or plates fitting between said parallel rows of teeth, with springs at the back of said compressor-plate, the said compressor-plate and springs being adapted to hold said fibrous material between said teeth while it is being combed, substantially as and for the purposes described.

3. An apparatus for combing fibrous material, consisting, essentially, of two traveling carriers, with means for holding said fibrous material on said carriers, and two combing-rollers, the first traveling carrier engaging the tufts of fibrous material near the center of their length and the first combing-roller combing the one end of said fibrous material, and the second carrier also engaging the tufts of fibrous material near the center of their length and the second combing-roller combing the opposite end of said fibrous material, substantially as described.

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4. An apparatus for combing fibrous material, consisting, essentially, of a plurality of toothed carriers each carrying two parallel rows of teeth, compressor-plates fitting between said rows of teeth for holding the fibrous material on said carriers, and two combing-rollers having graded teeth, the one roller adapted to comb the one end of the tufts of fiber and the other roller adapted to comb the other end, substantially as and for the purposes described.

482,961. GAME-COUNTER. FREDERICK A. GILBERT, Boston, Mass. Filed July 5, 1892. Serial No. 438,931. (No model.)



Claim.—In a game-counter, the combination, with a disk-shaped body having its edges scalloped or otherwise roughened and constructed with a central chamber entering it from its upper face, which is encircled by a series of numbers, of a centrally-perforated rotatable disk having bearing upon the said face of the body, and constructed with a sight-opening in its edge to bring the said numbers into view and provided with an operating-finger offsetting from its edge, a locking-wheel having a regularly-indented periphery fixed to the inner face of the said disk and entering the said chamber in the body, a spring attached to the body and located in the said chamber and arranged to be engaged with the said wheel to lock the disk in place, and a screw passing through the disk and wheel into the body for coupling the parts together, substantially as set forth.

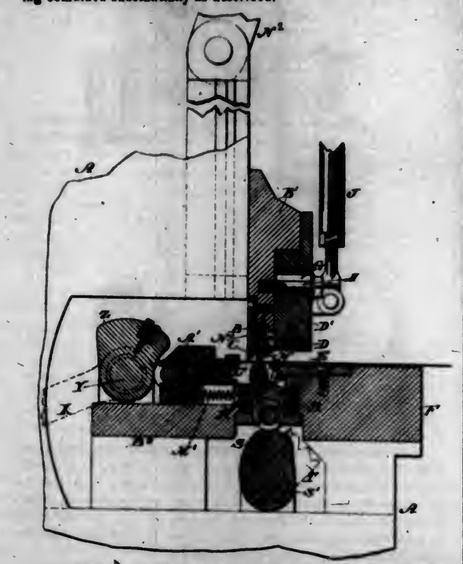
482,962. MACHINE FOR EDGE-CURLING SHEET METAL. WILLIAM J. GORDON and EDMUND D. GILBERT, Philadelphia, Pa. Filed Feb. 27, 1892. Serial No. 423,008. (No model.)

Claim.—1. A machine for the purpose named, having a frame with a table thereon, a movable die above said table, a stationary clamp-jaw on said bed, a clamp-jaw movable on the head of said die, a rising-and-falling bed below said table, and a horizontally-movable die in rear of said bed, said parts being combined substantially as described.

2. In a machine for the purpose named, a frame, a shaft journaled therein and having a cam thereon, a die guided in said frame, a clamp-jaw secured to the head of said die, rods pivoted to the head of said jaw, levers connected to the upper end of said rods and engaged by the cams on said shaft, a vertically-movable head, and a rising-and-falling bed, and a clamp secured to the table of the machine, said vertically-movable head being between the said die and its attached clamp, said parts being combined substantially as described.

3. In a machine for the purpose named, a frame, a die movable in guides thereon, a table with a clamp-jaw secured thereto, a rising-

and-falling clamp-jaw above said table-clamp, a spring-controlled head between said die and upper clamp-jaw, a rising-and-falling bed, and a horizontally-movable die, said bed being adapted to move between said horizontally-movable die and the table clamp-jaw, said parts being combined substantially as described.



4. The bed Q and cam S for operating the same, in combination with an arm secured to the shaft of said cam, a link attached to said arm, means for raising said link, a shouldered dog pivoted to said arm, and a lug on the frame, with which the shoulder of the dog is adapted to engage, and means for throwing off said dog from said lug, substantially as described.

5. In a machine for the purpose named, a frame, a stationary and a vertically-moving clamp-jaw, a rising-and-falling bed, and a vertically-movable die with a connected spring-controlled head, and a horizontally-movable die, said stationary clamp-jaw and said horizontally-movable die having opposite concave faces, and said spring-controlled head being between the vertically-movable die and said vertically-movable clamp-jaw, said parts being combined substantially as described.

482,968. SUSPENDERS. EMIL GUTMANN, New York, N. Y. Filed Jan. 22, 1892. Serial No. 418,872. (No model.)

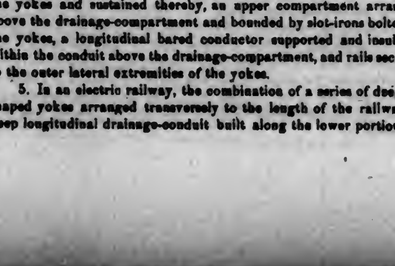


Claim.—1. In the process of manufacturing suspenders, saturating with rubber cement a length of the webbing adjacent to the end, exposing the saturated webbing and allowing the solvent to evaporate, punching or otherwise producing the holes *a'* therein, applying unvulcanized rubber, so as to fill and engage in such holes and also adhere to the saturated surfaces, and inclosing and vulcanizing the whole suspender-end, substantially as herein specified.

2. The process described for manufacturing suspenders, consisting in matching together and cementing the end of the webbing and a central piece of properly-shaped unvulcanized rubber, coating and saturating a sufficient length of the webbing adjacent to the end, applying one or more pieces of fabric for each buttonhole, cementing an additional sheet of unvulcanized rubber on each face, and inclosing and vulcanizing the whole suspender-end, all substantially as herein specified.

3. The suspender described, having the webbing A, with a portion adjacent to the end saturated with rubber, in combination with the rubber end B B' B² and with a reinforcing-piece of muslin D for each buttonhole applied between the sheets of rubber, so as to lie within the completed article, all substantially as herein specified.

482,964. ELECTRIC-RAILWAY CONDUIT. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor, by mesne assignments, to the Thomson-Houston Electric Company, Boston, Mass. Original application filed Sept. 23, 1886, Serial No. 214,209. Divided and this application filed June 16, 1888. Serial No. 277,311. (No model.)



Claim.—1. In an electric railway, the road-bed formed of the main brackets arranged at intervals and to which the rails are secured, in combination with two longitudinal slot-irons bolted to said brackets and forming the side walls of the conductor-conduit, insulated supports secured rigidly with respect to the brackets, working conductors supported by said insulating-supports, a drainage-conduit located below the conductor conduit and formed of cement or masonry, with plank side walls between the brackets.

2. In an electric railway, a slotted conduit formed with a large drainage compartment or portion along its lower part and having its upper part provided with a longitudinal slot arranged above the drainage compartment or portion and open throughout its length into the drainage-compartment and having a longitudinal electric conductor arranged above the drainage compartment or portion, in combination with a series of deep U-shaped yokes extending from rail to rail below the drainage-compartment, rails and slot-irons supported by said yokes, a vehicle, and a depending current-collecting device extending down through the slot and making a traveling contact with the conductor and guided by the slot-irons.

3. In an electric railway, a slotted conduit formed with a large drainage compartment or portion along its lower part and having its upper part provided with a longitudinal slot arranged above the drainage compartment or portion and open throughout its length into the drainage-compartment and having a longitudinal suspended electric conductor arranged above the drainage compartment or portion, in combination with a series of deep U-shaped yokes extending from rail to rail below the drainage-compartment, rails and slot-irons supported by said yokes, a vehicle, and a depending current-collecting device extending down through the slot and making a traveling contact with the conductor and guided by the slot-irons and having a grooved roller making an underrunning contact with the conductor.

4. In an electric railway, the combination of a series of deep U-shaped yokes arranged transversely to the length of the railway, a deep longitudinal drainage-conduit built along the lower portions of the yokes and sustained thereby, an upper compartment arranged above the drainage-compartment and bounded by slot-irons bolted to the yokes, a longitudinal bared conductor supported and insulated within the conduit above the drainage-compartment, and rails secured to the outer lateral extremities of the yokes.

5. In an electric railway, the combination of a series of deep U-shaped yokes arranged transversely to the length of the railway, a deep longitudinal drainage-conduit built along the lower portions of

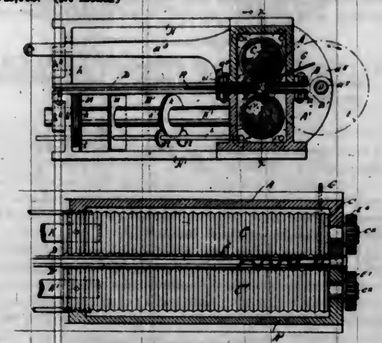
the yokes and sustained thereby, an upper compartment arranged above the drainage-compartment and bounded by slot-irons bolted to the yokes, a longitudinal bared suspended conductor supported and insulated within the conduit above the drainage-compartment, and rails secured to the outer lateral extremities of the yokes.

6. In an electric railway, a slotted conduit having an upper longitudinal compartment and a lower drainage-compartment opening into each other, in combination with a flexible suspended bared conductor in said upper compartment and insulated supports for said conductor arranged at intervals and protected within the conduit.

7. In an electric railway, the combination of a slotted conduit arranged along the railway, having yokes at intervals and slot-irons secured to the yokes, a conductor loosely supported within the conduit upon transverse insulating-supports sustained in position by the metal work of the yokes and slot-irons, a car or vehicle, and a current-collecting contact carried by the vehicle and making an underrunning contact with the conductor.

8. In an electric railway, a slotted conduit extending along the railway, having an upper electrical compartment and a lower drainage-compartment, a suspended and flexible conductor arranged within the electrical compartment at the upper part of the conduit, a traveling car, and a depending current-collecting device having an underrunning contact moving along the under side of the suspended conductor.

482,965. METHOD OF AND APPARATUS FOR COILING AND INSERTING WIRE. CALVIN JACKSON, Jacksonwald, assignor to Christian H. Bahl, trustee, Reading, Pa. Filed Mar. 31, 1890. Serial No. 345,995. (No model.)



Claim.—1. In a wire-coil machine, the combination, with the geared rollers and a mandrel F, located between said rollers, of a forming device T, secured to the machine-frame and provided with a grooved concaved face arranged contiguous to said mandrel, substantially as set forth.

2. In a wire-coil machine, substantially as described, the combination, with one or more rollers supported in a fixed frame, of one or more similar rollers supported in a movable frame pivoted to the fixed frame, said rollers being geared with a gear-wheel having its center at said pivotal point, substantially as set forth.

3. In a wire-coil machine, substantially as described, the combination, with the fixed frame, the movable frame hinged thereto, and the rollers supported in said frames, of clamps adjustably secured to the meeting faces of said frames, the inner edges of said clamps being brought close to the wire coil and holding the material through which the coil is to be inserted, substantially as and for the purpose set forth.

4. In a wire-coil machine, substantially as described, a rotary flexible shaft suitably supported at the ends and having a series of circumferentially-grooved disks secured thereto, in combination with a series of supporting-plates arranged between said disks, substantially as set forth.

5. In a wire-coil machine, substantially as described, a flexible shaft suitably supported at the ends and having a series of circumferentially-grooved disks secured thereto, in combination with a series of supporting-plates arranged between said disks and one or more series of rollers for said grooved disks, strung upon wires or rods passing through said supporting-plates, substantially as set forth.

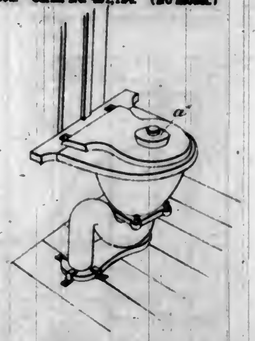
6. In a wire-coil machine, substantially as described, the combination, with straight roller supported in a suitable frame, of a curved extension of said roller, consisting of a flexible shaft having one end secured thereto, said shaft being provided with a series of disks and supported by a series of plates arranged between said disks, substantially as set forth.

7. The method of strengthening or uniting softer materials by means of wire, which consists, first, in forming the wire into a spiral coil, and, second, in permanently combining said coiled wire with the aforesaid material by rotating the coil and passing the pointed end thereof successively through a series of punctures made in the material, substantially as set forth.

8. The method herein described of continuously forming wire into a spiral coil and combining the same with a softer material, which consists, first, in simultaneously forming said wire into a spiral coil and advancing the pointed end of the same by means of exterior rotary pressure thereon, and, second, in simultaneously puncturing and inserting the coil into the material, substantially as set forth.

9. In a wire coiling and inserting machine, the combination of the geared rollers, the mandrel F, located between said rollers, a forming device T contiguous to said mandrel, and the clamps for holding the material through which the coil is to be inserted, all arranged and adapted to operate substantially as set forth.

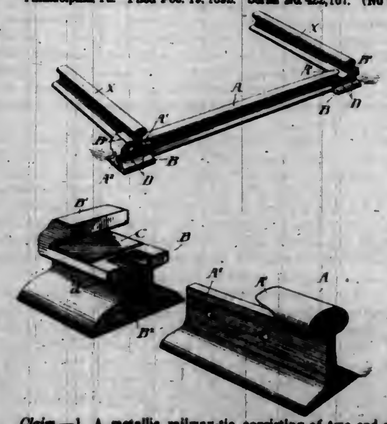
482,966. DISINFECTING AND DEODORIZING COVER FOR COMMODES, WATER-CLOSETS, &c. JAMES KINNEY, Detroit, Mich. Filed Feb. 11, 1892. Serial No. 421,134. (No model.)



Claim.—1. The combination, with a movable cover, of a receptacle for disinfectant secured thereto, said receptacle having inlet and outlet openings, suitable valves for controlling the outlet-openings, and a connection between said valves and a fixed point, whereby the valves are operated as the cover is opened and closed, substantially as described.

2. The combination, with a cover, of the receptacle containing the disinfectant, said receptacle having inlet and outlet openings, the latter being controlled by suitable valves arranged on a spindle, said valves adapted to be automatically operated, as said cover is raised and lowered, by a device comprising a rod mounted in bearings secured to said cover, said rod having one extremity connecting with the valves and the other extremity pivotally secured to the casing of the closet, substantially as and for the purpose described.

482,967. METALLIC RAILWAY-TIE. CHARLES B. MACNEAL, Philadelphia, Pa. Filed Feb. 19, 1892. Serial No. 422,167. (No model.)



Claim.—1. A metallic railway-tie consisting of two end pieces, each provided upon its outer side with a projecting overhanging brace

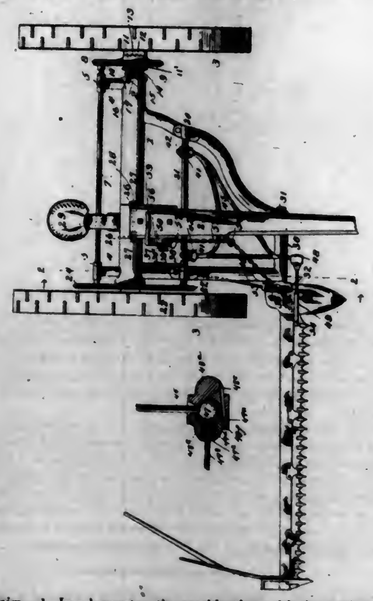
to fit over the outer flange of the rail, and a connecting cross-piece adapted for connection at its ends with the end pieces and provided adjacent to each end with a projecting undercut offset adapted to fit over the inner flange of the rail and located a substantial distance from the extreme end of the cross-piece.

2. In a metallic railway-tie, a wrought-iron cross-piece consisting of a section of a rail having the ends of the head portion cut away to form undercut projecting offsets adjacent to the ends of the tie.

3. In a metallic railway-tie, a cast-iron end piece B, having the inverted-T-shaped slot B^3 and the integral overhanging brace-piece B' and having its upper surface formed with rabbets to receive a rail-rest.

4. In a metallic railway-tie, the combination of the end portions having inverted-T-shaped slots and bolt-holds in their sides and the overhanging braces on their upper surfaces, with cross-pieces having ends of an inverted-T-shaped cross-section to fit the slots of the end pieces and provided with bolt-holes and the bolts for securing the end pieces and cross-pieces together.

482,968. HARVESTER. MARSHALL H. MELROSE, Piano, Ill. Filed Mar. 10, 1892. Serial No. 424,436. (No model.)



Claim.—1. In a harvester, the combination, with the cutting apparatus, a pitman leading therefrom, the main frame, and the rotating shaft journaled in said frame and having oppositely-disposed cranks, of a triangular lever, a ball at its forward angle, a socket embracing this ball, a headed plug in the socket into which said pitman is screwed, and on each crank a two-part box having a bearing loosely embracing the crank and a socket embracing a ball on the rear angle of the triangular lever, the parts being detachably connected by bolts, substantially as described.

2. In a harvester, the combination, with the main frame having rearwardly-extending boxes, expansive springs therein, T-shaped bearings whose shanks enter said boxes, and a counter-shaft journaled in the heads of said bearings and driven by chain belting connecting it with a sprocket-wheel on the main axle, of the cutting apparatus, connections, substantially as described, between the counter-shaft and cutting apparatus, clutch members on the meeting faces of one main wheel and the sprocket-wheel, and means for moving the latter longitudinally of the main axle, as and for the purpose set forth.

3. In a harvester, the combination, with the main frame having rearwardly-extending boxes, expansive springs therein, T-shaped bearings whose shanks enter said boxes, and a counter-shaft journaled in said bearings and driven by chain belting connecting it with the main axle, of a crank-shaft journaled in the main frame, chain belting between the counter and crank shafts, the cutting apparatus, and connections, substantially as described, between the crank-shaft and cutting apparatus, as and for the purpose set forth.

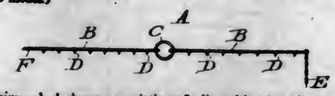
4. In a harvester, the combination, with the main axle, the main wheel journaled thereon and having a clutch member on its hub, a sprocket-wheel mounted on the axle and having a second clutch member, a spring bearing tilting members into engagement, and means for separating them, of a second shaft, connections between this shaft and the cutting apparatus, tubular boxes on the main frame, springs therein, T-shaped bearings, their shanks entering said boxes and their heads furnishing the supports for said shaft, and a sprocket on the latter connected by a chain belt with that on the axle, all substantially as and for the purpose set forth.

5. In a harvester, the combination, with the main axle carrying the main wheel, a clutch member on the latter, and a counter-shaft yieldingly supported by the main frame and having a sprocket, of a sprocket journaled on the axle and having a clutch member on its hub, a chain belt connecting the two sprockets, an expansive spring throwing the said members normally into engagement, a trip-lever pivoted to the main frame, and a rod connecting said lever with a yoke mounted loosely on the hub of the sprocket on the axle, as and for the purpose set forth.

6. In a harvester, the combination, with a rocking triangular lever having a ball at its front angle, of the cutting apparatus, a two-part box having registering holes, the inner part having a groove, a yoke standing in said groove with its ends passing through said holes, nuts on said ends connecting the parts, a pitman pivoted at one end to said cutting apparatus, and a headed plug swiveled in the outer part of said box and into which the shank of said pitman is screwed, as and for the purpose set forth.

7. In a harvester, the combination, with a rocking triangular lever having a ball at its front end and a box embracing said ball, of the cutting apparatus, an L-shaped pitman having its foot pivoted in said apparatus, and a headed plug swiveled in said box and into which the shank of said pitman is screwed, as and for the purpose apparent.

482,969. SKEWER OR NEEDLE FOR CLOSING FOWLS, &c. EMMA MUSSO, Vineland, N. J. Filed Apr. 28, 1892. Serial No. 430,966. (No model.)

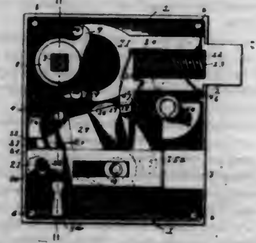


Claim.—1. A skewer consisting of adjustably-hinged arms adapted to engage the walls of the openings in fowls, poultry, &c., and close said openings, substantially as described.

2. A skewer having arms with teeth thereon, said arms having means for adjustably connecting them at one end and means for adjustably securing the same on the other end substantially as described.

3. Skewers adjustably hung at one end on a ring and provided at the opposite ends with a fastening device, substantially as described.

482,970. LOCK. WILLIAM NEHRING, Evansville, Ind. Filed Sept. 23, 1891. Serial No. 407,040. (No model.)



Claim.—1. The combination, with a lock having a latch-bolt, a locking-bolt, and a suitable tumbler for the locking-bolt, of a pivoted lever engaging said tumbler and a cam adapted to engage said pivoted lever and latch-bolt and prevent the movement of both the locking-bolt and latch-bolt, substantially as and for the purpose set forth.

2. The combination of the latch-bolt, the locking-bolt, the tumbler for the locking-bolt, a pivoted lever engaging said tumbler, and a spiral spring having its respective ends engaged by said pivoted lever and the latch-bolt, substantially as and for the purposes set forth.

3. The combination of the latch-bolt, the locking-bolt, the tumbler for the locking-bolt, the pivoted lever, a spiral spring located between the latch-bolt and the pivoted lever, and a locking device, said tumbler being engaged by the pivoted lever and said locking device being adapted to prevent the movement of said pivoted lever, all substantially as set forth.

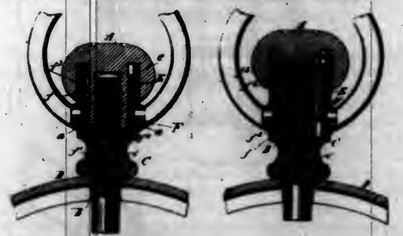
4. The combination of the latch-bolt, the locking-bolt, the tumbler, the pivoted lever engaged on one side by the tumbler, the spiral spring

located between the opposite side of said lever and the forward end of the latch-bolt, and the locking-cam mounted upon a suitable axis and adapted to be moved in front of the lever independently of the latch-bolt and also to be moved in front of said lever and behind the latch-bolt at the same time, substantially as and for the purposes set forth.

5. The combination of a lock having a bearing, a knob adapted to turn in said bearing, the socket in connection with said bearing, and the key mounted in said socket, said knob having an annular groove in which the end of the key fits, all substantially as and for the purposes set forth.

6. The combination of journaled bearings, the knob adapted to fit in said bearings and provided with an annular groove, one of said bearings being provided with a semi-annular flange adapted to fit in a groove in the knob and the other being provided with a socket, with a key in said socket adapted to enter the groove and the other knob, all substantially as and for the purposes set forth.

482,971. WATCH-CASE PENDANT. CHARLES ARTHUR, East Orange, assignor to the Newark Watch Case Material Company, Newark, N. J. Filed Oct. 26, 1891. Serial No. 409,819. (No model.)



Claim.—1. A watch-case pendant constructed with a winding-arbor threaded into the crown and a sleeve threaded onto said arbor and against the hub of said crown, thereby acting as a lock-nut, said sleeve being slitted to form spring-arms, substantially as described.

2. A watch-case pendant constructed with a winding-arbor threaded into the hub of the crown and a sleeve having a restricted neck threaded onto the winding-arbor and against the said hub of the crown, thereby acting as a lock-nut, and being slitted to form spring-arms, substantially as described.

3. In a watch-case pendant, the combination, with a pendant fitted internally with a flanged sleeve, of a winding-arbor threaded the greater part of its length, a crown having an elongated core, into which latter said arbor is threaded, and the sleeve F, threaded onto said arbor and provided with the shoulder f^2 to fit against said core, to operate in the manner and for the purpose substantially as described.

4. In a watch-case pendant, the combination, with the pendant having a flanged sleeve E fitted therein, of the arbor B, threaded the greater part of its length, a crown A, constructed with a long core *a*, into which said arbor is threaded, and a grooved and slitted sleeve F, having the restricted neck f', threaded onto said arbor and formed with the shoulder f^2, adapted to bind against the end of said core, substantially as and for the purpose described.

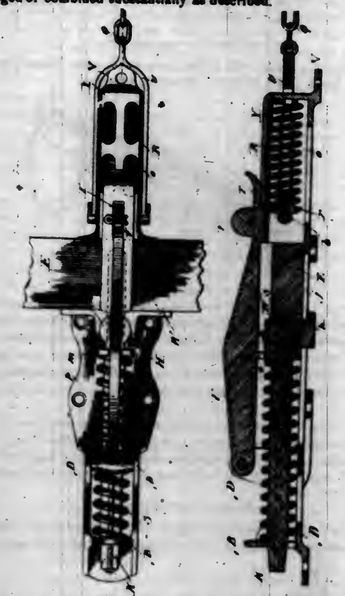
482,972. TEA-KETTLE. VOLNEY C. BAKER, Mount Morris, N. Y. Filed Mar. 3, 1892. Serial No. 423,673. (No model.)



Claim.—A tea-kettle consisting of a sheet-metal body *a*, having formed integral with it a spout *d*, extending approximately the full length of the body and projecting in over the top of the kettle, a cover *b*, permanently fastened over the body and fitting closely around and secured to the portion of the spout projecting in over the kettle, and a handle secured thereto, substantially as described.

482,973. DRAFT ATTACHMENT FOR VEHICLES. HIRAM BARTON, Chicago, Ill. Filed Mar. 7, 1890. Serial No. 343,014. (No model.)

Claim.—1. In a spring-draft attachment, the combination of a slotted plate securely attached to the tongue of a wagon and provided with a perforated bracket or buffer made integral with the upper surface of the forward end thereof and having its rear face perpendicular to and at right angles with the central longitudinal line of such plate, a coil-spring, a head or bearing block provided with a convex rear face and also with an engaging shank projected from its front face and passing through the coil-spring and into the aperture in the perforated buffer or bracket and in which coil-spring and aperture such shank has freedom of movement and which head or bearing block has also freedom of movement on the upper surface of such plate while securely attached thereto by means of a bolt the stem of which is inserted from below through the slot in such plate up into the cylindrical section of such head or bearing block, and an evener provided with a vertical groove in the front face thereof to correspond with the convexity of the rear face of such head or bearing block, all arranged or combined substantially as described.



2. In a spring-draft attachment, the combination of the slotted plate *p*, attached to the tongue of a wagon, the perforated buffer B, the coil-spring S, the cylindrical chambered head H and its shank K, the bolt X, and the evener and evener-plate W, having a concave groove *g*, in which the head H fits, substantially as specified.

3. In a spring-draft attachment, the combination of the slotted plate *p*, provided with ears D D, the perforated buffer B, the casing Y, having the lug V on the upper surface thereof and all made integral with the upper surface of such plate, the coil-spring S, the cylindrical head or bearing block H, provided with a shank K, the bolt X, the evener-plate W, provided with a concave recess for the block H, the evener E, and top bar T, all arranged and combined substantially as set forth.

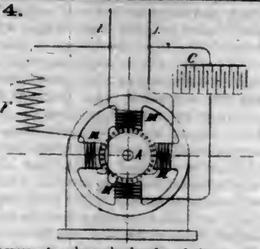
4. In a spring-draft attachment, the combination of the slotted plate *p*, attached to the tongue of a wagon and provided with the ears D D, the perforated buffer B, and the casing Y, having the lug V on the upper surface and the slots O O in the side walls thereof, the coil-spring S, the head or bearing block F, provided with the shank K and the ears *e e*, the bolt X, the evener plate W, the evener E, the top bar T, the spring R, the clevis-bolt *b*, the clevis U, and chain Q, attached to the frame of the wagon, all arranged and combined substantially as specified.

482,974. ALTERNATING-CURRENT MOTOR. OTTO T. BLATHY, Buda-Pesth, Austria-Hungary. Filed Dec. 7, 1891. Serial No. 414,500. (No model.)

Claim.—1. A rotary-field alternating-current motor with two sets of field-magnet coils supplied from a source of simple alternating currents and self-induction coils and condensers connected up with the said field-magnet circuits, whereby the said currents are displaced in phase, as and for the purpose set forth.

2. A rotary-field alternating-current motor with two sets of field-

482,974.



magnet coils forming two branch circuits of the supply-leads, with a self-induction coil included in one of the said branch circuits and a condenser in the other branch circuit.

482,975. GRIP FOR ROPES. THOMAS J. COPE, Philadelphia, Pa. Filed Feb. 3, 1892. Serial No. 420,646. (No model.)

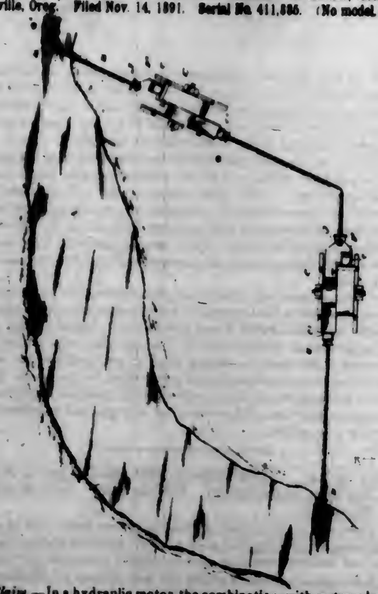


Claim.—1. A grip for a cable, &c., consisting of a frame with side flanges thereon and automatically-tightening jaws which are mounted on guides secured to said side flanges, substantially as described.

2. A grip for a cable, consisting of a frame having side flanges with ears, rods secured in said ears, and jaws sliding on said rods, said rods being convergent, said parts being combined substantially as described.

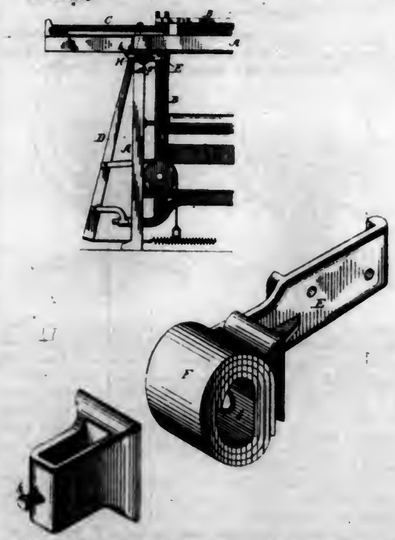
3. A frame having longitudinally-extending flanges thereon, lugs on the inner sides of said flanges, rods connected with said lugs, and sliding jaws which are located within said flanges and provided with ears which are fitted on said rods, said parts being combined substantially as described.

482,976. HYDRAULIC MOTOR. MARTIN VAN BUSLEY, McMinnville, Oreg. Filed Nov. 14, 1891. Serial No. 411,886. (No model.)



Claim.—In a hydraulic motor, the combination, with water-wheels having end receiving and discharge openings, of the inclosed conducting flume or pipe adapted to conduct the water from one point of a stream over the land and to a lower point of the same stream and provided with a flared or funnel terminal at the receiving-point of said flume, a fender inclosing said funnel end, lateral receiving-passages projecting out of the path of said flume at certain intervals, upwardly-extending receiving-spouts communicating with said lateral passages and adapted to be connected with the receiving-openings of the water-wheels, supplemental discharge-spouts adapted to be connected with the discharge-openings of said wheels and communicating with the main portion of the flume, and an oscillating gate adapted to either direct the water through said lateral passages or uninterruptedly through said flume, substantially as set forth.

482,977. BUFFER FOR PICKER STAFFS OF LOOMS. EDWIN HAMILTON, Philadelphia, Pa. Filed Jan. 29, 1891. Serial No. 379,586. (No model.)



Claim.—The combination of the bracket E, adapted to be secured to the lathe of the loom, having a flange *e'* resting against the lathe, an extension *e*, and a seat *d*, projecting from said extension, said seat having rounded corners *f f*, a buffer F of a coil of leather, said buffer having an open center, with a bolt passing through the coil and through the seat, and a nut at the back of the seat and adapted to the bolt, substantially as described.

482,978. SUPPORT FOR PHOTOGRAPHS, PICTURES, AND ANALOGOUS ARTICLES. ANDREW HUNTER, Chicago, Ill. Filed Aug. 4, 1891. Serial No. 401,652. (No model.)



Claim.—1. The herein-described support for pictures or analogous articles, comprising a loop provided with means for attachment to the back of the picture or other article and a removable supporting arm or brace composed of a flat strip of metal having one end bent at an angle to the balance of the strip and adapted for insertion in said loop from the under side thereof, substantially as set forth.

2. The herein-described support for pictures or analogous articles, comprising a loop provided with means for attachment to the back of the picture or other article and a removable supporting arm or brace composed of a flat strip of metal having one end bent at an angle to the balance of the strip for engagement with said loop, said end being capable of further bending to vary said angle, as desired, to increase or decrease the distance between the said brace and the back of said article and alter the inclination of the latter from time to time, substantially as set forth.

3. The herein-described support for pictures or analogous articles, comprising a loop provided with a central raised portion and end portions coated with adhesive material and adapted to be attached to the back of the picture or picture-frame and an angular supporting arm or brace adapted to be engaged at its upper end with said central portion of the said loop, substantially as described.

482,979. STORAGE-BATTERY. EDWARD R. KNOWLES, Brooklyn, N. Y. Filed Oct. 15, 1891. Serial No. 408,834. (No model.)



Claim.—1. A support-plate for the absorptive material of a storage-battery, consisting of three parts, to wit: a central part, both of whose surfaces are divided by projections or ribs into a number of recesses or cavities, two outer parts, each of whose inner surfaces are divided by projections or ribs into a number of recesses or cavities, said recesses or cavities on the two outside parts being arranged to register with the recesses or cavities on the central part, so that when the three parts are put together the interior of the plate so formed will be substantially hollow and cellular in structure, all the parts being perforated and riveted together substantially as described.

2. A support-plate for the absorptive material of a storage-battery, consisting of three parts, to wit: a central part provided with a connecting-lug and downwardly-turned flanges and two outside parts, the downwardly-turned flanges holding the three parts together, substantially as described.

3. A support-plate for the absorptive material of a storage-battery, consisting of three parts, to wit: a central part, both of whose surfaces are divided by projections or ribs into a number of recesses or cavities and provided with a projecting rim or flange on both sides of and around its outer edge, two outside parts, each provided with a projecting rim or flange around its edge and upon its inner side, said rims or flanges upon the edges of the two outside parts being adapted to fit inside the rim or flange upon the edge of the central part, all the parts being perforated and riveted together substantially as described.

4. A support-plate for the absorptive material of a storage-battery, consisting of three parts, to wit: a central part provided with a connecting-lug and downwardly-turned brackets, both of whose surfaces are divided by projections or ribs into a number of recesses or cavities and provided with a projecting rim or flange on both sides of and around its outer edge, two outside parts, each of whose inner surfaces are divided by projections or ribs into a number of recesses or cavities and each provided with a projecting rim or flange around its edge and upon its inner side, said recesses or cavities on the two outside parts being arranged to register with the recesses or cavities on the central part, so that when the three parts are put together the inside of the plate will be substantially hollow and cellular in structure, said rims or flanges upon the edges of the two outside parts being adapted to fit inside the rim or flange upon the edge of the central part, all of the parts being perforated and riveted together substantially as described.

5. A support-plate for the absorptive material of a storage-battery, consisting of three parts, to wit: a central part provided with a connecting-lug and downwardly-projecting support-feet, both of whose surfaces are divided by projections or ribs into a number of recesses or cavities and provided with a projecting rim or flange on both sides of and around its outer edge, two outside parts, each of whose inner surfaces are divided by projections or ribs into a number of recesses or cavities and each provided with a projecting rim or flange around its edge and upon its inner side, said recesses or cavities on the two outside parts being arranged to register with the recesses or cavities on the central part, so that when the three parts are put together the inside of the plate will be substantially hollow and cellular in structure, said rims or flanges upon the edges of the two outside parts being adapted to fit inside the rim or flange upon the edge of the central part, all the parts being perforated and riveted together substantially as described.

6. A support-plate for the absorptive material of a storage-battery, consisting of three parts, to wit: a central part provided with a connecting-lug and downwardly-turned brackets, both of whose surfaces are divided by projections or ribs into a number of recesses or cavities and provided with a projecting rim or flange on both sides of and around its outer edge, two outside parts, each of whose inner surfaces are divided by projections or ribs into a number of recesses or cavities and each provided with a projecting rim or flange around its edge and upon its inner side, said recesses or cavities on the two outside parts being arranged to register with the recesses or cavities on the central part, so that when the three parts are put together the inside of the plate will be substantially hollow and cellular in structure, said rims or flanges upon the edges of the two outside parts being adapted to fit inside the rim or flange upon the edge of the central part, said rim or flange upon the central part being folded down over the rims or flanges upon the two outside parts, and all the parts being perforated and riveted together substantially as described.

7. A support-plate for the absorptive material of a storage-battery, consisting of three parts, to wit: a central part provided with a connecting-lug and downwardly-projecting support-feet, both of whose surfaces are divided by projections or ribs into a number of recesses or cavities and provided with a projection or flange on both sides of and around its outer edge, two outside parts, each of whose inner surfaces are divided by projections or ribs into a number of recesses or cavities and each provided with a projecting rim or flange around its edge and upon its inner side, said recesses or cavities on the two outside parts being arranged to register with the recesses or cavities on the central part, so that when the three parts are put together the inside of the plate will be substantially hollow and cellular in structure, said rims or flanges upon the edges of the two outside parts being adapted to fit inside the rim or flange upon the edge of the central part, said rim or flange upon the central part being folded down over the rims or flanges upon the two outside parts, and all the parts being perforated and riveted together substantially as described.

8. An element for a storage-battery, consisting of a perforated central support-plate, two perforated outside plates, two layers of absorptive material interposed between the outside plates and the central support-plate, and thin perforated sheets of metal interposed between the absorptive material and the outside plates, substantially as described.

9. An element for a storage-battery, consisting of a perforated central support-plate, two perforated outside plates, two layers of absorptive material interposed between the central support-plate and the outside plates, and perforated sheets of a metal which is easily oxidized interposed between the absorptive material and the outside plate, all being united together substantially as described.

10. In an element for a storage-battery, a perforated retaining-sheet of metal interposed between the surfaces of the metallic perforated support-plates and the absorptive material, substantially as described.

11. In an element for a storage-battery, a perforated retaining-sheet of a metal which is easily oxidized interposed between the surfaces of the metallic perforated support-plates and the absorptive material, substantially as described.

12. In a storage-battery, a combined separating and supporting piece for the electrodes, provided with cavities to separate plates of one electrode and shoulders to support plates of the other electrode, substantially as described.

13. In a storage-battery, a combined separating and supporting piece composed of a soft flexible non-conducting material, adapted to rest upon the bottom of the cell, said supporting piece being provided with separating-cavities and supporting-shoulders for the respective electrodes of the cell, substantially as described.

14. In a storage-battery, the combined supporting and separating piece X, having the grooves X' in its upper surface and the projecting flanges X" upon its inner surface, as and for the purpose set forth.

15. In a storage-battery, the combined separating and supporting piece X, having the grooves X' upon its upper surface and the flanges X" upon its inner surface, composed of a soft flexible non-conducting material, substantially as described.

16. In a storage-battery, the combination of a series of positive elements provided with side extensions, a series of negative elements provided with supporting-feet, and a separating and supporting piece interposed between the extensions on the positive elements and the feet upon the negative elements, substantially as described.

17. In a storage-battery, the combination of a series of positive elements provided with side extensions, a series of negative elements provided with supporting-feet and a separating and supporting piece composed of soft flexible non-conducting material, all being so united and arranged that the positive elements are supported by their side extensions upon and separated by the supporting-feet separated by the separating-piece, substantially as described.

18. In an electrical connector, the combination, with the cross-bar 1, of the cups 13, and a removable metallic cover 4, and means for locking, unlocking, and removing the same, substantially as described.

19. In an electrical connector, the combination, with the cross-bar 1, of the cup 13, provided with the flange 11 and slots 9 9, and a cover 4, provided with the ears 5 5, substantially as described.

20. In an electrical connector, the combination, with the cross-bar 1, of the cap 13, provided with the flange 11 and slots 9 9, a lining 3, and a cover 4, provided with the ears 5 5, substantially as described.

21. In an electrical connector, the combination, with the cap 13, provided with a rim 11 and slots 9 9, of a cover 4, provided with ears 5 5, and a rod 7, passing through said cover, said cover being held in place upon said rod by a stop 8, substantially as described.

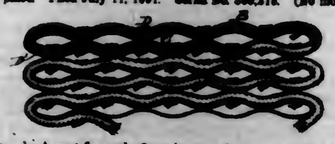
22. In an electrical connector, the combination, with caps 13, provided with a rim 11 and slots 9 9, of a lining 3, a cover 4, provided with ears 5 5, and a metallic rod 7, passing through said cover, the end 6 of said rod being composed of a metal not attacked by mercury, said cover being held in place upon said rod by a stop 8, substantially as described.

23. In an electrical connector, the combination of a metallic conductor 7, provided with terminals 6 6 of a metal other than that of which 7 is composed, and cup 13, with covers 4 4 and stops 8 8, substantially as described.

24. In an electrical connector, the combination of a metallic conductor 7, provided with terminals 6 6 of a metal not attacked by mercury, and cups 13, with covers 4 4 and stops 8 8, substantially as described.

25. An element for a storage-battery, consisting of a metallic plate provided with a cavity or cavities for an active material, the metallic walls of said cavity or cavities being lined with an easily-oxidizable metal, as and for the purpose set forth.

482,980. MAT. WILLIAM M. MARSHALL, Philadelphia, Pa., assignor of three-fourths to Samuel W. Dunn, Harry L. Dunn, and John Shreeve, same place. Filed July 11, 1891. Serial No. 399,218. (No model.)



Claim.—1. A mat formed of sections, each section consisting of a loop of rigid material having surrounding rings of rope, and clamps connecting said sections, substantially as described.

2. A mat formed of sections, each of which is composed of a loop of rigid material having surrounding rings of rope extending to the outer edges thereof, and fastenings for said sections, said parts being combined substantially as described.

3. A mat formed of sections, each of which consists of a folded strip of rigid material of serpentine form and a surrounding ring or coil of rope, the opposite sides of each section being connected at points intermediate of its ends, substantially as described.

482,981. FEEDING DEVICE FOR CARD-PUNCHING PRESSES. JOHN P. OGDEN, Philadelphia, Pa., assignor to the A. M. Collins Manufacturing Company, same place. Filed July 24, 1891. Serial No. 400,547. (No model.)

Claim.—1. The combination of the tubular lifter, the arm to which said lifter is pivoted, means for raising and lowering and for swinging said arm, an air-exhausting device, and a valve located at the pivot-point of the arm and lifter, so as to be opened and closed as the arm swings, substantially as specified.

2. The combination of the tubular lifter, the swinging arm carrying the same, the exhausting device, and the valve at the junction of the arm and lifter, with a squaring device for the lifter at each end of its swing, substantially as specified.

3. The combination of the tubular lifter, the swinging arm, the exhausting device, the automatic cut-off valve, and leakage-ports in said lifter for permitting the card to drop when communication with the exhauster is closed, substantially as specified.

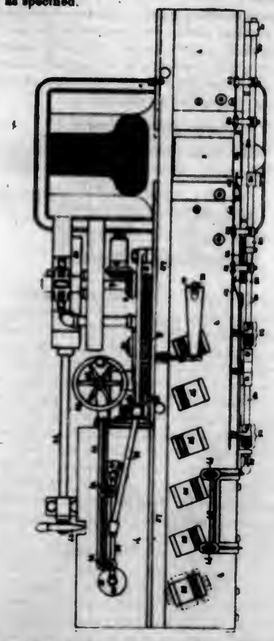
4. The combination of the tubular lifter, the swinging arm, the tubular shaft carrying the same, the exhaust mechanism communicating with said shaft, a grooved cam and engaging-pin, and means for raising and lowering the shaft, whereby said cam and pin cause a partial turning of the same, substantially as specified.

5. The combination of a punching-press with blank-feeding mechanism comprising feed-drums, a movable stop-pin for arresting the forward movement of the blank under the action of the drums, and reciprocating nippers for seizing the arrested blank and carrying it further forward, substantially as specified.

6. The combination of the feed-drums and stop-pin movable into and out of operative position with reciprocating nippers likewise movable into and out of operative position, substantially as specified.

7. The combination, in card-blank-feeding mechanism, of feed-drums, some of which are fixed and others in advance of the same, movable into and out of operative position, a movable stop-pin for the blank, and reciprocating nippers for engaging the blank and feeding it forward beyond the drums, substantially as specified.

8. The combination, in card-blank-feeding mechanism, of a set of feed-drums, a frame carrying the latter, a cam-bar for causing said frame to rise and fall, and means for reciprocating said cam-bar, substantially as specified.



9. The combination, in card-blank-feeding mechanism, of a set of feed-drums, a stop-pin, a frame carrying said drums, a cam-bar acting on said frame and on the pin, and means for operating said cam-bar, substantially as specified.

10. The combination, in card-blank-feeding mechanism, of a set of feed-drums and a stop-pin movable into and out of operative position, a set of swinging and reciprocating nippers, a cam-slide for acting on said nippers to hold them out of operative position, and means for operating said cam-slide, substantially as specified.

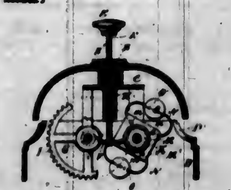
482,982. COLANDER FOR MASHING VEGETABLES. PHILLIP PATROL, Dayton, Ohio. Filed May 2, 1891. Serial No. 391,410. (No model.)



Claim.—1. The cylindrical colander having a perforate bottom and supporting-legs, the central shaft having propeller-arms near said bottom and supported in cross-bars below said bottom and in the top cross-piece, which is pivoted to one side of the colander to swing laterally and provided with a set-screw for securing the other end of said bar, said cross-piece having a swinging piece to complete the bearing-box, all the parts combined and arranged substantially as described.

2. The colander described, having cylindrical body and legs extending from near the top of the body to a distance below the bottom thereof, said body having a reticulated bottom and cross-bars below the same, a central shaft having arms with inclined surfaces just above the reticulated bottom, and a top cross-piece having a bearing-box for the said shaft, said cross-piece pivoted to the body at one end so as to swing sidewise and having a fastening device to connect the other end of the bar to the body, substantially as described.

482,983. BELL. EDWIN S. PIPER, Bristol, Conn., assignor of one-half to Frank Clayton, same place. Filed May 9, 1892. Serial No. 432,393. (No model.)

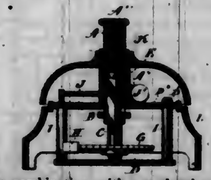


Claim.—1. In a bell, the combination, with the base and gong thereof, of a train, a manual connected with the same for actuating it in one direction, a spring for actuating the train reversely when the said manual is released, and one or more spring-mounted rotary bell-hammers which are thrown outward to strike the bell when the train is actuated and each consisting of a spring connected with a rotary member of the train and having the striker attached to its outer portion, substantially as described.

2. In a bell, the combination, with the base and gong thereof, of a train, a manual connected with the same for actuating it in one direction, a spring for actuating the train reversely when the said manual is released, and one or more rotary spring-mounted bell-hammers, each consisting of a striker and a bowed spring the ends of which are connected with the rotating member of the train, substantially as described.

3. In a bell, the combination, with the base and gong thereof, of a train comprising a driving and a driven shaft, a wheel and a coiled spring on the former, a push-rod adapted at its outer end for manual engagement, a chain wound one or more turns on the driving-shaft and connected thereto and to the inner end of the push-rod, a pinion on the driven shaft meshed into by the said wheel, a hub on the driving-shaft, and one or more spring mounted bell-hammers connected with the said hub and thrown outward for engagement with the bell when the driven shaft is rotated with sufficient speed, substantially as described.

482,984. BELL. EDWIN S. PIPER, Bristol, Conn., assignor of one-half to Frank Clayton, same place. Filed May 9, 1892. Serial No. 432,394. (No model.)



Claim.—1. The combination, with a push-tube having its inner end constructed with one or more spiral slots and its outer end adapted for direct manual engagement, of an escapement-shaft having one end entered into the said slotted end of the tube and furnished with a pin which enters the slot or slots therein, a spring interposed between the outer end of the tube and the inclosed end of the shaft for recovering the tube after it has been pressed inward, a bell and a bell-hammer, connections between the said shaft and hammer, whereby the latter is actuated and rotary movement is imparted to the former by the inward movement of the tube, and means for supporting and guiding the said parts, substantially as described.

2. The combination, with a push-tube having its inner end constructed with one or more spiral slots and its outer end provided with a roughened cap forming a finger-piece, of an escapement-shaft having one end entered into the said slotted end of the tube and furnished with a pin which enters the slot or slots therein, a spring interposed between the said cap and shaft for recovering the tube after it is pressed inward, a bell and bell-hammer, connections between the said shaft and hammer, whereby the latter is actuated by the rotary movement imparted to the former by the push-tube, and means for supporting and guiding the said parts, substantially as described.

3. In a bell, the combination, with a push-tube having its outer end constructed with a cap forming a finger-piece and its inner end constructed with one or more spiral slots, of an escapement-shaft having one end entered into the said slotted end of the tube and furnished with a pin which enters the slot or slots therein, a spring interposed between the cap and shaft for recovering the tube after it has been pushed inward, an escapement-wheel mounted on the shaft, a pallet engaging with the said wheel, an arbor for the said pallet, a hammer-tail mounted in the said arbor, a hammer attached to the said hammer-tail, a bell, and means for supporting and guiding the said parts, substantially as described.

482,985. CLOCK-REGULATOR. WILSON H. PORTER, New Haven, Conn., assignor to the New Haven Clock Company, same place. Filed May 23, 1892. Serial No. 434,043. (No model.)

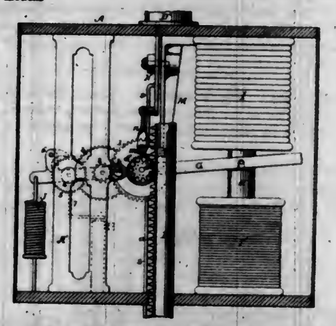


Claim.—1. In a clock, the combination, with a vertically-movable suspension-stud, of an eccentric located below the same and having its edge engaged therewith, a shaft on which the eccentric is mounted and by which it is turned, and a spring applied to the shaft for resisting its rotation, substantially as set forth.

2. In a clock, the combination, with a suspension-stud, of a vertically-movable carrying-plate in which the stud is mounted, an eccentric located below the stud and having its edge engaged therewith, a shaft having the eccentric mounted on its forward end, and a tension-spring applied to the shaft, substantially as described.

3. In a clock, the combination, with a frame adapted to be attached to a clock-movement, of a vertically-movable carrier applied to the said frame, a stud attached to the said carrier and adapted to have a pendulum suspended from it, a shaft mounted horizontally in the frame and projecting at its ends through the same, an eccentric mounted on the rear end of the shaft and having its edge engaged with the stud, and a tension-spring applied to the shaft to resist its rotation, substantially as described.

482,986. ELECTRIC-ARC LAMP. JAMES A. STUART, Philadelphia, Pa., assignor to himself and John Buchanan, same place, and Thomas Marrin, Brooklyn, N. Y. Filed July 30, 1891. Serial No. 400,127. (No model.)



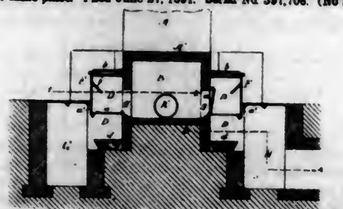
Claim.—1. The combination, in a duplex-carbon arc lamp, of the regulating-lever carrying a shaft with escapement mechanism, and a pair of pinions free to turn on the shaft in one direction, but provided with clutching mechanism for engaging the shaft when turned in the opposite direction, the two carbon-holders, one having a rack engaging with one pinion and the other having a rack engaging with the other pinion, and a locking-lever controlling the pinion of the second carbon-holder and engaging with the first carbon holder when its carbon has been burned out, so as to unlock the pinion of said second carbon-holder, substantially as specified.

2. The combination, in a duplex-carbon arc lamp, of the regulating-lever, its escapement shaft and pinions, the two carbon-holders, one having a rack engaging with one pinion and the other a rack engaging with the other pinion, the rack of the carbon holder of the first set being discontinued, so as to release its pinion when the carbon is burned out, and a locking-lever controlling the pinion of the second carbon holder and engaging with the first carbon-holder when the latter drops on releasing its pinion, so as to trip said lever and release the second carbon holder, substantially as specified.

3. The combination, in a duplex-carbon arc lamp, of the regulating-lever carrying an escapement-shaft, with pinions, the two carbon-

holders, one having a rack engaging with one of said pinions and the other a rack engaging with the other pinion, the rack of the first carbon-holder being discontinued, so as to release its pinion when the carbon is burned out, a locking-dog retaining the pinion of the second carbon-holder, and a lever connected to said dog and engaging with the first carbon-holder when the latter drops on releasing its pinion, substantially as specified.

482,987. DRY CLOSET. CORNELIUS B. TOMPKINS, Elmira, N. Y., assignor to himself and William W. Tompkins and Stewart D. Tompkins, same place. Filed June 27, 1891. Serial No. 397,706. (No model.)



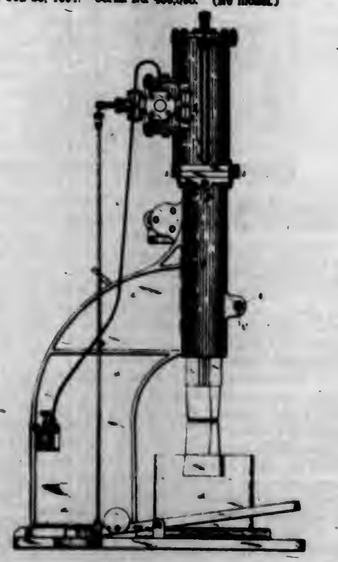
Claim.—1. The combination, in a dry-closet structure, of a draft-stack having at the base an enlarged foot inclosing a receiving-chamber, with lateral branch chambers receiving the deposits from the closets and communicating with said chamber, and an air-supply flue or chamber for said lateral branch chambers, substantially as specified.

2. The combination of the draft-stack having at the base an enlarged foot inclosing a receiving-chamber, lateral branch chambers receiving the deposits from the closets and communicating with said chamber, a flue or chamber for supplying air to said lateral branch chambers, and a stove or furnace discharging into or through the receiving-chamber in the enlarged foot at the base of the stack, substantially as specified.

3. The combination of the draft-stack having at the base an enlarged foot inclosing a receiving-chamber, lateral branch chambers receiving the deposits from the closets and communicating with said receiving-chamber through openings of contracted area, and an air-supply flue or chamber for said lateral branch chambers, substantially as specified.

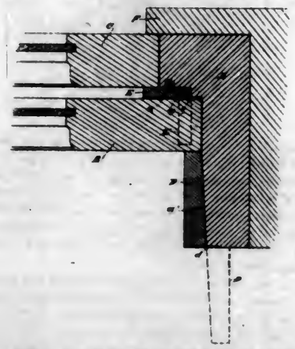
4. The combination of the draft flue or stack having a receiving-chamber at the base, the lateral branch chambers communicating with said receiving-chamber and with an air-supplying flue or chamber, and partitions in said lateral chambers, partly horizontal and partly vertical and perforated in both portions, substantially as specified.

482,988. POWER-HAMMER. SAMUEL TRETHEWEY, Pittsburg, Pa., assignor to the Trethewey Manufacturing Company, same place. Filed Oct. 23, 1891. Serial No. 409,595. (No model.)



Claim.—An open-front steam-hammer having a base-plate carrying the anvil, and a hammer-frame formed of two separate stands extending up behind the anvil and at an angle thereto, then extending over the anvil, and together forming the guideway for the sliding head of the hammer and supporting the steam-cylinder above the same, said stands being each adjustably secured to the base-plate and adjustably connected at the upper end, where the stands may be adjusted to take up wear of the hammer-head or guideway, substantially as and for the purposes set forth.

482,989. WINDOW FRAME AND SASH. JAMES WILSON, San Francisco, Cal. Filed Apr. 1, 1892. Serial No. 427,396. (No model.)



Claim.—1. In a window frame and sash, and in combination with pulley or frame stiles and sashes fitted thereto, parting-strips hinged to said stiles and adapted to be turned out of the way to permit the removal of the upper sash from the frame and spring-actuated catches for engaging and securing said strips, substantially as herein described.

2. In a window frame and sash, and in combination with pulley or frame stiles and sashes fitted thereto, the parting-strips and the inside stops, each hinged to the stiles, whereby they may be turned out of the way to permit the removal of the sashes from the frame, said inside stops having an inclined or beveled face engaging a like face on the frame, and spring-actuated catches for engaging the parting-strips, substantially as herein described.

3. In a window frame and sash, and in combination with the pulley or frame stiles having beveled or inclined inner faces, the inside stops hinged at their outer edges to the adjacent edges of said faces, substantially as herein described.

4. In a window frame and sash, the combination of the pulley or frame stiles having the offsets *a*, the parting-strips hinged to said stiles and adapted to be turned to or from the offsets, the catches seated in said offsets, and the latch-plates seated in open recesses in the parting-strips, substantially as herein described.

482,990. CASE FOR BLANKS. JOHN F. WILSOT, Kearney, Nebr. Filed July 11, 1892. Serial No. 439,631. (No model.)



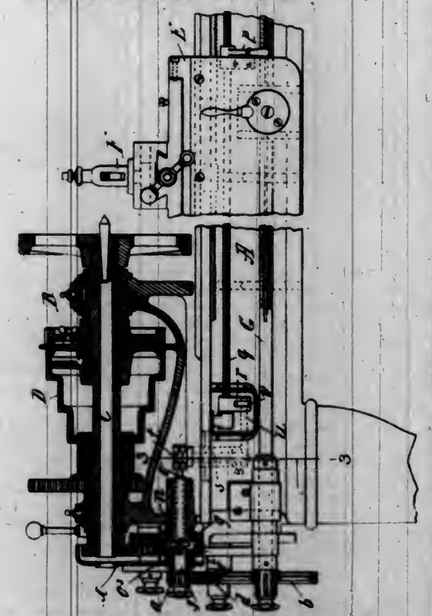
Claim.—1. In a case for blanks, the combination of a casing, a blank-receptacle, and a pivotal hinge secured to the blank-receptacle on the under and out side thereof, the bolt of such pivotal hinge extending through support thereof forward of the center of gravity of the blank-receptacle, and the front of such blank-receptacle forming a portion of the front of the casing, substantially as described.

2. In a case for blanks, the combination of a shell consisting of sides, top, and back and a front divided into two parts, and a blank-receptacle whereof the front consists of one of the parts forming the front of the shell, such blank-receptacle consisting of a bottom, side, and ends, and a pivotal hinge secured to the bottom of such blank-receptacle on the outside and forward of the center of gravity thereof, whereby in opening the blank-receptacle it will turn around a pivotal point underneath and outside of such receptacle, substantially as described.

3. In a case for blanks, the combination of a shell forming a casing, a blank receptacle, and a pivotal hinge, such pivotal hinge being placed underneath and outside of the blank-receptacle and forward of the center of gravity of such receptacle and contents, with an index-holder hinged to the upper edge of one of the sides of the blank-receptacle, an index contained in such holder, and division-sheets having marks thereon corresponding with the marks on the index contained in the blank-receptacle, substantially as described.

4. In a case for blanks, the combination of a shell consisting of sides, top, and back and a front divided into two parts, and a blank-receptacle whereof the front consists of one of the parts forming the front of the shell, such blank-receptacle consisting of a bottom, side, and ends, a stop on the back end of the blank-receptacle, adapted to come in contact with the stationary part of the front of the shell when the blank-receptacle is open, and a pivotal hinge secured to the bottom of such blank-receptacle on the outside and forward of the center of gravity thereof, whereby in opening the blank-receptacle it will turn around a pivotal point underneath and outside of such receptacle, substantially as described.

482,991. LATHE. CHRISTIAN H. BAUER, Holyoke, Mass. Filed Feb. 5, 1892. Serial No. 420,410. (No model.)



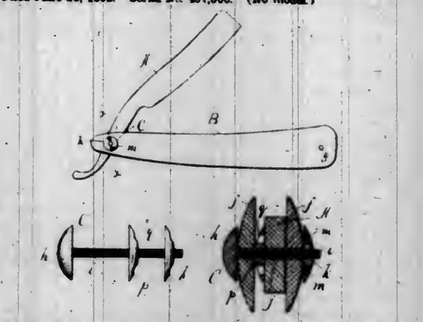
Claim.—1. In a lathe, in combination, the driving-spindle, a shaft, and the feed-screw geared to the latter, a pair of gear-wheels each loose on said shaft, and means for effecting the engagement of either of said gears with said shaft, and gearing between the driving-spindle and one of the said pair of gears for driving said shaft in one direction, and other gearing between the driving-spindle and the other of said pair of gears for reversely driving the shaft, substantially as described.

2. In a lathe, in combination, the driving shaft or spindle, the sleeve mounted for rotation, and a feed-screw shaft geared to the sleeve, a pair of gear-wheels each loosely mounted on the sleeve and each having an abutment member, gearing between the driving-spindle and said sleeve-supported gears for driving the latter in opposite directions, a collar adapted to slide along the sleeve and having a dog to engage the abutment-piece of either of said pair of gears, and a rod movable endwise within the sleeve and having a pin projecting through a slot which is formed through the sleeve and engaging said slide-collar, substantially as and for the purposes set forth.

3. In a lathe, in combination, the driving shaft or spindle having the gear *h* thereon, the rotatable sleeve having a slot a^3 and the gear *c*, and the feed-screw shaft G, having the gear *b*, and the intermediate gear *d*, connecting said gears *c* and *b*, the gears *f* and *g*, normally loose on the sleeve and each having an abutment-piece, as *m*, the dog-carrying slide-collar, and the rod *o*, having the pin o^2, projected through the sleeve-slot, engaging the collar, the gear *i*, in engagement with said gears *h* and *f*, and the gear i^2, mounted to rotate as one with said gear *i* and having the gear *k* between it and the gear *g*, and means for imparting endwise movements to said rod *o*, substantially as described.

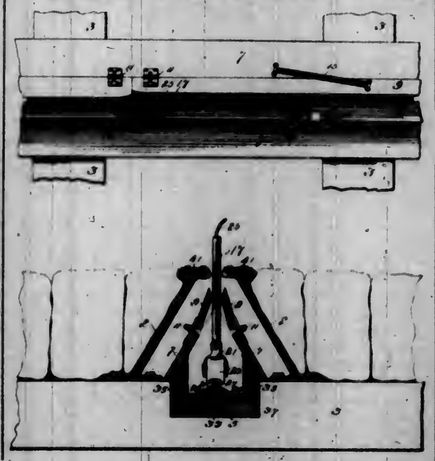
4. In a lathe, the driving-spindle, the sleeve mounted for rotation, and a feed-screw shaft geared to the sleeve, a pair of gear-wheels loosely mounted on the sleeve and each having an abutment member, sets of gearing between the driving-spindle and said sleeve-supported gears for driving the latter, respectively, in opposite directions, the dog-carrying collar movable along the sleeve, and a rod movable endwise within the sleeve and having a pin projecting through a slot which is formed through the sleeve to engage the slide-collar, combined with the rock-shafts *q* and *s*, the latter having the arm *t*, engaging the rod *o*, and the crank-arm *u*, and said rock-shaft *q* having a handle-lever and the crank-arm *r*, and the link between said arms *r* and *u*, substantially as set forth.

482,992. RAZOR-PIVOT. JOHN G. BRUGER, Somerville, Mass. Filed June 20, 1892. Serial No. 437,308. (No model.)



Claim.—In a razor, the combination of two parallel handle-plates disposed apart from each other, a pivot-bolt passing through said handle-plates near one end of the handle, a nut on said pivot-bolt between said handle-plates, a razor-blade pivoted on said pivot-bolt between said nut and one of said handle-plates, and a nut on said pivot-bolt outside one of the handle-plates, the head of said bolt being outside the other handle-plate, and means for connecting the opposite ends of said handle-plates.

482,993. CLOSED-CONDUIT FOR ELECTRIC RAILWAYS. LEVI P. DUNCK, Minneapolis, Minn., assignor of one-eighth to William Hoggum, same place. Filed Sept. 10, 1891. Serial No. 405,273. (No model.)



Claim.—1. The combination, with the main conduit provided with an opening through which a trolley-arm may extend, of a supplemental conduit arranged in said main conduit and provided with a series of hinged plates closing the opening in said supplemental conduit, said plates being arranged to break joints with one another, substantially as described.

2. The combination, with a main conduit provided with an opening through which a trolley-arm may pass, of a supplemental conduit arranged therein and provided with inclined outer walls and having an opening through which the trolley-arm may pass, an electric conductor arranged in said supplemental conduit, and a series of plates hinged to the walls of said supplemental conduit and arranged to meet at an angle beneath the opening in the main conduit and provided with beveled upper edges, whereby when said plates are brought together they form a sharp angle, so as to prevent dust, dirt, or water passing through the opening in the main conduit from lodging upon the edges of said plates.

3. The combination, with the main conduit provided with an opening through which a trolley-arm may pass, of a supplemental conduit arranged in said main conduit and provided with inclined outer walls and having an opening through which a trolley-arm may pass, an insulated conductor arranged in said supplemental conduit, and a series of plates hinged to the walls of the supplemental conduit and having beveled upper edges, whereby when said plates are closed they form a sharp angle beneath the opening in the main conduit, said plates being arranged to break joints with one another, substantially as described.

4. The combination, with the conduit provided with a slot adapted to permit a trolley-arm to enter therein, of a supplemental conduit arranged therein, with inclined outer walls and with a space between the outer walls of the supplemental conduit and the inner walls of the main conduit, and with a series of hinged plates secured to the walls of the supplemental conduit and provided with beveled upper edges forming when closed a sharp edge beneath the opening in the main conduit, said plates being arranged to break joints with one another, substantially as described.

5. The combination, with a conduit provided with the inclined walls 7, of the series of plates 9, provided with beveled upper edges, hinged to said walls 7 and arranged to close the opening in said conduit, said plates being arranged to break joints with one another and forming when closed a sharp upper edge, means for holding said plates normally in a closed position, and an electric conductor arranged within said conduit.

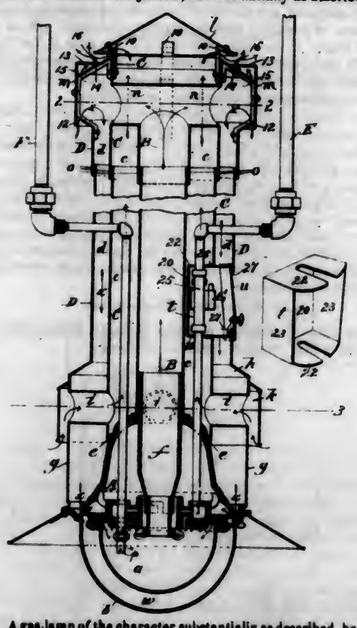
6. The combination, with the main conduit provided with a slot or opening adapted to permit a trolley-arm to enter therein, of a supplemental conduit arranged in said main conduit and provided with inclined walls 7, provided with a series of hinged plates 9, secured to the upper edges of said walls and forming when closed a sharp upper edge to said conduit, a suitable trolley-arm projecting through the opening in said conduits and having secured thereto a yoke 21, with a roll 23 journaled in said yoke, the length of said roll being greater than the distance between the upper edges of the slots of the supplemental conduit, and an insulated conductor arranged in said supplemental conduit with which said roll is adapted to make contact, substantially as described.

482,994. LAMP. LESLIE A. COUPER, Springfield, Mass. Filed June 3, 1891. Serial No. 394,980. (No model.)

Claim.—1. A gas-lamp of the character substantially as described, having the burner and outer casing D, the central draft-tube in communication with the burner and the intermediate casing C, closed at its bottom, but open at its top, whereby are constituted the annular chambers or passages *d* and *c*, surrounding the draft-tube, there being an inlet-flue leading to the upper portion of chamber *d* for the entrance of air and passage thereof to the burner, flues *i i*, laterally leading from the outside of the lamp to the intermediate air-jacket chamber at the bottom thereof, and one or more flues *n*, leading laterally, for exit from the upper end of the central draft-tube, substantially as and for the purposes described.

2. In a gas-lamp of the character substantially as described, a burner A and inclosures therefor comprising the casing *g*, upwardly continued in the shell D the shell C within the shell D, and the radial flues *i i*, provided with the hood *k*, the inner draft-tube in communication with the burner, having the radial flues *n n*, the outwardly-deflected flange 14 at the top of the tube C, the hood or band *m*, relatively arranged to constitute the inlet-flue 12 to the chamber *d*, and the exit-flue 16 for the products of combustion passing from the draft-flue, and the hood *l*, supported above the upper end of the tube C, substantially as described.

3. In a gas-lamp, in combination, the burner and inclosures therefor comprising the casing *g*, continued in the shell D, the shell C, concentrically within the shell D, and the inner draft-tube in communication with the burner and its upper end terminating in the radial flues *n n*, which pass through the casing C, radial flues *i i*, leading from the exterior of the casing *g* through the lower portion of the casing C and the hood *k*, the downwardly and outwardly deflected flange 14 at the top of the casing C, the band *m*, supported to surround said flange, separated therefrom and also from the upper end portion of the shell D to form in conjunction therewith the flues 12 and 16, and the hood *l*, and the said tubes D C and draft-tube B being formed in sections and jointed, all substantially as described.



4. A gas-lamp of the character substantially as described, having a burner, a central draft-tube, the outer annular passage or chamber for supplying air to the burner for combustion, and an intermediate annular air jacket or chamber between the draft-tube and the outer annular chamber, with an inlet-flue and an outlet-flue therefor, the gas-supply pipe passing into and downwardly through the intermediate air-chamber to the burner and provided with the gas-governor, and a fender-guard interposed between the governor and the draft-tube, substantially as described, and for the purpose set forth.

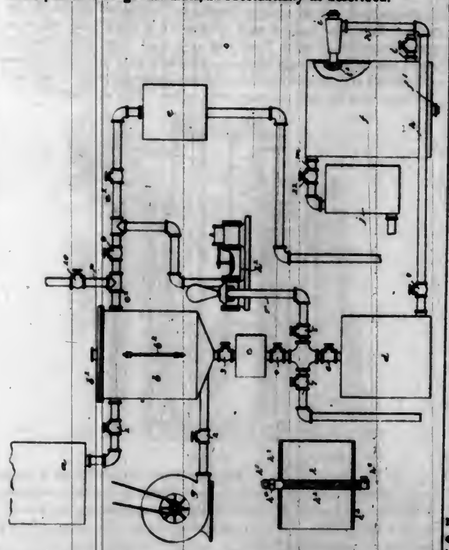
5. In a lamp, a burner at the bottom, a draft-tube leading upwardly therefrom, an annular passage or chamber surrounding the draft-tube and having at its top an inlet-opening and at its lower portion a communication with the burner and draft tube, and an outlet-flue leading laterally from the upper portion of the draft-tube, which terminates in proximity to the said inlet-flue of the outer annular passage, and a common shield or storm-guard inclosing both of said flues, substantially as and for the purposes set forth.

482,995. PROCESS OF EXTRACTING FAT FROM WOOL. WILLIAM T. CUTTER, East Lyme, Conn., assignor of two-thirds to Chas. J. Lose, same place. Filed Mar. 6, 1891. Serial No. 383,976. (No specimens.)

Claim.—1. The process of cleansing animal fiber, as wool, that consists in passing and repassing the initial quantity of naphtha at a regulated speed through the animal fiber that is inclosed in a vessel, then passing a current of hot air in a reverse direction through the mass of fiber, and then washing the mass by passing a current of water through it, all substantially as described.

2. The process of cleaning wool, that consists in confining a compressed mass of the material in a closed vessel, then passing a current of hot air at a temperature of about 250° Fahrenheit through the mass, and then saturating the mass with a suitable fat solvent and passing and repassing the initial quantity of the solvent at a regulated speed through the mass of wool, all substantially as described.

3. The process of cleansing wool, that consists in first drying the mass of wool, that is held in a suitable vessel, by passing a current of hot air therethrough and then subjecting the dried mass to repeated washings by a suitable fat solvent repeatedly passed through the mass, then driving off the excess of solvent by a current of hot air, and then washing out the potash salts and other deposited impurities from the mass of wool by means of a current of water at a suitable temperature passed through the mass, all substantially as described.



4. The process of cleansing wool fiber, that consists in first drying the mass of wool, that is held in a suitable vessel, by passing a current of hot air therethrough and then subjecting the dried mass to repeated washings by a suitable fat solvent repeatedly passed through the mass, then driving off the excess of solvent by a current of hot air, and then washing out the potash salts and other deposited impurities from the mass of the wool by means of a current of water at a temperature of about 100° Fahrenheit passed through the mass, all substantially as described.

5. The process of extracting the fat from wool, which consists in subjecting the greasy wool to the action of a suitable solvent of fat in an inclosing receptacle and repeatedly percolating the same or initial charge of solvent through the wool, substantially as described.

6. The process of extracting fat from a fibrous material, which consists in subjecting a mass of such greasy fibrous material to the action of naphtha in an inclosing receptacle and repeatedly percolating the initial charge of solvent through the mass, substantially as described.

7. The process of extracting the fat from wool, which consists in percolating the fat solvent through greasy wool and thereby freeing it of foreign matter, then repeatedly passing this resulting solution so charged through the wool until the fatty bodies are dissolved out and taken up by the solvent and the suspended impurities are filtered out and deposited in the wool, all substantially as described.

8. The process of cleansing wool from grease and other foreign matters, which consists in subjecting wool in an inclosing receptacle to the action of a current of suitable solvent, then filtering the initial charge of solvent through the wool to dissolve out the fatty bodies and redeposit the suspended impurities in the wool and repeating the percolation of this initial charge of solvent until the fluid solution of fatty matters is substantially clear of suspended impurities, and then washing the wool to cleanse it of the deposited impurities, all substantially as described.

9. The process of clarifying a fatty solution obtained by passing a quantity of suitable fat solvent, as naphtha, through a mass of animal fiber, that consists in repeatedly filtering this solution of fat mixed with foreign matter through a mass of the same animal fiber, all substantially as described.

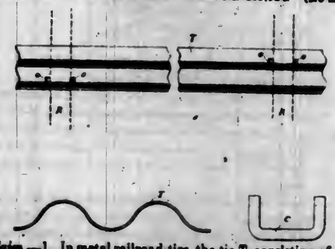
482,996. STIRRUP. ROBERT H. DAVIS, Dardanelle, Ark., assignor to himself and Reuben H. Cole, same place. Filed May 21, 1892. Serial No. 433,667. (No model.)

Claim.—A stirrup A, provided within its upper end with the suspension-bar B, parallel with its sides, and having cross-bars B' B' at its ends and spacing the sides of the stirrup a proper distance apart, and securing bolts or rods D, extending through the sides of the stirrup and longitudinally through the said cross-bars B', substantially as set forth.

482,996.



482,997. METAL RAILROAD-TIE. ROBERT R. DANIELS, Youngstown, Ohio. Filed Dec. 3, 1891. Serial No. 413,994. (No model.)

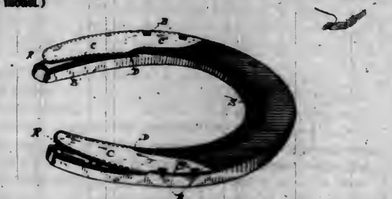


Claim.—1. In metal railroad-ties, the tie T, consisting of a sheet of rolled metal of suitable length, breadth, and thickness, having from end to end two parallel upwardly-arched corrugations and intermediate between them a similar but downward-arched corrugation, each less than a half-circle in transverse lines, which are everywhere upon a curve, except in the flanges which appear upon the side edges of the tie, substantially as described, and for the purpose expressed.

2. In metal railroad-ties that have two or more upwardly-arched longitudinal corrugations, the openings *o o*, appearing in groups of two aligned longitudinally with the tie and a suitable distance apart, each group located at opposite ends of the tie, but not in the same corrugation, substantially as described in the foregoing specification, and for the purpose therein expressed.

3. In metal railroad-ties, the tie T, formed of a suitable sheet of rolled metal, having from end to end two parallel upwardly-arched corrugations and an intermediate downwardly-curved corrugation, each less than a half-circle in transverse lines, which are everywhere upon a curve, except in the flanges which appear upon the edges of the tie, and in which tie upon the highest portions of the upwardly-arched corrugations appear the openings *o o* in groups of two at each end of the tie, but upon opposite corrugations, substantially as described, and for the purpose expressed.

482,998. SPRING-HEEL HORSESHOE. DANIEL C. DWYER, Wichita, Kans., assignor of two-thirds to Richard C. Stewart, Jr., and Wallace A. Stewart, same place. Filed May 31, 1892. Serial No. 435,130. (No model.)

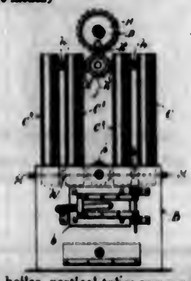


Claim.—1. A horseshoe provided with the heel portions thereof rounded on their upper surface, with heel-springs welded to the shoe-body forward of said rounded portions and arranged extending rearwardly over said heel portions, being made on a plane on their upper surface with the shoe-body and rounded on their surface facing said heel portions, in combination with the rubber coverings or pads made to fit upon said springs and provided with a portion extending forwardly therefrom, adapted to be secured in position on a foot by means of the shoe-securing nails, substantially as and for the purpose set forth.

2. A horseshoe provided with heel-springs welded to the upper side thereof and arranged extending over the heel portions in the manner described, in combination with the rubber coverings made to fit upon said springs and provided with a portion extending forwardly

therefrom, adapted to be secured into position on a foot by means of the shoe-securing nails, substantially as and for the purpose set forth.

482,999. BOILER. WALTER B. FOWLER, Lawrence, Mass., assignor of one-half to Lewis Saunders, same place. Filed Mar. 24, 1892. Serial No. 426,222. (No model.)



Claim.—1. In a boiler, vertical tubes arranged in parallel series over the fire-box, inwardly-depressed heads welded into said tubes and provided with inwardly-projecting reinforcing-flanges, flues connecting the heads of each tube, and horizontal circulation-ducts opening through said flanges and connecting the tubes of adjacent series, substantially as described.

2. In a boiler, a horizontal tube disposed over the fire box, a supply-pipe opening through said box into said tube, a horizontal tube disposed vertically above said first tube, vertical circulation-tubes provided with flues and connected by horizontal ducts with said horizontal tubes, a steam-chest and discharge connected with said upper tube, and a pipe connecting one of said vertical tubes with the supply outside the boiler-casing, substantially as and for the purpose set forth.

3. In a boiler, two horizontal tubes arranged vertically in parallelism above the fire-box and having their corresponding heads connected by pipes outside the casing, in combination with a steam-chest connecting with the upper tube, a series of parallel vertical tubes provided with flues and having their ends respectively connected by horizontal ducts with said horizontal tubes, a supply-opening through the fire-box into the lower horizontal tube, a pipe connecting a vertical tube with the supply outside the casing, and a pipe connecting the supply with the horizontal tube connection, substantially as described.

4. In a tubular boiler, a supply leading through the casing and entering one of the circulation-tubes centrally over the grate, in combination with a pipe tapping one of the circulation-tubes above the supply and connecting therewith outside the casing, substantially as and for the purpose set forth.

5. In a boiler, two horizontal circulation-tubes arranged vertically in parallelism above the boiler and having corresponding heads connected by pipes outside the casing, a cylindrical steam-chest arranged vertically in parallelism with the upper tube and connected therewith, a drain for the chest, opening into one of said outside pipes, a supply for the tubes, and a discharge for the chest, combined substantially as described.

6. The fire-box and casing, in combination with the horizontal tubes *i j*, connected by pipes *p k* outside said casing, the series of vertical tubes C^2 C^3, provided with flues and connected by ducts A^3 A^2 with the horizontal tubes, the steam-chest connected with the tube *j*, a supply for said tubes, and a discharge for said chest, substantially as described.

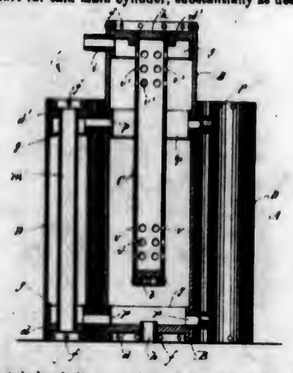
7. The fire-box and casing, in combination with the tubes *i j*, connected by pipes *p k* outside said casing, a series of vertical tubes, as C^2 C^3, connected by ducts with the tubes *i j*, the chest connected with said tube *j*, a drain opening into the pipe *k*, the supply 16, opening centrally into the tube *i*, the pipe *r*, connecting a vertical tube with said supply, a pipe connecting the pipe *p* with said supply, and a discharge for the chest, all being arranged to operate substantially as described.

483,000. BOILER FOR MARINE ENGINES. WALTER B. FOWLER, Lawrence, Mass., assignor of one-half to Lewis Saunders, same place. Filed March 24, 1892. Serial No. 426,223. (No model.)

Claim.—1. In a tubular boiler, a main cylinder, a series of supplemental cylinders, circulation-ducts connecting said supplemental cylinders with the main cylinder, and a pipe pendent within said main cylinder and provided with circulation-openings near its top and bottom, substantially as and for the purpose set forth.

2. In a tubular boiler, a main cylinder having its ends closed by inwardly-depressed heads, through which the supply and discharge ports, respectively, open, and a tube pendent within said cylinder from one of said heads, said tube having its ends closed and provided with circulation-openings in its walls adjacent said ends, substantially as and for the purpose set forth.

3. A tubular boiler for marine engines, comprising a series of tubes arranged around a main cylinder and connected thereto by circulation-ducts, the ends of said cylinders and tubes being closed by inwardly-depressed heads flush with said ducts, flues connecting the heads of each tube, a tube pendent within said main cylinder from one of its heads and provided with circulation-openings, and a supply and discharge port for said main cylinder, substantially as described.



4. In a tubular boiler, a main cylinder provided with a supply and discharge port and having its ends closed by inwardly-depressed heads, in combination with a perforated pipe projecting into said cylinder from one of said heads and having closed ends, substantially as and for the purpose set forth.

5. In a tubular boiler, a main cylinder provided with inwardly-depressed heads having reinforcing-flanges, a supply and discharge port for said cylinder, a perforated pipe projecting into said cylinder from one of said heads, a series of supplemental cylinders shorter than and arranged around said main cylinder and connected therewith by radial circulation-ducts, inwardly-depressed flanged heads secured in said supplemental cylinders, and flues opening through said heads, all being arranged to operate substantially as described.

6. The main cylinder B, having closed ends, the shorter circulation-tubes D, provided with flues, and the horizontal ducts *p*, connecting said tubes and cylinder, in combination with the tube C, pendent from the upper cylinder-head, said tube having closed ends and its walls perforated above and below the top of the circulation-tubes, substantially as and for the purpose set forth.

7. A boiler-tube provided with an inwardly-depressed head having a reinforcing-flange welded onto said tube, having an enlarged space between the end of said tube and head, substantially as described.

8. The tube D, in combination with the head *d*, having the flange *g* secured around said tube and forming the space *x*, and the duct *p*, opening into said space, substantially as described.

483,001. COMBINED WATER-TOWER AND FIRE-ESCAPE. FRANK M. HUGHES, Milford, Mass. Filed May 14, 1892. Serial No. 432,905. (No model.)

Claim.—1. In a telescopic tower composed of sections having sills and plates, as described, spring-actuated bracket-carrying posts revolubly mounted in the sills and plates of the sections intermediate the base and upper sections, whereby the brackets in one section are made to aid in the support of the section next above, substantially as described.

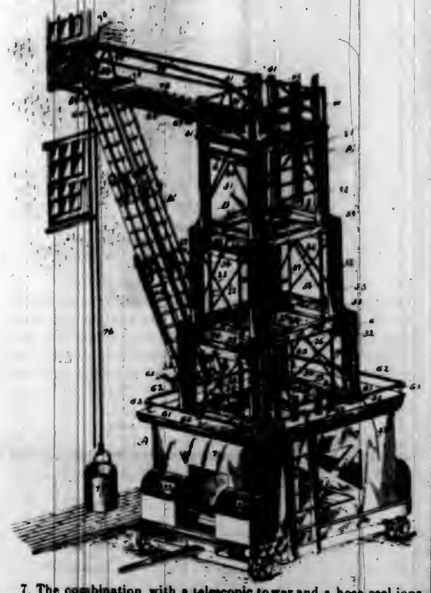
2. In a telescopic water-tower, a series of fire-hose extending up through the floors of the movable sections, each hose being provided with a fixed collar which rests on the floor of the section in which it is desired the hose shall terminate, whereby the hose will be elevated in the elevation of the tower, and a hose-reel journaled in the base-section, substantially as described.

3. The combination, with a telescopic tower, of a series of fire-hose suspended from the movable sections of the tower and extension-ladders pivoted at their lower ends to the base-section and carrying hooks at their upper ends which engage with the upper section of the tower, whereby as the tower is elevated the hose will be elevated and the ladders extended.

4. The combination, with the portable tower, of two or more ladders pivoted to said tower and a movable bridge supported at one end by the tower and at the other end by the ladder.

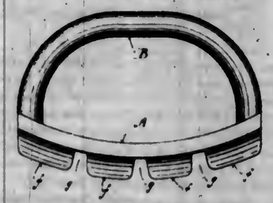
5. The combination, with the telescopic tower, of fire-hose suspended from the movable sections of the tower, extension-ladders pivoted to opposite sides of the tower, and a movable bridge supported at one end by the tower and at the other end by one set of ladders, substantially as described, and for the purposes stated.

6. The combination, with the telescopic tower, of extension-ladders pivoted to said tower and a movable bridge supported at one end by the tower and at the other end by the ladders, said bridge consisting of longitudinal beams provided with means for engaging with the ladders and a folding floor.



7. The combination, with a telescopic tower and a hose-reel journaled in the base-section thereof, of a series of fire hose suspended from the movable sections of the tower and adapted to be wound on the reel, extension ladders pivoted to the base-section of the tower on opposite sides, a knockdown bridge supported at one end by the tower and at the other end by the ladders on one side of the tower, a bucket or like receptacle, a rope attached thereto, and a sheave attached to the bridge, over which the rope is passed, substantially as described, and for the purposes set forth.

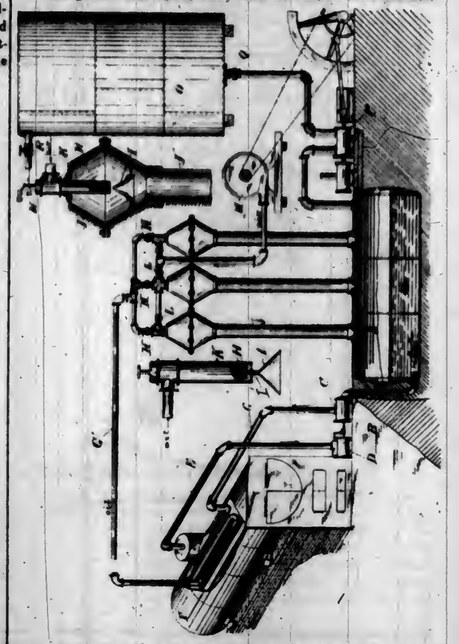
488,002. MEAT-TENDERER. FRANK B. JORDAN, Auburn, Me. Filed Feb. 8, 1892. Serial No. 420,708. (No model.)



Claim.—1. A meat-tenderer comprising a vertically-curved body and a handle, partitions in said body forming slots, and a series of short longitudinal blades disposed integrally with the partitions and the rear and front portions of the body, said blades having spaces formed between their ends, said spaces extending from the cutting-edge of the knife to the body the full depth of the blade, so that each blade is separate from all other blades.

2. A meat-tenderer comprising a vertically-curved body and a handle, partitions in said body forming slots, and a series of short longitudinal blades having their cutting-edges disposed in arc of a circle, each blade being disposed integrally with the partitions and the front and rear portions of the body, said blades having spaces formed between their ends, said spaces extending from the cutting-edge of the knife to the body the full depth of the blade, so that each blade is separate from all other blades.

488,003. APPARATUS FOR CARBURETING AIR. JAMES E. MENDENHALL, Springfield, Ohio, assignor of one-half to Charles E. Funk, Chicago, Ill. Filed Apr. 1, 1892. Serial No. 427,337. (No model.)



Claim.—1. In a carbureting apparatus, the combination, with an oil-tank and the steam-chamber of a boiler adjacent to said tank, of conducting-pipes from said tank passing through said steam-chamber and having branches at the outer end thereof, a carburetor connected to each branch and consisting of a carbureting-hood receiving the oil from said branch and mounted upon the oil-tank, with which it communicates in order to return the surplus oil thereto, a distributer mounted within each carburetor below the oil-entrance, an air-pipe adjacent to the oil-entrance and directed toward the said distributer, means to force a blast of air through said air-pipe in order to diffuse and scatter within the hood the heated oil received by said distributer, a storage-tank for the vapor, and a compressor located between the oil-tank and the storage-tank to transfer the vapor from the former to the latter, while the surplus oil returns to the oil-tank for further use.

2. In a carbureting apparatus, the combination, with an oil-tank and the steam-chamber of a boiler adjacent to said tank, of conducting-pipes from said tank passing through said steam-chamber and having branches at the outer end thereof, a carburetor connected to each branch and consisting of a hood or chamber, a conical distributer mounted within said hood, an oil-inlet to the carburetor, an air-pipe surrounding said oil-inlet and directing the blast of air against the said distributer, means to produce the air-blast, a storage-tank, and a compressor mounted between said storage-tank and hoods and having pipes connecting it with said hoods and storage-tank, respectively, whereby the heated oil is vaporized and stored under pressure.

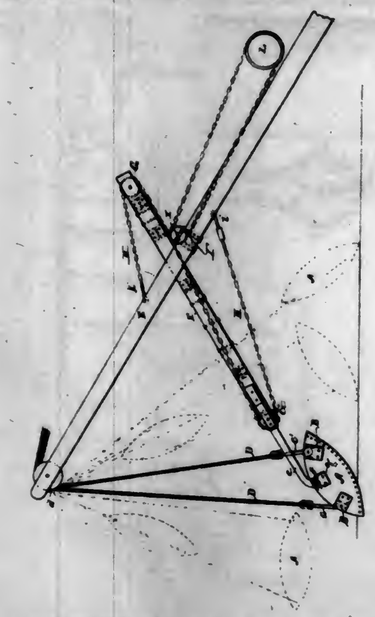
483,004. EXCAVATING DEVICE. THOMAS McBRIDE, Philadelphia, Pa., and BENJAMIN FISHER, Kincardine, Canada. Filed Mar. 14, 1892. Serial No. 424,907. (No model.)

Claim.—1. An excavating-scoop open at both ends and pivotally secured between arms of a main operating bifurcated lever, said scoop being pivotally connected near each end to bails, said bails being connected to chains which raise or lower the ends of the scoop, as described, whereby the scoop can be filled and emptied from each end.

2. In an excavating-scoop of the character described, the bails pivoted near each end, said bails being connected to operating-chains which pass over sheaves in the outer end of the gaff of a derrick and to suitable operating-drums, whereby the chains can be operated singly or in unison.

3. In an excavating-scoop open at both ends, a main operating-lever to force the scoop into the material to be excavated, bifurcated at the front end and pivoted to the sides of the scoop, and bails provided at each end of said scoop and connected with suitable operating-

chains, the rear end of said operating-lever being adapted to slide back and forth on suitable frame-rollers in the arm of the gaff of the derrick, as shown.



4. In an excavating device of the character described, a scoop open at both ends, supported at both ends by ropes or chains, and an operating-lever pivoted to the sides of the scoop, said operating-lever being provided with sheaves, around which is passed a chain, said chain being operated by suitable mechanism for moving the lever back and forth to force the scoop into the material to be excavated.

5. In an excavating device of the character described, a scoop open at both ends, supported at both ends by ropes or chains passing over the end of a gaff, an operating-lever pivoted to the sides of the scoop, said operating-lever being provided with sheaves at each end, sheaves mounted on the gaff, a sprocket-wheel, and an operating-chain secured to the gaff, passing over sheave at lower end of lever, thence over one of the sheaves on gaff, thence to sprocket-wheel, thence around second sheave on gaff, thence around on sheave on upper end of lever, and thence to the gaff, where it is secured, substantially as described.

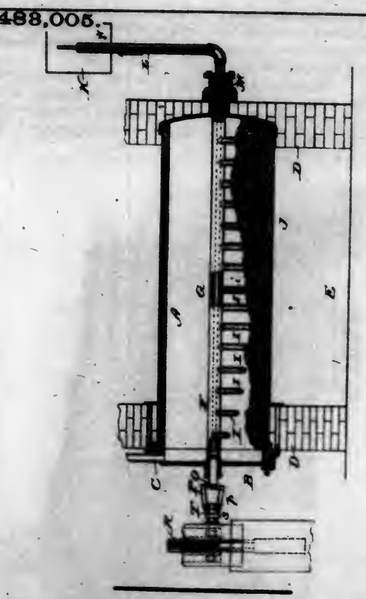
488,005. APPARATUS FOR THE MANUFACTURE OF GAS.

THOMAS McDOUGALL, Philadelphia, Pa., and EMERSON FRYER, Kincardine, Canada. Filed Mar. 14, 1892. Serial No. 424,902. (No model.)

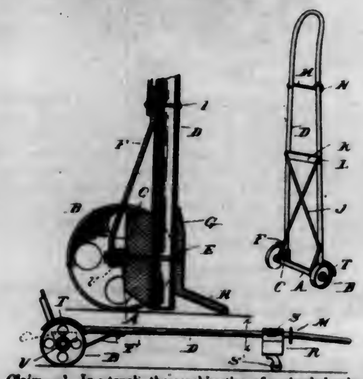
Claim.—1. In an apparatus for the manufacture of gas, a closed retort having mounted therein and journaled in the ends thereof a hollow shaft adapted to be revolved or rocked, hollow projections or teeth formed on said shaft and communicating with the interior thereof, one end of said shaft having a hollow journal and connected by means of said hollow journal with a pipe communicating with the tank for supplying a cooling medium thereto, a pipe extending through the hollow shaft, and the pipe connecting said shaft with the cooling-supply, and pipes open at both ends, extending into the hollow projections independent of the interior pipe of the hollow shaft, substantially as described, and for the purpose set forth.

2. In an apparatus for the manufacture of gas, a closed retort having mounted therein and journaled in the ends thereof a hollow shaft adapted to be revolved or rocked, hollow projections or teeth formed on the said shaft and communicating with the interior thereof, one end of said shaft having a hollow journal and connected by means of said hollow journal with a pipe communicating with a tank for supplying a cooling medium thereto, a pipe extending through the hollow shaft, and the pipe connecting said shaft with the cooling-supply, a fire-chamber, and an eduction-pipe connecting with the tank at one end and passing over the retort and entering the fire-chamber, substantially as described, whereby a circulation of the cooling medium is provided within the raking device and the heat generated therein utilized to aid combustion.

488,006.



488,006. TRUCK. ANTHONY NIEBLING, Belleyville, Ill. Filed Apr. 22, 1892. Serial No. 430,210. (No model.)



Claim.—1. In a truck, the combination of a wheeled axle, a frame formed of metal bent into a tapering U shape, the bent portion forming the handle and having its ends secured to the opposite axle, and a nose-piece secured to the ends of the frame, substantially as described.

2. In a truck, the combination of a wheeled axle, a frame formed of pipe bent into a tapering U shape, having its ends secured to blocks on the axle, the nose-piece secured to the ends of the frame, the braces F, and cross-brace K, substantially as described.

3. In a truck, the combination, with the wheeled axle, the tapering U-shaped frame having its ends secured to the axle, and a nose-piece, of the hook M, having the eye N, engaging one arm of the frame, having its hooked end adapted to engage with the other arm of the frame, substantially as and for the purpose described.

4. In a truck, the combination, with the wheeled axle, of the U-shaped frame secured thereto, the cross-braces J, and cross-brace K, and the detachable apron O, substantially as described.

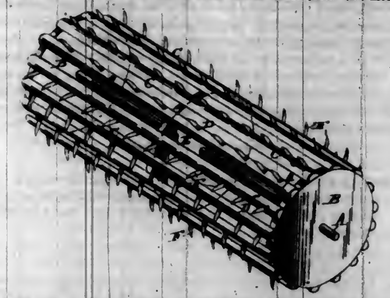
5. In a truck, the combination of the wheeled axle, the tapering U-shaped frame secured thereto, and a detachable cross-bar adapted to be secured to the upper end of the frame and the caster on the under side of said cross-bar, substantially as described.

6. In a truck, the combination of a wheeled axle, a tapering U-shaped frame secured thereto, and the cross-bar R, having the upwardly-hooked ends S at each end and the caster S', the hooked ends S being adapted to engage over the end of the frame and be wedged thereon, substantially as and for the purpose described.

7. The combination of the axle, the wheels centrally apertured to receive the axle, and a soft-metal bushing in the wheel to form a journal-bearing therefor, substantially as described.

488,007. ROLLER FOR CLOD CRUSHERS OR PULVERIZERS.

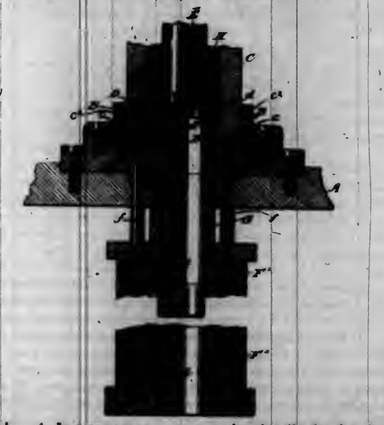
CHARLES H. HOELLE, Bucyrus, Ohio, assignor of one-half to Henry Albright, same place. Filed Jan. 30, 1892. Serial No. 419,806. (No model.)



Claim.—In a clod crusher or pulverizer, the combination, with the axle A, the solid heads or disks B B, and the intermediate disk E, of the parallel bars C, convexed on their outer faces, forming a swell or bulge c, and the backwardly-slanting teeth or knives F, secured to said bars at an angle to the axis of the heads or disks B B, substantially as and for the purpose described.

488,008. DIE FOR DRAWING SHEET METAL.

ROWIN HORTON, Maywood, assignor to himself, and Oliver W. Horton, Chicago, Ill. Filed Apr. 26, 1892. Serial No. 430,468. (No model.)



Claim.—1. In a compound or reverse drawing-die for drawing shapes successively in opposite directions, the combination, with a punch, of an annular drawing-die and a female drawing-die furnished with a recess or enlargement at its inner periphery to free the walls of the drawn shape from friction or bending during the reverse drawing operation, substantially as specified.

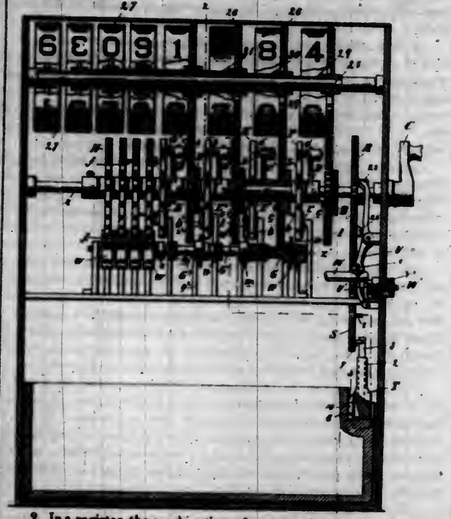
2. The combination, with the punch or male die E, with annular drawing-die D, having outer drawing-face *d* and inner drawing-face *d'*, of the hollow die-block C, having inner drawing-face *c'* and enlargement or relief-space *c²* beyond said drawing-face *d'*, substantially as specified.

488,009. CASH REGISTERING AND ADDING MACHINE.

CHARLES PAINE, New York, N. Y. Filed Feb. 20, 1890. Serial No. 341,103. (No model.)

Claim.—1. In a register, the combination of an actuating-shaft, adding-wheel and setting-wheel, both loosely sleeved upon said shaft, a setting device for rotatorily adjusting said setting-wheel, a movable connection between said shaft and adding-wheel, actuated by said setting-wheel, a stationary stop for dissolving the connection, and a carrying mechanism actuated after said dissolution, substantially as described.

488,009.



2. In a register, the combination of an actuating-shaft, a series of totalizing adding-wheels and setting-wheels, all of which are loosely sleeved upon said shaft, setting devices for rotatorily adjusting said setting-wheels in relation to the amount to be registered on the adding-wheels of lowest denominations, a connection between said shaft and adding-wheels actuated by said setting-wheels, a fixed stop for dissolving the connection, and carrying mechanism actuated after said dissolution, substantially as described.

3. In a cash-register, the combination, with an actuating-shaft and means by which the shaft is actuated, of adding wheels loosely mounted on the shaft, setting-wheels loosely mounted on the shaft adjacent to the adding-wheels, means actuated by the setting-wheels for forming connections between the shaft and adding-wheel, movable rack-bars for rotating the setting-wheels, means for dissolving the connection, and carrying mechanism actuated subsequent to the dissolution, substantially as described.

4. In a cash-register, the combination, with the actuating-shaft and adding-wheels loosely mounted thereon, of a setting device consisting of wheels mounted on the shaft, having inclined bearings thereon rotatorily adjustable beside said adding-wheels, rack-bars for independently adjusting said setting-wheels, pawls carried by said shaft and actuated by said bearings, and stationary stops for moving the pawls back into the path of the bearings, substantially as described.

5. In a cash-register, the combination, with the casing, the actuating-shaft, and adding-wheels carried by the shaft, of a setting device consisting of wheels having inclined bearings thereon and rotatorily adjusted on the shaft beside said adding-wheels, rack-bars for adjusting said setting-wheels, mechanism carried by said shaft actuated by said bearings to engage said adding-wheels, handles on said racks, indexes having corresponding numbers to the number on the adding-wheel, fixed stops for disengaging the said mechanism, and carrying mechanism independently supported relative to and actuated by the shaft, substantially as described.

6. In a register, the combination of an actuating-shaft, a series of adding-wheels on the same, and setting means loosely sleeved upon said shaft, a setting device for rotatorily adjusting said setting means in relation to the adding-wheels of lowest denomination, a movable connection between said shaft and adding-wheels, carried by the shaft and actuated by said setting-wheels, and carrying mechanism for the adding-wheels, located to one side and operated subsequent to the operation of the adding-wheels, substantially as described.

7. In a register, the combination of an actuating-shaft, a series of adding wheels and a setting-wheel, all of which are loosely sleeved upon said shaft, a setting device for rotatorily adjusting said setting-wheel in relation to the adding-wheel of lowest denomination, a movable connection carried by the shaft between said shaft and adding-wheel, actuated by said setting-wheel, a stop for dissolving said connection, and carrying actuating mechanism on said shaft in the rear of said connection for acting after the dissolution of said connection, substantially as described.

8. In a register, the combination of a rotary shaft, a series of adding-wheels upon said shaft, engaging mechanism carried by the shaft and intermediate between the said shaft and each of said wheels, con-

ting mechanism adapted to throw said engaging means into engagement differentially, and a lock for such setting mechanism during the rotation of the actuating-shaft, substantially as described.

9. In a cash-register, the combination, with an actuating-shaft, of a series of register-wheels loosely mounted thereon, a series of setting-wheels loosely mounted on the shaft, pinions on the setting-wheels, engaging means carried by the shaft and actuated by the setting-wheels, means for actuating the setting-wheels by engagement with the pinions, a lock for said actuating means, and a connection between the lock and actuating shaft, substantially as described.

10. In a register, a rotary actuating-shaft, an adding-wheel and a setting-wheel journaled upon said shaft, a pinion secured to said setting-wheel, setting mechanism and a lock applied to the setting mechanism during the movement of the actuating-shaft, and means for disengaging said lock at the completion of such movement, substantially as described.

11. In a register, the combination, with the actuating-shaft, adding-wheels loosely mounted thereon, and setting mechanism, of a pawl carried by said shaft arranged to engage one of said wheels, a movable lug carried by the setting mechanism, engaging the pawl for throwing the pawl into engagement with the adding-wheel, and a stationary stop with which the pawl engages for throwing the pawl out of engagement with the adding-wheel, substantially as described.

12. In a register, the combination, with the actuating-shaft, adding-wheels loosely mounted thereon, and setting mechanism, of a pawl carried by said shaft adapted to engage with one of said wheels, a movable lug carried by said shaft and controlled by the setting mechanism for throwing the pawl into engagement with the wheel, and a stationary stop for throwing the same out of engagement with the said wheel, substantially as described.

13. In a cash-register, the combination, with a rotary actuating-shaft, of a series of adding-wheels loosely mounted thereon, means rigid on the shaft for moving said wheels as the shaft is turned, a stationary stop arranged to disengage said means prior to the complete revolution of the shaft, and a carrying mechanism actuated by the moving means during the continued movement of the shaft subsequent to the movement of the wheels, substantially as described.

14. In a cash-register, the combination, with a rotary shaft carrying a series of adding-wheels, means for causing an independent and limited rotation of the wheels, and a carrying mechanism, of an intermediate connection rigid on the shaft for actuating said carrying mechanism, substantially as described.

15. In a cash-register, the combination, with an actuating-shaft, of adding-wheels loosely mounted thereon, a pawl mounted on a suitable arm rigid on the shaft, a rotary setting mechanism on the shaft, an inclined bearing on the setting mechanism, engaging the pawl, and stationary means for forcing the pawl back, substantially as described.

16. In a cash-register, the combination of a sleeve G, having the spurs *m m*, the mutilated pinions *n n*, and the arms *o o*, in combination with an adding-wheel having finger *k* and an arm having teeth *l* engaging said pinion, substantially as described.

17. In a cash-register, the combination, with a shaft carrying a series of two or more adding-wheels rotating freely thereon and a movable series of segmental spur gear-wheels rigidly fixed on the shaft alternately with the adding-wheels, of an arbor parallel to the shaft and carrying the mechanism by which each higher adding-wheel is caused to make one-tenth of a revolution whenever the adding-wheel next below it has made a complete revolution, substantially as described.

18. In a cash-register, the combination, with a register-actuating shaft carrying a crank, of means for setting the register, a lock for said means, a sliding pin arranged in the path of the crank, and means for locking the pin in the path of the crank and simultaneously unlocking the setting means, substantially as described.

19. In a cash-register, the combination, with the actuating means, of a cash-drawer, a lock for the drawer, means actuated by the actuating means for unlocking the drawer, and a stop on the drawer-lock, engaging the unlocking means for preventing the movement of the actuating means, substantially as described.

20. In a cash-register, the combination, with the register-actuating means, of a cash-drawer, a lock therefor, means actuated by said actuating means for unlocking the drawer, and means carried by the drawer-lock for preventing the movement of the actuating mechanism when the drawer is unlocked, substantially as described.

21. In a cash-register, the combination, with the register-actuating means and means for setting the register, of a lock for the setting means, a lock for the actuating means, and mechanism for alternately actuating the locks, substantially as described.

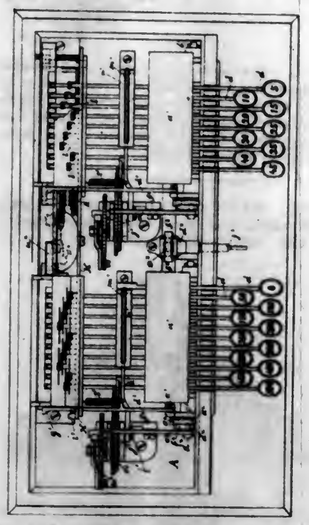
22. In a cash-register, the combination, with an actuating-shaft, of adding and setting wheels mounted loosely thereon, movable means carried by the shaft, actuated by the setting-wheels to engage the adding-wheels, a carrying mechanism, and means on the carrying mechanism alternately actuated directly by the adding-wheels and shaft, substantially as described.

23. In a cash-register, the combination, with the adding-wheels and a shaft for actuating the same, of a carrying mechanism independent of the shaft, means on the carrying mechanism engaged by the adding-wheels, and a fixed projection on the shaft, engaging the carrying mechanism subsequent to the engagement of the same and adding-wheels, substantially as described.

24. In a cash-register, the combination, with an actuating-shaft and registering mechanism, of a carrying mechanism independent of the shaft, means actuated by the shaft to set the carrying mechanism, and means on the shaft for actuating the carrying mechanism subsequent to the setting thereof, substantially as described.

25. In a cash-register, the combination, with the registering means, of a totalizing-register-actuating means, a setting device for the totalizing-register-actuating means, and means operated by the operation of the register to actuate the totalizing-register-actuating means, substantially as described.

488,010. CASH INDICATOR AND REGISTER. EDWARD B. PARKHURST and FOSTER HAM, Woburn, Mass., assignors to the National Cash Register Company, Dayton, Ohio. Filed July 5, 1888. Serial No. 279,049. (No model.)



Claim.—1. The combination, with the key-levers *d*, having ratchets *c*, of the pawl *e*, the hook-latch *h*, and bar J, provided with notches h^3, whereby the latch *h* is operated, substantially as shown and described.

2. The combination, with the pivoted key-levers, of the pivoted table *o'*, the arm *c'*, rigidly connected with said table, and the laterally-sliding rod *d'*, having a beveled end, said rod being arranged to reciprocate in substantially a straight line and to co-operate at its beveled end with the corresponding beveled end of the stop-bolt H, substantially as shown and described.

3. In a cash-register having register-wheels which are moved as a key is depressed, a device for locking the register-wheel at the completion of the stroke of the key, consisting of a locking-lever, as e^3, its cam-actuating lever *w*, the arm *c'* for actuating the cam-lever, and the key-levers which operate said cam-lever when a key is depressed, substantially as shown and described.

4. The combination, in a cash register and indicator, of the pivoted key-levers *d* and the locking-bar J and its operating mechanism, whereby as a key is depressed the locking-bar is moved over the unoperated keys, locking them from operation, substantially as shown and described.

5. The combination, in a cash register and indicator, of the pivoted key-levers *d*, the locking-bar J, the bolt n^6, its actuating-bolt b^2, the arm p^3, and the spring-actuated bell-hammer lever A^3, substantially as shown and described.

6. The combination, in a cash register and indicator, of the pivoted key-levers *d*, the locking-bar J, the bell-crank lever I^3, the pin n^3, and the arm p^3, substantially as shown and described.

7. The combination, in a cash register and indicator, of the bolt e^3, the spring-impelled locking-bolt h^3, the forward end of which when projected engages a notch in said bolt e^3, the hollow threaded key j^3, adapted to be screwed onto the threaded shank of the bolt h^3, and the arm p^3, for the purposes and substantially as shown and described.

8. In a cash register and indicator, the combination, with an operating-key provided with a rack having a projection at one end, of a pawl arranged to engage said rack when the key is partially operated and to be disengaged therefrom by the projection at the end of the rack when the key has been fully operated, a latch for holding the pawl out of engagement with the rack while the key is being reset, and a trip for said latch, substantially as and for the purpose described.

9. The combination, with the bar J and the spring-impelled lever A^3, which carries the bell-hammer, of the pawl n^3 and means, substantially as described, for freeing it from the bar J as the drawer G is opened.

10. In a cash register and indicator, the combination, with an operating-key provided with a rack having a projection at its lower end, of a pawl arranged to engage said rack as the key is operated and the rack lifted and to be disengaged therefrom by the projection at the lower end of the rack when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch, substantially as and for the purpose described.

11. In a cash register and indicator, the combination, with an operating-key pivoted between its ends and provided on its lower side in rear of its pivotal point with a rack having a projection at its lower end, of a pawl arranged to engage said rack as the key is operated and the rack lifted and to be disengaged therefrom by the projection at the lower end of the rack when the key has been fully operated, a latch for holding the pawl and rack out of engagement while the key is being reset, and a trip for said latch, substantially as and for the purpose described.

12. In a cash register and indicator, the combination, with a series of operating-keys, each provided with a rack having a projection at one end, of a bar extending across the entire series of keys and arranged to engage and act as a pawl for each one of said racks when its key is partially operated and to be disengaged from said rack by the projection on the latter when the key has been fully operated, substantially as and for the purpose described.

13. In a cash register and indicator, the combination, with a series of operating-keys, each provided with a rack having a projection at one end, of a bar extending across the entire series of keys and arranged to engage and act as a pawl for each one of said racks when its key is partially operated and to be disengaged from said rack by the projection at the end of the latter when the key has been fully operated, a latch for holding said bar and rack out of engagement while the key is being reset, and a trip for said latch, substantially as and for the purpose described.

14. In a cash register and indicator, the combination, with a series of operating-keys pivoted between their ends and each provided on its lower side in rear of its pivotal point with a rack having a projection at its lower end, of a bar extending across the entire series of keys and arranged to engage and act as a pawl for each one of said racks when its key is partially operated and to be disengaged from said rack by the projection at the lower end of the latter when the key has been fully operated, a latch for holding said bar and rack out of engagement while the key is being reset, and a trip for said latch, substantially as and for the purpose described.

15. In a cash register and indicator, the combination, with the registering-wheel *r'* and registering-lever *k'*, of the series of pivoted operating-keys *d*, provided with the racks *c*, having the projections *g*, and the pawl-bar *e*, extending across said keys and arranged to engage their racks when the keys are partially operated and to be automatically disengaged therefrom by the projections *g* when the keys have been fully operated, substantially as and for the purpose described.

16. In a cash register and indicator, the combination, with the registering-wheel *r'* and registering-lever *k'*, of the pivoted keys *d*, provided with the racks *c*, having the projections *g*, the pawl-bar *e*, a latch for said bar, and a trip for said latch, substantially as and for the purpose described.

17. In a cash register and indicator, the combination, with the registering-wheel *r'* and the operating-keys *d*, of the pivoted locking-lever e^3, actuated at the full operation of each key to engage the ratchet of the registering-wheel and lock the latter from further movement, substantially as and for the purpose described.

18. In a cash register and indicator, the combination, with the registering-wheel *r'*, the operating-keys *d*, and the pivoted table *o'*, extending across the keys, of the pivoted lever e^3, connected with and actuated by the movement of said table to engage the ratchet of the registering-wheel and lock the latter at the full operation of any key, substantially as and for the purpose described.

19. In a cash register and indicator, the combination, with the registering-wheel *r'*, the operating-keys *d*, and the pivoted table *o'*, extending across the keys, of the pivoted lever e^3, an arm projecting from the table *o'*, and a slot-and-pin connection between said arm and the forward end of said lever, whereby upon the operation of any key the rear end of said lever is caused to engage the ratchet of the registering-wheel and lock the latter from further movement, substantially as and for the purpose described.

20. In a cash register and indicator, the combination, with a registering-wheel and a series of keys for actuating the same, of a locking device mediately connected with and actuated by said keys and arranged to lock said wheel upon the full operation of a key and hold it from movement until said key has been reset to its normal position, substantially as and for the purpose described.

21. In a cash register and indicator, the combination, with a registering-wheel and a series of keys for actuating the same, of a locking device mediately connected with and actuated by said keys and arranged to engage said wheel upon the full operation of a key and lock it from movement until said key has been reset to its normal position and to be disengaged from and unlock said wheel when the key has been so reset, substantially as and for the purpose described.

22. In a cash register and indicator, the combination, with a registering wheel actuated by a series of keys, of a device for preventing the turning of the registering-wheel by successive partial operations of a key after the latter has been once fully operated but not reset to its normal position, said device consisting of a pivotal lever mediately connected with and actuated by the operating-keys and arranged when a key is fully operated to engage the ratchet of the registering-wheel and lock the latter until said key is reset to its normal position, substantially as and for the purpose described.

23. In a cash register and indicator, the combination, with the registering-wheel *r'* and the operating-keys *d*, of the pivoted lever e^3 and the arm *w* for actuating said lever, said arm being mediately connected with the operating-keys and arranged to be moved by the full operation of any one of them to cause the lever e^3 to engage and lock the registering-wheel and upon the resetting of said key to its normal position to disengage said lever from the registering-wheel and unlock the same, substantially as and for the purpose described.

24. In a cash register and indicator, the combination, with the registering-wheel *r'* and the operating-keys *d*, of the pivoted lever e^3, the arm *w*, and a cam-slot in one and a pin on the other for connecting said arm and lever, said arm *w* being mediately connected with the operating-keys and arranged to be actuated by the full operation of any one of them and to be reset by the complete resetting of said key, substantially as and for the purpose described.

25. In a cash register and indicator, the combination, with the registering-wheel *r'*, and the operating-keys *d*, of the pivoted table *o'*, extending across said keys, the arm *c'*, moving with said table, the arm *w*, loosely pivoted by the side of the arm *c'* and connected thereto by a slot and-pin connection, and the pivoted lever e^3, connected to and actuated by the arm *w*, substantially and of for the purpose described.

26. In a cash register and indicator, the combination, with the operating-keys and the money-drawer, of a locking-bar extending across the keys and mechanism interposed between said bar and money-drawer, whereby said bar is actuated by the movement of the drawer to lock and unlock the keys, substantially as and for the purpose described.

27. In a cash register and indicator, the combination, with the operating-keys and the money-drawer, of a spring-pressed locking-bar extending across the keys, a latch for holding said bar in its normal position against the resistance of its spring, and a trip for said latch operated by the opening of the money-drawer, whereby when the money-drawer is opened the locking-bar is moved over and locks the unoperated keys, substantially as and for the purpose described.

28. In a cash register and indicator, the combination, with the operating-keys and the money-drawer, of a spring-pressed locking-bar extending across the keys, a latch for holding said bar in its normal position against the resistance of its spring, a trip for said latch operated by the opening of the money-drawer, and a device actuated by the closing of the drawer to restore the locking-bar to its normal position, substantially as and for the purpose described.

29. In a cash register and indicator, the combination, with the operating-keys, a money-drawer arranged to be partially propelled from the case when released, and a locking device for holding the drawer in its closed position and arranged to be actuated by the operation of the keys to release the drawer, of a locking-bar extending across the keys, and mechanism interposed between the money-drawer and bar for actuating the latter by the movement of the former, whereby upon operating a key the money-drawer is released and partially propelled from the case and the locking-bar is moved to lock the unoperated keys and prevent the resetting of the operated key, substantially as described.

30. In a cash register and indicator, the combination, with the operating-keys, a money-drawer arranged to be partially propelled from the case when released, and a locking device for holding the drawer in its closed position and arranged to be actuated by the operation of the keys to release the drawer, of a spring-pressed locking-bar extending across the keys, a latch for holding said bar in its normal position against the resistance of its spring, a trip for said latch operated

by the opening of the money-drawer, and a device actuated by the closing of the drawer to restore the bar to its normal position, whereby upon operating a key the money-drawer is released and partially propelled from the case and the locking-bar is moved to lock the unoperated keys and prevent the resetting of the operated key until the money-drawer is closed, substantially as described.

31. In a cash register and indicator, the combination, with the operating-keys d and the money-drawer C, of the spring-pressed locking-bar J, the latch u^3, and the trip for said latch actuated by the drawer C, substantially as and for the purpose described.

32. In a cash register and indicator, the combination, with the pivoted operating-keys d and the money-drawer C, of the spring-pressed locking-bar J, the latch u^3, the trip for said latch, the bell-crank arm P, the arm p^3, secured to the drawer C, and the bolts b^3 n^3, interposed between said arm and the trip c^3, and bell-crank arm P, substantially as and for the purpose described.

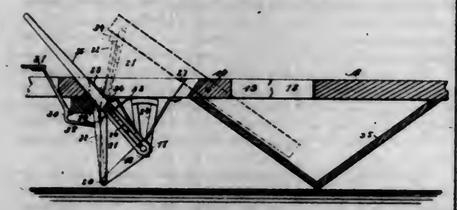
33. In a cash register and indicator, the combination, with the operating-keys d and the pivoted table d', extending across said keys, of a bolt having a projection engaging said table and a lock applied to said bolt for locking the table and keys from operation, substantially as and for the purpose described.

34. In a cash register and indicator, the combination, with the operating-keys d and the pivoted table d', extending across said keys, of a bolt extending up beside said table and having a hook or head projecting over the same and a lock applied to said bolt for holding it in position with its head over the table d' to lock the latter and the keys d from operation, substantially as and for the purpose described.

35. In a cash register and indicator, the combination, with the operating-keys d and the pivoted table d', extending across said keys, of the bolt c^3, having a head c^3 extending over the edge of said table, and the lock A^3, engaging the bolt c^3, substantially as and for the purpose described.

36. In a cash register and indicator, the combination, with a registering mechanism and the operating-keys, of a series of stops for preventing the operation of two or more keys simultaneously and a locking device for preventing the operation of a single key until the previously-operated one is reset to its normal position, substantially as and for the purpose described.

488,011. GRAIN-DUMP. JOHN P. PETERSON, Worthington, Minn. Filed June 24, 1892. Serial No. 437,906. (No model.)

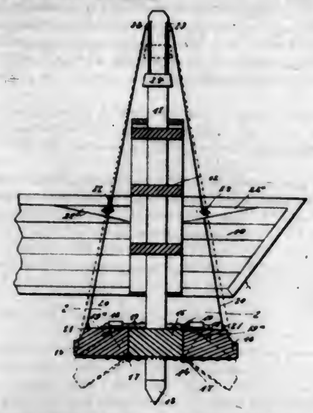


Claim.—1. In a grain-dump, the combination, with a platform provided with openings therein and dump-timbers pivoted in said openings, of a shaft beneath the platform and provided with arms connected with the dump-timbers, a lever for operating the shaft, and locking-latches pivotally connected with the arms of the said shaft and engaging the platform, substantially as and for the purpose set forth.

2. In a grain-dump, the combination, with a platform elevated from the ground and provided with parallel openings therein and dump-timbers fulcrumed in said openings, of a shaft journaled beneath the platform near one end of the dump-timbers, counterbalance-arms projecting from the shaft and connected with the dump-timbers near their ends, a spring-pressed lever attached to the shaft, latches connected with the shaft, keepers connected with the platform and receiving the latches, and a trip-lever adapted for engagement with the latches, as and for the purpose set forth.

3. In a grain-dump, the combination, with a platform supported above the ground and provided with longitudinal openings, a dump-timber fulcrumed in each of the openings, and a trough or pit located beneath one end of the dump-timbers, of a shaft journaled beneath the dump-timbers, arms connected with the shaft, said arms having link connections with the dump-timbers, a lever connected with the shaft, whereby the latter is turned, keepers carried by the platform, latches supported from the shaft and adapted to enter the keepers, and stirrup-brackets attached to the dump-timbers and also adapted to receive the latches, and a shifting-lever fulcrumed to a fixed support and adapted for engagement with the latches to trip them from their keepers into the stirrup-brackets of the dump-timbers, as and for the purpose set forth.

488,012. FOOT FOR DREDGE-ANCHORS. WILLIAM PIKE and HORMAN MCDAIRMID, Sault de Ste. Marie, Mich. Filed Mar. 29, 1892. Serial No. 426,945. (No model.)



Claim.—1. The combination, with the anchor-foot, of an apron hinged to the middle section of the foot and extending over the adjacent leaves, substantially as described.

2. The combination, with the anchor-post, of a foot secured thereto and provided with swinging leaves, substantially as described.

3. The combination, with the anchor-post, of a foot comprising a rigid middle section secured to the post and swinging leaves hinged to the middle section, substantially as described.

4. The combination of the anchor-post, the anchor-foot having hinged leaves thereon, and a cross-bar secured to the post and extending into the path of the leaves, substantially as described.

5. The combination of the anchor-post, the foot having swinging leaves, open-topped boxes secured to the leaves, and a cross-bar secured to the rigid portion of the foot and extending into the path of the boxes, substantially as described.

6. The combination of the anchor-post, the foot having swinging leaves, cables secured to the leaves and extending upward to the top of the post, and the counter-balance secured to the cables, substantially as described.

488,018. PACKING FOR PISTON OR OTHER RODS. FRANK PIRON, Sidney, N. Y. Filed May 2, 1892. Serial No. 431,472. (No model.)

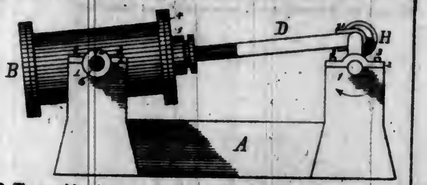


Claim.—In a metallic-ring packing, the combination, with an outer ring having a peripheral opening and an interior recess, of a series of inner rings fitting in said recess and each having a lug on its periphery projecting outwardly into the peripheral opening in the outer ring, said inner rings being cut or separated, the cuts being so arranged as to break joints in adjacent rings, whereby a strong support is afforded the outer ring and the crushing in thereof by pressure prevented, substantially as specified.

488,014. STEAM-ENGINE. JAY W. POWERS, Chicago, Ill. Filed Apr. 9, 1892. Serial No. 428,503. (No model.)

Claim.—1. The combination, in a steam-engine, with the cylinder having inlet and outlet ports and passages and a longitudinally-chambered piston-head within said cylinder having inlet and outlet ports, of a longitudinally-grooved valve operating within said piston-head and with but in advance of the same and a shaft connected both with said piston-head and valve, substantially as described, whereby both the piston-head and valve will be acted upon by the steam and both transmit motion to said shaft, as specified.

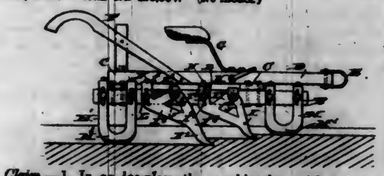
2. The combination, in a steam-engine, with the cylinder having entrance and exit ports, a tubular piston-rod, and a valve operating within the chamber in said piston-head and having its rod extending through said piston-rod, of a crank-shaft, to the crank portion of which the outer end of said piston-rod is connected, and an eccentric mounted on the crank portion of said crank-shaft and having the outer end of the valve-rod connected to it, said eccentric being mounted on said crank so as to be in lead of the throw thereof, substantially as described, and for the purposes specified.



3. The combination, in an engine, with the oscillating cylinder having hollow trunnions, one of which forms the entrance and the other the exit port for the steam, said cylinder also having passages, one leading from the entrance-port and the other to the exit-port, and its inner wall pierced to form a port leading from its entrance-passage to its interior, of a chambered piston-head operating within said cylinder and having suitable steam passages and ports, a longitudinally-grooved valve within said piston-head, and a crank-shaft connected with and operated by said piston and valve.

4. The combination, in a steam-engine, with the cylinder having inlet and outlet ports, of a longitudinally-chambered piston-head within said cylinder, said piston-head having exterior steam-passages always in communication with the inlet-port of the cylinder and also having entrance and exit ports, a longitudinally-grooved valve within said piston-head, and a shaft to which said piston-head and valve are independently connected, substantially as described, and for the purposes specified.

488,015. ICE-PLOW. HAMILTON FRAY, Cove, N. Y. Filed Mar. 30, 1892. Serial No. 426,957. (No model.)



Claim.—1. In an ice-plow, the combination, with a frame provided with longitudinal beams, of cutting-blades held on each of the said beams, clips resting on top of each beam, and a bolt supported in the ends of the said clip and extending transversely through the said beam, the said bolt forming a pivot for the cutting-blade, substantially as shown and described.

2. In an ice-plow, the combination, with a frame having longitudinal beams, of a U-shaped clip resting with its middle part on top of the said beam, a bolt held in the ends of the said clip and extending transversely through the said beam, and a cutting-blade pivoted on the said bolt and adapted to be vertically adjusted at its free upper end on the said beam, substantially as shown and described.

3. An ice-plow provided with a cutting-blade having an extension and a brace connecting the ends of the extension with each other, so as to form a triangular frame for the point of the cutting-blade, substantially as shown and described.

4. In an ice-plow, the combination, with a clip held on the top of a longitudinal beam and a bolt extending transversely and supported in the ends of the said clip, of a cutting-blade provided with a point, a triangular frame supporting the said point and pivoted on the said bolt, an upward-slotted extension supported on the said triangular frame, and a transverse arm extending from the upper end of the said extension, substantially as shown and described.

5. In an ice-plow, the combination, with a clip held on the top of a longitudinal beam and a bolt extending transversely and supported in the ends of the said clip, of a cutting-blade provided with a point, a triangular frame supporting the said point and pivoted on the said bolt, an upward-slotted extension supported on the said triangular frame, a transverse arm extending from the upper end of the said extension, and means, substantially as described, for vertically adjusting the said extension of the triangular frame, as set forth.

488,016. HORSE-COLLAR PAD. ROBERT O. RANDALL, Joplin, Mo. Filed May 4, 1892. Serial No. 431,778. (No model.)

Claim.—A horse-collar fastener comprising the plates 1, having one side bent downwardly and inwardly, forming curved jaws, provided with teeth and with slots near their centers, the upwardly-projecting flanges at the inner ends of said plates, one of which is provided with a slot and a pivoted spring-actuated arm and the other with a hook adapted to be passed through said slot and engage with the spring-arms, the laterally-adjustable plates having one side or end bent downwardly and inwardly, and the screw-threaded pin and thumb-nut, substantially as described.



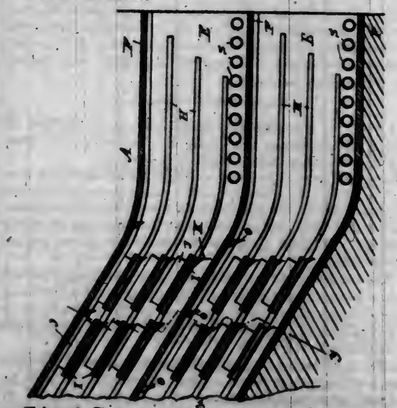
488,017. LAWN-SPRINKLER. NICHOLAS L. RESEY, Los Angeles, Cal. Filed Nov. 30, 1891. Serial No. 413,569. (No model.)



Claim.—1. The herein-described nozzle, comprising the casing or shell having a smooth interior bore and the plug adjustably arranged in said bore, said plug comprising a shank portion projecting beyond the upper end of the shell and terminating in a head or flange, said shank being tapered inwardly and having at its lower portion a series of radial vertical wings or flanges separated from each other by tapered grooves or channels, substantially as specified.

2. The combination, with the pipe base or support having the elbow-coupling B, of the casing or shell having a threaded engagement with said socket and formed with a smooth interior bore, and a plug adjustably arranged in said bore, said plug comprising a shank portion projecting above the upper end of said shell and terminating in a head or flange, said shank being tapered inwardly and having at its lower portion a series of radial vertical wings or flanges separated from each other by tapered grooves or channels, substantially as specified.

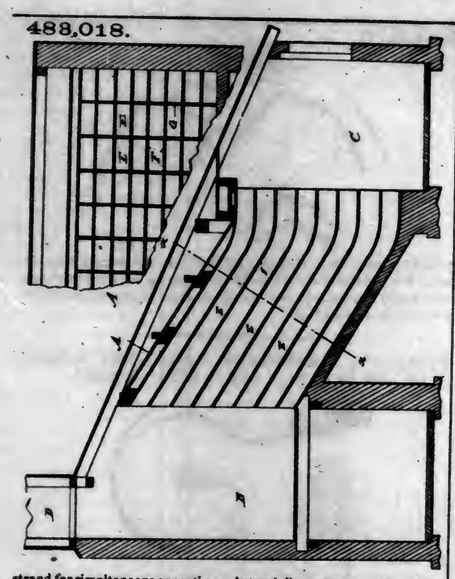
488,018. DRYING-STOVE FOR BRICKS OR OTHER MATERIALS. ALBERT SCHAAF, Halle, Germany. Filed Aug. 16, 1890. Serial No. 362,055. (No model.)



Claim.—1. The combination, with the drying-flue, of a series of transverse depending connected curtains therein and means for simultaneously operating said curtains, substantially as shown and described.

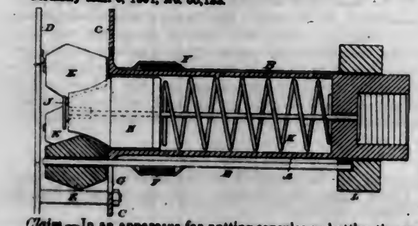
2. The combination, with the drying-flue, of a series of depending transverse curtains, a strand extending through the flue over said curtains, and the short cords P, connecting all of the curtains with said

488,018.



strand for simultaneous operation, substantially as shown and described.

488,019. APPARATUS FOR FIXING CAPSULES ON BOTTLES. CARL SCHERER, Langen, Germany. Filed Sept. 1, 1891. Serial No. 404,412. (No model.) Patented in England Feb. 17, 1890, No. 2,550; in Belgium Feb. 28, 1890, No. 89,547; in France May 8, 1890, No. 208,726; in Austria-Hungary June 20, 1890, No. 8,949 and No. 21,970, and in Germany Mar. 6, 1891, No. 55,122.



Claim.—In an apparatus for putting capsules on bottles, the combination, with a rotating holder, of the springy bodily-movable pressing parts or rollers having shoulders spirally arranged on their peripheries and the movable part J, having body H, provided with slanting surfaces, substantially as set forth.

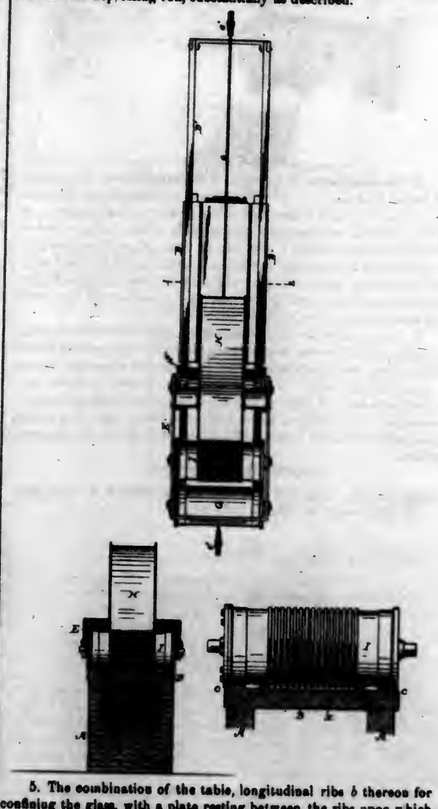
488,020. MACHINE FOR EMBEDDING WIRE-NETTING IN GLASS. FRANK SHUMAN, Philadelphia, Pa. Filed July 6, 1892. Serial No. 439,146. (No model.)

Claim.—1. The combination, in a machine for manufacturing wire-glass, of the table upon which the molten glass is poured, a roller for smoothing out said molten glass, a carrier for the wire or wire-gauze, situated back of the smoothing-roller, and a finishing-roller for closing the openings in the glass made by the wire or wire-gauze, substantially as described.

2. The combination of the bed for the glass, the carriage, the first smoothing-roller, a ribbed roller, and a finishing-roller for smoothing the glass after the ribbed roller has passed over it, with a chute or guide for the wire, situated between the first roller and the ribbed roller, substantially as specified.

3. The combination of the furnace, the table mounted above the furnace, a carriage, three rollers mounted thereon, the first roller being the first smoothing-roller, the second roller having ribs for depressing the wire into the glass, and the third roller being the final smoothing-roller for closing the openings formed by the ribbed roller, with mechanism by which the carriage is drawn over the table, substantially as described.

4. The combination of the table, a heating device therefor, rails on the table, rails at each end of the table in line with the said rails on the table, the carriage, two smoothing-rollers thereon and a central depressing-roller for the wire and a chute upon which the wire is mounted, said chute being situated between the forward smoothing-roll and the depressing-roll, substantially as described.



5. The combination of the table, longitudinal ribs *b* thereon for confining the glass, with a plate resting between the ribs upon which the glass is rolled, with rollers for smoothing the glass and for forcing the wire into the glass, substantially as described.

6. The combination of the table, a device for heating the same, longitudinal ribs on the table, longitudinal rails on the outer edge of the table, rails at each end of the table aligning with the rails on the table, a carriage, mechanism for drawing the carriage over the table, said carriage having a primary smoothing-roll and a finishing smoothing-roll and a central ribbed roll, a chute carried by the carriage, with heating appliances for the rolls, so that they will not chill the glass during the process of rolling, substantially as specified.

7. The combination of the table, the rails, the carriage, the forward smoothing-roll and the rear smoothing-roll, a central ribbed roll, an inclined chute for the wire, with a trigger holding the wire in the chute, substantially as specified.

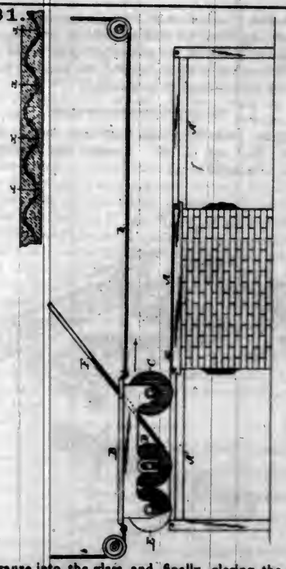
8. The combination of the furnace, the table mounted thereon, rails on the table, ribs to prevent the glass from spreading, rolls adapted to the rails, the forward roll and rear roll being smoothing-rolls, ribs on the central roll, each of said rolls being hollow and having removable heads, with cores in said rolls adapted to be heated, with a chute for the wire, said chute being situated between the forward roll and the ribbed roll, substantially as specified.

9. The combination of the table, the carriage, supporting-rolls therefor, with a ribbed roll mounted loosely in bearings on the carriage, substantially as and for the purpose set forth.

488,021. PROCESS OF EMBEDDING WIRE-NETTING IN GLASS. FRANK SHUMAN, Philadelphia, Pa. Filed July 6, 1892. Serial No. 439,147. (No specimens.)

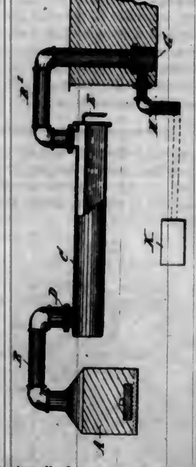
Claim.—1. The process herein described of making wire-glass, said process consisting in, first, preparing a sheet of molten glass; second, mounting thereon wire or wire-gauze; third, pressing the said wire or wire-gauze into the glass, and, finally, closing the openings made by the wire, substantially as described.

488,021.



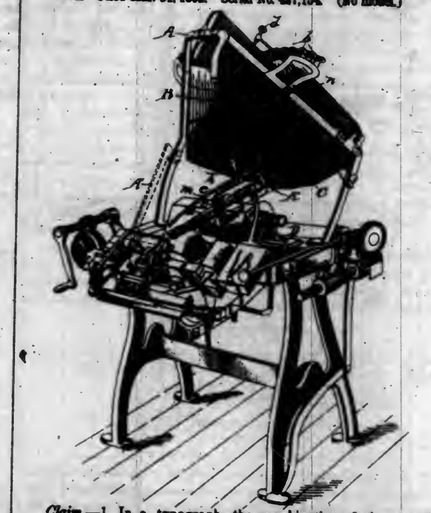
2. The process herein described of making wire-glass, said process consisting in, first, rolling the glass into a sheet; second, placing upon the glass the wire or wire-gauze, impressing portions of the wire-gauze deeply into the glass, thus corrugating the same, and, finally, rolling the glass and embedding the wire therein, substantially as described.

488,022. APPARATUS FOR BLEACHING CANE-JUICE. AUGUST F. BLANKENEY, New Orleans, La. Filed June 6, 1892. Serial No. 435,666. (No model.)



Claim.—The herein-described apparatus for bleaching cane-juice, comprising a sulphur stove or retort, a water-chamber, a pipe leading from the stove or retort to the water-chamber, the solution-tank, the pipe B', leading from the water-chamber to the solution-tank and having the openings G, a pump arranged in a casing, and a pipe leading from the pipe B', adjacent to the discharge end thereof, to the pump-casing, all substantially as and for the purpose set forth.

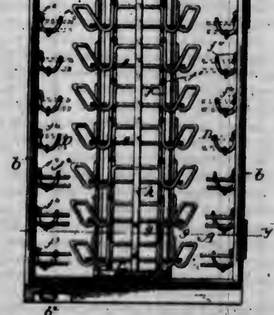
488,023. TYPOGRAPH ATTACHMENT. JAMES SLOCUM, Holly, Mich. Filed Mar. 31, 1892. Serial No. 427,154. (No model.)



Claim.—1. In a typograph, the combination of the movable frame, the movably-mounted spacers, the mobile arm or stop adapted to engage said spacers, and means for connecting said arm or stop with the movable frame, whereby said spacers are restored simultaneously with the actuation of said frame.

2. In a typograph, the combination of the tilting frame, the movably-mounted spacers, the arm or stop movably mounted and adapted to engage said spacers, and the spring connecting said arm or stop with the tilting frame, substantially as specified.

488,024. RIBBON AND SHOW CASE. EDWIN STEWART, Albion, Ill. Filed Oct. 31, 1891. Serial No. 410,480. (No model.)

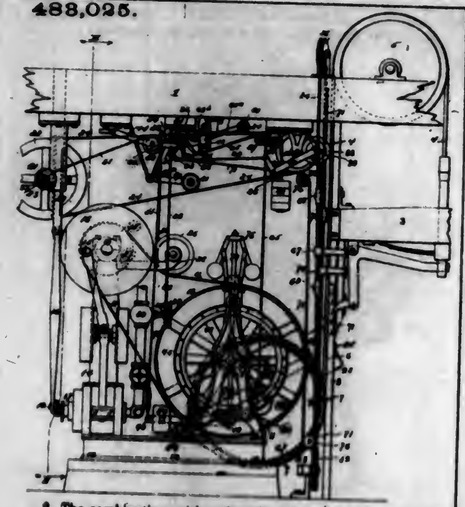


Claim.—The show-case provided with a series of basket-like receptacles, each consisting of a single strand of wire formed in a number of bail-like bends and intermediate loops slipped upon pins projecting from supports within the case, and means to hold said receptacle firmly in position upon their supports, substantially as set forth.

488,025. SAFETY ATTACHMENT FOR ELEVATORS. ANDREW A. STOLTENBERG, St. Louis, Mo. Filed May 18, 1892. Serial No. 433,467. (No model.)

Claim.—1. The combination, with a throttle-valve of an elevator-engine, of a weighted cord connected with the valve-stem and adapted to close the valve by the stretching of the weighted cord, the bracket having a downward projection formed with a depression, the rock-shaft 30, having a detent normally engaging the weighted cord in the depression, a pulley bearing against a part of the mechanism liable to sag or break, and an arm upon the rock-shaft, with which the pulley is connected, substantially as described.

488,025.



3. The combination, with a throttle-valve of an elevator-engine, of a weighted cord connected with the valve-stem and adapted to close the valve by the stretching of the weighted cord, the rock-shaft 30, having a detent normally engaging the weighted cord, a pulley bearing against a part of the mechanism liable to sag or break, an arm upon the rock-shaft, with which the pulley is connected, a brake mechanism having a weighted brake-lever, a lever provided with a pulley, a catch on the rock-shaft normally engaging the pulley-lever, and a cord passing over the pulley and secured to the brake-lever, substantially as described.

3. The combination, with a hoisting-cable, of a hinged arm, a pulley upon the hinged arm, bearing against the cable, the bracket having a downward projection formed with a depression, a rock-shaft having an arm connected with the hinged arm, a throttle-valve, a weighted cord connected with the valve-stem and adapted to close the valve by the stretching of the weighted cord, and a detent on the rock-shaft normally engaging the weighted cord in the depression, substantially as described.

4. The combination, with a hoisting-cable, of a hinged arm, a pulley upon the hinged arm, bearing against the cable, a rock-shaft having an arm, a detent, and a catch, a throttle-valve, a weighted cord connected with the valve-stem and adapted to close the valve by the stretching of the weighted cord, a brake mechanism having a weighted brake-lever, a lever provided with a pulley and a cord passing over the lever-pulley and secured to the brake-lever, the hinged arm being connected with the arm on the rock-shaft, the weighted cord being normally engaged by the detent, and the pulley-lever being normally engaged by the catch, substantially as described.

5. The combination, with the throttle-valve of an elevator-engine, of a weighted cord attached to the stem of the throttle-valve and adapted to close the valve when stretched, a rock-shaft having a detent normally engaging the cord and having an arm 75 and a cord 71 attached thereto, having a portion adjacent to the travel of the car provided with a projection 72, and a projection 70 on the car, adapted to engage with said projection 72, substantially as and for the purpose set forth.

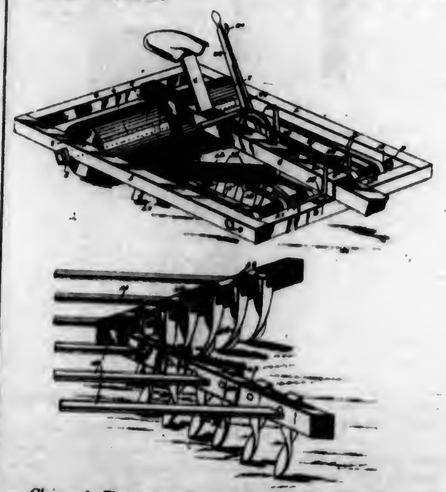
6. The combination, with the throttle-valve of an elevator engine and the elevator mechanism, of a weighted cord connected with the throttle-valve and adapted to close the valve under the influence of the weight, the bracket having a downward projection formed with a depression, and a rock-shaft 30, having a detent adapted to lock the weighted cord in the depression, and an arm connected with part of the mechanism liable to sag or break, substantially as described.

7. The combination, with the throttle-valve of an elevator-engine, of the weighted cord 36, connected with said valve, the rock-shaft 30, having a detent 32, a hook 43, and an arm, the lever 44, normally engaged by the hook, a weighted brake-lever, a cord connecting the brake-lever to the lever 44, an operating-cord attached to the arm, and a lever provided with a pulley, substantially as described.

8. The combination of a throttle-valve, a weighted cord connected to the valve-stem, a rock-shaft 30, having a detent 32 and trip-arms, the tripping-cords, the hoisting-cables 4, the reversing-cord 24, the drive-belt, the hinged arms, and pulleys journaled on the hinged arms, substantially as described.

9. The combination of a throttle-valve, a weighted cord connected to the valve-stem, a rock-shaft 30, having a detent 32, a hook 43, and trip-arms, tripping-cords, the hoisting-cables 4, reversing-cord 24, the drive-belt, the hinged arms, the pulleys journaled on the hinged arms, the weighted brake-lever 49, the cord 51, the lever 44, and the pulley upon the lever 44, substantially as described.

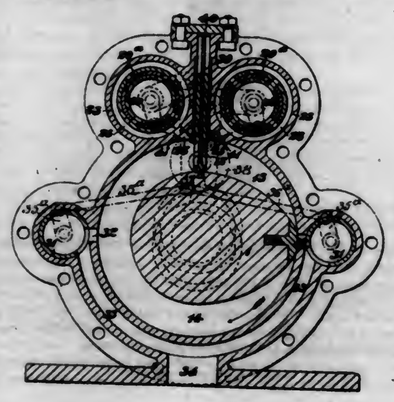
488,026. AGRICULTURAL MACHINE. JOHN F. THOMPSON, Fulton, Ky. Filed Apr. 11, 1891. Renewed May 21, 1892. Serial No. 433,907. (No model.)



Claim.—1. The combination, with the rectangular framework, the harrow-sections, and the rear axle, of the standard rising from the axle, the draft-beam connected at its rear end to the standard and secured to the front cross-bar of the frame, a pair of ground-wheels mounted removably on the axle, and a series of interposed sleeves mounted on the axle between the wheels and standard, substantially as specified.

2. In an agricultural machine, the combination, with the rectangular framework, the transverse shaft located at the front end thereof, the series of graduated arms loosely mounted on the shaft, and the tooth-carrying heads connected to the arms and independent of each other, of the centrally-cranked rock-shaft journaled in bearings in the front end of the framework and terminating beyond the bearings at its ends in curved spring-arms connected to the graduated arms, the pivoted operating-lever, and the rod connecting the same with the crank of the rock-shaft, substantially as specified.

488,027. ROTARY ENGINE. EDWARD TOWLSON, Norwich, England, assignor to William Tomkins Sturgess and Edward Towlson, same place. Filed Sept. 18, 1891. Serial No. 406,133. (No model.) Patented in France Mar. 18, 1892, No. 220,942, and in Belgium Mar. 19, 1892, No. 96,897.



Claim.—1. In a rotary engine, the combination of a cylinder, a driving-shaft and a piston carried thereby, an abutment arranged to work in close contact with said piston, a cut-off valve at each side of said abutment, a reversing-valve concentric with each cut-off valve, an exhaust-valve at each side of said cylinder, means for operating said reversing and exhaust valves simultaneously, and means for operating said cut off valves, substantially as described, for the purpose specified.

2. In a rotary engine, the combination of a cylinder, hollow cylindrical bosses fixed therein, a driving-shaft having a collar extending between the inner ends of said bosses, a piston arranged to revolve around said bosses and carried by said collar, an abutment, a cut-off valve at each side of said abutment, a reversing-valve concentric with each cut-off valve, and means for operating said valves, substantially as described, for the purpose specified.

3. In a rotary engine, the combination of a cylinder, a driving-shaft, a rotary piston carried by said shaft, an abutment, a cut-off valve at each side of said abutment, a reversing-valve concentric with each cut-off valve, an exhaust-valve at each side of said cylinder, a pivoted plate provided with a handle and connected to said exhaust and reversing valves for operating the same simultaneously, and a pair of eccentrics on the driving-shaft for operating the cut-off valves, substantially as described.

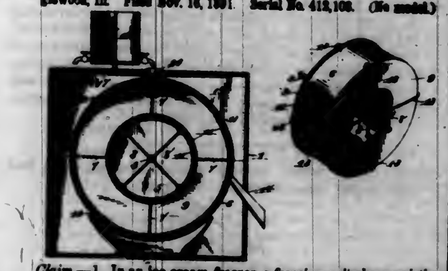
4. In a rotary engine, the combination of a cylinder, a driving-shaft, a rotary piston carried by said shaft, an abutment arranged to slide in a steam-chamber and to act against said piston, one or more passages for admitting steam to said chamber to act against the outer end of said abutment, a reversing and a cut-off valve at each side of said abutment, an exhaust-valve on each side of said cylinder, a wrist-plate connected to said exhaust and reversing valves for operating the same simultaneously, and a pair of eccentrics on the driving-shaft for operating the cut-off valves, substantially as described, for the purpose specified.

5. In a rotary engine, the combination of a cylinder, a driving-shaft, a rotary piston carried by said shaft, an abutment arranged to slide in a steam-chamber and to act against said piston, a reversing and a cut-off valve at each side of said abutment, an exhaust valve on each side of said cylinder, a wrist-plate connected to said exhaust and reversing valves for operating the same simultaneously, a pair of eccentrics on the driving shaft for operating the cut-off valves, steam-passages for connecting each of the cut-off valve chambers with the steam-chamber in which said abutment slides, cocks for controlling said steam-passages, and connections between said cocks and the mechanism for operating said reversing-valves, substantially as described and shown, for the purpose specified.

6. In a rotary engine, the combination of a cylinder, a driving-shaft, a piston carried by said shaft, a sliding abutment, a reversing and a cut-off valve on each side of said abutment, exhaust-valves on each side of said cylinder, exhaust-passages, such as 33, concentric with said cylinder, having a common outlet and controlled by said exhaust-valves, and means for operating said reversing, cut-off, and exhaust valves, substantially as described, for the purpose specified.

7. In a rotary engine, the combination, with a cylinder having stationary bosses therein, a rotary piston, and an abutment, of two independently-operated oscillating cut-off valves, two oscillating reversing-valves, each arranged concentrically with one of said cut-off valves, two oscillating exhaust-valves, and reversing mechanism comprising a plate provided with crank-pins connected by lever mechanism to said reversing and exhaust valves and with a hand-lever, said valves and reversing mechanism being arranged substantially as described and shown, for the purpose specified.

488,028. ICE-CREAM FREEZER. CHARLES T. VAN SICKLEN, Englewood, Ill. Filed Nov. 16, 1891. Serial No. 412,108. (No model.)



Claim.—1. In an ice-cream freezer, a freezing-cylinder consisting of an inner and outer annular wall, annular removable heads for the cylinder, a shaft, bearings for the shaft, and spokes radiating from the shaft and connected with the inner wall, substantially as specified.

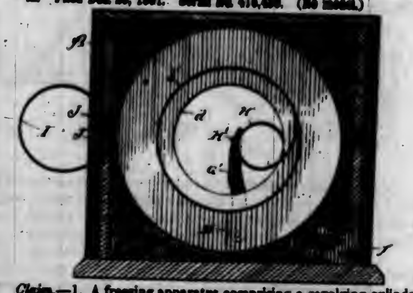
2. In an ice-cream freezer, the freezing-cylinder consisting of inner and outer annular walls, opposite annular heads for the same, partitions connecting the walls at intervals, a shaft, bearings for the shaft, and spokes between the shaft and inner wall, substantially as specified.

3. In an ice-cream freezer, the freezing-cylinder consisting of inner and outer annular walls, opposite annular heads for the same, reticulated wire partitions connecting the walls at intervals, a shaft, bearings for the shaft, and spokes between the shaft and inner wall, substantially as specified.

4. In an ice-cream freezer, a freezing-cylinder consisting of inner and outer annular walls, opposite annular heads having inner and outer wire rings, rings secured to the ends adjacent to each of the former rings, rubber packing-rings located between the wire rings, clamps for the heads, a central shaft, and spokes between the shaft and inner cylinder, substantially as specified.

5. In an ice-cream freezer, the combination, with the double cylinder, its shaft, spokes, and annular covers, of the series of hook-shaped clamps pivoted to the spokes and adapted at their free ends to clamp upon the outer edge of the cylinder, substantially as specified.

488,029. ICE-CREAM FREEZER. BELLE P. VOLLARD, Chicago, Ill. Filed Dec. 28, 1891. Serial No. 416,490. (No model.)



Claim.—1. A freezing apparatus comprising a revolving cylinder provided with an ice-chamber, a space or receptacle inside the cylinder for substances to be frozen, and a space or receptacle outside the cylinder for substances to be frozen, substantially as described.

2. A freezing apparatus consisting of a revolving annular cylinder both of whose internal and external surfaces are adapted to receive the substance to be frozen, whereby the frozen material may be removed from one surface while it is being frozen upon the other, and vice versa, thus maintaining a continuous production, substantially as described.

3. In a freezing apparatus, the combination of a cylinder provided with a chamber D and revolving within a suitable case, and a scraper H for removing the contents of such chamber, supported at one end by the cylinder and at the other by means of a swinging arm attached to the case, substantially as described.

4. In a freezing apparatus, the combination of a case provided with an opening J, a drawer to contain the freezing mixture placed within such case, a cylinder revolving in the case and dipping into the drawer, and a substantially cylindrical scraper I, adapted to be inserted through the opening J, contacting with the exterior of the cylinder and removing the frozen substance therefrom, substantially as described.

5. In a freezing apparatus, the combination of a cylinder revolving in a suitable case provided with an opening, and a plate pivotally supported in the case and adapted to act as a scraper to remove the frozen substance from the exterior of the cylinder and when not used as a scraper to close the opening to prevent warm air from entering the case, substantially as described.

488,030. ROTARY PULP-STRAINER. THEODOR VOLSTORF, Berlin, Germany. Filed Oct. 11, 1889. Serial No. 326,710. (No model.) Patented in Germany Sept. 4, 1889, No. 51,736; in England Sept. 14, 1889, No. 14,494; in France Sept. 14, 1889, No. 200,765; in Switzerland Sept. 27, 1889, No. 1,446; in Belgium Sept. 30, 1889, No. 87,897, and in Austria-Hungary Jan. 2, 1890, No. 40,260 and No. 64,962.

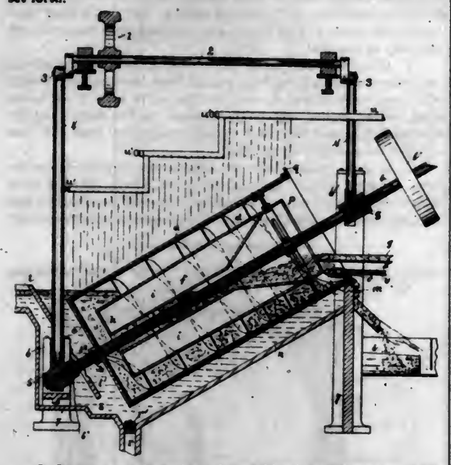
Claim.—1. In a paper-pulp strainer, the combination of the tank *n*, the straining-cylinder *a*, closed at its lower end and supported on an incline in said tank, the worm *k* within said cylinder, means for supplying the pulp into said straining-cylinder, and means for imparting a rotary motion to said cylinder and worm, as herein set forth.

2. In a paper-pulp strainer, the combination of the tank *n*, the inclined cylinder *a*, and the worm *k* with a central conveyer-passage for leading the material to be treated to the bottom of the cylinder, as herein set forth.

3. In a paper-pulp strainer, the combination of the tank *n*, the in-

cined cylinder *a*, and the worm *k* with the central cylinder *d* and conveyer-passage *f*, as herein set forth.

4. In a paper-pulp strainer, the combination of the tank *n* and the inclined cylinder *a*, supported on spindle *b* by suitable bearings, with a central air-chamber for relieving the weight of the bearings, as herein set forth.

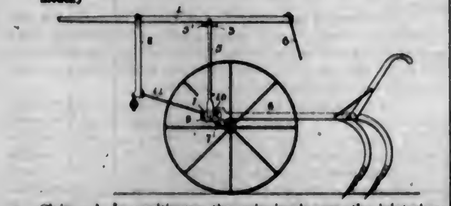


5. In a paper-pulp strainer, the combination of the tank *n*, the inclined cylinder *a*, supported on suitable bearings in the tank *n*, and a worm *k* inside of said cylinder with a central conveyer passage *f* and a float between said passage and the worm, as herein set forth.

6. The combination, with a rotary paper-pulp strainer and a tank in which the strainer operates, of a conveyer spiral or worm *k*, having its upper termination of suddenly-increased pitch, so as to meet the mouth of the strainer at a right angle, as herein set forth.

7. The combination, with a rotary strainer and a tank in which the strainer operates, of a conveyer spiral or worm *k* of gradually-decreasing pitch from its lower to its upper end, as herein set forth.

483,031. CULTIVATOR. EDGAR WAGER and SAMUEL H. ARMSTRONG, Canton, Ill. Filed July 1, 1892. Serial No. 438,689. (No model.)

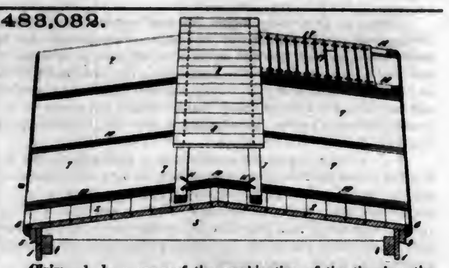


Claim.—1. In a cultivator, the swinging hanger, the joint-piece pivoted in the foot of the hanger, said joint-piece being provided with a rearward extension having a wheel-axle situated at the rear of the pivot of the joint-piece, and the beam pivoted in said joint-piece, whereby the weight of the pole, hanger, and connected parts tends to raise the shovels, substantially as set forth.

2. In a cultivator, the swinging hanger, the joint-piece pivoted in the foot of the hanger, said joint-piece being provided with a rearward extension having a wheel-axle situated at the rear of the pivot of the joint-piece, and the plow-beam pivoted in said joint-piece, whereby the weight of the pole, hanger, and connected parts tends to raise the shovels, and a series of holes, and a draft-rod adapted to engage said holes, substantially as set forth.

3. In a cultivator, a pivoted hanger having a bifurcated lower end, a joint-piece pivoted in the said lower end of the hanger and having an extension provided with a wheel-axle, the pivot of the joint-piece passing through the extension and the arms of the bifurcated hanger, and a plow-beam having a yoke embracing said joint-piece and pivoted thereto, substantially as set forth.

483,032. CAR-ROOF. JOHN C. WARD, St. Louis, Mo. Filed Mar. 30, 1892. Serial No. 426,924. (No model.)

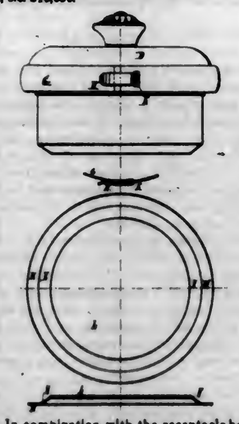


Claim.—1. In a car-roof, the combination of the tie-wires, the double ridge-pole, straps secured to the ridge-pole and through which the tie-wires pass, and running-boards secured to the ridge-poles, substantially as and for the purpose set forth.

2. In a car-roof, the combination of two ridge-poles extending longitudinally of the car-body, one on each side of the apex of the roof and suitably held thereto, and transverse running-boards secured to the ridge-poles, substantially as and for the purpose set forth.

3. In a car-roof, the combination of the metal sheets, tie-wires for holding the sheets in place, washers having enlarged openings through which the ends of the tie-wires pass, and wedges for holding the wires in the washers, substantially as and for the purpose set forth.

483,033. JAR. ACHILLE WEISSENTHANNER, Paris, France. Filed Dec. 17, 1891. Serial No. 415,493. (No model.) Patented in France Jan. 9, 1891, No. 210,636.



Claim.—1. In combination with the receptacle having a horizontally-projecting flange and a rim extending upwardly therefrom, said rim having an inclined shoulder on its outer side, a cover having a horizontal flange and an inner annular recess, the diaphragm having a horizontal rim and an inclined shoulder extending up therefrom, the gasket in the annular recess of the cover, having an inner inclined face adapted to the inclined shoulder on the diaphragm, and the concaved collar embracing the horizontal flanges of the receptacle and cover, substantially as described.

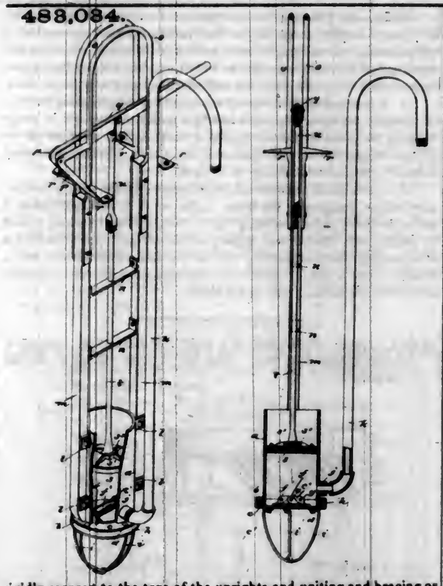
2. In combination, the receptacle having the upwardly-extending rim and the horizontal flange, said rim having an outer inclined face, the diaphragm having the horizontal outer rim adapted to the flange of the receptacle and an inclined shoulder adapted to the inclined face of the rim, the cover having the inner annular recess and the outer horizontal flange, and the gasket fitting in the said recess and having an inner inclined side, substantially as described.

483,034. PUMP. ALVIN H. WOODARD, Mansfield, Ohio. Filed Apr. 11, 1892. Serial No. 428,622. (No model.)



Claim.—The pump-cylinder, the uprights *n n*, rigidly secured thereto, the piston, and the piston-rod, combined with the yoke *o*,

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rigidly secured to the tops of the uprights and uniting and bracing or stiffening them and provided with laterally-projecting feet *r* to support the pump in the well, and the handle pivotally connected to and between the yokes and guided by them, substantially as described.

483,035. BUNG. MARK ANTHONY, Berkeley, and WILLIAM C. RAYMER, Oakland, Cal. Filed Jan. 21, 1892. Serial No. 418,849. (No model.)



Claim.—1. In a bung, the combination, with the bushing A, having an interior shoulder or flange *c* near its inner end and an annular bead on the upper face of said flange, of the plug having the segmental engaging inclined ways or guides in said bushing, said plug having a diametrically-reduced portion at its inner end below a shoulder *a*, and an annular packing-ring held between said flange *c* and the shoulder *d* and engaged by said bead, substantially as specified.

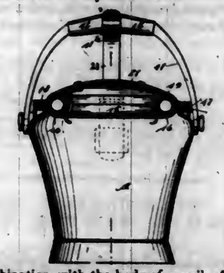
2. The combination, with the bushing having an interior rabbet near its upper end, of the plug fitting in said bushing and having means whereby it is locked therein, said plug having a flanged head seated flush in said rabbet, and a socket or seat G in the said head, said seat or socket having the lower right-hand corner of each wall formed with a recess or under-cut *g*, substantially as specified.

3. In a bung, the combination, with the bushing, of the rotary plug locking therein, said plug having an angular socket or seat G in its outer end, beveled under-cuts or recesses *g* in the lower right-hand corner of each wall, and a wrench having an angular head H', adapted to enter said socket, and a bearing I above said head, said bearing having its angles cut obliquely and adapted to engage said under-cuts or recesses, substantially as specified.

483,036. SANITARY PAIL. CHARLES BARON, New York, N. Y. Filed Mar. 24, 1892. Serial No. 426,249. (No model.)

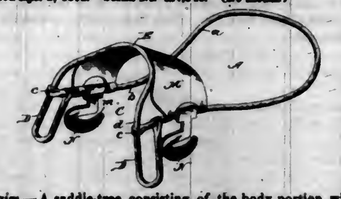
Claim.—1. The combination, with the annular trough-like seat-section 15, provided with an external flange 17 to rest upon the upper edge of a pail, and the tubular annular cushion resting in the concavity of the said section, of the outer or lid section 13, having a horizontal flange resting upon the flange 17, and the spring on the under side of the section 13 and engaging the inner convex margin 16 of the section 15, substantially as set forth.

2. A sanitary pail comprising the body A, having a hinged bail 11 and a socket or loop 10, a sectional cover for the body, swinging at right angles to the bail and having a stationary handle 23 on its upper side, over which the bail swings to lock the cover on the body, and the strap 22, hinged to the cover and removably entering the said loop or socket, substantially as set forth.



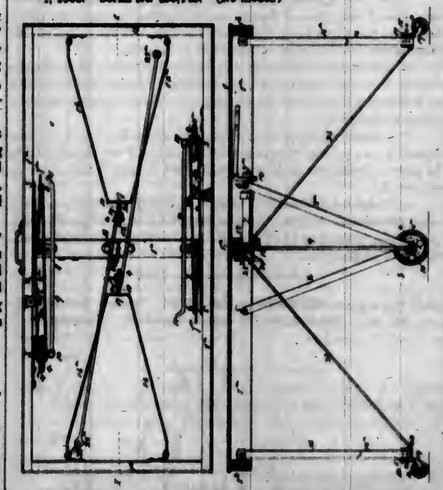
3. The combination, with the body of a pail, of a cover, the said cover being constructed in two sections, a seat-section of ring-like contour and a cushion secured to the same, and a lid-section provided with a spring upon its under face, capable of engaging with the inner surface of the seat-section when the two sections of the cover are brought to an engagement, substantially as shown and described.

483,037. SADDLE-TREE. RICHARD C. RARRY, Montreal, Canada. Filed Apr. 2, 1892. Serial No. 427,540. (No model.)



Claim.—A saddle-tree consisting of the body portion with forwardly-extending branches formed of a single piece of wire and having a bridge-loop with integral leg-loops secured to the ends of the branches, an arched gullet connected to said branches, and the hinged strap-hooks interposed between the connected ends of said gullet, substantially as and for the purposes specified.

483,038. BIER. GEORGE BOOLEY, Poplar Bluff, Mo. Filed June 1, 1892. Serial No. 435,146. (No model.)



Claim.—1. A truck having legs hinged to its top and adapted to stand out from the top in working position or fold flat on the same, movable braces hinged to the legs and having eyes at their free ends for connection with the top, and a central stud beneath the top, adapted for engagement of the brace-eyes, and supporting-wheels on the legs, substantially as set forth.

2. A truck having legs hinged to its top and adapted to fold flat upon the top or to stand out in working position, braces hinged to the legs and having eyes for attachment to the top, a stud at the under side of the top, adapted to engage the eyes, and a catch 24, locking the eyes upon the stud, all constructed and arranged substantially as set forth.

3. A truck having side legs composed of inclined bars 2 and 2', one of them hinged to the truck-top and the other to a link 7, hinged to the truck-top, the leg being adapted to stand out in working position or fold flat against the bottom of the truck-top, and a spring-catch 14, engaging the leg and adapted to hold it in either working or folded position, substantially as set forth.

Claim.—1. A mechanical movement for converting reciprocating into rotary motion, comprising a shaft having a socket on one end, a reciprocating bar working in said socket, and a crank-arm pivotally connected at its outer end with the end of said bar and having its center eccentric to the center of the said shaft, substantially as set forth.

2. A mechanical movement for converting reciprocating into rotary motion, comprising a shaft having a socket on one end, a reciprocating bar working in said socket, a crank-arm, a wrist-pin pivotally connecting the bar and crank-arm, and a link or pitman connected to said wrist-pin, substantially as set forth.

3. A mechanical movement for converting reciprocating into rotary motion, comprising the frame A, the shaft B, having a pulley J and a socket C, a reciprocating bar D, sliding in said socket, a shaft

wheel, the said bar having a series of rests for the shanks of the tools to be ground, substantially as shown and described.

10. A tool-rest for grinding-machines, comprising a bar and a tool-supporting plate having a forked end engaging the said bar and means for attaching the plate to the bar, but permitting a swinging motion of the plate, substantially as shown and described.

11. A tool-rest for grinding-machines, comprising a bar and a tool-supporting plate having a forked end engaging the said bar, means for attaching the plate to the bar, but permitting a swinging motion of the plate, and set-screws adapted to abut on the edge of the said plate to limit the swinging motion of the latter, substantially as shown and described.

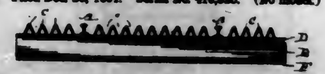
Claim.—1. The combination of a rotary tubular spindle, a flier attached thereto and provided at its upper end with a pair of grooved rolls standing at opposite sides of the path of a wire passing through said spindle, the groove of one roll having one side substantially at a right angle to the axis of the roll and the other side oblique thereto, a guide arranged to deliver thread or fibrous material to the wire at a point just above said rolls, and means for feeding the wire between said rolls and through the spindle, as set forth.

2. The combination of a rotary tubular spindle, a flier attached thereto and provided at its upper end with a pair of grooved rolls standing at opposite sides of the path of a wire passing through said spindle, the groove of one roll having one side substantially at a right

2. A truck having legs hinged to its top and adapted to fold flat upon the top or to stand out in working position, braces hinged to the legs and having eyes for attachment to the top, a stud at the under side of the top, adapted to engage the eyes, and a catch 24, locking the eyes upon the stud, all constructed and arranged substantially as set forth.

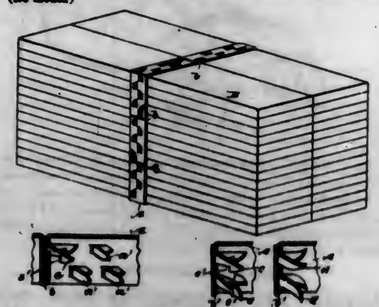
3. A truck having side legs composed of inclined bars 2 and 2', one of them hinged to the truck-top and the other to a link 7, hinged to the truck-top, the leg being adapted to stand out in working position or fold flat against the bottom of the truck-top, and a spring-catch 14, engaging the leg and adapted to hold it in either working or folded position, substantially as set forth.

488,039. SURFACE CATTLE-GUARD. JOHN S. BERRY, Tyler, Tex. Filed Dec. 26, 1891. Serial No. 416,235. (No model.)



Claim.—A cattle-guard comprising a series of parallel triangular bars tapered at their ends and provided with lateral perforated horizontal flanges, the plates D D, to which said flanges are secured, the cross-tie supports, and the solid plank flooring upon which said ties rest, said flooring being some distance below the guard-bars, substantially as specified.

488,040. BARBED STRAP FOR BUNCHING LUMBER. HOWARD C. HUNT, Clipper Mills, Cal. Filed May 9, 1892. Serial No. 432,261. (No model.)



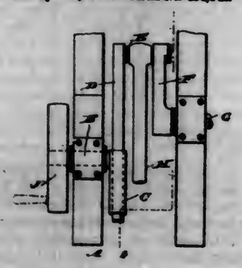
Claim.—1. A sheet-metal bunching-strap comprising a band and two rows of barbs formed thereon projecting from the same side of the band, the end barbs being shaped to interlock with the bunched material when driven thereto, substantially as described.

2. A sheet-metal bunching-strap comprising a band, integral barbs formed in two parallel staggered rows thereon, and two opposite barbs at each end, adapted to interlock with the bunched material, substantially as described.

3. A sheet-metal bunching-strap comprising a band, integral barbs formed in two parallel staggered rows thereon, and two opposite barbs at each end, whereon locking-shoulders are formed, substantially as described.

4. A sheet-metal bunching-strap comprising a continuous strap cross-channeled at intervals, integral barbs formed in two parallel staggered rows thereon, and two opposite barbs at each cross-channel, substantially as described.

488,041. MECHANICAL MOVEMENT. PETER A. ROSSITT, Merced, Cal. Filed Apr. 30, 1892. Serial No. 431,342. (No model.)

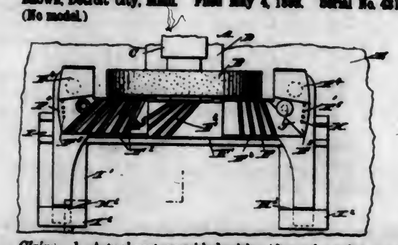


Claim.—1. A mechanical movement for converting reciprocating into rotary motion, comprising a shaft having a socket on one end, a reciprocating bar working in said socket, and a crank-arm pivotally connected at its outer end with the end of said bar and having its center eccentric to the center of the said shaft, substantially as set forth.

2. A mechanical movement for converting reciprocating into rotary motion, comprising a shaft having a socket on one end, a reciprocating bar working in said socket, a crank-arm, a wrist-pin pivotally connecting the bar and crank-arm, and a link or pitman connected to said wrist-pin, substantially as set forth.

3. A mechanical movement for converting reciprocating into rotary motion, comprising the frame A, the shaft B, having a pulley J and a socket C, a reciprocating bar D, sliding in said socket, a shaft G, parallel with shaft B and having a crank-arm F, provided with a wrist-pin, pivotally connecting it with the said reciprocating bar, a treadle I, and a link or pitman H, connecting the treadle I and the said wrist-pin, substantially as set forth.

488,042. TOOL-REST FOR GRINDING-MACHINES. DARWIN L. BROWN, Detroit City, Mich. Filed May 4, 1892. Serial No. 431,796. (No model.)



Claim.—1. A tool-rest provided with a bar adapted to extend across the face of the grinding-wheel and formed at each end with a shoulder for resting the shank of the tool thereon while grinding a belly surface on the tool, substantially as shown and described.

2. A tool-rest provided with a bar adapted to extend across the face of the grinding-wheel and formed with grooves or channels for the reception of the tool-shanks, the said grooves or channels being arranged at angles to the face of the wheel, substantially as shown and described.

3. A tool-rest for grinding-machines, provided with a bar formed at the middle with an offset and provided on its top surface with channels or grooves for the reception of the tool-shanks, the said grooves or channels being arranged at angles to the face of the grinding-wheel, substantially as shown and described.

4. A tool-rest provided with a bar adapted to extend across the face of the grinding-wheel and formed at each end with a shoulder for resting the shank of the tool thereon while grinding a belly surface on the tool, and pins having conical heads adapted to be placed in the ends of the said plate opposite the said shoulders, substantially as shown and described.

5. A tool-rest for grinding-machines, provided with a bar adapted to extend across the face of the grinding-wheel and formed at each ends with rows of apertures and a pin adapted to engage the said apertures to form a rest for the shank of the tool, substantially as shown and described.

6. A tool-rest for grinding-machines, provided with a bar adapted to extend across the face of the grinding-wheel and formed at its ends with rows of apertures, a pin adapted to engage the said apertures to form a rest for the shank of the tool, and a second pin formed with a conical head adapted to be supported on the end of the bar, substantially as shown and described.

7. A tool-rest for grinding-machines, comprising a frame mounted to tilt and a bar supported on the said frame and extending across the face of the grinding-wheel, the said bar being formed at each end with a shoulder and on its top surface with grooves or channels extending at angles to the face of the grinding-wheel, substantially as shown and described.

8. A tool-rest for grinding-machines, comprising a frame mounted to slide transversely and adapted to be tilted and a bar supported on the said frame and extending across the face of the grinding-wheel, the said bar being provided on its top surface with grooves or channels extending at angles to the face of the grinding-wheel, the ends of the said bar being formed with pins or shoulders on which are rested the shanks of the tools to be ground to belly surfaces, substantially as shown and described.

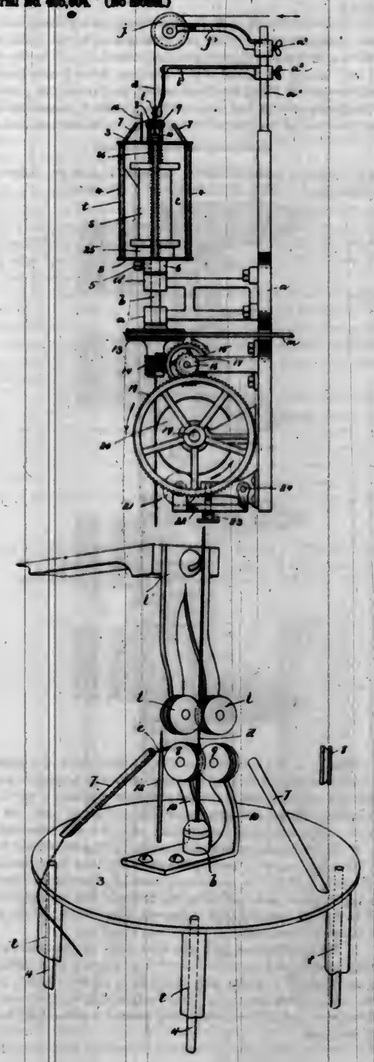
9. A tool-rest for grinding-machines, comprising a frame mounted to slide and to tilt, a guideway for the said frame and adapted to be adjusted relative to the grinding-machine, and a bar supported by the said frame and adapted to extend across the face of the grinding-wheel, the said bar having a series of rests for the shanks of the tools to be ground, substantially as shown and described.

10. A tool-rest for grinding-machines, comprising a bar and a tool-supporting plate having a forked end engaging the said bar and means for attaching the plate to the bar, but permitting a swinging motion of the plate, substantially as shown and described.

11. A tool-rest for grinding-machines, comprising a bar and a tool-supporting plate having a forked end engaging the said bar, means for attaching the plate to the bar, but permitting a swinging motion of the plate, and set-screws adapted to abut on the edge of the said plate to limit the swinging motion of the latter, substantially as shown and described.

12. A tool-rest for grinding-machines, comprising a plate provided with offsets having V-shaped grooves in alignment with each other, one end of the said plate being forked for engagement with a supporting-bar, a screw engaging a dent or recess in bar for holding the plate, and set-screws to limit the swinging motion of the plate, substantially as shown and described.

488,043. APPARATUS FOR COVERING WIRE WITH FIBROUS MATERIAL. JAMES BOOKNER, Boston, Mass. Filed Sept. 14, 1891. Serial No. 405,804. (No model.)



Claim.—1. The combination of a rotary tubular spindle, a flier attached thereto and provided at its upper end with a pair of grooved rolls standing at opposite sides of the path of a wire passing through said spindle, the groove of one roll having one side substantially at a right angle to the axis of the roll and the other side oblique thereto, a guide arranged to deliver thread or fibrous material to the wire at a point just above said rolls, and means for feeding the wire between said rolls and through the spindle, as set forth.

2. The combination of a rotary tubular spindle, a flier attached thereto and provided at its upper end with a pair of grooved rolls standing at opposite sides of the path of a wire passing through said spindle, the groove of one roll having one side substantially at a right angle to the axis of the roll and the other side oblique thereto, a guide arranged to deliver thread or fibrous material to the wire at a point just above said rolls, a thread flattening rod extending across the space between the end of the guide and the rolls, and means for feeding the wire between said rolls and through the spindle, as set forth.

3. The combination of a rotary tubular spindle adapted to support a spool placed thereon, a flier composed of two heads, one of which is affixed to the spindle and the other removably carried thereby, the two heads being connected by a plurality of rods, glass tubes on said rods, and means for guiding thread from a spool to a wire passing through said spindle, said glass tubes preventing the sticking of the thread passing from a spool on the spindle to the wire, as set forth.

4. The combination of the supporting-frame, the tubular spindle journaled in bearings on said frame, the flier attached to said spindle and provided at its upper end with rolls located at opposite sides of the path of a wire passing through said spindle and with a guide arranged to deliver thread to the wire above said rolls, the wire-guiding rolls supported by a fixed bracket on said frame, the tension-roll located above said guide-rolls, the feed-roll journaled in bearings on the frame, the worm attached to the spindle, the gearing imparting motion from the worm to the feed-roll, and the adjustable pressure-roll bearing on the feed-roll, as set forth.

5. The combination of the spindle, the flier attached thereto and composed of the lower head 2, affixed to the spindle, a plurality of rods 4, affixed to said head, and the head 3, movable on said spindle and rods, and the spool-controlling spring interposed between said movable head and a spool placed on the spindle, as set forth.

488,044. ATTACHMENT FOR ELECTRIC LAMPS. JOSEPH CLIFF, Dorking, England. Filed Mar. 2, 1892. Serial No. 423,426. (No model.)



Claim.—1. In combination, the lamp, the globe A, having a flange a, the reflector-plate extending over the globe, the rigid hook-shaped holders depending from the reflector and adapted to engage the flange a, and the pivoted holder b', also depending from the reflector and adapted to engage the flange, whereby the globe may be secured by slipping its flange in the rigid holders and turning the pivoted holder to engage the said edge, substantially as described.

2. In a fitting for electric and other lamps, the combination, with a reflector-plate, of reflecting material made and fitted in several sectors or sections, said plate being provided with fixed holders c and movable holders E or E' for receiving and removably securing said reflecting material, substantially as and for the purposes set forth.

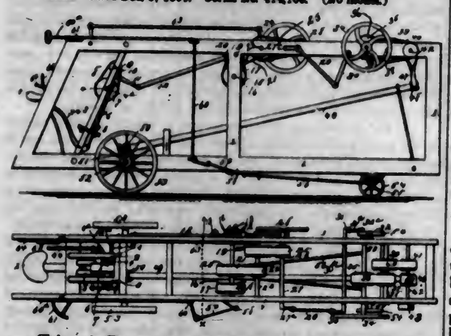
3. In a fitting for electric and other lamps, the combination, with a reflector-plate having lamp-cover holders b b' and lamp-cover A, with flange a, of sectional reflecting material and holders therefor adapted to removably secure same, the said sections of the reflector having openings c' at their adjacent edges to fit around the depending supports b b', all substantially as and for the purposes described and illustrated.

488,045. AXLE-BOX. CLEMENS COLLINS, St. Louis, Mo., assignor of three-fourths to Joseph Kalmbach, same place, and Charles H. Hayden, Tombstone, Ariz. Filed Apr. 30, 1892. Serial No. 431,570. (No model.)



Claim.—The combination, in a journal-bearing for railway cars, of the axle-boxes having upwardly-extending housings, friction-rollers journaled in said housings and bearing on the journals of the car-axles, and the recessed brasses 14, supported above the journals and permitting the rollers to bear upon the journals and holding the journals vertically beneath the rollers, substantially as and for the purpose set forth.

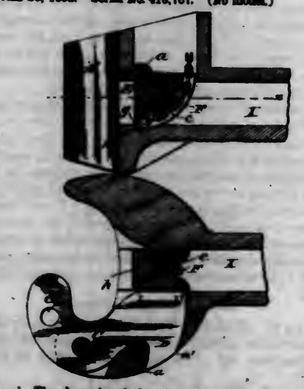
488,046. MECHANICAL MOTOR. DANIEL J. DEAN, Bird Island, Minn. Filed Dec. 5, 1891. Serial No. 414,108. (No model.)



Claim.—1. The combination of the shaft 4, having the drive-wheel 7 and the end cranks 4^a, the pivoted foot-pedals 5, the pitmen 6, the upper shaft 10, having the crank 10^a and the small band-wheel 9, the belt 8, arranged around said wheel, the bar 12, pivoted near its upper end and having the two pawls 13 13, the connecting-link 11, the shaft 15, having the end ratchet 14 and the drive-wheel 16, the shafts 19 and 23, having the band-wheels arranged upon them, the upper transverse shaft 27, having the cranked outer end, the end balance-wheel, and the small band-wheel, the lower shaft 30^a, the pitman 29, the connecting-link 31^a, the shaft 33, having the end disk and end balance-wheel and provided with a band-wheel, and the intermediate and final shafts provided with the band-wheels and the several connecting-belts, arranged as specified, substantially as set forth.

2. The combination, with the pivoted foot-pedals 5, the shaft 42, and the intermediate drive mechanism, of the inclined shaft 49, having the worm-gear on its lower end and the peripheral flange 48 on its upper end, the band-wheel 46, secured on the shaft 42, the removable belt 47, the axle 52, having the central cog 51 and the end road-wheels, and the forward supporting-wheels 54, substantially as set forth.

488,047. CAR-COUPLING. JAMES M. ELLIOTT, Jr., Gadsden, Ala. Filed Jan. 30, 1892. Serial No. 418,707. (No model.)



Claim.—1. The draw-head chambered horizontally to receive the knuckle and having back of the knuckle-pin an opening which passes laterally and entirely through the draw-head and curves at its outside toward the front, in combination with a vertically-pivoted knuckle having at its rear end a lateral hook passing through said opening, curved forwardly at its outer end, and hugging the solid metal in front, substantially as shown and described.

2. The combination of the draw-bar having a central channel or throat and a horizontal chambered head, a locking-tumbler placed in the middle line of the draw-bar and filling the throat when locked, a horizontal axis for said tumbler arranged at the forward end of the same, and a knuckle or coupling-hook, pivoted upon a vertical axis in the draw-head and having its rear end extended to form the broad bearing *b b'* against the tumbler at a point in rear of its axis, substantially as shown and described.

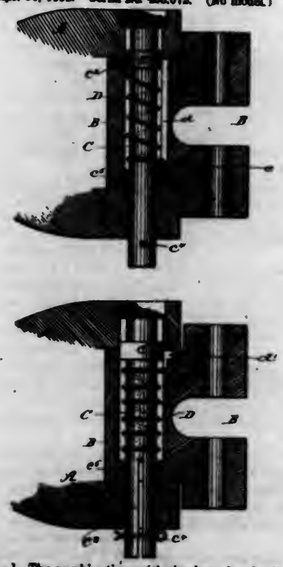
3. The combination, with the draw-head and the knuckle or coupling-hook, of the tumbler having a horizontal axial pin or bolt at its upper front end and an operating-chain connected to the lower front side of the tumbler and passing rearwardly and upwardly around the same, substantially as shown and described.

4. The combination, with the draw-head and knuckle, of the quadrant-shaped tumbler E, having its lower and rear surfaces curved and grooved, a horizontal axial pin or bolt at its upper and front end, and an operating-chain passing down in said groove and connected to the lower front end of the tumbler, substantially as shown and described.

5. The combination, with the draw-head and knuckle, of the pivoted quadrant-shaped tumbler E, having its lower and rear surface grooved to a point near its front face, the eyebolt *g*, secured in the tumbler at the end of the groove, and the chain connected to the eyebolt and extending rearwardly and upwardly, substantially as shown and described.

6. The combination, with the draw-head having chambered jaw, central channel-way or throat, and a shoulder *h* at the front end of the throat, of knuckle B, pivoted upon a vertical axis in the draw-head and having an extended and abutting face *b b'*, the quadrant-shaped tumbler E, filling the front end of the throat and pivoted to play vertically therein, and the operating chain F, connected to the lower front end of the tumbler, substantially as shown and described.

488,048. CAR-COUPLING. JAMES M. ELLIOTT, Jr., Gadsden, Ala. Filed Apr. 11, 1892. Serial No. 428,672. (No model.)

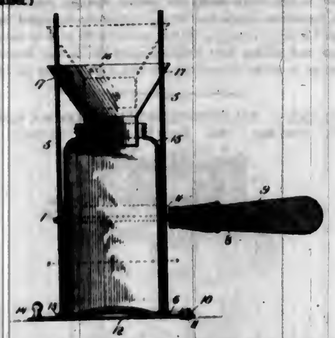


Claim.—1. The combination, with the draw-head, of a detachable pin having means for locking it to the draw-head against turning, the knuckle or coupling-hook pivoted about the pin, and a spiral spring surrounding the pin and attached at one end to the axial pin and at the other to the knuckle, substantially as shown and described.

2. The combination, with the draw-head, of a detachable pin having hub *d'* and means for locking the pin to the draw-head, the knuckle or coupling-hook having an enlarged chamber above and a close-fitting bearing c^5 below, and a spiral spring fitting in said enlarged chamber and having its opposite ends connected, respectively, to the pin and the knuckle, substantially as shown and described.

3. The combination, with the draw-head, of the detachable pin having boss *d'*, with notch or slot d^2, the knuckle or coupling hook having enlarged chamber with slot *d* and recess or hole *e*, and the spiral spring D, encompassing the pin and having its upper end seated in the slot d^2 and its lower end in the recess *e*, substantially as shown and described.

488,049. JAR FILLER AND HOLDER. ISAAC M. FISHER and IDA M. FISHER, Burrows, Mo. Filed Apr. 30, 1892. Serial No. 431,274. (No model.)



Claim.—1. A fruit-jar filler having side standards, a circular receptacle attached to said standards, and a bottom and upper encircling wire support, in combination with a laterally-swinging bottom, substantially as described.

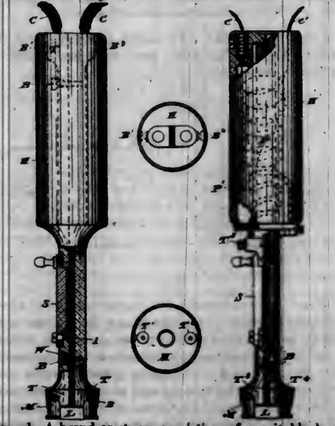
2. A fruit-jar filler having side standards, a circular receptacle attached to said standards, and a bottom and upper encircling wire support, in combination with a laterally-swinging bottom having catch 13 to clasp the bottom wire support and stopping against a side standard, substantially as set forth.

3. A fruit-jar filler having side standards, a circular receptacle attached to said standards, and a bottom and upper encircling wire support, in combination with a laterally-swinging bottom having on one side a catch to clasp the bottom wire support and stopping against a side standard and on the opposing side hinged to the bottom supporting-wire by a rivet loosely operating in a loop in the bottom supporting-wire, substantially as set forth.

4. A fruit-jar filler having side standards, a circular receptacle attached to said standards, and a bottom and upper encircling wire support, in combination with a laterally-swinging bottom having catch 13 to clasp the bottom wire support and stopping against a side standard, and a funnel held in position by the resiliency of the side standards, substantially as set forth.

5. A fruit-jar holder and filler consisting of side standards, a circular receptacle attached to said standards, and a bottom and upper encircling wire support, a laterally-swinging bottom hinged to the bottom supporting-wire and provided with a clasp to engage the bottom supporting-wire, a funnel held in position by the resiliency of the side standards which support the funnel, and a handle attached to the free end of the upper encircling supporting-wire, substantially as set forth.

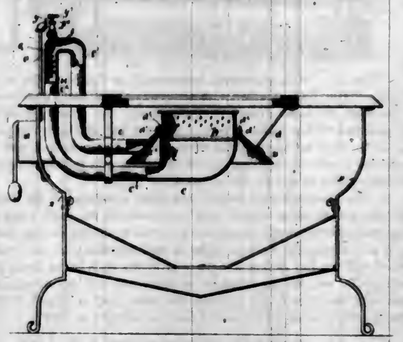
488,050. BRANDING-STAMP. JAMES S. FITZMAURICE, Sydney, New South Wales, assignor to the Electric Brand Company, Limited, same place. Filed Aug. 17, 1891. Serial No. 403,054. (No model.)



Claim.—1. A brand or stamp consisting of a suitable handle, a sectional metallic shank for supporting the brand, the sections being insulated from each other, a flanged branding-iron secured to the sides of the lower end of the metallic shank, and insulating material interposed between the lower face of the metallic shank and the brand, substantially as described.

2. A brand or stamp consisting of a suitable handle, a sectional metallic shank with insulating material between the sections and across the lower ends thereof, circuit connections, a pivoted switch forming a part of one of the sections of the shank, and a brand bearing against the insulation on the bottom of the shank and having lugs or flanges forming attachments and electrical connections for the current, substantially as described.

488,051. VAPOR-STOVE. RUDOLPH FLICK, Cleveland, Ohio. Filed Jan. 9, 1890. Serial No. 336,207. (No model.)



Claim.—1. In a vapor-stove, a vapor-conducting pipe having a burner at its lower portion, an evaporating apparatus connected with a fluid-supply and with the pipe above the burner, a hot-air-collecting chamber adjacent to the side of and below the upper end of the burner and having an air-inlet, and a hot-air-conducting pipe connecting the said chamber and the evaporating apparatus, the parts combined for the purpose specified.

2. In a vapor-stove, a vapor-conducting tube having a burner at its lower portion, an evaporating apparatus at its upper portion, an oil-supply, a hot-air-collecting chamber surrounding the burner below its upper end and having an opening for feeding air to the burner for combustion, and a hot-air-conducting pipe connecting the said chamber and the evaporating apparatus, the parts combined for the purpose described.

3. The herein-described method of generating hydrocarbon vapor, which consists in feeding hydrocarbon liquid in small particles and atomizing the same to secure vaporization thereof, simultaneously feeding and mixing therewith heated air at substantially the same point to prevent condensation, and feeding the resulting vapor to a burner by gravity, substantially as set forth.

4. The herein-described method of generating hydrocarbon vapor, which consists in feeding hydrocarbon liquid in small particles and atomizing the same within a conductor closed to the surrounding atmosphere to secure vaporization thereof, simultaneously feeding and mixing therewith heated air at substantially the same point to prevent condensation, and feeding the resulting vapor to a burner by gravity, substantially as specified.

5. The herein-described method of generating hydrocarbon vapor, which consists in feeding the liquid under pressure against an object to atomize and vaporize the same and feeding the vapor to a burner by gravity, and assisting vaporization and preventing condensation by simultaneously conducting heated air from a burner to the point of atomization, substantially as specified.

6. In a vapor-stove, a supporting-frame, a vapor-pipe having a burner at its lower end, an evaporating apparatus at the upper end of the said pipe, a truncated cone surrounding the said burner and aside of its top, and a hot-air pipe connecting this cone and the said vapor-pipe, all combined substantially as set forth.

7. In a vapor-stove, a framework, a vapor-pipe having a vertical portion, a burner at the lower end of said pipe, a hot-air collector adjacent to the burner, a hot-air-conducting pipe connected at its lower end to the said collector and its upper end connected with the said vapor-tube to form with the said vapor-pipe a continuous pipe doubled upon itself, substantially as shown, and an evaporating apparatus in the upper end of said vapor-pipe substantially at the junction of the two pipes, all combined substantially as shown and described.

8. In a vapor-stove, a vapor and a hot-air pipe having each a substantially vertical and horizontal portion, as shown, the upper ends of the two pipes connected to form together a continuous pipe doubled

upon itself, a burner at the lower end of the vapor-pipe, a hot-air collector adjacent to the said burner and below its upper end, and an evaporating apparatus substantially as the junction of the said pipes, all combined substantially as described.

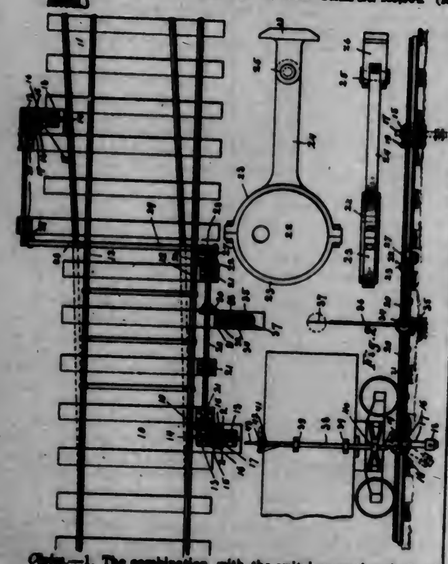
488,052. DERRICK-DRUM. ADAMS C. FERRIS, Rapid City, S. D. Filed Jan. 9, 1892. Serial No. 417,894. (No model.)



Claim.—1. In an apparatus, substantially as described, the combination of the shaft provided with a keyway, the drum proper fitted on the shaft, the outer drum or case fitted over the drum and shaft and provided with a notch or seat *g*, and the key sliding in the keyway in the shaft for securing the drum proper and provided with a projection *i*, movable into and out of the notch *g* in the outer drum, all substantially as and for the purposes set forth.

2. The improved drum herein described, consisting of the shaft, the drum proper fitted on and keyed to the shaft, the outer drum or case fitted over the drum proper and provided in its side with an opening H and having the walls or edges of said opening bent or curved inward and the key sliding in a keyway in the shaft for securing the drum proper and having a portion movable into and out of engagement with the outer drum, whereby the latter may be keyed to turn with the shaft, substantially as and for the purposes set forth.

488,058. SWITCH-SHIFTER. JOHN GILSTRAP and MARTIN L. BROWN, Moscow, Idaho. Filed Sept. 12, 1891. Serial No. 405,804. (No model.)

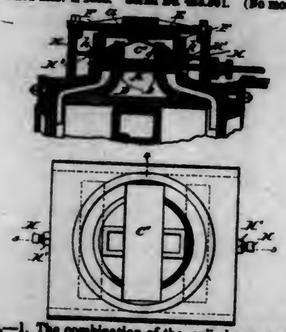


Claim.—1. The combination, with the switch-operating shaft, of a transverse shaft geared thereto, a weighted lever pivoted between its ends on the transverse shaft with its upper end in the path of the train projection, and lugs on the transverse-shaft gear at opposite sides of the said lever to be struck thereby, substantially as set forth.

2. The combination of the two line-shafts at opposite sides of the switch and track, a transversely-sliding switch-bar connected at its ends with the ends of said shafts by pitmen and crank connections, an eccentric secured to one line-shaft, a strap embracing the said eccentric and provided with an arm 24, connected by a pivoted section 26 with the switch-rail, transverse shafts geared to the line-shafts, a weighted lever pivoted between its ends on each transverse shaft, and projections on the transverse-shaft gears, between which said levers work, substantially as set forth.

3. A switch-shifter comprising crank-shafts arranged parallel with the track and connected with the switch-bar, transverse shafts arranged adjacent to the crank-shafts and geared thereto, gear-wheels carried by the transverse shafts and having oppositely-arranged lugs thereon, weighted levers pivoted on the transverse shafts so as to swing between the lugs, and sliding bars mounted upon the cars or locomotive of a train so as to strike the swinging levers, substantially as described.

488,054. BALANCED SLIDE-VALVE. MARTIN A. GREEN, Altoona, Pa. Filed Mar. 1, 1892. Serial No. 423,301. (No model.)



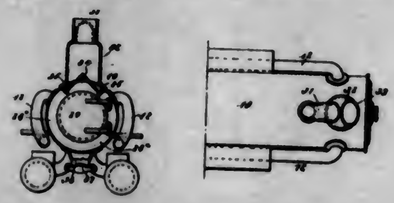
Claim.—1. The combination of the cylinder or casing, the pressure-plate having an internal steam-space and provided with portions resting on the valve-seat, whereby to prevent undue pressure upon the valve, the balance-ring fitted in said pressure-plate, and the casing-plate against which said ring rests, said plate being disconnected from the pressure-plate, whereby the casing-plate may be removed to permit access to the balance-ring without removing the pressure-plate.

2. The improvement in balanced valves, substantially as herein described, consisting of the valve and its seat, the pressure-plate, the balance-ring fitted to said pressure-plate, a spring-bearing between said plate and ring, and the pressure-plate being movable laterally over the valve and seat independent of any movement toward or from the same, whereby it may be properly set without varying the tension of the spring between the balance ring and pressure-plate.

3. The combination, in a balanced valve, of the pressure-plate provided with a steam-space and with opposite spring pockets or recesses, the balance-ring fitted to the pressure plate, and the bow-spring plate bearing between said balance-ring and pressure-plate and fitted at its ends in the pockets or recesses, whereby it is self-retaining, substantially as set forth.

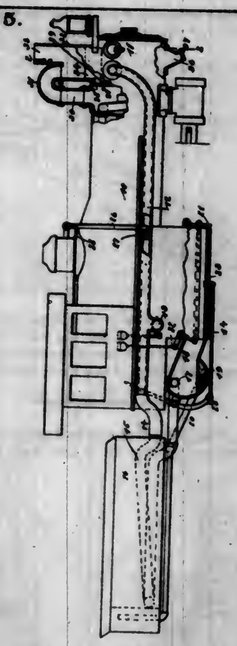
4. The combination, substantially as described, of the cylinder or casing, the valve proper, the pressure-plate arranged to bear upon the cylinder or casing, whereby to prevent undue pressure on the valve, the screws whereby to set the said pressure-plate to and secure it in any desired position over the valve, the balance-ring fitted to said pressure-plate, and the actuating-spring, all substantially as and for the purpose set forth.

488,055. SMOKE AND SPARK ARRESTER AND CONSUMER. ELIAS J. HADLOCK, Big Spring, Tex. Filed Jan. 13, 1892. Serial No. 417,916. (No model.)

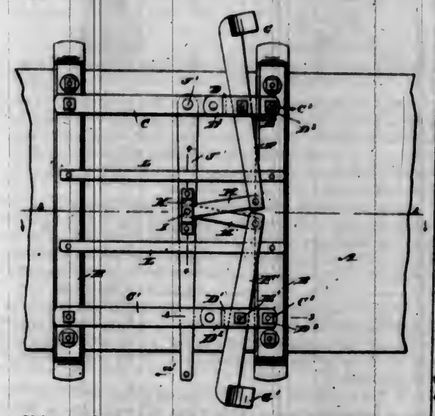


Claim.—The combination, in a locomotive having a transversely-divided front extension 11, of a box 32 over the forward compartment, a deflector at the bottom of the box and upper part of said compartment and having its edges spaced therefrom to permit communication between the two, a stack 30, extending upward from the rear or smoke compartment and discharging through an elbow 31 into the top of said box, a stack 33, leading from the top of box 32 in front of stack 30 and of greater diameter than the latter stack, and the pipes 12, leading from the forward compartment rearwardly into the fire-box above its fuel-space, substantially as set forth.

488,055.



488,056. WAGON-BRAKE. BROOM G. HANEY and WILLIAM A. HANEY, Medora, Kans. Filed Apr. 14, 1892. Serial No. 429,126. (No model.)

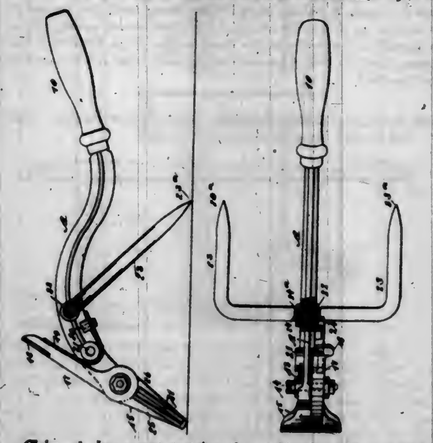


Claim.—1. In a wagon-brake, the combination, with longitudinally-extending bars adapted to be secured to the sills of the wagon-body and keepers secured to the said bars and extending forward from the same, of brake-levers fulcrumed on the said keepers, an operating-lever pivoted on one of the said longitudinal bars L L and extending between the latter and the wagon-body, and a second set of longitudinal bars located between the first-named bars and also adapted to be secured to the sills of the wagon-body, substantially as shown and described.

2. In a wagon-brake, longitudinally-extending bars adapted to be secured to the under sides of the sills of the wagon-body, a keeper secured to each of the said bars and extending downward from the same, and a bolt held in each of the said bars and keepers, in combination with brake-levers fulcrumed on the said bolts and extending through the said keepers, links pivotally connected with the upper sides of the inner ends of the said brake-levers, and an operating-lever pivoted on the top of one of the said bars, extending across the wagon-body over the top of the other bar, the said lever being provided with a depending pin pivotally connected with the overlapping ends of said links, substantially as shown and described.

3. In a wagon-brake, longitudinally-extending bars adapted to be secured to the under sides of the sills of the wagon-body, a keeper secured to each of the said bars and extending downward from the same, and a bolt held in each of the said bars and keepers, in combination with brake-levers fulcrumed on the said bolts and extending through the said keepers, links pivotally connected with the inner ends of the said brake-levers, an operating-lever pivoted on the top of one of the said bars, extending across the wagon-body over the top of the other bar, the said lever being provided with a pin pivotally connected with the said links, and a keeper held on the lower side of said operating-lever and supporting the lower end of the said pivot-pin for the links, substantially as shown and described.

488,057. CARPET-STRETCHER. ROBERT HARRISON, Philadelphia, Pa. Filed Apr. 12, 1892. Serial No. 428,780. (No model.)

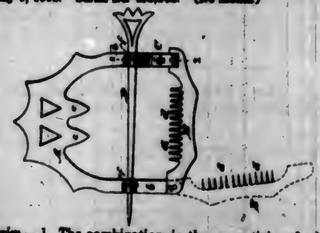


Claim.—1. In a carpet-stretcher, the combination, with an arched body terminating at its forward end in a jaw, of a second spring-pressed jaw pivoted upon the body and adapted for engagement with the fixed jaw and feet adapted to act as fulcrums for the body and having adjustable connection with the body, as and for the purpose specified.

2. In a carpet-stretcher, the combination, with an arched body terminating at one end in a handle and at the other end in a fixed jaw, of a spring-pressed jaw pivoted upon the body, the two jaws being provided with teeth, the teeth being adapted for engagement with each other, a thumb-plate connected with the pivoted jaw, and feet of angular construction adapted to act as fulcrum for the body, having an adjustable engagement with the body back of the jaw-pivot, substantially as shown and described.

3. In a carpet-stretcher, the combination, with an arched body having a handle formed at one end and a jaw at the opposite end and provided with threaded openings located at distances apart between its ends, of a spring-pressed jaw pivoted upon the body forward of the openings therein, the pivoted jaw being adapted for engagement with the fixed jaw, and angular feet fitted to enter and turn in the openings of the body, one foot opposite the other, as and for the purpose specified.

488,058. COMB. ELMIRA H. HARPHAM, St. Louis, Mich. Filed May 9, 1892. Serial No. 432,932. (No model.)



Claim.—1. The combination, in the one article, of a lady's back-hair comb and an attached raising and lowering neck-hair comb.

2. The combination, in the one article, of a lady's back-hair comb, an attached raising and lowering neck-hair comb, and a removable dart or pin adapted to engage transversely with the back-hair comb between the latter and the neck-hair comb.

3. The combination of a lady's back-hair comb provided with downwardly-projecting teeth on its upper portion and a lower neck-hair comb having upwardly-projecting teeth and downwardly and upwardly opening and closing pivoted connection with the main or back hair comb.

4. The combination of a lady's back-hair comb provided with downwardly-projecting teeth on its upper portion, a lower neck-hair comb having upwardly-projecting teeth and downwardly and upwardly opening and closing pivoted connection with the main or back-hair comb, and a removable dart or pin adapted to engage transversely with the opposite sides of the main or back-hair comb between the latter and the neck-hair comb.

5. The combination of the main or back-hair comb A, having upper downwardly-projecting teeth *c* and side arms or legs *b b*, the lower neck-hair comb B, having upwardly-projecting teeth *d d*, pivoted at its one end, as at *e*, to the one leg *b* below and closing or engaging at its opposite or free end with the lower portion of the other leg *b*, and a spring-catch to hold the same in engagement, substantially as shown and described.

488,059. HORSE-DETACHER. ELIJAH HAYS, Warsaw, Ind. Filed Nov. 6, 1891. Serial No. 411,072. (No model.)



Claim.—1. The combination of the thills and cross-bar, the breeching attachments mounted on the thills, and the tug attachments mounted directly on the cross-bar with the sectional draft-tugs, each consisting, essentially, of two sections provided, respectively, with a hollow cylindrical piece and a rod provided with an enlarged head, said rod being supported in said cylindrical portion and having a spring thereon for holding it normally in its inner position, all substantially as and for the purpose explained.
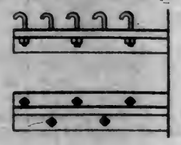
2. In a horse-detaching device, the combination of the thills and cross-bar, the breeching-detaching devices attached to the thills, the tug-detaching devices attached to the cross-bar, the horizontally-operating bell-crank levers for operating the breeching-detaching devices, the vertically-operating bell-crank levers for operating the tug-detaching devices, suitable connections between said bell-crank levers, and means for operating said bell-crank levers, substantially as set forth.

3. The combination, with the cross-bar, of the thills, the transverse slots in said cross-bar, the vertically-operating pins passing through said slots and provided with slotted heads, bell-crank levers engaging said slotted heads, and means for operating said bell-crank levers, substantially as set forth.

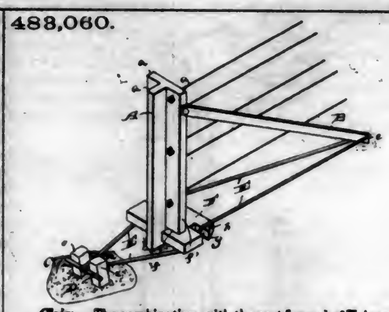
4. In a horse-detaching device, the combination of the thills and cross-bar, the breeching-detaching devices attached to the thills, the transverse slots in the cross-bar, the vertically-operating pins passing through said slots, the horizontally-operating bell-crank levers connected through suitable rods with the breeching-detaching devices, the vertically-operating bell-crank levers engaging the vertically-operating pins, suitable connections between said bell-crank levers, and means for operating said levers, substantially as set forth.

5. The combination, with the cross-bar, of the thills, the transverse tags receiving slots in said cross-bar, the vertically-operating pins passing through said slots, suitable breeching attachments attached to the thills, and means for operating said pins, substantially as and for the purpose described.

488,060. IRON FENCE-POST. CHARLES W. HOLM, Troy, Ohio. Filed Mar. 31, 1892. Serial No. 427,319. (No model.)

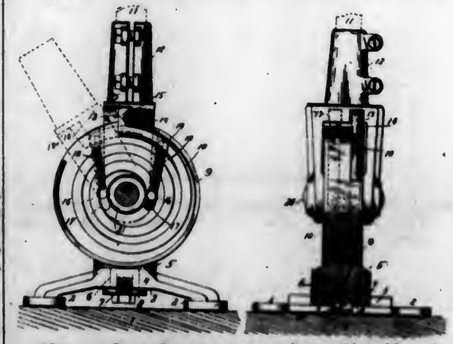


488,060.



Claim.—The combination, with the post formed of T-iron and having the brace B, of the anchor therefor, the wires connected to said anchor and to the brace, and the binder F, notched to engage the post and for the passage therethrough of said wires, substantially as specified.

488,061. TROLLEY-STAND FOR ELECTRIC RAILWAYS. JOHN C. HOUSE, Pittsburg, Pa. Filed Dec. 21, 1891. Serial No. 415,726. (No model.)



Claim.—1. In a trolley-stand, a pivoted disk provided with a pair of helical springs of like form and having their inner ends projecting into slots in the disk, in combination with tension-regulating screws entering the slots and in engagement with said ends and a forked and recessed pole-socket in engagement with the outer ends of said springs, in the manner and for the purpose specified.

2. In combination with a pivoted disk and pole-socket, a pair of helical springs located on opposite sides of the disk and having their inner ends adjustably secured therein and their outer free ends arranged to alternately engage the pole-socket when the pole is inclined, whereby one spring remains inactive while the other is in operation, in the manner and for the purpose substantially as described.

3. In a trolley-pole stand, a disk having helical springs upon its opposite sides, in combination with a trolley-pole socket forked to pass astride the disk and springs and adapted to alternately engage the free ends of the springs, in the manner and for the purpose substantially as described.

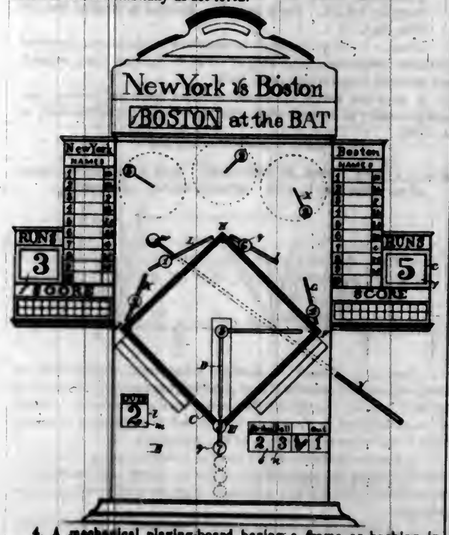
4. In a trolley-pole stand, a disk having springs upon its opposite sides, in combination with a forked trolley-pole socket pivoted to the disk and passing astride the springs and disk, in the manner and for the purpose substantially as described.

488,062. GAME APPARATUS. EDWARD D. HOWELL, Brooklyn, N. Y. Filed May 25, 1891. Serial No. 394,060. (No model.)

Claim.—1. A mechanical playing-board composed of a frame or backing on which is mounted the mechanism to move the player-figures, in combination with a face-plate covering said backing and its containing mechanism, said face-plate having slots therein to form ways for the runners and separate slots for the base-men and openings to expose the various plays and features of the game, substantially as herein set forth.

2. A mechanical playing-board composed of a frame or backing on which is mounted the mechanism to move the playing-figures, in combination with a face-plate covering said backing and its containing mechanism, said face-plate having therein slots to form ways for the runners and base-men and openings to expose the various plays and features and means for representing the movement of the ball, substantially as herein set forth.

3. In a mechanical playing-board for indicating and reproducing a game of ball, a frame or backing on which is mounted the mechanism to move the player-figures, in combination with a face-plate covering said backing and its containing mechanism, said face-plate having slots therein to form ways for the runners and other slots for the base-runner, substantially as set forth.



4. A mechanical playing-board having a frame or backing, in combination with a face-plate having slots for the runners and base-men and between said backing and face-plate the mechanism for moving the figures, which consist of, first, the endless tapes or bands within the diamond slot for carrying the runners and the tape within the slot for carrying the figure of the pitcher; second, the figures for representing the base men, short-stop, and catcher mounted on traveling blocks within their respective slots or ways, having the crank-levers and connecting-rods; third, the grooved pulleys having the crank-arms attached and exposed above the face-plate for attracting thereto the figures representing the outfielders, together with the cords or belts for turning the same, substantially as herein set forth.

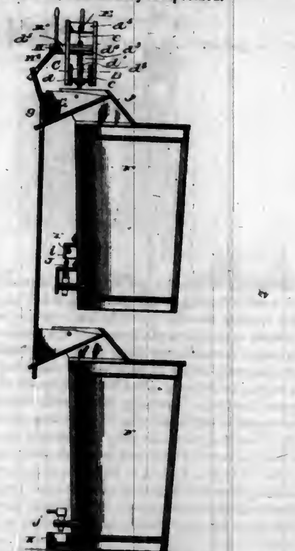
5. A mechanical playing-board having a frame or backing, in combination with a face-plate having slots for the runners, base-men, catcher, pitcher, and short-stop and suitable holes for the swiveled outfielders and openings to indicate the runs made by each side, the "outs" and "foul" plays made, and the "strikes" and "balls" of the side at the bat, with the mechanism between the face-plate and the backing, as shown, to progressively manipulate the figures' positions and results, as set forth.

6. A series of endless tapes, bands, or belts within the slot which forms the diamond, held in proper relation to each other by means of rollers at the angles, and a line of rollers or drums at one side to receive the tapes and remove the same, said tapes having at intervals slotted openings or sockets to receive the blades of the disk-pins, in combination with said disks and pins thereon, substantially as herein set forth.

488,063. APPARATUS FOR MAKING VINEGAR. RUSSELL M. HOUSER, Louisville, Ky. Filed Apr. 2, 1892. Serial No. 427,518. (No model.)

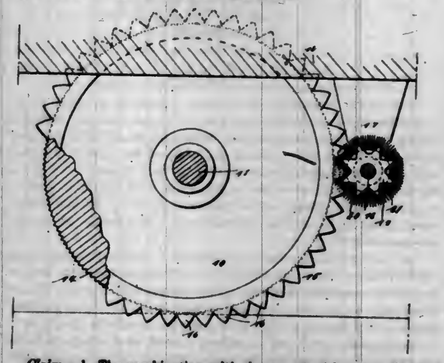
Claim.—1. In an apparatus for making vinegar, the combination of the charging-trough having compartments and means for effecting the discharge of the contents of said compartments, the upper generators having tilting buckets hung in chutes upon the upper ends of said generators, and means for dumping or tilting said buckets, said charging-trough compartments adapted to discharge into said buckets, substantially as set forth.

2. In an apparatus for making vinegar, the combination of the charging-trough having compartments and means for effecting the discharge of the contents of said compartments, the upper and lower generators having tilting buckets hung in chutes upon the upper ends of said generators, aligned upper and lower buckets being connected together and the upper buckets adapted to receive the contents of the compartments of the charging-trough, means for operating or tilting the buckets of the upper and lower generators, and plugs or valves applied to the upper generators and adapted to deliver the contents of the upper generators into the buckets of the lower generators, and means for operating said plugs or valves, substantially as specified.



3. In an apparatus or plant for making vinegar, the combination, with the upper and lower generators, of the plugs or valves applied to the upper generators and means for operating said plugs, the tilting buckets arranged upon said generators and connected together, and means for actuating or tilting said buckets, said plugs or valves being adapted to draw off the liquid of the upper generators into the buckets of the lower generators, substantially as set forth.

488,064. CAR-WHEEL. GEORGE HULL, Binghamton, N. Y. Filed Feb. 6, 1892. Serial No. 420,531. (No model.)

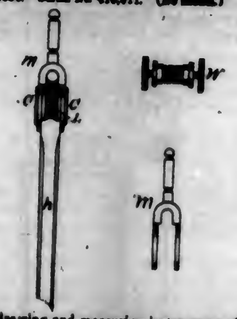


Claim.—1. The combination, with the car-wheel having a flange formed of cutters, of a cleaner supported adjacent to the wheel and adapted to contact therewith, said cleaner being revolved by contact with the wheel, substantially as described.

2. The combination, with the car-wheel having transverse teeth upon its tread-surface and having a flange formed of a series of cutters, of a star-wheel journaled near the car-wheel and adapted to engage the flange thereof, and a brush carried by the star-wheel and held to contact with the tread of the car-wheel, substantially as described.

3. The combination, with the car-wheel having a flange formed of a plurality of cutters, of a star-wheel journaled near the car-wheel and adapted to contact with the flange-cutters, substantially as described.

483,065. CALIPER-JOINT. WILLARD H. ISSELL, New York, N. Y. Filed Dec. 30, 1891. Serial No. 416,611. (No model.)

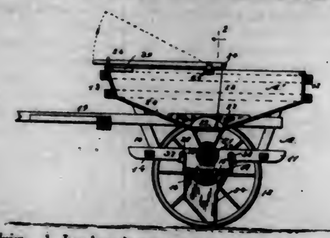


Claim.—1. In drawing and measuring instruments, the combination of a screw having a right-hand and a left-hand thread formed the one crossing the other over the same surface and corresponding with similar threads or teeth formed on the joints of the instruments and in which the said screw rests, as herein specified.

2. The combination, in drawing and measuring instruments, of a screw having a right-hand and a left-hand thread formed one over the other and meshing or worming into similar threads formed on the circumference of the joints of said instruments, as described.

3. In drawing and measuring instruments, the combination of a screw having both a right-hand and a left-hand thread, one crossing the other, having its bearing in form M and being held in position by the same against the right-hand and left-hand worm-gear formed, respectively, on the separate joints of said instruments or on rings of suitable metal attached thereto, all substantially as described.

483,066. SEED-PLANTER. EBENEZER B. KNIGHT, St. Johns, Canada. Filed Apr. 19, 1892. Serial No. 429,714. (No model.)



Claim.—1. In a broadcast sower, the combination, with a wheel-supporting frame, and a seed-box carried by the frame and having a bottom inclined in direction of its center and provided at its center with a chute, of a valve located above the chute, a lever connected with the valve, a seed-delivery drum or cylinder held to revolve beneath the chute of the seed-box and provided with peripheral grooves or pockets, and a driving mechanism between one of the supporting-wheels of the frame and the seed-distributing cylinder, as and for the purpose set forth.

2. In a broadcast sower, the combination, with a wheel-supported crib-like frame, a seed-box carried by the frame and having its bottom inclined downward in direction of the center, and a trough formed transversely at the central portion of the bottom, of a valve pivotally located above the trough, the pivot being at one side of the center of the end portions of the valve, a lever carried by the body and connected with the valve, a locking device adapted for engagement with the lever, a shaft located below the trough of the seed-box and actuated from one of the frame-supporting wheels, and a seed-delivery drum mounted upon the shaft to turn therewith, the said drum being detachable from the shaft and provided with a series of longitudinal peripheral pockets, as and for the purpose specified.

3. In a broadcast sower, the combination, with a wheel-supported body or frame, a seed-box carried by the body or frame and having its bottom inclined from its ends downward to the center, a trough formed at the central portion of the bottom of the seed-box, a pivoted valve located above the trough, a lever carried by the seed-box and connected with the valve, and partitions located longitudinally upon the bottom of the seed-box, the said partitions being adapted to prevent excessive movement of the seed in the direction of the sides of the box, of a shaft journaled in the frame below the trough and actuated from one of the frame-supporting wheels, a seed-delivery drum carried by the shaft and removable therefrom, said seed-drum being provided with a series of longitudinal pockets in its peripheral surface, and a spout located beneath the drum and having a link connection with the frame of the implement, as and for the purpose specified.

483,067. PREPARATION FOR BEVERAGES. ADOLF S. KRUSSER, Hannebhold, Lennie, near Glasgow, Scotland. Filed Oct. 26, 1891. Serial No. 410,125. (No specimens.) Patented in England Mar. 24, 1886, No. 4,114.

Claim.—1. As a new article of manufacture, the herein-described medicinal preparation, consisting in celery or celeriac dried, roasted, and reduced, substantially as set forth.

2. As a new article, the herein-described medicinal powder, consisting in celery or celeriac dried, roasted, and ground, substantially as set forth.

483,068. BOOK OR PORTFOLIO. COLIN B. LEMMONDS, Helena, Mont. Filed Mar. 24, 1892. Serial No. 426,206. (No model.)



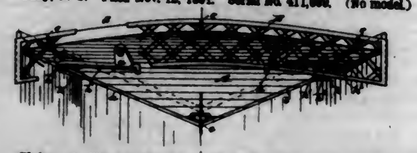
Claim.—1. A book or portfolio constructed, substantially as herein shown and described, with a folded expansible foundation, as set forth, wherein the expansibility is restricted or regulated by means of straps attached to the covers and passed through loops or staples fixed in the outer salient angles of the foundation.

2. The combination, with a book or portfolio having a folded expansible foundation, substantially as herein shown and described, of an attached extensible and adjustable back, as and for the purpose set forth.

3. In an expansible book or portfolio, substantially as herein shown and described, as a means for adjusting and regulating its expansibility, a series of straps and suitable staples or buckles secured thereto, as set forth, said straps being attached to the covers and passed outside over the foundation-back.

4. An expansible book or portfolio constructed, substantially as herein shown and described, with a folded foundation fixed between covers and with adjustable straps extending from one cover to the other in contact with and movably attached to the outer salient angles of the said foundation, as and for the purposes set forth.

483,069. CORNER BRACKET-SHELF. JOSHUA D. LOSS, Long Eddy, N. Y. Filed Nov. 12, 1891. Serial No. 411,698. (No model.)



Claim.—1. The combination, with a triangular shelf, of a pointed rod adapted for outward adjustment on the shelf at its angle that engages the corner of a wall and locking devices on the shelf, outwardly adjustable at each side edge thereof, substantially as described.

2. The combination, with a triangular shelf, of a pointed rod outwardly adjustable at one angle of the shelf, prongs held to swing outwardly from opposite edges of the shelf, and a locking device for the prongs, substantially as described.

3. The combination, with a triangular shelf having a frieze-plate securable to its front edge, of an adjustable pointed rod located at the angle of the shelf opposite the frieze-plate, similar bent arms pivoted at opposite sides of the shelf and having prongs on their outer limbs, adapted to be projected beyond the side edges of the shelf when the arms are swung toward said edges, and turn-buttons for locking said arms in position, substantially as described.

483,070. LETTER-BOX. LYMAN T. LOOFF, Covington, Ky. Filed July 7, 1891. Renewed May 18, 1892. Serial No. 433,491. (No model.)

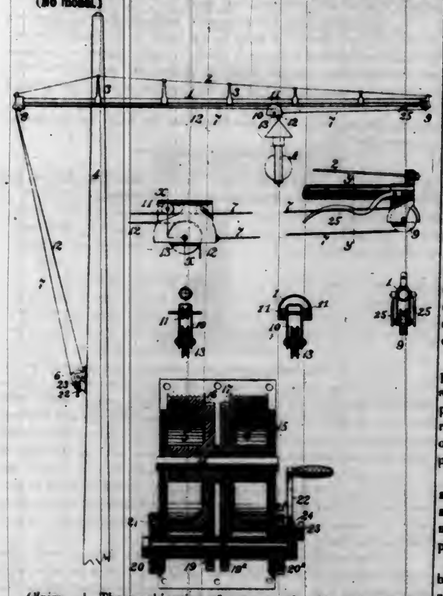
Claim.—1. A letter-box consisting of a box divided by partitions into a number of separate compartments, a series of small doors closing these compartments at one of their ends for the use of the rosters of the boxes, and a single door closing the other ends of the boxes for the use of the postman, substantially as set forth.

488,070.



2. The herein-described letter-box, consisting of the box 1, the vertical and transverse partitions 2 3, dividing the interior of the same into the separate horizontal boxes 4, the small hinged doors 5, closing these separate boxes at one of their ends, and the large door 6, provided with a suitable lock and closing the boxes 4 at their other ends, substantially as set forth.

488,071. SUPPORT FOR LAMPS. AUSTIN H. LOGAN, Pittsburg, Pa., assignor of two-thirds to George P. Shane, same place, and Edward G. Miller, Wilkinsburg, Pa. Filed Oct. 27, 1890. Serial No. 369,402. (No model.)



Claim.—1. The combination of a mast and a jib with a trolley movable along the jib, two drums capable of rotation together or independently of each other, mounted in suitable bearings on the mast, and two ropes connected one to each of said drums in such manner that when the drums are rotated in the same direction one rope will be wound on its drum and the other rope unwound from its drum, one of said ropes passing around guides on the jib and connected to the trolley and the other rope passing around a guide on the jib at or near the mast and a guide on the trolley and connected to the lamp, substantially as set forth.

2. The combination of a mast and jib with a trolley movable along the jib, two drums mounted in suitable bearings on the mast, one of said drums being rotatable independently of the other, a rope connected to the independently-rotatable drum and passing over a guide at or near the mast and a guide on the trolley and connected to the lamp, and a rope connected to the other drum and passing over guides on the jib and connected to the trolley, substantially as set forth.

3. The combination of a mast and jib with a trolley movable along the jib, two rotatable drums mounted in suitable bearings on the mast, and two ropes connected to the drums and arranged as described, one of said ropes serving as a support for the trolley, substantially as set forth.

4. The combination of a mast and jib, a trolley movable along the jib, two drums mounted in suitable bearings on the mast and connected to gear-wheels, a rotatable shaft, pinions arranged on said shaft and intermeshing with the gear-wheels, one of said pinions keyed to the shaft, the other pinion adapted to be connected and disconnected from the shaft, and two ropes connected and arranged substantially as described.

488,072. INK-WELL. JOHN W. MACDONALD, Pittsburg, Pa. Filed June 9, 1890. Serial No. 354,640. (No model.)



Claim.—1. In a fountain ink-well, a flexible rubber diaphragm centrally apertured and provided with an annular channel formed in the face thereof, as and for the purpose set forth.

2. In a fountain ink-well, a flexible diaphragm having a tapered central aperture and provided upon its inner face with a flange surrounding said aperture and forming part of the walls thereof, said flange being thicker at the base thereof than at the top, as shown and described, and for the purpose set forth.

3. In a fountain ink-well, a centrally-apertured diaphragm formed of flexible rubber, the body thereof immediately surrounding said central aperture being thinner than that part of the diaphragm of greater diameter and next the circumference thereof, the said parts of different thickness being joined by the rubber of the diaphragm, forming an annular channel in the face thereof, as shown and described, and for the purpose set forth.

4. In a fountain ink-well, a flexible rubber diaphragm provided with one or more perforations for the passage of air to and from the reservoir of said well, said perforations being externally closed by an enlargement in the upper extremity of a vertical supply-tube passing centrally through said diaphragm, as and for the purpose shown and described.

5. In a fountain ink-well, a valve for automatically regulating the pressure of air within the reservoir of said well, having for its seat the surface of an elastic diaphragm and for its cap an externally-enlarged part of a supply tube passing through said diaphragm, each so arranged with relation to the other that said valve will automatically open and close with the upward and downward movement of said diaphragm, as and for the purpose set forth and described.

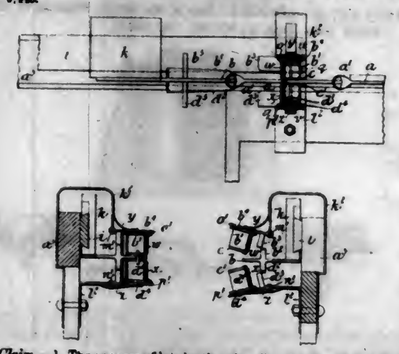
6. In a fountain ink-well, the combination of a supply-tube having a neck in its upper extremity and an elastic rubber diaphragm fitting around said neck, the supply-tube being provided with an enlargement above said neck covering one or more perforations in said diaphragm, as shown and described, and for the purpose set forth.

7. In a fountain ink-well, the combination of a supply-tube, a flexible rubber diaphragm having the body thereof provided with an annular depending flange around its circumference, said flange fitting around an annular shoulder formed on the neck of the well, and a threaded cap-piece screwing onto the well and provided with an annular shoulder formed on the under side of the top of said cap, pressing on the top of the diaphragm around its outer edge and acting to force down said annular flange and expand the diaphragm, as shown and described, and for the purpose set forth.

8. The combination of a body provided with a spirally-formed thread in its upper extremity to receive a flanged cap, having upon its under side and next said flange an annular collar, a flexible rubber diaphragm provided with an annular channel formed in the face thereof, and a supply-tube held to position by the elastic rubber forming the thickened or reinforced part of said diaphragm, as shown and described.

9. In a fountain ink-well, a body forming the reservoir thereof, a cap or cover formed to fit over the top of said body, a rubber diaphragm provided with a depending flange around the circumference thereof, a supply-tube passing centrally through said diaphragm, and a means for automatically regulating the pressure of air within said well, consisting in enlarging the upper extremity of said supply-tube to cover the perforations in said diaphragm when the latter is at rest and be lifted therefrom as the diaphragm is raised by the expansion of air within the well, as shown and described.

483,073. METHOD OF AND MEANS FOR LUBRICATING THE WIRES IN LOOMS FOR WEAVING PILE FABRICS. GIULIO MARCHETTI and HENRY H. MELLOR, Halifax, England. Filed Sept. 3, 1890. Serial No. 363,807. (No model.) Patented in England Apr. 3, 1890, No. 5,210; in France Aug. 26, 1890, No. 207,876; in Germany Aug. 30, 1890, No. 56,667, and in Austria-Hungary Apr. 23, 1891, No. 54,632 and No. 9,445.



Claim.—1. The process of lubricating the pile-wires in a pile-fabric loom, which consists in placing a solid lubricant in tangential contact with said wires and then moving the wires longitudinally, whereby they are lubricated in substantially a longitudinal line only, as specified.

2. The process of lubricating the pile-wires in a pile-fabric loom, consisting in placing a solid lubricant in tangential contact with said wires, then moving said wires longitudinally and revolving such lubricant during the insertion or withdrawal of the wires, and whereby the wires shall be lubricated in substantially a longitudinal line only, as specified.

3. In combination with the pile-wire and means for operating the same, a support for a lubricant, provided with a holder, for positively retaining a solid lubricant in surface contact with said wire, substantially as described.

4. In combination with the pile-wire and means for operating the same, a lubricant-support provided with a holder for positively retaining a solid lubricant in surface contact with said wire, and means for revolving said holder, substantially as described.

5. In combination with the pile-wire and means for operating the same, a lubricant-support provided with a holder for positively retaining a solid lubricant in surface contact with said wire, and a ratchet-wheel and means for rotating the same serving to revolve said holder and its lubricant, substantially as set forth.

483,074. JOINT FOR ELECTRIC CONDUCTORS. JOSEPH W. MARSH, Pittsburg, Pa., assignor to the Standard Underground Cable Company, same place. Filed Dec. 21, 1891. Serial No. 415,739. (No model.)

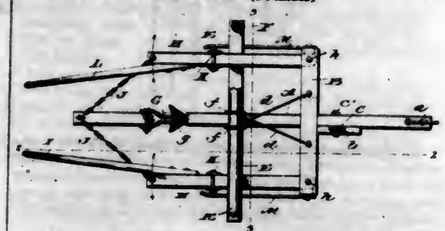


Claim.—1. In a joint for electric cables, the combination, with the adjacent ends of the cable-sections, of a recessed supporting-block of insulating material having the adjacent ends of the corresponding conductors united and supported in said recesses, substantially as described.

2. In a joint for electric cables, the combination, with the adjacent ends of the cable-sections, of supporting-blocks of insulating material and provided with recesses and having the adjacent ends of the corresponding conductors united and supported in said recesses, and insulating material applied to the conductors surrounding the block, substantially as described.

3. The combination, with the adjacent ends of the cables having a series of insulated metallic conductors, of a block of insulating material having peripheral recesses for the reception of the ends of the conductors, sleeves of conducting material embracing the adjacent ends of the corresponding conductors and fitting the recesses in the block, and insulating material surrounding the block and confining the sleeves in said recesses, the whole being provided with insulating material to form a substantial joint between the cables and adapted to maintain the united ends of the corresponding conductors in proper relation with each other and the adjacent conductors, substantially as described.

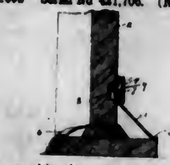
483,075. CULTIVATOR. JAMES A. MARTIN, Paunsdale, Ala. Filed June 4, 1892. Serial No. 435,480. (No model.)



Claim.—1. The combination, with the central beam and its front cross-bar, of the adjustable side bars with their sweeps, and the feeders pivoted at their forward ends on the ends of the front cross-bar and extended rearward in an inclined direction, with their rear ends broadened and terminating opposite to and flexibly and movably connected with the said sweeps, as set forth.

2. The combination, with the central beam and its front cross-bar, of the side bars pivoted at their forward ends to the front cross-bar, the handles attached to the side bars, the guide-plates on the beam and between which the side bars are guided, the sweeps, the rollers journaled between the ends of the guide-plates, the inclined pivoted feeders connected by chain to the forward sweeps, and the chains connecting the rear ends of the side bars with the beam, as and for the purpose specified.

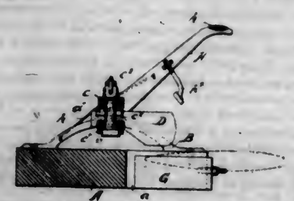
483,076. WEATHER-STRIP. DANIEL D. MAYFIELD, Sullivan, Ind. Filed Feb. 16, 1892. Serial No. 421,706. (No model.)



Claim.—1. The combination, with a door, of a weather-strip constructed of sheet metal and having its upper edge bent at a slight angle and arranged on the door, elastic strips arranged on the inner and outer faces of the upper edge of the weather-strip and disposed opposite each other, and straight fastening devices passing through both the elastic strips and the weather-strip and securing the latter to the door, said elastic strips providing a cushion at each side of the weather-strip at the point of attachment and adapted to yield to permit the weather-strip to have a swinging movement and to expand to hold the weather-strip firmly in contact with the door-sill, substantially as described.

2. The combination, with a door provided with a recess, of a weather-strip constructed of sheet metal and having its upper edge secured to the door and provided with a flange arranged opposite the recess, elastic strips arranged on the inner and outer faces of the upper edge of the weather-strip, the inner one of the elastic strips extending over the recess and forming a cushion, and the metallic casing-strip secured to the door and arranged above the weather-strip, substantially as described.

483,077. CIGAR-BUNCH CUTTER. JOHN G. MILLER and EDMUND YEISS, Newmanstown, Pa. Filed Dec. 9, 1891. Serial No. 414,494. (No model.)



Claim.—1. A machine for slitting cigar-bunches, having an oscillating frame with a series of knives secured thereto, substantially as described, in combination with means for holding the cigar-bunches below the center of the oscillating frame, whereby a sweeping rearward cut is produced, substantially as set forth.

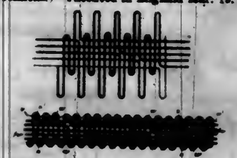
2. The combination of the fixed brackets B, the oscillating frame mounted therein and having knives adjustably secured thereto, the operating-handle H, stop A^3, and spring A, all arranged upon the base-plate A, substantially as and for the purpose set forth.

3. The combination, with the oscillating knife-frame having knives adjustably secured thereto, of the base-plate A, having the portion below the oscillating knives cut away and the projecting end or ends *a* thereof provided with an adjustable guide-facing G, substantially as and for the purpose set forth.

4. The combination, with the oscillating frame comprising clamping-plates *c* and *c'*, of the knives having shanks *d*, adjustably located between said plates, and means, substantially as described, for pressing said plates together to clamp the knives, all substantially as set forth.

5. The combination, with the oscillating frame comprising clamping-plates *c* and *c'*, of the knives having shanks *d*, adjustably located between said plates, caps *d'* upon said shanks inclosing an elastic lining *r*, and means, substantially as described, for pressing said plates together to clamp the knives, all substantially as set forth.

483,078. FIGURED WOVEN FABRIC. ALEXANDER MORTON and JAMES MORTON, Darvel, Scotland. Filed Aug. 24, 1890. Serial No. 363,307. (Specimens.) Patented in England Mar. 19, 1889, No. 4,777.



Claim.—1. A tapestry, Brussels, plush, pile, or similar fabric having the pattern-warps arranged so as to produce the same pattern on coincident portions of both sides of the fabric, while the colored warps where not used for the pattern are floated between the piles, as set forth.

2. A tapestry, Brussels, plush, pile, or similar fabric composed, as described, of two distinct weft planes bound together by warps which produce the same pattern on coincident portions of both sides, each weft-plane being bound by binding-warps which do not cross from weft-plane to weft-plane.

483,079. INSECT-CATCHER. WILLIAM A. MCADAMS, Brooklyn, N. Y. Filed Dec. 3, 1891. Serial No. 413,964. (Model.)



Claim.—1. An insect-catcher comprising a net having an aperture in the apex thereof and an elastic pouch or bulb covering the apertured apex and communicating with the net, substantially as specified.

2. An insect-catcher consisting of a conical net with a pouch attached to and removable from the apex thereof, both constructed substantially as described, to the end that the insect may be readily removed from the pouch and that the pouch may be easily cleaned or washed when needed.

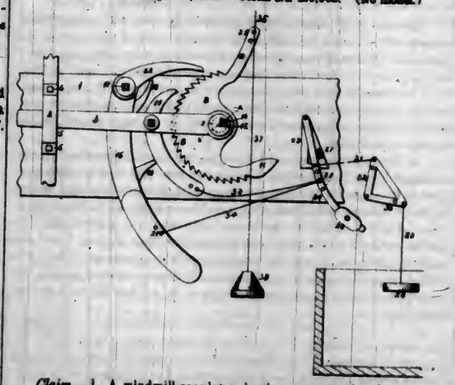
3. A self expanding and contracting neck in a pouch or bag, in combination with a net or conical-shaped cloth bag, for the purpose described.

4. A conical net having its meshes closed from the point of the net to a short distance from the point, so as to catch and confine the air when the net is in motion for the purpose of expanding the neck in the pouch and forcing a current of air through the neck and out of the orifice in the pouch, to the end that the insects may have room to pass in the neck and be drawn through into the pouch by the current of air.

5. A pouch or receiver of soft rubber, having a compressed or flattened neck and provided with one or more holes for the escape of air beyond the place of compression, thereby causing a draft of air through the neck of said pouch or receptacle for drawing flies and other insects into the said pouch or receptacle, substantially as specified.

6. An insect-catcher comprising a conical net having an aperture in the apex thereof and provided with an imperforate portion at the apex, a rigid support for the apex of the net, and an elastic pouch covering the aperture of the apex of the net and provided with a hole for the escape of air, substantially as specified.

483,080. WINDMILL-REGULATOR. ELIPHALET C. NORTON, Belvidere, Ill. Filed Apr. 20, 1892. Serial No. 429,962. (No model.)



Claim.—1. A windmill-regulator having a supporting-frame, an eccentrically-pivoted toothed segment, a lever, a pawl on the lever for engaging the teeth of the segment, a detent for the segment, and a connection between the segment and the windmill and between the lever and the pumping-rod.

2. A windmill-regulator having a supporting-frame, an eccentrically-pivoted toothed segment, the teeth being of substantially uniform depth, a pawl on the lever for engaging the teeth of the segment, a detent for the segment, and a connection between the segment and the windmill and between the lever and the pumping-rod.

3. A windmill-regulator having a supporting-frame, an eccentrically-pivoted toothed segment, a lever pivoted off the center of the segment, a pawl on the lever for engaging the teeth of the segment, a detent for the segment, and a connection between the segment and the windmill and between the lever and the pumping-rod.

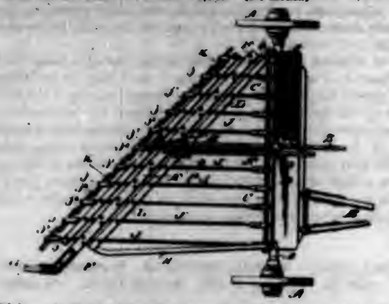
4. A windmill-regulator having a supporting-frame, a pivoted toothed segment, a lever pivoted off the center of the segment, a pawl on the lever for engaging the teeth of the segment, a detent for the segment, and a connection between the segment and the windmill and between the lever and the pumping-rod.

5. A windmill-regulator having a supporting-frame, an eccentrically-pivoted toothed segment a lever, a pawl on the lever for engaging the teeth of the segment, a detent for the segment, a float, an intermediate lever, a spring for this lever, a connection between the float and the intermediate lever, and connections between the lever and the pawl and the detent, and a connection between the segment and the windmill and between the first-mentioned lever and the pumping-rod.

6. A windmill-regulator having a supporting-frame, an eccentrically-pivoted toothed segment, a lever, a pawl on the lever for engaging the teeth of the segment, a detent for the segment, a connection between the segment and the windmill, and a bracket for the lever on the pumping-rod, the bracket composed of a base having two V-shaped bearings and a cap removably held in position over the bearings.

7. A windmill-regulator having a supporting-frame, an eccentrically-pivoted toothed segment, a lever, a pawl on the lever for engaging the teeth of the segment, a detent for the segment, a float, an intermediate lever, a connection between the float and the intermediate lever, and connection between the intermediate lever and the pawl and the detent, a connection between the segment and the windmill, said connections made adjustable, and a connection between the first-mentioned lever and the pumping-rod.

483,081. ROAD-SCRAPER. JOHN S. PALMER, West Duluth, Minn. Filed Feb. 26, 1892. Serial No. 422,816. (No model.)



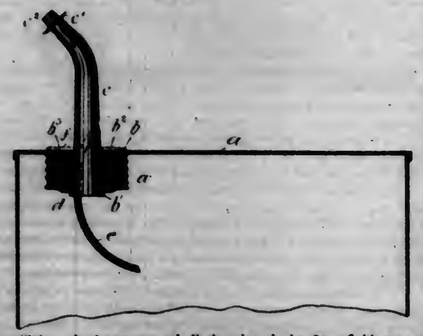
Claim.—1. A road-scraper comprising the main supporting-wheels and axle, the rigid diagonal beam secured at one end to the main axle, its opposite end having a wheel-support and connected with said main axle, a series of scraper-arms independently hinged at their front ends on the axle, their rear ends extended beyond the rigid beam and provided with scraper-blades, and the lifting-lever mechanism connected with the scraper-arms, substantially in the manner and for the purposes described.

2. The combination, with the main axle and supporting-wheels, the rigid beam F, secured to the axle and provided with a wheel-support, of the arms J, carrying the scrapers at their rear end and hinged at their forward end to the main axle, the spring-bar L, disposed in front of and parallel with the beam F, provided with guide-bails *l*, the spring disposed about each bail and held between the bar L and the tops of the arms J, and the lever N, pivotally connected at its outer end to the rigid beam F and formed with a cam portion engaging the spring-bar L, all arranged substantially as shown, and for the purposes described.

3. In a road-scraper, the combination, with the draft and supporting-frame mechanism, of a series of scrapers having their blades arranged to overlap, the overlapping ends having an inwardly-projecting flange adapted to close the space between the overlapping ends of the blades, substantially as and for the purpose described.

4. The combination, with the main axle and supporting-wheels, the rigid beam F, the caster-wheel support, and the connections between such beam and the axle, of the lifting-bar K and the spring-bar L, arranged parallel to the beam F, and the springs and bail devices on the bar L, the scrapers having their arms pivoted at their front end to the axle, their rear ends having flexible connections with the bar K, the levers N and S, operating the bars K and L, respectively, and the mechanism for holding the levers to their adjusted position, all arranged substantially as and for the purpose described.

483,082. FLUID CAN OR VESSEL STOPPER. WILLIAM H. PAYNE, Philadelphia, Pa., assignor, by direct and mesne assignments, to Cramer P. Hoskins and Gustav G. Alter, same place. Filed Dec. 19, 1891. Serial No. 415,574. (No model.)

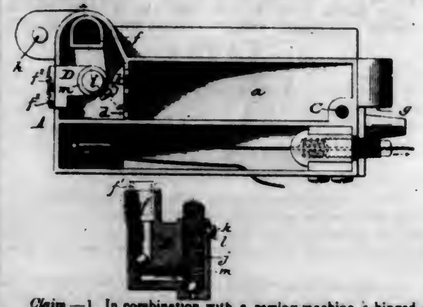


Claim.—1. A stopper and discharging device for a fluid can or vessel, comprising a tapped nipple integral with one of the walls of the can or vessel, an internally-tapering bushing adapted to be screwed into the nipple and provided with a countersunk head having a tapped wall, a tapering nozzle afforded a range of play through said bushing and provided with an air tube and vent, and an externally-threaded cap adapted for insertion into the countersunk head of the bushing to close the can and retain the nozzle in closed position, substantially as and for the purposes set forth.

2. In a stopper and discharging device for a fluid can or vessel, an internally-tapped nipple integral with one of the walls of the can or vessel, an externally-tapped bushing adapted to be screwed into the nipple and provided with a countersunk head having a tapped wall, a yielding gasket secured between the bottom of the countersunk head and the lower end of the bushing, a nozzle afforded a range of play through said gasket and provided with an air tube and vent, and an externally-threaded cap adapted for insertion into the countersunk head of the bushing, substantially as and for the purposes set forth.

3. A nipple integral with one of the walls of an oil-can, a bushing adapted for insertion in the nipple and comprising a tube bent back upon itself and provided with internal perforated horizontal partition, a gasket interposed between said horizontal partition and a flange on the lower end of the bushing, a discharge-nozzle afforded a range of play through said gasket and partition, and a cap adapted to be screwed into the inner portion of said tube above the partition, substantially as and for the purposes set forth.

483,083. WAXING DEVICE FOR SEWING-MACHINES. MARSHALL H. PEARSON, Leicester, England, assignor to the John O'Flaherty Company, Montreal, Canada. Filed Nov. 2, 1891. Serial No. 410,561. (No model.)



Claim.—1. In combination with a sewing-machine, a hinged or pivoted waxing apparatus containing a pump to be actuated by a moving part of the machine, and means, substantially such as shown and described, for moving the free end of the said waxing apparatus into and out of line with the said moving part, whereby the actuation of the pump may be controlled.

2. A waxing apparatus comprising a cold-wax compartment *a*, pump compartment *b*, shuttle-thread compartment *c*, and a heating-chamber common to all, substantially as shown and described.

3. A waxing apparatus comprising a cold-wax compartment *a*, a pump-compartment *b*, interposed upright partition *e*, having the holes or perforations *d* at its lower end near the base of the compartment *a*, and a heating-chamber common to the compartments *a* and *b*.

4. In combination with a sewing-machine, a waxing apparatus provided with a pump having a plunger to be actuated by a moving part of the machine, the slotted case, the screw projecting from the plunger through the slot, and the plunger-spring.

5. In combination with a sewing-machine, a waxing apparatus provided with a pump having a plunger to be actuated by a moving part of the machine, the slotted case, the screw projecting from the plunger through the slot, the plunger-spring, and the arm bearing upon the screw.

6. In combination with a boiler having the compartment *b*, a pump located therein and adapted to take its supply of wax therefrom, and a wax-cup into which the needle dips and which is also located in the said compartment *b*, all substantially as shown, whereby the surplus wax flowing from the wax-cup is delivered directly into the compartment *b*.

483,084. BICYCLE-BELL. EDWARD D. ROCKWELL, Bristol, Conn., assignor to the New Departure Bell Company, same place. Filed Mar. 9, 1892. Serial No. 424,329. (No model.)

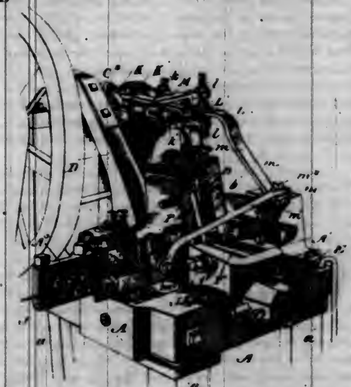
Claim.—1. A standard with a gong secured thereto, having a lug on its inner face, a pivoted lever, a hub rotatable on said standard, a hammer secured thereto, adapted to strike said lug, means connected with said lever and hub for rotating the latter in one direction, and a spring secured to said hub and said standard for returning the hub, as and for the purposes set forth.

2. A standard with a gong secured thereto, having a lug on its inner face, a pivoted lever with a projection thereon, a hub rotatable on said standard and having a hammer secured thereto, adapted to strike said lug, means connected with said lever and hub for rotating the latter in one direction, a spring connected with the standard and hub for returning the latter, and a stop with which said lever and projection thereon are adapted to engage, substantially as and for the purpose specified.



3. A standard with a gong secured thereto, having a lug on its inner face, a pivoted lever, a hub rotatable on said standard, and a hammer secured thereto, adapted to strike said lug, a flexible connection attached to one end of the lever and to the hub, and a spring secured to said hub and said standard for returning the hub, substantially as and for the purposes specified.

483,085. ATTACHMENT FOR CUT-NAIL MACHINES. CHARLES F. ROTH, of Ironton, Ohio, assignor of one-half to the Kelly Nail and Iron Company, same place. Filed June 24, 1891. Serial No. 397,288. (No model.)



Claim.—1. In a wire-nail machine, the combination of mechanism for gripping and heading a nail-blank with mechanism for feeding a length of wire for another nail beside the nail-blank while the latter is being operated upon by the gripping and heading dies, substantially as specified.

2. In a wire-nail machine, the combination of the gripping and heading mechanism with mechanism for feeding in a nail-blank beside a previously-fed blank while the latter is being operated upon by the gripping and heading dies, and mechanism for pointing the second blank simultaneously with the release of the finished nail by the gripper and header, substantially as described.

3. In a wire-nail machine, the combination of mechanism for feeding the wire into the machine beside a previously-cut nail-blank while the latter is being operated upon by the gripping and heading dies, mechanism for pointing and severing a nail-blank from the wire simultaneously with the release of the finished nail by the gripper and header, and mechanism for gripping and heading a severed blank while another length of wire is being fed into the machine over the severed blank, substantially as described.

4. In a cut-nail-making machine adapted to make wire nails, the combination, with the cutting-lever, of the moving knife or cutting-jaw, the upper pointing-tool mounted in said lever, and the feeding attachment adapted to feed in a length of wire while a previously-fed blank is being operated upon, substantially as described.

5. The combination, with the cutting-lever carrying the moving knife or cutting-jaw and the upper pointing-tool, of the bed pointer holder, the lower pointing-tool, and means for feeding a length of wire while a previously-fed blank is being finished, substantially as described.

6. The combination, with the cutting and gripping devices and the feeding mechanism for feeding a length of wire to the machine beside a previously fed and severed blank, of a spring-arm adapted to lift and maintain the uncut end of the blank in position to be acted upon by the cutting and pointing tools, substantially as described.

7. The combination, with the main shaft and the eccentric thereon, of the wire-feed plate, a vibrating bell-crank lever having a rocking connection with the eccentric-strap and a pivotal connection with the feed-plate, and adjusting means for varying the feed of the wire, substantially as described.

8. The combination, with the wire-feed plate and the mechanism for simultaneously pointing and severing a nail blank, of the vibrating arm, the pivot-post, the rod connected therewith, the pitman and universal joint connecting said pitman and rod, and the eccentric for actuating said vibratory arm to feed a length of wire beside the previously-fed blank, substantially as described.

9. The combination, with the wire-feed plate and the mechanism for pointing and severing a nail-blank, of a vibratory arm connected to said plate, the pivot-post rigidly secured to said arm, the shaft or rod adjustably connected to said pivot-post, the pitman, the ball-and-socket joint connecting said pitman with said rod, and the eccentric for actuating said vibratory arm, substantially as described.

10. In a convertible cut-nail and wire-nail making machine, the combination, with the gripping-lever and heading-lever of the cut-nail machine and suitable gripping and heading devices, of a pointing-lever, a removable upper pointing-tool holder adapted to be used interchangeably with the cutting and pointing levers of the cut-nail machine, and a feeding attachment adapted to feed a length of wire while a previously-fed blank is being operated upon, substantially as described.

11. In combination with the main shaft, the eccentrics mounted thereon, the wire-feeding mechanism, substantially as described, connected with one of said eccentrics, the gripping mechanism, and the pointing-lever carrying the upper pointing-tool, connected with and adapted to be operated by the other eccentric, substantially as described.

12. The combination, with the cutting-lever having a recessed head or socket, of the upper pointing and cutting dies or tools mounted therein, the bed-socket for the lower dies, removable and interchangeable dies mounted in said bed-socket, whereby the machine is adapted for making nails or staples, and feed mechanism for feeding a length of wire while a previously-fed blank is being operated upon, substantially as described.

13. The combination, with the cutting-lever and the bed-socket, each adapted to receive removable dies, of the gripping, cutting, and heading devices, and feed mechanism adapted to utilize the full motion of the machine by advancing a length of wire to the dies beside a previously-fed blank and while the latter is being operated upon, substantially as described.

14. The herein-described removable bed-pointer holder having a horizontal arm and a depending socket-piece connected to the extremity of said arm, substantially as described.

15. In a nail-machine, the combination of the removable bed-pointer holder having a horizontal portion adapted to lie in the bed-piece recess and a socket portion connected to the inner end of the horizontal portion, with the pointer or tool removably secured in said socket-piece, substantially as described.

16. The combination, with the wire-feeding attachment and the cutting and gripping devices of a cut-nail machine, of the bed-pointer holder, the upper pointing-tool, and an auxiliary attachment, substantially as described, for operating the upper pointing-tool, substantially as described.

483,086. GAS HEATING-STOVE. ROWIN ROOD, Pittsburg, Pa., assignor to the Fuel Gas and Manufacturing Company, same place. Filed Aug. 28, 1891. Serial No. 404,107. (No model.)

Claim.—1. In a gas heating-stove, the combination of an inner shell, an outer shell, a burner located between said shells near their lower ends, a series of annular chambers being formed between said shells and communicating at alternately-opposite ends one with another, said chambers forming a continuous passage in alternately-reversed directions around the inner shell for the products of combustion from the burner, and an outlet leading from the upper chamber of the series, substantially as set forth.

2. In a gas heating-stove, the combination of an inner shell having air inlet and discharge openings at its lower and upper ends, respectively, an outer shell closed at top and connected to the inner shell, a burner located between said shells near their lower ends, a series of annular chambers being formed between said shells and communicating at alternately-opposite ends one with another, said chambers forming a continuous passage in alternately-reversed directions

around the inner shell for the products of combustion from the burner, and an outlet leading from the upper chamber of the series, substantially as set forth.



3. In a gas heating-stove, the combination of an inner shell having air inlet and discharge openings at its lower and upper ends, respectively, an outer shell closed at top and connected to the inner shell, a burner located between said shells near their lower ends, a series of horizontal flanges interposed between and fitting on the inner and outer shells, each provided with an opening or blank space, a series of inclined flanges, each connecting one end of a horizontal flange with the end of the adjacent horizontal flange on the opposite side of its blank space, and an outlet leading from the outer shell above the uppermost horizontal flange, substantially as set forth.

483,087. TOY. GEORGE W. THOMAS, Baltimore, Md., assignor to George W. Bishop and Nathaniel Offeen, same place. Filed Nov. 7, 1891. Serial No. 411,196. (No model.)



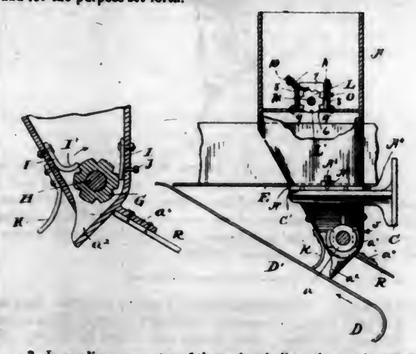
Claim.—1. The toy consisting, essentially, of a frame and a toy figure supported inside the frame by elastic strips extending across the frame from side to side and supporting said toy figure, and a projectile attached to the frame by an elastic cord.

2. The toy frame consisting of a single piece bent like a tennis-racket, a toy figure supported within the open part of the frame by elastic supports extending across said frame from side to side, and a projectile attached to the frame by an elastic cord, all substantially as described.

483,088. SANDING APPARATUS. WILLIAM W. WALLACE and RAYMOND C. PENFIELD, Willoughby, Ohio, assignors to J. W. Penfield & Son, same place. Filed Mar. 4, 1892. Serial No. 423,736. (No model.)

Claim.—1. In sanding apparatus of the variety indicated, a sand-container comprising two sections located the one above the other in open relation with each other and bolted together, substantially as indicated, in combination with a supporting-bracket at either side of the container, the lower section of the container at the upper end and at either side thereof having a laterally-projecting flange resting upon and removably secured to said supporting-brackets, substantially as set forth.

2. In sanding apparatus of the variety indicated, a sand-container having a laterally-projecting flange at either side, in combination with supporting-brackets, upon which said laterally-projecting flanges are adapted to rest, the lateral flange and bracket at one side of the container being vertically slotted inward from their outer edges, as at 4, the last-mentioned lateral flange having an upwardly-projecting lug or pair of lugs adjacent said slot, an eyebolt pivotally secured to said lug or lugs between the side walls of the slot aforesaid, and a nut mounted upon the shank of the eyebolt and adapted to engage the lower side of the horizontal member of the bracket, said bolt being adapted to swing outwardly upon its pivotal bearing, substantially as and for the purpose set forth.



3. In sanding apparatus of the variety indicated, a sand-container having an opening for the passage of the bar of clay, an endless traveling apron located in line with the aforesaid opening and having an inclined section adjacent the sand-container, the latter having one or more rearwardly-projecting lugs or members, and a plate constituting the bottom of the opening aforesaid and bent over the edge of said rearwardly-projecting lugs or members, said plate extending forward of the sand-container and bridging the space between the latter and the aforesaid endless apron, but without making contact with the latter, substantially as and for the purpose set forth.

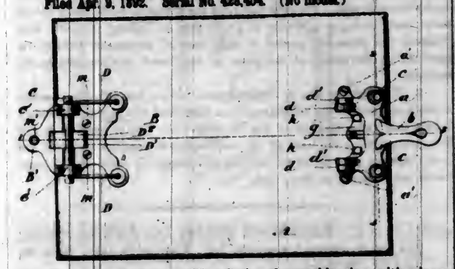
4. In sanding apparatus of the variety indicated, a fluted or grooved feed-roller located in the lower part of the sand-container, scrapers or cut-offs supported at opposite sides of said roller, the free end of the scraper located at the side of the roller opposite to the direction of rotation of the roller, being bent upward and bearing upon the roller, and the free end of the other scraper being adapted to merely make contact with the periphery of the roller, substantially as set forth.

5. In sanding apparatus of the variety indicated, a fluted feed-roller located in the lower part of the sand-container and scrapers or cut-offs supported at opposite sides of said roller and extending approximately the entire length of said roller, the free end of the scraper located at the side of the roller opposite to the direction of rotation of the latter, being bent upward and bearing upon the periphery of the roller, and the free end of the other scraper being adapted to merely make contact with the periphery of the roller, and a set-screw or bolt for holding the free end of the last-mentioned scraper in proper position relative to the periphery of the roller, substantially as set forth.

6. In apparatus for sanding the top and bottom surfaces of a traveling bar of clay, a sand-container, an endless traveling apron for conveying the bar of clay, said apron having an inclined section, a fluted or grooved roller located within or partly within the sand-container and above the line of travel of the bar of clay, said fluted or grooved roller being adapted to feed sand from the container and discharge the same onto the traveling bar of clay, a fluted or grooved roller located in the lower part of the sand-container below the line of travel of the bar of clay and adapted to feed sand from the container to the inclined section of the endless traveling apron, and suitable means for confining the discharge of sand to that carried in the flutes or grooves of the rollers, substantially as set forth.

7. In apparatus for sanding the top and bottom surfaces of a traveling bar of clay, a sand-container, an endless traveling apron for conveying the bar of clay, said apron having an inclined section adjacent the sand-container, a fluted or grooved roller located within or partly within the sand-container and above the line of travel of the bar of clay, said fluted or grooved roller being adapted to feed sand from the container and to discharge the same onto the traveling bar of clay, and a fluted or grooved roller located in the sand-container below the line of travel of the bar of clay and adapted to feed sand from the container to the inclined section of the endless traveling apron, substantially as set forth.

483,089. PAPER-FILING DEVICE. HENRY A. WINTERMUTE, Philadelphia, Pa., assignor of one-half to James M. Coryn, same place. Filed Apr. 9, 1892. Serial No. 428,454. (No model.)



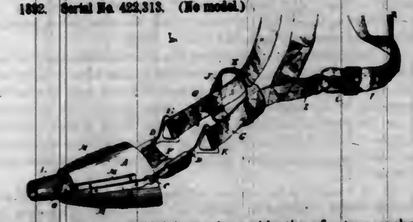
Claim.—1. In a paper-filing device, the combination, with a base-plate provided with a base-spring and a pair of journal-bearings, of a shaft partially rotating therein and carrying curved filing-wires, said shaft being cut away in two coinciding arcs of a circle, substantially as described.

2. In a paper-filing device, the combination, with a base-plate provided with journal-bearings and a shaft partially rotating therein and carrying filing-wires, of a pair of flat springs of unequal length, one permanently fixed in said recess and the other resting loosely thereon and beneath the said shaft, substantially as described.

3. A paper-punching device provided with a pair of parallel upright guide-posts *h h*, in combination with a base-plate *a*, on which the same are fixed, and a hinged cutting-plate open at the top to expose the guide-posts and the edge of the paper to be punctured, substantially as described.

4. In a paper-punching device consisting of a part carrying a cup-shaped male die and a part carrying a countersunk female die, an annular spring-cushion surrounding the male die and operating to discharge from the face thereof and through the countersunk opening of the female die the cut-out pieces of paper, substantially as described.

483,090. ARTIFICIAL ARM. JOHN E. WORTHAM, Grand Tower, Ill., assignor of one-half to Herbet C. Sells, same place. Filed Feb. 20, 1892. Serial No. 422,313. (No model.)



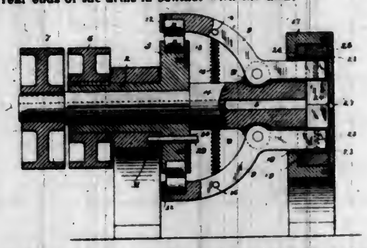
Claim.—1. In an artificial arm, the combination of a stump-socket, opposite swinging arms pivoted to said stump-socket, fastening-straps connected with the swinging ends of said arms and having crossed shoulder portions secured over the shoulders and to the body of the wearer, and a tool-socket secured to the tapered end of said stump-socket, substantially as set forth.

2. In an artificial arm, the combination of a stump-socket, opposite fastening-straps connected with opposite sides of said socket and having crossed shoulder portions taking over the shoulders and fastened across the breast of the wearer, an arm-strap secured to said opposite straps and fastened around the arm, and a tool-socket secured to the tapered end of said stump-socket, substantially as set forth.

483,091. SWAGING-MACHINE. CHARLES H. VARINGTON, Torrington, Conn., assignor of one-half to Patrick F. Deeley, same place. Filed Feb. 29, 1892. Serial No. 423,808. (No model.)

Claim.—1. The combination, with the sleeve having a disk 3 at its outer end and rollers in the periphery thereof, of a mandrel journaled in said sleeve and having pivoted thereto arms having rollers at their rear ends adapted to engage the rollers in the disk, means for imparting rotation to said sleeve and said mandrel independently of each other, a die-plate at the forward end of the mandrel, dies in said plate the backs of which are adapted to be engaged by the forward ends of the arms, a suitable case inclosing the die-plate and the forward ends of the arms, a spring for holding the rollers in the arms in contact with the rollers in the disk, and means for locking said disk and said die-plate against rotation, so that the successive blows of the dies may be delivered in the same plane or in a constantly-changing plane.

2. The combination, with the mandrel, die-plate, and dies, of arms 9, pivoted to the mandrel, the forward ends of said arms being adapted to engage the backs of the dies and their rear ends being provided with rollers, a disk between the rear ends of said arms, provided with peripheral rollers and depressions between said rollers, means for revolubly supporting said mandrel and disk, and a spring adapted to hold the rear ends of the arms in contact with the disk.



3. The combination, with the mandrel and dies, of arms 9, pivoted to the mandrel and adapted to actuate the dies, disk 3 between the rear ends of said arms, said arms and said disk being provided with sockets comprising more than a half-circle, rollers in said sockets, plates for retaining said rollers against lateral displacement, and means for revolubly supporting said mandrel and disk.

4. The combination, with the mandrel, the arms pivoted thereto, disk 3 between the rear ends of said arms and having peripheral projections, and the spring acting to press the arms against the disk, of the die plate and the dies adapted to be actuated by said arms, a case therefor having an opening to receive the mandrel and arms, and means for revolubly supporting said mandrel and disk.

5. The combination, with the disk, mandrel, die-plate, and dies, of arms 9, pivoted to the mandrel and having screws at their forward ends the points of which are adapted to engage the dies and the rear ends of which are provided with rollers adapted to engage other rollers upon the disk, a spring for holding said arms and said disk in engagement, and means for revolubly supporting said mandrel and disk.

6. Standard 1, having hole 31, sleeve 2, journaled in said standard, disk 3, carried by the sleeve and having a hole 30, adapted to register with hole 31, and rollers in its periphery, and the mandrel journaled in said sleeve, in combination with the die-plate and dies, arms 9, pivoted to the mandrel, the forward ends of said arms being adapted to engage the backs of the dies and the rear ends provided with rollers to engage the rollers on the disk, a spring acting to hold the arms in contact with the disk, and a pin adapted to engage holes 30 and 31 to hold the disk against rotation when the mandrel is rotated, and means for revolubly supporting said mandrel and disk.

7. The combination, with the mandrel, disk 3, and the arms pivoted to the mandrel, said disk and said arms having rollers 11, of a spring acting to hold the arms in contact with the disk, the dies, the die-plate having hole 33, the die-case having hole 32, and a pin adapted to engage said holes to lock the die-plate against rotation when the disk is rotated, and means for revolubly supporting said mandrel and disk.

8. Disk 3, having rollers in its periphery, the arms pivoted to the mandrel and having rollers adapted to engage the rollers on the disk, and the mandrel having at its forward end a disk 19, in combination with the die-plate secured to said disk, said disk and said die-plate having slots to receive the ends of the arms, dies lying between the ends of the arms and adapted to be acted upon thereby, and means for revolubly supporting said mandrel and disk.

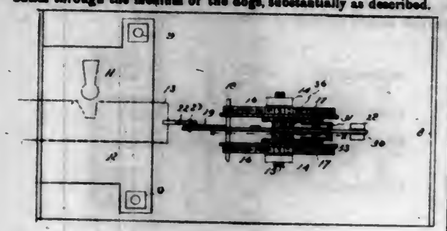
9. The combination, with the dies, mandrel, and arms pivoted thereto and adapted to actuate the dies, of disk 3 between the rear ends of said arms, having in its periphery sockets comprising more than a half-circle, rollers in said sockets, a plate secured to the disk to retain the rollers in place, substantially as described, and means for revolubly supporting said mandrel and disk.

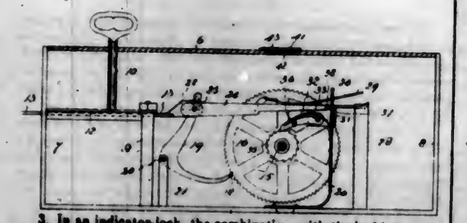
483,092. INDICATOR-LOCK. DEWITT E. YOUNG and WILLIAM F. LITTELL, Wellsville, Colo., assignors, by mesne assignments, to The Littell Indicator Lock and Car Seal Company. Filed Sept. 14, 1891. Serial No. 405,707. (No model.)

Claim.—1. In an indicator-lock, the combination, with a locking mechanism, of rotating indicating mechanism loosely mounted and having no definite limit to its forward movement, a spring carrying dogs engaging a notched rack formed on said indicating mechanism.

and a bar connecting the spring with the lock, whereby as the lock is actuated the spring is placed under tension and suddenly released, acting on the indicating mechanism through the medium of the dogs, substantially as described.

2. In an indicator-lock, the combination, with the locking mechanism, of rotating indicating mechanism provided with exposed characters, said mechanism being loosely mounted and having no definite limit to its forward movement, an actuating-spring carrying a dog engaging the indicating mechanism, and a bar connecting said spring with the lock, whereby as the lock is operated the spring is placed under tension and suddenly released, acting on the indicating mechanism through the medium of the dogs, substantially as described.





3. In an indicator-lock, the combination, with the locking mechanism, of the rotating indicating mechanism, a spring acting on said mechanism, a bar connecting the lock with the spring, and a bell-crank locking-lever connected with said bar and adapted to engage the indicating mechanism, the connection between these parts being such that as the lock is operated the locking-lever is released from engagement with the indicating mechanism and the spring placed under tension and released, substantially as described.

4. The combination, with a locking bolt, of a plural number of independently-rotating disks provided with exposed characters, a spring, a bar connecting the bolt with the spring, and dogs connecting the spring with the disks, whereby as the bolt is manipulated the disks are subjected to an uncontrolled or chance adjustment, substantially as described.

483,093. COIN-OPERATED VENDING-MACHINE. WILLIAM B. ENGLER, Washington, D. C., assignor of one-half to Miles S. Handley, Waverly, N. Y. Filed Apr. 5, 1892. Serial No. 427,988. (No model.)

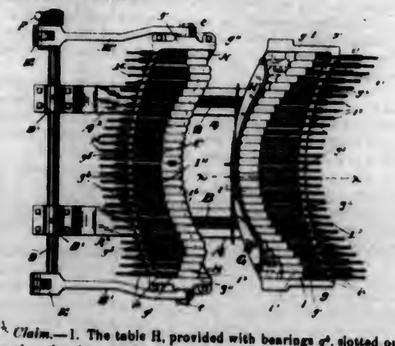


Claim.—1. In a coin-controlled vending apparatus, the horizontal sliding gates guided on suitable supports, the vertical shaft having rigid horizontal arms extending in opposite directions, the elongated slot and pin connections between said gates and arms, and the push-rod connected to an arm on the vertical standard, all combined substantially as described.

2. The vertical rock-shaft and its operating lever and rod, the slotted arms extending in opposite directions from said rod and at different elevations, and the sliding gates connected to said arms by slot-and-pin connection, each gate slotted in the direction of its line of movement, and having a plurality of guide-pins projecting into the slot, whereby the gates are guided in right lines of movement without regard to the movement of the arms, all combined substantially as described.

3. The vending box or compartment having cut-off gates and operating means therefor, substantially as described, the partition through which said gates operate of size to receive the end of the box *f*, and the springs 38 on the wall of the compartment, tending to press the box *f* against said partition and the box-retaining catch 39, all combined substantially as described.

483,094. MACHINE FOR BENDING AND FORMING SPRINGS. EDWARD W. ARMSTRONG, Connersville, Ind. Filed Oct. 29, 1891. Serial No. 410,373. (No model.)



Claim.—1. The table H, provided with bearings g^3, slotted openings g^4, and end projections g^5, bending-bars l^4 with heads l^5, rods l^3, collars l^2, springs g^7, and sliding boxes M, together forming the sliding frame C, in combination with the table H', bearings g^3, end projections g, bars l, with heads l^5, rods l^3, collars l^2, and springs g', together forming the stationary former G, and the slide-bars B, substantially as and for the purposes set forth.

2. The combination of the sliding frame C with a stationary former G, each having a series of bending-irons capable of adjustment to conform to the shape of the spring to be bent and held from longitudinal movement by an upwardly-projected flange integral with or secured to the bed-plate of the machine, said flange being slotted vertically to allow the end of the bending-irons to be dropped into place therein, and easily removed in adjusting the length of the irons, substantially as described.

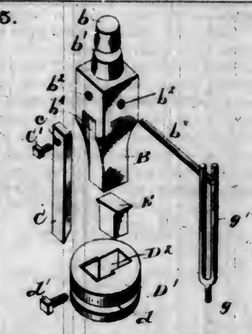
3. In a machine for bending vehicle-springs, the bearings g^3 and g^5 with slotted openings to receive the rods l^3 and l^4, whereby the bending-rods may be easily and quickly adjusted, in combination with the bending-rods l^3 and l^4, having suitable heads to contact with the leaf of the spring being bent, mechanism for impinging the leaf between the said heads by forcing the series of heads on opposite sides of the leaf together, and a suitable framework to connect and support the several parts, and a steel blank to be bent into the leaf of a vehicle-spring.

4. The combination of the sliding frame C, having adjustable bending-irons with a stationary former-frame G also having adjustable bending-irons, said former and frame each having upwardly-projected bearings with slots therein to receive the rods of the bending-irons, and said bending-irons for both sliding and former frames being constructed on the same pattern, viz: a four-sided elongated metallic head with a rod extension, and each of said rods being provided with a series of collars and a coiled spring, substantially as described and specified.

483,095. PUNCHING-MACHINE. THOMAS BARROW, Chester, Pa., assignor, by mesne assignments, of one-half to Robert L. Coursen, New York, N. Y. Filed Dec. 19, 1891. Serial No. 415,866. (No model.)

Claim.—1. A revoluble punch provided with a guide projecting into and constantly engaging a die of a punching-machine during its operation.

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2. A revoluble punch provided with a guide projecting into and constantly engaging a die of a punching-machine during its operation and a handle for turning said punch.

3. The combination, with the revoluble punch provided with a depending guide, of a die having a recess and a removable nib adapted to fit into said recess, substantially as described.

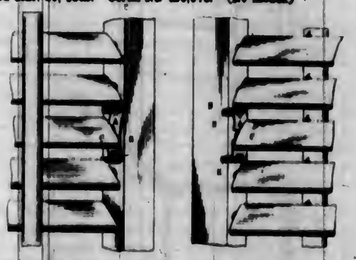
4. The combination, with a revoluble punch provided with a depending guide, of a revoluble die having a removable nib, said depending guide engaging the said die.

5. The combination, with a revoluble punch provided with a handle, of the guide *g'*, engaged by said handle, and the revoluble die, substantially as described.

6. The combination, with the cross-head or sliding part of a punching-machine, of a revoluble punch having a groove around its head, a recess, and a guide secured in said recess, and a handle adapted to enter openings in said punch.

7. The combination, with the bed-plate of a punching-machine and a set-screw therein, of a revoluble die having a groove extending entirely around its periphery and a removable nib adapted to be placed in the opening in said die.

483,096. BLIND-STOP. FERDINAND BLAUER, New York, N. Y. Filed Mar. 29, 1892. Serial No. 426,978. (No model.)



Claim.—A blind-stop formed from a single plate of metal, curved as at X Y, for the purpose described, and provided with recess F to receive the pivot of the slat, legs D D to extend to the opposite edge of the shutter, and toes E E to take over said edge of the shutter, substantially as described.

483,097. ATTACHMENT FOR SEWING-MACHINES. ARTHUR A. BOOTH, Brooklyn, assignor to Julius Kayser, New York, N. Y. Filed Aug. 20, 1891. Serial No. 402,196. (No model.)

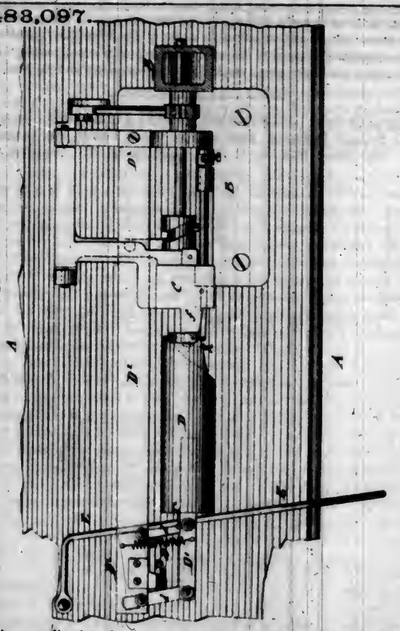
Claim.—1. The combination, with an organized sewing-machine having a needle-plate with a laterally-extending finger, of a cylindrical guide-tube arranged in line with the longitudinal axis of the needle-plate and provided with a horn extending over the finger of the needle-plate, substantially as set forth.

2. The combination, with an organized sewing-machine having a needle-plate with a laterally extending finger, of a cylindrical guide-tube having a cut-away inclined end adjacent to said finger and a horn extending over said finger, substantially as set forth.

3. The combination, with an organized sewing-machine having a needle-plate provided with a laterally-extending finger, of a cylindrical guide-tube having an inclined cut-away end adjacent to the needle-plate, and a projecting portion or horn extending over said needle-plate and means for moving said guide-tube away from or toward the needle-plate, substantially as set forth.

4. The combination, with an organized sewing-machine provided

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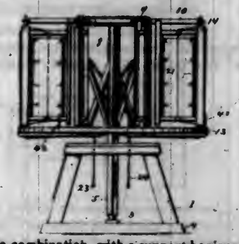


with a needle-plate having a laterally-extending finger, of a guide-tube arranged in line with said needle-plate, means for moving said guide-tube away from said needle-plate or toward the same, and a stop for arresting the guide-tube when the same arrives in its normal position relatively to the needle-plate, substantially as set forth.

5. The combination, with an organized sewing-machine having a needle-plate provided with a laterally-extending finger, of a guide-tube arranged in line with said needle-plate, a longitudinal supporting-bar attached to said guide-tube, a fixed longitudinal bar, pivot-straps for connecting said supporting-bar with the longitudinal bar, a stop for arresting the guide-tube, and a bent lever that is adapted to engage a fixed pin on one of the pivot-straps and move the guide-tube away from the needle-plate, substantially as set forth.

6. In an organized sewing-machine for sewing the thumbs to the bodies of gloves, mits, or other articles, a cylindrical guide-tube for the glove or mit body, having its inner edge adjacent to the working parts of the sewing-machine arranged at a suitable inclination and provided at its upper front part with a forward-extending portion or horn that projects over the needle-plate in front of the needle, substantially as set forth.

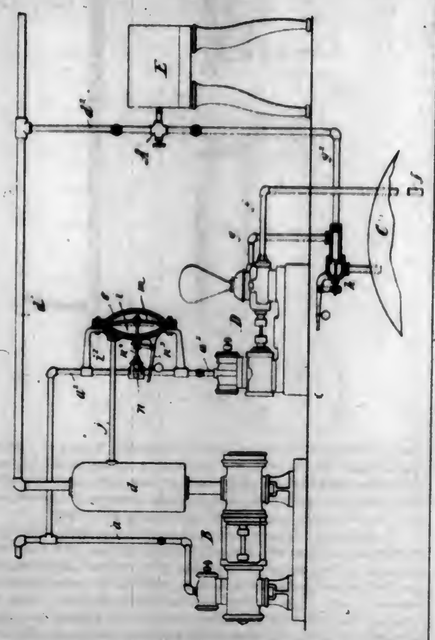
483,098. WIND-WHEEL. BOSTON BRASHER, Terrebonne, Minn. Filed Sept. 8, 1891. Serial No. 405,110. (No model.)



Claim.—The combination, with a support having a central guide-aperture in its top, of a vertical revoluble angular shaft having an apertured disk thereon contained in the said guide-aperture, whereby the said shaft is steadied, a frame removably mounted on the said shaft above the said disk and consisting of an upper and lower hub through which the said shaft passes, the said hubs having radial arms, an annular ring connecting the outer ends of the lower arms, pins projecting upwardly from the said ring to serve as stops for the sail-frames, posts having their upper and lower ends pivoted in the outer ends of the upper and lower arms, respectively, and a sail-frame carried by

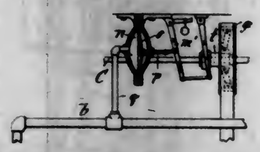
each of the said posts, having an upright adapted to be stopped by the upper arm, a sail mounted in each of the said frames, and two ropes attached to each of the said sails, the said ropes passing over the upper and lower arms, respectively, substantially as described.

483,099. HYDROCARBON-BURNING APPARATUS. JAMES H. BULLARD, Springfield, Mass., assignor to the Aerated Fuel Company, same place. Filed Dec. 21, 1891. Serial No. 415,752. (No model.)



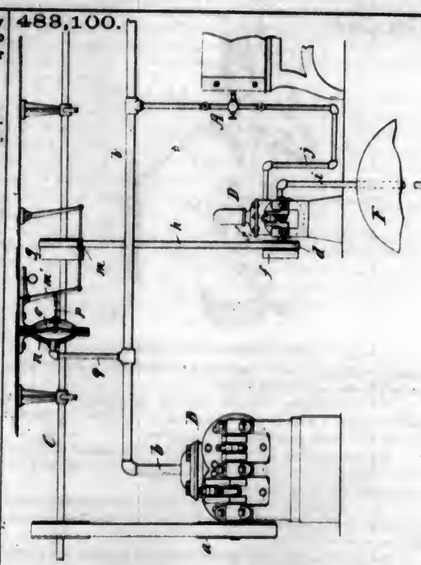
Claim.—In an apparatus for burning hydrocarbon, in combination, a hydrocarbon-burner, a supply-tank, a steam-driven pump having an induction-conduit leading thereto from the tank and an eduction-conduit leading therefrom for conveying oil to the burner, an air-compressor and a conduit for supplying air therefrom to the burner, a steam-pipe for supplying the working pressure to the oil-pump, having an automatic normally-closed valve therein, an air-chamber, one wall of which is constituted by a movable diaphragm, a medium of connection between the diaphragm and valve, and a pipe in communication with the air-compressor and the said chamber, and all arranged for conjoint action, substantially as set forth.

483,100. HYDROCARBON-BURNING APPARATUS. JAMES H. BULLARD, Springfield, Mass., assignor to the Aerated Fuel Company, same place. Filed Dec. 26, 1891. Serial No. 416,256. (No model.)

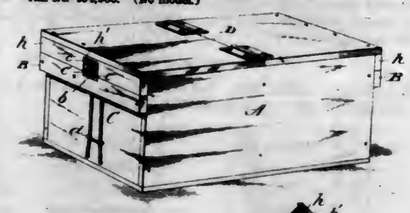


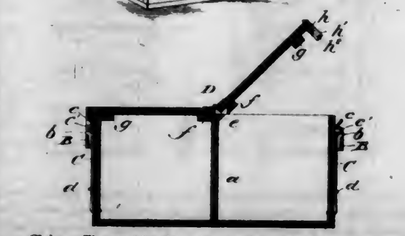
Claim.—In a hydrocarbon-burning apparatus, in combination, an injector-burner, an oil-tank, an oil-pump having a driving-shaft and having its induction-pipe leading from the oil-tank and its eduction-pipe leading to and serving the burner, a power-driven shaft and shiftable driving connections between same and the oil-pump shaft, an air-compressor and a conduit leading therefrom to the burner, and a chamber having air communication with the compressor, one wall of said chamber being constituted by a movable diaphragm, which has an engagement with the aforesaid shiftable connections, for the purpose set forth.

483,100.



483,101. CRATE. HENRY C. BURKHEAD, Summit, assignor of one-half to M. S. Van Meter, Meeting Creek, Ky. Filed May 31, 1892. Serial No. 434,965. (No model.)



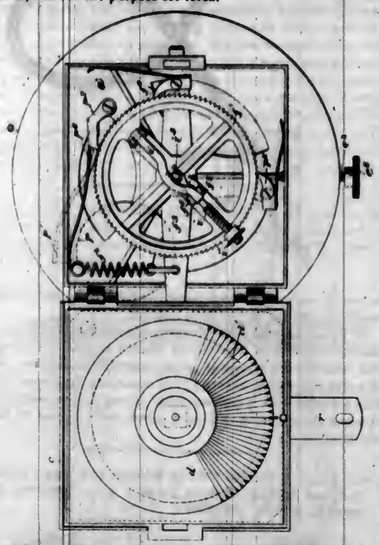


Claim.—The combination, with a packing box or receptacle A, having at each end a spring-catch constructed substantially as shown, of a central partition having a beveled strip secured to its upper edge and a top or cover made up of two sections hinged together and provided with transverse stripes *f f*, beveled to lock with the beveled strip at the upper end of the partition when the cover is closed, and with end stripe having cross-bars with which the spring-catches carried by the receptacle engage, substantially as set forth.

483,102. FARE REGISTER AND RECORDER. CHARLES CROOK, Brooklyn, assignor to Eli Baldwin, New York, N. Y. Filed Nov. 30, 1891. Serial No. 413,453. (No model.)

Claim.—1. The combination, in a fare register and recorder, with the face or visible dial and the index-hand or pointer, a permanent recorder located within the outer casing of the instrument, consisting of a dial and a device for marking said dial, and a direction-indicator plate, of a main operating-shaft and means for connecting the same with the said index-hand, the marking device, and the direction-indicator plate, in a manner whereby the index-hand and the direction-indicator may be reset and the end of the trip be recorded upon said inner dial simultaneously at one operation of said main operating-shaft, substantially as described, and for the purpose set forth.

2. The combination, in a fare register and recorder, with the face or visible dial, the index-hand or pointer, and a shaft for carrying said index-hand, provided with an operating-wheel attached thereto, of a screw-threaded arm carried by said wheel, provided with a roll or wheel composed of one or more parts located thereon, forming a double-toothed periphery, one periphery being of greater circumference than the other and adapted to mark on a dial located within the outer casing of the instrument to record the fares and trips, respectively, and means for causing said marking device or wheel to press against the inner dial with different degrees of pressure to insure a single and a double mark thereon, as required, substantially as described, and for the purpose set forth.



3. The combination, in a fare register and recorder, with the outer or face dial and the index-hand or pointer, a shaft for carrying said index-hand, provided with an operating-wheel secured thereto, and means for operating said wheel, of a disk or dial located within the outer casing of the instrument, a screw-threaded arm carried by the said operating-wheel and provided with a device for marking said inner disk or dial, a main operating-shaft provided with a cam or eccentric thereon, and connecting mechanism operated by the latter to cause said marking device to press against the inner dial with an increased pressure, substantially as described, and for the purpose set forth.

4. The combination, in a fare-register, of the index-hand provided with the pin or projection b^3 on its under side, projecting through an opening in the dial-plate in position to be engaged by the index-hand-resetting mechanism, means for giving the index-hand its forward step-by-step movement, and means for resetting said index-hand to zero, consisting of a gear loosely mounted on a shaft or stud to rotate thereon, provided with the yielding projection or catch *e'* for engaging said pin or projection b^3 on the index-hand, and an operating-shaft capable of rotation in one direction only, provided with a pinion having a fixed connection therewith adapted to engage with the said gear to move and reset the connecting index-hand, substantially as described, and for the purpose set forth.

5. The combination, in a fare register and recorder, with a direction-indicator plate centrally pivoted in the rear of and adjacent to the face or dial plate in position to be inspected through an opening in the latter and a trip hand or pointer, of mechanism for resetting said indicator-plate and trip hand or pointer simultaneously, consisting of a pivoted plate or disk provided with an arm for engaging said indicator-plate and with means for operating said trip hand or pointer, and means for rotating or operating said pivoted plate or disk, substantially as described, and for the purpose set forth.

6. The combination, in a fare-register, of a direction-indicator plate pivotally supported in the rear of the face or dial plate in position to be inspected through an opening therein and provided with a series of projections, an operating-shaft provided with an arm or projection, and a second shaft or rod provided with an arm or projection, both of said shafts being adapted for operating the indicator-plate, substantially as described, and for the purpose set forth.

7. In a fare register and recorder, the combination, with the index-hand or pointer, its pivoted operating-lever f^9, and intermediate connecting mechanism, the arms f^8, secured to said lever f^9, provided with the hook or catch at or near one end thereof, and the pivoted cam-lever f^6 for operating said lever f^9, of an alarm mechanism consisting of a bell and a pivoted bell-hammer adapted to be operated by the arm f^8, carried by the said operating-lever on the return stroke of the latter after moving the index-hand, the rebound of the bell-hammer being secured by a spring acting on the same, substantially as described, and for the purpose set forth.

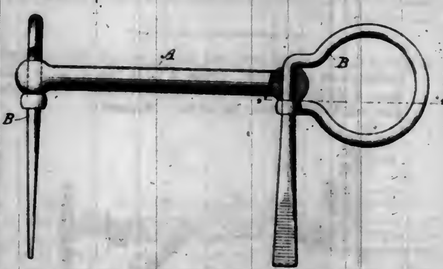
8. The combination, in a fare register and recorder, with the index-hand or pointer, the means for giving the same its forward step-by-step movement, and the means for resetting the same to zero, consisting of an operating-shaft and gear and an intermediate gear operated by the latter, having a catch for engaging the index-hand, of a centrally-pivoted direction-indicator plate provided with a series of peripheral sections, which are adapted to be engaged by an arm of the gear on said operating-shaft to lock the latter from movement when the index-hand has been reset to zero, and means for moving said direction-indicator to allow movement of the engaging-arm, substantially as described, and for the purpose set forth.

9. The combination, in a fare register and recorder, with the index-hand or pointer and its resetting mechanism, the latter consisting of a toothed wheel or disk provided with a catch for engaging the index-hand when operated and with a projecting arm and an operating shaft and gear for operating said toothed wheel or disk, of a centrally-pivoted direction-indicator plate provided with peripheral sections adapted when the plate is in a normal position to engage the arm of said toothed wheel or disk to lock the resetting mechanism from undue movement, and a device for giving the direction-indicator a preliminary move to free the said engaging-arm and allow movement of the resetting mechanism and be reset thereby, substantially as described, and for the purpose set forth.

10. The combination, in a fare-register, with the index hand and its resetting mechanism, the latter consisting of a disk or wheel provided with means for engaging the index-hand and with an arm or projection and a shaft for operating said disk or wheel, of a centrally-pivoted direction-indicator plate provided with peripheral sections adapted when the plate is in a normal position to engage the arm or projection of said disk or wheel to lock the resetting mechanism from undue movement, and a spring-actuated rod or shaft provided with a catch for engaging the direction-indicator to give the same a preliminary move and allow movement of the resetting mechanism, substantially as described, and for the purpose set forth.

11. The combination, in a fare-register, with the index-hand, means for giving the same its forward step-by step movement, and means for resetting the same to zero, consisting of an operating-shaft and pinion and a disk or gear operated by the latter, of a centrally-pivoted direction-indicator plate adapted to engage at its outer periphery with an arm carried by said disk or gear to lock the connecting operating shaft from movement, substantially as described, and for the purpose set forth.

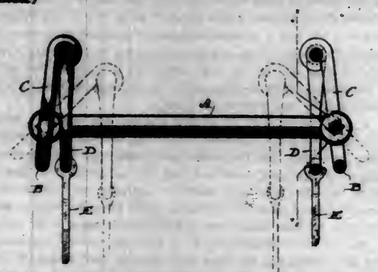
483,103. BRIDLE-BIT. JOHN DEAN, Racine, Wis., assignor to John P. Davies, same place. Filed Apr. 21, 1892. Serial No. 430,068. (No model.)



Claim.—1. A bridle-bit comprising a mouth-bar and cheek-pieces pivotally connected to the same, each cheek-piece being a single wire that is bent from above the bar to form a rein-loop and turned around itself below said bar, the non-bent portion of the wire being extended down from that point at which the bent portion is joined thereto, substantially as set forth.

2. A bridle-bit comprising a mouth-bar and cheek-pieces pivotally connected to the same, each cheek-piece being a single wire that is bent from above the bar to form a rein-loop, turned around itself below said bar, and flattened at its lower free end, substantially as set forth.

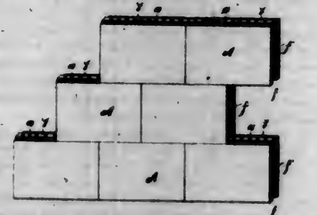
488,104. BRIDLE-BIT. JOHN DEAN, Racine, Wis., assignor to John P. Davies, same place. Filed Apr. 21, 1892. Serial No. 430,069. (No model.)



Claim.—1. A bridle-bit comprising a mouth-bar, levers pivotally disposed thereon to have their forward ends swing toward the same, and rein-attaching cheek-pieces that encircle the mouth-bar independent thereof and are pivoted to said forward ends of the levers, substantially as set forth.

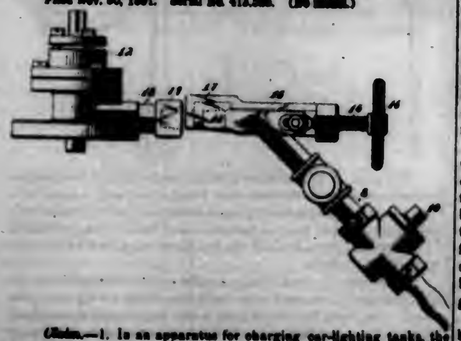
2. A bridle-bit comprising a mouth-bar, castings pivoted to the ends of the mouth-bar and comprising rein-loops B, integral with levers C, disposed to swing toward said mouth-bar from in front of the same, and parallel cheek-pieces D, that encircle the aforesaid mouth-bar free of the same and are pivoted to the lever portions of the castings, substantially as set forth.

488,105. BRICK. LEONARD H. DE FERNELMONT and HENRY H. DE FERNELMONT, Detroit, Mich., assignors, by mesne assignments, of one-third to said Leonard H. de Fernelmont. Filed Nov. 24, 1890. Serial No. 372,401. (No model.)



Claim.—A hollow rectangular brick having a raised tongue on two adjacent right-angle edges and corresponding grooves in the two opposed edges, a series of transverse partitions joining the sides of said brick and forming a series of vertical chambers, said chambers opening into the groove in the edge of the brick at their base, the raised tongue on the opposite edge of the brick having a series of small apertures passing therethrough that communicate with a series of vertical chambers within the brick.

488,106. APPARATUS FOR CHARGING CAR GAS-LIGHTING TANKS FROM GAS-MAINS. ROBERT M. DIXON, East Orange, N. J., assignor to the Safety Car Heating and Lighting Company, of New York. Filed Nov. 30, 1891. Serial No. 413,598. (No model.)



Claim.—1. In an apparatus for charging car-lighting tanks, the combination, with a section of hose having fittings with cocks on opposite ends, of a pressure-indicator connected to one of said fittings

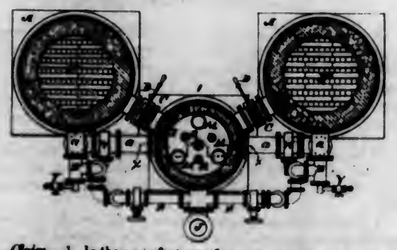
488,106.



between the cock thereof and the connecting end of said fitting, substantially as and for the purposes specified.

2. In an apparatus for charging car-lighting tanks, the combination of a section of hose having secured at each end fittings with cocks, whereby the escape of gas is prevented throughout the hose, and one of said fittings having a joint connection for a tank, the other fitting provided with a recessed collar having a joint sliding therein, and means for operating said joint, substantially as and for the purposes specified.

488,107. APPARATUS FOR MAKING GAS. IRA S. ELKINS, New York, and REINHOLD ROEHLEN, Brooklyn, N. Y. Filed Mar. 31, 1892. Serial No. 427,263. (No model.)



Claim.—1. In the manufacture of gas, in combination with a generating and fixing chamber, an oil heater or vaporizer having at one end a pipe connected with the fixing-chamber for receiving the hot gases from said fixing-chamber and provided with pipes for steam, air, and oil and pipes to deliver therefrom the steam, heated air, and oil-vapors and connected with the aforesaid generating and fixing chamber.

2. An oil and air heating chamber having a double-chambered base and a double-chambered head, both provided with stuffing-boxes, in combination with tubes secured at one end through said stuffing-boxes and passing through said stuffing-boxes in the other end, whereby unequal expansion and contraction in the tubes and shell are provided for, substantially as set forth.

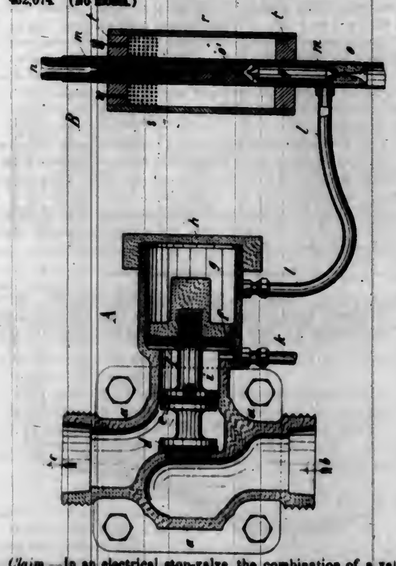
3. In the manufacture of gas, a tubular heating-chamber provided with pipes for introducing oil, steam, and air, in combination with two or more generating and fixing chambers and valved pipes connecting the lower portion of the heating-chamber and the generating-chambers and valved pipes connecting the fixing-chambers and upper portions of the heating-chamber, so that while one of said generating and fixing chambers is receiving oil-vapors and steam from the heating-chamber and fixing the same the other generating and fixing chamber is receiving gas and air and blowing up preparatory to fixing gas, as set forth.

4. In the manufacture of gas, the combination of a heating-chamber and a generating or fixing chamber connected by suitable pipes, the heating-chamber having passing through it air supply and return or delivery pipes, the air-pipes connecting at their upper ends with a

common chamber and at their lower ends with separate compartments of a chamber, a pipe connecting one of said compartments with said fixing-chamber, and oil-pipes connecting at their upper ends with a common chamber and at their lower ends with separate compartments of a chamber, a pipe connecting one of said compartments with said fixing-chamber at the lower end, and a steam-supply pipe connecting with the oil-supply pipe.

5. In the manufacture of gas, the combination of a heating-chamber and a fixing or generating chamber, the heating-chamber having passing through it air-supply and delivery pipes and oil-supply and delivery pipes, the air-supply pipes connecting at their upper ends with a common chamber and at their lower ends with separate compartments of a chamber, a pipe connecting one of said compartments with the fixing-chamber, and the oil-pipes connecting at their upper ends with a common chamber and at their lower ends with separate compartments of a chamber, an additional pipe also connecting one of said compartments with said fixing-chamber, and a steam-supply pipe connecting with the oil-supply pipe, the pipes connecting the air-pipe compartment-chamber with the fixing-chamber, and a gas-pipe connecting said fixing-chamber with the pipes connecting said heating and fixing chambers together and provided with burners located in the combustion-chambers of the brick checker-work in the fixing-chamber, substantially as specified.

488,108. ELECTRICAL STOP-VALVE. ADOLF FRAHM, Berlin, Germany, assignor to the Uranie-Uhren-und-Stinlen-Commandit-Ges. Brenlauer & Dr. Von Orth, same place. Filed May 6, 1892. Serial No. 432,074. (No model.)



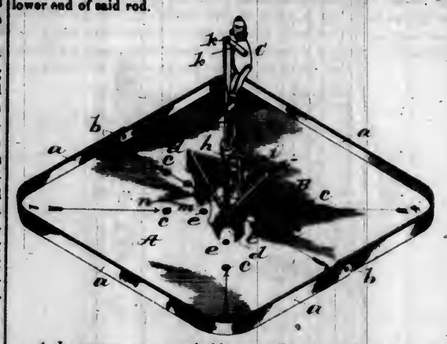
Claim.—In an electrical stop-valve, the combination of a valve-box *a*, a valve-disk *d*, pistons *e* and *f*, connected with the same, the diameter of piston *f* being larger than that of piston *e* and that of valve-disk *d*, a spiral coil *s*, a pipe *m*, extending through said coil and connected at its upper end to the pressure-pipe and having interior valve-seats *o* and *o'*, an iron rod *q*, arranged between said valve-seats and provided with faces at its ends to fit the valve-seats, and a connection between the space intermediate of the valve-seats and the space in the valve-box in front of piston *f*, all combined and operating substantially as and for the purpose set forth.

488,109. GAME APPARATUS. JOHN GREEN, Renovo, Pa., assignor of one-half to Crescenzo Cerrano, same place. Filed May 31, 1892. Serial No. 433,970. (No model.)

Claim.—1. In game apparatus, suitable projectiles and a curb or wall having ports or passages, in combination with a drop-figure, a rod to which the figure is attached, and a tripping-section upon which the figure rests.

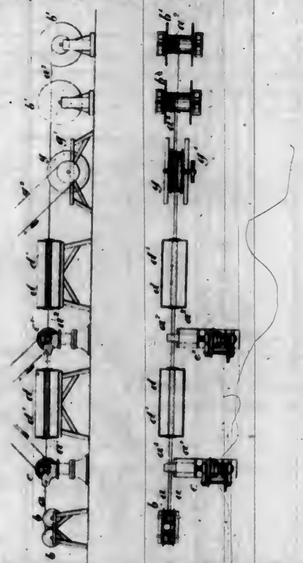
2. In game apparatus, suitable projectiles and a curb or wall having ports or passages, in combination with a jointed drop-figure, a rod to which the figure is movably attached, a bracket supporting the figure and attached to the curb, and a tripping-section upon which the figure rests.

3. In game apparatus, suitable projectiles and a board having a curb or wall in the center thereof provided with ports or passages, in combination with a jointed drop-figure, a vertically-movable rod to which said figure is attached, and a tripping-section secured to the lower end of said rod.



4. In game apparatus, suitable projectiles, a board having a series of indicated rests for projectiles, a curb or wall provided with ports or passages, and indicated rests on the board near said ports, in combination with a drop-figure, a vertically-movable rod to which the figure is attached, and a tripping-section at the lower end of said rod.

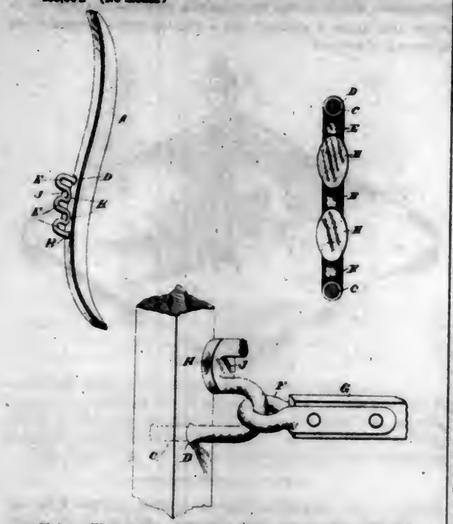
488,110. MANUFACTURE OF RUBBER-COATED WIRE, &c. THEODORE GUILLEAUME, Cologne, Germany. Filed Oct. 2, 1891. Serial No. 407,570. (No model.) Patented in England June 18, 1890, No. 9,472, and in Germany Aug. 14, 1890, No. 60,167.



Claim.—1. The herein-described method of coating a wire, rope, or cable with india-rubber or rubber compound, which consists in applying to the wire a seamless coating of rubber, refrigerating or cooling the wire thus coated to harden and consolidate the coating, then applying a second seamless coating of rubber, and thereupon refrigerating or cooling the coated wire to harden or consolidate the second coating, substantially as described.

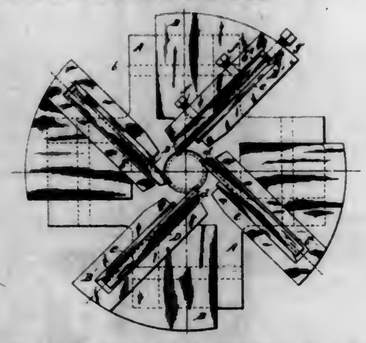
2. The herein-described apparatus for applying successive seamless layers of rubber or rubber compound to a wire, rope, or cable, comprising a coating apparatus having a die through which the wire is drawn, a refrigerating or cooling apparatus through which the coated wire passes, a second coating apparatus provided with an inner die *c*, having an elongated bore tapering at the exit end inwardly toward its axis to its extreme outer end, and a second refrigerating or cooling apparatus through which the wire with the double coating passes, substantially as described.

488,111. ADJUSTABLE HAME-STAPLE. JOHN G. HAGLOCK and WILLIAM H. HAGLOCK, Sterling, Ill. Filed Sept. 8, 1891. Serial No. 405,094. (No model.)



Claim.—The combination, with a hame, of a staple secured thereto, the body or main part of the staple being formed into a series of loops lying in the same plane with the ends of the staple, said loops being connected at their ends by guards near the side of the hame, the loops having a length from the arch to the base of the guards greater than the length of the aperture of the clip to be secured thereby, the dimensions of the guards and their distance from the hame being such that the clip cannot pass over the guards, except when it is turned substantially at right angles to the plane of the loops, substantially as set forth.

488,112. SCREW-CUTTING MACHINE. JAMES A. HAMER, Reading, Pa., assignor of one-half to Charles D. Gilham, same place. Filed Dec. 19, 1891. Serial No. 415,618. (No model.)

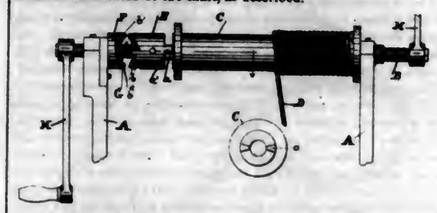


Claim.—In a die stock or head, the combination, with the pivoted cutter-levers arranged to swing in radial planes, of the longitudinally-grooved cutters fixed to said levers with their grooved faces at an angle to said radial planes, substantially as and for the purpose set forth.

488,113. WINDLASS. JOSHUA J. HAMBLIN, Heathsville, assignor of one-half to Chas. R. Lewis, Lewisetta, Va. Filed Mar. 5, 1892. Serial No. 423,840. (No model.)

Claim.—1. In a windlass, the combination of a shaft having suitable means for revolving it and allowed a longitudinal movement, a roller loose on said shaft and on which the line is wound, a clutch-block fast on the shaft and arranged to engage at one end with the roller and provided with teeth on the opposite end, and a pawl stationarily located to engage said teeth on the clutch-block, substantially in the manner described.

2. In a windlass, the combination of a shaft having suitable means for revolving it and allowed a longitudinal movement, a roller loose on said shaft and on which the line is wound, a clutch-block fast on the shaft and arranged to engage at one end with the roller and provided with spirally-arranged teeth on the opposite end, and a pawl stationarily located to engage said teeth on the clutch-block, and thereby both draw said block in toward it and push it away, according to the direction of rotation of the shaft, as described.

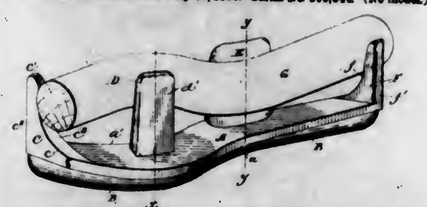


3. In a windlass, the combination of a shaft having suitable means for revolving it and allowed a longitudinal movement, a roller loose on said shaft and on which the line is wound, a clutch-block fast on the shaft and arranged to engage at one end with the roller and provided with teeth on the opposite end, and a pivotal spring-actuated pawl stationarily located to engage said teeth on the clutch-block, substantially in the manner described.

4. In a windlass, the combination of a shaft having suitable means for revolving it and allowed a longitudinal movement, a roller loose on said shaft and on which the line is wound, a clutch-block fast on the shaft and arranged to engage at one end with the roller and provided with teeth on the opposite end, and a stationary block having a number of clutch-teeth for engagement with those of the said clutch-block, one or more of said teeth arranged to give as the clutch-block teeth pass over it in the winding of the line, substantially as and for the purpose described.

5. In a windlass, the combination of a shaft having suitable means for revolving it and allowed a longitudinal movement, a roller loose on said shaft and on which the line is wound, said roller having lugs of dovetail shape projecting from one end, a clutch-block fast on the shaft and having dovetailed lugs arranged to engage those of the roller and also provided with clutch-teeth, and a pawl stationarily located to engage said teeth, substantially in the manner described.

488,114. FORM FOR HOLDING SHOVEL-HANDLES. WILLIAM H. JOHNSON, Industry, assignor to the Oliver Ames & Sons Corporation, North Easton, Ma. Filed July 17, 1891. Serial No. 399,644. (No model.)



Claim.—1. In a form for holding shovel-handles while being dried, the combination, with a base or bed-piece having a longitudinal stiffening backbone or rib under it, of the standards at the ends and between the ends, each curved and shaped and arranged relative to the others, in the manner and for the purposes set forth.

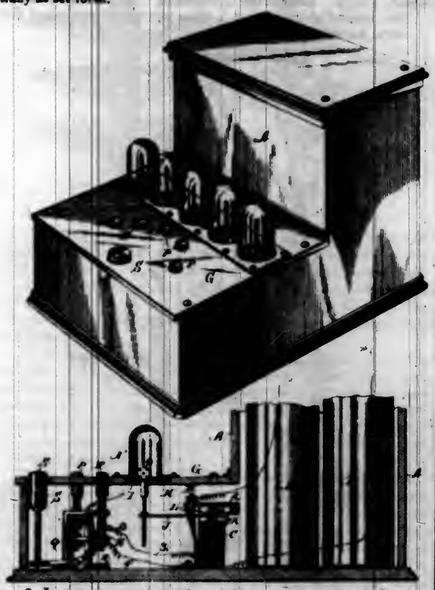
2. In a handle-drying form, the combination of the end standards C and F, curved and shaped substantially alike, but placed oppositely to each other and combined with the intermediate standards D and E, in the manner and for the purposes set forth.

3. In a handle-drying form, the combination of the bed or base having flanges *a* and *a'* and the backbone B with the end standards C and F and the standards D and E intermediate between them, each of said standards shaped substantially as described.

488,115. GAME APPARATUS. SIDNEY H. JOHNSON, Chicago, Ill., assignor, by direct and mesne assignments, to the Marion Manufacturing Company, same place. Filed Oct. 5, 1891. Serial No. 407,687. (No model.)

Claim.—1. In a game apparatus, the combination of a series of independent dice supporting and agitating disks or devices and a corresponding series of independent push-buttons for operating said dice supporting and agitating devices, said push-buttons being arranged in the vicinity of each other, whereby they may be pushed simultaneously or individually, substantially as set forth.

2. In a game apparatus, the combination of a series of vibratory disks or supports, each having a loose body confined thereon, electric buzzers upon whose armature-levers said disks are respectively supported, and a series of independent contacts for closing the circuit through said buzzers independently, plurally, or collectively, substantially as set forth.



3. In a game apparatus, the combination of a series of vibratory disks or supports, each having a loose body confined thereon, devices for vibrating said disks, and means for actuating said devices simultaneously, substantially as set forth.

4. In a game apparatus, the combination of a series of vibratory disks or supports, each having a loose body confined thereon, electric buzzers connected with said disks for vibrating the same, and a single contact for closing the circuits through all of said buzzers simultaneously, substantially as set forth.

5. A game apparatus comprising a series of vibratory disks, each having a loose body resting thereon and adapted to be agitated thereby, an inclosing cage or shell for confining each of said bodies to certain limits, a device for vibrating each of said disks separately, and a device for vibrating two or more of them simultaneously, substantially as described.

6. A game apparatus comprising a series of vibratory disks or supports, each having a loose body confined thereon, electrical devices for vibrating said disks or supports, a series of contacts for closing the circuit through said electrical devices independently, and a contact for closing the circuit through two or more of said electrical devices simultaneously, substantially as described.

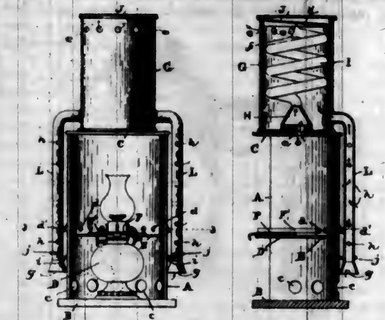
7. A game apparatus comprising a series of vibratory disks or supports, each having a loose body confined thereon, an electro-magnet for causing the vibration of each of said disks, a series of floating circuit-closers E, corresponding in number to the number of said magnets, independently-movable push-buttons having circuit-closers D, one for each of said closers E, and a lever for simultaneously moving all of said closers E against the closers D, substantially as described.

488,116. HEATING-DRUM. SOLOMON M. KEMP, Baltimore, Md., assignor of two-thirds to Edward S. Stubbs and William T. Henderson, same place. Filed Mar. 30, 1892. Serial No. 427,001. (No model.)

Claim.—1. The combination of a suitable casing or shell for containing a burner, a drum located above the burner and having an inlet for air at the lower part and an outlet-opening at the upper part, and a coil in the drum, having its lower end open and over the burner and its upper end open and within the drum and directed toward the outlet-opening in the latter.

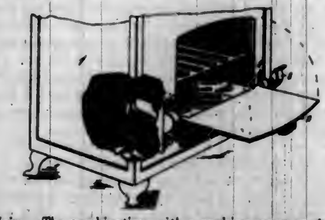
2. The combination of a suitable casing or shell for containing a burner, a drum located above the same and containing a coil having its inlet end over the burner and its outlet at the upper part of the drum, the latter provided with an inlet for air at the lower part and an outlet at the upper part, a cover fitting the top of the drum, and a deflector-plate in said cover.

3. The combination of a suitable casing or shell for containing a burner, a drum located above the same and containing a coil having its inlet end over the burner and its outlet at the upper part of the drum, the latter provided with an outlet for air at the upper part, and perforated pipes opening into the lower part of the drum and extending downward therefrom and open at the lower ends.



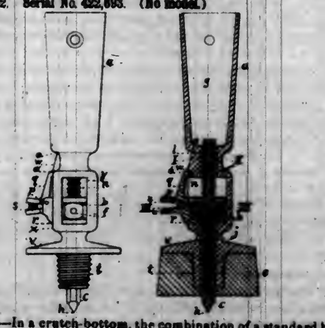
4. The combination of a suitable casing or shell for containing a burner, a drum located above the same and containing a coil having its inlet end over the burner and its outlet at the upper part of the drum, the latter provided with an outlet for air at the upper part, perforated pipes opening into the lower part of the drum and extending downward adjacent to the exterior of the casing or shell and open at their lower ends, and hinged hasps on the said casing and arranged to take around and hold the pipes, in the manner described.

488,117. OVEN-DOOR FOR COOKING STOVES OR RANGES. FRANK V. KRAUSE, Portsmouth, Ohio, assignor to the Portsmouth Stove and Range Company, same place. Filed June 4, 1892. Serial No. 435,548. (No model.)



Claim.—The combination, with a cooking range or stove, of the herein-described oven-door provided with a counterbalancing lever or arm, a friction-spring adapted to engage the arm and control the falling movement of the door, and a double-acting pedal or tumbler adapted to open or close the door, substantially as and for the purposes herein set forth.

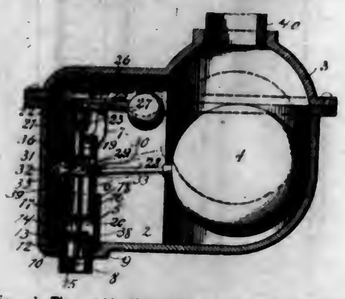
488,118. CRUTCH. ROBERT M. LAMP, Madison, Wis. Filed Feb. 23, 1892. Serial No. 422,693. (No model.)



Claim.—In a crutch-bottom, the combination of a standard having a shank within which moves a spur that is vertically adjusted by

means of a pawl and ratchet, the ratchet-teeth for the engagement of the spring-pawl being placed in the shank and the spring-pawl being carried by a nut fitted to the spar, and the termination of the standard and shank into a threaded spindle having a circular flange rising from its base, all said parts combined and operated substantially as set forth.

483,119. STEAM-TRAP. NILS NILSON, Minneapolis, assignor of one-half to Edward F. Quactenbush, *Le Sueur*, Minn. Filed Dec. 8, 1891. Serial No. 414,432. (No model.)



Claim.—1. The combination, with the box, of the valve-casing arranged therein and having an extension leading through the bottom of the box, a float arranged in said box, a stem arranged in said casing, said float provided with an arm to engage said stem, a weight arranged to raise said stem and valve, a shoulder provided in said casing, a disk 20, arranged on said stem to engage the same, a valve and seat, openings in the lower part of the casing, larger openings in the upper part thereof, and a condensation-pipe extending into said box, substantially as described.

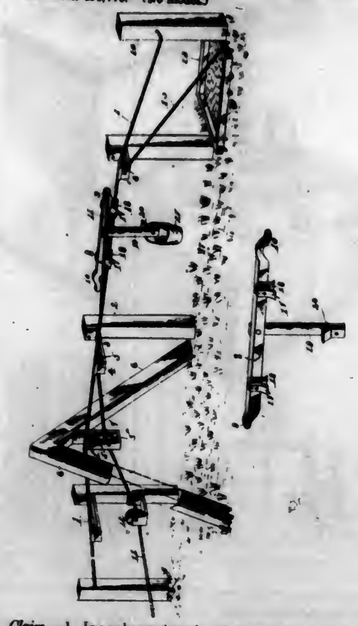
2. The combination, in a steam-trap, of the trap-box or chamber with a valve arranged therein and consisting of a disk, a seat therefor, a spindle whereon said disk is arranged, guides therefor, a casing inclosing said valve, openings 38, arranged in the lower part thereof, a shoulder 17 therein, a disk arranged on said spindle and adapted to engage said shoulder, a weight arranged to automatically open said valve when the pressure is relieved, a float arranged in said box, an arm extending therefrom and pivoted back of said spindle, said arm adapted to engage a shoulder on said spindle when the arm is raised, openings arranged above the shoulder 17 and of a greater diameter than the combined area of the hole or holes provided in the lower part of the casing, and a condensation-pipe leading into said box, as and for the purpose specified.

3. The combination, with the steam-trap box, of the valve-casing arranged therein and provided with the internal shoulder 17, openings 38 in the lower part of said casing, an opening through the lower end of said casing and wherethrough the water or steam is discharged, a valve-disk arranged within said casing, the spindle thereof, a disk 20 thereon to engage the shoulder 17, the pivoted weight-lever provided with the weight 27 and connected with said spindle and normally tending to lift the same, a float 2, an arm 28 thereof pivoted back of said spindle, a shoulder or collar arranged on the spindle to be engaged by said arm when raised, openings in the upper part of the valve-casing greater in area than the openings in the lower part thereof, and a condensation-pipe connected with said box, all substantially as described.

4. The combination, with the closed box, of the condensation-pipe, through which condensed steam enters the same, a separate valve-casing arranged in said box and composed of the lower part 5, having the nipple 8, extending through the bottom of the box, and the upper part 6, extending into the lower part and provided with slots 30 and 31, the spindle 19, arranged in said case and having the valve disk 14, a seat arranged in the lower part 5 to receive said disk, a disk 20, provided on the spindle to engage the lower end or shoulder of the part 6, the arm 7, arranged on the upper part of the lever 25, pivoted thereon, the link 24, pivotally connecting the same with the upper end of said spindle or stem, the adjustable weight on said lever, the float arranged in the box, the arm 28 thereof, having the forked end and pivoted back of the stem, raised shoulders thereon, and a collar on said stem to be engaged thereby to raise the stem when said arm and float are raised, and said lower part 5 being provided with a hole or holes 38 of smaller area than the openings in the upper part 6, as and for the purpose specified.

5. The combination, with the box having the cover 3 and the smaller portion, of the valve-casing arranged in said smaller portion and having a nipple leading through the bottom of the box, a float arranged in said box, a stem arranged in said casing, said float provided with an arm to engage said stem, a weight arranged to raise said stem, a shoulder provided in said casing, a disk 20, arranged on said stem to raise the same, a valve and seat, openings in the lower part of the casing, larger openings in the upper part thereof, and a condensation-pipe extending into said box, substantially as described.

488,120. CONVEYING APPARATUS. ISAAC N. ROWE, Wood's, Tex., assignor of one-half to D. D. Mims, same place. Filed May 4, 1892. Serial No. 431,778. (No model.)



Claim.—1. In an elevated carrier, the combination, with the track, of a carriage mounted thereon having inclined and curved points at opposite ends, guides with flaring lower ends connected at the sides of the carriage, and rollers journaled in said guides, and means connected to the carriage for operating the same, substantially as and for the purposes specified.

2. In an elevated carrier, the combination, with a track, of a carriage of the character described mounted thereon, the inclined posts on opposite sides of the wire for elevating the center of the track, a bracket secured to one of said posts, with rollers journaled therein, a bearing on the upper end of the bracket for the wire, a rope connected to the carrier and interposed between the rollers of said bracket, and a series of posts arranged on opposite sides of the inclined posts, with supports and rollers for the wire and rope, respectively, substantially as and for the purposes specified.

3. In an elevated carrier, the combination, with a track, of a carriage mounted thereon having inclined and curved points at opposite ends, guides with flaring ends at the side of the carriage and rollers journaled in said guides, a bar pivoted to the carrier, having at its lower portion a hook adapted to convey different articles, and means connected to the carriage for operating the same, substantially as and for the purposes specified.

4. In an elevated carrier, the combination, with the track elevated at its center, of a series of posts on opposite sides of said center, with rollers thereon, the elevated center being provided with two rollers arranged one above the other, and means connected to the carrier and interposed between said rollers for operating said carrier, substantially as and for the purposes specified.

5. The combination, with an elevated carriage, of a track-wire elevated at the center of its length and inclined on opposite sides thereof, and one of said sides extending above a water-reservoir, an inclined catch-wire arranged below the terminus of the track-wire, the carriage adapted to travel upon the track-wire, said carriage provided with a pivoted supporting-bar provided with a hook at its lower portion for engagement with said catch-wire, and the operating means connected to said carriage, substantially as and for the purposes specified.

488,121. PICKER-STEM AND MECHANISM FOR OPERATING THE SAME. GEORGE H. TODD, Chicago, Ill., assignor to The Todd Cotton Harvester Company, of Illinois. Filed Nov. 15, 1892. Serial No. 218,052. (No model.)



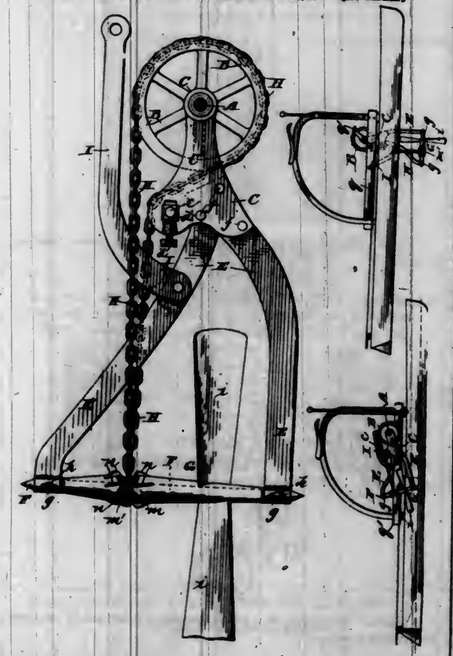
Claim.—1. In mechanism for operating picker-stems, a sectional stem-support the opposing adjoining faces of whose sections are provided with bearings for the picker-stems, substantially as described.

2. In a sectional support for picker-stems, a section composed of two disks, one on each end of a hub, the outer faces of which disks are provided with one-half of bearings for picker-stems, substantially as described.

3. In mechanism for operating picker-stems, a stationary vertical shaft and annular gears or racks rigidly secured to said shaft, in combination with the sectional stem-support mounted on the vertical shaft, mechanism for rotating the same, picker-stems, bearings for said stems between the sections of the support, and gears on the inner ends of said stems, meshing with the gear on the upright stationary shaft, substantially as described.

4. In mechanism for operating picker-stems, a stationary shaft *c* and the annular racks or gears rigidly secured thereto, in combination with the hub *b*, disks *a a*, cast therewith, said hubs being sleeved on shaft *c* and the opposing adjacent disks of adjoining sections being bolted together, picker-stems projecting radially from said disks, having bearings therebetween, gears on the ends of said picker-stems engaging the racks *e*, and mechanisms for rotating the said disks about the shaft *c*, substantially as described.

488,122. PROPELLER FOR VESSELS. DAVID UBER, Portsmouth, N. H. Filed May 27, 1892. Serial No. 434,647. (No model.)



Claim.—1. In a propeller for marine craft, the combination of a chain, a driving-pulley arranged on a driving-shaft supported upon a portion of a craft and having the chain passed around it, a directing-pulley supported upon a suspending-frame, also supported by the craft, and having the chain also passed about it, and a propeller hung in the said suspending-frame and provided with a hub, around which the chain is passed, said propeller having its supporting-shaft and its hub at right angles, or nearly so, to the said driving-shaft and the said chain being passed around said hub in a direction at right angles, or nearly so, to the direction in which it is passed around the driving-pulley and the directing-pulley, substantially as described.

2. In a propeller for marine craft, a driving-chain constructed with a half-twist, in combination with a driving-pulley supported by a portion of a craft and having the chain passed about it, a directing-pulley supported by a suspending-frame hung upon a portion of the craft and swinging concentrically with the driving-shaft of the driving-pulley, and a propeller-hub supported by the said suspending-frame, the said directing-pulley having the chain passed about it at right angles, or nearly so, to its axis and the said hub having the chain passed about it at right angles, or nearly so, to its axis, substantially as described.

3. In a propeller for marine craft, the combination of the pulley D, having its shaft arranged in adjustable bearing-boxes, of a suspending-frame supported by a portion of the craft, and which are mounted on set-screws, the driving-pulley B, supported by a portion of the craft, the chain, and the propeller-hub, the said chain being arranged about the pulleys and the hub and the hub being at right angles, or nearly so, to the driving-shaft and supported by the suspending-frame, substantially as and for the purpose described.

4. In a propeller for marine craft, the combination of the bearing of the shaft having lateral extensions, the suspending-plates fitted around said extensions, the suspender connected to the ends of a stationary shaft; the driving-shaft, the driving pulley, the directing-pulley, the chain, and the propeller-hub arranged at right angles to the driving-shaft and having the chain passed around it in a direction at right angles to the direction in which it is passed around the driving-pulley, and the directing-pulley, the said bearings, shaft, suspending-plates, suspender, stationary shaft, the driving-shaft, and the driving-pulley being supported by a portion of the craft, while the directing-pulley and the propeller-hub are supported by the suspending-frame, substantially as described.

5. The combination of the suspending-frame, the propeller having a sleeve or hub with a stationary shaft, said frame being supported by a portion of the craft, substantially as and for the purpose described.

6. In a propeller for marine craft, the shaft-bearings having lateral extensions, in combination with the supporting-craft, the propeller, and the means by which said propeller is suspended, and with the shaft, and the means by which the propeller is revolved, substantially as described.

7. The propeller-hub formed with a groove for the chain and with spiral ribs on each side of said groove, in combination with a stationary shaft and a chain for revolving the propeller, substantially as described.

8. In a propeller for marine craft, the combination of a screw-propeller, a suspending means supported by a portion of the craft and hung concentrically with the driving-shaft and adapted to swing around said shaft in a circle or a part of a circle, and a lifting and holding bar, substantially as and for the purpose described.

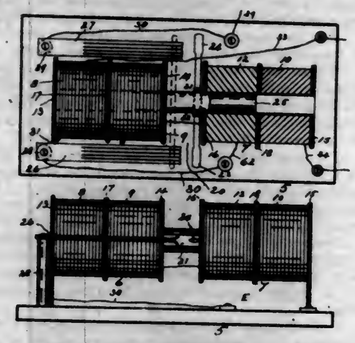
9. In a propeller for marine craft, the combination, with a boat, of a crank-shaft, a driving-pulley on said shaft, a directing-pulley, a suspending means, a propeller having its shaft arranged at right angles to the driving-shaft, a chain passed around said pulley and around the hub of the propeller, and a lifting and holding bar, the said mechanism being supported by subetantial portions of the boat, substantially as described.

10. The combination of a boat provided with the inner and outer bearings, the driving-shaft, the plates C, the bifurcated suspender E, the supporting-shaft for the propeller, the propeller having revolving hub, the driving-pulley, the directing-pulley, and the chain passed around the pulleys and the hub of the propeller, substantially as described.

483,128. CIRCUIT-SWITCH. GEORGE W. RUSSELL, Jr., and DARIAL B. MINOR, Denver, Colo., assignors to said Russell, Jr., and ALEXANDER V. Officer, same place. Filed June 1, 1892. Serial No. 435,196. (No model.)

Claim.—1. The combination, with the main circuit, of an automatic switch interposed therein and consisting of two solenoids suitably connected, a loose bar supported therein and carrying contact projections, metallic brushes or plates connected with the circuit-wires on each side of the switch, a branch circuit in which the solenoids lie, and push-buttons located therein, whereby the current is alternately

passed through the solenoids and the main circuit closed or broken, substantially as described.



2. The combination, with the main circuit, of switch mechanism interposed therein and consisting of two solenoids, each composed of two oppositely-wound coil-sections, a bar movably supported therein composed of magnetic material and carrying contact projections, suitable stationary contacts to which the circuit-wires lead on each side of the interposed switch, a branch circuit in which the solenoids lie, and push-buttons located in said last-named circuit, whereby the current is alternately passed through the solenoids, the movable bar reciprocated by the induced magnetic force, and the main circuit closed or broken, substantially as described.

3. The combination, with the main circuit, of a pair of solenoids, a reciprocating bar supported therein, a branch circuit in which the solenoids lie, and push-buttons whereby the current is alternately passed through the solenoids and the main circuit closed or broken, substantially as described.

DESIGNS.

21,860. SUSPENDER-RING. FRANCIS W. SHILLITTO, West Haven, Conn., assignor to the American Buckle and Cartridge Company, same place. Filed Aug. 22, 1892. Serial No. 443,901. Term of patent 3½ years.



Claim.—The design for a suspender-ring, as herein described, and shown in the accompanying illustration.

21,861. LENS FOR ILLUMINATING-TILES, &c. JACOB JACOBS, Brooklyn, N. Y. Filed July 18, 1892. Serial No. 440,406. Term of patent 14 years.



Claim.—The design for lenses for illuminating-tiles, vault-covers, &c., in which the lens-body has its sides scalloped, so that they consist of a series of upright ribs extending throughout the body to the top of the latter, as herein shown and described.

21,862. MEMORIAL SHIELD. WILHELM MAYER, Stuttgart, Germany. Filed May 31, 1892. Serial No. 435,127. Term of patent 3½ years.



Claim.—The design for a memorial shield, as herein shown and described.

21,863. PAPER-WEIGHT. LAURENCE J. HEFFERNAN, New York, N. Y. Filed Aug. 27, 1892. Serial No. 444,329. Term of patent 3½ years.



Claim.—The design for a paper-weight herein shown and described.

21,864. PENCIL-SHARPENER. STEPHEN A. DAVIS, Newark, N. J., assignor to the Domestic Sewing Machine Company, of New Jersey. Filed Aug. 26, 1892. Serial No. 444,200. Term of patent 7 years.



Claim.—The design for a pencil-sharpener, substantially as herein shown and described.

TRADE-MARKS

REGISTERED SEPTEMBER 20, 1892.

21,754. WRITING-PAPER, ENVELOPES, AND FINE CARD-BOARD. HARD & FISK, New York, N. Y. Filed Aug. 4, 1892.

Royal Court

Essential feature.—The words "ROYAL COURT." Used since February, 1891.

21,755. PILLS, CAPSULES, AND TABLETS. MCKESSON & ROBBINS, New York, N. Y. Filed Aug. 23, 1892.

PALATINOID.

Essential feature.—The word "PALATINOID." Used since June 20, 1890.

21,756. LADIES' AND MISSES' CLOAKS AND SUITS. A. POPKIN & Co., New York, N. Y. Filed Aug. 17, 1892.

DOLGORUKI

Essential feature.—The word "DOLGORUKI." Used since May 1, 1892.

21,757. CONFECTIONERY. A. L. CAUBER MANUFACTURING COMPANY, New York, N. Y. Filed Aug. 12, 1892.

TROPICAL BRAND



Essential feature.—The words "TROPICAL BRAND" above a shield containing several stars in the upper left-hand corner, with parallel stripes in corresponding lower right-hand corner, and a palm-tree to which an alligator is secured. Used since May 15, 1892.

21,758. CORSETS, WAISTS, AND SUSPENDERS. CORONET CORSET COMPANY, Jackson, Mich., and New York, N. Y. Filed Aug. 5, 1892.

C. C. Co. JAXON.

Essential feature.—The word "JAXON" in connection with the symbol abbreviation "C. C. Co." Used since May 1, 1889.

21,759. ARTIFICIAL GEMS. F. H. SADLER & Co., Attleborough, Mass. Filed July 5, 1892.

BORNEO

Essential feature.—The word "BORNEO" and the representation of a faceted gem. Used since July 27, 1889.

21,760. A LINE OF REMEDIES. JOSEPH WILLIAMS, Jr., Pittsburg, Pa. Filed July 22, 1892.

THE WORLD'S FAIR

PAIN RELIEF

Essential feature.—The words "THE WORLD'S FAIR PAIN RELIEF." Used since March, 1892.

21,761. COUGH MEDICINES. DR. SETH ARNOLD MEDICAL CORPORATION, Woonsocket, R. I. Filed Aug. 11, 1892.

COUGH-KILLER

Essential feature.—The words "COUGH-KILLER." Used since April 1, 1842.

21,762. A REMEDY FOR CATARRH AND ALL DISEASES OF THE THROAT, LUNGS, AND BOWELS. ROBERT M. DAVIS, Denver, Colo. Filed June 27, 1892.

SALOINE

Essential feature.—The word "SALOINE." Used since June 17, 1892.

21,763. ELECTRIC INSULATED WIRE. EASTERN ELECTRIC CABLE COMPANY, Boston, Mass. Filed Aug. 16, 1892.

CLARK.

Essential feature.—The word "CLARK." Used since April, 1885.

21,764. SEDLITZ-POWDERS. JAMES F. GIBSON, Providence, R. I. Filed Aug. 20, 1892.

Essential feature.—The fac-simile signature "B. D. BAILEY." Used since January 20, 1891.

21,765. POWDER MEASURES AND RAMMERS. HARTLEY & GRAHAM Co., Bridgeport, Conn. Filed Aug. 5, 1892.

NITRO

Essential feature.—The word "NITRO." Used since December 31, 1891.

21,766. UNDERWEAR, INCLUDING HOSIERY. J. S. LOWERY & Co., New York, N. Y. Filed Mar. 14, 1892.



Essential feature.—The representation of a crescent and a polygonal figure inclosing the letter "L." Used since February 1, 1892.

21,767. TEMPERAMENTAL REMEDIES. JOHN H. PATTY, Chicago, Ill. Filed June 24, 1892.



Essential feature.—The words and figures "43 SYMBOLS AND 43 PHRENOLOGICAL REMEDIES" and a representation of a phrenological chart upon a human head in profile. Used since July 20, 1891.

21,768. PLUG-TOBACCO. JOSEPH G. PERS, PETER P. WATSON, and ABEL D. WITTEN, Martinsville, Va. Filed Aug. 18, 1892.

N&W

Essential feature.—The letters and character "N & W." Used since June 17, 1892.

21,769. A SUBSTITUTE FOR LARD. SAMUEL H. READ, New Haven, Conn. Filed Aug. 17, 1892.

LARDENE

Essential feature.—The word "LARDENE" inclosed in a diamond-shaped panel. Used since August 10, 1892.

21,770. A MONTHLY MAGAZINE. THE GREAT DIVIDE PUBLISHING COMPANY. Denver, Colo. Filed June 21, 1892.



Essential feature.—The words "THE GREAT DIVIDE." Used since March, 1889.

21,771. HOES, FORKS, RAKES, AND OTHER AGRICULTURAL HAND IMPLEMENTS. THE IOWA FARMING TOOL COMPANY, Fort Madison, Iowa. Filed Jan. 23, 1892.



Essential feature.—The word "CRUCIBLE." Used since January, 1889.

21,772. LAGER-BEER. THE NATIONAL BREWING COMPANY, OF BALTIMORE COUNTY, MARYLAND, Baltimore City and Baltimore County, Md. Filed Aug. 17, 1892.



Essential feature.—The words "STONE JUG" and the representation of a jug upon a large circle or medallion with a small medallion upon the body of the jug. Used since July 1, 1892.

21,773. LEATHER, BOOTS, SHOES, AND OTHER FOOT-WEAR. EAST NEW YORK BOOT, SHOE, AND LEATHER MANUFACTURING COMPANY, Albany, N. Y. Filed Aug. 3, 1892.



Essential feature.—The letters "E. N. Y." Used since January 1, 1889.

21,774. CANDY, CHOCOLATE, AND COCOA FOR CONFECTIONERS' USE. ODE & GERBEREUX, New York, N. Y. Filed Aug. 5, 1892.



Essential feature.—The words "BELL BRAND" and the representation of a swinging bell. Used since July 1, 1887.

21,775. MEDICATED LOTIONS AND EYE-WATERS. RICHARD P. STRICKER, Springfield, Ill. Filed Aug. 8, 1892.

ORIENTAL EYE LOTION



Essential feature.—The representation of an open eye with the words "ORIENTAL EYE LOTION" over it on a slight curve. Used since June 6, 1891.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

REPORT OF THE COMMISSIONER OF PATENTS.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 29, 1892.

SIR: I have the honor to submit the following report of the business of this Office during the fiscal year ending June 30, 1892.

The following statement, prepared in the usual condensed form, exhibits the transactions in the Office during the period specified and compares them in important particulars with the corresponding transactions during four previous years. It also shows the balance now in the Treasury of the United States on account of the patent fund:

Applications and Caveats received.

Applications for letters patent	39,987
Applications for design patents	983
Applications for reissue patents	314
Applications for registration of trade-marks	1,919
Applications for registration of labels	541
Caveats	2,401
Total	45,945

Patents granted and Trade-Marks and Labels registered.

Letters patent granted, including reissues and designs	23,026
Trade-marks registered	1,563
Labels registered	6
Total	25,195

Patents withheld and Patents expired.

Letters patent withheld for non-payment of final fee	3,022
Letters patent expired	12,427

Receipts and Expenditures.

Receipts from all sources	$1,268,727 35
Expenditures (including printing and binding, stationery, and contingent expenses)	1,114,134 23
Surplus	$154,593 12

Comparative Statement.

	Receipts.	Expenditures.
June 30, 1888	$1,122,994 83	$983,730 14
June 30, 1889	1,186,557 22	999,697 24
June 30, 1890	1,347,203 21	1,081,173 56
June 30, 1891	1,302,794 59	1,145,502 90
June 30, 1892	1,268,727 35	1,114,134 23

Change in the number of applications for Patents, including Reissues, Designs, Trade-Marks, and Labels.

June 30, 1888	37,769
June 30, 1889	39,702
June 30, 1890	43,810
June 30, 1891	43,616
June 30, 1892	45,544

Number of applications awaiting action on the part of the Office.

July 1, 1888	7,277
July 1, 1889	7,073
July 1, 1890	6,585
July 1, 1891	8,911
July 1, 1892	9,447

Balance in the Treasury of the United States on account of the Patent fund.

June 30, 1891	$3,947,847 97
June 30, 1892	154,593 12
Total	$4,102,441 09

Very respectfully yours,

W. E. SIMONDS,
Commissioner.

The SECRETARY OF THE INTERIOR.

COMMISSIONER'S DECISIONS.

EX PARTE RAEYMAECKUS.

Decided September 9, 1892.

ABANDONED APPLICATION—REVIVAL OF.

The abandoned application of a foreign applicant will not be revived upon a showing that the two years' limit was allowed to expire without action solely through the inadvertence of the associate attorney's clerk.

ON petition.

PROCESS OF AND APPARATUS FOR THE TREATMENT OF SACCHARINE SOLUTIONS, ETC.

Application of Raymond Raeymaeckus filed October 5, 1889, No. 326,087.

Mr. James L. Norris for the applicant.

SIMONDS, *Commissioner:*

This is a petition for the revival of an abandoned application, the case having become abandoned August 14, 1892. The applicant is a foreigner, having attorneys resident in London, with associate attorney in Washington. The London attorneys forwarded an amendment which arrived about a month before the case became abandoned; but through pressure of business in the office of the Washington attorney and by inadvertence on the part of a clerk it was not examined and filed in the Patent Office.

The action of the clerk is the action of the attorney and the action of the attorney is the action of the applicant. The failure to act for two years was a matter purely of inadvertence on the part of the attorney's clerk, which a little more diligence and care would have prevented. It was not unavoidable.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Massachusetts.

AMERICAN BOX MACHINE COMPANY *v.* CROSMAN *et al.*

Decided September 7, 1892.

PATENT—INFRINGEMENT—PLEADING—BILL WITH DOUBLE ASPECT.

Where a complainant's bill asks for the specific performance of a contract set out, and also contains expressions looking to relief, as on a bill for infringement, *Held* impossible to sustain the bill as one for a double aspect, because in a bill for infringement the determination who are necessary parties must be made from a standpoint different from that in a bill for specific performance, and the title to relief is not the same in each event.

Messrs. Wetmore & Jenner for the complainant.

Mr. Thomas W. Clarke and *Mr. George J. Carr* for the defendants.

PUTNAM, *J.:*

The prayer of the bill in this case asks expressly for a specific performance of the contract set out. It also contains some expressions looking to relief as on a bill for infringement of a patent. It is impossible to sustain the bill as one with a double aspect, because in a bill for an infringement the determination who are the necessary parties must be made from a different standpoint from that in a bill for specific enforcement of a contract. Other substantial reasons might be given; but it is sufficient to add that for a bill with a double aspect the title to relief must be precisely the same in each event, which seems not possible in the class of bills to which this at bar belongs. (Story's Eq. Pl., sec. 254.)

Unless, therefore, the complainant confesses that this bill is strictly for an infringement and has arranged parties accordingly, or that it is for a specific performance of a contract and has arranged parties accordingly, it must be treated as multifarious, though, as the respondents have not made that point, it cannot be dismissed on that account. Nevertheless the court of its own motion must see that the litigation is put in form to be disposed of understandingly.

The complainant cites the opinion of Judge Shipman in *The Magic Ruffle Company* v. *The Elm City Company* (13 Blatchf., 151) as though it justified a double remedy under this bill; but it seems Judge Shipman, page 156, declined to commit himself to that position, and his conclusion was that although the bill was so framed that it might perhaps have been considered either as for infringement or for specific performance, yet on the whole it was to be held that the pleader made the alleged breach of agreement the basis of the action and sought to recover damages for injury arising from a violation thereof. Thereupon Judge Shipman evidently worked out the case as though the bill was founded solely on the contract.

It is also apparent in the case at bar that the respondents accepted the bill as one for specific performance. This is particularly apparent from the method in which they meet the claim that they had not denied infringement, for they point out that the answer denies that respondents "in violation of the covenant" had made use and sold, etc. So far as the bill is uncertain in this particular or has a double sound the respondents were entitled to elect the construction to be put upon it, and the court approves their election. It is only by treating the bill as respondents have treated it that the court can avoid the difficulties which appear in *Hartell* v. *Tilghman*, (99 U. S., 547,) in *White* v. *Rankin*, (144 U. S., 628,) and in the other cases therein cited.

This conclusion renders it easy to dispose of the relations to this case of Metcalf as a special partner in Frank & Duston. I see some difficulties in the way of his being made a party defendant to a bill for infringement without joining his partners also; but on a bill for specific performance of a contract executed by Metcalf, I think he can be holden because he is a contractor, although it may embarrass the partnership with which he has allied himself. I think, also, that he cannot be permitted to avail himself of the profits of that partnership in violation of his own contract and then excuse himself on the ground that his relations as a partner are inactive, dormant, silent, or limited.

It is sufficiently plain that a mere recovery of damages, which is the only remedy the common law affords, would not be an adequate remedy for the complainant in the case at the bar, and therefore I must hold that there is jurisdiction in equity to furnish the relief which the complainant desires.

I do not consider it necessary to investigate the mass of evidence bearing on the proposition that the contract at bar was made with reference to a certain existing machine or machines. Neither do I concur in the proposition of the complainant that so far as the contract provided for a license to Kilham, as trustee, it covered only what was expressly claimed in the Glazier patent.

That the contract did not relate to specific machines appears from many expressions in it apportioning the rights between the complainant and the respondents according to patents and not according to existing structures. I find not a word in it which refers to the latter, while the sixth clause gives the trustee the right to make or cause to be made "the single-strip machines" "that embody the inventions or substantial parts thereof described in the said patents," meaning the Glazier patents; and this was the only license given to the trustee or any of the defendants under this contract. As to the other proposition, while the mere letter of what I have just cited touches only "the inventions or substantial parts thereof" described in the Glazier patents, yet it seems a strained construction to deny that Kilham, as trustee, was licensed to make or cause to be made the machine as actually shown in the specification and drawings attached to them. This is the practical interpretation given by the joint circular of May 25, 1888, found on the cover of complainant's Exhibit H, as at least so much as this was covered by the expression "Lynn Covering-Machines," which that circular expressly allotted to Kilham, trustee, or his agent.

It is a simple principle, especially with reference to parties asking a specific performance of a contract by an equity court, that when it has been varied in the execution of details by common understanding and

mutual consent the change will be insisted on by the court, either as a practical construction, illustrating the original intention of the contract, or as a supplemental agreement. But, although in the case at bar it appears, and is claimed by the complainant, that the modifications of the respondents' machine complained of were adopted by it immediately after the contract was executed, and although I might, perhaps, find enough in the record, showing that the complainant had slept on its rights, to bar an account or assessment of damages, if the case came to that, yet I am not satisfied that the complainant was properly aware of the course of manufacture, knowingly waived its rights, or has intentionally given any construction to the agreement, except such as it properly bears on its face.

Subject to the possible effect of the above qualifications, it must be held that all parties to the contract agreed in the strongest terms to maintain in the complainant not only the exclusive right to the peculiar machines described in any of the patents originally owned by it, but also any method of covering boxes with a plurality of strips simultaneously. The portion of the contract which provided that some of the defendants might experiment on the single-strip machine with a view of converting it into a double-strip machine on terms to be accepted by the complainant makes especially clear the extent to which that contract intended to go in this direction.

It is apparent, for reasons which are stated at length in the testimony of Inman, that no machine shown by the Glazier patents could be used for a simultaneous plurality of strips without some adaptation for that purpose. It is also plain that the respondents' machine has been adapted, either intentionally or otherwise, so that now it is capable of the extended use, this coming apparently from the interposition of a circular guide, which operates as a double guide, in lieu of the finger or single guide shown in the specification and drawings of the Glazier patent, No. 360,682, and from the omission, in connection with the reversing the frame of the machine, of the weighted lever *m*, and possibly in part from the addition of another roller, as shown in complainant's Exhibit A.

It is not necessary, however, for the court to go into these details. It is sufficient that it holds that no machine shown in the Glazier patents was capable of the use of a simultaneous plurality of strips without some change or adaptation, while the machine as sold is thus capable. Of course respondents cannot be limited to a precise form of machine, so far as concerns mere mechanical details which are not injurious; but what may be allowed or not allowed in that direction will be a matter for consideration when the terms of the final decree are settled.

Complainant's brief enters on a discussion of matters not charged in the bill—as, for example, a claim that the Lynn Box Machine Company be enjoined from making, selling, or using any box-making machinery covered by any of the patents. Indeed, so far as this is concerned the nineteenth paragraph of the bill alleges that what this corporation has done was with "the consent of the defendant Kilham;" and as he was authorized by the contract to appoint such selling agents as he saw fit and was also to procure the manufacture of the single-strip machines by such persons as he deemed proper, subject to being personally responsible for agents not approved by the complainant, it is of no consequence whether his appointment was formal or informal or by ratification or consent. The pith of the bill aims only at respondents' making, using, or selling a two-strip machine, and when this call of the bill is met nothing further remains to be answered for.

It is admitted by the complainant's brief that the Lynn Box Machine Company neither manufactured nor sold the offending machine. There is no proof of any complicity on its part unless it be by what appears on page 2 of the catalogue of complainant's Exhibit H. There is nothing in the text of this page and I have not been referred to anything in the proofs which indicates that the machine there shown was adapted for two strips or was offered as such, and the drawing is not sufficiently accurate to throw light on that point. Taken in connection with the joint circular of May 25, 1888, which appears in this catalogue, I am unable to see that it furnishes any ground of complaint. I have no doubt of the right of Kilham, trustee, or of his selling agent, Metcalf, or of any other person interested in selling the single-strip machine to advertise it through the catalogues of the Lynn Box Machine Company, or of any other person or corporation, unless the advertisement is shown to contain some unauthorized feature, and such is not the case with this in question.

I do not find any claim of any act by Crosman individually or anything connecting him with this case except as director of the Lynn Box Machine Company, and I therefore think he must go out of the suit with that corporation.

Rollins and Glazier are properly charged as the manufacturers and Metcalf as the seller of the offending machine, and therefore must be retained in the bill.

It also appears that Metcalf is a special partner in the limited partnership of Frank & Duston and that this partnership has been using the machine in question for covering boxes with two strips simultaneously. For reasons already stated Metcalf must be charged with the acts of the partnership so far as his obligations under the contract are concerned; but no account can be taken of profits as against him in the absence of his copartners as defendants in this suit.

In *The Magic Ruffle Company* v. *The Elm City Company*, *supra*, Judge Shipman ordered an account of profits; but in the case at bar the complainant has not proven specific facts sufficient to show that any of the respondents have made any profits on account of the features complained of in the machines which they sell, and while it is very probable that unrestricted sale would eventually seriously impair the trade of the complainant, which fact is the basis of jurisdiction in this case, yet the proofs also lack specific evidence of actual damage already suffered. On the whole, I do not find enough in the record to justify ordering an account or making a reference for the purpose of assessing damages.

Let there be a decree dismissing the bill as against Crosman and the Lynn Box Machine Company, with costs; but for the complainant against the remaining respondents for an injunction, with costs, and, further, against Metcalf from continuing in the partnership of Frank & Duston so long as they are using the machines complained of, the terms of the decree to be settled in accordance with this opinion.

U. S. Circuit Court—District of Minnesota.

LEE *v.* PILLSBURY *et al.*

Decided January Term, 1892.

1. PATENTS FOR INVENTIONS—PROPERTY RIGHT—DAMAGES FOR INFRINGEMENT.

The exclusive use granted by a patent is a property right, and a plaintiff in an action at law for infringement may recover actual damages therefor.

2. SAME—CONSTRUCTION OF CLAIM—INOPERATIVE CLAIM.

The words "substantially as specified" in the claim of a patent are to be given effect, and where the claim read literally would be inoperative their effect is to include in the claim elements or devices contained in the specification that are wanting in the claim.

3. SAME—DAMAGES—GENERAL EVIDENCE.

Where there is no license-fee and nothing to show that the patentee puts his machine upon the market, he must furnish other evidence to enable the jury to come to a proximate amount of the damage which he has sustained by the infringement, and for this purpose general evidence may be resorted to.

4. SAME.

The actual damages suffered by plaintiff may be arrived at by evidence showing the value of that which defendants have used, the utility and advantage of the invention of the plaintiff over the old modes or devices that have been used for working out similar results, and the saving effected thereby.

5. SAME—NOMINAL DAMAGES.

Plaintiff can recover only nominal damages for the infringement of an impracticable machine or if he fails to show actual advantage to defendants by the use of his machine.

6. SAME—PROOF OF DAMAGES—MERE OPINION.

Plaintiff must prove the actual damages directly or show such facts as will enable the jury to ascertain the amount, and mere opinion as to the amount of that damage cannot be considered.

7. SAME—MEASURE OF DAMAGES.

The proper measure of damages for infringement of a patent is an indemnity to the plaintiff for the loss sustained by the infringement.

STATEMENT OF THE CASE.

Action at law for the infringement of Letters Patent No. 155,874, issued to the plaintiff October 13, 1874, for a seed-separator. It was claimed by plaintiff that certain machines of defendants used in their mills infringed the third claim of his patent. Plaintiff's machine consists of a revolving sheet-metal cylinder, into which the grain is spouted. The cylinder is perforated with holes large enough to receive such grains as cockle, but too small to receive the wheat-grains completely within them. On the outside a skin belt, as wide as the length of the cylinder, surrounds it, so as to cause the perforations to retain the cockle. A trough is suspended lengthwise within the cylinder, and as the cylinder revolves the cockle is retained in the perforations, carried above the trough, and is dropped upon it to be discharged out of the machine. This chute or trough has a brush at one edge, which rubs against the inner surface of the cylinder to brush down the wheat and leave the cockle in the holes to be carried up and discharged in the trough.

The third claim reads:

The brush J, in combination with the perforated cylinder A and trough C, substantially as specified.

Defendants contended that the claim was inoperative, because it did not include the skin belt; that they did not infringe it; also, that it was anticipated by the prior art exhibited in American Patents No. 92,073, June 29, 1869, to Mace; No. 142,170, August 26, 1873, to Miller; No. 73,803, January 28, 1868, to Hancock and Leaman; No. 118,094, August 15, 1871, to Balch; in three French patents, two English patents, and a German publication prior to Lee's patent. It was conceded that the perforated cylinder with a jacket around it as well as cylinders with indentations for the same purpose and used in connection with a trough were old; also, that brushes for various purposes were shown in some of the prior foreign patents in connection with such revolving cylinders. The machines of defendants have an indented cylinder, instead of a perforated one with a jacket. Plaintiff admitted that he had never made nor put into operation but a single specimen of his machine, which occurred a few months prior to his application for his patent; nor had there been any manufacture thereof under licenses. On behalf of defendants it was contended that under such circumstances plaintiff could at most recover only nominal damages, citing 3 Rob. Pat., secs. 1053, 1054, 1062, and note; also, pp. 352–366; *Rude* v. *Westcott*, (130 U. S., 152; 9 Sup. Ct. Rep., 463;) *Mayor* v. *Ransom*, (23 How., 487; 7 Brod Pat. Cas., 88.) Plaintiff cited, contra, *Suffolk Co.* v. *Hayden*, (3 Wall., 315;) *Packet Co.* v. *Sickles*, (19 Wall., 617;) *Root* v. *Railway Co.*, (105 U. S., 198)

Defendants requested the following instructions to be given the jury on the subject of damages:

That the loss sustained by the plaintiff depends upon the use which he makes of his right; that vindictive damages are not allowable, and that plaintiff is not entitled to more damages than the advantages he would have enjoyed but for the infringement complained of; that where an inventor has not exercised his invention in any way, and neither derives nor purposes to derive any advantage from his rights under the patent, he cannot sustain more than nominal damages from the use of his invention by others; that the plaintiff having proved that he never made more than one machine embodying his invention, which was long since destroyed, and having produced no evidence that he had ever manufactured or intended to manufacture his device, no evidence that he had ever granted any license, and no evidence that he made any use of his invention by using it himself, he is in case of infringement entitled to only nominal damages; that, the plaintiff having failed to prove an established license-fee or a depreciation of the value of his exclusive use by the infringement, he can recover only nominal damages in case defendants have infringed.

The court refused these instructions and instructed on that question as contained below. The same question arose on a former trial of the case, and the instructions of the court were then the same in substance as now given.

Messrs. Davis, Kellogg & Severance and *Messrs. Keith, Evans, Thompson & Fairchild* for the plaintiff.

Messrs. Winkler, Flanders, Smith, Bottum & Vilas for the defendants.

NELSON, *J.:*

This suit is brought to recover damages for an alleged infringement of Letters Patent granted to the plaintiff on October 13, 1874, for an improvement in seed-separators. The patent has three claims. The third only is alleged to be infringed by the defendants. The patent laws are passed to promote the progress and to encourage inventions of the useful arts. Meritorious inventors are protected and they are granted the exclusive right to manufacture, sell, and use their inventions. If the subject-matter of the patent possesses novelty and utility, the owner is protected against the use of it by any other person without his consent. The exclusive use granted is a property right, as much so as any other property of the patentee. So in this case, if the third claim in the plaintiff's patent is determined by you from the evidence to be valid and the evidence also proves infringement by the defendants, the former is entitled to recover

actual damages for such infringement. The third claim is as follows:

The brush J, in combination with the perforated cylinder A and trough C, substantially as specified.

The language "substantially as specified" is to be given effect. Such phrase relates to material features of the combination specified, to be ascertained by considering the purpose of the machine and what are the elements of the combination which are effective in producing the result intended. It refers to the specification for such elements or devices wanting in the claim, and elements of the combination not specifically mentioned in the claim may be included therein—that is, in the claim—in the light of other parts of the specifications which are applicable. So that, as this third claim, reading it in its literalism, would be inoperative, in my opinion the skin belt may be included as a part of it, jacketed about the perforated cylinder in the manner described in the specification, and I instruct you that my construction of this third claim is that the skin belt must be embraced in it, and when considering the defenses interposed you must so construe the claim. Now, gentlemen, you are to determine this question as a jury of business men. Some of you, I know, are familiar with mechanism to a certain extent; others are familiar to some extent with the operations of milling. You will give this case careful consideration, weigh all of the testimony that has been introduced here on both sides, and determine whether the plaintiff has sustained a case which entitles him to damages. If in your judgment he has done so and his rights has been invaded under this patent by the defendants, then he is entitled to actual damages, and the question then presented is what amount is he entitled to recover? You can readily see where there is no license-fee, no price fixed for royalty, and nothing disclosed which would show that the patentee puts upon the market a machine for the use of which he charges so much it is a very difficult matter to determine what the amount of damages may be in a certain case; but, like all questions presented to a jury for their determination, the plaintiff is bound and required to give some data and must furnish the the jury with evidence, so that they may be enabled to come to a proximate amount of the damage which the patentee has sustained by the infringement. In other words, general evidence may be resorted to for the purpose of furnishing data for the jury to come to a conclusion. They are to take into consideration and look at the value and utility and advantages of the patentee's machine over other makes of seed-separators and ascertain that value from all the evidence as to its character, operation, and effect, and you will take into consideration the value, if any, of that which the defendants have used belonging to the plaintiff to aid you in forming a judgment of the actual damage plaintiff has sustained.

It is conceded that during the time for which plaintiff seeks to recover the price of wheat was sixty cents a bushel. The value of the cockle-seed which is extracted also has been shown, and evidence has been introduced tending to show the saving effected by the use of the plaintiff's invention. This evidence has been offered here, and it is very appropriate and pertinent as going to show the utility and advantage of the invention of the plaintiff over the old modes or devices that have been used for working out similar results. Upon those data you are furnished with something by which you can arrive at perhaps not an accurate but a proximate conclusion as to what amount of damage has been suffered by the plaintiff, if you think he is entitled to recover damages. I have been presented with many requests by counsel for defendants, some of which I will give you, some I have qualified, and others I have refused. I will read those I propose to give and those I have qualified, giving the qualifications, and I state to you that these instructions I give are to be received by you as part of the law in the case: that in case the jury find an infringement the plaintiff is only entitled to the damages he has sustained, and if the jury believe his machine to be impracticable and useless practically he would only be entitled to nominal damages for the infringement; that it is the duty of the plaintiff to set forth and prove the actual damage to which he claims to be entitled, and that if he fails to show actual advantage to the defendants by the use of his machine he would be entitled to only nominal damages in case the defendants infringe; that it is necessary to the showing of actual damage by the plaintiff that he should prove the same directly or show such facts as will enable the jury to ascertain the same, and that mere opinion as to the amount of that damage cannot be received or considered; that the proper measure for damages for the infringement of a patent is an indemnity to the plaintiff for the loss sustained by the infringement. You will recollect that there is some claim with regard to this trough or this device with a flexible brush attached to it; that it was unserviceable and was not put on for any such purpose, as the wheat never rose up to that point. There is evidence on the part of the plaintiff that the wheat did rise up to that point. That is a question for you to determine. You are to determine what the operation of this brush was for that purpose and what the operation of the machine was and say do or do not the defendants infringe the combination in the patent issued to Mr. Lee. The plaintiff might have brought his suit in equity and had it settled without intervention of a jury; but he presents his case in an action at law, as he has a perfect right to do. If the jury come to the conclusion that the plaintiff's invention was a valid one and that there has been infringement on the part of the defendants, they can award damages to the plaintiff, but not to exceed the amount claimed, $1,600.

The jury returned a verdict in favor of the plaintiff in the sum of $1,600.

U. S. Circuit Court—Northern District of California.

TATUM *et al. v.* GREGORY *et al.*

Decided June 9, 1892.

1. PATENTS FOR INVENTIONS—EDGERS—ESSENTIAL FEATURES.

Claim 1 of Letters Patent No. 227,926, dated May 25, 1880, and claim 1 of Letters Patent No. 290,358, dated December 18, 1883, both granted to J. A. Robb for improvements in edgers, embrace and cover the essential features of the patented machine and give it its merit, without which features it would be valueless and unsalable.

2. SAME—MEASURE OF DAMAGES—WHEN CALCULATED ON WHOLE MACHINE.

When a patent covers only certain features of a machine and not the entire machine, if the patented features constitute the essential features of the machine and give it its merit, without which the machine would be valueless and unsalable, the damages and profits for infringement must be calculated on the basis of the entire machine and not merely on the patented features alone.

3. SAME—SAME.

To entitle a patentee to recover as damages for infringement the profits he would have realized if he had made the sales which were made by the infringer, he must show that he had the ability to make and that he would have made said sales but for the infringement.

EXCEPTION to a master's report.

STATEMENT OF THE CASE.

Complainant brought suit for an injunction and recovery of damages and profits for infringement of the first claim of Letters Patent No. 227,926, dated May 25, 1880, and the first claim of Letters Patent No. 290,358, dated December 18, 1883, both granted to J. A. Robb for improvements in edgers. The first patent covered a mechanism for laterally shifting the saws along the arbor of an edger for the purpose of regulating the distance between them, and thereby cutting different widths of boards. The second patent covered a mechanism for simultaneously raising the upper feed-rolls of an edger. On final hearing the two claims mentioned were held to be infringed by the respondents, and the case was referred to the master of chancery to take an accounting, (see *Tatum v. Gregory*, 41 Fed. Rep., 42.) Accounting was taken, in which the master found that the patented features were the essential features of the machine and gave it its merit and value, and without them the machine was valueless and unsalable. He further found that respondent had made and sold nine edgers containing the two patented features; that the complainants granted no licenses, but kept the patent a close monopoly and supplied the market themselves; that they owned and operated a machine-shop, where the edgers were made and sold; that if no infringement had occurred they could and would have sold an equal number of their edgers to the purchasers who bought from respondents, and they would have made as profits on such sales $1,742.62. On the accounting respondent admitted making a profit of $900 on the infringing edgers sold by them.

Mr. John H. Miller for the complainants.
Mr. John L. Boone for the respondents.

MCKENNA, *J.*:

The patented device was invented by one Robb, and is one for shifting the saws and simultaneously raising the top feed-rolls of a machine used in sawmills called an "edger." The device does not form the whole machine; but it is the essential feature, makes the merit of the new one, and the edger has no value or use without it It is not salable without it.

The case of *Yale Lock Co.* v. *Sargent* (117 U. S., 536) applies, and damages must be adjudged on the basis of the entire edger.

What are the damages?

The plaintiff was the owner of the patent and reserved to himself the right of manufacture and sale. The measure of damages therefore is either the profits he would have made but for the infringing sales, together with the reduction of price on his own sales, or the profits that the respondent made. There was no reduction in the prices of his own sales. These were maintained.

To enable complainant to recover its rate of profit on respondent's sales involves the two conditions that he had the ability to and would have sold his machine to the purchasers who bought of respondent. The first condition is established; the second, the master said, "does not so clearly appear." He infers it, however, from the testimony of a Mr. Smiley, a witness and employé of plaintiff, whom he quotes as follows:

I know that people haven't bought from us on account of our high prices, as they have said, and they placed the order with Spaulding, [meaning respondent.]

This is a positive assertion that plaintiff lost sales by the competition of respondent; but its positiveness is abated on further examination and the statement shown to be based on conjecture and, so far as it asserts sales to customers of complainant, a mistake. In explanation of what he meant by lost sales he said that parties made inquiries at complainant's store, but were deterred from purchasing by the high prices, saying that they "could do better." Though claiming a good memory, so good that it was appealed to in cases of doubt by his fellow-clerks, he was only able to remember one instance of this. One of whom he called "the Korbell Brothers," which one he did not remember, told him that he had bought an edger of Spaulding, and the witness concluded by saying—

that an examination of Mr. Spaulding's books will prove that I am right.

An examination of Mr. Spaulding's books proved that he was wrong. Mr. Spaulding did not sell to Korbell Brothers an edger. A transcript of his books showed a sale of nine edgers, but none to Korbell Brothers or to the company to which they belonged. From testimony so vague and mistaken no judgment can be formed. There was no other testimony of lost sales, and no presumption can be safely indulged in against the fact that there were other competitors of complainant besides respondent, other edgers, and other infringers. If the other edgers are conceded to have been inferior, they were cheaper, and, the testimony shows, were salable, and there are suits pending against other infringers. In this condition of things and the evidence it would be incurring too much risk of doing injustice to decide that plaintiff would have made the sales which respondent made—in other words, that the purchasers from respondent would not have bought of him or another some other edger or bought the same edger from another infringer, but would have bought of plaintiff at a higher price—that they would not have done what the witness said they did do. I do not think, therefore, that the evidence sustains the finding of the master that plaintiff incurred $1,742.62 damages by respondent's sales.

The contention of respondent's counsel that complainant can only recover nominal damages cannot be sustained. There is proof of other damages. Respondent admits that he made a profit of $100 on each edger, or $900 in all. Therefore final decree will be entered for complainant for $900 damages, costs of suit, and the injunction will be made perpetual.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 60.—No. 13. TUESDAY, SEPTEMBER 27, 1892. PRICE—$5 per year.

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Changes in Classification.

(ORDER No. 776.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 16, 1892.

In Class 139, Weaving, Division XXI, the following sub-classes are established:

4. Driving and lay motions.
26. Looms, swivel.
31. Shuttle-motions, pneumatic.

Fabrics—
34. Elastic.
9. Fabrics.
35. Pile.
55. Tubular.

Looms, pile fabric—
62. Longitudinal wires.
23. Pile fabric.
63. Pile wires.
64. Pile-wire motions.
65. Terry.
66. Tufted.

W. E. SIMONDS,
Commissioner.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

This order does not include the written statements of the grounds of decisions made by Examiners to the appellate tribunal in *ex parte* cases.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Price of Printed Copies of Patents.

Attention is called to the fact that under date of May 14, 1891, the price of uncertified printed copies of patents was fixed at the *uniform price of ten cents each*, whether purchased singly or in quantities.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of September 27, 1892.

Patents	394	No. 483,124 to No. 483,517, inclusive.
Designs	10	No. 21,865 to No. 21,874, inclusive.
Trade-Marks	30	No. 21,776 to No. 21,805, inclusive.
Labels	None.	
Reissues	2	No. 11,272 to No. 11,273, inclusive.
Total issue	436	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	5	....
Arkansas	3	1	New Jersey	8	2
California	14	....	New York	59	5
Colorado	9	....	North Carolina	1	....
Connecticut	16	....	North Dakota	1	....
Delaware	....	....	Ohio	26	2
District of Columbia	3	....	Oklahoma Territ'y	1	....
Florida	1	....	Oregon	2	2
Georgia	....	....	Pennsylvania	37	3
Idaho	1	....	Rhode Island	5	....
Illinois	37	4	South Carolina	7	....
Indian Territory	....	....	South Dakota	1	....
Indiana	8	2	Tennessee	1	....
Iowa	3	....	Texas	7	....
Kansas	3	....	Utah Territory	1	....
Kentucky	6	....	Vermont	3	....
Louisiana	2	....	Virginia	3	....
Maine	3	1	Washington	....	....
Maryland	3	1	West Virginia	2	....
Massachusetts	28	....	Wisconsin	11	....
Michigan	18	1	Wyoming	....	....
Minnesota	5	....	U. S Army	....	....
Mississippi	1	....	U. S. Navy	2	....
Missouri	11	4			
Montana	....	....	Total to citizens of the United States	364	28
Nebraska	5	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Netherlands	....	....
Austria-Hungary	3	....	Newfoundland	....	....
Belgium	....	....	New South Wales	....	....
Bermuda	....	....	New Zealand	....	....
British Guiana	....	....	Norway	....	....
Canada	4	....	Porto Rico	....	....
Chile, Republic of	....	....	Portugal	....	....
Cuba	....	....	Russia	....	....
Denmark	....	....	Scotland	....	....
England	6	2	South Australia	....	....
France	8	....	Spain	....	....
Germany	14	....	Sweden	1	....
Guatemala	....	....	Switzerland	2	....
India	1	....	Victoria	1	....
Hawaii	....	....	West Indies	....	....
Ireland	....	....	Total to citizens of foreign countries	40	2
Italy	....	....			
Mexico	....	....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business September 20, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New	Amended	No. of applications awaiting action.
	Between one and two months in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	July 21	Sept. 9	95
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	July 21	Aug. 26	113
	Between two and three months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	July 12	Sept. 14	256
16	Telegraphy, Telephony, Electric Lighting and Signaling.	July 1	Sept. 9	212
21	Textiles, etc.	June 30	Sept. 8	212
8	Furniture, Toilet, Umbrellas and Canes, etc.	July 14	Sept. 1	302
24	Sewing-Machines and Apparel	June 22	Sept. 1	107
23	Instruments of Precision, Acoustics, Optics, etc.	June 25	Aug. 29	262
12	Mechanical Engineering, Stores-Service, etc.	July 2	Aug. 26	259
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	July 19	Aug. 23	152
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	June 21	Aug. 20	278
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	June 20	Aug. 8	207
5	Fine Arts, Stationery, Book-Binding, Music, etc.	July 8	Aug. 1	236
9	Hydraulics, Fire-Extinguishers, etc.	June 23	July 29	359
18	Steam-Engineering, etc	June 27	July 14	188
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	Between three and four months in arrears.			
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	June 14	Aug. 29	230
4	Civil Engineering, etc	June 4	Aug. 26	313
10	Carriages and Wagons and Railway-Cars.	June 3	Aug. 30	485
32	Advertising, Baggage, Packing and Storing Vessels, etc.	June 13	Aug. 16	298
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	June 16	Aug. 11	202
22	Fire-Arms, Navigation, Signals, etc.	June 17	Aug. 8	219
2	Farm Stock, Products, etc	June 15	Aug. 4	352
17	Paper-Manufactures and Printing.	June 9	Aug. 4	234
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	May 3	Aug. 26	489
7	Harvesters, Games and Toys	May 1	Aug. 16	560
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	May 16	July 28	305
19	Stoves and Furnaces	May 16	July 11	400
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Apr. 21	June 25	474
	Between five and six months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Apr. 1	Sept 14	359
26	Electricity, Generation, Distribution, etc.	Apr. 16	Aug. 90	400
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Mar. 30	Aug. 15	300
	Total number of applications awaiting action			9,350
	Under one month in arrears.			
	Designs	Aug. 27	Sept. 16	51
	Trade-Marks	Sept. 12	Sept. 12	45

PATENTS

GRANTED SEPTEMBER 27, 1892.

483,124. ELECTRIC HEATER. THOMAS AHEARN, Ottawa, Canada. Filed Apr. 4, 1892. Serial No. 427,758. (No model.)



Claim.—1. In an electric heater, the combination of a tube A, strips of asbestus B, laid upon said tube longitudinally, strips of mica B', laid upon said asbestus strips, a coil of wire or strip C, of refractory metal of low electric conductive power, wound upon said strips and its terminals connected with leads, an outer tube D, inclosing said coil and leaving an annular space, a filling of powdered non-combustible non-electric-conducting material in said annular space, insulating packing-rings E', closing the ends of said annular space, covers E, having lugs e upon said packing-rings, and bolts E", passing through said lugs and holding said covers together, substantially as set forth.

2. In an electric heater, the combination of a tubular core A, insulated with strips of asbestus B and mica B', carrying a coil C, of wire or strip of refractory metal of low electric conductive power, an outer tube D, inclosing said core and forming an annular space around said core and containing insulators through which pass the leads connecting the terminals of said coil, a powdered non-electric-conducting material filling F in said annular space, insulated covers E, closing said annular space and held in place by bolts E", insulating-feet G on one of said covers, an inner tube A', closed at the bottom, and a casing A" around the external tube D, open at the bottom and forming an annular space around the same, substantially as set forth.

483,125. BLASTING-POWDER. FERDINAND ADOLPHI, Graz, Austria-Hungary, assignor to Anton Mosebek and August Brunner, both of same place. Filed May 12, 1891. Serial No. 392,505. (No specimens.)



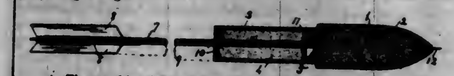
Claim.—As a new article of manufacture, a blasting compound consisting of malt germs or coarse, nitrate of ammonia, and chlorate of potash, substantially as described.

483,126. TORPEDO. JAMES H. BATES, New York, N. Y. Filed Feb. 11, 1892. Serial No. 421,132. (No model.)

Claim.—1. In a torpedo, the combination, substantially as set forth, of two shells connected together, one containing an explosive charge to be exploded at the destination of the device and the other containing a propelling-charge of slow-burning powder to propel the device, and a stem projecting rearwardly from said shells to guide them in their course.

2. In a torpedo, the combination, substantially as set forth, of a double shell, one chamber of which contains an exploding charge and the other a propelling-charge, a cushion between the two charges to prevent the transmission of shock, and a stem projecting rearwardly from said shells to guide them in their course.

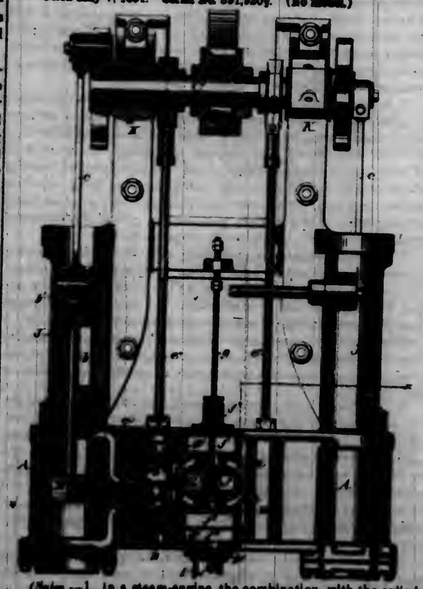
3. The combination, substantially as set forth, in a torpedo, of the two shells, with a loose piston 11 in the after shell in front of the propelling-charge.



4. The combination, substantially as set forth, in a torpedo, of the shell containing the explosive charge, the shell containing the propelling-charge, a stem projecting rearwardly from said shells, and guide-blades on said stem.

5. The combination, substantially as set forth, in a torpedo, of the double shell with a partition between its chambers, the stem secured to said partition and extending rearwardly through the after shell, the spider to brace the stem at the end of the after shell, and the guide-wings upon the stem.

483,127. STEAM-ENGINE. MATTHIAS A. BECK, Milwaukee, Wis. Filed May 7, 1891. Serial No. 391,990½. (No model.)



Claim.—1. In a steam-engine, the combination, with the cylinder and piston, of a reversing-valve and its case having steam and exhaust connections, a cylindrical main-valve case having ports in one side connected by steam-passages with opposite ends of the cylinder and two ports in another side connected with the reversing-valve chamber, and a cylindrical valve fitting within said case and having steam-passages arranged to register with the ports therein and closed ends outside of said ports and passages, whereby economy of steam is effected in the operation of the engine, substantially as and for the purposes set forth.

2. In a steam-engine, the combination, with the cylinder and piston, of a reversing-valve and its case having steam and exhaust connections, a cylindrical main-valve case having two ports connected by steam-passages with opposite ends of said cylinder and two ports communicating with the reversing-valve chamber, and a cylindrical valve having steam ports and passages arranged to register with the ports in said case and extended bearing-surfaces at the ends outside of the ports therein, whereby economy of steam is effected and wear of the valve-faces between said bearing-surfaces is avoided, substantially as and for the purposes set forth.

3. In a steam-engine, the combination, with the cylinder and piston, of a cylindrical valve-case connected with opposite ends of said cylinder by steam-passages and having suitable steam and exhaust connections, and a cylindrical valve fitted within said case, having suitable passages arranged to register with the ports therein and extended bearing-surfaces outside of said ports, said valve-case being formed with annular grooves, with waste-openings near the ends adjacent to the extended bearing-surfaces of the valve, whereby leakage past the ends of the valve is prevented, substantially as and for the purposes set forth.

4. In a reversing engine, the combination, with a cylinder and piston, of a reversing-valve and its case having exhaust-chambers at the ends and an intermediate steam-chamber and passages connecting it with the main-valve chamber, a main-valve case connected by steam-passages with opposite ends of said cylinder and having at or near its ends openings into the exhaust-chambers of said reversing-valve case, and a cylindrical main valve having closed ends fitting within the main-valve case and formed with intermediate ports arranged to register with the ports in said main-valve case, substantially as and for the purposes set forth.

5. In a reversing engine, the combination, with a cylinder and pistons, of cylindrical main and reversing valve cases, the main-valve case being connected with opposite ends of the cylinder and with the reversing-valve case by suitable passages, and the reversing-valve case having connected exhaust-chambers at the ends and an intermediate steam-chamber, a reversing-valve consisting of two cylindrical heads fitted to a cylindrical bore in the partitions separating said steam and exhaust chambers and controlling the passages leading through said partitions into the main-valve case, and a cylindrical main valve formed with the steam-passages arranged to register with the ports in its case and having closed ends and extended bearing-faces outside of said ports, the main-valve case being formed near the ends adjacent to the extended bearing-surfaces of the valve with annular grooves which open into the exhaust-chambers at the ends of the reversing-valve case, substantially as and for the purposes set forth.

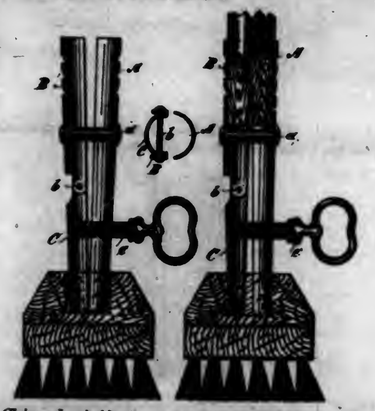
6. In a steam-engine, the combination, with the cylinder and piston, of a cylindrical valve-case connected with opposite ends of said cylinder by steam-passages and having steam and exhaust connections, a cylindrical valve formed with passages registering with the ports in said valve-case and provided with closed ends and extended bearing-surfaces outside of said ports, said bearing-surfaces being provided near the outer ends with suitable packing, and the valve-case being formed adjacent to said surfaces with annular grooves having waste-openings, substantially as and for the purposes set forth.

7. In a steam-engine, the combination, with the cylinder and piston, of a reversing-valve and its case having steam and exhaust connections, a cylindrical main-valve case having two ports connected by passages with opposite ends of said cylinder and two opposite alternating ports in communication with the reversing-valve chamber, and a cylindrical main valve having closed ends and between them connected ports, and a separate intermediate port arranged to register with the ports in the main-valve case, substantially as and for the purposes set forth.

8. In a steam-engine, the combination, with two cylinders and pistons, of a reversing-valve and its case having steam and exhaust connections, two cylindrical main-valve cases, each having two ports connected by passages with opposite ends of the adjacent cylinder and two opposite and alternating ports in communication with the reversing-valve case, and cylindrical main valves having closed ends and between them connected ports, and separate intermediate ports arranged to register with the ports in said main-valve cases, substantially as and for the purposes set forth.

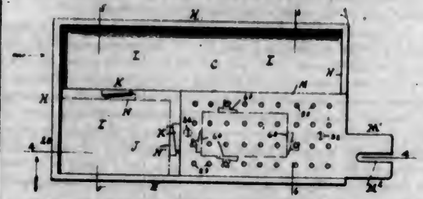
9. In a twin-cylinder reversing engine, the combination, with the cylinders and pistons, of cylindrical main-valve cases, each having two ports communicating with opposite ends of the adjacent cylinder, an intermediate reversing-valve case having exhaust-chambers at the ends, a steam-chamber between them, and intermediate ports connected with ports in the main-valve chambers opposite to and alternating with the ports therein, communicating with the cylinders, a reversing-valve controlling communication between the steam and exhaust connections and the passages leading from the reversing-valve chamber into the main-valve chambers, and cylindrical main valves having closed ends with extended bearing-surfaces and intermediate ports arranged to register with the ports in the main-valve cases, said main-valve cases having at or near their ends openings into the exhaust-chambers in the ends of the reversing-valve case, substantially as and for the purposes set forth.

483,128. SCRUBBING-BRUSH. JOHANN J. BEILMANN and ERNST LEVI, Mannheim, Germany. Filed Nov. 10, 1890. Serial No. 370,946. (Model.) Patented in Austria-Hungary Oct. 22, 1890; in France Oct. 25, 1890, No. 208,121; in Belgium Oct. 27, 1890, No. 93,503; in England Oct. 26, 1890, No. 17,360; in Germany Nov. 11, 1890, No. 57,232, and in Switzerland Dec 3, 1890, No. 2,969.



Claim.—In a holder for scrubbing-brushes, the combination of the tube-half A with the tube-halves B and C, connected by the hinge *b*, the screw *c*, and the loose pin *a*, uniting the tube-halves A and B, as and for the purpose set forth.

483,129. DESK-COVER. CHARLES A. BENNETT, Montclair, N. J. Filed Mar. 21, 1892. Serial No. 426,052. (No model.)



Claim.—1. A removable desk-cover consisting of the cover having the ledges D and E, adapted to project downwardly outside and beyond the sides of the desk, and the wedge adapted to fit between one of said ledges and the desk, whereby the cover can be laterally clamped in place without alteration of the desk, substantially as described.

2. A removable desk-cover consisting of the cover having the downwardly-projecting ledges D and E, adapted to fit outside of the desk, the ledge E having an inclined recess *e*, and the wedge adapted to fit into said recess *e*, whereby the cover can be clamped to the desk, substantially as described.

3. The removable desk-cover having the pocket I, the surface J, and the removable block M, substantially as described.

4. The removable desk-cover having the base C, the rib H, extending around the same, the raised surface J in the base, the wedges K and K', fastened on said surface J, and the removable block M, having the projecting slotted arm M', the surface J and block M not extending the full width of the cover, whereby a pocket, as I, will be formed, substantially as described.

5. A removable desk-cover having a number of holes bored in the same, and pins having square heads and rounded shanks adapted to fit into said holes, and wedges adapted to be forced between said square heads and material to be clamped to said board, whereby the pins will be turned to accommodate the wedge, substantially as described.

483,130. MEANS FOR OPERATING HEAVY ORDNANCE. FREDERICK BEE, Washington, D. C. Filed Jan. 11, 1892. Serial No. 417,660. (No model.)

Claim.—1. In a gun-carriage, the combination of a supporting-base, a rotating platform on the base, a rotating and tilting platform on the said rotating platform, means, as described, for tilting the platform, and a gun-floor, with rails and masts, on the tilting platform, arranged to accommodate the motions and be tilted therewith, substantially as described.

2. In a gun-carriage, the combination of the rotating platform B, a centrally-arranged sliding block on the platform, the tilting platform C, the connecting-rods between the platform C, the sliding block, and means, substantially as described, for moving the sliding block, as and for the purpose set forth.



3. In a gun-carriage, the combination of the rotating platform B, a centrally-arranged sliding block on the platform, the tilting platform C, the connecting-rods between the platform C and the sliding block, a sliding yoke on the platform B, having racks in its arms, lifting-screws to engage the racks and tilt and sustain the platform C, and means to move the yoke and the sliding block, substantially as described.

4. In a gun-carriage, the combination of the platform B, a yoke on the floor of the platform, having racks formed in it, a tilting platform C, arranged above the platform B, lifting-screws arranged to engage the racks of the yoke and tilt the platform, and a screw to move the yoke, substantially as described.

5. In a gun-carriage, the combination of a supporting-base, a rotating platform on the base, a rotating and tilting platform, means, as described, for tilting the platform, and a gun-floor on the tilting platform arranged to accommodate the motions and be tilted therewith, substantially as described.

6. In a gun-carriage, the combination of a base, a central vertical shaft and gear for actuating the same, and a series of platforms centrally mounted on the said shaft, the extremity thereof terminating in a ball, which engages with a socket on the gun-platform to permit the gyratory motion of the same.

7. In a gun-carriage, the combination of a base having a central vertical shaft and gearing connecting it with a suitable motor, a series of platforms centrally located on said shaft, mechanism for tilting and rotating said platforms, and a ball-and-socket joint on the terminal of said shaft to permit the gyratory movement of the gun-platform supported thereon.

8. In a gun-carriage having a suitable base, a vertical shaft, a series of rotary platforms mounted thereon, and mechanism for actuating the same, of a ball-and-socket joint terminating said shaft, said ball having a recess on the surface thereof for the reception of an antifriction-roll, whereby the wave-like motion of the platform is facilitated.

483,131. TIRE FOR VEHICLE-WHEELS. JOHN H. BINGHAM, Chicago, Ill. Filed Oct. 6, 1891. Serial No. 407,985. (No model.)



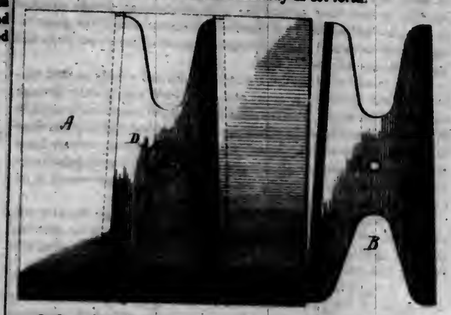
Claim.—1. A vehicle-wheel tire consisting of an elastic tube and cup-shaped cushions arranged radially in pairs back to back and one above the other within the bore thereof.

2. A vehicle-wheel tire consisting of an elastic tube and a series of cup-shaped cushions placed therein and filling the bore thereof, one-half of said cushions having their concave sides facing the rim of the wheel and the other one-half facing the tread thereof and supporting said rim-facing cushions, as set forth.

483,132. MASON'S HAWK. CHARLES W. BRAY, Janesville, Wis. Filed Jan. 16, 1892. Serial No. 418,203. (No model.)

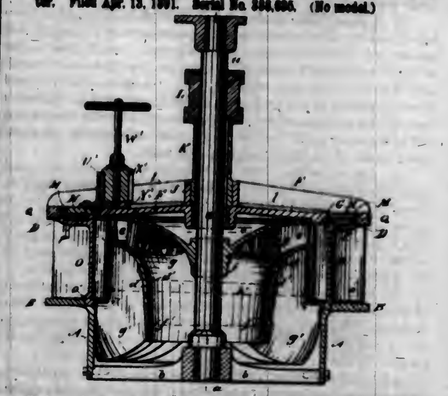
Claim.—1. The combination, with a table or other surface provided with converging kerfs or grooves, of a flanged metal wedge the flanges of which are adapted to fit in said kerfs or grooves, substantially as set forth.

2. The combination, with a table or other surface provided with converging kerfs or grooves, of a flanged metal wedge the flanges of which are adapted to fit in said kerfs or grooves and a handle secured to said table or other surface, substantially as set forth.



3. In a mason's hawk, the combination, with a table having a centrally-located recess on its under side, said table being provided with converging kerfs or grooves, and a nut located in said recess, of a flanged metal wedge the flanges of which are adapted to fit in said kerfs or grooves, a handle, and a bolt passing through the handle and engaging the nut, substantially as set forth.

488,133. WATER-WHEEL. FRANCIS M. BOOKWALTER and WILLIAM W. TYLER, Springfield, Ohio; said Tyler assignor to said Bookwalter. Filed Apr. 13, 1891. Serial No. 388,695. (No model.)



Claim.—1. A water-wheel having an upper set of buckets and a lower set of buckets, the diameter of the lower part of the wheel being greater than that of the upper part of the wheel.

2. A water-wheel having an upper set of central-discharge buckets and a lower set of downward-discharge buckets, the lower diameter of the wheel being larger than the upper diameter of the wheel.

3. A water-wheel having a set of slow-operating buckets and a set of faster-operating buckets and constructed with two diameters, the slow-operating buckets being in the smaller diameter and the faster-operating buckets being in the larger diameter.

4. A water-wheel having a crown-plate and a shell or body with a space between them which increases in size from the upper end inward, a set of central-discharge buckets in said space, and a set of downward-discharge buckets outside of said shell or body, the wheel being of two diameters.

5. A water-wheel having a crown and a shell or body with a space between them which widens inward from the outer entrance end, a set of central discharge-buckets in said space and a set of downward-discharge buckets outside of the body or shell, the said body or shell being located in the lower portion substantially equidistant from the center of the wheel to the periphery thereof, the walls constituting both sets of buckets lying in their outer portion at an angle to a radial line drawn from the center of the wheel to said outer portion, the said angle of the bucket-walls increasing the capacity of the buckets to take in water and the said widening of the space between the shell and body increasing the discharge capacity of the upper set of buckets, and the

said location of the lower part of the shell or body increasing the radial depth of the lower buckets to increase their discharge-capacity.

6. In a water-wheel, the combination, with a case and pivoted oscillating gates mounted therein, the pivots of the gates being outside of their inner ends, thereby leaving the inner portion of the gates capable of movement in and out to and from the periphery of the wheel opposite to such inner ends of the gates, of the wheel proper mounted in said case and having two diameters, the inner ends of the gates being adapted to extend over the larger diameter of the wheel when said inner ends are adjusted inward.

7. A water-wheel having a curved crown and a body or shell continuously curved from its upper end downward and inward through a portion of its length, with the remainder thereof located substantially equidistant from the center to the periphery, central-discharge buckets in the space between the crown and the shell or body, whose inner ends terminate remote from the main shaft, and downward-discharge buckets outside of the shell or body whose radial measurement is increased by reason of said position of the shell or body.

8. A water-wheel having a set of central-discharge buckets and also a set of downward-discharge buckets, the respective entering edges of each set of buckets being at the same angle to a radial line running from the center of the wheel to said entering edges.

9. A water-wheel having a set of central-discharge buckets and also a set of downward-discharge buckets, the respective entering edges of both sets of buckets being at an angle of forty-five degrees to a radial line drawn from the center of the wheel to the said entering edges.

10. A water-wheel having a set of central-discharge buckets and a set of downward-discharge buckets, the respective entering edges of each set of buckets being at the same angle to a radial line drawn from the center to said entering edges and the lower diameter of the wheel larger than the upper diameter.

11. A water-wheel having two sets of buckets and two diameters, the part consisting of the larger diameter being contracted from the lower end upward.

12. A water-wheel having an upper set of buckets and a lower set of buckets, with a crown over the upper set and a body or shell between the two sets, the upper end of the body or shell being nearer to the crown than to the place on the lower set opposite to which stands the lower end of the gate when the wheel is mounted, the lower part of the remainder of the shell being located substantially equidistant from the center of the wheel to the periphery, whereby the entering end of the lower set of buckets is increased and whereby the radial measurement of the lower buckets is increased.

13. In a water-wheel, the combination, with the case and oscillating gates mounted therein, the inner ends of the gates being deflected on one side and extended on the other to form a lip, of a wheel proper mounted in the case and having two diameters, the inner ends of said gates being adapted to be adjusted inward over the larger diameter, the deflected part to permit the water to drop downward and the extended part to support the water, for the purpose set forth.

14. In a water-wheel, the combination, with the case, of oscillating gates mounted therein, and an operating ring or annulus and means to operate it, arms carried by the gates and having studs and engaging with a ring through a shifting bearing to vary the leverage, for the purpose set forth.

15. In a water-wheel, the combination, with the case, of oscillating gates mounted therein, and an operating ring or annulus, and a shifting or traveling bearing between the gates and said ring or annulus to vary the leverage of the ring over the gates, and means to operate the ring or annulus.

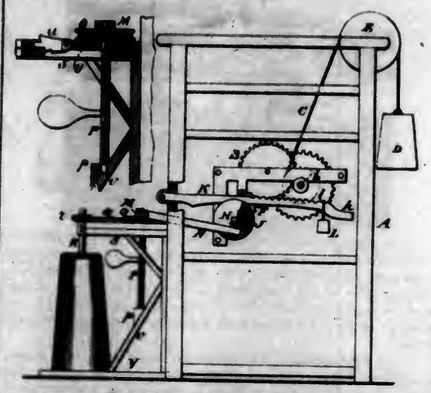
16. In a water-wheel, the combination, with the case and gates pivoted within it and each having an arm provided with a stud substantially of the form described, of a ring having slots to receive said studs and between which there is a readily-shifting contact, and means to actuate the ring.

17. A water-wheel having an upper set of buckets whose inner ends terminate remote from the main shaft and a lower set of buckets with a crown over the upper set and a body or shell between the two sets, the upper end of the body or shell being nearer to the crown than to the place on the lower set opposite to which stands the lower end of the gate when the wheel is mounted and the remainder of the shell located substantially equidistant from the center to the periphery, whereby the entering end of the lower set of buckets is increased, and whereby the radial measurement of the lower portion of the lower buckets is increased.

18. A water-wheel having a crown and a shell or body, the body having a continuous curve from its upper end inward, buckets located between the crown and the shell, their discharge ends inclined and terminating remote from the shaft, whereby they become central-discharge buckets, and downward-discharge buckets located outside and around the lower part of the shell or body.

19. A water-wheel having an upper set of buckets and a lower set of buckets, with a crown over the upper set and a body or shell between the two sets, the upper end of the body or shell being nearer to the crown than the place on the lower set opposite to which stands the lower end of the gates when the wheel is mounted, the portion of the wheel below the lower end of the gates being of greater diameter than the remainder of the wheel.

488,134. CHURN-POWER. WILLIAM T. BROWN, Sandy Hook, Ky., assignor of three-fourths to Bryant B. Putnam, Robert T. Parsons, and James M. Duvall, all of same place. Filed Apr. 30, 1892. Serial No. 431,266. (No model.)



Claim.—1. The combination, with a crank-pin, a disk J, and mechanism to rotate said disk, of a pivoted pitman N, arm M, pulley O, fan-shaft P, cord Q, pulley *r*, and shaft R, whereby fan and shaft may be simultaneously operated, as set forth.

2. The combination of a fan-shaft P, platform S, and movable bearing U, the latter being provided with a hinged handle *u*, notched on the under side, as and for the purpose specified.

488,135. DIAPHRAGM FOR PHOTOGRAPHIC LENSES. EDGAR R. BULLARD, Wheeling, W. Va. Filed Sept. 30, 1891. Serial No. 407,261. (No model.)



Claim.—In a photographic camera, the lens-tube within the camera-casing, adapted to be shifted to and from the exposure-orifice, a curved plate or slide having openings therein, said plate inserted through openings in the lens-tube, a radial arm connected to said curved plate and pivotally secured to the frame for shifting the lens-tube, a square sleeve extending through the radial arm at its pivotal point, and a square spindle extending through the camera-casing and loosely engaging the square sleeve, substantially as described, and for the purpose specified.

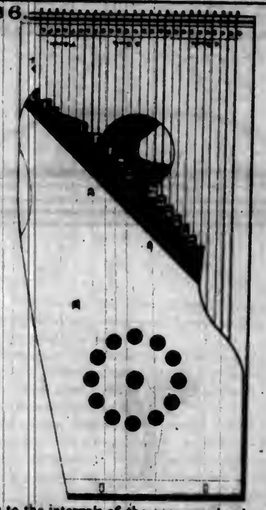
488,136. STRINGED MUSICAL INSTRUMENT. WILLIAM J. CHERRY, San José, Cal. Filed Mar. 16, 1892. Serial No. 425,415. (No model.)

Claim.—1. In a musical instrument of the kind herein described, the finger stops or guides over the strings in diagonal line and stepped order, adapted to present obstructions above the level of the strings for the finger of the player, substantially as described.

2. In a musical instrument of the kind herein described, the stationary diagonal bar D, having the steps or finger-guides D D formed on the edge thereof in stepped order to present edges substantially parallel with the strings over which they set, in combination with strings tuned in groups to the intervals of the common chords, substantially as described.

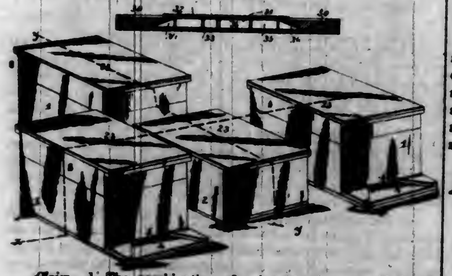
3. The herein-described stringed musical instrument, consisting of the body A, top board B, having finger-stops D D, set diagonally across the sounding-board, and the strings arranged and tuned in three

488,186.



separate groups to the intervals of the common chords, substantially as described.

488,187. BEEHIVE. JOHN COMER, Sedalia, Mo. Filed Oct. 29, 1891. Serial No. 410,259. (No model.)



Claim.—1. The combination of a hatching-box provided with compartments adapted for the reception of brood-frames, hives arranged adjacent to the hatching-box and having brood-frames adapted to be placed into the compartments of the hatching-box, and conductors connecting the hives with the compartments of the hatching-box and provided with queen-excluders, substantially as and for the purpose described.

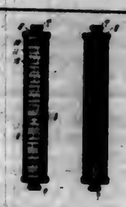
2. The combination of a hatching-box provided with an opening, a hive arranged adjacent to the hatching-box and provided with an opening, and a queen-excluder connecting the box and the hive and composed of two blocks secured together and having their opposed faces provided with recesses, a perforated plate interposed between the blocks, and tubular conductors extending from outer faces of the block and adapted to fit in the openings of the hatching-box and the hive, substantially as described.

3. A bee-escape comprising a board provided with a central opening and having recesses arranged at the sides of the opening, an upper plate secured to the board and arranged over the central opening and provided with openings, a lower plate secured to the board and arranged below the central opening, and the series of angle-pieces interposed between the plates and arranged in the form of a star and forming contracted bee-openings, substantially as and for the purpose described.

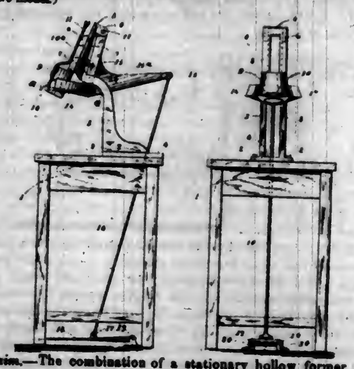
488,188. PERPETUAL TRAIN TIME-TABLE. JOHN I. COVINGTON, Brooklyn, N. Y. Filed Sept. 3, 1891. Serial No. 404,003. (No model.)

Claim.—In a pocket time table or indicator, the combination, with a rod or core having a screw-threaded end, of indicating-rings rotatable thereon, a slotted cylindrical sleeve surrounding said rings, and a screw threaded flanged cap encircling the sleeve in close frictional contact therewith to prevent rotation of sleeve and serving to press the rings together to prevent them from turning, substantially as described.

488,138.



488,139. MACHINE FOR FORMING COLLARS. ADELBERT W. CUMMINGS, Dunkirk, N. Y. Filed June 15, 1892. Serial No. 436,789. (No model.)



Claim.—The combination of a stationary hollow former and a means for heating it with forming-jaws pivoted to the upper portion of the frame, so as to have a swinging motion to or from the former, a spring for keeping said forming-jaws away from the former and in a normal position, a connecting-rod pivoted to the forming-jaw arm, and a treadle for forcing them forward when shaping a collar, substantially as described.

488,140. DOOR-CLOSER. ETHAN W. DAILY, Kansas City, Kans. Filed Jan. 11, 1892. Serial No. 417,723. (No model.)



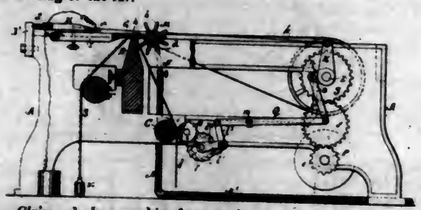
Claim.—A door-closer comprising a bracket having a pair of outwardly-extending parallel arms provided with a number of oppositely-disposed openings, a second bracket also provided with a pair of outwardly-extending parallel arms which are also provided with a number of oppositely-disposed openings, a pin or plate inserted removably through one pair of openings of the first bracket-arms, an operating-rod loosely surrounding said pin and externally screw-threaded near each point of connection with the pin, a pair of pins inserted through two pairs of openings in the arms of the second bracket, peripherally-grooved rollers surrounding said pins, the free end of the operating-rod extending between said rollers, a nut screwed adjustably upon the threaded end of the operating-rod, a cylindrical casing surrounding said part of the rod and having an internal end flange abutting against the nut, a spiral spring surrounding the rod and inclosed within the casing and also abutting against the end flange thereof, and a bearing-plate having a horizontal slot to receive the free end of the rod and formed upon one side of the bracket-arms of the second bracket and also serving to receive the thrust of the spring, substantially as set forth.

488,141. PROCESS OF PURIFYING TANNIC EXTRACTS. GEORGES DELVAUX, Montigny-en-the-Loing, assignor to Alfonse Hutinet, Surosnes, Seine, France. Filed June 6, 1892. Serial No. 436,240. (No specimens.) Patented in France Oct. 15, 1890, No. 210,264; in Germany Feb. 10, 1891, No. 62,454; in England Apr. 24, 1891, No. 7,106; in Belgium May 2, 1891, No. 94,799; in Spain June 6, 1891, No. 13,044; in Italy June 30, 1891, No. 29,091, and in Austria-Hungary Dec. 7, 1891, No. 2,900 and No. 50,967.

Claim.—The herein-described process of decoloring and clarifying tannic extracts, consisting in adding to the extract a compound of strontium, and thereby precipitating the coloring-matters, substantially as described.

488,142. MACHINE FOR REMOVING WATER-HAIRS FROM PELTS. JOHN DERBOGLOW, New York, N. Y. Filed Oct. 31, 1891. Serial No. 410,551. (No model.)

Brief.—The machine includes a knife-edged bar over which the pelt is intermittingly fed, a comb G adjacent to said bar, a reciprocating plate of platinum heated to incandescence for burning off the water-hairs, and a wiper for holding down the fur. This wiper comprises a hollow sleeve and hollow vanes connecting therewith, the sleeve being connected to a source of steam-supply. The hollow vanes are perforated at their outer edges, and through the same small jets of steam are forced against the pelt to dampen the same and prevent the burning of the fur.



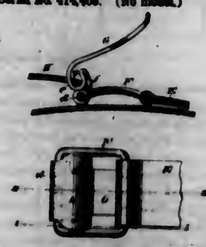
Claim.—1. In a machine for removing water-hairs from pelts, the combination, with a bar over which the pelt is drawn, of a wiper comprising a hollow sleeve or tube and hollow vanes held in said tube or sleeve and communicating with the interior thereof, the vanes being formed with perforations, substantially as and for the purposes set forth.

2. The process of removing water-hairs from pelts, which consists in burning said water-hairs and simultaneously depressing and dampening the fine hair and fur to prevent burning the same, substantially as described.

488,143. COMPOSITION OF MATTER FOR CLEANING BROWNSTONE, &c. HENRY J. BOEHM and GEORGE F. BOEHM, Philadelphia, Pa. Filed May 5, 1892. Serial No. 431,871. (No specimens.)

Claim.—A composition of matter to be used for scouring brownstone or like substances, consisting of pulverized quartz and oxide of iron in about the proportions specified.

488,144. SHOE-FASTENING. ALBERT D. FIELD, Bridgeport, Conn., assignor to the Metal Goods Manufacturing Company, same place. Filed Dec. 8, 1891. Serial No. 414,408. (No model.)

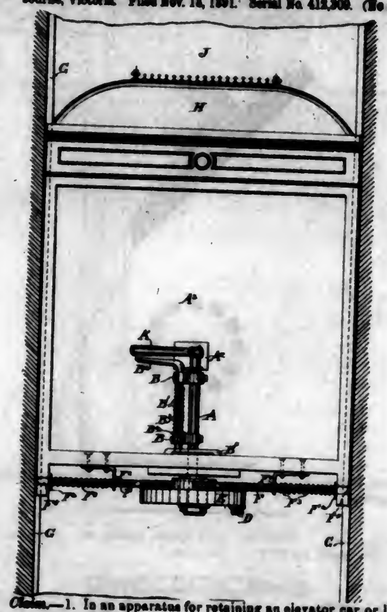


Claim.—1. The combination of the buckle-frame F with the lever G, pivoted thereto, the said lever forming an eye around the pivot *d* and having the double folds *f g* and drawing-loop *e*, the loop *e* being upon and slightly behind the eye around the pivot, substantially as herein shown and described.

2. The lever G, constructed to form an eye around the pivot *d*, the folds *f g*, and loop *e*, combined with the buckle-frame F, having pivot *d*, and with a spring contact between the buckle-frame and the folds *f g*, said folds *f g* being adapted to pass through and under said buckle-frame F, substantially as herein shown and described.

3. The combination of the buckle-frame F and the lever G, pivoted thereto, said lever carrying the drawing-loop *e*, said drawing-loop being between the extremities of the buckle-frame when the parts are in the closed position, the portion of the lever G which in the closed position passes through and under the buckle-frame being slightly wider than said buckle-frame to form a snap-lock, substantially as and for the purpose herein shown and described.

488,145. ELEVATOR. FREDERICK GILES, South Yarra, near Melbourne, Victoria. Filed Nov. 14, 1891. Serial No. 412,209. (No model.)



Claim.—1. In an apparatus for retaining an elevator car or lift at any point of its travel, the combination, with transverse rods operating in guides secured to the under side of the floor of the car and adapted to enter holes in the skids against which the car works, of an actuating-rod mounted within the car and extending through the bottom thereof, actuating mechanism connecting the lower end of said actuating-rod with the inner ends of said transverse rods, and a movable rod attached to the aforesaid actuating-rod within the car and serving to lock said actuating-rod against rotation or when elevated to permit its rotation, substantially as set forth.

2. The combination, with transverse rods having bent inner ends operating in guides secured to the under side of the bottom of the elevator and adapted to enter holes in the skids against which the elevator-car works, and a disk supported centrally on the under side of the bottom of the car and having connected thereto the bent inner ends of said transverse rods, of a vertical actuating-rod mounted within the car and extending through the bottom thereof, a lever secured to the lower end of the said actuating-rod, and a connecting-rod jointed to the outer end of said lever and attached at its opposite end to the aforesaid disk, substantially as set forth.

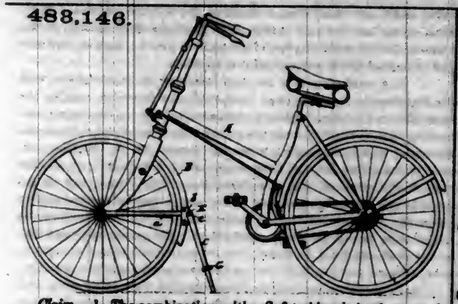
3. The combination, with transverse rods having bent inner ends and operating in guides secured to the under side of the bottom of the elevator-car, and a disk supported centrally on the under side of the bottom of the car and having connected thereto the bent inner ends of said transverse rods, of a vertical actuating-rod mounted within the car and extending through the bottom thereof, a lever secured to the lower end of said actuating-rod, a connecting-rod jointed to the outer end of said lever and having its opposite end attached to the aforesaid disk, and a locking rod or bar connected to the actuating-rod within the car and under control of the elevator-driver, substantially as set forth.

4. The combination, with disk E, transverse rods F, having bent inner ends which are connected to said disk, and spiral springs, as F^3, surrounding said rods F, of a vertical actuating-rod provided with a handle and mounted within the car and extending through the bottom thereof, and actuating mechanism connecting the lower end of said vertical actuating-rod to the aforesaid disk, substantially as set forth.

5. The combination, with the transverse rods, as F, adapted to enter holes in the skids against which the car works, disk E, lever C, and rod D, of the vertical actuating-rod A, connected to lever C and having a handle, locking-rod B', having a thumb or hand piece and connected to the actuating-rod A, a spiral spring surrounding said locking-bar, and a base-plate, as B^3, with which the locking-rod B' co-operates, substantially as set forth.

488,146. BICYCLE-SUPPORT. FRANCIS GLEASON, Philadelphia, Pa. Filed Oct. 30, 1891. Serial No. 410,361. (No model.)

488,146.



Claim.—1. The combination, with a Safety bicycle having a mud-guard, of a laterally-bent supporting-arm pivoted to said guard at one side thereof, substantially as described.

2. The combination, with a Safety bicycle having a mud-guard, of a supporting-arm pivoted to said guard, a brake-plate, and means for forcing said plate against the wheel as the arm is moved to its upright position, substantially as described.

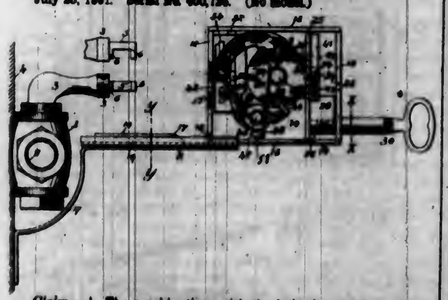
3. The combination, with a Safety bicycle having a front mud-guard, of a supporting-arm pivoted to the guard at one side, a brake-plate secured to the inner side of the guard, and a cam-piece connected with the arm and adapted to force said plate into engagement with the wheel as the arm is moved to an upright position, substantially as described.

4. The combination, with a Safety bicycle having a front mud-guard, of a supporting-arm pivoted thereto, a spring-metal brake-plate secured at one end to the guard, and a cam-piece connected with the arm and adapted to move the free end of the brake-plate against the wheel as the arm is adjusted to an upright position, substantially as described.

5. The combination, with the mud-guard having a slot and the brake-plate carried by the guard, of a bearing on the guard at one side of the slot, a pin journaled in said bearing, a supporting-arm at the outer end of the pin, a cam-piece at the other end of the pin and extending through the slot to engage the brake-plate, and a shoulder on the cam-piece, substantially as described.

6. The combination, with the mud-guard connected at or near its lower end by brace-rods, of a supporting arm pivoted to the guard at one side thereof and a spring-clasp carried by said supporting-arm and adapted to engage the adjacent brace rod, substantially as described.

488,147. LOCK. BENJAMIN GOLDBERG, New York, N. Y. Filed July 26, 1891. Serial No. 400,736. (No model.)



Claim.—1. The combination, with the bolt-plate having a finger extending therefrom, the bolt-plate being recessed between the finger and the body thereof, a segmental rack on the bolt opposite the finger, and another segmental rack adapted to engage the rack on the bolt-plate, and a keyway for the key, the said key being adapted to enter the teeth of the last-mentioned rack, substantially as described.

2. The combination, with the bolt-plate having a bolt and a rack, another rack adapted to be operated by a key engaging the teeth of the rack, the last-mentioned rack engaging the rack on the bolt-plate, and a stop independent of either of the racks, adapted to engage the key-operated rack to limit its movement in either direction, substantially as described.

3. The combination, with the bolt-plate 32, rotatably supported on the spindle 31 and having the concentric bolt 33 at one end and the segmental rack 34 at the other, a segmental rack 40, rotatably supported on the septum 25, the racks 34 and 40 engaging, and a key 30 for vibrating the rack 40, substantially as described.

4. The combination, with the key-operated segmental rack 40, having the inclined face 42, adapted to strike the wall 21 of the lock-casing, a key for vibrating the said rack, and a bolt operatively combined with the said rack, the wall 21 limiting the movement of the bolt within the space required for the locking or unlocking movement of the parts, substantially as described.

5. The combination, with the bolt-plate 32, rotatably mounted on the spindle 31, having the concentric bolt 33 on one side and the segmental rack 34 at the other, a spring 38, secured on the said spindle and bearing against the lug 37, a rocker-arm 46, centered on the spindle 47, having the striker-plate 48 at one end and the inclined dog 44 at the other, a detent 45 in the bolt-plate, and a spring 49 about the spindle 47, one end of which engages the rocker-arm, substantially as described.

6. The combination of a valve or the like having a projection 5, provided with outwardly-extending shoulders 6, a lock-casing having the aperture 43, a bolt-plate 32 on the spindle 31, having the concentric bolt 33 on one side and the segmental rack 34 on the other, a spring 38, secured on the said spindle and bearing against the lug 37, a rocker-arm 46 on the spindle 47, having the striker-plate 48, opposing said aperture, and an inclined dog 44, a detent 45 in the bolt-plate, and a spring 49, engaging the spindle 47 and rocker-arm, the striker-plate 48 being adapted to free the dog 44 and throw the bolt 33 between the shoulders 6, substantially as described.

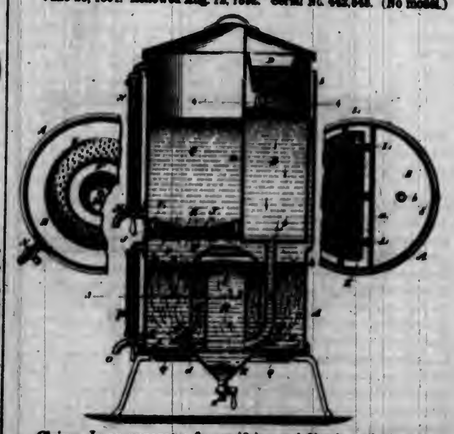
7. A lock-casing having the septum 25, a segmental rack 40, rotatably secured thereto and provided with the inclined face 42, a wall 21 to engage therewith, the key-spindle 26 on the septum, an opening 27 in the end plate 19, conforming to the shape of the key and aligning with the key-spindle, a bolt-plate 32 on the spindle 31, a segmental rack 34, engaging the rack 40, and a concentric bolt 33, substantially as described.

8. A lock-casing having the aperture 43, the sliding plate 50, guided on the casing, a plate 55, extending from said plate and opposing the said aperture, a lever 56 on the spindle 47, having two arms 58 59, the arm 59 engaging the plate 50, a spring 38, engaging said lever, the slot 13 15 in the casing, and a support for the lock, having the strip 16, aligning with said slot and adapted to engage the arm 58 of the lever 56, substantially as described.

9. A lock-casing having the removable septum 25 and end plate 19, the end plate 19 being apertured to conform to shape of a key, the septum having the key-spindle 26, aligning with said aperture, and the segmental rack 40, adapted to be vibrated by a key, substantially as described.

10. The bracket 7, having the bed 8, the plate 9, with overlapping sides 10, secured to the bed, and a strip 16, fixed to the plate 9, in combination with the lever 56, having the arms 58 59, the arm 58 being adapted to engage the strip 16, and the movable plate 50, having the outwardly-extending plate 55, the arm 59 of the lever 56 engaging the plate 50, substantially as described.

488,148. OIL-FILTER. JOHN S. HALL, New York, N. Y. Filed June 26, 1891. Renewed Aug. 12, 1892. Serial No. 442,848. (No model.)



Claim.—In an apparatus for purifying and filtering oil, the combination of the receiving-chamber B, oilway *b*, and purifying-chamber E, having perforated top and closed bottom, dome F, having closed top and open bottom and flaring lower edge *g*, and the washing-chamber H, with the pure-oil chamber C, filter-plate J, and partition *a*, said partition *a* separating the chambers B and C, the pipe *b* enter-

ing the lower part of the chamber E, substantially as and for the purposes specified.

488,149. GONG-BELL. WILLIAM S. HAM, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Jan. 23, 1892. Serial No. 418,042. (No model.)

Claim.—1. The combination, with the frame-work, the transverse rock-shaft, the lever for rocking the same, the rock-arms extending from the rock-shaft, the depending connecting-rods, the cutter-shaft, the rotary cutters mounted thereon, the stationary cutter-bar located under the rotary cutters, the arms pivoted to the cutter-shaft, and the boxes mounted for sliding in the free ends of the arms, of the axle journaled on the frame, the wheels mounted on the axle, said axle being also journaled in the free ends of the arms, the cutter-shaft, the rotary cutters mounted thereon, the stationary transverse cutter-bar, the axle having the wheels, the arms pivoted on the axle and on the cutter-shaft, and the train of gearing between the axle and the cutter-shaft, substantially as specified.

2. In a track-cleaner of the class described, the combination, with the framework, the transverse rock-shaft, the lever for rocking the same, the rock-arms extending from the rock-shaft, the depending connecting-rods, the cutter-shaft, the rotary cutters mounted thereon, the stationary cutter-bar located under the rotary cutters, the arms pivoted to the cutter-shaft, and the boxes mounted for sliding in the free ends of the arms, of the axle journaled on the frame, the wheels mounted on the axle, said axle being also journaled in the free ends of the arms, the cutter-shaft, the rotary cutters mounted thereon, the stationary transverse cutter-bar, the axle having the wheels, the arms pivoted on the axle and on the cutter-shaft, the train of gearing between the axle and the cutter-shaft, the spring-pressed bell-striker, and the lever for operating the same, substantially as specified.

2. A time-stamp having an impulse-receiving device, a one-minute mechanism operated thereby to register the minutes, a cam having six inclines gearing intermediate of said cam and the one-minute mechanism, an escapement controlled by said cam, and a ten-minute wheel governed by said escapement.

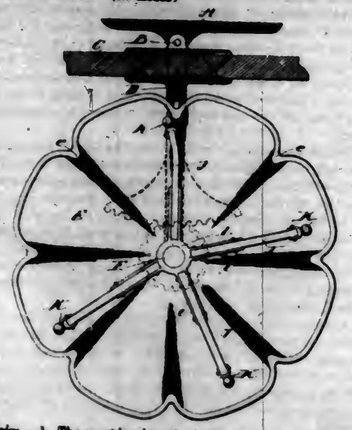
3. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, printing characters controlled by said minute-wheel, repeated in three series from "0" to "9," inclusive, a ten-minute wheel arranged adjacent to the one-minute wheel, connections intermediate the impulse-receiving device and the ten-minute wheel for actuating said ten-minute wheel once every ten minutes, printing characters controlled by said ten-minute wheel, repeated in six series from "0" to "5," inclusive, and a hand-wheel for operating the impulse-receiving device, substantially as described.

4. A time-stamp having an impulse-receiving device, a one-minute mechanism operated thereby to register the minutes, a cam having six inclines gearing intermediate of said cam and the one-minute mechanism, an escapement controlled by said cam, a ten-minute wheel governed by said escapement, and a hand-wheel for operating the impulse-receiving device, substantially as described.

5. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, printing characters controlled by said minute-wheel, repeated in three series from "0" to "9," inclusive, a ten-minute wheel arranged adjacent to the one-minute wheel, connections intermediate the impulse-receiving device and the ten-minute wheel for actuating said ten-minute wheel once every ten minutes, printing characters controlled by said ten-minute wheel, repeated in six series from "0" to "5," inclusive, a hand-wheel for operating the impulse-receiving device, and a flexible band passing over said wheel and positively geared to the same and a small wheel at the bottom of the stamp, the said band carrying printing characters to represent the hours, a day-wheel upon a second or independent shaft, controlled by the impulse receiving and storing mechanism, and a second flexible band passing over said day-wheel and positively geared to the same and a second small wheel at the bottom of the stamp, the said second band having printing characters thereon to represent the days, the axes of said wheels and shafts being arranged substantially parallel, whereby the hours and days may be printed within small compass and the time registered by the stamp

ing the lower part of the chamber E, substantially as and for the purposes specified.

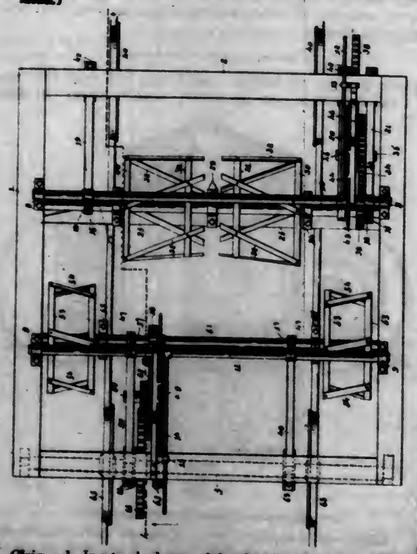
488,149. CORE-MILL. WILLIAM S. HAN, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Jan. 23, 1892. Serial No. 419,049. (No model.)



Claim.—1. The combination of a bell having a series of internally-projecting ridges, a rotatable spindle centered within the bell, one or more flexible strips extending radially from said spindle, and strikers supported upon the outer end of said flexible strips and adapted to make contact with said internal ridges, substantially as described.

2. The combination, with a bell having a series of inwardly-projecting radial ribs, of a rotatable spindle centrally located with reference to the bell, a series of radial flexible strips carried by said spindle and unsymmetrically arranged with reference to the ridges of said bell, and a series of strikers supported upon the outer end of said flexible strips and adapted to make contact with the ridges of said bell, substantially as described.

488,150. WEED-CUTTER FOR RAILROAD-TRACKS. WILLIAM G. HAY, Concordia, Kans. Filed July 6, 1891. Serial No. 398,559. (No model.)



Claim.—1. In a track-cleaner of the class described, the combination, with the truck or frame, the transverse rock-shaft, the lever for operating the same, and the rock-arms depending from the shaft, of the transverse cutter-shaft, connections between the rock-arms and cutter-shaft, the rotary cutters mounted thereon, the stationary transverse cutter-bar, the axle having the wheels, the arms pivoted on the axle and on the cutter-shaft, and the train of gearing between the axle and the cutter-shaft, substantially as specified.

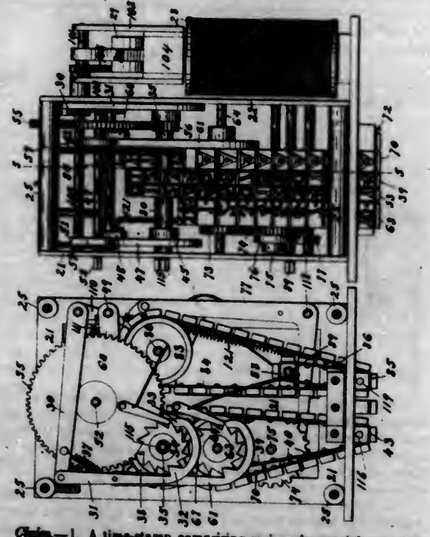
2. In a track-cleaner of the class described, the combination, with the framework, the transverse rock-shaft, the lever for rocking the same, the rock-arms extending from the rock-shaft, the depending connecting-rods, the cutter-shaft, the rotary cutters mounted thereon, the stationary cutter-bar located under the rotary cutters, the arms pivoted to the cutter-shaft, and the boxes mounted for sliding in the free ends of the arms, of the axle journaled on the frame, the wheels mounted on the axle, said axle being also journaled in the sliding boxes, the gear mounted on the cutter-shaft, the master-gear mounted on the axle, the intermediate gears between the master-gear and that of the shaft, the lever mounted upon the arms and adapted to reciprocate the same, and means for locking the lever, substantially as specified.

3. In a track-cleaner of the class described, the combination, with the truck, the transverse rock-shaft, the lever for operating the same, and the rock arms extending from the rock-shaft, of a cutter-shaft mounted for rotation and connected with the rock-arms, the rotary cutters mounted on the shaft, the stirrups depending from the shaft, and the stationary cutter-bar located in the stirrups and having its ends mounted for vertical movement in ways located at the inner sides of the truck, substantially as specified.

4. In a track-cleaner of the class described, the combination, with the truck, the rotatable cutter-shaft, and means for rotating the same, of rotary cutters located upon the shaft and adapted to depend at opposite sides of a track and a stationary cutter-bar extending transverse the track and depressed at those portions occurring underneath the rotary cutters, substantially as specified.

5. In a track-cleaner of the class described, the combination, with the rotatable cutter-shaft and means for driving the same, of opposite pairs of polygonal heads, the inner head of each pair being the smallest, inclined cutters or blades connecting each pair of heads and extending at their inner ends beyond the inner heads, the transverse stationary cutter-bar convexed at its center to agree with the inclination of the cutters or blades, and the central pointed deflector secured to the cutter-bar and extending forwardly underneath and between the cutters, substantially as specified.

488,151. TIME-STAMP. SAMUEL H. HODGSON, St. Louis, Mo., assignor to the Stevenson-Hodgson Electric Company, same place. Filed Feb. 23, 1892. Serial No. 422,414. (No model.)



Claim.—1. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, printing characters controlled by said minute-wheel, repeated in three series from "0" to "9," inclusive, a ten-minute wheel arranged adjacent to the one-minute wheel, connections intermediate the impulse-receiving device and the ten-minute wheel for actuating said ten-minute wheel once in every ten minutes, and printing characters governed by the ten-minute wheel and repeated in five series from "0" to "5."

2. A time-stamp having an impulse-receiving device, a one-minute mechanism operated thereby to register the minutes, a cam having six inclines gearing intermediate of said cam and the one-minute mechanism, an escapement controlled by said cam, and a ten-minute wheel governed by said escapement.

3. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, printing characters controlled by said minute-wheel, repeated in three series from "0" to "9," inclusive, a ten-minute wheel arranged adjacent to the one-minute wheel, connections intermediate the impulse-receiving device and the ten-minute wheel for actuating said ten-minute wheel once every ten minutes, and printing characters governed by the ten-minute wheel, repeated in five series from "0" to "5," and an hour-wheel actuated by mechanism intermediate the same and the impulse-receiving device, and controlling printing characters from "1" to "12" repeated in two series and operated once each hour.

4. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, printing characters controlled by said minute-wheel, repeated in three series from "0" to "9," inclusive, a ten-minute wheel arranged adjacent to the one-minute wheel, connections intermediate the impulse-receiving device and the ten-minute wheel for actuating said ten-minute wheel once every ten minutes, and printing characters governed by the ten-minute wheel, repeated in five series from "0" to "5," an hour-wheel actuated by mechanism intermediate the same and the impulse-receiving device, controlling printing characters from "1" to "12" repeated in two series and operated once each hour, and a meridian-wheel moving with the hour-wheel and controlling the printing characters "A" and "P," the former repeated twelve times and the latter eleven times, with a blank space between the two, with the character "M" fixedly arranged adjacent to the said meridian-wheel and adapted, together with the "A's" and "P's" of the meridian-wheel, to print "A. M." and "P. M."

5. A recording-stamp comprising a series of traveling recording flexible bands located side by side and means for actuating said bands one from another, said means being arranged about the assembled bands so as not to interfere with the proximity of the one band to the other, substantially as described.

6. A time-stamp comprising minute and hour recording flexible bands located side by side and impulse receiving and storing mechanism for actuating said bands one from the other, said impulse receiving and storing mechanism being arranged about the series of bands so as not to interfere with the proximity of the one band to the other, substantially as described.

7. A time-stamp comprising two minute-recording flexible digit-bands and an hour-recording flexible band located side by side, and impulse receiving and storing mechanism for actuating one of the digit-bands from the other and the hour-recording band from the second digit-band, said impulse receiving and storing mechanism being arranged about a series of bands so as not to interfere with the proximity of the one band to the other, substantially as described.

8. A time-stamp comprising an impulse receiving and storing mechanism automatically and intermittently operated, a minute-wheel carried by a shaft controlled thereby, a flexible band passing over said minute-wheel and positively geared to the same, and a small wheel at the bottom of the stamp, the said band carrying numbers to represent the minutes, an hour-wheel upon an independent or second shaft, controlled by gearing intermediate the impulse receiving and storing mechanism, and a second flexible band passing over said hour-wheel and positively geared thereto and a small wheel at the bottom of the stamp, the said second band carrying printing characters to represent the hours, the axes of said wheels and shafts being arranged substantially parallel, whereby the printing of the minutes and hours may be gotten within small compass and the time registered by the stamp will not be interfered with by printing.

9. A time-stamp comprising an impulse receiving and storing mechanism intermittently and automatically operated, a minute-wheel carried by a shaft controlled thereby, a flexible band passing over said minute-wheel and positively geared thereto and a small wheel at the bottom of the stamp, the said band carrying numbers to represent the minutes, an hour-wheel upon a second or independent shaft, controlled by gearing actuated by the impulse receiving and storing mechanism, a second flexible band passing over said hour-wheel and positively geared to the same, and a small wheel at the bottom of the stamp, the said second band carrying printing characters to represent the hours, a meridian wheel rigidly fixed upon the last-mentioned shaft, and a third flexible band passing over said meridian-wheel and positively geared to the same, and a third small wheel at the bottom of the stamp and carrying suitable printing characters, the axes of said wheels and shafts being arranged substantially parallel, whereby the minutes, hours, and meridian characters may be printed within small compass and the time registered by the stamp will not be interfered with by printing.

10. A time-stamp comprising an impulse receiving and storing mechanism, an hour-wheel carried by a shaft operated thereby, a flexible band passing over said wheel and positively geared to the same and a small wheel at the bottom of the stamp, the said band carrying printing characters to represent the hours, a day-wheel upon a second or independent shaft, controlled by the impulse receiving and storing mechanism, and a second flexible band passing over said day-wheel and positively geared to the same and a second small wheel at the bottom of the stamp, the said second band having printing characters thereon to represent the days, the axes of said wheels and shafts being arranged substantially parallel, whereby the hours and days may be printed within small compass and the time registered by the stamp will not be interfered with by printing.

11. A time-stamp comprising an impulse receiving and storing mechanism intermittently and automatically actuated, an hour-wheel controlled by a shaft operated thereby, a flexible band passing over said hour-wheel and positively geared to the same and a small wheel at the bottom of the stamp, the said band carrying printing characters to represent the hours, a meridian-wheel upon said shaft, controlled by the impulse receiving and storing mechanism, a second flexible band positively geared to said meridian-wheel and a second small wheel at the bottom of the stamp, the said second band carrying suitable printing characters, a day-wheel also upon a second or independent shaft, controlled by the impulse receiving and storing mechanism, and a third flexible band passing over said day-wheel and positively geared to the same and a small wheel at the bottom of the stamp, the said third band having printing characters to represent the days, the axes of all of said wheels being arranged substantially parallel, whereby the hours, meridian characters, and days automatically registered by the stamp may be printed within small compass and the time registered by the stamp will not be interfered with by printing.

12. A time-stamp comprising an impulse receiving and storing mechanism; a minute-wheel controlled by a shaft operated thereby, a flexible band carrying printing characters to represent the minutes positively geared to said minute-wheel and a small wheel upon a shaft at the bottom of the stamp, an hour-wheel upon an independent or second shaft, governed by the impulse receiving and storing mechanism, a second flexible band positively geared to said hour-wheel and a small wheel on the aforesaid shaft at the bottom of the stamp, the said second flexible band carrying printing characters to represent the hours, a meridian-wheel upon the hour-wheel shaft, also governed by the impulse receiving and storing mechanism, a third flexible band positively geared to the same and a third small wheel on the said shaft at the bottom of the stamp, the said third flexible band carrying suitable meridian printing characters, a day-wheel upon a third shaft, controlled by the impulse receiving and storing mechanism, a fourth flexible band positively geared to said day-wheel, and a fourth small wheel upon a second shaft at the bottom of the stamp parallel and adjacent to the aforementioned shaft at the bottom of the stamp, the said fourth band having printing characters to represent the days, the axes of all of said wheels being arranged substantially parallel, whereby the minutes, hours, meridian characters, and days automatically registered by the stamp may be printed within small compass and the time registered by the stamp will not be interfered with by printing.

13. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, a band traveling over said one-minute wheel and having the digits thereon repeated in three series, a small wheel at the lower end of the stamp over which said band passes, a ten-minute wheel arranged adjacent to the aforesaid one-minute wheel, mechanism intermediate the said ten-minute wheel and the said one-minute wheel for actuating the said ten-minute wheel once in every ten minutes, a band traveling over said ten-minute wheel, having the numbers from "0" to "5" repeated thereon in five series, and a small wheel at the lower end of the stamp adjacent to the previously-mentioned small wheel, over which second-mentioned small wheel the said latter band travels.

14. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, a band traveling over said one-minute wheel and having the digits thereon repeated in three series, a small wheel at the lower end of the stamp over which said band passes, a ten-minute wheel arranged adjacent to the aforesaid one-minute wheel, mechanism intermediate the said ten-minute wheel and the said one-minute wheel for actuating the said ten-minute wheel once in every ten minutes, a band traveling over said ten-minute wheel, having the numbers from "0" to "5" repeated thereon in five series, a small wheel at the lower end of the stamp adjacent to the previously-mentioned small wheel, over which second-mentioned small wheel the said latter band travels, an hour-wheel governed by the impulse-receiving mechanism, and a band upon the hour-wheel, having numbers thereon from "1" to "12" repeated in two series and passing over a third small wheel at the bottom of the stamp adjacent to the small ten-minute wheel at the bottom of the stamp.

15. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, a band traveling over said one-minute wheel and having the digits thereupon repeated in three series,

a small wheel at the lower end of the stamp over which said band passes, a ten-minute wheel arranged adjacent to the aforesaid one-minute wheel, mechanism intermediate the said ten-minute wheel and the said one-minute wheel for actuating the said ten-minute wheel once in every ten minutes, a band traveling over said ten-minute wheel, having the numbers from "0" to "5" repeated thereon in five series, a small wheel at the lower end of the stamp adjacent to the previously-mentioned small wheel, over which second-mentioned small wheel the said latter band travels, an hour-wheel, an escapement therefor, a cam controlling said escapement and actuated by the aforesaid mechanism between the one-minute and the ten-minute wheels, and a band upon the hour-wheel having numbers thereon from "1" to "12" repeated in two series and passing over a third small wheel at the bottom of the stamp.

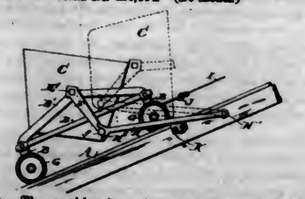
16. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, a band traveling over said one-minute wheel and having the digits thereon repeated in three series, a small wheel at the lower end of the stamp over which said band passes, a ten-minute wheel arranged adjacent to the aforesaid one-minute wheel, mechanism intermediate the said ten-minute wheel and the said one-minute wheel for actuating the said ten-minute wheel once in every ten minutes, a band traveling over said ten-minute wheel, having the numbers from "0" to "5" repeated thereon in five series, a small wheel at the lower end of the stamp adjacent to the previously-mentioned small wheel, over which second-mentioned small wheel the said latter band travels, an hour-wheel controlled by the impulse-receiving mechanism, a band upon the hour-wheel, having numbers thereon from "1" to "12" repeated in two series and passing over a third wheel at the bottom of the stamp adjacent to the small ten-minute wheel at the bottom of the stamp, a meridian-wheel also controlled by the impulse-receiving mechanism and carrying a band with the characters "A" and "P" thereupon, the former repeated twelve times and the latter eleven times with a blank space between the two and corresponding with the numbers upon the hour-wheel, a fourth small wheel at the bottom of the stamp over which said latter band travels and adjacent to the one-minute band, and the character "M," permanently affixed to and arranged adjacent to the meridian-band at the bottom of the stamp.

17. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, a band traveling over said one-minute wheel and having the digits thereon repeated in three series, a small wheel at the lower end of the stamp over which said band passes, a ten-minute wheel arranged adjacent to the aforesaid one-minute wheel, mechanism intermediate the said ten-minute wheel and the said one-minute wheel for actuating the said ten-minute wheel once in every ten minutes, a band traveling over said ten-minute wheel, having the numbers from "0" to "5" repeated thereon in five series, a small wheel at the lower end of the stamp adjacent to the previously-mentioned small wheel, over which second-mentioned small wheel the said latter band travels, an hour-wheel, an escapement therefor, a cam controlling said escapement and actuated by the aforesaid mechanism between the one-minute and the ten-minute wheels, a band upon the hour-wheel, having numbers thereon from "1" to "12" repeated in two series and passing over a third small wheel at the bottom of the stamp adjacent to the small ten-minute wheel at the bottom of the stamp, a meridian-wheel controlled by the same escapement which governs the hour-wheel and carrying a band with the characters "A" and "P" thereupon, the former repeated twelve times and the latter eleven times, with a blank space between the two and corresponding with the numbers upon the hour-band, a fourth small wheel at the bottom of the stamp over which said latter band travels and adjacent to the one-minute band, and the character "M," permanently affixed to and arranged adjacent to the meridian-band at the bottom of the stamp.

18. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, a band traveling over said one-minute wheel and having the digits thereupon repeated in three series, a small wheel at the lower end of the stamp over which said band passes, a ten-minute wheel arranged adjacent to the aforesaid one-minute wheel, mechanism intermediate the said ten-minute wheel and the said one-minute wheel for actuating the said ten-minute wheel once every ten minutes, a band traveling over said ten-minute wheel, having the numbers from "0" to "5" repeated thereon in five series, a small wheel at the lower end of the stamp adjacent to the previously-mentioned small wheel, over which second-mentioned small wheel the said latter band travels, an hour-wheel controlled by the impulse-receiving mechanism, a band upon the hour-wheel, having numbers thereon from "1" to "12" repeated in two series and passing over a third small wheel at the bottom of the stamp adjacent to the small ten-minute wheel at the bottom of the stamp, a meridian-wheel, also controlled by the impulse-receiving mechanism and carrying a band with the characters "A" and "P" thereupon, the former repeated twelve times and the latter eleven times, with a blank space between the two and corresponding with the numbers upon the hour-band, a fourth small wheel at the bottom of the stamp, over which said latter band travels and adjacent to the one-minute band, the character "M," permanently affixed to and arranged adjacent to the meridian-band at the bottom of the stamp, a day-wheel governed by the impulse-receiving mechanism, and a band passing over said day-wheel, having numbers thereon from "1" to "31" and traveling over a small wheel at the bottom of the stamp arranged parallel with and contiguous to the aforesaid small wheel at the bottom of the stamp.

19. A time-stamp comprising an impulse-receiving mechanism, a one-minute wheel operated thereby, a band traveling over said one-minute wheel and having the digits thereon repeated in three series, a small wheel at the lower end of the stamp over which said band passes, a ten-minute wheel arranged adjacent to the aforesaid one-minute wheel, mechanism intermediate the said ten-minute wheel and the said one-minute wheel for actuating the said ten-minute wheel once in every ten minutes, a band traveling over said ten-minute wheel, having the numbers from "0" to "5" repeated thereon in five series, a small wheel at the lower end of the stamp adjacent to the previously-mentioned small wheel, over which second-mentioned small wheel the said latter band travels, an hour-wheel, an escapement therefor, a cam controlling said escapement and actuated by the aforesaid mechanism between the one-minute and the ten-minute wheels, a band upon the hour-wheel, having numbers thereon from "1" to "12" repeated in two series and passing over a third small wheel at the bottom of the stamp adjacent to the small ten-minute wheel at the bottom of the stamp, a meridian-wheel controlled by the same escapement which governs the hour-wheel and carrying a band with the characters "A" and "P" thereupon, the former repeated twelve times and the latter eleven times, with a blank space between the two and corresponding with the numbers upon the hour-band, a fourth small wheel at the bottom of the stamp over which said latter band travels and adjacent to the one-minute band, the character "M," permanently affixed to and arranged adjacent to the meridian-band at the bottom of the stamp, a day-wheel, an escapement governing the same, mechanism intermediate the day-wheel and said latter escapement for controlling said day-wheel, and a band passing over said day-wheel, having numbers thereon from "1" to "31" and traveling over a small wheel at the bottom of the stamp arranged parallel with and contiguous to the aforesaid small wheel at the bottom of the stamp.

488,152. DUMP-CAR. MALVERN W. ILES, Denver, Colo. Filed Feb. 3, 1892. Serial No. 420,164. (No model.)



Claim.—The combination of a truck, a receptacle having trunnions E, said receptacle being pivotally supported by said trunnions on the truck, one or more levers F, connected with the trunnions E, and a hinged stop or stops H, arranged in the path of the trucks to engage the levers F and dump the receptacle, said stop or stops being arranged to move with the lever or levers F after they have engaged them and while the receptacle is being dumped, all substantially as and for the purpose specified.

488,153. SAFE. WILLIAM C. IRELAND, Boston, Mass. Filed Dec. 21, 1891. Serial No. 415,785. (No model.)



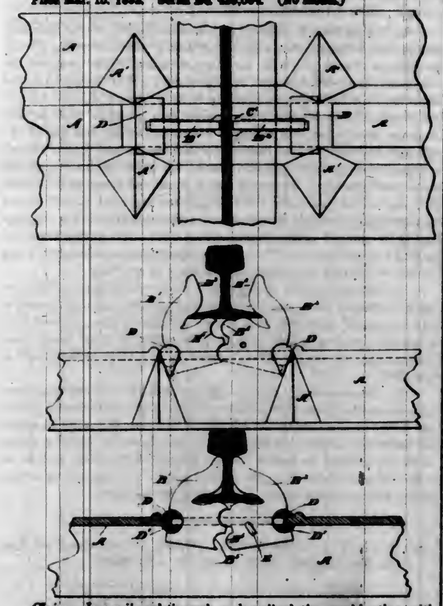
Claim.—1. The combination, with a safe having a door-opening and a door, of a board or plate made of a material which is non-combustible and a non-conductor of heat fitting said door-opening and removable and replaceable therein independent of the door, substantially as described.

2. A board or plate made of a material which is non-combustible and a non-conductor of heat and is shaped to fit the side, top, and bottom walls of a fire-proof safe at the inner portion of the door-opening and has a handle by which to place it in and out of position in said opening, as described, for the purpose specified.

488,158.



488,154. RAILROAD-TIE. WILLIAM R. KINNEAR, Columbus, Ohio. Filed Mar. 15, 1892. Serial No. 425,094. (No model.)



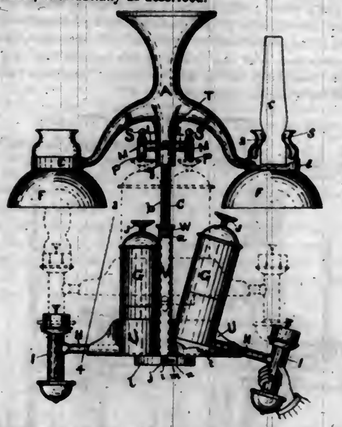
Claim.—In a railroad-tie such as described, the combination, with pivots attached to the tie, of fastenings having bearings on the said pivots and forming supports for the rail between the said bearings, connections between the said fastenings to cause them to move in unison, and clamping-jaws attached to the said fastenings and adapted to grasp the sides of the rail as the said fastenings are depressed between the bearings, substantially as described.

488,155. LAMP. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company, same place. Filed June 27, 1891. Serial No. 397,673. (No model.)

Claim.—1. In a lamp, a hanger or frame carrying shade-holders and having a dependent reservoir-holder support, in combination with a horizontal reservoir-holder having a plurality of basket-like receptacles, said holder being attached to said support, and two or more reservoirs detachably held in the receptacles in said holder, said reservoirs having arms or branches which carry burners, substantially as described.

2. In a lamp, a hanger or frame carrying shade-holders and having a dependent reservoir-holder support, in combination with a horizontal reservoir-holder having a plurality of basket-like receptacles, said holder being attached to said support, reservoirs detachably held in the receptacles in said holder, and means for steadying said reservoirs at their tops, the reservoirs having arms or branches which carry burners, substantially as described.

3. In a lamp, a hanger or frame carrying shade-holders and having a dependent reservoir-holder support, in combination with a horizontal reservoir-holder having a plurality of basket-like receptacles, said holder provided with means for coupling with the support in such a manner as to be movable thereon, and two or more reservoirs carried by said holder, the reservoirs having arms or branches which carry burners, substantially as described.



4. In a lamp, a hanger or frame carrying shade-holders and having a dependent reservoir-holder support, in combination with a horizontal reservoir-holder having a plurality of basket-like receptacles, said holder provided with means for coupling with the support in such manner as to be movable thereon, reservoirs carried by said holder, and means for steadying said reservoirs at their tops, the reservoirs having arms or branches which carry burners, substantially as described.

5. In a lamp, a hanger or frame carrying shade-holders and having a dependent reservoir-holder support, in combination with a horizontal reservoir-holder having a plurality of basket-like receptacles, said holder provided with means for coupling with the support in such manner as to be movable thereon, and reservoirs carried by and detachable from said holder, the reservoirs having arms or branches which carry burners, substantially as described.

6. In a lamp, the combination, with a hanger or frame carrying shade-holders, of a horizontal reservoir-holder having a plurality of basket-like receptacles, said holder provided with means for coupling with said hanger or frame in such manner as to be movable thereon, reservoirs carried by said holder, and means for steadying said reservoirs at their tops, the reservoirs having arms or branches which carry burners, substantially as described.

7. In a lamp, the combination, with a hanger or frame carrying shade-holders, of a reservoir-holder provided with means for coupling with said hanger or frame in such manner as to be movable thereon, reservoirs carried by and detachable from said holder, and means for steadying said reservoirs at their tops, the reservoirs having arms or branches which carry burners, substantially as described.

8. In a lamp, the combination, with a hanger or frame carrying shade-holders, of a reservoir-holder provided with means for coupling with said hanger or frame in such manner as to be downwardly detachable therefrom, two or more reservoirs carried by said holder, and means for steadying said reservoirs at their tops, the reservoirs having arms or branches which carry burners, substantially as described.

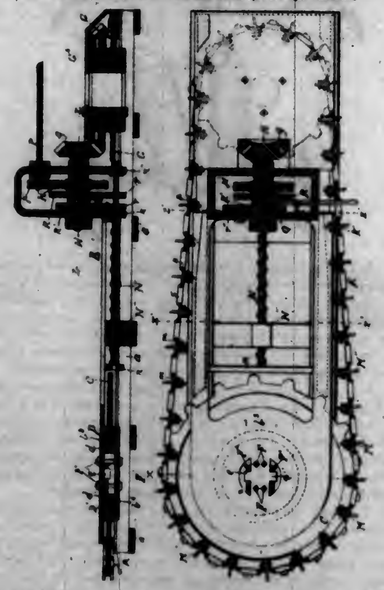
9. In a lamp, the combination, with a hanger or frame carrying shade-holders and having a dependent notched reservoir-holder support, of a reservoir-holder provided with spring-actuated devices adapted to engage with the notches in the support, whereby the holder may be coupled with the support at different elevations and in a downwardly-detachable manner, and two or more reservoirs carried by said holder and having arms or branches which carry burners, substantially as described.

10. In a lamp, a hanger or frame carrying shade-holders and having a dependent reservoir-holder support, in combination with a horizontal reservoir-holder having a plurality of channeled basket-like receptacles, said holder being attached to said support, and two or more reservoirs detachably held in the reservoir-holder, said reservoirs having arms or branches resting in the channels in the receivers and carrying burners, substantially as described.

11. In a lamp, the combination, with a hanger or frame adapted to be supported from above and carrying shade-holders, of a reservoir-holder supported by said hanger or frame, reservoirs having recessed knobs and provided with arms or branches carrying burners, a horizontal bar carried by the hanger or frame, and spring-actuated bolts carried by said bar, said bolts being arranged to engage with the recesses in the reservoirs, substantially as described, and for the purpose set forth.

12. In a lamp, the combination, with a hanger or frame adapted to be supported from above and carrying shade-holders above the burners, and a dependent bracketed support having the grooves *b*, shoulders *c*, and notches *f*, of a reservoir-holder having sleeves V, adapted to fit over the brackets of said support, a spring-actuated bolt in each sleeve for engagement with the grooves in the support, a locking-bar *d* for engagement with the notches in the support, and two or more reservoirs detachably held in said holder, said reservoirs having arms or branches which carry burners.

488,156. MINING-MACHINE. JEFFERSON L. LOCKNER, Pittsburg, Pa. Filed Apr. 23, 1891. Serial No. 390,019. (No model.)



Claim.—1. In a machine for mining coal, in combination, the sprocket-wheels, the endless chain composed of alternate double and single links, said single links being provided upon opposite sides with parallel radial arms having longitudinal channels in their outer walls, the set-screws mounted upon said arms and projecting into the said channels, and cutters of even section throughout fitting in said channels and provided with longitudinal grooves with which the inner ends of the set-screws engage, substantially as specified.

2. In a machine for mining coal, in combination, the sliding frame or carriage having parallel horizontal plates, the hollow bearing clamped between said plates and capable of forward and rearward adjustment, the sprocket-wheel mounted upon said bearing and adjustable therewith, the tension-screws mounted in supports upon the plates to engage the bearing, and the cutter-chain carried at its front end by said wheel, substantially as specified.

3. The combination, in a mining-machine, with a frame or carriage, of the bearing for the cutter-chain wheel, consisting of a hollow ring provided with a diametrical bar provided with slots, and clamping-bolts carried by said frame or carriage and engaging the slots in the diametrical bar, substantially as and for the purpose specified.

4. In a machine for mining coal, in combination, the frame or carriage having parallel horizontal plates, the circular adjustable bearings arranged vertically between said plates and provided with parallel slots upon opposite sides of its diameter, the clamping-bolts carried by said plates and engaging the slots in the bearing, and the cutter-chain wheel mounted upon said bearing between the parallel plates, substantially as specified.

5. In a mining-machine, the combination, with a frame provided with parallel upper and lower plates, of a hollow annular bearing for the chain-wheel, arranged between said plates and provided with a diametrical slotted bar, the clamping-bolts carried by the parallel plates and engaging said slotted bar, and tension-screws mounted on the frame within the hollow bearing and engaging the latter, substantially as and for the purpose specified.

6. In a mining-machine, the combination, with the frame having parallel horizontal plates, one of which is provided with an opening spanned by a diametrical bar, of the hollow bearing arranged between the plates and registering with the said opening, the bearing being provided with a diametrical bar having longitudinal slots, the clamping-bolts secured at their ends in the parallel plates and engaging the slotted bar, and the tension-screws carried by the frame within the hollow bearing and engaging the interior walls thereof, substantially as and for the purpose specified.

7. In a machine for mining coal, in combination, the frame or carriage having parallel horizontal plates, the hollow bearings arranged between said parallel plates and carrying the cutter-chain wheel, and the tension-screws mounted in tapped ears upon one of said plates and bearing at their ends against the interior surface of the said bearing, substantially as specified.

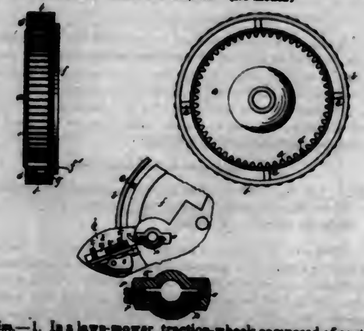
8. The combination of the sliding frame having side I-shaped rails, the upper flanges of which are connected at the front end of the frame by a plate b^3, the journal disposed beneath said plate and connected thereto by clamping-bolts, the sprocket-wheel mounted upon said journal and operating between the flanges of said I-rails, the webs of said rails being cut away at their front ends, and the cutter-chain carried by said wheel, substantially as specified.

9. In a machine for mining coal, in combination, the carriage having parallel I-shaped side rails, the horizontal plate connecting the upper flanges of said side rails, the front sprocket-wheel arranged beneath said plate and mounted upon a bearing which is secured to the same, said sprocket-wheel projecting at its periphery slightly beyond the front and side edges of the plate, the rear sprocket-wheel smaller than the front wheel and arranged in a casing at the rear end of the carriage, the cutter-chain carried by said wheels and provided with cutters which lie upon opposite sides of the plane of the wheels, the main shaft geared to the rear sprocket-wheel and mounted in a casing O in rear of the latter, and the feeding-screw mounted at its front end in a cross-bar *n*, which extends between the side rails of the carriage and at its rear end in the front and rear sides of the casing O and engaging a stationary nut N° on the stationary frame, said screw being geared to the said main shaft, substantially as specified.

10. In a machine for mining coal, in combination, the carriage having a horizontal plate, a hollow exteriorly-grooved bearing formed in two horizontal separable sections, an annular bushing formed in a single piece and interiorly ribbed, as described, a wheel fitting upon the bushing, and a cutter-chain carried by the latter, substantially as specified.

11. In a machine for mining coal, in combination, the carriage having a horizontal front plate, a hollow bearing having an exterior groove and formed in two separable horizontal sections, the bolts to secure the separable sections together and to the plate, the bushing to encircle the bearing, formed in a single piece and provided with an interior annular rib to fit in the groove of the bearing, the sprocket-wheel, and the cutter-chain, substantially as specified.

488,157. LAWN-MOWER. WALDO A. LOUD, Springfield, Mass. Filed Nov. 26, 1890. Serial No. 372,999. (No model.)



Claim.—1. In a lawn-mower, traction-wheels composed of central circular plates formed with inwardly-directed annular rim-flanges having internal gear-teeth, spokes projected radially from the periphery of said flanges, and a tread-rim integral with the spokes, in combination with a frame provided with circular end plates having annular rim-flanges and oppositely-turned edge flange, forming an annular groove between the flanges to engage and sit over the edges of the annular rim of the circular plates of the wheels, whereby the disk or body of the end plates sit within the openings of the wheels, as and for the purpose specified.

2. The combination, in a lawn-mower, of two traction-wheels having the tread-surface arranged about and made integral with the spokes *c* and having the central portion of the wheel closed and formed with a rim having integral gear-teeth, and a frame the ends of which consist of plates *f*, having outwardly-extended annular flanges *f'*, with an inwardly-extended rim-flange, and a groove between the flanges in the interior to sit over the rim-wall of the body portion of the wheel, whereby the distance between the inner faces of the wheels is increased, as and for the purpose specified.

3. The combination of an outer shell or box *c*, a cap *p*, arranged therein and fulcrumed at one end and having oppositely-inclined faces at its opposite end, and set-screws having taper ends to bear one against each of said inclined faces, and thus move the free end of the cap, substantially as shown.

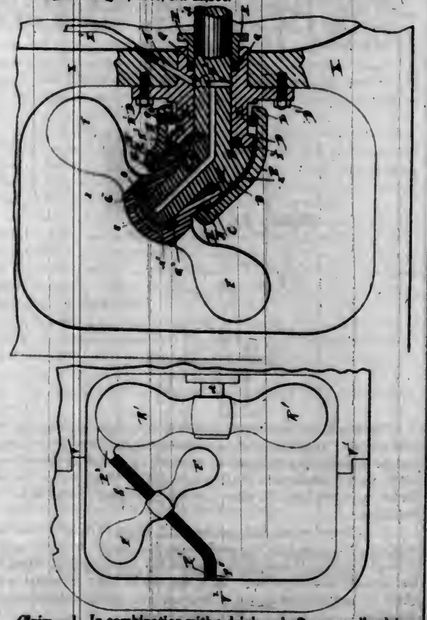
4. The box-body *c*, having a V-shaped recess at one end and having adjusting-screws *r* at its opposite end, in combination with a cap *p*, arranged in said box, one end being V-shaped to rest within said recess and the opposite end having oppositely-inclined faces at the point of the engagement of the set-screws therewith, substantially as shown.

5. The combination, with one or more adjusting-screws located adjacent to and with the axis of said adjusting-screws approximately parallel with a plane surface, of a lock *u*, consisting of a bar located between said surface and said adjusting-screws and bearing against the side of the latter, and one or more set-screws passing through said bar and bearing with their ends against said surface, substantially as and for the purposes shown.

6. The combination, in a lawn-mower, of a lock *u*, having a set-screw, with adjusting-screws *t t*, the lock being arranged between the sides of the screws and face of part *h* and bearing against the screws *t*, substantially as shown.

7. The lock *u*, having turned-up end and provided with a set-screw, in combination with adjusting-screws *t* and part *h*, substantially as shown.

488,158. SCREW-PROPELLER. JOHN MACHAFFIE, Schenectady, N. Y. Filed Jan. 14, 1891. Serial No. 377,708. (Model.) Patented in England Aug. 7, 1890, No. 12,961.



Claim.—1. In combination with a driving-shaft, a propeller driven thereby provided with radially-extending blades, the axis of the propeller extending at an angle to the line of the driving-shaft, said propeller being free from restraining connections to prevent rotation, substantially as described.

2. In combination with a driving-shaft having its end bent at an angle to its main portion, a hub fitting over the said bent end, and propelling-blades extending from said hub radially, said hub being free to rotate, substantially as described.

3. A propeller consisting of blades secured to a hub, an eccentric driving-shaft fitting said hub loosely, and means for clamping the hub to the driving-shaft, whereby it is actuated by the rotation of the driving-shaft, substantially as described.

4. A propeller consisting of blades secured to a hub and a cranked shaft having a reduced end portion forming a shoulder, said hub fitting said reduced end and bearing against the shoulder formed by the reduced end of the shaft, substantially as described.

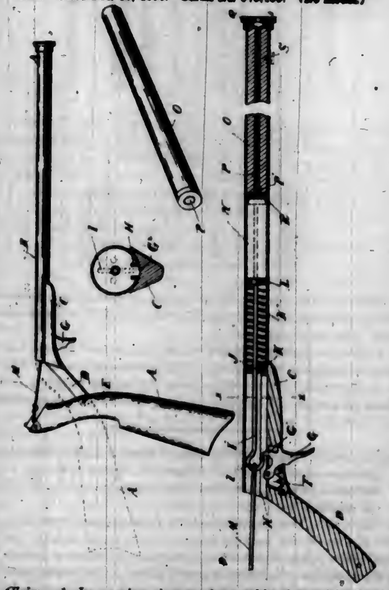
5. A propeller consisting of a shaft having a cranked free end, propeller-blades carried by a hub fitted to said cranked end, and a thrust-block encircling said shaft to sustain the thrust of the parts, substantially as described.

6. A propeller consisting of a cranked shaft, propelling-blades carried on a hub, said hub being fitted to the cranked shaft, a shoulder on the shaft to sustain the thrust of the hub, a thrust-block encircling the shaft, and a shoulder on the shaft, bearing against the thrust-block, substantially as described.

7. A propeller consisting of a cranked driving-shaft, a hub mounted thereon carrying propelling-blades, and a clutch-tube encircling the end of the hub and shaft, said shaft being longitudinally movable for clamping the parts together, substantially as described.

8. A propeller consisting of a hub carrying propeller-blades, a cranked shaft adapted to receive the hub, a clutch-tube encircling the end of the hub and shaft, a collar on the shaft, and a power device encircling the collar and adapted to apply power to one side or the other of the collar to move the shaft, substantially as described.

488,159. SPRING AIR-GUN. WILLIAM F. MARKHAM, Plymouth, Mich. Filed Dec. 18, 1890. Serial No. 375,155. (No model.)



Claim.—1. In a spring air-gun, the combination, with the stock having a slot in its under side, of a false barrel, a fore-arm secured thereto, a rearwardly-inclined extension D, integral with the fore-arm and pivotally connected in the slot of the stock, a slotted bearing in the fore-arm, and a trigger pivoted in the bearing, substantially as described.

2. In a spring air-gun, the combination, with the stock having a slot in its under side, of a barrel, a fore-arm on the barrel, and a rearward extension integral with the fore-arm, pivotally connected to the stock and resting in the slot thereof when the stock is raised, substantially as described.

3. In a spring air-gun, the combination, with the barrel, piston, and spring for actuating the piston, of inwardly-extending flanges struck from the material of the barrel, forming abutments with which the spring engages, and means for compressing the spring against the abutments, substantially as described.

4. In a spring air-gun, the combination, with the barrel, the spring,

the piston, the piston-rod having a hooked rear end, and the trigger with which said hook is adapted to engage, of inwardly-extending guide-flanges for said hook and the abutment against which the spring is compressed, formed by the forward end of said flanges, substantially as described.

5. In a spring air-gun, the combination, with the barrel, the spring, the piston, the piston-rod having a hooked rear end, and the trigger, of a guide-block through which the piston-rod passes and an abutment against which said block bears in the compression of the spring, formed by upwardly-extending flanges on the barrel, substantially as described.

6. In a spring air-gun, the combination, with a false barrel rigidly secured, of a removable apertured plug in the same, a true barrel in the plug, and means, such as the screw-cap Q, for normally retaining the plug in and permitting the removal of the same from the false barrel, substantially as described.

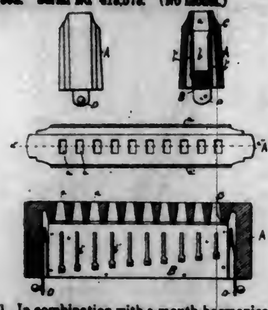
7. In a spring air-gun, the combination, with the false barrel and the air-compressing piston, of an apertured plug supporting the true barrel and forming with its rear end the air-compressing abutment, substantially as described.

8. In a spring air-gun, the combination, with a false barrel, of a true barrel therein, a yielding seat for the piston, formed at the rear end of the true barrel, and means for detaching the true barrel and seat, substantially as described.

9. In a spring air-gun, the combination, with a false barrel and the air-compressing piston, of an apertured plug supporting the true barrel, and a rubber facing R at the rear end of said plug beyond the true barrel, forming an elastic abutment for the piston, substantially as described

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488,160. HARMONICA. OTTOMAR MEISEL, New York, N. Y. Filed Jan. 19, 1892. Serial No. 418,573. (No model.)



Claim.—1. In combination with a mouth-harmonica, a glass cover forming a mouthpiece and shield within which the harmonica is placed, substantially as specified.

2. The combination, with a mouth-harmonica having a non-absorbent mouthpiece, of an elastic filling, substantially as specified.

3. The combination, with a mouth-harmonica having a non-absorbent mouthpiece, of springs or catches, substantially as specified.

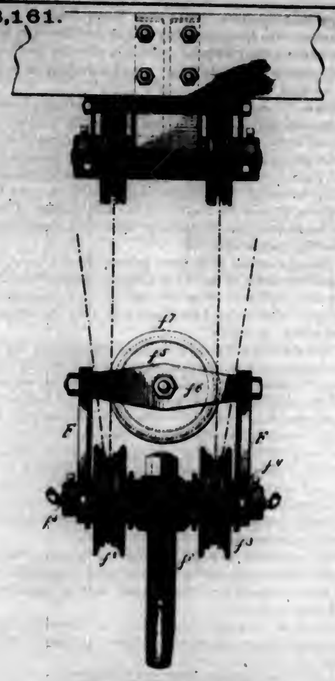
488,161. CHAIN-BLOCK. JOHN R. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and William H. Morgan, same place. Filed July 6, 1891. Serial No. 398,632. (No model.)

Claim.—1. The combination of a hoisting-block consisting of a series of sheaves and a single sheave at right angles thereto, the said latter sheave adapted to remain practically stationary on its axis during the operation of hoisting, a second block, and a chain, the center of which is carried by the right-angled sheave, the ends of said chain being rove through the other sheaves in the two blocks, substantially as set forth.

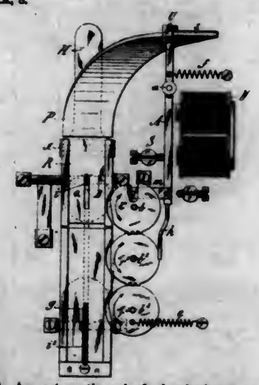
2. The combination, with a hoisting-block consisting of a series of sheaves and a single sheave at right angles thereto and in a plane above said first-mentioned sheaves, the said single sheave adapted to remain practically stationary on its axle during the operation of hoisting, of a second block having a series of sheaves and a chain, the center of which is carried by the right-angled sheave, the ends of said chain being rove through the other sheaves on the two blocks, substantially as set forth.

3. The combination, with a hoisting-block consisting of a series of sheaves, a single sheave adapted to remain practically stationary on its axle during the operation of hoisting, and a hook, of a second block having a series of sheaves and a chain, the center of which is carried by the single sheave, the ends of said chain being rove through the other sheaves in the two blocks, substantially as set forth.

488,161.



488,162. AUTOMATIC COIN-ACTUATED TELEPHONE. FRANZ MÜLLER, Berlin, Germany. Filed Aug. 25, 1891. Serial No. 403,726. (No model.) Patented in Germany Mar. 30, 1891, No. 59,276; in Switzerland May 4, 1891, No. 3,564, and in Italy June 30, 1891, XXV, No. 29,746, LIX, 3.



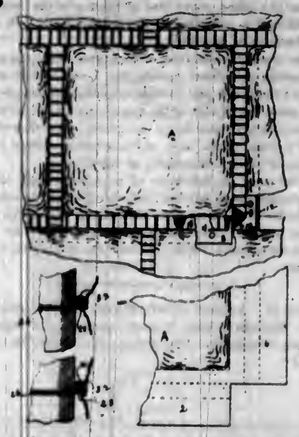
Claim.—1. An automatic coin-feed telephone consisting of the coin-conduit P and chute R R', having wheel-segments $r\,r'\,r^2$ projecting into the same and geared together, in combination with an electro-magnet N, having armature A, having spring f and pivoted at a, and carrier m, engaging into the uppermost wheel-segment r, substantially as described.

2. In combination with the conduit P, chute R R', and wheel-segments $r\,r'\,r^2$, projecting into said chute, the contact-forming lever i, arranged to project into chute R above the upper segment-wheel and the contact-breaking lever i' below the lowest segment-wheel in the chute R^2, and connecting-rod g between said levers, substantially as described.

3. In combination with the conduit P, chute R R', and wheel-segments $r\,r'\,r^2$, projecting into said chute, the lever U, attached to the armature A and projecting with its roll into the conduit P at its mouth I, substantially as described.

4. In combination with the conduit P, chute R', and wheel-segments $r\,r'\,r^2$, projecting into said chute, the chute R, pivotally arranged at x, the exit-chute R^2 and spout Z, the lever H of chute R, and button K, substantially as described.

488,163. SHEET-METAL BUILDING-FRONT. CLARENCE D. PRUDEN, St. Paul, Minn. Filed Jan. 5, 1892. Serial No. 417,077. (No model.)



Claim.—1. A rectangular sheet-metal wall-section having a right-angled notch in one of the lower corners, the edges of the notch being parallel with the edges of the section, the portion of the section above the notch being formed with a double fold near the edge to receive the edge of the adjacent section, the inner bead of the fold being approximately in line with the vertical edge of the notch, the edge of the section being outturned to form a water-conduit with the inner bead of the fold, and the inner bead of the fold at the bottom of the section extending above the upper edge of said notch.

2. The sectional sheet-metal wall-covering having horizontal and vertical joints, the lower edge of each section being secured to the wall, a double fold or return-bead being formed in the section just above the edge to receive the upper edge of the section beneath, and the vertical joints being formed of a double fold on one section, the edge of said fold being outturned to form with the inner bend of the fold a conduit for conducting the water entering the joint downward over the section below.

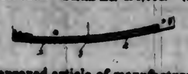
3. The sectional sheet-metal wall-covering having vertical and longitudinal joints both formed with double folds, the fold on one section receiving the edge of the adjacent section, the vertical joint having a water-conduit extending below the fold of the horizontal joint and overlapping the section below, substantially as described.

4. The combination, with a vertical brick wall, of upturned hooks anchored in the horizontal joints of the brick, similar sheet-metal sections provided with inturned upper edges or horns adapted to engage said hooks, and with reverse or double folds at the bottom adapted to engage with and overlap the upper edges of the adjacent lower sheets, substantially as described.

5. In a sectional sheet-metal wall-covering, the combination of rectangular sections connected together by vertical and horizontal joints, consisting each of a double fold on one section, securing the edge of the adjacent section, and a water-conduit underneath the vertical joint, entering the outer fold of the horizontal joint, substantially as described.

6. In a sectional sheet-metal wall-covering, the vertical and horizontal joints connecting the sections, each consisting of a double fold on one section engaged by the edge of the adjacent section, the inner bend of the vertical fold with the outturned edge of the section forming a water-conduit entering the outer bend of the horizontal fold in the adjacent section, substantially as described.

488,164. TROUSERS-SHIELD. JOHN H. PROTZMAN, Plankinton, S. D. Filed June 13, 1892. Serial No. 436,611. (No model.)

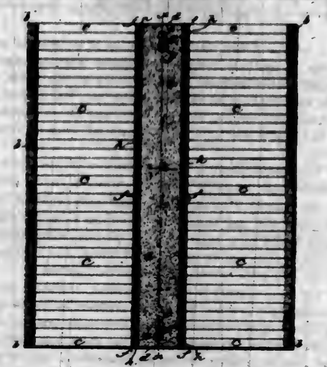


Claim.—As an improved article of manufacture, a shield for trousers, adapted to be applied at the lower portion of the fly, and consisting of a heart-shaped piece of moisture-proof material having an opening between the oppositely-located duplicate portions, provided with an upper converged portion, and the device entire provided with an edge binding of tape, substantially as described.

488,164.



488,165. FRICTION-MATCH CARD. JOSHUA PUSEY, Lima, Pa. Filed Aug. 6, 1890. Renewed Nov. 3, 1891. Serial No. 410,788. (Model.)



Claim.—1. A friction-match card or device consisting of a series of separate splints having their free ends provided with an ignitible composition and frangibly connected to a common marginal strip provided with an igniting surface or composition, whereby any one of said splints may be detached and struck upon said igniting-surface and the said strip remain intact after all the splints have been so detached, substantially as and for the purpose recited.

2. A friction-match card or device consisting of two series of separate splints provided with an ignitible composition at their free ends and having their opposite ends frangibly connected to a common strip, from which the respective series of splints extend laterally, together with the intermediate prepared igniting surface or composition, substantially as described.

3. The friction-match card or device consisting of a marginal strip provided with a prepared igniting surface or composition and a series of separate splints having their free ends provided with an ignitible composition and their opposite ends frangibly connected to said marginal strip and adapted to be detachably secured to the wall, &c., substantially as described.

4. The friction-match card consisting of an integral sheet of paper or other like suitable pliable material partially divided into a series of splints having their free ends provided with an ignitible composition, the surface of the plain or undivided portion of said sheet being provided with a prepared igniting surface or composition, substantially as described.

5. As a new and complete article of manufacture, the friction-match card consisting of a sheet of paper, wood, or other like suitable material partly divided into a series of splints having their free ends provided with an ignitible composition and the undivided portion of the sheet provided with an igniting surface or composition and with the openings $g\,g'$, substantially as and for the purpose specified.

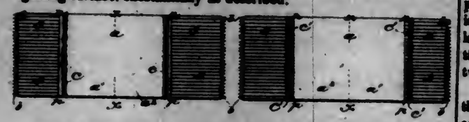
6. In combination with the card consisting of the series of match-splints connected to the marginal strip provided with the igniting surface and the lines of luminous paint A between the line of connection of the splints and said igniting-surface, substantially as specified.

488,166. FLEXIBLE MATCH. JOSHUA PUSEY, Lima, Pa. Filed Aug. 6, 1890. Renewed Mar. 17, 1892. Serial No. 426,374. (Model.)

Claim.—1. The improvement in friction-matches, consisting of the series of splints placed edge to edge and their sides respectively in the same places and provided with an ignitible composition at their free ends and at their opposite ends frangibly attached to, so as to be inclosed by and between, the sides of the cover and so as to be practi-

cally integral with said cover, whereby the latter may be opened out like a book and any one of said splints be torn or broken off, substantially as described.

2. The improvement in friction-matches, being a new and complete article of manufacture, consisting of the series of splints placed edge to edge and their sides respectively in the same plane and provided with an ignitible composition at their free ends and at their opposite ends frangibly attached to, so as to be inclosed by and between, the sides of the cover and so as to be practically integral with said cover, and which cover is provided with an igniting surface or composition, whereby said cover may be opened out like a book and any one of said splints be torn or broken off and struck against the said igniting-surface, substantially as described.



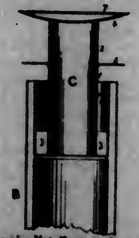
3. A friction-match device consisting of a series of splints provided with an ignitible composition, placed edge to edge and their sides respectively in the same plane, and frangibly secured to and within a flexible waterproof cover of paper or the like, which cover is adapted to be opened like a book, whereby when said cover is opened out any one of said splints may be broken or torn off from its attachment to the cover.

4. The improvement in friction-matches, consisting of a sheet of inflammable paper or other like pliable material having its end or ends divided into a series of splints having their ends provided with an ignitible composition, the remainder of the sheet being left plain and the said splints folded over upon the plain portion, which latter is again folded over so as to inclose the series of splints, and is adapted to be opened out as a book in order to detach said splints.

5. The improvement in friction-matches, consisting of a sheet of inflammable paper or other like pliable material having its end or ends divided into a series of splints having their ends provided with an ignitible composition, the remainder of the sheet being left plain and provided with an igniting surface or composition and the said splints folded over upon the plain portion, which latter is folded over so as to inclose the series of splints, and is adapted to be opened out as a book in order to detach said splints.

6. In a friction-match device consisting of two opposite series of splint-strips provided with an ignitible composition and inclosed and secured to and between the sides of a common cover, the said composition of the one series of splints out of line or contact with that of the other series, substantially as and for the purposes specified.

483,167. ARGAND LAMP. FRANK REED, Meriden, Conn., assignor of one-half to the Edward Miller & Company, same place. Filed June 15, 1891. Serial No. 396,268. (No model.)



Claim.—1. In an inner air-distributer of an Argand lamp, the combination of a substantially-cylindrical foraminous portion, an annular flange on said cylindrical portion in a plane above that of the central air-tube of the lamp, and a perforate deflecting-button of larger diameter than and surmounting said cylindrical portion, the perforations in said deflecting-button being so arranged as to permit the upward passage through said button of a current of air, substantially as described.

2. In an inner air-distributer of an Argand lamp, the combination of a substantially-cylindrical portion, the lower part of which is imperforate and the upper part perforate, an annular flange on said cylinder in a plane above that of the central air-tube of the lamp, and a perforate deflecting-button of larger diameter than and surmounting said cylindrical portion, the perforations in said deflecting-button being so arranged as to permit the upward passage through said button of a current of air, substantially as described.

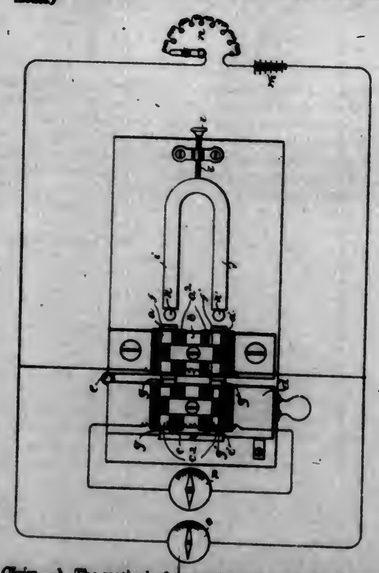
3. In an inner air-distributer of an Argand lamp, the combination of a substantially-cylindrical portion, the lower part of which is imperforate and the upper part perforate, an annular flange on said cylinder in a plane above that of the top of the central air-tube of the lamp, and a deflecting-button consisting of two foraminous disks, substantially as described.

4. In an inner air-distributer of an Argand lamp, the combination of a substantially-cylindrical portion, the lower part of which is imperforate and the upper part perforate, a perforate annular flange on said cylinder in a plane above that of the top of the central air-tube of the lamp, and a deflecting-button consisting of two foraminous disks, substantially as described.

5. In an inner air-distributer of an Argand lamp, the combination of a substantially-cylindrical portion, the lower part of which is imperforate and the upper part perforate, an annular flange on said cylinder in a plane above that of the top of the central air-tube of the lamp, an annular perforate flange in a plane below that of the top of the central air-tube of the lamp, and a deflecting-button consisting of two foraminous disks, substantially as described.

6. In the inner air-distributer of an Argand lamp, the combination of a substantially-cylindrical perforate portion, an annular flange on said cylinder in a plane above that of the top of the central air-tube of the lamp, a deflecting-button consisting of two foraminous disks, and a foraminous diaphragm between said disks, substantially as described.

483,168. METHOD OF MEASURING THE STRENGTH OF MAGNETS. CHARLES R. ROSS, Evanston, assignor to the Western Electric Company, Chicago, Ill. Filed Nov. 6, 1891. Serial No. 411,091. (No model.)



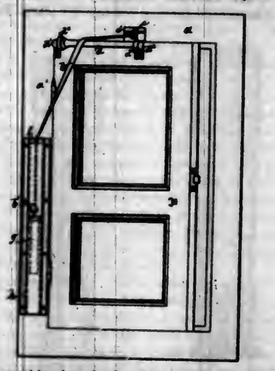
Claim.—1. The method of measuring the strength of magnets, which consists in balancing the magnetic field of the magnet by a counter-magnetic field generated by an electric current, measuring said current, and comparing the value of the current with the current required to balance a standard magnet, substantially as herein described.

2. The method of determining when a balance is effected between two magnetic fields, which consists in interrupting the magnetic continuity of a bar of magnetic material placed in the fields and in the direction of the lines of force and surrounded by a coil in circuit with a suitable current-detector and noting the presence or absence of current in the said coil, substantially as herein described.

3. The method of effecting a balance between two magnetic fields acting in opposite directions, which consists in interrupting the magnetic continuity of a bar of magnetic material placed along the lines of force of the fields and surrounded by a coil connected in circuit with a suitable current-detector and adjusting the strength of one of the fields until no current is created in the said coil when the continuity of the bar is completed or interrupted, substantially as herein described.

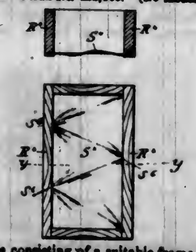
4. The method of measuring the strength of magnets, which consists in creating by means of a current a field in opposition to the field of the magnet to be measured, effecting a balance between the two fields by adjusting the strength of the field-producing current until no current is induced in a coil surrounding a bar of magnetic material placed in the fields along the lines of force when the magnetic continuity of said bar is interrupted or completed, and comparing the strength of current required to balance the magnet-field with the strength of current required to balance the field produced by a standard magnet, substantially as herein described.

483,169. GRAVITATING DOOR-CLOSER. HUGO SCHREWIND, Crefeld, Germany. Filed Dec. 2, 1891. Serial No. 413,767. (No model.)



Claim.—In combination, the door having the bar extending along its upper edge and the band attached to the door-frame over the door and extending from this point diagonally to the side of the door-frame to which the door is hinged and the weight attached to the lower end of the band and guided on the door-frame, the intermediate inclined portion of the band passing freely over the bar and adapted to slide longitudinally of said bar toward and from the hinges as the door is opened and closed, substantially as described.

483,170. SIEVE-SURFACE. OTTO SCHELLE, Berlin, Germany. Filed Feb. 26, 1892. Serial No. 422,883. (No model.)



Claim.—1. A sieve consisting of a suitable frame and the screening material extending across the said frame, the said material being drawn taut on lines running from side to side of the frame, the portions intermediate of the said taut lines being loose and capable of free movement, substantially as described.

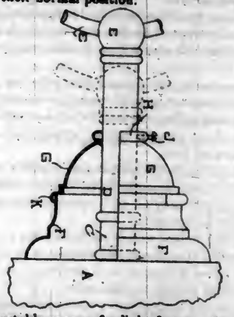
2. A sieve consisting of a suitable frame and the screening material extending across the said frame, the said material being drawn taut on lines running from side to side of the frame and the intermediate portions being loose and arranged in folds, substantially as described.

483,171. ADJUSTABLE CANOPY FOR LIGHT-FIXTURES. EMIL C. SCHALK, Chicago, Ill. Filed Mar. 5, 1892. Serial No. 423,841. (No model.)

Claim.—1. In an adjustable canopy for light-fixtures, the combination of a base with a crown, the one adapted to pass within the other, and an intervening part which normally holds them in rigid relation, but when released permits one to pass within the other.

2. In an adjustable canopy for light-fixtures, the combination of a base with a crown, the one adapted to pass within the other, and an intervening part which normally holds them in rigid relation, but when released permits one to pass within the other, and an adjustable set-screw whereby the crown may be fixed at any position along the supporting pipe or rod.

3. In an adjustable canopy for light-fixtures, the combination of two parts to inclose light-supporting pipe and conceal the point of its engagement with the wall, one of said parts larger than the other, with an intervening divided ring adapted to extend inside the smaller and outside the larger of such parts and to hold them in rigid engagement when all are in their normal position.



4. In an adjustable canopy for light-fixtures, the combination of two parts to inclose light-supporting pipe and conceal the point of its engagement with the wall, one of said parts larger than the other, with an intervening divided ring adapted to extend inside the smaller and outside the larger of such parts and to hold them in rigid engagement when all are in their normal position, and a set-screw whereby said parts may be held in rigid position against the wall about the point of engagement of the supporting part therewith.

5. A canopy for light-fixtures, consisting of a series of successive parts each larger than its successor and a series of intervening divided rings which hold the parts in rigid relation when all are in position, but permit them to telescope one upon the other when such rings are released.

483,172. VALVE FOR PNEUMATIC TIRES. GEORGE H. F. SCHRADER, New York, N. Y. Filed June 15, 1892. Serial No. 436,792. (No model.)



Claim.—1. In a valve, a casing having a conduit, in combination with a flexible valve interrupting said conduit, and a movable part at the ingress side of said flexible valve, constructed when moved toward the latter to permit an outward flow through the valve.

2. In a valve, a casing having a conduit, in combination with a flexible disk interrupting said conduit, having a leak-tight joint with said casing around its outer portion, but left free at its center and perforated at its free portion, and a movable part at the ingress side of said flexible valve, constructed when moved toward the latter to permit an outward flow through the perforation of said disk.

3. In a valve, the casing, in combination with a perforated flexible disk inclosed therein, an imperforate plug passing through the perforation in said disk, and a movable part at the ingress side of said disk, constructed when moved against it to permit an outflow through its perforation.

4. In a valve, the casing, in combination with a perforated flexible disk inclosed therein, an imperforate plug passing through the perforation in said disk, and an annular movable part surrounding said plug and constructed when moved against said disk to distend the latter and permit an outflow around said plug.

5. In a valve, the casing, in combination with a perforated flexible disk inclosed therein, an imperforate plug passing through the perforation in said disk, and an annular movable part surrounding said plug and constructed when moved against said disk to distend the latter and permit an outflow around said plug, said movable part having a tapering end for distending said disk.

6. In a valve, a casing having a conduit, in combination with a flexible disk inclosed therein to interrupt said conduit, having a leak-tight joint with said casing around its outer portion, but left free at its center and perforated at its free portion, and an imperforate plug passing through the perforation in said disk, movable independently of said casing and constructed with a reduced portion at the ingress side of said disk, whereby when moved until its reduced portion is opposite said perforation an outflow through the valve is permitted.

7. In a valve, the combination, with an induction-casing having a conduit and a valve connected thereto, of a fibrous material in said conduit at the ingress side of said valve, adapted to arrest foreign matter entering said conduit.

8. In a valve, the combination, with an induction-casing having a conduit and a valve connected thereto, of an absorbent material in said conduit at the ingress side of said valve for absorbing oil entering said conduit.

9. In a valve, a casing having a conduit, a flexible perforated disk in said casing and interrupting said conduit, a plug passing through said disk and partially filling said conduit at the induction side of the valve, and an absorbent material carried on said plug, substantially as and for the purpose set forth.

10. In a valve, a molded rubber washer having a thin central portion and an integral outer annular rib of greater thickness than said central portion, said rib adapted to be clamped between the parts of the valve and serve as a packing.

11. In a valve, a molded rubber washer having a thin central portion and an integral outer annular rib adapted to be clamped between the parts of the valve and serve as a packing, and a metallic ring molded in said rib to prevent its distortion.

12. In a valve, the casing and a perforated valve-disk, as G, in combination with a movable plug, as H, traversing the perforation in said disk and constructed with a tapered portion, as *j*, constructed when said plug is moved toward the egress side of the disk to permit a reverse flow through the valve.

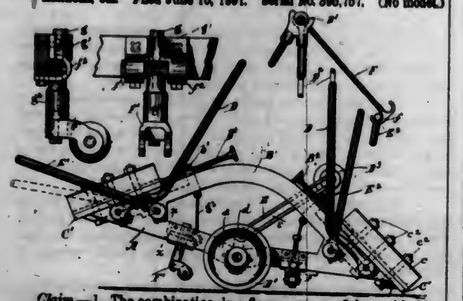
13. In a valve, the casing constructed with an annular lip *o*, in combination with a disk, as G, having an enlarged annular rib fitting exteriorly against said rib *o* and adapted to be clamped in position thereagainst, whereby its inward distortion is prevented by said lip.

14. In a valve, the combination, with a casing constructed of two parts and a disk adapted to be clamped between said parts, of an anti-friction-ring, as K, arranged at the ingress side of said disk and between the latter and the adjacent part of the casing and adapted to permit relative movement of the parts of the casing and prevent distortion of the disk thereby.

15. In a valve, the combination, with the shell or casing, the induction-conduit, and the movable part therein, of a cap adapted to close the upper end of the casing and constructed with a groove projection M, adapted to be inserted into the induction-conduit for actuating said movable part.

16. In a valve, the casing and a perforated disk, as G, in combination with the plug, as H, traversing the perforation of said disk and constructed with an enlarged head, as *j'*, at the egress side thereof, substantially as and for the purpose set forth.

488,173. FLOOR-SCRAPING MACHINE. FREDERICK C. SCHROEDER, Alameda, Cal. Filed June 10, 1891. Serial No. 396,757. (No model.)



Claim.—1. The combination, in a floor-scraper, of the tool-holder arranged at an incline, scraping-tools secured therein so as to have their scraping-edges at an angle to the floor, and the swinging weight supported above the tool for giving sufficient pressure thereto, as and for the purpose set forth.

2. The combination of an oscillatory frame, scraping-tools mounted on the ends of the same, and a shifting weight mounted on a frame above the tools.

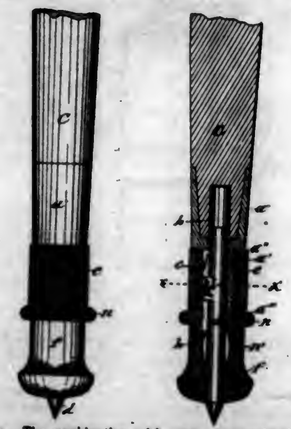
3. In a scraping-machine for floors, the combination, with the frame, of curved supporting-braces, scraping-tools at the ends of said braces, vertical rods secured to the frame and united by a cross-rod, and the swinging weight supported by said cross-rod and adapted to shift as either end of the machine is thrown upward, as and for the purpose set forth.

4. The combination of a tilting frame, a swinging weight supported thereby, tools secured on the ends of the frame, and guide-rods adapted to hold the weight over either end of the frame.

5. The combination of a main frame, tools secured to the ends of the same, a vertical frame carried thereby, a hook suspended on said vertical frame, and handles pivoted to the ends of the main frame and adapted to be held in a raised position by the said hook.

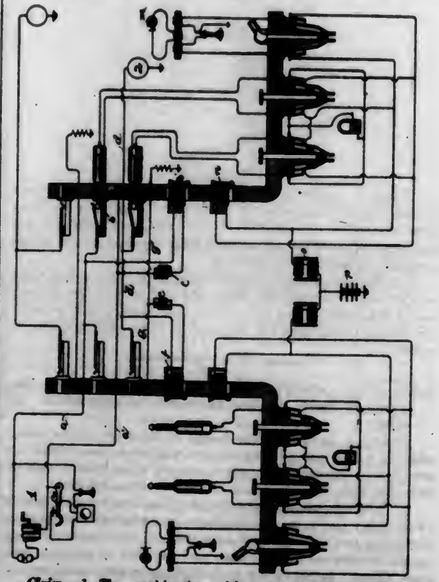
6. The combination of the supporting-braces having inwardly-projecting flanges, the tool-holder secured on said flanges, the tools carried by said holder, and the adjusting-screws mounted in the flanges and bearing against the tools.

488,174. TIP FOR CRUTCHES OR CANES. WASHINGTON I. SCOVILLE, Manlius, N. Y. Filed Feb. 12, 1892. Serial No. 421,945. (No model.)



Claim.—The combination, with a cane or crutch, of the ferrule *a*, formed with the stud *a'*, shoulder *a''*, channel *b*, and slot *c*, the prod *d*, provided with the lug *d'*, the nut *e*, engaging said lug, and the jam-nut *n* on the end of the stud, as set forth and shown.

488,175. TEST SYSTEM FOR MULTIPLE SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 5, 1891. Serial No. 414,184. (No model.)



Claim.—1. The combination, with a telephone-line having one limb or portion thereof permanently connected with the springs of the switches of the line and by the other limb or portion thereof with the frames or test-pieces of the same switches, of a wire permanently connecting said limbs together at the central office, said connecting-wire including a condenser and an individual annunciator.

2. The combination, with a telephone-line extending from the subscriber's station to the central office, of switches upon different switch-boards, each switch being provided with a switch lever and frame insulated from one another, one portion of the telephone-line being permanently connected with the springs of said switches and the other portion being connected with the frames or test-pieces thereof, a wire at the central office connecting the two portions of telephone-line together, and an individual annunciator and a condenser included in said connecting-wire, substantially as and for the purpose specified.

3. The combination, with a telephone-line extending from the subscriber's station to the central office, of switches upon different switch-boards, each switch being provided with a switch lever and frame insulated from one another, one portion of the telephone-line being permanently connected with the springs of said switches and the other portion being connected with the frames or test-pieces thereof, a wire at the central office connecting the two portions of telephone-line together, and an individual annunciator and condenser included in said wire, and switching apparatus consisting of pairs of double-pointed plugs and cords, one strand of said cords (the strand connecting the sleeves thereof) being connected to ground through a retardation-coil and battery, a listening-in key for bridging the telephone between the strands, and a bridge-wire, including a clearing-out annunciator, permanently connected between said strands.

4. The combination, with a telephone-line extending from the subscriber's station to the central office, of switches upon different switch-boards, each switch being provided with a switch lever and frame insulated from one another, one portion of the telephone-line being permanently connected with the springs of said switches and the other portion being connected with the frames or test-pieces thereof, a wire at the central office connecting the two portions of telephone-line together, and an individual annunciator and condenser included in said wire, and switching apparatus consisting of pairs of double-pointed plugs and cords, one strand of said cords (the strand connecting the sleeves thereof) being connected to ground through a retardation-coil and battery, a listening-in key for bridging the telephone between the strands, and a bridge-wire, including a clearing-out annunciator and a condenser, permanently connected between said strands.

488,176. DEVICE FOR COLLECTING METALLIC FUMES. DENNIS SHEEDY and MALVERN W. ILES, Denver, Colo. Filed Dec. 5, 1891. Serial No. 414,259. (No model.)



Claim.—1. Dust-screens having, in combination, a frame J, two rows of rods or wires K K, and a mat of fibrous material held between the two rows of rods or wires, substantially as and for the purpose specified.

2. In combination with a metallurgical furnace and a fume-conduit leading therefrom, a series of removable dust-screens set across said conduit and formed of a mat-like mass of fibrous material held in a frame by slats or bars, substantially as and for the purpose specified.

3. In combination with a metallurgical furnace, a fume-conduit leading therefrom, openings G in said conduit-doors *g* for closing the same, and removable screens arranged to enter said openings G and formed of a fibrous mat held in place by slats or wires, substantially as and for the purpose specified.

4. The combination, with a metallurgical furnace, of a stack B, leading from the furnace to the atmosphere and having a dust-chamber B at its base, and one or more pivoted screens I, formed of a mat-like mass of fibrous material, held in a frame by slats or bars and secured in said stack, substantially as and for the purpose specified.

5. Dust-screens having a mat formed of fine lead wire secured in frames, substantially as and for the purpose specified.

488,177. DEVICE FOR CONVERTING MOTION. SEXTUS SLOAN, Painesville, Ohio. Filed Feb. 12, 1892. Serial No. 421,234. (No model.)



Claim.—1. In a device for converting motion, a disk rigidly attached to the shaft, with the periphery thereof extending out each side, forming two annular chambers, in combination with the plates *c*, *d*, and *d'* of the form shown, the balls *f* and *f'*, two geared covers, and the rack-frame containing the two racks *l* and *k*, and the plate *c*, provided with a rigid screw or lug *i*, arranged substantially in the manner set forth.

2. In a device for converting reciprocating motion, a rack-frame containing two racks *k* and *l*, in combination with two geared covers *g* and *g'*, arranged loosely on a shaft and operating alternately with the balls *f* and *f'*, the plates *c*, *d*, and *d'*, and the corresponding balls and plates in the chamber in the manner described, whereby the shaft is caused to revolve in the same direction on one stroke of the frame as it does on the other, substantially as described.

488,178. MECHANISM FOR OPERATING AND LOCKING JAIL-DOORS. CHARLES H. SPARKS, St. Louis, Mo. Filed Mar. 10, 1892. Serial No. 424,444. (No model.)



Claim.—1. In combination with the worm-sleeves longitudinally stopped and the rotary shaft extending within said sleeves, the rod or bar in said shaft, longitudinally movable independently of the shaft, having the projections D′ related to the sleeves as described, and suitable means for adjusting said rod longitudinally, substantially as set forth.

2. In combination with the worm-sleeves longitudinally stopped and the rotary shaft extending axially through said sleeves, the rod or bar in said shaft, longitudinally movable independently thereof, having the projections D′ related to the sleeves as described, the lever L, suitably connected to the said sliding rod or bar to move the latter longitudinally with respect to the shaft, and means for locking the lever at positions corresponding to the engagement of the projections D′ with the sleeves, respectively, substantially as set forth.

3. In combination with the worm-sleeves longitudinally stopped and the rotary shaft extending axially through said sleeves, the rod or bar in said shaft, longitudinally movable independently thereof, having the projections D′ related to the sleeves as described, a collar adapted to slide on the shaft, pinned fast to said rod or bar, the lever L, fulcrumed outside the corridor and suitably connected to said collar to move the latter longitudinally with respect to the shaft, and means for locking the lever at positions corresponding to the engagement of the projections D′ with the sleeves, respectively, substantially as set forth.

4. In combination with the worm-sleeves longitudinally stopped and the rotary shaft extending axially therethrough, the rod or bar in said shaft, longitudinally movable independently thereof, having the projections D′ and D¹⁰ related to the sleeves as described, the lever L, suitably connected to the sliding rod or bar to adjust the same longitudinally without interfering with its rotation with the shaft, and a graduated scale along which said lever oscillates, having graduations corresponding to the adjustment of said sliding rod or bar for engagement with the several sleeves, respectively, and for engagement with all the sleeves and for non-engagement with the sleeves, the gearing-train by which the shaft is rotated to operate the sleeves, a case which incloses said gearing-train, and the mechanism for longitudinally adjusting said rod or bar, and the securable door for said case through which access is obtained to the adjusting mechanism, the primal shaft of said rotating train protruding from said case and adapted to receive a rotating crank or hand-wheel outside the case, whereby it is rendered unnecessary to make the compass of the case sufficient to inclose the operating-wheel or crank, substantially as set forth.

5. In combination with the rotary shaft and the sliding bar therein, the mechanism which said shaft operates by means of said sliding bar at its respective longitudinal positions, the mechanism for adjusting said bar longitudinally to its various operative and inoperative positions, and the mechanism for rotating the shaft, and a case inclosing the bar-adjusting mechanism, having a securable door through which access is obtained thereto, substantially as set forth.

6. In combination with the rotary shaft, the sliding bar therein, and the mechanism which said shaft operates by means of said sliding bar longitudinally to its various operative and inoperative positions, the mechanisms for rotating the shaft and for longitudinally adjusting the bar, and a case inclosing said adjusting and rotating mechanism, provided with a securable door through which access is obtained to the adjusting mechanism, the primal shaft of said rotating mechanisms extending outside of said case and exteriorly adapted to receive an operating-crank or hand-wheel, substantially as set forth.

7. In combination with the sliding cell-doors, the upright posts which stop the sliding movement at closed position, the locking-bars H, sliding vertically on said posts, plates mounted on the doors and having short horizontal movement relative thereto and having the inclined notches *f*, the locking-bars having the studs A, adapted to enter said inclined notches, and means for actuating the said plates horizontally and for engaging them with the doors, respectively, until the latter reach closed position against their respective posts and for disengaging them therefrom and permitting longitudinal movement relative thereto thereafter, whereby such longitudinal movement operates the locking-bars, substantially as set forth.

8. In combination with the locking-bars H, the levers H³, connected thereto and provided with weights to counterpoise the weight of the locking-bars, and mechanism which operates such locking-bars, substantially as set forth.

9. In combination with the locking-bars H, levers connected thereto provided with weights to counterpoise the locking-bars and the sliding bars F, operating the locking-bars by the inclined groove engaging therewith, substantially as set forth.

10. In combination with the sliding cell-door and a rail adjacent to which it moves, the plate connected to the door and having a short horizontal movement relatively thereto, the dog pivoted to the plate and having its nose riding on the rail and longitudinally stopped against the lug on the door, and the rail having the track of the dog cut away at the point reached by the nose when the door is fully closed, substantially as set forth.

11. In combination with the cells opening upon a common corridor and the door operating and locking mechanism mounted outside the cell-walls within the corridor, a case inclosing said operating mechanism, extending from end wall to end wall of the corridor and secured to the said end walls by screw-bolts inserted from the outer side of said walls and inaccessible from within the corridor, substantially as set forth.

488,179. ART OF MAKING COMPOSITE MILLSTONES. THOMAS L. STURTEVANT, Framingham, assignor to the Sturtevant Mill Company, Boston, Mass. Filed Sept. 29, 1890. Serial No. 366,554. (No model.)



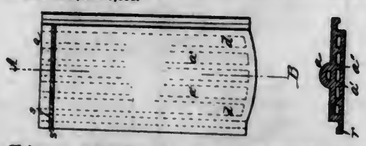


Claim.—1. The herein-described improvement in the art of making millstones, which consists in forming a number of segments for the skirt of small irregular lumps of emery and molten metal, arranging the segments around an eye, and securing them thereto.

2. The herein-described improvement in the art of making millstones, which consists in forming a number of segments by binding together small irregular lumps of emery with molten metal, arranging the segments with furrow-strips around an eye, and securing them thereto.

3. The herein-described improvement in the art of making millstones, which consists in forming the skirt of the stone by arranging at suitable distances apart furrow-strips, arranging small irregular lumps of emery between the furrow-strips, then pouring molten metal over the furrow-strips and the lumps of emery, and then securing the skirt thus formed to the eye.

488,180. TILE. HENRI STURM, Paris, France. Filed Aug. 3, 1891. Serial No. 401,458. (No model.) Patented in France Feb. 18, 1891, No. 211,503; in Belgium Feb. 23, 1891, No. 93,870, and in England Mar. 3, 1891, No. 3,833.



Claim.—1. A flat tile having a series of parallel division-walls forming channels, said division-walls extending to one end of the tile, and an arched projection *a*, the walls of which form a continuation of two of the division-walls, as at *a′ a″*, substantially as described.

2. A tile having parallel flat faces and overlapping edges, a series of channels divided by parallel division-walls, an arched projection at one end, having its walls in line with two of the division-walls, and a transverse groove on the upper face of the tile at the same end with the packing therein, substantially as described.

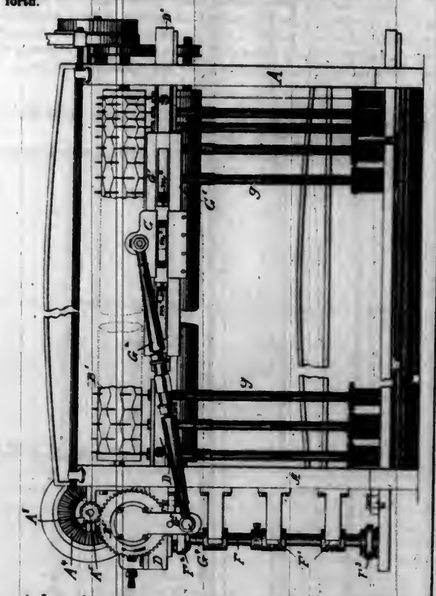
488,181. WIRE-NETTING MACHINE. HENRY K. SWINCOCK, Clinton, Mass. Filed May 21, 1891. Serial No. 393,608. (No model.)

Claim.—1. In a machine for the manufacture of netting, main front and back carriages provided with twisting-segments and auxiliary front and back carriages provided with twisting-segments, combined with separately-movable rack-bars, each to engage and rotate its own proper segment, substantially as described.

2. A wire-netting machine containing the following instrumentalities, viz: main front and back carriages, means to reciprocate them,

twisting-segments mounted in the said carriages, auxiliary front and back carriages containing twisting-segments, separately-movable rack-bars, each to engage and rotate its own proper segments, and a segment having a toothed surface, substantially as described, and adapted to be engaged by one and then by both of the said rack-bars, according to the position of the carriages, to operate substantially as described.

3. A wire-netting machine containing the following instrumentalities, viz: main front and back carriages provided with twisting-segments, the segments in each carriage being located at a distance apart corresponding to a mesh of one size, combined with auxiliary front and back carriages having each a series of twisting-segments located at a distance apart other than the segments in the main front and back carriages to make a mesh of a different size, and means for actuating the said carriages one in advance of the other, as and for the purposes set forth.



4. In a wire-netting machine, front and back main and auxiliary carriages and independent means to reciprocate the said main and auxiliary carriages, combined with a twisting half-segment which rotates in connection with a twisting half-segment of the main carriage for a portion of the time and then with a half-segment of the auxiliary carriage, whereby meshes differing in width may be made side by side and connected together as one fabric, substantially as described.

5. In a wire-netting machine, main and auxiliary carriages, substantially as described, and twisting-segments carried thereby, the twisting-segments of the main and auxiliary carriages, respectively, being arranged at different distances apart and having their teeth in different horizontal planes, connections between each main carriage and its auxiliary carriage, whereby there is lost motion between them, and means to reciprocate said carriages, for the purposes set forth.

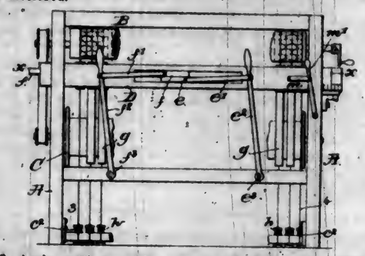
6. In a wire-netting machine, shifting carriages provided with twisting-segments, combined with two superimposed rack-bars having their acting teeth in different horizontal planes and means to actuate the said rack-bars to rotate the said segments.

7. In a wire-netting machine, main and auxiliary carriages, two series of segments, one series for each carriage, and two independent rack-bars, one-half of one of the said segments being adapted to be rotated at one time by one of the said rack-bars and at another time by the other of said rack-bars, combined with devices to move the said carriages independently, substantially as described.

488,182. WIRE-NETTING MACHINE. HENRY K. SWINCOCK, Clinton, Mass. Filed Nov. 16, 1891. Serial No. 412,065. (No model.)

Claim.—1. In a machine for the production of wire-netting, the following instrumentalities, viz: sliding carriages, a series of twisting-segments carried by said carriages, actuating devices for some of the said twisting-segments, and independent separate actuating devices disconnected therefrom for others of the said twisting-segments, whereby some of the segments may be rotated independently of the other of the said segments and in different directions to form reverse twists, substantially as described.

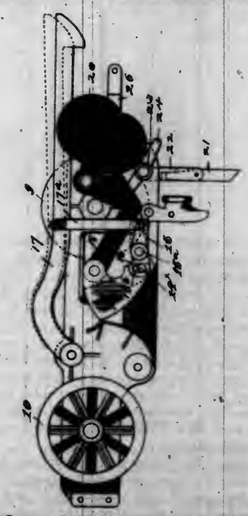
2. In a machine for the production of wire-netting, the following instrumentalities, viz: sliding carriages, a series of twisting-segments for the body-wires and twisting-segments for the selvage-wires, carried by the said carriages, actuating devices for the segments, containing the body-wires, and separate independent actuating devices for the remaining or selvage-wire segments, said latter actuating devices being disconnected from the actuating devices for the body-wire segments, whereby the travel of each of said actuating devices may be varied independently and one series of the said segments may be rotated more than the other series of said segments, substantially as and for the purpose described.



3. A wire-netting machine containing the following instrumentalities, viz: a series of twisting devices for the wires to be twisted together in the production of the netting, the gears of one of the said series of twisting devices being in a different horizontal plane from the gears of the other of the said series of twisting devices, supports for the said twisting devices, and independent rack-bars, one for actuating one of the said series of twisting devices and the other to actuate the other of the said series of twisting devices, and disconnected mechanism to move each of the said rack-bars independently one of the other in either the same or opposite directions, substantially as described.

4. In a wire-netting machine, shifting carriages provided with a series of twisting-segments mounted therein, combined with two independent rack-bars having their teeth in different horizontal planes and separate and disconnected means to actuate the said rack-bars to rotate some or others of the said twisting-segments, as desired, and for the purposes set forth.

488,183. TRANSFER-CARRIAGE FOR ELEVATED WAYS. HENRY B. TRUFF, Chicago, Ill., assignor of two-thirds to Walter S. Bogle, same place. Filed Mar. 19, 1892. Serial No. 425,584. (No model.)



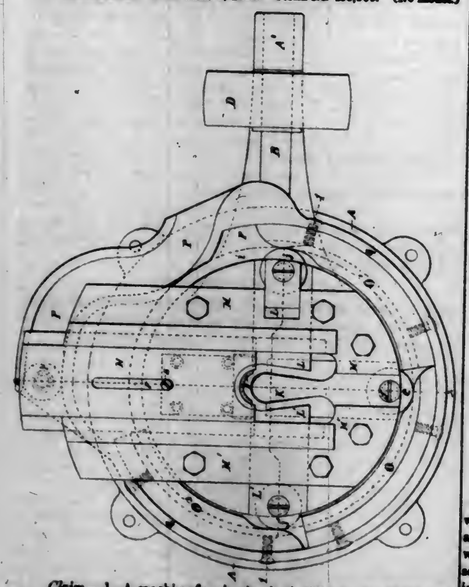
Claim.—1. In a transfer-carriage having a bucket-block, the combination of a locking-lever, a rocking beam and a link connecting the lever and beam, a cam device pivotally supported on the carriage and adapted to bear upon the rocking beam, and means for returning the cam to its normal position after it has been rocked by the upward

passage of the bucket-block, whereby to lock said block to the carriage, substantially as described.

2. In a transfer-carriage, the combination of a locking-lever pivotally connected at its forward end to the frame of the carriage and having its rear end hooked to engage a locking-stop on the track, a link pivotally connected to said lever and depending therefrom, a rocking beam pivoted on the frame of the carriage below the lever and pivotally connected with said link, a heart-shaped cam pivotally connected to the frame of the carriage and adapted to bear upon the front end of the rocking beam; a link connected to the cam above its bearing on the beam, and a bell-crank pivoted to the frame of the carriage, whereby the cam may be rocked by the passage of the bucket-block, and means for forcing the point of the cam under the bolt of the bucket-block, whereby the weight of the bucket on the cam operates to rock the beam and disengage the locking-lever to free the carriage, substantially as described.

3. In a transfer-carriage, the combination of a cam device pivotally connected to the carriage, a link connected to the cam above its pivotal attachment to the carriage, a bell-crank one arm of which is connected to the link, a weight or equivalent actuating device to act upon the other arm of the bell-crank, and a tripping device comprising a cranked lever pivoted on the carriage and adapted when tripped to raise the bell-crank, whereby to withdraw the cam, substantially as described.

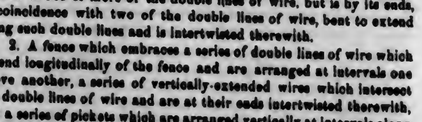
483,184. HEEL-STIFFENER MACHINE. ASA H. THOMPSON, Groton, Mass. Filed June 3, 1892. Serial No. 435,386. (No model.)



Claim.—1. A machine for shaping heel-stiffeners, comprising the following elements, viz: a fixed circular bed-plate, a former and a three-part mold carried by said bed-plate, the heel-section of said mold being secured in a fixed position to said bed-plate and the two side sections of said mold and the former being fitted to and movable in bearings in said bed-plate, toward and from the center of said bed-plate, a reciprocating flange-turning plate, and a cam-ring mounted upon and revolvable about said fixed bed-plate and having formed thereon or secured thereto four separate and distinct cams constructed and arranged to act, respectively and in proper order, directly upon said former, the two side mold-sections, and the flange-turning plate to move them toward each other and compress a heel-stiffener at each revolution of said cam-ring.

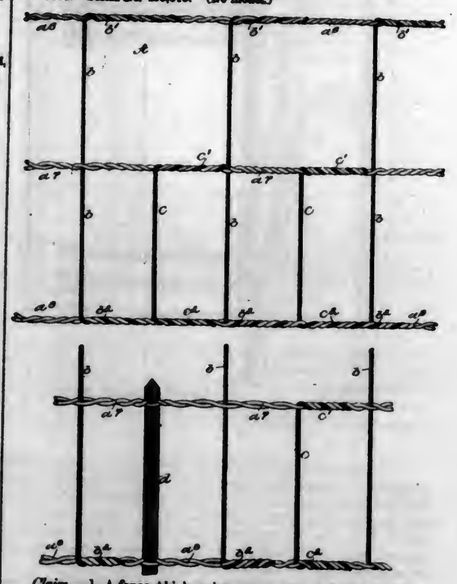
2. In a machine for shaping heel-stiffeners, the combination of the circular bed-plate E, the heel mold-section J, secured in a fixed position in said bed-plate, the side mold-sections L and L', fitted to and movable toward and from each other in bearings in said bed-plate, the former K, fitted to and movable endwise in a bearing in said bed-plate, the cam-ring F, mounted upon and revolvable about said bed-plate, the cam-segments O, O', and O^2 for moving said former and side mold-sections toward the center of said bed-plate, springs for moving said former and side mold-sections outward, the flange-turning plate N, provided with the truck *p*, the path-cam P, formed in or secured to said cam-ring F, the annular bevel-gear G, secured to said ring F, the bevel-pinion O, and any suitable means for imparting rotary motion to said pinion.

483,185. PRINTER'S QUOIN. WILLIAM J. TIBBLEY, Brooklyn, N. Y. Filed Feb. 1, 1892. Serial No. 420,001. (Model.)



Claim.—An extensible printer's quoin consisting of two plates A and B, in combination, having grooves *h h* and the opposed raised and depressed surfaces *a a a* and *b b*, axis *c*, uniting plates inseparably, and lug *e*, operated by the rotation of the plate A to produce extension of the parts, the whole combined, arranged, and operated as set forth.

483,186. FENCE. PHILIP TRICK, Crestline, Ohio. Filed May 21, 1892. Serial No. 433,515. (No model.)



Claim.—1. A fence which embraces a series of double lines of wire which are extended in parallel lines longitudinally of the fence and are arranged at intervals one above another and a series of single lines of wire, each of which is in its main portion arranged vertically in intersection of one or more of the double lines of wire, but is by its ends, in coincidence with two of the double lines of wire, bent to extend along such double lines and is intertwisted therewith.

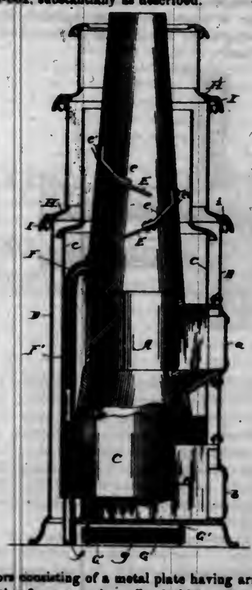
2. A fence which embraces a series of double lines of wire which extend longitudinally of the fence and are arranged at intervals one above another, a series of vertically-extended wires which intersect the double lines of wire and are at their ends intertwisted therewith, and a series of pickets which are arranged vertically at intervals along the fence in alternation with the intersecting vertical wires and which are engaged between the two members of the double lines of wires, substantially as shown and desired.

3. A fence which embraces a series of double lines of wire which extend longitudinally of the fence at intervals in a vertical plane and a series of vertically-extended wires which in their main portion intersect and are received between the members of the double lines of wire and are by their ends intertwisted therewith, substantially as set forth.

483,187. STOVE OR WARM-AIR FURNACE. WILLIAM H. TURNER, Indianapolis, Ind., assignor to Jennie Annis Turner, same place. Filed Nov. 23, 1889. Serial No. 331,302. (No model.)

Claim.—1. In a warm-air furnace, the combination of an ash-box adapted to support a fire-pot and to have suspended therefrom an

evaporating-pan, an evaporating-pan, an opening in the center of the evaporating-pan, and a wall surrounding such opening, and means for suspending the evaporating-pan from the ash-box so that the upper edges thereof are near to but not in contact with the bottom of the ash-box, whereby liquid may be contained in the evaporating-pan and air may ascend through the central opening of such pan and pass over the contents thereof and between such evaporating-pan and the bottom of the ash-box, substantially as described.



2. Deflectors consisting of a metal plate having arms thereon, in combination with a fire-pot, to the walls of which such arms are rigidly secured, holes in the fire-pot, having projecting rims on the inner edge thereof, and bolts passing through the walls of the fire-pot and through one end of the arms of the deflectors, all substantially as described.

3. In a stove or furnace having outer mantles or casings surrounding the fire-pot thereof, the combination of such outer mantles or casings with rings flaring outward and downward and projecting lugs on the under side thereof secured thereto and adapted to rest on the diminishing-rings of the outer mantle or casing, whereby ascending currents of air are deflected inward by the rings and pass between them and the outer mantle or casing, all substantially as described.

483,188. COIN CONVEYER AND TESTER FOR AUTOMATIC VENDING-MACHINES. JOHN H. VOLLMANN, New York, N. Y. Filed Apr. 19, 1892. Serial No. 429,760. (Model.)



Claim.—1. A coin-detector constructed mainly of a fixed plate D and of a movable plate E, so inclined that the coin in traveling through the space between said plates will lean against the movable plate, and means, substantially as described, for operating said movable plate, substantially as and for the purpose herein shown and described.

2. The combination of the front plate B, having slot *b*, with the coin-detector, consisting of plates D and E, the plate E being movable away from the plate D, and with the toe *s* on said movable plate E in proximity to the plate B, all arranged so that a coin inserted through the slot *b* will on striking the toe *s* cause the plates D and E to separate, substantially as herein shown and described.

3. In a coin-detector, the combination of the plate D, having a rail *d* and rib *h* on the lower portion thereof above said rail *d*, with the spring-pressed movable plate E, having rib *i* facing rib *h*, substantially as herein shown and described.

4. The combination of the plate D, rail *d* on the lower portion thereof, movable plate E, and spring *m*, adapted to hold said plate E in contact with the plate D, the said plate E having the opening *l* above the rail *d*, substantially as herein shown and described.

5. The coin-detector consisting, mainly, of two plates D E, and the rail *d*, formed on one of said plates, combined with the movable washer-arrester F, having prongs *n* and *p*, that project through holes in one of said plates, substantially as herein shown and described.

6. The combination of the plates D E, one of said plates carrying the intervening rail *d*, having slit K, with the spring *m*, adapted to hold said plate in contact with the plate D, and means, substantially as described, for moving said plate E, all as specified.

7. The plate D, having rail *d* on the lower portion thereof, and concave forward extension *g* of said rail, combined with the movable plate E, having overhanging roof-like lip *e*, the plates E and D facing each other, substantially as herein shown and described.

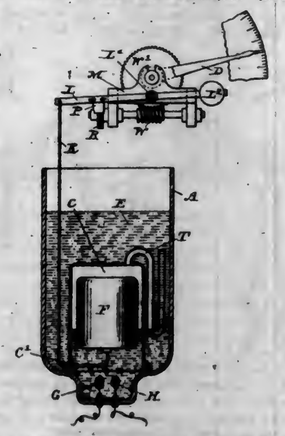
8. The plate D, having rail *d* on the lower portion thereof, and concave forward extension *g* of said rail, and upper roof-like lip *f*, combined with the movable plate E, having roof-like lip *e*, substantially as herein shown and described.

9. The combination of the plates D E, the plate E, having slot or opening *l*, with the washer-arrester F, having prongs *n p*, and with the spring *m*, adapted to hold the said plate E in contact with the plate D, substantially as herein shown and described.

10. The coin-detector consisting of the fixed plate D, having rail *d* and slit K thereon and having the projection *h* and apertures *o* and *r*, the plate E, having aperture *l*, toe *s*, and projection *i*, the spring *m*, pivot-pin a^3, and the washer-arrester F, having prongs *n* and *p*, all combined and arranged for operation substantially as herein shown and described

11. A coin-detector comprising plate D, movable plate E, means for operating said movable plate E, and a rail *d* for the coins to roll on, and a face-plate B, with coin-slot *b*, said parts being so arranged that the said rail is below said slot, so that the coin after passing said slot must descend vertically before it reaches the rail *d*, substantially as herein shown and described.

483,189. ELECTRIC METER. ADDISON G. WATERHOUSE, Hartford, Conn. Filed Jan. 4, 1892. Serial No. 416,929. (No model.)

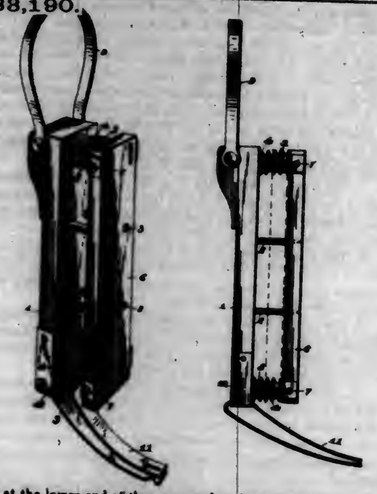


Claim.—An electric meter consisting of a vessel adapted to hold a fluid electrolyte provided with electrodes, a gas-collector placed over one or both of said electrodes, said collector being provided with a tube or gas-passage leading from the upper interior of the gas-collector, having the elements within itself for discharging the gas from the collector after a certain amount has been collected, in combination with a float placed within said gas-collector and being provided with connections through which the movement of the float is imparted to a recording mechanism, substantially as and for the purposes set forth.

483,190. ANIMAL-POKE. CLEMENT V. WHALLON, North Star, Ohio, assignor of one-half to Isaac H. Booker, same place. Filed Apr. 16, 1892. Serial No. 429,266. (No model.)

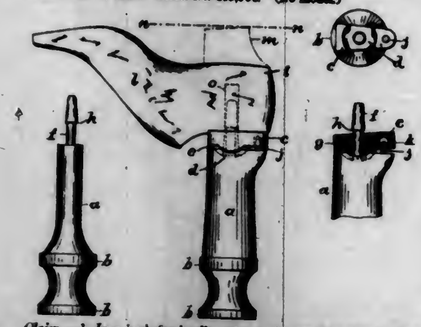
Claim.—In an animal-poke or device of the character set forth, the combination of an outer strip having pointed pins projecting therefrom and slotted guides arranged in pairs at the ends thereof and surrounded by coiled springs, said guides being flat and freely movable through narrow openings in the opposite portion of the yoke, for the purpose set forth, a yoke connected to the upper end of said strip and

488,190.



a strap at the lower end of the same, and an inner movable strip having slots in the ends thereof through which the pins may project and openings in the body thereof through which the pins may protrude, pins extending transversely through the said slotted ends of the inner strip and the said guides, a metallic plate surrounding the lower end of said outer strip, and a strap inserted between said metallic plate and the lower end of said outer strip, which is adapted to be secured to a girth-strap, substantially as described.

488,191. PEGGING-JACK. DANIEL WHITLOCK, Newark, N. J. Filed Dec. 18, 1891. Serial No. 415,861. (No model.)



Claim.—1. In a jack for heeling shoes, the combination, with the post *a*, of the guide-pin *f*, fixed rigidly in and projected from the top of the post, and the yielding bearing-block *c*, fitted to rock upon the head of the post and provided with the hole *g* of greater diameter than the pin, as and for the purpose set forth.

2. In a jack for heeling shoes, the combination, with the post *a*, of the yielding bearing-block *c*, having the hole *g*, fitted to rock upon the head of the post, and the guide-pin *f*, provided with the shoulder *h* to engage the edge of the hole *g* when the bearing-block is tipped, as and for the purpose set forth.

488,192. CORRUGATING-MACHINE. JOHN WHITE, Allegheny, assignor of one-half to the J. L. Brown Company, Pittsburg, Pa. Filed Apr. 9, 1892. Serial No. 428,476. (No model.)

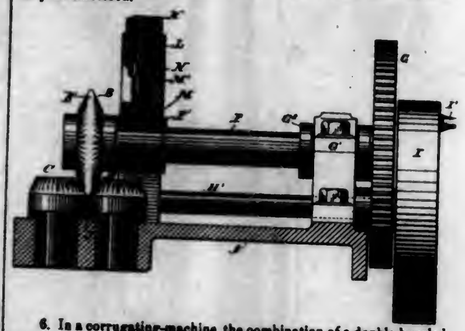
Claim.—1. The herein-described rolls for corrugating or crimping metal, consisting of a double-beveled corrugated male roll operating in conjunction with a pair of corrugated single-beveled rolls forming the female element, substantially as described.

2. The herein-described rolls for corrugating or crimping metal, consisting of a double-beveled corrugated male roll operating with a pair of frusto-conical rolls corrugated on their inner faces and forming the female element, substantially as set forth.

3. The herein-described rolls for corrugating or crimping metal, consisting of a double-beveled corrugated male roll operating with a pair of single-beveled corrugated rolls, which revolve on parallel or oblique axis and form the female element, substantially as set forth.

4. The herein-described rolls for corrugating metal, consisting of a double-beveled male roll operating with a pair of single-beveled rolls forming the female element, all of said rolls having corrugations or teeth on their engaging surfaces which gradually increase in size as they approach the center, substantially as set forth.

5. In a corrugating-machine, the combination of a double-beveled male roll, a pair of single-beveled rolls operating therewith, and a work-guide fitting snugly between said single-beveled rolls, substantially as described.

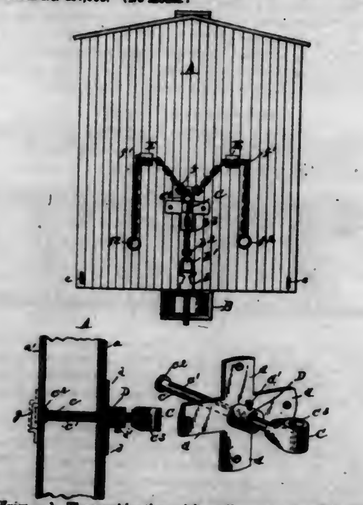


6. In a corrugating-machine, the combination of a double-beveled male roll, a pair of single-beveled rolls operating therewith, and a work-guide fitting snugly between the said single-beveled rolls and having side recesses for their reception, substantially as described.

7. In a corrugating-machine, the combination of a double-beveled male roll, a pair of single-beveled rolls operating therewith, and a work-guide fitting snugly between the said single-beveled rolls and having a longitudinal groove formed therein for the passage of the work, substantially as described.

8. In a corrugating-machine, the combination of a double-beveled male roll, a pair of single-beveled rolls operating therewith, and a work-guide fitting snugly between the said single-beveled rolls and having side recesses and a longitudinal groove, substantially as described.

488,193. PIN-LIFTER FOR CAR-COUPLINGS. JOHN W. WILES, Wilkesburg, and CHARLES WHITE, Chester, S. C. Filed Jan. 13, 1892. Serial No. 417,968. (No model.)



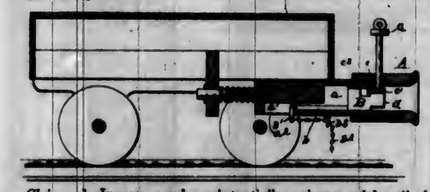
Claim.—1. The combination, with a railway-coach and draw-head, of the pin *b*, link *b'*, pivoted to the head of said pin, chain b^2, secured to the upper end of said link and passing through the sleeve C and having on its upper end a ring c^4, sleeve E, secured to the end of said coach, hooks *c*, secured at each lower corner of said coach, chains *f''*, having one end attached to said ring c^4 and their other ends adapted to be hooked over the hooks *c*, and a sleeve D, secured to the end of said coach, the distance between the lower end of said sleeve and the link *b'* being such that the pin cannot be entirely drawn out of the pin-hole by pulling on the chains *f''*, substantially as shown and described, and for the purposes set forth.

2. The combination, with a railway-coach and head-draw, of the pin *b*, link *b'*, pivoted to the head of said pin, chain b^2, secured to the upper end of said link and passing through the sleeve C and having on its upper end a ring c^4, sleeve E, secured to the end of said coach, hooks *c*, secured at each lower corner of said coach-chains *f''*, having one end attached to said ring c^4 and their other ends adapted to be hooked over the hooks *c*, sleeve D, having the arms *d* and secured to the front end of said coach, grooved pin *c*, having secured on its front end the sleeve C and on its rear end the nut c^3, set-screw d^2, working through said sleeve D and in the groove *d'*, the distance between the lower end of the sleeve C and the link *b'* being such that the pin *b* cannot be drawn out of the pin-hole by pulling on the chains *f''*, substantially as shown and described, and for the purposes set forth.

3. The combination, with the front end of a coach A and drawhead B, of pin *b* and means for lifting the same, the sleeve C, secured on the outer end of the pin *c*, pin *c*, having the groove *d'* and on its inner end the nut c^3, sleeve D, having the arms *d* and adapted to be secured to the end of the coach A, set-screw d^2, working through the sleeve D and into the groove *d'*, substantially as shown and described, and for the purposes set forth.

4. The combination, with the front end of a coach A and drawhead B, of pin *b* and means for lifting the same, the sleeve C, secured on the outer end of the pin *c*, pin *c*, having the groove *d'* and on its inner end the nut c^3, sleeve D, having the arms *d* and adapted to be secured to the end of the coach A, set-screw d^2, working through the sleeve D and into the groove *d'*, and cap *g*, secured to the inner face of the inner wall *a*, substantially as shown and described, and for the purposes set forth.

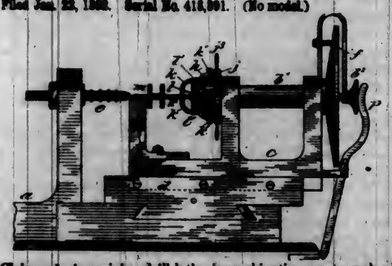
488,194. CAR-COUPLING. JOHN W. WILES, Wilkesburg, and CHARLES WHITE, Chester, S. C. Filed Jan. 13, 1892. Serial No. 417,969. (No model.)



Claim.—1. In a car-coupler, substantially as shown and described, the combination of the bulk-head A, provided with a throat *a c'*, pin-seat B, its head provided with the upper recess *c* and lower recess *c'*, perforation *c*, headed pin *c'*, working in said perforation, and opening c^5 to allow the said pin to work back and forth, said pin-rest being provided with proper means to operate the same, substantially as shown and described.

2. In a car-coupler, substantially as shown and described, the combination of the bulk-head A, provided with a throat *a* and *c'*, pin-seat B, its head provided with the upper recess *c*, perforation *c*, headed pin *c'*, working in said perforation, and opening c^5 to allow the said pin to work back and forth, said pin-rest being provided with proper means to operate the same, substantially as shown and described, and for the purposes set forth.

488,195. PINION-CHUCK. GEORGE B. WOODBURY, Winsted, Conn. Filed Jan. 23, 1892. Serial No. 418,991. (No model.)



Claim.—1. In a pinion-drill lathe, in combination, a rotary chuck-spindle supported in bearings, the clamping-jaws supported on a laterally-moving yoke on the head of the chuck, and the cam-ring with its surface in contact with the inner ends of the clamping-jaws, all substantially as described.

2. In a pinion-drill lathe, in combination, the clamping-jaws supported on a laterally-moving yoke, a cam-ring having on its outer surface the jaw-operating cams and on its inner surface the slide-clamp cam, the slide-clamp supported in a socket in the spindle, and the slide movable lengthwise within the spindle, all substantially as described.

3. In a pinion-drill lathe, in combination, a chuck-spindle having a transverse slide-clamp socket near the head of the spindle with a contracted inner end, a yielding plug borne in the head of the slide-clamp, the cam-ring supported on the spindle-head and having a cam on the inner side for operating said clamp, the clamping-jaws, and the surface cams for operating the clamping-jaws, all substantially as described.

4. In a pinion-drill lathe, in combination, the jaw-operating cams, the clamping-jaws with the inner ends in operative contact with the rotary cams, and the laterally-yielding yoke to which said jaws are pivoted, all substantially as described.

5. In a pinion-drill lathe, in combination with a chuck-spindle, a slide supported within said spindle, a slide-clamp supported in a transverse socket in the spindle and having an oval opening through which the slide passes and a tapered end having a tapered socket, a cam-ring arranged upon the spindle with an inner cam in contact with one end of the said slide-clamp, the outer cams in operative contact with the inner ends of the clamping-jaws, and the handles projecting radially from the outer surface of a ring secured to the clamping-ring, and the clamping-jaws pivotally supported upon the spindle-head, all substantially as described.

6. In a pinion-drill lathe, in combination with a rotary chuck-spindle, a slide arranged within the spindle, a tapered split plug arranged within a socket within the end of the chuck-spindle, a nut adapted to seat the plug in the socket, an index-wheel fast to the chuck-spindle, the clamp borne in a transverse socket in the chuck-spindle, the rotary cam-ring arranged upon the chuck-spindle, having an inner cam for operating the slide-clamp and the outer cams for operating the clamping-jaws, the clamping-jaws pivotally supported in a yoke that has lateral play in its supports, and the adjusting-screws passing through the inner ends of the levers and bearing upon the surface of the cams, all substantially as described.

488,196. CAR-COUPLING. RUSSELL M. WOODARD, Norton, Vt. Filed Apr. 26, 1892. Serial No. 430,468. (No model.)



Claim.—1. In a car-coupler, a draw-bar, pin, and link, combined with a heavy bush which encircles the pin and is fitted loosely into the upper part of the draw-bar and which serves by its weight (combined with the weight of the pin) to hold the link in a horizontal position by pressing it down upon a horizontal portion of the throat of the draw-bar, substantially as described, and for the purpose set forth.

2. In a car-coupler, a draw-bar, pin, and link, combined with a bush which encircles the pin and is fitted loosely into the upper part of the draw-bar and with a latch carried by the bush and arranged to swing under the end of the pin when it is raised and to be tripped by the link as it enters the throat of the draw-bar, substantially as described, and for the purpose set forth.

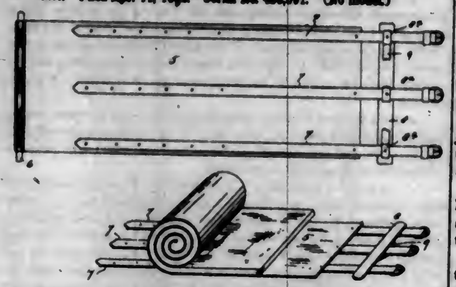
488,197. REFLECTOR. ALBERT SALUS, Chicago, Ill., assignor of one-half to Andrew J. Erhart, same place. Filed Aug. 31, 1891. Serial No. 404,301. (No model.)



Claim.—The combination of a pair of gas-burners located in close proximity to each other, an upwardly-projecting pin between the burn-

ers, and a vertical reflecting-disk provided with a transverse recess to fit over the burner-pipe, and a vertical socket to receive the pin, as set forth.

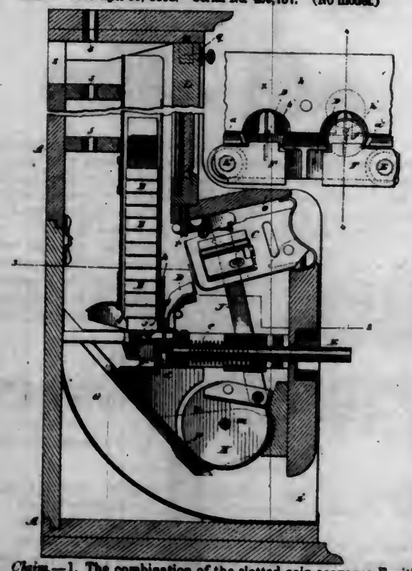
483,198. PACKAGE-WRAPPER. WILLIAM J. ADKISON, Denver, Colo. Filed Apr. 11, 1892. Serial No. 428,891. (No model.)



Claim.—1. In a package-wrapper, the combination of a single piece of fabric provided with a rod or roller at one extremity, straps to which the fabric is attached at the opposite extremity, said attachment to the straps being made in proximity to their buckle extremities, the straps and wrapper being otherwise disconnected, so that the wrapper may be rolled independently of the straps, and a suitable handpiece attached to the straps, substantially as described.

2. A package-wrapper composed of a single integral piece of flexible material provided with a rod or roller at its free extremity, and straps to which said piece of material is attached at its opposite extremity, the straps and wrapper being otherwise disconnected, so that the wrapper may be rolled independently of the straps, said straps being perforated and provided with buckles, whereby the package when rolled may be securely fastened and a bar attached to the straps and provided with a handpiece, substantially as described.

483,199. VENDING APPARATUS. BENJAMIN ADRIANCE, Brooklyn, and JOHN H. VOLKMANN, New York, N. Y., assignors to said Volkmann. Filed Apr. 19, 1892. Serial No. 429,737. (No model.)



Claim.—1. The combination of the slotted coin-conveyer F with stationary rails *a b*, placed closer together than the diameter of the coin, and with means for imparting longitudinal motion to the slotted conveyer along and beyond the rails *a b*, or either of them, and by the coin to a package resting on said rails, substantially as herein shown and described.

2. The combination of the slotted coin-conveyer F with the rails *a b*, having notches *a'*, substantially as and for the purpose herein shown and described.

3. The combination of the slotted coin-conveyer F with the rails *a b*, said rails being nearer together than the coin which the conveyer is adapted to carry, and with the spring-detents *j* along the edge of one of said stationary rails, substantially as herein shown and described.

4. The combination of the slotted coin-conveyer F with the stationary rails *a b*, stationary plate A, and spring *g*, substantially as and for the purpose herein shown and described.

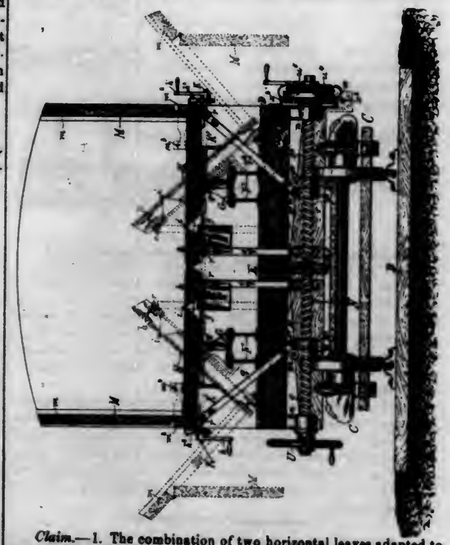
5. The combination of the slotted coin-conveyer F with the stationary rails *a b*, which are adapted to support a package above them and also to support the coin behind said package, and with means, substantially as described, for moving said package and said coin, substantially as and for the purpose specified.

6. The combination of the swiveled cash-box H with the lever J, jointed thereto, and with the front door L of the casing A, all arranged so that said front door when in place holds the cash-box locked, as and for the purpose specified.

7. The combination of the swiveled cash-box H and its projecting lever J with the removable shelf *o* and with the door L, having pin *r*, all arranged so that said door shall lock the removable shelf and also the cash-box, substantially as and for the purpose specified.

8. In a vending apparatus containing packages in vertical column, the combination of a coin-conveyer, a set of rails adapted to support the lowermost package, and means, substantially as described, for moving the coin-conveyer and for discharging the coin at a place vertically underneath the column of packages and substantially in line with the ends of the said rails, substantially as herein shown and described.

483,200. TIP-WAGON. GEORGE ANDERSON, Madras, India. Filed Apr. 13, 1891. Serial No. 389,121. (No model.) Patented in England Nov. 20, 1890, No. 18,822.



Claim.—1. The combination of two horizontal leaves adapted to together form the bottom of the wagon, each pivoted upon a more or less central axis, one or more transverse shafts carrying four differentially-handed screws, four respectively-formed traveling nuts, and links adapted to effect changeable and operative connections between said screws (through their nuts) and the respectively-desiderated leaves, as set forth with reference to the accompanying drawings.

2. The combination of two horizontal leaves adapted to together form the bottom of the wagon, each pivoted upon a more or less central axis, one or more transverse shafts carrying four differentially-handed screws, four respectively-formed traveling nuts, and links adapted to effect changeable and operative connections between said screws (through their nuts) and the respectively-desiderated leaves and wagon sides, the latter adapted by being pivoted along lines in their tops to be swung outward during the act of tipping by the pressure of the load against the retaining power of automatic operating devices, as set forth.

3. The combination, in a tip-wagon bottom, of four leaves, two principal and two subsidiary, the latter respectively pivoted along the adjacent edges of the former, and screw-nut and link devices by which the said leaves can be tipped right or left below the horizontal axes of the leaves, as set forth.

4. The combination, in respect of a tip-wagon bottom, of four leaves, two principal and two subsidiary, and bolting devices adapted to hold each subsidiary leaf in the same plane as its principal one or to release it therefrom, as set forth.

5. The combination, in respect of a tip-wagon bottom, of four leaves, two principal and two subsidiary, bolting devices adapted to hold each subsidiary leaf in the same plane as its principal one or to release it therefrom, and raising-plates adapted to be operated from the side of the wagon, as set forth.

6. The combination of transverse tipping-screws, traveling-nut and link gear, and rope-pulley with the link upon each tip-wagon of a train, and an endless driving-cord adapted to be driven from any source passing round all the pulleys of the train, as set forth.

7. The combination, in a tip-wagon, of sides adapted to swing outward when it is tipped against the pressure of the load, bottom consisting of four leaves, two principal and two subsidiary, centrally pivoted, a pair of rams, and links connecting the respective edges of each link to the cross-head of the respective ram, as set forth.

8. The combination of hopper sides, two longitudinal leaves respectively hinged to the adjacent edges of the said sides and adapted to together form the bottom of the wagon, one or more transverse shafts, each carrying two differentially-handed screws, a traveling nut upon each screw, and a link connecting each nut to the respective leaf, as set forth.

9. The combination of four longitudinal leaves of equal width hinged together longitudinally in pairs upon fixed pivots and adapted to together form the bottom of the wagon, one or more transverse shafts, each carrying four differentially-handed screws, four internally-screwed nuts adapted to travel upon the said screws, respectively, and four links adapted to effect changeable and operative connections between the said screws through their nuts and the respectively-desiderated leaves, as set forth.

10. The combination of four longitudinal leaves of equal width hinged together longitudinally in pairs upon fixed pivots and adapted to together form the bottom of the wagon, one or more transverse shafts, each carrying four differentially-handed screws, four internally-screwed nuts adapted to travel upon the said screws, respectively, four links adapted to effect changeable and operative connections between the said screws (through their nuts) and the respectively-desiderated leaves, and a horizontal flap hinged to each side of the wagon and standing as to its free edge within the path of the adjacent leaf when the latter is tipped upward, as set forth.

11. The combination of four longitudinal leaves of equal width hinged together longitudinally in pairs upon fixed pivots and adapted to together form the bottom of the wagon, one or more transverse shafts, each carrying four differentially-handed screws, four internally-screwed nuts adapted to travel upon the said screws, respectively, four links adapted to effect changeable and operative connections between the said screws (through their nuts) and the respectively-desiderated leaves, a horizontal flap hinged to each side of the wagon and standing as to its free edge within the path of the adjacent leaf when the latter is tipped upward, and wagon sides hinged to fixed longitudinal top rails, as set forth.

12. The combination of a tip-wagon having sides adapted to swing outward when it is tipped against the pressure of the load with any of the tipping-gears hereinbefore described and illustrated, as set forth.

13. The combination of two leaves pivoted along a longitudinal axis common to them both and an automatic closing-plate adapted to close and to keep closed any gap between the said leaves, as set forth.

14. The combination of two leaves pivoted along a longitudinal axis common to them both and transverse pivoted beams, as set forth.

15. The combination of leaves pivoted along a longitudinal axis, a wagon side, and a flap hinged to the latter, as set forth.

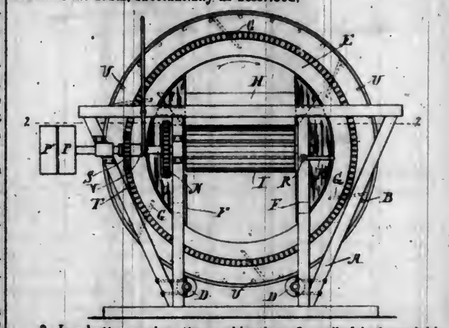
16. The combination of leaves pivoted along a longitudinal axis, transverse beams pivoted at right angles to the said longitudinal axis and pivoted wagon sides, as set forth.

17. The combination of leaves, subsidiary leaves, and rope-and-pulley gear for actuating the said subsidiary leaves, as set forth.

483,201. BUTTER-WORKER. HANS J. ANDERSON, Lake Mills, Wis. Filed Sept. 4, 1891. Serial No. 404,600. (No model.)

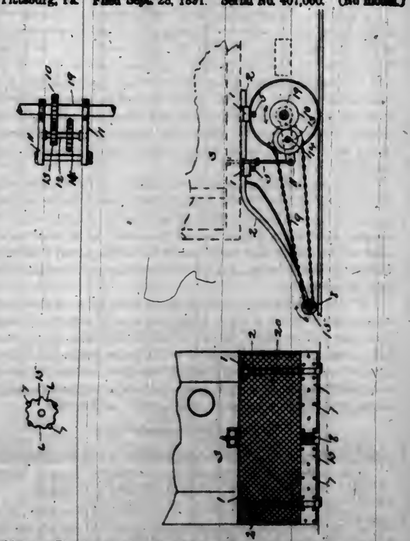
Claim.—1. A butter-worker consisting of a frame, a cylindrical drum open centrally at one end, a gudgeon fixed centrally to the drum on its closed end, and wheels axled on the frame under the open end of the drum, whereby the drum is supported revolubly, a driving-shaft arranged at right angles to the axis of the drum, having a pinion gearing with an annular rack on the partially-open end of the drum, buckets on the inner peripheral wall of the drum, projecting inwardly therefrom and extending intact from one end wall to the other end wall of the drum, a plurality of corrugated rollers in the drum, centrally arranged parallel and near to each other at right angles to the axis of the drum, journaled in arms fixed on the frame and projecting into the drum through its open end, and gear-wheels on the axles of the rollers, meshing with each other, the outer one meshing, also, with a pinion on the driving-shaft, substantially as described.

2. In a butter-worker, the combination of a cylindrical revoluble drum, one end of which is open partially centrally, the drum being also provided with apertures at its periphery for the escape of buttermilk therefrom, flat buckets projecting inwardly from the peripheral wall of the drum and forwardly at oblique angles to the radii and extending intact from end to end of the drum, adapted by the revolution of the drum to elevate the butter therein, two corrugated pressure-rollers near to and parallel with each other, geared together, supported centrally in the drum at right angles to its axis on a frame therefor, an annular-toothed rack on the front end of the drum, and a driving-shaft geared independently to the rack on the drum and to one of the rollers in the drum, substantially as described.



3. In a butter-worker, the combination of a cylindrical revoluble drum partially open at one end and provided with means about its periphery for elevating butter therein, butter-working rollers near to and substantially parallel with each other, located horizontally and centrally in the drum at right angles to its axis on a suitable frame therefor, wheels on the rollers at one end, meshing with each other, journal-boxes adjacent to the wheels, movable slightly on the supporting-frame and connected together by a link, and other journal-boxes movable on the frame, in which other boxes the other extremities of the rollers are journaled, and a right and left hand screw secured to the frame against endwise movement, turning into and connecting the latter journal-boxes, whereby the rollers may be moved toward and from each other, substantially as described.

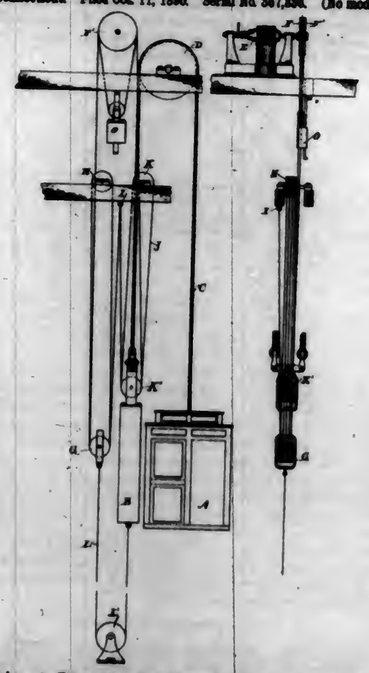
483,202. GUARD FOR RAILWAY-CARS. PATRICK BARRON, Pittsburg, Pa. Filed Sept. 23, 1891. Serial No. 407,060. (No model.)



Claim.—The herein-described guard for street and other railway cars, consisting of the frame 2, arranged in sides, and a means for

securing the same in any desired position, the roller 15, journaled to the said frame at the front of the guard, and a sprocket-wheel attached to the roller and connected by a chain belt to a sprocket-wheel which is connected by intermediate gearing to one of the axles of the car, whereby the said roller is given a rapid rotary movement to cast obstructions upward upon a wire-netting arranged on the frame across the front of the car, substantially as herein shown and described.

483,208. GEARING FOR ELEVATORS. NORMAN C. RAMSEY, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Oct. 11, 1890. Serial No. 367,836. (No model.)



Claim.—1. The combination of an elevator-car, counter-weight, slow-running sheave, and cable passing around said sheave and attached to the car and weight, whereby the main portion of the total load divides into two portions balanced upon and carried by said sheave, with a reversible motor, a fast-running winding-drum driven thereby, and a rope fastened to a fixed point and passing around said winding-drum and around movable pulleys and connected with the counter-weight, whereby a fraction only of the weight of the unbalanced portion of the total load comes upon said winding-drum, substantially as described.

2. The combination, with an elevator-car, of a counter-weight, a slow-running sheave, a cable passing around said sheave and attached to the car and weight, a motor, a fast-running winding-drum driven thereby, and a rope having its ends permanently fastened to a fixed point and passing around said drum and also around fixed and movable pulleys, the latter being connected with the counter-weight, substantially as set forth.

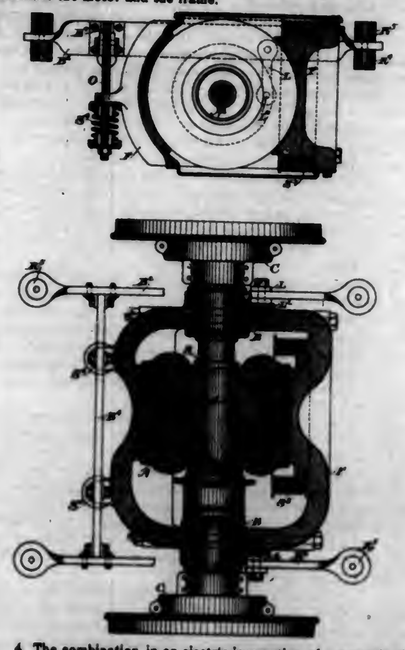
3. The combination, with an elevator-car, of a counter-weight, a slow-running sheave, a cable running over said sheave and attached to the car and weight, a motor, a fast-running drum driven thereby, and a rope the middle portion of which passes around the drum, the end portions passing around fixed and movable pulleys and being permanently fastened to a fixed point, said movable pulleys being connected with the moving parts, substantially as described.

483,204. ELECTRIC LOCOMOTIVE. NORMAN C. RAMSEY, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Apr. 1, 1891. Serial No. 387,201. (No model.)

Claim.—1. The combination, in an electric locomotive, of a motor having its armature concentric with the axle of the locomotive and having a field-magnet with a single coil embracing the armature, a hollow shaft for the armature, through which passes the axle, a yielding connection between the said shaft and the wheel, and a yielding support for the motor from the frame of the locomotive.

2. The combination, with an electric locomotive, of a motor and means for suspending it from the frame of the locomotive, comprising links extending to the center of gravity of the motor.

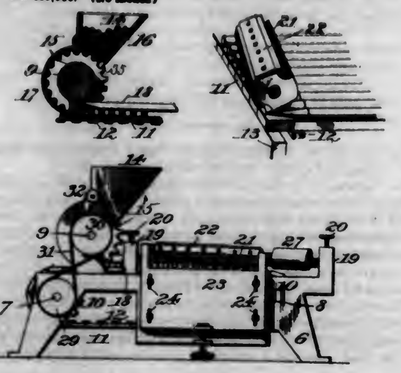
3. The combination, in an electric locomotive, of a motor suspended from the frame of the locomotive by links extending to the center of gravity of the motor and a supplementary spring connection between the motor and the frame.



4. The combination, in an electric locomotive, of a motor having its armature concentric with the axle, a field-magnet having bearings to secure proper alignment between it and the armature, a yielding connection between the said armature and a wheel of the vehicle, and means for supporting the motor, consisting of links extending from the frame of the locomotive to the center of gravity of the motor, and a spring connection between the motor and frame.

5. In an electric locomotive, the combination, with a motor-armature having a hollow shaft concentric with the axle, of a wheel having radial arms, a drum made in two parts clamped on the hollow shaft and provided with radial ribs, and yielding cushions between the arms and ribs, substantially as set forth.

488,205. SEWER-POINTING MACHINE. JAMES H. BENNY, Kokomo, and HIRAM L. BENNY, Leesburg, Ind. Filed Aug. 27, 1891. Serial No. 403,916. (No model.)



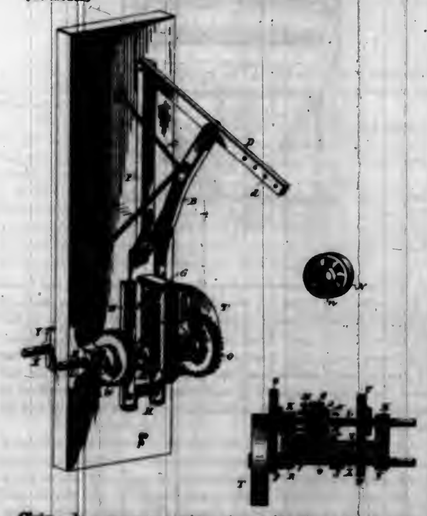
Claim.—In a power-transmitter, the combination, with the frame, of a horizontal rotary shaft mounted in bearings upon the front of said frame, means for imparting motion continuously to said shaft on the windmill, large spur-wheels mounted upon said shaft and of different diameters, a stub balance-wheel shaft parallel with said main shaft and journaled in bearings on the opposite side of said frame and provided at one end with a balance-wheel, and a small cog-wheel meshing with one of said spur-wheels and having its inner end terminating in a centrally-disposed bearing, a stub counter-shaft parallel with said main shaft and journaled upon the same side of the frame as the balance-wheel shaft and in a line therewith having its inner end terminating in the same central bearing and provided with a small cog-wheel meshing with the other large spur-wheel upon the opposite shaft, substantially as set forth.

488,207. STOVEPIPE. GEORGE O. CALDERWOOD, Biddeford, Me. Filed May 9, 1892. Serial No. 432,990. (No model.)



Claim.—The combination of a stovepipe provided with a vertical opening, a rectangular frame having an inwardly-extending flange, a plate arranged within the stovepipe and on the flange and provided with an outwardly-projecting collar extending through the frame and adapted to be adjusted therein, said plate being provided with slots, set-screws arranged within the slots and securing the plate in its adjustment, and a reversible cap or plate provided with an inwardly-extending flange and adapted to be secured at either end of the frame, substantially as described.

488,206. WINDMILL ATTACHMENT. HENRY D. BUTLER and GEORGE C. FERGUSON, Odell, Neb. Filed Nov. 23, 1891. Serial No. 412,813. (No model.)



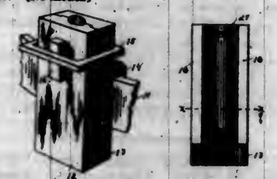
Claim.—The combination, in a skewer-pointing machine, of a plain feeding-belt, guide-rails located in a plane opposite to the belt, a cylinder fluted to receive skewers and journaled above and parallel with the belt, and a rotary cutter journaled obliquely to the plane of the belt and to the edge thereof, the fluted cylinder being adapted to deliver the skewers parallel with each other across the belt, the feed of the belt and the fixed guide-rails being adapted to revolve the skewers in advancing and the oblique cutters being adapted to cut the skewers from the shoulders thereof toward the point spirally, substantially as described.

488,210. COAL-AUGER. FRANCIS W. CORRIGAN, Luzerne, Pa. Filed Dec. 22, 1891. Serial No. 415,911. (No model.)



Claim.—A coal-auger having a hollow mandrel provided with an annular series of dovetailed grooves or recesses for the reception of a bit, in combination with a hollow bit having a serrated cutter and an annular series of rearward projections to engage the dovetailed grooves upon the mandrel, the mandrel-shaft being provided with a series of spiral openings throughout its length, substantially as described.

488,208. SASH-WEIGHT-CASTING APPARATUS. JOHN CARTER, Niles, Ohio. Filed Dec. 15, 1890. Renewed Oct. 31, 1891. Serial No. 410,413. (No model.)



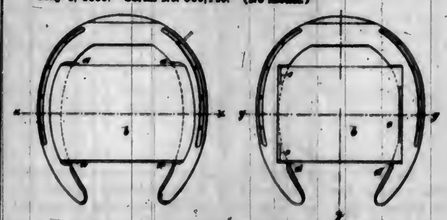
Claim.—1. A mold for sash-weights, having a circumferential groove in the mold-chamber near its top, and a gage-collar supported in said groove, substantially as described.

2. A gage-collar for sash-weight molds, having a projection about its outside to enter a groove or recess in the mold-sections, and a central opening through which the metal is poured, in combination with a two-part mold having a groove or recess near its top to receive the projection on the said gage-collar, substantially as described.

3. A circular revolving frame having a flat supporting-band and molds having hooks on their backs constructed to engage said band, substantially as described.

4. A mold formed in longitudinal sections, one of said sections having a recess on its meeting face below its center and the other section having a projection to engage said recess, in combination with a gage-collar locked between said sections at their upper ends and a band about the upper portion of the mold binding said parts closely together, substantially as described.

488,209. HORSESHOE. GEORGE T. CHAPMAN, White Plains, assignor of one-half to William Harvey Merritt, New York, N. Y. Filed May 1, 1889. Serial No. 309,140. (No model.)



Claim.—1. The combination, with a horseshoe having the dovetail or undercut rabbet-grooves in the inner lower edges of the sides, of the metallic guard-plate sprung into said grooves and secured therein by its resilient force, as and for the purposes set forth.

2. The combination, with a horseshoe having the dovetail or undercut rabbet-grooves in the inner lower edges of the sides, of the metallic guard-plate having one or more calks produced from a portion or portions of its ends and sprung into said grooves and secured therein by its resilient force, as and for the purposes set forth.

483,211. CAR-TRUCK. ROBERT L. ELLERY, Taunton, Mass., assignor of one-half to Francis R. Fuller, same place. Filed Dec. 26, 1891. Serial No. 416,156. (No model.)

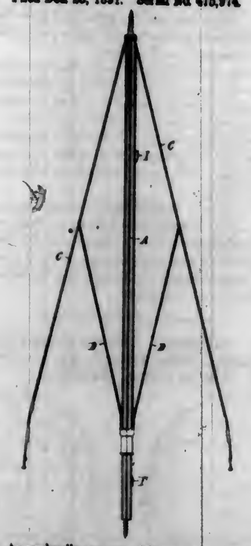


Claim.—1. In combination, a car-body, a main truck fast to the car-body, and a two-wheeled truck to support part of the weight of the car and with its inner end supported by the main truck, all substantially as described.

2. In combination, a car-body, a middle truck fast to the car-body, and front and rear two-wheeled trucks, each to support a part of the weight of the car-body and each with its inner end supported by the main truck, all substantially as described.

3. In combination, a car-body, a middle truck fast to the car-body, a two-wheeled truck to support part of the weight of the car and with its inner end supported by the main truck, and a motor driving the wheels of the middle truck, all substantially as described.

483,212. UMBRELLA OR PARASOL. HENRY A. FLEURE, London, England. Filed Dec. 23, 1891. Serial No. 415,974. (No model.)



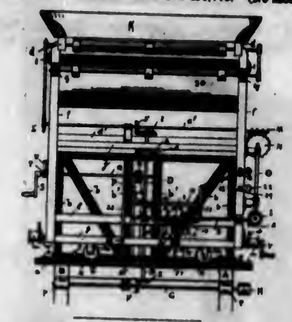
Claim.—1. An umbrella or parasol frame comprising a stick formed with a square central tube and webs or ribs radiating outward from its angles, a square rod fitting at one end into one end of the stick and having a top notch formed around it close to the end of the stick and a screw-thread formed around that portion of it which projects outward beyond the top notch and upon which is fitted a ferrule, a similar square-ended rod secured to the opposite end of the stick and having a screw-thread cut upon its projecting end to receive a handle, a square runner carrying two stretchers on each face and formed with a groove or recess at one end of its angles for the ends of the wire by which the stretchers are jointed to the runner, and lock-ribs and stretchers jointed to the top notch and runner, respectively, substantially as described.

2. An umbrella or parasol frame comprising a stick formed with a square central tube and webs or ribs radiating outward from its angles, a square runner sliding on the tube, a top notch secured to the stick and ribs, and stretchers which lie or lock one within the other, jointed to the top notch and runner, respectively, and adapted when closed to lie within the ribs, substantially as described.

3. An umbrella or parasol frame comprising a stick formed of a square central tube with webs or ribs radiating from its angles, so as to form four longitudinal troughs with broad flat bottoms extending down the exterior of the tube, a square runner sliding on and a top notch secured to the stick, and ribs and stretchers jointed to the top notch and runner, respectively, and arranged to lie in each trough when the frame is closed, the bottom of each trough being broad enough, as described, for two stretchers to rest upon, substantially as described.

4. An umbrella or parasol frame comprising a stick formed with a square central tube and webs or ribs radiating outward from its angles, a square rod fitting at one end into one end of the stick and having a top notch formed around it close to the end of the stick and a screw-thread on that portion of it which projects outward beyond the top notch, and a ferrule secured to the screw-threaded end of the rod, substantially as described.

483,213. STRAW-STACKER. CHARLES R. GAUMER, Lawn Ridge, Ill. Filed Sept. 26, 1891. Serial No. 406,773. (No model.)



Claim.—1. In a straw-stacker, the combination of a bed-frame A B, a supporting-frame *b b*, placed transversely across the machine, a swinging frame composed of the lower horizontal beams *j e d'*, vertical beams *d f*, the upper horizontal beams *d*, and hopper K, said vertical beams *f* extending downward, beams *g* and A, located between the extremities of said beams *f* and having mounted thereon the casters *n*, the flange *o*, engaged by said casters, and a master-wheel C, mounted on said frame A B, substantially as herein set forth, and for the purposes described.
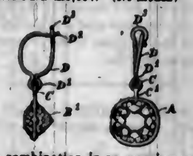
2. In a straw stacker, the combination of a bed-frame A B, a supporting-frame *b b*, placed transversely across the machine, a swinging frame composed of the lower horizontal beams *j e d'*, vertical beams *d f*, the upper horizontal beams *d*, and hopper K, the vertical shaft D, journaled in the center of the frame *b b* and provided with a gear-wheel on either end, the horizontal shaft G, journaled on the bed-frame, and the horizontal shaft K', journaled on the swinging frame and provided at one end with a sprocket-wheel and at the other with a bevsled gear-wheel, substantially as and for the purposes herein set forth and described.

3. In a straw-stacker, a bed-frame A B, a master-wheel mounted thereon and provided with a flange *o* on its upper surface, and the adjustable pins 7, in combination with the operating mechanism composed of the vertical shaft 24, having bearings on the beams *g* and *h*, said shaft provided with the beveled gear-wheel 26, the gear-wheel 27, meshing with the teeth of the said master-wheel, the sleeve 6, mounted on the shaft 3 and provided with the beveled gear-wheels 4 and 5, said shaft having bearings on the beam *h* of swinging frame, the horizontal shifting rod 11, having sliding bearings in boxings 14 and 15 on beam *h*, a vertical lever 22, pivoted on beam *g*, said lever having a hook 25 formed on its lower extremity, the bar 18, pivoted to the upper extremity of said lever, the rod 19, pivoted to said bar 18, said rod 19 also being pivoted at its opposite end to the vertical extension of shifting rod 11, and the weighted throw-bar 17, pivoted at its lower end to the bearing 14 and pivoted near its upper extremity to the bar 18, and all working together in the manner and for the purposes herein set forth and described.

4. In a straw-stacker, the combination of a swinging frame composed of the lower horizontal beams *j e d'*, vertical beams *d f*, the upper horizontal beams *d*, and hopper K, said vertical beams *f* extending downward, beams *g* and *h*, located between the extremities of said beams *f* and having mounted thereon the casters *n*, the flange *o*, engaged by said casters, and a master-wheel C, mounted on said main frame A B, the horizontal shaft K', journaled on the said swinging frame, with the sprocket-wheel L and gear-wheel J, and the slanting shaft O, with the gear-wheels N and 1, substantially as described.

5. In a straw-stacker, the operating mechanism composed of the vertical shaft 24, having bearings on the beams *g* and *h*, said shaft being provided with the beveled gear-wheel 26, the gear-wheel 27, the sleeve 6, mounted on the shaft 3 and provided with the beveled gear-wheels 4 and 5, said shaft having bearings on the beam *h* of swinging frame, the horizontal shifting rod 11, having sliding bearings in boxings 14 and 15 on beam *h*, a vertical lever 22, pivoted on beam *g*, said lever having a hook 25 formed on its lower extremity, the bar 18, pivoted to the upper extremity of said lever, the rod 19, pivoted to said bar 18, said rod 19 being also pivoted at its opposite end to the vertical extension of shifting rod 11, and the weighted throw-bar 17, pivoted at its lower end to the bearing 14 and pivoted near its upper extremity to the bar 18, and all working together in the manner and for the purposes herein set forth and described.

483,214. EAR-RING. THOMAS F. GAYNOR, Louisville, Ky. Filed Feb. 27, 1892. Serial No. 423,067. (No model.)



Claim.—1. The combination, in an ear-ring carrying a jewel, of a narrow V-shaped band adapted to fit over and clasp the jewel at its girdle, substantially as described.

2. The combination, in an ear-ring carrying a jewel, of the narrow V-shaped band adapted to fit over and clasp the jewel at its girdle and being provided with a link and a fastening connected by the link with the band, substantially as specified.

3. The combination, in an ear-ring, of a narrow V-shaped band provided with a series of prongs projecting from each of the side edges and adapted to fit over and clasp a jewel at its girdle and having a link, and an ear-fastening also provided with a link loosely connected with the link of the band, substantially as specified.

483,215. NECKTIE-FASTENER. LOUIS GREENWALD, Leadville, Colo. Filed Feb. 26, 1891. Renewed Feb. 20, 1892. Serial No. 422,514. (No model.)

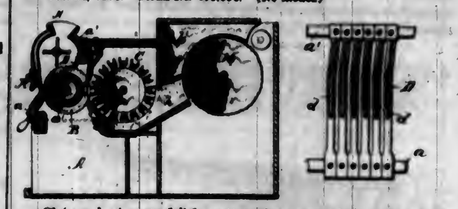


Claim.—1. A necktie-fastener consisting of a single piece of metal bent to form an approximately-rectangular casing, consisting of the sides 4 and 5, the side 2, secured to the side 5 and having its lower portion separated from the casing and forming a spring 8, provided at its free end with a flange bent inward and arranged at the lower end of the casing, and the side 3, arranged opposite the spring and provided at its lower end with an extension interposed between the spring and the free edges of the sides 4 and 5 and completing the casing, substantially as described.

2. A necktie-fastener consisting of a single piece of metal bent to form an approximately-rectangular casing, consisting of the sides 4 and 5, the side 2, having its lower portion separated from the casing and forming a spring, provided at its free end with a flange 9, arranged at the lower end of the casing and having an opening, and the side 3, arranged opposite the spring and provided with the angular extension composed of the plate interposed between the spring and the free edges of the sides 4 and 5 to complete the casing, and the end portion 12, provided with an opening, substantially as described.

3. A necktie-fastener consisting of a single piece of metal bent to form an approximately-rectangular casing, consisting of the side 4, the side 5, provided with a projection 6, the side 2, provided with a slot 7 to receive the said projection and having its lower portion forming a spring separated from the casing and provided at its free end with a flange having an opening, and the side 3, provided at its lower end with the angular extension composed of a plate arranged beneath the spring to complete the casing and an end portion having an opening, and a flange 15, arranged to be engaged by the spring, substantially as described.

483,216. COTTON-GIN. SAMUEL S. HALL, Little Rock, Ark. Filed Dec. 24, 1891. Serial No. 416,096. (No model.)



Claim.—1. A grate-fall for cotton-gins, comprising a series of ribs having fins on their upper surfaces at one end, all of said ribs being inclined laterally at the upper ends in the same direction, substantially as and for the purpose set forth.

2. In combination with the roll-box of a cotton-gin, the saws, the ribs having their upper ends inclined laterally in the same direction, and a screw conveyer projecting into the end of said cotton-box to agitate the seed and discharge the same at the end of the roll-box, substantially as described.

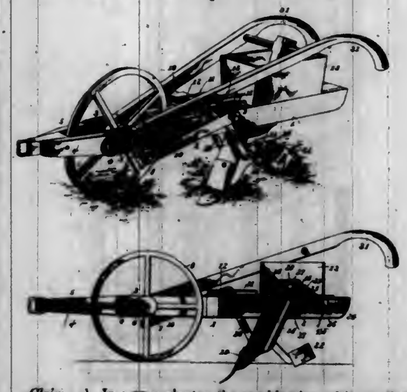
3. In a cotton-gin, the combination, with the roll-box, the ribs having their upper ends inclined laterally and provided with fins on their upper sides, of a conveyer arranged in the opening at one end of said roll-box and extending into the same to agitate the seed and discharge the same at the end of said roll-box, and the adjustable strip secured to the front of the roll-box and having projections on its lower edge to enter between the saws, substantially as described.

4. In a cotton gin, the combination, with the brush-cylinder, of the condensing-roller and an adjustable shield or partition made in two sections, the front section extending under the brush-cylinder and in rear of the same and the rear section being arranged over the condensing-roller to separate the different grades of fiber, substantially as described.

5. In a cotton-gin, the combination, with a condensing-roller, a brush-cylinder, and means for stripping the cotton fiber from the seed, of a laterally-adjustable shield or partition arranged over the condensing-roller and extending under the brush-cylinder, substantially as described.

6. In a cotton-gin, the combination, with a condensing-roller, a brush-cylinder, and means for stripping the cotton fiber from the seed, of a laterally-adjustable shield or partition arranged over the condensing-roller and adapted to separate the different grades of fiber, substantially as described.

483,217. CORN-PLANTER. PETER P. HAYNE, Ellendale, Va. Filed Nov. 14, 1891. Serial No. 411,906. (No model.)

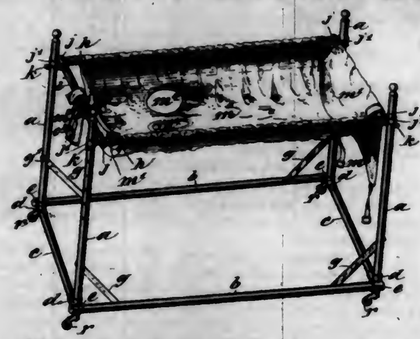


Claim.—1. In a corn-planter, the combination, with a seed-spout terminating at its lower end in a shovel, of opposite covering-blades merging at their upper ends into shanks pivoted at their extremities to the sides of the spout and below their pivots provided with transverse slots, and bolts passed through the slots into the spout, whereby the said blades are made adjustable, substantially as specified.

2. In a corn-planter, the combination, with the opposite beams, of the platform 2, mounted thereon and provided with a shallow longi-

tudinal recess, a sliding cut-off plate 24, mounted thereon and removable therefrom and provided with a perforation 17, registering with that of the platform and with a lug 26, depending through an opening in the platform and forming a handle below the same, a hopper mounted upon the platform, and a seed-slide 15, perforated and mounted in the hopper and adapted for sliding over the plate, substantially as specified.

483,218. COMBINED INFANT'S CRIB AND CHAIR. HENRY A. HAYDEN, Jersey City, N. J., assignor to the Hayden Specialty Company, of New Jersey. Filed Feb. 27, 1892. Serial No. 423,001. (No model.)



Claim.—1. In a combined crib and chair, the combination, with a stand having uprights, of a frame having rings at its corners, which embrace said uprights and the fabric-support *m*, mounted loosely on the side rails of the frame and having holes m^4, a flap m^3, and securing-straps m^2, substantially as set forth.

2. The combination, with the stand comprising the uprights *a* and end bars *c*, fixed in socket-pieces *d*, the said socket-pieces having tenons or journals *d'*, the side bars *b*, fixed in socket-pieces *e*, the said socket-pieces *e*, the screws *e'*, which secure the two socket-pieces *d* and *e* together, and the braces *g*, hinged to the side bars at one end and adapted to be removably secured to the respective uprights at their other end, of a frame provided with rings to loosely embrace the respective uprights of the stand, studs or pins for supporting the frame on said uprights, and the fabric-support *m* on said frame, as set forth.

483,219. KITCHEN-CABINET. FRANKLIN HOLMES, King City, Mo., assignor of one-half to C. H. Sandford, same place. Filed Aug. 27, 1891. Serial No. 403,553. (No model.)



Claim.—1. In a kitchen-cabinet, the combination of bearing-plates having vertical flanges provided with bearing-recesses, a bin, journal-plates secured to the bin and provided with depending flanges and having journals to engage the said bearing-recesses, and plates adjustably secured to the bearing-plates and adapted to be engaged by the depending flanges to limit the tilting of the bin, substantially as described.

2. In a kitchen-cabinet, the combination of the bearing-plates having vertical flanges provided with inclined recesses, plates 17, arranged in the recesses and provided with longitudinal slots and having lugs, a bin, journal-plates secured to the bin and engaging the bearing-plates and provided with depending flanges, and set-screws arranged in said slots and securing the plates 17 in their adjustment, substantially as and for the purpose described.

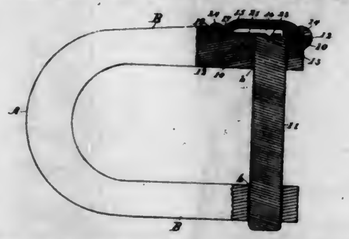
3. In a kitchen-cabinet, a receptacle consisting of a bottom provided with grooves, a front having its edges rabbeted and provided with kerfs, and sheet-metal sides secured to the bottom and the front and having its vertical edges arranged in said kerfs and its lower edges bent upon the bottom and arranged in the grooves thereof and forming ribs, substantially as described.

483,220. TRACTION-WHEEL. HERBERT L. HOLT, Trivoli, Ill. Filed Mar. 31, 1892. Serial No. 427,178. (No model.)



Claim.—In a traction-wheel, one or more rows of spurs H, of the form described and shown and arranged on the inner face of said wheel in the manner set forth, said spurs being provided with the springs and adjustable pins P, of the construction and arranged in the manner and for the purposes set forth and described.

483,221. CLEVIS. MARSHALL E. HUST and FREDRICK W. LEECH, Davenport, Iowa. Filed Aug. 13, 1891. Serial No. 402,581. (No model.)

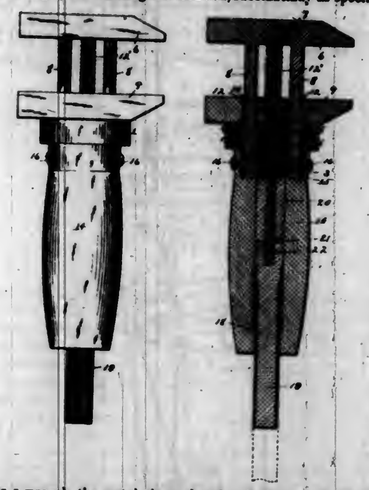


Claim.—1. In a clevis having a bow with rigid arms extending therefrom, with openings near the ends thereof and an independent pin adapted to be engaged in said openings, the combination of the cap and flat spring within such cap, both pivoted to the top of one of said rigid arms, such cap and spring adapted to be turned together on such pivot, the free end of such spring provided on its under surface with a projection, the top of the opening in said rigid arm enlarged, the head of said independent pin enlarged to engage said enlarged opening, and such head provided with a depression adapted to engage the projection on the under surface of said spring, substantially as described.

2. In a clevis having a bow with rigid arms extending therefrom, with openings near the ends thereof and an independent pin adapted to be engaged in said openings, the combination of the cap and flat spring within said cap both pivoted to the top of one of said rigid arms, such cap and spring adapted to be turned together on such pivot, the free end of such spring provided on its under surface with a projection, the top of the opening in said rigid arm enlarged, the hook at the end of such rigid arm, the tongue and stop at the free end of said cap adapted to engage said hook, the head of said independent pin enlarged and adapted to engage the enlarged part of the opening in said rigid arm, and such head provided with a depression adapted to engage the projection on the under surface of said spring, all for the purposes set forth, and substantially as described.

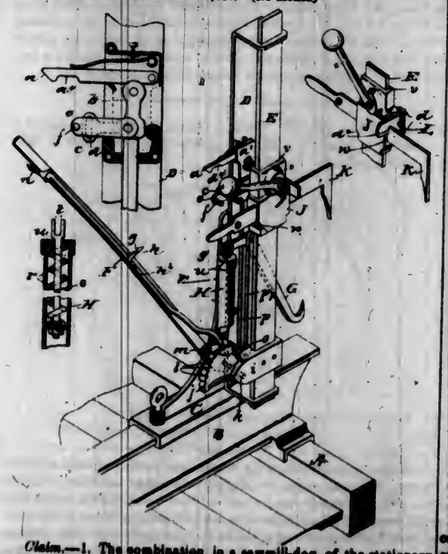
483,222. WRENCH. JAMES C. JOHNSON, Concord Church, W. Va. Filed Feb. 16, 1892. Serial No. 421,997. (No model.)

Claim.—1. In a wrench, the combination, with the hollow handle, the guide-rods extending therefrom, the fixed jaw supported at the upper ends of the guide-rods, and the movable jaw mounted for reciprocation on said guide-rods, of a feed-screw passing through the movable jaw and journaled in the fixed jaw and handle and having its lower end extending into the latter, and an operating-rod for the feed-screw, mounted for reciprocation and rotation within the handle and for reciprocation and non-rotation upon the lower end of the feed-screw, said rod being adapted to be drawn out beyond the handle to form a hand-grip for rotating the feed rod, substantially as specified.



2. In a wrench, the metal plug reduced at its lower end and provided with a central and opposite side bores, combined with the hollow handle having its upper end fitting the lower reduced end of the plug and its lower extremity provided with an internal shoulder, the rod fitting within the shoulder and provided at its upper end with an enlarged head having a squared socket and fitting the bore of the handle, the fixed jaw, the guide-rods extending from the same into the side openings of the plug, the movable jaw mounted on the guide-rods, and the feed-rod threaded in the perforation of the movable jaw and at its lower end squared and fitting the socket of the rod, substantially as specified.

483,223. SAWMILL-DOG. GEORGE F. KNIGHT, Canton, Ohio. Filed Aug. 21, 1891. Serial No. 403,267. (No model.)



Claim.—1. The combination, in a sawmill-dog, of the stationary bar D, a vertically-sliding dog-carrying bar E, located adjacent thereto, an actuating-lever, a finger *h* and pin d^5, carried by said lever, latches *a* and *c*, secured to said bar D, a pawl *b*, against which said latch *a* bears and to which said latch *c* is pivoted, a dog G, bars *p p'*, pivoted to the lever with their lower ends and one engaging the pawl *b* with its upper end and the other pivoted with its upper end to the dog G, and a yielding connection between said dog G and a stationary part.

2. The combination of a supporting frame or stand, a pivoted actuating-lever, a dog G, having a laterally-projecting arm, bar *p'*, pivoted to said lever and to said dog, and a yielding connection between the lateral arm and the supporting-frame.

3. In a sawmill-dog, the combination of the frame, the bar D, a sliding-bar E in close proximity thereto, a dog-supporting head J, located on said bar E means for securing said head to the sliding bar, a dog K, secured to said head, an actuating-lever F, a dog G, a bar *p'*, connecting said actuating-lever with said dog G, and a yielding connection between dog G and a fixed part of the frame.

4. In a sawmill-dog, the combination of a bar D, a pivoted lever F, a dog G, a connection between said lever and dog, a latch *a*, pivoted to said bar, a latch *c*, pivoted beneath said latch *a*, a pawl *b*, having a frictional engagement with the latch *a* and latch-operating finger *h*, and latch-pin d^5, carried by said lever.

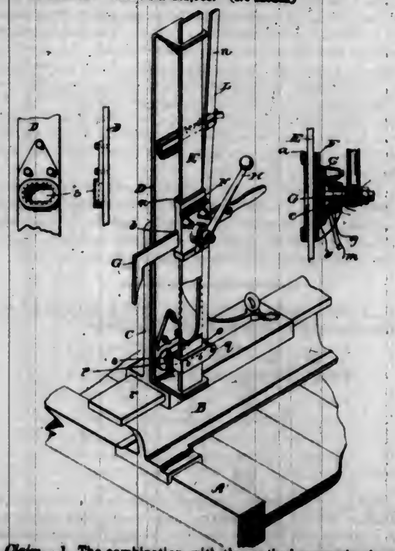
5. In a sawmill-dog, the combination, with a sliding bar E, of a head J, adjustably clamped to said bar, a dog K, having a sliding engagement in said head, and a latch L, pivoted to said head at a slight distance from the edge thereof to swing in a path at right angles to a vertical line drawn through said head said latch having a notch the walls of which embrace the dog K, whereby the outward movement of said dog is prevented and an inward movement allowed.

6. In combination, a supporting-frame, a stationary bar D, a sliding bar E in close proximity thereto, a dog K, carried by said bar E, a lever F, a dog, means for connecting said lever to said dog, and a yielding connection between the bar and supporting-frame, comprising a cylinder H, spring *r*, arranged therein, and rod *s*, actuated by said spring and connected to said dog G.

7. In a sawmill-dog, the combination, with the sliding bar E, of a bracket *i*, secured thereto and provided with a segmental rack, a lever F, journaled to said rack and provided with a dog to engage therewith, a dog G, having a yielding connection with a stationary part, and a bar *p'*, connecting the lever F with the dog G.

8. In a sawmill-dog, the combination, with a dog moving downward in vertical line, of a second dog having an upward and outward swinging movement toward the first-named dog and a yielding connection between the swinging dog and a fixed part, and means for simultaneously moving said dogs at different rates of speed, substantially as set forth.

483,224. SAWMILL-DOG. GEORGE F. KNIGHT, Canton, Ohio. Filed Feb. 27, 1892. Serial No. 422,965. (No model.)



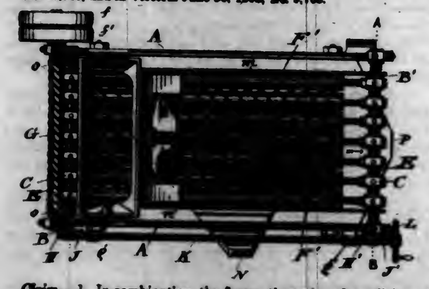
Claim.—1. The combination, with the vertical supporting-bar D, of the vertically-slidable bar E, the head F, having an aperture *a*, an offset aperture *b*, a recess *c*, threaded hub *d*, plate *e*, and a locking mechanism comprising a lever H, having an apertured axle portion to turn into the hub *d*, and a through pin or screw whereby the length of said axle may be maintained or increased, substantially as described, and for the purpose set forth.

2. The combination, with the vertical slidable bar E, of the adjustable head F and dog G, a crank-lever H, having an apertured spindle to turn into said head, having adjustable therein means whereby the length of said axle may be maintained against wear or the length increased, as the case may be, substantially as described, and for the purpose set forth.

3. The combination, with the supporting-knee C, of the bar D, having its end turned and apertured to receive the slidable bar E, and an actuating-lever L, pivotally secured to the bar E and adapted to engage a loop or slide *s* at the lower portion of the stationary bar D, substantially as described, and for the purpose set forth.

4. The combination, with the adjustable head, of the crank-lever having an apertured crank portion to turn in said head, the pin *k*, and set-screw *j*, substantially as described, and for the purpose set forth.

483,225. GRADING-MACHINE. CHARLES LAMPITT, Southgate, England. Filed Mar. 14, 1892. Serial No. 424,999. (No model.) Patented in England Apr. 9, 1891, No. 6,100; in Canada June 10, 1892, No. 40,263, and in Victoria June 30, 1892, No. 9,763.



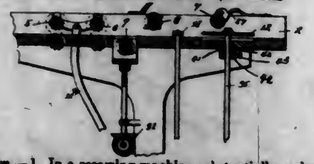
Claim.—1. In combination, the frame, the series of parallel grading rollers, means for rotating the rollers, the bearing-blocks at the ends of the rollers, the means for supporting the rollers and bearing-blocks, consisting of the cross-shafts, and the means for adjusting the bearing-blocks, said means being supported directly by the cross-shafts and in operative connection therewith, substantially as described.

2. In combination, the frame, the series of parallel grading rollers, means for rotating them, the bearing-blocks and adjusting-disks therefor, the means for supporting the said parallel rollers, the blocks, and adjusting means, and for operating the latter, consisting of the cross-shafts B B', having a spliced connection with the disks, and the means for operating both the said shafts in unison, including the operating connection from one shaft B to the other B', substantially as described.

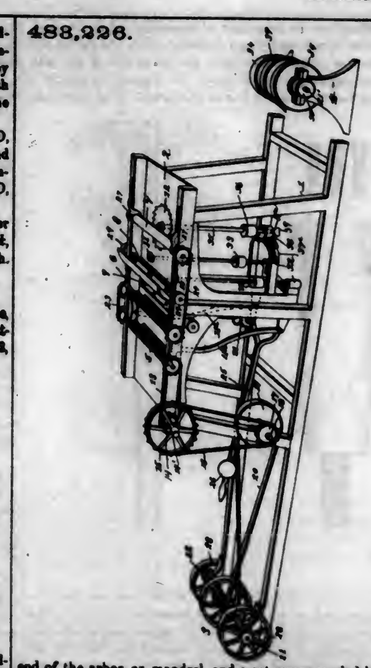
3. In combination, the series of parallel grading-rollers, with operating means therefor, the movable bearing-blocks for said rollers, the interposed disks between the bearing-blocks, screw-threaded to engage the same, and the means for supporting the blocks and operating the threaded disks, consisting of the shaft having a spline connection with the disks, substantially as described.

4. In combination, the series of parallel grading-rollers, the movable blocks therefor, the shafts for supporting the bearing-blocks, and the interposed screw-threaded disks E, having a spline connection with the shaft, the said blocks having screw-threaded recesses to receive the screw-threaded ends of the disks, substantially as described.

483,226. RESAWING-MACHINE. FRANK R. LEE, Lead Hill, Ark. Filed June 2, 1891. Serial No. 394,536. (No model.)



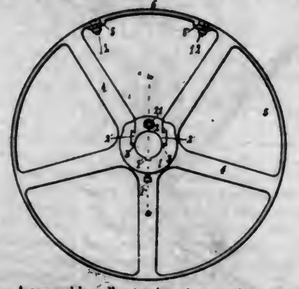
Claim.—1. In a resawing-machine substantially as described, the combination, with the main frame having the supporting-frame 37ª provided with a curved face, the saw-table having the curvilinear slot, and the matching heads 10 and 11, arranged above the saw-table in advance of the slot, of the adjustable curvilinear bracket 37, having the slots 37ᵇ and carrying the bearing 36, bolts taking through the slots of the bracket 37 and into the curved face of the supporting-frame below the table, an upright saw arbor or mandrel stepped in the bearing 36 and having its upper end passing through the slot 41 in the saw-table, the horizontally-disposed saw mounted on the upper



end of the arbor or mandrel, and a set-screw carried by the bearing 36 for adjusting the arbor or mandrel and the saw vertically, substantially as specified.

2. In a resawing-machine substantially as described, the combination of the horizontally-disposed vertically and laterally adjustable saw, the pressure-roller 7, arranged above said saw and having a vertical adjustment, the matching heads 10 and 11, arranged in advance of the saw and upon opposite sides of a longitudinal line drawn through the center of said saw, the upper planer-head 8, arranged in advance of the matching heads and above the horizontal plane of said matching heads, the lower planer-head 9, arranged in advance of the upper planer-head 8 and in a horizontal plane below that of the matching heads, and the feed-rollers 5 and 6, arranged in advance of the planer-head 9 and above the horizontal plane of said head and having a vertical play, all adapted to operate substantially as specified.

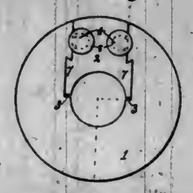
488,227. PULLEY. ORTON C. LITTLE, Menasha, Wis., assignor of one-half to Duncan T. H. MacKinnon, same place. Filed Sept. 23, 1891. Serial No. 406,561. (No model.)



Claim.—A separable pulley having that portion which is adjacent the bore provided with a slot slightly wider than said bore, said slot having upon each side thereof and outward from the axial line of said pulley recesses whose bottom sides are a diametrical plane of said pulley, their back or outer sides planes at right angles with their bottom sides and parallel with the axial line of the pulley, and their upper sides planes lying at an acute angle with both of the aforesaid sides of each recess and forming thereby half-dovetail recesses whose transverse area decreases gradually from their outer ends inward, two blocks for filling said slot, each block having a wing on two of its sides which

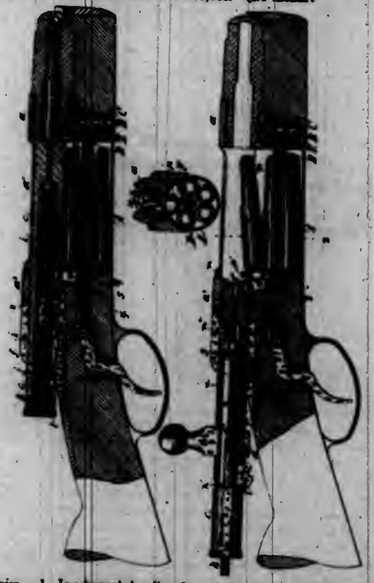
corresponds with said recesses and being adapted to be driven into said recesses from their outer ends and to clamp the pulley upon a shaft, and a bolt passing through the blocks for retaining said blocks within the slot, substantially as described.

483,228. COLLAR. ORTON C. LITTLE, Menasha, Wis., assignor of one-half to Duncan T. H. MacKinnon, same place. Filed Apr. 4, 1892. Serial No. 427,884. (No model.)



Claim.—A separable collar having its main portion which is adjacent the bore provided with an opening slightly wider than said bore, said opening having upon each side thereof outward from the axial line of said collar recesses whose bottom sides are a diametrical plane of said collar, their back or outer sides planes lying parallel with the bore of the collar and at right angles with the diametrical plane aforesaid, and their upper sides planes lying at such an angle with the aforesaid sides as to form recesses of a gradually-decreasing area from one end of the collar to the other, a block having wings on two sides thereof corresponding with said recesses and being adapted to be driven into said opening and to clamp the collar upon a shaft, and a bolt or bolts for retaining said block therein, substantially as described.

483,229. MAGAZINE-GUN. ADOLPH LIEBERS, Berlin, Germany. Filed Mar. 18, 1889. Serial No. 303,711. (No model.)



Claim.—1. In a breech-loading firearm, the combination, with the breech-bolt *c*, having a dovetailed groove and a recess, of an extractor *n*, having a dovetailed central part and at its forward and rear end springs terminating in a claw or hook, the rear claw being adapted to engage said recess, whereas the forward claw grasps the cartridge, substantially as described.

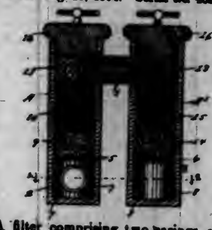
2. In a breech-loading firearm, the combination, with the magazine and pivot *q*, of the laterally-arranged spoon or lever *p*, with the nose *p'* and curved edge *p²*, arranged to turn on the pivot *q*, and means for oscillating said spoon, substantially as described.

3. In combination with the barrel and bolt of the magazine-drum, the shaft having a ledge F, an actuating-spring for turning said shaft, and a spoon for retaining the cartridge in place, said spring being arranged within the frame of the arm at one end of the shaft, substantially as described.

4. In breech-loading firearms, the device for securely holding the parts in cocked position, consisting of the combination, with the breech-receiver and firing-pin, of a movable flap *m*, arranged to engage in the slot *i²* of the part *i'* of the firing-pin, substantially as described.

5. In combination, the barrel, the bolt, the magazine-drum, the shaft having the ledge and the spring for operating it, and the means for receiving the cartridges from the ledge, consisting of the spoon having vertical movement in the magazine, substantially as described.

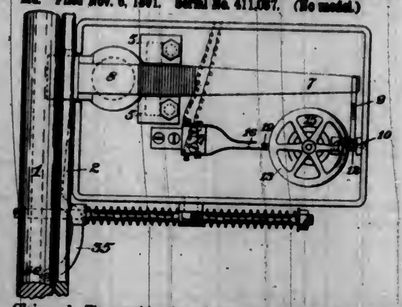
483,230. FILTER. CHARLES C. LOSENHARDT and JOHN F. GORDON, Chicago, Ill. Filed Aug. 15, 1891. Serial No. 402,776. (No model.)



Claim.—1. A filter comprising two casings, each having water-chambers at one end thereof, a supply and outlet port communicating with one of said water-chambers and an outlet-port communicating with the other water chamber, a pipe or passage between the casings at the opposite ends thereof, a mass of filtering material located within and filling up the remaining portions of said casings and located over and covering the ends of said pipe or passage connecting said casings, and covers located within said ends of the casings and bearing upon said filtering material.

2. A filter comprising a casing A, having supply and outlet ports 2 and 3 near its closed end, a perforated plate 5, located between said ports 2 and 3 and the other end of the casing, filtering material located upon said perforated plate, a cover 12, secured in the open end of the casing A and bearing upon said filtering material, a casing A', having an outlet-port 4 near its closed end, a perforated plate 6, located between said port and the other end of said casing A', filtering material located upon said perforated plate 6, a cover 16, secured in the open end of the casing A' and bearing upon said filtering material, and a communication between said casings near the ends within which the covers are located.

483,231. CIRCUIT-CLOSER FOR RAILROAD-CROSSING SIGNAL MECHANISMS. IRVIN W. LOY and RICHARD O'TOOLE, Mechanicstown, Md. Filed Nov. 6, 1891. Serial No. 411,087. (No model.)



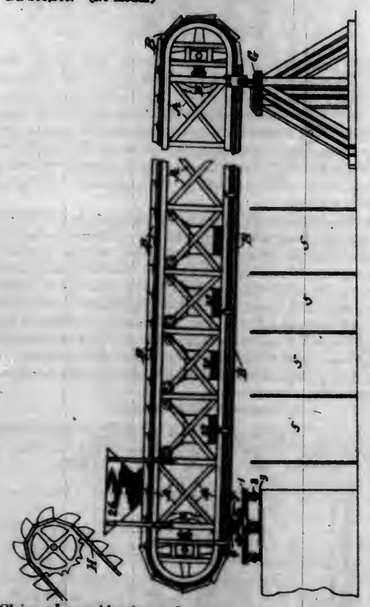
Claim.—1. The combination of a track-bar located by the side of a railroad-track with a lever pivoted near the same, one end of which protrudes beneath the track-bar and the other end of which operates a spring-controlled fly-wheel, and a pair of contact-points which are the terminals of an electric circuit containing a bell and which are maintained out of contact with one another by the fly-wheel when it is at rest under the influence of its spring.

2. In a circuit-closing device for a railroad-crossing signal, the combination of a track-bar secured to suitable supports parallel to the track and standing above it in position to be depressed by a passing train with a lever pivoted near the track, one end of which extends below the track-bar in position to be struck by said bar when it is depressed, the other end of which operates a bell-crank lever pivoted in position to operate, a spring-controlled fly-wheel, a fly-wheel mounted upon a suitable shaft and retained in a desired position by a spiral

spring, one end of which is secured to the shaft and the other end to the wheel and which is provided with means by which it is caused to revolve by the operation of the bell-crank lever, and a pair of electric contact-points which form the terminals of an electric circuit in which there is a signaling apparatus, said fly-wheels striking one of said terminals and operating under the influence of its spring to prevent its contact with the other terminal, substantially as described.

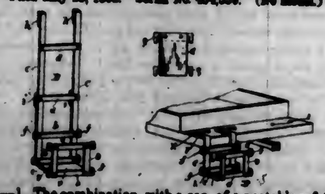
3. In a circuit-closing device for a railroad-signal apparatus, the combination of a track-bar, located beside the track, having a portion of its surface slightly above the track in position to be depressed by a passing train, a circuit-closing mechanism included in an electric circuit and closed by mechanism operated by the track-bar, a second track-bar on the opposite side of the track, located in position nearer to the crossing than the other one, so that it will be depressed before the other one by a train leaving the crossing, and a bell-crank lever operated by the second track-bar, to which is connected a rod, said rod passing below the track and connected to a third lever, which is suitably pivoted by the side of the track and normally stands below the first track-bar, but which is withdrawn from below said track-bar when the second track-bar is operated.

488,282. CONVEYER. THEODORE L. MARVEL, Trenton, Mass., assignor to William H. Phillips, same place. Filed Mar. 23, 1892. Serial No. 426,319. (No model.)



Claim.—In combination, a frame, an endless chain of pans, two sets of wheels, two sets of tracks, and end wheels mounted on the frame, the frame and end wheels supporting the endless chain of pans, and the pans being also supported by the two sets of wheels, one set of wheels on one set of tracks and the other on the other set of tracks, and means whereby one set of tracks may be lowered and raised, all substantially as set forth.

488,283. PLATFORM. JAMES MATTHEWS, Collins Centre, New York. Filed May 26, 1892. Serial No. 434,230. (No model.)

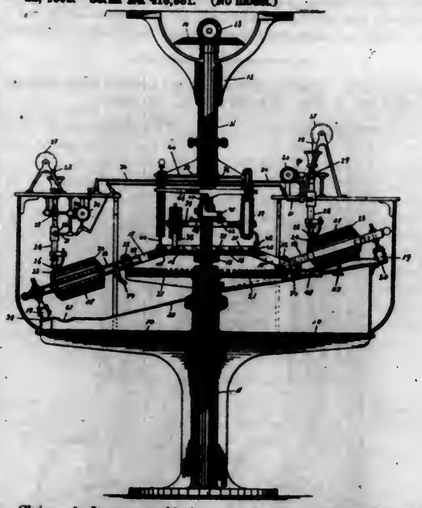


Claim.—1. The combination, with a car, of a portable safety-platform and suitable devices to detachably connect the platform to the car, substantially as described.

2. The combination, with a car, of a portable safety-platform, an end-gate, suitable devices to detachably connect the gate to either end of the platform, and means to detachably connect the platform to the car, substantially as described.

3. The combination, with a car, of a portable safety platform and ladder and suitable means to detachably connect the ladder and platform to the car, substantially as described.

488,284. CAN-SOLDERING MACHINE. DAVID M. MONROE, Baltimore, Md., assignor to Robert Tynes Smith, same place. Filed Jan. 22, 1892. Serial No. 418,881. (No model.)



Claim.—1. In a can-soldering machine, the combination, with mechanism for giving the can an intermittingly-circumferential movement and continuously rotating it upon its axis during said movement, changing its position vertically during said circumferential movement and also reversing the inclination of its axis when at its lowest and highest points, of two sets of soldering devices above the can, each set consisting of a solder-feeding mechanism and a blow-pipe, the blow-pipe being arranged tangentially to the can-seam, whereby the flame from the blow-pipe will strike the can and the solder at the same time, said sets of soldering devices being arranged at different heights and each can being caused to cease its circumferential movement when under said devices until it has made a complete revolution upon its axis, substantially as set forth.

2. In a can-soldering machine, the combination of a continuously-rotating shaft, an intermittingly-movable plate upon the shaft provided with a series of can-carriers, an undulating track for supporting the outer end of each of said carriers, two sets of soldering devices arranged at different heights, whereby one of the devices will solder one end when the can is at its lowest point and the other device will solder the other end when the can is at its highest point of elevation, each set of said soldering devices consisting of a guide-tube provided with feed-rollers, a knife for cutting the solder, two cams upon the shaft of the machine, and a double set of levers for connecting the

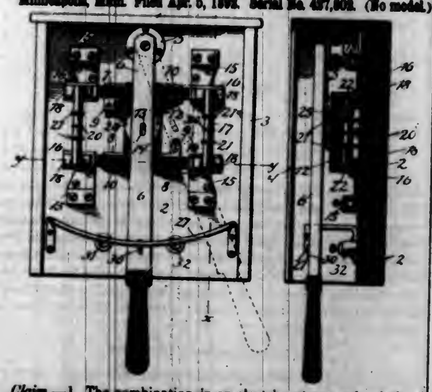
cams with the said feed-rollers and the knives, respectively, substantially as set forth.

3. In a can-soldering machine, the combination, with a can-carrier having a rotating and circumferential movement, of a flux-box, a movable plate within the box, and means for connecting the carrier with the plate and moving it within the box, substantially as described.

4. In a can-soldering machine, the combination, with a can-carrier having a rotating and circumferential movement, and provided with a piece 55, projecting laterally therefrom, of a flux-box, a plate therein provided with a projection adapted to be engaged and operated by the piece 55, and springs for retracting said plate, substantially as set forth.

5. In a can-soldering machine, the combination, with an inclined track provided with a level portion, of a can-carrier provided with a support for moving upon said track, a chute from which the can is dropped into the carrier, an adjusting-plate located at said level portion of the track, whereby the can is centrally placed in the carrier, soldering devices, and means for imparting a circumferential movement to the carrier, substantially as set forth.

488,285. ELECTRIC CUT-OUT AND SWITCH-BOX. LLEWELLYN D. MCMUNN, Cresswell, N. D., assignor of one-half to Milton R. Utley, Minneapolis, Minn. Filed Apr. 5, 1892. Serial No. 427,802. (No model.)



Claim.—1. The combination, in an electric cut-out and switch, of the lamp-circuit-terminal plates with the slidable contact or bridge bars arranged thereon, dynamo-circuit terminals arranged opposite the ends of the lamp-circuit-terminal plates and with which said sliding bars are adapted to make contact, a short-circuiting bar or jumper extending between the dynamo-circuit terminals, said bar adapted to be lifted by the sliding bars, and means for moving said bars, substantially as described.

2. The combination, in an electric cut-out and switch-box, of the insulated plates with the insulating-blocks arranged to slide thereon and carrying conductor-bars in engagement with said plates, a lever for moving said blocks, dynamo-circuit terminals arranged opposite the same, and a short-circuiting bar extending between the dynamo-circuit terminals and adapted to be lifted therefrom by said insulated blocks, substantially as described.

3. The combination, in an electric switch-box, of the grooved contact-terminal plates 7 and 8, with the insulating-blocks arranged thereon and carrying the sliding contact or bridge plates adapted to engage the parts 7 and 8, the cross-block extending between said insulating-blocks, a lever attached thereto for shifting said blocks, dynamo-circuit terminals insulated from one another and from the parts 7 and 8, and a spring-bar extending between the dynamo-circuit terminals and having jumper-feet to rest thereon, said jumper-feet having the convex under surfaces, substantially as set forth.

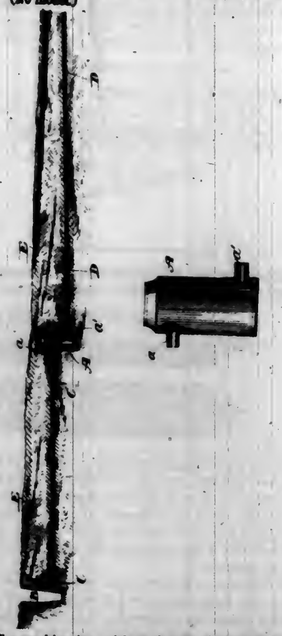
4. The combination, with the grooved terminal plates 7 and 8, of the insulating-blocks 10, the contact-plates 11, secured on said blocks and in constant contact with the parts 7 and 8, respectively, a lever arranged in connection with said blocks, dynamo-circuit terminals having grooved parts, the jumper-bar, guides therefor, the feet of said bar having convex lower surfaces, and a spring connection connected with said bar, substantially as described.

5. The combination, with the plates 7 and 8, of the insulating-blocks 10, carrying the conductor-plates 11, a block connecting the parts 10, the lever to engage said block, said insulating-blocks being longer than the bars 11, two pairs of dynamo-circuit terminals having the parts 16, the short-circuiting bars 17, springs connected therewith, vertical guides for said bar, the jumper-feet of said bars adapted to rest upon the dynamo-circuit terminals, and means for securing said lever, substantially as described.

6. The combination, with the containing-box, of the grooved plates 7 and 8, insulated from one another, the sliding contacts 11, the longer insulating-blocks 10, whereto they are secured, a cross-block connecting them, the pivoted lever, said cross-block provided with the stud to engage the same, a spring arranged between the two parts, dynamo-circuit terminals, and the bridging and spring bar 27, extending across the blocks and notched, as described, and a lug 30 on said lever to engage the same, substantially as described.

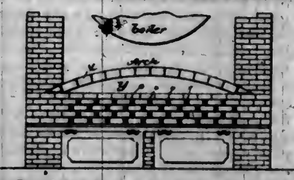
7. The combination, with the dynamo-circuit terminals, of the slidable contact-plates 11, the insulating-blocks having the wedge-like ends and being longer than said parts 11, the dynamo-circuit terminals grooved as described, the jumper-bar provided with the feet having the convex lower surfaces, the guide-staples, a spring connected with said bar, and said bar grooved to engage said staples, substantially as described.

488,286. SYSTEM OF DRAINAGE. JOSIAH NICHOLSON and FRANCIS H. NICHOLSON, Belvidere, N. C. Filed May 9, 1892. Serial No. 432,347. (No model.)



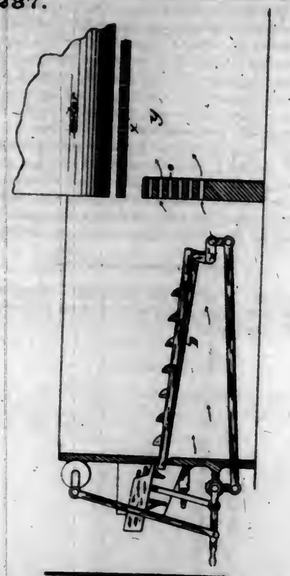
Claim.—The combination, with a submerged receptacle having inlet and outlet nipples at top and bottom upon opposite sides, of piping communicating with said nipples and extending therefrom in opposite directions in oppositely-inclined parallel planes, with the inlet end of one above the outlet ends of both, substantially as shown and described.

488,287. SMOKE-CONSUMING FURNACE. WILLIAM OBELSTROM, Cleveland, Ohio. Filed July 16, 1890. Serial No. 359,262. (No model.)



Claim.—In a boiler-furnace, the combination of the grate, the bridge-wall having perforations whereby the air passing beneath the grate may pass therethrough and into the air-chamber Y, and the perforated arch extending at a slight distance below the boiler longitudinally thereof and rearward from the bridge-wall, whereby the products of combustion mingling with the air in the chamber Y and igniting will be utilized to heat the boiler by passing through the perforations in the arch and consuming the smoke passing between the perforated arch and the bottom of the boiler, substantially as described.

488,237.



488,238. PEDAL FOR VELOCIPEDES. FREDERICK C. ROCKWELL, Hartford, Conn. Filed Oct. 1, 1891. Serial No. 407,431. (No model.)



Claim.—1. In combination with the crank of a velocipede, a pedal having a tread of elastic material provided with a spindle-opening and an air-chamber with flexible walls, substantially as specified.

2. In combination with the crank of a velocipede, a pedal having a tread provided with an air-chamber and an outlet from the air-chamber, provided with a valve whereby the tread may be inflated, substantially as specified.

3. In combination with the crank of a velocipede, a pedal having a pair of treads supported upon hollow spindles and provided with air-chambers and valves attached to the hollow spindles, whereby the treads may be inflated, substantially as specified.

488,239. EXTENSION-FEED FOR CORN-SHELLERS. WILLIAM H. RUSS, Elmwood, Neb. Filed Feb. 10, 1892. Serial No. 421,045. (No model.)

Claim.—1. The combination, with the feeder and extension-feed of a corn-sheller, of a pair of intermediate standards removably connected at their lower ends to the feeder and at their upper ends to the extension-feed, substantially as specified.

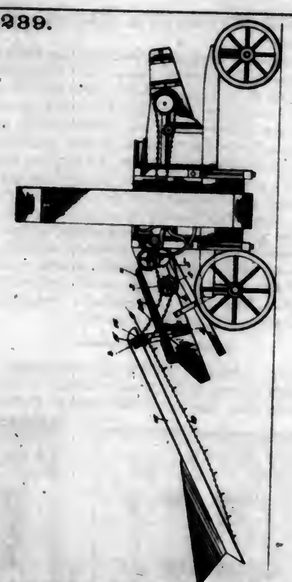
2. The combination, with the feeder, of a pair of standards having bearings at their upper ends, the shaft located therein, the extension-feed having bearings receiving and supported on the shaft, the end-less carrier operated by the shaft, and means for communicating motion from the sheller to the shaft, substantially as specified.

3. The combination, with the feeder and extension-feed of a corn-sheller and the transverse feed-shaft of the extension-feed, of the opposite standards secured to the feeder, one of said standards being provided with a bearing-box and the other with a separable bearing-box, substantially as specified.

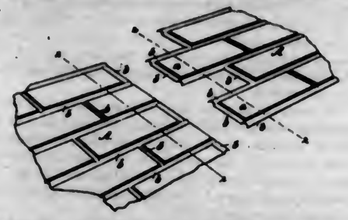
4. The combination, with the feeder having the flared side walls and the extension-feed of a corn-sheller, of a pair of standards connected at their upper ends to the extension-feed, recessed below the same to receive the flared walls of the feeder, and securing devices for the lower ends of the standards, substantially as specified.

5. The combination, with the feeder, the upper edges of which are flared, the vertically-opposite pairs of bolts provided with heads at their inner ends and at their outer ends beyond the walls of the feeder with pairs of nuts, the pair of standards slotted at their lower ends to straddle the bolts and having their inner faces countersunk to receive the inner nuts, said standards being further provided with the transverse recesses for fitting the upper flared edges of the feeder, the closed bearing 11, mounted upon one standard, and the separable hinged bearing 12 upon the opposite standard and provided with the screw for locking the same, of the extension-feed 15, having the bearings 17, the transverse feed-shaft 16, mounted therein and in the bearings of the standards, the sprocket 18, and the chain 24 for driving the same, substantially as specified.

488,239.



488,240. METALLIC FACING FOR BUILDINGS. LOUGLEY L. SAGENDORPH, Philadelphia, Pa., assignor of one-half to Charles H. Harder, Philmont, N. Y. Filed Feb. 18, 1892. Serial No. 421,690. (No model.)



Claim.—1. A metallic facing-plate having at one end thereof the projecting portions *a*, the latter being adapted to overlap the adjacent plate at one end thereof, substantially as set forth.

2. A metallic facing-plate having longitudinal grooves and alternating cross-grooves, one end of said plate being cut away along the base of said latter grooves, leaving the projecting portions *a*, substantially as set forth.

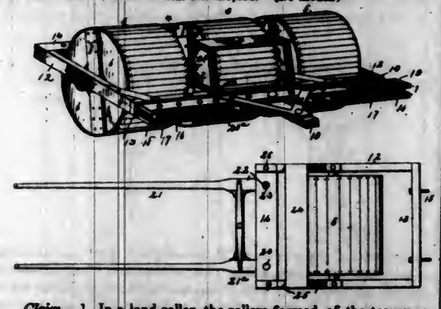
3. A metallic facing-plate having longitudinal and alternating cross-grooves, each groove having centrally therein the convex head *b*, one end of said plate having the portions cut away along the base of said beads, the latter being adapted to overlap the corresponding beads on the adjacent sheet or plate, substantially as set forth.

488,241. NUT-LOCK. ALEXANDER STONEDALE, Wolcott, Iowa. Filed July 30, 1892. Serial No. 441,268. (No model.)



Claim.—In a nut-lock, the combination, with a bolt and nut, of the longitudinal groove in the thread of said bolt, the circular washer provided with a tongue to engage said groove, the depression in the circumference of the aperture in said washer, the channeled portion in the periphery of said washer, the circular locking-plate provided with the circular aperture, the projecting lug upon said plate adjacent to said aperture, the horizontal extension in the periphery of said plate, and a portion of said plate bent outward against the plane of said nut, substantially as described.

488,242. LAND-ROLLER. BENJAMIN A. THOMAS, Bardwell, Ky. Filed Mar. 17, 1892. Serial No. 425,256. (No model.)



Claim.—1. In a land-roller, the rollers formed of the transverse staves 5 and the ends or heads consisting each of the four segments 6, all arranged in the same vertical plane with their beveled ends in contact, and the cross-pieces 7 8, crossing each other at right angles and arranged one on the inner and one on the outer side of the four segments, with their ends bolted to and connecting the ends of the segments, substantially as set forth.

2. In a land-roller, the combination of the forward transverse frame formed of the two parallel bars 1, having the open space between them and formed with the registering openings 18, the central rigid frame secured between the parallel bars and having a roller mounted in it, the two side frames having the rollers mounted in them and having the hooks 15 in their front cross-bars, the adjusting-bars 17, formed with the openings 17ª and having the projecting staples 16, and the retaining and securing screw-bolts 20, substantially as set forth.

3. The combination of the two parallel transverse bars 1 1, having the inner end of the tongue secured between them and formed with the series of openings 18, the central rigid frame 2, having a roller mounted in it and having its forward end removably secured between the parallel bars 1 by the bolts 20ª, the two side frames having the rollers mounted in them and having the hooks 15 in their front cross-bars, the adjusting-bars 17, formed with the openings 17ª and having the projecting staples 16, and the retaining and securing screw-bolts 20, substantially as set forth.

4. The combination, in a land-roller, of the transverse forward frame, the central rigid frame having a roller mounted in it, the two outer frames connected by the hooks at their ends, with the adjusting-bars 17, having the rollers journaled in them and having the open frames 14 provided with the bolts 23 at their rear ends and adapted to receive the ends of a pair of shafts, substantially as set forth.

488,243. METALLIC COVERING-PLATE. RUDOLF G. WESTPHALEN, Vienna, Austria-Hungary. Filed June 9, 1891. Serial No. 396,096. (No specimens.)

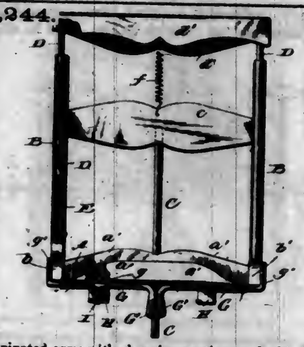
Claim.—1. The herein-described mode of manufacturing water and fire proof materials made of non-conductive fibers, which consists in combining with the fibrous substances oxide of zinc, chloride of zinc, soap, alum, soda, and sugar of lead in or about in the proportions set forth, and sufficient water to form a composition adapted to be molded or otherwise formed into slabs or sheets, converting the material into slabs or sheets, applying thereto a conductor of electricity, and electroplating the said slabs or sheets, for the purpose set forth.

2. As an article of manufacture, a water and fire proof slab or sheet composed of mineral fibers, oxide of zinc, chloride of zinc, soap, alum, and sugar of lead, and an outer coating of metal, as set forth.

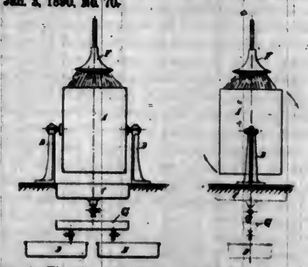
488,244. MUSIC-RACK. IGNATIUS W. LAVADIE, Humphrey, Nebr. Filed May 23, 1892. Serial No. 434,736. (No model.)

Claim.—The book-holder described, consisting of the base portion with flanges and tubular rods, the movable portion with flanges and rods movable in the tubular rods, the spring connecting the two portions, the cross-bar connecting the tubular rods, the rod connected to the base portion and to said cross-bar, the loops on the base portion, the pivoted arms with clamping portions and with finger-pieces, and the springs around the pivots of the said arms in the loops and bearing on the arms, substantially as and for the purpose specified.

488,244.



488,245. PROCESS OF SEPARATING TIN FROM OTHER METALS. IVAR A. F. BARS and MARIE C. A. RUFFIN, Paris, France. Filed July 26, 1890. Serial No. 360,043. (No specimens.) Patented in France Dec. 30, 1889, No. 202,065; in Belgium Jan. 2, 1890, No. 89,062, and in England Jan. 2, 1890, No. 70.



Claim.—1. The described process of separating tin from tinned iron by subjecting the latter to the action of a stream of hot alkaline lye and at the same time inducing by natural draft a current of air through the mass, as and for the purpose described.

2. The process of separating tin from a mass of stanniferous metal by subjecting the mass to a spray of hot lye, the mass being supported in such manner that the action of the hot spray induces upwardly a natural draft of air, substantially as described.

3. The process of separating tin from a mass of stanniferous metal by subjecting the latter to the action of hot lye, the mass being supported in such manner that a natural draft of air can circulate upwardly through the same, and from time to time inverting the charge, so as to reverse the direction of the air-current, substantially as described.

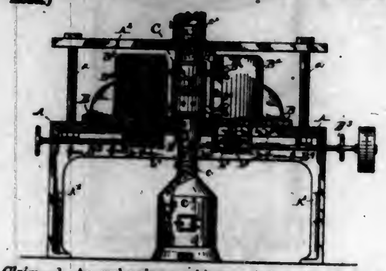
4. In apparatus for separating tin from iron or other metals, the combination of a vessel having perforated heads, so that air and liquid can freely circulate through the same, said vessel being mounted on trunnions, so that its position can be reversed at will, a hose or sprinkler for showering lye on the upper end of the vessel, and a receptacle for receiving it beneath said vessel, substantially as described.

488,246. SLIPPER. JAMES D. CHANDLER, Pittsburg, Pa. Filed Feb. 10, 1892. Serial No. 421,075. (No model.)



Claim.—The improved canvas slipper herein described and shown, consisting of a sole, an upper secured to the sole and terminating a short distance from the front end of the same, a protective toe-piece uniting the ends of the upper and the sole, and a reinforcing-strip secured to the rear end of the upper and extending slightly above the same.

488,247. EMBOSSING-MACHINE. WILLIAM GRAHAM and THOMAS BIRCH, Indianapolis, Ind. Filed Oct. 20, 1891. Serial No. 409,205. (No model.)



Claim.—1. An embossing-machine consisting of a suitable frame and driving mechanism, an embossing-roll mounted in a vertical position and connected with a heating apparatus, and a feed roll mounted on each side of said embossing-roll, whereby lumber may be fed through said machine in both directions at the same time, substantially as set forth.

2. In an embossing-machine, the combination of the frame, suitable feeding mechanism, and an embossing-roll, said embossing-roll being arranged in a vertical position and connected at its lower end with the heating apparatus and at its upper end with an exhaust-flue, substantially as set forth.

3. In an embossing-machine, the combination of the main frame, the adjustable frames carrying the feed-rolls, the driving mechanism for said feed-rolls, and the embossing-roll journaled between said feed-rolls and formed hollow, connected at one end with the heating apparatus and at its other end with an exhaust-flue, substantially as set forth.

4. In an embossing-machine, the combination of the framework, the embossing-roll journaled in a vertical position centrally therein, said embossing-roll being formed hollow and connected at its lower end with a heating apparatus and at its upper end with a flue, a feed-roll mounted on each side of said embossing-roll in an adjustable framework, means for adjusting said frames carrying said feed-rolls toward or from said embossing-roll, each of said feeding-rolls being provided with gear-wheels on one of its journals, and a driving-shaft provided with gearing arranged to mesh with the gear-wheels on said feed-rolls, substantially as set forth.

5. The combination, in an embossing-machine, of the frame A, the frames B, mounted thereon, means for adjusting said frames transversely thereof, the adjustable supports B^3 and B^4, the adjustable rolls A^2 for supporting the ends of the lumber, and the driving-shaft provided with the worm-gears arranged to engage with the gear-wheels on the lower journal of each of said feed-rolls B^2, said worm-gears being secured on said shaft by means of splines, whereby they are adapted to slide thereon when the frames B are adjusted, all substantially as shown and specified.

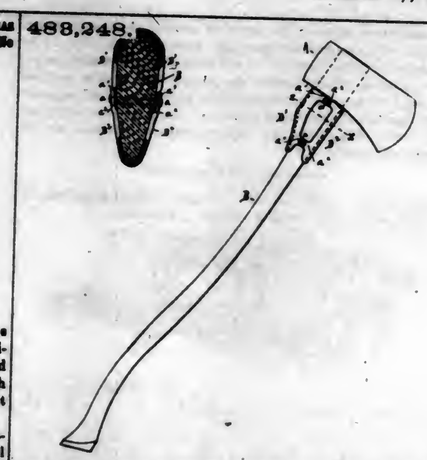
6. In an embossing-machine, the combination of the frame, the embossing-roll vertically arranged and formed hollow and connected with a heating apparatus, a feed-roll journaled in suitable bearings on each side of said embossing-roll, a gear-wheel being provided on the end of one of the journals of each, a driving-shaft, and worm-gears mounted on said driving-shaft, one of which meshes with each of said gear-wheels on the journals of the feed-rolls, whereby said feed-rolls are driven and lumber may be fed through against the opposite sides of the embossing-roll, substantially as set forth.

7. In an embossing-machine, the combination of the frame, the embossing-roll, the heating apparatus connected with said embossing-roll, the feed-rolls journaled in suitable bearings in adjustable frames on each side of said embossing-roll, means for adjusting said frames, and the driving-shaft provided with gears which mesh with gears on the journals of said feed-rolls, said gears being mounted on said shaft by means of splines, whereby they are adapted to slide as said frames are adjusted, substantially as set forth.

488,248. ATTACHMENT FOR AX-HELVES. WILLIAM DUNLOP, Hopkins, Minn. Filed May 23, 1891. Serial No. 393,674. (No model.)

Claim.—1. In an ax-helve guard, a shield D^2, adapted to inclose the lower surface and sides of the ax-helve next the ax-head and provided with lugs a^3, in combination with a guard or shield D', adapted to inclose the upper portion and sides of the ax-helve and provided with lugs a', corresponding to the lugs a^3, and rivets a, adapted to pass through both of said sets of lugs and also through the ax-helve, substantially as and for the purpose set forth.

2. In an ax-helve guard, a shield D^2, adapted to inclose the lower surface and sides of the ax-helve next the ax-head and provided with lugs of about one-half the thickness of the body of the shield, in combination with a guard or shield D', inclosing the upper portion of the ax-helve and with corresponding reduced lugs, and rivets adapted to pass through both of said sets of lugs and also through the axe-helve, whereby the lugs and rivets offer no obstruction to the action of the ax, substantially as and for the purpose set forth.



488,249. MACHINE FOR GRINDING. AARON FRYER, Bath, N. Y. Filed Oct. 10, 1890. Serial No. 367,766. (No model.)



Claim.—1. The combination, with a revolving cylinder having the primary teeth *a a*, running in rows in direction of the line of rotation of the cylinder and alternating with the parallel rows of the secondary teeth *c c* described, of a concave provided with the checking-teeth *m m*, arranged in vertical rows, which are opposite the rows of the said secondary teeth *c c* of said cylinder, and alternating vertical rows of the short teeth *n n*, arranged so as to be opposite the rows of the primary teeth *a a* of the cylinder, and the series of feeding-teeth *e* above the plane of the teeth *m* and *n*, inclined forwardly and downwardly and projected between the rows of primary teeth *a a* of the cylinder and directly opposite the secondary teeth of the same, substantially as and for the purposes set forth.

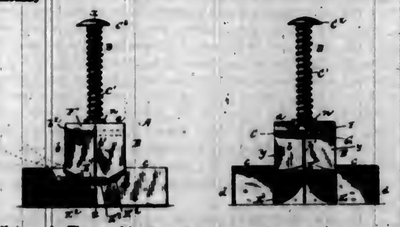
2. The combination, with a concave having the long checking-teeth *m*, arranged in vertical rows, and the short teeth *n*, in similar rows and alternating with those of teeth *m*, of a coacting cylinder of uniform diameter and having the primary teeth *a a*, arranged in rows parallel with the line of rotation of said cylinder, and the secondary teeth *c*, arranged in rows alternating with those of teeth *a*, teeth *a a* of the cylinder being opposite teeth *n n* of the concave and teeth *c c* opposite teeth *m m*, and a hopper which is located relatively forward of a line drawn vertically through the axis of the cylinder and having its end pieces *f* extended downwardly and seated on the annular seats *g*, provided in the peripheries of the head ends of the cylinder, substantially as and for the purposes set forth.

3. The combination, with a cylinder which is of uniform diameter and having primary teeth *a a* in a series of rows arranged parallel with the line of rotation of the cylinder and the series of secondary teeth *c c*, arranged in rows alternating with those of teeth *a a*, of the adjustable concave provided with the series of checking-teeth *m m*, arranged in vertical rows opposite the rows of the said secondary teeth, and with the series of short teeth *n n* in rows alternating with those of teeth *m m* and opposite to the rows of teeth *a a*, and a hopper provided with the notched piece *f'* and connected with said concave and in situation forward of a vertical line drawn through the axis of said cylinder, plate B, secured to the said hopper, flange D, connected with the said concave and provided with slots, and the set-bolts *D'*, substantially as and for the purposes set forth.

4. The combination, with the revolving cylinder B, provided with teeth *a a* and *c c*, above described, of a concave provided with coacting teeth *m m* and *n n* and *e e* and hinged to the frame, so as to be turned at will up toward said cylinder or back from the same, and a hopper which is so connected with said concave as to be moved with the same in either direction, substantially as and for the purposes set forth.

5. The combination, with the revolving cylinder B, provided with teeth *a a* and *c c*, above described, and a concave provided with coacting teeth, of the guard-piece G, hinged to the frame and arranged over the rear upper quarter of the said cylinder and extending to the rear side of the hopper, substantially as and for the purposes set forth.

488,250. MACHINE FOR AFFIXING STAMPS. WILLIAM M. GRAY, Brooklyn, N. Y. Filed Feb. 1, 1890. Serial No. 338,883. (No model.)



Claim.—1. The combination of a frame having guideways on opposite sides thereof, a presser mounted in said guideways and having a convex face, segmental pads normally in and pivoted adjacent to the path of said presser and provided with flat faces, and springs for holding the presser and pads in their normal positions, substantially as described.

2. The combination of a frame made from a single piece of sheet metal slitted and bent to form the ends, the sides, and the top, and provided with guideways in its sides and an opening in its top, a presser mounted in said guideways and having a stem extending through said opening and provided with a handle, a spring bearing against said handle, pads pivoted in the frame and normally in the path of the presser, and springs for holding the pads in their normal positions, substantially as described.

3. The combination of a frame having guides on each of two sides and an inwardly-extending cutting-edge on each of the two alternate sides, a presser mounted in said guides and having a yielding convex face, and having, also, a cutting-edge on each of two sides co-operating with one of the cutting-edges of the frame, and movable pads with flat faces normally situated in the path of the presser, substantially as described.

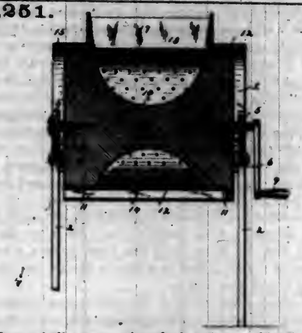
4. The combination of a frame, a presser mounted in guideways in said frame, a moistening-pad having water-tight hinges normally in the path of the presser, a water-reservoir carried by the frame and provided with a depending partition situated close to the wall nearest the pad, and a wick extending from the reservoir and constituting a continuation of the pad, substantially as described.

488,251. POTATO-GRINDER. JOHN B. HARTMAN, Davenport, Iowa. Filed Mar. 31, 1892. Serial No. 427,262. (No model.)



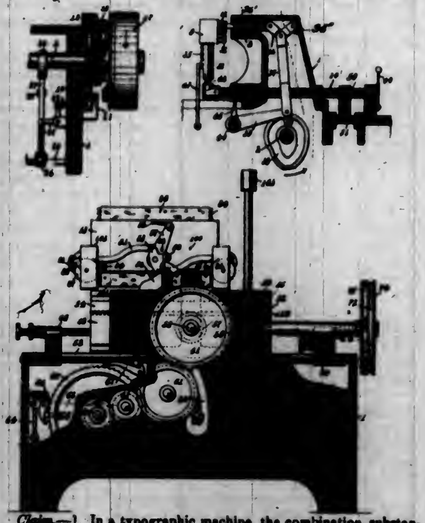
Claim.—1. In a grinding or grating device, as set forth, the combination of an inner cylinder or drum of hour-glass shape to reduce the central portion thereof and provide enlarged heads at opposite ends and a grating or grinding cylinder removably fitted to the aforesaid cylinder or drum and bearing on the enlarged heads only thereof and adapted to be rotated therewith, said parts being covered by a semicylindrical removable cap with a feed-opening centrally located in the top thereof, substantially as described.

488,251.



2. In a grinding or grating device, the combination of an inner drum or cylinder having slots therein and an outer grating or grinding cylinder having a flange adapted to engage said slots to removably fasten the parts together, substantially as described.

488,252. TYPOGRAPHIC MACHINE. THOMAS T. HEATH, Loveland, and ALVIN H. VERDIN, Glendale, Ohio; said Verdin assignor to said Heath. Filed July 6, 1891. Serial No. 398,601. (No model.)



Claim.—1. In a typographic machine, the combination, substantially as set forth, of a frame, a fixed plunger-guide and abutment supported by said frame in a line of collimation, a reciprocating plunger in said guide, a movable case of parallel types disposed in front of the plunger, a pad-carriage disposed in front of the type-case, an anvil disposed in said line of collimation in front of and adjustable to and from said pad-carriage and abutment, forcing means acting between the plunger and abutment, and a finger-key and connections for each type.

2. In a typographic machine, the combination, substantially as set forth, of a frame, a fixed plunger-guide and abutment supported by said frame in a line of collimation, a reciprocating plunger in said guide, forcing means acting between the plunger and abutment, a movable case of parallel types disposed in front of the plunger, a rail supported by the frame in front of the type-case and below the line of collimation, a pad-carriage mounted on the rail and projecting above the same, a fixed anvil disposed in the line of collimation and projecting over the rail and through the pad-carriage, and a finger-key and connections for each type.

3. In a typographic machine, the combination, substantially as set forth, of a frame, two parts projecting upwardly and rigidly therefrom and carrying in a line of collimation one an endwise-adjustable anvil and the other an abutment, a pad-carriage, a type-case of endwise-movable types, a plunger disposed in the space between said anvil and abutment, forcing means, as a toggle, between the plunger and abutment, and a finger-key and connections for each type.

4. In a typographic machine, the combination, substantially as set forth, with a type-case containing types arranged to be dealt with singly as brought into a line of collimation by the movement of the type-case, of a finger-key pertinent to each type, a part moving up and down by power a constant distance at each impulse of the machine to provide for lifting the type-case, a case-lifter, dogs for causing the motion of said power-moved part to be imparted to the case-lifter in degree according to the dog brought into action, connections from the dogs to the appropriate finger-keys, whereby a finger-key brings an appropriate dog into action, a driving-shaft, a cam thereon, and connections between said cam and the dogs, whereby at each rotation of the cam all dogs are restored to normal idle position.

5. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed notched rim, a driver on the shaft, a sliding pin to push the driver from the notch, a lever, a connection from the lever to the pin, a cam to withdraw the pin, and connections from the cam to said lever and pin.

6. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, type-impressing mechanism, a driving-shaft, unit-feed devices to positively advance the pad-holder a unit of distance at each rotation of said shaft regardless of the type requirement, and a finger-key for each type, of a feed-adding mechanism for advancing the pad-holder more than a unit of distance and connections from some but not all of said finger-keys to said feed-adding mechanism.

7. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, type-impressing mechanism, a driving-shaft, and a finger-key for each type, of a pulley, a stop-clutch to turn the shaft and arrest it at the end of one rotation, a part to be moved to engage the clutch with the shaft, and connections from all the finger-keys to said starting part.

8. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, a type-impressing plunger, pad-feeding devices, type-case-moving devices, and a driving-shaft to actuate the type-movements and pad-feeds, of dogs to admeasure the degree of pad-feed to be produced by said driving-shaft, dogs to admeasure the type-case movement, a part to be moved to start the driving-shaft, and finger-keys connected with said dogs and starting part.

9. In a typographic machine, the combination, substantially as set forth, of a pad-holder, a movable type-case, endwise-movable types in the type-case to be brought singly to a line of collimation by the movement of the type-case, a fixed anvil engaging the back of the pad, a plunger reciprocating in the line of collimation and adapted to impress a type in said line to a pad on the pad-holder, a driving-shaft arranged to reciprocate the plunger a definite distance at each rotation, and a finger-key for each type for starting said shaft.

10. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a type-case, types, a plunger, and a finger-key for each type, of a driving-shaft, a cam thereon, a pressure-finger near the impression-point of the pad-holder, and connections from said cam to said plunger and pressure-finger.

11. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types, type-impressing mechanism, and a finger-key for each type, of a power-driven driving-shaft, a stop-clutch, a part to be moved to start the driving-shaft, a unit-space finger-key, and connections from said unit-space key to said starting part.

12. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types, type-impressing mechanism, and a finger-key for each type, of a driving-shaft, a stop-clutch, a part to be moved to start the driving-shaft, connections from said finger-keys to said starting part, a cam on the driving-shaft, having a low place to permit the depression of any key and an immediately-following swell to lift all finger-keys, and connections from said cam to all the finger-keys.

13. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, a power-driven actuating-shaft, and a finger-key for each type, of a constant-stroke feed part moved by said actuating-shaft at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part moving in accordance with the degree of pad-feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, connections from the dogs to appropriate type-keys, a space-key for each dog, and a connection from each space-key to a dog.

14. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a driver secured to the shaft by a transverse pivot and adapted to engage the pulley, and means for rocking the driver on its pivot into and out of engagement with the pulley.

15. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed notched rim, a driver secured to the shaft by a transverse pivot and arranged to engage the pulley and be so held by the rim and released at the notch, and a movable piece at the notch to push the driver out of the notch.

16. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation, endwise movable types mounted parallel in said type-case and disposed in an arc struck from said axis, a finger-key for each type, two parts, as sliding blocks, moved by power simultaneously in respectively opposite directions, and connections between said blocks and type-case for transmitting motion to said type-case from said blocks alternatively.

17. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation, endwise-movable types mounted parallel in said type-case and disposed in an arc struck from said axis with a radius equal to the distance from said axis to said line of collimation, a finger-key for each type, two parts, as sliding blocks, moved by power simultaneously in respectively opposite directions, and connections between said blocks and type-case for transmitting motion to said type-case from said blocks alternatively.

18. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation and provided with a clutch-hook, of a type-case mounted on an axis of oscillation and arranged for radial adjustment with reference thereto, endwise-movable types mounted in several segmental rows in said type-case and having notched heels projecting toward and beyond the plane of the end of said plunger, and mechanism for normally holding said type-case in such angular position that no type will be engaged by the plunger, whereby the type-case may be shifted radially without interference from the overlapping plunger and type-heels.

19. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation and arranged to swing either way from the normal, endwise-movable types mounted parallel in said type-case and disposed in an arc located at each side of the normal radial plane of the line of collimation and struck from said axis, a finger-key for each type, means for bringing the types selectively to the line of collimation, and a look to secure the type-case rigidly in central position instantly upon reaching the same.

20. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation in fixed location and arranged for radial movement to and fro from said axis, endwise-movable types mounted parallel in said type-case and disposed in several arcs, a finger-key for each type, and means for bringing said types selectively to the line of collimation.

21. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation in fixed location and arranged for radial movement to and fro from said axis, endwise-movable types mounted parallel in said type-case and disposed in several arcs struck from said axis with a radius equal to the distance from said axis to the line of collimation, a finger-key for each type, and means for bringing said types selectively to the line of collimation.

22. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation and arranged for radial movement to and fro from said axis, endwise-movable types mounted parallel in said type-case and disposed in several arcs and in straight non-radial rows transverse to said arcs, a finger-key for each type, and means for bringing said types selectively to the line of collimation.

23. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation in fixed location and arranged for radial movement to and fro from said axis, endwise-movable types mounted parallel in said type-case and disposed at equal distances on several arcs, a finger-key for each type, and means for bringing said types selectively to said line of collimation.

24. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a plunger arranged to reciprocate in a line of collimation, of a type-case mounted on an axis of oscillation in fixed location and arranged for radial movement to and from said axis, endwise-movable types mounted parallel in said type-case and disposed in several arcs located at each side of the normal radial plane of the line of collimation, and a finger-key for each type, and means for bringing said types selectively to the line of collimation.

25. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types movable endwise in the type-case, and type-impressing mechanism, of a rigid face-plate disposed between the pad-holder and type-case and engaging the front of the type-case.

26. In a typographic machine, the combination, substantially as set forth, of a movable type-case carrying a row of endwise-movable types, a plate having an eye for the passage of a type, and a rigid guide on said plate engaged by the type-case and serving to guide the row of types accurately past said eye.

27. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types movable endwise in the type-case, and type-impressing mechanism, of a rigid face-plate disposed between the pad-holder and type-case and having guide-ribs and teeth on the type-case to engage said ribs.

28. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types, and type-impressing mechanism, of a face-plate disposed between the pad-holder and type-case and having interrupted guide-ribs and teeth on the type-case at the interruption of said ribs and adapted to engage said ribs.

29. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types, and type-impressing mechanism, of a shaft of oscillation and a radial shank and socket uniting the type-case adjustably to said shaft.

30. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types, and type-impressing mechanism, of a shaft of oscillation and a radial shank and socket uniting the type-case adjustably and removably to said shaft.

31. In a typographic machine, the combination, substantially as set forth, of a type-case mounted for oscillation on an axis and arranged for radial movement with reference to said axis and a type-case lifter reciprocating in guides in a line radial to said axis and connected with the type-case by teeth having sliding engagement.

32. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a movable type-case, types, and type-impressing mechanism, of a face-plate disposed between the pad-holder and type-case and having guide-ribs, a toothed type-case lifter, and teeth on the type-case normally engaged by said lifter and adapted to engage said guide-ribs.

33. In a typographic machine, the combination, substantially as set forth, with a type-case containing types arranged to be dealt with singly as brought into a line of collimation by the movement of the type-case, of a finger-key pertinent to each type, an arm moving up and down by power a constant distance at each impulse of the machine to provide for lifting the type-case, a case-lifter, dogs for causing the motion of said power-moved arm to be imparted to the case-lifter in degree according to the dog brought into action, and connections from the dogs to the appropriate finger-keys whereby a finger-key brings an appropriate dog into action.

34. In a typographic machine, the combination, substantially as set forth, with a type-case containing types arranged to be dealt with singly as brought into a line of collimation by the movement of the type-case, of a finger-key pertinent to each type, a driving-shaft, a lift-cam thereon, a moving arm operated through constant distance by said cam, a case-lifter, dogs for causing the motion of the cam-moved arm to be imparted to the case-lifter in degree according to the dog brought into action, and connections between the dogs and finger-keys whereby a finger-key brings an appropriate dog into action.

35. In a typographic machine, the combination, substantially as set forth, with a type-case containing types arranged to be dealt with singly as brought into a line of collimation by the movement of the type-case, of a finger-key pertinent to each type, a driving-shaft, a lift-cam thereon, a moving arm operated through constant distance by said cam, a case-lifter, dogs for causing the motion of said cam-moved arm to be imparted to the case-lifter in degree according to the dog brought into action, a dog-operating cam for each dog, and connections between said cams and finger-keys whereby a finger-key brings an appropriate dog into action.

36. In a typographic machine, the combination, substantially as set forth, with a type-case containing types arranged to be dealt with singly as brought into a line of collimation by the movement of the type-case, of a finger-key pertinent to each type, an arm moving up and down by power a constant distance at each impulse of the machine to provide for lifting the type-case, a case-lifter, dogs for causing the motion of said power-moved arm to be imparted to the case-lifter in degree according to the dog brought into action, a lift-blade along each rank of finger-keys pertinent to a given lift of type-case and engaged by the keys of that rank, and connections from the blades to the dog whereby a finger-key brings into action a dog appropriate to the rank of the key.

37. In a typographic machine, the combination, substantially as set forth, with a type-case containing types arranged to be dealt with singly as brought into a line of collimation by the movement of the type-case, of a finger-key pertinent to each type, an arm moving up and down by power a constant distance at each impulse of the machine to provide for lifting the type-case, a case-lifter, dogs for causing the motion of said power-moved arm to be imparted to the case-lifter in degree according to the dog brought into action, a tumbling-shaft connected with each dog, and connections from the keys to the tumbling-shafts whereby a finger-key rocks an appropriate tumbling-shaft and brings an appropriate dog into action.

38. In a typographic machine, the combination, substantially as set forth, with a type-case containing types arranged to be dealt with singly as brought into a line of collimation by the movement of the type-case, of an arm moving up and down by power a constant distance at each impulse of the machine to provide for lifting the type-case, a case-lifter, dogs for causing the motion of said power-moved arm to be imparted to the case-lifter in degree according to the dog brought into action, a rank of finger-keys for each degree of type-case lift, an additional rank of keys, and connections between said dogs and first-mentioned rank of keys whereby keys in those ranks bring appropriate dogs into action.

39. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding rack, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moving part in degree according to the dog brought into action, and connections between said finger-keys and dogs whereby a finger-key brings into action an appropriate dog.

40. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding rack, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moving part in degree according to the dog brought into action, connections between said keys and dogs whereby a finger-key may move an appropriate dog into action while the power-moved part is at rest, and an obstruction to prevent the displacement of the dogs while said power-moved part is in motion.

41. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, and type-impressing mechanism, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding rack, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moving part in degree according to the dog brought into action, a row of finger-keys pertinent to each degree of type-case swing, and connections from each row of keys to a dog whereby any key in a given row will bring into action a dog appropriate to that row.

42. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, two power-moved parts, as sliding blocks, having constant stroke in opposite directions, dogs arranged to connect said power-moved parts with the variably-moved part and cause motion of the power-moved part to be imparted to the variably-moved part in direction and degree according to the dog brought into action, and connections between the finger-keys and dogs whereby a key brings into action an appropriate dog.

43. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding block, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moving part in degree according to the dog brought into action, a swing-blade engaged by each group of keys calling for the same degree and direction of type-case swing, and a connection from each blade to a dog appropriate to its degree and direction of type-case swing.

44. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, a finger-key for each type, a bar reciprocating in correspondence with the swing of the type-case, and a block moved by power a constant distance at each impulse of the machine, of movable pins in said block, a shoulder on said bar for each block-pin and of peculiar appropriate distance from each block-pin, and connections between keys and pins whereby a key will bring an appropriate block-pin in position to engage its bar-shoulder.

45. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, a finger-key for each type, a bar reciprocating in correspondence with the swing of the type-case, and a block moved by power a constant distance at each impulse of the machine, of a plate having

buttonholes under said block, movable pins in the block and presenting heads below said plate which can rise at one point only in the length of the buttonholes, and connections from said keys to the pins whereby a key may push the head of an appropriate pin through a buttonhole and cause each pin to engage said bar.

46. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, a finger-key for each type, a bar reciprocating in correspondence with the swing of the type-case, and a driving-shaft, of a swing-cam on said shaft, a block moved with a constant stroke by said cam, dogs arranged to impart the block motion to said bar in degree according to the dog in action, and connections between said keys and dogs.

47. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding block, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moved part in degree according to the dog brought into action, a separate swing-blade engaged by each lot of finger-keys calling for the same swing motion of the type-case, and levers connecting said blades with their appropriate dogs.

48. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding block, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moved part in degree according to the dog brought into action, springs tending to hold the type-case in normal position, and connections between the finger-keys and dogs.

49. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding block, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moved part in degree according to the dog brought into action, a driving-shaft, a stop-clutch, a starting-bar to move and cause the machine to make an impulse, and connections between the finger-keys and dogs and starting-bar whereby a finger-key brings an appropriate dog into action and moves the starting-bar.

50. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, type-impressing mechanism, and a finger-key for each type, of a part, as a sliding rack, moving variably in correspondence with the type-case as it swings, a power-moved part, as a sliding block, having a constant stroke sufficient for the maximum swing of the type-case, dogs arranged to connect said two parts and cause the motion of the power-moved part to be imparted to the variably-moved part in degree according to the dog brought into action, a driving-shaft, a stop-clutch, a starting-bar to move and cause the machine to make an impulse, a clutch-cam on the driving-shaft, and connections between the finger-key and dogs and starting-bar and cam whereby a finger-key brings an appropriate dog into action and moves the starting-bar and whereby the impulse of the machine restores the starting-bar and finger-key.

51. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, types, type-impressing mechanism, and a finger-key for each type, of a pair of power-moved reciprocating swing-blocks normally holding said projection between them, dogs in the blocks for connecting the blocks and bar, and connections between the keys and dogs.

52. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, types, type-impressing mechanism, and a finger-key for each type, of a segmental series of obstructions or teeth corresponding with degrees of swing of the type-case, a locking-finger connected and oscillating with the type-case, and devices to move said obstructions into the path of said locking-finger.

53. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, types, type-impressing mechanism, and a finger-key for each type, of a lock-finger oscillating with the type-case, a notched segment fixed against circumferential movement and normally free of said finger, and mechanism for bringing the segment to the finger as the case swings.

54. In a typographic machine, the combination, substantially as set forth, with a pad-holder, a swinging type-case, types, type-impressing mechanism, and a finger-key for each type, of a pair of lock-fingers oscillating with the type-case, a pair of notched segments normally free of said fingers, and devices for bringing the segments toward the fingers as the type-case swings.

55. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage, of a rack and pinion to advance the carriage, a pawl and ratchet, a power-moved pawl-arm, a change-gear on the shaft of said ratchet, a change-gear on the shaft of said pinion, an adjustable sector-bracket, and intermediate gearing carried by said sector-bracket and gearing into said two change-gears.

56. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage, of a rack and pinion to advance the carriage, a feed-pawl and ratchet to turn the pinion, a stop-pawl to prevent retreat of the ratchet, a stop to hold the feed-pawl normally disengaged, a limit-stop to be engaged by the advancing carriage, and connections from the limit-stop to the stop-pawl whereby the advancing carriage releases the ratchet from the stop-pawl.

57. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage, of a rack and pinion to advance the carriage, a feed-pawl and ratchet to turn the pinion, a stop-pawl to prevent retreat of the ratchet, a stop to hold the feed-pawl normally disengaged, a limit-stop to be engaged by the advancing carriage, a limit-stop to be engaged by the retreating carriage, and connections from the limit-stops to the stop-pawl whereby the advancing carriage releases the ratchet from the stop pawl and the retreating carriage restores the stop-pawl.

58. In a typographic machine, the combination, substantially as set forth, of a driving-shaft, a pulley loose thereon, a clutch for engaging the pulley with the shaft, a pad-carriage, carriage-feeding mechanism operated by said shaft, and carriage-backing mechanism operated by said pulley, whereby the carriage may feed forward only when the shaft is in motion, but may move back when the shaft is at rest.

59. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage, of a carriage-feeding mechanism, a carriage-backing shaft, a slip-pulley thereon, a stop to prevent retreat of the carriage, and connections to said stop to be engaged by the advancing carriage to release the stop.

60. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage of a carriage-feeding mechanism, a carriage-backing shaft, a friction-disk thereon, a pulley-rim driving said disk by friction, a stop to prevent retreat of the carriage, and connections to said stop to be engaged by the advancing carriage to release the stop.

61. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage, of a carriage-feeding mechanism, a carriage-backing shaft, a slip pulley thereon, a driving-shaft, a stop-clutch, a belt from the stop-clutch to the slip-pulley, a stop to prevent retreat of the carriage, and connections to said stop to be engaged by the advancing carriage to release the stop.

62. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, a pad-carriage, and feed devices to advance the carriage, of an intermittently-rotating driving-shaft, a continuously-rotating carriage-backing slip-pulley, a stop to prevent retreat of the carriage, and connections to said stop to be engaged by the advancing carriage to release the stop.

63. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage, of a pinion to advance the carriage, a pinion to back the carriage, a driving-shaft arranged to operate the first pinion, and a slip-pulley to operate the backing-pinion.

64. In a typographic machine, the combination, substantially as set forth, with types, type-impressing mechanism, and a pad-carriage, of two limit-stops to be engaged by the carriage, a driving-shaft, a lock therefor, and connections from said limit-stops to said lock whereby the driving-shaft cannot operate while the carriage is retreating.

65. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a constant-stroke feed part, as a rocking arm, moved by power at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part, as a lever, moving in accordance with the degree of pad feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, and connections from the dogs to the appropriate finger-keys whereby a finger-key brings an appropriate dog into action.

66. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a constant-stroke feed part, as a rocking arm, moved by power at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part, as a lever, moving in accordance with the degree of pad feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, a connection between the constant-stroke part and variable-stroke part whereby a minimum of motion or unit of feed is imparted at each and every impulse of the machine, and connections from dogs to the type-keys pertinent to type calling for more than a unit of pad feed.

67. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a driving-shaft, a first-cam thereon, a constant-stroke feed part, as a rocking arm, operated by said cam, a variable-stroke feed part, as a lever, dogs for causing the motion of the constant-stroke part to be imparted to the variable-stroke part in degree according to the dog brought into action, and connections between the dogs and appropriate finger-keys.

68. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a constant-stroke feed part, as a rocking arm, moved by power at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part, as a lever, moving in accordance with the degree of pad feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, a tumbling-shaft connected with each dog, and connections from the tumbling-shafts to the appropriate finger-keys.

69. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a constant-stroke feed part, as a rocking arm, moved by power at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part, as a lever, moving in accordance with the degree of pad feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, feed-levers engaged by the appropriate finger-keys, and connections from the levers to the dogs.

70. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a constant-stroke feed part, as a rocking arm, moved by power at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part, as a lever, moving in accordance with the degree of pad feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, feed-levers, each disposed alongside of and engaged by several finger-keys, and connections from the levers to the dogs.

71. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a constant-stroke feed part, as a rocking arm, moved by power at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part, as a lever, moving in accordance with the degree of pad feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, a tumbling-shaft for and connected with each dog, and feed-levers adjustable alongside said shafts and engaged by appropriate finger-keys.

72. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types arranged to be dealt with singly, type-impressing mechanism, and a finger-key for each type, of a constant-stroke feed part, as a rocking arm, moved by power at each impulse of the machine to provide for feeding the pad-holder, a variable-stroke feed part, as a lever, moving in accordance with the degree of pad feed, dogs for causing the motion of said constant-stroke part to be imparted to said variable-stroke part in degree according to the dog brought into action, a driving-shaft, a cam thereon, and connections between said cam and dogs whereby the rotation of the cam restores a displaced dog to normal idle position.

73. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion to move the pad-holder in the carriage, a pawl and ratchet to turn said pinion, a connection to transmit motion to said pawl, and a wiper on the rail to engage said connection and move the pawl forward as the carriage travels back on the rail.

74. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion to move the pad-holder in the carriage, a pawl and ratchet to turn said pinion, a connection to transmit motion to said pawl, and a wiper mounted on the rail and arranged to engage and move said connections and advance the pawl as the carriage travels back upon the rail and to be moved by said connection without pawl movement as the carriage travels forward on the rail.

75. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion to move the pad-holder in the carriage, a pawl and ratchet to turn said pinion, a rocking lever mounted on the carriage and connected to said pawl and having a projection, a wiper engaging and moving said projection as the carriage moves back upon the rail and serving to advance the pawl, a stop to limit the return motion of said projection, and devices for changing the position of said stop to regulate the vertical feed of the pad.

76. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion to move the pad-holder in the carriage, a pawl and ratchet to turn said pinion, a rocking lever mounted on the carriage and connected to said pawl and having a projection, a wiper engaging and moving said projection as the carriage moves back upon the rail and serving to advance the pawl, an adjusting-lever mounted on the axis of said rocking lever, a stop on said adjusting-lever to limit the return motion of said projection, and a series of detents for adjusting the position of said adjusting-lever.

77. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion to move the pad-holder in the carriage, a pawl and ratchet to turn said pinion, a rocking lever mounted on the carriage and connected to said pawl and having a projection, a wiper engaging and moving said projection as the carriage moves back upon the rail and serving to advance the pawl, and a stop to limit the return motion of said projection.

78. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion to move the pad-holder in the carriage, a pawl and ratchet to turn said pinion, a connection to transmit motion to said pawl, a wiper on the rail to engage said connection as the carriage moves back, a roof-piece over said pawl and clear thereof as the pawl works its ratchet, and devices to abnormally extend the back-stroke of the pawl and bring its heel into engagement with said roof to disengage the pawl from its ratchet.

79. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion to move the pad-holder in the carriage, a ratchet connected with said pinion, a feed-pawl therefor, a roof-piece to engage the feed-pawl heel and disengage the pawl when drawn abnormally back ward, a stop-pawl engaging said ratchet, a connection to transmit motion to said feed-pawl and having a projection to engage said stop-pawl, a wiper on the rail to move said connection as the carriage goes back, and devices to move said connection abnormally back ward to release both said pawls.

80. In a typographic machine, the combination, substantially as set forth, of a carriage-rail, a carriage sliding thereon, a pad-holder sliding in the carriage at right angles to the rail, a rack and pinion and pawl at each side of the pad-holder, a three-armed lever pivoted on the carriage, connections from said lever to the pawls, and a wiper to engage and rock said lever as the carriage moves back on the rail.

81. The combination, substantially as set forth, of a case having a wicket, a cylinder having a spiral groove and arranged to rotate and rise and fall in said case, a spindle for said cylinder, and a series of graduations on the cylinder parallel with said spiral groove.

82. The combination, substantially as set forth, of a frame having guide-holes for finger-keys, finger-keys having stems engaging said guide-holes, levers or blades disposed alongside the stems, and pins projecting from the stems over the levers or blades.

83. The combination, substantially as set forth, of a frame having guide-holes for finger-keys, finger-keys having bored and slotted stems engaging said guide-holes, springs within the stems, and abutment-strips having teeth projecting into the key-stems.

84. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, and mechanism for forcing the types singly toward the pad-holder, of a pressure-finger near the impression-point of the pad out of the path of types and standing normally free from the pad and means for pressing the pressure-finger to the pad at the time of impression.

85. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, and mechanism for forcing the types singly toward the pad-holder, of a pressure-finger near the impression-point of the pad out of the path of types and standing normally free from the pad, means for forcing the pressure-finger to the pad at the time of impression, and a yielding connection between the forcing means and pressure-finger whereby the finger is forced to the pad with an elastic pressure.

86. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, and mechanism for forcing a type toward the pad-holder, of a pressure-finger near the impression-point of the pad and standing normally free from the pad, means for forcing the pressure-finger to the pad at the time of impression, a spring connection between the forcing means and pressure-finger whereby the finger is forced to the pad with an elastic pressure, and adjusting devices for regulating the tension of said spring connection.

87. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, and mechanism for forcing a type toward the pad-holder, of a pressure-finger near the impression-point of the pad and standing normally free from the pad, a wedge engaging the pressure-finger, and means for moving the wedge to force the finger to the pad at the time of impression.

88. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, and mechanism for forcing a type toward the pad-holder, of a pressure-finger near the impression-point of the pad and standing normally free from the pad, a wedge engaging the finger, a rocking arm, and connections between the wedge and the rocking arm.

89. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, and mechanism for forcing a type toward the pad-holder, of a pressure-finger near the impression-point of the pad and standing normally free from the pad, a wedge engaging the finger, a driving-shaft, a rocking arm, connections between the wedge and the rocking arm, and a cam on the driving-shaft adapted to move the wedge and force the finger to the pad at each rotation of the driving-shaft.

90. In a typographic machine, the combination, substantially as set forth, with a pad-holder, types, and mechanism for forcing the types singly toward the pad-holder, of a rigid plate disposed between the types and pad-holder, an eye in said plate for the passage of a type, a pressure-finger mounted on the plate near the eye, and means for forcing the finger to the pad at the time of impression.

91. The combination, substantially as set forth, of a pad-holder having a fixed pad-gripping rib, a pad-clamp arranged to move on the holder to and from said rib, and a cam to lock the clamp in adjusted position.

92. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a movable case of endwise-movable types, of a hook-ended plunger adapted to engage any type brought to the plunger-line, an anvil rigidly supported in the plunger-line and adjustable to and from the plunger independent of the position of the pad-holder, a driving-shaft, and means for causing rotation of said shaft to force the plunger a definite distance toward said anvil.

93. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a movable case of endwise-movable type, of a plunger adapted to engage any type brought to the plunger-line, a fixed anvil engaging the back of the pad in that line, a toggle connected with the plunger, and a driving-shaft for operating the toggle to advance the plunger and engaged type a definite distance toward the anvil.

94. In a typographic machine, the combination, substantially as set forth, with a pad-holder and a movable case of endwise-movable type, of a fixed anvil engaging the rear of the pad, a plunger adapted to engage any type brought to the plunger-line and force the type a definite distance toward the anvil, a driving-shaft, a cam on the driving-shaft, and connections from the cam to the plunger to produce one advance and retreat of the plunger at each rotation of the shaft.

95. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed rim having a notch, a driver secured to the shaft and arranged to engage the pulley and be held in such engagement by said rim and to disengage at said notch, and a movable piece at said notch to push the driver out of the notch and into engagement with said pulley.

96. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed rim having a notch with an arresting-wall, a driver on the shaft arranged to engage said pulley and be held in such engagement by said rim and to disengage at said notch and rest against said wall, and a movable piece at said notch to push the driver out of the notch and into engagement with the pulley.

97. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed rim having a notch, a driver on the shaft arranged to engage said pulley and be held in such engagement by said rim and to disengage at the notch, a fixed incline at the notch to move the driver from the pulley to the notch, and a movable piece to move the driver from the notch to the pulley.

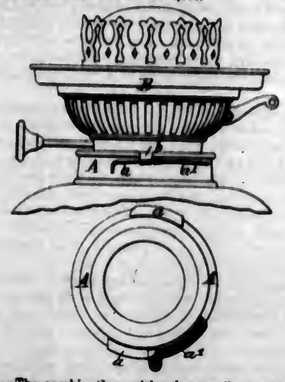
98. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed rim having a notch with an arresting-wall, a driver on the shaft arranged to engage the pulley and be so held by the rim and to disengage and rest at the notch-wall, a fixed incline to move the driver from the pulley to the notch, and a movable piece to move the driver from the notch to the pully.

99. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed rim having a notch with an arresting-wall, a driver on the shaft arranged to engage said pulley and be so held by the rim and to disengage and rest at the notch-wall, a latch to prevent the rebound of the driver from the wall, and a movable piece to move the driver from the notch into engagement with the pulley.

100. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed notched rim, a driver on the shaft arranged to engage the pulley and be so held by the rim and released at the notch, and a sliding pin at the notch to push the driver from the notch.

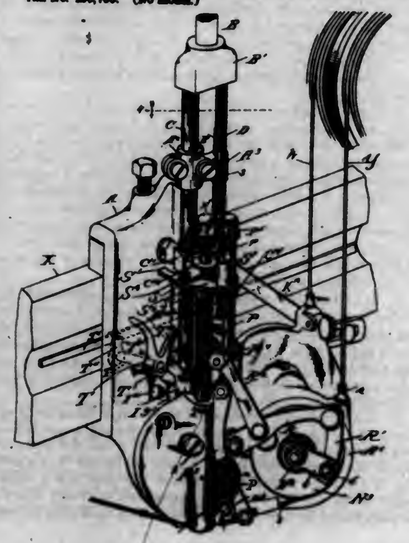
101. The combination, substantially as set forth, of a shaft, a toothed pulley loose thereon, a fixed notched rim, a driver on the shaft arranged to engage the pulley and be so held by the rim and released at the notch, a sliding pin at the notch to push the driver from the notch, and a cam on the shaft to withdraw the pin.

488,253. LAMP-BURNER ATTACHMENT. JAMES KIDD, London, England. Filed Oct. 23, 1891. Serial No. 410,067. (No model.) Patented in England Apr. 9, 1891. No. 6,006.



Claim.—The combination, with a lamp-collar and a burner, of a claw dependent from the burner, a lug on the collar with which the said claw engages, and a spring safety-catch on the collar, arranged to be depressed by the claw in the act of attaching the burner to the collar and to pass behind the claw after said attachment, substantially as described.

488,254. STAPLE FORMING AND DRIVING MACHINE. THURSTON L. KNUDSON and JACOB UHRI, Chicago, Ill. Filed Feb. 8, 1892. Serial No. 420,735. (No model.)



Claim.—1. In a staple-forming machine, the combination, with the stationary frame and feed and severing mechanisms for the wire, of the staple-former mounted in the stationary frame, a carrier reciprocating in the stationary frame, a bender reciprocated by the carrier and operating in the movement of the carrier in one direction to engage the staple-blank, force it into the staple-former, and then release the staple, and a ram upon the carrier, operating in the reverse movement thereof to engage and discharge the staple from the staple-former, substantially as described.

2. In a staple-forming machine, the combination, with the stationary frame and feed and severing mechanisms for the wire, of a staple-former mounted in the stationary frame, a bender reciprocated by the carrier and having an independent oscillating movement and operating in the movement of the carrier in one direction to engage the staple-blank, force it into the staple-former, and then release the staple, and a ram upon the carrier, operating in the reverse movement thereof to engage and discharge the staple from the staple-former, substantially as described.

3. In a staple-forming machine, the combination, with the stationary frame and feed and severing mechanisms for the wire, of a discharge-passage in the frame for the staple, a staple-former mounted in the frame and movable into and out of coincidence with the said discharge-passage, a reciprocating carrier in the frame, a bender reciprocated by the carrier and operating in the movement of the carrier in one direction to engage the staple-blank, force it into the staple-former, and then release the staple, and a ram upon the carrier, operating in the reverse movement thereof to engage the staple and force it out of the staple-former and through the discharge passage, substantially as described.

4. In a staple-forming machine, the combination, with the stationary frame and feed and severing mechanisms for the wire, of a discharge-passage in the frame for the staple, a staple-former movable into and out of coincidence with the said discharge-passage, a carrier reciprocating in the stationary frame, a bender engaged and released by the carrier in its movements and reciprocated thereby a distance less than that traversed by the carrier and having an oscillating motion independent of the carrier and operating when engaged by the carrier in the movement thereof in one direction to engage the staple blank, force it into the staple-former, and then release the staple, and a ram upon the carrier, reciprocating past the engaging end of the bender and operating in the reverse movement of the carrier to engage the staple and force it out of the staple-former and through the discharge-passage, substantially as described.

5. In a staple-forming machine, the combination, with the frame having a discharge-passage for the staple and with the feed and severing mechanisms for the wire, of an oscillating staple-former pivoted to the frame and provided with forming-grooves which in the backward oscillation of the staple-former are brought into coincidence with the said discharge-passage and with a transverse opening between the forming-grooves, a bender reciprocating in and longitudinally of the said transverse opening and movable at its engaging end into and out of coincidence with the forming-grooves, and a ram reciprocating in the said discharge-passage and in the transverse opening of the staple-former past the engaging end of the bender, substantially as described.

6. The combination of the staple-former, a reciprocating ram, a bender, means for oscillating the bender, and means for reciprocating the same upon the movement of the said ram a distance less than that traversed by the ram, whereby the ram with each reciprocation passes the engaging end of the bender, substantially as described.

7. The combination of the frame provided with the discharge-passage for the staple, reciprocating ram, bender having a reciprocating and an oscillating motion, oscillating staple-former pivoted to the frame and having staple-forming grooves, and a spring-stop on the frame, operating to maintain the staple-former normally, with its forming-grooves coincident with the said discharge-passage, substantially as described.

8. The combination, with the reciprocating rod C, ram thereon, and staple-former, of a reciprocating slotted rod F, a socket-piece G on the rod, having a stem p, provided with stops p' and p^2, an arm C^3 on the rod C, loosely embracing the stem p between the stops p' p^2, and a bender G', pivoted to the socket-piece G, extending in the slot of the rod F and having a cam-shaped end to engage the end of said slot, whereby in the reciprocation of the rod C the stops on the socket-piece are alternately engaged by the arm C^3, the rod C has limited movement in advance of such engagement, the rod F and bender are reciprocated, and the bender is oscillated, substantially as described.

9. In a staple-forming machine, the combination, with the staple-forming and wire-severing mechanisms, of a reciprocating bearing and intermittent-grip feeding mechanism for the wire, comprising a reciprocating clutch to engage and advance the wire and adjustable lever mechanism between the reciprocating bearing and clutch, whereby the distance of movement of the clutch with relation to the movement of the bearing may be varied at will, substantially as described.

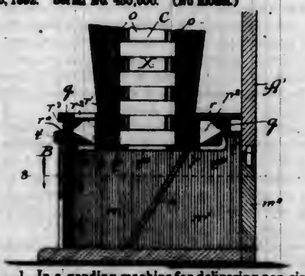
10. The combination, with the reciprocating staple-driving mechanism and discharge-opening for the staple, of strengthening-wire-severing mechanism, feed mechanism adapted to engage and advance said wire across the said discharge-opening, and means for automatically throwing the said severing and feed mechanisms into and out of operation, substantially as described.

11. The combination, with the reciprocating staple-driving mechanism, of a movable support, strengthening-wire-severing and intermittent-feed mechanisms connected with the said support, support-engaging mechanism reciprocating with the staple-driving mechanism and adapted to engage and release the said support, and intermittingly-actuated switch mechanism in the path of the said support-engaging mechanism operating to throw the said engaging mechanism into and out of engagement with the said movable support, whereby the said severing and feed mechanisms are operated, substantially as described.

12. The combination, with the reciprocating staple-driving mechanism, of strengthening-wire-severing and intermittent-feed mechanisms, a longitudinally-movable rod with which the said severing and feed mechanisms are connected, a spring resisting movement of the said rod in one direction, rod-engaging mechanism reciprocating with the staple-driving mechanism and adapted to engage and release the said rod, and intermittingly-actuated switch mechanism in the path of the said rod-engaging mechanism operating to throw the said engaging mechanism into and out of engagement with the said rod, whereby the rod is moved against the resistance of its spring and is returned by its spring, substantially as and for the purpose set forth.

13. The combination, with the staple-driving mechanism, of a feed-passage for the strengthening-wire, an oscillating cutter extending across the said feed-passage and having an opening through it for the wire, normally coinciding with said feed-passage, a cutting-edge at the said feed-passage past which the said cutter oscillates, and feed mechanism for said wire arranged to engage the wire behind the cutter and advance the wire after severance, substantially as described.

488,255. COIN-OPERATED VENDING-MACHINE. ROBERT H. LITTLE, Chicago, Ill., assignor to Everell D. Stiles, same place. Filed June 6, 1892. Serial No. 436,550. (No model.)



Claim.—1. In a vending-machine for delivering non-circular articles, a reservoir in which the articles to be vended are stacked one upon the other to extend alternately at different angles, means for turning the stack on a central longitudinal axis, and a stationary plate against which the stack bears at one end, having a non-circular opening to admit the passage through it of an article only when the stack is turned to a certain relative angle, substantially as described.

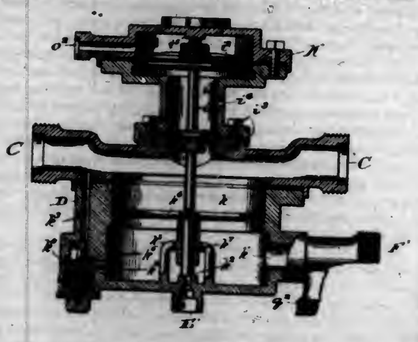
2. In a vending-machine for delivering non-circular articles, the combination of a rotary reservoir adapted to receive a single column of the articles to be vended, said articles being stacked one upon another to turn with the reservoir, the axis of rotation of the reservoir and contents being in a line through the longitudinal center of the said column of articles, means for turning the reservoir and contents on their axis, and a stationary plate against which the column of articles rests at one end, having a non-circular opening through which the articles pass when turned to a certain relative angle, substantially as described.

3. In a coin-operated vending-machine for delivering non-circular articles, the combination, with a stationary base plate provided with a non-circular opening through which the articles pass by gravity when turned to a certain angle, of a bottomless rotary reservoir upon the base-plate in which the articles are stacked one upon the other to rest upon the base-plate across said non-circular opening and extended alternately at different angles in the horizontal plane, the said reservoir operating to hold the articles against independent rotation, and means for rotating the reservoir in the horizontal plane on the insertion into the machine of a coin, whereby the articles are turned on their axes and the lowest article drops through the non-circular opening with each operation, substantially as described.

4. In a coin-operated vending-machine for delivering non-circular articles, the combination, with a bottomless rotary reservoir mounted upon a stationary base-plate provided with a non-circular opening

through which the articles drop when turned with the reservoir to a certain angle, of a rotary plate around and integral with the reservoir, provided with radial slots, each arranged to receive and hold a coin, and a spring-controlled lever operating when turned against the resistance of its spring to engage a coin introduced into one of said radial slots and through the medium of the coin rotate the reservoir, substantially as and for the purpose set forth.

483,256. TRAIN SIGNALING APPARATUS. HARRY B. MASON, Chicago, Ill. Filed Feb. 15, 1892. Serial No. 421,615. (No model.)



Claim.—1. The combination, with a pipe, means for charging the same with fluid under pressure, and a signal-actuating valve communicating with the pipe and operated by impulses of reduction of pressure in the pipe, of automatic locking mechanism connected with the said valve and operating, as described, to lock the said valve when the inflow of charging-pressure to the pipe is cut off, substantially as set forth.

2. In a pneumatic signaling system, the combination, with the signal-pipe and signal-actuating valve communicating therewith, of signal-valve automatic locking mechanism and a valve governing said locking mechanism, said governing-valve operating in its movement to actuate the locking mechanism and then throw the signal-valve into and out of operation, substantially as described.

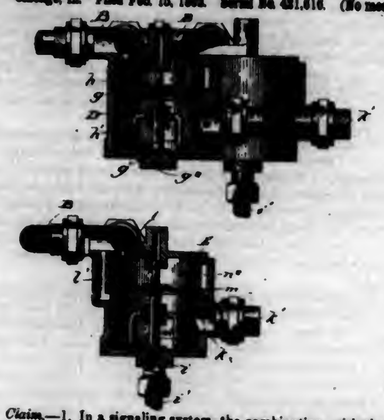
3. In a signaling system, the combination, with the signaling-pipe, compressed-air-supply valve governing the inflow of pressure from the said supply to the pipe, venting-valve upon the pipe, and signal-actuating valve communicating with the pipe and operated by impulses generated at the said venting-valve, of locking mechanism for the signal-actuating valve, controlled by movement of the said governing-valve, substantially as and for the purpose set forth.

4. In a signaling system for railway-trains, the combination, with the train-pipe and the engineer's brake-valve and signal-valve communicating therewith, of signal-valve-locking mechanism controlled from the engineer's brake-valve and operated thereby in its movement to and from release position to lock and unlock the signal-valve, substantially as and for the purpose set forth.

5. In a signaling system for railway-trains, the combination, with the train-pipe and the engineer's brake-valve and signal-valve communicating therewith, of signal-valve-locking mechanism comprising a chamber provided with a diaphragm movable under air-pressure, having a stem which extends into the signal-valve to engage and release the valve mechanism therein in the movement of said diaphragm, the said diaphragm-chamber communicating with the engineer's brake-valve to be charged with pressure when said brake-valve is turned to release position to lock the signal-valve and be vented of pressure when the said brake-valve is turned from release position to unlock the signal-valve, substantially as and for the purpose set forth.

6. In a signaling system for railway-trains, the combination, with the train-pipe and engineer's brake-valve, of a signal-valve having a chamber communicating with the train-pipe, containing a valve movable by differential pressure, and an escape-port from said chamber to the signal controlled by said valve, and a shell containing a diaphragm-chamber communicating with the engineer's brake-valve, to be charged with and vented of pressure thereby when said brake-valve is turned to and from release position, and having a diaphragm moved in one direction by pressure entering its chamber and movable in the opposite direction when pressure is vented from its chamber, and provided with a stem which extends into the signal-valve chamber to engage and lock the valve therein when moved by pressure entering said diaphragm-chamber and to release said valve when pressure is vented from said diaphragm-chamber, substantially as and for the purpose set forth.

483,257. TRAIN SIGNALING APPARATUS. HARRY B. MASON, Chicago, Ill. Filed Feb. 15, 1892. Serial No. 421,616. (No model.)



Claim.—1. In a signaling system, the combination, with the signaling-reservoir and signaling-pipe both charged with fluid under pressure, of two or more valve devices provided with movable diaphragms exposed on opposite sides, respectively, to pressure from the said pipe and reservoir, and vent-openings for the reservoir normally closed by the said diaphragms, the diaphragms of the respective valve devices being of gradually-increasing resistance and movable by reductions of pressure in the said pipe to open the said vent-openings, substantially as described.

2. In a signaling system, the combination, with the signaling-pipe charged with artificially-created fluid-pressure, signal-valve, and conductor's signaling-valve, of pressure-relief-valve mechanism communicating with the signal-pipe and supplementing the action of the signal-valve to vent pressure from behind the same when the signal-pipe pressure is reduced, substantially as described.

3. In a signaling system, the combination, with the signaling-pipe charged with artificially-created fluid-pressure, signal-valve, signal-reservoir, and conductor's signaling-valve, of pressure-relief-valve mechanism communicating with the signal-pipe and signal-reservoir and supplementing the action of the signal-valve to vent pressure from the signal-reservoir when the signaling-pipe pressure is reduced, substantially as described.

4. In a signaling system, the combination, with the signaling-pipe charged with artificially-created fluid-pressure, signal-valve, signaling-reservoir, and conductor's signaling-valve, of pressure-relief-valve mechanism communicating with the signaling-pipe and signaling-reservoir, the moving parts of which offer a greater resistance than those of the signal-valve, whereby the said pressure-relief-valve mechanism is operated only by impulses of reduction of pressure in the signaling-pipe greater than those necessary to operate the signal-valve to vent pressure from the signaling-reservoir, substantially as described.

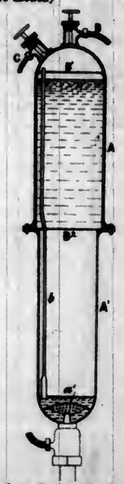
483,258. PACKING-JAR. JULIUS W. MEYER, Baltimore, Md., assignor of one-half to Robert B. Mason, same place. Filed Oct. 17, 1891. Serial No. 408,992. (No model.)



Claim.—The herein-described jar, constructed of friable material, the same consisting of the downwardly-tapered body portion J, having its upper large end exteriorly reduced and threaded, the flat annular rubber gasket mounted on the reduced portion, the closure for the jar, having an annular interiorly-threaded flange, the smaller end of the jar having the annular concaved foot F, the center of which is

provided with a threaded perforation, and the threaded plug therefor, substantially as specified.

483,259. METHOD OF AND APPARATUS FOR AERATING LIQUIDS. JAMES H. MINTO, Liverpool, England. Filed Mar. 11, 1892. Serial No. 424,538. (No model.)



Claim.—1. The herein-described method of aerating liquids, which consists in automatically regulating the supply of liquid to the saturating-chamber in proportion as the saturated liquid therein is withdrawn, whereby a constant degree of saturation is maintained and the process is made substantially continuous, as set forth.

2. The herein-described method of aerating liquids in a substantially-continuous manner, which consists in supplying the liquid to the saturating-chamber in a gradual automatically-regulated manner and in proportion as the saturated liquid is withdrawn therefrom, as set forth.

3. In an apparatus for aerating liquids, the combination, with a saturating-chamber provided with a gas-inlet and a liquid outlet at its lower part and a supply-chamber above the saturating-chamber and connecting with the upper part thereof through the medium of a spraying-inlet, of a pipe connecting the lower portion of the saturating-chamber with the upper portion of the supply-chamber, whereby the lower extremity of said pipe may be unsealed by the withdrawal of liquid from the saturating-chamber, substantially as and for the purposes set forth.

4. In an apparatus for aerating liquids, the combination, with a saturating-chamber provided with a gas-inlet and liquid-outlet at its lower part and a supply-chamber to contain liquid closed against the atmosphere and arranged above the saturating-chamber and separated therefrom by a perforated diaphragm through which the liquid may fall as a spray into the upper portion of the saturating-chamber, of a pipe or like conduit which connects the lower part of the saturating-chamber with the gas-space in the upper part of the closed supply-chamber, whereby when the lower extremity of said pipe is unsealed by the withdrawal of liquid from the saturating-chamber the gaseous pressure in the chambers will be equalized, for the purpose set forth.

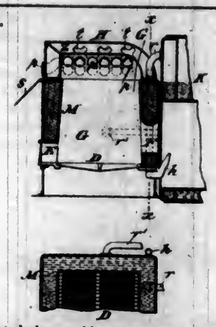
5. In an apparatus for aerating liquids, the combination, with the saturating-chamber provided with the inlet for the gas and outlet for the charged liquid, of the supply-chamber A, arranged over the same and provided with the liquid-inlet and gas-outlet, the perforated diaphragm B^3, and the tube b, communicating between said chambers, whereby the level of the liquid in the saturating-chamber is maintained, substantially as set forth.

6. In an apparatus for aerating liquids, the combination, with the chambers A and A', separated by the perforated diaphragm B^3 and provided with outlets and inlets for the liquid and gas, of the tube b, communicating between said chambers, whereby the level of the liquid in the saturating-chamber is maintained, substantially as set forth.

483,260. STEAM-BOILER AND FURNACE. RUDOLF MÜLLER, Reiherstieg, Hamburg, Germany. Filed May 19, 1892. Serial No. 433,504. (No model.)

Claim.—The combination, with a boiler, of a water-jacket consisting of hollow upright walls which constitute the surrounding walls of a fire-box, a grate constituting the bottom of said fire-box, and a

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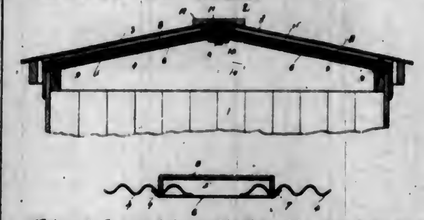
double hood situated above said water-jacket and constituting the top of said fire-box, the said double hood containing an air-space and having in it air-inlets to the fire-box above said water-jacket, substantially as set forth.

483,261. THILL-COUPLING. JOHN V. MYERS, Industry, Ill. Filed May 11, 1892. Serial No. 432,660. (No model.)



Claim.—In a thill-coupling, the combination of an axle-clip having forwardly-projecting ears, a coupling-bolt, and a clip comprising a thill-iron provided on its upper face with upwardly-projecting ears and having a socket and a threaded opening communicating with the socket and provided with a concave shoulder, a J-shaped section provided at its hooked end with an ear pivoted between the said perforated ears and adapted to receive the coupling-bolt between its hooked or curved end and the concaved shoulder, an elastic block arranged in said socket, a screw arranged in the threaded opening and adapted to force the elastic block against the coupling-bolt, and means for detachably locking the J-shaped section to the shaft-iron, substantially as described.

483,262. ROOF. JAMES J. MCCARTHY, Austin, Ill. Filed Apr. 1, 1892. Serial No. 427,607. (No model.)



Claim.—1. In a roof, the combination, with a plate 6, having upturned edges 7, of a channel-bar 8, inverted over said plate 6 and secured thereupon, and plates 4, having their edges secured between said plate 6 and channel-bar 8, substantially as described.

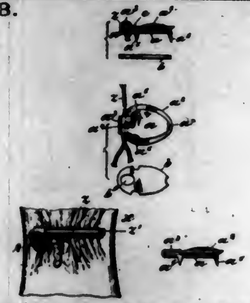
2. In a roof, the combination, with a longitudinally-extending channel-bar 13, of a ridge-pole 15, the lower portion of which is adapted to fit into said channel-bar, and carlings having their ends secured between said ridge-pole and channel-bar, substantially as described.

3. In a roof, the combination, with a longitudinally-extending channel-bar 13 and a T-shaped ridge-pole 15, the lower portion of which is adapted to fit into said channel-bar, of carlings the ends of which are adapted to fit between the lateral portions of the ridge-pole and the edges of the channel-bar and means for securing said ridge-pole to said channel-bar, substantially as described.

483,263. CORD-CLASP FOR GLOVES. ALEXANDER B. MCDONALD, Brooklyn, N. Y. Filed Nov. 24, 1891. Serial No. 413,009. (No model.)

Claim.—1. A cord-clasp for a glove, comprising a base-plate a, a cleat-plate a^4, arranged over said base-plate, and a tubular cord-

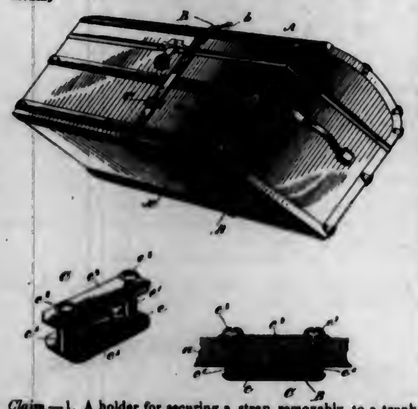
483,263.



guide a^3, uniting said base-plate and cleat-plate and having a hole a^4 in its bottom, the said cleat-plate being brought into contact with the base-plate at c in order to segregate the cord-guide, and the said base-plate provided with clinching-points, substantially as set forth.

2. A metal cord-clasp for a glove, comprising a base-plate a, a cleat-plate a^2, arranged above said base-plate, and a tubular cord-guide a^3, uniting said base-plate and cleat-plate and provided with a hole a^4 in its bottom for the passage of one end of the cord, and the cord z in said guide, the passage in the cord-guide being separated at c from the space under the cleat-plate, as set forth.

483,264. STRAP-HOLDER FOR TRUNKS. ALEXANDER H. MCDONALD, Brooklyn, N. Y. Filed Apr. 23, 1892. Serial No. 430,178. (No model.)



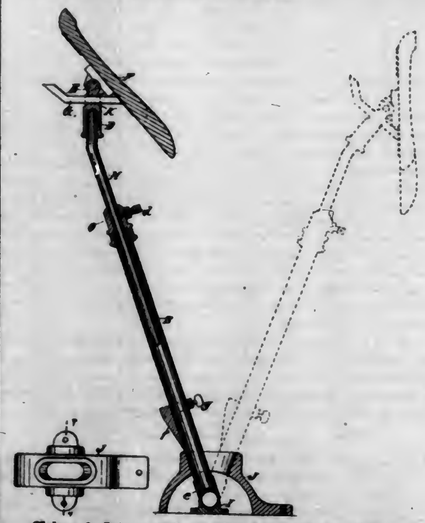
Claim.—1. A holder for securing a strap removably to a trunk without puncturing or injuring the strap, said holder comprising a clamping-plate c to press on the strap, provided with two studs c' to pass through holes in the trunk-wall at the respective edges of the strap, and screw-fastenings for securing the said plate removably to the trunk from the inside of the latter and for causing the clamping-plate to press on the strap, as set forth.

2. The combination, with a trunk and a strap to embrace it, as described, of a holder for said strap, comprising a plate c, which extends across and bears on said strap, two studs c', integral with said plate and spaced to leave room for the strap between them, said studs extending through holes in the trunk-wall, and screw-fastenings at the inner ends of the respective studs for drawing the plate c and causing it to press forcibly on the strap, as set forth.

3. A holder C for securing a strap removably to a trunk, the same comprising a clamping-plate c, provided with studs c', having sockets in their extremities to receive the screws c^3 and the said screws.

4. A holder C for securing a strap removably to a trunk, the same comprising a clamping-plate c, having a roughened inner face and provided with studs c', having sockets to receive the screws c^3, the said screws, and a washer-plate c^4.

483,265. SEAT. CASPAR C. A. SCHINDLER, Basle, Switzerland. Filed May 26, 1892. Serial No. 434,763. (No model.) Patented in Switzerland Jan. 25, 1890, No. 1,803; in France Mar. 10, 1890, No. 204,970; in Belgium Mar. 14, 1890, No. 90,558; in England July 5, 1890, No. 10,447; in Germany Aug. 26, 1890, No. 57,536, and in Austria-Hungary Nov. 9, 1890, No. 23,326 and No. 43,492.

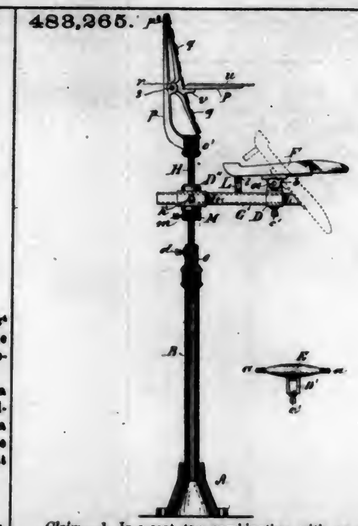


Claim.—1 In a seat, the combination, with an upright support capable of longitudinal extension in order to regulate the height of the seat and mounted to rock on pivots at its base, of a guide and limiting-stops for said support, the socketed coupling D, rotatively mounted on said support, the cross-bar E, affixed to said coupling, the seat-board F, pivotally mounted on said cross-piece, and stops to limit the movement of the seat-board about its pivots.

2. In a seat, the combination, with the upright support for the seat-board, of the cross-bar E, carried by said support, the seat-board F, pivotally mounted on said bar, and the bar G, mounted in the base of said cross-bar, the ends of the bar serving as stops to limit the movements of the seat on its pivots.

3. In a seat, the combination of the extensible upright B H, provided with a T-piece e at its lower end, the shoe I, which receives said T-piece, the slotted guide-piece J, embracing the upright, and the tapered limiting-piece f, mounted adjustably on the upright, of the seat-board F, pivotally mounted on the upper end of said upright.

483,266. SEAT. CASPAR C. A. SCHINDLER, Basle, Switzerland. Filed Jan. 11, 1892. Serial No. 417,623. (No model.) Patented in Switzerland Jan. 25, 1890, No. 1,803; in France Mar. 10, 1890, No. 204,970; in Belgium Mar. 14, 1890, No. 90,558; in England July 5, 1890, No. 10 447; in Germany Aug. 26, 1890, No. 57,536, and in Austria-Hungary Nov. 9, 1890, No. 23,326 and No. 43,492.

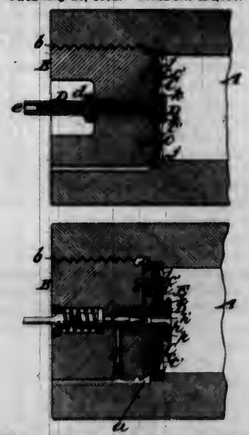


Claim.—1. In a seat, the combination, with an upright support provided with a horizontal bar G', of the cross-piece E, mounted on said bar G', the seat-board F, pivotally mounted on said cross-piece, and the cushion-spring L, mounted on said seat-board.

2. In a seat, the combination, with the upright support provided with a sleeve D', rotatable thereon, and an adjustable supporting-collar M, of the bar or arm G', mounted in a socket in the sleeve D', the socketed coupling D', mounted adjustably on the arm G', the cross-bar E on the coupling D', and the seat-board F, pivotally mounted on the cross-bar E and provided with a cushion-spring L, as set forth.

3. In a seat, the combination, with an upright support, of the back-rest and arm-rests on the upper end of said support, the seat-supporting arm or bar G', mounted on said upright support, and the pivotally-mounted seat-board carried by said bar G'.

483,267. BREECH-LOADING ORDNANCE. SAMUEL SEABURY, U. S. Navy. Filed May 28, 1892. Serial No. 434,700. (No model.)



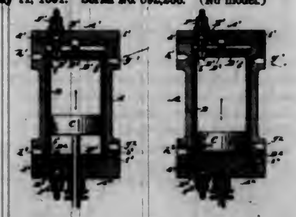
Claim.—1. The combination, with the breech-block of a breech-loading gun, of one or more gas-check disks secured to the face of said block and having a forward bulge, behind which there is a space between the said disk or disks and said face, substantially as and for the purpose herein set forth.

2. The combination, with a breech-loading gun and a breech-block fitted thereto and entering it from the rear, of gas-check disks secured to the face of said block and having their outer edges presented circumferentially and also having forwardly-bulged portions, behind which there is a space into which said bulged portions can be forced back to expand said circumferentially-presented edges against the bore of the gun, substantially as herein set forth.

3. The combination, in a breech-loading gun, of a breech-block having a bulged face and one or more gas-check disks secured to said face and having a forward bulge fuller than the bulge of said face, whereby a space is provided between the bulged portions of said face and said disk or disks, substantially as and for the purpose herein set forth.

4. The combination, with the breech-block of a breech-loading gun, of a gas-check disk secured to the face of said block and having separate bearings against said face near the circumference thereof and near the center thereof and having between said bearings a forward bulge, behind which there is a space between the said disk and the said face, substantially as herein described.

483,268. GAS-COMPRESSOR. ALFRED SIEBERT, New York, N. Y. Filed May 11, 1891. Serial No. 392,288. (No model.)



Claim.—1. In a compressor for gaseous fluids, a reciprocating piston, an internal cylinder and an external cylinder movable relatively to each other, and provisions for admitting fluid under pressure to the spaces between the two cylinders at the ends of the same alternately, so as to aid in moving the internal cylinder from one extreme position to the other at the required periods, as herein specified.

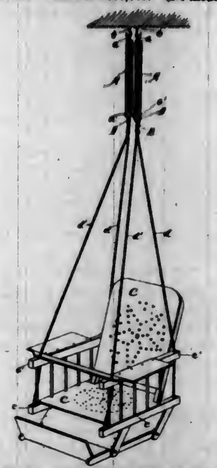
2. In a compressor for gaseous fluids, having a reciprocating piston and a movable internal cylinder, provisions for admitting oil or analogous fluid under pressure to the two ends of the external cylinder, so as to aid in throwing the internal cylinder from one extreme position toward the other, and ports f' f^2 in the external cylinder near the ends thereof, alternately opened by the reciprocations of the internal cylinder, in combination with each other and check-valves in the suction-pipe, said parts being adapted to allow gas to freely escape from such oil at the proper time, as herein specified.

483,269. INSECTICIDE-DISTRIBUTER. REUBEN J. TALLEY, Louisville, Tex., assignor of one-half to S. P. Gordon, same place. Filed June 11, 1892. Serial No. 436,379. (No model.)



Claim.—The combination of a base, a bellows mounted thereon, a receptacle arranged in advance of the bellows and adapted to contain poison to be distributed, a forwardly-projecting discharge-tube, laterally-extending discharge-tubes comprising inner rigid sections, outer rigid sections having series of discharge-nozzles, and flexible couplings connecting the rigid sections, and the braces having their inner ends pivoted to the base and their outer ends pivoted to the outer sections and supporting the same, substantially as described.

483,270. BABY-JUMPER. WILLIAM S. TOTHILL, Chicago, Ill. Filed Jan. 11, 1892. Serial No. 417,673. (No model.)



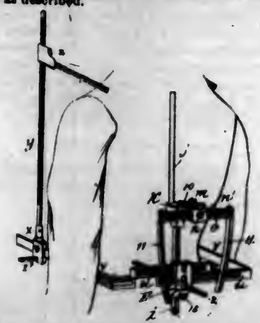
Claim.—A baby-jumper consisting of a pair of suspension-springs A, arranged in close proximity and having their lower ends connected by a loose ring or link B, and a chair C, having cords or ropes d d' secured to the lower ends of the loosely-connected springs, so that if one spring breaks the loose link or ring instantly adjusts itself and the chair will be properly supported without unduly tilting or overturning, substantially as described.

483,271. TAILOR'S MEASURING APPARATUS. ATHANASE TROCHU, Redon, France. Filed Nov. 9, 1889. Serial No. 329,748. (No model.) Patented in France Feb. 16, 1889, No. 196,131.

Claim.—1. In combination, a base, a standard extending therefrom, the supplemental frame supported independently of the standard and extending up alongside the standard from the base thereof, and an adjustable connection between the upper part of said frame and the standard, substantially as described.

2. In combination, the base, the standard, a supplemental frame adjustable independently of the main base and standard and bearing upon the floor, and the connection between the said frame and the standard, substantially as described.

3. In combination, the main base, the standard D, the supplemental frame having adjustable feet to bear on the floor, and the adjustable connection between the said frame at its upper end and the standard, substantially as described.



4. In combination, the main base, the standard D, the supplemental frame, the connection between the said frame and the standard, and the adjustable feet for the supplemental frame, consisting of the pivoted parts q q and the means for holding them adjustably, substantially as described.

5. In combination, the main base, the standard extending therefrom, and the adjustable supplemental frame including the bent portions p and the wedges S between the said portions and the main base, substantially as described.

6. In combination, the main base, the graduated standard, the supplemental adjustable frame, including the rule o, and the adjustable connection between said rule and the standard, substantially as described.

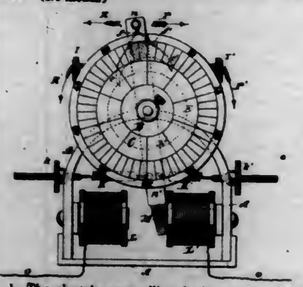
7. In combination, the main base, the standard, the adjustable block E, the transverse rules carried by the said block, the arms at the ends of the rules, and the uprights y, adjustable on said arms and the arms on the uprights, said arms being adjustable and extending rearwardly to bear on the shoulders of the person, substantially as described.

8. In combination with the frame comprising the base, the standard, the rules u u, and the arms v v, and the pins 1 2, substantially as described.

9. In combination with the frame comprising the base and the standard, the rule f on the base and the blocks carried thereby, and the arms projecting from said blocks, substantially as described.

10. In combination, the base, the standard, the block E, adjustable vertically thereon, the rules and arms carried by the said block, and the depending arm 3, also carried thereby, substantially as described.

483,272. MEANS FOR CONTROLLING THE OPERATION OF MECHANISMS. HENRY R. VINNING, Roseville, N. J., assignor of one-half to Robert S. Walker, New York, N. Y. Filed Feb. 27, 1892. Serial No. 422,986. (No model.)



Claim.—1. The electric controlling device consisting of a pin or lever actuated by a disk and intermediate mechanism caused to rotate in alternately-opposite directions by mechanism operated by a number of successive electrical impulses of one polarity, then a break in the circuit, and then a number of successive electrical impulses of an opposite polarity, substantially as described.

2. In a series of electrically-controlled devices, (such as locks, lamps, &c.,) a corresponding series of pins or levers to operate said devices, all located on one circuit, and each of said pins being actuated independently of the others by a disk, (and intermediate mechanism,) caused to rotate in alternately-opposite directions by mechanism operated by a number of successive electrical impulses of one polarity, then a break in the circuit, and then a number of successive electrical impulses of an opposite polarity, substantially as described.

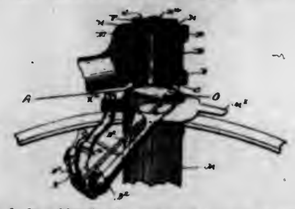
3. In an electric controlling device, the combination of a pin or lever actuated by a disk and tumblers, said disk caused to rotate in alternate opposite directions by ratchet-wheels and pawls, said ratchet-wheels and pawls operated by the armature of a polarized magnet, said polarized magnet causing the armature to move in alternately-opposite directions corresponding to the change in polarity of successive electrical impulses, an electric generator, and an electric circuit, all arranged and operated substantially as described.

4. In a series of electrically-controlled devices, (such as locks, lamps, &c.,) the combination of a corresponding series of pins actuated independently of the others by a disk and tumblers, each of said disks caused to move in alternately-opposite directions by ratchet-wheels and pawls, said ratchet-wheels and pawls being moved by the armature of a polarized electro-magnet, said magnet causing its armature to move in opposite directions corresponding to the change in polarity of successive electrical impulses, an electric generator, and an electric circuit, substantially as described.

5. In an electric controlling device, the combination of electro-magnets L L, armature M, swinging bar N, pawls e e', ratchet-wheels E E', and shaft B, substantially as described.

6. In an electric controlling device, the combination of two or more disks C to operate tumblers, the corresponding pins or levers D, ratchet-wheels E E', pawls e e', shafts B, swinging bars N, armatures M, electro-magnets L L', an electric circuit, and an electric generator, substantially as described.

483,273. BICYCLE. WILLIAM O. WAKEFIELD, Lynn, Mass., assignor to F. W. Webster and Edwin W. Rice, Jr., same place. Filed Mar. 28, 1889. Serial No. 305,152. (No model.)



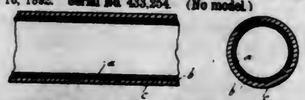
Claim.—1. In a bicycle, the combination, with the steering-head secured to the fork, of handle-bars the ends of which pass upwardly through a projection from the head and nuts K^3, engaging with the screw-threaded ends of said bars, as and for the purpose described.

2. In a bicycle, a brake-spoon engaging with the periphery of the main driving-wheel forward of the steering-head and pivoted to the steering-head or fork at a point below the circumference of the wheel, as and for the purpose described.

3. The combination, with the brake-lever and the brake-spoon, of the connecting-link extended as a spring, as and for the purpose described.

4. The combination, in a bicycle having a handle-bar extending downwardly, outwardly, and upwardly from the steering-head, of a brake-spoon, a brake-lever pivoted on the handle-bar, and a connecting-link between said lever and the brake-spoon, as and for the purpose described.

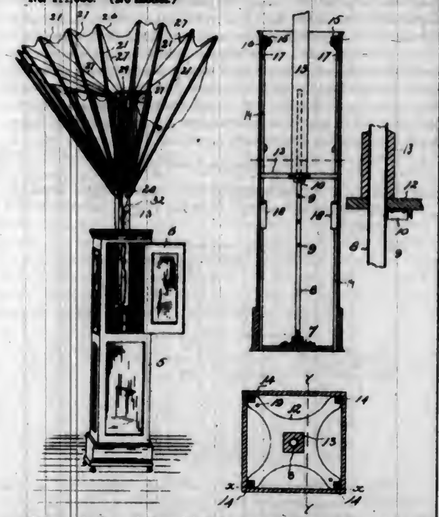
483,274. PIPE FOR THE CONVEYANCE OF LIQUIDS OR GASES. EDWIN WALKER and JOSEPH SHAW, Heckmondwike, England. Filed May 16, 1892. Serial No. 433,254. (No model.)



Claim.—1. A compound pipe consisting of an inner core-pipe of ductile material, an external pipe of rigid material, and an elastic cushion interposed between the said two pipes and adapted to permit the core-pipe to expand when the liquid inside it freezes and to cause the said core-pipe to contract when the liquid thaws.

2. A compound pipe consisting of an inner core-pipe of ductile material, an external pipe of rigid metal, and a tubular cushion of india-rubber interposed between the said two pipes, substantially as and for the purpose set forth.

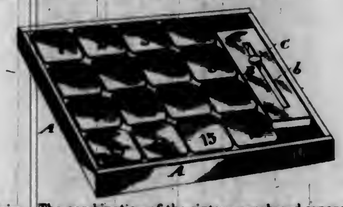
483,275. CLOTHES-DRIER. HATTIE ADLER, Denver, Colo., assignor of one-half to Carl C. Mollerup, same place. Filed Nov. 6, 1891. Serial No. 411,020. (No model.)



Claim.—1. In a clothes-drier, the combination, with a post, of a vertically-movable plate supported thereon, a stationary plate located above the movable plate and provided with pulleys, arms hinged or pivoted to the movable plate, cords secured to these arms, passing over the pulleys of the stationary plate and secured to the movable plate, and suitable means for causing the movable plate to recede from or approach the stationary plate, according as it is desired to open or close the pivoted arms, substantially as described.

2. In a clothes-drier, the combination of an upright cabinet or case open at the top, a fixed standard located therein, a hollow post receiving the standard and vertically movable thereon, a guide-plate secured to the post and adapted to slide in the cabinet-frame, and weights connected with the post by cords passing over suitable pulleys attached to the cabinet-frame, the movable post being provided with adjustable arms adapted to enter the cabinet at the top, substantially as described.

483,276. PUZZLE. PETER W. ANDERSON, Roanoke, Va. Filed June 9, 1892. Serial No. 436,108. (No model.)



Claim.—The combination of the sixteen numbered square blocks described with the rectangular box A, one-fifth larger than the space or square occupied by the blocks, and the slide B, having the longitudinal slot b, straddling a headed bolt or screw, as and for the purpose set forth.

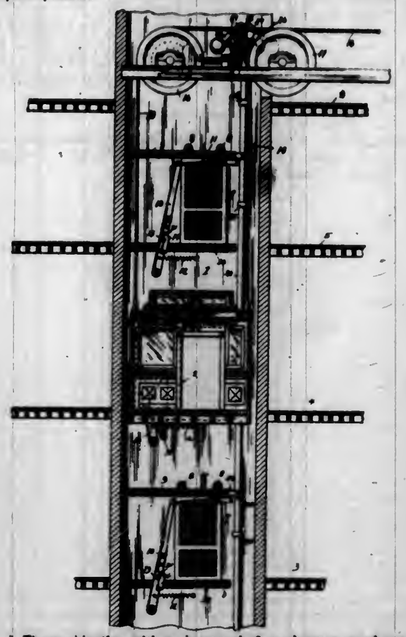
483,277. ELEVATOR. CASSIUS M. BARTHOLOMEW, Newark, Ohio, assignor to himself and James Atherton, same place. Filed Oct. 13, 1891. Serial No. 408,617. (No model.)

Claim.—1. The combination, with an elevator-shaft and a car, of sliding doors, devices operated by the car to automatically slide the doors open, and locking mechanism operated by the motion of the car to automatically and simultaneously lock all the doors in their closed position, substantially as described.

2. The combination, with an elevator-shaft and a car, of sliding doors, lever-and-spring mechanism operated by the car to automatically slide the doors open, and a rising-and-falling locking-rod moved by the motion of the car and having devices which engage and lock all the doors in their closed position while the car is in motion, substantially as described.

3. The combination, with an elevator-shaft, an elevator-car adapted to move therein, and pulleys and cables for operating the car, of a governor adapted to be rotated by the rotation of one of the pulleys and mechanism operated by the governor for locking the doors leading into the elevator-shaft, substantially as described.

4. The combination, with an elevator-shaft, an elevator-car adapted to move therein, pulleys 16 and 17, and cables 18 for operating the car, of a governor 19, having arms 26, said arms having inward extensions 27, a shaft 20, rod 24, and devices carried by said rod for locking the doors opening into the elevator-shaft, said extensions 27 being connected with the upper end of the shaft 20, substantially as and for the purpose specified.



5. The combination, with an elevator-shaft, an elevator-car adapted to move therein, and pulleys 16 and 17 and cables 18 for operating the car, of a governor 19, having arms 26, said arms having inward extensions 27, a shaft 20, rod 24, hooks 30, carried by said rod, adapted to engage corresponding hooks 29 upon the doors opening into the elevator-shaft, and collar 28, journaled upon the upper end of the shaft 20, said collar being connected to the inward extensions 27, substantially as and for the purpose specified.

6. The combination, with an elevator-shaft, a car 2, adapted to move therein, and doors 7, opening into said shaft, of swinging levers 10, door-opening springs 11, connecting the levers with the doors, springs 12 for moving the levers in one direction, and devices carried by the car for moving the levers in the opposite direction to cause the door-opening springs to pull the doors to their open position, substantially as described.

7. The combination, with an elevator-shaft, a car 2, adapted to move therein, and doors 7, opening into said shaft, of swinging levers 10, door-opening springs 11, connecting the levers with the doors, springs 12 for moving the levers in one direction, and a cam 15, mounted on the car for moving the levers in the opposite direction to cause the door-opening springs to pull the doors to their open position, substantially as described.

8. The combination, with an elevator-shaft, a car, and doors opening into the shaft, of a main locking mechanism operated by the motion of the car to automatically lock all the doors in their closed positions, supplementary locks for locking each of the doors shut, and devices for unlocking the supplementary lock at each door when the car stops opposite such door, substantially as described.

9. The combination, with an elevator-shaft, a car, and doors opening into the shaft, of a movable vertical locking-rod having locking devices to engage the doors and lock them in their closed positions and gearing operated by the motion of the car to move the locking-rod into position to engage its locking devices with the doors, substantially as described.

10. The combination, with an elevator-shaft, a car, and doors hav-

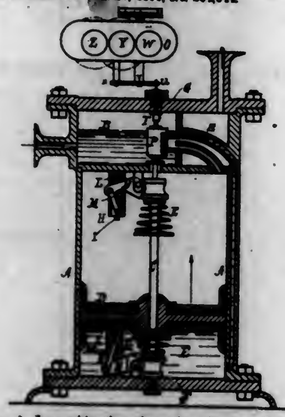
ing hooks, of a vertically-movable locking-rod having hooks and mechanism operated by the motion of the car to move the rod lengthwise and cause its hooks to engage the hooks on the doors, substantially as described.

11. The combination, with an elevator-shaft, a car adapted to move therein, a door 7, lever 10, and spring 11, of a catch 31, having hook 32, bar 34, having a notch 33, and devices for operating said lever and catch, substantially as and for the purpose specified.

12. The combination, with an elevator-shaft, a car adapted to move therein, a door 7, lever 10, and spring 11, of a catch 31, having hook 32, bar 34, having a notch 33, and a cam 15, carried by said car, said cam being adapted to operate the lever 10 and the catch 31, substantially as and for the purpose specified.

13. The combination, with an elevator shaft, car 2, adapted to move therein, a door 7, lever 10, springs 11 and 12, and devices for locking said lever to hold the door shut, of devices carried by said car adapted to operate the lever to open the door, substantially as described.

488,278. PISTON METER. TONY BLEIN and EDOUARD BERAUD, Lyons, France. Filed Oct. 13, 1890. Serial No. 367,911. (No model.) Patented in France Mar. 27, 1890, No. 204,644.

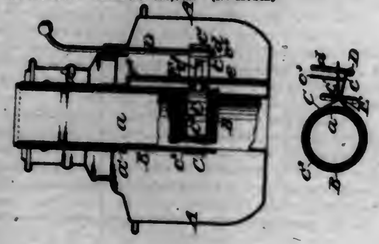


Claim.—1. In combination, the casing, the central rod C, arranged to slide in bearings in said casing, the piston D, arranged to slide on the rod, the passages leading to the ends of the cylinder, a valve P, controlling said passages and carried directly on the sliding rod, the springs for placing the said rod under tension, and the means for gripping the said rod, said means being in the path of the sliding piston to be operated thereby, substantially as described.

2. In combination, the casing, the piston therein, the sliding rod C, passing loosely through the piston, the springs on the rod and directly in the path of the piston to be engaged thereby, and the gripping means also in the path of the piston, said means being arranged to grip the rod and being located entirely within the piston-chamber, together with the springs, substantially as described.

3. In combination, the casing, the valve-chamber, the two passages leading therefrom to the ends of the casing, the piston within the casing, the sliding rod passing loosely through the piston, the means in the path of the piston to be operated thereby for controlling the action of the rod, and a single valve P, controlling the inlet and outlet of the water, said valve being carried directly on the sliding rod C, substantially as described.

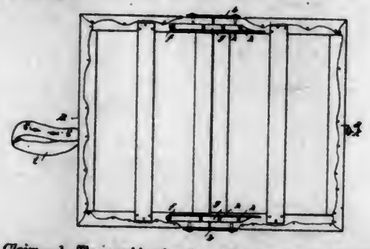
488,279. WICK-RAISER. GEORGE S. BROWN, Forestville, Conn., assignor to the Bristol Brass and Clock Company, New York, N. Y. Filed Jan. 22, 1892. Serial No. 418,909. (No model.)



Claim.—1. The wick-raising device comprising a resilient band adapted to surround the wick, the ends of the band projecting laterally therefrom, a guide for drawing the said extended ends of the band toward each other as the band is moved longitudinally along the wick-tube, and means for moving the band, substantially as set forth.

2. The wick-raiser comprising the resilient band adapted to surround the wick and terminating at its ends in laterally-projecting lips, means for interlocking the lips one with the other, an operating device engaged with the lips, and a guide the sides of which approach and recede from each other and between which the lips of the strap are adapted to slide, substantially as set forth.

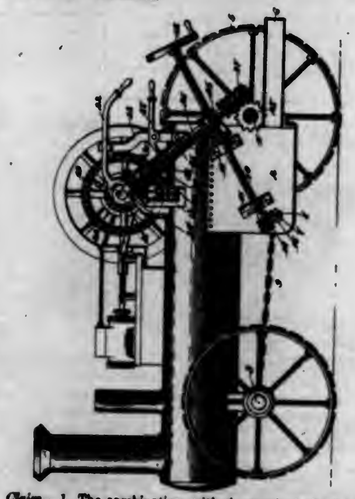
488,280. FOLDING STRETCHER FOR PICTURES. EDUARD R. BUTLER, Ueberlingen, Germany. Filed Mar. 14, 1891. Serial No. 384,983. (No model.)



Claim.—1. The combination, in a folding stretcher for pictures, of a pair of frames provided with curved slits at their ends, with a pair of arms *b*, having pins that engage such curved slits, substantially as specified.

2. The combination of a pair of frames *a* with plates *c*, having curved slits, arms *b*, having pins *e* engaging such slits, and with hook *g* and pin *h*, substantially as specified.

488,281. DRIVING MECHANISM FOR ROAD-ENGINES. CALVIN F. CHRISTOPHER, Spartanburg, S. C., assignor of one-half to David R. Duncan and Thomas C. Duncan, same place. Filed Dec. 2, 1891. Serial No. 413,786. (No model.)



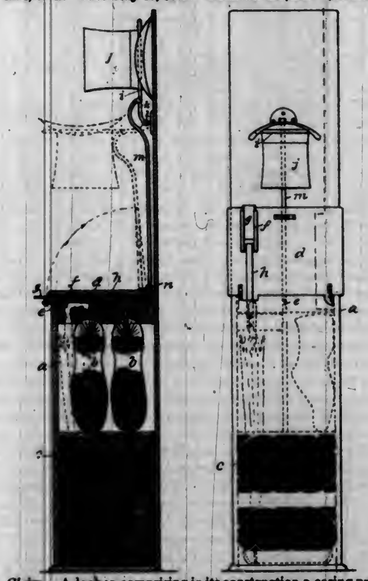
Claim.—1. The combination, with the crank-shaft of a traction-engine, a gear mounted thereon, the drive-axle, and a gear mounted thereon, of an intermediate worm-gear mounted on the lower end of the shaft and meshing with the gear of the axle, a toothed gear loosely mounted on the upper end of the shaft and engaging with the gear of the crank-shaft and having a toothed hub, and a toothed clutch mounted for sliding and non-rotatably on the shaft and provided with a lever for operating the same, so as to engage the toothed hub of said gear, substantially as specified.

2. The combination, with the crank-shaft of a traction-engine, a master-gear mounted thereon, and a pinion mounted loosely on the shaft and provided with a shifting-lever for throwing the same into a

fixed position with the shaft, of a drive-axle, a gear thereon, an inclined power-shaft, a gear on the lower end of said power-shaft engaging that of the axle, a pinion fixed on the upper end of the shaft and adapted to engage with the pinion of the crank-shaft when the latter is drawn outwardly by its shifting-lever, a toothed gear loosely mounted on the power-shaft and having a toothed hub and in mesh with the master-gear, a sliding clutch splined upon the power-shaft, toothed at its upper end, and a lever for throwing the same into engagement with the toothed hub of said gear, substantially as specified.

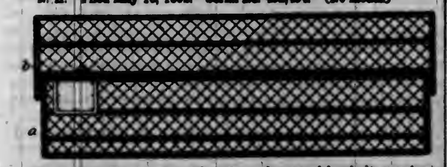
3. The combination, with the crank-shaft of a traction-engine, a master-gear mounted thereon, and a pinion mounted loosely on the shaft and provided with a shifting-lever for throwing the same into a fixed position with the shaft, of a drive-axle, a gear thereon, an inclined power-shaft, a worm-gear on the lower end of said power-shaft engaging that of the axle, a pinion fixed on the upper end of the shaft and adapted to engage with the pinion of the crank-shaft when the latter is drawn outwardly by its shifting-lever, a toothed gear loosely mounted on the power-shaft and having a toothed hub and in mesh with the master-gear, a sliding clutch splined upon the power-shaft, toothed at its upper end, and a lever for throwing the same into engagement with the toothed hub of said gear, substantially as specified.

488,282. LOCKER FOR APPAREL, &c. JAMES M. COTTON, Ashland, N. H. Filed May 10, 1892. Serial No. 432,433. (No model.)



Claim.—A locker comprising in its construction a casing provided with compartments for the reception of articles of apparel, a lid for closing said compartments, said lid having its hinges located at a point intermediate its front and rear edges, a hinged hat-holder, and a rod pivotally connected at one end with the hat-holder and at the other end with the lid at a point in rear of the hinges, as set forth.

488,283. BUNDLE-RACK FOR CARS. JAMES M. COTTON, Ashland, N. H. Filed May 10, 1892. Serial No. 432,434. (No model.)

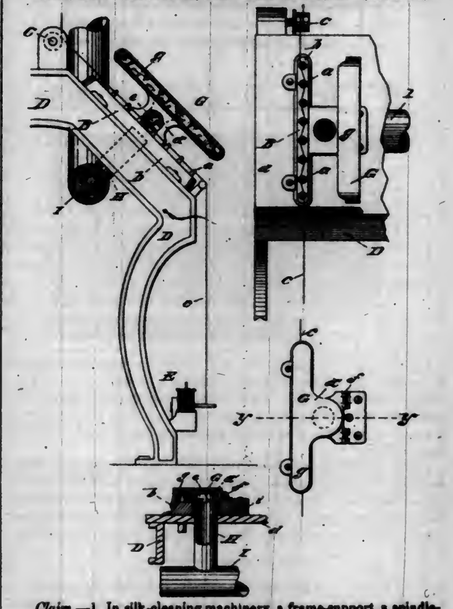


Claim.—1. The improved bundle-rack comprising in its construction a fixed part and a movable part adapted to be closed and locked upon the fixed part and a key or key-check ejector connected with the fixed part, as set forth.

2. The key or key-check ejector consisting of the stud or eye-bolt *k*, the lever *h*, and the cam *g*, as set forth.

3. A lock comprising in its construction the stud or bolt *d*, provided with notches *e*, the bolts *f f*, the cam *g*, lever *h*, bar *j*, and stud *k*, as set forth.

488,284. SILK-MANUFACTURING MACHINERY. LOCIUS DUNCK, Leeds, Mass. Filed Jan. 23, 1892. Serial No. 418,979. (No model.)



Claim.—1. In silk-cleaning machinery, a frame-support, a spindle-bar secured thereon, a train of spindles seated in the spindle-bar, a drawing-roll for taking a thread over said spindles, a removable cover provided with end openings and adapted to fit over the spindles and form an air-passage from end to end of the train and through its open ends, a port in the cover connecting said passage with an exhaust-chamber, and an exhaust-current of air induced through said chamber from the outside of the closed train of spindles, all combined and operated as and for the purpose set forth.

2. The combination, substantially as set forth, of a train of silk-cleaning spindles, a hinged cover for the same, forming an air-passage around the spindles, provided with ports for the admission of air thereto, and an exhaust-chamber communicating with the interior of said cover and through which the air is drawn from the cover, all operating as and for the purpose set forth.

488,285. ELECTRIC CABLE. THEODORE GUILLEAUME, Cologne, Germany. Filed May 5, 1892. Serial No. 431,927. (No model.)



Claim.—1. An electric cable or strand for the same, consisting of one or more pairs of naked conductors, the conductors constituting each pair being separated by a strip of non-conducting material, the conductors and the intervening non-conducting material being twisted together, substantially as herein described.

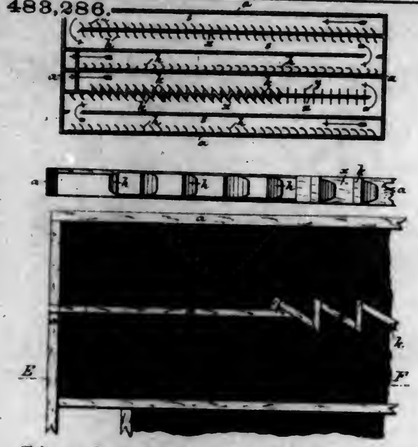
2. In an electric cable, a strip of non-conducting material twisted about its own axis to form spiral grooves or air-channels in which conductors may lie, substantially as herein described.

3. In an electric cable, a strip of non-conducting material twisted about its own axis to form spiral grooves or air-channels and provided with a radially-projecting part, which can be laid over the said grooves or channels for the purpose of closing them, substantially as herein described.

4. In an electric cable, the combination, with the conductors *a* and *a'*, of the non-conducting strip *b*, substantially as and for the purpose herein set forth.

488,286. BOLTING OR SIFTING MACHINE. CARL HAGENMACHER, Buda-Pesth, Austria-Hungary. Filed May 11, 1892. Serial No. 432,691. (No model.)

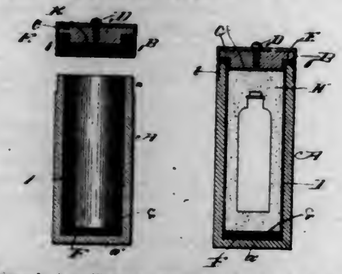
488,286.



Claim.—1. The combination, with a frame constructed to swing in a substantially-horizontal plane, of guides arranged in the main direction of the travel of the material over the frame and inclined ribs connected to the said guides and arranged with their free ends foremost in the main path of the material, substantially as and for the purpose set forth.

2. The combination, with a frame constructed to swing in a substantially-horizontal plane, of guides arranged in the main direction of the travel of the material over the frame, the said guides consisting of ribs arranged zigzag and provided with end pieces projecting forwardly into the main path of the material, substantially as set forth.

483,287. MAILING-CASE. GUSTAVUS J. JOHNSON, Chicago, Ill., assignor to the Chicago Mailing Case Company, same place. Filed May 16, 1892. Serial No. 433,169. (No model.)



Claim.—1. A mailing-case comprising the thin cap adapted to screw upon the body of the case and the separately-formed plunger arranged within and secured to the cap, substantially as set forth.

2. A mailing-case containing within its bottom a ductile layer of tough pitchy substance, substantially as and for the purpose set forth.

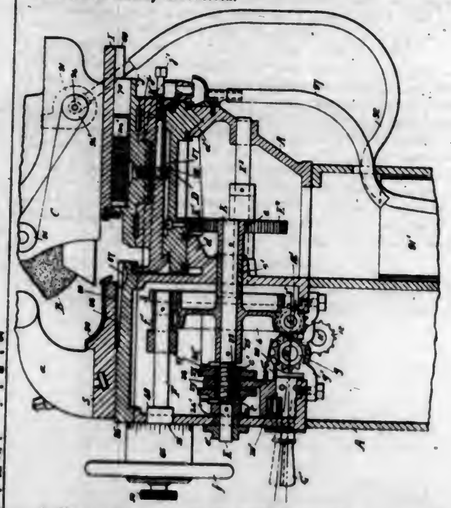
3. A mailing-case containing a body of packing of powdered silicate of magnesia or like silicate, said layer being filled within the case about the vial or receptacle to be mailed, substantially as and for the purpose set forth.

4. A mailing-case comprising a wooden body A, a sheet-metal cap B, and a wooden plunger C, arranged within and secured to the cap, substantially as described.

483,288. GRINDING-MACHINE. ABRAHAM R. LANDIS, Waynesborough, Pa. Filed Feb. 27, 1892. Serial No. 423,006. (No model.)

Claim.—1. The combination, with the shaft E, adapted to traverse the grinding-wheel, and the worm-wheel secured on the said shaft, of a longitudinal driving-shaft, a bracket provided with trunnions encircling the said longitudinal shaft, a worm secured on a short shaft journaled in the bracket and adapted to be moved into and out of gear with the worm-wheel by turning the bracket on its trunnions, and driving-wheels operatively connecting the worm-shaft with the longitudinal shaft, substantially as set forth.

2. The combination, with the longitudinal driving shaft H, of a bracket for carrying the driving-worm, the driving-worm secured on a short shaft journaled in the bracket and adapted to drive the mechanism for traversing the grinding-wheel, a toothed idle-wheel mounted on a pin projecting from the bracket, the toothed wheels provided with clutch-jaws and mounted on the shaft H, the toothed wheels secured on the worm-shaft, and a sliding sleeve provided with clutch-jaws and revolved by the shaft H, whereby the direction of the traverse may be reversed, substantially as set forth.



3. The combination, with the shaft E, adapted to traverse the grinding-wheel, and the worm-wheel secured on the said shaft, of the longitudinal driving-shaft H, a bracket for carrying the driving-worm, the driving-worm secured on a short shaft journaled in the bracket, the toothed driving-wheels and the sliding clutch-sleeve revolving with the shaft H for driving the worm in opposite directions, a sleeve mounted on a screw-threaded portion of the shaft E, an oscillating plate secured on the said sleeve and operatively connected with the said sliding clutch-sleeve, and lugs operatively connected to the shaft E at each end of the sleeve and adapted to engage with lugs operatively connected with the said plate at each end of the travel of the sleeve on the shaft, whereby the said plate may be rocked and the clutch-sleeve slid on the shaft H to reverse the direction of the traverse of the grinding-wheel, substantially as set forth.

4. The combination, with the shaft E, adapted to traverse the grinding-wheel, and the toothed wheel and the worm-wheel, both rigidly secured on the said shaft, of a shaft provided with a toothed pinion gearing into the said toothed wheel, and a hand-wheel for operating the traverse by hand, a worm operatively connected with a driving-shaft and adapted to operate the traverse automatically, and means for disengaging the said hand-wheel and the said worm from operative connection with the said toothed wheel and with the said worm-wheel, respectively, substantially as set forth.

5. The combination, with the shaft H for actuating the traverse mechanism, and the friction-disk secured on the said shaft, of a sleeve sliding in a boss on the bed, a driving-shaft journaled in the said sleeve and having a friction-disk secured to it, a friction-disk interposed between the two aforesaid friction-disks and provided with devices for adjusting its position so that the speed of the shaft H may be varied, and means—such as a screw—for setting up the said sleeve and keeping all the friction-disks in operative contact, substantially as set forth.

6. The combination, with the shaft and the toothed pinion 32, secured thereon and adapted to be turned to vary the extent of the automatic traverse of the grinding-wheel, of a hand-knob adapted to turn the said shaft direct, a worm-wheel, a worm adapted to turn the said shaft through the worm-wheel, and clutch mechanism permitting the said worm and worm-wheel to be disconnected from the said shaft, substantially as set forth.

7. The combination, with the shaft and the toothed pinion 32, secured thereon and adapted to be turned to vary the extent of the automatic traverse of the grinding-wheel, of a hand-knob splined to the said shaft and provided with a friction-clutch, a worm-wheel journaled on the said shaft, a worm gearing into the said worm-wheel, a split sleeve connected to the worm-wheel and provided with a friction-clutch, and a nut screwed on the end of the shaft and adapted to press the two said clutches together and couple the worm-wheel to the shaft, substantially as set forth.

8. The combination, with the retractible shaft and the toothed pinion 32, secured thereon, of the hand knob splined to the said shaft and provided with a friction-clutch, a worm-wheel journaled on the shaft and provided with a projecting pin, a worm for turning the worm-wheel, a sleeve engaging with the said pin and provided with a friction-clutch, a nut screwed on the end of the shaft and adapted to couple the said clutches, and a spring normally holding the said sleeve and worm-wheel coupled together and permitting the shaft to be retracted so that the said sleeve may be clear of the pin, substantially as set forth.

9. The combination, with the shaft F for traversing the grinding-wheel, of a hand-wheel journaled on the said shaft, intermediate driving-wheels operatively connecting the hand-wheel with the said shaft, a locking-bolt adapted to be slid longitudinally in a hole in the said shaft and provided with two reversely-inclined portions, and two friction-blocks resting on the said inclined portions and adapted to connect the hand-wheel direct to the shaft or through the said intermediate driving-wheels, substantially as set forth.

10. The combination, with the shaft F for traversing the grinding-wheel, of a hand-wheel journaled on the said shaft, a stationary toothed wheel encircling the shaft, a toothed wheel journaled on the shaft, a shaft carried by the hand-wheel and provided with two toothed wheels gearing, respectively, into the aforesaid toothed wheels, and locking mechanism adapted to connect the said shaft to the hand-wheel direct or to the said toothed wheel journaled on it, substantially as set forth.

11. The combination, with the shaft F for traversing the grinding-wheel, of a hand-wheel journaled on the said shaft, a toothed wheel also journaled on the said shaft, intermediate toothed wheels operatively connecting the said toothed wheel with the hand-wheel, a locking-bolt sliding in a hole in the said shaft and provided with two reversely-inclined portions, two friction-blocks resting on the said inclined portions and adapted to be pressed against the hubs of the hand-wheel and of the first said toothed wheel, and means for moving the locking-bolt longitudinally, substantially as set forth.

12. The combination, with the grinding-wheel shaft, of a disk of abrasive material and a carrier secured to the said disk and shaft and provided with a chamber upon one side partially inclosing the shaft-bearing, whereby the said disk may be held opposite the middle portion of the said bearing, substantially as set forth.

13. The combination, with the grinding-wheel bracket, of a pivoted plate provided with a toothed rack, a reciprocating plate arranged between the said bracket and pivoted plate and provided with a sleeve projecting through a slot in the bracket, means for clamping the said bracket to the reciprocating plate, and a shaft journaled in the said sleeve and provided with a toothed pinion gearing into the said rack and adapted to adjust the position of the grinding-wheel bracket, substantially as set forth.

14. The combination, with the shaft n, supported by the grinding-wheel bracket and adapted to adjust its position, of a hand-knob splined to the said shaft and provided with a friction-clutch, a worm-wheel journaled on the said shaft and also provided with a friction-clutch, a worm for turning the worm-wheel, springs interposed between the said worm-wheel and hand-knob, and a nut screwed on the end of the shaft and adapted to press the two clutches together against the pressure of the said springs, substantially as set forth.

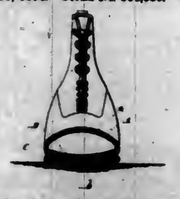
15. The combination, with the sleeve i and the shaft journaled therein and adapted to adjust the position of the grinding-wheel, of a bracket journaled on the said sleeve and adapted to be secured to it in any position, a worm-wheel operatively connected to the said shaft, and a shaft journaled in the said bracket and provided with a hand-wheel for revolving it, and a worm gearing into the said worm-wheel, substantially as set forth.

16. The combination, with the sleeve i and the shaft journaled therein and adapted to adjust the position of the grinding-wheel, of a bracket secured to the said sleeve and provided with a bearing, a worm-wheel operatively connected to the said shaft, a shaft journaled in the said bearing and provided with a worm gearing into the said worm-wheel, a hand-wheel secured to the worm-shaft, and an adjustable stop secured to the periphery of the hand-wheel and adapted to come in contact with a stop projecting from the said bearing and to arrest the motion of the hand-wheel, substantially as set forth.

17. The combination, with the plate secured to the top of the bed and provided with recesses in those portions of its upper surface upon which the grindings may fall, and a gutter for carrying off the water from the said recesses, of the pivoted table for carrying the head-stock and the foot-stock, said table being provided with recesses in its under surface corresponding with the aforesaid recesses in the plate and having a longitudinal groove near its front edge, substantially as set forth.

18. The combination, with the bracket K, adapted to be traversed longitudinally, of the revolvable plate J, provided with a central boss journaled in a hole in the said bracket, a pin passing through the said plate into a hole in the bracket, and a clamping-screw engaging with the said bracket and provided with a conical end engaging with a conical hole in the said pin, the said plate being adapted to support the grinding-wheel, substantially as set forth.

483,289. WATERPROOF SHOE. EDWARD ROCHE, Providence, R. I. Filed Feb. 13, 1891. Serial No. 381,355. (No model.)



Claim.—1. The shoe herein described, consisting of the upper, the insole, and the waterproof covering of the size of the inner sole and cemented to the lower or outer surface thereof, the upper being turned over upon the outer surface of the inner sole and its waterproof covering, the outer sole being applied over all, and the parts united in the usual way, as set forth.

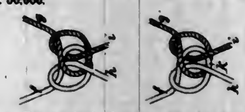
2. The shoe herein described, having the waterproof covering of the size of and applied to the outer surface of the inner sole, the upper, and a waterproof layer of the size and form thereof applied between said upper and the lining, the upper, lining, and waterproof layer turned over upon the outer surface of the inner sole and its covering, and the outer sole applied over all and the parts united in the usual way, as set forth.

483,290. PROCESS OF MAKING SALICYLALDEHYDE-ALPHAPHENYLMETHYL HYDRAZONE. ISRAEL ROSE, Frankfort-on-the-Main, Germany. Filed Mar. 16, 1892. Serial No. 425,140. (Specimens.)

Claim.—1. The chemical composition salicylaldehyde-alphamethylphenylhydrazone, the same being a white crystalline powder, which melts at 73° centigrade, is insoluble in water, but soluble in alcohol and benzene, and is decomposed by boiling it in concentrated hydrogen chloride, substantially as hereinbefore described.

2. The method of making salicylaldehyde-alphamethylphenyl hydrazone, which consists in combining together salicylaldehyde and alphamethylphenyl hydrazine, substantially as and in the proportions hereinbefore set forth.

483,291. KNOT FOR NET FABRICS. ROBERT SEHNLER, Sr., of Vegmar, Germany. Filed Jan. 29, 1892. Serial No. 419,696. (No model.) Patented in Germany July 7, 1891, No. 60,948, and in Italy Nov. 12, 1891, No. 30,606.



Claim.—1. The method of connecting the threads in net fabrics, &c., consisting in arranging and interlacing the said threads to provide each with a loop capable of forming a separate knot and drawing said loops taut to establish an immovable connection comprising a knot for each thread, substantially as set forth.

2. A net fabric having its threads joined by two independent and interlaced knots, affording an immovable connection for each thread with the other, substantially as set forth.

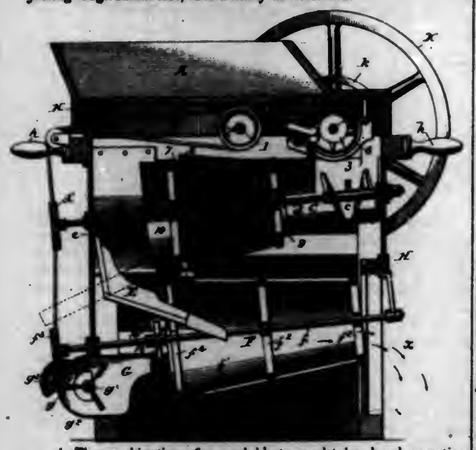
483,292. TOBACCO GRANULATING, GRADING, AND SEPARATING MACHINE. WILLIAM W. SMITH and GEORGE R. HAYNE, York, Pa.; said Smith assignor to said Hayne. Filed Nov. 10, 1891. Serial No. 412,432. (No model.)

Claim.—1. In a machine of the class described, the combination of the granulator, the revolving screen, and the separator consisting of the revolving tube closed excepting at its ends and having internal longitudinal ribs, the blower at one end of said tube arranged to produce a blast of air through the same, and chutes for conveying the material from the granulator to the screen and from the screen to the separator, substantially as described.

2. In a machine of the class described, the combination of the hopper, the granulator, the revolving screen, chutes for receiving the fine dirt and the tobacco, respectively, from said screen, the revolving tapered tube closed excepting at its ends and having internal longitudinal ribs, and the blower at the larger end of the tube, arranged to produce a blast of air through the same, substantially as described.

3. The combination of a revolvable tube having its lower side in-

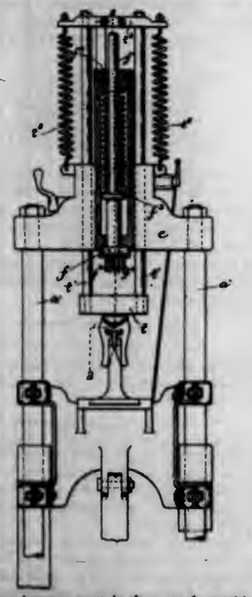
olined to facilitate the discharge of the heavier particles from the lower end with a blower arranged to produce a current of air through the tube to discharge the lighter particles from the upper end, said tube being closed excepting at its ends and provided with inwardly-projecting longitudinal ribs, substantially as described.



4. The combination of a revoluble tapered tube closed excepting at its ends and having inwardly-projecting longitudinal ribs with a blower at the larger end of said tube, arranged to produce a current of air through the same from the larger to the smaller end, substantially as described.

5. In a machine of the class described, the combination, with a revolving tapered tube closed excepting at its ends and having internal longitudinal ribs and an inwardly-projecting circular rib near its larger end, of a blower at the larger end, arranged to produce a blast through the tube toward the smaller end, substantially as described.

483,293. METHOD OF ATTACHING HEELS TO BOOTS OR SHOES. HAROLD A. WEBSTER, Haverhill, assignor to James W. Brooks, trustee, Cambridge, Mass. Filed Apr. 4, 1892. Serial No. 427,626. (No model.)

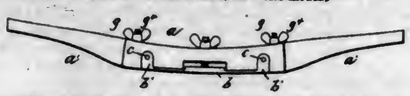


Claim.—1. That improvement in the art of attaching heels to boots or shoes which consists in exerting simultaneously on a gang of attaching-nails a percussive yielding pressure the force of which is absorbed in driving the nails, as set forth.

2. That improvement in the art of attaching heels to boots or shoes which consists in alternately storing up an elastic force and distributing and expending said force percussively on the gang of attaching-nails in the direction required to simultaneously drive said nails, as set forth.

3. That improvement in attaching heels to boots or shoes which consists in first securing the heel-blank by driving all the attaching-nails simultaneously with a percussive yielding blow and then spanking on the top lift with a yielding blow, as set forth.

483,294. SPOKESHAVE. EDWARD D. WHITE, Hartford, Conn. Filed Jan. 22, 1892. Serial No. 418,975. (No model.)



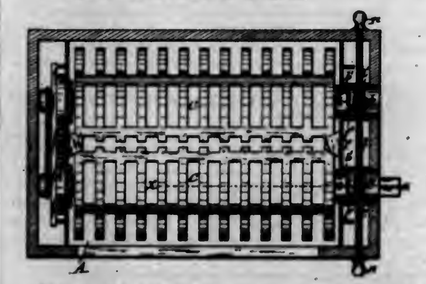
Claim.—1. In a spokeshave, in combination with the body part, the adjustable throat-piece comprising a flat portion, the upturned arms, the fastening means whereby the throat-piece is loosely secured to the body part of the spokeshave, and the clamp-screw whereby the throat-piece is adjusted, the removable blade having the beveled and serrated ends, and the clamp devices having the corresponding beveled and serrated edges, all substantially as described.

2. In a spokeshave, in combination with the body part, an adjustable throat-piece comprising a flat portion, the upturned arms having sockets, the bolt or like part smaller in diameter than said sockets for loosely securing the throat-piece to the body portion of the spokeshave, the clamp-screw whereby the throat-piece is adjusted, the removable blade having the beveled and serrated ends, and the clamp devices having the corresponding beveled and serrated edges, all substantially as described.

3. In a spokeshave, in combination with the body part, the adjustable throat-piece comprising a flat portion, the upturned arms, the fastening means whereby the throat-piece is loosely secured to the body part of the spokeshave, the adjusting-screw having its lower end engaging a socket in the throat-piece and a threaded portion engaging the body of the spokeshave, whereby said adjusting-screw has a vertical movement, the removable blade having the beveled and serrated ends, and the clamp device having the corresponding beveled and serrated edges, all substantially as described.

4. In a spokeshave, in combination with the body part, the adjustable throat-piece comprising a flat portion, the upturned arms, the fastening means whereby the throat-piece is loosely secured to the body part of the spokeshave, the adjusting-screw having its lower end engaging a socket in the throat-piece and a threaded portion engaging a nut located on the body of the spokeshave, the nut, the means for turning the adjusting-screw, the removable blade having the beveled and serrated ends, and the clamp devices having the corresponding beveled and serrated edges, all substantially as described.

483,295. STOVE-GRATE. CHARLES L. REESE, Scranton, Pa. Filed Apr. 18, 1892. Serial No. 429,562. (No model.)



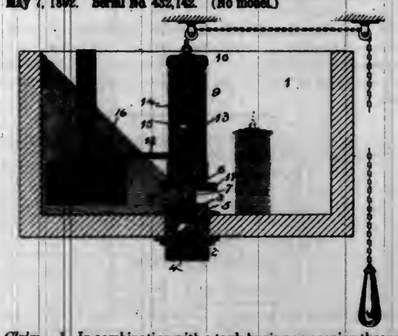
Claim.—1. The combination, with the grate-supporting frame provided with journal-bearings and the grate-bars having their journals mounted removably in said bearings and provided with circumferential grooves in said journals, of a longitudinally-movable rod extending across said journals and engaging the grooves thereof and thereby confining the journals in their bearings, as set forth.

2. In combination with the grate-supporting frame provided with journal-bearings, journals mounted removably in said bearings and provided with circumferential grooves and grate-bars detachably connected to said journals, caps fixed to the frame and extending over the journals, a longitudinally-movable rod passing through said caps at right angles to the journals and engaging the grooves of the latter, and the fire-box provided with a perforation for the insertion and removal of the aforesaid rod, as set forth.

3. In combination with the grate-bars, journals provided with circumferential grooves, the supporting-frame *f*, formed with the journal-bearings *f' f'* and lug *g*, the yoke *h*, formed with caps *h' h'* and grooves *i i* in said caps, the pin *k*, passing through said lug and confining the yoke in its position, and the rod *l*, passing through the grooves of the caps and journals, substantially as described and shown.

4. In combination with the grate-supporting frame and grate-bars, journals seated in said frame and provided with circumferential grooves, the fire-box provided with apertures through its front and rear walls, a rod extending through the said apertures and grooves of the journals and having screw-threaded ends protruding from the fire-box, and nuts on said ends to confine the rod in its aforesaid position and allow said rod to be withdrawn from either end, substantially as set forth.

483,296. TANK-VALVE. CORNELIUS BIRKERY, Hartford, Conn., assignor to the Birkery Manufacturing Company, same place. Filed May 7, 1892. Serial No. 432,142. (No model.)



Claim.—1. In combination with a tank having an opening through the bottom and a valve-seat around the opening, a reciprocating and rotary cylinder supported above the opening, a handle and connection for lifting the cylinder, a float located adjacent to the cylinder, a trip attached to the float, and an arm projecting from the cylinder into the path of the trip, substantially as specified.

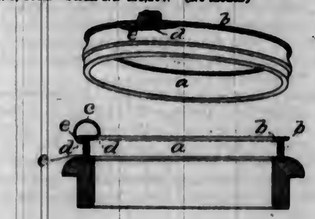
2. In combination with a tank having an opening through the bottom and a valve-seat around the opening, a reciprocating and rotary cylinder supported above the opening, a handle and connection for lifting the cylinder, a float located adjacent to the cylinder, and an arm projecting from the cylinder and adapted to engage the float, substantially as specified.

3. In combination with a tank having an opening through the bottom and a valve-seat around the opening, a reciprocating cylinder supported above the opening, a handle and connection for lifting the cylinder, a stationary rod supported by a projection from the valve-seat, and a valve-disk connected with said rod, substantially as specified.

4. In combination with a tank having an opening through the bottom and a valve-seat around the opening, a movable cylinder supported above the opening, a handle and connection for lifting the cylinder, an incline for rotating it when lifted, a float located adjacent to the cylinder, and an arm projecting from the cylinder, adapted to engage the float, substantially as specified.

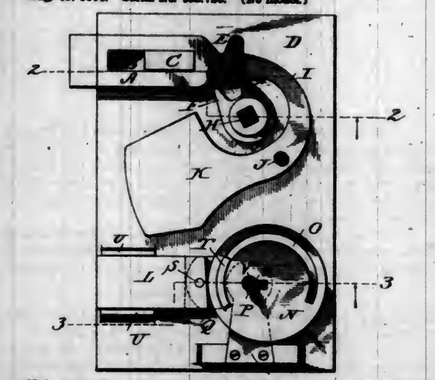
5. In combination with a tank having an opening through the bottom and a valve-seat around the opening, a cylinder attached to a sleeve borne by a post supported by the tank, a handle and connection for lifting the cylinder, an incline and pin for rotating the cylinder when lifted, a float located adjacent to the cylinder, and an arm projecting from the cylinder and adapted to engage the float, substantially as specified.

483,297. SPINNING-RING. JOHN BOOTH, Central Falls, R. I. Filed Apr. 8, 1892. Serial No. 428,297. (No model.)



Claim.—A spinning-ring having a point in its circumference at which it is reduced or cut away to permit the traveler to be applied without spreading, the ring beyond such reduced or cut-away point being of normal or enlarged size, whereby the traveler may become locked on the ring after passing the reduced point, as set forth.

483,298. LOCK. HERMAN BRUNS, Bremerhaven, Germany. Filed Aug. 18, 1891. Serial No. 402,723. (No model.)



Claim.—1. A lock having a reversible latch formed on its top and bottom faces with a notch E, a gravity-lever having one end bearing directly against the rear end of the latch to thrust it forward and formed with a recess to receive a knob-spindle and collar thereon, and the knob-spindle fitting in said recess and provided with a collar having a finger to fit in the notch of the latch and bear against the latch, said spindle and collar being located below said latch, substantially as and for the purposes described.

2. A lock having a bolt, a pivoted member secured thereto, and an eccentric to which the pivoted member is connected, whereby the bolt is thrust forward and drawn backward by the movement of said eccentric, substantially as set forth.

3. A lock having a bolt formed with a projection on opposite sides thereof and an eccentric lying on each side of the bolt, having a way into which the projection on each side of the bolt fits, whereby said bolt is moved in opposite directions by said eccentric, substantially as set forth.

4. In a lock, the combination of the bolt having a projection thereon, an eccentric having a way to receive said projection, whereby the bolt and eccentric are moved together, a bracket, a slotted thimble passing through said bracket, and a key to pass through said thimble and engage the eccentric to turn the same to shift the bolt, substantially as set forth.

5. A lock having plates or disks formed with openings for the passage of a key and a movable sleeve connected with some of said plates or disks to turn the same and destroy the register to prevent the passage of a key, whereby the lock is prevented from being picked, substantially as described.

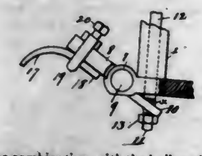
483,299. CLOTHES-LINE. JONATHAN W. CADWELL, Meriden, Conn. Filed Aug. 7, 1891. Serial No. 401,968. (No model.)



Claim.—The combination, with a main endless clothes-line supported on two pulleys with its strands in one vertical plane, an auxiliary line attached removably to the lower strand of the main clothes-line by a snap-hook that engages a projection on this strand near one pulley, and a rope-clamp having a cam-lever, to the projecting end of which lever the other end of the auxiliary line is attached to hold said

line extended by the weight imposed on it, of intermediate hooks that connect the auxiliary line with the main line at intervals, substantially as described.

483,300. EARTH-AUGER. WILLIAM H. CLARK and HENRY C. KEEVER, Kingfisher, Okla. Filed Feb. 25, 1892. Serial No. 422,777. (No model.)

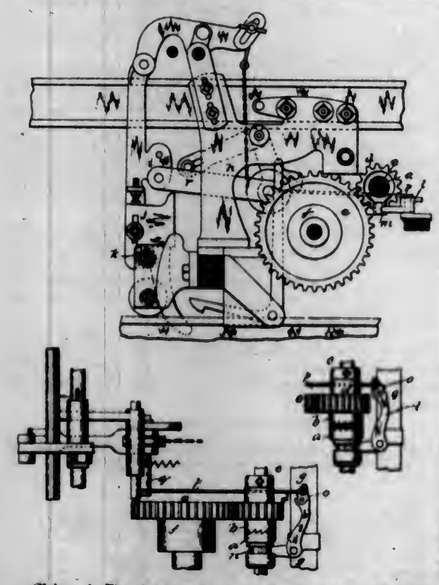


Claim.—1. The combination, with the hollow shank provided with a handle, of a spider having a pivoted arm provided with a forked extension 10, a sliding rod arranged within said shank and having a spring-catch at its upper end and a nut or head at its lower end, and cutting-blades removably secured to the spider by clamp-yokes 19 and set-screws 20, substantially as described.

2. The combination, with the hollow shank and spider, of cutting-blades provided with shanks and removably secured to the arms of the spider by clamp-yokes 19 and set-screws 20, substantially as set forth.

483,301. COTTON-SPINNING MULE. CHARLES A. DAM, Lowell, Mass. Filed May 2, 1892. Serial No. 431,506. (No model.)

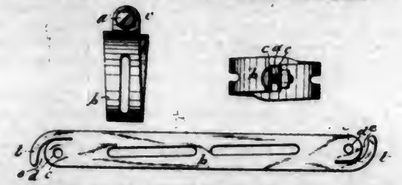
Brief.—The clutch whereby the winding mechanism may be thrown out of and into operation is operated by a bell-crank lever from the follower-leg, the arm of the lever connected indirectly to the follower-leg having a swivel or latch whereby a limited movement of the latter will not affect the clutch-lever, so that the clutch is held out of engagement until the backing-off is effected and the follower is locked.



Claim.—1. The shaft *c* and the clutch-box thereon, comprising the fixed and sliding clutch parts, in combination with the lever *l*, one arm of which is engaged with the sliding clutch part, the end of the other arm being provided with a swivel or latch adapted to have a limited movement independent of the lever, the follower-leg, and means connecting the follower-leg with the swivel or latch, as set forth.

2. The combination, with the shaft *c*, of the clutch-box comprising the fixed and sliding parts, means connecting the fixed parts with the band-cylinder, a bell-crank lever, one arm of which is engaged with the sliding part to operate the same, the end of the other arm being provided with a swivel adapted to be moved to a limited extent without affecting the movement of the lever, and connections between the said swivel and follower-leg, as set forth.

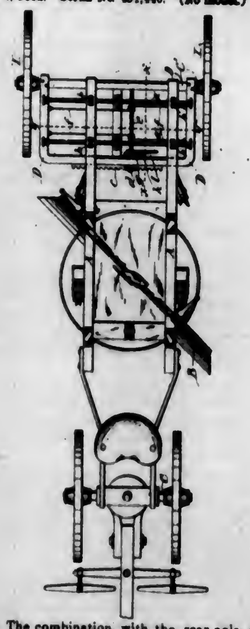
483,302. HOSE-CLAMP. AUSTIN R. DICKINSON, Syracuse, N. Y., assignor to the Syracuse Specialty Manufacturing Company, same place. Filed Jan. 6, 1892. Serial No. 417,173. (No model.)



Claim.—1. As an improved article of manufacture, a hose-clamp formed of a single band of sheet metal perforated at each end and tongues extending from one or both ends, said band being bent circular shape and its perforated-end portions bent radially outward and the tongues continued in the same line of curvature with the band and extending under the opposite end of the band, substantially as described and shown.

2. The within-described blank, consisting of the band *b*, having the perforated-end portions *c c* and the tongues *t t*, respectively, on opposite sides of said end portions and extending beyond the same and toward the opposite edges of the band, substantially as described and shown.

483,303. ROAD-SCRAPER. SAMUEL B. JAMIESON, Marathon, N. Y. Filed May 2, 1892. Serial No. 431,446. (No model.)



Claim.—1. The combination, with the rear axle, of a platform-frame rigidly secured to said axle and the main frame mounted movable laterally on said platform-frame, as set forth.

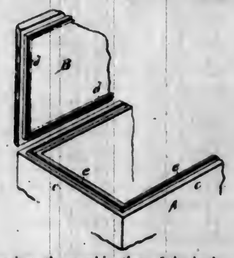
2. The combination, with the rear axle, of a platform-frame rigidly attached to said axle, the main frame mounted movable laterally on said platform-frame, and locking devices confining said main frame in its adjusted position on the platform, as set forth.

3. The combination, with the rear axle, of a platform-frame rigidly attached to said axle, guides extending across said frame parallel with the axle, the main frame connected movable laterally to said guides, and locking devices confining the main frame in its adjusted position, as set forth.

4. The combination, with the rear axle, of a platform-frame fixed to said axle, guide-rods secured to said frame parallel with the axle, the main frame connected to said guide-rods movably lengthwise of the latter, a shaft journaled on the main frame parallel with the line of draft, chains or cables wound upon said shaft and extending in opposite directions therefrom and secured to the platform-frame, a ratchet-wheel fixed to said shaft, a lever fulcrumed on the shaft, and a pawl connected to said lever and engaging the ratchet-wheel, as set forth and shown.

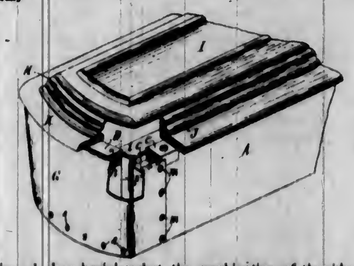
5. The combination, with the rear axle, of a platform-frame fixed to said axle, guide-rods secured to said frame parallel with the axle, the main frame connected to said rods movably lengthwise of the latter, a rack on the platform-frame parallel with the guide-rods, and a bolt connected to the main frame and engaging said rack, as and for the purpose set forth.

483,304. BURIAL-CASKET. J. ALBERT JONES and CHARLES E. MYERS, Marcellus, Mich., assignors of one-half to Dan Russell and Alexander Taylor, same place. Filed Mar. 31, 1892. Serial No. 427,183. (No model.)



Claim.—In a casket, the combination of the body and cover, the wedge-shaped packing-strip attached to the edge of the body, and the metal strip attached to the under side of the cover, said strip having the tapering groove therein that receives said packing-strip, and also having the acuminated side flanges that are adapted to be forced into the edge of the body when the cover is placed thereon, whereby a tight joint is formed and the packing-strip is completely protected from the elements.

483,305. BURIAL-CASKET. J. ALBERT JONES and CHARLES E. MYERS, Marcellus, Mich., assignors of one-half to Dan Russell and Alexander Taylor, same place. Filed May 11, 1892. Serial No. 432,600. (No model.)



Claim.—1. In a burial-casket, the combination of the sides and bottom and the adjacent metal sheets attached to said sides and embracing the ends thereof between their adjacent faces, forming a hollow metallic end to the casket, substantially as set forth.

2. In a burial-casket, the combination of the sides and bottom, the adjacent metal sheets attached to the sides and forming the ends of the casket, and the wooden rails interposed between said adjacent sheets at the top and bottom, substantially as specified.

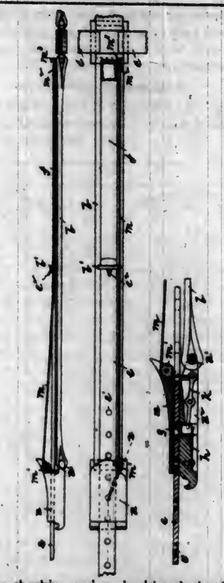
3. In a burial-casket, the combination of the sides and bottom, the framework at the end, and the metal sheet mounted on said framework and attached to the sides.

4. In a burial-casket, the combination of the sides and bottom, the framework at the end, and the metal sheets inclosing said framework and the ends of the sides onto which they extend.

5. In a burial-casket, the combination of the sides and bottom, the adjacent metal sheets forming the end, said sheets having flanges at their upper edges, and the rails interposed between said sheets, the upper rail having grooves in its opposite faces that receive the flanges of said sheets, substantially as specified.

6. In a burial-casket, the combination of the sides and bottom, the sides having vertical grooves in opposite faces thereof, and the adjacent metal sheets forming the end of the casket, the ends of said sheets embracing the sides and having flanges that enter the grooves therein, substantially as specified.

483,306. HORSE-CHECKING DEVICE. ISRAEL LABELLE, Holyoke, Mass. Filed Apr. 2, 1892. Serial No. 427,478. (No model.)



Claim.—1. In a checking and unchecking device for harness, the combination, with a saddle having extending therethrough from front to rear a passage to receive a strap, of a strap adapted for longitudinal movement through said passage, said strap having at its front end means for detachably securing it to the checkrein and having its rear portion superposed and guided for longitudinal movement upon the back-strap of the harness, a spring-actuated detent movably supported upon the saddle beneath said passage and adapted in its normal position to engage said strap and securely hold it against forward movement, and a cord or similar device extending along and guided by the back-strap to the rear end of the latter and having its front end operatively connected with said detent, whereby by pulling said cord the detent will be operated to release said strap, arranged and operating substantially as set forth.

2. In a checking and unchecking device for harness, the combination, with the saddle, of a strap passing loosely therethrough, said strap being adapted at its front end to be connected to the checkrein and having its rear end connected to the back-strap of the harness near the rear end of the latter by an elastic extension of the former, adapted to automatically check the horse, a spring-actuated detent on the saddle, adapted to engage said strap and hold it against forward movement, and means, substantially as described, for retracting said detent from the rear end of the harness to cause it to release said strap, substantially as set forth.

3. The combination, with the saddle *a*, having a passage *p* extending therethrough, of the strap *e*, passing through said passage, said strap having its rear end secured to the back-strap *b*, its front end adapted to be connected to the checkrein and being elastic at some point in its length, whereby it is adapted to automatically check the horse, a spring-actuated detent movably supported upon the saddle and adapted to engage said strap *e* and hold it from movement in a forward direction, and cord *m*, operatively connected with said detent at its front end and having its rear portion suitably guided upon said back-strap, substantially as set forth.

4. The combination, with saddle *a*, provided with passage *p*, of detent *o*, pivotally supported upon the saddle adjacent to said passage and adapted to project into the latter in its normal position, spring *s* for retaining said detent in its normal position, and flexible metallic connection *t*, secured at its front end to said detent and having its rear end projecting beyond the rear side of the saddle and having cord *m* connected to said rear end thereof, substantially as and for the purpose described.

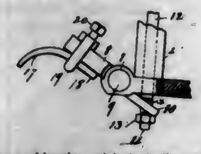
483,307. FIREPROOF PAINT. RUFUS W. LAMPREY, Manchester, N. H. Filed Nov. 2, 1891. Serial No. 410,621. (No specimens.)

Claim.—1. A fireproof paint comprising the following ingredients, namely: ground slate, ground mica, a suitable gum or gums, an alkali, such as soda carbonate, oil, lead carbonate, and a salt of ammonia, substantially as described.

2. The improved fireproof paint consisting of ground slate, ground

hoe extended by the weight imposed on it, of intermediate hooks that connect the auxiliary line with the main line at intervals, substantially as described.

483,300. EARTH-AUGER. WILLIAM H. CLARK and HENRY C. KEMPER, Kingfisher, Okla. Filed Feb 26, 1892. Serial No. 423,777. (No model.)

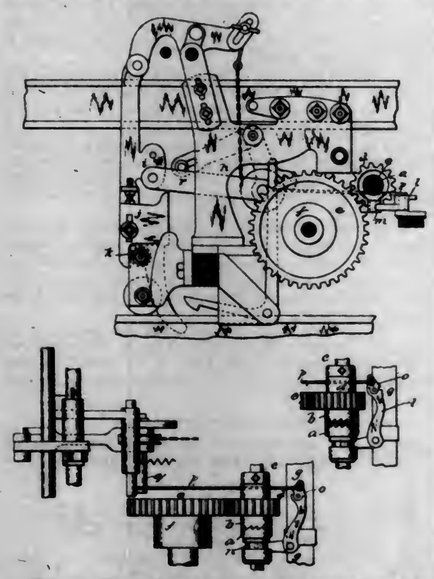


Claim.—1. The combination, with the hollow shank provided with a handle, of a spider having a pivoted arm provided with a forked extension 10, a sliding rod arranged within said shank and having a spring-catch at its upper end and a nut or head at its lower end, and cutting-blades removably secured to the spider by clamp-yokes 19 and set-screws 20, substantially as described.

2. The combination, with the hollow shank and spider, of cutting-blades provided with shanks and removably secured to the arms of the spider by clamp-yokes 19 and set-screws 20, substantially as set forth.

483,301. COTTON-SPINNING MULE. CHARLES A. DAN, Lowell, Mass. Filed May 2, 1892. Serial No. 431,506. (No model.)

Brief.—The clutch whereby the winding mechanism may be thrown out of and into operation is operated by a bell-crank lever from the follower-leg, the arm of the lever connected indirectly to the follower-leg having a swivel or latch whereby a limited movement of the latter will not affect the clutch-lever, so that the clutch is held out of engagement until the backing-off is effected and the follower is locked.



Claim.—1. The shaft *c* and the clutch-box thereon, comprising the fixed and sliding clutch parts, in combination with the lever *l*, one arm of which is engaged with the sliding clutch part, the end of the other arm being provided with a swivel or latch adapted to have a limited movement independent of the lever, the follower-leg, and means connecting the follower-leg with the swivel or latch, as set forth.

2. The combination, with the shaft *c*, of the clutch-box comprising the fixed and sliding parts, means connecting the fixed parts with the band-cylinder, a bell-crank lever, one arm of which is engaged with the sliding part to operate the same, the end of the other arm being provided with a swivel adapted to be moved to a limited extent without affecting the movement of the lever, and connections between the said swivel and follower-leg, as set forth.

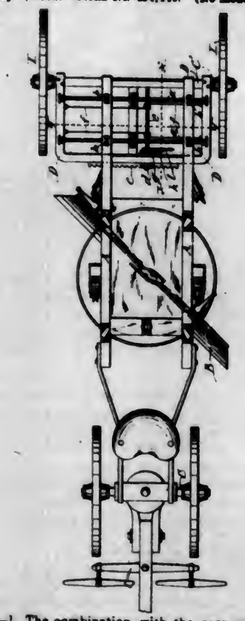
483,302. HOSE-CLAMP. AUSTIN R. DICKINSON, Syracuse, N. Y., assignor to the Syracuse Specialty Manufacturing Company, same place. Filed Jan. 6, 1892. Serial No. 417,178. (No model.)



Claim.—1. As an improved article of manufacture, a hose-clamp formed of a single band of sheet metal perforated at each end and tongues extending from one or both ends, said band being bent circular shape and its perforated-end portions bent radially outward and the tongues continued in the same line of curvature with the band and extending under the opposite end of the band, substantially as described and shown.

2. The within-described blank, consisting of the band *b*, having the perforated-end portions *c c* and the tongues *t t*, respectively, on opposite sides of said end portions and extending beyond the same and toward the opposite edges of the band, substantially as described and shown.

483,303. ROAD-SCRAPER. SAMUEL B. JAMESON, Marathon, N. Y. Filed May 2, 1892. Serial No. 431,446. (No model.)



Claim.—1. The combination, with the rear axle, of a platform-frame rigidly secured to said axle and the main frame mounted movable laterally on said platform-frame, as set forth.

2. The combination, with the rear axle, of a platform-frame rigidly attached to said axle, the main frame mounted movable laterally on said platform-frame, and locking devices confining said main frame in its adjusted position on the platform, as set forth.

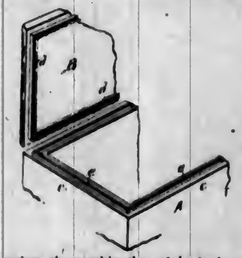
3. The combination, with the rear axle, of a platform-frame rigidly attached to said axle, guides extending across said frame parallel with the axle, the main frame connected movable laterally to said guides, and locking devices confining the main frame in its adjusted position, as set forth.

4. The combination, with the rear axle, of a platform-frame fixed to said axle, guide-rods secured to said frame parallel with the axle, the main frame connected to said guide-rods movably lengthwise of the latter, a shaft journaled on the main frame parallel with the line of draft, chains or cables wound upon said shaft and extending in opposite directions therefrom and secured to the platform-frame, a ratchet-wheel fixed to said shaft, a lever fulcrumed on the shaft, and

a pawl connected to said lever and engaging the ratchet-wheel, as set forth and shown.

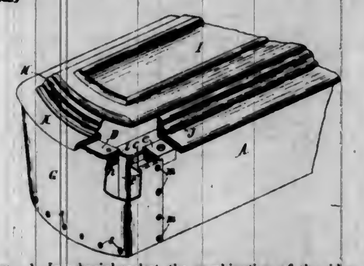
5. The combination, with the rear axle, of a platform-frame fixed to said axle, guide-rods secured to said frame parallel with the axle, the main frame connected to said rods movably lengthwise of the latter, a rack on the platform-frame parallel with the guide-rods, and a bolt connected to the main frame and engaging said rack, as and for the purpose set forth.

483,304. BURIAL-CASKET. J. ALBERT JONES and CHARLES R. MYERS, Marcellus, Mich., assignors of one-half to Dan Russell and Alexander Taylor, same place. Filed Mar. 31, 1892. Serial No. 427,183. (No model.)



Claim.—In a casket, the combination of the body and cover, the wedge-shaped packing-strip attached to the edge of the body, and the metal strip attached to the under side of the cover, said strip having the tapering groove therein that receives said packing-strip, and also having the acuminated side flanges that are adapted to be forced into the edge of the body when the cover is placed thereon, whereby a tight joint is formed and the packing-strip is completely protected from the elements.

483,305. BURIAL-CASKET. J. ALBERT JONES and CHARLES R. MYERS, Marcellus, Mich., assignors of one-half to Dan Russell and Alexander Taylor, same place. Filed May 11, 1892. Serial No. 432,600. (No model.)



Claim.—1. In a burial-casket, the combination of the sides and bottom and the adjacent metal sheets attached to said sides and embracing the ends thereof between their adjacent faces, forming a hollow metallic end to the casket, substantially as set forth.

2. In a burial-casket, the combination of the sides and bottom, the adjacent metal sheets attached to the sides and forming the ends of the casket, and the wooden rails interposed between said adjacent sheets at the top and bottom, substantially as specified.

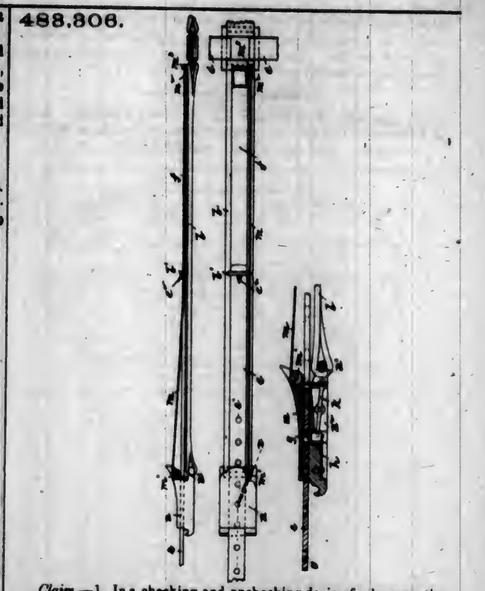
3. In a burial-casket, the combination of the sides and bottom, the framework at the end, and the metal sheet mounted on said framework and attached to the sides.

4. In a burial-casket, the combination of the sides and bottom, the framework at the end, and the metal sheets inclosing said framework and the ends of the sides onto which they extend.

5. In a burial-casket, the combination of the sides and bottom, the adjacent metal sheets forming the end, said sheets having flanges at their upper edges, and the rails interposed between said sheets, the upper rail having grooves in its opposite faces that receive the flanges of said sheets, substantially as specified.

6. In a burial-casket, the combination of the sides and bottom, the sides having vertical grooves in opposite faces thereof, and the adjacent metal sheets forming the end of the casket, the ends of said sheets embracing the sides and having flanges that enter the grooves therein, substantially as specified.

483,306. HORSE-CHECKING DEVICE. ISRAEL LABELLE, Holyoke, Mass. Filed Apr. 2, 1892. Serial No. 427,478. (No model.)



Claim.—1. In a checking and unchecking device for harness, the combination, with a saddle having extending therethrough from front to rear a passage to receive a strap, of a strap adapted for longitudinal movement through said passage, said strap having at its front end means for detachably securing it to the checkrein and having its rear portion superposed and guided for longitudinal movement upon the back-strap of the harness, a spring-actuated detent movably supported upon the saddle beneath said passage and adapted in its normal position to engage said strap and securely hold it against forward movement, and a cord or similar device extending along and guided by the back-strap to the rear end of the latter and having its front end operatively connected with said detent, whereby by pulling said cord the detent will be operated to release said strap, arranged and operating substantially set forth.

2. In a checking and unchecking device for harness, the combination, with the saddle, of a strap passing loosely therethrough, said strap being adapted at its front end to be connected to the checkrein and having its rear end connected to the back-strap of the harness near the rear end of the latter by an elastic extension of the former, adapted to automatically check the horse, a spring-actuated detent on the saddle, adapted to engage said strap and hold it against forward movement, and means, substantially as described, for retracting said detent from the rear end of the harness to cause it to release said strap, substantially as set forth.

3. The combination, with the saddle *a*, having a passage *p* extending therethrough, of the strap *c*, passing through said passage, said strap having its rear end secured to the back-strap *b*, its front end adapted to be connected to the checkrein and being elastic at some point in its length, whereby it is adapted to automatically check the horse, a spring-actuated detent movably supported upon the saddle and adapted to engage said strap *c* and hold it from movement in a forward direction, and cord *m*, operatively connected with said detent at its front end and having its rear portion suitably guided upon said back-strap, substantially as set forth.

4. The combination, with saddle *a*, provided with passage *p*, of detent *o*, pivotally supported upon the saddle adjacent to said passage and adapted to project into the latter in its normal position, spring *e* for retaining said detent in its normal position, and flexible metallic connection *t*, secured at its front end to said detent and having its rear end projecting beyond the rear side of the saddle and having cord *m* connected to said rear end thereof, substantially as and for the purpose described.

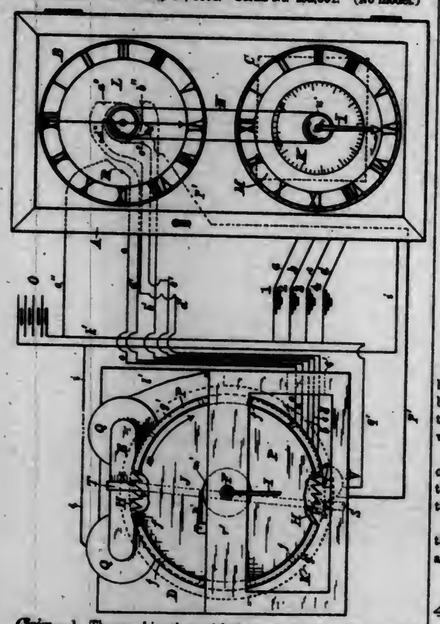
483,307. FIREPROOF PAINT. RUFUS W. LAMPREY, Manchester, N. H. Filed Nov. 2, 1891. Serial No. 410,621. (No specimens.)

Claim.—1. A fireproof paint comprising the following ingredients, namely: ground slate, ground mica, a suitable gum or gums, an alkali, such as soda carbonate, oil, lead carbonate, and a salt of ammonia, substantially as described.

2. The improved fireproof paint consisting of ground slate, ground

mica, lead carbonate, ground calcium sulphate, a suitable gum or gums, a salt of an alkali, such as soda carbonate, a soluble salt of ammonia, and an oil, the slate, mica, calcium, and gum being boiled in water, substantially as described.

483,308. WATCHMAN'S ELECTRIC TIME-RECORDER. NELSON H. RAYMOND, Buffalo, N. Y., assignor of one-half to Charles M. Proctor, same place. Filed Aug. 17, 1891. Serial No. 402,801. (No model.)



Claim.—1. The combination, with the toothed wheel H, provided with the pointer I, of the electro-magnet Q and the pivoted lever J, having the pawls T and S, located on opposite sides of the wheel and provided with the armature E, attached to the lever between its pivot and one of the pawls, the said lever being arranged to vibrate in a plane at right angles with the plane in which the wheel revolves, substantially as described.

2. The combination, with the toothed wheel H, carrying the pointer I, and the contact-wheel P, of the electro-magnet Q, the vibrating lever J, having pawls T and S, and one or more electric circuits *a*, having circuit-closing device 1, substantially as described.

3. The combination, with the toothed wheel H, carrying the pointer I, and the contact-wheel P, of the electro-magnet Q, the vibrating lever J, having pawls T and S, the retolving dial K, clock mechanism L, arranged to revolve the dial K, and electrical mechanism operated by the clock and adapted to make a visible mark on the dial at predetermined intervals, substantially as described.

4. The combination, with the toothed wheel H, carrying the pointer I, and the contact wheel P, of the electro-magnet Q, the vibrating lever J, having pawls T and S, one or more electric circuits *a*, having circuit-closing device 1, and a revolving dial operated by clockwork, and electrical mechanism operated by the clock and adapted to make a visible mark on the dial, substantially as described.

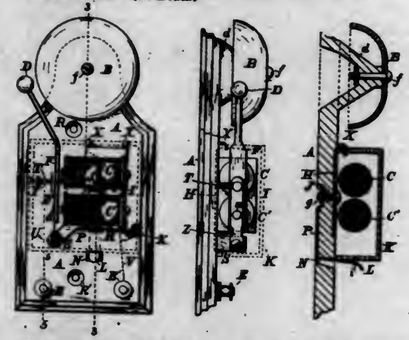
5. The combination, with the clock-movement L, of the electrically-operated pointer I, the dial M, and the revolving dial K, operated from the clock movement by a suitable connection, as N, substantially as described.

6. The combination, with the clock-movement L, of the electrically-operated pointer I, the dial M, the revolving dial K, operated from the clock-movement by a suitable connection, as N, and suitable electrical mechanism operated by the clock and adapted to make a visible mark on the dial, substantially as described.

7. The combination, with the revolving pointer I, arranged to be operated by the making or breaking of an electric circuit or circuits, of the clock-movement L, the revolving dial K, actuated by the clock-movement, and suitable electrical mechanism adapted to make visible marks on the dial at predetermined intervals at times when the pointer-circuit is inoperative, substantially as described.

8. The combination, with the revolving pointer I, of the toothed wheel H, contact-wheel P, dial K, electro-magnet Q, lever J, having pawls T and S, clock L, arranged to actuate the dial, the needle M, electro-magnet V, and suitable mechanism for closing the electric circuit operated by the clock, substantially as described.

483,309. ELECTRIC BELL. NELSON H. RAYMOND, Buffalo, N. Y., assignor to Charles M. Proctor, same place. Filed Aug. 29, 1891. Serial No. 404,053. (No model.)

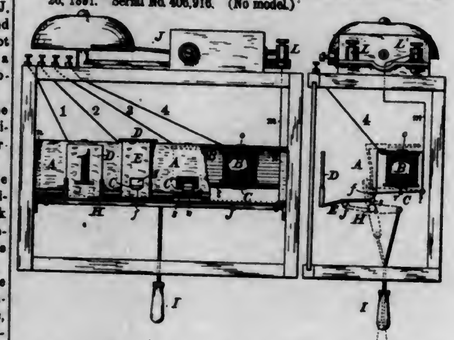


Claim.—1. The combination, in an electric bell, of the porcelain base A, having integral projecting boss *d*, the gong O, attached to the boss by screw *f*, and the electro-magnet C, having frame H, seated on the front of the base and secured thereto by a suitable attaching device, substantially as described.

2. The combination, with the porcelain base of an electric bell, of an electro-magnet having a frame seated in a recess in the front of the base and secured thereto by a suitable attaching device, substantially as described.

3. The combination, with the porcelain base of an electric bell, of the electro-magnet C, the frame H, cover K, spring L, passing through an aperture in the base, and bolt or screw J, substantially as described.

483,310. ELECTRICAL ANNUNCIATOR. NELSON H. RAYMOND, Buffalo, N. Y., assignor to Charles M. Proctor, same place. Filed Sept. 26, 1891. Serial No. 406,916. (No model.)

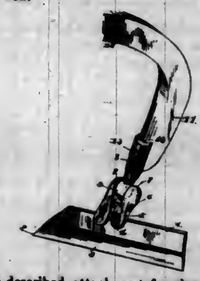


Claim.—1. The combination, in an electrical annunciator, of the U-shaped sheet metal frame A, provided with the stiffening-wires *s* and *t*, the magnet B, armature C, pivoted on one of the stiffening-wires, and the drop D, pivoted on the wire on the opposite side of the frame, substantially as described.

2. The combination, in an electric annunciator, of the U-shaped sheet-metal frame A, provided with the stiffening-wires *s* and *t* at its edges and supported within a suitable inclosing case on the lugs *a a*, fitting the interior of the trough, the magnet B, armature C, pivoted on one of the stiffening-wires, and the drop D, pivoted on the wire on the opposite edge of the frame, substantially as described.

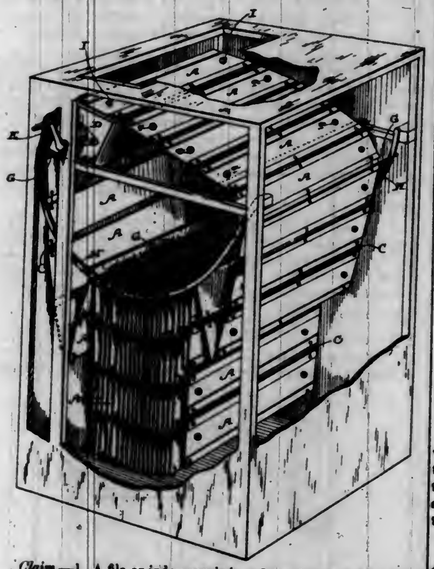
488,311. PLOW. SYLVESTER REHALT, Johnstown, Nebr. Filed Mar. 16, 1892. Serial No. 425,141. (No model.)

Claim.—1. The herein-described attachment for plow-beams, consisting of the mold-board, the pivoted jaws rising therefrom and having concaved inner faces forming sockets, the binding-bolt passed through the jaws below the sockets and above the pivots, and the shank adapted to be secured to the plow-standard and having its lower end terminating between the jaws in a spherical head or ball, substantially as specified.



2. The herein-described attachment for plows, consisting of the mold-board, oblong in shape and terminating at one end in a beveled point, the opposite pivoted jaws rising from the mold-board and provided at their inner sides with concaved sockets, a clamping-screw passed through the jaws, a shank having a concaved rear side adapted to fit a plow-standard, a bolt for the same, and a roughened head at the lower end of the shank fitting between the jaws, substantially as specified.

483,312. CONTINUOUS FILE OR INDEX. ALEXANDER J. RUDOLPH, San Francisco, Cal. Filed May 20, 1892. Serial No. 433,761. (No model.)



Claim.—1. A file or index consisting of a series of cards or holders linked together at their edges to form a flexible endless belt, rods or hangers projecting from the ends of the cards at certain intervals, and yokes adapted to receive these rods and suspend the cards in successive sheets, substantially as herein described.

2. A file or index consisting of a series of cards or holders linked together at their edges to form a flexible endless belt, rods or hangers projecting from the ends of the cards at certain intervals, yokes adapted to receive these rods and suspend the cards in sheets, and a mechanism by which the cards are transferred singly and successively from one side to the other and exposed for inspection, substantially as herein described.

3. A file or index consisting of a series of cards or holders having their edges flexibly connected together to form a series or endless belt, rods or hangers projecting from the ends of cards at certain intervals, and yokes so fixed as to receive the rods or hangers and suspend the cards therefrom in folded sheets, in combination with a polygonal drum, the faces of which correspond with the shape of the cards, and guides with which the cards engage as they pass over the drum, and a means by which the drum is rotated, substantially as herein described.

483,313. LIBRARY-CATALOGUE. ALEXANDER J. RUDOLPH, San Francisco, Cal. Filed June 9, 1892. Serial No. 436,150. (No model.)

Claim.—1. In a library-catalogue apparatus, a series of rigid slip-



holders having parallel grooves or channels upon their opposite edges, independent flexible slips the ends of which are held within said grooves or channels, said slips having written or printed upon them the subject matter of the work to be indexed and each being movable along the holder, whereby they are capable of rearrangement within the slip-holders and new slips may be introduced between the inserted slips to admit new matter from time to time, whereby an elastic alphabetical and paged index is provided, substantially as herein described.

2. The improvement in library-catalogue apparatus, consisting of a series of rigid slip-holders having grooves or channels formed upon their parallel edges, independent flexible slips separable between meeting sides to admit additional slips containing each one subject-matter and fitted to be held within the grooves of the slip-holders to form one or more alphabetically-arranged columns upon each slip-holder, and a portable tray having vertical partitions at intervals and a stop at the rear end, said tray being adapted to contain the slip-holders standing upon edge and alphabetically arranged with relation to each other, substantially as herein described.

3. The method of cataloguing and indexing the books of a library and providing manuscript copy from which the permanent catalogue may be set up and printed, consisting in entering the title, subject, and other matter of the book upon independent slips, securing said slips in grooved rigid slip-holders, so that their positions therein may be changed to admit additional slips to form complete indexed columns or pages in alphabetical order, whereby said slip-holders may be used as copy from which the permanent catalogue is printed without further writing or manuscript, substantially as herein described.

483,314. TAG-HOLDER. IRVING J. TRUE, Hope Valley, R. I. Filed Oct. 12, 1891. Serial No. 408,525. (No model.)



Claim.—A tag-holder comprising the central outwardly-bent upwardly-extending tongue *a* and the downwardly-depending loops or tongues lying upon each side thereof and projecting outwardly at their lower ends, comprising a single piece of wire bent and formed substantially as shown, the free ends of which are provided with attaching means, substantially as set forth.

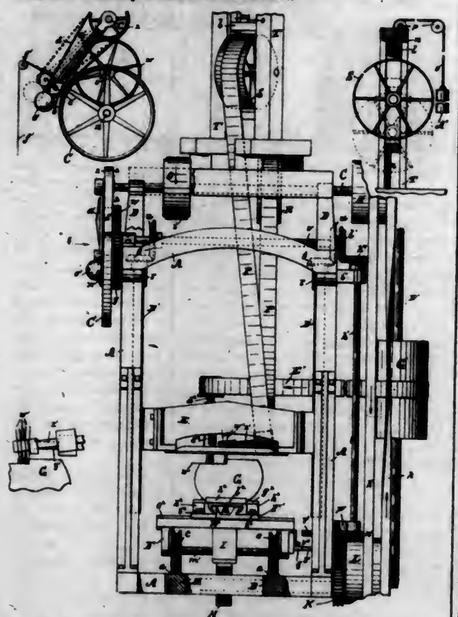
483,315. SAWING-MACHINE. ALFRED WADSWORTH, Warsaw, N. Y. Filed Mar. 11, 1892. Serial No. 424,574. (No model.)

Claim.—1. A machine for sawing hoops, having a traveling carriage, in combination with a vertically-movable platen over the carriage, a horizontal saw and a pair of upright saws carried by the platen, the arbor of one of the upright saws being horizontal and the other arbor of the pair being inclined, a driving-shaft over the platen at right angles with the carriage, a driving pulley on said shaft, a vertically movable idle-pulley over the driving pulley, and a circuit-belt for the upright saws, resting upon the driving-pulley and pending at either side thereof, the pendent branches of the belt passing around the respective arbors of the upright saws and thence over the idle-pulley, substantially as shown.

2. A machine for sawing hoops and other strips of wood, having a reciprocating carriage and a vertically-sliding saw-frame or platen over the carriage, and vertical and horizontal saws held by the platen, in combination with automatic means, substantially as shown, for lowering the saws for each cut, substantially as described and shown.

3. A machine for sawing hoops from a log while passing in either

direction, having a rectilinear reciprocating carriage for carrying the log, in combination with a set of independent rotary saws consisting of a horizontal circular saw and a pair of upright circular saws, one of the latter being vertical and the other inclined, and feed mechanism to move the log at each forward and backward motion of the carriage, substantially as shown and described.



4. A machine for sawing strips of wood, having, in combination, a vertically-movable platen or saw-frame, saws held by the platen, vertical screws for holding the platen, gears on the screws, a shaft *v* over the screws, with gears to engage the gear on the screws, a driving-shaft over the shaft *v*, a belt-wheel on the driving-shaft, a gear on shaft *v*, a friction-wheel and a pinion intermediate between said belt-wheel and gear on shaft *v*, a weighted arm on the driving-shaft, and a belt on the belt-wheel, substantially as shown.

5. In a hoop-machine, a carriage, a vertically-movable platen over the carriage, a horizontal and an inclined saw-arbor held by the platen, a driving-shaft over the platen, a driving-wheel on the shaft, a vertically-movable idle-pulley over the driving-shaft, and a driving-belt on the driving-wheel, extending downward to the saw-arbors and thence upward over the idle-pulley, all combined and arranged substantially as shown and described.

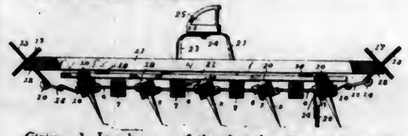
483,316. ELECTRIC SNAP-SWITCH. SETH F. ALDEN, New Bedford, Mass. Filed Feb. 1, 1892. Serial No. 419,855. (No model.)



Claim.—1. A snap-switch for electrical purposes, comprising in its construction the terminals *b*, *c*, *d*, and *e*, a base-support, vertical plates rectangularly arranged, opposite plates being electrically tied or connected, and a rotary shaft provided with a spring-impelled brush adapted to be brought successively into contact with the terminals, certain of the latter of which and the rotary shaft being embraced within an electrical circuit, as set forth.

2. A snap-switch for electrical purposes, comprising in its construction the terminals *b*, *c*, *d*, and *e*, a base-support, vertical plates rectangularly arranged, opposite plates being electrically tied or connected, each terminal plate being provided at or near one end with a locking pin or stud *r*, and a rotary shaft provided with a spring-impelled brush adapted to be brought successively into contact with the terminals, certain of the latter of which and the rotary shaft being embraced within an electrical circuit, as set forth.

483,317. HARROW. CHARLES A. ANDERSON, ALEXANDER W. ENGLAND, and FRANK D. ENGLAND, Pembroke, Ky. Filed Jan. 16, 1892. Serial No. 418,326. (No model.)



Claim.—1. In a harrow of the class described, the combination, with the toothed harrow-bars and the intermediate series of chains connecting the same, of the series of weight-bars having their ends recessed and provided with the L-shaped metal clips having perforations, and the pins passing through the perforations and into the ends of the weight-bars, substantially as specified.

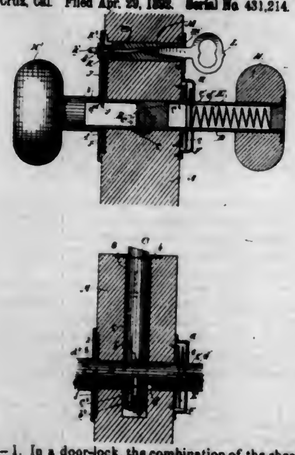
2. In a harrow, the combination, with the series of harrow bars flexibly connected, of the tension-bar extending beyond the front and rear ends of the harrow and provided with openings, screw-eyes mounted in the openings, hand-wheels mounted on the screws, and short chains connecting the eyes with the front and rear bars of the harrow, substantially as specified.

3. In a harrow, the combination, with the series of transverse harrow-bars flexibly connected, the end bars being provided with convexed bearing-blocks, of the tension-bar projecting beyond the front and rear harrow-bars and having its ends provided with inclined perforations, threaded eyebolts located in the perforations, hand-wheels mounted on the eyebolts, and short chains connecting the lower ends of the eyebolts with the front and rear harrow-bars, substantially as specified.

4. In a harrow of the class described, the combination, with the series of harrow-bars flexibly connected, the front and rear bars being provided with the central blocks and each bar being provided at each side of its center with a convexed bearing-block 20, of the longitudinal parallel beams 19, located upon the blocks 20 and at each side of the central blocks, the cleats 18, pivotally connecting the beams 19, the seat-bars pivoted on the beams, the standards secured to the ends of the seat-bars, and the seat mounted upon the standard, substantially as specified.

5. In a harrow of the class described, the combination, with the series of harrow-bars, of the series of metal frames embracing the ends of the bars, each frame being provided with inwardly-disposed bar-embracing flanges bolted to position and provided at opposite sides with perforated ears, and short chains connecting each adjacent pair of ears, substantially as specified.

483,318. LATCH AND LOCK COMBINED. JOHN E. ARMSTRONG, Santa Cruz, Cal. Filed Apr. 29, 1892. Serial No. 431,214. (No model.)



Claim.—1. In a door-lock, the combination of the sheath B to be let into the edge of the door, said sheath having a recess and slotted guide on its inner end, the reciprocating latch-bolt mounted in said sheath and having a contact-lug playing in the recess and guide thereof, and the axially-turnable and longitudinally-movable knob-spindle crossing the recess of the sheath and having an inclined plane engaging the lug of the latch-bolt, whereby the bolt is retracted on either movement of the spindle, substantially as herein described.

2. In a door-lock, the combination of the movable knob-spindle for operating the latch-bolt, said spindle having a notch or groove, the spring-controlled catch adapted to engage the notch or groove to lock the spindle, the turnable cam for operating the catch, said cam having a groove to receive the key and the turnable piece with its spiral or twisted keyway or passage, substantially as herein described.

3. In a door-lock, the combination of the movable knob-spindle for operating the latch-bolt, said spindle having a notch or groove, the spring-controlled catch adapted to engage the notch or groove to lock the spindle, the turnable cam for operating the catch, said cam having a groove to receive the key, the turnable piece with its spiral or twisted keyway or passage, and the turn-button on the other side to operate said cam, substantially as herein described.

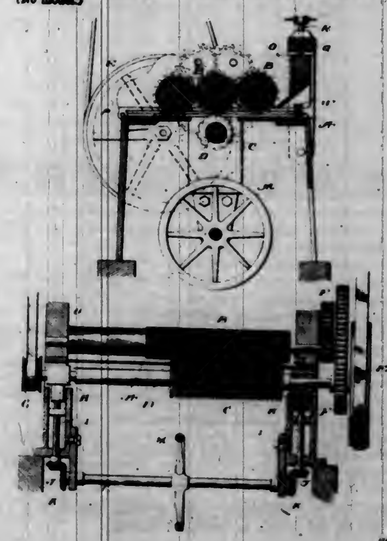
4. A door-lock comprising a reciprocating latch-bolt provided with a contact-lug, an axially-turnable and longitudinally-movable knob-spindle having an inclined plane engaging the contact-lug of the latch-bolt to retract the latter upon either movement of the spindle, and a locking device engaging the knob-spindle to hold it from moving, consisting of the spring controlled catch engaging a notch or groove in the lock-spindle and a turnable cam to operate said catch, substantially as herein described.

5. A door-lock comprising a reciprocating latch-bolt provided with a contact-lug, an axially-turnable and longitudinally-movable knob-spindle having an inclined plane engaging the contact-lug of the latch-bolt to retract the latter upon either movement of the spindle, and a locking device engaging the knob-spindle to hold it from moving, consisting of the spring-controlled catch engaging a notch or groove in the lock-spindle, a turnable cam to operate said catch, said cam having a groove to receive a key, and the turnable piece with its spiral or twisted keyway or passage, substantially as herein described.

6. A door-lock comprising a reciprocating latch-bolt provided with a contact-lug, an axially-turnable and longitudinally-movable knob-spindle having an inclined plane engaging the contact-lug of the latch-bolt to retract the latter upon either movement of the spindle, and a locking device engaging the knob-spindle to hold it from moving, consisting of the spring-controlled catch engaging a notch or groove in the lock-spindle, a turnable cam to operate said catch, said cam having a groove to receive a key, the turnable piece with its spiral or twisted keyway or passage, substantially as herein described.

7. In a door lock, the reciprocating latch-bolt having the beveled outer end, in combination with the separate shank or stem, on which said bolt is fitted and is adapted to turn, whereby it may be reversed, and the set-screw for holding it in position, substantially as herein described.

483,319. MACHINE FOR GROOVING SHOE-SOLES. GEORGE BRYANT, San Francisco, Cal. Filed Oct. 30, 1891. Serial No. 410,398. (No model.)



Claim.—1. A leather-grooving apparatus consisting of a table, a series of longitudinally-corrugated feed-rollers situated above the surface of the table, gearing whereby they are caused to rotate in the same direction, an independently-driven cutter-shaft journaled below the surface of the table, a series of disks or cutters having their cutting points or edges arranged spirally around the shaft and projecting through an opening in the surface of the feed-table, and means whereby said cutters may be raised or depressed with relation to the table, substantially as herein described.

2. In a leather-grooving machine, a table, a series of longitudinally-corrugated feed-rollers with driving and direction gears, whereby they are caused to rotate in the same direction above the surface of the table, hinged frames within which said feed-rollers are journaled at each end of the machine, and an adjusting-screw and springs whereby the pressure upon the leather is regulated and the feed-rollers adjusted to the thickness of the leather to be grooved, and a shaft rotating beneath the table, having cutting-disks secured thereto and projecting through an opening in the surface of the table, whereby grooves or channels are cut in the surface of the leather, which is carried across the table by the feed-rollers, substantially as herein described.

3. In a leather-grooving machine, a feed-table, a series of longitudinally-corrugated rollers vertically adjustable with relation to the surface of the table, and gearing whereby they are caused to rotate in the same direction, an independently-driven cutter-shaft with toothed disks or cutters secured to and carried thereby, said disks having the spirally-arranged cutting-points projecting through the surface of the table, so as to form grooves or channels in the lower surface of the leather, which is carried over the cutters by the feed rollers, journal-boxes at each end of the table, in which the cutter-shaft rotates, vertical screw-shafts connected with said journal-boxes, having pinions at their lower ends, and a horizontal hand-wheel shaft extending across the lower part of the table, having pinions engaging those of the vertical screw-shafts, whereby the opposite ends of the cutter-shaft are raised and depressed simultaneously with relation to the feed-table and independently of the adjustment of the feed-rollers, substantially as herein described.

483,320. WIRE STRETCHER AND FASTENER. GEORGE CHAMBERLAIN, San Saba County, near Milburn, Tex. Filed June 20, 1892. Serial No. 437,400. (No model.)



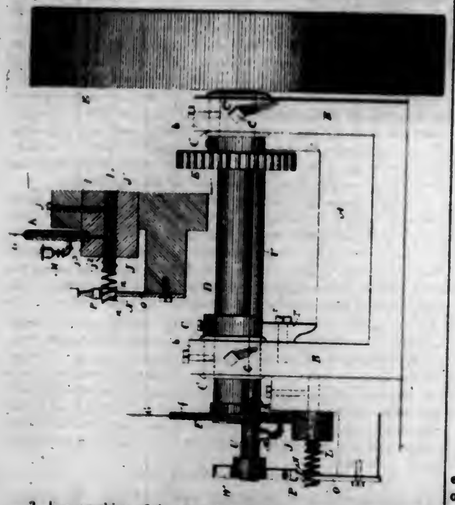
Claim.—The combination of a bar constructed of metal and provided at one end with a claw and having its other end bent at right angles to form an arm provided with a slot or bifurcation forming prongs, one of the prongs being longer than the other, a stud secured to the bar on the side opposite the arm and arranged adjacent to the same and forming a hammer-head, and a handle arranged on the same side of the stud and located adjacent to the claw, substantially as described.

483,321. WIRE COILING AND CUTTING MACHINE. ELISHA J. FULKERSON and LORIN ROBERTS, Traverse City, Mich. Filed Feb. 6, 1892. Serial No. 420,485. (No model.)

Claim.—1. In a machine of the class described, the combination of the frame having a die socket or recess at one end, parallel feeding-shafts laterally adjustable upon said frame, feeding-disks keyed to one end of said shafts, a cylindrical coil die removably fitting the die socket or recess and provided with a central bore and a spiral coil-groove formed in the face of the bore near one end thereof, a solid plug registering with the bore of said die and projecting beyond one end thereof, a single fastening-screw passing through the frame and the die mounted in the same and impinging against the plug within said die to secure the various parts together, and knife members arranged directly opposite the projecting ends of said plug, one of said members being adapted to receive the coil, which spins and winds over the cutting-edge thereof, substantially as set forth.

2. In a machine of the class described, the combination of the frame having a die socket or recess at one end, parallel feeding-shafts journaled in said frame, feeding-disks keyed to said shafts, a removable cylindrical coil die detachably secured within said socket or recess

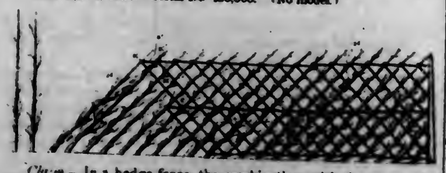
beneath said feeding-wheels and provided with a central bore, a spiral coil-groove formed in the face of the bore and extending from one end to an intermediate point, and a wire-receiving opening passing through the body thereof and forming a continuation of said spiral groove from its intermediate or central terminus, a solid plug snugly fitting said bore and projecting beyond the die to direct the wire around said spiral groove and beyond the die, said plug being removably secured in place within said die, and means for rotating said shafts, substantially as set forth.



3. In a machine of the class described, the combination, with the bed or frame, of the feeding-wheels and means for rotating the same toward each other, a coil-die, a stationary adjustable knife-plate adjustably secured to said bed and provided with a knife edge or blade adapted to receive the coil which spins and winds thereover, a laterally adjustably spring-pressed knife-lever pivoted to said knife-plate and provided with a knife-edge working over said stationary knife-plate, and means for automatically operating said knife-lever at regular intervals, substantially as set forth.

4. In a machine of the class described, the combination, with the frame or bed, of the feeding shafts having feeding-wheels and intermeshing gear-wheels, a coil-die, a stationary knife member located directly opposite said coil-die and receiving the coiled wire, a movable spring-pressed knife member pivoted to said stationary knife member and working over the same, said movable knife member having an upwardly-extending stop, laterally-adjustable bearing-arms, a cutting-shaft journaled in said arms and having a gear-wheel meshing with one of said feeding-shaft gear-wheels, and a strike arm or lug keyed to one end of said cutting-shaft and adapted to engage said movable knife-member stop at every revolution of the shaft, substantially as set forth.

483,322. HEDGE FENCE. MARTIN L. FUNKHOUSER, Carlisle, Pa. Filed Apr. 8, 1892. Serial No. 428,303. (No model.)

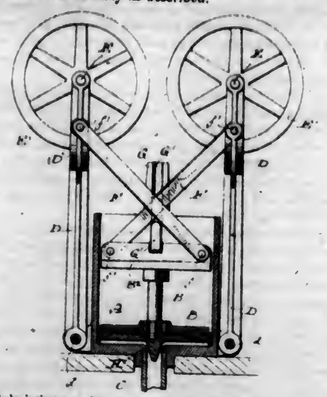


Claim.—In a hedge fence, the combination, with the cane, of a tie formed of a continuous piece of wire having horizontal top, central, and bottom portions, and intermediate oblique portions, the free ends of the top and bottom portions being secured to one of the next adjacent ties, and a connection between the ends of the central portion and the corresponding portions of the adjacent ties, substantially as shown and described.

483,323. HOISTING APPARATUS. WILLIAM J. KAYSER, Milwaukee, Wis. Filed Dec. 15, 1891. Serial No. 415,129. (No model.)

Claim.—1. A hoisting apparatus comprising a cylinder and a piston movably engaged therewith, arms or levers pivotally engaged with stationary parts of the apparatus upon opposite sides of said cylinder and each carrying at its free end one or more pulleys or sheaves, and suitable links or arms pivotally connected with said pivoted arms or levers and operatively connected with said piston, substantially as described.

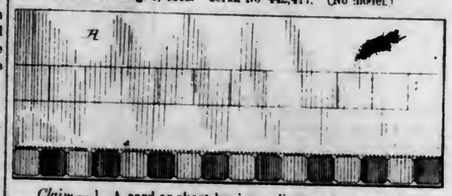
2. A hoisting-machine comprising a cylinder and a piston movably engaged therewith, a standard secured to said piston and carrying a head or table, arms or levers pivotally connected with stationary portions of the machine at opposite sides of the cylinder and each carrying one or more pulleys or sheaves at its free end, and links or arms pivotally connected with said levers and operatively engaged with said head or table, substantially as described.



3. A hoisting-machine comprising a cylinder, a piston movably engaged therewith and provided with a projecting standard, a head or table secured to said standard and movably engaged with guides upon said cylinder, arms or levers pivotally engaged with stationary portions of the machine at opposite sides of the cylinder and each carrying at its free end one or more pulleys or sheaves, and links or arms pivotally connected with said levers and with said head or table, substantially as described.

4. A hoisting-machine comprising a cylinder, a piston movably engaged therewith, levers or arms pivotally engaged with stationary portions of the machine at opposite sides of the cylinder and each carrying at its free end one or more pulleys, and diagonally-arranged links pivotally engaged with said levers and each operatively engaged with said piston at the side of the cylinder opposite to its connection with said levers, substantially as described.

483,324. GAME APPARATUS. FRANCIS E. KNIGHT, New York, N. Y. Filed Aug. 8, 1892. Serial No. 442,417. (No model.)



Claim.—1. A card or chart having a diagram for a game printed upon it and pieces suitable for playing the game, also printed upon the card, substantially as described.

2. A card or chart having a diagram for a game printed upon it and pieces suitable for playing the game, also printed upon the card, said pieces being separated from the main body of the card by a line of perforations, substantially as described.

3. A card or chart having a row of squares or inclosures printed upon it and forming a game diagram and having two sets of distinguishable pieces suitable for playing the game, also printed upon the card, substantially as described.

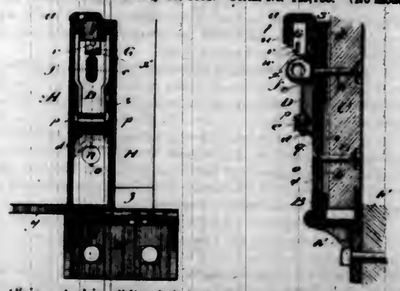
4. A card or chart having a row of squares or inclosures printed upon it and forming a game diagram and having two sets of distinguishable pieces suitable for playing the game, also printed upon the card, said sets of pieces being of contrasting colors, substantially as described.

483,325. HOLDBACK. JOHN H. LOGAN, Overlook, N. Y. Filed May 20, 1892. Serial No. 433,698. (No model.)



Claim.—In a device of the character described, in combination, a base-plate provided with a forwardly-extending hook, a spring-plate having its free end within the hook and at a point near its end bent at an angle to the body of the plate, and a holdback loop or casting adapted to engage the hook and having an angular recess to engage the angle of the spring-plate, substantially as shown and described, and for the purpose specified.

483,326. SLIDING-DOOR LOCK. ALBERT B. PULLMAN, Chicago, Ill., assignor to the A. B. Pullman Company, same place. Filed June 16, 1891. Renewed Aug. 15, 1892. Serial No. 443,103. (No model.)



Claim.—1. In a sliding-bolt lock, the combination of a guide for the bolt, adapted to be secured in operative position, a bolt sliding within the guide, a lever fulcrumed upon the guide, intermeshing rack-and-pinion mechanism upon the lever and bolt, a vertically-sliding keeper for securing the lever in place when the bolt is advanced into its locking position, and means for securing the keeper in its retaining position by means of a car-seal or other locking device, substantially as described.

2. In a sliding-bolt lock, the combination of the casing for the bolt, provided with a projection *l* at its upper end, having an opening *k* extending vertically through it, a bolt sliding in the casing, a lever D, fulcrumed in bearings upon the casing, intermeshing rack-and-pinion mechanism upon the lever and bolt, and a keeper G, extending loosely through the opening *k* in the projection *l*, substantially as described.

3. In a sliding-bolt lock, the combination, with the casing A, having the opening *q* in its outer plate and bolt-holes *o* above and below the opening *q* and provided with bearings *p* at the sides of the opening *q* and with the projection *l* at its top, having the opening *k* extending through it, of the bolt B, provided with a slot A for the passage of the lower bolt and with a rack *i*, lever D, fulcrumed in the bearings *p* and provided with teeth *d*, meshing with the rack *i*, and a keeper G, extending loosely through the opening *k* in the projection *l* and provided with a stop for preventing its removal therefrom, substantially as described.

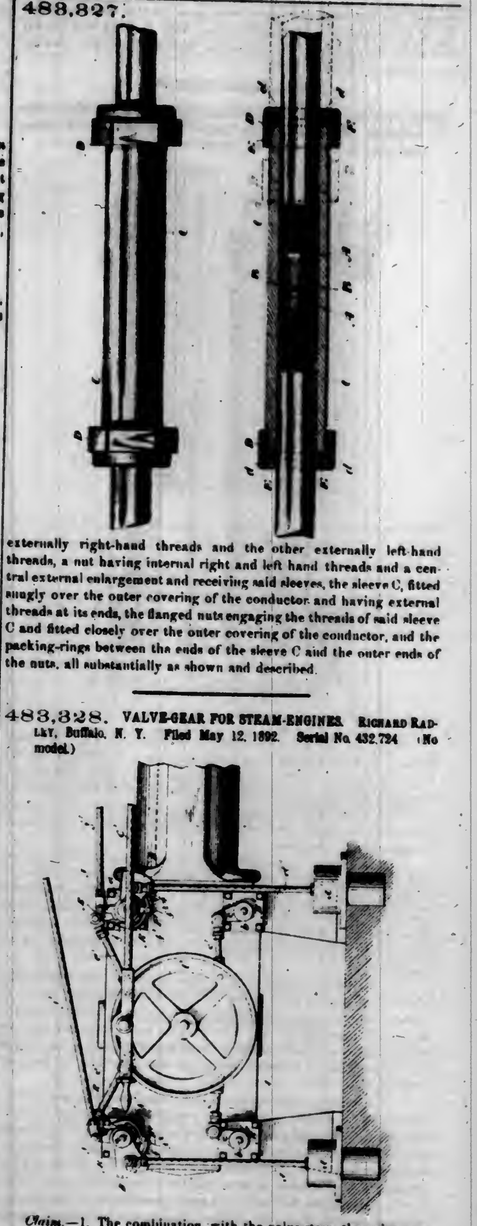
4. In a sliding-bolt lock, the combination of a casing for the bolt, adapted to be secured in operative position upon a door, an eye *f* in fixed relation to the outer surface of the casing when the device is secured to the door, a bolt sliding within the casing, a lever D, fulcrumed upon the casing and provided with a slot *e* in position to pass over the eye *f* when the lever is raised, and intermeshing rack-and-pinion mechanism upon the lever and bolt, substantially as described.

5. In a sliding-bolt lock, the combination of the casing for the bolt, provided with a projection *l* at its upper end, having an opening *k* extending vertically through it, an eye *f*, projecting from the outer face of the casing below the projection *l*, a bolt sliding in the casing, a lever D, fulcrumed in bearings upon the casing and provided with a slot *e* in position to pass over the eye *f* when the lever is raised, intermeshing rack-and-pinion mechanism upon the lever and bolt, and a keeper G, extending loosely through the opening *k* in the projection *l*, substantially as described.

483,327. COUPLING FOR UNDERGROUND WIRES. JOHN J. PURCELL, Washington, D. C., assignor of one-half to William H. Allen, same place. Filed Feb. 16, 1892. Serial No. 421,740. (No model.)

Claim.—The combination, with the two sections of an electrical conductor, of a sleeve upon the end of each section, the one having

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externally right-hand threads and the other externally left-hand threads, a nut having internal right and left hand threads and a central external enlargement and receiving said sleeves, the sleeve C, fitted snugly over the outer covering of the conductor and having external threads at its ends, the flanged nuts engaging the threads of said sleeve C and fitted closely over the outer covering of the conductor, and the packing-rings between the ends of the sleeve C and the outer ends of the nuts, all substantially as shown and described.

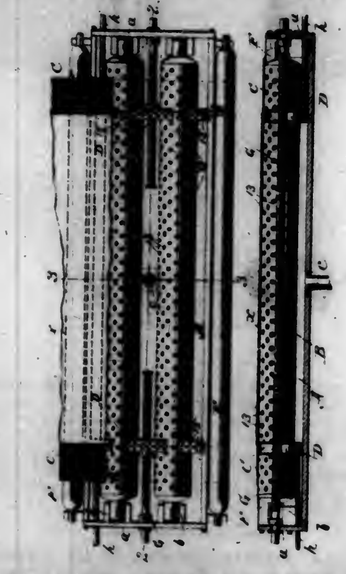
483,328. VALVE-GEAR FOR STEAM-ENGINES. RICHARD RADLEY, Buffalo, N. Y. Filed May 12, 1892. Serial No. 432,724. (No model.)

Claim.—1. The combination, with the valve-stem, the valve-arm provided with a stud, and the rock-lever pivoted concentrically with the valve stem, of a trip-lever pivoted on said rock-lever and provided with a shoulder which engages with the stud for opening the valve and having a convex riding-face which extends from the shoulder toward the pivot of the trip-lever and which supports the latter upon the stud after the trip-lever has been released from the stud, substantially as set forth.

2. The combination, with the valve-stem, the valve-arm provided with a stud, and the rock-lever pivoted concentrically with the valve-stem, of a trip-lever pivoted upon the rock-lever and provided with a shoulder which engages with the stud for opening the valve and having a convex riding face which extends from the shoulder toward the

pivot of the trip-lever and which rides upon the stud after the shoulder of the trip-lever has been disengaged from the stud, said convex face being eccentric with the valve-stem when the face rides upon the stud, substantially as set forth.

483,329. SUCTION MECHANISM FOR PAPER-MACHINES. JAMES REYNOLDS, Fairfield, assignor to Roswell H. Fairfield, Holyoke, Mass. Filed Sept. 9, 1891. Serial No. 405,133. (No model.)



Claim.—1. In suction mechanism for paper-machines, the combination, with the web-carrying apron and suction-chamber having the end walls thereof constituted by chambered section-boxes having perforated curved walls which constitute apertures *d* and a conduit for supplying water into said section-boxes, of one or more rolls having perforations through them and closely fitted within said apertures, substantially as described.

2. In a suction mechanism for paper-machines, the combination, with a main box having bearings in its ends and a suction-conduit leading thereinto, of one or more rolls B B, mounted in said bearings, and having perforations transversely through them, and section-boxes adjustable the one toward and from the other and having apertures *d d*, through which said rolls pass with a close fit, substantially as described.

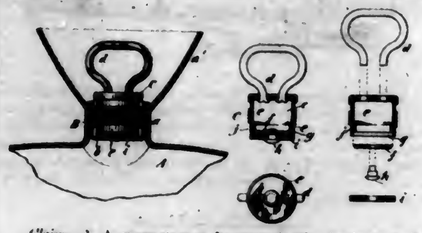
3. In a suction mechanism for paper-machines, the combination, with a suction-chamber, the end walls thereof constituted by chambered section-boxes having perforated curved walls forming apertures *d*, the perforated lining *f*, and a conduit for supplying water into said section-boxes, of one or more rolls having perforations through them and closely fitted for rotation within said lined apertures, substantially as described.

4. In a suction mechanism for paper-machines, in combination, a box having a suction-chamber, one or more rolls rotatably mounted thereon and provided with perforations or passages which are in communication with said suction-chamber, the web-carrying apron movable upon said rollers, and supporting-rollers for the apron mounted outside of and near said suction-chamber, substantially as described.

5. In a suction mechanism for paper-machines, a roll consisting of an outer metallic shell and a filling of wood, said roll having a series of perforations or passages through it, and a suction-chamber and web-carrying apron combined for operation, substantially as described.

6. In a suction mechanism for paper-machines, in combination, the box A, having the bearings *b b* in its ends and the suction-pipe *c* leading thereinto, the rolls B B, having perforations, mounted in said bearings, the hollow section-boxes D D, having perforated curved walls forming the apertures *d*, through which said rolls are passed with a close bearing and having dovetail engagements with the sides of the main box, and conduits for supplying water in said section-boxes, the screws G G, and the endless web-carrying apron C, substantially as described.

483,330. SCREW-STOPPER FOR WATER-BAGS, &c. GEORGE H. F. SCHRADER, New York, N. Y. Filed Feb. 17, 1892. Serial No. 421,890. (No model.)



Claim.—1. A screw-stopper for water-bottles, having a hollow body formed as an inverted cup having a handle at its top and having its bottom closed by a disk united to the edges of the cup, said disk formed with a central stud for holding the packing-disk, and a washer sprung over said stud and lying against said disk and extending over the face of the latter and the lower edge of said cup, substantially as and for the purpose set forth.

2. A screw-stopper for water bottles, having a hollow body formed as an inverted cup and its bottom closed by a disk having its periphery united to the edges of the cup by swaging them together to form a water-tight joint.

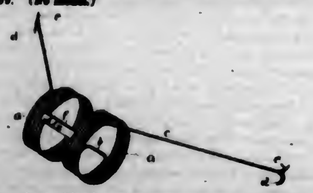
3. A screw-stopper for water-bottles, having a hollow body formed as an inverted cup and its bottom closed by a disk having its periphery united to the edges of the cup by swaging them together and a packing-disk fastened to the bottom of the disk and overlying the swaged joint to prevent leakage thereinto.

4. A screw-stopper for water-bottles, consisting of an inverted hollow cup having a handle at top, externally screw-threaded, and having an annular lower edge constructed with a rabbet, in combination with a disk carrying a stud seating against and closing the open end of said cup, engaging the rabbet thereof and secured thereto, and a perforated washer adapted to be sprung over said stud and lie against said disk.

5. A screw-stopper for water-bottles, consisting of an inverted hollow cup having a handle at top, externally screw-threaded, and having an annular lower edge constructed with a rabbet, in combination with a substantially-flat disk having a stud riveted to its center and constructed with a beveled outer edge fitting within the rabbet of said cup, closing the open end thereof, and adapted when the edge of said cup is turned against the beveled edge of said disk to be thereby secured to said cup to form a hollow body, and a washer sprung over said stud and lying against said disk and the lower edge of said cup, whereby said washer overlies and protects the joint between said cup and disk.

6. A screw-stopper for water-bottles, consisting of a sheet-metal cup E, externally screw-threaded, having a lower cylindrical portion *j*, constituting a guide for introducing the stopper into its thimble, and an annular groove *g* on the inner wall of its lower edge, in combination with the disk *f*, carrying headed stud A, fitting within said annular groove and held therein by the overturned lower edge of the cup, and washer *i*, sprung over said stud A of said disk, extending over the face of the latter and of substantially-uniform diameter with the cylindrical portion *j* of said cup, whereby the joint between said cup and disk is sealed and protected by said washer, substantially as and for the purpose set forth.

483,331. COMBINED NAPKIN RING AND HOLDER. ALPHEUS M. SPAULDING, North Belgrade, Me. Filed Nov. 5, 1891. Serial No. 410,899. (No model.)



Claim.—A combined napkin ring and holder consisting of a wire formed into a ring, the two ends of the wire extending as arms from opposite ends of the ring, each of said arms being provided at its end with hooks for fastening the napkin in place, substantially as described.

483,332. BELL. JOHN C. WELLS, East Hampton, Conn. Filed May 25, 1892. Serial No. 434,262. (No model.)

Claim.—1. The combination of the shaft A, carrying the rotating

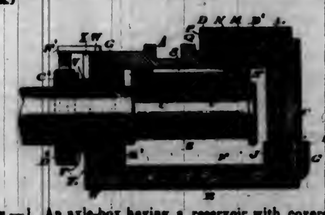
seat-plate B, with the rotating and longitudinally-movable striker-plate D, adapted to slide on the surface of said seat-plate B, substantially as described.

2. The combination of a shaft A, carrying a rotating seat-plate B, with a rotating and longitudinally-movable and slotted plate D, adapted to slide on the surface of said seat-plate B, and retaining-spring F, adapted to hold said striker-plate D to said seat-plate B, substantially as described.



3. The combination, in a bell of the character described, having inward lug G, of the shaft A, rotating seat-plate B, carried thereby, longitudinally-movable and slotted striker-plate D, guiding-ears E E on said seat-plate, and with the spring F, adapted to hold said striker-plate D to said seat-plate B, and with means, substantially as described, for rotating seat-plate B and striker-plate D, whereby the ends of said striker-plate D are brought successively into contact with said projection G, substantially as described.

483,333. AXLE-LUBRICATOR. ISAAC P. WISTAR and HENRY A. WISTAR, Philadelphia, Pa., assignors of one-third to William R. Murphey, same place. Filed Jan. 23, 1892. Serial No. 419,010. (No model.)



Claim.—1. An axle-box having a reservoir with covered top, a front lid with pump therein having upper and lower valves loosely seated in its tube, a top plate with a removable lid, said plate having a chamber with inlet and outlet ducts, and a journal-bearing with a chamber and channels therein, said parts being combined substantially as described.

2. An axle-box having a reservoir in its lower part with a covered top, a front lid with a pump therein having rising-and-falling valves loosely fitted in its tube, a top plate with a chamber, a pipe in said chamber leading from said pump, and an overflow-passage leading from said chamber through said front lid to said reservoir, the top wall of said overflow-passage being above the floor of said chamber, said parts being combined substantially as described.

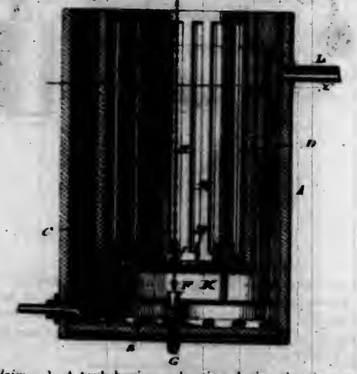
483,334. NUT-CRACKER. DAVID C. WHEELER and WILLIAM W. SPERRY, Bridgeport, Conn.; said Sperry assignor to Dwight Wheeler, same place. Filed Apr. 23, 1892. Serial No. 430,188. (No model.)



Claim.—1. A nut-cracker consisting of a fixed jaw, a fixed handle, and ears cast in a single piece, said fixed handle having a recess 10 in its inner side, a sliding jaw having a recess 11 in its inner side and a recess 6 in its outer side, a spring lying in recesses 10 and 11, by which the sliding jaw is moved to the open position, and a movable handle pivoted between the ears and having a lug 7, which engages recess 6 to move the sliding jaw to the closed position.

2. A nut-cracker consisting of a fixed jaw, a fixed handle, and ears formed in a single piece, a sliding jaw lying between said ears and provided with a recess 6 and bearings 15, and a movable handle pivoted between the ears and having a lug adapted to engage the recess and a rounded end adapted to engage bearings 15.

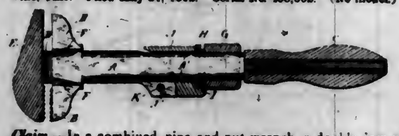
483,335. APPARATUS FOR DRUMMING SILK OR OTHER FIBERS. WILLIAM H. WHITELEY, Darby, Pa. Filed Aug. 22, 1891. Serial No. 403,431. (No model.)



Claim.—1. A tank having a heating device therein, a metallic vessel supported in said tank, and a perforated wooden tank supported in said vessel, said metallic vessel having its top below the top of the said inner tank, said parts being combined substantially as described.

2. A tank having a coil of steam-pipe therein, a vessel supported in said tank, and a perforated wooden tank supported in said vessel, said vessel having its top below the top of said inner tank and said outer tank having an overflow-pipe below said top of the said vessel, said parts being combined substantially as described.

483,336. PIPE AND NUT WRENCH. MILFORD J. WILSON, Painesville, Ohio. Filed May 21, 1892. Serial No. 433,802. (No model.)



Claim.—In a combined pipe and nut wrench, a double jaw projecting on both sides and forming the inside stationary jaw, an integral part of a threaded shank, springs fastened to the base of said jaw, the free terminals of which extend upward between the projections of the jaws, in combination with a double movable jaw having a bifurcated arm pivoted to one side of a sleeve, said sleeve and movable outside jaw being actuated by an annular grooved and threaded nut upon the shank, in the manner substantially as and for the purpose set forth.

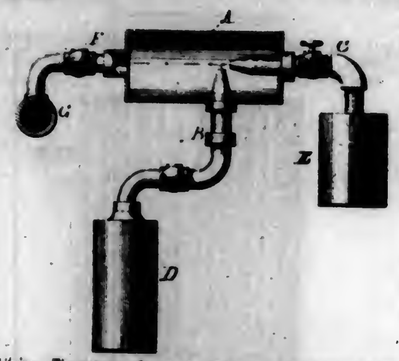
483,337. BEVERAGE OF FERMENTED AND UNFERMENTED WORT AND PROCESS OF MAKING THE SAME. EDWIN ADAM, Philadelphia, Pa. Filed Nov. 5, 1891. Serial No. 410,966. (No specimens.)

Claim.—1. The process of preparing a beverage as herein set forth, consisting in highly drying malt, mashing in and off at a high temperature a quantity of the same and forming a fermented wort therefrom, mashing in and off at a high temperature another portion of said prepared malt, mixing said latter wort with hops, forming an unfermented wort, removing the yeast-cells from the fermented wort, blending said fermented and unfermented worts, and artificially charging the blended worts with alcohol and carbonic-acid gas, substantially as described.

2. The process of preparing the beverage described herein, consisting in treating malt so as to have a high percentage of dextrine and a low percentage of maltose, making hopped unfermented and fermented worts of the malt thus treated, removing the yeast-cells from the fermented wort, blending said worts, and charging the mixture with alcohol and carbonic-acid gas, and then aging the preparation in an air-tight vessel, substantially as described.

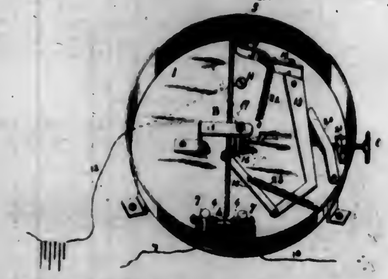
3. The beverage herein described, consisting of a mixture of unfermented and fermented worts, the fermented wort having a high percentage of dextrine and said worts being in the proportions set forth and charged with alcohol and carbonic-acid gas, as described.

483,338. PROCESS OF MAKING MALT BEVERAGES. EDWIN ADAM, Philadelphia, Pa. Filed Dec. 12, 1891. Serial No. 414,839. (No specimens.)



Claim.—The process of preparing a beverage, consisting in making an unfermented wort having a suitable percentage of dextrine, boiling the said wort in hops, fining the said hopped wort, and artificially charging the same with alcohol and carbonic-acid gas, substantially as described.

488,339. THERMOSTAT. IRA F. BURNS and FREDERIC C. BURNS, Elmira, New York. Filed Mar. 17, 1892. Serial No. 425,230. (No model.)



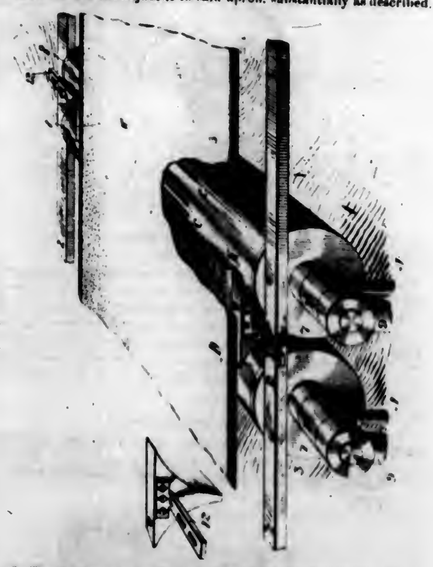
Claim.—1. In a thermostat, the combination, with the bar B, mounted upon the lever 3, of the lever 13, engaging therewith, the lever 15, secured at one end to the lever 13 and at its other end to the arm upon the post 17, and the indicating-hand 19, as set forth.

2. In a thermostat, the combination, with the case, binding-posts therein insulated from the case and from each other, and binding-screws extending inwardly from said posts, of a thermostatic bar, a pivotally mounted lever from one end of which said bar is suspended, an intermediate pivotally-mounted lever in engagement with the first lever and operatively connected to an indicator, and adjusting-screws in engagement with said levers, as set forth.

488,340. SUCTION-ROLL FOR PAPER-MACHINES. ELIJAH B. BENHAM, Providence, R. I., assignor to Roswell M. Fairfield, Holyoke, Mass. Filed Sept. 9, 1891. Serial No. 405,159. (No model.)

Claim.—1. A suction-roller for paper-machines, consisting of a tubular center having a series of longitudinal ribs on its exterior surface, a tubular shell covering said ribs, thereby forming a series of exhaust-chambers therebetween having an opening therethrough opposite each of said chambers, a head for one end of said roll, having air-conduits therein corresponding in number to that of said chambers, extending from its outer side to its inner face and communicating with said chambers, a suitable head for the opposite end of said roll, and suitable journals and bearings for each head, combined with an air-valve, substantially as described, co-operating with said conduit-containing head and permitting air communication between a limited number of said exhaust-chambers and conduits during the rotation of said roll, air-cut-off blocks, substantially as described, located between said rolls, and a suitable air-exhaust device connected to said valve, substantially as set forth.

2. In a suction apparatus for paper-machines, a cylinder mounted for rotation and adapted to be peripherally borne upon by the passing apron and provided with a series of separated chambers which terminate in passages having their orifices at different places around the periphery of the cylinder, a common conduit arranged for suction communication with all of said separated chambers, and valve mechanism arranged between and relative to the said common conduit and said separated cylinder-passages, whereby as the cylinder rotates there will be established suction communication through such of said separated peripherally-terminating chambers as are adjacent the passing apron and a cut-off of the suction communication through such of the said chambers as are not adjacent to said apron, substantially as described.



3. The combination, with two chambered suction-rolls for paper-machines, substantially as described, having rotary movements near each other, of two air-cut-off blocks supported between said rolls, having grooves within those portions of their surfaces which adjoin said rolls, said grooves extending from the ends of said blocks to their lower edges, substantially as set forth.

4. The combination, with two parallel separated chambered suction-rolls for paper-machines, provided with series of suction-passages which terminate at different peripheral portions of the roll and which have rotary movements near each other, of two air-cut-off blocks located and ranging longitudinally between and having bearings at their opposite sides lengthwise upon the sides of both of said rolls and having longitudinal sliding engagements the one with the other, said blocks having their portions which are adjacent the ends of the roll in the plane coincident with the upper peripheral portions of the rolls, their upper surfaces intermediate of the so-coinciding end surfaces being below said plane of coincidence, and adjustable supporting devices therefor, whereby said blocks may be moved for adjustment parallel with the axes of the suction-rolls to accord with the width of the paper-stock which may be passing over the rolls, substantially as set forth.

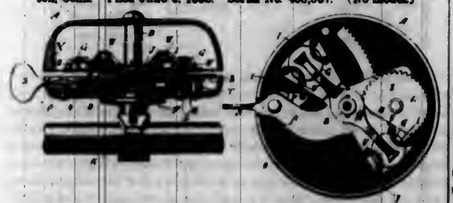
5. The combination, with two chambered suction-rolls for paper-machines, provided with series of suction-passages which terminate at different peripheral portions of the roll and having rotary motions near each other, of two cut-off blocks located between said rolls and having sidewise bearings peripherally thereon, and one thereof having a longitudinal dovetailed way and the other the longitudinal dovetailed rib for engagement therein, and each also having longitudinally-adjustable end supports, substantially as described.

6. The combination, with two chambered suction-rolls for paper-machines, substantially as described, having rotary movements near each other, of two air-cut-off blocks supported between said rolls and preventing air from entering therebetween from beneath and between their ends, each of said blocks having an upper surface near the ends of said rolls substantially in a plane with the upper sides thereof and being downwardly inclined from the inner border of said upper surface to a central point between the outer ends of said blocks, substantially as set forth.

7. The combination, in a paper-machine, of the apron and a parallel pair of suction rolls having separated air-passages therein which terminate at different portions peripherally thereof, and a suction-conduit and valve mechanism for each roll, coacting with said separated passages, whereby a suction may be established as the rolls rotate through such of the said passages as have their orifices toward the upper portion of the roll, and a block or part constituting a longitudinal partition in bearing upon and between the adjacent sides of the rolls, the same having its end portions in a plane substantially coincident with the tops of the rolls, but having its intermediate surface depressed, substantially as described.

8. The combination, with a suction-roll for a paper-machine, consisting of a tubular cylindrical shell having a series of longitudinal ribs with intervening longitudinal chambers *a* and a surrounding cylindrical shell *b*, having longitudinal slots or perforations *c*, a closing head at one end, and a head at the other, which is provided with a series of passages *e*, that terminate in ports having a circular arrangement, substantially as described, of a suction-pipe mounted relative to the roll and adapted to have at a given instant during the rotation of the roll an air communication with one or more of the said ports, substantially as and for the purpose described.

488,341. BELL. ABNER A. BEVIN and JOHN C. WELLS, East Hampton, Conn. Filed June 6, 1892. Serial No. 435,587. (No model.)



Claim.—1. The combination, with a gong, of a rotating striker-arm H, striker-pieces G G, loosely carried within the staples I I at the extremity of said arm, said pieces G G being operated by centrifugal force to impinge against a lug on the inside of the gong, substantially as described.

2. The combination, in a call-bell, of the gong A, the post B, and base-plate D, adapted to rotate thereon, the arm P, fixed on said post B, and the L-shaped arm N, pivoted to the base-plate D and carrying a segmental toothed rack, said arm N being loosely connected to the fixed arm P, and the pinion M, toothed wheel K, and striker-arm H, connected to the toothed wheel K by pinion J and adapted to be rotated thereby, substantially as described.

3. The combination, in a call-bell, of the gong A, the post B, and base-plate D, adapted to rotate thereon, the arm P, fixed on said post B, and the L-shaped arm N, pivoted to the base-plate D and carrying a segmental toothed rack, said arm N being loosely connected to the fixed arm P, and the pinion M, toothed wheel K, and striker-arm H, connected to the toothed wheel K by pinion J and adapted to be rotated thereby, and the striker-pieces G G, loosely held at the extremities of the arm H, substantially as and for the purpose specified.

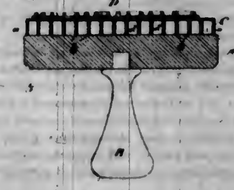
488,342. CRANK-SECURING MEANS. FRANK H. BOLTE, Milwaukee, Wis., assignor to the Sercombe-Bolte Manufacturing Company, same place. Filed June 24, 1892. Serial No. 437,849. (No model.)



Claim.—1. A crank having a split head provided with a split and screw-threaded peripheral lug and a clamping-nut that engages the lug, substantially as set forth.

2. A crank having a split head provided with a split, tapered, and screw-threaded peripheral lug and a nut that is tapered and threaded upon its interior to engage with the lug, substantially as set forth.

483,343. HAND-STAMP. TAYLOR S. BOOK, Brooklyn, N. Y. Filed Dec. 5, 1891. Serial No. 414,060. (No model.)



Claim.—1. As an improved article of manufacture, a hand-stamp having its letters or characters mounted upon a hollow flexible cushion secured at its edges to the body of the stamp and within which are formed flexible supports for sustaining the letters and cushion, substantially as described.

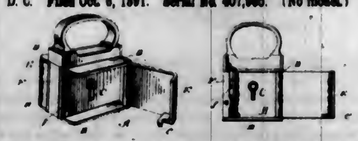
2. The hand-stamp herein shown and described, comprising the body A, hollow flexible cushion C, having a marginal wall *a* secured at its edges to the said body, rubber type or characters D, mounted on the cushion, and the flexible partitions *b c*, formed within the cushion and secured at their edges to the body of the stamp, substantially as described.

483,344. PNEUMATIC TIRE. JAMES H. BULLARD, Springfield, Mass. Filed Apr. 16, 1892. Serial No. 429,416. (No model.)



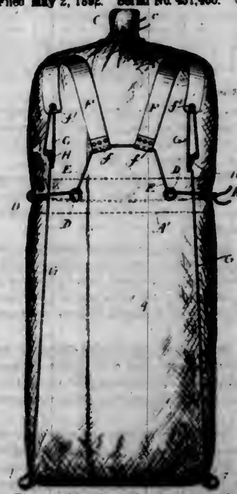
Claim.—A protective armor for a pneumatic tire, consisting of the series of thin plates or scales having slits within their borders, and a strip *d* of flexible material connecting said scales by being interlaced through the slits thereof, and said scales having their edge portions overlapping, substantially as described.

483,345. KEYHOLE-GUARD FOR PADLOCKS. JOHN V. CARVELL, Eddyville, Ill., assignor of one-half to Joe W. King, Washington, D. C. Filed Oct. 6, 1891. Serial No. 407,966. (No model.)



Claim.—The combination, with the lock-casing proper, of the extended bottom plate, the ribs or walls D, the hinged door provided with a hook or catch, the supplemental side plate or casing, and the spring-latch, as and for the purpose set forth.

483,346. LUGGAGE-CARRIER. ALPHONSO S. COMSTOCK, Evanston, Ill. Filed May 2, 1892. Serial No. 431,460. (No model.)



Claim.—1. The combination of a bag, a cord extending around the waist thereof, a pair of shoulder-straps connected to said cord, and

cords connected to said shoulder-straps and the bottom of the bag, substantially as set forth.

2. The combination of a bag, a series of rings arranged at the waist of the bag, a cord run through said rings, shoulder-straps connected to said cord, and cords connected to the shoulder-straps and to the bottom of the bag, substantially as set forth.

3. The combination of a bag, a reinforcing-band surrounding it at the waist, a cord encircling it at the waist, shoulder-straps connected to said cord, and cords connecting the shoulder-straps to the bottom of the bag, substantially as set forth.

4. The combination of a bag, a cord encircling it at the waist, shoulder-straps connected to said cord, and adjustable cords connecting the shoulder-straps to the bottom of the bag, substantially as set forth.

5. The combination of a bag, a pair of shoulder-straps, means for connecting the shoulder-straps to the waist of the bag, the cords G, connected to the bottom of the bag and to the shoulder-strap, and the perforated blocks H for adjusting said cords, substantially as set forth.

6. The combination of the bag A, having the knobs at its lower corners and a series of rings D at its waist, the cord E, run through said rings, the shoulder-straps F, having loops f, through which the cord E is passed, and the eyelets f', the cords G, tied around the lower corners of the bag and prevented from slipping off by the knobs aforesaid, said cords being also passed through the eyelets f', and the blocks H, secured to and perforated for the passage of said cords, substantially as set forth.

7. The combination, with the bag and suitable harness for swinging it from the shoulders, of the cap C for closing its mouth and the draw-string c for securing said cap, substantially as set forth.

483,347. SHEET-METAL CHAIN. HERBERT M. ELDRIDGE, Niagara, Canada, assignor to the Oneida Community, Limited, Kenwood, N. Y. Filed Mar. 21, 1892. Serial No. 425,804. (No model.)



Claim.—A sheet-metal chain-link composed of two loops secured together at their inner portions and each consisting of a separate strip or blank of sheet metal bent into loop form and provided at one end with an eye or opening, the eyes of the two loop-blanks lying against each other and the opposite plain end portions of said blanks being each interlocked with both of said eyes, substantially as set forth.

483,348. TRUNK-STAND. EDWIN J. PLETCHER, New York, N. Y. Filed Apr. 21, 1892. Serial No. 430,006. (No model.)



Claim.—1. In a stand for jewelers' trunks and analogous uses, a wood shelf B and one or more arms A', of metal, concealed therein and cast or otherwise formed in one piece or integral with the uprights A, all arranged to serve substantially as herein specified.

2. In a stand for jewelers' trunks and analogous uses, a series of shelves B and metal arms A', the latter formed integral with one or more uprights A and weighted at the front, as indicated by A, substantially as herein specified.

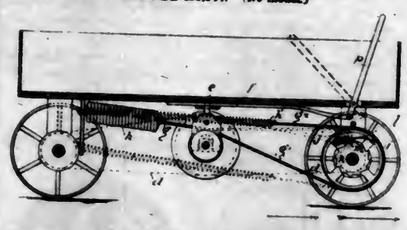
3. In a stand for jewelers' trunks and analogous uses, a series of shelves B and contained metal arms A', the latter formed integral with one or more uprights A, in combination with each other and with metal plates G, separately attached to reinforce the thin portions of the shelves and with a filling cement, all arranged to serve substantially as herein specified.

4. In a stand for jewelers' trunks and analogous uses, a series of shelves B and contained metal arms A', the latter formed integral with two or more uprights A, in combination with each other and with the lateral arms A^2 and legs A^3, adapted to stiffen the structure laterally, as herein specified.

5. In a stand for jewelers' trunks and analogous uses, a series of shelves B and contained metal arms A', the latter formed integral with two or more uprights A, in combination with each other and with the lateral arms A^2, corresponding extensions from adjacent uprights, and riveted plates E, engaging them stiffly together, all adapted to serve as herein specified.

6. In a stand for jewelers' trunks and analogous uses, a series of shelves B and contained metal arms A', the latter formed integral with two or more uprights A, in combination with each other and with the lateral arms A^2 and legs A^3 and riveted plates E, each bridging across from the arm A^2 on one upright to the arm A' on the adjacent upright, adapted to jointly stiffen the structure laterally, as herein specified.

483,349. CAR-STARTER. DARIUS FULLER, Chicago, Ill. Filed May 17, 1892. Serial No. 433,311. (No model.)



Claim.—1. The combination, with alternately-acting, of different tension, and in the same direction acting springs, whereof one connects to two drums, loose upon their shafts, whereof one of said drums revolves in either and the other in only one direction without and in the other direction with its shaft, of a connection opposite to that already made on one of said drums to one of said springs, connecting mechanism from the drum free to revolve in either direction, and the car-axles, and clutch mechanism to said drum, substantially as specified.

2. The combination, with springs acting in the same direction on opposite sides of a drum and a car-axle upon which said drum is loose and adapted to turn with it in one direction and without it in the opposite direction, of a shaft and drum thereon free to turn in either direction and connection from said last to said first drum, clutch mechanism to said last drum, and connection therefrom to the car-axles, substantially as specified.

3. The combination, with car-axles and a drum releasably connected to one of said axles and to a resisting-spring to actuate said drum oppositely, of a loose drum on a car-axle, having a pawl engaged with a ratchet-wheel fixed to its axle, and a second spring resisting in the same direction as the first spring, said springs being attached and acting on opposite sides of said loose drum to act as a car-starter, substantially as specified.

4. The combination, with alternately-acting, of different tension, and in the same direction acting springs connecting on corresponding sides to two drums loose upon their shafts, whereof one revolves in either and the other in only one direction without and in the other direction with its shaft, which is a car-axle, of a flexible crossed connection from said corresponding to the opposite side of the latter drum and coupling mechanism on said former drum, actuated through intermediate mechanism from revolving car-axles, substantially as specified.

5. The combination, with a drum loose upon its shaft and provided with oppositely-pointing pawls carrying laterally-projecting pins on their ends, of connected and longitudinally-sliding cones splined on and revolving with said shaft, which is a car-axle, and pointing toward said pawls, adapted to engage with said pins, substantially as specified.

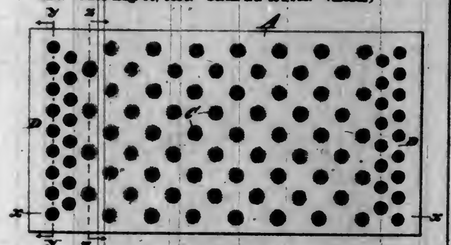
6. The combination, with a loose drum on a car-axle and pawl on said drum adapted to engage with a ratchet-wheel fixed to said axle, of springs acting in the same direction alternately on opposite sides of said drum, whereof one of said springs is attached to a second drum actuated by the car-axle, and mechanism to engage, operate, and release said second drum and car-axle, substantially as specified.

7. The combination, with rotary car-axles and pulleys and belts and a clutch actuated by them, of a drum to engage said clutch, ropes to said drum, whereof one winds as the other unwinds from said drum, a second and loose drum with pawl, a ratchet-wheel on the car-axle engaging said pawl, said drums connected on corresponding sides by one of said ropes, and a rope on the opposite side of said second drum and a light spring thereto, a strong spring to the other rope of the first drum, and mechanism to engage and disengage said clutch and drum, substantially as specified.

8. The combination, with two springs acting alternately and in the same direction, fixed at one end and secured to ropes at their other ends, whereof one rope is attached to a drum having one part of a coupling mechanism and the other rope attached to a second drum on the car-axle, adapted to revolve with said axle in one direction and to be at rest when the axle revolves, of a pulley with the opposite part of a coupling mechanism and means to engage and disengage the parts of said coupling mechanism, a pulley on the car-axle, and belt from it to said pulley, with coupling mechanism, and a third rope connecting said drums, substantially as specified.

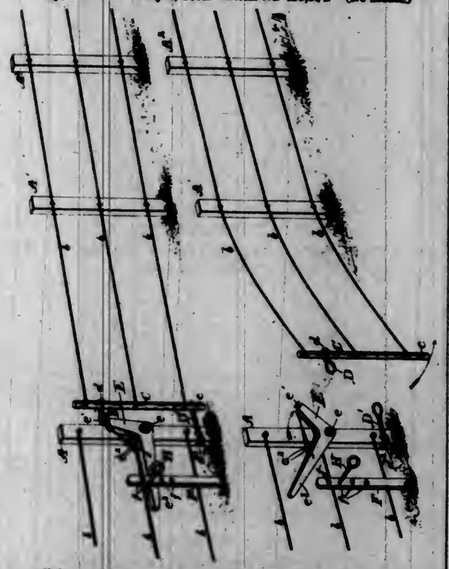
9. The combination, with a drum loose on its shaft and connected to a lever adapted to give it longitudinal motion, of a longitudinally-reciprocating bar moving in a plane transverse to the motion of said lever and connected thereto in a diagonal slot, adapted to operate substantially as specified.

483,350. TANNER'S SIGUE-BRUSH. CHARLES GRAF, Cincinnati, Ohio. Filed Aug. 31, 1891. Serial No. 404,165. (Model.)



Claim.—As a new article of manufacture, a tanner's sigue-brush composed of a stock or back A, tufts C, forming the body or main portion of the rubbing-surface, and each tuft comprising a number of naturally-curved bristles, which are drawn with their ends flaring or disposed outwardly, and a series of tufts D, each projecting from single holes or sockets skirting the opposite ends of said main tufts C and comprising a number of naturally-curved bristles drawn with their ends disposed or turned inwardly toward each other and intimately commingling, whereby a reinforce is provided at said opposite ends of the body-tufts of the brush for uniform wear therewith, and all the parts arranged and constructed substantially as and for the purpose herein set forth.

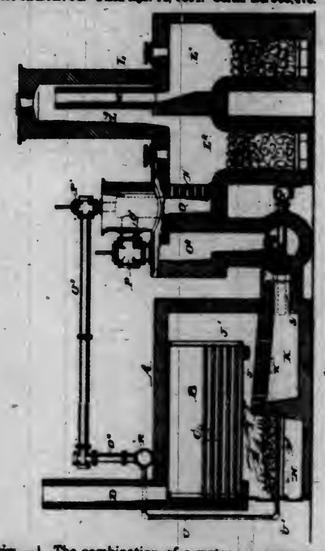
483,351. GATE FOR WIRE FENCES. PETER HAIR, Michigan City, Ind. Filed July 8, 1892. Serial No. 439,394. (No model.)



Claim.—1. In a gate for wire fences, the combination, with the post A, of the heel lever E, pivoted thereon, the said lever having the stud d' at one end thereof and the handle d^2 at the other, the loop D', secured to said post, the wires b, the head-piece C, connected to said wires and having a foot c, adapted to engage in said loop D', and the loop D, secured to said head-piece and adapted to engage said stud d', and means for holding said heel lever E when the gate is closed, substantially as and for the purposes described.

2. In a gate for wire fences, the combination, with the post A, of the heel lever E, pivoted thereon, the said lever having the stud d' at one end thereof and the handle d^2 at the other, the loop D', secured to said post, the wires b, the head-piece C, connected to said wires and having a foot c, adapted to engage in said loop D', and the loop D, secured to said head-piece and adapted to engage said stud d', and the post F, having holes f, and the pin H for holding said heel lever E when the gate is closed, substantially as and for the purposes described.

483,352. APPARATUS FOR HEATING BOILERS BY GASEOUS FUEL. JAMES I. HASTINGS, Philadelphia, assignor to L. G. McCauley, West Chester, Pa. Filed Apr. 11, 1891. Serial No. 388,473. (No model.)



Claim.—1. The combination of a water-gas generator, a receptacle for water-gas, and a receptacle for producer-gas communicating with the take-off of the generator, valves for closing the connection to either receptacle at will, a boiler, a fire-box extending beneath the boiler and separated into front and rear communicating chambers by a bridge, connections from the water-gas receiver to the front chamber, and connections from the producer-gas to the rear chamber.

2. The combination of a water-gas generator, a receptacle for water-gas, and a receptacle for producer gas communicating with the take-off of the generator, valves for closing the connection to either receptacle at will, a boiler, a fire-box extending beneath the boiler and separated into front and rear communicating chambers by a bridge, a combustion-chamber situated beneath the rear fire-box chamber and communicating therewith through checkered fire-brick or its equivalent, connections from the water-gas receiver to the front chamber, and connections from the producer-gas receiver to the combustion-chamber.

3. The combination of a series of water-gas generators, a common water-gas receptacle and a common producer-gas receptacle, conduits leading from each generator to each receptacle, valves in said conduits, whereby they can be closed at will, one or more boilers, fire-boxes extending beneath said boilers and divided into front and rear communicating chambers by a bridge, conduits leading from the water-gas receptacle to the front fire-chambers, and conduits leading from the producer-gas receptacle to the rear fire-chamber.

483,353. FOLDING IRONING-TABLE. HORTON C. HILL and CHARLES W. FIRST, Clinton, Ill. Filed Dec. 1, 1891. Serial No. 413,714. (No model.)



Claim.—1. In a folding ironing-table, the combination, with a frame fastened to the wall, of a shelf pivotally attached to the top of said frame, guide-brackets attached to said frame and forming a support for said shelf, a roller attached to said guide-brackets and spanning the distance between them, and a sliding board adapted to move freely between said roller and said frame, with a support for the end of said board, substantially as described.

2. In a folding ironing-table, the combination, with a frame fastened to the wall, of two side brackets fastened to said frame, a swinging roller attached by pivoted straps to said brackets, and a sliding board adapted to move freely between said roller and said frame, with means for preventing said board from being drawn off the said roller, and a brace pivotally attached to the outer portion of said board and adapted to engage in said frame, substantially as described.

3. In an ironing-table, the combination, with the frame B, attached to the wall and having cross-piece *b*, holes b^4, and brackets b^3, of the swinging roller D, attached by straps D′ to said brackets, the sliding board A, having cross-piece a^3 and tenons a^2, and the pivoted brace E, with means for engaging the same in said frame, all operating substantially as described.

4. In an ironing-table, the combination, with the frame B, attached to the wall and having cross-piece *b*, holes b^4, and brackets b^3, of the shelf B′, pivotally attached at *b*′ to said frame and adapted to rest on said brackets, the swinging roller D, attached by straps D′ to said brackets, the sliding board A, having cross-piece a^3 and tenons a^2, and the pivoted brace E, with means for engaging the same in said frame, all operating substantially as described.

488,354. LENS-MEASURING INSTRUMENT. MATHIAS J. HINDER, Cleveland, Ohio, assignor to the Julius King Optical Company, same place. Filed Mar. 30, 1892. Serial No. 426,909. (No model.)



Claim.—1. In a lens-measuring instrument, the combination of pivoted plates carrying contact-points, said plates engaging each other, and indicating mechanism, said mechanism consisting of a lever connected to one of said plates and carrying at its inner end a segmental rack and the connections for moving an index-finger over a graduated dial, substantially as set forth.

2. The combination of two plates D E, carrying contact-points *d e*, lever F, shaft I, pinion H, pointer K, and a graduated dial N, substantially as and for the purposes described.

3. The combination of two movable plates D E, carrying contact-points *d e*, lever F, shaft I, pinion H, pointer K, and spring L, the parts being constructed, arranged, and operating substantially in the manner and for the purposes specified.

488,355. COMBINED REEL-CARRIER AND WIRE-STRETCHER. WILLIAM H. JOHNSON, Shreveport, La. Filed June 18, 1892. Serial No. 437,131. (No model.)

Claim.—1. In a combined reel-carrier and wire-stretcher, the combination, with a frame mounted on wheels, of a wire-reel journaled across said frame, with means for winding up said reel, a screw set longitudinally in said frame, a wire-holding device attached to said screw, and means for turning said screw, substantially as and for the purposes described.

2. In a combined reel-carrier and wire-stretcher, the combination, with a frame mounted on wheels and a device for holding said frame against backward motion, of a wire-reel journaled across said frame, with means for winding up said reel and a brake for holding the same, a screw set longitudinally in said frame and means for turning said screw, a swivel attached to said screw, and a wire holding device attached to said swivel, substantially as and for the purposes described.

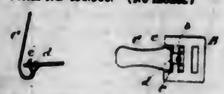
3. In a combined reel-carrier and wire-stretcher, the combination, with a frame mounted upon wheels, a shaft journaled across said frame, a wire-reel on said shaft, a hand-crank at one end of said shaft, and a brake for controlling the motion of said reel, of a second shaft journaled across said frame, a screw passing through said shaft, having a hand-wheel at one end and a swivel at the other, and a device for nipping the wire attached to said swivel, substantially as and for the purposes described.

4. In a combined reel-carrier and wire-stretcher, the combination, with a frame mounted upon wheels, a shaft journaled across said frame, a wire-reel on said shaft, a hand-crank at one end of said shaft, and a brake for controlling the motion of said reel, and a guide-frame E, having rollers *e*, *e*′, and e^2 for guiding the wire from said reel, of a second shaft journaled across said frame, a screw passing through said shaft, having a hand-wheel at one end and a swivel at the other, and a device for nipping the wire attached to said swivel, substantially as and for the purposes described.



5. In a combined reel-carrier and wire-stretcher, the combination, with a frame mounted upon wheels, a shaft journaled across said frame, a wire-reel on said shaft, a hand-crank at one end of said shaft, and a brake consisting of a brake-block d^3 and screw d^3, adapted to be screwed down on said shaft for controlling the motion of the said reel, of a second shaft journaled across said frame, screw passing through said shaft, having a hand-wheel at one end and a swivel at the other, and a device for nipping the wire attached to said swivel, substantially as and for the purposes described.

488,356. BUCKLE. EDWIN J. KRAFTSIK, Cambridge, Mass. Filed Apr. 23, 1892. Serial No. 430,360. (No model.)



Claim.—1. A buckle consisting of the combination of a draw-plate, a tongue-plate, and a tongue having spring-arms grasping said tongue-plate, substantially as described.

2. A buckle provided with a tongue plate having a tongue with spring-retaining arms, substantially as described.

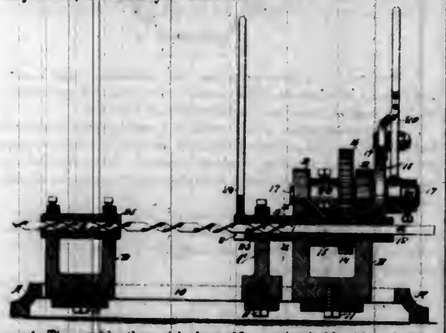
3. A buckle provided with a tongue-plate having a tongue with arms *c d c*, whose ends are bent about a bar of the tongue-plate, whereby a bar of the tongue-plate is firmly grasped and the tongue held in position, substantially as described.

488,357. MACHINE FOR TWISTING METAL STRIPS. EDUARD KUSCHLE, New York, N. Y., assignor to the Otis Brothers & Company, same place. Filed Feb. 20, 1892. Serial No. 422,198. (No model.)

Claim.—1. The combination, with a holder constructed to permit the free longitudinal movement of the untwisted portion of the strip to be twisted and means for rotating said holder, of a forked holder adapted to be placed upon and removed from the strip to be twisted while the latter is held by the rotary holder, whereby successive portions of the strip may be twisted without removing it from the rotary holder, substantially as described.

2. The combination, with a holder constructed to permit the free longitudinal movement of the untwisted portion of the strip to be twisted and means for rotating said holder, of a forked holder adapted to be placed upon and removed from the strip to be twisted while the latter is held by the rotary holder and consisting of a bar forming a handle and a fork engaging the strip to be twisted, whereby successive portions of the strip may be twisted without removing it from the rotary holder, substantially as described.

3. The combination, with a holder constructed to permit the free longitudinal movement of the untwisted portion of the strip to be twisted and means for rotating said holder, of a forked holder adapted to be placed upon and removed from the strip to be twisted while the latter is held by the rotary holder and having its holding-surface longitudinally of the strip substantially equal to the width of the strip to be twisted, whereby successive portions of the strip may be twisted with untwisted portions of a length equal to the width of the strip between said twisted portions without removing the strip from the rotary holder, substantially as described.



4. The combination, with sleeve 12, carrying holder 13, and means for rotating said holder, of forked holder 24, adapted to be placed upon and removed from the strip while the latter is held by holder 13, and separator 23 between said holders, substantially as described.

5. The combination, with holder 13 and means for rotating said holder, of forked holder 24, adapted to be placed upon and removed from the strip while the latter is held by holder 13, adjustable frame C, and removable separator 23, mounted in said frame between said holders, substantially as described.

6. The combination, with sleeve 12, mounted to rotate and carrying holder 13, of gear 14 on said sleeve, gear 16, engaging gear 14, shaft 17, carrying said gear 16, and ratchet-wheel 18, rock-arm 20, carrying pawl 19, engaging said ratchet-wheel, and forked holder 24, adapted to be placed upon and removed from the strip while the latter is held by holder 13, substantially as described.

7. The combination of sleeve 12, forming a guide and support for the untwisted strip and carrying holder 13, means for rotating said sleeve, adjustable frame C and removable separator 23 in said frame, and guide 25 for the twisted strip, substantially as described.

488,358. METAL LATTICE-WORK. EDUARD KUSCHLE, New York, N. Y., assignor to the Otis Brothers & Company, same place. Filed May 4, 1892. Serial No. 431,797. (No model.)



Claim.—1. A metal strip having flat portions of a length substantially equal to the width of the strip and twisted portions between said flat portions, substantially as described.

2. A metal lattice-work formed of strips woven together and having flat engaging portions of a length substantially equal to the width of the strip and twisted portions between said flat portions, substantially as described.

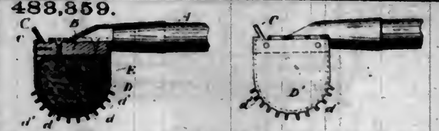
3. A metal strip having flat portions of a length substantially equal to the width of the strip and one or more full twists between said flat portions, substantially as described.

4. A metal lattice-work formed of strips woven together and having flat engaging portions of a length substantially equal to the width of the strip and one or more full twists between said portions, substantially as described.

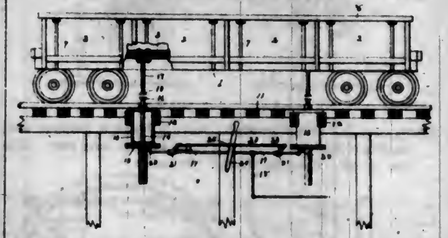
488,359. WINDOW-CLEANER. ANTHONY L. LEWIS, Evanston, Ill. Filed Sept. 4, 1891. Serial No. 404,787. (No model.)

Claim.—1. A window-cleaner having a handle, a body, a flexible reservoir of impervious material secured thereto and having its working surface perforated, and a mass of bibulous material within said reservoir, substantially as set forth.

2. A window-cleaner having the handle A, the rigid body B, the india-rubber reservoir D, secured thereto and having the longitudinal ribs on its working surface, and having, also, perforations between said ribs, the bibulous material E within said reservoir, and the scraper C, said scraper and reservoir being attached to said body, substantially as set forth.



488,360. MEANS FOR DUMPING CARS. WILLIAM E. LUDLOW, Toledo, Ohio. Filed Jan. 12, 1892. Serial No. 417,808. (No model.)



Claim.—1. In a dumping-car, a central longitudinal vertically-movable beam and bottom-sections pivotally secured thereto, in combination with vertically-movable pistons to raise the beam and incline the bottom-sections.

2. In a dumping-car, a central longitudinal vertically-movable portion secured thereto, rods secured to the under side of the central portion, cylinders provided with pistons coincident to the depending rods, a pipe connecting the cylinders and the source of power, and coincidently-acting valves for controlling the pistons simultaneously.

3. In combination with a dumping-car having a central longitudinal beam and side sections pivoted thereto, a trestle provided with tracks to receive the car, and vertically-movable pistons in alignment with the central section, whereby to raise the same and incline the side sections, and means for raising the pistons.

488,361. EXTENSION-TABLE. CHARLES W. MUSS, Detroit, Mich., assignor of one-half to Warren Williams, same place. Filed Sept. 14, 1891. Serial No. 405,573. (No model.)

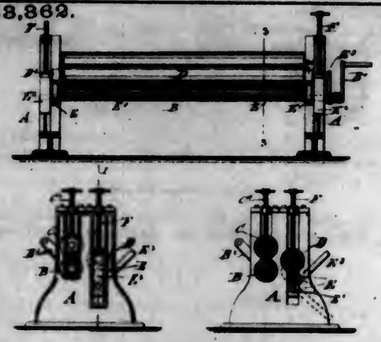


Claim.—In an extension-table, the combination, with the legs, of stationary rails A, grooved on their opposite sides, cross-bars connecting the rails and extending beyond the same, side rails E, grooved on their upper inner edges and supported by the outer ends of the cross-bars, a top secured in the upper part of the grooves in the rails E, flush with the upper edges thereof, extension-slides engaging in the grooves on the opposite sides of the rails A, end rails corresponding to the side rails E, carried by the outer ends of the extension-slides and of a width to allow the same to rest in the grooves in the rails E beneath the top extension-leaves, having cross-bars O on their under sides, crank-bars passing through the cross-bars O and formed with depending arms Q at their opposite ends, which are pivotally connected with the extension-slides, pins T on the extension-slides, and pivoted locking-lugs on the cross bars, connecting the rails for holding the parts in their adjusted positions, substantially as described.

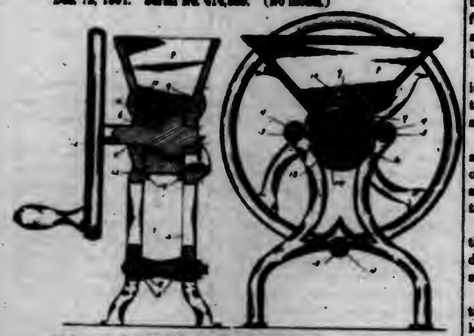
488,362. FORMING-MACHINE FOR SHEET-METAL ARTICLES. STEPHEN O'BRIEN, New York, N. Y. Filed Nov. 6, 1891. Serial No. 411,063. (No model.)

Claim.—The combination of upright supporting-standards, feed-rollers supported by said standards, a forming-roller supported in bearings guided in ways of said standards at the rear of the feed-rollers, a cam-shaft also supported in bearings of the standards, cams on said cam-shaft for raising or lowering the forming-roller, screw-rods from which the bearings of the cam-shaft are suspended, so as to adjust the same higher or lower, and a lever attached to the cam-shaft and adapted to turn the cam-shaft, so as to raise or lower the forming-roller, substantially as set forth.

483,362.



483,363. GRINDING-MILL. ISAAC B. OVERPECK, Overpeck, Ohio, assignor to Edson L. Overpeck and Frank M. Wehr, same place. Filed Dec. 12, 1891. Serial No. 414,888. (No model.)



Claim.—1. In a grinding-mill, the combination of a frame, a grinding-cylinder journaled therein, a hopper above the cylinder, and a segmental concave secured between the sides of the frame and movable laterally relatively to the cylinder, said segment being greater than a semicircle and having its sides extended up to the bottom of the hopper, substantially as described.

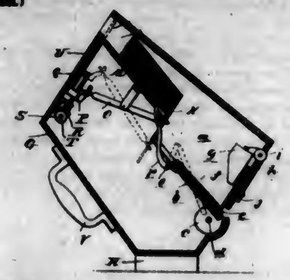
2. In a grinding-mill, the combination of a frame, a grinding-cylinder journaled therein, a concave movable laterally relatively thereto, and an adjusting-gate for regulating the size of the discharge-opening, whereby the material may be retained within the mill and caused to be carried up between the side of the cylinder and of the concave or be permitted to escape after only having passed down between the cylinder and concave to the outlet, substantially as set forth.

3. In a grinding-mill, the combination of a frame, one side of which is provided with a discharge-opening and a spout, a grinding-cylinder journaled in the frame, a concave clamped between the sides of the frame, bolts through the frame for holding it together, and a gate pivotally secured at one end to one of the clamping-bolts through the frame and having its free end adapted to regulate the size of the discharge-opening, substantially as set forth.

4. In a grinding-mill, the combination of a frame, the sides of which are each provided with inwardly-projecting perforated lugs, the inner ends of each pair of which are adapted to bear against each other, bolts through each pair of lugs, a grinding-cylinder journaled in the upper portion of the frame, a concave and a hopper clamped between said sides, and a gate for regulating the size of the discharge-opening, substantially as set forth.

5. In a grinding-mill, the combination, with a frame, the sides of which are each provided with a bearing and an offset and an inwardly-projecting lug above the bearing and a curved ledge below the bearing and with three inwardly-projecting perforated lugs, of a grinding-cylinder journaled in the bearings, a hopper secured in the offsets and a segmental concave upon the ledges partially surrounding the grinding-cylinder, the exterior surface of said concave being of a less diameter than the curvature of the ledges and laterally adjustable upon said ledges, bolts through the perforations of the lugs, and one of the sides being further provided with a discharge-opening between the bearing and the ledge and with a spout projecting outwardly from the bottom of said opening, substantially as set forth.

483,364. CARD SHUFFLING AND DEALING MECHANISM. WILLIAM H. RAMSEY, Detroit, Mich. Filed Feb. 20, 1892. Serial No. 422,900. (No model.)



Claim.—1. In a game apparatus, the combination, with a rotatable support, of a card-dealing apparatus mounted on the support and a latch for locking the support, substantially as described.

2. The combination, with a casing of a card-receptacle having an inclined bottom, of a movable partition at the lower end thereof, means for lowering that partition, a second receptacle below the first one, and means for dealing the cards from said second receptacle, substantially as described.

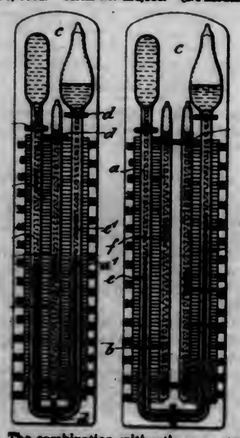
3. The combination, with the casing having a card-receptacle at its upper end and provided with an inclined bottom, of a movable partition at the lower end thereof and means for lowering said partition, substantially as described.

4. The combination, with the casing of a card-receptacle having an inclined bottom, of a movable lower end for said receptacle, a second receptacle below the movable partition, bunching mechanism in said second receptacle, and card-delivery mechanism therein, substantially as described.

5. The combination, with the casing of the receptacle *a*, having the spring-bottom *f* and the exit-aperture *e* at the lower edge, of a delivery-roll and a weight *g*, substantially as and for the purpose described.

6. The combination, with the casing having the receptacle *a* therein, the inclined bottom therefor, and the exit-partition at the lower edge of said receptacle, of the buncher *p*, the delivery roll *c*, and weight *g*, substantially as described.

483,365. INDICATING-THERMOMETER. ALFRED T. RAPKIN and FRANK CORNER, London, England, said Corner assignor to said Rapkin. Filed Feb. 11, 1892. Serial No. 421,062. (No model.)



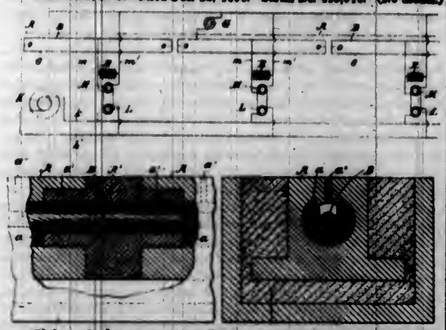
Claim.—1. The combination, with a thermometer, of an adjacent parallel and independent glass tube having an indicator therein that is not influenced by the changes of temperature, but is set in either direction by a magnet, substantially as specified.

2. The combination, with a thermometer having indicators that are moved by changes of temperature, of an adjacent parallel and independent glass tube having an indicator therein that is not influenced by the changes of temperature, but is set in either direction by a magnet, substantially as specified.

3. The combination, with a thermometer, of an adjacent parallel and independent glass tube having an indicator therein that is not influenced by the changes of temperature, but is set in either direction by a magnet, and a scale the divisions of which are common to both the thermometer-tube and the independent indicating-tube, substantially as specified.

4. The combination, with an indicating-thermometer having two connected parallel limbs *a a'* and having indicators that are moved by changes of temperature, of an independent glass tube between the said limbs and adjacent and parallel thereto and having an indicator therein that is not influenced by changes of temperature, but is set in either direction by a magnet, and a scale the divisions of which are common to both the thermometer-tube and the independent indicating-tube, substantially as specified.

483,366. ELECTRIC-RAILWAY SYSTEM. ANDREW L. RICE, New York, N. Y. Filed Dec. 22, 1891. Serial No. 415,918. (No model.)



Claim.—1. In an electric-railway system, a hollow rail of magnetic material inclosing a conductor, also made, wholly or in part, of magnetic material and resting normally on an insulated portion of the interior of said rail, in combination with a vehicle having magnets adapted to attract said conductor into electrical contact with said rail and with brushes for collecting the current therefrom, substantially as described.

2. The combination of a continuous hollow rail laid in sections magnetically insulated from each other and lined, except at the upper portion, with insulating material, a service-conductor inclosed by said rail and resting normally on said insulating-lining out of contact with the rail proper, and a vehicle provided with magnets adapted to lift the conductor into contact with the rail, substantially as and for the purpose described.

3. In an electric-railway system of the character described, the combination of the hollow magnetic rail laid in sections magnetically insulated, the inclosed service-conductor made wholly or in part of magnetic material and normally resting on the insulating-lining covering the bottom of the interior of said rail, and a vehicle provided with horseshoe magnets whose poles are adapted to move in contact with said rail and to bridge the space between two adjacent sections thereof, substantially as described.

4. In an electric-railway system, the combination of a prime generator of high-potential currents, a main supply-circuit leading to local stations along the line, current-converting devices at said substations, a service-conductor connected at intervals with said main circuit through said converting devices, a hollow rail of magnetic material inclosing said conductor, but normally separated therefrom by a layer of insulating material extending partly around the interior of said rail, and a vehicle having magnets for drawing said conductor against the unlined portion of said rail, substantially as and for the purpose set forth.

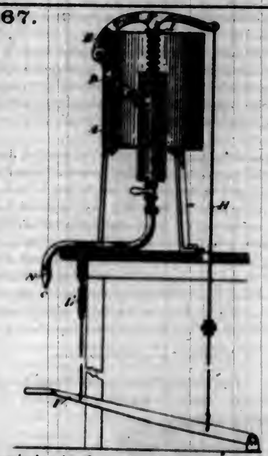
483,367. CEMENTING-MACHINE. WILLIAM ROBERTSON, Hamilton, Canada, assignor to James A. McPherson, same place, and Elbert D. Weyburn, Chicago, Ill. Filed Apr. 30, 1892. Serial No. 430,950. (No model.)

Claim.—1. An apparatus for storing and delivering fluids, comprising a storage-receptacle, a cylinder extending below the same, a passage on a line with the bottom of the storage-receptacle, leading directly into said cylinder, and a piston reciprocating in said cylinder and adapted to close communication between the said receptacle and said cylinder, substantially as described.

2. An apparatus for storing and delivering fluids, comprising a storage-receptacle, a cylinder communicating therewith, said cylinder being provided with an outlet, and a porous mass of material adapted to spray the fluid, located in said outlet, substantially as described.

3. In combination with the cylinder A, the cylinder B, the solid piston C, the spiral spring L, the bracket D, the lever E, the screw-cap G on the cylinder-head F, the treadle-rod H, the presser-foot I, the stop-cock J in the cylinder B, the flexible tube K, and porous mass of material located in the outlet N, substantially as described.

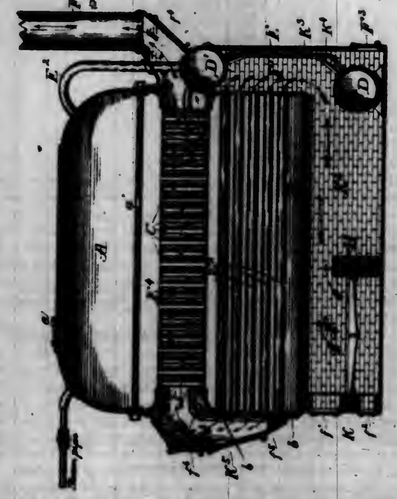
483,367.



483,368. PROCESS OF MAKING AZO COLORS. DANIEL A. ROSENSTIEHL, Paris, France. Filed Mar. 2, 1892. Serial No. 423,606. (Specimens.) Patented in France Dec. 17, 1888, No. 202,675; in Germany Dec. 20, 1889, No. 56,456, and in England Apr. 15, 1890, No. 5,726.

Claim.—The process of producing coloring-matters, consisting in coupling a nitramine with a phenol, amine, or the specified derivative thereof and subjecting the product thus obtained to the action of a reducing agent in an alkaline medium, substantially as described.

483,369. BOILER. EDWARD H. SCRIBNER, U. S. Navy. Filed June 29, 1892. Serial No. 438,458. (No model.)



Claim.—1. An apparatus for generating steam, comprising a boiler composed of two sections joined together by vertical water-tubes and having fire-tubes in the lower section and a fire-space around the said water-tubes, a mud-drum situated in the lower part of the fire-box, water-tubes leading from this drum to a heating-drum in rear of the boiler, and downcast or water pipes leading from said heating-drum through the fire-space around said water-tubes to the lower front portion of the lower section of the boiler, substantially as described.

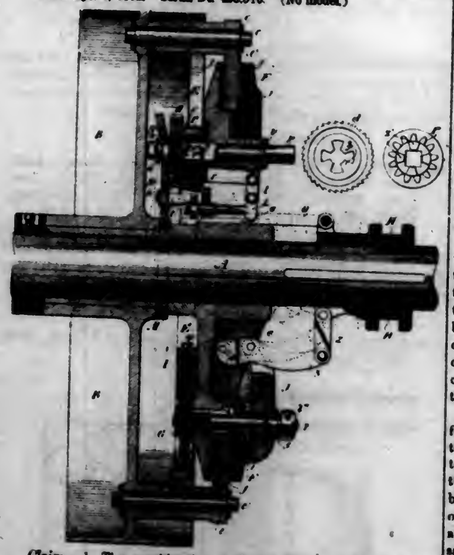
2. An apparatus for generating steam, comprising a boiler composed of two sections joined together by vertical water-tubes and hav-

ing fire-tubes in the lower section and a fire-space around the said water-tubes, a mud-drum situated in the lower part of the fire-box, water-pipes leading from this drum to a heating-drum in rear of the boiler, and water-pipes leading from said heating-drum through the fire-space around said water-tubes to the lower front portion or lower section of the boiler, and equilibrium-pipes leading from said heating-drum to the upper section of the boiler, substantially as and for the purposes described.

3. An apparatus for generating steam, comprising a furnace F, a boiler composed of two semicylindrical sections connected together by water-tubes set over said furnace, fire-tubes in the lower section of said boiler, and a fire-space around said water-legs for the passage of the products of combustion, a front connection connecting said flues and said fire-space, a mud-drum situated in the lower portion of the fire-box, heating-pipes leading upward from said mud-drum inside of the back connection, a heating-drum inside of the back connection, a heating-drum connected to said heating-pipes at the rear of the boiler, and downcast pipes leading from said drum to the lower section of the boiler, substantially as and for the purposes described.

483,370. FRICTION-CLUTCH. Peter Weber, Schenectady, N. Y.

Filed Apr. 8, 1892. Serial No. 428,316. (No model.)



Claim.—1. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member and operative from the other member in both directions of movement of the driving member of the clutch when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

2. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member, one or more cams or projections upon the other member, between the axis thereof and said tightening mechanism, for operating the latter when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

3. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a lever upon one member, one or more cams or projections upon the hub of the other member for rocking said lever when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

4. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a lever pivoted to one member, one or more cams or projections upon the hub of the other member for rocking said lever when the speed of the driven member is less than that of the driving member, a spring for retaining said lever in the line of rotation of said cams or projections, and connections engaging said clamping mechanism and operated by said lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

5. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a lever pivoted to one member, one or more cams or projections upon the other member, between the axis thereof and the pivotal point of said lever, for rocking the latter when the speed of the driven member is less than that of the driving member, a spring for retaining said lever in the line of rotation of said cams or projections, mechanism for adjusting said lever out of their line of rotation, and connections engaging said clamping mechanism and operated by said lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

6. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member, one or more cams or projections upon the hub of the other member for operating said tightening mechanism when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

7. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a lever upon one member, one or more cams or projections upon the hub of the other member for rocking said lever when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

8. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a tightening-lever pivoted to one member, one or more cams or projections upon the hub of the other member for rocking said lever when the speed of the driven member is less than that of the driving member, a spring for retaining said lever in the line of rotation of said cams or projections, and connections engaging said clamping mechanism and operated by said lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

9. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a tightening-lever pivoted to one member, one or more cams or projections upon the hub of the other member for rocking said lever when the speed of the driven member is less than that of the driving member, a spring for retaining said lever in the line of rotation of said cams or projections, mechanism for adjusting it out of their line of rotation, and connections engaging said clamping mechanism and operated by said lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

10. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of tightening mechanism upon one member, one or more cams or projections upon the other member, between the axis thereof and said tightening mechanism, for operating said tightening mechanism when the speed of the driven member is less than that of the driving member, mechanism for adjusting said tightening mechanism to and out of the line of rotation of said cams or projections, and connections engaging said clamping mechanism and operated by said tightening mechanism for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

11. The combination, with the driving and driven members of a friction-clutch and mechanism for clamping said two members, of a lever pivoted to one member, one or more cams or projections upon the other member, between the axis thereof and the pivotal point of said lever, for operating the latter when the speed of the driven member is less than that of the driving member, mechanism for adjusting said lever to and out of the line of rotation of said cams or projections, and connections engaging said clamping mechanism and operated by said tightening-lever for operating said clamping mechanism to increase the friction between the two members of the clutch, substantially as described.

12. The combination, with the clamping mechanism of a friction-clutch, of lever S upon one member, extending inwardly toward the axis of the other member, cam or projection *m* upon the other member of the clutch, engaging the inwardly-extending end of and operating said lever when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said lever, substantially as described.

13. The combination, with the clamping mechanism of a friction-clutch, of lever S upon one member, extending inwardly toward the axis of the other member, cam or projection *m* upon the hub of the other member of the clutch, engaging the inwardly-extending end of and operating said lever when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said lever, substantially as described.

14. The combination, with the clamping mechanism of a friction-clutch, of lever S upon one member, extending inwardly toward the axis of the other member and provided at its inner end with curved portion *m'*, cam or projection *m* upon the other member of the clutch, engaging said curved portion and operating said lever when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said lever, substantially as described.

15. The combination, with the clamping mechanism of a friction-clutch, of lever S upon one member, extending inwardly toward the other member, a spring for holding it to the hub of the other member, cam or projection *m* upon the latter member, engaging the inner end of and operating said lever when the speed of the driven member is less than that of the driving member, and connections engaging said clamping mechanism and operated by said lever, substantially as described.

16. The combination, with the driving and driven members of a friction-clutch and a plurality of clamping devices for clamping said two members, of a pinion for each of said clamping devices for operating the latter to adjust the friction between the two members of the clutch, tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, and connections engaging said pinions and operated by said tightening mechanism for rotating said pinions to increase the friction between the two members of the clutch, substantially as described.

17. The combination, with the driving and driven members of a friction-clutch and a plurality of clamping devices for clamping said two members, of a pinion for each of said clamping devices for operating the latter to adjust the friction between the two members of the clutch, gearing connecting all of said pinions, tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, and connections engaging said gearing and operated by said tightening mechanism for rotating said gearing and pinions to increase the friction between the two members of the clutch, substantially as described.

18. The combination, with the driving and driven members of a friction-clutch and a plurality of clamping devices for clamping said two members, of a pinion for each of said clamping devices for operating the latter to adjust the friction between the two members of the clutch, an intermediate connecting all of said pinions, tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, and connections engaging said intermediate and operated by said tightening mechanism for rotating said intermediate and pinions to increase the friction between the two members of the clutch, substantially as described.

19. The combination, with the driving and driven members of a friction-clutch and a plurality of clamping devices for clamping said two members, of a pinion for each of said clamping devices for operating the latter to adjust the friction between the two members of the clutch, gearing connecting all of said pinions, a pinion for rotating said gearing, tightening mechanism upon one member and operated from the other member when the speed of the driven member is less than that of the driving member, and connections engaging said pinion and operated by said tightening mechanism for rotating said pinion, and gearing and pinions connected with the latter to increase the friction between the two members of the clutch, substantially as described.

20. The combination, with ratchet *d* and pinion P and their clutching-faces, of shaft *p*, journaled in disk E and movable longitudinally in said disk and through pinion P and shoulder *p''* upon said shaft for unclutching said ratchet and pinion, substantially as described.

21. The combination, with the driving and driven members of a friction-clutch, of clamping-bolts 6, splined to one member, toggle-levers connected to said bolts and engaging the other member, a pinion G for each bolt and threaded thereon, and intermediate I, gearing with and for rotating said pinions, substantially as described.

22. The combination, with the driving and driven members of a friction-clutch, of clamping-bolts 6, splined to one member, toggle-levers connected to said bolts and engaging the other member, a pinion G for each bolt and threaded thereon, and intermediate I, gearing with and for rotating said pinions, and pinion P for rotating said intermediate, substantially as described.

23. The combination, with intermediate I, pinion P, and its shaft *p*, movable longitudinally through said pinion, of flange *r* upon said pinion, engaging the inner face of said intermediate, substantially as described.

24. In a friction-clutch, the combination of disk E, sleeve H, lever S, mounted on and movable to and from said disk, latch L, linked to disk E and connected to lever S, and rod O, connected to sleeve H and engaging latch L, substantially as described.

25. In a friction-clutch the combination of disk E, sleeve H, lever S, mounted on and movable to and from said disk, rod *t*, connected to said lever, latch L, linked to disk E and connected to rod *t*, and rod O, connected to sleeve H and engaging latch L, substantially as described.

26. In a friction-clutch, the combination of disk E, sleeve H, lever S, mounted on and movable to and from said disk, rod *t*, connected to said lever, latch L, linked to disk E and connected to rod *t*, spring *z*, connected to said rod and disk E, and rod O, connected to sleeve H and engaging latch L, substantially as described.

27. In a friction-clutch, the combination of disk E, sleeve H, lever S, mounted on and movable to and from said disk, rod *t*, connected to said lever, latch L, linked to disk E and connected to rod *t*, spring *z*, connected to said rod and to disk E, and rod O, connected to sleeve H and provided with cam *o*, engaging latch L, substantially as described.

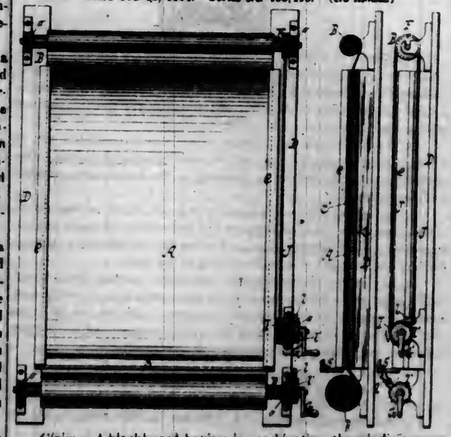
28. The combination, with pulley B and plate C, detachably connected thereto, of disk E, engaging one side of said plate, ring F, carried by said disk and engaging the opposite side of said plate, and rings *f*, of fibrous material, disconnected from and loose between said plate, disk, and ring, substantially as described.

29. The combination, with pinion P, pawl A and ratchet *d*, means for clutching said pinion and pawl and ratchet, and lever S for operating said pawl and ratchet, of shafts *p*, movable longitudinally through said pinion and provided with polygonal portion *p'*, receiving said pinion, and with shoulder *p''* for unclutching said pinion and pawl A and ratchet *d*, substantially as described.

30. The combination, with pinion P, pawl A and ratchet *d*, jaws *a d'* for clutching said pinion and pawl and ratchet, and lever S for operating said pawl and ratchet, of shaft *p*, movable longitudinally through said pinion and provided with polygonal portion *p'*, receiving said pinion, and with shoulder *p''* for unclutching said pinion and pawl A and ratchet *d*, substantially as described.

483,371. BLACKBOARD. Oscar A. Weissenborn, Jersey City, N. J.

Filed Oct. 12, 1891. Serial No. 408,415. (No model.)



Claim.—A blackboard having, in combination, the winding apron of slated cloth, the apron-supporting rollers, a means for operating the rollers independently of each other, and the frame having a backing with a convex surface presented to the apron, and cleats forming guides for the edges of the apron, substantially as shown and described.

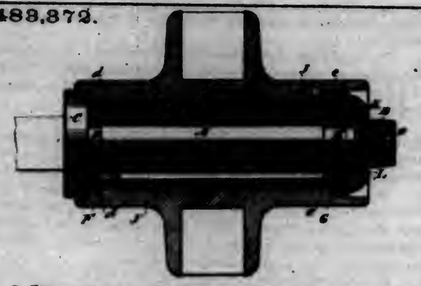
483,372. AXLE-BOX. Ernest N. Wood, Lanesborough, Mass.

Filed Apr. 26, 1892. Serial No. 430,744. (No model.)

Claim.—1. The combination of the journal-bearing with its circumferential grooves, the annular rings revolving in said grooves, the rollers mounted between said rings and turning upon bearings fixed therein, and the hub embracing said rollers and provided with internal grooves for accommodating said rings, as set forth.

2. The combination of the annular rings and the rods having their ends secured therein and serving the double purpose of supporting axles for a part of the rollers and as a means of securing the remaining rollers in position, as set forth.

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3. The combination, with the annular rings, of the intermediate rollers journaled thereon and the rods having their ends permanently secured therein for securing the same in position and the additional rollers revolving upon said rods, as set forth.

4. The combination, with the annular rings and the rollers mounted thereon, of the circumferential grooves formed in the axle and in the interior surface of the hub for accommodating said rings, as set forth.

5. The combination, with the annular rings and the rollers mounted thereon, of the circumferential grooves for accommodating said rings formed in the axle and in the interior surface of the hub, and the stationary bearing-ring secured upon the axle, as set forth.

6. The combination, with the nut B for securing the hub upon the axle, of the recess L, formed thereon, and the stationary bearing-ring K upon the axle, as set forth.

483,373. CYCLE-WHEEL. CHARLES H. W. WOODWARD, Chicopee Falls, Mass., assignor to the Overman Wheel Company, same place. Filed Apr. 11, 1892. Serial No. 428,686. (No model.)



Claim.—1. In a wheel, the combination, with a rim and a hollow rubber tire, of elastic pads or supports approximately triangular in cross-section interposed between the same on opposite sides of their centers, substantially as set forth, and whereby the tire is supported laterally and prevented from rolling.

2. In a wheel, the combination, with a rim and a hollow tire, of elastic pads or supports interposed between the same on opposite sides of their centers and narrowing gradually at their outer ends, substantially as set forth.

3. In a wheel, the combination, with a rim having outwardly-inclined seats at its opposite edges and a hollow tire, of elastic pads or supports approximately triangular in cross-section interposed between the tire and the said seats, substantially as set forth.

4. In a wheel, the combination, with a rim having outwardly-inclined seats and a hollow tube, of elastic pads or supports approximately triangular in cross-section interposed between the said seats and the tube on opposite sides of the center thereof, and a wrapping inclosing the tube and pads, substantially as described.

483,374. DEVICE FOR HOLDING METALLIC STAPLES. WILLIAM J. BROWN, Philadelphia, Pa. Filed Apr. 12, 1892. Serial No. 428,949. (No model.)

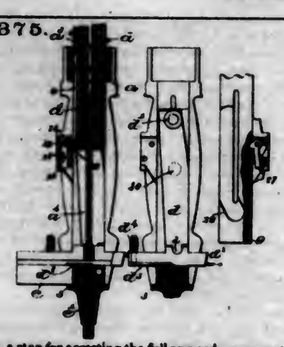


Claim.—As an improved article of manufacture, the rectangular holder for stringing metallic staples, longitudinally recessed or grooved and loaded with staples, and a plug or wedge adapted to enter said recess or groove and slightly spread the sides thereof against the staple-legs, substantially as described.

483,375. TACK-DRIVING MECHANISM. FRANK CRANE, Malden, Mass. Filed June 20, 1891. Serial No. 397,208. (No model.)

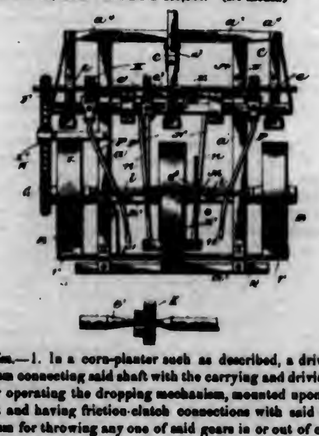
Claim.—A tack or nail driver containing the following instrumentalities, viz: a shell or case, a cone, a driver, a driver-bar, a feeding

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mechanism, a stop for arresting the full upward movement of the driver-bar, and a locking or controlling device connecting with and positively arresting said driver intermediate the full length of movement thereof and controlling thereby the operation of the feed mechanism.

483,376. CORN-PLANTER. OTIS P. CRANMER, Summitville, Ind. Filed Dec. 19, 1891. Serial No. 415,577. (No model.)



Claim.—1. In a corn-planter such as described, a driving-shaft, mechanism connecting said shaft with the carrying and driving wheels, gears for operating the dropping mechanism, mounted upon the driving-shaft and having friction-clutch connections with said shaft, and mechanism for throwing any one of said gears in or out of connection with the shaft independent of the other gears, substantially as shown and described.

2. In a corn-planter such as described, the combination of a main frame, the driving-shaft E, mounted in suitable bearings, mechanism for operating the shaft, the gears K for operating the dropping mechanism, mounted on said shaft E and having friction-clutch connections therewith, and the levers L, engaging the gears K, all constructed, arranged, and operating substantially as shown and described, whereby any one of said operating-gears may be thrown in or out of connection with the driving-shaft.

483,377. PRINTING-PRESS. DAVID I. ROBERSON, Worcester, N. Y. Filed July 23, 1890. Serial No. 360,132. (No model.)

Claim.—1. In a cylinder printing-press, the combination of an upper and a lower printing form and tracks, as A^3 A^4, a double reciprocating carriage provided with an upper and a lower cylinder, respectively, and guide-rollers for embracing the tracks, substantially as and for the purpose specified.

2. In a regulating device, the combination of a rotary shaft provided with arms carrying stretching-rollers and a worm-wheel and means for turning the worm in one or the other direction, substantially as and for the purpose set forth.

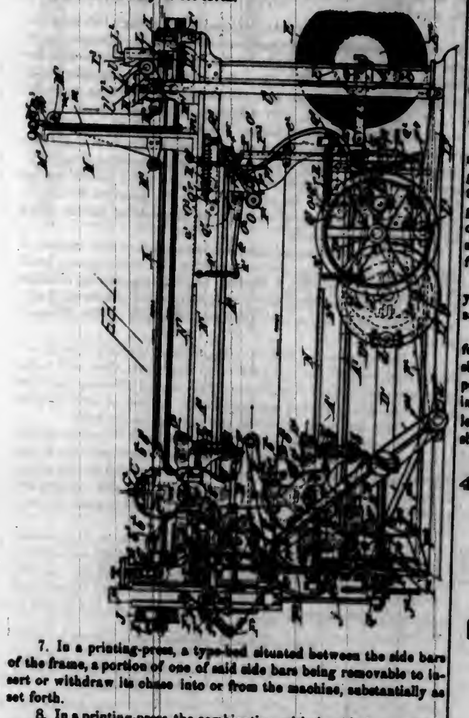
3. In a printing-press, the combination of a reciprocating cutter provided with racks and an oscillating shaft provided with pinions meshing with the racks, substantially as specified.

4. In an inking device for a printing press, the combination, with a doctor-roll, a transfer-roller, and a yieldingly-held tilting arm in which it is journaled and provided with a tail having an inclined end, of a reciprocating impression-roller carriage provided with roller for engaging with the tail of the tilting lever, substantially as described.

5. In an inking mechanism for printing-presses, the combination,

with a doctor-roller having a ratchet-wheel, of an oscillating lever having a pawl and a thumb-bolt mounted on the oscillating lever for throwing the pawl out of engagement with the ratchet-wheel, substantially as set forth.

6. In an inking mechanism for printing-presses, the combination of a doctor-roller provided with a pin on its shaft, with a removable crank having a socket and slot for engaging the end of the shaft and the pin, substantially as set forth.



7. In a printing-press, a type-bed situated between the side bars of the frame, a portion of one of said side bars being removable to insert or withdraw its chase into or from the machine, substantially as set forth.

8. In a printing-press, the combination, with the side bars and the type-bed located between the side bars, of a removable strip provided with V-shaped grooves, one of the side bars being provided with an opening, and guides corresponding to the V-shaped grooves, substantially as set forth.

9. In a cylinder printing press, the combination of an upper and a lower printing form and tracks, as A^3 A^4, a reciprocating carriage consisting of the yoke b b, the impression trucks or frames secured to the double yoke, the guide-rollers for embracing the tracks, and the vertically-adjustable impression-cylinders mounted in the said impression trucks or frames, substantially as and for the purpose specified.

10. In a cylinder printing-press, the combination of the two printing-forms, the double reciprocating carriage, the impression trucks or frames mounted in the said carriage, the impression-cylinders mounted in the said trucks or frames, and the means for reciprocating the said carriage, consisting of the oscillating lever D, connected at its upper end to an intermediate arm of the carriage by the link b^3 and secured at its lower end to the shaft d^{10}, the pitman D', attached to the said lever D at one end and at the other end to the crank d of the crank-disk D^2, the crank-disk being secured to the shaft d', and the gearing d^8 d^9 for conveying motion to the said shaft d' from the driving-shaft D^3, substantially as and for the purpose specified.

11. In a printing-press, the combination of a reciprocating cutter provided with racks, the oscillating shaft provided with pinions meshing with the racks, the oscillating lever L^4, pivoted to the frame at l^3 and having a friction roller or stud l^5 engaging the cam-groove l^6 of the disk L^5, secured to the shaft d', the crank l^7, secured to the said vibratory shaft, and the link l^8, connecting the said lever L^4 with the crank l^7, substantially as and for the purpose specified.

12. In a cylinder printing-press, the combination of the two printing-forms, the inking-tables located at both sides of the forms, the double reciprocating carriage consisting of the double yoke b b, the impression trucks or frames carried by said yoke, the impression-cylinders, and the inking-rolls mounted in the said impression trucks or frames, substantially as and for the purpose specified.

13. In a printing-press, the combination of the distributing-rolls, the transfer-rolls, the ink-fountain, and the doctor-roll carried in the said fountain, the oscillating lever P, loosely pivoted on the shaft of the doctor-roll, the pawl p, pivoted on the said lever and engaging with a ratchet-wheel p', fixed to the doctor-roll, the oscillating shaft d^{10}, the link p^3, connecting with an ear on the shaft d^{10} and with the bell-crank p^4, the reciprocating rod P^2, and the links p^5, connecting the lever P with the rod P^2, substantially as and for the purpose specified.

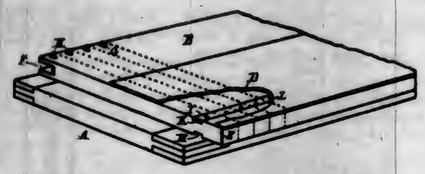
14. In an inking mechanism for printing-presses, the combination of the tilting arms O^3, pivoted at o^3 to the frame, the transfer-roll removably journaled in bearings in the said arms, the tails o^3, attached to the inner ends of the arms O^3 and having an inclined portion o^5, the springs o^4, connecting the ends of the tails with the frame, the reciprocating carriage provided with rollers for depressing the arms O^3, the doctor-roll, and the distributing-roll, substantially as specified.

15. In a printing-press, the combination of the bracket M, the screws m m, journaled in ears of the said bracket and having bevel-gears on their upper ends, the blocks m^2 m^2, carried on the said screws, the roller M', journaled in the said blocks, the shaft M^3, having bevel-gears on each end meshing with the similar gears on the upper ends of the screws m m, the guide-rollers M^5 and M^6, mounted one on each side of the roller M', and the cutting mechanism, substantially as and for the purpose specified.

16. In a cylinder printing-press, a carriage consisting of the double yoke b b and the impression-trucks B^2 B^3, carried by the said yoke, substantially as and for the purpose specified.

17. In a cylinder printing-press, the combination of two printing-forms, one located above the other, the inking-tables located at both sides of the forms, the reciprocating carriage provided with two impression-cylinders and with inking-rolls mounted at both sides of the impression-cylinders, and the intermittent feed for supplying the proper length of paper between the strokes of the carriage, substantially as shown and described.

483,378. KEY FOR MUSICAL INSTRUMENTS. LEVI K. FULLER, Brattleborough, Vt., assignor to the Estey Organ Company, same place. Filed May 2, 1891. Serial No. 391,417. (No model.)



Claim.—1. A key for a musical instrument, having a front pin-hole extending upwardly from the bottom thereof, said pin-hole not extending through the top of the key, whereby its presence does not affect the ivory or celluloid covering of the key, and said key having bushing-felts for guiding the front pin, which enters said pin-hole, said bushing-felts being applied to a strip or strips secured to the key at its bottom, substantially as set forth.

2. A key for a musical instrument, having a front pin-hole extending upwardly from the bottom thereof, said pin-hole not extending through the top of the key, whereby its presence does not affect the ivory or celluloid covering of the key, and said key having at its bottom a strip or strips applied thereto, and bushing-felts secured to said strip or strips on either side of said pin-hole, substantially as set forth.

3. A key for a musical instrument, having a front pin-hole, a recess in the bottom of said key communicating with said pin-hole, filling strip or strips inserted in said recess, said strip or strips being formed so as to leave a space in line with said pin-hole, and bushing guide felts applied to said filling strip or strips, substantially as set forth.

4. A key for a musical instrument, having a front pin-hole, a recess extending crosswise of the bottom of said key communicating with said pin-hole, a filling-strip inserted in said recess, said filling-strip having a mortise across the same in line with said pin-hole, and bushing-felts attached to said strip on opposite sides of said mortise, substantially as set forth.

5. A key having pin-hole a, recess b, strip c, having mortise d, and felts e e, substantially as set forth.

6. In the manufacture of keys for musical instruments, the method of forming the front ends thereof, which consists in forming a front pin-hole, attaching a separate strip or piece to the key at its bottom, and applying a bushing-felt to said strip or piece, substantially as set forth.

7. In the manufacture of keys for musical instruments, the method of forming the front ends thereof, which consists in forming a front pin-hole from the bottom of the key so that it does not extend through or to the upper surface of the key, applying a separate strip or strips

to the bottom of the key, and applying bushing-felts to each strip or strips, substantially as set forth.

6. In the manufacture of keys for musical instruments, the method of forming the front ends thereof, which consists in forming a front pin-hole from the bottom of the key so as not to extend to the upper surface of the key, forming a groove or recess extending crosswise of the bottom of the key, intersecting said pin-hole, inserting a filling-strip in said groove or recess, cutting a mortise in said strip in line with said pin-hole, and applying bushing-felts to said filling-strip at the sides of said mortise, substantially as set forth.

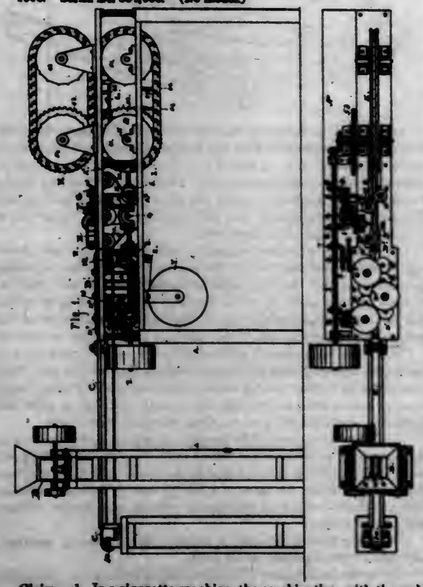
488,379. SPOON. PERRY G. GOODWIN, Boston, Mass. Filed Apr. 30, 1891. Serial No. 390,857. (No model.)



Claim.—1. In combination with a spoon, a convex cap extending from the rear to the point of the spoon and so shaped as to form therewith an opening through which the spoon-bowl may be filled and on the other side an opening through which the contents may be emptied, said cap being attached to the handle by a spring-hinge that holds the cap in close contact with the spoon-bowl or in a vertical raised position, substantially as set forth.

2. In a mustache-spoon, a convex cap extending from the rear to the point of the spoon-bowl and so shaped as to form therewith an opening through which the spoon-bowl may be filled and on the other side an opening through which the contents may be emptied, said cap having a block *h* attached at its rear, in combination with a forked block *g*, secured to the handle of the spoon, the two blocks *h g* being pivoted together, and a spring *j*, secured at one end to the block *g* and having its free end resting upon the block *h*, whereby the cap is held in close contact with the spoon-bowl or at right angles thereto, substantially as and for the purposes set forth.

488,380. CIGARETTE-MACHINE. HENRY S. GRACE, San Francisco, Cal., assignor to Jacob A. Fischer, same place. Filed June 2, 1890. Serial No. 354,068. (No model.)



Claim.—1. In a cigarette-machine, the combination, with the endless traveling feed-belt, of the grooved wheels D' D', having continuous rotation at a regular speed, stationary plates, and the top disks D', forming with the feed-belt a converging passage, substantially as described.

2. In a cigarette-machine, the combination, with a feeding device forming the bottom of a channel, of horizontal grooved wheels and intermediate stationary plates forming the sides of said channel and flat rotatory disks forming the top thereof, as set forth.

3. The combination, with means for supporting the wrapper in U shape, of two folding-disks F and G, set to act upon the opposite sides or edges and fold them upon each other, the disk F, having a hub or collar F^x, the paste-trough H, and a paste-delivering belt T, running through the trough and around the collar of the disk and in contact with the bottom face of said disk F from the collar outward to the periphery and adapted to spread the paste upon the surface of the disk, as set forth.

4. In combination with the folding-disk F, having a hub or collar F^x, the paste-trough H, and a paste-delivering belt T, running through the trough and around the collar of the disk and in contact with the bottom face of the disk from the collar outward to the periphery and adapted to spread the paste upon the surface of the disk, as set forth.

5. The combination, with mechanism adapted to produce and wrap a continuous filler of tobacco, of the endless carriers I K, formed of hinged links with grooved faces and set together to form a continuously-traveling passage of cylindrical shape in cross-section or approximately the shape of a cigarette, and spring-controlled cutters carried in the links, and means for operating them to sever the continuous cigarette into lengths while it is confined in and being carried along by the carrier, as set forth.

6. The combination, with the grooved endless carrier formed of jointed links, of a cutting device consisting of a reciprocating knife mounted in a slot in a link, a slide pin or plunger projecting from the back of the link and adapted by its movement to operate the knife, and a fixed incline or stop located in the path of said pin, for operation as set forth.

7. The combination, with the endless traveling feed-belt, of the tobacco receptacle B^x, having a fixed center bar B^2, with alternate notches or recesses and teeth or projections, and the curved vibrating jaws having corresponding recesses and projections adapted to work in close relation with said fixed bar across the chamber, as set forth.

8. In a cigarette-machine, the combination, with the carrying-belt forming the bottom of a filler-forming channel, of grooved converging sides for said channel having grooved wheels adapted to rotate and forming a portion of each side thereof and revolubie disks forming the top of said channel arranged on opposite sides of said channel to overlap the same, as set forth.

9. In a cigarette-machine, a filler forming channel having grooved converging sides provided with wheels adapted to rotate and forming a portion of each grooved side, a feeding device under said channel, horizontally-arranged rotary disks forming the top of said channel, and a closed cylindrical passage or portion at the discharge end thereof, as set forth.

483,381. VEHICLE-GEAR. CHARLES H. HOLDRIDGE, Westerly, R. I. Filed Feb. 1, 1892. Serial No. 419,902. (No model.)



Claim.—In combination with the body and gears of a vehicle, a pair of springs at each side of the body, each pair having the meeting ends of the springs jointedly secured to the body, and a coil-spring secured at one end to each of the vehicle-springs and having the opposite end secured to the body of the vehicle, substantially as set forth.

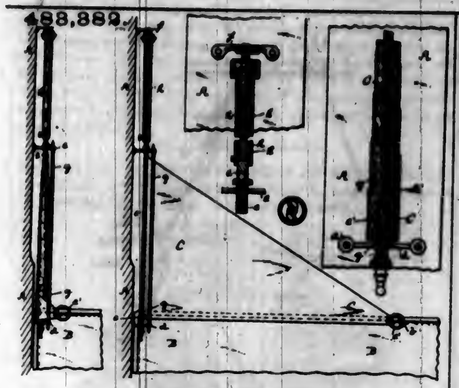
483,382. DRAFT AND DUST GUARD FOR CARS. EDWARD R. JONES, Lootdale, Pa. Filed Mar. 25, 1892. Serial No. 426,451. (No model.)

Claim.—1. In combination with the car body and seat, a movable draft-guard formed of a vertical roller mounted in brackets in the car-body, a curtain mounted on such roller, a guide-bar extending between said brackets, and a guide-bar extending up from the lower bracket and free at its upper end, substantially as and for the purposes set forth.

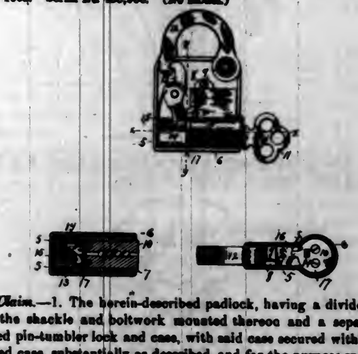
2. In combination with the car body and seat, a movable draft-guard formed of a roller mounted in brackets secured to the car-body, a curtain mounted on said roller, a tube secured to the upper end of such roller and supported at its upper end in a bracket, and a spring for rotating said tube inclosed therein, substantially as and for the purposes set forth.

3. In combination with a car body and seat, a movable draft-guard formed of a vertical spring-operated roller mounted on the car-body and a triangular-shaped curtain mounted on said roller and having a catch at its outer end and a button or catch upon the car-seat to receive the same, substantially as and for the purposes set forth.

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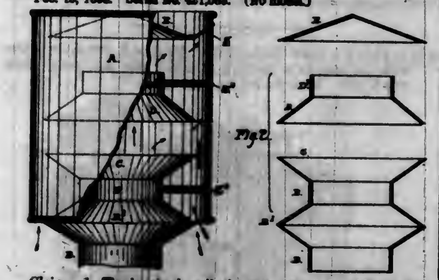
488,383. PADLOCK. EDWARD A. JUDD, New Britain, Conn., assignor to the Corbin Cabinet Lock Company, same place. Filed June 6, 1892. Serial No. 435,966. (No model.)



Claim.—1. The herein-described padlock, having a divided case with the shackle and boltwork mounted thereon and a separately-formed pin-tumbler lock and case, with said case secured within said divided case, substantially as described, and for the purpose specified.

2. In a pin-tumbler lock, the combination of the spring-actuated bolt 13, the cylinder provided with the wing 14, arranged to act upon said bolt and also to be acted upon by said bolt, and stopping devices for limiting the rotation of the cylinder under the influence of said spring-actuated bolt and stopping it in the proper position for the insertion of the key, substantially as specified.

483,384. CHIMNEY-CAP. JOHN KRAUS, San Francisco, Cal. Filed Feb. 15, 1892. Serial No. 421,532. (No model.)

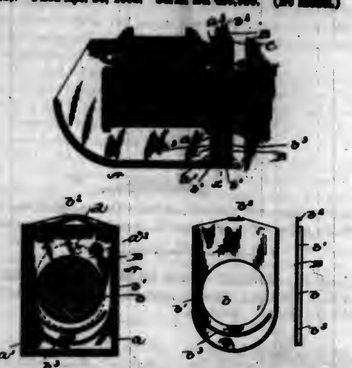


Claim.—1. The herein-described cap or guard for chimney-flues and smoke-pipes, consisting of the casing or body A, the central smoke-conductor B, inclined deflectors B' C, the top cap E, and the intermediate deflector D, having the perpendicular rim D', the said parts being supported within the casing clear of the sides thereof, substantially as set forth.

2. In a cap or guard for chimney-flues, the combination, with a central smoke-conducting flue or passage, of the surrounding casing A, standing clear of the sides all around, the inclined deflectors B' B D, and the cap or top plate E over the center of the casing at the top, substantially as set forth.

3. In a cap or guard for chimneys, the combination, with the casing or body A and a central conductor B, of two upwardly-inclined deflecting-plates and two downwardly-inclined deflecting-plates, constructed and arranged to operate in the manner set forth and specified.

488,385. CAR-AXLE DUST-GUARD. RICHARD M. LAWLESS, Omaha, Nebr. Filed Apr. 20, 1892. Serial No. 429,999. (No model.)

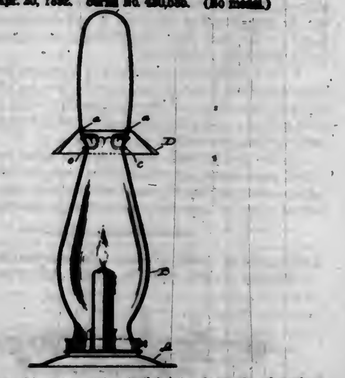


Claim.—1. The herein-described improved dust-guard, comprising a journal-box having a chamber in its rear and an opening extending therethrough for the axle or journal, two corresponding guard-plates located in said chamber and having slots therein, and interposed packing encircling the axle or journal and projecting through said slots in contact with the walls of said chamber, substantially as set forth.

2. The herein-described improved dust-guard, comprising the journal-box having two rear walls forming an intermediate chamber, coincident openings being formed in said walls, the guard-plates having abutting flanges along their edges, packing being interposed between said guard-plates, and a spring-pressed block bearing on said packing, substantially as set forth.

3. The combination, with a journal-box having two rear walls with openings for the axle or journal, of two corresponding guard-plates having abutting flanges and slots and upper inwardly-projecting flanges, and a block bearing on packing between said guard-plates and having a spring connected thereto in contact with said flanges, substantially as set forth.

483,386. LAMP OR LANTERN. JOHN W. OSBORN, Milwaukee, Wis. Filed Apr. 26, 1892. Serial No. 430,686. (No model.)



Claim.—The combination, with a bail having loops for clamping the top of a lamp-chimney, of a cap adapted to slide on the arms of the bail and wedge their loops toward each other, as set forth.

483,387. GATE. FREDERICK K. PLUMLEY, Buffalo, N. Y. Filed Mar. 14, 1892. Serial No. 424,926. (No model.)

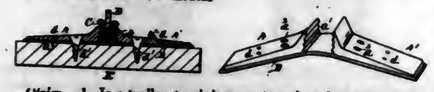
Claim.—A gate for voting-booths, consisting, essentially, of a rod D, secured to a floor-plate A within the bow B, a revolubie knob E at the upper end of said rod, having a transverse opening h, fitted with an arm F, and a downward projection F', engaging said rod, and a spiral

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spring surrounding said rod and affixed with one end to the screw *g* and with the other end to the knob E, as and for the object stated.

483,388. TROLLEY-TRACK HANGER FOR ELECTRIC RAILWAYS. WILLIAM G. PREWITT, Lexington, Ky. Filed Oct. 17, 1891. Serial No. 408,968. (No model.)



Claim.—1. In a trolley-track hanger, two clamping members provided with an underlying flexible support, said members having a channel between their adjacent edges to receive the track, substantially as described.

2. In a trolley-track hanger, two clamping members channeled between their adjacent edges to receive the track and provided with an underlying flexible support, said members having laterally-extended securing-flanges, substantially as described.

3. In a trolley-track hanger, two clamping members having a channel to receive the track between their adjacent edges, said edges being milled or serrated, substantially as described.

4. In a trolley-track hanger, the combination, with a base, of a series of track-hangers engaged thereupon, said hangers each constructed with two clamping members provided with a channel to receive the track between their meeting edges and provided with an underlying flexible support, substantially as described.

5. In a trolley-track hanger, the combination, with a base, of two clamping members secured thereupon provided with an underlying flexible support and having a channel to engage a track between their adjacent edges, the members being supported in an open position before the engagement of the track in said channel and arranged to close upon the track when brought firmly into engagement with said base, substantially as described.

6. In a trolley-track hanger, two clamping members having a channel between their meeting edges to receive a track, one member provided with a loop and the other member with a recessed lip to receive said loop, and a flexible support located beneath and engaging both members, substantially as described.

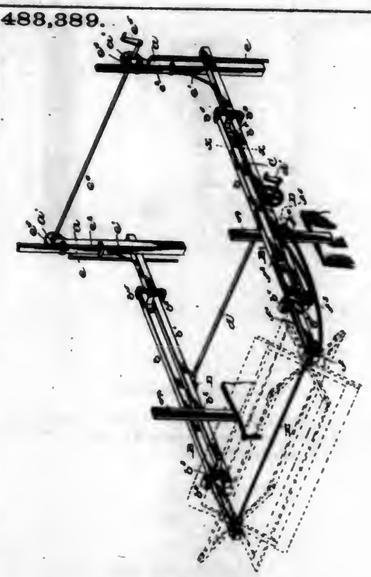
7. In a trolley-track hanger, two clamping members having a jointed engagement one with the other and provided with a channel between their meeting edges to receive a track, and a flexible support located below said members, substantially as described.

483,389. REEL-SUPPORT. FRANK S. REAGER, Germantown, Cal. Filed Jan. 18, 1892. Serial No. 418,496. (No model.)



Claim.—The herein-described improved reel-support, comprising the post A, the supporting-arms embracing two arms or members, the lower arms or members being pivoted on said post, the rack-bars secured to the upper arms or members; the gear-wheels engaging therewith, the reel-shaft mounted on the outer ends of said upper arms or members and having a sprocket-wheel on one end, the sprocket-wheel f^3, mounted on said upper arm or member, the two sprocket-wheels mounted on said lower arm or member, and the chain engaging or encompassing said sprocket-wheels, substantially as set forth.

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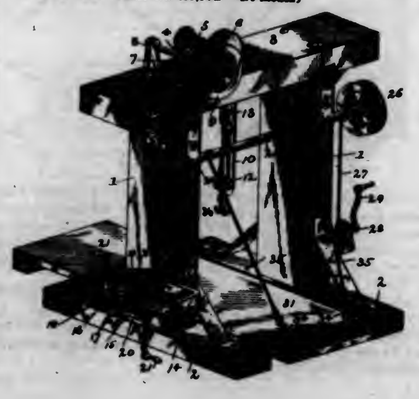
483,390. HOSE-REEL. SAMUEL F. REYNOLDS, Auburn, N. Y. Filed Dec. 8, 1891. Serial No. 414,379. (No model.)



Claim.—1. In a hose-reel, the combination, with the shaft and the reel secured thereon, of a friction-plate, a friction-bar, and a spring operating against said bar to hold said plate against the shaft.

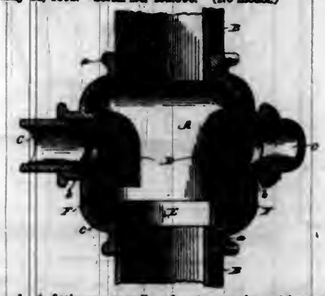
2. In a hose-reel, the combination, with the shaft, the reel secured thereon, and the bearing for said shaft, of a removable box-section provided with a top extension recessed vertically to receive a friction-bar and a pressure-spring and recessed longitudinally to fit over the shaft and receive a friction-plate upon the shaft, a friction-bar, a pressure-spring, and a friction-plate, as set forth

488,391. HOISTING-MACHINE. WILLIAM H. RICKABACH, Mishawaka, Ind., assignor of one-half to William A. Fore, same place. Filed June 3, 1892. Serial No. 435,274. (No model.)



Claim.—In a hoisting-machine, the combination, with the uprights, the base-pieces, the cross-beam, the gearing connected therewith, and the elevating-rope and sheaves, of the transverse shaft journaled to the uprights near their upper ends and means for rotating the same, and the vertically-movable platform, one end of which is adapted to rest upon a wagon or other object and the other end removably connected with ropes or chains secured to said shaft, substantially as and for the purpose specified.

483,392. FITTING OR CONNECTION FOR SUPPLY-PIPES AND BRANCH PIPES OF RADIATORS. JUSTIN E. RUSSELL, Chicago, Ill. Filed May 11, 1892. Serial No. 432,590. (No model.)



Claim.—1. A fitting or coupling for the supply and branch pipes of radiators, having a steam passage or channel formed in said coupling, which communicates with the upper portion of the branch-pipe opening or socket, and a channel for the escape of the water of condensation leading from the lower portion of said opening, substantially as described.

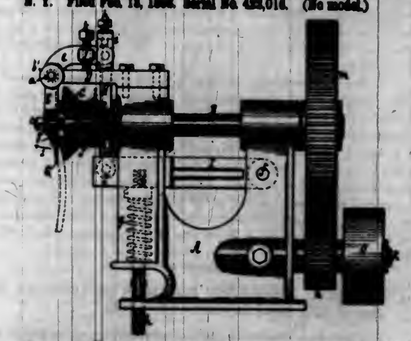
2. A fitting or coupling for the supply and branch pipes of radiators, having a steam passage or channel communicating with the upper portion of the branch-pipe opening and a passage or channel for the escape of the water of condensation from said branch into the coupling independent of said steam-passage, substantially as described.

3. A coupling for the supply and branch pipes of radiators, having a lateral opening for the branch pipe, a steam passage or channel communicating with the upper portion of said opening, a passage or channel communicating with the lower portion of said opening, and a channel forming a water seal in said coupling, into which said last-named passage discharges, substantially as described.

4. A fitting or connection for the supply-pipe and the branch pipes of radiators, having an opening for the supply-pipe and a lateral opening for the branch pipe, a partition covering one-half of said last-named opening, and a vertical flange projecting from the inner edge of said supply-pipe opening, substantially as described.

5. A steam fitting or connection having supply-pipe openings, a vertical flange surrounding the interior end or edge of one of said openings, a lateral opening for a branch pipe, a downwardly-projecting shield covering said opening, and a downwardly-projecting partition covering the lower half of said lateral opening, said partition extending downwardly intermediate said shield and the wall of the fitting and terminating below the upper edge of said flange, substantially as described.

483,393. SOLE-TRIMMING MACHINE. JACOB R. SCOTT, New York, N. Y. Filed Feb. 18, 1892. Serial No. 422,016. (No model.)



Claim.—1. The combination of a rotary feed-wheel C, a bevel-faced gage J, extending round and rotating with the feed-wheel, and a knife F, supported independent of the feed-wheel and located in front of the latter for beveling the edge of a sole while such sole is advanced by the feed-wheel, said knife standing stationary, while the feed-wheel rotates, substantially as described.

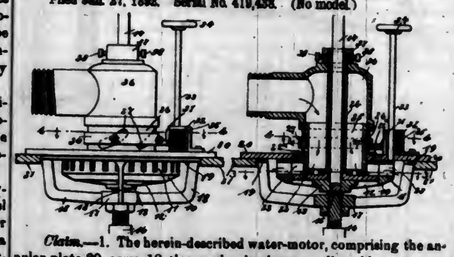
2. The combination of a shaft B, a feed-wheel C, mounted on the shaft, a bevel-faced inside gage J, extending round and rotating with the feed-wheel, a knife F, supported independent of the feed-wheel and located in front of the latter for beveling the edge of a sole while the feed-wheel advances the sole, said knife standing stationary, while the feed-wheel rotates, and an outside gage G, carried by the knife-support and arranged in alignment with the knife in front of the feed-wheel, substantially as described.

3. The combination, with the shaft B, the feed-wheel C, mounted thereon, and the inside gage J, of the plate E, mounted on the pin *a*, the outside gage G, the knife F, secured to said plate, the arm *c*, the rod H, connecting said arm with the lever I, and the spring *g*, acting on this lever, substantially as described.

4. The combination, with the shaft B, the feed-wheel C, mounted thereon, and the inside gage J, of the plate E, mounted on the pin *a*, the outside gage G, the knife F, secured to said plate, the arm *c*, the rod H, connecting said arm with the lever I, the spring *g*, acting on this lever, and the adjusting-screw *k*, substantially as described.

5. The combination, with the shaft B, the feed-wheel C, mounted thereon, and the inside gage J, of the plate E, mounted on the pin *a*, the outside gage G, the knife F, secured to said plate, the arm *c*, the adjusting-screw *k*, and the locking-screw *k*, substantially as described.

483,394. WATER-MOTOR. WILLIAM E. SEELYE, Brainerd, Minn. Filed Jan. 27, 1892. Serial No. 419,438. (No model.)

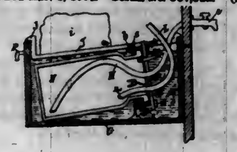


Claim.—1. The herein-described water-motor, comprising the annular plate 20, arms 18 thereunder having an adjustable center, an outer slotted cylindrical casing 26 upon the upper side of the slotted plate, an elbow secured to the upper end of said casing, a main shaft extending down through said elbow and stepped on said center, a water-wheel mounted on the lower end of the shaft and provided with an annular series of buckets open at their inner and outer ends, the water-chest 22, secured to the lower side of the plate 20 within the series of buckets and having an annular series of ports registering with said buckets, the vertically-sliding open-ended cylindrical gate closing the inner ends of said ports and resting at its lower edge on the upper face of the water-chest, and operating mechanism connected with the gate through the slotted casing, substantially as set forth.

2. The combination, with the base-plate having a central open-ended cylinder thereon with diagonal slots in the wall thereof, of the horizontally-rotating water-wheel mounted beneath the base-plate, the water-chest held centrally within the water-wheel and having an open top and side ports opening into the water-wheel buckets, the sliding gate held within the base-plate cylinder and adapted to enter the water-chest, the collar embracing the base-plate cylinder, screws extending through the cylinder-slots and connecting the collar and gate, and a gear mechanism for moving the collar, substantially as described.

3. The combination of the open-top water-chest having side ports, the base-plate held above the water-chest and provided with a diagonal slotted open-top cylinder, the gate held to slide in said cylinder and in the water-chest, the collar embracing the base-plate cylinder and having a gear thereon, screws or their equivalents extending through the cylinder-slots and connecting the collar and gate, and a shaft and pinion for turning the collar, substantially as described.

483,395. APPARATUS FOR COOLING BEER. EDWARD SEITZ, Peoria, Ill. Filed Apr. 1, 1891. Serial No. 387,332. (No model.)

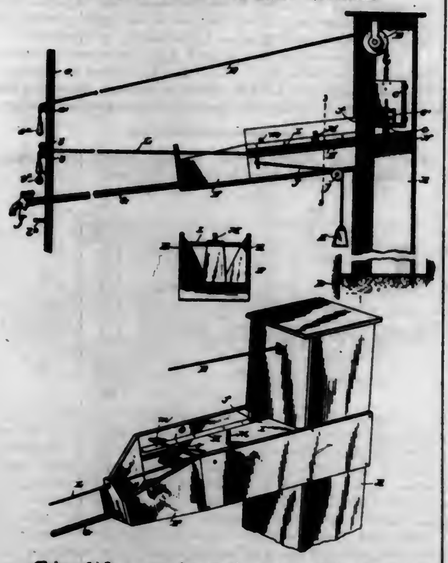


Claim.—1. In a beer-cooler, the combination of the cooling-vessel provided with a beer-inlet and the beer-discharge pipe in communication with the upper part of the interior of the cooling-vessel, where the gas accumulates, whereby the gas is drawn from the vessel and discharged through said pipe with the beer, substantially as described.

2. In combination, the beer-cooling vessel provided with a beer-inlet, the beer discharge pipe from the lower portion of said vessel, and the gas-exit pipe from the upper portion of the interior of the vessel to said beer-exit pipe at a point exterior of the vessel, substantially as described.

3. In combination, a cooling-chamber, the cooling-jar therein, a stand beneath the front end of the jar, elevating the same, the beer-inlet pipe in the jar, and the beer-discharge pipe from the lower portion of the cooling-jar, and provided with a gas-exit communication with the upper portion of the interior of the jar.

488,896. WATER-ELEVATOR. WILLIAM R. SIMPSON, Benton, La. Filed May 20, 1892. Serial No. 433,734. (No model.)



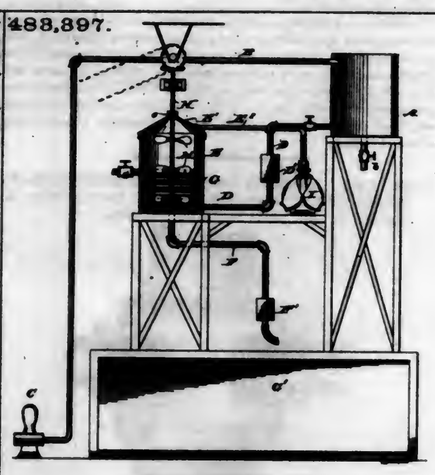
Claim.—1. In a water-elevator, the vertical well-box having a lateral discharge-opening, an inclined closed spout having its bottom arranged in a plane below said opening, the valved water-bucket working in said box, a weight-controlled sliding false floor arranged within said spout and adapted to automatically return through said discharge opening and the well-box under the bucket when the latter is raised, a conducting-pipe leading from the outer closed end of said spout to the point of use, and separate operating-ropes connected to said bucket and the sliding floor, respectively, and extending to a point adjacent to the end of said conducting-pipe, substantially as set forth.

2. In a water-elevator, the tubular well-box having a side discharge-opening, an inclined closed distributing-spout arranged below said opening and provided with opposite side grooves in a line with said opening, a well-bucket provided with an inwardly-opening valve, a weight-controlled sliding floor working in said guide-grooves and through said discharge-opening into the well-box and provided with an upwardly-projecting valve-pin upon which the raised bucket is lowered, a conducting-pipe leading from said spout to the point of use, a securing-pin located at such point of use, and an operating-cord connected with the outer end of said sliding floor and provided at its other end with a ring adapted to engage said pin to hold said floor in its outdrawn position, substantially as set forth.

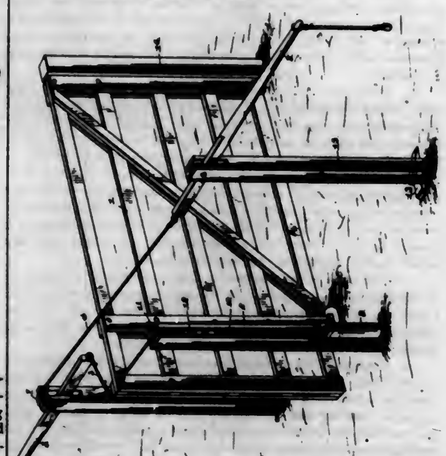
488,897. APPARATUS FOR COOLING WATER IN THE MANUFACTURE OF ICE. ALBERT SMITH, Colorado Springs, Colo. Filed Mar. 10, 1892. Serial No. 424,407. (No model.)

Claim.—In an ice-making apparatus, the combination, with the water-cooling tank E, of the agitator consisting of the vertical rotatable shaft H, having radial blades H', the brine-conducting coil G, surrounding said agitator, and the vacuum-pump connected with the top of the cooling-tank, as shown and described.

488,897.



488,898. GATE. THOMAS M. SMITH, Bend, Tex. Filed Apr. 30, 1892. Serial No. 431,287. (No model.)



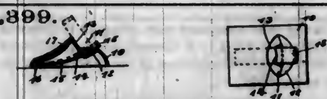
Claim.—1. The combination of a swinging gate pivoted intermediate of its ends, uprights 6 and 15, arranged on opposite sides of the gate, the former being provided with a pulley 7, operating-levers 5 and 8, fulcrumed on the uprights, a rope 3, connecting the gate with the lever 5, a rope 4, extending from the gate to the upright 6 and passing around the pulley 7 and connected with the lever 8, and a weight connected with the gate and adapted to close the same, substantially as described.

2. The combination of a swinging gate pivoted intermediate of its ends, uprights 6 and 15, arranged on opposite sides of the gate, the former being provided with a pulley 7, operating-levers 5 and 8, fulcrumed on the uprights, a rope 3, connecting the gate with the lever 5, a rope 4, extending from the gate to the upright 6 and passing around the pulley 7 and connected with the lever 8, a post arranged near the inner end of the gate, a pulley arranged on the post, a rope connected with the inner end of the gate and passing over the pulley of the post, a weight attached to the rope, and a catch arranged to hold the gate open against the action of the weight, substantially as described.

488,899. RING-HOLDER. JULIUS SMITH, Tom's River, N. J. Filed May 11, 1892. Serial No. 432,959. (No model.)

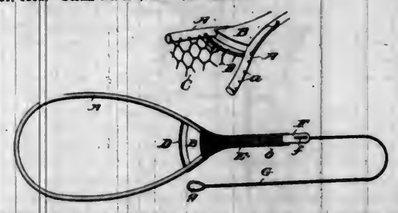
Claim.—As an improved article of manufacture, a ring-holder consisting in the raised or hollow base 10, having a recess 11 in the upper side at one end, the recess having a bottom wall 12 and a back wall

488,899.



13, provided with a slot 14, and the spring 15 within the base and projecting at one end through the slot 14 and across the bottom wall 12 of the recess 11, substantially as set forth.

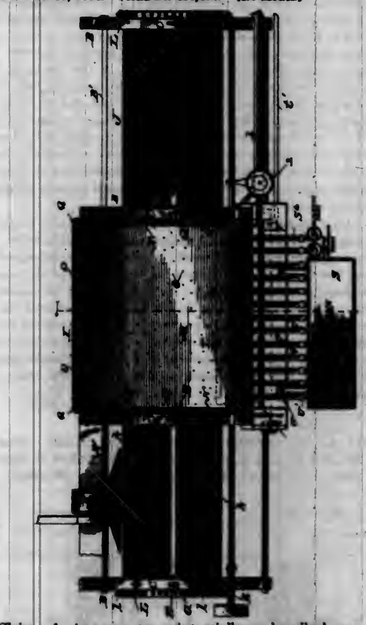
488,400. FISH-NET. HENRY F. SMITH, Neenah, Wis. Filed May 21, 1892. Serial No. 433,847. (No model.)



Claim.—1. In a fish-net, the combination, with the bow, of a fan-shaped head provided with an extension forming a handle and a brace passing through the bow in advance of the head and extending rearwardly and embedded in the handle, substantially as and for the purposes described.

2. In a fish-net, the combination, with the bow, of a fan-shaped head provided with an extension forming a handle, a brace located in advance of the head, passing through the bow, extending rearwardly, and suitably secured to the handle, and an elastic cord attached to the latter, having a loop formed therein, substantially as described.

488,401. MACHINE FOR TREATING LEAF-TOBACCO. CHARLES A. SNYDER, Danville, Va., assignor of one-hundred-and-seven two-hundred-and-fortieths to William W. Brown and Robert T. Bass, same place. Filed Dec. 29, 1891. Serial No. 416,433. (No model.)



Claim.—1. An apparatus, substantially as described, comprising an agitator consisting of an endless apron and supports therefor and having its inlet end open and unobstructed, whereby the tobacco may be introduced directly in said end in a longitudinal direction, said having an outlet at its opposite end and a lateral opening for the insertion of the treating solutions, &c., substantially as set forth.

2. A machine, substantially as described, comprising an agitator-apron having a lateral opening and open at one end for the introduction of the material and a receiving-chamber connected with the inlet end of the agitator and arranged to introduce the material longitudinally into the end of said agitator, substantially as set forth.

3. In an apparatus, substantially as described, an agitator comprising open end rings having sprocket-teeth, the framing having bearings for the said rings, the apron having at its edges sprocket-chains engaging the teeth of the rings, and the guide and drive rollers for said apron, substantially as set forth.

4. In an apparatus, substantially as described, an agitator consisting of an endless apron provided on its outer side with projecting teeth and arranged with a space between its ends for the insertion of the treating solutions, &c., and end supports for said apron, consisting of open rings, substantially as and for the purposes set forth.

5. An apparatus, substantially as described, consisting of an apron, means for supporting the apron, and open end rings in the hollow of said apron at its inlet and discharge ends, all substantially as described, whereby there is provided a lateral opening for the insertion of the treating solutions or materials, substantially as set forth.

6. In an apparatus, substantially as described, an agitator comprising an endless apron and end supports therefor, consisting of open rings through which the tobacco may be supplied to and discharged from the apron, substantially as set forth.

7. The improved agitator, substantially as described, consisting of the apron having sprocket-chains at its edges, the end guide-rings therefor having on their outer sides sprocket-teeth to mesh the chains of the apron and open at the center for the introduction and discharge of the tobacco, and the drive-roller having sprocket-gears meshing the chains of the apron, whereby the roller drives the apron and the apron drives its guide-rings, all substantially as and for the purposes set forth.

8. An apparatus, substantially as described, comprising a frame having bearing-rings provided with bearings for the drive and guide rollers, the drive and guide rollers, the endless apron passed around said rollers, and the end guide-rings open centrally for the inlet and discharge of the tobacco and journaled in the frame-rings, all substantially as and for the purposes set forth.

9. In an apparatus, substantially as described, an agitator comprising an endless apron, guides within said apron, and circular end guides fitted in the hollow of said apron, whereby the apron may be formed into almost a complete cylinder, the circular end guides preserving the hollow of the apron in proper shape, all substantially as and for the purposes set forth.

10. An apparatus, substantially as described, comprising the framing, the endless apron, the end guide-rings fitted within the hollow of and arranged to be turned by the said apron, means for driving the apron, and the receiving-chamber united at one end to one of the end guide-rings, whereby the said chamber will be turned by the power applied to the apron, all substantially as and for the purposes set forth.

11. A machine for treating tobacco, substantially as described, comprising an agitator formed of an endless apron, means for supporting the apron, and circular end guides fitted in the hollow of said apron, whereby there is provided a contracted lateral opening for the introduction of solutions, &c., and a sprayer, substantially as set forth.

12. An apparatus, substantially as described, comprising the frame-rings provided in their inner faces with notches or openings, the boxes fitted movably in said notches or openings and provided with rollers, the screws for adjusting said boxes, the guide-rings having portions fitting in the frame-rings and grooved to receive the said screw-adjusted rollers, the endless apron carried by the guide-rings, and the rollers fitted within said apron, all substantially as set forth.

13. An apparatus, substantially as described, comprising the frame-rings having outwardly-projected brackets having bearings, the drive and guide rolls journaled in such bearings, the apron passed around said rollers, and the end guide-rings fitted in the hollow of said apron and journaled within the frame-rings, substantially as set forth.

14. In an apparatus, substantially as described, a powder or dry-flavoring distributer comprising a vessel having a discharge-opening in its bottom, a cylindrical sieve in said vessel and open at its bottom and arranged with said open bottom over the opening in the bottom of the vessel, said sieve being provided with a shaft and adapted to be revolved, and a cylindrical shut-off arranged and adapted to be adjusted over said sieve to wholly or partially shut off the same, substantially as set forth.

15. An apparatus, substantially as described, comprising the liquid reservoir and distributer and the connection-pipes, the intermediate pipe, the blower arranged to discharge its blast into said intermediate pipe, the powder or dry-flavoring distributer having a vessel or reservoir, and a conducting-pipe arranged to receive the powder therefrom, said conducting-pipe being connected with the intermediate pipe of the sprayer, whereby it will also receive the blast from the blower, substantially as set forth.

16. An improved apparatus, substantially as described, consisting of the framing having frame-rings, the receiving-chamber having end rings fitted in the framing, and a covering of wire-gauze or its equiva-

lent, the agitator consisting of the end guide-rings open for the admission and discharge of the tobacco, the sprayer having an elongated flaring distributer, a reservoir connected with said distributer and a blower, and the flavoring-reservoir having its discharge-pipe arranged to open into the said distributer, substantially as set forth.

17. An apparatus, substantially as described, comprising the agitator, the spraying device, the powder-distributer, the blower, and connections whereby parts of the blast of the blower are directed to the sprayer and to the powder-distributer, substantially as set forth.

18. An apparatus for treating tobacco, consisting of an agitator, a sprayer, a powder-distributer, a blower, and valve devices whereby the spray or the powder may be shut off at will, substantially as set forth

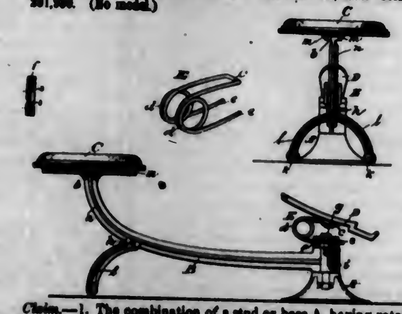
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488,402. SACK. HARRY V. W. STIVERS and JAMES HOAGLAND, Camden, N. J. Filed Mar. 2, 1892. Serial No. 423,463. (No model.)



Claim.—As a new article of manufacture, a bag provided on one side near its mouth with a transverse band having fastening devices at or near its ends and transverse horizontally-aligned handles 15, embracing the opposite edges of the bag, parallel with and below the fastening-band, whereby when the mouth of the bag is drawn together and secured by the band the handles will be brought into proper inclined position over the upper corners or shoulders of the bag, substantially as set forth.

488,403. FOOT-REST AND SHOE-STOOL. FREDERICK V. STONE and MYRON A. CAMPBELL, Elyria, Ohio. Filed Nov. 26, 1888. Serial No. 291,990. (No model.)



Claim.—1. The combination of a stud or base A, having rotating disks *f f* secured to its top, a spring E, adjustably secured between said disks, a foot-rest D, mounted on said spring, with a rotating radial arm B, pivoted centrally on said base and having at its outer end a seat C, substantially as set forth.

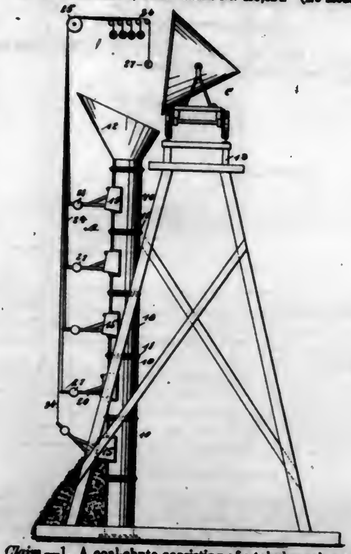
2. The combination of a base or stud A, having rotating disks *f f* secured to its top, a spring E, adjustably secured between said disks, a foot rest D, mounted on said spring, a rotating radial arm B, pivoted on said base and having downwardly-projecting branches forming legs *l l*, and an upward projection *n*, supporting a seat C, substantially as set forth.

3. The combination of a base A, supporting an adjustable rotatably-mounted spring E, a foot-rest D, mounted on said spring, and a rotating radial arm B, pivoted on said base and carrying at its outer end a seat C, substantially as described.

4. The combination of the base or stud A, the revolving disks *f f*, secured by a screw or bolt *g* to its top, the spring E, clamped between said disks, and a foot-rest D, mounted on said spring, substantially as described.

5. The combination of the base A, the revolving disks *f f*, secured thereto, having their contiguous sides concaved or otherwise recessed and provided with notches *s s* to receive a spring E, adjustably secured between said disks, and a foot-rest D, mounted on said spring, substantially as described.

488,404. COAL-CHUTE. GUSTAVUS I. STURGESS, Long Island City, N. Y. Filed June 7, 1892. Serial No. 435,894. (No model.)

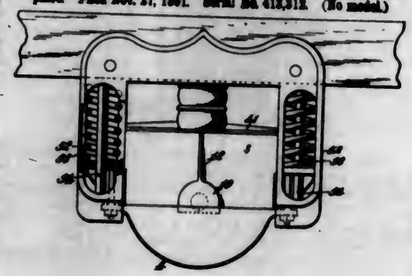


Claim.—1. A coal-chute consisting of a tubular column provided with a series of openings at intervals in its length and having a hopper formed at its upper end, doors hinged to swing over and from the openings, shields located at the sides of the openings between which the doors move, sills formed at the bottom of the openings, flanges formed upon the lower edges of the doors and engaging with the sills, and hoisting devices, substantially as described, connected with the doors and operating independently, as and for the purpose set forth.

2. A coal-chute consisting of a column provided with a series of openings at intervals in its length, doors hinged to normally close and swing from the openings, weighted arms projected from the doors, and lift cables or chains connected with the arms and capable of independent action, as and for the purpose specified.

3. In a coal-chute, the combination, with a tubular column having a hopper formed at its upper end and provided with a series of openings arranged at intervals throughout its length, shields located at the sides of the openings, a sill formed at the bottom of the openings, doors hinged at their upper edges, normally covering the openings and having movement between the shields, flanges formed upon the lower edges of the doors and engaging with the sills, and weighted arms connected with the doors, of hoist cables or chains connected with the arms of the doors and guide devices over which the cables pass, each cable being capable of operation independently of the other, as and for the purpose specified.

488,405. JOURNAL-BEARING FOR CAR-AXLES. PETER SWENSEY, New York, N. Y., assignor of one-half to Charles H. Beyer, same place. Filed Nov. 27, 1891. Serial No. 413,312. (No model.)



488,405.



Claim.—1. In a journal-bearing, a housing formed in two parts divided horizontally, the upper part having a hood upon its outer face to receive one journal of an inner antifriction-pulley and the lower part being provided with a projecting plate to lie beneath and close the lower open side of the hood, said parts being united by a rabbet-joint and held by bolts, substantially as described.

2. In a journal-bearing, a horizontally-divided housing, the upper part having an outwardly-projecting hood, in combination with an antifriction-pulley arranged in said housing, its outer journal received by a pillow-block lying in the hood and its other journal by a similar block lying in a seat in the rear of the upper part, and a plate supporting the latter block and fastened by bolts, the lower member of the casing being provided with a plate projecting from its outer face and lying beneath and closing the hood, substantially as described.

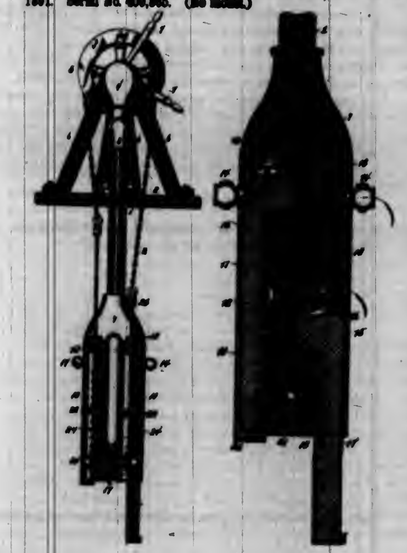
3. In a journal-bearing, the combination, with a housing, of an interiorly-arranged flanged antifriction-pulley, a car-axle journal on which the flange of said pulley rests, a two-part dust-plate surrounding the axle and lying in a recess in the rear of the housing, and an independent thrust-plate formed in two parts lying in a circumferential channel in the axle and in a recess in the rear of the housing, substantially as described.

4. In a journal-bearing, the combination, with a housing, of a car-axle entering the same, a dust-plate surrounding the exterior of the axle and having play in a recess in said housing surrounding the axle-opening, and a thrust-plate lying in a similar recess and in a circumferential slot or channel in said axle, substantially as described.

5. In a journal-bearing, the combination, with a housing having an axle-opening and a recess surrounding the same, of a plate lying in said recess, springs connected to end lugs on the lower ends of said plate, and a movable covering-plate resting on the housing, to which the other ends of said springs are connected.

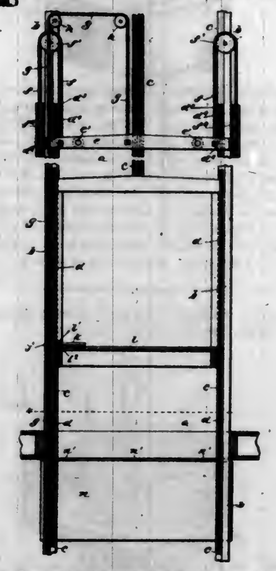
6. In a journal-bearing, the combination, with a housing, of an axle entering the same, a dust-plate and a thrust-plate lying in parallel recesses surrounding the axle-openings, springs connected to end lugs on the lower members of said plates, and a movable covering-plate resting on the housing, to which the other ends of said springs are connected, substantially as described.

488,406. PUMP. JOSEPH C. TOM, Pontotoc, Tex. Filed Oct. 26, 1891. Serial No. 409,865. (No model.)



Claim.—In a double-cylinder pump, the combination, with the cylinders open at their lower ends, of the plungers arranged to reciprocate therein, the valved openings at the upper ends of the cylinders, leading to the shell connected with the delivery-pipe, the water-ingress openings leading into the cylinders above the lower limit of the movement of said plungers, and the inwardly-opening check-valves whereby water or air may be admitted above the plungers on their downstroke, substantially as specified.

488,407. APPARATUS FOR OPERATING ELEVATOR-DOORS. DAVID TUFTS, Pittsburg, Pa. Filed June 3, 1892. Serial No. 435,433. (No model.)



Claim.—1. In combination with an elevator-car and its shaft, doors mounted within said shaft, vertical rods, connections between said doors and rods, and a vertically-movable support from which said rods depend, substantially as and for the purposes set forth.

2. In combination with an elevator-car and its shaft, doors mounted within said shaft, vertical rods, connections between said doors and said vertical rods, and a yielding support from which said rods depend, said yielding support being in the path of said car, whereby said yielding support is raised by the movement of said car, substantially as and for the purposes set forth.

3. In combination with an elevator-car and its shaft, doors mounted within said shaft, vertical rods, connections between said doors and said vertical rods, a yielding support at the upper end of said shaft, from which said vertical rods depend, a rope secured to said support and passing down said shaft, and mechanism on said car for lowering said rope, substantially as and for the purposes set forth.

4. In combination with an elevator-car and its shaft, doors mounted within said shaft, vertical rods, connections between said doors and said vertical rods, a yielding support at the upper end of said shaft, from which said vertical rods depend, a rope secured to said support and passing down said shaft, lugs on said rope, and a lever on said car to be thrown into engagement with said lugs, substantially as and for the purposes set forth.

5. In combination with an elevator-car and its shaft, doors mounted within said shaft, links connecting said doors to vertical rods, a yielding support counterbalanced at the upper end of said shaft, from which said rods depend, a rope secured to said yielding support and passing down said shaft, lugs on said rope, and a lever having a forked end on said car, adapted to be thrown into engagement with said lugs, substantially as and for the purposes set forth.

488,408. LID-HOLDER FOR PANS OR VESSELS. ELMER E. WARD, Colorado Springs, Colo. Filed Feb. 17, 1892. Serial No. 421,973. (No model.)

Claim.—1. A lid-holder for pans or vessels, having two forward hooks for engaging the bead and edge of a vessel and cover therefor and two rearward divergent spring-arms having hooks, as set forth.

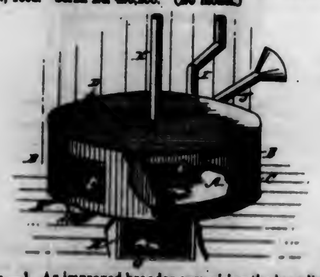
2. The herein-described lid-holder, composed of two parts or members, one of which has divergent spring-arms provided with hooked portions and the other is adjustably secured to the former, and also provided with hooked portions, as set forth.



3. The herein-described lid holder, composed of two parts or members, one of which has divergent spring-arms provided with hooked portions and finger-pulls and the other is adjustably secured to the former, and also provided with hooked portions, as set forth.

4. The herein-described lid-holder, consisting of the part or member *a*, formed from one continuous wire rod bent to form guide-rods, divergent spring-arms extending therefrom and provided with hooked portions near their outer ends, and also with finger-pulls, and the part or member *a'*, formed from one continuous wire rod and having outer hooked ends, and the two-part clamp fitting said guide-rods and holding said part or member *a'*, substantially as set forth.

488,409. BROODER. CHARLES R. WATKINS, Harvard, Mass. Filed Apr. 7, 1892. Serial No. 428,253. (No model.)



Claim.—1. An improved brooder comprising the brooding-chamber, the surrounding casing forming an intermediate water-space, the lamp-chamber below the casing, the offtake-pipe leading from said lamp-chamber, and the pipes for supplying air to and discharging it from the brooding-chamber, substantially as set forth.

2. In a brooder, the combination of the brooding-chamber, the outer casing, the lamp-chamber, the pipe I, leading from said chamber, the pipe J, having a branch *j* within the brooding-chamber, and the pipe K, all substantially as set forth.

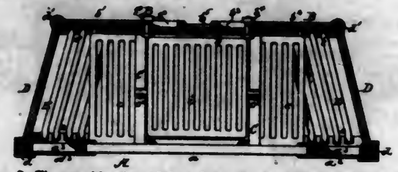
3. The improved brooder, substantially as herein described and shown, consisting of the circular concentric brooding-chamber and casing, the chamber being arranged within and separated from the casing, forming a water-space, and both chamber and casing being water-tight, whereby water may be contained in the said intermediate space, means for heating the water in said space, an air-supply pipe leading to the brooding-chamber, and an air-discharge pipe leading from each chamber, substantially as set forth.

4. A brooder, substantially as described, comprising a water-tight inner or brooding chamber A, a water-tight casing B, surrounding the chamber A and separated therefrom, forming a communicating water-space above, below, and alongside the said chamber, a passage-way E, extended across said water-space and opening at its inner end into the brooding-chamber, the air-outlet pipe K, leading from the brooding-chamber, the air-inlet pipe leading to the brooding-chamber, the lamp-compartment below the casing, and the offtake-pipe leading from the said compartment, all substantially as and for the purposes set forth.

488,410. PORTABLE GRATE. DAVID H. WAITE, Philadelphia, Pa. Filed Jan. 14, 1892. Serial No. 418,061. (No model.)

Claim.—1. The combination, in a portable grate, of the longitudinal plates forming the front and back of the grate and grate-bars with side plates hinged to the longitudinal plates, one of said longitudinal plates being adjustable, substantially as set forth.

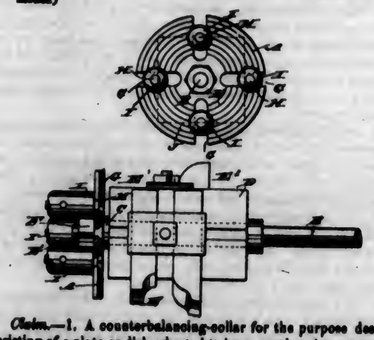
2. The combination of the adjustable front section, the adjustable back section, and adjustable grates with side plates hinged to the front and back sections, substantially as described.



3. The combination of the telescoping front section, the telescoping back section, side plates hinged to the front and back sections, a central fixed grate, pockets on the front and back sections, with grate-bars adapted to the said pockets, substantially as described.

4. The combination, in a portable grate, of the front plate made up of three sections, the back plate made up of three sections, a central grate-section secured to the central sections of the front and back plates, side plates hinged to the end sections of the front and back plates, and grate-bars supported by said end sections, said end sections being adapted to slide upon the central sections, substantially as described.

488,411. COUNTERBALANCING-COLLAR. WATSON T. WEBB, Salt Lake City, Utah. Filed Apr. 27, 1892. Serial No. 430,575. (No model.)



Claim.—1. A counterbalancing-collar for the purpose described, consisting of a plate or disk adapted to be secured to the cutter-spindle and weights held adjustably on the said disk or plate, substantially as shown and described.

2. A counterbalancing-collar consisting of a disk or plate adapted to be secured to the cutter-spindle and formed with slots, bolts held adjustably in the said slots, and weights held on the said bolts, substantially as shown and described.

3. A counterbalancing-collar consisting of a disk or plate adapted to be secured to the cutter-spindle and formed with slots, bolts held adjustably in the said slots, and weights held on the said bolts, the said weights serving as nuts for the said bolts to secure the latter in place on the disk or plate, substantially as shown and described.

4. A counterbalancing-collar comprising a disk or plate adapted to be secured to the cutter-spindle and provided with radially-extending slots and with indicating-circles on its face, bolts held adjustably in the said slots, and weights forming nuts screwing on the said bolts to lock the latter in place on the said disk or plate, substantially as shown and described.

488,412. BILL-HOLDER. EDWARD M. WILEY, Shelbyville, Ind. Filed July 14, 1892. Serial No. 440,043. (No model.)



Claim.—1. In a bill-book, the combination, with a book, a frame, and a guard-spring formed of a single piece of wire, of a pivoted guard operatively connected with the spring and movably carried on the frame, substantially as and for the purposes specified.

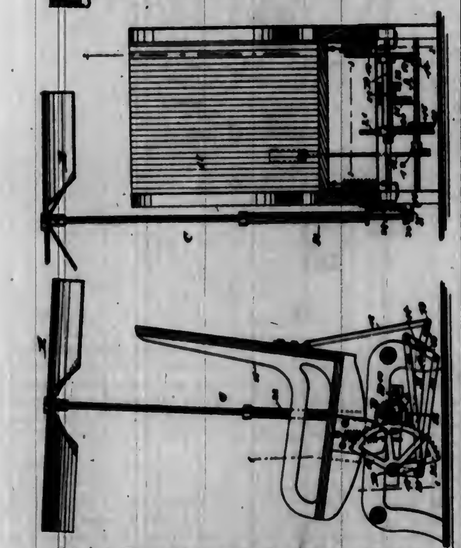
2. In a bill-holder, the combination, with the hook and a frame, of a guard pivotally movable upon the frame and a coiled spring carried in the same plane with the hook, substantially as and for the purposes specified.

3. In a bill-holder, the combination, with a hook, frame, and spring, of a guard pivoted upon the frame and a yoke connected at one end to the spring and at the other to the guard to one side of its axis, substantially as described.

4. In a bill-holder, the combination, with a hook, guard-hinges, a suspending-loop, and a spring formed substantially as described, of a single piece of wire, of a guard pivotally carried in the guard-hinges and operatively connected with the spring, substantially as and for the purpose specified.

5. In a bill-holder, the combination, with a hook provided with guard-hinges and a spring terminating between the guard-hinges, of a guard pivoted to the guard-hinges and connecting mechanism uniting the end of the spring to the rear of the guard, whereby the guard is held yieldingly in the elevated or in the depressed position, substantially as and for the purpose specified.

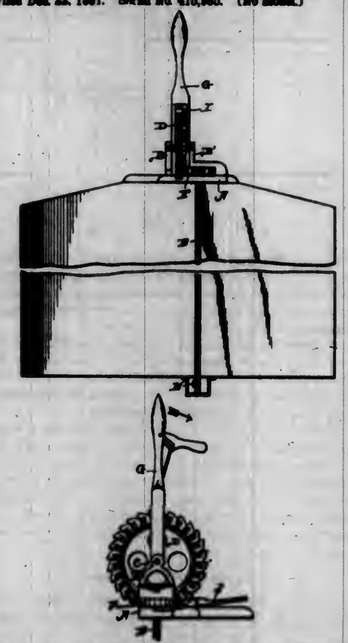
488,413. FAN ATTACHMENT FOR ROCKING-CHAIRS. HORACE M. BAKER, Carthage, Mo. Filed May 11, 1892. Serial No. 432,601. (No model.)



Claim.—1. The combination, with the platform and the body of a platform-rocker and a fan-shaft located at one side thereof and provided with a fan, of a drive-shaft having a crank connected with the body of the rocker, the drive-shaft being journaled in the platform thereof, segmental gears held to turn loosely upon a fixed shaft secured upon the platform of the rocker, a crank and pitman connection between the drive-shaft and the segmental gears, the cranks standing in opposite directions, whereby the segmental gears are oppositely and intermittently moved, a driven shaft connected with the fan-shaft and provided with an attached ratchet-wheel, sleeves mounted loosely upon the driven shaft, each sleeve carrying a pinion meshing with one of the segmental gears, and a crank-arm provided with a spring-controlled dog, both dogs engaging with the ratchet-wheel of the driven shaft, as and for the purpose set forth.

2. The combination, with the platform and the body of a platform-rocker, a fan-shaft carrying a fan journaled vertically at one side of the chair free of the body, and a horizontal shaft journaled beneath the platform, engaging with the fan-shaft and actuating it, the horizontal or driven shaft being provided with an attached ratchet-wheel, of a drive-shaft journaled at the rear of the platform, provided with a crank-arm having a pitman connection with the back of the chair, crank-arms attached to the drive-shaft and extending in opposite directions, which crank-arms have pitman connections with mutilated gears loosely mounted upon a fixed shaft secured in the rocker-platform, sleeves loosely mounted upon the driven shaft, connected with the fan-shaft one at each side of its ratchet-wheel, the said sleeves being provided with pinions engaging with the mutilated gears, crank-arms attached to the inner ends of said sleeves, and spring-actuated dogs carried by said crank-arms engaging with said ratchet-wheels and acting alternately thereon, as and for the purpose set forth.

488,414. CAR-BRAKE. JOSEPH W. BAKER, Van Buren, Ark. Filed Dec. 22, 1891. Serial No. 415,985. (No model.)



Claim.—In a car-brake, as described, the combination, with a brake-chain, a vertical rotative shaft connected to said chain, and a horizontal pinion fixed on the upper end of said shaft and having peripheral teeth, of the vertically-disposed wheel having cog-teeth on its side adjacent to its periphery, meshing with the teeth of the horizontal pinion of the vertical shaft and also having the peripheral beveled ratchet-teeth, the bifurcated lever straddling the said vertically-disposed wheel and fulcrumed on the shaft thereof, a spring-pressed pawl carried by said lever and engaging the ratchet-teeth of the vertically-disposed wheel, and a pawl engaging the ratchet-teeth of the vertically-disposed wheel and adapted to prevent backward rotation thereof, substantially as specified.

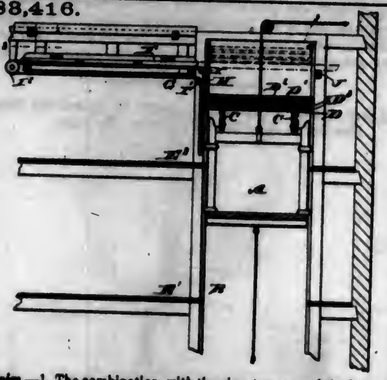
488,415. FRUIT CAN OR JAR. JOHN M. BARNHART, Marshfield, Pa. Filed May 31, 1892. Serial No. 435,080. (No model.)



Claim.—A fruit can or jar having the usual shoulder *a* and provided with a corrugated seat, as shown, and the upwardly-extending flange *c*, in combination with the cover C, provided with flange *c*, and corresponding corrugations to those of the seat and having the groove *f* and depressions *g*, the clamp D, and screw A, said clamp having claws *l* and spurs *m*, substantially as and for the purpose set forth.

488,416. DEVICE FOR CLOSING ELEVATOR-SHAFTS. NIMA J. BLAKER, Portland, Oreg. Filed July 6, 1892. Serial No. 439,104. (No model.)

488,416.

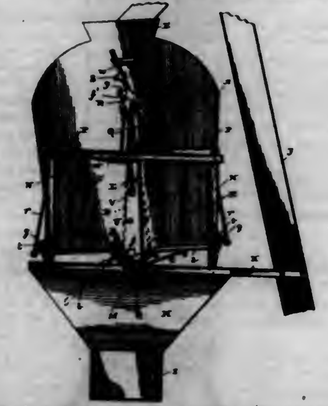


Claim.—1. The combination, with the elevator-car and the hinged supports C on its top, of a series of platforms adapted to be supported within the shaft at the different floors and a carriage mounted to slide in the upper end of the shaft to support the platforms during the time the elevator is running, substantially as set forth.

2. A device for closing elevator-shafts, comprising a series of platforms adapted to be supported within the shaft at the different floors and a carriage mounted to slide in the upper end of the shaft and adapted to support the said platforms during the time the elevator is running, substantially as shown and described.

3. A device for closing elevator-shafts, comprising a series of platforms adapted to be supported within the shaft at the different floors, and a carriage mounted to slide in the upper end of the shaft and adapted to support the said platforms during the time the elevator is running, and means, substantially as described, for imparting a sliding motion to the said carriage to move the latter under the said platforms and away from the same to support the platforms on the running cage of the elevator, as set forth.

488,417. OSCILLATING GRAIN-METER. HENRY H. BOEHKER, St. Charles, Mo. Filed Feb. 10, 1892. Serial No. 421,010. (No model.)

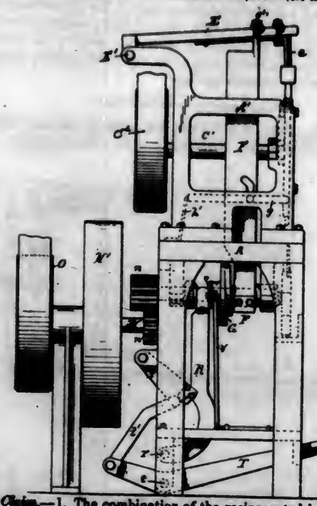


Claim.—1. A pivoted hopper having a chamber at each side of its pivotal point, a weighing mechanism connected with the said hopper, doors for the lower ends of the chambers, a valve pivoted between its ends between the upper ends of the chambers, a rod passing under the hopper, a brace connecting the doors, a connection between the rod and the brace, and a connection between the rod and the valve, whereby the valve is operated by the movement of the doors, the parts combined substantially as set forth.

2. A weighing-machine comprising a pivoted hopper having a chamber at each side thereof, a weighing mechanism connected with the hopper, a shaft extending through the upper end of the hopper between the said chambers, a valve connected between its ends to the said rod, a crank at one end of the said valve-rod, doors for the lower ends of the chambers, a brace connecting the doors, a shaft journaled above the said brace, carrying a depending arm which has its lower end connected with the brace and whereby more leverage is obtained, a crank at one end of the rod, and a connection between this crank and the crank of the said valve-rods, substantially as specified.

3. A weighing-machine comprising a pivoted hopper having a chamber at each side thereof, doors for the lower ends of the chambers, a tilting valve at the upper ends of the chambers, a connection between the doors and the valve for operating the latter, a holding and tripping mechanism for the doors, a scale-lever pivoted at its lower end and carrying an adjustable weight at its upper end, bars pivotally supported at their outer ends, connections between the inner ends of the bars and opposite sides of the pivotal point of the scale-lever, and a connection connected with the said bars between their ends and at their opposite ends to the hopper at opposite sides of its pivotal point, substantially as described.

488,418. LINK-WELDING MACHINE. JAMES W. BOSTA, WAYNE, Pa. Filed Feb. 23, 1892. Serial No. 422,556. (No model.)



Claim.—1. The combination of the reciprocated hammer, an anvil, a frame E above said hammer and pivoted to the side frames of the machine, springs between said frame and the edge of the hammer, a holding-pin adapted to pass through the anvil and engage with the inner surface of the link, a rotated power-shaft, and screw-cams thereon adapted to act simultaneously to depress the frame E and raise the holding-pin, substantially as specified.

2. The combination of the hammer, an anvil, frame E, pivoted to the main frame of the machine, springs between said frame E and the hammer, a cam for raising said hammer against the action of the spring, side bars F, extending from said frame E, a cross-bar F', and a screw-cam adapted to act upon said cross-bar F', substantially as specified.

3. The combination of the hammer, the anvil, a cam for raising said hammer, a frame E, springs *c* between the frame E and the hammer, the side bars F, and hammer-locking bars guided in the frame of the machine and adapted to pass under a shoulder on the hammer, and a pin carried by said locking-bars engaging with a cam-slot in said side bars F, substantially as specified.

4. The combination of the reciprocated hammer, an anvil, a pin *h*, projecting through said anvil, a block *i*, carrying said pin, a frame E, springs between the hammer and the frame E, side bars F, a cross-bar F', uniting said side bars F, a longitudinally-movable shaft G', and screw-cams on said shaft G', adapted to engage, respectively, with the cross-bar F' and the recess in the block *i*, substantially as specified.

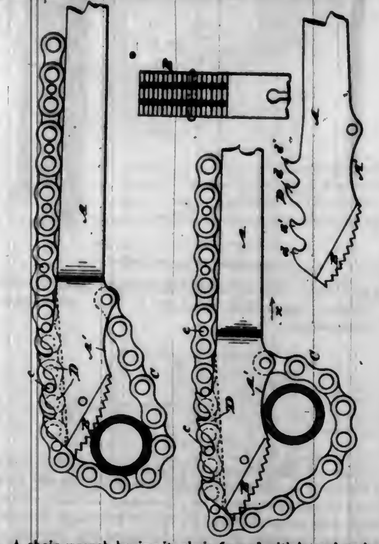
5. The combination of the frame E, the side bars F, cross-bar F', the hammer, springs between said hammer and the frame E, a screw-cam G, a longitudinally-movable shaft G', carrying the said cam G, a sleeve H on said shaft, a lever R, engaging with said sleeve, and means for operating said lever R to effect the longitudinal movement of said shaft, substantially as specified.

488,419. CHAIN WRENCH. WILLIAM H. BROWN, Brooklyn, N. Y. Filed Mar. 19, 1892. Serial No. 425,830. (No model.)

Claim.—1. As a new article of manufacture, a chain wrench having a recessed shoe and a concave pipe-receiving depression in the rear of and adjacent to the shoe, and a chain pivotally connected with the wrench-body at the rear end of such depression, the latter extending transversely of the wrench completely from side to side and of a length to accommodate the pipe and cause the latter to tighten the chain when the pipe is brought from the concaved depression to the forward position on the convexed shoe, substantially as described.

2. A chain wrench comprising a suitable handle and head, the latter being provided with a shoe, a chain secured to the wrench in the rear of the shoe and provided with lateral projections, and claws on the wrench-head at the upper side for engaging the free end of the chain, said claws being varied distances apart, substantially as described.

3. A chain wrench having claws for engaging suitable projections on the chain, said claws being spaced varied distances apart, substantially as described.

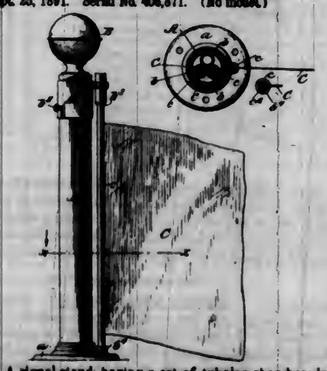


4. A chain wrench having its chain formed with lateral studs and having its head provided with two claws spaced less than half the distance between adjacent chain studs, substantially as described.

5. A chain wrench having a concavity or recess in the rear of its shoe and having its chain formed with lateral studs, and the head of the wrench having two claws separated less than half the distance between adjacent chain studs, substantially as described.

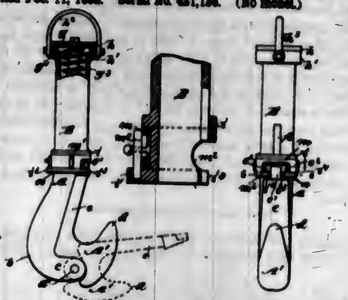
6. A chain wrench having lateral studs on the chain and two claws on the wrench-head spaced apart less than half the distance between the chain studs, and companion claws for the first-named ones spaced therefrom a distance equal to the distance between two adjacent studs, substantially as described.

488,420. SIGNAL AND STAND. GEORGE T. BROWN, Sedalia, Mo. Filed Sept. 25, 1891. Serial No. 406,871. (No model.)



Claim.—A signal-stand having a set of tubular chambers in the same and a socket on its base, in combination with a protecting-cap having a socket and a set of flags adapted to be retained in the stand and displayed from the sockets, substantially as shown and described.

488,421. DAVIT-HOOK. SAMUEL B. BUTLER, New York, N. Y. Filed Feb. 11, 1892. Serial No. 421,136. (No model.)



Claim.—1. In a davit-hook, the combination, with a cylindrical hook-body, an enveloping sleeve wherein the body slides, a washer-plate above within the sleeve, secured to the body and adapted to rest on a shoulder within the sleeve, and a spiral spring on the hook-body, engaging a projection on the sleeve and also with the washer-plate, of a tripping-nose piece pivoted below on a lateral limb of the hook-body, and a locking device for the hook-nose piece, which prevents it from vibration when it is loaded, substantially as described.

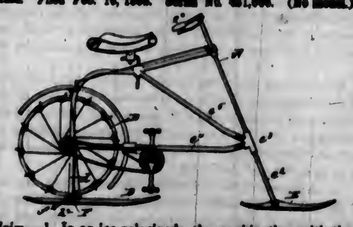
2. In a davit-hook, the combination, with a hook-body that is cylindrical and provided with a bolt extension above and a curved portion below that is flattened forwardly and projected on the forward side to provide a limb below, of a supporting-sleeve having two spaced collars below, apertured between the collars and slotted from the aperture through the lower collar, leaving wings, and a tripping-hook pivoted on the limb of the hook-body, having a weighted nose, and a limb projected upwardly from the hook, having a head above furnished with ears that will interlock with the wings when the hook is loaded, substantially as described.

3. In a davit-hook, the combination, with a sleeve, a locking-ring between collars below, and a slide-bolt that will enter a hole in the lower collar and retain a notch in the ring over an aperture in the sleeve, of a hook-body adapted to slide in the sleeve, a spiral spring thereon which will raise the hook-body to impinge a shoulder thereon against the sleeve below, a swivel-loop above on the sleeve, and a tripping-hook piece pivoted below on the body and provided with a limb having lateral ears above that will lock with wings on the sleeve below its aperture when the hook is loaded, substantially as described.

4. In a davit-hook, the combination, with a supporting-sleeve, a swivel-loop thereon above, a hook-body within passing through a perforated cross-wall of the sleeve, a spring thereon within the sleeve, and a washer-plate above on the hook-body, adapted to rest on a shoulder within the sleeve and limit the depression of the hook-body, of a tripping-hook piece secured pivotally on the bent forwardly-extended limb of the body below, weighted below its nose, and adapted to be detachably locked to the sleeve above, substantially as described.

5. In a davit-hook, the combination, with a hook-body supported to slide in a sleeve and held normally elevated by a spring that engages the sleeve and a plate on the hook-body above, of a weighted hook-nose piece pivoted on a projecting limb of the hook-body near its lower end, a locking device on the sleeve and upper end of the hook-nose piece that will lock the nose-piece from vibration when it is loaded, and a device encircling the sleeve at its lower end, which is adapted to retain the nose-piece in locked connection with the sleeve by its rotatable adjustment, substantially as described.

488,422. ICE-VELOCIPEDE. PHILIP H. GLASS, Northampton, Mass. Filed Feb. 16, 1892. Serial No. 421,666. (No model.)



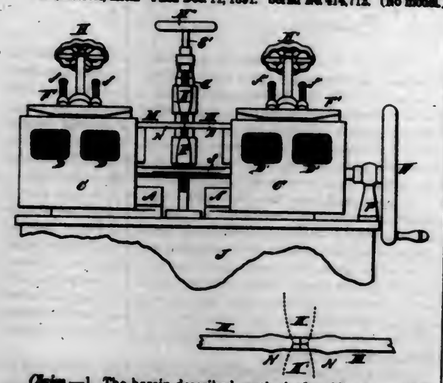
Claim.—1. In an ice-velocipede, the combination, with the frame

and the steering-rod provided at its lower end with a pivoted runner, of the vertical brace-rods provided at their lower ends with a pivoted runner, the wheel provided with a series of pivoted spring-actuated pawls or catches upon each side, and the connection between said wheel and the treadles, substantially as described.

2. The combination, in an ice-velocipede, of the propelling-wheel provided with a series of pawls pivoted to each side thereof and pivoted together intermediate of their ends and the series of flat springs secured at one end of the said wheel and their free ends bearing against the intermediate pivots of the pawls, substantially as described.

3. The combination, with the fork of a velocipede, of the rod G, bifurcated at its upper end, forming two arms g g, provided with straps g^6 g^6, by which it may be secured to said fork, the arm g^6, adapted to engage with the wheel-shaft journaled in the lower ends of said fork, and the runner E, pivoted to the lower end of said rod, substantially as described.

488,423. PROCESS OF ELECTRIC WELDING. CHARLES L. COFFIN, Detroit, Mich. Filed Dec. 11, 1891. Serial No. 414,712. (No model.)



Claim.—1. The herein-described method of welding or working metals electrically, consisting in heating the metal by passing an electric current therethrough, upsetting each of said articles an appreciable distance back from the point of welding and not at the plane of junction, then bringing said articles in contact and passing a heating current therethrough, and then pressing the two articles to be welded together.

2. The herein-described process of welding metals electrically, consisting in first heating the articles to be welded by passing an electric current therethrough, then upsetting each of said articles an appreciable distance back of the place of welding and not at the plane of junction, then pressing said articles together to form a weld, and finally completing the weld by swaging, hammering, &c.

488,424. ELECTRIC METAL-WORKING DEVICE. CHARLES L. COFFIN, Detroit, Mich. Filed Dec. 11, 1891. Serial No. 414,713. (No model.)

Claim.—1. In an apparatus for working metal electrically, a clamp for holding the article to be worked and carrying a die, a movable conductor for applying pressure to the article to be worked when heated, and means for passing a heating-current through said article, substantially as shown and described.

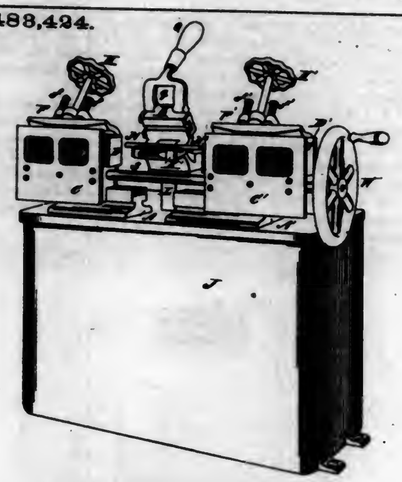
2. In an apparatus for electrically working metal, the combination of two movable conductors, means for forcing said conductors together or apart, a clamp and die located between said conductors, and means for passing an electric current through said conductors and an article held in said clamp, substantially as shown and described.

3. In an apparatus for electrically heating metal by passing heating-currents therethrough, a conductor for making electrical contact with the article to be heated, provided with straight air-draft passages, whereby the conductor is kept cool, substantially as shown and described.

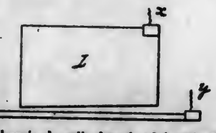
4. In an apparatus for electrically working metal, the combination of the movable blocks C C', the screw-shaft S, perforated conductors D D', secured in said blocks C C', clamp K, K', held in line between said conductors D D', and means for passing an electrical current through said conductors D D' and the work held in clamp K K', substantially as shown and described.

5. In an apparatus for electrically working metal, the combination of movable block C, perforated block D, clamp K K', carrying the die P, and means for passing an electric current through block D, clamp K K', and the article to be heated, substantially as shown and described.

488,424.



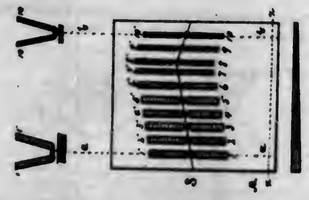
488,425. PROCESS OF ELECTRIC METAL-WELDING. CHARLES L. COFFIN, Detroit, Mich. Filed Jan. 21, 1892. Serial No. 418,811. (No specimens.)



Claim.—1. The herein-described mode of electrically filling a seam in a plate with molten metal, consisting in connecting said plate with one pole of a source of electricity, supporting over said seam a plate of metal with which said seam is to be filled at an angle with said first-named plate, connecting said last-named plate with the other pole of the electric generator, and forming a voltaic arc between said plates.

2. The herein-described process of electrically welding sheets or plates of metal, consisting in connecting said plate with one pole of a source of electricity, supporting over said plate in line with the joint a plate of metal at an angle with said first-named plate, connecting said last-named plate with the other pole of the generator, and forming a voltaic arc between said plates, whereby the joint is progressively heated and supplied with molten metal from the last-named electrode-plate.

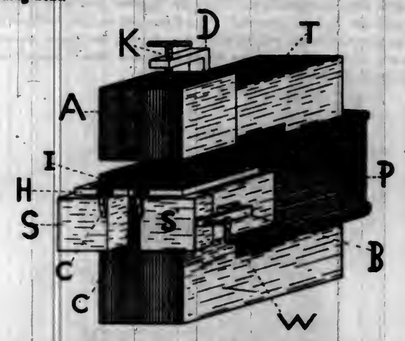
488,426. PROCESS OF ELECTRIC METAL-HEATING. CHARLES L. COFFIN, Detroit, Mich. Filed Jan. 26, 1892. Serial No. 419,336. (No specimens.)



Claim.—The herein-described process of electrically heating metal of varying cross-section, consisting in simultaneously subjecting the metal at different points to the action of separate voltaic arcs, whose heating power varies in approximate proportion to the respective cross-sections of the material at the points to which the arcs are applied.

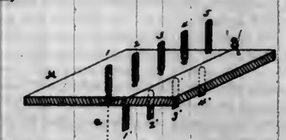
488,427. ELECTRIC METAL-WORKING. CHARLES L. COFFIN, Detroit, Mich. Filed Feb. 6, 1892. Serial No. 420,487. (No specimens.)

Claim.—1. The herein-described process of electrically welding the ends of a continuous piece of metal, consisting in closing a gap in the secondary of a transformer or converter by the ends of the piece to be welded, the said piece of metal lying parallel at all points to said secondary, passing suitable currents through the primary of the transformer, and pressing the ends of the piece together when raised to a welding heat.



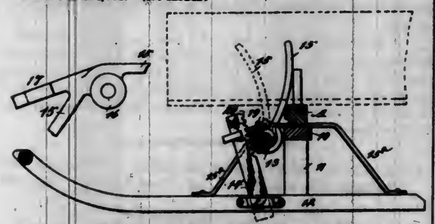
2. An apparatus for electrically welding continuous metal bands, consisting of a converter having a broken secondary and means for inserting the piece to be welded within the core of the transformer, so as to complete said secondary, substantially as shown and described.

488,428. PROCESS OF ELECTRIC METAL-WORKING. CHARLES L. COFFIN, Detroit, Mich. Filed Feb. 8, 1892. Serial No. 420,753. (No specimens.)



Claim.—The herein-described process of heating metal, consisting in subjecting the opposite sides of the metal simultaneously to the action of voltaic arcs alternated in position.

488,429. SLEIGH-BRAKE. DAVID COLLARD, Hope, Idaho, assignor to himself and Joseph M. Jrannot, same place. Filed Mar. 12, 1892. Serial No. 424,672. (No model.)



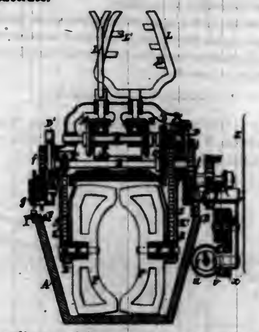
Claim.—1. The combination, with a sleigh the runners of which are provided with sockets upon their inner faces, the walls of said sockets having a rearward inclination, and bearings located upon the runners and brackets, projected forward from the bearings, said brackets being provided with recesses, of a shaft journaled in the bearings and having pinions attached thereto, a lever connected with the shaft, whereby it is rotated, and brake-shoes having a rearward inclination and guided at their upper ends in the recesses of the brackets and at their lower ends in the sockets of the runners, the said shoes being provided with teeth to engage the teeth of the pinions upon the shaft, as and for the purpose specified.

2. The combination, with a sleigh, of the truss-braces 15', provided with the bearings 16 and the recessed brackets 17, the shaft 13, mounted in the bearings and provided with a handle at one end, the pinion 19 on the shaft, and the brake-shoes 14, formed with toothed or rack surfaces 20 and fitted to slide in the said brackets, and brackets 21 on the runners, substantially as described.

488,430. DOUGH KNEADER OR MIXER. ALPHONSE DAGRY, Paris, France, assignor to La Société Dagry & Armand, same place. Filed Sept. 30, 1891. Serial No. 407,205. (No model.)

Claim.—1. In a kneading or mixing apparatus, a movable carriage on the surface of a fixed baker's trough, which carries two devices, one a kneader and the other a puller, mounted in opposite directions on a common frame, capable of oscillating round a shaft serving to transmit the movement to the whole apparatus, and which may be fixed in its two opposite positions in order to allow of these two parts working the paste successively in the whole length of the trough, substantially as described.

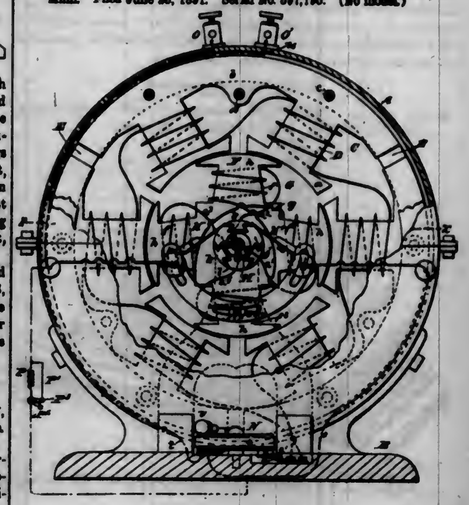
2. In a kneading or mixing apparatus, a kneading device composed of two similar branches, each formed of two shanks or blades twisted in opposite directions in the form of helicoidal spirals, these two branches being mounted parallel on shafts revolving in an opposite direction for the purpose of constantly turning over the dough into which they penetrate.



3. In a kneading or mixing apparatus mounted on a movable carriage on a fixed baker's trough, mechanism for automatically regulating the course of the carriage in accordance with the dimensions of the kneading and pulling devices, and which consists in the combination, with the slide-piece p, regulating the position of the drawing-catches, of a bar b, attached to this slide-piece and having buttressed projections c, separated at irregular distances and placed at different heights, the height of the said bar b above the projections F being regulated by a frame c, which raises more or less a cam a, fixed to the oscillating frame K, as described above and shown.

4. In a kneading or mixing apparatus mounted on a movable carriage on a fixed trough, the combination of a frame, such as K, carrying the kneading and pulling devices and having an arm V, serving to cause it to oscillate around the main shaft E and to hold it in its two opposite positions by means of spring-catches X X, with an intermediate shaft N, revolving in the opposite direction to the shaft E and actuating on the one hand the two branches of the kneader L by means of opposed pinions M and on the other hand one of the branches of the puller P by means of an endless chain, the other branch of this device being actuated by the shaft E, also by means of an endless chain, as described above and shown.

488,431. ELECTRIC MOTOR. WILLIAM M. DENSMORE, Brainerd, Minn. Filed June 23, 1891. Serial No. 397,195. (No model.)

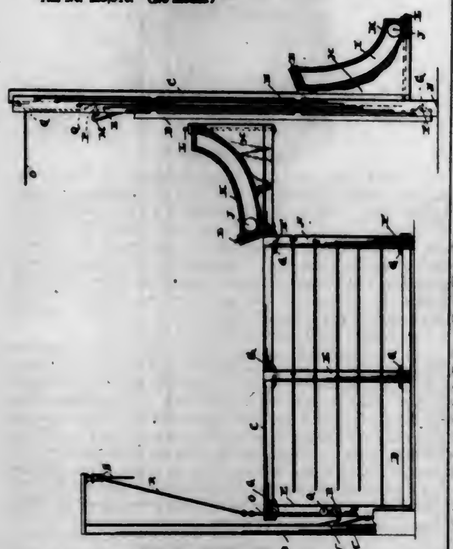


Claim.—1. In an electric motor, the combination of a cylindrical casing, a field-magnet formed of circular segments having the cores and pole-pieces with enlarged extremities formed integrally with the segments, the said segments being provided with inwardly-projecting ears for receiving one of the clamping-bolts, a clamping-ring for holding the circular segments in the position of use, and insulation interposed between the clamping-rings and the cylindrical casing, substantially as specified.

2. In an electric motor, a commutator formed of series of disks or contact-pieces insulated from each other and a series of conductors provided with contact-springs for forming electric contacts with the several disks, substantially as specified.

3. In an electric motor, a current-reversing switch formed of two curved bars, two contact-springs in constant contact with the bars, and two pairs of electric contacts arranged in the path of the curved bars, substantially as specified.

483,482. TILTING GATE. ANDREW J. DOOK, WINFIELD S. SAVIDGE, and GEORGE W. WOLFE, Lewisburg, Pa. Filed Mar. 17, 1892. Serial No. 425,316. (No model.)

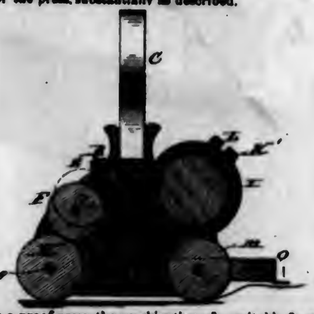


Claim.—In combination, a post, a vertically-tilting gate hinged to said post, and the box H, secured to the upper portion of the gate and located on the opposite side of the post, and provided with the rearwardly and upwardly curved inclosed way T, and the ball-weight in said way, whereby when the gate is raised or lowered the movement of the ball is gradual, substantially as described.

483,488. PROOF-PRESS. NICHOLAS G. DUFFY, Charleston, S. C. Filed May 12, 1892. Serial No. 432,773. (No model.)



Claim.—1. In a proof-press, the combination, with the carriage or frame, of the ink-fount D, mounted on the frame, the ink-distributing roller F, journaled in the frame below the ink-fount, the paper-reel shaft K, also journaled in the frame, the impression-roller M, and the inking-roller H, both journaled in the frame and in such position that the peripheries thereof project below the bottom of the frame, whereby the said inking and impression rollers constitute the sole support and bearing of the press, substantially as described.



2. In a proof-press, the combination of a suitable frame, an ink-distributing roller, and a paper-reel shaft, both journaled in the said frame, with an inking-roller and an impression-roller journaled, respectively, at the front and rear of the frame and at such points that the peripheries of both project below the lowest part of said frame, substantially as described.

3. In a proof-press, the combination, with a frame or carriage mounted on, and supported by an inking-roller and an impression-roller, of an ink-fount arranged above the inking-roller, and an ink-distributing roller journaled in elongated bearing-slots between the ink-fount and the inking-roller, whereby when proof is being taken the distributing-roller will bear on the inking-roller out of contact with the ink-fount and when the carriage is turned over said distributing-roller will rest against the ink-fount out of contact with the printing-roller, substantially as described.

4. In a proof-press, the combination, with a frame or carriage mounted on an inking and an impression roller journaled in the frame at such positions that the peripheries of both project below the bottom of the frame and having a distributing-roller above and normally in contact with the inking-roller, of an ink-fount located above the distributing-roller and consisting of a transversely-arranged trough provided with a sliding gate on its lower and open side, whereby the flow of ink to the distributing-roller may be regulated, substantially as described.

5. In a proof-press consisting of a frame or carriage mounted on and supported solely by an inking-roller and an impression-roller and capable of being tilted upon the fulcrum formed by the impression-roller, and a rectangular frame projecting rearwardly from the proof-press and having a sharpened lip or flange on its lower edge, substantially as described.

483,484. SELF-LOCKING JOB-GALLEY. NICHOLAS G. DUFFY, Charleston, S. C. Filed May 12, 1892. Serial No. 432,780. (No model.)

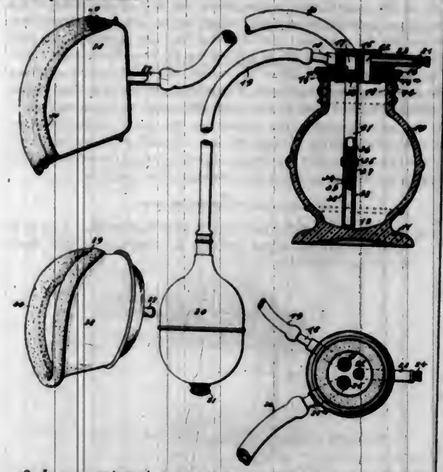


Claim.—1. A self-locking job-galley consisting of the base-plate A, the stationary side ledge B, the stationary head-ledge C, the slotted adjustable side-stick D, the tenoned adjustable foot-stick E, and means, substantially as described, for adjusting and locking up the galley, as set forth.

2. In a printer's galley, the combination, with the base-plate A and the stationary ledges B and C, having the vertical holes *b* and *c* arranged at intervals corresponding to a standard measurement of type, of the adjustable sticks D and E, adapted to intersect each other and provided with holes for the reception of a pin-key and with toe-pieces carrying pins adapted to enter the holes in the stationary ledges, substantially as described.

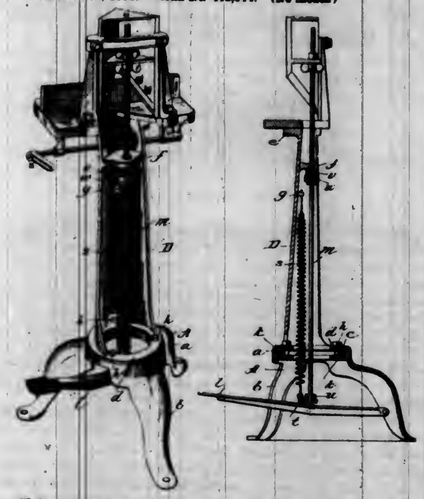
483,485. ATOMIZER. HARLEY M. DUNLAP, Battle Creek, Mich. Filed Dec. 12, 1891. Serial No. 414,709. (No model.)

Claim.—1. In an atomizer, the combination with a bottle, of a head secured in the top thereof, the head having ports opening from the bottle through its sides and adapted to connect with an air-supply bulb, a reservoir of air or other gas, and an inhaler-mask, and a spraying-tube secured in the supply-port and extending downward into the bottle, substantially as described.



2. In an atomizer, the two-part spraying tube having a side opening in the lower member and a hollow coupling connecting the two members, said coupling having a side opening to register with the side opening in the tube, substantially as described.

483,436. MITER-CUTTER. WILLIAM R. FOX, Grand Rapids, Mich. Filed Nov. 18, 1891. Serial No. 412,311. (No model.)



Claim.—1. In a miter-cutting machine having a base, the means for reciprocating the knife-carriage connected with said base and a rotary top supporting the carriage and capable of being rotated upon the base, the said carriage rotating with the said top, whereby it may be adjusted to different positions about the axis of the top, substantially as described.

2. In combination, a base, a column capable of being turned on said base, a cutter-carriage mounted on said column and adjustable therewith, a rod connecting the carriage to the device for operating said carriage, a lug on said column, and an adjustable stop on the connecting-rod, arranged to bear on the lug, substantially as described.

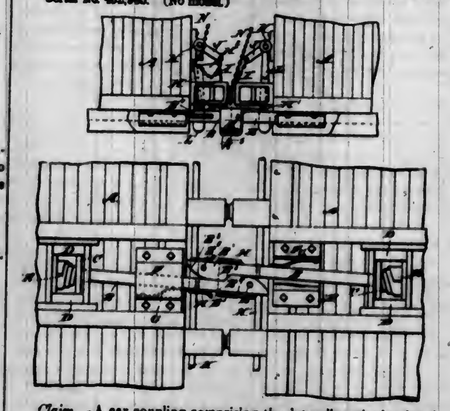
3. In combination with the base having a treadle, the rotatable column and the top having the cutter-carriage, a rod connecting said carriage with the treadle, a swivel on the said rod, and connections between said swivel and the column, arranged to raise the treadle, substantially as described.

4. The gage consisting of the body portion and the face-plate, said body portion having a shoulder 2 at or near its center and the reduced part 4, extending to the end of the gage to form a recess back of the face-plate, which is secured at one end to the shoulder 2 and extends across the reduced part 4, and the adjusting-screws to hold the outer end of the face-plate, substantially as described.

5. In combination with the base having a treadle, a column carrying a cutter, and connections between said treadle and cutter, the said column having an annular lower end bearing upon an annular flange on the base, and means for clamping the two together adjustably, whereby the column with the cutter may be adjusted to different axial positions, substantially as described.

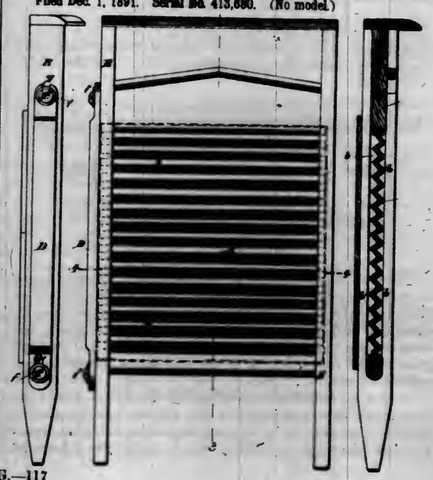
6. In combination, the base, the column arranged to turn on the base, the top, the guideways for the cutter, carried by the top and adjustable axially with the column, the axial rod connected to the treadle, pivoted to the base, and the cutter-carriage connected on its rear side with the axial rod, the said top extending from the column forward of the cutter and carriage, substantially as described.

483,487. CAR-COUPLING. EUGENE GRAFF, Fort Logan, Colo., assignor to himself and Samuel Sutton, same place. Filed May 14, 1892. Serial No. 432,995. (No model.)



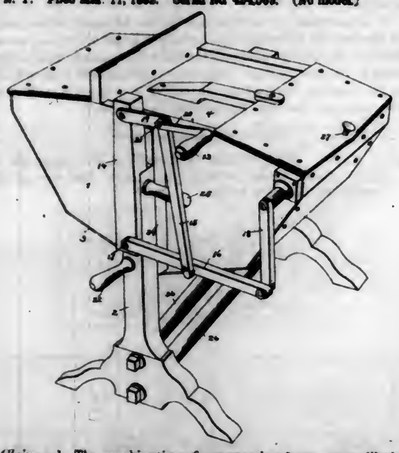
Claim.—A car-coupling comprising the laterally-swinging longitudinally-yielding draw-head, springs G E therefor, the clasp H, pivoted on the draw-head and provided with an eye H^4 and depending sides H^3, flared outwardly, as at H^3, the transverse shaft K, having arms L L and an intermediate arm J, a chain I, connected with eye H^4 and arm J, the lever O for the top of the car, and a chain N, connecting the lever with the clasp, substantially as set forth.

483,438. WASH-BOARD. JOHN C. GEARHART, Williamsport, Pa. Filed Dec. 1, 1891. Serial No. 413,680. (No model.)



Claim.—In wash-boards, the combination of the removable and reversible rubbing-plate A, grooved or corrugated on its opposite sides or faces, the main frame B, adapted to receive laterally through or within it the marginal portions of said plate and having either of its side uprights provided with a through-slot *e* for entry and removal of the plate and the adjustable slide D, opening and closing said slot and provided with a closed slot *g* at its one end and an open slot *f* at its other end, and the pins or screws *f f*, substantially as shown and described.

483,439. WASHING-MACHINE. MARIAN R. GIBBS, Cherry Creek, N. Y. Filed Mar. 11, 1892. Serial No. 424,569. (No model.)



Claim.—1. The combination of a supporting-frame, an oscillating washing-machine body mounted in the same and provided at one end with a laterally-extending journal, a crank-handle pivoted to one side of the frame and having a bar composed of the sections 19 and 20 and a pivot connecting the adjacent ends of the sections, a horizontally-extending lever arranged below the crank-handle and having its inner end fulcrumed on the frame, a connecting-bar 18, extending from the outer end of the lever to the laterally-extending journal, and an upwardly-extending rod 15, having its lower end pivotally connected to the lever at a point between the ends of the latter and having its upper end connected to the pivot of the crank-handle, substantially as described.

2. In a washing-machine, the combination of a frame, an oscillating body journaled on the frame, the steam and water compartments arranged at the ends of the body and at the top of the same, the upper portions having the perforations 6, a series of recesses or buckets arranged beneath each of the upper portions of the compartments and communicating by means of the perforations 6 with the same, and a series of valves arranged on the lower portions of the compartments, substantially as described.

483,440. THILL-COUPLING. HAMILTON GREENLAND and JAMES C. CARRICK, Spivey, Kans. Filed Dec. 31, 1891. Serial No. 416,719. (No model.)



Claim.—1. In a thill-coupling, the combination, with the axle-section having the lateral branch on one of its sides and the laterally-extending stud upon its opposite side, of the coupling-section having the depending branch grooved on its inside to seat the stud of the axle-section and the depending branch adapted to take into the recess formed by the lateral branch of the axle-section, substantially as specified.

2. In a thill-coupling, the combination, with the axle-section having the lateral branch on one of its sides and the laterally-extending stud upon its opposite side, and the coupling-section having the depending branch grooved on its inside to seat the stud of the axle-section, and the depending branch adapted to take into the recess formed by the lateral branch of the axle-section, of the spring fixedly connected at one end and taking through the recess formed by the lateral branch of the axle-section, substantially as specified.

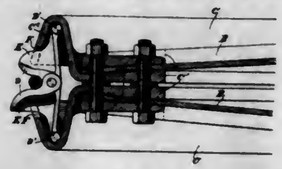
3. The combination, with a vehicle-axle and a pair of thills, of the couplings described respectively comprising the axle-section fixedly connected to the axle, the laterally-extending and rearwardly-pitched branch formed on one side of said section, the laterally-extending stud formed on the opposite side of the section, the coupling-section having the depending branch grooved on its inside, and the depending branch of dovetail form in cross-section adapted to take into the recess formed by the lateral branch of the axle-section, the spring fixedly connected at one end and taking through the recess formed by the lateral branch of the axle-section, and the spring connected to the axle-section and engaging the thill or pole branch, substantially as specified.

483,441. STOVEPIPE COLLAR AND FASTENER. ARTHUR D. GRUBB and CHARLES J. GRUBB, Hamilton, Ill. Filed May 10, 1892. Serial No. 432,438. (No model.)



Claim.—The combination, with a split collar for stovepipes and means for drawing said collar tightly around the pipe, of extended arms provided with suitable brackets at or near their ends and grip-cams pivoted thereto, and clamp-rods bodily movable and held in their adjusted position by said cams, substantially as and for the purpose described.

483,442. GRIP-PULLEY. ANDREW S. HALLIDIE, San Francisco, Cal. Filed Feb. 10, 1892. Serial No. 421,015. (No model.)



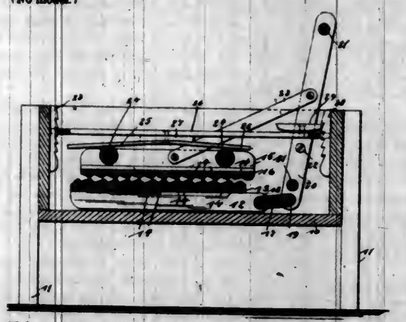
Claim.—1. A pulley consisting of a two-part hub having disks or flanges formed integral therewith and having their outer faces provided with radially-arranged recesses, arms arranged in pairs having their inner ends seated in said recesses and thence converging outwardly toward the pulley-rim, bolts passing through the inner ends of both arms of each pair and through the flanges of the two parts of the hub, an outer rim composed of overlapping segmental plates and having a circumferential groove or channel in its periphery, said rim having the radially-disposed recessed lugs C projecting from its inner face, adapted to receive the outer ends of the arms, and bolts passing through said ends and the lugs, substantially as herein described.

2. A grip-pulley consisting of a two-part hub portion having disks or flanges formed integral therewith, with their outer faces provided with radially-disposed recesses, arms having their inner ends seated in said recesses, and bolts passing through said ends and the disks or flanges of the two-part hub, thereby securing the arms in pairs and the two parts of the hub to each other, an exterior rim composed of opposed overlapping segments bolted together and having a circumferential groove or channel in its periphery, said segments having transverse slots formed in them, the gripping-jaws mounted in pairs within the peripheral groove or channel of the rim and projecting through the same and having arms located within the rim, and webs E, working in said transverse slots and retained against side movement thereby, substantially as herein described.

3. A grip-pulley consisting of a two-part hub having the radially-disposed recessed disks or flanges, arms seated in the recesses of the disks or flanges and converging toward the rim of the pulley, bolts passing through the inner ends of the arms and the disks or flanges of the hub, thereby securing said arms and clamping the two parts of the hub together, an exterior rim composed of opposed overlapping segments bolted together and forming the groove or channel C^9 between

their adjoining outer edges, said edges having slots made transversely in them, the gripping-jaws located within said groove or channel and hinged together in pairs at their meeting angles and provided with arms D', projecting at right angles with the jaws and lying loosely within the channel in the rim, said jaws having webs passing through said transverse slots and connecting the jaws with the arms, substantially as herein described.

483,443. WASHING-MACHINE. JOHN P. HALLSTEN and CHARLES J. ANDERSON, Rock Island, Ill. Filed Apr. 22, 1892. Serial No. 430,194. (No model.)



Claim.—1. A washing-machine comprising the tub having transversely-toothed ends and the reciprocating upper rubber, a lower rubbing-surface, the bar engaging at one end one set of teeth, provided with a locking-button at its other end to engage the other set of teeth, and a spring-plate on the under side of the bar and bearing down on the upper rubber, substantially as set forth.

2. The combination, with the tub and its reciprocating upper rubber provided at opposite sides of its center with transverse rollers, of a vertically-adjustable bar and a longitudinally-extending spring secured at its middle to the under side of said bar and bearing at opposite sides of its center upon said rollers, substantially as set forth.

3. The combination, with a tub having toothed cleats therein and reciprocating rubbing-boards the upper of which has rollers on its upper side, of a bar held between the toothed cleats and a spring plate secured to the under side of the bar and held to press upon the rollers, substantially as described.

483,444. AXLE. JOHN HERBY, Jamestown, N. Y. Filed Jan. 2, 1892. Serial No. 416,829. (No model.)



Claim.—1. The combination of an axle having grooves formed in its body near the ends and extending from points near the bases of the spindles toward the outer ends of said spindles, but terminating short of said ends, and independent plates secured to the axle and having vertical flanges fitting said grooves, whereby the axle is strengthened, substantially as herein described.

2. The combination of an axle having deep narrow grooves formed in its under sides between the bases of the spindles and points inside of the outer ends of said spindles and independent plates having horizontal flanges by which they are secured to the axle and vertical flanges adapted to enter said grooves edgewise, thereby strengthening said axle, substantially as herein described.

3. An axle having grooves formed therein and extending from points near the bases of the spindles toward the outer ends thereof but terminating short of said ends, in combination with independent plates secured to the axle near said bases, having outwardly-extending flanges adapted to enter said grooves edgewise, substantially as and for the purpose herein described.

4. An axle having grooves formed therein and extending from points near the bases of the spindles to points near the outer ends thereof and having their upper end walls curved, in combination with independent plates having horizontal portions by which they are fitted to the axle and vertical flanges adapted to enter said grooves and provided with rounded or curved ends, substantially as herein described.

483,445. GUARD-GATE FOR DRAWBRIDGES. WILLIAM HENRICK, Russell, Minn. Filed Oct. 31, 1891. Serial No. 410,457. (No model.)

Claim.—1. In a bridge-guard, the combination of the draw provided with a cam edge at its end, the horizontally-swinging gate, a gate-post, gearing whereby the gate is automatically operated by the movements of said draw, an automatic vertically-movable gravity-lock for said gate at said gate-post, and a system of levers, one of which is weighted, operated by said edge of the draw to control said lock, as set forth.



2. In a bridge-guard, the combination of the draw having projections and the cam edge, the vertical shaft carrying the swinging gate, the sprocket-wheel on said shaft, the two vertical shafts on opposite sides of the end of the bridge, provided with sprocket-wheels, a sprocket-chain connecting all of said shafts, substantially as described, so that the gate can be operated from either shaft, the double fingers on each of said shafts at the end of the bridge to respectively engage a projection of the draw, a lock for said gate, and the levers controlling said lock and operated by said edge of the draw, substantially as described.

3. In a bridge-guard, the combination of a vertical shaft carrying the swinging gate, a sprocket-wheel on said shaft, two shafts at opposite sides of the edge of the approach, carrying sprocket-wheels, a sprocket-chain uniting said sprocket-wheels, substantially as described, the double fingers on said last-mentioned shafts, and the draw having means to engage and swing said projections, in the manner substantially as described.

4. In a drawbridge-guard, the operating-shafts on opposite sides of the end of the approach, the gate-shaft carrying the horizontally-swinging gate, gearing connecting said shafts, so that the gate-shaft will be swung by either of said operating-shafts, as described, the double fingers rigid with said operating-shafts, the fingers on each shaft located in different planes, and the draw provided with vertical projections in different planes projecting into the path of said fingers, substantially as described.

5. In a bridge-guard, the swinging gate, operating mechanism therefor controlled by the draw, the draw having a cam edge, a gate-post, the vertically-movable vertical rod having the lock in its upper end to hold the gate closed, a swinging lever and counterweight mechanism for said lock, and a controlling-lever therefor having one arm held in engagement with said edge to operate the lock, as described.

483,446. INK. CHARLES M. HIGGINS, Brooklyn, N. Y. Filed Jan. 23, 1892. Serial No. 418,966. (No specimens.) Patented in England Jan. 2, 1892, No. 93; in France Jan. 6, 1892, No. 218,495, and in Belgium Jan. 7, 1892, No. 97,830.

Claim.—1. A fluid oily ink for stamping, printing, or other purpose, formed of a color-solvent, a coloring-matter dissolved thereby, and castor-oil combined therewith, substantially as herein set forth.

2. An oily ink composed of oil of cassia, a coloring-matter dissolved thereby, and castor-oil combined therewith, substantially as and for the purpose set forth.

3. An oily ink composed of an aniline color, oil of cassia, and castor-oil, combined substantially as herein set forth.

483,447. INK. CHARLES M. HIGGINS, Brooklyn, N. Y. Filed Feb. 19, 1892. Serial No. 422,119. (No specimens.) Patented in England Jan. 2, 1892, No. 93; in France Jan. 6, 1892, No. 218,495, and in Belgium Jan. 7, 1892, No. 97,830.

Claim.—1. A printing or stamping ink composed of a substantially-fixed oil or fat combined with pure carbolic acid and a coloring-matter, substantially as herein set forth.

2. A printing or stamping ink composed of pure carbolic acid combined with a fixed or nearly fixed oil and an aniline color dissolved therein, substantially as herein set forth.

3. A printing or stamping ink composed of carbolic acid, castor-oil, and a coloring-matter, substantially as herein specified.

4. A vehicle for oily inks, consisting of castor-oil, an essential oil, and carbolic acid, substantially as herein set forth.

5. A vehicle for oily inks, consisting of castor-oil, oil of cassia and carbolic acid, substantially as herein specified.

6. A printing or stamping ink composed of castor-oil, oil of cassia, carbolic acid, and an aniline color dissolved therein, substantially as herein set forth.

483,448. LAMP-HANGER. CHARLES R. HILLIARD, Big Run, Pa. Filed Apr. 23, 1892. Serial No. 430,393. (No model.)

Claim.—1. In a lamp-hanger, the combination, with the shield, of a shank pivoted thereto and extending in a vertical line with the shield and having at its lower end a horizontal circular body portion,

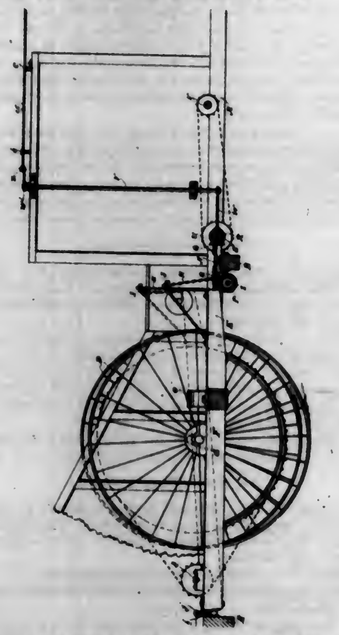
the lamp mounted on the body, and means attached to the body to secure the lamp thereon, whereby the bracket, with the lamp, is adapted to hang vertically, substantially as and for the purposes specified.

2. In a lamp-hanger, substantially as described, the combination, with the shield, of the swinging bracket comprising the shank pivotally connected to the shield, the body, the spring-ears extending upwardly from the body and adapted to clasp the lower ends of a lamp, and the ear extending up from the body and adapted to embrace the spout of a lamp, substantially as specified.



3. In a lamp hanger, substantially as described, the combination, with the shield adapted to be attached to a hat or cap and having a segmental guard upon its inner side, of the swinging bracket comprising the shank pivotally connected to the shield, the body, the spring-ears extending upwardly from the body and adapted to clasp the lower end of a lamp, and the ear extending up from the body and adapted to embrace the spout of a lamp, substantially as specified.

483,449. TRAVELING HARVESTER. BENJAMIN HOLT, Stockton, Cal. Filed Apr. 25, 1892. Serial No. 430,606. (No model.)



Claim.—1. The hinged frames within the main frame of the machine and carrying the main supporting-wheels, and mechanism connecting said frames to move one of them simultaneously with and in a vertical direction opposite to the other wheel-frame, whereby the said hinged frames may be adjusted to the surface of the ground without affecting the normal horizontal position of the main frame.

2. In a traveling harvester and in combination with its main frame for supporting the thrashing and cleaning mechanisms, the wheel-frames located within opposite sides of the main frame and carrying the main supporting-wheels, said wheel-frames being movable simultaneously in opposite vertical directions without changing the normal horizontal position of the main frame, substantially as herein described.

3. In a traveling harvester, a main frame adapted to support the thrashing and cleaning mechanisms, the wheel-frames adjustably connected with the main frame and having the main wheels upon opposite sides journaled in them, and mechanism connecting said wheel-frames with each other, whereby said frames may be simultaneously moved in opposite vertical directions without changing the normal horizontal position of the main frame, substantially as herein described.

4. In a traveling harvester and in combination with its main frame, vertically-adjustable frames carrying the main supporting-wheels and means connecting with the wheel-frames and moving them simultaneously in opposite vertical directions, whereby the main frame is maintained in an approximately horizontal position.

5. In a traveling harvester, a main frame upon which the thrashing and cleaning machinery are supported, supplemental side frames hinged at one end to the main frame, so that the opposite ends swing in vertical planes with relation to the main frame, bearing-wheels journaled in the supplemental movable frames independently of each other, chains connected with the movable ends of the wheel-frames, and a transverse shaft having winding-drums fixed upon it about which the chains are reversely coiled and uncoiled, whereby the wheel-frames are elevated or depressed simultaneously and in opposite directions, substantially as herein described.

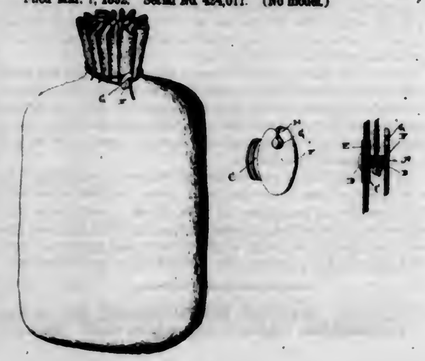
6. In a traveling harvester, the main frame, the supplemental wheel-frames hinged to the main frame so as to move in vertical planes with relation thereto, chains connected with the free ends of the hinged frames, a shaft or shafts extending transversely across the main frame and journaled thereon, and winding-drums fixed to said shafts upon which the chains connecting with the wheel-frame upon one side are coiled, while those upon the other side are simultaneously uncoiled, whereby one wheel-frame is raised and the other depressed with relation to the main frame, substantially as herein described.

7. In a traveling harvester, a main frame, supplemental wheel-frames independently hinged to the main frame, a horizontal shaft extending transversely across the main frame, having winding-drums upon its outer ends, chains connected with the wheel-frames and winding upon the drums upon opposite sides of the shaft, so that one wheel-frame will be raised and the other simultaneously depressed by the rotation of the pinion-shaft, mechanism whereby said shaft is rotated, consisting of a transverse shaft, a worm-wheel upon the pinion-shaft, a bevel-gear Q upon a worm-shaft, and bevel-pinions upon a supplemental shaft R, engaging opposite sides of the gear-wheel, and a clutch T, sliding upon a feather upon said shaft intermediate between the pinions and movable so as to engage either of the pinions and cause the worm-shaft to be revolved in either direction, substantially as herein described.

8. In a traveling harvester, the main frame, the independent wheel-frames, hinged thereto upon opposite sides of the machine, chains connected with said wheel-frames, a shaft extending across the main frame, and winding-drums thereon upon which the chains coil and uncoil, so that the rotation of the shaft will simultaneously raise one of the wheel-frames and depress the other, a worm-gear, the counter-shaft R, the bevel-wheel Q, pinions S and S', and clutch T, levers W' *a*, and connecting-link Z, whereby the mechanism is moved so as to engage the clutch with either of the pinions to reverse the pinion-shaft, substantially as herein described.

9. In a traveling harvester, the main frame having the thrashing and cleaning machinery supported thereon, independent wheel-frames hinged thereto upon opposite sides so as to move in vertical planes with relation to the main frame, and mechanism whereby said wheel-frames are moved in opposite directions and the main frame maintained in a horizontal position, in combination with the header-frame, the outer end of which is supported upon an independent bearing-wheel, the front timber *o* of said frame being connected with the movable wheel-frame near the wheel-axle and the rear timber hinged to the main frame, substantially as herein described.

488,450. BAG-FASTENER. BRADFORD L. HUBBET, Parma, Mich. Filed Mar. 7, 1892. Serial No. 424,011. (No model.)



Claim.—1. The combination of a perforated shank, a string which is extended through the perforation of the shank, a stop on the portion of the string thus extended to prevent its withdrawal, and a head secured to the shank, to which the free end of the string is adapted to be secured, substantially as shown and described.

2. The combination of a perforated shank, a string which is extended through the perforation and knotted, and a slotted head on the outer end of the shank, to which the free end of the string is adapted to be secured, substantially as shown and described.

3. In a bag-tie, the combination of a shank having a tie-string secured thereto, a shoulder at the lower end of the shank, and a slotted head at its upper end, a rivet projecting from said shoulder, which secures the shank in place, substantially as shown and described.

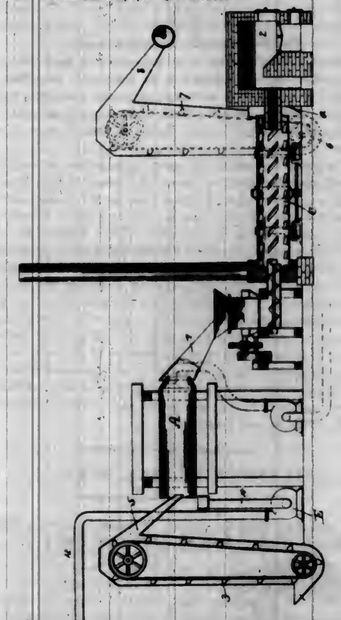
4. In a bag-tie, the combination of a shank having a tie-string secured thereto and a head made integral with the shank, having an opening, and also a slot leading from said opening to the edge of the head, substantially as shown and described.

5. In a bag-tie, the combination of a shank having a tie-string secured thereto, a slotted head at the outer end of the shank, a rivet at its opposite end, which projects through the bag side, and caps on said rivet on opposite sides of the bag, substantially as shown and described.

488,451. WATERPROOF COMPOSITION. SYLVESTER HUFF, Wabash, Ind. Filed June 11, 1891. Serial No. 396,846. (No specimens.)

Claim.—The herein-described waterproofing compound, composed of raw linseed-oil, one gallon; resin, eight ounces; sugar of lead, four ounces, and lamp-black two ounces, mixed in about these proportions, substantially as described.

488,452. APPARATUS FOR TREATING PHOSPHATE ROCK. SAMUEL HOGUES and WILLIAM R. CHISOLM, Charleston, S. C. Filed Apr. 4, 1891. Serial No. 387,684. (No model.)



Claim.—1. The combination, with a washer so constructed and arranged that it will receive the material to be washed and the washing material, of a drier forming the body of a furnace, the heating portion being located at one end and the flue at the opposite end, said drier adapted to conduct the material from one end to the other in direct contact with the drying-blast, substantially as set forth.

2. The combination, with a washer, means for supplying water thereto, and a pump into which the water and débris are emptied, of a drier into which the washed material is fed in direct contact with a drying-blast, substantially as set forth.

3. The combination, with a washer so constructed and arranged that it will receive the material to be washed and the washing material, of a crusher into which the washed material is discharged and a drier forming the body of a furnace, the heating portion being located at one end and the flue at the opposite end, this drier adapted to conduct material from one end to the other in direct contact with the drying-blast, substantially as set forth.

488,453. PACKAGE OF MARKING MATERIAL. ELLWOOD C. HUFF, New York, N. Y. Filed Dec. 31, 1891. Serial No. 416,068. (No model.)



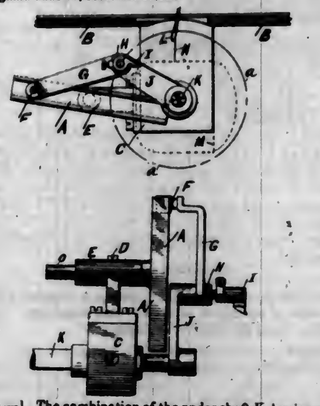
Claim.—1. In a package of marking material, the combination, with the case formed in two parts, of the independent type-block having seats in both sections and carrying type or characters on its opposite faces, substantially as described.

2. In a package of marking material, the combination, with the case formed in two parts, of the independent type-block having the tapered plug fitting in one section and the screw-threaded extension fitting in the other section and the type on opposite faces of said block, substantially as described.

3. In a package of marking material, the combination, with the case formed in two parts, each having a concavity in its abutting face, of the type-block seating in both concavities, the seat in one being screw-threaded, and the bottle for marking material in one concavity retained in place by the block, substantially as described.

4. In a package of marking material, the combination, with the bottle-shaped case formed in two parts, the upper section having a concavity in each end and the bottom section a concavity in the top, of the plug carrying a brush fitting in the top of the upper section, the type-block fitting in the concavities of both sections at the center, the type on said blocks, and the bottle of marking substance in the lower section, substantially as described.

488,454. SEWING-MACHINE. CHARLES R. HUNT, London, England. Filed July 25, 1892. Serial No. 441,196. (No model.) Patented in England June 11, 1892. No. 11,089.

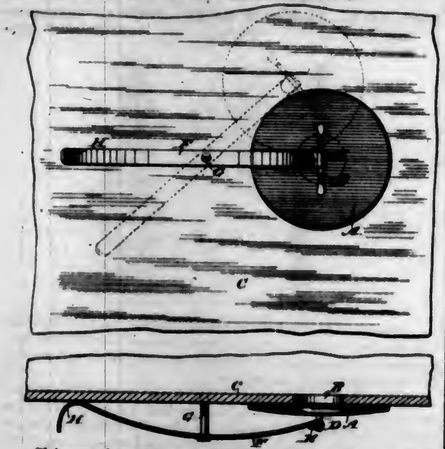


Claim.—1. The combination of the under shaft K, having a crank-arm J, the inclined guide-bar A, the looper I, having a stem axially rotatable in the crank-arm, and a link G, connected at one end with the looper-stem and having at its opposite end a sliding engagement with the inclined guide-bar for rocking the looper, substantially as described.

2. The combination of a bed-plate B, having a pendent bracket C, provided with a socket or bearing E, an under shaft K, having a crank-arm J and journaled in the bracket, an inclined guide-bar A, supported by the socket or bearing, a looper I, having a stem axially rotatable in the crank-arm, and a link G, connected at one end with the looper-stem

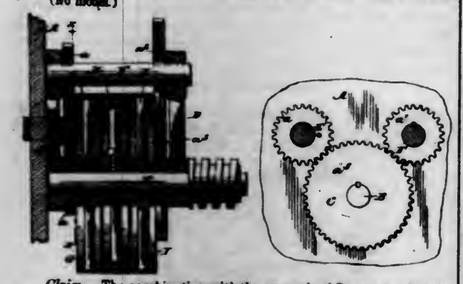
and having at its opposite end a stud or roller adapted to traverse the guide-bar for rocking the looper, substantially as described.

483,455. FLUME-GATE. STEPHEN M. IRVIN, San Bernardino, Cal. Filed Dec. 26, 1891. Serial No. 416,188. (No model.)



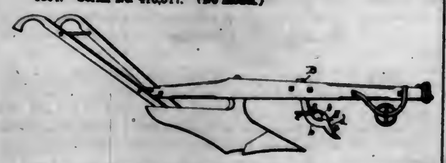
Claim.—A flume-gate comprising a cap adapted to close an opening in the flume and a lever pivotally connected with the said cap and pivoted on the flume, the said lever being made in the form of a spring, one end of which is connected with the cap and the other end pressing on the flume, substantially as shown and described.

483,456. REVERSING MECHANISM FOR ROTARY MACHINES. JOHN G. JOHNSON, Chester, Pa. Filed May 18, 1892. Serial No. 433,452. (No model.)



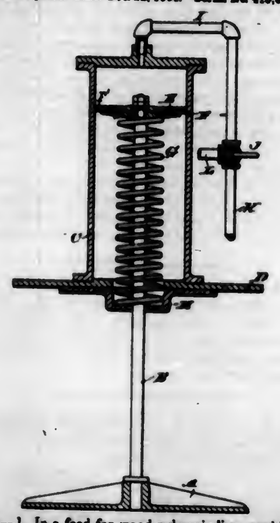
Claim.—The combination, with the gear-wheel C, connected to the rotating shaft to be reversed, of the shaft E, having a tight pulley H in the middle and loose pulleys G and I upon opposite sides thereof, the pulley G having a rigid pinion a in gear with wheel C and the pulley I having a rigid gear-wheel a^2, and the shaft F, having at one end the rigid pinion a' in gear with the wheel C and at the other end the rigid gear-wheel a^3, meshing with the gear a^2, substantially as shown and described.

483,457. PLOW-COLTER. GEORGE A. LAMBERT, Orrington, Me., assignor of one-half to Arthur A. Young, same place. Filed Oct. 30, 1891. Serial No. 410,317. (No model.)



Claim.—A plow-colter consisting of a shank portion attached to the rear of the cutting-blade, said blade having a downwardly and forwardly projecting cutting-point and being deflected laterally and rearwardly above its connection with the shank, its extreme rear portion being twisted to form a spiral and extending toward the rear of the shank in a substantially-horizontal direction and having a sharp front edge, substantially as and for the purpose specified.

483,458. FEED FOR PULP-GRINDING MACHINES. ALBERT H. LEFEBVRE, Watertown, N. Y., assignor to the Harmon Machine Company, same place. Filed Dec. 23, 1891. Serial No. 415,866. (No model.)



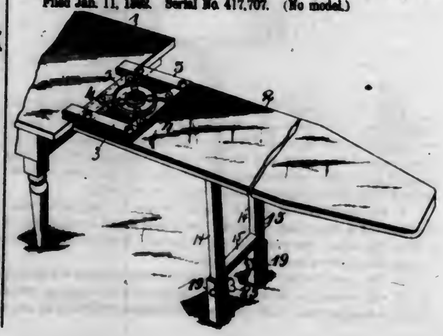
Claim.—1. In a feed for wood pulp-grinding machines, the combination, with a cylinder adapted to be alternately connected with a supply and an overflow or discharge, of a piston carrying a follower and fitted to slide in the said cylinder and a spring pressing on the said piston opposite the inlet in the cylinder, substantially as shown and described.

2. In a feed for wood-pulp-grinding machines, the combination, with a cylinder adapted to be alternately connected with a supply and an overflow or discharge, of a piston fitted to slide in the said cylinder and provided with a flexible packing having a flange extending along the wall of the cylinder in opposition to the pressure of the water entering the cylinder at one end thereof and a spring pressing on the said piston opposite the inlet in the cylinder, substantially as described.

3. In a feed for wood-pulp-grinding machines, the combination, with a cylinder, of a pipe leading into one end thereof, a three-way valve for alternately connecting the said pipe with a water-supply and a discharge, a piston fitted to slide in the said cylinder and adapted to be forced in one direction by the pressure of the water-supply, and a spring pressing on the said piston in an opposite direction to the water-supply, so as to return the piston to a normal position, and a piston-rod attached to the said piston and carrying a follower, substantially as shown and described.

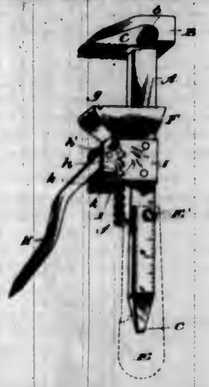
483,459. WITHDRAWN.

483,460. IRONING-TABLE. WILLIAM G. LINDSAY, Antigo, Wis. Filed Jan. 11, 1892. Serial No. 417,707. (No model.)



Claim.—As an improvement in ironing-tables of the class described, the combination, with the ironing-board, of longitudinal pieces 3, secured to the top thereof at one end and projecting beyond the latter, transverse pieces 4, connecting said pieces 3, an iron-stand 5, secured to the pieces 4 and bracing the same, and means for binding the projecting ends of the pieces 3 upon a table or other support, substantially as and for the purpose set forth.

483,461. WRENCH. JOHN A. LUTZ, Ham's Prairie, Mo. Filed June 4, 1892. Serial No. 435,483. (No model.)



Claim.—1. A combination-tool embodying in the one device a nut-wrench, a pipe wrench, a hammer formed by the fixed jaw of the wrench, a nail-puller formed on the movable jaw, a screw-driver, and a rule formed on the shank of the fixed jaw of the wrench, a wire-cutter, calipers, a nut-cracker, and a try-square, all constructed and arranged relatively to each other as set forth.

2. The combination, with the shank and its fixed jaw, of the movable jaw sleeved on said shank and provided with a rack-bar, the plates fixed on the shank and provided with notches to serve as a wire-cutter, and a lever pivoted between said plates and having a toothed cam-head engaging said rack-bar and acting, in conjunction with the said notches, to form the wire-cutter, as set forth.

483,462. VEST AND DRAWERS HOLDER. ALBERT LOETTE, Corsicana, Tex. Filed June 4, 1892. Serial No. 435,574. (No model.)

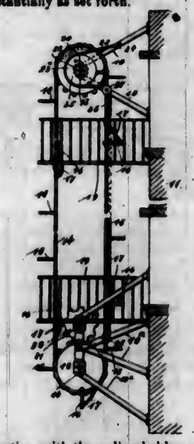


Claim.—1. As an improved article of manufacture, the vest and drawers holder herein described, consisting of the main bar A, having the arm B bent downward from its upper end and provided with a clasp C for connecting with the drawers, the main bar being also provided near its upper and lower ends with safety-pins for connection with the vest, all substantially as and for the purpose set forth.

2. The vest and drawers holder herein described, consisting of the main bar A, provided near its upper and lower ends with fastening devices and having an arm B bent downward from the upper end of and deflected to one side of the said main bar and provided at the extremity of said arm B with a clasp, as C, all substantially as and for the purposes set forth.

483,463. FIRE-ESCAPE. PATRICK LYNCH, Jr., Superior, Wis. Filed Apr. 9, 1892. Serial No. 428,590. (No model.)

Claim.—1. A fire-escape comprising the upper and lower brackets 10 10^a, the shaft 12, journaled in the upper brackets and provided with two sprocket-wheels 13, a brake-pulley 23^a at one end, and a ratchet-wheel 29 at the opposite end, the pawl 30, engaging said ratchet, the brake-strap passing around said pulley, a rope leading therefrom over a guide-pulley down to one of the lower brackets, a shaft 28, on which the lower end of the rope is wound, the two lower sprockets mounted on a shaft journaled on the lower brackets, the endless ladder mounted on the upper and lower sprockets, and the two gear-wheels meshing with the lower sprockets and having an operating-shaft, substantially as set forth.



2. The combination, with the endless ladder and the steps thereon, of the bail shaped and outwardly-extending guards secured to the ladder above the steps, substantially as described.

483,464. CIGAR-LIGHTER. FRANK MICHL, New York, N. Y. Filed Oct. 4, 1888. Serial No. 287,232. (No model.)

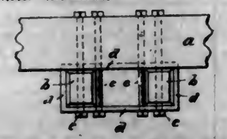


Claim.—1. A lighter comprising two connected parallel tubes or cylinders open at their ends, a bottle within one cylinder, provided with a stopper having a needle, and a cord or wick passing into the other tube, and means for withdrawing the said cord or wick, substantially as set forth.

2. A lighter comprising two tubes or cylinders open at their ends and an intervening plate connecting the same and integral therewith, a cord or wick movable through one of the tubes, a head or stopper for said cylinder provided with a chain connected to the cord or wick, and a bottle in the other tube or cylinder, having a stopper provided with a needle, substantially as set forth.

3. A lighter comprising two connected parallel open-ended tubes or cylinders, a cord or wick in one tube, a head or stopper connected with the cord or wick to close said tube, a bottle in the other cylinder, containing a finely-comminuted igniting-paste, and a stopper for the bottle, having a needle for withdrawing a portion of said paste and rubbing it on the cord or wick to ignite the same, substantially as set forth.

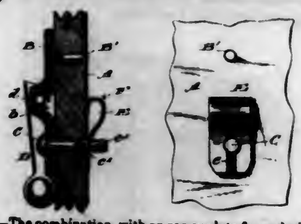
483,465. CARRIER-IRON FOR DRAW-BARS. WILLIAM D. MINTON and ALEXANDER S. DOUGLAS, Marshall, Tex. Filed June 22, 1892. Serial No. 437,616. (No model.)



Claim.—The combination, in a car, of the draft-timbers, the draw-bar between the same, and the loop-shaped carrier-iron in one piece embracing said timbers and passing above and below and supporting the

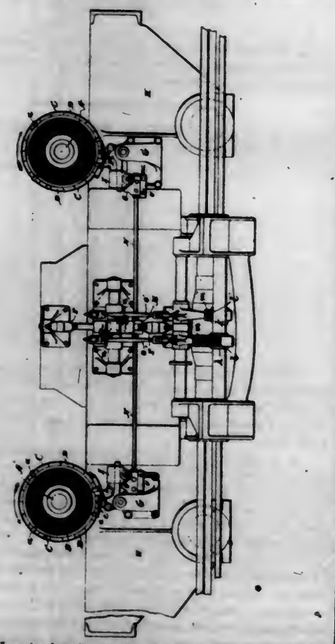
draw-bar and secured to said timbers by bolts, whereby said iron is reversible, substantially as described, and prevents the timbers spreading.

483,466. HANDLE. DAVID A. MOORE, Guthrieville, and HARRY C. MOORE, Berwyn, Pa. Filed Mar. 21, 1892. Serial No. 425,839. (No model.)



Claim.—The combination, with an ear or plate formed with socket for the handle-pintles and dowel-pin, of a pin having a notched inner end and a spring-plate bent upon itself and having slotted end to embrace the notched end of the pin and having a notch at its bend and a pin engaging said notch, substantially as specified.

483,467. BRAKE FOR DRUMS OF OVERHEAD TRAVELING CRANES. JOHN R. MORGAN, Alliance, Ohio, assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and William H. Morgan, all of same place. Filed July 6, 1891. Serial No. 398,633. (No model.)



Claim.—1. In a brake, the combination, with a brake-wheel and a strap or band embracing the same, of a bell-crank lever provided at its elbow with a bore greater in diameter than the axis on which said lever is mounted, a cylindrical axle for said bore, a weight on one arm of said lever, and means connecting the two ends of the brake-strap to the other arm, substantially as set forth.

2. In a brake, the combination, with a brake-wheel and a strap or band embracing the same, of a bell-crank lever, means connecting the two ends of the strap or band to one arm of the bell-crank lever, a weight secured to the other arm of said lever, and a movable incline for elevating and lowering the weight.

3. In a brake, the combination, with a brake wheel, a brake-strap embracing the same, and shoes attached to the inner faces of the strap or band and resting against the periphery of the wheel, of a bell-crank lever one arm of which is attached to both ends of the strap or band, a weight carried by the other arm of said bell-crank lever, and a movable incline elevating and lowering said weight, substantially as set forth.

4. In a brake, the combination, with a wheel and a band or strap surrounding the same, of a bell-crank lever one arm of which is connected to both ends of the strap or band, a weight on the other arm of said lever, a movable incline for elevating and lowering the weighted arm, and means actuated by the devices which actuate the reversing-clutches for moving or actuating the said incline and thereby elevating or lowering the weighted arm, substantially as set forth.

5. The combination, with two wheels and a band or strap surrounding each wheel, of a bell-crank lever for each strap, one arm of each lever being connected to both ends of its respective strap, a weight on the opposite end of each lever, and means common to both levers, whereby they are caused to act simultaneously, substantially as set forth.

6. The combination, with two wheels and a band or strap surrounding each wheel, of a bell-crank lever for each strap, one arm of each lever being connected to both ends of its respective strap, a weight on the other arm of each lever, inclines for elevating said weighted arm, and means connecting said inclines, whereby they are caused to move simultaneously, substantially as set forth.

483,468. HAND-BINDER. ARTHUR MORRIS, Rockefeller, Ill. Filed Jan. 21, 1892. Serial No. 418,756. (No model.)



Claim.—1. In a hand-binder, the combination, with a guide-plate adapted to be held in the left hand, said plate being provided with a recess at its forward end and a clamping device, of a gripping implement adapted to be carried in the right hand, the said implement being of a pincher-like pattern, comprising spring-pressed handles pivotally connected and concentrically-curved beaks at one end of the handles, substantially as and for the purpose specified.

2. In a hand-binder, the combination, with a guide-plate adapted to be held in one hand, the said guide-plate being provided with a loop for the reception of the hand, a guide recess at one end, and a clamping device intermediate of its ends, of a gripping implement of pincher-like pattern, comprising spring-pressed handles pivotally connected, concentrically-curved beaks at one end of the handles, and a cutting device attached to the pincher-like implement, the latter being adapted to be operated in conjunction with the guide implement, substantially as and for the purpose set forth.

3. In a hand-binder, the combination, with a guide-plate provided at one end with a guide-recess and having a clamping device attached intermediate of its length, of an implement comprising spring-pressed handles terminating at one end in concentrically-curved beaks, this latter implement being provided with a guide through which the tying band or cord is to be passed, substantially as and for the purpose specified.

4. In a hand-binder, the combination, with a guide-plate provided with a clamping device, of a pincher-like implement comprising handles pivotally connected, concentrically-curved beaks located at one end of the handles, and a guide-aperture for the reception of the cord or other material employed in tying, substantially as and for the purpose set forth.

5. In a hand-binder, an implement adapted to be carried in the right hand and to be used in connection with a guide-plate, consisting of handles pivotally connected and terminating at one end in concentrically-curved beaks, the handles being spring pressed, a guide ring or eye connected with one of the handles, and a knife also connected with the handles, substantially as and for the purpose set forth.

483,469. BUTTON-EXHIBITOR. SAMUEL T. MOSHER, Abingdon, Ill. Filed Apr. 2, 1892. Serial No. 428,240. (No model.)

Claim.—1. In a button-exhibitor, the combination, with a revolubie cylinder, of button-carrying brackets detachably secured to the cylinder, substantially as described.

2. In a button-exhibitor, the combination, with a revoluble perforated cylinder, of button-carrying brackets provided with hooks engaging the perforations of the cylinder to hold the brackets thereto, substantially as described.

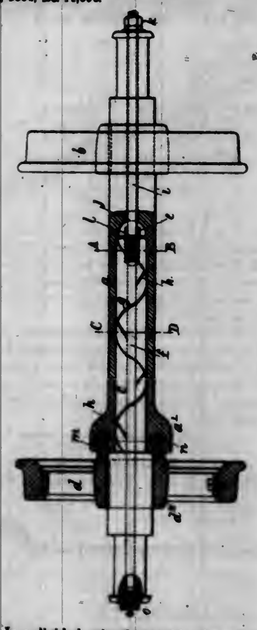
3. A button-exhibitor comprising a case, a screen-covered cylinder mounted to revolve in the case, and a series of button-carrying brackets provided with hooks engaging the meshes of the cylinder to hold the brackets thereto, substantially as described.

4. A button-exhibitor comprising a transparent case, a screen-covered cylinder mounted to revolve in the case, and a series of button-carrying brackets provided with hooks engaging the meshes of the screen of the cylinder and with depending portions bearing against the said screen, substantially as herein shown and described.



5. In a button-exhibitor, the combination, with a screen-covered cylinder mounted to revolve, of button-carrying brackets, each consisting of an outwardly-extending arm having a hooked end, an upwardly-extending hook engaging the screen, and a triangular depending portion bearing against the screen, substantially as described.

483,470. CAR-AXLE. RAYNER L. MCLAREN, Blackheath, England. Filed Apr. 9, 1892. Serial No. 428,802. (No model.) Patented in England July 9, 1891, No. 11,090.



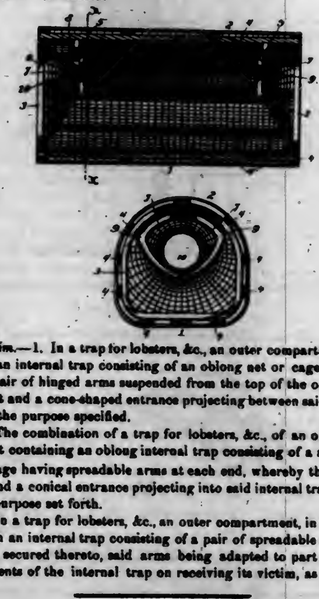
Claim.—1. In a divided axle, the combination of a tubular part *a*, a part *c*, fitting into the part *a* with turned cylindrical bearing-surfaces of the same diameter throughout and extending through the greater part of said part *a*, and a rod *j*, passing freely through a central boring of the outer end of part *a*, such rod being screwed into the part *c* and secured at the outer end of part *a* by a screw-nut *k*, so as to secure the parts *a* and *c* together, substantially as described.

2. In a divided axle, the combination of a tubular part *a*, a part *c*, fitting into *a* with turned cylindrical surfaces, a rod *j*, fixed to part *c* and passing through a central boring of *a* and secured externally by a screw-nut *k*, and a packing-ring *m*, fitting a circular groove in the end face of the part *a* and pressed by springs against the inner face of the wheel fixed on the part *c*, substantially as described.

3. In a divided axle, the combination of a tubular part *a*, a part *c*, fitting into *a* with turned cylindrical surfaces, a central longitudinal passage *f*, formed in the part *c* for the reception of lubricant and communicating at the inner end with a chamber *e* in the part *a*, a helical channel *g* on the part *c*, radial channels *h*, connecting the passage *f* with the passage *g* and with a chamber *e*, and a rod *j*, extending from the part *c* and passing through a central bore in the part *a* and secured beyond the same by a screw-nut, substantially as described.

4. In a divided axle, the combination of a tubular part *a*, a part *c*, fitting with a turned cylindrical surface the bored hollow of the part *a*, means for securing the parts *a* and *c* together so that they can revolve independently of each other, but cannot separate, and a packing-ring fitting a circular groove in the enlarged end of the tubular part *a* and pressed by springs against the turned inner face of the boss of the wheel fixed on the part *c*, substantially as described.

483,471. LOBSTER-TRAP. JOHN S. PALMER, Stonington, and CHARLES R. WATROUS, Ledyard, Conn. Filed Apr. 1, 1892. Serial No. 427,394. (No model.)



Claim.—1. In a trap for lobsters, &c., an outer compartment containing an internal trap consisting of an oblong net or cage provided with a pair of hinged arms suspended from the top of the outer compartment and a cone-shaped entrance projecting between said arms, as and for the purpose specified.

2. The combination of a trap for lobsters, &c., of an outer compartment containing an oblong internal trap consisting of a suspended net or cage having spreadable arms at each end, whereby the bottom opens, and a conical entrance projecting into said internal trap, as and for the purpose set forth.

3. In a trap for lobsters, &c., an outer compartment, in combination with an internal trap consisting of a pair of spreadable arms and network secured thereto, said arms being adapted to part and drop the contents of the internal trap on receiving its victim, as set forth.

483,472. BRIDLE ATTACHMENT. JOSEPH W. PEACE, Rhea Springs, Tenn. Filed Apr. 13, 1892. Serial No. 429,040. (No model.)



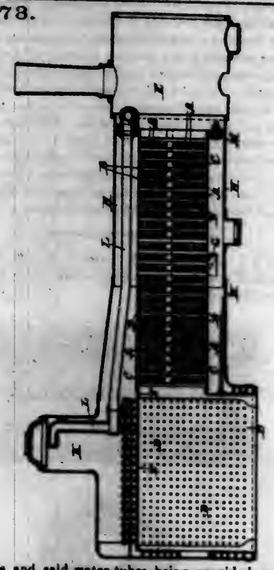
Claim.—1. The combination, with a bridle, of a removable blind and an attaching-thong extending in and out through perforations in the blind and the cheek-piece of the bridle, substantially as described.

2. In a bridle, the combination, with the cheek-pieces having snap-hooks at their ends, of a brace-band secured to the cheek-pieces below the brow-band, and a nose-band provided with rings at opposite sides with which the snap-hooks engage, substantially as described.

483,473. LOCOMOTIVE STEAM-BOILER. GEORGE J. PERKINS, Truckee, Cal. Filed May 19, 1892. Serial No. 433,503. (No model.)

Claim.—In a locomotive steam-engine, the combination, with the fire-box, of a tube-sheet made of two overlapping sheets of metal, said tube-sheets being approximately square in cross-section, with rounded corners, having its upper surface a continuation of the crown-sheet of said fire-box, and therefore on a level with same, and communicating at one end with the fire-box and at the other end with the smoke-arch, water-tubes arranged transversely thereto, and an end wall or sheet at the forward end of the boiler, said end sheet being provided

483,473.



with manholes and said water-tubes being provided near their extremities with heads, substantially as and for the purpose set forth.

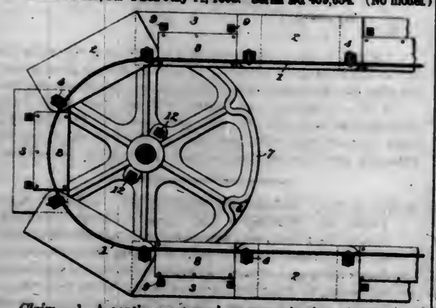
483,474. SECTIONAL VEHICLE-SHAFT. WILLIAM J. POHRER, St. Louis, Mo. Filed May 2, 1892. Serial No. 431,447. (No model.)



Claim.—1. As an improvement in sectional vehicle-shafts, the combination, with rear sections, of forward members detachable therefrom and comprising each two hinged sections, substantially as and for the purpose set forth.

2. As an improvement in sectional vehicle-shafts, the combination, with the rear sections A, of forward members detachably connected therewith and comprising each two sections B and C hinged together, the sections B being adapted to be folded forwardly over the sections C, substantially as and for the purpose set forth.

483,475. CONTINUOUS-TROUGH CONVEYER. JAMES POLLOCK, Wilkes-Barré, Pa. Filed July 11, 1892. Serial No. 439,634. (No model.)



Claim.—1. A continuous-trough conveyer having a bottom composed of a continuous band and sides composed of plate-sections pivotally connected to each other, substantially as described.

2. In a continuous-trough conveyer, the combination, with the end pulleys and the continuous bottom strip, of side sections pivotally connected with the bottom strip at points exterior to said strip, whereby the bottom is permitted to curve in passing round the pulleys, substantially as described.

3. In a continuous-trough conveyer, the combination, with the bottom strip and the end pulleys, of cross-bars attached to the exterior side of the strip and overlapping side pieces pivotally mounted upon said cross-bars, substantially as described.

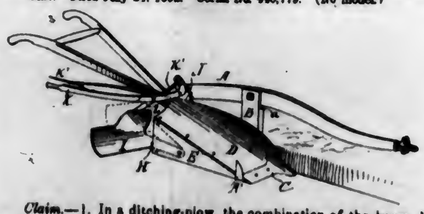
4. In a continuous-trough conveyer, the combination, with the continuous bottom strip and the end pulleys, of the overlapping side sections pivotally connected to the bottom strip and means for preventing the upper half of the trough from sagging between its supports, substantially as described.

5. In a continuous-trough conveyer, the combination, with the bottom strip and the end pulleys, of the overlapping inner and outer side sections 2 3 and the plates 8, connected to the outer sections 3, between the inner sections, whereby the sides of the upper portion of the trough are converted into rigid supporting-girders, substantially as described.

6. In a continuous-trough conveyer, the combination, with the bottom strip and the end pulleys, of the overlapping side sections pivotally connected to the bottom and the roller-supports 10, arranged between the end pulleys, substantially as described.

7. In a continuous-trough conveyer, the combination, with the end pulleys 7, arranged in pairs and provided with peripheral sockets 6, of the endless bottom strip, the cross-bars 4, connected to the bottom strip, the side pieces 2 3, having their overlapping portions pivoted upon the rounded ends of the cross-bars, and the inner plates 8 and tie-bars 9, connected to the outer plates 3, substantially as described.

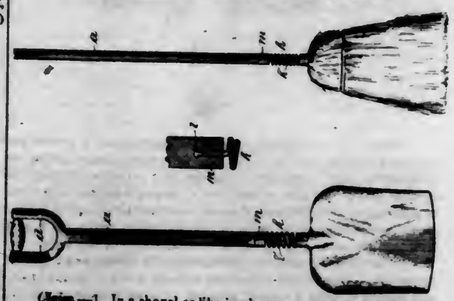
483,476. DITCHING-PLOW. BENCHER H. RINEHART, Alliance, Ohio. Filed July 21, 1892. Serial No. 440,779. (No model.)



Claim.—1. In a ditching-plow, the combination of the beam A, the post or standard B, having attached thereto the mold-board, share, and landside, the vertical plate E, the supplemental mold-board I, pivotally connected to the vertical plate E by arm H, and a lever for adjusting said supplemental mold-board or scraper, substantially as and for the purpose specified.

2. The combination of the beam A, pivotally attached to the post or standard B, the mold-board D, having attached thereto the vertical plate E, the pivoted supplemental mold board or scraper I, the operating-lever K, the spring-bar K', the post or bar G, provided with the toothed segment J, and the connecting-link L, substantially as and for the purpose specified.

483,477. HAND IMPLEMENT. MATTHEW RYAN, Washington, D. C. Filed Jan. 22, 1892. Serial No. 418,915. (No model.)

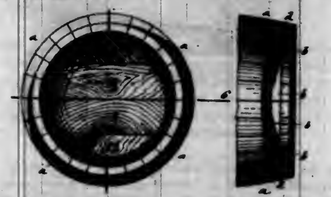


Claim.—1. In a shovel or like implement, a scoop or head portion attached to the handle by means of an unrestricted or unconfined coil-spring having a universal movement, in the manner and for the purpose substantially as described.

2. A shovel or like implement having a handle provided with a coil-spring having free endwise and lateral movement, said spring being interposed between the gripping portion of the handle and the head of the implement, as and for the purpose specified.

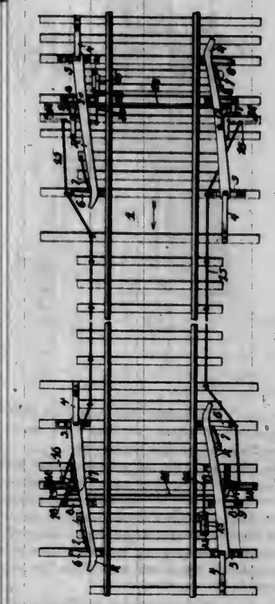
3. In a shovel or like implement, a handle having a spiral spring interposed between its upper end and the implement scoop or head portion, in combination with a grip provided with cushioning-springs, substantially as described.

483,478. CONSTRUCTION OF HOGSHEADS OR BARRELS. AUGUST SCHMIDT, New York, N. Y. Filed Nov. 19, 1891. Serial No. 412,375. (No model.)



Claim.—A hogshead or barrel composed of annular concave heads, which are made rectangular or nearly rectangular at the circumference and trimmed off at the inner edge, and staves the croze of which is located in one plane with the circumference of each head and corresponding in shape to the circumference of the heads, substantially as set forth.

483,479. AUTOMATIC BLOCK SYSTEM FOR RAILROADS. BYRON SHOEMAKER and JUDSON SHOEMAKER, St. Louis, Mo. Filed Mar. 28, 1892. Serial No. 426,903. (No model.) Patented in Canada Feb. 12, 1892, No. 38,262.

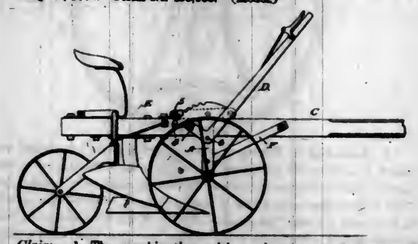


Claim.—1. In an automatic signal device for railroads, the combination, with a laterally-yielding lever, of a casing provided with a hinged section, a wedge-shaped slide working in said casing and adapted to elevate said hinged section, and devices for connecting the lever and slide, substantially as and for the purpose set forth.

2. In an automatic signal device for railroads, the combination, with a laterally-yielding lever, of an angle-lever provided with an upwardly-projecting arm adapted to be engaged by said yielding lever, a second angle-lever having one of it members connected with the first angle-lever and another of its members connected with a signal-operating device, substantially as and for the purpose set forth.

3. An automatic signal device for railroads, consisting of levers 2 and adapted to be operated by the passing locomotive, a roller fixed to the under surface of the same and adapted to move upon a suitable plate provided with stops for controlling the movement of said levers, a guide for the free ends of said levers, a spring or other device for causing the said levers to resume their normal positions, levers, such as 13 and 17, also movably attached to one side of the track and adapted to be operated by said levers 2, a rope or wire, such as 15, for connecting the said levers 13 and 17, a rod, such as 20, attached to one arm of the said lever 13 and carrying a wedge-shaped block 21, and a plate, such as 25, having a lift 26 formed thereon and adapted to be elevated by the said block, substantially as described.

483,480. SULKY-PLOW. JOHN WOLPERT, Louisville, Ky. Filed May 21, 1892. Serial No. 433,805. (Model.)



Claim.—1. The combination, with a plow-beam, of the bars B, hinged thereto, and the divided axle journaled in said bars, the land-wheel section being journaled farthest from the turning axis of the bars, whereby a differential motion may be given to the axle-sections and the land-wheel be raised by the act of lowering the plow into the ground.

2. The combination, with the divided axles and plow-beam, of the bars B, the lever D, link G, and braces F, substantially as shown and described.

3. The hinged parallel bars B and the sectional axle journaled in said bars to produce a differential motion of the axle and wheels, in combination with the plow-beam, the pivoted braces, the elbow-lever, and the link connecting it to the parallel bars, substantially as shown and described.

4. The combination, with the plow-beam and pivoted braces, of the pivoted bars or crank, the sectional axle pivoted in said bars or crank at different distances from its axis, the operating-lever and its link, the caster-wheel swiveled in a hinged socket, and the rod connecting said socket to the axle and the pivoted bars, substantially as shown and described.

483,481. PRINTER'S GALLEY. NICHOLAS G. DUFFY, Charleston, S. C. Filed May 12, 1892. Serial No. 432,779. (No model.)



Claim.—1. The improved galley consisting of the bed-plate A, the stationary side ledge B, having holes *c c*, the stationary head-ledge C, having the hole *d*, the removable side ledge D, having vertical holes *f*, corresponding to the vertical holes *c c* in the stationary ledge B, and the adjustable foot-piece consisting of the flat bar E' and the supplementary adjustable bar F, the side ledge D being provided with a pin *k* to enter the hole *d* and the plate E' being provided with pins *k k* to enter the holes in the side ledges, substantially as described.

2. A printer's galley having a stationary side ledge B, a stationary head-ledge C, a detachable side ledge D, and an adjustable foot-ledge, said foot-ledge comprising the flat bar E', supplementary adjustable bar F, and adjusting-screw F', substantially as described.

3. The combination, with the side ledges B and D, having vertical holes for the reception of pins on a foot-piece, of an adjustable foot-piece consisting of a flat bar E', having toes *i i* and pins *k k*, a supplementary bar F, and an adjusting-screw F', substantially as described.

483,482. MAGNIFYING-GLOBE FOR THE DIFFUSION OF ARTIFICIAL LIGHT. HILLIARY ELDRIDGE, Purvis, Miss., assignor of one-half to P. C. Gagna, Houston, Tex. Filed Nov. 2, 1891. Serial No. 410,556. (No model.)

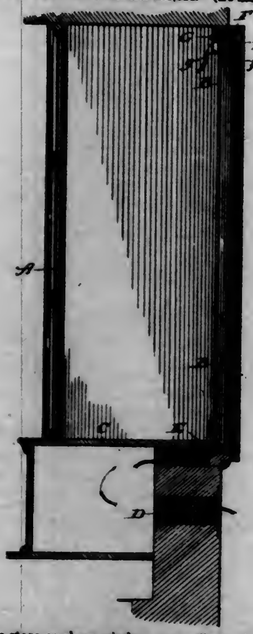
Claim.—1. A show-globe having an outer spherical globe 1 and an inner receptacle or globe 9, being double concave in longitudinal section, circular in cross-section, and provided with an open upper end and a plano-concave lower closed end, substantially as set forth.

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2. A show-globe having an outer spherical globe 1, provided with a neck 2, an external peripheral flange 3, formed thereon or secured thereto, external screw-threads 4, formed on said neck, a cap 5, provided with an internally-screw-threaded flange 6, adapted to be screwed on said neck, an inner receptacle or globe 9, double concave in longitudinal section, circular in cross-section, and provided with a plano-concave lower closed end 10 and an open upper end, and a flange 12, formed on or secured to said upper end, substantially as set forth.

488,483. WINDOW-VENTILATOR. GEORGE W. GERIS, Chicago, Ill. Filed Feb. 19, 1892. Serial No. 422,122. (No model.)

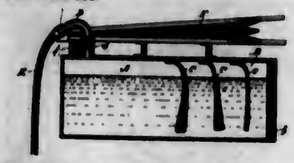


Claim.—In a store or show window, a ventilating-board having air-openings in its edge arranged immediately adjacent the surface and above the lower edge of the glass, and a cap for holding the upper edge of the glass, provided with air-openings allowing the passage of air from the surface of the glass over and in contact with its edge, whereby a movement of the admitted external air along and immediately in contact with the surface of the glass is permitted, substantially as and for the purpose explained.

488,484. FUMIGATOR. FERDINAND A. HOFFMAN, Byron, Cal.; Clara H. Hoffman administratrix of said Ferdinand A. Hoffman, deceased. Filed May 4, 1892. Serial No. 431,882. (No model.)

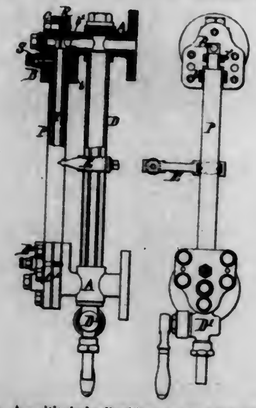
Claim.—1. In an animal-exterminator, the combination of the casing having a vertical partition dividing the casing into separate channels, said partition terminating short of one end of the casing to form a communicating passage between the channels, an outlet-pipe leading from the closed end of one channel, and an air-blast apparatus connected with the adjacent end of the other channel, whereby an air-current is forced through both channels, substantially as herein described.

2. An animal-exterminator consisting of a casing having the internal partition open at one end and dividing said casing into separate communicating channels, the absorbent strips in said channels, an outlet-pipe from the closed end of one channel, and a bellows having a connection with the adjacent end of the other channel, substantially as herein described.



3. An animal-exterminator consisting of the casing having the internal partition open at one end and dividing said casing into separate communicating channels, the absorbent strips in said channels, an outlet-pipe from the closed end of one channel, the valve in said pipe, the conveyer-pipe attached to said outlet-pipe, and a bellows having a connection with the adjacent end of the other channel, substantially as herein described.

488,485. LIQUID-GAGE. CHARLES PIHL, Rouen, France. Filed July 25, 1891. Serial No. 400,722. (No model.) Patented in France May 5, 1890, No. 205,446; in Germany July 29, 1890, No. 55,136; in Belgium Apr. 13, 1891, No. 94,500, and in England Apr. 15, 1891, No. 6,482.



Claim.—1. A multitubular liquid-gage with supports for the tubes, having removable cover-plates enabling the tubes to be inserted into the supports from the front or horizontally.

2. The tubes and tube supports or carriers with packing-plates and rings or washers *b b'*, in combination with retaining or compressing caps or cover-plates C and C', enabling the tubes to be inserted into the supports from the front or horizontally, as described.

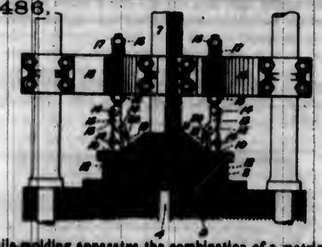
3. The combination of inner and outer tubes with two valve-boxes having automatic valves serving in case of failure of the internal tube to prevent escape of steam and water from the outer tube, substantially as hereinbefore described.

488,486. APPARATUS FOR MOLDING TILES. MONTEZUMA SCOTT, New Brighton, Pa., assignor to the Scott Tile Company, Chicago, Ill. Filed Dec. 4, 1891. Serial No. 414,065. (No model.)

Claim.—1. In apparatus for molding tiles, the combination of a matrix, a perforated plate or die having upwardly-extending hinged arms, and a plate or die having projecting spurs extending through the perforated die, whereby the perforated die is retained in position during a portion of the backward stroke of the die having spurs, substantially as and for the purposes described.

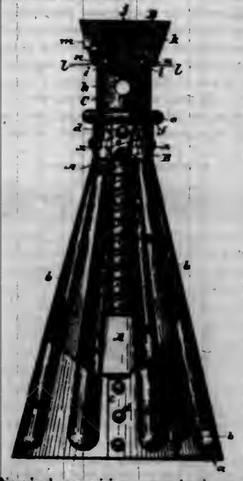
2. In tile-molding apparatus, the combination of a matrix having a movable bottom, a perforated plate or die having upwardly-projecting hinged arms, and a plate or die having projecting spurs extending through the perforated die and provided with means for operating the hinged arms, substantially as and for the purposes described.

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3. In tile-molding apparatus, the combination of a matrix having a movable bottom, a perforated plate or die having upwardly-projecting jointed arms, a plate or die provided with projecting spurs extending through the perforated die and having arms arranged to press against and unlock the jointed arms upon upward movement of the plate, substantially as and for the purposes described.

488,487. JACK-SCREW. WILLIAM H. WILD, Valatie, N. Y., assignor to the Wild Engineering Company, same place. Filed Sept. 13, 1890. Serial No. 364,756. (No model.)



Claim.—A lifting-jack comprising a screw having an enlarged head provided with a groove in its upper end, balls in said groove, a jam-cap on said head, a stamped-up metal base provided with an inwardly-turned flange at its lower edge, and a flanged and grooved nut, the groove in the nut being adapted to receive and hold in place the upper end of the sheet-metal base, substantially as set forth.

488,488. MACHINE FOR FILLING AND EMPTYING TRAYS. ROBERT A. BAUER, Grand Rapids, Mich., assignor of two-thirds to Henry G. Krekel and Edward G. Krekel, same place. Filed Oct. 31, 1891. Serial No. 409,357. (No model.)

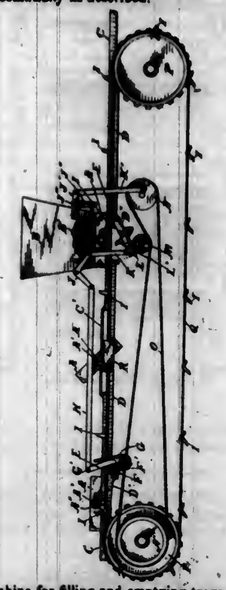
Claim.—1. In a machine for filling and emptying trays, the combination, with parallel sprocket-chains, dogs pivoted to said chains, and tracks having movable sections engaging said dogs, of trays engaged by said dogs and tracks upon which said trays move, substantially as described.

2. In a machine for filling and emptying trays, in combination with trays having journals at opposite sides and pinions on said journals and mechanism for propelling said trays, tracks upon which said trays move, having gaps, rods opposite said gaps engaging said journals, and a rack to engage said pinions, substantially as described.

3. In a machine for filling and emptying trays, the combination, with trays having journals at each end and pinions on said journals, of parallel sprocket-chains, and tracks and dogs having arms at right angles, said arms engaging said journals and tracks, respectively, tracks upon which said trays slide, said tracks having gaps or openings, rods opposite said openings engaging said journals, and a rack engaging said pinions, substantially as described.

4. In a machine for filling and emptying trays, the combination of a sprocket-chain, dogs each having a vertical and horizontal arm and pivoted to said chain, a track engaging one arm of said dogs, pivoted sections in said track connected by levers and rods, trays moved by said dogs, and levers engaging said trays and operating said pivoted sections of track, substantially as described.

5. In a machine for filling and emptying trays, the combination of a sprocket-chain, dogs pivoted to said chain, a track engaging said dogs, a pivoted section, as D', in said track, a tray moved by said dogs, a lever engaging said tray, and gearing connecting said lever and pivoted section, substantially as described.



6. In a machine for filling and emptying trays, the combination of a sprocket-chain, dogs pivoted to said chain, a track engaging said dogs, a pivoted section, as D'', in said track, a latch securing said section when closed, a lever connected to said latch, and a tray moved by said dogs and engaging said lever and releasing said latch, substantially as described.

7. In a machine for filling and emptying trays, the combination of a hopper, a vibrating sieve in the same, mechanism to vibrate said sieve, a belt to operate said mechanism, a track having a pivoted section, a tightener on said section engaging said belt when said pivoted section is released, a latch to secure said pivoted section, having a lever engaging a tray beneath said sieve, and mechanism to deposit said tray beneath said hopper, substantially as described.

8. In a machine for filling and emptying trays, the combination of parallel socket chains, dogs each having arms at right angles and pivoted at intervals to said chain, tracks each having two pivoted sections connected to each other by levers and rods, so that each alternately opens and closes, said tracks engaging said dogs, and trays engaged and moved by said dogs and engaging levers to operate said sections, substantially as described.

488,489. MANUFACTURE OF GAS. ROBERT M. BIDELMAN, Adrian, Mich., assignor to the Petroleum Light and Heat Company, same place. Filed May 26, 1891. Serial No. 394,203. (No specimens.)

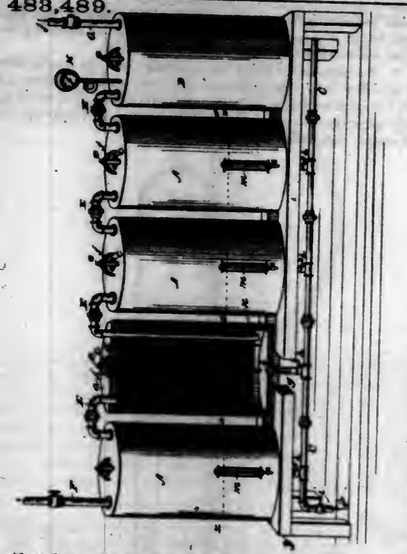
Claim.—1. The method of generating a fixed gas, which consists in first substantially removing from a liquid hydrocarbon the constituent parts which would furnish condensible vapors, and subsequently taking up and removing the fixed gases by passing through the residue an aeriform fluid under pressure, substantially as described.

2. The method of generating a fixed gas, which consists in first substantially removing from a liquid hydrocarbon the constituent parts which would furnish condensible vapors, submerging a body of absorbent porous solid material within the residue, and subsequently taking up and removing the fixed gases by passing through said porous material and residue an aeriform fluid under pressure, substantially as described.

3. The method of generating a fixed gas, which consists in forcing an aeriform fluid under pressure through a petroleum hydrocarbon which has been deprived of those vapors which condense at the ordinary temperatures of a gas-main, substantially as described.

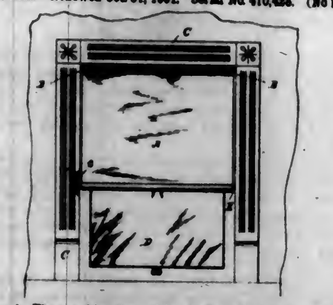
4. The method of generating a fixed gas, which consists in forcing

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an aeriform fluid under pressure through a Lima-oil distillate of substantially 0.698 specific gravity, substantially as described.

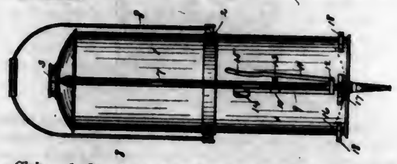
483,490. ATTACHMENT FOR WINDOW-SHADES. HORACE L. HALL, Manchester, N. H., assignor to R. T. Burrowes, Portland, Me. Filed July 8, 1890. Renewed Oct. 31, 1891. Serial No. 410,428. (No model.)



Claim.—1. The combination, with a hollow shade-stick provided with two slots substantially midway from its ends, of two levers secured within the stick independently of each other, each lever being pivotally secured at its upper end and having its lower end projecting through one of the slots, whereby it may be grasped and forced inward, the portion of the stick between the slot forming an abutment for limiting the movement of the levers toward each other, and a spring-actuated rod in each end of the stick, the outer end of each of which is provided with retaining devices and the inner end is loosely secured upon one of the levers below the pivotal point, and means for preventing the inner end of the rod from moving toward the pivotal point of the lever, substantially as set forth.

2. The combination, with a hollow tubular shade-stick the walls of which are substantially of the same thickness throughout its length, said stick being provided with two slots about midway of its length, of two levers secured within the stick independently of each other, each lever being pivotally secured at its upper end within the stick and having its lower end projecting through one of the slots in the stick, the portion of the stick between the slots being adapted to limit the movement of the levers toward each other, a flat perforated guide secured within the stick between each lever and the adjacent end of the stick, a pin through the stick between each guide and the lever and adjacent to the inner side of the guide, whereby the guide is prevented from moving toward the lever, a rod in each end of the stick, the outer end of which is shouldered and fits within the outer end of the stick and the inner end passes through the guide and is provided with a slot which fits loosely upon the lever adjacent to that end and below its pivotal point, and a spring upon each rod, one end of which bears against the shoulder of the rod and the opposite end bears against the guide, substantially as set forth.

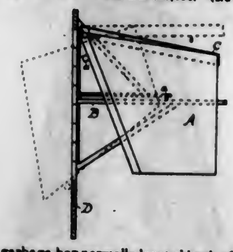
483,491. AUTOMATIC GRAVITY FIRE-EXTINGUISHER. THOMAS F. HANDLY, Allegheny, Pa. Filed Jan. 11, 1892. Serial No. 417,773. (No model.)



Claim.—1. In a fire-extinguisher, the combination, with the receptacle 1, designed to be inverted for use, and a hose connected with said receptacle, of an acid-receptacle supported within said receptacle 1 near the top thereof and a loose stopper for said acid-receptacle, said stopper having a projection extending within said acid-receptacle and of greater length than the distance between the top of said acid-receptacle and the adjacent wall of the receptacle 1, as and for the purposes specified.

2. In an apparatus for the purpose described, the combination consisting of the receptacle 1, having a bail pivoted below the center of gravity of the same, an acid-bottle attached in the interior of the apparatus, having a heavy elongated stopper capable of being removed partly from the mouth of the bottle by gravity, a means for making the bail rigid with the body of the apparatus when the same has been reversed, a hose connected with the extinguisher, and a means for closing the same by compression, substantially as and for the purpose described.

488,492. GARBAGE-BOX. JOHN HARSOLSHEIMER, Philadelphia, Pa. Filed Apr. 13, 1892. Serial No. 429,050. (No model.)



Claim.—A garbage-box normally located back of the discharging-aperture, supported by trunnions at or near its center of weight, and resting on rails, so as to permit it to be drawn into said aperture and then inverted.

483,498. PNEUMATIC TIRE FOR CYCLES. THOMAS H. HIGGS, Detroit, Mich., assignor of one-half to George F. Case, same place. Filed Apr. 23, 1892. Serial No. 430,209. (No model.)



Claim.—1. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of a tire-band stretched over the outer edges of said tire and across the dished face thereof, forming a flattened tread, and an inner annular air-chamber between said metal tire and the tire-band, said chamber bounded outwardly by said tire-band and inwardly by the metal tire, substantially as described.

2. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of an elastic tire-band stretched over the outer edges of said tire and across the dished face thereof, forming a flattened tread, said tire-band extended about the outer surface of said tire and forming an inner annular air-chamber therebetween, said chamber bounded outwardly by said tire-band and inwardly by the metal tire, substantially as described.

3. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of an elastic tire band stretched over the outer edges of the tire and across the dished face thereof, forming the tread of the wheel, and an inner annular air-chamber therebetween, said chamber bounded outwardly by said tire-band and inwardly by the metal tire, said tire-band strengthened at the lateral edges of the tread, substantially as described.

4. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of a tire-band stretched across the outer edges of the tire, forming the tread of the wheel, and an inner annular air-chamber bounded outwardly by said tire-band and inwardly by the metal tire, and an inflatable tube located in said air-chamber, substantially as described.

5. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of a tire-band stretched across the outer edges of said tire, forming the tread of the wheel, and an inner air-chamber bounded outwardly by said tire-band and inwardly by the metal tire, said tire-band stretched about the tire, and a binding-strip located over the adjacent edges of said band, substantially as described.

6. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of a tire-band stretched across the outer edges of said tire, forming the tread of the wheel, and an inner air-chamber bounded outwardly by said tire-band and inwardly by the metal tire, and an inflatable tube located in said air-chamber, said tube recessed at its upper edge to receive the ends of the spokes of the wheel, substantially as described.

7. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of a tire-band engaged with the outer edges of the tire, forming the tread of the wheel, and an inner annular air-chamber bounded outwardly by said tire-band and inwardly by the metal tire, and an inflatable tube located in said air-chamber, said tube thickened at top and bottom and made thinner at the sides thereof, substantially as described.

8. In a cycling-wheel, the combination, with a metal tire dished upon its periphery and having two annular marginal edges, of a tire-band engaged with the outer edges of the tire, forming the tread of the wheel, and an inner annular air-chamber bounded outwardly by said tire-band and inwardly by the metal tire, and an inflatable tube located within said air-chamber, said tube having an air-space on either side thereof, substantially as described.

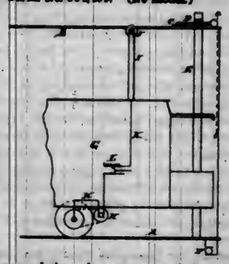
9. In a cycling-wheel, the combination, with a metal tire, of a tire-band stretched across the outer portion of the tire, forming the tread of the wheel, and an air-chamber and an inflatable tube located in said air-chamber, the edges of said tire extended into proximity to said inflatable tube to protect the tube, substantially as described.

10. In a cycling-wheel, the combination, with a metal tire, of a tire-band stretched across the outer edges of the tire, forming the tread of the wheel, and an air-chamber and a covering located about the tire and tire-band, substantially as described.

11. In a cycling-wheel, the combination of a metal tire dished upon its periphery and having two annular marginal edges, a tire-band forming an inner annular air-chamber bounded outwardly by said tire and inwardly by the metal tire, and an inflatable tube located in said chamber, said tube supported in said chamber by a thickened column, substantially as described.

12. In a cycling-wheel, the combination of a metal tire, a tire-band stretched across the outer edges of the tire, forming an inner air-chamber and the tread of the wheel, and an outer elastic band J, located upon the outer face of the tread, substantially as described.

488,494. ELECTRIC-RAILWAY CONDUCTOR. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor, by mesne assignments, to the Thomson-Houston Electric Company, Boston, Mass. Original application filed Sept. 23, 1889, Serial No. 324,908. Divided and this application filed Mar. 23, 1892. Serial No. 426,499. (No model.)

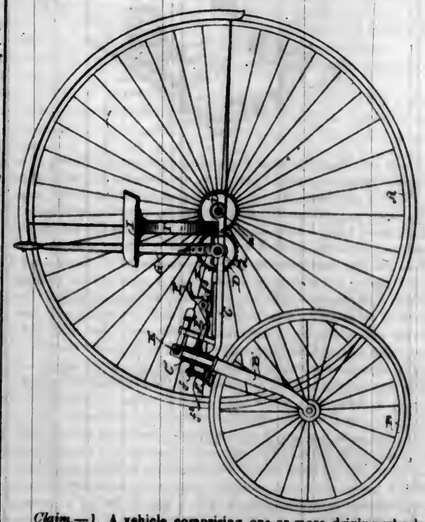


Claim.—1. A suspended conductor arranged above a railway-track and supported wholly from above, a railway-track, a source of electric energy supplying electricity to said conductor and railway-track, a traveling car, a motor on said car to propel it, an upwardly-extending arm projecting above the roof of the car, a grooved wheel journaled on the free end of said arm and running against the under side of the conductor, and a motor-circuit, including the motor, for conveying current from the conductor and returning it to the rails.

2. The combination of a suspended working conductor having a smooth or practically-smooth under surface with a series of supports for the conductor connecting with it on the upper part thereof, a traveling vehicle, an electric motor on the vehicle, and a collecting device making a traveling contact upon the under side of the conductor for supplying electric current to the motor, a motor-circuit on the car, and a hand-regulator to control the motor in the motor-circuit.

3. A railway-track, a suspended conductor arranged above the railway-track and supported wholly from above, a source of electric energy supplying electricity to said conductor and railway-track, a traveling car, a motor on said car to propel it, an upwardly-extending arm projecting above the roof of the car, a contact device carried on the free end of said arm and running against the under side of the conductor, and a motor-circuit, including the motor for conveying current from the conductor and returning it to the rails.

483,495. TRICYCLE. ANDREW HUNTER, Chicago, Ill., assignor of one-half to John W. Ward, Postville, Iowa. Filed Nov. 23, 1891. Serial No. 412,778. (No model.)



Claim.—1. A vehicle comprising one or more driving wheels, a steering-wheel journaled in a revolubie bifurcated support provided at its upper end with a cross arm or bar, and bars or rods slidingly engaged with the frame and having their forward ends engaged with the extremities of said cross arm or bar, substantially as and for the purpose described.

2. The combination, with the frame and wheels of a vehicle, of a brake mechanism comprising a brake shoe adapted to engage with one of said wheels, a rod extending from said shoe and engaged with a lever pivotally secured upon the frame, and a second lever pivotally engaged with the frame of the machine and adapted to be operated by the foot of the rider to apply the brake, substantially as described.

3. The combination, with the frame and wheels of a vehicle, of a brake mechanism comprising a brake-shoe adapted to engage with one of said wheels, a rod extending from said shoe and engaged with a lever pivotally secured upon the frame, a second lever pivotally engaged with the frame of the machine and adapted to be operated by the foot of the rider to apply the brake, and a stop for limiting the movement of the last-mentioned lever, substantially as described.

4. The combination, with the frame and wheels of a vehicle, of a seat provided with elastic supports curved inwardly below their points of engagement with said seat and curved outwardly at their lower ends and engaged with the frame, substantially as described.

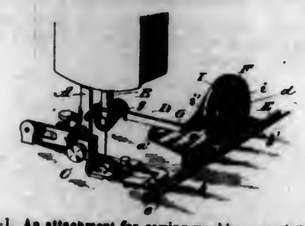
5. In a tricycle, the combination, with a suitable frame, of a transverse axle engaged with suitable supports in said frame, drive-wheels removably secured upon the axle outside of said supports, gear-wheels secured upon the inner ends of the hubs of said drive-wheels, shafts extending parallel with said axle and journaled in bearings on the frame, driving-gears removably secured upon said shafts outside of said bearings, and levers carrying clutch mechanism for giving a rotary motion to said shafts, substantially as described.

6. The combination, with the frame, the drive-wheels, and the steering-wheel of a tricycle, of one or more gear-wheels engaged with the drive-wheels, driving-gears located upon shafts extending parallel with said axle, lever-and-clutch mechanism for giving a rotary motion to said shafts and driving-gears, a crown arm or bar engaged with the steering-wheel support, and sliding bars or rods engaged with the extremities of said crown arm or bar and adapted to be operated by the feet of the rider to guide the vehicle, substantially as described.

7. In a tricycle, the combination, with the frame and drive-wheels, of a seat provided with elastic supports curved inwardly below their points of attachment to said seat and curved outwardly at their lower ends and engaged with the frame immediately in front of the axis of said drive-wheels, substantially as described.

488,496. SCALLOPING ATTACHMENT FOR SEWING-MACHINES.

Owsen W. Kemp, Montgomery, Ala., assignor of one-half to Alexander G. Forbes, same place. Filed Apr. 7, 1892. Serial No. 428,204. (No model.)



Claim.—1. An attachment for sewing-machines, consisting of a supporting-frame comprising a base-plate, an upwardly-projecting portion which is apertured for the reception of a pivot-bolt, and outwardly-extending portions *b'*, through which passes a reciprocating bar having a slotted end, a disk provided centrally with an aperture countersunk to receive the head of the pivot-bolt, a friction-disk located between the disk and upwardly-projecting portion of the frame, a vertical bar having a slot through which passes a set-screw for holding the same in engagement with the disk, and an actuating-arm upon the bolt which connects the disk to the frame, said arm being bent and provided with means for engagement with the needle bar of the sewing-machine, said arm carrying a pawl which engages with the face of the disk, whereby the vertical reciprocating motion of the needle-bar horizontally reciprocates the bar E, said attachment being in combination with a ruffler, the ruffler being carried by the presser-bar, the parts being combined and organized substantially as shown.

2. In a scalloping attachment for sewing-machines, the combination, with a ruffling-blade and means for operating it, of the frame made up of a single piece and provided with an upwardly-projecting portion *b*, apertured for the reception of a pivot-bolt, said frame also having outwardly-projecting portions *b'*, a disk F, having a recessed aperture with which the head of the bolt engages, and a friction-disk *m*, a slotted bar I, connected to the disk by a set-screw *i'*, the lower end of said bar being attached to a reciprocating bar E, having a slotted end, and an actuating-arm pivoted upon the bolt *d*, said arm being bent and adapted to engage with the needle-bar, the parts being organized substantially as shown, and for the purpose set forth.

3. In a ruffling attachment for sewing-machines, the combination of a base-plate having an upwardly-projecting portion with a rectangular aperture, a bolt adapted to engage with said aperture and retain upon the upwardly-projecting portion a rotary disk F, a bent arm mounted upon the pivot-bolt, said arm carrying a spring-pawl which is adapted to engage with the disk F, washers *m* and *c*, interposed between the upwardly-projecting portion of the frame and the disk F and actuating-arm, means for adjusting the tension of the parts, and a slotted bar I and set-screw for holding the same in engagement with the plane face of the disk F, said slotted bar being connected to the reciprocating bar E, said bar having at one end a slot *e'*, through which the fabric to be ruffled passes, the parts being organized substantially as shown, and for the purpose set forth.

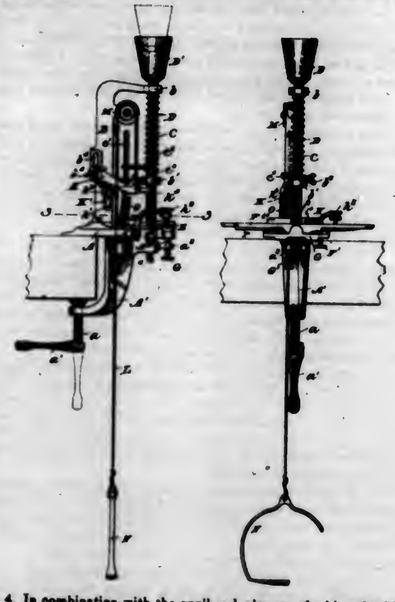
488,497. SAW-TOOTH-SETTING MACHINE.

John R. Little, West Stewartstown, N. H., assignor of one-half to Henry R. Ballentine, same place. Filed Feb. 10, 1892. Serial No. 420,993. (No model.)

Claim.—1. In a saw-set, the combination, with the base-plate, of the anvil, the reciprocating plunger, the longitudinally-rocking table, the transversely-rocking support on which said table is mounted, and means for actuating said plunger, substantially as described.

2. In combination with the hinged table-support, the table pivotally mounted upon said support, and means for rocking said support and table upon their respective pivots for the purpose of canting the one longitudinally and the other sidewise, substantially as described.

3. In combination with the base-plate having the projecting head with extension or arm thereon, the anvil, the plunger, the table-support hinged to said head, the adjusting-screw seated in said arm, the table pivotally mounted on said support, and the adjusting-screw arranged at one side of the pivotal center of the table, whereby said table-support and table may be rocked upon their respective pivots, so as to cant the saw-blade both lengthwise and sidewise, substantially as described.



4. In combination with the anvil and plunger, the hinged table-support, the table mounted upon said support and pivoted thereto, means for rocking said support and table upon their respective pivots in planes crossing each other, and means for actuating the plunger, substantially as described.

5. In a saw-set, the combination of the reciprocating spring-pressed plunger, the anvil, the trip-lever pivoted at one end and having a pivoted gravity-pawl at its free end adapted to engage a lug on said plunger, so as to raise the latter on the upstroke of the lever and to yield to said lug on the downward stroke, means for raising said trip-lever, and the spring for restoring the lever to normal position, substantially as described.

6. In combination with the reciprocating spring-pressed plunger, the trip-lever, the actuating-cord, and the adjustable stop for limiting the downward throw of the lever, substantially as described.

7. In combination with the hinged table-support, the longitudinally-rocking table mounted on said support, the anvil, the interchangeably-weighted reciprocating plunger and the power-storing spring, and means for actuating said plunger, substantially as described.

8. A saw-tooth-setting machine comprising the hinged table-support, the longitudinally-rocking table mounted on said support, means for adjusting and retaining said parts in the desired position, the anvil, the reciprocating spring-pressed plunger, the trip-lever, and means for actuating said lever and plunger, substantially as described.

9. In combination with the hinged table-support, the table pivotally mounted upon said support, and the laterally swinging presser-foot adjustably secured to the base, substantially as described.

10. In combination with the saw rest or table, the hinged table-support on which said table is mounted, the vertically-adjustable anvil, the sliding gage having the bifurcated portion fitting astride said anvil and provided with the laterally-projecting wings or guide-plates, the reciprocating plunger, and means for actuating said plunger, substantially as described.

11. In a saw-set, the base-plate having the standard with laterally-extending apertured arms mounted thereon, the vertically-reciprocating plunger fitted to slide in said arms, the spring fitted on said plunger between said arms, the sliding arm fixed to said plunger, the guide-rod engaging an aperture in said arm, the trip-lever pivoted at one end to said standard and provided at its free end with a pivoted pawl adapted to engage a lug or pin on said plunger, so as to move the latter on the upward movement of the lever and to yield thereto on the reverse movement, and means for actuating said trip-lever, substantially as described.

12. A saw-set comprising the base-plate having the standard thereon provided with laterally-extending apertured arms in which is fitted a reciprocating plunger, the anvil secured to said base-plate in line with said plunger, the saw rest or table, the pivoted trip-lever carrying a gravity-pawl at its free end, adapted to engage and raise the plunger on the upstroke of the lever and to yield on the downward stroke, the fixed pulley or friction-roll, and the pulley-cord fitted over said pulley with one end attached to the free end of said trip-lever and provided with a treadle at the other end thereof, substantially as described.

13. In a saw-set, the base-plate provided with the anvil-socket, the integral standard having laterally-extending apertured arms adapted to receive the reciprocating plunger, and the depending clamping-arm having the screw-threaded aperture therein, in combination with the anvil, the plunger, the plunger-actuating mechanism, and the adjusting-screw engaging the aperture in said clamping-arm for securing and adjusting the machine upon a bench or other suitable support, substantially as described.

14. In a saw-set, the base-plate having the standard thereon provided with laterally-extending arms, the reciprocating plunger fitted in apertures of said arms, and means for actuating said plunger, in combination with the table-support pivoted to said base-plate and the table pivoted to said table support, the pivots of said table and table-support being arranged at right angles to each other, and means for adjusting and securing said parts in the desired position, substantially as described.

15. In a saw-set, the combination, with the base-plate, of the table-support pivoted thereto, the adjusting-screw on which said support rests, the table mounted on said support and secured thereto by pivots arranged at right angles to the pivots of the table support, and the adjusting-screw engaging a screw-threaded opening in said support and having a swiveled connection with said table, so as to adjust and retain said parts in fixed positions relatively to each other, substantially as described

488,498. SURFACE-PRINTING PLATE.

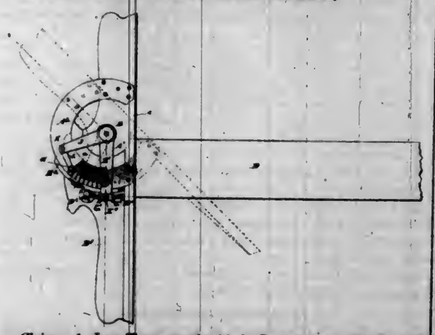
John Mullaly and Lothrop L. Bullock, New York, N. Y. Filed Feb. 20, 1892. Serial No. 422,306. (No model.)



Claim.—The herein-described plate for use in surface-printing, consisting of not less than ninety per cent. of aluminium alloyed with denser metal and having any suitable design imposed upon its surface, substantially as described.

488,499. ADJUSTABLE T-SQUARE.

Reuben McChesney, Philadelphia, Pa., assignor to himself and Sylvester McChesney, Troy, N. Y. Filed July 28, 1891. Serial No. 400,964. (No model.)



Claim.—1. In a T-square, the blade D, provided with dovetail cheeks D^3, in combination with an L-piece D', having corresponding dovetail grooves and with the swiveling T-piece A and the attached bar A^4, allowing the device to be used for right and left bevels by inverting, all substantially as herein specified.

2. In an adjustable T-square, the blade D, having the arm or L-piece D', in combination with a swiveling T-piece A, turning on a center B and having an additional circular bearing A' and an annular protractor A^2, arranged to serve as herein specified.

3. In an adjustable T-square, the blade D, having the arm or L-piece D', in combination with a swiveling T-piece A, turning on a center B and having an additional circular bearing A' and an annular protractor A^2, and back plate E, with a series of holes *c* in one part and a number of series of holes *a* in the other part, adapted to be secured in predetermined positions by the pin M, as herein specified.

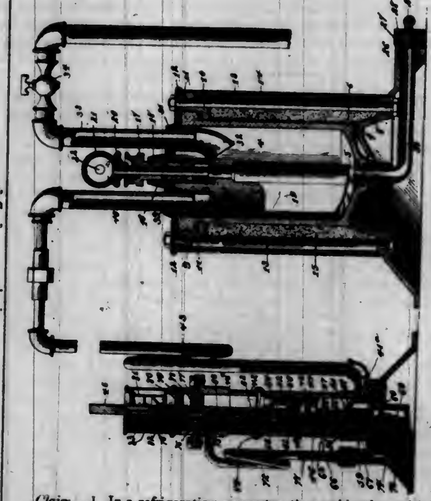
4. In an adjustable T-square, the blade D, having the arm or L-piece D', in combination with a swiveling T-piece A, turning on a center B and having an additional circular bearing A' and an annular protractor A^2, and back plate E, with a series of holes *c* in one part and a number of series of holes *a* in the other part, adapted to be secured in predetermined positions by the pin M, and the front arm E', adapted to form an additional bearing for the pin M, and a stop in rapidly setting the device, as herein specified.

5. In an adjustable T-square, the blade D, having the arm or L-piece D', in combination with a swiveling T-piece A, turning on a center B and having an additional circular bearing A' and an annular protractor A^2, the protractor having a number of series of equal holes *a*, and the plate E, having one series of corresponding holes *c*, and an arm J, joint K, link L, and pin M, arranged for joint operation as herein specified.

6. In an adjustable T-square, the blade D, having the arm or L-piece D', in combination with a swiveling T-piece A, turning on a center B and having an additional circular bearing A', and an annular protractor A^2, and back plate E, with a series of holes *c* in one part and a number of series of holes *a* in the other part, adapted to be secured in predetermined positions by the pin M, the front arm E', adapted to form an additional bearing for the pin M, and provisions, as the threaded rod D^4 and nuts G' G^3, for adjusting the plate E and bearing E' relatively to the blade D, as herein specified.

488,500. REFRIGERATING APPARATUS.

Charles E. Peirce, Altamonte Springs, Fla. Filed Dec. 15, 1891. Serial No. 415,172. (No model.)



Claim.—1. In a refrigerating apparatus, the combination, with a receiver, of an air-pump having a supplemental vacuum-cylinder, a valve block or disk located above said cylinder, a valve working upon said block and provided with a plunger working within said supplemental cylinder, a valved piston connected with said valve, and a pipe connecting the pump with the receiver, substantially as set forth.

2. In an apparatus of the class described, an air-pump having a supplemental vacuum-cylinder, a valve block or disk located above said cylinder, a valve working upon said block and provided with a plunger within said supplemental cylinder, a valved piston working above said block, a split piston-rod connected with said piston, and a valve-rod connected with said valve and clamped within said split piston-rod, substantially as set forth.

3. In an apparatus of the class described, an air-pump having a supplemental vacuum-cylinder connected with the bottom thereof and communicating with the top of the same by suitable piping, a hollow conical valve block or disk located above said supplemental cylinder within the pump cylinder, a vacuum-valve working over and fitting upon said block and provided with a depending stem, a plunger-block or piston loosely connected with said stem and working within said supplemental cylinder, and a valved piston connected with said vacuum-valve, substantially as set forth.

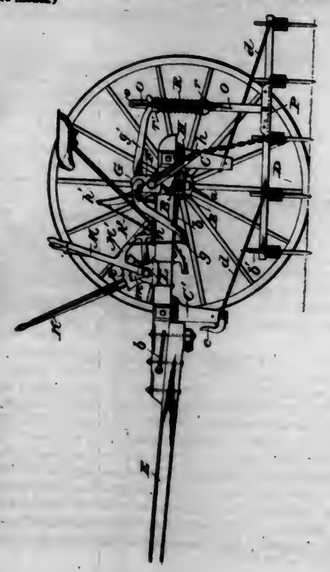
4. In an apparatus of the class described, an air-pump having a supplemental vacuum-cylinder, a hollow valve-block located directly above said supplemental cylinder within the pump-cylinder and provided with an upper valve-seat and lower annular stop within the same, a vacuum-valve fitting said valve-seat and provided with a depending stem, a plunger-block loosely connected with said stem and working within said supplemental cylinder, a valved piston working above said valve-block, a split spring piston-rod, and a valve-rod loosely connected with said vacuum-valve and clamped within said split piston-rod, substantially as set forth.

5. In an apparatus of the class described, an air-pump having a lower supplemental vacuum-cylinder connected with the bottom of the pump-cylinder, a hollow valve-block located above said supplemental cylinder and provided with an upper valve-seat and lower annular stop, a vacuum-valve fitting said valve-seat and provided with a depending stem, a plunger-block loosely connected with said stem within said supplemental cylinder, a split spring piston-rod, a valved piston carried upon the lower end of said rod above said valve-block, a valve rod loosely connected with said vacuum valve and clamped within said split piston-rod, and an upper combined oil-reservoir and an air-exhauster, substantially as set forth.

6. In an apparatus of the class described, the herein-described plunger or piston, having a lower valved disk fitting the pump-cylinder, a valved sleeve or tube seated within said disk and receiving the lower end of the piston-rod, a cage secured to the piston-rod and to the outside of said sleeve or tube, and packing extending the full height of the plunger or piston and clamped between the lower end of the cage upon the outside of said tube and the top of the disk, substantially as set forth.

7. In an apparatus of the class described, the combination, with the air-pump, of the combined oil-reservoir and air exhaust cylinder located above said pump and provided with a lower valved plate through which works the piston-rod of the pump, a valved pan or disk located above said valved plate, and an upper inclosed chamber projecting within said cylinder above said pan and provided with a bottom valve, and a series of horizontal and inclined stop-plates, substantially as set forth.

488,501. HARROW. WILLIAM RICHARDS, WILLIE GARWOOD, and HARRY H. ROSEBROOK, Big Springs, Ohio; said Richards assignor to said Garwood and said Rosebrook. Filed Mar. 3, 1892. Serial No. 423,612. (No model.)



Claim.—1. In a sulky-harrow, a frame provided with rock-levers G and H, journaled to the frame one above the other and connected to means for moving the same in unison or independently, the rearwardly-projecting portions of the rock-levers engaging with a depression-bar and with flexible connections for elevating the harrow-section, substantially as shown.

2. In a sulky-harrow, a beam or frame provided with rock-levers G and H, journaled to the beam or frame one above the other, said levers having forwardly and rearwardly projecting members, the rear members being connected to the harrow-section, levers K and M, attached to the same rock-shaft, the lever K, having a toothed segment *k*, over which a chain passes for engagement with the forwardly-projecting end of the lever H, and a bar connecting the lever M to the lever G, substantially as shown, and for the purpose set forth.

3. In a sulky-harrow, the combination, with a harrow-section and main beam or frame, of levers G and H, having portions which extend on each side of their journals, the rear portion of one of said levers engaging with a depression-bar, flexible connections attached to the harrow-section and to the rearwardly-projecting member of the lever H, a shaft *l*, journaled to the frame and provided with a toothed segment, a lever M, pivoted to the shaft *l* and provided with a pawl for engagement with the segment of said shaft, and a lever K, keyed to the shaft *l* and provided with a pawl for engagement with a fixed segment, the levers K and M being connected to the forward members of the levers G and H, substantially as shown, and for the purpose set forth.

4. The combination, in a harrow constructed substantially as shown, of a two-part bearing-box F, having bearings *f f'*, one above the other, and levers G and H, journaled therein, said levers having front and rear extending members which project above and below the bearings, the rear ends being connected to the harrow and the front ends to adjusting-levers K and M, for the purpose set forth.

5. A lever-support for the purpose set forth, consisting of a casting L, having bearings, and a segmental projecting portion *k'*, adapted to sustain a shaft *l*, having toothed segment *m* and levers K and M, one of said levers being loosely mounted on the shaft *l* and the other held in rigid engagement therewith, said levers carrying pawls, substantially as shown.

6. The combination, in a sulky-harrow, of a beam or frame B, carrying a two-part fixture F, having bearings *f* and *f'*, rock-levers G and H, journaled in said bearings, the rear members of said levers being connected to the harrow-frame, a lever K, rigidly attached to a shaft *l*, carried by the beam and provided with a pawl for engaging with a rack, and a lever M, loosely mounted on the shaft *l* and provided with a pawl which engages with the toothed segment formed on or attached to said shaft, said lever being connected to the rock-lever G, substantially as shown, whereby when the lever K is swung upon its pivot it will move in unison therewith, substantially as shown, and for the purpose set forth.

7. In a sulky-harrow provided with means for elevating the harrow-section and holding the same depressed, a lever, as K, rigidly attached to a shaft *l*, said shaft being mounted in bearings, the fixture having the bearings being provided with a toothed segment *k'*, the shaft having a rounded end and toothed segment *m*, and a lever M, mounted on the rounded end of the shaft and provided with a pawl for engagement with the toothed segment, substantially as shown, and for the purpose set forth.

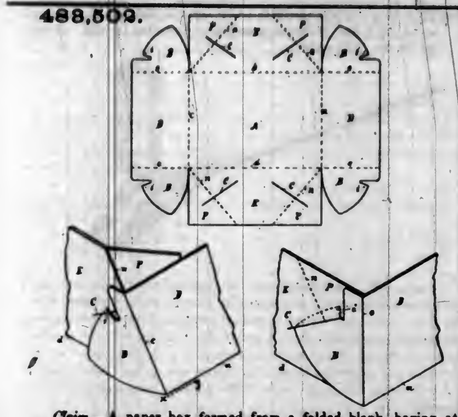
8. The combination, in a sulky-harrow, of a two-part bearing F, having apertures one above the other, rock-levers G and H, having portions located in said apertures and members which extend forward and rear of the bearing, flexible connections attached to the rear ends of the lever H, and a spring encircled bar O, to which the rear end of the lever G is attached, the forward ends of the rock-levers being connected with means for manipulating the same in unison or independently, substantially as shown, and for the purpose set forth.

9. The combination, in a sulky-harrow having levers for elevating or depressing the harrow-section, substantially as shown, of a bar O, having a block *r* and a sliding block *r'*, between which is interposed a helical spring, said bar having a slotted upper end to receive a bolt which connects the same to the lever G, substantially as shown, and for the purpose set forth.

10. The combination, with a sulky-harrow constructed substantially as shown, of a tubular axle A, having a central bearing to which is clamped the beam B of the harrow-frame, the ends of said tubular axle being swaged to be rectangular in cross-section and provided with clips *a'*, rods *b b*, attached to said clips and connected at their forward ends to the beam B, and a truss-rod *a*, also connected to the clips and adapted to engage with a depending portion on the two-part bearing by which the beam is connected to the axle, substantially as shown, and for the purpose set forth.

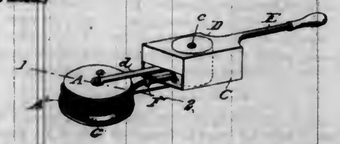
488,502. PAPER BOX. THEODORE F. W. SCHMIDT, Dayton, Ohio, assignor of one-half to the Dayton Paper Novelty Company, same place. Filed Apr. 7, 1892. Serial No. 428,165. (No model.)

488,502.



Claim.—A paper box formed from a folded blank, having at each end of two opposite sides the notched tongues B, and the slits C, projecting across the folding lines *n* of the corners P, whereby each tongue B can readily engage with a slit C, substantially as specified.

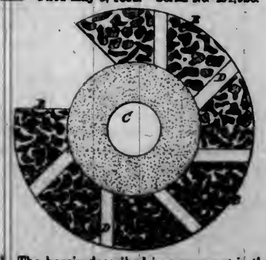
488,503. MACHINE FOR PAINTING BARBED-WIRE FENCES. JOHN R. SMITH, Necsho, Mo. Filed Jan. 25, 1892. Serial No. 419,239. (No model.)



Claim.—1. The brush composed of two disks having bristles on the side projecting toward each other and obliquely outward from the periphery of said disks, in combination with a supporting-frame and paint-reservoir, substantially as and for the purpose set forth.

2. The combination of a grooved wheel brush having the brushes inclined obliquely from the periphery of said wheel and mounted to turn in a portable frame, a paint-reservoir, and a drip-pan located on a plane vertical to the axis of the brush, substantially as and for the purpose set forth.

488,504. MILLSTONE AND THE METHOD OF MAKING THE SAME. THOMAS L. STURTEVANT, Framingham, and WILLIAM H. ELLIS, Boston, Mass. Filed May 5, 1892. Serial No. 431,923. (No model.)



Claim.—1. The herein-described improvement in the art of making millstones, which consists in forming the skirt of the stone by binding together small irregular lumps or blocks of emery with molten metal melting at a comparatively-low temperature and then securing the skirt to a suitable eye.

2. The herein-described improvement in the art of making millstones, which consists in forming a number of segments for the skirt of small irregular lumps of emery and molten metal—such as zinc—melting at a comparatively-low temperature, arranging the segments around an eye, and securing them thereto, substantially as set forth.

3. The herein-described improvement in the art of making millstones, which consists in forming a number of segments by binding together small irregular lumps of emery with zinc, arranging the segments with furrow-strips around an eye, and securing them thereto.

4. The millstone herein described, comprising a skirt having a working surface composed of small irregular lumps or blocks of emery embedded in, firmly grasped, and held apart by molten metal which melts at a comparatively-low temperature, as set forth.

5. The herein-described millstone, comprising a skirt having a working face composed of small irregular lumps of emery embedded in a molten metal which melts at a comparatively-low temperature, as described, an eye of a different material, and furrow-strips interposed between the skirt-segments.

6. A millstone having a skirt with its working face composed of small irregular lumps or blocks of emery having the spaces or interstices between them filled with a comparatively-soft metal melting at a comparatively-low temperature, substantially as described.

7. A millstone comprising a skirt with its working face composed of small irregular lumps of emery having the interstices between them filled with a malleable metal which can be consolidated when cold about the blocks or lumps and melting at a comparatively-low temperature.

8. The herein-described improvement in the art of repairing millstones, comprising small irregular lumps of emery embedded in a metal melting at a comparatively-low temperature, which consists in inserting a new block of emery into the cavity from which a block has been removed, melting the metal about the block, and adding new metal to firmly secure the new lump to the stone, substantially as described.

488,505. VEHICLE-SPRING. WILLIAM ATKINSON, Granby, Canada, assignor of one-half to Cyrus R. Tower, same place. Filed Dec. 16, 1891. Serial No. 415,308. (No model.)



Claim.—1. In a vehicle-spring, the knuckle-pieces D, rigidly secured to the slide-plates of the spring and having the lugs E, the said knuckle-piece prolonged into a loop to inclose the end of the spring and to act with its stop T, the bolt G, passing through the said lugs and pivoting them to the blocks F, and the clips K, binder L, and nuts M, substantially as herein shown and described.

2. The combination, in the vehicle-spring, of the cylindrical terminals of the tension-plate O, suitably secured to the spring and the bottom plate Q, said terminals being bushed, substantially as shown and described, and acting through the shackle-arms with the bushings of the cylindrical terminals of the rub-plates B, with the stop or protuberance T of the lowest leaf of the spring, and the loop-terminal of the knuckle-piece D, forming a chair-rest with the said spring-leaf and the rub-plate by passing across the top and down the sides of the said spring-leaf and rub-plate, as set forth.

3. In a vehicle-spring, the combination, with the knuckle-piece D, suitably secured to the relatively-adjacent parts of the vehicles, having its looped terminal N to clasp the rub-plate B and the lowest leaf of the spring bearing the protuberance T and to produce with said protuberance of the spring an effectual stop, substantially as and for the purpose set forth.

4. The combination, in a vehicle-spring, of the stop T of the spring-leaf with the looped terminal N of the knuckle-piece, as set forth.

5. In a vehicle-spring, the combination of the loop N of the knuckle-piece D with the stop T of the lowest spring-leaf and the plate Q, as set forth.

6. In a vehicle-spring, the combination, with the stop T of the spring-leaf resting upon the rub-plate B and into the loop N of the knuckle-piece D, of the plate O, acted upon by said stop T and loop N through the shackle R and preventing the body of the vehicle from shifting forward, substantially as set forth.

7. In a vehicle-spring, the combination of the loop N of the knuckle-piece with the stop T, the shackle N, the top plate O, and the bottom plate Q, arranged to act functionally together, as set forth.

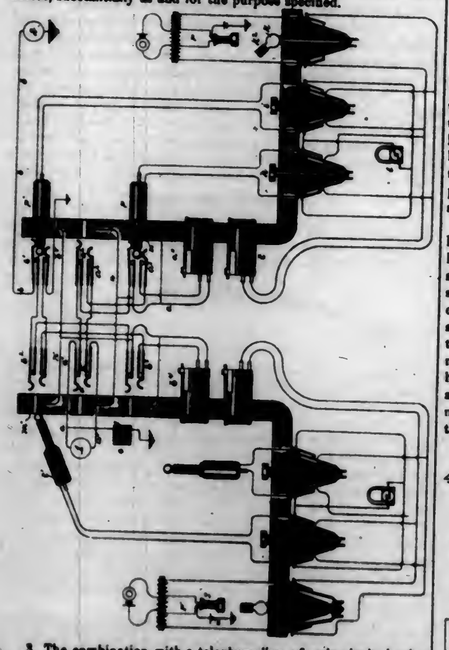
8. In a carriage-spring, the combination of the bushing, substantially as hereinbefore shown and described, with the cylindrical terminals of the top tension-plate O, the bottom tension-plate Q, and the arms of the shackle N, and the bolt G, whereby a more delicate and exact functional action of the spring is produced, as set forth.

488,506. TEST SYSTEM FOR MULTIPLE SWITCHBOARDS. ONO A. BELL, New York, N. Y., assignor to the Western Electric Company, of Chicago, Ill. Filed Sept. 30, 1891. Serial No. 407,262. (No model.)

Claim.—1. The combination, with spring-jacks, each having two line-springs, two contact-anvils, one for each line-spring, and a test-ring insulated from the line-spring, of two telephone-lines *a a'*, each of which includes one of the line-springs and its contact-anvil upon each of the jacks, a conductor joining all of said test-rings, a branch from said conductor to one of the lines after it has included all its respective line springs and contacts, and an earth connection to that line

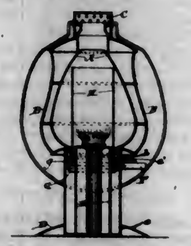
to which the said branch extends, substantially in the manner and for the purpose specified.

2. The combination, with spring-jacks, each having two line-springs, two contact-anvils, one for each line spring, and a test-ring insulated from the line-spring, of two telephone-lines a a^2, extending from a telephone-station, each including one line-spring and its contact-anvil of each spring-jack, a conductor joining all the test-rings, an earth connection to one of the lines between the telephone-station and the first spring-jack, a branch connecting said conductor with the grounded line at the last jack, and a branch connection from one of said test-rings to earth, including a source of electricity and a responsive device, substantially as and for the purpose specified.



3. The combination, with a telephone-line, of spring-jacks having two line-springs and two back contacts, one line-spring and its back contact of each spring-jack being included in each side of the line-circuit, and test-pieces upon each spring-jack, connected to the line-circuit between the different back contacts of the last jack of the series, whereby said test-pieces are disconnected from the line-circuit when a plug is inserted into any jack, substantially as specified.

488,507. SIGNAL-LANTERN. GUSTAVUS A. BRENDOFF, Chicago, Ill. Filed Dec. 20, 1889. Serial No. 334,461. (No model.)



Claim.—In a signal-lantern, the combination of the globe A with the frame, the base D, having the oil-receptacle E, the slot d, having the enlargements d' e, the interior globe H, having the screw-threads g, the spring-holder G, having screw-threads h, and the spring F, having the thumb-pieces F, all constructed, arranged, and operating substantially as and for the purpose set forth.

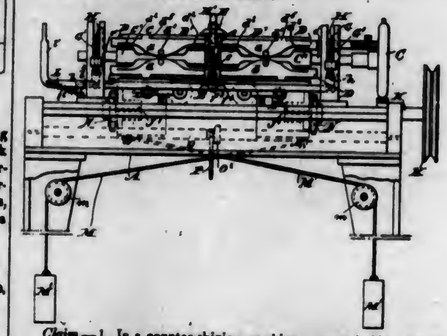
488,508. ANIMAL-POKE. ARCH BOLDING, Sumner, Ill., assignor of one-half to Geo. F. French, same place. Filed Feb. 15, 1892. Serial No. 421,651. (No model.)



Claim.—1. In an animal-poke, the combination, with the stale and the pins carried thereby, of the parallel bars pivotally connected with the stale upon opposite sides thereof, the metallic piece connecting the lower ends of said bars, the yoke pivotally connected with the parallel bars, and the coiled spring arranged parallel with the upper face of the stale and connected at one end thereto and at the other end to a pin connecting the upper ends of the parallel bars, substantially as specified.

2. The animal-poke described, consisting of the stale having enlarged end with angular portion and depression below the said angular portion and below its pivot, the pins rigidly held in the end of the stale at the lower portion of the said depression, the pin held in the stale, the parallel bars pivoted upon the said pin upon opposite sides of the stale, the metallic piece connecting the lower ends of the parallel bars, the pin held in the said bars above their pivot and adapted to engage the upper face of the stale and form a stop to limit the movement of the bars, the yoke pivoted on the last-mentioned pin, the pin held in the bars above the last-mentioned pin, and the coiled spring arranged parallel with the upper face of the stale and at one end connected thereto and at the other end connected with the upper pin in the parallel bars, all substantially as shown and described.

488,509. COUNTER-SKIVING MACHINE. MICHAEL C. BOWMAN, ALBERT F. ROSS, and CYRUS R. MORSE, New York, N. Y. Filed Oct. 17, 1891. Serial No. 409,065. (No model.)



Claim.—1. In a counter-skiving machine, a work-holder having seats for the counters at different points around the same, in combination with movable cutters toward and from which the work-holder is movable and means for holding the latter against rotary movement when presented to the cutters, substantially as described.

2. The combination, with the cutting-knives, of a rotary work-holder arranged above such knives and provided with seats for the work at different points thereabout and clamps for securing the work to such seats, said work-holder being vertically movable toward and from the knives, the lowermost work-holding seat being presented to the knives when the work-holder is in the lowered position and the upper seat exposed for permitting access thereto, and means for maintaining the work-holder against rotary movement when in such lowered position, substantially as described.

3. In a skiving-machine, the combination, with the knives, of a swinging frame and a work-holder carried thereby and journaled therein for rotary movement, the frame being mounted to permit a free intermittent rocking movement for alternately carrying the work-holder toward the knives and withdrawing it therefrom, and means for holding the work-holder against rotary movement when the frame is moved toward the knives, substantially as described.

4. In a skiving-machine, the combination, with the knives, of a work-holder movable toward and from said knives and having a seat

for the counters and a clamp for the same, springs normally tending to throw said work-holder away from the knives, and means for locking said work-holder against the action of the springs, substantially as described.

5. In a skiving-machine, the combination, with the movable knives, of a work-holder having seats for the counters, said seats having depressions, pressure devices for pressing the counters into said depressions, the knives serving to skive the projecting edges of the counters, and means for moving the knives and pressure devices, substantially as described.

6. In a skiving-machine, a work-holder having seats for the counters, said seats being pivotally and adjustably held to said holder, substantially as described.

7. In a skiving-machine, the combination, with a work-holder, of a clamp-plate thereon for clamping the counters and movable supports for such plate, a rock-shaft and a lever thereon, and connections, substantially as described, between the shaft and the clamp-supports for throwing said supports and the clamp-plate thereon by the rocking of the shaft, substantially as described.

8. In a skiving-machine, the combination, with work-holding devices, of rotary knives, slides in which said knives are mounted, and a feed-screw for causing both slides to traverse the work-holder, substantially as described.

9. In a skiving-machine, the combination of a work-holder mounted to rotate, rotary knives, and slides in which said knives are mounted, the slides being movable across the face of the said holder for presenting the knives to the counters held thereon, substantially as described.

10. In a skiving-machine, the combination of rotary cutters, slides in which said cutters are mounted, a frame pivoted to be swung toward and from such cutters, and a work-holder journaled in said frame, the slides being movable across the face of the said holder for presenting the knives to the counters held thereon, substantially as described.

11. In a skiving-machine, the combination, with work-holding devices, of knives reversely actuated, slides in which said knives are mounted, and means, substantially as described, for actuating said slides in opposite directions, substantially as described.

12. In a skiving-machine, knives or cutters reversely actuated, slides in which said knives are mounted, and means, substantially as described, for actuating said slides in opposite directions and for returning them, as set forth.

13. In a skiving-machine, the combination of a work-holder and knives or cutters, the said work-holder having a movement toward and from the knives, and means for giving the latter a sliding movement relatively to the work-holder, locking devices for the said work-holder, and means, substantially as described, for releasing such locking devices by the slides, as set forth.

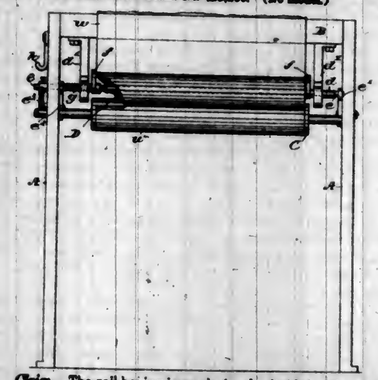
14. In a skiving-machine, the combination of a work-holder and knives, the former being carried by a frame which is movable toward and from the knives, slides in which said knives are mounted, split nuts on said slides, a feed-screw with which said split nuts engage, and connections between said split nuts and movable frame, substantially as described.

15. In a skiving-machine, the combination of knives or cutters, slides in which said knives are mounted, a work-holder mounted in a frame which is capable of movement toward and from said knives, split nuts carried by said slides, a feed-screw engaged by said split nuts, weights connected with the slides and tending to move the same contrary to the direction in which they are actuated by the feed-screw, and connections between the split nuts and the frame carrying the work-holder, substantially as described.

16. In a skiving-machine, the combination of knives or cutters, slides in which said knives are mounted, a work-holder mounted in a frame which is capable of movement toward and from the said knives, hooks for locking said frame, a releasing-bar for said hooks adapted to be shifted by the slides, split nuts on said slides, a feed-screw engaged by said split nuts, weights connecting with the slides and tending to move the same contrary to the direction in which they are moved by the feed-screw, and connections between the split nuts and the frame carrying the work-holder, substantially as described.

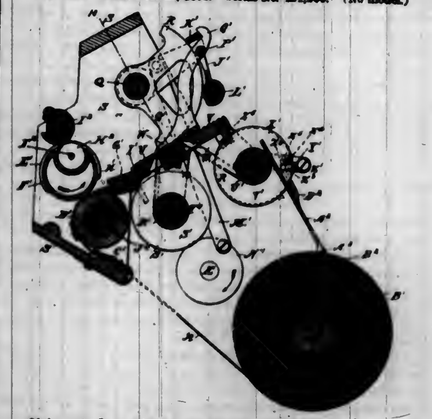
17. In a skiving-machine, the combination of knives or cutters, slides in which said knives are mounted, a work-holder mounted in a frame which is capable of movement toward and from the knives, hooks for locking said frame, a releasing-bar for said hooks adapted to be shifted by the slides, split nuts on said slides, a feed-screw engaged by said split nuts, weights connected with the slides and tending to move the same contrary to the direction in which they are moved by the feed-screw, a rock-shaft connected with the swinging frame, and connections between the said rock-shaft and split nuts, substantially as described.

488,510. CLOTH-WINDING MECHANISM. JOSEPH CORR, Fall River, assignor of one-half to George Draper & Sons, Hopedale, Mass. Filed Feb. 29, 1892. Serial No. 423,209. (No model.)



Claim.—The roll having journals d and suitable bearings therefor, combined with a rock-shaft having attached guide-plates notched to embrace the journals of the roll, and a spring normally to keep the said plates in position to act as guides, and a projection c^2 from the rock-shaft, and a hook or device to engage the said projection and keep the plates elevated from the journals, substantially as described.

488,511. CASH REGISTER AND INDICATOR. HUGO COOK, Dayton, Ohio. Filed Feb. 12, 1892. Serial No. 421,289. (No model.)



Claim.—1. In a printing attachment for cash-registers, the combination of a type-carrier and an impression-platen adapted to have both a check and a record-strip passed between them, means for moving the record-strip between the type-carrier and platen, and two cams co-operating with the platen to produce two distinct impressing movements thereof at each operation of the machine, one for the check and the other for the record-strip.

2. In a printing attachment for cash-registers, the combination of a type-carrier and an impression-platen adapted to have a check and a record-strip passed between them, means for moving the record-strip between the type-carrier and platen, and two revolable cams co-operating with the platen, one near the beginning of its revolution to produce an impression upon the record-strip and the other near the end of its revolution to produce an impression upon the check.

3. In a printing attachment for cash-registers, the combination of a type-carrier and an impression-platen adapted to have a check and a record-strip passed between them, means for moving the record-strip between the type-carrier and platen, a revolable disk having a cam-groove therein, provided with two impressing points or cams Y^3 Y^4 with a depression Y^5 between them, and a stud upon the platen-support, fitting in said cam-groove, whereby at each revolution of the disk the platen is given two distinct impressing movements, one by one cam for the record-strip and one by the other cam for the check.

4. In a cash register and indicator, the combination of a driving

mechanism having a defined movement at each operation of the machine, a gear-toothed sector mounted to oscillate back and forth, means for connecting the driving mechanism with and disconnecting it from the sector to impart to the latter different portions of the movement of the driving mechanism, a type-carrier geared to the sector, an impression-platen arranged to permit a check and a record-strip to be passed between it and the type-carrier, means for moving the record-strip between the type-carrier and platen, and two cams actuated by the driving mechanism of the machine and co-operating with the platen to produce two distinct impressing movements thereof at each complete movement of the driving mechanism.

5. In a printing attachment for cash-registers, the combination of a revoluble cylinder bearing a series of types and an impression-roller co-operating therewith and adapted to have a check-strip fed between them, a type-carrier and a platen adapted to have the same strip passed between them, means for moving the check-strip between the cylinder and impression-roller and type-carrier and platen, a knife interposed between the printing-cylinder and the type-carrier for severing the strip to form a detached check, and an operating-cam for the platen and knife.

6. In a printing attachment for cash-registers, a revoluble cylinder having a series of consecutive numbering and dating type-wheels eccentrically journaled therein, the former being actuated by the revolutions of the cylinder, fixed type-matter upon the surface of said cylinder adjacent to the said wheels, an impression-roller co-operating with the printing-cylinder and arranged to have a check-strip fed between them, a type-carrier and an impression-platen adapted to have said check strip passed between them, means for advancing the check-strip, a knife interposed between the printing-cylinder and the type-carrier for cutting the check-strip into detached checks, and an actuating-cam for the knife and impression-platen.

7. In a cash register and indicator, the combination of the type-carrier and the impression-platen adapted to have both a check strip and a record-strip fed between them, feeding mechanism for the record-strip, actuated at each operation of the machine, separate feeding mechanism for the check-strip, and means for throwing it out of and into operation at will, whereby the feeding of the check-strip may be discontinued when desired and the types caused to print upon the record-strip alone.

8. In a cash register and indicator, the combination of the type-carriers and the impression-platen adapted to have both a check-strip and a record-strip fed between them, two cams co-operating with the platen to produce two distinct impressing movements thereof, one for the record-strip and the other for the check-strip, feeding mechanism for the record-strip, actuated at each operation of the machine, and separate feeding mechanism for the check-strip and means for throwing it out of and into operation at will, whereby the feeding of the check-strip may be discontinued when desired and the types caused to print upon the record-strip alone.

9. In a printing attachment for cash-registers, the combination, with the type-carriers and the impression-platen, of two feed-rollers for feeding the check-strip between the carriers and platen, one of said rollers being movable out of and into co-operative relation with the other roller, whereby the feeding of the check-strip may be discontinued and resumed at will.

10. In a printing attachment for cash-registers, the combination, with the type-carriers and the impression-platen, of two feed-rollers for feeding the check-strip between the carriers and platen and an eccentrically-journaled shaft upon which one of said rollers is journaled, whereby upon turning said shaft said roller may be moved away from the other and the feeding of the check-strip discontinued.

11. In a printing attachment for cash-registers, the combination, with the type-carriers and the impression-platen, of two feeding-rollers for feeding the check-strip between the carriers and platen, an eccentrically-journaled shaft upon which one of said rollers is journaled, a thumb-piece splined on the outer end of said shaft and provided with two notches, a stop upon the frame, co-operating with said notches, and a spring applied to the thumb-piece to yieldingly hold the notches in engagement with the stop, whereby upon sliding the thumb-piece upon the shaft until its engaged notch is disengaged from the stop and then turning it until the other notch engages the stop the feed-roller carried by said shaft will be moved out of co-operative relation to the other roller, and vice versa.

12. In a printing attachment for cash-registers, the combination of the type-carriers, a reciprocating platen co-operating therewith, a supply-reel and a storage-reel for the record-strip, both carried by the platen-support and moving with the platen, and means actuated by the reciprocations of the platen to turn the storage-reel and wind up the record-strip.

13. In a printing attachment for cash-registers, the combination of the type-carriers, a reciprocating platen co-operating therewith, a supply-reel and a storage-reel for the record-strip, both carried by the platen-support, and means for turning the storage-reel, actuated by the reciprocations of the platen-support and controlled by the increasing size of the roll upon the reel to gradually decrease the extent of movement given the latter at each operation of the machine.

14. In a printing attachment for cash-registers, the combination of the type-carriers, a reciprocating platen co-operating therewith, a supply-reel and a storage-reel for the record-strip, both carried by the platen-support, an actuating-pawl for the storage-reel, operated by the reciprocations of the platen-support, and means controlled by the increasing size of the roll upon the storage-reel for gradually decreasing the throw of the pawl.

15. In a printing attachment for cash-registers, the combination, with the storage-reel, a swinging arm hung on the axis of the reel, a pawl carried by said arm and co-operating with the reel to turn the same, a movable stop for the pawl-arm, co-operating with the roll of paper on the storage-reel and gradually moved away from the axis of the reel as the size of the roll increases to cause the stop to engage the pawl-arm farther and farther from its pivotal support, and thereby decrease the throw of the pawl.

16. The combination of the type-carriers R, the platen W, co-operating therewith, the swinging frame K', and the arm Q', hung therein and co-operating with the platen W, substantially as described.

17. The combination of the type-carriers R, the sliding bar U, having the stud Z, the revoluble disk X, having the cam-groove Y, co-operating with the stud Z, the plate V, carried by the bar U, the platen W, and the record-strip reels S' and U', carried by the plate V, substantially as described.
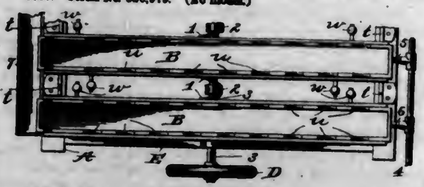
18. The combination of the type-carriers R, the revoluble disk X, having the cam-groove Y, the sliding bar U, having the stud Z fitting in the cam-groove Y, the plate V, carried by the bar U, the platen W, and the knife I', carried by the plate V, and the fixed plate G', co-operating with the knife I', substantially as described.

19. The combination of the type-carriers R, the revoluble disk X, having the cam-groove Y, the sliding bar U, having the stud Z fitting in the groove Y, the plate V, carried by the bar U, the platen W, and the knife I', carried by the plate V, the fixed plates G' and H', the supply-reel B' for the check-strip, and the roller D', and flanged cylinder F', between which and beneath the plate G' the check-strip is led from the reel B' to the plate V, substantially as described.

20. The combination of the roller D', the cylinder F', having the type-wheels G^3 H^3 eccentrically journaled therein, the type-carriers R, the revoluble disk X, having the cam-groove Y, the sliding bar U, having the stud Z fitting in the groove Y, the plate V, carried by the bar U, the platen W, and the knife I', carried by the plate V, and the fixed plate G', co-operating with the knife I', substantially as described.

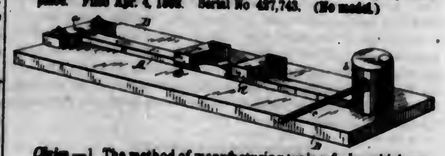
21. The combination of the type-carriers R, the reciprocating plate V, carrying the platen W and the record-strip rollers S' and U', the arm Z', hung on the axial support of the roller U', the pawl Y', carried by the arm Z' and co-operating with the disk X' of the reel U', and the plate A^3, bearing against the roll of paper on the reel U' and having an arm D^3 engaging the pawl-arm Z', substantially as described.

488,512. SEALING-WAX MOLD. JOHN C. BOBERT, Dayton, Ohio, assignor to the firm of Dicks & Wiggins, same place. Filed Oct. 14, 1889. Serial No. 326,979. (No model.)

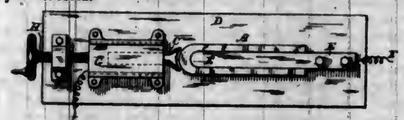


Claim.—The combination, in a hollow mold, with parts B and C, the closing-plates *s*, with counter weights *w* to hold said plates from the sides of the molds, and the wire cam, of parts 1 and 2, held on shaft 3 to hold said plates against the sides of said mold while the melted wax is hardening, substantially as set forth.

488,513. METHOD OF MAKING TUNING-FORKS. LEVI K. FULLER, Brattleborough, Vt., assignor to the Estey Organ Company, same place. Filed Apr. 4, 1888. Serial No. 427,743. (No model.)



Claim.—1. The method of manufacturing tuning-forks, which consists in upsetting a blank of steel of the proper dimensions for forming the prongs of a tuning-fork, whereby said blank is enlarged at its center, and then bending said blank to form the prongs with the enlarged central part of the blank at the bend connecting the prongs, upsetting one end of a handle-blank, thereby enlarging the same, uniting the enlarged end of the handle-blank to the bend of the fork-prongs by welding, and then removing the surplus metal at the welded joint, substantially as set forth.



2. The method of manufacturing tuning-forks, which consists in making the fork-prongs and handle separately, uniting them by welding, and prior to the welding operation enlarging the meeting portions of the handle and fork-prongs, convexing the meeting face of the fork-prongs in the arc of a circle, and concaving the meeting face of the handle in a corresponding arc, substantially as set forth.

3. The method of manufacturing tuning-forks, which consists in heating the central portion of a blank of steel of the proper dimensions forming the prongs of a tuning-fork, upsetting said blank, whereby said blank is enlarged at its center, bending said blank at the center to form the fork-prongs with the enlarged central part of the blank at the bend connecting the prongs, and convexing the outer face of the bend of the fork-prongs to the arc of a circle, heating and upsetting one end of a handle-blank, thereby enlarging the same, concaving the enlarged end of said handle-blank to the arc of a circle corresponding to the arc of the convexed bend of the fork-prongs, uniting the curved portions of the fork-prongs and handle-blank by welding, and removing the surplus metal at the welded joint, substantially as set forth.

483,514. HORSE-HITCHING DEVICE. JOHN H. QUINTON, Portland, Oreg. Filed June 4, 1891. Serial No. 395,276. (No model.)

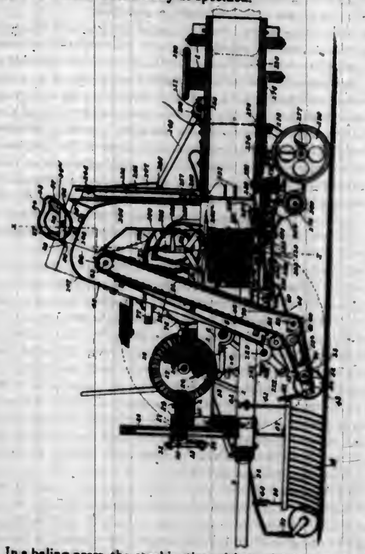


Claim.—1. A rein-holding device consisting, substantially, of a rod *b*, horizontally supported on one side of the wagon or vehicle in suitable bearings, enabling said rod to be moved lengthwise, and said rod *b*, having an arm *k* pivoted on it, adapted to engage the spokes of one of the wheels, substantially as described, a lever *i*, pivotally secured on the side of the wagon and provided with a handle *j*, the lower end of which lever has a vertical slot and is loosely held on said rod *b* between collars *h h'*, a rod *f*, the lower end of which is pivotally fastened to a suitable crank fixed on said rod *b* and affording means for turning the latter, so as to project the said arm *k* between the spokes of the wheel coacting therewith, as described, the upper end of said lever *i* and rod *f* being pivotally connected with each other by a lever *g*, and the wagon being provided with a suitable rail *m* for holding such lever and rod in place, all in combination, as and for the purposes set forth.

2. The combination, with a wagon or vehicle one of the wheels of which is provided with a number of false spokes secured to the true spokes by suitable means, for the purposes specified, of a rein-holding device consisting, substantially, of a rod *b*, horizontally supported on one side of the wagon in suitable bearings, enabling said rod to be moved lengthwise, and said rod *b*, having an arm *k* pivoted on it, adapted to engage the spokes of one of the wheels, substantially as described, a lever *i*, pivotally secured on the side of the wagon and provided with a handle *j*, the lower end of which lever has a vertical slot and is loosely held on the said rod *b* between collars *h h'*, a rod *f*, the lower end of which is pivotally fastened to a suitable crank fixed on said rod *b* and affording means for turning the latter, so as to project the said arm *k* between the spokes of the wheel coacting therewith, as described, the upper ends of said lever *i* and rod *f* being pivotally connected with each other by a lever *g*, and the wagon being provided with a suitable rail *m* for holding such lever and rod in place, substantially as set forth.

483,515. COMBINED RAKE AND PORTABLE BALING-PRESS. CHRISTOPHER C. SEERO, Sherman, Tex., assignor of one-half to Isaac Shero, same place. Filed Oct. 24, 1890. Serial No. 369,230. (No model.)

Claim.—1. In a baling-press, the combination, with the driving mechanism, the baling-chamber, its plunger, and mechanism for operating the latter and normally out of connection with the driving mechanism, of a trip located in the chamber and adapted to be operated by the weight of deposited material in the chamber and adapted to throw the plunger-operating mechanism into engagement with the driving mechanism, substantially as specified.



2. In a baling-press, the combination, with the driving mechanism, the baling-chamber, its plunger, and mechanism for operating the latter, of a spring for throwing the driving mechanism into connection with the plunger-operating mechanism, devices for retracting the spring so as to withdraw the drive mechanism from the plunger-operating mechanism, and a trip located in the chamber, adapted to be operated by the deposit thereon and when so operated to operate the spring-retracting device, substantially as specified.

3. In a baling-press, the combination, with the framework, an arm pivoted to one side of the same and terminating at its outer end in a caster, and a rake loosely suspended from the arm, of the oppositely-cranked shaft journaled in the framework and having its lower crank terminating in the socket of the rake, a fly-wheel, a shaft therefor, means for operating the same, and a pitman connected to the upper end of the crank, and a crank connecting the opposite end of the pitman to the fly-wheel shaft, substantially as specified.

4. In a baling-press, the combination, with the framework, the driving mechanism, a shaft journaled in the framework, geared with the drive mechanism and conical at its outer end and provided with a threaded bore, a fly-wheel on said end and having a conically-bored hub slightly smaller than the conical end, the crank-arm, and the screw passed therethrough and into the bore of the shaft and having its head clamping the same against the end of the shaft, of a vertical rake-operating shaft journaled in the framework and having a cranked upper end, a rake connected to the lower end of said vertical shaft, and a pitman connecting the upper crank end with the crank-arm of the shaft, substantially as specified.

5. In a baling-press, the elevator, the pairs of arms pivoted to and depending from the inner faces of the lower ends thereof, the endless apron, the supports thereof, and operating means, combined with the pair of arms pivoted to the outer lower ends of the elevator, the stops depending therefrom and taking under the inner arms, the rollers at the lower ends of the outer arms, the bail connecting the outer arms, and the perforated lever connected to the bail, substantially as specified.

6. In a baling-press, the combination, with the opposite sides of the elevator, provided near their lower ends with an inclined slot, and a pair of arms hinged to the lower ends of the sides, of a shaft passed through the upper end of the elevator, a pair of shafts in the lower end of the same, one of which is mounted in the slot, springs for depressing the said shaft in the slot, and a shaft passed through the ends of the arms, a bail connecting the arms, a lever pivoted on the framework, a chain connecting the same with the lever, a pair of opposite endless chains passing over the sprockets, around the lower pulleys, and in rear of the intermediate pulleys, bars connecting the chains and provided with spurs or teeth, and an endless apron connected to the bars, substantially as specified.

7. In a baling-press, the combination, with a baling-chamber, of

a packing-chamber located above the same and provided with a reduced spring-wall at one side of its mouth or lower end and means for reciprocating the packer within the chamber and for discharging from the packing-chamber into the baling-chamber deposits at each reciprocation of the packer, substantially as specified.

8. In a baling-press, the combination, with a train of gearing, a plunger mechanism operated thereby, said train including a loose gear provided with a toothed hub, a clutch mounted on the shaft of the gear, a spring-yoke for normally withdrawing the clutch from engagement with said gear, and a rock-shaft having a rock-arm connected with the clutch and having its opposite end laterally bent, of a baling-chamber, a shaft located below the chamber, a rocking bail mounted on the shaft, a trip-plate mounted on the bail in the bottom of the chamber, a spring for elevating the trip-plate, and a loop on the rocking bail, engaging the laterally-bent end of the rock-shaft and adapted to draw the same downward at each depression of the bail, whereby the clutch is thrown against the tendency of the spring into engagement with the toothed hub of the before-mentioned gear, substantially as specified.

9. In a baling-press, the combination, with a baling-chamber, the rock-shaft located thereunder, and the bail mounted on the rock-shaft and having depending brackets, of the trip-plate mounted upon the bail, the catch located in front of the same, the bolt mounted for reciprocation in brackets upon the under side of the bail, a spring coiled upon the bolt and bearing at one end against a depending bracket, said bolt being adapted for engagement with the catch and being provided at the rear side with an enlarged head or end, a collar located on the bolt at the rear end of the spring, a packer mounted for reciprocation in the chamber, an arm pivoted to the packer and adapted to actuate the bolt against the spring, and a spring-track mounted on the ball, extending above the same, and terminating in advance of the head of the bolt, substantially as specified.

10. In a baling-press, the combination, with a baling-chamber provided upon its under side or bottom with openings, shutters spring-pressed and provided upon their upper sides with lugs having eyes and hinged to one side of and adapted to cover the openings, a pair of wire-drawing plungers mounted for movement through the openings, and means for lowering and raising said plungers, of a wire-spool-carrying support located below the chamber and guide-eyes located in the openings in the chamber, substantially as specified.

11. In a baling-press, the combination, with a baling-chamber the bottom of which is provided with openings, spring-pressed shutters provided with guide-eyes, hinged to the edges of and adapted to cover the openings, wire-carrying plungers mounted for reciprocation in the openings, and devices for operating the same, of a wire-support, a pivoted bail for drawing off the wire, and means for operating the same at each downstroke of the plungers, substantially as specified.

12. In a baling-press, the combination, with a baling-chamber, guides located at the sides of the chamber, blocks mounted for reciprocation in the guides, a packer connected with the blocks, and a lug mounted on one of said blocks, of means for reciprocating the blocks, a ratchet-wheel provided with a stop mounted for rotation at the side of the chamber, a double-ended spring located at the side of the wheel and adapted to be operated by the stop, a rock-shaft journaled upon the chamber, rock-arms connected to the shafts, a lever connected with one of the rock-arms and provided with a notch for engagement with the lug upon the guide-block, said lever extending into the path of and adapted to be actuated by the double-ended spring, a pair of guides located above the chamber, a bar mounted in the guides, rods connecting the same with the rock-arm, and wire-loop-forming plungers connected to the bar, substantially as specified.

13. In a baling-press, the combination, with the baling-chamber having the opposite guides, the packer mounted in the chamber, and opposite pitmen for operating the packer, of a shaft, an eccentrically-pivoted elliptical gear mounted thereon, a shaft located below the first-mentioned shaft, and an eccentrically-mounted elliptical gear in one end of the same, engaged and driven by the first-mentioned gear and at its free end connected to one of the pitmen, the opposite end of the shaft being bent to form a crank and connected to the opposite pitman, substantially as specified.

14. In a baling-press, the combination, with a conveyer and a packing-chamber, the two communicating at their upper ends and covered by a slotted plate, of a shaft and means for rotating the same located above the plate, opposite transverse bars mounted on the shaft, rods connecting the bars and pivoted to the ends of the latter and provided with teeth, said rods having their outer ends bent to form cranks, and cams located at the ends of the shaft and provided with grooves for the reception of the cranks, substantially as specified.

15. In a baling-press, the combination, with a baling-chamber the roof of which is provided with longitudinal slots, a packer mounted for reciprocation therein, wire-loop-forming plungers mounted for reciprocation in the front ends of the slots, and suitable mechanism for operating the packer and the plungers, of a plate located at the rear ends of the slots and provided with cam-shoulders and a pair of pivoted levers mounted opposite the slots and provided with beveled ends for binding on the shoulders, substantially as specified.

16. In a baling-press, the combination, with the baling-chamber, opposite guides, blocks mounted in the guides, a packer mounted in the chamber and connected with the guides, and mechanism for reciprocating the blocks, of a packing-chamber located above the packer, a shaft journaled in rear of the box and provided with teeth for feeding from the chamber to the baling-chamber, a sprocket loosely mounted on the shaft, gearing connecting the same with the ground-wheel, a clutch mounted upon the shaft and adapted to engage the hub of the sprocket, a bracket located at the side of the sprocket, a crank-shaped yoke engaging the clutch, a spring for throwing the clutch into engagement with the sprocket, and a track mounted upon one of the sliding blocks and adapted to come in contact with and operate the yoke against the tendency of the spring and so as to disengage the clutch from the sprocket at each forward movement of the block and packer, substantially as specified.

17. In a baling-press, the combination, with the baling-chamber, its reciprocating packer, means for operating the same, a feed mechanism, gearing for operating the same, and a clutch located between the feed mechanism and gearing, said clutch normally connecting the same, of devices actuated by the packer for throwing the clutch out of operative position at each forward movement of the plunger, substantially as specified.

18. In a baling-press, the combination, with the baling-chamber, its packer, and the superimposed feed-chamber and its feeders, of devices for operating the packer, devices for operating the feeders, and devices mounted on the packer for throwing the feeders out of operation at each forward movement of the packer, substantially as specified.

19. In a baling-press, the combination, with a baling-chamber, a packer, and mechanism for operating the packer when connected thereto, but normally out of such connection, of a trip located in the chamber, adapted to be depressed by the deposits of hay thereon, and connections between the packer operating mechanism and packer, whereby when said trip is depressed said mechanism and packer are thrown into connection, substantially as specified.

20. In a baling-press, the combination of a baling-chamber, means for compressing material therein, a feed-chute located above and communicating with said baling chamber, a packer operating to intermittently feed the material through said feed-chute into said baling-chamber, and a spring in said feed-chute for preventing the material being baled from entering the baling-chamber without the aid of the packer, substantially as specified.

488,516. PRESSURE-REGULATOR. VAN H. HIGGINS and WILLIAM D. SMITH, Chicago, Ill. Filed June 29, 1891. Serial No. 397,774. (No model.)



Claim.—1. In a mercurial gas-governor, the pressure distributing chamber provided with an inlet-port valved at its supply side and arranged to establish direct communication between the pressure-distributing chamber and the main-service supply, an open-delivery-passage leading from the pressure-distributing chamber and permitting the uninterrupted flow of gas from said chamber to the point of service, the two concentric mercury-holding compartments separated by a partition-wall and each containing a body of mercury, the open-bottom float constructed with concentric side walls which dip into the mercury within the two mercury-holding compartments and providing a pressure-chamber which is in open communication with the pressure-distributing-chamber by a passage formed through the partition-wall between the two mercury-holding compartments, and the valve arranged to open at the supply side of the inlet-port for the pressure-distributing chamber and having its stem extended upwardly within a passage through the partition-wall between the two mercury-holding compartments and connected with the float, substantially as described.

2. In a mercurial gas-governor, the governor shell or body provided with a centrally and horizontally arranged pressure-distributing chamber D, an inlet-port formed through the bottom wall of the pressure distributing chamber and arranged to establish direct communication between said chamber and the main-service supply, an open delivery-passage 12, leading directly upward from the central portion of the pressure-distributing chamber and arranged to permit the uninterrupted flow of gas from said chamber to a burner, and an annular mercury-holding chamber surrounding the delivery-passage, combined with an annular inverted cup-float E, positioned for operation around said delivery-passage and arranged to dip into the mercury in the annular mercury-holding chamber, and a valve arranged to open at the supply side of the pressure-distributing chamber and having its stem extended upwardly and connected with the float, the pressure-chamber provided by the space within the float being in open communication with the pressure-distributing chamber by a passage leading directly upward from the latter, substantially as described.

3. In a mercurial gas-governor, the governor shell or body A, provided with a centrally-arranged pressure-distributing chamber D, having an inlet-port, a receiving-chamber C, arranged below the pressure-distributing chamber and communicating therewith through the said port, a neck 13, arranged at the center of the bottom portion of the shell or body and providing a passage 14, which opens into the receiving-chamber C, and which, together with said chamber, constitutes a portion of the main-service-supply passage, an open passage 12, leading directly upward from the center of the pressure-distributing chamber and in alignment with passage 14, and an annular mercury-holding chamber arranged over the pressure-distributing chamber and divided by an annular partition-wall into two compartments, each containing a body of mercury, combined with an annular cup-float E, arranged to dip into the mercury in said mercury-holding compartments, and a valve B, arranged to open at the supply side of port 1 and having its stem extended upwardly through a passage in the annular partition-wall and connected with the float, the pressure-chamber which is provided by the space within the float being in open communication with the pressure-distributing chamber, substantially as described.

4. In a mercurial gas-governor, the governor shell or body provided with the pressure-distributing chamber D, having a supply-port 1, and the annular mercury holding chamber divided by an annular partition-wall 9 into two compartments, combined with the annular inverted cup-float E, having its concentric walls arranged to dip into mercury within the two compartments of the mercury-holding chamber, said float forming a pressure-chamber which is in open communication with the pressure-distributing chamber through a passage in the annular wall 9, a valve B, arranged at the supply side of port 1 and having its stem 2 extended up through both the pressure-distributing chamber D and a passage 10 in the annular partition-wall 9 and connected with the float between the two annular concentric walls of the same, and a steady-pin connected with the float and also working within a vertical passage through said annular wall 9, the governor shell or body being provided with an opening temporarily closed by means substantially as set forth, and extending up from its lower side, so as to permit access to be had to the steady-pin, substantially as described.

5. In a mercurial gas-governor, the governor shell or body provided with an inlet and outlet and a partition having a port which the governing-valve is adapted to close, and further provided with an annular mercury-holding chamber subdivided by an annular partition-wall 9 into two concentric compartments, each containing a body of mercury, combined with the annular inverted cup-float having its concentric walls arranged to dip into the mercury in the mercury-holding compartments and a governing-valve having its stem extended up through a passage in the annular partition-wall 9 and connected with the float, substantially as described.

6. In a mercurial gas-governor, the governor shell or body provided with an inlet and an outlet and a port which the governor-valve is adapted to close, and further provided with an annular mercury-holding chamber divided by an annular wall 9 into two mercury-holding compartments, in combination with a float E, provided with a downwardly-projecting bearing 29, and the governing-valve having its stem connected with the float, said bearing being arranged at a point over the annular wall 9, and said wall being provided with a passage having its upper end adapted to receive the said bearing, substantially as and for the purpose described.

488,517. MERCURIAL GAS-GOVERNOR. VAN H. HIGGINS and WILLIAM D. SMITH, Chicago, Ill. Original application filed June 29, 1891, Serial No. 397,774. Divided and this application filed Nov. 24, 1891. Serial No. 412,968. (No model.)

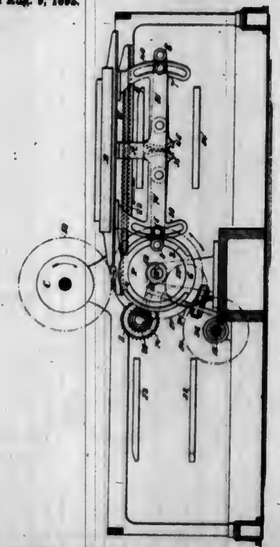


Claim.—1. A mercurial gas-governor comprising a shell or body provided with the receiving-chamber 1, the centrally-located pressure-distributing chamber 2, arranged over the said receiving chamber and separated therefrom by a partition having a port which the governor-valve is adapted to close, and one or more open outlets leading from the said centrally-arranged pressure-distributing chamber so as to supply therefrom a burner or burners, a centrally-arranged supply-passage extending downwardly through the pressure-distributing chamber and opening at its lower end into and serving to supply the receiving-chamber, and an annular mercury-holding chamber arranged around the supply-passage and over the pressure-distributing chamber, combined with the open-bottom float arranged to dip into the mercury within the mercury-holding chamber and providing a pressure-chamber which is in open communication with the pressure-distributing chamber, and the governor-valve arranged to open within the receiving-chamber and having its stem extended upwardly through the port between the receiving-chamber and pressure-distributing chamber and connected with the float, substantially as described.

2. A mercurial gas-governor comprising a shell or body provided with the receiving-chamber 1, the pressure-distributing chamber 2, arranged over the receiving-chamber and separated therefrom by a partition having a port which the governor-valve is adapted to close, the centrally-arranged supply-passage extending downwardly and centrally through the pressure-distributing chamber and opening into and serving to supply the receiving-chamber, an open delivery passage 15, leading downwardly from the pressure-distributing chamber into the neck 11^a, and an annular mercury-holding chamber surrounding the supply-passage and arranged over the pressure-distributing chamber, combined with the open-bottom float arranged to dip into the mercury within the mercury-holding chamber and providing a pressure-chamber which is in open communication with the pressure-distributing chamber, and the governor-valve arranged to open and close the port between the receiving-chamber and pressure-distributing chamber and having an upwardly-extending stem connected with the float, substantially as described.

REISSUES.

11,272. BED-MOTION FOR CYLINDER PRINTING-MACHINES. LUTHER G. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, all of New York, N. Y. Filed Aug. 30, 1892. Serial No. 444,594. Original No. 480,454, dated Aug. 9, 1892.



Claim.—1. The combination, with the reciprocating bed, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, and a revolving guard cooperating with said pocket to alternately engage the outer ends of said levers and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same, substantially as described.

2. The combination, with the reciprocating bed, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, a revolving guard co-operating with said pocket to alternately engage the outer ends of said levers, and a curved guide at each end of the bed, in which the outer ends of said levers travel, whereby the motion of the bed is reversed at each end of its run, substantially as described.

3. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, and a revolving guard co-operating with said pocket to alternately engage the outer ends of said levers and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same, substantially as described.

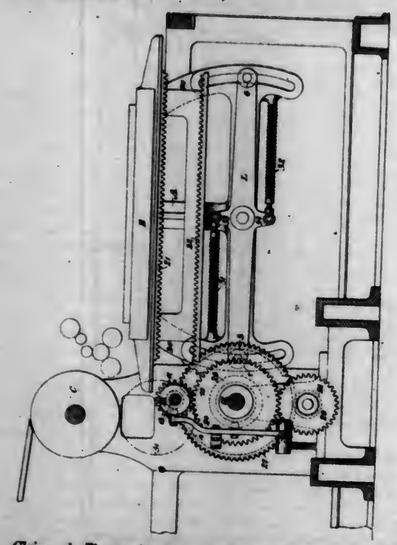
4. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of two levers pivoted to the bed and geared together so as to swing concertedly, a revolving disk having a pocket, a revolving guard co-operating with said pocket to alternately engage the outer ends of said levers, and a curved guide at each end of the bed, in which the outer ends of said levers travel, whereby the motion of the bed is reversed at each end of its run, substantially as described.

5. The combination, with the moving bed, the two levers pivoted thereto and connected so as to conjointly swing in opposite directions, a revolving pocket, and a revolving guard co-operating therewith, of guide-rails, as 31 32 or 33 34, for supporting said levers in the upper or lower positions to which they are moved by the pocket and guard, substantially as described.

6. The combination, with the reciprocating bed, two levers pivoted thereto and connected so as to conjointly swing in opposite directions, a revolving pocket, and a revolving guard co-operating therewith, of guide-rails 31, 32, 33, and 34 for supporting said levers in the upper and lower positions to which they are moved by the pocket and guards, substantially as described.

7. The combination of the pocket-disk, shaft 12, pinions 10 11, shaft 13, pinion 28, and movable guard-disk, substantially as described.

11,273. BED-MOTION FOR CYLINDER PRINTING-MACHINES. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, all of New York, N. Y. Filed Aug. 30, 1892. Serial No. 444,596. Original No. 480,381 dated Aug. 9, 1892.



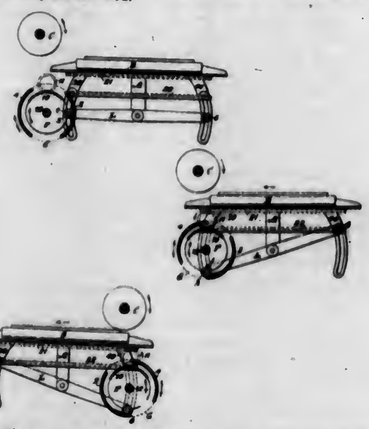
Claim.—1. The combination, with the moving bed, of a swinging lever hung to the bed, a revolving disk having a pocket, and a revolving guard co-operating with said pocket to engage the end of said lever and reverse the movement of the bed by retarding, stopping, starting, and accelerating the same by a crank-like motion, substantially as described.

2. The combination, with the reciprocating bed, of a swinging lever hung to the bed, a revolving disk having a pocket, and a revolving guard co-operating with said pocket to alternately engage opposite ends of said lever and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same by a crank like motion, substantially as described.

3. The combination, with the moving bed, of a swinging lever hung to the bed, a revolving disk having a pocket, a revolving guard co-acting with said pocket to engage the end of said lever, and a curved guide in which said lever end travels, whereby the travel of the bed is reversed by retarding, stopping, starting, and accelerating the same through a compound movement, substantially as described.

4. The combination, with the reciprocating bed, of a swinging lever hung to the bed, a revolving disk having a pocket, a revolving guard coacting with said pocket to alternately engage opposite ends of said lever, and a curved guide at each end of the bed, in which the opposite ends of the lever travel, whereby the motion of the bed is reversed at each end of its run by retarding, stopping, starting, and accelerating the same through compound movements, substantially as described.

5. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its run in either direction, of a swinging lever hung to the bed, a revolving disk having a pocket, and a revolving guard co-operating with said pocket to engage the end of said lever and reverse the movement of the bed by retarding, stopping, starting, and accelerating the same by a crank-like motion, substantially as described.



6. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of a swinging lever hung to the bed, a revolving disk having a pocket, and a revolving guard co-operating with said pocket to alternately engage opposite ends of said lever and reverse the movement of the bed at each end of its run by retarding, stopping, starting, and accelerating the same by a crank like motion, substantially as described.

7. The combination, with the bed and a rack-and-pinion mechanism for driving it in either direction, of a swinging lever hung to the bed, a revolving disk having a pocket, a revolving guard coacting with said pocket to engage the end of said lever, and a curved guide in which said lever end travels, whereby the travel of the bed is reversed by retarding, stopping, starting, and accelerating the same through a compound movement, substantially as described.

8. The combination, with the bed and a rack-and-pinion mechanism for driving it during the major part of its reciprocation, of a swinging lever hung to the bed, a revolving disk having a pocket, a revolving guard coacting with said pocket to alternately engage opposite ends of said lever, and a curved guide at each end of the bed, in which the opposite ends of the lever travel, whereby the travel of the bed is reversed at each end of its run by retarding, stopping, starting, and accelerating the same through compound movements, substantially as described.

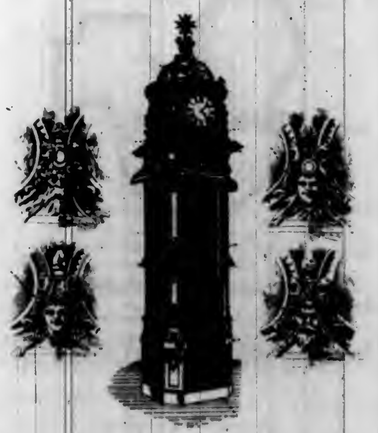
9. The combination, with the revolving pocket-disk P and revolving guard 2, of the bed B, rocking lever L, and spring-rods 31 32, substantially as described.

10. The combination, with the pinion-racks 21 22, pinion 11, revolving pocket-disk P, and cam 26, of means coupling said cam and pinion and gearing connecting the said pinion and disk, whereby timely relative co-operation is accomplished, substantially as described.

11. The combination, with the pocket-disk, guard-disk, pinion 10, and shaft 12, of gearing connecting the two and proportioned to impart to said disks differential rotative movements, substantially as described.

DESIGNS.

21,865. CASING FOR URANIA COLUMNS. LUDWIG SCHUMANN, Aix-la-Chapelle, assignor to the Urania-Uhren und Säulen-Commandit-Ges. Breslauer & Dr. Von Orth, Berlin, Germany. Filed June 8, 1892. Serial No. 436,030. Term of patent 14 years.



Claim.—The design for the casing of a urania column, as herein described and shown.

21,866. BADGE. GUSTAVUS A. SCHLICHTER, Reading, Pa. Filed June 29, 1892. Serial No. 438,449. Term of patent 3½ years.



Claim.—The design for a badge or similar article, substantially as herein shown and described.

21,867. KNIFE-HANDLE. GEORGE W. KOHN, Chicago, Ill. Filed Feb. 26, 1891. Serial No. 383,019. Term of patent 7 years. Patented in Germany Oct. 13, 1890, No. 907.



Claim.—1. The design for a knife case or handle, substantially as herein described and shown.

2. In a design for a knife case or handle, the side A, having an outline in the similitude of a mug and ornamented, substantially as herein described and shown.

3. In a design for a knife case or handle, the side B, having an outline in the similitude of a mug and ornamented, substantially as herein described and shown.

21,868. SPOON. EDMUND I. RICHARDS, Brooklyn, N. Y. Filed Mar. 26, 1892. Serial No. 426,607. Term of patent 7 years.



Claim.—The design for a spoon herein shown and described.

21,869. BUTTON, &c. ALBERT A. BOMER, Attleborough, Mass. Filed June 20, 1892. Serial No. 437,380. Term of patent 7 years.



Claim.—The design for buttons and studs, substantially as shown and described.

21,870. PICTURE-HOOK. GEORGE W. TUCKER, Waterbury, Conn. Filed July 23, 1892. Serial No. 441,056. Term of patent 7 years.



Claim.—The design for a picture-hook herein shown and described, the same comprising a flattened upper curve having its sides tapered downward and inward and a rounded lower curve having its outer face flattened and its sides tapered downward and inward to correspond substantially with the taper of the upper curve.

21,871. LAMP. FRANK YOKEL, Meriden, Conn., assignor to the Meriden Bronze Company, same place. Filed Aug. 1, 1892. Serial No. 441,877. Term of patent 3½ years.

21,871.



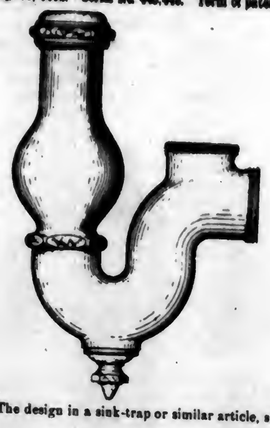
Claim.—The design for a piano-lamp, as herein described and shown.

21,872. FRAME FOR BRIDLE-BITS. WRIGHT W. HALL, New Windsor, Colo. Filed Apr. 9, 1890. Serial No. 347,274. Term of patent 7 years.



Claim.—The design for the frame of a bridle-bit, as shown and described.

21,873. SINK-TRAP. HARRY C. MONTGOMERY, Cleveland, Ohio. Filed Aug. 16, 1892. Serial No. 443,443. Term of patent 3½ years.



Claim.—The design in a sink-trap or similar article, substantially as described.

21,874. BALLOON. THOMAS R. DIXON, East Orange, N. J. Filed July 15, 1892. Serial No. 440,162. Term of patent 3½ years.



Claim.—The design for a ballon herein shown and described, having the shape of a hat body *a* and brim *b*, with downwardly-projecting conical perforated bottom *c*, substantially as herein set forth.

TRADE-MARKS

REGISTERED SEPTEMBER 27, 1892.

21,776. LAGER-BEER. THE EICHBAUM BREWING COMPANY, Baltimore, Md. Filed Mar. 17, 1892.

Adonis

Essential feature.—The word "ADONIS." Used since March 20, 1891.

21,777. PACKAGES OF PRINTED LABELS. THE JERSEY CITY PRINTING COMPANY, Jersey City, N. J. Filed Aug. 20, 1892.

FAIR AND SQUARE

Essential feature.—The words "FAIR AND SQUARE." Used since May 15, 1892.

21,778. OUTER GARMENTS FOR MEN AND CHILDREN. A. KIRSCHBAUM & Co., Philadelphia, Pa. Filed July 28, 1892.

N.R.S.

Essential feature.—The letters "N. R. S." Used since June 20, 1892.

21,779. TOILET CREAM, LOTIONS, AND POWDER DEODORANTS. EDITH LEWIS, Hot Springs, Ark. Filed Aug. 6, 1892.

Essential feature.—The representation of a watch-case bearing the portrait of the registrant. Used since June 10, 1892.

21,780. TABLETS FOR USE IN DYSPEPSIA AND STOMACH TROUBLES. LUTTIES HOMŒOPATHIC PHARMACY COMPANY, St. Louis, Mo. Filed Aug. 23, 1892.

11

Essential feature.—The figures "11." Used since December 1, 1891.

21,781. HARNESS-LEATHER. W. W. MOONEY & SONS, Columbus, Ind. Filed Aug. 20, 1892.

W. W. Mooney & Sons

Essential feature.—The fac-simile signature of the firm "W. W. MOONEY & SONS." Used since April 21, 1890.

21,782. PRESERVATIVE FOR BEER. A. BOAKE, ROBERTS & Co., London, England. Filed Sept. 6, 1890.

KMS

Essential feature.—The letters "K M S." Used since January 1, 1886.

21,783. COVERED DRESS-STAYS. DETROIT STAY COMPANY, Detroit, Mich. Filed Aug. 13, 1892.

Essential feature.—The representation of a dress-stay or one end thereof having the covering at one end shown as removed, showing the steel and the end tab, and the word "PERFECTION" thereon. Used since March 15, 1890.

21,784. MEDICINAL COMPOUNDS FOR EXTERNAL USE. JOHN LAUFFER, Toledo, Ohio. Filed Oct. 25, 1888.



Diamond

Essential feature.—The words "SPARKLING DIAMOND" in connection with the representations of two human faces, one of which is blotched and the other clear. Used since January, 1877.

21,785. TONICS. MCAVOY BREWING COMPANY, Chicago, Ill. Filed Aug. 22, 1892.

Malt Marrow

Essential feature.—The words "MALT MARROW." Used since April 9, 1892.

21,786. BEER. MCAVOY BREWING COMPANY, Chicago, Ill. Filed Aug. 22, 1892.



Essential feature.—A circular disk bearing the representation of three hop-buds placed with their bases contiguous to each other and superimposed upon a pair of barley-heads obliquely crossing each other. Used since April 2, 1892.

21,787. PHOTOGRAPHIC PRINTS. GEORGE FRANK R. PEARSALL, Brooklyn, N. Y. Filed July 19, 1892.

KNARLOGRAPH

Essential feature.—The word "KNARLOGRAPH." Used since January 1, 1891.

21,788. FRANGIBLE BOXES CONTAINING POSTAGE-STAMPS. UNITED STATES POSTAGE STAMP DELIVERY COMPANY, Portland, Me., and Boston, Mass. Filed Aug. 22, 1892.



Essential feature.—Two adjoining rectangular panels of contrasting color and having serrated edges. Used since July 1, 1892.

21,789. LAGER-BEER. THE LONG ISLAND BREWERY, Brooklyn, N. Y. Filed Oct. 26, 1891.



Essential feature.—A lozenge-shaped figure with the words "LONG" and "ISLAND" above and "BREWERY" and "BROOKLYN" below the same, all in white upon a black ground. Used since March 1, 1891.

21,790. MATCHES. WILLIAM L. ANDERSON, Alloway, N. J. Filed Aug. 29, 1892.

EAGLE

Essential feature.—The word "EAGLE." Used since June 1, 1892.

21,791. REMEDY FOR NEURALGIA, RHEUMATISM, HEADACHE, AND FEVERS. HENRY BRINKERHOFF, New York, N. Y. Filed Aug. 25, 1892.

PHENALGERCINE

Essential feature.—The word "PHENALGERCINE." Used since January 1, 1891.

21,792. BAKING-POWDER. CALUMET BAKING POWDER COMPANY, Chicago, Ill. Filed June 6, 1892.

CALUMET

Essential feature.—The word "CALUMET." Used since August 15, 1889.

21,793. TOMATO CATSUP. DODSON, HILS MANUFACTURING COMPANY, St. Louis, Mo. Filed Aug. 25, 1892.



Essential feature.—The representation of a dish of oysters on the half-shell. Used since August 16, 1892.

21,794. TOMATO CATSUP. DODSON, HILS MANUFACTURING COMPANY, St. Louis, Mo. Filed Aug. 25, 1892.

OYSTER

Essential feature.—The word "OYSTER." Used since August 16, 1892.

21,795. TOMATO CATSUP. DODSON, HILS MANUFACTURING COMPANY, St. Louis, Mo. Filed Aug. 25, 1892.

BLUE POINT

Essential feature.—The words "BLUE POINT." Used since August 16, 1892.

21,796. COTTON YARNS. MCCONNEL & COMPANY, LIMITED, Ardcosta, Manchester, England. Filed June 30, 1892.



Essential feature.—The representation of a stag's head with a bale or package between the antlers. Used since January, 1884.

21,797. CURE FOR NERVOUS DISEASES AND THE LIQUOR HABIT. ROYAL MEDICINE COMPANY, Peru, Ind. Filed Aug. 23, 1892.

ALKORENA

Essential feature.—The word "ALKORENA." Used since July 1, 1892.

21,798. REMEDY FOR DISEASES OF WOMEN. FRANK A WHITNEY, Athena, Oreg. Filed June 24, 1892.



Essential feature.—The representation of a homestead surrounded by trees and the words "HOME TREATMENT." Used since January, 1892.

21,799. CORSETS. JOHN M. VAN ORDEN, New York, N. Y. Filed Aug. 26, 1892.

MONELITE.

Essential feature.—The word "MONELITE." Used since August 1, 1892.

21,800. CANNED FRUITS, FISH, MEATS, AND VEGETABLES. A. J. WENHAM'S SONS, Cleveland, Ohio. Filed Sept. 12, 1891.



Essential feature.—The word "EUCLID" and the representation of Garfield's monument. Used since September 1, 1888.

21,801. WATCHES. ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Filed Aug. 25, 1892.

NATIONAL WATCH CO

Essential feature.—The words and abbreviation "NATIONAL WATCH CO." Used since 1867.

21,802. INSECT AND VERMIN EXTERMINATORS. WILLIAM GOTTLIEB, Philadelphia, Pa. Filed Aug. 29, 1892.

Dead Stuck

Essential feature.—The words "DEAD STUCK." Used since March 1, 1892.

21,803. FOOD FOR ANIMALS. GEORGE MAGFADDEN, Philadelphia, Pa. Filed Aug. 29, 1892.

UNIVERSAL

Essential feature.—The word "UNIVERSAL." Used since August 15, 1889.

21,804. CANNED FISH, FRUITS, VEGETABLES, SOUPS, AND MILK. WALTER R. TIBBE, New York, N. Y. Filed Aug. 31, 1892.

BIJOU

Essential feature.—The word "BIJOU." Used since July 1, 1892.

21,805. CANNED AND PRESERVED FISH. CUSTIS P. UPHAM, Astoria, Oreg. Filed Aug. 25, 1892.

CHESTNUT

Essential feature.—The word "CHESTNUT." Used since May 1, 1892.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SMITH *v.* ELEY.

Decided September 22, 1892.

PRACTICE—INTERFERENCE—DILIGENCE IN REDUCTION TO PRACTICE.

In an interference between a patent and an application, where it appeared that E the patentee, delayed more than three years after his conception before reduction to practice, and that meanwhile S, the junior party, had disclosed his invention and made an actual reduction to practice in public, *Held* that E was non-diligent and priority awarded to S.

APPEAL from Examiners-in-Chief.

APPARATUS FOR TAPPING MAINS.

Application of Anthony P. Smith filed December 13, 1890, No. 374,634. Patent granted Philip Eley October 21, 1890, No. 355,823.

Messrs. Drake & Co. and *Mr. W. N. Moore* for Smith.
Messrs. Duncan & Page for Eley.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Eley with regard to the improvement specified in the following interference issue:

In an apparatus for connecting branches to mains for water, gas, etc., the combination of a shaft, an annular milling tool mounted thereon, a drill also mounted on said shaft and centrally located in relation to the milling-tool, and a spring catch arranged to enter the hole made by the drill and to engage with the inner surface of the disk severed by the milling-tool, and thus insure the removal of the disk with the withdrawal of the drill.

Eley's patent was applied for June 18, 1890, and granted October 21, 1890. Smith's application for patent was filed December 13, 1890. In a prior application for patent made by Smith he filed, on the 9th day of March, 1889, a drawing fully illustrating the improvement in controversy and an appropriate description thereof, which was excluded from that application as new matter. Later in the same year, 1889, he reduced the invention to practice in a full-sized operative machine known to others not under the obligation of secrecy. These facts are established beyond any reasonable doubt; indeed, they are conceded.

Eley had in his possession on the 1st of April, 1887, a working drawing showing the improvement in controversy perfectly and in detail, and at the same date he put a spring-catch upon a flat drill and tried it upon a plate of iron. It is held that in April, 1887, Eley had a conception of the improvement in controversy, but that his trial of the drill does not amount to a reduction to practice. He made a drill of another and better form with spring-catch thereon in the year 1888, but did not actually reduce to practice until after his application for patent. It thus appears that he had a complete conception of the invention in controversy on or about the 1st day of April, 1887, but did not file an application for a patent therefor until the 18th day of June, 1890, a period of more than three years, and meanwhile Smith made actual reduction to practice of the improvement in controversy in public. Eley gives no explanation why he waited more than three years to develop the invention, and his reasons for filing his application for patent when he did are stated by him as follows:

Question 56 What were the immediate reasons for your filing an application for this invention?

Answer. It was to carry out my former intentions, and also to introduce a machine which I thought was needed for that purpose.

Ques. 57. Were you encouraged to do this by any expectations of having the invention adopted? If yes, state what the circumstances were.

Ans I had talked of the invention and explained it to two or three parties, notably to a gentleman of the name of Gilbertson, assistant water-surveyor of the city of Bayonne. He thoroughly understood it and thought it would be a valuable invention and would be appreciated in the city of Bayonne; also, to the mayor, Mr. John Newman. I explained it to him, and he said if it would accomplish what I claimed it would be of great value to the city, and he recommended me to explain it to the engineer. He also explained that they were using a machine invented by one Mr Smith, of Newark; but he considered that my invention, as represented, would be far superior to Mr. Smith's and he would favor its adoption. I was so encouraged by this, and having full confidence in my invention, I immediately constructed a machine or caused it to be constructed. After its completion I arranged or provided a public test of the same; also, invited the mayor, city officials, and others to be present to witness the operation. The machine was used at that time for the purpose of removing a plug situated in the branch of the water-main. This was an operation never before attempted and had hitherto been considered impracticable. The test was eminently successful and the city council, many of whom were present, were very favorably impressed and subsequently adopted the invention. This, notwithstanding the city of Bayonne had already purchased a Smith machine, but were now taking steps to abandon, as they considered my machine far superior.

Eley is held not to have been duly diligent. The decision of the Examiners-in-Chief is reversed and priority of invention is awarded to Smith.

SWEENEY *v.* JAROS.

Decided August 13, 1892.

INTERFERENCE—MOTIONS FOR DISSOLUTION.

A question involving the right of an applicant to make the claim in interference will not be passed upon by the Commissioner on appeal from the decision of the Primary Examiner upon a motion to dissolve the interference.

APPEAL on motion.

GARMENT.

Application of Dennis Sweeney filed September 27, 1890, No. 366,311. Application of Samuel Jaros filed October 29, 1888, No. 289,461.

Mr. R. M. Hunter for Sweeney.
Messrs. Simonds & Burdett and *Mr. W. P. Preble, Jr.*, for Jaros.

FROTHINGHAM, *Acting Commissioner:*

This is an appeal taken from the decision of the

Primary Examiner refusing to grant a motion presented on behalf of Sweeney to dissolve the above-entitled interference.

A dissolution of the said interference was asked by Sweeney upon three grounds, as follows:

First. Because no interference in fact exists between the respective applications.
Second. Because the party Jaros has no right to make the claims in interference.
Third. Because such irregularity has occurred in declaring the interference as will preclude a proper determination of the question of priority of invention.

It is stated in the brief filed on behalf of Sweeney as follows:

It is not meant that the application of Jaros does not *now* contain claims which conflict with the claims of Sweeney, as Jaros now has in his case the identical claims of the Sweeney application, word for word; but it is submitted that the applicant Jaros is not making those claims, but that they have been injected into the case by reason of information given to Jaros's attorney by the Examiner of Room 122, and that they are for an invention not contemplated or claimed by Jaros and cannot be supported by his specification.

The record shows that Sweeney took an appeal to the Examiners-in-Chief after the Examiner had rejected his claims now involved in the interference. The Examiners-in-Chief reversed the decision of the Examiner and held that the said claims were patentable. It appears that prior thereto Jaros made certain claims in his application which stood rejected, and after the said decision by the Examiners-in-Chief the Primary Examiner informed him (Jaros) that the claims appealed had been held patentable by the board. Thereupon Jaros presented an amendment containing the said claims, which were incorporated into his case. Thereafter the interference was declared.

It is contended on behalf of Sweeney that the Examiner had no authority to inform Jaros's attorney of the claims of Sweeney's application; that the Examiner's action has allowed Jaros to entirely change the character of the invention disclosed in his application; that the present claims of Jaros's application having been "improperly inserted by information improperly given by the Examiner they cannot be considered and the application must stand in the condition in which it was before the claims were inserted," and that when thus considered no interference exists between the parties.

It is clear that the question whether or not Jaros has any right to make the claims in interference is one which cannot properly be considered by the Commissioner on appeal from the decision of the Primary Examiner. (See Rule 124.) This would involve a decision upon the merits of the case and would be in effect a decision by the Commissioner upon the question whether or not the specification of Jaros affords a basis for the said claims. Obviously such a decision would be improper at this stage of the proceedings.

Even assuming, but without deciding, that it was improper for the Examiner to have communicated the claims of Sweeney to Jaros's attorney, it is not clear how this fact could be held to be a ground for dissolution of the interference. The fact remains that Jaros has made the claims and that they are admitted on behalf of Sweeney to conflict with those of Sweeney's application. Such being the case, I see no good reason for dissolving the interference.

The decision of the Primary Examiner is affirmed.

TODD *v.* CAMPBELL.

Decided August 13, 1892.

PRELIMINARY STATEMENT.

Omissions and inaccuracies in a preliminary statement directly chargeable to carelessness, indifference, or want of attention on the part of an applicant may not be removed by an amended preliminary statement.

APPEAL on motion.

PICKER-FINGER.

Application of George N. Todd filed September 17, 1889, No. 324,174. Application of Angus Campbell filed December 7, 1889, No. 332,935.

Messrs. Elliott & Omohundro for Todd.
Messrs. Lotz & Kennedy for Campbell.

FROTHINGHAM, *Acting Commissioner:*

This is an appeal taken from the decision of the Examiner of Interferences denying a motion brought on behalf of Todd to be permitted to file an amended preliminary statement.

The Examiner of Interferences held in his decision that the matters which were omitted from the original preliminary statement and are now sought to be introduced were so omitted because of carelessness, indifference, or want of attention on the part of Todd and that such omission is directly chargeable to the same. It is contended that the Examiner of Interferences erred in so holding, because one of the errors sought to be corrected is the statement that no model was made, whereas a model had been made, which fact had been forgotten and was not recalled at the time the original statement was prepared.

The other points concerning which amendment is asked were clearly due to carelessness, indifference, or want of attention, since they consisted in what is alleged to have been an incorrect name and date and in view of the fact that Todd states in his affidavit that his preliminary statement was hurriedly dictated to his stenographer and that he signed the same without due attention to the reading thereof. It must also be held that had Todd made such reasonable efforts as might properly be expected of him in preparing his preliminary statement he might have recalled the fact concerning the model, which is now sought to be introduced.

Under all the facts in the case it would not be in accordance with the present practice of the Office to permit the filing of the amended preliminary statement upon the showing made.

The decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—First Circuit.

WATSON *v.* STEVENS *et al.*

Decided September 6, 1892.

1. PATENT—INVENTION, FACTS WHICH MAY BE CONSIDERED IN DETERMINING THE QUESTION OF—PUBLIC FAVOR.

In determining what constitutes invention and what is a "new and useful result," a "new function," or a "new sphere of action" the court will give weight to facts showing (1) that the improvement, though desired for years, was not secured until

brought out by the patentee; (2) that the product of the improved machine or process displaced wholly or in a great degree prior products; (3) that while the prior products had been unsuitable from lack of cheapness or adaptation the new product answered all reasonable requirements.

2. SAME—PRESUMPTION OF PATENTABLE INVENTION ARISING FROM A GRANT OF LETTERS PATENT.

Where the question of invention is closely balanced, the presumption in favor of the patentee arising from his recognition as an inventor by the Patent Office will incline the court to sustain his patent.

APPEAL from the Circuit Court for the District of Massachusetts.

Mr. Frederick P. Fish and *Mr. William K. Richardson* for the appellant.
Mr. William A. Macleod for the appellees.

Before GRAY, COLT, and PUTNAM, Judges.

PUTNAM, *J.:*

This suit relates to the first and sixth claims of complainant's patent. The first is for a combination constituting a machine for compressing shank-stiffeners, and the other is for the "method" of that machine. Two defenses are set up—anticipation by certain patents put in evidence and lack of invention.

None of the devices in use for forming shank-stiffeners shown in the case anticipated the complainant's invention. This is plainly apparent as to all, unless it be the calendering-process machine originating with the American Shoe Shank Company, the Blake or Tripp machines, or those with reciprocating dies. The calendering process was devised before shanks were made from leather-board for finishing up shanks molded from wet substances. This machine in no way contemplated the use of the power required to effectually mold dry and compact substances like leather-board. The purpose of the original Blake machine was to form shanks by skiving. Although possibly it might have been strengthened and its forms then used as stamping-dies, yet it contained no suggestion of any such purpose. The Tripp machine was designed originally for shaping and smoothing soles of boots and shoes. By changing its molds it was, in fact, adapted to shanks, yet this was subsequent to the complainant's alleged invention; and its complicated parts, with its slow production, contained no suggestion of his simple and rapid mechanism. The prior use of reciprocating dies is clearly proved.

That portion of the first claim which relates to the lifting-plate clearly does not require the attention of the court, and the case therefore comes down to the question of a patentable difference between machines operated for forming shank-stiffeners from leather-board and perhaps from like substances by the use of direct pressure and those using reciprocating dies.

If it can be doubted that prior to the complainant's alleged invention reciprocating and rotating dies were for very many purposes substitutes for each other, well known in the mechanical arts, so that ordinarily no substantial novelty could be involved in interposing one for the other, this is sufficiently proven by the testimony of Joseph P. Livermore, as follows:

Both of these modes of operation of dies intended to compress, mold, or shape materials or articles similar in their nature to shank-stiffeners [that is, using rolling-dies and using reciprocating dies] were employed in machines long prior to the time of the Watson patent, and are in my opinion well-known substitutes, the one for the other.

The result is that if the court finds any patentable invention in the complainant's machine or "method" it must be in the face of the fact that the like had been in prior use for making shank-stiffeners, except only the substitution for this specific purpose of rotating for reciprocating dies, each being ordinarily equivalents for the other.

The following are among the latest expressions of the Supreme Court on this topic:

The elements combined to form the alleged invention, merely constituted an aggregation of old devices, each working out its own effect, without producing anything novel, and such an assemblage or bringing together of old devices, without securing some new and useful result as the joint product of the combination—something more than a mere aggregation of old results—does not constitute a patentable invention. (*Adams* v. *Bellaire Stamping Co.*, 141 U. S., 539, 542.)

While the promotion of an old device—such, for instance, as a torsional spring—to a new sphere of action, in which it performs a new function, involves invention, the transfer or adaptation of the same device to a similar sphere of action, where it performs substantially the same function, does not involve invention. (*Western Electric Co.* v. *La Rue*, 139 U. S., 601, 606.)

Ansonia Co. v. *Electrical Supply Co.* (144 U. S., 11) cites and approves, page 18, the language of the *Locomotive Truck Co.* Case, (110 U. S., 490,) now a leading one, as follows:

The application of an old process or machine to a similar or analogous subject, with no change in the manner of application and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result had not before been contemplated.

The Supreme Court, however, has given a caution that no general statement of rules relating to this topic can be followed with safety, unless its limitations and practical application are tested by the special facts of the cases in which used, and also of those into which it is to be imported:

The truth is the word [meaning "invention"] cannot be defined in such manner as to afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty or not. In a given case we may be able to say that there is present invention of a very high order. In another we can see that there is lacking that impalpable something which distinguishes invention from simple mechanical skill. Courts, adopting fixed principles as a guide, have by a process of exclusion determined that certain variations in old devices do or do not involve invention; but whether the variation relied upon in a particular case is anything more than ordinary mechanical skill is a question which cannot be answered by applying the test of any general definition. (*McClain* v. *Ortmayer*, 141 U. S., 419, 427.)

In *Loom Co.* v. *Higgins* (105 U. S., 580) the Supreme Court determined in favor of a certain "new and useful result" arising from an aggregation of old elements as sufficient to sustain patentability, although there was in that case no "new function," no "new sphere of action," and no "substantially-distinct result," as each of these expressions might sometimes well be understood. The Court said, page 591, as follows:

It was certainly a new and useful result to make a loom produce fifty yards a day when it never before had produced more than forty; and we think that the combination of elements by which this was effected, even if those elements were separately known before, was invention sufficient to form the basis of a patent.

In this case the conclusion was aided by the line of reasoning on page 591, as follows:

It is further argued, however, that, supposing the devices to be sufficiently described, they do not show any invention; and that the combination set forth in the fifth claim is a mere aggregation of old devices, already well known; and therefore it is not patentable. This argument would be sound if the combination claimed by Webster was an obvious one for attaining the advantages proposed, one which would occur to any mechanic skilled in the art. But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skillful persons. It may have been under their very eyes, they may almost be said to have stumbled over it; but they certainly failed to see it, to estimate its value, and to bring it into notice.

This last citation and the determination in *Loom Co.* v. *Higgins* are repeated and approved as late as in *The Barbed Wire Patent*, (143 U. S. 275, 288.)

While the Supreme Court gives to the fact of the mere salability of a product very little weight, if any, on the question of invention, (*Magowan* v. *New York Belting Co.*, 141 U. S. 332; *McClain* v. *Ortmayer*, *supra*; *Adams* v. *Bellaire Stamping Co.*, *supra*,) yet in *Smith* v. *Goodyear Dental Vulcanite Co.* (93 U. S. 486, 495) it used with other expressions in the same direction the following:

> We do not say the single fact that a device has gone into general use, and has displaced other devices which had previously been employed for analogous uses, establishes in all cases that the latter device involves a patentable invention. It may, however, always be considered; and, when the other facts in the case leave the question in doubt, it is sufficient to turn the scale.

This was repeated in *The Barbed Wire Patent*, *supra*, page 284, and is therefore the latest expression of the Supreme Court on this particular topic.

The same class of facts which received attention in *Loom Co.* v. *Higgins*, *supra*, and *Smith* v. *Goodyear Dental Vulcanite Co.*, *supra*, had recognized weight in *The Barbed Wire Patent*, *supra*, and also in *Gandy* v. *Main Belting Company*, (143 U. S., 587.)

We conclude, therefore, that in applying to cases of doubt the primary rules touching what constitutes invention and the secondary rules touching what is a "new and useful result," a "new function," or a "new sphere of action" we may be influenced by the facts that the improvement in question, although desired for years, was not secured until brought out by the patentee; that the product of the improved machine or process went into general use by the manufacturers for whom it was intended, and displaced wholly or in a very large degree prior products, and that while all prior products had been unsuitable, either through lack of cheapness or adaptation, the new product answered all reasonable requirements.

Prior to the first use of leather-board (about 1869) S. P. Rogers & Co. had made shanks from the wet stock of that substance as it came from the paper-machines, running it through the calendering process of the American Shoe Shank Company already referred to. This operation required several different steps—namely, cutting the wet stock into blanks, molding them into form by the "hammer-machine," drying, during which they shrank and curled, and calendering them in the molds of the machine of the American Shoe Shank Company.

This was a complicated, slow, and expensive process, and there is evidence that the product lacked uniformity. Certain it is that after 1878 this was abandoned and was succeeded by the working of leather-board first with skiving-machines and then with reciprocating dies. The evidence is that these later products were not satisfactory to the trade, and the processes were slow.

The complainant testified, and his testimony on this point is in harmony with the entire record, that he continued the reciprocating dies until 1886 only because he knew of no better method. He further testified, and on this point he was not contradicted, that in 1885 the demand for better and more uniform shanks led him to experiment with rotary molds, and that this resulted in a complete success. On this he based his patent, built at first one machine and then others, and at the time of giving his testimony was producing several hundred thousand shanks weekly, mainly from these machines, although to some extent for special reasons he was still using reciprocating dies. He further testified that he knew of no method of producing shanks demanded by the trade except this, and the record sustains him.

It appears that the respondents since this bill was filed commenced again using reciprocating dies; but, without accepting certain refinements and theories interpolated by the witnesses for the complainant, the case is clear that his machines are the only ones so far discovered operating with efficiency, rapidity, and economy.

It is evident the case is closely balanced; but we have weighed the circumstances preceding and attending the production of the complainant's machine and the results which have followed it in the light of *Loom Co.* v. *Higgins*, *supra*, and of other cases in which its line of reasoning has been recognized or approved, and we have concluded that the circumstances and results referred to prohibit us from depriving the patentee of the presumption arising from the fact that the Patent Office recognized him as an inventor and issued him a patent.

Standing by themselves the complainant's claims are too broad to be sustained; but by reading into them his specifications they are limited to producing shank-stiffeners from leather-board, leather, or like material. The only question raised in this case, or, indeed, by the present state of the art, relates to leather-board, and we therefore limit our conclusions to this substance without inquiring concerning leather or other material like leather-board or leather.

The decree of the circuit court is reversed, the first and sixth claims of complainant's patent are sustained for use in producing shank-stiffeners from leather-board, and the case is remanded to the circuit court, with instructions to enter a decree for the complainant for an accounting and for a perpetual injunction against making, vending, or using, for producing shank-stiffeners from leather-board, any machine or method infringing the first or sixth claim, and for other proceedings in conformity with this opinion, the complainant to recover his costs in this and the circuit court.

U. S. Circuit Court—District of Massachusetts.

MASTEN *v.* HUNT *et al.*

Decided June 29, 1892.

PATENTS—INFRINGEMENT—CONSTRUCTION OF COMBINATION CLAIM.

In Letters Patent No. 321,833, to Cornelius E. Masten, July 7, 1885, for a fire-cracker, claim 1 is for "the match B and fuse C, in combination with the solid plug D and body A, substantially as set forth." *Held*, in the absence of any description of the prior state of the art in the specification, and since applicant merely states that his invention produces a more desirable article than is now in general use the court cannot hold that the match B was not an essential element, since the presumption of novelty applies to the combination as a whole.

SUIT by Cornelius E. Masten against Edmund S. Hunt *et al.* for infringement of Letters Patent No. 321,833, issued July 7, 1885, to complainant for a fire-cracker. Bill dismissed.

The specification and claim of the patent are as follows:

Be it known that I, CORNELIUS E. MASTEN, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Fire-Crackers, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which the figure is a vertical longitudinal section.

My invention relates more especially to large fire crackers, or the class known as "cannon-crackers;" and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more desirable article of this character is produced than is now in ordinary use. The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, its extreme simplicity rendering an elaborate description unnecessary: In the drawing, A represents the body of the cracker, B the match, and C the fuse. The body is cylindrical in form, and is composed of layers of strong tough paper overlapping each other, and cemented together in the usual manner. The match is composed of cotton, powder, and gum, the cotton being saturated with a solution of the gum, and then rolled in powder, or the powder rubbed into it and dried. The fuse is composed of a short cord or twist of ordinary touch-paper, into the inner end of which the outer end of the match is inserted and secured, as seen at *x*. The breech-plug D of the cracker consists of fire clay, and is inserted in the body around the fuse and match as follows: The fuse and match having been first united, as shown and described, the fuse is inserted in a vertically-arranged hole in the center of an anvil or stake, which fits closely into the lower end, *d*, of the body. This stake is provided with a rabbet or shoulder on which the end *r* of the body rests, the body standing vertically with the match in its center when the stake is inserted. Powdered fire clay, or similar material, of proper temperament, is then introduced around the match through the open upper end of the body, and rammed down to form the solid plug D by means of a hollow ramrod, which is adapted to pass freely over the match. The body is then filled with the charge of explosive compound E and the wad of the muzzle-plug inserted. This plug consists of a cylindrical shell, H, open at both ends, and adapted to fit closely into the body, the shell being provided with a centrally-disposed plug, M, composed of fire-clay, or similar material, which is rammed in solid before the shell is inserted. The shell H is composed of layers of paper overlapping each other, and properly cemented together, and is secured in the body A by means of glue or cement. In fire-crackers of this character the muzzle-plug or wad is usually rammed down onto the charge or filling with sufficient force to secure the wad firmly in the body of the cracker, thereby, on account of the nature of the filling, greatly reducing the force of the explosion, and causing it to produce far less noise than when the plug is loosely inserted and cemented into the body, as described.

Having thus explained my invention, what I claim is: 1. In a fire-cracker, the match B and fuse C, in combination with the solid plug D and body A, substantially as set forth. 2. The improved fire-cracker herein described, the same consisting of the body A, fuse C, match B, plug D, shell H, plug M, and filling or charge E, constructed, combined, and arranged to operate substantially as described.

Mr. J. S. Richardson and *Mr. Charles C. Morgan* for the complainant.

Messrs. Maynadier & Beach for the defendants.

PUTNAM, *J.*:

This case arises on the first claim in complainant's patent, and the only defense alleged at the argument was non-infringement. This defense, however, involves the construction of the claim in question, as the defendants are manufacturing the article described by it, except only that they use a continuous safety-fuse instead of the "match B" and the "fuse C."

It seems to me that to restrain respondents in this cause would give complainant a monopoly of all so-called "cannon-crackers," in the manufacture of which a clay plug is forced into the body of the cracker after the body has been—

> cemented together in the usual manner.

If he was entitled to ask from the Patent Office so much as this, his specifications and claims fail to show it.

The specifications make no reference to the state of the art and do not particularize in what respects complainant's combination was an improvement, using in reference to this only the general language that by the invention a more—

> desirable article [is produced] than is now in ordinary use.

Therefore there is nothing on the face of the patent from which the court can infer that any element in the combination is more or less essential or important than any other.

Complainant claims that the conjunction between the words "match B" and "fuse C" shows that the match and fuse make but one element, and that, therefore, by the terms of the patent they are the equivalent of a continuous fuse; but the presumption raised by this collocation is too weak to safely guide the court.

The presumption of novelty in this case applies only to the combination as a whole and does not apply to any of its elements. Neither party has shown to the court by proper proof the state of the art prior to complainant's invention.

I am satisfied that Exhibits Perigo and Perigo 2—that is, the Chinese crackers—were constructed by rolling in the clay plug, and not in the method described in complainant's specifications; but this fact is merely negative in its effect, as it is limited to these particular exhibits and does not inform the court whether or not other crackers of different construction were on the market.

James Shepard, page 31, answer 10, and page 34, answer 19, concludes that certain elements in complainant's cracker are new; but he does not qualify himself as one having historical knowledge or information about this particular trade, and his method of reaching his conclusion as to the construction of Exhibits Perigo and Perigo 2 indicates that he could not.

In *McDonald* v. *Whitney* (32 O. G., 1465; 24 Fed. Rep., 600) the combination was expressly described in the claim as embracing four rolls; but either from the face of the patent or from other matters in the record the court was able to conclude that the gist of the invention in issue was—

> the separation and adjustment of the rolls, held together by spring-pressure, by means of a treadle and levers,

and the court therefore enjoined a machine with only three rolls.

There may also be other conditions under which a patentee may be enabled to meet the effect of an unnecessary subdivision in his claim of the elements of his combination; but in the absence of the matters stated in this opinion as not appearing in this case it seems to me I have no power to pronounce any element more or less essential than others, or to declare that any division or subdivision appearing on the face of the claim is unimportant, or that the gist of the invention is in a new method of combining the clay plug with the body of the cracker, or for that or for any other reason to decide that any manufacture is an infringement unless it combines with the rest the "match B" or the equivalent of that precise element.

In applying the law to the facts in this record I am guided by the results in *Vance* v. *Campbell*, (1 Black, 427;) *McClain* v. *Ortmayer*, (57 O. G., 1129; 141 U. S., 419,) and *Dryfoos* v. *Wiese* (42 O. G., 490; 124 U. S., 32) more than by that in *Morley Sewing Machine Co.* v. *Lancaster*, (47 O. G., 276; 129 U. S., 263.)

The latter case, however, cites (p. 280) the ruling of Vice-Chancellor Wood, as follows:

> When the thing is wholly novel, and one which has never been achieved before, the machine itself which is invented necessarily contains a great amount of novelty in all its parts; and one looks

very narrowly and very jealously upon any other machines for effecting the same object to see whether or not they are merely colorable contrivances for evading that which has been before done. When the object itself is one which is not new, but the means only are new, one is not inclined to say that a person who invents a particular means of doing something that has been known to all the world long before, has a right to extend very largely the interpretation of those means which he has adopted for carrying it into effect.

The difficulty in the present case is that, as already pointed out, the complainant does not show by his specifications or the proofs whether the "object itself" is new in any essential particular—as, for example, whether a body constructed like this with a clay plug pressed into it is novel. To paraphrase the Supreme Court in the same case, (p. 273,) the complainant does not show whether or not the invention is one of a "primary character," to which the doctrine of equivalents applies to its full extent, or whether or not the inventor was a "mere improver" upon something "capable of accomplishing the same general result." In which latter case the Court said—

his claims would properly receive a narrower interpretation.

Again, in *McClain* v. *Ortmayer*, *supra*, the Supreme Court, on page 425, laid down the following rule:

The principle announced by this Court in *Vance* v. *Campbell*, (1 Black, 427,) that, where a patentee declares upon a combination of elements which he asserts constitute the novelty of his invention, he cannot in his proofs abandon a part of such combination and maintain his claim to the rest, is applicable to a case of this kind where a patentee has claimed more than is necessary to the successful working of his device.

This does not strictly govern the case at bar; but it illustrates clearly that it does not follow that the complainant can abandon "match B" as a distinct element and claim a continuous fuse as the equivalent of his fuse and match merely because he has made a subdivision which it may prove was not—

necessary to the successful working of his device.

Although in this opinion I have not only pointed out the negative nature of the complainant's specifications, but have also referred to the lack in the record of any proof of the state of the art prior to the invention in question, yet I do not mean to be understood as now holding that any such proof would have enabled me to reach a different conclusion. In view of what appears or, rather, fails to appear on the face of the patent I have not considered whether any line of proofs would relieve the complainant; and I have referred to the lack of them merely because it strengthens the case as presented to me.

Let respondents draw a decree of dismissal with costs and submit it to the court with proof that it has been served on the complainant.

U. S. Circuit Court—District of Massachusetts.

WAITE *v.* ROBINSON *et al.*

Decided September 15, 1892.

PATENT—FACTS WHICH TEND TO NEGATIVE UTILITY.

Where a complainant was an extensive manufacturer, engaged in the special trade to which the patent sued upon relates, yet testified that he had held the patent for seven years but had never put upon the market a chair constructed to conform to it, *Held* of great weight in determining the question of "invention" from the standpoint of utility.

Messrs. Maynadier & Beach for the complainant.
Messrs. Hey & Wilkinson and *Mr. William A. Morse* for the defendants.

PUTNAM, *J.*:

That the complainant had difficulty when he applied for his patent in understanding the spirit and essence of his alleged invention is inferable from the fact that on an improvement of so low a grade as his must be admitted to be he stated his claim in eight different ways. This inference is strengthened because he does not now inform the court whether he relies on all his claims, which is hardly possible, or on which of them he relies; but he leaves the court to look through them all, compare their phraseology, and endeavor thus to ascertain what he has failed to point out.

In his direct examination his expert testified as follows:

The main novelty is that the seat slides up and down on the frame and has feet of its own, which when it is held in its lowest position extend below the adjacent part of the frame and hold them up from the floor.

At that stage of his testimony the expert apparently thought that there was a double novelty—one in the sliding up and down of the seat and the other in the capability of extending the feet below the adjacent part of the frame. The former he properly abandoned at the close of his cross-examination in connection with what he had to say as to the Cross patent, under which the defendants claim to be manufacturing. The court is unable to appreciate that what is thus left, whether in combination or otherwise, is sufficient to put in operation the power vested in Congress by the Constitution to promote the progress of science and useful arts by securing to inventors the exclusive rights to their discoveries.

We refer to the topic of the utility of complainant's chair only as it bears on the point of invention. One of the defendants testified that a chair made in accordance with the patent in suit would not be a practical commercial article; and it appears by the evidence of the plaintiff that, although at the time he testified he had owned this patent for seven years, he never had put on the market a chair constructed to conform to it. To fill an order he had commenced some fifteen dozen, which were not completed at the date of his deposition.

This is not an instance where a valuable invention lies dormant for want of means of developing it, because the complainant also testified that he manufactures nothing but patent chairs of various kinds, and sells these to the extent of 70,000 (more or less) annually. A novelty which remains unused so many years in the hands of an extensive manufacturer exclusively engaged in the special trade to which it relates must be presumed to involve at the best a very low degree of that useful invention which the patent code of the United States requires. Indeed, the entire field of nursery-chairs shown by the exhibits in this case seems a dreary one, nowhere enlivened by a single exhibition of the genius of invention or of the "happy thought" which under the patent laws frequently answers in the place of the former.

We think the sum of all that can be said is that the complainant's novelty shows somewhat more mechanical skill, experience, and aptitude than those which preceded it, but not enough to rise above the conditions described in *Hollister* v. *Benedict & Burnham Manufacturing Co.*, (113 U. S., 59, 73.)

Bill dismissed, with costs for the defendants.

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COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

OFFICIAL GAZETTE—July–September, 1892.

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IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

OFFICIAL GAZETTE—July-September, 1892.

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*); of the Secretary of the Interior by a dagger (†), and the opinion of the Attorney-General by a section-mark (§).]

ABANDONMENT.

ABANDONED APPLICATION—REVIVAL OF.

The abandoned application of a foreign applicant will not be revived upon a showing that the two years' limit was allowed to expire without action solely through the inadvertence of the associate attorney's clerk.

[*Ex parte* Raeymaeckus, 1749.

ACCOUNTING.

(See Suits for Infringement, 2.)

ACTION AT LAW.

(See Construction of Specifications and Patents, 1; Infringement, 7.)

AFFIDAVITS.

(See Testimony Taken in Foreign Countries.)

AGENTS.

(See Injunction, 1.)

AMENDMENTS.

(See Appeal to Examiners-in-Chief; Interference, 5.)

AMENDMENTS TO ALLOWED CASES.

(See Withdrawal of Case from Issue, 1.)

AMENDMENTS TO PRELIMINARY STATEMENT.

(See Preliminary Statement.)

ANALOGOUS USE.

(See Invention, 1.)

ANSWER TO BILL.

(See Injunction, 2.)

ANTICIPATION.

(See Particular Patents, 1, 2, 15.)

APPEAL TO THE COMMISSIONER.

(See Interference, 8.)

APPEAL TO THE EXAMINERS-IN-CHIEF.

PRACTICE—COURSE OF APPEALS.

Where an applicant who has been in interference seeks, after a decision of priority in his favor, to amend his claims, and the Examiner rejects his amendment as covering matter which applicant has claimed too late, *Held* that the question thus raised is one which should be decided by the Examiners-in-Chief on appeal before it comes to the Commissioner.

[*Ex parte* Woodward, 1052.

APPLICATIONS.

(See Division of Application; Drawings; Specifications.)

ASSIGNMENT OF TRADE-MARKS.

(See Trade-Marks, 7.)

ATTORNEY.

(See Abandonment.)

BILL IN EQUITY.

(See Suits for Infringement, 5.)

INFRINGEMENT—PLEADING—DEMURRER.

A bill which sets forth a patent for a "process" of making furniture-nails and then alleges that defendant, "in infringement of the aforesaid Letters Patent," did wrongfully "make, use, and vend to others to be used furniture-nails embracing the improvement set forth and claimed" in said patent, *Held* bad on demurrer as not alleging an infringement of the process.

[*American Solid Leather Button Company v. Empire State Nail Company, 1609.

BOND.

INFRINGEMENT—WHEN BOND WILL NOT BE REQUIRED OF COMPLAINANT AS A CONDITION OF PRELIMINARY INJUNCTION.

Where a defendant has been guilty of bad faith toward a complainant in an infringement suit, he is not equitably entitled to ask a bond from complainant as a condition to the granting of a preliminary injunction, and the court will waive the requirement of bond where the record discloses proof of such a state of facts.

[*Pasteur Chamberland Filter Company *et al.* v. Funk *et al.*, 1479.

BURDEN OF PROOF.

(See Damages and Profits, 1.)

CANCELLATION OF DRAWINGS.

(See Drawings.)

CHANGE OF MATERIAL.

(See Invention, 2.)

CHANGE OF STRUCTURE.

(See Construction of Specifications and Patents, 3, 9; Infringement, 1; Invention, 3; Particular Patents, 14.)

CLAIMS.

(See Construction of Specifications and Patents, 1, 2, 3, 7, 8, 11; Interference, 5; Priority of Invention, 3; Rejected Claims.)

COMBINATION.

(See Construction of Specifications and Patents, 3, 9; Infringement, 6.)

COMMISSIONER OF PATENTS.

(See Interference, 8; Petition to Commissioner.)

CONCEPTION OF INVENTION.

(See Interference, 1; Priority of Invention, 1, 2, 3, 4, 6.)

CONSTRUCTION OF RULES.

(See Interference, 2, 6; Petition to Commissioner; Rejected Claims; Testimony Taken in Foreign Countries.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Designs, 1, 2; Infringement, 1, 5, 6; Interference, 7; Invention, 5, 6; Particular Patents; Scope of Patents.)

1. INFRINGEMENT—ACTIONS AT LAW—JURY TRIALS.
The question of the construction of the claims of a patent is the province of the court and does not rest with the jury.
[*Marsh *v.* Quick Meal Stove Company, 1056.

2. CONSTRUCTION OF CLAIMS.
Where a claim of a patent reads "In a gasoline-stove, etc.," and then enumerates a number of other elements, the words "In a gasoline-stove" will be understood as including the well-known essential elements of such stoves, and to enable the plaintiff to recover the other elements of the claim or their substantial equivalents must be all found in the defendant's stove.
[*Id.

3. SAME.
Where the claim of a patent contains as an element a commingling-chamber capable of accomplishing two purposes, which are fully set forth in the patent (such chamber being in addition to the commingling chambers common to all gasoline-stoves,) and the defendant's stoves have only the ordinary commingling-chambers, *Held* that the combination of the claim is not present in defendant's stove.
[*Id.

4. GENERIC INVENTIONS.
A patent for a primary invention will not receive a liberal or broad construction where the invention is of a very low order.
[*Dederick *v.* Seigmund, 1193.

5. SAME.
It is true that when the invention is of a primary character a larger latitude is given to the equivalents which the patent includes than if the invention was a modification of a well-explored art; but this doctrine cannot be applied to primary invention of low order.
[*Id.

6. PIONEER INVENTORS.
The patentee conceived the idea of gradually stopping the backward movement of the plunger in a rebound baling-press by applying a friction-brake. *Held* that as friction-brakes are very old it was a low order of invention to apply such a brake to a baling-press, and a patent which with difficulty maintains its right to patentability must receive a narrow construction.
[*Id.

7. CONSTRUCTION OF PATENTS.
It is the duty of courts to construe a patent by a reference to the language of its claims and an examination of the specifications and drawings accompanying the same.
[*Norton *et al. v* Jensen *et al*, 1326.

8. ORIGINAL INVENTORS—INFRINGEMENT.
Where an invention is of a primary character and stands at the head of an art, it is entitled to a liberal construction of its claims and all persons who make devices or machines operating on the same principle and performing the same functions by analogous means or equivalent combinations, even though the machine may be an improvement of the original and patentable as such, are to be treated as infringers.
[*Id.

9. COMBINATION CLAIM—EQUIVALENTS.
When a combination patent covers a new arrangement of old elements, producing a new and useful result, the same may be protected by invoking the doctrine of equivalents, as against the substitution for any particular element of a different device known at the date of the patent as a means of performing similar work; and the fact that the substitute performs some additional functions does not prevent it from being an infringement.
[*Id.

10. A CHANGE MADE WITHIN THE TWO YEARS, WHICH IS ONLY A "PREFERABLE FORM," WILL NOT SAVE A PATENT OTHERWISE VOID FOR PUBLIC USE.
A change made in the bet bottoms within the two years prior to the application for the patent, but which is described only as a preferable form, will not save the patent.
[*Smith & Davis Manufacturing Company *v.* Mellon, 1480.

11. CONSTRUCTION OF CLAIM—INOPERATIVE CLAIM.
The words "substantially as specified" in the claim of a patent are to be given effect, and where the claim read literally would be inoperative their effect is to include in the claim elements or devices contained in the specification that are wanting in the claim.
[*Lee *v.* Pillsbury *et al.*, 1752.

12. FACTS WHICH TEND TO NEGATIVE UTILITY.
Where a complainant was an extensive manufacturer, engaged in the special trade to which the patent sued upon relates, yet testified that he had held the patent for seven years but had never put upon the market a chair constructed to conform to it, *Held* of great weight in determining the question of "invention" from the standpoint of utility.
[*Waite *v.* Robinson *et al.*, 1888.

CONSTRUCTION OF STATUTES.

(See Notaries Public in Foreign Countries; Suits for Infringement, 4; Trade-Marks, 4.)

CONTRACTS.

(See Suits for Infringement, 1, 5.)

DAMAGES AND PROFITS.

(See Infringement, 7; Suits for Infringement, 1, 2.)

1. LICENSEE—COVENANT.
A licensee who covenants not to dispute the validity of a patent under which he is licensed will not be permitted to do so; but the burden is nevertheless on the licensor to show that the licensee has operated under his license, and in the absence of such proof the licensor cannot recover.
[*Marsh *v.* Quick Meal Stove Company, 1056.

2. SAME—DAMAGES—GENERAL EVIDENCE.
Where there is no license-fee and nothing to show that the patentee puts his machine upon the market, he must furnish other evidence to enable the jury to come to a proximate amount of the damage which he has sustained by the infringement, and for this purpose general evidence may be resorted to.
[*Lee *v.* Pillsbury *et al.*, 1752.

3. SAME.
The actual damages suffered by plaintiff may be arrived at by evidence showing the value of that which defendants have used, the utility and advantage of the invention of the plaintiff over the old modes or devices that have been used for working out similar results, and the saving effected thereby.
[*Id.

4. NOMINAL DAMAGES.
Plaintiff can recover only nominal damages for the infringement of an impracticable machine or if he fails to show actual advantage to defendants by the use of his machine.
[*Id.

5. PROOF OF DAMAGES—MERE OPINION.
Plaintiff must prove the actual damages directly or show such facts as will enable the jury to ascertain the amount, and mere opinion as to the amount of that damage cannot be considered.
[*Id.

6. MEASURE OF DAMAGES.
The proper measure of damages for infringement of a patent is an indemnity to the plaintiff for the loss sustained by the infringement.
[*Id.

7. MEASURE OF DAMAGES—WHEN CALCULATED ON WHOLE MACHINE.
When a patent covers only certain features of a machine and not the entire machine, if the patented features constitute the essential features of the machine and give it its merit, without which the machine would be valueless and unsalable, the damages and profits for infringement must be calculated on the basis of the entire machine and not merely on the patented features alone.
[*Tatum *et al v.* Gregory *et al.*, 1753.

8. SAME—SAME.
To entitle a patentee to recover as damages for infringement the profits he would have realized if he had made the sales which were made by the infringer, he must show that he had the ability to make and that he would have made said sales but for the infringement.
[*Id.

DATE OF FILING APPLICATIONS.

(See Priority of Invention, 3.)

DEFENSE.

(See Infringement, 4; Infringement by a Government Official; Suits for Infringement, 1.)

DELAY.

(See Priority of Invention, 5.)

DEMURRER.

(See Bill in Equity; Suits for Infringement, 4.)

DEMURRERS TO THE VALIDITY OF PATENTS.
The practice of permitting demurrers on the merits of the invention involved discussed and discouraged.
[*Indurated Fibre Industries Company *et al. v.* Grace *et al.*, 896.

DESCRIPTION.

(See Specifications.)

DESIGNS.

(See Infringement, 1, 2, 3; Particular Patents, 8, 9.)

1. DESIGN PATENTS—RANGE OR SCOPE OF CLAIM DETERMINED BY THE COURTS.
The range or scope of a design patent is to be determined by the courts and not by the Patent Office. It is therefore not proper for the Office to issue a design patent which on its face purports to cover an indefinite variety of modifications which may or may not be within the proper scope of the claim, as that matter shall be determined by the courts.
[*Ex parte* Finck, 157.

2. SAME—ILLUSTRATION OF NON ESSENTIAL FEATURES.
Where it appeared from the specification that certain words and figures shown on the face of the design in the drawing did not constitute an essential feature of the design, *Held* that the patent should not be permitted to seem to make them so, and that they should be erased.
[*Ex parte* Requa, 295.

3. SAME—EVIDENCE—METHOD OF PRODUCING.
Although the suit does not involve the method of producing the result, yet in considering the question of anticipation the court may properly take into consideration the fact that the patentee invented the method of making articles of glassware having a "blown" body and a "pressed" neck thereby rendering possible the raised ornamentation of the neck in the patent.
[*Ripley *v.* Elson Glass Company, 298.

4. SAME—LICENSE—WHAT CONSTITUTES.
Where a manufacturer of mantels purchased two mantels of a design not then patented, for the usual price and for the avowed purpose of using them as copies in his business, *Held* equivalent to the consent on the part of the inventor that the manufacturer might use the design and that, having subsequently obtained a patent therefor, he could not maintain a suit for infringement against the manufacturer.
[*Anderson *v.* Eller *et al.*, 740.

5. DESIGNS—WORDS AND FIGURES (NUMERALS) APPEARING THEREON.
Where certain words and figures (numerals) appeared on the illustration of a design, *Held* that they should be erased if they form no part of the design. *Held*, further, that the Examiner should reject if such words, etc., are a part of the design, provided he is of the opinion that words and figures (numerals) may not form part of the subject-matter of a design patent.
[*Ex parte* Van Slyke, 893.

DILIGENCE.

(See Construction of Specifications and Patents, 12; Priority of Invention, 1, 2, 5, 6.)

DIVISION OF APPLICATION.

1. PRACTICE—DIVISION.
On appeal from Examiner's decision requiring division between claims for a printing block or plate and the process of making it, *Held* that no wider range of search being required under the present practice of the Office for both groups of claims than for one of them division should not be required.
[*Ex parte* Hines, 576.

2. SAME.
Where on a question of division applicant alleges that his article cannot be produced except by his process, and the Examiner says it can, without pointing out the mode, the Examiner's position is not tenable.
[Id.

DIVISIONAL APPLICATIONS.

DIVISIONAL APPLICATIONS—SUBJECT-MATTER OF.
Where an alleged divisional application describes and claims something different from what was disclosed in the original application, it is not properly a division of such original application.
[*Ex parte* Hunter, 295.

DRAWINGS.

(See Construction of Specifications and Patents, 7; Designs, 2, 5; Priority of Invention, 4; Public Use or Sale; Specifications, 2.)

SUBSTITUTE DRAWINGS—CANCELLATION REQUIRED WHEN SUPERFLUOUS AND UNCALLED FOR.
An applicant of his own motion filed a substitute sheet of drawings, which was entered as a part of the application. The Examiner subsequently held it to be unwarranted by the specification, and required cancellation. On appeal, *Held* that while the better course would have been to refuse to enter the new drawing until after the final determination of the question as to its admissibility, yet, it being clear that the drawing was uncalled for and superfluous, the requirement of cancellation must be sustained.
[*Ex parte* Shepard, 575.

EMPLOYÉS.

(See First and Original Inventor.)

ENLARGEMENT OF CLAIMS.

(See Reissues.)

EQUIVALENTS.

(See Construction of Specifications and Patents, 9; Infringement, 6.)

EVIDENCE.

(See Experts; Public Use or Sale.)

EVIDENCE OF INVENTION.

(See Invention, 4.)

EXAMINATION OF APPLICATIONS.

(See Appeal to the Examiners-in-Chief; Designs, 5; Division of Application; Interference, 5; Model.)

EXAMINERS.

(See Division of Application; Interference, 5, 6, 8; Petition to Commissioner.)

EXAMINERS-IN-CHIEF.

(See Petition to Commissioner.)

EXPERTS.

EXPERT EVIDENCE.
The opinions of experts are admissible in evidence in patent cases; but they are not conclusive upon the courts.
[*Norton *et al. v.* Jensen *et al.*, 1326.

FEES IN TRADE-MARK CASES.

FEES PAID BY MISTAKE—PAYMENT UNDER EXISTING LAW AND RULES NOT A MISTAKE.
A filing fee of ten dollars having been paid on an application for registration of a Trade-Mark in 1879, under the law and rules in force at that time, *Held* that it was not paid under a mistake and that it could not properly be refunded.
[*Ex parte* Leeson & Company, 297.

FIRST AND ORIGINAL INVENTOR.

SUGGESTIONS BY EMPLOYÉ.
Where one has conceived of an invention and discloses the essence of it to another whom he employs to develop and perfect it, suggestions from the employé in the course of experiments and dependent upon the main idea will not ordinarily give the employé any rights as an inventor. (Citing *O'Reilly v. Morse*, 15 How., 62 and *Agawam Co. v. Jordan*, 7 Wall., 583.)
[Webster *v.* Parkhurst and Ham, 1325.

FOREIGN PATENTS.

(See Suits for Infringement, 4.)

FOREIGN REGISTRANTS OF TRADE-MARKS.

(See Trade-Marks, 1.)

FUNCTIONS.

(See Construction of Specifications and Patents, 9; Invention, 5.)

GENERIC CLAIMS.

(See Construction of Specifications and Patents, 4, 5.)

GRANT OF LETTERS PATENT EVIDENCE OF INVENTION.

(See Invention, 6.)

GOVERNMENT USE OF PATENTED INVENTION.

(See Infringement by Government Officials; Rights of Patentees.)

INADVERTENCE.

(See Reissues.)

INFRINGEMENT.

(See Bill in Equity; Bond; Construction of Specifications and Patents, 1, 2, 3, 8, 9; Damages and Profits; Injunction; Interference, 7; Particular Patents, 1, 3, 7; Rights of Patentees; Suits for Infringement; Trade-Marks, 7.)

1. DESIGN PATENT — INFRINGEMENT OF — INTERPRETATION OF WORDS.
The words of the claim and specification which refer to the body of the vessel as "globe-shaped" or "spherical" must be taken in their ordinary rather than their mathematical signification, and infringement cannot be avoided by merely elongating the body so as to render it an ovoid rather than a sphere or globe.
[*Ripley v. Elson Glass Company, 298.

2. SAME—TEST OF INFRINGEMENT—GENERAL RESEMBLANCE.
In determining whether a design patent is infringed the test is whether there is a substantial similarity in appearance not to the eye of the expert, but to that of the ordinary observer giving such attention as would ordinarily be given by a purchaser of the article bearing the design. [*Id.

3. SAME—PENALTY.
Where the infringement of a design patent is deliberate and intentional, the court will impose upon the defendant the penalty of $250 provided for by act of February 4 1887.
[*Id.

4. FACTS RATHER THAN THEORIES CONTROL IN THE CONSTRUCTION OF PATENTS.
In an action for infringing a patent demonstrable facts are the decisive factor in determining the actual bearing upon each other of the patents under consideration, and a defense which rests upon a mere theory as to the philosophy of operation of the complainant's device will not be considered by the court when this theory is negatived by the history of the art and by the practical working of the device in question.
[*Stilwell & Bierce Manufacturing Company v. S. N. Brown & Co., 1191.

5. WHAT IS AN INFRINGEMENT.
An infringement takes place whenever a party avails himself of the invention of the patentee without such a variation as constitutes a new discovery
[*Norton *et al.* v. Jensen *et al*, 1336.

6. INFRINGEMENT OF COMBINATION CLAIM.
There cannot be any infringement of a combination claim unless every element of the combination or a mechanical equivalent of an omitted element is used. [*Id.

7. PROPERTY RIGHT IN PATENT—DAMAGES FOR INFRINGEMENT
The exclusive use granted by a patent is a property right, and a plaintiff in an action at law for infringement may recover actual damages therefor.
[*Lee v. Pillsbury, 1752.

INFRINGEMENT BY GOVERNMENT OFFICIALS.

INFRINGEMENT BY A PUBLIC OFFICER IN COURSE OF OFFICIAL DUTY.
Where an officer of the Government, having been sued for the infringement of patents in his official employment, pleads to the jurisdiction and alleges that the Government, being the real defendant, is a necessary party, *Held* that the plea must be overruled and that public employment is not a sufficient defense.
[*Head v. Porter, 1052.

INJUNCTION.

(See Bond; Trade-Marks, 3.)

1. PRELIMINARY INJUNCTION AGAINST A SELLING AGENT.
A complainant may have a preliminary injunction against an infringing defendant who is a mere selling agent where the patent having nearly expired the court might refuse it against a manufacturer giving proper security.
[*Remington Standard Type-Writer Manufacturing Company *et al.* v Bailey, 440.

2. INJUNCTION.
Where in a suit against a railroad company for infringement the answer admits the validity of the patent, complainant's title thereto, and the infringement, the company cannot avoid an absolute injunction by averring that the invention is of trifling value and offering to submit to a decree for nominal past damages and to an injunction against the adoption of any more of the patented articles on condition of the undisturbed use of those already upon its trains.
[*Campbell Printing-Press & Manufacturing Company v. Manhattan Railway Company, 894.

3. SAME.
On the question as to whether an injunction should issue it is immaterial that the owner of the patent has never made, used, or sold any of the patented articles or licensed any one to do so, especially when it appears that he has not done so because defendant and other railroad companies, being unwilling to pay the price asked by him, adopted his invention without leave, expecting to pay a less sum by way of damages for infringement. [*Id.

4. SAME—HARDSHIP.
Defendant cannot escape the injunction on the ground of hardship to itself or to the public, since the decree may provide for a gradual removal from its cars of the patented article, so as not to cause the withdrawal from service of a large amount of rolling-stock at any one time, and for that purpose the amount of rolling-stock required and available for its business may be proved by affidavits or the oral examination of its superintendent or master mechanic. [*Id.

5. PRELIMINARY INJUNCTION—RULE.
A motion for a preliminary injunction in advance of any adjudication by the courts or an adjudication by the Patent Office as to priority will not be allowed unless the case is entirely clear and unless irrevocable injury is to result from withholding the injunction
[*Iron-Clad Manufacturing Company, Incorporated, *v.* Jacob J. Vollrath Manufacturing Company, Limited, *et al*, 1480.

INTERFERENCE.

(See Appeal to the Examiners-in-Chief; Preliminary Statements; Priority of Invention, 1, 2, 3, 6; Testimony Taken in Foreign Countries.)

1. PRACTICE—INTERFERENCE—REDUCTION TO PRACTICE.
As between interference contestants, he who was last to conceive of an improvement is not entitled to take a patent therefor over him who was first to conceive, unless by reason of the latter's delay his opponent becomes the first to reduce to practice.
[Eckerson *v.* Cox, 437.

2 INTERFERENCE—TESTIMONY IN FOREIGN COUNTRIES—HOW TAKEN.
Testimony cannot properly be taken in foreign countries otherwise than as prescribed by Rule 158, (3) unless this procedure be waived *by stipulation of the parties* [Rule 158 (5).]
[Raffard *v.* de Ferranti, 430.

3. NO APPEAL LIES TO THE SECRETARY OF THE INTERIOR FROM THE COMMISSIONER'S REFUSAL TO PERMIT THE AMENDMENT OF A PRELIMINARY STATEMENT.
A decision of the Commissioner of Patents denying an interfering party's motion to amend his preliminary statement is a judicial rather than a ministerial act, and consequently one over which the Secretary of the Interior has no appellate jurisdiction. (Citing *Petithomme v. Bedbury*, 52 O. G. 605.)
[*Ex parte* Noakes, 575

4. PRACTICE—INTERFERENCE—ISSUE.
In an interference where the senior party claimed "a curved-spring seat-support" and his application disclosed a spring support curved at both ends, *Held* that the junior party, showing a spring-support curved at one end only, was properly within the issue and satisfied its requirements.
[Garford *v.* Edwards, 803.

5. PRACTICE—INTERFERENCE
Where an applicant appealed from the refusal of an Examiner to inform him of the subject-matter of the issue in a proposed interference in order that he might amend so as to include the issue in his claims, *Held* that it is not the practice of the Office to suggest claims to an applicant in order to create possible interferences
[*Ex parte* Weeden, 1191.

6. PRACTICE—RULES 122 AND 124.
Upon a motion to dissolve an interference upon the ground of irregularity in declaring the same the Primary Examiner is not at liberty to decide the question of patentability
[Hutt and Phillips *v.* Foglesong, 1477.

7. FUNCTION OF THE PATENT OFFICE AND COURTS IN CERTAIN CASES.
The province of the Patent Office in interference cases is to determine the issue of priority, the construction of patents being for the courts to determine when the occasion arises upon infringement proceedings
[*Iron-Clad Manufacturing Company, Incorporated, *v.* Jacob J. Vollrath Manufacturing Company, Limited, *et al.*, 1480.

8. INTERFERENCE—MOTIONS FOR DISSOLUTION.
A question involving the right of an applicant to make the claim in interference will not be passed upon by the Commissioner on appeal from the decision of the Primary Examiner upon a motion to dissolve the interference.
[Sweeney *v.* Jaros, 1883.

INVENTION.

(See Particular Patents, 7, 13.)

1. CERTAIN FEATURES NOT SHOWING INVENTION.
The use of a single sheet of metal and the absence of "joint, seam, or interior angle" do not confer patentability, since these features are old in analogous devices.
[*Kilbourne *et al.* v. W. Bingham Company, 577.

2. SAME SUBSTITUTION OF MATERIALS.
The use of wrought iron or steel in lieu of cast metal is a mere substitution of materials and is not patentable, notwithstanding the superior results obtained. [*Id.

3. PATENTABLE NOVELTY—INDEXED LETTER FILES.
An applicant for a patent for an improvement in letter-files already held a patent for an indexed letter-file consisting of a series of perforated index-sheets arranged at one end to hinge and slide upon an upright rod and being free at the other end to permit of their being lifted from their position. The perforations in the sheets were circular and little larger than the rod itself. *Held* that an improvement which consisted merely in making these perforations elliptical to admit of freer action upon the rod does not constitute patentable invention.
[*Odell, administrator, *v.* Commissioner of Patents, 580.

4. PATENTABLE IMPROVEMENT—WHAT IS.
Whenever in an art, machine, manufacture, or composition of matter a change, however apparently minute, is made which is not obvious and results in marked advantages, a patentable invention has been produced; and when such a change has remained unmade for a considerable time, in spite of inducements to make it by reason of its value, that is evidence approaching the conclusive that change was not obvious.
[*Ex parte* Champney, 1051.

5. INVENTION, FACTS WHICH MAY BE CONSIDERED IN DETERMINING THE QUESTION OF—PUBLIC FAVOR
In determining what constitutes invention and what is a "new and useful result," a "new function," or a "new sphere of action" the court will give weight to facts showing (1) that the improvement, though desired for years, was not secured until brought out by the patentee; (2) that the product of the improved machine or process displaced wholly or in a great degree prior products; (3) that while the prior products had been unsuitable from lack of cheapness or adaptation the new product answered all reasonable requirements.
[*Watson *v.* Stevens *et al.*, 1884.

6. SAME—PRESUMPTION OF PATENTABLE INVENTION ARISING FROM A GRANT OF LETTERS PATENT.
Where the question of invention is closely balanced, the presumption in favor of the patentee arising from his recognition as an inventor by the Patent Office will incline the court to sustain his patent. [*Id.

JOINT DEFENDANTS.

(See Suits for Infringement, 3.)

JURISDICTION.

(See Interference, 7.)

JURISDICTION OF THE SECRETARY OF THE INTERIOR.

(See Interference, 3.)

JURISDICTION OF THE UNITED STATES CIRCUIT COURTS.

(See Trade-Marks, 4.)

JURY TRIALS.

(See Construction of Specifications and Patents, 1.)

LABELS.

(See Trade-Marks, 6.)

LICENSES.

(See Damages and Profits, 1; Designs, 4.)

MANDAMUS.

(See Trade-Marks, 4.)

MEASURE OF DAMAGES.

(See Damages and Profits.)

MECHANICAL SKILL.

(See Invention, 3.)

MODEL.

(See Public Use or Sale.)

PRACTICE—MODEL NOT REGULARLY FILED MAY BE RETURNED.
The Office required a model, which applicant furnished, clearly indicating, however, at that time and subsequently, that he wished the model returned. The Office did not, in response to applicant, insist upon the permanent filing of a model, nor were the receipt and application of the model to the case under consideration entered on the file-wrapper, under Rule 56. *Held*, on renewed request by the applicant for its return, that the model was not regularly filed, and should be returned.
[*Ex parte* Hunter *et al.*, 1477.

MOTION TO AMEND PRELIMINARY STATEMENT.

(See Interference, 3.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 6, 8.)

NEW MATTER.

(See Divisional Applications.)

NOTARIES PUBLIC IN FOREIGN COUNTRIES.

OATHS—WHO MAY ADMINISTER.
A notary who is not authorized by the laws of his country to administer oaths or take affidavits lacks the requisite authority to administer the oath required by Revised Statutes, section 4892.
[§Opinion of Attorney-General, 1481.

OATH.

(See Notaries Public in Foreign Countries.)

OATHS IN TRADE-MARK CASES.

(See Trade-Marks, 5.)

OLD DEVICES.

(See Invention, 1; Particular Patents, 17.)

PARTICULAR PATENTS.

1. CHERRY—MILK-CANS—INFRINGEMENT.
The patent is infringed by a milk-can manufactured under the Cherry patent of September 23, 1879, for an improvement in milk-pans, which describes a substantially similar apparatus and purports to accomplish the same ends in substantially the same way, and infringement cannot be avoided on the theory that the Cherry patent is for a device while the Cooley patent is for a process, especially when it appears that the Cherry apparatus was sold with directions for using it according to the Cooley process.
[*Boyd *v.* Cherry, 160.

2. COOLEY—MILK-CANS—ANTICIPATION—PRIOR USE.
The Cooley patent of February 20, 1877, covers "a new process of obtaining cream from milk," and, as stated by the specification, "consists, mainly, in water-sealing the milk within the vessel containing it, and also in submerging such vessel in water, and in apparatus hereinafter described," the object being not only to exclude dust and dirt, but also to prevent the absorption of deleterious gases or odors from the air and the exposure to sudden changes—electric, thermal, and otherwise—of the atmosphere. *Held* that the patent is valid, although other persons had been in the habit of occasionally submerging vessels containing milk, as they never proceeded so far as to discover the importance of the method or the valuable results achieved by the patentee. [*Id.

3. GEHRT—BALING-PRESSES—INFRINGEMENT.
The second claim of the Gehrt patent, No. 232,400, September 21, 1880, for improvement in baling-presses, covers, broadly, the application of a friction-brake to retard the backward movement of the plunger of the press. *Held* that the claim must be limited to the means shown and described in the patent—to wit, a set-screw for adjusting one side of the baling-chamber—and is not infringed by an eccentric upon the top of the press and upright rods which are connected to the eccentric and which bear against small hinged brakes.
[*Dederick *v.* Seigmund 1193.

4. ILLSTON - BICYCLES—INFRINGEMENT.
The claims of Letters Patent No. 245,071, to George Illston, August 2, 1881, for improvements in bicycles, must, in view of the prior state of the art, be limited to the specific forms of devices therein described, and, the claim being for a dovetail grooved seat, the words of the specification "the slide carrying the handle-bar and the seat on the head may have a figure other than the dovetail figure represented" cannot be construed to include other and different forms of adjustable mechanism and must be held to include at most a modification of the dovetail form.
[*Pope Manufacturing Company *v.* Warwick Cycle Manufacturing Company *et al.*, 1478.

5. KILBOURNE—PROCESS AND ARTICLE OF MANUFACTURE—METAL SINKS.
Claim 1 of Letters Patent No. 240,146, issued April 12, 1881, to James Kilbourne, is for "the herein-described sink, made of a single sheet of wrought steel or iron, without joint, seam, or interior angle, substantially as set forth," and the specification sets forth that the invention consists of a "sink swaged or struck up from a single sheet of wrought iron or steel, without joint, seam, or interior angle." The method of construction not being further referred to in the patent, *Held* that the patent does not cover a process.
[*Kilbourne *et al.* *v.* W. Bingham Company, 577.

6. MASTEN FIRE-CRACKERS — INFRINGEMENT — CONSTRUCTION OF COMBINATION CLAIM.
In Letters Patent No. 321,833, to Cornelius E. Masten, July 7, 1885, for a fire-cracker, claim 1 is for "the match B and fuse C, in combination with the solid plug D and body A, substantially as set forth." *Held*, in the absence of any description of the prior state of the art in the specification, and since applicant merely states that his invention produces a more desirable article than is now in general use, the court cannot hold that the match B was not an essential element, since the presumption of novelty applies to the combination as a whole.
[*Masten *v.* Hunt *et al.*, 1886.

7. NORTON—CAN ENDING AND HEADING MACHINES—INFRINGEMENT.
Claims 1 and 2 of Letters Patent No. 267,014, to Edwin Norton, November 7, 1882, for a machine for putting on the ends of fruit and other cans, and claims 6 and 7 of Letters Patent No. 274,363, to Norton and Hodgson, March 20, 1883, for a can-ending machine, and claim 14 of Letters Patent No 294,065, to Norton and Hodgson, February 26, 1884, for a can ending and seaming machine, and Letters Patent No. 322,060, to Edmund Jordan, July 14, 1885, being an improvement on the original Norton machine, sustained and *Held* infringed by the "Jensen machine" made under Letters Patent No. 376,804, to Mathias Jensen, January 24, 1888, for a can crimper and capper. Letters Patent No. 307,197, to Edmund Jordan, October 28, 1884, and No. 307,491, to Norton and Hodgson, November 4, 1884, for machines of the same class, *Held* not infringed.
[*Norton *et al.* *v.* Jensen *et al.*, 1326.

8. PAINE—DESIGN FOR CHAIR-BACKS—NOVELTY.
Design Patent No. 13,405, issued November 14, 1882, to Henry H. Paine, for a design for common round bow-back chairs, consisting in the upper part of the bow and rounds provided with a sheet of suitable material, as wood, bent to conform to the curvature of the bow-back and rounds, leaving the rounds between the sheet and seat exposed, is void for want of novelty. (Affirming 46 Fed. Rep., 189.)
[*Paine *v.* Snowden, 737.

9. RIPLEY—DESIGN—ANTICIPATION—BOTTLES.
Design Patent No. 17,243, issued April 5, 1887, to Daniel C. Ripley, for footed bottles and jars consisting of a spherical body, a figured ring-neck covering a zone of the body and having a raised pattern on its entire surface, was not anticipated by certain designs having a general resemblance thereto in shape, but lacking the raised ornamentation of the neck.
[*Ripley *v.* Elson Glass Company, 298.

10. ROBB—EDGERS—ESSENTIAL FEATURES.
Claim 1 of Letters Patent No. 227,926, dated May 25, 1880, and claim 1 of Letters Patent No. 290,358, dated December 18, 1883, both granted to J. A. Robb for improvements in edgers, embrace and cover the essential features of the patented machine and give it its merit, without which features it would be valueless and unsalable.
[*Tatum *et al.* *v.* Gregory *et al.*, 1753.

11. SMITH—BED-BOTTOMS—PUBLIC USE.
Letters Patent No. 269,242, issued December 19, 1882, to John G. Smith, is void for the reason that the bed-bottoms were on sale more than two years before the application for the patent.
[*Smith & Davis Manufacturing Company *v.* Mellon, 1480.

12. STILWELL—FEED-WATER HEATERS AND PURIFIERS—INFRINGEMENT.
Letters Patent No. 274,048, to Edwin R. Stilwell, dated March 18, 1883, for a feed-water heater and purifier, sustained and *Held* infringed by purifiers made under Letters Patent No. 318,112, to John J. Hoppes, dated May 19, 1885.
[Stilwell & Bierce Manufacturing Company *v.* S. N. Brown & Co., 1191.

13. SWAN—ELECTRIC ACCUMULATORS.
Reissued Letters Patent No. 11,047, granted to the Electrical Accumulator Company, as assignee of Joseph Wilson Swan, December 17, 1889, claiming a perforated plate for secondary batteries, having the perforations extending through the plate and the active material packed in the perforations only, cover a patentable invention.
[*Electrical Accumulator Company *v.* New York & Harlem Railroad Company, 297.

14. SAME—UTILITY.
The fact that before the date of this invention Professor Eaton had packed active material in perforations extending through the plate, at the same time covering the surfaces thereof, and that Mr. Brush had packed it into grooves in the plate without covering the surfaces, does not show a want of invention in the idea of confining it entirely to perforations extending through the plate, since this apparently slight change avoided the difficulties before encountered and produced an electrode which has to a great extent superseded all others and has become the electrode of commerce. [*Id.

15. WESTON—CARBON CONDUCTORS FOR INCANDESCENT ELECTRIC LAMPS.
Letters Patent No. 306,980, October 21, 1884, to Edward Weston, for an improvement in the process of manufacturing carbon conductors for incandescent electric lamps, *Held* anticipated by Letters Patent No. 211,262, issued January 7, 1879, to William E. Sawyer and Albon Man, for the same invention.
[*United States Electric Lighting Company *v.* Edison Lamp Company, 1610.

16. SAME—PRIOR PUBLIC USE.
Independently of the question as to priority of invention, the Weston patent is invalid because of two years' public use, prior to his application, by Sawyer and Man in their workshop in New York city. [*Id.

17. YOUNG—LIMITATION OF CLAIM—HEDGE FENCES.
Letters Patent No 254,085, to Wesley Young, February 21, 1882, for an improvement in planked hedges, *Held* to be for a wire extending along the base of a hedge to prevent the passage of small animals, and further *Held* that the patent is void for want of patentability, it being old to use such a wire to keep the plants in position and to give the hedge increased lateral strength, and it being old to use a wire along the base of an ordinary fence to prevent the passage of small animals.
[*Young *et al.* *v.* Baltimore County Hedge and Wire Fence Company, 1613

PARTIES TO SUIT.

(See Suits for Infringement, 5.)

PATENTABILITY.

(See Invention.)

PATENTS.

(See Infringement, 7; Rights of Patentees; Scope of Patent.)

PETITION TO COMMISSIONER.

PRACTICE UNDER RULE 139 (a).
A decision by the Examiners-in-Chief affirming a rejection by an Examiner, subject to certain recommendations made by them, is such an affirmance of the Examiner's decision that a petition to the Commissioner asking "that a record decision affirming the patentability of the invention in issue may be entered" will not lie.
[*Ex parte* McGowan, 735.

PRACTICE IN THE COURTS.

(See Bill in Equity; Bond; Construction of Specifications and Patents, 1; Damages and Profits, 1; Demurrer; Experts; Infringement, 4; Infringement by Government Officials; Injunction; Suits for Infringement.)

PRACTICE IN THE PATENT OFFICE.

(See Appeal to the Examiners-in-Chief; Designs, 2; Division of Application; Interference; Model; Petition to Commissioner; Public Use or Sale; Withdrawal of Case from Issue, 1.)

PRELIMINARY STATEMENT.

(See Interference, 3.)

PRELIMINARY STATEMENT.
Omissions and inaccuracies in a preliminary statement directly chargeable to carelessness, indifference, or want of attention on the part of an applicant may not be removed by an amended preliminary statement. [Todd *v.* Campbell, 1884.

PRIORITY OF INVENTION.

(See First and Original Inventor; Interference, 1, 7.)

1. INTERFERENCE—PRIORITY OF INVENTION.
Where it is found that the senior party conceived of the invention in the latter part of 1888, then made a model exhibiting the substance of it, and then disclosed the improvement to others, and that he used reasonable diligence in reducing to practice, *Held* that he is entitled to prevail over the junior party, who relies upon a conception and a reduction to practice in August or September, 1889.
[Vanness *v.* Shettler, 157.

2. SAME—RULE AS BETWEEN CONTESTANTS WHEN ONE IS A PATENTEE AND THE OTHER AN APPLICANT.
When one of the contestants for priority has a patent for the invention in dispute and the other is an applicant for a patent, the latter, in order to prevail, must present a case both as to conception and as to reasonable diligence which does not admit of a reasonable doubt.
[Edison *v.* Swan, 158.

3. PRIORITY OF INVENTION—CLAIMS IN ISSUE—WHEN MADE AND BASIS THEREFOR.
P's date of filing being earlier than the date of conception proved by C, *Held* that P is the prior inventor, though the claims of the issue were not made by him until after the patent to C issued. *Held*, further, that P's application as originally filed contained sufficient basis for the claims in issue.
[Challoner *v.* Perkins, 296.

4. PRACTICE—EARLY SKETCHES AS EVIDENCE TO ESTABLISH DATE OF CONCEPTION—THEIR WEIGHT AS SUCH.
The fact that an applicant's rough sketch, introduced to corroborate him upon his alleged date of conception, shows a variation from the true proportions of the actual perfected invention will not necessarily impair its weight as evidence even though these proportions are an important feature of the patent.
[Morford *v.* Carpenter, 487.

5. DELAY IN REDUCTION TO PRACTICE—HOW ACCOUNTED FOR.
A delay of five months between conception and reduction to practice is satisfactorily explained by proof of applicant's limited means during that period. [Id.

6. INTERFERENCE—DILIGENCE IN REDUCTION TO PRACTICE.
In an interference between a patent and an application, where it appeared that E the patentee, delayed more than three years after his conception before reduction to practice, and that meanwhile S, the junior party, had disclosed his invention and made an actual reduction to practice in public, *Held* that E was non-diligent and priority awarded to S.
[Smith *v.* Eley, 1883.

PROCESS.

(See Particular Patents, 1, 2, 5.)

PATENTABLE PROCESS.
By "process" is meant the application or operation of some element or power of nature, or of one subject to another—as, for example, the art of tanning, dyeing, smelting ores, and the like. In such cases the invention consists in the application of old and well-known principles to new and useful purposes.
[*Ex parte* Boyd, 160.

PROPERTY RIGHTS.

(See Infringement, 7.)

PUBLIC APPRECIATION EVIDENCE OF INVENTION.

(See Construction of Specifications and Patents, 12; Invention, 5.)

PUBLIC USE OR SALE.

(See Construction of Specifications and Patents, 10; Particular Patents, 11, 16.)

PUBLIC USE OR SALE—PROPER SHOWING BY AFFIDAVITS.
Affidavits alleging public use or sale of an invention should by machine, model or drawing clearly show what the thing alleged to be in public use or on sale was, and the allegations should be as to specific acts, leaving the Office to determine the question whether they establish a public use or sale under the statute.
[*Ex parte* Shettler, 158.

REDUCTION TO PRACTICE.

(See Interference, 1; Priority of Invention, 1, 5, 6.)

REFUNDMENT OF FEES.

(See Fees in Trade-Mark Cases.)

REISSUES.

(See Particular Patents, 13.)

PRACTICE—ENLARGED CLAIM.
Where an applicant has by "inadvertence" claimed less than he was entitled to claim, he may have a reissue with enlarged claims. (Citing and quoting *Topliff* *v.* *Topliff et al.*, 59 O. G., 1257.)
[*Ex parte* Stanley, 735.

REJECTED CLAIMS.

PRACTICE—RULE 68.
After final rejection claims substantially different from those finally rejected cannot be admitted without the showing required by Rule 68.
[*Ex parte* Houston, 1609.

RENEWAL OF FORFEITED CASES.

(See Abandonment.)

RESULTS.

(See Construction of Specifications and Patents, 9; Invention, 2, 5.)

RIGHTS OF PATENTEES.

NATURE OF A PATENT-RIGHT.
The rights secured to a patentee under his grant from the Government are a form of property in the enjoyment of which he is entitled to protection against all trespassers, including the Government.
[*Head *v.* Porter, 1052.

SCOPE OF PATENT.

CAPABILITY OF USE OF INVENTION—KNOWLEDGE OF CAPABILITY.
The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not. (*Roberts* *v.* *Ryer*, 91 U. S., 150.)
[Chaloner *v.* Perkins, 296.

SECRETARY OF THE INTERIOR.

(See Interference, 8.)

SPECIFICATIONS.

1. ARGUMENTATIVE SPECIFICATION.
An applicant is entitled to state as specifically and categorically as he chooses the difficulties and troubles which are cured or ameliorated by his improvement, but he is not entitled to state such matters in a way that amounts to a recital of the history of the art as he understands it, combined with an argument as to the importance of the improvement.
[*Ex parte* Johnston, 295.

2. SPECIFICATION—PROLIXITY OF DESCRIPTIVE MATTER.
A specification comprising two separate descriptions of the same subject-matter of invention that are substantially alike, except that one contains references to the drawings, is unnecessarily prolix.
[*Ex parte* Kinney, 737.

STIPULATION.

(See Interference, 2.)

SUITS FOR INFRINGEMENT.

(See Bill in Equity; Bond; Construction of Specifications and Patents, 1; Damages and Profits, 1; Demurrer; Designs, 4; Experts; Infringement; Infringement by Government Officials; Injunction, 2.

1. DAMAGES FOR INFRINGEMENT.
In an action to recover a balance alleged to be due on written contract whereby plaintiff agreed to furnish and set up certain machinery for defendant the latter sets up, among other defenses, that he had been served with notice by a certain patentee of a claim for damages for infringing Letters Patent by the use of the machinery furnished by plaintiff. *Held* that a purchaser of machinery who has had the full use and enjoyment and undisturbed possession of it cannot, in the absence of fraud, withhold the purchase-price because of an alleged liability on his part to a patentee for infringement in the use of the property.
[*Consumer's Gas Company of Danville v. American Electric Construction Company, Limited, 738.

2. INFRINGEMENT—ACCOUNTING.
Where infringement is admitted, damage is presumed, and the owner of the patent is entitled to a reference for accounting without giving specific evidence of damage.
[*Campbe.l Printing-Press & Manufacturing Company v. Manhattan Railway Company, 894.

3. SAME—PLEADING.
Where there are joint defendants to a bill for infringement, it is sufficient if the bill contains a general allegation of infringement, and it need not in terms allege a joint infringement.
[*Indurated Fibre Industries Company *et al. v.* Grace *et al.*, 896.

4. SAME—SAME.
Under Revised Statutes, section 4886, providing for the issuing of a patent where, *inter alia*, the invention has not been patented or described in any foreign country before the date of the invention, a bill for infringement of a patent is demurrable which does not allege such facts.
[*Overman Wheel Company *v.* Elliott Hickory Cycle Company, 1478.

5. SAME—SAME—BILL WITH DOUBLE ASPECT.
Where a complainant's bill asks for the specific performance of a contract set out, and also contains expressions looking to relief, as on a bill for infringement, *Held* impossible to sustain the bill as one for a double aspect, because in a bill for infringement the determination who are necessary parties must be made from a standpoint different from that in a bill for specific performance, and the title to relief is not the same in each event.
[*American Box Machine Company *v.* Crossman *et al.*, 1750.

TECHNICAL TERMS.

(See Construction of Specifications and Patents, 2, 11; Infringement, 1; Particular Patents, 4; Process.)

TESTIMONY TAKEN IN FOREIGN COUNTRIES.

(See Interference, 2.)

PRACTICE—TESTIMONY TAKEN ABROAD—RULE 158.
Where a party seeks to take testimony abroad under the provisions of Rule 158, a mere formal allegation in his affidavit that the testimony cannot be taken in this country without "injury to the moving party greatly exceeding that to which the opposite party will be exposed by the taking of such testimony abroad" is not sufficient to satisfy the requirements of the rule in that particular.
[Hall *v.* Latta, 736.

TRADE-MARKS.

(See Fees in Trade-Mark Cases.)

1. FOREIGN APPLICANT—RULE WHERE "LOCATION" AND "CITIZENSHIP" ARE AT VARIANCE.
Where an applicant for a Trade-Mark appears on the record as "located" in a foreign country other than that of which he is a citizen, his application will be governed by the existing treaty, convention, or law of the country of location rather than that of citizenship.
[*Ex parte* Haggenmacher, 498.

2. WHAT IS NOT REGISTRABLE AS.
A fac-simile of the certificate issued by a State Board of Pharmacy to registered pharmacists is not registrable as a Trade-Mark.
[*Ex parte* Kuppenheimer Brothers, 439.

3. INFRINGEMENT—INJUNCTION—LABELS ON CIGARS.
A manufacturer of cigars whose goods are protected by Trade-Mark is entitled to an injunction against a manufacturer of cigar-boxes who, although he does not make cigars, furnishes the trade with boxes supplied with labels confessedly counterfeits of the complainant's registered mark.
[*Cuervo *v.* Jacob Henkell Company *et al.*, 440.

4. SIMULATED OR FOREIGN IMPORTS—SECTION 7 OF THE TARIFF ACT OF OCTOBER 1, 1890.
In an application for mandamus to compel the collector of customs to examine into the validity of a certain registered Trade-Mark which he had declared simulated on certain imported goods which he had declined to admit to entry under the provisions of section 7 of the tariff act of October 1, 1890, *Held* that the circuit court had no jurisdiction to grant a mandamus, and that whether the decision of such officer that any particular import is within the statute's prohibition is reviewable in the courts was not before the court in this proceeding.
[Vintschger *et al.*, 441.

5. PRACTICE—WHAT THE OATH MUST EMBRACE.
An applicant for Trade-Mark registration, relying upon commerce with Indian tribes to bring him within the statute, will be required in his oath to specify by name the tribe or tribes with which such commerce is carried on.
[*Ex parte* Schotten & Co., 576.

6. PRACTICE—TRADE-MARK AND LABEL.
"The arrangement of two panels, one in red and one in blue, each bearing a shield, "etc., is proper subject-matter for a Trade-Mark rather than a Label.
[*Ex parte* National United States Stamp Delivery Company, 898.

7. WHERE TITLE VESTS IN CERTAIN CASES.
Where one who claims to have invented or discovered a new means for treating disease transfers for a consideration all his rights therein to a corporation and afterward acquiesces in the use of a certain Trade-Mark thereon by the corporation, *Held* in a subsequent contest between himself and the corporation over title to the Trade-Mark that an absolute right is vested in the corporation.
[Sanche *v.* Electrolibration Company, 1189.

TWO YEARS' PUBLIC USE.

(See Withdrawal of Case from Issue, 2.)

UNADJUDICATED PATENTS.

(See Injunction, 5.)

USE AND SALE OF PATENTED ARTICLES.

(See Designs, 4; Infringement, 7; Rights of Patentees; Scope of Patent.)

UTILITY.

(See Construction of Specifications and Patents, 12.)

VALID PATENTS.

(See Particular Patents, 2, 3, 4, 7, 9, 10, 12, 13, 14.)

VOID PATENTS.

(See Construction of Specifications and Patents, 10, 12; Particular Patents, 8, 11, 15, 16, 17.)

WITHDRAWAL OF CASE FROM ISSUE.

1. WITHDRAWAL OF APPLICATIONS FROM ISSUE—MORE THAN TWO YEARS' DISCLOSURE IN A PRIOR PATENT TO SAME INVENTOR—NEW APPLICATION FOR SAME INVENTION.
An application will not be withdrawn from issue for the purpose of adding claims to a feature described and reserved but not claimed in a prior patent to the same inventor, because of the fact that more than two years have elapsed since said prior patent was issued, when it appears that a new application can be filed in such a manner that the two applications may be considered continuous.
[*Ex parte* Nash, 159.

2. WITHDRAWAL OF APPLICATIONS FROM ISSUE—MORE THAN TWO YEARS' PUBLIC USE—NEW APPLICATION FOR SAME INVENTION.
An application will not be withdrawn from issue because of more than two years' public use of the invention when it appears that a second application for the same invention may be filed as a continuation of the first application, such first application having been filed before the expiration of the two years.
[*Ex parte* Schilling, 160.

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING SEPTEMBER 30, 1892.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
A. B. Pullman Company. (See Pullman, Albert B., assignor.)						
A. Booth Packing Company of Baltimore City. (See Adams, John, assignor.)						
A. M. Collins Manufacturing Company. (See Odgers, John P., assignor.)						
Abbey, Orra E., Dailey, Mich. Tag-fastener	481,382	Aug. 23	2651	650	60	1128
Abbott, Charles J., assignor to himself, F. N., C. T., and M. Wright, N. J. Moors, and H. Watson, Greenville, Mich. Reversible plow-point	478,730	July 12	1020	249	60	218
Abbott, Charles W., Albion, Me. Grapple-hook	479,871	Aug. 2	147	36	60	611
Abbott, John W., Rushville, N. Y. Coffee-pot	478,075	July 5	1	1	60	3
Abell, Bernard M., and W. Ostrander, New York, N. Y. Means for ornamenting sheet-metal articles	482,837	Sept. 20	1495	372	60	1654
Abernathy, Loransy H., assignor of one-half to S. W. Lewelling, Holland, Ark. Combined cotton chopper and cultivator	479,083	July 19	1563	392	60	333
Abresch, Charles, Milwaukee, Wis. Dumping-wagon	478,834	July 12	1189	295	60	251
Accumulator Company. (See Griscom, William W., assignor.)						
Acers, Nelson F., Kansas City, Mo. Ore crusher and grinder	482,330	Sept. 13	689	165	60	1485
Acheson, William J., Denver, Colo. Package-wrapper	483,198	Sept. 27	2076	524	60	1782
Achor, Servetus T., Brooklyn, N. Y. Soluble chocolate	479,580	July 26	2380	.....	60	504
Achor, Servetus T., Brooklyn, N. Y. Making soluble chocolate	479,581	July 26	2381	.....	60	504
Ackerman, Rudolp B., Minneapolis, Minn., assignor to J. C. Lyman, Chicago, Ill. Ring	482,670	Sept. 13	1229	299	60	1588
Acme Safety Emery Wheel Company. (See Balmes, Michael, assignor.)						
Acme Storage Battery Company. (See Kennedy and Diss, assignors.)						
Adam, Edwin, Philadelphia, Pa. Beverage of fermented and unfermented wort and making the same	483,337	Sept. 27	2316	.....	60	1825
Adam, Edwin, Philadelphia, Pa. Making malt beverages	483,338	Sept. 27	2316	582	60	1826
Adams, Clarence A., and T. J. Thorp, Lincoln, Nebr. Trolley for electric railways	482,031	Sept. 6	178	43	60	1370
Adams, Frank D., Northville, Mich. Ironing-machine	482,607	Sept. 13	1141	275, 276	60	1572
Adams, Frank H., Rutherford, N. J. Game apparatus	480,056	Aug. 2	480	122	60	674
Adams, Frederick, assignor to Pittsburgh Brass Company, Allegheny, Pa. Shade-holder	482,887	Sept. 20	1586	398, 399	60	1670
Adams, George A., Santa Clara, Cal. Boring and mortising machine	481,383	Aug. 23	2652	650	60	1128
Adams, George E., Providence, R. I. Buckle	480,540	Aug. 9	1268	318	60	836
Adams, George F., *et al.* (See Williamson, Marshall D., assignor.)						
Adams, Greenbury E. (See Metcalf, Ralph M., assignor.)						
Adams, Harvey R., Marseilles, Ill. Cash-register	479,776	Aug. 2	1	1	60	583
Adams, John, assignor to A. Booth Packing Company of Baltimore City, Baltimore, Md. Fruit-coring machine	482,327	Sept. 6	682	162, 163	60	1469
Adams, Joseph C., New London, assignor of one-third to C. A. Todd, Scytheville, N. H. Ladder-guard	480,160	Aug. 2	641	163	60	704
Adams, Russell B. (See Bennett and Adams.)						
Adams, William G., and J. S. Forbes, Philadelphia, Pa. Valve for steam or high-pressure fluids	479,391	July 26	2067	519	60	445
Adams & Westlake Company. (See Giese, James A., assignor.)						
Adams & Westlake Company. (See Ham, William S., assignor.)						
Adams & Westlake Company. (See Mitchell, Charlie I., assignor.)						
Adler, Abraham S., Baltimore, Md. Conformator	482,911	Sept. 20	1623	406, 407	60	1677
Adler, Hattie, assignor of one-half to C. C. Mollerup, Denver, Colo. Clothes-drier	483,275	Sept. 27	2226	550	60	1809
Adler, Leon D. (See Young, Moskowitz, Adler, and Loewenberg.)						
Adler, Leon D., *et al.* (See Young and Moskowitz, assignors.)						
Adriance, Benjamin, Brooklyn, and J. H. Volkmann, New York, N. Y., assignors to said Volkmann. Vending apparatus	483,199	Sept. 27	2076	524, 525	60	1782
Aerated Fuel Company. (See Bullard, James H., assignor.)						
Agee, George S., Willow Springs, Mo. Churn	481,542	Aug. 30	2015	717	60	1197
Ahearn, Thomas, Ottawa, Canada. Electric water-heater	481,991	Aug. 23	2512	616	60	1103
Ahearn, Thomas, Ottawa, Canada. Electric heater	483,194	Sept. 27	1953	495	60	1777
Ahrens, John T. (See Foster, Samuel L., assignor.)						
Aiken, Albion P., Port Perry, Pa. Lifting-jack	480,685	Aug. 9	1507	375	60	881
Aiken, David, Winnsborough, S. C. Chimney-cleaner	478,302	July 5	383	92	60	77
Aiken, Henry, Pittsburg, Pa. Metal-shears	479,392	July 26	2069	519	60	445
Aiken, Henry, Pittsburg, Pa. Metal-shears	482,113	Sept. 6	310	73	60	1396

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Aiken, Henry, Pittsburg, Pa., F. W. Wood, Baltimore, Md., and H. H. Campbell, Steelton, Pa. Open-hearth furnace						
Aikley, William M., Lenni Mills, Pa. Stop-motion for looms	481,825	Aug. 30	3476	852	60	1305
Aird, Joseph, Tipton, England. Joint or coupling for metallic pipes or tubes	481,292	Aug. 23	2513	618	60	1103
Akron Tool Company. (See Morey, Albert E., assignor.)	478,496	July 5	662	162	60	131
Aktiebolaget Separator. (See Jönsson, Johan L., assignor.)						
Alapaw, Charles H., assignor of one-half to A. M. Baker, St. Louis, Mo. Pipe-holder	479,384	July 19	2051	512	60	427
Albany Venetian Blind Company. (See Benway, James K., assignor.)						
Albin, Jacob, Seymour, Ind. Carpet-stretcher	482,821	Sept. 20	1469	366	60	1649
Albright, Henry. (See Noblet, Charles H., assignor.)						
Alcock, Alfred U., Melbourne, Victoria. Electrostatic switch and phase-indicator	482,032	Sept. 6	160	43	60	1370
Alden, Oliver R., Nicholson, assignor of one-half to H. W. Lord, Lathrop, Pa. Bit-stock	478,248	July 5	303	74	60	61
Alden, Seth F., New Bedford, Mass. Electric snap-switch	483,316	Sept. 27	2288	575	60	1820
Alderfer, Jeremiah B. (See Price, Edwin H., assignor.)						
Aldrich, Wales, Dayton, Ohio. Cash register and indicator and check-machine	481,459	Aug. 23	2775	683, 684, 685	60	1153
Alexander, Cornelius C. and I. Z.; said I. Z. Alexander assignor to W. J. Alexander, Hartford City, Ind. Swing	482,217	Sept. 6	485	116	60	1430
Alexander, Frederick B., Brooklyn, N. Y. Cane-cutter	479,611	July 26	2428	605	60	513
Alexander, Isaac Z. (See Alexander, Cornelius C. and I. Z.)						
Alexander, William J. (See Alexander, Cornelius C. and I. Z., assignors.)						
Allan, Robert W., Fairfield, assignor of one-half to R. M. Fairfield, Holyoke, Mass. Means for preventing spots in paper	480,446	Aug. 9	1123	280	60	806
Allen, Albert W., *et al.* (See Cooper, Leslie A., assignor.)						
Allen, Charles H., Strondsburg, Pa. Car-brake	479,236	July 19	1804	452	60	378
Allen, George, Franklin, Pa. Pump for oil-wells	480,701	Aug. 16	1537	383	60	901
Allen, George H., Brockport, N. Y. Thill-coupling	478,678	July 12	936	232	60	201
Allen, George L., Worcester, Mass. Steam-boiler	478,677	July 12	934	232	60	200
Allen, Herod W., Latta, S. C. Stalk-cutter	478,676	July 12	933	232	60	200
Allen, Howard D., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Sheet-metal latch-bolt	479,582	July 26	2361	594	60	504
Allen, John A., Philadelphia, Pa. Toy	482,957	Sept. 20	1694	426	60	1692
Allen, John E., administrator. (See Johnston, James J.)						
Allen, Lewellyn J. (See Warner and Allen.)						
Allen, William H. (See Purcell, John J., assignor.)						
Allert, Rudolf, New York, N. Y. Separating yeast-cells	479,130	July 19	1641	410	60	347
Allgood, Charles B., Peterburg, Va. Dripper for barrels	478,303	July 5	383	92	60	77
Allis, Thomas V., New York, N. Y. Die for use in machines for making metallic fencing	481,918	Aug. 30	3533	865	60	1316
Alpert, Wilhelm, Brandenburg-on-the-Havel, Germany. Thrashing-machine	480,484	Aug. 9	1187	298	60	819
Alteneder, Ferdinand A., Philadelphia, Pa. Drawing-pen	480,541	Aug. 9	1260	318	60	836
Altorfer, Gustav G., *et al.* (See Payne, William H., assignor.)						
Alvord, Irwin T., North Ogden, Utah Ter. Commercial coin	478,304	July 5	384	93	60	77
Ambruster, William, St. Louis, Mo. Pocket cash-register	480,057	Aug. 2	481	122	60	674
Amend, Otto P., New York, and J. H. Macy, Harrison, N. Y. Desulphurizing oils	480,311	Aug. 9	912	230	60	768
Amend, Otto P., New York, and J. H. Macy, Harrison, N. Y. Desulphurizing oils	480,312	Aug. 9	914	231	60	768
American Bell Telephone Company. (See Dyer, Richard N., assignor.)						
American Carrier Rocket Company. (See Cunningham, Patrick, assignor.)						
American Electrical Works. (See Sawyer, William H., assignor.)						
American Forcite Powder Manufacturing Company. (See Brown, Lewis, assignor.)						
American Lead Pencil Company. (See Weissenborn, Albert G., assignor.)						
American Oil Projectile Company. (See Moore, Everett D., assignor.)						
American Optical Company. (See Currin, John, assignor.)						
American Ring Traveler Company. (See Bentley, Albert F., assignor.)						
American Scale Manufacturing Company. (See Judd, Edward C., assignor.)						
American Screw Company. (See Rogers, Charles D., assignor.)						
American Shoe Tip Company. (See Merrill, Hollis W., assignor.)						
American Soda Fountain Company. (See Maguire, Patrick J., assignor.)						
American Spring Company. (See Purdy, Fred, assignor.)						
American Telephone and Telegraph Company. (See Hubbard, Angus S., assignor.)						
American Telephone and Telegraph Company. (See Pickernell, Frank A., assignor.)						
American Writing Machine Company. (See Clemons, Henry D., assignor.)						
American Writing Machine Company. (See Fairfield, John M., assignor.)						
American Zinc Lead Company. (See Bartlett, Frank L., assignor.)						
Ames, Azel, Jr., Chelsea, assignor to S. K. Hamilton, Wakefield, Mass. Box	478,947	July 12	1344	333	60	281
Ames, Clarence F., Akron, Ohio. Recording-balance	481,543	Aug. 30	2916	717	60	1197
Amiea, William T., assignor to Seth Thomas Clock Company, New York, N. Y. Clock-case	478,546	July 12	755	185	60	165
Andersen, Peter, assignor to H. G. Olds, Fort Wayne, Ind. Fifth-wheel	480,901	Aug. 16	1837	457	60	963
Anderson, Andreas P., Oriental, Nev. Quartz-crusher	480,647	Aug. 9	1443	359	60	870
Anderson, Charles A., A. W. and F. D. England, Pembroke, Ky. Harrow	483,317	Sept. 27	2289	575, 576	60	1820
Anderson, Charles J. (See Hallsten and Anderson.)						
Anderson, George, Madras, India. Tip-wagon	483,200	Sept. 27	2079	525, 526, 527, 528	60	1782
Anderson, Hans J., Lake Mills, Wis. Butter-worker	483,201	Sept. 27	2085	528	60	1783
Anderson, John, Hickson, N. D. Window frame and sash	481,091	Aug. 16	2149	533	60	1022
Anderson, John B., assignor to Lane Manufacturing Company, Montpelier, Vt. Derrick-crane	479,730	July 26	2635	653	60	551
Anderson, Martin, Henderson Station, Ill. Swinging gate	482,218	Sept. 6	487	116	60	1430
Anderson, Oliver, assignor of one-half to H. F. Herrick, Racine, Wis. Thrashing-machine	482,494	Sept. 13	968	234, 235	60	1538
Anderson, Peter W., Roanoke, Va. Puzzle	483,276	Sept. 27	2228	560	60	1809
Anderson, William N., San Rafael, Cal. Elevator	480,542	Aug. 9	1270	318, 319	60	836
Andersson, Johannes, Christiania, Norway. Mud-guard for carriages	480,485	Aug. 9	1188	298	60	819
Andre, Emil. (See Rempen and Andre.)						
Andrews, Brainard A., *et al.* (See Parks, Dana, assignor.)						
Andrews, David H. (See Worcester, Joseph R., assignor.)						
Andrews, Horace S., West Orange, N. J. Coal-scuttle screen	482,431	Sept. 13	860	206	60	1517
Andrews, James M. and M. A., Syracuse, N. Y. Journal-bearing	478,533	July 5	733	178, 179	60	145

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Andrews, Marion A. (See Andrews, James M. and M. A.)						
Andrews, Sidney F. (See Brown, Frederick H., assignor.)						
Andrews, W. S. (See Carpenter, Charles E., assignor.)						
Andrews, William S., New York, N. Y., and T. Spencer, Philadelphia, Pa., assignors to H. C. Wirt, Boston, Mass. Dynamo-electric machine. (Reissue)	11,266	Aug. 30	3552	869	60	1319
Andrus, Duane P., St. Louis, Mo. Electric belt	479,147	July 19	1667	417	60	352
Andrus, Grosvenor S., Walla Walla, Wash. Weed-cutter	479,612	July 26	2429	605	60	513
Anger, John E., Green Island, N. Y. Car-truck	479,237	July 19	1805	452	60	378
Ansonia Brass and Copper Company. (See Cowles and Gilpin, assignors.)						
Ansted, Edward W., Connersville, Ind. Machine for bending and forming springs	483,094	Sept. 20	1907	482	60	1736
Anthistle, William J., London, Canada. Coffin-shell mold	480,926	Aug. 16	1974	493	60	989
Anthony, Mark. (See Secor, Jerome B., assignor.)						
Anthony, Mark, Berkeley, and W. C. Savage, Oakland, Cal. Bung	483,035	Sept. 20	1820	462	60	1719
Apfel, Jacob. (See Page and Apfel.)						
Appleby, John F., assignor to William Deering & Company, Chicago, Ill. Harvester-reel support	481,218	Aug. 23	2371	583	60	1079
Applegath, William, Hamilton, Canada. Hat-supporter	481,156	Aug. 23	2275	561	60	1039
Appleton, Charles J., New York, N. Y., assignor of two-thirds to H. S. Mack and E. A. Whittelsey. Knitting-machine	482,608	Sept. 13	1143	276, 277, 278	60	1572
Arbegust, Thomas O. (See Mesker and Arbegust.)						
Arey, Clarence O., Cleveland, Ohio. Boiler and furnace setting	482,147	Sept. 6	368	87	60	1408
Arlington Manufacturing Company. (See Colburn, Frederick C., assignor.)						
Armbruster, Hermann, New Haven, Conn. Tug-loop	480,003	Aug. 2	376	93	60	652
Armstrong & Co., R. G. (See Armstrong, Robert G., assignor.)						
Armstrong & Co., William H. (See Willibrandt, Emil, assignor.)						
Armstrong, Harry, Fidelity, Ill. Toe-weight for horses	481,611	Aug. 30	3025	739	60	1217
Armstrong, James P., assignor to I. P. Primrose, J. M. Hyde, and W. G. Crook, Nelsonville, Ohio. Registering pendulum-scale	478,534	July 5	735	179	60	146
Armstrong, John B., Guelph, Canada. Sulky	482,114	Sept. 6	312	74	60	1306
Armstrong, Lewis D., deceased, Lock Haven, Pa.; M. M. Armstrong, administrator and assignor to New York and Pennsylvania Company, of Pennsylvania. Apparatus for reclaiming soda-ash	483,318	Sept. 27	2290	576	60	1920
Armstrong, Meyler M., administrator. (See Armstrong, Lewis D.)	480,702	Aug. 16	1538	383	60	901
Armstrong, Miller F., *et al.* (See Davis, William H., assignor.)						
Armstrong, Robert G., assignor to R. G. Armstrong & Co., Wichita, Kans. Hanger for swinging harness	481,627	Aug. 30	3018	744	60	1222
Armstrong, Robert G., assignor to R. G. Armstrong & Co., Wichita, Kans. Hame-fastener	481,725	Aug. 30	3210	784	60	1253
Armstrong, Samuel H. (See Wages and Armstrong.)						
Armstrong, William L., Bellport, N. Y. Sieve	478,976	July 19	1399	347	60	303
Armstrong, William T., *et al.* (See Davis, William H., assignor.)						
Arnett, William J. (See Simpson, Peter P., assignor.)						
Arnold, Alonzo B., Marshalltown, Iowa. Harness-saddle	478,535	July 5	738	180	60	146
Arnold, Lyndon, St. Johnsbury, Vt. Railway-car gate	481,540	Aug. 23	2910	714	60	1180
Arnold, Oscar M., assignor of one-third to A. T. Sherrod, Searcy, Ark. Meat-tenderer	478,547	July 12	756	185	60	165
Arnold, Rawdon, Sacramento, Cal. Ice-pitcher	481,544	Aug. 30	2918	718	60	1197
Arnold, Samuel S., Toronto, Canada. Axle-bearing	481,545	Aug. 30	2919	718	60	1198
Arrick, Everton J., MacConnellsville, Ohio. Watch-case pendant	479,030	Aug. 2	241	59	60	628
Arthur, Charles, East Orange, assignor to Newark Watch Case Material Company, Newark, N. J. Watchcase-pendant	482,971	Sept. 20	1716	433	60	1697
Arthur, John E., Clinton, Ill. Nut and bolt lock	479,131	July 19	1642	411	60	347
Arundale, John, *et al.* (See Terrell, Nathaniel A., assignor.)						
Ashbaugh, Charles C., assignor to W. Bull & Co., Detroit, Mich. Muff	482,432	Sept. 13	861	207	60	1517
Ashberry, Phillip, and W. Barnes, Sheffield, England. Animal-shears	479,109	July 19	1611	403	60	349
Ashberry, Phillip, and W. Barnes, Sheffield, England. Animal-shears	479,110	July 19	1613	403	60	349
Ashley, William A. G., assignor of two-thirds to J. M. Lawton, Jr., and A. T. Howland, New Bedford, Mass. Knob attachment	481,460	Aug. 23	2787	685	60	1155
Ashlin, Henry C., London, England. Steam-boiler furnace	481,519	Aug. 23	2800	705	60	1171
Ashworth, Elijah, Manchester, England. Stopping mechanism for carding-engines	480,864	Aug. 16	1778	445	60	951
Ashworth, Robert, St. Cloud, Minn. Hawser-clamp	480,987	Aug. 16	1974	494	60	989
Askins, Joseph, Lima, Ohio. Apparatus for the manufacture of water-gas	479,777	Aug. 2	6	2	60	583
Askins, Joseph, Lima, Ohio. Apparatus for the manufacture of gas	478,305	July 5	385	93	60	77
Assorati, Antenor, and A. Cuyás, assignors to Columbus Egg Company, New York, N. Y. Puzzle	480,161	Aug. 2	642	163	60	704
Asten, Josephine, Washington, D. C. Skirt-elevator	478,407	July 5	664	162	60	132
Atherton, James. (See Bartholomew, Cassius M., assignor.)	478,076	July 5	1	1	60	3
Atkinson, Claude W. (See Atkinson, Llewelyn B. and C. W.)						
Atkinson, Claude W. and L. B., London, England. Cutter or drill for coal	482,033	Sept. 6	181	43	60	1371
Atkinson, Francis F., assignor of one-third to H. Ogden, New York, N. Y. Metallic edge-protector	480,241	Aug. 9	787	201	60	743
Atkinson, Llewelyn B. (See Atkinson, Claude W. and L. B.)						
Atkinson, Llewelyn B. (See Renold, Goolden, Atkinson, and Gold.)						
Atkinson, Llewelyn B., London, England. Safety device for electric circuits	482,853	Sept. 13	862	207	60	1517
Atkinson, Llewelyn B. and C. W., London, England. Electrically-driven machinery for cutting coal	481,775	Aug. 30	3299	804, 805	60	1271
Atkinson, Llewelyn B., H. W. Ravenshaw, London, and F. Mori, Leeds, England. Apparatus for cutting minerals						
Atkinson, William, assignor of one-half to C. R. Tower, Granby, Canada. Vehicle-spring	481,921	Sept. 6	1	1	60	1335
Atkinson, William H. (See Somers and Atkinson.)	483,505	Sept. 27	2546	639	60	1871
Atlas Tack Corporation. (See Fraser, Peter, assignor.)						
Atwater, Henry W., East Orange, N. J. Ice-cream freezer	479,931	Aug. 2	242	60	60	628
Atwood, George F., assignor to G. M. French, Malden, Mass. Bottle-stopper	479,045	July 19	1508	376	60	323
Atwood, Leonard. (See Harrington, Walter E., assignor.)						
Auchman, Ferdinand, assignor to A. Moschek and A. Brunner, Graz, Austria-Hungary. Blasting-powder	483,125	Sept. 27	1954	495	60	1757
Aultman & Taylor Machinery Company. (See Galland, Joseph, assignor.)						
Austin, Anna B. (See Chapman and Hunt, assignors.)						
Austin, Emmet R., Norwalk, Conn. Tea or coffee filter	478,548	July 12	757	185	60	165
Austin, Frederick C. (See Bunnell, Morton G., assignor.)						
Austin, Frederick C. (See Gardner, John, assignor.)						
Austin, Fredrick W. (See York and Austin.)						
Austin, Henry J., and R. T. Lewis, Jr., Waterbury, Conn. Machine for making sheet-metal chains	481,776	Aug. 30	3301	805, 806	60	1271

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Anto Machinery Company. (See Hillman, William, assignor.)						
Automatic Manufacturing Company. (See Pope, William R., assignor.)						
Auzat, Joseph E., Clermont-Ferrand, France. Chopper	482,838	Sept. 20	1498	372	60	1654
Avery, Russell F., assignor to J. Goetz, trustee, Spokane Falls, Wash. Coin-chute	480,360	Aug. 9	981	247 / 248	60	780
Avery, Russell F., assignor to J. Goetz, trustee, Spokane Falls, Wash. Coin-operated automatic hydraulic air-compressor	482,775	Sept. 20	1414	350	60	1636
Avery, Russell F., assignor to J. Goetz, trustee, Spokane Falls, Wash. Air pump or compressor	482,776	Sept. 20	1416	350	60	1637
Avery, Russell F., assignor to J. Goetz, trustee, Spokane Falls, Wash. Device for operating pumps by means of treadles	482,777	Sept. 20	1417	350	60	1637
Avis, Walter H. (See Hunter and Avis.)						
Aylsworth, Jonas W., Orange, and A. C. Payne, Elizabeth, N. J. Method of and apparatus for extracting gold and silver from their ores	481,683	Aug. 30	3133	764 / 765	60	1238
Ayer, Harry L. (See Shattuck, Charles A., assignor.)						
Ayres, Edward F., and T. H. Foster, Danbury, Conn. Heel-plate	481,324	Aug. 23	2564	629	60	1112
B. F. Avery & Sons. (See Flatau, Louis S., assignor.)						
Baackee, John M. E., and C. Richards, Cleveland, Ohio. Nail-machine	481,997	Sept. 6	114	28, 29	60	1357
Babcock, E. H. (See Babcock, Samuel W., assignor.)						
Babcock, Henry D. (See Durr and Babcock.)						
Babcock, Milton S. (See Kindleberger, Jefferson, assignor.)						
Babcock, Samuel W., assignor of one-half to E. H. Babcock, Avon, N. Y. Compensator for signal-wires	481,922	Sept. 6	3	1	60	1335
Bach, Christoph, Jr. (See Quirk and Bach.)						
Bachelder, Edward J., Boston, Mass. Hydrant	480,313	Aug. 9	916	231	60	768
Bachmann, Ulrich, Mission San José, Cal. Impregnating liquids with gases	481,838	Aug. 30	3402	835	60	1290
Bacon, John W., Enderley, Canada. Shingle-gage	478,306	July 5	387	93	60	76
Bacorn, Frederick W., Marysville, Mont. Electric signal for mine-shafts	479,046	July 19	1509	376	60	323
Badger, Argulas A., assignor of one-half to S. J. Cotton, Windsor, Mo. Fire-escape	481,923	Sept. 6	4	2	60	1335
Badger, George L., West Quincy, Mass. Device for polishing granite, &c	481,341	Aug. 23	2588	636	60	1117
Badlam, Edgar B., San Francisco, Cal. Air-supplying device for gas-machines	479,238	July 19	1807	452 / 453	60	379
Badt, Francis B., assignor of two-fifths to L. S. Hills and A. M. Searles, Chicago, Ill. Electric railway	480,543	Aug. 9	1272	319 / 320	60	837
Badt, Francis B., assignor of two-thirds to L. S. Hills and A. M. Searles, Chicago, Ill. Telltale for electrolytic refineries	482,148	Sept. 6	370	88	60	1408
Baer, Hermine, San Francisco, Cal. Dress-form	480,703	Aug. 16	1540	383	60	902
Baeumle, John, assignor of one-fourth to M. Poetzel, Milwaukee, Wis. Bung	482,713	Sept. 20	1311	321	60	1617
Baeumle, John, assignor of one-fourth to M. Poetzel, Milwaukee, Wis. Bung	482,714	Sept. 20	1313	321	60	1617
Bagdasarian, Ignatius D., Cambridge, Mass. Dulcimer	479,323	July 19	1928	482	60	403
Baggesen, Frederick F., Brooklyn, N. Y. Bedbug-trap	481,270	Aug. 23	2466	608	60	1096
Baier, Frederick A., assignor to Brownell Car Company, St. Louis, Mo. Car-brake	478,902	July 12	1276	316 / 317	60	267
Bailey, Alfred J. (See Bailey, William H. and A. J.)						
Bailey, Ella E., Baltimore, Md. Cake-box	482,434	Sept. 13	863	207	60	1517
Bailey Farrel Manufacturing Company. (See Bailey and Grace, assignors.)						
Bailey, George H., and T. Grace, assignors to Bailey Farrel Manufacturing Company, Pittsburg, Pa. Waste and stop cock	479,544	July 26	2330	582	60	495
Bailey, John C., Ford City, Pa. Thill-coupling	480,648	Aug. 9	1444	360	60	870
Bailey, John M., Bristol, Va. Fuel-gas apparatus	478,549	July 12	758	185	60	165
Bailey, Joseph R., and L. C. Lincoln, assignors to Woonsocket Edge Tool Company, Woonsocket, R. I. Arm-rest for telephones	481,293	Aug. 23	2515	618	60	1103
Bailey, Mahlon G., and H. T. Welch, San José, assignors to J. G. Spaulding, San Francisco, Cal. Book-indicator	480,649	Aug. 9	1446	360	60	870
Bailey, William H. and A. J., Salford, England. Oil-cup	478,977	July 19	1400	347	60	303
Bailey, William W. (See Boice, Joseph C. W., assignor.)						
Baird, Thomas F., Gasburg, Va. Combined stirrup-lantern and foot-warmer	482,219	Sept. 6	488	117	60	1430
Baker, Alfred M. (See Alapaw, Charles H., assignor.)						
Baker, Arthur D., Brooklyn, N. Y. Open-toed horseshoe	479,111	July 19	1615	404	60	342
Baker, Charles H., Lake Geneva, Wis. Electric railway	480,004	Aug. 2	377	94	60	652
Baker, Charles H., Portland, Me. Fire-escape	480,759	Aug. 16	1615	406	60	919
Baker, Clark, Greenville, Ohio. Saw-set	479,239	July 19	1809	453	60	379
Baker Gun and Forging Company. (See Hollenbeck, Frank A., assignor.)						
Baker, Horace M., Carthage, Mo. Fan attachment for rocking-chairs	483,413	Sept. 27	2425	610	60	1847
Baker, Jacob S., New York, N. Y. Recessed paddle-wheel	480,225	Aug. 2	751	190	60	725
Baker, Jacob S., New York, N. Y. Paddle-wheel boat	482,115	Sept. 6	313	74	60	1396
Baker, James H., Allegheny, Pa. Wagon running-gear	480,379	Aug. 9	1016	255 / 256	60	787
Baker, James H., Allegheny, Pa. Wagon running-gear.						
Baker, Moses N., administrator. (See Stevens, Asher B.)	480,380	Aug. 9	1019	256	60	787
Baker, Oscar, Weatherford, Tex. Boot-upper	478,550	July 12	759	186	60	166
Baker, Volney C., Mount Morris, N. Y. Tea-kettle	482,972	Sept. 20	1718	433	60	1697
Baker, William C., Baltimore, Md. Steam-trap	481,098	Aug. 16	2158	535	60	1094
Baker, William E., Newport News, Va. Vehicle-wheel	480,162	Aug. 2	645	163	60	705
Baker, William R., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Mower	481,219	Aug. 23	2373	584 / 585	60	1079
Baland, August. (See Peterson and Baland.)						
Baldner, Jacob, Xenia, Ohio. Spindle and filer	480,163	Aug. 2	646	164	60	705
Baldwin, E. J., *et al.* (See Christy, James A., assignor.)						
Baldwin, Eli. (See Crook, Charles, assignor.)						
Baldwin, Frank, New York, N. Y. Steam-mangle	482,609	Sept. 13	1151	278	60	1573
Baldwin, Frank R., Jersey City, N. J. Cartridge-loader	479,613	July 26	2430	606	60	514
Baldwin, George W., assignor to Edward Miller & Company, Meriden, Conn. Suspension device	481,157	Aug. 23	2275	561	60	1050
Baldwin, John P., New Orleans, La. Automatic weighing apparatus for liquids	479,004	July 26	2559	636 / 637	60	538
Ball, Albert, assignor, by mesne assignments, to Sullivan Machinery Company, Claremont, N. H. Prospecting-drill	478,077	July 5	3	1, 2	60	3
Ball, Charles A. (See Perkins, Richard B., assignor.)						
Ball, Charles F., Memphis, Tenn. Hoisting-platform	478,078	July 5	5	2	60	3
Ball, Clinton M., Troy, N. Y., and S. Norton, Hokendauqua, Pa. Magnetic separator	478,551	July 12	759	186	60	166
Ball, Henry P., Schenectady, assignor to Edison General Electric Company, New York, N. Y. Adapter for incandescent-lamp sockets	480,988	Aug. 16	1076	404	60	989
Ball, Samuel E., Winters, Cal. Fruit-gatherer	478,903	July 12	1277	317	60	268
Ballantyne, James L., assignor to Nonantum Worsted Company, Newton, Mass. Dabbing apparatus for wool-combing machines	479,695	July 26	2562	637 / 638	60	538

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Balliett, Byron J., Mansfield, Ohio. Suspender-buckle	480,650	Aug. 9	1447	360	60	871
Ballou, James P., *et al.* (See Randall, Robert F., assignor.)						
Balmes, Michael, assignor to Acme Safety Emery Wheel Company, Detroit, Mich. Machine for grinding mowing-machine knives	481,886	Aug. 30	3477	852	60	1305
Balsley, David, Philadelphia, Pa. Oil-stove	480,544	Aug. 9	1275	320	60	837
Bammann, Johannes. (See Ulrich and Bammann.)						
Bancroft, Joseph B., and A. E. Rhoades, assignors to Hopedale Machine Company, Hopedale, Mass. Beam-truck	478,731	July 12	1020	250	60	218
Bang, Ivar A. F., and M. C. A. Ruffin, Paris, France. Separating tin from other metals	483,245	Sept. 27	2148	544	60	1795
Banker, George W., Brooklyn, N. Y. Packing-case	482,715	Sept. 20	1315	321	60	1617
Banks, Charles M., Boardman, Fla. Curtain-fixture	481,684	Aug. 30	3135	765	60	1238
Banks, John and J. H., and W. B. Peet, New York, N. Y. Oarsman's recorder	478,270	July 5	334	80, 81	60	67
Banks, Joseph H. (See Banks and Peet.)						
Bankson, John W., New York, N. Y. Fastening device	480,242	Aug. 9	787	201	60	743
Baoyerlin, Emile K., and F. E. Heinig, Louisville, Ky.; said Baoyerlin assignor to said Heinig. Binder for artificial fuel	480,243	Aug. 9	788	.....	60	743
Barber Asphalt Paving Company. (See Greene, Francis V., assignor.)						
Barber Asphalt Paving Company. (See Ruthven, Robert C., assignor.)						
Barber, Hiram, Chicago, Ill. Spring-draft attachment for vehicles	478,777	July 12	1090	270	60	232
Barber, Hiram, Chicago, Ill. Spring draft attachment	481,384	Aug. 23	2653	650 / 651	60	1129
Barber, Hiram, Chicago, Ill. Draft attachment for vehicles	482,973	Sept. 20	1718	434	60	1697
Barber, Philip Y., Sharp's Wharf, Va. Pitman	480,545	Aug. 9	1276	320	60	837
Barclay, Francis R. (See Edwards and Barclay.)						
Bardsley, Henry, Philadelphia, Pa. Tension device for loom-shuttles	479,084	July 19	1565	392	60	333
Bardsley, Henry, and W. Parkinson, Philadelphia, assignors of one-third to J. Bardsley, Lyndell, Pa. Fruit-cleaner	482,937	Sept. 20	1654	416 / 417	60	1685
Bardsley, James. (See Bardsley and Parkinson, assignors.)						
Bareis, Albert, *et al.* (See Johnson, John, assignor.)						
Bareis, Albert, assignor of five-sixths to J. Johnson, A. and A. Martini, St. Louis, Mo. Pipe-wrench	478,948	July 12	1344	333	60	261
Barjach, Robert. (See Bean, Joseph A., assignor.)	481,385	Aug. 23	2655	651	60	1129
Barker, John F., Springfield, Mass. Wantage-rod	480,058	Aug. 2	483	123	60	674
Barkhausen, Karl C., Hanover, Germany. Gas-holder	482,891	Sept. 20	1590	399	60	1671
Barley, James H. (See Logan, Maurice S., assignor.)						
Barnaby, Charles W., St. Louis, Mo. Shaft-coupling	481,092	Aug. 16	2150	534	60	1022
Barnard, George L., Milwaukee, Wis. Electric signaling device for firemen	482,778	Sept. 20	1418	351	60	1638
Barnes, Burr F., Circleville, Ohio. Air-ship	478,905	July 12	1280	318	60	268
Barnes, Charles A., *et al.* (See Phillips, Adelbert M., assignor.)						
Barnes, Cyrenius S., Elba, Nebr. School-desk	482,465	Sept. 13	910	222	60	1525
Barnes, Dana A., Syracuse, N. Y. Pipe-coupling	481,250	Aug. 23	2438	601	60	1091
Barnes, David L., assignor to Congdon Brake Shoe Company, Chicago, Ill. Car-coupling	478,835	July 12	1191	296	60	251
Barnes, Harry C. (See Slater and Barnes.)						
Barnes, John. (See Fenton and Barnes.)						
Barnes, John M., North Adams, Mass. Cork-extractor	481,093	Aug. 16	2152	534	60	1022
Barnes, Joseph W., Van Buren, Ark. Car-brake	483,414	Sept. 27	2427	610	60	1847
Barnes, Walter. (See Ashberry and Barnes.)						
Barnett, Edward C., New Bloomfield, Pa. Train-order catcher	482,220	Sept. 6	489	117	60	1431
Barnett, Lycurgus S., Birchtree, Mo. Railway-gate	478,978	July 19	1400	347	60	303
Barnett, William E., and B R Chalk, Mount Washington, Md. Handle-holder for brushes, &c	482,221	Sept. 6	491	117	60	1431
Barney, George L., Indianapolis, Ind. Combination-lock	482,222	Sept. 6	492	118	60	1431
Barnhart, John M., Marshfield, Pa. Fruit can or jar	483,415	Sept. 27	2428	610	60	1847
Barnum, Thomas C., Indianapolis, Ind. Tag	478,185	July 5	180	47	60	38
Baron, Alfred L., and B. F. Cockayne, Tiffin, Ohio. Lantern	482,671	Sept. 13	1231	300	60	1588
Baron, Charles, New York, N. Y. Sanitary pail	483,036	Sept. 20	1821	463	60	1719
Barr, Samuel W., Mansfield, Ohio. Cash and package carrier apparatus	482,822	Sept. 20	1470	366	60	1649
Barrett Brothers. (See Barrett, Thomas, assignor.)						
Barrett, J. L. (See Crane, James B., assignor.)						
Barrett, John A., Brooklyn, N. Y., assignor to Standard Underground Cable Company, Pittsburg, Pa. Electrical circuit and cable	482,149	Sept. 6	371	88	60	1408
Barrett, John A., Brooklyn, N. Y., assignor to Standard Underground Cable Company, Pittsburg, Pa. Electric conductor	482,150	Sept. 6	373	88	60	1409
Barrett, John A., Brooklyn, N. Y., assignor to Standard Underground Cable Company, Pittsburg, Pa. Electric conductor	482,151	Sept. 6	375	88	60	1409
Barrett, John A., Brooklyn, N. Y., assignor to Standard Underground Cable Company, Pittsburg, Pa. Electric circuit and cable	482,152	Sept. 6	380	89	60	1409
Barrett, John A., Brooklyn, N. Y., assignor to Standard Underground Cable Company, Pittsburg, Pa. Machine for folding tape	482,153	Sept. 6	381	89	60	1410
Barrett, John A., Brooklyn, N. Y., assignor to Standard Underground Cable Company, Pittsburg, Pa. Electric cable	482,328	Sept. 6	683	163	60	1469
Barrett, Sam S., Salem, Mo. Educational appliance	480,164	Aug. 2	648	164	60	705
Barrett, Thomas, assignor to Barrett Brothers, Boston, Mass. Wire-pegging machine	478,732	July 12	1021	250 / 251	60	218
Barrickman, William J. (See Snow, James C., assignor.)						
Barron, Patrick, Pittsburg, Pa. Guard for railway-cars	483,202	Sept. 27	2087	529	60	1783
Barrow, Thomas, Chester, Pa., assignor, by mesne assignments, of one-half to R. L. Coursen, New York, N. Y. Punching-machine	483,095	Sept. 20	1908	482	60	1736
Barry, Joseph E., New York, N. Y. Hydraulic elevator	480,486	Aug. 9	1188	299	60	819
Barry, Richard C., Montreal, Canada. Saddle-tree	483,037	Sept. 20	1823	463	60	1719
Bartels, John L., Jr., Milwaukee, Wis. Vent-closure	482,923	Sept. 6	494	118	60	1431
Barthel, Gustav, Dresden, Germany. Lamp for burning hydrocarbons	478,733	July 12	1026	252	60	219
Bartholomew, Cassius M., assignor to himself and J. Atherton, Newark, Ohio. Elevator	483,277	Sept. 27	2228	560	60	1809
Bartholomew, Ellis, assignor of four-fifths to O. W. Bell, Lima, O. and D. W. Jay, St. Mary's, Ohio. Valved pipe-coupling	481,130	Aug. 16	2208	546	60	1033
Bartholomew, Ellis, assignor of four-fifths to O. W. Bell, Lima, O. and D. W. Jay, St. Mary's, Ohio. Steam-actuated valve	481,520	Aug. 23	2867	705	60	1172
Bartlett, Charles F. (See McIlvain, John H., assignor.)						
Bartlett, Frank L., assignor to American Zinc Lead Company, Portland, Me. Refining fume	480,686	Aug. 9	1509	375	60	892
Bartlett, Henry F., assignor of one-third to S. A. and S. C. Hazlethe and J. F. Carson, Springfield, Mo. Oven for oil, gas, or gasoline stoves	478,211	July 5	219	55	60	45

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bartliff, Charles A., Memphis, Tenn. Nut-lock	479,162	July 19	1688	422	60	357
Barton, Josiah C., Brooklyn, N. Y. Apparatus for making rubber stamps	480,420	Aug. 9	1084	271, 272	60	798
Bartsch, Edwin, *et al.* (See Kirkwood, John D., assignor.)	481,251	Aug. 23	2440	601	60	1091
Basanta, Henry, Ponce, Porto Rico. Feed-pipe for vacuum-pans	478,906	July 12	1282	319	60	269
Base, Frank C. (See Sanderson and Base.)						
Bash, Ambrose. (See Buence and Bash.)						
Bash, Leopold, *et al.* (See Rosenthal, Adolph, assignor.)						
Bass, Robert T., *et al.* (See Snyder, Charles A., assignor.)						
Bassett, Fred H., Saranac Lake, N. Y. Curtain-fixture	482,716	Sept. 20	1316	321	60	1618
Bassett, Ira, Chicago, Ill. Organ-tremolo	478,552	July 12	762	186	60	166
Bassett, Norman C., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Controlling device for elevators	482,495	Sept. 13	971	235	60	1538
Bassett, Norman C., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Gearing for elevators	483,203	Sept. 27	2087	529	60	1784
Bassett, Norman C., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric locomotive	483,204	Sept. 27	2088	529, 530	60	1784
Bassford, Thomas S., receiver. (See Goodson, George A., assignor.)						
Bassford, Thomas S., receiver. (See Goodson and Capehart, assignors.)						
Bates, Edward P. (See Duffy, John J., assignor.)						
Bates, James H., New York, N. Y. Torpedo	483,126	Sept. 27	1955	495	60	1757
Bates, Louis, Jersey City, N. J. Electric door-opener	480,546	Aug. 9	1277	320	60	838
Bates, Richard W., Chicago, Ill. Folding chair	479,393	July 26	2070	520	60	445
Bates, Sterling V. B., Charleston, Tenn. Surgical instrument	480,165	Aug. 2	649	164	60	706
Battelle, Joseph W., Worcester, Mass. Combined pencil sharpener and holder	480,547	Aug. 9	1278	321	60	838
Battersby, Arthur J., Nottingham, England. Bicycle	480,166	Aug. 2	650	165	60	706
Battle, Joseph, *et al.* (See Ripson, John D., assignor.)						
Bauch, Isidor. (See Jonas and Bauch.)						
Bauer, Robert A., assignor of two-thirds to H. G. and E. G. Krekel, Grand Rapids, Mich. Machine for filling and emptying trays	483,488	Sept. 27	2516	634	60	1865
Baughan, Eugene C., Philadelphia, Pa. Piano-action	479,047	July 19	1510	376	60	323
Baum, Jacob, assignor to Victor Safe and Lock Company, Cincinnati, Ohio. Machine for squaring metallic boxes, frames, &c.	481,998	Sept. 6	116	29	60	1358
Baumgarten, Herman, Washington, D. C. Hand-stamp	479,199	July 19	1751	439	60	367
Baumhoff, George W., assignor of one-half to G. D. Capen, St. Louis, Mo. Electric-fuse box	480,651	Aug. 9	1448	361	60	871
Baur, Albert, Giapersleben, near Erfurt, assignor to Society Fabriques de Produits Chimiques de Thann et de Mulhouse, Thann, Germany. Artificial musk and making the same	481,685	Aug. 30	3136	.....	60	1239
Bausch, George, Syracuse, N. Y. Eyeglass-guard	478,836	July 12	1192	296	60	251
Bauscher, Albert C., assignor of one-half to H. Hepfer, Lanark, Ill. Compound for filling cob pipes	478,553	July 12	764	.....	60	167
Baush, Christian H., Holyoke, Mass. Lathe	482,991	Sept. 20	1747	441, 442	60	1703
Baxter, Charles F., Murrietta, Cal. Shipper's folding crate or coop	479,545	July 26	2331	582	60	496
Baxter, William, Jr., Baltimore county, Md. Electric elevator	481,386	Aug. 23	2656	651	60	1129
Bayaud, George D., *et al.* (See Harvey, George H., assignor.)						
Bayless, Frank, Wilberforce, Ohio. Corn-planter	478,498	July 5	665	163	60	132
Bayley, Charles H., Boston, Mass. Leather-skiving machine	479,583	July 26	2082	504	60	504
Bazerque, Victor H., Washington, D. C. Cigarette-machine	482,567	Sept. 13	1686	264	60	1561
Beach, Acad S., and A. Footh, Groton, N. Y. Knockdown paper-roll holder and cutter	481,839	Aug. 30	3404	836	60	1290
Beal, Thomas W. (See Radley and Beal.)						
Beam, William. (See Leffmann and Beam.)						
Bean, Edward D., Arlington, Mass. Shooting-jacket	479,385	July 19	2052	512	60	428
Bean, Joseph A., assignor of one-half to R. Barisch, Suffern, N. Y. Thill-support	480,652	Aug. 9	1450	361	60	871
Beard, Andrew, Woodlawn, Ala. Rotary engine	478,271	July 5	337	81	60	68
Beardsley, William N., A. D. Moulton, Bridgeport, Conn., and L. J. Wurth, Newark, N. J. Cartridge-loading tool	481,887	Aug. 30	3479	852	60	1305
Beaumont, Richard B., Rutherford, N. J. Gelatinous food product	480,687	Aug. 9	1510	375	60	882
Beaupere, Frank X. (See Lipman and Rinderknecht, assignors.)						
Beauregard, Henry T., and F. S. Flower, Chicago, Ill. Type-writing machine	479,085	July 19	1566	392, 393	60	333
Bechtol, George T., assignor of one-half to F. W. Parsons, Elmira, N. Y. Differential caliper-point	482,331	Sept. 13	692	165	60	1485
Beck, Matthias A., Milwaukee, Wis. Steam-engine	483,127	Sept. 27	1955	496	60	1757
Beck, Warren F., assignor to Eureka Cash Register Company, Knoxville, Pa. Cash register, indicator, and recorder	481,777	Aug. 30	3304	806, 807, 808	60	1272
Beckeman, John U., and D. W. Lukens, St. Louis, Mo. Bridle-bit	480,487	Aug. 9	1190	299	60	820
Becker, Philip. (See English, Analdo M., assignor.)						
Beckley, Edgar H., Elkhart, Ind. Vestibule-car	479,546	July 26	2333	582, 583	60	496
Beckwith, Sherwin C., New York, N. Y., and W. W. Street, Springfield, Mass., assignors to Matrix Manufacturing Company, New York, N. Y. Matrix-making machine	480,361	Aug. 9	983	248	60	780
Beckwith, William G., assignor to Daniel Pratt Gin Company and W. L. Ellis, Sr., Prattville, Ala. Huller cotton-gin	482,672	Sept. 13	1231	300	60	1586
Bedard, Clarisse, *et al.* (See Bergeron and Bedard, assignors.)						
Bedard, Firmin. (See Bergeron and Bedard.)						
Bedell, Thomas R., Grand Rapids, Mich. Carpet-sweeper	479,900	July 19	1752	439	60	368
Bedford, Jeff W. (See Oehrle, Emanuel, assignor.)						
Bedford, Lyman N., San Bernardino, Cal. Time-lock	478,212	July 5	220	55	60	45
Bedford, Lyman N., San Bernardino, Cal. Time-lock	478,213	July 5	221	55	60	46
Bedingfield, Fleming A. O'., Mutford, England. Quoit-peg	479,614	July 26	2432	606	60	514
Bee, Benjamin F., Harwich, Mass. Centrifugal pump	478,367	July 5	367	93	60	78
Beebe, Charles S., Racine, Wis. Vehicle running-gear	482,184	Sept. 6	382	89	60	1410
Beecher, Ebenezer B., *et al.* (See Garland, Frank. M., assignor.)						
Beekman, Gerard, New York, N. Y. Transmitter for fibrous material	482,155	Sept. 6	384	90	60	1410
Beekman, Gerard, New York, N. Y. Cotton-harvester	482,156	Sept. 6	386	91	60	1411
Beemer, Daniel S. (See Swarts and Beemer.)						
Beerbower, George M., Washington, D. C. Type-writing machine	480,314	Aug. 9	917	231	60	769
Beermaker, John, Wahoo, Nebr. Burglar-proof car	478,554	July 12	764	186, 187	60	167
Beers, Charles L., Scranton, Pa. Stove-grate	483,295	Sept. 27	2257	568	60	1814

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Beers, Franklin H., Newark, assignor to himself, W. M. Tallman, Plainfield, N. J., E. Hayes and A. R. Brandly, New York, N. Y. Electric fan	481,646	Aug. 30	3074	750	60	1227
Beers, Frederic C. (See Beers, Ira F. and F. C.)						
Beers, Ira F. and F. C., Elmira, N. Y. Thermostat	483,339	Sept. 27	2317	582	60	1826
Beery, Isaac R., Minneapolis, Minn. Current water-wheel and means for transmitting power therefrom	482,034	Sept. 6	183	44	60	1371
Beery, Samuel M., assignor to Beery Valve Company, Chicago, Ill. Safety-valve	478,949	July 12	1345	334	60	281
Beery Valve Company. (See Beery, Samuel M., assignor.)						
Begley, George, Poplar Bluff, Mo. Bier	483,038	Sept. 20	1824	463	60	1719
Begy, Joseph A. (See Lockwood, Charles H., assignor.)						
Behre, Conrad, Hopewell, N. J. Hot-water boiler	480,059	Aug. 2	483	123	60	674
Bellmann, Johann J., and E. Levi, Mannheim, Germany. Scrubbing-brush	483,128	Sept. 27	1958	496	60	1758
Bell, Arthur F. L. (See Bishop and Bell.)						
Bell, Enos T., Dublin, Ind. Fine-cleaner	480,653	Aug. 9	1451	361	60	871
Bell, Oro A., New York, N. Y., assignor to Western Electric Company, Chicago, Ill. Test system for multiple switchboards	483,506	Sept. 27	2549	640	60	1871
Bell, Oscar W., *et al.* (See Bartholomew, Ellis, assignor.)						
Bell, Robert E., assignor to A. Dixon, Toronto, Canada. Transposing-keyboard	481,778	Aug. 30	3308	808	60	1273
Bellerose, Henry E. (See Little, John R., assignor.)						
Belles, Roland, Mosaic, Pa. Wrench	480,801	Aug. 16	1684	420	60	932
Bellis, David C., Elizabeth, N. J. Automatic chain-motion for knitting-machines	482,892	Sept. 20	1501	400	60	1671
Bellon, David, McKownville, N. Y. Car-coupling	478,778	July 12	1093	270, 271	60	233
Bellows, Benjamin F., assignor to E. T. Lufkin, Cleveland, Ohio. Sewing-machine frame	482,958	Sept. 20	1695	426	60	1692
Belmont, Louis A., and A. C. Cload, New Orleans, La. Mortising-machine	482,294	Sept. 6	494	118	60	1431
Belt, Perley P., Waco, Tex., assignor to F. Osborn, Twin Lakes, Colo. Rock-drill	479,615	July 26	2433	606	60	514
Bemis, Albert T., Louisville, Ky. Lumber-truck	482,332	Sept. 13	693	165	60	1485
Benbow, Elijah B., Chicago, Ill. Adjustable mantel	482,333	Sept. 13	694	166	60	1486
Bender, George, Keokuk, Iowa. Folding coop or crate	480,914	Aug. 16	1852	462	60	967
Bender, John, Elizabethville, Pa. Nut-lock	482,610	Sept. 13	1152	278	60	1573
Bender, Peter, Mannheim, Germany. Apparatus for cooling liquids	479,778	Aug. 2	7	2	60	583
Benedict, Hiram A., New York, N. Y. Photographic camera	478,837	July 12	1193	296, 297	60	251
Benedict, Milton E., assignor of one-half to R. T. Tuttle, Perry, N. Y. Grain-binder	480,226	Aug. 2	755	191	60	725
Benham, Elijah B, Providence, R. I., assignor to R. M. Fairfield, Holyoke, Mass. Suction-roll for paper-machines	483,340	Sept. 27	2318	583	60	1826
Benicke, George, Neumünster, Germany. House-door parcel-box	480,704	Aug. 16	1541	384	60	902
Bennage, William D., Philadelphia, Pa. Merry-go-round	478,838	July 12	1196	297	60	252
Benner, Franklin, Minneapolis, Minn. Electric guest-call	481,919	Aug. 30	3535	865, 866	60	1316
Bennett, Benjamin, Scranton, Pa. Gate-latch	480,005	Aug. 2	379	94	60	653
Bennett, Charles A., Montclair, N. J. Desk-cover	483,129	Sept. 27	1959	496	60	1758
Bennett, Edwin S., Boston, Mass. Sash-fastener	480,668	Aug. 9	1511	375	60	882
Bennett, Francis E., Philadelphia, Pa. Garment hook and eye	478,555	July 12	766	187	60	167
Bennett, Frederick M., New York, N. Y., assignor to J. W. Marsh, Pittsburg, Pa. Cast joint for armored conductors	479,386	July 19	2053	512	60	428
Bennett, George M., Burlington, Iowa. Combined scrubbing and sweeping machine	479,616	July 26	2434	606	60	514
Bennett, Harwell L., and R. H. Adams, Westerville, Ohio. Rope-clutch	478,839	July 12	1197	297	60	252
Bennett, John H., Worcester, assignor to G. Draper & Sons, Hopedale, Mass. Holder for rings in spinning and twisting frames	480,227	Aug. 2	758	192	60	726
Bennett, Oliver H., Jamestown, N. D. Recoil-operated magazine-gun	478,214	July 5	222	56	60	46
Bensinger, Moses, assignor to Brunswick-Balke-Collender Company, Chicago, Ill. Billiard-cushion	481,094	Aug. 16	2153	534	60	1023
Bensinger, Moses, assignor to Brunswick-Balke-Collender Company, Chicago, Ill. Billiard-cushion	481,387	Aug. 23	2658	652	60	1129
Benson, Alfred G., Camden, N. J. Bow or hoop for nets	481,461	Aug. 23	2788	685	60	1155
Benson, Alfred G., Camden, N. J. Locking-ferrule	481,462	Aug. 23	2788	686	60	1155
Benson, Alfred G., Camden, N. J. Gaff-hook	481,463	Aug. 23	2789	686	60	1155
Benson, Alfred G., Camden, N. J. Combined gaff-hook and landing-net	481,464	Aug. 23	2789	686	60	1156
Bentel, Frederick, Hamilton, Ohio. Writing-tablet	481,686	Aug. 30	3138	765	60	1239
Bentley, Albert E., Manchester, England. Machine for making metal canisters	478,380	July 5	508	123, 124	60	100
Bentley, Albert F., New Bedford, Mass., assignor to American Ring Traveler Company, Providence, R. I. Ring-traveler	481,131	Aug. 16	2210	546	60	1033
Bentley, George, *et al.* (See Smith, Samuel, assignor.)						
Bentley, John. (See Leach, Heaton, and Bentley.)						
Benton, Francis E., Stoughton, Mass. Whip socket	482,717	Sept. 20	1318	322	60	1618
Benway, James K., assignor to Albany Venetian Blind Company, Albany, N. Y. Venetian blind	480,548	Aug. 9	1279	321	60	838
Beraud, Edouard. (See Blein and Beraud.)						
Berch, Herman. (See Cheney and Berch.)						
Berdan, Hiram, Washington, D. C. Operating submarine guns	478,215	July 5	226	56, 57	60	47
Berdan, Hiram, Washington, D. C. Ammunition for submarine guns	478,216	July 5	229	57	60	47
Berg, Rudolf, New York, N. Y. Compound steam-engine	482,116	Sept. 6	315	74, 75	60	1397
Bergeron, Aurelie, *et al.* (See Bergeron and Bedard, assignors.)						
Bergeron, Célestin, New York, N. Y. Change-receiver	479,751	July 26	2067	602	60	557
Bergeron, Thelesphore J., and F. Bedard, assignors to A. Bergeron and C. Bedard, Minneapolis, Minn. Fire-escape	481,888	Aug. 30	3481	853	60	1306
Bergfels, Henry, Newark, N. J. Spring for bicycle-saddles	480,838	Aug. 16	1736	434	60	943
Bergmann & Company. (See Robb, James T., assignor.)						
Bergmann, Sigmund, assignor, by mesne assignments, to Interior Conduit and Insulation Company, New York, N. Y. Composition coating for paper tubes	482,718	Sept. 20	1316	322	60	1618
Berguer & Co., F. (See Berguer, William, assignor.)						
Berguer, William, assignor to F. Berguer & Co., Baltimore, Md. Album-case	478,390	July 5	509	124	60	100
Berky, Jacob H., Mishawaka, Ind. Automatic governor for wind-wheels	481,095	Aug. 16	2155	534	60	1023
Berliner, Emile, Washington, D. C. Electric furnace generator	481,999	Sept. 6	117	29, 30	60	1358
Berliner Maschinenbau Actien-Gesellschaft, vormals L. Schwartzkopf. (See Stein, Bernhard, assignor.)						
Bernard, Philip, Jefferson, S. D. Hay-stacker	478,979	July 19	1401	347, 348	60	303
Bernard, Philip, Jefferson, S. D. Hay-stacking machine	482,611	Sept. 13	1152	279	60	1573
Bernard, William A., New Haven, Conn. Dividers	479,112	July 19	1616	404	60	342
Bernard, William A., assignor to William Schollhorn Company, New Haven, Conn. Combined pliers and cutter	479,113	July 19	1618	404	60	343

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bernstein, Joseph, Philadelphia, Pa. Trousers	480,060	Aug. 2	484	123	60	675
Berry, John, assignor to National Needle Company, Springfield, Mass. Swaging-machine	480,228	Aug. 2	759	192	60	736
Berry, John S., Tyler, Tex. Surface cattle-guard	483,039	Sept. 20	1825	464	60	1720
Berry, Joseph N., Boston, Mass. Thill coupling	480,244	Aug. 9	789	201	60	743
Berry, William R. (See Wright and Berry.)						
Berryman, Crayton, Sioux City, Iowa. Wire gate	479,394	July 26	2071	520	60	446
Berst, Henry L. (See Berst, Jesse H. and H. L.)						
Berst, Jesse H., Kokomo, and H. L. Berst, Leesburg, Ind. Skewer-pointing machine	483,205	Sept. 27	2089	530	60	1784
Berthélémy, Charles, Paris, France. Lamp-shade support	480,989	Aug. 16	1977	494, 495	60	990
Berthelet, Joseph R., Milwaukee, Wis. Separator for crushed cement, &c.	479,617	July 26	2436	607	60	514
Bertrand, Joseph. (See Fleischel and Bertrand.)						
Bessemer Steel Company. (See Reese, Jacob.)						
Bessey, Merton W., Waterville, Me. Electric door-alarm	481,711	Aug. 30	3177	776	60	1247
Best, Daniel, San Leandro, Cal. Traveling harvester	480,006	Aug. 2	380	94	60	653
Best, Julious A. (See Wheat, Edmond C., assignor.)						
Bestgen, John G., Somerville, Mass. Razor-pivot	482,992	Sept. 20	1749	442	60	1703
Betten, Hermann, Hegensdorf, Germany. Rotary engine	481,096	Aug. 16	2156	535	60	1023
Bettendorf, William P., Davenport, Iowa. Metallic frame for wagons	479,618	July 26	2437	607	60	515
Bettendorf, William P., Davenport, Iowa. Metallic frame for wagons	479,619	July 26	2438	607, 608	60	515
Bettendorf, William P., Davenport, Iowa. Metallic frame for wagons. Wagon-bolster	479,620	July 26	2439	608	60	515
Bettendorf, William P., Davenport, Iowa. Metallic wagon-tongue	479,621	July 26	2440	608	60	516
Bettmann, Charles F., Jr., New Albany, Ind. Gate-latch	479,622	July 26	2441	608	60	516
Beugler, John B., assignor of one-half to C. Wilber, Dayton, Tenn. Burial apparatus	478,556	July 12	767	187	60	167
Bevin, Abner A., and J. C. Wells, East Hampton, Conn. Bell	481,840	Aug. 30	3406	836	60	1291
Bevin, William D., Syracuse, N. Y. Index attachment for books	483,341	Sept. 27	2321	583	60	1827
Bex, Frederick, Washington, D. C. Means for operating heavy ordnance	482,612	Sept. 13	1153	279	60	1573
Beyer, Augustus, assignor to himself and A. W. Brown, New Philadelphia, Ohio. Annealing-box	483,130	Sept. 27	1960	497	60	1758
Beyer, Charles, Brooklyn, N. Y., and D. M. Lester, assignors to Lester & Wasley, Norwich, Conn. Feeding device for envelope-machines	479,345	July 19	1962	496	60	414
Bidelman, Robert M., assignor to Petroleum Light and Heat Company, Adrian, Mich. Manufacture of gas	478,779	July 12	1095	271	60	233
Bierley, Henry A., Lexington, Ky. Cash-register. (Reissue)	483,489	Sept. 27	2517	634	60	1865
Bigelow, Alfred, *et al.* (See Cartwright, Edward, assignor.)	11,956	Aug. 2	782	198, 199	60	729
Bigelow, Austin W., Everett, Mass., assignor to Goodyear Shoe Machinery Company, Hartford, Conn. Sewing-machine						
Bigelow, John, Minneapolis, Minn. Grain-sampling machine	480,229	Aug. 9	761	192	60	796
Bigelow, William P., Natick, Mass. Corset	480,654	Aug. 9	1453	362	60	879
Biggs, Charles H., and F. H. Fairchild, Detroit, Mich. Adjustable seat	481,294	Aug. 23	2516	618	60	1104
Bigland, Hubert H., and J. Burns, Newcastle-on-Tyne, England. Electric-arc lamp	478,840	July 12	1198	297	60	252
Bigley, Richard, Toronto, Canada. Heater	482,568	Sept. 13	1068	264	60	1501
Bigley, Richard, Toronto, Canada. Gas attachment for cooking-stoves	478,557	July 12	768	187	60	167
Bina, Julius, Fürth, Germany. Package for pulverized substances	478,558	July 12	770	188	60	168
Binet, Eward C., Clipper Mills, Cal. Barbed strap for bunching lumber	481,521	Aug. 23	2870	705	60	1172
Bingham, Herbert M., Avondale, N. J., and G. Runge, Cleveland, Ohio. Inclosure for packing and carrying printers' rollers	483,040	Sept. 20	1826	464	60	1720
Bingham, John H., Chicago, Ill. Tire for vehicle-wheels	481,465	Aug. 23	2701	686	60	1156
Bingham, L. W., *et al.* (See Cook, Herbert F., assignor.)	483,131	Sept. 27	1962	497	60	1759
Bingham, Robert O., assignor to Wagner Manufacturing Company, Sidney, Ohio. Combined ball-journal and hinge	479,731	July 26	2636	654	60	551
Binkard, Alfred, Des Moines, Iowa. Paper-straightener for printing-presses	478,079	July 5	7	2	60	4
Birch, John T., Pittsburg, assignor of one-half to W. B. Henderson, Ingram, Pa. Electric-arc lamp	482,157	Sept. 6	387	91, 92	60	1411
Birchard, Francis H., Milwaukee, Wis. Bicycle-support	480,061	Aug. 2	485	124	60	675
Bird, Henry J., Hoboken, N. J. Disintegrating vegetable substances	482,537	Sept. 13	1040		60	1552
Birge, George K., Buffalo, N. Y. Apparatus for printing wall-paper	479,346	July 19	1983	496, 497	60	414
Birkery, Cornelius, assignor to Birkery Manufacturing Company, Hartford, Conn. Tank-valve	483,296	Sept. 27	2258	568	60	1815
Birkery Manufacturing Company. (See Birkery, Cornelius, assignor.)						
Birkinshaw, William K. (See Heard and Birkinshaw.)						
Birney, Charles O., assignor of nine-sixteenths to J. Birney and F. M. Bressler, Kansas City, Mo. Sash-fastener	481,546	Aug. 30	2920	718	60	1198
Birney, John, *et al.* (See Birney, Charles O., assignor.)						
Bischoff, Gustavus A., Chicago, Ill. Signal-lantern	483,507	Sept. 27	2551	640	60	1872
Bishop, George W., *et al.* (See Thomas, George W., assignor.)						
Bishop, Ira, and A. F. L. Bell, San Francisco, Cal. Automatic trap for cable-conduits	478,910	July 12	1289	320	60	270
Bishop, Ira, and A. F. L. Bell, San Francisco, Cal. Lifting mechanism for cable-grips	478,911	July 12	1291	321	60	270
Bissell, Thelus M., and J. B. Huber, South Bend, Ind. Reversible plow-point	479,696	July 26	2564	638	60	538
Bissell, Thomas A., Buffalo, N. Y. Car-buffer	482,538	Sept. 13	1041	251, 252	60	1552
Bitner, Harry, *et al.* (See Fordham, Arthur, assignor.)						
Bitner, Reuben, Lebanon, Pa. Washing-machine	481,659	Aug. 30	3096	754	60	1231
Bittner, Adam, Custer, Ill. Car-coupling	479,623	July 26	2443	609	60	516
Bixby, Arthur, Philadelphia, Pa. Operating mechanism for railway-switches	479,584	July 26	2384	594	60	505
Bixler, Henry D., and G. C. Ferguson, Odell, Nebr. Windmill attachment	483,206	Sept. 27	2091	530	60	1785
Black, Albert B., Concord, Mass. Snow-plow	482,720	Sept. 20	1320	322	60	1618
Black & Clawson Company. (See Black, Frank X., assignor.)						
Black & Clawson Company. (See Clawson and Keller, assignors.)						
Black, Frank X., assignor to Black & Clawson Company, Hamilton, Ohio. Mold for closed cylinders	481,295	Aug. 23	2517	619	60	1104
Black, William D., Port Perry, Pa. Pencil-sharpener for school-slates	481,097	Aug. 16	2158	535	60	1024
Blackburh, William T. (See Carse, Blackburn, and Owens.)						
Blackman, Henry, New York, N. Y. Apparatus for recovering alkali	478,980	July 19	1402	348	60	303
Blackman, Henry, New York, N. Y. Apparatus for and process of recovering alkali	478,981	July 19	1405	348, 349	60	304
Blackmer Bros. & Co. (See McDonough, James W., assignor.)						
Blackmore, Henry S., Mount Vernon, N. Y. Reducing metals	478,907	July 12	1282	319	60	269
Blackmore, Henry S., Mount Vernon, N. Y. Furnace for reducing metals	478,908	July 12	1285	319, 320	60	269

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Blackwell, Francis O., Boston, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Conduit for electric railways	482,719	Sept. 20	1319	322	60	1618
Blagen, Nicles J., Portland, Oreg. Device for closing elevator-shafts	483,416	Sept. 27	2498	611	60	1847
Blair Camera Company. (See Blair and Kelley, assignors.)						
Blair, James, Worcester, Mass. Support for spinning-spindles	482,860	Sept. 20	1529	380	60	1661
Blair, Thomas R., and F. H. Kelley, assignors to Blair Camera Company, Boston, Mass. Camera-shutter	478,909	July 12	1288	320	60	270
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps	478,217	July 5	231	58	60	47
Blake, Isaac E., G. E. Smith, and E. M. Doig, Denver, Colo. Lamp	482,290	Sept. 6	602	143, 144	60	1452
Blake, Theodore A., *et al.* (See Cribb, Ira P., assignor.)						
Blake, William H., Warren, Mass. Steam-actuated valve	480,167	Aug. 2	651	165, 166, 167	60	706
Blalock, William B., and J. A. Muir, Huntsville, Tex. Penholder	481,158	Aug. 23	2277	561	60	1059
Blanchard, Allen I., Chicago, Ill., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	482,514	Sept. 13	993	240, 241	60	1543
Blanchard, Edward R., *et al.* (See Moss, Julian, assignor.)						
Blandy Machine Company. (See Dietz, Frederick C., assignor.)						
Blaney, William H., assignor to himself and E. B. Bullock, Attleborough, Mass. Lock	481,889	Aug. 30	3483	853	60	1306
Blankenburg, Henry, Lohrville, Iowa. Wire-fence gate	482,334	Sept. 13	697	166	60	1486
Blankenship, Bennett, Belleville, Kans. Listing-plow	479,779	Aug. 2	10	3	60	564
Blass, Talmadge, Brewster, N. Y. Dust-guard for attrition-mills	479,547	July 26	2336	583	60	497
Bláthy, Otto T., Buda-Pesth, Austria-Hungary. Electric fuse	480,802	Aug. 16	1686	420	60	932
Bláthy, Otto T., Buda-Pesth, Austria-Hungary. Alternating-current motor	482,974	Sept. 20	1721	434	60	1697
Blauss, Ferdinand, New York, N. Y. Blind-stop	481,096	Sept. 20	1910	483	60	1737
Blay, Charles W., Janesville, Wis. Mason's hawk	483,132	Sept. 27	1963	498	60	1759
Blein, Tony, and E. Beraud, Lyons, France. Piston meter	483,278	Sept. 27	2231	560	60	1810
Blessing, James H., Albany, assignor to New York Filter Company, New York, N. Y. Apparatus for purifying water	482,515	Sept. 13	998	241, 242	60	1544
Blessing, John L., Chicago, Ill. Draw-bar for cars	479,048	July 19	1511	377	60	324
Bliss, James F., Boston, Mass. Downward-draft furnace	479,697	July 26	2565	638	60	539
Blizzard, Jennie, Fort Recovery, Ohio. Dress-chart	479,548	July 26	2337	583	60	497
Bledgett, Edward G., *et al.* (See Keene, Samuel D., assignor.)						
Bloeser, Rudolph, Scranton, Pa. Bottle-closure	480,168	Aug. 2	655	167	60	707
Blood, Clarence C. (See Blood, Maurice E. and C. C.)						
Blood, Erastus R. (See Wenstrau and Blood.)						
Blood, Erastus R., assignor to M. P. Blood, Kane, Pa. Lampblack-machine	480,990	Aug. 16	1679	495	60	992
Blood, Martha P. (See Blood, Erastus R., assignor.)						
Blood, Martha P. (See Wenstrand and Blood, assignors.)						
Blood, Maurice E., assignor to Kalamazoo Cycle Company, Kalamazoo, Mich. Seat attachment for bicycles	480,766	Aug. 16	1616	406	60	919
Blood, Maurice E., assignor to Kalamazoo Cycle Company, Kalamazoo, Mich. Carrier attachment for bicycles	481,890	Aug. 30	3483	853	60	1306
Blood, Maurice E., assignor to Kalamazoo Cycle Company, Kalamazoo, Mich. Child's seat or parcel-carrier for bicycles	482,938	Sept. 20	1655	417	60	1685
Blood, Maurice E., Kalamazoo, and C. C. Blood, assignors of one-half to O. T. Blood, Petoskey, and Fuller Brothers Manufacturing Company, Kalamazoo, Mich. Cut-off sawing-machine	479,049	July 19	1512	377	60	324
Blood, Orville T., *et al.* (See Blood, Maurice E. and C. C., assignors.)						
Bloomer, John. (See Stehling and Bloomer.)						
Blount, Ambrose A., Springfield, and F. K. Way, Dayton, Ohio, assignors, by mesne assignments, to Boston Filter Company, Boston, Mass. Machine for making hollow articles	479,347	July 19	1986	497	60	414
Blubm, Charles A., Michigan City, Ind. Refrigerator	478,080	July 5	8	2, 3	60	4
Bly, James F., assignor to C. R. Cipperly, Mayville, N. Y. Butter-package	482,613	Sept. 13	1155	279	60	1573
Blydenburgh, Charles M., Riverhead, N. Y. Running-gear for vehicles	482,839	Sept. 20	1499	372	60	1685
Boatwright, Valentine, Adel, Iowa. Apparatus for elevating and conveying water	481,099	Aug. 16	2160	536	60	1024
Boaz, George R., Tampa, Fla. Phosphate-separator and screen-washer	480,549	Aug. 9	1280	321, 322	60	838
Boden, August J., Litchfield, Ill. Fire-escape ladder	478,559	July 12	770	188, 189	60	168
Bodette, George H., assignor to F. H. Lincoln, Toledo, Ohio. Vertically-extensible platform for wagons	478,841	July 12	1200	298	60	253
Bodfish, William H., Everett, assignor of one-half to R. Carleton, Boston, Mass. Metallic packing	480,943	Aug. 16	1892	474	60	974
Boegner, Franz F., New York, N. Y. Alarm	478,982	July 19	1410	349	60	304
Boehringer, Joseph A., and F. X. Müller, Buffalo, N. Y. Printer's press-guide	478,679	July 12	937	233	60	201
Boeklen, Reinhart. (See Elkins and Boeklen.)						
Boenker, Henry H., St Charles, Mo. Oscillating grain-meter	483,417	Sept. 27	2430	611	60	1848
Boettcher, Adolph, South Stillwater, Minn. Window-chair	480,991	Aug. 16	1980	496	60	990
Boettler, Robert, Cleveland, Ohio. Spring draft attachment	482,504	Sept. 13	982	238	60	1541
Bofinger, W. H., *et al.* (See Wilson, Robert R., assignor.)						
Bogle, Walter S. (See Teft, Henry B., assignor.)						
Bohannan, Jenetta V., Baltimore, Md. Meat-slicer	481,159	Aug. 23	2277	561	60	1059
Böhm Brothers. (See Sternoff-Bever, Otto, assignor.)						
Bohner, Joseph E., assignor to Wallace & Sons, Ansonia, Conn. Lamp-shade support	481,154	Aug. 16	2262	558	60	1042
Bohner, Joseph E., assignor to Wallace & Sons, Ansonia, Conn. Extension-chandelier	482,712	Sept. 13	1303	318	60	1603
Boice, Joseph C. W., assignor of one-third to W. W. Bailey, Bates City, Mo. Sediment-gatherer for coffee-pots, &c	481,547	Aug. 30	2921	718	60	1198
Bolding, Arch, assignor of one-half to G. F. French, Sumner, Ill. Animal-poke	483,508	Sept. 27	2552	640	60	1872
Bolinger, Andrew, Speedwell, Tenn. Gage for determining the age of horses	478,560	July 12	773	189	60	168
Bolinger, William. (See Summers and Bolinger.)						
Bollermann, Arthur. (See Bollermann, Dominik L., assignor.)						
Bollermann, Dominik L., assignor to A. Bollermann, New York, N. Y. Stringing pianofortes	478,912	July 12	1293	322	60	271
Bolles, William P. (See Henry, Bolles, and McKee.)						
Bolte, Frank H., assignor to Sercombe-Bolte Manufacturing Company, Milwaukee, Wis. Bicycle-frame	478,391	July 5	510	124	60	101
Bolte, Frank H., assignor to Sercombe-Bolte Manufacturing Company, Milwaukee, Wis. Crank-securing means	483,342	Sept. 27	2323	584	60	1827
Bolte, Frank H., assignor of one-half to P. H. Sercombe, Milwaukee, Wis. Velocipede-wheel tire	479,201	July 19	1752	439	60	368
Bolte, Frank H., assignor of one-half to P. H. Sercombe, Milwaukee, Wis. Pneumatic tire	479,202	July 19	1754	439, 440	60	368
Bolte, Frank H., assignor of one-half to P. H. Sercombe, Milwaukee, Wis. Pneumatic tire	479,203	July 19	1757	440	60	368

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boman, Claes W., assignor to Eagle Pencil Company, New York, N. Y. Pencil	481,100	Aug. 16	2162	536	60	1024
Bomar, Thomas B., Wolfe City, Tex. Sash-fastener	478,272	July 5	338	81	60	66
Bond, Edward S., Birmingham, England. Wire-netting machine	478,561	July 12	773	149	60	168
Bond, Elijah J., *et al.* (See Plunkett, Michael H., assignor.)						
Bond, Frederick W., Springfield, Mo. Railway-joint	478,983	July 19	1410	349	60	305
Bond, Nathan O., Fairfax Court-House, Va., assignor to W. F. Phinney, Standish, Me. Wash-stand	479,148	July 19	1669	417	60	352
Bonham, Walter R., St. Paul, Minn. Propeller	482,225	Sept. 6	496	118	60	1432
Bonnaffon, Albert L., assignor of one-half to J. G. Lindsay, Philadelphia, Pa. Fence	479,050	July 19	1515	377	60	324
Bonta, James W., Wayne, Pa. Link-welding machine	483,418	Sept. 27	2432	611, 612	60	1848
Bonta, James W., Wayne, assignor to J. H. Shakespeare, trustee, Philadelphia, Pa. Leer or annealing-furnace for sheet or plate glass	480,230	Aug. 2	762	192	60	726
Booker, Isaac N. (See Whallon, Clement V., assignor.)						
Bookwalter, Francis M., and W. W. Tyler, Springfield, Ohio; said Tyler assignor to said Bookwalter. Water-wheel	483,133	Sept. 27	1964	498, 499	60	1759
Boone, James H., *et al.* (See Campbell, George W., assignor.)						
Booth, Alvin. (See Beach and Booth.)						
Booth, Caleb H., Dubuque, Iowa. Hydraulic dredge	479,486	July 26	2250	564, 565	60	480
Booth, Caleb H., Dubuque, Iowa. Steam-pump	482,840	Sept. 20	1500	373	60	1655
Booth, Edgar H., San Francisco, Cal., assignor to Risdon Iron and Locomotive Works, of California. Stone and ore crushing machine	480,761	Aug. 16	1618	406, 407	60	920
Booth, Isaac J., Birmingham, Conn. Box for bits	479,180	July 19	1721	432	60	362
Booth, John, Central Falls, R. I. Spinning-ring	483,297	Sept. 27	2360	569	60	1815
Booth, Richard A., assignor to Ives, Blakeslee & Williams Company, Bridgeport, Conn. Toy extension-ladder	482,402	Sept. 13	812	195	60	1508
Booz, Thomas J., assignor of one-half to J. N. Vieweg, Baltimore, Md. Car-coupling	481,891	Aug. 30	3485	854	60	1306
Borchardt, John, Jersey City, N. J. Fishing-reel	481,743	Aug. 30	3245	790	60	1260
Borgel, François, Geneva, Switzerland. Watch-case	478,734	July 12	1027	252	60	219
Born, F. W., deceased; M. Born, Cleveland, Ohio, administratrix. Oven and closet door for ranges	481,924	Sept. 6	6	2	60	1336
Born, Mary, administratrix. (See Born, F. W.)						
Bornemann, Frederick, New York, N. Y. Child's carriage	482,779	Sept. 20	1419	351	60	1638
Bornemann, Frederick, New York, N. Y. Combined stool and coal-receptacle	482,912	Sept. 20	1625	407	60	1678
Bornstein, Henry, Boston, assignor of one-half to J. A. W. Seabery, Malden, Mass. Wrench	479,698	July 26	2566	638	60	539
Bosch, Carl G., Davenport, Iowa. Malt-drying kiln	481,687	Aug. 30	3139	765	60	1239
Bossard, Anselm C., *et al.* (See Newell, James L., assignor.)						
Bosse, Friedrich, Berlin, Germany. Apparatus for polishing and sharpening knives, forks, &c.	479,114	July 19	1610	405	60	343
Bossert, William F., Utica, and J. H. Findlay, Ogdensburg, assignors to Utica Electrical Manufacturing and Supply Company, Utica, N. Y. Securing device for cables	482,939	Sept. 20	1659	418	60	1686
Bossert, William F., Utica, and J. H. Findlay, Ogdensburg, assignors to Utica Electrical Manufacturing and Supply Company, Utica, N. Y. Frame for electric-arc lamps	482,940	Sept. 20	1661	418	60	1686
Boston Cash Register Company. (See Foote and Range, assignors.)						
Boston Cash Register Company. (See Knapp and Little, assignors.)						
Boston Cash Register Company. (See Range, John J., assignor.)						
Boston Cash Register Company. (See Saunders, Range, and Foote, assignors.)						
Boston Cash Register Company. (See Webster and Saunders, assignors.)						
Boston Filter Company. (See Blount and Way, assignors.)						
Boswell, George G. F., assignor of one-fifth to J. E. Boswell, Indianapolis, Ind. Bicycle-wheel	478,735	July 12	1028	252	60	220
Boswell, Joseph E. (See Boswell, George G. F., assignor.)						
Botsford, Alban B., Grand Rapids, Mich. Syringe-case	478,081	July 5	12	3	60	5
Botsford, Frederick G., Cleveland, assignor of one-half to J. H. Werner, Canton, Ohio. Drinking-fountain for fowls	479,549	July 26	2340	584	60	497
Bottlers' and Brewers' Machine Manufacturing Company. (See Mueller, David, assignor.)						
Bottlers' Specialty Company. (See Wile and La Casse, assignors.)						
Bouchard, Adolphe, St. Elmo, Ala. Waist	480,062	Aug. 2	487	124	60	675
Boucher, Frank, assignor of one-half to P. T. Corbeille, Fond du Lac, Wis. Draw-bridge guard	482,291	Sept. 6	608	144	60	1453
Bouchet, Peter A., Merced, Cal. Mechanical movement	483,041	Sept. 20	1827	464	60	1720
Boughton, Clandius V., Buffalo, N. Y. Signal-telegraph	482,780	Sept. 20	1422	352	60	1638
Boulanger, Emil, St. Louis, Mo. Waterproof woven snare-string for drums	480,063	Aug. 2	488	124	60	675
Boulanger, Emil, St. Louis, Mo. Device for adjusting drum-snares	480,064	Aug. 2	489	124	60	675
Boulard, Joseph, Newport, R. I. Match and toothpick machine	481,522	Aug. 23	2871	706	60	1173
Bound, Henry. (See O'Donnell, Smith, and Bound.)						
Bourgin, Pierre, Oakland, Cal. Bean-thrasher	481,841	Aug. 30	3408	836	60	1291
Bourne, Henry H., Trinidad, Colo. Combined cement mill and furnace	480,381	Aug. 9	1021	257	60	788
Bouton, Arthur A., Brooklyn, assignor to J. Kayser, New York, N. Y. Attachment for sewing-machines	483,097	Sept. 20	1910	483	60	1737
Bouvier, Louis P., Toronto, assignor of one-half to W. Harty, Kingston, Canada. Envelope-machine	481,779	Aug. 30	3309	808	60	1273
Bovet, Armand de, Paris, France. Magnetic brake	481,842	Aug 30	3409	837	60	1292
Bowe, Wallace F., Meriden, Conn. Spoke-extractor	481,342	Aug. 23	2589	636	60	1117
Bowen, William J., Norwalk, Ohio, assignor to W. Hubbard, Elgin, Ill. Insulator	481,132	Aug. 16	2210	546	60	1034
Bowen, William J., Norwalk, Ohio, assignor to W. Hubbard, Elgin, Ill. Mechanical telephone	481,133	Aug. 16	2211	547	60	1034
Bowers, William H. H., assignor of one-half to Colorado Iron Works, Denver, Colo. Ore-concentrator	481,101	Aug. 16	2164	536	60	1021
Bowie, Washington, *et al.* (See Plunkett, Michael H., assignor.)						
Bowie, William S., Boston, Mass. Lounge	482,673	Sept. 13	1233	301	60	1589
Bowler, Harry S. (See Bowler, William H. and H. S.)						
Bowler, William H. and H. S., O'Fallon, Ill. Dumping-cart	481,843	Aug. 30	3411	837	60	1292
Bowman, Charles, Hanover, Pa. Machine for stripping and booking leaf-tobacco	479,550	July 26	2341	584	60	497
Bowman, Frank, Brooklyn, N. Y. Temporary binder	480,992	Aug. 16	1981	496	60	991
Bowman, James D. (See Miller and Bowman.)						
Bowman, Michael C., A. F. Rose, and C. B. Morse, New York, N. Y. Counter-skiving machine	483,509	Sept. 27	2553	640, 641	60	1872
Bowman, William M., and E. F. Shaw, assignors to Plymouth Foundry Company, Plymouth, Mass. Oil-stove	482,539	Sept. 13	1042	252	60	1552
Bowne Pneumatic Signal Company. (See Bowne, Robert T., assignor.)						
Bowne, Robert T., Benson, Md., assignor to Bowne Pneumatic Signal Company, of West Virginia. Railway-signal	479,395	July 26	2073	520, 521	60	446

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bowne, Robert T., Benson, Md., assignor to Bowne Pneumatic Signal Company, of West Virginia. Signaling device	479,396	July 26	2076	521	60	446
Bowring, Henry E., East Molesey, England. Boat-lowering apparatus	479,387	July 19	2054	513	60	428
Bowser, Asbury E. (See Bowser, Lafayette E. and A. E.)						
Bowser, Augustus. (See Bowser, Sylvanus F. and A.)						
Bowser, Lafayette E. and A. E., San Francisco, Cal. Step-ladder	479,051	July 19	1516	377	60	325
Bowser, Sylvanus F. and A., Fort Wayne, Ind. Measuring-pump	480,550	Aug. 9	1291	322	60	808
Bowser, Sylvanus F. and A., Fort Wayne, Ind. Measuring-pump	480,551	Aug. 9	1293	322	60	839
Bowser, Sylvanus F. and A., Fort Wayne, Ind. Measuring-pump	480,552	Aug. 9	1295	322	60	839
Boyd, Frederick C., and R. Martin, New Haven, Conn. Fare-register	479,388	July 19	2055	513, 514	60	428
Boyd, Henry P., Southampton, England. Die for swaging screws	478,219	July 5	237	58	60	49
Boyd, James M., Jr. (See Brewer, Andrew T., assignor.)						
Boyd, Robert L., New York, N. Y. Cover and adjustable ink-well	479,132	July 19	1643	411	60	347
Boyd, Samuel M., Middletown, N. Y. Toy	480,065	Aug. 2	490	125	60	676
Boyden Brake Company of Baltimore City. (See Boyden, George A., assignor.)						
Boyden, George A., Baltimore, Md., assignor to Boyden Brake Company of Baltimore City, of Maryland. Valve for air-brakes	481,134	Aug. 16	2212	547	60	1034
Boyden, George A., Baltimore, Md., assignor to Boyden Brake Company of Baltimore City, of Maryland. Fluid-pressure brake	481,135	Aug. 16	2218	548	60	1035
Boyden, George A., Baltimore, Md., assignor to Boyden Brake Company of Baltimore City, of Maryland. Valve for automatic air-brakes	481,136	Aug. 16	2223	548, 549	60	1035
Boyer, Charles H. (See Sweeney, Peter, assignor.)						
Boyer, Israel D., Dayton, Ohio. Instrument for facilitating the use of tabulated data	480,245	Aug. 9	790	201	60	743
Boynton & Plummer. (See Kindred, James, assignor.)						
Bozza, Carlo, London, England. Musical instrument	480,315	Aug. 9	918	232	60	769
Brachhausen, Gustav A., and P. Riesaner, Entritzsch, near Leipsic, Germany. Damping device for music-boxes	480,993	Aug. 16	1982	496	60	991
Bradbury, Ed. L., *et al.* (See Lawrence, Lester G., assignor.)						
Braden, Samuel M., Ligonier, Ind. Steaming attachment for wheat-heaters	478,151	July 5	119	30	60	26
Bradford, Charles W., assignor of one-half to F. J. Martin, Clinton, Me. Automatic circuit-closer for telegraph-keys	480,689	Aug. 9	1512	376	60	882
Bradley, Charles S., Avon, N. Y., and J. J. Wood, Fort Wayne, Ind. Electric motor and generator	481,220	Aug. 23	2376	585	60	1080
Bradley & Hubbard Manufacturing Company. (See Jauch, Joseph, assignor.)						
Bradley & Hubbard Manufacturing Company. (See Upson, Waldo L., assignor.)						
Bradley, Stephen R., Nyack, N. Y. Cord-carrier for underground conduits	479,397	July 26	2077	521	60	447
Bradley, William E., Frankfort, Ky. Making whisky	481,925	Sept. 6	7	.....	60	1336
Bradshaw, George, assignor of one-half to G. W. Hoyt, Chicago, Ill. Garment-fastener	479,163	July 19	1689	422	60	357
Brady, Charles N., *et al.* (See Huggins, Ulysses S., assignor.)						
Brady, Edward, *et al.* (See Calcutt, Marvin Y., assignor.)						
Brady, James. (See Smith and Brady.)						
Brady, James W., Bartow, Fla. Broiler	480,316	Aug. 9	919	232	60	769
Brafford, William H., *et al.* (See Foster, Washington H., assignor.)						
Bragdon, William B., Cumberland Mills, Me. Electric-wire support	479,052	July 19	1517	378	60	325
Braid, James W. (See Wharton and Braid.)						
Brainard, Adelbert M., Chicago, Ill. Wardrobe-bedstead	479,624	July 26	2444	609	60	516
Brainard, Adelbert M., Chicago, Ill. Wardrobe-bed	482,158	Sept. 6	390	92	60	1411
Brainard, Adelbert M., Chicago, Ill. Wardrobe-bedstead	482,159	Sept. 6	391	92, 93	60	1412
Brainard, Curtis B., Joliet, Ill. Wire straightening and cutting machine	482,000	Sept. 6	121	30	60	1358
Brainard, Julius D., St. Paul, Minn. Fire-escape	481,252	Aug. 23	2441	601	60	1091
Brainard, Julius D., St. Paul, Minn. Earth-scraper	482,711	Sept. 13	1301	318	60	1603
Brambach, Carl, New York, N. Y. Sounding-board for pianofortes	480,488	Aug. 9	1191	299	60	820
Brandenburg, George G., *et al.* (See O'Donnell, Michael J., assignor.)						
Brandley, Al. E., *et al.* (See Beers, Franklin H., assignor.)						
Brandt, Carl, Cedar Falls, Iowa. Combined stove and furnace	482,466	Sept. 13	911	222	60	1526
Brandt, Franz, Philadelphia, Pa. Thermometer-scale	478,984	July 19	1411	349	60	305
Branner, Bernard, New York, N. Y. Awning	480,553	Aug. 9	1287	323	60	840
Brant, Charles W. (See Brant, John W., assignor.)						
Brant, John W., assignor of one-third to C. W. Brant, York, Pa. Spring-tooth harrow	480,705	Aug. 16	1541	384	60	902
Brayney, James C., Sparta, Ill. Sack-holder	478,913	July 12	1294	322	60	271
Braun, John N., Roslyn, Wash. Car-coupling	482,614	Sept. 13	1156	280	60	1574
Brav, Hugo, Berlin, Germany. Till-lock	478,392	July 5	512	124, 125	60	101
Bray, Isabella, New York, N. Y. Dress-stay	480,994	Aug. 16	1983	496	60	991
Bray, Joseph F. (See Gillette, Charles F., assignor.)						
Brazelle, Benjamin, St. Louis, Mo. Process of and apparatus for purifying, refining, and carburizing metals	482,001	Sept. 6	123	31	60	1359
Breed, De Witt C., Medina, N. Y. Parlor sleeping-car	479,240	July 19	1610	453, 454, 455	60	379
Brégier, Eugène, Terrebonne, Minn. Wind-wheel	483,098	Sept. 20	1912	484	60	1737
Brendlinger, Joseph E., Denver, Colo. Ratchet-wrench	478,680	July 12	937	233	60	201
Brennan, John A. (See Croom, Wiley G., assignor.)						
Bresnahan, Maurice V., and J. J. Heys, Lynn, Mass. Sole-machine	479,053	July 19	1518	378	60	325
Bressler, Frank M., *et al.* (See Bitney, Charles O., assignor.)						
Brett, Edward S., Corentry, England. Steam-stamp	478,393	July 5	513	125	60	101
Brett, Henry W., Boston, Mass. Cementing-machine	479,699	July 26	2567	639	60	539
Bretz, Jacob S., Philadelphia, Pa. Bicycle-wheel	478,394	July 5	514	126	60	102
Brewer, Andrew T., assignor of one-half to J. M. Boyd, Jr., Minneapolis, Minn. Combination feed-water heater and boiler	478,395	July 5	516	126	60	102
Brewer, David, Emporia, Kans. Car-coupling	482,615	Sept. 13	1158	280	60	1574
Brewing Improvement Company. (See Frings, Charles H. and B. O., assignors.)						
Brewster, Tomlinson F. (See Dennis, Joseph L., assignor.)						
Bridgeport Brass Company. (See Morton, Augustus, assignor.)						
Bridger, Henry C., Wood Ridge, N. J., assignor to United States Autograph Telegraph Company, New York, N. Y. Device for reproducing characters	478,152	July 5	120	30	60	27
Bridges, Charles W., Independence, Ind. Ornamental fence-wire	478,985	July 19	1413	350	60	305
Bridges, Hiram A., *et al.* (See Cochran, John J., assignor.)						
Briggs, George E., Pittsburg, Pa. Building-block	479,054	July 19	1519	378	60	325
Briggs, Ira J., assignor of one-half to A. W. Sanborn, San Francisco, Cal. Lubricating-cup	482,674	Sept. 13	1235	301	60	1589
Briggs, Orlando P., and F. L. Bryant, Chicago, Ill. Machine for weaving coiled-wire fabric	480,007	Aug. 2	381	94, 95, 96	60	653
Briggs, Otis, Jr., Nevada, Iowa. Time-damper-operating mechanism	478,562	July 12	775	189	60	169

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Briggs, Robert. (See Johnson, Lafayette M., assignor.)						
Briggs, Thomas A., Arlington, Mass. Paper-feeding machine	480,447	Aug. 9	1125	280, 281, 282, 283	60	806
Briggs, Thomas A., Arlington, Mass. Feed-machine attachment for printing-presses	480,448	Aug. 9	1135	283	60	808
Briggs, Thomas A., Arlington, Mass. Device for converting oscillatory into reciprocating motion	480,449	Aug. 9	1136	284	60	809
Briggs, Thomas A., Arlington, Mass. Compound lever	480,450	Aug. 9	1138	284	60	809
Brigham, Martin E., Philadelphia, Pa. Wrapping-machine	478,396	July 5	518	127, 128	60	102
Brill, George M., Philadelphia, Pa. Car-truck	478,218	July 5	232	58	60	48
Brill, John A., Philadelphia, Pa. Motor-truck	480,362	Aug. 9	985	248, 249	60	780
Brillié, Lucien V., Paris, France, assignor to Compagnie Anonyme Continentale pour la Fabrication des Compteurs à Gaz et Autres Appareils. Electric meter	479,932	Aug. 2	245	60, 61	60	629
Brind, Ivor L., *et al.* (See Gunn, John A., assignor.)						
Brinkmann, Augustus H. (See Jones, Harry W., assignor.)						
Brintnall, Thomas M., Chicago, Ill. Safe	481,137	Aug. 16	2229	549, 550	60	1036
Bristol Brass and Clock Company. (See Brown, George S., assignor.)						
Bristol, William H., Hoboken, N. J. Photographic camera	478,780	July 12	1097	272	60	233
Bristol, William H., Hoboken, N. J. Camera-shutter	480,095	Aug. 16	1984	497	60	991
Bristol, William H., Hoboken, N. J. Camera-shutter	481,343	Aug. 23	2591	636, 637	60	1117
Brittingham, William B., New York, N. Y. Bleaching compound	480,554	Aug. 9	1289		60	840
Britton, Joseph W., Cleveland, Ohio. Scaling sheet metal	479,780	Aug. 2	10	3	60	584
Broadbridge, Edward, Jr. (See Jordan and Broadbridge.)						
Broadhead, Ernest W., Dolores, Colo. Vehicle-brake	481,466	Aug. 23	2762	687	60	1156
Broadley, Joseph, Elkhorn, Canada. Nut-lock	481,344	Aug. 23	2592	637	60	1117
Brock, William H., Brooklyn, N. Y. Chain-wrench	483,419	Sept. 27	2433	612	60	1848
Brockley, Jacob. (See Hymas, Alfred, assignor.)						
Brocksieper, Fredrick W., New Haven, Conn. Earth-auger	481,345	Aug. 23	2593	637	60	1117
Brockway, Edward, Separ, N. Mex. Ter. Car-coupling	481,660	Aug. 30	3097	755	60	1231
Brodesser, Peter H., Milwaukee, Wis. Elevator and carrier	481,926	Sept. 6	7	2, 3	60	1336
Broggelwirth, Emil, Brooklyn, N. Y. Sash-holder	480,394	Aug. 9	1042	262	60	791
Bronson, Benjamin, Rockford, Ill. Swinging saw	479,324	July 19	1930	482	60	403
Bronson, Levi, assignor of one-half to Pitts Agricultural Works, Buffalo, N. Y. Grain-measure	481,744	Aug. 30	3246	790	60	1260
Brooks, Bartholomew, assignor of one-half to J. R. C. McAllister, Philadelphia, Pa. Awning	479,551	July 26	2342	584	60	498
Brooks, Byron A., Brooklyn, N. Y. Type-writing machine	478,842	July 12	1201	298	60	253
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Post-office hand-stamp	482,781	Sept. 20	1423	352	60	1638
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Seal	481,296	Aug. 23	2519	619	60	1104
Brooks, Franklin W., assignor of one-half to W. C. Rogers, New York, N. Y. Car-seal	481,892	Aug. 30	3486	854	60	1307
Brooks, Herbert H., Cambridge, assignor of one-half to A. T. Clark, Boston, Mass. Insulator	481,388	Aug. 23	2659	652	60	1130
Brooks, James M., Molena, Ga. Road-scraper	482,913	Sept. 20	1626	407	60	1678
Brooks, James W., trustee. (See Webster, Harold A., assignor.)	481,160	Aug. 23	2279	562	60	1060
Brooks, John, *et al.* (See Oliver, John S., assignor.)						
Brooks Locomotive Works. (See Player, John, assignor.)						
Brooks, Samuel H. (See Edge, James, assignor.)						
Brooks, Samuel H. (See Shaw, George, assignor.)						
Brooks, Sidney R., Uniontown, Pa., assignor of one-half to P. C. Sheldon, Allegany, N. Y. Checkrein	480,865	Aug. 16	1779	445	60	956
Brosius, Alva C., Cochranville, Pa. Dehorning implement	480,946	Aug. 9	791	202	60	743
Brown, A. W. (See Beyer, Augustus, assignor.)						
Brown, Albert F. (See Dougherty, Harvy H., assignor.)						
Brown, Alexander F. G., Swindridge Muir, Dairy, Scotland. Rotary engine	478,843	July 12	1202	298	60	253
Brown, Arthur F., and W. R. Knaub, assignors to Stoddard Manufacturing Company, Dayton, Ohio. Horse hay-rake	478,083	July 5	13	4	60	5
Brown, Arthur F., and W. R. Knaub, assignors to Stoddard Manufacturing Company, Dayton, Ohio. Horse hay-rake	478,084	July 5	15	5	60	6
Brown, Benjamin F., Blackstone, Kans. Lamp-stove	480,395	Aug. 9	1043	262	60	792
Brown, Callum H., Nashville, Tenn. Shirt	478,082	July 5	12	3	60	5
Brown, Charles D., assignor of two-thirds to H. L. Munn and J. L. Stevens, Ames, Iowa. Alarm-clock	478,950	July 12	1347	334	60	282
Brown, Charles F., assignor to Royal Machine Company, Yonkers, N. Y. Cash register, indicator, and recorder	481,524	Aug. 23	2874	706, 707, 708	60	1173
Brown, Charles M., Chicago, Ill. Mowing-machine	480,706	Aug. 16	1543	384, 385	60	902
Brown, Charles M., and E. P. Holden, Chicago, Ill. Method of and machine for treating the margins of sheet-metal vessels	479,181	July 19	1722	432	60	362
Brown, Cyrus E., Homestead, Pa. Multiple-punch and laying-out machine	480,557	Aug. 9	1292	323, 324	60	840
Brown, Darwin L., Detroit City, Minn. Tool-rest for grinding-machines	483,042	Sept. 20	1828	464, 465	60	1720
Brown, Frank, Jr., *et al.* (See Campbell, George W., assignor.)						
Brown, Fred. H., assignor of one-half to S. F. Andrews, Chicago, Ill. Pocket coin-receptacle	481,523	Aug. 23	2873	706	60	1173
Brown, Frederick H., Chicago, Ill., assignor of one-half to S. F. Andrews. Telephone	481,138	Aug. 16	2233	550	60	1037
Brown, George A., Bristol, Penn. Boot	480,363	Aug. 9	992	249	60	792
Brown, George F., Philadelphia, Pa. Siphon water-closet	479,182	July 19	1726	432	60	363
Brown, George H., assignor to J. H. Tibbits, Long Island City, N. Y. Ribbon-holder	480,556	Aug. 9	1290	323	60	840
Brown, George S., Forrestville, Conn., assignor to Bristol Brass and Clock Company, New York, N. Y. Wick-raiser	483,979	Sept. 27	2232	561	60	1810
Brown, George T., Sedalia, Mo. Signal and stand	483,420	Sept. 27	2434	612	60	1849
Brown, Harold A., Lawrence, Kans. Dress-waist form	478,308	July 5	389	94	60	78
Brown, Isaac T., Columbus, Ind. Napkin-holder	481,161	Aug. 23	2282	562	60	1060
Brown, James A., Sublette, Ill. Automatic watering-trough	478,397	July 5	523	128	60	103
Brown, John S., Jersey City, N. J. Locking-bar for chases	482,160	Sept. 6	393	93	60	1412

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Brown, Lewis, Landing, N. J., assignor to American Forcite Powder Manufacturing Company, New York, N. Y. Nitro-glycerine blasting-powder	478,844	July 12	1203	.....	60	254
Brown, Martin A., Seattle, Wash. Toilet-paper holder	481,612	Aug. 30	3026	740	60	1217
Brown, Martin L. (See Gilstrap and Brown.)						
Brown, Oscar E., Buffalo, N. Y. Horseshoe	481,271	Aug. 23	2467	608	60	1096
Brown, Otis E., and P. Stetson, Brockton, Mass. Cut-off valve for engines	482,516	Sept. 13	1001	242	60	1545
Brown, Philip C., Washington, D. C. House letter-box	482,292	Sept. 6	609	144	60	1454
Brown, Robert G., Kansas City, Kans. Coffee-pot	480,066	Aug. 2	492	125	60	676
Brown, Robert S., assignor of one-half to F. G. Platt, New Britain, Conn. Universal coupling	481,780	Aug. 30	3311	809	60	1273
Brown & Sharpe Manufacturing Company. (See Carleton, Cyrus, assignor.)						
Brown, Tristram D., Clifton Springs, N. Y. Pail, pan, wash-boiler, &c	480,555	Aug. 9	1290	323	60	840
Brown, Vories P., San Antonio, Tex. Padlock	482,070	Sept. 6	239	58	60	1362
Brown, William J., Philadelphia, Pa. Hand nailing implement	482,540	Sept. 13	1044	252	60	1553
Brown, William J., Philadelphia, Pa. Device for holding metallic staples	483,374	Sept. 27	2368	593	60	1836
Brown, William T., assignor of three-fourths to B. B. Fannin, R. T. Parsons, and J. M. Duvall, Sandy Hook, Ky. Churn-power	483,134	Sept. 27	1970	499	60	1760
Brown, William W., *et al.* (See Snyder, Charles A., assignor.)						
Brown, William Z., Hannibal, Mo. Window-blind	478,563	July 12	776	190	60	169
Brown, William Z., Atlas, Ill., assignor of one-half to G. Manewal, Bucklin, Mo. Post-hole digger	481,688	Aug. 30	3140	766	60	1239
Browne, Josiah H., Salem, Mass. Car-coupling	480,803	Aug. 16	1687	420, 421	60	932
Brownell Car Company. (See Baler, Frederick A., assignor.)						
Brownell, Frederick B., St. Louis, Mo. Street-car	481,467	Aug. 23	2793	687	60	1156
Brownell, Frederick B., St. Louis, Mo. Street-car	481,468	Aug. 23	2794	687	60	1156
Brownfield, William H. (See Martin and Brownfield.)						
Bruce, Robert. (See Foster, Joseph M., assignor.)						
Bruggeman, Herman. (See Bruggeman, John G. and H.)						
Bruggeman, John G. and H., Clyde, Ohio. Harness-saddle	480,996	Aug. 16	1985	497	60	991
Bruner, Absalom, Arkoe, Mo. Spoke-tenon cutter	481,469	Aug. 23	2795	687	60	1156
Bruner, Preston M., St. Louis, Mo. Fireproof floor-arch	478,914	July 12	1295	322	60	272
Brunkhorst, August. A. Wieden, and C. T. Richards, assignors to Mesker & Bro., St. Louis, Mo. Building-front	478,974	July 12	1392	343, 344	60	280
Brünler, Oscar, Eilenburg, assignor to I. M. Grob & Co., Entritzsch-Leipzig, Germany. Pump	480,707	Aug. 16	1546	385	60	903
Brunner, August, *et al.* (See Auchman, Ferdinand, assignor.)						
Bruno Nordberg Company. (See Nordberg, Bruno V., assignor.)						
Bruns, Hinrich, Bremerhaven, Germany. Lock	483,298	Sept. 27	2261	569	60	1815
Brunsman, Anthony G., and H. H. Uckotter, Cincinnati, Ohio. Lazy-back for vehicle-seats	481,745	Aug. 30	3247	790, 791	60	1260
Brunson, Courtland W., Hamilton, Ohio. Purifying liquids	479,781	Aug. 2	11	3	60	584
Brunswick-Balke-Collender Company. (See Bensinger, Moses, assignor.)						
Brush Electric Company. (See Pfannkuche, Gustav, assignor.)						
Brusie, James. (See Jennings, Byron, assignor.)						
Bruso, Charles, Worcester, Mass. Sweeping-machine	480,231	Aug. 2	763	193	60	727
Bryan, William J. (See Smith and Bryan.)						
Bryant, Charles A., Wakefield, Mass. Button	482,959	Sept. 20	1696	426	60	1692
Bryant, Fred L. (See Briggs and Bryant.)						
Bryant, Fred L., Chicago, Ill. Machine for making coiled-wire fabric for bed-bottoms	482,071	Sept. 6	240	58, 59	60	1382
Bryant, George, San Francisco, Cal. Machine for grooving shoe-soles	483,319	Sept. 27	2292	576	60	1821
Bryce, John, and A. Knox, assignors to Glass and Metal Engraving Company, Limited, Glasgow, Scotland. Pantograph tracing and engraving machine	481,893	Aug. 30	3487	854, 855	60	1307
Bryson, Andrew. (See Pendleton and Bryson.)						
Bryson, Andrew, Jr., New York, N. Y. Electric dispatch system	480,804	Aug. 16	1689	421	60	933
Bryson, Andrew, Jr., New York, N. Y. Automatic receiver for pneumatic or other dispatch systems	480,805	Aug. 16	1690	422	60	933
Buchanan, John, *et al.* (See Stuart, James A., assignor.)						
Buchwald, Elmer E., Erie, Pa. Railway-track gage	479,572	July 26	2345	585	60	498
Bupk, Elijah, Marshall, Mich. Printer's rule-bender	478,085	July 5	17	6	60	6
Buck, Fredrick A., Urbana, Ohio. Hollow-mandrel chuck	482,616	Sept. 13	1159	280	60	1574
Buck, Julius W., assignor of one-half to W. R. Field, Greenville, Pa. Game apparatus	481,548	Aug. 30	2992	719	60	1198
Buck, Taylor S., Brooklyn, N. Y. Hand-stamp	483,343	Sept. 27	2323	584	60	1827
Buckingham, John L., Hermosa, S. D. Wire-tightener	482,035	Sept. 6	181	44	60	1371
Buckley, Fred L., Annin Creek, Pa. Washing-machine	482,036	Sept. 6	185	44	60	1371
Buckley, John, Eureka, Cal. Cable logging-machine	481,927	Sept. 6	9	3	60	1336
Buckley, John W., *et al.* (See Whitworth, Charles E., assignor.)						
Buckley, Timothy. (See Doyle, William J. C., assignor.)						
Buckner, James, Boston, Mass. Apparatus for covering wire with fibrous material	483,043	Sept. 20	1830	465	60	1721
Buckner, Thomas B. (See Hall, James F., assignor.)						
Budde, Otto. (See Gerstenkorn, Paul, assignor.)						
Budington, Albert G., Austin, Tex. Railway-tie	479,625	July 26	2445	610	60	516
Buence, Samuel W., Argentine, and A. Bash, Turner; said Buence assignor to G. A. Taylor, Argentine, Kans. Saw-set	481,221	Aug. 23	2377	585	60	1080
Buffinton, Elisha W., assignor of one-half to A. F. Dow, Fall River, Mass. Rosette for electric lighting	480,915	Aug. 16	1853	462	60	967
Bugbee, Fred A., Auburn, N. Y. Sole-machine	480,317	Aug. 9	920	232, 233	60	769
Bugbee, George W., Delhi, and F. Danner, Home City, assignors to Egan Company, Cincinnati, Ohio. Tonoing-machine	479,389	July 19	2059	514, 515	60	429
Bugbee, George W., Delhi, and F. Danner, Home City, assignors to Egan Company, Cincinnati, Ohio. Fence for wood-working machines	480,902	Aug. 16	1839	457	60	961
Buhl & Co., Walter. (See Ashbaugh, Charles C., assignor.)						
Buhmeier, Henry T., Elgin, Ill. Window-blind	479,398	July 26	2080	521, 522	60	447
Buhoup, Harry C., Chicago, Ill. Car-coupling	480,839	Aug. 16	1737	434	60	943
Buker, Alpha, Hueneme, Cal. Carriage-curtain fastener	480,067	Aug. 2	493	125	60	676
Bulasky, Louis, New York, N. Y. Hat-trimming machine	482,541	Sept. 13	1045	252	60	1553
Bullard, Edgar K., Wheeling, W. Va. Diaphragm for photographic lenses	483,135	Sept. 27	1971	499	60	1760
Bullard, Frederick H., and F. Harrington, Chicopee, Mass. Elastic tire for vehicle-wheels	478,564	July 12	777	190	60	169
Bullard, James H., Springfield, Mass. Combined liquid receptacle and pump	480,068	Aug. 2	494	126	60	676
Bullard, James H., Springfield, Mass. Pneumatic tire	483,344	Sept. 27	2324	584	60	1827
Bullard, James H., assignor to Aerated Fuel Company, Springfield, Mass. Hydrocarbon-burning apparatus	483,099	Sept. 20	1913	484	60	1738

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Bullard, James H., assignor to Aerated Fuel Company, Springfield, Mass. Hydrocarbon-burning apparatus	483,100	Sept. 20	1914	484	60	1738
Bullock, Edward A., Bellefonte, Pa. Floor-jack	481,470	Aug. 23	2796	686	60	1157
Bullock, Edwin B. (See Blaney, William H., assignor.)						
Bullock Lothrop L. (See Mullaly and Bullock.)						
Bunce, Levi P., assignor of one-eighth to W. Heggum, Minneapolis, Minn. Closed conduit for electric railways	482,993	Sept. 20	1750	442	60	1703
Bundy Manufacturing Company. (See Bundy, Willard L., assignor.)						
Bundy, Willard L., assignor to Bundy Manufacturing Company, Binghamton, N. Y. Workmen's time-recorder	482,293	Sept. 6	611	144, 145, 146	60	1454
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Road-working machine	479,700	July 26	2569	639, 640	60	539
Bunnell, Sadie A. (See Vanderbilt, Henry V., assignor.)						
Burbank, Arthur, *et al.* (See Wilson, Robert R., assignor.)						
Burch, Theodore W. (See Tanner and Burch.)						
Burchinal, Thomas L., Morgantown, W. Va. Spirit-level	478,309	July 5	390	94	60	78
Burdett, J. B. (See Rowntree, Harold, assignor.)						
Burdon, David P., assignor of one-half to P. Sattelkan, Jacksonville, Fla. Steam vacuum-pump	482,072	Sept. 6	244	59, 60	60	1383
Burgess, Andrew, Owego, N. Y. Magazine-firearm	478,220	July 5	218	59	60	49
Burgess, Andrew, Owego, N. Y. Magazine-firearm	478,221	July 5	243	59, 60	60	50
Burgess, Edward A., New Haven, Conn. Pin-sticking machine	478,222	July 5	215	60	60	50
Burgess, Melancthon, St. George, Utah Ter. Washing-machine	481,746	Aug. 30	3250	791	60	1261
Burgon, Charles and H., Malin Bridge, near Sheffield, England. Animal-shears	481,102	Aug. 16	2167	537	60	1025
Burgon, Charles and H., Malin Bridge, England. Animal-shears	480,997	Aug. 16	1946	497	60	991
Burgon, Harry. (See Burgon, Charles and H.)	481,844	Aug. 30	3411	837	60	1292
Burke, Ashbel C., Gypsum, assignor to D. A. Scott, Catawba Island, Ohio. Fruit-sizer	482,294	Sept. 6	614	146	60	1455
Burkhard, Theodore F., San Francisco, Cal. Whip-socket and rein-holder	478,310	July 5	391	94	60	79
Burkhardt, John, assignor to W. H. Jackson & Co., New York, N. Y. Forming hollow balls, &c., from sheet metal	480,708	Aug. 16	1547	385	60	903
Burkhardt, Richard P., Dayton, Ohio. Process of and machine for bending and drying wood	482,782	Sept. 20	1425	353	60	1639
Burkhead, Henry C., Summit, assignor of one-half to M. S. Van Meter, Meeting Creek, Ky. Crate	483,101	Sept. 20	1916	485	60	1738
Burkman, Walfrid, San Francisco, Cal. Brick-machine	478,915	July 12	1297	322, 323	60	272
Burnet Machine Company. (See Burnet, Robert, assignor.)						
Burnet, Robert, East Orange, N. J. Machine for stitching with staples	481,747	Aug. 30	3252	792	60	1261
Burnet, Robert, assignor, by mesne assignments, to Burnet Machine Company, East Orange, N. J. Bookbinding-machine	481,894	Aug. 30	3491	855, 856	60	1307
Burnette, Eugene T., Haywards, Cal. Preserving eggs	479,970	Aug. 2	312	.....	60	641
Burns, Charles F., *et al.* (See Kirby, James A., assignor.)						
Burns, James A., Homestead, Pa. Mill appliance	482,861	Sept. 20	1530	380, 381	60	1661
Burns, James H., Spokane, Wash. Device for preventing railway-rails from spreading	480,998	Aug. 16	1987	497	60	992
Burns, John. (See Bigland and Burns.)						
Burns, Thomas. (See Parryer and Burns.)						
Burns, Thomas, Edinburgh, Scotland. Apparatus for scouring and washing skins, &c	478,499	July 5	667	163	60	132
Burrell & Co., D. H. (See Womersley, William, assignor.)						
Burrell, David H. (See Frederiksen, Johan D., assignor.)						
Burrell, David H., Little Falls, N. Y. System of heating	480,903	Aug. 16	1840	457, 458	60	964
Burrowes, E. T. (See Hall, Horace L., assignor.)						
Burrows, Arba G., assignor of one-half to L. Gay, Dunmore, W. Va. Vehicle-hub	480,690	Aug. 9	1513	376	60	883
Burrows, Taylor. (See Donisthorpe and Burrows.)						
Burt, Merritt, and J. W. Skilton, Jacksonville, Fla. Tank-feeder	482,617	Sept. 13	1160	280, 281	60	1575
Burt, Ransom K., Haddam, Kans. Washing-machine	482,295	Sept. 6	616	146	60	1455
Burt & Tobey. (See Tobey, Charles W., assignor.)						
Burtis, William. (See Marshall, Herbert E., assignor.)						
Burton, John M., Wichita, Kans. Railway-car. (Reissue)	11,254	July 19	2063	516, 517	60	430
Bush, Aylmer, assignor of one-half to S. S. Tatum, Summerfield, La. Planter and fertilizer-distributer	482,783	Sept. 20	1426	353, 354	60	1639
Bush, Henry, Holgate, Ohio. Fanning-mill	479,241	July 19	1814	455	60	380
Bush, John E. (See Weeks and Bush.)						
Bushnell, Cyrus P., Providence, R. I. Combination extension-ladder	480,655	Aug. 9	1458	363	60	873
Butcher, Joseph, Melrose, Mass. Electric cyclometer for velocipedes	478,066	July 5	18	6	60	6
Butler, Benjamin F., Logansport, Ind. Mechanical telegraph instrument	479,782	Aug. 2	13	3	60	585
Butler, Edward R., Ueberlingen, Germany. Folding stretcher for pictures	483,250	Sept. 27	2233	561	60	1810
Butler, Edwin M., Virden, Ill. Car-coupling	478,087	July 5	20	7	60	7
Butler, John F. (See Stephenson, George A., assignor.)						
Butler, Lewis C., West Bay City, Mich. Desk attachment for telephones	478,565	July 12	778	190	60	169
Butler, Lewis C., West Bay City, and H. R. Chope, Saginaw, Mich.; said Chope assignor to said Butler. Pocket check and bank book	482,543	Sept. 13	1054	256	60	1555
Butler, Mary L., *et al.* (See Willcox, Alfred B., assignor.)						
Butler, Samuel B., New York, N. Y. Davit-hook	483,421	Sept. 27	2435	613	60	1849
Butler, William A., assignor to J. H. Haar and J. A. Cassidy, New York, N. Y. Cable-gripper	480,489	Aug. 9	1192	299	60	820
Butler, William H., and W. R. Landfear, Brooklyn, N. Y.; said Landfear assignor to said Butler. Box-filling machine	482,542	Sept. 13	1047	253, 254, 255	60	1553
Butman Furnace Company. (See Butman, Thomas R., assignor.)						
Butman, Thomas R., assignor to Butman Furnace Company, Chicago, Ill. Gage-cock	479,732	July 26	2637	654	60	551
Butman, Thomas R., assignor to Butman Furnace Company, Chicago, Ill. Steam-boiler furnace	479,733	July 26	2638	654, 655	60	552
Butt, Moses E. (See Cadenhead and Butt.)						
Butterfield-Mitchell Electric Heating Company. (See Mitchell, Willis, assignor.)						
Butterworth, Willoughby K., *et al.* (See Spielman, William, assignor.)						
Butz, John F., Fort Worth, Tex. Freight and grain car	481,928	Sept. 6	11	4	60	1337
Buxbaum, Asher I. F., Walnut Hills, Ohio. Rubber-dam clamp	482,618	Sept. 13	1161	281	60	1575
Buyer, Edward, New York, N. Y. Box attachment	480,999	Aug. 16	1988	498	60	992

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Byor, Gustav A., Edgar, Nebr. Straw-burner	482,862	Sept. 20	1532	381, 382	60	1662
Byrnside, Benjamin B., Clifty, W. Va. Tobacco-hanger	478,153	July 5	122	31	60	27
C. A. Treat Manufacturing Company. (See Treat, Cornelius A., assignor.)						
Cabell, Samuel G., Washington, D. C., assignor, by mesne assignments, to Quincy Gas Economizer Company, Quincy, Ill. Gas-governor	479,553	July 26	2246	585	60	498
Cable, Frank D. (See Tuttle and Cable.)						
Cadenhead, Benjamin F., and M. E. Butt, Blountville, Ala. Plow	478,273	July 5	340	82	60	68
Cadwalader, Howard, Richmond, Ind. Carpet-sweeper	480,451	Aug. 9	1139	285	60	809
Cadwell, Jonathan W. (See Elton and Cadwell.)						
Cadwell, Jonathan W., Meriden, Conn. Clothes-line	483,299	Sept. 27	2263	569	60	1815
Cadwell, Marvin S., Lansing, Mich. Slat-and-wire-fabric-weaving machine	479,487	July 26	2252	565	60	481
Cady, David, Indianapolis, Ind. Shoe-horn	481,253	Aug. 23	2443	602	60	1092
Cady, David D., Munson, Ill. Clothes-pounder	480,069	Aug. 2	496	126	60	677
Cady, Henry G., Pine Bluff, Ark. Fence-machine	482,335	Sept. 13	697	166	60	1486
Cady, Henry G., Pine Bluff, Ark. Spirometer	482,336	Sept. 13	699	167	60	1486
Cahn, Friedrich A., Hanover, Germany. Scraper or cleaner for boots or shoes	478,845	July 12	1203	299	60	251
Cahow, Daniel B., Akron, Ohio. Pump	480,169	Aug. 2	656	167	60	707
Calcutt, Marvin Y., assignor of two-thirds to H. L. Rochelle and E. Brady, Seattle, Wash. Elevator	479,390	July 19	2061	515, 516	60	429
Calderwood, George G., Biddeford, Me. Stovepipe	483,207	Sept. 27	2092	510	60	1785
Caldwell, Alfred, Providence, R. I. Attaching tips to flexible tubing for gas	480,247	Aug. 9	792	202	60	744
Caldwell, Daniel I., *et al.*, trustees. (See Kreppa, Virgil A., assignor.)						
Caldwell, Robert W., Sr. (See Dixon, George E., assignor.)						
Callaway, William, Sr., Knox, assignor to F. B. Yarbro, Kewanna, Ind. Machine for wiring fence-pickets	479,626	July 26	2446	610	60	517
Callmeyer, Leonie P., Madison, N. J. Means for detecting the opening of sealed envelopes	482,073	Sept. 6	247	60	60	1384
Calla, George, and F. J. Tetley, London, England. Horseshoe-fastening	481,000	Aug. 16	1969	498	60	992
Calorie Cone Company. (See Cornell, Oliver H. P., assignor.)						
Cameron, Brewster. (See Tiffany, Walton C., assignor.)						
Campbell, Andrew C., assignor to Waterbury Farrel Foundry and Machine Company, Waterbury, Conn. Clutch-treadle	478,398	July 5	524	128	60	103
Campbell Barrel Machine Company. (See Campbell, Henry, assignor.)						
Campbell, Emily H. (See Campbell, William B., assignor.)						
Campbell, George W., assignor to J. V. Taggart and J. H. Boone, El Paso, and F. Brown, Jr., Austin, Tex. Windmill	481,712	Aug. 30	3179	776, 777	60	1247
Campbell, Greenleaf W., *et al.* (See Morrison, Hamon, assignor.)						
Campbell, Hardy W., Putney, S. D. Seeder, roller, and pulverizer	479,242	July 19	1818	455, 456	60	381
Campbell, Harry H. (See Aiken, Wood, and Campbell.)						
Campbell, Henry, Baltimore, Md. Barrel setting-up and firing machine	479,735	July 26	2642	655	60	552
Campbell, Henry, assignor to Campbell Barrel Machine Company, Baltimore, Md. Setting-up and forming machine for barrels, &c	479,627	July 26	2448	610	60	517
Campbell, Henry, assignor to Campbell Barrel Machine Company, Baltimore, Md. Making barrels, &c	479,734	July 26	2641	655	60	552
Campbell, Myron A. (See Stone and Campbell.)						
Campbell Printing Press and Manufacturing Company. (See Huson, Winfield S., assignor.)						
Campbell, William B., assignor, by mesne assignments, to E. H. Campbell, Brooklyn, N. Y. Woven-wire bed-bottom	482,337	Sept. 13	700	167	60	1487
Candee, Charles E., New York, N. Y. Lock	478,781	July 12	1099	272, 273	60	234
Candee, Charles E., New York, N. Y. Lock	478,782	July 12	1102	273	60	234
Candee, Charles E., New York, N. Y. Lock	478,783	July 12	1104	273	60	234
Candee, Charles E., New York, N. Y. Lock	478,784	July 12	1108	273, 274	60	235
Candee, Charles E., New York, N. Y. Lock	478,916	July 12	1298	323	60	272
Candee, Charles E., New York, N. Y. Lock	478,917	July 12	1301	324	60	272
Canham, Fredrick L., Lisbon Falls, Me. Centering device	480,558	Aug. 9	1293	324	60	841
Canning, William P., assignor to Lowell Machine Shop, Lowell, Mass. Device for supporting and adjusting the front and back covers of carding-engines	481,222	Aug. 23	2379	586	60	1080
Cannon, Clinton D., Battle Creek, Mich. Vehicle-wheel	478,918	July 12	1303	324	60	273
Canuteson, Ole, Leland, Ill. Clevis	480,364	Aug. 9	993	249	60	782
Capehart, Alexander S. (See Geodson and Capehart.)						
Capek, John V., assignor of one-half to E. H. Johnson, New York, N. Y. Electrical heater	482,074	Sept. 6	248	60	60	1384
Capen, George D. (See Bannhoff, George W., assignor.)						
Capitain, Henry D., Chicago, Ill. Medicine-case	480,709	Aug. 16	1548	386	60	904
Capwell, Thomas R. (See Munger and Capwell.)						
Capwell, Thomas R., and W. C. Fuller, Dunkirk, N. Y. Vehicle-gear	480,691	Aug. 9	1514	376	60	883
Cardwell, Robert, Liverpool, and S. Watson, Manchester, England. Rail-chair and coupling for permanent ways	478,399	July 5	525	128	60	104
Carlin, James E. (See Sanders and Carlin.)						
Carlin, Ross, New Orleans, La. Rod-packing	478,919	July 12	1304	325	60	273
Carey, James D., Cleveland, Ohio. Wood-turning machine	481,661	Aug. 30	3098	755, 756	60	1231
Carleton, Cyrus, assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Hair-clipper	481,254	Aug. 23	2444	602	60	1092
Carleton, Roswell. (See Bodfish, William H., assignor.)						
Carman, Clarence A., Paterson, N. J. Anti-rattler for thill-couplings	481,549	Aug. 30	2924	719	60	1198
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	479,701	July 26	2572	640, 641, 642	60	540
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Complete-stroke mechanism for cash-registers	482,161	Sept. 6	394	93, 94	60	1412
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	482,517	Sept. 13	1003	242, 243, 244	60	1545
Carnrick, George W., East Orange, N. J., assignor to Reed & Carnrick, New York, N. Y. Sealed can	482,055	Sept. 6	217	51	60	1377
Carpenter, Charles E., Minneapolis, Minn, assignor of one-third to W. S. Andrews, New York, N. Y. Rheostat	481,781	Aug. 30	3312	809	60	1273
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.) (Reissue.)						
Carpenter, Esther, Helena, Mont. Spool-holder	479,554	July 26	2347	585	60	498

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Carpenter, Jesse F., Washington, D. C. Valve for air-brakes	478,846	July 12	1204	299	60	254
Carpenter, Jesse F., Washington, D. C. Air-brake	479,736	July 26	2643	655	60	553
Carr, Charles A. (See Openshaw and Carr.)						
Carr, George, Carrville, Iowa. Paper-hanger	479,971	Aug. 2	319	76	60	641
Carr, Warren H., Bath, Me. Railway-rail joint	478,920	July 12	1305	325	60	273
Carrick, James C. (See Clark and Carrick.)						
Carrick, James C. (See Greenland and Carrick.)						
Carrick, James C., assignor of one-third to E. R. Smalley, Spivey, Kans. Car-coupling	481,525	Aug. 23	2883	708	60	1175
Carrie, James, Brooklyn, N. Y. Roller-skate	482,721	Sept. 20	1321	323	60	1619
Carroll, Charles, New Orleans, La. Combined promissory note and envelope	479,555	July 26	2348	586	60	499
Carroll, Craft C., New York, N. Y. Apparatus for melting and casting metals	480,232	Aug. 2	765	193	60	727
Carroll, John H., De Smet, S. D. Combined car and hose coupling	478,400	July 5	526	129	60	104
Carrow, John S. (See Headly and Carrow.)						
Carruthers, John, assignor of one-half to M. J. Peters, Harmony, Pa. Casing-spear	479,933	Aug. 2	249	61	60	630
Carse, William H., W. T. Blackburn, and R. P. Owens, Rogers, Ark. Hand hay-press	480,382	Aug. 9	1022	257	60	788
Carson, H. F., *et al.* (See Henning, John E., assignor.)						
Carson, John F., *et al.* (See Bartlett, Henry F., assignor.)						
Carson, William W., Knoxville, Tenn. Mole, dike, or dam for silt-bearing streams	478,154	July 5	122	31	60	27
Carter, Herman, Lilly Chapel, Ohio, assignor to C. Crabbe, Toronto, Canada. Fence	479,972	Aug. 2	313	77	60	641
Carter, John, Niles, Ohio. Sash-weight-casting apparatus	483,208	Sept. 27	2093	531	60	1785
Carter, John B., Kokomo, Ind. Apparatus for manufacturing paper-pulp	479,243	July 19	1819	456	60	381
Carter, John B., Kokomo, Ind. Rubbing-surface for pulp-reducing machines	482,619	Sept. 13	1162	281	60	1575
Carter, John T., assignor to Carter Machine Company, Danville, Va. Tobacco-casing machine	480,070	Aug. 2	497	126 / 127	60	677
Carter, Joseph J., Alvin, assignor to A. C. Hill and W. W. Maxwell, Travis county, Tex. Insecticide	482,403	Sept. 13	813	.....	60	1509
Carter Machine Company. (See Carter, John T., assignor.)						
Carter, Thomas H. (See Ravencroft, Evan B., assignor.)						
Carter, William E. (See Songer, Gordon T., assignor.)						
Cartwright, Edward, assignor of seven-ninths to W. H. Mann, J. W. Wehn, Jr., A. Bigelow, F. Jelenik, Jr., Wilber, Nebr., J. A. Paddock, Deadwood, S. D., E. W. Clancy, E. Longtin, Beatrice, and T. Castor, Lincoln, Nebr. Smoke-consuming furnace	478,401	July 5	528	129	60	104
Carvell, John V., Eddyville, Ill., assignor of one-half to J. W. King, Washington, D. C. Key-hole guard for padlocks	483,345	Sept. 27	2325	584	60	1827
Case, Charles A., New York, N. Y. Elevator	478,986	July 19	1414	350	60	305
Case, Dorset D. (See Midgley and Case.)						
Case, George F. (See Hicks, Thomas H., assignor.)						
Case, James B., Webster Groves, and W. H. Hendrick, assignors to N. O. Nelson Manufacturing Company, St. Louis, Mo. Valve	481,001	Aug. 16	1990	498	60	992
Cash, Arthur W., Bridgeport, Conn. Pipe-threading machine	482,296	Sept. 6	617	147	60	1455
Caspar, Henry, New Orleans, La. Collar and cuff cabinet	478,566	July 12	770	190	60	170
Casper, Edward A., Princeville, Ill. Gate	479,702	July 26	2576	642	60	540
Cass, John B., Brooklyn, N. Y. Last	479,628	July 26	2450	611	60	518
Cass, William H., Buffalo, N. Y. Skeleton frame for sand cores	479,788	Aug. 2	14	4	60	585
Cassella & Co., Leopold. (See Hoffmann, Meinhard, assignor.)						
Cassella & Co., Leopold. (See Hoffmann, Meinhard, assignor.) (Reissue.)						
Caselman, George A., Fort Dodge, Iowa. Composition of matter for wall decoration	482,544	Sept. 13	1055	.....	60	1555
Cassidy, Joseph A., *et al.* (See Butler, William A., assignor.)						
Casteel, Charles, St. Louis, Mo., assignor to Cincinnati Mortar Manufacturing and Builders' Supply Company, Cincinnati, Ohio. Plaster	478,951	July 12	1348	.....	60	282
Castor, Tobias, *et al.* (See Cartwright, Edward, assignor.)						
Caswell, Alvin C., Fitchburg, Mass., assignor to Nashua Iron and Brass Foundry Company, Nashua, N. H. Photographic-background holder	482,002	Sept. 6	126	31	60	1359
Cavanagh, Joseph, assignor to Link Belt Engineering Company, Philadelphia, Pa. Bucket-elevator	482,941	Sept. 20	1662	418	60	1686
Caven, John. (See Dillon, Thomas, assignor.)						
Cavner, Alexander R., deceased; E. E. Holman, administrator, and assignor to Cavner Locomotive Improvement Company, Chicago, Ill. Locomotive-engine	478,681	July 12	930	233	60	201
Cavner, Alexander R., deceased; E. E. Holman, administrator, and assignor to Cavner Locomotive Improvement Company, Chicago, Ill. Locomotive-engine	478,682	July 12	940	233 / 234	60	202
Cavner, Alexander R., deceased; E. E. Holman, administrator, and assignor to Cavner Locomotive Improvement Company, Chicago, Ill. Apparatus for lighting locomotive-engines	478,683	July 12	942	234	60	202
Cavner, Alexander R., deceased; E. E. Holman, administrator, and assignor to Cavner Locomotive Improvement Company, Chicago, Ill. Locomotive-engine	478,684	July 12	943	234	60	203
Cavner, Alexander R., deceased; E. E. Holman, administrator, and assignor to Cavner Locomotive Improvement Company, Chicago, Ill. Locomotive-engine	478,685	July 12	945	234	60	203
Cavner Locomotive Improvement Company. (See Cavner, Alexander R., assignor.)						
Cay, John D., Tallahassee, Fla. Railway-track nut-lock	478,686	July 12	947	235	60	204
Cayce, Henry P., McGregor, Tex. Sash-balance	481,103	Aug. 16	2169	537	60	1025
Celluloid Company. (See Stevens, John H., assignor.)						
Chafee, Charles W., Marengo, Ill. Marking attachment for planters	482,075	Sept. 6	250	60, 61	60	1385
Chalk, Bennet R. (See Barnett and Chalk.)						
Chamberlain, George, San Saba county, near Milburn, Tex. Wire stretcher and fastener	483,320	Sept. 27	2293	577	60	1821
Chamberlain, Henry G., Ridgeway, Wis. Stock-feeding rack	478,402	July 5	529	129	60	104
Chamberlin, A. P., *et al.* (See Kirkpatrick, Robert S., assignor.)						
Chamberlin, George S., New York, N. Y. Towel-grip	479,934	Aug. 2	250	62	60	630
Chambers, Arthur M., and T. Smith, Chapeltown, England. Appliance for loading coke	479,556	July 26	2349	586	60	499
Chambers, Frederick, Derby, England. Collapsible core-barrel	478,921	July 12	1306	325	60	273
Chambers, Zachariah T., California, Mo. Washing-machine	479,488	July 26	2354	565	60	481
Champion, John W. (See Maxfield, William C., assignor.)						
Chandler, Alfred B., and G. H. Powell, assignors of one-third to C. T. Chandler, Jr., Chicago Ill. Vending-machine	481,689	Aug. 30	3141	706 / 707	60	1940
Chandler, C. T., Jr. (See Chandler and Powell, assignors.)						
Chandler, Elmer E., Royal Oak, Mich. Weighing-truck	478,403	July 5	530	129	60	104
Chandler, Samuel P., Lake City, S. C. Harness-tug	481,471	Aug. 23	2797	688	60	1157
Chandler & Taylor Company. (See Laycock, William, assignor.)						
Chaney, Ambrose, and E. T. Wires, Terre Haute, Ind. Hydrocarbon-burner	481,086	Aug. 16	2137	532	60	1020
Chantler, James D., Pittsburg, Pa. Slipper	483,240	Sept. 27	2149	544	60	1795
Chanute, Arthur, and M. W. Iles, Denver, Colo. Enriching lead fumes	479,469	July 26	2255	.....	60	481
Chaplin, Frederick N., Austin, Tex. Ironing-board	480,170	Aug. 2	658	168	60	707
Chapman, Alpheus. (See Chapman, Norton D., assignor.)						
Chapman, George T., White Plains, assignor of one-half to W. H. Merritt, New York, N. Y. Horseshoe	483,209	Sept. 27	2094	531	60	1785

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chapman, Harrison S., *et al.* (See Phillips, Adelbert M., assignor.)						
Chapman, John C., Boston, Mass. Metallic rod-packing	481,662	Aug. 30	3101	756	60	1232
Chapman, Newton S., assignor of one-half to F. Hagerman, Kansas City, Mo. Locomotive feed-water heater	479,348	July 19	1987	497	60	415
Chapman, Norton D., assignor of one-half to A. Chapman, Toledo, Ohio. Carriage-coupling	478,687	July 12	947	235	60	204
Chapman, Thomas G., Chicago, and J. W. Hunt, Sandwich, Ill., assignors, by mesne assignments, to A. B. Austin. Well-sinking machine	480,904	Aug. 16	1841	458	60	964
Chappell, John E., San Francisco, Cal. Laundry drying-room	481,845	Aug. 30	3413	837 / 838	60	1202
Charlesworth, James, Providence, R. I. Sifter	482,545	Sept. 13	1055	256	60	1555
Charteris, Thomas, London, England. Wood-block flooring	478,847	July 12	1205	299	60	254
Chartiers Valley Gas Company. (See Guéguen, Alphonse, assignor.)						
Chase, Denison, Orange, Mass. Sawing-machine	479,244	July 19	1821	457	60	381
Chase, Frank, Malden, Mass. Tack-driving mechanism	483,375	Sept. 27	2369	594	60	1836
Chase, Frank, Malden, Mass., assignor to Chase Lasting Machine Company, Portland, Me. Lasting-machine	478,501	July 5	672	164	60	133
Chase, Henry A., assignor to A. Watts, Boston, Mass. Signal-timing apparatus	481,613	Aug. 30	3027	740	60	1217
Chase Lasting Machine Company. (See Chase, Frank, assignor.)						
Chase, Milton. (See Morse and Chase.)						
Chase, Rodney G., Elsdon, Ill. Door for refrigerators	479,973	Aug. 2	314	77	60	642
Chattaway, Joseph, Petoskey, Mich. Sawbuck	482,162	Sept. 6	397	94	60	1413
Chavannes, E., *et al.* (See Kirkpatrick, Robert S., assignor.)						
Cheatham, Thomas C. (See Smart and Cheatham.)						
Chedister, Winfield S., Newark, N. J., assignor, by mesne assignments, to W. Schleussner, Brooklyn, N. Y. Permutation-lock	478,567	July 12	780	191	60	170
Cheeseman, Samuel E., Milldale, Ky. Seal	481,472	Aug. 23	2798	688	60	1157
Cheney, Malvin J., and H. Berch, Taylor, Iowa. Cultivator-tooth	482,226	Sept. 6	498	119	60	1432
Cherrington, Robert E., Hyde Park, Mass. Head-rest	479,585	July 26	2385	594	60	505
Cherry, Howard H., and S. D. Younglove, Syracuse, N. Y. Ventilated brush for dynamos	480,762	Aug. 16	1020	407	60	920
Cheshire, Edward. (See Cordesman and Cheshire.)	479,245	July 19	1822	457	60	382
Chicago Mailing Case Company. (See Johnson, Gustavus J., assignor.)						
Chicago Matrix Machine Company. (See Redfield, Casper L., assignor.)						
Chicago Spring Butt Company. (See Keene, Joseph, assignor.)						
Chicago Stamping Company. (See Ellsworth, Charles W., assignor.)						
Childs & Co., Chas. H. (See Durr and Babcock, assignors.)						
Childs, Edward D., assignor of one-half to G. W. and J. F. Strohmeyer, Milwaukee, Wis. Shoe-nailing machine	479,784	Aug. 2	15	4, 5	60	585
Chinnery & Co. (See Chinnery, Luther G. and S. M., assignors.)						
Chinnery, Luther G. and S. M., assignors to Chinnery & Co., London, England. Apparatus for the manufacture of aerated liquids	482,841	Sept. 20	1502	373 / 374	60	1655
Chinnery Swarts M. (See Chinnery, Luther G. and S. M.)						
Chisolm, William B. (See Hughes, Samuel, assignor.)						
Chisolm, William B. (See Hughes and Chisolm.)						
Chisolm, William B., assignor of one-half to S. Hughes, Charleston, S. C. Phosphate-rock drier	479,872	Aug. 2	148	36	60	611
Chope, Henry R. (See Butler and Chope.)						
Chrietzberg, Robert S. R., Charleston, S. C. Anchor	481,782	Aug. 30	3313	809	60	1274
Christ, Rinehart. (See Kahn and Christ.)						
Christensen, Carl G., Christiania, Norway. Venetian blind	481,473	Aug. 23	2799	688 / 689	60	1157
Christensen, Hans P., and H. Nelson, Marinette, Wis. Wrench	478,405	July 5	535	130	60	105
Christie, William R., assignor of one-half to Jungermann Brothers, New York, N. Y. Registering toy bank	478,404	July 5	531	130	60	105
Christopher, Calvin F., assignor of one-half to D. R. and T. C. Duncan, Spartanburg, S. C. Driving mechanism for road-engines	483,281	Sept. 27	2233	561	60	1810
Christy, James A., assignor to T. W. Cosgrove, B. Shrafl, F. E. Wait, and E. J. Baldwin, San Francisco, Cal. Telephone	480,656	Aug. 9	1460	363	60	673
Christy, William J., San José, Cal. Stringed musical instrument	483,136	Sept. 27	1972	500	60	1760
Church, William, St. Paul, Minn. Fireproof paint	478,785	July 12	1111	.....	60	235
Chusin, Ange. (See Guasco and Chusin.)						
Cincinnati Mortar Manufacturing and Builders' Supply Company. (See Casateel, Charles, assignor.)						
Clipperly, Clarence R. (See Bly, James F., assignor.)						
Clasel, Richard S. T., Elizabeth, N. J. Hot-air register	479,586	July 26	2386	595	60	505
Citizen, Samuel P., Terre Haute, Ind., assignor to himself and C. M. Wellsford, Guthrie, Oklahoma Ter. Paint	479,785	Aug. 2	19	.....	60	586
Claggett, Frank B., Oshkosh, Wis. Machine for making sticky fly-paper	480,071	Aug. 2	499	127	60	677
Clancy, Ervin W., *et al.* (See Cartwright, Edward, assignor.)						
Clancy, J. Richard. (See Redfield, Lewis H., assignor.)						
Clapper, Theodore. (See Turner, Jacob W., assignor.)						
Clark, Abraham, Greenville, S. C. Lettering-tablet	481,002	Aug. 16	1992	499	60	992
Clark, Augustus T. (See Brooks, Herbert H., assignor.)						
Clark, Benjamin F., Harper, and J. C. Carrick, Spivey, Kans. Wagon end-gate	480,383	Aug. 9	1023	257	60	788
Clark, Cynthia J., *et al.* (See Clark, Jasper, assignor.)						
Clark, Edward A., Boston, Mass. Electroplating toy apparatus	479,557	July 26	2350	586 / 587	60	499
Clark, George M., assignor to C. S. Hubbard, Haddam, Conn. Land-plowing machine	478,311	July 5	392	94, 95	60	79
Clark, George M., assignor to C. S. Hubbard, Haddam, Conn. Land-plowing machine	478,500	July 5	660	163 / 164	60	133
Clark, Georgie. (See Currier and Clark.)						
Clark, Horace L., Rutherford, N. J. Wick-lift for lamps	481,748	Aug. 30	3055	792	60	1902
Clark, James, Medina, N. Y. Reversing-valve	481,169	Aug. 23	2282	562 / 563	60	1060
Clark, James H. R., Council Bluffs, Iowa. Calk-sharpener	479,904	July 19	1758	441	60	369
Clark, Jasper, assignor to T. C. Northcott and C. J. Clark, Elmira, N. Y. Sheet-metal-bending machine	480,306	Aug. 9	1044	262	60	792
Clark, John A. (See Wyman and Clark.)						
Clark, John H., assignor to Whittier Machine Company, Boston, Mass. Electric switch	481,297	Aug. 23	2521	619	60	1105
Clark, John K., assignor, by mesne assignments, to M. K. Clark, Buffalo, N. Y. Latch	480,171	Aug. 2	659	169	60	708
Clark, Martin M., assignor to Western Electric Company, Chicago, Ill. Galvanic battery	479,786	Aug. 2	20	5	60	586
Clark, Mary K. (See Clark, John K., assignor.)						
Clark, Merrill E., and F. S. Shaw, assignors to Clark Moulding Works, Worcester, Mass. Cornice drapery-fixture	479,787	Aug. 2	20	5	60	586

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clark Moulding Works. (See Clark and Shaw, assignors.)						
Clark, Philo M., Bonner Springs, Kans. Siphon-bottle	480,763	Aug. 16	1624	407	60	921
Clark, Robert J. (See Robare, Louis F., assignor.)						
Clark, Rollin, Keokuk, Iowa. Can-soldering clamp	480,550	Aug. 9	1294	324	60	841
Clark, Thomas J., Gila, N. Mex. Buckle	480,397	Aug. 9	1046	262	60	792
Clark, Walter B., Woodlawn Park, Ill. Car-coupling	481,325	Aug. 23	2564	630	60	1113
Clark, William H., Brooklyn, N. Y. Electric insulator	482,207	Sept. 6	619	147	60	1456
Clark, William S., Philadelphia, Pa. Range-boiler attachment	483,300	Sept. 27	2304	570	60	1816
Clarke, Henry B., Chicago, Ill. Apparatus for heating water	478,688	July 12	948	235	60	204
Clarke, Milo M., Westerly, R. I. Car-coupling	482,076	Sept. 6	253	61	60	1385
Clarridge, Charles H., Libertyville, Iowa. Calculator	482,546	Sept. 13	1056	257	60	1555
Class, Philip H., Northampton, Mass. Ice-velocipede	479,689	July 26	2451	611	60	518
Clauberg, Frederick A., Jersey City, N. J. Razor	483,422	Sept. 27	2437	613	60	1849
Clauss, George, Jr., Elizabeth, and A. M. Schomburg, Newark, N. J. Bottle-filling machine	480,916	Aug. 16	1854	462	60	907
Clauss, George, Jr., Elizabeth, and A. M. Schomburg, Newark, N. J. Bottle-filling machine	482,893	Sept. 20	1597	401	60	1672
	482,894	Sept. 20	1600	401 / 402	60	1673
Clawson, Linus P., and J. A. Keller, assignors to Black & Clawson Company, Hamilton, Ohio. Paper-slitting machine						
Clay Glass Tile Company. (See Houghton and Haines, assignors.)						
Clayton, Frank. (See Piper, Edwin S., assignor.)						
Clayton, John W., Chattanooga, Tenn. Quilting attachment for sewing-machines	482,467	Sept. 13	913	223	60	1526
Cleaveland Fence Company. (See Loughlin, Michael E., assignor.)						
Clemons, Henry D., assignor to American Writing Machine Company, Hartford, Conn. Type-writing machine	478,223	July 5	248	60	60	51
Clerke, John W., Cleveland, Ohio. Commode	481,255	Aug. 23	2446	602	60	1092
Cleveland, Albert A. (See Williams and Cleveland.)						
Cleveland, William B., Geneva, Ohio. Cut-out switch	478,089	July 12	940	235	60	204
Clifford, John, and J. H. Gavin, assignors to L. Wolff Manufacturing Company, Chicago, Ill. Waste and overflow connection for cement laundry-tubs	480,692	Aug. 9	1515	376	60	883
Cliff, Joseph, Dorking, England. Attachment for electric lamps	483,044	Sept. 20	1832	465	60	1721
Cline, George J., Goshen, Ind. Garment-supporter	481,256	Aug. 23	2447	603	60	1092
Clinton, Charles M. (See Melotte and Clinton.)						
Cload, Alfred C. (See Belmont and Cload.)						
Clore, Jesse N., *et al.* (See Willis, William H., assignor.)						
Close, James A., Woodstock, Canada. Violin tail-piece	481,783	Aug. 30	3314	809	60	1274
Close, Walter R., Bangor, Me. Fog-signal	482,077	Sept. 6	254	61	60	1385
Clonser, William, assignor of one-half to J. A. Porter, Greenfield, Ohio. Foot-rest for embalming-tables	478,568	July 12	782	191	60	170
Clow, George, *et al.* (See Clow, William, assignor.)						
Clow, William, assignor of three-fourths to W. G. Reed, G. Clow, and J. M. Sinclair, Toronto, Canada. Fish-scaler	481,104	Aug. 16	2170	537	60	1026
Clum, William E. (See Underwood and Clum.)						
Clute, Veeder S., assignor of one-half to W. W. Stevenson, Cohoes, N. Y. Electrically-controlled stop-motion for knitting-machines	481,726	Aug. 30	3212	784	60	1253
Coale, Joseph M., Baltimore, Md. Oil-cup	479,246	July 19	1823	457	60	382
Coates, John F., assignor of five-sixths to L. J. and E. Weinstein and I. Fechheimer, Terre Haute, Ind. Oil-burner	479,558	July 26	2352	587	60	500
Cobb, Alton E., Phœnix, Ariz. Ter. Lid-lifter for kettles, &c	479,055	July 19	1590	379	60	326
Cobb, George H. (See Squire, Cobb, and Towl.)						
Cobb, Willard E., Portland, Me. Window-screen	479,752	July 26	2669	662	60	558
Cobham, Henry, Jr., Warren, Pa. Extension-table	482,620	Sept. 13	1163	281 / 282	60	1575
Cochins, George, Houston, Tex. Mechanical motor	478,088	July 5	21	7	60	7
Cochran, Edward A., Oak Park, Ill. Wrench	481,389	Aug. 23	2661	652	60	1130
Cochran, Henry, Chester, Pa. Signal-light	479,164	July 19	1690	422	60	357
Cochran, John J., assignor of two-thirds to A. T. Gerrans and H. A. Bridges, St. Louis, Mo. Wrapper	481,846	Aug. 30	3414	838	60	1293
Cochran, John T., Oakland, Cal. Bituminous-rock-reducing machine	482,914	Sept. 20	1627	408	60	1678
Cockayne, Benjamin F. (See Baron and Cockayne.)						
Cocker, Alexander L., G. W. Collyer, and C. Haines, Tarrytown, N. Y. Alloy	480,293	Aug. 2	767	.....	60	727
Cockerill, Thomas. (See Garner, Cockerill, and Porrett.)						
Codner, William S. (See Mason and Codner.)						
Coffee, Andrew J., Portland, Oreg. Fire-alarm telegraph	481,847	Aug. 30	3415	838	60	1293
Coffee, George A., Dalton, Ga. Washing-machine	481,003	Aug. 16	1992	499	60	993
Coffey, Nathan F. (See Parker, Jones, and Coffey.)						
Coffin, Arthur W., San Francisco, Cal. Ticket-punch	480,560	Aug. 9	1295	324	60	841
Coffin, C. A., *et al.*, executors. (See Van Depoele, Charles J.)						
Coffin, Charles L., Detroit, Mich. Electric welding	483,423	Sept. 27	2439	613	60	1850
Coffin, Charles L., Detroit, Mich. Electric metal-working device	483,424	Sept. 27	2440	614	60	1850
Coffin, Charles L., Detroit, Mich. Electric metal-welding	483,425	Sept. 27	2441	614	60	1850
Coffin, Charles L., Detroit, Mich. Electric metal-heating	483,426	Sept. 27	2442	614	60	1850
Coffin, Charles L., Detroit, Mich. Electric metal-working	483,427	Sept. 27	2443	615	60	1850
Coffin, Charles L., Detroit, Mich. Electric metal-working	483,428	Sept. 27	2444	615	60	1851
Coffin, Joseph H., Somerville, Mass. Sail for vessels	479,133	July 19	1644	411	60	347
Cogger, William B., Springfield, Ill. School furniture	478,786	July 12	1112	274 / 275	60	235
Cogswell, Wilfred G., assignor to H. E. Long, Duluth, Minn., and C. E. Soule, Grand Haven, Mich. Means for operating safety cut-offs for grain-elevators	482,468	Sept. 13	914	223	60	1526
Cohen, Louis. (See Eckert and Cohen.)						
Cohen, Samuel, New York, N. Y. Hat	478,952	July 12	1349	334	60	282
Cohn, Oscar, assignor to M. W. Henius, Bridgeport, Conn. Cleaning device for type-writing machines	478,406	July 5	536	130	60	105
Cokayne, William, assignor of one-third to J. C. Shafor, Sedalia, Ind. Nut-lock	482,518	Sept. 13	1009	244	60	1546
Colborne, Oliver, Chicago, Ill. Power back-sawing machine	479,399	July 26	2081	522	60	447
Colburn, Frederick C., Arlington, N. J., assignor to Arlington Manufacturing Company, New York, N. Y. Writing-pen	482,298	Sept. 6	620	148	60	1456
Colby, Charles H., assignor to J. Colby & Co., Brooklyn, N. Y. Operator's seat	478,987	July 19	1415	350	60	305
Colby & Co., J. (See Colby, Charles H., assignor.)						
Coldwell, Thomas, Newburg, N. Y. Hand-rake	481,895	Aug. 30	3495	856	60	1308
Cole, Burnham W. (See Gallup, Jasper E., assignor.)						
Cole, Charles S., Bridgeport, Conn. Neck tie or band	482,547	Sept. 13	1058	257	60	1555
Cole, Edward D., Macon, assignor of one-half to W. H. Starr, Decatur, Ill. Hame-clip section	478,569	July 12	782	191	60	170

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Cole, Elmer E. and O., Hudson, Mich. Machine for attaching vertical wires in wire fences	480,710	Aug. 16	1549	386	60	904
Cole, Emerson, Brooklyn, N. Y. Barrel	482,675	Sept. 13	1236	301	60	1590
Cole, Francis J., Baltimore, Md. Slack-adjuster for car-brakes	481,784	Aug. 30	3315	810	60	1274
Cole, Francis J., and G. B. Hazlehurst, Baltimore, Md. Oil-cup	478,221	July 5	249	61	60	51
Cole, George W. (See Harder, James E., assignor.)						
Cole, George W., Chicago, Ill. Hanger or support for log-carriers, &c	482,163	Sept. 6	398	94	60	1413
Cole, Ogden. (See Cole, Elmer E. and O.)						
Cole, Otis. (See Smallwood, George T., assignor.)						
Cole, Reuben E. (See Dacus, Robert H., assignor.)						
Cole, Walter, London, England. Manufacture of butter	478,736	July 12	1020	252	60	220
Cole, William R., Pottsville, Pa. Combined hat and coat hanger and cigar-cutter	481,020	Sept. 6	14	4	60	1337
Coleman, Allison, Henrietta, Tex. Type	482,784	Sept. 20	1428	354	60	1640
Coleman, George D., Chicago, Ill. Apparatus for corroding lead	481,004	Aug. 16	1993	499	60	993
Coleman, George D., Chicago, Ill. Making lead protoxide	481,005	Aug. 16	1996	500	60	993
Coleman, George D., Chicago, Ill. Manufacturing white lead	481,006	Aug. 16	1998	500	60	9 4
Coleman, George D., Chicago, Ill. Making white lead	481,007	Aug. 16	1999	500	60	994
Coleman, Joseph H., Tottenham, Canada. Car-coupling	482,509	Sept. 13	1090	264	60	1561
Colgate, Arthur E., assignor of one-half to L. Mason, New York, N. Y. Secondary battery	479,753	July 26	2669	663	60	558
Collard, David, assignor to himself and J. M. Jrannot, Hope, Idaho. Sleigh-brake	483,429	Sept. 27	2444	615	60	1851
Collett, Austin M., Omaha, Nebr. Pinch-bar	480,398	Aug. 9	1047	263	60	792
Collins, Charles W., Granite, Mont. Elevator	479,559	July 26	2353	587	60	500
Collins, John R. (See O'Grady and Collins.)						
Collins, John R., Rochester, Minn. Pump-piston and valve	478,089	July 5	22	7	60	7
Collins, Joseph H., Jr., deceased, Philadelphia, Pa., (R. S. and W. J. Collins, administrators,) and I. N. Knapp, Greenwich, Conn.; said administrators and said Knapp assignors, by mesne assignments, to United Gas Improvement Company, Philadelphia, Pa. Apparatus for manufacturing gas	480,248	Aug. 9	793	202 / 203 / 204	60	744
Collins, Joseph H., Jr., deceased, Philadelphia, Pa., (R. S. and W. J. Collins, administrators,) and I. N. Knapp, Paterson, N. J.; said administrators and said Knapp assignors, by mesne assignments, to United Gas Improvement Company, Philadelphia, Pa. Gas-producing apparatus	480,249	Aug. 9	798	204 / 205	60	745
Collins, Olmstead, assignor of three-fourths to J. Kaltenbach, St. Louis, Mo., and C. E. Haydon, Texarkana, Ark. Axle-box	483,045	Sept. 20	1833	466	60	1721
Collins, Rebecca S., *et al.*, administrators. (See Collins and Knapp.)						
Collins, William J., *et al.*, administrators. (See Collins and Knapp.)						
Collis, John, Des Moines, Iowa. Radiator-valve device	479,400	July 26	2083	522	60	448
Collum, George S., assignor to C. H. Russell and W. H. Collum, Hartford, Conn. Scissors-sharpener	479,737	July 26	2645	656	60	553
Collum, William H., *et al.* (See Collum, George S., assignor.)						
Collyer, George W. (See Cocker, Collyer, and Haines.)						
Colman, Frank H. (See Ives and Colman.)						
Colorado Iron Works. (See Bowers, William H. H., assignor.)						
Colton, Charles A. (See Hatch and Colton.)						
Columbia Powder Manufacturing Company. (See Maxim, Hudson, assignor.)						
Columbian Manufacturing Company. (See Porter, Daniel R., assignor.)						
Columbus Egg Company. (See Assorati and Cuyás, assignors.)						
Combe, Abram, Belfast, Ireland. Twisting-frame	482,164	Sept. 6	399	95	60	1413
Combined Electric and Trip Bell Cord Company. (See Selden, Charles, assignor.)						
Compagnie Anonyme Continentale pour la Fabrication des Compteurs à Gaz et Autres Appareils. (See Brillié, Lucien V., assignor.)						
Compagnie Anonyme des Forges de Chatillon et Commentry. (See Dénoyello, Léon, assignor.)						
Complete Combustion Company. (See Parkhurst, Edward B., assignor.)						
Compton, Melvin D., Newark, N. J. Adjustable thermostat	482,420	Sept. 13	842	202	60	1513
Compton, Norris M. (See Rose, William J., assignor.)						
Compton, Whitefield, Rockford, Ill. Manure-spreader	482,785	Sept. 20	1429	354	60	1640
Comstock, Alphonso S., Evanston, Ill. Sail	481,614	Aug. 30	3029	740	60	1218
Comstock, Alphonso S., Evanston, Ill. Luggage-carrier	483,346	Sept. 27	2325	585	60	1827
Comstock, Charles, Indianapolis, Ind. Vehicle	480,421	Aug. 9	1056	272	60	799
Comstock, William H., Oskaloosa, Iowa. Coffee-pot	482,299	Sept. 6	621	148	60	1456
Conablo, Edgar W. (See Huggins, Frederick E., assignor.)						
Concave Paddle Wheel Company. (See Howard, John, assignor.)						
Condell, John S., Jr., *et al.* (See Webster, Augustus D., assignor.)						
Condict, Nathan W., Jr., Jersey City, N. J. Ammonia-still	478,407	July 5	537	131	60	106
Condon, Richard, Lyons, Iowa. Automatic car-brake	480,250	Aug. 9	802	205 / 206	60	746
Congdon Brake Shoe Company. (See Barnes, David L., assignor.)						
Congdon, Charles H., St. Paul, Minn. Chromatic pitch-pipe	478,570	July 12	783	191	60	170
Conkling, Allen, Chicago, Ill. Mechanical feeding device	479,630	July 26	2455	612	60	518
Conkling, Gurdon, Glens Falls, N. Y. Magnetic separator	481,474	Aug. 23	2600	689	60	1158
Conn, Joseph, Fall River, assignor of one-half to G. Draper & Sons, Hopedale, Mass. Cloth-winding mechanism	483,510	Sept. 27	2556	641	60	1873
Connelly, James T., Milton, Pa. Axle-lubricator	480,318	Aug. 9	929	233	60	770
Conner, William J., Labette, Kans. Door-check	482,227	Sept. 6	498	119	60	1432
Connors, William J., and W. W. Eddy, Grass Valley, Cal. Amalgamator	478,922	July 12	1308	326	60	274
Conover, Chauncey E., Cincinnati, Ohio. Insulator	479,134	July 19	1645	411	60	347
Conover, George W., Chicago, Ill. Electric bell	480,319	Aug. 9	924	234	60	770
Conradson, Conrad M., Madison, Wis. Electric locomotive	482,863	Sept. 20	1534	382	60	1662
Conradson, Conrad M., Madison, Wis. Split wheel	482,864	Sept. 20	1537	382	60	1662
Consor, John, Sedalia, Mo. Bee-hive	483,137	Sept. 27	1973	500	60	1761
Consolidated Car Heating Company. (See McElroy, James F., assignor.)						
Continuous Rail Joint Company of America. (See Lentz and Thompson, assignors.)						
Converse, Edmund. (See Turner, William A., assignor.)						
Converse, Maschil D., New York, N. Y. Nail-extractor	482,338	Sept. 13	702	167	60	1487
Convert, Charles F. A., assignor to Liquid Carbonic Acid Manufacturing Company, Chicago, Ill. Pressure-regulating device	481,272	Aug. 23	2468	608	60	1097
Convert, Charles F. A., assignor to Liquid Carbonic Acid Manufacturing Company, Chicago, Ill. Hydrocarbon-burner and device for automatically feeding the same	481,273	Aug. 23	2471	609	60	1097
Cook, Charles L., Louisville, Ky. Rod-packing	481,105	Aug. 16	2170	537	60	1026
Cook, Charles S., *et al.* (See Demaurez, Charles, assignor.) (Reissue.)						
Cook, Edwin G., and H. H. Evman, Fullerton, Nebr. Book-rack	479,788	Aug. 2	22	5, 6	60	586
Cook, Egbert C., Oak Park, Ill. Collapsible booth	482,078	Sept. 6	256	62	60	1386

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cook, Frank. (See Hankenhof, Julius, assignor.)						
Cook, Herbert F., assignor to L. W. Bingham, C. L. Douglas, and C. B. Squire, Cleveland, Ohio. Steam-boiler	478,690	July 12	950	216	60	204
Cook, Hugo, Dayton, Ohio. Cash register, indicator, and recorder	482,165	Sept. 6	400	95, 96	60	1414
Cook, Hugo, Dayton, Ohio. Cash-register	482,505	Sept. 13	982	238	60	1541
Cook, Hugo, Dayton, Ohio. Advertising apparatus for cash-registers	482,722	Sept. 20	1393	323	60	1619
Cook, Hugo, Dayton, Ohio. Cash register and indicator	483,511	Sept. 27	2557	641, 642	60	1873
Cook, John R., and C. S. Hinchman, Rushville, Ind. Steam-engine valve	479,401	July 26	2085	523	60	448
Cook, John W., assignor of one-half to J. R. Medley, Harrisburg, Oreg. Clothes-pin	480,072	Aug. 2	500	127	60	678
Cook, John W. B., Camden, Ark. Fire-kindler	478,249	July 5	304	74	60	61
Cook, Lucian F., Tacoma, Wash. Transportation system	482,469	Sept. 13	916	224, 225	60	1527
Cook, Sheldon E., Chicago, Ill. Buckle	482,915	Sept. 20	1629	408	60	1678
Cook, Theodore A., Callicoon Depot, assignor to J. and W. Mathison, Brooklyn, N. Y. Crozing-machine	480,711	Aug. 16	1551	386	60	904
Cook, Theodore A., Callicoon Depot, assignor to J. and W. Mathison, Brooklyn, N. Y. Machine for hooping and heading kegs	482,079	Sept. 6	257	62	60	1386
Cook, Theodore A., Callicoon Depot, assignor to J. and W. Mathison, Brooklyn, N. Y. Hoop-flaring machine	482,300	Sept. 6	622	148	60	1456
Cooke, Edward T., and W. H. Mackay, St. Louis, Mo. Electric-lighting system	478,186	July 5	181	47	60	38
Cooke, Howard E., Woonsocket, R. I. Seat for velocipedes	479,056	July 19	1521	379	60	326
Cooke, Sarah A., Chicago, Ill. Machine for cutting and marking garments	478,988	July 19	1415	350, 351	60	305
Cooper, A. O., *et al.* (See Lawrence, Lester G., assignor.)						
Cooper, Charles W., New York, N. Y. Apparatus for evaporating liquids	482,340	Sept. 13	703	168	60	1487
Cooper & Hampton. (See Grotz, Charles, assignor.)						
Cooper, James R., Sugar Grove, Ill. Straw-stacker	482,080	Sept. 6	258	62, 63	60	1386
Cooper, John A., Nashville, Tenn. Door-spring	481,475	Aug. 23	2801	689	60	1158
Cooper, John W., New York, N. Y. Window	480,806	Aug. 16	1692	422	60	934
Cooper, Leslie A., Springfield, Mass. Lamp	482,994	Sept. 20	1752	443	60	1704
Cooper, Leslie A., assignor of one-half to A. A. Warner and A. W. Allen, Springfield, Mass. Lamp	479,350	July 19	1989	498	60	415
Cope, Thomas J., Philadelphia, Pa. Grip for ropes	482,975	Sept. 20	1722	435	60	1698
Copeland, Henry, Chattanooga, Tenn. Hay-press	480,917	Aug. 16	1855	463	60	967
Coppage, Marcellus C., Terre Haute, Ind. Tube-cutter	482,496	Sept. 13	972	236	60	1538
Corano, Crescengo. (See Green, John, assignor.)						
Corbeille, Peter T. (See Boucher, Frank, assignor.)						
Corbin Cabinet Lock Company. (See Judd, Edward A., assignor.)						
Corbin, Elbert A., *et al.* (See Marsden, Mark W., assignor.)						
Cordesman, Henry J., Cincinnati, Ohio, and E. Cheshire, Covington, Ky., assignors to Cordesman Machine Company, Cincinnati, Ohio. Dovetailing-machine	478,544	July 5	750	183	60	149
Cordesman Machine Company. (See Cordesman and Cheshire, assignors.)						
Cordrey, Henry L., Mount Union, Iowa. Shaft-support for vehicles	479,631	July 26	2457	612	60	519
Corda, Albert B. W. H., Hamburg, Germany. Ship's telegraph	481,223	Aug. 23	2381	586, 587	60	1020
Corey, John A., Hope Valley, R. I. Carriage-wrench	481,749	Aug. 30	3256	793	60	1262
Corliss, William, Providence, R. I. Safe	478,989	July 19	1421	351, 352	60	306
Cornelison, Jesse, Oakland, Indian Ter. Pneumatic feeder for cotton-gins	482,916	Sept. 20	1630	408	60	1679
Cornelius, John, Oakland, Md. Ditching-machine	478,408	July 5	538	131	60	106
Cornell, Oliver H. P., Albany, assignor, by mesne assignments, to Caloric Cone Company, New York, N. Y. Combined gas heating and lighting device	481,139	Aug. 16	2234	550, 551	60	1037
Cornely, Emil and R., Paris, France. Embroidering-machine	479,057	July 19	1523	379, 380	60	326
Cornely, Robert. (See Cornely, Emil and R.)						
Corner, Robert J. G., assignor of one-half to C. B. Vastine, Chicago, Ill. Gas or lamp lighter	478,953	July 12	1350	334	60	282
Corning, Frederick G., New York, N. Y. Fluid-support for ore-concentrating belts	478,502	July 5	675	165	60	133
Cornyn, James M. (See Winternight, Henry A., assignor.)						
Corrigan, Francis W., Luzerne, Pa. Coal-auger	483,210	Sept. 27	2095	531	60	1785
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Hat-hook	479,058	July 19	1526	381	60	327
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Drive-chain	482,723	Sept. 20	1325	324	60	1620
Corser, Harrington. (See Stone and Corser.)						
Corson, Samuel H., Cape May, N. J. Railway-switch fastening	480,320	Aug. 9	925	234	60	770
Cory, Charles, New York, N. Y. Rudder-indicator	482,421	Sept. 13	844	202, 203	60	1514
Cosgrove, Thomas W., *et al.* (See Christy, James A., assignor.)						
Cosman, Nathan, assignor of one-half to O. F. Wegener, Seattle, Wash. Kettle-cover	479,490	July 26	2255	566	60	481
Cossette, Pitre, assignor of one-third to C. Terrian, Crystal Falls, Mich. Ratchet-wrench	481,690	Aug. 30	3145	767	60	1240
Cossor, Frank. (See Rapkin and Cossor.)						
Cotter, Charles A., assignor to Randolph & Clowes, Waterbury, Conn. Tube for beer-coolers	479,305	July 19	1759	441	60	369
Cotton, James M., Ashland, N. H. Locker for apparel, &c	483,282	Sept. 27	2235	562	60	1811
Cotton, James M., Ashland, N. H. Bundle-rack for cars	483,283	Sept. 27	2236	562	60	1811
Cotton, Silvester J. (See Badger, Argulas A., assignor.)						
Cottrell, Charles P., Stonington, Conn., assignor to C. B. Cottrell & Sons, Westerly, R. I. Workman's checking and recording apparatus	481,274	Aug. 23	2475	609	60	1098
Cottrell & Sons, C. B. (See Cottrell, Charles P., assignor.)						
Couch, Daniel R., Canandaigua, N. Y. Vehicle-box	480,764	Aug. 16	1625	407	60	921
Couch, Louis B., Nyack, N. Y. Umbrella-runner	478,250	July 5	305	74	60	61
Couillard, Hubert, Jacksonville, Fla. Combined bureau and wash-stand	481,848	Aug. 30	3419	839	60	1293
Coulter, William B., Waterbury, Conn. Rotary steam-engine	482,166	Sept. 6	405	96, 97	60	1414
Coulter, William S., Stockwell, Ind. Gate	482,301	Sept. 6	623	148	60	1456
Coursen, Robert L. (See Barrow, Thomas, assignor.)						
Coville, Orson, *et al.* (See June, Marcus M., assignor.)						
Covington, John I., Brooklyn, N. Y. Perpetual train time-table	483,138	Sept. 27	1974	500	60	1761
Covode, H. L. (See Spidel, George W., assignor.)						
Cowdery, Warren H., Ashtabula, Ohio. Making rakes	481,663	Aug. 30	3102	756	60	1232
Cowell, Rensselaer A., Cleveland, Ohio. Car-coupling	480,807	Aug. 16	1693	422	60	934
Cowell, William H., Logan, Ohio. Railway-rail bender	479,491	July 26	2257	566	60	482
Cowles, Alfred A., New York, N. Y., and J. F. Gilpin, assignors to Ansonia Brass and Copper Company, Ansonia, Conn. Annealing-furnace	479,115	July 19	1620	405	60	343
Cowles, Henry S., assignor of one-half to W. Duffy, East Hartford Meadow, Conn. Chafe-iron	480,172	Aug. 2	660	168	60	708

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cox, Charles W., Oak Park, Ill. File	482,497	Sept. 13	973	236	60	1539
Cox, James L., Moore's Salt Works, Ohio. Snap-hook	482,302	Sept. 6	624	149	60	1457
Cox, Joseph L., assignor to Duplex Printing Press Company, Battle Creek, Mich. Apparatus for severing sheets from webs of paper	478,409	July 5	540	132	60	106
Cox, Joseph L., assignor to Duplex Printing Press Company, Battle Creek, Mich. Printing-press	478,503	July 5	676	165, 166	60	134
Coxe, Eckley B., Drifton, Pa. Conveyer	481,106	Aug. 16	2172	538	60	1026
Coze, André, Rheims, and A. Lencanchez, Paris, France, assignor to S. Newman and J. Green, St. Louis, Mo. Apparatus for the manufacture of gas	478,571	July 12	784	192	60	370
Crabbs, Cyrus. (See Carter, Herman, assignor.)						
Crabtree, Leonard T., Embarrass, Wis. Train-order annunciator	480,075	Aug. 2	501	128	60	678
Crahan, William, and T. Nesom, Indianapolis, Ind. Embossing-machine	483,247	Sept. 27	2150	545	60	1796
Craig, John B. (See Purcell and Craig.)						
Craig, John N. (See Garland, Jeremiah B., assignor.)						
Craig, Warren H., Lawrence, Mass. Lubricator	479,116	July 19	1621	405, 406	60	343
Crandall, Henry F., assignor to Milwaukee Harvester Company, Milwaukee, Wis. Grain-binder	478,572	July 12	785	193, 194	60	171
Crandall, Nathan W., assignor to G. W. Jopson, Meriden, Conn. Key-holder	480,712	Aug. 16	1552	387	60	905
Crane, Calvin D., Dayton, Ohio. Writing-tablet	479,632	July 26	2458	612	60	519
Crane Company. (See Doolittle, William W., assignor.)						
Crane Company. (See Hayden, James T., assignor.)						
Crane Company. (See Prentice, McLeod, Crane, and Pilkington, assignors.)						
Crane, Fred A., Good Hope, Ill. Seeder	482,470	Sept. 13	924	225	60	1528
Crano, James B., assignor of one-half to J. L. Barrett, Newnan, Ga. Oil-filter	478,251	July 5	307	74	60	61
Crane, Richard T. (See Prentice, McLeod, Crane, and Pilkington.)						
Craney, Thomas, Bay City, Mich. Electrolytic apparatus	482,724	Sept. 20	1325	324	60	1620
Cranmer, Otis P., Summitville, Ind. Corn-planter	483,376	Sept. 27	2371	594	60	1836
Cranmer, William S., Sonoma, Cal. Bicycle	481,476	Aug. 23	2801	689	60	1158
Cranston, John A., Newport, Del. Folding blacking-stand	480,074	Aug. 2	506	128	60	679
Cranston, Otto G., Kincaid, Kans., assignor of two-thirds to W. F. Richards, Quincy, Ill. Elbow for facilitating the cleaning of stovepipes	480,173	Aug. 2	661	168	60	708
Cravath, Pitt, Whitewater, Wis. Electric-lighting system	481,785	Aug. 30	3316	810	60	1274
Crawford, Robert A., Allegheny, Pa. Pilot or guard for locomotives and cars	480,713	Aug. 16	1553	387	60	905
Crawford, Robert D., East Pepperell, Mass. Paper-cutting machine	482,228	Sept. 6	490	119	60	1433
Creery, Morgan R. B., Ebensburg, Pa. Clamp for dental flasks	478,312	July 5	395	95	60	79
Cremer, Eduard, Münster, Germany. Cock for casks	478,574	July 12	792	195	60	172
Cremonesi, Louis, New York, N. Y. Bracelet	482,229	Sept. 6	500	119	60	1433
Cribb, Ira P., Canandaigua, N. Y., assignor to Robinson Rea Manufacturing Company, Pittsburg, Pa., and T. A. Blake, New Haven, Conn. Elevator for stone-crushers	480,490	Aug. 9	1193	300	60	820
Crimmel, Henry, Fostoria, Ohio. Bottle and stopper	482,230	Sept. 6	501	120	60	1433
Crippin, William. (See Young and Pearn, assignors.)						
Crist, John J., Wichita, Kans. Store-service apparatus	481,346	Aug. 23	2594	637, 638	60	1118
Cristadoro, Charles, St. Paul, Minn. Dovetailing-machine	480,251	Aug. 9	803	206	60	747
Criswell, Joel T. (See Meloney and Criswell.)						
Crittenden, Alfred W. (See Plumtree, Charles E., assignor.)						
Crittenden, Parker, San Francisco, Cal. Can-labeling machine	481,896	Aug. 30	3496	856	60	1308
Crocker, Henry, Fairfax, Vt. Resonator	482,786	Sept. 20	1431	354	60	1640
Crocker, Matthias E. (See Thompson, William A., assignor.)						
Crocker-Wheeler Electric Company. (See Wheeler, Schuyler S., assignor.)						
Croes, Louisa D., E. Rodenbach, Mergaert, and J. Lapin, Roulers, Belgium. Spinning-machine	482,003	Sept. 6	129	31, 32	60	1360
Crofford, Warren K., New York, N. Y. Manual-power machine	480,452	Aug. 9	1141	285	60	810
Croft, Thomas J., Ellisville, Miss. Side harrow and cultivator	480,174	Aug. 2	662	169	60	708
Crolius, Edwin R., Chicago, Ill. Electric-light fixture	482,339	Sept. 13	702	167	60	1487
Crompton Loom Works. (See Wyman and Clark, assignors.)						
Cronin, Daniel W., Little Rock, Ark. Lantern	479,247	July 19	1824	458	60	382
Crook, Charles, Brooklyn, assignor to E. Baldwin, New York, N. Y. Fare register and recorder	483,102	Sept. 20	1917	485, 486	60	1738
Crook, William G., *et al.* (See Armstrong, James P., assignor.)						
Croom, Wiley G., assignor of one-half to J. A. Brennan, Vicksburg, Miss. Hand-support for penholders and lead-pencils	478,787	July 12	1113	275	60	236
Crosby, Mary A., Durand, Wis. Dish-washer	479,703	July 26	2578	642	60	541
Crosby, Oliver, St. Paul, Minn. Steam-boiler	482,787	Sept. 20	1432	335	60	1640
Crossland, McLain, and D. Long, New Haven, Pa. Barrow-wheel	481,298	Aug. 23	2522	619	60	1105
Cronch, Joseph S., Centre Groton, Conn. Lifting-machine	481,224	Aug. 23	2382	587	60	1081
Crow, Samuel G., Toronto, Canada. Chart for drafting garments	480,453	Aug. 9	1142	285, 286	60	810
Crowe, Eugene T., Delray, Mich. Automatic windmill-regulator	480,399	Aug. 9	1048	263	60	792
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Machine for bending metal plates	478,090	July 5	23	7, 8	60	7
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Bed-motion for cylinder printing-machines	478,091	July 5	25	8, 9	60	8
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Bed-motion for cylinder printing-machines	478,573	July 12	789	194, 195	60	172
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Bed-motion for cylinder printing-machines	480,321	Aug. 9	925	234, 235	60	770
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Folding machine	480,422	Aug. 9	1087	272	60	799
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Preventing fraud in the sale of newspapers and other publications	480,423	Aug. 9	1090	273	60	799
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Preventing fraud in the sale of newspapers and other publications	480,424	Aug. 9	1093	273	60	800
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Bed-motion for cylinder printing-machines	480,454	Aug. 9	1143	287	60	810
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Meade, and C. W. Carpenter, New York, N. Y. Bed-motion for cylinder printing-machines. (Reissue)	11,272	Sept. 27	2581	646, 647	60	1877
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Meade, and C. W. Carpenter, New York, N. Y. Bed-motion for cylinder printing-machines. (Reissue)	11,273	Sept. 27	2585	648, 649	60	1878
Crozier, Thomas W., Roanoke, Va. Ice-cream freezer	480,714	Aug. 16	1556	387, 388	60	905

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Cruickshank, Arthur B., San Francisco, Cal. Fire-escape	481,849	Aug. 30	3421	839	60	1294
Crnup, Samuel, Montclair, N. J. Food product and making the same	479,402	July 26	2086	.....	60	448
Cull, George T., Wickliffe, Ky. Sprout-puller	481,897	Aug. 30	3498	857	60	1308
Cullingworth, George R., Mount Vernon, N. Y. Grinding-mill	478,252	July 5	308	75	60	62
Cullison, William R., Englewood, Ill. Vehicle-shaft	482,471	Sept. 13	925	226	60	1528
Cummer, Eliza E. (See Cummer, Franklin D., assignor.)						
Cummer, Franklin D., assignor to E. E. Cummer, Cleveland, Ohio. Drying and disintegrating clay, &c	482,823	Sept. 20	1471	366	60	1649
Cummer, Herbert H., Cadillac, Mich. Clothing-form	479,248	July 19	1926	458	60	382
Cummings, Adelbert W., Dunkirk, N. Y. Machine for forming collars	483,139	Sept. 27	1976	501	60	1761
Cummings, George W. (See Winsor and Cummings.)						
Cummings, Uriah, New Haven, Conn. Pulverizing-machine	478,253	July 5	309	75	60	62
Cumnock, Robert L., Henderson, Ky. Trunk for use with cotton-pickers, &c	478,990	July 19	1423	352	60	306
Cunningham, Christopher, Jr., Brooklyn, N. Y. Circular-roofed structure	481,347	Aug. 23	2597	638	60	1118
Cunningham, Horace E., Brockton, Mass. Attachment for stapling-machines	481,786	Aug. 30	3318	810	60	1275
Cunningham, James F. (See Gennert and Cunningham.)						
Cunningham, Patrick, assignor to American Carrier Rocket Company, New Bedford, Mass. Dynamite rocket	479,738	July 26	2646	656	60	553
Cunningham, Thomas M., Nashville, Tenn. Excess-baggage stamp or check for railway-tickets	478,923	July 12	1309	326	60	274
Cupples, Samuel. (See West, James, assignor.)						
Curley, Thomas, Troy, N. Y. Steam-pipe coupling for railway-cars	478,991	July 19	1424	{352 353}	60	307
Curran, John J., Toledo, Ohio. Filter	479,403	July 26	2067	521	60	448
Currey, George H., Evant, Tex. Bedstead	482,725	Sept. 20	1327	324	60	1620
Currie, Jesse W. (See Currie, John A., Jr., and J. W.)						
Currie, John A., Jr., and J. W., Pipe Creek, Tex. Pickle-lifter	481,691	Aug. 30	3146	767	60	1240
Currier, Anna W., and G. Clark, Malden, Mass. Button-fastener	482,621	Sept. 13	1166	282	60	1576
Currin, John, assignor to American Optical Company, Southbridge, Mass. Eyeglasses	479,907	Aug. 2	196	49	60	621
Curtis, Charles R., Fairland, Mich. Hook for checkreins	480,715	Aug. 16	1557	388	60	906
Curtis, George W., assignor to Unique Table Company, New York, N. Y. Wall-table	481,608	Aug. 16	2002	500	60	994
Curtis, Lewis E., Chicago, assignor to E. Norton, Maywood, and O. W. Norton, Chicago, Ill. Can-heading machine	479,135	July 19	1646	412	60	348
Curtis, Nelson. (See Webb, Edward, assignor.)						
Cushman, Joseph W., New York, N. Y. Oil-can holder for bicycles	478,092	July 5	28	9	60	8
Cushman, Modestus J., Waterloo, Iowa. Apparatus for testing milk	478,737	July 12	1030	253	60	220
Cuthbert, Arthur, London, England. Nozzle-holder	479,249	July 19	1427	{458 459}	60	383
Cutler, Alexander M., *et al.* (See Cutler, William R., assignor.)						
Cutler, Henry H., Waltham, Mass. Electric-arc lamp	482,435	Sept. 13	864	{207 208}	60	1518
Cutler, William P., *et al.* (See Cutler, William R., assignor.)						
Cutler, William R., assignor of two-thirds to A. M. Cutler, Bath, Me., and W. P. Cutler, Baltimore, Md. Cringle for sails	479,404	July 26	2089	523	60	449
Cutten, Elisha B., New York, N. Y. Electrolytically producing potassium chlorate	480,492	Aug. 9	1196	300	60	821
Cutten, Elisha B., New York, N. Y., assignor, by mesne assignments, to Union Chemical Company, of New Jersey. Electrolytic cell	480,493	Aug. 9	1197	.....	60	821
Cutter Electrical and Manufacturing Company. (See Stanley, Lucius T., assignor.)	480,491	Aug. 9	1194	300	60	821
Cutter, William T., assignor of two-thirds to C. J. Luce, East Lynne, Conn. Extracting fat from wool	482,995	Sept. 20	1754	443	60	1704
Cuyás, Arturo. (See Assorati and Cuyás.)						
D'Heureuse, Rudolph, New York, N. Y. Safety device for window-cleaners	482,865	Sept. 20	1538	383	60	1663
D'Unger Long Distance Telephone Company. (See D'Unger, Paul H., assignor.)						
D'Unger, Paul H., assignor to D'Unger Long-Distance Telephone Company, Chicago, Ill. Telephone	478,092	July 12	951	236	60	205
Daens, Robert H., assignor to himself and R. E. Cole, Dardanelle, Ark. Stirrup	482,996	Sept. 20	1757	443	60	1705
Daggett, John C., Boston, Mass. Shoe-upper	481,299	Aug. 23	2324	620	60	1105
Dagry, Alphonse, assignor to La Société Dagry & Arnault, Paris, France. Dough kneader or mixer	483,430	Sept. 27	2446	{615 616}	60	1851
Dahlstrom, Charles A., Chicago, Ill. Car-brake	481,163	Aug. 23	2284	563	60	1061
Dailey, Ambrose, *et al.* (See Spielman, William, assignor.)						
Dailey, Joseph L., *et al.* (See Spielman, William, assignor.)						
Daily, Ethan W., Kansas City, Kans. Door-closer	483,140	Sept. 27	1976	501	60	1761
Dain, Albert E., Pittsburg, Pa. Newspaper-vender	482,824	Sept. 20	1473	{306 307}	60	1649
Dain, Joseph, Jr., Carrollton, Mo. Rake-tooth	479,789	Aug. 2	23	6	60	586
Dalbey, William H., Indianapolis, assignor of one-half to E. D. Kingsbury, Irvington, Ind. Sash-holder	482,710	Sept. 13	1299	318	60	1603
Dale, Charles H., New York, N. Y., assignor to Empire Car Coupler Company, Weehawken, N. J. Car-coupling	481,930	Sept. 6	15	4, 5	60	1337
Dale, Robert G., and W. S. Weightman, Durango, Colo. Egg-carrying package	478,924	July 12	1310	326	60	274
Daleiden, John P., Chicago, Ill. Candlestick	481,225	Aug. 23	2381	588	60	1081
Dalenberg, William, and C. Verduin, South Holland, Ill. Car-step extension	481,009	Aug. 16	2003	501	60	994
Daly, John E., Glendora, and A. A. Nell, Covina, Cal. Orchard-cultivator	482,081	Sept. 6	261	63	60	1387
Dam, Charles A., Lowell, Mass. Cotton-spinning mule	478,738	July 12	1031	253	60	220
Dam, Charles A., Lowell, Mass. Cotton-spinning mule	483,301	Sept. 27	2265	570	60	1816
Damon, Frank A., Fitchburg, Mass. Dental engine	478,902	July 19	1425	353	60	307
Damon, Frank A., Fitchburg, Mass. Dental engine	481,164	Aug. 23	2286	563	60	1061
Dana, Arthur L., Colorado Springs, Colo. Ore washer and concentrator	481,550	Aug. 30	2925	{719 720}	60	1199
Dangler Stove and Manufacturing Company. (See Ruppel, Henry, assignor.)						
Daniel, Joseph S., Kansas City, Mo. Automatic valve-operator for water closets	480,494	Aug. 9	1197	301	60	821
Daniel Pratt Gin Company *et al.* (See Beckwith, William G., assignor.)						
Daniels, Henry H., Cincinnati, Ohio. Combination-padlock	481,551	Aug. 30	2926	720	60	1199
Daniels, Robert E., Youngstown, Ohio. Metal railway-tie	482,997	Sept. 20	1757	444	60	1705
Danley, Robert J. M., Columbus, Ohio. Railway-crossing protector	482,422	Sept. 13	847	203	60	1514
Danley, Robert J. M., Columbus, Ohio. Railway-crossing protector	482,423	Sept. 13	848	203	60	1514
Danner, Frederick. (See Bugbee and Danner.)						
Danner, Friedrich, Tarentum, assignor of one-half to Pittsburgh Plate Glass Company, Creighton, Pa. Regenerative gas-furnace	482,117	Sept. 6	318	75, 76	60	1397
Darche, George C., Chicago, Ill. Electric alarm-clock	478,155	July 5	124	32	60	27
Darrow, Samuel C., Traverse City, Mich. Deep-water fishing-tackle	481,165	Aug. 23	2288	564	60	1062
Daugherty, James D., Kittanning, Pa. Type-writing machine	478,925	July 12	1311	{326 327}	60	275

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Daugherty, James D., Kittanning, Pa. Type-writing machine	481,477	Aug. 23	2803	690	60	1158
Davenport, Louie E., New York, N. Y. Illuminating-lens	478,739	July 12	1033	253	60	220
Davidson, Frank B. (See Howe and Davidson.)						
Davies, John P. (See Dean, John, assignor.)						
Davis, Albert J., Mount Tabor, N. J. Frictional hoisting-wheel	480,905	Aug. 16	1843	458	60	964
Davis, Albert J., Perth Amboy, N. J. Friction-wheel	482,788	Sept. 20	1433	355	60	1641
Davis, Charles C., Mercer, S. C. Washing-machine	482,341	Sept. 13	706	168	60	1488
Davis, Edward W., Indianapolis, Ind. Hook	478,313	July 5	396	95	60	80
Davis, Francis G., Watertown, N. Y. Device for packing vehicle-wheels	478,954	July 12	1352	315	60	283
Davis, George R., St. John, Canada. Umbrella-stand	480,657	Aug. 9	1461	363	60	873
Davis, Hiram B., Denver, Colo. Rotating window-washer	481,140	Aug. 16	2236	551	60	1038
Davis, John R., Chicago, Ill. Apparatus for drilling wells, &c	479,059	July 19	1527	381	60	327
Davis, John W., Lynn, Mass. Trolley	478,410	July 5	543	132	60	107
Davis, Lydia A., Atwood, Ill. Corset-steel clasp	479,492	July 26	2258	566	60	482
Davis, Mason W., Southbridge, Mass. Spectacles	481,552	Aug. 30	2934	720	60	1200
Davis, Warren, Crawfordsville, Ind. Rubber-tread horseshoe	479,790	Aug. 2	24	6	60	586
Davis, Whitney C., Waterloo, N. Y. Bicycle	478,187	July 5	183	47	60	39
Davis, William H., assignor of one-half to W. T. and M. F. Armstrong, Chapel Hill, Tex. Car-coupling	480,866	Aug. 16	1780	445	60	952
Davison, George J., Richmond, Va. Sole or heel plate	481,478	Aug. 23	2810	691	60	1160
Davy, William, Kenosha, Wis. Sewer-excavating apparatus	478,254	July 5	311	76	60	62
Dawes, Robert, Philadelphia, Pa. Traverse-motion for spinning and twisting machines	481,787	Aug. 30	3319	{810 811}	60	1275
Dawson, George W., Chicago, Ill. Hydraulic pumping-engine	478,314	July 5	397	96	60	80
Day, Henry L., Minneapolis, Minn. Fuel-feeder	482,424	Sept. 13	850	{203 204}	60	1515
Day, Jonathan W., Crystal Springs, Miss. Boring-machine	482,231	Sept. 6	503	120	60	1433
Day, Quintis V. P., Dinuba, Cal. Draft device for whiffletrees	482,622	Sept. 13	1167	282	60	1576
Dayton Manufacturing Company. (See Kirby, John, Jr., assignor.)						
Dayton Paper Novelty Company. (See Schmidt, Theodore F. W., assignor.)						
De Canio, Felix. (See Paglinghi and De Canio.)						
De Estenoz, Francisco R., Philadelphia, Pa. Clapper	482,570	Sept. 13	1091	264	60	1562
De Fernelmont, Henry H. (See De Fernelmont, Leonard H. and H. H.)						
De Fernelmont, Leonard H. and H. H., Detroit, Mich., assignors, by mesne assignments, of one-third to said Leonard H. De Fernelmont. Brick	483,105	Sept. 20	1922	487	60	1740
De Haven, Isaac, Allegheny, Pa. Stove	481,226	Aug. 23	2286	588	60	1081
De La Matyr, Fred, Fremont, Nebr. Guard for vehicle-shafts	482,726	Sept. 20	1328	324	60	1620
De Lassus, John F. (See Tong, James H., assignor.)						
De Moulin, Edmund, Greenville, Ill. Camera attachment	480,808	Aug. 16	1694	422	60	934
De Sheppard, Albert C., Bloomsburg, Pa. Beef-tenderer	480,178	Aug. 2	666	170	60	709
De Shon, Allen L., Steele, N. D. Poison-receptacle	478,691	July 12	951	236	60	205
De Sylvis, Daniel W., Richmond, Va. Hitching device	480,179	Aug. 2	667	170	60	709
De Vault, William N. (See Miller and De Vault.)						
De Vries, John, Passaic, N. J. Feed-water heater	478,315	July 5	399	96	60	80
De Witt, William H., Wikes-Barré, Pa. Bicycle	478,415	July 5	548	134	60	108
De Wolfe, Edward R., New York, N. Y. Valve for pneumatic tires	480,400	Aug. 9	1050	263	60	793
Dean, Dannial J., Bird Island, Minn. Mechanical motor	481,046	Sept. 20	1833	466	60	1722
Dean, Francis W., Cambridge, Mass., assignor to J. N. Gamble, Daytona, Fla. Safety attachment for engine-governors	482,404	Sept. 13	813	195	60	1509
Dean, John, assignor to J. P. Davies, Racine, Wis. Bridle-bit	483,103	Sept. 20	1921	486	60	1739
Dean, John, assignor to J. P. Davies, Racine, Wis. Bridle-bit	483,104	Sept. 20	1922	486	60	1740
Deane, Frank. H., assignor of one-half to C. P. Tatem & Co., Baltimore, Md. Basket	478,411	July 5	544	{132 133}	60	107
Dearborn, Richard J., Boston, Mass., assignor of one-half to Trimont Manufacturing Company, Portland, Me. Screw-threading die	480,175	Aug. 2	663	169	60	708
Deardorff, Jesse S., Canal Dover, Ohio. Dental clamp	481,479	Aug. 23	2811	691	60	1160
Debes, Roman. (See Wilson, John, assignor.)						
Dechant, William H., Reading, Pa. Pipe-wrench	481,257	Aug. 23	2448	603	60	1093
Decker, Oscar R., Rochester, Ind. Watch-case	478,412	July 5	545	133	60	107
Dederick, Peter K., Loudonville, N. Y. Baling-press	478,274	July 5	341	82	60	68
Dederick, Peter K., Loudonville, N. Y. Baling-press	480,176	Aug. 2	664	169	60	708
Deeley, Patrick F. (See Yarington, Charles H., assignor.)	480,177	Aug. 2	665	169	60	708
Deere & Company. (See Moore, Gilpin, assignor.)						
Deere & Company. (See Waterman, Lewis E., assignor.)						
Deering, William. (See Ellis, Lucien W., assignor.)						
Deininger, Michael F., Brooklyn, N. Y. Hub-attaching device	482,571	Sept. 13	1091	265	60	1562
Deitz, Henry, Denver, Colo. Baling-press	482,303	Sept. 6	-635	149	60	1457
Deknatel, Frederick H., Evanston, Ill. Curling-iron	481,348	Aug. 23	2590	638	60	1118
Delaney, Charles W., Hammond, Ind. Toy	481,931	Sept. 6	16	5	60	1338
Delaney, Charles W., Hammond, Ind. Watchmaker's tweezers	482,232	Sept. 6	504	120	60	1443
Delanoy, Alfred G., assignor of one-half to J. E. McKay, New York, N. Y. Garbage or refuse crematory	479,405	July 26	2090	524	60	449
Delany, Charles W., Columbus, Tex. Quilting attachment for sewing-machines	480,252	Aug. 9	805	207	60	747
Delaware Hard Fibre Company. (See Frist, Robert P., assignor.)						
Delaware Hard Fibre Company. (See Frist and Rupert, assignors.)						
Delvanz, Georges, Montigny-on-the-Loing, assignor to A. Huillard, Suresnes, Seine, France. Purifying tannic extracts	483,141	Sept. 27	1978	.....	60	1761
Demaurez, Charles, assignor to H. Soule, D. W. Schwarz, and C. S. Cook, Portland, Me. Car-coupling (Reissue)	11,265	Aug. 23	2912	715	60	1181
Deming, Eugene W., New Orleans, La. Apparatus for clarifying sugar solutions	479,250	July 19	1329	459	60	383
Deming, William B., and H. C. Fuller, Bentonville, Ark. Paint-pot	482,082	Sept. 6	262	63	60	1387
Demmick, George W., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Incandescent-lamp guard	479,791	Aug. 2	25	6, 7	60	587
Dempsey, James E., Chicago, Ill. Locker for cars	478,740	July 12	1033	254	60	221
Denio, Preston T., Hyde Park, Vt. Sled-brake	481,480	Aug. 23	2812	691	60	1160
Denio, William L., assignor to Standard Electric Signal Company, Rochester, N. Y. Electrical thermostat	478,788	July 12	1113	275	60	236
Denio, William L., assignor to Standard Electric Signal Company, Rochester, N. Y. Electric signaling apparatus	478,789	July 12	1114	{275 276}	60	236
Denis, Henry, New Orleans, La. Envelope-seal	479,975	Aug. 2	317	78	60	642
Denison, Charles A. (See Lines, Thomas D., assignor.)						
Dennan, Peter, Sr., Montague, Mich. Axle-lubricator	480,765	Aug. 16	1628	408	60	921
Dennett, Fred A., Sheboygan, Wis. Chair	482,167	Sept. 6	410	97	60	1415

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dennis, Adolphus S., assignor to Dennis Duplex Writing Machine Company, Des Moines, Iowa. Device for inking type-writing machines	479,351	July 19	1991	498	60	416
Dennis, Adolphus S., assignor to Dennis Duplex Writing Machine Company, Des Moines, Iowa. Line-spacing mechanism for type-writing machines	479,352	July 19	1992	498	60	416
Dennis Duplex Writing Machine Company. (See Dennis, Adolphus S., assignor.)						
Dennis, Joseph L., assignor of one-half to T. F. Brewster, Atlanta, Ga. Bindery pasting-machine	481,258	Aug. 23	2449	603	60	1003
Denny, Ernest R., Spokane, Wash. Case for exhibiting needles	479,117	July 19	1923	406	60	344
Dénoyelle, Léon, assignor to Compagnie Anonyme des Forges de Chatillon et Commentry, Paris, France. Apparatus for moderating the recoil of guns	481,647	Aug. 30	3075	750, 751	60	1227
Denamore, Alexander. (See Harlin, George C., assignor.)						
Denton, Charles C. (See Gellenbeck, Frank C., assignor.)						
Denton, Charles E., assignor to I. M. Denton, Attica, Kans. Button-setting machine	479,704	July 26	2579	643	60	541
Denton, Charles E., assignor to I. M. Denton, Attica, Kans. Button-attaching machine	479,705	July 26	2580	643	60	542
Denton, Daniel T., Duluth, Minn. Clutch	481,010	Aug. 16	2004	501	60	995
Denton, Daniel T., Lakeview, Minn. Counterbalancing mechanism for chutes	481,011	Aug. 16	2006	501	60	995
Denton, Ida M. (See Denton, Charles E., assignor.)						
Derbohlow, John, New York, N. Y. Machine for removing water-hairs from pelts	483,142	Sept. 27	1919	501	60	1702
Derbyshire, Ralph, and C. H. Mullen, Fall River, Mass. Weft-hammer for looms	478,413	July 5	546	133	60	107
Derham, Samuel G., assignor of one-half to H. Verhage, Cincinnati, Ohio. Filter	478,093	July 5	29	9	60	9
Derion, Arthur C., Paris, France, assignor, by mesne assignments, to National Manufacturing Company, of Pennsylvania. Universal-jointed brace	481,526	Aug. 23	2884	708	60	1175
Detroit Plumbers' Supply Company. (See Wayson, Samuel W., assignor.)						
Densing, Eduard, assignor of one-half to G. Zieres, Rochester, N. Y. Vehicle running-gear	482,234	Sept. 6	507	121	60	1434
Deutsch, William M., Elizabeth, N. J. Filter	482,436	Sept. 13	869	208	60	1518
Devereaux, John, Doniphan, Nebr. Umbrella-supporter	481,481	Aug. 23	2843	691	60	1161
Devine, Charles E., and G. La Chapelle, Williamsport, Pa. Horseshoe	481,932	Sept. 6	17	5	60	1398
Devlin, James C., Hernando, Miss., assignor of four-fifths to D. M. Dockery, J. P. Meredith, and S. W. McLaughlin. Car-coupling	478,993	July 19	1427	353, 354	60	307
Devore, Levi M., assignor of one-half to M. H. Wilcoxon, Freeport, Ill. Stovepipe-damper.	478,414	July 5	547	133	60	108
Dewar, James. (See Lunge and Dewar.)						
Dewey Corporation. (See Dewey, Mark W., assignor.)						
Dewey, Franklin S., Alpena, Mich. Index	479,206	July 19	1760	441	60	369
Dewey, Mark W., assignor to Dewey Corporation, Syracuse, N. Y. Electric railway	479,493	July 26	2258	566	60	482
Dewhirst, Simon, St. Joseph, Mo. Brick-kiln	480,561	Aug. 9	1997	325	60	842
Dexter, Avelyn I., Whitewater, Wis. Refrigerator	479,633	July 26	2460	612	60	519
Dexter, George N., Jr., Ellaville, Ga. Plow	479,706	July 26	2586	644	60	542
Diack, Hannah S., Detroit, Mich. Lid-strainer	481,166	Aug. 23	2289	564	60	1062
Dial, Wilbur F., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Loop-taker for sewing-machines	480,180	Aug. 2	668	170	60	709
Dial, Wilbur F., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	480,181	Aug. 2	670	170, 171	60	710
Dial, Wilbur F., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine loop-taker	480,182	Aug. 2	674	171	60	710
Dick, Joseph, Canton, Ohio. Animal-power	478,575	July 12	792	195	60	172
Dick, Joseph C. F., Chicago, Ill. Registering money-box	482,004	Sept. 6	131	32	60	1360
Dickerman, Frances S. (See Dickerman and Ellacott assignors.)						
Dickerman, George A., and J. P. Ellacott, Chicago, Ill.; said George A. Dickerman assignor to F. S. Dickerman. Hay-loader	479,353	July 19	1993	499	60	416
Dickerson, Simeon K., and C. D. Kee, Roanoke, Va. Means for securing collars to crank-pins.	479,406	July 26	2093	524	60	450
Dickie, Edward W., Clyde, N. Y. Composition of matter for plastering	479,060	July 19	1529		60	327
Dickey, Osbert D., Mountain Grove, Mo. Fanning-mill	480,809	Aug. 16	1695	423	60	934
Dickinson, Austin R., assignor to Syracuse Specialty Manufacturing Company, Syracuse, N. Y. Hose-clamp	483,302	Sept. 27	2266	570	60	1816
Dickinson, Henry C., assignor to Springfield Specialty Manufacturing Company, Springfield, Mass. Die	479,354	July 19	1995	499	60	416
Dicks, James T., *et al.* (See Wood, William T., assignor.)						
Dicks & Wiggins. (See Eckert, John C., assignor.)						
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Needle-bar for sewing-machines	478,576	July 12	794	196	60	173
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Overseaming sewing-machine	478,994	July 19	1429	354	60	308
Dienelt & Eisenhardt. (See Eisenhardt, George F., assignor.)						
Diesterweg, Charles L. (See Weller, Gustavus A., assignor.)						
Dietrich, Oscar S., assignor of one-half to A. G. Swartz, Weatherly, Pa. Stump or rock extractor	479,974	Aug. 2	315	77	60	642
Dietz, Emil, Indianapolis, Ind. Corner structure for trucks	480,716	Aug. 16	1538	388	60	906
Dietz, Frederick C., assignor to Blandy Machine Company, Zanesville, Ohio. Governor for steam-engines	481,141	Aug. 16	2233	551, 552	60	1038
Dillenburg, Michel, San Francisco, Cal. Air-compressor	481,850	Aug. 30	3422	840	60	1294
Dillingham, James W. (See Oerther and Dillingham.)						
Dillon, Thomas, assignor of one-half to J. Caven, Indianapolis, Ind. Suspension-bar for electric lamps	478,275	July 5	343	82	60	69
Dillon, Thomas, assignor of one-half to J. Caven, Indianapolis, Ind. Suspension-bracket for electric lamps	482,727	Sept. 20	1329	325	60	1620
Dimmick, Jacob K., *et al.* (See Marty, Frank, assignor.)						
Dimock, Lucius, Leeds, Mass. Skein-twisting machine	481,227	Aug. 23	2387	588, 589	60	1082
Dimock, Lucius, Leeds, Mass. Silk-manufacturing machinery	483,284	Sept. 27	2238	562, 563	60	1811
Dimond, George H., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	479,739	July 26	2647	656, 657	60	554
Dimond, George H., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	479,740	July 26	2650	657	60	554
Dinwiddie, Frank, Kansas City, Mo. Current-motor	478,316	July 5	400	96, 97	60	80
Dion, Charles J., St. Paul, Minn. Drying-kiln	480,253	Aug. 9	806	207	60	747
Disc Wheel Company. (See Hide, Arthur C., assignor.)						
Disa, Charles J. (See Kennedy and Disa.)						
Disa, Louis P., Ilion, assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	481,750	Aug. 30	3257	793	60	1262
Dissinger, Michael, Lebanon, Pa. Washing-machine	478,094	July 5	30	10	60	9
Disston, Thomas S., assignor to Henry Disston & Sons, Incorporated, Philadelphia, Pa. Saw-filing machine	482,572	Sept. 13	1092	265	60	1562

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dix, Henry S., assignor to S. B. Hinckley, Chelsea, Mass. Machine for cutting lath-yarns	482,917	Sept. 20	1631	409	60	1679
Dixon, Annie. (See Bell, Robert E., assignor.)						
Dixon, George E., assignor of one-half to R. W. Caldwell, Sr., Chicago, Ill. Boiler	481,898	Aug. 30	3499	857	60	1309
Dixon, George E., assignor of one-half to R. W. Caldwell, Chicago, Ill. Pipe-insulator	481,899	Aug. 30	3501	857	60	1309
Dixon, George E., assignor of one-half to R. W. Caldwell, Chicago, Ill. Shield for radiators	481,900	Aug. 30	3502	858	60	1309
Dixon, Henry, Kidderminster, England. Loom for weaving tufted fabrics	482,789	Sept. 20	1434	355	60	1641
Dixon, Robert M., East Orange, N. J., assignor to Safety Car Heating and Lighting Company, of New York. Apparatus for charging car gas-lighting tanks from gas-mains	482,446	Sept. 13	885	213	60	1521
Dixon, Robert W., Springfield, Ohio. Wheel	483,106	Sept. 20	1923	487	60	1740
Dixon, William O., Newark, N. J. Mandrel	478,577	July 12	795	196	60	173
Dubbie, Robert S., Brooklyn, assignor to Edison General Electric Company, New York, N. Y. Reflector for arc lights	479,634	July 26	2461	613	60	519
Dubbins, Charles E., Chicago, Ill. Shackle for coupling springs	479,183	July 19	1727	433	60	363
Dubeck, Frank H., assignor of two-thirds to J. T. Robinson and G. E. Stokes, Omaha, Nebr. Cloth-piling machine	481,107	Aug. 16	2174	538	60	1096
Dobelman, John, Chicago Lawn, Ill. Spirit-level	481,893	Sept. 6	18	5, 6	60	1338
Dobson, James, *et al.* (See Gidley, Samuel H., assignor.)	478,848	July 12	1206	299	60	254
Dobson, James, *et al.* (See Leach, Heaton, and Bentley, assignors.)						
Dobson, John, *et al.* (See Gidley, Samuel H., assignor.)						
Dobson, John, *et al.* (See Leach, Heaton, and Bentley, assignors.)						
Dockery, Don M., *et al.* (See Devlin, James C., assignor.)						
Dodd, Levi A. (See Read, Harry F., assignor.)						
Dodd, West, Sac City, and A. T. Martin, Clinton, Iowa. Drive-chain	478,416	July 5	549	134	60	108
Dodge Coal Storage Company. (See Dodge, James M., assignor.) (Reissue.)						
Dodge, Henry S., Chicago, Ill., assignor to Monroe Manufacturing and Lumber Company, Lima, Ohio. Window-screen	480,502	Aug. 9	1299	325	60	842
Dodge, James M. (See Ewart and Dodge.)						
Dodge, James M., Philadelphia, Pa., assignor to Dodge Coal Storage Company, Naugatuck, Conn. Machine for handling coal. (Reissue.)	11,258	Aug. 9	1533	381	60	887
Dodge, Philip T., *et al.* (See Freeman, James P., assignor.)						
Dodge, S. D. (See Mehling, John A., assignor.)						
Dodge, Wallace H., and R. D. O. Smith, Mishawaka, Ind. Woolen boot	479,251	July 19	1630	459	60	383
Dodge, Walter E., Everett, Mass. Injector	478,741	July 12	1034	254	60	221
Dodge, Walter E., Everett, assignor to National Tube Works Company, Boston, Mass. Injector	478,317	July 5	404	97	60	81
Doehring, Carl F. W., New York, N. Y. Fireproof partition or ceiling	478,318	July 5	405	97	60	81
Doering, Frederick, St. Louis, Mo. Coffee-urn	481,851	Aug. 30	3424	840	60	1294
Doherty, Thomas, Sarnia, Canada. Sectional water-boiler	479,873	Aug. 2	149	36, 37	60	611
Doig, Edwin M. (See Blake, Smith, and Doig.)						
Dolese, John, *et al.* (See Patnoe, George W., assignor.)						
Domestic Water Purifier Company. (See Way, Frank K., assignor.)						
Domnau, Emanuel, *et al.* (See Monday, Robert, assignor.)						
Donahue, Daniel, New York, N. Y. Steam-boiler	479,252	July 19	1831	459	60	384
Donisthorpe, George E., and T. Burrowe, London, England. Machine for combing fibrous materials	482,960	Sept. 20	1697	427, 428	60	1693
Donlon, William, Hopkins, Minn. Attachment for ax-helves	483,248	Sept. 27	2152	545	60	1796
Donnelly, John R. (See Neal and Donnelly.)						
Dooling, Patrick J., Folsom, Cal. Strength-testing device	482,623	Sept. 13	1168	282	60	1576
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Collapsible tap	481,648	Aug. 30	3077	751	60	1228
Doran, Charles H., Olean, N. Y. Sectional horseshoe	480,563	Aug. 9	1300	325	60	842
Dorchester, Ernest D., Malden, Mass. Truck for railway-cars	480,495	Aug. 9	1199	301	60	822
Doremus, Victor E., assignor of one-half to P. P. Todd, New York, N. Y. Lock-nut	478,742	July 12	1036	254	60	221
Dorney, George S. (See Shull and Dorney.)						
Dorton, Robert E., Minneapolis, Minn. Support for band-cutters and feeders	482,676	Sept. 13	1238	302	60	1590
Dorton, Robert E., Minneapolis, Minn. Band-cutter and feeder	482,677	Sept. 13	1239	302, 303	60	1590
Dougherty, Harvy H., assignor of one-half to A. F. Brown, Waverly, Ill. Corn-planter	481,852	Aug. 30	3424	840	60	1294
Dougherty, Joseph F., Hale, Mo. Gate	480,008	Aug. 2	391	97	60	656
Douglas, Alexander S. (See Minton and Douglas.)						
Douglas, Charles L., *et al.* (See Cook, Herbert F., assignor.)						
Douglas, John, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Presser-foot for sewing-machines	478,095	July 5	31	10	60	9
Douglass, J. Walter. (See Farrel, John H., assignor.)						
Douglass, Joseph H. (See Evans and Douglass.)						
Dover, Samuel B., Adairsville, Ga. Car-coupling	479,635	July 26	2463	613	60	520
Dow, Albert F. (See Buffinton, Elisha W., assignor.)						
Dow, Andrew. (See Flagg, Frank E., assignor.)						
Dow, Charles H., Ellensburg, assignor of one-sixth to J. Garvey and H. L. Smith, Tacoma, Wash. Ash dump-car	479,253	July 19	1832	460	60	384
Dow, Herbert H., Midland, Mich., assignor of two-thirds to A. H. Smith and J. C. Hale, Cleveland, Ohio. Galvanic battery	480,384	Aug. 9	1025	257	60	788
Dowler, Charlie M. (See Dowler, Libbie M., assignor.)						
Dowler, Libbie M., Tyler, Tex., assignor of one-third to C. M. Dowler. Stovepipe drying-rack	480,658	Aug. 9	1461	363	60	873
Dowling, John, Altoona, Pa. Seal-lock	482,118	Sept. 6	320	76	60	1398
Dowling, John A. (See Walsh and Dowling.)						
Downie, Robert M., New Brighton, assignor to Keystone Driller Company, Beaver Falls, Pa. Rope-clamp	480,810	Aug. 16	1697	423	60	934
Dowse, William B. H., trustee. (See Mead, Albert G., assignor.)						
Doyle, Albert T., Pendleton, Oreg. Slide-valve	481,013	Aug. 16	2008	502	60	995
Doyle, William J. C., assignor of one-half to T. Buckley, Aspen, Colo. Fuse-igniter	481,012	Aug. 16	2007	501	60	995
Drake, Francis J., Belleville, Canada. Saw-setting machine	482,624	Sept. 13	1169	283	60	1576
Drake, John H. (See Stratton and Drake.)						
Drake, Nathaniel S., Pittsfield, N. H. Heel for boots or shoes	479,560	July 26	2354	587	60	500
Draper, Frederick. (See Draper and Ellsworth.)						
Draper, James W. and F., and W. Ellsworth, Alden, Iowa. Well-drilling machine	481,482	Aug. 23	2815	692	60	1161
Draper & Sons, George. (See Bennett, John H., assignor.)						
Draper & Sons, George. (See Conn, Joseph, assignor.)						
Draper, William F. (See Usher and Draper.)						
Drawbaugh, Daniel, Eberly's Mill, Pa., assignor to Pneumatic and Electric Tool Company, New York, N. Y. Graduated cock for pneumatic tools	479,061	July 19	1529	381	60	327
Drawbaugh, Daniel, Eberly's Mill, Pa., assignor to Pneumatic and Electric Tool Company, New York, N. Y. Pneumatic tool	482,942	Sept. 20	1664	419	60	1687

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dreesman, Udo, Pekin, and J. Wagler, Tremont, Ill. Gate	482,005	Sept. 6	134	32	60	1361
Dreissörner, Jacob, assignor to National Ammonia Company, St. Louis, Mo. Ammonia dipper-valve	482,233	Sept. 6	504	120	60	1433
Drennan, John M., New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental syringe	479,407	July 26	2094	525	60	450
Droskell, William M., Brainerd, Minn. Electric motor	483,431	Sept. 27	2446	616	60	1851
Drew, Alfred, De Lisle, Ohio. Coupling-pole	482,678	Sept. 13	1244	303	60	1591
Drew, Henry P., New York, N. Y. Swing-joint for electric-light brackets	478,417	July 5	550	134	60	106
Drew, John W., *et al.* (See West, Derrick S., assignor.)						
Driller, John H., Los Angeles, Cal. Automatic cut-off cask-filling faucet	482,342	Sept. 13	708	{168 169}	60	1488
Driscoll, William, assignor of one-half to J. Hall, Brockville, Canada. Foot-guard for railway-frogs	478,504	July 5	682	166	60	135
Droop, Edward H., Washington, D. C. Hand-drum	479,636	July 26	2464	613	60	520
Druckenmiller, Joseph Y., Jenkintown, Pa. Expression-regulator for pianos	482,168	Sept. 6	410	98	60	1415
Du Montier, Fred, Ogdensburg, N. Y. Pipe-coupling and coupling attachment for railway-cars	482,304	Sept. 6	627	150	60	1458
Dubbs, Jesse A., Allegheny, assignor of one-half to J. H. White, Pittsburg, Pa. Manufacture of asphaltum	480,234	Aug. 2	767	.....	60	727
Dubbs, Jesse A., Allegheny, assignor of one-half to J. H. White, Pittsburg, Pa. Manufacture of asphaltum	480,235	Aug. 2	768	194	60	728
Duck, Andrew J., W. S. Savidge, and G. W. Wolfe, Lewisburg, Pa. Tilting gate	483,432	Sept. 27	2450	616	60	1852
Dudgeon, Richard H. (See Weeks, John, assignor.)						
Duechting, William, assignor to A. Fowler, Chicago, Ill. Car-coupling	478,578	July 12	796	196	60	173
Duff, Robert D., Tacoma, Wash. Pavement	480,183	Aug. 2	678	171	60	710
Duffy, John J., assignor to E. P. Bates, Cleveland, Ohio. Fluid-pump or compressor	480,811	Aug. 16	1699	{423 424}	60	935
Duffy, Nicholas G., Charleston, S. C. Proof-press	483,433	Sept. 27	2451	617	60	1852
Duffy, Nicholas G., Charleston, S. C. Self-locking job-galley	483,434	Sept. 27	2453	617	60	1852
Duffy, Nicholas G., Charleston, S. C. Printer's galley	483,481	Sept. 27	2507	631	60	1863
Duffy, William. (See Cowles, Henry S., assignor.)						
Duisberg, Carl, assignor to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Red dye and making the same	481,934	Sept. 6	23	.....	60	1339
Duke, James G., Memphis, Tenn. Hanger	479,254	July 19	1832	460	60	384
Dunbar, John, Brooklyn, N. Y. Scaffold	482,695	Sept. 13	1171	283	60	1577
Duncan, David R., *et al.* (See Christopher, Calvin F., assignor.)						
Duncan, George N., Greenwich, Mass. Latch	480,075	Aug. 2	507	{128 129}	60	679
Duncan, George N., Greenwich, Mass. Tent	481,014	Aug. 16	2009	502	60	996
Duncan, George S., Melbourne, Victoria. Hydraulic machinery	478,225	July 5	251	61, 62	60	51
Duncan, Thomas C., *et al.* (See Christopher, Calvin F., assignor.)						
Dunfee, John C., Unionville Centre, assignor to R. E. Robinson, Plain City, Ohio. Dinner-bucket	480,184	Aug. 2	679	172	60	711
Dunham, Curtis, assignor to J. J. Woltman and A. L. Gibbs, New York, N. Y. Transformation-box	478,536	July 5	738	180	60	146
Dunham, Herbert F., New York, N. Y. Water or gas main	481,935	Sept. 6	24	6	60	1339
Dunham, Ira, Detroit, Mich. Fishing apparatus	478,579	July 12	798	197	60	173
Dunham, Thomas M., Ocean Grove, N. J. Combined inhaler and medicament-holder	482,083	Sept. 6	263	63	60	1387
Dunkirk Wagon Company. (See Munger and Capwell, assignors.)						
Dunlap, Harley M., Battle Creek, Mich. Atomizer	483,435	Sept. 27	2454	617	60	1852
Dunlop, John B., Belfast, Ireland. Wheel for velocipedes	479,255	July 19	1834	460	60	384
Dunmore, Frank H. (See Johnson, Albert, assignor.)						
Dunn, Andrew W., Pulaski, N. Y. Bicycle	478,156	July 5	127	32, 33	60	28
Dunn, Charles H. (See Siar and Dunn.)						
Dunn, Harry L., *et al.* (See Marshall, William M., assignor.)						
Dunn, Samuel W., *et al.* (See Marshall, William M., assignor.)						
Dunn, William A., *et al.* (See Welch, Rosia W., assignor.)						
Dunne, Thomas P., New York, N. Y. Broiler attachment for stoves	480,076	Aug. 2	508	129	60	679
Duplex Printing Press Company. (See Cox, Joseph L., assignor.)						
Dupuis, George A., Detroit, Mich. Inclosed conductor for electric railways	482,343	Sept. 13	710	169	60	1488
Durben, Samuel, Brushton, Pa. Nut-lock	478,096	July 5	32	10	60	9
Durdilly, Louis, Paris, France. Machine for printing music	482,728	Sept. 20	1329	325	60	1621
Durr, Henry H., Utica, and H. D. Babcock, Leonardsville, assignors to said Babcock and C. H. Childs & Co., Utica, N. Y. Adjusting device for cultivators	479,754	July 26	2671	663	60	558
Dutton, Rufus, New York, N. Y. Machine for grinding mower-knives	481,275	Aug. 23	2477	{610 611}	60	1098
Duvall, James M., *et al.* (See Brown, William T., assignor.)						
Duvall, William S. (See Miller and Duvall.)						
Dwinnell, David C., *et al.* (See Gunn, John A., assignor.)						
Dworshak, Fred, Beaver Falls, Minn. Feeder and cutter for thrashing-machines	480,254	Aug. 9	809	207	60	747
Dwyer, Daniel C., assignor of two-thirds to R. C., Jr., and W. A. Stewart, Wichita, Kans. Spring-heel horseshoe	482,998	Sept. 20	1759	444	60	1705
Dye, Emery C. (See Merkins, Jacob S., assignor.)						
Dye, William A., Jr. (See Morrison and Dye.)						
Dyer, Alonzo, Odessa, Mo. Cultivator attachment	482,729	Sept. 20	1331	326	60	1621
Dyer, Edward F. and H. P., Cleveland, Ohio. Diffusion apparatus	480,812	Aug. 16	1701	424	60	935
Dyer, George F. (See Richardson and Dyer.)						
Dyer, Harold P. (See Dyer, Edward F. and H. P.)						
Dyer, Richard N., East Orange, N. J., assignor to American Bell Telephone Company, Boston, Mass. Telephone system	481,483	Aug. 23	2816	692	60	1161
E. J. Brooks & Company. (See Brooks, Edward J., assignor.)						
E. N. Gates Heating Company. (See Gates, John N. and E. N., assignors.)						
Eads, John W., Dallas, Tex. Locomotive ash-pan	482,235	Sept. 6	508	121	60	1434
Eager, William A. W., West Gardner, Mass. Velocipede	479,792	Aug. 9	27	7	60	587
Eagle Lock Company. (See Roche, James, assignor.)						
Eagle Manufacturing Company. (See King and Stokely, assignors.)						
Eagle Pencil Company. (See Boman, Claes W., assignor.)						
Eames, Charles J., New York, N. Y. Reduction of iron ore	479,408	July 26	2095	.....	60	450
Eastman Kodak Company. (See Reichenbach, Henry M., assignor.)						
Eastman, Olaf, San Francisco, Cal. Water-filter	478,157	July 5	129	33	60	28
Eastman, William J., Waterville, N. Y. Electric cigar-lighting lamp	481,692	Aug. 30	3147	768	60	1241
Eaton, Andrew L. (See Harman and Eaton.)						
Eaton, Francis M., West Tremont, Me. Center-board for boats	481,484	Aug. 23	2818	692	60	1162
Eayrs, Winslow P., assignor of one-half to F. A. McKean, Nashua, N. H. Rheostat	478,276	July 5	343	83	60	60

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Eberhardt, William C., Plymouth, Wis. Milk-cooler	479,494	July 26	2261	567	60	482
Ebert, John L., Farmington, N. Y. Sash-fastener	479,409	July 26	2096	525	60	450
Echols, Frank G., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Suspension device for lamps	479,874	Aug. 2	150	37	60	611
Ecker, George F. (See Ecker, Henry J. and G. F.)						
Ecker, Henry J. and G. F., Philadelphia, Pa. Soap	480,840	Aug. 16	1739	.....	60	943
Ecker, Henry J. and G. F., Philadelphia, Pa. Composition of matter for cleaning brown stone, &c	483,143	Sept. 27	1980	.....	60	1762
Eckerson, David I., Worcester, N. Y. Printing-press	483,377	Sept. 27	2372	{594 595 596}	60	1836
Eckert, Jacob E., Marengo, Iowa. Balance-wheel pliers and calipers	481,936	Sept. 6	26	6	60	1339
Eckert, John C., assignor to Dicks & Wiggins, Dayton, Ohio. Sealing-wax mold	483,512	Sept. 27	2563	643	60	1874
Eckert, Otto C., and L. Cohen, Providence, R. I. Mother-of-pearl articles and making the same	482,548	Sept. 13	1058	257	60	1556
Eckert, Thomas T., New York, N. Y. Galvanic battery	482,425	Sept. 13	852	204	60	1515
Eckhardt, Jacob, St. Louis, Mo. Apparatus for consumption of sewer-gas	481,108	Aug. 16	2174	538	60	1027
Economic Advertising Company. (See Webb, Alfred E., assignor.)						
Economic Feed Bag Company. (See Ehrhardt, William, assignor.)						
Eddy, Oscar H., assignor to W. Eddy & Sons, Greenwich, N. Y. Foot-latch for reversible plows	480,077	Aug. 2	509	129	60	679
Eddy & Sons, W. (See Eddy, Oscar H., assignor.)						
Eddy, William W. (See Connors and Eddy.)						
Edelmann, Bernhard. (See Roessler, Heinrich, assignor.)						
Edenborn, William, St. Louis, Mo. Machine for coiling wire	480,564	Aug. 9	1300	326	60	842
Edenborn, William, St. Louis, Mo. Machine for coiling wire	480,565	Aug. 9	1301	326	60	843
Edgar, Charles H., trustee. (See Hawes, Herbert E., assignor.)						
Edgar, Charles H., trustee. (See Young, Josiah L., assignor.)						
Edgar, Ellis F., Woodbridge, N. J. Furnace	478,319	July 5	405	98	60	81
Edgar, Ellis F., Woodbridge, N. J. Steam-boiler	478,320	July 5	407	98	60	82
Edgar, William, assignor to Sanford Foundry and Machine Works, Sanford, Fla. Moiding-machine	480,566	Aug. 9	1302	326	60	843
Edge, James, assignor of one-half to S. H. Brooks, Gorton, England. Carding-engine for grinding revolving flats when in situ	481,228	Aug. 23	2389	{589 590}	60	1082
Edgerly, Sylvester A., *et al.* (See Morrill, George W., assignor.)						
Edie, James P. (See Mars, Charles P., assignor.)						
Edison Electric Light Company. (See Edison, Thomas A., assignor.)						
Edison General Electric Company. (See Ball, Henry P., assignor.)						
Edison General Electric Company. (See Dobbie, Robert S., assignor.)						
Edison General Electric Company. (See Goold, Frederick D., assignor.)						
Edison General Electric Company. (See Henderson and Phelps, assignors.)						
Edison General Electric Company. (See Howell, John W., assignor.)						
Edison General Electric Company. (See Hutchinson, Joseph, assignor.)						
Edison General Electric Company. (See Kennelly, Arthur E., assignor.)						
Edison General Electric Company. (See Kennelly and Ott, assignors.)						
Edison General Electric Company. (See Kolben, Emil, assignor.)						
Edison General Electric Company. (See Melick, George F., assignor.)						
Edison General Electric Company. (See Ott and Kennelly, assignors.)						
Edison General Electric Company. (See Parshall, Horace F., assignor.)						
Edison General Electric Company. (See Robb, James T., assignor.)						
Edison General Electric Company. (See Schefbauer, Rupert, assignor.)						
Edison General Electric Company. (See Weber, August, assignor.)						
Edison, Thomas A. (See Ott, John F., assignor.)						
Edison, Thomas A., Menlo Park, N. J. Telephone-repeater	478,743	July 12	1037	255	60	221
Edison, Thomas A., Menlo Park, N. J., and P. Kenny, New York, N. Y. Fac-simile telegraph	479,184	July 19	1728	{433 434}	60	363
Edison, Thomas A., Menlo Park, N. J., assignor to Edison Electric Light Company, New York, N. Y. Means for controlling electric generation	482,549	Sept. 13	1059	257	60	1556
Edison, Thomas A., Newark, N. J., assignor, by mesne assignments, to Western Union Telegraph Company. Duplex telegraph	480,567	Aug. 9	1305	326	60	844
Edmiston, James B., Liverpool, England. Filtering or purifying feed-water	481,109	Aug. 16	2175	539	60	1027
Edmond, William J., and T. J. Keon, Philadelphia, Pa. Shade for incandescent electric lamps	479,207	July 19	1761	{441 442}	60	369
Edward Miller & Company. (See Baldwin, George W., assignor.)						
Edward Miller & Company. (See Rhind, Frank, assignor.)						
Edwards, Archer and R. J., London, England. Machine for straightening and winding cloth, &c	478,255	July 5	312	76	60	63
Edwards, Frederick. (See Wilkes and Edwards.)						
Edwards, Harry. (See Smallfield and Edwards.)						
Edwards, Oliver M., Syracuse, N. Y. Window	482,344	Sept. 13	711	170	60	1489
Edwards, Richard J. (See Edwards, Archer and R. J.)						
Edwards, Samuel H., Bayonne, N. J. Box-nailing machine	482,866	Sept. 20	1539	{383 384 385}	60	1663
Edwards, William J., and F. R. Barclay, Youngstown, Ohio. Hook and eye	482,867	Sept. 20	1548	386	60	1664
Edwards, William S., Charleston, W. Va. Type-writing machine	482,510	Sept. 13	1010	245	60	1546
Effront, Jean, assignor to Société Générale de Maltose, Brussels, Belgium. Fermenting	478,418	July 5	551	.....	60	108
Egan Company. (See Bugbee and Danner, assignors.)						
Egelston, Edgar A., Easton, Md. Washing-machine	478,926	July 12	1316	327	60	276
Egge, Frederick, Bridgeport, Conn. Machine for setting lacing-hooks	480,185	Aug. 2	680	{172 173}	60	711
Egge, Frederick, assignor of two-thirds to C. E. and O. C. Smith, Bridgeport, Conn. Bicycle-lock	481,300	Aug. 23	2662	{652 653}	60	1130
Eglin, William, assignor of one-half to J. L. Hill, Philadelphia, Pa. Urinal and patrol-box	478,505	July 5	683	166	60	135
Egry, William L., Hamilton, Ohio. Autographic register	481,927	Sept. 6	27	7	60	1339
Ehenger, Smith, Park City, Utah Ter. Can-opener	479,256	July 19	1835	460	60	384
Ehrhardt, William, assignor, by mesne assignments, to Economic Feed Bag Company, New York, N. Y. Nose-bag	482,736	Sept. 20	1332	326	60	1621
Eichhorn, Andreas, assignor of one-half to A. Frans, St. Louis, Mo. Combined spool-holder and thread-cutter	480,455	Aug. 9	1147	287	60	810
Eichstaedt, Roman, Michigan City, Ind. Drawer-pull	481,853	Aug. 30	2496	641	60	1295
Eickemeyer Field Company. (See Eickemeyer, Rudolf, assignor.)						
Eickemeyer, Rudolf, Yonkers, N. Y. Dynamo-electric machine	479,118	July 19	1625	406	60	344
Eickemeyer, Rudolf, Yonkers, N. Y. Armature-winding for dynamo-electric machines	482,825	Sept. 20	1475	367	60	1650

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Eickemeyer, Rudolf, Yonkers, N. Y., assignor to Eickemeyer Field Company, of New York. Electric locomotive	480,918	Aug. 16	1857	463	60	967
Einig, John, Jacksonville, Fla. Steam-whistle	480,078	Aug. 2	510	130	60	680
Eisenhardt, George F., assignor to Dienelt & Eisenhardt, Philadelphia, Pa. Machine for printing oil-cloth	478,927	July 12	1317	327	60	276
Eisenhart, Henry W. (See Farquhar, Eisenhart, and Morton.)						
Eisner, Theodor D., Boston, Mass. Fabric-holder for embroidering-machines	481,553	Aug. 30	2935	721	60	1200
Eklund, Andrew M., Minneapolis, Minn. Electric belt	479,410	July 26	2098	525	60	450
Ekman, Carl F., Marshalltown, Iowa. Fire-escape	479,257	July 19	1837	461	60	384
Eldred, Zenas C., *et al.*, receivers. (See Fuller, Clark S., assignor.)						
Eldredge, Daniel, Boston, Mass. Speaking attachment for telephones	479,062	July 19	1531	382	60	327
Eldridge, Edward E., assignor of one-half to A. W. Stone, North East, Pa. Folding chair	479,355	July 19	1997	500	60	417
Eldridge, Herbert M., Niagara, Canada, assignor to Oneida Community, Limited, Kenwood, N. Y. Sheet-metal chain	483,347	Sept. 27	2326	585	60	1698
Eldridge, Hilliary, Purvis, Miss., assignor of one-half to P. C. Gagne, Houston, Tex. Magnifying-globe for the diffusion of artificial light	483,482	Sept. 27	2508	631	60	1863
Electric Brand Company. (See Fitzmaurice, James S., assignor.)						
Electric Construction Corporation. (See Parker, Thomas, assignor.)						
Electric Gas Lighting Company. (See Lane, Thomas W., assignor.)						
Electric Secret Service Company. (See Vinoing, Henry E., assignor.)						
Elevator Supply and Repair Company. (See Heermans, Thaddeus W., assignor.)						
Elevator Supply and Repair Company. (See Wylde, Edward, assignor.)						
Elias, Leopold, Kosten, Germany. Paper-holder	481,167	Aug. 23	2290	564	60	1062
Elkins, Ira S., New York, and R. Boeklen, Brooklyn, N. Y. Apparatus for making gas	483,107	Sept. 20	1924	487, 488	60	1740
Ellacott, Joseph P. (See Dickerman and Ellacott.)	479,793	Aug. 2	28	7	60	587
Ellery, Robert L., assignor of one-half to F. E. Fuller, Taunton, Mass. Car-truck	483,211	Sept. 27	2096	532	60	1786
Elliott, Irvin H., Allapaha, Ga. Bed-lock	482,626	Sept. 13	1173	283	60	1577
Elliott, James M., Jr., Gadsden, Ala. Car-coupling	483,047	Sept. 20	1835	467	60	1722
Elliott, James M., Jr., Gadsden, Ala. Car-coupling	483,048	Sept. 20	1837	467	60	1722
Elliott, Oscar A., assignor of one-half to C. Fishbaugh, York, Nebr. Pencil-holder	478,537	July 5	739	180	60	146
Elliott, Richard P. (See Garland, Charles F., assignor.)						
Elliott, Walter P., New York, N. Y. Apparatus for manufacturing gas	480,919	Aug. 16	1859	463, 464, 465	60	968
Ellis, Aaron D., Rutland, Vt. Angle-finish for rooms	478,928	July 12	1319	328	60	276
Ellis, Augustin, Bedford, Ind. Cultivator	478,790	July 12	1118	276	60	237
Ellis, Edward E., assignor of one-half to B. L. Wheeler, Washington, D. C. Setting mechanism for timepieces	478,321	July 5	408	98	60	82
Ellis, Elisha A., and W. C. S. Wood, Grassy Pond, S. C. Cotton-chopper	478,158	July 5	131	33	60	29
Ellis, John, Stockton, Cal. Combined vise, pipe-tongs, and cutter	481,168	Aug. 23	2291	564	60	1062
Ellis, Lucien W., Anamosa, Iowa, assignor to W. Deering, Chicago, Ill. Bundle-carrier for harvesters	480,944	Aug. 16	1894	474	60	975
Ellis, Washington L., Sr., *et al.* (See Beckwith, William G., assignor.)						
Ellison, William H. (See Sturtevant and Ellis.)						
Ellis, Wilson R., Woodland, Cal. Meat and vegetable cutter	480,560	Aug. 9	1307	327	60	844
Ellison, Byron A., Kansas City, Mo. Sectional grate-bar	480,568	Aug. 9	1306	327	60	844
Ellsworth, Charles W., assignor to Chicago Stamping Company, Chicago, Ill. Machine for seaming cans	478,580	July 12	799	197	60	174
Ellsworth, Erastus W., East Windsor Hill, assignor of one-half to C. W. Vibert, South Windsor, Conn. Blowpipe-lamp	480,717	Aug. 16	1550	388	60	906
Ellsworth, Walter. (See Draper and Ellsworth.)						
Elmore, Alexander S. (See Elmore, Francis E. and A. S.)						
Elmore, Francis E. and A. S., Leeds, assignors to Elmore's American and Canadian Patent Copper Depositing Company, Limited, London, England. Manufacturing tubes	480,186	Aug. 2	683	173	60	711
Elmore, William A., New York, N. Y. Seat-support for bicycles	478,581	July 12	802	198	60	174
Elmore's American and Canadian Patent Copper Depositing Company. (See Elmore, Francis E. and A. S., assignors.)						
Elton, Henry F., and J. W. Cadwell, New York, N. Y. Paper-bag holder	482,056	Sept. 6	218	52	60	1378
Elwood, Jonathan, Sanger, Cal. Ant or insect guard	479,976	Aug. 2	317	78	60	642
Ely, Thomas T., West Paris, Me. Tobacco-pipe	480,570	Aug. 9	1309	327	60	845
Emerson, James E., and T. Midgley, Beaver Falls, Pa., assignors of one-third to J. Lynch, Washington, D. C. Shield for gunners	478,506	July 5	684	166	60	135
Emerson, Rufus H., *et al.*, receivers. (See Fuller, Clark S., assignor.)						
Emery, George D. (See Skanks, George W., assignor.)						
Emery, L., Jr. (See Geary, James, assignor.)						
Emmer, Isaac, St. Louis, Mo. Interchangeable sign-board	480,255	Aug. 9	809	208	60	748
Emmitt, John V., *et al.* (See Wilson, William H., assignor.)						
Empire Car Coupler Company. (See Dale, Charles H., assignor.)						
Empire Car Coupler Company. (See Tower, Clinton A., assignor.)						
Empire Cash Register Company. (See Rosenfield, William W., assignor.)						
Empie, Joseph L., Orlando, Fla. Crate-head	479,794	Aug. 2	30	7	60	588
Emrich, Samuel, Reno, Nev. Railway-signal	479,258	July 19	1838	461	60	385
England, Alexander W. (See Anderson and England.)						
England, Frank D. (See Anderson and England.)						
Engle, Jacob P., San Francisco, Cal. Recovering waste products of petroleum	481,391	Aug. 23	2663	653	60	1130
Engle, Jacob P., San Francisco, Cal. Separation of waste products of petroleum distillation	481,392	Aug. 23	2664	653	60	1130
Engledue, William J., Byfleet, England. Galvanic battery	481,664	Aug. 30	3103	757	60	1232
Engler, Richard A., Columbus, Ohio. Bicycle-supporting frame	481,751	Aug. 30	3260	793	60	1263
Engler, William, Brooklyn, N. Y. Window-seat	481,854	Aug. 30	3427	841	60	1295
English, Analdo M., New York, assignor to P. Becker, Brooklyn, N. Y. Type-writing machine	481,855	Aug. 30	3428	841, 842	60	1295
Ennis, George H., assignor to J. D. Ennis, Troy, N. Y. Cake or bread box	480,718	Aug. 16	1560	389	60	907
Ennis, Jessie D. (See Ennis, George H., assignor.)						
Enos, Alanson T., New York, N. Y. Combined gas and electric-light fixture	480,813	Aug. 16	1701	424	60	936
Enos, Helen M., Millersburg, Ohio. Book-cover protector	481,015	Aug. 16	2010	502	60	996
Enschedé, James M., Crete, Nebr. Clevis	479,208	July 19	1763	442	60	370
Enterprise Manufacturing Company. (See Woodruff, Oliver D., assignor.)						
Erb, Emil A., Appleton, Wis. Total combustion	478,693	July 12	952	236	60	205
Erhard, Ursinus. (See Lillard and Erhard.)						
Erhart, Andrew J. (See Zalud, Albert, assignor.)						
Ermeling, Richard W., Bath, Ill. Corn-harvester	478,849	July 12	1207	300	60	254

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ermold, George, New York, N. Y. Larynx-tube	478,582	July 12	803	198	60	175
Ernst, Richard P. (See Orr, John E., assignor.)						
Erren, Frank, and O. Lohner, St. Paul, Minn. Dough-kneader	478,507	July 5	685	167	60	135
Essex, George B. (See Marvin and Essex.)						
Esterly, George, Whitewater, Wis., assignor to Esterly Harvesting Machine Company. Grain-binder	480,079	Aug. 2	512	130	60	680
Esterly Harvesting Machine Company. (See Esterly, George, assignor.)						
Estey Organ Company. (See Fuller, Levi K., assignor.)						
Estrayer, Augustin, Marseilles, France. Oil-press	480,867	Aug. 16	1781	445	60	952
Etève, Eugène, and J. Lemichel, Paris, France. Elevating-siphon	479,411	July 26	2099	526	60	450
Ethridge, Martin R., Portsmouth, N. H. Clothes-line holder	479,136	July 19	1651	412, 413	60	340
Ette, Charles G., St. Louis, Mo. Hydrant	479,250	July 19	1840	461	60	385
Ette, Charles G., and B. H. Sanders, St. Louis, Mo., assignors to said Ette. Sad-iron	478,920	July 12	1320	328	60	276
Euker, Louis, *et al.* (See Jenkins, Wilton F., assignor.)						
Euler, Hans, Lehe, near Bremerhaven, Germany. Shallow-water alarm	482,550	Sept. 13	1061	258	60	1556
Eureka Cash Register Company. (See Beck, Warren F., assignor.)						
Eureka Coat Pad Company. (See Goldman, Edward, assignor.)						
Eureka Wood Pulley Company. (See Reitz, Daniel G., assignor.)						
Eva, Addison H., Austin, Tex. Canopy for folding beds	479,063	July 19	1532	382	60	328
Evans, John, Providence, R. I. Coin-actuated mechanism	482,119	Sept. 6	322	77	60	1398
Evans, John T., and J. H. Douglass, Adamsville, Utah Ter. Machine for cutting hay-stacks	481,393	Aug. 23	2665	653, 654	60	1131
Evans, Mabel A. (See Newton, Andrew L., assignor.)						
Evans, Samuel W., Jr. (See Gaskill, William H., assignor.)						
Evans, Thomas S., St. Louis, Mo. Stovepipe	481,856	Aug. 30	3431	849	60	1296
Evans, William, Philadelphia, Pa. Molding-machine	479,755	July 26	2672	663	60	558
Evans, William H., Baltimore, Md. Stone-molding machine	478,226	July 5	256	62, 63	60	52
Evans, William H., Baltimore, Md. Machine for molding stone slabs	478,227	July 5	257	63, 64	60	52
Evans, William J., assignor to McKesson & Robbins, New York, N. Y. Powder-blower	478,744	July 12	1039	255	60	222
Eveleth, James E., Salix, Iowa. Portable wagon-loader	482,169	Sept. 6	411	98	60	1416
Everett, John A., and J. Finn, Jr., Natick, Mass. Sandpapering-roll	481,938	Sept. 6	29	7	60	1340
Everett, Samuel H., Macedon, N. Y. Fertilizer-distributer	479,637	July 26	2465	613	60	520
Evershed, Sydney, London, England. Electric measuring-instrument	478,097	July 5	32	10	60	9
Evershed, Sydney, London, England. Apparatus for the measurement of electric resistances	478,098	July 5	34	11	60	10
Evert, John F., Meudon, Mich. Adjustable-number device	480,841	Aug. 16	1740	435	60	943
Ewart, William D., Chicago, Ill., and J. M. Dodge, assignors to Link-Belt Engineering Company, Philadelphia, Pa. Elevator	480,659	Aug. 9	1462	364	60	874
Ewers, Ammon M., Edison, Ohio. Weather-strip	481,220	Aug. 23	2392	590	60	1092
Excelsior Specialty Company. (See Taylor, Cyrus, assignor.)	478,930	July 12	1322	328	60	277
Eyle, Fred, New Orleans, La. Apparatus for repelling boarders and distributing oil	481,615	Aug. 30	3031	741	60	1218
Eyman, Henry H. (See Cook and Eyman.)						
Eymer, Andrew, Saginaw, Mich. Machine for pasting labels on bottles	479,209	July 19	1764	442	60	370
Faber, Carl, Nuremberg, Germany. Pencil-sharpener	482,826	Sept. 20	1478	367	60	1650
Fagg, Volentine F., Avilla, Mo. Steamer	481,939	Sept. 6	31	7	60	1340
Fahlberg, Nicolaus. (See Prokhoroff, Nicolaus, assignor.)	481,940	Sept. 6	32	7	60	1340
Fairchild, Frank H. (See Biggs and Fairchild.)						
Fairfield, Roswell M. (See Allan, Robert W., assignor.)						
Fairfield, Roswell M. (See Benham, Elijah B., assignor.)						
Fairfield, Roswell M. (See Reynolds, James, assignor.)						
Fairfield, John M., assignor to American Writing Machine Company, Hartford, Conn. Type-writing machine	478,228	July 5	259	64	60	53
Fairman, James W. (See Wankey, Lewis F., assignor.)						
Falardeau, Dennis L., Cohoes, N. Y. Game apparatus	479,638	July 26	2467	614	60	521
Falvey, Jeremiah, New York, N. Y. Holder for fishing-line reels	481,941	Sept. 6	33	8	60	1340
Fannin, Bryant B., *et al.* (See Brown, William T., assignor.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Duisberg, Carl, assignor.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Lauch, Richard, assignor.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Ulrich and Bammann, assignors.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Volkmann, Paul, assignor.)						
Fargo, Frank B., Lake Mills, Wis. Milk-tester	478,099	July 5	35	11	60	10
Faris, Lafayette, Pricetown, Ohio. Vehicle-hub-attaching collar	482,627	Sept. 13	1174	284	60	1577
Farnham, John S. (See Hanson and Farnham.)						
Farnum, William C., Chicago, Ill. Apparatus for casting cylindrical bodies	482,405	Sept. 13	814	196	60	1509
Faron, Samuel, Paha'a, Kau, Hawaii. Diffusion apparatus	480,571	Aug. 9	1310	328	60	845
Farquhar, Arthur B., H. W. Eisenhart, and S. S. Morton, York, Pa. Machine for thrashing and separating grain	480,660	Aug. 9	1465	364, 365	60	874
Farrall, George A., assignor to Johnston Harvester Company, Batavia, N. Y. Corn-harvester	482,551	Sept. 13	1062	258, 259	60	1556
Farrel, John H., Camden, N. J., assignor to J. W. Douglass, Philadelphia, Pa. Pocket-lamp	479,741	July 26	2652	657	60	554
Farrell, George W., Au Sable Forks, assignor to I. Wiley, Albany, N. Y. Vehicle-spring	481,394	Aug. 23	2668	654	60	1131
Farrell, Philip H. (See Foster and Farrell.)						
Farrell, Thomas F., Paterson, N. J. Air-compressor	479,360	July 19	1841	462	60	385
Farrell, Thomas F., Paterson, N. J. Rock-drill	479,356	July 19	1908	500	60	417
Farwell, Fay O., Dubuque, Iowa. Cash-carrier	479,261	July 19	1843	462	60	386
Fasoldt, Ernest C., assignor of one-half to J. B. Thacher, Albany, N. Y. Speed-regulator for air-compressor pistons	481,527	Aug. 23	2886	708	60	1175
Faubion, John, Sr., Leander, Tex. Car-coupling	479,262	July 19	1845	462	60	386
Faulkner, Percy S., London, England. Game apparatus	478,100	July 5	36	12	60	10
Faure, Charles, Neufchâtel, Switzerland. Apparatus for rolling up strips or webs	479,875	Aug. 2	152	37, 38	60	612
Fawell, Joseph. (See Hemphill and Fawell.)						
Fay, Stephen C., and H. Willis, Rochester, N. Y. Magazine-camera	479,587	July 26	2388	595	60	506
Fechheimer, Isaac, *et al.* (See Coates, John F., assignor.)						
Federroll, Rudolph, New York, N. Y. Wood and coal box	478,931	July 12	1323	328	60	277
Felcker, Fredrick C., assignor to Northampton Cutlery Company, Northampton, Mass. Machine for grinding cutlery and other handles	481,259	Aug. 23	2451	603, 604	60	1093
Feldmann, Alfred, Bremen, Germany. Distilling apparatus	480,842	Aug. 16	1741	435	60	943
Felker, Melancthon O., Springfield, Ohio. Whip-cane	482,895	Sept. 20	1603	402	60	1674
Fell, Charles, Southport, England. Velocipede	479,064	July 19	1533	382	60	328

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Felton, Charles E. (See Mack, Albert G., assignor.)						
Felton, Tommas W., San Gabriel, Tex. Car-coupling	480,456	Aug. 9	1148	287	60	811
Fenner, Herbert, *et al.* (See Keene, Samuel D., assignor.)						
Fenton, Alfred, and J. Barnes, London, England. Can-opener	480,868	Aug. 16	1782	446	60	953
Fenton Metallic Manufacturing Company. (See Foster and Hine, assignors.)						
Ferguson, Alexander, Lewiston, Me. Fire-escape	482,345	Sept. 13	715	170	60	1489
Ferguson, Drew, *et al.* (See Williams, Robert E., assignor.)						
Ferguson, George C. (See Bixler and Ferguson.)						
Ferguson, Ralph E., Akron, Ohio. Revolving paper-file	481,857	Aug. 30	3432	842	60	1296
Ferguson, Robert W., *et al.*, trustees. (See Hill, Charles, assignor.)						
Ferguson, William E., Montclair, N. J. Device for illuminating railway-tracks	481,016	Aug. 16	2011	503	60	996
Ferris, Henry L., assignor to Hunt, Helm & Ferris, Harvard, Ill. Hay-carrier track	481,349	Aug. 23	2600	639	60	1119
Ferris, Will H., Franklinville, N. Y. Gun-cleaner	481,858	Aug. 30	3433	843	60	1296
Ferris, William J., Louisville, Ky. Bottle-stopper	481,616	Aug. 30	3032	741	60	1219
Fetters, Joseph F., Dayton, Ohio. Steam-condenser	480,572	Aug. 9	1311	328	60	845
Fiedler, Frederick W., Scranton, Pa. Vehicle-hub	478,977	July 5	345	83	60	69
Field, Albert D., assignor to Metal Goods Manufacturing Company, Bridgeport, Conn. Shoe-fastening	483,144	Sept. 27	1980	501	60	1762
Field, Charles H. (See Field, Frank H. and C. H.)						
Field, Edward, London, England. Apparatus for producing mixtures of steam and hot air	479,707	July 26	2587	644	60	542
Field, Emil J., *et al.* (See Stearns, Collins M., assignor.)						
Field, Frank H., New Orleans, La., and C. H. Field, Dalton, Ga. Portable dental chair	482,520	Sept. 13	1011	245	60	1547
Field, Jesse A., Buffalo, N. Y. Molding-machine	481,017	Aug. 16	2012	503 504	60	996
Field, John S., and W. J. Shedd, Chicago, Ill. Dumping-wagon	482,731	Sept. 20	1332	326 327	60	1621
Field, Thomas, *et al.* (See Stearns, Collins M., assignor.)						
Field, Walter D., Millburn, N. J. Compound of sulphureted oils	478,955	July 12	1353	.....	60	283
Field, William R. (See Buck, Julius W., assignor.)						
Finch, John Q., assignor of one-third to A. W. Sauborn, San Francisco, Cal. Axle-lubricator	482,918	Sept. 20	1633	410	60	1680
Findlay, John H. (See Bossert and Findlay.)						
Fine, Mahlon H., Alden Station, Pa. Lubricator	482,346	Sept. 13	716	171	60	1489
Finegan, John W., Lowell, Mass. Wringing-machine	480,437	Aug. 9	1149	288	60	811
Fink, Joseph H., New York, N. Y. Interchangeable-initial finger-ring	480,080	Aug. 2	513	130	60	680
Finkbiner, W. S. G., *et al.* (See Manderfield, George J., assignor.)						
Finn, Edwin, Elkhart, Ind., assignor to S. D. Kimbark, Chicago, Ill. Corner-iron for wagon bodies or seats	480,187	Aug. 2	685	173	60	712
Finn, John, Jr. (See Everett and Finn.)						
Finney, John, Portland, Oreg. Link-lifter	478,932	July 12	1324	329	60	277
Firme, Christian W. (See Thillman and Firme.)						
Fischer, Engelbert, Chicago, Ill. Box-board matcher and jointer	481,752	Aug. 30	3262	794	60	1263
Fischer, Frank X., Oakland, Cal. Boiler	480,081	Aug. 2	514	130	60	680
Fischer, Jacob A. (See Grace, Henry S., assignor.)						
Fischer, John, and E. Preiser, Milwaukee, Wis. Stove	479,210	July 19	1766	443	60	370
Fischer, Joseph, Cleveland, Ohio. Underground trolley	482,506	Sept. 13	985	238	60	1542
Fish, Charles H., *et al.* (See West, Derrick S., assignor.)						
Fish, Henry C., Worcester, Mass. Steam-generator	480,365	Aug. 9	994	250	60	783
Fishbaugh, Charles. (See Elliott, Oscar A., assignor.)						
Fisher, Alvan B., Rutland, Mass. Roving-can	481,554	Aug. 30	2937	722	60	1201
Fisher, Ebenezer. (See McBride and Fisher.)						
Fisher, Ina M. (See Fisher, Isaac M. and I. M.)						
Fisher, Isaac M. and I. M., Burrows, Mo. Jar filler and holder	483,040	Sept. 20	1838	467	60	1723
Fisher, John, Havana, Cuba. Cane-mill	482,064	Sept. 6	265	64	60	1387
Fisher, John, Havana, Cuba. Feed-chute for sugar-mills	482,065	Sept. 6	267	64	60	1388
Fisher, William Y., and C. Perry, Big Timber, Mont. Lifting-jack	482,628	Sept. 13	1176	281	60	1577
Fitch, William E., Louisville, Ky. Back or lining for fireplaces	479,103	July 19	1504	309	60	339
Fitch, William E., Louisville, Ky. Back or lining for fireplaces	480,322	Aug. 9	929	236	60	771
Fithian, Jonathan, Bridgeton, N. J. Bottle-snap	480,458	Aug. 9	1150	288	60	811
Fitzmaurice, James S., assignor to Electric Brand Company, Limited, Sydney, New South Wales. Branding-stamp	483,050	Sept. 20	1839	467	60	1723
Flagg, Frank E., assignor of one-half to A. Dow, New York, N. Y. Pencil-pointer	481,018	Aug. 16	2016	504	60	997
Flagg, Samuel H., Providence, R. I. Conduit for electric wires	480,573	Aug. 9	1313	328	60	845
Flanagen, James I., Philadelphia, Pa. Handle for wash-boilers	479,588	July 26	2390	596	60	506
Flanders, William G., New York, N. Y. Dental-tool sterilizer	482,552	Sept. 13	1069	259	60	1557
Flanigan, Thomas A., Pittsburg, Pa. Nut and bolt lock	482,472	Sept. 13	926	226	60	1529
Flavau, Louis S., Pittsburg, Tex., assignor to B. F. Avery & Sons, Louisville, Ky. Sulky-plow	482,943	Sept. 20	1667	419	60	1687
Fleckenstein, Valentin, Oshkosh, Wis. Machine for sewing straw covers for bottles	480,092	Aug. 2	515	131 132	60	680
Fleischel, George, and J. Bertrand, San Francisco, Cal. Lock	479,104	July 19	1505	399	60	339
Fletcher, Augustus, Minersville, Pa. Steam-blower	482,236	Sept. 6	510	121 122	60	1434
Fletcher, Edwin J., New York, N. Y. Trunk-stand	483,348	Sept. 27	2327	585	60	1828
Fleuss, Henry A., London, England. Umbrella or parasol	483,212	Sept. 27	2097	532	60	1786
Flexner, Jacob A., Louisville, Ky. Syringe	478,563	July 12	804	198	60	175
Flick, Rudolph, Cleveland, Ohio. Vapor-stove	483,051	Sept. 20	1840	468	60	1723
Flinn, Sydney, Caddoa, Colo. Automatic flood-gate	482,868	Sept. 20	1549	386	60	1664
Flower, Francis S. (See Beauregard and Flower.)						
Flügge, Adolf, Frankfort-on-the-Main, Germany. Solution of myrrh-resin and making the same	479,935	Aug. 2	251	.....	60	630
Flynn, John, Vail, Iowa. Washing-machine	480,063	Aug. 2	518	132	60	681
Flynn, Peter H., Syracuse, N. Y. Garter attachment	482,629	Sept. 13	1177	281	60	1578
Fogerty, George. (See Fogerty, George F., assignor.)						
Fogerty, George F., assignor of one-half to G. Fogerty, Cambridge, Mass. Gun	482,305	Sept. 6	629	150	60	1458
Foley, John E. (See Foley, Thomas F. and J. E.)						
Foley, John P. (See Rockliff and Foley.)						
Foley, Thomas F. and J. E., Jackson, Mich. Vehicle-wheel	479,495	July 26	2262	567	60	482
Fellenius, Reinhold H., St. Louis, Mo. Name-plate for monuments, signs, &c	482,237	Sept. 6	511	122	60	1435
Folsom, Lewis L., Stone House, Nev. Foot-lever for the cutter-bars of mowers	482,347	Sept. 13	718	171	60	1490
Foote, Edward N. (See Saunders, Range, and Foote.)						
Foote, Edward N., and J. J. Range, assignors to Boston Cash Register Company, Northampton, Mass. Cash registering and indicating machine	479,357	July 19	2000	500 501	60	417

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Foote, John B., Hamilton, Ohio, assignor to E. and O. W. Norton, Chicago, Ill. Can-machine	480,256	Aug. 9	810	208	60	748
Forbes, Alexander G. (See Kemp, George W., assignor.)						
Forbes, Edwin, Flatbush, N. Y. Apparatus for starting racers	481,200	Aug. 23	2453	604	60	1094
Forbes, John S. (See Adams and Forbes.)						
Forbes Mine Car Appliance Company. (See Odorizzi, Joseph, assignor.)						
Forbes, Stephen M., St. Louis, Mo. Combination wire-fence tool	479,561	July 26	2355	588	60	500
Forbes, Walter T., Atlanta, Ga. Machine for decorticating ramie, &c	480,084	Aug. 2	519	132	60	681
Forbes, Walter T., assignor of one-half to J. F. Lester, Atlanta, Ga. Wool-washing machine	478,419	July 5	555	134	60	108
Force, Horace W., Newburg, N. Y. Attachment for stereopticons, magic lanterns, &c	482,238	Sept. 6	513	122	60	1435
Ford, Archibald, Golden Gate, Cal. Apparatus for reducing bituminous rock	479,406	July 26	2263	567	60	483
Ford, Bruce, Gloucester, N. J. Incandescent electric lamp and lamp-socket	481,019	Aug. 16	2018	504	60	997
Ford, Charles, Lowell, Mass. Pile-wire	479,211	July 19	1767	443	60	371
Ford, George, New Harmony, Ind. Gate	480,085	Aug. 2	520	132	60	681
Ford, Summerfield, Chicago, Ill. Cleaning attachment for type-writing machines	480,257	Aug. 9	814	208	60	749
Ford, William H., assignor of one-half to W. A. Stickney, St. Louis, Mo. Conduit system for electric railways	478,956	July 12	1354	335	60	283
Fordham, Arthur, Chicago, assignor of one-half to R. H. Wiles, Freeport, and H. Bitner, Chicago, Ill. Car-vestibule	482,006	Sept. 6	135	33	60	1361
Fordham, Leonie. (See Stoner, John B., assignor.)						
Fore, William A. (See Rickabach, William H., assignor.)						
Fornander, Alfred, New York, N. Y. Pencil	480,188	Aug. 2	686	174	60	712
Forney, Matthias N., New York, N. Y. Reversible back for car or other seats	482,447	Sept. 13	886	213 214	60	1521
Forsgard, Samuel J., Waco, Tex. Dumping-wagon	482,496	Sept. 13	975	236	60	1539
Forsman, Leonard, Albina, Oreg. Drag-sawing machine	481,555	Aug. 30	2928	722	60	1201
Forster, Frank, Etiwanda, Cal. Movable step	482,573	Sept. 13	1004	266	60	1563
Forster, George H., Baltimore, Md. Barrel	481,350	Aug. 23	2601	639	60	1119
Forster, William E., Lynn, Mass. Sole-pressing machine	478,420	July 5	556	135	60	109
Forter, Samuel, Allegheny, Pa. Hydraulic motor	482,732	Sept. 20	1334	327 328 329	60	1622
Fortier, Charles L., Milwaukee, Wis. Valve-controller	479,795	Aug. 2	30	8	60	588
Fortin, Charles, Florisant, Mo. Guide for replacing electric trolleys	480,766	Aug. 16	1628	408	60	922
Foskett, William A., *et al.* (See Garland, Frank. M., assignor.)						
Foss, Lewis T., Boston, Mass. Tooth-brush	479,796	Aug. 2	33	8	60	588
Foster, Charles E., Washington, D. C., and J. W. Hine, assignors to Fenton Metallic Manufacturing Company, Jamestown, N. Y. Case for books	480,693	Aug. 9	1516	377	60	883
Foster, Ephriam A., Port Clinton, Ohio. Rack for displaying goods	481,942	Sept. 6	34	8	60	1341
Foster, Fred D. (See Hastings and Foster.)						
Foster, George H., and P. H. Farrell, Brooklyn, N. Y. Inkstand	481,649	Aug. 30	3080	752	60	1228
Foster, James C. (See Luther, Arcous B., assignor.)						
Foster, John F., Marceline, Mo. Combination-lock	479,412	July 26	2100	526	60	451
Foster, Joseph M., assignor of one-half to R. Bruce, Boston, Mass. Kerf-spreader	482,507	Sept. 13	986	239	60	1542
Foster, Lebbeus H., Adrian, Mich. Hinge	479,936	Aug. 2	251	62	60	630
Foster, Parks, *et al.* (See Weller, George L., assignor.)						
Foster, Robert F., New York, N. Y., assignor to C. Goodall & Son, London, England. Game-marker	478,694	July 12	953	237	60	205
Foster, Samuel L., assignor to J. T. Ahrens, Wilmington, Del. Electric stop-motion for textile machinery	479,358	July 19	2003	501	60	418
Foster, Timothy H. (See Ayres and Foster.)						
Foster, Washington H., assignor of one-half to H. C. Howell and W. H. Brafford, Concord, N. C. Car-coupling	480,459	Aug. 9	1151	288	60	811
Fowler, Anderson. (See Duechting, William, assignor.)						
Fowler, Arthur H., Buffalo, N. Y. Semi-direct radiator	479,413	July 26	2104	527	60	451
Fowler, Benjamin F., assignor of one-half to C. R. Waterman, Minneapolis, Minn. Fume-drainer for cooking-vessels	481,901	Aug. 30	3504	858	60	1309
Fowler, Benjamin F., assignor of one-half to C. R. Waterman, Minneapolis, Minn. Frying-pan or skillet	482,630	Sept. 13	1177	284	60	1578
Fowler, Charles M., Salem, Mass. Fire-escape	481,693	Aug. 30	3148	718	60	1241
Fowler, Elizabeth R., Chetopa, Kans. Ironing-board	482,348	Sept. 13	718	171	60	1490
Fowler, George A., Kansas City, Mo. Refrigerator-car	478,995	July 19	1432	354 355	60	308
Fowler, Joseph C., assignor of one-half to L. G. Hine, Washington, D. C. Machine for producing type-bars	481,920	Aug. 30	3536	866 867 868 869	60	1317
Fowler, Lewis H., Vallejo, Cal. Fire-ladder	478,278	July 5	346	83, 84	60	70
Fowler, Samuel S., Elizabeth City, N. C. Traveler for ring-spinning frames	478,256	July 5	315	76	60	63
Fowler, Walter E., assignor of one-half to L. Saunders, Lawrence, Mass. Boiler	482,999	Sept. 20	1760	444	60	1706
Fowler, Walter B., assignor of one-half to L. Saunders, Lawrence, Mass. Boiler for marine engines	483,000	Sept. 20	1761	444	60	1706
Fox, Clarence W., Saugus, Mass. Spatula	479,937	Aug. 2	252	62	60	631
Fox, James T., assignor to W. H. Torian, Sherman, Tex. Gate-latch	480,189	Aug. 2	687	174	60	712
Fox, John, New York, N. Y. Double-blade bevel-gage	482,888	Sept. 20	1587	399	60	1670
Fox, Samuel S., Marion, Ohio. Tooth-brush case and pencil-holder combined	482,631	Sept. 13	1178	285	60	1578
Fox, William R., Grand Rapids, Mich. Miter-cutter	483,436	Sept. 27	2455	618	60	1853
Fraas, Gustav A., Dresden, Germany. Vehicle-shaft	480,869	Aug. 16	1783	446	60	953
Fraim, Edward T., Lancaster, Pa. Padlock	478,950	July 12	1207	300	60	255
Fraim, Edward T., Lancaster, Pa. Padlock	479,414	July 26	2107	527	60	452
Fraizer, Perry, New Castle, Ind. Filing and supply case	478,584	July 12	805	198	60	175
France, Albert L., Millsdale, assignor to Kenton Can Company, Covington, Ky. Supplementary lens for bicycle and carriage lamps	480,661	Aug. 9	1469	366	60	874
France, Joseph R., New York, N. Y. Toilet or other article of plastic material	478,851	July 12	1209	300	60	255
France, Joseph R., New York, N. Y. Waterproof fabric	481,485	Aug. 23	2818	692	60	1162
Frank, Henry C., New York, N. Y. Hook and eye	482,473	Sept. 13	927	226	60	1529
Frank, Jerome W., New York, assignor of three-fifths to L. S. Langville, Troy, N. Y. Adhesive	478,229	July 5, 1861	.....		60	53
Franke, Adolf, assignor to Urania-Uhren-und-Säulen-Commandit-Ges. Breslauer & Dr. Von Orth, Berlin, Germany. Electrical stop-valve	483,106	Sept. 20	1927	488	60	1741
Franklin, James, Montverde, Fla. Apparatus for irrigating and sprinkling land	479,105	July 19	1507	400	60	339
Franklin, John J., *et al.* (See Ripson, John D., assignor.)						
Fransmann, John, New York, N. Y. Wheel-shoe	479,708	July 26	2590	645	60	543

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Franz, Andrew. (See Eichhorn, Andreas, assignor.)						
Fraser, Peter, Plymouth, Mass., assignor to Atlas Tack Corporation, of Massachusetts. Machine for making spiral springs	481,395	Aug. 23	2668	654, 655, 656	60	1131
Fraser, Peter, Trenton, N. J., assignor to Atlas Tack Corporation, of Massachusetts. Machine for knotting the ends of spiral springs	481,396	Aug. 23	2675	656, 657	60	1132
Frawley, Thomas F., *et al.* (See Wolfe, George C., assignor.)						
Frazier, Edward S., Aurora, Ill. Sulky	481,556	Aug. 30	2940	722	60	1202
Frazier, Edward S., Aurora, Ill. Ball-bearing for vehicle-wheels	482,896	Sept. 20	1604	402	60	1674
Frazier, William J., New York, N. Y. Gas-radiator	479,977	Aug. 2	319	78	60	643
Frechette, Isaïe, Montreal, Canada. Lasting-machine	482,349	Sept. 13	720	172, 173, 174, 175	60	1490
Fredericks, Thomas J., Audubon, Iowa. Draft-equalizer	479,088	July 19	1574	394	60	335
Frederiksen, Johan D., assignor of one-half to D. H. Burrell, Little Falls, N. Y. Making cheese	482,897	Sept. 20	1605	.....	60	1674
Fredlihp, Joseph L., Portersville, Cal. Clasp	479,938	Aug. 2	253	62	60	631
Fredrikson, Andrew J., assignor of one-half to J. Tournell, Grand Rapids, Mich. Combined pocket-lighter and match-safe	479,756	July 26	2674	664	60	559
Freeman, James P., assignor of two-thirds to M. C. Stone and P. T. Dodge, Washington, D. C. Lightning-arrester cut-out	481,617	Aug. 30	3034	741	60	1219
Freeman, Thomas R., assignor of one-half to W. D. Roberts, Sioux Falls, S. D. Furnace	480,066	Aug. 2	521	133	60	681
Freese, Claus, assignor of one-half to H. Giessenbier, St. Louis, Mo. Fender for vehicles	478,585	July 12	806	199	60	175
Freese, J. M., *et al.* (See Vandament, George A., assignor.)						
French, Adams C., Seattle, Wash. Snatch-block	481,020	Aug. 16	2020	505	60	998
French, Adams C., Rapid City, S. D. Derrick-drum	483,052	Sept. 20	1843	468	60	1724
French, Charles A., Boston, Mass., assignor to Singer Manufacturing Company of New Jersey. Clamp for buttonhole sewing-machines	478,586	July 12	807	199	60	175
French, George F. (See Bolding, Arch, assignor.)						
French, George M. (See Atwood, George F., assignor.)						
French, Horace O., Washington, D. C. Ammunition-measure	482,120	Sept. 6	323	77	60	1398
French, Oell S. (See Hawk and French.)						
French, P. O., *et al.* (See Vandament, George A., assignor.)						
Freund, Isaac. (See Stillians, Charles W., assignor.)						
Frey, Charles W. (See Hill and Frey.)						
Frey, Friedrich, Stuttgart, Germany. Stem-winding watch	480,814	Aug. 16	1702	425	60	936
Frey-Sheckler Company. (See Johnson, Oliver W., assignor.)						
Frey-Sheckler Company. (See Thompson, John, assignor.)						
Fridley, George W. (See Paugh and Fridley.)						
Friedly, George W., *et al.* (See Rush, John T., assignor.)						
Friedrich, Pancratius, *et al.* (See Schmid, Charles, assignor.)						
Frikart, Johann R., Munich, Germany. Valve-gear	482,007	Sept. 6	136	33	60	1362
Frings, Bertha O. (See Frings, Charles H. and B. O.)						
Frings, Charles H. and B. O., New York, N. Y., assignors to Brewing Improvement Company, Maywood, N. J. Brewing beer	478,188	July 5	184	.....	60	39
Frings, Charles H. and B. O., New York, N. Y., assignors to Brewing Improvement Company, Maywood, N. J. Hopping malt liquors	478,189	July 5	185	.....	60	39
Frings, Charles H. and B. O., New York, N. Y., assignors to Brewing Improvement Company, Maywood, N. J. Obtaining extracts from hops	478,508	July 5	686	167	60	136
Frist, Robert P., assignor to Delaware Hard Fibre Company, Wilmington, Del. Art of and apparatus for making parchmentized-fiber tubes	479,263	July 19	1845	462	60	386
Frist, Robert P., and C. G. Rupert, assignors to Delaware Hard Fibre Company, Wilmington, Del. Art of and apparatus for making parchmentized-fiber tubes	479,264	July 19	1847	463	60	387
Fristoe, Richard H., Sheridan, Ind. Fence	482,037	Sept. 6	186	45	60	1372
Fritsche, Max, New York, N. Y. Tapering-tool for lead pipes	481,169	Aug. 23	2291	565	60	1062
Fritz, Harvey. (See Rider, John T., assignor.)						
Frobird, Henry, Osnaburg, Ohio. Nut-lock	479,065	July 19	1535	383	60	328
Froehlich, Amadeus A., Brooklyn, assignor of one-half to W. Hodgson, New York, N. Y. Thill-coupling	478,957	July 12	1361	335	60	284
Froesch, William, Ballard Vale, Mass. Filler-cap for oil-receptacles	478,421	July 5	558	135	60	109
Frose, Jasper M., Sleeth, Ind. Gate	480,460	Aug. 9	1152	288	60	811
Fruen, Walter L., assignor of one-third to W. H. Fruen, Minneapolis, Minn. Bicycle	479,757	July 26	2676	664	60	559
Fruen, William H. (See Fruen, Walter L., assignor.)						
Frumviller, Frank A., Detroit, Mich. Beer-faucet	482,474	Sept. 13	928	226	60	1529
Fryer, Aaron, Bath, N. Y. Machine for grinding	483,949	Sept. 27	2153	545, 546	60	1796
Fuchs, Arthur A., Tiffin, Ohio. Crayon-molding machine	479,212	July 19	1768	443	60	371
Fuchs, Charles, Jr. (See Keseling and Fuchs.)						
Fuchs, Charles H., Tiffin, Ohio. Pool rack and spotter	479,213	July 19	1770	444	60	371
Fuel Gas and Manufacturing Company. (See Ruud, Edwin, assignor.)						
Fuhrmann, Philip H., Mahanoy City, Pa. Stool	482,553	Sept. 13	1070	260	60	1558
Fulbright, William D., assignor to himself and H. E. Patton, Nichols, Mo. Wire-stretcher	479,265	July 19	1848	463	60	387
Fuld, William, Baltimore, Md. Game apparatus	479,266	July 19	1849	463	60	387
Fulghum, Elisha J., and L. Roberts, Traverse City, Mich. Wire coiling and cutting machine	483,321	Sept. 27	2294	577	60	1821
Fullard, William, Brooklyn, N. Y. Tilting device for barrels or casks	482,574	Sept. 13	1096	266	60	1563
Fuller Brothers Manufacturing Company *et al.* (See Blood, Maurice E. and C. C., assignors.)						
Fuller, Clark S., Lafayette, Ind., assignor, by mesne assignments, to Geo. T. Smith Middlings Purifier Company, Jackson, Mich. Flour-bolt	479,589	July 26	2391	596	60	506
Fuller, Clark S., Lafayette, Ind., assignor to R. H. Emerson and Z. C. Eldred, Jackson, Mich., receivers of the G. T. Smith Middlings Purifier Company. Flour-bolt	479,775	July 26	2721	676, 677	60	569
Fuller, Darius, Chicago, Ill. Car-starter	483,349	Sept. 27	2330	585, 586	60	1828
Fuller, Francis E. (See Ellery, Robert L., assignor.)						
Fuller, Henry C. (See Deming and Fuller.)						
Fuller, Joseph W. (See Marble, James E., assignor.)						
Fuller, Levi K., assignor to Estey Organ Company, Brattleborough, Vt. Key for musical instruments	483,378	Sept. 27	2378	597	60	1837
Fuller, Levi K., assignor to Estey Organ Company, Brattleborough, Vt. Making tuning-forks	483,513	Sept. 27	2564	643	60	1874
Fuller, William C. (See Capwell and Fuller.)						
Funk, Charles E. (See Mendenhall, James E., assignor.)						
Funk, George W., Sedalia, Mo. Device for watering stock	478,745	July 12	1040	255	60	222

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Funkhouser, Martin L., Carlisle, Pa. Hedge fence	483,322	Sept. 27	2296	577	60	1822
Funkhouser, Monroe, *et al.* (See Rinker, Robert S., assignor.)						
Furer, C. J. (See Tobey, Samuel W., assignor.)						
Furgang, Rudolph, Boston, Mass. Safety attachment for electric conductors	481,665	Aug. 30	3105	757, 758	60	1232
Furgang, Rudolph, Boston, Mass. Safety attachment for electric conducting-wires	481,666	Aug. 30	3106	758	60	1233
Furgang, Rudolph, assignor of one-half to I. Kaffenburgh, Boston, Mass. Safety cut-out	480,009	Aug. 2	392	97	60	656
Fusch, William H. (See Seymour, George H., assignor.)						
Fyfe, William W., London, England. Amalgamating apparatus for crushed ores and like reduced bodies	480,366	Aug. 9	995	250	60	783
G. S. Foos Company. (See Leedle, George D., assignor.)						
G. S. Foos Company. (See Slager, Albert L., assignor.)						
Gabb, George, London, England. Broaching device for casks	478,852	July 12	1210	300	60	255
Gabel, Henry M., Avondale, Ohio. Mixing or separating machine	478,587	July 12	808	199	60	176
Gagne, P. C. (See Eldridge, Hilliary, assignor.)						
Gagnebin, William T., assignor of one-half to W. T. Graham, Omaha, Nebr. Stair-builder's tool	482,350	Sept. 13	730	175	60	1493
Gagnon, Cyrille, and L. Lefebvre, Montreal, Canada. Latch	481,557	Aug. 30	2942	723	60	1202
Gaillard, Ella N., New York, N. Y. Dress-shield	480,574	Aug. 9	1314	326	60	845
Gale, Edward R., Chicago, Ill. Ore-crusher	478,588	July 12	809	199	60	176
Gale, George W., Greeley, Colo. Well-excavator	479,149	July 19	1670	417	60	352
Gale Manufacturing Company. (See Mallery and Youngs, assignors.)						
Gall, John S., assignor to Steam Gauge and Lantern Company, Rochester, and R. E. Dietz Company, New York, N. Y. Tubular lantern	481,276	Aug. 23	2484	611	60	1099
Galland, Joseph, assignor to Aultman & Taylor Machinery Company, Mansfield, Ohio. Combined thrashing-machine and grain-separator	482,121	Sept. 6	325	77	60	1398
Galliant, John W., assignor of one-half to P. Mundry, Delta, Colo. Combination fence-tool	482,554	Sept. 13	1071	260	60	1558
Gallie, Charles, St. Louis, Mo. Portfolio or pocket-case	482,827	Sept. 20	1479	368	60	1650
Galloway, James B., Chicago, Ill. Musical instrument	480,087	Aug. 2	523	133	60	682
Gallup, Jasper E., assignor of one-half to B. W. Cole, Mellette, S. D. Planter attachment for disk harrows	481,694	Aug. 30	3149	768	60	1241
Galvin, James P., Bridgeport, Conn. Suspenders	482,632	Sept. 13	1179	285	60	1578
Gamble, James N. (See Dean, Francis W., assignor.)	478,958	July 12	1362	336	60	284
Gamble, James N. (See Strong, George S., assignor.)						
Ganaini, Giovanni, Lodi, Italy. Electric accumulator	480,575	Aug. 9	1315	329	60	846
Garbrance, George C., Watervliet, N. Y. Fastening for basket-covers	479,797	Aug. 2	34	8	60	588
Garbutt, Hiram J., assignor of one-half to G. Smith, Lexington, Mich. Counter-shaft-supporting jack	481,486	Aug. 23	2820	693	60	1162
Garcia, Manuel R., London, England. Recovering tin from tin-plate	480,920	Aug. 16	1862	465	60	968
Gardiner, Clement E., Hempstead, N. Y. Apparatus for the manufacture of tubular articles of confectionery	478,279	July 5	347	84	60	70
Gardner, Edward. (See Gardner, Thomas H. and E.)						
Gardner, Frank B., Lima, Ohio. Cuff-holder	478,101	July 5	37	12	60	10
Gardner, Fulton, assignor of one-half to S. T. White, Chicago, Ill. Apparatus for boring wells	478,791	July 12	1120	276, 277	60	237
Gardner, John, Bloomingdale, assignor to F. C. Austin, Chicago, Ill. Well-drilling machine	480,906	Aug. 16	1843	458	60	965
Gardner, John H., Providence, R. I. Cooker	482,898	Sept. 20	1606	403	60	1674
Gardner Sewing Machine Company. (See Levedahl, Axel, assignor.)						
Gardner, Thomas H. and E., Cornbrook, Manchester, England. Chair	479,415	July 26	2109	527, 528	60	452
Gardner, William F., Washington, D. C. Method of and apparatus for testing circuits for electric time systems	480,576	Aug. 9	1315	329	60	846
Gardner, William F., Washington, D. C. Clock-synchronizing device and system	480,577	Aug. 9	1318	329, 330	60	846
Garford, Arthur L., Elyria, Ohio. Bicycle-saddle	481,538	Aug. 23	2907	714	60	1180
Garland, Charles F., Chelsea, Mass., assignor to R. P. Elliott, Nashua, N. H. Door-lock	480,236	Aug. 2	769	194	60	728
Garland, Frank M., assignor of two-thirds to E. B. Beecher, W. A. Foskett, F. P. Newton, New Haven, Conn., and T. H. Sherman, Washington, D. C. Ammunition-belt	479,798	Aug. 2	36	8	60	589
Garland, Frank M., assignor of two-thirds to E. B. Beecher, W. A. Foskett, F. P. Newton, New Haven, Conn., and T. H. Sherman, Washington, D. C. Machine-gun	479,799	Aug. 2	37	9, 10	60	589
Garland, George D. (See Walters, William, assignor.)						
Garland, Jeremiah B., Osage City, assignor of one-half to J. N. Craig, Coyville, Kans. Egg-tester	481,487	Aug. 23	2821	693	60	1162
Garland, Jeremiah B., Osage City, assignor of one-half J. N. Craig, Coyville, Kans. Combined dumping-tray and egg-tester	481,488	Aug. 23	2822	694	60	1162
Garland, Michael, Bay City, Mich. Carrier attachment for bucket-elevators	478,322	July 5	410	98	60	82
Garland, Michael, Bay City, Mich. Sprocket device for conveyers	480,010	Aug. 2	393	97	60	656
Garland, Michael, Bay City, Mich. Conveyer for handling lumber, &c	480,496	Aug. 9	1201	301	60	822
Garland, Michael, Bay City, Mich. Sprocket-cable elevator	482,230	Sept. 6	515	123	60	1435
Garner, James, T. Cockerill, and C. Porrett, Manchester, England. Hoist	479,087	July 19	1572	394	60	335
Garretson, Amos, Fall Creek, Ind. Safety-coupling for gas-mains	481,397	Aug. 23	2678	657	60	1133
Garvey, James, *et al.* (See Dow, Charles H., assignor.)						
Garwick, Harrison, Morrison, Ill. Gambrel	482,633	Sept. 13	1180	285	60	1578
Garwood, Sarah H., Southsea, England. Darning-last	482,351	Sept. 13	731	176	60	1493
Garwood, Willie. (See Richards, Garwood, and Rosebrook.)						
Gary, William E., Philadelphia, Pa. Calendar-holder	479,876	Aug. 2	155	39	60	612
Gas-Motoren-Fabrik-Deutz. (See Schumm, Hermann, assignor.)						
Gash, Edgar, Macomb, Ill. Combined cane and flag	479,590	July 26	2393	590	60	507
Gaskill, William H., Canton, Ill. Fence	480,401	Aug. 9	1051	264	60	793
Gaskill, William H., assignor to S. W. Evans, Jr., Philadelphia, Pa. Ferrule	481,753	Aug. 30	3263	794	60	1263
Gasser, Sanford, Trout Creek, Mich. Rotary cultivator	479,600	Aug. 2	30	10	60	589
Gasser, William B., Chicago, Ill. Car-coupling	479,497	July 26	2265	567	60	483
Gaston Electrical Manufacturing Company. (See Gaston, James E., assignor.)						
Gaston, James E., assignor to Gaston Electrical Manufacturing Company, Sparta, Ill. Electric-arc lamp	482,240	Sept. 6	517	123, 124	60	1435
Gately, Barna, and D. Skinner, Braidwood, Ill. Miner's register	480,843	Aug. 16	1742	435	60	944
Gates, Eugene N. (See Gates, John N. and E. N.)						
Gates, George, Jackson, Cal. Separating sand and slimes	482,241	Sept. 6	521	124	60	1436
Gates Iron Works. (See Spring, William A., assignor.)						
Gates, John N., Holyoke, and E. N. Gates, Fitchburg, assignors to E. N. Gates Heating Company, Boston, Mass. Heating apparatus	482,679	Sept. 13	1245	303, 304	60	1502
Gates, Philemon T., Brooklyn, N. Y. Parer and corer	481,528	Aug. 23	2887	709	60	1176

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gaumer, Charles E., Lawn Ridge, Ill. Straw-stacker	483,213	Sept. 27	2098	532, 533	60	1786
Gay, Levi. (See Burrows, Arba G., assignor.)						
Gayner, John, Salem, N. J. Mold for glass battery-jars	478,792	July 12	1124	277	60	237
Gaynor, Thomas F., Louisville, Ky. Ear-ring	483,214	Sept. 27	2101	533	60	1787
Gayon, Leon, Paris, France. Propeller	480,945	Aug. 16	1899	475	60	975
Géant, Eugene, assignor to himself and S. Sutton, Fort Logan, Colo. Car-coupling	483,437	Sept. 27	2457	618	60	1853
Gearhart, John C., Williamsport, Pa. Washboard	483,438	Sept. 27	2458	618	60	1853
Gearhart, Joseph E., Clearfield, Pa. Circular-knitting machine	479,639	July 26	2468	614	60	521
Geary, James, assignor of three-fourths to L. Emery, Jr., Bradford, Pa. Lamp-filling oil-can	482,680	Sept. 13	1248	304	60	1592
Gedeohn, Jacob, Cleveland, Ohio. Cultivator	482,919	Sept. 20	1634	410	60	1680
Gee, Joseph F., assignor to E. H. Godshalk, Philadelphia, Pa. Knit fabric	481,351	Aug. 23	2602	639	60	1119
Geer, S. Ella, *et al.* (See Willcox, Alfred B., assignor.)						
Gehnrich, Hermann, assignor to E. T. Mason & Co., New York, N. Y. Fabric-holding frame for embroidering-machines	478,853	July 12	1211	301	60	255
Geisendorfer, Edward, Pittsfield, Ill. Land-roller	482,406	Sept. 13	818	197	60	1509
Geldowsky, Ferdinand, deceased; M. C. Geldowsky, Cambridge, Mass., executrix. Ward-robe-bedstead	482,122	Sept. 6	326	78	60	1399
Geldowsky, Martha C., executrix. (See Geldowsky, Ferdinand.)						
Gellenbeck, Frank C., assignor, by mesne assignments, to C. E. Padgett and C. C. Denton, Chicago, Ill. Meal-check	482,809	Sept. 20	1609	403	60	1675
Gender & Paeschke Manufacturing Company. (See Musgrove, Joseph, assignor.)						
Gendron, Joseph T., Worcester, Mass. Guard for chimney-thimbles	478,422	July 5	550	135	60	109
Genese, David, Baltimore, Md. Mute for musical instruments	480,578	Aug. 9	1396	330	60	847
Genin, John B. (See Robertson and Genin.)						
Gennert, Emil F., and J. F. Cunningham, New York, N. Y. Shade-holder	480,425	Aug. 9	1095	273	60	800
Genninger, Daniel, Teegarden, Ind. Gate	479,498	July 26	2266	568	60	483
Geo. T. Smith Middlings Purifier Company. (See Fuller, Clark S., assignor.)						
George, Carl G., Toronto, Canada. Transposing piano-action	478,323	July 5	411	99	60	82
George, John. (See Simpson and George.)						
George, Staughton, Williamsport, Pa. Parlor game	481,859	Aug. 30	3434	843	60	1207
Gersel, Ignatius, Baltimore, Md. Tailor's measure	480 579	Aug. 9	1327	330, 331	60	847
Gerber, Daniel S. (See Howlett, Charles W., assignor.)						
Gerber, Joseph. (See Tanner and Burch, assignors.)						
Gerdom, Gregory, West Troy, assignor of one-half to J. H. Reynolds, Troy, N. Y. Tool for boring breech-loading ordnance	481,300	Aug. 23	2525	620	60	1105
Gerlits, Henry. (See Menze, Charles T., assignor.)						
Gerrans, Alfred T., *et al.* (See Cochran, John J., assignor.)						
Gerry, James H., Brooklyn, and C. E. Long, New York, N. Y., assignors to Gerry-Long Manufacturing Company, Jersey City, N. J. Secondary battery	478,230	July 5	262	65	60	53
Gerry-Long Manufacturing Company. (See Gerry and Long, assignors.)						
Gerstenkorn, Paul, Milwaukee, Wis., assignor to himself, and O. Budde, Chicago, Ill. Machine for grinding cocks	480,258	Aug. 9	816	209	60	749
Getten, Albert C., Chicago, Ill. Paper-bag machine	481,650	Aug. 30	3081	752	60	1228
Getten, Albert C., Chicago, Ill. Paper-bag machine	482,170	Sept. 6	413	98	60	1416
Getty, James, Jr., *et al.* (See Harvey, George H., assignor.)						
Gibboney, John W., Lynn, Mass. Envelope-fastener	478,538	July 5	740	180	60	146
Gibboney, John W., Lynn, Mass. Telephone	481,529	Aug. 23	2888	709	60	1176
Gibbs, Albert L., *et al.* (See Dunham, John J., assignor.)						
Gibbs, Jacob S., assignor to Perkins Electric Switch and Manufacturing Company, Hartford, Conn. Electric switch	480,694	Aug. 9	1517	377	60	884
Gibbs, Marian R., Cherry Creek, N. Y. Washing-machine	483,439	Sept. 27	2459	618, 619	60	1854
Gibson, Ezra B., assignor of one-fourth to H. Wood, Cadillac, Mich. Railway-crossing	482,352	Sept. 13	732	176	60	1493
Gibson, Nathaniel, *et al.* (See Thomas, George W., assignor.)						
Gibson, Thomas, London, England. Printing-machine	482,733	Sept. 20	1337	329, 330, 331, 332	60	1622
Gidley, Samuel H., assignor to J. and J. Dobson, Philadelphia, Pa. Rubbing-apron for condensing carding-engines	480,088	Aug. 2	524	133	60	682
Giesberg, John G., and E. Schenitz, Jr., Houston, Tex. Box-fastener	479,416	July 26	2112	529	60	453
Giese, James A. (See Richards and Giese.)						
Giese, James A., assignor to Adams & Westlake Company, Chicago, Ill. Latch and lock combined	481,261	Aug. 23	2454	604	60	1094
Giesler, Franklin B., Milwaukee, Wis. Grain-treating apparatus	482,790	Sept. 20	1435	355	60	1641
Giesecnbier, Henry. (See Freese, Claus, assignor.)						
Giffard, Paul, Paris, France. Compressed-air motor	480,089	Aug. 2	526	133, 134	60	682
Gilbert, Edmund D. (See Gordon and Gilbert.)						
Gilbert, Frederick A., Boston, Mass. Game-counter	482,961	Sept. 20	1700	429	60	1633
Gilbert, William H., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	478,589	July 12	811	200	60	176
Gilbreth, Frank B., Boston, Mass. Scaffold	479,591	July 26	2394	596	60	507
Gilchriest, Robert, Louisville, Ky. Fire-grate	479,089	July 19	1575	394, 395	60	335
Gilchrist, Raymond B., assignor to R. Whitehead, Chicago, Ill. Cork-extractor	478,545	July 5	751	183	60	149
Gildard, Henry. (See Scrimgeour and Gildard.)						
Giles, Frederick, South Yarrow, near Melbourne, Victoria. Elevator	483,145	Sept. 27	1982	502	60	1762
Giles, Harry S., Philadelphia, Pa. Vapor-burner	482,920	Sept. 20	1635	410	60	1680
Giles, Joseph S., assignor to M. J. Whittall, Worcester, Mass. Oiling device for looms	481,558	Aug. 30	2943	723	60	1202
Giles, Joseph S., assignor to M. J. Whittall, Worcester, Mass. Oiling device for looms	481,559	Aug. 30	2944	723	60	1202
Gilham, Charles D. (See Hamer, James A., assignor.)						
Gilkey, Albert S., Burlington, Kans. Cultivator attachment	481,667	Aug. 30	3108	758	60	1233
Gill, John M. (See Shirreff, Charles J., assignor.)						
Gill, Thomas, Waltham, Mass. Piano-string	478,746	July 12	1041	256	60	222
Gill, William E., assignor to J. F. Wollensak, Chicago, Ill. Connector for electric circuits	479,325	July 19	1930	483	60	404
Gillen, Albert L., Bradford, Mass. Bed-lounge	480,190	Aug. 2	688	174	60	712
Gillespie, Richard S., and H. James, New York, N. Y. Wrench	481,110	Aug. 16	2177	539	60	1027
Gillette, Charles F., assignor to J. F. Bray, New York, N. Y. Indicator for electrical signaling systems	478,324	July 5	412	99	60	83

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gilman, Myron A., Westfield, Mass. Toy	479,119	July 19	1626	407	60	344
Gilmore, John A., Boston, Mass. Cutting-off machine	480,461	Aug. 9	1153	289	60	812
Gilmore, William M., Boggstown, Ind. Valve for air-brakes	479,978	Aug. 2	320	78	60	643
Gilmour, James M., East Orange, N. J. Faucet	480,090	Aug. 2	527	134	60	682
Gilpin, Joseph F. (See Cowles and Gilpin.)						
Gilstrap, John, and M. L. Brown, Moscow, Idaho. Switch-shifter	483,053	Sept. 20	1844	468	60	1724
Gimson, John E., *et al.* (See Newton, John M., assignor.)						
Ginther, Augustus J., Buffalo, N. Y. Self-acting windproof-damper	479,801	Aug. 2	42	10	60	590
Gipe, Emanuel C., assignor of one-half to O. J. Ziegler, Freeport, Ill. Cash-carrier	479,417	July 26	2113	529	60	453
Girard, Charles L. (See Krouse, Myers, and Girard.)						
Gisvold, Erik J., Eagle Mills, Mich. Mortising-machine	482,242	Sept. 6	522	125	60	1436
Githens, George M., Brooklyn, N. Y. Channeling-tool for rocks	479,499	July 26	2267	568	60	483
Githens, George M., Brooklyn, N. Y. Blasting stone	479,500	July 26	2268	568	60	483
Givens, John W. (See Hicks, Shelby, assignor.)						
Glad, Gorge H., Boston, Mass. Shutter-fastener	481,111	Aug. 16	2179	539, 540	60	1098
Glass and Metal Engraving Company. (See Bryce and Knox, assignors.)						
Gleason, Francis, Philadelphia, Pa. Bicycle-support	483,146	Sept. 27	1984	502	60	1762
Gleason, John K. (See Gleason, Martin H., assignor.)						
Gleason, Martin H., assignor to J. K. Gleason, Fitchburg, Mass. Game apparatus	480,602	Aug. 9	1469	366	60	875
Glen Cove Machine Company. (See Hutchinson, Alfred B., assignor.)						
Glenn, George S., Nashville, Tenn. Sprinkling apparatus	479,979	Aug. 2	322	79	60	643
Gloeckner, Ludwig. (See Kircher, Frederick, assignor.)						
Glover, George T., Chicago, Ill. Vehicle-spring	481,695	Aug. 30	3150	768, 769	60	1941
Glover, John V., Springfield, Mass. Slow-closing valve for tanks	478,793	July 12	1125	277	60	238
Glynn, Michael, Otterbein, Ind. Sulky-plow	482,734	Sept. 20	1549	339	60	1623
Goddard, Calvin L., New York, N. Y. Cloth-stretching machine	479,501	July 26	2269	568	60	484
Goddard, William, Oshkosh, Wis. Safety-gate for drawbridges	482,499	Sept. 13	976	236	60	1539
Godfrey, Charles B., Milford, assignor to Library Bureau, Boston, Mass. Adjustable shelving	478,509	July 5	687	167	60	136
Godshalk, Edward H. (See Gee, Joseph F., assignor.)						
Goehring, Charles L. (See Van Houten, Frank H., assignor.)						
Goehring, Charles L., Allegheny, Pa. Means for ornamenting wood	480,402	Aug. 9	1154	289, 290	60	812
Goehring, Charles L., Allegheny, Pa. Cutter-head	480,463	Aug. 9	1157	290	60	813
Goering, Hermann, Birkenfeld-on-the-Nahe, Germany. Steam-generator	480,719	Aug. 16	1561	389	60	907
Göetsche, John H., San Francisco, Cal. Grinding-wheel attachment	478,854	July 12	1212	301	60	256
Goetz, Jacob, trustee. (See Avery, Russell F., assignor.)						
Goetz, Victor J., assignor of one-half to W. C. Kidd and J. B. Sufforn, Hillburn, N. Y. Switch-stand	479,268	July 19	1852	464	60	388
Goetze, Max, Fort Meade, S. D. Railway-coach	482,634	Sept. 13	1181	285	60	1578
Goff, Darius L., Pawtucket, R. I. Mechanism for delivering and cutting roll-paper	478,231	July 5	263	65, 66	60	54
Gohl, Christian H., assignor of one-half to E. Rust, Saginaw, Mich. Car-coupling	482,353	Sept. 13	735	176, 177	60	1494
Goins, William P., Paragould, Ark. Corn-planting attachment	479,269	July 19	1854	465	60	388
Gold, Edward E., New York, N. Y. Drainage-trap	481,727	Aug. 30	3214	784, 785	60	1253
Gold, Sidney C. G. (See Renold, Goolden, Atkinson, and Gold.)						
Goldberg, Harris, *et al.* (See Parks, Dana, assignor.)						
Golden Gate Safety Fancet Company. (See Savage, Granville L., assignor.)						
Goldenberg, Benjamin, New York, N. Y. Lock	483,147	Sept. 27	1985	503	60	1763
Golding, John H., Bay Shore, N. Y. Can-opener	482,057	Sept. 6	220	52	60	1378
Goldkind, Isaac, assignor to L. Stirn and J. Somborn, New York, N. Y. Incandescent-lamp socket	479,359	July 19	2008	502	60	419
Goldman, Edward, Baltimore, Md., assignor to Eureka Coat Pad Company, of Maryland. Dress-pad	481,788	Aug. 30	3320	811	60	1275
Goldsberry, William H., Chicago, Ill. Folding square	482,900	Sept. 20	1609	403	60	1675
Goldschmid, Theodore J., Philadelphia, Pa. Shipping-flask for anhydrous ammonia	479,592	July 26	2396	597	60	507
Goldsmith, Byron B., New York, N. Y. Lead-pencil or other article of fibrous material. (Reissue)	11,259	Aug. 16	2265	559	60	1043
Goldsmith, John S., New York, N. Y. Combined corset and dress-shield	480,496	Aug. 9	1095	273, 274	60	800
Goldstein, Albert, assignor of one-half to A. A. Lehmann, Baltimore, Md. Fire-alarm apparatus	479,709	July 26	2591	645	60	543
Goldstein, Harry, *et al.* (See Rosenthal, Adolph, assignor.)						
Goldsworthy, Orlando A., Chicago, Ill. Bending vehicle-shafts	482,475	Sept. 13	929	227	60	1529
Goltstein, Ewald. (See Guilleaume and Goltstein.)	481,277	Aug. 23	2485	611	60	1099
Good, David H., Canada, Kans. Corn-shock loader	480,767	Aug. 16	1630	408, 409	60	922
Good, William E., assignor to Southwark Foundry and Machine Company, Philadelphia, Pa. Steam-engine	482,038	Sept. 6	187	45	60	1372
Goodall & Son, Charles. (See Foster, Robert F., assignor.)						
Goodfellow, John H., Lansingburg, N. Y., assignor, by mesne assignments, to Lamson Consolidated Store Service Company, of New Jersey. Store-service apparatus	479,502	July 26	2270	569	60	484
Goodfellow, John H., Lansingburg, N. Y., assignor, by mesne assignments, to Lamson Consolidated Store Service Company, of New Jersey. Store-service apparatus	479,503	July 26	2275	569	60	485
Goodfellow, John H., Lansingburg, N. Y., assignor, by mesne assignments, to Lamson Consolidated Store Service Company, of New Jersey. Store-service apparatus	479,504	July 26	2277	569, 570	60	485
Goodfellow, John H., Lansingburg, N. Y., assignor, by mesne assignments, to Lamson Consolidated Store Service Company, of New Jersey. Store-service apparatus	479,505	July 26	2279	570	60	485
Goodlue, William F., assignor of one-half to C. Paulus, Milwaukee, Wis. Sewage separating and purifying apparatus	478,539	July 5	741	181	60	147
Goodson, George A., Minneapolis, Minn. Matrix-making machine	478,257	July 5	316	77	60	63
Goodson, George A., Minneapolis, Minn. Matrix-making machine	478,258	July 5	317	77	60	63
Goodson, George A., Minneapolis, Minn., assignor, by mesne assignments, to T. S. Bassford, New York, N. Y., receiver of the Minneapolis Electro-Matrix Company. Matrix-making machine	479,773	July 26	2715	675, 676	60	568
Goodson, George A., and A. S. Capehart, Minneapolis, Minn., assignors, by mesne assignments, to T. S. Bassford, New York, N. Y., receiver of the Minneapolis Electro-Matrix Company. Matrix-making machine	479,772	July 26	2706	674, 675	60	565
Goodwin, Phebe C., Boston, Mass. Spoon	483,379	Sept. 27	2381	597	60	1838

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Goodyear Shoe Machinery Company. (See Bigelow, Austin W., assignor.)						
Goold, Frederick D., assignor to Edison General Electric Company, New York, N. Y. Holder for arc lamps and similar globes	480,720	Aug. 16	1561	389, 390	60	907
Goold, Frederick D., assignor to Edison General Electric Company, New York, N. Y. Electric-arc lamp	480,721	Aug. 16	1563	390	60	907
Goold, Frederick D., Schenectady, assignor to Edison General Electric Company, New York, N. Y. Snap-switch	480,722	Aug. 16	1564	390, 391	60	907
Goolden, Walter T. (See Renold, Goolden, Atkinson, and Gold.)						
Gordon, S. P. (See Talley, Reuben J., assignor.)						
Gordon, Fred E., Allegheny, Pa. Molding	482,901	Sept. 20	1611	.....	60	1675
Gordon, Frederick W., assignor to Philadelphia Engineering Works, Limited, Philadelphia, Pa. Device for transmitting rotary motion	478,959	July 12	1363	336	60	284
Gordon, William, Stubbs, Tex. Caster	479,980	Aug. 2	324	79	60	644
Gordon, William J., and E. D. Gilbert, Philadelphia, Pa. Machine for edge-curling sheet metal	482,962	Sept. 20	1701	429, 430	60	1693
Goubert, Auguste A., Brooklyn, N. Y. Separator	482,354	Sept. 13	737	177	60	1494
Goujon, Hippolyte, Paris, France. Puzzle dice-box	481,398	Aug. 23	2679	657	60	1133
Gould, Aaron P., Canton, Ohio. Dental chair	478,590	July 12	812	200, 201	60	176
Gould, Charles A., Buffalo, N. Y. Car-coupling	478,747	July 12	1042	256	60	222
Grace, Henry S., assignor to J. A. Fischer, San Francisco, Cal. Cigarette-machine	483,380	Sept. 27	2382	598, 599	60	1838
Grace, Robert W., Pittsburg, assignor of one-half to J. A. Potter, Munhall, Pa. Machine for cutting right-angled structural shapes	479,666	July 19	1536	383, 384	60	328
Grace, Thomas. (See Bailey and Grace.)						
Gradle, Bernard, *et al.* (See Steinle, William M., assignor.)						
Graham, Charles F., Ludlow, Ill. Band-cutter and feeder for thrashing-machines	478,996	July 19	1433	355, 356	60	308
Graham, Julius, *et al.* (See Willis, William H., assignor.)						
Graham, Levi P., Decatur, Ill. Corn-planter	479,067	July 19	1538	384, 385	60	328
Graham, Wilson T. (See Gagnebin, William T., assignor.)						
Grand Rapids Brass Company. (See Tobey, Fred W., assignor.)						
Granger, Edmund R., Richford, N. Y. Roll-paper holder and cutter	482,039	Sept. 6	189	45	60	1372
Grant, Duncan E., assignor of one-third to A. Ritchie, Quebec, Canada. Breech-loading gun	480,259	Aug. 9	820	210, 211	60	750
Grant, Irby H. (See Turner and Grant.)						
Grant, John. (See James, David O., assignor.)						
Grant, Oscar F., Pittsburg, Pa. Drawing-pen	479,270	July 19	1855	465	60	386
Grantland, John W. (See Kennedy and Grantland.)						
Granville, Bernard, Dayton, Ohio. Type-writing machine	482,521	Sept. 13	1015	245, 246	60	1547
Grau, Charles, Cincinnati, Ohio. Tanner's sigue-brush	483,350	Sept. 27	2332	566	60	1829
Graupensperger, George. (See Stees and Graupensperger.)						
Graves, Robert B., and D. F. Merritt, Ellisville Depot, Miss. Harrow	478,960	July 12	1365	336	60	284
Gray Automatic Telephone Pay Station Company. (See Holbrook, Charles W., assignor.)						
Gray, James W., assignor of one-half to J. P. Heindell, Brooklyn, N. Y. Claw-bar	478,855	July 12	1213	301	60	256
Gray, John, and A. Simmons, Corsicana, Tex. Soap	481,860	Aug. 30	3436	.....	60	1297
Gray, John G., Connersville, Ind. Grave-vault	478,102	July 5	38	12	60	10
Gray, John G., Connersville, Ind. Burial-case	480,427	Aug. 9	1097	274	60	800
Gray, Joshua, Medford, Mass. Electric locomotive	478,591	July 12	814	201	60	177
Gray, William M., Brooklyn, N. Y. Machine for affixing stamps	483,250	Sept. 27	2135	546	60	1797
Graybill, Jacob D., Shreveport, La. Compound for preserving the color of finishing-bricks	479,640	July 26	2471	.....	60	521
Grebe, Frederick C. J., Los Angeles, Cal. Historical toy novelty	482,123	Sept. 6	328	78	60	1399
Green, Alfred N., Lewistown, Ohio. Whiffletree-hook	479,939	Aug. 2	254	63	60	631
Green, Charles C., assignor to M. E. Green, Utica, N. Y. Hop-picking machine	478,592	July 12	815	201	60	177
Green, Henry, assignor of one-half to F. C. Rockwell, Hartford, Conn. Incandescent electric lamp	479,360	July 19	2009	502	60	419
Green, James, *et al.* (See Coze and Lencauchez, assignors.)						
Green, John, assignor of one-half to E. Miciangi, Renovo, Pa. Crosscut-saw handle	479,361	July 19	2010	502	60	419
Green, John, assignor of one-half to C. Corano, Renovo, Pa. Game apparatus	483,109	Sept. 20	1928	488	60	1741
Green, John J., Boonton, N. J., assignor to Security Insulator Company, of New Jersey. Insulator	480,011	Aug. 2	395	98	60	656
Green, Martha E. (See Green, Charles C., assignor.)						
Green, Martin A., Altoona, Pa. Engine-governor	480,580	Aug. 9	1329	331	60	848
Green, Martin A., Altoona, Pa. Balanced slide-valve	483,054	Sept. 20	1845	468	60	1724
Green, William W., Chicago, Ill., assignor of one-half to A. V. Terry, Brockport, N. Y. Harrow	478,950	July 5	319	77	60	64
Greene, Francis V., assignor to Barber Asphalt Paving Company, New York, N. Y. Plant for heating and controlling sand	481,480	Aug. 23	2823	604	60	1163
Greene, James G., Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Plaiting attachment for sewing-machines	480,260	Aug. 9	828	211, 212	60	752
Greene, James W., White City, Kans. Carrying attachment for hand-cars	481,021	Aug. 16	2021	505	60	998
Greene, William F., *et al.* (See Van Wie, Byron, assignor.)						
Greenland, Hamilton, and J. C. Carrick, Spivey, Kans. Thill-coupling	483,440	Sept. 27	2460	619	60	1854
Greenstreet, Charles J., *et al.* (See Greenstreet, Jason H., assignor.)						
Greenstreet, Flora V., *et al.* (See Greenstreet, Jason H., assignor.)						
Greenstreet, Jason H., assignor to C. J. and F. V. Greenstreet, Indianapolis, Ind. Indicating and recording balance	478,232	July 5	269	66, 67	60	54
Greenwald, Louis, Leadville, Colo. Necktie-fastener	483,215	Sept. 27	2103	533	60	1787
Greenwood, Henry, Gilbertville, Mass. Means for driving spindles	478,280	July 5	349	84	60	70
Gregg, William H., New York, N. Y. Toy	478,423	July 5	561	136	60	109
Gregg, William T., Lakeport, Cal. Window-frame	478,593	July 12	817	202	60	178
Gregory, James, Bridgeport, Conn. Mechanical movement	479,593	July 26	2397	597	60	508
Gregory, Joseph L., Washington, Mo. Shaft-tug	482,243	Sept. 6	525	125	60	1437
Greig, George W., Chicago, Ill. Window-ventilator	483,483	Sept. 27	2509	632	60	1864
Greilick, William M., Sutton's Bay, Mich. Saw-set	480,581	Aug. 9	1331	331, 332	60	848
Gross, Joseph. (See Neth, George J., assignor.)						
Grether, Jacob F. (See Walsh, John, assignor.)						
Gribben, John, Pittsburg, Pa. Bedstead-brace	481,028	Aug. 30	3049	744	60	1222
Gridley, Wilmer D., Brooklyn, N. Y. Bracket	482,086	Sept. 6	268	65	60	1388
Grierson, James, Toronto, Canada. Machine for loading coal	479,641	July 26	2479	614, 615	60	521

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Griesemer, Adam, Pueblo, Colo. Corn and seed planter	481,170	Aug. 23	2292	565	60	1002
Griesser, William, Chicago, Ill. Construction of storage-rooms	482,889	Sept. 20	1588	399	60	1671
Griffith, Lafayette, *et al.* (See Walker, James E., assignor.)						
Griffiths, Samuel, Weir, Kans. Coal-screen	481,754	Aug. 30	3264	794	60	1263
Grimes, James C., assignor of one-half to J. W. Johnson, Julesburg, Mo. Nut-lock	478,997	July 19	1437	356	60	309
Grimm, Max, West Hoboken, N. J. Pump for refrigerating apparatus	479,877	Aug. 2	157	39	60	612
Grinnell, Fannie A. (See Killinger, Melross M., assignor.)						
Griscom, William W., Haverford College, assignor to Accumulator Company, Philadelphia, Pa. Secondary battery	481,560	Aug. 30	2946	723	60	1203
Grisler, George C., Jefferson, Iowa. Fountain	482,244	Sept. 6	525	125	60	1437
Grob & Co., L. M. (See Brüniler, Oscar, assignor.)						
Grohman, Charles, Linoleumville, N. Y. Steam-condenser	479,271	July 19	1836	465	60	388
Groos, Frederic, Naples, N. Y. Machine for cleaning and peeling vegetables	479,562	July 26	2356	588	60	500
Grosh, Silas W., Decatur, Ill. Grain-car door	478,748	July 12	1043	256	60	223
Gross, James M. (See Woodring, Peter, assignor.)						
Grosser, Herman, *et al.* (See Meyer, Henry, assignor.)						
Grotta, David, New Haven, Conn. Garment-stay	478,961	July 12	1366	337	60	285
Grotz, Charles, Ottumwa, Iowa, assignor to Cooper & Hampton. Cutter-head and knife	481,861	Aug. 30	3436	843	60	1297
Grove, Melchi M., Garfield, Wash. Pump	481,022	Aug. 16	2022	505	60	998
Grubb, Arthur D. and C. J., Hamilton, Ill. Stovepipe collar and fastener	483,441	Sept. 27	2461	619	60	1854
Grubb, Charles J. (See Grubb, Arthur D. and C. J.)						
Grundy, William R. (See Harvey and Grundy.)						
Grüne, Wilhelm, Sr., Berlin, Germany. Transparent toy or puzzle-picture and producing the same	481,023	Aug. 16	2024	.....	60	999
Grünzweig, Carl, assignor to Grünzweig & Hartmann, Ludwigshafen-on-the-Rhine, Germany. Building-block	482,890	Sept. 20	1590	.....	60	1671
Grünzweig & Hartmann. (See Grünzweig, Carl, assignor.)						
Grusonwerk. (See Rösteł, Carl, assignor.)						
Guasco, André, and A. Chusin, Marseilles, France. Feed-indicator for boilers	482,171	Sept. 6	414	99	60	1416
Guastavino, Rafael, Jr., Boston, Mass. Cohesive combined lintel-ceiling	481,755	Aug. 30	3265	795	60	1264
Gubbins, John F. (See Lockstaedt and Gubbins.)						
Guégnen, Alphonse, Paris, France, assignor, by mesne assignments, to Chartier Valley Gas Company, Pittsburg, Pa. Means for detecting the escape of gas from gas-mains	478,424	July 5	562	136	60	110
Guels, Herman, St. Louis, Mo. Car-wheel	481,862	Aug. 30	3437	843	60	1297
Guerrant, George M., New York, N. Y., assignor to himself, and T. F. Young, Clinton, N. J. Means for reducing friction	482,902	Sept. 20	1612	403	60	1675
Guertin, Henry C., Winchendon, Mass. Puzzle	479,418	July 26	2115	529	60	454
Guettler, George C. H., *et al.* (See Krause, Gustave A., assignor.)						
Gulley, Jacob H., and J. E. Wright, Saginaw, Mich. Wrench	482,245	Sept. 6	527	125	60	1437
Guilleaume, Franz, and E. Goltstein, Bonn, Germany. Jar-closure	481,112	Aug. 16	2181	540	60	1028
Guilleaume, Theodor, Cologne, Germany. Manufacture of rubber-coated wire, &c	483,110	Sept. 20	1929	489	60	1741
Guilleaume, Theodor, Cologne, Germany. Electric cable	483,285	Sept. 27	2239	563	60	1811
Guillemet, Leonidas, San Francisco, Cal. Slack-take-up for air-brakes	482,040	Sept. 6	190	46	60	1373
Guinn, John L., assignor of one-half to J. B. Thornton, Somerset, Ky. Draw-bar guide for cars	480,464	Aug. 9	1158	290	60	813
Gümpel, Charles G., London, England. Spinal brace	479,326	July 19	1931	483	60	404
Gunckel, Patrick H. (See Smith, John M., assignor.)						
Gundersen, Gilbert S., Beloit, Wis. Plant-transplanting machine. (Reissue)	11,262	Aug. 16	2270	560	60	1044
Gunn, John A., Spearfish, S. D., assignor of one-half to A. L. Maxim, I. L. Brind, Omaha, Nebr., and D. C. Dwinnell, Spearfish, S. D. Bill of fare	479,758	July 26	2673	664, 665	60	560
Gunning, Thomas, Pittsburg, Pa. Smoke-consumer	482,124	Sept. 6	329	78	60	1399
Gunston, Byron M., assignor to T. Kingsford, Oswego, N. Y. Box-nailing machine	481,863	Aug. 30	3438	844, 845	60	1297
Gustafson, Charles J., Mobile, Ala. Boiler-blow-off valve	480,793	Aug. 16	1566	391	60	908
Gustafsson, Walfrid, Brooklyn, N. Y. Pressure-regulating valve	478,856	July 12	1214	301	60	256
Gustin, Samuel, Sing Sing, N. Y. Distributing-valve	481,943	Sept. 6	34	8	60	1341
Gutmann, Emil, New York, N. Y. Suspenders	482,963	Sept. 20	1702	430	60	1694
Glitter, Karl A. (See Stark and Glitter.)						
Guttmann, Hugo, *et al.* (See Schwartz, William, assignor.)						
Gwin, David, Edgerton, Mo. Band-cutter and feeder	482,476	Sept. 13	991	227	60	1529
Haar, John H., *et al.* (See Butler, William A., assignor.)						
Haas, Jacob C., assignor of one-half to G. F. Wahl and I. L. D. Seiler, Bremen, Ind. Seed-planter	480,091	Aug. 2	528	134	60	683
Haberle, John B., South Bend, Ind. Sprinkler	479,506	July 26	2281	570	60	486
Hack, Peter, Michigan City, Ind. Gate for wire fences	483,351	Sept. 27	2333	586	60	1829
Hackett, James, Taunton, Mass. Printing-press	480,191	Aug. 2	689	174	60	712
Hadden, Harvey, Peekskill, N. Y. Ear-muff	479,185	July 19	1733	434	60	304
Hallock, Edson J., Big Spring, Tex. Smoke and spark arrester and consumer	483,055	Sept. 20	1846	460	60	1724
Hadorn, Leopold C. (See Teias and Hadorn)						
Haën, Carl J. E. de, List, near Hanover, Germany. Bleaching	482,477	Sept. 13	939	.....	60	1530
Haeseler, Francis J., U. S. Navy. Brush-holder	479,802	Aug. 2	42	10, 11	60	580
Hafer, Alfred H., Cleveland, Ohio. Mop-wringer	480,192	Aug. 2	691	175	60	713
Hafgar, Magnus J., Chicago, Ill. Desk	478,504	July 12	818	202	60	178
Hagee, Edward W., St. Louis, Mo. Shutter-fastener	482,246	Sept. 6	528	126	60	1437
Hager, Charles E. O., Hagersville, Canada. Puzzle	478,998	July 19	1438	356	60	309
Hagerman, Frank. (See Chapman, Newton S., assignor.)						
Haggenmacher, Carl, Buda-Pesth, Austria-Hungary. Bolting or sifting machine	483,286	Sept. 27	2240	563	60	1811
Haggerty, Alonzo, Cambridge, Pa. Whiffletree connection	481,301	Aug. 23	2527	620	60	1106
Haglock, John G. and W. H., Sterling, Ill. Adjustable hame-staple	483,111	Sept. 20	1931	489	60	1742
Haglock, William H. (See Haglock, John G. and W. H.)						
Hahn, John N., and J. P. Herman, Cleveland, Ohio. Lunch-basket	478,103	July 5	39	12	60	10
Haines, Clarence. (See Cocker, Collyer, and Haines.)						
Haines, Franklin, Yonkers, N. Y. Artificial-stone paving-block	481,352	Aug. 23	2602	639	60	1119
Haines, Franklin, Yonkers, N. Y. Artificial-stone paving-block	481,353	Aug. 23	2604	640	60	1120
Haines, Franklin, New York, N. Y. Artificial-stone paving-block	481,354	Aug. 23	2605	640	60	1120
Haines, John G., Omaha, Nebr. Air-compressor	480,193	Aug. 2	692	175	60	713
Haines, Robert D. (See Houghton and Haines.)						
Haise, John M., Florence, Ohio. Grade-measure	479,803	Aug. 2	44	11	60	580
Haish, Jacob, De Kalb, Ill. Combined freight and passenger car	479,068	July 19	1542	385	60	329
Haldeman, John H., Marietta, Pa. Combined guard and cleaner for lawn-rakes	479,940	Aug. 2	255	62	60	631
Haldeman, John R., Normal, Ill. Brick pavement	481,756	Aug. 30	3007	705	60	1264
Hale, James W., Newburyport, Mass. Puzzle	481,561	Aug. 30	2947	724	60	1203
Hale, John C., *et al.* (See Dow, Herbert H., assignor.)						
Hale, Philip, Jr., Denver, Colo. Game-counter	480,815	Aug. 16	1704	425	60	936

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hale, Stedman H., Chicago, Ill. Elevator	482,247	Sept. 6	529	196	60	1437
Hall, Charles K., assignor of forty-nine one-hundredths to W. B. Lillard, New Orleans, La. Electric railway-signal	482,306	Sept. 6	631	151	60	1458
Hall, George F., Newark, N. J., assignor to Schrade & Hall Novelty Manufacturing Company, of West Virginia. Bicycle	480,844	Aug. 16	1743	436	60	944
Hall, George W., Washington, D. C. Bill-file	479,908	Aug. 2	197	49	60	621
Hall, Horace L., Manchester, N. H., assignor to E. T. Burrowes, Portland, Me. Attachment for window-shades	483,490	Sept. 27	2519	634	60	1866
Hall, James. (See Driscoll, William, assignor.)						
Hall, James B., assignor of one-fourth to M. M. Varden, Toronto, Canada. Propelling power	478,962	July 12	1367	337	60	285
Hall, James F., assignor of one-fourth to T. B. Buckner, Kansas City, Mo. Plumb-level	479,981	Aug. 2	325	80	60	644
Hall, John S., New York, N. Y. Oil-filter	483,148	Sept. 27	1989	503	60	1763
Hall, Milan W., Plainfield, N. J., assignor to Otis Brothers & Company, New York, N. Y. Pump	482,921	Sept. 20	1636	411, 412	60	1680
Hall, Milan W., Plainfield, N. J., assignor to Otis Brothers & Company, New York, N. Y. Force-pump	482,944	Sept. 20	1669	419, 420, 421	60	1688
Hall, Samuel Z., Little Rock, Ark. Cotton-gin	483,210	Sept. 27	2104	533	60	1787
Hall Signal Company. (See Wilson, Adoniram J., assignor.)						
Hall, Susie B., Little Rock, Ark. Brush for cotton-gins	482,478	Sept. 13	933	227	60	1530
Hallbeck, Otto L., West Salem, Ill. Injector	479,214	July 19	1771	444	60	371
Hallenbeck, Henry F. (See Wilcox, Hallenbeck, and Wandell.)						
Hallett, William W., Lee, Ill. Machine for calculating and illustrating longitude and time	480,367	Aug. 9	997	250	60	783
Hallett, William W., Lee, Ill. Device for instruction in reading and calculating	481,728	Aug. 30	3217	785	60	1254
Hallidie, Andrew S., San Francisco, Cal. Grip-pulley	483,442	Sept. 27	2402	619, 620	60	1854
Hallsten, John P., and C. J. Anderson, Rock Island, Ill. Washing-machine	483,443	Sept. 27	2403	620	60	1855
Ham, Foster. (See Parkhurst and Ham.)						
Ham, William S., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Gong-bell	483,149	Sept. 27	1989	503	60	1764
Hamblin, Floyd, Mohawk, N. Y. Folding bedstead	481,757	Aug. 30	3207	795	60	1264
Hamblin, Gideon D., Deering, assignor to D. A. Meaher, Portland, Me. Portable garden or spraying pump	482,681	Sept. 13	1251	305	60	1593
Hamblin, Joshua J., Heathsville, assignor of one-half to C. R. Lewis, Lewisetta, Va. Windlass	483,113	Sept. 20	1933	489	60	1742
Hamer, James A., assignor of one-half to C. D. Gilham, Reading, Pa. Screw-cutting machine	483,112	Sept. 20	1932	489	60	1742
Hamill, Joseph H. (See Johnson and Hamill.)						
Hamilton, Charles L. (See Newhall and Hamilton.)						
Hamilton, Edwin, Philadelphia, Pa. Buffer for picker-staffs of looms	482,977	Sept. 20	1724	435, 436	60	1698
Hamilton, James E., Chicago, Ill. Electrical gas-lighter	482,172	Sept. 6	415	99	60	1416
Hamilton, James K., and F. Kaufmann, Jr., assignors to Hamilton Manufacturing Company, Two Rivers, Wis. Type-case and galley support	482,522	Sept. 13	1019	246	60	1548
Hamilton, John, St. John, Canada. Rotary blower	479,642	July 26	2472	615	60	521
Hamilton Manufacturing Company. (See Hamilton and Kaufmann, assignors.)						
Hamilton, Richard. (See Lewis and Hamilton.)						
Hamilton, Richard, and J. G. Lewis, Jefferson City, Mo.; said Hamilton assignor to said Lewis. Trousers, &c., and pattern therefor	478,100	July 5	187	48	60	39
Hamilton, Richard, and J. G. Lewis, Jefferson City, Mo.; said Hamilton assignor to said Lewis. Trousers, &c., and pattern therefor	478,981	July 5	350	85	60	71
Hamilton, S. K. (See Ames, Axel, Jr., assignor.)						
Hamilton, Samuel, King City, Cal. Thrashing-cylinder	481,864	Aug. 30	3442	845	60	1298
Hamilton, Stewart, Weir, Kans. Mine-elevator	478,595	July 12	890	202, 203	60	178
Hamlet, Noah, Little Rock, Ark. Sash-balance	481,302	Aug. 23	2527	620	60	1106
Hamlin, Dewitt C., Great Bend, Pa. Vehicle-spring	481,303	Aug. 23	2529	621	60	1106
Hammann, Edward, Brooklyn, assignor to J. L. Mott Iron Works, New York, N. Y. Water-closet	480,402	Aug. 9	1053	264	60	793
Hammesfahr, Ernst, Solingen, Germany. Belt-suspending device	478,260	July 5	321	77	60	64
Hamrick, Harry M., assignor to Mechanical Novelties Company, Philadelphia, Pa. Candlestick	479,302	July 19	2011	502	60	420
Hancock, George, Providence, R. I. Machine for shading the surfaces of calico-printing rolls	478,540	July 5	744	181	60	148
Hancock, George, assignor to himself and S. Smith, Providence, R. I. Car-vestibule	480,695	Aug. 9	1519	377	60	884
Hancock, George, assignor to himself and S. Smith, Providence, R. I. Vestibule-car	481,902	Aug. 30	3505	858	60	1310
Hancock, Milton T., Shreveport, La. Rotary plow. (Reissue)	11,257	Aug. 9	1530	380, 381	60	886
Hand, Thomas W., and W. Teale, Hamilton, Canada. Signal-rocket for vessels	480,012	Aug. 2	396	98	60	657
Handel, Philip J., Meriden, Conn. Kiln	481,562	Aug. 30	2948	724	60	1203
Handeland, Ole, Webster, S. D. Horseshoer's tool	481,490	Aug. 23	2-25	694	60	1163
Handly, Thomas F., Allegheny, Pa. Automatic gravity fire-extinguisher	483,491	Sept. 27	2520	634	60	1866
Hane, Urban H., Lakeland, Fla. Railway-joint	481,171	Aug. 23	2295	565	60	1063
Hanenstein, Oscar H., Buffalo, N. Y. Tripod	479,000	July 19	1440	357	60	310
Haney, Enoch G. and W. A., Media, Kans. Wagon-brake	483,056	Sept. 20	1847	469	60	1725
Haney, William A. (See Haney, Enoch G. and W. A.)	480,816	Aug. 16	1705	425	60	936
Hanford, Clarence C., Medford, and C. D. Stanford, Boston, Mass. Apparatus for cooling malt liquors	479,419	July 26	2116	529	60	454
Hanish, Frank, Terre Haute, Ind. Dip-net	482,635	Sept. 13	1192	286	60	1579
Hankenhof, Julius, assignor to F. Cook, New York, N. Y. Valve for water-closets	478,963	July 12	1370	337	60	296
Hannan, William H., assignor to W. H. Hannan, Syracuse, N. Y. Thill-coupling. (Reissue)	11,260	Aug. 16	2267	559	60	1013
Hanscom, Aaron B., North Andover, Mass. Feed-roll for carding-machines, &c	481,024	Aug. 16	2025	505	60	999
Hansen, Hans P., Grand Rapids, Mich. Lawn-trimmer	482,307	Sept. 6	633	151	60	1459
Hansen, Peter, Antigo, Wis. Stump-extractor	481,944	Sept. 6	36	8, 9	60	1341
Hanson, Alice M., administratrix. (See Hanson and Farnham.)						
Hanson, Daniel W., deceased, (A. M. Hanson, administratrix,) and J. S. Farnham, Mineral, Ill.; said administratrix assignor to said Farnham. Corn-harvester	482,945	Sept. 20	1675	421, 422	60	1688
Hanson Furniture Company. (See Hanson, Henry M., assignor.)						
Hanson, Henry M., Janesville, Wis., assignor to Hanson Furniture Company, of Wisconsin. Furniture-leg fastening	479,363	July 19	2012	503	60	420

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hanson, Olaus, Toledo, Ohio. Bicycle	482,735	Sept. 20	1343	332, 333	60	1623
Harbaugh, Calvin, Pleasant Home, Ohio. Variable feed for sawmills	479,272	July 19	1857	465	60	389
Harbaugh, Howard E., Rockford, Ill. Knitting-machine	482,173	Sept. 6	416	99, 100	60	1417
Harbolsheimer, John, Philadelphia, Pa. Garbage-box	483,492	Sept. 27	2522	635	60	1866
Harcourt, Augustus G. V., Cowley Grange, England. Standard oil-lamp	480,013	Aug. 2	397	98	60	657
Harder, Charles N. (See Sagendorph, Longley L., assignor.)						
Harder, James E., assignor to G. W. Cole, Chicago, Ill. Hanger for lumber-carriers	481,355	Aug. 23	2606	640	60	1120
Hardie, Robert W., Albany, N. Y. Disk harrow	478,596	July 12	822	203	60	179
Hardman, Frederick H., Beverly, assignor to W. E. Bennett, Boston, Mass. Blank-feeding mechanism	478,597	July 12	823	203	60	179
Hardman, Frederick H., Beverly, assignor to W. E. Bennett, Boston, Mass. Wire-feeding mechanism	478,598	July 12	825	204	60	179
Hardy, Charles S., San Diego, Cal. Mailing attachment for books and like articles	480,582	Aug. 9	1332	332	60	848
Hardy, Hippolyte, Minneapolis, Minn. Subterranean oxhibition apparatus	482,736	Sept. 20	1344	333, 334, 335	60	1624
Hare, James H., Brooklyn, N. Y. Photographic-plate holder	479,186	July 19	1733	434	60	364
Harlan, Howard, assignor to himself and G. R. McCrea, Renovo, Pa. Brick-machine	482,248	Sept. 6	531	127	60	1438
Harlan, Samuel F. (See Konz, Sebastian, assignor.)						
Harlin, George C., Seattle, Wash., assignor of one-tenth to A. Densmore. Car-coupling	482,125	Sept. 6	330	78	60	1399
Harman, Frank M., and A. L. Eaton, Ottumwa, Iowa. Construction of legged articles	478,857	July 12	1215	302	60	256
Harmon, Decatur, Ionia, Mich. Lubricant	482,249	Sept. 6	533	.....	60	1438
Harmon Machine Company. (See Lefebvre, Albert H., assignor.)						
Harpham, Elmira H., St. Louis, Mich. Comb	483,058	Sept. 20	1850	469	60	1725
Harpell, W. S., *et al.* (See Henning, John E., assignor.)						
Harper, Pleasant D., Fullerton, Ill. Elevator	478,999	July 19	1438	357	60	309
Harrington, Frank. (See Bullard and Harrington.)						
Harrington, Walter E., Atlantic City, N. J., assignor of one-half to L. Atwood, Philadelphia, Pa. Joint for electric wires	481,025	Aug. 16	2027	506	60	899
Harris, Charles E., Saxton's River, Vt. Tool	481,865	Aug. 30	3443	845	60	1298
Harris, Charles H., Cedartown, Ga. Ecraseur	480,870	Aug. 16	1784	447	60	953
Harris, Charles S., Milwaukee, Wis. Boring-machine	482,791	Sept. 20	1436	356	60	1641
Harris, George, Chicago, Ill. Pressure-regulator	482,842	Sept. 20	1504	374	60	1656
Harris, Henry E., Triumph, Minn. Whiffletree-hook	480,465	Aug. 9	1150	291	60	813
Harris, Ira F., Nashua, N. H. Street-railway switch	478,854	July 12	1216	302	60	256
Harris, Ira F., Nashua, N. H. Street-railway switching device	478,859	July 12	1217	302	60	257
Harris, Silas, assignor to Pacific Rolling Mills Company, San Francisco, Cal. Railway-chair	478,426	July 5	566	137	60	111
Harris, Silas, assignor to Pacific Rolling Mills Company, San Francisco, Cal. Railway-chair	478,427	July 5	566	137	60	111
Harris, Silas, assignor to Pacific Rolling Mills Company, San Francisco, Cal. Railway-chair	478,428	July 5	567	137	60	111
Harris, William H., Boston, Mass. Generating gas	478,425	July 5	564	136	60	110
Harris, William H., assignor of one-half to A. P. Pifer, Newberry, S. C. Car-coupling	481,399	Aug. 23	2680	657	60	1133
Harrison, Robert, Erie, Pa. Injector	480,921	Aug. 16	1864	465	60	909
Harrison, Robert, Philadelphia, Pa. Carpet-stretcher	483,057	Sept. 20	1849	469	60	1725
Hart, Francis P., Strasburg, Pa. Stovepipe-coupling	481,026	Aug. 16	2028	506	60	1000
Hart, Hubert C., Unionville, Conn. Die for swaging spoon-blanks	478,860	July 12	1218	302	60	257
Hart, Russell A., Battle Creek, Mich. Paper-jogger	480,708	Aug. 16	1683	409	60	922
Hart, Vernon D., Addison W. Va. Riding-saddle	481,945	Sept. 6	38	9	60	1342
Hartmann, John B., Davenport, Iowa. Potato-grinder	483,251	Sept. 27	2157	540	60	1797
Hartmann, Adolph H., Brooklyn, N. Y. Eyeglasses	481,400	Aug. 23	2681	658	60	1133
Hartness, James, Springfield, Vt. Turret-lathe	481,356	Aug. 23	2607	640, 641	60	1120
Hartness, James, Springfield, Vt. Clutch	482,523	Sept. 13	1020	246	60	1548
Hartshorn, Edmund F., Newark, assignor to S. Hartshorn, Short Hills, N. J. Apparatus for manufacturing metal tubes	479,507	July 26	2282	570	60	486
Hartshorn, Stewart. (See Hartshorn, Edmund F., assignor.)						
Harty, William. (See Bouvier, Louis P., assignor.)						
Hartz, Henry V., Cleveland, Ohio. Brake mechanism for cars	479,420	July 26	2118	530	60	454
Hartzler, Moses E. (See Spangler, Jacob W., assignor.)						
Harvey, Charles A., New York, N. Y. Horse-blanket fastener	481,326	Aug. 23	2565	630	60	1113
Harvey, Charles A., New York, N. Y. Truss	482,946	Sept. 20	1680	423	60	1689
Harvey, George, and W. R. Grundy, Winnipeg, Canada. File for letters and papers	478,695	July 12	954	237	60	205
Harvey, George H., assignor of three-fourths to J. Getty, Jr., Pittsburg, Pa., G. D. Bayaud and G. F. Perrymond, New York, N. Y. Apparatus for burning oil	482,508	Sept. 13	987	239	60	1542
Harvey, John, Brooklyn, N. Y. Adjustable scraper for roller-mills	481,866	Aug. 30	3444	845	60	1299
Hasbrouck, F. M. (See Rasey, John D., assignor.)						
Hasbrouck, Frances J. (See Stoner, John B., assignor.)						
Haskell, Loring B., *et al.* (See Palson, Magnus J., assignor.)						
Hassell, Richard L., Chicago, Ill. Conveyer and screen	479,742	July 26	2654	658	60	535
Hassenzahl, Louis W., Toledo, Ohio. Temporary binder	482,524	Sept. 13	1021	247	60	1549
Hastings, Azariah H., New York, N. Y. Pedal-foot for pianos	480,696	Aug. 9	1519	378	60	884
Hastings, James L., Philadelphia, assignor to L. G. McCauley, West Chester, Pa. Apparatus for heating boilers by gaseous fuel	483,352	Sept. 27	2334	587	60	1839
Hastings, Walter W., Jersey City, N. J., and F. D. Foster, assignors to Lagerman Typotheter Company, New York, N. Y. Type-setting machine	480,497	Aug. 9	1203	301, 302	60	822
Haswell, Alanson M., assignor of one-half to J. C. Plumb, Springfield, Mo. Means for propelling boats	481,113	Aug. 16	2182	540	60	1028
Hatch, Edward B., and C. A. Colton, assignors to Johns-Pratt Company, Hartford, Conn. Electro-magnetic bobbin	479,804	Aug. 2	46	11	60	501
Hatcher, Judson N., assignor to himself and R. J. Wilson, Montgomery, Mo. Wire-stretcher	482,555	Sept. 13	1073	260	60	1558
Hathaway, Merrill H., Springfield, Mass. Brush-holder for dynamos and motors	478,104	July 5	41	13	60	11
Hauff, Henry A., Brooklyn, N. Y. Piano attachment	482,737	Sept. 20	1354	335	60	1625
Haugh, Benjamin F., Indianapolis, Ind. Car-wheel	480,922	Aug. 16	1865	465	60	909
Hauptmann, Charles, and J. Schwarz, Chicago, Ill. Apparatus for manufacturing malt	479,421	July 26	2122	531	60	455
Hauss, Augustus P., New Albany, Ind. Mail-bag catcher and deliverer	480,385	Aug. 9	1027	258	60	789
Haussmann, Hermann, Chicago, Ill. Veterinary truss	480,323	Aug. 9	930	236	60	771
Haven, James L. (See Matthews, Edwin S., assignor.)						
Hawes, Herbert E., assignor of one-half to C. H. Edgar, trustee, Brooklyn, N. Y. Machine for grinding or truing lathe-centers	478,509	July 12	826	204	60	180

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hawes, Willard L., Wakefield, Mass. Piano-action	480,014	Aug. 2	399	98	60	657
Hawk, Walter D., Rock Island, and O. S. French, Monmouth, Ill. End-gate	481,491	Aug. 23	2826	695	60	1163
Hawkins, John T., Taunton, Mass. Graduating steam-radiator	481,789	Aug. 30	3321	811	60	1276
Hawks, Archie M., Tacoma, Wash. Wooden pipe	478,105	July 5	43	13	60	11
Hawley, William D., and S. J. Hogan, Syracuse, N. Y. Proportional meter	479,750	July 26	2080	665	60	560
Haworth, George D., Ackworth, Iowa. Corn cutting and shocking machine	482,355	Sept. 13	738	177, 178	60	1404
Haworth, William M., Decatur, Ill. Blacksmith's tongs	478,600	July 12	899	204	60	180
Hay, Gilbert, assignor of one-half to H. Rose, Fayette, Mo. Stapling implement	482,357	Sept. 13	741	178	60	1405
Hay, William G., Concordia, Kans. Weed-cutter for railway-tracks	483,150	Sept. 27	1990	504	60	1764
Hayden, Henry A., Jersey City, N. J., assignor to Hayden Specialty Company, of New Jersey. Combined infant's crib and chair	483,218	Sept. 27	2107	534	60	1788
Hayden, James T., assignor to Crane Company, Chicago, Ill. Coupling for air-brakes	481,651	Aug. 30	3084	752	60	1229
Hayden Specialty Company. (See Hayden, Henry A., assignor.)						
Hayden, Charles E., *et al.* (See Collins, Olmstead, assignor.)						
Hayes, Erastus, *et al.* (See Beers, Franklin H., assignor.)						
Hayes, George R. (See Smith and Hayes.)						
Hayes, John E. (See Potter, Henry W., assignor.)						
Hayes, Peter P., Ellendale, Va. Corn-planter	483,217	Sept. 27	2106	534	60	1787
Haynes, Charles B. (See Haynes, James E. and C. B.)						
Haynes, Charles M., Chillicothe, Ohio. Tool for ornamenting the surfaces of wood	481,868	Aug. 30	3147	846	60	1299
Haynes, James E. and C. B., Ames, Ill. Hay-rack	479,878	Aug. 2	159	39	60	613
Hays, Elijah, Warsaw, Ind. Horse-detacher	483,059	Sept. 20	1851	470	60	1726
Hays, James C., assignor of one-half to J. J. Murray, Rusk, Tex. Messenger's picket	481,867	Aug. 30	3446	846	60	1299
Hazlehurst, George B. (See Cole and Hazlehurst.)						
Hazletine, S. A., *et al.* (See Bartlett, Henry F., assignor.)						
Hazletine, S. C., *et al.* (See Bartlett, Henry F., assignor.)						
Head, John, assignor of one-half to H. O. Webber, King William's Town, Cape Colony. Starting-gear for high-speed rotary machines	478,541	July 5	745	181	60	148
Headly, Charles B., and J. S. Carrow, Philadelphia, Pa. Mounting metallic ornaments upon glass, &c	479,743	July 26	2657	659	60	555
Heald, William F., New York, N. Y. Printing	479,508	July 26	2224	571	60	486
Healy, Dorus, Dansville, N. Y. Copying-press	478,601	July 12	829	205	60	180
Heaphy, John W., Jr., assignor to F. G. Kimman, Rochester, N. Y. Cord-adjuster for electric lamps	479,509	July 26	2284	571	60	486
Heard, Thomas H., and W. K. Birkinshaw, Derby, England. Crank-handle fastening	481,262	Aug. 23	2456	605	60	1094
Heartfield, Charles H., *et al.* (See Heartfield, Henry, assignor.)						
Heartfield, Henry, Croydon, assignor of two-thirds to T. Webb, Stockport, England, and C. H. Heartfield, New York, N. Y. Bottle and stopper	482,682	Sept. 13	1252	305	60	1593
Heath, Charles F., assignor of one-half to W. M. Taylor, Durham, Cal. Saw set and gage	482,250	Sept. 6	533	127	60	1438
Heath, Elroy N., Boston, Mass. Package-carrier for velocipedes	479,069	July 19	1544	386	60	329
Heath, John M., Talbotton, Ga. Device for measuring shot	479,982	Aug. 2	326	80	60	644
Heath, Thomas T., Loveland, and A. N. Verdin, Glendale, Ohio; said Verdin assignor to said Heath. Typographic machine	483,252	Sept. 27	2158	547, 548, 549	60	1797
Heathfield, Richard, Darlaston, England. Apparatus for coating metal sheets	478,282	July 5	351	85	60	71
Heaton, John. (See Leach, Heaton, and Bentley.)						
Hechtman, Olive M., Washington, D. C. Effervescent beverage	482,738	Sept. 20	1355	.....	60	1625
Heckenroth, Louis. (See Lenzen and Heckenroth.)						
Hedgeland, Frederick W., assignor to W. W. Kimball Company, Chicago, Ill. Rack for musical instruments	478,602	July 12	833	205	60	181
Heermans, Thaddeus W., assignor to Elevator Supply and Repair Company, Chicago, Ill. Indicator for elevators	479,422	July 26	2124	531	60	456
Heermans, Thaddeus W., Chicago, Ill., assignor, by mesne assignments, to National Company, of Illinois. Limit-stop for elevators	480,583	Aug. 9	1334	332, 333	60	849
Heffner, George W., Montgomery county, Ohio. Automatic match-safe	481,696	Aug. 30	3153	769	60	1242
Hefner-Alteneck, Friedrich von, Berlin, Germany. Temporary binder	480,324	Aug. 9	931	236	60	771
Heggum, William. (See Bunce, Levi P., assignor.)						
Heidelberg, Samuel R., Palestine, Tex. Draw-bar for locomotives	480,923	Aug. 16	1867	466	60	969
Heidenhain, Heinrich, Chicago, Ill., assignor to W. Zinsser & Co., New York, N. Y. Manufacture of disinfectants	479,710	July 26	2593	.....	60	544
Heimerdinger, Henry H., *et al.* (See Little, Robert H., assignor.)						
Heindell, John P. (See Gray, James W., assignor.)						
Heinig, Frederick E. (See Baoyerlin and Heinig.)						
Heinly, Anderson W., Danville, Ill. Dish-washing machine	481,027	Aug. 16	2029	506	60	1000
Heintz, Christian, Buffalo, N. Y. Apparatus for purifying and aging liquors	482,843	Sept. 20	1505	374	60	1656
Heints, Michel, Detroit, Mich. Cash register and indicator	479,215	July 19	1773	445	60	372
Heinze, Charles E., Newark, N. J. Bridle-bit	481,172	Aug. 23	2296	566	60	1063
Heisler, Charles L., Dunkirk, N. Y. Locomotive	482,828	Sept. 20	1480	368, 369	60	1651
Helbach, William M., Chicago, Ill. Ventilated shoe	479,805	Aug. 2	47	11	60	591
Helfrich, Frank N., Hebron, Nebr. Punching and shearing machine	482,356	Sept. 13	739	178	60	1495
Hellstrom, Theodore H., New York, N. Y., assignor to Plume & Atwood Manufacturing Company, Waterbury, Conn. Extension-tube for lamps	478,325	July 5	413	99	60	83
Helmers, Ludwig O., assignor to Ichthyol-Gesellschaft Cordes, Hermanni & Company, Hamburg, Germany. Therapeutical coating	478,106	July 5	44	.....	60	11
Hemphill, James, and J. Fawell, Pittsburg, Pa. Governor	482,448	Sept. 13	890	215	60	1521
Hemphill, James, and J. Fawell, Pittsburg, Pa. Governor	482,449	Sept. 13	891	215, 216	60	1522
Hemphill, James, and J. Fawell, Pittsburg, Pa. Governor	482,450	Sept. 13	893	216	60	1522
Henderson, John C., New York, and F. A. Phelps, Jr., Schenectady, assignors to Edison General Electric Company, New York, N. Y. Steam-engine	480,946	Aug. 16	1900	475, 476	60	976
Henderson, Thomas, Liverpool, England. Grate	482,556	Sept. 13	1074	260	60	1558
Henderson, William, Chicago, Ill. Bar and fastening for sashes and like structures	482,067	Sept. 6	269	65	60	1388
Henderson, William B. (See Birch, John T., assignor.)						
Henderson, William T., *et al.* (See Kemp, Solomon M., assignor.)						
Hendrick, William H. (See Case and Hendrick.)						
Hendryx, Andrew B., New Haven, Conn. Fishing-reel	478,326	July 5	414	99	60	83
Hendryx, Andrew B., New Haven, Conn. Fishing-reel	478,327	July 5	415	100	60	83
Henius, Max W. (See Cohn, Oscar, assignor.)						
Henning, John E., Kansas City, Mo., assignor, by mesne assignments, of one-half to W. S. Harpell and H. F. Carson, Chicago, Ill. Musical instrument	478,933	July 12	1325	329	60	277
Henry, Archie J., assignor of one-half to E. A. E. Meyer and C. H. Sprague, Watertown, N. Y. Vending-machine	482,683	Sept. 13	1253	305	60	1593

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Henry Disston & Sons, Incorporated. (See Disston, Thomas S., assignor.)						
Henry, James M., Wilmerding, and R. B. Wilson, Altoona, Pa. Train signaling apparatus	482,126	Sept. 6	331	79	60	1400
Henry, William, Detroit, Mich. Influence-generator of electricity	479,941	Aug. 2	256	63	60	631
Hepfer, Harry. (See Bauscher, Albert C., assignor.)	481,028	Aug. 16	2050	506	60	1000
Herbert, William B., Galveston, Texas. Game-counter	482,575	Sept. 13	1097	266	60	1563
Herby, John, Jamestown, N. Y. Axle	483,444	Sept. 27	2464	620	60	1855
Herchenbach, Paul. (See Thuener and Herchenbach.)						
Herder, Herman, Philadelphia, Pa. Shears	479,090	July 19	1576	395	60	335
Herder, Rudolph H., Chicago, Ill. Machine for washing shavings	482,684	Sept. 13	1254	306	60	1503
Herdman, Frank E., Indianapolis, Ind. Electric elevator	480,845	Aug. 16	1747	436, 437	60	945
Herdman, Frank E., Indianapolis, Ind. Electric elevator	480,846	Aug. 16	1749	438, 439	60	945
Herdman, Frank E., Indianapolis, Ind. Elevator	480,847	Aug. 16	1753	439	60	946
Herdman, Frank E., Indianapolis, Ind. Elevator	480,848	Aug. 16	1754	439, 440	60	946
Herdman, Frank E., Indianapolis, Ind. Elevator	480,849	Aug. 16	1755	440	60	947
Herlick, Christian, Marquette, Mich. Smoke-excluding hood	478,429	July 5	568	137	60	111
Herman, Adolph E., Terre Haute, Ind. Fifth-wheel	480,403	Aug. 9	1054	264	60	793
Herman, Jacob P. (See Hahn and Herman.)						
Herman, Reinhold, Crafton, Pa. Pipe-coupling	482,922	Sept. 20	1638	412	60	1681
Héroux, Georges P. O., Yamachiche, Canada. Accompaniment-indicator for musical instrumenta	478,107	July 5	45	13	60	11
Herr, Christian A., Osborn, Ohio. Dental cabinet	480,261	Aug. 9	830	212	60	752
Herrburger, Joseph, Paris, France. Pilot for piano-actions	482,008	Sept. 6	137	33	60	1362
Herrerra y Gutierrez, Jesus, Mexico, Mexico. Theatrical appliance	479,001	July 19	1441	358	60	310
Herrick, Henry F. (See Anderson, Oliver, assignor.)						
Herrick, William, Russell, Minn. Car-coupling	480,092	Aug. 2	530	134	60	663
Herrick, William, Russell, Minn. Guard-gate for drawbridges	483,445	Sept. 27	2465	620, 621	60	1855
Herrington, Dexter E., Greenwood, Ill. Spring-tooth attachment for cultivators	481,946	Sept. 6	40	9	60	1342
Herrington, William M., Wellsborough, Pa. Fire-shield	482,844	Sept. 20	1506	374	60	1656
Herrington, Edward E. (See Smith and Herrinton.)						
Hershey, Martin E., Harrisburg, Pa. Piston-valve	479,273	July 19	1858	466	60	389
Hertel, Max, assignor to National Machine Works, Chicago, Ill. Carving-machine	479,364	July 19	2012	504	60	420
Hess, Amos M., Martinsville, Pa. Top-joint for vehicles	478,696	July 12	955	237	60	205
Hess, Joseph T., Duffield's, W. Va. Corn-harvester	479,165	July 19	1691	423, 424	60	357
Heuser & Co., Franz. (See Rempen and Andre, assignors.)						
Hewitt, Jackson W., Jackson, Mich. Two-wheeled vehicle	482,739	Sept. 20	1355	335	60	1625
Hewitt, James, Berkeley, Cal. Tripod	478,233	July 5	272	67	60	55
Hey, Henry T., assignor of one-half to A. A. Poehner, Philadelphia, Pa. Railway-joint	481,758	Aug. 30	3269	795	60	1264
Heydon, F. von, Nachfolger. (See Seifert, Bruno R., assignor.)						
Heymann, Carl, Berlin, Germany. Christmas-card	481,173	Aug. 23	2297	566	60	1063
Heys, John J. (See Bresnahan and Heys.)						
Heyser, Emanuel R., Leon, Mexico. Watchman's electric time-recorder	482,251	Sept. 6	534	127	60	1438
Heywood Bros. & Co. (See Watkins, Gardner A., assignor.)						
Heywood, Harvey, and J. Holland, Middleton, near Manchester, England. Pegging-machine for pile fabrics	479,274	July 19	1860	466	60	390
Heywood, William H., Huddersfield, England. Glazing-bar for skylights	479,275	July 19	1862	466	60	390
Hibbard, Angus S., New York, N. Y., assignor to American Telephone and Telegraph Company, of New York. Telephone-exchange apparatus	482,174	Sept. 6	419	100	60	1417
Hicks, Alfred, New York, N. Y. Upright-piano action	482,740	Sept. 20	1356	336	60	1625
Hicks, Shelby, assignor of one-half to J. W. Givens, Providence, Ky. Mechanical motor	480,724	Aug. 16	1567	392	60	908
Hicks, Thomas H., assignor of one-half to H. L. Obetz, Detroit, Mich. Alternating-current motor	479,187	July 19	1734	435	60	364
Hicks, Thomas H., assignor of one-half to G. F. Case, Detroit, Mich. Pneumatic tire for cycles	483,493	Sept. 27	2522	635	60	1856
Hide, Arthur C., assignor to Disc Wheel Company, Limited, London, England. Wheel for velocipedes	478,191	July 5	188	48	60	39
Hieatzman, Arthur H., assignor of one-half to H. D. Hieatzman, Baltimore, Md. Conduit-trolley for street-cars	479,327	July 19	1932	483	60	404
Hieatzman, Harry D. (See Hieatzman, Arthur H., assignor.)						
Hien, Philip, Rock Island, assignor to National Hollow Brake Beam Company, Chicago, Ill. Brake-beam	480,194	Aug. 2	695	176	60	713
Higgin, Henry, Newport, Ky. Band-shell for wheel-hubs	480,093	Aug. 2	531	135	60	683
Higgins, Charles M., Brooklyn, N. Y. Ink	483,446	Sept. 27	2467	.....	60	1855
Higgins, Charles M., Brooklyn, N. Y. Ink	483,447	Sept. 27	2468	.....	60	1855
Higgins, Frank L., assignor of one-half to P. H. Sloan, Chicago, Ill. Furnace	482,741	Sept 20	1357	336	60	1625
Higgins, Van H., and W. D. Smith, Chicago, Ill. Pressure-regulator	483,516	Sept. 27	2575	646	60	1876
Higgins, Van H., and W. D. Smith, Chicago, Ill. Mercurial gas-governor	483,517	Sept. 27	2579	646	60	1877
Hildebrandt, Albert, Brooklyn, N. Y. Beverage apparatus	479,594	July 26	2398	597	60	508
Hilditch, Jacob, assignor to Norwegian Siphon Company, Limited, Christiania, Norway. Siphon	478,108	July 5	46	13	60	11
Hilgeman, Charles E. (See Riepe and Hilgeman.)						
Hilger, Anson N. (See Sutton, Harry S., assignor.)						
Hill, A. C., *et al.* (See Carter, Joseph, J., assignor.)						
Hill, Charles, Newark, assignor to T. Russell, Montclair, N. J., and R. W. Ferguson, New York, N. Y., trustees. Thread-winding machine	482,308	Sept. 6	635	152, 153, 154	60	1450
Hill, Charles E., *et al.* (See Smith, Samuel, assignor.)						
Hill, Edgar A., *et al.* (See Hill, Edward A., assignor.)						
Hill, Edward A., assignor of one-half to J. L. Mallory and E. A. Hill, Chicago, Ill. Grain-door for cars	479,070	July 19	1545	386	60	329
Hill, Ernest, Sheffield, England. Pavement	479,002	July 19	1442	358	60	310
Hill, Eugene N., Buffalo, N. Y. Railway-torpedo	479,879	Aug. 2	159	40	60	613
Hill, Ezra N., assignor to J. G. Slater, Washington, D. C. Means for insuring travelers against loss by accident. (Reissue)	11,270	Sept. 13	1306	319	60	1604
Hill, Francis H., Chicago, Ill. Metallic casket	482,557	Sept. 13	1075	261	60	1559
Hill, Frank O., *et al.* (See Keizur, William H. H., assignor.)						
Hill, George, Lombard, Ill. Toy game apparatus	480,725	Aug. 16	1568	392	60	908
Hill, Homer C., and C. W. Frey, Clinton, Ill. Folding ironing-table	483,353	Sept. 27	2335	587	60	1829

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hill, John L. (See Eglin, William, assignor.)						
Hill, Roland F., *et al.* (See Willis, William H., assignor.)						
Hill, Thomas, *et al.* (See Whitworth, Charles E., assignor.)						
Hillard, Paul H., Westerly, R. I. Game-counter	481,947	Sept. 6	42	9, 10	60	1342
Hillard, Paul H., Stonington, Conn. Toy	481,948	Sept. 6	43	10	60	1342
Hille, Gustav L., London, England. Process of and apparatus for the manufacture of hollow caoutchouc balls	482,088	Sept. 6	271	65, 66	60	1389
Hilles & Jones Company. (See Jones, Henry C., assignor.)						
Hilliard, Charles E., Big Run, Pa. Lamp-hanger	483,448	Sept. 27	2469	621	60	1855
Hillman, William, assignor to Auto Machinery Company, Limited, Coventry, England. Means or apparatus for gaging and sorting spherical rollers or balls	482,636	Sept. 13	1183	286	60	1579
Hills, Edwin A., Wethersfield, Conn. Horseshoe	480,924	Aug. 16	1868	466	60	969
Hills, Lester S., *et al.* (See Badt, Francis B., assignor.)						
Himmelstein, John, Milwaukee, Wis. Horse-collar fastener	478,603	July 12	834	205	60	181
Hinchman, Carey S. (See Cook and Hinchman.)						
Hinckley, Sylvester B. (See Dix, Henry S, assignor.)						
Hinden, Mathias J., assignor to Julius King Optical Company, Cleveland, Ohio. Lens-measuring instrument	483,354	Sept. 27	2336	587	60	1830
Hinderer, Gustav L., Philadelphia, Pa. Heater for food, &c	481,759	Aug. 30	3269	796	60	1264
Hine, James W. (See Foster and Hine.)						
Hine, L. G. (See Fowler, Joseph C., assignor.)						
Hinesley, Daniel, Beard, Ind. Fence-post	482,637	Sept. 13	1184	287	60	1579
Hinkley, Aaron F., Lakeville, and J. S. Welch, Lynn, Mass. Voter's compartment and shelf	480,925	Aug. 16	1870	466	60	970
Hinsdale, William R., Newark, N. J. Preventing segregation in large ingots	479,120	July 19	1627	407	60	344
Hinshillwood, Thomas K., assignor of one-half to H. Popp, Philadelphia, Pa. Type-casting machine	481,760	Aug. 30	3270	796, 797	60	1265
Hinson, James A., Chicago, Ill. Car-coupling	482,358	Sept. 13	742	179	60	1495
Hipwell, Thomas, Long Island City, assignor to Manhattan Brass Company, New York, N. Y. Supporting-ring for lamps	479,880	Aug. 2	160	40	60	613
Hipwell, Thomas, Long Island City, assignor to Manhattan Brass Company, New York, N. Y. Lamp-burner	480,404	Aug. 9	1055	264	60	793
Hirsch, Isaac, Chicago, Ill. Rolling-machine for cutlery	480,325	Aug. 9	932	236	60	771
Hirst, John F., Sabattus, Me. Hinge	481,492	Aug. 23	2827	695	60	1163
Hisey, Charles S., Aurora, Ind., assignor to Standard Cartridge Company, of New Jersey. Cartridge-loading machine	480,015	Aug. 2	401	99, 100, 101	60	658
Hisley, Stephen T., Syracuse, N. Y. Buckle	479,003	July 19	1443	358	60	310
Hitzeroth, Lorenz D. (See Macdonald, Williams, and Hitzeroth.)						
Hoadley, David, Naugatuck, Conn. Bevel	480,016	Aug. 2	405	101	60	658
Hoadley, Isaac N., assignor to Monitor Packer Company, Bradford, Pa. Well-packer	480,926	Aug. 16	1871	466	60	970
Hoadley, Miles S. (See Ziegler, William R., assignor.)						
Hoagland, James. (See Stivers and Hoagland.)						
Hoar, John, Brookline, Mass. Horse-boot	481,790	Aug. 30	3326	811	60	1276
Hobbs, Alfred C., and C. R. Richards, assignors to Union Metallic Cartridge Company, Bridgeport, Conn. Machine for sizing and polishing paper tubes	480,017	Aug. 2	407	101, 102, 103, 104	60	659
Hodge, Albert S., assignor of one-half to J. H. Hodge, Boston, Mass. Automatic relief-valve for radiators	479,806	Aug. 2	48	12	60	591
Hodge, J. Henry. (See Hodge, Albert S., assignor.)						
Hodgson, William. (See Froehlich, Amadeus A., assignor.)						
Hodsdon, Charles F., New York, N. Y. Ballot-box	478,283	July 5	353	85	60	71
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.) (Reissue.)						
Hoefer, Henry, Philadelphia, Pa. Butcher's or bow saw	480,697	Aug. 9	1520	378	60	884
Hoffend, Nickolaus, Rochester, N. Y. Means for hanging moldings	482,742	Sept. 20	1359	336	60	1026
Hoffman, Andrew E., Fort Wayne, Ind. Veneer-saw	480,428	Aug. 9	1097	274	60	800
Hoffman, Clara E., administratrix. (See Hoffman, Ferdinand A.)						
Hoffman, Ferdinand A., deceased, Byron, Cal.; C. E. Hoffman, administratrix. Fumigator	483,484	Sept. 27	2510	632	60	1864
Hoffman, Joseph L., Longtown, Mo. Hay-carrier	479,423	July 26	2126	532	60	456
Hoffmann, Meinhard, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Diazo dye	480,326	Aug. 9	933	.....	60	772
Hoffmann, Meinhard, Mainkur, near Frankfort-on-the-Main, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Manufacture of yellow dyes. (Reissue)	11,267	Sept. 6	686	.....	60	1470
Hoffmann, Paul W. (See Quinn and Hoffmann.)						
Hoffmann, Solomon D., Moscow, Russia. Composition for and method of making heads and limbs of dolls	480,094	Aug. 2	532	.....	60	684
Hogan, Silas J. (See Hawley and Hogan.)						
Hogan, Thomas J., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Air-brake	482,058	Sept. 6	221	53	60	1378
Hoggson, Samuel H., assignor to Stevenson-Hoggson Electric Company, St. Louis, Mo. Time-stamp	483,151	Sept. 27	1992	505, 506	60	1764
Holbrook, Charles W., Windsor Locks, assignor, by mesne assignments, to Gray Automatic Telephone Pay Station Company, Hartford, Conn. Coin signal-sounding device	481,903	Aug. 30	3506	859	60	1310
Holcomb, Clifford A., Beloit, Wis. Mechanical movement	482,743	Sept. 20	1360	336, 337	60	1626
Holcomb, Edwin L., Springfield, Mass. Micrometer-calipers	479,807	Aug. 2	49	12	60	591
Holden, Edward P. (See Brown and Holden.)						
Holdredge, Charles H., Westerly, R. I. Vehicle-gear	483,381	Sept. 27	2366	599	60	1838
Holdsworth, Charles H., Elyria, Ohio. Bicycle-saddle spring	478,430	July 5	570	138	60	111
Holedger, James P., Spokane, Wash. Street-railway-switch appliance	482,903	Sept. 20	1613	404	60	1675
Holladay, John M., Holladay, Va. Knockdown hen-hovel	479,942	Aug. 2	259	61	60	632
Hollafolla, George, Syracuse, N. Y. Vehicle-wheel	482,175	Sept. 6	422	100	60	1418
Holland, Jackson. (See Patten, James S., assignor.)						
Holland, John. (See Heywood and Holland.)						
Hollenbeck, Frank A., assignor to Baker Gun and Forging Company, Batavia, N. Y. Breakdown gun	481,327	Aug. 23	2567	630	60	1113
Holm, Charles W., Troy, Ohio. Iron fence-post	483,060	Sept. 20	1853	470	60	1726
Holman, Edward E., administrator. (See Cavner, Alexander R.)						
Holme, Eric W. H., Toronto, Canada. Demijohn-holder	480,095	Aug. 2	532	135	60	684
Holmes, Daniel M., Arlington, N. J. Ash-cart	479,760	July 26	2622	666	60	560
Holmes Fibre-Graphite Manufacturing Company. (See Holmes, Philip H., assignor.)						
Holmes, Franklin, assignor of one-half to C. N. Sandford, King City, Mo. Kitchen-cabinet	483,219	Sept. 27	2108	534, 535	60	1788

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Holmes, Philip H., Gardiner, Me. Drawing-roll	480,195	Aug. 2	696	176	60	714
Holmes, Philip H., Gardiner, Me., assignor to Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Composition of matter for journal-bearings	481,949	Sept. 6	45	10	60	1343
Holmes, Philip H., Gardiner, Me., assignor to Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Composition of matter	482,176	Sept. 6	423	.....	60	1418
Holmes, Philip H., Gardiner, Me., assignor to Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Electrical conductor	482,177	Sept. 6	424	101	60	1418
Holmes, Philip H., Gardiner, Me., assignor to Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Bearing	482,309	Sept. 6	647	155	60	1462
Holmes, Philip H., Gardiner, Me., assignor to Holmes Fibre-Graphite Manufacturing Company, Chicago, Ill. Manufacturing composition journal-bearings	482,310	Sept. 6	648	.....	60	1462
Holroyd, James, Albany, N. Y. Undershirt and making the same	479,276	July 19	1802	467	60	390
Holstein, Sigmund A., Cleveland, Ohio. Bed-lounge	479,071	July 19	1545	386	60	329
Holsten, John B., New York, N. Y. Floating pot	482,638	Sept. 13	1186	287	60	1580
Holt, Benjamin, Stockton, Cal. Traveling harvester	483,449	Sept. 27	2470	621, 622	60	1856
Holt, Frederic W., St. George, Canada. Fluid-meter	479,277	July 19	1864	467	60	390
Holt, Herbert L., Trivoli, Ill. Traction-wheel	483,220	Sept. 27	2109	535	60	1788
Holyoke Machine Company *et al.* (See Keene, Samuel D., assignor.)						
Honiss, William H. (See Mildrum, Ernest W., assignor.)						
Hood, Otis, Onset, Mass. Car-coupling	479,881	Aug. 2	162	40	60	613
Hooper, Judson V. (See Opsion and Hooper.)						
Hoover, Jeremiah L., Fishertown, Pa. Draft-equalizer	480,262	Aug. 9	831	212	60	753
Hope Electric Appliance Company. (See Wright, Augustus, assignor.)						
Hope, John, Providence, R. I. Ruling-machine	480,498	Aug. 9	1206	302	60	823
Hope, John, assignor to John Hope & Sons Engraving and Manufacturing Company, Providence, R. I. Grounding-machine	482,947	Sept. 20	1682	423	60	1689
Hopedale Electric Company. (See Usher, Edward P., assignor.)						
Hopedale Electric Company. (See Usher and Draper, assignors.)						
Hopedale Machine Company. (See Bancroft and Rhoades, assignors.)						
Hopedale Machine Company. (See Rhoades, Alonzo E., assignor.)						
Hopkins, Floyd, Belvidere, Ill. Gate	482,792	Sept. 20	1438	356	60	1641
Hopkins, George G., Brooklyn, N. Y. Sash-fastener	479,595	July 26	2400	598	60	508
Hopkins, Willie E. (See Spencer, Gaston N., assignor.)						
Hopkinson, John A. and J., Huddersfield, England. Water-gage	481,493	Aug. 23	2828	695	60	1164
Hopkinson, Joseph. (See Hopkinson, John A. and J.)						
Horcheler, William. (See Spencer, Charles F., assignor.)						
Horgan, Stephen H., Jersey City, N. J. Printing plate and block	478,749	July 12	1044	256	60	223
Horgan, Stephen H., Jersey City, N. J. Printing-block	478,750	July 12	1045	257	60	223
Hormel, August. (See Tilton and Hormel.)						
Horn, George W. and J. L., Farmington, assignors to W. W. Norman, Delta, Mo. Purifying-pump	480,096	Aug. 2	533	135	60	684
Horn, Josiah L. (See Horn, George W. and J. L.)						
Horn, Norbert, New York, N. Y. Gaseous-fuel generator and burner	481,494	Aug. 23	2831	695, 696	60	1164
Horne, James. (See Whinfield and Horne.)						
Horovitz, Bernhard, Stillwater, Minn. Rubber shoe	480,097	Aug. 2	534	135	60	684
Horton, James W., Madison, Ind. Mail-bag catcher	478,604	July 12	835	206	60	181
Horton, John T., Lowville, N. Y. Hydraulic feed for wood-pulp machines	481,174	Aug. 23	2398	566	60	1064
Hosea, Lewis M., Cincinnati, Ohio. Elevator	479,943	Aug. 2	261	64	60	632
Hosea, Raphael M., Denver, Colo. Coal-chute	482,009	Sept. 6	138	33, 34	60	1362
Hoskins, Adeline E. (See Payne, William H., assignor.)						
Hoskins, Clanmer P., *et al.* (See Payne, William H., assignor.)						
Hostetler, Joseph W. (See Robberson, Alexander J., assignor.)						
Hotchkiss, Francis A., Cedar Falls, Iowa. Car-coupling	480,584	Aug. 9	1335	333	60	849
Hotchkiss Ordnance Company. (See Paine, Frederick H., assignor.)						
Hougen, Ole T., and G. W. Paulns, Grand Rapids, Wis. Implement-holder for tablets, &c	478,784	July 12	1127	278	60	238
Hough, John C., Pittsburg, Pa. Trolley-stand for electric railways	483,061	Sept. 20	1853	470	60	1726
Houghtlin, Alfred A., Brooklyn, N. Y. Attachment to roll-carrying spindles for web-printing presses	480,499	Aug. 9	1207	302	60	823
Houghton, Arthur A., and R. D. Haines, assignors to Clay Glass Tile Company, Corning, N. Y. Plating clay with glass and in articles made accordingly	479,365	July 19	2017	504	60	421
Houghton, Thomas J., Lancaster, Pa. Vehicle-pole tip	481,791	Aug. 30	3327	812	60	1276
Houlihan, Dennis. (See Wright, George E., assignor.)						
Housh, Frank E., Brattleborough, Vt. Graphoscope	482,793	Sept. 20	1439	356	60	1642
Houston, James F., Lewisburg, Tenn. Gate-actuating mechanism	479,278	July 19	1867	467	60	391
Houston, Levi, Montgomery Station, Pa. Mortising-machine	478,431	July 5	571	138	60	112
Houston, Robert C. (See Tiner, John F., assignor.)						
Hoval, John, Stafford, Tex. Nut and bolt wrench	481,230	Aug. 23	2394	590	60	1063
Hove, John J., assignor of two-thirds to W. E. Lawrence, Minneapolis, Minn. Cash register, indicator, and automatic change-maker	479,711	July 26	2594	646	60	544
Hovland, Anton I., Faribault, Minn. Furnace	480,769	Aug. 16	1636	409	60	923
How, Fred. B. (See Thurston and How.)						
Howard, Charles D., Syracuse, N. Y., assignor to Howard Thermostat Company. Automatic damper	480,263	Aug. 9	832	212	60	753
Howard, Henry. (See Unwin and Howard.)						
Howard, Henry, Halesowen, near Birmingham, England. Electric welding	481,030	Aug. 16	2032	507	60	1001
Howard, James S., New Bedford, Mass. Drinking attachment for cups, mugs, &c	478,861	July 12	1220	303	60	257
Howard, John Farnworth, near Bolton, assignor to Concave Paddle Wheel Company, Limited, Liverpool, England. Paddle-wheel for steamers	481,668	Aug. 30	3109	759	60	1233
Howard Manufacturing Company. (See Howard, William C., assignor.)						
Howard Manufacturing Company. (See Witherell, Alonzo E., assignor.)						
Howard, William C., Brooklyn, N. Y., assignor to Howard Manufacturing Company, Boston, Mass. Razor-strop	478,934	July 12	1326	329	60	278
Howard, William H., Lowell, Mass., assignor to Waukenhose Company, Portland, Me. Assortment of stockings	478,751	July 12	1046	257	60	223
Howard Thermostat Company. (See Howard, Charles D., assignor.)						
Howe, Eugene L., Cleveland, Ohio. Separating apparatus	478,159	July 5	132	33	60	29
Howe, George. (See Waters, Frank J., assignor.)						
Howe, George M., Fulton, N. Y. Cash register and indicator	481,495	Aug. 23	2834	696, 697	60	1165
Howe, John B., Danbury, Conn. Machine for pouncing hats	480,098	Aug. 2	535	136	60	684
Howe, Samuel, Chicago, Ill. Farm-wagon	478,432	July 5	572	138	60	1.2
Howe, Warren B., Chicago, Ill. Paper box	482,480	Sept. 13	936	228	60	1530

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drf.	Official Gazette. Vol.	Official Gazette. Page.
Howe, Warren B., and F. B. Davidson, Chicago, Ill. Box	482,479	Sept. 13	934	228	60	1530
Howell, Edward D., Brooklyn, N. Y. Game apparatus	483,062	Sept. 20	1855	471	60	1726
Howell, Freeman R. (See Kelly and Howell.)						
Howell, Hampton C., *et al.* (See Foster, Washington H., assignor.)						
Howell, John W., Newark, N. J., assignor to Edison General Electric Company, New York, N. Y. Electrical pressure-indicator	480,947	Aug. 16	1903	476	60	976
Howland, Austin T., *et al.* (See Ashley, William A. G., assignor.)						
Howlett, Charles W., assignor of one-third to D. S. Gerber, Kansas City, Mo. Rail-brake	481,029	Aug. 16	2031	507	60	1000
Hoy, Henry S., Louisville, N. Y. Hay-rack	481,175	Aug. 23	2299	567	60	1064
Hoyt, Charles N., Brooklyn, N. Y. Calendar	481,563	Aug. 30	2949	{724 {725	60	1203
Hoyt, Fred J., Chicago, Ill., assignor to Hoyt Macadam Gravel Road Company, of Illinois. Gravel road	478,862	July 12	1221	.....	60	257
Hoyt, George W. (See Bradshaw, George, assignor.)						
Hoyt, Henry. (See Seibold, Otto F., assignor.)						
Hoyt, James T., New York, N. Y. Cabinet for toilet-paper	478,863	July 12	1222	303	60	257
Hoyt Macadam Gravel Road Company. (See Hoyt, Fred J., assignor.)						
Hubbard, Clement S. (See Clark, George M., assignor.)						
Hubbard, Eber., Chicago, Ill. Press for forming hollow articles from pulp	480,466	Aug. 9	1160	291	60	813
Hubbard, J. E., *et al.* (See Kilbourn, Washington H., assignor.)						
Hubbard, William J. (See Bowen, William J., assignor.)						
Hubbell, Harvey, Bridgeport, Conn. Changeable-speed screw-driver	481,304	Aug. 23	2529	621	60	1106
Hubbell, Myron R., Wolcott, Vt. Latch	482,794	Sept. 20	1440	356	60	1642
Huber, Edward, Marion, Ohio. Belt-tightener for thrashing-machines	481,176	Aug. 23	2300	567	60	1064
Huber, Ernest, New York, N. Y. System of electric lighting	481,904	Aug. 30	3507	859	60	1310
Huber, John B. (See Bissell and Huber.)						
Huber, John F., and G. L. Marvin, Central City, Nebr. Towel-rack	482,869	Sept. 20	1549	387	60	1665
Huber, William J., assignor, by mesne assignments, of two-thirds to St. Louis Carriage Manufacturing Company, St. Louis, Mo. Fifth-wheel	479,563	July 26	2358	588	60	501
Hubert, Bradford L., Parma, Mich. Bag-fastener	483,450	Sept. 27	2473	622	60	1856
Huff, John, and E. Johnson, Lusk, Wyo. Bracket	479,424	July 26	2128	532	60	457
Huff, Sylvester, Wabash, Ind. Waterproof composition	483,451	Sept. 27	2474	.....	60	1857
Huggins, Frederick E., assignor to E. W. Conable, Clinton, Iowa. Churn-vent	481,564	Aug. 30	2951	725	60	1204
Huggins, Ulysses S., assignor to C. N. Brady and B. D. Northrop, Washington, Pa. Supporting-holder for glass molds	481,142	Aug. 16	2240	552	60	1030
Hughes, Frank M., Milford, Mass. Combined water-tower and fire-escape	483,001	Sept. 20	1763	{445 {446	60	1706
Hughes, Russell M., Louisville, Ky. Apparatus for making vinegar	481,063	Sept. 20	1858	471	60	1727
Hughes, Samuel. (See Chisolm, William B., assignor.)						
Hughes, Samuel, assignor of one-half to W. B. Chisolm, Charleston, S. C. Apparatus for removing iron and alumina	479,882	Aug. 2	163	41	60	614
Hughes, Samuel, and W. B. Chisolm, Charleston, S. C. Apparatus for treating phosphate rock	483,452	Sept. 27	2475	622	60	1857
Hughes, Smith E., Philadelphia, Pa. Water-closet	481,761	Aug. 30	3275	798	60	1266
Huillard, Alfonse. (See Delvaux, Georges, assignor.)						
Hull, George, Binghamton, N. Y. Car-wheel	483,064	Sept. 20	1859	471	60	1727
Hull, William S., Sheffield, Ala. Electric jail-plate	480,099	Aug. 2	539	137	60	685
Hull, William S., Sheffield, Ala. Electric screen for doors or windows	480,100	Aug. 2	540	137	60	685
Hummel, Franklin P., Blissfield, Mich. Mechanical movement	478,795	July 12	1129	278	60	239
Hunt, Almon, Atlantic, Iowa. Draft-equalizer	481,357	Aug. 23	2009	641	60	1121
Hunt, Charles B., London, England. Sewing-machine	483,454	Sept. 27	2477	623	60	1857
Hunt, Charles F., *et al.* (See Walker, James E., assignor.)						
Hunt, Ellwood C., New York, N. Y. Package of marking material	483,453	Sept. 27	2476	622	60	1857
Hunt, Helm & Ferris. (See Ferris, Henry L., assignor.)						
Hunt, James W. (See Chapman and Hunt.)						
Hunt, John A., Indianapolis, Ind. Fire-escape	481,565	Aug. 30	2952	725	60	1204
Hunt, Marshall E., and F. W. Lerch, Davenport, Iowa. Clevis	483,221	Sept. 27	2110	535	60	1788
Hunt, Robert F., Washington, D. C. Fan-operating device	479,425	July 26	2129	532	60	457
Hunter, Andrew, Chicago, Ill. Support for photographs, pictures, and apalogous articles	482,978	Sept. 20	1725	436	60	1698
Hunter, Andrew, Chicago, Ill., assignor of one-half to J. W. Ward, Postville, Iowa. Tricycle	483,495	Sept. 27	2525	{635 {636	60	1867
Hunter, Jacob S., Nickerson, Kans. Car-coupling	481,567	Aug. 30	2955	726	60	1204
Hunter, James M., Chicago, Ill. Coin-actuated machine	480,018	Aug. 2	415	{104 {105	60	660
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-arc lamp	478,510	July 5	688	167	60	136
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson-Houston Electric Company, of Connecticut. Electric railway	481,905	Aug. 30	3510	859	60	1311
Hunter, Rudolph M., Philadelphia, Pa., assignor, by mesne assignments, to Thomson-Houston Electric Company, Boston, Mass. Electric railway	480,850	Aug. 16	1757	440	60	947
Hunter, Rudolph M., Philadelphia, Pa., assignor, by mesne assignments, to Thomson-Houston Electric Company, Boston, Mass. Electric-railway conduit	482,964	Sept. 20	1704	430	60	1694
Hunter, Rudolph M., Philadelphia, Pa., assignor, by mesne assignments, to Thomson-Houston Electric Company, Boston, Mass. Electric-railway conductor	483,494	Sept. 27	2524	635	60	1867
Hunter, William C., Newport, Ky. Fastening for metal plates	481,566	Aug. 30	2954	725	60	1204
Hunter, William H., Farnhamville, Iowa. Fish-hook	478,864	July 12	1223	303	60	258
Hunter, William S., Belleville, and W. H. Avis, Toronto, Canada. Spinning-machine	481,278	Aug. 23	2485	612	60	1099
Hunting, Alfred A., Salem, Mass. Machine for shaving hides or skins	479,072	July 19	1546	{386 {387	60	330
Huntoon, Llewellyn H., Madison, Me. Fabric-measuring device	479,091	July 19	1577	395	60	336
Hurd, Hutson R., Cleveland, Ohio. Horse-boot	482,041	Sept. 6	191	46	60	1373
Hurdel, Nellie F., New York, N. Y. Hat-case	479,643	July 26	2474	615	60	522
Hurdley, Walter, Youngstown, Ohio. Boiler-furnace	478,433	July 5	573	138	60	112
Hurley, Andrew O., Jeannette, Pa. Glass-heating oven	478,328	July 5	416	{100 {101	60	83
Hurley, Joseph M., Buffalo, N. Y. Service-box for water or gas pipes	479,909	Aug. 2	198	49	60	621
Hürzeler, Friedrich, St. Gall, Switzerland. Fabric-holding frame for embroidering-machines	478,192	July 5	189	48	60	39
Husemann, Gottlieb D., St. Louis, Mo. Ore-concentrator	479,279	July 19	1868	468	60	391
Huson, Winfield S., Taunton, Mass., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Stopping and reversing mechanism for printing-presses	482,359	Sept. 13	744	179	60	1495
Huss Brothers Company. (See Huss, William C., assignor.)						
Huss, William C., assignor to Huss Brothers Company, Cincinnati, Ohio. Combined counter-rail, foot-bracket, and cuspidor	481,568	Aug. 30	2956	726	60	1205

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Hutchins, George F., assignor to Knowles Loom Works, Worcester, Mass. Take-up mechanism for looms	480,851	Aug. 16	1760	440	60	948
Hutchins, Thomas W., Wyoming, Pa. Track construction for railways	479,808	Aug. 2	51	12	60	592
Hutchins, William, Melbourne, Victoria. Sash-cord fastener	478,234	July 5	273	67	60	55
Hutchinson, Alfred B., assignor to Glen Cove Machine Company, Limited, Brooklyn, N. Y. Planing-machine	482,481	Sept. 13	938	228	60	1531
Hutchinson, Arthur H., assignor to L. N. Hutchinson, Kansas City, Mo. Air-compressor	481,143	Aug. 16	2242	552	60	1039
Hutchinson, Frederick, Jefferson, Iowa. Fence-measuring machine	481,792	Aug. 30	3328	812	60	1276
Hutchinson, Joseph, assignor to Edison General Electric Company, New York, N. Y. Snap-switch	480,948	Aug. 16	1905	476	60	977
Hutchinson, Laura N. (See Hutchinson, Arthur H., assignor.)						
Hutchinson, William S., Chicago, Ill. Furnace	480,327	Aug. 9	934	237	60	772
Hutchinson, William S., Chicago, Ill. Furnace and attachment therefor	480,328	Aug. 9	935	237	60	772
Hutchison, George D., *et al.* (See Walton, James, assignor.)						
Hutt, James W., and A. J. Phillips, Toronto, Canada. Paper-feeding apparatus	478,329	July 5	418	{101 {102	60	84
Hutt, James W., and A. J. Phillips, Toronto, Canada. Printing apparatus	480,467	Aug. 9	1161	{291 {292	60	814
Hutton, George H., Baltimore, Md. Jump-seat for vehicles	481,358	Aug. 23	2610	641	60	1121
Hutton, Milton C., Georgetown, Tex. Desk attachment for chairs	480,386	Aug. 9	1030	258	60	789
Hyde, J. M., *et al.* (See Armstrong, James P., assignor.)						
Hymas, Alfred, assignor of one-half to J. Brockley, Albany, N. Y. Car-wheel	479,366	July 19	2019	504	60	421
Hyslip, Charles R., Bradford, Pa. Disinfecting apparatus	478,697	July 12	957	238	60	206
Ichthyol-Gesellschaft Cordes, Hermanni & Company. (See Helmers, Ludwig O., assignor.)						
Iden, Charles W., assignor to Thermo Electric Company, New York, N. Y. Thermo-electric element	479,596	July 26	2401	508	60	508
Idle, Francis M., St. Louis, Mo. Spinning-top	480,817	Aug. 16	1706	426	60	937
Iles, Malvern W. (See Chamute and Iles.)						
Iles, Malvern W. (See Sheedy and Iles.)						
Iles, Malvern W., Denver, Colo. Blast-furnace	481,950	Sept. 6	46	10	60	1343
Iles, Malvern W., Denver, Colo. Dump-car	483,152	Sept. 27	2000	506	60	1766
Iliff, John A. (See Teagne, Francis, assignor.)						
Illinois Electric Lamp Company. (See Richter and Nolen, assignors.)						
Imlah, James, Barre, Vt. Unicycle	480,585	Aug. 9	1386	333	60	840
Immerwahr, Natalie, *et al.* (See Miller, Morris V., assignor.)						
Inder Stroth, F. A. (See Weinedel, Charles, assignor.)						
Ingersoll, Robert H., New York, N. Y. Type-writing machine	478,109	July 5	47	14	60	12
Ingmanson, Emil N., *et al.* (See Ingmanson and Lorang, assignors.)						
Ingmanson, John, and R. Lorang, assignors to said Lorang, J. A. and E. N. Ingmanson, Chicago, Ill. Clamp for electric conductors	479,216	July 19	1776	445	60	372
Ingmanson, John A., *et al.* (See Ingmanson and Lorang, assignors.)						
Ingram, Benjamin F., Bowling Green, Mo. Wire-and-picket fence	480,101	Aug. 2	541	137	60	686
Ingram, Frederick F., Detroit, Mich. Atomizer	481,951	Sept. 6	46	11	60	1343
Ingram, Frederick F., Detroit, Mich. Mold	481,952	Sept. 6	47	11	60	1343
Ingram, Frederick F., Detroit, Mich. Bottle	481,953	Sept. 6	48	11	60	1344
Ingram, Ida M., Sedalia, Mo. Flour-sifter	482,576	Sept. 13	1099	266	60	1563
Ingram, Joseph C., San Francisco, Cal. Copying device	479,280	July 19	1870	468	60	392
Interior Conduit and Insulation Company. (See Bergmann, Sigmund, assignor.)						
International Pavement Company. (See McCarter, Samuel, assignor.)						
Iona Manufacturing Company. (See Quinn and Hoffmann, assignors.)						
Ireland, David M., Detroit, Mich. Bracket	481,177	Aug. 23	2301	567	60	1064
Ireland, Lewis N., Pittsburg, Pa. Combined drilling-tool and sand-bailer	478,605	July 12	836	206	60	181
Ireland, Theodore H., Green county, Iowa. Currycomb	480,196	Aug. 2	697	176	60	714
Ireland, William C., Boston, Mass. Safe	483,153	Sept. 27	2001	506	60	1766
Iremonger, Thomas, Jr., Brooklyn, N. Y. Shield for curling-irons	482,360	Sept. 13	746	179	60	1496
Irgens, Paul H., Christiania, Norway. Shock-controlling device	478,434	July 5	575	139	60	112
Irish, William E., Chicago, Ill. Electric-arc lamp	479,121	July 19	1629	{407 {408	60	345
Irish, William E., Cleveland, Ohio. Electric-arc lamp	479,510	July 26	2285	571	60	486
Irish, William E., assignor to R. S. West, Cleveland, Ohio. Advertising device	482,178	Sept. 6	425	101	60	1418
Irvin, Stephen M., San Bernardino, Cal. Flume-gate	483,455	Sept. 27	2478	623	60	1858
Irving, Samuel S. (See Tyner and Irving.)						
Irwin, Samuel B., West Hebron, N. Y. Road-cart	479,944	Aug. 2	263	64	60	632
Isaacson, Sussill A., Boston, Mass. Trousers	479,564	July 26	2360	589	60	501
Isbell, Willard H., New York, N. Y. Caliper-joint	483,065	Sept. 20	1860	472	60	1728
Isch, Anthony, East St. Louis, Ill. Coin-tray	482,639	Sept. 13	1186	287	60	1580
Ives, Albert J. (See Sencenbaugh and Ives.)						
Ives, Blakeslee & Williams Company. (See Booth, Richard A., assignor.)						
Ives, Charles, Clinton, N. Y. Nut-lock	479,511	July 26	2287	572	60	487
Ives, John F., and F. B. Colman, New York, N. Y. Valve for pneumatic tires	481,762	Aug. 30	3277	798	60	1266
J. I. Case Plow Works. (See Sobey, William, assignor.)						
J. L. Brown Company. (See White, John, assignor.)						
J. L. Mott Iron Works. (See Hammann, Edward, assignor.)						
Jackson, Amariah W., Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Hose-coupling	480,197	Aug. 2	698	{176 {177	60	714
Jackson, Byron, San Francisco, Cal. Pneumatic fuel-feeding apparatus for straw	479,644	July 26	2475	{615 {616	60	522
Jackson, Calvin, Jacksonwald, assignor to C. H. Ruhl, trustee, Reading, Pa. Method of and apparatus for coiling and inserting wire	482,965	Sept. 20	1706	{430 {431	60	1695
Jackson & Co., William H. (See Burkhardt, John, assignor.)						
Jackson, Fountain, Hawley's Store, N. C. Potato-cutter	481,629	Aug. 30	3050	745	60	1222
Jackson, James D., Chicago, Ill. Steam-engine	482,089	Sept. 6	273	66	60	1389
Jackson, John B., *et al.* (See Smith, Samuel, assignor.)						
Jackson, Manetho C., Denver, Colo. Wagon-jack	481,713	Aug. 30	3180	777	60	1247
Jackson Pipe Organ Company. (See Jackson, Richard W., assignor.)						
Jackson, Richard W., assignor to Jackson Pipe Organ Company, Chester, Ill. Pipe-organ	480,949	Aug. 16	1906	{477 {478	60	977
Jacobi, John, Brooklyn, N. Y. Electric time-alarm	478,865	July 12	1224	{303 {304	60	258
Jacobs, George T., Washington, D. C. Brick-machine	482,252	Sept. 6	536	{128 {129	60	1439
Jacobs, Jacob, New York, N. Y. Illuminating-tile	479,645	July 26	2477	{616 {617	60	523
Jacobs, John E., Chicago, Ill. Sirup-gage	478,330	July 5	421	102	60	84

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jacobs, Thomas H., San Antonio, Tex. Converting mesquite-beans	479,512	July 26	2288	572	60	487
Jacobson, John, Boston, Mass. Framed picture, mirror, and the like, and forming the same.	479,004	July 19	1444	358	60	310
Jacobson, John, Boston, Mass. Iridescent stone or body. (Reissue)	11,263	Aug. 16	2271	560	60	1044
Jacques, James, Chelmsford, Mass. Cash indicator, register, and check-printer	480,698	Aug. 9	1521	378, 379	60	884
Jadwin, Orlando H., Brooklyn, N. Y. Proportional balance	481,618	Aug. 30	3035	741	60	1219
Jaehnig, Charles H., Eagle Pass, Tex. Newspaper-file	479,507	July 26	2402	598	60	508
James, Christopher, Swansea, England. Reducing zinc or spelter from ores	479,513	July 26	2289	572	60	487
James, Christopher, Swansea, England. Reducing zinc	478,110	July 5	48	.....	60	12
James, David O., assignor to himself and J. Grant, Chicago, Ill. Pipe-threading machine	482,438	Sept. 13	872	.....	60	1519
James, George B. (See Richards, Walter S., assignor.)	480,871	Aug. 16	1785	447	60	953
James, Harry. (See Gillespie and James.)						
James, Jack W., Memphis, Tenn. Bridle-bit	478,866	July 12	1225	304	60	258
James, Jack W., Memphis, Tenn. Bridle-bit	478,867	July 12	1226	304	60	258
James, Jack W., Memphis, Tenn. Ornamental curb-bit	478,868	July 12	1227	304	60	258
James Leffel & Company. (See Tyler, William W., assignor.)						
James, Milton. (See Mitchell, Joseph, assignor.)						
James, Thomas. Braddock, Pa. Furnace drawing and charging apparatus	479,883	Aug. 2	164	41	60	614
Jamieson, Samuel B., Marathon, N. Y. Road-scraper	483,303	Sept. 27	2267	570, 571	60	1816
Janeway, William F., Columbus, Ohio. Dinner-bucket	478,606	July 12	837	206	60	182
Janin, Alexis, San Francisco, Cal. Amalgamating silver ore	481,031	Aug. 16	2033	507	60	1001
Janssen, Henry, Brooklyn, assignor to Schloss & Sons, New York, N. Y. Feed mechanism	478,511	July 5	692	168	60	127
Jaquish, Louis C., Chicago, Ill. Bicycle	478,752	July 12	1047	258	60	223
Jarvis, John E., London, England. Horseshoe	478,435	July 5	576	139	60	113
Jauch, Joseph, assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Lamp-burner	479,598	July 26	2403	598, 599	60	509
Jay, Daniel W., *et al.* (See Bartholomew, Ellis, assignor.)						
Jay, Oliver, *et al.* (See Bartholomew, Ellis, assignor.)						
Jeavons, William R. (See Lannert and Jeavons.)						
Jeavons, William R. (See Lannert, Jeavons, and Wilder.)						
Jeavons, William R. (See Wilder, Lannert, and Jeavons.)						
Jelenik, Frank, Jr., *et al.* (See Cartwright, Edward, assignor.)						
Jenkins, Ebeuezer C., Shrewsbury, Mass. Needle-threader for sewing-machines	479,426	July 26	2131	532	60	457
Jenkins, Ebenezer C., Shrewsbury, Mass. Needle-threader for sewing-machines	479,427	July 26	2132	533	60	458
Jenkins, Ebenezer C., Shrewsbury, Mass. Sewing-machine-needle threader	479,428	July 26	2133	533	60	458
Jenkins, Wilton F., assignor of five-sixteenths to L. Euker and W. E. Shelley, Richmond, Va. Trolley for electric railways	481,401	Aug. 23	2682	658	60	1134
Jenkins, Wilton F., assignor of five-sixteenths to L. Euker and W. E. Shelley, Richmond, Va. Trolley for electric-railway conduits	481,402	Aug. 23	2683	658, 659	60	1134
Jenkins, Wilton F., assignor of five-sixteenths to L. Euker and W. E. Shelley, Richmond, Va. Conduit for electric railways	481,403	Aug. 23	2685	659	60	1134
Jenkinson, Samuel, Rochester, assignor, by mesne assignments, to Vanderbilt Sash Balance Company, Canandaigua, N. Y. Sash-balance	478,160	July 5	134	34	60	29
Jenks, William J. (See Stieringer, Luther, assignor.)						
Jenne, William M., Ilion, N. Y. Type-writing machine	478,964	July 12	1371	337, 338	60	286
Jennings, Byron, San José, assignor of one-half to J. Brusie, Oakland, Cal. Railway-rail chair	481,032	Aug. 16	2034	507	60	1001
Jennings, Sidney, and J. Morley, Lambeth, England. Water-closet	482,923	Sept. 20	1639	412	60	1681
Jensen, Knud G., Christiania, Norway. Grain-measuring apparatus	478,111	July 5	49	14	60	12
Jensen, Ole T., Weatherford, Tex. Plow	481,630	Aug. 30	3031	745	60	1222
Jeppesen, Christen J., Hebron, Ind. Milk-elevator	478,161	July 5	135	34	60	29
Jerome, Edgar, Norwalk, Conn. Toilet-paper	478,869	July 12	1228	305	60	258
Jesser, Charles F., Staunton, Va. Portable pastry-rack	481,404	Aug. 23	2686	660	60	1135
Jewell, John R., Jewel, N. C. Tobacco-curing barn	481,954	Sept. 6	50	11, 12	60	1344
Jewell, Delbert W. and G., assignors of one-half to J. B. Lewis and J. Jewell, Alexander, N. Y. Car-coupling	481,906	Aug. 30	3512	860	60	1312
Jewell, George. (See Jewell, Delbert W. and G.)						
Jewell, Ira H. (See Jewell, Omar H., W. M., and I. H.)						
Jewell, John, *et al.* (See Jewell, Delbert W. and G., assignors.)						
Jewell, Omar H., W. M., and I. H., Chicago, Ill. Filter	478,261	July 5	322	78	60	64
Jewell, Robert, London, England. Wheel	480,586	Aug. 9	1338	334	60	850
Jewell, William M. (See Jewell, Omar H., W. M., and I. H.)						
Jewell, William M., Pine, assignor of one-half to G. Robertson, Durango, Colo. Placer-machine	479,744	July 26	2658	659	60	555
Jewett, Frank, New Haven, Conn. Bicycle	481,569	Aug. 30	2957	726, 727	60	1205
Jincks, Melvin, Cohocton, N. Y. Saw-straining device	481,496	Aug. 23	2837	698	60	1166
Jobe, Samuel, Plain Dealing, La. Switch-stand	482,870	Sept. 20	1550	387	60	1665
Joerden, Henry C., St. Louis, Mo. Domestic cooker or boiler	478,331	July 5	422	103	60	85
John A. Roebling's Sons Company. (See Perrine, Frederic A. C., assignor.)						
John Hope & Sons Engraving and Manufacturing Company. (See Hope, John, assignor.)						
John March Company. (See March, John, assignor.)						
John O'Flaherty Company. (See Pearson, Marshall H., assignor.)						
Johns-Pratt Company. (See Hatch and Colton, assignors.)						
Johns-Pratt Company. (See Lee, Charles T., assignor.)						
Johnsen, Volkmar T., Chicago, Ill. Capotasto	480,429	Aug. 9	1099	274	60	801
Johnson, Albert, assignor of one-half to F. H. Dunmore, Haverhill, Mass. Horse-hitch	481,231	Aug. 23	2394	591	60	1063
Johnson, Albert H., Tampa, Fla. Drawing apparatus	482,127	Sept. 6	332	79	60	1400
Johnson, Charles, and O. Olson, San José, Cal. Cultivator	479,281	July 19	1871	468, 469	60	392
Johnson, Clarence. (See Timms, Charles H., assignor.)						
Johnson Company. (See Lavelle, Patrick J., assignor.)						
Johnson Company. (See Murray, George, assignor.)						
Johnson, Edward E, Seneca Falls, N. Y. Paper-making machine	480,770	Aug. 16	1637	410	60	923
Johnson, Edward H. (See Capek, John V., assignor.)						
Johnson, Edward H. (See Lundell, Robert, assignor.)						
Johnson, Edward H., assignor to Sprague Electric Railway and Motor Company, New York, N. Y. Closed conduit for electric railways	479,809	Aug. 2	52	12	60	592
Johnson, Ellis. (See Huff and Johnson.)						
Johnson, Frank A., assignor to Tachytype Manufacturing Company, Minneapolis, Minn. Matrix material	478,333	July 5	425	103	60	85

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Johnson, George A. L., Lincoln, Nebr. Whip-socket	479,811	Aug. 2	55	13	60	593
Johnson, George H., Jamaica, Iowa. Wagon end-gate	479,810	Aug. 2	54	13	60	592
Johnson, Gustavus J., assignor to Chicago Mailing Case Company, Chicago, Ill. Mailing-case	483,287	Sept. 27	2241	564	60	1612
Johnson, Gustof F., Milan, Minn. Boiler attachment	480,264	Aug. 9	833	213	60	753
Johnson, James C., Concord Church, W. Va. Wrench	483,222	Sept. 27	2112	535	60	1788
Johnson, James G., Chicago, Ill. Railway and truck	478,332	July 5	423	103	60	85
Johnson, James P., Springfield, Ill. Vehicle-pole	481,619	Aug. 30	3036	742	60	1219
Johnson, Jesse B. and J. R., Indianapolis, Ind. Baling-press	480,771	Aug. 16	1638	410	60	923
Johnson, John, *et al.* (See Bareis, Albert, assignor.)						
Johnson, John, assignor of five-sixths to A. Bareis, A. and A. Martini, St. Louis, Mo. Dental vulcanizer	478,871	July 12	1230	305	60	259
Johnson, John G., Chester, Pa. Reversing mechanism for rotary machines	483,456	Sept. 27	2479	624	60	1858
Johnson, John W. (See Grimes, James C., assignor.)						
Johnson, Joseph R. (See Johnson, Jesse B. and J. R.)						
Johnson, Lafayette M., assignor of one-half to R. Briggs, Seneca, Mo. Wire-tightener	481,763	Aug. 30	3278	798	60	1267
Johnson, Martin, Milwaukee, Wis. Manual motor	482,180	Sept. 6	427	101, 102	60	1419
Johnson, Monroe E., Pittsburg, Kans., and A. M. Phillips, Nashville, Mo. Band-cutter and feeder	481,570	Aug. 30	2961	727	60	1205
Johnson, Nils J., assignor to Minneapolis Plow Works, Minneapolis, Minn. Separable coupling for colter yokes	478,796	July 12	1130	278	60	239
Johnson, Oliver W., assignor to Frey-Sheckler Company, Bucyrus, Ohio. Cutter for brick and tile machines	478,436	July 5	577	139, 140	60	113
Johnson, Paul J., and J. H. Hamill, Globe, Ariz. Ter. Calendar attachment for timepieces	481,793	Aug. 30	3330	812	60	1277
Johnson, Peter, Cambridge, Ill. Gate	482,640	Sept. 13	1188	287, 288	60	1580
Johnson, Richard P., Boston, Mass. Apparatus for washing sugar	482,179	Sept. 6	426	101	60	1418
Johnson, Sander. (See Tremain and Johnson.)						
Johnson, Sidney N., assignor to Marion Manufacturing Company, Chicago, Ill. Game apparatus	483,115	Sept. 20	1936	490	60	1742
Johnson, Tom L., Cleveland, Ohio. Street-railway switch	482,426	Sept. 13	853	204, 205	60	1515
Johnson, W. Everett, *et al.* (See Van Wie, Byron, assignor.)						
Johnson, William, Armly, Leeds, England. Brick-machine	480,726	Aug. 16	1569	392, 393	60	909
Johnson, William H., Shreveport, La. Combined reel-carrier and wire-stretcher	483,355	Sept. 27	2337	588	60	1830
Johnson, William H., Industry, assignor to Oliver Ames & Sons Corporation, North Easton, Me. Form for holding shovel-handles	483,114	Sept. 20	1935	490	60	1742
Johnson, William H., and O. J. Smith, Farmer City, Ill. Hame	480,663	Aug. 9	1470	366	60	875
Johnston, Abner and W. A., Jersey City, N. J., assignors of one-half to R. Parker, New York, N. Y. Car wheel and axle	478,512	July 5	693	168	60	138
Johnston Harvester Company. (See Farrall, George A., assignor.)						
Johnston, James J., deceased; A. S. H. and A. Johnston, Columbiana, Ohio, and J. G. Thompson, New Brighton, Pa., administrators. (J. E. Allen, administrator, succeeding prior administrators.) assignors of one-half to D. C. Reinohl, Washington, D. C. Means for utilizing heat of lamps	479,367	July 19	2019	504	60	421
Johnston, James J., deceased; A. S. H. and A. Johnston, Columbiana, Ohio, and J. G. Thompson, New Brighton, Pa., administrators. (J. E. Allen, administrator, succeeding prior administrators.) assignors of one-half to D. C. Reinohl, Washington, D. C. Means for utilizing heat of lamps	479,368	July 19	2021	505	60	421
Johnston, John C. (See Schrader, Lambert P., assignor.)						
Johnston, John H., assignor of one-half to G. Purves, Little Rock, Ark. Stovepipe-fastening	478,965	July 12	1378	339	60	286
Johnston, Robert T., Scotch Plains, N. J. Mechanism for feeding and cutting paper	481,497	Aug. 23	2-38	698	60	1166
Johnston, William A. (See Johnston, Abner and W. A.)						
Johnston, William J. (See Murphey, John S., assignor.)						
Johnston, William K., Cordova, Ill. Capsule-filling machine	479,812	Aug. 2	56	13	60	593
Johnston, William P. (See Stahl and Johnston.)						
Johnstone, Francis W., Mexico, Mexico. Brick arch for locomotive fire-boxes	481,232	Aug. 23	2595	591	60	1083
Jonas, Carl, and I. Bauch, Vienna, Austria-Hungary. Telescope table	480,368	Aug. 9	998	251	60	783
Jones, A. Seddon, *et al.* (See Willis, William H., assignor.)						
Jones, Clemens, Easton, Pa. Treating ores containing hydrated sesquioxide of iron	480,405	Aug. 9	1056	.....	60	794
Jones, Erastus, and R. Townsend, New York, N. Y. Extension gunstock and cushion-plate	480,587	Aug. 9	1340	334	60	850
Jones, Edmund B., Leetsdale, Pa. Draft and dust guard for cars	483,382	Sept. 27	2387	599	60	1838
Jones, Edward, *et al.* (See Miller, Morris V., assignor.)						
Jones, Edward S., Providence, R. I. Device for straining zinc plates to their beds	478,607	July 12	838	206	60	182
Jones, Francis W., New York, N. Y. Counter for type-writers	482,361	Sept. 13	747	180	60	1496
Jones, George M. (See Reynolds, Richard J., assignor.)						
Jones, Harry W., assignor of one-tenth to A. H. Brinkmann, Baltimore, Md. Cuff-holder	482,311	Sept. 6	649	155	60	1462
Jones, Henry C., assignor to Hillis & Jones Company, Wilmington, Del. Plate-straightening machine	479,745	July 26	2660	660	60	556
Jones, Henry M., assignor to Jones Vestibule Sleeping Car Company, Denver, Colo. Car	479,945	Aug. 2	265	65	60	633
Jones, Henry R., *et al.* (See Trawick, Joseph E., assignor.)						
Jones, Horace D., Knapp's Creek, N. Y. Valve for oil-wells	480,365	Aug. 9	834	213	60	753
Jones, J. Albert, and C. E. Myers, assignors of one-half to D. Russell and A. Taylor, Marcellus, Mich. Burial-casket	483,304	Sept. 27	2368	571	60	1817
Jones, J. Albert, and C. E. Myers, assignors of one-half to D. Russell and A. Taylor, Marcellus, Mich. Burial-casket	483,305	Sept. 27	2369	571	60	1817
Jones, Jackson, Jefferson, Wis. Election-booth	481,571	Aug. 30	2964	727	60	1206
Jones, Jacob H., *et al.* (See Phelan, John, assignor.)						
Jones, James H. (See Mailliard and Jones.)						
Jones, Lyman M., and J. K. Wedlake, assignors to Massey-Harris Company, Limited, Toronto, Canada. Sheaf-carrier for harvester-binders	480,468	Aug. 9	1163	292, 293	60	814
Jones, Richard W., Rock Hall, Md. Vehicle for carrying grain	479,328	July 19	1935	484	60	405
Jones, Samuel C. (See Parker, Jones, and Coffey.)						
Jones Vestibule Sleeping Car Company. (See Jones, Henry M., assignor.)						
Jönason, Johan L., assignor to Aktiebolaget Separator, Stockholm, Sweden. Journal-box	479,983	Aug. 2	327	80	60	644
Jopson, George W. (See Crandall, Nathan W., assignor.)						
Jordan, Frank B., Auburn, Me. Meat-tenderer	483,002	Sept. 20	1766	446	60	1707
Jordan, Thomas N. (See Terry, Robert E., assignor.)						
Jordan, William, and E. Broadbridge, Jr., Brighton, England. Illuminating device for stage-scenery and for other purposes	482,302	Sept. 13	748	180	60	1496
Joyce, John, Oswego, N. Y. Explosive engine	480,010	Aug. 2	418	105	60	661

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Jrannot, Joseph M. (See Collard, David, assignor.)						
Judd, Edward A., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Padlock	483,383	Sept. 27	2388	600	60	1839
Judd, Edward C., assignor to American Scale Manufacturing Company, Boston, Mass. Weighing-scales	480,020	Aug. 2	419	105	60	661
Judge, Joseph, Pittston, Pa. Detergent paste	476,870	July 12	1229	.....	60	259
Judson L. Thomson Manufacturing Company. (See Thomson, Judson L., assignor.)						
Judson L. Thomson Manufacturing Company. (See Unbehend, Jacob J., assignor.)						
Jukes, Hamilton A., Winnipeg, Canada. Earth-closet	479,712	July 26	2599	647	60	544
Julian, William A., Cincinnati, Ohio. Hand-mirror	479,092	July 19	1579	395	60	336
Julius King Optical Company. (See Hinden, Mathias J., assignor.)						
June, Marcus M., assignor of two-thirds to O. Coville and T. H. Whitcomb, Syracuse, N. Y. Candy-mold	480,469	Aug. 9	1165	293	60	814
Jungermann Brothers. (See Christie, William R., assignor.)						
Justi, Henry D. (See Rehfuss, George, M. D., and J. G., assignors.)						
Kaestner, Charles, Chicago, Ill. Means for preventing explosions in mills	479,188	July 19	1736	435	60	365
Kaestner, Charles, Chicago, Ill. Brewer's mashing-machine	479,189	July 19	1737	435, 436	60	365
Kaffenburgh, Isaac. (See Furgang, Rudolph, assignor.)						
Kahn, Arthur, New York, N. Y. Massage apparatus	481,359	Aug. 23	2611	642	60	1121
Kahn & Bros., F. & L. (See Kahn and Christ, assignors.)						
Kahn, Clarence. (See Kahn, Ferdinand J., assignor.)						
Kahn, Ferdinand J., St. Paul, Minn., assignor to C. Kahn, Sioux City, Iowa. Mitten	480,852	Aug. 16	1761	441	60	948
Kahn, Lazard, and R. Christ, assignors to F. & L. Kahn & Bros., Hamilton, Ohio. Ash-box for stoves	478,334	July 5	425	104	60	85
Kaiser, Andrew, Columbus, Ohio. Ceiling	480,927	Aug. 16	1872	467	60	970
Kaiser, Fredrick, Knoxville, Tenn. Ammonia-absorber	481,955	Sept. 6	51	12	60	1344
Kaiser, John X., Newport, Ky., assignor to Mosler Safe and Lock Company, Cincinnati, Ohio. Time-lock attachment	481,572	Aug. 30	2905	728	60	1206
Kalamazoo Cycle Company. (See Blood, Maurice E., assignor.)						
Kalamazoo Knitting Company. (See Sedmihradsky, Adolph, assignor.)						
Kaltenbach, Joseph, *et al.* (See Collins, Olmstead, assignor.)						
Kanzleiter, Gotthilf F. E., Terre Haute, Ind. Seaming-machine	481,033	Aug. 16	2035	508	60	1001
Kaplan, Hirsh, New York, N. Y. Safety oil-can	479,217	July 19	1777	446	60	372
Karshner, Albert L., Denver, Colo. Paper-cutter	478,935	July 12	1327	329, 330	60	278
Kattentidt, August. (See Traube and Kattentidt.)						
Katzenberg, Jacob, New York, N. Y. Suspenders	478,335	July 5	426	104	60	85
Kaufmann, Frank, Jr. (See Hamilton and Kaufmann.)						
Kayser, Julius. (See Bouton, Arthur A., assignor.)						
Kayser, William J., Milwaukee, Wis. Hoisting apparatus	483,323	Sept. 27	2297	578	60	1822
Keane, John, San Francisco, Cal. Chimney-cap	483,384	Sept. 27	2389	600	60	1839
Kee, Charles D. (See Dickerson and Kee.)						
Keefer, Henry C. (See Clark and Keefer.)						
Keene, Joseph, assignor to Chicago Spring Butt Company, Chicago, Ill. Door-check	479,813	Aug. 2	58	14	60	593
Keene, Samuel D., assignor of three-fourths to H. N. Fenner, Providence, E. G. Blodgett and E. W. Orswell, Pawtucket, R. I., and Holyoke Machine Company, Holyoke, Mass. Bleaching	480,102	Aug. 2	542	137	60	686
Keep, James M., New York, N. Y. Toilet-paper holder	481,034	Aug. 16	2030	508	60	1002
Kehr, Cyrus, Lakeside, Ill. Fork for velocipedes	482,090	Sept. 6	275	66	60	1389
Keil, Peter, Jr., Philadelphia, Pa. Heating-furnace	482,363	Sept. 13	749	180, 181	60	1496
Keil, Peter, Jr., Philadelphia, Pa. Apparatus for making metal tubes	482,364	Sept. 13	752	181, 182	60	1497
Keist, George A., Auburn, Me. Tool-sharpening device	478,608	July 12	839	207	60	182
Keith, Robert L., Brazil, Ind. Electric alarm	479,282	July 19	1872	469	60	393
Keizur, William H. H., assignor of three-fourths to F. O. Hill and R. S. McCrea, Rathdrum, Idaho. Crosscut-saw	482,365	Sept. 13	753	182	60	1497
Kelar, David A. (See McDermott, James, assignor.)						
Keller, Charles, Springdale, Pa. Apparatus for cutting and spreading glue	482,042	Sept. 6	192	46,47	60	1373
Keller, David K., Montgomery, Ohio. Chain-pump	478,112	July 5	51	14	60	12
Keller, John A. (See Clawson and Keller.)						
Keller, T. S., *et al.* (See Terrell, Nathaniel A., assignor.)						
Kelley, Fred H. (See Blair and Kelley.)						
Kellner, Carl, Vienna, Austria-Hungary. Preparing short fibers for spinning and other purposes	480,588	Aug. 9	1342	334, 335	60	850
Kellogg, Frank J., Battle Creek, Mich. Seam-pressing frame	480,589	Aug. 9	1343	335	60	851
Kellogg, Walter P., Syracuse, N. Y. Automatic stock-feeder	482,366	Sept. 13	754	182	60	1497
Kellom, Charles F., Delair, N. J. Electric connector for hose	482,181	Sept. 6	429	102	60	1419
Kelly, Christopher C., New York, N. Y., assignor to J. C. Kelly, Denver, Colo. Apparatus for training animals	478,513	July 5	604	168	60	138
Kelly, James, assignor of one-half to J. Kelly, Chicago, Ill. Wash-basin	479,429	July 26	2134	533	60	458
Kelly, James P., Louisville, Ky. Die for forming axes	479,166	July 19	1693	424	60	357
Kelly, John. (See Kelly, James, assignor.)						
Kelly, John C. (See Kelly, Christopher C., assignor.)						
Kelly, John E., and F. R. Howell, Highland Station, Mich. Potato-digger	480,590	Aug. 9	1344	335	60	851
Kelly, John F. (See Stanley and Kelly.)						
Kelly, John F., New York, N. Y., and W. Stanley, Jr., Pittsfield, Mass. Electro-magnetic motor	479,746	July 26	2661	660	60	556
Kelly, Joseph, Pittsfield, Mass. Switch-operating device for railway-cars. (Reissue)	11,269	Sept. 13	1304	319	60	1604
Kelly Nail and Iron Company. (See Roth, Charles F., assignor.)						
Kelly, Sophia L., Clarkdale, Mo. Baking-pan	478,609	July 12	841	207	60	182
Kelsey, Fannie E. (See Kelsey, Winfield, assignor.)						
Kelsey, Winfield, assignor to F. E. Kelsey, Kasoag, N. Y. Folding bed	479,599	July 26	2404	599	60	509
Kemble, Edmund, East Orange, N. J. Game or puzzle	480,872	Aug. 16	1789	448	60	954
Kemp, George W., assignor of one-half to A. G. Forbes, Montgomery, Ala. Scalloping attachment for sewing-machines	483,496	Sept. 27	2527	636	60	1868
Kemp, Solomon M., assignor of two-thirds to E. S. Stubbs and W. T. Henderson, Baltimore, Md. Heating-drum	483,116	Sept. 26	1938	490	60	1743
Kempf, Charles J., Seymour, Conn. Bench-hook	478,797	July 12	1131	270	60	239
Kempsmith, Frank, and T. L. Smith, Milwaukee, Wis.; said Smith assignor to said Kempsmith. Milling-machine	480,198	Aug. 2	699	177	60	714
Kempton, Dwight, Summerland, Cal. Musical instrument	481,035	Aug. 16	2037	508	60	1002
Kendall, Charles B., Newton, Mass., and H. Schaake, Baltimore, Md.; said Schaake assignor to said Kendall. Can-testing machine	481,764	Aug. 30	3279	799, 800	60	1267

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kendall, Edward D., Brooklyn, N. Y. Composition of matter for the extraction of gold and silver from ores	482,577	Sept. 13	1100	.....	60	1564
Kendall, H. Prentice. (See Stuart, Perry G., assignor.)						
Kennard, William. (See Upton and Kennard.)						
Kennedy, Charles W., and J. W. Grantland, Philadelphia, Pa.; said Grantland assignor to said Kennedy. Manufacture of steel ingots	478,936	July 12	1329	330	60	278
Kennedy, Julian, Latrobe, Pa. Valve for hot-blast stoves	478,610	July 12	842	207	60	182
Kennedy, Julian, Pittsburg, Pa. Water-cooling device for furnaces	479,430	July 26	2135	533	60	458
Kennedy, Patrick, and C. J. Diss, Brooklyn, N. Y., assignors to Acme Storage Battery Company, of West Virginia. Storage-battery	482,043	Sept. 6	196	47	60	1374
Kennedy, Patrick, and C. J. Diss, Brooklyn, N. Y., assignors to Acme Storage Battery Company, of West Virginia. Storage-battery	482,044	Sept. 6	199	47	60	1374
Kennedy, Rankin, Kilmarnock, Scotland. Electrical water-heater	479,814	Aug. 2	60	14	60	593
Kennedy, Thomas J., Renfrew, Pa. Rail-joint	482,796	Sept. 20	1142	357	60	1642
Kennedy, William, Newmarket, Canada. Hot-water heater	480,406	Aug. 9	1057	265	60	794
Kennelly, Arthur E. (See Ott and Kennelly.)						
Kennelly, Arthur E., Orange, N. J., assignor to Edison General Electric Company, New York, N. Y. Electrical meter	479,167	July 19	1694	424	60	358
Kennelly, Arthur E., and J. F. Ott, Orange, N. J., assignors to Edison General Electric Company, New York, N. Y. Electrical meter for three-wire systems	479,168	July 19	1695	425	60	358
Kennelly, Arthur E., and J. F. Ott, Orange, N. J., assignors to Edison General Electric Company, New York, N. Y. Electro-magnetic machine	479,169	July 19	1696	425	60	358
Kenney Electrical Cash Carrier Company. (See Livermore, Charles W., assignor.)						
Kenney, George P., Watertown, N. Y. Cash-carrier	481,178	Aug. 23	2302	567	60	1065
Kenny, Patrick. (See Edison and Kenny.)						
Kent, Alexander W., Boston, Mass. Curling-tongs heater	478,437	July 5	379	140	60	114
Kent, Horace L., Boston, Mass. Rock-crusher	482,795	Sept. 20	1441	357	60	1642
Kenton Can Company. (See France, Albert L., assignor.)						
Kenway, Balston C., Tacoma, Wash. Construction of sea-walls	482,050	Sept. 6	224	53	60	1379
Keon, Thomas J. (See Edmond and Keon.)						
Ker, Charles A., Glasgow, Scotland. Producing music or like engravings	482,871	Sept. 20	1551	387	60	1665
Kern, Ferdinand, Linden, N. J., assignor to Kern Multiple Machine Company, of New Jersey. Sewing-machine	479,360	July 19	2022	505	60	422
Kern Multiple Machine Company. (See Kern, Ferdinand, assignor.)						
Kerr, Fred S., New York, N. Y. Attachment for feed-bags	479,646	July 26	2478	617	60	523
Kerr, William H., Ilchester, Md. Take-up device for cloth-cutting machines	482,128	Sept. 6	334	80	60	1400
Kersenbrock, John H., Columbus, Nebr. Heater and cooler for fermented malt liquors	480,928	Aug. 16	1873	467	60	970
Kershaw, William, Cleveland, Ohio. Friction-clutch	481,794	Aug. 30	3331	813	60	1277
Kersting, Bernhard, Oveigönne, Germany. Necktie-fastener	479,884	Aug. 2	166	41	60	614
Keseling, Joseph E., and C. Fuchs, Jr., New York, N. Y., assignors to Pyrolith Company, of New Jersey. Composition of matter for the manufacture of artificial stone	480,591	Aug. 9	1346	.....	60	851
Keseling, Joseph E., and C. Fuchs, Jr., New York, N. Y., assignor to Pyrolith Company, of New Jersey. Composition of matter for the manufacture of artificial stone	481,279	Aug. 23	2488	.....	60	1100
Keseling, Joseph E., and C. Fuchs, Jr., New York, N. Y., assignors to Pyrolith Company, of New Jersey. Composition of matter for artificial stone	482,367	Sept. 13	755	.....	60	1498
Kester Arc Lamp and Manufacturing Company. (See Kester, Jesse F., assignor.)						
Kester, Jesse F., Terre Haute, Ind., assignor to Kester Arc Lamp and Manufacturing Company, Chicago, Ill. Electric-arc lamp	482,253	Sept. 6	542	120	60	1440
Ketchum, Everett H., Jamestown, N. Y. Bag-holder	482,641	Sept. 13	1189	288	60	1580
Keuser, Emanuel, assignor to M. Keuser, Philadelphia, Pa. Rocking-horse	479,370	July 19	2023	505	60	422
Keuser, Mary. (See Keuser, Emanuel, assignor.)						
Keyser, John H., New York, N. Y. Combined radiating and hot water or air heating furnace	480,103	Aug. 2	545	138	60	686
Keystone Driller Company. (See Downie, Robert M., assignor.)						
Keyworth, William W., *et al.* (See Miller, Russell C., assignor.)						
Kibby, Alexander S., Chicago, Ill. Coin-controlled vending apparatus	481,280	Aug. 23	2488	612, 613	60	1100
Kidd, W. C., *et al.* (See Goota, Victor J., assignor.)						
Kiefer, Karl, Cincinnati, Ohio. Funnel	482,578	Sept. 13	1190	297	60	1564
Kieroff, Salem E., Jackson, Tenn. Carriage-top	482,254	Sept. 6	546	130	60	1441
Kierat, John J., New York, N. Y. Building-material elevator	480,329	Aug. 9	936	237, 238	60	778
Kilbourn, Washington H., assignor to A. J. Smart and J. E. Hubbard, Greenfield, Mass. Temperature-regulator	479,761	July 26	2681	666	60	561
Killinger, Melrose M., Battle Creek, Nebr., assignor to F. A. Grinnell, Wytheville, Va. Window-shade	482,707	Sept. 20	1449	357	60	1642
Killinger, Melrose M., Battle Creek, Nebr., assignor to F. A. Grinnell, Wytheville, Va. Window-shade or screen	482,708	Sept. 20	1443	358	60	1643
Kilmer, Irving A., Newburg, N. Y. Barb-wire machine	479,985	Aug. 2	329	81, 82	60	645
Kilmer, Ransom, Newburg, N. Y. Bale-tie	479,984	Aug. 2	328	80	60	645
Kimball, Frank A., *et al.* (See Turner, Alonzo G., assignor.)						
Kimball, Frederic N., Rochester, N. Y. Sash-balance	479,150	July 19	1671	418	60	353
Kimball, George A., Seattle, Wash. Automatic trolley-disconnector	481,956	Sept. 6	52	12	60	1344
Kimball, Jesse, New Madrid, Mo. Road-cart	482,579	Sept. 13	1102	267	60	1564
Kimball, Perley L., assignor to Vermont Farm Machine Company, Bellows Falls, Vt. Butter-worker	478,113	July 5	54	15	60	13
Kimball, William M. (See Marston and Kimball.)						
Kimbark, S. D. (See Finn, Edwin, assignor.)						
Kimber, Arthur C., New York, N. Y. Portable vessel	482,368	Sept. 13	756	182	60	1498
Kimberlin, Milton, Nabu, Ind. Harvester	482,924	Sept. 20	1640	412	60	1681
Kimbro, Robert L., *et al.* (See Wilson, William H., assignor.)						
Kimman, Fred G. (See Heaphy, John W., Jr., assignor.)						
Kimmell, Granger G., Farmer, assignor of one-fourth to W. W. Kimmell, Bryan, Ohio. Corn harvester and shocker	481,036	Aug. 16	2039	508, 509, 510, 511	60	1002
Kimmell, Wilber W. (See Kimmell, Granger G., assignor.)						
Kindle, Andrew H., assignor of one-half to C. H. Mason, Versailles, Mo. Chicken-coop	479,514	July 26	2290	572	60	488
Kindleberger, Jefferson, assignor to M. S. Babcock, San Diego, Cal. Car-coupling	481,907	Aug. 30	3514	860	60	1312
Kindred, James, assignor to Boynton & Plummer, Worcester, Mass. Drilling-machine	480,907	Aug. 16	1845	459	60	965
King, Charles A., Boston, Mass. Automatic nozzle	478,698	July 12	958	238	60	206
King, Edwin L., New Bedford, Mass. Sash-fastener	481,669	Aug. 30	3110	759	60	1233
King, James, London, England. Lamp-burner attachment	483,253	Sept. 27	2165	550	60	1802

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
King, Joe W. (See Carvell, John V., assignor.)						
King, Joseph F., Montalvo, Cal., and S. B. Stokely, Kansas City, Mo., assignors to Eagle Manufacturing Company, Davenport, Iowa. Bean-harvester	479,600	July 26	2406	599	60	509
King, Robert W., Montreal, Canada. Knitting-machine	479,986	Aug. 2	334	82, 83, 84, 85, 86, 87	60	645
King, Warren M. (See Park, Francis, assignor.)						
Kingsbury, Edward D. (See Dalbey, William H., assignor.)						
Kingsford, Thomson. (See Gunston, Byron M., assignor.)						
Kinipple, Walter R., London, England. Overland ship conveyance	481,405	Aug. 23	2088	660	60	1135
Kinnear, William R., Columbus, Ohio. Railway-tie	483,154	Sept. 27	2002	506, 507	60	1767
Kinney, Jesse, Detroit, Mich. Disinfecting and deodorizing cover for commodes, water-closets, &c.	482,966	Sept. 20	1708	431	60	1695
Kinsey, Oliver, trustee. (See Patterson and Kirby, assignors.)						
Kinsley, William B., Melrose, Mass. Gore-marker	481,305	Aug. 23	2031	021	60	1106
Kipp, John, Sr., Piqua, Kans. Corn cutter or harvester	479,815	Aug. 2	61	14	60	594
Kirby, James A., assignor of two-thirds to G. R. Jenkins and C. F. Burns, Chicago, Ill. Thill-coupling	480,772	Aug. 16	1639	410	60	924
Kirby, John, Jr. (See Patterson and Kirby.)						
Kirby, John, Jr., assignor to Dayton Manufacturing Company, Dayton, Ohio. Lamp	483,155	Sept. 27	2003	507	60	1767
Kirby, William A., Auburn, N. Y. Sheaf-carrier	481,144	Aug. 16	2245	552, 553	60	1049
Kircher, Frederick, assignor of one-half to L. Gloeckner, New York, N. Y. Rotary-blade cutting-machine	480,387	Aug. 9	1032	259	60	799
Kirk, Alva H., Fergus Falls, Minn. Wheat-separator	479,816	Aug. 2	62	14, 15	60	594
Kirkham, John J., Terre Haute, Ind. Gas-generator	479,647	July 26	2480	017	60	523
Kirkpatrick, Robert S., assignor of two-thirds to A. P. Chamberlin and E. Chavannes, Des Moines, Iowa. Car-coupling	482,010	Sept. 6	139	31	60	1363
Kirkwood, Jay W., *et al.* (See Kirkwood, John D., assignor.)						
Kirkwood, John D., Pullman, Wash., assignor to E. Bartsch, San Francisco, Cal., and J. W. Kirkwood, Ham's Fork, Wyo. Vaginal syringe	478,872	July 12	1231	305	60	259
Kirshner, Michael, Philadelphia, Pa. Knitting-machine	479,601	July 26	2408	600, 601	60	510
Kissling, Otto, Stuttgart, Germany. Writing-desk	478,336	July 5	427	104	60	86
Kittel, Julius, Cranford, N. J. Felting-machine	480,592	Aug. 9	1347	335	60	851
Kittleson, Even E., Albany, Wis. Reel-carrier	481,328	Aug. 23	2569	630, 631	60	1114
Klank, Albert L., Champaign, Ill. Device for holding open grain and other sacks for filling same	481,957	Sept. 6	53	12	60	1345
Kleinert, Robert, assignor to Körner & Schulte, Breslau, Germany. Car-coupling	481,179	Aug. 23	2303	568	60	1065
Kling, Edgar, assignor to I. Kling, Louisville, Ky. Car-coupling	482,904	Sept. 20	1614	404	60	1676
Kling, Isaac. (See Kling, Edgar, assignor.)	479,371	July 19	2025	506	60	422
Klockau, William, Rock Island, Ill. Vehicle sand-band	481,795	Aug. 30	3333	813	60	1277
Knapp, Charles H., *et al.* (See Wright, Napoleon B., assignor.)						
Knapp, Gardner, Somerville, and C. H. Little, Chelsea, Mass., assignors, by mesne assignments, to Boston Cash Register Company, Portland, Me. Cash indicator and register	481,037	Aug. 16	2047	511	60	1004
Knapp, Isaac N. (See Colline and Knapp.)						
Knappe, Paul A., *et al.* (See Perkins, Duane T., assignor.)						
Knaub, William R. (See Brown and Knaub.)						
Knauss, Frank V., assignor to Portsmouth Stove and Range Company, Portsmouth, Ohio. Oven-door for cooking stoves or ranges	483,117	Sept. 20	1939	491	60	1743
Knecht, Charles W. (See Knecht, Edwin R. and C. W.)						
Knecht, Edwin R. and C. W., Shelbyville, Ill. Animal-trap	480,593	Aug. 9	1348	336	60	851
Knefelkamp, Charles H. (See Stoeppelwerth and Knefelkamp.)						
Knight, Ebenezer R., St. Johns, Canada. Seed-planter	483,066	Sept. 20	1861	472	60	1728
Knight, Francis E., New York, N. Y. Game apparatus	483,324	Sept. 27	2299	578	60	1822
Knight, George F., Canton, Ohio. Sawmill-dog	483,323	Sept. 27	2113	536	60	1780
Knight, George F., Canton, Ohio. Sawmill-dog	483,324	Sept. 27	2115	536	60	1789
Knittel, John, assignor of one-half to G. T. Kollas, St. Louis, Mo. Drum	478,611	July 12	242	207	60	183
Knowles, Edward R., Brooklyn, N. Y. Secondary-battery plate	480,266	Aug. 9	836	213	60	754
Knowles, Edward R., Brooklyn, N. Y. Battery-connector	482,012	Sept. 6	143	35	60	1363
Knowles, Edward R., Brooklyn, N. Y. Storage-battery	482,979	Sept. 20	1726	436, 437	60	1699
Knowles Loom Works. (See Hutchins, George F., assignor.)						
Knox, Adam. (See Bryce and Knox.)						
Knox, George A., Lynn, Mass. Sole-edge-burnishing machine	480,021	Aug. 2	420	105, 106, 107	60	661
Knox, Orrin A., Bradford, Pa. Oil-well pumping mechanism	482,011	Sept. 6	142	34	60	1363
Knudtson, Thurston L., and J. Uhri, Chicago, Ill. Staple forming and driving machine	483,254	Sept. 27	2186	550, 551	60	1802
Koch, John C., Berlin, Germany. Workman's time-recorder	478,224	July 5	354	86	60	71
Koch, John C., Berlin, Germany. Watch-chain attachment	480,430	Aug. 9	1099	275	60	801
Koch, John C., Berlin, Germany. Album-clasp	480,950	Aug. 16	1915	478, 479	60	977
Koch, Julius J., St. Louis, Mo. Hydraulic brick-press	480,818	Aug. 16	1707	426, 427, 428	60	937
Koch, Louis C. (See Woessner, Charles F., assignor.)						
Koehler, Jean, Freiburg, Germany. Combustible pocket-spittoon	478,873	July 12	1232	306	60	259
Koeller, Herman A., New York, N. Y. Folding stand	479,073	July 19	1549	387	60	330
Koeller, Hermann H., Quincy, Ill. Cash-register	480,594	Aug. 9	1350	336, 337	60	852
Koepp & Co., Rudolph. (See Wachendorff, Carl, assignor.)						
Kolben, Emil, Schenectady, assignor to Edison General Electric Company, New York, N. Y. Armature-conductor and means for insulating the same	480,727	Aug. 16	1570	393	60	909
Kolben, Emil, Schenectady, assignor to Edison General Electric Company, New York, N. Y. Ring-armature	480,728	Aug. 16	1572	393	60	909
Kolesch, Adolph, Brooklyn, N. Y. Compasses	479,329	July 19	1936	424	60	405

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Kollas, George T. (See Knittel, John, assignor.)						
Kondakoff, Wladimir, Gatchina, near St. Petersburg, Russia. Horseshoe	482,845	Sept. 20	1507	375	60	1656
Konz, Sebastian, assignor of one-half to S. F. Harlan, Louisville, Ky. Machine for making wire springs and couplings	482,427	Sept. 13	855	205	60	1516
Koppenhöfer, Philipp, Speyer, Germany. Fastening for shoes, gloves, &c., and lace therefor	479,218	July 19	1778	446	60	373
Körner & Schulte. (See Kleinert, Robert, assignor.)						
Koskul, Frederick, Williamsport, Pa. Transfer-sheet	482,451	Sept. 13	894	217	60	1522
Köster, Ernst J. (See Mehrtens, John H., assignor.)						
Kosure, Thomas H., Farmersville, Tex. Bridge	478,438	July 5	580	140, 141	60	114
Kovsky, Louise E. A., Denver, Colo. Spring-scale	478,099	July 12	959	238	60	206
Kraetzer, Edwin J., Cambridge, Mass. Buckle	483,356	Sept. 27	2339	588	60	1830
Krafft, Ernst F., St. Blasien, Germany. Spindle for spinning machinery	482,091	Sept. 6	276	67	60	1300
Kramer, George W. (See Weary and Kramer.)						
Kramer, William, assignor of one-half to C. Opits, Chicago, Ill. Wire-fence stretcher	479,817	Aug. 2	63	15	60	594
Kranse, Gustave A., assignor of one-fourth to G. C. H. Guettler and G. Krauslach, Milwaukee, Wis. Malting apparatus	481,958	Sept. 6	54	13	60	1345
Krauslach, George, *et al.* (See Kranse, Gustave A., assignor.)						
Krehbiel, John, Cleveland, Ohio. Vestibule-car	482,744	Sept. 20	1361	337	60	1696
Krekel, Edward G., *et al.* (See Bauer, Robert A., assignor.)						
Krekel, Henry G., *et al.* (See Bauer, Robert A., assignor.)						
Kremelberg, Gertrude J., New York, N. Y. Water-closet	481,498	Aug. 23	2339	608	60	1106
Krepps, Virgil A., Kensico, N. Y., assignor, by mesne assignments, to D. L. Caldwell, Lynn, and R. Mills, trustees, and H. W. Mason, Newton, Mass. Vending-machine	479,005	July 19	1445	359	60	311
Kretschmer, Emil A., Horicon, Wis. Bow for stringed musical instruments	482,235	Sept. 6	547	130	60	1441
Kroemke, Charles. (See Smith, Andrew J., assignor.)						
Kronenberg, Edward, Philadelphia, Pa. Pocket-lamp or lighting device	480,267	Aug. 9	836	213, 214	60	754
Kronenberg, Edward, Philadelphia, Pa. Lighting device	480,500	Aug. 9	1209	303	60	823
Kropacek, Joseph J., Irving, Kans. Riveter	478,114	July 5	56	15	60	13
Krotz, Alvaro S., assignor of one-half to A. Sauer, Defiance, Ohio. Electric-current regulator	479,886	Aug. 2	169	42	60	615
Krouse, Charles C., H. E. Myers, and C. L. Girard, Williamsport, Pa. Suspender-end	478,337	July 5	428	104	60	86
Krouse, Charles C., H. E. Myers, and C. L. Girard, Williamsport, Pa. Supenders	478,338	July 5	429	105	60	86
Kruck, Ernest R., Sioux City, Iowa. Pointing mechanism for masonry	478,339	July 5	430	105	60	86
Krueger, Adele S., Hannahfield Lenzie, near Glasgow, Scotland. Preparation for beverages	482,369	Sept. 13	757	183	60	1498
Kruse Cash Register Company. (See Weiss, Carl W., assignor.)	483,067	Sept. 20	1863	.....	60	1728
Kuechle, Eduard, assignor to Otis Brothers & Company, New York, N. Y. Machine for twisting metal strips	483,357	Sept. 27	2339	588	60	1830
Kuechle, Eduard, assignor to Otis Brothers & Company, New York, N. Y. Metal lattice-work	483,358	Sept. 27	2342	589	60	1831
Kuechler, Charles F., assignor of one-half to F. Rahn, Chicago, Ill. Lamp-post sign	479,006	July 19	1446	359	60	311
Kuett, George F., and C. Slingland, Paterson, N. J. Warping-machine	478,162	July 5	138	35, 36	60	30
Kuhns, Arthur E., Chicago, Ill. Can for oil, &c	481,233	Aug. 23	2396	591	60	1083
Kune, Julian. (See McElwain, George, assignor.)						
Kupfer, Arthur A. and H. C., Providence, R. I. Bicycle-tire	481,038	Aug. 16	2048	511	60	1004
Kupfer, Herman C. (See Kupfer, Arthur A. and H. C.)						
Kurtz, Charles M., Allegheny, Pa. Machine for forming shapes of candy	481,234	Aug. 23	2397	592	60	1084
Kynett, William H., Battle Creek, Mich. Warp or line measuring machine	478,115	July 5	57	15	60	13
L. Wolff Manufacturing Company. (See Clifford and Gavin, assignors.)						
L. Wolff Manufacturing Company. (See Sievert, Henry H., assignor.)						
La Boiteaux, Frank M., Cincinnati, Ohio. Beer apparatus	479,190	July 19	1739	436, 437	60	365
La Casse, Henry. (See Wile and La Casse.)						
La Chapelle, George. (See Devine and La Chapelle.)						
La France, Truckson S., Elmira, N. Y. Fire-engine pump	478,439	July 5	581	141	60	114
La Pierre, Frank H., East Orange, N. J. Buckle	478,285	July 5	356	86	60	72
La Point, Stephen, Derrick City, Pa. Washing-machine	478,440	July 5	583	141	60	115
La Roche, Fredrick A., Philadelphia, Pa. Volt-ammeter	481,573	Aug. 30	2966	728	60	1207
La Société Dagry & Arnault. (See Dagry, Alphonse, assignor.)						
La Société des Générateurs à Vaporisation Instantanée, (Système Serpollet.) (See Serpollet, Leon, assignor.)						
La Subérine. (See Vasson, Raphael G. de, assignor.)						
Labelle, Israel, Holyoke, Mass. Horse-checking device	483,306	Sept. 27	2270	571	60	1817
Lage, Nicholas, assignor of one-half to I. L. Sears, Rock Island, Ill. Collar-fastener	478,116	July 5	60	16	60	14
Lagerman, Alexander, Jönköping, Sweden. Type-justifying apparatus	478,340	July 5	431	105, 106, 107	60	86
Lagerman Typotheter Company. (See Hastings and Foster, assignors.)						
Lahola, Vinzenz, Vienna, assignor to B. Steiner, Buda-Pesth, Austria-Hungary. Phonograph	479,431	July 26	2136	534	60	459
Laird, William H. (See Watson, George A., assignor.)						
Lajoie, Misaël, Montreal, Canada. Lamp-extinguisher	480,773	Aug. 16	1640	410	60	924
Lake, Judson N., assignor to T. C. Northcott, Elmira, N. Y. Sheet-metal air-duct	481,020	Aug. 30	3037	742	60	1220
Lake, Wilmot, Charlton Heights, Md. Ventilated vault-cover	482,013	Sept. 6	144	35	60	1364
Lalande, Felix de, Paris, France. Galvanic battery	479,887	Aug. 2	171	42, 43	60	615
Lambert, George A., assignor of one-half to A. A. Young, Orrington, Me. Plow-colter	482,482	Sept. 13	939	229	60	1531
Lamp, Robert M., Madison, Wis. Crutch	483,457	Sept. 27	2479	624	60	1858
Lampitt, Charles, Southgate, England. Grading-machine	483,118	Sept. 20	1940	491	60	1743
Lamprey, Rufus W., Manchester, N. H. Fireproof paint	483,225	Sept. 27	2116	536, 537	60	1790
Lamson Consolidated Store Service Company. (See Goodfellow, John H., assignor.)	483,307	Sept. 27	2272	.....	60	1817
Lamuth, John, Irvington, Iowa. Draft-equalizer	482,370	Sept. 13	758	183	60	1498
Lance, De Haven, New Cumberland, W. Va. Paving-brick	478,612	July 12	844	208	60	183
Land, Martin R., Norfolk, Va. Match-safe	482,371	Sept. 13	759	183, 184	60	1499
Land Title and Trust Company, administrator. (See Offermann and Ziegler.)						
Lander, John O. (See Olson, Holcom, assignor.)						
Landfear, William R. (See Butler and Landfear.)						
Landin, Peter J., Minneapolis, Minn. Cash indicator, register, and recorder	482,014	Sept. 6	145	35, 36	60	1364
Landin, Peter J., assignor to T. B. Walker and S. E. Wilson, Minneapolis, Minn. Computing-machine	482,312	Sept. 6	650	155	60	1462

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Landis, Abraham B., Waynesborough, Pa. Grinding-machine	483,288	Sept. 27	2242	564, 565, 566	60	1812
Landis, Frank F., Waynesborough, Pa. Fan and regulator for thrashing-machines	482,846	Sept. 20	1508	375	60	1657
Landis, Frank F., Waynesborough, Pa. Plow	482,847	Sept. 20	1509	375	60	1657
Landon, Albert, and L. Martel, Rutland, Vt. Steam-boiler attachment	482,848	Sept. 20	1510	375	60	1657
Landreth, John F., assignor of one-half to S. A. Sellars, Ellaville, Ga. Tool-handle	482,256	Sept. 6	548	130	60	1441
Lane, George H., Worcester, Mass. Spark-arrester	479,283	July 19	1873	469	60	393
Lane, John H., assignor to F. L. Raymond, Cleveland, Ohio. Apparatus for fishing through ice	479,219	July 19	1779	446	60	373
Lane Manufacturing Company. (See Anderson, John B., assignor.)	479,565	July 26	2361	589	60	501
Lane, Rufus A., New York, N. Y. Saddle-girth	481,180	Aug. 23	2305	568	60	1065
Lane, Thomas W., Boston, Mass., assignor to Electric Gas Lighting Company, Portland, Me. Electrical drop-annunciator	480,729	Aug. 16	1573	394	60	910
Lang, John F., Emerson, and J. W. Roper, Cartersville, Ga., assignors to themselves, W. Latham and E. J. Rector, Chattanooga, Tenn. Spring-motor	481,714	Aug. 30	3182	777, 778	60	1248
Langville, Louis S. (See Frank, Jerome W., assignor.)						
Lannert, John A. (See Wilder, Lannert, and Jeavons.)						
Lannert, John A., and W. R. Jeavons, Cleveland, Ohio. Vapor-burner	479,220	July 19	1780	446	60	373
Lannert, John A., W. R. Jeavons, Cleveland, Ohio, and W. H. Wilder, Florence, Mass. Oil and vapor burner	479,747	July 26	2662	661	60	556
Lanphere, Alvin W., Indian Lake, N. Y. Sickle-bar movement for mowers and reapers	480,104	Aug. 2	546	138	60	686
Lansing, John C., Shelbourne, Canada. Turbine wheel	480,929	Aug. 16	1874	467, 468	60	971
Lapham, Frank A., Waterford, Wis. Washing-machine	480,105	Aug. 2	547	138	60	687
Lapin, Jean. (See Croes, Rodenbach-Mergaert, and Lapin.)	482,849	Sept. 20	1511	376	60	1657
Larcher, Pierre H., Paris, France. Blind-stile-mortising machine	481,039	Aug. 16	2049	511, 512	60	1004
Lardner, Charles. (See Smith and Lardner.)	482,257	Sept. 6	549	130	60	1441
Larish, Wilbur F., Oshkosh, Wis. Mortising-machine	480,431	Aug. 9	1101	275	60	801
Larkin, John T., Halifax Canada. Spiral hair or other pin	479,191	July 19	1740	437	60	365
Larsen, August, Syracuse, assignor of one-half to H. C. Nye, Whitehall, N. Y. Coin-operated machine	478,613	July 12	845	208	60	183
Larter, Frederick H., Newark, N. J. Button	481,631	Aug. 30	3052	745	60	1222
Lasher, Frank, assignor to Lasher Stocking Company, Bennington, Vt. Device for transferring stocking-ribs						
Lasher, Frank, assignor to Lasher Stocking Company, Bennington, Vt. Stitch-holding mechanism for knitting-machines						
Lasher Stocking Company. (See Lasher, Frank, assignor.)						
Latham, Woodville, *et al.* (See Lang and Roper, assignor.)						
Lathrop, Frank L., Brooklyn, N. Y. Pocket bagatelle-board	479,432	July 26	2140	534	60	459
Latta, Emmit G., Friendship, N. Y. Vehicle-wheel	479,566	July 26	2362	589	60	501
Latta, Emmit G., Friendship, N. Y. Vehicle-wheel	479,946	Aug. 2	266	65, 66	60	633
Latzko, Rudolf. (See Scharf, Paul, assignor.)	479,515	July 26	2291	.....	60	488
Lauch, Richard, assignor to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany, Olive dye	479,284	July 19	1874	469	60	393
Laumann, Josef, Vienna, Austria-Hungary, assignor to Ludw. Loewe & Company Commandit-Gesellschaft auf Actien, Berlin, Germany. Repeating firearm	478,193	July 5	189	48	60	40
Lauth, Bernard C., Philadelphia, Pa. Rolling thin sheet steel or iron	482,092	Sept. 6	277	67	60	1390
Lavelle, Patrick J., assignor to Johnson Company, Johnstown, Pa. Method of and die for making rail-chairs	483,385	Sept. 27	2390	600	60	1839
Lawless, Richard M., Omaha, Nebr. Car-axle dust-guard	482,428	Sept. 13	857	205	60	1516
Lawrence, Edwin F. (See Lawrence, John H., assignor.)	482,093	Sept. 6	278	67	60	1390
Lawrence, Frank W., assignor of one-half to H. H. Lawrence, Saratoga, N. Y. Bag	482,372	Sept. 13	760	.....	60	1499
Lawrence, Harry W., assignor of one-half to H. H. Metcalf, Denver, Colo. Rheostat	480,501	Aug. 9	1212	303	60	824
Lawrence, Henry H. (See Lawrence, Frank W., assignor.)	478,514	July 5	696	168	60	138
Lawrence, James, Paulsborough, N. J. Recovering nitro-glycerine from waste acids	482,829	Sept. 20	1483	369	60	1652
Lawrence, John H., assignor of one-half to E. F. Lawrence, Sterling, Ill. Track for barn-doors	481,959	Sept. 6	56	13, 14	60	1345
Lawrence, Lester G., assignor of two-thirds to A. O. Cooper and E. L. Bradbury, Chicago, Ill. Harmonica	479,888	Aug. 2	173	43	60	616
Lawrence, Meltiah W., Gardiner, Me. Carriage for carrying and operating sewing-machines	479,818	Aug. 2	64	15	60	594
Lawrence, Reuben, St. Joseph, Mo. Conduit system for electric railways	478,614	July 12	847	208	60	183
Lawrence, Wilber E. (See Hove, John J., assignor.)	482,580	Sept. 13	1103	267	60	1564
Lawshe, Jacob R., Newark, N. J. Book-rest	479,372	July 19	2026	506	60	422
Lawton, James M., Jr., *et al.* (See Ashley, William A. G., assignor.)	478,798	July 12	1132	279	60	239
Laycock, William, Chicago, Ill., assignor to Chandler & Taylor Company, Indianapolis, Ind. Cross-head	479,987	Aug. 2	356	88	60	649
Layman, James H., Cincinnati, Ohio. Cartridge-loading machine	483,068	Sept. 20	1803	472	60	1728
Le Neve, Sanford W. (See Parker and Le Neve.)	483,156	Sept. 27	2000	508	60	1768
Le Vesconte, George, Minneapolis, Minn. Gas-burner attachment	482,872	Sept. 20	1553	388	60	1665
Leach, Mark, J. Heaton, and J. Bentley, Bradford, England, assignors to J. and J. Dobson, Philadelphia, Pa. Let-off mechanism for double-pile-fabric looms	483,236	Sept. 27	2121	537	60	1790
Leahy, Matthew, New Haven, Conn., assignor to E. O'Connor and C. Woodruff, Binghamton, N. Y. Cash indicator and recorder	479,433	July 26	2140	535	60	459
Leatherwood, Calvin N., Hutto, Tex. Listing-plow	479,516	July 26	2236	573	60	488
Lebkicher, Colin B., Helena, Mont. Book or portfolio	478,241	July 5	436	107	60	87
Lechner, Jefferson L., Pittsburg, Pa. Mining-machine	479,285	July 19	1877	470	60	393
Lee, Charles T., Boston, Mass., assignor to Johns-Pratt Company, Hartford, Conn. Insulator	479,885	Aug. 2	167	42	60	615
Lee, Frank R., Lead Hill, Ark. Resawing-machine	479,192	July 19	1741	437	60	365
Lee, George B., assignor of two-thirds to G. W. Stafford and T. E. Nudd, Providence, R. I. Window or door sash	481,360	Aug. 23	2012	642	60	1121
Lee, Homer, New York, N. Y. Plate-printing machine						
Lee, John E., Conshohocken, Pa. Spool-carrier for braiding-machines						
Lee, Preston B., Philadelphia, Pa. Glove						
Lee, William A., Winfield, Kans. Car-coupling						
Leedle, George D., assignor to G. S. Foos Company, Springfield, Ohio. Lawn-mower clutch						
Lees, John, Jr., Adrian, Mich. Suspender-end attachment						
Leeson, Joseph R. (See Wardwell, Simon W., Jr., assignor.)						
Lefebvre, Albert H., assignor to Harmon Machine Company, Watertown, N. Y. Feed for pulp-grinding machines	483,458	Sept. 27	2480	624	60	1858

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Lefebvre, Louis. (See Gagnon and Lefebvre.)						
Leffmann, Henry, and W. Beam, assignors of one-third to J. E. Lonergan, Philadelphia, Pa. Testing milk	479,193	July 19	1742	.....	60	366
Legg, Benjamin A., Allegheny, Pa. Mining-machine	482,045	Sept. 6	200	48	60	1374
Legg, Benjamin A., Allegheny, Pa. Mining-machine	482,046	Sept. 6	204	48, 49	60	1375
Lehman, Israel J., Cleveland, Ohio. Wrought-metal hanger for joists	483,069	Sept. 20	1864	472	60	1728
Lehmann, Anthony A. (See Goldstein, Albert, assignor.)	478,163	July 5	140	36	60	30
Lehmann, Herrmann, Berlin, Germany. Cravat-holder	478,342	July 5	437	107	60	87
Lehmann, Karl, Berlin, Germany. Pneumatic wheel-tire	480,595	Aug. 9	1355	337	60	852
Lehr Agricultural Company. (See Lehr, Joseph W., assignor.)						
Lehr, Harry, New York, N. Y. Jewelry	482,483	Sept. 13	940	229	60	1531
Lehr, Joseph W., assignor to Lehr Agricultural Company, Fremont, Ohio. Cotton and corn planter	478,441	July 5	584	142	60	115
Lehucher, Melina A. (See Lehucher and Mathieu.)						
Lehucher, Victor A. and M. A., and A. Mathieu, Paris, France. Cover for boxes	482,258	Sept. 6	550	131	60	1442
Leigh, Lewis E. (See Perkins and Leigh.)						
Lemichel, Jules. (See Etève and Lemichel.)						
Leinert, Charles H. (See Nason and Leinert.)						
Leininger, John, Canton, Ohio. Harness-support	479,947	Aug. 2	268	66	60	633
Leiser, Zacharias C. (See Weaver and Leiser.)						
Lemp, Hermann, Lynn, Mass., assignor to Thomson Electric Welding Company, of Maine. Compound-wound alternating-current dynamo	479,170	July 19	1697	425, 426	60	358
Lencauchez, Alexandre. (See Coze and Lencauchez.)						
Leng, Charles, Pittsburg, Pa., assignor to E. M. Sanger, New York, N. Y. Implement for finishing the necks of bottles	480,774	Aug. 16	1641	411	60	924
Leni, Charles, Acton, England. Cash-register	481,361	Aug. 23	2012	642	60	1121
Lennox, Charles P., Toronto, Canada. Dental tool	478,343	July 5	438	108	60	87
Lentz, David H., Roanoke, Va., and A. W. Thompson, Newark, N. J., assignors to Continuous Rail Joint Company of America, of New Jersey. Rolls for forming connecting-plates for rail-joints	481,697	Aug. 30	3154	770	60	1242
Lentz, Gustav, Dusseldorf, Germany. Steam-boiler	481,796	Aug. 30	3334	813, 814, 815	60	1277
Lentz, Gustav, Dusseldorf, Germany. Apparatus for sanding rails	481,797	Aug. 30	3336	815	60	1278
Lenzen, Theodore W., and L. Heckenroth, San José, Cal. Blacksmith's forge	479,286	July 19	1878	470	60	393
Leonard, Harry W., New York, N. Y. System of electrical distribution	478,344	July 5	439	108, 109	60	87
Leonhard, Gottlob T., Paterson, N. J. Paper drying and cutting apparatus	478,975	July 12	1395	344, 345	60	290
Leonhart, George J., Ashland, Ohio. Billiard-chalk holder	479,889	Aug. 2	175	43	60	616
Lerch, Fredrick W. (See Hunt and Lerch.)						
Leslie, Arthur M., Chicago, Ill. Shuttle for sewing-machines	482,850	Sept. 20	1515	377	60	1658
Leslie, James W., Everett, assignor to Leslie Manufacturing Company, Boston, Mass. Traverse-ring	479,713	July 26	2600	647	60	545
Leslie, James W., Everett, assignor to Leslie Manufacturing Company, Boston, Mass. Traverse-ring	479,714	July 26	2602	647	60	545
Leslie Manufacturing Company. (See Leslie, James W., assignor.)						
Lester, Daniel M. (See Beyer and Lester.)						
Lester, James F. (See Forbes, Walter T., assignor.)						
Lester, Lewis W., Glencoe, Minn. Locomotive-boiler	479,648	July 26	2481	618	60	523
Lester & Wasley. (See Beyer and Lester, assignors.)						
Letteller, John G., Los Angeles, Cal. Machine for making box-binding channel-strips	482,484	Sept. 13	940	229, 230	60	1531
Lettré, Philip H., assignor to T. I. Smith & Company, North Attleborough, Mass. Link for sleeve or cuff buttons	479,649	July 26	2482	618	60	523
Levedahl, Axel, assignor to Gardner Sewing Machine Company, Aurora, Ill. Wheel	480,022	Aug. 2	426	107	60	662
Levett, Louis, New York, N. Y. Sign-letter	480,106	Aug. 2	549	138	60	687
Levi, Ernst. (See Beilmann and Levi.)						
Levi, Hermann. (See Trone, Pierre G., assignor.)						
Levy, Alexander, *et al.* (See Turner, Alonzo G., assignor.)						
Lewelling, S. W. (See Abernathy, Loranzy H., assignor.)						
Lewin, J. M., *et al.* (See Manderfield, George J., assignor.)						
Lewin, Samuel, *et al.* (See Manderfield, George J., assignor.)						
Lewis, Anthony L., Evanston, Ill. Window-cleaner	483,359	Sept. 27	2342	589	60	1831
Lewis, Charles R. (See Hamblin, Joshua J., assignor.)						
Lewis, Charles S., Waterbury, Conn. Cash register and indicator	478,164	July 5	141	36, 37	60	31
Lewis, George T., Philadelphia, Pa., and C. V. Petraeus, Camden, N. J., assignors to Western Patent Company, Denver, Colo. Treating sulphide ores of zinc and lead	481,499	Aug. 23	2841	.....	60	1166
Lewis, George T., Philadelphia, Pa., and C. V. Petraeus, Camden, N. J., assignors to Western Patent Company, Denver, Colo. Treating sulphide ores	481,500	Aug. 23	2842	.....	60	1166
Lewis, Granville R., Lynchburg, Va. Car-coupling	479,106	July 19	1601	400	60	340
Lewis, Isaac N., Fort Schuyler, N. Y. Speed-indicator	480,107	Aug. 2	550	139	60	687
Lewis, Jasper B., *et al.* (See Jewell, Delbert W. and G., assignors.)						
Lewis, John F., Turtle Creek, Pa. Ingot-extractor	480,432	Aug. 9	1102	275, 276	60	801
Lewis, John G. (See Hamilton and Lewis.)						
Lewis, John G., and R. Hamilton, Jefferson City, Mo., said Hamilton assignor to said Lewis. Trousers, &c., and pattern therefor	478,195	July 5	191	49	60	40
Lewis, Josiah P. (See Ward, William H., assignor.)						
Lewis, Orlando E. (See Lombard, Nathaniel, assignor.)						
Lewis, Pearl C., Catskill, N. Y. Chair	482,745	Sept. 20	1363	337, 338	60	1027
Lewis, Robert F., Scranton, Pa. Horseshoe	479,137	July 19	1654	413	60	349
Lewis, Robert T., Jr. (See Austin and Lewis.)						
Lewis, William T., Peoria, Ill. Brake for bicycles	478,194	July 5	190	49	60	40
Library Bureau. (See Godfrey, Charles B., assignor.)						
Liddell, John G., New Haven, Conn. Attachment for cartridge-priming machines	479,819	Aug. 2	65	15, 16	60	594
Liddle, Robert Z., Albany, N. Y. Wick-tube for oil-stoves	480,268	Aug. 9	840	214	60	755
Lidke, Fredrick C., New York, N. Y. Coin-table						
Lidke, Fredrick C., New York, N. Y. Hand-stamp	478,165	July 5	144	37	60	31
Liebeck, Louis H. (See Petterson and Liebeck.)	481,362	Aug. 23	2614	643	60	1121
Lieberthal, Hyman, Bay City, Mich. Suspender-buckle	479,074	July 19	1550	387	60	330

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Liernur, Charles T., Berlin, Germany. Pneumatic sewerage system	482,439	Sept. 13	873	208, 209	60	1519
Light, George S., Covington, Ky. Mail-box	481,621	Aug. 30	3039	742	60	1220
Light, Lyman T., Covington, Ky. Letter-box	483,070	Sept. 20	1865	473	60	1728
Lightford, James G., Indianapolis, Ind. Motor for street-cars	481,715	Aug. 30	3187	778	60	1248
Lillard, William B. (See Hall, Charles K., assignor.)						
Lillard, Zachary T., and U. Erhard, Kansas City, Mo. Printing or recording telegraph	482,015	Sept. 6	152	37, 38	60	1365
Lilley, Hugh H. V., assignor of one-half to T. Lilley, Milford, Mass. Lasting	482,016	Sept. 6	157	38	60	1366
Lilley, Thomas. (See Lilley, Hugh H. V., assignor.)						
Liming, John, Mount Alverno, Pa. Eyeglasses	478,616	July 12	849	209	60	184
Lincoln, Frederick H. (See Bodette, George H., assignor.)						
Lincoln, Levi C. (See Bailey and Lincoln.)						
Lincoln, Theodore M., Hartford, Conn. Stove for heating ovens for japanning, enameling, and glazing	482,485	Sept. 13	944	230	60	1532
Lindahl, Frank E., Chicago, Ill. Watchmaker's tool	478,615	July 12	848	208	60	184
Lindner, Adolph, Berlin, Germany. Magazine-gun	483,229	Sept. 27	2125	538	60	1791
Lindner, Robert, Chemnitz, Germany. Starting-gear for compound locomotives	481,181	Aug. 23	2306	568, 569	60	1065
Lindsay, James G. (See Bonnaffon, Albert L., assignor.)						
Lindsay, John, Millbury, Mass. Toothed wheel	480,930	Aug. 16	1877	468	60	971
Lindsay, Thomas, Brookville, Ind. Drier for paper-machines	480,407	Aug. 9	1058	265	60	794
Lindsay, William G., Antigo, Wis. Ironing-table	483,460	Sept. 27	2481	625	60	1858
Lindsey, Andrew E. S., Imperial, Pa. End-gate tightener for cars and wagons	480,664	Aug. 9	1471	366	60	875
Lindström, Charles, Altoona, Pa. Center-plate fastening	480,408	Aug. 9	1059	265	60	794
Lindström, Charles, Altoona, Pa. Indicator-lock	481,960	Sept. 6	58	14	60	1346
Lineff, Alexander L., London, England. Closed conduit for electric railways	480,409	Aug. 9	1060	265, 266	60	794
Lines, Thomas D., assignor to C. A. Denison, Syracuse, N. Y. Spring-vehicle	478,937	July 12	1330	330	60	278
Link Belt Engineering Company. (See Cavanagh, Joseph, assignor.)						
Link-Belt Engineering Company. (See Ewart and Dodge, assignors.)						
Linthicum, John F., Sacramento, Cal. Machine for wrapping papers	478,345	July 5	442	109, 110	60	88
Linville, Samuel R., Philadelphia, Pa. Time cut-out for electric-service systems	480,369	Aug. 9	999	251, 252	60	784
Lipman, Hymen L., Philadelphia, Pa. Tank	479,602	July 26	2412	601	60	510
Lipman, John, and C. J. Rinderknecht, assignors of one-fourth to F. X. Beaupere, Indianapolis, Ind. Automatic railway-switch	479,373	July 19	2028	506	60	423
Liquid Carbonic Acid Manufacturing Company. (See Convert, Charles F. A., assignor.)						
Lisk, George W., Clifton Springs, N. Y. Anti-rust vessel	479,517	July 26	2295	573	60	488
List, William A., Wheeling, W. Va. Machine for joining and rolling sheets for roofing	480,665	Aug. 9	1472	367	60	875
Lister, Oliver B. (See Robinson, Joe and R., assignors.)						
Litch, Lemuel W., Swampscott, Mass. Heel-stiffener machine	480,023	Aug. 2	427	107, 108	60	662
Litel, John A., Ham's Prairie, Mo. Wrench	483,461	Sept. 27	2483	625	60	1859
Littell Indicator Lock and Car Seal Company. (See Young and Littell, assignors.)						
Littell, William F. (See Young and Littell.)						
Little, Charles H. (See Knapp and Little.)						
Little Gem Manufacturing Company. (See Mathewson, Nathan F., assignor.)						
Little, John R., assignor of one-half to H. E. Bellerose, West Stewartstown, N. H. Saw-tooth-setting machine	483,497	Sept. 27	2529	636	60	1868
Little, Orton C., assignor of one-half to D. T. H. MacKinnon, Menasha, Wis. Pulley	483,227	Sept. 27	2122	537	60	1790
Little, Orton C., assignor of one-half to D. T. H. MacKinnon, Menasha, Wis. Collar	483,228	Sept. 27	2123	537	60	1791
Little, Robert H., Chicago, Ill., assignor of two-thirds to H. H. Heimerdinger and I. Meyer. Apparatus for delivering cards and other articles for advertising purposes	479,820	Aug. 2	67	16	60	595
Little, Robert H., Chicago, Ill., assignor of two-thirds to H. H. Heimerdinger and I. Meyer. Liquid-dispensing apparatus	481,698	Aug. 30	3156	770, 771	60	1243
Little, Robert H., assignor to J. G. Saxe, Chicago, Ill. Apparatus for dispensing articles of merchandise	481,908	Aug. 30	3515	860, 861	60	1312
Little, Robert H., assignor to E. D. Stiles, Chicago, Ill. Coin-operated vending-machine	483,255	Sept. 27	2194	551, 552	60	1803
Little, Thomas A., Wheeling, W. Va. Natural-gas burner	478,117	July 5	61	16	60	14
Livengood, Winfield S., assignor to E. C. Sooy, Kansas City, Mo. Baling-press	479,287	July 19	1879	470, 471	60	394
Livermore, Charles W., deceased; M. A. B. Livermore, Providence, R. I., executrix, and assignor to Kenney Electrical Cash Carrier Company, Portland, Me. Cash-carrier apparatus	479,762	July 26	2084	666, 667, 668	60	561
Livermore, James H., Port Townsend, Wash. Extension shoe-last	480,596	Aug. 9	1356	337	60	852
Livermore, Mary A. B., executrix. (See Livermore, Charles W.)						
Livingston, David, Thornville, Ohio. Potato-digger	478,442	July 5	586	143	60	115
Lloyd, John, Jr., Red Bank, N. J. Key-coupler for organs	479,434	July 26	2141	535	60	459
Lloyd & Lloyd. (See Unwin and Howard, assignors.)						
Lloyd, Seth and W. R., West New Brighton, N. Y. Steam-actuated rock-drill	481,632	Aug. 30	3054	746	60	1223
Lloyd, William R. (See Lloyd, Seth and W. R.)						
Lobaugh, John, Crenshaw, Pa. Combined fuse and file holder	482,642	Sept. 13	1191	238	60	1581
Loch, Joseph, Brooklyn, N. Y. Slot-protector for money-safes	480,108	Aug. 2	552	139	60	688
Loch, Joseph, Brooklyn, N. Y. Lock	481,235	Aug. 23	2398	592	60	1084
Lochmann, Emil R., St. Louis, Mo. Flying toy	481,182	Aug. 23	2308	569	60	1066
Lockstaedt, Charles C., and J. F. Gubbins, Chicago, Ill. Filter	483,230	Sept. 27	2127	538	60	1791
Lockwood, Charles H., assignor of one-half to J. A. Begy, Rochester, N. Y. Leveling-instrument	479,518	July 26	2296	573	60	489
Lockwood, Rhodes, Boston, Mass. Atomizer	478,118	July 5	62	16	60	14
Lockwood, Samuel T., and S. K. White, Chicago, Ill. Cloth-folding machine	482,373	Sept. 13	761	184, 185	60	1499
Lodge, Addison D., Vandalia, Ohio. Door-closer	481,798	Aug. 30	3337	815	60	1278
Lodwick, William H., Cincinnati, Ohio. Index and mail-assorter	478,617	July 12	850	209	60	184
Loewe, Oscar, Berlin, Germany. Device for opening and closing cocks, &c	478,444	July 5	589	143	60	116
Loewenberg, Joseph. (See Young, Moskowitz, Adler, and Loewenberg.)						
Loewenberg, Joseph, *et al.* (See Young and Moskowitz, assignors.)						
Loftis, Henry, Syracuse, N. Y. Trolling-spoon	481,652	Aug. 30	3085	752	60	1229
Logan, Cyrus F., Lock Haven, Pa. Stop-cock	478,618	July 12	851	209	60	184
Logan, John H., Overlook, N. Y. Holdback	483,325	Sept. 27	2300	578	60	1822
Logan, Maurice S., Otterville, assignor of one-half to J. H. Barley, Sedalia, Mo. Electric-arc lamp	479,007	July 19	1447	359, 360	60	311
Logan, William H. (See Rupert, George G., assignor.)						
Lohman, Charles H., Chicago, Ill. Photographic-plate carrier	478,235	July 5	274	68	60	55

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Lohner, Otto. (See Erren and Lohner.)						
Lombard, Nathaniel, assignor of one-half to O. E. Lewis, Boston, Mass. Hand tacking implement	481,653	Aug. 30	3086	753	60	1229
Lonergan, John E. (See Leffmann and Beam, assignors.)						
Long, Charles E. (See Gerry and Long.)						
Long, David. (See Crossland and Long.)						
Long, Eber A., assignor to South Bend Pulley Company, South Bend, Ind. Pulley	479,221	July 19	1782	447	60	373
Long, Herman E., *et al.* (See Cogswell, Wilfred G., assignor.)						
Long, James, Packerton, Pa. Punching-machine	481,574	Aug. 30	2968	728	60	1207
Long, John M., Hamilton, Ohio. Shearing-machine	479,122	July 19	1631	408	60	345
Longanecker, Samuel, Troy, Ohio. Physician's operating-chair	481,040	Aug. 16	2052	512	60	1005
Longard, George E., Halifax, Canada. Radiator	480,597	Aug. 9	1357	337, 338	60	852
Longenecker, Andrew J., Elk Grove, Cal. Fruit-packer	479,650	July 26	2483	618	60	523
Longenecker, Charles K., assignor to Weston Engine Company, Painted Post, N. Y. Stuffing-box	481,406	Aug. 23	2089	660	60	1135
Longinus, Joseph, Pottsville, Pa. Spindle	482,259	Sept. 6	551	131	60	1442
Longtin, Emeric, *et al.* (See Cartwright, Edward, assignor.)						
Loomis, Frank F., Akron, Ohio. Signal for electric railways	479,138	July 19	1654	413	60	349
Loomis, Frank F., Akron, Ohio. Reciprocating electric drill	479,948	Aug. 2	269	66	60	633
Loomis, Frank F., Akron, Ohio. Electric switch	479,949	Aug. 2	271	66	60	633
Loomis, Frank F., Akron, Ohio. Fire-alarm-telegraph indicator	479,950	Aug. 2	272	67	60	634
Loomis, Hiram A., Springfield, Ark. Iron bridge	482,017	Sept. 6	158	38	60	1366
Loose, Edward W. (See Robbins, Andrew B., assignor.)						
Lorang, Rudolph. (See Ingmanson and Lorang.)						
Lord, Charles E., Boston, Mass., assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	478,196	July 5	192	49, 50	60	40
Lord, Humphrey W. (See Alden, Oliver R., assignor.)						
Lorentzen, John F. B., Hector, Minn. Plow	481,633	Aug. 30	3057	746	60	1223
Lorimer, John H., Philadelphia, Pa. Dyeing or scouring machine	480,502	Aug. 9	1213	303	60	824
Loth, William J., Waynesborough, Va. Detachable heating-drum for stoves	478,874	July 12	1233	306	60	260
Lott, William F., assignor of one-half to R. T. McDonnel, Philadelphia, Pa. Combined telegraph-key and circuit-closer	481,114	Aug. 16	2183	541	60	1029
Loud, Waldo A., Springfield, Mass. Lawn-mower	483,157	Sept. 27	2011	508	60	1768
Louden Machinery Company. (See Louden, William, assignor.)	480,666	Aug. 9	1474	367	60	876
Louden, William, assignor to Louden Machinery Company, Fairfield, Iowa. Hay-elevator pulley	481,263	Aug. 23	2456	605	60	1094
Loughlin, Michael E., assignor to Cleaveland Fence Company, Indianapolis, Ind. Post-top	479,123	July 19	1632	408	60	345
Loughrey, Wallace E., and A. H. McGrew, Centreville, S. D. Track-rail-aligning device	479,435	July 26	2144	535	60	460
Loughry, James C., Greensburg, Pa. Show-case	478,619	July 12	853	209	60	184
Loury, Harriet S., assignor of one-half to K. M. Wilson, Harrisonburg, Va. Lamp-heater	478,751	July 12	1049	258	60	224
Lovecraft, Frederick A., New York, N. Y. Registry-stamp	480,819	Aug. 16	1714	428	60	938
Lovell, Franklin J., Litchfield, Mich. Hay and grain loader	481,699	Aug. 30	3160	771, 772	60	1243
Loveridge, Philip S., Knoxville, Pa. Brick	481,700	Aug. 30	3102	772	60	1244
Low, Hamilton F., Cleveland, Ohio. Dish-washing machine	482,313	Sept. 6	653	156	60	1463
Lowberg, Samuel, New York, N. Y. Deck-cleaning machine	478,443	July 5	587	143	60	116
Lowe, Charles J., Chicago, Ill. Propeller-wheel	479,008	July 19	1450	360	60	312
Lowe, William S. and G. W. Van Rensselaer, Lima, Ohio. Torpedo-case	482,060	Sept. 6	224	54	60	1379
Lowell Machine Shop. (See Canning, William P., assignor.)						
Lowell, Silas P., Eugene, Oreg. Washing-machine	481,183	Aug. 23	2300	569	60	1066
Lowne, Robert M., London, England. Engine	479,651	July 26	2484	618, 619	60	524
Lowry, George A., Chicago, Ill. Automatic feeder for twine-making machines	480,873	Aug. 16	1789	448	60	954
Loy, Irvin W., and R. O'Toole, Mechanicstown, Md. Circuit-closer for railway-crossing signal mechanisms	483,231	Sept. 27	2128	538	60	1791
Loyd, Alexander T., Chicago, Ill. Lamp-pipe	478,700	July 12	960	238	60	207
Lucas, Austin H., assignor of two-thirds to G. P. Shane, Pittsburg, and E. G. Miller, Wilkinsburg, Pa. Support for lamps	483,071	Sept. 20	1866	473	60	1729
Luce, Bartlett P., Boston, Mass. Lamp-burner	481,729	Aug. 30	3218	785	60	1254
Luce, Charles J. (See Cutter, William T., assignor.)						
Lucht, Carl C. L., Colberg, Germany. Grinding-mill	482,873	Sept. 20	1554	388	60	1666
Lüddeckens, Ernest, Liegnitz, Germany. Opera or field glass	480,370	Aug. 9	1002	252	60	784
Ludlow, Rodney F., Springfield, Ohio. Car-coupling	478,445	July 5	590	144	60	116
Ludlow, Rodney F., Springfield, Ohio. Car-coupling	478,446	July 5	592	144	60	117
Ludlow, William E., Toledo, Ohio. Means for dumping cars	483,360	Sept. 27	2343	589	60	1831
Ludw. Loewe & Company Commandit-Gesellschaft auf Actien. (See Laumann, Josef, assignor.)						
Ludwig Dan J., New York, N. Y. Combined telegraph key and sounder	482,129	Sept. 6	335	80	60	1400
Ludwig, Friedrich A., Chemnitz, Germany. Driving mechanism for the spindles of circular winding-machines	481,329	Aug. 23	2570	631	60	1114
Lufkin, Edward T. (See Bellows, Benjamin F., assignor.)						
Lugenbell, J. S. (See Lugenbell, Peter, assignor.)						
Lugenbell, Peter, Greensburg, Ind., assignor of one-half to J. S. Lugenbell, Delaware, Ohio. Storm-curtain for vehicle-tops	479,910	Aug. 2	199	50	60	621
Lukens, David W. (See Beckeman and Lukens.)						
Lummus, William W., Lynn, Mass. Fire-escape	479,436	July 26	2145	535, 536	60	460
Lundahl, Johan F., Homestead, Pa. Charging-machine for furnaces	479,437	July 26	2148	536	60	461
Lundberg, Andreas P., London, England. Electric switch	479,821	Aug. 2	71	17	60	596
Lundell, Robert, Brooklyn, assignor of two-thirds to E. H. Johnson, New York, N. Y. Electric motor or dynamo-electric machine	481,701	Aug. 30	3162	772, 773	60	1244
Lundy, Everett B., Boston, Mass. Automatic liquid-distributing machine	480,598	Aug. 9	1359	338	60	853
Lunge, George, Zurich, Switzerland, and J. Dewar, Cambridge, England. Recovering sulphur, carbonate of soda, and iron oxide	480,109	Aug. 2	553	.....	60	688
Lungren, Charles M., Bayonne, N. J. Pneumatic tire	482,182	Sept. 6	430	102, 103	60	1419
Lusby, William, Cincinnati, Ohio. Account-book	478,197	July 5	200	51	60	41
Lustig, Albert, Corsicana, Tex. Vest and drawers holder	483,462	Sept. 27	2484	625	60	1859
Lustig, Theodor, Chicago, Ill. Smoke-burner	478,447	July 5	594	144	60	117
Lutgen, James R., Winlock, assignor of one-half to C. A. Sturm, Castle Rock, Wash. Boiler	479,288	July 19	1881	471	60	394
Luther, Areous B., assignor of one-half to J. C. Foster, Tennessee City, Tenn. Car-coupling	478,620	July 12	854	210	60	185

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Luther, James D., Brooklyn, N. Y. Lighting and heating apparatus	482,874	Sept. 20	1555	388	60	1666
Luther, James D., Brooklyn, assignor to Luther & Lederhos, New York, N. Y. Wick-tube.	479,519	July 26	2297	574	60	489
Luther & Lederhos. (See Luther, James D., assignor.)						
Lyddon, Henry A., Brainerd, Minn. Railway-rail fastening	479,289	July 19	1292	471	60	394
Lye, John, Glasgow, Scotland. Glove-fastening	479,830	Aug. 2	177	43	60	616
Lyford, Francis, Augusta, Me. Trunk	479,438	July 26	2149	{536 537	60	461
Lyle, Robert W. (See Strusholm, Anders M., assignor.)						
Lyman, J. Chester. (See Milliken, William H., assignor.)						
Lyman, John C. (See Ackerman, Rudolp B., assignor.)						
Lynch, John. (See Emerson and Midgley, assignors.)						
Lynch, Patrick, Jr., Superior, Wis. Fire-escape	483,463	Sept. 27	2485	625	60	1859
Lynch, William, and E. Tremper, Walkill, N. Y. Motor spring-fork for bicycles	480,509	Aug. 9	1360	389	60	853
Lynn Lasting Machine Company. (See Patten, Enos, assignor.)						
Lyon, Addison J., Mount Vernon, N. Y. Key-fastener	478,448	July 5	595	145	60	117
Lyon, John B., Brooklyn, N. Y. Mold for the manufacture of electrical switchboards	479,891	Aug. 2	177	44	60	617
Lyons, Robert, Peiro, Iowa. Harrow for listed corn	481,634	Aug. 30	3058	746	60	1224
Lyte, Farnham M., London, England. Production of caustic alkalies and chlorine	481,407	Aug. 23	2691	661	60	1136
MacDonald, James, assignor of one-half to M. MacDonald, Los Angeles, Cal. Water circulator and purifier for steam-boilers	482,183	Sept. 6	432	103	60	1419
MacDonald, John W., Pittsburg, Pa. Ink-well	483,072	Sept. 20	1868	473	60	1729
MacDonald, Mary. (See MacDonald, James, assignor.)						
MacHaffie, John, Schenectady, N. Y. Screw-propeller	483,158	Sept. 27	2013	{508 509	60	1769
MacKellar, Malcolm, and G. D. Weaver, Reading, Pa. Electric self-winding clock	479,590	July 26	2298	574	60	489
MacKinnon, Duncan T. H. (See Little, Orton C., assignor.)						
MacLachlan, William E., New York, N. Y. Blind-stop	478,262	July 5	324	78	60	65
MacPherson, John G., McKeesport, Pa. Coin-controlled vending apparatus	482,875	Sept. 20	1556	389	60	1666
Macauley, Edwin W., Rochester, N. Y. Bicycle-lock	481,236	Aug. 23	2399	592	60	1084
Macauley, Matthew L., Glasgow, Scotland. Bottle-stoppering device	481,363	Aug. 23	2615	643	60	1122
Macdonald, George S., Detroit, Mich., assignor to Trousers Stretcher Company. Trousers-stretcher	480,199	Aug. 2	702	177	60	715
Macdonald, Theodore H., O. R. Williams, and L. D. Hitzeroth, San Francisco, Cal. Rope-driving apparatus	478,875	July 12	1234	306	60	260
Macintosh, Robert M., Boston, Mass. Machine for making wax-ends	479,093	July 19	1580	396	60	336
Mack, Albert G., Rochester, N. Y., assignor of one-half to C. E. Felton, Chicago, Ill. Fish-hook	479,194	July 19	1743	437	60	366
Mack, Andrew C., Portland, Oreg. Key-fastener	480,330	Aug. 9	938	238	60	772
Mack, Hugo S., *et al.* (See Appleton, Charles J., assignor.)						
Mackay, William H. (See Cooke and Mackay.)						
Macleod, Malcolm, Los Angeles, Cal. Agricultural implement	479,094	July 19	1583	396	60	337
Macneal, Charles B., Philadelphia, Pa. Metallic railway-tie	482,967	Sept. 20	1710	431	60	1695
Macy, Josiah H. (See Amend and Macy.)						
Maddock, William H., Pittsburg, Pa., assignor of one-half to Riverside Iron Works, Wheeling, W. Va. Mill appliance	480,200	Aug. 2	703	{178 179 180	60	715
Maddox, James M., Birmingham, Ala. Transom-lifter	479,567	July 26	2364	590	60	502
Mader, Robert. (See Wallis and Mader.)						
Madsen, William, Chicago, Ill. Exercising apparatus	478,166	July 5	145	38	60	31
Maffett, Samuel, and R. Weir, Muskegon, Mich. Machine for sawing up slabs, &c.	482,799	Sept. 20	1445	358	60	1643
Magee, Edward A., Brooklyn, N. Y. Steam-generator	479,009	July 19	1452	{360 361	60	312
Magee, John K., Toledo, Ohio. Convertible atomizer and sprayer	482,407	Sept. 13	820	197	60	1509
Magennis, John, Liverpool, England. Velocipede driving-gear	480,600	Aug. 9	1362	339	60	853
Magic Introduction Company. (See McKenney, William W., assignor.)						
Magney, Joseph P., Oakland, assignor to Magney Sash Balance Company, San Francisco, Cal. Sash-balance	481,145	Aug. 16	2245	553	60	1040
Magney Sash Balance Company. (See Magney, Joseph P., assignor.)						
Magruder, Thomas J., Marion, Ohio. Strap-attaching device for harness	478,876	July 12	1235	306	60	260
Maguire, Patrick J., Salem, assignor to American Soda Fountain Company, Boston, Mass. Carbonic-acid-gas generator	478,198	July 5	202	51	60	41
Mahannah, Frank, assignor of one-half to J. E. Mahannah, Omaha, Nebr. Alarm-lock	479,374	July 19	2029	506	60	423
Mahannah, John E. (See Mahannah, Frank, assignor.)						
Mahony, Michael, Troy, N. Y. Boiler	480,331	Aug. 9	939	238	60	773
Maier, John, St. Louis, Mo. Supporting device for electric-arc lamps	480,470	Aug. 9	1166	294	60	815
Mailliard, Louis, Galt, Canada. Dental drill	482,558	Sept. 13	1077	261	60	1559
Mailliard, Joseph, San Geronimo, and J. H. Jones, San Francisco, Cal. Device for supporting and carrying vessels	482,643	Sept. 13	1102	288	60	1581
Mailloux, Cyprien O., New York, N. Y. Automatic electric cut-out	482,374	Sept. 13	771	{185 186	60	1500
Maine, Charles, Three Rivers, Canada. Copying-machine	478,119	July 5	63	16, 17	60	15
Maine, David F., assignor of one-half to N. S. Reed, Mansfield, Ohio. Harness-saddle	481,765	Aug. 30	3287	800	60	1269
Maines, John B., Providence, R. I. Car-coupling	480,110	Aug. 2	555	139	60	688
Maisch, Friedrich, Naples, Italy. Glove-fastener	480,874	Aug. 16	1791	448	60	954
Malden Machine Company. (See Porter, Lemuel, assignor.)						
Malin, Jesse S., I. D. and J. H. Wiest, Portland, Ind. Game for amusement	482,747	Sept. 20	1368	338	60	1627
Mallery, James G., and E. J. Younga, Flint, assignors to Gale Manufacturing Company, Albion, Mich. Cultivator	482,746	Sept. 20	1366	338	60	1627
Mallison, Harvey P., Philadelphia, Pa. Drop-box mechanism for looms	478,621	July 12	854	{210 211	60	185
Mallory, James L., *et al.* (See Hill, Edward A., assignor.)						
Malloy, J. J., *et al.* (See Williams, Sanford R., assignor.)						
Malloy, Susie, *et al.* (See Williams, Sanford R., assignor.)						
Manderfield, George J., Royer's Ford, Pa., assignor of one-half to J. M. and S. Lewin, W. S. G. Finkbiner, and A. R. Sayler. Stop-motion for knitting-machines	479,763	July 26	2690	{668 669	60	562
Mandigo, Elmer E. M., Nashua, N. H. Sign having ornamental letters or designs in relief formed of a composite material and making the same	480,371	Aug. 9	1003	252	60	785
Manecke, Albert, Cerro Gordo, Ill. Grinding and polishing machine	479,822	Aug. 2	72	17	60	596
Manewal, George. (See Brown, William Z., assignor.)						
Manhattan Brass Company. (See Hipwell, Thomas, assignor.)						
Manhes, Pierre, Lyons, France. Treating nickel-matte	479,290	July 19	1383	472	60	395
Manley, Liston B., Duluth, Minn. Inkstand	481,408	Aug. 23	2692	661	60	1136
Mann, Charles, New York, N. Y. Oil-extracting apparatus	482,581	Sept. 13	1104	267	60	1565
Mann, John J., Salford, England. Apparatus for cutting pile fabrics	478,515	July 5	096	169	60	138

Alphabetical list of patentees, July to September, inclusive—Continued.

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Mann, William H., *et al.* (See Cartwright, Edward, assignor.)						
Mann, William R., Earlville, Ill. Horse hay-rake	481,501	Aug. 23	2842	668	60	1166
Mannebach, Caspar, Detroit, Mich. Measuring and drafting device for garments	482,748	Sept. 20	1368	336	60	1628
Manning, Harry O., Watertown, N. Y., assignor to New York Air Brake Company. Fluid-pressure valve	479,439	July 26	2151	537	60	461
Manning, John J., New York, N. Y. Machine for cutting and trimming paper	480,111	Aug. 2	555	140	60	688
Manning, Thomas, Denver, Colo. Garment supporter	480,820	Aug. 16	1715	428	60	938
Mansfield, Frank, New York, N. Y. Electric railway	478,346	July 5	445	110	60	89
Manton, Herbert L., Melbourne, Victoria. Train-indicator	481,364	Aug. 23	2610	{643 644	60	1122
Marble, Albert D., Winfield, Kans. Mower and header	480,730	Aug. 16	1575	394	60	910
Marble, Edwin H. (See Marble, Edwin T. and E. H.)						
Marble, Edwin T. and E. H., Worcester, Mass. Machine for waxing velvets, &c.	478,236	July 5	275	68	60	56
Marble, James E., assignor, by mesne assignments, of one-half to J. W. Fuller, Albany, N. Y. Coupling for flexible steam-pipes	480,875	Aug. 16	1792	448	60	954
Marceau, Joseph O. (See Tourangeau, Napoleon, assignor.)						
Marcee, John, United States Army. Field-range	479,652	July 26	2487	{619 620	60	524
March, John, White Oak Springs, Wis., assignor to John March Company, of Wisconsin. Suppressing horns in cattle	478,377	July 12	1236	.....	60	260
Marchand, Louis, Jr., Allegheny, Pa. Railway-switch	480,601	Aug. 9	1364	339	60	854
Marchetti, Giulio, and H. N. Mellor, Halifax, England. Method of and means for lubricating the wires in looms for weaving pile fabrics	483,073	Sept. 20	1870	{473 474	60	1730
Marion Manufacturing Company. (See Johnson, Sidney N., assignor.)						
Mark, Charlie E., Cleveland, Ohio. Rail-chair	481,575	Aug. 30	2969	729	60	1207
Mark, Charlie E., Cleveland, Ohio. Railway-rail joint	481,576	Aug. 30	2969	729	60	1207
Mark, Charlie E., Cleveland, Ohio. Shaking-grate	482,452	Sept. 13	895	217	60	1523
Markham, William F., Plymouth, Mich. Spring air-gun	483,159	Sept. 27	2010	509	60	1769
Marlitt, Charles A., Portland, Oreg. Steam-power stamp	480,332	Aug. 9	940	{238 239	60	773
Marquis, Joseph E., Utley, Ohio. Folding coop	482,644	Sept. 13	1193	289	60	1581
Marrin, Thomas, *et al.* (See Stuart, James A., assignor.)						
Mars, Charles P., assignor of one-half to J. P. Edie, Rockford, Ill. Drive-chain	480,853	Aug. 16	1763	441	60	948
Marsden, Mark W., assignor of one-half to R. A. Rockhill, Philadelphia, and E. A. Corbin, Rosemont, Pa. Puzzle	478,799	July 12	1135	279	60	240
Marsh, Joseph W. (See Bennett, Frederick M., assignor.)						
Marsh, Joseph W. (See O'Connor and Marsh.)						
Marsh, Joseph W., assignor to Standard Underground Cable Company, Pittsburg, Pa. Joint for electric conductors	483,074	Sept. 20	1873	475	60	1730
Marsh, Pickens B., assignor of one-half to W. O. Tatum, Graniteville, S. C. Cotton-press	478,755	July 12	1051	259	60	224
Marsh, Riverius, New Brunswick, N. J. Faucet and bung	482,408	Sept. 13	820	197	60	1510
Marsh, Spencer S., Atlanta, Ga. Hydraulic motor	479,291	July 19	1385	472	60	395
Marshall, Francis F. and L. F., New York, N. Y. Lock	478,754	July 12	1050	258	60	224
Marshall, Herbert E., Brooklyn, N. Y., assignor to himself, and W. Burtis, New Egypt, N. J. Cash register and indicator	482,375	Sept. 13	773	186	60	1500
Marshall, Louisa F. (See Marshall, Francis F. and L. F.)						
Marshall, Thomas B., Sidney, Ohio. Bicycle-support	478,878	July 12	1237	307	60	260
Marshall, William M., assignor of three-fourths to S. W. and H. L. Dunn and J. Shreeve, Philadelphia, Pa. Mat	482,980	Sept. 20	1730	437	60	1700
Marston, Frank D., Tom's River, N. J. Signal-torch	478,623	July 12	857	211	60	186
Marston, Nathaniel B., Lebanon, N. H., and W. M. Kimball, Barre, Vt. Car-mover	480,333	Aug. 9	941	239	60	773
Martel, Louis. (See Landon and Martel.)						
Martin, Arthur T. (See Dodd and Martin.)						
Martin, Charles E. (See Price, Martin, and Purser.)						
Martin, Frances I. (See Martin, Herman W., assignor.)						
Martin, Forest J. (See Bradford, Charles W., assignor.)						
Martin, Georg, Berlin, Germany. Horseshoe	480,731	Aug. 16	1579	395	60	911
Martin, Herman W., assignor to F. I. Martin, Ilion, N. Y. Fishing-reel	479,440	July 26	2152	537	60	462
Martin, James A., Faunsdale, Ala. Cultivator	483,075	Sept. 20	1875	475	60	1730
Martin, James W., *et al.* (See Shoemaker, Milton, assignor.)						
Martin, Joseph J., Bellevue, and W. H. Brownfield, Dayton, assignors of one-third to L. K. Marty, Newport, Ky. Device for drawing tie-bands around bales	481,184	Aug. 23	2310	569	60	1066
Martin, Joseph J., Bellevue, and W. H. Brownfield, assignors of one-third to L. K. Marty, Newport, Ky. Lubricator	482,559	Sept. 13	1078	261	60	1559
Martin, Morris, Malden, assignor to J. C. Wilson, Boston, Mass. Key-controller and signal-transmitter	479,715	July 26	2603	647	60	545
Martin, Richard. (See Boyd and Martin.)						
Martini, Alphinie, *et al.* (See Bareis, Albert, assignor.)						
Martini, Alphinie, *et al.* (See Johnson, John, assignor.)						
Martini, Anna, *et al.* (See Bareis, Albert, assignor.)						
Martini, Anna, *et al.* (See Johnson, John, assignor.)						
Marty, Frank, Anniston, Ala., assignor of two-thirds to L. E. Morrell, Columbus, Ohio, and J. K. Dimmick, Newport, Ky. Chill-plate for flasks	478,622	July 12	857	211	60	185
Marty, Louis K. (See Martin and Brownfield, assignors.)						
Marvel, Theodore L., assignor to W. H. Phillips, Taunton, Mass. Conveyer	483,232	Sept. 27	2131	539	60	1702
Marvick, Frederick N., assignor of one-half to D. S. Tingley and S. J. Wells, San Mateo, Fla. Tile	479,442	July 26	2157	538	60	463
Marvick, Frederick N., San Mateo, and J. Walter, Winter Haven, Fla. Tile	479,441	July 26	2155	538	60	462
Marvin, Frank W., and G. B. Essex, assignors to Michigan Lubricator Company, Detroit, Mich. Lubricator	479,911	Aug. 2	200	50	60	621
Marvin, George L. (See Huber and Marvin.)						
Marvin, Harry N., Schenectady, N. Y. Pulsating-current generator	479,951	Aug. 2	275	67	60	634
Marvin, John A., Lansing, Mich. Truss	480,775	Aug. 16	1642	411	60	924
Mason, Arthur J., Kansas City, Mo. Trench-excavator	482,260	Sept. 6	552	{131 132	60	1442
Mason, Charles H. (See Hindle, Andrew H., assignor.)						
Mason & Co., Edmund T. (See Gehnrich, Hermann, assignor.)						
Mason, Edgar T., and M. H. Moskovita, Kansas City, Mo. Making artificial honey cells and combs	481,578	Aug. 30	2971	729	60	1208
Mason, George W., Sharon, Pa. Chopping-machine	481,766	Aug. 30	3288	800	60	1269
Mason & Hamlin Organ and Piano Company. (See Richardson and Dyer, assignors.)						
Mason, Harry R., Chicago, Ill. Train signaling apparatus	483,256	Sept. 27	2196	{552 553	60	1804
Mason, Harry R., Chicago, Ill. Train signaling apparatus	483,257	Sept. 27	2199	553	60	1804

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Mason, Harry W., *et al.* (See Krepps, Virgil A., assignor.)						
Mason, Jabez F., Brooklyn, N. Y. Umbrella-runner	482,130	Sept. 6	335	80	60	1401
Mason, John F., Des Moines, Iowa. Tool for cutting off pipes	479,892	Aug. 2	179	44	60	617
Mason, John L., Brooklyn, N. Y. Furnace-grate	480,951	Aug. 16	1916	479, 480	60	978
Mason, John L., Brooklyn, N. Y. Furnace-grate	480,952	Aug. 16	1918	480	60	978
Mason, John W., Cleveland, Ohio. Machine for cleaning and polishing boots or shoes	480,821	Aug. 16	1716	428, 429	60	939
Mason, Jonathan and J., London, and W. S. Codner, Stoke Newington, Middlesex, England. Tread for stairs, &c	481,702	Aug. 30	3164	773	60	1244
Mason, Joseph. (See Mason and Codner.)						
Mason, Lowell. (See Colgate, Arthur E., assignor.)						
Mason Regulator Company. (See Mason, William B., assignor.)						
Mason, Robert B. (See Meyer, Julius W., assignor.)						
Mason, Samuel, Jr., Manchester, England. Apparatus for purifying and refining alcoholic liquors and other liquids	482,018	Sept. 6	159	38	60	1366
Mason, Thomas, Topeka, Kans. Elevator	481,577	Aug. 30	2970	729	60	1207
Mason, Thomas J., Green Bay, Iowa. Corn-shocker	479,124	July 19	1633	408	60	345
Mason, William B., assignor to Mason Regulator Company, Boston, Mass. Fluid-pressure regulator	481,579	Aug. 30	2972	730	60	1208
Masser, William H., Los Angeles, Cal. Catamenial appliance	480,876	Aug. 16	1793	449	60	955
Massey, Arthur C., Woodville, assignor of one-half to L. N. Spencer, Grand Rapids, Mich. Rein-guard	478,800	July 12	1135	280	60	240
Massey-Harris Company. (See Jones and Wedlake, assignors.)						
Massignon, Jules, assignor to Société Anonyme des Parfums Naturels de Cannes, Paris, France. Purification of fatty substances	481,502	Aug. 23	2844	699	60	1167
Maste, Hermann A. A., Arnsberg, assignor to Vereinfür Zellstoffindustrie Actiengesellschaft, Dresden, Germany. Preparing cellulose from wood	480,334	Aug. 9	942	.....	60	773
Mather, John L., Lanark, Ill. Clothes-drier	481,365	Aug. 23	2617	644	60	1122
Mather Manufacturing Company. (See Rettich, Frank D., assignor.)						
Mathewson, Nathan F., Providence, R. I. Thill-tug	479,603	July 26	2412	602	60	511
Mathewson, Nathan F., Providence, R. I., assignor, by mesne assignments, to Little Gem Manufacturing Company, of New Jersey. Pocket-lamp or lighting device	479,222	July 19	1783	447	60	374
Mathey, Henry, South Riverside, Cal. Reverberatory smelting-furnace	481,703	Aug. 30	3165	773	60	1244
Mathias, David H., *et al.* (See Van Derzee, Cornelius, assignor.)						
Mathieu, Adrien. (See Lehucher and Mathieu.)						
Mathison, James, *et al.* (See Cook, Theodore A., assignor.)						
Mathison, Joseph, Somerville, Mass. Machine for making sheet-metal buttons	479,823	Aug. 2	73	17, 18, 19	60	596
Mathison, Joseph, Somerville, Mass. Button-setting tool	479,824	Aug. 2	78	19, 20	60	597
Mathison, Walter, *et al.* (See Cook, Theodore A., assignor.)						
Matrix Manufacturing Company. (See Beckwith and Street, assignors.)						
Matthews, Edwin S., assignor of one-half to J. L. Haven, Cincinnati, Ohio. Elevator-controlling mechanism	481,580	Aug. 30	2975	730	60	1208
Matthews, James, Collins Centre, N. Y. Platform	483,233	Sept. 27	2132	539	60	1792
Matthews & Willard Manufacturing Company. (See Miller, John C., assignor.)						
Matthews, William H., Zanesville, Ohio. Axle	479,223	July 19	1785	447	60	374
Mattison, James D., East Saginaw, Mich. Railway-switch	478,879	July 12	1238	307	60	260
Mattison, James D., Saginaw, Mich. Monocycle	479,825	Aug. 2	80	20, 21	60	597
Mauerhofer, John, New York, N. Y. Picture-frame	480,953	Aug. 16	1919	480	60	978
Mauser, Paul, assignor to Waffenfabrik Mauser, Oberndorf-on-the-Neckar, Germany. Cartridge-holder for magazine-guns	482,376	Sept. 13	778	187	60	1501
Mayer, William, Jr., New York, N. Y. Telegraph-relay	482,440	Sept. 13	877	210	60	1519
Maxfield, Morgan E. (See Wellstein and Maxfield.)						
Maxfield, William C., assignor of one-half to J. W. Champion, Columbus, Ohio. Rain-water cut-off	481,635	Aug. 30	3059	747	60	1224
Maxim, Abraham L., *et al.* (See Gunn, John A., assignor.)						
Maxim, Abraham L., Omaha, Nebr. Miter-machine	478,440	July 5	596	145	60	117
Maxim, Hosea F., and J. M. Price, Norfolk, Va. Thermal alarm	478,701	July 12	961	230	60	207
Maxim, Hudson, assignor to Columbia Powder Manufacturing Company, New York, N. Y. Restoring nitrating acids	479,988	Aug. 2	357	88	60	649
Maxwell, Carrie N. and N. H., Cincinnati, Ohio. Game apparatus	479,195	July 19	1744	438	60	366
Maxwell, Nathaniel H. (See Maxwell, Carrie N. and N. H.)						
Maxwell, W. W., *et al.* (See Carter, Joseph J., assignor.)						
May, William E., London, England. Apparatus for use in casting and working metals	481,799	Aug. 30	3330	816	60	1278
Mayer, Anton, assignor to R. J. Meiser, Cincinnati, Ohio. Self-closing faucet	478,199	July 5	905	52	60	42
Mayes, Thomas, deceased, Albany, N. Y., D. Muhlfelder, administrator. Folding support for bead-rests, &c	480,822	Aug. 16	1718	420	60	939
Mayfield, Daniel D., Sullivan, Ind. Weather-strip	483,076	Sept. 20	1876	475	60	1730
Mayfield, Edward S. (See Spaulding, Frank M., assignor.)						
Mayhew, Frederick W. (See Smith and Mayhew.)						
Mayo, Samuel P., Richmond, and G. A. Peple, Manchester, assignors to Mayo Tobacco Drying and Ordering Company, Richmond, Va. Apparatus for ordering tobacco	478,801	July 12	1136	280	60	240
Mayo Tobacco Drying and Ordering Company. (See Mayo and Peple, assignors.)						
McAdam, Alexander J., San Francisco, Cal. Elevator-controlling mechanism	482,131	Sept. 6	336	80	60	1401
McAdams, William A., Brooklyn, N. Y. Insect-catcher	483,079	Sept. 20	1879	476	60	1731
McAllister, Joseph R. C. (See Brooks, Bartholomew, assignor.)						
McBride, Thomas, Philadelphia, Pa., and E. Fisher, Kincardine, Canada. Excavating device	483,004	Sept. 20	1768	447	60	1707
McBride, Thomas, Philadelphia, Pa., and E. Fisher, Kincardine, Canada. Apparatus for the manufacture of gas	483,005	Sept. 20	1769	447, 448	60	1708
McBroom, Henry C., Nashville, Tenn. Land-marker	482,062	Sept. 6	226	54	60	1379
McCafferty, Henry M., Montrose, Colo. Combination-plow	478,884	July 12	1250	309	60	262
McCafferty, William M., Mount Sterling, Ohio. Calculating-machine	478,885	July 12	1252	310	60	263
McCaffrey, James, Philadelphia, Pa. Nailless horseshoe	478,455	July 5	602	147	60	119
McCallum, George L., Costello, Pa. Brake for railway-cars	480,338	Aug. 9	947	240	60	774
McCallum, Irving, Philadelphia, Pa. Woven fabric	480,855	Aug. 16	1764	441	60	949
McCallum, Peter, St. Paul, Minn. Circumference-indicator and tire-gage	480,607	Aug. 9	1372	341	60	856
McCamant, John G., *et al.* (See Rush, John T., assignor.)						
McCandless, Thomas A., Irving, Kans. Automatic brake	482,378	Sept. 13	780	187	60	1501
McCarter, Samuel, Norristown, Pa., assignor to International Pavement Company, Hartford, Conn. Brick-press	478,625	July 12	860	212	60	186

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McCarter, Samuel, Norristown, Pa., assignor to International Pavement Company, Hartford, Conn. Forming asphalt blocks	478,626	July 12	862	212	60	187
McCarthy, Daniel, Earle, Colo. Power-transmitter	479,297	July 19	1895	474	60	396
McCarthy, James J., Austin, Ill. Roof	483,262	Sept. 27	2207	554	60	1805
McCarthy, John, Syracuse, N. Y. Casket-handle	478,168	July 5	156	39	60	33
McCarthy, John, Manistique, Mich. Railway-crossing	479,829	Aug. 2	86	22	60	598
McCarthy, Louis, Boston, Mass. Insulator	478,518	July 5	703	170	60	140
McCauley, L. G. (See Hastings, James L., assignor.)						
McChesney, Reuben, Philadelphia, Pa., assignor to himself, and S. McChesney, Troy, N. Y. Adjustable T-square	483,499	Sept. 27	2533	637	60	1869
McChesney, Sylvester. (See McChesney, Reuben, assignor.)						
McClaren, Alfred E., Joplin, Mo. Telegraph-key	480,475	Aug. 9	1173	295	60	816
McClellan, John, Greenbush, N. Y. Polishing-wheel	481,415	Aug. 23	2706	665	60	1139
McClellan, Michael A., Chicago, Ill. Combined sulky plow and harrow	478,627	July 12	864	213	60	187
McClellan, Oscar D. (See Parke, John H., assignor.)						
McClellan, Stephen, San Marcos, Tex. Sash-fastener	479,152	July 19	1674	418	60	353
McClelland, Robert E., Williamsville, Ill. Weight-pan for balances	480,027	Aug. 2	433	109	60	664
McClintock, Charles E., Ozark, assignor of one-half to H. G. and R. A. Sadler, Paris, Ark. Bedstead	479,013	July 19	1459	363	60	313
McCloskey, George M., Brooklyn, N. Y. Chimney cap or ventilator	482,905	Sept. 20	1616	404	60	1676
McClurg, Henry C., Davenport, Iowa. Stocking	482,095	Sept. 6	280	68	60	1391
McCombie, William, Chicago, Ill. Fire-box for boilers	478,628	July 12	866	213	60	187
McConaughy, Edwin L., Philadelphia, Pa. Game-board	479,569	July 26	2367	590	60	502
McCord, Alvin C., Chicago, Ill. Car-coupling	482,500	Sept. 13	977	237	60	1539
McCormick, Charles W., Emporia, Kans. Store-service apparatus	482,646	Sept. 13	1195	289, 290	60	1581
McCormick Harvesting Machine Company. (See Baker, William R., assignor.)						
McCormick Harvesting Machine Company. (See Pridmore, Henry E., assignor.)						
McCormick, John H., New Orleans, La. Cotton-seed-delinting machine	481,416	Aug. 23	2708	666	60	1140
McCormack, Herbert, McQueen, Ill. Roof-scaffold bracket	482,096	Sept. 6	281	68	60	1391
McCourt, James, Salem, Oreg. Metric model	480,119	Aug. 2	571	145	60	691
McCoy, Francis L., Eskridge, Kans. Churn-dasher	479,830	Aug. 2	87	22	60	599
McCrea, George B. (See Harlan, Howard, assignor.)						
McCrea, Robert S., *et al.* (See Keizur, William H. H., assignor.)						
McCready, Charles H., West Bridgewater, Pa. Feathering paddle-wheel	482,455	Sept. 13	901	218	60	1523
McCulloch, George F. (See Nelson, Irenaeus P., assignor.)						
McCullough, Edward W. (See Watts, Julius R., assignor.)						
McCullough, Ernest, San Francisco, Cal. Spirit-level for measuring-tapes	479,521	July 26	2299	574	60	489
McDairmid, Norman. (See Pike and McDairmid.)						
McDaniel, John S., Philadelphia, Pa. Regulating-valve	478,939	July 12	1333	331	60	279
McDermott, James, assignor of one-fourth to D. A. Kellar, Louisville, Ky. Casting stove-linings	482,689	Sept. 13	1263	309	60	1595
McDermott, John J. (See O'Connor, James J., assignor.)						
McDonald, Alexander E., Brooklyn, N. Y. Cord-clasp for gloves	483,263	Sept. 27	2208	554, 555	60	1805
McDonald, Alexander E., Brooklyn, N. Y. Strap-holder for trunks	483,264	Sept. 27	2209	555	60	1806
McDonald, Evan, Rochester, N. Y. Shoe	482,456	Sept. 13	901	219	60	1524
McDonald, George W. (See Rowe and McDonald.)						
McDonald, James S., Chicago, Ill. Combined book and carbon-sheet holder	479,014	July 19	1460	363	60	314
McDonald, Lewis B. (See Rice and McDonald.)						
McDonnel, Romuald T. (See Lott, William F., assignor.)						
McDonough, James W., New York, N. Y., assignor to Blackmer Bros. & Co., Chicago, Ill. Chair	481,582	Aug. 30	2979	731	60	1209
McDougall, Alexander, Duluth, Minn. Covering for false bottoms of vessels	480,823	Aug. 16	1719	430	60	939
McDowell, Edward, Spartanburg, S. C. Wick-raiser for lamps	480,205	Aug. 2	711	182	60	717
McDowell, William L., Lower Merion, Pa. Cook-stove	478,807	July 12	1146	283, 284, 309, 310	60	943
McElfresh, Francis E., New Cumberland, W. Va. Brick-drier	482,690	Sept. 13	1264	309, 310	60	1595
McElroy, James F., assignor to Consolidated Car Heating Company, Albany, N. Y. Heating apparatus	478,203	July 5	210	53	60	43
McElroy, James F., Albany, N. Y., assignor to Consolidated Car-Heating Company, Wheeling, W. Va. Supply-station for car-heating systems	480,777	Aug. 16	1644	412	60	925
McElroy, Patrick J., Cambridge, Mass. Multiplex glass tube	481,805	Aug. 30	3348	819	60	1280
McElwain, George, Englewood, Ill. Penholder	482,925	Sept. 20	1641	413	60	1681
McElwain, George, assignor of one-half to J. Kane, Chicago, Ill. Penholder	479,592	July 26	2360	574	60	489
McEwen, Joseph C., Lochloosa, Fla. Box-making machine	481,240	Aug. 23	2404	593	60	1085
McGall, William J., West Orange, N. J. Hat-curling machine	478,456	July 5	603	147	60	119
McGee, Thomas J., Hattiesburg, Miss. Axle-bearing	480,877	Aug. 16	1794	449	60	955
McGill, Peter. (See Moffitt, John W., assignor.)						
McGilvray, Bernard, assignor of one-half to F. W. Ritter, Jr., Washington, D. C. Wrench	481,911	Aug. 30	3525	862	60	1314
McGimsey, Charles R., New York, N. Y. Illuminated advertising-sign	481,506	Aug. 23	2848	700	60	1168
McGoron, John R., Terrace Park, Ohio. Stovepipe-fastener	478,204	July 5	211	53	60	43
McGrail, John F., assignor to Winchester Repeating Arms Company, New Haven, Conn. Machine for swaging and creasing bullets	482,808	Sept. 20	1453	361	60	1645
McGraw, John H., Oswego, N. Y. Lathe-mandrel	481,731	Aug. 30	3221	786	60	1255
McGraw, William T., Detroit, Mich. Cash indicator and recorder	480,435	Aug. 9	1105	277	60	802
McGregor, George L., Chicago, Ill. Boiler-lug and making the same	482,132	Sept. 6	337	81	60	1401
McGrew, Alonzo H. (See Loughrey and McGrew.)	479,331	July 19	1938	484	60	405
McGriff, John C. F., Los Angeles, Cal. Fire-alarm	482,379	Sept. 13	781	188	60	1502
McGrory, Henry A., Detroit, Mich. Liquid-level-indicator system	480,736	Aug. 16	1586	397	60	912
McHugh, Michael J., Jersey City, N. J. Bottle-filling apparatus	479,298	July 19	1895	474	60	397
McIlvain, John H., Camden, N. J., assignor to C. F. Bartlett, Philadelphia, Pa. Open fire-grate	479,916	Aug. 2	207	52	60	623
McIndoe, George F., assignor of one-half to J. W. McIndoe, Boston, Mass. Metal-planing machine	479,606	July 26	2416	603	60	511
McIndoe, James W. (See McIndoe, George F., assignor.)						
McIntosh, George F., Gardiner, Me. Curling-iron holder	478,123	July 5	67	18	60	15
McKay, John E. (See Delaney, Alfred G., assignor.)						
McKay, William W., Dickinson, N. D. Fire-extinguisher	479,448	July 26	2165	541	60	465
McKean, Frank A. (See Sayrs, Winslow P., assignor.)						
McKee, Alexander Stuart, Iowa. Draft-equalizer	480,339	Aug. 9	947	240	60	774
McKee, Alfred. (See Henry, Bolles, and McKee.)						
McKellar, John, San Francisco, Cal. Steam-trap	481,507	Aug. 23	2849	700	60	1168

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
McKenney, Franklin S., Detroit, Mich. Lacing for shoes or other articles	478,519	July 5	704	171	60	140
McKenney, Franklin S., Detroit, Mich. Hook and fastening for gloves, shoes, &c	478,520	July 5	705	171	60	140
McKenney, Franklin S., Detroit, Mich. Lacing-stud	478,521	July 5	706	171	60	140
McKenney, William W., New York, N. Y., assignor to Magic Introduction Company, of New Jersey. Pocket lighting device	480,206	Aug. 2	712	182	60	717
McKenney, William W., New York, N. Y., assignor to Magic Introduction Company, of New Jersey. Lighting device	480,207	Aug. 2	715	182	60	718
McKenzie, Angus G., Boston, Mass. Trial-frame for opticians	479,607	July 26	2419	603	60	512
McKenzie, Robert, Sydney, New South Wales. Appliance for ventilating sewers, &c	480,958	Aug. 16	1927	482	60	980
McKeown & Robbins. (See Evans, William J., assignor.)						
McKiernan, John M. (See Middlekauff, Ellsworth D., assignor.)						
McKinnon, Hector, Eureka, Cal. Lumber-elevator	480,824	Aug. 16	1720	430	60	989
McKone, John T., *et al.* (See Smith, Samuel, assignor.)						
McLaren, Raynes L., Blackheath, England. Car-axle	483,470	Sept. 27	2494	628	60	1861
McLaughlin, Frank, Baker's Corner, Ind. Fifth-wheel	482,457	Sept. 13	902	219	60	1524
McLaughlin, Stillman W., *et al.* (See Devlin, James C., assignor.)						
McLean, Alexander, West Kensington, assignor of one-half to C. W. Wilson, London, England. Apparatus for making slabs, &c	478,757	July 12	1054	259, 260, 261	60	225
McLeod, Peter R. (See Prentice, McLeod, Crane, and Pilkington.)						
McManus, Robert D., Hartford, Conn. Shoe-blacking holder and rest	481,265	Aug. 23	2450	605	60	1095
McManus, William S., South Chester, assignor to J. D. Potts, trustee, Philadelphia, Pa. Making metal pipes or tubes	479,952	Aug. 2	277	68	60	634
McMillan, Charles M., Red Cloud, Nebr. Toe-weight	479,831	Aug. 2	88	22	60	599
McMillan, John, and G. H. Taylor, Philadelphia, Pa; said Taylor assignor to said McMillan. Electric alarm-clock	482,133	Sept. 6	339	81	60	1402
McMunn, Llewellyn D., Cromwell, N. D., assignor of one-half to M. R. Utley, Minneapolis, Minn. Electric cut-out and switch-box	483,235	Sept. 27	2137	541	60	1793
McMurray, John P., San Francisco, Cal. Wall or ceiling covering	480,120	Aug. 2	573	145	60	691
McNab, Robert, Paterson, N. J. Clothes-line support	481,806	Aug. 30	3349	820	60	1280
McNamara, Daniel, Kansas City, Mo. Adjustable railway-crossing	480,608	Aug. 9	1374	341	60	856
McNeill, James W., Fayetteville, N. C. Harness attachment	478,124	July 5	68	18	60	15
McNutt, Lester J., Warren, Pa. Hydrocarbon-gas-black machine	481,240	Aug. 23	2404	593, 594	60	1085
McPherson, James A., *et al.* (See Robertson, William, assignor.)						
McOnat, Eugene, Boston, Mass. Incandescent electric light	481,047	Aug. 16	2063	515	60	1007
McQuilkin, James C., Industry, Pa. Nut-lock	481,417	Aug. 23	2709	666	60	1140
McRae, John D., Baldwinsville, N. Y. Dredging-pump	479,765	July 26	2695	670, 671	60	563
McSherry, Edward, *et al.* (See Winlund, Nicholas J., assignor.)						
McTammany, Alexander. (See McTammany, John, assignor.)						
McTammany, John, Worcester, Mass., assignor to A. McTammany, Akron, Ohio. Pneumatic registering ballot-box	482,691	Sept. 13	1265	310, 311	60	1595
McTighe, Thomas J., New York, N. Y. Electric rail-bond	478,629	July 12	867	213	60	187
Mead, Albert G., Boston, Mass. Dovetail-cutter	479,075	July 19	1551	387	60	331
Mead, Albert G., Boston, Mass., assignor to W. B. H. Dowse, trustee. Buckle	478,120	July 5	64	17	60	15
Mead, Theodore H., *et al.* (See Crowell, Luther C., assignor.)						
Mead, Theodore H., *et al.* (See Crowell, Luther C., assignor.) (Reissue.)						
Meader, Charles C., Montpelier, Vt. Gutter or valley on roofs	480,602	Aug. 9	1366	339	60	854
Meadley, Jabez B., Davenport, Iowa. Car-brake	480,503	Aug. 9	1215	303	60	825
Meadley, Jabez B., Davenport, Iowa. Car-coupling	480,504	Aug. 9	1216	304	60	825
Meadows, Charles A., Yonkers, N. Y. Reflector	480,301	Aug. 2	707	180	60	710
Meaher, Dennis A. (See Hamblin, Gideon D., assignor.)						
Meaker, John W., assignor to Meaker Manufacturing Company, Chicago, Ill. Fare-register	478,167	July 5	147	38, 39	60	32
Meaker, John W., assignor to Meaker Manufacturing Company, Chicago, Ill. Operating device for fare-registers	480,732	Aug. 16	1579	395	60	911
Meaker Manufactnring Company. (See Meaker, John W., assignor.)						
Mechanical Novelties Company. (See Hamrick, Harry M., assignor.)						
Medley, Granville E., Hopkinsville, Ky. Fishing-reel	481,330	Aug. 23	2571	631	60	1114
Medley, John R. (See Cook, John W., assignor.)						
Meehan, James. (See Talbot, Benjamin, assignor.)						
Meek, George W. (See Meek, James H. and G. W.)						
Meek, James H. and G. W., Denison, Tex. Cradle	478,450	July 5	597	145	60	118
Mehling, John A., assignor of one-half to S. D. Dodge, Cleveland, Ohio. Street-car	481,800	Aug. 30	3341	817	60	1279
Mehrtens, John H., assignor to E. J. Köster, Harkorten, near Haspe, Germany. Fire-grate	481,237	Aug. 23	2400	592	60	1084
Meinel, Ottomar, New York, N. Y. Harmonica	483,160	Sept. 27	2017	510	60	1770
Meinicke, Carl A. E., Clausthal, Germany. Feeding device for ore-washing machines	482,582	Sept. 13	1106	268	60	1565
Meisel, Francis, Boston, Mass. Sheet-delivery apparatus for printing-machines	478,347	July 5	452	111	60	90
Meiser, Rudolph J. (See Mayer, Anton, assignor.)						
Melchior, Alfred, Sydney, New South Wales. Sheep-shearing machine	478,286	July 5	357	87	60	72
Melick, George F., Metuchen, N. J., assignor to Edison General Electric Company, New York, N. Y. Incandescent electric lamp	480,954	Aug. 16	1920	480	60	979
Mellor, Henry N. (See Marchetti and Mellor.)						
Meloney, George R., and J. T. Criswell, Philadelphia, Pa. Butter-box	481,801	Aug. 30	3342	818	60	1279
Melotte, George W., Ithaca, N. Y. Blowpipe-pad	480,024	Aug. 2	430	109	60	663
Melotte, George W., Ithaca, N. Y. Dental moistening-pad	480,471	Aug. 9	1167	291	60	815
Melotte, George W., Ithaca, N. Y. Steam rubber-heater	480,472	Aug. 9	1168	294	60	815
Melotte, George W., and C. M. Clinton, Ithaca, N. Y.; said Clinton assignor to said Melotte. Bench-block for dentists, jewelers, and others	482,453	Sept. 13	896	217	60	1523
Melrose, Marshall H., Plano, Ill. Harvester	482,968	Sept. 20	1711	432	60	1696
Melvin, George W., Deptford, England. Fire-escape and scaling-ladder	482,441	Sept. 13	878	210, 211	60	1519
Mende, Carl F. (See Snow, Henry E., assignor.) (Reissue.)						
Mendenhall, James E., Springfield, Ohio, assignor of one-half to C. E. Funk, Chicago, Ill. Apparatus for carbureting air	483,003	Sept. 20	1766	446	60	1707
Menegay, Armand. (See Menegay, Jules and A.)						
Menegay, Jules and A., Brooklyn, N. Y. Watch-case spring	479,292	July 19	1886	472	60	395
Menge, Joseph, New Orleans, La. Rotary pump	480,473	Aug. 9	1169	294	60	815
Menge, Joseph, New Orleans, La. Grain-separator	481,366	Aug. 23	2618	644	60	1122
Mengeringhausen, William H. von, Chester, Pa. Valve-gear	480,474	Aug. 9	1171	295	60	816
Mentzel, Henry D., Baltimore, Md. Mechanical movement. (Reissue)	11,971	Sept. 13	1307	319, 320	60	1605
Mény, Felix, Elisabeth, N. J. Mechanical movement	481,409	Aug. 23	2604	661, 662	60	1136

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Menze, Charles T., assignor of one-half to H. Gerlitz, St. Louis, Mo. Measuring-receptacle	479,151	July 19	1673	418	60	353
Menzemer, Stephen A., Santa Clara, Cal. Drier	480,112	Aug. 2	557	140	60	688
Mercader, Camille, Braddock, Pa. Ladle-nozzle	481,041	Aug. 16	2055	513	60	1005
Meredith, James P., *et al.* (See Devlin, James C., assignor.)						
Meredith, Sidney B., Oneida, N. Y. Bill-file	479,604	July 26	2413	602	60	511
Meriden Curtain Fixture Company. (See Perkins, Judson C., assignor.)						
Meriden Curtain Fixture Company. (See Perkins and Leigh, assignors.)						
Merkins, Jacob S., assignor of one-third to E. C. Dye, Highlands, Colo. Trolley-switch	481,503	Aug. 23	2845	699	60	1167
Meron, Alexander, St. Paul, Minn. Combined kitchen-cabinet and ironing-board	479,893	Aug. 2	181	44	60	617
Merrill, Hollis W., Lynn, assignor to American Shoe Tip Company, Boston, Mass. Sole	481,909	Aug. 30	3523	862	60	1314
Merrill, S. O., *et al.* (See Wood, William T., assignor.)						
Merriman, Charles D., and F. W. Tilden, Hinsdale, N. H. Book-holder	480,410	Aug. 9	1002	266	60	795
Merriman, Hugh P., Morris, N. Y. Lantern	480,931	Aug. 16	1878	468	60	971
Merritt, Daniel F. (See Graves and Merritt.)						
Merritt, Edward B., Chicago, Ill. Garbage-receptacle	478,702	July 12	963	239	60	207
Merritt, George, San Francisco, Cal. Electric train-signal	481,042	Aug. 16	2056	513	60	1006
Merritt, William H. (See Chapman, George T., assignor.)						
Merrow, Joseph M., Merrow, Conn. Finish or border for the edges of fabrics	480,335	Aug. 9	943	239	60	773
Mertz, Christian P. (See Schorpp, George and L., assignors.)						
Mesker & Bro. (See Brunkhorst, Wieden, and Richards, assignors.)						
Mesker & Bro. (See Mesker and Arbogast, assignors.)						
Mesker & Bro. (See Richards, Charles T., assignor.)						
Mesker, Frank, and T. O. Arbogast, assignors to Mesker & Bro., St. Louis, Mo. Window-frame	480,908	Aug. 16	1846	459	60	965
Mesker, Frank, and T. O. Arbogast, assignors to Mesker & Bro., St. Louis, Mo. Building-front	481,115	Aug. 16	2185	541	60	1029
Messing, John J., St. Louis, Mo. Reversing attachment for screw-cutting lathes	482,261	Sept. 6	556	132	60	1443
Metal Goods Manufacturing Company. (See Field, Albert D., assignor.)						
Metcalf, Henry H. (See Lawrence, Harry W., assignor.)						
Metcalf, Ralph M., Luton, assignor of one-half to G. E. Adams, Holly Springs, Iowa. Alarm-lock	480,237	Aug. 2	771	194	60	728
Metz, Rudolph, Philadelphia, Pa. Oil purifier and reservoir	482,583	Sept. 13	1108	268	60	1565
Meyer, Ernest A. E., *et al.* (See Henry, Archie J., assignor.)						
Meyer, Henry, assignor of three-fourths to H. Riedel, H. Grosser, and C. Neynaber, Galveston, Tex. Combined record, diary, and ledger	481,670	Aug. 30	3111	759	60	1234
Meyer, Isaac, *et al.* (See Little, Robert H., assignor.)						
Meyer, Julius W., assignor of one-half to R. B. Mason, Baltimore, Md. Packing-jar	483,258	Sept. 27	2202	553	60	1804
Meyer, Leopold, Allouppe, Wis. Cheese-vat	478,880	July 12	1239	307	60	261
Meyer, Reinhold, Wildburgstetten, Germany. Tile-stove	480,603	Aug. 9	1367	339	60	854
Meyère, Arthur, Nashville, Tenn. Shirt	481,504	Aug. 23	2847	699	60	1167
Michener, James B., Kokomo, Ind. Gas-stove	482,094	Sept. 6	279	68	60	1390
Michigan Lubricator Company. (See Marvin and Essex, assignors.)						
Michl, Franz, New York, N. Y. Cigar-lighter	483,464	Sept. 27	2486	626	60	1859
Miciangi, Emerick. (See Green, John, assignor.)						
Middlekauff, Ellsworth D., Stockton, assignor of one-half to J. M. McKiernan, Portersville, Cal. Pump	481,043	Aug. 16	2058	513	60	1006
Mider, Jacob T., Wathena, Kans. Harvester	481,410	Aug. 23	2696	662	60	1137
Midgley, Joseph E., and D. D. Case, Detroit, Mich. Nasal respirator	480,505	Aug. 9	1217	304	60	825
Midgley, Thomas. (See Emerson and Midgley.)						
Midgley, Thomas, Beaver Falls, Pa. Wire mat	482,061	Sept. 6	225	54	60	1379
Milbourn, Zenas F. (See Pearson, Paul, assignor.)						
Milburn, Thomas. (See Wohlfarth, Charles F., assignor.)						
Mildrum, Ernest W., Berlin, assignor of one-half to W. H. Honiss, Hartford, Conn. Pencil-clasp	482,409	Sept. 13	822	197	60	1510
Miles, Georgiana F., New York, N. Y. Syringe	478,703	July 12	965	239	60	207
Milks, Elbert D., Machias, N. Y. Device for supporting wall-paper	482,645	Sept. 13	1194	289	60	1581
Miller, Amanuel M., Fairfield, Tex. Trace-carrier	478,704	July 12	966	240	60	208
Miller, Annie J., New York, N. Y. Combined button and lacing hook	481,767	Aug. 30	3290	801	60	1269
Miller, Charles F., Lancaster, Pa. Refrigerating-machine	481,146	Aug. 16	2246	553, 554	60	1040
Miller, Charles G., Waterbury, Conn. Exercising-machine	481,730	Aug. 30	3219	785	60	1254
Miller, Charles W., assignor of one-half to C. Royce, Clifton, Ariz. Ter. Label-holder	479,716	July 26	2607	648	60	546
Miller, Edward G., *et al.* (See Lucas, Austin H., assignor.)						
Miller, George A., Butler, Pa. Nut-lock	480,667	Aug. 9	1475	367	60	876
Miller, George W., Kalamazoo, Mich. Surface cattle-guard	480,733	Aug. 16	1581	395	60	911
Miller, Guyon, Downingtown, Pa. Pulp-engine	482,184	Sept. 6	434	103, 104	60	1420
Miller, James M., Washington, D. C. Dredging-machine	479,375	July 19	2031	507	60	423
Miller, James P., Boston, Mass. Sofa-bed	482,262	Sept. 6	558	132	60	1443
Miller, John, Yelpen, Ind. Wagon-brake	478,349	July 5	454	111	60	91
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Central-draft lamp	478,802	July 12	1138	280	60	241
Miller, John E., Allegany, N. Y. Thill-coupling	481,961	Sept. 6	59	14	60	1346
Miller, John G., and E. Yeiser, Newmanstown, Pa. Cigar-bunch cutter	483,077	Sept. 20	1877	475	60	1730
Miller, John H., and J. H. Oswalt, Clayton, Ohio. Pump-motor	482,800	Sept. 20	1447	359	60	1644
Miller, John J., Pittsburg, Pa. Thimble for light-fixtures	479,139	July 19	1656	413, 414	60	350
Miller, Lewis, Akron, Ohio. Grain-binding harvester	480,113	Aug. 2	558	140, 141	60	688
Miller, Lewis, Akron, Ohio. Grain-binding harvester	480,114	Aug. 2	561	141, 142	60	689
Miller, Lewis, Akron, Ohio. Grain-binding harvester	480,115	Aug. 2	564	143	60	690
Miller, Lewis, Akron, Ohio. Grain-binding harvester	480,116	Aug. 2	567	144	60	690
Miller, Morris V., assignor of one-half to N. Immerwahr and E. Jones, Bellaire, Ohio. Game apparatus	482,685	Sept. 13	1256	306, 307	60	1594
Miller, Morton A. (See Miller and Bowman, assignors.)						
Miller, Pierre D., and W. N. De Vault, Peoria, Ill. Hay-loader	480,269	Aug. 9	811	214	60	755
Miller, Riley E., and J. D. Bowman; said Bowman assignor to M. A. Miller, College Corner, Ohio. Wire-reel	481,306	Aug. 23	2533	621	60	1107
Miller, Roy, Alma Centre, Wis. Book or blank case	480,388	Aug. 9	1033	259	60	799
Miller, Russell C., assignor of two-thirds to M. Tyler and W. W. Keyworth, Salisbury, Conn. Carving-machine	479,653	July 26	2489	620	60	584
Miller, Thomas S., New York, N. Y. Conveying apparatus	478,348	July 5	453	111	60	91

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Miller, Walter, Cleveland, Ohio. Reversing-valve	480,604	Aug. 9	1368	340	60	855
Miller, Wesley J., Harrisburg, Pa. Revolving hair-brush	481,264	Aug. 23	2458	605	60	1095
Miller, William, Hillsdale, Mich., and W. S. Duvall, Washington, D. C.; said Duvall assignor to said Miller. Wrench	478,121	July 5	65	17	60	15
Millet, Albert, *et al.* (See Millet, Pierre, assignor.)						
Millet, Ernest, *et al.* (See Millet, Pierre, assignor.)						
Millet, Pierre, assignor of two-thirds to E. and A. Millet, Bonnet Carre, La. Wagon end-gate	479,076	July 19	1552	388	60	331
Milligan, Henry C., South Orange, N. J., assignor to R. Wolff & Co., New York, N. Y. Lady's shopping-bag	481,116	Aug. 16	2185	541	60	1029
Milliken, David, Fort Wadsworth, N. Y. Fence	479,443	July 26	2160	539	60	464
Milliken, William H., assignor of one-half to J. C. Lyman, Chicago, Ill. Torpedo-signal	482,019	Sept. 6	159	39	60	1366
Millis, John, U. S. Army. Valve-motion indicator for steam-engines	481,671	Aug. 30	3112	760	60	1234
Mills, James M., Modesto, Ill. Dehorner	480,932	Aug. 16	1879	469	60	972
Mills, Mortimer B., Chicago, Ill. Railway-gate	480,955	Aug. 16	1921	481	60	979
Mills, Robert, *et al.*, trustees. (See Krepps, Virgil A., assignor.)						
Mills, William R. (See Smith, Charles, assignor.)						
Milsted, William N., New York, N. Y. Meter diaphragm	482,185	Sept. 6	437	104	60	1421
Miltonberger, John, Warsaw, Ind. Bread-raiser and cabinet	478,200	July 5	206	52	60	42
Milwaukee Harvester Company. (See Crandall, Henry F., assignor.)						
Minear, George L., Ottumwa, Iowa. Plate attachment for cameras	481,802	Aug. 30	3344	818	60	1279
Miner, William W., New Haven, Conn. Manufacturing horseshoe-nails	481,962	Sept. 6	60	14	60	1346
Minis, D. D. (See Rowe, Isaac N., assignor.)						
Mink, Fritz, Philadelphia, Pa. Knurling or ornamenting watch-cases	482,686	Sept. 13	1258	307	60	1594
Minneapolis Electro-Matrix Company. (See Street and Travis, assignors.)						
Minneapolis Electro-Matrix Company. (See Travis, Charles L., assignor.)						
Minneapolis Plow Works. (See Johnson, Nils J., assignor.)						
Minor, Alfred A., Egg Harbor, Wis. Vehicle-hub	478,287	July 5	359	87	60	72
Minor, Alfred A., Egg Harbor, Wis. Furniture-caster	481,963	Sept. 6	61	15	60	1346
Minor, Danial B. (See Russell and Minor.)						
Minto, James H., Liverpool, England. Method of and apparatus for aerating liquids	483,259	Sept. 27	2204	553	60	1805
Minton, Nathan W., Lebanon, Ky. Picket fence	480,270	Aug. 9	842	214	60	756
Minton, William D., and A. S. Douglas, Marshall, Tex. Carrier-iron for draw-bars	483,465	Sept. 27	2487	626	60	1859
Miranda, Abraham R., Boston, Mass. Soap-holder attachment for water-faucets	479,330	July 19	1937	484	60	405
Mischler, Gottlieb, Rock Island, Ill. Harvester cutting apparatus	479,568	July 26	2365	590	60	502
Mitchell, Charlie I., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Lantern	480,734	Aug. 16	1582	396	60	911
Mitchell, Daniel W. and E. L., Southborough, Mass. Railway time-signal	481,581	Aug. 30	2977	730	60	1209
Mitchell, Elmer L. (See Mitchell, Daniel W. and E. L.)						
Mitchell, Isaac. (See Mitchell, John H. and I.)						
Mitchell, John F., *et al.* (See Walton, James, assignor.)						
Mitchell, John H. and I., Brockholes, near Huddersfield, England. Fulling-stock	479,605	July 26	2414	602	60	511
Mitchell, Joseph, assignor of one-fourth to M. James, Cayuga, Ind. Memorial monument	481,367	Aug. 23	2620	644	60	1123
Mitchell, Thomas, Wimbledon, England. Device for manufacturing linoleum floor-cloth	482,948	Sept. 20	1683	423	60	1690
Mitchell, Willis, Malden, assignor to Butterfield-Mitchell Electric Heating Company, Boston, Mass. Electrical brazing device	478,201	July 5	207	52	60	43
Mix & Genest. (See Oesterreich, Wilhelm, assignor.)						
Moe, Hiram G. (See Trumble, Chauncey B., assignor.)						
Moebius, Bernard, New York, N. Y. Treating base-bullion amalgam	480,956	Aug. 16	1922	481	60	979
Moffitt, John W., Philadelphia, Pa., assignor to P. McGill, Lambertville, N. J. Artificial tooth	482,377	Sept. 13	779	187	60	1501
Möhle, Aloys, Saarbrücken, Germany. Well-curbing	479,010	July 19	1455	361	60	313
Mohr, Benjamin F., Mifflinburg, Pa. Dust collector and conveyer	481,185	Aug. 23	2313	570	60	1067
Mollerup, Carl C. (See Adler, Hattie, assignor.)						
Monjeau, Cleophas, Middletown, Ohio. Sand-screen	482,020	Sept. 6	163	39	60	1367
Monday, Robert, assignor to W. C. Price, Lampasas, and L. J. Wertheimer, Dallas, Tex. Separable button	480,336	Aug. 9	945	239	60	774
Monday, Robert, Lampasas, assignor of one-half to L. J. Samuels and E. Domnau, Dallas, Tex. Sash-holder	480,337	Aug. 9	946	240	60	774
Monfort, D. G. (See Potter, Samuel A., assignor.)						
Monitor Packer Company. (See Hoadley, Isaac N., assignor.)						
Monk, Henry, Elsdon, Ill. Compound locomotive steam-engine	480,068	Aug. 9	1476	368	60	876
Monroe, Charles W., Cleveland, Ohio. Latch	481,910	Aug. 30	3524	862	60	1314
Monroe, Daniel L., Bloomfield, Iowa. Well-boring apparatus	481,636	Aug. 30	3060	747	60	1224
Monroe, David M., assignor to R. T. Smith, Baltimore, Md. Can-soldering machine	483,234	Sept. 27	2133	540 / 541	60	1792
Monroe Manufacturing and Lumber Company. (See Dodge, Henry B., assignor.)						
Montague, John R., and J. A. Pross, Syracuse, N. Y. Journal-bearing	480,025	Aug. 2	430	109	60	663
Montgomery, Thomas J., *et al.* (See Woolf, Albert E., assignor.)						
Moodey, Nathan W., Fresno, Cal. Miner's tool	479,444	July 26	2161	539	60	464
Moon, Edward W., St. Louis, Mo. Elevator	480,202	Aug. 2	708	181	60	716
Moon, Hiram, Red Creek, N. Y. Transplanter	482,314	Sept. 6	655	156	60	1463
Mooney, Herman O., assignor to United States Down Extractor Company, Farmington, N. H. Pneumatic grading and sorting machine	478,516	July 5	697	169 / 170	60	139
Mooney, Nicholas G., New York, N. Y. Horseshoe-pad	479,912	Aug. 2	202	50	60	622
Moore, David A., Guthrieville, and H. C. Moore, Berwyn, Pa. Handle	483,466	Sept. 27	2487	626	60	1860
Moore, Edward C., Detroit, Mich. Dental tool	478,881	July 12	1241	307	60	261
Moore, Edwin, Brooklyn, N. Y. Window-sash	480,203	Aug. 2	709	181	60	716
Moore, Erastus D., New York, N. Y. Electric annunciator	482,263	Sept. 6	550	133	60	1444
Moore, Everett D., assignor to American Oil Projectile Company, Baltimore, Md. Oil-projectile	478,705	July 12	967	240	60	208
Moore, Frank M., Spreckelsville, Hawaii. Globe-valve	481,803	Aug. 30	3346	819	60	1280
Moore, George B., Springfield, Mass. Valve	482,187	Sept. 6	439	105	60	1421
Moore, George M., and G. W. Steen, Commerce, Tex. Quilting-frame for sewing-machines	479,654	July 26	2492	621	60	525
Moore, George W., Jr., Lynchburg, Va. Mail-bag catcher	481,654	Aug. 30	3089	753	60	1230
Moore, Gilpin, assignor to Deere & Company, Moline, Ill. Cultivator	478,624	July 12	858	211	60	186
Moore, Gilpin, assignor to Deere & Company, Moline, Ill. Combined clevis and gage-wheel	481,186	Aug. 23	2316	570	60	1067
Moore, Harry C. (See Moore, David A. and H. C.)						
Moore, Hugh. Mauch Chunk, Pa. Car-coupling	479,717	July 26	2608	648	60	546
Moore, John F., Crowell, Nebr. Hay-rack	479,826	Aug. 2	83	21	60	598
Moore, John R., Louisville, Ky. Bedstead-exhibitor	479,894	Aug. 2	182	45	60	617
Moore, John V., Hiawatha, Kans. Tag for cloth-boards	478,938	July 12	1332	331	60	279
Moore, Thomas R., Walden, N. Y. Knife-blade machine	481,804	Aug. 30	3347	819	60	1280

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Moors, Newell J., *et al.* (See Abbott, Charles J., assignor.)						
Moran, Robert, Seattle, Wash. Hydraulic lifting-dock	481,411	Aug. 23	2098	663	60	1137
Morden, William J., Chicago, Ill. Railway construction	481,368	Aug. 23	2621	645	60	1123
Moreland, Lavoisier C., Ogilby, Cal. Amalgamator and ore-concentrator	479,140	July 19	1657	414	60	350
Moremen, Marcus S., Switzerland, Fla. Muzzle	478,882	July 12	1242	308	60	261
Morey, Albert E., assignor to Akron Tool Company, Akron, Ohio. Wheel-cultivator	479,913	Aug. 2	203	51	60	622
Morgan, Charles, Latah, Wash. Can-opener	479,011	July 19	1457	361	60	313
Morgan, Charles O., Morton, Minn. Perforating-machine	479,294	July 19	1880	473	60	395
Morgan, David S., Asheville, N. C. Roller-knife for trimming wall-paper	482,830	Sept. 20	1485	370	60	1652
Morgan, Francis H., Manchester, and G. H. Scott, assignors to Morgan Spring Company, Worcester, Mass. Spring-balance	479,718	July 26	2609	648	60	546
Morgan, John R. (See Morgan, Thomas R., Sr., J. R., T. R., Jr., and W. H.)						
Morgan, John R., *et al.* (See Morgan, William H., assignor.)						
Morgan, John R., assignor of three-fourths to T. R. Morgan, Sr. and Jr., and W. H. Morgan, Alliance, Ohio. Overhead traveling crane	478,803	July 12	1139	281 / 282	60	241
Morgan, John R., assignor of three-fourths to T. R. Morgan, Sr. and Jr., and W. H. Morgan, Alliance, Ohio. Overhead traveling crane	478,804	July 12	1141	282	60	242
Morgan, John R., assignor of three-fourths to T. R. Morgan, Sr., T. R. Morgan, Jr., and W. H. Morgan, Alliance, Ohio. Chain-block	483,161	Sept. 27	2018	510 / 511	60	1770
Morgan, John R., assignor of three-fourths to T. R. Morgan, Sr., T. R. Morgan, Jr., and W. H. Morgan, Alliance, Ohio. Brake for drums of overhead traveling cranes	483,467	Sept. 27	2488	626 / 627	60	1860
Morgan, Joseph N., Wallace, Ind. Gate	478,451	July 5	598	146	60	118
Morgan, S. W., *et al.* (See Vandament, George A., assignor.)						
Morgan, Silas J., La Grange, Ill. Milk-receiver	482,264	Sept. 6	560	133	60	1444
Morgan, Simon, Paterson, N. J. Card and Jacquard machine protector	479,895	Aug. 2	183	45	60	618
Morgan Spring Company. (See Morgan and Scott, assignors.)						
Morgan, Thomas R., Sr., *et al.* (See Morgan, John R., assignor.)						
Morgan, Thomas R., Sr., *et al.* (See Morgan, William H., assignor.)						
Morgan, Thomas R., Sr., J. R., T. R., Jr., and W. H., Alliance, Ohio. Mortar-mounting	479,764	July 26	2092	669 / 670	60	562
Morgan, William H. (See Morgan, Thomas R., Sr., J. R., T. R., Jr., and W. H.)						
Morgan, William H., *et al.* (See Morgan, John R., assignor.)						
Morgan, William H., assignor of three-fourths to T. R. Morgan, Sr. and Jr., and J. R. Morgan, Alliance, Ohio. Mortar-mounting	479,445	July 26	2162	539 / 540	60	464
Morgan, William H., assignor of three-fourths to T. R. Morgan, Sr. and Jr., and J. R. Morgan, Alliance, Ohio. Mortar-mounting	479,446	July 26	2164	540 / 541	60	464
Mori, Fredrick. (See Atkinson, Ravenshaw, and Mori.)						
Morley, John. (See Jennings and Morley.)						
Morrell, Lewis E., *et al.* (See Marty, Frank, assignor.)						
Morrill, George W., assignor of one-half to E. H. Rollins, Alton, S. A. Edgerly and C. F. Piper, Wolfborough, N. H. Lasting-pinchers	480,433	Aug. 9	1104	276	60	802
Morrill, Osgood. (See Wells, Harlan P., assignor.)						
Morris, Arthur, Rockefeller, Ill. Hand-binder	483,468	Sept. 27	2491	627	60	1860
Morris, Charles W., *et al.* (See Smith, Wesley, assignor.)						
Morris, Charles W., Jr., trustee, *et al.* (See Smith, Wesley, assignor.)						
Morris, George M., Cincinnati, Ohio. Cloth-holder	479,914	Aug. 2	205	51	60	622
Morrison, George E., and W. A. Dye, Jr., Edgerton, Kans. Device for converting motion	482,584	Sept. 13	1199	268	60	1566
Morrison, Hamon, assignor of one-half to G. W. Campbell and J. H. Vaughn, Morantown, Kans. Corn-harvester	482,186	Sept. 6	438	105	60	1421
Morrison, James. (See Shipe, Walter S., assignor.)						
Morrison, John H., Salida, Colo. Vaginal syringe	478,202	July 5	209	52	60	43
Morrison, Walter G., Willimantic, Conn. Device for driving spindles	479,896	Aug. 2	184	45	60	618
Morrow, Edward A., and J. Wilson, Chester, Ark. Automatic railway-gate	479,295	July 19	1890	473 / 474	60	306
Morrow, Wesley, Millbrook, Canada. Flax-harvester	480,434	Aug. 9	1105	276	60	802
Morse, Cyrus B. (See Bowman, Rose, and Morse.)						
Morse, George D., and M. Chase, Haverhill, Mass. Type-plate and blank for the same	480,933	Aug. 16	1880	469	60	972
Morss, Charles A. (See Vogler, William, assignor.)						
Morss, Stephen B., Rahway, N. J. Sash-holder	481,622	Aug. 30	3040	742	60	1220
Mortimer, John D. D., Stockton, Cal. Shipping receipt-book	482,047	Sept. 6	206	49	60	1375
Morton, Alexander and J., Darvel, Scotland. Figured woven fabric	483,078	Sept. 20	1878	476	60	1731
Morton, Augustus, assignor to Bridgeport Brass Company, Bridgeport, Conn. Bicycle-bell	480,026	Aug. 2	432	109	60	664
Morton, George K., St. Thomas, Canada. Wallet	479,655	July 26	2493	621	60	525
Morton, James. (See Morton, Alexander and J.)						
Morton, Samuel S. (See Farquhar, Eisenhart, and Morton.)						
Moschek, Anton, *et al.* (See Auchman, Ferdinand, assignor.)						
Moses, Frank D., assignor to Universal Gas Construction Company, Chicago, Ill. Manufacturing gas	479,293	July 19	1887	473	60	395
Moskovits, Maximilian H. (See Mason and Moskovits.)						
Moskowitz, Morris. (See Young and Moskowitz.)						
Moskowitz, Morris. (See Young, Moskowitz, Adler, and Loewenberg.)						
Mosler Safe and Lock Company. (See Kaiser, John X., assignor.)						
Moss, John R., Webster, Pa. Elevator	478,263	July 5	325	78, 79	60	65
Moss, Julian, assignor of two-thirds to E. R. Blanchard and H. B. White, Detroit, Mich. Oscillating engine	479,012	July 19	1458	362 / 363	60	313
Mossberg, Frank, assignor to Mossberg Manufacturing Company, Attleborough, Mass. Machine for closing the edges of studs, &c	478,517	July 5	700	170	60	139
Mossberg, Frank, assignor to Mossberg Manufacturing Company, Attleborough, Mass. Wrench	482,021	Sept. 6	164	39	60	1367
Mossberg, Frank, assignor to Mossberg Manufacturing Company, Attleborough, Mass. Wrench	482,749	Sept. 20	1370	339	60	1628
Mossberg Manufacturing Company. (See Mossberg, Frank, assignor.)						
Mosser, Samuel T., Abingdon, Ill. Button-exhibitor	483,469	Sept. 27	2493	628	60	1860
Mothershed, Thomas B., Corsicana, Tex. Stove-flue cleaner	479,447	July 26	2165	541	60	465
Motter, Jacob V., Brooklyn, N. Y. Driving mechanism for cars	479,915	Aug. 2	206	52	60	622
Mottinger, Noah W., Akron, Ohio, assignor of one-half to S. Mottinger, Suffolk, Va. Hinge	481,044	Aug. 16	2050	514	60	1006
Moulton, Alvin D. (See Beardsley, Moulton, and Wurth.)						
Moxham, Arthur J., Johnstown, Pa. Chair for railway-rails	482,801	Sept. 20	1447	359	60	1644
Moxham, Arthur J., Johnstown, Pa. Railway-rail chair	482,802	Sept. 20	1448	359	60	1644

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Moxham, Arthur J., Johnstown, Pa. Channel-rail and chair	482,803	Sept. 20	1449	359	60	1644
Moxham, Arthur J., Johnstown, Pa. Railway-rail chair and making the same	482,804	Sept. 20	1450	360	60	1644
Moxham, Arthur J., Johnstown, Pa. Combined railway-rail and chair and making the same	482,805	Sept. 20	1451	360	60	1645
Muehlmatt, Adolph, Newport, Ky. Engraver's block	481,238	Aug. 23	2402	593	60	1084
Mueller, David, New York, N. Y., assignor to Bottlers' and Brewers' Machine Manufacturing Company. Power bottle-corking machine	482,454	Sept. 13	898	217, 218	60	1523
Mueller, John B., Streator, Ill. Horse-collar	478,452	July 5	599	146	60	118
Muhlfeld, Henry J., and F. J. Spillane, New York, N. Y. Easel attachment for chairs and other supports	481,045	Aug. 16	2060	514	60	1007
Muhlfelder, David, administrator. (See Mayes, Thomas.)						
Muir, James A. (See Blalock and Muir.)						
Muir, James A., Huntsville, Tex. Book-support	481,505	Aug. 23	2847	700	60	1168
Mullaly, John, and L. L. Bullock, New York, N. Y. Surface-printing plate	483,498	Sept. 27	2532	637	60	1869
Mullen, Charles H. (See Derbyshire and Mullen.)						
Mullen, William J., New York, N. Y. Gas-radiator	480,117	Aug. 2	569	144	60	691
Muller, Bernhard, assignor of one-half to B. Strauss, New York, N. Y. Box-nailing machine	480,735	Aug. 16	1582	396, 397	60	912
Müller, Frank X. (See Boehringer and Müller.)						
Müller, Franz, Berlin, Germany. Automatic coin-actuated telephone	483,162	Sept. 27	2019	511	60	1770
Muller, George, Hoboken, N. J. Cable-railway curve	481,412	Aug. 23	2699	663, 664	60	1138
Muller, George, Hoboken, N. J. Cable-traction system	481,413	Aug. 23	2703	664, 665	60	1139
Müller, Johann L., Leipsic, Germany. Action for mechanical musical instruments	480,854	Aug. 16	1763	441	60	949
Müller, Rudolf, Reiherstieg, Hamburg, Germany. Steam-boiler and furnace	483,260	Sept. 27	2206	554	60	1805
Müller, Wilhelm J., Ehrenberg, Germany. Apparatus for kneading dough and shaping it into loaves	479,827	Aug. 2	84	21	60	598
Mumford, Edgar H., Detroit, Mich. Electric steering-gear	479,828	Aug. 2	85	21, 22	60	598
Mundry, Peter. (See Gallant, John W., assignor.)						
Munger, Robert S., Birmingham, Ala. Machine for handling, cleaning, and distributing seed-cotton	478,883	July 12	1244	308, 309	60	261
Munger, Royal L., and T. R. Capwell, assignors to Dunkirk Wagon Company, Dunkirk, N. Y. Vehicle-brake mechanism	478,966	July 12	1379	330	60	287
Munn, H. L., *et al.* (See Brown, Charles D., assignor.)						
Munroe, Paul H., Plainfield, Ill. Potato-harvester	480,776	Aug. 16	1643	411	60	924
Munroe, Robert and Robert, Jr., Allegheny, Pa. Water-tube boiler	478,756	July 12	1053	259	60	225
Munsch, Bernhard H., Hastedt, near Bremen, assignor to W. and A. Osenbrück, Hemelingen, Germany. Gas-compressor for refrigerating-machines	482,876	Sept. 20	1560	389	60	1667
Munson, Corydon W., Toledo, Ohio. Bicycle-exhibiting device	478,805	July 12	1144	283	60	242
Munson, Robert L., Silver City, N. Mex. Ter. Car-coupling	480,118	Aug. 2	570	145	60	691
Munton, James, Maywood, Ill. Mold for casting steel car-couplings	482,687	Sept. 13	1260	307, 308	60	1594
Munton, James, Maywood, Ill. Metallic mold for casting draw-bars	482,688	Sept. 13	1262	308, 309	60	1595
Munz, Charles W., assignor of one-half to W. Williams, Detroit, Mich. Extension-table	483,361	Sept. 27	2314	589	60	1831
Munz, Theodore C., Toledo, Ohio. Wheel	482,806	Sept. 20	1452	360	60	1645
Murch, Alfred, West Fitchburg, Mass. Means for operating the picker-staffs of looms	478,453	July 5	600	146	60	118
Murdock, Edwin H., Cincinnati, Ohio. Cash register and indicator	480,957	Aug. 16	1924	481, 482	60	979
Murdock, Edwin H., Cincinnati, Ohio. Conductor's trip-slip	481,369	Aug. 23	2622	645	60	1123
Murphey, John S., Greensburg, assignor of one-half to W. J. Johnston, Pittsburg, Pa. Shoe-lace fastener	478,122	July 5	66	17	60	15
Murphey, William R. (See Wendell, Isaac P. and H. A., assignors.)						
Murphy, Daniel H., Hartford, Conn. Commode	479,897	Aug. 2	185	45, 46	60	618
Murphy, Daniel W., Marion, Ohio. Annealing-oven	482,048	Sept. 6	207	49	60	1376
Murphy, Junius A., New Orleans, La. Hair-curling machine	480,605	Aug. 9	1369	340	60	855
Murphy, Thomas, Sewickley, Pa. Method of and apparatus for equalizing links	478,454	July 5	601	146	60	119
Murray, George, assignor to Johnson Company, Johnstown, Pa. Brace-chair for railway-rails	478,806	July 12	1145	283	60	242
Murray, George, assignor to Johnson Company, Johnstown, Pa. Brace-chair for railways	482,807	Sept. 20	1452	360, 361	60	1645
Murray, John J. (See Hays, James C., assignor.)						
Murray, Samuel, assignor of one-half to W. F. Murray, San Francisco, Cal. Rope-guiding sheave	479,296	July 19	1893	474	60	396
Murray, William F. (See Murray, Samuel, assignor.)						
Musgrove, Joseph, assignor to Gender & Paeschke Manufacturing Company, Milwaukee, Wis. Cover-holder for tea-kettles, &c.	478,967	July 12	1379	339	60	287
Mussey, Eugene K., *et al.* (See Weller, George L., assignor.)						
Musso, Emma, Vineland, N. J. Skewer or needle for closing fowls, &c	482,969	Sept. 20	1713	432	60	1696
Mutimer, Frederick, assignor of one-half to Rockford Bolt Works, Rockford, Ill. Bolt-threading machine	480,204	Aug. 2	709	181	60	716
Myers, Alvie, Melmore, Ohio. Clutch	481,046	Aug. 16	2062	514	60	1007
Myers, Charles E. (See Jones and Myers.)						
Myers, George F., Pittsburg, Pa. System of electric lighting	480,372	Aug. 9	1004	252, 253	60	785
Myers, George F., Pittsburg, Pa. Mining-machine	481,187	Aug. 23	2317	570	60	1068
Myers, Harry E. (See Krouse, Myers, and Girard.)						
Myers, John A., Louisville, Ky. Piston meter	480,606	Aug. 9	1370	340, 341	60	855
Myers, John F., San Francisco, Cal. Cooking, heating, and illuminating lamp-stove	481,768	Aug. 30	3391	801	60	1269
Myers, John V., Industry, Ill. Thill-coupling	483,261	Sept. 27	2206	554	60	1805
Myrick, Joseph A., Salisbury, N. C. Bleaching	481,414	Aug. 23	2706	665	60	1139
N. O. Nelson Manufacturing Company. (See Case and Hendrick, assignors.)						
Nace, Thomas H., Chicago, Ill. Engine-governor	480,778	Aug. 16	1645	412	60	925
Naegele, Charles F., New York, N. Y. Fastener for picture-frames	481,117	Aug. 16	2186	541	60	1029
Nagel, Eduard, Hoboken, N. J. Water-heater	479,141	July 19	1659	415	60	350
Nashua Iron and Brass Foundry Company. (See Caswell, Alvin C., assignor.)						
Nashua Saddlery Hardware Company. (See Taber, Orrin, assignor.)						
Nason, Carleton W., and C. H. Leinert, New York, N. Y. Refrigerating apparatus	482,268	Sept. 6	567	134, 135	60	1445
Nation, Edmund C., Peekskill, assignor to himself, and E. Waugh, Brooklyn, N. Y. Apparatus for making bleaching-powder	480,028	Aug. 2	434	110	60	664

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
National Ammonia Company. (See Dreiscerner, Jacob, assignor.)						
National Cash Register Company. (See Blanchard, Allen L., assignor.)						
National Cash Register Company. (See Carney, Thomas, assignor.)						
National Cash Register Company. (See Lord, Charles E., assignor.)						
National Cash Register Company. (See Parkhurst and Ham, assignors.)						
National Cash Register Company. (See Pfeifer, John, assignor.)						
National Company. (See Heermans, Thaddeus W., assignor.)						
National Company. (See Reynolds, George H., assignor.)						
National Hollow Brake Beam Company. (See Hien, Philip, assignor.)						
National Machine Works. (See Hertel, Max, assignor.)						
National Manufacturing Company. (See Derlon, Arthur C., assignor.)						
National Needle Company. (See Berry, John, assignor.)						
National Tube Works Company. (See Dodge, Walter E., assignor.)						
National Worsted Mills. (See Shanahan, John J., assignor.)						
Navarre, A. F. (See Warner, John P., assignor.)						
Navone, Antonio L., Calistoga, Cal. Saw-swaging device	478,886	July 12	1254	310	60	263
Neal, Fred H., and J. R. Donnelly, Fairfield, Me. Burglar-alarm	480,340	Aug. 9	948	240	60	775
Nebel, John, Charlton, assignor to Siemens Brothers & Co., Limited, Westminster, England. Armature for dynamo-electric machines	482,265	Sept. 6	562	133	60	1444
Neff, Chapin C., Good Hope, Ill. Car-coupling	478,125	July 5	69	18	60	16
Negri, Constantine de. (See Williamson and Negri.)						
Negus, John S., Brooklyn, N. Y. Ship's log	281,241	Aug. 23	2407	594	60	1085
Nehring, William, Evansville, Ind. Lock	482,970	Sept. 20	1714	433	60	1696
Neil, Albert A. (See Daily and Neil.)						
Neill, Robert J., Elizabeth, N. J. Sectional-top folding table	482,525	Sept. 13	1023	247	60	1549
Neily, Charles C., Boston, Mass. Gymnastic apparatus	481,807	Aug. 30	3352	820	60	1281
Neimeyer, John, assignor to D. Shafer, Hamilton, Ohio. Saw-handle	480,856	Aug. 16	1765	412	60	949
Nelms, Alexander P., Georgetown, Tex. Nut-lock	482,949	Sept. 20	1684	424	60	1690
Nelson, Charles, Axtell, Nebr. Wagon-box	478,706	July 12	968	240, 241	60	208
Nelson, Hans. (See Christensen and Nelson.)						
Nelson, Irenaeus P., assignor of one-half to G. F. McCulloch, Muncie, Ind. Jar-sealing device	478,126	July 5	70	18	60	16
Nelson, Peter H., assignor to S. H. Sinclair Company, Chicago, Ill. Combined gas generator and heater	480,436	Aug. 9	1106	277	60	802
Neri, Contento, Friendship, Me. Surface-gage	480,959	Aug. 16	1928	482	60	980
Nesom, Thomas. (See Crahan and Nesom.)						
Ness, Arthur, Middlesbrough-on-Tees, England. Lubricator	482,560	Sept. 13	1078	262	60	1559
Neth, George J., assignor of one-half to J. Gress, Dayton, Ohio. Double-acting pump	482,692	Sept. 13	1270	311	60	1596
Neubert, Ernst. (See Rosenbaum and Neubert.)						
Neumann, John, Brooklyn, N. Y. Pump valve and case	479,299	July 19	1897	475	60	397
Neumann, Peter T., Galion, Ohio. Traction-engine	479,532	Aug. 2	88	29	60	599
Nevegold, Fred, Columbia, Pa. Metal-rolling mill	480,609	Aug. 9	1375	342	60	857
Nevins, William S., Terre Haute, Ind. Folding bed	482,266	Sept. 6	563	133	60	1444
New Bremen Machine Company. (See Titus, John C., assignor.)						
New Departure Bell Company. (See Rockwell, Edward D., assignor.)						
New Haven Clock Company. (See Porter, Wilson E., assignor.)						
New York and Pennsylvania Company. (See Armstrong, Lewis D., assignor.)						
New York Air Brake Company. (See Manning, Harry G., assignor.)						
New York Filter Company. (See Blessing, James H., assignor.)						
Newark Watch Case Material Company. (See Arthur, Charles, assignor.)						
Newberry, James J., Round Mountain, Ala. Suspended rack	479,523	July 26	2301	515	60	490
Newbury, James G., Coxsackie, N. Y. Molding-flask	482,063	Sept. 6	227	54	60	1379
Newcomb, Henry, Corinth, Miss. Shoe	482,134	Sept. 6	340	81	60	1402
Newell, James L., assignor to W. B. and E. W. Pelton, Ashland, W. H. Webb, Superior, and A. C. Bossard, Kaukauna, Wis. Watch	479,376	July 19	2034	507	60	424
Newhall, George M., and C. L. Hamilton, Philadelphia, Pa. Black-ash dissolver	478,630	July 12	868	213, 214	60	187
Newman, Ira W., Toledo, Ohio. Addressing attachment for printing-presses	479,917	Aug. 2	208	53	60	623
Newman, Socrates, *et al.* (See Coze and Lencauchez, assignors.)						
Newton, Andrew L., assignor of one-half to M. A. Evans, Norwich, Conn. Mortising-auger	479,377	July 19	2035	508	60	424
Newton, Arthur, *et al.* (See Newton, John M., assignor.)						
Newton, Frederick P., *et al.* (See Garland, Frank. M., assignor.)						
Newton, George, Chicago, Ill. Automatic steam-damper regulator	478,127	July 5	71	19	60	16
Newton, George, New York, N. Y. Bearing for balance-staffs of timepieces	482,585	Sept. 13	1110	268	60	1566
Newton, John M., assignor of five-twelfths to J. E. Gimson and A. Newton, Stalybridge, England. Apparatus for producing lettering, &c., in relief on sheets of ductile metal	482,267	Sept. 6	565	134	60	1445
Newton, Miron W., Battle Creek, Mich. Exercising apparatus	480,271	Aug. 9	844	215	60	756
Newton, Nelson A., Kalamazoo, Mich. Carriage-gear coupling	478,128	July 5	72	19	60	16
Newton, Robert, Providence, R. I. Sewer-trap	478,808	July 12	1147	284	60	243
Newton, Robert W., Providence, R. I. Automatic sprinkler	478,809	July 12	1148	284	60	243
Neynaber, Charles, *et al.* (See Meyer, Henry, assignor.)						
Nichless, Anthony, Baileyville, Ill. Truck	483,006	Sept. 20	1771	448	60	1708
Nichols, Alvin L., Grove City, Ohio. Tally-sheet	479,449	July 26	2166	542	60	465
Nichols, Emory I., San Francisco, Cal. Ignitor for gas-engines	480,272	Aug. 9	845	215	60	756
Nichols, Grant B., Wapakoneta, Ohio. Toy mortar	481,808	Aug. 30	3354	821	60	1281
Nichols, Mathew S., Central Village, Conn. Dental-disk carrier	480,121	Aug. 2	573	145	60	691
Nichols, Perrin W. (See Spofford, Jason, Jr., assignor.)						
Nichols, Robert F., Sr., Alturas, Cal. Motor	479,570	July 26	2368	590, 591, 182	60	502
Nichols, William K., San Francisco, Cal. Cash-register	480,208	Aug. 2	718	183, 184	60	718
Nicholson, Andrew B., deceased, New York, N. Y.; E. F. Nicholson, administratrix. Opera-glass holder	478,350	July 5	455	111	60	91
Nicholson, Ethel F., administratrix. (See Nicholson, Andrew B.)						
Nicholson, Francis H. (See Nicholson, Josiah and F. H.)						
Nicholson, Jacob H., assignor to Roanoke Wood Novelty Company, Roanoke, Va. Swing	479,524	July 26	2302	575	60	490
Nicholson, Josiah and F. H., Belvidere, N. C. System of drainage	483,236	Sept. 27	2138	541	60	1793
Nielson, Walter, New York, N. Y. Skate	480,610	Aug. 9	1376	342	60	857
Niemczyk, Anton, Leipsic, Germany. Gas or petroleum motor	480,737	Aug. 16	1589	397	60	913
Niles, Milton C., Oak Park, Ill. Rail-joint	480,506	Aug. 9	1217	304	60	826

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Niles & Scott Company. (See Scott, Emmet H., assignor.)						
Nilson, Nils, Minneapolis, assignor of one-half to E. F. Quackenbush, Le Sueur, Minn. Steam-trap	483,119	Sept. 20	1942	491	60	1744
Nithack, Gustav, Obernigk, near Breslau, Germany. Label-holder	480,857	Aug. 16	1766	442	60	949
Nittinger, August, Sr., Philadelphia, Pa. Hog-scraper and claw-hook	485,713	Nov. 8	2	1	60	1

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass.	482,063	Sept. 6	227	54	60	1379
Oakes, Thomas F., Sherbrooke, Canada. Car-coupling	480,858	Aug. 16	1767	442	60	949
Oakley, Thomas J., Chicago, Ill. Electric-arc lamp	480,859	Aug. 16	1768	442	60	949
Oberlin, Jacob, Philadelphia, Pa. Cartridge-shell	482,808	Sept. 20	1454	361	60	1645
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,860	Aug. 16	1769	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,861	Aug. 16	1770	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,862	Aug. 16	1771	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,863	Aug. 16	1772	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,864	Aug. 16	1773	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,865	Aug. 16	1774	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,866	Aug. 16	1775	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,867	Aug. 16	1776	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,868	Aug. 16	1777	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,869	Aug. 16	1778	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,870	Aug. 16	1779	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,871	Aug. 16	1780	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,872	Aug. 16	1781	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,873	Aug. 16	1782	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,874	Aug. 16	1783	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,875	Aug. 16	1784	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,876	Aug. 16	1785	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,877	Aug. 16	1786	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,878	Aug. 16	1787	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,879	Aug. 16	1788	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,880	Aug. 16	1789	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,881	Aug. 16	1790	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,882	Aug. 16	1791	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,883	Aug. 16	1792	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,884	Aug. 16	1793	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,885	Aug. 16	1794	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,886	Aug. 16	1795	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,887	Aug. 16	1796	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,888	Aug. 16	1797	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,889	Aug. 16	1798	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,890	Aug. 16	1799	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,891	Aug. 16	1800	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,892	Aug. 16	1801	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,893	Aug. 16	1802	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,894	Aug. 16	1803	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,895	Aug. 16	1804	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,896	Aug. 16	1805	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,897	Aug. 16	1806	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,898	Aug. 16	1807	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,899	Aug. 16	1808	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,900	Aug. 16	1809	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,901	Aug. 16	1810	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,902	Aug. 16	1811	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,903	Aug. 16	1812	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,904	Aug. 16	1813	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,905	Aug. 16	1814	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,906	Aug. 16	1815	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,907	Aug. 16	1816	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,908	Aug. 16	1817	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,909	Aug. 16	1818	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,910	Aug. 16	1819	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,911	Aug. 16	1820	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,912	Aug. 16	1821	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,913	Aug. 16	1822	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,914	Aug. 16	1823	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,915	Aug. 16	1824	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,916	Aug. 16	1825	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,917	Aug. 16	1826	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,918	Aug. 16	1827	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,919	Aug. 16	1828	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,920	Aug. 16	1829	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,921	Aug. 16	1830	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,922	Aug. 16	1831	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,923	Aug. 16	1832	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,924	Aug. 16	1833	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,925	Aug. 16	1834	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,926	Aug. 16	1835	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,927	Aug. 16	1836	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,928	Aug. 16	1837	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,929	Aug. 16	1838	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,930	Aug. 16	1839	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,931	Aug. 16	1840	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,932	Aug. 16	1841	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,933	Aug. 16	1842	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,934	Aug. 16	1843	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,935	Aug. 16	1844	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,936	Aug. 16	1845	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,937	Aug. 16	1846	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,938	Aug. 16	1847	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,939	Aug. 16	1848	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,940	Aug. 16	1849	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,941	Aug. 16	1850	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,942	Aug. 16	1851	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,943	Aug. 16	1852	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,944	Aug. 16	1853	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,945	Aug. 16	1854	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,946	Aug. 16	1855	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,947	Aug. 16	1856	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,948	Aug. 16	1857	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,949	Aug. 16	1858	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,950	Aug. 16	1859	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,951	Aug. 16	1860	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,952	Aug. 16	1861	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,953	Aug. 16	1862	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,954	Aug. 16	1863	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,955	Aug. 16	1864	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,956	Aug. 16	1865	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,957	Aug. 16	1866	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,958	Aug. 16	1867	443	60	949
Obermeyer, Henry, Jersey City, N. J. Pipe-coupling	480,959	Aug

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Niles & Scott Company. (See Scott, Emmet H., assignor.)						
Nilson, Nils, Minneapolis, assignor of one-half to E. F. Quackenbush, Le Sueur, Minn. Steam-trap	483,110	Sept. 20	1942	491	60	1744
Nithack, Gustav, Obernigk, near Breslau, Germany. Label-holder	480,857	Aug. 16	1766	449	60	949
Nittinger, August, Sr., Philadelphia, Pa. Hog-scraper and claw-hook	478,810	July 12	1150	284	60	243
Nivois, Victor, Brooklyn, N. Y. Watch-case	481,809	Aug. 30	3355	891	60	1281
Nixon, William H., Plymouth, Ind. Weather-strip	482,022	Sept. 6	165	40	60	1308
Noblet, Charles H., assignor of one-half to H. Albright, Bucyrus, Ohio. Roller for clod crushers or pulverizers	483,007	Sept. 20	1772	448	60	1709
Nolen, James G. (See Richter and Nolen.)						
Nolen, Stephen A., McCrory, Ark. Harness-saddle	478,205	July 5	213	53	60	44
Noll, Augustus, Mount Vernon, N. Y., assignor to A. J. Tower, trustee, Boston, Mass. Conduit for electric conductors	481,912	Aug. 30	3526	863	60	1314
Noll, Augustus, Mount Vernon, N. Y., assignor to A. J. Tower, trustee, Boston, Mass. Conduit for electric conductors	481,913	Aug. 30	3527	863	60	1315
Noll, Augustus, Mount Vernon, N. Y., assignor to A. J. Tower, trustee, Boston, Mass. Electric-circuit connection	481,914	Aug. 30	3528	863	60	1315
Nonantum Worsted Company. (See Ballantyne, James L., assignor.)						
Norcross, David P., Wilton, N. J. Alarm	480,273	Aug. 9	846	215	60	756
Nordberg, Bruno V., assignor to Bruno Nordberg Company, Milwaukee, Wis. Air-pump for condensers	182 315	Sept. 6	656	157	60	1464
Norfolk, Frederick C., Des Moines, assignor to Norfolk Manufacturing Company, Ottumwa, Iowa. Perfumed starch and making the same	480,669	Aug. 9	1479	.....	60	876
Norfolk Manufacturing Company. (See Norfolk, Frederick C., assignor.)						
Noriega, Eloy, Mexico, Mexico. Microphone	481,048	Aug. 16	2064	515	60	1007
Noriega, Eloy, Mexico, Mexico. Telephone	481,049	Aug. 16	2065	515	60	1007
Noriega, Eloy, Mexico, Mexico. Microphone	481,050	Aug. 16	2066	516	60	1008
Noriega, Eloy, Mexico, Mexico. Telephone	481,051	Aug. 16	2066	516	60	1008
Norman, William W. (See Horn, George W. and J. L., assignors.)						
Norrington, Henry H., West Bay City, Mich. Perforating-punch	481,583	Aug. 30	2979	731	60	1209
Norris, Henry D., *et al.* (See Shaw, Charles H., assignor.)						
Norrman, Godfrey L., Atlanta, Ga. Jail-grating	481,915	Aug. 30	3530	864	60	1315
North, Charles M., Montclair, N. J., assignor to Lidgerwood Manufacturing Company, New York, N. Y. Conveying apparatus	480,029	Aug. 2	436	110	60	664
North, George W., Clarkes, Oreg. Clothes-drier	482,269	Sept. 6	570	135	60	1446
Northam, Edgar R., Raleigh, N. C. Yard-stick holder	481,188	Aug. 23	2318	571	60	1068
Northampton Cutlery Company. (See Feicker, Fredrick C., assignor.)						
Northcott, T. C. (See Lake, Judson N., assignor.)						
Northcott, T. C., *et al.* (See Clark, Jasper, assignor.)						
Northrop, Blancher D., *et al.* (See Huggins, Ulysses S., assignor.)						
Northrup, Blancher D., Washington, Pa. Valve	479,450	July 26	2168	542	60	465
Norton, Arthur O. (See Sleeper, Francis H., assignor.)						
Norton, Edwin, *et al.* (See Curtis, Lewis E., assignor.)						
Norton, Edwin, *et al.* (See Foote, John B., assignor.)						
Norton, Edwin, Maywood, assignor to himself, and O. W. Norton, Chicago, Ill. Die for drawing sheet metal	483,008	Sept. 20	1773	449	60	1709
Norton, Elphalet C., Belvidere, Ill. Windmill-regulator	483,080	Sept. 20	1881	476	60	1731
Norton, Joshua, Jr., Chatham, Canada. Acid-resisting composition for lining tanks	480,934	Aug. 16	1881	.....	60	972
Norton, Oliver W. (See Norton, Edwin, assignor.)						
Norton, Oliver W., *et al.* (See Curtis, Lewis E., assignor.)						
Norton, Oliver W., *et al.* (See Foote, John B., assignor.)						
Norton, Sheldon. (See Ball and Norton.)						
Norwegian Siphon Company. (See Hilditch, Jacob, assignor.)						
Norwood, John E., Sykesville, Md. Ball-bearing for railway-cars	478,351	July 5	457	112	60	92
Noxon, Thomas H., Ingersoll, Canada. Driving-gear for seeding-machines	481,539	Aug. 23	2909	714	60	1180
Noyes, Edward P., Boston, Mass. Plug-calk for horseshoes	480,611	Aug. 9	1377	342	60	857
Nudd, Thomas E., *et al.* (See Lee, George B., assignor.)						
Nugent, John P., Dubuque, Iowa. Planter attachment for plows	481,242	Aug. 23	2408	594, 595	60	1086
Nye, Freeman M., Bellevue, Ohio. Railway-switch signal	480,825	Aug. 16	1723	430, 431	60	940
Nye, Henry C. (See Larsen, August, assignor.)						
O'Brien, Stephen, New York, N. Y. Forming-machine for sheet-metal articles	481,362	Sept. 27	2345	590	60	1831
O'Connor, Daniel J., Columbus, Ga. Automatic grain-weigher	481,810	Aug. 30	3356	821	60	1261
O'Connor, Edmund, *et al.* (See Leahy, Matthew, assignor.)						
O'Connor, James J., assignor of one-half to J. J. McDermott, Oakville, Canada. Sash-balance	478,352	July 5	459	112	60	92
O'Connor, Thomas F., New York, N. Y., and J. W. Marsh, assignors to Standard Underground Cable Company, Pittsburg, Pa. Means for drawing cables into conduits	482,270	Sept. 6	571	135	60	1446
O'Connor, William P., Milwaukee, Wis. Hat-ventilator	482,429	Sept. 13	858	206	60	1516
O'Dell, Stephen E., and C. Van Liew, Cedar Springs, Mich. Buggy spring-gearing	480,274	Aug. 9	847	215	60	757
O'Donnell, David J., Grafton, Nebr. Cab	479,300	July 19	1898	475	60	397
O'Donnell, Martin J., W. C. Smith, and H. Bound, Cleveland, Ohio. Safety attachment for elevators	478,169	July 5	157	40	60	33
O'Donnell, Michael J., assignor of three-fourths to G. G. Brandenburg and G. R. Walker, Chicago, Ill. Velocipede	481,118	Aug. 16	2138	542	60	1030
O'Grady, Gerald de C., and J. R. Collins, Toronto, Canada. Coin-holder	480,960	Aug. 16	1929	483	60	980
O'Hara, William, Middletown, Conn. Pocket-knife	478,812	July 12	1152	285	60	244
O'Malley, John P., Manistee, Mich. Addressing-machine	481,052	Aug. 16	2067	510	60	1008
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register and indicator	480,122	Aug. 2	374	146	60	692
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register and indicator	480,123	Aug. 2	376	146, 147	60	692
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register, indicator, and check-printer	480,124	Aug. 2	378	147, 148	60	692
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register and indicator	480,125	Aug. 2	783	148, 149	60	693
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register and indicator	480,126	Aug. 2	586	149	60	694
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register and indicator	480,612	Aug. 9	1378	342, 343	60	857
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register and indicator	480,613	Aug. 9	1383	343, 344	60	858
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash-register	480,614	Aug. 9	1387	344, 345	60	859

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register and indicator	480,615	Aug. 9	1388	345, 346	60	859
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash-register	480,616	Aug. 9	1390	346	60	859
O'Neill, Henry G., Louisville, Ky., assignor to Standard Register Company, Boston, Mass. Cash register, indicator, and check-printer	480,617	Aug. 9	1392	347	60	860
O'Neil, William, *et al.* (See Soley and Perkins, assignors.)						
O'Rourke, John F., New York, N. Y. Caisson	480,127	Aug. 2	587	149, 150	60	694
O'Toole, Richard. (See Loy and O'Toole.)						
Oakey, John M., Salem, Va. Truss	481,584	Aug. 30	2981	731	60	1209
Obear, Clarence C., St. Louis, Mo. Tennis-glove	482,647	Sept. 13	1197	290	60	1582
Obetz, H. L. (See Hicks, Thomas H., assignor.)						
Odgers, John B., assignor to A. M. Collins Manufacturing Company, Philadelphia, Pa. Feeding device for card-punching presses	482,981	Sept. 20	1731	437, 438	60	1700
Odorizzi, Joseph, assignor to Forbes Mine Car Appliance Company, Trinidad, Colo. Dump-car	481,811	Aug. 30	3359	822	60	1282
Oehlstrom, William, Cleveland, Ohio. Smoke-consuming furnace	483,237	Sept. 27	2139	542	60	1793
Oehring, August J., Chicago, Ill. Universal joint	478,811	July 12	1151	285	60	244
Oehrle, Emanuel, assignor to J. W. Bedford, Omaha, Nebr. Machine for making cement pipes	479,451	July 26	2169	543, 544	60	466
Oerther, Charles, and J. W. Dillingham, Blue Springs, Mo. Mole-trap	481,585	Aug. 30	2982	732	60	1210
Oerzen, Eleanor E., New York, N. Y. Tin can	479,015	July 19	1461	364	60	314
Oesterreich, Wilhelm, assignor to Mix & Genest, Berlin, Germany. Telephone-switchboard	479,107	July 19	1601	400, 401	60	340
Offermann, Hubert L., Leipsic, and G. Ziegler, deceased, Mulhouse, Germany; Land Title and Trust Company, administrator. Combing-machine	481,812	Aug. 30	3359	822, 823, 824	60	1282
Officer, Alexander V. (See Russell and Minor, assignors.)						
Ogborn, Harrison, Richmond, assignor of one-half to W. J. Shinn, Indianapolis, Ind. Washing-machine	478,707	July 12	970	241	60	208
Ogden, Henry. (See Atkinson, Francis F., assignor.)						
Ogram, Thomas E., Washington, D. C. Atomizer	478,940	July 12	1333	331	60	279
Ohmer, Wilfred I., Dayton, Ohio. Cabinet	479,748	July 26	2664	661	60	556
Ohnstrand, Enoch, Jamestown, N. Y. Lamp-burner	480,826	Aug. 16	1725	431	60	941
Old, Robert H. (See Old, William W. and R. H.)						
Old, William W. and R. H., Leadville, Colo. Metallic ceiling	481,813	Aug. 30	3364	824	60	1282
Oldfield, John, Medford, Mass. Woven fabric for machine-belting	478 941	July 12	1335	331	60	279
Olds, Henry G. (See Andersen, Peter, assignor.)						
Oliver Aluminum Company *et al.* (See Oliver, John S., assignor.)						
Oliver Ames & Sons Corporation. (See Johnson, William H., assignor.)						
Oliver, John S., Brooklyn, N. Y., assignor to J. Brooks, Boston, Mass., and Oliver Aluminum Company, of West Virginia. Smelting-furnace	480,699	Aug. 9	1528	379, 380	60	886
Oliver & Roberts Wire Company. (See Vermeulen, John, assignor.)						
Olivier, Julius von, Munich, Germany. Elastic wheel	480,738	Aug. 16	1589	398	60	913
Olmsted, David, Minneapolis, Minn. Pendulum-scale	482,831	Sept. 20	1485	370	60	1652
Olsen, Henry, Winona, Minn. Fifth-wheel	481,655	Aug. 30	3091	753	60	1230
Olsen, Neil, Portland, Oreg. Wagon-axle	479,918	Aug. 2	209	53	60	623
Olson, Andrew, Quincy, Mass. Hoisting device	482,618	Sept. 13	1197	291	60	1582
Olson, Andrew B., Kansas City, Mo. Portable corn-popper	478,353	July 5	460	112	60	92
Olson, Charles O. (See Olson, Nelson B., assignor.)						
Olson, Holcom, Henderson Grove, assignor of one-half to J. O. Lander, Knoxville, Ill. Horseshoe	481,716	Aug. 30	3189	779	60	1249
Olson, Nelson B., Kansas City, Mo., assignor to C. O. Olson, Savonburg, Kans. Corn-popping apparatus	480,779	Aug. 16	1648	413	60	926
Olson, Otto. (See Johnson and Olson)						
Oneida Community, Limited. (See Eldridge, Herbert M., assignor.)						
Ong, Harlon F., Newberg, Oreg. Electric motor	478,968	July 12	1380	339, 340	60	287
Openshaw, George, and C. A. Carr, Bury, England. Attachment for velocipedes	482,271	Sept. 6	573	136	60	1446
Opitz, Charles. (See Kramer, William, assignor.)						
Opsion, Ole C., and J. V. Hooper, Pittsburg, Pa. Reaming and drilling machine	481,418	Aug. 23	2710	657	60	1140
Ormsby, John W., Milwaukee, Wis. Lamp or lantern	483,386	Sept. 27	2391	600	60	1839
Orr, John E., assignor to R. P. Ernst, Covington, Ky. Bottle-stopper	479,833	Aug. 2	90	23	60	590
Orr, William, Trenton, N. J. Fireproof-floor construction	481,243	Aug. 23	2418	595, 596	60	1086
Orswell, Edmund W., *et al.* (See Keene, Samuel D., assignor.)						
Ortega y Espinosa, José, Mexico, Mexico. Device for indicating washouts in railway-beds	479,834	Aug. 2	91	23	60	600
Orvis, Orland D., Chicago, Ill. Coin-controlled spirometer	481,965	Sept. 6	63	16, 17	60	1347
Osborn, Frank. (See Belt, Perley P., assignor.)						
Osborn, Robert O., Paris, Mo. Hand-cultivator	482,693	Sept. 13	1272	312	60	1597
Osborne, Burns, *et al.* (See Willis, William H., assignor.)						
Osborne, Charles, assignor to Whiting Manufacturing Company, New York, N. Y. Hinge	481,732	Aug. 30	3223	786	60	1255
Osburn, Harry G., Chicago, Ill. Storage-battery plate	479,835	Aug. 2	92	24	60	600
Osenbrück, Adolf, *et al.* (See Munsch, Bernhard H., assignor.)						
Osenbrück, Wilhelm, *et al.* (See Munsch, Bernhard H., assignor.)						
Osmer, William H., St. Louis, Mo. Fly-net	478,708	July 12	971	241	60	209
Osorio, Justo, Brooklyn, N. Y. Appliance for teaching chemistry	480,275	Aug. 9	848	216	60	577
Osterloh, Adolph, Richmond, Va. Tobacco-pipe	480,900	Aug. 2	720	184	60	720
Ostrander, Edward W. (See Snedeker, Charles W., assignor.)						
Ostrander, Willis. (See Abell and Ostrander.)						
Oswalt, John H. (See Miller and Oswalt.)						
Otis Brothers & Company. (See Hall, Milan W., assignor.)						
Otis Brothers & Company. (See Kuechle, Eduard, assignor.)						
Ott, John F. (See Kennelly and Ott.)						
Ott, John F., Orange, assignor to T. A. Edison, Llewellyn Park, N. J. Coin-controlled device for phonographs	478,709	July 12	972	242	60	209
Ott, John F., and A. E. Kennelly, Orange, N. J., assignors to Edison General Electric Company, New York, N. Y. Electric meter	479,171	July 19	1700	426	60	359
Ott, John F. and A. E. Kennelly, Orange, N. J., assignors to Edison General Electric Company, New York, N. Y. Electric-current meter	479,172	July 19	1702	427	60	359
Overcash, Luther J. (See Rogers, Charles S., assignor.)						
Overholt, Frank, Harlan, Iowa. Extension-chandelier	481,814	Aug. 30	3365	825	60	1282

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Overman, Albert H., Springfield, Mass., assignor to Overman Wheel Company, Hartford, Conn. Cycle-lamp	480,210	Aug. 2	730	185	60	720
Overman Wheel Company. (See Overman, Albert H., assignor.)						

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Parsons, Fred. W. (See Bechtol, George T., assignor.)						
Parsons, Robert T., *et al.* (See Brown, William T., assignor.)						

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Overman, Albert H., Springfield, Mass., assignor to Overman Wheel Company, Hartford, Conn. Cycle-lamp	480,210	Aug. 2	730	185	60	720
Overman Wheel Company. (See Overman, Albert H., assignor.)						
Overman Wheel Company. (See Woodward, Charles E., assignor.)						
Overpeck, Edson L., *et al.* (See Overpeck, Isaac E., assignor.)						
Overpeck, Isaac E., assignor to E. L. Overpeck and F. M. Wehr, Overpeck, Ohio. Grinding-mill	483,363	Sept. 27	2346	590	60	1832
Oveson, Carl A., Chicago, Ill. Mangle	482,410	Sept. 13	823	198	60	1510
Owen, Emert D., Oahe, S. D. Cultivator	480,128	Aug. 2	588	150	60	694
Owen, Frederick D., Washington, D. C. Brake for bicycles	478,206	July 5	214	53	60	44
Owen, Herbert S., Washington, D. C. Velocipede	481,053	Aug. 16	2069	516, 517	60	1009
Owens, Ira B., Glen Elder, Kans. Washing-machine	481,419	Aug. 23	2712	667	60	1140
Owens, Michael J., Findlay, Ohio. Apparatus for mechanically operating paste-glass molds	482,526	Sept. 13	1024	247	60	1549
Owens, Robert P. (See Carse, Blackburn, and Owens.)						
Pacific Rolling Mills Company. (See Harris, Silas, assignor.)						
Paddock, James A., *et al.* (See Cartwright, Edward, assignor.)						
Padgett, Charles E., *et al.* (See Gellenbeck, Frank C., assignor.)						
Padgitt, Thomas B., Dallas, Tex. Vehicle-seat	482,064	Sept. 6	228	55	60	1380
Page, Albert A., assignor to Sargent & Company, New Haven, Conn. Door-spring	478,354	July 5	464	113	60	93
Page, Albert A., assignor to Sargent & Company, New Haven, Conn. Door-spring	478,355	July 5	465	113	60	93
Page, Almon D., Newark, N. J. Circuit-changing apparatus	481,281	Aug. 23	2491	613	60	1100
Page, Arthur, Minneapolis, Minn. Compound triangle	482,023	Sept. 6	166	40	60	1368
Page, Thomas L., and J. Apfel, Victoria, Tex. Medical compound	481,815	Aug. 30	3366	.....	60	1283
Page, William H., Philadelphia, Pa. Crossing for underground cable railways	481,966	Sept. 6	66	17	60	1347
Pagliughi, John and J. A., New York, N. Y., and F. De Canio, Union Hill, N. J. Drying-line support	479,898	Aug. 2	186	46	60	618
Pagliughi, Joseph A. (See Pagliughi and De Canio.)						
Paige, Elam R., Chicago, Ill. Finger-tapering device	478,356	July 5	466	113	60	93
Pain, Henry J., New York, N. Y. Pyrotechnic suit	479,899	Aug. 2	188	46	60	619
Paine, Birdsall D., Philadelphia, Pa. Hook and eye	478,357	July 5	468	113	60	93
Paine, Channing, New York, N. Y. Cash registering and adding machine	483,009	Sept. 20	1774	449, 450	60	1709
Paine, Frederick H., Paris, France, assignor to Hotchkiss Ordnance Company, Limited, London, England. Depth-regulating mechanism for marine torpedoes and other vessels	478,813	July 12	1153	285, 286	60	244
Paine, Frederick H., Paris, France, assignor to Hotchkiss Ordnance Company, Limited, London, England. Speed-regulating mechanism for torpedoes and other vessels	478,814	July 12	1160	287	60	245
Pakas, Solomon L., New York, N. Y. Fire-box divider	480,276	Aug. 9	849	216	60	757
Palica, Frank J., Racine, Wis. Telescopic trunk	479,153	July 19	1675	419	60	354
Palmer, Frank H., Brooklyn, N. Y. Package-carrier	480,618	Aug. 9	1397	348	60	861
Palmer, Frank H., Brooklyn, N. Y. Mucilage-holder	482,750	Sept. 20	1371	339	60	1628
Palmer, Henry F., Norwich, Conn. Street-sweeper	481,054	Aug. 16	2075	517, 518	60	1009
Palmer, Ida M., Kansas City, Mo. Corn-popper	482,832	Sept. 20	1487	370	60	1652
Palmer, John H., West New Brighton, N. Y. Paint. (Reissue)	11,255	July 26	2724	.....	60	570
Palmer, John S., West Duluth, Minn. Road-scraper	483,081	Sept. 20	1883	477	60	1732
Palmer, John S., Stonington, and C. R. Watrous, Ledyard, Conn. Lobster-trap	483,471	Sept. 27	2495	628	60	1861
Palmer, Philip A., Chicago, Ill. Fire-escape ladder and means for raising the same	481,967	Sept. 6	67	17, 18	60	1348
Palson, Magnus J., assignor of two-thirds to W. H. Perkins and L. B. Haskell, Gloucester, Mass. Ice-machine	482,694	Sept. 13	1273	312	60	1597
Pannell, Vincent J., Farmington, Mo. Furnace	482,458	Sept. 13	903	219	60	1524
Paoli, John, Hoboken, N. J. Tripod-head for engineers' transits and analogous instruments	479,196	July 19	1746	438	60	366
Pape, Charles. (See Schneider, Henry J., assignor.)						
Pardridge, William E. (See Underwood, William D., assignor.)						
Parham, Marshall E., Burr Oak, Mich. Barrel-truck	478,710	July 12	974	242	60	210
Park, Francis, Montague City, assignor of one-half to W. M. King, Orange, Mass. Harness-terret	478,632	July 12	871	214	60	188
Park, William R., Philadelphia, Pa. Toy	480,619	Aug. 9	1308	348	60	861
Parke, John H., assignor of one-half to O. D. McClellan, Philadelphia, Pa. Apparatus for drying or cremating garbage and fecal matter	481,147	Aug. 16	2249	554	60	1040
Parke, Robert A., New York, N. Y. Apparatus for heating compressed air	481,623	Aug. 30	3041	743	60	1220
Parke, Robert A., New York, N. Y., assignor of one-half to H. H. Westinghouse, Pittsburg, Pa. Slack-adjuster for car-brakes	480,341	Aug. 9	949	211	60	775
Parker, Edward M., New York, N. Y. Conveyer for grain-driers	481,672	Aug. 30	3115	760	60	1234
Parker, Frank P., Goshen, Ind., S. C. Jones, and N. F. Coffey, Carrollton, assignors to St. Joseph Folding Bed Company, St. Joseph, Mo. Wardrobe-bed	479,719	July 26	2610	648, 649	60	546
Parker, John M., Pawtucket, R. I. Spool-boring mechanism	479,173	July 19	1704	427, 428	60	360
Parker, Lewis C., Indianapolis, Ind. Apparatus for the manufacture of gas	480,211	Aug. 2	732	185	60	720
Parker, Richard. (See Johnston, Abner and W. A., assignors.)						
Parker, Robert, and S. W. Le Neve, Ludlow, Ill. School-desk	480,620	Aug. 9	1309	348	60	861
Parker, Thomas, assignor to Electric Construction Corporation, Limited, Newbridge, England. Electrical furnace	482,586	Sept. 13	1112	269	60	1566
Parkhurst, Edward B., Woburn, assignor to Complete Combustion Company, Boston, Mass. Furnace-boiler	482,188	Sept. 6	440	106	60	1421
Parkhurst, Edward B., and F. Ham, Woburn, Mass., assignors to National Cash Register Company, Dayton, Ohio. Cash indicator and register	483,010	Sept. 20	1781	450, 451	60	1710
Parkinson, John, Philadelphia, Pa. Hammer for forging car-wheels	478,631	July 12	869	214	60	188
Parkinson, Walter. (See Bardsley and Parkinson.)						
Parkison, Allen R., Monongahela City, Pa. Heel	482,561	Sept. 13	1080	262	60	1559
Parks, Charles E., Locke, N. Y. Double mold-board plow	482,380	Sept. 13	782	188	60	1502
Parks, Charles W., Troy, N. Y. Railway-track	479,836	Aug. 2	94	24	60	600
Parks, Dana, assignor of four-fifths to M. Stone, C. H. Schofield, H. Goldberg, and B. A. Andrews, Boston, Mass. Steamer, lawn, or invalid chair	481,119	Aug. 16	2191	542	60	1030
Parmele, Seth, Portland, Oreg. Oiler for hand-saws	480,621	Aug. 9	1401	348	60	862
Parmelee, Wilbur F., Middletown, Conn. Ironing-table	479,301	July 19	1899	475	60	397
Parry, Augustus N., Amesbury, Mass. Carriage	482,189	Sept. 6	442	106, 107	60	1422
Parshall, Horace F., Schenectady, assignor to Edison General Electric Company, New York, N. Y. Commutator for electro-magnetic machines	480,739	Aug. 16	1590	398	60	913
Parshall, Horace F., Schenectady, assignor to Edison General Electric Company, New York, N. Y. Armature for dynamo-electric machines	480,740	Aug. 16	1591	398	60	914
Parsley, Levi, Bengay, Ark. Detonating fire-alarm	479,837	Aug. 2	94	24	60	600

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Parsons, Fred. W. (See Bechtol, George T., assignor.)						
Parsons, Robert T., *et al.* (See Brown, William T., assignor.)						
Partridge, Benjamin S., Jacksonville, Fla. Water-motor	478,457	July 5	604	147	60	119
Partz, August F. W., Philadelphia, Pa. Process of and apparatus for manufacturing wire rope	482,190	Sept. 6	443	107	60	1422
Pass, James, and A. P. Seymour, Syracuse, N. Y. Ceiling-rosette cut-out	481,624	Aug. 30	3043	743	60	1220
Passano, Louis D., *et al.* (See Welch, Rosia W., assignor.)						
Passmore, Edwin, Somerville, Mass. Machine for cutting and polishing precious stones	479,452	July 26	2175	544	60	467
Passmore, Jason, *et al.* (See Shoemaker, Milton, assignor.)						
Patenall, Thomas H., Rahway, N. J. Block-signal apparatus	480,411	Aug. 9	1064	266, 267	60	795
Patenall, Thomas H., Rahway, N. J. Circuit closing and breaking device for railway-tracks	480,507	Aug. 9	1219	305	60	826
Patnoe, George W., assignor to himself, J. H. Shepard, and J. Dolese, Chicago, Ill. Portable derrick	482,528	Sept. 13	1026	248	60	1550
Patroll, Phillip, Dayton, Ohio. Colander for mashing vegetables	482,982	Sept. 20	1734	438	60	1700
Pattee, Henry H., Monmouth, Ill. Time-registering apparatus for electricity	478,237	July 5	277	68, 69	60	56
Patten, Edward K., Whitesborough, N. Y., assignor to Seaman Drawer Fitting Machine Company, Milwaukee, Wis. Combined cutting and scouring device	479,332	July 19	1939	485	60	405
Patten, Enos, assignor to Lynn Lasting Machine Company, Lynn, Mass. Sewing-machine	481,266	Aug. 23	2460	606	60	1095
Patten, Enos, assignor to Lynn Lasting Machine Company, Lynn, Mass. Mechanism	481,508	Aug. 23	2850	700	60	1168
Patten, James S., Baltimore, Md. Axle-lubricator	479,077	July 19	1553	388	60	331
Patten, James S., assignor of three-fourths to J. Holland, Baltimore, Md. Shutter-worker	482,562	Sept. 13	1081	262	60	1560
Patterson, George F., *et al.* (See Wharton, Richard, assignor.)						
Patterson, James B., *et al.* (See Wharton, Richard, assignor.)						
Patterson, John C., and J. Kirby, Jr., Dayton, Ohio, assignors, by mesne assignments, to O. Kinsey, trustee. Lamp	480,412	Aug. 9	1069	267	60	796
Patterson, Will. (See Swenson, Lorens, assignor.)						
Patterson, Will, and L. Swenson, Cresco, Iowa. Vehicle-thill	480,129	Aug. 2	590	150	60	695
Patton, Harry E. (See Fulbright, William D., assignor.)						
Patton, Rufus D., Kansas City, Mo. Thill-coupling	480,622	Aug. 9	1402	349	60	862
Paugh, Benjamin H., Philippi, W. Va. Car-coupling	482,926	Sept. 20	1641	413	60	1682
Paugh, Benjamin H., and G. W. Fridley, Philippi, W. Va. Running-gear for vehicles	478,758	July 12	1056	261	60	225
Paul, George, Cuyahoga Falls, Ohio. Letter-press and cabinet	481,586	Aug. 30	2983	732	60	1210
Paulis, John J., Lyons, Iowa. Writing and drawing device	478,129	July 5	73	19	60	17
Paulus, Christopher. (See Goodhue, William F., assignor.)						
Paulus, George W. (See Hougen and Paulus.)						
Pauly Jail Building and Manufacturing Company. (See Pauly, Peter J., Sr., assignor.)						
Pauly Jail Building and Manufacturing Company. (See Pauly, Peter J., Sr., and Peter J., Jr., assignors.)						
Pauly, Peter J., Sr., assignor to Pauly Jail Building and Manufacturing Company, St. Louis, Mo. Jail-grating	480,700	Aug. 9	1529	380	60	886
Pauly, Peter J., Sr., and Peter J., Jr., assignors to Pauly Jail Building and Manufacturing Company, St. Louis, Mo. Mechanism for opening, closing, and locking jail-doors	480,476	Aug. 9	1175	295, 296	60	817
Pauly, Peter J., Sr., and Peter J., Jr., assignors to Pauly Jail Building and Manufacturing Company, St. Louis, Mo. Mechanism for opening and closing jail-doors	482,316	Sept. 6	658	157	60	1464
Pavyer, Benjamin J., and T. Burns, assignors to J. G. Pavyer, St. Louis, Mo. Paper-cutting machine	479,302	July 19	1900	475	60	397
Pavyer, James G. (See Pavyer and Burns, assignors.)						
Payne, Arthur C. (See Aylsworth and Payne.)						
Payne, Walter S., Fostoria, Ohio. Machine for tapping mains	478,711	July 12	975	242, 243	60	210
Payne, William H., assignor, by mesne assignments, to A. E. Hoskins, Philadelphia, Pa. Pocket powder-puff and inhaler device	478,358	July 5	469	114	60	93
Payne, William H., assignor to C. P. Hoskins and G. G. Altorfer, Philadelphia, Pa. Fluid can or vessel stopper	483,082	Sept. 20	1884	477	60	1732
Payson, Edward, Chicago, Ill. Transom-lifter	482,024	Sept. 6	167	40	60	1368
Peace, Joseph W., Rhea Springs, Tenn. Bridle attachment	483,472	Sept. 27	2496	628	60	1861
Peacock, Edward F., *et al.* (See Reagan, Harry C., Jr., assignor.)						
Peacock, Ernest A., London, England. Stirrup	478,633	July 12	871	214	60	188
Pearce, Frederick, New York, N. Y. Dial-transmitter	482,877	Sept. 20	1561	390, 391	60	1667
Pearce, William A., Houghton, Mich. Chimney-cap	482,851	Sept. 20	1517	377	60	1650
Pearn, Frank. (See Young and Pearn.)						
Pearson, Marshall H., Leicester, England. Eyeleting-machine	478,750	July 12	1057	261, 262	60	226
Pearson, Marshall H., Leicester, England, assignor to John O'Flaherty Company, Montreal, Canada. Sewing-machine	479,838	Aug. 2	96	24, 25	60	601
Pearson, Marshall H., Leicester, England, assignor to John O'Flaherty Company, Montreal, Canada. Waxing device for sewing-machines	483,083	Sept. 20	1880	477	60	1732
Pearson, Paul, assignor of one-half to Z. F. Millhourn, Kearney, Mo. Combined fence post and brace	482,381	Sept. 13	783	188	60	1502
Pease, Edwin O., Jersey City, N. J. Sweeping-machine	478,942	July 12	1336	332	60	279
Pease, Roger S., Rose, Minn. Sporting-trap	480,130	Aug. 2	591	150, 151	60	695
Peck, Cassius C., Warsaw, N. Y. Generation of steam-power	479,454	July 26	2179	545	60	467
Peck Frederic M., Hartford, Conn. Package for butter	479,095	July 19	1585	396	60	337
Peck, Fremont P. (See Sturgis and Peck.)						
Peck, Melinda. (See Peck, Orrin B., assignor.)						
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Separating particles of different degrees of specific gravity	479,453	July 26	2178	544	60	467
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Separating powdered or finely-divided particles, &c	479,455	July 26	2182	545, 546	60	468
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	479,456	July 26	2184	546, 547	60	468
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Separating powdered or finely-divided particles	479,953	Aug. 2	278	68, 69	60	635
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	479,954	Aug. 2	280	69, 70	60	635
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	479,955	Aug. 2	282	70, 71	60	636
Peckham, Edgar, New York, N. Y. Car-truck gear	481,704	Aug. 30	3167	774	60	1244
Peet, Benjamin F., Springfield, Mass. Saddle for velocipedes	479,656	July 26	2494	621	60	525
Peet, Walter B. (See Banks and Peet.)						
Peirce, Charles E., Altamonte Springs, Fla. Refrigerating apparatus	483,500	Sept. 27	2536	637, 638	60	1869

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pelton, Everitt W., *et al.* (See Newell, James L., assignor.)						
Pelton, Phineas, Persia, Iowa. Combined air-brake and car-coupling	482,382	Sept. 13	784	189	60	1502
Pelton, Walter B., *et al.* (See Newell, James L., assignor.)						

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Phillips, Arthur J. (See Hutt and Phillips.)						

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Pelton, Everitt W., *et al.* (See Newell, James L., assignor.)						
Pelton, Phineas, Persia, Iowa. Combined air-brake and car-coupling	482,382	Sept. 13	784	189	60	1502
Pelton, Walter B., *et al.* (See Newell, James L., assignor.)						
Pendleton, Bradford H., Evanston, Ill. Lighting device	482,587	Sept. 13	1113	269	60	1567
Pendleton, John H., *et al.* (See Thomas, Charles W., assignor.)						
Pendleton, John H., Brooklyn, assignor to Rapid Transit Cable Company, New York, N. Y. Cable railway	479,919	Aug. 2	210	53, 54	60	624
Pendleton, John H., Brooklyn, assignor to Rapid Transit Cable Company, New York, N. Y. Cable railway	479,920	Aug. 2	215	54, 55	60	624
Pendleton, John H., Brooklyn, and A. Bryson, assignors to Rapid Transit Cable Company, New York, N. Y. Cable railway	479,921	Aug. 2	224	55, 56, 57	60	626
Penfield, James W., Willoughby, Ohio. Brick-kiln	480,935	Aug. 16	1882	469, 470	60	972
Penfield, James W., Willoughby, Ohio. Brick-kiln	480,936	Aug. 16	1884	470, 471	60	972
Penfield, Raymond C. (See Wallace and Penfield.)						
Penfield, Raymond C., Willoughby, Ohio. Disintegrating-roller	480,937	Aug. 16	1885	471	60	973
Penfield & Son, J. W. (See Wallace and Penfield, assignors.)						
Penn, Richard L., Basham's Gap, Ala. Gang-plow	478,634	July 12	872	215	60	188
Pennock, Willard, Minerva, Ohio. Draw-gear for cars	480,827	Aug. 16	1796	431	60	941
Peoples, Alonzo E. (See Peoples, Henry C. and A. E.)						
Peoples, Henry C. and A. E., Eskridge, Kans. Corn-harvester	482,065	Sept. 6	229	55, 56	60	1380
Peple, Gustavus A. (See Mayo and Peple.)						
Pepper, James W. (See Solatmann and Pepper.)						
Peregrine, Seymour W., Grand Rapids, Mich. Tilting seat	480,961	Aug. 16	1930	483	60	981
Pereira, Alfons, Stuttgart, Germany. Painting with distemper and other colors	481,282	Aug. 23	2493	.....	60	1101
Perkins, Duane T., assignor to himself, F. Zuchtmann, and P. A. Knappe, Springfield, Mass. Fountain-pen	478,635	July 12	873	215	60	189
Perkins Electric Switch and Manufacturing Company. (See Gibbs, Jacob S., assignor.)						
Perkins, Ernest C., Geneva, N. Y. Eyeglass-holder	482,191	Sept. 6	444	107	60	1492
Perkins, George J., Truckee, Cal. Locomotive steam-boiler	483,472	Sept. 27	2497	629	60	1861
Perkins, Judson C., assignor to Meriden Curtain Fixture Company, Meriden, Conn. Window-shade fixture	479,766	July 26	2096	671	60	563
Perkins, Judson C., assignor to Meriden Curtain Fixture Company, Meriden, Conn. Spring shade-roller	481,733	Aug. 30	3224	787	60	1255
Perkins, Judson C., and L. E. Leigh, assignors to Meriden Curtain Fixture Company, Meriden, Conn. Spindle-tip for spring shade-rollers	482,563	Sept. 13	1082	263	60	1560
Perkins, Richard B., Hornellsville, assignor of one-half to C. A. Ball, Wellsville, N. Y. Fence	478,170	July 5	159	40	60	34
Perkins, William H., *et al.* (See Palson, Magnus J., assignor.)						
Perkins, William W. (See Soley and Perkins.)						
Perrenond, Gustave F., *et al.* (See Harvey, George H., assignor.)						
Perrine, Frederic A. C., assignor to John A. Roebling's Sons Company, Trenton, N. J. Electric conductor	479,525	July 26	2303	575	60	490
Perry, Alvy G., Coldwater, Miss. Cotton-harvester	480,131	Aug. 2	593	151, 152	60	695
Perry, Charles. (See Fisher and Perry.)						
Perry, Howard E., Chicago, Ill. Coin-controlled mechanism	481,816	Aug. 30	3366	825	60	1283
Perry, John G., Wakefield, R. I. Nut-lock and bolt-tightener	482,906	Sept. 20	1617	405	60	1676
Perry, John G., Wakefield, R. I. Nut-lock	482,907	Sept. 20	1618	405	60	1676
Peters, George T., assignor to himself and C. Shaw, Jersey City, N. J. Sash-balance	479,657	July 26	2496	621	60	526
Peters, Myron J. (See Carruthers, John, assignor.)						
Peterson, Alfred, Orion, Ill. Gate	479,457	July 26	2186	547, 548	60	469
Peterson, John P., Worthington, Minn. Grain-dump	483,011	Sept. 20	1787	451	60	1712
Peterson, Sivert, and A. Baland, Menominee, Wis. Railway-switch	481,267	Aug. 23	2461	606	60	1095
Peterson, Theodore, Akron, Ohio. Parallel bars	481,509	Aug. 23	2852	701	60	1168
Peterson, William, Genesee, Minn. Pump	482,588	Sept. 13	1115	269	60	1567
Petit, Ademor N., New York, N. Y. Type-writing machine	482,317	Sept. 6	661	158	60	1465
Petraeus, Carl V. (See Lewis and Petraeus.)						
Petroleum Light and Heat Company. (See Beidelman, Robert M., assignor.)						
Pettee, Lyman F., Brooklyn, N. Y. Device for separating the white and yelk of eggs	479,016	July 19	1463	364	60	314
Petterson, Johannes, and L. H. Liebeck, New York, N. Y. Water-still	478,458	July 5	606	148	60	120
Pettet, Charles A., Belleville, Canada. Straw or ensilage cutter	480,508	Aug. 9	1221	305	60	826
Pettibone, John H., Burlington, Iowa. Receipt and collection-report book	480,623	Aug. 9	1403	349	60	862
Pettit, James. Albany, N. Y. Awning-frame	480,437	Aug. 9	1108	277	60	803
Pew, Frederick S. (See Pew, James H. and F. S.)						
Pew, James H. and F. S., Andover, S. D. Spreader for reins	478,712	July 12	977	243	60	210
Pfannkuche, Gustav, assignor to Brush Electric Company, Cleveland, Ohio. Commutator for ring-armatures	480,780	Aug. 16	1650	413	60	926
Pfaudler, John M., Rochester, N. Y. Lamp	478,815	July 12	1163	288	60	246
Pfeifer, Charles A., Wapello, Iowa. Plow	482,751	Sept. 20	1372	340	60	1628
Pfeifer, John, assignor to National Cash Register Company, Dayton, Ohio. Cash register, indicator, and recorder	479,720	July 26	2612	649, 650	60	547
Pfieger, John, Minneapolis, Minn. Velocipede	479,839	Aug. 2	98	25	60	601
Pfineger, Ernest F., Akron, Ohio. Spoon-bait	480,132	Aug. 2	598	152	60	696
Pfinger, Charles A., Chicago, Ill. Line-wire tightening device for electric-lamp supports	482,486	Sept. 13	945	230	60	1532
Pfluger, Charles A., Chicago, Ill., assignor, by mesne assignments, of one-half to Standard Electric Company, of Illinois. Hanger for electric-arc lamps	479,017	July 19	1464	364	60	314
Phelan, John, assignor of two-thirds to W. Trimble and J. H. Jones, Pittsburg, Pa. Galley-lock	479,840	Aug. 2	99	25	60	601
Phelan, John T., Cambridge, Mass. Fumigator	480,624	Aug. 9	1405	349, 350	60	862
Phelps, Frederick A., Jr. (See Henderson and Phelps.)						
Phelps, James R., Sacramento, Cal. Leg-spreader for horses	480,625	Aug. 9	1407	350	60	863
Phelps, Lucius J., Passaic, N. J. Bicycle	481,734	Aug. 30	3226	787	60	1256
Phelps, Lucius J., Passaic, N. J. Pneumatic tire	482,457	Sept. 13	946	231	60	1533
Philadelphia Engineering Works. (See Gordon, Frederick W., assignor.)						
Philion, Achille, New York, N. Y. Steam-carriage	482,649	Sept. 13	1198	291, 292	60	1582
Phillips, Frank C., Healdsburg, Cal. Fruit-pitting machine	482,272	Sept. 6	573	136	60	1446
Phillips, Adelbert M., assignor to H. S. Chapman and C. A. Barnes, Lockport, N. Y. Combined pump and mixer	479,378	July 19	2037	508	60	424

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Phillips, Arthur J. (See Hutt and Phillips.)						
Phillips, Augustus K., St. Louis, Mo. Boring and shaping mechanism	481,307	Aug. 23	2534	622, 623	60	1107
Phillips, Austin M. (See Johnson and Phillips.)						
Phillips, Francis V., assignor to Smith & Phillips Manufacturing Company, Chicago, Ill. Sash-pulley	481,510	Aug. 23	2853	701	60	1168
Phillips, Thomas J., Ottumwa, Iowa. Car-dumping apparatus	481,968	Sept. 6	69	18, 19	60	1348
Phillips, William, Northville, Mich. Ironing-machine	480,277	Aug. 9	850	216, 217	60	757
Phillips, William A., U. S. Army. Pencil-sharpener	479,658	July 26	2496	622	60	526
Phillips, William H. (See Marvel, Theodore L., assignor.)						
Phillips, William H., assignor to P. Thompson, Philadelphia, Pa. Tie-plate and brace	482,318	Sept. 6	664	158	60	1465
Phinney, William F. (See Bond, Nathan O., assignor.)						
Piat, Albert, Paris, France. Electro-mechanical apparatus for starting or reversing machinery	478,816	July 12	1165	288, 289	60	246
Pickard, Edgar (See Thornton, John E., assignor.)						
Pickard, Edward L., Chelsea, assignor, by mesne assignments, to United States Postage Stamp Delivery Company, Boston, Mass. Coin-controlled vending-machine	481,331	Aug. 23	2573	632, 633	60	1114
Pickering, Barton, Dayton, Ohio. Postal-stamp holder	480,509	Aug. 9	1221	306	60	826
Pickernell, Frank A., Newark, N. J., assignor to American Telephone and Telegraph Company, of New York. Electric annunciator	481,190	Aug. 16	2192	542	60	1030
Pickett, Squire A., Crowley, La. Rice-scourer	482,122	Sept. 6	445	107	60	1422
Pickup, George A., and W. J. Towry, Shelbyville, Tenn. Rotary hand-stamp	481,969	Sept. 6	72	19	60	1349
Pidgin, Charles F., Cambridge, Mass. Tab for music-leaves	481,735	Aug. 30	3229	787	60	1257
Pierce, Charles W., Union City, Ind. Car-mover	482,878	Sept. 20	1566	391	60	1608
Pierce, Jonathan A., Austin, Minn. Electric-arc lamp	479,059	July 26	2497	629	60	526
Pierson, Henry M., Brooklyn, N. Y. Manufacturing gas	478,459	July 5	608	148, 149	60	120
Pifer, Augustus P. (See Harris, William H., assignor.)						
Piguet, William, Sentier, Switzerland Stop-watch	479,900	Aug. 2	188	47	60	619
Pike, Joseph H., Jacksonville, Ill. Knit undergarment	482,097	Sept. 6	282	68	60	1391
Pike, William, and N. McDairmid, Sault de Ste. Marie, Mich. Foot for dredge-anchors	483,012	Sept. 20	1789	451	60	1712
Pike, William L., Groton, N. Y. Vehicle-pole	480,510	Aug. 9	1222	306	60	827
Pike, William L., Groton, N. Y. Vehicle-pole	480,511	Aug. 9	1223	306	60	827
Pike, William L., Groton, N. Y. Clothes-pin	482,383	Sept. 13	787	189	60	1503
Pilkington, Lawrence. (See Prentice, McLeod, Crane, and Pilkington.)						
Pinch, Frank, Sidney, N. Y. Packing for piston or other rods	483,013	Sept. 20	1790	451	60	1712
Pine, Arthur F., assignor of one-half to H. Leibef, Antigo, Wis. Sleigh	479,154	July 19	1677	419	60	354
Pinel, Charles, Rouen, France. Liquid-gage	483,485	Sept. 27	2512	632	60	1864
Pinney, Edwin S. (See Rendell and Pinney.)						
Piper, Charles F., *et al.* (See Morrill, George W., assignor.)						
Piper, Edwin S., assignor of one-half to F. Clayton, Bristol, Conn. Bell	482,983	Sept. 20	1735	438	60	1701
Piper, Edwin S., assignor of one-half to F. Clayton, Bristol, Conn. Bell	482,984	Sept. 20	1736	439	60	1701
Pippenger, Chauncey, Kingsbury, Ind. Feeding device for clover-hullers	482,135	Sept. 6	341	82	60	1402
Pitts Agricultural Works. (See Bronson, Levi, assignor.)						
Pittsburgh Brass Company. (See Adams, Frederick, assignor.)						
Pittsburgh Plate Glass Company. (See Danner, Friedrich, assignor.)						
Pizzey, William J., Bristol, England. Spring-rim for velocipede-wheels	480,030	Aug. 2	439	111	60	665
Plaisted, Harold M., Springfield, Ohio. Filing-cabinet	479,660	July 26	2498	622	60	526
Platt, Clark M., Waterbury, Conn. Button-attaching machine	481,587	Aug. 30	2984	732	60	1210
Platt, Clark M., Waterbury, Conn. Machine for attaching buttons	481,588	Aug. 30	2985	732	60	1210
Platt, F. G. (See Brown, Robert S., assignor.)						
Platt, Irving G., Waterbury, Conn. Button-setting machine	480,031	Aug. 2	440	111	60	665
Platt, Irving G., Waterbury, Conn. Forming button-bars	480,032	Aug. 2	442	111	60	666
Platt, Stephen L., Elgin, Ill. Trolley-carriage for conduits	481,817	Aug. 30	3369	825, 826	60	1283
Player, John, assignor to Brooks Locomotive Works, Dunkirk, N. Y. Compound engine	481,056	Aug. 16	2078	518, 519, 520	60	1010
Player, John, assignor to Brooks Locomotive Works, Dunkirk, N. Y. Valve for compound engines	481,057	Aug. 16	2084	520	60	1011
Player, John, assignor to Brooks Locomotive Works, Dunkirk, N. Y. Combined intercepting and reducing valve	481,148	Aug. 16	2250	555	60	1040
Pletscher, John, Baltimore, Md. Machine for cleaning and polishing knives	479,304	July 19	1903	476	60	398
Plomberg, Sever H., Leland, Iowa. Hay-rack	481,420	Aug. 23	2713	668	60	1141
Plumb, Joseph C. (See Haswell, Alanson M., assignor.)						
Plumbly, Frederic K., Buffalo, N. Y. Ballot-box	478,264	July 5	326	79	60	65
Plumbly, Frederic K., Buffalo, N. Y. Voting-booth	479,458	July 26	2188	548, 549	60	469
Plumbly, Frederick K., Buffalo, N. Y. Gate	483,387	Sept. 27	2392	601	60	1839
Plume & Atwood Manufacturing Company. (See Echols, Frank G., assignor.)						
Plume & Atwood Manufacturing Company. (See Hellstrom, Theodore H., assignor.)						
Plumtree, Charles E., assignor of one-half to A. W. Crittenden, Spokane Falls, Wash. Site reflector	481,055	Aug. 16	2077	518	60	1010
Plunkett, Michael H., assignor of fifty-one one-hundredths to W. Bowie and E. J. Bond, Baltimore, Md. Steam-boiler	482,384	Sept. 13	788	189, 190	60	1504
Plymouth Foundry Company. (See Bowman and Shaw, assignors.)						
Pneumatic and Electric Tool Company. (See Drawbaugh, Daniel, assignor.)						
Pneumatic Gun Carriage and Power Company. (See Spiller, Harry A., assignor.)						
Pneumatic Tyre and Booth's Cycle Agency. (See Sinclair, Finlay, assignor.)						
Poehner, Adolph A. (See Hey, Henry T., assignor.)						
Poetzel, Michael. (See Baeumle, John, assignor.)						
Pohrer, William J., St. Louis, Mo. Sectional vehicle-shaft	483,474	Sept. 27	2498	629	60	1862
Poland, Charles A., Ann Arbor, Mich. Combination step-ladder	480,342	Aug. 9	954	241	60	775
Pollard, Robert. (See Taylor, Horace H., assignor.)						
Pollock, James, Wilkes-Barré, Pa. Continuous-trough conveyer	483,475	Sept. 27	2499	629	60	1862
Pollock, James, assignor, by mesne assignments, to Wyoming Boiler Company, Limited, Wilkes-Barré, Pa. Steam-boiler	482,459	Sept. 13	904	219	60	1524
Pomper, Frank, Chicopee, Mass. Faucet or valve	482,049	Sept. 6	208	50	60	1376
Poole, Fredrick F., Newark, N. J. Trolley	479,608	July 26	2420	604	60	512
Poole, Fredrick F., Newark, N. J. Separable square	481,637	Aug. 30	3061	747	60	1224
Poore, Charles. (See Williams and Poore.)						
Pope, Frederick B., Augusta, Ga. Spark-arrester	478,359	July 5	470	114	60	93

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pope, William R., New York, N. Y., assignor to Automatic Manufacturing Company, of New York. Coin-operated game apparatus	479,459	July 26	2190	549	60	469
Popp, Hermann. (See Hinshilliwood Thomas K., assignor.)						
Poppowitsch, Edward, Brooklyn, N. Y. Preparing battery-solution						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Propfe, Heinrich, Mannheim, Germany. Distilling apparatus	478,265	July 5	327	79	60	66
Prospective Mining and Machinery Company. (See Wernain and Johnson, assignors.)						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pope, William R., New York, N. Y., assignor to Automatic Manufacturing Company, of New York. Coin-operated game apparatus	479,459	July 26	2190	549	60	469
Popp, Hermann. (See Hinshillwood Thomas K., assignor.)						
Poppowitsch, Edward, Brooklyn, N. Y. Preparing battery solutions	480,033	Aug. 2	443	.....	60	666
Porrett, Christopher. (See Garner, Cockerill, and Porrett.)						
Porter, Daniel R., Chelsea, assignor to Columbian Manufacturing Company, Brockton, Mass. Pipe-wrench	482,527	Sept. 13	1025	247	60	1549
Porter, Elbert B., Penn Yan, N. Y. Fishing-reel	478,713	July 12	978	243	60	210
Porter, Ernest A., Florence, Mass. Staple-driving implement	481,970	Sept. 6	74	19	60	1349
Porter, James A. (See Closser, William, assignor.)						
Porter, Joseph E., Ottawa, Ill. Carrier-track	482,411	Sept. 13	825	198	60	1510
Porter, Joseph E., Ottawa, Ill. Hay-carrier and track	482,412	Sept. 13	826	198	60	1510
Porter, Lemuel, Providence, R. I., assignor to Malden Machine Company, Boston, Mass. Water-motor	482,927	Sept. 20	1642	413	60	1682
Porter, Louis M., Montclair, N. J. Hook and eye	478,360	July 5	471	114	60	94
Porter, Wilson E., assignor to New Haven Clock Company, New Haven, Conn. Clock-regulator	482,985	Sept. 20	1738	439	60	1701
Portsmouth Stove and Range Company. (See Knauss, Frank V., assignor.)						
Potelune, Oscar, Limoges, France. Machine for treating skins, &c	479,460	July 26	2191	{549, 550, 551}	60	470
Potter & Atherton Machine Company. (See Potter, James C., assignor.)						
Potter, George L., Fort Wayne, Ind. Spring	481,971	Sept. 6	75	20	60	1349
Potter, Henry W., assignor of one-half to J. E. Hayes, Wellington, New Zealand. Folding music-rack and telescopic stand therefor	478,460	July 5	612	149	60	121
Potter, James C., assignor to Potter & Atherton Machine Company, Pawtucket, R. I. Feeding mechanism for machinery for opening, cleaning, and preparing cotton	482,193	Sept. 6	446	108	60	1422
Potter, James C., assignor to Potter & Atherton Machine Company, Pawtucket, R. I. Feeding mechanism for machinery for opening and preparing cotton	482,194	Sept. 6	448	108	60	1423
Potter, James C., assignor to Potter & Atherton Machine Company, Pawtucket, R. I. Machine for opening and preparing cotton	482,273	Sept. 6	575	{136, 137}	60	1447
Potter, John A. (See Grace, Robert W., assignor.)						
Potter, Samuel A., assignor of one-half to D. G. Monfort, Cincinnati, Ohio. Adding-machine	478,361	July 5	472	114	60	94
Potter, Wilson L., Hartford, Conn. Sanitary ventilator	479,224	July 19	1786	447	60	374
Potts, Joseph D., trustee. (See McManus, William S., assignor.)						
Poulson, Peter, Somers, Wis. Spade	479,661	July 26	2500	623	60	527
Poulson, Peter, Somers, Wis. Shovel	481,972	Sept. 6	76	20	60	1349
Poulter, John H., Arcola, Ill. Flood-fence	482,460	Sept. 13	905	220	60	1524
Poulter, John H., assignor of one-half to J. H. Sullivan, Arcola, Ill. Shoe-fastening	480,133	Aug. 2	599	152	60	696
Powell, Eleanah, Kokomo, Ind. Clothes-drier	481,189	Aug. 23	2319	571	60	1068
Powell, Guy H. (See Chandler and Powell.)						
Powell, James, Cincinnati, Ohio. Hardening seats and valves	481,332	Aug. 23	2577	633	60	1115
Power & Co., L. (See Pyott, Louis T., assignor.)						
Powers, James J., and R. Van Buren, Brooklyn, N. Y. Clay-conduit machine	478,462	July 5	616	150	60	122
Powers, Jay W., Chicago, Ill. Steam-engine	483 014	Sept. 20	1791	452	60	1712
Praetorius, Herman G., Dayton, Ohio. Guide for umbrella ribs and stretchers	481,283	Aug. 23	2494	614	60	1101
Pratt, Henry C., Canandaigua, N. Y. Wire-distributer for wire fences	479,571	July 26	2370	591	60	503
Pratt, John W. (See Ward, Frederick, assignor.)						
Pratt, William, Montreal, Canada. Tin can or receptacle. (Reissue)	11,264	Aug. 16	2272	560	60	1044
Pray, Hamilton, Clove, N. Y. Ice-plow	483,015	Sept. 20	1793	452	60	1713
Pray, Thomas, Jr., *et al.* (See Reagan, Harry C., Jr., assignor.)						
Preiser, Emil. (See Fischer and Preiser.)						
Prentice, Leon H., Waukegan, P. R. McLeod, R. T. Crane, and L. Pilkington, assignors to Crane Company, Chicago, Ill. Valve mechanism for steam-radiators	480,512	Aug. 9	1224	306	60	827
Prescott, De Witt C., Marinette, Wis. Band-saw mill	478,817	July 12	1166	{289, 290}	60	247
Prescott, Sidney I., Brooklyn, N. Y. Device for distributing oil upon water	481,818	Aug. 30	3370	826	60	1284
Preston, H. C., *et al.* (See Preston, Othniel, assignor.)						
Preston, O., Jr., *et al.* (See Preston, Othniel, assignor.)						
Preston, Othniel, assignor of two-thirds to H. C. and O. Preston, Jr., Hornellsville, N. Y. Machine to plait wire	482,589	Sept. 13	1117	{269, 270}	60	1507
Prewitt, William Q., Lexington, Ky. Trolley-track hanger for electric railways	483,388	Sept. 27	2392	601	60	1840
Price, Edwin H., Lanadale, assignor of one-half to J. B. Alderfer, Souderton, Pa. Shutter-worker	479,155	July 19	1677	419	60	354
Price, Henry W., *et al.* (See Winlund, Nicholas J., assignor.)						
Price, James M., Philadelphia, Pa. Support for street railways or tramways	478,362	July 5	473	115	60	94
Price, Jesse M. (See Maxim and Price.)						
Price, John B., Wollaston, Mass. Lamp-extinguisher	481,968	Aug. 23	2462	607	60	1096
Price, John B., Wollaston, Mass. Cylinder-lock	481.421	Aug. 23	2714	668	60	1141
Price, John B., Wollaston, Mass. Lock	481,422	Aug. 23	2718	668	60	1142
Price, Jonathan D., Chicago, Ill. Chart	480,413	Aug. 9	1071	268	60	796
Price, Samuel B., Jr., C. E. Martin, and B. Purser, Brookwood, Ala. Ore and coal crusher and separator	479 018	July 10	1466	365	60	315
Price, William, Mendota, Ill. Attachment for stoves	480,828	Aug. 16	1727	431	60	941
Price, William C., *et al.* (See Monday, Robert, assignor.)						
Price, William G., New Orleans, La. Pencil-sharpener	479 303	July 19	1901	476	60	3 8
Pride, James, London, England. Fire-escape	482,274	Sept. 6	577	{137, 138}	60	1447
Pridmore, Henry E., Chicago, Ill. Grain-binder	481,530	Aug. 23	2890	{709, 710, 711}	60	1176
Pridmore, Henry E., Chicago, Ill., assignor to McCormick Harvesting Machine Company. Grain-binder	481,244	Aug. 23	2416	{596, 597}	60	1087
Priest, Joseph K., Nashua, N. H. Hair clipper and shears	478,461	July 5	614	149	60	121
Priestley, John H., Meriden, Iowa. Automatic brake	481,190	Aug. 23	2320	571	60	1068
Primrose, Isaac P., *et al.* (See Armstrong, James P., assignor.)						
Prince, Samuel F., Jr., Reading, Pa. Compound engine	480,781	Aug. 16	1652	413	60	926
Prindle, Frederick J. (See Prindle, William E. and F. J.)						
Prindle, William E. and F. J., Aurora, Ill. Lawn-mower	482,752	Sept. 20	1374	{340, 341}	60	1029
Proctor, Abner C., Washington, D. C. Puzzle	481,589	Aug. 30	2987	733	60	1210
Proctor, Charles M. (See Raymond, Nelson H., assignor.)						
Prokhoroff, Nicolaus, assignor of one-half to N. Fahlberg, Kiev, Russia. Electric central clock	481,916	Aug. 30	3531	{864, 865}	60	1315

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Propfe, Heinrich, Mannheim, Germany. Distilling apparatus	478,265	July 5	327	79	60	66
Prospective Mining and Machinery Company. (See Tremain and Johnson, assignors.)						
Prosa, John A. (See Montague and Prosa.)						
Prouty, Enoch, assignor to himself, R. Tarrant, and O. S. Prouty, Chicago, Ill. Printing-press	478,760	July 12	1061	{262, 263, 264}	60	226
Prouty, Olive S., *et al.* (See Prouty, Enoch, assignor.)						
Pruden, Clarence D., St. Paul, Minn. Sheet-metal building-front	483,163	Sept. 27	2021	{511, 512}	60	1771
Prud'homme, Hector, Marinette, Wis. Scrubbing-machine	478,636	July 12	874	{215, 216}	60	189
Pruser, John N., Union Hill, N. J. Burial-casket	481,370	Aug. 23	2624	645	60	1124
Prutzman, John H., Plankinton, S. D. Trousers-shield	483,164	Sept. 27	2023	512	60	1771
Puccini, Regolo, Chicago, Ill. Stopper-extractor	480,414	Aug. 9	1072	268	60	797
Pullman, Albert B., assignor to A. B. Pullman Company, Chicago, Ill. Sliding-door lock	483,326	Sept. 27, 2 01	579	60	1823	
Pullman, Herbert S., Meriden, Conn. Shoe-fastening	481,638	Aug. 30	3062	748	60	1224
Pullman's Palace Car Company. (See Sessions, Henry H., assignor.)						
Purcell, John J., assignor of one-half to W. H. Allen, Washington, D. C. Coupling for underground wires	483,327	Sept. 27	2303	579	60	1823
Purcell, Thomas W., and J. B. Craig, St. Louis, Mo. Wardrobe, chiffonier, &c	479,078	July 19	1555	{388, 389}	60	331
Purdy, Fred, Englewood, assignor to American Spring Company, Chicago, Ill. Method of and apparatus for tempering wire	482,879	Sept. 20	1567	391	60	1668
Purple, Charles W. (See Purple, George E. and C. W.)						
Purple, George E. and C. W., Minneapolis, Minn.; said George E. Purple assignor to said C. W. Purple. Trolley for electric cars	480,240	Aug. 2	781	{197, 198}	60	729
Purser, Benjamin P. (See Price, Martin, and Purser.)						
Pursley, James F., South Pittsburg, Tenn. Car-coupling	482,809	Sept. 20	1454	361	60	1645
Purves, George. (See Johnston, John H., assignor.)						
Pusey, Joshua, Lima, Pa. Friction-match card	483,165	Sept. 27	2024	512	60	1771
Pusey, Joshua, Lima, Pa. Flexible match	483,166	Sept. 27	2026	512	60	1771
Putman, John, Cerro Gordo, Ill. Nut-lock	478,637	July 12	877	216	60	190
Putnam, Theodore A. B., assignor to E. S. Webster, New York, N. Y. Electric railway-signal	479,333	July 19	1940	485	60	406
Pyott, Louis T., assignor to L. Power & Co., Philadelphia, Pa. Planing-machine	481,371	Aug. 23	2625	646	60	1124
Pyrolith Company. (See Keseling and Fuchs, assignors.)						
Quackenbush, Edward F. (See Nilson, Nils, assignor.)						
Quatermass, Reuben, Moline, Kans. Car-coupling	478,463	July 5	617	150	60	122
Quentell, William P., Kansas City, Mo. Can-soldering machine	479,174	July 19	1710	{428, 429}	60	360
Quentell, William P., Kansas City, Mo. Apparatus for forming and soldering sheet-metal cans	480,034	Aug. 2	443	{112, 113}	60	665
Quincy Gas Economizer Company. (See Cabell, Samuel G., assignor.)						
Quinn, David J., Brookline, and P. W. Hoffmann, Boston, Mass., assignors to Iona Manufacturing Company, of Maine. Gas-lighting device	478,522	July 5	708	171	60	140
Quinton, John H., Portland, Oreg. Horse-hitching device	483,514	Sept. 27	2567	643	60	1875
Quirk, Michael J., and C. Bach, Jr., Milwaukee, Wis. Electric-lighting system	480,782	Aug. 16	1653	413	60	926
R. E. Dietz Company *et al.* (See Gall, John S., assignor.)						
Raatz, Julius, Manistee, Mich. Straw-cutter	482,413	Sept. 13	828	{198, 199}	60	1511
Rabbeth, Francis J., Boston, Mass. Sash-fastener	480,343	Aug. 9	956	242	60	776
Radford, William, San Francisco, Cal. Brick-kiln	480,134	Aug. 2	600	{152, 153}	60	697
Radley, Richard, Buffalo, N. Y. Valve-gear for steam-engines	483,328	Sept. 27	2304	{579, 580}	60	1823
Radley, William, and T. W. Beal, assignors to Sandwich Enterprise Company, Sandwich, Ill. Hand-cart	480,670	Aug. 9	1480	368	60	877
Raeuchle, William, Boston, Mass. Overseam	480,783	Aug. 16	1655	414	60	927
Ragsdale, Charles, Purdy, Mo. Scaffold-bracket	479,662	July 26	2501	623	60	527
Rahn, Frederick. (See Knechler, Charles F., assignor.)						
Raidline, Elvin, Bethlehem, Pa. Bottle-washing machine	480,135	Aug. 2	603	153	60	697
Rand, Addison C., New York, N. Y. Explosive compound	478,819	July 12	1171	.....	60	247
Rand, Charles A. A., assignor to William Deering & Company, Chicago, Ill. Harvester-reel support	481,191	Aug. 23	2321	{571, 572}	60	1068
Randall, Edison E., West Winsted, Conn. Knitting-machine	480,938	Aug. 16	1886	471	60	973
Randall, Robert F., assignor to himself, J. P. Ballou, and E. Van Petrson, Newark, N. J. Coffee-pot	481,769	Aug. 30	3292	801	60	1270
Randall, Robert O., Joplin, Mo. Horse-collar pad	483,016	Sept. 20	1795	452	60	1713
Randall, Silas H., Wyoming, Ohio. Leather-splitting machine	479,461	July 26	2194	551	60	470
Randall, Victor E., Burlington, Mich. Culinary and heating oil-stove	581,511	Aug. 23	2834	701	60	1169
Randolph & Clowes. (See Cotter, Charles A., assignor.)						
Randolph, Frederick W., Raynor, Va. Lubricating-hub	482,195	Sept. 6	450	109	60	1423
Rands, George L., London, England. Stand for poison-bottles	478,818	July 12	1170	290	60	247
Range, John J. (See Foote and Range.)						
Range, John J. (See Saunders, Range, and Foote.)						
Range, John J., assignor to Boston Cash Register Company, Northampton, Mass. Cash-register	479,334	July 19	1946	486	60	407
Range, John J., assignor to Boston Cash Register Company, Northampton, Mass. Cash-register	479,335	July 19	1947	486	60	407
Range, John J., assignor to Boston Cash Register Company, Northampton, Mass. Cash-register	479,336	July 19	1949	{486, 487}	60	407
Ranker, Frank X., Pittsburg, Pa. Hinge	480,238	Aug. 2	773	195	60	729
Rankin, Edmund, Jr., Lincoln, Ill. Rein-holder	479,006	July 19	1586	397	60	337
Ranney, Maurice M., Comstock, Mich. Machine for digging celery	481,819	Aug. 30	3372	826	60	1284
Ranney, William H., Detroit, Mich. Card shuffling and dealing mechanism	483,364	Sept. 27	2449	590	60	1832
Ransom, William H., Kirksville, Mo. Bolt-cutter	480,858	Aug. 16	1767	443	60	949
Rapid Transit Cable Company. (See Pendleton, John H., assignor.)						
Rapid Transit Cable Company. (See Pendleton and Bryson, assignors.)						
Rapkin, Alfred T., and F. Cossor, London, England; said Cossor assignor to said Rapkin. Indicating-thermometer	483,365	Sept. 27	2350	591	60	1832
Rapp, Joseph, New Philadelphia, Ohio. Roofing-tile	478,171	July 5	160	41	60	34
Raprager, Robert H., Lakota, N. D. Pump	478,464	July 5	619	150	60	122
Rasey, John D., assignor of one-half to F. M. Hasbrouck, Oshkosh, Wis. Auxiliary base for stoves	480,212	Aug. 2	734	185	60	791

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rath, Charles, Mobeetie, Tex. Wheeled scraper	482,414	Sept. 13	829	199	60	1511
Rathburn, Sereno H., Stanberry, Mo. Street-sweeping machine	482,196	Sept. 6	451	109	60	1423
Rathgeb, Emil, New York, N. Y. Mechanical fly-trap	481,820	Aug. 30	3375	827	60	1284
Raudenbush, Harry R., Vicksburg, Pa. Spring for vehicles						

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rettich, Frank D., Cincinnati, Ohio, assignor to Mather Manufacturing Company, Philadelphia, Pa. Addressing-machine	481,639	Aug. 30	3063	748	60	1225

Alphabetical list of patentees, July to September, inclusive—Continued.

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Rath, Charles, Mobeetie, Tex. Wheeled scraper	482,414	Sept. 13	829	199	60	1511
Rathburn, Sereno H., Stanberry, Mo. Street-sweeping machine	482,196	Sept. 6	451	109	60	1423
Rathgeb, Emil, New York, N. Y. Mechanical fly-trap	481,820	Aug. 30	3375	827	60	1284
Raudenbush, Harry R., Vicksburg, Pa. Spring for vehicles	482,3?5	Sept. 13	789	190	60	1504
Rauh, Andrew, Bridgeport, Conn. Device for adjusting brakes	478,638	July 12	878	216	60	190
Ravencroft, Evan B., assignor of one-half to T. H. Carter, North Baltimore, Ohio. Cistern-cleaner	481,423	Aug. 23	2720	669	60	1142
Ravenshaw, Henry W. (See Atkinson, Ravenshaw, and Mori.)						
Rawle, John, Chicago, Ill. Stone cutting and dressing machine	482,098	Sept. 6	284	69	60	1339
Rawle, John, Chicago, Ill. Stone cutting and dressing machine	482,099	Sept. 6	288	69	60	1392
Rawle, John, Chicago, Ill. Unicycle	482,100	Sept. 6	291	70	60	1393
Ray, Chauncey T., Rockford, Ill. Starching-machine	480,344	Aug. 9	958	242	60	776
Ray, Edgar. (See Tweedle, Michael, assignor.)						
Ray, Ethel A., Florence, S. C. Crane for suspending mail-bags	481,673	Aug. 30	3116	761	60	1234
Raymond, Franklin L. (See Lane, John H., assignor.)						
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	479,142	July 19	1661	415	60	351
Raymond, Freeborn F., 2d, Newton, Mass. Heel-loading machine	480,415	Aug. 9	1073	268, 269, 270	60	797
Raymond, Freeborn F., 2d, Newton, Mass. Jack for heel-nailing machines	480,741	Aug. 16	1592	399	60	914
Raymond, Nelson H., assignor of one-half to C. M. Proctor, Buffalo, N. Y. Watchman's electric time-recorder	483,308	Sept. 27	2273	572	60	1818
Raymond, Nelson H., assignor to C. M. Proctor, Buffalo, N. Y. Electric bell	483,309	Sept. 27	2276	572	60	1818
Raymond, Nelson H., assignor to C. M. Proctor, Buffalo, N. Y. Electrical annunciator	483,310	Sept. 27	2278	572	60	1818
Read, Charles H. (See Stupakoff, Simon H., assignor.)						
Read, Harry F., assignor of one-half to L. A. Dodd, Baltimore, Md. Registering and measuring faucet	479,721	July 26	2622	650, 651	60	549
Reade, Charles A., Chicago, Ill. Horseshoe	482,650	Sept. 13	1200	292	60	1583
Reading Iron Company. (See Wolfe, Edward M., assignor.)						
Reagan, Harry C., Jr., Philadelphia, Pa. Injector	480,784	Aug. 16	1656	414	60	927
Reagan, Harry C., Jr., assignor of two-thirds to E. F. Peacock, Philadelphia, Pa., and T. Pray, Jr., New York, N. Y. Compound locomotive	481,149	Aug. 16	2253	556	60	1041
Reager, Frank S., Germantown, Cal. Reel-support	483,389	Sept. 27	2394	601	60	1840
Reason, Albert, Pinckney, Mich. Thrashing-machine attachment	479,156	July 19	1679	420	60	354
Rector, Enoch J., *et al.* (See Lang and Roper, assignors.)						
Redfield, Casper L., Chicago, Ill., assignor to Chicago Matrix Machine Company. Forming matrices	481,308	Aug. 23	2539	624	60	1107
Redfield, Casper L., Chicago, Ill., assignor to Chicago Matrix Machine Company. Type-writing machine	481,309	Aug. 23	2540	624	60	1108
Redfield, Lewis H., assignor of one-half to J. R. Clancy, Syracuse, N. Y. Hose-clamp	480,513	Aug. 9	1225	307	60	827
Redfield, Lewis H., assignor of one-half to J. R. Clancy, Syracuse, N. Y. Hose-clamp	480,514	Aug. 9	1226	307	60	827
Redfield, Lewis H., assignor of one-half to J. R. Clancy, Syracuse, N. Y. Hose-clamp	480,515	Aug. 9	1227	307	60	828
Reece, John, Boston, Mass. Sewing-machine for finishing buttonhole-pieces	479,572	July 26	2371	591	60	503
Reed & Carnrick. (See Carnrick, George W., assignor.)						
Reed, Charles S., Boston, Mass. Sign for cars	482,928	Sept. 20	1643	414	60	1682
Reed, Daniel, Ansonia, Conn. Cutlery-grinder	480,035	Aug. 2	445	113	60	666
Reed, James, Cambridge, Mass. Landing-net frame	479,157	July 19	1682	420, 421	60	355
Reed, Jerome B., Sunbury, Pa. Pocket-register	478,363	July 5	474	115	60	94
Reed, John W., Chicago, Ill. Piano-action rail	480,829	Aug. 16	1728	432	60	941
Reed, Nicholas S. (See Maine, David F., assignor.)						
Reed, Thomas L., Providence, R. I. Insulated electric wire	482,753	Sept. 20	1377	341	60	1629
Reed, Wesley G., *et al.* (See Clow, William, assignor.)						
Reedy, Henry J., Cincinnati, Ohio. Automatic stop-valve for elevators	480,278	Aug. 9	851	217	60	757
Rees, Jonathan, Phœnixville, Pa. Wheel	481,821	Aug. 30	3376	827	60	1285
Reese, Abram, Pittsburg, Pa. Universal rolling-mill	481,058	Aug. 16	2086	520, 521	60	1011
Reese, Jacob, Pittsburg, assignor to Bessemer Steel Company, Limited, Philadelphia, Pa. Basic lining	481,869	Aug. 30	3449	.....	60	1300
Reeves, Abbott M., Decatur, Ill. Baby-carriage	478,172	July 5	160	41	60	34
Reford, John H., Philadelphia, Pa. Vending apparatus	478,714	July 12	981	244	60	211
Rehfuss, George, M. O., and J. G., assignors to H. D. Justi, Philadelphia, Pa. Tool-holder	478,943	July 12	1337	332	60	280
Rehfuss, John G. (See Rehfuss, George, M. O., and J. G.)						
Rehfuss, Martin O. (See Rehfuss, George, M. O., and J. G.)						
Reichenbach, Henry M., assignor, by mesne assignments, to Eastman Kodak Company, Rochester, N. Y. Manufacture of photographic films	479,305	July 19	1904	.....	60	398
Reichwein, Herman, Spring Lake, N. J. Shutter-bower	480,136	Aug. 2	604	153	60	697
Reiffer, Ulrich, and J. F. Stauffer, Chicago, Ill. Oil-can	480,742	Aug. 16	1593	399	60	914
Reimann, Georg, Berlin, Germany. Bunsen burner	478,364	July 5	475	115	60	94
Reimer, Carl, Halle, Germany. Hardening objects made of crude gypsum	479,019	July 19	1467	.....	60	315
Reinbold, Benjamin F., Lickdale, Pa. Bolting-reel	480,345	Aug. 9	960	242, 243	60	776
Reinfeld, Mayer, St. Louis, Mo. Frame for pictures and similar purposes	481,333	Aug. 23	2578	633	60	1115
Reinohl, David C. (See Johnston, James J., assignor.)						
Reitz, Daniel G., assignor to Eureka Wood Pulley Company, Berlin, Pa. Split pulley	481,871	Aug. 30	3451	846, 847	60	1300
Remaly, Sylvester, Johnstown, Nebr. Plow	483,311	Sept. 27	2279	573	60	1818
Remington Standard Type Writer Manufacturing Company. (See Diss, Louis P., assignor.)						
Remington Standard Type Writer Manufacturing Company. (See Shepard, Charles H., assignor.)						
Remington Standard Type Writer Manufacturing Company. (See Webb, George B., assignor.)						
Rempen, Carl A., and E. Andre, assignors to F. Heuser & Co., Hanover, Germany. Pressure-regulating valve	479,462	July 26	2196	551	60	470
Renard, Victorien L. M., Paris, France, assignor to C. F. Veit, London, England. Stand for exhibiting pictures, &c.	478,887	July 12	1256	311	60	264
Rendell, Charles H., and E. S. Pinney, Tulare City, Cal. Calendar	482,929	Sept. 20	1644	414	60	1682
Renold, Hans, Manchester, W. T. Goolden, L. B. Atkinson, and S. C. G. Gold, London, England. Cutter or drill applicable to coal, &c	481,656	Aug. 30	3092	754	60	1230
Rensen, John H., Philadelphia, Pa. Tailor's measuring apparatus	480,036	Aug. 2	446	113	60	667
Repp, Ephraim B., Washington, D. C. Metallic roofing-tile	482,025	Sept. 6	171	41	60	1368
Rerrich, Franz, Buda-Pesth, Austria-Hungary. Filter-can	478,365	July 5	476	115	60	95
Resley, Horace, Cumberland, Md. Means for radiating car-trucks	480,830	Aug. 16	1728	432	60	941

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Rettich, Frank D., Cincinnati, Ohio, assignor to Mather Manufacturing Company, Philadelphia, Pa. Addressing-machine	481,639	Aug. 30	3063	748	60	1225
Rettig, Adolf, Saarbrücken, Germany. Telephone	481,284	Aug. 23	2495	614	60	1101
Rettig, Charles, Philadelphia, Pa. Barrel-stand	481,640	Aug. 30	3065	748	60	1225
Reuther, Carl, Hennef-on-the-Sieg, Germany. Grain-weighing apparatus	478,465	July 5	621	151	60	123
Reutter, Samuel E., Titusville, Pa. Folding base for stands	480,346	Aug. 9	962	243	60	777
Reynolds, George H., New York, N. Y., assignor, by mesne assignments, to National Company, Chicago, Ill. Mechanical movement	479,526	July 26	2304	576	60	490
Reynolds, James, Fairfield, assignor to R. M. Fairfield, Holyoke, Mass. Suction mechanism for paper-machines	483,329	Sept. 27	2306	580	60	1824
Reynolds, John H. (See Gerdom, Gregory, assignor.)						
Reynolds, Richard J., assignor of one-half to G. M. Jones, Springville, Ala. Car-coupling	479,989	Aug. 2	358	88	60	649
Reynolds, Samuel F., Auburn, N. Y. Hose-reel	483,390	Sept. 27	2395	602	60	1840
Rhind, Frank, Meriden, Conn. Argand lamp	480,373	Aug. 9	1005	253	60	785
Rhind, Frank, assignor of one-half to Edward Miller & Company, Meriden, Conn. Wick-adjusting device	478,288	July 5	360	87	60	72
Rhind, Frank, assignor of one-half to Edward Miller & Company, Meriden, Conn. Argand lamp	478,639	July 12	879	216	60	190
Rhind, Frank, assignor of one-half to Edward Miller & Company, Meriden, Conn. Argand lamp	481,674	Aug. 30	3118	761	60	1235
Rhind, Frank, assignor of one-half to Edward Miller & Company, Meriden, Conn. Argand lamp	483,167	Sept. 27	2028	513	60	1772
Rhoades, Alonzo E. (See Bancroft and Rhoades.)						
Rhoades, Alonzo E., assignor to Hopedale Machine Company, Hopedale, Mass. Warping-machine	478,523	July 5	709	172	60	141
Rhodes, John W., Havana, Ill. Wheel	481,822	Aug. 30	3377	827	60	1285
Rhodes, Joseph T., Shell, Ala. Rotary cutter-head	480,137	Aug. 2	605	153, 154	60	698
Rice, Charles E., and L. B. McDonald, Little Rock, Ark. Fire-escape	479,527	July 26	2306	576	60	491
Rice, Edwin W., Jr., *et al.* (See Wakefield, William O., assignor.)						
Rice, John H., Henderson county, Ill. Portable roof	480,859	Aug. 16	1768	443	60	949
Rich & Sager. (See Sager, James H., assignor.)						
Richard, Theogene E., Lake Charles, La. Portable evaporating apparatus	481,675	Aug. 30	3119	761, 762	60	1235
Richards, Arthur M., Bloomington, and J. A. Giese, Chicago, Ill.; said Giese assignor to said Richards. Chair	478,130	July 5	74	20	60	17
Richards, Arthur M., Bloomington, and I. Veeder, Chicago, Ill.; said Veeder assignor to said Richards. Chair	478,131	July 5	75	20	60	17
Richards, Charles. (See Baackes and Richards.)						
Richards, Charles R. (See Hobbs and Richards.)						
Richards, Charles R., assignor to Union Metallic Cartridge Company, Bridgeport, Conn. Tool for trimming heads of cartridge-shells	479,125	July 19	1634	409	60	345
Richards, Charles T. (See Brunkhorst, Wieden, and Richards.)						
Richards, Charles T., assignor to Mesker & Bro., St. Louis, Mo. Building-front	480,909	Aug. 16	1846	459, 460	60	965
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Slide feed mechanism	480,347	Aug. 9	963	243	60	777
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Gearing	480,671	Aug. 9	1481	368, 369	60	877
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Turret-clamping device	480,962	Aug. 16	1931	483	60	981
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Turret mechanism for lathes	480,963	Aug. 16	1933	484	60	981
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Turret mechanism	480,964	Aug. 16	1935	484, 485	60	982
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Stop mechanism for turret-lathes	481,192	Aug. 23	2323	572, 573	60	1009
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Tool-holding device	481,193	Aug. 23	2325	573	60	1069
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Friction-clutch	481,194	Aug. 23	2326	573	60	1070
Richards, John T., Gardiner, Me. Dust-guard for hubs	478,466	July 5	622	151	60	123
Richards, Joseph W., Philadelphia, Pa. Solder for aluminium	478,238	July 5	283	.....	60	57
Richards, Walter F. (See Cranston, Otto G., assignor.)						
Richards, Walter S., Natick, assignor to G. B. James, Boston, Mass. Automatic battery cut-off	482,136	Sept. 6	342	82	60	1402
Richards, Walter S., Natick, assignor of one-half to G. B. James, Boston, Mass. Electrically-adjusting relay	482,137	Sept. 6	344	82	60	1403
Richards, William, Rochester, N. Y. Adjustable chair	480,743	Aug. 16	1594	399, 400	60	915
Richards, William, W. Garwood, and H. N. Rosebrook, Big Springs, Ohio; said Richards assignor to said Garwood and Rosebrook. Harrow	483,501	Sept. 27	2540	638	60	1870
Richardson, Charles G., Boston, Mass. Lathe	481,717	Aug. 30	3190	779, 780	60	1219
Richardson, John, San Francisco, Cal. Saw filing and setting machine	481,823	Aug. 30	3378	827, 828	60	1285
Richardson, John P., and G. F. Dyer, Cambridge, assignors to Mason & Hamlin Organ and Piano Company, Boston, Mass. Damper-action for pianofortes	481,121	Aug. 16	2194	543	60	1030
Richardson, Wilbur E., Milwaukee, Wis. Traction-engine	480,626	Aug. 9	1408	350	60	863
Richter, Maurice, Williamstown, W. Va. Balanced stage	478,467	July 5	623	151	60	123
Richter, Max A., and J. G. Nolen, assignors to Illinois Electric Lamp Company, Chicago, Ill. Incandescent electric lamp	479,020	July 19	1468	365	60	315
Richtmann, Charles, Newark, N. J. Lock	478,239	July 5	284	70	60	58
Rickabach, William H., assignor of one-half to W. A. Fore, Mishawaka, Ind. Hoisting-machine	483,391	Sept. 27	2396	602	60	1840
Riddelle, Philip S., *et al.* (See Rinker, Robert S., assignor.)						
Rider, John T., assignor of one-fourth to H. Fritz, South Oil City, Pa. Plumb-level	482,026	Sept. 6	173	41	60	1368
Ridgely, Charles T., and M. A. Smith, Springfield, Ohio. Straight-edge	480,516	Aug. 9	1228	307	60	828
Riebeling, Hugo R. (See Windfelder, George F., assignor.)						
Riedel, Herman, *et al.* (See Meyer, Henry, assignor.)						
Riepe, Fritz H., Jr., and C. E. Hilgeman, Metropolis City, Ill. Heating-stove and draft-regulator therefor	481,870	Aug. 30	3450	846	60	1300
Riessner, Paul. (See Brachhausen and Riessner.)						
Rigby, Harry. (See Westwood and Rigby.)						
Rigby, Nicholas L., Los Angeles Cal. Lawn-sprinkler	483,017	Sept. 20	1796	453	60	1713

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Riggs, Horace A., Plymouth, Ohio. Brick-cutting machine	479,663	July 26	2502	623, 624, 625	60	527
Righter, James B., Reedsburg, Wis. Button	482,651	Sept. 13	1201	292	60	1583
Riguel, George T., Plainfield, N. J. Feathering paddle-wheel	479,526	July 26	2304	576	60	490

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rodgers, Alexander, Sr., assignor to Rodgers Iron Manufacturing Company, Muskegon, Mich. Sawing-machine	482,319	Sept. 6	665	159	60	1465

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Riggs, Horace A., Plymouth, Ohio. Brick-cutting machine	479,663	July 26	2502	623, 624, 625	60	527
Righter, James B., Reedsburg, Wis. Button	482,651	Sept. 13	1201	292	60	1583
Riguel, George T., Plainfield, N. J. Feathering paddle-wheel	479,528	July 26	2307	576, 577	60	491
Riker, Andrew L., New York, N. Y. Electric-railway system	483,366	Sept. 27	2352	591	60	1833
Rinderknecht, Charles J. (See Lipman and Rinderknecht.)						
Rinehart, Beecher H., Alliance, Ohio. Ditching-plow	483,476	Sept. 27	2501	630	60	1802
Rinker, Robert S., Rinkerton, Va., assignor of two-thirds to P. S. Riddelle, Washington, D. C., and M. Funkhouser, Rinkerton, Va. Corn-harvester	481,059	Aug. 16	2090	521, 522	60	1012
Ripley, Edwin L. (See Robertson and Genin, assignors.)						
Ripson, John D., assignor of one-half to J. J. Franklin and J. Battle, Thorold, Canada. Casket-handle	481,531	Aug. 23	2897	711	60	1178
Risdon Iron and Locomotive Works. (See Booth, Edgar H., assignor.)						
Rishel, John K., Hughesville, Pa. Carving-machine	481,372	Aug. 23	2626	646	60	1124
Ritchie, Annie. (See Grant, Duncan E., assignor.)						
Ritchie, Edward S., Newton, Mass. Azimuth-circle	481,625	Aug. 30	3046	743, 744	60	1221
Ritter, Frederic W., Jr. (See McGilvray, Bernard, assignor.)						
Ritter, Frederic W., Jr. (See Snavely, Samuel H., assignor.)						
Ritterbeck, Jacob, Newark, N. J. Door-jamb setter	481,245	Aug. 23	2421	597, 598	60	1087
Rivers, Thomas L., assignor of one-third to J. Thielemann, Newark, N. J. Car-coupling	482,833	Sept. 20	1490	370, 371	60	1653
Riverside Iron Works. (See Maddock, William H., assignor.)						
Roach, Bertha B., Upper Alton, Ill. Swinging bed for infants	482,275	Sept. 6	579	138	60	1448
Roadifer, Erastus, Carpenter, Ind. Draft-equalizer	480,517	Aug. 9	1229	308	60	828
Roanoke Wood Novelty Company. (See Nicholson, Jacob H., assignor.)						
Robare, Louis F., Au Sable Forks, assignor to himself, and R. J. Clark, Champlain, N. Y. Scale attachment	482,138	Sept. 6	345	83	60	1403
Robb, James T., Mount Vernon, assignor to Bergmann & Company, New York, N. Y. Device for supporting fixtures	480,744	Aug. 16	1595	400	60	915
Robb, James T., Mount Vernon, assignor to Edison General Electric Company, New York, N. Y. Electric-light fixture	480,745	Aug.	1596	400	60	915
Robberson, Alexander J., assignor of one-half to J. W. Hostetler, Napa, Cal. Pillow-sham holder	481,424	Aug. 23	2721	669	60	1142
Robberson, John W., Belcherville, Tex. Musical notation	482,442	Sept. 13	880	211, 212	60	1519
Robbins, Andrew B., assignor of one-half to E. W. Loose, Minneapolis, Minn. Horse-power lawn-mower	480,831	Aug. 16	1730	432	60	942
Robbins, Samuel F., Langhorne, Pa. Basket handle or carrier	479,529	July 26	2309	577	60	491
Roberts, Edward F., Columbus, Ohio. Electric valve-controller	482,139	Sept. 6	346	83	60	1403
Roberts, Edward F., Rochester, N. Y., assignor to Roberts Manufacturing Company, of Ohio. Cash register and indicator	481,824	Aug. 30	3382	828, 829, 830	60	1226
Roberts, Edward P., Cleveland, Ohio. Floating figure	479,530	July 26	2310	577	60	492
Roberts, George L., Grand Rapids, Mich. Fire-escape for buildings	480,518	Aug. 9	1230	308	60	828
Roberts, Henry P., Jamestown, N. Y. Boot or shoe creaser	482,529	Sept. 13	1028	249	60	1550
Roberts, Lorin. (See Fulghum and Roberts.)						
Roberts Manufacturing Company. (See Roberts, Edward F., assignor.)						
Roberts, Robert, Brooklyn, N. Y. Wood-cutting tool	479,306	July 19	1906	476	60	398
Roberts, William D. (See Freeman, Thomas R., assignor.)						
Robertson, George. (See Jewell, William M., assignor.)						
Robertson, James, Birmingham, England. Shaping metal tubes	481,060	Aug. 16	2096	522, 523	60	1013
Robertson, James L., New York, N. Y. Exhaust-head	481,373	Aug. 23	2629	647	60	1124
Robertson, Richard S., Castle Gate, Utah Ter. Car-coupling	479,079	July 19	1556	389	60	331
Robertson, Rinaldo S., Artondale, Wash. Adding-machine	479,531	July 26	2311	578	60	492
Robertson, William, assignor to J. A. McPherson, Hamilton, Canada, and E. D. Weyburn, Chicago, Ill. Cementing-machine	483,367	Sept. 27	2354	591	60	1833
Robertson, William J., and J. B. Genin, St. Albans, assignors to themselves and E. L. Ripley, Burlington, Vt. Extension-ladder	478,969	July 12	1382	340	60	287
Robinson, Alba H., Meeker, Colo. Fountain-pen	478,944	July 12	1338	332	60	280
Robinson, Alfred A., Lowell, Mass. Toy	480,279	Aug. 9	854	218	60	758
Robinson, Cyrus R., East Concord, N. H. Hose-nozzle holder	479,811	Aug. 2	100	25	60	601
Robinson, Dighton A., Minneapolis, Minn. Elevator-belt drive	481,150	Aug. 16	2255	556, 557	60	1041
Robinson, Frank L., Hartland, Me. Shirt-collar holder	481,425	Aug. 23	2723	669	60	1143
Robinson, James T., *et al.* (See Dobeck, Frank H., assignor.)						
Robinson, Joe and R., assignors of one-half to O. B. Lister, Dudley Hill, near Bradford, England. Support for whirls of spindle-bobbins	482,695	Sept. 13	1277	313	60	1598
Robinson Rea Manufacturing Company *et al.* (See Cribb, Ira P., assignor.)						
Robinson, Richard. (See Robinson, Joe and R.)						
Robinson, Robert E. (See Dunfee, John C., assignor.)						
Robinson, Stillman W., Columbus, Ohio. Gage for measuring the velocity of fluids	481,310	Aug. 23	2544	625	60	1108
Robinson, Thomas A. (See Teweles and Robinson.)						
Robinson, Thomas H. (See Wigg, Edmund T., assignor.)						
Roche, Edward, Providence, R. I. Waterproof shoe	483,289	Sept. 27	2249	566	60	1813
Roche, James, assignor to Eagle Lock Company, Terryville, Conn. Lock	481,736	Aug. 30	3231	787	60	1257
Rochelle, Henry L., *et al.* (See Calcutt, Marvin Y., assignor.)						
Rochlitz, William, assignor to E. Roos, Chicago, Ill. Rest or bracket for easels	480,280	Aug. 9	855	218	60	758
Rockfellow, Andrew, South Richland, N. Y. Stock-watering apparatus	479,197	July 19	1747	438	60	367
Rockford Bolt Works. (See Mutimer, Frederick, assignor.)						
Rockhill, Robert A., *et al.* (See Marsden, Mark W., assignor.)						
Rockliff, William A., and J. P. Foley, Rumsey, Mont. Hydraulic mining-pump	482,810	Sept. 20	1456	361	60	1646
Rockwell, Edward D., assignor to New Departure Bell Company, Bristol, Conn. Bell	482,696	Sept. 13	1278	313	60	1598
Rockwell, Edward D., assignor to New Departure Bell Company, Bristol, Conn. Bicycle-bell	483,084	Sept. 20	1867	477, 478	60	1732
Rockwell, F. C. (See Green, Henry, assignor.)						
Rockwell, Frederick C., Hartford, Conn. Pedal for velocipedes	483,238	Sept. 27	2140	542	60	1794
Rodecap, George W., Middletown, Ind. Folding bed	478,761	July 12	1065	264, 265	60	227
Rodenbach-Mergaert, Edouard. (See Croes, Rodenbach-Mergaert, and Lapin.)						
Rodes, Tyree T., Paris, Mo. Hand-cultivator	478,468	July 5	624	152	60	123

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Rodgers, Alexander, Sr., assignor to Rodgers Iron Manufacturing Company, Muskegon, Mich. Sawing-machine	482,319	Sept. 6	665	159	60	1465
Rodgers, Alexander, Sr., assignor to Rodgers Iron Manufacturing Company, Muskegon, Mich. Sawing-machine	482,697	Sept. 13	1279	313	60	1599
Rodgers Iron Manufacturing Company. (See Rodgers, Alexander, Sr., assignor.)						
Rodgers, Samuel, assignor to United States Smokeless Powder Company, San Francisco, Cal. Explosive compound	478,366	July 5	477		60	95
Rodman, Rollin L., Kingman, Kans. Device for steaming or tempering grain	482,590	Sept. 13	1119	270	60	1568
Roe, Fayette W., Omaha, Nebr. Calendar for watch-charms	478,888	July 12	1257	311	60	264
Roe, Mary, Dayton, Minn. Heating apparatus	479,463	July 26	2197	551	60	471
Roebuck, Samuel, New York, N. Y. Window-screen	482,811	Sept. 20	1458	362	60	1646
Roehm, Edward R., assignor to Roehm & Son, Detroit, Mich. Program and score-card chatelette	481,195	Aug. 23	2328	574	60	1070
Roehm & Son. (See Roehm, Edward R., assignor.)						
Roessler, Heinrich, assignor of one-half to B. Edelmann, Frankfort-on-the-Main, Germany. Desilvering argentiferous lead	480,416	Aug. 9	1077		60	797
Rogers, Augustus H., North Amherst, Ohio. Wire-and-picket-fence machine	478,173	July 5,	161	42	60	34
Rogers, Charles D., assignor to American Screw Company, Providence, R. I. Wood-screw and making the same	479,175	July 19	1712	429, 430	60	361
Rogers, Charles S., San Antonio, Tex., assignor of one-half to L. J. Overcash, New York, N. Y. Supporter for trousers and similar garments	480,672	Aug. 9	1482	369	60	877
Rogers, Henry E., South Manchester, Conn. Machine for polishing paper	478,762	July 12	1067	265	60	228
Rogers, John F., Belfast, Me. Vamp-marking machine	480,438	Aug. 9	1109	277, 278	60	803
Rogers, William C. (See Brooks, Franklin W., assignor.)						
Rogers, William D., Alameda, and J. D. Van Buren, San Francisco, Cal. Envelope-opener	478,889	July 12	1259	311	60	264
Rogers, Winfield S., Troy, N. Y. Railway-car ventilator	481,196	Aug. 23	2329	574	60	1070
Rohlmann, Joseph, St. Joseph, Mo. Carving-machine	478,640	July 12	880	217, 218	60	190
Rollins, Ellsworth H., *et al.* (See Morrill, George W., assignor.)						
Rollins, George O. (See Rollins, John P., assignor.)						
Rollins, John P., assignor of one-half to G. O. Rollins, Cedar Rapids, Iowa. Car-coupling	479,990	Aug. 2	359	89	60	649
Rollman, Elmer A., Eaton, Ohio. Tobacco-planter	478,289	July 5	361	87	60	73
Rooms, Evo, Nevada, Mo. Machine for making retorts, &c	480,138	Aug. 2	607	154	60	698
Roos, Edward. (See Rochlitz, William, assignor.)						
Roos, Israel, Frankfort-on-the-Main, Germany. Making salicylaldehyde-alphaphenylmethyl hydrazone	483,290	Sept. 27	2250		60	1813
Roos, Jacob, Brooklyn, N. Y. Liquid-measuring device	481,872	Aug. 30	3452	847	60	1300
Root, Albert A., Detroit, Mich. Safe	479,464	July 26	2198	552	60	471
Root, Samuel D., and G. C. Vineyard, Anaconda, Mont. Cable railway	480,519	Aug. 9	1231	308, 309	60	828
Roper, James W. (See Lang and Roper.)						
Rose, Albert F. (See Bowman, Rose, and Morse.)						
Rose, George, Glasgow, Scotland. Liquid-fuel furnace	482,834	Sept. 20	1492	371	60	1653
Rose, Henry. (See Hay, Gilbert, assignor.)						
Rose, William J., Horseheads, assignor of one-half to N. M. Compton, Sullivanville, N. Y. Whiffletree	482,698	Sept. 13	1280	314	60	1599
Rosebrook, Harry N. (See Richards, Garwood, and Rosebrook.)						
Rosenbaum, Henry W., and E. Neubert, New York, N. Y., assignors to said Rosenbaum. Registering-stamp	480,965	Aug. 16	1938	485	60	982
Rosenbaum, Henry W., and E. Neubert, New York, N. Y., assignors to said Rosenbaum. Coin-actuated stamp	480,966	Aug. 16	1940	485	60	982
Rosenfeld, Louis, New York, N. Y. Feeder for coal, ore, &c	482,652	Sept. 13	1202	293	60	1583
Rosenfield, William W., New York, N. Y., assignor to Empire Cash Register Company. Column-printing device	478,524	July 5	710	172	60	141
Rosenstiehl, Daniel A., Paris, France. Making azo colors	483,368	Sept. 27	2352		60	1833
Rosenthal, Adolph, assignor of three-fourths to C. Rosenthal, H. Goldstein, and L. Bash, Boston, Mass. Hat, cap, &c	482,950	Sept. 20	1686	424	60	1690
Rosenthal, Charles, *et al.* (See Rosenthal, Adolph, assignor.)						
Rosenzweig, Max S., New York, N. Y. Tray	479,664	July 26	2512	625	60	529
Ross, William S., Madisonville, Ky. Urinal	482,754	Sept. 20	1378	341, 342	60	1629
Rost, Ernest C., *et al.* (See Schwartz, William, assignor.)						
Röstel, Carl, assignor to Grusonwerk, Magdeburg, Germany. Breech-loading firearm	480,627	Aug. 9	1409	351, 352	60	863
Rotary Engine Syndicate. (See Towlson, Edward, assignor.)						
Roth, Charles F., assignor of one-half to Kelly Nail and Iron Company, Ironton, Ohio. Attachment for cut-nail machines	483,085	Sept. 20	1889	478, 479	60	1733
Roth, Charles H., Cincinnati, Ohio. Pneumatic tire	481,197	Aug. 23	2330	574	60	1070
Rothlisberger, Ernest, Lima, Ohio. Electric low-water alarm	480,673	Aug. 9	1484	369	60	877
Rothrock, Lewis W., Morrisdale Mines, Pa. Neck-yoke	481,925	Aug. 30	3386	830	60	1287
Rounds, George M., Taunton, Mass. Bale-tie cutter	480,878	Aug. 16	1796	449	60	955
Rouse, Seymour A., Indianapolis, Ind. Wind-engine	478,945	July 12	1340	332, 333	60	280
Rover, John and W. A., Lima, Ohio. Draw-timber for cars	482,653	Sept. 13	1203	293	60	1583
Rover, William A. (See Rover, John and W. A.)						
Rowan, John. (See Underwood, Thomas M., assignor.)						
Rowan, John L., Joplin, Mo. Rotary steam-engine	478,240	July 5	287	70	60	58
Rowe, Henry L., New York, N. Y., and G. W. McDonald, Franklin, N. J. Washing-machine attachment	480,037	Aug. 2	448	113, 114	60	667
Rowe, Isaac N., assignor of one-half to D. D. Minis, Wood's, Tex. Conveying apparatus	483,120	Sept. 20	1943	491	60	1744
Rowland, George R., Brooklyn, N. Y. Toy money-safe	478,890	July 12	1259	311	60	264
Rowland, William L., Philadelphia, Pa. Ammonia-distilling apparatus	478,132	July 5	76	20	60	17
Rowlett, Jacob V., Richmond, Ind. Rake	479,842	Aug. 2	101	26	60	602
Rowlett, Jacob V., Richmond, Ind. Lawn-mower	479,843	Aug. 2	102	26	60	602
Rowntree, Harold, assignor of one-half to J. B. Burdett, Kansas City, Mo. Device for operating elevator-doors	479,956	Aug. 2	283	71	60	636
Royal Machine Company. (See Brown, Charles F., assignor.)						
Royce, Charles. (See Miller, Charles W., assignor.)						
Rubel, Joseph S., Le Mars, Iowa. Incubator	482,755	Sept. 20	1379	342	60	1630
Rubin, Jacob. (See Shostak, Joseph, assignor.)						
Rudasill, Jacob, Cherryville, N. C. Machine for cleaning wheat	478,469	July 5	625	152	60	124
Rudd, Charles H., Evanston, assignor to Western Electric Company, Chicago, Ill. Testing apparatus for electric-lighting circuits	480,038	Aug. 2	449	114	60	667

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Rudd, Charles H., Evanston, assignor to Western Electric Company, Chicago, Ill. Device for measuring electrical currents	480,039	Aug. 2	451	114, 115	60	668
Rudd, Charles H., Evanston, assignor to Western Electric Company, Chicago, Ill. Measuring the strength of magnets	483,168	Sept. 27	2020	513	60	1758
Rudolph, Alexander J. See Fuchs, Rudolph, and Rudolph.						

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Sandford, C. N. (See Holmes, Franklin, assignor.)						
Sandwich Enterprise Company. (See Radley and Beal, assignors.)						
Sanford Foundry and Machine Works. (See Edgar, William, assignor.)						

Alphabetical list of patentees, July to September, inclusive—Continued.

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Rudd, Charles H., Evanston, assignor to Western Electric Company, Chicago, Ill. Measuring the strength of magnets						
Rudolph, Alexander J., San Francisco, Cal. Continuous file or index	483,168	Sept. 27	2030	513	60	1772
Rudolph, Alexander J., San Francisco, Cal. Library catalogue	483,312	Sept. 27	2280	573	60	1819
Rue, Isaac T., Matawan, N. J. Enameled brick and making the same	483,313	Sept. 27	2281	573	60	1819
Rueff, Frederick W., San Francisco, Cal. Fermenting process	479,021	July 19	1471	.....	60	315
Ruffin, Marie C. A. (See Bang and Ruffin.)	481,061	Aug. 16	2104	523	60	1013
Rugg, Ephraim T., Alexandria, Ohio. Rope-hold	482,756	Sept. 20	1380	342	60	1630
Ruhl, Christian H., trustee. (See Jackson, Calvin, assignor.)						
Ruhl, David L. (See Ruhl, John W., assignor.)						
Ruhl, John W., assignor of one-half to D. L. Ruhl, Mifflinburg, Pa. Gate	479,665	July 26	2513	625	60	529
Rundquist-Wanner, Frans H., Stockholm, Sweden. Wheel	479,722	July 26	2624	651	60	549
Runge, Gustave. (See Bingham and Runge.)						
Runser, Sebastian, Greenville, Pa. Setting for steam-boilers. (Reissue)	11,268	Sept. 6	687	163, 164	60	1470
Runser, Sebastian, Sharon, Pa. Steam-boiler and boiler-furnace	482,197	Sept. 6	452	109	60	1424
Rupert, Charles G. (See Frist and Rupert.)						
Rupert, George G., assignor of one-half to W. H. Logan, Decatur, Ill. Attachment for latches						
Ruppel, Henry, Cleveland, Ohio, assignor to Dangler Stove and Manufacturing Company. Vapor-stove	479,723	July 26	2625	651	60	549
Rusch, Christian, assignor of one-half to F. C. Hamm, Milwaukee, Wis. Stovepipe-fastener	480,281	Aug. 9	856	218, 219	60	758
Rush, John S., Denver, Colo. Dry closet	479,844	Aug. 2	103	26	60	602
Rush, John T., assignor of seven-eighths to J. G. McCamant and G. W. Friedly, Tyrone, Pa. Machine for scoring and marking shingles	481,155	Aug. 16	2263	558, 559	60	1043
Rush, William H., Elmwood, Nebr. Extension-feed for corn-shellers	481,198	Aug. 23	2332	574	60	1071
Russell, Charles H., *et al.* (See Collum, George S., assignor.)	483,239	Sept. 27	2141	542, 543	60	1794
Russell, Dan, *et al.* (See Jones and Myers, assignors.)						
Russell & Erwin Manufacturing Company. (See Allen, Howard D., assignor.)						
Russell & Erwin Manufacturing Company. (See Voight, Henry G., assignor.)						
Russell, George W., Jr., and D. B. Minor, assignors to said Russell and A. V. Officer, Denver, Colo. Circuit-switch	483,123	Sept. 20	1950	493	60	1745
Russell, Justin E., Chicago, Ill. Fitting or connection for supply-pipes and branch pipes of radiators	483,392	Sept. 27	2397	602, 603	60	1841
Russell, Thomas, *et al.*, trustees. (See Hill, Charles, assignor.)						
Rust, Ezra. (See Gohl, Christian H., assignor.)						
Ruthrauff, John M., Dixon, Ill. Kneading-machine	478,133	July 5	78	21	60	18
Ruthven, Robert C., Buffalo, N. Y., assignor to Barber Asphalt Paving Company, New York, N. Y. Combination road-roller	482,757	Sept. 20	1381	342, 343	60	1630
Ruud, Edwin, assignor to Fuel Gas and Manufacturing Company, Pittsburg, Pa. Automatic steam-regulator for gas-producers	482,320	Sept. 6	668	159	60	1466
Ruud, Edwin, assignor to Fuel Gas and Manufacturing Company, Pittsburg, Pa. Gas heating-stove	483,086	Sept. 20	1893	479	60	1733
Ryan, Andrew, Bayfield, Wis. Tug-hook	479,405	July 26	2200	592	60	471
Ryan, James, New York, N. Y. Life-net fire-escape	480,139	Aug. 2	608	154, 155	60	698
Ryan, James D., New York, N. Y. Bed-bottom	480,282	Aug. 9	857	219	60	759
Ryan, John, New York, N. Y. Wrench	482,198	Sept. 6	453	110	60	1424
Ryan, Matthew, Washington, D. C. Hand implement	483,477	Sept. 27	2502	630	60	1802
Ryder, Benjamin L., Chambersburg, Pa. Drier for teas and fruits	478,134	July 5	79	21	60	18
S. H. Sinclair Company. (See Nelson, Peter H., assignor.)						
S. S. White Dental Manufacturing Company. (See Drennan, John M., assignor.)						
S. S. White Dental Manufacturing Company. (See Gilbert, William H., assignor.)						
S. S. White Dental Manufacturing Company. (See Wilkerson, Basil M., assignor.)						
Sabold, John, Boyertown, Pa. Bag-bundling press	480,967	Aug. 16	1942	486	60	983
Sachs, Joseph, New York, N. Y. Auxiliary fire-alarm system	481,590	Aug. 30	2968	733	60	1211
Sadler, Hymenus G., *et al.* (See McClintock, Charles E., assignor.)						
Sadler, Ralph A., *et al.* (See McClintock, Charles E., assignor.)						
Safety Car Heating and Lighting Company. (See Dixon, Robert M., assignor.)						
Safety Cylinder Valve Company. (See Schreidt, Frank, assignor.)						
Sage, Alfred C., Clifton Hill, near Melbourne, assignor of one-half to D. White, Parkville, near Melbourne, Victoria. Convertible victoria	478,641	July 12	883	218, 219	60	191
Sagendorph, Longley L., Philadelphia, Pa., assignor of one-half to C. N. Harder, Philmont, N. Y. Roofing-tool	478,642	July 12	886	219	60	191
Sagendorph, Longley L., Philadelphia, Pa., assignor of one-half to C. N. Harder, Philmont, N. Y. Metallic facing for buildings	483,240	Sept. 27	2142	543	60	1794
Sager, James H., assignor to Rich & Sager, Rochester, N. Y. Seat for bicycles	479,845	Aug. 2	104	26	60	602
Sager, James H., assignor to Rich & Sager, Rochester, N. Y. Luggage-carrier for bicycles	479,846	Aug. 2	106	27	60	603
Sague, James F., Brooklyn, N. Y. Car-coupling	480,628	Aug. 9	1414	332	60	864
Sahland, Edward, Quincy, Ill. Shoe for cistern-tubing	482,812	Sept. 20	1459	362	60	1616
Salick, Charles J., and E. Sipp, Watertown, Wis. Shade for incandescent electric lamps	481,285	Aug. 23	2500	615	60	1101
Salisbury, Franklin, Catskill, N. Y. Spraying-machine	481,718	Aug. 30	3197	781	60	1250
Salice, William H. H., Rutledge, Mo. Gate	479,532	July 26	2313	578	60	492
Salls, Herbet C. (See Wortham, John E., assignor.)						
Saltmarsh, Nehemiah, Concord, N. H. Shutter-worker	481,705	Aug. 30	3169	774	60	1245
Salyerds, Isaac W., and L. Shadbolt, Scottsville, N. Y. Fire-ladder	481,199	Aug. 23	2333	575	60	1071
Sample, John A., Wilkinsburg, Pa. Car-coupling	482,461	Sept. 13	906	220	60	1525
Samuels, Lewis J., *et al.* (See Monday, Robert, assignor.)						
Sanborn, A. W. (See Briggs, Ira J., assignor.)						
Sanborn, A. W. (See Finch, John Q., assignor.)						
Sanborn, William H., Rutland, Vt. Rein-button	479,847	Aug. 2	107	27	60	603
Sandberg, Albert, Freystadt, Germany. Veneered gun-rod	480,746	Aug. 16	1597	400	60	915
Sanders, Barney H. (See Ette and Sanders.)						
Sanders, Edward A., Chicago, Ill. Shears	481,200	Aug. 23	2335	575	60	1071
Sanders, Henry C., London, England. Manufacturing collapsible tubes	478,525	July 5	713	172	60	141
Sanders, John H., New York, and J. E. Carlin, Brooklyn, N. Y. Machine for carrotting fur	478,470	July 5	626	152	60	124
Sanders, Levi S. (See Williams, Willard C., assignor.)						
Sanderson, Ephraim, and F. C. Base, Cleveland, Ohio. Suction apparatus for paper-mills	478,290	July 5	362	88	60	73

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Sandford, C. N. (See Holmes, Franklin, assignor.)						
Sandwich Enterprise Company. (See Radley and Beal, assignors.)						
Sanford Foundry and Machine Works. (See Edgar, William, assignor.)						
Sanford, George S., Mount Clemens, Mich. Carpet-sweeper	481,826	Aug. 30	3387	830, 831	60	1287
Sanford, George S., Mount Clemens, Mich. Carpet-sweeper	481,827	Aug. 30	3389	831, 832	60	1287
Sanford, George S., Mount Clemens, Mich. Carpet-sweeper	481,828	Aug. 30	3391	832	60	1288
Sanford, George S., Mount Clemens, Mich. Carpet-sweeper	481,829	Aug. 30	3392	832, 833	60	1288
Sanger, Eugene M. (See Leng, Charles, assignor.)						
Sansouny, Charles E., Duluth, Minn. Fire-escape	482,654	Sept. 13	1204	293	60	1503
Santee, Elmer V., Easton, Pa. Road-vehicle	478,715	July 12	982	244	60	211
Santurio, Bonifacio M., Buenos Ayres, Argentine Republic. Filter	482,140	Sept. 6	347	83	60	1404
Sauzenbacher, John, Canfield, Ohio. Finishing leather	482,199	Sept. 6	455	.....	60	1424
Sardy, Etta L. (See Sardy, John L., assignor.)						
Sardy, John L., assignor to E. L. Sardy, Pelham Manor, N. Y. Sprinkling device	481,873	Aug. 30	3455	847, 848	60	1300
Sare, Storm B., Narka, Kans. Check-row planter	482,437	Sept. 13	870	208	60	1518
Sargent, Allan C. (See Sargent, Frederick G. and A. C.)						
Sargent & Company. (See Page, Albert A., assignor.)						
Sargent & Company. (See Shaw, John H., assignor.)						
Sargent & Company. (See Sparks, William E., assignor.)						
Sargent & Company. (See Wright, Granville W., assignor.)						
Sargent, Frederick G. and A. C., Graniteville, Mass. Wool-washing machine	480,283	Aug. 9	858	219	60	759
Sargent, James, Rochester, N. Y. Smoke-consumer	481,719	Aug. 30	3201	782	60	1251
Sattelkan, Paul. (See Burdon, David P., assignor.)						
Sauer, Andrew. (See Krotz, Alvaro S., assignor.)						
Sauer, Emil L., Chicago, Ill. Steam-engine valve	482,415	Sept. 13	632	200	60	1512
Sauerman, John F., assignor of one-half to E. S. Stiewel, Coal Hill, Ark. Chain pipe-wrench	480,140	Aug. 2	609	155	60	698
Saunders, Lewis. (See Fowler, Walter B., assignor.)						
Saunders, William H. (See Webster and Saunders.)						
Saunders, William H., J. J. Range, and E. N. Foote, assignors to Boston Cash Register Company, Northampton, Mass. Cash-register	479,337	July 19	1951	487	60	408
Savage, Granville L., New York, N. Y., assignor to Golden Gate Safety Faucet Company, San Francisco, Cal. Auger	478,970	July 12	1384	341	60	287
Savage, James, Canajsie, N. Y. Boat	478,763	July 12	1069	265	60	238
Savage, William C. (See Anthony and Savage.)						
Savidge, Windfield S. (See Duck, Savidge, and Wolfe.)						
Sawyer, William H., assignor to American Electrical Works, Providence, R. I. Electric cable	478,367	July 5	477	116	60	95
Sawyer, William M., Detroit, Mich. Pegging-jack support	481,374	Aug. 23	2631	647	60	1125
Sax, Constantine. (See Smith and Sax.)						
Saxe, John G. (See Little, Robert H., assignor.)						
Sayer, Robert C., Bristol, England. Electric control of railway-trains	481,002	Aug. 16	2105	523, 524	60	1014
Sayers, Tom, Bombay, India. Railway joint-chair	481,122	Aug. 16	2196	543	60	1031
Saylor, A. R., *et al.* (See Manderfield, George J., assignor.)						
Saylor, John R., Philadelphia, Pa. Portable machine for drilling	480,040	Aug. 2	452	115	60	668
Scamahorn, Aaron, Parsley, W. Va. Stave-saw gummer	482,386	Sept. 13	791	190	60	1504
Schaaf, Albert, Halle, Germany. Drying-stove for bricks or other materials	483,018	Sept. 20	1797	453	60	1713
Schaake, Henry. (See Kendall and Schaake.)						
Schaefer, George N., *et al.* (See Schaefer, John H., assignor.)						
Schaefer, John H., assignor to J. H. Schaefer, Jr., and G. N. Schaefer, Baltimore, Md. Meat-mixing apparatus	480,674	Aug. 9	1485	369	60	878
Schaeffer, Christian H., Chicago, Ill. Box-lid support	480,832	Aug. 16	1731	432	60	942
Schaeffer, Henri N. F., Lowell, Mass. Dyeing with alizarin	481,591	Aug. 30	2990	.....	60	1211
Schäfer, Wilhelm, Wheeling, W. Va. Roundabout	480,477	Aug. 9	1178	299	60	817
Schan, John P., Brooklyn, N. Y. Combined fountain-syringe and air-cushion	480,785	Aug. 16	1658	414	60	927
Scharf, Paul, assignor of one-fourth to R. Latzko, Vienna, Austria-Hungary. Incandescent electric lamp	480,284	Aug. 9	861	219	60	759
Scharf, Samuel R., Washington, D. C. Apparatus for weighing asphalt	480,141	Aug. 2	610	155	60	699
Scharfe, Gottlieb, Annapolis, Md. Gas purifier and condenser	482,141	Sept. 6	348	83, 84	60	1404
Scheebauer, Rupert, Paterson, N. J., assignor to Edison General Electric Company, New York, N. Y. Electric-arc lamp	480,968	Aug. 16	1944	486, 487	60	983
Scheffler, Theodore, Paterson, N. J. Steam-engine	480,213	Aug. 2	735	185, 186	60	721
Scheidt, Frederick, Baltimore, Md. Work-holder for boring-machines	481,737	Aug. 30	3234	788	60	1257
Schellinger, Gustav A., Mishawaka, Ind. Foot-railing for counters	482,591	Sept. 13	1121	271	60	1568
Schenck, John C. F., Moline, Ill. Attachment for plow-colters	482,387	Sept. 13	792	190	60	1505
Schenck, Remsen, New York, N. Y. Sash-pull	478,471	July 5	628	153	60	124
Scherer, Carl, Langen, Germany. Apparatus for fixing capsules on bottles	483,019	Sept. 20	1798	453, 454	60	1714
Schetzel, Marx P., San Francisco, Cal. Apparatus for the propulsion and transmission of water	482,655	Sept. 13	1205	294	60	1584
Schauer, Max, New York, N. Y. Leggio	480,348	Aug. 9	965	244	60	777
Schenltz, Edward, Jr. (See Giesberg and Schenltz.)						
Schiele, Lewis, New York, N. Y. Corset	479,573	July 26	2373	591	60	503
Schiele, Lewis, New York, N. Y. Corset	479,574	July 26	2374	592	60	503
Schilling, Charles R., Bellevue, Ky. Wrapping-machine	480,239	Aug. 2	773	195, 196, 197	60	729
Schilling, George W., Philadelphia, Pa. Boiler-feed	482,564	Sept. 13	1084	263	60	1560
Schillo, Ernest, McDonald, Pa. Mining cage or car	481,592	Aug. 30	2991	733	60	1211
Schilz, Frank, H., and N., Milwaukee, Wis. Clothes-drying apparatus	481,738	Aug. 30	3236	788	60	1257
Schilz, Henry. (See Schilz, Frank, H., and N.)						
Schilz, Nicolaus. (See Schilz, Frank, H., and N.)						
Schindler, Caspar C. A., Basle, Switzerland. Seat	483,265	Sept. 27	2211	555	60	1806
Schindler, Caspar C. A., Basle, Switzerland. Seat	483,266	Sept. 27	2212	556	60	1806
Schive, Hans H., Christiania, Norway. Inkstand	479,774	July 26	2720	676	60	569
Schlabach, Daniel C., Farmerstown, Ohio. Saw	481,201	Aug. 23	2337	576	60	1072
Schlangen, Simon, Chicago, Ill. Faucet and connection	478,716	July 12	984	245	60	212
Schlegelmilch, George E. (See Welch, Robert K., assignor.)						
Schlesinger, David, New York, N. Y. Hat	480,041	Aug. 2	454	116	60	668

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Schleussner, William. (See Chedister, Winfield S., assignor.)						
Schlorff, Joseph E., Pesotum, Ill. Projectile	480,142	Aug. 2	610	155	60	699

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Scoville, Myron H. (See Wright, Lewis, assignor.)						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Schleussner, William. (See Chedister, Winfield S., assignor.)						
Schlorff, Joseph E., Pesotum, Ill. Projectile	480,142	Aug. 2	612	155	60	699
Schloss & Sons. (See Janssen, Henry, assignor.)						
Schlumberger, Albert, Paris, France. Safety-paper	481,770	Aug. 30	3293	801	60	1270
Schmalz, Emil C., Chicago, Ill. Adjustable canopy for light-fixtures	483,171	Sept. 27	2033	514	60	1773
Schmid, Charles, assignor of two-thirds to H. Schuettler and P. Friedrich, Chicago, Ill. Arc lamp	480,285	Aug. 9	802	200	60	759
Schmidt, August, New York, N. Y. Construction of hogsheads or barrels	483,478	Sept. 27	2503	630	60	1863
Schmidt, Theodore F. W., assignor of one-half to Dayton Paper Novelty Company, Dayton, Ohio. Paper box	483,502	Sept. 27	2542	639	60	1870
Schmidt, William F., St. Louis, Mo. Chuck	481,426	Aug. 23	2724	669	60	1143
Schmirk, Maurice, Fayette, Mo. Table and embroidery-frame	478,891	July 12	1260	312	60	264
Schneewind, Hugo, Crefeld, Germany. Gravitating door-closer	483,169	Sept. 27	2032	513	60	1773
Schneider, Adelbert. (See Woessner, Charles F., assignor.)						
Schneider, Ferdinand T., Washington, D. C. Portable stove	478,890	July 12	1173	290	60	248
Schneider, Henry J., assignor to C. Pape, Fort Wayne, Ind. Road-grader	479,466	July 26	2200	552	60	471
Schneider, John F., Livingston, Wis. Reel-carrier	481,641	Aug. 30	3066	748 / 749	60	1225
Schnelle, Otto, Berlin, Germany. Sieve-surface	483,170	Sept. 27	2032	514	60	1773
Schnopp, Ernst, Brooklyn, N. Y. Pocket-book or purse	480,143	Aug. 2	613	156	60	699
Schoen, Charles T., Allegheny, Pa. Brake-shoe	481,973	Sept. 6	77	20	60	1350
Schoen, Charles T., Allegheny, Pa. Car journal-box	482,200	Sept. 6	456	110	60	1424
Schoenwaelder, Heinrich, Friedenshütte, Germany. Furnace	480,969	Aug. 16	1947	487	60	983
Schofield, Charles H., *et al.* (See Parks, Dana, assignor.)						
Schofield, Silas C., Freeport, Ill. Potato-planter	481,642	Aug. 30	3067	749	60	1225
Schofield, Ira V., Jr., San Francisco, Cal. Air-supply for boiler-furnaces	481,831	Aug. 30	3303	833	60	1288
Scholz, Anton, Brooklyn, N. Y. Game apparatus	481,830	Aug. 30	3303	833	60	1288
Schomburg, Albert M. (See Clauss and Schomburg.)						
Schomburg, Herman H. E., Berlin, Germany. Air-feeding device for furnaces	479,022	July 19	1472	366	60	315
Schooley, Will C., Braddock, Pa. Torpedo clip-fastening	480,520	Aug. 9	1224	309	60	820
Schorpp, Georg and L., assignors of one-third to C. F. Mertz, Philadelphia, Pa. Grip for cable railways	481,519	Aug. 23	2857	702	60	1169
Schorpp, Louis. (See Schorpp, Georg and L.)						
Schrade & Hall Novelty Manufacturing Company. (See Hall, George F., assignor.)						
Schrader, George H. F., New York, N. Y. Valve for pneumatic tires	483,179	Sept. 27	2034	514	60	1773
Schrader, George H. F., New York, N. Y. Screw-stopper for water-bags, &c.	483,330	Sept. 27	2308	580	60	1824
Schrader, Henry, Philadelphia, Pa. Gas governor and burner	481,771	Aug. 30	3294	804	60	1270
Schrader, Lambert P., assignor of one-half to J. C. Johnston, Clay Centre, Kans. Cultivator for listed corn	480,321	Sept. 6	669	159 / 160	60	1466
Schreader, Henry E., Manteno, Ill. Whip-socket	481,063	Aug. 16	2107	524	60	1014
Schreidt, Frank, assignor to Safety Cylinder Valve Company, Mansfield, Ohio. Automatic relief-valve	479,794	July 26	2625	651	60	549
Schreuder, Jens G., Edgewood, Pa. Switch and signal apparatus	479,925	July 19	1787	448	60	374
Schreuder, Jens G. L., Edgewood, Pa. Switch and signal apparatus	479,666	July 26	2514	625 / 626	60	530
Schroder, John B., Cincinnati, Ohio. Handle	479,176	July 19	1715	430	60	361
Schroeder, Frederick C., Alameda, Cal. Floor-scraping machine	483,173	Sept. 27	2037	514 / 515	60	1774
Schroeder, Gottlieb W., Huntington, Ind. Automatic watering device	478,472	July 5	629	153	60	124
Schubert, George, Walnut, Tex. Raising and lowering mechanism for harvesters	478,717	July 12	985	245	60	212
Schubert, George, Walnut, Tex. Grain-conveyer for binders, &c	479,467	July 26	2202	553	60	472
Schubert, George, Walnut, Tex. Mechanism for harvester-reels	479,848	Aug. 2	109	27	60	603
Schubert, George, Walnut, Tex. Gear-shifting mechanism for harvesters	481,202	Aug. 23	2338	576	60	1072
Schubert, George, Walnut, Tex. Grain-binder	481,974	Sept. 6	78	21	60	1350
Schubert, George, Walnut, Tex. Grain-binder	482,758	Sept. 20	1383	343	60	1631
Schuerman Brothers. (See Schuerman, Frederick G., assignor.)						
Schuerman, Frederick G., assignor to Schuerman Brothers, Twin Bluffs, Wis. Water-supply regulator	478,526	July 5	714	173	60	142
Schuettler, Henry, *et al.* (See Schmid, Charles, assignor.)						
Schultz, John F., Brooklyn, N. Y. Drawbridge for sidewalks, &c	479,533	July 26	2314	579	60	493
Schulze, Andrew, Temple, Tex. Seed-cotton receiver	478,473	July 5	630	153	60	125
Schumm, Hermann, assignor to Gas-Motoren-Fabrik-Deutz, Cologne-Deutz, Germany. Oil-motor engine	482,201	Sept. 6	457	110	60	1424
Schumm, Hermann, assignor to Gas-Motoren-Fabrik-Deutz, Cologne-Deutz, Germany. Gas or oil motor engine	482,202	Sept. 6	458	110 / 111	60	1425
Schwab, Gustave, New York, N. Y. Photographic album	479,667	July 26	2518	627	60	530
Schwanenberger, Andreas, Düren, Germany. Manufacture of envelopes	478,474	July 5	633	154	60	126
Schwartz, William, assignor to himself, H. Guttmann, and E. C. Rost, New York, N. Y. Transfer-paper and composition for coating the same	478,892	July 12	1261	.....	60	265
Schwarz, David W., *et al.* (See Demaurez, Charles, assignor.) (Reissue.)						
Schwarz, Josef. (See Hanptmann and Schwarz.)						
Schwarz, Michael, Dresden, Germany. Fire-escape	482,813	Sept. 26	1460	362	60	1646
Schwerdt, Charles F. G. R., London, England. Sale-card for buttons	481,832	Aug. 30	3304	834	60	1288
Scollay, John A., Brooklyn, N. Y. Drop-tube for steam or hot-water boilers	480,786	Aug. 16	1660	415	60	928
Scotford, Louis K., Chicago, Ill. Type-holder	481,286	Aug. 23	2502	615	60	1101
Scott, D. A. (See Burke, Ashbel C., assignor.)						
Scott, Emmet H., assignor to Niles & Scott Company, La Porte, Ind. Welding metal wheels	478,643	July 12	887	220	60	191
Scott, Emmet H., assignor to Niles & Scott Company, La Porte, Ind. Making metal wheels	478,644	July 12	888	220	60	191
Scott, George H. (See Morgan and Scott.)						
Scott, Jacob R., New York, N. Y. Sole-trimming machine	483,393	Sept. 27	2398	603	60	1841
Scott, Jasper E., Meadville, Miss. Vehicle-seat	480,144	Aug. 2	614	156	60	699
Scott, Montezuma, New Brighton, Pa., assignor to Scott Tile Company, Chicago, Ill. Apparatus for molding tiles	483,486	Sept. 27	2513	633	60	1864
Scott Tile Company. (See Scott, Montezuma, assignor.)						
Scott, Walter, Plainfield, N. J. Printing-machine	480,042	Aug. 2	455	116	60	669
Scott, Walter, Plainfield, N. J. Printing-machine	480,970	Aug. 16	1949	487 / 488	60	984
Scott, Walter, Plainfield, N. J. Printing-press	482,204	Sept. 6	461	111	60	1425
Scott, Walter, Hot Springs, S. D. Railway time-signal	482,699	Sept. 13	1281	314	60	1599
Scott, William, Leavenworth, Kans. Injector or insufflator for the larynx, &c	480,787	Aug. 16	1662	415	60	928
Scottron, Samuel R., Brooklyn, N. Y. Curtain-rod	481,720	Aug. 30	3304	782	60	1252
Scovel, Minor, New York, N. Y. Steam-boiler	479,023	July 19	1473	366 / 367	60	316

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scoville, Myron H. (See Winget, Jasper S., assignor.)						
Scoville, Washington L., Manlius, N. Y. Tip for crutches and canes	483,174	Sept. 27	2039	515	60	1774
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Duplex arc lamp	481,677	Aug. 30	3122	762 / 763	60	1236
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Multiple-switch-board telephone-exchange system	481,678	Aug. 30	3125	763	60	1236
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone exchange	481,679	Aug. 30	3127	763	60	1237
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Test system for multiple switchboards	483,175	Sept. 27	2039	515	60	1774
Scribner, Edward H., U. S. Navy. Boiler	483,369	Sept. 27	2357	591 / 592	60	1833
Scrimgeour, Charles E., and H. Gildard, Lewiston, Me. Mechanism for wrapping warp-chains	482,066	Sept. 6	233	57	60	1381
Seabery, John A. W. (See Bornstein, Henry, assignor.)						
Seabury, Samuel, U. S. Navy. Breech-loading cannon	479,609	July 26	2421	604	60	512
Seabury, Samuel, U. S. Navy. Breech-loading cannon	479,057	Aug. 2	286	71, 72	60	637
Seabury, Samuel, U. S. Navy. Breech-loading ordnance	483,267	Sept. 27	2213	556	60	1807
Seaman Drawer Fitting Machine Company. (See Patton, Edward K., assignor.)						
Seaman, George Q., Brooklyn, N. Y. Time-alarm bed	479,307	July 19	1907	477	60	399
Searcy, Charles L. (See Taylor, William W., assignor.)						
Searles, A. M., *et al.* (See Badt, Francis B., assignor.)						
Sears, Isaac L. (See Lage, Nicholas, assignor.)						
Seaton, Benjamin C., Nashville, Tenn. Yieldable gear-wheel	480,439	Aug. 9	1112	278	60	803
Seawell, Jesse P., Clarksburg, Mo. Car-coupling brake	479,024	July 19	1476	367	60	316
Secor, Jerome B., Bridgeport, Conn., assignor of one-half to M. Anthony, Berkeley, Cal., Electric motor	478,475	July 5	633	154 / 155	60	126
Security Insulator Company. (See Green, John J., assignor.)						
Sedmihradsky, Adolph, assignor to Kalamazoo Knitting Company, Milwaukee, Wis. Circular-knitting machine	480,043	Aug. 2	457	116 / 117	60	669
See, Alonzo B., and W. L. Tyler, Brooklyn, N. Y. Electric elevator	478,821	July 12	1174	291	60	248
See, Horace, New York, N. Y. Ash-ejector for ships	482,750	Sept. 20	1387	344	60	1632
See, James W., Hamilton, Ohio. Flooring	479,196	July 19	1635	409	60	546
Seeback, George W., New York, N. Y. Pipe-coupling	480,374	Aug. 9	1007	251	60	795
Seelye, William E., Brainerd, Minn. Water-motor	483,394	Sept. 27	2399	603	60	1841
Segar, Charles T., Chicago, Ill. Bed-bottom	480,788	Aug. 16	1664	416	60	928
Segar, Charles T., Chicago, Ill. Bed-bottom	480,789	Aug. 16	1664	416	60	928
Segschneider, Gustav, assignor to Waring Hat Manufacturing Company, Yonkers, N. Y. Pile-wire for looms	478,368	July 5	481	116	60	95
Segschneider, Gustav, assignor to Waring Hat Manufacturing Company, Yonkers, N. Y. Pile-wire for looms	478,369	July 5	483	116	60	95
Selbold, Otto F., Mount Vernon, assignor to H. Hoyt, New York, N. Y. Cartridge-shell	480,971	Aug. 16	1951	488	60	985
Selfert, Bruno R., assignor to F. von Heyden, Nachfolger, Radebeul, Germany. Making disinfectants	482,101	Sept. 6	203	.....	60	1393
Selfert, Bruno R., assignor to F. von Heyden, Nachfolger, Radebeul, Germany. Disinfectant	482,102	Sept. 6	205	.....	60	1393
Seller, Franz, Mannheim, Germany. Apparatus for recording and registering quantities of steam, &c	481,287	Aug. 23	2504	615 / 616	60	1102
Seller, I. L. D., *et al.* (See Haas, Jacob C., assignor.)						
Seller, Paul, San Francisco, Cal. Individual alarm signal apparatus	479,308	July 19	1909	477	60	399
Selther, Jacob, Keokuk, Iowa. Heating-drum	482,276	Sept. 6	580	138	60	1448
Selden, Charles, Baltimore, Md. Electric-lighting system	483,395	Sept. 27	2401	603	60	1841
Selden, Charles, St. Louis, Mo., assignor to Combined Electric and Trip Bell Cord Company, of Illinois. Railway-train signal apparatus	480,375	Aug. 9	1008	254	60	796
Selden, George, Erie, Pa. Portable tubular boiler	478,135	July 5	82	21, 22	60	19
Selkirk, Alexander, Albany, assignor, by mesne assignments, to R. Whitehill and D. Waring, Newburg, N. Y. Device for heating liquids	479,991	Aug. 2	360	89	60	649
Sellars, Stephen A. (See Landreth, John F., assignor.)						
Sellers, George B., Marshalltown, Iowa. Motor	481,151	Aug. 16	2257	557	60	1042
Semmler, Robert, Sr., Siegmar, Germany. Knot for net fabrics	480,972	Aug. 16	1951	488	60	985
Sencenbaugh, Samuel S., and A. J. Ives, Aurora, Ill. Umbrella-stand	483,291	Sept. 27	2250	556	60	1813
Sencenbaugh, Samuel S., and A. J. Ives, Aurora, Ill. Umbrella-stand	478,645	July 12	889	220	60	192
Sercombe-Bolte Manufacturing Company. (See Bolte, Frank H., assignor.)	478,646	July 12	890	220	60	192
Sercombe, Parker H. (See Bolte, Frank H., assignor.)						
Serpollet, Leon, assignor to La Société des Générateurs à Vaporisation Instantanée, (Système Serpollet,) Paris, France. Generator for the vaporization of liquids	480,286	Aug. 9	805	220 / 221	60	760
Serrell, Harold, administrator. (See Villamor, Isidoro.)						
Sessions, Henry H., assignor to Pullman's Palace Car Company, Chicago, Ill. Top buffer for freight-cars	479,025	July 19	1478	367 / 368	60	316
Seth Thomas Clock Company. (See Ames, William T., assignor.)						
Settle, William F., Russellville, Ky. Broom-shoulder cutter	480,287	Aug. 9	867	221	60	760
Sevigne, Henry A., assignor to Sevigne Manufacturing Company, Boston, Mass. Thill-coupling	481,064	Aug. 16	2108	524	60	1014
Sevigne Manufacturing Company. (See Sevigne, Henry A., assignor.)						
Sewall, Nicholas H. (See Sewall, Robert H. F. and N. H.)						
Sewall, Robert H. F. and N. H., Bessemer, Ala. Harbor	479,309	July 19	1911	477 / 478	60	399
Seward, Williamson B., Bloomington, Ind. Clamp	478,822	July 12	1175	291	60	248
Seymour, Albert P. (See Pass and Seymour.)						
Seymour, Albert P., Syracuse, N. Y. Thermal cut-out	481,246	Aug. 23	2423	598	60	1068
Seymour, Charles E., Lake Geneva, Wis., assignor to Seymour Concentrator Company, Chicago, Ill. Ore-concentrator	482,322	Sept. 6	670	160 / 161	60	1467
Seymour, Charles E., Lake Geneva, Wis., assignor to Seymour Concentrator Company, Chicago, Ill. Magnetic separator for ore-concentrators	482,323	Sept. 6	674	161	60	1468
Seymour Concentrator Company. (See Seymour, Charles E., assignor.)						
Seymour, George H., assignor to himself and W. H. Tersch, Stanton, Tex. Folding umbrella	479,310	July 19	1913	478	60	400
Seymour, George H., assignor of one-half to W. H. Fusch, Stanton, Tex. Memorandum-tablet	481,429	Aug. 23	2728	671	60	1143
Seymour, Ralph C., Chicago, Ill. Folding attachment for printing-presses	481,203	Aug. 23	2340	576 / 577	60	1072
Shaaber, Jacob, Reading, Pa. Brake-shoe	480,833	Aug. 16	1732	433	60	942

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shadbolt, Lawrence. (See Salyerds and Shadbolt.)						
Shafer, Harold. (See Nelson and Shafer.)						
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,145	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,146	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,147	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,148	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,149	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,150	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,151	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,152	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,153	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,154	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,155	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,156	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,157	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,158	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,159	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,160	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,161	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,162	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,163	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,164	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,165	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,166	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,167	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,168	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,169	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,170	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,171	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,172	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,173	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,174	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,175	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,176	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,177	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,178	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,179	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,180	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,181	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,182	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,183	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,184	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,185	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,186	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,187	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,188	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,189	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,190	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,191	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,192	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,193	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,194	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,195	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,196	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,197	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,198	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,199	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,200	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,201	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,202	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,203	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,204	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,205	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,206	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,207	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,208	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,209	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,210	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,211	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,212	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,213	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,214	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,215	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,216	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,217	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,218	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,219	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,220	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,221	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,222	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,223	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,224	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,225	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,226	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,227	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,228	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,229	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,230	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,231	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,232	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,233	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,234	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,235	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,236	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,237	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,238	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,239	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,240	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,241	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,242	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,243	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,244	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,245	Aug. 2	614	156	60	699
Shaffer, Jacob, Jr., Lancaster, Pa. Fare-box	480,246	Aug.

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shadbolt, Lawrence. (See Salyerds and Shadbolt.)						
Shafer, Daniel. (See Neimeyer, John, assignor.)						
Shafer, William B., Somerset, Pa. Stamp or label affixer	478,704	July 12	1070	266	60	228
Shaffer, James R., deceased, Huntington, Ind.; J. Shaffer, administratrix. Picket-wiring machine	479,311	July 19	1915	478	60	400
Shaffer, Jane, administratrix. (See Shaffer, James R.)						
Shaffer, Katharine A., Harrisburg, Pa. Pad for bed-pans	482,388	Sept. 13	793	191	60	1505
Shaffer, William C., Milwaukee, Wis. Sprinkler system	480,747	Aug. 16	1598	401	60	915
Shafor, James C. (See Cokayne, William, assignor.)						
Shakespeare, James H., trustee. (See Bonta, James W., assignor.)						
Shakespeare, John, Dudley, England. Cash register and indicator	480,521	Aug. 9	1235	310	60	829
Shallenberger, Oliver B., Rochester, assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Meter for alternating electric currents	481,975	Sept. 6	82	21	60	1351
Shanahan, John J., assignor to National Worsted Mills, Providence, R. I. Stop-motion for looms	482,930	Sept. 20	1645	414	60	1683
Shanbeck, Cornelius C., Pettit, Ind. Fender	481,065	Aug. 16	2109	524	60	1014
Shane, George P., *et al.* (See Lucas, Austin H., assignor.)						
Shannon, Alexander M., Galveston, Tex. Breakwater, &c	480,988	Aug. 9	869	221	60	761
Sharp, Christopher C., Chicago, Ill. Apparatus for generating ozone	481,676	Aug. 30	3120	762	60	1235
Sharp, Edward A., Rogers Park, Ill. Document-file	481,593	Aug. 30	2993	733	60	1211
Sharp, Kelly N., Mozelle, Ga. Plow	479,992	Aug. 2	362	89, 90	60	650
Sharpe, John, Toronto, Canada. Cash indicator and register	482,760	Sept. 20	1388	344, 345	60	1632
Sharpsteen, Stephen H., Honesdale, Pa. Device for removing armatures	481,833	Aug. 30	3395	834	60	1288
Shattuck, Charles A., Malden, assignor of one-half to H. L. Ayer, West Newton, Mass. Coin-controlled vending-machine	482,142	Sept. 6	353	84, 85	60	1405
Shattuck, Laforest A., Bloomsburg, Pa. Fountain-pen	482,592	Sept. 13	1122	271	60	1568
Shaver, George F., Yonkers, N. Y. Telephony	479,227	July 19	1792	449	60	375
Shaver, George F., Yonkers, assignor of one-half to S. F. Sherman, New York, N. Y. Telephone	479,226	July 19	1791	449	60	375
Shaw, Charles H., Brooklyn, N. Y. Numbering-machine	478,241	July 5	290	71	60	59
Shaw, Charles H., Brooklyn, assignor to R. H. Thompson, New York, and H. D. Norris, Brooklyn, N. Y. Satchel or other receptacle	480,675	Aug. 9	1486	370	60	878
Shaw, Clifford. (See Peters, George T., assignor.)						
Shaw, Elmer F. (See Bowman and Shaw.)						
Shaw, Florentine S. (See Clark and Shaw.)						
Shaw, Frederick A., Boston, Mass. Translucent sculpture	478,765	July 12	1071	266	60	228
Shaw, George, assignor of one-half to S. H. Brooks, Manchester, England. Differential gearing	479,108	July 19	1608	401, 402	60	341
Shaw, Henry C., Joliet, Ill. Hydraulic crane	479,468	July 26	2205	553, 554	60	472
Shaw, John H., assignor to Sargent & Company, New Haven, Conn. Door-spring	478,370	July 5	484	116	60	96
Shaw, John H., assignor to Sargent & Company, New Haven, Conn. Door-check	478,371	July 5	485	117	60	96
Shaw, John H., assignor to Sargent & Company, New Haven, Conn. Door-check	478,372	July 5	487	117	60	96
Shaw, John H., assignor to Sargent & Company, New Haven, Conn. Meat-cutter	478,823	July 12	1176	291	60	248
Shaw, Joseph. (See Walker and Shaw.)						
Shaw, Thomas, Newark, N. J. Die for cutlery	479,668	July 26	2519	627	60	530
Shaw, Thomas, Newark, N. J. Knife-holder	479,669	July 26	2520	627	60	531
Shea, Christopher A., Boston, Mass. Plug spring-jack	481,204	Aug. 23	2342	577	60	1072
Shearer, Arthur B., Reno, Nev. Life-saving and pleasure craft	481,427	Aug. 23	2725	670	60	1143
Sheargren, John, Burlington, Iowa. Meat-chopping machine	478,647	July 12	891	221	60	192
Shedd, William J. (See Field and Shedd.)						
Sheedy, Dennis, Denver, Colo. Bag for catching metallic fumes	480,834	Aug. 16	1733	433	60	942
Sheedy, Dennis, and M. W. Iles, Denver, Colo. Device for collecting metallic fumes	483,176	Sept. 27	2041	516	60	1775
Sheesley, William. (See Wadsworth and Sheesley.)						
Sheldon, Park C. (See Brooks, Sidney R., assignor.)						
Shelley, Abram C., Blythebourne, N. Y. Velocipede	481,428	Aug. 23	2726	670	60	1143
Shelley, William E., *et al.* (See Jenkins, Wilton F., assignor.)						
Shepard, Charles H., Brooklyn, assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	480,289	Aug. 9	870	222	60	761
Shepard, Charles H., Brooklyn, assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	480,290	Aug. 9	873	222	60	761
Shepard, Charles H., Brooklyn, assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	480,291	Aug. 9	875	222	60	762
Shepard, Jason H., *et al.* (See Patnoe, George W., assignor.)						
Shepherd, Thomas W., Peabody, Mass. Thermostat	479,849	Aug. 2	111	28	60	604
Sherburne, Charles W., Boston, Mass. Track-sanding apparatus	481,594	Aug. 30	2994	734	60	1212
Sherburne, Charles W., Boston, Mass. Track-sanding apparatus	481,595	Aug. 30	2996	734	60	1212
Sherer, Charles M., Lawrence, Kans. Separable button	478,174	July 5	163	42	60	34
Sherman, Myron W., West Brookfield, Mass. Corset	479,312	July 19	1916	479	60	400
Sherman, Thomas H., *et al.* (See Garland, Frank, M., assignor.)						
Sherman, Stephen F. (See Shaver, George F., assignor.)						
Shero, Christopher C., assignor of one-half to I. Shero, Sherman, Tex. Combined rake and portable baling-press	483,515	Sept. 27	2568	644, 645, 646	60	1875
Shero, Isaac. (See Shero, Christopher C., assignor.)						
Sherrod, Albert T. (See Arnold, Oscar M., assignor.)						
Shettler, Reuben, Port Huron, Mich. Clutch	481,205	Aug. 23	2344	577	60	1073
Shiels, Alexander, Glasgow, Scotland. Apparatus for automatically regulating temperature	478,373	July 5	489	117, 118	60	96
Shilling, Jesse, Jr., Troy, Ohio. Cistern or well cleaner	479,228	July 19	1793	449	60	376
Shimer, John M. R. (See Young and Willever, assignors.)						
Shinn, William J. (See Ogborn, Harrison, assignor.)						
Shipe, Walter S., assignor to J. Morrison, Toronto, Canada. Sheet-metal-rolling machine	480,440	Aug. 9	1112	278	60	804
Shirreff, Charles J., assignor to himself and J. M. Gill, Brockville, Canada. Window or door screen	481,066	Aug. 16	2111	525	60	1015
Shirreff, Charles J., assignor to himself and J. M. Gill, Brockville, Canada. Manufacture of screen-doors	481,067	Aug. 16	2112	525	60	1015
Shoecraft, Byron and J., St. Louis, Mo. Automatic signal device for railways	482,203	Sept. 6	450	111	60	1425
Shoecraft, Byron and J., St. Louis, Mo. Automatic block system for railways	483,479	Sept. 27	2504	631	60	1863
Shoecraft, Judson. (See Shoecraft, Byron and J.)						
Shoemaker, Milton, assignor of two-thirds to J. W. Martin, Sioux City, Iowa, and J. Passmore, Duncannon, Pa. Electric-railway conduit	478,175	July 5	164	42	60	35

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Short Electric Railway Company. (See Short, Sidney H., assignor.)						
Short, Sidney H., Cleveland, Ohio. Electric locomotive	478,477	July 5	637	155, 156	60	127
Short, Sidney H., Cleveland, Ohio. Arc-extinguisher for electric switches	478,718	July 12	989	245	60	213
Short, Sidney H., assignor to Short Electric Railway Company, Cleveland, Ohio. Electric locomotive	478,242	July 5	293	71	60	59
Short, Sidney H., assignor to Short Electric Railway Company, Cleveland, Ohio. Motor-frame for electric locomotives	479,469	July 26	2207	554	60	473
Shorthill, Albert E. (See Travis, Owen J., assignor.)						
Shostak, Joseph, Milwaukee, assignor of one-half to J. Rubin, Whitewater, Wis. Cleaning boiler-flues	478,824	July 12	1178	291, 292	60	248
Shoup, James T., Jr., Springfield, Ohio. Wind-machine	479,993	Aug. 2	363	90	60	650
Showman, Henry F., Newark, Ohio. Beehive	479,725	July 26	2627	652	60	550
Shuff, Bernard, *et al.* (See Christy, James A., assignor.)						
Shreeve, John, *et al.* (See Marshall, William M., assignor.)						
Shreffler, Samuel, Jr., Joliet, Ill. Door-hanger	482,530	Sept. 13	1029	249	60	1550
Shrier, Isaac, Wilmington, N. C. Hat-gage	478,291	July 5	364	88	60	73
Shriver, William, Philadelphia, Pa. Slate-pencil sharpener	478,374	July 5	492	119	60	97
Shull, John H., and G. S. Dorney, Findlay, Ohio. Conveyer	480,939	Aug. 16	1887	472	60	973
Shuman, Frank, Philadelphia, Pa. Machine for embedding wire-netting in glass	483,020	Sept. 20	1799	454	60	1714
Shuman, Frank, Philadelphia, Pa. Embedding wire-netting in glass	483,021	Sept. 20	1801	454	60	1714
Shurmon, James D., Paint Rock, Tex. Rein-holder	478,375	July 5	493	119	60	97
Siar, William, and C. H. Dunn, Seneca, Pa. Bicycle-support	480,441	Aug. 9	1114	279	60	804
Sibley, Herbert J., Chicago, Ill. Dinner-bucket	482,761	Sept. 20	1399	345	60	1633
Siebert, Alfred, New York, N. Y. Pump	482,416	Sept. 13	834	200	60	1512
Siebert, Alfred, New York, N. Y. Gas-compressor	483,268	Sept. 27	2215	556	60	1807
Siemens Brothers & Co. (See Nebel, John, assignor.)						
Siemens & Halske. (See Wörner, Adolf, assignor.)						
Sievert, Henry H., assignor to L. Wolff Manufacturing Company, Chicago, Ill. Water-closet seat and cover	480,292	Aug. 9	876	223	60	762
Siglin, Nelson, Aurelia, Iowa. Hame-tug	480,629	Aug. 9	1415	352	60	864
Siller, Frederick S., Milwaukee, Wis. Game apparatus	482,484	Sept. 13	949	231	60	1533
Simcox, Thomas W., Fostoria, Ohio. Loose or idle pulley	478,292	July 5	365	89	60	73
Simmons, Abner. (See Gray and Simmons.)						
Simmons, Henry L., St. Day, England. Guard-shoe for railway-vehicles	481,068	Aug. 16	2112	525	60	1015
Simmons, William A., Buffalo, N. Y. Hame	482,656	Sept. 13	1206	294	60	1584
Simons, Thomas A., Columbus, Ohio. Cooking utensil	478,243	July 5	295	72	60	59
Simonson, James H., *et al.* (See Van Derzee, Cornelius, assignor.)						
Simonton, Thomas C., assignor of one-half to T. C. Simonton, Jr., Paterson, N. J. Machine for extracting gold from pulverized ores, &c	478,971	July 12	1381	341	60	288
Simpson, Alfred L., New York, N. Y. Acoustic telephone	479,736	July 26	2630	652	60	550
Simpson, Frederick, Boston, Mass. Voltaic glove	478,293	July 5	366	89	60	74
Simpson, Peter P., Henderson, assignor of one-half to W. J. Arnett, Mountain Home, Ark. Cotton-planter	482,277	Sept. 6	581	138	60	1448
Simpson, Washington, Argentine, Kans., and J. George, St. Joseph, Mo. Seal lock	481,206	Aug. 23	2345	578	60	1073
Simpson, William B., Benton, La. Water-elevator	483,396	Sept. 27	2402	604	60	1842
Sinclair, Finlay, Coventry, England, assignor to Pneumatic Tyre and Booth's Cycle Agency, Limited, Dublin, Ireland. Pneumatic tire	480,349	Aug. 9	965	244	60	777
Sinclair, James M., *et al.* (See Clow, William, assignor.)						
Singer Manufacturing Company of New Jersey. (See Diehl, Philip, assignor.)						
Singer Manufacturing Company of New Jersey. (See Douglas, John, assignor.)						
Singer Manufacturing Company of New Jersey. (See French, Charles A., assignor.)						
Singer Manufacturing Company of New Jersey. (See Greene, James G., assignor.)						
Singer Manufacturing Company of New Jersey. (See Steward, Hiram P., assignor.)						
Singer Manufacturing Company of New Jersey. (See Vannette, Jasper, assignor.)						
Sinn, Remy, Paris, France. Envelope-card	478,825	July 12	1179	292	60	249
Sinning, Charles, assignor to Sinning Lasting Machine Company, St. Louis, Mo. Lasting-machine	480,145	Aug. 2	615	156	60	700
Sinning Lasting Machine Company. (See Sinning, Charles, assignor.)						
Sintzenich, Edwin B., Rochester, N. Y. Balanced slide-valve	478,719	July 12	990	246	60	213
Sipe, Thalia E., Allegheny, Pa. Tracing-tool	481,721	Aug. 30	3205	783	60	1252
Sipp, Edward. (See Salick and Sipp.)						
Sisson, Isaac H., Providence, R. I. Button-setting machine	482,709	Sept. 13	1283	315	60	1600
Skanks, George W., assignor of one-half to G. D. Emery, Chelsea, Mass. Clothes-holder	482,531	Sept. 13	1030	249	60	1550
Skeel, Frank D., New York, N. Y. Milling attachment for lathes	478,244	July 5	296	72	60	60
Skekel, Donald, Georgetown, British Guiana. Cane-mill	480,522	Aug. 9	1237	311	60	830
Skilton, John W. (See Burt and Skilton.)						
Skinner, David. (See Gately and Skinner.)						
Skinner, Gardiner M., Clayton, N. Y. Spoon-bait	479,575	July 26	2375	592	60	503
Skinner, George C., Troy, Ohio. Brick or tile machine die	478,136	July 5	86	23	60	20
Skobis, Frank. (See Skobis, Joseph and F.)						
Skobis, Joseph and F., Milwaukee, Wis. Ventilator	482,389	Sept. 13	794	191	60	1505
Skorpil, Eduard, Nagy-Ugrocz, Austria-Hungary. Potato-planter	478,137	July 5	88	23	60	20
Slager, Albert L., assignor to G. S. Foos Company, Springfield, Ohio. Clutch	480,748	Aug 16	1601	401	60	916
Slangerup, August F., New Orleans, La. Apparatus for bleaching cane-juice	483,022	Sept. 20	1802	455	60	1715
Slater, John G. (See Hill, Ezra N., assignor.) (Reissue.)						
Slater, John S., Calcutta, India. Armillary sphere	482,278	Sept. 6	582	139	60	1448
Slater, William W., and H. C. Barnes, Oakland, Cal. Pneumatic electric-circuit-controlling and interlocking apparatus	481,430	Aug. 23	2729	671	60	1144
Slattery, Jeremiah J., Lansingburg, N. Y. Dust-beater	480,389	Aug. 9	1033	259	60	790
Slawson, Randolph E., Davenport, Nebr. Automatic gate	482,462	Sept. 13	906	220	60	1525
Sleeper, Francis H., Waterville, assignor to A. O. Norton, Coaticook, Canada. Screw-jack	479,850	Aug. 2	113	28	60	604
Sleeper, Frank S., Duluth, Minn. Curling or crimping iron	482,501	Sept. 13	978	237	60	1540
Sleight, William E., assignor to United States Swing Treadle Company, Milwaukee, Wis. Swinging treadle for organs	481,976	Sept. 6	83	21	60	1351
Slingland, Charles. (See Kuett and Slingland.)						
Sloan, Percy H. (See Higgins, Frank L., assignor.)						
Sloan, Sextus, Painesville, Ohio. Device for converting motion	483,177	Sept. 27	2042	516	60	1775
Sloane, George W., Brooklyn, N. Y. Steam-generator	481,069	Aug. 16	2113	526	60	1015
Sloat, Oliver M., Brooklyn, N. Y. Bridle-bit	479,670	July 26	2521	627	60	531
Slocum, James, Holly, Mich. Typograph attachment	483,023	Sept. 20	1803	455	60	1715
Slocum, Martha E., Meadville, Pa. Velocipede	481,070	Aug. 16	2114	526	60	1016

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Smalley, E. R. (See Carrick, James C., assignor.)						
Smallfield, Henry A., Kansas City, Mo., and H. Edwards, Kansas City, Kans. Sausage twisting and linking machine	480,293	Aug. 9	877	223, 224	60	762
Smallwood, Charles, Birmingham, Ala. Spark-arrester for electric-arc lamps	479,994	Aug. 2	366	91	60	650
Smallwood, George T., Washington, D. C., assignor of one-half to O. Cole, Rochester, N. Y. Toy or puzzle	479,158	July 19	1683	421	60	355
Smallwood, George T., Washington, D. C., assignor of one-half to O. Cole, Rochester, N. Y. Bicycle	479,470	July 26	2208	554, 555	60	473
Smart, Albert L., *et al.* (See Kilbourn, Washington H., assignor.)						
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,417	Sept. 13	835	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,418	Sept. 13	836	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,419	Sept. 13	837	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,420	Sept. 13	838	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,421	Sept. 13	839	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,422	Sept. 13	840	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,423	Sept. 13	841	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,424	Sept. 13	842	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,425	Sept. 13	843	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,426	Sept. 13	844	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,427	Sept. 13	845	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,428	Sept. 13	846	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,429	Sept. 13	847	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,430	Sept. 13	848	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,431	Sept. 13	849	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,432	Sept. 13	850	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,433	Sept. 13	851	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,434	Sept. 13	852	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,435	Sept. 13	853	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,436	Sept. 13	854	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,437	Sept. 13	855	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,438	Sept. 13	856	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,439	Sept. 13	857	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,440	Sept. 13	858	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,441	Sept. 13	859	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,442	Sept. 13	860	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,443	Sept. 13	861	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,444	Sept. 13	862	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,445	Sept. 13	863	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,446	Sept. 13	864	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,447	Sept. 13	865	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,448	Sept. 13	866	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,449	Sept. 13	867	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,450	Sept. 13	868	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,451	Sept. 13	869	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,452	Sept. 13	870	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,453	Sept. 13	871	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,454	Sept. 13	872	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,455	Sept. 13	873	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,456	Sept. 13	874	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,457	Sept. 13	875	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,458	Sept. 13	876	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,459	Sept. 13	877	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,460	Sept. 13	878	200	60	1512
Smedley, Benjamin F., Lancaster, Pa. Fruit-jar	482,461	Sept. 13	879	200	60	1512

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Smith, William L. (See Smith, Homer H. and W. L.)						
Smith, William W., and G. R. Hayes, York, Pa.; said Smith assignor to said Hayes. Tobacco granulating, grading, and separating machine	483,292	Sept. 27	2251	567	60	1813
Smythe, Samuel R., Pittsburg, Pa. Furnace	478,767	July 12	1074	266, 267	60	229
Snaman, George W., Jr., Allegheny, Pa. Toy	479,534	July 26	2315	579	60	493
Snavely, Samuel H., assignor of one-fourth to F. W. Ritter, Jr., Washington, D. C. Curtain-fixture	482,277	Sept. 6	581	138	60	1448
Snedeker, Peter, Jr., Brooklyn, N. Y. Bicycle-support	480,442	Aug. 9	1115	279	60	804
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,207	Aug. 23	2346	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,208	Aug. 23	2347	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,209	Aug. 23	2348	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,210	Aug. 23	2349	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,211	Aug. 23	2350	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,212	Aug. 23	2351	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,213	Aug. 23	2352	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,214	Aug. 23	2353	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,215	Aug. 23	2354	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,216	Aug. 23	2355	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,217	Aug. 23	2356	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,218	Aug. 23	2357	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,219	Aug. 23	2358	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,220	Aug. 23	2359	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,221	Aug. 23	2360	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,222	Aug. 23	2361	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,223	Aug. 23	2362	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,224	Aug. 23	2363	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,225	Aug. 23	2364	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,226	Aug. 23	2365	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,227	Aug. 23	2366	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,228	Aug. 23	2367	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,229	Aug. 23	2368	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,230	Aug. 23	2369	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,231	Aug. 23	2370	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,232	Aug. 23	2371	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,233	Aug. 23	2372	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,234	Aug. 23	2373	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,235	Aug. 23	2374	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,236	Aug. 23	2375	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,237	Aug. 23	2376	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,238	Aug. 23	2377	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,239	Aug. 23	2378	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,240	Aug. 23	2379	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,241	Aug. 23	2380	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,242	Aug. 23	2381	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,243	Aug. 23	2382	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,244	Aug. 23	2383	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,245	Aug. 23	2384	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,246	Aug. 23	2385	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,247	Aug. 23	2386	578	60	1073
Snell, Edwin, Jr., Boston, Mass. Electric-arc lamp	481,

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smalley, E. R. (See Carrick, James C., assignor.)						
Smallfield, Henry A., Kansas City, Mo., and H. Edwards, Kansas City, Kans. Sausage twisting and linking machine	480,293	Aug. 9	877	223, 224	60	762
Smallwood, Charles, Birmingham, Ala. Spark-arrester for electric-arc lamps	479,994	Aug. 2	366	91	60	650
Smallwood, George T., Washington, D. C., assignor of one-half to O. Cole, Rochester, N. Y. Toy or puzzle	479,158	July 19	1683	421	60	335
Smallwood, George T., Washington, D. C., assignor of one-half to O. Cole, Rochester, N. Y. Bicycle	479,470	July 26	2208	554, 555	60	473
Smart, Albert J., *et al.* (See Kilbourn, Washington H., assignor.)						
Smart, John W., and T. C. Cheatham, Burnet, Tex. Device for cooling milk, meat, vegetables, &c	478,720	July 12	992	246	60	213
Smead, Isaac D., Toledo, Ohio. Urinal	478,648	July 12	892	221	60	192
Smeal, Wilson B., Grahamton, Pa. Snap-hook	479,026	July 19	1479	368	60	317
Smedley, Edwin Dubuque, Iowa. Steam-actuated air-pump	482,814	Sept. 20	1461	362, 363	60	1647
Smith, Abia B., Pittsburg, Pa. Fruit-tree protector	481,311	Aug. 23	2547	625	60	1109
Smith, Albert, Colorado Springs, Colo. Apparatus for cooling water in the manufacture of ice	483,397	Sept. 27	2403	604	60	1842
Smith, Albert H., *et al.* (See Dow, Herbert H., assignor.)						
Smith, Albert M., Meadville, Pa. Machine for applying hose connections	482,593	Sept. 13	1125	271, 272	60	1568
Smith, Andrew J., assignor of one-half to C. Kroemke, St. Louis, Mo. Automatic release for cable-grippers	481,431	Aug. 23	2732	671	60	1144
Smith, Andrew J., assignor of one-half to T. H. Wurmb, St. Louis, Mo. Automatic gipsy for cable railways	482,279	Sept. 6	584	139	60	1449
Smith, Charles, assignor of one-half to W. R. Mills, Chicago, Ill. Smoke-preventer	480,630	Aug. 9	1416	353	60	865
Smith, Charles E., *et al.* (See Egge, Frederick, assignor.)						
Smith, Daniel E., Mobile, Ala. Trace-fastener	482,762	Sept. 20	1400	345	60	1633
Smith, Dwight L., assignor of one-half to E. A. Smith, Waterbury, Conn. Buckle	478,826	July 12	1179	292	60	249
Smith, Earl A. (See Smith, Dwight L., assignor.)						
Smith, Edgar W., and C. Sax, Morris, Minn. Spark-arrester	480,390	Aug. 9	1034	259	60	790
Smith, Edward C., and J. Brady, Brooklyn, N. Y., assignors to Smith Portable Rail Saw Company, of New Jersey. Rail-sawing machine	481,874	Aug. 30	3456	848	60	1301
Smith, Eugene C., New York, N. Y. Structural blank	481,207	Aug. 23	2349	578, 579	60	1074
Smith, Frank L. M., and W. J. Bryan, Chicago, Ill. Apparatus for producing variegated lights	479,673	July 26	2525	628, 629	60	531
Smith, Fred E., Boston, Mass. Valve-gear	481,072	Aug. 16	2117	527	60	1016
Smith, George. (See Garbutt, Hiram J., assignor.)						
Smith, George E. (See Blake, Smith, and Doig.)						
Smith, George H., Chicago, Ill. Pulverizer	481,532	Aug. 23	2899	712	60	1178
Smith, George K., Chipman, Tenn. Car-coupling	480,631	Aug. 9	1417	353	60	865
Smith, Georgia V., Princeton, Ill. Skirt-supporter	480,523	Aug. 9	1239	311	60	830
Smith, Hampton K., Union, S. C. Car-coupling	481,071	Aug. 16	2115	527	60	1016
Smith, Harry L., *et al.* (See Dow, Charles H., assignor.)						
Smith, Henry A., Detroit, Mich. Cast-iron sectional boiler	482,657	Sept. 13	1207	294, 295	60	1584
Smith, Henry C., Roanoke, Va. Spark-arrester	478,207	July 5	215	54	60	44
Smith, Henry F., Neenah, Wis. Fish-net	483,400	Sept. 27	2406	605	60	1843
Smith, Henry G. A., Buffalo, N. Y. Pick for stringed instruments	479,672	July 26	2522	628	60	531
Smith, Henry T., Pawtucket, R. I. Pen or pencil holder and making the same	481,534	Aug. 23	2901	712	60	1179
Smith, Henry V., South Yarra, near Melbourne, Victoria. Magnetic lock	478,245	July 5	298	72	60	60
Smith, Homer H. and W. L., Gloversville, N. Y. Glove	480,478	Aug. 9	1179	296	60	817
Smith, Israel C., and E. E. Herrinton, Grand Rapids, Mich. Wardrobe-bed	479,471	July 26	2213	556	60	474
Smith, James B., Brooklyn, assignor to E. Todd & Co., New York, N. Y. Pencil-case	480,479	Aug. 9	1180	296	60	818
Smith, James C., and C. Lardner, Topeka, Kans. Self-acting dumping apparatus	482,390	Sept. 13	796	191	60	1505
Smith, James G., New York, N. Y. Telegraphy	481,247	Aug. 23	2424	598, 599, 600	60	1088
Smith, John M., assignor of one-half to P. H. Gunckel, Minneapolis, Minn. Flax-thrasher	478,542	July 5	746	182	60	148
Smith, John R., Neosho, Mo. Machine for painting barbed-wire fences	483,503	Sept. 27	2543	639	60	1871
Smith, John T., San Francisco, Cal. Railway-rail	478,766	July 12	1072	266	60	229
Smith, John T., San Francisco, Cal. Oil-cup	481,312	Aug. 23	2548	625	60	1109
Smith, John W., Boston, Mass. Hair-clipper	481,977	Sept. 6	85	22	60	1351
Smith, Julius, Tom's River, N. J. Ring-holder	483,399	Sept. 27	2405	605	60	1842
Smith, Mark A. (See Ridgely and Smith.)						
Smith, Melvin L., assignor of one-half to S. B. Smith, Muncie, Ind. Wheel-hub casting	480,044	Aug. 2	464	117	60	670
Smith, Oliver C., *et al.* (See Egge, Frederick, assignor.)						
Smith, Orson J. (See Johnson and Smith.)						
Smith, Peter V., New York, N. Y. Umbrella-stand	479,671	July 26	2522	628	60	531
Smith & Phillips Manufacturing Company. (See Phillips, Francis V., assignor.)						
Smith Portable Rail Saw Company. (See Smith and Brady, assignors.)						
Smith, Robert D. O. (See Dodge and Smith.)						
Smith, Robert T. (See Monroe, David M., assignor.)						
Smith, Roswell T., Nashua, N. H. Street-railway switch	479,028	July 19	1482	369	60	317
Smith, Samuel, assignor to J. B. Jackson and G. Bentley, Bury, England. Molding-machine	478,377	July 5	494	119, 120	60	97
Smith, Samuel, assignor of two-thirds to J. T. McKone and C. E. Hill, Lawrence, Mass. Railway time-signal	481,533	Aug. 23	2900	712	60	1178
Smith, Sarah, Toledo, Ohio. Cooking utensil	478,376	July 5	494	119	60	97
Smith, Sarah A., Philadelphia, Pa. Bed-pan	481,375	Aug. 23	2632	647	60	1125
Smith, Sarah B. (See Smith, Melvin L., assignor.)						
Smith, Sheffield. (See Hancock, George, assignor.)						
Smith, Thomas. (See Chambers and Smith.)						
Smith, Thomas, Philadelphia, Pa. Railway-crossing	479,027	July 19	1481	368	60	317
Smith, Thomas G., Malmesbury, and F. W. Mayhew, London, England. Side saddle	481,073	Aug. 16	2118	527	60	1017
Smith, Thomas L. (See Kempsmith and Smith.)						
Smith, Thomas M., Bend, Tex. Gate	483,398	Sept. 27	2404	604	60	1842
Smith, Wesley, Toledo, Ohio, assignor to C. W. Morris, Jr., trustee, and C. W. Morris, Boston, Mass. Smoke-consuming apparatus for boiler and other furnaces	479,767	July 26	2698	672	60	563
Smith, William C. (See O'Donnell, Smith, and Bound.)						
Smith, William C., Goshen, Ind. Spring-tire	479,851	Aug. 2	114	28	60	605
Smith, William D. (See Higgins and Smith.)						
Smith, William H. M., Brooklyn, N. Y. Planer for ice-elevators	482,206	Sept. 6	467	112	60	1426

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smith, William L. (See Smith, Homer H. and W. L.)						
Smith, William W., and G. R. Hayes, York, Pa.; said Smith assignor to said Hayes. Tobacco granulating, grading, and separating machine	483,292	Sept. 27	2251	567	60	1813
Smythe, Samuel R., Pittsburg, Pa. Furnace	478,767	July 12	1074	266, 267	60	229
Snaman, George W., Jr., Allegheny, Pa. Toy	479,534	July 26	2315	579	60	493
Snavely, Samuel H., assignor of one-fourth to F. W. Ritter, Jr., Washington, D. C. Curtain-fixture	481,978	Sept. 6	85	22	60	1351
Snedeker, Charles W., assignor of one-half to E. W. Ostrander, Marbletown, N. Y. Draft-yoke	479,535	July 26	2317	579	60	493
Sneer, George S., Marengo, Iowa. Wagon end-gate	482,835	Sept. 20	1493	371	60	1653
Snell, Arthur T., assignor to Snell & Weldon, Ventura, Cal. Safety-pin	481,834	Aug. 30	3397	834	60	1289
Snell & Weldon. (See Snell, Arthur T., assignor.)						
Snelling, Jeffrey, East Greenwich, England. Rotary engine	479,080	July 19	1557	389, 390	60	331
Snow, Elwin A., Jacksonville, N. Y. Picture-hanger	480,632	Aug. 9	1418	353	60	865
Snow, Fred. W., Hillburn, assignor to Standard Equipment Company, New York, N. Y. Switch-stand	480,676	Aug. 9	1487	370	60	878
Snow, Henry E., assignor of one-half to C. F. Mende, Albany, N. Y. Cuff-holder. (Reissue)	11,253	July 12	1397	345	60	290
Snow, James C., assignor of one-half to W. J. Barrickman, Butler, Pa. Folding table	482,701	Sept. 13	1286	315	60	1600
Snyder, Charles A., assignor of one-hundred-and-seven two-hundred-and-fortieths to W. W. Brown and R. T. Bass, Danville, Va. Machine for treating leaf-tobacco	483,401	Sept. 27	2406	605, 606	60	1843
Snyder, John H., Fruitport, Mich. Hame-fastener	480,633	Aug. 9	1419	354	60	866
Snyder, William D., Wetzell, Mich. Machine for turning handles	481,875	Aug. 30	3457	848, 849	60	1301
Snyder, William R., Royer's Ford, Pa. Wood-carving machine	480,524	Aug. 9	1239	311, 312	60	830
Sobey, William, assignor to J. I. Case Plow Works, Racine, Wis. Cultivator	481,208	Aug. 23	2351	579	60	1074
Socci, Joseph, Baltimore, Md. Device for unloading vessels, cars, &c	482,565	Sept. 13	1085	263	60	1560
Société Anonyme des Parfums Naturels de Cannes. (See Massignon, Jules, assignor.)						
Société Générale de Maltose. (See Effront, Jean, assignor.)						
Society Fabriques de Produits Chimiques de Thann et de Mulhouse. (See Baur, Albert, assignor.)						
Soistmann, Adolph G., and J. W. Pepper, Philadelphia, Pa.; said Soistmann assignor to said Pepper. Drum	478,378	July 5	495	120	60	98
Solari, George, St. Louis, Mo. Automatic sash-fastener	482,280	Sept. 6	586	139, 140	60	1449
Soler, Justo, deceased, Yanco, Porto Rico, West Indies; P. B. Turpin, administrator. Self-recording planograph	481,432	Aug. 23	2734	672, 673	60	1145
Soley, William H., and W. W. Perkins, assignors of three-fifths to J. Wolstencroft, W. O'Neil, and W. H. Yelland, Philadelphia, Pa. Electric locomotive	482,504	Sept. 13	1127	272	60	1569
Sollenberger, George, Mechanicsburg, Pa. Fly-net	482,417	Sept. 13	837	201	60	1512
Solt, Jacob B. and J. E., Northbrook, Pa. Slat-and-wire-fencing machine	480,391	Aug. 9	1035	260, 261	60	790
Solt, James E. (See Solt, Jacob B. and J. E.)						
Somborn, Julius, *et al.* (See Goldkind, Isaac, assignor.)						
Somers, Daniel M., and W. H. Atkinson, Brooklyn, N. Y. Apparatus for pickling metal plates	482,489	Sept. 13	950	231, 232	60	1533
Sommer, Henry B., Philadelphia, Pa. Tray for jewel	480,045	Aug. 2	465	118	60	670
Songer, Gordon T., assignor of one-half to W. E. Carter, Elizabethton, Tenn. Harrow	478,649	July 12	894	221	60	193
Sooy, Ephraim C. (See Livengood, Winfield S., assignor.)						
Sooy, Ephraim C., Kansas City, Mo. Furnace-grate	481,596	Aug. 30	2998	734, 735	60	1212
Sörensen, Niels G., Stockholm, Sweden. Lock	481,597	Aug. 30	3003	735	60	1213
Sonder, Leamon G., Philadelphia, Pa. Measuring-can	480,146	Aug. 2	616	156	60	700
Soule, Charles E., *et al.* (See Cogswell, Wilfred G., assignor.)						
Soule, Henry, *et al.* (See Demaurez, Charles, assignor.) (Reissue.)						
Soule, William C., Savannah, N. Y. Safety surf-boat	478,650	July 12	894	221	60	193
South Bend Pulley Company. (See Long, Eber A., assignor.)						
Southard, Charles H., Preston, N. Y. Can-washer	482,763	Sept. 20	1401	346	60	1633
Southwark Foundry and Machine Company. (See Good, William E., assignor.)						
Southwick, Frank B., Grand Rapids, Mich. Dump wagon-box	478,379	July 5	496	120	60	98
Sowter, George, Nottingham, England. Fashioning apparatus for straight-knitting machines	478,527	July 5	717	173	60	142
Spangler, Jacob W., assignor of one-half to M. E. Hartzler, York, Pa. Washing-machine	480,214	Aug. 2	736	186, 187	60	721
Sparks, Charles H., St. Louis, Mo. Mechanism for operating and locking jail-doors	483,178	Sept. 27	2043	516	60	1775
Sparks, William E., assignor to Sargent & Company, New Haven, Conn. Lock	480,973	Aug. 16	1953	488, 489	60	985
Sparr, Samuel F., Bozeman, Mont. Bob-sled	481,643	Aug. 30	3069	749	60	1226
Spaulding, Alpheus M., North Belgrade, Me. Combined napkin ring and holder	483,331	Sept. 27	2310	580	60	1824
Spaulding, Frank M., assignor to E. S. Mayfield, Kalamazoo, Mich. Aligner for type-writing machines	481,513	Aug. 23	2859	702	60	1170
Spaulding, James G. (See Bailey and Welch, assignors.)						
Spannhorst, Henry E., St. Louis, Mo. Drawer stop and guide	480,861	Aug. 16	1773	444	60	950
Spear, Ephriam W., Boston, Mass. Weighing-machine	479,852	Aug. 2	114	28	60	605
Spear, Ephriam W., Boston, Mass. Weighing-machine	479,853	Aug. 2	116	29	60	605
Spear, James, Philadelphia, Pa. Letter-box	479,576	July 26	2376	592	60	503
Spear, James, Philadelphia, Pa. Letter-box	481,772	Aug. 30	3295	802	60	1270
Speer, Abram C., Woodville, Oreg. Portable band sawing-machine	482,103	Sept. 6	297	70	60	1393
Spence, Thomas G., Brooklyn, N. Y. Inking attachment for printing-presses	479,674	July 26	2527	629, 630	60	532
Spencer, Charles F., assignor to W. Horcheler, Rochester, N. Y. Stovepipe-holding device	479,313	July 19	1917	479	60	400
Spencer, Christopher M., Windsor, Conn. Nail-puller	480,974	Aug. 16	1954	489	60	985
Spencer, Gaston N., assignor to himself and W. E. Hopkins, Onachita City, La. Plow-fender	482,595	Sept. 13	1128	272	60	1569
Spencer, Ira H., Hartford, Conn. Water-motor	479,097	July 19	1587	397	60	337
Spencer, John E., Salem, Mass. Damper-regulator	479,854	Aug. 2	118	29	60	605
Spencer, Luman N. (See Massey, Arthur C., assignor.)						
Spencer, Thomas. (See Andrews and Spencer.) (Reissue.)						
Spencer, Warren W. C., Boston, Mass. Certificate representing value	479,098	July 19	1589	398	60	338
Spencer, William G., Dahlonega, Ga. Water-wheel	481,674	Aug. 16	2118	527, 528	60	1017

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sperry Electric Company. (See Sperry, Elmer A., assignor.)						
Sperry, Elmer A., Chicago, Ill. Electric mine-car	478,138	July 5	89	23, 24	60	20
Sperry, Elmer A., Chicago, Ill. Electric locomotive	478,139	July 5	93	24	60	21
Sperry, Elmer A., Chicago, Ill. Trolley-wire splice	478,140	July 5	95	24	60	21
Sperry, Elmer A., Chicago, Ill., assignor to Thomson-Houston Electric Company, Boston, Mass. Mining-machine	478,141	July 5	95	24, 25	60	21
Sperry, Elmer A., Chicago, Ill., assignor to Thomson-Houston Electric Company, Boston, Mass. Dynamo-electric machine or motor	478,142	July 5	101	26	60	22
Sperry, Elmer A., Chicago, Ill., assignor to Thomson-Houston Electric Company, Boston,						

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Stauber, Carl. (See Stauber, Adolph and C.)						
Stauffer, John F. (See Reiffer and Stauffer.)						
Steam Gauge and Lantern Company *et al.* (See Gall, John S., assignor.)						
Stearns, Collins M., assignor to himself, E. J. and T. Field, Milwaukee, Wis. Elevator	479,314	July 19	1918	479	60	401
Stedman, John H., Rochester, N. Y. Time-limit ticket	481,210	Aug. 23	2354	580	60	1075
Steel, George P., Philadelphia, Pa. Sectional steam-boiler	478,208	July 5	216	54	60	44
Steele, John, Denver, Colo. Eye-protector for horses	481,159	Aug. 16	2260	557	60	1049

Alphabetical list of patentees, July to September, inclusive—Continued.

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Sperry Electric Company. (See Sperry, Elmer A., assignor.)						
Sperry, Elmer A., Chicago, Ill. Electric mine-car	478,138	July 5	89	23, 24	60	20
Sperry, Elmer A., Chicago, Ill. Electric locomotive	478,139	July 5	93	24	60	21
Sperry, Elmer A., Chicago, Ill. Trolley-wire splice	478,140	July 5	95	24	60	21
Sperry, Elmer A., Chicago, Ill., assignor to Thomson-Houston Electric Company, Boston, Mass. Mining-machine	478,141	July 5	95	24, 25	60	21
Sperry, Elmer A., Chicago, Ill., assignor to Thomson-Houston Electric Company, Boston, Mass. Dynamo-electric machine or motor	478,142	July 5	101	26	60	22
Sperry, Elmer A., Chicago, Ill., assignor to Thomson-Houston Electric Company, Boston, Mass. Armature for electric machines	479,030	July 19	1485	369	60	318
Sperry, Elmer A., assignor to Sperry Electric Company, Chicago, Ill. Electric-arc lamp	479,029	July 19	1484	369	60	318
Sperry, Elmer A., assignor to Sperry Electric Company, Chicago, Ill. Electric-arc lamp	480,525	Aug. 9	1243	312	60	831
Sperry, William W. (See Wheeler and Sperry.)						
Spidel, George W., assignor of one-half to H. L. Covode, Baker's Corners, Ind. Gate	481,876	Aug. 30	3459	849	60	1301
Spielman, William, Camden, N. J., assignor to A. Dailey, W. K. Butterworth, and J. L. Dailey, Philadelphia, Pa. Automatic railway-switch	481,248	Aug. 23	2435	600	60	1090
Spillane, Frank J. (See Muhlfeld and Spillane.)						
Spiller, Harry A., Boston, Mass., assignor to Pneumatic Gun Carriage and Power Company, Wheeling, W. Va. Motor-carriage	480,515	Aug. 2	740	187	60	722
Spilsbury, Edmund G., assignor to Trenton Iron Company, Trenton, N. J. Conveying and hoisting device	482,443	Sept. 13	881	212	60	1520
Spiro, Charles, New York, N. Y. Type-writing machine	481,376	Aug. 23	2633	647, 648	60	1125
Spiro, Charles, New York, N. Y. Type-writing machine	481,377	Aug. 23	2638	648	60	1126
Spivey, Thomas S., Cincinnati, Ohio. Protecting bank-checks, &c., from being raised	478,294	July 5	307	89	60	74
Spofford, Jason, Jr., assignor of one-half to P. W. Nichols, Amesbury, Mass. Vehicle	480,442	Aug. 9	1116	279	60	804
Sprague, Charles H., *et al.* (See Henry, Archie J., assignor.)						
Sprague, Charles L. (See Worthen, Arthur E., assignor.)						
Sprague Electric Railway and Motor Company. (See Johnson, Edward H., assignor.)						
Sprague Electric Railway and Motor Company. (See Sprague, Frank J., assignor.)						
Sprague, Frank J., assignor to Sprague Electric Railway and Motor Company, New York, N. Y. Electric motor and regulating device therefor	481,730	Aug. 30	3237	788	60	1258
Spring, William A., assignor to Gates Iron Works, Chicago, Ill. Chilli-ring	479,958	Aug. 2	289	72	60	637
Springfield Specialty Manufacturing Company. (See Dickinson, Henry C., assignor.)						
Springmeier, George A. (See Tudor, Robert L., assignor.)						
Spruce, Charles, Paterson, N. J. Apparatus for whetting and sharpening the edges of edged tools	480,634	Aug. 9	1421	354	60	866
Squire, C. B., *et al.* (See Cook, Herbert F., assignor.)						
Squire, Edwin, Montclair, N. J., G. H. Cobb, Elmira, and F. M. Towl, Brooklyn, N. Y. Liquid-fuel burner	478,295	July 5	368	89	60	74
Squires, Harry S., New York, N. Y. Automatic mileage-recorder for car-seats	480,526	Aug. 9	1245	313	60	831
St. Clair, Stuart, assignor to York Manufacturing Company, Limited, York, Pa. Compound compressing-engine	480,527	Aug. 9	1247	313, 314	60	831
St. John, Elmer F., Colorado Springs, Colo. Catch-basin	478,654	July 12	900	223	60	194
St. John, Garland B., Kalamazoo, Mich. Carriage-top	480,295	Aug. 9	885	224	60	763
St. John, James A., St. Louis, Mo. Cover for melting-pots	482,880	Sept. 20	1569	392	60	1668
St. Joseph Folding Bed Company. (See Parker, Jones, and Coffey, assignors.)						
St. Louis Carriage Manufacturing Company. (See Huber, William J., assignor.)						
Stacy, Edward E., Whiting, Iowa. Shoe-fastening	479,995	Aug. 2	367	91	60	651
Stacy, George G., New York, N. Y. Rail-joint	481,433	Aug. 23	2737	673	60	1145
Stafford, George A., Montague, Tex. Pneumatic conveyer for unloading cotton	481,434	Aug. 23	2738	673	60	1145
Stafford, George W., *et al.* (See Lee, George B., assignor.)						
Stafford, William H., *et al.* (See Wolfe, George C., assignor.)						
Stahl, Harlow C., Bellevue, Ohio, and W. P. Johnston, Monroe, La. Fertilizer-distributer	481,209	Aug. 23	2352	580	60	1074
Stanbrough, Rufus G., New York, N. Y. Dental burring-tool	481,740	Aug. 30	3241	789	60	1259
Standard Cartridge Company. (See Hisey, Charles S., assignor.)						
Standard Electric Company. (See Pfluger, Charles A., assignor.)						
Standard Electric Signal Company. (See Denio, William L., assignor.)						
Standard Equipment Company. (See Snow, Fred. W., assignor.)						
Standard Register Company. (See O'Neill, Henry G., assignor.)						
Standard Underground Cable Company. (See Barrett, John A., assignor.)						
Standard Underground Cable Company. (See Marsh, Joseph W., assignor.)						
Standard Underground Cable Company. (See O'Connor and Marsh, assignors.)						
Stanford, Charles D. (See Hanford and Stanford.)						
Stanhope, Philip R., Dumont, Colo., and F. Wood, Brooklyn, N. Y. Ore-concentrator	480,860	Aug. 16	1770	443	60	950
Stanley, Harry C., New York, N. Y. Folding step for car-berths	482,391	Sept. 13	797	191	60	1506
Stanley, Lucius T., Brooklyn, N. Y. Standard	480,749	Aug. 16	1602	401	60	916
Stanley, Lucius T., Brooklyn, N. Y., assignor to Cutter Electrical and Manufacturing Company, Philadelphia, Pa. Reflecting-shade for incandescent electric lamps	481,288	Aug. 23	2508	617	60	1102
Stanley, Lucius T., Brooklyn, N. Y., assignor to Cutter Electrical and Manufacturing Company, Philadelphia, Pa. Reflecting-shade for incandescent lamps	481,378	Aug. 23	2645	648	60	1127
Stanley, Lucius T., Brooklyn, N. Y., assignor, by mesne assignments, to Cutter Electrical and Manufacturing Company, Philadelphia, Pa. Apparatus for electrically purifying water	481,979	Sept. 6	87	22, 23	60	1351
Stanley Rule and Level Company. (See Traut, Justus A., assignor.)						
Stanley, William, Jr. (See Kelly and Stanley.)						
Stanley, William, Jr., Pittsfield, Mass., and J. F. Kelly, New York, N. Y. Alternating-current motor	479,675	July 26	2528	630	60	532
Stanley, William, Jr., and J. F. Kelly, Pittsfield, Mass. Alternating-current motor	479,676	July 26	2530	630	60	532
Stanley, William, Jr., and J. F. Kelly, Pittsfield, Mass. Alternating-current motor	479,727	July 26	2630	653	60	550
Stanley, William F., South Norwood, England. Pen-extractor	479,959	Aug. 2	290	72	60	637
Stanley Works. (See Corscaden, Thomas, assignor.)						
Stanton, William H., Anderson, Ind. Tool for extracting bungs	480,835	Aug. 16	1733	433	60	942
Stapler, William T., Harmony Grove, Ga. Plow standard and attachment	482,510	Sept. 13	989	239	60	1542
Staples, John A., Newburg, N. Y. Spring-support for upholstery	482,908	Sept. 20	1619	405	60	1676
Star Cornice and Furnace Company. (See Thuener and Herchenbach, assignors.)						
Stark, Andrew, Chicago, Ill. Bundle-carrier for grain-binders	479,677	July 26	2531	630, 631	60	532
Stark, Andrew, Chicago, Ill. Corn-harvester	480,975	Aug. 16	1955	489, 490	60	986
Stark, Paul, and K. A. Gütter, Markneukirchen, Germany. Attachment to zithers	480,750	Aug. 16	1603	402	60	917
Starks, William H., Bellevue, Wash. Strawberry-vine cutter	479,996	Aug. 2	368	91	60	651
Starr, William H. (See Cole, Edward D., assignor.)						
Stauber, Adolph and C., Clinton, Iowa. Portable window-scaffold	480,046	Aug. 2	466	118	60	671

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Stauffer, John F. (See Reiffer and Stauffer.)						
Steam Gauge and Lantern Company *et al.* (See Gall, John S., assignor.)						
Stearns, Collins M., assignor to himself, E. J. and T. Field, Milwaukee, Wis. Elevator	479,314	July 19	1918	479	60	401
Stedman, John H., Rochester, N. Y. Time-limit ticket	481,210	Aug. 23	2354	580	60	1075
Steel, George P., Philadelphia, Pa. Sectional steam-boiler	478,208	July 5	216	54	60	44
Steele, John, Denver, Colo. Eye-protector for horses	481,152	Aug. 16	2260	557	60	1042
Steen, George W. (See Moore and Steen.)						
Stees, Clarence, and G. Graupensperger, Altoona, Pa. Water-heater	481,211	Aug. 23	2356	580, 581	60	1075
Stehling, George T., and J. Bloomer, Milwaukee, Wis. Wagon-rack	482,490	Sept. 13	952	232	60	1534
Stein, Bernhard, assignor to Berliner Maschinenbau Actien-Gesellschaft, vormals L. Schwartzkopff, Berlin, Germany. Gas and petroleum motor	478,651	July 12	895	222	60	193
Stein, Charles, Meadville, Pa. Cushion felly and tire	482,392	Sept. 13	798	192	60	1506
Steiner, Bela. (See Lahola, Vinzenz, assignor.)						
Steinhilber, Edward R., Galesburg, Ill. Combined freight and stock car	480,635	Aug. 9	1422	354	60	866
Steinkamp, Charles F., Golconda, Ill. Wire-stretcher	479,901	Aug. 2	190	47	60	619
Steinle, William M., assignor to B. Gradle and N. Strotz, Chicago, Ill. Cigar-bunch machine	479,472	July 26	2214	556, 557, 558	60	474
Steinmetz, Cyrus W., Harrisburg, Pa. Measuring-faucet	482,815	Sept. 20	1462	363	60	1647
Steitz, Jacob R., St. Francis, Wis. Sprinkler	480,047	Aug. 2	467	118	60	671
Steitz, Jacob R., St. Francis, Wis. Sprinkler	480,048	Aug. 2	468	119	60	671
Stephenson, George A., assignor of one-half to J. F. Butler, Los Angeles, Cal. Suspension truss-bridge	479,081	July 19	1560	391	60	332
Stern, Emil, Vienna, Austria-Hungary. Apparatus for impregnating liquors in bottles	478,652	July 12	896	222	60	193
Stern, Eugene, Helmstedt, Germany. Brick-cutting machine	479,159	July 19	1684	421	60	356
Sternoff-Beyer, Otto, Carlstadt, N. J., assignor to Böhm Brothers, New York, N. Y. Drilling-machine	479,086	July 19	1570	394	60	334
Stetson, Peleg. (See Brown and Stetson.)						
Stevens, Andrew H., Farmington, Wis. Bread-pan, &c	479,997	Aug. 2	369	92	60	651
Stevens, Asher B., deceased, Brooklyn, N. Y., M. N. Baker, administrator, and assignor to G. Waite, Baldwinville, Mass. Convertible chair	480,636	Aug. 9	1424	355	60	866
Stevens, Calvin G., Watertown, N. Y. Boomerang	482,852	Sept. 20	1518	377	60	1659
Stevens, Fred T., Bryant's Pond, Me. Steam-boiler	480,880	Aug. 16	1798	450	60	956
Stevens, J. L., *et al.* (See Brown, Charles D., assignor.)						
Stevens, John H., Newark, N. J., assignor, by mesne assignments, to Celluloid Company, of New Jersey. Manufacture of compounds of pyroxyline	478,543	July 5	748	.....	60	149
Stevens, William X., Washington, D. C. Rock-drilling machine	481,598	Aug. 30	3004	735	60	1213
Stevenson, George B., Chicago, Ill. Wrench	482,281	Sept. 6	589	140	60	1449
Stevenson-Hoggson Electric Company. (See Hoggson, Samuel H., assignor.)						
Stevenson, John L., assignor of one-half to J. E. York, Chicago, Ill. Brick	480,879	Aug. 16	1797	449	60	955
Stevenson, William W. (See Clute, Veeder S., assignor.)						
Steward, Hiram P., Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Tuck-creaser for sewing-machines	481,599	Aug. 30	3008	736	60	1214
Steward, John F., Chicago, Ill. Sheaf-carrier for self-binding harvesters	482,931	Sept. 20	1647	414, 415	60	1683
Stewart, Arthur D., Ithaca, N. Y. Picture-holder	478,478	July 5	638	156	60	127
Stewart, Edwin, Albion, Ill. Ribbon and show case	483,024	Sept. 20	1804	455, 456	60	1715
Stewart, Joseph B., Haverstraw, N. Y. Automatic device for electric block-signals	480,147	Aug. 2	617	157	60	700
Stewart Manufacturing Company. (See Stewart, Samuel, assignor.)						
Stewart, Richard C., Jr., *et al.* (See Dwyer, Daniel C., assignor.)						
Stewart, Samuel, Ickesburg, Pa. Thill-tug	482,764	Sept. 20	1402	346	60	1633
Stewart, Samuel, Newark, N. J., assignor to Stewart Manufacturing Company, of New Jersey. Gas car-heater	480,216	Aug. 2	743	188	60	722
Stewart, Wallace A., *et al.* (See Dwyer, Daniel C., assignor.)						
Stewart, William W., Brooklyn, N. Y. Fountain-pen	478,653	July 12	898	222, 223	60	193
Stewart, William W., Brooklyn, N. Y. Fountain-pen	480,294	Aug. 9	882	224	60	762
Stickney, William A. (See Ford, William H., assignor.)						
Stiens, Peter, Charlottenburg, Germany. Electric battery	481,075	Aug. 16	2120	528	60	1017
Stieringer, Luther, assignor to himself and W. J. Jenks, New York, N. Y. Ceiling-block for incandescent lamps	482,104	Sept. 6	298	70	60	1394
Stierle, John, Marshfield, Wis. Device for preventing railway collisions	482,143	Sept. 6	358	85	60	1406
Stiewel, Edward S. (See Sauerman, John F., assignor.)						
Stiles, Everell D. (See Little, Robert H., assignor.)						
Stillians, Charles W., assignor of one-half to I. Freund, Pueblo, Colo. Car-coupling	481,076	Aug. 16	2123	528	60	1017
Stilwell, Henry C., Dayton, Ohio. Fluid-motor	479,855	Aug. 2	110	20	60	606
Stirling, Allan, New York, N. Y., assignor to Stirling Company, Chicago, Ill. Steam-boiler	479,678	July 26	2535	631	60	533
Stirling Company. (See Stirling, Allan, assignor.)						
Stirn, Leo. (See Stirn, Max, assignor.)						
Stirn, Louis, *et al.* (See Goldkind, Isaac, assignor.)						
Stirn, Max, assignor of one-half to L. Stirn, New York, N. Y. Machine for making buttons from plastic material	482,144	Sept. 6	360	86	60	1406
Stivers, Harry V. W., and J. Hoagland, Camden, N. J. Sack	483,402	Sept. 27	2410	606	60	1844
Stobaeus, John B., Newark, N. J. Apparatus for charging beer with carbonic acid	482,881	Sept. 20	1569	392	60	1668
Stobaeus, John B., and F. C. Wackenhuth, assignors to Universal Carbonating Company, Newark, N. J. Method of and apparatus for carbonating beer	478,176	July 5	166	43	60	35
Stock, Ephraim, Halls Forks, Wyo. Wheel-plow	482,816	Sept. 20	1464	364	60	1647
Stock, Louis, Columbus, Ohio. Machine for pasting, cutting, and trimming wall-paper	479,473	July 26	2224	558	60	475
Stocker, Arthur, Forest House, Pa. Fuel-saving attachment for stove-grates	479,536	July 26	2318	579	60	494
Stockdale, Alexander, Wolcott, Iowa. Nut-lock	483,241	Sept. 27	2143	543	60	1794
Stockford, Benjamin F., South Bend, Ind. Speed and whistle recorder for locomotive-engines	482,393	Sept. 13	799	192, 193	60	1506
Stockstrom, Charles A. (See Stockstrom, Louis, assignor.)						
Stockstrom, Louis, assignor of one-half to C. A. Stockstrom, St. Louis, Mo. Vapor-stove	479,315	July 19	1919	479, 480	60	401
Stockwell, Emory and H. C., assignors to Yale & Towne Manufacturing Company, Stamford, Conn. Time-lock mechanism	479,379	July 19	2027	508, 509	60	425
Stockwell, Herbert C. (See Stockwell, Emory and H. C.)						
Stoddard Manufacturing Company. (See Brown and Knaub, assignors.)						
Stoddard, Oscar, Detroit, Mich. Keyhole-guard	478,768	July 12	1075	267	60	229

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stoeppelwerth, Edward, and C. H. Knefelkamp, St. Louis, Mo. Window-blind	481,077	Aug. 16	2124	529	60	1018
Stokely, Samuel B. (See King and Stokely.)						
Stokes, George E., *et al.* (See Dobeck, Frank H., assignor.)						
Stollberg, Charles, assignor to Toledo Tin-Ware Manufacturing Company, Toledo, Ohio. Apparatus for riveting ears upon buckets	480,881	Aug. 16	1799	450	60	956
Stoltzenburg, Andrew A., St. Louis, Mo. Safety attachment for elevators	483,025	Sept. 20	1804	456	60	1715
Stone, Alonzo W. (See Eldridge, Edward E., assignor.)						
Stone, Frederick V., and M. A. Campbell, Elyria, Ohio. Foot-rest and shoe-stool	483,403	Sept. 27	2411	606	60	1844
Stone, Jerey M., Howe's Valley, Ky. Automatic brake	479,577	July 26	2377	{592 593}	60	504
Stone, Mark, *et al.* (See Parks, Dana, assignor.)						
Stone, Marvin C., *et al.* (See Freeman, James P., assignor.)						
Stone, Thomas H., and H. Corser, Birmingham, England. Tire for cycles	481,435	Aug. 23	2739	674	60	1146
Stoner, John B., New York, N. Y., assignor to L. Fordham, Long Branch, N. J. Automatic door-closer	478,246	July 5	300	73	60	60
Stoner, John B., assignor to F. J. Hasbrouck, New York, N. Y. Automatic weighing-machine	480,752	Aug. 16	1605	{402 403}	60	917
Stonemetz, John H., Erie, Pa. Combined paper-folding and sheet-delivering mechanism for printing-presses	479,768	July 26	2700	672	60	564
Storer, Jacob J., assignor to M. L. Storer, East Orange, N. J. Apparatus for treating the refuse of cities	481,680	Aug. 30	3129	764	60	1237
Storer, Mary L. (See Storer, Jacob J., assignor.)						
Storie, James D., Oshawa, Canada. Core-setter	482,394	Sept. 13	803	193	60	1507
Storie, Joshua R., Traviaville, Tenn. Hand-sifter	482,511	Sept. 13	990	240	60	1543
Storm, Edward G. and S. M., Lebanon, Ind. Fence	481,980	Sept. 6	89	23	60	1352
Storm, Samuel M. (See Storm, Edward G. and S. M.)						
Storrs, Samuel P., New Britain, Conn. Brush	479,082	July 19	1562	{391 392}	60	333
Story, Adeline E., Clay Centre, Kans. Means for securing coverings of netting to baskets	478,893	July 12	1262	312	60	265
Stott, Elizabeth, Huddersfield, England. Tape-needle	478,827	July 12	1181	293	60	249
Stout, William H. B., Chicago, Ill. Brick-kiln	480,940	Aug. 16	1889	{472 473}	60	974
Stout, William H. B., Chicago, Ill. Coffee-huller	482,909	Sept. 20	1621	{405 406}	60	1677
Stovell, James, assignor to Waterbury Buckle Company, Waterbury, Conn. Buckle	480,217	Aug. 2	744	188	60	723
Stow, Franklin, Kirkwood, N. Y. Device for driving fence-posts, &c	480,941	Aug. 16	1890	473	60	974
Strater, Herman, Boston, Mass. Drainer-plate	481,981	Sept. 6	90	23	60	1352
Stratton, William D., and J. H. Drake, Middletown, N. Y. Means for unloading gravel-trains	482,951	Sept. 20	1686	424	60	1690
Straughn, Charles R., Fernwood, Pa. Inkstand	481,600	Aug. 30	3010	736	60	1214
Strauss, Bertha. (See Muller, Bernhard, assignor.)						
Straw, Algernon L., Marlborough, Mass. Thill-coupling	481,436	Aug. 23	2740	674	60	1146
Street, Willoughby W. (See Beckwith and Street.)						
Street, Willoughby W., Springfield, Mass. Type-writing machine	480,677	Aug. 9	1489	{370 371}	60	878
Street, Willoughby W., and C. L. Travis, assignors to Minneapolis Electro Matrix Company, Minneapolis, Minn. Justifying attachment for matrix-making machines	480,350	Aug. 9	966	244	60	778
Streeter, Nelson R., Groton, N. Y. Adjustable swinging bracket	482,207	Sept. 6	469	112	60	1427
Strohmeyer, George W., *et al.* (See Childs, Edward D., assignor.)						
Strohmeyer, John F., *et al.* (See Childs, Edward D., assignor.)						
Strom, Axel A., Austin, assignor to Strom Manufacturing Company, Chicago, Ill. Railway-switch. (Reissue)	11,261	Aug. 16	2268	560	60	1043
Strom Manufacturing Company. (See Strom, Axel A., assignor.) (Reissue.)						
Strong, George S., New York, N. Y., assignor to J. N. Gamble, Cincinnati, Ohio. Compound engine	481,773	Aug. 30	3296	{802 803 804}	60	1271
Strotz, Nicolas, *et al.* (See Steinle, William M., assignor.)						
Strotz, Nicolas, Chicago, Ill. Cigar-bunching machine	482,882	Sept. 20	1571	{392 393 394 395 396 397}	60	1669
Strouse, Leopold, Baltimore, Md. Speaking-tube exchange	478,380	July 5	498	121	60	98
Struble, Charles B., Minneapolis, Minn. Box-lid support	478,655	July 12	901	223	60	194
Strusholm, Anders M., Woodbridge, N. J. Tile	478,656	July 12	902	223	60	194
Strusholm, Anders M., Woodbridge, N. J., assignor of one-half to R. W. Lyle, New York, N. Y. Tile-press	479,749	July 26	2665	{661 662}	60	557
Struss, Henry W., assignor to M. F. Struss, New York, N. Y. Rotary braiding-machine	479,474	July 26	2226	559	60	475
Struss, Marie F. (See Struss, Henry W., assignor.)						
Stuart, James A., assignor to himself, J. Buchanan, Philadelphia, Pa., and T. Marrin, Brooklyn, N. Y. Electric-arc lamp	482,986	Sept. 20	1739	439	60	1701
Stuart, John J., New York, N. Y. Ore-pulverizer	478,209	July 5	217	54	60	45
Stuart, Perry G., Fitchburg, assignor of one-half to H. P. Kendall, Sterling, Mass. Semaphore-signal	479,316	July 19	1921	480	60	401
Stubbs, Edward S., *et al.* (See Kemp, Solomon M., assignor.)						
Stubbs, Joel, Long Lake, Minn. Ice-shave	482,893	Sept. 20	1582	397	60	1669
Stuchel, John C., Indiana, Pa. Device for threading nut-blanks	481,437	Aug. 23	2742	674	60	1146
Stuchel, John C., Indiana, Pa. Tool for threading axles	481,514	Aug. 23	2860	{702 703}	60	1170
Stuebner, Gustavns L., Long Island City, N. Y. Coal-chute	483,404	Sept. 27	2412	606	60	1844
Stukes, John M., San Marcos, Tex. Attachment for pianos or organs	480,296	Aug. 9	886	{224 225}	60	763
Stull, Jacob H., Fremont, Ohio. Bill or letter file	480,862	Aug. 16	1775	444	60	951
Stupakoff, Simon H., assignor to C. H. Read, Pittsburg, Pa. Railway-chair	482,765	Sept. 20	1403	346	60	1634
Stupakoff, Simon H., assignor to C. H. Read, Pittsburg, Pa. Guard-rail	482,766	Sept. 20	1404	347	60	1634
Sturgess, William T., *et al.* (See Towlson, Edward, assignor.)						
Sturgis, Samuel D., Jr., and F. P. Peck, Presidio, Cal. Game-counter	481,657	Aug. 30	3094	754	60	1230
Sturm, Charles A. (See Lutgen, James R., assignor.)						
Sturm, Henri, Paris, France. Tile	483,180	Sept. 27	2049	517	60	1776
Sturtevant Mill Company. (See Sturtevant, Thomas L., assignor.)						
Sturtevant, Thomas J. (See Sturtevant, Thomas L. and T. J.)						
Sturtevant, Thomas L., Framingham, assignor to Sturtevant Mill Company, Boston, Mass. Making composite millstones	483,179	Sept. 27	2048	517	60	1776

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sturtevant, Thomas L. and T. J., Framingham, Mass. Steam-generator	480,417	Aug. 9	1078	270	60	797
Sturtevant, Thomas L. and T. J., Framingham, Mass. Water-jacket and condensing apparatus for marine boilers	481,379	Aug. 23	2646	649	60	1127
Sturtevant, Thomas L., Framingham, and W. H. Ellis, Boston, Mass. Millstone and making the same	483,504	Sept. 27	2544	639	60	1871
Stutz, Louis F., Washington, D. C. Puzzle	479,475	July 26	2228	559	60	476
Stutz, Sebastian, Pittsburg, Pa. Coal-washer	478,479	July 5	639	156	60	127
Stutz, Sebastian, Pittsburg, Pa. Coal or ore jigger and washer	481,438	Aug. 23	2743	675	60	1146
Suffern, J. B., *et al.* (See Goetz, Victor J., assignor.)						
Sugg, David W., London, England. Inverted burner for gas-lamps	479,922	Aug. 2	229	57	60	626
Sullivan, James J., New York, N. Y. Device for starting race-horses	481,835	Aug. 30	3399	{834 835}	60	1289
Sullivan, John H. (See Poulter, John H., assignor.)						
Sullivan Machinery Company. (See Ball, Albert, assignor.)						
Sullivan, William, Cherry Valley, Mass. Burr and shive extractor for carding-machines	482,395	Sept. 13	804	193	60	1507
Sulzner, Charles, Philadelphia, Pa. Trousers-guard	479,229	July 19	1798	449	60	376
Summers, Robert C., and W. Bolinger, Eureka, Kans. Replanting attachment for cultivators	479,998	Aug. 2	369	92	60	651
Sunderland, George B. (See Wagner and Sunderland.)						
Sunderlin, William D., Green Island, N. Y. Drying apparatus	481,212	Aug. 23	2357	581	60	1075
Sundgren, Olof, Östersund, Sweden. Winnowing-wheel for separating granular substances	478,828	July 12	1181	293	60	249
Supplee, Charles H., Philadelphia, Pa. Delivery-wagon	479,031	July 19	1488	370	60	319
Surbaugh, John S., Ottumwa, Iowa. Flexible handle for tools	479,032	July 19	1489	370	60	319
Sutphen, Edward A., Aurora, assignor to himself and H. T. Windsor, Chicago, Ill. Device for sharpening razors	480,976	Aug. 16	1961	490	60	986
Sutton, Harry S., assignor of one-half to A. N. Hilger, St. Paul, Minn. Music-chart	479,902	Aug. 2	191	47	60	619
Sutton, Samuel. (See Géant, Eugene, assignor.)						
Sutton, Thomas A. and W. H., Salford, England. Finishing bookbinders' cloth	482,596	Sept. 13	1129	.....	65	1569
Sutton, William H. (See Sutton, Thomas A. and W. H.)						
Suydam, John, Albany, N. Y. Flexible coupling for pipes	479,856	Aug. 2	122	30	60	606
Swartout, William, Reynolds, Ill. Rotating grain-weigher	479,537	July 26	2319	580	60	494
Swartz, Allen G. (See Dietrich, Oscar S., assignor.)						
Swartz, Eli, and D. S. Beemer, Scranton, Pa. Vehicle-brake	482,027	Sept. 6	174	41	60	1369
Sweeney, Daniel, Newark, N. J. Line-holder	480,351	Aug. 9	971	245	60	778
Sweeney, Peter, assignor of one-half to C. H. Boyer, New York, N. Y. Journal-bearing for car-axles	483,405	Sept. 27	2414	607	60	1844
Sweeny, James M., Pittsburg, Pa. Gas-regulator	478,480	July 5	641	156	60	128
Sweet, Benjamin W., Portsmouth, Ohio. Spark and cinder attachment for smoke-stacks	478,296	July 5	369	90	60	74
Sweetland, Frank, Angola, N. Y. Bicycle	482,067	Sept. 6	234	57	60	1381
Sweetland, Jerome B., Pontiac, Mich. Swing	481,439	Aug. 23	2745	675	60	1147
Sweetland, William W., Edwardsburg, Mich. Grate	479,728	July 26	2632	653	60	550
Swegles, John, Wayne, Mich. Axle-cutter	482,767	Sept. 20	1405	347	60	1634
Swenson, Daniel, Kansas City, Mo. Corn-popper	481,877	Aug. 30	3460	849	60	1302
Swenson, Lorens. (See Patterson and Swenson.)						
Swenson, Lorens, assignor of two-thirds to W. Patterson, Cresco, Iowa. Vehicle-wheel hub	482,418	Sept. 13	838	201	60	1513
Swenson, Paul, Minneapolis, Minn. Exhaust-nozzle	481,334	Aug. 23	2579	{633 634}	60	1115
Swift, Ernest, De Kalb, Ill. Horse hay-rake	479,033	July 19	1490	{370 371}	60	319
Swindell, Edward H. (See Swindell, James D., assignor.)						
Swindell, James D., assignor of one-half to E. H. Swindell, Allegheny, Pa. Casing for furnace-valves	478,769	July 12	1076	{267 268}	60	229
Swindell, William, Allegheny, Pa. Brick-kiln	479,679	July 26	2536	632	60	533
Swindell, William, Pittsburg, Pa. Casing for furnace valves	482,463	Sept. 13	908	224	60	1525
Swinscoe, Henry K., Clinton, Mass. Wire-netting machine	483,181	Sept. 27	2050	{517 518}	60	1776
Swinscoe, Henry K., Clinton, Mass. Wire-netting machine	483,182	Sept. 27	2053	518	60	1777
Swinson, George W., Magnolia, N. C. Plow	480,637	Aug. 9	1425	355	60	866
Syler, Frank W., Columbus, Ohio. Mining-machine	480,418	Aug. 9	1079	{270 271}	60	798
Synon, John H., Chicago, Ill. Boring-machine	478,266	July 5	328	79	60	66
Syracuse Specialty Manufacturing Company. (See Dickinson, Austin R., assignor.)						
T. I. Smith & Company. (See Lettré, Philip H., assignor.)						
Taber, Orrin, assignor to Nashua Saddlery Hardware Company, Nashua, N. H. Saddle-tree	480,218	Aug. 2	746	188	60	723
Taber, Orrin, assignor to Nashua Saddlery Hardware Company, Nashua, N. H. Saddle-tree	480,219	Aug. 2	747	189	60	723
Taber, Orrin, assignor to Nashua Saddlery Hardware Company, Nashua, N. H. Saddle-tree	480,220	Aug. 2	748	189	60	723
Taber, Orrin, assignor to Nashua Saddlery Hardware Company, Nashua, N. H. Saddle-tree	480,221	Aug. 2	749	189	60	724
Tachytype Manufacturing Company. (See Johnson, Frank A., assignor.)						
Taft, William E., Dunmore, Pa. Cutting-knife	478,381	July 5	499	121	60	98
Taggart, John V., *et al.* (See Campbell, George W., assignor.)						
Tait, William, assignor to William Cramp & Sons Ship and Engine Building Company, Philadelphia, Pa. Device for flooding ships' magazines	482,282	Sept. 6	590	{140 141}	60	1450
Talbot, Benjamin, Chattanooga, Tenn. Manufacturing sheet-iron	482,396	Sept. 13	806	.....	60	1507
Talbot, Benjamin, Chattanooga, Tenn., assignor of one-fourth to J. Meehan, Covington, Ky. Making malleable-iron castings	481,313	Aug. 23	2549	.....	60	1110
Talbot, Coleman, assignor of one-half to J. M. Talbot, Santa Rosa, Cal. Gate	481,078	Aug. 16	2125	529	60	1018
Talbot, Joseph M. (See Talbot, Coleman, assignor.)						
Talley, Reuben J., assignor of one-half to S. P. Gorden, Leesville, Tex. Insecticide-distributer	483,269	Sept. 27	2218	557	60	1807
Tallman, John C., Bridgeport, Conn. Horse-tail holder	478,894	July 12	1263	312	60	265
Tallman, William M., *et al.* (See Beers, Franklin H., assignor.)						
Tangney, Thomas, South Superior, Wis. Hinge	480,790	Aug. 16	1665	416	60	928
Tanner, William W., and T. W. Burch, assignors of one-third to J. Gerber, Fremont, Mich. Door-fastener	482,817	Sept. 20	1465	364	60	1648
Tarr, John B., New Bedford, Mass. Tobacco-shaver	480,638	Aug. 9	1426	{355 356}	60	867
Tarrant, Robert, *et al.* (See Prouty, Enoch, assignor.)						
Tarring, Lida A., Baltimore, Md. Mop-holder	478,657	July 12	903	224	60	194

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tatem & Co., C. P. (See Deane, Frank. H., assignor.)						
Tatum, Sidney S. (See Bush, Aylmer, assignor.)						
Tatum, William O. (See Marsh, Pickens B., assignor.)						
Tannay, Edward, New York, N. Y. Peanut-heater	478,721	July 12	993	246	60	214
Taylor, Abraham B., Mount Airy, Ohio. Car-door	479,143	July 19	1662	416	60	351
Taylor, Abraham B., Mount Airy, Ohio. Car-door	479,144	July 19	1664	416	60	351
Taylor, Alexander, *et al.* (See Jones and Myers, assignors.)						
Taylor, Charles H., South Orange, N. J. Car-coupling	480,836	Aug. 16	1734	433	60	942
Taylor, Cyrus, Buffalo, N. Y., assignor to Excelsior Specialty Company, of New York. Steam-trap	481,601	Aug. 30	3011	736	60	1214
Taylor, David H., Cincinnati, Ohio. Sash-fastener	481,440	Aug. 23	2747	675	60	1147
Taylor, George A. (See Buenee and Bash, assignors.)						
Taylor, George H. (See McMillan and Taylor.)						
Taylor, Horace H., assignor of one-half to R. Pollard, San Francisco, Cal. Ore-separator	482,853	Sept. 20	1519	377	60	1659
Taylor, James F., Brooklyn, N. Y. Steaming-kettle	481,982	Sept. 6	92	24	60	1352
Taylor, James W., Vermillion, S. D. Vehicle running-gear	482,597	Sept. 13	1130	273	60	1569
Taylor, John F., West Park, N. Y. Hydraulic press	479,317	July 19	1922	480	60	402
Taylor, John G., Kosse, Tex. Buckle	481,079	Aug. 16	2126	529	60	1018
Taylor, William H., Narragansett Pier, R. I. Life-boat	481,602	Aug. 30	3015	737	60	1215
Taylor, William M. (See Heath, Charles F., assignor.)						
Taylor, William W., assignor of one-half to C. L. Searcy, Waco, Ky. Vehicle-wheel	482,658	Sept. 13	1209	295	60	1585
Teague, Francis, assignor to J. A. Illiffe, London, England. Electric meter	482,324	Sept. 6	677	161, 162	60	1468
Teale, Walter. (See Hand and Teale.)						
Teall, James, Rochester, N. Y. Bill-file	482,659	Sept. 13	1211	295	60	1585
Tebbets, Eugene L. (See Trask, Lucius C., assignor.)						
Tefft, Henry B., assignor of two-thirds to W. S. Bogle, Chicago, Ill. Transfer-carriage for elevated ways	483,183	Sept. 27	2056	518, 519	60	1777
Terrell, Nathaniel A., assignor to himself, T. S. Keller, and J. Arundale, Charlottesville, Va. Center arbor for watches	478,528	July 5	719	174	60	142
Terrian, Clifford. (See Cossette, Pitre, assignor.)						
Terry, Alice V. (See Green, William W., assignor.)						
Terry, Robert E., assignor of one-half to T. N. Jordan, Mobile, Ala. Log-carrier	481,314	Aug. 23	2550	626	60	1110
Tersch, William H. (See Seymour, George H., assignor.)						
Teschner, August H. and P. E., Atchison, Kans. Harrow	479,476	July 26	2230	560	60	476
Teschner, Paul E. (See Teschner, August H. and P. E.)						
Tetaz, August L., and L. C. Hadorn, Chicago, Ill. Charm or locket	482,208	Sept. 6	470	112	60	1427
Tetley, Frederick J. (See Calls and Tetley.)						
Tettelbach, John, Cleveland, Ohio. Range hot-closet door	479,857	Aug. 2	123	30	60	606
Teufel, Charles, Chicago, Ill. Wardrobe-bed	482,028	Sept. 6	175	42	60	1369
Teufel, Wilhelm J., Stuttgart, Germany. Shoulder-brace	482,768	Sept. 20	1406	347	60	1635
Tevis, Edwin L., assignor of one-half to J. Tevis, Philadelphia, Pa. Bottle designed to prevent refilling	482,329	Sept. 6	685	163	60	1470
Tevis, Joshua. (See Tevis, Edwin L., assignor.)						
Tewoles, Louis, and T. A. Robinson, Paterson, N. J. Picker for looms	479,903	Aug. 2	192	47, 48	60	620
Thacher, John B. (See Fasoldt, Ernest C., assignor.)						
Theby, Edward R., Neenah, Wis. Sash-fastener	480,148	Aug. 2	620	157	60	701
Theis, Henry, Lawrenceburg, Ind. Machine for beveling barrel-heads	481,335	Aug. 23	2581	634	60	1116
Then, Christian D., Rochester, N. Y. Bill-file	482,660	Sept. 13	1212	296	60	1585
Thermo Electric Company. (See Iden, Charles W., assignor.)						
Thiel, Ernst E., Ruhla, Germany. Watch-movement	479,923	Aug. 2	230	57	60	627
Thielemann, Jonas. (See Rivers, Thomas L., assignor.)						
Thiellesen, Hans H., Custer City, S. D. Oil-can	479,318	July 19	1923	480	60	402
Thillman, Nicholas W., and C. W. Firme, Chicago, Ill. Turn-table	479,858	Aug. 2	123	30	60	607
Thoens, Burchard, New Orleans, La. Candy-machine	480,149	Aug. 2	620	157	60	701
Thom, John C., Cincinnati, Ohio. Workholder and safety-guard for universal woodworkers	481,983	Sept. 6	93	24	60	1353
Thomas, Benjamin A., Bardwell, Ky. Land-roller	483,242	Sept. 27	2144	543, 544	60	1795
Thomas Car Coupling Company. (See Thomas, James B., assignor.)						
Thomas, Cassius D., Moberly, Mo. Fruit-jar	478,659	July 12	906	224	60	195
Thomas, Charles E., Williamstown, N. J. Clamp for fruit-jar caps, &c	478,771	July 12	1079	268	60	230
Thomas, Charles W., Jersey City, N. J., assignor of part to P. Van Volkenburgh, New York, and J. H. Pendleton, Brooklyn, N. Y. Dynamo-electric machine	478,529	July 5	720	174, 175, 176	60	143
Thomas, Charles W., Jersey City, N. J., assignor of five-sixths to P. Van Volkenburgh, New York, and J. H. Pendleton, Brooklyn, N. Y. Dental engine	480,678	Aug. 9	1494	372	60	879
Thomas, Edward, Los Angeles, Cal. Can-stand	479,099	July 19	1590	398	60	338
Thomas, Edward E. (See Thomas, Judge D. and E. E.)						
Thomas, Edward E., San José, Cal. Fruit-dipper	482,283	Sept. 6	593	141	60	1450
Thomas, Edward W., Lowell, Mass. Cloth-napping machine	478,143	July 5	104	26, 27	60	23
Thomas, Edward W., Lowell, Mass. Machine for napping cloth	478,144	July 5	105	27	60	23
Thomas, George W., assignor to G. W. Bishop and N. Gibson, Baltimore, Md. Toy	483,087	Sept. 20	1895	479	60	1734
Thomas, James B., assignor to Thomas Car Coupling Company, Sulphur Springs, Tex. Combined car and air-brake coupling	481,984	Sept. 6	95	24	60	1353
Thomas, James M., Chillicothe, Ohio. Drive-gate	479,319	July 19	1924	481	60	402
Thomas, John H., Springfield, Ohio. Hay-rake	482,532	Sept. 13	1031	249	60	1550
Thomas, Judge D. and E. E., San José, Cal. Fruit pitting and spreading machine	482,284	Sept. 6	594	141	60	1451
Thomas, Robert B., Blackburn, La. Fertilizer-distributer	481,315	Aug. 23	2551	626	60	1110
Thomas, Van A., Providence, R. I. Detachable step for poles	480,977	Aug. 16	1962	491	60	987
Thomas, William M., assignor to L. Warfield, Detroit, Mich. Reduction-gear	480,679	Aug. 9	1495	372, 373	60	879
Thompson, Abraham W. (See Lentz and Thompson.)						
Thompson, Asa H., Groton, Mass. Heel-stiffener machine	483,184	Sept. 27	2057	519	60	1778
Thompson, Edward H. (See Thompson, Francis and E. H.)						
Thompson, Francis and E. H., Allegheny, Pa. Cigar-bunching machine	481,722	Aug. 30	3206	783	60	1252
Thompson, Freeman, Dover, N. H. Car-coupling	482,598	Sept. 13	1131	273	60	1570
Thompson, George F., Minneapolis, Minn. Wagon-body	482,398	Sept. 13	807	194	60	1507
Thompson, George L., Chicago, Ill. Curling-tongs	482,702	Sept. 13	1287	315	60	1600
Thompson, James C., Brockley, England. Fuse for explosive projectiles or shells	482,533	Sept. 13	1032	250	60	1551
Thompson, John, assignor to Frey-Scheckler Company, Bucyrus, Ohio. Brick and tile machine	478,481	July 5	642	157	60	128
Thompson, John F., Fulton, Ky. Agricultural machine	483,026	Sept. 20	1808	457	60	1716
Thompson, John P., Olneyville, R. I. Tension device for loom-shuttles	478,895	July 12	1264	312	60	265
Thompson, John S., Cyrus, Minn. Draft-equalizer	479,034	July 19	1493	371	60	320

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Thompson & Norris Company. (See Thompson, Robert H., assignor.)						
Thompson, Otis D., Elkhart, Ind. Lawn-sweeper	481,269	Aug. 23	2464	607	60	1096
Thompson, Paul. (See Phillips, William H., assignor.)						
Thompson, Philander D., Neligh, Nebr. Grain cut-off	481,080	Aug. 16	2127	529	60	1018
Thompson, Robert H., *et al.* (See Shaw, Charles H., assignor.)						
Thompson, Robert H., New York, assignor to Thompson & Norris Company, Brooklyn, N. Y. Corrugated packing	479,999	Aug. 2	371	92	60	651
Thompson, Robert J., assignor of one-half to J. B. White, Grandin, Mo. Log-binder	478,972	July 12	1386	341, 342	60	288
Thompson, Sven O., McPherson, Kans. Collapsible fence for hay-stacks	479,680	July 26	2538	632	60	534
Thompson, William. (See Walker, Alexander, assignor.)						
Thompson, William A., Boston, assignor of one-half to M. E. Crocker, Malden, Mass. Hanging window-shelf	482,502	Sept. 13	970	237	60	1540
Thompson, William H., Winnipeg, Canada. Combination-lock	478,658	July 12	903	224	60	195
Thoms, Alexander S., Paterson, N. J. Relief-valve	480,528	Aug. 9	1240	314	60	832
Thomson, Claude, Chicago, Ill. Folding window-balcony	478,177	July 5	168	43	60	36
Thomson Electric Welding Company. (See Lemp, Hermann, assignor.)						
Thomson Electric Welding Company. (See Thomson, Elihu, assignor.)						
Thomson, Elihu, Swampscott, Mass. System of telephony	481,878	Aug. 30	3461	849	60	1302
Thomson, Elihu, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-arc lamp	478,145	July 5	107	27, 28	60	24
Thomson, Elihu, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Induction-coil for electric meters	482,209	Sept. 6	471	113	60	1427
Thomson, Elihu, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Ventilating-armature for dynamo-electric machines	482,397	Sept. 13	806	193	60	1507
Thomson, Elihu, Swampscott, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Distribution of electric currents	478,722	July 12	994	247	60	214
Thomson, Elihu, Lynn, Mass., assignor to Thomson Electric Welding Company, of Maine. Electric soldering	480,392	Aug. 9	1038	261	60	701
Thomson-Houston Electric Company. (See Bassett, Norman C., assignor.)						
Thomson-Houston Electric Company. (See Blackwell, Francis O., assignor.)						
Thomson-Houston Electric Company. (See Dennick, George W., assignor.)						
Thomson-Houston Electric Company. (See Hunter, Rudolph M., assignor.)						
Thomson-Houston Electric Company. (See Sperry, Elmer A., assignor.)						
Thomson-Houston Electric Company. (See Thomson, Elihu, assignor.)						
Thomson-Houston Electric Company. (See Van Depoele, Charles J., assignor.)						
Thomson, Judson L., assignor to Judson L. Thomson Manufacturing Company, Waltham, Mass. Rivet	481,123	Aug. 16	2196	543	60	1031
Thomson, Judson L., assignor to Judson L. Thomson Manufacturing Company, Waltham, Mass. Lacing-stud	481,124	Aug. 16	2197	544	60	1031
Thornton, John B. (See Gninn, John L., assignor.)						
Thornton, John E., assignor of one-half to E. Pickard, Manchester, England. Photographic shutter	482,854	Sept. 20	1521	378	60	1659
Thornton, William, Chattanooga, Tenn. Clothes-wringer	480,297	Aug. 9	887	225	60	763
Thorp, Adelbert H., Toledo, Ohio. Railway time-signal	481,723	Aug. 30	3207	783	60	1252
Thorp, Henry H., Cleveland, Ohio. Bicycle	478,770	July 12	1077	268	60	230
Thorp, Thomas J. (See Adams and Thorp.)						
Thuener, William, Jr., and P. Herchenbach, assignors to Star Cornice and Furnace Company, St. Louis, Mo. Hot-air furnace	479,769	July 26	2701	673	60	564
Thum, Mandeville, Louisville, Ky. Safety device for electric circuits	479,035	July 19	1494	372	60	320
Thurston, Harrison F., Centre Bartlett, N. H. Culinary vessel	481,316	Aug. 23	2552	626	60	1110
Thurston, John L., Somerville, and F. B. How, Boston, Mass. Outlet-valve for set bowls	482,534	Sept. 13	1035	250, 251	60	1551
Thurston, Minnettie R., Kalamazoo, Mich. Cylindrical sewing-machine needle	480,150	Aug. 2	622	157	60	701
Tibbits, James H. (See Brown, George H., assignor.)						
Tidblad, Carl E., Jamaica Plain, Mass. Valve-gear	482,399	Sept. 13	909	194	60	1508
Tiffany Chemical Company. (See Tiffany, Walton C., assignor.)						
Tiffany, Walton C., New York, N. Y., assignor of one-half to B. Cameron, Tucson, Ariz. Ter. Making tanning-extracts	480,376	Aug. 9	1011	.....	60	786
Tiffany, Walton C., New York, N. Y., assignor to Tiffany Chemical Company, of New York. Hydrometer	480,480	Aug. 9	1181	297	60	818
Tilden, Frank W. (See Merriman and Tilden.)						
Tilton, Abram, Brooklyn, and A. Hormel, New York, N. Y. Machine for decorating wood	482,855	Sept. 20	1523	378	60	1660
Timm, Charles. (See Woodward and Timm.)						
Timms, Charles H., assignor of one-half to C. Johnson, John Day, Oreg. Door-check	480,222	Aug. 2	750	189	60	724
Tindall, Augustus, Brenton, Ill. Cultivator	480,529	Aug. 9	1250	314	60	832
Tiner, John F., assignor to himself and R. C. Houston, Lavernia, Tex. Spring draft attachment	479,681	July 26	2541	633	60	534
Tingley, David S., *et al.* (See Marvick, Frederick N., assignor.)						
Tinkler, Thomas, Whitchurch, Canada. Plow	479,036	July 19	1495	372	60	320
Tinsley, William J., Brooklyn, N. Y. Printer's quoin	483,185	Sept. 27	2059	520	60	1778
Titus, John C., assignor of one-half to New Bremen Machine Company, New Bremen, Ohio. Brick or tile machine	478,267	July 5	330	80	60	66
Tobey, Charles W., assignor to Burt & Tobey, New Bedford, Mass. Rheostat	480,151	Aug. 2	623	158	60	701
Tobey, Charles W., assignor to Burt & Tobey, New Bedford, Mass. Electric-cord tip	480,152	Aug. 2	627	159	60	702
Tobey, Fred W., assignor to Grand Rapids Brass Company, Grand Rapids, Mich. Screw-driving and washer-feeding machine	480,530	Aug. 9	1251	314, 315	60	832
Tobey, Samuel W., assignor to himself and C. J. Furer, Fairfield, Nebr. Milk-cooler	478,482	July 5	643	158	60	128
Todd, Charles A. (See Adams, Joseph C., assignor.)						
Todd & Co., Edward. (See Smith, James B., assignor.)						
Todd Cotton Harvester Company. (See Todd, George N., assignor.)						
Todd, George N., Chicago, Ill., assignor to Todd Cotton Harvester Company, of Illinois. Picker-stem and mechanism for operating the same	483,121	Sept. 20	1945	492	60	1745
Todd, John W., Portland, Oreg. Saw-tooth	481,836	Aug. 30	3400	835	60	1289
Todd, Paul P. (See Doremus, Victor E., assignor.)						
Todd, Richard, Manchester, England. Feed-regulating attachment for sewing-machines	478,660	July 12	907	225	60	195
Toledo Tin-Ware Manufacturing Company. (See Stollberg, Charles, assignor.)						
Tom, Joseph C., Pontotoc, Tex. Pump	483,406	Sept. 27	2416	607	60	1845
Tompkins, Cornelius B., assignor to himself, W. W. and S. D. Tompkins, Elmira, N. Y. Dry closet	482,987	Sept. 20	1742	440	60	1702
Tompkins, Jordan W., Amesbury, Mass. Reamer	479,682	July 26	2542	633	60	534
Tompkins, Stewart D., *et al.* (See Tompkins, Cornelius B., assignor.)						
Tompkins William W., *et al.* (See Tompkins, Cornelius B., assignor.)						
Tong, James H., assignor of seven-fifteenths to J. F. De Lassus, St. Louis, Mo. Car-brake	480,910	Aug. 16	1848	460	60	966

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Toohey, Cornelius, San Francisco, Cal. Grocer's caddy	482,285	Sept. 6	596	142	60	1451
Toops, Emory D., Indianapolis, Ind. Elevator-gate	482,286	Sept. 6	597	142	60	1451
Toresen, Hans, Yankton, S. D. Lever for raising and lowering buggy-tops	480,531	Aug. 9	1254	315	60	833
Tothill, William S., Chicago, Ill. Baby-jumper	483,270	Sept. 27	2219	557	60	1807
Totten, Homer L., Canton, Ohio. Double-seam folder	478,723	July 12	996	247	60	214
Tourangeau, Napoleón, assignor of one-half to J. O. Marceau, Montreal, Canada. Reel for unraveling tubular-knitted goods and winding the yarn	482,932	Sept. 20	1618	415	60	1683
Tournell, John. (See Fredrikson, Andrew J., assignor.)						
Tower, Abner J., trustee. (See Noll, Augustus, assignor.)						
Tower, Clinton A., Cleveland, Ohio, assignor to Empire Car Coupler Company,						

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Turner, William A., Worcester, Mass. Separable button	480,352	Aug. 9	972	245	60	778
Turner, William A., assignor to E. Converse, Worcester, Mass. Ball-cock valve	481,317	Aug. 23	2553	627	60	1110
Turner, William H., assignor to J. A. Turner, Indianapolis, Ind. Stove or warm-air furnace	483,187	Sept. 27	2061	521, 297	60	1778
Turney, Frederick N., Nottingham, England. Process of and apparatus for degreasing leather	482,661	Sept. 13	1213	296, 297	60	1586
Turpin, Perry B., administrator. (See Soler, Juste.)						
Tuttle, John H., and F. D. Cable, Toledo, Ohio. Bicycle	478,724	July 12	997	247	60	214
Tuttle, Richard T. (See Benedict, Milton E., assignor.)						

Alphabetical list of patentees, July to September, inclusive—Continued.

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Toohey, Cornelius, San Francisco, Cal. Grocer's caddy	482,285	Sept. 6	596	142	60	1451
Toops, Emory D., Indianapolis, Ind. Elevator-gate	482,286	Sept. 6	597	142	60	1451
Toresen, Hans, Yankton, S. D. Lever for raising and lowering buggy-tops	480,531	Aug. 9	1254	315	60	833
Torian, W. H. (See Fox, James T., assignor.)						
Tothill, William S., Chicago, Ill. Baby-jumper	483,270	Sept. 27	2219	557	60	1807
Totten, Homer L., Canton, Ohio. Double-seam folder	478,723	July 12	996	247	60	214
Tourangeau, Napoléon, assignor of one-half to J. O. Marceau, Montreal, Canada. Reel for unraveling tubular-knitted goods and winding the yarn	482,932	Sept. 20	1648	415	60	1683
Tournell, John. (See Fredrikson, Andrew J., assignor.)						
Tower, Abner J., trustee. (See Noll, Augustus, assignor.)						
Tower, Clinton A., Cleveland, Ohio, assignor to Empire Car Coupler Company, Weehawken, N. J. Car-coupling	482,105	Sept. 6	300	71	60	1394
Tower, Cyrus R. (See Atkinson, William, assignor.)						
Towl, Forrest M. (See Squire, Cobb, and Towl.)						
Towlson, Edward, assignor to Rotary Engine Syndicate, Limited, Norwich, England. Rotary fluid-pressure engine	481,441	Aug. 23	2748	676	60	1147
Towlson, Edward, assignor to W. T. Sturgess and E. Towlson, Norwich, England. Rotary engine	483,027	Sept. 20	1809	457, 458, 459	60	1716
Townsend, Israel, Portsmouth, Va. Traction-engine	482,599	Sept. 13	1132	293	60	1570
Townsend, Jerome C., Minneapolis, Minn. Button-fastener	479,538	July 26	2320	580	60	494
Townsend, Ralph. (See Jones and Townsend.)						
Towry, William J. (See Pickup and Towry.)						
Trawick, Joseph E., assignor of three-fourths to H. R. Jones, T. B. Vance, Spear, and G. H. Zimmerman, Cranberry, N. C. Grinder	482,400	Sept. 13	810	194, 195	60	1508
Trask, Lucina C., assignor to E. L. Tebbets, Greenwood, Me. Gage-lathe	478,178	July 5	109	43, 44	60	36
Traube, Isidor, and A. Kattentidt, Hanover, Germany. Bottle-stopper	478,483	July 5	644	158	60	128
Traut, Justus A., New Britain, Conn. Trousers-guard	478,772	July 12	1080	268	60	230
Traut, Justus A., New Britain, Conn. Suspender-buckle	480,680	Aug. 9	1497	373	60	879
Traut, Justus A., New Britain, Conn. Cast-off buckle	480,791	Aug. 16	1666	416	60	929
Traut, Justus A., New Britain, Conn. Snap-hook	480,792	Aug. 16	1667	417	60	929
Traut, Justus A., assignor to Stanley Rule and Level Company, New Britain, Conn. Marking-gage	481,213	Aug. 23	2359	581	60	1076
Travis, Charles L. (See Street and Travis.)	481,515	Aug. 23	2861	703	60	1170
Travis, Charles L., assignor to Minneapolis Electro Matrix Company, Minneapolis, Minn. Matrix-making machine	479,539	July 26	2321	580	60	494
Travis, Owen J., assignor of one-half to A. E. Shorthill, Marshalltown, Iowa. Derailing-frog	479,338	July 19	1953	488	60	408
Treat, Cornelius A., assignor to C. A. Treat Manufacturing Company, Hannibal, Mo. Chill for casting car-wheels	481,442	Aug. 23	2749	676	60	1148
Tremain, Charles W., Portland, Oreg. Steam-stamp	480,226	Aug. 2	752	190	60	724
Tremain, Charles W., and S. Johnson, assignors to Prospective Mining and Machinery Company, Portland, Oreg. Steam-engine	480,153	Aug. 2	627	159	60	702
Tremblay, Alfred, Holyoke, Mass. Bicycle	482,856	Sept. 20	1525	379	60	1660
Tremper, Eugene. (See Lynch and Tremper.)						
Trenton Iron Company. (See Spilsbury, Edmund G., assignor.)						
Trethewey Manufacturing Company. (See Trethewey, Samuel, assignor.)						
Trethewey, Samuel, assignor to Trethewey Manufacturing Company, Pittsburg, Pa. Rotary shears	479,037	July 19	1496	372	60	321
Trethewey, Samuel, assignor to Trethewey Manufacturing Company, Pittsburg, Pa. Power-hammer	482,988	Sept. 20	1743	440	60	1702
Trick, Philip, Crestline, Ohio. Fence	483,186	Sept. 27	2060	520	60	1778
Trier, John M., Jefferson, Ind. Harvester and binder	481,706	Aug. 30	3170	774	60	1245
Trimble, William D., *et al.* (See Phelan, John, assignor.)						
Trimont Manufacturing Company. (See Dearborn, Richard J., assignor.)						
Trips, Peter, Lebanon, Ind. Case-cleaner	482,600	Sept. 13	1133	274	60	1570
Trochu, Athanase, Redon, France. Tailor's measuring apparatus	483,271	Sept. 27	2220	557	60	1807
Trone, Pierre G., assignor of one-half to H. Levi, New Orleans, La. Burglar-alarm	479,320	July 19	1925	481	60	402
Trott, Warren E., Brooklyn, N. Y. Safety-guard for scarf-pins, studs, &c.	479,578	July 26	2378	593	60	504
Trousers Stretcher Company. (See Macdonald, George S., assignor.)						
True, Irving J., Hope Valley, R. I. Tag-holder	483,314	Sept. 27	2283	573	60	1819
True, James A., Pawtucket, R. I. Shoe-sewing machine	480,882	Aug. 16	1800	450	60	956
Truman, Edgar H., Wilmington, Del. Game apparatus	479,683	July 26	2543	633	60	534
Trumble, Chauncey B., assignor, by mesne assignments, of one half to H. G. Moe, Groton, N. Y. Animal-trap	481,707	Aug. 30	3171	775	60	1245
Tucker, Albert F., Auburndale, Mass. Telegraph-key	479,859	Aug. 2	125	31	60	607
Tucker, Stephen D., *et al.* (See Crowell, Luther C., assignor.)						
Tucker, Stephen D., *et al.* (See Crowell, Luther C., assignor.) (Reissue.)						
Tucker, Stephen D., New York, N. Y. Registering mechanism for double-cylinder flat-bed printing-machines	479,860	Aug. 2	125	31	60	607
Tucker, William W., Hartford, Conn. Machine for taper-turning	482,210	Sept. 6	472	113, 114	60	1427
Tucker, William W., Hartford, Conn. Grinding-fixture	482,211	Sept. 6	475	114	60	1428
Tucker, William W., Hartford, Conn. Machine for milling plug-valves	482,212	Sept. 6	477	114	60	1428
Tudor, Henri, Rosport, Luxemburg. Electrode for storage batteries	478,661	July 12	907	225	60	195
Tudor, Robert L., assignor of one-half to G. A. Springmeier, Cincinnati, Ohio. Composition for softening enameled leather	481,516	Aug. 23	2862	.....	60	1171
Tutts, David, Pittsburg, Pa. Apparatus for operating elevator-doors	483,407	Sept. 27	2418	608	60	1845
Tuffs, Seth G., Mainville, Ohio. Device for operating hatchway-doors	478,297	July 5	371	90	60	74
Turner, Alonzo G., assignor of two-thirds to F. A. Kimball, Durango, and A. Levy, Walsenburg, Colo. Drill	480,978	Aug. 16	1964	491	60	987
Turner, Alonzo G., assignor of two-thirds to F. A. Kimball, Durango, and A. Levy, Walsenburg, Colo. Drill	480,979	Aug. 16	1965	491	60	987
Turner, Alonzo G., assignor of two-thirds to F. A. Kimball, Durango, and A. Levy, Walsenburg, Colo. Wagon-frame	480,980	Aug. 16	1966	491	60	987
Turner, David G., Underwood, Nebr. Car-coupling	480,481	Aug. 9	1183	297	60	819
Turner, Jacob W., Van Wert, Ohio, assignor of one-half to T. Clapper. Band-cutter and feeder for threshing-machines	479,477	July 26	2233	560, 561	60	476
Turner, James J., Pittsburg, Pa. Compensator for signals	479,230	July 19	1795	450	60	376
Turner, James J., Pittsburg, assignor to Union Switch and Signal Company, Swissvale, Pa. Compensator for signals	479,380	July 19	2040	509	60	425
Turner, Jennie A. (See Turner, William H., assignor.)						
Turner, McDonald M., and I. H. Grant, Atlanta, Ga. Safety-switch	481,153	Aug. 16	2261	558	60	1042

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Turner, William A., Worcester, Mass. Separable button	480,352	Aug. 9	972	245	60	778
Turner, William A., assignor to E. Converse, Worcester, Mass. Ball-cock valve	481,317	Aug. 23	2553	627	60	1110
Turner, William H., assignor to J. A. Turner, Indianapolis, Ind. Stove or warm-air furnace	483,187	Sept. 27	2061	520, 521	60	1778
Turney, Frederick N., Nottingham, England. Process of and apparatus for degreasing leather	482,661	Sept. 13	1213	296, 297	60	1586
Turpin, Perry B., administrator. (See Soler, Justo.)						
Tuttle, John H., and F. D. Cable, Toledo, Ohio. Bicycle	478,724	July 12	997	247	60	214
Tuttle, Richard T. (See Benedict, Milton E., assignor.)						
Tuttle, William H., Detroit, Mich. Combination-chair	478,662	July 12	908	225	60	195
Tweedle, Michael, Billingshurst, assignor to E. Ray, London, England. Compound projectile for small-arms	481,081	Aug. 16	2128	530	60	1019
Tyler, Charles N., Buffalo, N. Y. Screw-top for cans	480,793	Aug. 16	1668	417	60	929
Tyler, Morgan, *et al.* (See Miller, Russell C., assignor.)						
Tyler, Walter L. (See Seo and Tyler.)						
Tyler, William H., David City, Nebr. Calf-weaner	481,985	Sept. 6	96	25	60	1353
Tyler, William W. (See Bookwalter and Tyler.)						
Tyler, William W., assignor to James Leffel & Company, Springfield, Ohio. Water-wheel	480,753	Aug. 16	1607	403, 404	60	917
Tynan, Joseph, Cohoes, N. Y. Belt	482,401	Sept. 13	811	195	60	1508
Tyner, James M. C., and S. S. Irving, Minneapolis, Minn. Trolley for electric railways	482,325	Sept. 6	679	162	60	1468
Uckotter, Herman H. (See Brunsman and Uckotter.)						
Uechting, Ludwig, Berlin, Germany. Necktie-fastener	480,754	Aug. 16	1609	404	60	918
Uhlenhart, William L., Astoria, Oreg. Umbrella-rib	480,353	Aug. 9	974	245	60	779
Uhri, Jacob. (See Knudtson and Uhri.)						
Ulrich, Allen D., Kokomo, Ind. Horse-collar	480,000	Aug. 2	372	93	60	652
Ulrich, Moritz, and J. Bammann, assignors to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Azo coloring-matter	482,106	Sept. 6	301	.....	60	1394
Umholtz, Charles W., Bristol, Va. Exhaust-nozzle	481,092	Aug. 16	2129	530	60	1019
Unbehend, Jacob J., assignor to Judson L. Thomson Manufacturing Company, Waltham, Mass. Rivet	481,125	Aug. 16	2108	544	60	1091
Underwood, Charles M., Hamilton, Canada. Motto-plate	482,662	Sept. 13	1216	297	60	1586
Underwood, George B., Chicago, Ill. Volatilizer	478,896	July 12	1205	313	60	265
Underwood, Thomas M., assignor of one-half to J. Rowan Baldwyn, Miss. Shears	482,857	Sept. 20	1526	379	60	1660
Underwood, William D., assignor of two-fifths to W. E. Pardridge, Chicago, Ill. Harness-pad	481,289	Aug. 23	2509	617	60	1102
Underwood, William H., and W. E. Clum, Woodland, Mich. Car-coupling	482,769	Sept. 20	1407	348	60	1635
Unglaub, Robert O., Pendleton, near Manchester, England. Apparatus for rectifying glycerine	481,879	Aug. 30	3465	850	60	1303
Union Chemical Company. (See Cutten, Elisha B., assignor.)						
Union Metallic Cartridge Company. (See Hobbs and Richards, assignors.)						
Union Metallic Cartridge Company. (See Richards, Charles R., assignor.)						
Union Special Sewing Machine Company. (See Woodward and Timm, assignors.)						
Union Switch and Signal Company. (See Turner, James J., assignor.)						
Unique Table Company. (See Curtis, George W., assignor.)						
United Gas Improvement Company. (See Collins and Knapp, assignors.)						
United States Autograph Telegraph Company. (See Bridger, Henry C., assignor.)						
United States Down Extractor Company. (See Mooney, Herman O., assignor.)						
United States Postage Stamp Delivery Company. (See Pickard, Edward L., assignor.)						
United States Smokeless Powder Company. (See Rodgers, Samuel, assignor.)						
United States Swing Treadle Company. (See Sleight, William E., assignor.)						
Universal Carbonating Company. (See Stobaeus and Wackenhuth, assignors.)						
Universal Gas Construction Company. (See Moses, Frank D., assignor.)						
Unwin, Philip L., and H. Howard, assignors to Lloyd & Lloyd, Halesowen, near Birmingham, England. Arc welding and heating apparatus	480,794	Aug. 16	1669	417	60	929
Upson, Waldo L., assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Wick-raiser for central-draft lamps	481,741	Aug. 30	3242	789	60	1259
Upton, Horace, and W. Kennard, Bar Harbor, Me. Clothes-tongs	478,382	July 5	500	121	60	99
Urania-Uhren-und-Säulen-Commandit-Ges. Breslauer & Dr. Von Orth. (See Franke, Adolf, assignor.)						
Urbanek, Johann, Frankfort-on-the-Main, Germany. Implement for cutting glass	482,601	Sept. 13	1135	274	60	1570
Urch, David, Portsmouth, N. H. Propeller for vessels	483,122	Sept. 20	1946	492, 493	60	1745
Urie, John, Jr., Jersey City, N. J. Photographic-printing machine	478,663	July 12	910	226	60	196
Usher, Edward P., Grafton, Mass., assignor to Hopedale Electric Company, of West Virginia. Storage-battery	480,883	Aug. 16	1803	450	60	956
Usher, Edward P., Grafton, Mass., assignor to Hopedale Electric Company, of West Virginia. Battery-cell	480,884	Aug. 16	1804	451	60	957
Usher, Edward P., Grafton, Mass., assignor to Hopedale Electric Company, of West Virginia. Storage-battery	480,885	Aug. 16	1804	451	60	957
Usher, Edward P., Grafton, Mass., assignor to Hopedale Electric Company, of West Virginia. Battery-plate	480,887	Aug. 16	1807	451	60	957
Usher, Edward P., Grafton, and W. F. Draper, Hopedale Mass., assignors to Hopedale Electric Company, of West Virginia. Battery-plate	480,886	Aug. 16	1806	451	60	957
Utica Electrical Manufacturing and Supply Company. (See Bossert and Findlay, assignors.)						
Utley, Milton R. (See McMunn, Llewellyn D., assignor.)						
Valentine, Gordon B., Chicago, Ill. Reclining-chair	478,247	July 5	301	73	60	60
Valentine, Joseph C., Watertown, N. Y. Road-cart	479,478	July 26	2235	561	60	477
Van Benthuysen, Frank, Albany, N. Y. Roller-bearing	479,038	July 19	1498	372	60	321
Van Benthuysen, Frank, Albany, N. Y. Reducible lining for journal-bearings	479,039	July 19	1499	373	60	321
Van Bibber, Andrew, Cincinnati, Ohio. Miter-tool	482,107	Sept. 6	302	71	60	1394
Van Buren, Jay D. (See Rogers and Van Buren.)						
Van Buren, Robert. (See Powers and Van Buren.)						
Van Depoele, Charles J., deceased, Lynn; C. A. Coffin and A. Wahl, executors, and assignors to Thomson-Houston Electric Company, Boston, Mass. Controlling mechanism for reciprocating electric engines	479,960	Aug. 2	291	72, 73	60	637
Van Depoele, Charles J., deceased, Lynn; C. A. Coffin and A. Wahl, executors, and assignors to Thomson-Houston Electric Company, Boston, Mass. Feed mechanism for electric reciprocating engines	479,961	Aug. 2	295	73	60	638
Van Depoele, Charles J., deceased, Lynn; C. A. Coffin and A. Wahl, executors, and assignors to Thomson-Houston Electric Company, Boston, Mass. Reciprocating electric engine	479,962	Aug. 2	297	73, 74	60	638
Van Depoele, Charles J., deceased, Lynn; C. A. Coffin and A. Wahl, executors, and assignors to Thomson-Houston Electric Company, Boston, Mass. System of supplying currents to reciprocating electric engines	479,963	Aug. 2	300	74	60	639

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Van Depoele, Charles J., deceased, Lynn; C. A. Coffin and A. Wahl, executors, and assignors to Thomson-Houston Electric Company, Boston, Mass. System of distributing electric currents	479,964	Aug. 2	301	74	60	639
Van Depoele, Charles J., deceased, Lynn; C. A. Coffin and A. Wahl, executors, and assignors to Thomson-Houston Electric Company, Boston, Mass. Reciprocating electric pile-driver	479,965	Aug. 2	303	74, 75	60	640
Van Depoele, Charles J., deceased, Lynn; C. A. Coffin and A. Wahl, executors, and assignors to Thomson-Houston Electric Company, Boston, Mass. Electrical transmission of power	479,966	Aug. 2	306	75	60	640
Van Derzee, Cornelius, assignor of two-thirds to D. H. Mathias and J. H. Simonson, Albany, N. Y. Washing-machine	480,532	Aug. 9	1255	315	60	833
Van Ensley, Martin, McMinnville, Oreg. Hydraulic motor				316		
Van Gelder, Pieter, Sowerby Bridge, England. Dust-collector	482,976	Sept. 20	1723	435	60	1698
Van Gelder, Pieter, Sowerby Bridge, England. Apparatus for separating dust from air	479,231	July 19	1797	450	60	376
Van Houten, Frank H., Matteawan, N. Y., assignor to C. L. Goehring, Allegheny, Pa. Wood-molding machine	479,267	July 19	1851	463	60	387
Van Houten, Frank H., Matteawan, N. Y., assignor to C. L. Goehring, Allegheny, Pa. Molding-machine	480,443	Aug. 9	1117	279	60	805
Van Liew, Cornelius. (See O'Dell and Van Liew.)	480,444	Aug. 9	1118	280	60	805
Van Meter, M. S. (See Burkhead, Henry C., assignor.)						
Van Ness, James, Batavia, N. Y. Fence	480,154	Aug. 2	629	159	60	702
Van Nuis, Charles S., New Brunswick, N. J. Lightning-arrester	478,383	July 5	501	121	60	99
Van Peirson, E., *et al.* (See Randall, Robert F., assignor.)				122		
Van Rensselaer, Gerdon W. (See Lowe and Van Rensselaer.)						
Van Sant, William S., Auburn, Cal. Coin-actuated vending-machine	480,639	Aug. 9	1428	356	60	867
Van Sicklen, Charles T., Englewood, Ill. Ice-cream freezer	483,028	Sept. 20	1811	459	60	1717
Van Vliet, Warren R., East Stroudsburg, Pa. Till-lock	478,897	July 12	1266	313	60	265
Van Volkenburgh, Philip, *et al.* (See Thomas, Charles W., assignor.)						
Van Wie, Byron, assignor of five-sixths to W. F. Greene, Troy, and W. E. Johnson, New York, N. Y. Centrifugal machine	478,484	July 5	646	158	60	128
Van Winkle, Isaac, Dysart, Iowa. Hub-attaching device	481,603	Aug. 30	3017	737	60	1215
Vance, Joseph A., Plymouth, Ohio. Surgical appliance	480,911	Aug. 16	1850	460	60	966
Vance, Thomas B., *et al.* (See Trawick, Joseph E., assignor.)						
Vandament, George A., Ruark, assignor of one-third to P. O. French, S. W. Morgan, and J. M. Freese, Sumner, Ill. Cutter-bar	481,318	Aug. 23	2555	627	60	1111
Vanden-Kerckhove, Armand, Brussels, Belgium. Electrode	478,664	July 12	913	226	60	196
Varden, Maurice M. (See Hall, James B., assignor.)						
Vanderbilt, Henry V., assignor to himself and S. A. Bunnell, Brooklyn, N. Y. Step-ladder	480,224	Aug. 2	754	190	60	725
Vanderbilt Sash Balance Company. (See Jenkinson, Samuel, assignor.)						
Vanderburg, Charles H., Florence, Oreg. Plow	482,884	Sept. 20	1593	398	60	1670
Vanier, Francis N. and O., Amesbury, Mass. Two-seated carriage	482,858	Sept. 20	1527	379	60	1661
Vanier, Ovila. (See Vanier, Francis N. and O.)						
Vannette, Jasper, Tiffin, Ohio, assignor to Singer Manufacturing Company of New Jersey. Sewing-machine	480,298	Aug. 9	888	225	60	763
Vanstone, Samuel, Providence, R. I. Protecting-thimble for steam or heating pipes	481,126	Aug. 16	2198	544	60	1031
Vasson, Raphael G. de, assignor to La Suberine, Paris, France. Plastic composition	479,967	Aug. 2	309	.....	60	641
Vastine, Carroll B. (See Corner, Robert J. G., assignor.)						
Vaughn, Augustus W., Stuart, Iowa. Printing-press	479,579	July 26	2379	593	60	504
Vaughn, John H., *et al.* (See Morrison, Hamon, assignor.)						
Veeder, Irwin. (See Richards and Veeder.)						
Veit, Charles F. (See Renard, Victorien L. M., assignor.)						
Verdin, Alois N. (See Heath and Verdin.)						
Verdnin, Cornelus. (See Dalenberg and Verdnin.)						
Verein für Zellstoffindustrie Actiengesellschaft. (See Maste, Hermann A. A., assignor.)						
Verhage, Henry. (See Derham, Samuel G., assignor.)						
Vermeulen, John, New York, N. Y., assignor, by mesne assignments, to Oliver & Roberts Wire Company, Limited, Pittsburg, Pa. Spiral-spring-coiling machine	481,443	Aug. 23	2750	676	60	1148
Vermeulen, John, New York, N. Y., assignor, by mesne assignments, to Oliver & Roberts Wire Company, Limited, Pittsburg, Pa. Wire box-strap machine	481,444	Aug. 23	2751	677	60	1148
Vermont Farm Machine Company. (See Kimball, Perley L., assignor.)						
Very, Theodore S., Boston, Mass. Toe-calk for horseshoes	481,336	Aug. 23	2584	634	60	1116
Vezin, Oscar, New York, N. Y. Refrigerator-car	482,703	Sept. 13	1288	316	60	1600
Vibert, Charles W. (See Ellsworth, Erastus W., assignor.)						
Victor Safe and Lock Company. (See Baum, Jacob, assignor.)						
Vieweg, John N. (See Booz, Thomas J., assignor.)						
Villamor, Isidoro, deceased; H. Serrell, New York, N. Y., administrator. Machine for preparing fiber	482,205	Sept. 6	465	112	60	1426
Vineing, Henry E., Roseville, N. J., assignor to Electric Secret Service Company, New York, N. Y. Electrical regulation	480,393	Aug. 9	1040	261	60	791
Vineing, Henry E., Roseville, N. J., assignor of one-half to R. S. Walker, New York, N. Y. Means for controlling the operation of mechanisms	483,272	Sept. 27	2222	558	60	1808
Vineyard, Gordon C. (See Root and Vineyard.)						
Vining, George, Hartford, Conn. Valve	478,665	July 12	914	226	60	197
Vinson, Leaven J. H., Titusville, Fla. Screw	481,445	Aug. 23	2753	677	60	1148
Violett, William H., Grand Junction, Colo. Car-coupling	481,446	Aug. 23	2754	677	60	1149
				678		
Virgil, Almon K., New York, N. Y. Exercising-keyboard	479,339	July 19	1954	488	60	408
Virgil, Almon K., New York, N. Y. Exercising-keyboard for musicians	479,340	July 19	1959	488	60	409
				489		
Vivien, Jean, Philadelphia, Pa. Convertible cornet	478,666	July 12	915	227	60	197
Voelkle, Andreas, New York, N. Y. Street-sweeping machine	482,663	Sept. 13	1218	297	60	1586
Vogan, George L. (See Vogan, John H. and G. L.)						
Vogan, John H. and G. L., New Castle, Pa. Sanding device for street-cars	481,535	Aug. 23	2903	712	60	1179
Vogel, Charles, San Francisco, Cal. Cable-railway grip	478,773	July 12	10?1	269	60	230
Vogel, Charles, Fort Lee, N. J. Speed-gear for velocipedes	479,177	July 19	1716	430	60	361
Vogel, Gustav, Orange Valley, N. J. Propelling mechanism for row-boats	479,094	Aug. 2	231	58	60	627
Vogler, William, Somerville, assignor to C. A. Morss, Boston, Mass. Dress-form	479,232	July 19	1798	450	60	377
Voight, Henry G., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Cylinder locks and keys	480,299	Aug. 9	889	225	60	764
				226		
Voisard, Emile P., Chicago, Ill. Ice-cream freezer	483,029	Sept. 20	1813	460	60	1717
Volkmann, John H. (See Adriance and Volkmann.)						
Volkmann, John H., New York, N. Y. Coin conveyer and tester for automatic vending-machines	483,188	Sept. 27	2063	521	60	1779

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Volkmann, Paul, assignor to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Making piperazin	482,108	Sept. 6	304	.....	60	1395
Volstorf, Theodor, Berlin, Germany. Rotary pulp-strainer	483,030	Sept. 20	1814	460	60	1717
				461		
Voss, William H., East Stroudsburg, Pa. Extensible step for cars	481,658	Aug. 30	3095	754	60	1230
Vreeland, Warren, Nutley, N. J. Weed-exterminator	480,300	Aug. 9	891	226	60	764
W. W. Kimball Company. (See Hedgeland, Frederick W., assignor.)						
Wachendorff, Carl, assignor to R. Koepp & Co., Oestrich, Germany. Double salts of fluoride of antimony and sulphate of ammonia	479,925	Aug. 2	233	.....	60	627
Wächter, Ludwig. (See Welleba and Wächter.)						
Wackenhuth, Frederick C. (See Stobaeus and Wackenhuth.)						
Wadsworth, Alfred, Warsaw, N. Y. Sawing-machine	483,315	Sept. 27	2284	574	60	1819
				575		
Wadsworth, George H., and W. Sheesley, Findlay, Ohio. Adjusting apparatus for oil-wells	482,818	Sept. 20	1466	364	60	1648
				365		
Wadsworth, William, Fall River, Mass. Machine for punching leather loom-pickers	480,419	Aug. 9	1082	271	60	798
Waffenfabrik Mauser. (See Mauser, Paul, assignor.)						
Wages, Edgar, and S. H. Armstrong, Canton, Ill. Cultivator	483,031	Sept. 20	1816	461	60	1718
Wagler, Joseph. (See Dreesman and Wagler.)						
Wagner, Adam C., Philadelphia, Pa. Mashing apparatus	478,667	July 12	916	227	60	197
Wagner, Ausbert H., Chicago, Ill. Shafting-hanger	482,287	Sept. 6	599	142	60	1452
Wagner, Casper M., Chicago, Ill. Folding bed	479,861	Aug. 2	128	31	60	608
Wagner, Casper M., Chicago, Ill. Folding bed	480,795	Aug. 16	1650	417	60	929
				418		
Wagner, Curt, Oederan, Germany. Elastic tire	482,819	Sept. 20	1466	365	60	1648
Wagner, John, and G. B. Sunderland, Marietta, Ohio. Horseshoeing-rack	481,083	Aug. 16	2130	530	60	1019
Wagner Manufacturing Company. (See Bingham, Robert O., assignor.)						
Wagner, Samuel K., Latrobe, Pa. Gas-mixer	481,604	Aug. 30	3017	737	60	1215
Wagner, William, Washington, D. C. Apparatus for loading cartridges	481,127	Aug. 16	2200	544	60	1031
				545		
Wagor, Samuel D., Winterset, Iowa. Burial apparatus	479,904	Aug. 2	193	48	60	620
Wahl, Albert, *et al.*, executors. (See Van Depoele, Charles J.)						
Wahl, George F., *et al.* (See Haas, Jacob A., assignor.)						
Wainwright, Jacob T., Chicago, Ill. Reducing unsmelted ores	482,213	Sept. 6	478	115	60	1429
Wait, Frona E., *et al.* (See Christy, James C., assignor.)						
Waite, Gilman. (See Stevens, Asher B., assignor.)						
Wakefield, George W., Waterman, Ill. Grain-weighing machine	481,084	Aug. 16	2131	531	60	1019
Wakefield, William O., assignor to F. W. Webster and E. W. Rice, Jr., Lynn, Mass. Bicycle	483,273	Sept. 27	2224	558	60	1808
				559		
Wakeman, Charles E., Pontiac, Mich. Device for centering knitting-machine cylinders	479,802	Aug. 2	130	32	60	608
Waldron, Charles F., Boston, Mass. Electric battery	478,485	July 5	647	159	60	129
Waldron, Charles L., Round Pond, Me. Plate or pan lifter	481,986	Sept. 6	98	25	60	1354
Waldron, Charles W., Lewiston, Me. Quoin	481,605	Aug. 30	3018	738	60	1216
Waldron, Edward, Philadelphia, Pa. Rotary engine	479,479	July 26	2236	561	60	477
				562		
Waldron, Edward, Philadelphia, Pa. Clutch	480,796	Aug. 16	1672	418	60	930
Walker, Alexander, assignor of one-half to W. Thompson, What Cheer, Iowa. Gear-wheel	479,233	July 19	1800	451	60	377
Walker, Charles B., Trinidad, Colo. Ore-concentrator	480,301	Aug. 9	892	226	60	764
Walker, Douglas, Liberty, Ill. Sliding gate	480,155	Aug. 2	630	159	60	703
Walker, Edwin, and J. Shaw, Heckmondwike, England. Pipe for the conveyance of liquids or gases	483,274	Sept. 27	2225	559	60	1808
Walker, George A. (See Westgate, Joseph D., assignor.)						
Walker, George R., *et al.* (See O'Donnell, Michael J., assignor.)						
Walker, James C., Waco, Tex. Hydraulic propulsion of vessels	480,533	Aug. 9	1258	316	60	834
Walker, James E., assignor of two-thirds to L. Griffith and C. F. Hunt, Detroit, Mich. Car-coupling	479,926	Aug. 2	235	58	60	627
Walker, Oakley S., Worcester, Mass. Grinding-machine	481,380	Aug. 23	2647	649	60	1128
Walker, Robert L., Boston, Mass. Smoke-consuming furnace	479,100	July 19	1591	398	60	338
Walker, Robert S. (See Vineing, Henry E., assignor.)						
Walker, Thomas B., *et al.* (See Landin, Peter J., assignor.)						
Walker, William J., St. Louis, Mo. Pipe-wrench	482,109	Sept. 6	305	72	60	1395
Walker, William T., Clarksville, Tex. Puzzle	478,668	July 12	918	228	60	197
Wall, Charles L., Philadelphia, Pa., assignor of one-half to J. G. Wall, Camden, N. J. Mortising-chisel	482,704	Sept. 13	1290	316	60	1601
Wall, Jacob G. (See Wall, Charles L., assignor.)						
Wallace, George E., Belfast, Me. Apparatus or machine for cleaning bottles	482,110	Sept. 6	306	72	60	1395
Wallace, John S., Belfast, Ireland. Charge-indicator for gas-guns	480,156	Aug. 2	631	160	60	703
Wallace & Sons. (See Bohner, Joseph E., assignor.)						
Wallace, Thomas V., Monongahela City, Pa. Harness-snap	482,885	Sept. 20	1584	398	60	1670
Wallace, William W., and R. C. Penfield, assignors to J. W. Penfield & Son, Willoughby, Ohio. Machine for re-pressing bricks	480,912	Aug. 16	1850	461	60	966
Wallace, William W., and R. C. Penfield, assignors to J. W. Penfield & Son, Willoughby, Ohio. Brick-sanding machine	482,705	Sept. 13	1291	316	60	1601
Wallace, William W., and R. C. Penfield, assignors to J. W. Penfield & Son, Willoughby, Ohio. Sanding apparatus	483,088	Sept. 20	1806	479	60	1734
Walle, Carl G., Brooklyn, N. Y. Slide-valve	478,829	July 12	1184	293	60	249
Wallis, Charles, and R. Mader, Bay City, Mich. Combined cane and stool	482,214	Sept. 6	481	115	60	1429
Walsh, John, assignor of one-half to J. F. Grether, Cleveland, Ohio. Trolley-protector	481,517	Aug. 23	2863	704	60	1171
Walsh, Robert F., Peoria, Ill. Water-heater	480,913	Aug. 16	1851	461	60	966
Walsh, William D., and J. A. Dowling, Duluth, Minn. Submarine grapple	480,640	Aug. 9	1430	356	60	868
Walter, John. (See Marvick and Walter.)						
Walter, Stephen A., Moline, Ill. Dish-washing machine	482,706	Sept. 13	1292	316	60	1601
				317		
Walters, Charles L., Seabright, N. J. Shutter-fastener	482,111	Sept. 6	307	72	60	1395
Walters, Martin L., Findlay, Ohio. Sliding gate	480,755	Aug. 16	1610	404	60	918
Walters, William, assignor of one-fourth to G. D. Garland, Chicago, Ill. Furnace	479,771	July 26	2704	674	60	565
Walters, William J., *et al.* (See Wright, Napoleon B., assignor.)						
Walton, James, assignor of two-thirds to J. F. Mitchell, La Plata, Mo., and G. D. Hutchison, Fort Madison, Iowa. Automatic railway stock and cattle guard	481,447	Aug. 23	2756	678	60	1149
Wandel, Christian, Reutlingen, Germany. Strainer for chemical wood pulp	478,179	July 5	171	44, 45	60	36
Wandell, Timothy. (See Wilcox, Hallenbeck, and Wandell.)						
Wanda, John C., St. Louis, Mo. Car-roof	483,032	Sept. 20	1817	461	60	1718
Wankey, Lewis F., assignor of one-half to J. W. Fairman, Kansas City, Mo. Nut-lock	478,725	July 12	998	247	60	215
Ward, Edward L., Santa Rosa, Cal. Plow	481,708	Aug. 30	3172	775	60	1246

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ward, Elmer E., Colorado Springs, Colo. Lid-holder for pans or vessels	483,408	Sept. 27	2430	608	60	1845
Ward, Henry C., Chippewa Lake, Mich. Folding umbrella	480,482	Aug. 9	1184	297	60	819
Ward, John D., Phelps, N. Y. Thermometer-case	482,050	Sept. 6	209	50	60	1376
Ward, John W. (See Hunter, Andrew, assignor.)						
Ward, Josiah O., Orange, N. J. Hemp-brake	480,354	Aug. 9	974	245	60	779
Ward, Peter, Rye, N. Y. Foot-rest	480,797	Aug. 16	1674	418	60	930
Ward, William H., assignor of one-half to J. P. Lewis, Topeka, Kans. Axle-lubricator	482,503	Sept. 13	980	237	60	1540
Wardwell, Simon W., Jr., Boston, Mass. Thread-controlling device for sewing-machines	482,215	Sept. 6	483	115 / 116	60	1429
Wardwell, Simon W., Jr., Boston, assignor to J. R. Leeson, Newton, Mass. Apparatus for winding cops or balls	480,157	Aug. 2	633	160 / 161	60	703
Wardwell, Simon W., Jr., Boston, assignor to J. R. Leeson, Newton, Mass. Winding cops or balls	480,158	Aug. 2	637	161 / 162	60	704
Warenskjold, Axel, San Diego, Cal. Nut-lock						
Warfield, Louis. (See Thomas, William M., assignor.)	481,214	Aug. 23	2361	582	60	1076
Waring, Daniel, *et al.*. (See Selkirk, Alexander, assignor.)						
Waring Hat Manufacturing Company. (See Segschneider, Gustav, assignor.)						
Waring, John, Manchester, Conn. Rheostat	479,101	July 19	1593	399	60	338
Warner, Alfred A., *et al.* (See Cooper, Leslie A., assignor.)						
Warner, Benjamin F., Blair, Nebr. Combined mop-tub and mop-wringer	480,303	Aug. 9	895	227	60	765
Warner, Charles G., Syracuse, N. Y. Detachable sleigh-runner	480,302	Aug. 9	894	227	60	765
Warner, Ernest P., Chicago, Ill. Dynamometer	480,981	Aug. 16	1968	492	60	988
Warner, Ernest P., assignor to Western Electric Company, Chicago, Ill. Field-magnet frame for dynamo-electric machines	480,049	Aug. 2	469	119	60	671
Warner, Ernest P., assignor to Western Electric Company, Chicago, Ill. Duplex-arc lamp	480,050	Aug. 2	470	120	60	672
Warner, George B., and L. J. Allen, Woodbury, Conn. Car-starter	482,820	Sept. 20	1468	365	60	1648
Warner, Henry F. (See Warner, William B. and H. F.)	479,127	July 19	1637	409	60	346
Warner, James, East Somerville, Mass. Skate	480,051	Aug. 2	472	120	60	672
Warner, John P., assignor to A. F. Navarre, Washington, D. C. Heater and purifier for feed-water						
Warner, William B. and H. F., Monticello, Iowa. Speed-governor attachment	480,534	Aug. 9	1259	316	60	834
Warrington, Curtis H., West Chester, Pa. Plow attachment	479,040	July 19	1501	373	60	321
Warthen, Franklin F., Baltimore, Md. Apparatus for making fried oysters	482,602	Sept. 13	1135	274	60	1571
Washburn, F. E., *et al.* (See Washburn, William E., assignor.)	481,337	Aug. 23	2585	635	60	1116
Washburn, F. S., *et al.* (See Washburn, William E., assignor.)						
Washburn, George W., Danbury, Conn. Water-heater	478,486	July 5	648	159	60	129
Washburn, William E., assignor of two-thirds to F. S. and F. E. Washburn, Cedar Rapids, Iowa. Voltaic pile	482,444	Sept. 13	883	213	60	1520
Wasson, James M., Peoria, Ill. Filter	481,606	Aug. 30	3019	738	60	1216
Wasson, Jehiel, Friendship, N. Y. Cattle-stanchion	481,987	Sept. 6	99	25	60	1354
Waterbury Buckle Company. (See Stovell, James, assignor.)						
Waterbury Farrel Foundry and Machine Company. (See Campbell, Andrew C., assignor.)						
Waterhouse, Addison G., Hartford, Conn. Electric meter	483,189	Sept. 27	2065	521	60	1779
Waterman, Clarence R. (See Fowler, Benjamin F., assignor.)						
Waterman, Lewis E., assignor to Deere & Company, Moline, Ill. Planter	480,304	Aug. 9	897	227 / 228	60	765
Waters, Benjamin E., assignor to Waters Electric Company, Brockton, Mass. Time-switch for electric circuits	478,180	July 5	172	45	60	37
Waters Electric Company. (See Waters, Benjamin E., assignor.)						
Waters, Frank J., assignor of one-half to G. Howe, Providence, R. I. Valve-gear for engines	478,973	July 12	1387	342 / 343	60	288
Waters, Frank J., assignor of one-half to G. Howe, Providence, R. I. Cut-off piston-valve	482,707	Sept. 13	1295	317	60	1602
Watkins, Charles E., Harvard, Mass. Brooder	483,409	Sept. 27	2421	608	60	1846
Watkins, Gardner A., assignor to Heywood Bros. & Co., Gardner, Mass. Lock for baby-carriages	482,708	Sept. 13	1296	317	60	1602
Watrous, Charles R. (See Palmer and Watrous.)						
Watson, George, Culpepper, Ala. Plow attachment	481,215	Aug. 23	2362	582	60	1076
Watson, George A., Toronto, Canada, assignor of fifty-one one-hundredths to W. H. Laird, New York, N. Y. Apparatus for heating	481,216	Aug. 23	2363	582 / 583	60	1076
Watson, Henry, *et al.* (See Abbott, Charles J., assignor.)						
Watson, Lee P., Fairmont, W. Va. Plotter	479,198	July 19	1748	438	60	367
Watson, Samuel. (See Cardwell and Watson.)						
Watt, Allan, Rocky Mount, N. C. Clothes-pin	479,685	July 26	2545	634	60	535
Watts, Albert. (See Chase, Henry A., assignor.)						
Watts, David H., Philadelphia, Pa. Portable grate	483,410	Sept. 27	2422	609	60	1846
Watts, Julius R., assignor of one-half to E. W. McCullough, Springfield, Ill. Miner's lamp	478,487	July 5	650	159	60	129
Waugh, Eugene. (See Nation, Edmund C., assignor.)						
Waukenhose Company. (See Howard, William H., assignor.)						
Way, Frank K. (See Blount and Way.)						
Way, Frank K., Dayton, Ohio, assignor to Domestic Water Purifier Company, Chicago, Ill. Liquid-purifying device	479,381	July 19	2042	510	60	426
Waynick, Jefferson W., Chariton, Iowa. Washing-machine	479,863	Aug. 2	131	32	60	608
Wayson, Samuel W., assignor to Detroit Plumbers' Supply Company, Detroit, Mich. Heating and ventilating apparatus	481,085	Aug. 16	2133	531	60	1020
Weary, Frank O., and G. W. Kramer, Akron, Ohio. Bolt for prison-doors	478,146	July 5	109	28	60	24
Weatherhogg, George W., Birmingham, England. Petroleum or similar engine	480,535	Aug. 9	1260	316 / 317	60	834
Weaver, George D. (See MacKellar and Weaver.)						
Weaver, George L., Dayton, Ohio. Axle-lubricator	482,770	Sept. 20	1408	348	60	1635
Weaver, Lewis M., and Z. C. Leiser, Lock Haven, Pa. Combined ruler, gage, and circle-scriber	482,896	Sept. 20	1585	398	60	1670
Webb, Alfred E., assignor to Economic Advertising Company, Limited, London, England. Machine for inserting labels in soap cakes	480,642	Aug. 9	1435	357 / 358	60	869
Webb, Charles O., Longmont, Colo. Process of and apparatus for treating wheat	482,068	Sept. 6	236	57	60	1381
Webb, George B., assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	479,234	July 19	1801	451	60	377
Webb, George B., assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	478,147	July 5	111	29	60	25
Webb, George B., assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	480,305	Aug. 9	901	228	60	766
Webb, George B., assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	480,306	Aug. 9	905	229	60	766
Webb, George B., assignor to Remington Standard Type Writer Manufacturing Company, New York, N. Y. Type-writing machine	480,641	Aug. 9	1431	356 / 357	60	868

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Webb, Thomas, *et al.* (See Heartfield, Henry, assignor.)						
Webb, Watson T., Salt Lake City, Utah Ter. Counterbalancing-collar	483,411	Sept. 27	2423	609	60	1846
Webb, William H., *et al.* (See Newell, James L., assignor.)						
Webber, Henry O. (See Head, John, assignor.)						
Weber, August, Schenectady, assignor to Edison General Electric Company, New York, N. Y. Clamp for arc-lamp carbons	482,535	Sept. 13	1037	251	60	1551
Weber, Charles S., San José, Cal. Stringing pianos	482,512	Sept. 13	991	240	60	1543
Weber, Peter, Schenectady, N. Y. Friction-clutch	482,491	Sept. 13	954	233	60	1534
Webster, Augustus D., assignor of two-thirds to F. A. Webster and J. S. Condell, Jr., Springfield, Ill. Stand for window-shutters	483,370	Sept. 27	2358	592	60	1834
Webster, Ella S. (See Putnam, Theodore A. B., assignor.)	482,771	Sept. 20	1409	348	60	1635
Webster, F. W., *et al.* (See Wakefield, William O., assignor.)						
Webster, Frank A., *et al.* (See Webster, Augustus D., assignor.)						
Webster, Harold A., Haverhill, assignor to J. W. Brooks, trustee, Cambridge, Mass. Attaching heels to boots or shoes	483,293	Sept. 27	2253	567	60	1814
Webster, Jerome J., and W. H. Saunders, assignors to Boston Cash Register Company, Northampton, Mass. Cash-registering and check-making machine	479,341	July 19	1961	489 / 490	60	409
Wecker, Henry, Offenbach-on-the-Main, Germany. Carriage-axle	480 798	Aug. 16	1675	419	60	931
Wedlake, James K. (See Jones and Wedlake.)						
Weeks, Ben H., Chicago, Ill. Identification device	481,448	Aug. 23	2757	678	60	1149
Weeks, Clayton, and J. E. Bush Hobart, N. Y. Car-coupling	482,566	Sept. 13	1086	263	60	1561
Weeks, John, assignor to R. H. Dudgeon, New York, N. Y. Horizontal hydraulic jack	478,530	July 5	725	177	60	143
Wegener, O. F. (See Cosman, Nathan, assignor.)						
Wehn, John W., Jr., *et al.* (See Cartwright, Edward, assignor.)						
Wehr, Frank M., *et al.* (See Overpeck, Isaac E., assignor.)						
Weigand, Gustavus G., Des Moines, Iowa. Ribbon-needle	481,338	Aug. 23	2586	635	60	1116
Weigel, Eduard, Greiffenberg, Germany. Stand for beer glasses, &c	482,603	Sept. 13	1137	274	60	1571
Weightman, Walter S. (See Dale and Weightman.)						
Weiler, Anton, assignor to W. A. L. Weiler, Auburn, and G. Weiler, Utica, N. Y. Tool-heater	479,686	July 26	2545	634	60	535
Weiler, Gerhard, *et al.* (See Weiler, Anton, assignor.)						
Weiler, W. Albertine L., *et al.* (See Weiler, Anton, assignor.)						
Weinedel, Charles, assignor of one-half to F. A. Inder Stroth, Louisville, Ky. Automatic bottle stopper and cover	481,644	Aug. 30	3071	750	60	1226
Weinman, Joseph G., Blair, Nebr. Combined collar and hame fastener	482,492	Sept. 13	963	234	60	1537
Weinstein, Edward, *et al.* (See Coates, John F., assignor.)						
Weinstein, Leo, J., *et al.* (See Coates, John F., assignor.)						
Weiny, Roderick H., New York, N. Y. Telegraphic repeater	479,178	July 19	1718	431	60	361
Weir, Robert. (See Maffett and Weir.)						
Weiss, Carl W., Brooklyn, N. Y., assignor to Kruse Cash Register Company. Check printing and adding machine	481,709	Aug. 30	3173	775 / 776	60	1246
Weissenborn, Albert G., Jersey City, N. J., assignor to American Lead Pencil Company, New York, N. Y. Varnishing frame or holder	482,664	Sept. 13	1220	298	60	1586
Weissenborn, Oscar A., Jersey City, N. J. Blackboard	483,371	Sept. 27	2365	593	60	1835
Weissenthanner, Achille, Paris, France. Jar	483 033	Sept. 20	1818	462	60	1718
Welch, Everett C., Friedens, Pa. Car-coupling	481,449	Aug. 23	2758	678	60	1149
Welch, Henry T. (See Bailey and Welch.)						
Welch, John S. (See Hinkley and Welch.)						
Welch, Robert K., assignor of one-half to G. E. Schlegelmilch, Philadelphia, Pa. Pipe-welding machine	478,669	July 12	919	228	60	197
Welch, Robert K., assignor of one-half to G. E. Schlegelmilch, Philadelphia, Pa. Pipe-flanging machine	478,670	July 12	921	229	60	198
Welch, Rosia W., assignor of two-thirds to W. A. Dunn and L. D. Passano, Baltimore, Md. Grain-scouring machine	480,042	Aug. 16	1891	473	60	974
Welker, Louis, Williamsport, Pa. Fastening for table-legs	480,536	Aug. 9	1262	317	60	835
Wellborn, Samuel H., Centre Point, Texas. Trace-carrier	479,160	July 19	1685	421	60	356
Welleba, Franz, Sr. and Jr., and L. Wächter, Vienna, Austria-Hungary. Advertising-clock	479,687	July 26	2547	634 / 635	60	535
Weller, George L., assignor to P. Foster and E. K. Mussey, Elyria, Ohio. Rock-drilling tool	479,041	July 19	1503	373	60	322
Weller, Gustavus A., assignor of one-half to C. L. Diesterweg, La Salle, Ill. Vending-machine	479,688	July 26	2552	635	60	536
Weller, Joel H., Boyertown, Pa. Alarm-bell for doors	480,001	Aug. 2	373	93	60	652
Wells, Harlan P., assignor of one-half to O. Morrill, Amesbury, Mass. Carriage	480,307	Aug. 9	908	229	60	767
Wells, John C. (See Bevin and Wells.)						
Wells, John C., East Hampton, Conn. Bell	483,332	Sept. 27	2311	581	60	1824
Wells, Lorenzo D., Morrisonville, Ill. Straw-stacker	482,513	Sept. 13	992	240	60	1543
Wells, Samuel J., *et al.* (See Marvick, Frederick N., assignor.)						
Wellsford, C. M. (See Citizen, Samuel P., assignor.)						
Wellstein, Joseph, and M. E. Maxfield, Milwaukee, Wis. Pneumatic tire	481,681	Aug. 30	3131	764	60	1238
Welsh, Thomas W., Wilmerding, Pa. Packing	480,643	Aug. 9	1436	358	60	869
Welty, Almond R., Shreve, Ohio. Picket-wiring fence-machine	481,086	Aug. 16	2134	531	60	1020
Welz, Franz, Klostergrab, Austria-Hungary. Manufacture of rose or orange stained glass	479,689	July 26	2553	.....	60	536
Wendell, Henry A. (See Wendell, Isaac P. and H. A.)						
Wendell, Isaac P. and H. A., assignors of one-third to W. R. Murphey, Philadelphia, Pa. Axle-lubricator	483,333	Sept. 27	2311	581	60	1825
Wendt, Henry D., Hoboken, N. J. Combined grate-bar and feed-water heater	478,726	July 12	999	248	60	215
Wenman, Joseph E., East Liverpool, Ohio. Medical and surgical cabinet	478,830	July 12	1185	293 / 294	60	250
Wennberg, John, Fertile, Minn. Sled-brake	482,029	Sept. 6	177	42	60	1369
Wenstrau, Swan P., and E. R. Blood, assignors to M. P. Blood, Ludlow, Pa. Making lamp-black	478,268	July 5	332	80	60	67
Wentworth, Richmond A., Hope, Me. Lamp-burner	481,607	Aug. 30	3020	738	60	1216
Wentz, Joseph H., Baraga, Mich. Scraper for hand-saw pulleys	478,148	July 5	115	29	60	26
Werline Electrical Specialty Company. (See Werline, Henry E., assignor.)						
Werline, Henry E., Lancaster, assignor to Werline Electrical Specialty Company, York, Pa. Incandescent-electric-lamp socket	478,149	July 5	116	29	60	26
Werner, Franz P., Munich, Germany. Producing an imitation of brocade or gold cloth	482,604	Sept. 13	1138	.....	60	1571
Werner, John H. (See Botsford, Frederick G., assignor.)						
Wertheimer, Lewis J., *et al.* (See Monday, Robert, assignor.)						
West, Derrick S., assignor of three-fourths to J. W. Drew, Boston, Mass., and C. H. Fish, Manchester, N. H. Breech-loading firearm	478,727	July 12	1001	248	60	215
West, Derrick S., assignor of three-fourths to J. W. Drew, Boston, Mass., and C. H. Fish, Manchester, N. H. Magazine breech-loading gun	478,728	July 12	1007	249	60	216

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West, Derrick S., Boston, Mass., assignor of three-fourths to C. H. Fish, Manchester, N. H., and J. W. Drew, Boston, Mass. Magazine-firearm	478,729	July 12	1013	249	60	217
West, James, assignor of one-half to S. Cupples, St. Louis, Mo. Envelope-making machine.	479,042	July 19	1503	374, 375	60	322
West, Robert S. (See Irish, William E., assignor.)						
West, William F., Slatersville, R. I. Friction-collar for spindles on long-chain quilling-frames	478,269	July 5	332	80	60	67
Westaway, Walter C., Decorah, Iowa. Elastic pump-rod	480,756	Aug. 16	1611	404	60	918
Westgate, Joseph D., Worcester, assignor of two-thirds to G. A. Walker, Boston, Mass. Friction-clutch	479,684	July 26	2543	633	60	535
Western Electric Company. (See Bell, Oro A., assignor.)						
Western Electric Company. (See Clark, Martin M., assignor.)						
Western Electric Company. (See Rudd, Charles H., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Warner, Ernest P., assignor.)						
Western Patent Company. (See Lewis and Petraeus, assignors.)						
Western Union Telegraph Company. (See Edison, Thomas A., assignor.)						
Westinghouse Air Brake Company. (See Hogan, Thomas J., assignor.)						
Westinghouse Air Brake Company. (See Jackson, Amariah W., assignor.)						
Westinghouse, Church, Kerr & Company. (See Woodbridge, Samuel H., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Shallenberger, Oliver B., assignor.)						
Westinghouse, H. H. (See Parke, Robert A., assignor.)						
Weston, Edward, Newark, N. J. Electrical measuring-instrument	480,888	Aug. 16	1809	452	60	958
Weston, Edward, Newark, N. J. Apparatus for retarding or dampening the motion of moving bodies in electrical instruments	480,889	Aug. 16	1810	452	60	958
Weston, Edward, Newark, N. J. Electric time-indicating apparatus	480,890	Aug. 16	1812	452	60	958
Weston, Edward, Newark, N. J. Temperature-regulating device for electrical circuits	480,891	Aug. 16	1815	453	60	959
Weston, Edward, Newark, N. J. Rheostat	480,892	Aug. 16	1817	453	60	959
Weston, Edward, Newark, N. J. Rheostat	480,893	Aug. 16	1819	454	60	960
Weston, Edward, Newark, N. J. Electrical measuring-instrument	480,894	Aug. 16	1822	454	60	960
Weston, Edward, Newark, N. J. Electrical measuring-instrument	480,895	Aug. 16	1823	454	60	961
Weston, Edward, Newark, N. J. Electrical measuring-instrument	484,896	Aug. 16	1825	454, 455	60	961
Weston, Edward, Newark, N. J. Electrical measuring-instrument	480,897	Aug. 16	1829	455	60	961
Weston, Edward, Newark, N. J. Electrical measuring-instrument	480,898	Aug. 16	1831	456	60	962
Weston, Edward, Newark, N. J. Electrical measuring-instrument	480,899	Aug. 16	1832	456	60	962
Weston, Edward, Newark, N. J. Adapter or plug for incandescent-lamp circuits	480,900	Aug. 16	1835	457	60	963
Weston Engine Company. (See Longenecker, Charles K., assignor.)						
Weston, Frank C., Bangor, Me. Cyclometer	481,608	Aug. 30	3021	738	60	1216
Weston, John A., Providence, R. I. Latch for extension-ladders	478,384	July 5	503	122	60	99
Westover, Rollin B. L., Rutland, Vt. Roofing and siding screw or fastening	481,724	Aug. 30	3209	784	60	1252
Westphalen, Rudolf G., Vienna, Austria-Hungary. Metallic covering-plate	483,243	Sept. 27	2145	.....	60	1795
Westwood, John T., assignor to Wheeling Novelty Manufacturing Company, Wheeling, W. Va. Refrigerator and elevating cupboard	480,863	Aug. 16	1777	444	60	951
Wetherill, William H., Philadelphia, Pa. White-lead corroding-pit	478,898	July 12	1268	313	60	266
Wetmore, Jerome W., Erie, Pa. Vehicle-spring	478,488	July 5	651	159	60	130
Wetzel, Lewis C., Scottdale, Pa. Die-plate	482,933	Sept. 20	1649	415	60	1684
Weyburn, Elbert D., *et al.* (See Robertson, William, assignor.)	481,450	Aug. 23	2759	679	60	1150
Weyburn, Elbert D., assignor to Weyburn Special Machine Company, Chicago, Ill. Power-transmitting device	481,968	Sept. 6	101	25	60	1354
Weyburn Special Machine Company. (See Weyburn, Elbert D., assignor.)						
Whallon, Clement V, assignor of one-half to I. N. Booker, North Star, Ohio. Animal-poke	483,190	Sept. 27	2066	522	60	1779
Wharton, John C., and J. W. Braid, Nashville, Tenn. Electric signaling device for fire-hose	479,540	July 26	2324	581	60	495
Wharton, Joseph G., Harrisburg, Pa. Brake-shoe	478,671	July 12	922	229	60	198
Wharton, Richard, assignor of two-thirds to G. F. and J. B. Patterson, Philadelphia, Pa. Loom-picker	481,339	Aug. 23	2587	635	60	1116
Wheat, Edmond C., assignor of three-eighths to J. A. Best, Colmesneil, Tex. Motor	478,774	July 12	1084	269	60	231
Wheeler, Benjamin L. (See Ellis, Edward E., assignor.)						
Wheeler, Charles L., Jr., Bradford, Pa. Stopper for inkstands	482,051	Sept. 6	210	50	60	1376
Wheeler, David C., and W. W. Sperry; said Sperry assignor to D. Wheeler, Bridgeport, Conn. Nut-cracker	483,334	Sept. 27	2313	581	60	1825
Wheeler, Dwight. (See Wheeler and Sperry, assignors.)						
Wheeler, George A., New York, N. Y. Elevator	479,864	Aug. 2	132	32, 33	60	608
Wheeler, John H., Saugatuck, Mich. Multiplex musical instrument	481,451	Aug. 23	2760	679	60	1150
Wheeler, Schuyler S., assignor to Crocker-Wheeler Electric Company, New York, N. Y. Electrical spool	480,681	Aug. 9	1498	373	60	880
Wheeler & Wilson Manufacturing Company. (See Dial, Wilbur F., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Dimond, George H., assignor.)						
Wheeling Novelty Manufacturing Company. (See Westwood, John T., assignor.)						
Whinfield, John H. R., and J. Horne, London, England. Gun carriage or mounting	478,899	July 12	1269	314, 315, 316	60	266
Whitcomb, Truman H., *et al.* (See June, Marcus M., assignor.)						
White, Daniel. (See Sage, Alfred C., assignor.)						
White, Edward D., Hartford, Conn. Spokeshave	483,294	Sept. 27	2255	567	60	1814
White, Henry, Bellville, Ohio. Road-locomotive	480,757	Aug. 16	1612	405	60	919
White, Holden B., *et al.* (See Moss, Julian, assignor.)						
White, James, Cleveland, Ohio. Safe-lock	481,319	Aug. 23	2555	627, 628	60	1111
White, James H. (See Dubbs, Jesse A., assignor.)						
White, John, Allegheny, assignor of one-half to J. L. Brown Company, Pittsburg, Pa. Corrugating-machine	483,192	Sept. 27	2068	522	60	1780
White, John B. (See Thompson, Robert J., assignor.)						
White, John D., Worthington, Iowa. Swinging gate	479,905	Aug. 2	194	48	60	620
White, Peter L., Grand Rapids, Mich. Bedstead	479,043	July 19	1506	375	60	323
White, Robert H., Madison, Ind. Window	480,682	Aug. 9	1500	373, 374	60	880
White, Samuel K. (See Lockwood and White.)						
White, Samuel T. (See Gardner, Fulton, assignor.)						
Whitehead, Rupert. (See Gilchrist, Raymond B., assignor.)						
Whitehead, William H., Erie, Pa. Sheet-metal-oven bottom for ranges	479,770	July 26	2703	673	60	565

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Whitehill, Robert, *et al.* (See Selkirk, Alexander, assignor.)						
Whiteley, William H., Darby, Pa. Solar or other bath	478,385	July 5	504	122	60	100
Whiteley, William H., Darby, Pa. Apparatus for degumming silk or other fibers	483,335	Sept. 27	2314	581	60	1825
Whitfield, Samuel A., Chicago, Ill. Thill-coupling	480,052	Aug. 2	475	120	60	673
Whiting Manufacturing Company. (See Osborne, Charles, assignor.)						
Whiting & Son, John L. (See Wolcott, Arthur H., assignor.)						
Whitlock, Daniel, Newark, N. J. Pegging-jack	483,191	Sept. 27	2067	522	60	1780
Whitlock, Sturges, Shelton, Conn. Mechanism for operating beds of printing-machines	479,382	July 19	2043	510	60	426
Whitman, Willard O., Boston, Mass. Combined automatic relief and vacuum air-valve for radiators	478,489	July 5	652	160	60	130
Whitney, Christopher F., Newton, Mass. Aluminium alloy	480,445	Aug. 9	1123	.....	60	806
Whittall, Matthew J. (See Giles, Joseph S., assignor.)						
Whittelsey, Elbert A., *et al.* (See Appleton, Charles J., assignor.)						
Whittier Machine Company. (See Clark, John H., assignor.)						
Whitus, Charles. (See Wilks and Whitus.)						
Whitworth, Charles E., assignor of two-thirds to T. Hill and J. W. Buckley, Worcester, Mass. Wire puzzle	479,145	July 19	1666	416	60	352
Whitworth, Thomas A. (See Wilson, James N., assignor.)						
Whitworth, William, Worcester, Mass. Grate	478,775	July 12	1087	269	60	232
Wiard, Frederick, assignor of one-half to J. W. Pratt, Batavia, N. Y. Plow	479,927	Aug. 2	235	59	60	628
Wiberg, Peter, New York, N. Y. Baby-walker	481,609	Aug. 30	3022	739	60	1216
Wiborg, Pehr Jr., Boston, Mass. Potato-digger	481,645	Aug. 30	3072	750	60	1220
Wickers, Barney C., assignor of one-half to A. Wysong, Lebanon, Ind. Fence-wire tightener	481,880	Aug. 30	3466	850	60	1303
Widman, Nicholas, Mascoutah, Ill. Rock-drilling machine	481,610	Aug. 30	3023	739	60	1217
Wieden, Arthur. (See Brunkhurst, Wieden, and Richards.)						
Wiener, Paul, Chicago, Ill. Picture-frame	481,217	Aug. 23	2370	583	60	1079
Wiest, Isaiah D. (See Malin and Wiest.)						
Wiest, Jonas H. (See Malin and Wiest.)						
Wigert, David, Greenbush, Ill. Animal-trap	479,161	July 19	1686	422	60	356
Wigg, Edmund T., assignor of one-fourth to T. H. Robinson, London, Canada. Burner	482,145	Sept. 6	363	86, 87	60	1407
Wightman, Merle J., Scranton, Pa. Armature for dynamo-electric machines	480,537	Aug. 9	1264	317	60	835
Wilber, Crawford. (See Beugler, John B., assignor.)	479,179	July 19	1719	431	60	362
Wilcox, George L., H. F. Hallenbeck, and T. Wandell, Albany, Oreg. Cloth-measuring machine	478,531	July 5	726	177, 178	60	144
Wilcox, Margaret A., assignor to Wilcox Water Heater Company, Chicago, Ill. Combined cooking and hot-water-heating stove	482,772	Sept. 20	1410	348, 349	60	1635
Wilcox Water Heater Company. (See Wilcox, Margaret A., assignor.)						
Wilcoxon, M. H. (See Devore, Levi M., assignor.)						
Wild Engineering Company. (See Wild, William H., assignor.)						
Wild, William H., assignor to Wild Engineering Company, Valatie, N. Y. Jack-screw	483,487	Sept. 27	2515	633	60	1865
Wilder, Rufus A., Cressona, Pa. Merchandising-car	480,308	Aug. 9	909	229	60	767
Wilder, Rufus A., Cressona, Pa. Railway-car	480,355	Aug. 9	975	246	60	779
Wilder, William H. (See Lannert, Jeavons, and Wilder.)						
Wilder, William H., Caledonia, N. Y. Bean-harvester	479,480	July 26	2242	562	60	478
Wilder, William H., Florence, Mass., J. A. Lannert and W. R. Jeavons, Cleveland, Ohio. Oil and vapor burner	479,690	July 26	2554	635	60	536
Wile, Sol, and H. La Casse, assignors to Bottlers' Specialty Company, Rochester, N. Y. Bottle-wiring machine	479,342	July 19	1968	490, 491, 492, 493, 494	60	411
Wiles, Robert H., *et al.* (See Fordham, Arthur, assignor.)						
Wiley, Edward M., Shelbyville, Ind. Bill-holder	483,412	Sept. 27	2424	610	60	1846
Wiley, Ignatius. (See Farrell, George W., assignor.)						
Wilkerson, Basil M., Baltimore, Md., assignor, by mesne assignments, to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	478,672	July 12	923	229, 230	60	198
Wilkes, George, and F. Edwards, Southampton, England. Antifriction thrust-bearing	482,430	Sept. 13	859	206	60	1517
Wilkinson, Alfred, Philadelphia, Pa. Furnace-grate	480,538	Aug. 9	1265	317	60	835
Wilkinson, George W., Chicago, Ill. Car-coupling	482,605	Sept. 13	1139	275	60	1571
Wilkinson, Joseph W., Des Moines, Iowa. Boiler-furnace	478,210	July 5	218	55	60	45
Wilkinson, William A., Minneapolis, Minn. Friction-clutch	482,326	Sept. 6	681	162	60	1469
Wilks, John W., Wilksburg, and C. Whitus, Chester, S. C. Pin-lifter for car-couplings	483,193	Sept. 27	2070	523	60	1780
Wilks, John W., Wilksburg, and C. Whitus, Chester, S. C. Car-coupling	483,194	Sept. 27	2071	523	60	1781
Willan, Isaac, Detroit, Mich. Combined water and steam gage	480,309	Aug. 9	910	230	60	767
Willbrandt, Emil, assignor to W. H. Armstrong & Co., Indianapolis, Ind. Scalpel	479,102	July 19	1594	399	60	339
Willcox, Alfred B., assignor of two-thirds to M. L. Butler and S. E. Geer, Chicago, Ill. Doll-support	479,481	July 26	2242	562	60	478
Willcox, Vestus P., Trenton, N. J. Brush-block-boring machine	480,053	Aug. 2	476	121	60	673
Willcoxon, John W., Manassas, Va. Nut-lock	482,935	Sept. 20	1651	416	60	1684
Willer, Henry E., Milwaukee, Wis. Sash-lift	481,320	Aug. 23	2559	628	60	1111
Willever, George O. (See Young and Willever.)						
Willford, Joseph L., Minneapolis, Minn. Automatic feeder for roller-mills	482,419	Sept. 13	839	201, 202	60	1513
William Cramp & Sons Ship and Engine Building Company. (See Tait, William, assignor.)						
William Deering & Company. (See Appleby, John F., assignor.)						
William Deering & Company. (See Rand, Charles A. A., assignor.)						
William Schollhorn Company. (See Bernard, William A., assignor.)						
Williams, Benezette, and C. Poore, Chicago, Ill. Flush-tank	481,710	Aug. 30	3176	776	60	1247
Williams, David M., Edwardsdale, Pa. Chain-link	482,665	Sept. 13	1222	298	60	1587
Williams, Dyer, assignor to F. Williams, Cedar Rapids, Iowa. Car-coupling	482,445	Sept. 13	884	213	60	1520
Williams, Edward, Aberayron, England. Aeration of liquids	481,249	Aug. 23	2436	600	60	1091
Williams, Florence. (See Williams, Dyer, assignor.)						
Williams, George, and A. A. Cleveland, Astoria, Oreg. Pound-net	481,990	Sept. 6	104	26	60	1355
Williams, Harry B., Brooklyn, N. Y. Bathing-cap	482,773	Sept. 20	1411	349	60	1636
Williams, Henry, Glasgow, Scotland. Deflection-stand for switch and signal rods	479,906	Aug. 2	195	48, 49	60	620
Williams, James A., Walkerton, Ind. Machine for cutting the ends of spindles	482,934	Sept. 20	1650	416	60	1684
Williams, John F., Roanoke, Va. Machine for applying labels to cans	478,298	July 5	372	90, 91	60	75
Williams, Linus H., Akron, Ohio. Coffin-handle	479,044	July 19	1507	376	60	323
Williams, Orlando R. (See Macdonald, Williams, and Hitzeroth.)						
Williams, Robert E., assignor of two-thirds to V. E. Winston, Dallas, Tex., and D. Ferguson, Homer, La. Electric brush	479,321	July 19	1926	481	60	403
Williams, Sanford R., assignor of one-half to J. J. and S. Malloy, Monmouth, Oreg. Car-coupling	482,288	Sept. 6	600	143	60	1452

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Williams, Warren. (See Munz, Charles W., assignor.)						
Williams, Willard C., Rush Creek Valley, assignor of one-half to L. S. Sanders, Campbellsville, Ind. Thill-coupling	479,146	July 19	1667	416	60	352
Williamson, George, Luton, and C. de Negri, London, England. Buckle	482,030	Sept. 6	178	42	60	1370
Williamson, Marshall D., assignor to G. F. Adams and M. D. Williamson, Indianapolis, Ind. Adjustable pressure-bar for veneer-cutting machines	479,750	July 26	2666	662	60	557
Willis, Henry. (See Fay and Willis.)						
Willis, James, Bournemouth, England. Frame for umbrellas	478,150	July 5	118	30	60	26
Willis, James, Rosendale, Bournemouth, England. Gear for umbrellas or parasols	479,691	July 26	2555	635	60	537
Willis, William H., assignor of four-fifths to A. S. Jones, J. Graham, R. F. Hill, B. Osborne, and J. N. Clore, Buena Vista, Va. Nut-lock	480,758	Aug. 16	1613	405	60	919
Willms, Charles, Baltimore, Md. Sealed battery-cell or similar article	479,541	July 26	2326	581	60	495
Willoughby, Charles, San Francisco, Cal. Telegraph-transmitter	480,644	Aug. 9	1438	{358 / 359}	60	869
Wilmot, Frank A., assignor to Wilmot & Hobbs Manufacturing Company, Bridgeport, Conn. Attaching knobs to shanks	482,952	Sept. 20	1687	425	60	1691
Wilmot, Frank A., assignor to Wilmot & Hobbs Manufacturing Company, Bridgeport, Conn. Knob	482,953	Sept. 20	1689	425	60	1691
Wilmot, Frank A., assignor to Wilmot & Hobbs Manufacturing Company, Bridgeport, Conn. Knob	482,954	Sept. 20	1690	425	60	1691
Wilmot & Hobbs Manufacturing Company. (See Wilmot, Frank A., assignor.)						
Wilmot & Hobbs Manufacturing Company. (See Wilmot, Samuel R., assignor.)						
Wilmot, John F., Kearney, Nebr. Case for blanks	482,990	Sept. 20	1745	441	60	1702
Wilmot, Samuel R., assignor to Wilmot & Hobbs Manufacturing Company, Bridgeport, Conn. Paint and varnish cup	478,831	July 12	1187	294	60	250
Wilms, Bernadine, St. Louis, Mo. Combined dresser and table	480,799	Aug. 16	1676	419	60	931
Wilson, Adoniram J., Port Chester, N. Y., assignor to Hall Signal Company, of Maine. Electric signaling apparatus	479,928	Aug. 2	236	59	60	628
Wilson, Bennet C., Philadelphia, Pa. Gas-burner	479,128	July 19	1638	410	60	346
Wilson, Christopher W. (See McLean, Alexander, assignor.)						
Wilson, Homer T., Louisville, Ky. Electric fire and burglar alarm connection	481,989	Sept. 6	103	26	60	1355
Wilson, Homer T., Louisville, Ky. Burglar-alarm	482,464	Sept. 13	909	221	60	1525
Wilson, Isaac S., Cedar Gap, Mo. Crosscut-saw	481,321	Aug. 23	2559	628	60	1112
Wilson, James, San Francisco, Cal. Window frame and sash	482,989	Sept. 20	1744	441	60	1702
Wilson, James N., assignor of one-half to T. A. Whitworth, Minneapolis, Minn. Thrashing-machine	482,709	Sept. 13	1298	{317 / 318}	60	1603
Wilson, John. (See Morrow and Wilson.)						
Wilson, John, Sr., East St. Louis, Ill. Die-holder and die for making stamp-shoes	481,087	Aug. 16	2136	532	60	1020
Wilson, John, assignor to R. Debes, New York, N. Y. Apparatus for purifying sewage	479,865	Aug. 2	139	34	60	609
Wilson, John, assignor to R. Debes, New York, N. Y. Apparatus for purifying sewage	479,866	Aug. 2	140	34	60	609
Wilson, John, assignor to R. Debes, New York, N. Y. Apparatus for purifying sewage	482,052	Sept. 6	211	50	60	1376
Wilson, John, assignor to R. Debes, New York, N. Y. Apparatus for purifying sewage	482,053	Sept. 6	213	51	60	1377
Wilson, John C. (See Martin, Morris, assignor.)						
Wilson, John J., Wahoo, Nebr. Feed-water heater	482,069	Sept. 6	237	58	60	1382
Wilson, Katharine M. (See Lonry, Harriet S., assignor.)						
Wilson, Milford J., Painesville, Ohio. Pipe and nut wrench	483,336	Sept. 27	2314	582	60	1825
Wilson, Pinkney C., Patterson, La. Conveyer	481,837	Aug. 30	3401	835	60	1290
Wilson, Robert B. (See Henry and Wilson.)						
Wilson, Robert J. (See Hatcher, Judson N., assignor.)						
Wilson, Robert R., assignor of one-half to W. H. Bofinger and A. Burbank, New Orleans, La. Car-coupling	479,729	July 26	2634	653	60	551
Wilson, Sarah E., *et al.* (See Landin, Peter J., assignor.)						
Wilson, Thomas, Birmingham, England. Revolving magazine-gun	481,452	Aug. 23	2761	679	60	1150
Wilson, William H., Moline, assignor of one-half to J. V. Emmitt and R. L. Kimbro, Sterling, Ill. Adding-machine	479,343	July 19	1978	495	60	413
Wilts, Jibbo H., Ackley, Iowa. Combined land-roller, pulverizer, and harrow	478,490	July 5	653	160	60	130
Winchester Repeating Arms Company. (See McGrail, John F., assignor.)						
Windfeilder, George F., assignor of one-half to H. R. Riebeling, St. Louis, Mo. Expansible hinged-mouth mail-pouch	480,645	Aug. 9	1440	359	60	869
Windsor, Herbert T. (See Sutphen, Edward A., assignor.)						
Wing, Goodman, Kamrar, Iowa. Draft-equalizer	480,837	Aug. 16	1735	434	60	943
Winget, Jasper S., assignor to M. H. Scoville, Columbus, Ohio. Cigar-rolling machine	481,453	Aug. 23	2763	680	60	1151
Winlund, Nicholas J., assignor of two-thirds to E. McSherry and H. W. Price, Rockford, Ill. Knitting-machine	478,673	July 12	927	{230 / 231}	60	199
Winslow, James, San Francisco, Cal. Roofing and siding	481,541	Aug. 23	2911	714	60	1180
Winsor, Clinton B., and G. W. Cummings, Jamestown, N. Y. Mail-bag thrower	481,322	Aug. 23	2561	{628 / 629}	60	1112
Winston, Val. E., *et al.* (See Williams, Robert E., assignor.)						
Winternight, Henry A., assignor of one-half to J. M. Cornyn, Philadelphia, Pa. Paper-filling device	483,089	Sept. 20	1898	480	60	1735
Winton, Alexander, Cleveland, Ohio. Bicycle	481,536	Aug. 23	2904	713	60	1179
Wintrode, Charles E., Huntington, Ind. Picket fence	478,900	July 12	1274	316	60	267
Wires, Edward T. (See Chaney and Wires.)						
Wirt, Herbert C. (See Andrews and Spencer, assignors.) (Reissue.)						
Wirths, Maurice, New York, N. Y. Setting for cards or pictures	479,129	July 19	1639	410	60	346
Wischerth, Joseph F., Brooklyn, N. Y. Cam for buttonhole-machines	480,054	Aug. 2	478	122	60	673
Wisda, Joseph J., Defiance, Ohio. Car-coupling	481,991	Sept. 6	105	26	60	1355
Wise, Henry T. C., Philadelphia, Pa. Duplicating apparatus	479,968	Aug. 2	310	76	60	641
Wiswall, James A., Embarrass, Wis. Car-coupling	482,774	Sept. 20	1413	340	60	1636
Witherell, Alonzo E., assignor to Howard Manufacturing Company, Boston, Mass. Razor-strop	478,946	July 12	1343	333	60	281
Witherow, James P., Allegheny, Pa. Manufacture of iron and steel	481,881	Aug. 30	3467	850	60	1303
Wittemann, Jacob F., Fort Hamilton, N. Y. Capping-machine	481,626	Aug. 30	3047	744	60	1221
Woessner, Charles F., assignor of one-half to L. C. Koch, St. Louis, Mo. Truck-handle support	479,542	July 26	2327	581	60	495
Woessner, Charles F., assignor of one-half to A. Schneider, St. Louis, Mo. Device for cleaning bottles or similar receptacles	481,537	Aug. 23	2906	713	60	1179
Wohlfarth, Charles F., Norwich, Conn., assignor to T. Milburn, Toronto, Canada. Brake-shoe	480,992	Aug. 16	1969	492	60	988
Wohltman, John J., *et al.* (See Dunham, Curtis, assignor.)						
Wolcott, Arthur H., Winthrop, assignor to J. L. Whiting & Son, Boston, Mass. Brush and making the same	482,666	Sept. 13	1223	298	60	1587
Wolf, Clarence, Philadelphia, Pa. Puzzle	480,983	Aug. 16	1970	493	60	988
Wolf, Frank, New York, N. Y. Cloak-rack	478,386	July 5	505	122	60	100
Wolf, John J., Philadelphia, Pa. Chip for beer, ale, &c.	481,774	Aug. 30	3298	804	60	1271

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Wolfe, David C., Lyons, Kans. Device for ascertaining grades, &c	478,491	July 5	655	160	60	130
Wolfe, Edward M., assignor to Reading Iron Company, Reading, Pa. Pipe-tap	482,955	Sept. 20	1691	425	60	1691
Wolfe, George C., assignor of two-thirds to W. H. Stafford, Chippewa Falls, and T. F. Frawley, Eau Claire, Wis. Umbrella-stick	479,929	Aug. 2	239	59	60	628
Wolfe, George W. (See Duck, Savidge, and Wolfe.)						
Wolff, Arnovitz, New York, N. Y. Gas heater or radiator	481,742	Aug. 30	3244	789	60	1259
Wolff & Co., Rudolph. (See Milligan, Henry C., assignor.)						
Wolfinger, William A., Milton, Pa. Lifting-jack	479,692	July 26	2556	636	60	537
Wollensak, John F. (See Gill, William E., assignor.)						
Wollensak, John F., Chicago, Ill. Connector for electric circuits	479,322	July 19	1927	482	60	403
Wollensak, John F., Chicago, Ill. Electric push	480,683	Aug. 9	1502	374	60	880
Wollensak, John F., Chicago, Ill. Transom-lifter	481,917	Aug. 30	3532	865	60	1316
Wolpert, Henry R., Lancaster, Pa. Rail-clamp	479,867	Aug. 2	143	34	60	610
Wolpert, John, Louisville, Ky. Sulky-plow	483,480	Sept. 27	2506	631	60	1863
Wolstencroft, James, *et al.* (See Soley and Perkins, assignors.)						
Womersley, William, Poughkeepsie, assignor to D. H. Burrell & Co., Little Falls, N. Y. Paper-feeding machine	481,992	Sept. 6	106	26, 27	60	1355
Wood, Ernest N., Lanesborough, Mass. Axle-box	483,372	Sept. 27	2366	593	60	1835
Wood, Frank. (See Stanhope and Wood.)						
Wood, Frederick W. (See Aiken, Wood, and Campbell.)						
Wood, Harry. (See Gibson, Ezra B., assignor.)						
Wood, Henry A. W., New York, N. Y. Mechanical movement	481,198	Aug. 16	2202	545	60	1032
Wood, James J. (See Bradley and Wood.)						
Wood, Thomas T., St. Joseph, Mich. Brick-machine	481,454	Aug. 23	2766	{680 / 681 / 682}	60	1151
Wood, Walter. (See Richards, Francis H., assignor.)						
Wood, Willard A., Brooklyn, N. Y. Hydraulic motor	479,868	Aug. 2	144	35	60	610
Wood, William C. S. (See Ellis and Wood.)						
Wood, William T., assignor of one-half to S. O. Morrill and J. T. Dicks, Nashville, Tenn. Device for collecting, registering, and recording fares	481,993	Sept. 6	109	27	60	1356
Woodard, Alvin N., Mansfield, Ohio. Pump	483,034	Sept. 20	1819	462	60	1718
Woodard, Edward C., Brockton, Mass. Machine for laying sole-edges	478,299	July 5	378	91	60	76
Woodard, Russell M., Norton, Vt. Car-coupling	483,196	Sept. 27	2074	524	60	1781
Woodberry, Jesse, Boston, Mass. Combination organ stop-action	481,089	Aug. 16	2138	{532 / 533}	60	1021
Woodbridge, Samuel H., Boston, Mass., assignor to Westinghouse, Church, Kerr & Company, New York, N. Y. Condenser-head	481,518	Aug. 23	2865	704	60	1171
Woodbury, Crayton A., Rutland, Vt. Seesaw	481,994	Sept. 6	111	28	60	1356
Woodbury, Samuel S., Bradford, Pa. Apparatus for the pasteurization of beer	482,667	Sept. 13	1223	298	60	1587
Woodhouse, John W., Rich Hill, Mo. Axle-lubricator	478,832	July 12	1187	294	60	250
Wooding, Henry, Northampton, England. Sole	481,682	Aug. 30	3132	764	60	1238
Woodmancy, Henry F., Whitinsville, Mass. Spinning and twisting machine spindle	480,984	Aug. 16	1971	493	60	988
Woodmancy, Henry F., Whitinsville, Mass. Spindle-support	480,985	Aug. 16	1972	493	60	989
Woodring, Peter, assignor to himself and J. M. Gross, Kansas City, Mo. Bucksaw	482,606	Sept. 13	1140	275	60	1571
Woodruff, Charles, *et al.* (See Leahy, Matthew, assignor.)						
Woodruff, George B., Winsted, Conn. Pinion-chuck	483,195	Sept. 27	2072	523	60	1781
Woodruff, Oliver D., Southington, Conn. Meat-cutter	480,002	Aug. 2	374	93	60	652
Woodruff, Oliver D., Southington, Conn. Meat-cutter	482,146	Sept. 6	365	87	60	1407
Woodruff, Oliver D., Southington, Conn., assignor to Enterprise Manufacturing Company, Philadelphia, Pa. Meat-cutter	481,882	Aug. 30	3468	851	60	1303
Woods, William A., San Francisco, Cal. Water-gage	479,235	July 19	1802	451	60	377
Woodward, Charles E. W., Chicopee Falls, Mass., assignor to Overman Wheel Company, Hartford, Conn. Cycle-lamp	478,776	July 12	1088	270	60	232
Woodward, Charles E. W., assignor to Overman Wheel Company, Chicopee, Mass. Rim and tire for wheels	481,340	Aug. 23	2587	635	60	1117
Woodward, Charles E. W., assignor to Overman Wheel Company, Chicopee Falls, Mass. Cycle-wheel	483,373	Sept. 27	2367	593	60	1836
Woodward, James E., Yardville, N. J. Whip-holder	480,356	Aug. 9	976	246	60	779
Woodward, Russel G., and C. Timm, assignors to Union Special Sewing Machine Company, Chicago, Ill. Sewing-machine trimmer	480,377	Aug. 9	1012	254	60	786
Woodward, Theodore B., Norway, Pa. Fire-escape	479,610	July 26	2427	605	60	513
Woodward, Thomas, Derby, England. Breakdown gun	481,290	Aug. 23	2510	617	60	1102
Woolf, Albert E., assignor to R. Woolf and T. J. Montgomery, New York, N. Y. Car-coupling	478,492	July 5	656	161	60	130
Woolf, Rosamond, *et al.* (See Woolf, Albert E., assignor.)						
Woolfolk, Lucien B., Cincinnati, Ohio. Fountain-pen	480,800	Aug. 16	1677	{419 / 420}	60	931
Woolfolk, Lucien B., Cincinnati, Ohio. Fountain-pen	481,090	Aug. 16	2142	533	60	1021
Woolley, Amos G., *et al.* (See Wright, Benjamin F., assignor.)						
Woolley, Edgar M., *et al.* (See Wright, Benjamin F., assignor.)						
Woolley, Leonidas G., Grand Rapids, Mich. Electrical apparatus	482,068	Sept. 13	1225	299	60	1587
Woonsocket Edge Tool Company. (See Bailey and Lincoln, assignors.)						
Worcester, James S., Hackensack, N. J. Cultivator-tooth	481,129	Aug. 16	2207	546	60	1033
Worcester, Joseph R., Waltham, assignor of one-half to D. H. Andrews, Boston, Mass. Bridge-flooring	480,483	Aug. 9	1186	298	60	819
Worden, Charles, Rye, N. Y. Holder or rack	481,455	Aug. 23	2770	682	60	1152
Work, Milton C., Philadelphia, Pa. Apparatus for duplicate whist	481,995	Sept. 6	113	28	60	1357
Wörner, Adolf, Buda-Pesth, Austria-Hungary, assignor to Siemens & Halske, Berlin, Germany. Tram-car	480,310	Aug. 9	911	230	60	768
Wortham, John E., assignor of one-half to H. C. Sails, Grand Tower, Ill. Artificial arm	483,090	Sept. 20	1900	480	60	1735
Worthen, Arthur E., assignor of one-half to C. L. Sprague, Melrose, Mass. Dental jaw-brace	480,357	Aug. 9	977	246	60	779
Wreden, Robert, St. Petersburg, Russia. Microtelephonic apparatus for divers	478,493	July 5	658	{161 / 162}	60	131
Wrenshall, Charles C., Anniston, Ala. Nut-lock	482,910	Sept. 20	1622	406	60	1677
Wright, Allen J., Cleveland, Ohio. High and low water alarm	479,482	July 26	2243	563	60	479
Wright, Augustus, assignor to Hope Electric Appliance Company, Providence, R. I. Support for electric-arc lamps	480,539	Aug. 9	1266	318	60	835
Wright, Augustus, assignor to Hope Electric Appliance Company, Providence, R. I. Mast-arm	481,381	Aug. 23	2619	649	60	1128
Wright, Augustus, assignor to Hope Electric Appliance Company, Providence, R. I. Support for electric lamps	482,112	Sept. 6	1308	72, 73	60	1395
Wright, Augustus, assignor to Hope Electric Appliance Company, Providence, R. I. Electric switch and case	482,936	Sept. 20	1652	416	60	1684
Wright, Benjamin F., Hartwell, assignor of two-thirds to A. G. and E. M. Woolley, Cincinnati, Ohio. Cash-register	482,956	Sept. 20	1692	426	60	1692

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wright, Cass T., *et al.* (See Abbott, Charles J., assignor.)						
Wright, Charles E., Vicksburg, Miss. Dam or levee	479,543	July 26	2328	581	60	495
Wright, Chester, Fairfield, Nebr. Potato-planter	481,456	Aug. 23	2771	682 683	60	1152
Wright, David D., and W. R. Berry, Peoria, Ill. Saddle for velocipedes	479,969	Aug. 2	311	76	60	641
Wright, Edgar A., Memphis, Tenn. Cotton-chopper	479,693	July 26	2558	636	60	537
Wright, Fairchild N., *et al.* (See Abbott, Charles J., assignor.)						
Wright, George E., assignor of one-half to D. Houlihan, Newark, N. J. Device for plugging sprinkler-heads	478,181	July 5	174	45	60	37
Wright, Granville W., assignor to Sargent & Company, New Haven, Conn. Door-spring	478,387	July 5	506	123	60	100
Wright, Granville W., assignor to Sargent & Company, New Haven, Conn. Pneumatic door-check	478,388	July 5	507	123	60	100
Wright, James E. (See Guiley and Wright.)						
Wright, John P., Thomaston, Tex. Powder-duster	478,901	July 12	1275	316	60	267
Wright, John R., Morocco, Ind. Velocipede	478,674	July 12	928	231	60	199
Wright, Maryette, *et al.* (See Abbott, Charles J., assignor.)						
Wright, Napoleon B., assignor of nine-twentieths to C. H. Knapp and W. J. Walters, Syracuse, N. Y. Cash-register	478,532	July 5	730	178	60	145
Wright, Robert, Detroit, Mich. Gymnastic apparatus	478,833	July 12	1188	294 295	60	250
Wright, Syrus W., Eden, Ala. Car-coupling	479,483	July 26	2245	563	60	479
Wright, Walter S., Chicago, Ill. Gas water-heater	479,869	Aug. 2	145	35	60	610
Wurmb, Theodore H. (See Smith, Andrew J., assignor.)						
Wurth, Louis J. (See Beardsley, Moulton, and Wurth.)						
Wurzburg, Ludwig, London, England. Sealing device	482,216	Sept. 6	485	116	60	1429
Wyant, Eli M., Waterloo, Iowa. Door-closer	482,836	Sept. 20	1494	371	60	1654
Wylde, Edward, assignor to Elevator Supply and Repair Company, Chicago, Ill. Indicator for elevators	479,484	July 26	2246	563	60	479
Wylie, Arthur J., Rome, N. Y. Insulator	481,457	Aug. 23	2772	683	60	1152
Wyman, Adolphus F., New Bedford, Mass. Pneumatic tire	481,323	Aug. 23	2563	629	60	1112
Wyman, Horace, and J. A. Clark, assignors to Crompton Loom Works, Worcester, Mass. Loom	480,684	Aug. 9	1503	374	60	881
Wyoming Boiler Company. (See Pollock, James, assignor.)						
Wysong, Adolph. (See Wickers, Barney C., assignor.)						
Yaeger, Philomena B., Helena, Mont. Trunk	479,485	July 26	2249	564	60	480
Yale & Towne Manufacturing Company. (See Stockwell, Emory and H. C., assignors.)						
Yarbro, Frank B. (See Callaway, William, Sr., assignor.)						
Yarington, Charles H., assignor of one-half to P. F. Deeley, Torrington, Conn. Swaging-machine	483,091	Sept. 20	1901	480 481	60	1735
Yeiser, Edmund. (See Miller and Yeiser.)						
Yelland, William H., *et al.* (See Soley and Perkins, assignors.)						
York, Henry, and F. W. Austin, Colton, Cal. Lifting-jack	480,640	Aug. 9	1442	359	60	870
York, James E. (See Stevenson, John L., assignor.)						
York, Levi D., Portsmouth, Ohio. Jail-bar	480,358	Aug. 9	978	246	60	779
York Manufacturing Company. (See St. Clair, Stuart, assignor.)						
Yost, Abraham and F., New York, N. Y. Unicycle	481,883	Aug. 30	3471	851	60	1304
Yost, Fernando. (See Yost, Abraham and F.)						
Young, Amasa H., Centralia, Ill. Folding gate	480,159	Aug. 2	640	162	60	704
Young, Arthur A. (See Lambert, George A., assignor.)						
Young, Cornelius, Selma, Ala. Cotton-cleaning machine	482,669	Sept. 13	1228	299	60	1588
Young, Dewitt E., and W. F. Littell, Wellsville, Colo., assignors, by mesne assignments, to Littell Indicator Lock and Car Seal Company. Indicator-lock	483,092	Sept. 20	1903	481	60	1735
Young, George, Winton, F. Pearn, Gorton, near Manchester; said Pearn assignor to W. Crippin, Egerton Mills, Patricroft, near Manchester, England. Apparatus for bleaching and dyeing	479,383	July 19	2045	511	60	426
Young, George C., and G. O. Willever, assignors of one-third to J. M. R. Shimer, Phillipsburg, N. J. Automatic mechanical block railway-signal	481,884	Aug. 30	3472	851	60	1304
Young, Henry B. (See Young, John D. and H. B.)						
Young, James H., Troy, N. Y. Machine for turning collars and cuffs	482,859	Sept. 20	1528	380	60	1661
Young, James M., Pittsburg, Pa. Stand for range-boilers	478,494	July 5	661	162	60	131
Young, John D., Barnstaple, and H. B. Young, London, England. Oil-lamp	479,344	July 19	1981	495	60	414
Young, Josiah L., Buffalo, N. Y., assignor of one-half to C. H. Edgar, trustee. Method of and apparatus for producing stencils	478,675	July 12	930	231	60	200
Young, Levi H., St. John, Canada. Nut-lock	478,300	July 5	379	92	60	76
Young, Samuel, and M. Moskowitz, assignors of one-fourth to L. D. Adler and J. Loewenberg, Newark, N. J. Electric car-lighting system	478,183	July 5	176	46	60	37
Young, Samuel, M. Moskowitz, L. D. Adler, and J. Loewenberg, Newark, N. J. Electrical distribution for cars	478,182	July 5	175	45, 46	60	37
Young, Theodore F. (See Guerrant, George M., assignor.)						
Younglove, Seward D. (See Cherry and Younglove.)						
Youngs, Edwin J. (See Mallery and Youngs.)						
Zagelmeyer, Alexander, West Bay City, Mich. Walk and bridge plank	482,536	Sept. 13	1039	251	60	1559
Zalud, Albert, assignor of one-half to A. J. Erhart, Chicago, Ill. Reflector	483,197	Sept. 27	2075	524	60	1741
Zastrow, George W., Baltimore, Md. Machine for treating pineapples	482,493	Sept. 13	905	234	60	1537
Zavadil, Ignatius W., Humphrey, Nebr. Music-rack	483,244	Sept. 27	2147	544	60	1705
Zell, Nicholas J., Reading, Pa. Padlock	481,458	Aug. 23	2773	683	60	1152
Zell, Robert R., Baltimore, Md. Furnace	480,378	Aug. 9	1014	254	60	786
Zellner, Elvin T., Philadelphia, Pa. Cigar-press	480,055	Aug. 2	479	122	60	673
Ziegler, Gaspard, deceased. (See Offermann and Ziegler.)						
Ziegler, Jacob, Arlington, Nebr. Neck-yoke	481,996	Sept. 6	114	28	60	1357
Ziegler, Jacob, Arlington, Nebr. Buckle	482,289	Sept. 6	601	143	60	1452
Ziegler, Josef, Biebrich, Germany. Antiseptic quinoline	478,495	July 5	662	.....	60	131
Ziegler, Oscar J. (See Gipe, Emanuel C., assignor.)						
Ziegler, William R., Washington, D. C., assignor of one-half to M. S. Hoadley, Waverly, N. Y. Coin-operated vending-machine	483,093	Sept. 20	1905	481 482	60	1736
Zieres, George. (See Densing, Eduard, assignor.)						
Zimmer, Cyrus W., Logansport, Ind. Bicycle-saddle	478,184	July 5	179	47	60	38
Zimmerman, George H., *et al.* (See Trawick, Joseph E., assignor.)						
Zimmermann, Peter, Jr., New York, N. Y. Lock	480,359	Aug. 9	979	247	60	779
Zimmayer, Robert, Galion, Ohio. Locomotive attachment for supplying steam to pumps	479,870	Aug. 2	146	35	60	610
Zinsser & Co., William. (See Heidenhain, Heinrich, assignor.)						
Zoschnick, Henry G., Cleveland, Ohio. Hand-elevator	482,054	Sept. 6	215	51	60	1377
Zuccato, Eugenio de, London, England. Apparatus for making stencils	478,301	July 5	380	92	60	76
Zuchtmann, Frederick, *et al.* (See Perkins, Duane T., assignor.)						

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Acton, Richard E., Alexandria, Va. Spoon	21,835	Sept. 6	60	1471
American Buckle and Cartridge Company. (See Shillitt, Francis W., assignor.)				
Arnold, Constable & Co. (See George, Herbert T., assignor.)				
Aymé, Louis H. (See Holloway, Charles, assignor.)				
Babcock, Albert L., Billings, Mont. Shepherd's crook	21,816	Aug. 30	60	1390
Babcock, George H., Plainfield, N. J. Roofing-tile	21,772	Aug. 9	60	889
Badger, James C., Concord, N. H. Spoon	21,777	Aug. 16	60	1045
Baldwin, Fred B., Muskegon, Mich., assignor of one-half to H. L. Young, Chicago, Ill. Show-case	21,763	Aug. 9	60	888
Bates, Thomas H. (See Quinby and Bates.)				
Baxter, Sara, New York, N. Y. Clasp	21,845	Sept. 6	60	1472
Benedict, Maurice G., Detroit, Mich. Oil heating-stove	21,853	Sept. 6	60	1474
Bergen, James D., assignor to J. D. Bergen Company, Meriden, Conn. Bowl	21,681	July 5	60	150
Berry, William W., Scranton, Pa. Spoon	21,699	July 12	60	290
Best, John, Paterson, N. J. Badge	21,859	Sept. 13	60	1606
Bigelow Carpet Company. (See Chambellan, Pierre C., assignor.)				
Blake, Charles E., Sr., San Francisco, Cal. Dental punch	21,771	Aug. 9	60	888
Borchardt, Samuel, New York, N. Y. Leggin	21,827	Aug. 30	60	1322
Bridge & Beach Manufacturing Company. (See Holland, George H., assignor.)				
Brundage, Moses S., McConnell, Ill. Cap	21,712	July 12	60	292
Bushee, Albert A., Attleborough, Mass. Button, &c	21,869	Sept. 27	60	1879
Button, Eugene L., Brooklyn, N. Y. Box	21,796	Aug. 23	60	1183
Caldwell & Co., J. E. (See Houston, Hugh B., assignor.)				
Carlewitz, August, Newark, N. J. Cornice	21,731	July 19	60	432
Chambellan, Pierce C., West Hoboken, N. J., assignor to Bigelow Carpet Company, Clinton, Mass. Carpet	21,829	Aug. 30	60	1322
Champion, Charles S., Washington, D. C. Spoon	21,714	July 19	60	431
Christesen, Rudolphe W. E., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Knob and lock escutcheon	21,706	July 12	60	291
Christesen, Rudolphe W. E., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Door-knob	21,769	Aug. 9	60	888
Clulee, Harry I., assignor to R. Wallace & Sons Manufacturing Company, Wallingford, Conn. Spoon or fork handle	21,692	July 5	60	152
Conradson, Conrad M., Madison, Wis. Lathe-bed	21,708	Aug. 23	60	1183
Conradson, Conrad M., Madison, Wis. Lathe-bed	21,799	Aug. 23	60	1183
Corbin Cabinet Lock Company. (See Judd, Edward A., assignor.)				
Courts, Alfred A. (See Lipper and Courts.)				
Crandall, Jesse A., Brooklyn, N. Y. Toy rattle	21,764	Aug. 9	60	888
Crandall, Jesse A., Brooklyn, N. Y. Toy rattle	21,765	Aug. 9	60	888
Crowell, Gilbert L., Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Spoon, &c	21,700	July 12	60	290
Crowell, Gilbert L., Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Backs for brushes, &c	21,709	July 12	60	292
Davis, Stephen A., Newark, N. J., assignor to Domestic Sewing Machine Company of New Jersey. Pencil-sharpener	21,864	Sept. 20	60	1746
Davison, Joseph K., Philadelphia, Pa. Badge	21,688	July 5	60	152
Dawley, James A., Denver, Colo. Finger-ring	21,691	July 5	60	152
Dawley, James A., Denver, Colo. Watch-charm	21,718	July 19	60	431
De Yoursney, Marcus L., Newark, N. J. Carriage-lamp	21,778	Aug. 16	60	1045
Demarest, Aaron T., New York, N. Y. Carriage-body	21,773	Aug. 9	60	889
Depollier, Charles L., Brooklyn, N. Y. Watch-case	21,721	July 19	60	431
Deslauriers, Philip A., St. Paul, Minn. Siding-plate	21,825	Aug. 30	60	1321
Dixey, Thomas B., East Orange, N. J. Balloon	21,874	Sept. 27	60	1880
Dobrick, Charles L., New York, N. Y. Box	21,840	Sept. 6	60	1479
Domestic Sewing Machine Company. (See Davis, Stephen A., assignor.)				
Dominick & Haff. (See Crowell, Gilbert L., Jr., assignor.)				
Doyle, Luke, Boston, Mass. Wagon-body	21,756	Aug. 2	60	731
Dueber, John C., Canton, Ohio. Watch-case	21,719	July 19	60	431
Dueber, John C., Canton, Ohio. Watch-case	21,720	July 19	60	431
Dueber, John C., Canton, Ohio. Watch-case	21,797	Aug. 23	60	1183
Dueber, John C., Canton, Ohio. Watch-case	21,813	Aug. 30	60	1320
E. W. Bliss Company. (See Fancher, Alton H., assignor.)				
Eagle Machine Company. (See Joss, George N., assignor.)				
Ellison, Adolph S., New York, N. Y. Trimming	21,793	Aug. 23	60	1182
Estes, Webster C., Flatbush, N. Y. Box	21,762	Aug. 9	60	887
Evans, French S., Washington, D. C. Cane-handle	21,784	Aug. 23	60	1181
Fancher, Alton H., Brooklyn, N. Y., assignor to E. W. Bliss Company, Limited, London, England. Spoon	21,836	Sept. 6	60	1471
Firemen's Publishing Company. (See Reinnagel, George H., assignor.)				
Frankl, Albert A., New York, N. Y. Trimming or fringe	21,678	July 5	60	150
Fraser, Horatio N., New York, N. Y. Pocket-bottle	21,728	July 19	60	432
Fry, David L., Lebanon, Oreg. Watch-chain	21,689	July 5	60	152
Fuchs, Henry F. G., Jersey City, N. J. Floral lapel ornament	21,690	July 5	60	152
Gallagher, Richard D. (See Sloan and Gallagher.)				
Gash, Edgar, Macomb, Ill. Badge	21,758	Aug. 9	60	887
Gaston Electrical Manufacturing Company. (See Gaston, James E., assignor.)				
Gaston, James E., assignor to Gaston Electrical Manufacturing Company, Sparta, Ill. Electric-lamp frame	21,701	July 12	60	290
George, Herbert T., London, England, assignor to Arnold, Constable & Co., New York, N. Y. Carpet	21,857	Sept. 13	60	1605
Gifford, George B., Albany, N. Y. Baking-pan	21,754	Aug. 2	60	731

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Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Gorham Manufacturing Company. (See Wilkinson, George, assignor.)				
Grommes, John B., Chicago, Ill. Bottle	21,856	Aug. 30	60	1322
Hall, Wright W., New Windsor, Colo. Frame for bridle-bits	21,872	Sept. 27	60	1880
Harris, Charles R., Williamsport, Pa. Suspender-buckle	21,791	Aug. 23	60	1182
Haviland, Charles E., Limoges, France. Plate	21,682	July 5	60	150
Haviland, Charles E., Limoges, France. Plate	21,683	July 5	60	151
Haviland, Charles E., Limoges, France. Sandwich-plate	21,684	July 5	60	151
Haviland, Charles E., Limoges, France. Cup	21,685	July 5	60	151
Haviland, Charles E., Limoges, France. Cover-dish	21,686	July 5	60	151
Hawkes, Thomas G., Corning, N. Y. Ornamentation of glass vessels	21,687	July 5	60	151
Hayden, William W., Newark, N. J. Handle for cutlery, &c	21,705	July 12	60	291
Hayden, William W., Newark, N. J. Handle for cutlery, &c	21,809	Aug. 30	60	1320
Hayden, William W., Newark, N. J. Handle for cutlery, &c	21,810	Aug. 30	60	1320
Hayden, William W., Newark, N. J. Handle for cutlery, &c	21,811	Aug. 30	60	1320
Heffernan, Laurence J., New York, N. Y. Paper-weight	21,812	Aug. 30	60	1320
Heinig, Friedrich O., Philadelphia, Pa. Trimming	21,863	Sept. 20	60	1746
Henderson, William A., Atlanta, Ga. Spoon	21,743	Aug. 2	60	730
Hill, Harry W., Cleveland, Ohio. Clutch-frame	21,738	Aug. 2	60	730
Hiller, Louis C., assignor to Meriden Silver Plate Company, Meriden, Conn. Metal border	21,767	Aug. 9	60	888
Hiller, Louis C., assignor to Meriden Silver Plate Company, Meriden, Conn. Metal border	21,697	July 5	60	153
Hoffa, Henry, Washington, D. C. Watch-case	21,698	July 5	60	153
Hofmann, Charles. (See Svoboda and Hofmann.)	21,748	Aug. 2	60	730
Hohenstein, Hugo, New York, N. Y. Lamp-shade	21,702	July 12	60	291
Holland, George H., assignor to Bridge & Beach Manufacturing Company, St. Louis, Mo. Cooking-stove	21,804	Aug. 30	60	1319
Holland, George H., assignor to Bridge & Beach Manufacturing Company, St. Louis, Mo. Cooking-stove	21,805	Aug. 30	60	1319
Holland, George H., assignor to Bridge & Beach Manufacturing Company St. Louis, Mo. Cooking-stove	21,806	Aug. 30	60	1319
Holloway, Charles, Chicago, assignor to L. H. Aymé, La Grange, Ill. Statue	21,807	Aug. 30	60	1320
Honecker, John, Cleveland, Ohio. Hat-rack	21,787	Aug. 23	60	1181
Horn, Frederick F., Colorado Springs, Colo. Spoon	21,781	Aug. 23	60	1181
Houston, Hugh B., Philadelphia, Pa., assignor to J. E. Caldwell & Co. Spoon	21,716	July 19	60	431
Hovey, Robert M., assignor to W. H. Jackson & Co., New York, N. Y. Fireplace-front	21,715	July 19	60	431
How, Woodbury S., Philadelphia, Pa. Campaign-button	21,725	July 19	60	432
Howard Sterling Company. (See Wientge, Charles C., assignor.)	21,815	Aug. 30	60	1320
Hughes, Joseph A., Corpus Christi, Tex. Spoon				
Huntoon, Albert J., Kansas City, Mo. Spinning top	21,783	Aug. 23	60	1181
J. D. Bergen Company. (See Bergen, James D., assignor.)	21,753	Aug. 2	60	731
Jackson, Wm. H. (See Hovey, Robert M., assignor.)				
Jacobs, Jacob, Brooklyn, N. Y. Lens for illuminating-tiles, &c				
Johansen & Co., William. (See Selter, Albert, assignor.)	21,861	Sept. 20	60	1746
Joss, George N., Indianapolis, Ind., assignor to Eagle Machine Company, Lancaster, Ohio. Ventilator-grate				
Judd, Edward A., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Padlock-case	21,800	Aug. 23	60	1183
Kahn, Leopold, New York, N. Y. Ornamentation of sheet metal	21,821	Aug. 30	60	1321
Kaldenberg, Frederick J., New York, N. Y. Knife-handle	21,696	July 5	60	153
Koehn, Alfred, New York, N. Y. Lamp-bracket	21,693	July 5	60	152
Koehn, Alfred, New York, N. Y. Lamp-standard	21,818	Aug. 30	60	1320
Korn, George W., Chicago, Ill. Knife-handle	21,820	Aug. 30	60	1321
Korn, George W., Chicago, Ill. Knife-handle	21,766	Aug. 9	60	888
Kregel, Louis G., St. Louis, Mo. Coffin-pedestal	21,867	Sept. 27	60	1879
Larson, John, and J. M. Van Slyke, Madison, Wis. Handle for spoons, &c	21,737	Aug. 2	60	731
Larson, John, and J. M. Van Slyke, Madison, Wis. Handle for spoons, &c	21,854	Sept. 13	60	1605
Lazarus, Augustus A., *et al.* (See Lipper, Benjamin, assignor.)	21,855	Sept. 13	60	1605
Lazarus, Augustus A., *et al.* (See Lipper and Courts, assignors.)				
Lehnhardt, Albert, Jersey City, N. J. Stove-board				
Lexow, Charles, Rosebank, N. Y. Trimming	21,808	Aug. 30	60	1320
Liebmann, Rudolph, New York, N. Y. Campaign-button	21,830	Sept. 6	60	1470
Lipper, Benjamin, assignor to himself, A. A. Lazarus, and I. A. Schwarz, Philadelphia, Pa. Dress-trimming	21,729	July 19	60	432
Lipper, Benjamin, assignor to himself, A. A. Lazarus, and I. A. Schwarz, Philadelphia, Pa. Dress-trimming	21,675	July 5	60	150
Lipper, Benjamin, *et al.* (See Lipper and Courts, assignors.)	21,676	July 5	60	150
Lipper, Benjamin, and A. A. Courts, assignors to A. A. Lazarus, I. A. Schwarz, and B. Lipper, Philadelphia, Pa. Dress-trimming				
Little, Robert H., assignor to E. D. Stiles, Chicago, Ill. Casing for coin-actuated vending-machines	21,677	July. 5	60	150
Lowenthal, Nachman, Chambersburg, Pa. Shoe	21,786	Aug. 23	60	1181
MacNamara, James W., Blairsville, Pa. Flag	21,752	Aug. 2	60	731
Magee, Frank A., Boston, Mass. Stove	21,788	Aug. 23	60	1182
Maillot, John W., Attleborough, Mass. Handle for spoons, &c	21,713	July 12	60	292
Mapother, Dillon E., Louisville, Ky. Confection	21,837	Sept. 6	60	1471
Martindale, Roger G., Chicago, Ill. Advertising game-board	21,760	Aug. 9	60	887
Mayer, Wilhelm, Stuttgart, Germany. Memorial shield	21,679	July 5	60	150
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Coffin-plate	21,862	Sept. 20	60	1746
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Coffin-handle	21,774	Aug. 9	60	889
Meriden Britannia Company. (See McCarthy, Oliver, assignor.)	21,775	Aug. 9	60	889
Meriden Bronze Company. (See Yokel, Franz, assignor.)				
Meriden Silver Plate Company. (See Hiller, Louis C., assignor.)				
Meyer, Bertha, Kansas City, Mo. Spoon	21,739	Aug. 2	60	730
Millis, Henry L., Millis, Mass. Campaign-horn	21,789	Aug. 23	60	1182
Montgomery, Harry C., Cleveland, Ohio. Sink-trap	21,776	Aug. 9	60	889
Montgomery, Harry C., Cleveland, Ohio. Sink-trap	21,873	Sept. 27	60	1880
Moore, William N., Joliet, Ill. Heating-stove	21,801	Aug. 23	60	1182
Mott, Benjamin I., Brooklyn, N. Y. Bottle	21,711	July 12	60	292
Munger, Willie B., Harrisburg, Pa. Badge	21,846	Sept. 6	60	1472
Murphy, Thomas H., and P. M. Zoeggele, New Bedford, Mass. Bread-pan	21,710	July 12	60	292
New Jersey Car Spring and Rubber Company. (See Voorhees, John J., assignor.)				
Nosker, Orren G. (See Whitson and Nosker.)				
Nuttall, Zella, Dresden, Germany. Table	21,802	Aug. 30	60	1319

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Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Nuttall, Zella, Dresden, Germany. Table	21,803	Aug. 30	60	1319
Nuttall, Zella, Dresden, Germany. Chair	21,849	Sept. 6	60	1473
Osborne, Charles, assignor to Whiting Manufacturing Company, New York, N. Y. Match-box	21,768	Aug. 9	60	888
Osborne, Charles, assignor to Whiting Manufacturing Company, New York, N. Y. Metal border	21,848	Sept. 6	60	1473
Paull, Archibald W., Wheeling, W. Va. Lantern	21,732	July 26	60	570
Peck Bros. & Co. (See Totham, James, assignor.)				
Pomeroy, Julian, Springfield, Mass. Whip	21,817	Aug. 30	60	1320
Popkin, Abraham, New York, N. Y. Cloak	21,828	Aug. 30	60	1322
Puddefoot, Charles, Detroit, Mich. Corkscrew	21,701	Aug. 9	60	887
Quinby, Albert O. and T. H. Bates, Fresno, Cal. Medal	21,703	July 12	60	291
R. Wallace & Sons Manufacturing Company. (See Clulee, Harry L., assignor.)				
R. Wallace & Sons Manufacturing Company. (See Wallace, Henry L., assignor.)				
Raad, George B., Dubuque, Iowa. Badge	21,790	Aug. 23	60	1182
Regular Army and Navy Union of Ohio. (See Roche, James F., assignor.)				
Reichert, Louis, Scranton, Pa. Badge	21,779	Aug. 16	60	1045
Reinnagel, George H., Brooklyn, assignor to Firemen's Publishing Company, New York, N. Y. Badge or similar article				
Rhind, Frank, Meriden, Conn. Lamp-burner	21,744	Aug. 2	60	730
Richards, Edmund L., Brooklyn, N. Y. Spoon	21,770	Aug. 9	60	888
Roberts, James, Boston, Mass., assignor to S. A. Woods Machine Company. Cutter-head hood for planers	21,868	Sept. 27	60	1879
Roche, James F., Boston, Mass., assignor to Regular Army and Navy Union of Ohio. Badge	21,850	Sept. 6	60	1473
Rose, Louis A., Paris, France, assignor to L. Straus & Sons, New York, N. Y. Ornamentation of glass vessels	21,704	July 12	60	291
Russell & Erwin Manufacturing Company. (See Christesen, Rudolphe W. E., assignor.)	21,727	July 19	60	432
S. A. Woods Machine Company. (See Roberts, James, assignor.)				
Sacks, Henry M., Madison, N. J. Trimming	21,812	Sept. 6	60	1470
Sacks, Henry M., Madison, N. J. Trimming	21,813	Sept. 6	60	1471
Schlechter, Gustavus, Reading, Pa. Badge	21,745	Aug. 2	60	730
Schlechter, Gustavus A., Reading, Pa. Badge	21,806	Sept. 27	60	1879
Schloss, Henry W., New York, N. Y. Dress-trimming	21,794	Aug. 23	60	1182
Schloss, Joseph W., New York, N. Y. Trimming	21,831	Sept. 6	60	1470
Schoenhut, Albert, Philadelphia, Pa. Trumpet	21,841	Sept. 6	60	1472
Schoenhut, Albert, Philadelphia, Pa. Trumpet	21,842	Sept. 6	60	1472
Schoonmaker, Edward T., New York, N. Y. Andiron	21,726	July 19	60	432
Schupmann, Ludwig, Aix-la-Chapelle, assignor to Urania-Uhren und Säulen-Commandit Ges. Breslauer & Dr. Von Orth, Berlin, Germany. Casing for urania columns	21,865	Sept. 27	60	1879
Schwab, Samuel M., Jr., New York, N. Y. Decorative fabric	21,734	July 26	60	570
Schwab, Samuel M., Jr., New York, N. Y. Decorative fabric	21,735	July 26	60	570
Schwab, Samuel M., Jr., New York, N. Y. Pattern for printed fabric	21,858	Sept. 13	60	1606
Schwarz, Isaac A., *et al.* (See Lipper, Benjamin, assignor.)				
Schwarz, Isaac A., *et al.* (See Lipper and Courts, assignors.)				
Selter, Albert, Hoboken, N. J., assignor to W. Johansen & Co., New York, N. Y. Picture-frame	21,733	July 26	60	570
Shillito, Francis W., assignor to American Buckle and Cartridge Company, West Haven, Conn. Suspender-ring	21,860	Sept. 20	60	1746
Simons, Brother & Co. (See Welhman, Henry A., assignor.)				
Simons, Edwin S., Philadelphia, Pa. Thimble	21,746	Aug. 2	60	730
Skinner, Joseph W., La Cresse, Wis. Shoe-shaper plate	21,694	July 5	60	152
Sloan, Robert L., and R. D. Gallagher, Chicago, Ill. Railway-car body	21,824	Aug. 30	60	1321
Smith, Celia M., Ithaca, N. Y. Statuette	21,680	July 5	60	150
Spadone, Henry E., New York, N. Y. Rubber mat	21,730	July 19	60	432
Sparmaker, Frank P., Philadelphia, Pa. Watch-charm	21,749	Aug. 2	60	731
Stiles, Everell D. (See Little, Robert H., assignor.)				
Straus & Sons, L. (See Rose, Louis A., assignor.)				
Sturm, Henry, Arlington, N. J. Ornamentation of fabrics	21,795	Aug. 23	60	1183
Supe, Otto, Sault Ste. Marie, Mich. Spoon	21,740	Aug. 2	60	730
Svoboda, Ferdinand, and C. Hofmann, Chicago, Ill. Barber's sign	21,782	Aug. 23	60	1181
Thissell, Earl A., and W. H. Wilder, Florence, Mass. Oil or gas stove	21,852	Sept. 6	60	1474
Thomas, Oscar G., Taunton, Mass. Stove or range	21,851	Sept. 6	60	1473
Thuemler, Franz H., Chicago, Ill. Bottle	21,736	July 26	60	571
Tilton, George P., assignor to Towle Manufacturing Company, Newburyport, Mass. Spoon	21,742	Aug. 2	60	730
Tisch, Louis, New York, N. Y. Trimming	21,834	Sept. 6	60	1471
Tonk, Max, Chicago, Ill. Piano-stool	21,695	July 5	60	153
Totham, James, assignor to Peck Bros. & Co., New Haven, Conn. Standard for wash-basin slabs	21,724	July 19	60	431
Towle Manufacturing Company. (See Tilton, George P., assignor.)	21,870	Sept. 27	60	1879
Tucker, George W., Waterbury, Conn. Picture-hook	21,759	Aug. 9	60	887
Tugby, Thomas, Niagara Falls, N. Y. Brooch-pin				
Urania-Uhren und Säulen-Commandit-Ges. Breslauer & Dr. Orth. (See Schupmann, Ludwig, assignor.)				
Van Keuren, William J., Honesdale, Pa. Button	21,843	Sept. 6	60	1472
Van Slyke, James M. (See Larson and Van Slyke.)				
Van Slyke, James M., Madison, Wis. Spoon	21,717	July 19	60	431
Voorhees, John J., Jersey City, N. J., assignor to New Jersey Car Spring and Rubber Company, of New Jersey. Rubber mat	21,707	July 12	60	291
Wallace, Henry L., assignor to R. Wallace & Sons Manufacturing Company, Wallingford, Conn. Spoon	21,741	Aug. 2	60	730
Webb, Joseph, Sewickley, Pa. Lamp globe or shade	21,819	Aug. 30	60	1321
Welhman, Henry A., assignor to Simons, Brother & Co., Philadelphia, Pa. Thimble	21,747	Aug. 2	60	730
Welhman, Henry A., assignor to Simons, Brother & Co., Philadelphia, Pa. Handle for knives	21,785	Aug. 23	60	1181
Welles, Howard W., Poughkeepsie, N. Y. Campaign-badge	21,844	Sept. 6	60	1472
Wesson, Daniel B. and J. H., Springfield, Mass. Pistol-cheek	21,814	Aug. 30	60	1320
Wesson, Joseph H. (See Wesson, Daniel B. and J. H.)	21,823	Aug. 30	60	1321
Wesson, Joseph H., Springfield, Mass. Pistol-cheek				
Wester, Charles, New York, N. Y. Button-hook	21,822	Aug. 30	60	1321
Whiting Manufacturing Company. (See Osborne, Charles, assignor.)	21,792	Aug. 23	60	1182
Whitson, Peter E., and O. G. Nosker, Sheldon, Ill. Broom-rack	21,708	July 12	60	291
Wientge, Charles C., assignor to Howard Sterling Company, Providence, R. I. Handle for spoons, &c	21,838	Sept. 6	60	1471
Wientge, Charles C., assignor to Howard Sterling Company, Providence, R. I. Back of a brush or similar article	21,847	Sept. 6	60	1473
Wilcox, Fred E., Syracuse, N. Y. Bedstead	21,856	Sept. 13	60	1605

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Wilder, William H. (See Thissell and Wilder.)				
Wilkinson, George, assignor to Gorham Manufacturing Company, Providence, R. I. Bowl				
Wilkinson, George, assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, &c.	21,755	Aug. 2	60	731
Wilson, William R., Columbus, Ohio. Carriage-step	21,839	Sept. 6	60	1471
Wright, Hallie L., Washington, D. C. Spoon	21,780	Aug. 16	60	1045
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Table-top	21,737	July 26	60	571
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Holder for lamp-founts	21,722	July 19	60	431
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Table-top	21,723	July 19	60	431
Yokel, Franz, assignor to Meriden Bronze Company, Meriden, Conn. Table-top	21,750	Aug. 2	60	731
Young, Henry L. (See Baldwin, Fred B., assignor.)	21,751	Aug. 2	60	731
Zoeggele, Philip M. (See Murphy and Zoeggele.)	21,871	Sept. 27	60	1879

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. L. Causse Manufacturing Company, New York, N. Y. Confectionery	21,757	Sept. 20	60	1747
Aich, Herman, New York, N. Y. Culinary vessels	21,490	July 19	60	435
Aich, Herman, New York, N. Y. Enameled sheet-metal ware	21,624	Aug. 16	60	1048
Akam, Charles G., Chicago, Ill. Sewing-machines	21,481	July 19	60	434
Allen & Co., Isaac D., Boston, Mass. Absorbent pads	21,577	Aug. 9	60	890
Alvarez, Casimiro, Havana, Cuba. Cigars	21,691	Aug. 23	60	1188
Amann, Clemens, Sidney, Ohio. Baking-powder	21,576	Aug. 9	60	890
American Lead Pencil Company, New York, N. Y. Pencils, comprising lead-pencils and pencil and pen holders	21,480	July 19	60	434
American Wringer Company, Providence, R. I., New York, and Auburn, N. Y. Wringers	21,590	Aug. 9	60	891
American Wringer Company, Providence, R. I., New York, and Auburn, N. Y. Wringers	21,591	Aug. 9	60	891
American Wringer Company, Providence, R. I., New York, and Auburn, N. Y. Wringers	21,592	Aug. 9	60	891
Anderton Brewing Company, Beaver Falls, Pa. Ale, porter, and stout	21,593	Aug. 9	60	891
Anderson, William L., Alloway, N. J. Matches	21,556	Aug. 2	60	734
Arkwright Medicine Co., St. Louis, Mo. Line of medicines	21,790	Sept. 27	60	1882
Armstrong, Thomas, Baltimore, Md. Soap for laundry and household use	21,731	Sept. 13	60	1607
Armstrong, Thomas, Baltimore, Md. Washing-powder	21,455	July 19	60	433
Armstrong, Thomas, Baltimore, Md. Scouring and cleaning powder	21,470	July 19	60	434
Atkinson, Lewis E., Boston, Mass. Lubricating compounds, oils, and grease	21,471	July 19	60	434
Backeland, Leo H., New York, N. Y. Photographic dry-plates	21,655	Aug. 23	60	1185
Baker Chain and Wagon Iron Manufacturing Company, Allegheny, Pa. Chains, rings, clips, hooks, and other carriage-hardware	21,506	Aug. 9	60	892
Baldwin Fertilizer Company, Savannah, Ga., and Port Royal, S. C. Artificial fertilizers	21,496	July 19	60	435
Ball, Webster C., Cleveland, Ohio. Watches and portable clocks	21,520	July 26	60	572
Ball, Webster C., Cleveland, Ohio. Watches and portable clocks	21,625	Aug. 16	60	1048
Barton, Robert R., Catlettsburg, Ky. Account-books	21,626	Aug. 16	60	1048
Bay State Corset Company, Springfield, Mass. Corsets for ladies' use	21,491	July 19	60	435
Beach Soap Co., Lawrence, Mass. Laundry and toilet soap	21,482	July 19	60	434
Bean, La Due & Clawson, Buffalo, N. Y. Coats, pantaloons, overalls, shirts, and gentlemen's furnishing goods	21,738	Sept. 13	60	1607
Bean & Vail Brothers, Philadelphia, Pa. Perfumery	21,677	Aug. 23	60	1187
Bean & Vail Brothers, Philadelphia, Pa. Perfumery	21,473	July 19	60	434
Bean & Vail Brothers, Philadelphia, Pa. Perfumery	21,474	July 19	60	434
Beckel & Co., Joseph, New York, N. Y. Corsets	21,542	Aug. 2	60	732
Beeman & McCarthy Company, Syracuse, N. Y. Dress-bindings	21,457	July 19	60	433
Beldin, Clinton A., Jamaica, N. Y. Remedy for the croup	21,521	July 26	60	573
Bell's Sons, Henry H., Milton and New York, N. Y. Eider-down cloth of a wavy appearance	21,565	Aug. 2	60	734
Benger & Co., Limited, F. B., Strangeways, Manchester, England. Food for infants and invalids	21,696	Aug. 30	60	1323
Benjamin Brooke & Company, Philadelphia, Pa. Laundry soap	21,702	Aug. 30	60	1323
Benjamin Brooke & Company, Philadelphia, Pa. Laundry soap	21,671	Aug. 23	60	1186
Besly, Charles H., Chicago, Ill. Lubricating and machine oil and grease	21,676	Aug. 23	60	1187
Bickmore Gall Cure Company, Old Town, Me. Salve	21,669	Aug. 23	60	1186
Bippus & Breidenbach, Dayton, Ohio. Toilet soap, face-powder, face-cream, tooth-powder, and perfumes	21,456	July 19	60	433
Blackburn, Joseph E., Bellaire, Ohio. Baking-powder and yeast	21,522	July 26	60	573
Boake, Roberts & Co., A., London, England. Preservative for beer	21,419	July 5	60	155
Boker & Co., Hermann, New York, N. Y. Razors and pocket and carving knives	21,782	Sept. 27	60	1881
Booth, Emory T., Brooklyn, N. Y. Compound of fruit and cascara-bark for the cure of dyspepsia and other diseases	21,478	July 19	60	434
Bosa Washing Machine Company, Cincinnati, Ohio. Hand-power washing-machines	21,460	July 19	60	433
Bossle, Louis, Philadelphia, Pa. Powder for causing the smoking out of rats, rabbits, &c.	21,651	Aug. 23	60	1185
Boston Woven Hose and Rubber Company, Boston, Mass. Rubber belting	21,670	Aug. 23	60	1186
Botts, Marguerite V., Philadelphia, Pa. Toilet preparations, not including face-powder	21,713	Aug. 30	60	1324
Brinckerhoff, Henry, New York, N. Y. Remedy for neuralgia, rheumatism, headache, and fevers	21,672	Aug. 23	60	1186
Broch & Thiebes Cutlery Co., St. Louis, Mo. Razors	21,791	Sept. 27	60	1882
Bruton & Condon, Nashville, Tenn. Snuff	21,472	July 19	60	434
Buffalo Wheel Company, Buffalo, N. Y. Bicycles	21,604	Aug. 16	60	1046
Burnett & Co., Robert, London, England. Gin	21,458	July 19	60	433
Barrows, William E., Providence, R. I. Tooth-powder	21,699	Aug. 30	60	1323
Burwell, Robert P., Richmond, Va. Bitters	21,498	July 12	60	293
C. D. Smith Drug Company, St. Joseph, Mo. Whisky	21,637	Aug. 16	60	1049
C. W. Kopf Company, New York, N. Y., and Boston, Mass. Compressed pea-soup	21,737	Sept. 13	60	1607
C. W. Kopf Company, New York, N. Y., and Boston, Mass. Compressed pea-soup	21,508	July 19	60	436
Calculagraph Company, East Orange, N. J., and New York, N. Y. Machines for making calculations and recording the results	21,509	July 19	60	436
Calumet Baking Powder Company, Chicago, Ill. Baking-powder	21,747	Sept. 13	60	1608
Carse & Ohlweiler, Rock Island, Ill. Mineral waters	21,792	Sept. 27	60	1882
Case, Alfred W., Highland Park, Conn. Flange-packings	21,475	July 19	60	434
Cash Buyers' Union, Chicago, Ill. Hardware	21,605	Aug. 16	60	1046
Cash Buyers' Union, Chicago, Ill. Sewing-machines	21,513	July 26	60	572
Ceballos & Co., J. M., New York, N. Y. Lard	21,650	Aug. 23	60	1185
Ceballos & Co., J. M., New York, N. Y. Lard	21,523	July 26	60	573
Celluloid Company, Newark, N. J. Waterproof collars and cuffs	21,732	Sept. 13	60	1607
Celluloid Company, Newark, N. J. Waterproof collars and cuffs	21,573	Aug. 9	60	890
Celluloid Company, Newark, N. J. Plastic material composed in part of pyroxyline	21,619	Aug. 16	60	1047
Celluloid Company, Newark, N. J. Plastic material composed in part of pyroxyline	21,682	Aug. 23	60	1187
Central Oilgas Stove Company, Northampton and Boston, Mass. Oil or gas stoves	21,683	Aug. 23	60	1187
Chapman, Mrs. Stephen D., Ovilla, Tex. Fluid remedy for consumption and all diseases of the lungs	21,703	Aug. 30	60	1323
	21,459	July 19	60	433

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Chas. Truax, Greene & Company, Chicago, Ill. Antipyretics and sedatives	21,399	July 5	60	154
Chavauty, François, Paris, France. Vegetable ferment for the manufacture of wines	21,627	Aug. 16	60	1048
Chesebrough Manufacturing Company, New York, N. Y. Vaseline	21,727	Sept. 6	60	1476
Church, Andrew S., New York, N. Y. Straw lumber	21,744	Sept. 13	60	1608
Clark Bros. Lamp, Brass, and Copper Company, New York, N. Y. Lamps and accessories pertaining thereto	21,648	Aug. 16	60	1050
Cleveland Tin Plate Co., Cleveland, Ohio. Tin and roofing plates	21,656	Aug. 23	60	1185
Cochran, William L., Burlington, Iowa. Remedy for gonorrhœa, gleet, leucorrhœa, and the like	21,548	Aug. 2	60	733
Columbia Cash Register Company, Miamisburg, Ohio. Cash-registering machines	21,717	Sept. 6	60	1475
Companhia Geral D'Agricultura dos Vinhos do Alto Douro, Oporto, Portugal. Portuguese wines	21,716	Sept. 6	60	1475
Conrad Seipp Brewing Company, Chicago, Ill. Beer	21,638	Aug. 16	60	1049
Cooper, Charles J., Newark, N. J. Cigars	21,476	July 19	60	434
Cork Faced Collar Company, Lincoln, Ill. Horse-collars, riding-saddles, gig-saddles, back-pads, and all parts of harness	21,557	Aug. 2	60	734
Coronet Corset Company, Jackson, Mich., and New York, N. Y. Corsets, waists, and suspenders	21,758	Sept. 20	60	1747
Cowan, Agnes, Belfast, Ireland. Whisky	21,514	July 26	60	572
Cowan, Magill & Co., Knoxville, Tenn. Men's pantaloons and overalls	21,685	Aug. 23	60	1187
Craighill & Co., E. A., Lynchburg, Va. Veterinary remedies, including condition-powders for horses and cattle	21,492	July 19	60	435
Crossley, Joseph, Trenton, N. J. Enameled and buff building bricks or blocks	21,738	Sept. 6	60	1476
Danbury Pharmacal Association, Danbury, Conn. Substitute for cod-liver oil	21,533	Aug. 2	60	732
Davis & Co., H. C., Jr., Norfolk, Va. Toilet and laundry soap	21,493	July 19	60	435
Davis, Robert M., Denver, Colo. Remedy for catarrh and all diseases of the throat, lungs, and bowels	21,762	Sept. 20	60	1747
Day, Asa W., St. Louis, Mo. Babbitt metal	21,709	Aug. 30	60	1324
Detroit Stay Company, Detroit, Mich. Covered dress-stays	21,783	Sept. 27	60	1881
Diaz y Hermano, Havana, Cuba. Cigars	21,658	Aug. 23	60	1185
Dieter, John P., Chillicothe, Ohio. Roasted coffee	21,558	Aug. 2	60	734
Doble, William H., Quincy, Mass. Dried currants	21,712	Aug. 30	60	1324
Dodson, Hils Manufacturing Company, St. Louis, Mo. Tomato catsup	21,793	Sept. 27	60	1882
Dodson, Hils Manufacturing Company, St. Louis, Mo. Tomato catsup	21,794	Sept. 27	60	1882
Dodson, Hils Manufacturing Company, St. Louis, Mo. Tomato catsup	21,795	Sept. 27	60	1882
Dowsey & Co., W. C., Washington, D. C. Nose and throat douche	21,628	Aug. 16	60	1048
Dr. David Kennedy Corporation, Kingston, N. Y. Medicated plasters	21,524	July 26	60	573
Dr. David Kennedy Corporation, Kingston, N. Y. Remedy for diseases of the stomach and bowels and other painful disorders	21,525	July 26	60	573
Dr. David Kennedy Corporation, Kingston, N. Y. Remedy for diseases of the eye	21,559	Aug. 2	60	734
Dr. David Kennedy Corporation, Kingston, N. Y. Worm-sirup	21,657	Aug. 23	60	1185
Dr. Jaeger's Sanitary Woolen System Company, New York, N. Y. Wearing-apparel, outer and under wear, bedding, and the materials of which they are made	21,497	July 19	60	435
Dr. Jaeger's Sanitary Woolen System Company, New York, N. Y. Wearing-apparel, outer and under wear, bedding, and the materials of which they are made	21,498	July 19	60	435
Dr. Jaeger's Sanitary Woolen System Company, New York, N. Y. Wearing-apparel, outer and under wear, bedding, and the materials of which they are made	26,499	July 19	60	435
Dr. Jaeger's Sanitary Woolen System Company, New York, N. Y. Underwear and the knit and woven fabrics of which it is composed	21,500	July 19	60	436
Dr. Jaeger's Sanitary Woolen System Company, New York, N. Y. Wearing-apparel, outer and under wear, bedding, and the materials of which they are made	21,639	Aug. 16	60	1049
Dr. Seth Arnold Medical Corporation, Woonsocket, R. I. Cough medicines	21,761	Sept. 20	60	1747
Dunham, Buckley & Co., New York, N. Y. Gloves	21,581	Aug. 9	60	891
Durham Fertilizer Company, Durham, N. C., and Richmond, Va. Natural and artificial fertilizers	21,550	Aug. 2	60	733
Durham Fertilizer Company, Durham, N. C., and Richmond, Va. Natural and artificial fertilizers	21,551	Aug. 2	60	733
Durham Fertilizer Company, Durham, N. C., and Richmond, Va. Natural and artificial fertilizers	21,598	Aug. 9	60	892
E. C. Atkins & Company, Indianapolis, Ind., Memphis and Chattanooga, Tenn., and Minneapolis, Minn. Saws of all kinds	21,623	Aug. 16	60	1048
East New York Boot, Shoe, and Leather Manufacturing Company, Albany, N. Y. Leather, boots, shoes, and other foot-wear	21,773	Sept. 20	60	1748
Eastern Electric Cable Company, Boston, Mass. Electric insulated wire	21,763	Sept. 20	60	1747
Eaton, Dikeman & Co., Lee, Mass. Blotting-paper	21,612	Aug. 16	60	1047
Eaton, Dikeman & Co., Lee, Mass. Blotting-paper	21,613	Aug. 16	60	1047
Eigenbrot Brewing Company, Baltimore, Md. Lager-beer	21,776	Sept. 27	60	1881
Eisendrath, William N., Chicago, Ill. Cordovan leather	21,697	Aug. 30	60	1323
Electricon Metal Company, Newark, N. J. and New York, N. Y. Antifriction metal	21,708	Aug. 30	60	1324
Elfreth & Ott, Philadelphia, Pa. Lager and other beers	21,719	Sept. 6	60	1475
Elgin National Watch Company, Chicago, Ill. Watches	21,461	July 19	60	433
Elgin National Watch Company, Chicago, Ill. Watches	21,462	July 19	60	433
Elgin National Watch Company, Chicago, Ill. Watches	21,463	July 19	60	433
Elgin National Watch Company, Chicago, Ill. Watches	21,464	July 19	60	433
Elgin National Watch Company, Chicago, Ill. Watches	21,465	July 19	60	433
Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Household, druggists', and butchers' hardware	21,801	Sept. 27	60	1882
Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Meat-choppers and presses	21,552	Aug. 2	60	733
Eustis Manufacturing Company, Jersey City, N. J., and New York, N. Y. Cookers, baking-dishes, and coffee-makers	21,599	Aug. 9	60	893
F. A. Poth Brewing Company, Philadelphia, Pa. Lager-beer	21,427	July 5	60	156
Farnum & Co., John, Philadelphia, Pa. Ginghams	21,692	Aug. 30	60	1323
Farren, Emma R., Paterson, N. J. Disinfectant	21,700	Aug. 30	60	1323
Feldmann, Ernst, New York, N. Y. Sherry-wine	21,443	July 12	60	294
Finlayson, Bousfield & Co., Johnstone, Scotland, and Grafton, Mass. Linen thread	21,466	July 19	60	433
Florence Manufacturing Company, Northampton, Mass., New York, N. Y., and Chicago, Ill. Dentifrice	21,420	July 5	60	155
Florence Manufacturing Company, Northampton, Mass., New York, N. Y., and Chicago, Ill. Dentifrice	21,477	July 19	60	434
Floto's Sons, George, Brooklyn, N. Y. Chicory	21,733	Sept. 13	60	1607
Flowers, Joseph C., and C. S. Witwer, Joliet, Ill. Toilet preparation for beautifying the complexion	21,720	Sept. 6	60	1475
Fly Button Co., Manmee, Ohio. Fly-paper	21,659	Aug. 23	60	1185
Forney, Matthias N., New York, N. Y. Monthly publication	21,510	July 19	60	436
Foster Hilson Company, New York, N. Y. Cigars and cigarettes	21,721	Sept. 6	60	1475
Frank Fehr Brewing Company, Louisville, Ky. Beer	21,606	Aug. 16	60	1046
Fred Krug Brewing Company, Omaha, Nebr. Lager-beer	21,526	July 26	60	573
Gannett, William H., Augusta, Me. Remedy for nervous disorders	21,620	Aug. 16	60	1047
Gannett, William H., Augusta, Me. Remedy for nervous disorders	21,516	July 26	60	572
Gedney, James W., New York, N. Y. Gelatine capsules	21,583	Aug. 9	60	891
	21,434	July 12	60	293

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Geisenheimer & Co., New York, N. Y. Coal-tar oils	21,534	Aug. 2	60	732
Gibson, James F., Providence, R. I. Sedlitz-powders	21,764	Sept. 20	60	1747
Giesecke Boot and Shoe Manufacturing Company, Jefferson City, Mo. Boots and shoes made of leather	21,413	July 5	60	155
Gill, George W., Jacksonville, Fla. Mattresses and other upholstery	21,701	Aug. 30	60	1323
Glovine Manufacturing Co., Ashley, Pa. Liquid preparation for cleaning gloves	21,585	Aug. 9	60	891
Gordon & Co., London, England. Liquors and cordials	21,734	Sept. 13	60	1607
Gottlieb, William, Philadelphia, Pa. Insect and vermin exterminators	21,802	Sept. 27	60	1882
Graef & Schmidt, New York, N. Y. Knives, scissors, and forks	21,560	Aug. 2	60	734
Graves & Co., I. A., Watertown, N. Y. Wheat-flour	21,582	Aug. 9	60	891
Great Divide Publishing Company, Denver, Colo. Monthly magazine	21,770	Sept. 20	60	1748
Grell, William F., New York, N. Y. Liniment	21,511	July 26	60	572
Greyer, Julius, Cincinnati, Ohio. Cosmetic	21,426	July 5	60	156
Griggs, Cooper & Co., St. Paul, Minn. Roasted and self-settling coffee	21,483	July 19	60	434
Groetzinger & Co., J., Allegheny, Pa. Harness, sole, and belting leather	21,686	Aug. 23	60	1188
Hagemann Brewing Company, San Francisco, Cal. Beer	21,739	Sept. 13	60	1607
Hannach, Norman, Pittsburg, Pa. Linen shirts	21,569	Aug. 9	60	890
Hard & Pike, New York, N. Y. Writing-paper, envelopes, and fine card-board	21,754	Sept. 20	60	1747
Harris, Abram W., Providence, R. I. Lubricating-oil	21,561	Aug. 2	60	734
Harris, William F., Adrian, Ill. Fluid remedy for constipation, diseases of the liver, kidneys, bowels, skin, and blood	21,678	Aug. 23	60	1187
Hartley & Graham Co. Bridgeport, Conn. Powder measures and rammers	21,765	Sept. 20	60	1747
Henderson, Harvey M., Chicago, Ill. Liver-tonic	21,641	Aug. 16	60	1049
Hennessy, John D., New York, N. Y. Bread	21,444	July 12	60	294
Henninger, William A., Havana, Ill. Preparation for soda-water	21,607	Aug. 16	60	1046
Henry Disston & Sons, Incorporated, Philadelphia, Pa. Saws, tools, files, and steel	21,515	July 26	60	572
Hesse, Christian, Minonk, Ill. Topical remedy	21,536	Aug. 2	60	732
Higgin & Co., Thomas, Liverpool, England. Chloride of sodium or common salt	21,600	Aug. 9	60	892
Hilbert & Co., A. J., Milwaukee, Wis. Flavoring-extracts	21,505	July 19	60	436
Hirschl & Bendheim, St. Louis, Mo. Smoking-pipes	21,578	Aug. 9	60	890
Hitchcock & Co., W. G., New York, N. Y. Broad silks, ribbons, and silk threads	21,415	July 5	60	155
Hitchner & Co., Pittston, Pa. Biscuits, crackers, wafers, cakes, and similar articles	21,608	Aug. 16	60	1046
Holbrook, A. & C. W., Providence, R. I. Glue	21,435	July 12	60	293
Holbrook, A. & C. W., Providence, R. I. Leather, including belting	21,445	July 12	60	294
Hopkins, Maria W., Brooklyn, N. Y. Salt from Great Salt Lake for bathing purposes	21,429	July 12	60	293
Horn, Albert, Buffalo, N. Y. Liniment	21,400	July 5	60	154
Hudnut, Benjamin G., Terre Haute, Ind. Corn products used for brewing purposes	21,714	Aug. 30	60	1324
Hudnut, Richard, New York, N. Y. Remedy for general debility and for diseases of the genital organs	21,535	Aug. 2	60	732
Hunt & Co., Salt Lake City, Utah. Diphtheria specific	21,401	July 5	60	154
Hurd & Co., Geo. B., New York, N. Y. Writing-paper and envelopes	21,402	July 5	60	154
Hurd & Co., Geo. B., New York, N. Y. Fine writing-paper and envelopes	21,403	July 5	60	154
Imperial Metal Card Company, Boston, Mass. Labels or clips for indicating the price of cigars	21,447	July 12	60	294
Indian River and Lake Worth Pineapple Growers Association, Eden, Fla. Pineapples	21,446	July 12	60	294
Indianapolis Drug Co., Indianapolis, Ind. Castor-oil	21,436	July 12	60	293
Iowa Farming Tool Company, Fort Madison, Iowa. Hoes, forks, rakes, and other agricultural hand implements	21,771	Sept. 20	60	1748
Isaacs, Albert C., Baltimore, Md. Steel ingots, slabs, blooms, billets, bars, rods, &c	21,449	July 12	60	294
J. C. McNeil Company, Akron, Ohio. Metallic wheelbarrows	21,602	Aug. 9	60	892
J. T. Robertson Soap Company, Manchester, Conn. Soap and other cleaning and detergent preparations	21,425	July 5	60	156
Jaynes, Ida D., Milwaukee, Wis. Misses' and children's outer and under garments	21,570	Aug. 9	60	890
Jefferson Glass Co., Washington, Pa. Plate or cathedral glass	21,704	Aug. 30	60	1323
Jersey City Printing Company, Jersey City, N. J. Packages of printed labels	21,777	Sept. 27	60	1881
Johnson, Boling A., Chicago, Ill. Paper, envelopes, cards, blank books, and paper badges	21,601	Aug. 9	60	892
Johnson, James W., New Brunswick, N. J., and New York, N. Y. Medicated cotton	21,629	Aug. 16	60	1048
Johnson, James W., New Brunswick, N. J., and New York, N. Y. Medicated cotton	21,630	Aug. 16	60	1048
Johnston, Willis, Washington, D. C. Condensed milk	21,660	Aug. 23	60	1185
Jones & Co., W. H., Boston, Mass. Whisky	21,421	July 5	60	155
Jones & Co., W. H., Boston, Mass. Whisky	21,537	Aug. 2	60	732
Keller, Alvin H., Sioux Falls, S. D. Adhesive plasters	21,566	Aug. 2	60	734
Kendall Manufacturing Company, Providence, R. I. Toilet, laundry, and scouring soaps and washing fluids and powders	21,404	July 5	60	154
Kerr Thread Company, East Newark, N. J. Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	21,411	July 5	60	155
Kerr Thread Company, East Newark, N. J. Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	21,412	July 5	60	155
Kerr Thread Company, East Newark, N. J. Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	21,664	Aug. 23	60	1186
Kerr Thread Company, East Newark, N. J. Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	21,665	Aug. 23	60	1186
Kerr Thread Company, East Newark, N. J. Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	21,666	Aug. 23	60	1186
Keyser, William S., Pensacola, Fla. Sawed timber	21,667	Aug. 23	60	1186
Kidder, Samuel, Boston, Mass. Metal polish	21,448	July 12	60	294
Kimber, Charles, London, England. Illuminating or burning oil	21,673	Aug. 23	60	1186
King, William C., Norfolk, Va. Tea, coffee, and spices	21,450	July 12	60	294
Kirschbaum & Co., Ab., Philadelphia, Pa. Outer garments for men and children	21,543	Aug. 2	60	733
Kolin, Joseph, Chicago, Ill. Bitter wine	21,778	Sept. 27	60	1881
Kunkelmann & Co., Rheims, France. Champagne	21,609	Aug. 16	60	1046
Kurum Chemical Co., St. Paul, Minn. Tablets for throat and lung diseases	21,729	Sept. 6	60	1476
Ladd & Coffin, New York, N. Y. Perfumes, powders, soaps, and toilet articles generally	21,722	Sept. 6	60	1475
Lammers, Carl A., Denver, Colo. Beer	21,437	July 12	60	293
Lassiter, Richard T., New York, N. Y. Compound for the cure of rheumatism and rheumatic gout	21,527	July 26	60	573
Lauffer, John, Toledo, Ohio. Medicinal compounds for external use	21,631	Aug. 16	60	1048
Le Francis, Peter, Cambridge, Mass. Cigars	21,784	Sept. 27	60	1881
Levi Bros. & Blum, New York, N. Y. Dress-shields	21,479	July 19	60	434
Lewis, Edith, Hot Springs, Ark. Toilet cream, lotions, and powder deodorants	21,417	July 5	60	155
Lewis, John G., Jefferson City, Mo. Pants and overalls	21,779	Sept. 27	60	1881
Liebe, Johannes P., Dresden, Germany. Prepared foods, malt extracts, and medicated wines	21,718	Sept. 6	60	1475
Liesegang, Eduard, Dusseldorf, Germany. Photographic paper	21,517	July 26	60	572
Long Island Brewery, Brooklyn, N. Y. Lager-beer	21,430	July 12	60	293
	21,680	Aug. 23	60	1187

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Long Island Brewery, Brooklyn, N. Y. Lager-beer	21,681	Aug. 23	60	1187
Long Island Brewery, Brooklyn, N. Y. Lager-beer	21,789	Sept. 27	60	1882
López, Ramón, Havana, Cuba. Cigars	21,661	Aug. 23	60	1186
Lowrey & Co., J. S., New York, N. Y. Underwear, including hosiery	21,766	Sept. 20	60	1748
Ludwig, Redlich & Co., New York, N. Y. Solid table and other silverware	21,423	July 5	60	156
Lurie, Joseph S., Kansas City, Mo. Certain named toilet preparations	21,544	Aug. 2	60	733
Luyties Homœopathic Pharmacy Company, St. Louis, Mo. Tablets for uso in dyspepsia and stomach troubles	21,780	Sept. 27	60	1881
Lyon, Hall & Co., Baltimore, Md. Oil fabrics	21,614	Aug. 16	60	1047
Lysholm, Jörgen B., Trondhjem, Norway. Norwegian brandy	21,501	July 19	60	436
Lysholm, Jörgen B., Trondhjem, Norway. Norwegian brandy	21,502	July 19	60	436
M. A. Gedney Pickling Company, Minneapolis, Minn. Vinegar, pickles, catsupa, chow-chow, mustard, and sauces	21,742	Sept. 13	60	1607
Macfadden, George, Philadelphia, Pa. Food for animals	21,803	Sept. 27	60	1882
Marshall, Harry C., New York, N. Y. Edge tools	21,622	Aug. 16	60	1048
Massman, Isaac, New Orleans, La., and Philadelphia, Pa. Rye and bourbon whisky	21,418	July 5	60	155
Mátos, Louis A., Philadelphia, Pa. Medicine in tablet, lozenge, or other solid form	21,416	July 5	60	155
McAvoy Brewing Company, Chicago, Ill. Tonics	21,785	Sept. 27	60	1881
McAvoy Brewing Company, Chicago, Ill. Beer	21,786	Sept. 27	60	1881
McCloskey, John, New Orleans, La. Mead	21,506	July 19	60	436
McConnel & Company, Limited, Ancoats, Manchester, England. Cotton yarns	21,796	Sept. 27	60	1882
McCord, Brady Company, Omaha, Nebr. Cheese	21,622	Aug. 16	60	1047
McCrory & Taylor, Pueblo, Colo. Medicinal compound the basis of which is the chlorides of gold and sodium	21,529	July 26	60	573
McFarland, Eleanor, Columbus, Ohio. Medical compound for external and internal use for skin and blood diseases	21,640	Aug. 16	60	1049
McKee, John A., Toronto, Canada. Pills used in kidney complaints	21,679	Aug. 23	60	1187
McKesson & Robbins, New York, N. Y. Boxes, bottles, tubes, atomizers, and powder-distributers used for dispensing powders, liquids, and semi-liquids	21,530	July 26	60	573
McKesson & Robbins, New York, N. Y. Pills, capsules, and tablets	21,755	Sept. 20	60	1747
Merchant & Co., Philadelphia, Pa. Tin and terne plates	21,705	Aug. 30	60	1324
Merz, Frederick, Brooklyn, N. Y. Medicinal plasters	21,730	Sept. 6	60	1476
Mersick & Co., C. S., New Haven, Conn. Tin and terne plates, including roofing-plates and bright plates	21,507	July 19	60	436
Meyerhof, Marr & Simonsen, Manchester, England. Skirt-facing	21,642	Aug. 16	60	1049
Midland Coffee and Spice Company, St. Joseph, Mo. Roasted coffee	21,484	July 19	60	434
Miller & Co., John, Boston, Mass. Whisky	21,545	Aug. 2	60	733
Miller & Co., John, Boston, Mass. Whisky	21,748	Sept. 13	60	1608
Miller, Hall & Hartwell, Troy, N. Y. Men's shirts, collars, and cuffs	21,405	July 5	60	154
Missoula Mercantile Company, Missoula, Stevensville, Victor, Corvallis, and Demersville, Mont. Dress and negligée shirts	21,723	Sept. 6	60	1475
Mitchell & Co., A., Calhoun, La. Veterinary powders	21,698	Aug. 30	60	1323
Mooney & Sons, W. W., Columbus, Ind. Harness-leather	21,781	Sept. 27	60	1881
N. Z. Graves & Company, Philadelphia, Pa. Varnishes, paints, japans, and analogous materials or compounds	21,584	Aug. 9	60	891
National Brewing Company of Baltimore County, Maryland, Baltimore city and Baltimore county, Md. Lager-beer	21,772	Sept. 20	60	1748
National Starch Manufacturing Company, Covington, Ky., New York and Buffalo, N. Y. Preparation of corn-starch or corn-flour	21,751	Sept. 13	60	1608
National Varnish Company, New Haven, Conn. Varnishes and japans	21,610	Aug. 16	60	1046
Nicholson & Co., J. W., London, England. All spirituous and fermented liquors except brandy	21,571	Aug. 9	60	890
Noteman, Alonzo, Toledo, Ohio. Cure for drunkenness	21,485	July 19	60	434
Oasis Nursery Company, Westbury, N. Y. Seeds and plants	21,735	Sept. 13	60	1607
Odo & Gerbereux, New York, N. Y. Candy, chocolate, and cocoa for confectioners' use	21,774	Sept. 20	60	1748
Olsen, Monrad J., Des Moines, Iowa. Liquid tonic	21,553	Aug. 2	60	733
Ontario Oriental Flour Company, St. Thomas, Canada, and Chicago, Ill. Corn-flour	21,653	Aug. 23	60	1185
Parke & Co., L. H., Philadelphia, Pa. Blended tea	21,431	July 12	60	293
Parke & Co., L. H., Philadelphia, Pa. Tea	21,432	July 12	60	293
Passavant & Co., New York, N. Y. Satin and velvet ribbons	21,711	Aug. 30	60	1324
Patty, John H., Chicago, Ill. Temperamental remedies	21,767	Sept. 20	60	1748
Peabody & Co., Henry W., Boston, Mass. Lubricating-oils	21,486	July 19	60	435
Pease, Son & Co., Thomas, Darlington, England, and Leith, Scotland. Whisky	21,504	July 19	60	436
Pearsall, George F. E., Brooklyn, N. Y. Photographic prints	21,787	Sept. 27	60	1881
Peckham, Malcolm D., New York, N. Y. Electric rings for the cure of disease	21,736	Sept. 13	60	1607
Penn, Joseph G., P. P. Watson, and A. D. Witten, Martinsville, Va. Plug-tobacco	21,768	Sept. 20	60	1748
Peraza, Domingo, New York, N. Y. Specific for diphtheria and other throat troubles	21,422	July 5	60	156
Perkins, Fred H., Shrewsbury, Mass. Medicinal beverage and sirups and extracts for forming the same	21,568	Aug. 2	60	734
Perry, William H., Concord N. H. Monuments, architectural trimmings, and various cut stones	21,554	Aug. 2	60	733
Peterson & Ruge, St. Louis, Mo. Detergent compounds in liquid form	21,706	Aug. 30	60	1324
Petri, Ada M., Minneapolis, Minn. Hair-curling compounds	21,724	Sept. 6	60	1475
Pettifer & Son, Stephen, Creedwell, near Malmesbury, England. Veterinary medicines and preparations	21,451	July 12	60	294
Pettifer & Son, Stephen, Crudwell, near Malmesbury, England. Veterinary medicines and preparations	21,586	Aug. 9	60	891
Plaut & Isaac, Cincinnati, Ohio. Men's overalls, pantaloons, suspenders, shirts, scarfs, collars, and cuffs	21,503	July 19	60	436
Plumb, Sanford G., New York, N. Y. Antiseptics	21,452	July 12	60	294
Ponsot, Auguste, Paris, France. Disinfecting-paper	21,635	Aug. 16	60	1048
Popkin & Co., A., New York, N. Y. Ladies' and misses' cloaks and suits	21,756	Sept. 20	60	1747
Porterdale Mills, Porterdale, near Covington, Ga. Cotton rope, cordage, and twine	21,740	Sept. 13	60	1607
Potter Parlin Company, Cincinnati, Ohio, and New York, N. Y. Baking-powder	21,580	Aug. 9	60	891
Powell & Gilbert, Amsterdam, N. Y. Liniments or lotions for external and internal use for man and animals	21,512	July 26	60	572
Pratt Food Company, Philadelphia, Pa. Prepared food for animals	21,632	Aug. 16	60	1048
Pratt Food Company, Philadelphia, Pa. Prepared food for poultry	21,633	Aug. 16	60	1048
Pratt Food Company, Philadelphia, Pa. Prepared poultry-food	21,634	Aug. 16	60	1048
Purinton Medicine Co., Detroit, Mich. Remedy for rheumatism	21,549	Aug. 2	60	733
Pyrolith Company, Jersey City, N. J., and New York, N. Y. Artificial stone and its compositions	21,579	Aug. 9	60	890
Racicot, F. & D., Sherbrooke, Canada. Certain named medicinal remedies	21,406	July 5	60	154
Raymond, Charles A., Boston, Mass., and New York, N. Y. Boots and shoes of all kinds	21,636	Aug. 16	60	1048
Read, Samuel H., New Haven, Conn. Substitute for lard	21,769	Sept. 20	60	1748
Reade Manufacturing Co., Chicago, Ill. Laundry soap	21,749	Sept. 13	60	1608
Reddaway & Co., F., Manchester, England, and New York, N. Y. Machine-belting	21,538	Aug. 2	60	732

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Renauld & Niederstadt, New York, N. Y. Whisky	21,662	Aug. 23	60	1186
Renauld & Niederstadt, New York, N. Y. Whisky	21,663	Aug. 23	60	1186
Rens & Henry, Louisville, Ky. Specific for gout, rheumatism, and kindred diseases	21,707	Aug. 30	60	1324
Rice & Hutchins, Boston, Mass. Boots and shoes and leather for the same	21,562	Aug. 2	60	734
Rich & Manheimer, New York, N. Y. Colognes	21,407	July 5	60	154
Richardson & De Long Bros., Philadelphia, Pa. Hooks and eyes	21,587	Aug. 9	60	891
Roof, Clarence M., New York, N. Y. Whisky	21,467	July 19	60	433
Rose Bros., Camden, Me. Phosphated beverage	21,687	Aug. 23	60	1188
Royal Medicine Company, Peru, Ind. Cure for nervous diseases and the liquor habit	21,797	Sept. 27	60	1882
Ryan & Richardson, Leavenworth, Kans. Vegetables and green and dried fruits	21,563	Aug. 2	60	734
S. H. Childs Company, Rochester, N. Y. Cookies, wafers, and similar articles, such as cakes and crackers	21,564	Aug. 2	60	734
Sadler & Co., F. H., Attleborough, Mass. Artificial gems	21,750	Sept. 20	60	1747
Salbey, Eugene, Milwaukee, Wis. Tonics	21,644	Aug. 16	60	1049
Salitonia Pharmacal Company, St. Louis, Mo. Medicine for internal use for dyspepsia, nausea, and all derangements of the enteric and urinary systems	21,528	July 26	60	573
Samuel Fox & Company, Limited, Sheffield, England. Umbrellas and parts thereof	21,643	Aug. 16	60	1049
Sanford Spinning Company, Fall River, Mass. Cotton yarn	21,745	Sept. 13	60	1608
Schnuettgen, John, Rapid City, S. D. Natural mineral water	21,741	Sept. 13	60	1607
Schwarz, Arthur, New York, N. Y. Photographic paper	21,409	July 5	60	155
Schwarz, Arthur, New York, N. Y. Photographic paper, plates, and chemicals	21,572	Aug. 9	60	890
Scott, Maria, San Diego, Cal. Remedy for throat diseases	21,488	July 19	60	435
Searle, Herman S., Tacoma, Wash. Remedy for rheumatism	21,616	Aug. 16	60	1047
Sharpless Bros., Philadelphia, Pa. Corded cotton fabrics	21,531	July 26	60	573
Shurly & Dietrich, Galt, Canada. Saws	21,688	Aug. 23	60	1188
Shurly & Dietrich, Galt, Canada. Saws	21,689	Aug. 23	60	1188
Sibley, Lindsay & Curr, Rochester, N. Y. Hosiery	21,567	Aug. 2	60	734
Sigabee, Luther P., Ayer, Mass. Supporter for ladies' underwear	21,674	Aug. 23	60	1187
Singer & Wheeler, Peoria, Ill. Ale	21,710	Aug. 30	60	1324
Sir Titus Salt, Bart., Sons & Company, Limited, Saltaire, England, and Bridgeport, Conn. Silk plush	21,453	July 12	60	294
Smith, Ebin R., Ipswich, Mass. Analgesic preparations	21,715	Aug. 30	60	1324
Smith, Elizabeth J., Providence, R. I. Monthly serial or family paper	21,468	July 19	60	433
Smith, Lem A., New York, N. Y. Scalp-wash	21,654	Aug. 23	60	1185
Smith, Orrin P., Auburn, Nebr. Catarrh remedies	21,589	Aug. 9	60	891
Snell & Makepeace, Theresa, N. Y. Wheat-flour	21,750	Sept. 13	60	1608
Solid Oak Shoe Co., Worcester, Mass. Leather boots and shoes	21,645	Aug. 16	60	1049
Southworth, Horace C., Leonardsville, N. Y. Remedy for diseases of the blood and kidneys	21,433	July 12	60	293
Sovereign, George E., Pottersville, N. J. Parlor games	21,555	Aug. 2	60	734
Spencer, Richard M., Duluth, Minn. Cement	21,494	July 19	60	435
St. Hilaire, Emma J., Hartford, Conn. Remedies for the relief of diseases affecting the mucous membrane of the throat, head, and lungs	21,410	July 5	60	155
St. Leon Mineral Water Company, Limited, Toronto, Canada. Mineral water	21,693	Aug. 30	60	1323
Steinhart, Philip, Los Angeles, Cal. Laxative	21,615	Aug. 16	60	1047
Stern Bros. & Co., New York, N. Y. Thimbles	21,408	July 5	60	154
Stericker, Richard P., Springfield, Ill. Medicated lotions and eye-waters	21,775	Sept. 20	60	1748
Stewart, Henry C., Cincinnati, Ohio. Cleaning and disinfecting soap	21,546	Aug. 2	60	733
Story, George H., New York, N. Y. Picture-varnish	21,588	Aug. 9	60	891
Swift and Company, Chicago, Ill. Smoked hams, shoulders, and bacon	21,487	July 19	60	435
Swiss Medicine Co., San Francisco, Cal. Remedy for the cure of rheumatism	21,424	July 5	60	156
Sylvan Toilet Co., Port Huron, Mich. Lotion for the complexion	21,617	Aug. 16	60	1047
Sylvan Toilet Co., Port Huron, Mich. Toilet soap	21,618	Aug. 16	60	1047
Taylor & Severance, Middleville, Mich. Remedy for dog-distemper	21,597	Aug. 9	60	892
Taylor, Young & Co., Portland, Oreg. Canned salmon	21,495	July 19	60	435
Thomas, Seth E., New York, N. Y. Time-keeping and time-recording instruments	21,684	Aug. 23	60	1187
Timms, Walter B., New York, N. Y. Canned fish, fruits, vegetables, soups, and milk	21,804	Sept. 27	60	1882
Town Topics Publishing Company, New York, N. Y. Society journal	21,694	Aug. 30	60	1323
Treadwell, Charles, St. Paul, Minneapolis, and Duluth, Minn., West Superior and Ashland, Wis. Shoes	21,646	Aug. 16	60	1049
Union Bag and Paper Company, Chicago, Ill. Paper bags	21,454	July 12	60	294
United Society of Christian Endeavor, Boston, Mass. Jewelry	21,469	July 19	60	434
United States Postage Stamp Delivery Company, Portland, Me., and Boston, Mass. Frangible boxes containing postage-stamps for delivery by a coin-controlled machine	21,746	Sept. 13	60	1608
United States Postage Stamp Delivery Company, Portland, Me., and Boston, Mass. Frangible boxes containing postage-stamps	21,788	Sept. 27	60	1881
Upshur, Custis P., Astoria, Oreg. Canned and preserved fish	21,805	Sept. 27	60	1882
Usine J. Clerèt, Beauvais, France, and Philadelphia, Pa. Pearl buttons	21,414	July 5	60	155
Van Buren, Martin, Philadelphia, Pa. Complexion-cream	21,595	Aug. 9	60	892
Van Camp Packing Company, Indianapolis, Ind. Canned soup	21,752	Sept. 13	60	1608
Van Camp Packing Company, Indianapolis, Ind. Canned tomatoes	21,753	Sept. 13	60	1608
Van Orden, John M., New York, N. Y. Corsets	21,799	Sept. 27	60	1882
Vapo-Cresolene Company, Stanley, N. J., and New York, N. Y. Medical compounds for the cure of lung and throat diseases	21,647	Aug. 16	60	1050
Volunteer Chicago Beef Co., New York, N. Y. Meats, smoked and unsmoked, and all kinds used for human food	21,690	Aug. 23	60	1188
W. J. Wilcox Lard and Refining Company, Guttenberg, N. J., and New York, N. Y. Lard and its substitutes	21,438	July 12	60	293
W. J. Wilcox Lard and Refining Company, Guttenberg, N. J., and New York, N. Y. Lard and its substitutes	21,439	July 12	60	293
W. J. Wilcox Lard and Refining Company, Guttenberg, N. J., and New York, N. Y. Lard and its substitutes	21,440	July 12	60	293
W. J. Wilcox Lard and Refining Company, Guttenberg, N. J., and New York, N. Y. Lard and its substitutes	21,441	July 12	60	294
W. J. Wilcox Lard and Refining Company, Guttenberg, N. J., and New York, N. Y. Lard and its substitutes	21,603	Aug. 9	60	892
W. J. Wilcox Lard and Refining Company, Guttenberg, N. J., and New York, N. Y. Lard and its substitutes	21,675	Aug. 23	60	1187
W. T. Hanson Company, Schenectady, N. Y. Pills	21,652	Aug. 23	60	1185
Wagner & Co., H. D., Grinnell, Iowa. Hair-restorative and dandruff-cure	21,442	July 12	60	294
Waterbury, Nathaniel, New York, N. Y. Ammonia-alum	21,574	Aug. 9	60	890
Waterbury, Nathaniel, New York, N. Y. Bicarbonate of soda	21,575	Aug. 9	60	890
Watson, Peter P. (See Penn, Watson, and Witten.)				
Weeks, William H., Hazleton, Pa. Candles	21,743	Sept. 13	60	1608
Wenham's Sons, A. J., Cleveland, Ohio. Canned fruits, fish, meats, and vegetables	21,800	Sept. 27	60	1882
Wheeler & Co., Hayden W., New York, N. Y. Watches and jewelry	21,725	Sept. 6	60	1475

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Whitney, Frank A., Athena, Oreg. Remedy for diseases of women	21 798	Sept. 27	60	1882
Wiedenmayer, George W., Newark, N. J. Ale and beer	21 695	Aug. 30	60	1393
Wieder, Moses L., St. Louis, Mo. White lead	21,668	Aug. 23	60	1186
Wilkes, Stephen, Bilston, England. Metallic bedsteads and wire mattresses	21,726	Sept. 6	60	1475
William Clark Company, Newark, N. J., and Stonington, Conn. Spool-cotton	21,539	Aug. 2	60	733
William Clark Company, Newark, N. J., and Stonington, Conn. Spool-cotton	21,540	Aug. 2	60	733
Williams, Joseph, Jr., Pittsburg, Pa. Line of remedies	21,760	Sept. 20	60	1747
Windsor Company, North Adams, Mass., and New York, N. Y. Dress fabrics, such as prints, calicoes, poplins, and alpacas	21,541	Aug. 2	60	732
Winslow, William H., Pittsburg, Pa. Medicinal sirup	21,649	Aug. 16	60	1050
Witten, Ancil D. (See Penn, Watson, and Witten.)				
Witwer, Clement S. (See Flowers and Witwer.)				
Wm. Bergenthal Company, Milwaukee, Wis. Whisky	21,594	Aug. 9	60	891
Woodward, Charles B., St. Louis, Mo. Prints and reproductions by photomechanical processes	21,547	Aug. 2	60	733
Worden, Arthur L., Detroit, Mich. Medicine for certain named diseases	21,519	July 26	60	572
Wright, Alfred, Rochester, N. Y. Perfumery	21,532	July 26	60	574
Wright Universal Electric Company, New York, N. Y. Battery compounds	21,611	Aug. 16	60	1046
Young, Wilbur F., Meriden, Conn. Liniments, embrocations, and like external remedies	21,489	July 19	60	435
Zucker & Levett Chemical Company, New York, N. Y. Polishing preparation	21,518	July 26	60	572

DISCLAIMER.

Name, residence, and invention.	No.	Filed.	Official Gazette. Vol.	Page.
Schulze-Berge, Hermann and Franz G. A., Brooklyn, N. Y.; disclaimer filed by patentees. Air-pumps	428,638	Sept. 2, 1892	60	1484

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Acid-resisting composition for lining tanks	J. Norton, Jr	480,934	Aug. 16	1881	.....	60	972
Acids. Restoring nitrating	H. Maxim	479,988	Aug. 2	357	88	60	649
Adding-machine	S. A. Potter	478,361	July 5	472	114	60	94
Adding-machine	R. S. Robertson	479,531	July 26	2311	578	60	492
Adding-machine	W. H. Wilson	479,343	July 19	1978	495	60	413
Addressing-machine	J. P. O'Malley	481,052	Aug. 16	2067	516	60	1008
Addressing-machine	F. D. Rettich	481,639	Aug. 30	3063	748	60	1225
Adhesive	J. W. Frank	478,229	July 5	261	.....	60	53
Adjustable chair	W. Richards	480,743	Aug. 16	1594	399, 400	60	915
Adjustable seat	C. H. Biggs and F. H. Fairchild	478,840	July 12	1198	297	60	252
Advertising apparatus for cash-registers	H. Cook	482,722	Sept. 20	1323	323	60	1619
Advertising-clock	F., Sr., and F. Welleba, Jr., and L. Wächter.	479,687	July 26	2547	634, 635	60	535
Advertising device	W. E. Irish	482,178	Sept. 6	425	101	60	1418
Advertising purposes. Apparatus for delivering cards and other articles for	R. H. Little	479,820	Aug. 2	67	16	60	595
Advertising-sign. Illuminated	C. R. McGimsey	478,204	July 5	211	53	60	43
Aerated liquids. Apparatus for the manufacture of	L. G. and S. M. Chinnery	482,841	Sept. 20	1502	373, 374	60	1655
Aerating liquids. Method of and apparatus for	J. H. Minto	483,259	Sept. 27	2204	553	60	1805
Aeration of liquids	E. Williams	481,249	Aug. 23	2436	600	60	1091
Agricultural implement	M. Macleod	479,094	July 19	1583	396	60	337
Agricultural machine	J. F. Thompson	483,026	Sept. 20	1808	457	60	1716
Air. Apparatus for heating compressed	R. A. Parke	481,623	Aug. 30	3041	743	60	1220
Air-brake	J. F. Carpenter	479,736	July 26	2643	655	60	553
Air-brake	T. J. Hogan	482,058	Sept. 6	221	52, 53	60	1378
Air-brake and car-coupling. Combined	P. Pelton	482,382	Sept. 13	784	189	60	1502
Air-brake coupling	J. T. Hayden	481,651	Aug. 30	3084	752	60	1229
Air-brakes. Slack take-up for	L. Guillemet	482,040	Sept. 6	190	46	60	1373
Air-compressor	M. Dillenburg	481,850	Aug. 30	3422	840	60	1294
Air-compressor	T. F. Farrell	479,260	July 19	1841	462	60	385
Air-compressor	J. G. Haines	480,193	Aug. 2	692	175	60	713
Air-compressor	A. H. Hutchinson	481,143	Aug. 16	2242	552	60	1039
Air-compressor. Coin-operated automatic hydraulic	R. F. Avery	482,775	Sept. 20	1414	350	60	1636
Air-compressor pistons. Speed-regulator for	E. C. Fasoldt	481,527	Aug. 23	2886	708	60	1175
Air-ducts. Sheet-metal	J. N. Lake	481,620	Aug. 30	3037	742	60	1220
Air motor. Compressed	P. Giffard	480,089	Aug. 2	526	133, 134	60	682
Air-ship	B. F. Barnes	478,905	July 12	1280	318	60	968
Alarm: *See* Burglar-alarm. Door-alarm. Electric alarm. Fire-alarm. High and low water alarm. Low-water alarm. Thermal alarm. Time-alarm. Water-alarm.							
Alarm	F. F. Boegner	478,982	July 19	1410	349	60	304
Alarm	D. P. Norcross	480,273	Aug. 9	846	215	60	756
Alarm-lock	F. Mahannah	479,374	July 19	2029	506	60	423
Alarm-lock	R. M. Metcalf	480,237	Aug. 2	771	194	60	728
Album-case	W. Bergner	478,390	July 5	509	124	60	100
Album-clasp	J. C. Koch	480,950	Aug. 16	1915	478, 479	60	977
Album. Photographic	G. Schwab	479,667	July 26	2518	627	60	580
Alcoholic liquors and other liquids. Apparatus for purifying and refining	S. Mason, Jr	482,018	Sept. 6	159	38	60	1366
Alkali. Apparatus for and process of recovering	H. Blackman	478,981	July 19	1405	348, 349	60	304
Alkali. Apparatus for recovering	H. Blackman	478,980	July 19	1402	348	60	303
Alkalies and chlorine. Production of caustic	F. M. Lyte	481,407	Aug. 23	2091	601	60	1136
Alloy	A. I. Cocker, G. W. Collyer, and C. Haines.	480,233	Aug. 2	767	.....	60	727
Alloy. Aluminium	C. F. Whitney	480,445	Aug. 9	1123	.....	60	806
Amalgam. Treating base bullion	B. Moebius	480,956	Aug. 16	1922	481	60	979
Amalgamating apparatus for crushed ores and like reduced bodies	W. W. Fyfe	480,366	Aug. 9	995	250	60	783
Amalgamating silver ore	A. Janin	481,031	Aug. 16	2033	507	60	1001
Amalgamator	W. J. Connors and W. W. Eddy	478,922	July 12	1308	326	60	274
Amalgamator and ore-concentrator	L. C. Moreland	479,140	July 19	1657	414	60	350
Ammonia-absorber	F. Kaiser	481,955	Sept. 6	51	12	60	1344
Ammonia-distilling apparatus	W. L. Rowland	478,132	July 5	76	20	60	17
Ammonia-still	N. W. Condict, Jr	478,407	July 5	537	131	60	106
Ammunition for submarine guns	H. Berdan	478,216	July 5	229	57	60	47
Anchor	R. S. R. Chrietzberg	481,782	Aug. 30	3313	809	60	1274
Anchors. Foot for dredge	W. Pike and N. McDairmid	483,012	Sept. 20	1789	451	60	1712
Angle-finish for rooms	A. D. Ellis	478,928	July 12	1319	328	60	276
Animal-power	J. Dick	478,575	July 12	792	195	60	172
Animal-shears	P. Ashberry and W. Barnes	479,109	July 19	1611	403	60	342

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Animal-shears	P. Ashberry and W. Barnes	479,110	July 19	1613	403	60	342
Animal-shears	C. and H. Burgon	480,997	Aug. 16	1986	497	60	991
Animal-shears	C. and H. Burgon	481,844	Aug. 30	3411	817	60	1292
Animal-training apparatus	C. C. Kelly	478,513	July 5	694	168	60	138
Animal-trap	E. R. and C. W. Knecht	480,593	Aug. 9	1348	336	60	851
Animal-trap	C. B. Trumble	481,707	Aug. 30	3171	775	60	1245
Annealing-box	D. Wigert	479,161	July 19	1686	422	60	356
Annealing-furnace	A. Beyer	479,345	July 19	1982	496	60	414
Annealing-oven	A. A. Cowles and J. F. Gilpin	479,115	July 19	1620	405	60	343
Annunciator. Electric	D. W. Murphy	482,048	Sept. 6	207	49	60	1376
Annunciator. Electric	E. D. Moore	482,263	Sept. 6	559	133	60	1444
Annunciator. Electrical	F. A. Pickernell	481,120	Aug. 16	2192	542	60	1030
Annunciator. Electrical drop	N. H. Raymond	483,310	Sept. 27	2278	572	60	1030
Annunciator. Train-order	T. W. Lane	480,729	Aug. 16	1573	394	60	1818
Ant or insect guard	L. T. Crabtree	480,073	Aug. 2	501	128	60	910
Antiseptic quinoline	J. Elwood	479,976	Aug. 2	317	78	60	678
Arch. Fireproof floor	J. Ziegler	478,495	July 5	662	.....	60	642
Arm. Artificial	P. M. Bruner	478,914	July 12	1295	322	60	131
Armature-conductor and means for insulating the same	J. E. Wortham	483,090	Sept. 20	1900	480	60	272
Armature for dynamo-electric machines	E. Kolben	480,727	Aug. 16	1570	393	60	909
Armature for dynamo-electric machines	J. Nebel	482,265	Sept. 6	562	133	60	1444
Armature for dynamo-electric machines	H. F. Parshall	480,740	Aug. 16	1591	398	60	914
Armature for dynamo-electric machines	M. J. Wightman	479,179	July 19	1719	431	60	362
Armature for dynamo-electric machines. Ventilating	E. Thomson	482,397	Sept. 13	806	193	60	1507
Armature for electric machines	E. A. Sperry	479,030	July 19	1485	369	60	318
Armature. Ring	E. Kolben	480,728	Aug. 16	1572	393	60	909
Armature-winding for dynamo-electric machines	R. Eickemeyer	482,825	Sept. 20	1475	367	60	1650
Armatures. Device for removing	S. H. Sharpsteen	481,833	Aug 30	3395	834	60	1288
Articles. Construction of legged	F. M. Harman and A. L. Eaton	478,857	July 12	1215	302	60	256
Asphalt blocks. Forming	S. McCarter	478,626	July 12	862	212	60	187
Asphaltum. Manufacture of	J. A. Dubbs	480,234	Aug. 2	767	.....	60	727
Asphaltum. Manufacture of	J. A. Dubbs	480,235	Aug. 2	768	194	60	728
Atomizer	H. M. Dunlap	483,435	Sept. 27	2454	617	60	1852
Atomizer	F. F. Ingram	481,951	Sept. 6	46	11	60	1343
Atomizer	R. Lockwood	478,118	July 5	62	16	60	14
Atomizer and sprayer. Convertible	T. E. Ogram	478,940	July 12	1333	331	60	279
Auger	J. K. Magee	482,407	Sept 13	820	197	60	1509
Auger. Coal	G. L. Savage	478,970	July 12	1384	341	60	287
Auger. Earth	F. W. Corrigan	483,210	Sept. 27	3095	531	60	1785
Auger. Earth	F. W. Brocksieper	481,345	Aug. 23	2593	637	60	1117
Auger. Mortising	W. H. Clark and H. C. Keefer	483,300	Sept. 27	2264	570	60	1816
Autographic register	A. L. Newton	479,377	July 19	2035	508	60	424
Automatic brake	W. L. Egry	481,937	Sept. 6	27	7	60	1339
Automatic brake	T. A. McCandless	482,378	Sept. 13	780	187	60	1501
Automatic brake	J. H. Priestley	481,190	Aug. 23	2320	571	60	1068
Automatic brake	J. M. Stone	479,577	July 26	2377	592 / 593	60	504
Automatic gate	R. E. Slawson	482,462	Sept. 13	906	220	60	1525
Automatic sprinkler	R. W. Newton	478,809	July 12	1148	284	60	943
Awning	B. Branner	480,553	Aug. 9	1287	323	60	840
Awning	B. Brooks	478,842	July 12	1201	298	60	953
Awning-frame	J. Pettit	480,437	Aug. 9	1108	277	60	803
Ax-helve attachment	W. Donlon	483,248	Sept. 27	2152	545	60	1796
Axes. Die for forming	J. P. Kelly	479,166	July 19	1693	424	60	357
Axle	J. Herby	483,444	Sept. 27	2464	620	60	1855
Axle	W. H. Matthews	479,223	July 19	1785	447	60	374
Axle-bearing	S. S. Arnold	481,545	Aug. 30	2919	718	60	1198
Axle-bearing	T. J. McGee	481,911	Aug. 30	3525	862	60	1314
Axle-box	O. Collins	483,045	Sept. 20	1833	466	60	1721
Axle-box	E. N. Wood	483,372	Sept. 27	2366	593	60	1835
Axle. Car	R. L. McLaren	483,470	Sept. 27	2494	628	60	1861
Axle. Carriage	H. Wecker	480,798	Aug. 16	1675	419	60	931
Axle-cutter	J. Swegles	482,767	Sept. 20	1405	347	60	1634
Axle dust-guard. Car	R. M. Lawless	483,385	Sept. 27	2490	600	60	1839
Axle-lubricator	J. T. Connelly	480,318	Aug. 9	923	233	60	770
Axle-lubricator	P. Donnan, Sr	480,705	Aug. 16	1628	408	60	921
Axle-lubricator	J. Q. Finch	482,918	Sept. 20	1633	410	60	1680
Axle-lubricator	J. S. Patten	479,077	July 19	1553	388	60	331
Axle-lubricator	W. H. Ward	482,503	Sept. 13	980	237	60	1540
Axle-lubricator	G. L. Weaver	482,770	Sept. 20	1408	348	60	1635
Axle-lubricator	I. P. and H. A. Wendell	483,333	Sept. 27	2311	581	60	1825
Axle-lubricator	J. W. Woodhouse	478,832	July 12	1187	294	60	250
Axle-threading tool	J. C. Stuchel	481,514	Aug. 23	2860	702 / 703	60	1170
Axle. Wagon	N. Olson	479,918	Aug. 2	209	53	60	623
Axles. Journal-bearing for car	P. Sweeney	483,405	Sept. 27	2414	607	60	1844
Azimuth-circle	E. S. Ritchie	481,025	Aug. 30	3046	743 / 744	60	1221
Baby-jumper	W. S. Tothill	483,270	Sept. 27	2219	557	60	1807
Baby-walker	P. Wiberg	481,609	Aug. 30	3022	739	60	1216
Bag: *See* Nose-bag. Shopping-bag.							
Bag	F. W. Lawrence	482,428	Sept. 13	857	205	60	1516
Bag-bundling press	J. Sabold	480,967	Aug. 16	1942	486	60	983
Bag-fastener	B. L. Hubert	483,450	Sept. 27	2473	622	60	1856
Bag-holder	E. H. Ketchum	482,641	Sept. 13	1189	288	60	1580
Bagatelle-board. Pocket	F. L. Latbrop	479,432	July 26	2140	534	60	459
Bait. Spoon	E. F. Pfineger	480,132	Aug. 2	598	152	60	696
Bait. Spoon	G. M. Skinner	479,575	July 26	2375	592	60	503
Baking-pan	S. L. Kelly	478,609	July 12	841	207	60	182
Balance. Indicating and recording	J. H. Greenstreet	478,232	July 5	269	66, 67	60	54
Balance. Proportional	O. H. Jadwin	481,618	Aug. 30	3035	741	60	1219
Balance. Recording	C. F. Ames	481,543	Aug. 30	2916	717	60	1297
Balance. Spring	F. H. Morgan and G. H. Scott	479,718	July 26	2609	648	60	546
Balances. Weight-pan for	R. E. McClelland	480,027	Aug. 2	433	109	60	664
Balcony. Folding window	C. Thomson	478,177	July 5	168	43	60	36
Bale-tie	R. Kilmer	479,984	Aug. 2	328	80	60	645
Bale-tie cutter	G. M. Rounds	480,878	Aug. 16	1796	449	60	955
Bales. Device for drawing tie-bands around	J. J. Martin and W. H. Brownfield	481,184	Aug. 23	2310	589	60	1066
Baling-press	P. K. Dederick	480,176	Aug. 2	664	169	60	708
Baling-press	P. K. Dederick	480,177	Aug. 2	665	169	60	708
Baling-press	H. Deitz	482,303	Sept. 6	625	149	60	1457
Baling-press	J. B. and J. R. Johnson	480,771	Aug. 16	1638	410	60	923
Baling-press	W. S. Livengood	479,287	July 19	1879	470 / 471	60	394
Ballot-box	C. F. Hodsdon	478,283	July 5	353	85	60	71
Ballot-box	F. K. Plumbly	478,264	July 5	326	79	60	65
Ballot-box. Pneumatic registering	J. McTammany	482,691	Sept. 13	1965	310 / 311 / 312	60	1595
Band-cutter and feeder	R. E. Dorton	482,677	Sept. 13	1239	302 / 303	60	1590
Band-cutter and feeder	D. Gwin	482,476	Sept. 13	931	227	60	1529
Band-cutter and feeder	M. E. Johnson and A. M. Phillips	481,570	Aug. 30	2961	727	60	1205
Band-cutter and feeder support	R. E. Dorton	482,676	Sept. 13	1238	302	60	1590
Bar: *See* Cutter-bar. Pinch-bar. Jail-bar.							
Barrel	E. Cole	482,675	Sept. 13	1236	301	60	1590
Barrel	G. H. Forster	481,350	Aug. 23	2601	639	60	1119
Barrel-dripper	C. B. Allgood	478,303	July 5	383	92	60	77
Barrel-head-beveling machine	H. Theis	481,335	Aug. 23	2581	634	60	1116
Barrel or cask tilting device	W. Fullard	482,574	Sept. 13	1096	266	60	1563
Barrel setting-up and driving machine	H. Campbell	479,735	July 26	2642	655	60	552
Barrel-stand	C. Rettig	481,640	Aug. 30	3065	748	60	1225
Barrels, &c. Making	H. Campbell	479,734	July 26	2641	655	60	552
Barrels, &c. Setting-up and forming machine for	H. Campbell	479,627	July 26	2448	610	60	517
Barrow-wheel	M. Crossland and D. Long	481,298	Aug. 23	2592	619	60	1105
Basic lining	J. Reese	481,869	Aug. 30	3449	.....	60	1300
Basin. Catch	E. F. St. John	478,654	July 12	900	223	60	194
Basin. Wash	J. Kelly	479,429	July 26	2134	533	60	458
Basket	F. H. Deane	478,411	July 5	544	132 / 133	60	107
Basket-cover fastening	G. C. Garbrance	479,797	Aug. 2	34	8	60	588
Basket handle or carrier	S. F. Robbins	479,529	July 26	2309	577	60	491
Basket. Lunch	J. N. Hahn and J. P. Herman	478,103	July 5	39	12	60	10
Baskets. Means for securing coverings of netting to	A. E. Story	478,893	July 12	1262	312	60	965
Bath: *See* Solar or other bath.							
Battery: *See* Electric battery. Secondary battery. Galvanic battery. Storage-battery.							
Battery-cell	E. P. Usher	480,884	Aug. 16	1804	451	60	957
Battery-cell or similar article. Sealed	C. Willms	479,541	July 26	2326	581	60	495
Battery-connector	E. R. Knowles	482,012	Sept. 6	143	35	60	1363
Battery cut-off. Automatic	W. S. Richards	482,136	Sept. 6	342	82	60	1402
Battery-plate	E. P. Usher	480,887	Aug. 16	1807	451	60	957
Battery-plate	E. P. Usher and W. F. Draper	480,886	Aug. 16	1806	451	60	957
Battery plate. Secondary	E. R. Knowles	480,266	Aug. 9	836	213	60	754
Battery plate. Storage	H. G. Osburn	479,935	Aug. 2	99	24	60	600
Battery solutions. Preparing	E. Poppowitsch	480,033	Aug. 2	443	.....	60	666
Bearing	P. H. Holmes	482,309	Sept. 6	617	155	60	1462
Bearing. Antifriction thrust	G. Wilkes and F. Edwards	482,430	Sept. 13	850	206	60	1517
Bearing for vehicle-wheels. Ball	E. S. Frazier	482,806	Sept. 20	1604	402	60	1674
Bearing. Roller	F. Van Benthuysen	479,038	July 19	1498	372	60	321
Bed, billiard-table, &c. Combined folding	R. N. Barger	481,365	Aug. 23	2655	651	60	1129
Bed-bottom	J. B. Ryan	480,282	Aug. 9	857	219	60	759
Bed-bottom	C. T. Segar	480,788	Aug. 16	1664	416	60	928
Bed-bottom. Woven wire	C. T. Segar	480,789	Aug. 16	1664	416	60	928
Bedbug-trap	W. B. Campbell	482,337	Sept. 13	700	167	60	1487
Bed canopy. Folding	F. F. Baggesen	481,370	Aug. 23	2466	608	60	1006
Bed. Folding	A. H. Eva	479,063	July 19	1532	382	60	328
Bed. Folding	W. Kelsey	479,509	July 26	2404	599	60	509
Bed. Folding	W. S. Nevins	482,266	Sept. 6	563	133	60	1444
Bed. Folding	G. W. Rodecap	478,761	July 12	1065	264 / 265	60	227
Bed. Folding	C. M. Wagner	479,861	Aug. 2	128	31	60	608
Bed. Folding	C. M. Wagner	480,795	Aug. 16	1670	417 / 418	60	929
Bed for infants. Swinging	B. B. Roach	482,275	Sept. 6	579	138	60	1448
Bed-lock	I. H. Elliott	482,626	Sept. 13	1173	283	60	1577
Bed-lounge	A. L. Gillen	480,190	Aug. 2	688	174	60	712
Bed-lounge	S. A. Holstein	479,071	July 19	1545	386	60	329
Bed-pan	S. A. Smith	481,375	Aug. 23	2632	647	60	1125
Bed-pan pad	K. A. Shaffer	482,388	Sept. 13	793	191	60	1505
Bed. Sofa	J. P. Miller	482,262	Sept. 6	558	132	60	1443
Bed. Time-alarm	G. Q. Seaman	479,307	July 19	1907	477	60	399
Bed. Wardrobe	A. M. Brainard	482,158	Sept. 6	390	92	60	1411
Bed. Wardrobe	F. P. Parker, S. C. Jones, and N. F. Coffey	479,719	July 26	2610	648 / 649	60	546
Bed. Wardrobe	I. C. Smith and E. E. Herrinton	479,471	July 26	2213	556	60	474
Bedstead	C. Teufel	482,028	Sept. 6	175	42	60	1369
Bedstead	G. H. Currey	482,725	Sept. 20	1327	324	60	1620
Bedstead	C. E. McClintock	479,013	July 19	1459	363	60	313
Bedstead	P. L. White	479,043	July 19	1506	375	60	323
Bedstead-brace	J. Gribben	481,628	Aug. 30	3049	744	60	1222
Bedstead. Folding	F. Hamblin	481,757	Aug. 30	3267	795	60	1264

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bedstead. Wardrobe	A. M. Brainard	479,624	July 26	2444	609	60	516
Bedstead. Wardrobe	A. M. Brainard	482,159	Sept. 6	391	92, 93	60	1412
Bedstead. Wardrobe	F. Geldowsky	482,122	Sept. 6	326	78	60	1399
Beef-tenderer	A. C. De Sheppard	480,178	Aug. 2	666	170	60	709
Beehive	J. Conser	483,137	Sept. 27	1973	500	60	1761
Beehive	H. F. Showman	479,725	July 26	2037	652	60	550
Beer, ale, &c. Chip for	J. J. Wolf	481,774	Aug. 30	3298	804	60	1271
Beer apparatus	F. M. La Bolteaux	479,100	July 19	1739	{436 {437	60	365
Beer. Apparatus for the pasteurization of	S. S. Woodbury	482,667	Sept. 13	1223	298	60	1587
Beer-cooler tube	C. A. Cotter	479,205	July 19	1759	441	60	369
Beer-cooling apparatus	E. Seitz	483,395	Sept. 27	2401	603	60	1841
Beer. Method of and apparatus for carbonating	J. B. Stobaeus and F. C. Wackenhuth.	478,176	July 5	166	43	60	35
Beer with carbonic acid. Apparatus for charging	J. B. Stobaeus	482,881	Sept. 20	1560	392	60	1666
Bell	A. A. Bevin and J. C. Wells	483,341	Sept. 27	2321	583	60	1827
Bell	E. S. Piper	482,983	Sept. 20	1735	438	60	1701
Bell	E. S. Piper	482,984	Sept. 20	1736	439	60	1701
Bell	E. D. Rockwell	482,696	Sept. 13	1278	313	60	1598
Bell	J. C. Wells	483,332	Sept. 27	2311	581	60	1824
Bell. Alarm door	J. H. Weller	480,001	Aug. 2	373	93	60	652
Bell. Bicycle	A. Morton	480,026	Aug. 2	432	109	60	664
Bell. Bicycle	E. D. Rockwell	483,084	Sept. 20	1887	{477 {478	60	1732
Bell. Electric	G. W. Conover	480,319	Aug. 9	924	234	60	770
Bell. Electric	N. H. Raymond	483,309	Sept. 27	2276	572	60	1818
Bell. Gong	W. S. Ham	483,149	Sept. 27	1989	503	60	1764
Belt	J. Tynan	482,401	Sept. 13	811	195	60	1508
Belt. Ammunition	F. M. Garland	479,708	Aug. 2	36	8	60	580
Belt. Electric	D. P. Andrus	479,147	July 19	1667	417	60	352
Belt. Electric	A. M. Eklund	479,416	July 26	2008	525	60	450
Belting. Woven fabric for machine	E. Hammesfahr	478,960	July 5	321	77	60	64
Bench-block for dentists, jewelers, and others	J. Oldfield	478,041	July 12	1335	341	60	279
Bench-hook	G. W. Melotte and C. M. Clinton	482,453	Sept. 13	896	217	60	1523
Bertha. Folding step for car	C. J. Kempf	478,797	July 12	1131	279	60	239
Bevel	H. C. Stanley	482,301	Sept. 13	797	191	60	1506
Bevel-gage. Double-blade	D. Hoadley	480,016	Aug. 2	405	101	60	658
Beverage apparatus	A. Hildebrandt	482,898	Sept. 20	1587	399	60	1670
Beverage. Effervescent	O. M. Heehtman	479,594	July 26	2398	597	60	508
Beverage of fermented and unfermented wort and making the same.	E. Adam	483,337	Sept. 27	2316	.....	60	1825
Beverages. Making malt	E. Adam	483,338	Sept. 27	2316	582	60	1826
Beverages. Preparation for	A. S. Krueger	483,067	Sept. 20	1863	.....	60	1728
Bicycle	A. J. Battersby	480,166	Aug. 2	650	165	60	706
Bicycle	W. S. Cranmer	481,476	Aug. 23	2801	689	60	1158
Bicycle	W. C. Davis	478,187	July 5	183	47	60	39
Bicycle	W. H. De Witt	478,415	July 5	548	134	60	108
Bicycle	A. W. Dunn	478,156	July 5	127	32, 33	60	28
Bicycle	W. L. Fruen	479,757	July 26	2676	664	60	559
Bicycle	G. F. Hall	480,844	Aug. 16	1743	436	60	944
Bicycle	O. Hanson	482,735	Sept. 20	1343	{332 {333	60	1623
Bicycle	L. C. Jaqnish	478,752	July 12	1047	258	60	223
Bicycle	F. Jewett	481,569	Aug. 30	2957	{726 {727	60	1205
Bicycle	L. J. Phelps	481,734	Aug. 30	3226	787	60	1256
Bicycle	G. T. Smallwood	479,470	July 26	2208	{554 {555	60	473
Bicycle	F. Sweetland	482,067	Sept. 6	234	57	60	1381
Bicycle	H. H. Thorp	478,770	July 12	1077	268	60	230
Bicycle	A. Tremblay	482,856	Sept. 20	1525	379	60	1660
Bicycle	J. H. Tuttle and F. D. Cable	478,724	July 12	997	247	60	214
Bicycle	W. O. Wakefield	483,273	Sept. 27	2224	{558 {559	60	1808
Bicycle	A. Winton	481,536	Aug. 23	2904	713	60	1179
Bicycle-brake	W. T. Lewis	478,194	July 5	190	49	60	40
Bicycle-brake	F. D. Owen	478,206	July 5	214	53	60	44
Bicycle carrier attachment	M. E. Blood	481,890	Aug. 30	3483	853	60	1306
Bicycle-exhibiting device	C. W. Munson	478,805	July 12	1144	283	60	242
Bicycle-frame	F. H. Bolte	478,391	July 5	510	124	60	101
Bicycle-lock	F. Egge	481,390	Aug. 23	2662	{652 {653	60	1130
Bicycle-lock	E. W. Macauley	481,236	Aug. 23	2399	592	60	1084
Bicycle luggage-carrier	J. H. Sager	479,846	Aug. 2	106	27	60	603
Bicycle motor spring-fork	W. Lynch and E. Tremper	480,599	Aug. 9	1360	338	60	853
Bicycle oil-can holder	J. W. Cushman	478,092	July 5	28	9	60	8
Bicycle-saddle	A. L. Garford	481,538	Aug. 23	2907	714	60	1180
Bicycle-saddle	C. W. Zimmer	478,184	July 5	179	47	60	38
Bicycle-saddle spring	H. Bergfels	480,818	Aug. 16	1736	434	60	943
Bicycle-saddle spring	C. H. Holdsworth	478,430	July 5	570	138	60	111
Bicycle seat	J. H. Sager	479,845	Aug. 2	104	26	60	602
Bicycle seat attachment	M. E. Blood	480,760	Aug. 16	1616	406	60	919
Bicycle-seat support	W. A. Elmore	478,581	July 12	802	198	60	174
Bicycle-support	F. H. Birchard	480,061	Aug. 2	485	124	60	675
Bicycle-support	F. Gleason	483,146	Sept. 27	1994	502	60	1762
Bicycle-support	T. B. Marshall	478,878	July 12	1237	307	60	260
Bicycle-support	W. Siar and C. H. Dunn	480,441	Aug. 9	1114	279	60	804
Bicycle-supporting frame	R. A. Engler	481,751	Aug. 30	3260	793	60	1263
Bicycle-wheel	F. Ashley	481,460	Aug. 23	2787	685	60	1155
Bicycle-wheel	G. G. F. Boswell	478,735	July 12	1028	252	60	220
Bicycles. Child's seat or parcel-carrier for	J. S. Bretz	478,394	July 5	514	126	60	102
Bier	M. E. Blood	482,938	Sept. 20	1655	417	60	1685
	G. Begley	483,038	Sept. 20	1824	463	60	1719

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bill-holder	E. M. Wiley	483,412	Sept. 27	2424	610	60	1846
Bill of fare	J. A. Gunn	479,758	July 26	2678	{664 {665	60	560
Billiard-chalk holder	G. J. Leonhart	479,889	Aug. 2	175	43	60	616
Billiard-cushion	M. Bensinger	481,094	Aug. 16	2153	534	60	1023
Billiard-cushion	M. Bensinger	481,387	Aug. 23	2658	652	60	1139
Binder. Hand	A. Morris	483,468	Sept. 27	2491	627	60	1860
Binder. Temporary	F. Bowman	480,992	Aug. 16	1981	496	60	991
Binder. Temporary	L. W. Hassenzahl	482,524	Sept. 13	1021	247	60	1549
Binder. Temporary	F. von Hefner-Alteneck	480,324	Aug. 9	931	236	60	771
Bit: *See* Bridle-bit. Curb-bit.							
Bit-box	I. J. Booth	479,180	July 19	1721	432	60	362
Bit-holder. Adjustable	G. W. Louden	480,666	Aug. 9	1474	367	60	876
Bit-stock	O. R. Alden	478,248	July 5	303	74	60	61
Bituminous rock. Apparatus for reducing	A. Ford	479,496	July 26	2263	567	60	483
Bituminous-rock-reducing machine	J. T. Cochran	482,914	Sept. 20	1627	408	60	1678
Black-ash dissolver	G. M. Newhall and C. L. Hamilton	478,630	July 12	868	{213 {214	60	187
Blackboard	O. A. Weissenborn	483,371	Sept. 27	2305	593	60	1835
Blacking holder and rest. Shoe	R. D. McManus	481,265	Aug. 23	2459	605	60	1095
Blacking-stand. Folding	J. A. Cranston	480,074	Aug. 2	506	128	60	679
Blank-case	J. F. Wilmot	482,990	Sept. 20	1745	441	60	1702
Blank-feeding mechanism	P. H. Hardman	478,597	July 12	823	203	60	179
Blast-furnace	M. W. Iles	481,950	Sept. 6	46	10	60	1343
Blasting-powder	F. Aschman	483,195	Sept. 27	1954	495	60	1757
Bleaching	C. J. E. de Hahn	482,477	Sept. 13	902	.....	60	1530
Bleaching	S. D. Keene	480,102	Aug. 2	542	137	60	686
Bleaching and dyeing apparatus	J. A. Myrick	481,414	Aug. 23	27706	605	60	1139
Bleaching compound	G. Young and F. Pearn	479,383	July 19	2045	511	60	426
Bleaching powder. Apparatus for making	W. B. Brittingham	480,554	Aug. 9	1289	.....	60	840
Blind-stile-mortising machine	E. C. Nation	480,028	Aug. 2	434	110	60	664
Blind-stop	P. H. Larcher	482,849	Sept. 20	1511	376	60	1637
Blind-stop	F. Blauss	483,096	Sept. 20	1940	483	60	1737
Blind-stop	W. E. MacLachlan	478,262	July 5	324	78	60	65
Blind. Venetian	J. K. Benway	480,548	Aug. 9	1279	321	60	838
Blind. Venetian	C. G. Christensen	481,473	Aug. 23	2799	{688 {689	60	1157
Blind. Window	W. Z. Brown	478,563	July 12	776	190	60	169
Blind. Window	H. T. Buhmeier	479,398	July 26	2080	{521 {522	60	447
Blind. Window	E. Stoeppelwerth and C. H. Knefelkamp.	481,077	Aug. 16	2124	529	60	1018
Block: *See* Bench-block. Printing-block. Building-block. Snatch-block. Chain-block. Stone paving-block. Engraver's block.							
Block-signal apparatus	T. H. Patenall	480,411	Aug. 9	1064	{266 {267	60	795
Block-signals. Automatic device for electric	J. B. Stewart	480,147	Aug. 2	617	157	60	700
Blower. Powder	W. J. Evans	478,744	July 12	1039	255	60	222
Blower. Rotary	J. Hamilton	479,642	July 26	2472	615	60	521
Blower. Steam	A. Fletcher	482,236	Sept. 6	510	{121 {122	60	1434
Blowpipe-pad	G. W. Melotte	480,024	Aug. 2	430	109	60	663
Board: *See* Bagatelle-board. Ironing-board. Center-board. Keyboard. Game-board. Sign-board.							
Boarders and distributing oil. Apparatus for repelling	F. Eyle	481,615	Aug. 30	3031	741	60	1218
Boat: *See* Life-boat. Surf-boat. Paddle-wheel boat.							
Boat	J. Savage	478,763	July 12	1069	265	60	228
Boat-lowering apparatus	H. E. Bowring	479,387	July 19	2054	513	60	428
Bobbin. Electro-magnet	E. B. Hatch and C. A. Colton	479,804	Aug. 2	46	11	60	591
Bobbins. Support for whirls of spindle	J. and R. Robinson	482,695	Sept. 13	1277	313	60	1598
Boiler: *See* Furnace-boiler. Portable tubular boiler. Hot-water boiler. Sectional boiler. Locomotive-boiler. Steam-boiler. Locomotive steam-boiler. Water-boiler. Water-tube boiler.							
Boiler	G. E. Dixon	481,898	Aug. 30	3499	857	60	1309
Boiler	F. X. Fischer	480,081	Aug. 2	514	130	60	680
Boiler	W. B. Fowler	482,999	Sept. 20	1760	444	60	1706
Boiler	J. R. Lutgen	479,288	July 19	1881	471	60	394
Boiler	M. Mahony	480,331	Aug. 9	939	238	60	773
Boiler	E. H. Scribner	483,369	Sept. 27	2357	{591 {592	60	1833
Boiler and furnace setting	C. O. Arey	482,147	Sept. 6	368	87	60	1408
Boiler attachment	G. F. Johnson	480,264	Aug. 9	833	213	60	753
Boiler attachment. Range	W. S. Clark	478,688	July 12	948	235	60	204
Boiler attachment. Steam	F. F. Landis	482,848	Sept. 20	1510	375	60	1657
Boiler-feed	G. W. Schilling	482,564	Sept. 13	1084	263	60	1560
Boiler feed-indicator	A. Guasco and A. Chusin	482,171	Sept. 6	414	99	60	1416
Boiler fire-box	W. McCombie	478,628	July 12	866	213	60	187
Boiler for marine engines	W. B. Fowler	483,000	Sept. 20	1762	444	60	1706
Boiler-furnace	W. Hurdley	478,433	July 5	573	138	60	112
Boiler-furnace	J. W. Wilkinson	478,210	July 5	218	55	60	45
Boiler furnace. Steam	H. C. Ashlin	480,864	Aug. 16	1778	445	60	951

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boiler furnace. Steam	T. R. Butman	479,733	July 26	2038	654, 655	60	552
Boiler-lug and making the same	G. L. McGregor	479,331	July 19	1938	484	60	405
Boiler setting. Steam	S. Runser. (Reissue)	11,268	Sept. 6	687	163, 164	60	1470
Boiler stand. Range	J. M. Young	478,404	July 5	661	162	60	131
Boilers by gaseous fuel. Apparatus for heating	J. L. Hastings	483,352	Sept. 27	2334	587	60	1829
Boilers. Drop-tube for steam or hot-water	J. A. Scollay	480,786	Aug. 16	1660	415	60	928
Boilers. Water circulator and purifier for steam	J. MacDonald	482,183	Sept. 6	432	103	60	1419
Boilers. Water-jacket and condensing apparatus for marine	T. L. and T. J. Sturtevant	481,379	Aug. 23	2646	649	60	1127
Bolt: *See* Door-bolt. Latch-bolt.							
Bolt-cutter	W. H. Ransom	480,858	Aug. 16	1767	443	60	949
Bolt-threading machine	F. Mutimer	480,204	Aug. 2	709	181	60	716
Bolting or sifting machine	C. Haggenmacher	483,286	Sept. 27	2240	563	60	1811
Bolting-reel	B. F. Reinbold	480,345	Aug. 9	960	242, 243	60	776
Book. Account	W. Lusby	478,197	July 5	200	51	60	41
Book and carbon-sheet holder. Combined	J. S. McDonald	479,014	July 19	1460	363	60	314
Bookbinders' cloth. Finishing	T. A. and W. H. Sutton	482,596	Sept. 13	1129	.....	60	1569
Bookbinding-machine	R. Burnet	481,894	Aug. 30	3491	855, 856	60	1307
Book-case	C. E. Foster and J. W. Hine	480,693	Aug. 9	1516	377	60	883
Book-cover protector	H. M. Enos	481,015	Aug. 16	2010	502	60	996
Book-holder	C. D. Merriman and F. W. Tilden	480,410	Aug. 9	1062	266	60	795
Book index attachment	W. D. Bevin	482,612	Sept. 13	1153	279	60	1573
Book-indicator	M. G. Bailey and H. T. Welch	480,649	Aug. 9	1446	360	60	870
Book or blank case	R. Miller	480,388	Aug. 9	1033	259	60	790
Book or portfolio	C. B. Lebkicher	483,068	Sept. 20	1863	472	60	1728
Book. Pocket check and bank	L. C. Butler and H. R. Chope	482,543	Sept. 13	1054	256	60	1555
Book-rack	E. G. Cook and H. H. Eyman	479,788	Aug. 2	22	5, 6	60	586
Book. Receipt and collection-report	J. H. Pettibone	480,623	Aug. 9	1403	349	60	862
Book-rest	J. R. Lawshe	479,888	Aug. 2	173	43	60	616
Book. Shipping receipt	J. D. D. Mortimer	482,047	Sept. 6	206	49	60	1375
Book-support	J. A. Muir	481,505	Aug. 23	2847	700	60	1168
Boomerang	C. G. Stevens	482,852	Sept. 20	1518	377	60	1659
Boot	G. A. Brown	480,363	Aug. 9	992	249	60	782
Boot or shoe cleaning and polishing machine	J. W. Mason	480,821	Aug. 16	1716	428, 429	60	939
Boot or shoe creaser	H. P. Roberts	482,529	Sept. 13	1028	249	60	1550
Boot or shoe heel	N. S. Drake	479,560	July 26	2354	587	60	500
Boot or shoe heels. Attaching	H. A. Webster	483,293	Sept. 27	2253	567	60	1814
Boot-upper	O. Baker	478,550	July 12	759	186	60	166
Booth. Collapsible	E. C. Cook	482,078	Sept. 6	256	62	60	1386
Boring and mortising machine	G. A. Adams	481,383	Aug. 23	2652	650	60	1128
Boring and shaping machine	A. K. Phillips	481,307	Aug. 23	2534	622, 623	60	1107
Boring-machine	J. W. Day	482,231	Sept. 6	503	120	60	1433
Boring-machine	C. S. Harris	482,791	Sept. 20	1436	356	60	1641
Boring-machine	J. H. Synon	478,266	July 5	328	79	60	66
Boring-machine work-holder	F. Scheidt	481,737	Aug. 30	3234	788	60	1257
Bottle	F. F. Ingram	481,953	Sept. 6	48	11	60	1344
Bottle and stopper	H. Crimmel	482,230	Sept. 6	501	120	60	1433
Bottle and stopper	H. Heartfield	482,682	Sept. 13	1252	305	60	1593
Bottle-cleaning apparatus or machine	G. E. Wallace	482,110	Sept. 6	306	72	60	1395
Bottle-closure	R. Bloeser	480,168	Aug. 2	655	167	60	707
Bottle-corking machine. Power	D. Mueller	482,454	Sept. 13	898	217, 218	60	1523
Bottle designed to prevent refilling	E. L. Tevis	482,329	Sept. 6	685	163	60	1470
Bottle-filling apparatus	M. J. McHugh	479,298	July 19	1895	474	60	397
Bottle-filling machine	G. Clauss, Jr., and A. M. Schomburg	482,893	Sept. 20	1597	401	60	1672
Bottle-filling machine	G. Clauss, Jr., and A. M. Schomburg	482,894	Sept. 20	1600	401, 402	60	1673
Bottle. Siphon	P. M. Clark	480,763	Aug. 16	1624	407	60	921
Bottle-snap	J. Fithian	480,458	Aug. 9	1150	288	60	811
Bottle stand. Poison	G. L. Rands	478,818	July 12	1170	290	60	247
Bottle-stopper	G. F. Atwood	479,045	July 19	1508	376	60	323
Bottle-stopper	W. J. Ferris	481,616	Aug. 30	3032	741	60	1219
Bottle-stopper	J. E. Orr	479,833	Aug. 2	90	23	60	599
Bottle stopper and cover. Automatic	I. Traube and A. Kattentidt	478,483	July 5	644	158	60	128
Bottle-stoppering device	C. Weinedel	481,644	Aug. 30	3071	750	60	1226
Bottle-washing machine	M. L. Macauley	481,363	Aug. 23	2615	643	60	1122
Bottle-wiring machine	E. Raidline	480,135	Aug. 2	603	153	60	697
	S. Wile and H. La Casse	479,342	July 19	1968	490, 491, 492, 493, 494	60	411
Bottles. Apparatus for fixing capsules on	C. Scherer	483,019	Sept. 20	1798	453, 454	60	1714
Bottles, &c. Device for cleaning	C. F. Woessner	481,537	Aug. 23	2906	713	60	1179
Bottles. Implement for finishing the necks of	C. Leng	480,774	Aug. 16	1641	411	60	924
Box: *See* Ballot-box. Letter-box. Butter-box. Mail-box. Cake-box. Money-box. Cake or bread box. Paper box. Dice-box. Stuffing-box. Door parcel-box. Vehicle-box. Garbage-box. Wood and coal box.							
Box	A. Ames, Jr	478,947	July 12	1344	333	60	281
Box	W. B. Howe and F. B. Davidson	482,479	Sept. 13	934	228	60	1530
Box attachment	E. Buyer	480,999	Aug. 16	1968	498	60	992

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Box-binding channel-strips. Machine for making	J. G. Lotellier	482,484	Sept. 13	940	229	60	1531
Box-board matcher and jointer	E. Fischer	481,752	Aug. 30	3202	794	60	1263
Box-cover	V. A. and M. A. Lebucher and A. Mathieu	482,258	Sept. 6	550	131	60	1442
Box-fastener	J. G. Giesberg and E. Scheultz, Jr.	479,416	July 26	2112	529	60	453
Box-filling machine	W. H. Butler and W. R. Landfear	482,542	Sept. 13	1047	253, 254, 255	60	1553
Box-lid support	C. H. Schaeffer	480,832	Aug. 16	1731	432	60	942
Box-lid support	C. B. Struble	478,655	July 12	901	223	60	194
Box-making machine	J. C. McEwen	478,456	July 5	603	147	60	119
Box-nailing machine	S. H. Edwards	482,866	Sept. 20	1539	383, 384, 385	60	1663
Box-nailing machine	B. Muller	480,735	Aug. 16	1582	396, 397	60	912
Brace: *See* Bedstead-brace. Spinal brace. Dental jaw-brace. Universal-jointed brace. Shoulder-brace.							
Bracelet	L. Cremonesi	482,229	Sept. 6	500	119	60	1433
Bracket: *See* Roof-scaffold bracket. Swinging bracket. Scaffold-bracket.							
Bracket	W. D. Gridley	482,086	Sept. 6	268	65	60	1388
Bracket	J. Huff and E. Johnson	479,424	July 26	2128	532	60	457
Bracket	D. M. Ireland	481,177	Aug. 23	2301	567	60	1064
Braiding-machine. Rotary	H. W. Struss	479,474	July 26	2226	550	60	475
Braiding-machine spool-carrier	J. E. Lee	478,341	July 5	436	107	60	87
Brake: *See* Air-brake. Pressure-brake. Automatic brake. Rail-brake. Bicycle-brake. Sled-brake. Car-brake. Sleigh-brake. Car-coupling brake. Vehicle-brake. Hemp-brake. Wagon-brake. Magnetic brake.							
Brake-adjusting device	A. Rauh	478,638	July 12	878	216	60	190
Brake-beam	P. Hien	480,194	Aug. 2	695	176	60	713
Brake-shoe	C. T. Schoen	481,973	Sept. 6	77	20	60	1350
Brake-shoe	J. Shaaber	480,833	Aug. 16	1732	433	60	942
Brake-shoe	J. G. Wharton	478,671	July 12	922	229	60	198
Branding-stamp	C. F. Wohlfarth	480,982	Aug. 16	1969	492	60	988
Brazing device. Electrical	J. S. Fitzmaurice	483,050	Sept. 20	1839	467	60	1723
Bread-pan, &c	W. Mitchell	478,201	July 5	207	52	60	43
Bread-raiser and cabinet	A. H. Stevens	479,997	Aug. 2	369	92	60	651
Breakwater, &c	J. Miltonberger	478,200	July 5	206	52	60	42
Brewing beer	A. M. Shannon	480,288	Aug. 9	869	221	60	761
Brick	C. H. and B. O. Frings	478,188	July 5	184	.....	60	39
Brick	L. H. and H. H. de Fernelmont	483,105	Sept. 20	1922	487	60	1740
Brick	P. S. Loveridge	481,700	Aug. 30	3162	772	60	1244
Brick	J. L. Stevenson	480,879	Aug. 16	1797	449	60	955
Brick and making the same, Enameled	I. T. Rue	479,021	July 19	1471	.....	60	315
Brick and tile machine	J. Thompson	478,481	July 5	642	157	60	128
Brick and tile machine cutter	O. W. Johnson	478,436	July 5	577	139, 140	60	113
Brick-cutting machine	H. A. Riggs	479,663	July 26	2502	623, 624, 625	60	527
Brick-cutting machine	E. Stern	479,159	July 19	1684	421	60	356
Brick-drier	F. E. McElfresh	482,690	Sept. 13	1264	309, 310	60	1595
Brick-kiln	S. Dewhirst	480,561	Aug. 9	1297	325	60	842
Brick-kiln	J. W. Penfield	480,935	Aug. 16	1882	469, 470	60	972
Brick-kiln	J. W. Penfield	480,936	Aug. 16	1884	470, 471	60	972
Brick-kiln	W. Radford	480,134	Aug. 2	600	152, 153	60	697
Brick-kiln	W. H. B. Stout	480,940	Aug. 16	1889	472, 473	60	974
Brick-kiln	W. Swindell	479,679	July 26	2536	632	60	533
Brick-machine	W. Burkman	478,915	July 12	1297	322, 323	60	272
Brick-machine	H. Harlan	482,248	Sept. 6	531	127	60	1438
Brick-machine	G. T. Jacobs	482,252	Sept. 6	536	128, 129	60	1439
Brick-machine	W. Johnson	480,726	Aug. 16	1569	392, 393	60	909
Brick-machine	T. T. Wood	481,454	Aug. 23	2766	680, 681, 682	60	1151
Brick or tile machine	J. C. Titus	478,267	July 5	330	80	60	66
Brick or tile machine die	G. C. Skinner	478,136	July 5	86	23	60	20
Brick. Paving	D. Lance	478,612	July 12	844	208	60	183
Brick-press	S. McCarter	478,625	July 12	860	212	60	186
Brick-press. Hydraulic	J. J. Koch	480,818	Aug. 16	1707	426, 427, 428	60	937
Brick-re-pressing machine	W. W. Wallace and R. C. Penfield	480,912	Aug. 16	1850	461	60	966
Brick-sanding machine	W. W. Wallace and R. C. Penfield	482,705	Sept. 13	1291	316	60	1601
Bricks. Compound for preserving the color of finishing	J. D. Graybill	479,640	July 26	2471	.....	60	521
Bridge	T. H. Kosure	478,438	July 5	580	140, 141	60	114

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bridge-flooring	J. R. Worcester	480,483	Aug. 9	1186	298	60	819
Bridge for sidewalks, &c. Draw-	J. F. Schultz	479,533	July 26	2314	578	60	493
Bridge guard. Draw-	F. Boucher	482,291	Sept. 6	608	144	60	1453
Bridge. Iron	H. A. Loomis	482,017	Sept. 6	158	38	60	1366
Bridge. Suspension truss-	G. A. Stephenson	479,081	July 19	1560	391	60	332
Bridges. Guard-gate for draw-	W. Herrick	483,445	Sept. 27	2465	{620 621	60	1855
Bridges. Hinged expansion-gear for	C. J. Westwood and H. Rigby	480,863	Aug. 16	1777	444	60	951
Bridges. Safety-gate for draw-	W. Goddard	482,499	Sept. 13	976	236	60	1539
Bridle attachment	J. W. Peace	483,475	Sept. 27	2496	628	60	1861
Bridle-bit	J. U. Beckeman and D. W. Lukens	480,487	Aug. 9	1190	299	60	820
Bridle-bit	J. Dean	483,103	Sept. 20	1921	486	60	1739
Bridle-bit	C. E. Heinze	483,104	Sept. 20	1922	486	60	1740
Bridle-bit	J. W. James	481,172	Aug. 23	2295	566	60	1063
Bridle-bit	J. W. James	478,866	July 12	1225	304	60	258
Bridle-bit	O. M. Sloat	478,867	July 12	1226	304	60	258
Brocade or gold cloth. Producing an imitation of	F. P. Werner	479,670	July 26	2521	627	60	531
Broiler	J. W. Brady	482,604	Sept. 13	1138	.....	60	1571
Broiler	C. E. Watkins	480,316	Aug. 9	919	232	60	769
Broom-shoulder cutter	W. F. Settle	483,409	Sept. 27	2421	608	60	1846
Brush	S. P. Storrs	480,287	Aug. 9	867	221	60	760
Brush and making the same	A. H. Wolcott	479,082	July 19	1562	{391 392	60	333
Brush-block-boring machine	V. P. Willcox	482,666	Sept. 13	1223	298	60	1587
Brush case and pencil-holder combined. Tooth-	S. S. Fox	480,053	Aug. 2	476	121	60	673
Brush. Electric	R. E. Williams	482,631	Sept. 13	1178	285	60	1578
Brush-holder	F. J. Haeseler	479,321	July 19	1926	481	60	403
Brush. Revolving hair-	W. J. Miller	479,802	Aug. 2	42	10, 11	60	590
Brush. Scrubbing-	J. J. Bellmann and E. Levi	481,264	Aug. 23	2458	605	60	1095
Brush. Tanner's sigue-	C. Grau	483,128	Sept. 27	1958	496	60	1758
Brush. Tooth-	L. T. Foss	483,350	Sept. 27	2332	586	60	1829
Brushes, &c. Handle-holder for	W. E. Barnett and B. R. Chalk	479,796	Aug. 2	33	8	60	588
Bucket. Dinner-	J. C. Dunfee	482,221	Sept. 6	491	117	60	1431
Bucket. Dinner-	W. F. Janeway	480,184	Aug. 2	679	172	60	711
Bucket. Dinner-	H. J. Sibley	478,606	July 12	837	206	60	182
Bucket-elevator	J. Cavanagh	482,761	Sept. 20	1399	345	60	1633
Buckets. Apparatus for riveting ears upon	C. Stollberg	482,941	Sept. 20	1662	418	60	1686
Buckle	G. E. Adams	480,881	Aug. 16	1799	450	60	956
Buckle	T. J. Clark	480,540	Aug. 9	1268	318	60	836
Buckle	S. E. Cook	480,397	Aug. 9	1046	262	60	792
Buckle	S. T. Hisley	482,915	Sept. 20	1629	408	60	1678
Buckle	E. J. Kraetzer	479,003	July 19	1443	358	60	310
Buckle	F. H. La Pierre	483,356	Sept. 27	2339	588	60	1830
Buckle	A. G. Mead	478,285	July 5	356	86	60	72
Buckle	D. L. Smith	478,120	July 5	64	17	60	15
Buckle	J. Stovell	478,826	July 12	1179	292	60	249
Buckle	J. G. Taylor	480,217	Aug. 2	744	188	60	723
Buckle	J. A. Traut	481,079	Aug. 16	2126	529	60	1018
Buckle	J. A. Traut	481,213	Aug. 23	2459	581	60	1076
Buckle	G. Williamson and C. de Negri	482,030	Sept. 6	178	42	60	1370
Buckle. Cast-off	J. Zeigler	482,289	Sept. 6	601	143	60	1370
Buckle. Suspender-	J. A. Traut	480,791	Aug. 16	1666	416	60	1432
Buckle. Suspender-	B. J. Balliett	480,650	Aug. 9	1447	360	60	929
Buckle. Suspender-	H. Lieberthal	479,074	July 19	1550	387	60	871
Buggy spring-gearing	J. A. Traut	480,680	Aug. 9	1497	373	60	330
Buggy-tops. Lever for raising and lowering	S. E. O'Dell and C. Van Liew	480,274	Aug. 9	847	215	60	879
Building-block	H. Toresen	480,531	Aug. 9	1254	315	60	757
Building-block	G. E. Briggs	479,054	July 19	1519	378	60	833
Building-front	C. Grünzweig	482,890	Sept. 20	1590	.....	60	325
Building-front	A. Brunkhorst, A. Wieden, and C. T. Richards.	478,974	July 12	1392	{343 344	60	1671
Building-front	F. Mosker and T. O. Arbegust	481,115	Aug. 16	2185	541	60	289
Building-front	C. T. Richards	480,909	Aug. 16	1846	{459 460	60	1029
Building-front. Sheet-metal	C. D. Pruden	483,163	Sept. 27	2021	{511 512	60	965
Building-material elevator	J. J. Kierat	480,329	Aug. 9	936	{237 238	60	1771
Buildings. Metallic facing for	L. L. Sagendorph	483,240	Sept. 27	2142	543	60	772
Bullets. Machine for swaging and creasing	J. F. McGrail	481,731	Aug. 30	3321	786	60	1794
Bung	M. Anthony and W. C. Savage	483,035	Sept. 20	1820	462	60	1255
Bung	J. Baeumle	482,713	Sept. 20	1311	321	60	1719
Bung-extracting tool	J. Baeumle	482,714	Sept. 20	1313	321	60	1617
Bunsen burner	W. H. Stanton	480,835	Aug. 16	1733	433	60	1617
Bureau and wash-stand. Combined	G. Reimann	478,364	July 5	475	115	60	942
Burglar-alarm	H. Couillard	481,848	Aug. 30	3419	839	60	94
Burglar-alarm	F. H. Neal and J. R. Donnelly	480,340	Aug. 9	948	240	60	1293
Burglar-alarm	P. G. Trone	479,320	July 19	1925	481	60	775
Burial apparatus	H. T. Wilson	482,464	Sept. 13	909	221	60	402
Burial apparatus	J. B. Beugler	481,840	Aug. 30	3406	836	60	1525
Burial-case	S. D. Wagor	479,904	Aug. 2	193	48	60	1291
Burial-casket	J. G. Gray	480,427	Aug. 9	1097	274	60	620
Burial-casket	J. A. Jones and C. E. Myers	483,304	Sept. 27	2248	571	60	800
Burial-casket	J. A. Jones and C. E. Myers	483,305	Sept. 27	2269	571	60	1817
Burner:	J. N. Fraser	481,370	Aug. 23	2024	645	60	1817
See Bunsen burner. Oil-burner. Fuel-burner. Oil and vapor burner. Gas-burner. Smoke-burner. Hydrocarbon-burner. Straw-burner. Lamp-burner. Vapor-burner.							1124
Burner	E. T. Wigg	482,145	Sept. 6	363	86, 87	60	1407
Butter-box	G. R. Meloney and J. T. Criswell	481,801	Aug. 30	3342	818	60	1279
Butter. Manufacture of	W. Cole	478,736	July 12	1029	252	60	220
Butter-package	J. F. Bly	482,613	Sept. 13	1155	279	60	1573

Alphabetical list of patentees, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Butter-package	F. M. Peck	479,095	July 19	1585	396	60	337
Butter-worker	H. J. Anderson	483,201	Sept. 27	2085	528	60	1783
Butter-worker	P. L. Kimball	478,113	July 5	54	15	60	13
Button	C. A. Bryant	482,959	Sept. 20	1696	426	60	1692
Button	F. H. Larter	479,191	July 19	1740	437	60	306
Button	J. B. Righter	482,651	Sept. 13	1301	292	60	1583
Button and lacing hook. Combined	A. J. Miller	481,767	Aug. 30	3290	801	60	1269
Button-attaching machine	C. E. Denton	479,705	July 26	2582	643	60	542
Button-attaching machine	C. M. Platt	481,587	Aug. 30	2984	732	60	1210
Button-attaching machine	C. M. Platt	481,588	Aug. 30	2985	732	60	1210
Button-bars. Forming	I. G. Platt	480,032	Aug. 2	442	111	60	666
Button-fastener	A. W. Currier and G. Clark	482,621	Sept. 13	1166	282	60	1576
Button-fastener	J. C. Townsend	479,538	July 26	2320	580	60	494
Buttonhole-machine cam	J. F. Wischerth	480,054	Aug. 2	478	122	60	673
Button link. Sleeve or cuff	P. H. Lettré	479,649	July 26	2482	618	60	523
Button. Separable	R. Monday	480,336	Aug. 9	945	239	60	774
Button. Separable	C. M. Sherer	478,174	July 5	163	42	60	34
Button. Separable	W. A. Turner	480,352	Aug. 9	972	245	60	778
Button-setting machine	C. E. Denton	479,704	July 26	2579	643	60	541
Button-setting machine	I. G. Platt	480,031	Aug. 2	440	111	60	665
Button-setting machine	I. H. Sisson	482,700	Sept. 13	1283	315	60	1600
Button-setting tool	J. Mathison	479,824	Aug. 2	78	19, 20	60	597
Buttons from plastic material. Machine for making	M. Stirn	482,144	Sept. 6	360	86	60	1406
Buttons. Machine for making sheet-metal	J. Mathison	479,823	Aug. 2	73	{17 18 19	60	596
Buttons. Sale-card for	C. F. G. R. Schwerdt	481,832	Aug. 30	3394	834	60	1288
Cab	D. J. O'Donnell	479,300	July 19	1298	475	60	397
Cabinet	W. I. Ohmer	479,748	July 26	2664	661	60	556
Cable-conduits. Automatic trap for	I. Bishop and A. F. L. Bell	478,910	July 12	1289	320	60	270
Cable elevator. Sprocket-	M. Garland	482,239	Sept. 6	515	123	60	1435
Cable-gripper	W. A. Butler	480,489	Aug. 9	1192	299	60	820
Cable-grippers. Automatic release for	A. J. Smith	481,431	Aug. 23	2732	671	60	1144
Cable-grips. Lifting mechanism for	I. Bishop and A. F. L. Bell	478,911	July 12	1291	321	60	270
Cable-securing device	W. F. Bossert and J. H. Findlay	482,939	Sept. 20	1659	418	60	1686
Cable-traction system	G. Muller	481,413	Aug. 23	2703	{664 665	60	1139
Cables into conduits. Means for drawing	T. F. O'Connor and J. W. Marsh	482,270	Sept. 6	571	135	60	1446
Caddy. Grocer's	C. Toohey	482,285	Sept. 6	596	142	60	1451
Caisson	J. F. O'Rourke	480,127	Aug. 2	587	{149 150	60	694
Cake-box	E. E. Bailey	482,434	Sept. 13	863	207	60	1517
Cake or bread box	G. H. Ennis	480,718	Aug. 16	1560	389	60	907
Calculating-machine	W. M. McCafferty	478,885	July 12	1252	310	60	263
Calculator	C. H. Clarridge	479,629	July 26	2451	611	60	518
Calendar	C. N. Hoyt	481,563	Aug. 30	2949	{724 725	60	1203
Calendar	C. H. Rendell and E. S. Pinney	482,929	Sept. 20	1644	414	60	1682
Calendar-holder	W. E. Gary	479,876	Aug. 2	155	39	60	612
Caliper-joint	W. H. Isbell	483,065	Sept. 20	1860	472	60	1728
Caliper-point. Differential	G. T. Bechtol	482,331	Sept. 13	692	165	60	1485
Calipers. Micrometer-	E. L. Holcomb	479,807	Aug. 2	49	12	60	591
Calk-sharpener	J. H. E. Clark	479,204	July 19	1758	441	60	369
Camera:							
See Magazine-camera. Photographic camera.							
Camera attachment	E. De Moulin	480,606	Aug. 16	1694	422	60	934
Camera plate attachment	G. L. Minear	481,802	Aug. 30	3344	818	60	1279
Camera-shutter	T. H. Blair and F. H. Kelley	478,909	July 12	1288	320	60	270
Camera-shutter	W. H. Bristol	480,995	Aug. 16	1964	497	60	991
Camera-shutter	W. H. Bristol	481,343	Aug. 23	2591	{636 637	60	1117
Can:							
See Filter-can. Roving-can. Measuring-can. Sealed can. Oil-can. Tin can.							
Can-heading machine	L. E. Curtis	479,135	July 19	1646	412	60	348
Can for oil, &c	A. F. Kuhns	481,233	Aug. 23	2396	591	60	1083
Can machine	J. B. Foote	480,256	Aug. 9	810	208	60	748
Can-opener	S. Ehenger	479,256	July 19	1835	460	60	384
Can-opener	A. Fenton and J. Barnes	480,868	Aug. 16	1782	446	60	953
Can-opener	J. H Gooding	482,057	Sept. 6	220	52	60	1378
Can-opener	C. Morgan	479,011	July 19	1457	361	60	313
Can or vessel stopper. Fluid	W. H. Payne	483,082	Sept. 20	1884	477	60	1732
Can screw-top	C. N. Tyler	480,793	Aug. 16	1668	417	60	949
Can-stand	E. Thomas	479,099	July 19	1590	398	60	338
Can-testing machine	C. B. Kendall and H. Schaake	481,764	Aug. 30	3279	{799 800	60	1267
Can-washer	C. H. Southard	482,763	Sept. 20	1401	346	60	1633
Candlestick	J. P. Daleiden	481,225	Aug. 23	2384	588	60	1081
Candlestick	H. M. Hamrick	479,362	July 19	2011	502	60	420
Candy-machine	B. Thoens	480,149	Aug. 2	620	157	60	701
Candy. Machine for forming shapes of	C. M. Kurtz	481,234	Aug. 23	2397	592	60	1084
Candy-mold	M. M. June	480,469	Aug. 9	1165	293	60	814
Cane and flag. Combined	E. Gash	479,590	July 26	2493	596	60	507
Cane and stool. Combined	C. Wallis and R. Mader	482,214	Sept. 6	481	115	60	1429
Cane-cutter	F. B. Alexander	479,611	July 26	2428	605	60	513
Cane-juice-bleaching apparatus	A. F. Slangerup	483,022	Sept. 20	1802	455	60	1715
Cane-mill	J. Fisher	482,064	Sept. 6	265	64	60	1387
Cane-mill	D. Skekel	480,522	Aug. 9	1237	311	60	830
Cane. Whip-	M. O. Felker	482,895	Sept. 20	1603	402	60	1674
Canisters. Machine for making metal	A. E. Bentley	478,389	July 5	508	{123 124	60	100
Cannon. Breech-loading	S. Seabury	479,609	July 26	2421	604	60	512
Cannon. Breech-loading	S. Seabury	479,957	Aug. 2	286	71, 72	60	637
Caoutchouc balls. Process of and apparatus for the manufacture of hollow	G. L. Hille	482,068	Sept. 6	271	65, 66	60	1389

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drgs.	Vol.	Page.
Cap. Bathing	H. B. Williams	482,773	Sept. 20	1411	349	60	1636
Capotasto	V. T. Johnson	480,429	Aug. 9	1099	274	60	801
Capping-machine	J. F. Wittemann	481,626	Aug. 30	3047	744	60	1221
Capsule-filling machine	W. K. Johnston	479,812	Aug. 2	56	13	60	593
Car	H. M. Jones	479,945	Aug. 2	265	65	60	633
Car. Air dump	C. H. Dow	479,253	July 19	1832	460	60	384
Car and air-brake coupling. Combined	J. B. Thomas	481,984	Sept. 6	95	24	60	1353
Car and hose coupling. Combined	J. H. Carroll	478,400	July 5	526	129	60	104
Car-brake	C. H. Allen	479,236	July 19	1804	452	60	378
Car-brake	F. A. Baier	478,902	July 12	1276	{316 / 317}	60	267
Car-brake	J. W. Barnes	483,414	Sept. 27	2427	610	60	1847
Car-brake	C. A. Dahlstrom	481,163	Aug. 23	2284	563	60	1061
Car-brake	J. B. Meadley	480,503	Aug. 9	1215	303	60	825
Car-brake. Automatic	J. H. Tong	480,910	Aug. 16	1848	460	60	966
Car-brake mechanism	R. Condon	480,250	Aug. 9	802	{205 / 206}	60	746
Car brake. Railway	H. V. Harts	479,420	July 26	2118	530	60	454
Car-brakes. Slack-adjuster for	G. L. McCallum	480,338	Aug. 9	947	240	60	774
Car-brakes. Slack-adjuster for	F. J. Cole	481,784	Aug. 30	3315	810	60	1274
Car bundle-rack	R. A. Parke	480,341	Aug. 9	949	241	60	775
Car-buffer	J. M. Cotton	483,283	Sept. 27	2236	562	60	1811
Car. Burglar-proof	T. A. Bissell	482,538	Sept. 13	1041	{251 / 252}	60	1552
Car carrying attachment. Hand	J. Beermaker	478,554	July 12	764	{186 / 187}	60	167
Car. Combined freight and passenger	J. W. Greene	481,021	Aug. 16	2021	505	60	998
Car. Combined freight and stock	J. Haish	479,068	July 19	1542	385	60	329
Car-coupling	E. R. Steinhilber	480,635	Aug. 9	1422	354	60	866
Car-coupling	D. L. Barnes	478,835	July 12	1191	296	60	251
Car-coupling	D. Bellon	478,778	July 12	1093	{270 / 271}	60	233
Car-coupling	A. Bittner	479,023	July 26	2443	609	60	516
Car-coupling	T. J. Booz	481,891	Aug. 30	3485	854	60	1306
Car-coupling	J. N. Braun	482,614	Sept. 13	1156	280	60	1574
Car-coupling	D. Brewer	482,615	Sept. 13	1158	280	60	1574
Car-coupling	E. Brockway	481,660	Aug. 30	3097	735	60	1231
Car-coupling	J. H. Browne	480,803	Aug. 16	1687	{420 / 421}	60	932
Car-coupling	H. C. Buhonp	480,839	Aug. 16	1737	434	60	943
Car-coupling	E. M. Butler	478,087	July 5	20	7	60	7
Car-coupling	J. C. Carrick	481,525	Aug. 23	2883	708	60	1175
Car-coupling	W. B. Clark	481,325	Aug. 23	2564	630	60	1113
Car-coupling	M. M. Clarke	482,546	Sept. 13	1056	257	60	1555
Car-coupling	J. H. Coleman	482,569	Sept. 13	1090	264	60	1561
Car-coupling	R. A. Cowell	480,807	Aug. 16	1693	422	60	934
Car-coupling	C. H. Dale	481,930	Sept. 6	15	4, 5	60	1337
Car-coupling	W. H. Davis	480,866	Aug. 16	1780	445	60	952
Car-coupling	J. C. Devlin	478,993	July 19	1427	{353 / 354}	60	307
Car-coupling	C. Demaurez. (Reissue)	11,265	Aug. 23	2912	715	60	1181
Car-coupling	S. B. Dover	479,635	July 26	2463	613	60	520
Car-coupling	W. Duechting	478,578	July 12	796	196	60	173
Car-coupling	J. M. Elliott, Jr.	483,047	Sept. 20	1835	467	60	1722
Car-coupling	J. M. Elliott, Jr.	483,048	Sept. 20	1837	467	60	1722
Car-coupling	J. Fanbion, Sr	479,262	July 19	1845	462	60	386
Car-coupling	T. W. Felton	480,456	Aug. 9	1148	287	60	811
Car-coupling	W. H. Foster	480,459	Aug. 9	1151	288	60	811
Car-coupling	W. E. Gallaher	482,121	Sept. 6	325	77	60	1398
Car-coupling	W. B. Gasser	479,497	July 26	2365	567	60	483
Car-coupling	E. Géant	483,437	Sept. 27	2457	618	60	1853
Car-coupling	C. H. Gohl	482,353	Sept. 13	735	{176 / 177}	60	1494
Car-coupling	C. A. Gould	478,747	July 12	1042	256	60	222
Car-coupling	G. C. Harlin	482,125	Sept. 6	330	78	60	1399
Car-coupling	W. H. Harris	481,399	Aug. 23	2680	657	60	1133
Car-coupling	W. Herrick	480,092	Aug. 2	530	134	60	683
Car-coupling	J. A. Hinson	482,358	Sept. 13	742	179	60	1495
Car-coupling	O. Hood	479,881	Aug. 2	162	40	60	613
Car-coupling	F. A. Hotchkiss	480,584	Aug. 9	1335	333	60	849
Car-coupling	J. S. Hunter	481,567	Aug. 30	2955	726	60	1204
Car-coupling	D. W. and G. Jewell	481,906	Aug. 30	3512	860	60	1312
Car-coupling	J. Kindleberger	481,907	Aug. 30	3514	860	60	1312
Car-coupling	R. S. Kirkpatrick	482,010	Sept. 6	139	34	60	1363
Car-coupling	R. Kleinert	482,904	Sept. 20	1614	404	60	1676
Car-coupling	E. Kling	479,371	July 19	2025	506	60	422
Car-coupling	W. A. Lee	479,665	Aug. 2	167	42	60	615
Car-coupling	G. R. Lewis	479,106	July 19	1601	400	60	340
Car-coupling	R. F. Ludlow	478,445	July 5	590	144	60	116
Car-coupling	R. F. Ludlow	478,446	July 5	592	144	60	117
Car-coupling	A. B. Luther	478,620	July 12	854	210	60	185
Car-coupling	J. B. Maines	480,110	Aug. 2	535	139	60	688
Car-coupling	A. C. McCord	482,500	Sept. 13	977	237	60	1539
Car-coupling	J. B. Meadley	480,504	Aug. 9	1216	304	60	825
Car-coupling	H. Moore	479,717	July 26	2608	648	60	546
Car-coupling	R. L. Munson	480,118	Aug. 2	570	145	60	691
Car-coupling	C. C. Neff	478,125	July 5	69	18	60	16
Car-coupling	B. H. Paugh	482,926	Sept. 20	1641	413	60	1682
Car-coupling	J. F. Pursley	482,809	Sept. 20	1454	361	60	1645
Car-coupling	R. Quatermass	478,463	July 5	617	150	60	122
Car-coupling	R. J. Reynolds	479,989	Aug. 2	358	88	60	649
Car-coupling	T. L. Rivers	482,833	Sept. 20	1490	{370 / 371}	60	1653
Car-coupling	R. S. Robertson	479,079	July 19	1556	389	60	331
Car-coupling	J. P. Rollins	479,990	Aug. 2	359	89	60	649

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Drgs.	Vol.	Page.
Car-coupling	J. E. Sague	480,628	Aug. 9	1414	352	60	864
Car-coupling	J. A. Sample	482,461	Sept. 13	906	220	60	1525
Car-coupling	G. K. Smith	480,631	Aug. 9	1417	353	60	865
Car-coupling	H. K. Smith	481,071	Aug. 16	2115	527	60	1016
Car-coupling	C. W. Stilllane	481,076	Aug. 16	2123	528	60	1017
Car-coupling	C. H. Taylor	480,836	Aug. 16	1734	433	60	942
Car-coupling	F. Thompson	482,598	Sept. 13	1131	273	60	1570
Car-coupling	C. A. Tower	482,105	Sept. 6	300	71	60	1394
Car-coupling	D. G. Turner	480,481	Aug. 9	1183	297	60	819
Car-coupling	W. H. Underwood and W. E. Clum	482,769	Sept. 20	1407	348	60	1635
Car-coupling	W. H. Violett	481,446	Aug. 23	2754	{577 / 578}	60	1149
Car-coupling	J. E. Walker	479,926	Aug. 2	235	58	60	627
Car-coupling	C. Weeks and J. E. Bush	482,566	Sept. 13	1086	263	60	1561
Car-coupling	E. C. Welch	481,449	Aug. 23	2758	678	60	1149
Car-coupling	G. W. Wilkinson	482,605	Sept. 13	1539	275	60	1571
Car-coupling	J. W. Wilks and C. Whitus	483,194	Sept. 27	2071	523	60	1781
Car-coupling	D. Williams	482,445	Sept. 13	884	213	60	1520
Car-coupling	S. R. Williams	482,288	Sept. 6	600	143	60	1452
Car-coupling	R. R. Wilson	479,739	July 26	2634	653	60	551
Car-coupling	J. J. Wisda	481,991	Sept. 6	105	26	60	1355
Car-coupling	J. A. Wiswall	482,774	Sept. 20	1413	349	60	1630
Car-coupling	R. M. Woodard	483,196	Sept. 27	2074	524	60	1781
Car-coupling	A. E. Woolf	478,492	July 5	656	161	60	130
Car-coupling	S. W. Wright	479,483	July 26	2345	563	60	479
Car-coupling brake	J. P. Seawell	479,024	July 19	1476	367	60	316
Car-couplings. Pin-lifter for	J. W. Wilks and C. Whitus	483,193	Sept. 27	2070	523	60	1780
Car-door	A. B. Taylor	479,143	July 19	1662	416	60	351
Car-door	A. B. Taylor	479,144	July 19	1664	416	60	351
Car door. Grain	S. W. Grosh	478,748	July 12	1043	256	60	223
Car door. Grain	E. A. Hill	479,070	July 19	1545	386	60	329
Car draft and dust guard	E. B. Jones	483,382	Sept. 27	2387	599	60	1838
Car draw-bar	J. L. Blessing	479,048	July 19	1511	377	60	324
Car draw-bar guide	J. L. Guinn	480,464	Aug. 9	1158	290	60	813
Car draw-gear	W. Pennock	480,827	Aug. 16	1726	431	60	941
Car driving mechanism	J. V. Motter	479,915	Aug. 2	206	52	60	622
Car. Dump	M. W. Iles	483,152	Sept. 27	2000	506	60	1766
Car-dump	J. Odorizzi	481,811	Aug. 30	3359	822	60	1282
Car-dumping apparatus	T. J. Phillips	481,968	Sept. 6	69	18, 19	60	1348
Car. Electric mine	E. A. Sperry	478,138	July 5	89	23, 24	60	29
Car. Freight and grain	J. F. Butz	481,928	Sept. 6	11	4	60	1337
Car gas-lighting tanks from gas-mains. Apparatus for charging	R. M. Dixon	483,106	Sept. 20	1923	487	60	1740
Car gate. Railway	L. Arnold	481,540	Aug. 23	2910	714	60	1180
Car guard. Railway	P. Barron	483,202	Sept. 27	2087	529	60	1783
Car-heater. Gas	S. Stewart	480,216	Aug. 2	743	188	60	732
Car-heating systems. Supply-station for	J. F. McElroy	480,777	Aug. 16	1644	412	60	925
Car journal-box	C. T. Schoen	482,200	Sept. 6	456	110	60	1424
Car-lighting system. Electric	S. Young and M. Moskowitz	478,183	July 5	176	46	60	37
Car-locker	J. E. Dempsey	478,740	July 12	1033	254	60	221
Car. Merchandising	R. A. Wilder	480,308	Aug. 9	909	229	60	767
Car motor. Street	J. G. Lightford	481,715	Aug. 30	3187	778	60	1248
Car-mover	N. B. Marston and W. M. Kimball	480,333	Aug. 9	941	239	60	773
Car-mover	C. W. Pierce	482,878	Sept. 20	1566	391	60	1668
Car. Parlor sleeping	D. C. Breed	479,240	July 19	1810	{453 / 454 / 455}	60	379
Car. Railway	J. M. Burton. (Reissue.)	11,254	July 19	2063	{516 / 517}	60	430
Car. Railway	R. A. Wilder	480,355	Aug. 9	975	246	60	779
Car-roof	J. C. Wands	483,032	Sept. 20	1817	461	60	1718
Car sanding device. Street	J. H. and G. L. Vogan	481,535	Aug. 23	2903	712	60	1179
Car-seal	F. W. Brooks	481,388	Aug. 23	2659	652	60	1130
Car-seats. Automatic mileage-recorder for	H. S. Squires	480,526	Aug. 9	1245	313	60	831
Car-sign	C. S. Reed	482,928	Sept. 20	1643	414	60	1682
Car-starter	D. Fuller	483,349	Sept. 27	2330	{585 / 586}	60	1828
Car-starter	G. B. Warner and L. J. Allen	479,127	July 19	1637	409	60	346
Car-step. Extensible	W. H. Voss	481,658	Aug. 30	3095	754	60	1230
Car-step extension	W. Dalenberg and C. Verduin	481,009	Aug. 16	2003	501	60	994
Car. Street	F. B. Brownell	481,467	Aug. 23	2793	687	60	1156
Car. Street	F. B. Brownell	481,468	Aug. 23	2794	687	60	1156
Car. Street	J. A. Mehling	481,800	Aug. 30	3341	817	60	1279
Car switch-operating device. Railway	J. Kelly. (Reissue)	11,269	Sept. 13	1304	319	60	1604
Car top buffer. Freight	H. H. Sessions	479,025	July 19	1478	{367 / 368}	60	316
Car. Tram	A. Wörner	480,310	Aug. 9	911	230	60	768
Car ventilator. Railway	W. S. Rogers	481,196	Aug. 23	2329	574	60	1050
Car. Vestibule	E. H. Beckley	479,546	July 26	2333	{582 / 583}	60	496
Car. Vestibule	G. Hancock	481,902	Aug. 30	3505	858	60	1310
Car. Vestibule	J. Krehbiel	482,744	Sept. 20	1361	337	60	1626
Car-vestibule	A. Fordham	482,006	Sept. 6	135	33	60	1361
Car-vestibule	G. Hancock	480,695	Aug. 9	1519	377	60	884
Car-wheel	H. Guela	481,862	Aug. 30	3437	843	60	1297
Car-wheel	B. F. Haugh	480,922	Aug. 16	865	465	60	969
Car-wheel	G. Hull	483,064	Sept. 20	1859	471	60	1727
Car-wheel	A. Hymas	479,366	July 19	2019	504	60	421
Car wheel and axle	A. and W. A. Johnston	478,512	July 5	693	168	60	138
Cars. Ball-bearing for railway	J. E. Norwood	478,351	July 5	457	112	60	92
Cars. Conduit-trolley for street	A. H. Heatzman	479,327	July 19	1932	483	60	404
Cars. Draw-timber for	J. and W. A. Rover	482,653	Sept. 13	1203	293	60	1583
Cars. Electrical distribution for	S. Young, M. Moskowitz, L. D. Adler, and J. Loewenberg.	478,182	July 5	175	45, 46	60	37
Cars. Means for dumping	W. E. Ludlow	483,360	Sept. 27	2343	589	60	1831

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cars. Pipe-coupling and coupling attachment for railway.	F. Du Montier	482,304	Sept. 6	627	150	60	1458
Cars. Steam-pipe coupling for railway.	T. Curley	478,991	July 19	1424	352, 353	60	307
Cars. Trolley for electric	G. E. and C. W. Purple	480,240	Aug. 2	781	197, 198	60	729
Carbon-holder	E. P. Warner	482,820	Sept. 20	1468	365	60	1648
Carbureting apparatus. Air-	J. E. Mendenhall	483,003	Sept. 20	1766	446	60	1707
Card and Jacquard machine protector	S. Morgan	479,895	Aug. 2	183	45	60	618
Card. Christmas	C. Heymann	481,173	Aug. 23	2297	566	60	1063
Card. Envelope	R. Sinn	478,925	July 12	1179	292	60	249
Card or picture setting	M. Wirths	479,129	July 19	1639	410	60	346
Card shuffling and dealing mechanism	W. H. Ranney	483,364	Sept. 27	2349	590	60	1632
Carding-engine for grinding revolving flats when in situ.	J. Edge	481,228	Aug. 23	2389	589, 590	60	1082
Carding-engine stopping mechanism	E. Ashworth	480,987	Aug. 16	1974	494	60	989
Carding-engines. Device for supporting and adjusting the front and back covers of	W. P. Canning	481,222	Aug. 23	2379	586	60	1080
Carding-engines. Rubbing-apron for condensing	S. H. Gidley	480,088	Aug. 2	524	133	60	682
Carding-machines. Burr and shive extractor for	W. Sullivan	482,395	Sept. 13	804	193	60	1507
Carding-machines, &c. Feed-roll for	A. B. Hanscom	481,024	Aug. 16	2025	505	60	999
Carpet-stretcher	J. Albin	482,821	Sept. 20	1469	366	60	1649
Carpet-stretcher	R. Harrison	483,057	Sept. 20	1849	469	60	1735
Carpet-sweeper	T. H. Bedell	479,200	July 19	1752	439	60	368
Carpet-sweeper	H. Cadwalader	480,451	Aug. 9	1139	285	60	809
Carpet-sweeper	G. S. Sanford	481,826	Aug. 30	3387	830, 831	60	1287
Carpet-sweeper	G. S. Sanford	481,827	Aug. 30	3389	831, 832	60	1287
Carpet-sweeper	G. S. Sanford	481,828	Aug. 30	3391	832	60	1288
	G. S. Sanford	481,829	Aug. 30	3392	832, 833	60	1288
Carriage	A. N. Parry	482,189	Sept. 6	442	106, 107	60	1422
Carriage. Baby-	H. P. Wells	480,307	Aug. 9	908	229	60	767
Carriage. Child's	A. M. Reeves	478,172	July 5	160	41	60	34
Carriage-coupling	F. Bornemann	482,779	Sept. 20	1419	351	60	1638
Carriage-curtain fastener	N. D. Chapman	478,687	July 12	947	235	60	204
Carriage for elevated ways. Transfer-	A. Buker	480,067	Aug. 2	493	125	60	676
Carriage-gear coupling	H. B. Tefft	483,183	Sept. 27	2056	518, 519	60	1777
Carriage lock. Baby	N. A. Newton	478,128	July 5	72	19	60	16
Carriage mud-guard	G. A. Watkins	482,708	Sept. 13	1296	317	60	1602
Carriage. Steam-	J. Andersen	480,485	Aug. 9	1188	298	60	819
	A. Philion	482,649	Sept. 13	1198	291, 292	60	1582
Carriage-top	S. E. Kierolf	482,254	Sept. 6	546	130	60	1441
Carriage-top	G. B. St. John	480,295	Aug. 9	885	224	60	763
Carriage. Two-seated	F. N. and O. Vanier	482,858	Sept. 20	1527	379	60	1661
Carriage-wrench	J. A. Corey	481,749	Aug. 30	3256	793	60	1262
Carrier:							
See Bicycle luggage-carrier. Cash-carrier. Hay-carrier. Log-carrier. Luggage-carrier. Package-carrier. Reel-carrier. Sheaf-carrier. Trace-carrier. Velocipede package-carrier.							
Carrier-track	J. E. Porter	482,411	Sept. 13	825	198	60	1510
Cart. Ash-	D. M. Holmes	479,760	July 26	2682	666	60	560
Cart. Dumping-	W. H. and H. S. Bowler	481,843	Aug. 30	3411	837	60	1292
Cart. Hand-	W. Radley and T. W. Beal	480,670	Aug. 9	1480	368	60	877
Cart. Road-	S. B. Irwin	479,944	Aug. 2	263	64	60	632
Cart. Road-	J. Kimball	482,579	Sept. 13	1102	267	60	1564
Cart. Road-	J. C. Valentine	479,478	July 26	2235	561	60	477
Cartridge-loader	F. R. Baldwin	479,613	July 26	2430	606	60	514
Cartridge-loading apparatus	W. Wagner	481,127	Aug. 16	2200	544, 545	60	1031
Cartridge-loading machine	C. S. Hisey	480,015	Aug. 2	401	99, 100, 101	60	658
Cartridge-loading machine	J. H. Layman	478,614	July 12	847	208	60	183
Cartridge-loading tool	W. N. Beardsley, A. D. Moulton, and L. J. Wurth.	481,887	Aug. 30	3479	852	60	1305
Cartridge-priming machines. Attachment for	J. G. Liddell	479,819	Aug. 2	65	15, 16	60	594
Cartridge-reloader	F. B. Chesbrough	479,245	July 19	1822	457	60	382
Cartridge-shell	O. F. Seibold	480,971	Aug. 16	1951	488	60	985
Cartridge-shells. Tool for trimming heads of	C. R. Richards	479,125	July 19	1634	409	60	345
Carving-machine	M. Hertel	479,364	July 19	2012	503	60	420
Carving-machine	R. C. Miller	479,653	July 26	2489	620	60	524
Carving-machine	J. Rohlmann	478,640	July 12	880	217, 218	60	190
Case:	J. K. Rishel	481,372	Aug. 23	2626	646	60	1124
See Album-case. Blank-case. Book-case. Brush-case. Burial-case. Exhibiting-case. Filing and supply case. Hat-case. Medicine-case. Mailing-case. Packing-case. Pencil-case. Ribbon and show case. Show-case. Syringe-case. Watch-case.							
Case-cleaner	P. Trips	482,600	Sept. 13	1133	274	60	1570
Cash and package carrier apparatus	S. W. Barr	482,822	Sept. 20	1470	366	60	1649
Cash-carrier	F. O. Farwell	479,261	July 19	1843	462	60	386

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cash-carrier	E. C. Gipe	479,417	July 26	2113	529	60	458
Cash-carrier	G. P. Kenney	481,178	Aug. 23	2302	567	60	1065
Cash-carrier apparatus	C. W. Livermore	479,762	July 26	2084	666, 667, 668	60	561
Cash indicator and recorder	M. Leahy	478,798	July 12	1132	279	60	239
Cash indicator and recorder	W. T. McGraw	482,132	Sept. 6	337	81	60	1401
Cash indicator and register	G. Knapp and C. H. Little	481,037	Aug. 16	2047	511	60	1004
Cash indicator and register	E. B. Parkhurst and F. Ham	483,010	Sept. 20	1781	450, 451	60	1710
Cash indicator and register	J. Sharpe	482,760	Sept. 20	1388	344, 345	60	1632
Cash indicator, register, and check-printer	J. Jacques	480,698	Aug. 9	1521	378, 379	60	884
Cash indicator, register, and recorder	P. J. Landin	482,014	Sept. 6	145	35, 36	60	1364
Cash-register	H. R. Adams	479,776	Aug. 2	1	1	60	583
Cash-register	A. I. Blanchard	482,514	Sept. 13	993	240, 241	60	1543
Cash-register	H. A. Bierley. (Reissue)	11,256	Aug. 2	782	198, 199	60	729
Cash-register	T. Carney	482,517	Sept. 13	1003	242, 243, 244	60	1545
Cash-register	H. Cook	482,505	Sept. 13	982	238	60	1541
Cash-register	H. H. Koeller	480,594	Aug. 9	1350	336, 337	60	852
Cash-register	C. Leni	481,361	Aug. 23	2612	642	60	1121
Cash-register	W. K. Nichols	480,208	Aug. 2	718	182, 183, 184	60	718
Cash-register	H. G. O'Neill	480,614	Aug. 9	1387	344, 345	60	859
Cash-register	H. G. O'Neill	480,616	Aug. 9	1390	346	60	859
Cash-register	J. J. Range	479,334	July 19	1946	486	60	407
Cash-register	J. J. Range	479,335	July 19	1947	486	60	407
Cash-register	J. J. Range	479,336	July 19	1949	486, 487	60	407
Cash-register	W. H. Saunders, J. J. Range, and E. N. Foote.	479,337	July 19	1951	487	60	408
Cash-register	B. F. Wright	482,956	Sept. 20	1692	426	60	1692
Cash-register	N. B. Wright	478,532	July 5	730	178	60	145
Cash register and indicator	T. Carney	479,701	July 26	2572	640, 641, 642	60	540
Cash register and indicator	H. Cook	483,511	Sept. 27	2557	641, 642	60	1873
Cash register and indicator	M. Heintz	479,215	July 19	1773	445	60	372
Cash register and indicator	G. M. Howe	481,495	Aug. 23	2834	696, 697	60	1165
Cash register and indicator	C. S. Lewis	478,164	July 5	141	36, 37	60	31
Cash register and indicator	C. E. Lord	478,196	July 5	192	49, 50	60	40
Cash register and indicator	H. E. Marshall	482,375	Sept. 13	773	186	60	1500
Cash register and indicator	E. H. Murdock	480,957	Aug. 16	1924	481, 482	60	979
Cash register and indicator	H. G. O'Neill	480,122	Aug. 2	574	146	60	692
Cash register and indicator	H. G. O'Neill	480,123	Aug. 2	576	146, 147	60	692
Cash register and indicator	H. G. O'Neill	480,125	Aug. 2	583	148, 149	60	693
Cash register and indicator	H. G. O'Neill	480,126	Aug. 2	586	149	60	694
Cash register and indicator	H. G. O'Neill	480,612	Aug. 9	1378	342, 343	60	857
Cash register and indicator	H. G. O'Neill	480,613	Aug. 9	1383	343, 344	60	858
Cash register and indicator	H. G. O'Neill	480,615	Aug. 9	1388	345, 346	60	859
Cash register and indicator	E. F. Roberts	481,824	Aug. 30	3382	828, 829, 830	60	1286
Cash register and indicator	J. Shakespeare	480,521	Aug. 9	1235	310	60	829
Cash register and indicator and check-machine	W. Aldrich	481,459	Aug. 23	2775	683, 684, 685	60	1153
Cash register, indicator, and automatic change-maker	J. J. Hove	479,711	July 26	2594	646	60	544
Cash register, indicator, and check-printer	H. G. O'Neill	480,124	Aug. 2	578	147, 148	60	692
Cash register, indicator, and check-printer	H. G. O'Neill	480,617	Aug. 9	1392	347	60	860
Cash register, indicator, and recorder	W. F. Beck	481,777	Aug. 30	3304	806, 807, 808	60	1272
Cash register, indicator, and recorder	C. F. Brown	481,524	Aug. 23	2874	706, 707, 708	60	1173
Cash register, indicator, and recorder	H. Cook	482,165	Sept. 6	400	95, 96	60	1414
Cash register, indicator, and recorder	J. Pfeifer	479,720	July 26	2612	649, 650	60	547
Cash-register. Pocket	W. Ambruster	480,057	Aug. 2	481	122	60	674
Cash-registers. Complete-stroke mechanism for	T. Carney	482,161	Sept. 6	394	93, 94	60	1412
Cash registering and adding machine	C. Paine	483,009	Sept. 20	1774	449, 450	60	1709
Cash-registering and check-making machine	J. J. Webster and W. H. Saunders	479,341	July 19	1961	489, 490	60	409
Cash registering and indicating machine	E. N. Foote and J. J. Range	479,357	July 19	2000	500, 501	60	417

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Casket-handle	J. McCarthy	478,168	July 5	156	39	60	33
Casket-handle	J. D. Ripson	481,531	Aug. 23	2897	711	60	1178
Casket. Metallic	F. H. Hill	482,557	Sept. 13	1075	261	60	1559
Casks. Broaching device for	G. Gabb	478,852	July 12	1210	300	60	255
Caster	W. Gordon	479,980	Aug. 2	324	79	60	644
Caster. Furniture	A. A. Minor	481,963	Sept. 6	61	15	60	1346
Casting and working metals. Apparatus for use in	W. E. May	481,799	Aug. 30	3339	816	60	1278
Casting apparatus. Sash-weight	J. Carter	483,208	Sept. 27	3093	531	60	1785
Casting car-wheels. Chill for	C. A. Treat	481,442	Aug. 23	2749	676	60	1148
Casting cylindrical bodies. Apparatus for	W. C. Farnum	482,405	Sept. 13	814	196	60	1509
Casting draw-bars. Metallic mold for	J. Munton	482,688	Sept. 13	1262	{308 309}	60	1595
Casting machine. Type-	T. K. Hinshillwood	481,760	Aug. 30	3270	{796 797}	60	1265
Casting steel car-couplings. Mold for	J. Munton	482,687	Sept. 13	1260	{307 308}	60	1594
Casting stove-linings	J. McDermott	482,689	Sept. 13	1263	309	60	1595
Casting. Wheel-hub	M. L. Smith	480,044	Aug. 2	464	117	60	670
Castings. Making malleable-iron	B. Talbot	481,313	Aug. 23	2549	.....	60	1110
Catalogue. Library-	A. J. Rudolph	483,313	Sept. 27	2281	573	60	1819
Catamenial appliance	W. H. Masser	480,876	Aug. 16	1793	449	60	955
Cattle-guard. Surface	J. S. Berry	483,039	Sept. 20	1825	464	60	1720
Cattle-guard. Surface	G. W. Miller	480,733	Aug. 16	1581	395	60	911
Cattle. Suppressing horns in	J. March	478,877	July 12	1236	.....	60	260
Ceiling	A. Kaiser	480,927	Aug. 16	1872	467	60	970
Ceiling. Cohesive combined lintel	R. Guastavino, Jr.	481,755	Aug. 30	3265	795	60	1264
Ceiling. Metallic	W. W. and R. H. Old	481,813	Aug. 30	3364	824	60	1282
Celery-digging machine	M. M. Ranney	481,819	Aug. 30	3372	826	60	1284
Cellulose from wood. Preparing	H. A. A. Maste	480,334	Aug. 9	942	.....	60	773
Cement mill and furnace. Combined	H. H. Bourne	480,381	Aug. 9	1021	257	60	788
Cement pipes. Machine for making	E. Oehrle	479,451	July 26	2109	{543 544}	60	466
Cementing-machine	H. W. Brett	479,699	July 26	2567	639	60	539
Cementing-machine	W. Robertson	483,367	Sept. 27	2354	591	60	1833
Center-board for boats	F. M. Eaton	481,484	Aug. 23	2818	692	60	1162
Center-plate fastening	C. Lindström	480,408	Aug. 9	1050	265	60	794
Centering device	F. L. Canham	480,558	Aug. 9	1293	324	60	841
Centrifugal machine	B. Van Wie	478,484	July 5	646	158	60	128
Certificate representing value	W. W. C. Spencer	479,098	July 19	1580	398	60	338
Chafe-iron	H. S. Cowles	480,172	Aug. 2	660	168	60	708
Chain-block	J. R. Morgan	483,161	Sept. 27	2018	{510 511}	60	1770
Chain. Drive-	T. Corscaden	482,723	Sept. 20	1395	394	60	1690
Chain. Drive-	W. Dodd and A. T. Martin	478,416	July 5	540	134	60	108
Chain-link	C. P. Mars	480,853	Aug. 16	1763	441	60	948
Chain. Sheet-metal	D. M. Williams	482 605	Sept. 13	1222	298	60	1587
Chain-wrench	H. M. Eldridge	483,347	Sept. 27	2326	585	60	1828
Chains. Machine for making sheet-metal	W. H. Brock	483,419	Sept. 27	2433	612	60	1848
Chair: *See* Adjustable chair. Combination-chair. Convertible chair. Dental chair. Folding chair. Operating-chair. Rail-chair. Railway-chair. Railway-brace chair. Railway-rail chair. Reclining-chair. Steamer, lawn, and invalid chair. Window-chair.	H. J. Austin and R. T. Lewis, Jr.	481,776	Aug. 30	3301	{805 806}	60	1271
Chair	F. A. Dennett	482,167	Sept. 6	410	97	60	1415
Chair	T. H. and E. Gardner	479,415	July 26	2109	{527 528}	60	452
Chair	P. C. Lewis	482,745	Sept. 20	1363	{337 338}	60	1627
Chair	J. W. McDonough	481,582	Aug. 30	2979	731	60	1209
Chair	A. M. Richards and J. A. Giese	478,130	July 5	74	20	60	17
Chair desk attachment	A. M. Richards and I. Veeder	478,131	July 5	75	20	60	17
Chairs. Fan attachment for rocking	M. C. Hutton	480,366	Aug. 9	1030	258	60	769
Chandelier. Extension	H. M. Baker	483,413	Sept. 27	2425	610	60	1847
Chandelier. Extension	J. E. Bohner	482,712	Sept. 13	1303	318	60	1603
Change-receiver	F. Overholt	481,814	Aug. 30	3365	825	60	1282
Charm or locket	C. Bergeron	479,751	July 26	2667	662	60	557
Chart	A. L. Tetaz and L. C. Hadorn	482,208	Sept. 6	470	112	60	1427
Chart. Dress-	J. D. Price	480,413	Aug. 9	1071	278	60	796
Chart for drafting garments	J. Blizzard	479,548	July 26	2337	583	60	497
Chase locking-bar	S. G. Crow	480,459	Aug. 9	1142	{285 286}	60	810
Chatelette. Program and score-card	J. S. Brown	482,160	Sept. 6	393	93	60	1412
Check. Meal-	E. R. Roehm	481,195	Aug. 23	2328	574	60	1070
Checks and the like from being raised. Protecting bank-	F. C. Gellenbeck	482,899	Sept. 20	1609	403	60	1675
Checking and recording apparatus. Workman's	T. S. Spivey	478,294	July 5	367	89	60	74
Checkrein	C. P. Cottrell	481,274	Aug. 23	2475	609	60	1098
Checkrein-hook	S. R. Brooks	480,865	Aug. 16	1770	445	60	952
Cheese. Making	C. R. Curtis	480,715	Aug. 16	1557	388	60	906
Cheese-vat	J. D. Frederiksen	482,897	Sept. 20	1605	.....	60	1674
Chill-plate for flasks	L. Meyer	478,880	July 12	1239	307	60	261
Chill-ring	F. Marty	478,622	July 12	857	211	60	185
Chimney-cap	W. A. Spring	479,958	Aug. 2	289	72	60	637
Chimney-cap	J. Keane	483,384	Sept. 27	2389	600	60	1839
Chimney cap or ventilator	W. A. Pearce	482,851	Sept. 20	1517	377	60	1659
Chimney-cleaner	G. M. McCloskey	482,905	Sept. 20	1616	404	60	1676
Chimney-thimble guard	D. Aiken	478,302	July 5	383	92	60	77
Chisel. Mortising-	J. T. Gendron	478,422	July 5	559	135	60	109
	C. L. Wall	482,704	Sept. 13	1290	316	60	1601
Chocolate. Making soluble	S. T. Achor	479,581	July 26	2381	.....	60	504
Chocolate. Soluble	S. T. Achor	479,580	July 26	2380	.....	60	504
Chopper: *See* Cotton-chopper.							
Chopper	J. E. Auzat	482,838	Sept. 20	1498	372	60	1654
Chopping-machine	G. W. Mason	481,766	Aug. 30	3288	800	60	1269
Chromatic pitch-pipe	C. H. Congdon	478,570	July 12	783	191	60	170
Chuck	W. F. Schmidt	481,496	Aug. 23	2724	660	60	1143
Chuck. Hollow-mandrel	F. A. Buck	482,616	Sept. 13	1159	280	60	1574
Chuck. Pinion-	G. B. Woodruff	483,195	Sept. 27	2072	523	60	1781
Churn	G. S. Agee	481,542	Aug. 30	2915	717	60	1197
Churn-dasher	F. L. McCoy	479,830	Aug. 2	87	22	60	599
Churn-power	W. T. Brown	483,134	Sept. 27	1970	499	60	1760
Churn-vent	F. E. Huggins	481,564	Aug. 30	2951	725	60	1204
Chute. Coal-	R. M. Hosea	482,009	Sept. 6	138	33, 34	60	1302
Chute. Coal-	G. L. Stuebner	483,404	Sept. 27	2412	606	60	1844
Chute counterbalancing mechanism	D. T. Denton	481,011	Aug. 16	2006	501	60	995
Cigar-bunch cutter	J. G. Miller and E. Yeiser	483,077	Sept. 20	1877	475	60	1730
Cigar-bunch machine	W. M. Steinle	479,472	July 26	2214	{556 557 558}	60	474
Cigar-bunching machine	N. Strotz	482,882	Sept. 20	1571	{392 393 394 395 396 397}	60	1669
Cigar-bunching machine	F. and E. H. Thompson	481,722	Aug. 30	3206	783	60	1252
Cigar-lighter	F. Michl	483,464	Sept. 27	2486	626	60	1859
Cigar-press	E. T. Zellner	480,055	Aug. 2	479	122	60	673
Cigar-rolling machine	J. S. Winget	481,453	Aug. 23	2763	680	60	1151
Cigarette-machine	V. H. Bazerque	482,567	Sept. 13	1086	264	60	1561
Cigarette-machine	H. S. Grace	483,380	Sept. 27	2382	{598 599}	60	1838
Circuit-changing apparatus	A. D. Page	481,281	Aug. 23	2491	613	60	1100
Circuit-switch	G. W. Russell, Jr., and D. B. Minor	483,123	Sept. 20	1950	493	60	1745
Circumference indicator and tire-gage	P. McCallum	480,607	Aug. 9	1372	341	60	856
Cistern-cleaner	E. B. Ravencroft	481,423	Aug. 23	2720	669	60	1142
Cistern or well cleaner	J. Shilling, Jr.	479,228	July 19	1793	449	60	376
Clamp: *See* Dental clamp. Electric conductor clamp. Hawser-clamp. Hose-clamp. Rail-clamp. Rope-clamp. Rubber-dam clamp.							
Clamp	W. B. Seward	478,822	July 12	1175	291	60	248
Clamp for fruit-jar caps, &c	C. E. Thomas	478,771	July 12	1070	268	60	230
Clapper	F. R. De Estenoz	482,570	Sept. 13	1091	264	60	1502
Clasp: *See* Album-clasp. Glove-cord clasp. Pencil-clasp. Suspender-end clasp.							
Clasp	J. L. Fredlihp	479,938	Aug. 2	253	62	60	631
Claw-bar	J. W. Gray	478,855	July 12	1213	301	60	256
Clay-conduit machine	J. J. Powers and R. Van Buren	478,462	July 5	616	150	60	122
Clay, &c. Drying and disintegrating	F. D. Cummer	482,823	Sept. 20	1471	366	60	1649
Clay with glass and in articles made accordingly	A. A. Houghton and R. D. Haines	479,365	July 19	2017	504	60	421
Plating							
Cleaner: *See* Case-cleaner. Chimney-cleaner. Cistern-cleaner. Cistern or well cleaner. Flue-cleaner. Fruit-cleaner. Gun-cleaner. Stove-flue cleaner. Window-cleaner.							
Clevis	O. Cannteson	480,364	Aug. 9	993	249	60	782
Clevis	J. M. Enschedé	479,208	July 19	1763	442	60	370
Clevis	M. E. Hunt and F. W. Lorch	483,221	Sept. 27	2110	535	60	1788
Clevis and gage-wheel. Combined	G. Moore	481,186	Aug. 23	2716	570	60	1067
Cloak-rack	F. Wolf	478,386	July 5	505	122	60	100
Clock. Alarm-	C. D. Brown	478,950	July 19	1347	334	60	982
Clock-case	W. T. Aulles	478,546	July 12	755	185	60	165
Clock. Electric alarm-	G. C. Darche	478,155	July 5	194	32	60	27
Clock. Electric alarm-	J. McMillan and G. H. Taylor	482,133	Sept. 6	339	81	60	1402
Clock. Electric central	N. Prokhoroff	481,916	Aug. 30	3331	{864 865}	60	1315
Clock. Electric self-winding	M. Mackellar and G. D. Weaver	479,520	July 26	2298	574	60	489
Clock-regulator	W. E. Porter	482,985	Sept. 20	1738	439	60	1701
Clock-synchronizing device and system	W. F. Gardner	480,577	Aug. 9	1318	{329 330}	60	846
Clod crushers or pulverizers. Roller for	C. H. Noblet	483,007	Sept. 20	1772	448	60	1709
Closet: *See* Dry closet. Water-closet.							
Cloth-cutting machines. Take-up device for	W. H. Kerr	482,128	Sept. 6	334	80	60	1400
Cloth-folding machine	S. T. Lockwood and S. K. White	482,373	Sept. 13	761	{184 185}	60	1499
Cloth-holder	G. M. Morris	479,914	Aug. 2	205	51	60	622
Cloth, &c. Machine for straightening and winding	A. and R. J. Edwards	478,255	July 5	312	76	60	63
Cloth-napping machine	E. W. Thomas	478,143	July 5	104	26, 27	60	23
Cloth-napping machine	E. W. Thomas	478,144	July 5	105	27	60	23
Cloth-piling machine	F. H. Dobeck	481,933	Sept. 6	18	5, 6	60	1338
Cloth-stretching machine	C. L. Goddard	479,501	July 26	2269	568	60	484
Cloth-winding machine	J. Conn	483,510	Sept. 27	2556	641	60	1873
Clothes-drier	H. Adler	483,275	Sept. 27	2226	559	60	1809
Clothes-drier	J. L. Mather	481,365	Aug. 23	2617	644	60	1122
Clothes-drier	G. W. North	482,269	Sept. 6	570	135	60	1446
Clothes-drier	E. Powell	481,189	Aug. 23	2319	571	60	1068

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Clothes-drying machine	F., H., and N. Schilz	481,738	Aug. 30	3236	788	60	1257
Clothes-holder	G. W. Skanks	482,531	Sept. 13	1030	249	60	1550
Clothes-line	J. W. Cadwell	483,299	Sept. 27	2263	569	60	1815
Clothes-line holder	M. R. Ethridge	479,136	July 19	1651	{412 413}	60	349
Clothes-line support	R. McNab	481,806	Aug. 30	3340	820	60	1280
Clothes-pin	J. W. Cook	480,072	Aug. 2	500	127	60	678
Clothes-pin	W. L. Pike	482,363	Sept. 13	787	199	60	1503
Clothes-pin	A. Watt	479,686	July 26	2545	636	60	534
Clothes-pin	J. Wilson	482,722	Sept. 20	1394	393	60	1690
Clothes-pin	J. Wilson	482,723	Sept. 20	1395	394	60	1690
Clothes-pin	J. Wilson	482,724	Sept. 20	1396	395	60	1690
Clothes-pin	J. Wilson

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clothes-drying machine	F., H., and N. Schilz	481,738	Aug. 30	3236	788	60	1257
Clothes-holder	G. W. Skanks	482,531	Sept. 13	1030	249	60	1550
Clothes-line	J. W. Cadwell	483,209	Sept. 27	2263	569	60	1815
Clothes-line holder	M. R. Ethridge	479,136	July 19	1651	412, 413	60	349
Clothes-line support	R. McNab	481,806	Aug. 30	3349	820	60	1280
Clothes-pin	J. W. Cook	480,072	Aug. 2	500	127	60	678
Clothes-pin	W. L. Pike	482,383	Sept. 13	787	189	60	1503
Clothes-pounder	A. Watt	479,685	July 26	2545	634	60	535
Clothes-tongs	D. D. Cady	480,069	Aug. 2	496	126	60	677
Clothes-wringer	H. Upton and W. Kennard	478,382	July 5	500	121	60	99
Clover-huller feeding device	W. Thornton	480,207	Aug. 9	887	225	60	763
Clutch	C. Pippenger	482,135	Sept. 6	341	82	60	1402
Clutch	D. T. Denton	481,010	Aug. 16	2004	501	60	995
Clutch	J. Hartness	482,523	Sept. 13	1020	246	60	1548
Clutch	A. Myers	481,046	Aug. 16	2062	514	60	1007
Clutch	R. Shettler	481,205	Aug. 23	2344	577	60	1073
Clutch	A. L. Slager	480,748	Aug. 16	1601	401	60	916
Clutch	E. Waldron	480,796	Aug. 16	1672	418	60	930
Clutch. Friction-	W. Kershaw	481,794	Aug. 30	3331	813	60	1277
Clutch. Friction-	F. H. Richards	481,194	Aug. 23	2296	573	60	1070
Clutch. Friction-	P. Weber	482,491	Sept. 13	954	233	60	1534
Clutch. Friction-	P. Weber	483,370	Sept. 27	2358	592	60	1834
Clutch. Friction-	J. D. Westgate	479,684	July 26	2543	633	60	535
Clutch. Friction-	W. A. Wilkinson	482,326	Sept. 6	681	162	60	1460
Clutch. Rope-	H. L. Bennett and R. B. Adams	478,839	July 12	1197	297	60	252
Clutch-treadle	A. C. Campbell	478,308	July 5	524	128	60	103
Coal cutter or drill	C. W. and L. B. Atkinson	482,033	Sept. 6	181	43	60	1371
Coal. Electrically-driven machinery for cutting	L. B. and C. W. Atkinson	481,775	Aug. 30	3299	804, 805	60	1271
Coal-loading machine	J. Grierson	479,641	July 26	2472	614, 615	60	521
Coal. Machine for handling	J. M. Dodge. (Reissue)	11,258	Aug. 9	1533	381	60	887
Coal or ore jigger and washer	S. Stutz	481,438	Aug. 23	2743	675	60	1146
Coal, ore, &c. Feeder for	L. Rosenfeld	482,652	Sept. 13	1202	293	60	1583
Coal-screen	S. Griffiths	481,754	Aug. 30	3264	794	60	1263
Coal-scuttle screen	H. S. Andrews	482,431	Sept. 13	866	206	60	1517
Coal-washer	S. Stutz	478,479	July 5	639	156	60	127
Coating metal sheets. Apparatus for	R. Heathfield	478,282	July 5	351	85	60	71
Cob pipes. Compound for filling	A. C. Bauscher	478,553	July 12	764	.....	60	167
Cock for casks	E. Cremer	478,574	July 12	792	195	60	172
Cock for pneumatic tools. Graduated	D. Drawbaugh	479,061	July 19	1520	381	60	327
Cock. Gage-	T. R. Butman	479,732	July 26	2637	654	60	551
Cock-grinding machine	P. Gerstenkorn	480,258	Aug. 9	816	209	60	749
Cock. Stop-	C. F. Logan	478,618	July 12	851	209	60	184
Cock. Waste and stop	G. H. Bailey and T. Grace	479,544	July 26	2330	582	60	495
Cocks, &c. Device for opening and closing	O. Loewe	478,444	July 5	589	143	60	116
Coffee-pot	J. W. Abbott	478,075	July 5	1	1	60	3
Coffee-pot	R. G. Brown	480,066	Aug. 2	492	125	60	676
Coffee-pot	W. H. Comstock	482,299	Sept. 6	621	148	60	1456
Coffee-pot	R. F. Randall	481,769	Aug. 30	3299	801	60	1270
Coffee-pots, &c. Sediment-gatherer for	J. C. W. Boice	481,547	Aug. 30	2921	718	60	1198
Coffee-huller	W. H. B. Stout	482,909	Sept. 20	1621	405, 406	60	1677
Coffin-handle	L. H. Williams	479,044	July 19	1507	376	60	323
Coffin-shell mold	W. J. Anthistle	480,986	Aug. 16	1974	493	60	989
Coin-actuated machine	J. M. Hunter	480,018	Aug. 2	415	104, 105	60	660
Coin-actuated mechanism	J. Evans	482,119	Sept. 6	322	77	60	1398
Coin-chute	R. F. Avery	480,360	Aug. 9	981	247, 248	60	780
Coin. Commercial	I. T. Alvord	478,304	July 5	384	93	60	77
Coin-controlled mechanism	H. E. Perry	481,816	Aug. 30	3366	825	60	1283
Coin-holder	G. D. O'Grady and J. R. Collins	480,960	Aug. 16	1929	483	60	980
Coin-operated machine	A. Larsen	480,431	Aug. 9	1101	275	60	801
Coin-receptacle. Pocket	F. H. Brown	481,523	Aug. 23	2273	706	60	1173
Coin-table	F. C. Lidke	478,105	July 5	144	37	60	21
Coin-tray	A. Isch	482,639	Sept. 13	1186	287	60	1580
Coke-loading appliance	A. M. Chambers and T. Smith	479,556	July 26	2149	586	60	499
Colander for mashing vegetables	P. Patroli	482,982	Sept. 20	1734	438	60	1700
Collar	O. C. Little	483,228	Sept. 27	2123	537	60	1791
Collar and cuff cabinet	H. Caspar	478,566	July 12	779	190	60	170
Collar and hame fastener. Combined	J. C. Weinman	482,492	Sept. 13	963	234	60	1537
Collar-fastener	N. Lage	478,116	July 5	60	16	60	14
Collar fastener. Horse-	J. Himmelstein	478,603	July 12	834	205	60	181
Collar holder. Shirt-	F. L. Robinson	481,425	Aug. 23	2723	669	60	1143
Collar. Horse-	J. B. Mueller	478,452	July 5	599	146	60	118
Collar. Horse-	A. D. Ulrich	480,000	Aug. 2	372	93	60	652
Collar pad. Horse-	R. O. Randall	483,016	Sept. 20	1795	452	60	1713
Collars and cuffs. Machine for turning	J. H. Young	482,859	Sept. 20	1528	380	60	1661
Collars. Machine for forming	A. W. Cummings	483,139	Sept. 27	1976	501	60	1761
Coloring-matter. Azo	M. Ulrich and J. Bammann	482,106	Sept. 6	301	.....	60	1394
Colors. Making azo	D. A. Rosenstiehl	483,368	Sept. 27	2355	.....	60	1833
Colter attachment. Plow-	J. C. F. Schenck	482,387	Sept. 13	792	190	60	1505
Colter. Plow-	G. A. Lambert	483,457	Sept. 27	2479	624	60	1858
Colter-yokes. Separable coupling for	N. J. Johnson	478,796	July 12	1130	278	60	239
Comb: *See* Curry comb.							
Comb	E. H. Harpham	483,058	Sept. 20	1850	469	60	1725
Combing fibrous materials. Machine for	G. E. Donisthorpe and T. Burrows	482,960	Sept. 20	1697	427, 428	60	1693
Combing-machine	H. L. Offermann and G. Ziegler	481,812	Aug. 30	3359	822, 823, 824	60	1282

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Combing machines. Dabbing apparatus for wool-	J. L. Ballantyne	479,695	July 26	2562	637, 638	60	538
Combination-chair	W. H. Tuttle	478,662	July 12	908	225	60	195
Combination-lock	G. L. Barney	482,222	Sept. 6	492	118	60	1431
Combination-lock	J. F. Foster	479,412	July 26	2100	526	60	451
Combination-lock	W. H. Thompson	478,658	July 12	903	224	60	195
Combustion. Total	E. A. Erb	478,693	July 12	952	236	60	205
Commode	J. W. Clerke	481,255	Aug. 23	2416	602	60	1092
Commode	D. H. Murphy	479,897	Aug. 2	185	45, 46	60	618
Commutator	W. H. Elkins	479,793	Aug. 2	28	7	60	587
Commutator for electro-magnetic machines	H. F. Parshall	480,739	Aug. 16	1590	398	60	913
Commutator for ring-armatures	G. Pfannkuche	480,780	Aug. 16	1650	413	60	926
Compasses	A. Kolesch	479,329	July 19	1936	484	60	405
Composition of matter	P. H. Holmes	482,176	Sept. 6	423	.....	60	1418
Compound engine	J. Player	481,056	Aug. 16	2078	518, 519, 520	60	1010
Compound engine	S. F. Prince, Jr	480,781	Aug. 16	1652	413	60	926
Compound engine	G. S. Strong	481,773	Aug. 30	3296	802, 803, 804	60	1271
Compressing-engine. Compound	S. St. Clair	480,527	Aug. 9	1247	313, 314	60	831
Computing-machine	P. J. Landin	482,312	Sept. 6	650	155	60	1462
Condenser-head	S. H. Woodbridge	481,518	Aug. 23	2865	704	60	1171
Condenser. Steam-	J. F. Fetters	480,572	Aug. 9	1311	328	60	845
Conductors. Cast joint for armored	C. Grohman	479,271	July 19	1856	465	60	368
Conduits. Cord-carrier for underground	F. M. Bennett	479,386	July 19	2053	512	60	426
Confectionery. Apparatus for the manufacture of tubular articles of	S. R. Bradley	479,397	July 26	2077	521	60	447
Conformator	C. E. Gardiner	478,279	July 5	347	84	60	70
Convertible chair	A. S. Adler	482,911	Sept. 20	1623	406, 407	60	1677
Conveyer	A. B. Stevens	480,636	Aug. 9	1424	355	60	866
Conveyer	E. B. Coxe	481,106	Aug. 16	2172	538	60	1026
Conveyer	T. L. Marvel	483,232	Sept. 27	2131	530	60	1792
Conveyer	J. H. Shull and G. S. Dorney	480,939	Aug. 16	1887	472	60	973
Conveyer and screen	P. C. Wilson	481,837	Aug. 30	3401	835	60	1290
Conveyer. Continuous-trough	R. L. Hassell	479,742	July 26	2654	658	60	555
Conveyer sprocket device	J. Pollock	483,475	Sept. 27	2499	629	60	1862
Conveying and hoisting device	M. Garland	480,010	Aug. 2	393	97	60	636
Conveying apparatus	E. G. Spilsbury	482,443	Sept. 13	881	212	60	1520
Conveying apparatus	T. S. Miller	4 8,348	July 5	453	111	60	91
Conveying apparatus	C. M. North	480,929	Aug. 2	436	110	60	664
Cooker	I. N. Rowe	483,120	Sept. 20	1943	491	60	1744
Cooker or boiler. Domestic	J. H. Gardner	482,898	Sept. 20	1606	403	60	1674
Cooking utensil	H. C. Joerden	478,331	July 5	492	103	60	85
Cooking utensil	T. A. Simons	478,243	July 5	295	72	60	59
Cooking-vessels. Fume-drainer for	S. Smith	478,376	July 5	494	119	60	97
Cooler: *See* Milk-cooler.	B. F. Fowler	481,901	Aug. 30	3504	858	60	1309
Cooling milk, meat, vegetables, &c. Device for	J. W. Smart and T. C. Cheatham	478,720	July 12	992	246	60	213
Coop. Chicken-	A. H. Kludle	479,514	July 26	2290	572	60	488
Coop. Folding	J. E. Marquis	482,644	Sept. 13	1193	289	60	1581
Coop or crate. Folding	G. Bender	480,914	Aug. 16	1852	462	60	967
Copying device	J. C. Ingram	479,220	July 19	1870	468	60	392
Copying-machine	C. Maine	478,119	July 5	63	16, 17	60	15
Copying-press	D. Healy	478,601	July 12	829	205	60	180
Core-barrel. Collapsible	F. Chambers	478,921	July 12	1306	325	60	273
Core-setter	J. D. Storie	482,394	Sept. 13	803	193	60	1507
Cores. Skeleton frame for sand	W. H. Cass	479,783	Aug. 2	14	4	60	585
Coring machine. Fruit-	J. Adams	482,327	Sept. 6	682	162, 163	60	1469
Cork-extractor	J. M. Barnes	481,093	Aug. 16	2152	534	60	1022
Cork-extractor	R. B. Gilchrist	478,545	July 5	751	183	60	149
Corn cutter or harvester	J. Kipp, Sr	479,815	Aug. 2	61	14	60	594
Corn cutting and shocking machine	G. D. Haworth	482,355	Sept. 13	738	177, 178	60	1494
Corn-popper	I. M. Palmer	482,632	Sept. 20	1487	370	60	1652
Corn-popper	D. Swenson	481,877	Aug. 30	3460	849	60	1302
Corn-popper. Portable	A. B. Olson	478,353	July 5	460	112	60	92
Corn-popping apparatus	N. B. Olson	480,779	Aug. 16	1648	413	60	926
Corn-shellers. Extension-feed for	W. H. Rush	483,239	Sept. 27	2141	542, 543	60	1794
Corn-shock loader	D. H. Good	480,767	Aug. 16	1630	408, 409	60	922
Corn-shocker	T. J. Mason	479,124	July 19	1633	408	60	345
Cornet. Convertible	J. Vivien	478,666	July 12	915	227	60	197
Corrugating-machine	J. White	483,192	Sept. 27	2068	522	60	1780
Corset	W. P. Bigelow	481,294	Aug. 23	2516	618	60	1104
Corset	L. Schiele	479,573	July 26	2373	591	60	503
Corset	L. Schiele	479,574	July 26	2374	592	60	503
Corset	M. W. Sherman	479,312	July 19	1916	479	60	400
Corset and dress-shield. Combined	J. S. Goldsmith	480,426	Aug. 9	1095	273, 274	60	800
Corset-steel clasp	L. A. Davis	479,492	July 26	2258	566	60	482
Cotton-chopper	E. A. Ellis and W. C. S. Wood	478,158	July 5	131	33	60	29
Cotton-chopper	E. A. Wright	479,683	July 26	2558	636	60	537
Cotton chopper and cultivator. Combined	L. H. Abernathy	479,083	July 19	1563	392	60	333
Cotton-cleaning machine	C. Young	482,669	Sept. 13	1228	299	60	1588
Cotton. Feeding mechanism for machinery for opening and preparing	J. C. Potter	482,194	Sept. 6	448	108	60	1423

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cotton. Feeding mechanism for machinery for opening, cleaning, and preparing	J. C. Potter	482,193	Sept. 6	446	108	60	1422
Cotton-gin	S. Z. Hall	483,216	Sept. 27	2104	533	60	1787
Cotton-gin brush	S. B. Hall	482,478	Sept. 13	933	227	60	1530
Cotton-gin. Huller	W. G. Beckwith	482,672	Sept. 13	1231	300	60	1588
Cotton-gins. Pneumatic feeder for	J. Cornelison	482,916	Sept. 20	1630	408	60	1679
Cotton. Machine for handling, cleaning, and distributing seed	R. S. Munger	478,883	July 12	1244	308 / 309	60	261
Cotton opening and preparing machine	J. C. Potter	482,273	Sept. 6	575	136 / 137	60	1447
Cotton-pickers, &c. Trunk for use with	R. L. Cumnock	478,990	July 19	1423	352	60	306
Cotton. Pneumatic conveyer for unloading	G. A. Stafford	481,434	Aug. 23	2738	673	60	1145
Cotton-press	P. B. Marsh	478,753	July 12	1051	259	60	224
Cotton receiver. Seed	A. Schulze	478,473	July 5	630	153	60	125
Counterbalancing-collar	W. T. Webb	483,411	Sept. 27	2423	609	60	1846
Counter foot-railing	G. A. Schellinger	482,591	Sept. 13	1121	271	60	1568
Counter-rail, foot-bracket, and cuspidor. Combined	W. C. Huss	481,568	Aug. 30	2956	726	60	1205
Counter-shaft-supporting jack	H. J. Garbutt	481,486	Aug. 23	2820	693	60	1162
Coupling: *See* Air-brake coupling. Car-coupling. Car and air-brake coupling. Car and hose coupling. Carriage-coupling. Carriage-gear coupling. Gas-main safety-coupling. Hose-coupling. Pipe-coupling. Shaft-coupling. Stovepipe-coupling. Thill-coupling. Universal coupling. Wire coupling.							
Cover and adjustable ink-well	R. L. Boyd	479,132	July 19	1613	411	60	347
Cover-holder for tea-kettles, &c	J. Musgrove	478,967	July 12	1379	339	60	287
Cover. Kettle	N. Cosman	479,490	July 26	2255	560	60	481
Cradle	J. H. and G. W. Meek	478,450	July 5	597	145	60	118
Crane. Derrick	J. B. Anderson	479,730	July 26	2635	653	60	551
Crane. Hydraulic	H. C. Shaw	479,468	July 26	2205	553 / 554	60	472
Crane. Overhead traveling	J. R. Morgan	478,803	July 12	1139	281 / 282	60	241
Crane. Overhead traveling	J. R. Morgan	478,804	July 12	1141	282	60	242
Crane. Overhead traveling	J. R. Morgan	481,964	Sept. 6	62	15, 16	60	1346
Cranes. Brake for drums of overhead traveling	J. R. Morgan	483,467	Sept. 27	2488	626 / 627	60	1860
Crank-handle fastening	T. H. Heard and W. K. Birkinshaw	481,262	Aug. 23	2456	605	60	1094
Crank-pins. Means for securing collars to	S. K. Dickerson and C. D. Kee	479,406	July 26	2093	524	60	450
Crank-securing means	F. H. Bolte	483,342	Sept. 27	2323	584	60	1827
Crate	H. C. Burkhead	483,101	Sept. 20	1916	485	60	1738
Crate. Fowl	F. W. Ewert	478,930	July 12	1322	328	60	277
Crate-head	J. L. Emple	479,794	Aug. 2	30	7	60	588
Crate or coop. Shipper's folding	C. F. Baxter	479,545	July 26	2331	582	60	496
Cravat-holder	H. Lehmann	478,342	July 5	437	107	60	87
Crayon-molding machine	A. A. Fuchs	479,212	July 19	1708	443	60	371
Crematory. Garbage or refuse	A. G. Delanoy	479,405	July 26	2090	524	60	449
Crib and chair. Combined infant's	H. A. Hayden	483,218	Sept. 27	2107	534	60	1788
Cross-head	W. Laycock	479,818	Aug. 2	64	15	60	594
Crozing-machine	T. A. Cook	480,711	Aug. 16	1551	386	60	904
Crusher: *See* Clod-crusher. Ore-crusher. Ore and coal crusher. Rock-crusher. Quartz-crusher.							
Crutch	R. M. Lamp	483,118	Sept. 20	1940	491	60	1743
Crutch or cane tip	W. L. Scoville	483,174	Sept. 27	2039	515	60	1774
Cuff-holder	F. B. Gardner	478,101	July 5	37	12	60	10
Cuff-holder	H. W. Jones	482,311	Sept. 6	649	155	60	1462
Cuff-holder	H. E. Snow. (Reissue)	11,253	July 12	1397	345	60	290
Culinary vessel	H. F. Thurston	481,316	Aug. 23	2552	626	60	1110
Cultivator	A. Ellis	478,790	July 12	1118	276	60	237
Cultivator	J. Gedeohn	482,919	Sept. 20	1634	410	60	1680
Cultivator	C. Johnson and O. Olson	479,281	July 19	1871	468 / 469	60	392
Cultivator	J. G. Mallery and E. J. Youngs	482,746	Sept. 20	1366	338	60	1627
Cultivator	J. A. Martin	483,075	Sept. 20	1375	475	60	1730
Cultivator	G. Moore	478,624	July 12	858	211	60	196
Cultivator	E. D. Owen	480,128	Aug. 2	588	150	60	694
Cultivator	W. Sobey	481,208	Aug. 23	2351	579	60	1074
Cultivator	A. Tindall	480,529	Aug. 9	1250	314	60	832
Cultivator	E. Wages and S. H. Armstrong	483,031	Sept. 20	1816	461	60	1718
Cultivator adjusting device	H. H. Durr and H. D. Babcock	479,754	July 26	2671	663	60	558
Cultivator attachment	A. Dyer	482,729	Sept. 20	1731	326	60	1621
Cultivator attachment	A. S. Gilkey	481,667	Aug. 30	3108	758	60	1233
Cultivator for listed corn	L. P. Schrader	482,321	Sept. 6	669	159 / 160	60	1466
Cultivator. Hand	R. O. Osborn	482,693	Sept. 13	1272	319	60	1597
Cultivator. Hand	T. T. Rodes	478,468	July 5	624	153	60	193
Cultivator. Orchard	J. E. Daly and A. A. Neil	482,081	Sept. 6	261	63	60	1387
Cultivator replanting attachment	R. C. Summers and W. Bolinger	479,998	Aug. 2	369	92	60	951
Cultivator. Rotary	S. Gasser	479,800	Aug. 2	39	10	60	589
Cultivator-tooth	M. J. Cheney and H. Berch	482,226	Sept. 6	498	119	60	1432
Cultivator-tooth	J. S. Worcester	481,129	Aug. 16	2207	546	60	1033
Cultivator. Wheel	A. E. Morey	479,913	Aug. 2	203	51	60	622
Cultivators. Spring-tooth attachment for	D. E. Herrington	481,946	Sept. 6	40	9	60	1342
Cup: *See* Lubricating-cup. Oil-cup. Paint and varnish cup.							
Cups, mugs, &c. Drinking attachment for	J. S. Howard	478,861	July 12	1220	303	60	25

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Curb-bit. Ornamental	J. W. James	478,868	July 12	1227	304	60	258
Curling-iron	F. H. Deknetel	481,348	Aug. 23	2599	638	60	1118
Curling-iron holder	G. F. McInto	478,123	July 5	67	18	60	15
Curling-iron shield	T. Iremonger, Jr	482,360	Sept. 13	746	179	60	1496
Curling or crimping iron	F. S. Sleeper	482,501	Sept. 13	978	237	60	1540
Curling-tongs	G. L. Thompson	482,702	Sept. 13	1267	315	60	1600
Curling-tongs heater	A. W. Kent	478,437	July 5	570	140	60	114
Current generator. Pulsating	H. N. Marvin	479,951	Aug. 2	275	67	60	634
Current-motor	F. Dinwiddie	478,316	July 5	400	96, 97	60	90
Current motor. Alternating	O. T. Blathy	482,974	Sept. 20	1721	434	60	1697
Current motor. Alternating	T. H. Hicks	479,187	July 19	1734	435	60	364
Current motor. Alternating	W. Stanley, Jr., and J. F. Kelly	479,675	July 26	2528	630	60	532
Current motor. Alternating	W. Stanley, Jr., and J. F. Kelly	479,676	July 26	2530	630	60	532
Current motor. Alternating	W. Stanley, Jr., and J. F. Kelly	479,727	July 26	2630	653	60	550
Currycomb	T. H. Ireland	480,196	Aug. 2	697	176	60	714
Curtain-fixture	C. M. Banks	481,684	Aug. 30	3135	765	60	1238
Curtain-fixture	F. H. Bassett	482,716	Sept. 20	1316	321	60	1618
Curtain-fixture	S. H. Snavely	481,978	Sept. 6	85	22	60	1351
Curtain-rod	S. R. Scottron	481,720	Aug. 30	3209	782	60	1252
Cut-off. Rain-water	W. C. Maxfield	481,635	Aug. 30	3039	747	60	1224
Cut-out. Ceiling-rosette	J. Pass and A. P. Seymour	481,624	Aug. 30	3043	743	60	1220
Cut-out. Safety	R. Furgang	480 009	Aug. 2	392	97	60	656
Cut-out switch	W. B. Cleveland	478,689	July 12	949	235	60	204
Cut-out. Thermal	A. P. Seymour	481,246	Aug. 23	2423	598	60	1088
Cutlery-die	T. Shaw	479,668	July 26	2519	627	60	530
Cutlery rolling-machine	I. Hirsch	480,325	Aug. 9	932	236	60	771
Cutter: *See* Axle-cutter. Bale-tie cutter. Band-cutter. Bolt-cutter. Broom-shoulder cutter. Cane-cutter. Cigar-bunch cutter. Coal-cutter. Corn-cutter. Dovetail-cutter. Meat-cutter. Meat and vegetable cutter. Miter-cutter. Paper-cutter. Potato-cutter. Spoke-tenon cutter. Stalk-cutter. Straw-cutter. Straw or ensilage cutter. Strawberry-vine cutter. Tube-cutter. Weed-cutter.							
Cutter-bar	G. A. Vandament	481,318	Aug. 23	2555	627	60	1111
Cutter-head	C. L. Goehring	480,463	Aug. 9	1157	290	60	813
Cutter-head and knife	C. Grotz	481,861	Aug. 30	3436	843	60	1297
Cutter-head. Rotary	J. T. Rhodes	480,137	Aug. 2	605	153 / 154	60	698
Cutter or drill applicable to coal, &c	H. Renold, W. T. Goolden, L. B. Atkinson, and S. C. G. Gold.	481,656	Aug. 30	3092	754	60	1230
Cutting and scouring device. Combined	E. K. Patten	479,332	July 19	1939	485	60	405
Cutting-knife	W. E. Taft	478,381	July 5	499	121	60	98
Cutting-machine. Rotary-blade	F. Kircher	480,387	Aug. 9	1032	259	60	790
Cutting off machine	J. A. Gilmore	480,461	Aug. 9	1153	289	60	812
Cutting right-angled structural shapes. Machine for	R. W. Grace	479,066	July 19	1536	383 / 384	60	328
Cycle-wheel	C. E. W. Woodward	483,373	Sept. 27	2367	593	60	1836
Cyclometer	F. C. Weston	481,608	Aug. 30	3021	738	60	1216
Cyclometer for velocipedes. Electric	J. Butcher	478,086	July 5	18	6	60	6
Cylinder-lock	J. B. Price	481,421	Aug. 23	2714	668	60	1141
Cylinder locks and keys	H. G. Voight	480,299	Aug. 9	889	225 / 226	60	764
Cylinder mold. Closed	F. X. Black	481,295	Aug. 23	2517	619	60	1104
Dam or levee	C. E. Wright	479,543	July 26	2128	581	60	495
Damper. Automatic	C. D. Howard	480,263	Aug. 9	832	212	60	753
Damper-operating mechanism. Time	O. Briggs, Jr	478,562	July 12	775	189	60	169
Damper-regulator	J. E. Spencer	479,854	Aug. 2	118	29	60	605
Damper regulator. Automatic steam	G. Newton	478,127	July 5	71	19	60	16
Damper. Self-acting wind-proof	A. J Ginther	479,801	Aug. 2	42	10	60	590
Damper. Stovepipe	L. M. Devore	478,414	July 5	547	133	60	108
Darning-last	S. H. Garwood	482,351	Sept. 13	731	176	60	1493
Data. Instrument for facilitating the use of tabulated	I. D. Boyer	480,245	Aug. 9	790	201	60	743
Davit-hook	S. B. Butler	483,421	Sept. 27	2435	613	60	1849
Deck-cleaning machine	S. Lowberg	478,443	July 5	587	143	60	116
Decorticating ramie, &c. Machine for	W. T. Forbes	480,084	Aug. 2	519	132	60	681
Dehorner	J. M. Mills	480,932	Aug. 16	1679	409	60	972
Dehorning implement	A. C. Brosius	480,246	Aug. 9	791	202	60	743
Demijohn-holder	E. W. H. Holme	480,095	Aug. 2	539	135	60	684
Dental burring-tool	R. G. Stanbrough	481,740	Aug. 30	3241	789	60	1250
Dental cabinet	C. A. Herr	480,261	Aug. 9	830	212	60	752
Dental chair	W. H. Gilbert	478,589	July 12	811	200	60	176
Dental chair	A. P. Gould	478,590	July 12	812	200 / 201	60	176
Dental chair	B. M. Wilkerson	478,672	July 12	923	229 / 230	60	198
Dental chair. Portable	F. H. and C. H. Field	482,590	Sept. 13	1011	245	60	1547
Dental clamp	J. S. Deardorff	481,479	Aug. 23	2811	691	60	1160
Dental disk-carrier	M. S. Nichols	480,121	Aug. 2	573	145	60	691
Dental drill	L. Maillard	482,558	Sept. 13	1077	261	60	1559
Dental engine	F. A. Damon	478,992	July 19	1425	353	60	307
Dental engine	F. A. Damon	481,164	Aug. 23	2286	563	60	1061
Dental engine	C. W. Thomas	480,678	Aug. 9	1494	372	60	879
Dental flask clamp	M. R. B. Creery	478,312	July 5	395	95	60	79
Dental forceps	C. E. Blake, Sr	478,217	July 5	231	58	60	47
Dental jaw-brace	A. E. Worthen	480,357	Aug. 9	977	246	60	779
Dental moistening-pad	G. W. Melotte	480,471	Aug. 9	1167	294	60	815

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dental syringe	J. M. Drennan	479,407	July 26	2094	525	60	450
Dental tool	C. P. Lennox	478,343	July 5	438	108	60	87
Dental tool	E. C. Moore	478,881	July 12	1241	307	60	261
Dental-tool sterilizer	W. G. Flanders	482,552	Sept. 13	1069	259	60	1557
Dental vulcanizer	J. Johnson	478,871	July 12	1230	305	60	259
Derrick-drum	A. C. French	483,052	Sept. 20	1843	468	60	1724
Derrick. Portable	G. W. Patnoe	482,528	Sept. 13	1026	248	60	1550
Desk	M. J. Hafgar	478,594	July 12	818	202	60	178
Desk-cover	C. A. Bennett	483,128	Sept. 27	1959	496	60	1758
Desk. School-	C. S. Barnes	482,465	Sept. 13	910	222	60	1525
Desk. School-	R. Parker and S. W. Le Neve	480,620	Aug. 9	1399	348	60	861
Desk. Writing-	O. Kissling	478,336	July 5	427	104	60	86
Detergent paste	J. Judge	478,870	July 12	1229	.....	60	259
Dial-transmitter	F. Pearce	482,877	Sept. 20	1561	{390 391}	60	1667
Dice-box. Puzzle	H. Goujon	481,398	Aug. 23	2079	657	60	1133
Die: *See* Cutlery-die. Screw-threading die. Screw-swaging die.							
Die	H. C. Dickinson	479,354	July 19	1995	499	60	416
Die-plate	L. C. Wetzel	481,450	Aug. 23	2759	679	60	1150
Diffusion apparatus	E. F. and H. P. Dyer	480,812	Aug. 16	1701	424	60	935
Diffusion apparatus	S. Faron	480,571	Aug. 9	1310	328	60	845
Digger: *See* Post-hole digger. Potato-digger.							
Dipper. Fruit-	E. E. Thomas	482,283	Sept. 6	593	141	60	1450
Dish-washer	M. A. Crosby	479,703	July 26	2578	642	60	540
Dish-washing machine	A. W. Heinly	481,027	Aug. 16	2029	506	60	1000
Dish-washing machine	H. F. Low	482,313	Sept. 6	653	156	60	1463
Dish-washing machine	S. A. Walter	482,706	Sept. 13	1292	{316 317}	60	1601
Disinfectant	B. R. Seifert	482,102	Sept. 6	295	.....	60	1393
Disinfectants. Making	B. R. Seifert	482,101	Sept. 6	293	.....	60	1393
Disinfectants. Manufacture of	H. Heidenhain	479,710	July 26	2593	.....	60	544
Disinfecting and deodorizing cover for commodes, water-closets, &c.	J. Kinney	482,966	Sept. 20	1708	431	60	1695
Disinfecting apparatus	C. B. Hyslip	478,697	July 12	957	238	60	260
Disintegrating-roller	R. C. Penfield	480,937	Aug. 16	1885	471	60	973
Disintegrating vegetable substances	H. J. Bird	482,537	Sept. 13	1040	.....	60	1552
Displaying goods. Rack for	E. A. Foster	481,942	Sept. 6	34	8	60	1341
Distilling apparatus	A. Feldmann	480,842	Aug. 16	1741	435	60	943
Distilling apparatus	H. Propfe	478,265	July 5	327	79	60	66
Ditching-machine	J. Cornelius	478,408	July 5	538	131	60	106
Divers. Microtelephonic apparatus for	R. Wreden	478,493	July 5	658	{161 162}	60	131
Dividers	W. A. Bernard	479,112	July 19	1616	404	60	342
Dock. Hydraulic lifting	R. Moran	481,411	Aug. 23	2698	683	60	1137
Doll-support	A. B. Willcox	479,481	July 26	2242	562	60	478
Dolls. Composition for and method of making heads and limbs of	S. D. Hoffmann	480,094	Aug. 2	532	.....	60	684
Door-alarm. Electric	M. W. Bessey	481,711	Aug. 30	3177	776	60	1247
Door bolt. Prison-	F. O. Weary and G. W. Kramer	478,146	July 5	109	28	60	24
Door-check	W. J. Conner	482,227	Sept. 6	498	119	60	1432
Door-check	J. Keene	479,813	Aug. 2	58	14	60	593
Door-check	J. H. Shaw	478,371	July 5	485	117	60	96
Door-check	J. H. Shaw	478,372	July 5	487	117	60	96
Door-check	C. H. Timms	480,222	Aug. 2	750	180	60	724
Door-check. Pneumatic	G. W. Wright	478,388	July 5	507	123	60	100
Door-closer	E. W. Daily	483,140	Sept. 27	1976	501	60	1761
Door-closer	A. D. Lodge	481,798	Aug. 30	3337	815	60	1278
Door-closer	E. M. Wyant	482,836	Sept. 20	1404	371	60	1654
Door-closer. Automatic	J. B. Stoner	478,216	July 5	300	73	60	60
Door-closer. Gravitating	H. Schneewind	483,169	Sept. 27	2032	513	60	1773
Door-fastener	W. W. Tanner and T. W. Burch	482,817	Sept. 20	1465	364	60	1648
Door-hanger	S. Shreffler, Jr.	482,530	Sept. 13	1020	249	60	1550
Door-jamb setter	J. Ritterbeck	481,245	Aug. 23	2421	{597 598}	60	1087
Door-lock	C. F. Garland	480,236	Aug. 2	709	194	60	728
Door lock. Sliding	A. B. Pullman	483,326	Sept. 27	2301	579	60	1623
Door-opener. Electric	L. Bates	480,546	Aug. 9	1277	320	60	838
Door or window screen. Electric	W. S. Hull	480,100	Aug. 2	540	137	60	685
Door parcel-box. House-	G. Benicke	480,704	Aug. 16	1541	384	60	902
Door-spring	J. A. Cooper	481,475	Aug. 23	2801	680	60	1158
Door-spring	A. A. Page	478,354	July 5	464	113	60	93
Door-spring	A. A. Page	478,355	July 5	465	113	60	93
Door-spring	J. H. Shaw	478,370	July 5	484	116	60	96
Door-spring	G. W. Wright	478,387	July 5	506	123	60	100
Door track. Barn-	J. H. Lawrence	480,501	Aug. 9	1212	303	60	824
Doors. Manufacture of screen	C. J. Shirreff	481,067	Aug. 16	2112	525	60	1015
Doors. Mechanism for opening and closing jail	P. J., Sr., and P. J. Pauly, Jr	482,316	Sept. 6	658	157	60	1464
Doors. Mechanism for opening, closing, and locking jail-	P. J., Sr. and P. J. Pauly, Jr.	480,476	Aug. 9	1175	{295 296}	60	817
Doors. Mechanism for operating and locking jail-	C. H. Sparks	483,178	Sept. 27	2043	516	60	1775
Dovetail-cutter	A. G. Mead	479,075	July 19	1551	387	60	331
Dovetailing-machine	H. J. Cordesman and E. Cheshire	478,544	July 5	750	183	60	149
Dovetailing-machine	C. Cristadoro	480,251	Aug. 9	863	206	60	747
Draft attachment. Spring	H. Barber	481,384	Aug. 23	2653	{650 651}	60	1129
Draft attachment. Spring	J. F. Tiner	479,681	July 26	2541	633	60	534
Draft attachment. Spring	R. Boettler	482,504	Sept. 13	992	238	60	1541
Draft attachment. Vehicle	H. Barber	482,973	Sept. 20	1718	434	60	1697
Draft-equalizer	T. J. Fredericks	479,088	July 19	1574	394	60	335

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Draft-equalizer	J. L. Hoover	480,262	Aug. 9	831	212	60	753
Draft-equalizer	A. Hunt	481,357	Aug. 23	2609	641	60	1121
Draft-equalizer	J. Lamuth	482,370	Sept. 13	758	183	60	1498
Draft-equalizer	A. McKee	480,339	Aug. 9	947	240	60	774
Draft-equalizer	E. Roadifer	480,517	Aug. 9	1229	308	60	828
Draft-equalizer	J. S. Thompson	479,034	July 19	1493	371	60	320
Drainage-trap	G. Wing	480,837	Aug. 16	1735	434	60	943
Drainage system	E. E. Gold	481,727	Aug. 30	3214	{784 785}	60	1253
Drainer-plate	J. and F. H. Nicholson	483,236	Sept. 27	2138	541	60	1793
Drapery-fixture. Cornice	H. Strater	481,981	Sept. 6	90	23	60	1352
Draw-bar carrier-iron	M. E. Clark and F. S. Shaw	479,787	Aug. 2	20	5	60	586
Drawer-pull	W. D. Minton and A. S. Douglas	483,465	Sept. 27	2487	626	60	1859
Drawer stop and guide	R. Eichstaedt	481,853	Aug. 30	3426	841	60	1295
Drawing apparatus	H. E. Spaunhorst	480,861	Aug. 16	1773	444	60	950
Drawing-roll	A. H. Johnson	482,127	Sept. 6	332	79	60	1400
Dredge. Hydraulic	P. H. Holmes	480,195	Aug. 2	696	176	60	714
Dredging-machine	C. H. Booth	479,486	July 26	2250	{564 565}	60	480
Dress-form	J. M. Miller	479,375	July 19	2031	507	60	423
Dress-form	H. Baer	480,703	Aug. 16	1540	383	60	902
Dress-pad	W. Vogler	479,232	July 19	1798	450	60	377
Dress-shield	E. Goldman	481,788	Aug. 30	3320	811	60	1275
Dress-stay	E. N. Gaillard	480,574	Aug. 9	1314	328	60	845
Dress-waist form	I. Bray	480,994	Aug. 16	1983	496	60	991
Dresser and table. Combined	H. A. Brown	478,308	July 5	380	94	60	78
Drier: *See* Brick-drier. Phosphate-rock drier. Clothes-drier. Tea and fruit drier. Paper-machine drier.	B. Wilms	480,799	Aug. 16	1676	419	60	931
Drier	S. A. Menzemer	480,112	Aug. 2	557	140	60	688
Drill: *See* Dental drill. Prospecting-drill. Electric drill. Rock-drill.							
Drill	A. G. Turner	480,978	Aug. 16	1964	491	60	987
Drilling-machine	A. G. Turner	480,979	Aug. 16	1965	491	60	987
Drilling-machine	J. Kindred	480,907	Aug. 16	1845	459	60	965
Drilling-machine. Portable	O. Sternoff-Beyer	479,086	July 19	1570	394	60	334
Drilling-tool and sand-bailer. Combined	J. R. Saylor	480,040	Aug. 2	452	115	60	668
Drinking-fountain for fowls	L. N. Ireland	478,605	July 12	836	206	60	181
Drive-gate	F. G. Botsford	479,549	July 26	2340	584	60	497
Drum	J. M. Thomas	479,319	July 19	1924	481	60	402
Drum	J. Knittel	478,611	July 12	842	207	60	183
Drum for stoves. Detachable heating-	A. G. Soistmann and J. W. Pepper	478,378	July 5	495	120	60	98
Drum. Hand-	W. J. Loth	478,874	July 12	1233	306	60	260
Drum. Heating	E. H. Droop	479,636	July 26	2464	613	60	520
Drum. Heating	S. M. Kamp	483,116	Sept. 20	1938	490	60	1743
Drum-snares. Device for adjusting	J. Seither	482,276	Sept. 6	580	138	60	1448
Drums. Waterproof woven snare-string for	E. Boulanger	480,064	Aug. 2	489	124	60	675
Dry closet	E. Boulanger	480,063	Aug. 2	488	124	60	675
Dry closet	J. S. Rush	481,155	Aug. 16	2263	{558 559}	60	1043
Drying apparatus	C. B. Tompkins	482,987	Sept. 20	1742	440	60	1702
Drying-kiln	W. D. Sunderlin	481,212	Aug. 23	2357	581	60	1075
Drying-line support	C. J. Dion	480,253	Aug. 9	806	207	60	747
Dulcimer	J. and J. A. Paglinghi and F. De Canio,	479,898	Aug. 2	186	46	60	618
Dumping apparatus. Self-acting	I. D. Baglasarian	479,323	July 19	1928	482	60	403
Duplicating apparatus	J. C. Smith and C. Lardner	482,390	Sept. 13	796	191	60	1505
Dust-beater	H. T. C. Wise	479,968	Aug. 2	310	76	60	641
Dust-collector	J. J. Slattery	480,389	Aug. 9	1033	259	60	790
Dust collector and conveyer	P. Van Gelder	479,231	July 19	1797	450	60	376
Dust from air. Apparatus for separating	B. F. Mohr	481,185	Aug. 23	2313	570	60	1067
Dust-guard for attrition-mills	P. Van Gelder	479,267	July 19	1851	{463 464}	60	387
Dye and making the same. Red	T. Blass	479,547	July 26	2336	583	60	497
Dye. Diazo	C. Duisberg	481,934	Sept. 6	23	.....	60	1339
Dye. Olive	M. Hoffmann	480,326	Aug. 9	933	.....	60	772
Dyes. Manufacture of yellow	R. Lauch	479,515	July 26	2291	.....	60	488
Dyeing or scouring machine	M. Hoffmann. (Reissue)	11,267	Sept. 6	686	.....	60	1470
Dyeing with alizarin	J. H. Lorimer	480,502	Aug. 9	1213	303	60	824
Dynamo. Compound-wound alternating-current	H. N. F. Schaeffer	481,591	Aug. 30	2990	.....	60	1211
Dynamometer	H. Lemp	479,170	July 19	1697	{425 426}	60	358
Dynamos and motors. Brush-holder for	E. P. Warner	480,981	Aug. 16	1968	492	60	988
Dynamos. Ventilated brush for	M. H. Hathaway	478,104	July 5	41	13	60	11
Ear-muff	H. H. Cherry and S. D. Younglove	480,762	Aug. 16	1620	407	60	720
Ear-ring	H. Hadden	479,185	July 19	1733	434	60	364
Earth-closet	T. F. Gaynor	483,214	Sept. 27	2101	533	60	1787
Easel attachment for chairs and other supports	H. A. Jukes	479,712	July 26	2599	647	60	544
Easel rest or bracket	H. J. Muhlfeld and F. J. Spillane	481,045	Aug. 16	2060	514	60	1007
Eraseur	W. Rochlitz	480,280	Aug. 9	855	218	60	758
Edge-protector. Metallic	C. H. Harris	480,870	Aug. 16	1784	447	60	953
Edge. Straight-	F. F. Atkinson	480,241	Aug. 9	787	201	60	743
Edged tools. Apparatus for whetting and sharpening the edges of	C. T. Ridgely and M. A. Smith	480,516	Aug. 9	1228	307	60	898
Educational appliance	C. Spruce	480,634	Aug. 9	1421	354	60	866
Egg-carrying package	S. S. Barrett	480,164	Aug. 2	648	164	60	705
Egg-tester	R. G. Dale and W. S. Weightman	478,924	July 12	1310	326	60	274
Eggs. Device for separating the white and yelk of	J. B. Garland	481,487	Aug. 23	2821	693	60	1162
Eggs. Preserving	L. F. Pettee	479,016	July 19	1463	364	60	314
	E. T. Burnette	479,970	Aug. 2	312	.....	60	641

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dental syringe	J. M. Drennan	479,407	July 26	2094	525	60	450
Dental tool	C. P. Lennox	478,343	July 5	438	108	60	87
Dental tool	E. C. Moore	478,881	July 12	1241	307	60	261
Dental-tool sterilizer	W. G. Flanders	482,552	Sept. 13	1069	259	60	1557
Dental vulcanizer	J. Johnson	478,871	July 12	1230	305	60	259
Derrick-drum	A. C. French	483,052	Sept. 20	1843	468	60	1734
Derrick. Portable	G. W. Patnoe	482,528	Sept. 13	1026	248	60	1550
Desk	M. J. Hafgar	478,504	July 12	818	202	60	178
Desk-cover	C. A. Bennett	483,129	Sept. 27	1959	496	60	1758
Desk. School	C. S. Barnes	482,465	Sept. 13	910	232	60	1525
Desk. School	R. Parker and S. W. Le Neve	480,620	Aug. 9	1399	348	60	861
Desk. Writing	O. Kissling	478,336	July 5	427	104	60	96
Detergent paste	J. Judge	478,870	July 12	1229	.....	60	259
Dial-transmitter	F. Pearce	482,877	Sept. 20	1561	{390 391}	60	1667
Dice-box. Puzzle	H. Goujon	481,398	Aug. 23	2679	657	60	1133
Die: *See* Cutlery-die. Screw-threading die. Screw-swaging die.							
Die	H. C. Dickinson	479,354	July 19	1905	499	60	416
Die-plate	L. C. Wetzel	481,450	Aug. 23	2759	679	60	1150
Diffusion apparatus	E. F. and H. P. Dyer	480,812	Aug. 16	1701	424	60	935
Diffusion apparatus	S. Faron	480,571	Aug. 9	1310	328	60	845
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Disinfectants. Making	B. R. Seifert	482,101	Sept. 6	293	.....	60	1393
Disinfectants. Manufacture of	H. Heudenhain	479,710	July 26	2593	.....	60	544
Disinfecting and deodorizing cover for commodes, water-closets, &c.	J. Kinney	482,966	Sept. 20	1708	431	60	1695
Disinfecting apparatus	C. B. Hyslip	478,697	July 12	957	238	60	260
Disintegrating-roller	R. C. Penfield	480,937	Aug. 16	1885	471	60	973
Disintegrating vegetable substances	H. J. Bird	482,537	Sept. 13	1040	.....	60	1552
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Dress-waist form	I. Bray	480,094	Aug. 16	1903	496	60	991
Dresser and table. Combined	H. A. Brown	478,308	July 5	389	94	60	78
Drier: *See* Brick-drier. Phosphate-rock drier. Clothes-drier. Tea and fruit drier. Paper-machine drier.	B. Wilms	480,799	Aug. 16	1676	419	60	931
Drier	S. A. Menzemer	480,112	Aug. 2	557	140	60	688
Drill: *See* Dental drill. Prospecting-drill. Electric drill. Rock-drill.							
Drill	A. G. Turner	480,978	Aug. 16	1964	491	60	987
Drilling-machine	A. G. Turner	480,979	Aug. 16	1965	491	60	987
Drilling-machine	J. Kindred	480,907	Aug. 16	1845	459	60	965
Drilling-machine. Portable	O. Sternoff-Beyer	479,086	July 19	1570	394	60	334
Drilling-tool and sand-bailer. Combined	J. R. Saylor	480,040	Aug. 2	452	115	60	668
Drinking-fountain for fowls	L. N. Ireland	478,605	July 12	836	206	60	181
Drive-gate	F. G. Botsford	479,549	July 26	2340	584	60	497
Drum	J. M. Thomas	479,319	July 19	1924	481	60	402
Drum	J. Knittel	478,611	July 12	842	207	60	183
Drum for stoves. Detachable heating	A. G. Soistmann and J. W. Pepper	478,378	July 5	495	120	60	98
Drum. Hand	W. J. Loth	478,874	July 12	1233	306	60	260
Drum. Heating	E. H. Droop	479,636	July 26	2464	613	60	520
Drum. Heating	S. M. Kamp	483,116	Sept. 20	1938	490	60	1743
Drum-snares. Device for adjusting	J. Seither	482,276	Sept. 6	580	138	60	1448
Drums. Waterproof woven snare-string for	E. Boulanger	480,064	Aug. 2	489	124	60	675
Dry closet	E. Boulanger	480,063	Aug. 2	488	124	60	675
Dry closet	J. S. Rush	481,155	Aug. 16	2263	{558 559}	60	1043
Drying apparatus	C. B. Tompkins	482,987	Sept. 20	1742	440	60	1702
Drying-kiln	W. D. Sunderlin	481,212	Aug. 23	2357	581	60	1075
Drying-line support	C. J. Dion	480,253	Aug. 9	806	207	60	747
Dulcimer	J. and J. A. Pagliughi and F. De Canio.	479,898	Aug. 2	186	46	60	618
Dumping apparatus. Self-acting	I. D. Bagdasarian	479,323	July 19	1928	482	60	403
Duplicating apparatus	J. C. Smith and C. Lardner	482,390	Sept. 13	796	191	60	1505
Dust-beater	H. T. C. Wise	479,968	Aug. 2	310	76	60	641
Dust-collector	J. J. Slattery	480,389	Aug. 9	1033	259	60	790
Dust collector and conveyer	P. Van Gelder	479,231	July 19	1797	450	60	376
Dust from air. Apparatus for separating	B. F. Mohr	481,185	Aug. 23	2313	570	60	1067
Dust-guard for attrition-mills	P. Van Gelder	479,267	July 19	1851	{463 464}	60	387
Dye and making the same. Red	T. Blass	479,547	July 26	2336	583	60	497
Dye. Diazo	C. Duisberg	481,934	Sept. 6	23	.....	60	1339
Dye. Olive	M. Hoffmann	480,326	Aug. 9	933	.....	60	772
Dyes. Manufacture of yellow	R. Lauch	479,515	July 26	2291	.....	60	488
Dyeing or scouring machine	M. Hoffmann. (Reissue)	11,267	Sept. 6	686	.....	60	1470
Dyeing with alizarin	J. H. Lorimer	480,502	Aug. 9	1213	303	60	824
Dynamo. Compound-wound alternating-current	H. N. F. Schaeffer	481,591	Aug. 30	2990	.....	60	1211
Dynamometer	H. Lemp	479,170	July 19	1697	{425 426}	60	358
Dynamos and motors. Brush-holder for	E. P. Warner	480,981	Aug. 16	1968	492	60	988
Dynamos. Ventilated brush for	M. H. Hathaway	478,104	July 5	41	13	60	11
Ear-muff	H. H. Cherry and S. D. Younglove	480,762	Aug. 16	1626	407	60	720
Ear-ring	H. Hadden	479,185	July 19	1733	434	60	364
Earth-closet	T. F. Gaynor	483,214	Sept. 27	2101	533	60	1787
Easel attachment for chairs and other supports	H. A. Jukes	479,712	July 26	2599	647	60	544
Easel rest or bracket	H. J. Muhlfeld and F. J. Spillane	481,045	Aug. 16	2060	514	60	1007
Ecraseur	W. Rochlitz	480,220	Aug. 9	855	218	60	758
Edge-protector. Metallic	C. H. Harris	480,870	Aug. 16	1784	447	60	953
Edge. Straight	F. F. Atkinson	480,241	Aug. 9	787	201	60	743
Edged tools. Apparatus for whetting and sharpening the edges of	C. T. Ridgely and M. A. Smith	480,516	Aug. 9	1228	307	60	828
Educational appliance	C. Spruce	480,634	Aug. 9	1421	354	60	866
Egg-carrying package	S. S. Barrett	480,164	Aug. 2	648	164	60	705
Egg-tester	R. G. Dale and W. S. Weightman	478,924	July 12	1310	326	60	274
Eggs. Device for separating the white and yelk of	J. B. Garland	481,487	Aug. 23	2821	693	60	1102
Eggs. Preserving	L. F. Pettee	479,016	July 19	1463	364	60	314
	E. T. Burnette	479,970	Aug. 2	312	.....	60	641

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Elastic wheel	J. von Olivier	480,738	Aug. 16	1589	398	60	913
Election-booth	J. Jones	481,571	Aug. 30	2904	727	60	1206
Electric accumulator	G. Gandini	480,575	Aug. 9	1315	329	60	846
Electric alarm	R. L. Keith	479,282	July 19	1872	469	60	393
Electric battery	P. Stieus	481,075	Aug. 16	2120	528	60	1017
Electric battery	C. F. Waldron	478,485	July 5	647	159	60	129
Electric cable	J. A. Barrett	482,328	Sept. 6	683	163	60	1469
Electric cable	T. Guilleaume	483,285	Sept. 27	2239	563	60	1811
Electric cable	W. H. Sawyer	478,367	July 5	477	116	60	95
Electric circuit and cable	J. A. Barrett	482,152	Sept. 6	380	89	60	1409
Electric-circuit connection	A. Noll	481,914	Aug. 30	3528	863	60	1315
Electric-circuit connector	W. E. Gill	479,325	July 19	1930	483	60	404
Electric-circuit connector	J. F. Wollensak	479,322	July 19	1927	482	60	403
Electric-circuit-controlling and interlocking apparatus. Pneumatic	W. W. Slater and H. C. Barnes	481,430	Aug. 23	2729	671	60	1144
Electric-circuit safety device	L. B. Atkinson	482,433	Sept. 13	862	207	60	1517
Electric-circuit safety device	M. Thum	479,035	July 19	1494	372	60	320
Electric-circuit time-switch	B. E. Waters	478,180	July 5	172	45	60	37
Electric conducting-wires. Safety attachment for	R. Furgang	481,666	Aug. 30	3106	758	60	1233
Electric conductor	J. A. Barrett	482,150	Sept. 6	373	88	60	1409
Electric conductor	J. A. Barrett	482,151	Sept. 6	375	88	60	1409
Electric conductor	F. A. C. Perrine	479,525	July 26	2303	575	60	490
Electric-conductor clamp	J. Ingmanson and R. Lorang	479,216	July 19	1776	445	60	372
Electric-conductor conduit	A. Noll	481,912	Aug. 30	3526	863	60	1314
Electric-conductor conduit	A. Noll	481,913	Aug. 30	3527	863	60	1315
Electric-conductor joint	J. W. Marsh	483,074	Sept. 20	1873	475	60	1730
Electric conductors. Safety attachment for	R. Furgang	481,665	Aug. 30	3105	757, 758	60	1232
Electric-cord tip	C. W. Tobey	480,152	Aug. 2	627	159	60	702
Electric-current meter	J. F. Ott and A. E. Kennelly	479,172	July 19	1702	427	60	359
Electric-current regulator	A. S. Krotz	479,886	Aug. 2	169	42	60	615
Electric currents. Distribution of	E. Thomson	478,722	July 12	994	247	60	214
Electric currents. Meter for alternating	O. B. Shallenberger	481,975	Sept. 6	82	21	60	1351
Electric currents. System of distributing	C. J. Van Depoele	479,964	Aug. 2	301	74	60	639
Electric cut-out and switch-box	L. D. McMunn	483,235	Sept. 27	2137	541	60	1793
Electric cut-out. Automatic	C. O. Mailloux	482,374	Sept. 13	771	185, 186	60	1500
Electric dispatch system	A. Bryson, Jr	480,804	Aug. 16	1689	421	60	933
Electric drill. Reciprocating	F. F. Loomis	479,948	Aug. 2	269	66	60	633
Electric element. Thermo-	C. W. Iden	479,596	July 26	2401	598	60	508
Electric elevator	W. Baxter, Jr	481,386	Aug. 23	2656	651	60	1129
Electric elevator	F. E. Herdman	480,845	Aug. 16	1747	436, 437	60	945
Electric elevator	F. E. Herdman	480,846	Aug. 16	1749	438, 439	60	945
Electric elevator	A. B. See and W. L. Tyler	478,821	July 12	1174	291	60	248
Electric engine. Reciprocating	C. J. Van Depoele	479,962	Aug. 2	297	73, 74	60	638
Electric furnace generator	E. Berliner	481,999	Sept. 6	117	29, 30	60	1358
Electric generation. Means for controlling	T. A. Edison	482,549	Sept. 13	1059	257	60	1556
Electric heater	T. Ahearn	483,124	Sept. 27	1953	495	60	1757
Electric indicator	W. E. Decrow	478,274	July 5	341	82	60	68
Electric-light brackets. Swing-joint for	H. P. Drew	478,417	July 5	550	134	60	108
Electric-light fixture	E. R. Crolius	482,339	Sept. 13	702	167	60	1487
Electric-light fixture	J. T. Robb	480,745	Aug. 16	1596	400	60	915
Electric light. Incandescent	E. McQuat	481,047	Aug. 16	2063	515	60	1007
Electric-lighting circuits. Testing apparatus for	C. H. Rudd	480,038	Aug. 2	449	114	60	667
Electric-lighting rosette	E. W. Buffinton	480,915	Aug. 16	1853	462	60	967
Electric-lighting system	E. T. Cooke and W. H. Mackay	478,186	July 5	181	47	60	38
Electric-lighting system	P. Cravath	481,785	Aug. 30	3316	810	60	1274
Electric-lighting system	E. Huber	481,904	Aug. 30	3507	859	60	1310
Electric-lighting system	G. F. Myers	480,372	Aug. 9	1004	252, 253	60	785
Electric-lighting system	M. J. Quirk and C. Bach, Jr	480,782	Aug. 16	1653	413	60	926
Electric-lighting system	C. Selden	480,375	Aug. 9	1008	254	60	786
Electric machine. Dynamo-	W. S. Andrews and T. Spencer. (Reissue.)	11,266	Aug. 30	3552	869	60	1319
Electric machine. Dynamo-	R. Eickemeyer	479,118	July 19	1625	406	60	344
Electric machine. Dynamo-	C. W. Thomas	478,529	July 5	790	174, 175, 176	60	143
Electric machine or motor. Dynamo-	E. A. Sperry	478,142	July 5	101	26	60	22
Electric machines. Field-magnet frame for dynamo-	E. P. Warner	480,049	Aug. 2	469	119	60	671
Electric meter	L. V. Brillié	479,932	Aug. 2	245	60, 61	60	629
Electric meter	J. F. Ott and A. E. Kennelly	479,171	July 19	1700	426	60	359
Electric meter	F. Teague	482,324	Sept. 6	677	161, 162	60	1468
Electric meter	A. G. Waterhouse	483,189	Sept. 27	2065	521	60	1779
Electric motor	W. M. Dresskell	483,431	Sept. 27	2448	616	60	1851
Electric motor	H. F. Ong	478,968	July 12	1380	339, 340	60	287
Electric motor	J. B. Secor	478,475	July 5	633	154, 155	60	126
Electric motor and generator	C. S. Bradley and J. J. Wood	481,220	Aug. 23	2376	585	60	1080
Electric motor and regulating device therefor	F. J. Sprague	481,739	Aug. 30	3237	788	60	1258
Electric motor or dynamo-electric machine	R. Lundell	481,701	Aug. 30	3162	772, 773	60	1244
Electric push	J. F. Wollensak	480,683	Aug. 9	1502	374	60	880
Electric-service systems. Time cut-out for	S. R. Linville	480,369	Aug. 9	999	251, 252	60	784
Electric snap-switch	S. F. Alden	483,316	Sept. 27	2288	575	60	1890
Electric switch	J. H. Clark	481,247	Aug. 23	2521	610	60	1105
Electric switch	J. S. Gibbs	480,694	Aug. 9	1517	377	60	884
Electric switch	F. F. Loomis	479,949	Aug. 2	271	66	60	633

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Electric switch	A. P. Lundberg	479,821	Aug. 2	71	17	60	596
Electric switch and case	A. Wright	482,936	Sept. 20	1652	416	60	1684
Electric switches. Arc-extinguisher for	S. H. Short	478,718	July 12	989	245	60	213
Electric-wire conduit	S. H. Flagg	480,573	Aug. 9	1313	328	60	845
Electric-wire joint	W. E. Harrington	481,025	Aug. 16	2027	506	60	999
Electric-wire support	W. B. Bragdon	479,052	July 19	1517	378	60	325
Electrical apparatus	L. G. Woolley	482,668	Sept. 13	1225	299	60	1587
Electrical circuit and cable	J. A. Barrett	482,149	Sept. 6	371	88	60	1408
Electrical circuits. Temperature-regulating device for	E. Weston	480,891	Aug. 16	1815	453	60	959
Electrical conductor	P. H. Holmes	482,177	Sept. 6	424	101	60	1418
Electrical distribution. System of	H. W. Leonard	478,344	July 5	439	108, 109	60	87
Electrical furnace	T. Parker	482,586	Sept. 13	1112	269	50	1566
Electrical heater	J. V. Capek	482,074	Sept. 6	248	60	60	1384
Electrical instruments. Apparatus for retarding or dampening the motion of moving bodies in	E. Weston	480,889	Aug. 16	1810	452	60	958
Electrical meter	A. E. Kennelly	479,167	July 19	1694	424	60	358
Electrical meter for three-wire systems	A. E. Kennelly and J. F. Ott	479,168	July 19	1695	425	60	358
Electrical regulation	H. E. Vineing	480,393	Aug. 9	1040	261	60	791
Electrical spool	S. S. Wheeler	480,681	Aug. 9	1498	373	60	880
Electrical switchboards. Mold for the manufacture of	J. B. Lyon	479,891	Aug. 2	177	44	60	617
Electricity. Influence-generator of	W. Henry	479,941	Aug. 2	256	63	60	631
Electricity. Time-registering apparatus for	H. H. Pattee	478,537	July 5	277	68, 69	60	56
Electro-magnetic machine	A. E. Kennelly and J. F. Ott	479,169	July 19	1696	425	60	358
Electro-magnetic motor	J. F. Kelly and W. Stanley, Jr	479,746	July 26	2661	660	60	556
Electrode	A. Vanden-Kerckhove	478,664	July 12	913	226	60	196
Electrode. Storage-battery	H. Tudor	478,661	July 12	907	225	60	195
Electrolytic apparatus	T. Craney	482,724	Sept. 20	1325	324	60	1620
Electrolytic cell	E. B. Cutten	480,491	Aug. 9	1194	300	60	821
Electrostatic switch and phase-indicator	A. U. Alcock	482,032	Sept. 6	180	43	60	1370
Elevator. *See* Bucket-elevator. Cable-elevator. Electric elevator. Hand-elevator. Hydraulic elevator. Lumber-elevator. Milk-elevator. Mine-elevator. Stone-crusher elevator. Water-elevator.							
Elevator	W. N. Anderson	480,542	Aug. 9	1270	318, 319	60	830
Elevator	C. M. Bartholomew	483,277	Sept. 27	2228	560	60	1809
Elevator	M. Y. Calcutt	479,390	July 19	2061	515, 516	60	429
Elevator	C. A. Case	478,986	July 19	1414	350	60	305
Elevator	C. W. Collins	479,559	July 26	2353	587	60	500
Elevator	W. D. Ewart and J. M. Dodge	480,659	Aug. 9	1462	364	60	874
Elevator	F. Giles	483,145	Sept. 27	1982	502	60	1762
Elevator	S. H. Hale	482,247	Sept. 6	529	126	60	1437
Elevator	P. D. Harper	479,990	July 19	1438	357	60	309
Elevator	F. E. Herdman	480,847	Aug. 16	1753	439	60	946
Elevator	F. E. Herdman	480,848	Aug. 16	1754	439, 440	60	946
Elevator	F. E. Herdman	480,849	Aug. 16	1755	440	60	947
Elevator	L. M. Hosea	479,943	Aug. 2	261	64	60	632
Elevator	T. Mason	481,577	Aug. 30	2970	729	60	1207
Elevator	E. W. Moon	480,202	Aug. 2	708	181	60	716
Elevator	J. R. Moss	478,263	July 5	325	78, 79	60	65
Elevator	C. M. Stearns	479,314	July 19	1918	479	60	401
Elevator	G. A. Wheeler	479,864	Aug. 2	132	32, 33	60	608
Elevator and carrier	P. H. Brodesser	481,926	Sept. 6	7	2, 3	60	1336
Elevator-belt drive	D. A. Robinson	481,150	Aug. 16	2255	556, 557	60	1041
Elevator controlling device	N. C. Bassett	482,405	Sept. 13	971	235	60	1538
Elevator-controlling mechanism	E. S. Matthews	481,560	Aug. 30	2975	730	60	1208
Elevator-controlling mechanism	A. J. McAdam	482,131	Sept. 6	336	80	60	1401
Elevator-door-operating apparatus	D. Tufts	483,407	Sept. 27	2418	608	60	1845
Elevator-doors. Device for operating	H. Rowntree	479,956	Aug. 2	283	71	60	636
Elevator-gate	E. D. Toops	482,286	Sept. 6	597	142	60	1451
Elevator-gearing	N. C. Bassett	483,203	Sept. 27	2087	520	60	1784
Elevator-indicator	T. W. Heermans	479,442	July 26	2124	531	60	456
Elevator-indicator	E. Wylde	479,484	July 26	2246	563	60	479
Elevator limit-stop	T. W. Heermans	480,583	Aug. 9	1334	332, 333	60	849
Elevator safety attachment	M. J. O'Donnell, W. C. Smith, and H. Bound.	478,169	July 5	157	40	60	33
Elevator safety attachment	A. A. Stoltzenburg	483,025	Sept. 20	1804	456	60	1715
Elevator-shafts. Device for closing	N. J. Blagen	483,416	Sept. 27	2428	611	60	1847
Elevators. Carrier attachment for bucket-	M. Garland	478,322	July 5	410	98	60	82
Elevators. Means for operating safety cut-offs for grain-	W. G. Cogswell	482,468	Sept. 13	914	223	60	1526
Embalming-table foot-rest	W. Clouser	478,568	July 12	782	191	60	170
Embossing-machine	W. Crahan and T. Nesom	483,247	Sept. 27	2150	545	60	1796
Embroidering-machine	E. and R. Cornely	479,057	July 19	1523	379, 380	60	396
Embroidering-machines. Fabric-holder for	T. D. Elsner	481,553	Aug. 30	2935	721	60	1200
Embroidering-machines. Fabric-holding frame for	H. Gehnrich	478,853	July 12	1211	301	60	255
Embroidering-machines. Fabric-holding frame for	F. Hürzeler	478,192	July 5	189	48	60	39
End-gate	W. D. Hawk and O. S. French	481,491	Aug. 23	2826	695	60	1163
End-gate tightener for cars and wagons	A. E. S. Lindsey	480,664	Aug. 9	1471	366	60	875
End-gate. Wagon	B. F. Clark and J. C. Carrick	480,383	Aug. 9	1023	257	60	788
End-gate. Wagon	G. H. Johnson	479,810	Aug. 2	54	13	60	592
End-gate. Wagon	P. Millet	479,076	July 19	1552	388	60	331
End-gate. Wagon	G. S. Sneer	482,835	Sept. 20	1493	371	60	1638

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Engine:							
See Compound engine. Compressing-engine. Dental engine. Electric engine. Explosive engine. Gas or oil motor engine. Locomotive-engine. Locomotive steam-engine. Oil-motor engine. Oscillating engine. Petroleum or similar engine. Pulp-engine. Pumping-engine. Rotary engine. Rotary fluid-pressure engine. Rotary steam-engine. Steam-engine. Traction-engine. Wind-engine.							
Engine	R. M. Lowne	479,651	July 26	2484	{618 619}	60	524
Engine driving mechanism. Road	C. F. Christopher	483,281	Sept. 27	2233	561	60	1810
Engines. Controlling mechanism for reciprocating electric	C. J. Van Depoele	479,960	Aug. 2	291	72, 73	60	637
Engines. Feed mechanism for electric reciprocating	C. J. Van Depoele	479,961	Aug. 2	295	73	60	638
Engines. System of supplying currents to reciprocating electric	C. J. Van Depoele	479,963	Aug. 2	300	74	60	639
Engraver's block	A. Muehlmatt	481,238	Aug. 23	2402	593	60	1084
Envelope-fastener	J. W. Gibboney	478,538	July 5	740	180	60	146
Envelope-machine	L. P. Bouvier	481,779	Aug. 30	3309	808	60	1273
Envelope-machine feeding device	C. Beyer and D. M. Lester	478,779	July 12	1095	271	60	233
Envelope-making machine	J. West	479,042	July 19	1503	{374 375}	60	322
Envelope-opener	W. D. Rogers and J. D. Van Buren	478,889	July 12	1259	311	60	264
Envelopes. Manufacture of	A. Schwanenberger	478,474	July 5	631	154	60	126
Envelopes. Means for detecting the opening of sealed	L. P. Callmeyer	482,073	Sept. 6	247	60	60	1384
Evaporating apparatus. Liquid	C. W. Cooper	482,340	Sept. 13	703	168	60	1487
Evaporating apparatus. Portable	T. E. Richard	481,675	Aug. 30	3119	{761 762}	60	1235
Excavating apparatus. Sewer	W. Davy	478,254	July 5	311	76	60	62
Excavating device	T. McBride and E. Fisher	483,004	Sept. 20	1768	447	60	1707
Excavator. Trench	A. J. Mason	482,260	Sept. 6	552	{131 132}	60	1442
Exercising apparatus	W. Madsen	478,166	July 5	145	38	60	31
Exercising apparatus	M. W. Newton	480,271	Aug. 9	844	215	60	756
Exercising machine	C. G. Miller	481,730	Aug. 30	3219	785	60	1254
Exhaust-head	J. L. Robertson	481,373	Aug. 23	2629	647	60	1124
Exhibiting case, Needle	E. R. Denny	479,117	July 19	1623	406	60	344
Exhibiting pictures, &c. Stand for	V. L. M. Renard	478,887	July 12	1256	311	60	264
Exhibition apparatus. Subterranean	H. Hardy	482,736	Sept. 20	1344	{333 334 335}	60	1624
Exhibitor. Bedstead	J. R. Moore	479,894	Aug. 2	182	45	60	617
Exhibitor. Button	S. T. Mosser	483,460	Sept. 27	2493	628	60	1860
Explosive compound	A. C. Rand	478,819	July 12	1171	.....	60	247
Explosive compound	S. Rodgers	478,366	July 5	477	.....	60	95
Explosive engine	J. Joyce	480,019	Aug. 2	418	105	60	661
Extension-table	H. Cabham, Jr.	482,620	Sept. 13	1163	{281 282}	60	1575
Extension-table	C. W. Munz	483,361	Sept. 27	2344	589	60	1831
Extractor:							
See Cork-extractor. Ingot-extractor. Nail-extractor. Pen-extractor. Spoke-extractor. Stopper-extractor. Stump-extractor. Stump or rock extractor.							
Eyeglass guard	G. Banach	478,836	July 19	1192	296	60	951
Eyeglass-holder	E. C. Perkins	482,191	Sept. 6	444	107	60	1492
Eyeglasses	J. Currin	479,907	Aug. 2	196	49	60	621
Eyeglasses	A. H. Hartmann	481,400	Aug. 23	2081	658	60	1133
Eyeglasses	J. Lining	478,616	July 12	840	209	60	184
Eyeleting-machine	M. H. Pearson	478,760	July 12	1057	{261 262}	60	220
Fabric:							
See Knit fabric. Waterproof fabric. Woven fabric.							
Fabrics. Finish or border for the edges of	J. M. Merrow	480,335	Aug. 9	943	239	60	773
Fan. Electric	F. H. Beers	481,646	Aug. 30	3074	750	60	1227
Fan-operating device	R. F. Hunt	479,425	July 26	2129	532	60	457
Fanning-mill	H. Bush	479,241	July 19	1814	456	60	380
Fanning-mill	O. D. Dickey	480,809	Aug. 16	1695	423	60	934
Fare collecting, registering, and recording device	W. T. Wood	481,993	Sept. 6	109	27	60	1356
Fare-register	F. C. Boyd and R. Martin	479,388	July 19	2055	{513 514}	60	428
Fare-register	J. W. Meaker	478,167	July 5	147	38, 39	60	32
Fare register and recorder	C. Crook	483,102	Sept. 20	1917	{485 486}	60	1738
Fare-register operating device	J. W. Meaker	480,732	Aug. 16	1579	395	60	911
Fastening device	J. W. Bankson	480,242	Aug. 9	787	201	60	743
Fatty substances. Purification of	J. Massignon	481,502	Aug. 23	2344	599	60	1167
Faucet	J. M. Gilmour	480,090	Aug. 2	527	134	60	682
Faucet and bung	R. Marsh	482,408	Sept. 13	890	197	60	1510
Faucet and connection	S. Schlangen	478,716	July 12	984	245	60	212
Faucet. Automatic cut-off cask-filling	J. H. Driller	482,342	Sept. 13	708	{168 169}	60	1488
Faucet. Beer	F. A. Frümviller	482,474	Sept. 13	928	226	60	1529
Faucet. Measuring	C. W. Steinmetz	482,815	Sept. 20	1462	363	60	1647
Faucet or valve	F. Pomper	482,049	Sept. 6	208	50	60	1376
Faucet. Registering and measuring	H. F. Read	479,721	July 26	2022	{650 651}	60	549

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Faucet. Self-closing	A. Mayer	478,199	July 5	205	52	60	42
Faucets. Soap-holder attachment for water	A. R. Miranda	479,330	July 19	1937	484	60	405
Feed-bag attachment	F. S. Kerr	479,646	July 26	2478	617	60	523
Feed mechanism	H. Janssen	478,511	July 5	692	168	60	137
Feed mechanism. Slide	F. H. Richards	480,347	Aug. 9	963	243	60	777
Feed-water. Filtering or purifying	J. B. Edmiston	481,409	Aug. 16	2175	539	60	1027
Feed-water heater	J. De Vries	478,315	July 5	399	96	60	80
Feed-water heater	J. J. Wilson	482,069	Sept. 6	227	58	60	1382
Feed-water heater and boiler. Combination	A. T. Brewer	478,395	July 5	516	126	60	102
Feed-water heater and purifier	J. P. Warner	480,534	Aug. 9	1259	316	60	834
Feed-water heater. Locomotive	N. S. Chapman	479,348	July 19	1987	497	60	415
Feeder. Automatic stock	W. P. Kellogg	482,366	Sept. 13	754	182	60	1497
Feeding device. Mechanical	A. Conkling	479,630	July 26	2455	612	60	518
Feeding rack. Stock	H. G. Chamberlain	478,402	July 5	529	129	60	104
Felly and tire. Cushion	C. Stein	482,392	Sept. 13	798	192	60	1506
Felting-machine	J. Kittel	480,592	Aug. 9	1347	335	60	851
Fence	A. L. Bonnaffon	479,050	July 19	1515	377	60	324
Fence	H. Carter	479,972	Aug. 2	313	77	60	641
Fence	R. H. Fristoe	482,037	Sept. 6	186	45	60	1372
Fence	W. H. Gaskill	480,401	Aug. 9	1051	264	60	793
Fence	D. Milliken	479,443	July 26	2160	539	60	464
Fence	R. B. Perkins	478,170	July 5	159	40	60	34
Fence	E. G. and S. M. Storm	481,980	Sept. 6	89	23	60	1352
Fence	P. Trick	483,186	Sept. 27	2060	520	60	1778
Fence. Flood	J. Van Ness	480,154	Aug. 2	629	159	60	702
Fence for hay-stacks. Collapsible	J. H. Poulter	482,460	Sept. 13	905	220	60	1524
Fence gate. Wire	S. O. Thompson	479,680	July 26	2538	632	60	534
Fence gate. Wire	H. Blankenburg	482,334	Sept. 13	697	166	60	1486
Fence. Hedge	P. Hack	483,351	Sept. 27	2333	586	60	1829
Fence-machine	M. L. Funkhouser	483,322	Sept. 27	2296	577	60	1822
Fence-machine. Picket-wiring	H. G. Cady	482,335	Sept. 13	697	166	60	1486
Fence machine. Wire-and-picket	A. R. Welty	481,086	Aug. 16	2134	531	60	1020
Fence. Picket	A. H. Rogers	478,173	July 5	161	42	60	34
Fence. Picket	N. W. Minton	480,270	Aug. 9	842	214	60	756
Fence-pickets. Machine for wiring	C. E. Wintrode	478,900	July 12	1274	316	60	267
Fence-post	W. Callaway, Sr.	479,626	July 26	2446	610	60	517
Fence post and brace. Combined	D. Hinesley	482,637	Sept. 13	1184	287	60	1579
Fence-post. Iron	P. Pearson	482,381	Sept. 13	783	188	60	1502
Fence-posts, &c. Device for driving	C. W. Holm	483,060	Sept. 20	1853	470	60	1726
Fence stretcher. Wire	F. Stow	480,941	Aug. 16	1890	473	60	974
Fence-tool. Combination	W. Kramer	479,817	Aug. 2	63	15	60	594
Fence tool. Combination wire	J. W. Gallant	482,827	Sept. 20	1479	368	60	1650
Fence. Wire-and-picket	S. M. Forbes	479,561	July 26	2355	588	60	500
Fence-wire. Ornamental	B. F. Ingram	480,101	Aug. 2	541	137	60	686
Fence-wire tightener	C. W. Bridges	478,985	July 19	1413	350	60	305
Fences. Machine for attaching vertical wires in wire	B. C. Wickers	481,880	Aug. 30	3466	850	60	1303
Fences. Wire-distributer for wire	E. E. and O. Cole	480,710	Aug. 16	1549	386	60	904
Fencing. Die for use in machines for making metallic	H. C. Pratt	479,571	July 26	2370	591	60	503
Fencing machine. Slat-and-wire	T. V. Allis	481,918	Aug. 30	3533	865	60	1316
Fender:	J. B. and J. E. Solt	480,391	Aug. 9	1035	{260 261}	60	790
See Plow-fender. Vehicle-fender.							
Fender	C. C. Shanbeck	481,065	Aug. 16	2109	504	60	1014
Fermenting	J. Effront	478,418	July 5	551	.....	60	108
Fermenting process	F. W. Rueff	481,061	Aug. 16	2104	523	60	1013
Ferrule	W. H. Gaskill	481,753	Aug. 30	3263	794	60	1263
Ferrule. Locking	A. G. Benson	481,402	Aug. 23	2788	686	60	1155
Fertilizer-distributer	S. H. Everett	479,647	July 26	2465	613	60	590
Fertilizer-distributer	H. C. Stahl and W. P. Johnston	481,909	Aug. 23	2592	580	60	1074
Fertilizer-distributer	R. B. Thomas	481,315	Aug. 23	2551	636	60	1110
Fiber-preparing machine	I. Villamor	482,905	Sept. 6	405	112	60	1496
Fiber tubes. Art of and apparatus for making parchmentized	R. P. Frist	479,263	July 19	1845	462	60	386
Fiber tubes. Art of and apparatus for making parchmentized	R. P. Frist and C. G. Rupert	479,264	July 19	1847	463	60	387
Fibers for spinning, &c. Preparing short	C. Kellner	480,588	Aug. 9	1342	{334 335}	60	850
Fibrous-material transmitter	G. Beekman	482,155	Sept. 6	384	90	60	1410
Fifth-wheel	P. Andersen	480,901	Aug. 16	1837	457	60	963
Fifth-wheel	A. E. Herman	480,403	Aug. 9	1054	264	60	793
Fifth-wheel	W. J. Huber	479,563	July 26	2358	588	60	501
Fifth-wheel	F. McLaughlin	482,457	Sept. 13	902	219	60	1524
File	H. Olsen	481,655	Aug. 30	3091	753	60	1230
File. Bill	C. W. Cox	482,497	Sept. 13	973	236	60	1539
File. Bill	G. W. Hall	479,908	Aug. 2	197	49	60	621
File. Bill	S. B. Meredith	479,604	July 26	2413	602	60	511
File. Bill	J. Teall	482,659	Sept. 13	1211	295	60	1585
File. Bill or letter	C. D. Then	482,660	Sept. 13	1212	296	60	1585
File. Document	J. H. Stull	480,862	Aug. 16	1775	444	60	951
File. Letter and paper	E. A. Sharp	481,593	Aug. 30	2993	733	60	1211
File. Newspaper	G. Harvey and W. R. Grundy	478,695	July 12	954	237	60	205
File or index. Continuous	C. H. Jaehnig	479,513	July 26	2289	572	60	467
File. Revolving paper	A. J. Rudolph	483,312	Sept. 27	2280	573	60	1819
Filing and supply case	R. E. Ferguson	481,857	Aug. 30	3432	842	60	1296
Filing-cabinet	P. Fraizer	478,584	July 12	805	198	60	175
Filing device. Paper	H. M. Plaisted	479,660	July 26	2498	622	60	526
Filter	H. A. Winternight	483,089	Sept. 20	1898	480	60	1735
Filter	J. J. Curran	479,403	July 26	2067	523	60	448
Filter	S. G. Derham	478,093	July 5	29	9	60	9
Filter	W. M. Deutsch	482,436	Sept. 13	869	208	60	1518
Filter	O. H., W. M., and I. H. Jewell	478,261	July 5	322	78	60	64
Filter	C. C. Lockstaedt and J. F. Gubbins	483,230	Sept. 27	2127	538	60	1791
Filter	B. M. Santurio	482,140	Sept. 6	347	83	60	1404

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Filter	J. M. Wasson	481,606	Aug. 30	3019	738	60	1216
Filter-can	F. Rerrich	478,365	July 5	476	115	60	95
Filter. Oil-	J. B. Crane	478,251	July 5	397	74	60	61
Filter. Oil-	J. S. Hall	483,148	Sept. 27	1989	503	60	1763
Filter. Tea or coffee	E. R. Austin	478,548	July 12	757	185	60	165
Filter. Water-	O. Eastman	478,157	July 5	129	33	60	28
Finger-ring. Interchangeable-initial	J. H. Fink	480,080	Aug. 2	513	130	60	680
Finger-tapering device	E. R. Paige	478,356	July 5	466	113	60	93
Fire-alarm	J. C. F. McGriff	482,379	Sept. 13	781	188	60	1502
Fire-alarm apparatus	A. Goldstein	479,709	July 26	2591	615	60	543
Fire-alarm. Detonating	L. Parsley	479,837	Aug. 2	94	24	60	600
Fire-alarm system. Auxiliary	J. Sachs	481,590	Aug. 30	2988	733	60	1211
Fire and burglar alarm connection. Electric	H. T. Wilson	481,089	Sept. 6	103	26	60	1355
Fire-box divider	S. L. Pakas	480,276	Aug. 9	849	216	60	757
Fire-engine pump	T. S. La France	478,439	July 5	581	141	60	114
Fire-escape	A. A. Badger	481,923	Sept. 6	4	2	60	1335
Fire-escape	C. H. Baker	480,750	Aug. 16	1615	406	60	919
Fire-escape	T. J. Bergeron and F. Bedard	481,888	Aug. 30	3481	853	60	1306
Fire-escape	J. D. Brainard	481,252	Aug. 23	2441	601	60	1091
Fire-escape	A. B. Cruickshank	481,849	Aug. 30	3421	839	60	1294
Fire-escape	C. F. Ekman	479,257	July 19	1837	461	60	384
Fire-escape	A. Ferguson	482,345	Sept. 13	715	170	60	1489
Fire-escape	C. M. Fowler	481,693	Aug. 30	3148	768	60	1241
Fire-escape	J. A. Hunt	481,565	Aug. 30	2952	725	60	1204
Fire-escape	W. W. Lummus	479,436	July 26	2145	{535 536}	60	460
Fire-escape	P. Lynch, Jr	483,463	Sept. 27	2485	625	60	1859
Fire-escape	J. Pride	482,274	Sept. 6	577	{137 138}	60	1447
Fire-escape	C. E. Rice and L. B. McDonald	479,527	July 26	2306	576	60	491
Fire-escape	C. E. Sansousy	482,654	Sept. 13	1204	293	60	1583
Fire-escape	M. Schwarz	482,813	Sept. 20	1460	362	60	1646
Fire-escape	T. B. Woodward	479,610	July 26	2427	605	60	513
Fire-escape and scaling-ladder	G. W. Melvin	482,441	Sept. 13	878	{210 211}	60	1519
Fire-escape for buildings	G. L. Roberts	480,518	Aug. 9	1230	318	60	828
Fire-escape ladder	A. J. Boden	478,559	July 12	770	{188 189}	60	168
Fire-escape ladder and means for raising the same	P. A. Palmer	481,967	Sept. 6	67	17, 18	60	1348
Fire-escape. Life-net	J. Ryan	480,139	Aug. 2	608	{154 155}	60	698
Fire-extinguisher	W. W. McKay	479,448	July 26	2165	541	60	465
Fire-extinguisher. Automatic gravity	T. F. Handly	483,491	Sept. 27	2520	634	60	1866
Fire-hose. Electric signaling device for	J. C. Wharton and J. W. Braid	479,540	July 26	2324	581	60	495
Fire-kindler	J. W. B. Cook	478,249	July 5	304	74	60	61
Fire-ladder	L. H. Fowler	478,278	July 5	346	83, 84	60	70
Fire-shield	W. M. Herrington	482,844	Sept. 20	1506	374	60	1656
Firearm. Breech-loading	C. Röstel	480,627	Aug. 9	1409	{351 352}	60	863
Firearm. Breech-loading	D. S. West	478,727	July 12	1001	248	60	215
Firearm. Magazine-	A. Burgess	478,220	July 5	238	59	60	49
Firearm. Magazine-	A. Burgess	478,221	July 5	243	59, 60	60	50
Firearm. Magazine-	A. Burgess	478,222	July 5	245	60	60	50
Firearm. Magazine-	D. S. West	478,720	July 12	1013	249	60	217
Firearm. Repeating	J. Laumann	479,284	July 19	1874	469	60	393
Firemen. Electric signaling device for	G. L. Barnard	482,778	Sept. 20	1418	351	60	1638
Fireplace back or lining	W. E. Fitch	479,103	July 19	1594	399	60	339
Fireplace back or lining	W. E. Fitch	480,322	Aug. 9	929	236	60	771
Fish-hook	W. H. Hunter	478,864	July 12	1223	303	60	258
Fish-hook	A. G. Mack	479,194	July 19	1743	437	60	366
Fish-scaler	W. Clow	481,104	Aug. 16	2170	537	60	1026
Fishing apparatus	I. Dunham	478,579	July 12	798	197	60	173
Fishing-line-reel holder	J. Falvey	481,941	Sept. 6	33	8	60	1340
Fishing-reel	J. Borchardt	481,743	Aug. 30	3245	790	60	1260
Fishing-reel	A. B. Hendryx	478,326	July 5	414	99	60	83
Fishing-reel	A. B. Hendryx	478,327	July 5	415	100	60	83
Fishing-reel	H. W. Martin	479,440	July 26	2152	537	60	462
Fishing-reel	G. E. Medley	481,330	Aug. 23	2571	631	60	1114
Fishing-reel	E. B. Porter	478,713	July 12	978	243	60	210
Fishing-tackle. Deep-water	S. C. Darrow	481,165	Aug. 23	2288	564	60	1062
Fishing through ice. Apparatus for	G. H. Lane	479,219	July 19	1779	446	60	373
Flask: *See* Molding-flask. Shipping-flask.							
Floating figure	E. P. Roberts	479,530	July 26	2310	577	60	492
Floating pot	J. B. Holsten	482,638	Sept. 13	1186	287	60	1580
Flood-gate. Automatic	S. Flinn	482,868	Sept. 20	1549	386	60	1664
Floor construction. Fireproof	W. Orr	481,243	Aug. 23	2412	{595 596}	60	1086
Floor-jack	E. A. Bullock	481,470	Aug. 23	2296	688	60	1157
Floor-scraping machine	F. C. Schroeder	483,173	Sept. 27	2037	{514 515}	60	1774
Flooring	J. W. See	479,126	July 19	1635	409	60	346
Flooring. Wood-block	T. Charteris	478,847	July 12	1205	299	60	254
Flour-bolt	C. S. Fuller	479,589	July 26	2391	596	60	506
Flour-bolt	C. S. Fuller	479,775	July 26	2721	{676 677}	60	569
Flue-cleaner	E. T. Bell	480,653	Aug. 9	1451	361	60	871
Flues. Cleaning boiler-	J. Shostak	478,824	July 12	1178	{291 292}	60	248
Fluid-meter	F. W. Holt	479,277	July 19	1864	467	60	390
Fluid-motor	H. C. Stilwell	479,855	Aug. 2	119	29	60	606
Flume-gate	S. M. Irvin	483,455	Sept. 27	2478	623	60	1858
Flush-tank	B. Williams and C. Poore	481,710	Aug. 30	3170	776	60	1247
Fly-paper. Machine for making sticky	F. B. Claggett	480,071	Aug. 2	499	127	60	677

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Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fly-trap. Mechanical	E. Rathgeb	481,820	Aug. 30	3375	827	60	1284
Fog-signal	W. R. Close	482,077	Sept. 6	254	61	60	1385
Folding chair	R. W. Bates	479,393	July 26	2070	520	60	445
Folding chair	E. E. Eldridge	479,355	July 19	1997	500	60	417
Folding gate	A. H. Young	480,159	Aug 2	640	162	60	704
Folding-machine	L. C. Crowell	480,422	Aug. 9	1087	272	60	799
Folding stand	H. A. Koelier	479,073	July 19	1549	387	60	330
Folding table	J. C. Snow	482,701	Sept. 13	1286	315	60	1600
Folding table. Sectional-top	R. J. Neill	482,525	Sept. 13	1023	247	60	1549
Food product and making the same	S. Crump	479,402	July 26	2066	.....	60	448
Foot-rest	P. Ward	480,797	Aug. 16	1674	418	60	930
Foot-rest and shoe-stool	F. V. Stone and M. A. Campbell	483,403	Sept. 27	2411	606	60	1844
Forge. Blacksmith's	T. W. Lenzen and L. Heckenroth	479,286	July 19	1878	470	60	393
Form. Clothing-	H. H. Cummer	479,248	July 19	1826	458	60	382
Fountain	G. C. Grisier	482,244	Sept. 6	525	125	60	1437
Frame: *See* Awning-frame. Bicycle-frame. Bicycle-frame, supporting. Picture-frame. Sewing-machine quilting-frame. Varnishing-frame. Wagon-frame. Window-frame.							
Frame for pictures, &c	M. Reinfeld	481,333	Aug. 23	2578	633	60	1115
Friction. Means for reducing	G. M. Guerrant	482,902	Sept. 20	1612	403	60	1675
Friction-wheel	A. J. Davis	482,788	Sept. 20	1433	355	60	1641
Frog. Derailing-	O. J. Travis	479,338	July 19	1953	488	60	408
Fruit can or jar	J. M. Barnhart	483,415	Sept. 27	2428	610	60	1847
Fruit-cleaner	H. Bardsley and W. Parkinson	482,937	Sept. 20	1654	{416 417}	60	1685
Fruit-gatherer	S. E. Ball	478,903	July 12	1277	317	60	268
Fruit-jar	C. D. Thomas	478,650	July 12	906	224	60	195
Fruit-jar	C. L. Wight	480,537	Aug. 9	1264	317	60	835
Fruit-packer	A. J. Longenecker	479,650	July 26	2423	618	60	523
Fruit pitting and spreading machine	J. D. and E. E. Thomas	482,264	Sept. 6	594	141	60	1451
Fruit-pitting machine	F. C. Philips	482,272	Sept. 6	573	136	60	1446
Fruit-sizer	A. C. Burke	482,294	Sept. 6	614	146	60	1455
Frying-pan or skillet	B. F. Fowler	482,630	Sept. 13	1177	284	60	1578
Fuel binder. Artificial-	E. K. Baoyerlin and F. E. Heinig	480,243	Aug. 9	788	.....	60	743
Fuel burner. Liquid-	E. Squire, G. H. Cobb, and F. M. Towl.	478,295	July 5	368	89	60	74
Fuel-feeder	H. L. Day	482,424	Sept. 13	850	{203 204}	60	1515
Fuel-feeding apparatus for straw. Pneumatic	B. Jackson	479,644	July 26	2475	{615 616}	60	522
Fulling-stock	J. H. and I. Mitchell	479,605	July 26	2414	602	60	511
Fume. Refining	F. L. Bartlett	480,686	Aug. 9	1509	375	60	882
Fumes. Bag for catching metallic	D. Sheedy	480,834	Aug. 16	1733	433	60	942
Fumes. Device for collecting metallic	D. Sheedy and M. W. Iles	483,176	Sept. 27	2041	516	60	1775
Fumigator	F. A. Hoffman	483,484	Sept. 27	2510	632	60	1864
Fumigator	J. T. Phelan	480,624	Aug. 9	1405	{349 350}	60	862
Funnel	K. Kiefer	482,578	Sept. 13	1100	267	60	1564
Fur-carrotting machine	J. H. Sanders and J. E. Carlin	478,470	July 5	626	152	60	124
Furnace: *See* Annealing-furnace. Blast-furnace. Boiler-furnace. Electrical furnace. Gas-furnace. Heating-furnace. Hot-air furnace. Open-hearth furnace. Smelting-furnace. Smoke-consuming furnace.							
Furnace	E. F. Edgar	478,319	July 5	405	98	60	81
Furnace	T. R. Freeman	480,086	Aug. 2	521	133	60	681
Furnace	F. L. Higgins	482,741	Sept. 20	1357	336	60	1625
Furnace	A. I. Hovland	480,769	Aug. 16	1636	409	60	923
Furnace	W. S. Hutchinson	480,327	Aug. 9	934	237	60	772
Furnace	V. J. Pannell	482,458	Sept. 13	903	219	60	1524
Furnace	H. Schoenwaelder	480,969	Aug. 16	1947	487	60	983
Furnace	S. R. Smythe	478,767	July 12	1074	{266 267}	60	229
Furnace	W. Walters	479,771	July 26	2704	674	60	565
Furnace	R. R. Zell	480,378	Aug. 9	1014	254	60	780
Furnace air-feeding device	H. H. E. Schomburg	479,022	July 19	1472	366	60	315
Furnace and attachment therefor	W. S. Hutchinson	480,328	Aug. 9	935	237	60	772
Furnace-boiler	E. B. Parkhurst	482,188	Sept. 6	440	106	60	1421
Furnace-charging machine	J. F. Lundahl	479,437	July 26	2148	536	60	461
Furnace. Combined radiating and hot water or air heating	J. H. Keyser	480,103	Aug. 2	545	138	60	686
Furnace. Downward-draft	J. F. Bliss	479,697	July 26	2565	638	60	539
Furnace drawing and charging apparatus	T. James	479,863	Aug. 2	164	41	60	614
Furnace for reducing metals	H. S. Blackmore	478,908	July 12	1285	{319 320}	60	269
Furnace-grate	J. L. Mason	480,951	Aug. 16	1916	{479 480}	60	978
Furnace-grate	J. L. Mason	480,952	Aug. 16	1918	480	60	978
Furnace-grate	E. C. Sooy	481,596	Aug. 30	2998	{734 735}	60	1212
Furnace-grate	A. Wilkinson	480,538	Aug. 9	1265	317	60	835
Furnace. Liquid-fuel	G. Rose	482,834	Sept. 20	1492	371	60	1653
Furnace-valve casing	J. D. Swindell	478,769	July 12	1076	{267 268}	60	229
Furnace water-cooling device	J. Kennedy	479,430	July 26	2135	533	60	458
Furnaces. Air-supply for boiler-	I. V. Scholfield, Jr	481,831	Aug. 30	3393	833	60	1288
Furnaces. Smoke-consuming apparatus for boiler and other	W. Smith	479,767	July 26	2698	672	60	563
Furniture-leg fastening	H. M. Hanson	479,363	July 19	2012	503	60	490

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Furniture. School	W. B. Cogger	478,786	July 12	1112	274, 275	60	235
Fuse and file holder. Combined	J. Lobaugh	482,642	Sept. 13	1191	288	60	1581
Fuse box. Electric	G. W. Baumhoff	480,651	Aug. 9	1448	360	60	871
Fuse. Electric	O. T. Blathy	480,902	Aug. 16	1686	420	60	932
Fuse for explosive projectiles or shells	J. C. Thompson	482,533	Sept. 13	1032	250	60	1551
Fuse-ignitor	W. J. C. Doyle	481,012	Aug. 16	2007	501	60	995
Gaff-hook	A. G. Benson	481,463	Aug. 23	2789	686	60	1155
Gaff-hook and landing-net. Combined	A. G. Benson	481,464	Aug. 23	2789	686	60	1156
Gage: *See* Hat-gage. Liquid-gage. Marking-gage. Railway-track gage. Shingle-gage. Sirup-gage. Surface-gage. Water-gage. Water and steam gage.							
Gaging and sorting spherical rollers or balls. Means or apparatus for	W. Hillman	482,636	Sept. 13	1183	286	60	1579
Galley-lock	J. Phelan	479,840	Aug. 2	99	25	60	601
Galley. Self-locking job	N. G. Duffy	483,434	Sept. 27	2453	617	60	1852
Galvanic battery	M. M. Clark	479,786	Aug. 2	20	5	60	586
Galvanic battery	H. H. Dow	480,384	Aug. 9	1025	257	60	788
Galvanic battery	T. T. Eckert	482,425	Sept. 13	852	204	60	1515
Galvanic battery	W. J. Engledue	481,664	Aug. 30	3103	757	60	1232
Galvanic battery	F. de Lalande	479,887	Aug. 2	171	42, 43	60	615
Gambrel	H. Garwick	482,633	Sept. 13	1180	285	60	1578
Game apparatus	F. H. Adams	480,056	Aug. 2	480	122	60	674
Game apparatus	J. W. Back	481,548	Aug. 30	2922	719	60	1198
Game apparatus	D. L. Falardeau	479,638	July 26	2467	614	60	521
Game apparatus	P. S. Faulkner	478,100	July 5	36	12	60	10
Game apparatus	W. Fuld	479,266	July 19	1849	463	60	387
Game apparatus	M. H. Gleason	480,662	Aug. 9	1469	366	60	875
Game apparatus	J. Green	483,109	Sept. 20	1928	488	60	1741
Game apparatus	E. D. Howell	483,062	Sept. 20	1855	470, 471	60	1726
Game apparatus	S. N. Johnson	483,115	Sept. 20	1936	490	60	1742
Game apparatus	F. E. Knight	483,324	Sept. 27	2299	578	60	1822
Game apparatus	C. N. and N. H. Maxwell	479,195	July 19	1744	438	60	366
Game apparatus	M. V. Miller	482,685	Sept. 13	1256	306, 307	60	1594
Game apparatus	A. Scholz	481,830	Aug. 30	3393	833	60	1288
Game apparatus	F. S. Siller	482,488	Sept. 13	949	231	60	1533
Game apparatus	E. H. Truman	479,683	July 26	2543	633	60	534
Game apparatus. Coin-operated	W. R. Pope	479,459	July 26	2190	549	60	469
Game-board	E. L. McConaughy	479,569	July 26	2367	590	60	502
Game-counter	F. A. Gilbert	482,961	Sept. 20	1700	429	60	1693
Game-counter	P. Hale, Jr	480,815	Aug. 16	1704	425	60	936
Game-counter	W. B. Herbert	482,575	Sept. 13	1097	266	60	1563
Game-counter	P. H. Hillard	481,947	Sept. 6	42	9, 10	60	1342
Game-counter	S. D. Sturgis, Jr., and F. P. Peck	481,657	Aug. 30	3094	754	60	1230
Game for amusement	J. S. Malin, I. D. and J. H. Wiest	482,747	Sept. 20	1368	338	60	1627
Game-marker	R. F. Foster	478,694	July 12	953	237	60	205
Game or puzzle	E. Kemble	480,872	Aug. 16	1789	446	60	954
Game. Parlor	S. George	481,859	Aug. 30	3434	843	60	1297
Garbage and fecal matter. Apparatus for drying or cremating	J. H. Parke	481,147	Aug. 16	2949	554	60	1040
Garbage-box	J. Harbolsheimer	483,492	Sept. 27	2522	635	60	1866
Garbage-receptacle	E. B. Merritt	478,702	July 12	963	239	60	207
Garment cutting and marking machine	S. A. Cooke	478,988	July 19	1415	350, 351	60	305
Garment-fastener	G. Bradshaw	479,163	July 19	1689	422	60	357
Garment-stay	D. Grotta	478,961	July 12	1366	337	60	285
Garment-supporter	G. J. Cline	481,256	Aug. 23	2447	603	60	1092
Garment-supporter	T. Manning	480,820	Aug. 16	1715	428	60	938
Garter attachment	P. H. Flynn	482,629	Sept. 13	1177	284	60	1578
Gas and electric-light fixture. Combined	A. T. Enos	480,813	Aug. 16	1701	424	60	936
Gas and petroleum motor	B. Stein	478,651	July 12	895	222	60	193
Gas. Apparatus for consumption of sewer	J. Eckhardt	481,108	Aug. 16	2174	538	60	1027
Gas. Apparatus for manufacturing	J. H. Collins, Jr., and I. N. Knapp.	480,248	Aug. 9	793	202, 203, 204	60	744
Gas. Apparatus for manufacturing	W. P. Elliott	480,910	Aug. 16	1859	463, 464, 465	60	968
Gas. Apparatus for the manufacture of	J. Askins	480,161	Aug. 2	642	163	60	704
Gas. Apparatus for the manufacture of	A. Coze and A. Lencauchez	478,571	July 12	784	192	60	170
Gas. Apparatus for the manufacture of	T. McBride and E. Fisher	483,005	Sept. 20	1769	447, 448	60	1708
Gas. Apparatus for the manufacture of	L. C. Parker	480,211	Aug. 2	732	185	60	720
Gas. Apparatus for the manufacture of water	J. Askins	478,305	July 5	385	93	60	77
Gas apparatus. Fuel	J. M. Bailey	478,549	July 12	758	185	60	165
Gas-black machine. Hydrocarbon	L. J. McNutt	481,240	Aug. 23	2404	593, 594	60	1085
Gas-burner	B. C. Wilson	479,128	July 19	1638	410	60	340
Gas-burner attachment	G. Le Vesconte	482,580	Sept. 13	1103	267	60	1564
Gas burner. Natural	T. A. Little	478,117	July 5	61	16	60	14
Gas-compressor	A. Siebert	483,268	Sept. 27	2215	556	60	1807
Gas-engines. Ignitor for	E. I. Nichols	480,272	Aug. 9	845	215	60	756
Gas from gas-mains. Means for detecting the escape of	A. Guéguen	478,424	July 5	502	136	60	110
Gas-furnace. Regenerative	F. Danner	482,117	Sept. 6	318	75, 76	60	1395
Gas. Generating	W. H. Harris	478,425	July 5	564	136	60	110
Gas-generator	J. J. Kirkham	479,647	July 26	2480	617	60	523
Gas generator and heater. Combined	P. H. Nelson	480,436	Aug. 9	1106	277	60	802

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gas generator. Carbonic-acid	P. J. Maguire	478,198	July 5	202	51	60	41
Gas-governor	S. G. Cabell	479,553	July 26	2346	585	60	498
Gas governor and burner	H. Schrader	481,771	Aug. 30	3294	802	60	1270
Gas-governor. Mercurial	V. H. Higgins and W. D. Smith	483,517	Sept. 27	2579	646	60	1877
Gas heater or radiator	A. Wolff	481,742	Aug. 30	3244	789	60	1259
Gas heating and lighting device. Combined	O. H. P. Cornell	481,139	Aug. 16	2234	550, 551	60	1037
Gas-holder	K. G. Barkhausen	482,891	Sept. 20	1590	399	60	1671
Gas-lighter. Electrical	J. E. Hamilton	482,172	Sept. 6	415	99	60	1416
Gas-lighting device	D. J. Quinn and P. W. Hoffmann	478,522	July 5	708	171	60	140
Gas-machines. Air-supplying device for	E. B. Badlam	479,238	July 19	1807	452, 453	60	379
Gas-main safety-coupling	A. Garretson	481,397	Aug. 23	2678	657	60	1133
Gas-making apparatus	I. S. Elkins and R. Boeklen	483,107	Sept. 20	1924	487, 488	60	1740
Gas. Manufacture of	R. M. Bildelman	483,489	Sept. 27	2517	634	60	1865
Gas. Manufacturing	F. D. Moses	479,293	July 19	1867	473	60	395
Gas. Manufacturing	H. Pierson	478,459	July 5	608	148, 149	60	120
Gas-mixer	S. K. Wagner	481,604	Aug. 30	3017	737	60	1215
Gas or lamp lighter	R. J. G. Corner	478,953	July 12	1350	334	60	282
Gas or oil motor engine	H. Schumm	482,202	Sept. 6	458	110, 111	60	1425
Gas or petroleum motor	A. Niemczyk	480,737	Aug. 16	1589	397	60	913
Gas-producers. Automatic steam-regulator for	E. Ruud	482,320	Sept. 6	668	159	60	1466
Gas-producing apparatus	J. H. Collins, Jr., and I. N. Knapp	480,249	Aug. 9	798	204, 205	60	745
Gas purifier and condenser	G. Scharfe	482,141	Sept. 6	348	83, 84	60	1404
Gas-regulator	J. M. Sweeny	478,480	July 5	641	156	60	128
Gas-tubing. Attaching tips to flexible	A. Caldwell	480,247	Aug. 9	792	202	60	744
Gases. Impregnating liquids with	U. Bachmann	481,838	Aug. 30	3402	835	60	1290
Gaseous-fuel generator and burner	N. Horn	481,494	Aug. 23	2831	695, 696	60	1164
Gate: *See* Automatic gate. Car-gate. Drive-gate. Elevator-gate. End-gate. Fence-gate. Flood-gate. Flume-gate. Folding gate. Railway-gate. Sliding gate. Swinging gate. Tilting gate. Wire gate.							
Gate	E. A. Casper	479,702	July 26	2576	642	60	540
Gate	W. S. Coulter	482,301	Sept. 6	623	148	60	1456
Gate	J. F. Dougherty	480,008	Aug. 2	391	97	60	656
Gate	U. Dreesman and J. Wagler	482,005	Sept. 6	134	32	60	1361
Gate	G. Ford	480,085	Aug. 2	520	132	60	681
Gate	J. M. Fross	480,460	Aug. 9	1152	288	60	811
Gate	D. Gensinger	479,498	July 26	2266	568	60	483
Gate	F. Hopkins	482,792	Sept. 20	1438	356	60	1641
Gate	P. Johnson	482,640	Sept. 13	1188	287, 288	60	1580
Gate	J. N. Morgan	478,451	July 5	598	146	60	118
Gate	A. Peterson	479,457	July 26	2186	547, 548	60	469
Gate	F. K. Plumbly	483,387	Sept. 27	2392	601	60	1839
Gate	J. W. Ruhl	479,665	July 26	2513	625	60	529
Gate	W. H. H. Sallee	479,532	July 26	2313	578	60	492
Gate	T. M. Smith	483,398	Sept. 27	2404	604	60	1842
Gate	G. W. Spidel	481,876	Aug. 30	3459	849	60	1301
Gate	C. Talbot	481,078	Aug. 16	2125	529	60	1018
Gate-actuating mechanism	J. F. Houston	479,278	July 19	1867	467	60	391
Gear for high-speed rotary machines. Starting	J. Head	478,541	July 5	745	181	60	148
Gear. Reduction	W. M. Thomas	480,679	Aug. 9	1495	372, 373	60	879
Gear-wheel	A. Walker	479,233	July 19	1800	451	60	377
Gear-wheel. Yieldable	B. C. Seaton	480,439	Aug. 9	1112	278	60	803
Gearing	F. H. Richards	480,671	Aug. 9	1481	368, 369	60	877
Gearing. Differential	G. Shaw	479,108	July 19	1608	401, 402	60	341
Gelatinous food product	R. B. Beaumont	480,687	Aug. 9	1510	375	60	882
Generator: *See* Current-generator. Electric furnace generator. Fuel-generator. Gas-generator. Steam-generator.							
Girth. Saddle	R. A. Lane	481,180	Aug. 23	2305	568	60	1065
Glass: *See* Opera or field glass.							
Glass-battery-jar mold	J. Gayner	478,792	July 12	1124	277	60	237
Glass-cutting implement	J. Urbanek	482,601	Sept. 13	1135	274	60	1570
Glass. Embedding wire-netting in	F. Shuman	483,021	Sept. 20	1801	454	60	1714
Glass-heating oven	A. O. Hurley	478,328	July 5	416	100, 101	60	83
Glass. Leer or annealing-furnace for sheet or plate	J. W. Bonta	480,230	Aug. 2	762	192	60	726
Glass. Machine for embedding wire-netting in	F. Shuman	483,020	Sept. 20	1799	454	60	1714
Glass. Manufacture of rose or orange stained	F. Welz	479,689	July 26	2553	....	60	536
Glass molds. Apparatus for mechanically operating paste	M. J. Owens	482,526	Sept. 13	1024	247	60	1549
Glass-molds. Supporting-holder for	U. S. Huggins	481,142	Aug. 16	2240	552	60	1039
Glass, &c. Mounting metallic ornaments upon	C. H. Headly and J. S. Carrow	479,743	July 26	2657	650	60	555
Glass tube. Multiplex	P. J. McElroy	481,805	Aug. 30	3348	819	60	1280
Glazing-bar for skylights	W. H. Heywood	479,275	July 19	1802	466	60	390

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Glove	P. B. Lee	479,285	July 19	1877	470	60	393
Glove	H. H. and W. L. Smith	480,478	Aug. 9	1179	296	60	817
Glove-cord clasp	A. E. McDonald	483,263	Sept. 27	2208	554, 555	60	1805
Glove-fastener	F. Maisch	480,874	Aug. 16	1791	448	60	954
Glove-fastening	J. Lye	479,896	Aug. 2	177	43	60	616
Glove. Tennis	C. C. Obear	482,647	Sept. 13	1197	290	60	1582
Glove. Voltaic	F. Simpson	478,293	July 5	366	89	60	74
Gloves, shoes, &c. Hook and fastening for	F. S. McKenney	478,520	July 5	705	171	60	140
Glue cutting and spreading apparatus	C. Keller	482,042	Sept. 6	192	46, 47	60	1373
Glycerine. Apparatus for rectifying	R. O. Unglaub	481,879	Aug. 30	3465	850	60	1303
Gold and silver from ores. Composition of matter for the extraction of	E. D. Kendall	482,577	Sept. 13	1100	.....	60	1564
Gold and silver from their ores. Method of and apparatus for extracting	J. W. Aylsworth and A. C. Payne	481,683	Aug. 30	3133	764, 765	60	1238
Gold from pulverized ores, &c. Machine for extracting	T. C. Simonton	478,971	July 12	1384	341	60	288
Governor	J. Hemphill and J. Fawell	482,448	Sept. 13	800	215	60	1521
Governor	J. Hemphill and J. Fawell	482,449	Sept. 13	891	215, 216	60	1522
Governor	J. Hemphill and J. Fawell	482,450	Sept. 13	893	216	60	1522
Governor. Engine	M. A. Green	480,580	Aug. 9	1329	331	60	848
Governor. Engine	T. H. Nace	480,778	Aug. 16	1645	412	60	925
Governor. Steam-engine	F. C. Dietz	481,141	Aug. 16	2238	551, 552	60	1038
Governors. Safety attachment for engine	F. W. Dean	482,404	Sept. 13	813	195	60	1509
Grader. Road	H. J. Schneider	479,466	July 26	2200	552	60	471
Grades, &c. Device for ascertaining	D. C. Wolfe	478,491	July 5	655	160	60	130
Grading and sorting machine. Pneumatic	H. O. Mooney	478,516	July 5	697	169, 170	60	139
Grading-machine	C. Lampitt	483,225	Sept. 27	2116	536, 537	60	1790
Grain-binder	M. E. Benedict	480,226	Aug. 2	755	191	60	725
Grain-binder	H. F. Crandall	478,572	July 12	785	193, 194	60	171
Grain-binder	G. Esterly	480,079	Aug. 2	512	130	60	680
Grain-binder	H. E. Pridmore	481,244	Aug. 23	2416	596, 597	60	1087
Grain-binder	H. E. Pridmore	481,530	Aug. 23	2890	709, 710, 711	60	1176
Grain-binder	G. Schubert	481,974	Sept. 6	78	21	60	1350
Grain-binder	G. Schubert	482,758	Sept. 20	1383	343	60	1631
Grain-binder bundle-carrier	A. Stark	479,677	July 26	2531	630, 631	60	532
Grain-conveyer for binders, &c	G. Schubert	479,467	July 26	2202	553	60	472
Grain cut-off	P. D. Thompson	481,080	Aug. 16	2127	529	60	1018
Grain-drier conveyer	E. M. Parker	481,078	Aug. 30	3115	760	60	1234
Grain-dump	J. P. Peterson	483,011	Sept. 20	1787	451	60	1712
Grain-meter. Oscillating	H. H. Boenker	483,417	Sept. 27	2430	611	60	1848
Grain-sampling machine	J. Bigelow	480,354	Aug. 9	1453	362	60	879
Grain-scouring machine	R. W. Welch	480,942	Aug. 16	1801	473	60	974
Grain-separator	J. Menge	481,366	Aug. 23	2618	644	60	1122
Grain-treating apparatus	F. B. Gesler	482,700	Sept. 20	1435	353	60	1641
Granite, &c. Device for polishing	G. L. Badger	481,341	Aug. 23	2588	636	60	1117
Graphoscope	F. E. Housh	482,793	Sept. 20	1439	356	60	1640
Grapple-hook	C. W. Abbott	479,871	Aug. 2	147	36	60	611
Grate	T. Henderson	482,556	Sept. 13	1074	260	60	1538
Grate	W. W. Sweetland	479,728	July 26	2632	653	60	550
Grate	W. Whitworth	478,775	July 12	1067	260	60	232
Grate-bar and feed-water heater. Combined	H. D. Wendt	478,726	July 12	999	248	60	215
Grate-bar. Sectional	B. A. Ellison	480,568	Aug. 9	1306	327	60	844
Grate. Fire	R. Glichriest	479,080	July 19	1575	394, 395	60	335
Grate. Fire	J. H. Mehrtens	481,237	Aug. 23	2400	592	60	1084
Grate. Open fire	J. H. McIlvain	479,916	Aug. 2	207	52	60	623
Grate. Portable	D. H. Watts	483,410	Sept. 27	2422	609	60	1846
Grate. Shaking	C. E. Mark	482,452	Sept. 13	895	217	60	1523
Grating. Jail	G. L. Norrman	481,915	Aug. 30	3530	864	60	1315
Gravel-trains. Means for unloading	W. D. Stratton and J. H. Drake	482,951	Sept. 20	1626	424	60	1690
Grinder	J. E. Trawick	482,400	Sept. 13	810	194, 195	60	1508
Grinder. Cutlery	D. Reed	480,035	Aug. 2	445	113	60	666
Grinding and polishing machine	A. Manecke	479,822	Aug. 2	72	17	60	596
Grinding cutlery and other handles. Machine for	F. C. Feicker	481,259	Aug. 23	2451	603, 604	60	1093
Grinding-fixture	W. W. Tucker	482,212	Sept. 6	477	114	60	1428
Grinding-machine	A. Fryer	483,249	Sept. 27	2153	545, 546	60	1796
Grinding-machine	A. B. Landis	483,288	Sept. 27	2242	564, 565, 566	60	1812
Grinding-machine	O. S. Walker	481,380	Aug. 23	2647	649	60	1128
Grinding-machine tool-rest	D. L. Brown	483,042	Sept. 20	1628	464, 465	60	1720
Grinding-mill	G. R. Cullingworth	478,252	July 5	308	75	60	62
Grinding-mill	C. C. L. Lucht	482,873	Sept. 20	1554	388	60	1666
Grinding-mill	I. E. Overpeck	483,363	Sept. 27	2346	590	60	1832
Grinding mower-knives. Machine for	R. Dutton	481,275	Aug. 23	2477	610, 611	60	1098
Grinding mowing-machine knives. Machine for	M. Balmes	481,886	Aug. 30	3477	852	60	1305
Grinding-wheel attachment	J. H. Göetsche	478,854	July 12	1212	301	60	255
Grounding-machine	J. Hope	482,947	Sept. 20	1682	423	60	1689

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Guard: *See* Axle dust-guard. Bridge-guard. Car-guard. Carriage mud-guard. Cattle-guard. Chimney-thimble guard. Eyeglass-guard. Hub dust-guard. Keyhole-guard. Ladder-guard. Lamp-guard. Railway stock and cattle guard. Rein-guard. Shaft-guard. Trousers-guard.							
Guest-call. Electric	F. Benner	481,919	Aug. 30	3535	865, 866	60	1316
Gun	G. F. Fogerty	482,305	Sept. 6	629	150	60	1458
Gun. Breakdown	F. A. Hollenbeck	481,327	Aug. 23	2467	630	60	1113
Gun. Breakdown	T. Woodward	481,290	Aug. 23	2510	617	60	1102
Gun. Breech-loading	D. E. Grant	480,259	Aug. 9	880	210, 211	60	750
Gun carriage or mounting	J. H. R. Whinfield and J. Horne	478,899	July 12	1269	314, 315, 316	60	266
Gun-cleaner	W. H. Ferris	481,858	Aug. 30	3433	843	60	1296
Gun. Machine	F. M. Garland	479,799	Aug. 2	37	9, 10	60	589
Gun. Magazine	A. Lindner	483,229	Sept. 27	2125	538	60	1791
Gun. Magazine breech-loading	D. S. West	478,738	July 12	1007	249	60	216
Gun. Recoil-operated magazine	O. H. Bennett	478,214	July 5	222	56	60	46
Gun. Revolving magazine	T. Wilson	481,452	Aug. 23	2761	679	60	1150
Gun-rod. Veneered	A. Sandberg	480,746	Aug. 16	1597	400	60	915
Gun. Spring air	W. F. Markham	483,159	Sept. 27	2016	509	60	850
Guns. Apparatus for moderating the recoil of	L. Dénoyelle	481,647	Aug. 30	3075	750, 751	60	1227
Guns. Cartridge-holder for magazine	P. Mauser	482,376	Sept. 13	778	187	60	1501
Guns. Charge-indicator for gas	J. S. Wallace	480,156	Aug. 2	631	160	60	703
Guns. Operating submarine	H. Berdan	478,215	July 5	226	56, 57	60	47
Gunner's shield	J. E. Emerson and T. Midgley	478,506	July 5	684	166	60	135
Gunstock and cushion-plate. Extension	E. Jones and R. Townsend	480,587	Aug. 9	1340	334	60	1769
Gymnastic apparatus	C. C. Nelly	481,807	Aug. 30	3352	820	60	1281
Gymnastic apparatus	R. Wright	478,833	July 12	1188	294, 295	60	250
Gypsum. Hardening objects made of crude	C. Reimer	479,019	July 19	1467	.....	60	315
Hair-clipper	C. Carleton	481,254	Aug. 23	2444	602	60	1092
Hair-clipper	J. W. Smith	481,977	Sept. 6	85	22	60	1351
Hair clipper and shears	J. K. Priest	478,461	July 5	614	149	60	121
Hair-curling machine	J. A. Murphy	480,605	Aug. 9	1369	340	60	855
Hame	W. H. Johnson and O. J. Smith	480,663	Aug. 9	1470	366	60	875
Hame	W. H. Simmons	482,656	Sept. 13	1206	294	60	1584
Hame-clip action	E. D. Cole	478,569	July 12	782	191	60	170
Hame-fastener	R. G. Armstrong	481,795	Aug. 30	3210	784	60	1253
Hame-fastener	J. H. Snyder	480,633	Aug. 9	1419	354	60	866
Hame-staple. Adjustable	J. G. and W. H. Haglock	483,111	Sept. 20	1931	489	60	1742
Hammer for forging car-wheels	J. Parkinson	478,631	July 12	869	214	60	188
Hammer. Power	S. Trethewey	482,988	Sept. 20	1743	440	60	1702
Hand-elevator	H. G. Zoschnick	482,054	Sept. 6	215	51	60	1377
Hand-rake	T. Coldwell	481,895	Aug. 30	3495	856	60	1308
Handle: *See* Basket-handle. Casket-handle. Coffin-handle. Saw-handle. Tool-handle.							
Handle	D. A. and H. C. Moore	483,466	Sept. 27	2487	626	60	1800
Handle	J. B. Schroder	479,176	July 19	1715	430	60	361
Handle for wash-boilers	J. I. Flanagen	479,588	July 26	2390	596	60	506
Handles. Form for holding shovel	W. H. Johnson	483,114	Sept. 20	1935	490	60	1742
Hanger: *See* Door-hanger. Lamp-hanger. Paper-hanger. Picture-hanger. Shafting-hanger.							
Hanger	J. G. Duke	479,254	July 19	1832	460	60	384
Harbor	R. H. F. and N. H. Sewall	479,309	July 19	1911	477, 478	60	399
Harmonica	L. G. Lawrence	478,514	July 5	696	168	60	138
Harmonica	O. Meinel	483,160	Sept. 27	2017	510	60	1776
Harness attachment	J. W. McNeill	478,124	July 5	68	18	60	15
Harness. Hanger for swinging	R. G. Armstrong	481,627	Aug. 30	3048	744	60	1222
Harness-pad	W. D. Underwood	481,289	Aug. 23	2509	617	60	1102
Harness-snap	T. V. Wallace	482,885	Sept. 20	1584	398	60	1670
Harness. Strap-attaching device for	T. J. Magruder	478,876	July 12	1235	306	60	260
Harness-support	J. Leininger	479,947	Aug. 2	268	66	60	633
Harrow	C. A. Anderson, A. W. and F. D. England	483,317	Sept. 27	2289	575, 576	60	1820
Harrow	R. B. Graves and D. F. Merritt	478,960	July 12	1365	336	60	284
Harrow	W. W. Green	478,259	July 5	319	77	60	64
Harrow	W. Richards, W. Garwood, and H. N. Rosebrook	483,501	Sept. 27	2540	638	60	1870
Harrow	G. T. Songer	478,649	July 12	804	221	60	193
Harrow and cultivator. Side	A. H. and P. E. Teschner	479,476	July 26	2230	560	60	476
Harrow. Disk	T. J. Croft	480,174	Aug. 2	662	169	60	708
Harrow for listed corn	R. W. Hardie	478,596	July 12	822	203	60	179
Harrow. Spring-tooth	R. Lyons	481,634	Aug. 30	3058	746	60	1224
Harrows. Planter attachment for disk	J. W. Brant	480,705	Aug. 16	1541	384	60	902
Harvester	J. E. Gallup	482,692	Sept. 13	1179	285	60	1578
Harvester	M. Kimberlin	482,924	Sept. 20	1640	412	60	1681
Harvester	M. H. Melrose	482,968	Sept. 20	1711	432	60	1696
Harvester and binder	J. T. Mider	481,410	Aug. 23	2096	662	60	1137
	J. M. Trier	481,706	Aug. 30	3170	774	60	1245

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Harvester and shocker. Corn	G. G. Kimmell	481,036	Aug. 16	2039	508, 509, 510, 511	60	1002
Harvester. Bean	J. F. King and S. B. Stokely	479,600	July 26	2406	509	60	509
Harvester. Bean	W. H. Wilder	479,480	July 26	2242	502	60	478
Harvester-binder sheaf-carrier	L. M. Jones and J. K. Wedlake	480,468	Aug. 9	1163	292, 293	60	814
Harvester bundle-carrier	L. W. Ellis	480,944	Aug. 16	1894	474	60	975
Harvester. Corn	R. W. Ermeling	478,849	July 12	1207	300	60	254
Harvester. Corn	G. A. Farrall	482,551	Sept. 13	1062	258, 259	60	1556
Harvester. Corn	D. W. Hanson and J. S. Farnham	482,945	Sept. 20	1675	421, 422	60	1688
Harvester. Corn	J. T. Hess	479,165	July 19	1691	423, 424	60	357
Harvester. Corn	H. Morrison	482,186	Sept. 6	436	105	60	1421
Harvester. Corn	H. C. and A. E. Peoples	482,065	Sept. 6	249	55, 56	60	1380
Harvester. Corn	R. S. Rinker	481,050	Aug. 16	2090	521, 522	60	1012
Harvester. Cotton	A. Stark	480,975	Aug. 16	1955	489, 490	60	986
Harvester. Cotton	G. Beekman	482,156	Sept. 6	386	91	60	1411
Harvester cutting apparatus	A. G. Perry	480,131	Aug. 2	593	151, 152	60	695
Harvester. Flax	G. Mischler	479,508	July 26	2365	500	60	502
Harvester gear-shifting mechanism	W. Morrow	480,434	Aug. 9	1105	276	60	802
Harvester. Grain-binding	G. Schubert	481,202	Aug. 23	2338	576	60	1072
Harvester. Grain-binding	L. Miller	480,113	Aug. 2	558	140, 141	60	688
Harvester. Grain-binding	L. Miller	480,114	Aug. 2	561	141, 142	60	689
Harvester. Grain-binding	L. Miller	480,115	Aug. 2	564	143	60	690
Harvester. Potato	L. Miller	480,116	Aug. 2	567	144	60	690
Harvester-reel mechanism	P. H. Munroe	480,776	Aug. 16	1643	411	60	924
Harvester-reel support	G. Schubert	479,848	Aug. 2	109	27	60	603
Harvester-reel support	J. F. Appleby	481,218	Aug. 23	2371	583	60	1079
Harvester. Traveling	C. A. A. Rand	481,191	Aug. 23	2321	571, 572	60	1068
Harvester. Traveling	D. Best	480,006	Aug. 2	380	94	60	653
Harvesters. Raising and lowering mechanism for	B. Holt	483,449	Sept. 27	2470	621, 622	60	1856
Harvesters. Sheaf-carrier for self-binding	G. Schubert	478,717	July 12	985	245	60	212
Hat	J. F. Steward	482,931	Sept. 20	1647	414, 415	60	1683
Hat	S. Cohen	478,952	July 12	1349	334	60	282
Hat and coat hanger and cigar-cutter. Combined	D. Schlesinger	480,041	Aug. 2	454	116	60	668
Hat, cap, &c	W. R. Cole	481,929	Sept. 6	14	4	60	1337
Hat-case	A. Rosenthal	482,950	Sept. 20	1686	424	60	1690
Hat-curling machine	N. F. Hurdel	479,643	July 26	2474	615	60	522
Hat-gage	W. J. McGall	480,877	Aug. 16	1794	449	60	955
Hat-hook	I. Shrier	478,291	July 5	364	88	60	73
Hat-pouncing machine	T. Corscaden	479,058	July 19	1526	381	60	327
Hat-supporter	J. B. Howe	480,098	Aug. 2	535	136	60	684
Hat-trimming machine	W. Applegath	481,156	Aug. 23	2275	561	60	1059
Hat-ventilator	L. Bulasky	482,541	Sept. 13	1045	252	60	1553
Hatchway-doors. Device for operating	W. P. O'Connor	482,429	Sept. 13	858	206	60	1516
Hawser-clamp	S. G. Tufts	478,297	July 5	371	90	60	74
Hay and grain loader	R. Ashworth	479,777	Aug. 2	6	2	60	583
Hay-carrier	F. J. Lovell	481,699	Aug. 30	3160	771, 772	60	1943
Hay-carrier and track	J. L. Hoffman	479,423	July 26	2126	532	60	456
Hay-carrier track	J. E. Porter	482,412	Sept. 13	826	198	60	1510
Hay-loader	H. L. Ferris	481,349	Aug. 23	2600	639	60	1119
Hay-loader	G. A. Dickerman and J. P. Ellacott	479,353	July 19	1993	499	60	416
Hay-press	P. D. Miller and W. N. De Vault	480,269	Aug. 9	841	214	60	755
Hay-press. Hand	H. Copeland	480,917	Aug. 16	1855	463	60	967
Hay-rack	W. H. Carse, W. T. Blackburn, and R. P. Owens.	480,382	Aug. 9	1022	257	60	788
Hay-rack	J. E. and C. B. Haynes	479,878	Aug. 2	159	39	60	613
Hay-rack	H. S. Hoy	481,175	Aug. 23	2299	567	60	1064
Hay-rack	J. F. Moore	479,826	Aug. 2	83	21	60	598
Hay-rake	S. H. Plomberg	481,420	Aug. 23	2713	668	60	1141
Hay-rake. Horse	J. H. Thomas	482,532	Sept. 13	1031	249	60	1550
Hay-rake. Horse	A. F. Brown and W. R. Knaub	478,083	July 5	13	4	60	5
Hay-rake. Horse	A. F. Brown and W. R. Knaub	478,084	July 5	15	5	60	6
Hay-rake. Horse	W. R. Mann	481,501	Aug. 23	2842	698	60	1166
Hay-stack-cutting machine	E. Swift	479,033	July 19	1490	370, 371	60	319
Hay-stacker	J. T. Evans and J. H. Douglass	481,393	Aug. 23	2665	653, 654	60	1131
Hay-stacking machine	P. Bernard	478,979	July 19	1401	347, 348	60	303
Head-rest	P. Bernard	482,611	Sept. 13	1152	279	60	1573
Head-rests, &c. Folding support for	R. E. Cherrington	479,585	July 26	2385	594	60	505
Heater:	T. Mayes	480,822	Aug. 16	1718	429	60	939
See Car-heater. Curling-tongs heater. Electric heater. Electrical heater. Feed-water heater. Gas-heater. Hot-water heater. Lamp-heater. Peanut-heater. Rubber-heater. Water-heater.							
Heater	R. Bigley	478,557	July 12	768	187	60	167

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Heater for food, &c	G. L. Hinderer	481,759	Aug. 30	3269	796	60	1264
Heating and ventilating apparatus	S. W. Wayson	481,085	Aug. 16	2133	531	60	1020
Heating apparatus	J. N. and E. N. Gates	482,679	Sept. 13	1245	303, 304	60	1592
Heating apparatus	J. F. McElroy	478,203	July 5	210	53	60	43
Heating apparatus	M. Roe	479,463	July 26	2197	551	60	471
Heating apparatus	G. A. Watson	481,216	Aug. 23	2363	582, 583	60	1076
Heating-furnace	P. Keil, Jr	482,363	Sept. 13	749	180, 181	60	1496
Heating system	D. H. Burrell	480,903	Aug. 16	1840	457, 458	60	964
Heel	A. R. Parkison	482,561	Sept. 13	1060	262	60	1559
Heel-loading machine	F. F. Raymond, 2d	480,415	Aug. 9	1073	268, 269, 270	60	797
Heel-nailing machine	F. F. Raymond, 2d	479,142	July 19	1661	415	60	351
Heel-nailing-machine jack	F. F. Raymond, 2d	480,741	Aug. 16	1592	389	60	914
Heel plate	E. F. Ayres and T. H. Foster	481,394	Aug. 23	2564	629	60	1112
Heel-stiffener machine	L. W. Litch	480,023	Aug. 2	427	107, 108	60	602
Heel-stiffener machine	A. H. Thompson	483,184	Sept. 27	2037	519	60	1778
Hemp-brake	J. O. Ward	480,354	Aug. 9	974	245	60	779
Hen-hovel. Knockdown	J. M. Holladay	479,842	Aug. 2	259	64	60	632
Hide or skin shaving machine	A. A. Huntley	479,072	July 19	1546	386, 387	60	330
High and low water alarm	A. J. Wright	479,482	July 26	2243	563	60	479
Hinge	L. H. Foster	479,936	Aug. 2	251	62	60	630
Hinge	J. F. Hirst	481,492	Aug. 23	2827	695	60	1163
Hinge	N. W. Mottinger	481,044	Aug. 16	2059	514	60	1006
Hinge	C. Osborne	481,732	Aug. 30	3223	796	60	1255
Hinge	F. X. Ranker	480,238	Aug. 2	773	195	60	729
Hitch. Horse	T. Tangney	480,790	Aug. 16	1665	416	60	928
Hitching device	A. Johnson	481,231	Aug. 23	2394	591	60	1063
Hog-scraper and claw-hook	D. W. De Sylvia	480,179	Aug. 2	667	170	60	709
Hogsheads or barrels. Construction of	A. Nitthinger, Sr	478,810	July 12	1150	284	60	943
Hoist	A. Schmidt	483,478	Sept. 27	2503	630	60	1863
Hoisting apparatus	J. Garner, T. Cockerill, and C. Porrett.	479,087	July 19	1572	394	60	335
Hoisting device	W. J. Kayser	483,323	Sept. 27	2297	578	60	1822
Hoisting-machine	A. Olson	482,648	Sept. 13	1197	291	60	1582
Hoisting-platform	W. H. Rickabach	483,391	Sept. 27	2396	602	60	1840
Hoisting-wheel. Frictional	C. F. Ball	478,078	July 5	5	2	60	3
Holdback	A. J. Davis	480,905	Aug. 16	1843	958	60	964
Holder:	J. H. Logan	483,325	Sept. 27	2300	578	60	1822
See Bag-holder. Bill-holder. Billiard-chalk holder. Bit-holder. Blacking-holder. Book-holder. Brush-holder. Calendar-holder. Cloth-holder. Clothes-holder. Clothes-line holder. Coin-holder. Collar-holder. Cravat-holder. Cuff-holder. Curling-iron holder. Demijohn-holder. Eyeglass-holder. Fuse and file holder. Gas-holder. Knife-holder. Label-holder. Lid-holder. Line-holder. Napkin-holder. Opera-glass holder. Paper-holder. Paper-bag holder. Paper-roll holder. Penholder. Pen and pencil holder. Pencil-holder. Picture-holder. Pillow-sham holder. Pipe-holder. Rein-holder. Ribbon-holder. Ring-holder. Sack-holder. Sash-holder. Shade-holder. Spool-holder. Stamp-holder. Tag-holder. Tool-holder. Trunk-strap holder. Type-holder. Whip-holder. Yard-stick holder.							
Holder or rack	C. Warden	481,455	Aug. 23	2770	682	60	1152
Hollow articles. Machine for making	A. A. Blount and F. K. Way	479,347	July 19	1986	497	60	414
Honey cells and combs. Making artificial	E. T. Mason and M. H. Moskovite	481,578	Aug. 30	2971	729	60	1208
Hook: *See* Bench-hook. Checkrein-hook. Davit-hook. Gaff-hook. Grapple-hook. Fish-hook. Hat-hook. Snap-hook. Tug-hook. Whiffletree-hook.							
Hook	E. W. Davis	478,313	July 5	396	95	60	80
Hook and eye	W. J. Edwards and F. R. Barclay	482,867	Sept. 20	1548	386	60	1664
Hook and eye	H. C. Frank	482,473	Sept. 13	927	226	60	1529
Hook and eye	B. D. Paine	478,357	July 5	468	113	60	93
Hook and eye. Garment	L. M. Porter	478,360	July 5	471	114	60	94
Hoop-flaring machine	F. E. Bennett	478,555	July 12	766	187	60	167
Hop-picking machine	T. A. Cook	482,300	Sept. 6	622	148	60	1456
Hops. Obtaining extracts from	C. C. Green	478,592	July 12	815	201	60	177
Horse-blanket fastener	C. H. and B. O. Frings	478,508	July 5	686	167	60	136
Horse-boot	C. A. Harvey	481,326	Aug. 23	2565	630	60	1113
Horse-boot	J. Hoar	481,790	Aug. 30	3326	811	60	1276
Horse-checking device	H. R. Hurd	482,041	Sept. 6	191	46	60	1373
	I. Labelle	483,306	Sept. 27	2270	571	60	1817

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Horse-detacher	E. Hays	483,059	Sept. 20	1851	470	60	1726
Horse-hitching device	J. H. Quinton	483,514	Sept. 27	2367	643	60	1875
Horse-tail holder	J. C. Tallman	478,894	July 12	1263	312	60	265
Horses. Eye-protector for	J. Steele	481,152	Aug. 16	2260	557	60	1042
Horses. Gage for determining the age of	A. Bolinger	478,560	July 12	773	189	60	168
Horses. Leg-spreader for	J. R. Phelps	480,625	Aug. 9	1407	350	60	863
Horseshoe	O. E. Brown	481,271	Aug. 23	2167	608	60	1006
Horseshoe	G. T. Chapman	483,209	Sept. 27	2094	531	60	1785
Horseshoe	C. E. Devine and G. La Chapelle	481,932	Sept. 6	17	5	60	1338
Horseshoe	E. A. Hills	480,924	Aug. 16	1868	466	60	969
Horseshoe	J. F. Jarvis	478,435	July 5	576	139	60	113
Horseshoe	W. Kondakoff	482,845	Sept. 20	1507	375	60	1656
Horseshoe	R. F. Lewis	479,137	July 19	1654	413	60	349
Horseshoe	G. Martin	480,731	Aug. 16	1579	395	60	911
Horseshoe	H. Olson	481,716	Aug. 30	3189	779	60	1249
Horseshoe-fastening	C. A. Reade	482,650	Sept. 13	1200	292	60	1583
Horseshoe. Nailless	G. Calls and F. J. Tetley	481,000	Aug. 16	1989	498	60	992
Horseshoe-nails. Manufacturing	J. McCaffrey	478,455	July 5	602	147	60	119
Horseshoe. Open-toed	W. W. Miner	481,962	Sept. 6	60	14	60	1346
Horseshoe-pad	A. D. Baker	479,111	July 19	1615	404	60	342
Horseshoe plug-calk	N. G. Mooney	479,912	Aug. 2	202	50	60	622
Horseshoe. Rubber-tread	E. P. Noyes	480,611	Aug. 9	1377	342	60	857
Horseshoe. Sectional	W. Davis	479,790	Aug. 2	24	6	60	586
Horseshoe. Spring-heel	C. H. Doran	480,563	Aug. 9	1300	325	60	842
Horseshoe toe-calk	D. C. Dwyer	482,998	Sept. 20	1759	444	60	1705
Horseshoeing-rack	T. S. Very	481,336	Aug. 23	2584	634	60	1116
Horseshoer's tool	J. Wagner and G. B. Sunderland	481,083	Aug. 16	2130	530	60	1019
Hose-clamp	O. Handeland	481,490	Aug. 23	2925	694	60	1163
Hose-clamp	A. R. Dickinson	483,302	Sept. 27	2366	570	60	1816
Hose-clamp	L. H. Redfield	480,513	Aug. 9	1925	307	60	827
Hose-clamp	L. H. Redfield	480,514	Aug. 9	1226	307	60	827
Hose-clamp	L. H. Redfield	480,515	Aug. 9	1227	307	60	828
Hose connections. Machine for applying	A. M. Smith	482,593	Sept. 13	1125	271, 272	60	1568
Hose-connector. Electric	C. F. Kellom	482,181	Sept. 6	429	102	60	1419
Hose-coupling	A. W. Jackson	480,197	Aug. 2	698	176, 177	60	714
Hose-nozzle holder	C. R. Robinson	479,841	Aug. 2	100	25	60	601
Hose-reel	S. F. Reynolds	483,390	Sept. 27	2395	602	60	1840
Hot-air furnace	W. Thuener, Jr., and P. Herchenbach.	479,769	July 26	2701	673	60	564
Hot-air register	R. S. T. Cissel	479,586	July 26	2386	595	60	505
Hot-water boiler	C. Behre	480,059	Aug. 2	483	123	60	674
Hot-water heater	W. Kennedy	480,406	Aug. 9	1057	265	60	794
Hub-attaching collar. Vehicle	L. Faris	482,627	Sept. 13	1174	284	60	1577
Hub-attaching device	M. F. Deininger	482,571	Sept. 13	1091	265	60	1562
Hub-attaching device	I. Van Winkle	481,603	Aug. 30	3017	737	60	1215
Hub dust-guard	J. T. Richards	478,466	July 5	622	151	60	123
Hub. Lubricating	F. W. Randolph	482,195	Sept. 6	450	109	60	1423
Hub. Vehicle	A. G. Burrows	480,090	Aug. 9	1513	376	60	883
Hub. Vehicle	F. W. Fiedler	478 277	July 5	345	83	60	69
Hub. Vehicle-wheel	A. A. Minor	478,287	July 5	359	87	60	72
Hubs. Band-shell for wheel	L. Swenson	482,418	Sept. 13	838	201	60	1513
Huller:	H. Higgin	480,093	Aug. 2	531	135	60	683
See Coffee-huller.							
Hydrant	E. J. Bachelder	480,313	Aug. 9	916	231	60	768
Hydrant	C. G. Ette	479,259	July 19	1840	461	60	385
Hydraulic elevator	J. E. Barry	480,486	Aug. 9	1188	299	60	819
Hydraulic jack. Horizontal	J. Weeks	478,530	July 5	725	177	60	143
Hydraulic machinery	G. S. Duncan	478,225	July 5	251	61, 62	60	51
Hydraulic motor	S. Forter	482,732	Sept. 20	1334	327, 328, 329	60	1622
Hydraulic motor	S. S. Marsh	479,201	July 19	1885	472	60	395
Hydraulic motor	M. Van Ensley	482,976	Sept. 20	1723	435	60	1698
Hydraulic motor	W. A. Wood	479,868	Aug. 2	144	35	60	610
Hydraulic press	J. F. Taylor	479,317	July 19	1923	480	60	402
Hydrocarbon-burner	A. Chaney and E. T. Wires	481,088	Aug. 16	2137	532	60	1020
Hydrocarbon-burner and device for automatically feeding the same.	C. F. A. Convert	481,273	Aug. 23	2471	609	60	1097
Hydrocarbon-burning apparatus	J. H. Bullard	483,099	Sept. 20	1913	484	60	1738
Hydrocarbon-burning apparatus	J. H. Bullard	483,100	Sept. 20	1914	484	60	1738
Hydrometer	W. C. Tiffany	480,480	Aug. 9	1181	297	60	818
Ice. Apparatus for cooling water in the manufacture of	A. Smith	483,397	Sept. 27	2403	604	60	1842
Ice-cream freezer	H. W. Atwater	479,931	Aug. 2	242	60	60	628
Ice-cream freezer	T. W. Crozier	480,714	Aug. 16	1556	387, 388	60	905
Ice-cream freezer	C. T. Van Sicklen	483,028	Sept. 20	1811	450	60	1717
Ice-cream freezer	E. P. Voisard	483,030	Sept. 20	1813	400	60	1717
Ice elevators. Planer for	W. H. M. Smith	482,906	Sept. 6	467	112	60	1426
Ice-machine	M. J. Palson	482,694	Sept. 13	1273	312	60	1597
Ice-plow	H. Pray	483,015	Sept. 20	1793	452	60	1713
Ice-shave	J. Stubbs	482,863	Sept. 20	1582	397	60	1609
Identification device	B. H. Weeks	481,448	Aug. 23	2757	678	60	1149
Illuminating device for stage-scenery and for other purposes.	W. Jordan and E. Broadbridge, Jr.	482 362	Sept. 13	748	180	60	1496
Implement. Hand	M. Ryan	483,477	Sept. 27	2502	630	60	1802
Implement-holder for tablets, &c	O. T. Hougen and G. W. Paulus	478,794	July 12	1127	278	60	238
Incubator	J. S. Rubel	482,755	Sept. 20	1379	342	60	1630
Index	F. S. Dewey	479,206	July 19	1760	441	60	369
Index and mail-assorter	W. H. Lodwick	478,617	July 12	850	209	60	184

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Indicator:							
See Boiler-feed-indicator. Pressure-indicator. Book-indicator. Rudder-indicator. Cash-indicator. Speed-indicator. Circumference-indicator. Telegraph-indicator. Train-indicator. Electric indicator. Valve-motion indicator. Elevator-indicator.							
Indicator-lock	C. Lindstrom	481,960	Sept. 6	58	14	60	1346
Indicator-lock	D. E. Young and W. F. Littell	483,092	Sept. 20	1903	481	60	1735
Induction-coil for electric meters	E. Thomson	482,209	Sept. 6	471	113	60	1427
Ingot-extractor	J. F. Lewis	480,432	Aug. 9	1102	275, 276	60	801
Ingots. Manufacture of steel	C. W. Kennedy and J. W. Grantland.	478,936	July 12	1329	330	60	278
Ingots. Preventing segregation in large	W. R. Hinsdale	479,120	July 19	1627	407	60	344
Inhaler and medicament-holder. Combined	T. M. Dunham	482,083	Sept. 6	263	63	60	1387
Injector	W. E. Dodge	478,317	July 5	404	97	60	81
Injector	W. E. Dodge	478,741	July 12	1034	254	60	221
Injector	O. L. Hallbeck	479,214	July 19	1771	444	60	371
Injector	R. Harrison	480,921	Aug. 16	1864	465	60	969
Injector	H. C. Reagan, Jr	480,784	Aug. 16	1656	414	60	927
Injector or insufflator for the larynx, &c	W. Scott	480,787	Aug. 16	1662	415	60	928
Ink	C. M. Higgins	483,446	Sept. 27	2467	.....	60	1855
Ink	C. M Higgins	483,447	Sept. 27	2468	.....	60	1855
Ink-well	J. W. MacDonald	483,072	Sept. 20	1868	473	60	1729
Inkstand	G. H. Foster and P. H. Farrell	481,649	Aug. 30	3080	752	60	1228
Inkstand	L. B. Manley	481,408	Aug. 23	2692	661	60	1136
Inkstand	H. H. Schive	479,774	July 26	2720	676	60	509
Inkstand	C. R. Straughn	481,600	Aug. 30	3010	736	60	1214
Inkstand-stopper	C. L. Wheeler, Jr	482,051	Sept. 6	210	50	60	1376
Insect-catcher	W. A. McAdams	483,079	Sept. 20	1879	476	60	1731
Insecticide	J. J. Carter	482,403	Sept. 13	813	.....	60	1509
Insecticide-distributer	R. J. Talley	483,269	Sept. 27	2218	557	60	1807
Instruction in reading and calculating. Device for	W. W. Hallett	481,728	Aug. 30	3217	785	60	1254
Insulated electric wire	T. L. Reed	482,753	Sept. 20	1377	341	60	1629
Insulator	W. J. Bowen	481,132	Aug. 16	2210	546	60	1034
Insulator	H. H. Brooks	482,913	Sept. 20	1696	407	60	1678
Insulator	C. E. Conover	479,134	July 19	1645	411	60	347
Insulator	J. J. Green	480,011	Aug. 2	395	98	60	656
Insulator	C. T. Lee	482,872	Sept. 20	1553	388	60	1665
Insulator	L. McCarthy	478,518	July 5	703	170	60	140
Insulator	A. J. Wylie	481,457	Aug. 23	2772	683	60	1152
Insulator. Electric	W. H. Clark	482,297	Sept. 6	619	147	60	1456
Insulator. Pipe	G. E. Dixon	481,899	Aug. 30	3501	857	60	1309
Iridescent stone or body	J. Jacobson. (Reissue)	11,263	Aug. 16	2271	560	60	1044
Iron:							
See Curling-iron. Sad-iron.							
Iron and alumina. Apparatus for removing	S. Hughes	479,882	Aug. 2	163	41	60	614
Iron and steel. Manufacture of	J. P. Witherow	481,881	Aug. 30	3467	850	60	1303
Iron. Manufacturing sheet	B. Talbot	482,396	Sept. 13	806	.....	60	1507
Ironing-board	F. N. Chapin	480,170	Aug. 2	658	168	60	707
Ironing-board	E. R. Fowler	482,348	Sept. 13	718	171	60	1490
Ironing-machine	F. D. Adams	482,607	Sept. 13	1141	275, 276	60	1572
Ironing-machine	W. Phillips	480,277	Aug. 9	850	216, 217	60	757
Ironing-table	W. G. Lindsay	483,460	Sept. 27	2481	625	60	1856
Ironing-table	W. F. Parmelee	479,301	July 19	1899	475	60	397
Ironing-table. Folding	H. C. Hill and C. W. Frey	483,353	Sept. 27	2335	587	60	1820
Irrigating and sprinkling land. Apparatus for	J. Franklin	479,105	July 19	1597	400	60	330
Jack:							
See Counter-shaft-supporting jack. Pegging-jack. Plug spring-jack. Floor-jack. Screw-jack. Hydraulic jack. Wagon-jack. Lifting jack.							
Jacket. Shooting	E. D. Bean	479,385	July 19	2052	512	60	428
Jail-bar	L. D. York	480,358	Aug. 9	978	246	60	779
Jail-grating	P. J. Pauly, Sr.	480,700	Aug. 9	1529	380	60	886
Jail-plate. Electric	W. S. Hull	480,099	Aug. 2	539	137	60	685
Jar:							
See Fruit-jar. Preserving-jar. Packing-jar.							
Jar	A. Weissenthanner	483,033	Sept. 20	1818	462	60	1718
Jar-closure	F. Guilleaume and E. Goltstein	481,112	Aug. 16	2181	540	60	1028
Jar filler and holder	I. M. and I. M. Fisher	483,049	Sept. 20	1838	467	60	1723
Jar-sealing device	I. P. Nelson	478,126	July 5	70	18	60	16
Jewelry	H. Lehr	482,488	Sept. 13	940	229	60	1531
Joint:							
See Caliper-joint. Railway-joint. Electric-conductor joint. Railway-rail joint. Universal joint. Electric-wire joint. Vehicle top-joint. Rail-joint.							
Joint or coupling for metallic pipes or tubes	J. Aird	478,496	July 5	602	162	60	131
Joists. Wrought-metal hanger for	I. J. Lehman	478,163	July 5	140	30	60	30
Journal and hinge. Combined ball	R. O. Bingham	479,731	July 26	2636	654	60	551
Journal-bearing	J. M. and M. A. Andrews	478,583	July 5	733	178, 179	60	145
Journal-bearing	J. R. Montague and J. A. Proas	480,025	Aug. 2	430	100	60	663
Journal-bearings. Composition of matter for	P. H. Holmes	481,949	Sept. 6	45	10	60	1343
Journal-bearings. Manufacturing composition	P. H. Holmes	482,310	Sept. 6	648	.....	60	1462
Journal-bearings. Reducible lining for	F. Van Benthuysen	479,039	July 19	1499	373	60	321

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Journal-box	J. L. Jönsson	479,983	Aug. 2	327	80	60	644
Keg hooping and heading machine	T. A. Cook	482,079	Sept. 6	257	62	60	1386
Kerf-spreader	J. M. Foster	482,507	Sept. 13	586	239	60	1542
Kettle. Steaming	J. F. Taylor	481,962	Sept. 6	92	24	60	1352
Key: *See* Musical-instrument key.							
Key-controller and signal-transmitter	M. Martin	479,715	July 26	2603	647	60	545
Key-fastener	A. J. Lyon	478,448	July 5	595	145	60	117
Key-fastener	A. C. Mack	480,330	Aug. 9	938	238	60	772
Key-holder	N. W. Crandall	480,712	Aug. 16	1552	387	60	905
Keyboard. Exercising	A. K. Virgil	479,339	July 19	1954	488	60	408
Keyboard for musicians. Exercising	A. K. Virgil	479,340	July 19	1959	{488, 489}	60	409
Keyhole-guard	R. E. Bell	481,778	Aug. 30	3308	808	60	1273
Keyhole-guard for padlocks	O. Stoddard	478,768	July 12	1075	267	60	229
Kiln: *See* Brick-kiln. Malt-drying kiln. Drying-kiln.	J. V. Carvell	483,345	Sept. 27	2325	584	60	1827
Kiln	P. J. Handel	481,562	Aug. 30	2948	724	60	1203
Kitchen-cabinet	F. Holmes	483,219	Sept. 27	2108	{534, 535}	60	1788
Kitchen-cabinet and ironing-board. Combined	A. Meron	479,893	Aug. 2	181	44	60	617
Kneader. Dough	F. Erren and O. Lohner	478,507	July 5	685	167	60	135
Kneading dough and shaping it into loaves. Apparatus for	W. J. Müller	479,827	Aug. 2	84	21	60	598
Kneading-machine	J. M. Ruthrauff	478,133	July 5	78	21	60	18
Kneader or mixer. Dough	A. Dagry	483,430	Sept. 27	2446	{615, 616}	60	1851
Knife: *See* Cutting-knife. Pocket-knife.							
Knife-blade machine	T. R. Moore	481,804	Aug. 30	3347	819	60	1280
Knife cleaning and polishing machine	J. Pletscher	479,304	July 19	1903	476	60	398
Knife-holder	T. Shaw	479,669	July 26	2520	627	60	531
Knives, forks, &c. Apparatus for polishing and sharpening	F. Bosse	479,114	July 19	1619	405	60	343
Knit fabric	J. F. Gee	481,351	Aug. 23	2602	639	60	1119
Knit undergarment	J. H. Pike	482,097	Sept. 6	282	68	60	1391
Knitting-machine	C. J. Appleton	482,608	Sept. 13	1143	{276, 277, 278}	60	1572
Knitting-machine	H. E. Harbaugh	482,173	Sept. 6	416	{99, 100}	60	1417
Knitting-machine	R. W. King	479,986	Aug. 2	334	{82, 83, 84, 85, 86, 87}	60	645
Knitting-machine	M. Kirshner	479,601	July 26	2408	{600, 601}	60	510
Knitting-machine	E. E. Randall	480,038	Aug. 16	1886	471	60	973
Knitting-machine	N. J. Winland	478,673	July 12	927	{230, 231}	60	199
Knitting machine. Circular	J. E. Gearhart	479,639	July 26	2408	614	60	521
Knitting machine. Circular	A. Sedmihradsky	480,043	Aug. 2	457	{116, 117}	60	669
Knitting-machine cylinders. Device for centering	C. E. Wakeman	479,862	Aug. 2	130	32	60	608
Knitting-machines. Automatic chain-motion for	D. C. Bellis	482,892	Sept. 20	1501	400	60	1671
Knitting-machines. Electrically-controlled stop-motion for	V. S. Clute	481,726	Aug. 30	3212	784	60	1253
Knitting-machines. Stitch-holding mechanism for	F. Lasher	481,631	Aug. 30	3052	745	60	1222
Knitting-machine stop-motion	G. J. Manderfield	479,763	July 26	2690	{668, 669}	60	562
Knitting machines. Fashioning apparatus for straight-	G. Sowter	478,527	July 5	717	173	60	142
Knob	F. A. Wilmot	482,953	Sept. 20	1689	425	60	1691
Knob attachment	F. A. Wilmot	482,954	Sept. 20	1690	425	60	1691
Knobs to shanks. Attaching	W. A. G. Ashley	481,519	Aug. 23	2866	705	60	1171
Label-holder	F. A. Wilmot	482,952	Sept. 20	1687	425	60	1691
Label-holder	C. W. Miller	479,716	July 26	2607	648	60	546
Labels in soap cakes. Machine for inserting	G. Nithack	480,857	Aug. 16	1766	442	60	949
Labels on bottles. Machine for pasting	A. E. Webb	480,642	Aug. 9	1435	{357, 358}	60	869
Labels to cans. Machine for applying	A. Eymer	479,209	July 19	1766	442	60	370
Labeling machine. Can	J. F. Williams	478,298	July 5	372	90, 91	60	75
Lace fastener. Shoe	P. Crittenden	481,806	Aug. 30	3496	856	60	1308
Lacing for shoes or other articles	J. S. Murphey	478,122	July 5	66	17	60	15
Lacing-hooks. Machine for setting	F. S. McKenney	478,519	July 5	704	171	60	140
Lacing-stud	F. Egge	480,185	Aug. 2	680	{172, 173}	60	711
Lacing-stud	F. S. McKenney	478,521	July 5	706	171	60	140
Ladder. Combination extension	J. L. Thomson	481,124	Aug. 16	2197	544	60	1031
Ladder. Combination step	C. P. Bushnell	480,655	Aug. 9	1458	363	60	873
Ladder. Extension	C. A. Poland	480,342	Aug. 9	954	241	60	775
Ladder. Fire	W. J. Robertson and J. B. Genin	478,969	July 12	1382	340	60	287
Ladder-guard	I. W. Salyerds and L. Shadbolt	481,199	Aug. 23	2333	575	60	1071
Ladder. Step	J. C. Adams	480,100	Aug. 2	641	163	60	704
Ladder. Step	L. E. and A. E. Bowser	479,051	July 19	1516	377	60	325
Ladders. Latch for extension	H. V. Vanderhilt	480,224	Aug. 2	754	190	60	725
Ladle-nozzle	J. A. Weston	478,384	July 5	503	122	60	99
Lamp	C. Mercader	481,041	Aug. 16	2055	513	60	1005
	I. E. Blake, G. E. Smith, and E. M. Doig.	482,290	Sept. 6	602	{143, 144}	60	1452

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Lamp	L. A. Cooper	479,350	July 19	1989	498	60	415
Lamp	L. A. Cooper	482,094	Sept. 20	1752	443	60	1704
Lamp	J. Kirby, Jr.	483,155	Sept. 27	2003	507	60	1767
Lamp	J. C. Patterson and J. Kirby, Jr.	480,412	Aug. 9	1069	267	60	796
Lamp	J. M. Pfandler	478,815	July 12	1163	288	60	246
Lamp and lamp-socket. Incandescent electric	B. Ford	481,019	Aug. 16	2018	504	60	997
Lamp. Arc	C. Schmid	480,285	Aug. 9	862	220	60	759
Lamp. Argand	F. Rhind	478,639	July 12	870	216	60	190
Lamp. Argand	F. Rhind	480,373	Aug. 9	1005	253	60	785
Lamp. Argand	F. Rhind	481,674	Aug. 30	3118	761	60	1235
Lamp. Argand	F. Rhind	483,167	Sept. 27	2028	513	60	1772
Lamp attachment. Electric	J. Clift	483,044	Sept. 20	1832	465	60	1721
Lamp-black machine	E. R. Blood	480,900	Aug. 16	1979	495	60	900
Lamp-black. Making	S. P. Wenstrau and E. R. Blood	478,268	July 5	332	80	60	67
Lamp. Blowpipe	E. W. Ellsworth	480,717	Aug. 16	1559	388	60	906
Lamp-burner	T. Hilpwell	480,404	Aug. 9	1055	264	60	793
Lamp-burner	J. Jauch	479,508	July 26	2403	{508, 509}	60	509
Lamp-burner	B. P. Luce	481,720	Aug. 30	3218	785	60	1254
Lamp-burner	E. Ohnstrand	480,836	Aug. 16	1725	431	60	941
Lamp-burner	R. A. Wentworth	481,607	Aug. 30	3020	738	60	1216
Lamp-burner attachment	J. King	483,253	Sept. 27	2185	550	60	1802
Lamp carbons. Clamp for arc	A. Weber	482,535	Sept. 13	1037	251	60	1551
Lamp. Central-draft	J. C. Miller	478,802	July 12	1138	280	60	241
Lamp circuits. Adapter or plug for incandescent	E. Weston	480,900	Aug. 16	1835	457	60	903
Lamp cord-adjuster. Electric	J. W. Heaphy, Jr	479,509	July 26	2284	571	60	486
Lamp. Cycle	A. H. Overman	480,210	Aug. 2	730	185	60	720
Lamp. Cycle	C. E. W. Woodward	478,776	July 12	1088	270	60	232
Lamp. Duplex-arc	C. E. Scribner	481,677	Aug. 30	3122	{762, 763}	60	1236
Lamp. Duplex-arc	E. P. Warner	480,050	Aug. 2	470	120	60	672
Lamp. Electric arc	H. H. Bigland and J. Burns	482,568	Sept. 13	1088	264	60	1561
Lamp. Electric-arc	J. T. Birch	482,157	Sept. 6	387	91, 92	60	1411
Lamp. Electric-arc	H. H. Cutler	482,435	Sept. 13	864	{207, 208}	60	1518
Lamp. Electric-arc	J. E. Gaston	482,240	Sept. 6	517	{193, 194}	60	1435
Lamp. Electric-arc	F. D. Goold	480,721	Aug. 16	1563	390	60	907
Lamp. Electric-arc	R. M. Hunter	478,510	July 5	688	167	60	136
Lamp. Electric-arc	W. E. Irish	479,121	July 19	1629	{407, 408}	60	345
Lamp. Electric-arc	W. E. Irish	479,510	July 26	2285	571	60	486
Lamp. Electric-arc	J. F. Kester	482,253	Sept. 6	542	129	60	1440
Lamp. Electric-arc	M. S. Logan	479,007	July 19	1447	{359, 360}	60	311
Lamp. Electric-arc	J. A. Pierce	479,650	July 26	2407	622	60	526
Lamp. Electric-arc	R. Schefbauer	480,968	Aug. 16	1944	{486, 487}	60	983
Lamp. Electric-arc	E. A. Sperry	479,029	July 19	1484	369	60	318
Lamp. Electric-arc	E. A. Sperry	480,525	Aug. 9	1243	312	60	831
Lamp. Electric-arc	J. A. Stuart	482,986	Sept. 20	1739	439	60	1701
Lamp. Electric cigar-lighting	E. Thomson	478,145	July 5	107	27, 28	60	24
Lamp extension-tube	W. J. Eastman	481,692	Aug. 30	3147	768	60	1241
Lamp-extinguisher	T. H. Hellstrom	478,325	July 5	413	99	60	83
Lamp-extinguisher	M. Lajoie	480,773	Aug. 16	1640	410	60	924
Lamp for burning hydrocarbons	J. B. Price	481,268	Aug. 23	2462	607	60	1096
Lamp-frame. Electric-arc	G. Barthel	478,733	July 12	1026	252	60	219
Lamp guard. Incandescent	W. F. Bossert and J. H. Findlay	482,940	Sept. 20	1661	418	60	1686
Lamp-hanger	G. W. Demmick	479,791	Aug. 2	25	6, 7	60	587
Lamp hanger. Electric-arc	E. E. Hilliard	483,448	Sept. 27	2469	621	60	1855
Lamp-heater	C. A. Pfluger	479,017	July 19	1464	364	60	314
Lamp. Incandescent electric	H. S. Loury	478,753	July 12	1049	258	60	224
Lamp. Incandescent electric	H. Green	479,360	July 19	2809	502	60	419
Lamp. Incandescent electric	G. F. Melick	480,954	Aug. 16	1920	480	60	979
Lamp. Incandescent electric	M. A. Richter and J. G. Nolen	479,020	July 19	1468	365	60	315
Lamp. Miner's	P. Scharf	480,284	Aug. 9	861	219	60	759
Lamp. Oil	J. R. Watts	478,487	July 5	650	159	60	129
Lamp or lantern	J. D. and H. B. Young	479,344	July 19	1981	495	60	414
	J. W. Ormsby	483,386	Sept. 27	2391	600	60	1839
Lamp or lighting device. Pocket	E. Kronenberg	480,267	Aug. 9	836	{213, 214}	60	754
Lamp or lighting device. Pocket	N. F. Mathewson	479,222	July 19	1783	447	60	374
Lamp-pipe	A. T. Loyd	478,700	July 12	960	238	60	207
Lamp. Pocket	J. H. Farrel	479,741	July 26	2652	657	60	554
Lamp shade. Incandescent-electric	C. J. Salick and E. Sipp	481,285	Aug. 23	2500	615	60	1101
Lamp-shade support	C. Berthélémy	480,989	Aug. 16	1977	{494, 495}	60	990
Lamp-shade support	J. E. Bohner	481,154	Aug. 16	2262	558	60	1042
Lamp socket. Incandescent	I. Goldkind	479,350	July 19	2008	502	60	419
Lamp socket. Incandescent-electric	H. E. Werline	478,149	July 5	116	29	60	26
Lamp sockets. Adapter for incandescent	H. P. Ball	480,988	Aug. 16	1976	494	60	989
Lamp. Standard oil	A. G. V. Harcourt	480,013	Aug. 2	397	98	60	657
Lamp-support	A. H. Lucas	483,071	Sept. 20	1866	473	60	1729
Lamp support. Electric	A. Wright	482,112	Sept. 6	308	72, 73	60	1395
Lamp support. Electric-arc	A. Wright	480,539	Aug. 9	1266	318	60	835
Lamp supports. Line-wire tightening device for electric-	C. A. Pfluger	482,486	Sept. 13	945	230	60	1532
Lamp supporting-ring	T. Hipwell	479,880	Aug. 2	160	40	60	613
Lamp suspension-bar. Electric	T. Dillon	478,275	July 5	343	82	60	69
Lamp suspension device	F. G. Echols	479,874	Aug. 2	150	37	60	611
Lamp-wick lift	H. L. Clark	481,748	Aug. 30	3255	792	60	1262
Lamp-wick raiser	E. McDowell	480,205	Aug. 2	711	182	60	717
Lamps and similar globes. Holder for arc	F. D. Goold	480,720	Aug. 16	1561	{389, 390}	60	907

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lamps. Ceiling-block for incandescent	L. Stieringer	482,104	Sept. 6	298	70	60	1394
Lamps. Inverted burner for gas	D. W. Sugg	479,922	Aug. 2	229	57	60	626
Lamps. Means for utilizing heat of	J. J. Johnston	479,367	July 19	2019	501	60	421
Lamps. Means for utilizing heat of	J. J. Johnston	479,368	July 19	2021	505	60	421
Lamps. Reflecting-shade for incandescent	L. T. Stanley	481,378	Aug. 23	3645	648	60	1127
Lamps. Reflecting-shade for incandescent electric	L. T. Stanley	481,388	Aug. 23	2508	617	60	1102
Lamps. Shade for incandescent electric	W. J. Edmond and T. J. Keon	479,207	July 19	1761	441, 442	60	369
Lamps. Spark-arrester for electric-arc	C. Smallwood	479,994	Aug. 2	366	91	60	650
Lamps. Supplementary lens for bicycle and carriage	A. L. France	480,661	Aug. 9	1469	366	60	874
Lamps. Supporting device for electric-arc	J. Maier	480,470	Aug. 9	1166	294	60	815
Lamps. Suspension-bracket for electric	T. Dillon	482,727	Sept. 20	1329	325	60	1020
Lamps. Wick-raiser for central-draft	W. L. Upson	481,741	Aug. 30	3242	789	60	1259
Land-roller	E. Geisendorfer	482,406	Sept. 13	818	197	60	1509
Land-roller	B. A. Thomas	483,242	Sept. 27	2144	543, 544	60	1795
Land-roller, pulverizer, and harrow. Combined	J. H. Wilts	478,490	July 5	653	160	60	130
Lantern	A. L. Baron and B. F. Cockayne	482,671	Sept. 13	1231	300	60	1588
Lantern	D. W. Cronin	479,247	July 19	1824	458	60	382
Lantern	H. P. Merriman	480,931	Aug. 16	1878	468	60	971
Lantern	C. I. Mitchell	480,734	Aug. 16	1582	396	60	911
Lantern and foot-warmer. Combined stirrup	T. F. Baird	482,219	Sept. 6	488	117	60	1430
Lantern. Signal	G. A. Bischoff	483,507	Sept. 27	2551	640	60	1872
Lantern. Tubular	J. S. Gall	481,276	Aug. 23	2484	611	60	1099
Larynx-tube	G. Ermold	478,582	July 12	803	198	60	175
Last	J. B. Cass	479,628	July 26	2450	611	60	518
Last. Extension shoe	J. H. Livermore	480,596	Aug. 9	1356	337	60	852
Lasting	H. H. V. Lilley	482,016	Sept. 6	157	38	60	1366
Lasting-machine	F. Chase	478,501	July 5	672	164	60	133
Lasting-machine	I. Frechette	482,349	Sept. 13	720	172, 173, 174, 175	60	1490
Lasting-machine	C. Sinning	480,145	Aug. 2	615	156	60	700
Latch	J. K. Clark	480,171	Aug. 2	659	168	60	708
Latch	G. N. Duncan	480,075	Aug. 2	507	128, 129	60	679
Latch	C. Gagnon and L. Lefebvre	481,557	Aug. 30	2942	723	60	1202
Latch	M. R. Hubbell	482,794	Sept. 20	1440	356	50	1642
Latch	C. W. Monroe	481,910	Aug. 30	3524	862	60	1314
Latch and lock combined	J. E. Armstrong	483,318	Sept. 27	2290	576	60	1820
Latch and lock combined	J. A. Giese	481,261	Aug. 23	2454	604	60	1094
Latch attachment	G. G. Rupert	479,723	July 26	2025	651	60	549
Latch-bolt. Sheet-metal	H. D. Allen	479,582	July 26	2381	594	60	504
Latch. Gate	B. Bennett	480,005	Aug. 2	379	94	60	653
Latch. Gate	C. F. Bettmann, Jr	478,556	July 12	767	187	60	167
Latch. Gate	J. T. Fox	480,189	Aug. 2	687	174	60	712
Latch. Gate	C. M. Lamb	482,482	Sept. 13	939	229	60	1531
Lath-yarns. Machine for cutting	H. S. Dix	482,917	Sept. 20	1631	409	60	1679
Lathe	C. H. Baush	482,991	Sept. 20	1747	441, 442	60	1703
Lathe	C. G. Richardson	481,717	Aug. 30	3190	779, 780	60	1249
Lathe-centers. Machine for grinding or truing	H. E. Hawes	478,599	July 12	826	204	60	180
Lathe. Gage	L. C. Trask	478,178	July 5	169	43, 44	60	36
Lathe-mandrel	J. H. McGraw	480,435	Aug. 9	1105	277	60	802
Lathe milling attachment	F. D. Skeel	478,244	July 5	296	72	60	60
Lathe. Turret	J. Hartness	481,356	Aug. 23	2607	640, 641	60	1120
Lathe turret mechanism	F. H. Richards	480,963	Aug. 16	1933	484	60	981
Lathes. Reversing attachment for screw-cutting	J. J. Messing	482,261	Sept. 6	556	132	60	1443
Lathes. Stop mechanism for turret	F. H. Richards	481,192	Aug. 23	2323	572, 573	60	1069
Laundry drying-room	J. E. Chappell	481,845	Aug. 30	3413	837, 838	60	1292
Lawn-sprinkler	N. L. Rigby	483,017	Sept. 20	1796	453	60	1713
Lawn-sweeper	O. D. Thompson	481,269	Aug. 23	2464	607	60	1096
Lawn-trimmer	H. P. Hansen	482,307	Sept. 6	633	151	60	1459
Lead-corroding apparatus	G. D. Coleman	481,004	Aug. 16	1993	499	60	993
Lead corroding-pit. White	W. H. Wetherill	478,468	July 5	651	159	60	130
Lead. Desilverizing argentiferous	H. Roessler	480,416	Aug. 9	1077	.....	60	797
Lead-fumes. Enriching	A. Chaunte and M. W. Iles	479,489	July 26	2255	.....	60	481
Lead. Making white	G. D. Coleman	481,007	Aug. 16	1999	500	60	994
Lead. Manufacturing white	G. D. Coleman	481,006	Aug. 16	1998	500	60	994
Lead protoxide. Making	G. D. Coleman	481,005	Aug. 16	1996	500	60	993
Leather. Composition for softening enameled	R. L. Tudor	481,516	Aug. 23	2862	.....	60	1171
Leather. Finishing	J. Sanzenbacher	482,199	Sept. 6	455	.....	60	1424
Leather. Process of and apparatus for degreasing	F. N. Turney	482,661	Sept. 13	1213	296, 297	60	1586
Leather-skiving machine	C. H. Bayley	479,583	July 26	2382	594	60	504
Leather-splitting machine	S. H. Randall	479,461	July 26	2194	551	60	470
Leggin	M. Schener	480,348	Aug. 9	965	244	60	777
Lens. Illuminating	L. E. Davenport	478,739	July 12	1033	253	60	220
Letter-box	L. T. Light	483,070	Sept. 20	1865	473	60	1728
Letter-box	J. Spear	479,576	July 26	2376	592	60	503
Letter-box	J. Spear	481,772	Aug. 30	3295	802	60	1270
Letter-box. House	P. C. Brown	482,292	Sept. 6	609	144	60	1454
Letter-press and cabinet	G. Paul	481,586	Aug. 30	2983	732	60	1210
Letter. Sign	L. Levett	480,106	Aug. 2	549	138	60	687
Lettering, &c., in relief on sheets of ductile metal. Apparatus for producing	J. M. Newton	482,267	Sept. 6	565	134	60	1445
Lettering-tablet	A. Clark	481,002	Aug. 16	1992	499	60	992
Level for measuring tapes. Spirit	E. McCullough	479,521	July 26	2299	574	60	489
Level. Plumb	J. F. Hall	479,981	Aug. 2	325	80	60	644

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Level. Plumb	J. T. Rider	482,026	Sept. 6	173	41	60	1368
Level. Spirit	T. L. Burchinal	478,309	July 5	390	94	60	78
Level. Spirit	J. Dobelman	478,848	July 12	1206	299	60	254
Leveling-instrument	C. H. Lockwood	479,518	July 26	2296	573	60	489
Lever. Compound	T. A. Briggs	480,450	Aug. 9	1138	284	60	809
Lid-holder for pans or vessels	E. E. Ward	483,408	Sept. 27	2420	608	60	1845
Lid-lifter for kettles, &c	A. E. Cobb	479,055	July 19	1520	379	60	326
Life-boat	W. H. Taylor	481,602	Aug. 30	3015	737	60	1215
Life-saving and pleasure craft	A. B. Shearer	481,427	Aug. 23	2725	670	60	1143
Lifter. *See* Pickle-lifter. Transom-lifter. Plate or pan lifter.							
Lifting-jack	A. P. Aiken	480,685	Aug. 9	1507	375	60	881
Lifting-jack	W. Y. Fisher and C. Perry	482,628	Sept. 13	1176	284	60	1577
Lifting-jack	W. A. Wolfinger	479,692	July 26	2556	636	60	537
Lifting-jack	H. York and F. W. Austin	480,646	Aug. 9	1442	359	60	870
Lifting-machine	J. S. Crouch	481,224	Aug. 23	2382	587	60	1081
Light-fixtures. Adjustable canopy for	E. C. Schmalz	483,171	Sept. 27	2033	514	60	1773
Light: *See* Electric light. Signal-light.							
Light-fixtures. Thimble for	J. J. Miller	479,139	July 19	1656	413, 414	60	350
Light. Magnifying-globe for the diffusion of artificial	H. Eldridge	483,482	Sept. 27	2508	631	60	1863
Lights. Apparatus for producing variegated	F. L. M. Smith and W. J. Bryan	479,673	July 26	2525	628, 629	60	531
Lighter and match-safe. Combined pocket	A. J. Fredrikson	479,756	July 26	2674	664	60	559
Lighting and heating apparatus	J. D. Luther	482,874	Sept. 20	1555	388	60	1666
Lighting device	E. Kronenberg	480,500	Aug. 9	1209	303	60	823
Lighting device	W. W. McKenney	480,207	Aug. 2	715	182	60	718
Lighting device	B. H. Pendleton	482,587	Sept. 13	1113	269	60	1567
Lighting device. Pocket	W. W. McKenney	480,206	Aug. 2	712	182	60	717
Lightning-arrester	C. S. Van Nuis	478,383	July 5	501	121, 122	60	99
Lightning-arrester cut-out	J. P. Freeman	481,617	Aug. 30	3034	741	60	1219
Line-holder	D. Sweeney	480,351	Aug. 9	971	245	60	778
Link-lifter	J. Finney	478,932	July 12	1324	329	60	277
Links. Method of and apparatus for equalizing	T. Murphy	478,454	July 5	601	146	60	119
Linoleum floor-cloth. Device for manufacturing	T. Mitchell	482,948	Sept. 20	1683	423	60	1690
Liquid-cooling apparatus	P. Bender	479,778	Aug. 2	7	2	60	583
Liquid-dispensing apparatus	R. H. Little	481,698	Aug. 30	3156	770, 771	60	1243
Liquid-distributing machine. Automatic	E. B. Lundy	480,598	Aug. 9	1359	338	60	853
Liquid-gage	C. Pinel	483,485	Sept. 27	2512	632	60	1864
Liquid-heating device	A. Selkirk	481,151	Aug. 16	2257	557	60	1042
Liquid-level-indicator system	H. A. McGrory	480,736	Aug. 16	1586	397	60	912
Liquor purifying and aging apparatus	C. Heintz	482,843	Sept. 20	1505	374	60	1656
Liquid-purifying device	F. K. Way	479,381	July 19	2042	510	60	426
Liquid receptacle and pump. Combined	J. H. Bullard	480,068	Aug. 2	494	126	60	676
Liquids. Purifying	C. W. Brunson	479,781	Aug. 2	11	3	60	584
Liquors in bottles. Apparatus for impregnating	E. Stern	478,652	July 12	896	222	60	193
Lobster-trap	J. S. Palmer and C. R. Watrous	483,471	Sept. 27	2495	628	60	1861
Lock: *See* Alarm-lock. Bicycle-lock. Carriage-lock. Combination-lock. Cylinder-lock. Door-lock. Galley-lock. Indicator-lock. Magnetic lock. Nut-lock. Nut and bolt lock. Permutation-lock. Safe-lock. Seal-lock. Till-lock. Time-lock.							
Lock	W. H. Blaney	481,889	Aug. 30	3483	853	60	1306
Lock	H. Bruns	483,298	Sept. 27	2261	569	60	1815
Lock	C. E. Candee	478,781	July 12	1099	272, 273	60	234
Lock	C. E. Candee	478,782	July 12	1102	273	60	234
Lock	C. E. Candee	478,783	July 12	1104	273	60	234
Lock	C. E. Candee	478,784	July 12	1108	273, 274	60	235
Lock	C. E. Candee	478,016	July 12	1298	323	60	272
Lock	C. E. Candee	478,017	July 12	1301	324	60	272
Lock	G. Fleischel and J. Bertrand	479,104	July 19	1595	399	60	330
Lock	B. Goldenberg	483,147	Sept. 27	1985	503	60	1763
Lock	J. Loch	481,235	Aug. 23	2398	592	60	1084
Lock	F. F. and L. F. Marshall	478,754	July 12	1050	258	60	224
Lock	W. Nehring	482,970	Sept. 20	1714	433	60	1696
Lock	J. B. Price	481,422	Aug. 23	2718	668	60	1142
Lock	C. Richtmann	478,239	July 5	284	70	60	58
Lock	J. Roche	481,736	Aug. 30	3231	787	60	1257
Lock	N. G. Sörensen	481,597	Aug. 30	3003	735	60	1213
Lock	W. E. Sparks	480,973	Aug. 16	1953	488, 489	60	985
Lock	P. Zimmermann, Jr	480,359	Aug. 9	979	247	60	779
Lock mechanism. Time	E. and H. C. Stockwell	479,379	July 19	2037	508, 509	60	425
Locker for apparel, &c	J. M. Cotton	483,282	Sept. 27	2235	562	60	1811
Locomotive	C. L. Heisler	482,828	Sept. 20	1480	368, 369	60	1651
Locomotive ash-pan	J. W. Eads	482,235	Sept. 6	508	121	60	1434
Locomotive-boiler	L. W. Lester	479,648	July 26	2481	618	60	523
Locomotive, Compound	H. C. Reagan, Jr	481,149	Aug. 16	2253	556	60	1041
Locomotive draw-bar	S. R. Heidelberg	480,923	Aug. 16	1867	466	60	969
Locomotive, Electric	N. C. Bassett	483,204	Sept. 27	2088	529, 530	60	1784

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Locomotive. Electric	C. M. Conradson	482,863	Sept. 20	1534	382	60	1662
Locomotive. Electric	R. Eickemeyer	480,918	Aug. 16	1857	463	60	967
Locomotive. Electric	J. Gray	478,591	July 12	814	201	60	477
Locomotive. Electric	S. H. Short	478,242	July 5	293	71	60	59
Locomotive. Electric	S. H. Short	478,477	July 5	637	155, 156	60	127
Locomotive. Electric	W. H. Soley and W. W. Perkins	482,594	Sept. 13	1127	272	60	1569
Locomotive. Electric	E. A. Sperry	478,139	July 5	93	24	60	21
Locomotive-engine	A. R. Cavner	478,681	July 12	939	233	60	201
Locomotive-engine	A. R. Cavner	478,682	July 12	940	233, 234	60	202
Locomotive-engine	A. R. Cavner	478,684	July 12	943	234	60	203
Locomotive-engine	A. R. Cavner	478,685	July 12	945	234	60	203
Locomotive-engines. Apparatus for lighting	A. R. Cavner	478,683	July 12	942	234	60	202
Locomotive-engines. Speed and whistle recorder for	B. F. Stockford	482,393	Sept. 13	799	192, 193	60	1506
Locomotive fire-boxes. Brick arch for	F. W. Johnstone	481,232	Aug. 23	2395	591	60	1083
Locomotive. Road	H. White	480,757	Aug. 16	1612	405	60	919
Locomotive steam-boiler	G. J. Perkins	483,473	Sept. 27	2497	629	60	1861
Locomotive steam-engine. Compound	H. Monk	480,668	Aug. 9	1476	368	60	876
Locomotives and cars. Pilot or guard for	R. A. Crawford	480,713	Aug 16	1553	387	60	905
Locomotives. Motor-frame for electric	S. H. Short	479,469	July 26	2207	554	60	473
Locomotives. Starting-gear for compound	R. Lindner	481,181	Aug. 23	2306	568, 569	60	1065
Log-binder	R. J. Thompson	478,972	July 12	1386	341, 342	60	288
Log-carrier	R. E. Terry	481,314	Aug. 23	2550	626	60	1110
Log-carriers, &c. Hanger or support for	G. W. Cole	482,163	Sept. 6	398	94	60	1413
Logging-machine. Cable	J. Buckley	481,927	Sept. 6	9	3	60	1336
Longitude and time. Machine for calculating and illustrating	W. W. Hallett	480,367	Aug. 9	997	250	60	783
Loom	H. Wyman and J. A. Clark	480,684	Aug. 9	1503	374	60	881
Loom drop-box mechanism	H. P. Mallison	478,621	July 12	854	210, 211	60	185
Loom for weaving tufted fabrics	H. Dixon	482,446	Sept. 13	885	213	60	1521
Loom-picker	L. Teweles and T. A. Robinson	479,903	Aug. 2	192	47, 48	60	620
Loom-picker	R. Wharton	481,339	Aug. 23	2587	635	60	1116
Loom picker-staff buffer	E. Hamilton	482,977	Sept. 20	1724	435, 436	60	1698
Loom picker-staffs. Means for operating	A. Murch	478,453	July 5	600	146	60	118
Loom-pickers. Machine for punching leather	W. Wadsworth	480,419	Aug. 9	1082	271	60	798
Loom pile-wire	G. Segschneider	478,368	July 5	481	116	60	95
Loom pile-wire	G. Segschneider	478,369	July 5	483	116	60	95
Loom-shuttle tension device	H. Bardsley	479,084	July 19	1565	392	60	333
Loom-shuttle tension device	J. P. Thompson	478,695	July 12	1264	312	60	265
Loom stop-motion	W. M. Aikley	481,292	Aug. 23	2513	618	60	1103
Loom stop-motion	J. J. Shanahan	482,930	Sept. 20	1645	414	60	1683
Loom take-up mechanism	G. F. Hutchins	480,851	Aug. 16	1760	440	60	948
Loom weft-hammer	R. Derbyshire and C. H. Mullen	478,413	July 5	546	133	60	107
Looms for weaving pile fabrics. Method of and means for lubricating the wires in	G. Marchetti and H. N. Mellor	483,073	Sept. 20	1870	473, 474	60	1730
Looms. Let-off mechanism for double-pile-fabric	M. Leach, J. Heaton, and J. Bentley.	479,372	July 19	2026	506	60	422
Loss by accident. Means for insuring travelers against	E. N. Hill. (Reissue)	11,270	Sept. 13	1306	319	60	1604
Lounge	W. S. Bowie	482,673	Sept. 13	1233	301	60	1589
Low-water alarm. Electric	E. Rothlisberger	480,673	Aug. 9	1484	369	60	877
Lubricant	D. Harmon	482,249	Sept. 6	533	.....	60	1438
Lubricating-cup	I. J. Briggs	482,674	Sept. 13	1235	301	60	1589
Lubricator: *See* Axle-lubricator.							
Lubricator	W. H. Craig	479,116	July 19	1621	405, 406	60	343
Lubricator	M. H. Fine	482,346	Sept. 13	716	171	60	1489
Lubricator	J. J. Martin and W. H. Brownfield	482,559	Sept. 13	1078	261	60	1559
Lubricator	F. W. Marvin and G. B. Essex	479,911	Aug. 2	200	50	60	621
Lubricator	A. Nees	482,560	Sept. 13	1078	262	60	1559
Luggage-carrier	A. S. Comstock	483,346	Sept. 27	2325	585	60	1827
Lumber. Barbed strap for bunching	E. C. Binet	481,040	Sept. 20	1826	464	60	1720
Lumber-carriers. Hanger for	J. E. Harder	481,355	Aug. 23	2606	640	60	1120
Lumber, &c. Conveyer for handling	M. Garland	480,496	Aug. 9	1201	301	60	822
Lumber-elevator	H. McKinnon	480,824	Aug. 16	1720	430	60	939
Machinery. Electro-mechanical apparatus for starting or reversing	A. Plat	478,816	July 12	1165	288, 289	60	246
Magazine-camera	S. C. Fay and H. Willis	479,587	July 26	2388	595	60	506
Magnetic brake	A. de Bovet	481,812	Aug. 30	3409	837	60	1292
Magnetic lock	H. V. Smith	478,245	July 5	298	72	60	60
Magnetic separator	C. M. Ball and S. Norton	478,551	July 12	759	186	60	166
Magnetic separator	G. Conkling	481,474	Aug. 23	2800	689	60	1158
Magnets. Measuring the strength of	C. R. Rudd	483,168	Sept. 27	2030	513	60	1772
Mail-bag catcher	J. W. Horton	478,604	July 12	835	206	60	181
Mail-bag catcher	G. W. Moore, Jr	481,654	Aug. 30	3089	753	60	1230
Mail-bag catcher and deliverer	A. P. Hauss	480,385	Aug. 9	1027	258	60	789
Mail-bag thrower	C. B. Winsor and G. W. Cummings	481,322	Aug. 23	2561	628, 629	60	1112
Mail-bags. Crane for suspending	E. A. Ray	481,673	Aug. 30	3116	761	60	1234
Mail-box	G. S. Light	481,021	Aug. 30	3039	749	60	1240
Mail-pouch. Expansible hinged mouth	G. F. Windfeilder	480,645	Aug. 9	1440	359	60	869
Mailing attachment for books, &c	C. S. Hardy	480,582	Aug. 9	1332	332	60	848
Mailing-case	G. J. Johnson	483,287	Sept. 27	2241	564	60	1812
Main. Water or gas	H. F. Dunham	481,935	Sept. 6	24	6	60	1339
Malt-drying kiln	C. G. Bosch	481,687	Aug. 30	3139	765	60	1239
Malt liquors. Apparatus for cooling	C. C. Hanford and C. D. Stanford	479,419	July 26	2116	529	60	454
Malt liquors. Heater and cooler for fermented	J. H. Kersenbrock	480,928	Aug. 16	1873	467	60	970

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Malt liquors. Hopping	C. H. and B. O. Fringa	478,189	July 5	185	.....	60	39
Malt-manufacturing apparatus	C. Hauptman and J. Schwarz	479,421	July 26	2122	531	60	455
Malting apparatus	G. A. Krause	481,958	Sept. 6	54	13	60	1345
Mandrel	W. O. Dixon	479,634	July 26	2461	613	60	519
Mangle	C. A. Oveson	482,410	Sept. 13	923	198	60	1510
Mangle. Steam	F. Baldwin	482,609	Sept. 13	1151	278	60	1573
Mantel. Adjustable	E. B. Benbow	482,333	Sept. 13	694	166	60	1486
Manual motor	M. Johnson	482,180	Sept. 6	427	101, 102	60	1419
Manure-spreader	W. Compton	482,785	Sept. 20	1429	354	60	1640
Marker. Gore	W. B. Kinsley	481,305	Aug. 23	2531	621	60	1106
Marker. Land	H. C. McBroom	482,002	Sept. 6	226	54	60	1379
Marking-gage	J. A. Traut	481,515	Aug. 23	2861	703	60	1170
Marking material. Package of	E. C. Hunt	483,453	Sept. 27	2476	622	60	1857
Mashing apparatus	A. C. Wagner	478,667	July 12	916	227	60	197
Mashing-machine. Brewer's	C. Kaestner	479,189	July 19	1737	435, 436	60	365
Mason's hawk	C. W. Blay	483,132	Sept. 27	1963	498	60	1759
Masonry. Pointing mechanism for	E. R. Kruck	482,369	Sept. 13	757	183	60	1498
Massage apparatus	A. Kahn	481,359	Aug. 23	2611	642	60	1121
Mast-arm	A. Wright	481,381	Aug. 23	2649	649	60	1128
Mat: *See* Wire mat.							
Mat	W. M. Marshall	482,980	Sept. 20	1730	437	60	1700
Match and toothpick machine	J. Boulard	481,522	Aug. 23	2871	706	60	1173
Match-card. Friction	J. Pusey	483,165	Sept. 27	2024	512	60	1771
Match. Flexible	J. Pusey	483,166	Sept. 27	2026	512	60	1771
Match-safe	M. R. Land	482,371	Sept. 13	759	183, 184	60	1499
Match-safe. Automatic	G. W. Heffner	481,696	Aug. 30	3153	769	60	1242
Matrices. Forming	C. L. Redfield	481,308	Aug. 23	2539	674	60	1107
Matrix-making machine	S. C. Beckwith and W. W. Street	480,361	Aug. 9	983	248	60	780
Matrix-making machine	G. A. Goodson	478,257	July 5	316	77	60	63
Matrix-making machine	G. A. Goodson	478,258	July 5	317	77	60	63
Matrix-making machine	G. A. Goodson	479,773	July 26	2715	675, 676	60	568
Matrix-making machine	G. A. Goodson and A. S. Capehart	479,772	July 26	2706	674, 675	60	565
Matrix-making machine	C. L. Travis	479,539	July 26	2321	580	60	494
Matrix-making machines. Justifying attachment for	W. W. Street and C. L. Travis	480,350	Aug. 9	966	244	60	778
Matrix material	F. A. Johnson	478,333	July 5	425	103	60	85
Measure. Ammunition	H. O. French	482,120	Sept. 6	323	77	60	1398
Measure. Grain	L. Bronson	479,551	July 26	2342	584	60	498
Measure. Grade	J. M. Haise	479,803	Aug. 2	44	11	60	590
Measure. Tailor's	I. Geraci	480,579	Aug. 9	1327	330, 331	60	847
Measurement of electrical resistances. Apparatus for the	S. Evershed	478,098	July 5	34	11	60	10
Measuring and drafting device for garments	C. Mannebach	482,748	Sept. 20	1368	339	60	1628
Measuring apparatus. Grain	K. G. Jensen	478,111	July 5	49	14	60	12
Measuring apparatus. Tailor's	J. H. Rensen	480,036	Aug. 2	446	113	60	667
Measuring apparatus. Tailor's	A. Trochu	483,271	Sept. 27	2220	557	60	1807
Measuring can	L. G. Souder	480,146	Aug. 2	616	156	60	700
Measuring device. Fabric	L. H. Huntoon	479,091	July 19	1577	395	60	336
Measuring device. Liquid	J. Roos	481,872	Aug. 30	3452	847	60	1300
Measuring electrical currents. Device for	C. H. Rudd	480,039	Aug. 2	451	114, 115	60	668
Measuring-instrument. Electric	S. Evershed	478,097	July 5	32	10	60	9
Measuring-instrument. Electrical	E. Weston	480,888	Aug. 16	1809	452	60	958
Measuring-instrument. Electrical	E. Weston	480,894	Aug. 16	1822	454	60	960
Measuring-instrument. Electrical	E. Weston	480,895	Aug. 16	1823	454	60	961
Measuring-instrument. Electrical	E. Weston	480,896	Aug. 16	1825	454, 455	60	961
Measuring-instrument. Electrical	E. Weston	480,897	Aug. 16	1829	455	60	961
Measuring-instrument. Electrical	E. Weston	480,898	Aug. 16	1831	456	60	962
Measuring-instrument. Electrical	E. Weston	480,899	Aug. 16	1832	456	60	962
Measuring instrument. Lens	M. J. Hinden	483,354	Sept. 27	2336	587	60	1830
Measuring machine. Cloth	G. L. Wilcox, H. F. Hallenbeck, and T. Wandell.	478,531	July 5	726	177, 178	60	144
Measuring machine. Fence	F. Hutchinson	481,792	Aug. 30	3329	812	60	1276
Measuring machine. Warp or line	W. H. Kynett	478,115	July 5	57	15	60	13
Measuring-receptacle	C. T. Menze	479,151	July 19	1673	418	60	353
Measuring shot. Device for	J. M. Heath	479,982	Aug. 2	326	80	60	644
Measuring the velocity of fluids. Gage for	S. W. Robinson	481,310	Aug. 23	2544	625	60	1108
Meat and vegetable cutter	W. R. Ellis	480,569	Aug. 9	1307	327	60	844
Meat-chopping machine	J. Sheargren	478,647	July 12	891	221	60	192
Meat-cutter	J. H. Shaw	478,823	July 12	1176	291	60	248
Meat cutter	O. D. Woodruff	480,002	Aug. 2	374	93	60	652
Meat-cutter	O. D. Woodruff	481,882	Aug. 30	3468	851	60	1303
Meat-cutter	O. D. Woodruff	482,146	Sept. 6	365	87	60	1407
Meat-mixing apparatus	J. H. Schaefer	480,674	Aug. 9	1485	369	60	878
Meat-slicer	J. V. Bohannan	481,150	Aug. 23	2277	561	60	1059
Meat-tenderer	O. M. Arnold	478,547	July 12	756	185	60	165
Meat-tenderer	F. B. Jordan	483,002	Sept. 20	1766	446	60	1707
Mechanical motor	G. Cochins	478,068	July 5	21	7	60	7
Mechanical motor	D. J. Dean	483,046	Sept. 20	1833	466	60	1722
Mechanical motor	S. Hicks	480,724	Aug. 16	1567	392	60	908
Mechanical movement	P. A. Bouchet	483,041	Sept. 20	1827	464	60	1720
Mechanical movement	J. Gregory	479,503	July 26	2397	597	60	508
Mechanical movement	C. A. Holcomb	482,743	Sept. 20	1360	336, 337	60	1626
Mechanical movement	F. P. Hummel	478,795	July 12	1129	278	60	239
Mechanical movement	H. D. Mentzel. (Reissue)	11,271	Sept. 13	1307	319, 320	60	1605

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Mechanical movement	F. Mény	481,409	Aug. 23	2694	661, 662	60	1136
Mechanical movement	G. H. Reynolds	479,526	July 26	2304	576	60	490
Mechanical movement	H. A. W. Wood	481,128	Aug. 16	2202	545	60	1032
Mechanism	E. Patten	481,508	Aug. 23	2850	700	60	1168
Mechanisms. Means for controlling the operation of	H. E. Vincing	483,272	Sept. 27	2222	558	60	1808
Medical and surgical cabinet	J. E. Wenman	478,830	July 12	1185	293, 294	60	250
Medical compound	T. L. Page and J. Apfel	481,815	Aug. 30	3366	.....	60	1283
Medicine-case	H. D. Capitain	480,709	Aug. 16	1548	386	60	904
Melting-pot cover	J. A. St. John	482,880	Sept. 20	1569	392	60	1668
Merchandise. Apparatus for dispensing articles of	R. H. Little	481,908	Aug. 30	3515	860, 861	60	1312
Merry-go-round	W. D. Bennage	478,838	July 12	1196	297	60	252
Mesquite-beans. Converting	T. H. Jacobs	479,512	July 26	2288	572	60	487
Messenger's picket	J. C. Hays	481,867	Aug. 30	3446	846	60	1299
Metal-heating. Electric	C. L. Coffin	483,426	Sept. 27	2442	614	60	1850
Metal lattice-work	E. Kuechle	483,358	Sept. 27	2340	589	60	1831
Metal melting and casting apparatus	C. C. Carroll	480,232	Aug. 2	765	193	60	727
Metal pipes or tubes. Making	W. S. McManus	479,952	Aug. 2	377	68	60	634
Metal-planing machine	G. F. McIndoe	479,606	July 26	2416	603	60	511
Metal-plate-bending machine	L. C. Crowell	478,090	July 5	23	7, 8	60	7
Metal-plate fastening	W. C. Hunter	481,566	Aug. 30	2954	725	60	1204
Metal plates. Apparatus for pickling	D. M. Somers and W. H. Atkinson	482,489	Sept. 13	950	231, 232	60	1533
Metal-shears	H. Aiken	479,392	July 26	2069	519	60	445
Metal-shears	H. Aiken	482,113	Sept. 6	310	73	60	1396
Metal strips. Machine for twisting	E. Kuechle	483,357	Sept. 27	2339	588	60	1830
Metal tubes. Apparatus for making	P. Keil, Jr	482,364	Sept. 13	752	181, 182	60	1497
Metal tubes. Apparatus for manufacturing	E. F. Hartshorn	479,507	July 26	2282	570	60	486
Metal tubes. Shaping	J. Robertson	481,060	Aug. 16	2096	522, 523	60	1013
Metal wheels. Making	E. H. Scott	478,644	July 12	888	220	60	191
Metal-working device. Electric	C. L. Coffin	483,424	Sept. 27	2440	614	60	1850
Metal-working. Electric	C. L. Coffin	483,427	Sept. 27	2443	615	60	1850
Metal-working. Electric	C. L. Coffin	483,428	Sept. 27	2444	615	60	1851
Metals. Process of and apparatus for purifying, refining, and carburizing	B. Brazelle	482,001	Sept. 6	123	31	60	1359
Metals. Reducing	H. S. Blackmore	478,907	July 12	1282	319	60	209
Metallic covering-plate	R. G. Westphalen	483,243	Sept. 27	2145	.....	60	1795
Meter: *See* Electric meter. Electric-current meter. Electrical meter. Fluid-meter. Grain-meter. Piston meter. Proportional metal.							
Meter-diaphragm	W. N. Milsted	482,185	Sept. 6	437	104	60	1421
Metric model	J. McCourt	480,119	Aug. 2	571	145	60	691
Microphone	E. Noriega	481,048	Aug. 16	2064	515	60	1007
Microphone	E. Noriega	481,050	Aug. 16	2066	516	60	1008
Milk-cooler	W. C. Eberhardt	479,494	July 26	2261	567	60	492
Milk-cooler	S. W. Tobey	478,482	July 5	643	158	60	128
Milk-elevator	C. J. Jeppesen	478,161	July 5	135	34	60	29
Milk-receiver	S. J. Morgan	482,264	Sept. 6	560	133	60	1444
Milk-tester	F. B. Fargo	478,099	July 5	35	11	60	10
Milk. Testing	H. Leffmann and W. Beam	479,193	July 19	1742	.....	60	366
Milk-testing apparatus	M. J. Cushman	478,737	July 12	1030	253	60	220
Mill: *See* Cane-mill. Cement-mill. Fanning-mill. Grinding-mill. Rolling-mill. Sawmill.							
Mill appliance	J. A. Burns	482,861	Sept. 20	1530	380, 381	60	1661
Mill appliance	W. H. Maddock	480,200	Aug. 2	703	178, 179, 180	60	715
Mills. Means for preventing explosions in	C. Kaestner	479,188	July 19	1736	435	60	365
Milling-machine	F. Kempsmith and T. L. Smith	480,198	Aug. 2	699	177	60	714
Millstone and making the same	T. L. Sturtevant and W. H. Ellis	483,504	Sept. 27	2544	639	60	1871
Millstones. Making composite	T. L. Sturtevant	483,179	Sept. 27	2048	517	60	1776
Mine-elevator	S. Hamilton	478,595	July 12	820	202, 203	60	178
Mine-shafts. Electric signal for	F. W. Bacorn	479,046	July 19	1509	376	60	323
Miner's register	B. Gately and D. Skinner	480,843	Aug. 16	1742	435	60	944
Miner's tool	N. W. Woodey	479,444	July 26	2161	539	60	464
Mining cage or car	E. Schillo	481,592	Aug. 30	2991	733	60	1211
Mining-machine	J. L. Lechner	483,156	Sept. 27	2006	508	60	1768
Mining-machine	B. A. Legg	482,045	Sept. 6	200	48	60	1374
Mining-machine	B. A. Legg	482,046	Sept. 6	204	48, 49	60	1375
Mining-machine	G. F. Myers	481,187	Aug. 21	2317	570	60	1068
Mining-machine	E. A. Sperry	478,141	July 5	95	24, 25	60	21
Mining-machine	F. W. Syler	480,418	Aug. 9	1079	270, 271	60	798
Minerals. Apparatus for cutting	L. B. Atkinson, H. W. Ravenshaw, and F. Mori.	481,921	Sept. 6	1	1	60	1335
Mirror. Hand-	W. A. Julian	479,092	July 19	1579	395	60	336
Miter-cutter	W. R. Fox	483,436	Sept. 27	2455	618	60	1853
Miter-machine	A. L. Maxim	478,449	July 5	596	145	60	117
Miter-tool	A. Van Bibber	482,107	Sept. 6	302	71	60	1394
Mitten	F. J. Kahu	480,852	Aug. 16	1761	441	60	948
Mixing or separating machine	H. M. Gabel	478,587	July 12	808	199	60	176
Mold: *See* Candy-mold. Coffin-shell mold. Cylinder-mold.							
Mold	F. F. Ingram	481,952	Sept. 6	47	11	60	1343

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Molding	F. E. Gordon	482,901	Sept. 20	1611	.....	60	1675
Molding-flask	J. G. Newbury	482,063	Sept. 6	227	54	60	1379
Molding-machine	W. Edgar	480,566	Aug. 9	1302	326	60	843
Molding-machine	W. Evans	479,755	July 26	2672	663	60	558
Molding-machine	J. A. Field	481,017	Aug. 16	2012	503, 504	60	996
Molding-machine	S. Smith	478,377	July 5	494	119, 120	60	97
Molding-machine	F. H. Van Houten	480,444	Aug. 9	1118	280	60	805
Molding-machine	N. Hoffend	482,742	Sept. 20	1359	336	60	1526
Moldings. Means for hanging	W. W. Carson	478,154	July 5	122	31	60	27
Mole, dike, or dam for silt-bearing streams	C. Oerther and J. W. Dillingham	481,585	Aug. 30	2982	732	60	1210
Mole-trap	J. C. F. Dick	482,004	Sept. 6	131	32	60	1360
Money-box. Registering	J. D. Mattison	479,825	Aug. 2	80	20, 21	60	597
Monocycle	J. Mitchell	481,367	Aug. 23	2620	644	60	1123
Monument. Memorial	L. A. Tarring	478,657	July 12	903	224	60	194
Mop-holder	B. F. Warner	480,303	Aug. 9	805	227	60	765
Mop-tub and mop-wringer. Combined	A. H. Hafer	480,192	Aug. 2	691	175	60	713
Mop-wringer	H. A. Spiller	480,215	Aug. 2	740	187	60	722
Mortar-carriage	W. H. Morgan	479,445	July 26	2162	539, 540	60	464
Mortar-mounting	W. H. Morgan	479,446	July 26	2164	540, 541	60	464
Mortar-mounting	T. R., Sr., J. R., T. R., Jr., and W. H. Morgan.	479,764	July 26	2692	669, 670	60	562
Mortising-machine	L. A. Belmont and A. C. Cload	482,224	Sept. 6	494	118	60	1431
Mortising-machine	E. J. Gisvold	482,242	Sept. 6	522	125	60	1436
Mortising-machine	L. Houston	478,431	July 5	571	138	60	112
Mortising-machine	W. F. Larish	481,039	Aug. 16	2049	511, 512	60	1004
Mother-of-pearl articles and making the same	O. C. Eckert and L. Cohen	482,548	Sept. 13	1058	257	60	1558
Motion. Device for converting	G. E. Morrison and W. A. Dye, Jr.	482,584	Sept. 13	1109	268	60	1566
Motion. Device for converting	S. Sloan	483,177	Sept. 27	2042	516	60	1775
Motion. Device for converting oscillatory into reciprocating	T. A. Briggs	480,449	Aug. 9	1136	284	60	809
Motion. Device for transmitting rotary	F. W. Gordon	478,959	July 12	1303	336	60	284
Motor: *See* Car-motor. Current-motor. Electric motor. Electro-magnetic motor. Fluid-motor. Gas and petroleum motor. Gas or petroleum motor. Hydraulic motor. Manual motor. Mechanical motor. Pump-motor. Spring-motor. Water-motor.							
Motor	R. F. Nichols, Sr	479,570	July 26	2368	590, 591	60	502
Motor	G. B. Sellers	480,972	Aug. 16	1951	488	60	985
Motor	E. C. Wheat	478,774	July 12	1084	269	60	231
Motto-plate	C. M. Underwood	482,662	Sept. 13	1216	297	60	1586
Mower	W. R. Baker	481,219	Aug. 23	2373	584, 585	60	1079
Mower and header	A. D. Marble	480,730	Aug. 16	1575	394	60	910
Mower clutch. Lawn-	G. D. Leedle	479,192	July 19	1741	437	60	365
Mower grass-receiver. Lawn-	F. L. Golibart	481,277	Aug. 23	2485	611	60	1099
Mower. Horse-power lawn-	A. B. Robbins	480,831	Aug. 16	1730	432	60	942
Mower. Lawn-	W. A. Loud	483,157	Sept. 27	2011	508	60	1768
Mower. Lawn-	W. E. and F. J. Prindle	482,752	Sept. 20	1374	340, 341	60	1629
Mower. Lawn-	J. V. Rowlett	479,843	Aug. 2	102	26	60	602
Mowers and reapers. Sickle-bar movement for	A. W. Lanphere	480,104	Aug. 2	546	138	60	686
Mowers. Foot-lever for the cutter-bars of	L. L. Folsom	482,347	Sept. 13	718	171	60	1490
Mowing-machine	C. M. Brown	480,706	Aug. 16	1543	384, 385	60	902
Mucilage-holder	F. H. Palmer	482,750	Sept. 20	1371	339	60	1628
Muff	C. C. Ashbaugh	482,432	Sept. 13	861	207	60	1517
Multiple switchboards. Test system for	O. A. Bell	483,506	Sept. 27	2549	640	60	1871
Multiple switchboards. Test system for	C. E. Scribner	483,175	Sept. 27	2039	515	60	1774
Music-box damping device	G. A. Brachhausen and P. Riessner	480,993	Aug. 16	1992	496	60	991
Music-chart	H. S. Sutton	479,902	Aug. 2	191	47	60	619
Music-leaves. Tab for	C. F. Pidgin	481,735	Aug. 30	3229	787	60	1237
Music or like engravings. Producing	C. A. Ker	482,871	Sept. 20	1551	387	60	1665
Music-rack	I. W. Zavadil	483,244	Sept. 27	2147	544	60	1795
Music-rack and telescopic stand therefor. Folding	H. W. Potter	478,460	July 5	612	149	60	121
Musical instrument	C. Bozza	480,315	Aug. 9	918	232	60	769
Musical instrument	J. B. Galloway	481,694	Aug. 30	3149	768	60	1241
Musical instrument	F. G. Haney	480,816	Aug. 16	1705	425	60	936
Musical instrument	J. F. Henning	478,933	July 12	1325	329	60	277
Musical instrument	D. Kempton	481,035	Aug. 16	2037	508	60	1002
Musical-instrument key	L. K. Fuller	483,378	Sept. 27	2378	597	60	1837
Musical instrument. Multiplex	J. H. Wheeler	481,451	Aug. 23	2760	679	60	1150
Musical-instrument rack	F. W. Hedgeland	478,602	July 12	833	205	60	181
Musical instrument. Stringed	W. J. Christy	483,136	Sept. 27	1972	500	60	1760
Musical instruments. Accompaniment-indicator for	G. P. O. Héroux	478,107	July 5	45	13	60	11
Musical instruments. Action for mechanical	J. L. Müller	480,854	Aug. 16	1763	441	60	949
Musical instruments. Bow for stringed	E. A. Kretschmer	482,255	Sept. 6	547	130	60	1441
Musical instruments. Mute for	D. Genese	480,578	Aug. 9	1326	330	60	847
Musical notation	J. W. Robberson	482,442	Sept. 13	880	211, 212	60	1519
Musk and making the same. Artificial	A. Baur	481,685	Aug. 30	3136	.....	60	1239
Muzzle	M. S. Moremen	478,882	July 12	1242	308	60	261
Nail-extractor	M. D. Converse	482,338	Sept. 13	702	167	60	1487
Nail-machine	J. M. E. Baackes and C. Richards	481,997	Sept. 6	114	28, 29	60	1357
Nail-machine attachment. Cut-	C. F. Roth	483,085	Sept. 20	1889	478, 479	60	1733

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Nail-puller	C. M. Spencer	480,974	Aug. 16	1954	489	60	985
Nailing implement. Hand	W. J. Brown	482,540	Sept. 13	1044	252	60	1553
Nailing machine. Box	B. M. Gunston	481,863	Aug. 30	3438	{844 845	60	1207
Name-plate for monuments, signs, &c	R. H. Follenius	482,237	Sept. 6	511	122	60	1435
Napkin-holder	I. T. Brown	481,161	Aug. 23	2289	562	60	1060
Napkin ring and holder. Combined	A. M. Spaulding	483,331	Sept. 27	2310	580	60	1824
Necktie-fastener	L. Greenwald	483,215	Sept. 27	2103	531	60	1787
Necktie-fastener	B. Kersting	479,884	Aug. 2	166	41	60	614
Necktie-fastener	L. Uechting	480,754	Aug. 16	1609	404	60	918
Necktie or band	C. S. Cole	482,547	Sept. 13	1058	257	60	1555
Needle. Ribbon	G. G. Welgand	481,338	Aug. 23	2386	635	60	1116
Needle. Tape	E. Stott	478,827	July 12	1181	293	60	249
Net bow or hoop	A. G. Benson	481,461	Aug. 23	2788	685	60	1155
Net. Dip	F. Hanish	482,635	Sept. 13	1182	286	60	1579
Net fabrics. Knot for	R. Semmler, Sr	483,291	Sept. 27	2250	566	60	1813
Net. Fish	H. F. Smith	483,400	Sept. 27	2406	605	60	1843
Net. Fly	W. H. Osmer	478,708	July 12	971	241	60	209
Net. Fly	G. Sollenberger	482,417	Sept. 13	837	201	60	1512
Net frame. Landing	J. Reed	479,157	July 19	1682	{420 421	60	355
Net. Pound	G. Williams and A. A. Cleveland	481,990	Sept. 6	104	26	60	1355
Newspapers and other publications. Preventing fraud in the sale of	L. C. Crowell	480,423	Aug. 9	1090	273	60	799
Newspapers and other publications. Preventing fraud in the sale of	L. C. Crowell	480,424	Aug. 9	1093	273	60	800
Nickel-matte. Treating	P. Manhes	479,290	July 19	1883	472	60	395
Nitro-glycerine blasting-powder	L. Brown	478,844	July 12	1203	.....	60	254
Nitro-glycerine from waste acids. Recovering	J. Lawrence	482,372	Sept. 13	760	.....	60	1499
Nose-bag	W. Ehrhardt	482,730	Sept. 20	1332	326	60	1621
Note and envelope. Combined promissory	C. Carroll	479,555	July 26	2348	586	60	499
Nozzle. Automatic	C. A. King	478,698	July 12	958	238	60	206
Nozzle. Exhaust	P. Swenson	481,334	Aug. 23	2379	{633 634	60	1115
Nozzle-holder	C. W. Umholtz	481,082	Aug. 16	2129	530	60	1019
Number device. Adjustable	A. Cuthbert	479,249	July 19	1827	{458 459	60	383
Numbering-machine	J. F. Evert	480,841	Aug. 16	1740	435	60	943
Nut and bolt lock	C. H. Shaw	478,241	July 5	290	71	60	59
Nut and bolt lock	J. E. Arthur	479,131	July 19	1642	411	60	347
Nut and bolt wrench	T. A. Flanigan	482,472	Sept. 13	926	226	60	1529
Nut-blank-threading device	J. Hoval	481,230	Aug. 23	2394	590	60	1083
Nut-cracker	J. C. Stuchel	481,437	Aug. 23	2742	674	60	1146
Nut. Lock	D. C. Wheeler and W. W. Sperry	483,334	Sept. 27	2313	581	60	1825
Nut-lock	V. E. Doremus	478,742	July 12	1036	254	60	221
Nut-lock	C. A. Bartliff	479,162	July 19	1688	422	60	357
Nut-lock	J. Bender	482,610	Sept. 13	1152	278	60	1573
Nut-lock	J. Broadley	481,344	Aug. 23	2592	637	60	1117
Nut-lock	W. Cokayne	482,518	Sept. 13	1009	244	60	1546
Nut-lock	S. Durben	478,096	July 5	32	10	60	9
Nut-lock	H. Frobird	479,065	July 19	1535	383	60	328
Nut-lock	J. C. Grimes	478,907	July 19	1437	356	60	309
Nut-lock	C. Ives	479,511	July 26	2287	572	60	487
Nut-lock	J. C. McQuilkin	481,417	Aug. 23	2709	666	60	1140
Nut-lock	G. A. Miller	480,667	Aug. 9	1475	367	60	876
Nut-lock	A. P. Nelms	482,949	Sept. 20	1684	424	60	1690
Nut-lock	J. G. Perry	482,907	Sept. 20	1618	405	60	1676
Nut-lock	J. Putman	478,637	July 12	877	216	60	190
Nut-lock	A. Stockdale	483,241	Sept. 27	2143	543	60	1794
Nut-lock	L. F. Wankey	478,725	July 12	998	247	60	215
Nut-lock	A. Warenskjold	481,214	Aug. 23	2361	592	60	1076
Nut-lock	J. W. Willcoxon	482,935	Sept. 20	1651	416	60	1684
Nut-lock	W. H. Willis	480,758	Aug. 16	1613	405	60	919
Nut-lock	C. C. Wrenshall	482,910	Sept. 20	1622	406	60	1677
Nut-lock and bolt-tightener	L. H. Young	478,300	July 5	379	92	60	76
Oarsman's recorder	J. G. Perry	482,906	Sept. 20	1617	405	60	1676
Oil and vapor burner	J. and J. H. Banks and W. B. Peet	478,270	July 5	334	80, 81	60	67
Oil and vapor burner	J. A. Lannert, W. R. Jeavons, and W. H. Wilder.	479,747	July 26	2662	661	60	556
Oil-burner	W. H. Wilder, J. A. Lannert, and W. R. Jeavons.	479,690	July 26	2554	635	60	536
Oil-burning apparatus	J. F. Coates	479,558	July 26	2352	587	60	500
Oil-can	G. H. Harvey	482,508	Sept. 13	587	230	60	1542
Oil-can	U. Reiffer and J. F. Stauffer	480,742	Aug. 16	1593	399	60	914
Oil-can. Lamp-filling	H. H. Thiellesen	479,318	July 19	1923	480	60	402
Oil-can. Safety	J. Geary	482,680	Sept. 13	1248	304	60	1592
Oil-cup	H. Kaplan	479,217	July 19	1777	446	60	372
Oil-cup	W. H. and A. J. Bailey	478,977	July 19	1490	347	60	303
Oil-cup	J. M. Coale	479,246	July 19	1823	457	60	382
Oil-cup	F. J. Cole and G. B. Hazlehurst	478,224	July 5	249	61	60	51
Oil-extracting apparatus	J. T. Smith	481,312	Aug. 23	2548	625	60	1109
Oil-motor engine	C. Mann	482,581	Sept. 13	1104	267	60	1565
Oil-press	H. Schumm	482,201	Sept. 6	457	110	60	1424
Oil projectile	A. Estrayer	480,867	Aug. 16	1781	445	60	952
Oil purifier and reservoir	E. D. Moore	478,705	July 12	967	240	60	208
Oil-receptacle filler-cap	R. Metz	482,583	Sept. 13	1108	268	60	1565
Oil upon water. Device for distributing	W. Frosch	478,421	July 5	558	135	60	109
Oils. Compound of sulphureted	S. I. Prescott	481,818	Aug. 30	3370	826	60	1281
Oils. Desulphurizing	W. D. Field	478,955	July 12	1353	.....	60	283
Oils. Desulphurizing	O. P. Amend and J. H. Macy	480,311	Aug. 9	912	230	60	768
Oiler for handsaws	O. P. Amend and J. H. Macy	480,312	Aug. 9	914	231	60	768
Oiling device. Loom	S. Parmele	480,621	Aug. 9	1401	348	60	862
Oiling device. Loom	J. S. Giles	481,558	Aug. 30	2943	723	60	1202
	J. S. Giles	481,559	Aug. 30	2944	723	60	1202

Alphabetical list of patentees, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Open-hearth furnace	H. Aiken, F. W. Wood, and H. H. Campbell.	481,885	Aug. 30	3476	852	60	1305
Opera-glass holder	A. B. Nicholson	478,350	July 5	455	111	60	91
Opera or field glass	E. Lüddeckens	480,370	Aug. 9	1092	252	60	784
Operating-chair. Physician's	S. Longanecker	481,040	Aug. 16	2052	512	60	1005
Operator's seat	C. H. Colby	478,987	July 19	1415	350	60	305
Optician's trial-frame	A. G. McKenzie	479,607	July 26	2419	603	60	512
Ordnance. Breech-loading	S. Seabury	483,207	Sept. 27	2213	556	60	1807
Ordnance. Means for operating heavy	F. Bex	483,130	Sept. 27	1960	497	60	1758
Ordnance. Tool for boring breech-loading	G. Gerdom	481,300	Aug. 23	2525	620	60	1105
Ore and coal crusher and separator	S. B. Price, Jr., C. E. Martin, and B. Purser.	479,018	July 19	1466	365	60	315
Ore-concentrating belts. Fluid-support for	F. G. Corning	478,502	July 5	675	165	60	133
Ore-concentrator	W. H. H. Bowers	481,101	Aug. 16	2164	536	60	1024
Ore-concentrator	G. D. Huseman	479,279	July 19	1868	468	60	391
Ore-concentrator	C. E. Seymour	482,322	Sept. 6	670	{160 161	60	1467
Ore-concentrator	P. R. Stanhope and F. Wood	480,860	Aug. 16	1770	443	60	950
Ore-concentrators. Magnetic separator for	C. B. Walker	480,301	Aug. 9	892	226	60	764
Ore-crusher	C. E. Seymour	482,323	Sept. 6	674	161	60	1468
Ore crusher and grinder	E. R. Galo	478,588	July 12	890	199	60	176
Ore-pulverizer	N. F. Acers	482,330	Sept. 13	689	165	60	1485
Ore. Reduction of iron	J. J. Stuart	478,209	July 5	217	54	60	45
Ore-separator	C. J. Eames	479,408	July 26	2095	.....	60	450
Ore-separator. Centrifugal	H. H. Taylor	482,853	Sept. 20	1519	377	60	1659
Ore-separator. Centrifugal	O. B. Peck	479,456	July 26	2184	{546 547	60	468
Ore-separator. Centrifugal	O. B. Peck	479,954	Aug. 2	280	69, 70	60	635
Ore washer and concentrator	O. B. Peck	479,955	Aug. 2	282	70, 71	60	636
Ore-washing-machine feeding device	A. L. Dana	481,550	Aug. 30	2925	{719 720	60	1199
Ores containing hydrated sesquioxide of iron. Treating	C. A. E. Meinicke	482,582	Sept. 13	1106	268	60	1565
Ores of zinc and lead. Treating sulphide	C. Jones	480,405	Aug. 9	1056	.....	60	394
Ores. Reducing unsmelted	G. T. Lewis and C. V. Petraeus	481,499	Aug. 23	2841	.....	60	1166
Ores. Treating sulphide	J. T. Wainwright	482,213	Sept. 6	478	115	60	1420
Organ-key coupler	G. T. Lewis and C. V. Petraeus	481,500	Aug. 23	2842	.....	60	1166
Organ. Pipe	J. Lloyd, Jr	479,434	July 26	2141	535	60	459
Organ. Reed	R. W. Jackson	480,949	Aug. 16	1906	{477 478	60	977
Organ stop-action. Combination	J. H. Lane	479,565	July 26	2361	589	60	501
Organ-tremolo	J. Woodberry	481,089	Aug. 16	2138	{532 533	60	1021
Organs. Swinging treadle for	I. Bassett	478,552	July 12	762	186	60	166
Oscillating engine	W. E. Sleight	481,976	Sept. 6	83	21	60	1351
Overseam	J. Moss	479,012	July 19	1458	{302 363	60	313
Oysters. Apparatus for making fried	W. Raenchle	480,783	Aug. 16	1635	414	60	927
Ozone-generating apparatus	F. F. Warthen	481,337	Aug. 23	2585	635	60	1116
Package-carrier	C. C. Sharp	481,676	Aug. 30	3120	762	60	1235
Package for pulverized substances	F. H. Palmer	480,618	Aug. 9	1397	348	60	861
Package-wrapper	J. Bina	481,521	Aug. 23	2870	705	60	1172
Packing	W. J. Acheson	483,198	Sept. 27	2076	524	60	1782
Packing-case	T. W. Welsh	480,643	Aug. 9	1430	358	60	869
Packing. Corrugated	G. W. Banker	482,715	Sept. 20	1315	321	60	1617
Packing for piston or other rods	R. H. Thompson	479,999	Aug. 2	371	92	60	451
Packing-jar	F. Pinch	483,013	Sept. 20	1790	451	60	1712
Packing. Metallic	J. W. Meyer	483,258	Sept. 27	2202	553	60	1804
Packing. Metallic rod	W. H. Bodfish	480,943	Aug. 16	1892	474	60	974
Packing. Rod	J. C. Chapman	481,662	Aug. 30	3101	756	60	1232
Packing. Rod	R. Carlin	478,919	July 12	1304	325	60	273
Pad:	C. L. Cook	481,105	Aug. 16	2170	537	60	1026
See Blowpipe-pad. Collar-pad. Dental moistening-pad. Dress-pad. Harness-pad. Horseshoe-pad.							
Paddle-wheel boat	J. S. Baker	482,115	Sept. 6	313	74	60	1396
Paddle-wheel. Feathering	C. H. McCready	482,455	Sept. 13	901	218	60	1523
Paddle-wheel. Feathering	G. T. Riguel	479,528	July 26	2307	{576 577	60	491
Paddle-wheel for steamers	J. Howard	481,668	Aug. 30	3109	759	60	1233
Paddle-wheel. Recessed	J. S. Baker	480,225	Aug. 2	754	190	60	725
Padlock	V. P. Brown	482,070	Sept. 6	239	58	60	1342
Padlock	E. T. Fraim	478,850	July 12	1207	300	60	255
Padlock	E. T. Fraim	479,414	July 26	2107	527	60	452
Padlock	E. A. Judd	483,383	Sept. 27	2388	600	60	1819
Padlock. Combination	N. J. Zell	481,458	Aug. 23	2773	683	60	1152
Pail, pan, wash-boiler, &c	H. H. Daniels	481,551	Aug. 30	2926	720	60	1199
Pail. Sanitary	T. D. Brown	480,555	Aug. 9	1290	323	60	840
Paint	C. Baron	483,026	Sept. 20	1821	463	60	1719
Paint	S. P. Citizen	479,785	Aug. 2	19	.....	60	586
Paint and varnish cup	J. H. Palmer. (Reissue)	11,255	July 26	2724	.....	60	570
Paint. Fireproof	S. R. Wilmot	478,831	July 12	1136	294	60	250
Paint. Fireproof	W. Church	478,785	July 12	1111	.....	60	235
Paint-pot	R. W. Lamprey	483,307	Sept. 27	2272	.....	60	1817
Painting barbed-wire fences. Machine for	W. B. Deming and H. C. Fuller	482,062	Sept. 6	202	63	60	1367
Painting with distemper and other colors	J. R. Smith	483,503	Sept. 27	2543	639	60	1871
Pan:	A. Pereira	481,282	Aug. 23	2493	.....	60	1101
See Baking-pan. Bed-pan. Bread-pan. Frying-pan. Vacuum-pan.							
Pantograph tracing and engraving machine	J. Bryce and A. Knox	481,893	Aug. 30	3487	{854 855	60	1307

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Paper and composition for coating the same. Transfer	W. Schwartz	478,892	July 12	1261	.....	60	265
Paper. Apparatus for severing sheets from webs of	J. L. Cox	478,409	July 5	540	132	60	106
Paper-bag holder	H. F. Elton and J. W. Cadwell	482,056	Sept. 6	218	52	60	1378
Paper-bag machine	A. C. Getten	481,650	Aug. 30	3081	752	60	1228
Paper-bag machine	A. C. Getten	482,170	Sept. 6	413	98	60	1416
Paper-board tubs. Manufacture of	W. W. McEwan	481,239	Aug. 23	2404	593	60	1085
Paper box	W. B. Howe	482,482	Sept. 13	1026	262	60	1536

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pencil-sharpener	W. G. Price	479,303	July 19	1901	476	60	398
Pencil-sharpener and holder. Combined	J. W. Battelle	480,547	Aug. 9	1278	321	60	838
Pencil-sharpener for school-slates	W. D. Black	481,097	Aug. 16	2158	535	60	1024
Pencil-sharpener. Slate	W. Shriver	478,374	July 5	492	119	60	87
Perforating-machine	C. G. Hoffmann	482,124	Sept. 6	362	87	60	1396
Perforating-machine	C. G. Hoffmann	482,125	Sept. 6	363	87	60	1396
Perforating-machine	C. G. Hoffmann	482,126	Sept. 6	364	87	60	1396
Perforating-machine	C. G. Hoffmann

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Paper and composition for coating the same. Transfer-	W. Schwartz	478,892	July 12	1261	.....	60	265
Paper. Apparatus for severing sheets from webs of	J. L. Cox	478,409	July 5	540	132	60	106
Paper-bag holder	H. F. Elton and J. W. Cadwell	482,056	Sept. 6	218	52	60	1378
Paper-bag machine	A. C. Getten	481,650	Aug. 30	3081	752	60	1228
Paper-bag machine	A. C. Getten	482,170	Sept. 6	413	98	60	1416
Paper-board tube. Manufacture of	W. W. McEwan	481,239	Aug. 23	2404	593	60	1085
Paper box	W. B. Howe	482,480	Sept. 13	936	228	60	1530
Paper box	T. F. W. Schmidt	483,502	Sept. 27	2542	639	60	1870
Paper cabinet. Toilet-	J. T. Hoyt	478,863	July 12	1222	303	60	257
Paper-cutter	A. L. Karshner	478,935	July 12	1327	329 330	60	278
Paper cutting and trimming machine	J. J. Manning	480,111	Aug. 2	555	140	60	688
Paper-cutting machine	R. D. Crawford	482,228	Sept. 6	499	119	60	1433
Paper-cutting machine	B. J. Pavyer and T. Burns	479,302	July 19	1900	475	60	397
Paper drying and cutting apparatus	G. T. Leonhard	478,975	July 12	1395	344 345	60	290
Paper feeding and cutting mechanism	R. T. Johnston	481,497	Aug. 23	2838	698	60	1166
Paper-feeding apparatus	J. W. Hutt and A. J. Phillips	478,329	July 5	418	101 102	60	84
Paper-feeding machine	T. A. Briggs	480,447	Aug. 9	1125	280 281 282 283	60	806
Paper-feeding machine	W. Womersley	481,992	Sept. 6	106	26, 27	60	1355
Paper-hanger	G. Carr	479,971	Aug. 2	312	76	60	641
Paper-hanging machine	L. D. Barton	481,251	Aug. 23	2440	601	60	1091
Paper-holder	L. Elias	481,167	Aug. 23	2290	564	60	1062
Paper holder and cutter. Roll-	E. R. Granger	482,039	Sept. 6	189	45	60	1372
Paper holder. Toilet-	M. A. Brown	481,612	Aug. 30	3026	740	60	1217
Paper holder. Toilet-	J. M. Keep	481,034	Aug. 16	2036	508	60	1002
Paper-jogger	R. A. Hart	480,768	Aug. 16	1633	409	60	922
Paper-machine drier	T. Lindsay	480,407	Aug. 9	1058	265	60	794
Paper-machine suction mechanism	J. Reynolds	483,329	Sept. 27	2306	580	60	1824
Paper-machine suction-roll	E. B. Benham	483,340	Sept. 27	2318	583	60	1826
Paper-making machine	E. E. Johnson	480,770	Aug. 16	1637	410	60	923
Paper. Means for preventing spots in	R. W. Allan	480,446	Aug. 9	1123	280	60	806
Paper. Mechanism for delivering and cutting roll-	D. L. Goff	478,231	July 5	263	65	60	54
Paper-mill suction apparatus	E. Sanderson and F. C. Base	478,290	July 5	362	88	60	73
Paper-polishing machine	H. E. Rogers	478,762	July 12	1067	265	60	228
Paper-pulp. Apparatus for manufacturing	J. B. Carter	479,943	July 19	1819	456	60	381
Paper-roll holder and cutter. Knockdown	A. S. Beach and A. Booth	481,839	Aug. 30	3404	836	60	1290
Paper. Safety-	A. Schlumberger	481,770	Aug. 30	3393	801	60	1270
Paper-slitting machine	L. P. Clawson and J. A. Keller	479,349	July 19	1984	497	60	415
Paper. Toilet-	E. Jerome	478,869	July 12	1298	365	60	258
Paper-tube sizing and polishing machine	A. C. Hobbs and C. R. Richards	480,017	Aug. 2	407	101 102 103 104	60	659
Paper tubes. Composition coating for	S. Bergmann	482,718	Sept. 20	1318	322	60	1618
Paper-wrapping machine	J. F. Linthicum	478,345	July 5	442	109 110	60	88
Parallel bars	T. Peterson	481,509	Aug. 23	2852	701	60	1168
Parer and corer	P. T. Gates	481,528	Aug. 23	2887	709	60	1176
Partition or ceiling. Fireproof	C. F. W. Doehring	478,318	July 5	405	97	60	81
Pasting-machine. Bindery	J. L. Dennis	481,258	Aug. 23	2449	603	60	1093
Pastry-rack. Portable	C. F. Jesser	481,404	Aug. 23	2686	660	60	1135
Pavement	R. D. Duff	480,183	Aug. 2	678	171	60	710
Pavement. Brick	E. Hill	479,002	July 19	1442	358	60	310
Peanut-heater	J. R. Haldeman	481,756	Aug. 30	3267	795	60	1264
Pegging-jack	E. Taunay	478,721	July 12	993	246	60	214
Pegging-jack support	D. Whitlock	483,191	Sept. 27	2067	522	60	1780
Pegging machine. Wire-	W. M. Sawyer	481,374	Aug. 23	2631	647	60	1125
Pelts. Machine for removing water-hairs from	T. Barrett	478,732	July 12	1021	250 251	60	218
Pen. Drawing-	J. Derbohlow	483,142	Sept. 27	1979	501	60	1762
Pen. Drawing-	F. A. Alteneder	480,541	Aug. 9	1269	318	60	836
Pen-extractor	O. F. Grant	479,270	July 19	1855	465	60	388
Pen. Fountain-	W. F. Stanley	479,959	Aug. 2	290	72	60	637
Pen. Fountain-	D. T. Perkins	478,635	July 12	873	215	60	189
Pen. Fountain-	A. H. Robinson	478,941	July 12	1338	332	60	280
Pen. Fountain-	L. A. Shattuck	482,502	Sept. 13	1122	271	60	1368
Pen. Fountain-	W. W. Stewart	478,653	July 12	898	222 223	60	193
Pen. Fountain-	W. W. Stewart	480,294	Aug. 9	882	224	60	762
Pen. Fountain-	W. W. Stewart	480,751	Aug. 16	1604	402	60	917
Pen. Fountain-	L. B. Woolfolk	480,800	Aug. 16	1677	419 420	60	931
Pen. Fountain-	L. B. Woolfolk	481,090	Aug. 16	2142	533	60	1021
Penholder	W. B. Blalock and J. A. Muir	481,158	Aug. 23	2277	561	60	1059
Penholder	G. McElwain	479,522	July 26	2300	574	60	489
Penholder	G. McElwain	482,925	Sept. 20	1641	413	60	1681
Penholders and lead-pencils. Hand-support for	W. G. Croom	478,787	July 12	1113	275	60	236
Pen or pencil holder and making the same	H. T. Smith	481,534	Aug. 23	2901	712	60	1179
Pen. Writing-	F. C. Colburn	482,298	Sept. 6	620	148	60	1456
Pencil	C. W. Boman	481,100	Aug. 16	2162	536	60	1024
Pencil	A. Fornander	480,188	Aug. 2	686	174	60	712
Pencil-case	J. B. Smith	480,479	Aug. 9	1180	296	60	818
Pencil-clasp	E. W. Mildrum	482,409	Sept. 13	822	197	60	1510
Pencil-holder	O. A. Elliott	478,537	July 5	739	180	60	146
Pencil or other article of fibrous material. Lead-	B. B. Goldsmith. (Reissue)	11,250	Aug. 16	2265	559	60	1043
Pencil-pointer	F. E. Flagg	481,018	Aug. 16	2016	504	60	997
Pencil-sharpener	C. Faber	482,826	Sept. 20	1478	367	60	1650
Pencil-sharpener	W. A. Phillips	479,658	July 26	2496	622	60	526

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pencil-sharpener	W. G. Price	479,303	July 19	1901	476	60	398
Pencil sharpener and holder. Combined	J. W. Battelle	480,547	Aug. 9	1278	321	60	838
Pencil-sharpener for school-slates	W. D. Black	481,097	Aug. 16	2158	535	60	1024
Pencil sharpener. Slate-	W. Shriver	478,374	July 5	492	119	60	97
Perforating-machine	C. O. Morgan	479,294	July 19	1889	473	60	395
Permutation-lock	W. S. Chedister	478,567	July 12	780	191	60	170
Petroleum distillation. Separation of waste products of	J. P. Engle	481,392	Aug. 23	2664	653	60	1130
Petroleum or similar engine	G. W. Weatherhogg	480,535	Aug. 9	1260	316 317	60	834
Petroleum. Recovering waste products of	J. P. Englo	481,391	Aug. 23	2663	653	60	1130
Phonograph	V. Lahola	479,431	July 26	2136	534	60	459
Phonograph coin-controlled device	J. F. Ott	478,709	July 12	972	242	60	209
Phosphate rock. Apparatus for treating	S. Hughes and W. B. Chisolm	483,452	Sept. 27	2475	622	60	1857
Phosphate-rock drier	W. B. Chisolm	479,872	Aug. 2	148	36	60	611
Phosphate-separator and screen-washer	G. R. Boaz	480,549	Aug. 9	1280	321 322	60	838
Photographic-background holder	A. C. Caswell	482,002	Sept. 6	126	31	60	1359
Photographic camera	H. A. Benedict	478,837	July 12	1193	296 297	60	251
Photographic camera	W. H. Bristol	478,780	July 12	1097	272	60	233
Photographic films. Manufacture of	H. M. Reichenbach	479,305	July 19	1904	.....	60	398
Photographic lenses. Diaphragm for	E. R. Bullard	483,135	Sept. 27	1971	499	60	1760
Photographic plate carrier	C. H. Lohman	478,235	July 5	274	68	60	55
Photographic plate-holder	J. H. Hare	479,186	July 19	1733	434	60	364
Photographic printing machine	J. Urie, Jr.	478,663	July 12	910	226	60	196
Photographic shutter	J. E. Thornton	482,854	Sept. 20	1521	378	60	1659
Photographs, pictures, and analogous articles. Support for	A. Hunter	482,978	Sept. 20	1725	436	60	1696
Piano-action	E. C. Baughan	479,047	July 19	1510	376	60	323
Piano-action	W. L. Hawes	480,014	Aug. 2	393	98	60	657
Piano-action pilot	J. Herrburger	482,008	Sept. 6	137	33	60	1362
Piano-action rail	J. W. Reed	480,829	Aug. 16	1728	432	60	941
Piano-action. Transposing	C. G. George	478,323	July 5	411	99	60	82
Piano action. Upright	A. Hicks	482,740	Sept. 20	1356	336	60	1625
Piano attachment	H. A. Hauff	482,737	Sept. 20	1354	335	60	1625
Piano expression-regulator	J. Y. Druckenmiller	482,168	Sept. 6	410	98	60	1415
Pianoforte damper-action	J. P. Richardson and G. F. Dyer	481,121	Aug. 16	2194	541	60	1030
Pianoforte sounding-board	C. Brambach	480,488	Aug. 9	1101	299	60	820
Pianofortes. Stringing	D. L. Bollermann	478,912	July 12	1293	322	60	271
Piano or organ attachment	J. M. Stukes	480,296	Aug. 9	886	224 225	60	763
Piano pedal-foot	A. H. Hastings	480,606	Aug. 9	1519	378	60	884
Piano-string	T. Gill	478,746	July 12	1041	256	60	222
Pianos. Stringing	C. S. Weber	482,512	Sept. 13	991	240	60	1543
Picker-stem and mechanism for operating the same	G. N. Todd	483,121	Sept. 20	1945	492	60	1745
Picket-wiring machine	J. R. Shaffer	479,311	July 19	1915	478	60	400
Pickle-lifter	J. A., Jr., and J. W. Currie	481,691	Aug. 30	3146	767	60	1240
Picture-frame	J. Mauerhofer	480,953	Aug. 16	1919	480	60	978
Picture-frame	P. Wiener	481,217	Aug. 23	2370	583	60	1079
Picture-frame fastener	C. F. Naegele	481,117	Aug. 16	2186	541	60	1029
Picture-hanger	E. A. Snow	480,632	Aug. 9	1418	353	60	865
Picture-holder	A. D. Stewart	478,478	July 5	638	156	60	127
Picture, mirror, and the like and forming the same. Framed	J. Jacobson	479,004	July 19	1444	358	60	310
Picture-stretcher. Folding	E. R. Butler	483,280	Sept. 27	2233	561	60	1810
Pile driver. Reciprocating electric	C. J. Van Depoele	479,965	Aug. 2	303	74, 75	60	640
Pile fabrics. Apparatus for cutting	J. J. Mann	478,515	July 5	696	169	60	138
Pile fabrics. Pegging-machine for	H. Heywood and J. Holland	479,274	July 19	1860	466	60	390
Pillow-sham holder	A. J. Robberson	481,424	Aug. 23	2721	669	60	1142
Pin: *See* Clothes-pin. Safety-pin. Pin. Spiral hair or other	J. T. Larkin	482,257	Sept. 6	549	130	60	1441
Pin-sticking machine	E. A. Burgess	481,746	Aug. 30	3250	791	60	1261
Pins, studs, &c. Safety-guard for scarf-	W. E. Trott	479,578	July 26	2378	593	60	504
Pinch-bar	A. M. Collett	480,398	Aug. 9	1047	263	60	792
Pinchers. Lasting-	G. W. Morrill	480,433	Aug. 9	1104	276	60	802
Pineapples. Machine for treating	G. W. Zastrow	482,493	Sept. 13	965	234	60	1537
Pipe: *See* Stovepipe. Wooden pipe. Tobacco-pipe.							
Pipe and nut wrench	M. J. Wilson	483,336	Sept. 27	2314	582	60	1825
Pipe-coupling	D. A. Barnes	481,250	Aug. 23	2438	601	60	1091
Pipe-coupling	R. Herman	482,922	Sept. 20	1638	412	60	1681
Pipe-coupling	G. W. Seebach	480,374	Aug. 9	1007	253	60	785
Pipe coupling. Flexible	J. Suydam	479,856	Aug. 2	122	30	60	606
Pipe-coupling. Flexible-steam	J. E. Marble	480,875	Aug. 16	1792	448	60	954
Pipe-coupling. Valved	E. Bartholomew	481,130	Aug. 16	2208	546	60	1033
Pipe-flanging machine	R. K. Welch	478,670	July 12	921	229	60	198
Pipe for the conveyance of liquids or gases	E. Walker and J. Shaw	483,274	Sept. 27	2225	559	60	1808
Pipe-holder	C. H. Alapaw	479,384	July 19	2051	512	60	427
Pipe-threading machine	A. W. Cash	482,296	Sept. 6	617	147	60	1455
Pipe-threading machine	D. O. James	480,871	Aug. 16	1785	447	60	953
Pipe-wrench	A. Bareis	478,948	July 12	1344	333	60	281
Pipe-wrench	W. H. Dechant	481,257	Aug. 23	2448	603	60	1093
Pipe-wrench	D. R. Porter	482,527	Sept. 13	1025	247	60	1549
Pipe-wrench. Chain	W. J. Walker	482,109	Sept. 6	305	72	60	1395
Pipes. Protecting-thimble for steam or heating	J. F. Sauerman	480,140	Aug. 2	609	155	60	698
Pipes. Service-box for water or gas	S. Vanstone	481,126	Aug. 16	2199	544	60	1031
Pipes. Tapering-tool for lead	J. M. Hurley	479,909	Aug. 2	198	49	60	621
Pipes. Tool for cutting off	M. Fritsche	481,169	Aug. 23	2291	565	60	1062
Piperazin. Making	J. F. Mason	479,892	Aug. 2	170	44	60	617
Piston meter	P. Volkmann	482,108	Sept. 6	304	.....	60	1395
	T. Blein and E. Beraud	483,278	Sept. 27	2231	560	60	1810

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Piston meter	J. A. Myers	480,606	Aug. 9	1370	340, 341	60	856
Pitcher. Ice-	R. Arnold	481,544	Aug. 30	2918	718	60	1197
Pitman	P. Y. Barber	480,545	Aug. 9	1270	320	60	837
Placer-machine	W. M. Jewell	479,744	July 26	2658	659	60	555
Planing-machine	A. B. Hutchinson	482,481	Sept. 13	938	228	60	1531
Planing-machine	L. T. Pyott	481,371	Aug. 23	2025	646	60	1124
Plank. Walk and bridge	A. Zagelmeyer	482,536	Sept. 13	1039	251	60	1552
Planograph. Self-recording	J. Soler	481,432	Aug. 23	2734	672, 673	60	1145
Planter	L. E. Waterman	480,304	Aug. 9	807	227, 228	60	765
Planter and fertilizer-distributer	A. Bush	482,783	Sept. 20	1426	353, 354	60	1639
Planter. Check-row	S. B. Sare	482,437	Sept. 13	870	208	60	1518
Planter. Corn-	F. Bayless	478,408	July 5	665	163	60	132
Planter. Corn-	O. P. Cranmer	483,376	Sept. 27	2371	594	60	1836
Planter. Corn-	H. H. Dougherty	481,852	Aug. 30	3424	840	60	1294
Planter. Corn-	L. P. Graham	479,067	July 19	1538	384, 385	60	398
Planter. Corn-	P. P. Hayes	483,217	Sept. 27	2106	534	60	1787
Planter. Corn and seed	A. Griesemer	481,170	Aug. 23	2292	565	60	1062
Planter. Cotton	P. P. Simpson	482,277	Sept. 6	581	138	60	1448
Planter. Cotton and corn	J. W. Lehr	478,441	July 5	584	142	60	115
Planter marking attachment	C. W. Chafee	482,075	Sept. 6	250	60, 61	60	1385
Planter. Potato-	S. C. Schofield	481,642	Aug. 30	3067	749	60	1295
Planter. Potato-	E. Skorpil	478,137	July 5	88	23	60	90
Planter. Potato-	C. Wright	481,456	Aug. 23	2771	682, 683	60	1159
Planter. Seed-	J. C. Haas	480,091	Aug. 2	528	134	60	683
Planter. Seed-	E. R. Knight	483,066	Sept. 20	1861	472	60	1728
Planter. Tobacco-	E. A. Rollman	478,980	July 5	361	87	60	73
Planting attachment. Corn-	W. P. Goins	479,260	July 19	1851	465	60	388
Plaster	C. Casateel	478,951	July 12	1348	.....	60	292
Plastering. Composition of matter for	E. W. Dickie	479,060	July 19	1529	.....	60	327
Plastic composition	B. G. de Vassom	479,967	Aug. 2	309	.....	60	641
Plastic material. Toilet and other articles of	J. R. France	478,851	July 12	1209	300	60	255
Plate or pan lifter	C. L. Waldron	481,986	Sept. 6	98	25	60	1354
Plate-straightening machine	H. C. Jones	479,745	July 26	2660	660	60	556
Platform: *See* Hoisting-platform.							
Platform	J. Matthews	483,233	Sept. 27	2132	530	60	1792
Pliers and calipers. Balance-wheel	J. E. Eckert	481,936	Sept. 6	26	6	60	1339
Pliers and cutter. Combined	W. A. Bernard	479,113	July 19	1618	404	60	343
Plotter	L. P. Watson	479,198	July 19	1748	438	60	367
Plow	B. F. Cadenhead and M. E. Butt	478,273	July 5	340	82	60	68
Plow	G. N. Dexter, Jr	479,706	July 26	2586	644	60	512
Plow	O. T. Jensen	481,630	Aug. 30	3051	745	60	1222
Plow	F. F. Landis	482,847	Sept. 20	1500	375	60	1657
Plow	J. F. B. Lorentzen	481,633	Aug. 30	3057	746	60	1223
Plow	C. A. Pfeifer	482,751	Sept. 20	1372	340	60	1638
Plow	S. Remaly	483,311	Sept. 27	2279	573	60	1818
Plow	K. N. Sharp	479,992	Aug. 2	362	89, 90	60	650
Plow	G. W. Swinson	480,637	Aug. 9	1425	355	60	866
Plow	T. Tinkler	479,036	July 19	1495	372	60	320
Plow	C. H. Vanderburg	482,884	Sept. 20	1583	398	60	1670
Plow	E. L. Ward	481,708	Aug. 30	3172	775	60	1246
Plow	F. Wiard	479,927	Aug. 2	235	59	60	628
Plow and harrow. Combined sulky	M. A. McClellan	478,627	July 12	864	213	60	187
Plow attachment	C. H. Warrington	482,602	Sept. 13	1135	274	60	1571
Plow attachment	G. Watson	481,215	Aug. 23	2362	582	60	1076
Plow. Combination-	H. M. McCafferty	478,824	July 12	1250	309	60	262
Plow. Ditching-	B. H. Rinehart	483,476	Sept. 27	2501	630	60	1862
Plow. Double-mold-board	C. E. Parks	482,380	Sept. 13	782	188	60	1502
Plow-fender	G. N. Spencer	482,595	Sept. 13	1128	272	60	1569
Plow. Gang-	R. L. Penn	478,634	July 12	872	215	60	188
Plow. Listing-	B. Blankenship	479,779	Aug. 2	10	3	60	584
Plow. Listing-	C. N. Leatherwood	479,987	Aug. 2	356	88	60	649
Plow planter attachment	J. P. Nugent	481,242	Aug. 23	2408	594, 595	60	1086
Plow-point. Reversible	C. J. Abbott	478,730	July 12	1020	249	60	218
Plow-point. Reversible	T. M. Bissell and J. B. Huber	479,696	July 26	2564	638	60	538
Plow. Rotary	M. T. Hancock. (Reissue)	11,257	Aug. 9	1530	380, 381	60	886
Plow standard and attachment	W. T. Stapler	482,510	Sept. 13	989	239	60	1542
Plow. Sulky-	L. S. Flatau	482,943	Sept. 20	1667	419	60	1687
Plow. Sulky-	M. Glynn	482,734	Sept. 20	1342	332	60	1623
Plow. Sulky-	J. Wolpert	483,480	Sept. 27	2506	631	60	1863
Plow. Wheel-	E. Stock	482,816	Sept. 20	1464	364	60	1647
Plows. Foot-latch for reversible	O. H. Eddy	480,077	Aug. 2	500	129	60	679
Plowing machine. Land-	G. M. Clark	478,311	July 5	392	94, 95	60	79
Plowing machine. Land-	G. M. Clark	478,500	July 5	669	163, 164	60	133
Plug spring-jack	C. A. Shea	481,204	Aug. 23	2342	577	60	1072
Pneumatic or other dispatch systems. Automatic receiver for	A. Bryson, Jr	480,805	Aug. 16	1690	422	60	933
Pneumatic tool	D. Drawbaugh	482,942	Sept. 20	1664	419	60	1687
Pocket-book or purse	E. Schnopp	480,143	Aug. 2	613	156	60	690
Pocket-knife	W. O'Hara	478,812	July 12	1152	285	60	244
Pocket-register	J. B. Reed	478,363	July 5	474	115	60	94
Poison-receptacle	A. L. De Shon	478,691	July 12	951	236	60	205
Poke. Animal-	A. Bolding	483,508	Sept. 27	2552	640	60	1872
Poke. Animal-	C. V. Whallon	483,190	Sept. 27	2066	522	60	1779
Pole. Coupling-	A. Drew	482,678	Sept. 13	1244	303	60	1591

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pole tip. Vehicle-	T. J. Houghton	481,701	Aug. 30	3327	819	60	1276
Pole. Vehicle-	J. P. Johnson	481,619	Aug. 30	3036	749	60	1219
Pole. Vehicle-	W. L. Pike	480,510	Aug. 9	1222	306	60	827
Pole. Vehicle-	W. L. Pike	480,511	Aug. 9	1223	306	60	827
Poles. Detachable step for	V. A. Thomas	480,977	Aug. 16	1902	491	60	987
Polishing-wheel	J. McClellan	481,415	Aug. 23	2706	665	60	1130
Pool rack and spotter	C. H. Fuchs	479,213	July 19	1770	444	60	371
Portable tubular boiler	G. Selden	479,901	Aug. 2	360	89	60	649
Portfolio or pocket-case	C. Galle	480,067	Aug. 2	523	133	60	682
Post: *See* Fence-post.							
Post-hole digger	W. Z. Brown	481,688	Aug. 30	3140	766	60	1239
Post-top	M. E. Loughlin	479,123	July 19	1432	408	60	345
Pot: *See* Coffee-pot. Paint-pot. Floating pot.							
Potassium chlorate. Electrolytically producing	E. B. Cutten	480,492	Aug. 9	1196	300	60	821
Potassium chlorate. Electrolytically producing	E. B. Cutten	480,493	Aug. 9	1197	.....	60	821
Potato-cutter	F. Jackson	481,620	Aug. 30	3050	745	60	1223
Potato-digger	J. E. Kelly and F. R. Howell	480,500	Aug. 9	1344	335	60	851
Potato-digger	D. Livingston	478,442	July 5	586	143	60	115
Potato-grinder	P. J. Wiborg	481,645	Aug. 30	3072	750	60	1296
Powder: *See* Blasting-powder.	J. R. Hartman	483,951	Sept. 27	2157	546	60	1797
Powder-duster	J. P. Wright	478,901	July 12	1275	316	60	967
Powder-puff and inhaler device. Pocket	W. H. Payne	478,358	July 5	469	114	60	93
Power: *See* Animal-power. Churn-power. Propelling power.							
Power. Electrical transmission of	C. J. Van Depoele	479,906	Aug. 2	306	75	60	640
Power machine. Manual-	W. K. Crofford	480,452	Aug. 9	1141	285	60	810
Power-transmitter	D. McCarthy	479,207	July 19	1895	474	60	396
Power-transmitting device	E. D. Weyburn	481,988	Sept. 6	101	25	60	1354
Precious stones. Machine for cutting and polishing	E. Passmore	479,452	July 26	2175	544	60	467
Preserving-jar	J. E. Faber	481,939	Sept. 6	31	7	60	1340
Press: *See* Bag-bundling press. Baling-press. Brick-press. Cigar-press. Copying-press. Cotton-press. Hay-press. Hydraulic press. Letter-press. Oil-press. Printing-press. Proof-press. Tile-press.							
Pressure brake. Fluid-	G. A. Boyden	481,135	Aug. 16	2218	548	60	1035
Pressure-indicator. Electrical	J. W. Howell	480,947	Aug. 16	1903	476	60	976
Pressure-regulating device	C. F. A. Convert	481,272	Aug. 23	2468	608	60	1097
Pressure-regulator	G. Harris	482,842	Sept. 20	1504	374	60	1656
Pressure regulator. Fluid-	V. H. Higgins and W. D. Smith	483,516	Sept. 27	2575	646	60	1876
Pressure regulator. Fluid-	W. B. Mason	481,579	Aug. 30	2972	730	60	1208
Printer's galley	E. Webb	479,234	July 19	1801	451	60	377
Printer's press-guide	N. G. Duffy	483,481	Sept. 27	2507	631	60	1863
Printer's quoin	J. A. Boehringer and F. X. Müller	478,679	July 12	937	233	60	201
Printers' rollers. Inclosure for packing and carrying	W. J. Tinsley	483,185	Sept. 27	2059	590	60	1778
Printer's rule-bender	H. M. Bingham and G. Runge	481,465	Aug. 23	2791	686	60	1156
Printing	E. Buck	478,085	July 5	17	6	60	6
Printing and adding machine. Check	W. F. Heald	479,508	July 26	2284	571	60	486
Printing apparatus	C. W. Weiss	481,709	Aug. 30	3173	775, 776	60	1246
Printing-block	J. W. Hutt and A. J. Phillips	480,467	Aug. 9	1161	291, 292	60	814
Printing device. Column-	S. H. Horgan	478,750	July 12	1045	257	60	223
Printing-machine	W. W. Rosenfield	478,524	July 5	710	172	60	141
Printing-machine	T. Gibson	482,733	Sept. 20	1337	329, 330, 331, 332	60	1622
Printing-machine	W. Scott	480,042	Aug. 2	455	116	60	669
Printing-machine	W. Scott	480,970	Aug. 16	1949	487, 488	60	984
Printing-machine beds. Mechanism for operating	S. Whitlock	479,382	July 19	2043	510	60	496
Printing machine. Music-	L. Durdilly	482,728	Sept. 20	1329	325	60	1621
Printing machine. Plate-	H. Lee	479,516	July 26	2293	573	60	488
Printing-machine sheet-delivery apparatus	F. Meisel	478,347	July 5	459	111	60	90
Printing-machines. Bed-motion for cylinder	L. C. Crowell	478,091	July 5	25	8, 9	60	8
Printing-machines. Bed-motion for cylinder	L. C. Crowell	478,573	July 12	789	194, 195	60	172
Printing-machines. Bed-motion for cylinder	L. C. Crowell	480,321	Aug. 9	925	234, 235	60	770
Printing-machines. Bed-motion for cylinder	L. C. Crowell	480,454	Aug. 9	1143	286, 287	60	810
Printing-machines. Bed-motion for cylinder	L. C. Crowell. (Reissue)	11,272	Sept. 27	2581	648, 649	60	1877
Printing-machines. Bed-motion for cylinder	L. C. Crowell. (Reissue)	11,273	Sept. 27	2585	646, 647	60	1878
Printing-machines. Registering mechanism for double-cylinder flat-bed	S. D. Tucker	479,860	Aug. 2	125	31	60	607
Printing oil-cloth. Machine for	G. E. Eisenhardt	478,927	July 12	1317	327	60	276
Printing plate and block	S. H. Horgan	478,749	July 12	1044	256	60	223
Printing plate. Surface-	J. Mullaly and L. L. Bullock	483,498	Sept. 27	2532	637	60	1869
Printing-press	J. L. Cox	478,503	July 5	676	165, 166	60	134

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Printing-press	D. I. Eckerson	483,377	Sept. 27	2372	594, 595, 596	60	1836
Printing-press	J. Hackett	480,191	Aug. 2	689	174	60	712
Printing-press	E. Prouty	478,760	July 12	1061	262, 263, 264	60	226
Printing-press	W. Scott	482,204	Sept. 6	461	111	60	1425
Printing-press	A. W. Vaughn	479,579	July 26	2370	593	60	504
Printing-press addressing attachment	I. W. Newman	479,917	Aug. 2	208	53	60	623
Printing-press feed-machine attachment	T. A. Briggs	480,448	Aug. 9	1135	283	60	808
Printing-press folding attachment	R. C. Seymour	481,203	Aug. 23	2340	576, 577	60	1072
Printing-press inking attachment	T. G. Spence	479,674	July 26	2527	629, 630	60	532
Printing-press paper-straightener	A. Binkard	478,079	July 5	7	2	60	4
Printing-press stopping and reversing mechanism	W. S. Huson	482,359	Sept. 13	744	179	60	1495
Printing-presses. Attachment to roll-carrying spindles for web-	A. A. Houghtlin	480,499	Aug. 9	1207	302	60	823
Printing-presses. Combined paper-folding and sheet-delivering mechanism for	J. H. Stonemetz	479,768	July 26	2700	672	60	564
Printing rolls. Machine for shading the surfaces of calico-	G. Hancock	478,540	July 5	744	181	60	148
Printing wall-paper. Apparatus for	G. K. Birge	479,346	July 19	1983	496, 497	60	414
Projectile	J. E. Schlorff	480,142	Aug. 2	612	155	60	699
Projectile for small-arms. Compound	M. Tweedie	481,081	Aug. 16	2128	530	60	1019
Proof-press	N. G. Duffy	483,433	Sept. 27	2451	617	60	1852
Propeller	W. R. Bonham	482,225	Sept. 6	496	118	60	1432
Propeller	L. Gayon	480,945	Aug. 16	1899	475	60	975
Propeller. Screw-	J. MacHaffie	483,158	Sept. 27	2013	508, 509	60	1769
Propeller. Vessel-	D. Urch	482,122	Sept. 20	1946	492, 493	60	1745
Propeller-wheel	C. J. Lowe	479,008	July 19	1450	360	60	812
Propelling boats. Means for	A. M. Haswell	481,113	Aug. 16	2182	540	60	1028
Propelling mechanism for row-boats	G. Vogel	479,924	Aug. 2	231	58	60	627
Propelling power	J. B. Hall	478,962	July 12	1367	337	60	285
Proportional meter	W. D. Hawley and S. J. Hogan	479,759	July 26	2680	665	60	560
Propulsion of vessels. Hydraulic	J. C. Walker	480,533	Aug. 9	1258	316	60	834
Prospecting-drill	A. Ball	478,077	July 5	3	1, 2	60	3
Protector: *See* Book-cover protector. Tree-protector. Trolley-protector. Edge-protector.							
Puller: *See* Nail-puller. Sprout-puller.							
Pulley	O. C. Little	483,227	Sept. 27	2122	537	60	1790
Pulley	E. A. Long	479,221	July 19	1782	447	60	373
Pulley. Grip-	A. S. Hallidie	483,442	Sept. 27	2462	619, 620	60	1854
Pulley. Hay-elevator	W. Louden	481,203	Aug. 23	2456	605	60	1094
Pulley. Loose or idle	T. W. Simcox	478,292	July 5	365	89	60	73
Pulley. Sash-	F. V. Phillips	481,510	Aug. 23	2353	701	60	1168
Pulley. Split	D. G. Reitz	481,871	Aug. 30	3451	846, 847	60	1300
Pulp-engine	G. Miller	482,184	Sept. 6	434	103, 104	60	1420
Pulp-grinding machines. Feed for	A. W. Lefebvre	483,458	Sept. 27	2480	624	60	1858
Pulp machines. Hydraulic feed for wood-	J. T. Horton	481,174	Aug. 23	2298	566	60	1064
Pulp. Press for forming hollow articles from	E. Hubbard	480,466	Aug. 9	1160	291	60	813
Pulp-reducing machines. Rubbing-surface for	J. B. Carter	482,619	Sept. 13	1162	281	60	1575
Pulp. Strainer for chemical wood	C. Wandel	478,179	July 5	171	44, 45	60	36
Pulp-strainer. Rotary	T. Volstorf	483,030	Sept. 20	1814	460, 461	60	1717
Pulverizer	G. H. Smith	481,532	Aug. 23	2899	712	60	1178
Pulverizing-machine	U. Cummings	478,253	July 5	309	75	60	62
Pump	O. Brünler	480,707	Aug. 16	1546	385	60	903
Pump	D. B. Cahow	480,169	Aug. 2	656	167	60	707
Pump	M. M. Grove	481,022	Aug. 16	2022	505	60	998
Pump	M. W. Hall	482,921	Sept. 20	1636	411, 412	60	1680
Pump	E. D. Middlekauff	481,043	Aug. 16	2058	513	60	1006
Pump	W. Peterson	482,588	Sept. 13	1115	269	60	1567
Pump	R. H. Raprager	478,464	July 5	619	150	60	122
Pump	A. Siebert	482,416	Sept. 13	834	200	60	1512
Pump	J. C. Tom	483,406	Sept. 27	2416	607	60	1845
Pump	A. N. Woodard	483,034	Sept. 20	1819	402	60	1718
Pump and mixer. Combined	A. M. Phillips	479,378	July 19	2037	508	60	424
Pump. Centrifugal	B. F. Bee	478,307	July 5	387	93	60	78
Pump. Chain-	D. K. Keller	478,112	July 5	51	14	60	12
Pump. Double-acting	G. J. Neth	482,692	Sept. 13	1270	311	60	1596
Pump. Dredging-	J. D. McRae	479,765	July 26	2695	670, 671	60	563
Pump for condensers. Air-	B. V. Nordberg	482,315	Sept. 6	656	157	60	1464
Pump for refrigerating apparatus	M. Grimm	479,877	Aug. 2	157	39	60	612
Pump. Force-	M. W. Hall	482,944	Sept. 20	1660	419, 420, 421	60	1688
Pump. Hydraulic mining-	W. A. Rockliff and J. P. Foley	482,810	Sept. 20	1456	361	60	1646
Pump. Measuring-	S. F. and A. Bowser	480,550	Aug. 9	1281	322	60	838
Pump. Measuring-	S. F. and A. Bowser	480,551	Aug. 9	1283	322	60	839
Pump. Measuring-	S. F. and A. Bowser	480,552	Aug. 9	1285	322	60	839
Pump-motor	J. H. Miller and J. H. Oswalt	482,800	Sept. 20	1447	359	60	1644

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pump. Oil-well	G. Allen	480,701	Aug. 16	1537	383	60	901
Pump or compressor. Air	R. F. Avery	482,776	Sept. 20	1416	350	60	1637
Pump or compressor. Fluid	J. J. Duffy	480,811	Aug. 16	1699	423, 424	60	935
Pump-piston and valve	J. R. Collins	478,089	July 5	22	7	60	7
Pump. Portable garden or spraying	G. D. Hamblin	482,681	Sept. 13	1251	305	60	1593
Pump. Purifying-	G. W. and J. L. Horn	480,096	Aug. 2	533	135	60	684
Pump-rod. Elastic	W. C. Westaway	480,756	Aug. 16	1611	404	60	918
Pump. Rotary	J. Menge	480,473	Aug. 9	1169	294	60	815
Pump. Steam-	C. H. Booth	482,840	Sept. 20	1500	373	60	1655
Pump. Steam-actuated air-	E. Smedley	482,814	Sept. 20	1461	362, 363	60	1617
Pump. Steam vacuum-	D. P. Burdon	482,072	Sept. 6	244	59, 60	60	1363
Pump valve and case	J. Neumann	479,299	July 19	1297	475	60	397
Pumps by means of treadles. Device for operating	R. F. Avery	482,777	Sept. 20	1417	250	60	1637
Pumps. Locomotive attachment for supplying steam to	R. Zinsmayer	479,870	Aug. 2	146	35	60	610
Pumping-engine. Hydraulic	G. W. Dawson	478,314	July 5	397	96	60	80
Pumping mechanism. Oil-well	O. A. Knox	482,011	Sept. 6	142	34	60	1363
Punch and laying-out machine. Multiple-	C. E. Brown	480,557	Aug. 9	1292	323, 324	60	840
Punch. Perforating-	H. H. Norrington	481,583	Aug. 30	2979	731	60	1209
Punch. Ticket-	A. W. Coffin	480,560	Aug. 9	1295	324	60	841
Punching and shearing machine	F. N. Helfrich	482,356	Sept. 13	739	178	60	1495
Punching-machine	T. Barrow	483,095	Sept. 20	1908	482	60	1736
Punching-machine	J. Long	481,574	Aug. 30	2968	720	60	1207
Punching presses. Feeding device for card-	J. P. Odgers	482,981	Sept. 20	1731	437, 438	60	1700
Puzzle	P. W. Anderson	483,276	Sept. 27	2228	560	60	1809
Puzzle	A. Assorati and A. Cuyás	478,497	July 5	664	162	60	132
Puzzle	H. C. Guertin	479,418	July 26	2115	529	60	454
Puzzle	C. E. O. Hager	476,998	July 19	1438	356	60	309
Puzzle	J. W. Hale	481,561	Aug. 30	2947	724	60	1203
Puzzle	M. W. Marsden	478,799	July 12	1135	279	60	240
Puzzle	A. C. Proctor	481,589	Aug. 30	2987	733	60	1210
Puzzle	L. F. Stutz	479,475	July 26	2228	559	60	476
Puzzle	W. T. Walker	478,668	July 12	918	228	60	197
Puzzle. Wire	C. Wolf	480,983	Aug. 16	1970	493	60	988
Pyrotechnic suit	C. E. Whitworth	479,145	July 19	1666	416	60	352
Pyroxyline. Manufacture of compounds of	H. J. Pain	479,899	Aug. 2	188	46	60	619
Quartz-crusher	J. H. Stevens	478,543	July 5	746	.....	60	149
Quilling-frames. Friction-collar for spindles on long-chain	A. P. Anderson	480,647	Aug. 9	1443	359	60	870
Quoin	W. F. West	478,269	July 5	332	80	60	67
Quoit-peg	C. W. Waldron	481,605	Aug. 30	3018	738	60	1216
Race-horses. Device for starting	F. A. O. Bedingfeld	479,614	July 26	2432	606	60	514
Racers. Apparatus for starting	J. J. Sullivan	481,835	Aug. 30	3399	834, 835	60	1288
Rack: *See* Book-rack. Musical-instrument rack. Car bundle-rack. Pastry-rack. Cloak-rack. Pool-rack. Feeding-rack. Towel-rack. Hay-rack. Suspended rack. Horseshoeing-rack. Wagon-rack. Music-rack.	E. Forbes	481,260	Aug. 23	2453	604	60	1094
Radiator	G. E. Longard	480,597	Aug. 9	1357	337, 338	60	852
Radiator. Gas-	W. J. Frazier	479,977	Aug. 2	819	78	60	643
Radiator. Gas-	W. J. Mullen	480,117	Aug. 2	869	144	60	691
Radiator. Graduating steam-	J. T. Hawkins	481,789	Aug. 30	3321	811	60	1276
Radiator. Semi-direct	A. H. Fowler	479,413	July 26	2104	527	60	451
Radiator-shield	G. E. Dixon	481,900	Aug. 30	3502	858	60	1309
Radiators. Fitting or connection for supply-pipes and branch pipes of	J. E. Russell	483,392	Sept. 27	2397	602, 603	60	1841
Rail-aligning device. Track-	W. E. Longbrey and A. H. McGrew.	479,435	July 26	2144	535	60	460
Rail and chair. Channel-	A. J. Moxham	482,803	Sept. 20	1449	359	60	1644
Rail-bond. Electric	T. J. McTighe	478,629	July 12	867	213	60	187
Rail-brake	C. W. Howlett	481,029	Aug. 16	2031	507	60	1000
Rail-chair	C. E. Mark	481,575	Aug. 30	2969	729	60	1207
Rail-chair and coupling for permanent ways	R. Cardwell and S. Watson	478,399	July 5	525	128	60	104
Rail-chairs. Method of and die for making	P. J. Lavelle	482,092	Sept. 6	277	67	60	1390
Rail-clamp	H. R. Wolpert	479,867	Aug. 2	143	34	60	610
Rail. Guard-	S. H. Stupakoff	482,766	Sept. 20	1404	347	60	1634
Rail-joint	T. J. Kennedy	482,796	Sept. 20	1442	357	60	1642
Rail-joint	M. C. Niles	480,506	Aug. 9	1217	304	60	826
Rail-joint	G. G. Stacy	481,433	Aug. 23	2737	673	60	1145
Rail-joints. Roll for forming connecting-plates for	D. H. Lents and A. W. Thompson	481,697	Aug. 30	3154	770	60	1242
Rail-sanding apparatus	G. Lents	481,797	Aug. 30	3336	815	60	1278
Railway and truck	J. G. Johnson	478,332	July 5	423	103	60	85
Railway-beds. Device for indicating washouts in	J. Ortega y Espinosa	479,834	Aug. 2	91	23	60	600
Railway brace-chair	G. Murray	482,807	Sept. 20	1452	360, 361	60	1645
Railway. Cable	J. H. Pendleton	479,919	Aug. 2	210	53, 54	60	624
Railway. Cable	J. H. Pendleton	479,920	Aug. 2	215	54, 55	60	624
Railway. Cable	J. H. Pendleton and A. Bryson	479,921	Aug. 2	224	55, 56, 57	60	626
Railway-chair	S. D. Root and G. C. Vineyard	480,519	Aug. 9	1231	308, 309	60	828
Railway-chair	S. Harris	478,426	July 5	566	137	60	111
	S. Harris	478,427	July 5	566	137	60	111

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railway-chair	S. Harris	478,428	July 5	567	137	60	111
Railway-chair	S. H. Stupakoff	482,765	Sept. 20	1403	346	60	1634
Railway-coach	M. Goetze	482,634	Sept. 13	1181	285	60	1578
Railway collisions. Device for preventing	J. Stierle	482,143	Sept. 6	358	85	60	1406
Railway conductor. Electric-	R. M. Hunter	483,494	Sept. 27	2524	635	60	1867
Railway conduit. Electric-	F. O. Blackwell	482,719	Sept. 20	1319	322	60	1618
Railway conduit. Electric-	R. M. Hunter	482,964	Sept. 20	1704	430	60	1694
Railway conduit. Electric-	W. F. Jenkins	481,403	Aug. 23	2685	659	60	1134
Railway conduits. Trolley for electric-	M. Shoemaker	478,175	July 5	164	42	60	35
Railway construction	W. F. Jenkins	481,402	Aug. 23	2683	{658 659}	60	1134
Railway-crossing	W. J. Morden	481,368	Aug. 23	2621	645	60	1123
Railway-crossing	E. B. Gibson	482,352	Sept. 13	732	176	60	1493
Railway-crossing	J. McCarthy	479,829	Aug. 2	86	22	60	598
Railway-crossing. Adjustable	T. Smith	479,027	July 19	1481	368	60	317
Railway-crossing protector	D. McNamara	480,608	Aug. 9	1374	341	60	856
Railway-crossing protector	R. J. M. Danley	482,422	Sept. 13	847	203	60	1514
Railway-crossing signal mechanisms. Circuit-closer for	R. J. M. Danley	482,423	Sept. 13	848	203	60	1514
	I. W. Loy and R. O'Toole	483,231	Sept. 27	2128	538	60	1791
Railway curve. Cable-	G. Muller	481,412	Aug. 23	2699	{663 664}	60	1138
Railway. Electric	F. B. Badt	480,543	Aug. 9	1272	{319 320}	60	837
Railway. Electric	C. H. Baker	480,004	Aug. 2	377	94	60	652
Railway. Electric	M. W. Dewey	479,493	July 26	2258	566	60	482
Railway. Electric	R. M. Hunter	480,850	Aug. 16	1757	440	60	947
Railway. Electric	R. M. Hunter	481,905	Aug. 30	3510	859	60	1311
Railway-frog foot-guard	F. Mansfield	478,346	July 5	445	110	60	89
Railway-gate	W. Driscoll	478,504	July 5	682	166	60	135
Railway-gate	L. S. Barnett	478,978	July 19	1400	347	60	302
Railway gate. Automatic	M. B. Mills	480,955	Aug. 16	1921	481	60	979
Railway grip. Cable-	E. A. Morrow and J. Wilson	479,295	July 19	1890	{473 474}	60	396
Railway grip. Cable-	G. and L. Schorpp	481,512	Aug. 23	2857	702	60	1160
Railway-joint	C. Vogel	478,773	July 12	1081	269	60	230
Railway-joint	F. W. Bond	478,983	July 19	1410	349	60	305
Railway-joint	U. H. Hane	481,171	Aug. 23	2295	565	60	1063
Railway-joint chair	H. T. Hey	481,758	Aug. 30	3269	795	60	1264
Railway or tramway support. Street-	T. Sayers	481,122	Aug. 16	2196	543	60	1031
Railway-rail	J. M. Price	478,362	July 5	473	115	60	94
Railway-rail and chair and making the same. Combined	J. T. Smith	478,766	July 12	1072	266	60	229
	A. J. Moxham	482,805	Sept. 20	1451	360	60	1645
Railway-rail bender	W. H. Cowell	479,401	July 26	2257	566	60	482
Railway-rail brace-chair	G. Murray	478,806	July 12	1145	283	60	243
Railway-rail chair	B. Jennings	481,032	Aug. 16	2034	507	60	1001
Railway-rail chair	A. J. Moxham	482,801	Sept. 20	1447	359	60	1644
Railway-rail chair and making the same	A. J. Moxham	482,802	Sept. 20	1448	359	60	1644
Railway-rail fastening	A. J. Moxham	482,804	Sept. 20	1450	360	60	1644
Railway-rail joint	H. A. Lyddon	479,289	July 19	1882	471	60	304
Railway-rail joint	W. H. Carr	478,990	July 12	1305	325	60	272
Railway-rails from spreading. Device for preventing	C. E. Mark	481,576	Aug. 30	2969	729	60	1207
	J. H. Burns	480,998	Aug. 16	1987	497	60	992
Railway-signal	R. T. Bowne	479,395	July 26	2073	{520 521}	60	446
Railway-signal	S. Emrich	479,258	July 19	1898	461	60	385
Railway-signal. Automatic mechanical block	G. C. Young and G. O. Willever	481,884	Aug. 30	3472	851	60	1304
Railway signal device. Automatic	B. and J. Shoecraft	482,203	Sept. 6	459	111	60	1425
Railway signal. Electric-	C. K. Hall	482,306	Sept. 6	631	151	60	1458
Railway signal. Electric-	F. F. Loomis	479,138	July 19	1654	413	60	349
Railway stock and cattle guard. Automatic	T. A. B. Putnam	479,333	July 19	1940	485	60	406
Railway-switch	J. Walton	481,447	Aug. 23	2756	678	60	1149
Railway-switch	L. Marchand, Jr.	480,601	Aug. 9	1364	339	60	854
Railway-switch	J. D. Mattison	478,879	July 12	1238	307	60	260
Railway-switch	S. Peterson and A. Baland	481,967	Aug. 23	2461	606	60	1095
Railway-switch appliance. Street-	A. A. Strom. (Reissue)	11,261	Aug. 16	2268	560	60	1043
Railway-switch. Automatic	J. Lipman and C. J. Rinderknecht	482,903	Sept. 20	1613	404	60	1675
Railway-switch. Automatic	W. Spielman	479,373	July 19	2028	506	60	423
Railway-switch fastening	S. H. Corson	481,248	Aug. 23	2435	600	60	1090
Railway-switch operating mechanism	A. Bixby	480,320	Aug. 9	925	234	60	770
Railway-switch signal	F. M. Nye	479,584	July 26	2384	594	60	505
Railway switch. Street-	I. F. Harris	480,825	Aug. 16	1723	{430 431}	60	940
Railway switch. Street-	T. L. Johnson	478,858	July 12	1216	302	60	256
Railway switch. Street-	R. T. Smith	482,426	Sept. 13	853	{204 205}	60	1515
Railway switching device. Street-	I. F. Harris	479,028	July 19	1482	369	60	317
Railway system. Electric-	A. L. Riker	478,859	July 12	1217	302	60	257
Railway-tie	A. G. Budington	483,366	Sept. 27	2352	591	60	1633
Railway-tie	W. R. Kinnear	479,625	July 26	2445	610	60	516
Railway-tie. Metal-	R. E. Daniels	483,154	Sept. 27	2002	{506 507}	60	1767
Railway-tie. Metallic	C. B. Macneal	482,997	Sept. 20	1757	444	60	1705
Railway time-signal	D. W. and E. L. Mitchell	482,967	Sept. 20	1710	431	60	1695
Railway time-signal	W. Scott	481,581	Aug. 30	2977	730	60	1209
Railway time-signal	S. Smith	482,699	Sept. 13	1281	314	60	1599
Railway time-signal	A. H. Thorp	481,533	Aug. 23	2900	712	60	1178
Railway-track	C. W. Parks	481,723	Aug. 30	3207	783	60	1252
Railway track construction	T. W. Hutchins	479,836	Aug. 2	94	24	60	600
Railway-track gage	E. E. Buchwald	479,908	Aug. 2	51	12	60	592
Railway-track nut-lock	J. D. Cay	479,552	July 26	2345	585	60	498
		478,686	July 12	947	235	60	204

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railway-tracks. Circuit closing and breaking device for	T. H. Patenall	480,507	Aug. 9	1219	305	60	826
Railway-tracks. Device for illuminating	W. E. Ferguson	481,016	Aug. 16	2011	503	60	996
Railway-tracks. Weed-cutter for	W. G. Hay	483,150	Sept. 27	1990	504	60	1764
Railway-train signal apparatus	C. Selden	478,135	July 5	82	21, 22	60	19
Railway-trains. Electric control of	R. C. Sayer	481,062	Aug. 16	2105	{523 524}	60	1014
Railway trolley. Electric-	C. A. Adams and T. J. Thorp	482,031	Sept. 6	178	43	60	1370
Railway trolley. Electric-	W. F. Jenkins	481,401	Aug. 23	2682	658	60	1124
Railway trolley. Electric-	J. M. C. Tyner and S. S. Irving	482,325	Sept. 6	679	162	60	1468
Railway trolley-stand. Electric-	J. C. Hough	483,061	Sept. 20	1853	470	60	1726
Railway-vehicles. Guard-shoe for	H. L. Simmons	481,068	Aug. 16	2112	525	60	1015
Railways. Automatic block system for	B. and J. Shoecraft	483,479	Sept. 27	2504	631	60	1863
Railways. Automatic gipsy for cable	A. J. Smith	482,279	Sept. 6	582	139	60	1449
Railways. Closed conduit for electric	L. P. Bunce	482,993	Sept. 20	1750	442	60	1703
Railways. Closed conduit for electric	E. H. Johnson	479,909	Aug. 2	52	12	60	592
Railways. Closed conduit for electric	A. L. Lineff	480,409	Aug. 9	1060	{265 266}	60	794
Railways. Conduit system for electric	W. H. Ford	478,956	July 12	1354	335	60	283
Railways. Conduit system for electric	R. Lawrence	481,959	Sept. 6	56	13, 14	60	1345
Railways. Crossing for underground cable	W. H. Page	481,966	Sept. 6	66	17	60	1347
Railways. Inclosed conductor for electric	G. A. Dupuis	482,343	Sept. 13	710	169	60	1488
Railways. Trolley-track hanger for electric	W. Q. Prewitt	483,388	Sept. 27	2302	601	60	1840
Rake: *See* Hay-rake. Hand-rake.							
Rake	J. V. Rowlett	479,842	Aug. 2	101	26	60	602
Rake and portable baling-press. Combined	C. C. Shero	483,515	Sept. 27	2568	{644 645 646}	60	1875
Rake-tooth	J. Dain, Jr	479,780	Aug. 2	23	6	60	586
Rakes. Combined guard and cleaner for lawn-	J. H. Haldeman	479,940	Aug. 2	255	63	60	631
Rakes. Making	W. H. Cowdery	481,663	Aug. 30	3102	756	60	1232
Range. Field-	J. Marcee	479,652	July 26	2467	{619 620}	60	524
Range hot-closet door	J. Tettelbach	479,857	Aug. 2	123	30	60	606
Ranges. Oven and closet door for	F. W. Born	481,924	Sept. 6	0	2	60	1336
Ranges. Sheet-metal-oven bottom for	W. H. Whitehead	479,770	July 26	2703	673	60	565
Ratchet-wrench	J. E. Brendlinger	478,690	July 12	937	233	60	201
Ratchet-wrench	P. Cossette	481,690	Aug. 30	3145	767	60	1240
Razor	F. A. Clauberg	480,916	Aug. 16	1854	462	60	967
Razor-pivot	J. G. Bestgen	482,992	Sept. 20	1749	442	60	1703
Razor-sharpening device	E. A. Sutphen	480,976	Aug. 16	1961	490	60	966
Razor-strop	W. C. Howard	478,934	July 12	1326	329	60	278
Razor-strop	A. E. Witherell	478,946	July 12	1343	333	60	281
Reamer	J. W. Tompkins	479,682	July 26	2542	633	60	534
Reaming and drilling machine	O. C. Opsion and J. V. Hooper	481,418	Aug. 23	2710	667	60	1140
Reclining-chair	G. B. Valentine	478,247	July 5	301	73	60	60
Record, diary, and ledger. Combined	H. Meyer	481,670	Aug. 30	3111	759	60	1224
Recorder: *See* Oarsman's recorder. Time-recorder.							
Reel: *See* Bolting-reel. Hose-reel. Fishing-reel. Wire-reel. Fishing-line reel.							
Reel-carrier	E. E. Kittleson	481,328	Aug. 23	2569	{630 631}	60	1114
Reel-carrier	J. F. Schneider	481,641	Aug. 30	3066	{748 749}	60	1225
Reel-carrier and wire-stretcher. Combined	W. H. Johnson	483,355	Sept. 27	2337	588	60	1830
Reel for unwinding tubular-knitted goods and winding the yarn	N. Tourangeau	482,932	Sept. 20	1648	415	60	1683
Reel-support	F. S. Reager	483,389	Sept. 27	2304	601	60	1840
Reflector	C. A. Meadows	480,201	Aug. 2	707	180	60	716
Reflector. Arc-light	A. Zalud	483,197	Sept. 27	2075	524	60	1781
Reflector. Side	R. S. Dobbie	479,183	July 19	1727	433	60	363
Refrigerating apparatus	C. E. Plumtree	481,055	Aug. 16	2077	518	60	1010
Refrigerating apparatus	C. W. Nason and C. H. Leinert	482,268	Sept. 6	567	{134 135}	60	1445
Refrigerating-machine	C. E. Peirce	483,500	Sept. 27	2536	{637 638}	60	1869
Refrigerating-machines. Gas-compressor for	C. F. Miller	481,140	Aug. 16	2246	{553 554}	60	1040
Refrigerator	B. H. Munsch	482,876	Sept. 20	1560	389	60	1667
Refrigerator	C. A. Bluhm	478,060	July 5	8	2, 3	60	4
Refrigerator and elevating cupboard	A. I. Dexter	479,633	July 26	2460	612	60	519
Refrigerator-car	J. T. Westwood	478,898	July 12	1268	313	60	266
Refrigerator-car	G. A. Fowler	478,995	July 19	1432	{354 355}	60	308
Refrigerator-door	O. Vezin	482,703	Sept. 13	1288	316	60	1600
Refuse of cities. Apparatus for treating the	R. G. Chase	479,973	Aug. 2	314	77	60	642
Register: *See* Autographic register. Hot-air register. Miner's register. Cash-register. Pocket-register. Fare-register.	J. J. Storer	481,680	Aug. 30	3129	764	60	1237
Regulator: *See* Clock-regulator. Pressure-regulator. Damper-regulator. Temperature-regulator. Electric-current regulator. Water-supply regulator. Windmill-regulator. Gas-regulator.							
Rein-button	W. H. Sanborn	479,847	Aug. 2	107	27	60	603
Rein-guard	A. C. Massey	478,800	July 12	1135	280	60	240

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rein-holder	E. Rankin, Jr.	479,096	July 19	1586	397	60	337
Rein-holder	J. D. Shurmon	478,375	July 5	493	119	60	97
Rein-spreader	J. H. and F. S. Pew	478,712	July 12	977	243	60	210
Relay. Electrically-adjusting	W. S. Richards	482,137	Sept. 6	344	82	60	1403
Reproducing characters. Device for	H. C. Bridger	478,152	July 5	120	30	60	27
Resawing-machine	F. R. Lee	483,226	Sept. 27	2121	537	60	1790
Resonator	H. Crocker	482,786	Sept. 20	1431	354	60	1640
Respirator. Nasal	J. E. Midgley and D. D. Case	480,505	Aug. 9	1217	304	60	825
Retorts, &c. Machine for making	E. Rooms	480,138	Aug. 2	607	154	60	698
Rheostat	C. E. Carpenter	481,781	Aug. 30	3312	809	60	1273
Rheostat	W. P. Esyrs	478,276	July 5	343	83	60	69
Rheostat	H. W. Lawrence	482,093	Sept. 6	278	67	60	1390
Rheostat	C. W. Tobey	480,151	Aug. 2	623	158	60	701
Rheostat	J. Waring	479,101	July 19	1593	399	60	338
Rheostat	E. Weston	480,892	Aug. 16	1817	453	60	959
Rheostat	E. Weston	480,893	Aug. 16	1819	454	60	960
Ribbon and show case	E. Stewart	483,024	Sept. 20	1804	455, 456	60	1715
Ribbon-holder	G. H. Brown	480,556	Aug. 9	1290	323	60	840
Rice-scourer	S. A. Pickett	482,192	Sept. 6	445	107	60	1422
Ring: *See* Chill-ring. Ear-ring. Finger-ring. Napkin-ring. Spinning-ring. Traverse-ring.							
Ring	R. B. Ackerman	482,670	Sept. 13	1229	299	60	1588
Ring-holder	J. Smith	483,399	Sept. 27	2405	605	60	1842
Ring-traveler	A. F. Bentley	481,131	Aug. 16	2210	546	60	1033
Rivet	J. L. Thomson	481,123	Aug. 16	2196	543	60	1031
Rivet	J. J. Unbehend	481,125	Aug. 16	2198	544	60	1031
Riveter	J. J. Kropacek	478,114	July 5	56	15	60	13
Road. Gravel	F. J. Hoyt	478,862	July 12	1221	.....	60	257
Road-roller. Combination	R. C. Ruthven	482,757	Sept. 20	1381	342, 343	60	1630
Road-working machine	M. G. Bunnell	479,700	July 26	2569	639, 640	60	539
Rock-channeling tool	G. M. Githens	479,499	July 26	2267	568	60	483
Rock-crusher	H. L. Kent	482,795	Sept. 20	1441	357	60	1642
Rock-drill	P. P. Belt	479,615	July 26	2433	606	60	514
Rock-drill	T. F. Farrell	479,356	July 19	1998	500	60	417
Rock-drill. Steam-actuated	S. and W. R. Lloyd	481,632	Aug. 30	3054	746	60	1223
Rock-drilling machine	W. X. Stevens	481,598	Aug. 30	3004	735	60	1213
Rock-drilling machine	N. Widman	481,610	Aug. 30	3023	739	60	1217
Rock-drilling tool	G. L. Weller	479,041	July 19	1503	373	60	322
Rocket. Dynamite	P. Cunningham	479,738	July 26	2646	656	60	553
Rocking-horse	E. Keuser	479,370	July 19	2023	505	60	422
Rod: *See* Curtain-rod. Gun-rod. Wantage-rod.							
Roller: *See* Disintegrating-roller. Land-roller. Road-roller. Shade-roller.							
Roller-mills. Adjustable scraper for	J. Harvey	481,866	Aug. 30	3444	845	60	1299
Roller-mills. Automatic feeder for	J. L. Willford	482,419	Sept. 13	839	201, 202	60	1513
Rolling machine. Sheet-metal	W. S. Shipe	480,440	Aug. 9	1112	278	60	804
Rolling mill. Metal	F. Nevegold	480,609	Aug. 9	1375	342	60	857
Rolling-mill. Universal	A. Reese	481,058	Aug. 16	2086	520	60	1011
Rolling thin sheet steel or iron	B. C. Lauth	478,193	July 5	189	48	60	40
Rolling up stripe or webs. Apparatus for	C. Faure	479,875	Aug. 2	152	37, 38	60	612
Roof	J. J. McCarthy	483,202	Sept. 27	2207	554	60	1805
Roof. Portable	J. H. Rice	480,859	Aug. 16	1768	443	60	949
Roof-scaffold bracket	H. McCornack	482,096	Sept. 6	221	68	60	1391
Roofs. Gutter or valley on	C. C. Meader	480,602	Aug. 9	1306	339	60	834
Roofing and siding	J. Winslow	481,541	Aug. 23	2911	714	60	1180
Roofing and siding screw or fastening	R. B. L. Westover	481,724	Aug. 30	3209	784	60	1252
Roofing. Machine for joining and rolling sheets for	W. A. List	480,665	Aug. 9	1472	367	60	875
Roofing-tile. Metallic	E. B. Repp	482,025	Sept. 6	171	41	60	1368
Roofing-tool	L. L. Sagendorph	478,642	July 12	886	219	60	191
Rope-clamp	R. M. Downie	480,810	Aug. 16	1697	423	60	934
Rope-driving apparatus	T. H. Macdonald, O. R. Williams, and L. D. Hitzeroth.	478,875	July 12	1234	306	60	260
Rope-grip	T. J. Cope	482,975	Sept. 20	1722	435	60	1698
Rope-guiding sheave	S. Murray	479,296	July 19	1893	474	60	396
Rope-hold	E. T. Rugg	482,756	Sept. 20	1380	342	60	1630
Rotary engine	A. Beard	478,271	July 5	337	81	60	68
Rotary engine	H. Betten	481,096	Aug. 16	2156	535	60	1023
Rotary engine	A. F. G. Brown	478,843	July 12	1202	298	60	253
Rotary engine	J. Snelling	479,080	July 19	1557	389, 390	60	331
Rotary engine	E. Towlson	483,027	Sept. 20	1809	457, 458, 459	60	1716
Rotary engine	E. Waldron	479,479	July 26	2236	561, 562	60	477
Rotary fluid-pressure engine	E. Towlson	481,441	Aug. 23	2748	676	60	1147
Rotary machines. Reversing mechanism for	J. G. Johnson	483,456	Sept. 27	2479	624	60	1858
Rotary shears	S. Trethewey	479,037	July 19	1496	372	60	321
Rotary steam-engine	W. B. Coulter	482,166	Sept. 6	405	96, 97	60	1414
Rotary steam-engine	J. L. Rowan	478,240	July 5	287	70	60	58
Roundabout	W. Schäfer	480,477	Aug. 9	1178	296	60	817
Roving-can	A. B. Fisher	481,554	Aug. 30	2937	722	60	1201
Rubber-dam clamp	A. I. F. Buxbaum	482,618	Sept. 13	1161	281	60	1575
Rubber-heater. Steam	G. W. Melotte	480,472	Aug. 9	1168	294	60	815
Rubber shoe	B. Horovitz	480,097	Aug. 2	534	135	60	684

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rubber stamps. Apparatus for making	J. C. Barton	480,490	Aug. 9	1084	271, 272	60	798
Rudder-indicator	C. Cory	482,421	Sept. 13	844	202, 203	60	1514
Ruler, gage, and circle-scriber. Combined	L. M. Weaver and Z. C. Leiser	482,886	Sept. 20	1585	398	60	1670
Ruling-machine	J. Hope	480,498	Aug. 9	1206	302	60	823
Sack	H. V. W. Stivers and J. Hoagland	483,402	Sept. 27	2410	606	60	1844
Sack-holder	J. C. Bratney	478,913	July 12	1294	322	60	271
Sacks for filling same. Device for holding open grain and other	A. L. Klank	481,957	Sept. 6	53	12	60	1345
Sad-iron	C. G. Ette and B. H. Sanders	478,929	July 12	1320	328	60	276
Saddle. Harness	A. B. Arnold	478,535	July 5	738	180	60	146
Saddle. Harness	J. G. and H. Bruggeman	480,996	Aug. 16	1985	497	60	991
Saddle. Harness	D. F. Maine	481,765	Aug. 30	3287	800	60	1269
Saddle. Harness	S. A. Nolen	478,205	July 5	213	53	60	44
Saddle. Riding	V. D. Hart	481,945	Sept. 6	38	9	60	1342
Saddle. Side	T. G. Smith and F. W. Mayhew	481,073	Aug. 16	2118	527	60	1017
Saddle-tree	R. C. Barry	483,037	Sept. 20	1823	463	60	1719
Saddle-tree	O. Taber	480,218	Aug. 2	746	188	60	723
Saddle-tree	O. Taber	480,219	Aug. 2	747	189	60	723
Saddle-tree	O. Taber	480,220	Aug. 2	748	189	60	723
Saddle-tree	O. Taber	480,221	Aug. 2	749	189	60	724
Safe	T. M. Brintnall	481,137	Aug. 16	2229	549, 550, 551, 552	60	1036
Safe	W. Corliss	478,989	July 19	1421	352, 353	60	306
Safe	W. C. Ireland	483,153	Sept. 27	2001	506	60	1766
Safe	A. A. Root	479,464	July 26	2198	552	60	471
Safe-lock	J. White	481,319	Aug. 23	2555	627, 628	60	1111
Safes. Slot-protector for money	J. Loch	480,108	Aug. 2	552	139	60	688
Safety-pin	A. T. Snell	481,834	Aug. 30	3397	834	60	1289
Safety-switch	M. M. Turner and I. H. Grant	481,153	Aug. 16	2261	558	60	1042
Sail	A. S. Comstock	481,614	Aug. 30	3029	740	60	1218
Sail-cringle	W. R. Cutler	479,404	July 26	2089	523	60	449
Sail for vessels	J. H. Coffin	479,133	July 19	1644	411	60	347
Salicylaldehyde-alphaphenylmethyl hydrazone. Making	I. Roos	483,290	Sept. 27	2250	.....	60	1813
Salts of fluoride of antimony and sulphate of ammonia. Double	C. Wachendorff	479,925	Aug. 2	233	.....	60	627
Sand and slimes. Separating	G. Gates	482,241	Sept. 6	521	124	60	1436
Sand. Plant for heating and controlling	F. V. Greene	481,489	Aug. 23	2823	694	60	1163
Sand-screen	C. Monjean	482,020	Sept. 6	163	39	60	1367
Sanding apparatus	W. W. Wallace and R. C. Penfield	483,068	Sept. 20	1896	479	60	1734
Sandpapering-roll	J. A. Everett and J. Finn, Jr.	481,938	Sept. 6	29	7	60	1340
Sanitary ventilator	W. L. Potter	479,224	July 19	1786	447	60	374
Sash-balance	H. P. Cayce	481,103	Aug. 16	2160	537	60	1025
Sash-balance	N. Hamlet	481,302	Aug. 23	2527	620	60	1106
Sash-balance	S. Jenkinson	478,160	July 5	134	34	60	29
Sash-balance	F. N. Kimball	479,150	July 19	1671	418	60	353
Sash-balance	J. P. Magney	481,145	Aug. 16	2245	553	60	1040
Sash-balance	J. J. O'Connor	478,352	July 5	459	112	60	92
Sash-balance	G. T. Peters	479,657	July 26	2496	621	60	526
Sash-cord fastener	W. Hutchins	478,234	July 5	273	67	60	55
Sash-fastener	E. S. Bennett	480,688	Aug. 9	1511	375	60	882
Sash-fastener	C. O. Birney	481,546	Aug. 30	2920	718	60	1198
Sash-fastener	T B. Bomar	478,272	July 5	338	81	60	68
Sash-fastener	J L. Ebert	479,409	July 26	2096	525	60	450
Sash-fastener	G. G Hopkins	479,595	July 26	2400	598	60	508
Sash-fastener	E. L. King	481,669	Aug. 30	3110	759	60	1233
Sash-fastener	S. McClellan	479,152	July 19	1674	418	60	353
Sash-fastener	F. J Rabbeth	480,343	Aug. 9	956	242	60	776
Sash-fastener	D. H Taylor	481,440	Aug. 23	2747	675	60	1147
Sash-fastener	E. R. Theby	480,148	Aug. 2	620	157	60	701
Sash-fastener. Automatic	G. Solari	482,280	Sept. 6	586	139, 140	60	1449
Sash-holder	E. Broggelwirth	479,324	July 19	1930	482	60	403
Sash-holder	W. H. Dalbey	483,710	Sept. 13	1299	318	60	1603
Sash-holder	R. Monday	480,337	Aug. 9	946	240	60	774
Sash-holder	S. B. Morse	481,692	Aug. 30	3040	742	60	1220
Sash-lift	H. E. Willer	481,390	Aug. 23	2559	628	60	1111
Sash-pull	R. Schenck	478,471	July 5	628	153	60	194
Sash. Window	E. Moore	480,203	Aug. 2	709	181	60	716
Sash. Window or door	G. B. Lee	479,433	July 26	2140	535	60	459
Sashes, &c. Bar and fastening for	W. Henderson	482,087	Sept. 6	269	65	60	1388
Satchel or other receptacle	C. H. Shaw	480,675	Aug. 9	1486	370	60	878
Sausage twisting and linking machine	H. A. Smallfield and H. Edwards	480,293	Aug. 9	877	223, 224	60	762
Saw	D. C. Schlabach	481,201	Aug. 23	2337	576	60	1072
Sawbuck	J. Chattaway	482,162	Sept. 6	397	94	60	1413
Saw. Buck	P. Woodring	482,606	Sept. 13	1140	275	60	1571
Saw. Butcher's or bow	H. Hoefer	480,697	Aug. 9	1520	378	60	884
Saw. Crosscut	W. H. H. Kelzur	482,365	Sept. 13	753	182	60	1497
Saw. Crosscut	I. S. Wilson	481,321	Aug. 23	2559	628	60	1112
Saw filing and setting machine	J. Richardson	481,823	Aug. 30	3379	827, 828	60	1285
Saw-filing machine	T. S. Disston	482,572	Sept. 13	1092	265	60	1502
Saw gummer. Stave	A. Scamahorn	482,386	Sept. 13	791	190	60	1504
Saw-handle	J. Neimeyer	480,856	Aug. 16	1765	442	60	949
Saw handle. Crosscut	J. Green	479,361	July 19	2010	502	60	419
Saw mill. Band	D. C. Prescott	478,817	July 12	1166	289, 290	60	247
Sawmill-dog	G. F. Knight	483,223	Sept. 27	2113	536	60	1789
Sawmill-dog	G. F. Knight	483,224	Sept. 27	2115	536	60	1789

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sawmill variable feed	C. Harbaugh	479,272	July 19	1857	465	60	389
Saw pulleys. Scraper for band	J. H. Wentz	478,148	July 5	115	29	60	26
Saw-set	C. Baker	479,239	July 19	1809	453	60	379
Saw-set	S. W. Buence and A. Bash	481,221	Aug. 23	2377	585	60	1080
Saw-set	W. M. Greilick	480,581	Aug. 9	1331	331, 332	60	848
Saw set and gage	C. F. Heath	482,250	Sept. 6	533	127	60	1438
Saw-setting machine	F. J. Drake	482,024	Sept. 13	1169	283	60	1576
Saw-straining device	M. Jincks	481,496	Aug. 23	2837	698	60	1166
Saw-swaging device	A. L. Navone	478,886	July 12	1254	310	60	263
Saw. Swinging	B. Bronson	481,744	Aug. 30	3246	790	60	1260
Saw-tooth	J. W. Todd	481,836	Aug. 30	3400	835	60	1289
Saw-tooth-setting machine	J. R. Little	483,497	Sept. 27	2529	636	60	1868
Saw. Veneer	A. E. Hoffman	480,428	Aug. 9	1097	274	60	800
Sawing-machine	D. Chase	479,244	July 19	1821	457	60	381
Sawing-machine	A. Rodgers, Sr	482,319	Sept. 6	665	159	60	1465
Sawing-machine	A. Rodgers, Sr	482,697	Sept. 13	1279	313	60	1599
Sawing-machine	A. Wadsworth	483,315	Sept. 27	2284	574, 575	60	1819
Sawing-machine. Cut-off	M. E. and C. C. Blood	479,049	July 19	1512	377	60	324
Sawing machine. Drag	L. Forsman	481,555	Aug. 30	2938	722	60	1201
Sawing machine. Rail	E. C. Smith and J. Brady	481,874	Aug. 30	3456	848	60	1301
Sawing-machine. Portable band	A. C. Speer	482,103	Sept. 6	297	70	60	1393
Sawing machine. Power hack	O. Colborne	479,309	July 26	2081	522	60	447
Sawing up slabs, &c. Machine for	S. Maffett and R. Weir	482,799	Sept. 20	1445	358	60	1643
Scaffold	J. Dunbar	482,625	Sept. 13	1171	283	60	1577
Scaffold-bracket	F. B. Gilbreth	479,591	July 26	2394	596	60	507
Scaffold. Portable window	C. Ragsdale	479,662	July 26	2501	623	60	527
Scale attachment	A. and C. Stauber	480,046	Aug. 2	466	118	60	671
Scale. Registering pendulum	L. F. Robare	482,138	Sept. 6	345	83	60	1403
Scale. Pendulum	J. P. Armstrong	478,534	July 5	735	179	60	146
Scale. Spring	D. Olmsted	482,831	Sept. 20	1485	370	60	1652
Scales. Weighing	L. E. A. Kovsky	478,699	July 12	959	238	60	206
Scalpel	E. C. Judd	480,020	Aug. 2	419	105	60	661
Scissors-sharpener	E. Willbrandt	479,102	July 19	1594	399	60	339
Scourer: *See* Rice-scourer.	G. S. Collum	479,737	July 26	2645	656	60	553
Scraper. Earth	J. D. Brainard	482,711	Sept. 13	1301	318	60	1603
Scraper or cleaner for boots or shoes	F. A. Cahn	478,845	July 12	1203	299	60	254
Scraper. Road	J. M. Brooks	481,160	Aug. 23	2279	562	60	1060
Scraper. Road	S. B. Jamieson	483,303	Sept. 27	2267	570, 571	60	1816
Scraper. Wheeled	J. S. Palmer	483,081	Sept. 20	1883	477	60	1732
Screen: *See* Coal-screen. Sand-screen. Coal-scuttle screen. Window-screen. Door or window screen. Window and door screen.	C. Rath	482,414	Sept. 13	829	199	60	1511
Screw	L. J. H. Vinson	481,445	Aug. 23	2753	677	60	1149
Screw and making the same. Wood	C. D. Rogers	479,175	July 19	1712	429, 430	60	361
Screw-cutting machine	J. A. Hamer	483,112	Sept. 20	1932	489	60	1742
Screw-driver. Changeable-speed	H. Hubbell	481,304	Aug. 23	2529	621	60	1106
Screw-driving and washer-feeding machine	F. W. Tobey	480,530	Aug. 9	1251	314, 315	60	832
Screw-jack	F. H. Sleeper	479,850	Aug. 2	113	28	60	604
Screw. Jack	W. H. Wild	483,487	Sept. 27	2515	633	60	1865
Screw-stopper for water-bags, &c	G. H. F. Schrader	483,330	Sept. 27	2308	580	60	1824
Screw-swaging die	H. P. Boyd	478,219	July 5	237	58	60	49
Screw-threading die	R. J. Dearborn	480,175	Aug. 2	663	169	60	708
Scrubbing and sweeping machine. Combined	G. M. Bennett	479,616	July 26	2434	606	60	514
Scrubbing-machine	H. Prud'homme	478,636	July 12	874	215, 216	60	189
Sculpture. Translucent	F. A. Shaw	478,765	July 12	1071	266	60	228
Sea-walls. Construction of	B. C. Kenway	482,059	Sept. 6	224	53	60	1379
Seal	E. J. Brooks	481,892	Aug. 30	3486	854	60	1307
Seal. Envelope	S. E. Cheeseman	481,472	Aug. 23	2798	688	60	1157
Seal-lock	H. Denis	479,975	Aug. 2	317	78	60	642
Seal-lock	J. Dowling	482,118	Sept. 6	320	76	60	1398
Sealed can	W. Simpson and J. George	481,206	Aug. 23	2345	578	60	1073
Sealing device	G. W. Carnrick	482,055	Sept. 6	217	51	60	1377
Seam folder. Double	L. Wurzburg	482,216	Sept. 6	485	116	60	1429
Seam-pressing frame	H. L. Totten	478,723	July 12	996	247	60	214
Seaming-machine	F. J. Kellogg	480,589	Aug. 9	1343	335	60	851
Seaming machine. Can	G. F. E. Kanzleiter	481,033	Aug. 16	2035	508	60	1001
Seat: *See* Adjustable seat. Vehicle jump-seat. Operator's seat. Velocipede-seat. Tilting seat. Window-seat. Vehicle-seat.	C. W. Ellsworth	478,580	July 12	799	197	60	174
Seat	C. C. A. Schindler	483,265	Sept. 27	2211	555	60	1806
Seat	C. C. A. Schindler	483,266	Sept. 27	2212	556	60	1806
Seats and valves. Hardening	J. Powell	481,332	Aug. 23	2577	633	60	1115
Seats. Reversible back for car or other	M. N. Forney	482,447	Sept. 13	886	213, 214	60	1521
Secondary battery	A. E. Colgate	479,753	July 26	2069	663	60	558
Secondary battery	J. H. Gerry and C. E. Long	478,230	July 5	202	65	60	53
Secondary battery	W. W. Griscom	481,560	Aug. 30	2946	723	60	1203
Sectional boiler. Cast-iron	H. A. Smith	482,657	Sept. 13	1207	294, 295	60	1584
Seed-delinting machine. Cotton	J. H. McCormick	481,416	Aug. 23	2708	666	60	1140

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Seeder	F. A. Crane	482,470	Sept. 13	924	225	60	1598
Seeder, roller, and pulverizer	H. W. Campbell	479,342	July 19	1818	455, 456	60	381
Seeding-machine driving-gear	T. H. Noxon	481,539	Aug. 23	2909	714	60	1180
Seesaw	C. A. Woodbury	481,994	Sept. 6	111	28	60	1356
Semaphore-signal	P. G. Stuart	479,316	July 19	1921	480	60	401
Separating apparatus	E. L. Howe	478,159	July 5	132	33	60	29
Separating particles of different degrees of specific gravity	O. B. Peck	479,453	July 26	2178	544	60	467
Separating powdered or finely-divided particles, &c	O. B. Peck	479,455	July 26	2182	545, 546	60	468
Separating powdered or finely-divided particles	O. B. Peck	479,953	Aug. 2	278	68, 69	60	635
Separator: *See* Grain-separator. Phosphate-separator. Magnetic separator. Wheat-separator. Ore-separator.	A. A. Gonbert	482,354	Sept. 13	737	177	60	1494
Separator	J. R. Berthelet	479,617	July 26	2436	607	60	514
Separator for crushed cement, &c	J. Wilson	479,865	Aug. 2	139	34	60	608
Sewage-purifying apparatus	J. Wilson	479,866	Aug. 2	140	34	60	609
Sewage-purifying apparatus	J. Wilson	482,052	Sept. 6	211	50	60	1376
Sewage-purifying apparatus	J. Wilson	482,053	Sept. 6	213	51	60	1377
Sewage separating and purifying apparatus	W. F. Goodhue	478,539	July 5	741	181	60	147
Sewer-trap	R. Newton	478,808	July 12	1147	284	60	243
Sewerage system. Pneumatic	C. T. Liernur	482,439	Sept. 13	873	208, 209	60	1519
Sewing-machine	A. W. Bigelow	480,229	Aug. 2	761	192	60	726
Sewing-machine	W. F. Dial	480,181	Aug. 2	670	170, 171	60	710
Sewing-machine	G. H. Dimond	479,739	July 26	2647	656, 657	60	554
Sewing-machine	G. H. Dimond	479,740	July 26	2650	657	60	554
Sewing-machine	C. B. Hunt	483,454	Sept. 27	2477	623	60	1857
Sewing-machine	F. Kern	479,369	July 19	2022	505	60	422
Sewing-machine	E. Patten	481,266	Aug. 23	2460	606	60	1095
Sewing-machine	M. H. Pearson	479,838	Aug. 2	96	24, 25	60	601
Sewing-machine	J. Vannette	480,298	Aug. 9	888	225	60	763
Sewing-machine attachment	A. A. Bouton	483,097	Sept. 20	1910	483	60	1737
Sewing-machine clamp. Buttonhole	C. A. French	478,586	July 12	807	199	60	175
Sewing-machine feed-regulating attachment	R. Todd	478,660	July 12	907	225	60	195
Sewing-machine for finishing buttonhole-pieces	J. Reece	479,572	July 26	2371	591	60	503
Sewing-machine frame	B. F. Bellows	482,958	Sept. 20	1695	426	60	1692
Sewing-machine quilting attachment	J. W. Clayton	482,467	Sept. 13	913	223	60	1526
Sewing-machine loop-taker	W. F. Dial	480,180	Aug. 2	668	170	60	709
Sewing-machine loop-taker	W. F. Dial	480,182	Aug. 2	674	171	60	710
Sewing-machine needle-bar	P. Diehl	478,576	July 12	794	196	60	173
Sewing-machine needle. Cylindrical	M. R. Thurston	480,150	Aug. 2	622	157	60	701
Sewing-machine needle-threader	E. C. Jenkins	479,426	July 26	2131	532	60	457
Sewing-machine needle-threader	E. C. Jenkins	479,427	July 26	2132	533	60	458
Sewing-machine needle-threader	E. C. Jenkins	479,428	July 26	2133	533	60	458
Sewing-machine. Overseaming	P. Diehl	478,994	July 19	1429	354	60	308
Sewing-machine plaiting attachment	J. G. Greene	480,260	Aug. 9	828	211, 212	60	752
Sewing-machine presser-foot	J. Douglas	478,095	July 5	31	10	60	9
Sewing-machine quilting attachment	C. W. Delany	480,252	Aug. 9	805	207	60	747
Sewing-machine quilting-frame	G. M. Moore and G. W. Steen	479,654	July 26	2402	621	60	525
Sewing-machine scalloping attachment	G. W. Kemp	483,496	Sept. 27	2527	636	60	1868
Sewing machine. Shoe	J. A. True	480,882	Aug. 16	1800	450	60	956
Sewing-machine shuttle	A. M. Leslie	482,850	Sept. 20	1515	377	60	1658
Sewing-machine thread-controlling device	S. W. Wardwell, Jr	482,215	Sept. 6	483	115, 116	60	1429
Sewing-machine trimmer	R. G. Woodward and C. Timm	480,377	Aug. 9	1012	254	60	786
Sewing-machine tuck-creaser	H. P. Steward	481,599	Aug. 30	3008	736	60	1214
Sewing-machine waxing device	M. H. Pearson	483,083	Sept. 20	1886	477	60	1732
Sewing-machines. Carriage for carrying and operating	M. W. Lawrence	482,829	Sept. 20	1483	369	60	1652
Sewing straw covers for bottles. Machine for	V. Fleckenstein	480,082	Aug. 2	515	131, 132	60	680
Shade attachment. Window	H. L. Hall	483,490	Sept. 27	2519	634	60	1866
Shade fixture. Window	J. C. Perkins	479,766	July 26	2696	671	60	563
Shade-holder	F. Adams	482,887	Sept. 20	1580	398, 399	60	1670
Shade-holder	E. F. Gennert and J. F. Cunningham	480,425	Aug. 9	1095	273	60	800
Shade or screen. Window	M. M. Killinger	482,798	Sept. 20	1443	358	60	1643
Shade-roller. Spring	J. C. Perkins	481,733	Aug. 30	3224	787	60	1255
Shade-rollers. Spindle-tip for spring	J. C. Perkins and L. E. Leigh	482,563	Sept. 13	1082	263	60	1560
Shade. Window	M. M. Killinger	482,797	Sept. 20	1442	357	60	1642
Shaft-coupling	C. W. Barnaby	481,092	Aug. 16	2150	534	60	1022
Shaft guard. Vehicle	F. De La Matyr	482,726	Sept. 20	1328	324	60	1620
Shaft. Sectional vehicle	W. J. Pohrer	483,474	Sept. 27	2498	629	60	1862
Shaft support. Vehicle	H. L. Cordrey	479,631	July 26	2457	612	60	519
Shaft. Vehicle	G. A. Fraas	480,860	Aug. 16	1783	440	60	953
Shafts. Bending vehicle	O. A. Goldsworthy	482,475	Sept. 13	929	227	60	1529
Shafts. Vehicle	W. R. Cullison	482,471	Sept. 13	925	226	60	1528
Shafting-hanger	A. H. Wagner	482,287	Sept. 6	599	142	60	1452
Shavings-washing machine	R. H. Herder	482,684	Sept. 13	1254	306	60	1593
Sheaf-carrier	W. A. Kirby	481,144	Aug. 16	2343	552, 553	60	1039
Shearing-machine	J. M. Long	479,122	July 19	1631	408	60	345
Shears: *See* Animal-shears. Rotary shears. Metal-shears.	H. Herder	479,090	July 19	1576	395	60	395
Shears	E. A. Sanders	481,900	Aug. 23	2395	575	60	1071

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Shears	T. N. Underwood	482,857	Sept. 20	1526	379	60	1660
Sheep-shearing machine	A. Melchior	478,286	July 5	357	87	60	72
Sheet-metal articles. Forming-machine for	S. O'Brien	483,362	Sept. 27	2345	590	60	1831
Sheet-metal articles. Means for ornamenting	B. M. Abell and W. Ostrander	482,837	Sept. 20	1495	372	60	1654
Sheet-metal-bending machine	J. Clark	480,396	Aug. 9	1044	262	60	792
Sheet-metal cans. Apparatus for forming and soldering	W. P. Quentell	480,034	Aug. 2	443	112	60	666
Sheet metal. Die for drawing	E. Norton	483,008	Sept. 20	1773	113	60	1709
Sheet metal. Forming hollow balls, &c., from	J. Burkhardt	480,708	Aug. 16	1547	449	60	1709
Sheet metal. Machine for edge-curling	W. J. Gordon and E. D. Gilbert	482,902	Sept. 20	1701	385	60	903
Sheet metal. Scaling	J. W. Britton	479,780	Aug. 2	10	429	60	1693
Sheet-metal vessels. Method of and machine for treating the margins of	C. M. Brown and E. P. Holden	479,181	July 19	1722	430	60	584
Shelf. Corner bracket	J. D. Legg	483,069	Sept. 20	1864	472	60	1728
Shelf. Hanging window	W. A. Thompson	482,502	Sept. 13	979	237	60	1540
Shelving. Adjustable	C. H. Godfrey	478,509	July 5	987	167	60	136
Shingle-gage	J. W. Bacon	478,306	July 5	387	93	60	78
Shingle scoring and marking machine	J. T. Rush	481,198	Aug. 23	2329	574	60	1071
Ship conveyance. Overland	W. R. Kinipple	481,405	Aug. 23	2088	660	60	1135
Ships. Ash-ejector for	H. See	482,759	Sept. 20	1367	344	60	1632
Ship's log	J. S. Negus	481,941	Aug. 23	2407	594	60	1085
Ships' magazines. Device for flooding	W. Tait	482,982	Sept. 6	590	140	60	1450
Shipping-flask for anhydrous ammonia	T. J. Goldschmid	479,592	July 26	2396	141	60	507
Shirt	C. H. Brown	478,082	July 5	12	597	60	5
Shirt	A. Meyère	481,504	Aug. 23	2847	3	60	1167
Shock-controlling device	P. H. Irgens	478,434	July 5	575	609	60	112
Shoe	E. McDonald	482,456	Sept. 13	901	139	60	1524
Shoe	H. Newcomb	482,134	Sept. 6	340	219	60	1402
Shoe-fastening	A. D. Field	483,144	Sept. 27	1980	81	60	1762
Shoe-fastening	J. H. Poulter	480,133	Aug. 2	599	501	60	696
Shoe-fastening	H. S. Pullman	481,638	Aug. 30	3062	152	60	1224
Shoe-fastening	E. E. Stacy	479,965	Aug. 2	367	748	60	651
Shoe-horn	D. Cady	481,253	Aug. 23	2443	91	60	1092
Shoe-nailing machine	E. D. Childs	479,784	Aug. 2	15	602	60	585
Shoe-soles. Machine for grooving	G. Bryant	483,319	Sept. 27	2292	4, 5	60	1821
Shoe-upper	J. C. Daggett	481,299	Aug. 23	2524	576	60	1105
Shoe. Ventilated	W. M. Helbach	479,805	Aug. 2	47	620	60	591
Shoe. Waterproof	E. Roche	483,289	Sept. 27	2240	11	60	1813
Shoes, gloves, &c., and lace therefor. Fastening for	P. Koppenhöfer	479,218	July 19	1778	566	60	373
Shopping-bag. Lady's	H. C. Milligan	481,116	Aug. 16	2185	446	60	1029
Shoulder-brace	W. J. Teufel	482,768	Sept. 20	1406	541	60	1635
Shovel	P. Poulson	481,972	Sept. 6	76	347	60	1349
Show-case	J. C. Loughry	478,619	July 12	853	20	60	184
Shutter-bower	H. Reichwein	480,136	Aug. 2	604	209	60	697
Shutter-fastener	G. H. Glad	481,111	Aug. 16	2179	539	60	1098
Shutter-fastener	E. W. Hagee	482,946	Sept. 6	528	540	60	1437
Shutter-fastener	C. L. Walters	482,111	Sept. 6	307	196	60	1395
Shutter. Fire-protecting	W. H. Brodie	480,394	Aug. 9	1042	72	60	791
Shutter stand. Window	A. D. Webster	480,771	Sept. 20	1400	262	60	1635
Shutter-worker	J. S. Patten	482,562	Sept. 13	1081	348	60	1560
Shutter-worker	E. H. Price	479,155	July 19	1677	262	60	354
Shutter-worker	N. Saltmarsh	481,705	Aug. 30	3169	419	60	1245
Sieve	W. L. Armstrong	478,976	July 19	1399	774	60	303
Sieve-surface	O. Schnelle	483,170	Sept. 27	2032	347	60	1773
Sifter	J. Charlesworth	482,545	Sept. 13	1055	514	60	1555
Sifter. Flour	I. M. Ingram	482,576	Sept. 13	1099	256	60	1563
Sifter. Hand	J. R. Storie	482,511	Sept. 13	990	366	60	1543
Sign-board. Interchangeable	I. Emmer	480,255	Aug. 9	809	240	60	748
Sign having ornamental letters or designs in relief formed of a composite material and making the same	E. E. M. Mandigo	480,371	Aug. 9	1003	308	60	785
Sign. Lamp-post	C. F. Knechler	479,006	July 19	1446	252	60	311
Signal:							
See Fog-signal. Railway-signal. Railway-switch signal. Railway time-signal. Semaphore-signal. Torpedo-signal. Train-signal.							
Signal and stand	G. T. Brown	483,420	Sept. 27	2434	359	60	1849
Signal apparatus. Individual alarm	P. Seller	479,308	July 19	1909	612	60	1849
Signal-compensator	J. J. Turner	479,230	July 19	1795	477	60	399
Signal-compensator	J. J. Turner	479,380	July 19	2040	450	60	376
Signal-light	H. Cochran	479,164	July 19	1690	509	60	425
Signal-rocket for vessels	T. W. Hand and W. Teale	480,012	Aug. 2	396	423	60	357
Signal-sounding device. Coin	C. W. Holbrook	481,903	Aug. 30	3506	98	60	657
Signal-timing apparatus	H. A. Chase	481,613	Aug. 30	3027	859	60	1310
Signal-wires. Compensator for	S. W. Babcock	481,922	Sept. 6	3	740	60	1217
Signaling apparatus. Electric	W. L. Denio	478,789	July 12	1114	1	60	1335
Signaling apparatus. Electric	A. J. Wilson	479,928	Aug. 2	236	275	60	236
Signaling apparatus. Train	J. M. Henry and R. B. Wilson	482,126	Sept. 6	331	276	60	628
Signaling apparatus. Train	H. R. Mason	483,256	Sept. 27	2196	59	60	1400
Signaling apparatus. Train	H. R. Mason	483,257	Sept. 27	2199	592	60	1804
Signaling device	R. T. Bowne	479,396	July 26	2076	553	60	1804
Signaling-system indicator. Electrical	C. F. Gillette	478,324	July 5	412	591	60	446
Silk-manufacturing machinery	L. Dimock	483,284	Sept. 27	2238	99	60	83
Silk or other fibers. Apparatus for degumming	W. H. Whiteley	483,335	Sept. 27	2314	562	60	1811
Siphon	J. Hilditch	478,108	July 5	46	563	60	1825
Siphon. Elevating	E. Etève and J. Lemichel	479,411	July 26	2099	581	60	11
Sirup-gage	J. E. Jacobs	478,330	July 5	421	526	60	450
Skate	W. Nielson	480,610	Aug. 9	1376	102	60	24
					342	60	857

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Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Skate	J. Warner	480,051	Aug. 2	472	121	60	672
Skate. Roller	J. Carrie	482,721	Sept. 20	1321	323	60	1619
Skewer or needle for closing fowls, &c	E. Musso	482,969	Sept. 20	1713	432	60	1696
Skewer-pointing machine	J. H. and H. L. Berst	483,205	Sept. 27	2089	530	60	1784
Skins, &c. Apparatus for scouring and washing	T. Burns	478,499	July 5	667	163	60	132
Skins, &c. Machine for treating	O. Potelunc	479,460	July 26	2191	549	60	470
Skirt-elevator	J. Asten	478,076	July 5	1	1	60	3
Skirt-supporter	G. V. Smith	480,523	Aug. 9	1239	311	60	830
Skiving machine. Counter	M. C. Bowman, A. F. Rose, and C. B. Morse.	483,500	Sept. 27	2553	640	60	1872
Slabs, &c. Apparatus for making	A. McLean	478,757	July 12	1054	259	60	225
Sled. Bob	S. F. Sparr	481,643	Aug. 30	3069	749	60	1226
Sled-brake	P. T. Denio	481,480	Aug. 23	2812	691	60	1160
Sled-brake	J. Wennberg	482,029	Sept. 6	177	42	60	1369
Sleigh	A. F. Pine	479,154	July 19	1677	419	60	354
Sleigh-brake	D. Collard	483,429	Sept. 27	2444	615	60	1851
Sleigh-runner. Detachable	C. G. Warner	480,302	Aug. 9	894	227	60	765
Sliding gate	D. Walker	480,155	Aug. 2	630	159	60	703
Sliding gate	M. L. Walters	480,755	Aug. 16	1610	404	60	918
Slipper	J. D. Chantler	483,346	Sept. 27	2149	544	60	1795
Smelting-furnace	J. S. Oliver	480,699	Aug. 9	1528	379	60	886
Smelting-furnace. Reverberatory	H. Mathey	481,703	Aug. 30	3165	773	60	1244
Smoke and spark arrester and consumer	E. J. Hadlock	483,055	Sept. 20	1846	469	60	1794
Smoke-burner	T. Lustig	478,447	July 5	594	144	60	117
Smoke-consumer	T. Gunning	482,124	Sept. 6	329	78	60	1399
Smoke-consumer	J. Sargent	481,719	Aug. 30	3201	782	60	1251
Smoke-consuming furnace	E. Cartwright	478,401	July 5	598	129	60	104
Smoke-consuming furnace	W. Oehlstrom	483,237	Sept. 27	2139	542	60	1793
Smoke-consuming furnace	R. L. Walker	479,100	July 19	1591	398	60	338
Smoke-excluding hood	C. Herlick	478,429	July 5	568	137	60	111
Smoke-preventer	C. Smith	480,630	Aug. 9	1416	353	60	865
Smoke-stack spark and cinder attachment	B. W. Sweet	478,296	July 5	369	90	60	74
Snap-hook	J. L. Cox	482,302	Sept. 6	624	149	60	1457
Snap-hook	W. R. Smeal	479,026	July 19	1479	368	60	317
Snap-hook	J. A. Trant	480,792	Aug. 16	1667	417	60	929
Snap-switch	F. D. Goold	480,722	Aug. 16	1564	390	60	907
Snap-switch	J. Hutchinson	480,948	Aug. 16	1905	476	60	977
Snatch-block	A. C. French	481,020	Aug. 16	2020	505	60	998
Snow-plow	A. B. Black	482,720	Sept. 20	1320	322	60	1618
Soap	H. J. and G. F. Ecker	480,840	Aug. 16	1730	.....	60	943
Soap	J. Gray and A Simmons	481,860	Aug. 30	3436	.....	60	1297
Soda-ash. Apparatus for reclaiming	L. D. Armstrong	480,702	Aug. 16	1538	383	60	901
Solar or other bath	W. H. Whiteley	478,385	July 5	604	122	60	100
Solder for aluminium	J. W. Richards	478,238	July 5	263	.....	60	57
Soldering clamp. Can	R. Clark	480,550	Aug. 9	1294	324	60	841
Soldering. Electric	E. Thomson	480,302	Aug. 9	1038	201	60	791
Soldering machine. Can	D. M. Monroe	483,234	Sept. 27	2133	540	60	1702
Soldering machine. Can	W. P. Quentell	479,174	July 19	1710	541	60	360
Sole	H. W. Merrill	481,909	Aug. 30	3523	802	60	1314
Sole	H. Wooding	481,682	Aug. 30	3132	764	60	1238
Sole-edge-burnishing machine	G. A. Knox	480,021	Aug. 2	420	105	60	661
Sole-edge-laying machine	E. C. Woodard	478,299	July 5	378	91	60	76
Sole-machine	M. V. Bresnahan and J. J. Heys	479,053	July 19	1518	378	60	325
Sole-machine	F. A. Bugbee	480,317	Aug. 9	920	232	60	769
Sole or heel plate	G. J. Davison	481,478	Aug. 23	2810	691	60	1160
Sole-pressing machine	W. E. Forster	478,420	July 5	556	135	60	109
Sole-trimming machine	J. R. Scott	483,393	Sept. 27	2398	603	60	1841
Solution of myrrh-resin and making the same	A. Fligge	479,935	Aug. 2	251	.....	60	630
Spade	P. Poulson	479,661	July 26	2500	623	60	527
Spark-arrester	J. F. Landreth	479,283	July 19	1873	469	60	393
Spark-arrester	F. B. Pope	478,359	July 5	470	114	60	93
Spark-arrester	H. C. Smith	478,207	July 5	215	54	60	44
Spark-arrester	E. W. Smith and C. Sax	480,390	Aug. 9	1034	259	60	790
Spatula	C. W. Fox	479,937	Aug. 2	252	62	60	631
Speaking-tube exchange	L. Stronse	478,380	July 5	498	121	60	98
Spear. Casing	J. Carruthers	479,933	Aug. 2	249	61	60	630
Spectacles	M. W. Davis	481,552	Aug. 30	2934	720	60	1200
Speed-governor attachment	W. B. and H. F. Warner	479,040	July 19	1501	373	60	321
Speed-indicator	I. N. Lewis	480,107	Aug. 2	550	139	60	687
Sphere. Armillary	J. S. Slater	482,278	Sept. 6	582	139	60	1448
Spinal brace	C. G. Gümpel	479,326	July 19	1931	483	60	404
Spindle:							
See Spinning and twisting machine spindle. Spinning-machinery spindle.							
Spindle	J. Longinus	482,259	Sept. 6	551	131	60	1442
Spindle and flier	J. Baldner	480,163	Aug. 2	646	164	60	705
Spindle-driving device	W. G. Morrison	479,806	Aug. 2	184	45	60	618
Spindle ends. Machine for cutting	J. A. Williams	482,934	Sept. 20	1650	416	60	1684
Spindle-support	H. F. Woodmancy	480,985	Aug. 16	1972	493	60	989
Spindles. Means for driving	H. Greenwood	478,260	July 5	349	84	60	70
Spinning and twisting frames. Holder for rings in	J. H. Bennett	480,227	Aug. 2	758	192	60	726
Spinning and twisting machine spindle	H. F. Woodmancy	480,984	Aug. 16	1971	493	60	988

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Spinning and twisting machines. Traverse-motion for	R. Dawes	481,787	Aug. 30	3319	810	60	1275
Spinning frames. Traveler for ring	S. S. Fowler	478,256	July 5	315	811	60	63
Spinning-machine	L. D. Croes, E. Rodenbach-Mergaert, and J. Lapin.	482,003	Sept. 6	129	31, 32	60	1360
Spinning-machine	W. S. Hunter and W. H. Avis	481,278	Aug. 23	2485	612	60	1099
Spinning-machinery spindle	E. F. Krafft	482,091	Sept. 6	276	67	60	1390
Spinning mule. Cotton	C. A. Dam	478,738	July 12	1031	253	60	220
Spinning mule. Cotton	C. A. Dam	483,301	Sept. 27	2265	570	60	1816
Spinning-ring	J. Booth	483,297	Sept. 27	2260	569	60	1815
Spinning-spindle support	J. Blair	482,860	Sept. 20	1529	380	60	1661
Spirometer	H. G. Cady	482,336	Sept. 13	699	167	60	1496
Spirometer. Coin-controlled	O. D. Orvis	481,965	Sept. 6	63	16, 17	60	1347
Spittoon. Combustible pocket	J. Koehler	478,873	July 12	1232	306	60	259
Split wheel	C. M. Conradson	482,864	Sept. 20	1537	382	60	1662
Spoke-extractor	W. F. Bowe	481,342	Aug. 23	2589	636	60	1117
Spokeshave	E. D. White	483,294	Sept. 27	2255	567	60	1814
Spoke-tenon cutter	A. Bruner	481,469	Aug. 23	2795	687	60	1156
Spool-boring mechanism	J. M. Parker	479,173	July 19	1704	427	60	360
					428		
Spool-holder	E. Carpenter	479,554	July 26	2347	585	60	498
Spool-holder and thread-cutter. Combined	A. Eichhorn	480,455	Aug. 9	1147	287	60	810
Spoon	P. C. Goodwin	483,379	Sept. 27	2381	597	60	1838
Spoon-blank-swaging die	H. C. Hart	478,860	July 12	1218	302	60	257
Sporting-trap	R. S. Pease	480,130	Aug. 2	591	150	60	695
					151		
Spraying-machine	F. Salisbury	481,718	Aug. 30	3197	781	60	1250
Spring: *See* Bicycle-saddle spring. Door-spring. Vehicle-spring.							
Spring	G. L. Potter	481,971	Sept. 6	75	20	60	1349
Spring bending and forming machine	E. W. Ansted	483,094	Sept. 20	1907	482	60	1736
Spring-coiling machine. Spiral	J. Vermeulen	481,443	Aug. 23	2750	676	60	1148
Spring-motor	J. F. Lang and J. W. Roper	481,714	Aug. 30	3182	777	60	1248
					778		
Springs. Machine for knotting the ends of spiral	P. Fraser	481,396	Aug. 23	2675	656	60	1132
					657		
Springs. Machine for making spiral	P. Fraser	481,395	Aug. 23	2668	654	60	1131
					655		
					656		
Springs. Shackle for coupling	C. E. Dobbins	481,107	Aug. 16	2174	538	60	1026
Sprinkler: *See* Automatic sprinkler. Lawn-sprinkler.							
Sprinkler	J. B. Haberle	479,506	July 26	2281	570	60	486
Sprinkler	J. R. Steitz	480,047	Aug. 2	467	118	60	671
Sprinkler-heads. Device for plugging	J. R. Steitz	480,048	Aug. 2	468	119	60	671
Sprinkler system	G. E. Wright	478,181	July 5	174	45	60	37
Sprinkling apparatus	W. C. Shaffer	480,747	Aug. 16	1598	401	60	915
Sprinkling device	G. S. Glenn	479,979	Aug. 2	322	79	60	643
Sprout-puller	J. L. Sardy	481,873	Aug. 30	3455	847	60	1300
					848		
Square. Adjustable T	G. T. Cull	481,897	Aug. 30	3498	857	60	1308
Square. Folding	R. McCheseney	483,499	Sept. 27	2533	637	60	1869
Square. Separable	W. H. Goldsberry	482,900	Sept. 20	1609	403	60	1675
Squaring metallic boxes, frames, &c. Machine for	F. F. Poole	481,637	Aug. 30	3061	747	60	1224
Stage. Balanced	J. Baum	481,998	Sept. 6	116	29	60	1358
Stair-builder's tool	M. Richter	478,467	July 5	623	151	60	123
Stairs, &c. Tread for	W. T. Gagnebin	482,350	Sept. 13	730	175	60	1493
Stalk-cutter	J. and J. Mason and W. S. Codner	481,702	Aug. 30	3164	773	60	1244
Stamp-affixing machine	H. W. Allen	478,676	July 12	933	232	60	200
Stamp. Coin-actuated	W. M. Gray	483,250	Sept. 27	2155	546	60	1797
Stamp. Hand	H. W. Rosenbaum and E. Neubert	480,966	Aug. 16	1940	485	60	992
Stamp. Hand	H. Baumgarten	479,199	July 19	1751	439	60	367
Stamp. Hand	T. S. Buck	483,343	Sept. 27	2323	584	60	1827
Stamp holder. Postal	F. C. Lidke	481,362	Aug. 23	2614	643	60	1121
Stamp or label affixer	B. Pickering	480,509	Aug. 9	1221	306	60	826
Stamp. Post-office hand	W. B. Shafer	478,764	July 12	1070	266	60	228
Stamp. Registering	E. J. Brooks	481,296	Aug. 23	2519	619	60	1104
Stamp. Registry	H. W. Rosenbaum and E. Neubert	480,965	Aug. 16	1918	485	60	992
Stamp. Rotary hand	F. A. Lovecraft	480,819	Aug. 16	1714	426	60	938
Stamp-shoes. Die-holder and die for making	G. A. Picknp and W. J. Towry	481,969	Sept. 6	72	19	60	1349
Stamp. Steam	J. Wilson, Sr.	481,067	Aug. 16	2136	522	60	1020
Stamp. Steam	E. S. Brett	478,393	July 5	513	125	60	101
Stamp. Steam-power	C. W. Tremain	480,223	Aug. 2	752	190	60	724
	C. A. Marlitt	480,332	Aug. 9	940	238	60	773
					239		
Stamp. Time	S. H. Hoggson	483,151	Sept. 27	1992	505	60	1764
					506		
Stanchion. Cattle	J. Wasson	481,987	Sept. 6	99	25	60	1354
Stand: *See* Barrel-stand. Blacking-stand. Bottle-stand. Can-stand. Folding stand. Switch-stand. Umbrella-stand. Wash-stand.							
Stand for beer-glasses, &c	E. Weigel	482,603	Sept. 13	1137	274	60	1571
Stands. Folding base for	S. E. Reutter	480,346	Aug. 9	962	243	60	777
Standard	L. T. Stanley	480,749	Aug. 16	1602	401	60	916
Staple-driving implement	E. A. Porter	481,970	Sept. 6	74	19	60	1349
Staple forming and driving machine	T. L. Knudtson and J. Uhri	483,254	Sept. 27	2186	550	60	1802
					551		
Staples. Device for holding metallic	W. J. Brown	483,374	Sept. 27	2368	593	60	1836
Stapling implement	G. Hay	482,357	Sept. 13	741	178	60	1495
Stapling-machine attachment	H. E. Cunningham	481,786	Aug. 30	3318	810	60	1275
Starch and making the same. Perfumed	F. C. Norfolk	480,669	Aug. 9	1479	.....	60	876

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Starching-machine	C. T. Ray	480,344	Aug. 9	958	242	60	776
Steam and hot air. Apparatus for producing mixtures of	E. Field	479,707	July 26	2587	644	60	542
Steam, &c. Apparatus for recording and registering quantities of	F. Seiler	481,287	Aug. 23	2504	615	60	1102
					616		
Steam-boiler	G. L. Allen	478,677	July 12	934	232	60	200
Steam-boiler	H. F. Cook	478,690	July 12	950	236	60	204
Steam-boiler	O. Crosby	482,787	Sept. 20	1432	355	60	1640
Steam-boiler	D. Donahue	479,252	July 19	1831	459	60	384
Steam-boiler	E. F. Edgar	478,320	July 5	407	98	60	82
Steam-boiler	G. Lentz	481,796	Aug. 30	3334	813	60	1277
					814		
					815		
Steam-boiler	M. H. Plunkett	482,384	Sept. 13	788	189	60	1504
Steam-boiler	J. Pollock	482,459	Sept. 13	904	219	60	1524
Steam-boiler	M. Scovel	479,023	July 19	1473	366	60	316
					367		
Steam-boiler	F. T. Stevens	480,880	Aug. 16	1798	450	60	956
Steam-boiler	A. Stirling	479,678	July 26	2535	631	60	533
Steam-boiler and boiler-furnace	S. Runser	482,197	Sept. 6	452	109	60	1424
Steam-boiler and furnace	R. Müller	483,260	Sept. 27	2306	554	60	1805
Steam-boiler. Sectional	G. P. Steel	478,208	July 5	216	54	60	44
Steam-engine	M. A. Beck	483,127	Sept. 27	1955	496	60	1757
Steam-engine	W. E. Good	482,038	Sept. 6	187	45	60	1372
Steam-engine	J. C. Henderson and F. A. Phelps, Jr.	480,946	Aug. 16	1900	475	60	976
					476		
Steam-engine	J. D. Jackson	482,089	Sept. 6	273	66	60	1389
Steam-engine	J. W. Powers	483,014	Sept. 20	1791	452	60	1712
Steam-engine	T. Scheffler	480,213	Aug. 2	735	185	60	721
					186		
Steam-engine	C. W. Tremain and S. Johnson	480,153	Aug. 2	627	159	60	702
Steam-engine. Compound	R. Berg	482,116	Sept. 6	315	74, 75	60	1397
Steam-generator	H. C. Fish	480,365	Aug. 9	991	250	60	783
Steam-generator	H. Goering	480,719	Aug. 16	1561	389	60	907
Steam-generator	E. A. Magee	479,009	July 19	1452	360	60	312
					361		
Steam-generator	G. W. Sloane	481,069	Aug. 16	2113	526	60	1015
Steam-generator	T. L. and T. J. Sturtevant	480,417	Aug. 9	1078	270	60	797
Steam-power. Generation of	C. C. Peck	479,454	July 26	2179	545	60	467
Steam-trap	W. C. Baker	481,098	Aug. 16	2158	537	60	1024
Steam-trap	J. McKellar	481,507	Aug. 23	2849	700	60	1168
Steam-trap	N. Nilson	483,119	Sept. 20	1942	491	60	1744
Steam-trap	C. Taylor	481,601	Aug. 30	3011	736	60	1214
Steamer	V. F. Fagg	481,940	Sept. 6	32	7	60	1340
Steamer, lawn, or invalid chair	D. Parks	481,119	Aug. 16	2191	542	60	1030
Steaming or tempering grain. Device for	R. L. Rodman	482,590	Sept. 13	1119	270	60	1568
Steering-gear. Electric	E. H. Mumford	479,828	Aug. 2	85	21, 22	60	598
Stencils. Apparatus for making	E. de Zuccato	478,301	July 5	380	92	60	76
Stencils. Method of and apparatus for producing	J. L. Young	478,675	July 12	930	231	60	200
Step. Movable	F. Forster	482,572	Sept. 13	1094	266	60	1563
Stereopticons, magic lanterns, &c. Attachment for	H. W. Force	482,238	Sept. 6	513	122	60	1435
Still. Water	J. Petterson and L. H. Liebeck	478,458	July 5	606	148	60	120
Stirrup	R. H. Dacus	482,996	Sept. 20	1757	443	60	1705
Stirrup	E. A. Peacock	478,633	July 12	871	214	60	188
Stitching with staples. Machine for	R. Burnet	481,747	Aug. 30	3252	792	60	1261
Stocking	H. C. McClurg	482,095	Sept. 6	280	68	60	1391
Stocking-ribs. Device for transferring	F. Lasher	478,613	July 12	845	208	60	183
Stockings. Assortment of	W. H. Howard	478,751	July 12	1046	257	60	223
Stone and ore crushing machine	E. H. Booth	480,761	Aug. 16	1618	406	60	920
					407		
Stone. Blasting	G. M. Githens	479,500	July 26	2268	568	60	483
Stone. Composition of matter for artificial	J. E. Keseling and C. Fuchs, Jr	482,367	Sept. 13	755	.....	60	1498
Stone, &c. Composition of matter for cleaning brown-	H. J. and G. F. Ecker	483,143	Sept. 27	1980	.....	60	1762
Stone. Composition of matter for the manufacture of artificial	J. E. Keseling and C. Fuchs, Jr	480,591	Aug. 9	1346	.....	60	851
Stone. Composition of matter for the manufacture of artificial	J. E. Keseling and C. Fuchs, Jr	481,279	Aug. 23	2488	.....	60	1100
Stone-crusher elevator	I. P. Cribb	480,490	Aug. 9	1193	300	60	820
Stone cutting and dressing machine	J. Rawle	482,098	Sept. 6	284	69	60	1392
Stone cutting and dressing machine	J. Rawle	482,099	Sept. 6	288	69	60	1392
Stone-molding machine	W. H. Evans	478,226	July 5	256	62, 63	60	52
Stone paving-block. Artificial	F. Haines	481,352	Aug. 23	2602	639	60	1119
Stone paving-block. Artificial	F. Haines	481,353	Aug. 23	2604	640	60	1120
Stone paving-block. Artificial	F. Haines	481,354	Aug. 23	2605	640	60	1120
Stone slabs. Machine for molding	W. H. Evans	478,227	July 5	257	63, 64	60	52
Stool	P. H. Fuhrmann	482,553	Sept. 13	1070	260	60	1558
Stool and coal-receptacle. Combined	F. Bornemann	482,912	Sept. 20	1625	407	60	1678
Stop-motion for textile machinery. Electric	S. L. Foster	479,358	July 19	2003	501	60	418
Stopper: *See* Bottle-stopper. Can or vessel stopper. Inkstand-stopper. Screw-stopper.							
Stopper-extractor	R. Puccini	480,414	Aug. 9	1072	268	60	797
Storage-battery	P. Kennedy and C. J. Diss	482,043	Sept. 6	196	47	60	1374
Storage-battery	P. Kennedy and C. J. Diss	482,044	Sept. 6	199	47	60	1374
Storage-battery	E. R. Knowles	482,979	Sept. 20	1796	436	60	1699
					437		
Storage-battery	E. P. Usher	480,883	Aug. 16	1802	450	60	956
Storage-battery	E. P. Usher	480,885	Aug. 16	1804	451	60	957
Storage-rooms. Construction of	W. Griesser	482,889	Sept. 20	1588	399	60	1671
Store-service apparatus	J. J. Crist	481,346	Aug. 23	2594	637	60	1118
					638		
Store-service apparatus	J. H. Goodfellow	479,502	July 26	2270	569	60	484

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Store-service apparatus	J. H. Goodfellow	479,503	July 26	2275	569	60	485
Store-service apparatus	J. H. Goodfellow	479,504	July 26	2277	569, 570	60	485
Store-service apparatus	J. H. Goodfellow	479,505	July 26	2279	570	60	485
Store-service apparatus	C. W. McCormick	482,646	Sept. 13	1195	289, 290	60	1581
Stove	I. De Haven	481,226	Aug. 23	2386	588	60	1081
Stove	J. Fischer and E. Preiser	479,210	July 19	1766	443	60	370
Stove and draft-regulator therefor. Heating-	F. H. Riepe, Jr., and C. E. Hilgeman	481,870	Aug. 30	3450	846	60	1300
Stove and furnace. Combined	C. Brandt	482,466	Sept. 13	911	222	60	1526
Stove ash-box	L. Kahn and R. Christ	478,334	July 5	425	104	60	85
Stove attachment	W. Price	480,828	Aug. 16	1727	431	60	941
Stove-base. Auxiliary	J. D. Rasey	480,212	Aug. 2	734	185	60	721
Stove broiler attachment	T. P. Dunne	480,076	Aug. 2	508	129	60	679
Stove. Combined cooking and hot-water-heating	M. A. Wilcox	482,772	Sept. 20	1410	348, 349	60	1635
Stove. Cook	W. L. McDowell	478,807	July 12	1146	283, 284	60	243
Stove. Cooking, heating, and illuminating lamp	J. F. Myers	481,768	Aug. 30	3291	801	60	1209
Stove. Culinary and heating oil	V. E. Randall	481,511	Aug. 23	2854	701	60	1169
Stove-flue cleaner	T. B. Mothershed	479,447	July 26	2165	541	60	465
Stove for bricks, &c. Drying	A. Schaaf	483,018	Sept. 20	1797	453	60	1713
Stove for heating ovens for japanning, enameling, and glazing	T. M. Lincoln	482,485	Sept. 13	944	230	60	1532
Stove. Gas	J. B. Michener	482,094	Sept. 6	279	68	60	1390
Stove. Gas heating	E. Rund	483,086	Sept. 20	1893	479	60	1733
Stove-grate	C. L. Beers	483,295	Sept. 27	2257	568	60	1814
Stove-grates. Fuel-saving attachment for	A. Stocker	479,536	July 26	2318	579	60	494
Stove. Lamp	B. F. Brown	480,395	Aug. 9	1043	262	60	702
Stove. Oil	D. Balsley	480,544	Aug. 9	1275	320	60	837
Stove. Oil	W. M. Bowman and E. F. Shaw	482,539	Sept. 13	1042	252	60	1552
Stove or warm-air furnace	W. H. Turner	483,187	Sept. 27	2061	520, 521	60	1778
Stovepipe	G. G. Calderwood	483,207	Sept. 27	2092	530	60	1785
Stovepipe	T. S. Evans	481,856	Aug. 30	3431	842	60	1296
Stovepipe collar and fastener	A. D. and C. J. Grubb	483,441	Sept. 27	2461	619	60	1854
Stovepipe-coupling	F. P. Hart	481,026	Aug. 16	2028	506	60	1000
Stovepipe drying-rack	L. M. Dowler	480,658	Aug. 9	1461	363	60	873
Stovepipe-fastener	J. R. McGoron	482,808	Sept. 20	1453	361	60	1645
Stovepipe-fastener	C. Rusch	479,844	Aug. 2	103	26	60	602
Stovepipe-fastening	J. H. Johnston	478,965	July 12	1378	339	60	286
Stovepipe-holding device	C. F. Spencer	479,313	July 19	1917	479	60	400
Stovepipes. Elbow for facilitating the cleaning of	O. G. Cranston	480,173	Aug. 2	661	168	60	708
Stove. Portable	F. T. Schneider	478,820	July 12	1173	290	60	248
Stove. Tile	R. Meyer	480,603	Aug. 9	1367	339	60	854
Stove. Vapor	R. Flick	483,051	Sept. 20	1840	468	60	1723
Stove. Vapor	H. Ruppel	480,281	Aug. 9	856	218, 219	60	758
Stove. Vapor	L. Stockstrom	479,315	July 19	1919	479, 480	60	401
Stoves and furnaces. Means for securing glass plates in windowe of	L. C. Ballentine	478,904	July 12	1279	317	60	268
Stoves. Gas attachment for cooking	R. Bigley	478,558	July 12	770	188	60	168
Stoves or ranges. Oven-door for cooking	F. V. Knauss	483,117	Sept. 20	1939	491	60	1743
Stoves. Oven for oil, gas, or gasoline	H. F. Bartlett	478,211	July 5	219	55	60	45
Stoves. Valve for hot-blast	J. Kennedy	478,610	July 12	842	207	60	182
Stoves. Wick-tube for oil	R. Z. Liddle	480,268	Aug. 9	840	214	60	755
Strainer. Lid	H. S. Diack	481,166	Aug. 23	2389	564	60	1062
Straw and ensilage cutter	C. A. Pettet	480,508	Aug. 9	1221	305	60	826
Strawberry-vine cutter	W. H. Starks	479,996	Aug. 2	368	91	60	651
Straw-burner	G. A. Byor	482,862	Sept. 20	1532	381, 382	60	1662
Straw-cutter	J. Raatz	482,413	Sept. 13	828	198, 199	60	1511
Straw-stacker	J. R. Cooper	482,080	Sept. 6	258	62, 63	60	1386
Straw-stacker	C. E. Gaumer	483,213	Sept. 27	2098	532, 533	60	1786
Straw-stacker	L. D. Wells	482,513	Sept. 13	992	240	60	1543
Street-sweeper	H. F. Palmer	481,054	Aug. 16	2075	517, 518	60	1009
Street-sweeping machine	S. H. Rathburn	482,196	Sept. 6	451	109	60	1423
Street-sweeping machine	A. Voelkle	482,663	Sept. 13	1218	297	60	1586
Stringed instruments. Pick for	H. G. A. Smith	479,672	July 26	2522	628	60	531
Structural blank	E. C. Smith	481,207	Aug. 23	2349	578, 579	60	1074
Structure. Circular-roofed	C. Cunningham, Jr	481,347	Aug. 23	2597	638	60	1118
Studs, &c. Machine for closing the edges of	F. Mossberg	478,517	July 5	700	170	60	139
Stuffing-box	C. K. Longenecker	481,406	Aug. 23	2689	660	60	1135
Stump-extractor	P. Hansen	481,944	Sept. 6	36	8, 9	60	1341
Stump or rock extractor	O. S. Dietrich	479,974	Aug. 2	315	77	60	642
Submarine grapple	W. D. Walsh and J. A. Dowling	480,640	Aug. 9	1430	356	60	868
Sugar-mill feed-chute	J. Fisher	482,065	Sept. 6	267	64	60	1388
Sugar solutions. Apparatus for clarifying	E. W. Deming	479,250	July 19	1829	459	60	383
Sugar-washing apparatus	R. P. Johnson	482,179	Sept. 6	426	101	60	1418
Sulky	J. B. Armstrong	482,114	Sept. 6	312	74	60	1396
Sulky	E. S. Frazier	481,556	Aug. 30	2940	722	60	1202
Sulphur, carbonate of soda, and iron oxide. Recovering	G. Lunge and J. Dewar	480,109	Aug. 2	553	.....	60	688
Supporter: *See* Garment-supporter. Skirt-supporter. Hat-supporter. Umbrella-supporter.							
Supporting fixtures. Device for	J. T. Robb	480,744	Aug. 16	1595	400	60	915
Surface-gage	C. Neri	480,959	Aug. 16	1928	482	60	980
Surf-boat. Safety	W. C. Soule	478,650	July 12	894	221	60	193

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Surgical appliance	J. A. Vance	480,911	Aug. 16	1850	460	60	966
Surgical instrument	S. V. Bates	480,165	Aug. 2	649	164	60	706
Suspended rack	J. J. Newberry	479,523	July 26	2301	575	60	490
Suspender-end	C. C. Krouse, H. E. Myers, and C. L. Girard.	478,337	July 5	428	104	60	86
Suspender-end attachment	J. Lees, Jr.	481,360	Aug. 23	2612	642	60	1121
Suspender-end clasp	C. C. Krouse, H. E. Myers, and C. L. Girard.	478,339	July 5	430	105	60	86
Suspenders	J. P. Galvin	478,958	July 12	1362	336	60	284
Suspenders	E. Gutmann	482,963	Sept. 20	1702	430	60	1694
Suspenders	J. Katzenberg	478,335	July 5	426	104	60	85
Suspenders	C. C. Krouse, H. E. Myers, and C. L. Girard.	478,338	July 5	429	105	60	86
Suspension device	G. W. Baldwin	481,157	Aug. 23	2275	561	60	1059
Swaging-machine	J. Berry	480,228	Aug. 2	759	192	60	736
Swaging-machine	C. H. Yarington	483,091	Sept. 20	1901	480, 481	60	1735
Sweeping-machine	C. Bruso	480,231	Aug. 2	763	193	60	736
Sweeping-machine	E. O. Pease	478,942	July 12	1336	332	60	279
Swing	C. C. and I. Z. Alexander	482,217	Sept. 6	485	116	60	1430
Swing	J. H. Nicholson	479,524	July 26	2302	575	60	490
Swing	J. B. Sweetland	481,439	Aug. 23	2745	675	60	1147
Swinging bracket. Adjustable	N. R. Streeter	482,207	Sept. 6	469	112	60	1427
Swinging gate	M. Anderson	482,218	Sept. 6	487	116	60	1430
Swinging gate	J. D. White	479,905	Aug. 2	194	48	60	620
Switch: *See* Circuit-switch. Railway-switch. Cut-out switch. Safety-switch. Electric switch. Snap-switch. Electrolytic switch. Trolley-switch.							
Switch and signal apparatus	J. G. Schreuder	479,225	July 19	1787	448	60	374
Switch and signal apparatus	J. G. L. Schreuder	479,666	July 26	2514	635, 636	60	530
Switch and signal rods. Deflection-stand for	H. Williams	479,906	Aug. 2	195	48, 49	60	690
Switch-shifter	J. Gilstrap and M. L. Brown	483,053	Sept. 20	1844	468	60	1794
Switch-stand	V. J. Goetz	479,268	July 19	1852	464	60	388
Switch-stand	S. Jobe	482,870	Sept. 20	1550	387	60	1665
Syringe	F. W. Snow	480,676	Aug. 9	1487	370	60	878
Syringe	J. A. Flexner	478,583	July 12	804	198	60	175
Syringe and air-cushion. Combined fountain-	G. F. Miles	478,703	July 12	965	239	60	207
Syringe-case	J. P. Schan	480,785	Aug. 16	1658	414	60	927
Syringe. Vaginal	A. B. Botsford	478,081	July 5	12	3	60	5
Syringe. Vaginal	J. D. Kirkwood	478,872	July 12	1231	305	60	259
Table: *See* Coin-table. Ironing-table. Extension-table. Telescope table. Folding table. Wall-table.	J. H. Morrison	478,202	July 5	209	52	60	43
Table and embroidery-frame	M. Schmirk	478,891	July 12	1260	312	60	264
Table-leg fastening	L. Welker	480,536	Aug. 9	1262	317	60	835
Tablet. Memorandum	G. H. Seymour	481,429	Aug. 23	2728	671	60	1143
Tablet. Writing	F. Bentel	481,686	Aug. 30	3138	765	60	1239
Tablet. Writing	C. D. Crane	479,632	July 26	2458	612	60	519
Tack-driving mechanism	F. Chase	483,375	Sept. 27	2369	594	60	1836
Tacking implement. Hand	N. Lombard	481,653	Aug. 30	3066	753	60	1229
Tag	T. C. Barnum	478,185	July 5	180	47	60	38
Tag-fastener	O. E. Abbey	481,382	Aug. 23	2651	650	60	1128
Tag for cloth-boards	J. V. Moore	478,938	July 12	1332	331	60	279
Tag-holder	I. J. True	483,314	Sept. 27	2283	573	60	1819
Tally-sheet	A. L. Nichols	479,449	July 26	2166	542	60	465
Tank: *See* Flush-tank.							
Tank	H. L. Lipman	479,602	July 26	2412	601	60	510
Tank-feeder	M. Burt and J. W. Skilton	482,617	Sept. 13	1160	280, 281	60	1575
Tannic extracts. Purifying	G. Delvaux	483,141	Sept. 27	1978	.....	60	1761
Tanning-extracts. Making	W. C. Tiffany	480,376	Aug. 9	1011	.....	60	786
Tap. Collapsible	W. W. Doolittle	481,648	Aug. 30	3077	751	60	1228
Tap. Pipe	E. M. Wolfe	482,955	Sept. 20	1691	425	60	1691
Tapping mains. Machine for	W. S. Payne	478,711	July 12	975	242, 243	60	210
Tape-folding machine	J. A. Barrett	482,153	Sept. 6	381	89	60	1410
Tea and fruit drier	B. L. Ryder	478,134	July 5	79	21	60	18
Tea-kettle	V. C. Baker	482,972	Sept. 20	1718	433	60	1697
Teaching chemistry. Appliance for	J. Osorio	480,275	Aug. 9	848	216	60	757
Telegraph. Duplex	T. A. Edison	480,567	Aug. 9	1305	326	60	844
Telegraph. Fac-simile	T. A. Edison and P. Kenny	479,184	July 19	1728	433, 434	60	363
Telegraph. Fire-alarm	A. J. Coffee	481,847	Aug. 30	3415	838	60	1293
Telegraph indicator. Fire-alarm	F. F. Loomis	479,950	Aug. 2	272	67	60	634
Telegraph-instrument. Mechanical	B. F. Butler	479,782	Aug. 2	13	3	60	585
Telegraph-key	A. E. McClaren	480,475	Aug. 9	1173	295	60	816
Telegraph-key	A. F. Tucker	479,859	Aug. 2	125	31	60	607
Telegraph-key and circuit-closer. Combined	W. F. Lott	481,114	Aug. 16	2183	541	60	1029
Telegraph key and sounder. Combinod	D. J. Ludwig	482,129	Sept. 6	335	80	60	1400
Telegraph-keys. Automatic circuit-closer for	C. W. Bradford	480,689	Aug. 9	1512	376	60	882
Telegraph. Printing or recording	Z. T. Lillard and U. Erhard	482,015	Sept. 6	152	37, 38	60	1365
Telegraph-relay	W. Maver, Jr.	482,440	Sept. 13	877	210	60	1519
Telegraph. Ship's	A. B. W. H. Cords	481,223	Aug. 23	2381	586, 587	60	1080
Telegraph. Signal	C. V. Boughton	482,780	Sept. 20	1422	352	60	1638
Telegraph-transmitter	C. Willoughby	480,644	Aug. 9	1438	358, 359	60	869
Telegraphic repeater	R. H. Weiny	479,178	July 19	1718	431	60	361

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Telegraphy	J. G. Smith	481,247	Aug. 23	2424	598, 599, 600	60	1088
Telephone	F. H. Brown	481,138	Aug. 16	2233	550	60	1037
Telephone	J. A. Christy	480,656	Aug. 9	1460	363	60	873
Telephone	P. H. D'Unger	478,692	July 12	951	236	60	205
Telephone	E. Noriega	481,049	Aug. 16	2065	515	60	1007
Telephone	E. Noriega	481,051	Aug. 16	2066	516	60	1008
Telephone	A. Rettig	481,284	Aug. 23	2405	614	60	1101
Telephone	G. F. Shaver	479,226	July 19	1791	449	60	375
Telephone	A. L. Simpson	479,726	July 26	2030	659	60	550
Telephone arm-rest	J. R. Bailey and L. C. Lincoln	481,203	Aug. 23	2515	618	60	1103
Telephone. Automatic coin-actuated	F. Müller	483,102	Sept. 27	2019	511	60	1770
Telephone desk attachment	L. C. Butler	478,565	July 12	778	190	60	169
Telephone-exchange	C. E. Scribner	481,679	Aug. 30	3127	763	60	1237
Telephone-exchange apparatus	A. S. Hibbard	482,174	Sept. 6	419	100	60	1417
Telephone-exchange system. Multiple-switchboard	C. E. Scribner	481,678	Aug. 30	3125	763	60	1236
Telephone. Mechanical	W. J. Bowen	481,133	Aug. 16	2211	547	60	1034
Telephone-repeater	T. A. Edison	478,743	July 12	1037	255	60	221
Telephone speaking attachment	D. Eldredge	479,062	July 19	1531	382	60	327
Telephone-switchboard	W. Oesterreich	479,107	July 19	1601	400, 401	60	340
Telephone system	R. N. Dyer	481,483	Aug. 23	2816	692	60	1161
Telephony	J. W. Gibboney	481,529	Aug. 23	2888	709	60	1176
Telephony. System of	G. F. Shaver	479,227	July 19	1792	447	60	375
Telescope table	E. Thomson	481,878	Aug. 30	3461	849	60	1302
Telltale for electrolytic refineries	C. Jonas and I. Bauch	480,368	Aug. 9	908	251	60	783
Temperature. Apparatus for automatically regulating	F. B. Badt	482,148	Sept. 6	370	88	60	1408
Temperature-regulator	A. Shiels	478,373	July 5	489	117, 118	60	96
Tenoning-machine	W. H. Kilbourn	479,761	July 26	2683	666	60	561
Tent	G. W. Bugbee and F. Danner	479,389	July 19	2059	514, 515	60	429
Terret. Harness	G. N. Duncan	481,014	Aug. 16	2009	502	60	996
Testing device. Strength	F. Park	478,632	July 12	871	214	60	188
Theatrical appliance	P. J. Dooling	482,923	Sept. 13	1168	282	60	1516
Therapeutical coating	J. Herrera y Gutierrez	479,001	July 19	1441	358	60	310
Thermal alarm	L. O. Helmers	478,100	July 5	44	.....	60	11
Thermometer-case	H. F. Maxim and J. M. Price	478,701	July 12	961	239	60	207
Thermometer. Indicating	J. D. Ward	482,050	Sept. 6	200	50	60	1376
Thermometer-scale	A. T. Rapkin and F. Cossor	483,365	Sept. 27	2350	591	60	1892
Thermostat	F. Brandt	478,984	July 19	1411	349	60	305
Thermostat	I. F. and F. C. Beers	483,339	Sept. 27	2317	582	60	1826
Thermostat. Adjustable	T. W. Shepherd	479,849	Aug. 2	111	28	60	604
Thermostat. Electrical	M. D. Compton	482,420	Sept. 13	842	202	60	1513
Thill-coupling	W. L. Dento	478,788	July 12	1113	275	60	236
Thill-coupling	G. H. Allen	478,678	July 12	936	232	60	201
Thill-coupling	J. C. Bailey	480,648	Aug. 9	1444	360	60	870
Thill-coupling	J. N. Berry	480,244	Aug. 9	789	201	60	743
Thill-coupling	A. A. Froehlich	478,957	July 12	1361	335	60	984
Thill-coupling	H. Greenland and J. C. Carrick	483,440	Sept. 27	2460	619	60	1854
Thill-coupling	W. H. Hannan. (Reissue)	11,260	Aug. 16	2267	550	60	1043
Thill-coupling	J. A. Kirby	480,772	Aug. 16	1639	410	60	924
Thill-coupling	J. E. Miller	481,961	Sept. 6	59	14	60	1346
Thill-coupling	J. V. Myers	483,261	Sept. 27	2206	554	60	1805
Thill-coupling	R. D. Patton	480,622	Aug. 9	1402	349	60	862
Thill coupling	H. A. Sevigne	481,064	Aug. 16	2108	524	60	1014
Thill-coupling	A. L. Straw	481,436	Aug. 23	2740	674	60	1146
Thill-coupling	S. A. Whitfield	480,052	Aug. 2	475	120	60	673
Thill couplings. Anti-rattler for	W. C. Williams	479,146	July 19	1667	416	60	352
Thill-support	C. A. Carman	481,549	Aug. 30	2924	719	60	1198
Thill. Vehicle	J. A. Bean	480,652	Aug. 9	1450	361	60	871
Thrasher. Bean	W. Patterson and L. Swenson	480,129	Aug. 2	590	150	60	695
Thrasher. Flax	P. Bourgin	481,841	Aug. 30	3408	836	60	1291
Thrashing and separating machine. Grain	J. M. Smith	478,542	July 5	746	182	60	148
Thrashing-cylinder	A. B. Farquhar, H. W. Eisenhart, and S. S. Morton.	480,660	Aug. 9	1465	364, 365	60	874
Thrashing-machine	S. Hamilton	481,864	Aug. 30	3442	845	60	1298
Thrashing-machine	W. Alpert	480,484	Aug. 9	1187	298	60	819
Thrashing-machine	O. Anderson	482,494	Sept. 13	968	234, 235	60	1538
Thrashing-machine	J. N. Wilson	482,709	Sept. 13	1298	317, 318	60	1603
Thrashing-machine and grain-separator. Combined	J. Galland	482,554	Sept. 13	1071	260	60	1558
Thrashing-machine attachment	A. Reason	479,156	July 19	1679	420	60	354
Thrashing-machine band-cutter and feeder	C. F. Graham	478,996	July 19	1433	355, 356	60	308
Thrashing-machine band-cutter and feeder	J. W. Turner	479,477	July 26	2223	560, 561	60	476
Thrashing-machine belt-tightener	E. Huber	481,176	Aug. 23	2300	567	60	1064
Thrashing-machine fan and regulator	F. F. Landis	482,846	Sept. 20	1508	375	60	1657
Thrashing-machine feeder and cutter	F. Dworshak	480,254	Aug. 9	809	207	60	747
Ticket. Time-limit	J. H. Stedman	481,210	Aug. 23	2354	580	60	1075
Tickets. Excess-baggage stamp or check for railway-	T. M. Cunningham	478,923	July 12	1309	326	60	274
Tie: *See* Bale-tie. Railway-tie.							
Tie-plate and brace	W. H. Phillips	482,318	Sept. 6	664	158	60	1465
Tile	F. N. Marvick	479,442	July 26	2157	538	60	463
Tile	F. N. Marvick and J. Walter	479,441	July 26	2155	538	60	462
Tile	A. M. Strusholm	478,656	July 12	902	223	60	194
Tile	H. Sturm	483,180	Sept. 27	2049	517	60	1776
Tile. Illuminating	J. Jacobs	479,645	July 26	2477	616, 617	60	523

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tile-molding apparatus	M. Scott	483,486	Sept. 27	2513	633	60	1864
Tile-press	A. M. Strusholm	479,749	July 26	2665	661, 662	60	557
Tile. Roofing	J. Rapp	478,171	July 5	160	41	60	34
Till-lock	H. Brav	478,392	July 5	512	124, 125	60	101
Till-lock	W. R. Van Vliet	478,607	July 12	1206	313	60	965
Tilting gate	A. J. Duck, W. S. Savidge, and G. W. Wolfe.	483,432	Sept. 27	2450	616	60	1858
Tilting seat	S. W. Peregrine	480,961	Aug. 16	1930	483	60	981
Time-alarm. Electric	J. Jacobi	478,865	July 12	1224	303, 304	60	256
Time-indicating apparatus. Electric	E. Weston	480,800	Aug. 16	1812	459	60	958
Time-lock	L. N. Bedford	478,212	July 5	220	55	60	45
Time-lock	L. N. Bedford	478,213	July 5	221	55	60	46
Time-lock attachment	J. X. Kaiser	481,572	Aug. 30	2965	738	60	1206
Timepiece setting mechanism	E. E. Ellis	478,321	July 5	408	98	60	82
Timepieces. Bearing for balance-staffs of	G. Newton	482,585	Sept. 13	1110	268	60	1566
Timepieces. Calendar attachment for	P. J. Johnson and J. H. Hamill	481,793	Aug. 30	3330	812	60	1277
Time-recorder. Watchman's electric	E. R. Heyser	482,251	Sept. 6	534	127	60	1438
Time-recorder. Watchman's electric	N. H. Raymond	483,308	Sept. 27	2273	572	60	1818
Time-recorder. Workman's	W. L. Bundy	482,203	Sept. 6	611	144, 145, 146	60	1454
Time-recorder. Workman's	J. C. Koch	478,284	July 5	354	86	60	71
Time systems. Method of and apparatus for testing circuits for electric	W. F. Gardner	480,576	Aug. 9	1315	329	60	846
Time-table. Perpetual train	J. I. Covington	483,138	Sept. 27	1974	500	60	1761
Tin can	E. E. Oerzen	479,015	July 19	1461	364	60	314
Tin can or receptacle	W. Pratt. (Reissue)	11,264	Aug. 16	2272	560	60	1044
Tin from other metals. Separating	I. A. F. Bang and M. C. A. Ruffin	483,245	Sept. 27	2148	544	60	1795
Tin-plate. Recovering tin from	M. R. Garcia	480,920	Aug. 16	1892	465	60	968
Tire. Bicycle	A. A. and H. C. Kupfer	481,038	Aug. 16	2048	511	60	1004
Tire. Cycle	T. H. Stone and H. Corser	481,435	Aug. 23	2739	674	60	1146
Tire. Elastic	C. Wagner	482,819	Sept. 20	1466	365	60	1648
Tire for cycles. Pneumatic	T. H. Hicks	483,492	Sept. 27	2522	635	60	1866
Tire for vehicle-wheels. Elastic	F. H. Bullard and F. Harrington	478,564	July 19	1757	440	60	369
Tire. Pneumatic	F. H. Bolte	479,202	July 19	1754	439, 440	60	368
Tire. Pneumatic	F. H. Bolte	479,203	July 19	1757	440	60	368
Tire. Pneumatic	J. H. Bullard	483,344	Sept. 27	2394	584	60	1827
Tire. Pneumatic	C. M. Lungren	482,162	Sept. 6	430	102, 103	60	1419
Tire. Pneumatic	L. J. Phelps	482,487	Sept. 13	946	231	60	1533
Tire. Pneumatic	C. H. Roth	481,197	Aug. 23	2330	574	60	1070
Tire. Pneumatic	F. Sinclair	480,349	Aug. 9	905	244	60	777
Tire. Pneumatic	J. Wellstein and M. E. Maxfield	481,681	Aug. 30	3131	764	60	1238
Tire. Pneumatic wheel	A. F. Wyman	481,323	Aug. 23	2563	629	60	1112
Tire. Spring	K. Lehmann	480,595	Aug. 9	1355	337	60	852
Tire. Vehicle-wheel	W. C. Smith	479,851	Aug. 2	114	28	60	605
Tire. Velocipede-wheel	J. H. Bingham	483,131	Sept. 27	1962	497	60	1759
Tobacco-casing machine	F. H. Bolte	479,201	July 19	1752	439	60	368
Tobacco-curing barn	J. T. Carter	480,070	Aug. 2	497	126, 127	60	677
Tobacco granulating, grading, and separating machine.	J. R. Jewel	481,954	Sept. 6	50	11, 12	60	1344
Tobacco-hanger	W. W. Smith and G. R. Hayes	483,292	Sept. 27	2251	567	60	1813
Tobacco. Machine for stripping and booking leaf	B. B. Byrnside	478,153	July 5	122	31	60	37
Tobacco. Machine for treating leaf	C. Bowman	479,550	July 26	2341	584	60	497
Tobacco-ordering apparatus	C. A. Snyder	483,401	Sept. 27	2406	605, 606	60	1843
Tobacco-pipe	S. P. Mayo and G. A. Peple	478,801	July 12	1136	280	60	240
Tobacco-pipe	T. T. Ely	480,570	Aug. 9	1309	327	60	845
Tobacco-shaver	A. Osterloh	480,209	Aug. 2	729	184	60	720
Toe-weight	J. B. Tarr	480,638	Aug. 9	1426	355, 356	60	867
Toe-weight for horses	C. M. McMillan	479,831	Aug. 2	88	22	60	599
Tongs. Blacksmith's	H. Armstrong	481,611	Aug. 30	3025	739	60	1217
Tongue. Metallic wagon	W. M. Haworth	478,600	July 12	820	204	60	180
Tool	W. P. Bettendorf	479,022	July 26	2442	608	60	516
Tool-handle	C. E. Harris	481,865	Aug. 30	3443	845	60	1298
Tool-handle. Flexible	A. Landon and L. Martel	482,256	Sept. 6	548	130	60	1441
Tool-heater	J. S. Surbaugh	479,032	July 19	1489	370	60	319
Tool-holder	A. Weller	479,686	July 26	2545	634	60	535
Tool-holding device	G. M. O., and J. G. Rehfuss	478,943	July 12	1337	332	60	280
Tool-sharpening device	F. H. Richards	481,193	Aug. 23	2325	573	60	1069
Tooth. Artificial	G. A. Kelat	478,608	July 12	839	207	60	182
Toothed wheel	J. W. Moffitt	482,377	Sept. 13	779	187	60	1501
Top rolls. Saddle for	J. Lindsay	480,930	Aug. 16	1877	468	60	971
Top. Spinning	E. Dixon	482,789	Sept. 20	1434	355	60	1641
Torch. Signal	F. M. Idle	480,817	Aug. 16	1706	426	60	937
Torpedo	F. D. Marston	478,623	July 12	857	211	60	186
Torpedo-case	J. H. Bates	483,126	Sept. 27	1955	495	60	1757
Torpedo clip-fastening	W. S. Lowe and G. W. Van Rensselaer.	482,060	Sept. 6	224	54	60	1379
Torpedo. Railway	W. C. Schooley	480,590	Aug. 9	1234	309	60	829
Torpedo-signal	E. N. Hill	479,879	Aug. 2	159	40	60	613
Torpedoes and other vessels. Depth-regulating mechanism for marine	W. H. Milliken	482,019	Sept. 6	159	39	60	1366
Torpedoes and other vessels. Speed-regulating mechanism for	F. H. Paine	478,813	July 12	1153	285, 286, 287	60	244
Towel-grip	F. H. Paine	478,814	July 12	1160	288	60	245
	G. S. Chamberlin	479,934	Aug. 2	250	62	60	630

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Towel-rack	J. F. Huber and G. L. Marvin	482,869	Sept. 20	1549	387	60	1665
Toy	J. A. Allen	482,957	Sept. 20	1694	426	60	1692
Toy	S. M. Boyd	480,065	Aug. 2	490	125	60	676
Toy	C. W. Delaney	481,931	Sept. 6	16	5	60	1338
Toy	M. A. Gilman	479,119	July 19	1626	407	60	344
Toy	W. H. Gregg	478,423	July 5	561	136	60	109
Toy	P. H. Hillard	481,948	Sept. 6	43	10	60	1342
Toy	W. R. Park	480,619	Aug. 9	1398	348	60	861
Toy	A. A. Robinson	480,379	Aug. 9	854	218	60	758
Toy	G. W. Snaman, Jr	479,534	July 26	2315	579	60	493
Toy	G. W. Thomas	483,087	Sept. 20	1695	479	60	1734
Toy apparatus. Electroplating	E. A. Clark	479,557	July 26	2350	{586 587	60	499
Toy bank. Registering	W. R. Christie	478,404	July 5	531	130	60	105
Toy extension-ladder	R. A. Booth	482,402	Sept. 13	812	195	60	1508
Toy. Flying	E. R. Lochmann	481,182	Aug. 23	2308	569	60	1066
Toy game apparatus	G. Hill	480,725	Aug. 16	1568	392	60	908
Toy kitchen and stove	J. Jaeger	479,597	July 26	2402	598	60	508
Toy money-safe	G. R. Rowland	478,890	July 12	1259	311	60	264
Toy mortar	G. B. Nichols	481,808	Aug. 30	3354	821	60	1281
Toy novelty. Historical	F. C. J. Grebe	482,123	Sept. 6	328	78	60	1399
Toy or puzzle	G. T. Smallwood	479,158	July 19	1683	421	60	355
Toy or puzzle-picture and producing the same. Transparent	W. Grüne, Sr	481,023	Aug. 16	2024	.....	60	999
Trace-carrier	A. M. Miller	478,704	July 12	966	240	60	208
Trace-carrier	S. H. Wellborn	479,160	July 19	1685	421	60	356
Trace-fastener	D. E. Smith	482,762	Sept. 20	1400	345	60	1633
Tracing-tool	T. E. Sipe	481,721	Aug. 30	3205	783	60	1252
Track-sanding apparatus	C. W. Sherburne	481,594	Aug. 30	2904	734	60	1212
Track-sanding apparatus	C. W. Sherburne	481,595	Aug. 30	2906	734	60	1212
Traction-engine	P. T. Neumann	479,832	Aug. 2	88	23	60	599
Traction-engine	W. E. Richardson	480,626	Aug. 9	1408	350	60	863
Traction-engine	I. Townsend	482,599	Sept. 13	1132	273	60	1570
Traction-wheel	H. L. Holt	483,220	Sept. 27	2109	535	60	1788
Train-indicator	H. L. Manton	481,364	Aug. 23	2616	{643 644	60	1122
Train-order catcher	E. C. Barnett	482,220	Sept. 6	489	117	60	1431
Train-signal. Electric	G. Merritt	481,042	Aug. 16	2056	513	60	1006
Transfer-sheet	F. Koskul	482,451	Sept. 13	894	217	60	1522
Transformation-box	C. Dunham	478,536	July 5	738	180	60	146
Transom-lifter	J. M. Maddox	479,567	July 26	2364	590	60	502
Transom-lifter	E. Payson	482,024	Sept. 6	167	40	60	1368
Transom-lifter	J. F. Wollensak	481,917	Aug. 30	3532	865	60	1316
Transplanter	H. Moon	482,314	Sept. 6	655	156	60	1463
Transplanting machine. Plant-	G. S. Gundersen. (Reissue)	11,262	Aug. 16	2270	560	60	1044
Transportation system	L. F. Cook	482,469	Sept. 13	916	{224 225	60	1527
Trap: *See* Animal-trap. Bedbug-trap. Drainage-trap. Fly-trap. Lobster-trap. Mole-trap. Sewer-trap. Sporting-trap. Steam-trap.							
Traverse-ring	J. W. Leslie	479,713	July 26	2600	647	60	545
Traverse-ring	J. W. Leslie	479,714	July 26	2602	647	60	545
Tray	M. S. Rosenzweig	479,664	July 26	2512	625	60	529
Tray and egg-tester. Combined dumping-	J. B. Garland	481,488	Aug. 23	2822	694	60	1162
Tray filling and emptying machine	R. A. Bauer	483,488	Sept. 27	2516	634	60	1865
Tray. Jeweler's	H. B. Sommer	480,045	Aug. 2	465	118	60	670
Tree protector. Fruit-	A. B. Smith	481,311	Aug. 23	2547	625	60	1109
Triangle. Compound	A. T. Page	482,023	Sept. 6	166	40	60	1368
Tricycle	A. Hunter	483,495	Sept. 27	2525	{635 636	60	1867
Trimmer: *See* Lawn-trimmer. Sewing-machine trimmer.							
Trip-slip. Conductor's	E. H. Murdock	481,369	Aug. 23	2622	645	60	1123
Tripod	O. H. Hanenstein	479,000	July 19	1440	357	60	310
Tripod	J. Hewitt	478,233	July 5	272	67	60	55
Tripod-head for engineers' transits and analogous instruments.	J. Paoli	479,196	July 19	1746	438	60	366
Trolley	J. W. Davis	478,410	July 5	543	132	60	107
Trolley	F. F. Poole	479,608	July 26	2420	604	60	512
Trolley-carriage for conduits	S. L. Platt	481,817	Aug. 30	3360	{825 826	60	1283
Trolley-disconnector. Automatic	G. A. Kimball	481,956	Sept. 6	52	12	60	1344
Trolley-protector	J. Walsh	481,517	Aug. 23	2863	704	60	1171
Trolley-switch	J. S. Merkins	481,503	Aug. 23	2845	699	60	1167
Trolley. Underground	J. Fischer	482,506	Sept. 13	985	238	60	1542
Trolley-wire splice	E. A Sperry	478,140	July 5	95	24	60	21
Trolleys. Guide for replacing electric	C. Fortin	480,766	Aug. 16	1628	408	60	922
Trolling-spoon	H. Loftis	481,652	Aug. 30	3085	752	60	1229
Trough. *See* Watering-trough.							
Trousers	J. Bernstein	480,060	Aug. 2	484	123	60	675
Trousers	S. A. Isaacson	479,564	July 26	2360	589	60	501
Trousers, &c., and pattern therefor	R. Hamilton and J. G. Lewis	478,190	July 5	187	48	60	39
Trousers, &c., and pattern therefor	R. Hamilton and J. G. Lewis	478,281	July 5	350	85	60	71
Trousers, &c., and pattern therefor	J. G. Lewis and R. Hamilton	478,195	July 5	191	49	60	40
Trousers and similar garments. Supporter for	C. S. Rogers	480,672	Aug. 9	1482	369	60	877
Trousers-guard	C. Sulzner	479,229	July 19	1794	449	60	376
Trousers-guard	J. A. Trant	478,772	July 12	1080	268	60	230
Trousers-shield	J. H. Prutzman	483,164	Sept. 27	2023	512	60	1771
Trousers-stretcher	G. S. Macdonald	480,199	Aug. 2	702	177	60	715
Truck	A. Nichleps	483,006	Sept. 20	1771	448	60	1708

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Truck. Barrel-	M. E. Parham	478,710	July 12	974	249	60	210
Truck. Beam-	J. B. Bancroft and A. E. Rhoades	478,731	July 12	1020	250	60	216
Truck. Car	J. E. Anger	479,237	July 19	1605	459	60	378
Truck. Car	G. M. Brill	478,218	July 5	232	58	60	48
Truck gear. Car	H. L. Ellery	483,211	Sept. 27	2096	532	60	1760
Truck-handle support	E. Peckham	481,704	Aug. 30	3107	774	60	1244
Truck. Lumber-	C. F. Woessner	479,542	July 26	2327	581	60	495
Truck. Motor-	A. T. Bemis	482,332	Sept. 13	693	165	60	1485
Truck. Railway-car	J. A. Brill	480,362	Aug. 9	985	{248 249	60	780
Truck. Weighing-	E. D. Dorchester	480,495	Aug. 9	1199	301	60	822
Trucks. Corner structure for	E. E. Chandler	478,403	July 5	530	129	60	104
Trucks. Means for radiating car-	E. Dietz	480,716	Aug. 16	1558	388	60	906
Trunk	H. Resley	480,830	Aug. 16	1798	432	60	941
Trunk	F. Lyford	479,438	July 26	2149	{536 537	60	461
Trunk-stand	P. B. Yaeger	479,485	July 26	2249	564	60	480
Trunk-strap holder	E. J. Fletcher	483,348	Sept. 27	2327	585	60	1828
Trunk. Telescopic	A. E. McDonald	483,264	Sept. 27	2209	555	60	1806
Truss	F. J. Palica	479,153	July 19	1675	419	60	354
Truss	C. A. Harvey	482,946	Sept. 20	1680	423	60	1689
Truss	J. A. Marvin	480,775	Aug. 16	1642	411	60	924
Tub: *See* Mop-tub.	J. M. Oakey	481,584	Aug. 30	2981	731	60	1209
Tubs. Waste and overflow connection for cement laundry-	J. Clifford and J. H. Gavin	480,692	Aug. 9	1515	376	60	883
Tube: *See* Glass tube. Larynx-tube.							
Tube-cutter	M. C. Coppage	482,496	Sept. 13	972	236	60	1538
Tubes. Manufacturing	F. E. and A. S. Elmore	480,186	Aug. 2	683	173	60	711
Tubes. Manufacturing collapsible	H. C. Sanders	478,525	July 5	713	172	60	141
Tubing. Shoe for cistern-	E. Sahland	482,812	Sept. 20	1459	362	60	1646
Tug. Hame-	N. Siglin	480,629	Aug. 9	1415	352	60	864
Tug. Harness-	S. P. Chandler	481,471	Aug. 23	2797	688	60	1157
Tug-hook	A. Ryan	479,465	July 26	2200	552	60	471
Tug-loop	H. Armbruster	480,003	Aug. 2	376	93	60	652
Tug. Shaft-	J. L. Gregory	482,243	Sept. 6	525	125	60	1437
Tug. Thill-	N. F. Mathewson	479,603	July 26	2412	602	60	511
Tug. Thill-	S. Stewart	482,764	Sept. 20	1402	346	60	1633
Tuning-forks. Making	L. K. Fuller	483,513	Sept. 27	2564	643	60	1874
Turbine wheel	J. C. Lansing	480,929	Aug. 16	1874	{467 468	60	971
Turn-table	N. W. Thillman and C. W. Firme	479,858	Aug. 2	123	30	60	607
Turning. Machine for taper-	W. W. Tucker	482,210	Sept. 6	472	{113 114	60	1427
Turning machine. Handle-	W. D. Snyder	481,875	Aug. 30	3457	{848 849	60	1301
Turning machine. Wood-	J. D. Carey	481,661	Aug. 30	3098	{755 756	60	1231
Turret-clamping device	F. H. Richards	480,962	Aug. 16	1931	483	60	981
Turret mechanism	F. H. Richards	480,964	Aug. 16	1935	{484 485	60	982
Tweezers. Watchmaker's	C. W. Delaney	482,232	Sept. 6	504	120	60	1433
Twine-making machines. Automatic feeder for	G. A. Lowry	480,873	Aug. 16	1789	448	60	954
Twisting-frame	A. Combe	482,164	Sept. 6	399	95	60	1413
Twisting machine. Skein-	L. Dimock	481,227	Aug. 23	2387	{588 589	60	1082
Type	A. Coleman	482,784	Sept. 20	1428	354	60	1640
Type-bars. Machine for producing	J. C. Fowler	481,920	Aug. 30	3536	{866 867 868 869	60	1317
Type-case and galley support	J. E. Hamilton and F. Kaufmann, Jr	482,522	Sept. 13	1019	246	60	1548
Type-holder	L. K. Scotford	481,286	Aug. 23	2502	615	60	1101
Type-justifying apparatus	A. Lagerman	478,340	July 5	431	{105 106 107	60	86
Type-plate and blank for the same	G. D. Morse and M. Chase	480,033	Aug. 16	1880	469	60	979
Type-setting machine	W. W. Hastings and F. D. Foster	480,497	Aug. 9	1203	{301 302	60	822
Type-writer counter	F. W. Jones	482,361	Sept. 13	747	180	60	1496
Type-writing machine	H. T. Beauregard and F. S. Flower	479,065	July 19	1566	{392 393	60	333
Type-writing machine	G. M. Beerbower	480,314	Aug. 9	917	231	60	769
Type-writing machine	B. A. Brooks	482,781	Sept. 20	1423	352	60	1638
Type-writing machine	H. D. Clemons	478,223	July 5	248	60	60	51
Type-writing machine	J. D. Daugherty	478,925	July 12	1311	{326 327	60	275
Type-writing machine	J. D. Daugherty	481,477	Aug. 23	2803	690	60	1158
Type-writing machine	L. P. Diss	481,750	Aug. 30	3257	793	60	1302
Type-writing machine	W. S. Edwards	482,519	Sept. 13	1010	245	60	1546
Type-writing machine	A. M. English	481,855	Aug. 30	3428	{841 842	60	1295
Type-writing machine	J. M. Fairfield	478,228	July 5	259	64	60	53
Type-writing machine	B. Granville	482,521	Sept. 13	1015	{245 246	60	1547
Type-writing machine	R. H. Ingersoll	478,109	July 5	47	14	60	12
Type-writing machine	W. M. Jenne	478,964	July 12	1371	{337 338	60	286
Type-writing machine	A. N. Petit	482,317	Sept. 6	661	158	60	1465
Type-writing machine	C. L. Redfield	481,309	Aug. 23	2540	624	60	1106
Type-writing machine	C. H. Shepard	480,289	Aug. 9	870	222	60	761
Type-writing machine	C. H. Shepard	480,290	Aug. 9	873	222	60	761

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Type-writing machine	C. H. Shepard	480,291	Aug. 9	875	222	60	762
Type-writing machine	C. Spiro	481,376	Aug. 23	2633	647, 648	60	1125
Type-writing machine	C. Spiro	481,377	Aug. 23	2638	648	60	1126
Type-writing machine	W. W. Street	480,677	Aug. 9	1189	370, 371	60	878
Type-writing machine	G. B. Webb	478,147	July 5	111	29	60	25
Type-writing machine	G. B. Webb	480,305	Aug. 9	901	228	60	766
Type-writing machine	G. B. Webb	480,306	Aug. 9	903	229	60	766
Type-writing machine	G. B. Webb	480,641	Aug. 9	1431	356, 357	60	868
Type-writing-machine cleaning attachment	S. Ford	480,257	Aug. 9	814	208	60	749
Type-writing machines. Aligner for	F. M. Spaulding	481,513	Aug. 23	2859	702	60	1170
Type-writing machines. Cleaning device for	O. Cohn	478,406	July 5	536	130	60	105
Type-writing machines. Device for inking	A. S. Dennis	479,351	July 19	1991	498	60	416
Type-writing machines. Line-spacing mechanism for	A. S. Dennis	479,352	July 19	1992	498	60	416
Typograph attachment	J. Slocum	483,023	Sept. 20	1803	455	60	1715
Typographic machine	T. T. Heath and A. N. Verdin	483,252	Sept. 27	2158	547, 548, 549	60	1797
Umbrella. Folding	G. H. Seymour	479,310	July 19	1913	478	60	400
Umbrella. Folding	H. C. Ward	480,482	Aug. 9	1184	297	60	819
Umbrella-frame	J. Willis	478,150	July 5	118	30	60	26
Umbrella or parasol	H. A. Fleuss	483,212	Sept. 27	2097	532	60	1786
Umbrella or parasol gear	J. Willis	479,691	July 26	2555	635	60	537
Umbrella-rib	W. L. Uhlenhart	480,353	Aug. 9	974	245	60	779
Umbrella ribs and stretchers. Guide for	H. G. Practorius	481,283	Aug. 23	2494	614	60	1101
Umbrella-runner	L. B. Couch	478,250	July 5	305	74	60	61
Umbrella-runner	J. F. Mason	482,130	Sept. 6	335	80	60	1401
Umbrella-stand	G. R. Davis	480,657	Aug. 9	1461	363	60	873
Umbrella-stand	S. S. Sencenbaugh and A. J. Ives	478,645	July 12	889	220	60	192
Umbrella-stand	S. S. Sencenbaugh and A. J. Ives	478,646	July 12	890	220	60	192
Umbrella-stand	P. V. Smith	479,671	July 26	2522	628	60	531
Umbrella-stick	G. C. Wolfe	479,929	Aug. 2	239	59	60	628
Umbrella-supporter	J. Devereaux	481,481	Aug. 23	2813	692	60	1161
Undershirt and making the same	J. Holroyd	479,276	July 19	1862	467	60	390
Unicycle	J. Imlah	480,585	Aug. 9	1336	333	60	849
Unicycle	J. Rawle	482,100	Sept. 6	291	70	60	1393
Unicycle	A. and F. Yost	481,883	Aug. 30	3471	851	60	1304
Universal coupling	R. S. Brown	481,780	Aug. 30	3311	809	60	1273
Universal joint	A. J. Oehring	478,811	July 12	1151	285	60	244
Universal-jointed brace	A. C. Derlon	481,526	Aug. 23	2884	708	60	1175
Unloading vessels, cars, &c. Device for	J. Socci	482,565	Sept. 13	1085	263	60	1560
Upholstery spring-support	J. A. Staples	482,908	Sept. 20	1619	405	60	1676
Urinal	W. S. Ross	482,754	Sept. 20	1378	341, 342	60	1629
Urinal	I. D. Smead	478,648	July 12	892	221	60	192
Urinal and patrol-box	W. Eglin	478,505	July 5	683	166	60	135
Urn. Coffee	F. Doering	481,851	Aug. 30	3424	840	60	1294
Vacuum-pans. Feed-pipe for	H. Basanta	478,906	July 12	1282	319	60	269
Valve	J. B. Case and W. H. Hendrick	481,001	Aug. 16	1990	498	60	992
Valve	G. B. Moore	482,187	Sept. 6	439	105	60	1421
Valve	B. D. Northrup	479,450	July 26	2168	542	60	465
Valve	G. Vining	478,665	July 12	914	226	60	197
Valve. Air-brake	G. A. Boyden	481,134	Aug. 16	2212	547	60	1034
Valve. Air-brake	J. F. Carpenter	478,846	July 12	1204	299	60	954
Valve. Air-brake	W. M. Gilmore	479,978	Aug. 2	320	78	60	643
Valve. Ammonia dipper	J. Dreisörner	482,233	Sept. 6	504	120	60	1433
Valve. Automatic relief	F. Schreidt	479,734	July 26	2625	651	60	549
Valve. Balanced slide	M. A. Green	483,054	Sept. 20	1845	468	60	1724
Valve. Balanced slide	E. B. Sintzenich	478,719	July 12	990	246	60	213
Valve. Ball-cock	W. A. Turner	481,317	Aug. 23	2533	627	60	1110
Valve. Boiler-blow-off	C. J. Gustafson	480,723	Aug. 16	1566	391	60	908
Valve casing. Furnace	W. Swindell	482,463	Sept. 13	908	221	60	1526
Valve. Combined intercepting and reducing	J. Player	481,148	Aug. 16	2250	555	60	1040
Valve. Compound-engine	J. Player	481,057	Aug. 16	2084	520	60	1011
Valve-controller	C. L. Fortier	479,795	Aug. 2	30	8	60	588
Valve-controller. Electric	E. F. Roberts	482,130	Sept. 6	346	83	60	1403
Valve. Cut-off piston	F. J. Waters	482,707	Sept. 13	1295	317	60	1609
Valve device. Radiator	J. Collis	479,400	July 26	2083	522	60	448
Valve. Distributing	S. Gustin	481,943	Sept. 6	34	8	60	1341
Valve. Electrical stop	A. Franke	483,108	Sept. 20	1927	488	60	1741
Valve. Fluid-pressure	H. G. Manning	479,439	July 26	2151	537	60	461
Valve for automatic air-brakes	G. A. Boyden	481,136	Aug. 16	2223	548, 549	60	1035
Valve for elevators. Automatic stop	H. J. Reedy	480,278	Aug. 9	851	217	60	757
Valve for engines. Cut-off	O. E. Brown and P. Stetson	482,516	Sept. 13	1001	242	60	1545
Valve for pneumatic tires	E. R. De Wolfe	480,460	Aug. 9	1050	263	60	793
Valve for pneumatic tires	J. F. Ives and F. B. Colman	481,762	Aug. 30	3277	798	60	1266
Valve for pneumatic tires	G. H. F. Schrader	483,172	Sept. 27	2034	514	60	1773
Valve for radiators. Automatic relief	A. S. Hodge	479,806	Aug. 2	48	12	60	591
Valve for radiators. Combined automatic relief and vacuum air-	W. O. Whitman	478,489	July 5	652	160	60	130
Valve for set bowls. Outlet	J. L. Thurston and F. B. How	482,534	Sept. 13	1085	250, 251	60	1551
Valve for steam or high-pressure fluids	W. G. Adams and J. S. Forbes	479,391	July 26	2067	519	60	445
Valve for tanks. Slow-closing	J. V. Glover	478,793	July 12	1125	277	60	238
Valve-gear	J. R. Frikart	482,007	Sept. 6	136	33	60	1362
Valve-gear	W. H. von Mengeringhausen	480,474	Aug. 9	1171	295	60	816
Valve-gear	F. E. Smith	481,072	Aug. 16	2117	527	60	1016
Valve-gear	C. E. Tidblad	482,399	Sept. 13	809	194	60	1508
Valve-gear. Engine	F. J. Waters	478,973	July 12	1387	342, 343	60	287

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Valve-gear. Steam-engine	R. Radley	483,328	Sept. 27	2304	579, 580	60	1823
Valve. Globe	F. M. Moore	481,803	Aug. 30	3346	819	60	1280
Valve mechanism. Steam-radiator	L. H. Prentice, P. R. McLeod, R. T. Crane, and L. Pilkington.	480,512	Aug. 9	1294	306	60	827
Valve-motion indicator for steam-engines	J. Millis	481,671	Aug. 30	3112	760	60	1234
Valve. Oil-well	H. D. Jones	480,265	Aug. 9	834	213	60	753
Valve. Piston	M. E. Hershey	479,273	July 19	1858	466	60	389
Valve. Pressure-regulating	W. Gustafsson	478,856	July 12	1214	301	60	256
Valve. Pressure-regulating	C. A. Rempen and E. Andre	479,462	July 26	2196	551	60	470
Valve. Regulating	J. S. McDaniel	478,939	July 12	1333	331	60	279
Valve. Relief	A. S. Thoms	480,528	Aug. 9	1249	314	60	832
Valve. Reversing	J. Clark	481,162	Aug. 23	2282	562, 563	60	1060
Valve. Reversing	W. Miller	480,604	Aug. 9	1368	340	60	855
Valve. Safety	S. M. Beery	478,949	July 12	1345	334	60	281
Valve. Slide	A. T. Doyle	481,013	Aug. 16	2008	502	60	995
Valve. Slide	C. G. Walle	478,829	July 12	1184	293	60	249
Valve. Steam-actuated	E. Bartholomew	481,520	Aug. 23	2867	705	60	1172
Valve. Steam-actuated	W. H. Blake	480,167	Aug. 2	651	165, 166, 167	60	706
Valve. Steam-engine	J. R. Cook and C. S. Hinchman	479,401	July 26	2085	523	60	448
Valve. Steam-engine	E. L. Sauer	482,415	Sept. 13	832	200	60	1512
Valve. Tank	C. Birkery	483,296	Sept. 27	2258	568	60	1815
Valves. Machine for milling plug	W. W. Tucker	482,211	Sept. 6	475	114	60	1428
Vamp-marking machine	J. F. Rogers	480,438	Aug. 9	1109	277, 278	60	803
Vapor-burner	H. S. Giles	482,920	Sept. 20	1635	410	60	1680
Vapor-burner	J. A. Lannert and W. R. Jeavons	479,220	July 19	1780	446	60	373
Vaporization of liquids. Generator for the	L. Serpollet	480,286	Aug. 9	865	220, 221	60	760
Varnishing frame or holder	A. G. Weissenborn	482,664	Sept. 13	1220	298	60	1586
Vault-cover. Ventilated	W. Lake	482,013	Sept. 6	144	35	60	1364
Vault. Grave	J. G. Gray	478,102	July 5	38	12	60	10
Vegetable cleaning and peeling machine	F. Groos	479,502	July 26	2356	588	60	500
Vehicle	C. Comstock	480,421	Aug. 9	1086	272	60	799
Vehicle	J. Spofford, Jr	480,442	Aug. 9	1116	279	60	804
Vehicle-box	D. R. Couch	480,764	Aug. 16	1625	407	60	921
Vehicle-brake	E. W. Broadhead	481,466	Aug. 23	2792	687	60	1156
Vehicle-brake	E. Swarts and D. S. Beemer	482,027	Sept. 6	174	41	60	1360
Vehicle-brake mechanism	C. L. Munger and T. R. Capwell	478,966	July 12	1379	339	60	287
Vehicle-fender	C. Freese	478,585	July 12	806	199	60	175
Vehicle for carrying grain	R. W. Jones	479,328	July 19	1935	484	60	405
Vehicle-gear	T. R. Capwell and W. C. Fuller	480,691	Aug. 9	1514	376	60	883
Vehicle-gear	C. H. Holdredge	483,381	Sept. 27	2386	599	60	1838
Vehicle jump-seat	G. H. Hutton	481,358	Aug. 23	2610	641	60	1121
Vehicle. Road	E. V. Santee	478,715	July 12	982	244	60	211
Vehicle running-gear	C. S. Beebe	482,154	Sept. 6	382	89	60	1410
Vehicle running-gear	C. M. Blydenburgh	482,839	Sept. 20	1499	372	60	1655
Vehicle running-gear	E. Deusing	482,234	Sept. 6	507	121	60	1434
Vehicle running-gear	B. H. Paugh and G. W. Fridley	478,758	July 12	1056	261	60	225
Vehicle running-gear	J. W. Taylor	482,597	Sept. 13	1130	273	60	1569
Vehicle sand-band	W. Klockau	481,795	Aug. 30	3333	813	60	1277
Vehicle-seat	T. B. Padgitt	482,064	Sept. 6	228	55	60	1380
Vehicle-seat	J. E. Scott	480,144	Aug. 2	614	156	60	699
Vehicle-seats. Lazy-back for	A. G. Brunsman and H. H. Uckotter	481,745	Aug. 30	3247	790, 791	60	1260
Vehicle-spring	W. Atkinson	483,505	Sept. 27	2546	639	60	1871
Vehicle-spring	G. W. Farrell	481,394	Aug. 23	2668	654	60	1131
Vehicle-spring	G. T. Glover	481,695	Aug. 30	3150	768, 769	60	1241
Vehicle-spring	D. C. Hamlin	481,303	Aug. 23	2529	621	60	1106
Vehicle-spring	H. R. Raudenbush	482,385	Sept. 13	780	190	60	1504
Vehicle-spring	J. W. Wetmore	482,932	Sept. 20	1649	415	60	1684
Vehicle. Spring	T. D. Lines	478,937	July 12	1330	330	60	278
Vehicle spring-draft attachment	H. Barber	478,777	July 12	1090	270	60	232
Vehicle top-joint	A. M. Hess	478,696	July 12	955	237	60	205
Vehicle-tops. Storm-curtain for	P. Lugenbell	479,910	Aug. 2	199	50	60	621
Vehicle. Two-wheeled	J. W. Hewitt	482,739	Sept. 20	1355	335	60	1695
Vehicle-wheel	W. E. Baker	480,109	Aug. 2	945	103	60	705
Vehicle-wheel	C. D. Cannon	478,918	July 12	1303	324	60	273
Vehicle-wheel	T. F. and J. E. Foley	479,495	July 26	2202	567	60	482
Vehicle-wheel	G. Hollafolla	482,175	Sept. 6	422	100	60	1418
Vehicle-wheel	E. G. Latta	479,566	July 26	2462	589	60	501
Vehicle-wheel	E. G. Latta	479,946	Aug. 2	206	55, 56	60	633
Vehicle-wheel	W. W. Taylor	482,658	Sept. 13	1209	295	60	1585
Velocipede	W. A. W. Eager	479,792	Aug. 2	27	7	60	587
Velocipede	C. Fell	479,064	July 19	1533	382	60	328
Velocipede	M. J. O'Donnell	481,118	Aug. 16	2188	542	60	1030
Velocipede	H. S. Owen	481,053	Aug. 16	2069	516, 517	60	1009
Velocipede	J. Pfleger	479,839	Aug. 2	98	25	60	601
Velocipede	A. C. Shelley	481,428	Aug. 23	2726	670	60	1143
Velocipede	M. E. Slocum	481,070	Aug. 16	2114	526	60	1016
Velocipede	J. R. Wright	478,674	July 12	928	231	60	199
Velocipede attachment	G. Openshaw and C. A. Carr	482,271	Sept. 6	573	136	60	1446
Velocipede driving-gear	J. Magennis	480,600	Aug. 9	1362	339	60	853
Velocipede fork	C. Kehr	482,090	Sept. 6	275	66	60	1389
Velocipede. Ice	P. H. Claes	483,432	Sept. 27	2437	613	60	1849
Velocipede package-carrier	E. N. Heath	479,060	July 19	1544	386	60	329
Velocipede-pedal	F. C. Rockwell	483,238	Sept. 27	2140	542	60	1794
Velocipede-saddle	B. F. Peet	479,656	July 26	2494	621	60	525
Velocipede-saddle	D. D. Wright and W. R. Berry	479,969	Aug. 2	311	76	60	641

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Velocipede-seat	H. E. Cooke	479,056	July 19	1521	379	60	326
Velocipede speed-gear	C. Vogel	479,177	July 19	1716	430	60	361
Velocipede-wheel	J. B. Dunlop	479,255	July 19	1834	460	60	384
Velocipede-wheel	A. C. Hide	478,191	July 5	188	44	60	39
Velocipede-wheels. Spring-rim for	W. J. Pizzey	480,630	Aug. 2	439	111	60	665
Velvets, &c. Machine for waxing	E. T. and E. H. Marble	478,236	July 5	275	68	60	56
Vender. Newspaper	A. E. Dain	482,824	Sept. 20	1473	{366 {367	60	1649
Vending apparatus	B. Adriance and J. H. Volkmann	483,199	Sept. 27	2076	{524 {525	60	1782
Vending apparatus	J. H. Reford	478,714	July 12	981	244	60	211
Vending apparatus. Coin-controlled	A. S. Kibby	481,280	Aug. 23	2488	612	60	1100
Vending apparatus. Coin-controlled	J. G. MacPherson	482,875	Sept. 20	1556	389	60	1666
Vending-machine	A. B. Chandler and G. H. Powell	481,689	Aug. 30	3141	{766 {767	60	1240
Vending-machine	A. J. Henry	482,683	Sept. 13	1253	305	60	1593
Vending-machine	V. A. Kreppa	479,005	July 19	1445	359	60	311
Vending-machine	G. A. Weller	479,688	July 26	2552	635	60	536
Vending-machine. Coin-actuated	W. S. Van Sant	480,639	Aug. 9	1428	356	60	867
Vending-machine. Coin-controlled	E. L. Pickard	481,331	Aug. 23	2573	{632 {633	60	1114
Vending-machine. Coin-controlled	C. A. Shattuck	482,142	Sept. 6	353	84, 85	60	1405
Vending-machine. Coin-operated	R. H. Little	483,255	Sept. 27	2194	{551 {552	60	1803
Vending-machine. Coin-operated	W. R. Ziegler	483,093	Sept. 20	1905	{481 {482	60	1736
Vending-machines. Coin conveyer and tester for automatic	J. H. Volkmann	483,188	Sept. 27	2063	521	60	1779
Veneer-cutting machines. Adjustable pressure-bar for	M. D. Williamson	479,750	July 26	2666	662	60	557
Vent-closure	J. L. Bartels, Jr	482,223	Sept. 6	404	118	60	1431
Ventilating sewers, &c. Appliance for	R. McKenzie	480,958	Aug. 16	1927	482	60	980
Ventilator: *See* Car-ventilator. Window-ventilator. Sanitary ventilator.							
Ventilator	J. and F. Skobis	482,389	Sept. 13	794	191	60	1505
Vessel. Anti-rust	G. W. Lisk	479,517	July 26	2295	573	60	488
Vessel. Portable	A. C. Kimber	482,368	Sept. 13	756	182	60	1496
Vessel supporting and carrying device	J. Mailliard and J. H. Jones	482,643	Sept. 13	1192	288	60	1581
Vessels. Covering for false bottoms of	A. McDougall	480,823	Aug. 16	1719	430	60	939
Vest and drawers holder	A. Luetig	483,462	Sept. 27	2484	625	60	1859
Veterinary truss	H. Haussmann	480,323	Aug. 9	930	236	60	771
Victoria. Convertible	A. C. Sage	478,641	July 12	883	{218 {219	60	191
Vinegar-making apparatus	R. M. Hughes	483,063	Sept. 20	1858	471	60	1727
Violin tail-piece	J. A. Close	481,783	Aug. 30	3314	809	60	1274
Vise, pipe-tongs, and cutter. Combined	J. Ellis	481,168	Aug. 23	2291	564	60	1062
Volatilizer	G. B. Underwood	478,896	July 12	1265	313	60	265
Volt-ammeter	F. A. La Roche	481,573	Aug. 30	2906	728	60	1207
Voltaic pile	W. E. Washburn	482,444	Sept. 13	883	213	60	1520
Voter's compartment and shelf	A. A. Hinkley and J. S. Welch	480,925	Aug. 16	1870	466	60	970
Voting-booth	F. K. Plumbly	479,458	July 26	2188	{548 {549	60	469
Wagon bodies or seats. Corner-iron for	E. Finn	480,187	Aug. 2	685	173	60	712
Wagon-body	G. F. Thompson	482,398	Sept. 13	807	194	60	1507
Wagon-bolster	W. P. Bettendorf	479,621	July 26	2440	608	60	516
Wagon-box	C. Nelson	478,706	July 12	968	{240 {241	60	208
Wagon-box. Dump	F. B. Southwick	478,379	July 5	496	120	60	98
Wagon-brake	E. G. and W. A. Haney	483,056	Sept. 20	1847	469	60	1725
Wagon-brake	J. Miller	478,349	July 5	454	111	60	91
Wagon. Delivery	C. H. Supplee	479,031	July 19	1488	370	60	319
Wagon. Dumping	C. Abresch	478,834	July 12	1189	295	60	251
Wagon. Dumping	J. S. Field and W. J. Shedd	482,731	Sept. 20	1332	{326 {327	60	1621
Wagon. Dumping	S. J. Forsgard	482,498	Sept. 13	975	236	60	1539
Wagon. Farm	S. Howe	478,432	July 5	572	138	60	112
Wagon-frame	A. G. Turner	480,980	Aug. 16	1966	491	60	987
Wagon-frame. Metallic	W. P. Bettendorf	479,618	July 26	2437	607	60	515
Wagon-frame. Metallic	W. P. Bettendorf	479,619	July 26	2438	{607 {608	60	515
Wagon-frame. Metallic	W. P. Bettendorf	479,620	July 26	2439	608	60	515
Wagon-jack	M. C. Jackson	481,713	Aug. 30	3150	777	60	1247
Wagon-loader. Portable	J. E. Eveleth	482,169	Sept. 6	411	98	60	1416
Wagon-rack	G. T. Stebling and J. Bloomer	482,490	Sept. 13	952	232	60	1534
Wagon running-gear	J. H. Baker	480,379	Aug. 9	1016	{255 {256	60	787
Wagon running-gear	J. H. Baker	480,380	Aug. 9	1019	256	60	787
Wagon. Tip	G. Anderson	483,200	Sept. 27	2079	{525 {526 {527 {528	60	1782
Wagons. Vertically-extensible platform for	G. H. Bodette	478,841	July 12	1200	298	60	253
Waist	A. Bouchard	480,062	Aug. 2	487	124	60	675
Wall decoration. Composition of matter for	G. A. Casselman	482,544	Sept. 13	1055	.....	60	1555
Wall-paper. Machine for pasting, cutting, and trimming	J. P. McMurray	480,120	Aug. 2	573	145	60	691
Wall-paper. Roller-knife for trimming	L. Stock	479,473	July 26	2224	558	60	475
Wall-paper-supporting device	D. S. Morgan	482,830	Sept. 20	1485	370	60	1652
Wall-table	E. D. Milks	482,645	Sept. 13	1194	289	60	1581
Wallet	G. W. Curtis	480,008	Aug. 16	2002	500	60	994
Wantage-rod	G. K. Morton	479,655	July 26	2483	621	60	525
	J. F. Barker	480,058	Aug. 2	483	123	60	674

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wardrobe, chiffonier, &c	T. W. Purcell and J. B. Craig	479,078	July 19	1555	{388 {389	60	331
Warp-chains. Mechanism for wrapping	C. E. Scrimgeour and H. Gildard	482,066	Sept. 6	233	57	60	1381
Warping-machine	G. F. Knett and C. Slingland	478,162	July 5	138	35, 36	60	30
Warping-machine	A. E. Rhoades	478,523	July 5	709	172	60	141
Washboard	J. C. Gearhart	483,438	Sept. 27	2458	618	60	1853
Wash-stand	N. O. Bond	479,148	July 19	1669	417	60	352
Washer: *See* Can-washer. Ore-washer. Coal-washer. Window-washer. Dish-washer.							
Washing-machine	R. Bitner	481,659	Aug. 30	3096	754	60	1231
Washing-machine	F. L. Buckley	482,036	Sept. 6	185	44	60	1371
Washing-machine	M. Burgess	481,102	Aug. 16	2167	537	60	1025
Washing-machine	R. K. Burt	482,295	Sept. 6	616	146	60	1455
Washing-machine	Z. T. Chambers	479,488	July 26	2254	565	60	481
Washing-machine	G. A. Coffee	481,003	Aug. 16	1992	499	60	993
Washing-machine	C. C. Davis	482,341	Sept. 13	706	168	60	1488
Washing-machine	M. Dissinger	478,094	July 5	30	10	60	9
Washing-machine	E. A. Egelston	478,926	July 12	1316	327	60	276
Washing-machine	J. Flynn	480,083	Aug. 2	518	132	60	681
Washing-machine	M. R. Gibbs	483,439	Sept. 27	2459	{618 {619	60	1854
Washing-machine	J. P. Hallsten and C. J. Anderson	483,443	Sept. 27	2463	620	60	1855
Washing-machine	S. La Point	478,440	July 5	583	141	60	115
Washing-machine	F. A. Lapham	480,105	Aug. 2	547	138	60	687
Washing-machine	S. P. Lowell	481,183	Aug. 23	2309	569	60	1066
Washing-machine	H. Ogborn	478,707	July 12	970	241	60	208
Washing-machine	I. B. Owens	481,419	Aug. 23	2712	667	60	1140
Washing-machine	J. W. Spangler	480,214	Aug. 2	736	{186 {187	60	721
Washing-machine	C. Van Derzee	480,532	Aug. 9	1255	{315 {316	60	833
Washing-machine	J. W. Waynick	479,863	Aug. 2	131	32	60	608
Washing-machine attachment	H. L. Rowe and G. W. McDonald	480,037	Aug. 2	448	{113 {114	60	667
Watch	J. L. Newell	479,376	July 19	2034	507	60	424
Watchcase	F. Borgel	478,734	July 12	1027	252	60	219
Watchcase	O. R. Decker	478,412	July 5	545	133	60	107
Watchcase	V. Nivois	481,809	Aug. 30	3355	821	60	1281
Watchcase-pendant	E. J. Arrick	479,980	Aug. 2	241	59	60	626
Watchcase-pendant	C. Arthur	482,971	Sept. 20	1716	433	60	1697
Watchcase-spring	J. and A. Menegay	479,292	July 19	1886	472	60	395
Watchcases. Knurling or ornamenting	F. Mink	482,686	Sept. 13	1258	307	60	1594
Watch center arbor	N. A. Terrell	478,528	July 5	719	174	60	142
Watch-chain attachment	J. C. Koch	480,430	Aug. 9	1099	275	60	801
Watch-charm calendar	F. W. Roe	478,888	July 12	1257	311	60	264
Watchmaker's tool	F. E. Lindahl	478,615	July 12	848	208	60	184
Watch-movement	E. E. Thiel	479,923	Aug. 2	230	57	60	627
Watch. Stem-winding	F. Frey	480,814	Aug. 16	1702	425	60	936
Watch. Stop	W. Piguet	479,900	Aug. 2	188	47	60	619
Water alarm. Shallow	H. Euler	482,550	Sept. 13	1061	258	60	1566
Water and steam gage. Combined	I. Willan	480,309	Aug. 9	910	230	60	767
Water. Apparatus for electrically purifying	L. T. Stanley	481,979	Sept. 6	87	22, 23	60	1351
Water. Apparatus for the propulsion and transmission of	M. P. Schetzel	482,655	Sept. 13	1205	294	60	1584
Water-boiler. Sectional	T. Doherty	479,873	Aug. 2	149	36, 37	60	611
Water-closet	E. Hammann	480,402	Aug. 9	1053	264	60	793
Water-closet	S. E. Hughes	481,761	Aug. 30	3275	797	60	1266
Water-closet	S. Jennings and J. Morley	482,923	Sept. 20	1639	412	60	1681
Water-closet seat and cover	G. J. Kremelberg	481,498	Aug. 23	2839	698	60	1166
Water-closet. Siphon	H. H. Sievert	480,292	Aug. 9	876	223	60	762
Water-closet valve	G. F. Brown	479,182	July 19	1726	432	60	363
Water-closets. Automatic valve-operator for	J. Hankenhof	478,963	July 12	1370	337	60	286
Water elevating and conveying apparatus	J. S. Daniel	480,494	Aug. 9	1197	301	60	821
Water-elevator	V. Boatwright	481,099	Aug. 16	2160	536	60	1024
Water-gage	W. B. Simpson	483,396	Sept. 27	2402	604	60	1842
Water-gage	J. A. and J. Hopkinson	481,493	Aug. 23	2828	695	60	1164
Water-heater	W. A. Woods	479,235	July 19	1802	451	60	377
	E. Nagel	479,141	July 19	1659	415	60	350
Water-heater	C. Stees and G. Graupensperger	481,211	Aug. 23	2356	{580 {581	60	1075
Water-heater	R. F. Walsh	480,913	Aug. 16	1851	461	60	966
Water-heater	G. W. Washburn	478,486	July 5	648	159	60	129
Water-heater. Electric	T. Ahearn	481,291	Aug. 23	2519	618	60	1103
Water-heater. Electrical	R. Kennedy	479,814	Aug. 2	60	14	60	593
Water-heater. Gas	W. S. Wright	479,869	Aug. 2	145	35	60	610
Water-heating apparatus	H. B. Clarke	482,076	Sept. 6	253	61	60	1385
Water-motor	B. S. Partridge	478,457	July 5	604	147	60	119
Water-motor	L. Porter	482,927	Sept. 20	1642	413	60	1682
Water-motor	W. E. Seelye	483,394	Sept. 27	2399	603	60	1841
Water-motor	I. H. Spencer	479,097	July 19	1587	397	60	337
Water-purifying apparatus	J. H. Blessing	482,515	Sept. 13	998	{241 {242	60	1544
Water-supply regulator	F. G. Schuerman	478,526	July 5	714	173	60	142
Water-tower and fire-escape. Combined	F. M. Hughes	483,001	Sept. 20	1763	{445 {446	60	1706
Water-tube boiler	R. and R. Munroe, Jr	478,756	July 12	1053	259	60	225
Water-wheel	F. M. Bookwalter and W. W. Tyler	483,133	Sept. 27	1964	{498 {499	60	1759
Water-wheel	W. G. Spencer	481,074	Aug. 16	2118	{527 {528	60	1017
Water-wheel	W. W. Tyler	480,753	Aug. 16	1607	{403 {404	60	917

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Water-wheel and means for transmitting power therefrom. Current	I. R. Beery	482,034	Sept. 6	183	44	60	1371
Watering apparatus. Stock	A. Rockfellow	479,197	July 19	1747	438	60	367
Watering device. Automatic	G. W. Schroeder	478,472	July 5	629	153	60	124
Watering device. Stock	G. W. Funk	478,745	July 12	1040	255	60	222
Watering-trough. Automatic	J. A. Brown	478,397	July 5	523	128	60	103
Waterproof composition	S. Huff	483,451	Sept. 27	2474	.....	60	1857
Waterproof fabric	J. R. France	481,485	Aug. 23	2818	692	60	1162
Wax-ends. Machine for making	R. M. Macintosh	479,093	July 19	1580	396	60	336
Wax mold. Sealing	J. C. Eckert	483,512	Sept. 27	2563	643	60	1874
Weaner. Calf	W. H. Tyler	481,985	Sept. 6	96	25	60	1353
Weather-strip	A. M. Ewers	481,229	Aug. 23	2392	590	60	1062
Weather-strip	D. D. Mayfield	483,076	Sept. 20	1876	475	60	1730
Weaving machine. Slat-and-wire-fabric	W. H. Nixon	482,022	Sept. 6	165	40	60	1368
Weed-cutter	M. S. Cadwell	479,487	July 26	2252	565	60	481
Weed-exterminator	G. S. Andrus	479,612	July 26	2429	605	60	513
Weigher. Automatic grain	W. Vreeland	480,300	Aug. 9	891	226	60	764
Weigher. Rotating grain	D. J. O'Connor	481,810	Aug. 30	3356	821	60	1281
Weighing apparatus for liquids. Automatic	W. Swartout	479,537	July 26	2319	580	60	494
Weighing apparatus. Grain	J. P. Baldwin	479,694	July 26	2359	{636 / 637}	60	538
Weighing asphalt. Apparatus for	C. Reuther	478,465	July 5	621	151	60	123
Weighing-machine	S. R. Scharf	480,141	Aug. 2	610	155	60	699
Weighing-machine	E. W. Spear	479,852	Aug. 2	114	28	60	605
Weighing-machine. Automatic	E. W. Spear	479,853	Aug. 2	116	29	60	605
Weighing machine. Grain	J. B. Stoner	480,752	Aug. 16	1605	{402 / 403}	60	917
Welding and heating apparatus. Arc	G. W. Wakefield	481,084	Aug. 16	2131	531	60	1019
Welding. Electric	P. I. Unwin and H. Howard	480,794	Aug. 16	1669	417	60	929
Welding. Electric	C. L. Coffin	483,423	Sept. 27	2439	613	60	1850
Welding. Electric metal	H. Howard	481,030	Aug. 16	2032	507	60	1001
Welding machine. Link	C. L. Coffin	483,425	Sept. 27	2441	614	60	1850
Welding machine. Pipe	J. W. Bonta	483,418	Sept. 27	2432	{611 / 612}	60	1848
Welding metal wheels	R. K. Welch	478,669	July 12	919	228	60	197
Well adjusting apparatus. Oil	E. H. Scott	478,643	July 12	887	220	60	191
Well-boring apparatus	G. H. Wadsworth and W. Sheesley	482,818	Sept. 20	1466	{364 / 365}	60	1648
Well-boring apparatus	F. Gardner	478,791	July 12	1120	{276 / 277}	60	237
Well-curbing	D. L. Monroe	481,636	Aug. 30	3060	747	60	1224
Well-drilling machine	A. Möhle	479,010	July 19	1455	361	60	313
Well-drilling machine	J. W. and F. Draper and W. Ellsworth.	481,482	Aug. 23	2815	692	60	1161
Well-excavator	J. Gardner	480,906	Aug. 16	1843	458	60	965
Well-packer	G. W. Gale	479,149	July 19	1670	417	60	352
Well-sinking machine	I. N. Hoadley	480,926	Aug. 16	1871	466	60	970
Wells, &c. Apparatus for drilling	T. G. Chapman and J. W. Hunt	480,904	Aug. 16	1841	958	60	964
Wheat-cleaning machine	J. R. Davis	479,059	July 19	1527	381	60	327
Wheat-heater steaming attachment	J. Rudasill	478,469	July 5	625	152	60	124
Wheat. Process of and apparatus for treating	S. M. Braden	478,151	July 5	119	30	60	26
Wheat-separator	C. O. Webb	482,068	Sept. 6	236	57	60	1381
Wheel:	A. H. Kirk	479,816	Aug. 2	62	14, 15	60	594
See Barrow-wheel. Bicycle-wheel. Car-wheel. Cycle-wheel. Elastic wheel. Fifth-wheel. Gear-wheel. Hoisting-wheel. Paddle-wheel. Polishing-wheel. Propeller-wheel. Split wheel. Toothed wheel. Traction-wheel. Turbine wheel. Vehicle-wheel. Velocipede-wheel. Water-wheel. Wind-wheel. Winnowing-wheel.							
Wheel	R. W. Dixon	478,577	July 12	795	196	60	173
Wheel	R. Jewell	480,586	Aug. 9	1338	334	60	850
Wheel	A. Levedahl	480,022	Aug. 2	426	107	60	662
Wheel	T. C. Munz	482,806	Sept. 20	1452	360	60	1645
Wheel	J. Rees	481,821	Aug. 30	3376	827	60	1285
Wheel	J. W. Rhodes	481,822	Aug. 30	3377	827	60	1285
Wheel	F. H. Rundquist-Wanner	479,722	July 26	2624	651	60	549
Wheel	C. E. W. Woodward	481,340	Aug. 23	2587	635	60	1117
Wheel rim and tire	J. Fransmann	479,708	July 26	2590	645	60	543
Wheel-shoe	F. G. Davis	478,954	July 12	1352	335	60	283
Wheels. Device for packing vehicle	W. F. Henry, W. P. Bolles, and A. McKee.	481,028	Aug. 16	2030	506	60	1000
Whiffletree	W. J. Rose	482,698	Sept. 13	1280	314	60	1509
Whiffletree connection	A. Haggerty	481,301	Aug. 23	2527	620	60	1106
Whiffletree draft device	Q. V. P. Day	482,622	Sept. 13	1167	282	60	1576
Whiffletree-hook	A. N. Green	479,939	Aug. 2	254	63	60	631
Whiffletree-hook	H. E. Harris	480,465	Aug. 9	1159	291	60	813
Whip-holder	J. E. Woodward	480,356	Aug. 9	976	246	60	779
Whip-socket	F. E. Benton	482,717	Sept. 20	1318	322	60	1618
Whip-socket	G. A. L. Johnson	479,811	Aug. 2	55	13	60	593
Whip-socket	H. E. Schreader	481,063	Aug. 16	2107	524	60	1014
Whip-socket and rein-holder	T. F. Burkhard	478,310	July 5	391	94	60	79
Whisky. Making	W. E. Bradley	481,925	Sept. 6	7	.....	60	1336
Whist. Apparatus for duplicate	M. C. Work	481,995	Sept. 6	113	28	60	1357
Whistle. Steam	J. Einig	480,078	Aug. 2	510	130	60	680
Wick-adjusting device	F. Rhind	478,288	July 5	360	87	60	72
Wick-raiser	G. S. Brown	483,279	Sept. 27	2232	561	60	1810
Wick-tube	J. D. Luther	479,519	July 26	2297	574	60	489
Wind-engine	S. A. Rouse	478,945	July 12	1340	{332 / 333}	60	280

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wind-machine	J. T. Shoup, Jr	479,903	Aug. 2	363	90	60	650
Wind-wheel	E. Brégier	483,098	Sept. 20	1912	484	60	1737
Wind-wheel governor. Automatic	J. H. Berky	481,095	Aug. 16	2155	534	60	1023
Winding cops or balls	S. W. Wardwell, Jr	480,158	Aug. 2	637	{161 / 162}	60	704
Winding cops or balls. Apparatus for	S. W. Wardwell, Jr	480,157	Aug. 2	633	{160 / 161}	60	703
Winding machine. Thread	C. Hill	482,308	Sept. 6	635	{152 / 153 / 154}	60	1459
Winding-machines. Driving mechanism for the spindles of circular	F. A. Ludwig	481,329	Aug. 23	2570	631	60	1114
Windlass	J. J. Hamblin	483,113	Sept. 20	1933	489	60	1742
Windmill	G. W. Campbell	481,712	Aug. 30	3179	{776 / 777}	60	1247
Windmill attachment	H. D. Bixler and G. C. Ferguson	483,206	Sept. 27	2091	530	60	1785
Windmill-regulator	E. C. Norton	483,060	Sept. 20	1881	476	60	1731
Windmill-regulator. Automatic	E. T. Crowe	480,399	Aug. 9	1048	263	60	792
Window	J. W. Cooper	480,806	Aug. 16	1692	422	60	934
Window	O. M. Edwards	482,344	Sept. 13	711	170	60	1489
Window	R. H. White	480,682	Aug. 9	1500	{373 / 374}	60	880
Window-chair	A. Boettcher	480,991	Aug. 16	1980	496	60	990
Window-cleaner	A. L. Lewis	483,359	Sept. 27	2342	589	60	1831
Window-cleaners. Safety device for	R. d'Heureuse	482,865	Sept. 20	1538	383	60	1663
Window-frame	W. T. Gregg	478,593	July 12	817	202	60	178
Window-frame	F. Meaker and T. O. Arbegust	480,908	Aug. 16	1846	459	60	965
Window frame and sash	J. Anderson	481,091	Aug. 16	2149	533	60	1022
Window frame and sash	J. Wilson	482,989	Sept. 20	1744	441	60	1702
Window or door screen	C. J. Shirreff	481,066	Aug. 16	2111	525	60	1015
Window-screen	W. E. Cobb	479,752	July 26	2669	662	60	558
Window-screen	H. B. Dodge	480,562	Aug. 9	1299	325	60	642
Window-screen	S. Roebuck	482,811	Sept. 20	1458	362	60	1646
Window seat	W. Engler	481,854	Aug. 30	3427	841	60	1295
Window-ventilator	G. W. Greig	483,483	Sept. 27	2509	632	60	1864
Window-washer. Rotating	H. B. Davis	481,140	Aug. 16	2236	551	60	1038
Winnowing-wheel for separating granular substances.	O. Sundgren	478,828	July 12	1183	293	60	249
Wire-box-strap machine	J. Vermeulen	481,444	Aug. 23	2751	677	60	1148
Wire coiling and cutting machine	E. J. Fulghum and L. Roberts	483,321	Sept. 27	2294	577	60	1821
Wire-coiling machine	W. Edenborn	480,564	Aug. 9	1300	326	60	842
Wire-coiling machine	W. Edenborn	480,565	Aug. 9	1301	326	60	843
Wire coupling. Underground	J. J. Purcell	483,327	Sept. 27	2303	579	60	1823
Wire fabric for bed-bottoms. Machine for making coiled	F. L. Bryant	482,071	Sept. 6	240	58, 59	60	1382
Wire fabric. Machine for weaving coiled	O. P. Briggs and F. L. Bryant	480,007	Aug. 2	381	{94 / 95 / 96}	60	653
Wire-feeding mechanism	F. H. Hardman	478,598	July 12	825	204	60	179
Wire gate	C. Berryman	479,394	July 26	2071	520	60	446
Wire machine. Barb	I. A. Kilmer	479,985	Aug. 2	329	81, 82	60	645
Wire. Machine to plait	O. Preston	482,589	Sept. 13	1117	{269 / 270}	60	1567
Wire, &c. Manufacture of rubber-coated	T. Guilleaume	483,110	Sept. 20	1929	489	60	1741
Wire mat	T. Midgley	482,061	Sept. 6	225	54	60	1379
Wire. Method of and apparatus for coiling and inserting	C. Jackson	482,965	Sept. 20	1706	{430 / 431}	60	1695
Wire. Method of and apparatus for tempering	F. Purdy	482,879	Sept. 20	1567	391	60	1668
Wire-netting machine	E. S. Bond	478,561	July 12	773	189	60	168
Wire-netting machine	H. K. Swinscoe	483,181	Sept. 27	2050	{517 / 518}	60	1776
Wire-netting machine	H. K. Swinscoe	483,182	Sept. 27	2053	518	60	1777
Wire. Pile	C. Ford	479,211	July 19	1767	443	60	371
Wire-reel	R. E. Miller and J. D. Bowman	481,306	Aug. 23	2533	621	60	1107
Wire rope. Process of and apparatus for manufacturing	A. F. W. Partz	482,190	Sept. 6	443	107	60	1422
Wire springs and couplings. Machine for making	S. Konz	482,427	Sept. 13	855	205	60	1516
Wire straightening and cutting machine	C. B. Brainard	482,000	Sept. 6	121	30	60	1358
Wire-stretcher	W. D. Fulbright	479,265	July 19	1848	463	60	387
Wire-stretcher	J. N. Hatcher	482,555	Sept. 13	1073	260	60	1556
Wire-stretcher	C. F. Steinkamp	479,901	Aug. 2	190	47	60	619
Wire stretcher and fastener	G. Chamberlain	483,320	Sept. 27	2293	577	60	1821
Wire stretcher or clamp	J. M. Klein	481,179	Aug. 23	2303	568	60	1065
Wire-tightener	J. L. Buckingham	482,035	Sept. 6	184	44	60	1371
Wire-tightener	L. M. Johnson	481,763	Aug. 30	3278	798	60	1267
Wire with fibrous material. Apparatus for covering	J. Buckner	483,043	Sept. 20	1830	465	60	1721
Wood and coal box	R. Federroll	478,931	July 12	1323	328	60	277
Wood-carving machine	W. R. Snyder	480,521	Aug. 9	1239	{311 / 312}	60	830
Wood-cutting tool	R. Roberts	479,306	July 19	1906	476	60	398
Wood-decorating machine	A. Tilton and A. Hormel	482,855	Sept. 20	1523	378	60	1660
Wood. Means for ornamenting	C. L. Goehring	480,462	Aug. 9	1154	{289 / 290}	60	812
Wood-molding machine	F. H. Van Houten	480,443	Aug. 9	1117	279	60	805
Wood. Process of and machine for bending and drying	R. P. Burkhardt	482,762	Sept. 20	1425	353	60	1639
Wood. Tool for ornamenting the surfaces of	C. M. Haynes	481,868	Aug. 30	3447	846	60	1299
Wooden pipe	A. M. Hawks	478,105	July 5	43	13	60	11
Woodworkers. Work-holder and safety-guard for universal	J. C. Thom	481,983	Sept. 6	93	24	60	1358
Woodworking-machine fence	G. W. Bugbee and F. Danner	480,902	Aug. 16	1839	457	60	963
Wool. Extracting fat from	W. T. Cutter	482,995	Sept. 20	1754	443	60	1704
Wool-washing machine	W. T. Forbes	478,410	July 5	555	134	60	108
Wool-washing machine	F. G. and A. C. Sargent	480,263	Aug. 9	858	219	60	759

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Woolen boot	W. H. Dodge and R. D. O. Smith	479,251	July 19	1830	459	60	383
Woven fabric	I. McCallum	480,855	Aug. 16	1764	441	60	949
Woven fabric. Figured	A. and J. Morton	483,078	Sept. 20	1878	476	60	1731
Wrapper	J. J. Cochran	481,846	Aug. 30	3414	838	60	1293
Wrapping-machine	M. E. Brigham	478,396	July 5	518	127, 128	60	102
Wrapping-machine	C. R. Schilling	480,239	Aug. 2	773	195, 196, 197	60	729
Wrench: *See* Carriage-wrench. Pipe-wrench. Chain-wrench. Pipe and nut wrench. Nut and bolt wrench. Ratchet-wrench.							
Wrench	R. Belles	480,801	Aug. 16	1684	420	60	932
Wrench	H. Bornstein	479,698	July 26	2586	638	60	539
Wrench	H. P. Christensen and H. Nelson	478,405	July 5	535	130	60	105
Wrench	E. A. Cochran	481,389	Aug. 23	2661	652	60	1130
Wrench	R. S. Gillespie and H. James	481,110	Aug. 16	2177	539	60	1027
Wrench	J. H. Guiley and J. E. Wright	482,245	Sept. 6	527	125	60	1437
Wrench	J. C. Johnson	483,222	Sept. 27	2112	535	60	1788
Wrench	J. A. Litel	483,461	Sept. 27	2483	625	60	1859
Wrench	B. McGilvray	481,506	Aug. 23	2848	700	60	1168
Wrench	W. Miller and W. S. Duvall	478,121	July 5	65	17	60	15
Wrench	F. Mossberg	482,021	Sept. 6	164	39	60	1367
Wrench	F. Mossberg	482,749	Sept. 20	1370	339	60	1628
Wrench	J. Ryan	482,198	Sept. 6	453	110	60	1424
Wrench	G. B. Stevenson	482,281	Sept. 6	589	140	60	1449
Wringer: *See* Clothes-wringer. Mop-wringer.							
Wringing-machine	J. W. Finegan	480,457	Aug. 9	1149	288	60	811
Writing and drawing device	J. J. Pauls	478,129	July 5	73	19	60	17
Yard-stick holder	E. R. Northam	481,188	Aug. 23	2318	571	60	1068
Yeast-cells. Separating	E. Allert	479,130	July 19	1641	410	60	347
Yoke. Draft	C. W. Snedeker	479,535	July 26	2317	579	60	493
Yoke. Neck	L. W. Rothrock	481,825	Aug. 30	3386	830	60	1287
Yoke. Neck	J. Ziegler	481,996	Sept. 6	114	28	60	1357
Zinc or spelter from ores. Reducing	C. James	478,110	July 5	48	.....	60	12
Zinc plates to their bed. Device for straining	E. S. Jones	478,607	July 12	838	206	60	182
Zinc. Reducing	C. James	482,438	Sept. 13	872	.....	60	1519
Zither attachment	P. Stark and K. Gütter	480,750	Aug. 16	1603	402	60	917

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Advertising game-board	R. G. Martindale	21,679	July 5	60	150
Andiron	E. T. Schoonmaker	21,726	July 19	60	432
Badge	J. Best	21,859	Sept. 13	60	1606
Badge	J. K. Davison	21,688	July 5	60	152
Badge	E. Gash	21,758	Aug. 9	60	887
Badge	W. B. Munger	21,846	Sept. 6	60	1472
Badge	G. B. Rand	21,790	Aug. 23	60	1182
Badge	L. Reichert	21,779	Aug. 16	60	1045
Badge	J. F. Roche	21,704	July 12	60	291
Badge	G. A. Schlechter	21,745	Aug. 2	60	730
Badge. Campaign	G. A. Schlechter	21,866	Sept. 27	60	1879
Badge or similar article	H. W. Welles	21,814	Aug. 30	60	1320
Baking-pan	G. H. Reinnagel	21,744	Aug. 2	60	730
Balloon	G. B. Gifford	21,754	Aug. 2	60	731
Basin slabs. Standard for wash	T. B. Dixey	21,874	Sept. 27	60	1880
Bedstead	J. Totham	21,724	July 19	60	431
Bottle	F. E. Wilcox	21,856	Sept. 13	60	1605
Bottle	J. B. Grommes	21,826	Aug. 30	60	1322
Bottle	B. I. Mott	21,711	July 12	60	292
Bottle. Pocket	F. H. Thuemler	21,736	July 26	60	571
Bowl	H. N. Fraser	21,728	July 19	60	432
Bowl	J. D. Bergen	21,681	July 5	60	150
Box	G. Wilkinson	21,755	Aug. 2	60	731
Box	E. L. Button	21,796	Aug. 23	60	1183
Box	C. L. Dobrick	21,840	Sept. 6	60	1472
Bread-pan	W. C. Estes	21,762	Aug. 9	60	887
Bridle-bit frame	T. H. Murphy and P. M. Zoeggele	21,710	July 12	60	292
Brooch-pin	W. W. Hall	21,872	Sept. 27	60	1880
Broom-rack	T. Tugby	21,759	Aug. 9	60	887
Brushes, &c. Backs for	P. E. Whitson and O. G. Noaker	21,708	July 12	60	291
Brushes or similar articles. Backs of	G. L. Crowell, Jr.	21,709	July 12	60	292
Buckle. Suspender	C. C. Wientge	21,847	Sept. 6	60	1473
Button, &c.	C. R. Harris	21,791	Aug. 23	60	1182
Button	A. A. Bushee	21,869	Sept. 27	60	1879
Button. Campaign	W. J. Van Keuren	21,843	Sept. 6	60	1472
Button. Campaign	W. S. How	21,815	Aug. 30	60	1320
Button-hook	R. Liebmann	21,729	July 19	60	432
Cane-handle	C. Wester	21,792	Aug. 23	60	1182
Cap	F. S. Evans	21,784	Aug. 23	60	1181
Car body. Railway	M. S. Brundage	21,712	July 12	60	292
Carpet	R. I. Sloan and R. D. Gallagher	21,824	Aug. 30	60	1321
Carpet	P. C. Chambellan	21,829	Aug. 30	60	1322
Carriage-body	H. T. George	21,857	Sept. 13	60	1605
Carriage-step	A. T. Demarest	21,773	Aug. 9	60	889
Chain. Watch	W. R. Wilson	21,780	Aug. 16	60	1045
Chair	D. L. Fry	21,689	July 5	60	152
Clasp	Z. Nuttall	21,849	Sept. 6	60	1473
Cloak	S. Baxter	21,845	Sept. 6	60	1472
Clutch-frame	A. Popkin	21,828	Aug. 30	60	1322
Coffin-handle	H. W. Hill	21,767	Aug. 9	60	888
Coffin-pedestal	O. McCarthy	21,775	Aug. 9	60	889
Coffin-plate	G. G. Kregel	21,757	Aug. 2	60	731
Columns. Casing for urania	O. McCarthy	21,774	Aug. 9	60	889
Confection	L. Schupmann	21,865	Sept. 27	60	1879
Corkscrew	D. E. Mapother	21,760	Aug. 9	60	887
Cornice	C. Puddefoot	21,761	Aug. 9	60	887
Cup	A. Carlewitz	21,731	July 19	60	432
Decorative fabric	C. E. Haviland	21,686	July 5	60	151
Decorative fabric	S. M. Schwab, Jr.	21,734	July 26	60	570
Dental punch	S. M. Schwab, Jr.	21,735	July 26	60	570
Dish. Cover	C. E. Blake, Sr.	21,771	Aug. 9	60	888
Fabrics. Ornamentation of	C. E. Haviland	21,687	July 5	60	151
Finger-ring	H. Sturm	21,795	Aug. 23	60	1183
Fireplace-front	J. A. Dawley	21,691	July 5	60	152
Flag	R. M. Hovey	21,725	July 19	60	432
Floral lapel ornament	J. W. MacNamara	21,788	Aug. 23	60	1182
Glass vessels. Ornamentation of	H. F. G. Fuchs	21,690	July 5	60	152
Glass vessels. Ornamentation of	T. G. Hawkes	21,705	July 12	60	291
Handle for cutlery, &c.	L. A. Rose	21,727	July 19	60	432
Handle for cutlery, &c.	W. W. Hayden	21,809	Aug. 30	60	1320
Handle for cutlery, &c.	W. W. Hayden	21,810	Aug. 30	60	1320
Handle for cutlery, &c.	W. W. Hayden	21,811	Aug. 30	60	1320
Handle for spoons, &c.	W. W. Hayden	21,812	Aug. 30	60	1320
Handle for spoons, &c.	J. Larson and J. M. Van Slyke	21,854	Sept. 13	60	1605
Handle for spoons, &c.	J. Larson and J. M. Van Slyke	21,855	Sept. 13	60	1605
Handle for spoons, &c.	J. W. Maillot	21,837	Sept. 6	60	1471
Handle for spoons, &c.	C. C. Wientge	21,838	Sept. 6	60	1471
Hat-rack	G. Wilkinson	21,839	Sept. 6	60	1471
Horn. Campaign	J. Honecker	21,781	Aug. 23	60	1181
Knife-handle	H. L. Millis	21,789	Aug. 23	60	1182
	F. J. Kaldenberg	21,693	July 5	60	152

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Knife-handle	G. W. Korn	21,766	Aug. 9	60	888
Knife-handle	G. W. Korn	21,867	Sept. 27	60	1879
Knife-handle	H. A. Weihman	21,785	Aug. 23	60	1181
Knob and lock escutcheon	R. W. E. Christesen	21,706	July 12	60	291
Knob. Door	R. W. E. Christesen	21,769	Aug. 9	60	888
Lamp	F. Yokel	21,871	Sept. 27	60	1879
Lamp-bracket	A. Koehn	21,818	Aug. 30	60	1320
Lamp-burner	F. Rhind	21,770	Aug. 9	60	888
Lamp. Carriage	M. L. De Voursney	21,778	Aug. 16	60	1045
Lamp-fount holder	F. Yokel	21,723	July 19	60	431
Lamp frame. Electric	J. E. Gaston	21,701	July 12	60	290
Lamp globe or shade	J. Webb	21,819	Aug. 30	60	1321
Lamp-shade	H. Hohenstein	21,702	July 12	60	291
Lamp-standard	A. Koehn	21,820	Aug. 30	60	1321
Lantern	A. W. Paull	21,732	July 26	60	570
Lathe-bed	C. M. Conradson	21,798	Aug. 23	60	1183
Lathe-bed	C. M. Conradson	21,799	Aug. 23	60	1183
Leggin	S. Borchardt	21,827	Aug. 30	60	1322
Lens for illuminating-tiles, &c	J. Jacobs	21,861	Sept. 20	60	1746
Match-box	C. Osborne	21,768	Aug. 9	60	888
Medal	A. O. Quinby and T. H. Bates	21,703	July 12	60	291
Memorial shield	W. Mayer	21,862	Sept. 20	60	1746
Metal border	L. C. Hiller	21,697	July 5	60	153
Metal border	L. C. Hiller	21,698	July 5	60	153
Metal border	C. Osborne	21,848	Sept. 6	60	1473
Padlock-case	E. A. Judd	21,821	Aug. 30	60	1321
Paper-weight	L. J. Heffernan	21,863	Sept. 20	60	1746
Pattern for printed fabric	S. M. Schwab, Jr	21,858	Sept. 13	60	1606
Pencil-sharpener	S. A. Davis	21,864	Sept. 20	60	1746
Picture-frame	A. Selter	21,733	July 26	60	570
Picture-hook	G. W. Tucker	21,870	Sept. 27	60	1879
Pistol-cheek	J. H. Wesson	21,822	Aug. 30	60	1321
Pistol-cheek	D. B. and J. H. Wesson	21,823	Aug. 30	60	1321
Planers. Cutter-head hood for	J. Roberts	21,850	Sept. 6	60	1473
Plate	C. E. Haviland	21,682	July 5	60	150
Plate	C. E. Haviland	21,683	July 5	60	151
Plate	C. E. Haviland	21,684	July 5	60	151
Plate. Sandwich	C. E. Haviland	21,685	July 5	60	151
Roofing-tile	G. H. Babcock	21,772	Aug. 9	60	889
Rubber mat	H. E. Spadone	21,730	July 19	60	432
Rubber mat	J. J. Voorhees	21,707	July 12	60	291
Sheet metal. Ornamentation of	L. Kahn	21,696	July 5	60	153
Shepherd's crook	A. L. Babcock	21,816	Aug. 30	60	1320
Shoe	N. Lowenthal	21,752	Aug. 2	60	731
Shoe-shaper plate	J. W. Skinner	21,694	July 5	60	152
Show-case	F. B. Baldwin	21,763	Aug. 9	60	888
Siding-plate	P. A. Deslauriers	21,825	Aug. 30	60	1321
Sign. Barber's	F. Svoboda and C. Hofmann	21,782	Aug. 23	60	1181
Sink-trap	H. C. Montgomery	21,776	Aug. 9	60	889
Sink-trap	H. C. Montgomery	21,873	Sept. 27	60	1880
Spoon	R. E. Acton	21,835	Sept. 6	60	1471
Spoon	J. C. Badger	21,777	Aug. 16	60	1045
Spoon	W. W. Berry	21,699	July 12	60	290
Spoon	C. S. Champion	21,714	July 19	60	431
Spoon, &c	G. L. Crowell, Jr	21,700	July 12	60	290
Spoon	A. H. Fancher	21,836	Sept. 6	60	1471
Spoon	W. A. Henderson	21,738	Aug. 2	60	730
Spoon	F. F. Horn	21,716	July 19	60	431
Spoon	H. B. Houston	21,715	July 19	60	431
Spoon	J. A. Hughes	21,783	Aug. 23	60	1181
Spoon	B. Meyer	21,739	Aug. 2	60	730
Spoon	E. I. Richards	21,868	Sept. 27	60	1879
Spoon	O. Supe	21,740	Aug. 2	60	730
Spoon	G. P. Tilton	21,742	Aug. 2	60	730
Spoon	J. M. Van Slyke	21,717	July 19	60	431
Spoon	H. L. Wallace	21,741	Aug. 2	60	730
Spoon	H. L. Wright	21,737	July 26	60	571
Spoon or fork handle	H. I. Clulee	21,692	July 5	60	152
Statue	C. Holloway	21,787	Aug. 23	60	1181
Statuette	C. M. Smith	21,680	July 5	60	150
Stool. Piano-	M. Tonk	21,695	July 5	60	153
Stove	F. A. Magee	21,713	July 12	60	292
Stove-board	A. Lehnhardt	21,808	Aug. 30	60	1320
Stove. Cooking-	G. H. Holland	21,804	Aug. 30	60	1319
Stove. Cooking-	G. H. Holland	21,805	Aug. 30	60	1319
Stove. Cooking-	G. H. Holland	21,806	Aug. 30	60	1319
Stove. Cooking-	G. H. Holland	21,807	Aug. 30	60	1320
Stove. Heating-	W. N. Moore	21,801	Aug. 23	60	1183
Stove. Oil heating-	M. G. Benedict	21,853	Sept. 6	60	1474
Stove. Oil or gas	E. A. Thissell and W. H. Wilder	21,852	Sept. 6	60	1474
Stove or range	O. G. Thomas	21,851	Sept. 6	60	1473
Suspender-ring	F. W. Shillitto	21,860	Sept. 20	60	1746
Table	Z. Nuttall	21,802	Aug. 30	60	1319
Table	Z. Nuttall	21,803	Aug. 30	60	1319
Table-top	F. Yokel	21,722	July 19	60	431
Table-top	F. Yokel	21,750	Aug. 2	60	731
Table-top	F. Yokel	21,751	Aug. 2	60	731
Thimble	E. S. Simons	21,746	Aug. 2	60	730
Thimble	H. A. Weihman	21,747	Aug. 2	60	730
Thimble	H. A. Weihman	21,844	Sept. 6	60	1472
Top. Spinning	A. J. Huntoon	21,752	Aug. 2	60	731
Toy rattle	J. A. Crandall	21,764	Aug. 9	60	888
Toy rattle	J. A. Crandall	21,765	Aug. 9	60	888
Trimming	A. S. Ellison	21,793	Aug. 23	60	1182

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Trimming	F. O. Heinig	21,743	Aug. 2	60	730
Trimming	C. Lexow	21,830	Sept. 6	60	1470
Trimming	H. M. Sacks	21,832	Sept. 6	60	1470
Trimming	H. M. Sacks	21,833	Sept. 6	60	1471
Trimming	J. W. Schloss	21,831	Sept. 6	60	1470
Trimming	L. Tisch	21,834	Sept. 6	60	1471
Trimming. Dress-	B. Lipper	21,675	July 5	60	150
Trimming. Dress-	B. Lipper	21,676	July 5	60	150
Trimming. Dress-	B. Lipper and A. A. Courts	21,677	July 5	60	150
Trimming. Dress-	H. W. Schloss	21,794	Aug. 23	60	1182
Trimming or fringe	A. A. Frankl	21,678	July 5	60	150
Trumpet	A. Schoenhut	21,841	Sept. 6	60	1472
Trumpet	A. Schoenhut	21,842	Sept. 6	60	1472
Vending-machines. Casing for coin-actuated	R. H. Little	21,786	Aug. 23	60	1181
Ventilator-grate	G. N. Joss	21,800	Aug. 23	60	1183
Wagon-body	L. Doyle	21,756	Aug. 2	60	731
Watch-case	C. L. Depollier	21,721	July 19	60	431
Watch-case	J. C. Dueber	21,719	July 19	60	431
Watch-case	J. C. Dueber	21,720	July 19	60	431
Watch-case	J. C. Dueber	21,797	Aug. 23	60	1183
Watch-case	J. C. Dueber	21,813	Aug. 30	60	1320
Watch-case	H. Hoffa	21,748	Aug. 2	60	730
Watch-charm	J. A. Dawley	21,718	July 19	60	431
Watch-charm	F. P. Sparmaker	21,740	Aug. 2	60	731
Whip	J. Pomery	21,817	Aug. 30	60	1320

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Absorbent pads	I. D. Allen & Co	21,577	Aug. 9	60	890
Ale	Singer & Wheeler	21,710	Aug. 30	60	1324
Ale and beer	G. W. Wiedenmayer	21,695	Aug. 30	60	1323
Ale, porter, and stout	Anderton Brewing Company	21,556	Aug. 2	60	734
Ammonia-alum	N. Waterbury	21,574	Aug. 9	60	890
Analgesic preparations	E. R. Smith	21,715	Aug. 30	60	1324
Antipyretics and sedatives	Chas. Truax, Greene & Company	21,399	July 5	60	154
Antiseptics	S. G. Plumb	21,452	July 12	60	294
Apparel, outer and under wear, bedding, and the materials of which they are made. Wearing.	Dr. Jaeger's Sanitary Woolen System Company.	21,497	July 19	60	435
Apparel, outer and under wear, bedding, and the materials of which they are made. Wearing.	Dr. Jaeger's Sanitary Woolen System Company.	21,498	July 19	60	435
Apparel, outer and under wear, bedding, and the materials of which they are made. Wearing.	Dr. Jaeger's Sanitary Woolen System Company.	21,499	July 19	60	435
Apparel, outer and under wear, bedding, and the materials of which they are made. Wearing.	Dr. Jaeger's Sanitary Woolen System Company.	21,639	Aug. 16	60	1049
Baking-powder	C. Amann	21,576	Aug. 9	60	890
Baking-powder	Calumet Baking Powder Company	21,792	Sept. 27	60	1882
Baking-powder	Potter Parlin Company	21,550	Aug. 9	60	891
Baking-powder and yeast	J. E. Blackburn	21,419	July 5	60	155
Battery compounds	Wright Universal Electric Company.	21,611	Aug. 16	60	1046
Bedsteads and wire mattresses. Metallic	S. Wilkes	21,726	Sept. 6	60	1475
Beer	Conrad Seipp Brewing Company	21,638	Aug. 16	60	1049
Beer	Frank Fehr Brewing Company	21,526	July 26	60	573
Beer	Hagemann Brewing Company	21,739	Sept. 13	60	1607
Beer	C. A. Lammers	21,527	July 26	60	573
Beer	McAvoy Brewing Company	21,786	Sept. 27	60	1881
Beer. Lager	Eigenbrot Brewing Company	21,776	Sept. 27	60	1881
Beer. Lager	Fred Krug Brewing Company	21,620	Aug. 16	60	1047
Beer. Lager	Long Island Brewery	21,680	Aug. 23	60	1187
Beer. Lager	Long Island Brewery	21,681	Aug. 23	60	1187
Beer. Lager	Long Island Brewery	21,789	Sept. 27	60	1882
Beer. Lager	National Brewing Company of Baltimore County, Maryland.	21,772	Sept. 20	60	1748
Beer. Lager	F. A. Poth Brewing Company	21,692	Aug. 30	60	1323
Beer-preservative	A. Boake, Roberts & Co	21,782	Sept. 27	60	1881
Beers. Lager and other	Elfreth & Ott	21,719	Sept. 6	60	1475
Belting. Machine	F. Reddaway & Co	21,538	Aug. 2	60	732
Bicycles	Buffalo Wheel Company	21,458	July 19	60	433
Bindings. Dress	Beeman & McCarthy Company	21,521	July 26	60	573
Biscuits, crackers, wafers, cakes, and similar articles	Hitchner & Co	21,608	Aug. 16	60	1046
Bitters	R. P. Burwell	21,637	Aug. 16	60	1049
Books. Account	R. R. Barton	21,491	July 19	60	435
Boots and shoes and leather for the same	Rice & Hutchins	21,562	Aug. 2	60	734
Boots and shoes. Leather	Solid Oak Shoe Co	21,645	Aug. 16	60	1049
Boots and shoes made of leather	Giesecke Boot and Shoe Manufacturing Company.	21,413	July 5	60	155
Boots and shoes of all kinds	C. A. Raymond	21,636	Aug. 16	60	1048
Boxes, bottles, tubes, atomisers, and powder-distributers used for dispensing powders, liquids, and semi-liquids.	McKesson & Robbins	21,530	July 26	60	573
Brandy. Norwegian	J. B. Lysholm	21,501	July 19	60	436
Brandy. Norwegian	J. B. Lysholm	21,502	July 19	60	436
Bread	J. D. Hennessy	21,444	July 12	60	294
Brewing purposes. Corn products used for	B. G. Hudnut	21,714	Aug. 30	60	1324
Bricks or blocks. Enameled and buff building	J. Crossley	21,728	Sept. 6	60	1476
Buttons. Pearl	Usine J. Clerét	21,414	July 5	60	155
Calculations and recording the results. Machines for making	Calculagraph Company	21,747	Sept. 13	60	1608
Candles	W. H. Weeks	21,743	Sept. 13	60	1608
Candy, chocolate, and cocoa for confectioners' use	Ode & Gerbereux	21,774	Sept. 20	60	1748
Canned and preserved fish	C. P. Upshur	21,805	Sept. 27	60	1882
Canned fish, fruits, vegetables, soups, and milk	W. B. Timms	21,804	Sept. 27	60	1882
Canned fruits, fish, meats, and vegetables	A. J. Wenham's Sons	21,800	Sept. 27	60	1882
Canned salmon	Taylor, Young & Co	21,405	July 19	60	435
Canned soup	Van Camp Packing Company	21,752	Sept. 13	60	1608
Canned tomatoes	Van Camp Packing Company	21,753	Sept. 13	60	1608
Capsules. Gelatine	J. W. Gedney	21,434	July 12	60	293
Cash-registering machine	Columbia Cash Register Company	21,717	Sept. 6	60	1475
Catsup. Tomato	Dodson, Hills Manufacturing Company.	21,793	Sept. 27	60	1882
Catsup. Tomato	Dodson, Hills Manufacturing Company.	21,794	Sept. 27	60	1882
Catsup. Tomato	Dodson, Hills Manufacturing Company.	21,795	Sept. 27	60	1882
Cement	R. M. Spencer	21,404	July 19	60	435
Chains, rings, clips, hooks, and other carriage-hardware	Baker Chain and Wagon Iron Manufacturing Company.	21,406	July 19	60	435
Champagne	Kunkelmann & Co	21,720	Sept. 6	60	1476
Cheese	McCord, Brady Company	21,621	Aug. 16	60	1047
Chicory	G. Piotc's Sons	21,730	Sept. 6	60	1475
Chloride of sodium or common salt	T. Higgin & Co	21,600	Aug. 9	60	892

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cigars	C. Alvarez	21,691	Aug. 23	60	1188
Cigars	C. J. Cooper	21,476	July 19	60	434
Cigars	Diaz y Hermano	21,658	Aug. 23	60	1185
Cigars	P. Le Francis	21,479	July 19	60	434
Cigars	R. López	21,661	Aug. 23	60	1186
Cigars and cigarettes	F. Hilson Company	21,606	Aug. 16	60	1046
Cigars. Labels or clips for indicating the price of	Imperial Metal Card Company	21,447	July 12	60	294
Cloaks and suits. Ladies' and misses'	A. Popkin & Co	21,756	Sept. 20	60	1747
Coats, pantaloons, overalls, shirts, and gentlemen's furnishing goods.	Bean, La Due & Clawson	21,677	Aug. 23	60	1187
Cod-liver oil. Substitute for	Danbury Pharmacal Association	21,533	Aug. 2	60	732
Coffee. Roasted	J. P. Dieter	21,538	Aug. 2	60	734
Coffee. Roasted	Midland Coffee and Spice Company	21,484	July 19	60	434
Coffee. Roasted and self-settling	Griggs, Cooper & Co	21,483	July 19	60	434
Collars and cuffs. Waterproof	Celluloid Company	21,573	Aug. 9	60	890
Collars and cuffs. Waterproof	Celluloid Company	21,619	Aug. 16	60	1047
Collars, riding-saddles, gig-saddles, back-pads, and all parts of harness. Horse-	Cork Faced Collar Company	21,557	Aug. 2	60	734
Colognes	Rich & Manheimer	21,407	July 5	60	154
Complexion-cream	M. Van Buren	21,595	Aug. 9	60	892
Compound for the cure of rheumatism and rheumatic gout	R. T. Lassiter	21,631	Aug. 16	60	1048
Compound of fruit and cascara-bark for the cure of dyspepsia and other diseases.	E. T. Booth	21,460	July 19	60	433
Confectionery	A. L. Causse Manufacturing Company.	21,757	Sept. 20	60	1747
Cookers, baking-dishes, and coffee-makers	Eustis Manufacturing Company	21,427	July 5	60	156
Cookies, wafers, and similar articles, such as cakes and crackers.	S. H. Childs Company	21,564	Aug. 2	60	734
Corn-starch or corn-flour. Preparation of	National Starch Manufacturing Company.	21,751	Sept. 13	60	1608
Corsets	J. Beckel & Co	21,457	July 19	60	433
Corsets	J. M. Van Orden	21,799	Sept. 27	60	1882
Corsets for ladies' use	Bay State Corset Company	21,482	July 19	60	434
Corsets, waists, and suspenders	Coronet Corset Company	21,758	Sept. 20	60	1747
Cosmetic	J. Greyer	21,426	July 5	60	156
Cotton fabrics. Corded	Sharpless Bros	21,531	July 26	60	573
Culinary vessels	H. Aloh	21,490	July 19	60	435
Cure for drunkenness	A. Noteman	21,485	July 19	60	434
Cure for nervous diseases and the liquor habit	Royal Medicine Company	21,797	Sept. 27	60	1882
Currants. Dried	W. H. Doble	21,712	Aug. 30	60	1324
Dentifrice	Florence Manufacturing Company	21,477	July 19	60	434
Dentifrice	Florence Manufacturing Company	21,733	Sept. 13	60	1607
Detergent compounds in liquid form	Peterson & Ruge	21,706	Aug. 30	60	1324
Diphtheria and other throat troubles. Specific for	D. Peraza	21,422	July 5	60	156
Diphtheria specific	Hunt & Co	21,401	July 5	60	154
Disinfectant	E. R. Farren	21,443	July 12	60	294
Disinfecting-paper	A. Ponsot	21,635	Aug. 16	60	1048
Douche. Nose and throat	W. C. Downey & Co	21,628	Aug. 16	60	1048
Dress fabrics, such as prints, calicoes, poplins, and alpacas	Windsor Company	21,541	Aug. 2	60	732
Dress-shields	Levi Bros. & Blum	21,417	July 5	60	155
Dress-stays. Covered	Detroit Stay Company	21,783	Sept. 27	60	1881
Edge tools	H. C. Marshall	21,622	Aug. 16	60	1048
Eider-down cloth of a wavy appearance	H. H. Bell's Sons	21,696	Aug. 30	60	1323
Electric rings for the cure of disease	M. D. Peckham	21,736	Sept. 13	60	1607
Extracts. Flavoring	A. J. Hilbert & Co	21,505	July 19	60	436
Facing. Skirt	Meyerhof, Marx & Simonsen	21,642	Aug. 16	60	1049
Fertilizer. Natural and artificial	Durham Fertilizer Company	21,508	Aug. 9	60	892
Fertilizers. Artificial	Baldwin Fertilizer Company	21,520	July 26	60	572
Fertilizers. Natural and artificial	Durham Fertilizer Company	21,550	Aug. 2	60	733
Fertilizers. Natural and artificial	Durham Fertilizer Company	21,551	Aug. 2	60	733
Flour. Corn	Ontario Oriental Flour Company	21,653	Aug. 23	60	1185
Flour. Wheat	J. A. Graves & Co	21,582	Aug. 9	60	891
Flour. Wheat	Snell & Makepeace	21,750	Sept. 13	60	1608
Fly-paper	Fly Button Co	21,510	July 19	60	436
Food for animals	G. Macfadden	21,803	Sept. 27	60	1882
Food for animals. Prepared	Pratt Food Company	21,632	Aug. 16	60	1048
Food for infants and invalids	F. B. Benger & Co	21,702	Aug. 30	60	1323
Food for poultry. Prepared	Pratt Food Company	21,633	Aug. 16	60	1048
Food. Prepared poultry	Pratt Food Company	21,634	Aug. 16	60	1048
Foods, malt extracts, and medicated wines. Prepared	J. P. Liebe	21,517	July 26	60	572
Games. Parlor	G. E. Sovereign	21,555	Aug. 2	60	734
Gems. Artificial	F. H. Sadler & Co	21,759	Sept. 20	60	1747
Gin	R. Burnett & Co	21,699	Aug. 30	60	1323
Ginghams	J. Farnum & Co	21,700	Aug. 30	60	1323
Glass. Plate or cathedral	Jefferson Glass Co	21,704	Aug. 30	60	1323
Gloves	Dunham, Buckley & Co	21,581	Aug. 9	60	891
Gloves. Liquid preparation for cleaning	Glovine Manufacturing Co	21,585	Aug. 9	60	891
Glue	A. & C. W. Holbrook	21,425	July 12	60	293
Hair-curling compounds	A. M. Petri	21,794	Sept. 6	60	1475
Hair-restorative and dandruff-cure	H. D. Wagner & Co	21,442	July 12	60	294
Hams, shoulders, and bacon. Smoked	Swift and Company	21,487	July 19	60	435
Hardware	Cash Buyers' Union	21,513	July 26	60	572
Hardware. Household, druggists', and butchers'	Enterprise Manufacturing Company of Pennsylvania.	21,552	Aug. 2	60	733
Hoes, forks, rakes, and other agricultural hand implements	Iowa Farming Tool Company	21,771	Sept. 20	60	1748
Hooks and eyes	Richardson & De Long Bros	21,787	Aug. 9	60	891
Hosiery	Sibley, Lindsay & Curr	21,567	Aug. 2	60	734
Ingots, slabs, blooms, billets, bars, rods, &c. Steel	A. C. Isaacs	21,449	July 12	60	294
Insect and vermin exterminators	W. Gottlieb	21,802	Sept. 27	60	1882
Insulated wire. Electric	Eastern Electric Cable Company	21,763	Sept. 20	60	1747
Jewelry	United Society of Christian Endeavor.	21,469	July 19	60	434
Journal. Society	Town Topics Publishing Company	21,694	Aug. 30	60	1323
Knives, scissors, and forks	Graef & Schmidt	21,560	Aug. 2	60	734

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Labels. Packages of printed	Jersey City Printing Company	21,777	Sept. 27	60	1881
Lamp and accessories pertaining thereto	Clark Bros. Lamp, Brass, and Copper Company.	21,648	Aug. 16	60	1050
Lard	J. M. Ceballos & Co	21,523	July 26	60	573
Lard	J. M. Ceballos & Co	21,732	Sept. 13	60	1607
Lard and its substitutes	W. J. Wilcox Lard and Refining Company.	21,438	July 12	60	293
Lard and its substitutes	W. J. Wilcox Lard and Refining Company.	21,439	July 12	60	293
Lard and its substitutes	W. J. Wilcox Lard and Refining Company.	21,440	July 12	60	293
Lard and its substitutes	W. J. Wilcox Lard and Refining Company.	21,441	July 12	60	294
Lard and its substitutes	W. J. Wilcox Lard and Refining Company.	21,603	Aug. 9	60	892
Lard and its substitutes	W. J. Wilcox Lard and Refining Company.	21,675	Aug. 23	60	1187
Lard substitute	S. H. Read	21,769	Sept. 20	60	1748
Laxative	P. Steinhart	21,615	Aug. 16	60	1047
Lead. White	M. L. Wieder	21,668	Aug. 23	60	1186
Leather, boots, shoes, and other foot-wear	East New York Boot, Shoe, and Leather Manufacturing Company.	21,773	Sept. 20	60	1748
Leather. Cordovan	W. M. Eisendrath	21,697	Aug. 30	60	1323
Leather. Harness	W. W. Mooney & Sons	21,781	Sept. 27	60	1881
Leather. Harness, sole, and belting	J. Groetzinger & Co	21,686	Aug. 23	60	1188
Leather, including belting	A. & C. W. Holbrook	21,445	July 12	60	294
Liniment	W. F. Grell	21,511	July 26	60	573
Liniment	A. Horn	21,400	July 5	60	154
Liniments, embrocations, and like external remedies	W. F. Young	21,489	July 19	60	435
Liniments or lotions for external and internal use for man and animals.	Powell & Gilbert	21,512	July 26	60	572
Liquors and cordials	Gordon & Co	21,734	Sept. 13	60	1607
Liquors except brandy. All spirituous and fermented	J. W. Nicholson & Co	21,571	Aug. 9	60	890
Lotion for the complexion	Sylvan Toilet Co	21,617	Aug. 16	60	1047
Lubricating compounds, oils, and grease	L. E. Atkinson	21,655	Aug. 23	60	1185
Magazine. Monthly	Great Divide Publishing Company	21,770	Sept. 20	60	1748
Matches	W. L. Anderson	21,790	Sept. 27	60	1882
Mattresses and other upholstery	G. W. Gill	21,701	Aug. 30	60	1323
Mead	J. McCloskey	21,506	July 19	60	436
Measures and rammers. Powder	Hartley & Graham Co	21,765	Sept. 20	60	1747
Meat choppers and presses	Enterprise Manufacturing Company	21,599	Aug. 9	60	892
Meats, smoked and unsmoked, and all kinds used for human food.	Volunteer Chicago Beef Co	21,690	Aug. 23	60	1188
Medical compound for external and internal use for skin and blood diseases.	E. McFarland	21,640	Aug. 16	60	1049
Medical compound for the cure of lung and throat diseases	Vapo-Cresolene Company	21,647	Aug. 16	60	1050
Medicated cotton	J. W. Johnson	21,629	Aug. 16	60	1048
Medicated cotton	J. W. Johnson	21,630	Aug. 16	60	1048
Medicated lotions and eye-waters	R. P. Stericker	21,775	Sept. 20	60	1748
Medicated plasters	Dr. David Kennedy Corporation	21,524	July 26	60	573
Medicinal beverage and sirups and extracts for forming the same.	F. H. Perkins	21,568	Aug. 2	60	734
Medicinal compound the basis of which is the chlorides of gold and sodium.	McCrory & Taylor	21,529	July 26	60	573
Medicinal compounds for external use	J. Lauffer	21,784	Sept. 27	60	1881
Medicinal plasters	F. Mers	21,730	Sept. 6	60	1476
Medicinal remedies. Certain named	F. & D. Racicot	21,406	July 5	60	151
Medicinal sirup	W. H. Winslow	21,649	Aug. 16	60	1050
Medicine for certain named diseases	A. L. Worden	21,519	July 26	60	572
Medicine for internal use for dyspepsia, nausea, and all derangements of the enteric and urinary systems.	Saltonia Pharmacal Company	21,528	July 26	60	573
Medicine in tablet, lozenge, or other solid form	L. A. Matos	21,416	July 5	60	155
Medicines. Cough	Dr. Seth Arnold Medical Corporation	21,761	Sept. 20	60	1747
Medicines. Line of	Arkwright Medicine Co	21,731	Sept. 13	60	1607
Metal. Antifriction	Electricon Metal Company	21,708	Aug. 30	60	1324
Metal. Babbitt	A. W. Day	21,709	Aug. 30	60	1324
Metal polish	S. Kidder	21,673	Aug. 23	60	1186
Milk. Condensed	W. Johnston	21,660	Aug. 23	60	1185
Mineral water	St. Leon Mineral Water Company	21,693	Aug. 30	60	1323
Mineral water. Natural	J. Schnuettgen	21,741	Sept. 13	60	1607
Mineral waters	Carse & Ohlweiler	21,475	July 19	60	434
Monthly serial or family paper	E. J. Smith	21,468	July 19	60	433
Monuments, architectural trimmings, and various cut stones	W. H. Perry	21,554	Aug. 2	60	733
Oil and grease. Lubricating and machine	C. H. Beely	21,669	Aug. 23	60	1186
Oil. Castor	Indianapolis Drug Co	21,436	July 12	60	293
Oil fabrics	Lyon, Hall & Co	21,614	Aug. 16	60	1047
Oil. Illuminating or burning	C. Kimber	21,450	July 12	60	294
Oil. Lubricating	A. W. Harris	21,561	Aug. 2	60	734
Oil. Lubricating	H. W. Peabody & Co	21,486	July 19	60	435
Oils. Coal-tar	Geisenheimer & Co	21,534	Aug. 2	60	732
Outer and under garments. Misses' and children's	I. D. Jaynes	21,570	Aug. 9	60	890
Outer garments for men and children	A. Kirschbaum & Co	21,778	Sept. 27	60	1881
Overalls, pantaloons, suspenders, scarfs, collars, and cuffs. Men's	Plant & Isaac	21,503	July 19	60	436
Packings. Flange	A. W. Case	21,605	Aug. 16	60	1046
Pantaloons and overalls. Men's	Cowan, Magill & Co	21,685	Aug. 23	60	1187
Pants and overalls	J. G. Lewis	21,718	Sept. 6	60	1475
Paper and envelopes. Fine writing	G. B. Hurd & Co	21,403	July 5	60	153
Paper and envelopes. Writing	G. B. Hurd & Co	21,402	July 5	60	154
Paper bags	Union Bag and Paper Company	21,454	July 12	60	294
Paper. Blotting	Eaton, Dikeman & Co	21,612	Aug. 16	60	1047
Paper. Blotting	Eaton, Dikeman & Co	21,613	Aug. 16	60	1047
Paper, envelopes, and fine card-board. Writing	Hard & Pike	21,754	Sept. 20	60	1747
Paper, envelopes, cards, blank books, and paper badges	B. A. Johnson	21,601	Aug. 9	60	892

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pea-soup. Compressed	C. W. Kopf Company	21,508	July 19	60	436
Pea-soup. Compressed	C. W. Kopf Company	21,509	July 19	60	436
Pencils, comprising lead-pencils and pencil and pen holders	American Lead Pencil Company	21,480	July 19	60	434
Perfumery	Bean & Vail Brothers	21,473	July 19	60	434
Perfumery	Bean & Vail Brothers	21,474	July 19	60	434
Perfumery	Bean & Vail Brothers	21,542	Aug. 2	60	732
Perfumes, powders, soaps, and toilet articles generally	A. Wright	21,532	July 26	60	574
Phosphated beverages	Ladd & Coffin	21,437	July 12	60	293
Photographic dry-plates	Rose Bros	21,687	Aug. 23	60	1188
Photographic paper	L. H. Baekeland	21,596	Aug. 9	60	892
Photographic paper	E. Liesegang	21,430	July 12	60	293
Photographic paper, plates, and chemicals	A. Schwarz	21,409	July 5	60	155
Photographic prints	A. Schwarz	21,572	Aug. 9	60	890
Pills	G. F. E. Pearsell	21,787	Sept. 27	60	1881
Pills, capsules, and tablets	W. T. Hanson Company	21,652	Aug. 23	60	1185
Pills used in kidney complaints	McKesson & Robbins	21,755	Sept. 20	60	1747
Pineapples	J. H. McKee	21,679	Aug. 23	60	1187
	Indian River and Lake Worth Pineapple Growers Association.	21,446	July 12	60	294
Plasters. Adhesive	A. H. Keller	21,566	Aug. 2	60	734
Plastic material composed in part of pyroxyline	Celluloid Company	21,682	Aug. 23	60	1187
Plastic material composed in part of pyroxyline	Celluloid Company	21,683	Aug. 23	60	1187
Plush. Silk	Sir Titus Salt, Bart., Sons & Company	21,453	July 12	60	294
Polishing preparation	Zucker & Levett Chemical Company	21,518	July 26	60	572
Powder for causing the smoking out of rats, rabbits, &c	L. Bossle	21,670	Aug. 23	60	1186
Prints and reproductions by photomechanical processes	C. B. Woodward	21,547	Aug. 2	60	733
Publication. Monthly	M. N. Forney	21,721	Sept. 6	60	1475
Razors	Broch & Thiebes Cutlery Co	21,472	July 19	60	434
Razors and pocket and carving knives	H. Boker & Co	21,478	July 19	60	434
Remedies. A line of	J. Williams, Jr	21,760	Sept. 20	60	1747
Remedies. Catarrh	O. P. Smith	21,589	Aug. 9	60	891
Remedies for the relief of diseases affecting the mucous membrane of throat, head, and lungs	E. J. St. Hilaire	21,410	July 5	60	155
Remedies. Temperamental	J. H. Patty	21,767	Sept. 20	60	1748
Remedy for catarrh and all diseases of the throat, lungs, and bowels	R. M. Davis	21,762	Sept. 20	60	1747
Remedy for constipation, diseases of the liver, kidneys, bowels, skin, and blood. Fluid	W. F. Harris	21,678	Aug. 23	60	1187
Remedy for consumption and all diseases of the lungs. Fluid	Mrs. S. D. Chapman	24,459	July 19	60	433
Remedy for diseases of the blood and kidneys	H. C. Southworth	21,433	July 12	60	293
Remedy for diseases of the eye	Dr. David Kennedy Corporation	21,559	Aug. 2	60	734
Remedy for diseases of the stomach and bowels and other painful disorders	Dr. David Kennedy Corporation	21,525	July 26	60	573
Remedy for diseases of women	F. A. Whitney	21,798	Sept. 27	60	1882
Remedy for dog-distemper	Taylor & Severance	21,597	Aug. 9	60	892
Remedy for general debility and for diseases of the genital organs	R. Hudnut	21,535	Aug. 2	60	732
Remedy for gonorrhea, gleet, leucorrhea, and the like	W. L. Cochran	21,548	Aug. 2	60	733
Remedy for nervous disorders	W. H. Gannett	21,516	July 26	60	572
Remedy for nervous disorders	W. H. Gannett	21,583	Aug. 9	60	891
Remedy for neuralgia, rheumatism, headache, and fevers	H. Brinckerhoff	21,791	Sept. 27	60	1882
Remedy for rheumatism	Purinton Medicine Co	21,549	Aug. 2	60	733
Remedy for rheumatism	H. S. Searle	21,616	Aug. 16	60	1047
Remedy for the croup	C. A. Beldin	21,565	Aug. 2	60	734
Remedy for the cure of rheumatism	Swiss Medicine Co	21,424	July 5	60	156
Remedy for throat diseases	M. Scott	21,428	July 19	60	435
Remedy. Topical	C. Hesse	21,536	Aug. 2	60	732
Ribbons. Satin and velvet	Passavant & Co	21,711	Aug. 30	60	1324
Rope, cordage, and twine. Cotton	Porterdale Mills	21,740	Sept. 13	60	1607
Rubber belting	Boston Woven Hose and Rubber Company	21,713	Aug. 30	60	1324
Salt from Great Salt Lake for bathing purposes	M. W. Hopkins	21,429	July 12	60	293
Salve	Bickmore Gall Cure Company	21,456	July 19	60	433
Saws	Shurly & Dietrich	21,688	Aug. 23	60	1188
Saws	Shurly & Dietrich	21,689	Aug. 23	60	1188
Saws of all kinds	E. C. Atkins & Company	21,622	Aug. 16	60	1048
Saws, tools, files, and steel	Henry Disston & Sons	21,515	July 26	60	572
Scalp-wash	L. A. Smith	21,654	Aug. 23	60	1185
Scouring and cleaning powder	T. Armstrong	21,471	July 19	60	434
Sedlitz-powders	J. F. Gibson	21,764	Sept. 20	60	1747
Seeds and plants	Oasis Nursery Company	21,735	Sept. 13	60	1607
Sewing-machines	C. G. Akam	21,481	July 19	60	434
Sewing-machines	Cash Buyers' Union	21,650	Aug. 23	60	1185
Sheet-metal ware. Enameled	H. Aich	21,624	Aug. 16	60	1048
Shirts, collars, and cuffs. Men's	Miller, Hall & Hartwell	21,405	July 5	60	154
Shirts. Dress and negligée	Missoula Mercantile Company	21,723	Sept. 6	60	1475
Shirts. Linen	N. Hannach	21,569	Aug. 9	60	890
Shoes	C. Treadwell	21,646	Aug. 16	60	1049
Silks, ribbons, and silk threads. Broad	W. G. Hitchcock & Co	21,415	July 5	60	155
Silverware. Solid table and other	Ludwig, Redlich & Co	21,423	July 5	60	156
Sirup. Worm	Dr. David Kennedy Corporation	21,657	Aug. 23	60	1185
Smoking-pipes	Hirschl & Bendheim	21,578	Aug. 9	60	890
Snuff	Bruton & Condon	21,604	Aug. 16	60	1046
Soap and other cleaning and detergent preparations	J. T. Robertson Soap Company	21,425	July 5	60	156
Soap. Cleaning and disinfecting	H. C. Stewart	21,546	Aug. 2	60	733
Soap, face-powder, face-cream, tooth-powder, and perfumes. Toilet	Bippus & Breidenbach	21,522	July 26	60	573
Soap for laundry and household use	T. Armstrong	21,455	July 19	60	433
Soap. Laundry	Benjamin Brooke & Company	21,671	Aug. 23	60	1186
Soap. Laundry	Benjamin Brooke & Company	21,676	Aug. 23	60	1187
Soap. Laundry	Reade Manufacturing Co	21,749	Sept. 13	60	1608
Soap. Laundry and toilet	Beach Soap Co	21,738	Sept. 13	60	1607
Soap. Toilet	Sylan Toilet Co	21,618	Aug. 16	60	1047
Soap. Toilet and laundry	H. C. Davis, Jr., & Co	21,493	July 19	60	435

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Soaps, washing fluids, and powders. Toilet, laundry, and scouring	Kendall Manufacturing Company	21,404	July 5	60	154
Soda. Bicarbonate of	N. Waterbury	21,575	Aug. 9	60	890
Soda-water preparation	W. A. Henninger	21,607	Aug. 16	60	1046
Specific for gout, rheumatism, and kindred diseases	Rens & Henry	21,707	Aug. 30	60	1324
Spool-cotton	William Clark Company	21,539	Aug. 2	60	732
Spool-cotton	William Clark Company	21,540	Aug. 2	60	732
Stamps for delivery by a coin-controlled machine. Frangible boxes containing postage	United States Postage Stamp Delivery Company.	21,746	Sept. 13	60	1608
Stamps. Frangible boxes containing postage	United States Postage Stamp Delivery Company.	21,788	Sept. 27	60	1881
Stone and its compositions. Artificial	Pyrolith Company	21,579	Aug. 9	60	890
Stoves. Oil or gas	Central Oilgas Stove Company	21,703	Aug. 30	60	1323
Straw lumber	A. S. Church	21,744	Sept. 13	60	1608
Supporter for ladies' underwear	L. P. Sigabee	21,674	Aug. 23	60	1187
Tablets for throat and lung diseases	Kurum Chemical Co	21,722	Sept. 6	60	1475
Tablets for use in dyspepsia and stomach troubles	Luyties Homœopathic Pharmacy Company.	21,780	Sept. 27	60	1881
Tea	L. H. Parke & Co	21,432	July 12	60	293
Tea. Blended	L. H. Parke & Co	21,431	July 12	60	293
Tea, coffee, and spices	W. C. King	21,543	Aug. 2	60	733
Thimbles	Stern Bros. & Co	21,408	July 5	60	154
Thread. Linen	Finlayson, Bousfield & Co	21,420	July 5	60	155
Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	Kerr Thread Company	21,411	July 5	60	155
Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	Kerr Thread Company	21,412	July 5	60	155
Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	Kerr Thread Company	21,664	Aug. 23	60	1186
Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	Kerr Thread Company	21,665	Aug. 23	60	1186
Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	Kerr Thread Company	21,666	Aug. 23	60	1186
Thread of cotton, silk, flax, and other fibrous materials for machine and hand sewing	Kerr Thread Company	21,667	Aug. 23	60	1186
Timber. Sawed	W. S. Keyser	21,448	July 12	60	294
Time-keeping and time-recording instruments	S. E. Thomas	21,684	Aug. 23	60	1187
Tin and roofing plates	Cleveland Tin Plate Co	21,656	Aug. 23	60	1185
Tin and terne plates	Merchant & Co	21,705	Aug. 30	60	1324
Tin and terne plates, including roofing-plates and bright plates	C. S. Mersick & Co	21,507	July 19	60	436
Tobacco. Plug	J. G. Penn, P. P. Watson, and A. D. Witten.	21,768	Sept. 20	60	1748
Toilet cream, lotions, and powder deodorants	E. Lewis	21,779	Sept. 27	60	1881
Toilet preparations. Certain named	J. S. Lurie	21,544	Aug. 2	60	733
Toilet preparations for beautifying the complexion	J. C. Flowers and C. S. Witwer	21,659	Aug. 23	60	1185
Toilet preparations, not including face-powder	M. V. Botts	21,672	Aug. 23	60	1186
Tonic. Liquid	M. J. Olsen	21,553	Aug. 2	60	733
Tonic. Liver	H. M. Henderson	21,641	Aug. 16	60	1049
Tonics	McAvoy Brewing Company	21,785	Sept. 27	60	1881
Tonics	E. Salbey	21,644	Aug. 16	60	1049
Tooth-powder	W. E. Burrows	21,428	July 12	60	293
Umbrellas and parts thereof	Samuel Fox & Company	21,643	Aug. 16	60	1049
Underwear and the knit and woven fabrics of which it is composed	Dr. Jaeger's Sanitary Woolen System Company.	21,500	July 19	60	436
Underwear, including hosiery	J. S. Lowrey & Co	21,766	Sept. 20	60	1748
Varnish. Picture	G. H. Story	21,588	Aug. 9	60	891
Varnishes and japans	National Varnish Company	21,610	Aug. 16	60	1046
Varnishes, paints, japans, and analogous materials or compounds	N. Z. Graves & Company	21,584	Aug. 9	60	891
Vaseline	Chesebrough Manufacturing Company.	21,727	Sept. 6	60	1476
Vegetables and green and dried fruits	Ryan & Richardson	21,563	Aug. 2	60	734
Veterinary medicines and preparations	S. Pettifer & Son	21,451	July 12	60	294
Veterinary medicines and preparations	S. Pettifer & Son	21,786	Aug. 9	60	891
Veterinary powders	A. Mitchell & Co	21,698	Aug. 30	60	1323
Veterinary remedies, including condition-powders for horses and cattle	E. A. Craighill & Co	21,492	July 19	60	435
Vinegar, pickles, catsups, chow-chow, mustard, and sauces	M. A. Gedney Pickling Company	21,742	Sept. 13	60	1607
Washing-machines. Hand-power	Boss Washing Machine Company	21,651	Aug. 23	60	1185
Washing-powder	T. Armstrong	21,470	July 19	60	434
Watches	Elgin National Watch Company	21,461	July 19	60	433
Watches	Elgin National Watch Company	21,462	July 19	60	433
Watches	Elgin National Watch Company	21,463	July 19	60	433
Watches	Elgin National Watch Company	21,464	July 19	60	433
Watches	Elgin National Watch Company	21,465	July 19	60	433
Watches	Elgin National Watch Company	21,801	Sept. 27	60	1882
Watches and jewelry	H. W. Wheeler & Co	21,725	Sept. 6	60	1475
Watches and portable clocks	W. C. Ball	21,625	Aug. 16	60	1048
Watches and portable clocks	W. C. Ball	21,626	Aug. 16	60	1048
Wheelbarrows. Metallic	J. C. McNeil Company	21,602	Aug. 9	60	892
Whisky	Wm. Bergenthal Company	21,594	Aug. 9	60	891
Whisky	A. Cowan	21,514	July 26	60	572
Whisky	W. H. Jones & Co	21,421	July 5	60	155
Whisky	W. H. Jones & Co	21,537	Aug. 2	60	732
Whisky	J. Miller & Co	21,545	Aug. 2	60	733
Whisky	J. Miller & Co	21,748	Sept. 13	60	1608
Whisky	T. Pease, Son & Co	21,504	July 19	60	436
Whisky	Renauld & Niederstadt	21,662	Aug. 23	60	1186
Whisky	Renauld & Niederstadt	21,663	Aug. 23	60	1186
Whisky	C. M. Roof	21,467	July 19	60	433
Whisky. Rye and bourbon	C. D. Smith Drug Company	21,737	Sept. 13	60	1607
Wine. Bitter	I. Massman	21,418	July 5	60	155
	J. Kolin	21,609	Aug. 16	60	1046

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Wine. Sherry	E. Feldmann	21,466	July 19	60	433
Wines. Portuguese	Companhia Geral D'Agricultura dos Vinhos do Alto Douro.	21,716	Sept. 6	60	1475
Wines. Vegetable ferment for the manufacture of	F. Chavanty	21,627	Aug. 16	60	1048
Wringers	American Wringer Company	21,590	Aug. 9	60	891
Wringers	American Wringer Company	21,591	Aug. 9	60	891
Wringers	American Wringer Company	21,592	Aug. 9	60	891
Yarn. Cotton	American Wringer Company	21,593	Aug. 9	60	891
Yarns. Cotton	Sanford Spinning Company	21,745	Sept. 13	60	1608
	McConnel & Company	21,796	Sept. 27	60	1882

DISCLAIMER.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Vol.	Page.
Air-pumps	H. and F. G. A. Schulze-Berge	428,638	May 27, 1890	Sept. 2, 1892	60	1484

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